SUPPLEMENT NO. 2

ADDITIONS AND RENOVATIONS
HC WILCOX REGIONAL VOCATIONAL TECHNICAL SCHOOL
STATE PROJECT NO. BI-RT-843-CMR

GILBANE JOB NO. 11.5311.000

October 25, 2011

Bid Package Name & Number

02A Demolition & Abatement – SBE Set Aside	10A Signage
03A Cast in Place Concrete – SBE Set Aside	10B Toilet Compartments/Accessories
04A Masonry – SBE Set Aside	10C Accordion Folding Partitions
05A Structural Steel	10D Lockers
05B Miscellaneous Metals – SBE Set Aside	11A Stage Curtains
06A Millwork/Casework	12A Laboratory Casework
07A Roofing & Metal Panels – SBE Set Aside	13A Portable Classrooms
07B Spray Applied Fireproofing	14A Elevators
08A Glass & Glazing	21A Fire Protection
08B Doors, Frames, & Hardware	22A Plumbing
09A Drywall & Related Work	23A HVAC
09B Ceramic Tile – SBE Set Aside	23B Testing & Balancing
09C Carpet & Resilient Flooring – SBE Set Aside	26A Electrical
09D Acoustic Ceilings – SBE Set Aside	31A Sitework
09E Painting & Wallcovering – SBE Set Aside	32A Landscaping – SBE Set Aside

The following items are hereby made part of the bid documents for the H.C. Wilcox Technical High School Additions and Renovations Project:

General Items (Applies to all bid packages)

1. The bid date and time remain unchanged. Sealed bids will be received at Gilbane Building Company, 208 New London Turnpike, Glastonbury, CT 06033 until 2:00 p.m. at the prevailing local time November 1, 2011. The public opening will occur at 3:00 p.m. in the main and auxiliary gymnasiums of H.C. Wilcox Technical High School, Meriden, CT.

2. Additions and Alteration HC Wilcox Technical High School Addendum No. 1 dated October 24, 2011, attached.

3. Reference Specification Section 10 1100 Visual Display Board; American Visual Display has been added as an acceptable manufacturer.

4. Reference Specification Section 10 5113 Metal Lockers, 2.3, C.; Republic Storage Systems, LLC has been added as an acceptable manufacturer.

5. Reference Specification Section 12 3553 Wood Laboratory Casework; Leonard Peterson & Co., Inc. has been added as an acceptable manufacturer.

6. Subsequent to the award of a contract, one printed, conformed set of plans and specifications will be issued for use as the construction documents. The conformed set of plans and specifications will include incorporation of all information/clarifications issued during bidding. It will not include new, added work. Include all costs to reproduce as needed and review and confirm inclusion of the conformed set of plans and specifications as the basis of contract. Once approved, an amendment incorporating the conformed set into the contract will be issued.

7. Include all costs and requirements for training of Owner personnel as may be required by the contract documents. The Construction Manager will arrange and provide the video recording of the training sessions. Coordinate accordingly.

8. Note that in accordance with applicable State statute, all bidders, inclusive of set-aside bidders, are required to provide a documented best faith effort to include SBE and MBE participation. The minimum goals are 25% of the awarded value to SBE firms with 6.25% of the awarded value to MBE firms, unless bid package specific values are different, in which case those values would prevail. See also the addition of Article 12.5 to the revised sample contract, issued herein.

9. RFI Details report, dated "Printed on 10/25/2011 10:40:10 AM", attached.

10. Suspected Asbestos Containing Materials Tables dated October 25, 2011, attached.

11. Equipment Catalog Cuts dated October 25, 2011, attached.

12. Delete Gilbane Project Manual Section 00 01 10.1 Table of Contents dated October 17, 2011 and replace with 00 01 10.1 Table of Contents dated October 25, 2011, attached.

13. Delete Gilbane Project Manual Section 00 42 26-09A Drywall & Related Work Proposal Form dated October 17, 2011 and replace with 00 42 26-09A Drywall & Related Work Proposal Form dated October 25, 2011, attached.

14. Delete Gilbane Project Manual Section 00 52 26 Sample Contract for Trade Contractor dated September 26, 2011 and replace with 00 52 26 Sample Contract for Trade Contractor dated October 25, 2011, attached. Note the addition of Article 12.5 incorporating statutorily required language into the contract.

15. The following RFI's:

    A. Q: A firm interested in bidding as a primer bidder also served as consultants to the A/E for the portion of the work upon which they wish to bid. Is it acceptable by the State to allow consultants to submit a bid for that work or would this be consider a conflict of interest?

    A: The applicable State statue is:

    > "CGS 4a-81 b) (1) The chief official of the bidder or vendor awarded a contract described in subsection (a) of this section or the individual awarded such contract who is authorized to execute such contract, shall attest in an affidavit as to whether any consulting agreement has been entered into in connection with such contract…"

    Such bidders must disclose that they were or are consultants in connection with the subject contract. Attach such disclosure to the bid submitted for the work in question.

RFI 00052A Q: Spec section 090160 3.1 does not indicate that other sport lines are required. Please confirm that only basketball lines are required as indicated on A1.05.

A: Recreate existing game lines for basketball and volleyball.

RFI 00053 Q: Only one specification exists for Resinous Flooring in spec section 096723 2.1. Please confirm that both the static dissipative VCT and regular VCT will follow the same specification.

A: There is no dissipative VCT. There is dissipative Resinous Flooring which is covered in another spec. section.

RFI 00054 Q: Please confirm location(s) of the rubber floor tile specified in 096519, 2.1, A is located. The one designation for rubber floor (RUBR at Stair A2) we can find in the Finish Schedule. It is our assumption that specification section 096513, 2.2 Resilient Stair Accessories covers the risers and treads, and 096519, 2.1 covers the landings. That said, on sheet A1.01, there is a cut shown through Stair A2, 6A/A6.04. 6A/A6.04 shows an existing terrazzo tread and new 16 gauge bent plate on the riser with the note "Paint to match existing riser" and does not indicate any rubber stair tread or riser. Which is correct, the Finish Schedule or the detail on A6.04. Please clarify.

A: Provide rubber flooring only at the first floor in Stair 2. Stair treads and landing including second floor remains as existing terrazzo finish. In drawing sheet D1.06, delete demo keynote "11" under Revision "0" in Stair 2.

RFI 00055 Q: Several floors are indicated to have a concrete finish in the Room Finish Schedule, is a concrete sealer desired at those locations? If yes, please provide a product specification.

A: See spec section Concrete 033000, 2.4 Related Material, Part E "Liquid Hardener Flash Densifier". this should be applied in the shop areas at all permanently exposed concrete floor surfaces. It increases abrasion resistance; provides low-sheen finish; lowers dusting.

RFI 00056 Q: Please verify signage text for door B186A, "1 ½" Undercut" does not look correct.

A: Delete the note. No signage text.

RFI 00057 Q: Reference A700 series drawings, please provide lengths for grab bars.

A: Refer to A0.01.

RFI 00058 Q: 7/A7.03, elevations A and E both show a shower curtain and rod. Specification section 102800 does not contain specs for either. Please confirm the curtain and rod are by the owner.

A: See P5.01. The product scheduled comes with the standard curtain rod. For shower curtain, please add 2.2 K under spec section 102800 as following;

K. Curtain: Flame-resistant, manufacturer's standard fabric that is stain resistant, self-sanitizing, antistatic, and antimicrobial; launderable to a temperature of not less than 90 deg F.
   1. Flame Resistance: Passes NFPA 701 tests when tested by a testing and inspecting agency acceptable to authorities having jurisdiction.
   2. Labeling: Identify fabrics with appropriate markings of applicable testing and inspecting agency.
   3. Curtain Grommets: Two-piece, rolled-edge, rustproof, nickel-plated brass; spaced not more than 6 inches o.c.; machined into top hem.
   4. Length: Where curtain extends to a floor surface, size so that bottom hem clears finished floor by not more than 1 inch and not less than 1/2 inch above floor surface.
   5. Color and Pattern: As selected by Architect from manufacturer's full range.

RFI 00059 Q: Reference A700 series drawings and specification section 102800, both include dispensers for consumables like paper towels, toilet paper, and hand soap; does the owner engage a supplier that provides these items thereby negating the need for them? We would like to confirm these items are not being double bought.

A: Confirmed, include all specified items.

Bid Package Specific Items

02A Demolition & Abatement

1. Include all costs to provide the Meriden required demolition permit.

22A Plumbing

1. Provide the DPCO drain, 8" PVC, foundation core, link-seal, and Fernco cap shown in SKP-102411-1. Also include the new well, the 1" pipe, and the 3" PVC conduit, and all related work and accessories. Furnish the well pump and turn over to Owner for installation. Excavation, backfill, and drilling spoils removal are by BP31A Sitework.

26A Electrical

1. Provide a temporary service from the street to the building for use as temporary power for construction activities. Do not use the existing building service for any purpose. Temporary power must remain active until the new, permanent service is installed and available for use after the completion of the two building additions. Include removal and disposal of all components when no longer needed. Include all permits and utility company fees. The cost of electric usage will be paid by the others. Assume temporary service to be overhead and include all needed poles, etc. Temporary power for renovations phases after completion of the new building additions shall be fed from the new "existing" building service.

31A Sitework

1. Provide the sand pit and bollards shown in SKL-1 and other related drawings. Assume the sand pit depth to be 3'-0". Also include all excavation, back-fill (inside building and out), and spoils removal associated with the well installation.

All other terms and conditions remain unchanged. Acknowledge your receipt and inclusion of this Supplement No. 1 on the proposal form in the space provided.

Sincerely,
GILBANE BUILDING COMPANY

Patrick J. Delany
District Chief Purchasing Agent

Cc: Jobsite
M. Rubbo – Gilbane
R. Van Akin – Gilbane
Project Distribution List
File

ADDENDUM NO. 1

Date: October 24, 2011

Project: Additions and Alterations HC Wilcox Technical High School

State Project Number: BI-RT-843

Owner: State of Connecticut

Architect: Tai Soo Kim Partners, LLC.

Construction Manager: Gilbane Construction Co.

The following changes take precedence over anything to the contrary in the Drawings and Specifications:

Addendum #1 Contains:

- Architectural Sketch: SKA-1
- Landscape/Civil Sketch: SKL-1
- Plumbing Sketch: SKP-102411-1

Specification Changes:

Section 085113 – Aluminum Windows

Paragraph 1.6, DELETE sentence E.1.

Paragraph 2.1 A., CHANGE EFCO Corporation, Shadowline Thermal AP-HC45 Series to EFCO WV-410 Series.

Paragraph 2.4 B., DELETE and insert the following:
Lock: Lift-type throw, cam-action lock with keeper; minimum one per ventilator.

Section 087100 – Door Hardware

Hardware Set #70, DELETE and insert the following:

1 Cylinder Core	8027 CKC2	630	CR
1 Mortise Cylinder	1080 CT6	626	CR

Add the following Set #71:

6 Hinges	TA2714 4 1/2 X 4 ½	26D	MC
2 Flush Bolt	FB01M	26D	MC
1 Fire Exit Device	ED5657AL PR9M57 CT6R M21	630	CR

1 Cylinder Core	8027 CKC2	630	CR
1 Surface Closer	DC8210 A3	689	CR
2 Wall Stop	WS01	32D	MC
1 Dust Proof Strike	DPS3	26D	MC
2 Door Silencers	S1M		MC

Section 123553 – Wood Laboratory Casework

Paragraph 2.7 B., ADD hinge type Semi-Concealed hinge, B01521.

Drawing Changes:

A11.01

CHANGE Door Hardware number from 68 to 70 on door B122A and B122B.

A11.02

For door C152, CHANGE Saddle detail type from "T2" to "T5" and ADD the following:
Fire Rating: 45 min.
Positive Latching: YES
Automatic Closer: YES
Lever, U-Handle: YES
Tactile Warning: YES
Accessible Threshold: YES
Signage Text: ELECTRICAL
Hardware Number: 71

A1.03

Add Steel Bollards per SKA-1.

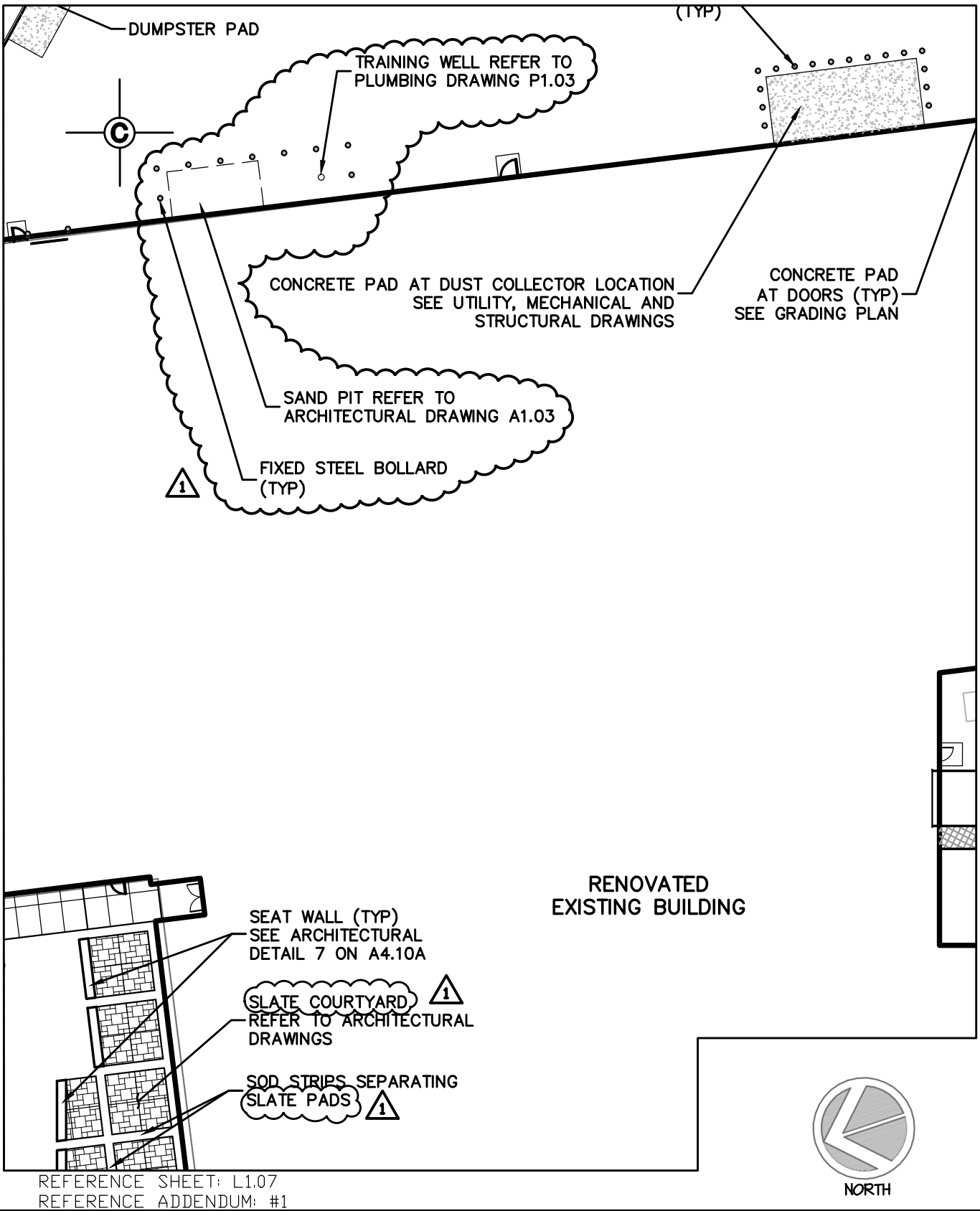
L1.07

Add Sand Pit and Steel Bollards, and Change the note from Blue Stone to Slate per SKL-1

P1.03

Add PVC Piping and Sleeve per SKP-102411-1.

END OF ADDENDUM NO. 1



REFERENCE SHEET: L1.07
REFERENCE ADDENDUM: #1

TAI SOO KIM PARTNERS
TAI SOO KIM
146 Wyllys Street
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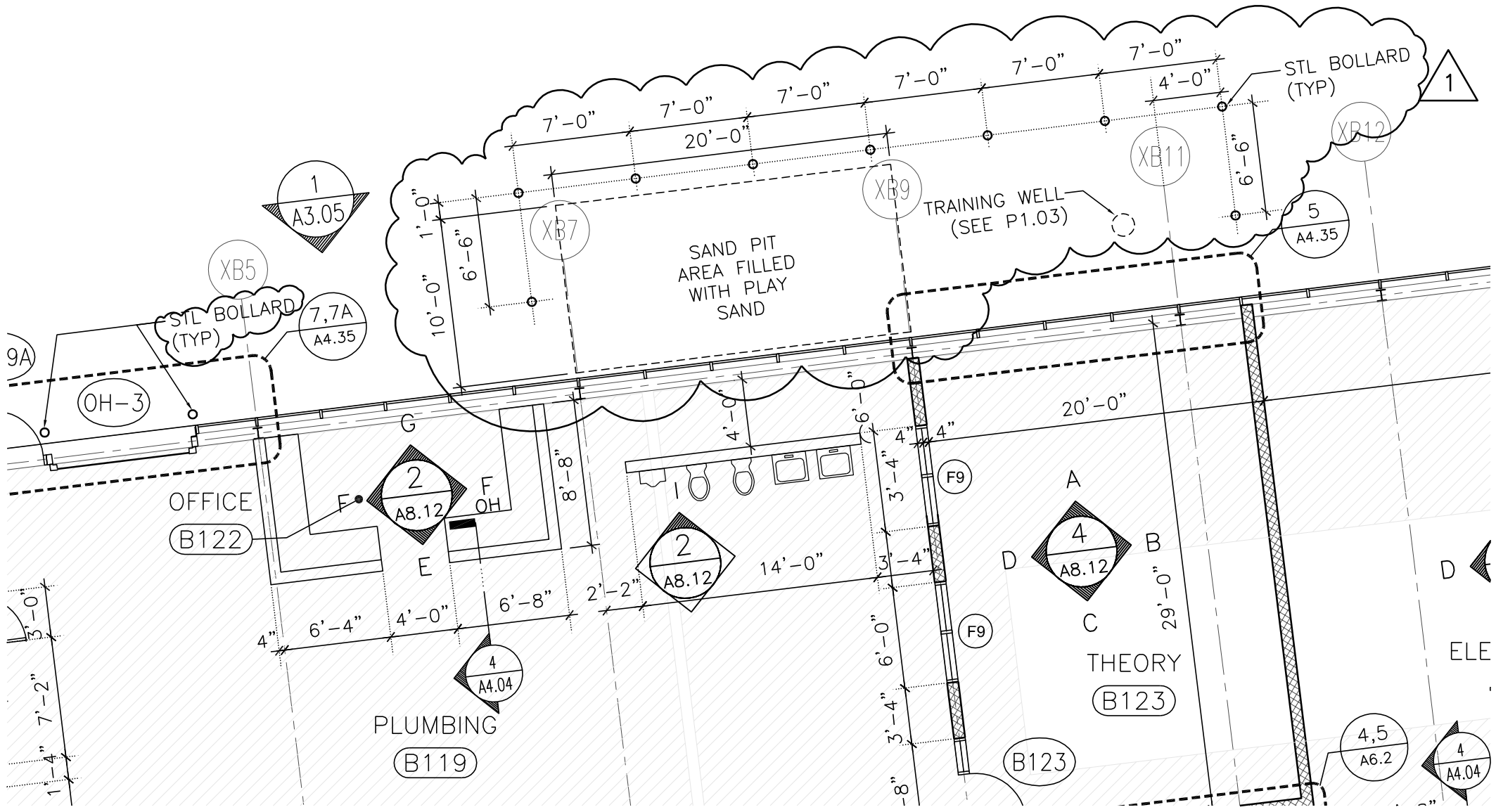
Tel: (860) 547-1970
Fax: (860) 249-0695

JOB NAME/NUMBER	TITLE	DRAWING NO.
H.C. WILCOX TECHNICAL HIGH SCHOOL/BI-RT-843	SITE MATERIALS – ADDITIONS & REVISIONS	SKL-1
SCALE: 1" = 30'		
DATE: 10/24/2011		



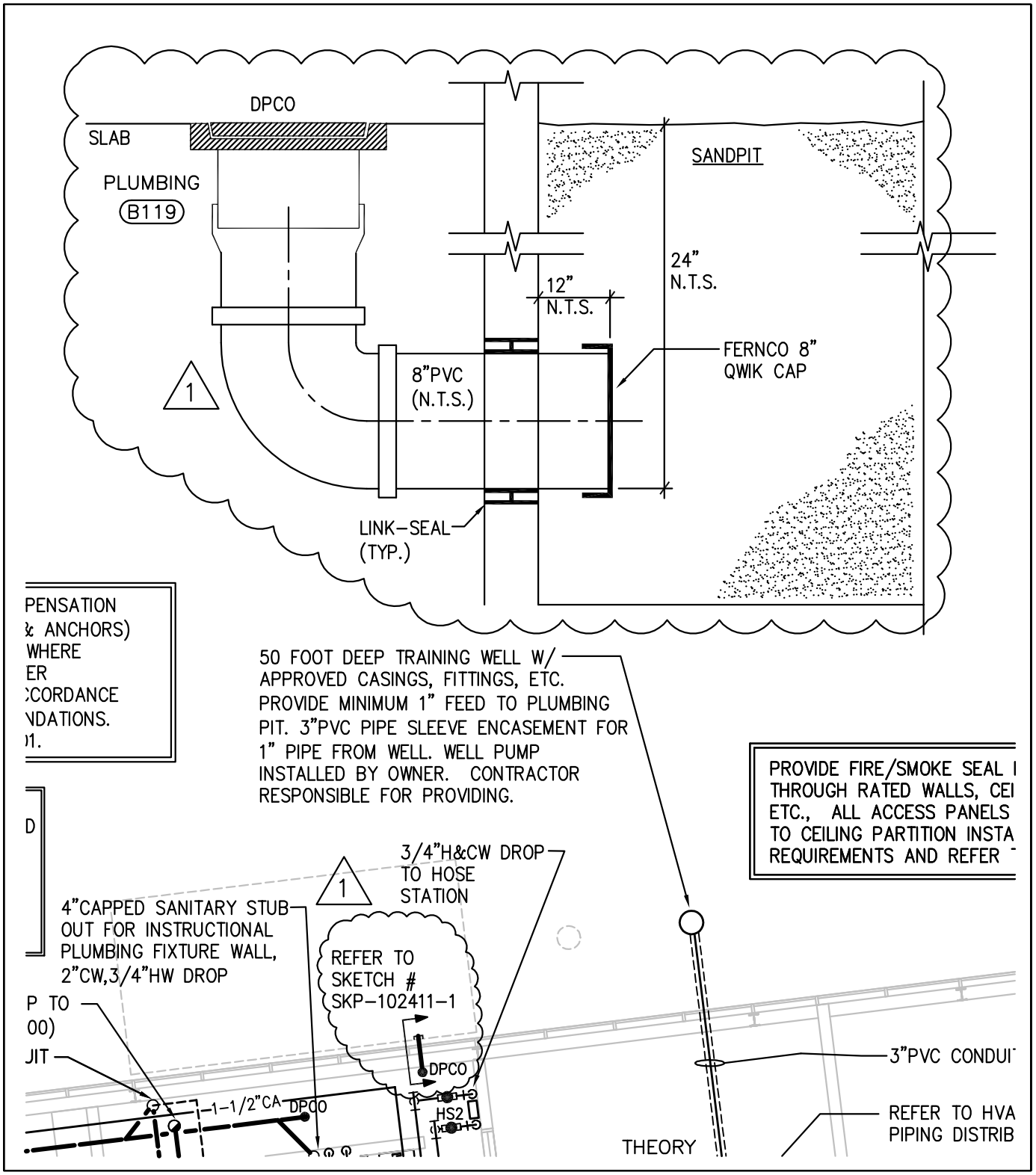
1 FIRST FLOOR PLAN - AREA "B"

SCALE: 1/8"=1'-0"

REFERENCE SHEET: 1/A1.03
REFERENCE ADDENDUM: #1

TAI SOO KIM PARTNERS
146 Wyllys Street
Hartford, Connecticut
Tel: (860) 547-1970
Fax: (860) 249-0695

JOB NAME/NUMBER	TITLE	DRAWING NO.
H.C. WILCOX TECHNICAL HIGH SCHOOL/BI-RT-843	FIRST FLOOR PLAN AREA "B"	SKA-1
SCALE: 1/8" = 1'-0"		
DATE: 10/24/2011 ISSUED:		



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1 10/24/11 – ADDENDUM #1

PROJECT HC WILCOX/BI-RT-843 SKETCH NUMBER SKP-102411-1

PROJECT NUMBER 0532 DATE 10/24/11 REVISION TO SHEET NUMBER P1.03

RFI Details

Project Name	H.C. Wilcox Technical High School, Additions & Renovations	Project Number	BI-RT-843

RFI # 1 — Pipe decontamination — **9/16/2011**

Discipline:	Category:	Priority:
	Contract Document Clarifications	Normal

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Randall Luther	Gilbane Building Company	Phaedra Caouette

Question

Please advise if any of the piping requires decontamination before it can be demolished.

Answer

Obviously, any piping that is covered with an asbestos insulation would need to be properly abated prior to demolition. Pipe that is painted with paint that contains any level of lead is excluded from the RCRA regulations as long as it is properly recycled. If there is any indication during demolition that the subject piping or some pipe traps may have some chemical residuals within then the contractor shall dispose of material in accordance with State of Connecticut DEP and Federal RCRA guidelines as stated in the Hazardous Items specification 02 81 00.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 2 — Vapor Barrier — **9/16/2011**

Discipline:	Category:	Priority:
	Specification Clarification	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question **Due: 9/23/2011**

Please provide a specification for the vapor barrier.

Answer

Refer to Spec Section 033000, 2.4B.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 13	Plumbing demo

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question

On drawing PD1.04 there is a note adjacent to Room B156 which reads"General Contractor to verify any additional plumbing fixtures slated for removal. Coordinate with Architect & Owner." What is the expectation here, that there may be more to demo than what has already been shown on the drawings? The same note appears on PD1.06.

Answer

The Intent of this note is to cover the removal of any existing piping, fixtures, and etc. not indicated in the drawings.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 14	Science casework glazing	9/19/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question

Section 2.3.B of thelab casework specification 123553 calls for doors to be glazed. Several of the drawing elevations (5B, 7B, 7D/A8.07, for example) seem to show upper cabinets with glazing in the doors. The cut through these sections, however, shows a flush panel door (1/A9.01). Please clarify whether hese doors are glazed.

Answer

Upper cabinet doors to be glazed. The detail keys deleted in A8.07. Refer to the revised A8.07.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 3	Rigid insulation thickness	9/19/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question

PLease clarify what is the intended thickness of the 4'-0" of rigid insulation at the perimeter of the SOG?

Answer

Thermal Break. Insulation Thickness is 2" and 4' Wide coverage along the perimeter of SOG.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 4	Masonry seismic bracing	9/19/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
Do typical masonry seismic bracing details on S0.05 apply to new walls only or is it the intent to structurally reinforce any existing masonry walls?	Applicable to New Construction.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 5	Aluminum sunshade grille	9/19/2011

Discipline:	Category:	Priority:
	Specification Clarification	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
Please provide a specification for the aluminum sunshade grille on the roof (see A4.06).	Refer to revised Spec Section 057500.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 6	Stage floor/stairs	9/19/2011

Discipline:	Category:	Priority:
	Contract Document Discrepancies	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Randall Luther	Gilbane Building Company	Phaedra Caouette

Question	Answer
Details 4 and 5 on A9.02 show new stage flooring and stair nosings. The plans do not indicate any work in the stage area. Please clarify.	VOID. See RFI 006A. Refer to 1/A8.10 andrevised A10.01.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 7	Aluminum sunshade cover/cap	9/19/2011

Discipline:	Category:	Specification Clarification	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
Please provide a specification for the aluminum sunshade cover/cap (see 1/A4.04).	Sunshade cap or Sun Cover is a part of structural glass curtain wall system.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 8	Roof expansion joint detail	9/19/2011

Discipline:	Category:	General Contractor Request	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
Several details for the roof expansion joint on drawing A1.17 show stud and insulation.Would it be acceptable to use blocking in lieu of the stud and insulation shown?	Yes. Wood blockings can be used, but cost concerned.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 9	Flammable storage cabinets	9/19/2011

Discipline:	Category:	Contract Document Clarifications	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
The equipment schedule on drawing A12.09 calls for a flammable storage cabinet (item #SC-1) in the science prep rooms. This item is not defined in the equipmentspecification. Please clarify and advise if this cabinet is vented.	Science Prep rooms' flammable storage cabinets added in the spec section 115000. Refer to the revised spec section 115000.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 10	Installation of Owner furnished equipment	9/19/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question

On drawing A12.09, there are several items labeled as Owner furnish, GC install. There are no specifications or drawings that indicate the extent of the installation required or is it the intent that by GC install it is only meant to connect the equipment to power or mechanical systems and that the Owner will be setting the equipment in place? Also, there does not appear to be a specification for item AB16 (Spray/Breathing Air System with Masks).

Answer

Yes. Owner will set equipment in place. For AB16(Spray/Brathing Air System w/ Masks), the Breathing Air Purifier specified. AB16 shall be provided with Spray Booth.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 11	VFD temperatures	9/20/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question

The VFD spec (232914) calls for an ambient of 0 to 40 degrees C. The associated air handler spec (237200) has them as exterior (roof) mounted. Same thing for a couple of exhaust fans. Is the intent that they be provided iwth heated/cooled enclosures for those applications to keep the VFD within its ambient limits?

Answer

VFDs shall be provided w/ enclosures and rated for the locations they are installed.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 12

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
ASME B31.1 vs B31.9. The specs make multiple references to both of these for HVAC & Plumbing piping and valves. Are there any services in the building that meet the temperature and pressure criteria that put them into the B31.1 class (we're presuming that they don't)? If yes, is the Owner aware that they need to engage a third party testing agent for welding inspection?	No. There are no services in the building that require compliance with B31.1.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 6A Stage floor

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
Details 4 and 5 on A9.02 indicate wood stage flooring in the Multipurpose Room A153. The finish schedule calls for VCT in the Multipurpose Room. Please advise which is correct.	Main space has VCT flooring and wood strip flooring for the platform area. Refer to revised A10.01.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 15 Folding partition **9/21/2011**

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
Please provide information on what the material is that surrounds the folding partition strike above the wood paneling (see details on A4.40).	1/2" plywood veneer around. Refer to revised A4.40.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 16	Tel/data conflict	9/28/2011

Discipline:	Category:	Priority:
	Drawing Discrepancies	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
Drawing T3.01 calls for two 4" conduits from existing IDF closet to temporary classroom trailers. Drawing T1.05 calls for three 4" conduits from data room C125 to portable classrooms. Which is correct, or is it both combined?	Run (2)4" conduits to trailers not (3).

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 17	Spray fireproofing	9/28/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
What is the thickness of the spray fireproofing? Or what is the design criteria for each area? The note on the Structural drawings refers you to the Architecturals and the details on the Architectural say to see theStructurals. The specifications do not mention thickness or design criteria.	The GC shall submit a spray-on fireproofing thickness schedule based on the required fire rating and on the geometry of the steel members to be coated.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 18	Edge of cement board	9/28/2011

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
Reference drawing A1.14, the note for the edge of cement board is not properly positioned in most details. Please correct.	Refer to Structural Drawing S1.08 and S1.09 for the sound attenuation cement board information.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 19	Project Name	9/28/2011

Discipline:	Category:	Priority:
	Contract Document Discrepancies	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
The project name on the cover sheets for the plans and specifications is different. Please correct.	Spec cover project name should match Drawing sets'.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 20		9/28/2011

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Gilbane Building Company	Phaedra Caouette	Gilbane Building Company	Phaedra Caouette

Question	Answer
Detail 10/A9.02; the elevation call-outs from inside the seating area are incorrect. Also, the elevations A and B contain section cuts with sheet numbers that do not exist. Please correct.	Change elevation key numbers as following; 10A/A9.03 to 10A/A9.02 and 10B/A9.03 to 10B/A9.02 In Millwork detail11/A9.01, upper shelf/counter as shown 8/A9.01 is missing. Add the same upper shelf/counter detail information as 8/A9.01.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 21

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
Reference drawing D1.10. Add note 22 to the area along column line XAD between lines XA1.5 and XA11.5. Coordinate extent with slab replacement note on drawings S1.01 and detail 5/S3.02.	Add note 22 and refer to 5/S3.02 for demo widthrange. And 5.S3.02 supersedes 1/A4.02A & 6/A4.21 for the foundation information.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 22 **9/28/2011**

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question

Reference drawing A2.11; please confirm that the housing around the light fixture and tying into the acoustic ceiling/drywall assembly in details 8, 9, 10, and 13 are part of the light fixture and not a separate housing. If they are a separate housing, please identify the specification section in which they are specified.

Answer

Housing is a part of lighting fixture.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 23 Existing electrical devices **9/28/2011**

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question

In the Cosmotology area the Contractor is instructed to reroute the existing tel/data to a new closet. On drawing T1.03 there is no such note in the shaded area.Do the existing closets remain intact? Please clarify what the intention is with respect to the existing tel/data.

Answer

Refer to Note 8 on any Electrical Demo Drawings for maintaining services to unaltered areas.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 5A	Aluminum sunshade grille

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
We are unable to find a specific reference to the aluminum sunshade grille in spec section 057500. Item 2.4 refers to a perforated metal sunshade, but this seems ot refer only to the metal panel shown in detail 2/A3.01. The original question refers to the sunshade grille at the roof level per detail 4/A4.06.	Our spec section was revised. Please see the recent downloaded spec from our ftp.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 7A	Aluminum sunshade cover/cap

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
We assume that the curtainwall contractor will be responsible for the sunshade covers, however, the curtainwall specification section 084426 does not make any reference to these covers. More information is required in order to properly buyout this item.	Sun cover needs to be .125 extruded 2 piece cover that is mechanically fastened to the curtainwall system by curtainwall manufacturer.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 24	Sprinklers in portable classrooms

Discipline:	Category:	Specification Clarification	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
Please advise if the modular classrooms are required to be sprinklered?	Sprinklers not required.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 25	Metal Bollards

Discipline:	05 50 00	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

05 50 00 2.10 – Spec calls for metal bollards with caps. Where are these to be installed. (Site spec 32 31 19 also calls for bollards which appears to be for all exterior locations)

Answer

Delete Metal Bollards from Spec section 055000. See landscape drawings and architectural plans for locations.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 26	Slate Paving

Discipline:	32 14 00	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question **Due: 10/15/2011**

32 14 00 2.3 – SLATE PAVING – Is this the specification for blue stone in the Courtyard? If not, where is the slate paving and is there a bluestone specification?

Answer

Slate paving is correct. Change Blue stone to Slate in the drawings.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 27	Temporary Administration Power

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question **Due: 10/14/2011**

E1.02 – This drawing shows power for the temporary administration space. We could not find a corresponding drawing that shows lighting for this same temporary space. Are we missing it somehow or does it need to be shown?

Answer

Intention is to use the final lighting as the enclosed offices are not full height.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 28	Existing Ceilings in Hairdressing Area	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Drawings D1.01 and A2.01 call forremoval and replacement of existing ceilings in Hairdressing and Cosmotology Areas to install new piping.What type of existing ceiling is this?		Combination of GWB & ACT ceiling. VIF.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 29	Radiant Ceiling Details	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Drawing A4.06 – Please provide details of how radiant ceiling intersects with both the roller shade and drywall soffit.		Roller shade mounted on the mullion.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 30	Motorized Roller Shades	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
On drawing A2.02, RoomA169 seems to show 4 motorized roller shades but also seems to omit a roller shade at the short curtain wall piece at Columns AJ and AM. Is this intended? Also E 1.02 only shows 2 motors for these 4 shades. Should this be corrected to be 4 motors?		Do not omit the shade at the shorter curtain walls near Grid AJ and AM. Shades are continuous along the curtain walls. Electrical Connection shown is for shade controller not each shade motor, one controller per side.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 31	Locker Room Ceiling	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
On drawing A2.05, in Locker Room C 118, the ceiling is shown to be cut and patched to install new roof drains. What type of ceiling is this?		Same ceiling type as Locker Room C106, ACT. VIF.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 32	Roller Shades at A153	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Section 1 on drawing A4.03 seems to show roller shades (non motorized) at the east wall of the Multi Purpose Room A153. These do not seem to show on the RCP nor on the Room Finish Schedule.and/or locations.		Shades are located as shown in 1/A4.03 along HM framed window wall, F14.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 33	Projector Power Requirements	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
On drawing A2.08,Rooms B202A and B202 show motorized projection screens, but the Electrical Drawing (E1.09) does not seem to show power for them. Please provide power requirements.		Motorized screens are not required. Delete the note from drawing A2.08.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 34	Spray on Insulation at Room A153	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Drawing A4.03calls for "Spray on Insulation" in Room A153. Please confirm that the appropriate material for this application is Specification Section 07 21 00 Item 2.5.		07 21 00 Item 2.5 is correct.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 35	Guard Rail Reference	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Section 1 on drawing A403 references drawing A6.05 forguardrail details.We believe it should reference A6.04. Please clarify.		Change the reference dwg number from A6.05 to A6.04.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 36	Radiant Panel Detail	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Reference detail 5 on drawing A4.08,please provide a detail for theintersection of the radiant panel with ACT and with the exterior wall.		Continuous "L" sitting on top of the mullion to pick up radiant panel as shown in the drawing.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 37	HM Transom Panel	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Elevation 3 on drawing A4.10 calls for a HM transom panel. However, the Door Schedule calls for glass at this location. Hollow metal appears to be the more appropriate detail as a light fixture is mounted within the panel. Please review and advise. If it is Hollow Metal please provide appropriate details and thickness of HM.		Only frame type F18D has glass above the door. See door A170 in the schedule and refer to 1G/A8.09.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 38	Split Form Concrete	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Detail 3 on drawing A4.37the split formed concrete enclosure note references "other locations shown on interior elevations". Can you please identify how we can locate these other locations.		Round columns shown in B186, B178, and B195. Refer to interior elevations.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 39	Galvanized Rebar Ladder Rungs	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Reference detail 15 on drawing A6.04. Please provide a detail of how the galvanized rebar ladder rungs are to be installed.		Grouted in the CMU back-up.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 40	Painting Existing Doors	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Note 1 on drawing A10.01indicates that all existing doors and frames to remain are to be painted. Is this true even if we are not performing other work within an area. It appears that the rooms that these doors are located in will not be painted.		Renovated area only.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 41	Existing Door Symbol	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Due: 10/14/2011	Answer
Reference drawing A11.02:What does the open Circle symbol mean next to the existing doors. Also, is the only work required on these doorsto install the new hardware indicated in the Hardware Column? And perhaps paint per note 16 above.		Doors with open circle dots are existing ones to remain.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 42	Angle 4"x3"x1/4" Base	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Reference drawing A10.02:Rooms B163 to 167 and B 170 to 177 include a note "Angle 4" x 3" x ¼" base. Can you provide a detail of what this is intending to signify?	Continuous steel angle is wall base and anchored to CMU walls. Horizontal leg of the angle overlaps wood flooring and allow wood to move underneath. Provide countersink holes for flat head sleeve anchors. Provide Hilti flat Phillips head sleeve anchor, type HLC-FPH ¼" x 2" or approved equal @ 32" o.c.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 43	Detention to Annex	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
PH1 MEPFP – What does Note 9 – "Detention to Annex" mean?	Change word "Detention" to "Extension".

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 44	Remove and prefinished panel	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
D1.09 – Detail 6 – What is meant by the note "Remove and prefinished panel"?	Change the note to "Remove existing prefinished panels & battens and provide new." Refer to demo note 23 and demo elevations.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 45	Submittal Bid. 1	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
A1.17 – Detail 13 – References Supplemental Bid 1. What is this in reference to?	Delete "Supplemental Bid No. 1".

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 46	Vertical Dashed Line	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
A1.20 – What is the vertical dashed line running up between the stud and sheetrock.	Face side of the batt insulation.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 47	Display Case Lighting	10/12/2011

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Spec Section 10 12 00 mentions power for display case lighting, are there any of these? there is a case in 101D but it does not mention Lighting.	Drawing E2.01 shows lighting in lobby display cases along with electrical connection to prewired display case outside of Admin Area A104B.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 48	Message Signage	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Spec section 0 14 63 calls out message signage, are there any locations of this on the drawings?	See L1.07, A3.06, and S1.05.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 49	Spray Booths	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Section 11 50 00- Are the spray booths complete installed units (single point power feeds only) or is filed wiring involved?	Multiple power sources are required. Refer to E1.04.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 50	Health Tech Headwalls	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Section 11 50 00 Equipment- Who is responsible for providing the headwalls at health tech?	See A12.09. Furnished by Owner and Installed by Contractor.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 51	Fume Hoods	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Fume Hoods (11 53 13)- are the air flow controls coming with the hoods (which 23A is just installing)?	Flow controls are provided by the ATC under Specification 230900-4.40-B.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 52	Gymnasium Line Striping	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Gymnasium C102 is scheduled to have the wood floor refinished. Specification section 090160 Wood Flooring Restoration requires game line striping. Drawing A1.05 indicates only basketball lines. Are other sports lines required? If yes, please provide details.

Answer

See spec section 090160 3.1. Game lines are to be recreated according to the lines in the existing gym. See attached email.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 53	Static Dissipative VCT	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Specification section 096519 contains specifications for rubber tile and standard VCT. The finish schedule requires static dissipative VCT or regular VCT, depending on location. Please provide a specification for the static dissipative VCT.

Answer

There is no dissipative VCT. See attached email.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 54	Rubber Floor Tile	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Please confirm location(s) of the rubber floor tile specified in 096519, 2.1, A is located. The one designation for rubber floor (RUBR at Stair A2) we can find in the Finish Schedule. It is our assumption that specification section 096513, 2.2 Resilient Stair Accessories covers the risers and treads, and 096519, 2.1 covers the landings. That said, on sheet A1.01, there is a cut shown through Stair A2, 6A/A6.04. 6A/A6.04 shows an existing terrazzo tread and new 16 gauge bent plate on the riser with the note "Paint to match existing riser" and does not indicate any rubber stair tread or riser. Which is correct, the Finish Schedule or the detail on A6.04. Please clarify.

Answer

Provide rubber flooring only at the first floor in Stair 2. Stair treads and landing including second floor remains as existing terrazzo finish. In drawing sheet D1.06, delete demo keynote "11" under Revision "0" in Stair 2.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 55	Concrete Floor Finish	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Several floors are indicated to have a concrete finish in the Room Finish Schedule, is a concrete sealer desired at those locations? If yes, please provide a product specification.

Answer

See spec section Concrete 033000, 2.4 Related Material, Part E "Liquid Hardener Flash Densifier". this should be applied in the shop areas at all permanently exposed concrete floor surfaces. It increases abrasion resistance; provides low-sheen finish; lowers dusting.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 56	Door Signage at B186A	

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Please verify signage text for door B186A, "1 ½" Undercut" does not look correct.	Delete the note. No signage text.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 57	Grab Bars	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Reference A700 series drawings, please provide lengths for grab bars.	Refer to A0.01.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 58	Curtain & Rod Specs	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

7/A7.03, elevations A and E both show a shower curtain and rod. Specification section 102800 does not contain specs for either. Please confirm the curtain and rod are by the owner.

Answer

See P5.01. The product scheduled comes with the standard curtain rod. For shower curtain, please add 2.2 K under spec section 102800 as following; K. Curtain: Flame-resistant, manufacturer's standard fabric that is stain resistant, self-sanitizing, antistatic, and antimicrobial; launderable to a temperature of not less than 90 degF. Flame Resistance: Passes NFPA701 tests when tested by a testing and inspecting agency acceptable to authorities having jurisdiction. Labeling: Identify fabrics with appropriate markings of applicable testing and inspecting agency. Curtain Grommets: Two-piece, rolled-edge, rustproof, nickel-plated brass; spaced not more than 6 inches o.c.; machined into top hem. Length: Where curtain extends to a floor surface, size so that bottom hem clears finished floor by not more than 1 inch and not less than 1/2 inch above floor surface. Color and Pattern: As selected by Architect from manufacturer's full range.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 59	Dispensers for Consumables	10/12/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek		

Question

Reference A700 series drawings and specification section 102800, both include dispensers for consumables like paper towels, toilet paper, and hand soap; does the owner engage a supplier that provides these items thereby negating the need for them? We would like to confirm these items are not being double bought.

Answer

Confirmed.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 60	2x2 Tile Color	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
What color group should be provided for the 2x2 unglazed mosaic floor tiled and for the 2x2 glazed ceramic wall tiles? The specifications do not designate a manufacturer, series or color.	Refer to 093000 2.2 and 2.3.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 61	Intercommunication System	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Spec Section 27 51 23 .50 (intercommunications and program systems) calls out Bogen, Jeron, Dukane, and Rauland as manufacturers. Further in the spec the individual components itemized are for another system (Telecore) that is not specified. Please advise which system is to be used. Secondly the system is specified as a 70 volt balanced line system, this is industrial standard but traditionally schools are done on a 25 volt system. Please advise which system is to be used.	Telecore is an acceptable manufacturer and 25 Volt systems are also acceptable.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 62	CCTV Cameras	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Looking at the drawings and specifications, there are CCTV cameras indicated on drawings, but not in the specifications. Same with the Area Refuges, and the two ‘local' PA systems.

Answer

CCTV is provided by Owner, we've provide infrastructure only. Area of refuge is spec on drawing E5.01 manufactured by "Talk-A-Phone" or equal.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 63	Governing Docs.	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Where there are conflicts between the A12.09 schedule and the MEP drawings, which documents will govern (unless directed otherwise because of sizing, sourcing, etc. our inclination would be that the trade drawings will govern) ? Drawings (e.g. P1.03 and the HVAC lab B102) show natural gas & LP gas to some of the appliances; the schedule makes no distinction between the two (presuming that the isolation valves shown on the drawing are above the units for drawing clarity, and they need to be located in the drops for access ?) Schedule reads for power for the H1 benches, but the drawings don't show it ?

Answer

Items that are indicated under the "Installed" as "Owner" indicate the Owner or School is to make final connections to the equipment from services left by the contractors. These pieces of equipment are teaching appliances. Refer to respective trades drawing for utility requirements and terminations.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 64	Owner Furnished GC Installes Equipment	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Where equipment is Owner furnished & GC installed the bidders will need to know more about the equipment (i.e. catalog cuts) in order to be able to bid competitively - example would be the automotive lifts (make & model at a minimum to understand assembly time required) Please provide cuts of all owner furnished GC installed equipment.

Answer

We would suggest that CM have some allowances for installation. All the product cuts will be provided by the owner.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 65	MIG Welders	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

MIG Welders are designated on A12.09 as owner furnished and owner installed. Please confirm that any inert gas required for these will be completely installed by the owner.

Answer

Confirmed.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 66	Gad Fired HW Boilers	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

(A12.09) -Gas Fire HW Boilers (e.g. P8 & P9 -- Owner Provided) – called out as gas fired but unlike other gas appliances shown (e.g. P2) does not show gas service, please confirmthat the gas is completely installed by the Owner?

Answer

Services are indicated on P1.03. Also refer to RFI-63 response.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 67	Gas Power Vent HW Heater	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
(A12.09)-Gas Power Vent HW Heater (e.g. P11 -- Owner Provided) – called out as gas fired but unlike other gas appliances shown (e.g. P2) does not show gas service, please confirmthat the gas is completely installed by the Owner?	Services are indicated on P1.03. Also refer to RFI-63 response.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 68	Oil Fired HW Heater	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
(A12.09)- Oil Fired HW Heater (e.g. P12 -- Owner Provided) – called out as oil fired but unlike other oil appliances shown (e.g. P2) does not show oil service,please confirmthat the oil is completely installed by the Owner. "Oil" is listed as a separate column under the rightmost list that begins with HVAC (B102); not listed as a utility for plumbing items ?	Services are indicated on P1.03. Also refer to RFI-63 response.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 69	Oil Fired Boilers	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

(A12.09)- Oil Fired Boilers (e.g. PH6 & H7 -- Owner Provided) – called out as oil fired but unlike other oil appliances shown (e.g. H16) does not show oil service, please confirm that the oil is completely installed by the Owner; "Oil" is listed as a separate column under this section but was not checked ?

Answer

Services are indicated on P1.03 and M2.03. Also refer to RFI-63 response.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 70	Owner Provided Boilers & Dryer	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

(A12.09)-P2,P3,P4, and HT3 (Owner Provided Boilers & Dryer) are called out for undefined "other" utilities – presumably vent/flue connections; or was this intended for "oil" (P3,P4,P12) ?

Answer

Services are indicated on P1.03 and M2.03. Also refer to RFI-63 response.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 71	Owner Provided Boiler Low Voltage Wiring	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

P2,P3,P4 (Owner Provided Boilers) as examples, there are others in Plumbing and HVAC that would typically require some kind of control wiring (120v or lower) to complete their installations. For purposes of bidding we're presuming that the Owner will execute that part of the work under the heading of "Owner install" ?

Answer

Control wire by Owner. Also refer to RFI-63 response.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 72	Work Bench P13	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

(A12.09)- Work bench P13 (14 of these; Owner Provided) includes a note under remarks that says that an "air drop" is required, but the column for air was not checked off, where with the same note on P17 it was ? Is the Owner installing the air drop or is it not required ? If yes, what provisions (if any) are required and where?

Answer

Air drops provided by Plumbing Contractor per the Plumbing Drawings.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 73	Threading Machine	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

(A12.09)- Threading Machine P19 (2 of these; Owner Provided) includes a note under remarks that says that an "air drop" is required, but the column for air was not checked off, with the same note on P17 it was checked ? Is the Owner installing the air drop or is it not required ? If yes, what provisions (if any) are requiredand where?

Answer

Air drops provided by Plumbing Contractor per the Plumbing Drawings.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 74	Hot and Cold Water	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

(A12.09)- The only appliances that are scheduled for hot or cold water are the HT2 Washer, H5, H6, H7, and H23, leaving P2,P3,P4,P8,P9,P10, and P11 (water heaters & boilers – Owner Provided) with no provisions for water. Note that drawing P1.03 does not show hot or cold water for the H5s ? Is the Owner installing the water or is it not required ? If yes, what provisions (if any) are required in base contract scope & where?

Answer

Water indicated in P1.03. H5 appliances do not require water.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 75	Air Drop Requirements	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Where air drops are scheduled the detail provided (P4.01) does not indicate the height above the bench required – please advise . Is the intent to attach them to the benches (typical) ? What are the required elevations for the valves (e.g. the cap on the drip pocket a few inches above the bench top ?) Where the drops are not adjacent to a wall (e.g. some in B112), is there a need to provide a piece of unistrut or pipe alongside to support the compressed air line (drop could be ten feet or more ?) ? Does base scope need to include flex tubing to connect to equipment or hand tools ?

Answer

Air drops are at the bench height. Valves at 7' A.F.F. Yes, it needs to have support members such as unistrut. Connecting equipment not in the scope, furnished by the owner.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 76	Headwall Power	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

(A12.09)- HT-1 Headwall (4 of these, Owner provided) is calling for 125V power, which is listed separately from 120V, please confirmthat the design intent is that these will run on the nominal 120V volts that the electrical service is based on and transformers are not required to bring them to the listed voltage unless we are directed to the contrary.

Answer

Standard power, no transformer required.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 77	Copy Lathe & Profile Grinder	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

(A12.09)- C15 Copy Lathe and C27 Profile Grinder (there are others) (Owner Provided , including some relocations of existing – CNC Mill M7) are scheduled for 220V power that is not available in the new 120/208V electrical distribution. Is the design intent to run these on the available 208V system, or are transformers required to correct them to the nominal voltage listed ? If the latter, who is responsible for the transformers & their installation ? Note that the printing area also includes some equipment scheduled at 220V.

Answer

220V equipment shall be wired to 208V power without transformer.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 78	Belt Sander Power	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
PLease confirm that anyhting labeled for 460V such as C6 Belt Sander is to be run on the nominal voltage 480V unless we are are specifically directed to provide the listed voltage?	Correct; 460V equipment will be wired to 480V power.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 80	H3 Bench Receptacles	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
The A12.09 Equipment schedule shows 110V power for the H3 benches (B102, Owner provided, typical for 14) to service drop receptacles. Based on 7/E5.02 the receptacles are not part of the benches.	Power (drops) were indicated for the (4) benches scheduled.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 81	H5 Power Arrangement	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

For low voltage applications (e.g. the H5 boilers on B102, Owner provided, typical of 8; the H16s would be similar) the drawings show wall mounted junction boxes at the units. Is the design intent that the "Owner Install" complete the wiring for these (i.e. JB to unit)? In general has the power arrangement (i.e. JB vs. receptacle) been fully coordinated with the equipment served & how it will be delivered (i.e. are there some that will come with cord caps & will need receptacles ?) ?

Answer

Owner provided final connection to equipment from J box or disconnect indicated. Also refer to RFI-63 response.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 82	High Voltage Owner Install Clarifications	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

(A12.09)- For higher voltage applications (e.g. the H18 condensing units on B102, Owner provided, typical of 10) the drawings show disconnects at the units. Is the design intent that the "Owner Install" complete the wiring for these (i.e. JB to unit) ? In this particular case is there a need for additional conduit(s) to run control wiring to them ? Similar comment would apply where the drawings show ceiling mounted JBs (e.g. H11) – we'd presume that the "Owner Install" completes the wiring to the unit from the JB unless we're directed otherwise

Answer

Owner to install power from disconnect to appliance. Also refer to RFI-63 response.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 83	Wall & Ceiling Junction Boxes	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Is there a difference in intent where the defined wall junction box [J] is used as opposed to the ceiling junction box (J) ? E.G. on B112's M33s (Owner Furnished/"GC" installed), E1.03 calls for wall mounted JBs where there are no walls; where the adjacent equipment (e.g. M22 – M29) are called out for ceiling boxes ? Ceiling & wall JBs would both be treated similar to 6/E5.02, with length of the LFMC adjusted to stay within code ?

Answer

Correct; the intent is the same. Junction is to be mounted to the side of equipment.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 84	Fused Disconnects on Bus Fed Equipment	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

The Drawings (e.g. E1.03) show fused disconnects for any equipment that is bus fed, but there are multiple situations that call for just junction boxes (for example the 110V H5 Furnaces, typ. for 8). Are those units coming with a disconnect means or does that JB need to include a (lockable ?) thermal toggle switch (or disconnect at higher voltage) to meet code ? Which pieces would be coming with factory wired disconnects ?

Answer

Symbol shown is a bus plug not a fused disconnect switch, local toggle switch will be installed by students as part of program.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 85	Conduit Routing	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

The Manufacturing area (B112) shows multiple units calling for wall mounted JBs on walls that are largely windows. For purposes of bidding we'd presume that there were no specific restrictions on routing for the conduits between the source/bus and the location given unless there were specifically described (i.e. they would come down the walls more or less where they have been shown)

Answer

Conduits shall not just drop down in front of windows; they shall drop down on a full height wall and then run horizontally to device.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 86	Asbestos Containing Materials	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Appendix 1 through 4 seem to provide detailed information regarding a Hazardous Material Survey for lead paint and PCB's. Deos a similar document exist for Asbestos Containing materials. the Drawings indicate that there are some areas with ACM but do not seem to provide enough information in regard to quantities and types of ACM.

Answer

See Drawing ASB-1.01 through ASB-1.09 and the attached survey table.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 87	Tel/Data/Video Raceway	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

The Tel/Data/Video specification (26000 1.4.A)requires that the electrical contractor provide raceways for the telephone, data and video distribution however the wiring layouts for those systems are not defined and are to be installed by a separate contractor. How does the bidder know what to provide and where? Please provide a drawing or layout of the raceways needed.

Answer

EC to provide conduit and raceway systems for devices indicated and per specifications. Wiring and hardware are by State specified contractors. Refer to details on E501, T and E drawings.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 88	Door Signage Clarifications	10/13/2011

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

The Tel/Data/Video specification (26000 1.4.A)requires that the electrical contractor provide raceways for the telephone, data and video distribution however the wiring layouts for those systems are not defined and are to be installed by a separate contractor. How does the bidder know what to provide and where? Please provide a drawing or layout of the raceways needed.

Answer

Same as the above #87. EC to provide conduit and raceway systems for devices indicated and per specifications. Wiring and hardware are by State specified contractors. Refer to details on E501, T and E drawings.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 89	Existing Signage	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
On drawings A11.01 thru A11.04. If in the "Remarks" column it states "Existing", does this mean that any required signage, is also existing? If not, what is the required signage?	Refer to RFI #41 answer. Signage not required for Existing doors to remain unless otherwise noted.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 90	Occupancy Signage	10/13/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Drawings A11.01 thru A11.04. Notes 4, 5, 6 and 7- 16 refer to Exit, Area of Refuge and Maximum Occupancy signs. We presume these are in addition to any room sign required and located within the space and not outside the room in a corridor, etc.	Yes

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 91	Epoxy Bolt Install	10/18/2011

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Section 11/S5.05 is cut on S1.07A at the Low Roof Framing Plan. Can the column in this section be directly bolted to the top flange of the beam below to prevent and additional mobilization after the slab has cured to install the epoxy bolts?	Column can be bolted to top flange of beam; submit sketch of proposed modification for review.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 92	W8 Clarification	10/18/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

Note #10/ S1.06 and similar notes through S1.09 define "W8" as W8x15. Note #14/S1.12 and similar notes through S1.14 define "W8" as W8x10. Please confirm that this is correct. If not, please clarify which is correct for all "W8"s

Answer

W8 designations shown in plan notes are correct. W8x15 + studs for concrete floor; W8x10 for roof beams.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 93	Door Signage Clarifications	10/18/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

On drawings A11.01 thru A11.04. When there is nothing in the "Text" or "Inter. Symbol of Accessibility" or "Remarks" columns, what does that mean? Does it mean that there is no sign for required for that door, or that only the "Door Number" appears on the sign, or something else?

Answer

Refer to spec section 101400, 2.2 E and drawing A 0.01.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 94	Existing Signage Clarification	10/18/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question

On drawings A11.01 thru A11.04. If in the "Remarks" column it states "Existing", does this mean that any required signage, is also existing? If not, what is the required signage?

Answer

In the door schedules, doors with blank dots are existing doors to remain including signages.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 95	Max Occupancy Signage	10/18/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Drawings A11.01 thru A11.04. Notes 4, 5, 6 and 7- 16 refer to Exit, Area of Refuge and Maximum Occupancy signs. We presume these are in addition to any room sign required and located within the space and not outside the room in a corridor, etc.	Yes. See RFI #90.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 000096	Missing Hardware	10/18/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Openings A153C, A170, B130, C152 are missing hardware. Please confirm what hardware sets are assigned to these openings.	Use HW set #46 for Door A153C. Use HW set #27 for Door A170. Use HW set #47 for Door B130. Use HW set #71 for Door C152(See Addendum No.1).

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 000097	STL/Chain Link Opening	10/18/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Opening B204 has a note on drawing A11.03 indicating this is STL/Chain Link opening with hardware set #70. Please confirm if this opening should receive a wood door and a hollow metal frame with hardware ste #70 or if this is a STL/Chain Link opening.	Door B204 is a STL/Chain Link opening with HW set #70. Same as B204A. Delete other information in A11.03 for B204 and See Addendum No.1 for HW set #70.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 000098	Borrowed lite Frames	10/18/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Drawing A1.08 indicates there are two borrowed lite frames that are type F16. A11.05 says F16 is not used. Please confirm what type these borrowed lite frames are.	There are no F16s indicated in A1.08. Did you mean two F15s in B224? Gilbane Note - Disregard this RFI, Contractor misread number as F16.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 000099	Plate Thickness	10/18/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Please provide the plate thickness welded to the top of HSS and back of channel in section 12/S3.01.	Plate thickness is 3/8"; referencedetail A-A on S3.01 (Cont. 3/8"x11" Galv. Pl.).

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 0000100	Green Tint Glass	10/18/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
088000 2.2 A1 is calling for low iron ultra clear glass. 2.10 is specifying a green tint. please confirm ultraclear glass is not required.	Confirmed. Ultraclear glass is not required.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 0000101	ANSI Sound Standards	10/18/2011

Discipline:	Category:	Priority:
	Contract Document Clarifications	

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Nicholas Bouchard

Question	Answer
Will this bldg. be required to met CT ANSI sound standards?	No. Not required to meet CT ANSI Sound Standard.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 0000102	Equipment - AB16	10/20/2011

Discipline:	115000	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
AB16 Spray/Breathing Air System with mask is not inspecification section 115000. Please provide infoirmation required to furnish item.	See RFI #10. Breathing Air purifier and compressor specified. Masks come with spray booth.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 0000103	Equipment HT-1

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
HT-1 Modular Headwall is listed as Owner furnished on the equipment schedule on A12.09 but it is shown in the specification section. Please clarify who is furnishing this item.	In A12.09, Change Owner Furnished to G.C Furnished.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 0000104	Equipment - M21 Flexible Exhaust	10/20/2011

Discipline:	115000	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
M21 Flexible Exhaust is not in the equipment specification 115000. Please provide information required to furnish this item.	Specified in the drawing M1.03 and See the note, "Welding Swing Arms"in M1.03.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 0000105	Equipment	11/20/2011

Discipline:	115000	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
GS1 Flammable Storage Cabinet, E2 Flammable Storage Cabinet, and G32 Flammable Storage Cabinet are not in the specification section. Please provide information required to furnish item.	Use the same product information as specifiedfor other trade shops; Eagle Manufacturing Company, Model 1947 Safety Cabinet, Capacity: 45 gallons.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 0000106	Equipment E4 Safety Cabinet	10/20/2011

Discipline:	115000	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Answer
E4 Safety Cabinet is not in the specifications. Please provide information required to furnish this item.	Change "Safety Cabinet" to "Security Cabinet". Product Information: Manufacturer: Grainger, Inc. Model 1DYY6, Security Cabinet, Floor Model, Quantity: 1

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI Details

RFI # 0000109	Lab Casework elevation discrepancy	10/24/2011

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Due: 10/24/2011	Answer
Elevation 3D/ A8.07 at Science Lab A223 is not consistent with the plan view of this room shown on Sheet A1.07. The elevation shows a fume hood. The plan view does not show a fume hood at Science Lab A223. Instead, it appears that an additional base and wall cabinet(s) have been added to compensate for the missing or deleted fume hood. Please clarify lab casework / fume hood at elevation 3D/ A8.07 at Science Lab A223?		No fume hood in A223. Casework should be the same as the one in A228. See 5B/A8.07.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

RFI # 0000110	Doors, Frames and hardware	10/24/2011

Discipline:	Category:	Priority:

To Company	Attention	Author Company	Authored By
Tai Soo Kim Partners, LLC	Joon-Hyun Baek	Gilbane Building Company	Phaedra Caouette

Question	Due: 10/24/2011	Answer
Openings A153C, A170, B130, C152 are missing hardware. Please confirm what hardware sets are assigned to these openings. Opening B204 has a note on drawing A11.03 indicating this is STL/Chain Link opening with hardware set #70. Please confirm this opening should receive a wood door and hollow metal frame with hardware set #70 or if this is a STL/Chain Link opening. Drawing A1.08 indicates there are two borrowed lite frames that are type F16. A11.05 says F16 is not used. Please confirm what type of borrowed lite frames are.		See answers in RFI 96, 97, and 98. Please tell us where those two F16s are. We were able to locatetwo F15s in B224, but could not find F16s in A1.08.

Proposed Solution

Impact: **Scope of Work** ☐ **Schedule** ☐ **Cost** ☐

TABLE 1
BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS
H.C. WILCOX RVTS-268 OREGON RD
MERIDEN, CONNECTICUT

Sample No.	Sample Location	Homogeneous Material	% and Type Asbestos
6/6/11 SAMPLES			
1	Room A103 – bathroom	G1 – brown wall panel glue	ND<1%
2	Room A103 – bathroom	G1 – brown wall panel glue	ND<1%
3	Room A111	G2 – brown 1'x1' fixed ceiling tile glue	10% Anthophyllite
4	Room A111	G2 – brown 1'x1' fixed ceiling tile glue	NA/PS
5	Main office – copy room	G3 – tan residual glue on wall	ND<1%
6	Main office – copy room	G3 – tan residual glue on wall	ND<1%
7	A wing addition – women's bathroom	G4 – original 1"x1" ceramic wall tile glue	ND<1%
8	A wing addition – women's bathroom	G4 – original 1"x1" ceramic wall tile glue	ND<1%
9	A wing – 2nd floor Mech room above Projection room	G5 – thin, tan brushed on glue under fiberglass on duct	ND<1%
10	A wing – 2nd floor Mech room above Projection room	G5 – thin, tan brushed on glue under fiberglass on duct	ND<1%
11	Graphics	G6 – dk. brown 1'x1' acoustical wall tile glue daubs	ND<1%
12	Graphics	G6 – dk. brown 1'x1' acoustical wall tile glue daubs	ND<1%
13	Boiler room	G7 – brown duct insulation pin glue daubs	90% Chrysotile
14	Boiler room	G7 – brown duct insulation pin glue daubs	NA/PS
15	Room A103 – bathroom	CB1 – dark brown covebase glue	ND<1%
16	Room A103 – bathroom	CB1 – dark brown covebase glue	ND<1%
17	A wing – 2nd floor Mech room above Projection room	FC1 – black cloth duct flex connector	ND<1%
18	A wing – 2nd floor Mech room above Projection room	FC1 – black cloth duct flex connector	ND<1%
19	Room B139 - closet	LEV1 – soft grey levelastic	ND<1%
20	Room B139 - closet	LEV1 – soft grey levelastic	ND<1%
21	B wing north – Elec. Theory	TVB1 – black gooey tar vapor barrier under 1"x12" plank wood floor	ND<1%
22	B wing north – Elec. Theory	TVB1 – black gooey tar vapor barrier under 1"x12" plank wood floor	ND<1%
23	B wing north – room B117	TC1 – white textured wall coating	ND<1%
24	B wing north – room B117	TC1 – white textured wall coating	ND<1%
25	B wing north – room B117	TC1 – white textured wall coating	ND<1%
26	B wing north – room B117	WG1 – int/ext white 3 pane metal window glaze	ND<1%

TABLE 1
BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS
H.C. WILCOX RVTS 368 OREGON RD.
MERIDEN, CONNECTICUT

Sample No.	Sample Location	Homogeneous Material	% and Type Asbestos
27	B wing north – room B117	WG1 – int/ext white 3 pane metal window glaze	ND<1%
28	B wing north – room B220	WG2 – int/ext, grey 3 pane metal window glaze	Trace Chrysotile
29	B wing north – room B220	WG2 – int/ext, grey 3 pane metal window glaze	2.5% Chrysotile
30	Exterior – C wing	WG3 – exterior, black gummy window glaze on 2 pane metal windows	ND<1%
31	Exterior – C wing	WG3 – exterior, black gummy window glaze on 2 pane metal windows	ND<1%
32	Exterior – C wing	WC1 – exterior grey brittle window caulking	3% Chrysotile
33	Exterior – C wing	WC1 – exterior grey brittle window caulking	NA/PS
34	Exterior – B wing	WC2 – exterior lt. grey window caulking	ND<1%
35	Exterior – B wing	WC2 – exterior lt. grey window caulking	ND<1%
6/24/11 SAMPLES			
1	A-Wing (1960) West Side near Entrance Doors by Auditorium	Black Tar/Foil Vapor Barrier on CMU behind Brick (VB1)	3% Chrysotile
2	B-Wing (1960) West Side o/s Carpentry Shop	Black Tar/Foil Vapor Barrier on CMU behind Brick (VB1)	NA/PS
3	B-Wing (1978) SW Corner on I-Beam	Black Tar Vapor Barrier (VB3)	30% Chrysotile
4	B-Wing (1978) SW Corner on I-Beam	Black Tar Vapor Barrier (VB3)	NA/PS
5	B-Wing West Side at addition Junction o/s Carpentry Shop	Rust Colored Flexible Caulk (C1)	ND<1%
6	B-Wing (1978) Ext. S Exit Doors	Rust Colored Flexible Caulk (C1)	ND<1%
7	B-Wing (1978) S Side around Green Panels above Windows	White Flexible Caulk (C2)	ND<1%
8	B-Wing (1978) S Side around Green Panels above Windows	White Flexible Caulk (C2)	ND<1%
9	B-Wing (1978) S Side in Expansion Jt o/s Graphics Shop	White Flexible, Scaly and Chalky Caulk (C3)	ND<1%
10	B-Wing (1978) S Side in Expansion Jt o/s Graphics Shop	White Flexible, Scaly and Chalky Caulk (C3)	ND<1%
11	B-Wing (1960) N Side Ext. Hallway Exit Doors	Grey Hard Door Caulk (C4)	3% Chrysotile
12	B-Wing (1960) N Side Ext. Hallway Exit Doors	Grey Hard Door Caulk (C4)	NA/PS
13	A-Wing (1960) W Side o/s Girls Locker Rm	Black Gooey Ext Window Glaze (WG4)	ND<1%
14	A-Wing (1960) W Side o/s Girls Locker Rm	Black Gooey Ext Window Glaze (WG4)	ND<1%
15	A-Wing (1972) S Side o/s Rm 108	Grey Gummy Ext Window Glaze (WG5)	5% Chrysotile

TABLE 1
BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS
H.C. WILCOX RVTS-268 OREGON RD
MERIDEN, CONNECTICUT

Sample No.	Sample Location	Homogeneous Material	% and Type Asbestos
16	A-Wing (1972) N Side o/s Rm 121	Grey Gummy Ext Window Glaze (WG5)	NA/PS
17	A-Wing (1960) W Side o/s Rm 124	Black Gooey Ext Window Glaze (WG6)	ND<1%
18	A-Wing (1960) W Side o/s Rm 113	Black Gooey Ext Window Glaze (WG6)	ND<1%
19	A-Wing (1960) E Side o/s Rm 133	Grey Hard Chalky Ext Window Glaze (WG7)	Trace Chrysotile
20	A-Wing (1960) E Side o/s Rm 129	Grey Hard Chalky Ext Window Glaze (WG7)	Trace Chrysotile
21	A-Wing (1972) SW Entrance Doors	Black Gooey Ext Window Glaze (WG8)	ND<1%
22	A-Wing (1972) SW Entrance Doors	Black Gooey Ext Window Glaze (WG8)	ND<1%
23	B-Wing (1978) W Side o/s Plumbing Shop	Grey Soft Ext Window Frame Caulk (top and bottom) (WC3)	Trace Chrysotile
24	B-Wing (1978) W Side o/s Plumbing Shop	Grey Soft Ext Window Frame Caulk (top and bottom) (WC3)	2.1% Chrysotile
25	B-Wing (1960) W Side o/s Carpentry Shop	Grey Brittle Ext Window Caulk (WC4)	3% Chrysotile
26	B-Wing (1960) E Side o/s Rm 139	Grey Brittle Ext Window Caulk (WC4)	NA/PS
27	A-Wing (1972) S Side o/s Rm 108	Grey Soft Ext Window Caulk (WC5)	Trace Chrysotile
28	A-Wing (1972) N Side o/s Rm 121	Grey Soft Ext Window Caulk (WC5)	1.9% Chrysotile
29	A-Wing (1960) W Side o/s Rm 124	Grey Metallic Hard Ext Window Caulk (WC6)	ND<1%
30	A-Wing (1960) E Side o/s Nurse's Office	Grey Metallic Hard Ext Window Caulk (WC6)	ND<1%

TABLE 2
IDENTIFIED ASBESTOS CONTAINING MATERIALS (>1%)
H.C. WILCOX RVTS 268 OREGON RD
MERIDEN, CONNECTICUT

Material	Sampled-Assumed (mo/yr)	General Location	NESHAP Category	AHERA Category
G2 – brown 1'x1' fixed ceiling tile glue	6/11	Room A111 & A110 Bathroom	Category II Non-friable	Miscellaneous
G7 – brown duct insulation pin glue daubs	6/11	Boiler room	Category II Non-friable	Miscellaneous
WG2 – int/ext, grey 3 pane metal window glaze	6/11	B-Wing (1978) Windows	Category II Non-friable	Miscellaneous
WC1 – exterior grey brittle window caulking	6/11	C-Wing Girl's Locker Rm & 2nd Fl Gym Windows	Category II Non-friable	Miscellaneous
Black Tar/Foil Vapor Barrier on CMU behind Brick (VB1)	6/11	A, B, & C-Wings (1959)	Category II Non-friable	Miscellaneous
Black Tar Vapor Barrier (VB3)	6/11	B-Wing (1978) on I-Beams	Category II Non-friable	Miscellaneous
Grey Hard Door Caulk (C4)	6/11	B-Wing (1959) North Side Exterior Doors	Category II Non-friable	Miscellaneous
Grey Gummy Ext Window Glaze (WG5)	6/11	A-Wing (1972)	Category II Non-friable	Miscellaneous
Grey Soft Ext Window Frame Caulk (top and bottom) (WC3)	6/11	B-Wing (1978)	Category II Non-friable	Miscellaneous
Grey Brittle Ext Window Caulk (WC4)	6/11	B-Wing (1959)	Category II Non-friable	Miscellaneous
Grey Soft Ext Window Caulk (WC5)	6/11	A-Wing (1972)	Category II Non-friable	Miscellaneous
Cloth Flex Connector (FC1)	Assumed	B-Wing (1959) Auto Shops	Category II Non-friable	Miscellaneous

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
RECENT SAMPLING				
1	2450636	White 12" Floor Tile with Brown Streaks	C-Wing Classroom Corridor Near East Exit	5.0% Chrysotile Asbestos (Point Count)
		Mastic		4.5% Chrysotile Asbestos (Point Count)
2	2450637	Tan 12" Floor Tile with Pink, Brown, White Streaks	C-Wing Classroom Corridor East End Near C-100	5.8% Chrysotile Asbestos (Point Count)
3	2450638	Gray 12" Floor Tile with Black, Brown Swirls	C-Wing Classroom C-124	1.3% Chrysotile Asbestos (Point Count)
		Mastic		6.5% Chrysotile Asbestos (Point Count)
4	2450639	White 12" Floor Tile with Brown Streaks	C-Wing Classroom C-109	3.4% Chrysotile Asbestos (Point Count)
		Mastic		1.4% Chrysotile Asbestos (Point Count)

NOTE: "NAD" INDICATES NO ASBESTOS DETECTED

* EPA protocols consider one positive result as confirmation that a material contains asbestos. If the first sample of a material is found to contain asbestos, no further confirmation is necessary and any additional samples are therefore not analyzed.

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
5	2450640	Brown 12" Floor Tile with White Streaks Mastic	C-Wing Classroom C-119	3.2% Chrysotile Asbestos (Point Count) 5.5% Chrysotile Asbestos (Point Count)
6	2450641	Window Sill Material	C-Wing Classroom C-119	NAD
7	2450642	Caulk along Seam of Window Sill/Block Wall	C-Wing Classroom C-119	NAD
8	2450643	Textured Ceiling Plaster	C-Wing Auditorium C-113	5.0% Chrysotile Asbestos (Point Count)
9	2450644	Green/Tan Carpet Mastic	C-Wing Auditorium C-113	NAD
10	2450645	Joint Compound	C-Wing Auditorium C-113 Projection Room	NAD

NOTE: "NAD" INDICATES NO ASBESTOS DETECTED

* EPA protocols consider one positive result as confirmation that a material contains asbestos. If the first sample of a material is found to contain asbestos, no further confirmation is necessary and any additional samples are therefore not analyzed.

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
11	2450646	Sheetrock Paper Textured Paint	C-Wing Auditorium C-113 Projection Room	NAD NAD
12	2450647	Mastic from Tan 12" Floor Tile with Brown, White, Orange Streaks	C-Wing Auditorium C-113 Projection Room	7.1% Chrysotile Asbestos (Point Count)
13	2450648	Tan 12" Floor Tile with Brown, White, Orange Streaks Mastic from Tan 12" Floor Tile with Brown, White, Orange Streaks	C-Wing Auditorium C-113 Projection Room	4.6% Chrysotile Asbestos (Point Count) 10% Chrysotile Asbestos
14	2450649	Baseboard Molding Adhesive	C-Wing Auditorium C-113 Projection Room	NAD
15	2450650	2' X 2' Smooth Surface Dot and Pinhole Ceiling Tile	C-Wing Auditorium C-113 Projection Room	NAD
16	2450651	Red Cementitious Flooring	B-Wing Corridor Near Drafting Classroom	NAD
17	2450652	Light Tan 12" Floor Tile (Painted Red) Mastic	B-Wing Corridor between B-136 and B-139	NAD 4.2% Chrysotile Asbestos (Point Count)

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
18	2450653	White 12" Floor Tile with Blue, Red	Vestibule North of Gym and Adjacent Cafeteria Exit	NAD
		Mastic		NAD
		Levelastic		NAD
19	2450654	Tan 12" Mottled Floor Tile	A-Wing Corridor Near Main Office	NAD
		Mastic		NAD
		Levelastic		NAD
20	2450655	Tan 12" with Black, White	A-Wing Corridor Near Boiler Room	1.3% Chrysotile Asbestos (Point Count)
		Mastic		NAD
21(1)	2518899	Tan 12" "Picasso" Floor Tile	A-Wing First Floor Corridor	NAD
22(2)	2518900	Tan 12" "Picasso" Floor Tile	A-Wing First Floor Corridor	NAD
		Mastic		NAD
23(3)	2518901	Tan 12" "Picasso" Floor Tile	A-Wing Second Floor Corridor	NAD
		Mastic		NAD
24(4)	2518902	Mastic From Tan 12" "Picasso" Floor Tile	A-Wing Second Floor Corridor	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
25(5)	2518903	Tan 12" "Picasso" Floor Tile Mastic	A-Wing Second Floor Corridor	NAD NAD
26(6)	2518904	Tan 12" "Picasso" Floor Tile	A-Wing Second Floor Room A-212	NAD
27(7)	2518905	Gray/Black/White 12" Swirl Pattern Floor Tile Mastic	A-Wing South End of Corridor East of Gym	1.3% Chrysotile Asbestos (Point Count) NAD
28(8)	2518906	Mastic From Gray/Black/White 12" Swirl Pattern Floor Tile	A-Wing South End of Corridor East of Gym	NAD
29(9)	2518907	White 12" Floor Tile with Gray	Boys' Locker Room	NAD
30(10)	2518908	Spray-on Fireproofing	A-Wing First Floor Corridor Above Ceiling Near A-111	NAD
31(11)	2518909	Dark Olive 12" Floor Tile with White Mastic	C-Wing Second Floor Corridor East End Near Stairwell	3.5% Chrysotile Asbestos (Point Count) 2.1% Chrysotile Asbestos (Point Count)
32(12)	2518910	Ceiling Plaster	Boiler Room	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
33(13)	2518911	Ceiling Plaster	Boiler Room	NAD
34(14)	2518912	Ceiling Plaster	Boiler Room	NAD
35(15)	2518913	Ceiling Plaster (Debris on Floor)	Boiler Room	NAD
36(16)	2518914	Blue 12" Floor Tile	B-Wing Closet in Hotel Technology	NAD
37(17)	2518915	White 12" Floor Tile with Grey Streaks	Annex HVAC Classroom	2.3% Chrysotile Asbestos (Point Count)
38(18)	2518916	White 12" Floor Tile with Black Streaks Mastic	Annex Carpentry Theory Room	1.5% Chrysotile Asbestos (Point Count) NAD
39(19)	2518917	White 12" Floor Tile with Red/Blue	Annex Math Lab	NAD
40(1)	2769369	Waterproofing Membrane/Tar	1959 Building B-Wing Bottom 1' of Wall At East Side Auto Shop	NAD
41(2)	2769370	Waterproofing Membrane/Tar	1978 Building Bottom 1' of Wall At SE Corner Graphics Shop	3.0% Chrysotile Asbestos (Point Count)
42(3)	2769371	Waterproofing Membrane	1972 Building C-Wing Bottom 1' of East Wall	8.0% Chrysotile Asbestos (Point Count)

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
43(4)	2769372	Waterproofing Tar	1972 Building C-Wing Bottom 1' of East Wall	4.0% Chrysotile Asbestos (Point Count)
44(5)	2769373	Window Caulk	Girls' Locker Room 1959 Building	5.0% Chrysotile Asbestos (Point Count)
45(6)	2769374	Vapor Barrier Membrane	C-Wing Auto Shop South Side Under Floor Slab	NAD
46(7)	2769375	Spray-on Fireproofing	A-Wing First Floor Corridor Above Ceiling Near Hairdressing	NAD
47(8)	2769376	Cork Subfloor/Mastic	Gymnasium	NAD
48(9)	2769377	Mastic Beneath Wood Floor	Gymnasium	NAD
49(10)	2769378	Insulation Under Boiler Jacket	Boiler Room Titus Boiler	NAD
50(11)	2769379	Window Caulk	Girls' Locker Room 1959 Building	3.3% Chrysotile Asbestos (Point Count)
51(12)	2769380	Window Caulk	Girls' Locker Room 1959 Building	3.5% Chrysotile Asbestos (Point Count)
52(13)	2769381	Pipe Fitting Insulation	C-Wing Corridor Above Ceiling Near Auditorium	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT				
SAMPLE No.	**LAB SAMPLE ID**	**MATERIAL**	**LOCATION**	**RESULTS**
53(14)	2769382	Pipe Fitting Insulation	C-Wing Corridor Above Ceiling Near Auditorium	NAD
54(15)	2769383	Mastic Beneath Wood Floor	B-Wing Electronics Shop	NAD
55	164-434-37	Black/Green/Yellow Carpet Mastic	C-Wing Auditorium	NAD
56	164-434-38	Textured Ceiling Surfacing	C-Wing Auditorium Projection Room	NAD
57	164-434-39	Textured Ceiling Surfacing	C-Wing Auditorium Projection Room	NAD
58	164-434-40	Textured Ceiling Surfacing	C-Wing Auditorium Projection Room	NAD
59	164-434-41	Sheetrock	C-Wing Auditorium Projection Room	NAD
60	164-434-42	Sheetrock	C-Wing Auditorium Projection Room	NAD
61	164-434-43	Sheetrock	C-Wing Auditorium Projection Room	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
62	164-434-33	Spray-on Fireproofing	A-Wing First Floor A-513	NAD
63	164-434-34	Spray-on Fireproofing	A-Wing First Floor A-513	NAD
64	164-434-35	Spray-on Fireproofing	A-Wing First Floor A-513	NAD
65	164-434-36	Joint Compound	A-Wing Corridor Near A-501	NAD
66	164-434-27	1' Square Acoustical Tile	A-Wing Second Floor On Wall Over Locker Near Room A-212	7% Amosite Asbestos
67	164-434-28	Glue Daub From 1' Square Acoustical Tile	A-Wing Second Floor On Wall Over Locker Near Room A-212	NAD
68	164-434-29	Sheetrock Behind 1' Square Acoustical Tile	A-Wing Second Floor On Wall Over Locker Near Room A-212	NAD
69	164-434-30	Yellow, Gray and Black Tile Mastic with Red Paint	A-Wing First Floor Administrative Hall Near Vault Door	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
70	164-434-31	Yellow, Gray and Black Tile Mastic with Red Paint	A-Wing First Floor Administrative Hall Near Vault Door	NAD
71	164-434-32	Yellow, Gray and Black Tile Mastic with Red Paint	A-Wing First Floor Administrative Hall Near Vault Door	NAD
72	164-434-13	Glue Daubs on Wall	Three Bay Garage South of Boiler Room South Wall	NAD
73	164-434-16	Paint over Mastic	Corridor from North End of Boys' Locker Room to Gym North End	NAD
74	164-434-17	Paint over Mastic	Corridor from North End of Boys' Locker Room to Gym North End	NAD
75	164-434-18	Paint over Mastic	Corridor from North End of Boys' Locker Room to Gym North End	NAD
76	164-434-19	Fibrous Paper on Shelves	Three Bay Garage South of Boiler Room South Wall	NAD
77	164-434-20	Fibrous Paper on Shelves	Three Bay Garage South of Boiler Room South Wall	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
78	164-434-21	Fibrous Paper on Shelves	Three Bay Garage South of Boiler Room South Wall	NAD
79	164-434-22	Gray 2" Square Ceramic Tile	Corridor Between North End of Boys' Locker Room and Gym South Wall	NAD
80	164-434-23	Grout From Gray 2" Square Ceramic Tile	Corridor Between North End of Boys' Locker Room and Gym South Wall	NAD
81	164-434-24	Off-White Adhesive From Gray 2" Square Ceramic Tile	Corridor Between North End of Boys' Locker Room and Gym South Wall	NAD
82	164-434-25	White Threaded Fabric Under Off-White Adhesive From Gray 2" Square Ceramic Tile	Corridor Between North End of Boys' Locker Room and Gym South Wall	NAD
83	164-434-26	Hard Gray Cement Board Under Gray 2" Square Ceramic Tile	Corridor Between North End of Boys' Locker Room and Gym South Wall	NAD
84	164-434-1	Joint Compound	B-Wing Hotel Technology Opposite Office	NAD
85	164-434-4	Joint Compound	B-Wing Graphics Camera Room Center	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
86	164-434-7	Glue Daub	B-Wing Graphics B-204 North Wall Adjacent Camera Room	NAD
87	164-434-10	1' Square Ceiling Tile Off-White Double Layer Gouge	B-Wing Graphics B-204 North Wall Adjacent Camera Room	NAD
88	240804051-0001 240804051-0001A	Sheetrock Joint Compound	Annex Garage South Wall	NAD NAD
89	240804051-0002 240804051-0002A	Sheetrock Joint Compound	Annex Writing Classroom Central Wall	NAD NAD
90	240804051-0003 240804051-0003A	Ceramic Tile Adhesive Ceramic Tile Mortar	Annex Writing Classroom Bathroom	NAD NAD
91	240804051-0004	Door Core Material	Annex Wood Shop Classroom	NAD
92	240804051-0005	Ceiling Plaster	C-Wing 1st Floor Stairwell Landing	NAD
93	240804051-0006	Ceramic Tile Mortar	C-Wing 2nd Floor Custodian Closet	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
94	240804051-0007	Ceramic Wall Tile	C-Wing 2nd Floor Custodian Closet	NAD
	240804051-0007A	Grout		NAD
95	240804051-0008	Ceramic Wall Tile	C-Wing 1st Floor Men's Bathroom	NAD
	240804051-0008A	Grout		NAD
	240804051-0008B	Mortar		NAD
96	240804051-0009	Ductwork Caulk	C-Wing 1st Floor Custodian Closet	NAD
97	240804051-0010	Joint Compound	C-Wing 2nd Floor Custodian Closet	NAD
98	240804051-0011	Acoustical Wall Tile	A-Wing First Floor Corridor Second Layer	NAD
99	240804051-0012	Acoustical Wall Tile	A-Wing First Floor Corridor Third Layer	NAD
100	240804051-0013	Joint Compound	A-Wing 2nd Floor Library - SW Corner	NAD
101	240804051-0014	Joint Compound	A-Wing 2nd Floor Room A-204	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT				
SAMPLE No.	**LAB SAMPLE ID**	**MATERIAL**	**LOCATION**	**RESULTS**
102	240804051-0015	Caulk on Metal Panel Below Window	A-Wing 2nd Floor Room A-216	<1% Chrysotile Asbestos
103	240804051-0016	Joint Compound	A-Wing 2nd Floor Room A-216	NAD
104	240804051-0017 240804051-0017A 240804051-0017B	Ceramic Wall Tile Grout Mortar	A-Wing 2nd Floor Men's Bathroom	NAD NAD NAD
PRIOR SAMPLING				
1P	1H-02-561-1	Spray-on Fireproofing	A-Wing Corridor Outside Gym	NAD
2P	1H-02-561-2	Spray-on Fireproofing	A-Wing Corridor Outside Gym	NAD
3P	1H-02-561-3	Spray-on Fireproofing	A-Wing Corridor Outside Cafeteria	NAD
4P	1H-02-561-4	Spray-on Fireproofing	A-Wing Corridor Outside Main Office	NAD
5P	1H-02-561-5	Spray-on Fireproofing	A-Wing Corridor Outside A-111	NAD
6P	1H-02-561-6	Spray-on Fireproofing	A-Wing Corridor Outside A-132	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
7P	1H-02-561-7	Spray-on Fireproofing	A-Wing Corridor Outside A-129	NAD
8P	15764-2	Cove Base Molding Adhesive	A-Wing Main Office	NAD
9P	15764-5	Cove Base Molding Adhesive	A-Wing Main Office	NAD
10P	15764-6	Cove Base Molding Adhesive	A-Wing Main Office	NAD
11P	IH-00-532-1	Black Mastic Under Maple Strip Flooring	B-Wing Carpentry Shop	NAD
12P	IH-00-532-2	Black Mastic Under Maple Strip Flooring	B-Wing Carpentry Shop	NAD
13P	IH-00-532-3	Black Mastic Under Maple Strip Flooring	B-Wing Carpentry Shop	NAD
14P	IH-00-532-4	Black Mastic Under Maple Strip Flooring	B-Wing Carpentry Shop	NAD
15P	IH-00-532-5	Black Mastic Under Felt Paper	B-Wing Carpentry Shop	<1% Chrysotile Asbestos
16P	IH-00-532-6	Black Mastic Under Felt Paper	B-Wing Carpentry Shop	<1% Chrysotile Asbestos
17P	IH-00-532-7	Black Mastic Under Maple Strip Flooring	B-Wing Electrical Shop	NAD
18P	IH-00-532-8	Black Mastic Under Maple Strip Flooring	B-Wing Electrical Shop	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT				
SAMPLE No.	**LAB SAMPLE ID**	**MATERIAL**	**LOCATION**	**RESULTS**
19P	IH-00-532-9	Felt Paper Under Maple Strip Flooring	B-Wing Electrical Shop	NAD
20P	IH-00-532-10	Felt Paper Under Maple Strip Flooring	B-Wing Electrical Shop	NAD
21P	IH-00-532-11	Black Mastic Under Felt Paper	B-Wing Electrical Shop	NAD
22P	IH-00-532-12	Black Mastic Under Felt Paper	B-Wing Electrical Shop	NAD
23P	IH-01-506-1	Beige Cementitious Flooring (Asbestolith)	B-Wing Auto Shop Former Welding Area	3% Chrysotile Asbestos
24P	IH-01-506-2	Beige Cementitious Flooring (Asbestolith)	B-Wing Auto Shop Former Welding Area	10% Chrysotile Asbestos
25P	IH-01-506-3	Gray Cement Layer (Beneath Asbestolith)	B-Wing Auto Shop Former Welding Area	NAD
26P	IH-01-506-4	Gray Cement Layer (Beneath Asbestolith)	B-Wing Auto Shop Former Welding Area	NAD
27P	IH-01-273-2	Beige Glue Daub Behind 1' Square Fixed Ceiling Tiles	A-Wing Boys' Locker Room Shower Area	NAD
28P	IH-01-273-2a	Beige Glue Daub Behind 1' Square Fixed Ceiling Tiles	A-Wing Boys' Locker Room Shower Area	NAD

DELTA Environmental Services,® Inc.

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
29P	IH-01-273-3	Dark Brown Glue Daub Behind 1' Square Fixed Ceiling Tiles	A-Wing Boys' Locker Room Shower Area	NAD
30P	IH-01-273-3a	Dark Brown Glue Daub Behind 1' Square Fixed Ceiling Tiles	A-Wing Boys' Locker Room Shower Area	NAD
31P	IH-01-273-5	Sheetrock	A-Wing Storage Room #9	NAD
32P	IH-01-273-6	Sheetrock	A-Wing Storage Room #9	NAD
33P	IH-01-273-7	Beige Glue Daub Behind 1' Square Fixed Ceiling Tiles	A-Wing Storage Room #9	NAD
34P	IH-01-273-8	Beige Glue Daub Behind 1' Square Fixed Ceiling Tiles	A-Wing Storage Room #9	NAD
35P	IH-01-273-9	1' Square Fixed Ceiling Tiles	A-Wing Storage Room #9	NAD
36P	IH-01-273-10	1' Square Fixed Ceiling Tiles	A-Wing Storage Room #9	NAD
37P	IH-01-273-11	Pipe Fitting	A-Wing Storage Room #9	48% Chrysotile Asbestos
38P	IH-01-273-12	Pipe Fitting	A-Wing Storage Room #9	50% Chrysotile Asbestos

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT				
SAMPLE No.	**LAB SAMPLE ID**	**MATERIAL**	**LOCATION**	**RESULTS**
39P	IH-01-273-13	Pipe Fitting	A-Wing Storage Room #9	50% Chrysotile Asbestos
40P	IH-00-145-1	Yellow Glue Under Red/Pink Carpet	Auditorium	NAD
41P	IH-00-145-2	Yellow Glue Under Red/Pink Carpet	Auditorium	NAD
42P	IH-00-145-3	Yellow Glue Under Red/Pink Carpet	Auditorium	NAD
43P	IH-00-145-4	Brown Glue Under Red Carpet	Auditorium	NAD
44P	IH-00-145-5	Brown Glue Under Red Carpet	Auditorium	NAD
45P	IH-00-145-8	Yellow Glue Under Carpet Molding	Auditorium	NAD
46P	IH-00-145-9	Yellow Glue Under Carpet Molding	Auditorium	NAD
47P	IH-99-271-25A	2' x 4' Suspended Ceiling Tile	A-Wing Near Main Entrance	NAD
48P	IH-99-271-26A	2' x 4' Suspended Ceiling Tile	A-Wing Near Main Entrance	NAD
49P	IH-99-271-27A	2' x 4' Suspended Ceiling Tile	A-Wing Near Main Entrance	NAD
50P	IH-99-271-31A	2' x 2' Suspended Ceiling Tile Small Pinhole	C-Wing Near West Entrance	NAD
51P	IH-99-271-32A	2' x 2' Suspended Ceiling Tile Small Pinhole	C-Wing Near West Entrance	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT				
SAMPLE No.	**LAB SAMPLE ID**	**MATERIAL**	**LOCATION**	**RESULTS**
52P	IH-99-271-33A	2' x 2' Suspended Ceiling Tile Small Pinhole	C-Wing Near West Entrance	NAD
53P	IH-99-271-34A	Red Exterior Door Frame Caulk	B-Wing South Entrance	NAD
54P	IH-99-271-35A	Red Exterior Door Frame Caulk	B-Wing South Entrance	NAD
55P	IH-99-271-36A	Red Exterior Door Frame Caulk	B-Wing South Entrance	NAD
56P	IH-99-271-37A	Joint Compound	A-Wing Near Main Entrance	NAD
57P	IH-99-271-38A	Joint Compound	A-Wing Near Main Entrance	NAD
58P	IH-99-271-39A	Joint Compound	A-Wing Near Main Entrance	NAD
59P	IH-99-271-43A	Glue Behind 6" Dark Brown Cove Base Molding	A-Wing Near Main Entrance	NAD
60P	IH-99-271-44A	Glue Behind 6" Dark Brown Cove Base Molding	A-Wing Near Main Entrance	NAD
61P	IH-99-271-45A	Glue Behind 6" Dark Brown Cove Base Molding	A-Wing Near Main Entrance	NAD
62P	IH-99-271-46A	Gray Exterior Door Frame Caulk	A-Wing Main Entrance	NAD
63P	IH-99-271-47A	Gray Exterior Door Frame Caulk	C-Wing West Entrance	NAD
64P	IH-99-271-48A	Gray Exterior Door Frame Caulk	C-Wing West Entrance	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
65P	IH-99-271-49A	White Interior Door Frame Caulk	A-Wing Main Entrance	NAD
66P	IH-99-271-51A	White Interior Door Frame Caulk	B-Wing North Entrance	NAD
67P	IH-99-271-52A	White Interior Door Frame Caulk	B-Wing North Entrance	NAD
68P	IH-99-271-53A	White Interior Door Frame Caulk	B-Wing North Entrance	NAD
69P	IH-99-271-55A	Gray Interior Door Frame Caulk	C-Wing West Entrance	NAD
70P	IH-99-271-56A	Gray Interior Door Frame Caulk	C-Wing West Entrance	NAD
71P	IH-99-271-57A	Gray Interior Door Frame Caulk	C-Wing West Entrance	NAD
72P	IH-99-271-58A	Exterior Soffit Cement	A-Wing Main Entrance	NAD
73P	IH-99-271-59A	Exterior Soffit Cement	A-Wing Main Entrance	NAD
74P	IH-99-271-60A	Exterior Soffit Cement	A-Wing Main Entrance	NAD
75P	IH-99-271-150A	Sheetrock	A-Wing First Floor Office Near Copy Room	NAD
76P	IH-99-271-151A	Sheetrock	A-Wing First Floor Office Near Copy Room	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
77P	IH-99-271-152A	Sheetrock	A-Wing First Floor Office Near Copy Room	NAD
78P	IH-99-271-153A	Sheetrock	A-Wing First Floor Nurse's Office	NAD
79P	IH-99-271-154A	Sheetrock	A-Wing First Floor Nurse's Office	NAD
80P	IH-99-271-155A	Sheetrock	A-Wing First Floor Nurse's Office	NAD
81P	IH-99-271-34 IH-99-271-37	Gray 9" Floor Tile Mastic	A-Wing First Floor South Wing	10% Chrysotile Asbestos 3% Chrysotile Asbestos
82P	IH-99-271-118 IH-99-271-123	Pink 9" Floor Tile Mastic	A-Wing First Floor Copy Room	15% Chrysotile Asbestos NAD
83P	IH-99-271-156A	Joint Compound	A-Wing First Floor Office Near Copy Room	NAD
84P	IH-99-271-157A	Joint Compound	A-Wing First Floor Office Near Copy Room	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT				
SAMPLE No.	**LAB SAMPLE ID**	**MATERIAL**	**LOCATION**	**RESULTS**
85P	IH-99-271-158A	Joint Compound	A-Wing First Floor Office Near Copy Room	NAD
86P	IH-01-247-1	Black Flexible Duct Connector	Annex Welding Shop Bathroom	NAD
87P	IH-01-247-2	Black Flexible Duct Connector	Annex Welding Shop Bathroom	NAD
88P	IH-01-247-3	2' X 2' Suspended Ceiling Tile	Annex Welding Shop Bathroom	NAD
89P	IH-01-247-4	2' X 2' Suspended Ceiling Tile	Annex Welding Shop Bathroom	NAD
90P	IH-01-247-5	Sheetrock	Annex Welding Shop Storage Supply Closet	NAD
91P	IH-01-247-6	Sheetrock	Annex Welding Shop Storage Supply Closet	NAD
92P	IH-01-247-7	Tectum Ceiling Deck	Annex Welding Shop Bathroom	NAD
93P	IH-01-247-8	Tectum Ceiling Deck	Annex Welding Shop Bathroom	NAD
94P	IH-01-247-9	Glue Behind 4" Brown Cove Base Molding	Annex Welding Shop Main Room	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT				
SAMPLE No.	**LAB SAMPLE ID**	**MATERIAL**	**LOCATION**	**RESULTS**
95P	IH-01-247-10	Glue Behind 4" Brown Cove Base Molding	Annex Welding Shop Main Room	NAD
96P	IH-01-247-13	Joint Compound	Annex Welding Shop Main Room	NAD
97P	IH-01-247-14	Joint Compound	Annex Welding Shop Main Room	NAD
98P	IH-01-247-15	Joint Compound	Annex Welding Shop Storage Supply Closet	NAD
99P	IH-01-247-58	Green Glue Daub Above 12" Square Pinhole Ceiling Tile	A-Wing First Floor Math Classroom	NAD
100P	IH-01-247-59	Green Glue Daub Above 12" Square Pinhole Ceiling Tile	A-Wing First Floor Math Classroom	NAD
101P	IH-01-247-60	12" Square Pinhole Ceiling Tile	A-Wing First Floor Math Classroom	NAD
102P	IH-01-247-61	12" Square Pinhole Ceiling Tile	A-Wing First Floor Math Classroom	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT				
SAMPLE No.	**LAB SAMPLE ID**	**MATERIAL**	**LOCATION**	**RESULTS**
103P	IH-01-247-62	Sheetrock	A-Wing First Floor Math Classroom	NAD
104P	IH-01-247-63	Sheetrock	A-Wing First Floor Math Classroom	NAD
105P	IH-01-247-64	Joint Compound	A-Wing First Floor Math Classroom	NAD
106P	IH-01-247-65	Joint Compound	A-Wing First Floor Math Classroom	NAD
107P	IH-01-247-66	Joint Compound	A-Wing First Floor Math Classroom	NAD
108P	IH-01-247-70	Tan Adhesive Behind Wall Paneling	A-Wing First Floor Math Classroom	NAD
109P	IH-01-247-71	Tan Adhesive Behind Wall Paneling	A-Wing First Floor Math Classroom	NAD
110P	IH-01-247-72	Tan Carpet Adhesive	A-Wing First Floor Math Classroom	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT				
SAMPLE No.	**LAB SAMPLE ID**	**MATERIAL**	**LOCATION**	**RESULTS**
111P	IH-01-247-73	Tan Carpet Adhesive	A-Wing First Floor Math Classroom	NAD
112P	IH-01-247-78	Red Floor Levelastic	A-Wing First Floor Math Classroom	NAD
113P	IH-01-247-79	Red Floor Levelastic	A-Wing First Floor Math Classroom	NAD
114P	IH-01-247-80	Red Floor Levelastic	A-Wing First Floor Math Classroom	NAD
115P	IH-01-247-83	Mastic Behind 4" Back Cove Base Molding	A-Wing First Floor Math Classroom	NAD
116P	IH-01-247-84	Mastic Behind 4" Back Cove Base Molding	A-Wing First Floor Math Classroom	NAD
117P	IH-01-247-87	White 12" Self-Adhesive Floor Tile	A-Wing First Floor Math Classroom	NAD
118P	IH-01-247-88	White 12" Self-Adhesive Floor Tile	A-Wing First Floor Math Classroom	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

SAMPLE No.	LAB SAMPLE ID	MATERIAL	LOCATION	RESULTS
119P	IH-01-247-90	2' Square Ceiling Tile "Poke Marks and Nail Holes"	C-Wing First Floor Room 110 (C124)	NAD
120P	IH-01-247-91	2' Square Ceiling Tile "Poke Marks and Nail Holes"	C-Wing First Floor Room 110 (C124)	NAD
121P	IH-01-247-92	Sheetrock	C-Wing First Floor Room 110 (C124)	NAD
122P	IH-01-247-93	Joint Compound	C-Wing First Floor Room 110 (C124)	7% Chrysotile Asbestos
123P	IH-01-247-98	Mastic Behind 4" Dark Brown Cove Base Molding	C-Wing First Floor Room 110 (C124)	NAD
124P	IH-01-247-99	Mastic Behind 4" Dark Brown Cove Base Molding	C-Wing First Floor Room 110 (C124)	NAD
125P	IH-01-247-109	Mastic Behind 4" Brown Cove Base Molding	C-Wing First Floor Room 110 (C124)	NAD
126P	IH-01-247-110	Mastic Behind 4" Brown Cove Base Molding	C-Wing First Floor Room 110 (C124)	NAD

TABLE 4-1: BULK SAMPLE SUMMARY FOR SUSPECT ASBESTOS-CONTAINING MATERIALS H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT				
SAMPLE No.	**LAB SAMPLE ID**	**MATERIAL**	**LOCATION**	**RESULTS**
127P	IH-01-247-120	Interior Window Frame Sealant	A-Wing First Floor Corridor Outside Kitchen	NAD
128P	IH-01-247-121	Interior Window Frame Sealant	A-Wing First Floor Corridor Outside Kitchen	NAD
129P	IH-01-247-122	Exterior Window Frame Sealant	A-Wing First Floor Corridor Outside Kitchen	20% Chrysotile Asbestos
130P	IH-01-247-124	Exterior Window Glazing Compound	A-Wing First Floor Corridor Outside Kitchen	NAD
131P	IH-01-247-125	Exterior Window Glazing Compound	A-Wing First Floor Corridor Outside Kitchen	NAD
132P	07-34928-WRVT-TL	Spray-on Fireproofing (Note: Accessible Material Now Removed. Overspray and residue embedded in walls.)	B-Wing	30% Amosite Asbestos

TABLE 4-2: ASBESTOS-CONTAINING MATERIAL
H.C. WILCOX TECHNICAL HIGH SCHOOL
MERIDEN, CONNECTICUT

HOMOGENEOUS AREA NUMBER	MATERIAL DESCRIPTION	LOCATION	ASBESTOS TYPE AND CONTENT (%)
8	Textured Ceiling Plaster	C-Wing Auditorium C-113	5.0% Chrysotile Asbestos (Point Count)
12, 13	Tan 12" Floor Tile with Brown, White, Orange Streaks Mastic from Tan 12" Floor Tile with Brown, White, Orange Streaks	C-Wing Auditorium C-113 Projection Room	4.6 -7.1% Chrysotile Asbestos (Point Count) 10% Chrysotile Asbestos
17	Light Tan 12" Floor Tile (Painted Red) Mastic	B-Wing Corridor between B-136 and B-139	NAD 4.2% Chrysotile Asbestos (Point Count)
37(17)	White 12" Floor Tile with Grey Streaks	Annex HVAC Classroom	2.3% Chrysotile Asbestos (Point Count)
38(18)	White 12" Floor Tile with Black Streaks Mastic	Annex Carpentry Theory Room	1.5% Chrysotile Asbestos (Point Count) NAD
41(2)	Waterproofing Membrane/Tar	1978 Building Bottom 1' of Wall At SE Corner Graphics Shop	3.0% Chrysotile Asbestos (Point Count)
42(3)	Waterproofing Membrane	1972 Building C-Wing Bottom 1' of East Wall	8.0% Chrysotile Asbestos (Point Count)
43(4)	Waterproofing Tar	1972 Building C-Wing Bottom 1' of East Wall	4.0% Chrysotile Asbestos (Point Count)

TABLE 4-2: ASBESTOS-CONTAINING MATERIAL H.C. WILCOX TECHNICAL HIGH SCHOOL MERIDEN, CONNECTICUT			
HOMOGENEOUS AREA NUMBER	**MATERIAL DESCRIPTION**	**LOCATION**	**ASBESTOS TYPE AND CONTENT (%)**
44(5), 50(11), 51(12)	Window Caulk	Throughout A and B Wings Original (1959) Building	3.3-5.0% Chrysotile Asbestos (Point Count)
66	1' Square Acoustical Tile	A-Wing Second Floor On Wall Over Locker Near Room A-212	7% Amosite Asbestos
23P, 24P	Beige Cementitious Flooring (Asbestolith)	Throughout Much of B-Wing Shops	3-10% Chrysotile Asbestos
37P, 38P, 39P	Mudded Pipe Fitting Insulation	Throughout A and B Wings Original (1959) Building	48-50% Chrysotile Asbestos
120P	Joint Compound	C-Wing First Floor Room 110 (C124)	7% Chrysotile Asbestos
127P	Exterior Window Frame Sealant	A-Wing First Floor Corridor Outside Kitchen	20% Chrysotile Asbestos

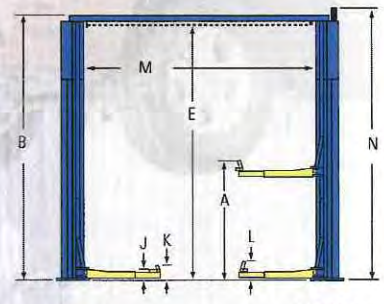
Updated Two-Post Lift Specifications

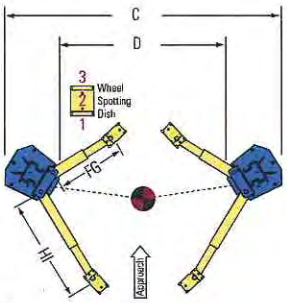
www.rotarylift.com

12'6 in shop ht.

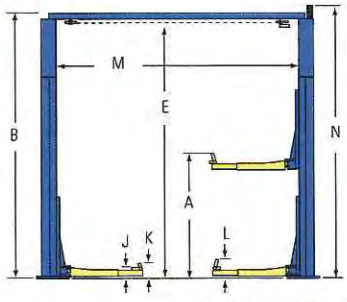
AM 1

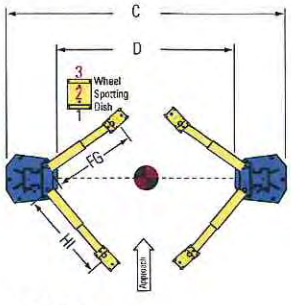
	Model:	SPOA10 A10i	SP010 S10i	SP012 S12i
A.	Rise*	78" (1981mm) 81" (2057mm)	78" (1981mm) 81" (2057mm)	81 1/16" (2059mm) 84 1/16" (2135mm)
B.	Height Overall: Standard EH1 EH2 EH4	11' 8" (3556mm) 12' 8" (3861mm) 13' 8" (4166mm) N/A	11' 8" (3556mm) 12' 8" (3861mm) 13' 8" (4166mm) 15' 8" (4775mm)	13' 8" (4166mm) 14' 8" (4470mm) 15' 8" (4775mm) N/A
C.	Width Overall** (outside of base plate)	11' 5 3/8" (3489mm)	11' 5 5/8" (3496mm)	11' 5 5/8" (3496mm)
D.	Drive-Thru Clearance	95" (2413mm)	102" (2590mm)	102" (2591mm)
E.	Floor To Overhead Switch	11' 4" (3455mm)	11' 4" (3455mm)	13' 4" (4064mm)
F.	Reach (front arm min.)	21 1/2" (546mm)	30 1/2" (775mm)	35" (889mm)
G.	Reach (front arm max.)	40 3/4" (1036mm)	53 3/4" (1365mm)	54" (1372mm)
H.	Reach (rear arm min.)	40" (1016mm)	30 1/2" (775mm)	37" (940mm)
I.	Reach (rear arm max.)	61" (1548mm)	53 3/4" (1365mm)	54" (1372mm)
J.	Min. Adapter Height	4 3/4" (121mm)	4 3/4" (121mm)	5 1/16" (129mm)
K.	Low Step Height	7" (178mm)	7" (178mm)	9 1/16" (230mm)
L.	High Step Height	10 1/4" (260mm)	10 1/4" (260mm)	13 1/16" (332mm)
M.	Inside Columns	106 1/4" (2699mm)	114 1/2" (2908mm)	114 1/2" (2908mm)
N.	Cylinder Height (full rise)*	11' 11" (3632mm) 12' 5" (3785mm)	11' 11" (3632mm) 12' 5" (3785mm)	N/A
	Lifting Capacity	10,000 lbs. (4536kg)	10,000 lbs. (4536kg)	12,000 lbs. (5443kg)
	Motor	2HP	2 HP	2 HP
	Voltage Single Phase †	208v-230v	208v-230v	208v-230v
	Time of Full Rise	45 seconds	45 seconds	60 seconds
	Ceiling Height Required: Standard EH1 EH2 EH4	 12' (3658mm) 12' 9" (3886mm) 13' 9" (4191mm) N/A	 12' (3658mm) 12' 9" (3886mm) 13' 9" (4191mm) 15' 9" (4801mm)	 13' 9" (4191mm) 14' 9" (4496mm) 15' 9" (4801mm) N/A
	Max Load (per arm)	2,500 lbs. (1134kg)	2,500 lbs. (1134kg)	3,000 lbs. (1360kg)





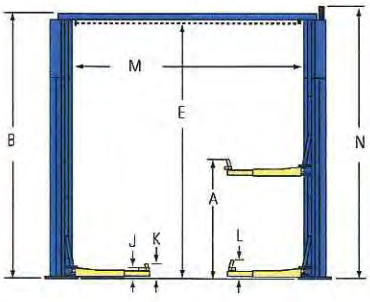
SPOA10/A10i

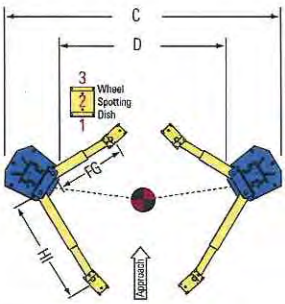




SP010/S10i/SP012/S12i

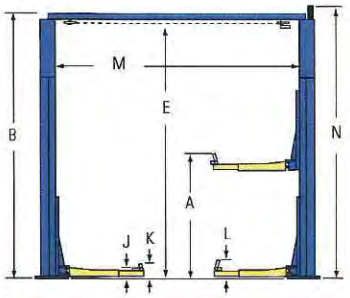

Model:		SPOA10 A10i	SPOA10-RA A10i-RA (3-stage front arm)
A.	Rise*	78" (1981mm) 81" (2057mm)	73 7/8" (1876mm) 76 7/8" (1953mm)
B.	Height Overall: Standard EH1 EH2 EH4	11' 8" (3556mm) 12' 8" (3861mm) 13' 8" (4166mm) N/A	11' 8" (3556mm) 12' 8" (3861mm) 13' 8" (4166mm) N/A
C.	Width Overall** (outside of base plate)	11' 5 3/8" (3489mm)	11' 5 3/8" (3489mm)
D.	Drive-Thru Clearance	95" (2413mm)	95" (2413mm)
E.	Floor To Overhead Switch	11' 4" (3455mm)	11' 4" (3455mm)
F.	Reach (front arm min.)	23 3/4" (604mm)	21 5/8" (550mm)
G.	Reach (front arm max.)	40 3/4" (1036mm)	43 1/2" (1106mm)
H.	Reach (rear arm min.)	41 3/8" (1050mm)	34 1/2" (878mm)
I.	Reach (rear arm max.)	61" (1548mm)	58" (1474mm)
J.	Min. Adapter Height	4" (102mm)	3 5/8" (93mm)
K.	Low Step Height	6 1/8" (156mm)	N/A
L.	High Step Height	10" (254mm)	5 7/8" (149mm)
M.	Inside Columns	106 1/4" (2699mm)	106 1/4" (2699mm)
N.	Cylinder Height (full rise)*	11' 11" (3632mm) 12' 5" (3785mm)	11' 11" (3632mm) 12' 5" (3785mm)
	Lifting Capacity	10,000 lbs. (4536kg)	10,000 lbs. (4536kg)
	Motor	2HP	2HP
	Voltage Single Phase †	208v-230v	208v-230v
	Time of Full Rise	45 seconds	45 seconds
	Ceiling Height Required: Standard EH1 EH2 EH4	 12' (3658mm) 12' 9" (3886mm) 13' 9" (4191mm) N/A	 12' (3658mm) 12' 9" (3886mm) 13' 9" (4191mm) N/A
	Max Load (per arm)	2,500 lbs. (1134kg)	2,500 lbs. (1134kg)





Models: SPOA7LC A7LCi | SPOA7LC-RA A7LCi-RA | SPOA10 A10i | SPOA10-RA A10i-RA

Model:		SP010 S10i
A.	Rise*	78" (1981mm) 81" (2057mm)
B.	Height Overall: Standard EH1 EH2 EH4	11' 8" (3556mm) 12' 8" (3861mm) 13' 8" (4166mm) 15' 8" (4775mm)
C.	Width Overall** (outside of base plate)	11' 5 5/8" (3496mm)
D.	Drive-Thru Clearance	102" (2590mm)
E.	Floor To Overhead Switch	11' 4" (3455mm)
F.	Reach (front arm min.)	32 1/4" (818mm)
G.	Reach (front arm max.)	53 7/8" (1369mm)
H.	Reach (rear arm min.)	32 1/4" (818mm)
I.	Reach (rear arm max.)	53 7/8" (1369mm)
J.	Min. Adapter Height	4" (102mm)
K.	Low Step Height	6 1/8" (156mm)
L.	High Step Height	10" (254mm)
M.	Inside Columns	114 1/2" (2908mm)
N.	Cylinder Height (full rise)*	11' 11" (3632mm) 12' 5" (3785mm)
	Lifting Capacity	10,000 lbs. (4536kg)
	Motor	2 HP
	Voltage Single Phase †	208v-230v
	Time of Full Rise	45 seconds
	Ceiling Height Required: Standard EH1 EH2 EH4	 12' (3658mm) 12' 9" (3886mm) 13' 9" (4191mm) 15' 9" (4801mm)
	Max Load (per arm)	2,500 lbs. (1134kg)



Models: SP010 S10i

Standard color of lifts are blue unless otherwise noted. Red, yellow, gray and black are available at no additional charge. Additional colors are available, consult your Rotary® representative for details.

AM2

HUNTER Engineering Company

RX Scissor Lift Rack

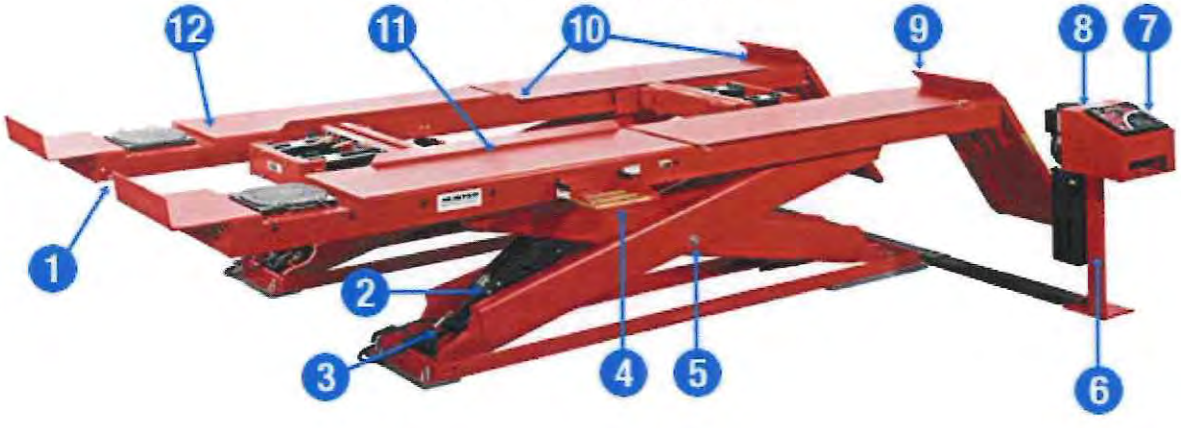
Racks	Features	Specifications	Models	Standard Equipment
Options	Ordering Information	View PDF		

RX Scissor Lift Rack

Rugged 9,000-lb. Capacity with 72" Working Height or Larger 12,000-lb. Capacity with 68" Working Height

See Flash Animation

click number to see detail



Optional Air Jacks for Hunter Alignment Lift Racks

6,000-lb. capacity Swing Air Jack

4,500-lb. capacity Swing Air Jack

Optional Hunter Air Jacks add capabilities for lifting vehicles off the runways during alignment procedures and other multi-service operations.

The Heavy Duty Swing Air Jack (for use with the RX-12) has a capacity of 6,000 lbs. (2722 kg). Swing Air Jacks or Air-Actuated Power Jacks (for use with the RX-9) have a capacity of 4,500 lbs. (1800 kg).

4,500-lb. capacity Air-Actuated Power Jack

RX-P Flush Mount Scissors Rack

The RX Scissor Rack may also be installed flush mounted in a shallow pit. No more worries about lowered vehicles or expensive spoilers! This very tidy installation is ideal for "showcase" shops. See site requirements for installation details.

RX-9 Specifications

		RX-9	RX-9-L
Max. Vehicle Gross Weight:		9,000 lbs. (4082 kg)	9,000 lbs. (4082 kg)
Max. Wheelbase:	**General Service**	160" (4064 mm)	175" (4445 mm)
	Two-wheel alignment	146" (3708 mm)	161" (4089 mm)

	Four-wheel alignment	138" (3505 mm)	158" (4013 mm)
Min. 4-Wheel Alignment:		88" (2235 mm)	88" (2235 mm)
Runway Width:		24" (609 mm)	24" (609 mm)
Lowered Height:		9" (229 mm)	9" (229 mm)

Tread Width: Minimum width of 40" (1016 mm) between inside of tires. Maximum width of 88" (2235 mm) to outside of tires.

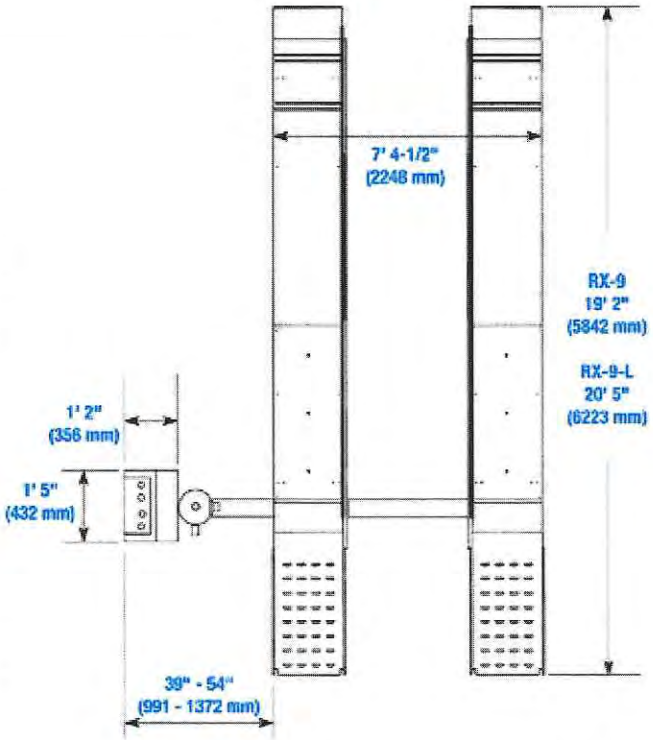
Alignment Height: All lock positions
Max. Height: 72" (1829 mm)
Electrical: 208-230 volt, 1-ph, 60 Hz, 22A
Air: 90-120 psi

Models

RX-9: RX Lift Rack without jacking system
RX-9-L: Long Deck RX Lift Rack without jacking system
-43: RX Lift Rack plus two 4,500-lb. capacity swing air-jacks
-71: RX Lift Rack plus two 4,500-lb. capacity air-actuated power jacks
-P: Flush mount version

Standard Equipment

- Two Movable Work Steps
- Front Wheel Stops
- Two Wheel Chocks
- Air Line Kit
- Full Floating Rear Wheel Slip Plates
- Louvered Ramps with Built-in Wheel Stops



Options

51–1696–1	Additional Work Step
20–593–1	Communications Interface Kit
25–140–1	Standard Turn Plate, 14"
133–67–1	Swing Air Jack, 4,500-lb. Capacity
25–129–1	Stainless Steel Turn Plate
133–63–1	Air-Actuated Power Jack, 4,500-lb. Capacity
20–1638–1	Tool Tray with Organizer
147–104–1	Approach Ramp Extension, adds 12-3/4" (324 mm) to length

Because of continuing technological advancements, specifications, models and options are subject to change.

RX-12 Specifications

		RX-12-L	RX-12-XL
Max. Vehicle Gross Weight:		12,000 lbs. (5443 kg)	12,000 lbs. (5443 kg)
Max. Wheelbase:	**General Service**	175" (4445 mm)	187" (4750 mm)
	Two-wheel alignment	161" (4089 mm)	173" (4394 mm)
	Four-wheel alignment	158" (4013 mm)	158" (4013 mm)
Min. 4-Wheel Alignment:		88" (2235 mm)	88" (2235 mm)
Runway Width:		24" (609 mm)	24" (609 mm)
Lowered Height:		11" (279 mm)	11" (279 mm)

Tread Width: Minimum width of 40" (1016 mm)

between inside of tires.
Maximum width of 88" (2235 mm) to outside of tires.

Alignment Height: All lock positions
Max. Height: 68" (1727 mm)
Electrical: 208-230 volt, 1-ph, 60 Hz, 22A
Air: 90-120 psi

Models

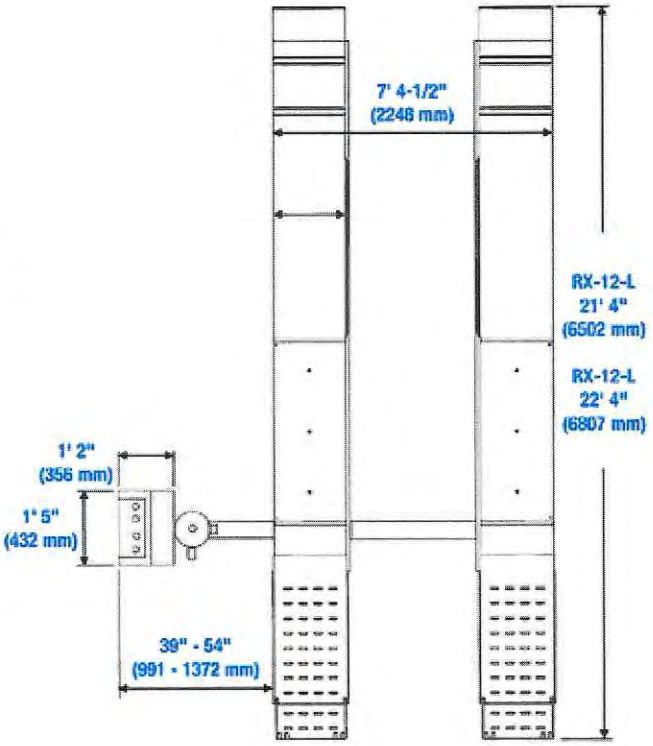
RX–12–L: RX Lift Rack without jacking system
RX–12–XL: Long Deck RX Lift Rack without jacking system
–43: RX Lift Rack plus two 6,000-lb. capacity swing air-jacks
–P: Flush mount version

Standard Equipment

- Two Movable Work Steps
- Front Wheel Stops
- Two Wheel Chocks
- Air Line Kit
- Full Floating Rear Wheel Slip Plates
- Louvered Ramps with Built-in Wheel Stops

Options

20–593–1 Communications Interface Kit
20–1638–1 Tool Tray with Organizer
25–129–1 Stainless Steel Turn Plate
25–140–1 Standard Turn Plate, 14"
51–1696–1 Additional Work Step
133–69–1 Swing Air Jack, 6,000-lb. Capacity



Because of continuing technological advancements, specifications, models and options are subject to change.

The Hunter RX Scissor Lift Rack has been certified under the program conducted by Automotive Lift Institute (ALI) and ETL Testing Laboratories, to comply with Safety Standard ANSI/ALI ALCTV-1998 and Electrical Standard ANSI/UL 201.

Ordering Information

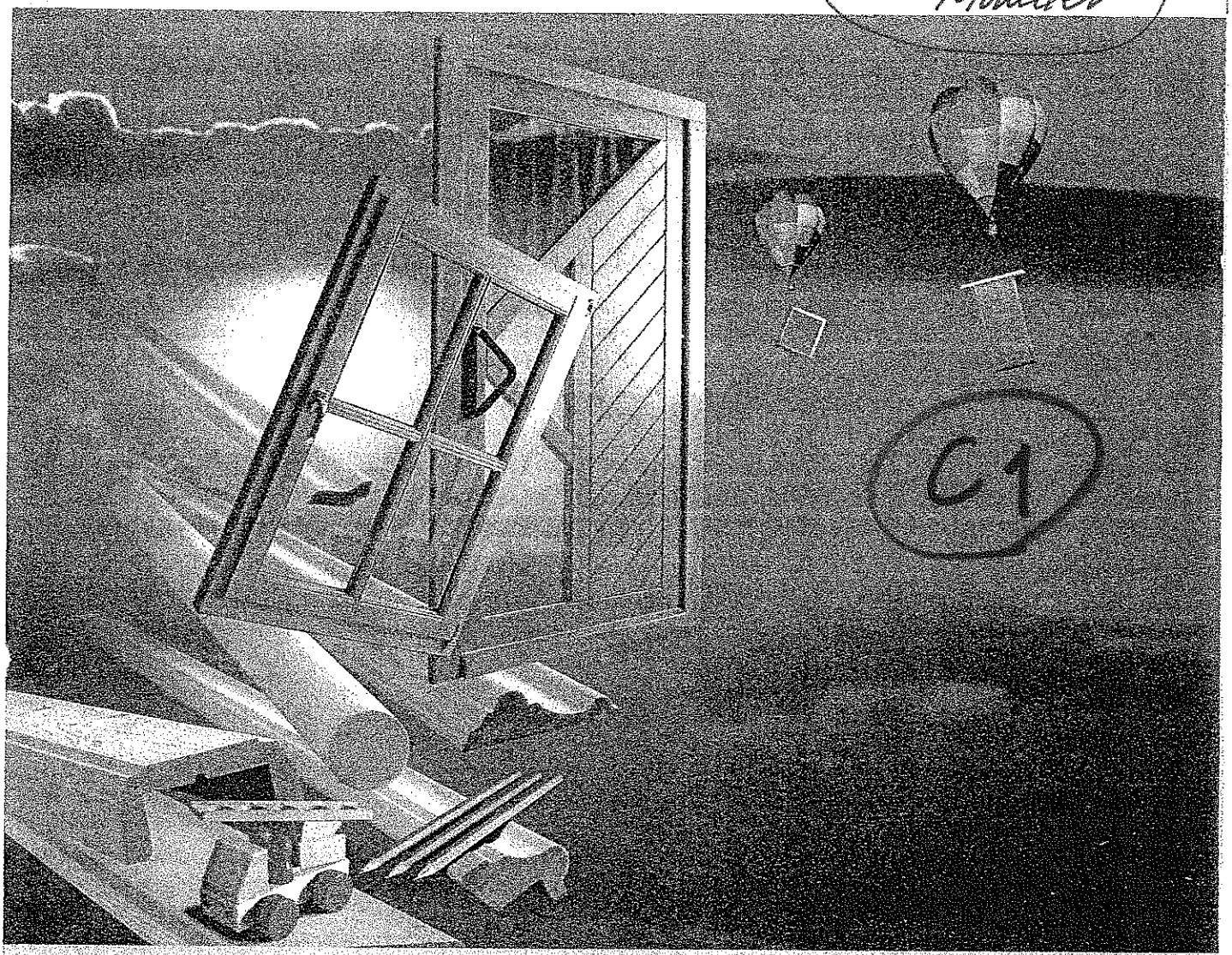
For pricing and ordering information on Racks or other Hunter products, contact your local Hunter representative. See the representative locator or contact Hunter Engineering Company. To receive a quote on this equipment, go to Get-A-Quote.

Weinig

WEINIG GROUP

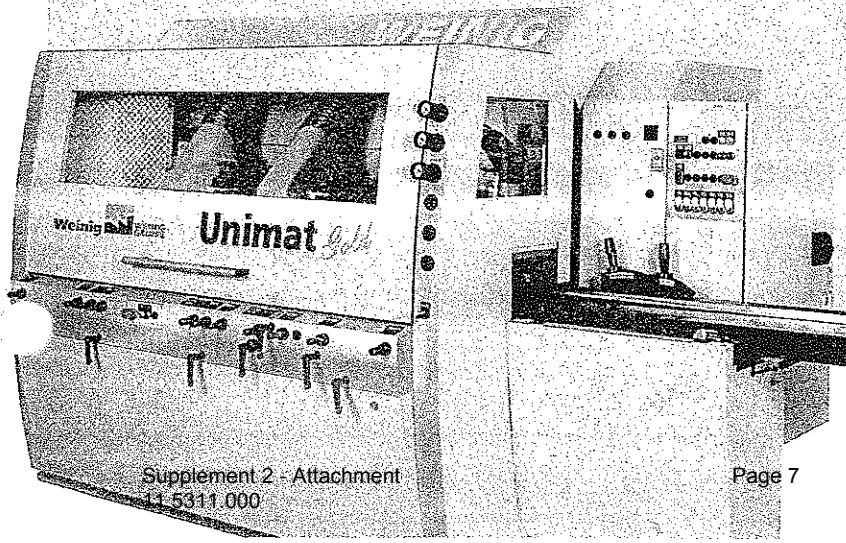
5" Spindle Moulder

Solid wood machining know-how ... with an edge



C1

Weinig Unimat Gold



The moulder with all of the right features and it doesn`t cost a fortune.

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery

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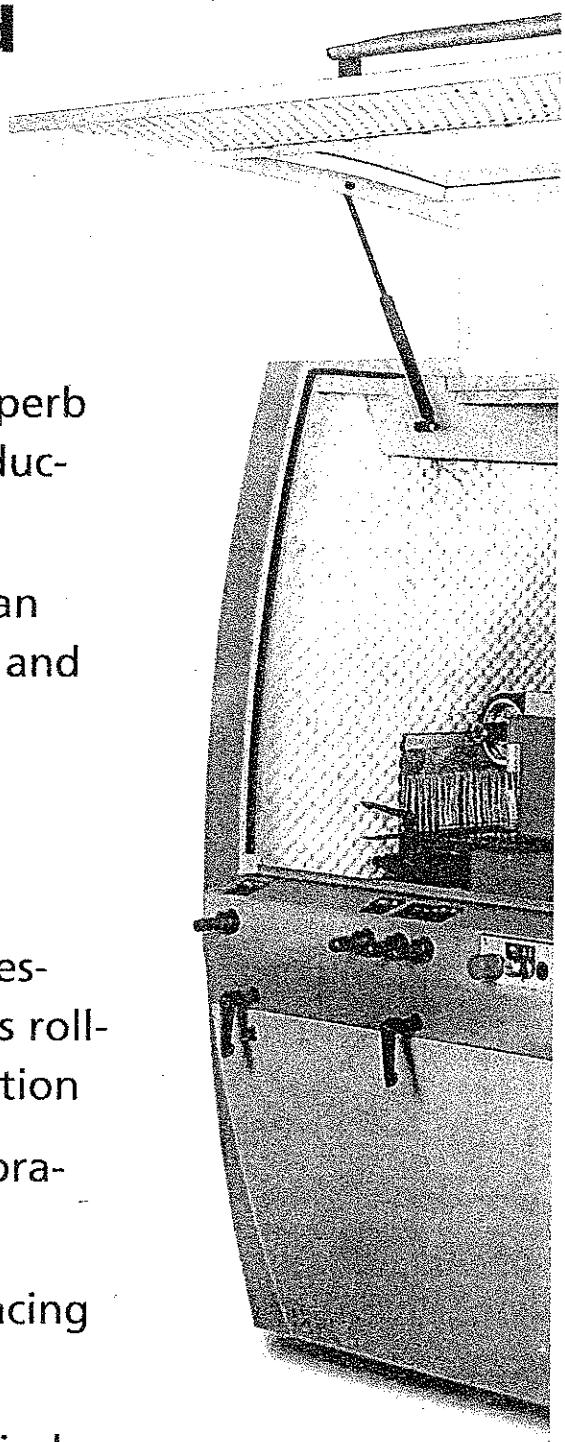
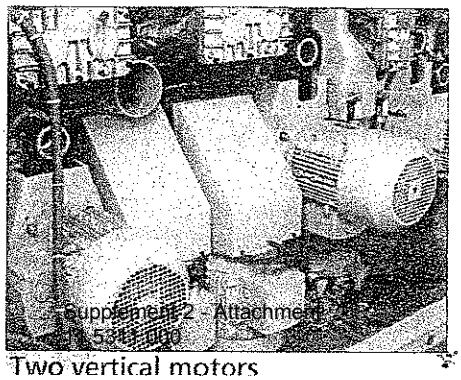
A World Class Planer/Moulder With Outstanding Features And Attractive Options

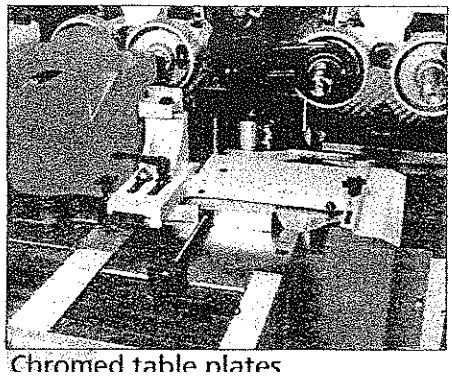
The Unimat Gold, a machine of high specification



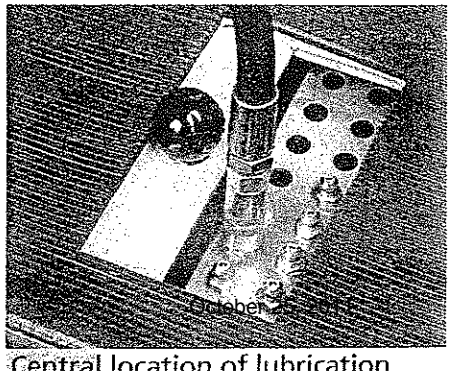
- 6000 rpm spindle speed ensuring "superb quality" surface finish and more production
- With up to 75 hp, the Unimat Gold can meet the demands of larger profiles and any timber species
- A feed speed up to 30 m/min
- Central location at lubrication points
- Receding chipbreakers, pneumatic pressure to the feed system , driven tables rollers, are part of the standard specification
- Chromed table plates to cope with abrasive timber and MDF moulding
- The compact design, close spindle spacing provide high dimensional accuracy
- Latest design, with the operator in mind, easy to set, easy to operate



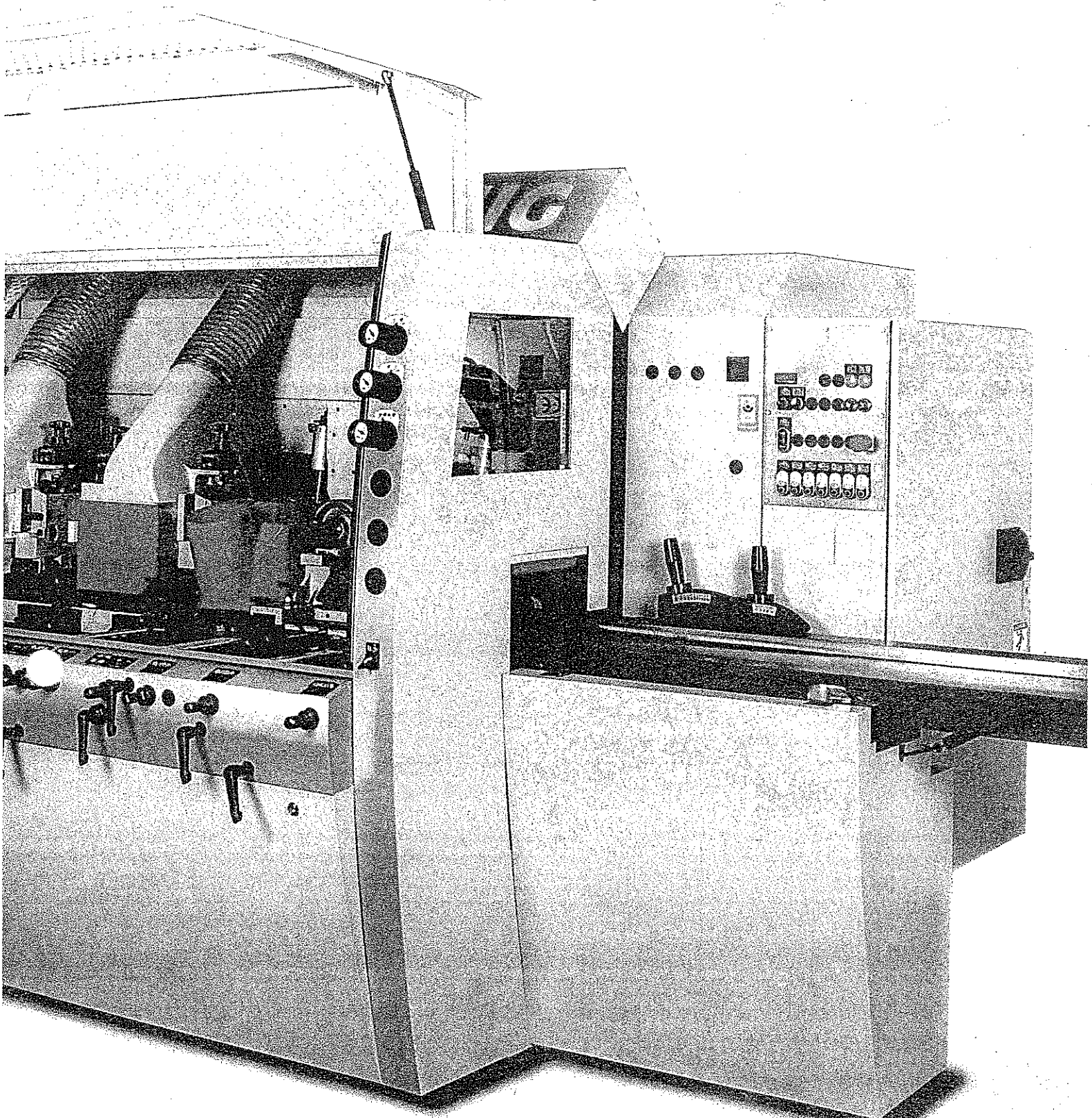
Two vertical motors

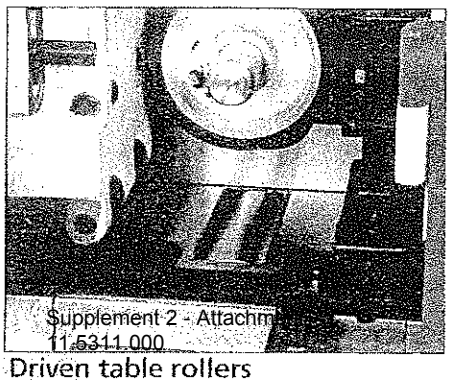


Chromed table plates

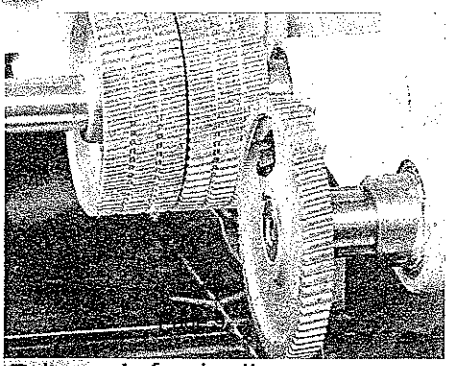


Central location of lubrication

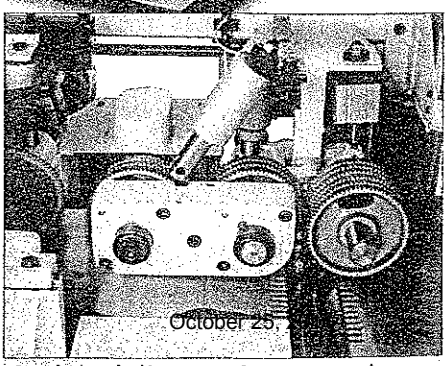




Driven table rollers



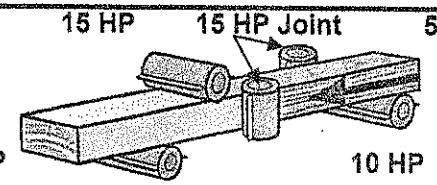
Telescopic feed roller



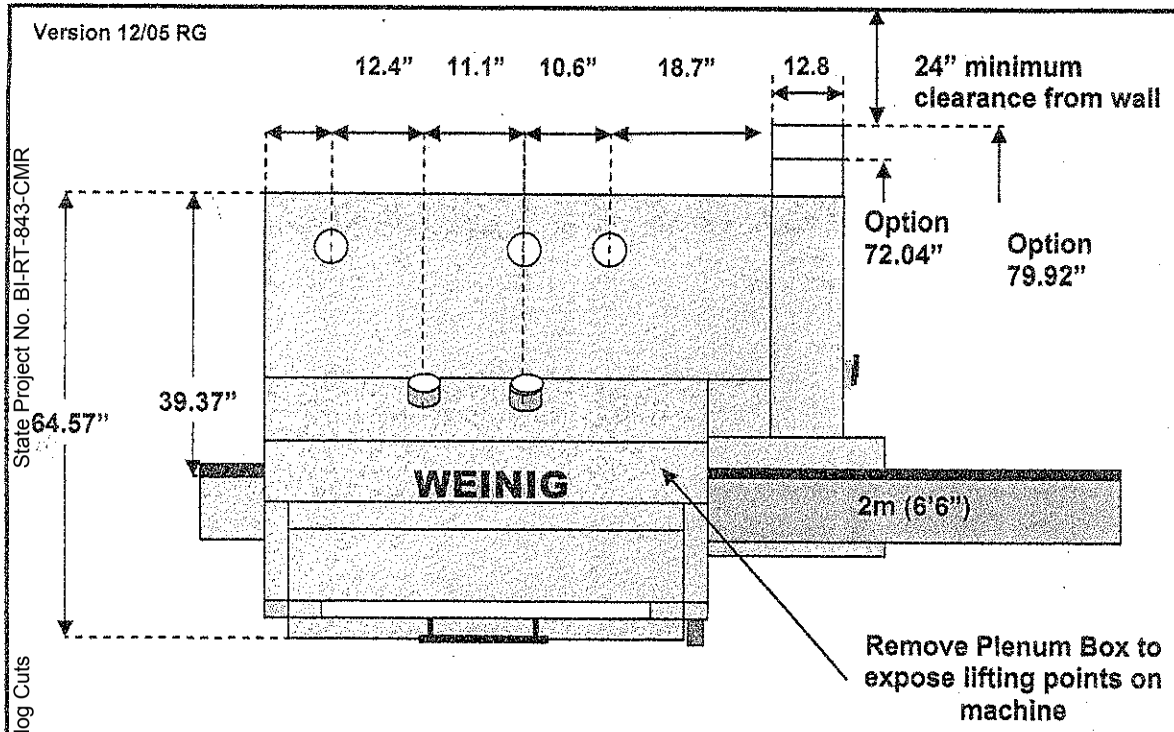
Reduced distance between the

Version 12/05 RG

Unimat Gold



October 25, 2011



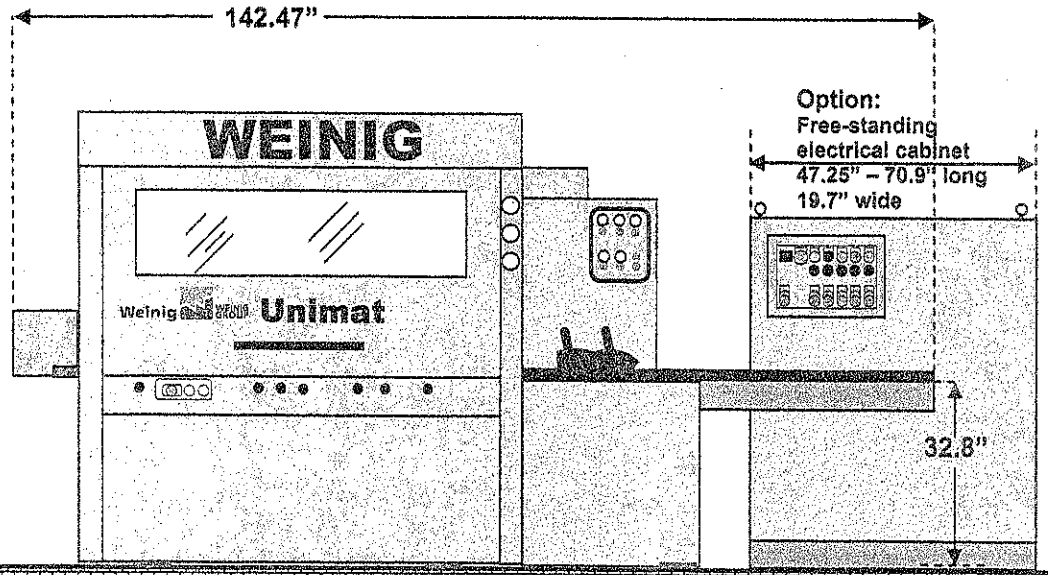
Voltage Requirements: 460 volts – 80 amps
230 volts – 160 amps

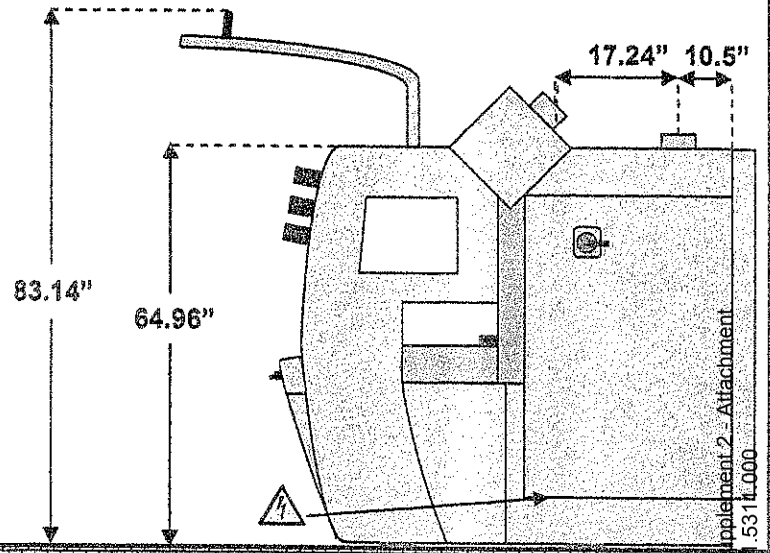
Electrical Connection:

Compressed Air Requirements: 87psi (clean & dry)

Dust Collection Requirements: 5 dust ports at 140mm (5.5")
Recommended Air Volume - 5000 cfm.
Recommended Air Velocity – 4500-6000 ft./min.
Recommended Manifold Connecting Diameter - 12"
Static Pressure Allowance for Machine – 5 inches of water.

Machine Weight (approximate):
Crated Weight: 6,600 lbs.
Uncrated Weight: 4,950 lbs.

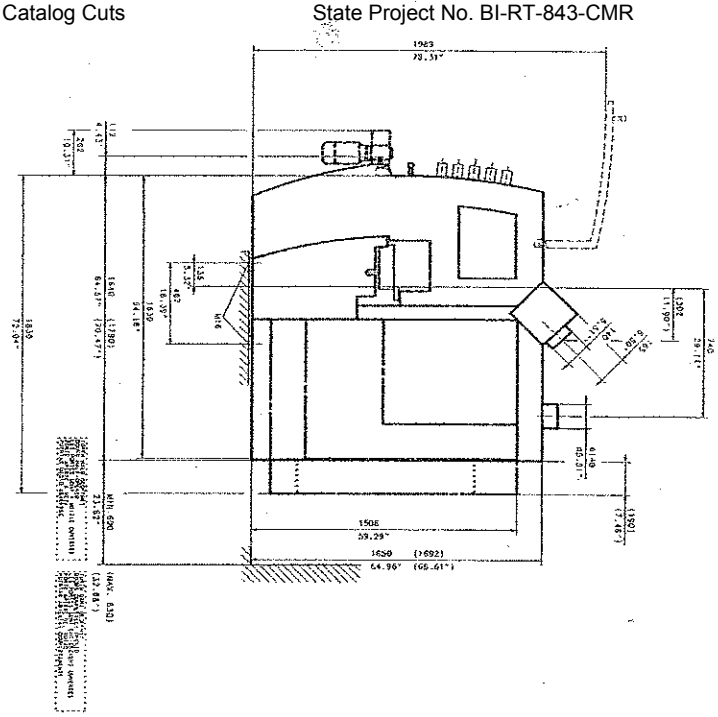


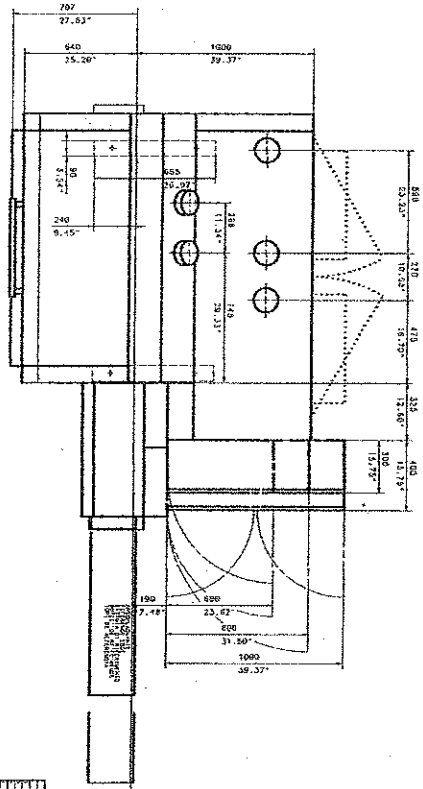


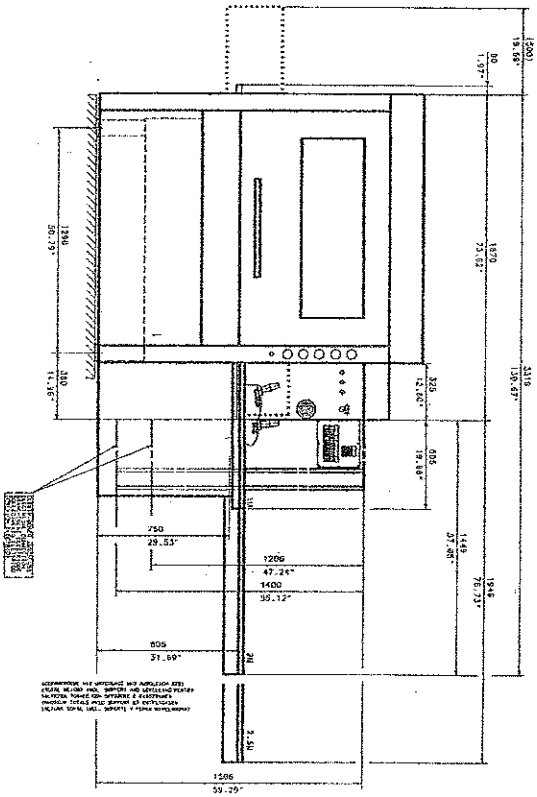
Electrical cabinet configuration (attached vs. unattached) may vary depending upon voltage, horsepower and/or the addition of electronic brakes. If you have questions, contact Mic Weinig, inc.

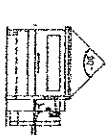
Weinig WEINIG GROUP
124 Crosslake Park Drive
Mooresv NC 28117
Tel (704) 799-01 ax (704) 799-7400

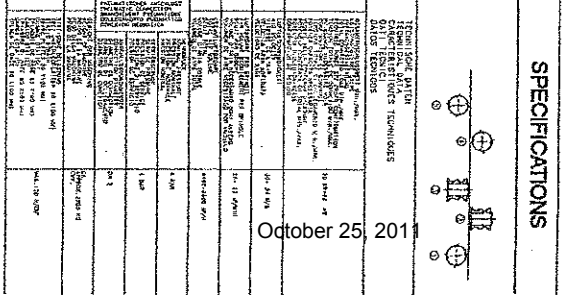
This floor plan represents a generic, stock configuration. Please contact Michael Weinig, Inc. for confirmation of specific data or t btain the most current floor diagra







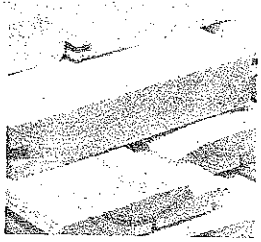
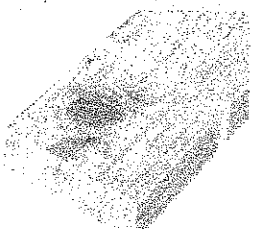
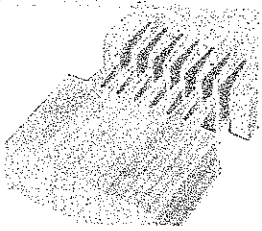
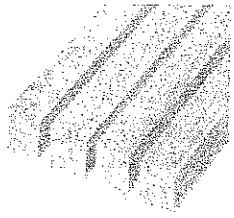
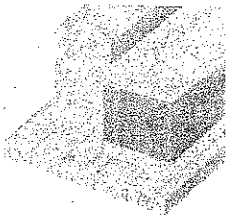




The Weinig Group:

Solid wood machining know-how with an edge

- **Weinig:** World market leader for automatic moulders
- **Dimter:** The specialist for optimizing cross-cut saws and laminating presses
- **Waco:** The No.1 for high-speed planers and moulders
- **Raimann:** Top technology for length cutting
- **Grecon:** High-capacity finger jointing lines
- **Concept:** The experts when it comes to turnkey projekts

More information about Weinig Unimat Gold. Fax +49 (0) 93 41 / 70 80

☐ Please send me detailed information
☐ Please arrange a personal consultation

I am interested in

☐ The entire range of the Weinig Group
☐ The Weinig range
☐ The Waco range
☐ The Grecon range
☐ The Dimter range
☐ The Raimann range
☐ The Concept range
(please mark with „x")

Name

Company

Department/Position

Street/P.O.Box

ZIP Code/City

Telephone

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery

2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607

Weinig offers more!

Michael Weinig, Inc.
124 Crosslake Park Drive, P.O. Box 3158
Mooresville, NC 28117 USA
Sales and Administration: (704) 799-0100
Parts and Service: (704) 799-0400
Tooling: (800) 343-4644
Fax: (704) 799-7400
Email Address: weinig@weinigusa.com

Weinig WEINIG GROUP

Michael Weinig AG
Weinigstrasse 2/4
97941 Tauberbischofsheim
Germany
Telephone +49 (0) 93 41 / 86-0
Telefax +49 (0) 93 41 / 70 80

Northfield UNI-POINT RADIAL SAW

Model X36AF

C2

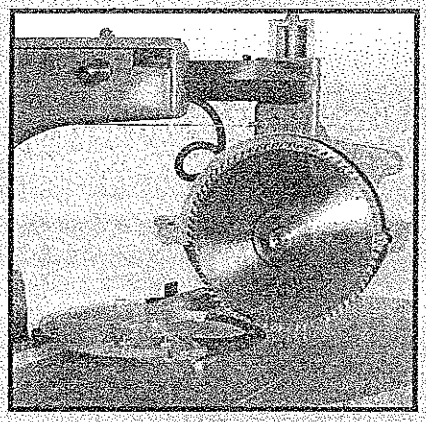
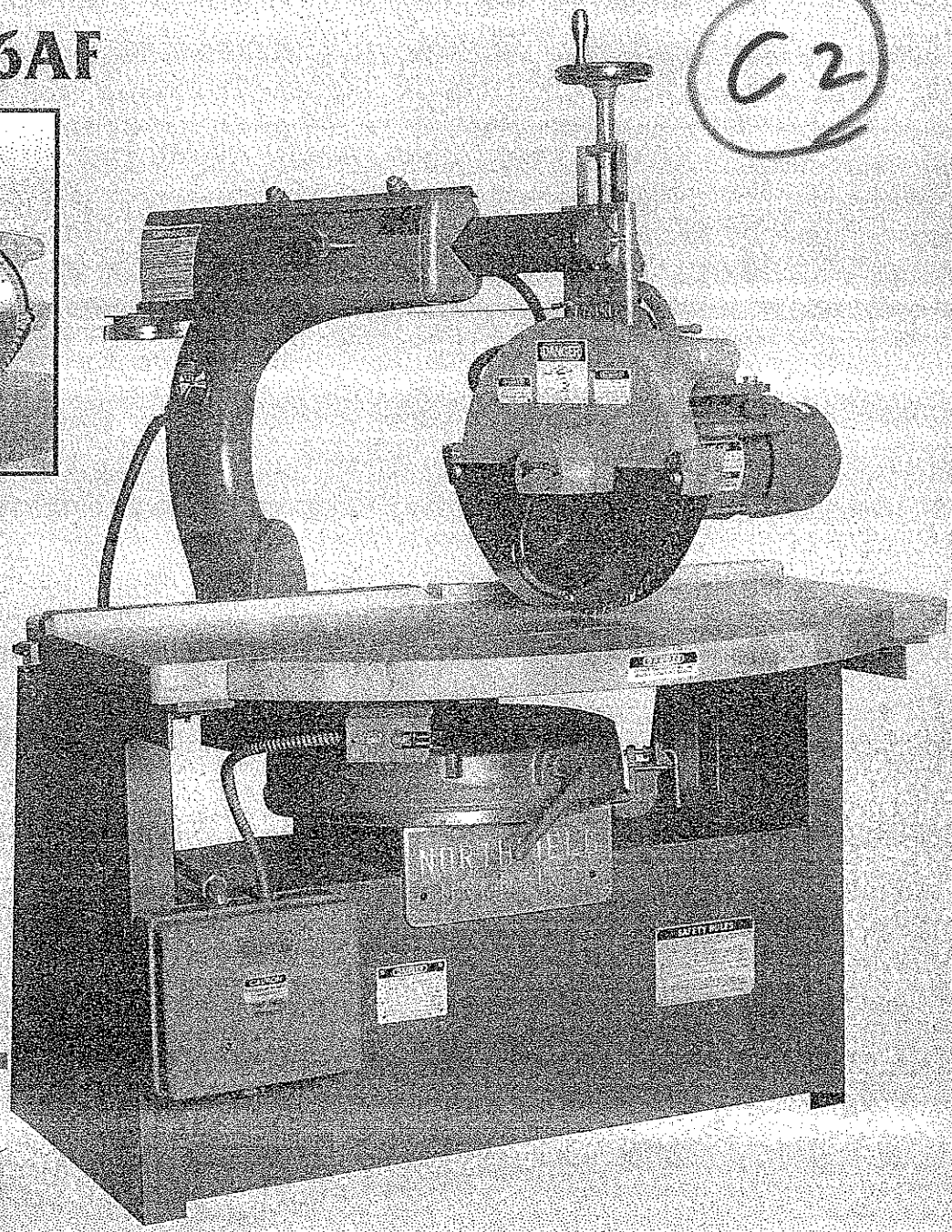


Photo shows the guard removed for blade changing



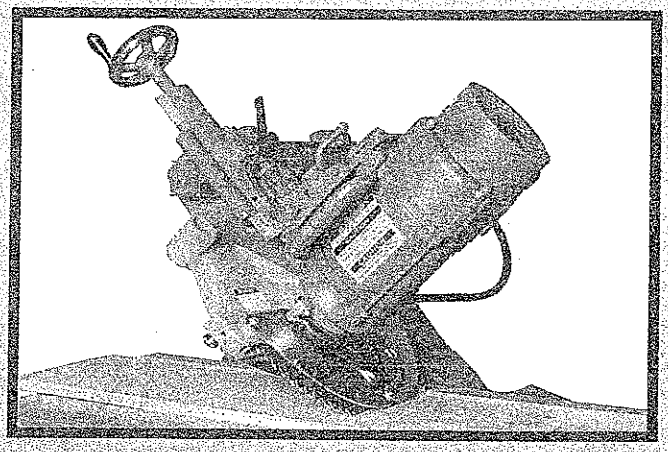
Coffey Machinery Company, Inc.
Woodworking Machinery

2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607

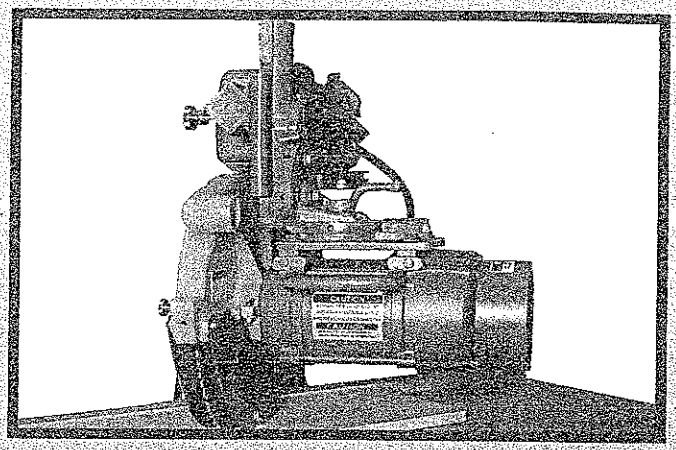
Cuts everything including TIME and COSTS

The Northfield Uni-Point Radial Saw provides an amazingly fast and entirely new wood cutting principle called "ONE POINT CUTTING". This means that the saw blade always enters the stock at the same point in the table regardless of how it is set for a vertical, horizontal, or compound miter cross cut angle.

PROFIT THROUGH AMERICAN TECHNOLOGY
WOOD MACHINERY MANUFACTURERS OF AMERICA
MEMBER



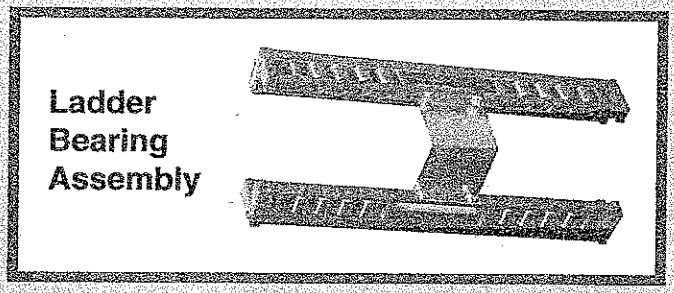
Bevel Cross Cutting
The tilting column is counter-balanced, and vertical tilting to set saw for bevel cross cutting is a simple, quick setting adjustment accomplished with split second speed–saw always cutting into stock at same point in table.



Mitering: Right or Left
The rear column and base also pivot horizontally to right or left for miter cutting either direction–saw always cutting into stock at same point in the table.

Ten Points of Superiority!

1. One Point Cutting
"One Point Cutting" not only reduces angular cross cutting operations to an unusual degree of mechanical simplicity, but eliminates some adjustment motions entirely, cuts down the time factor on other adjustment motions, is more adaptable to short cut production methods, and in many other ways greatly increases total production per hour.



2. Blade Height Under Constant Control
It is never necessary to raise or lower the saw blade for any angle of cross cut. Once properly set it is always correctly positioned, even on compound miter cuts. Such adjustments eliminated entirely–**time saved!**

3. Heavy Cast Iron Construction
Massive iron components, accurately machined, insure lasting alignment and close tolerance cutting. The vibration dampening effect of cast iron adds years to the lifetime of the machine, while providing the smoothness of operation and accuracy that you require for your most intricate work.

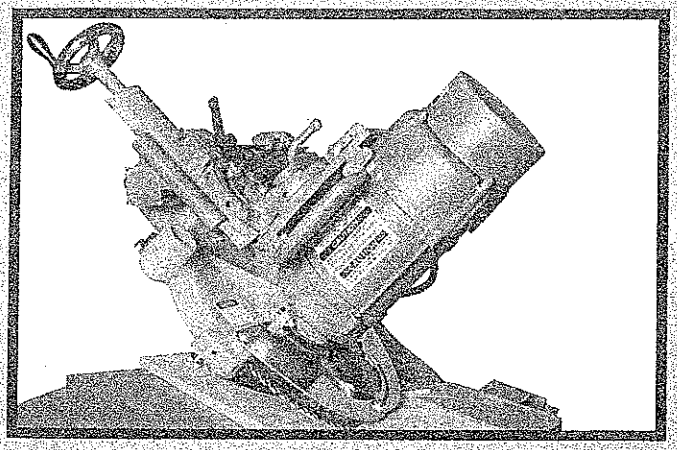
4. Gauges Always Remain Fixed
Because the saw blade enters the cut at the same point, it is never necessary to rearrange the material to be cut or change the stops or gauges when changing cross cut angles. "One point cutting" eliminates the necessity of adjusting work and gauges as usually required when saw blade cuts at different points according to degree of angle. **MORE TIME SAVED!**

5. Wearing Parts of Hardened Steel
All vital moving parts are protected by hardened steel. The telescoping ram is special heat treated hardened steel. The housing is provided with hardened steel bearing ways. The 32 roller bearings are hardened steel to assure easy finger touch motion and absolute permanent accuracy. Breakdowns or time out for replacing parts is eliminated because Uni-Point is built to last a lifetime.

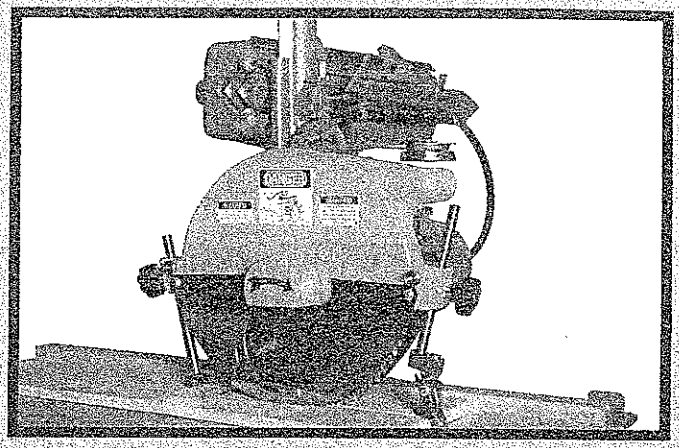
6. Permanent Guide Fence
Again, "one point cutting" allows the saw blade to pass thru the guide fence at the same point always. Cutting thru the fence at different points according to angle soon mutilates the fence requiring constant replacements. Thus, with Uni-Point the fence lasts for years.

WORK SMART!

The best machinery is most economical in the long run!



Compound Mitering
By combining both operations of tilting and pivoting, the saw is easily set for compound miter cuts- the saw still cutting into stock at the same point in the table.



Ripping: Straight or Bevel
The universal knee supporting the motor and saw permits the saw to be swung around quickly from a cross-cut to a ripping position, with a positive stopping pin for speed and accuracy in setting.

7. One Stop-and-Gauge Adjustment per Job

Not only can the stops remain fixed when angle of cut is changed, but can remain fixed however many changes are made provided the length of material remains the same. In other words, gauges need only be changed when the entire job is changed.

8. Work Always in Full View

With a telescoping ram, the entire upper assembly recedes at the completion of each cutting stroke, leaving table free and clear for measuring and other work. No long arm to work around.

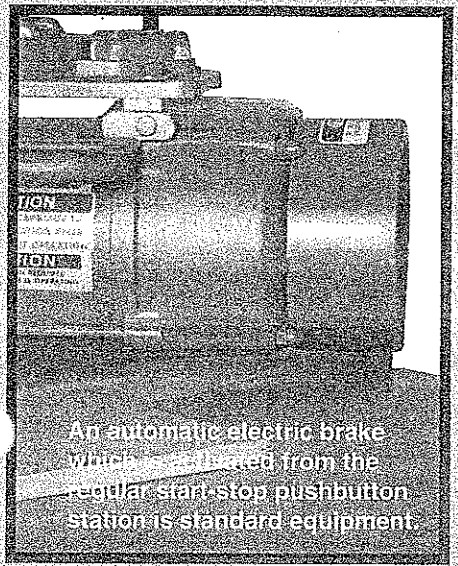
9. All Locking Levers are Easily Accessible

All adjustments are made in front of the machine, above or below the table. No reaching over the table. Everything handy and simple to adjust.

10. Stops Automatically Lock Uni-Point at All Common Angles

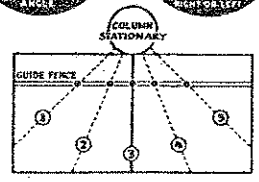
Instantaneous locking action provided at all common positions, such as straight cross-cutting, 45° bevel, 45° miter right or left, 45° compound miter and ripping.

Time Saving • Convenient • Simple • Accurate • Fast!

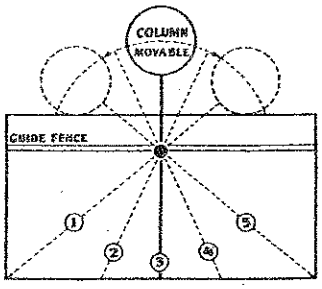


An automatic electric brake which is actuated from the regular start-stop pushbutton station is standard equipment.

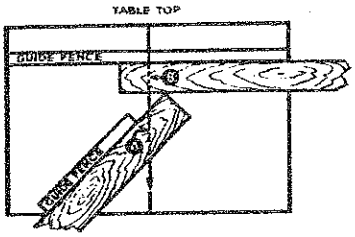
UNI-POINT always cuts at the same point in the table, whether set for vertical, horizontal or compound miter cross cut angle.



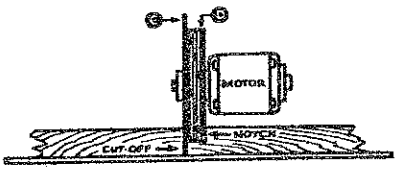
The Old, Slow, Costly Way. Saw enters work at different point for every angle.



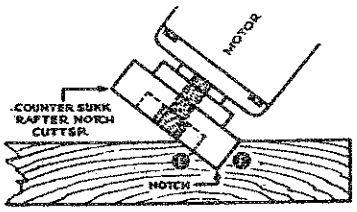
THE NEW, UNI-POINT, Efficient Way. Saw enters work at same point regardless of angle. Saves 20% or more per manhour.



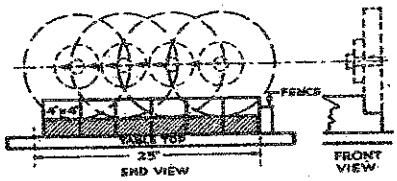
1. An angle cut (a), and a cross cut (b), with one stroke of saw —100% increase.



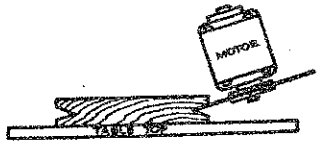
2. A cross cut saw (c), combined with a dado head (d), cut off and notch one end with one stroke of saw—100% increase.



3. Instead of cutting angle (e), then angle (f), use a countersunk dado or rafter notch cutter and cut both angles with one stroke of saw—100% increase.



4. Notch six 4" rafters with one stroke of saw—500% increase. Uni-Point has 25" cross cut capacity.



5. Whatever the job—Uni-Point can do it! Yes, the answer is multiple cutting, the Uni-Point way.

SPECIFICATIONS

Motor*,**Horsepower	5 - 7-1/2 - 10
Saw Diameter	16"
Saw Hole	1"
Dado* –Largest width on standard mandrel	1-9/16"
Dado* –Largest width on 1-3/8" diameter mandrel extension	3"
Maximum depth of cut (16" saw)	4-1/2"
Cross cut capacity–guide fence regular position	17-1/2"
Cross cut capacity–guide fence rear position	25"
Ripping capacity–between saw and regular guide fence	23-1/2"
Ripping capacity–with guide fence moved to rear	31"
Maximum 45° miter, guide fence regular position	4" x 12-1/2"
moved to rear	4" x 14-1/2"
Maximum 70° miter, guide fence regular position	4" x 6"
moved to rear	4" x 8-1/2"
Maximum compound 45° miter	3" x 12-1/2"
Motor raises, center of arbor to table top, max.	10"
Motor lowers, center of arbor to table top, min.	3-5/8"
Size of table	25" x 48"
Height of table	32"
Angle capacity–	
Saw tilts to left	45°
Saw pivot to right	70°
Saw pivot to left	45°
Floor space, overall	48" x 60"
Roller tables, length from saw blade to each end (std.)	10'
Roller tables, width overall	17-1/2"
Approx. net weight, lbs	800
Approx. shipping weight, lbs.	1000
Approx. shipping weight, (Export)	1200
Cubic Contents (Export) cu. ft.	104

*Special Dado guard must be used.

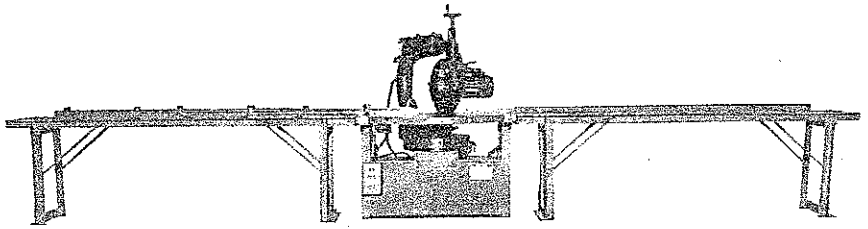
Standard Equipment: Regular machine complete with guard and kick back preventer, magnetic starter with 110 volt at pushbutton and automatic electric brake.

***Motors: Totally enclosed fan cooled, available in 5 - 7-1/2 - 10 horsepower, 208, 230/460, 575 volt, three phase. For motors of special voltages and phases please contact our factory.*

EXTRAS

NEMA 12 Electrics with Disconnect, 24 Volt at Pushbutton, Rolling Tables, Graduated Gauges with Stops, Dado Extensions, Dado Guards, & Lube Systems. For extras not listed, please contact our factory.

This optional Northfield Uni-Point is shown with two rolling tables providing ten feet on each side of saw blade, graduated gauge with adjustable stops at left, and plain fence to the right.



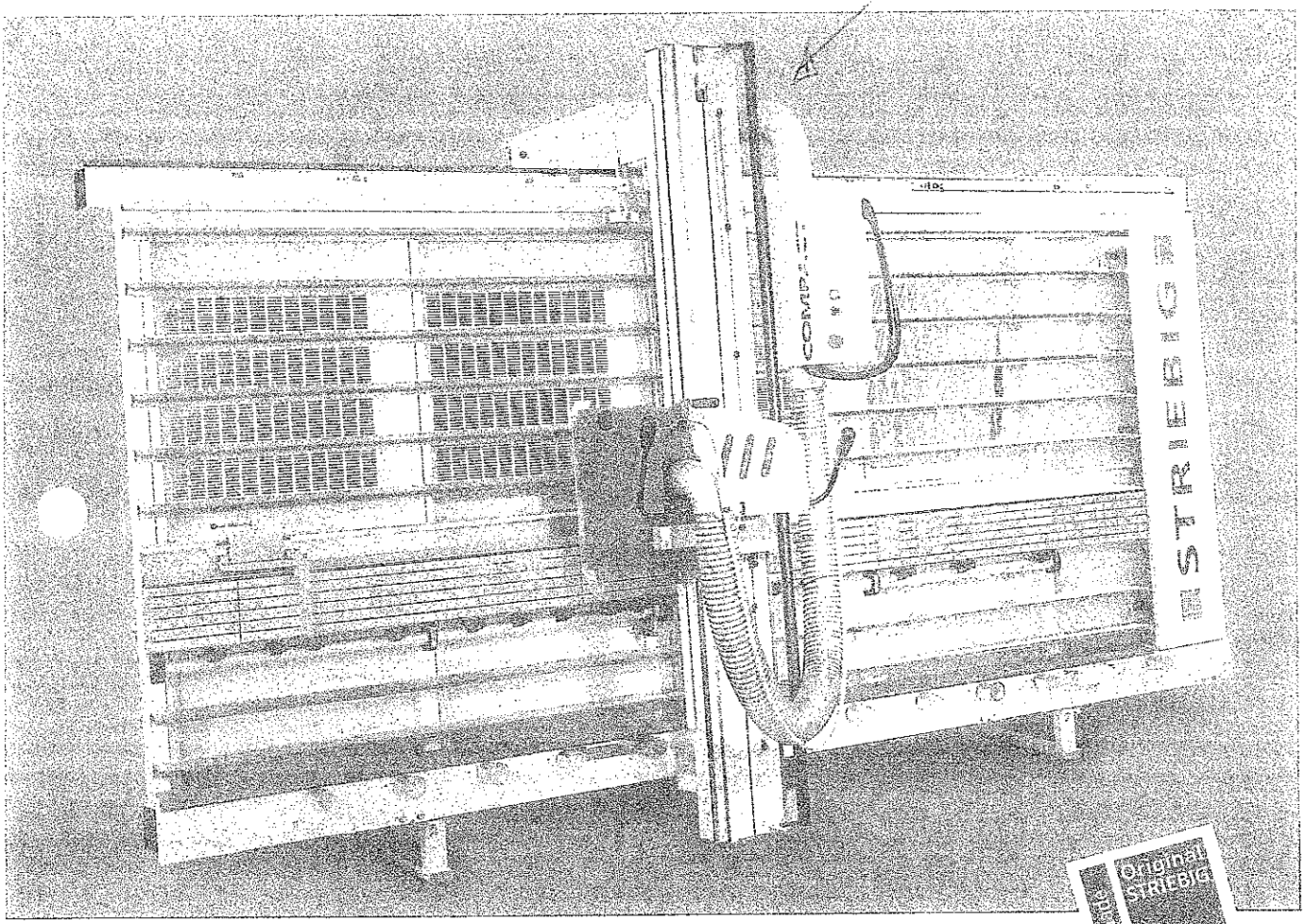
Northfield FOUNDRY & MACHINE CO.
320 North Water Street, P.O. Box 140
Northfield, Minnesota 55057 USA
PHONE: 507-645-5641
FAX: 507-645-4005

Printed in USA 1-97

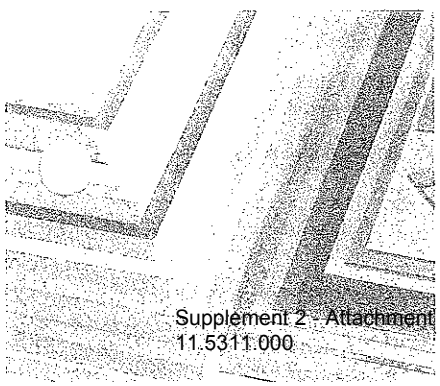
? Vent. Is this panel saw C3 (Vendor) Installed without the Components

Perfect in function and equipment

Striebig COMPACT 4164



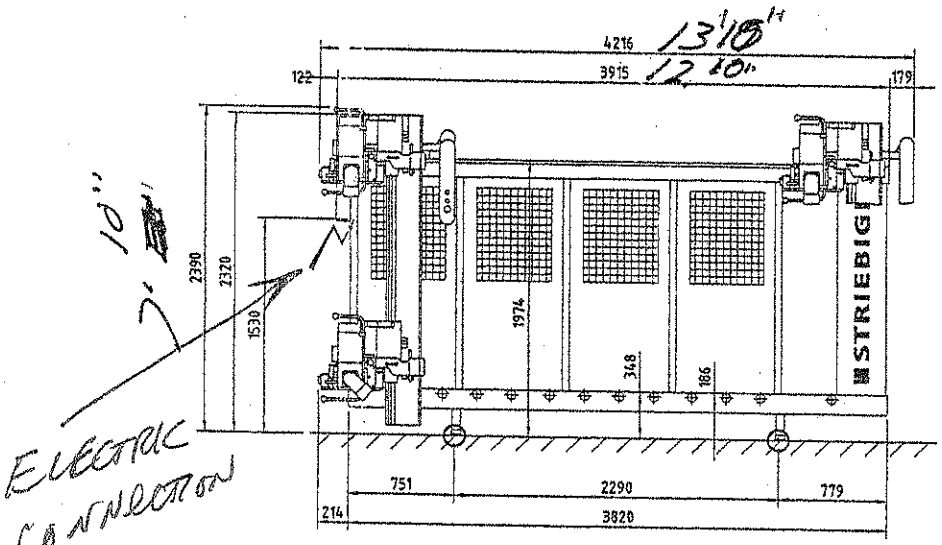
The Striebig COMPACT is delivered fully equipped ex works. With original Striebig accessories, you can further enhance the convenience and performance of your Striebig COMPACT.

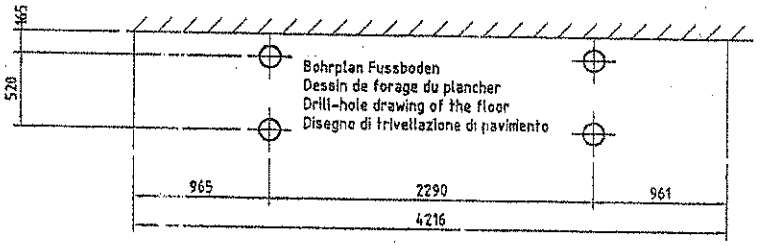


With the Striebig COMPACT, you can cut a wide variety of materials accurately

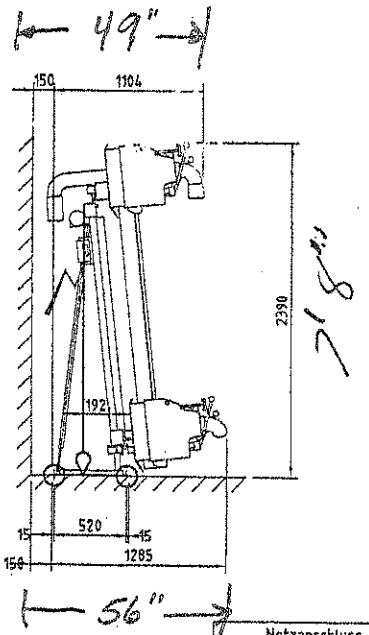
D.L. Coffey Machinery Company, Inc.
Woodworking Machinery
October 25, 2011
2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607

Anschluss für betriebliche Absauganlage immer links auf einer Höhe von 800-1835 mm (ø100 mm)
Raccordement pour aspiration annexe toujours à gauche à 800-1835 mm de hauteur (ø100 mm)
The connection for an on-site dust extraction system is always on the left at a height of between 800 and 1835 mm (ø100 mm)
Attacco per impianto d' aspirazione aziendale sempre a sinistra, all' altezza di 800-1835 mm (ø100)



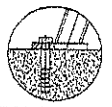


Freistehende Montage
Montage en appui libre
Free standing assembly
Montaggio libero



Netzanschluss Branchement électrique Mains connection Allacciamento alla rete	
Min. 16AT (400V) Max. 25AT (400V)	
L1, L2, L3, N, PE max. 6mm² (AWG 10)	
Anschlusswert Puissance connectée Wattage Potenza allacciata	4.8 kW

Technische Aenderungen vorbehalten
Sous reserve de modification techniques
Technical alternations reserved
Modificazioni tecnici riservati



Befestigungsdübel
Tampon de fixation
Fastening dowel
Cavifila di fissaggio

Montagezeichnung Dessin d'assemblage Assembly drawing Disegno di montaggio	Modell Modèle Model Modello	COMPACT TRK	Typ Type Type Tipo	4164

STRIEBIG

030.090 MV 04.99

C4

OMNITECH SYSTEMS INC.

OMNITECH SYSTEMS

CNC ROUTERS

Excellence in CNC ROUTER performance at affordable cost!

SELEXX
CNC ROUTER SERIES
BUILT TO LAST!

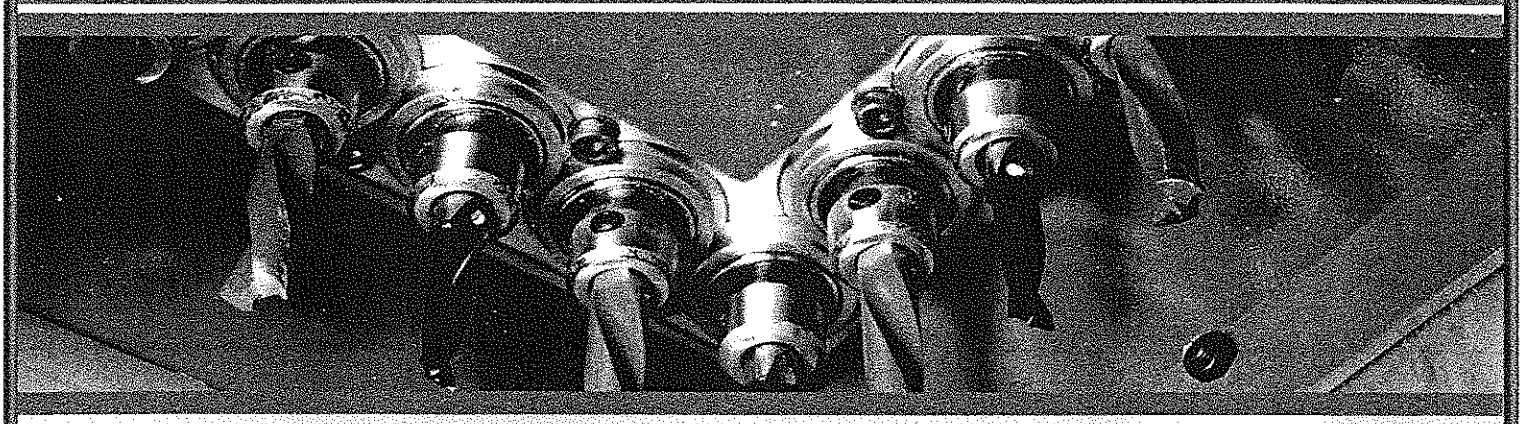
Engineered for the CNC processing needs of the WOODWORKING, PLASTIC and COMPOSITE materials industries.

The SELEXX Series consists of the following models:

ECO 4' x 8' • **MATE** 4' x 8' • **PAL** 5' x 10' • **CHIEF** 5' x 12' • **PRIMO** 5' x 20'

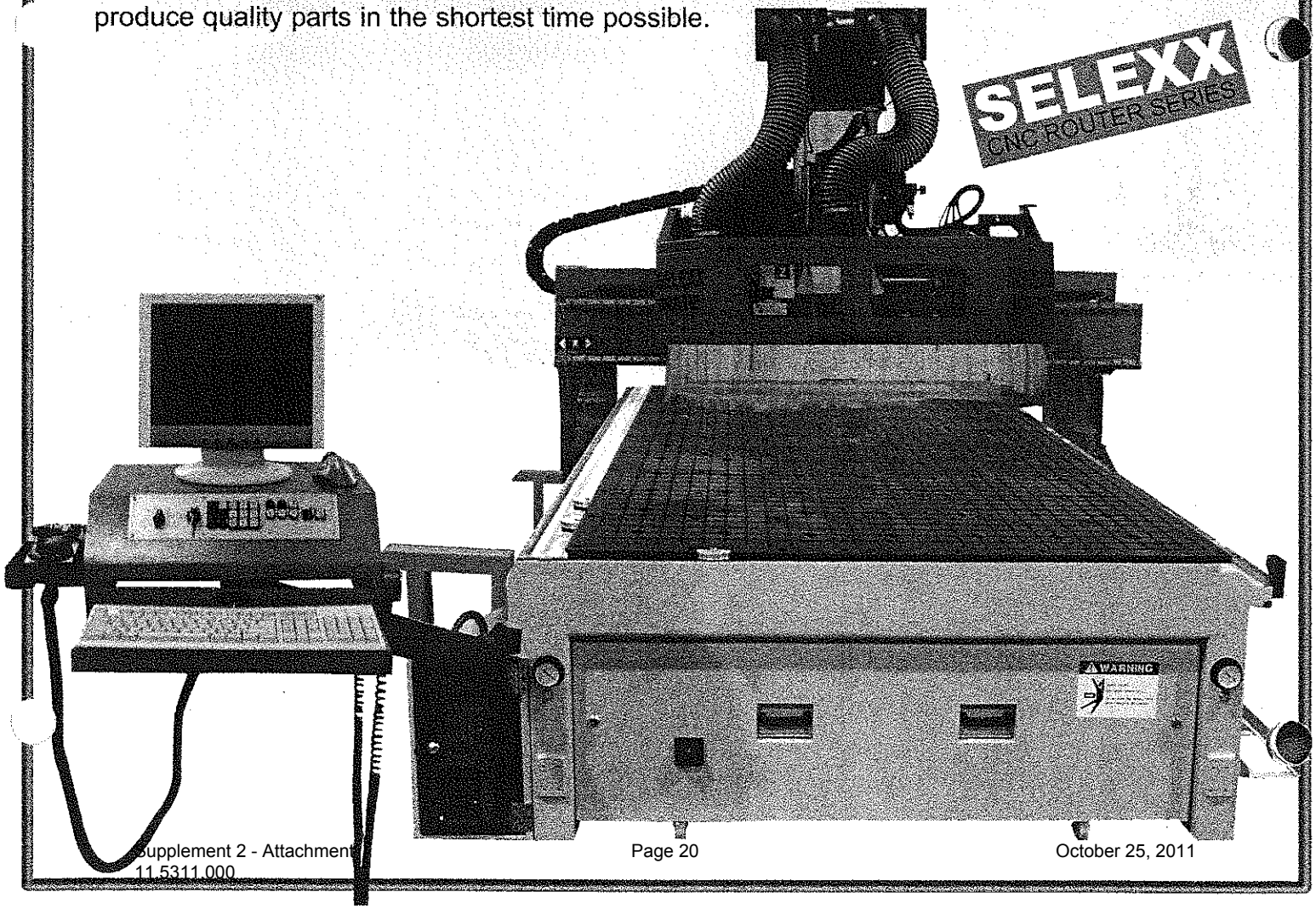
MATE 4' x 8'

OMNITECH SYSTEMS INC.



CNC Routers with FANUC Controller and full table coverage of both machining heads

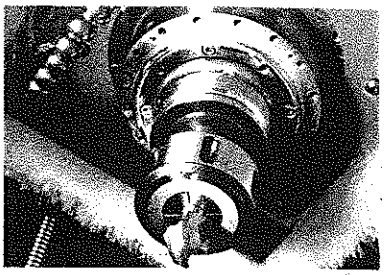
The small footprint of the SELEXX Series allows even the smallest shop to consider the incorporation of a CNC Router - to boost production, lower manufacturing costs and to produce quality parts in the shortest time possible.



OMNITECH SYSTEMS INC.

The SELEXX Series offers today's CNC Router buyer a unique product for today's demands in a high performance, quality machining center at an affordable cost, by utilizing 28 years of experience from the worlds leading CNC Router supplier, ANDERSON (ANDI).

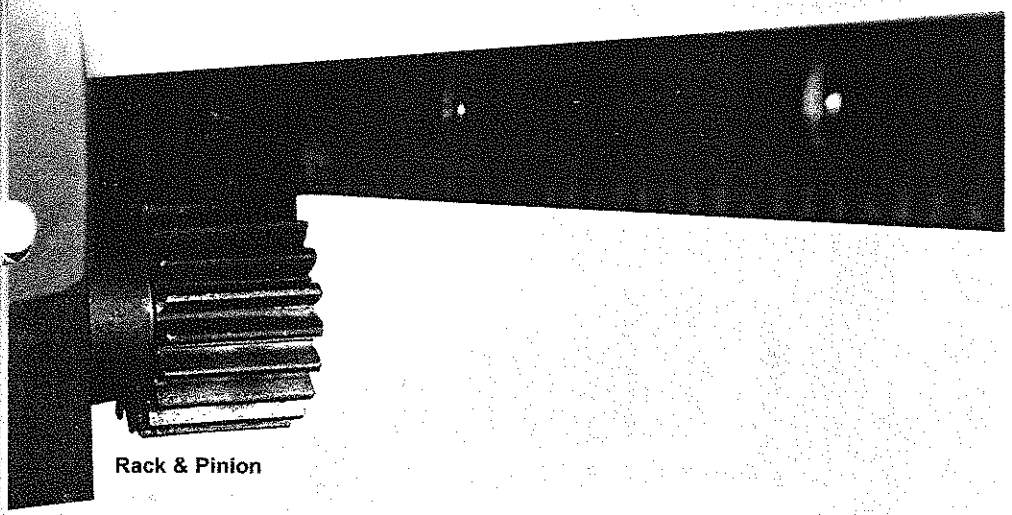
ANDERSON has incorporated the Know-how and experience of a world leader in industrial CNC Routers to reflect on the SELEXX Series from OMNITECH.



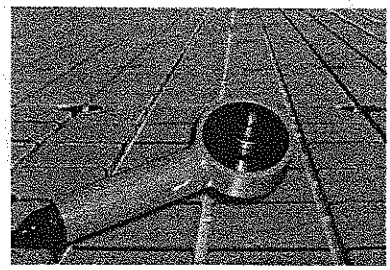
Maintenance free air cooled spindle, with permanently lubricated ceramic ball bearings. (1.000 ~ 24.000 RPM)

Rack & Pinion:
The Y-axis Drive consists of a FANUC TWIN SERVO Rack & Pinion System. Standard on models MATE, PAL, CHIEF and PRIMO.

- Belt & Pulley Drive system is connected directly to the FANUC drive motor
- Spring loaded for quick and simple backlash adjustment
- Smoother arc interpolations
- No possibility of racking
- Maintenance friendly



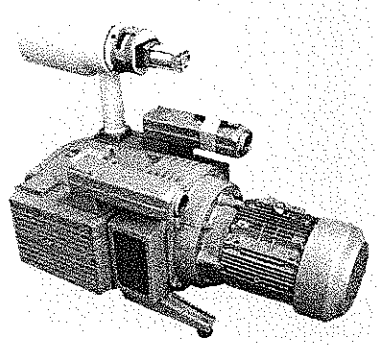
Rack & Pinion



The Tool Touch-Off device for automatic tool length calibration, is a standard feature on SELEXX models MATE, PAL, CHIEF and PRIMO.

Technical Specifications: MATE

Stroke	X Axis Y Axis Z Axis	1720 mm (5.643 ft) 2630 mm (8.628 ft) 250 mm (0.82 ft)
Table Size		1300 x 2500 mm (4.265 x 8.202 ft)
Max. Feed Speed	X, Y Axis Z Axis	50 M/min (164.04 ft/min) 10 M/min (32.2 ft/min)
ATC Head With	NO.1 of Spindles Tool Holder Shank Number of Tools Speed	1 HSK63F, Air Cooled 8 1.000~24.000 RPM
Boring Block	NO.2 Block (5x5)	4800 RPM
Tool Dia	For Router Bit (O.D.)	Max. Ø 25 mm (Ø 0.984 inch)
Shank	For Boring	Ø 10 mm (Ø 0.394 inch)
Power	ATC Head Boring Vacuum Pump	7.5 KW x 1 (10 HP) 1.5 KW x 1 (2 HP) 1 x 10 HP
Air Pressure		6 KG/cm² (85 lb/in²)
Nc Controller		FANUC
Dimensions	Floor Area Height Weight	4000x4400 mm (13.123x14.435 ft) 2450 mm (8.038 ft) 2450KG (5397 lb)
Air Consumption		450 L/min (15.9 cfm)
Suction Capacity For Main Spindle		2965 M³/HR (1745 cfm)



Models MATE and PAL are pre-wired and pre-plumbed for future addition of second vacuum pump.

PAL 5' x 10'

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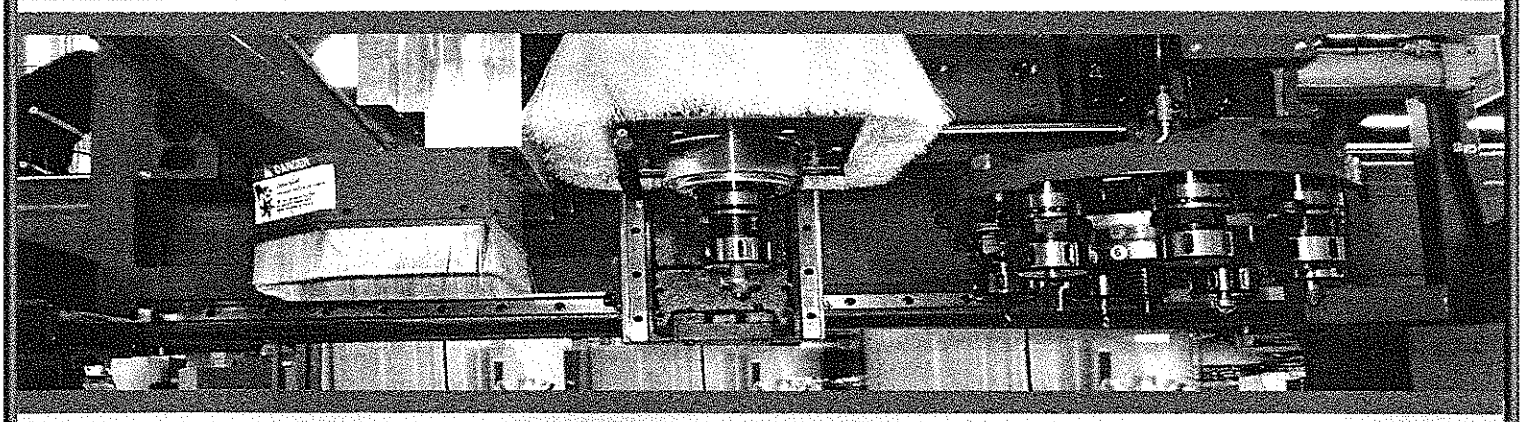
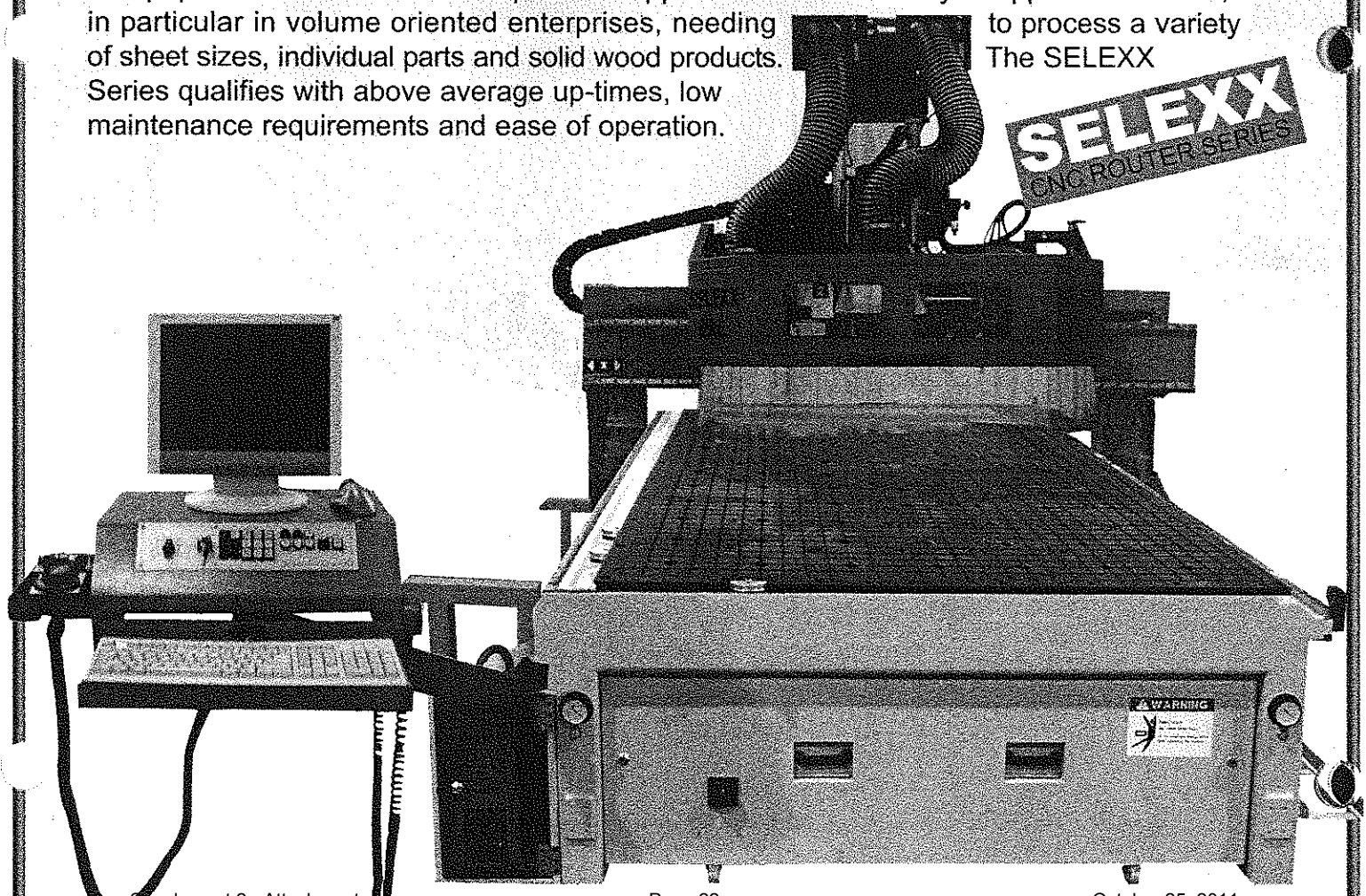


Excellence in CNC Router Performance at affordable cost

In today's challenging market, the **SELEXX/PAL** has positioned itself as a bestseller! The popular 5' x 10' table format provides opportunities for a variety of application needs, in particular in volume oriented enterprises, needing to process a variety of sheet sizes, individual parts and solid wood products. The SELEXX Series qualifies with above average up-times, low maintenance requirements and ease of operation.



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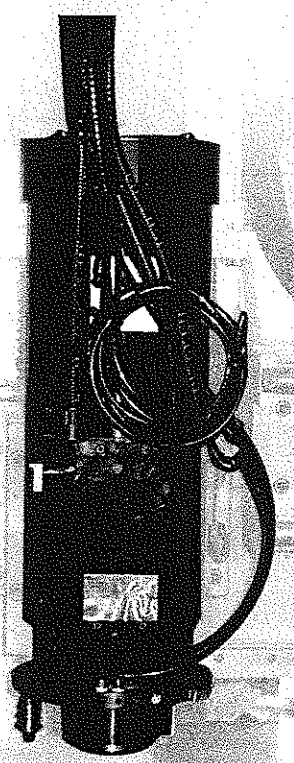
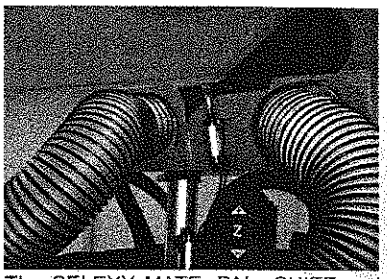
Main Router Spindle:
Anderson (ANDI) designed and manufactured 7.5KW (10HP) spindle, with the following features:

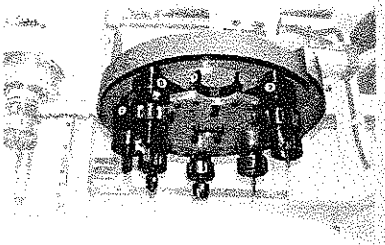
- 1.000 ~ 24.000 RPM CW or CCW rotation
- Permanently lubricated ceramic Ball Bearings
- HSK 63F System
- Maintenance free air cooled spindle
- Available C-axis



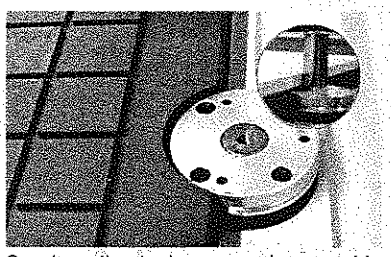
Automatic Toolchanger:
- No. of Positions: 8 (eight)
- Type: indexing rotating carousel changer, travels with router spindle, saving time and excessive wear
- Dust cover over toolchanger to protect sensors and tool holders from dust contamination
- Air Blow Nozzle to clean tool holders before tool change operation
- Brass alloy tool clamps for added security and longevity



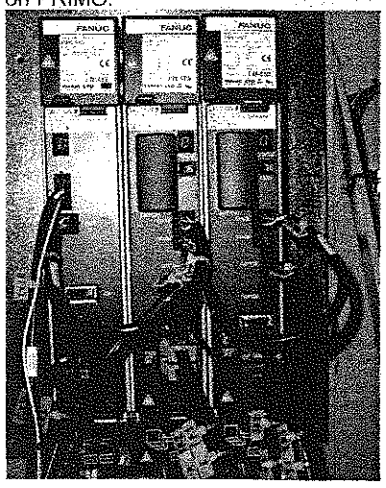
The SELEXX MATE, PAL, CHIEF and PRIMO provide for Automatic Dust Extraction Dampers on both Router Spindle and Drilling Head.



Each SELEXX model is equipped with an 8 position Automatic Toolcahnger.



6 automatic steel pop-up pins on table for referencing sheet stock on models MATE, PAL and CHIEF. 12 steel pins on PRIMO.



Models MATE, PAL, CHIEF and PRIMO are equipped with the FANUC Oi PC front end industrial controller. FANUC Servo Drive Motors on all axis.

Technical Specifications: PAL

Stroke	X Axis Y Axis Z Axis	1835 mm (6.02 ft) 3180 mm (10.43 ft) 250 mm (0.82 ft)
Table Size		1550 x 3050 mm (5.085 x 10.006 ft)
Max. Feed Speed	X, Y Axis Z Axis	50 M/min (164.04 ft/min) 10 M/min (32.2 ft/min)
ATC Head With	NO.1 of Spindles Tool Holder Shank Number of Tools Speed	1 HSK63F, Air Cooled 8 1.000~24.000 RPM
Boring Block	NO.2 Block (5x5)	4800 RPM
Tool Dia	For Router Bit (O.D.)	Max. Ø 25 mm (Ø 0.984 inch)
Shank	For Boring	Ø 10 mm (Ø 0.394 inch)
Power	ATC Head Boring Vacuum Pump	7.5 KW x 1 (10 HP) 1.5 KW x 1 (2 HP) 1 x 10 HP
Air Pressure		6 KG/cm² (85 lb/in²)
Nc Controller		**FANUC**
Dimensions	Floor Area Height Weight	4800x4250 mm (15.748x13.943 ft) 2450 mm (8.038 ft) 2850KG (6300 lb)
Air Consumption		450 L/min (15.9 cfm)
Suction Capacity For Main Spindle		2965 M³/HR (1745 cfm)

CHIEF 5' x 12'

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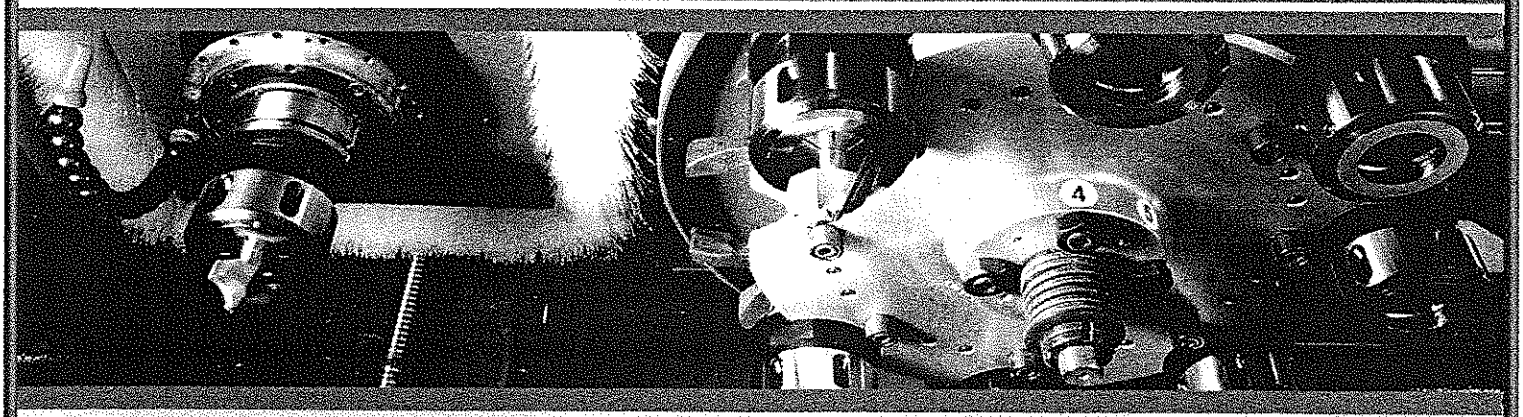
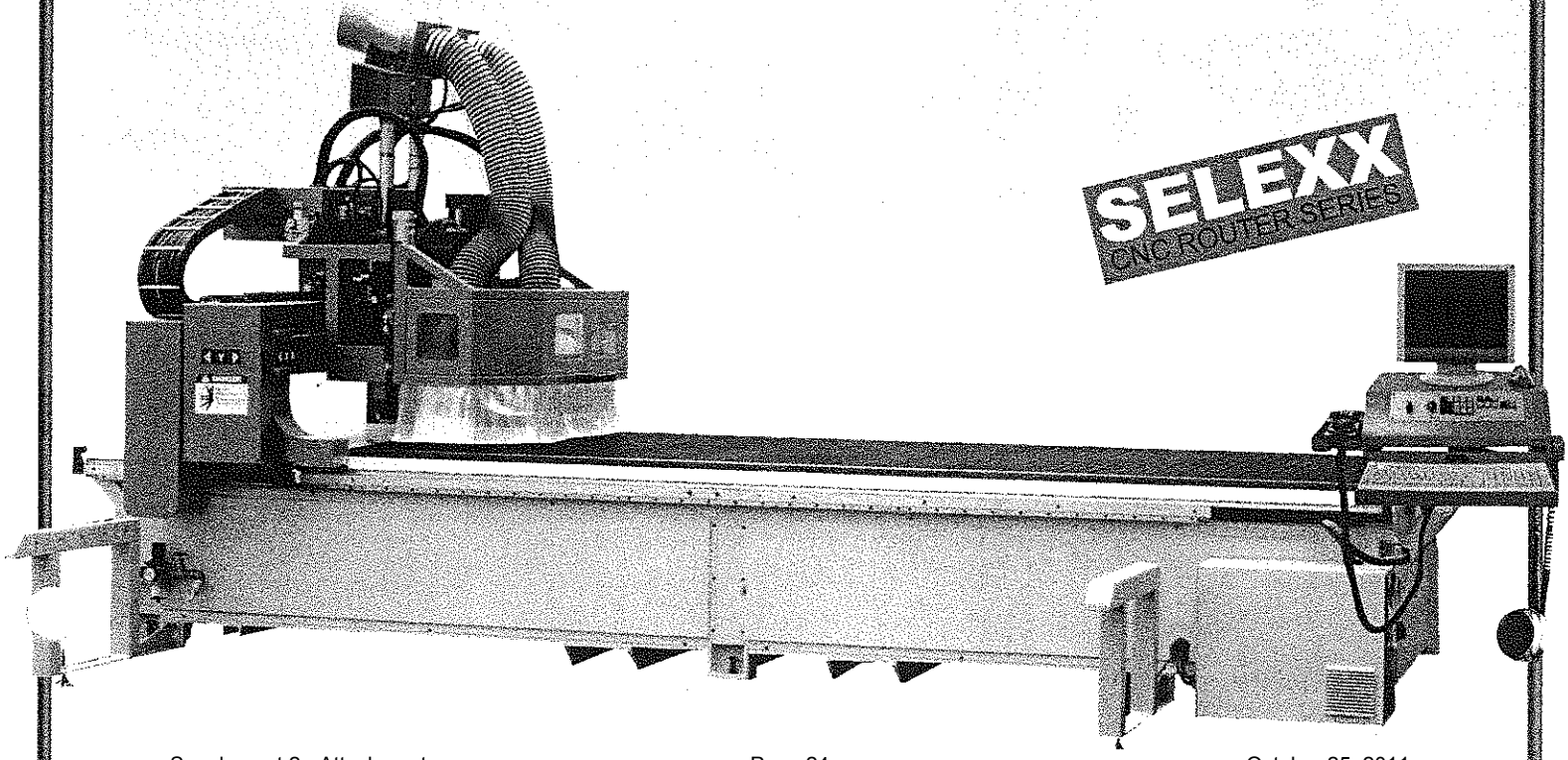


SELEXX Series: Truly industrial CNC Routers

The **SELEXX/CHIEF** is the ideal machining center for those companies requirering a larger machining table. The 5' x 12' table size allows the machining of oversized parts in panel, solid wood, plastics and composite materials. Equipped with 2 (two) BECKER Vacuum Pumps as standard, providing a total vacuum capacity of 20HP, the **SELEXX/CHIEF** offers a truly unique CNC Router for a multitude of applications.



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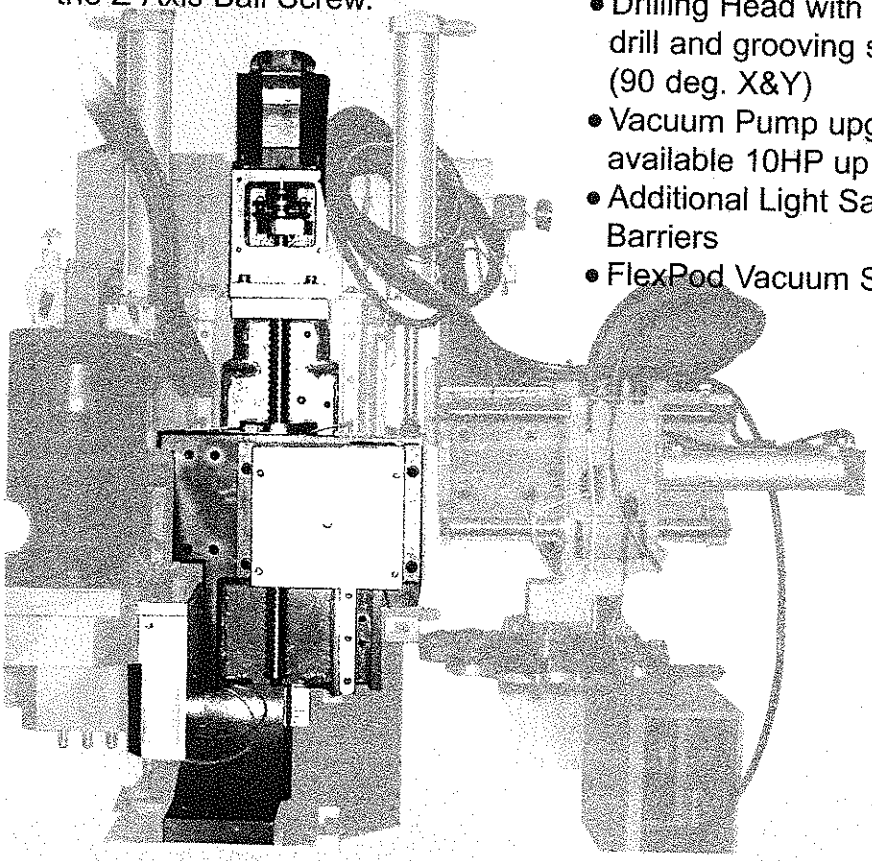
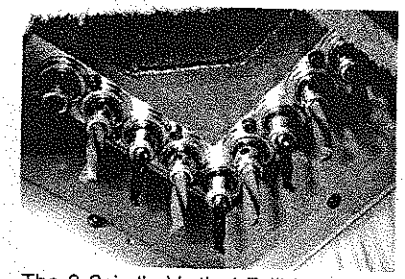
The Z-Axis:
The Z-Axis Drive on the SELEXX Series consists of an independent FANUC Servo Drive Motor coupled directly to the Z-Axis Ball Screw.

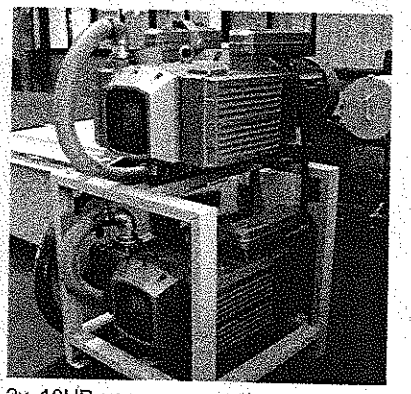


Available options on MATE, PAL, CHIEF and PRIMO:

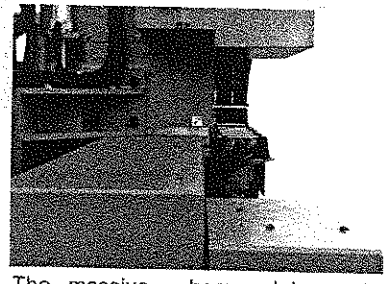
- C-axis: 0-360 deg. rotating axis (FANUC 21i Controller is applied for this option)
- Drilling Head with horizontal drill and grooving saw (90 deg. X&Y)
- Vacuum Pump upgrades - available 10HP up to 31HP
- Additional Light Safety Barriers
- FlexPod Vacuum System



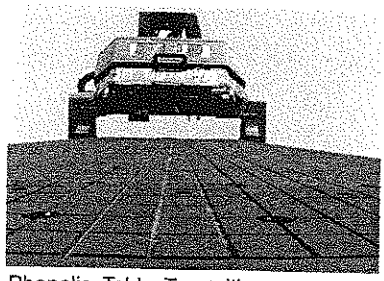
The 9 Spindle Vertical Drill is ideal for line hole drilling and individual point-to-point drilling for various applications. The Drill Head has Full Table Coverage.



2x 10HP vacuum pumps are standard on the SELEXX/CHIEF. (Pump options available).



The massive - heavy duty gantry construction - supported on both sides of the table ensures vibration free processing of your materials.



Phenolic Table Top with vacuum grid suitable for a variety of vacuum hold down possibilities from spoil-board jigs to vacuum pods.

Technical Specifications: CHIEF

Stroke	X Axis Y Axis Z Axis	1835 mm (6.02 ft) 3880 mm (12.729 ft) 250 mm (0.82 ft)
Table Size		1550 x 3750 mm (5.085 x 12.303 ft)
Max. Feed Speed	X, Y Axis Z Axis	50 M/min (164.04 ft/min) 10 M/min (32.2 ft/min)
ATC Head With	NO.1 of Spindles Tool Holder Shank Number of Tools Speed	1 HSK63F, Air Cooled 8 1.000~24.000 RPM
Boring Block	NO.2 Block (5x5)	4800 RPM
Tool Dia	For Router Bit (O.D.)	Max. Ø 25 mm (Ø 0.984 inch)
Shank	For Boring	Ø 10 mm (Ø 0.394 inch)
Power	ATC Head Boring Vacuum Pump	7.5 KW x 1 (10 HP) 1.5 KW x 1 (2 HP) 2 x 10 HP
Air Pressure		6 KG/cm² (85 lb/in²)
Nc Controller		**FANUC**
Dimensions	Floor Area Height Weight	5400x4300 mm (17.716x14.107 ft) 2450 mm (8.038 ft) 3050 KG (6718 lb)
Air Consumption		450 L/min (15.9 cfm)
Suction Capacity For Main Spindle		2965 M³/HR (1745 cfm)

PRIMO 5' x 20'

(dual 5' x 10' or single 5' x 20' vacuum-zone)

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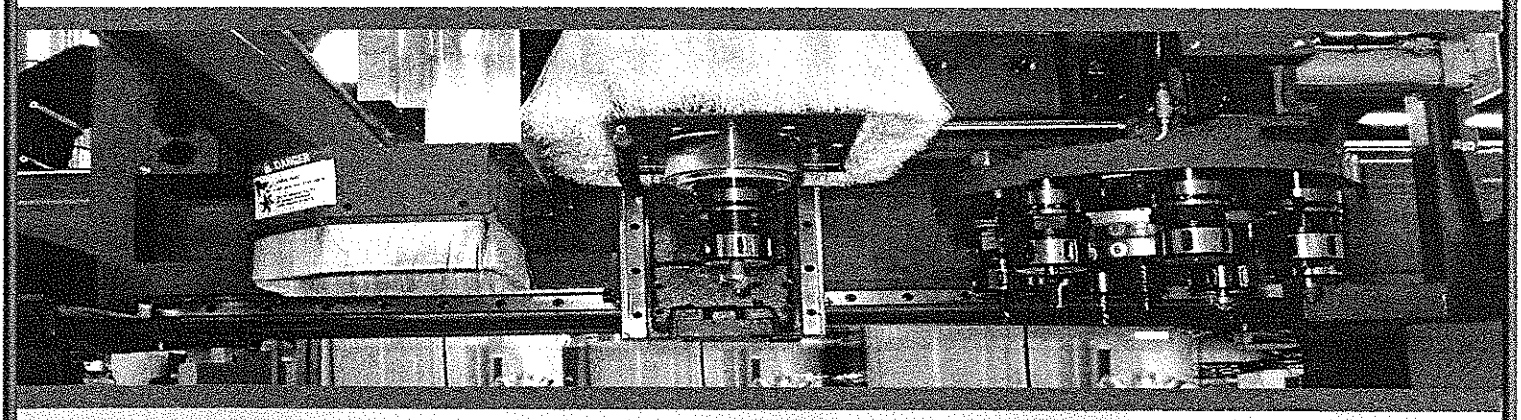
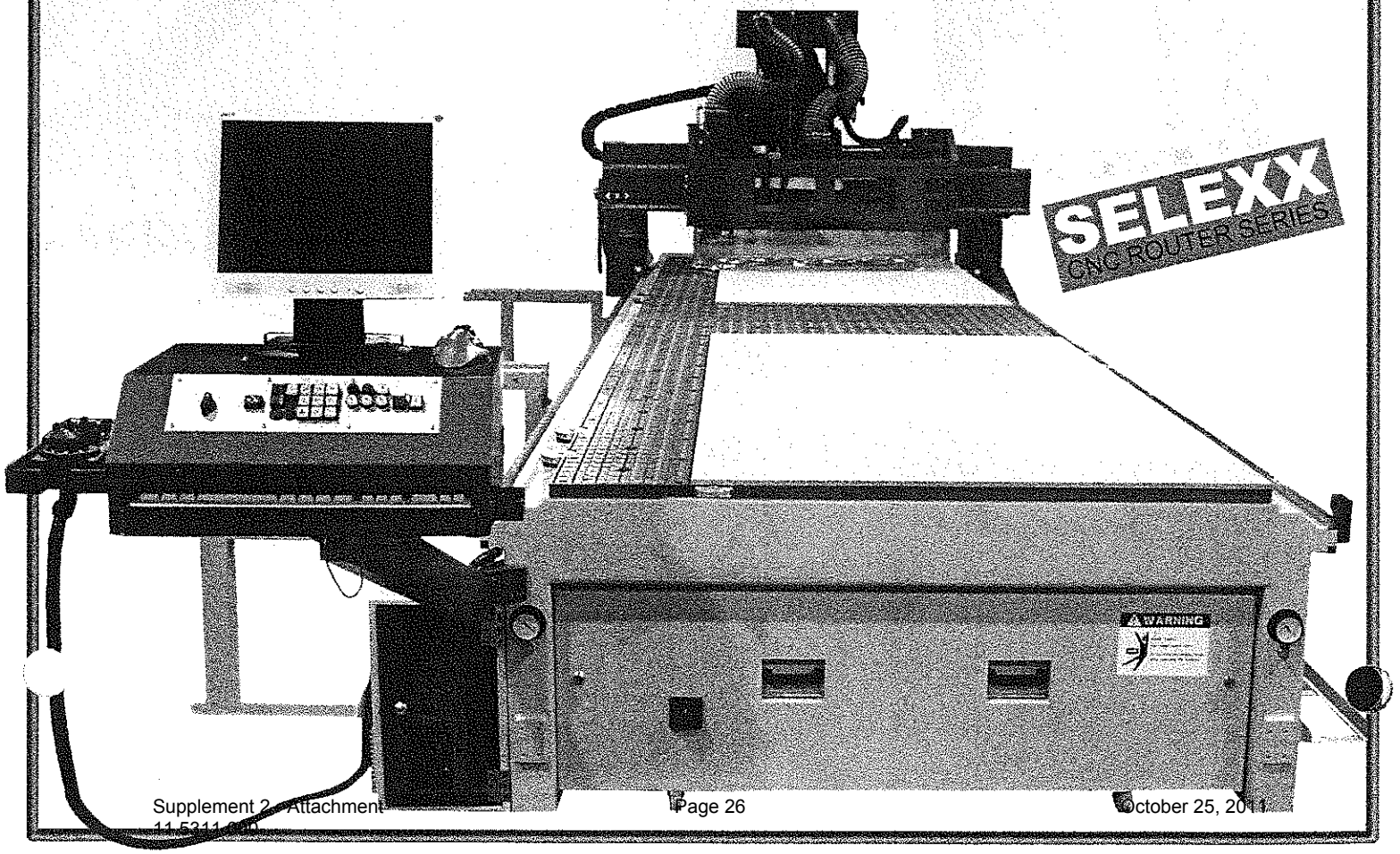


Continuous Production Run

The **SELEXX/PRIMO** has two 5' x 10' tables for dual zone operation convertible to one single zone up to 20' with 12-automatic pop-up pins for locating sheet stock. This allows the operator to load on one table, while the machine is processing on the other table and alternating back and forth for a continuous machining operation, maximizing output!



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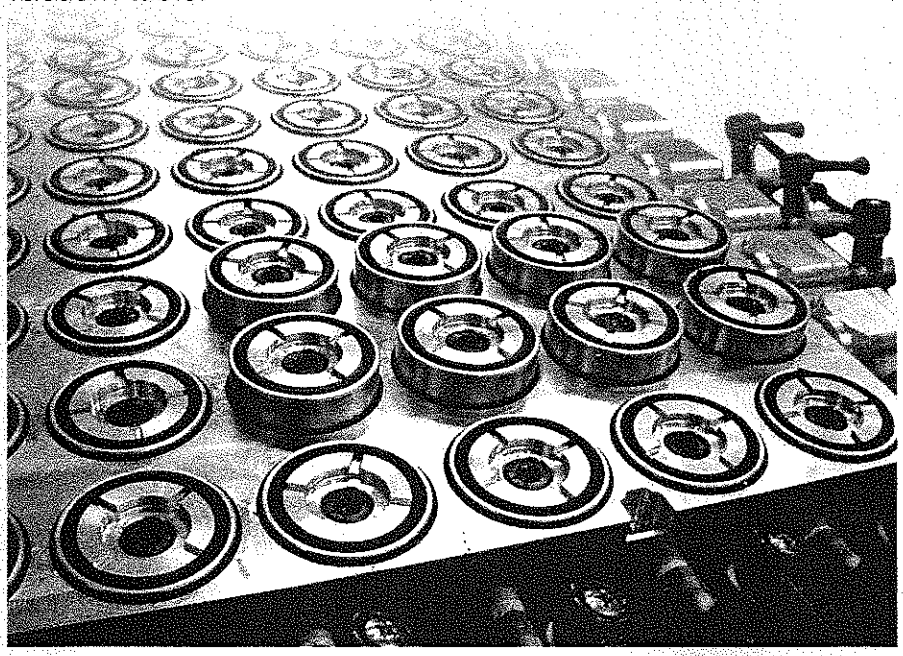
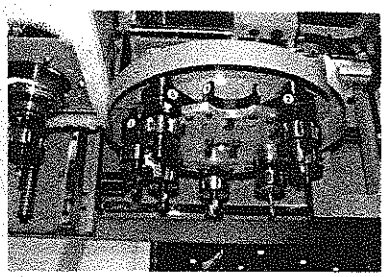
OPTIONAL FEATURE:
The OMNITECH FlexPod Vacuum System allows for infinite vacuum hold down options, which can be located at any position of your vacuum table.

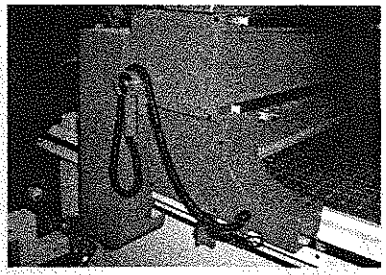
This System allows the creation of a variety of Vacuum Zones via pneumatic controls. Please inquire for available sizes.



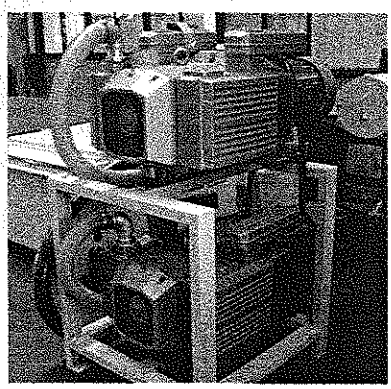
OMNITECH FlexPod Vacuum System - available for all SELEXX models.



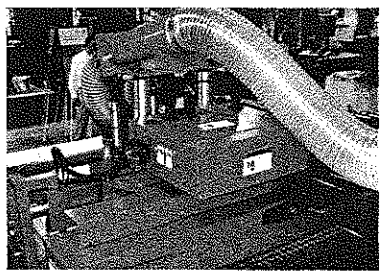
The SELEXX Series is equipped with HSK 63F Toolholder System on all models.



Tool Measuring (touch-off) device for effortless tool calibration. Also standard on models MATE, PAL and CHIEF.



2x 10HP vacuum pumps are standard on the PRIMO. (Pump options available).



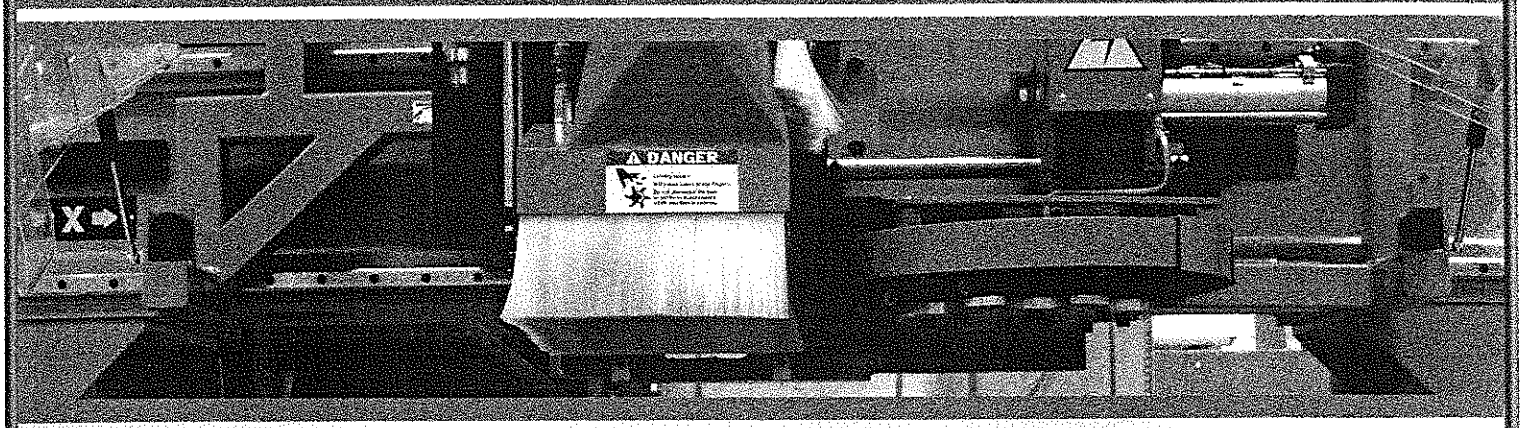
The SELEXX MATE, PAL, CHIEF and PRIMO provide for Automatic Dust Extraction Dampers on both Router Spindle and Drilling Head.

Technical Specifications: PRIMO

Stroke	X Axis Y Axis Z Axis	1835 mm (6.02 ft) 6180 mm (20.112 ft) 250 mm (0.82 ft)
Table Size		1550 x 6000 mm (5.085 x 19.6856 ft)
Max. Feed Speed	X, Y Axis Z Axis	50 M/min (164.04 ft/min) 10 M/min (32.2 ft/min)
ATC Head With	NO.1 of Spindles Tool Holder Shank Number of Tools Speed	1 HSK63F, Air Cooled 8 1.000~24.000 RPM
Boring Block	NO.2 Block (5x5)	4800 RPM
Tool Dia	For Router Bit (O.D.)	Max. Ø 25 mm (Ø 0.984 inch)
Shank	For Boring	Ø 10 mm (Ø 0.394 inch)
Power	ATC Head Boring Vacuum Pump	7.5 KW x 1 (10 HP) 1.5 KW x 1 (2 HP) 2 x 10 HP
Air Pressure		6 KG/cm² (85 lb/in²)
Nc Controller		**FANUC**
Dimensions	Floor Area Height Weight	10000x4250 mm (32.808x13.943 ft) 2450 mm (8.038 ft) 7500KG (16500 lb)
Air Consumption		450 L/min (15.9 cfm)
Suction Capacity For Main Spindle		2965 M³/HR (1745 cfm)

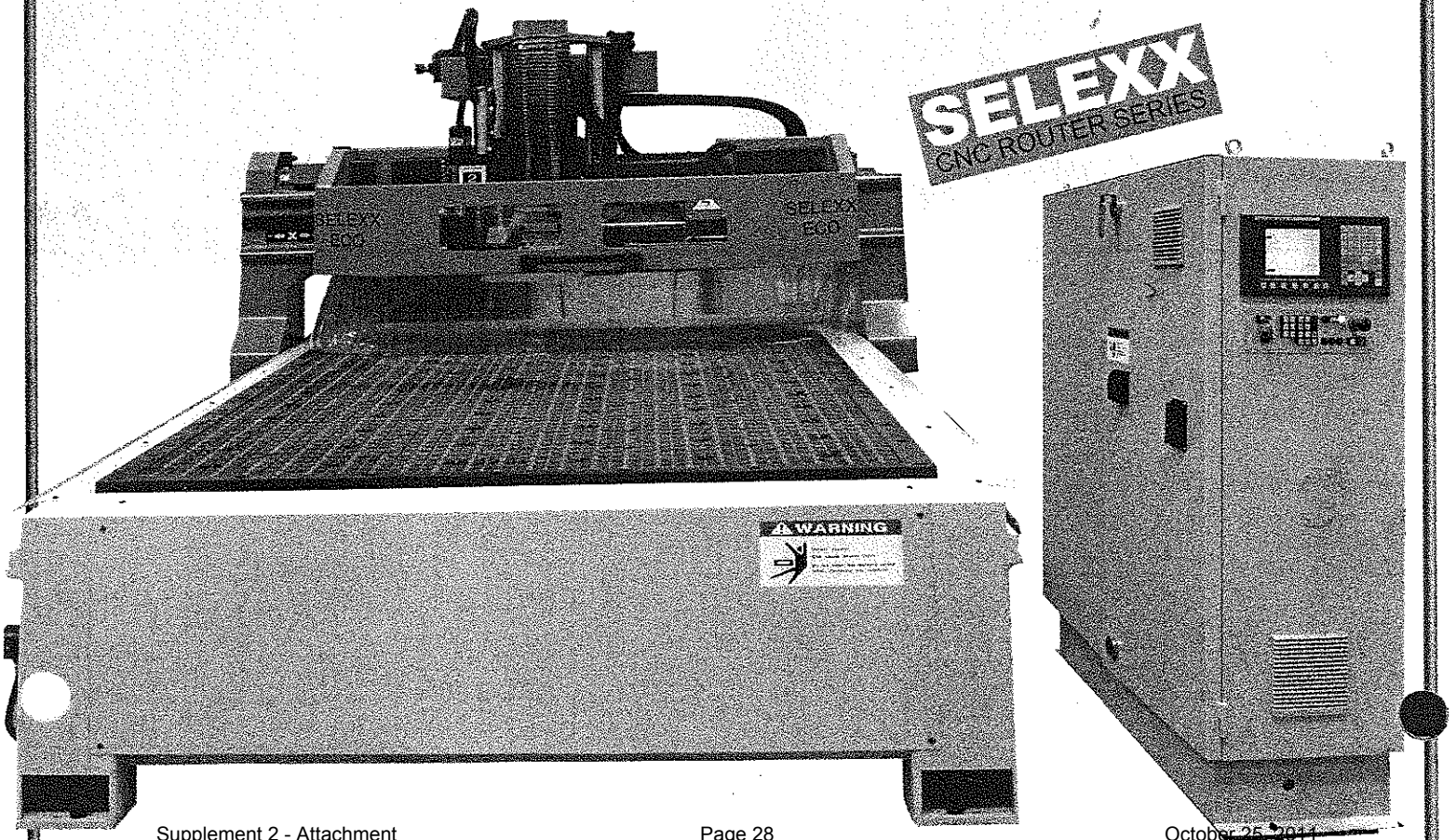
ECO 4' x 8'

OMNITECH SYSTEMS INC.



High Production Runs at Economical Cost!

Offered with 4' x 8' table, the machine base is constructed of heavy duty industrial grade welded steel with multiple reinforcements throughout to provide added stability. The heavy duty gantry construction, supported on both sides of the table, ensures vibration free and precision processing of a variety of materials. The **SELEXX/ECO** offers truly industrial features at a very affordable price.



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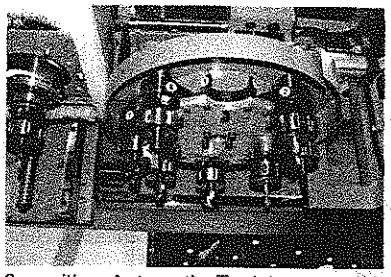
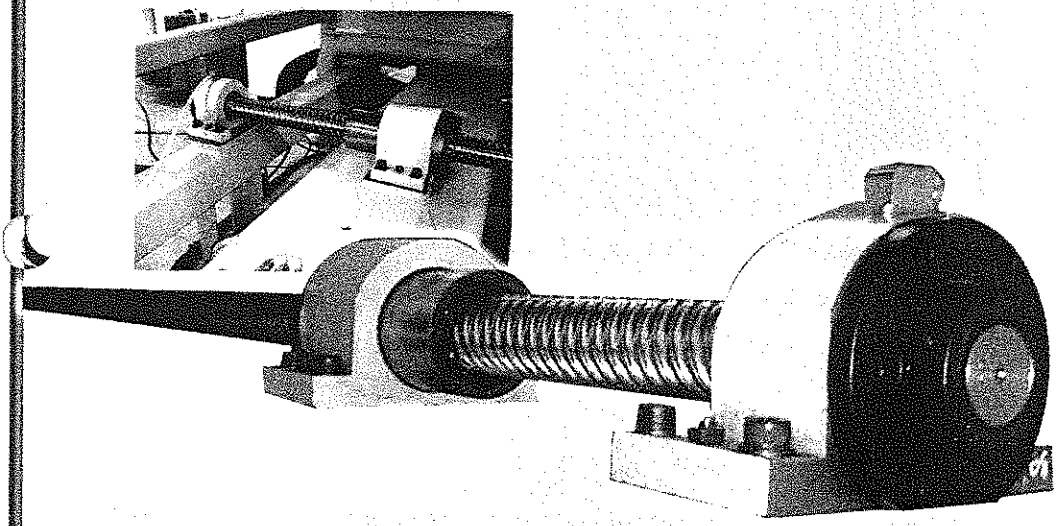
The ECO is designed and built for the demanding CNC Router client, who wants a reliable and performance oriented, yet AFFORDABLE CNC Machining Center, which offers uncompromising quality and features, uncommon in a router in this price range.



8 position Automatic Toolchanger with HSK 63F tool system - standard on all SELEXX models.

BALL SCREW:
Image of the Y-axis Ball Screw standard on the SELEXX/ECO.

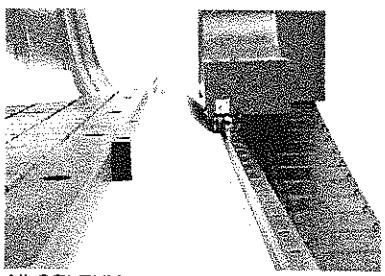


The ECO is equipped with a 0.25HP single spindle vertical drill head. Fixed rotation speed: 3.600 RPM

The standard controller on the ECO is the proven FANUC Oi Mate - MC.

Technical Specifications: ECO

Stroke	X Axis Y Axis Z Axis	1300 mm (4.265 ft) 2500 mm (8.202 ft) 250 mm (0.82 ft)
Table Size		1300 x 2500 mm (4.265 x 8.202 ft)
Max. Feed Speed	X, Y Axis Z Axis	30 M/min (98.425 ft/min) 10 M/min (32.2 ft/min)
ATC Head With	NO.1 of Spindles Tool Holder Shank Number of Tools Speed	1 HSK63F, Air Cooled 8 1.000~24.000 RPM
Boring Block	NO.2 Block (1)	3600 RPM
Tool Dia	For Router Bit (O.D.)	Max. Ø 25 mm (Ø 0.984 inch)
Shank	For Boring	up to 0.625 inch
Power	ATC Head Boring Vacuum Pump	7.5 KW x 1 (10 HP) 1 x 0.25 HP 1 x 10 HP
Air Pressure		6 KG/cm² (85 lb/in²)
Nc Controller		**FANUC**
Footprint	Floor Area Height Weight	2400x4540 mm (7.874 x 14.895 ft) 2950 mm (9.678 ft) 2300 KG (4800 lb)
Air Consumption		450 L/min (15.9 cfm)
Suction Capacity For Main Spindle		2965 M³/HR (1745 cfm)



All SELEXX models are equipped with precision linear guides on all axis.

CNC Sales OF NEW ENGLAND

Omnitech Routers

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ing else,
SELEXX!

OMNITECH SYSTEMS INC.

Our spacious and modern facility, located directly off I-77 is only 20 min. from the Charlotte, NC International Airport.

We offer a modern CNC Application Center, a first class software and machine training facility and a well stocked spare parts inventory to serve all your support and service requirements.

Our professional CNC Technicians are available to take your phonecalls and provide online phone support.

OMNITECH cooperates with all leading CAD/CAM Software providers to assist our clients in determining the best solution for their needs.

For further information or to speak to one of our professional CNC application specialists, **PLEASE CONTACT US** or **VISIT OUR HOMEPAGE: www.omnitech-systems.com**

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Charlotte, NC 28273

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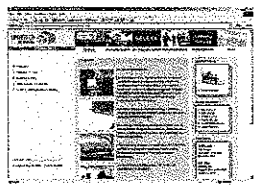
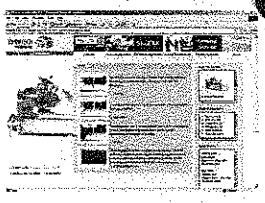
sales@omnitech-systems.com



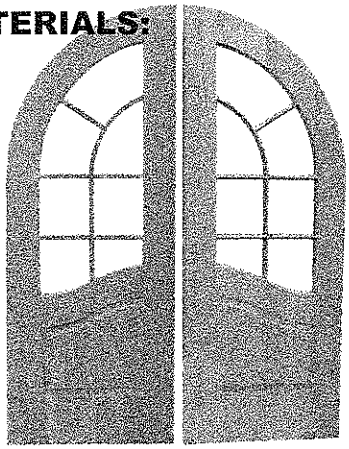


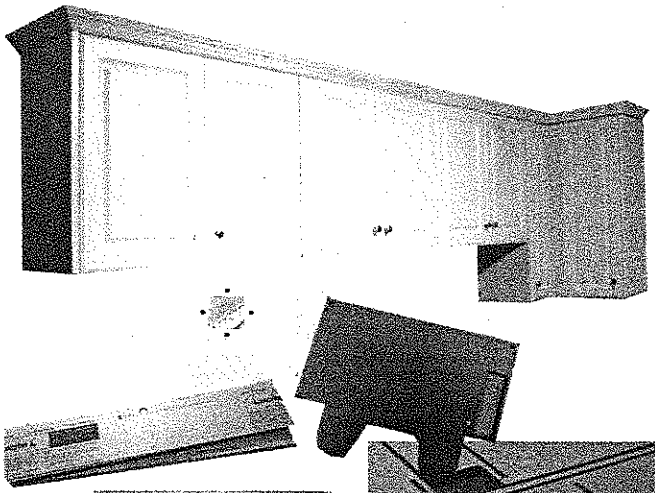
Our Homepage is a unique and highly developed source of information on our company, products and services.

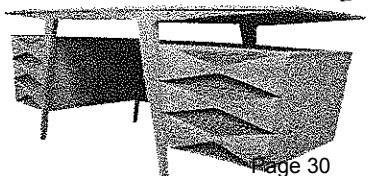
APPLICATIONS & MATERIALS:

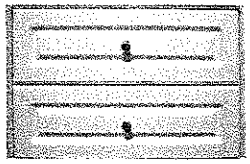
Applications:
Doors
Cabinets
Countertops
Furniture Components
Frames
Custom Parts
and others

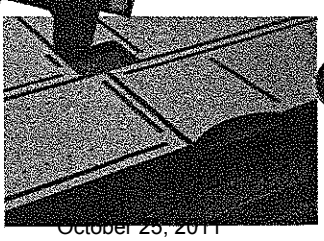
Materials processed:
MDF
Melamine
Plastics
Solid woods
Solid surface
Non-ferrous metals







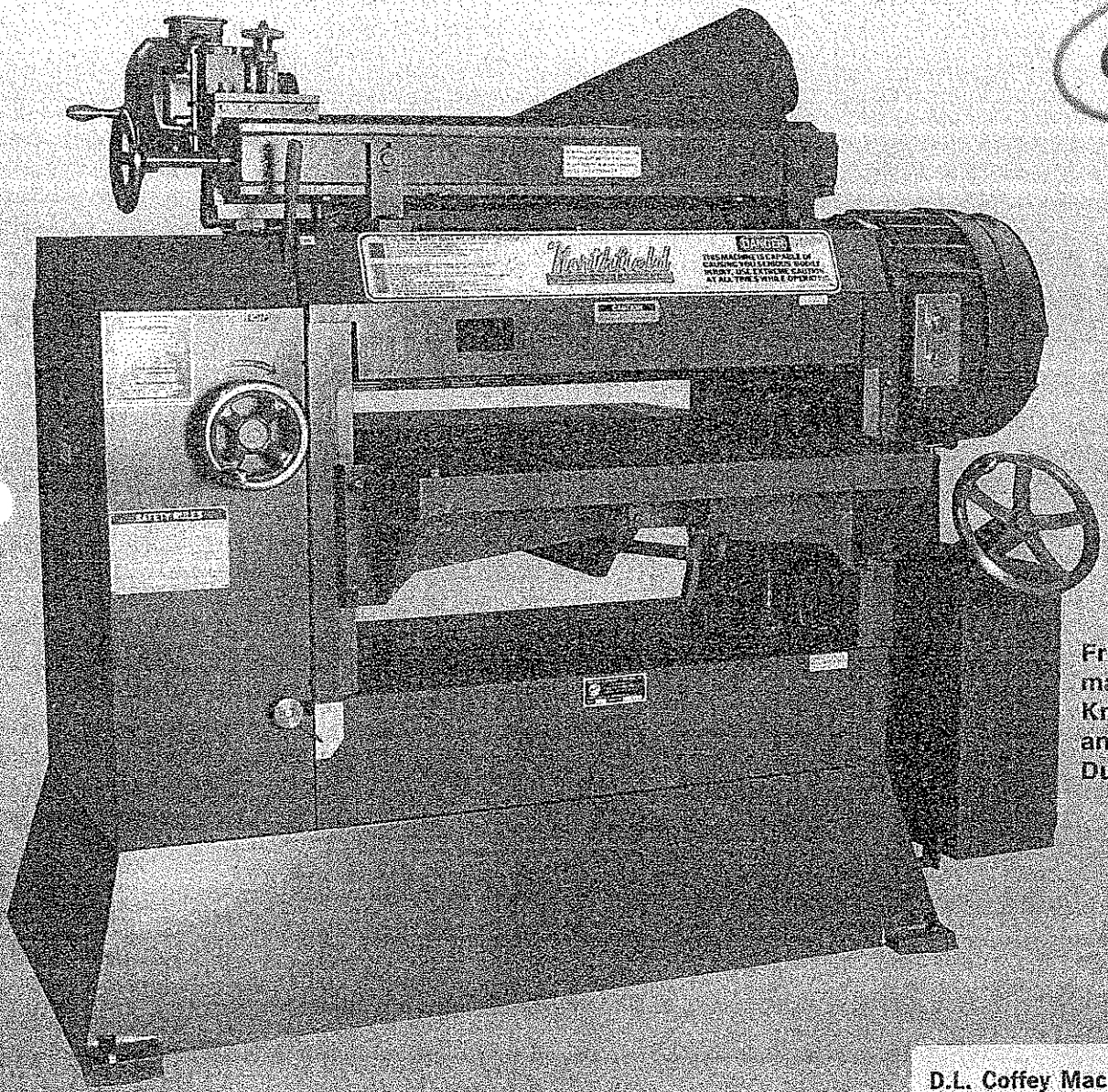




#8 Planer-Surfacer 31"

Available with the Northfield Helical Carbide Cutterhead

C5



Front view of machine with Knife Grinder and Blower Type Dust Hood

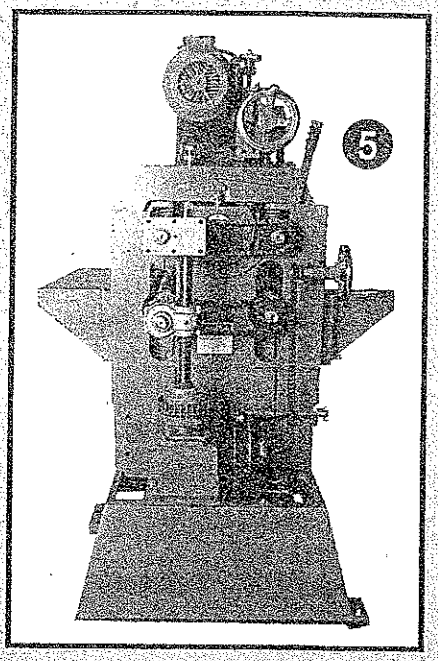
D.L. Coffey Machinery Company, Inc.
Woodworking Machinery

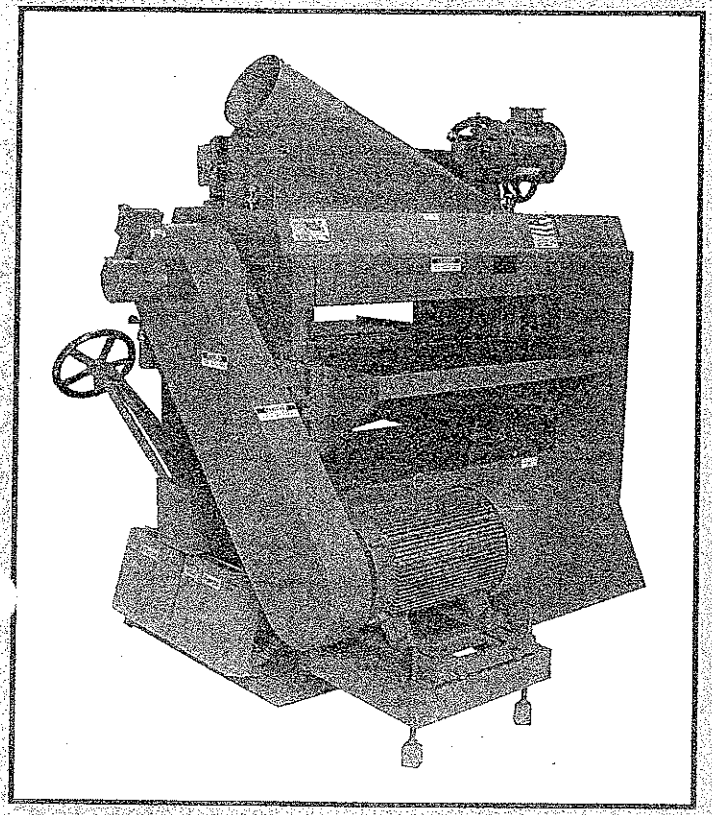
2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607

A precision built machine manufactured from an exacting design utilizing ideas and components to provide the user with a machine to meet the most demanding and varied needs of today's production and vocational woodworking.

Positive, Overload Protected Feed Mechanism

A carefully engineered feed mechanism offers speeds from 20 to 100 lineal feet per minute with built-in overload protection. A positive gear drive produces uniform power to all rolls. A safety overload clutch is provided on the drive shaft to prevent damage to the drive system. A convenient feed speed adjustment and indicator are provided to simplify machine operation. This type of drive virtually eliminates feed works related dubbing problems. The feed is also reversible by means of a drum switch, allowing the operator to BACK OUT stock once it has been fed into the machine.





Choice of Drives

Direct Motor or Vee-belt Drive

The feed mechanism is driven by a 2 HP totally enclosed fan-cooled motor. This machine is available in either a Direct Motor or Vee-belt drive with 7-1/2, 10, 15, 20, 25 and 30 HP TEFC motors. Direct motor drives and Vee-belt drives operate at 3600 RPM or to the customer's order. Model shown is arranged for Vee-belt drive. A 3 HP feed motor is also available.

Note: The higher the cutterhead RPM the higher the noise level of the machine.

CAPACITY

These machines are designed to plane material 31" wide and from 1/16" to 8-3/4" in thickness. The cutterhead design allows a maximum cut of 3/8". Butted pieces as short as 4" and single pieces 12" may be planed.

HEAVY ONE PIECE CAST IRON TABLE

The heavy one-piece table accurately carries all table parts for precision planing and is easily adjustable by a conveniently located hand wheel.

LARGE BOX TYPE CAST IRON BASE

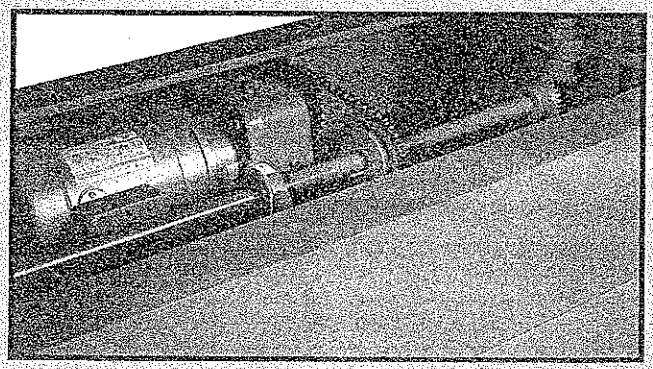
A large box-type three point mounted base of rigid design insures proper support of all components.

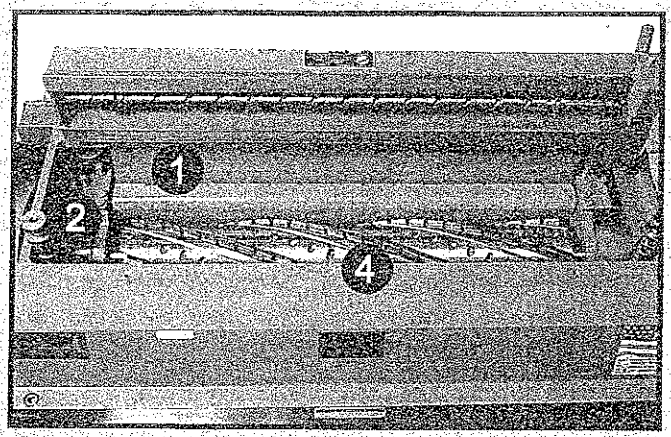
EACH MACHINE IS ELECTRONICALLY BALANCED

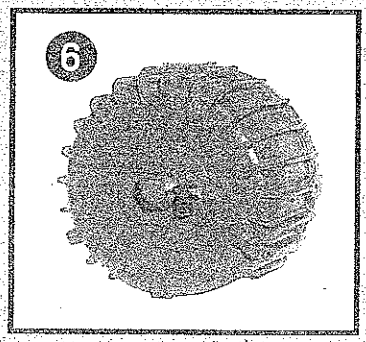
Each NORTHFIELD machine is carefullly tested with modern vibration-analyzing equipment. Even conditions hidden from view which might interfere with the smooth, long life of the machine are detected and corrected.

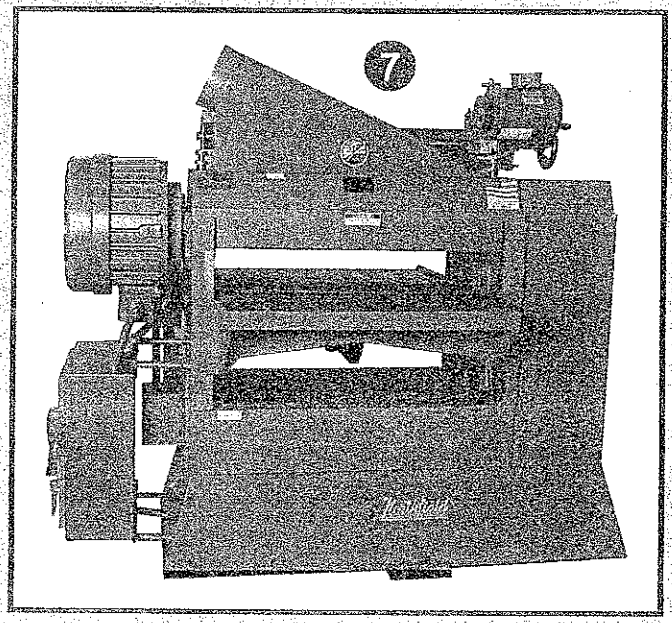
Independent Motor Gear Box for Power Table Elevation

An independent gear motor with overload clutch is available as an option providing powered table elevation. A micro switch is also provided to prevent elevating the table into the cutterhead.









Four Knife Cutterhead with Integral Micrometer Type Knife Raising Screws

The four knife cutterhead of high carbon steel is 31" long and has a 5" cutting circle. The 5/32" x 1-1/4" x 31" knives are of high speed steel and can be quickly adjusted with the micrometer type knife raising screws machined integral with the cutterhead. The cutterhead can be quickly stopped with a convenient brake.

1. Sectional Chipbreaker Mounted Concentrically with Head

A sectional chipbreaker of 2" ductile iron sections is concentric with the cutterhead and yields to 3/8". It rises with the sectional infeed roll on heavy cuts and is fully adjustable.

2. Quickly Adjustable Pressure Bar

A heavy pressure bar is located directly behind the cutterhead. It is quickly adjustable by means of spring loaded micrometer-type adjusting screws at either end of the bar. If necessary, the pressure bar can be easily removed. Hard chrome plating is available as an option.

3. Sectional Upper Infeed Roll

All four 4" feed rolls are power driven. The upper infeed roll is the sectional type with 2" milled ductile sections. Each section yields 5/16" and the entire roll yields 3/4". All the other feed rolls are solid steel and easily removable. The feed rolls are mounted with sealed-for-life ball bearings. To adjust the machine from rough to smooth stock a single hand lever quickly adjusts the table power feed rollers from .001 to .075.

4. Top View showing knife grinder with grinding wheel and stem in place. The grinding attachment can be left on the machine during operation with either a gravity type or collection system-type dust hood in place.

5. As Standard Equipment each machine is equipped with a conveniently placed hand brake. As an optional feature the machine may be ordered with a limit switch that shuts off power on both the cutter-head and feed motor when the hand brake is applied.

6. Positive Cutterhead Grinding indexing plate insures that each knife is ground in proper position.

7. The Northfield #8 Planer-Surfacer is shown here with a dust hood that can be attached to a central dust collection system. Model shown has the knife grinding attachment in place.

SPECIFICATIONS

Nominal Size ..... 31" x 8" Straight Knife
30" x 8" Helical Head

Actual Capacity ..... 31" x 8-3/4" Straight Knife
30" x 8-5/8" Helical Head

Cylinder ..... 5" cutting circle, 4 knife, high carbon steel, micrometer-type knife raising screws

Knife Size ..... 5/32" x 1-1/4" x 31" high speed steel

Drive ..... Direct Motor or Vee-belt

Brake ..... Conveniently located hand brake

Motors ..... CUTTERHEAD: 7-1/2, 10, 15, 20, 25 or 30 HP totally enclosed, fan cooled. FEED: 2 HP totally enclosed, fan cooled

Voltage ..... 208 - 220/440, 550 volt 60 cycle, 3 phase standard

RPM ..... DIRECT MOTOR DRIVE: 3600 VEE-BELT: 3600 (or to customer's specifications)

Lower Feed Rolls ..... 4" solid steel, power driven, sealed-for-life bearings

Upper Feed Rolls ..... INFEED: 4" diameter, 2" milled ductile iron sections, 5/16" section yield, 3/4" roll yield, sealed-for-life ball bearings. OUTFEED: 4" solid steel, power driven, sealed-for-life ball bearings

Table Feed Roller Adjustment .... Single hand lever .001" to .075"

Feed Speed ..... 20 to 100 lineal feet per minute *(higher or lower available in same ratio)*

Chipbreaker ..... Ductile iron, 2" sections, concentric with head

Pressure Bar ..... easily adjustable with micrometer type screws

Maximum Stock Width ..... 31" Straight Knife
30" Helical Head

Shortest Butted Piece ..... 4"

Shortest Single Piece ..... 12"

Maximum stock thickness ..... 8-3/4"

Minimum Stock Thickness ..... 1/16"

Maximum Depth of Cut ..... 3/8"

Controls ..... Double magnetic switch, single pushbutton, reversing switch on feed mechanism

Floor Space ..... 66" x 50"

Base ..... Large box-type, three point mounted

Net Weight ..... 3300 lbs.*

Domestic Shipping Weight ..... 3500 lbs.*

Export Shipping Weight ..... 3800 lbs.*

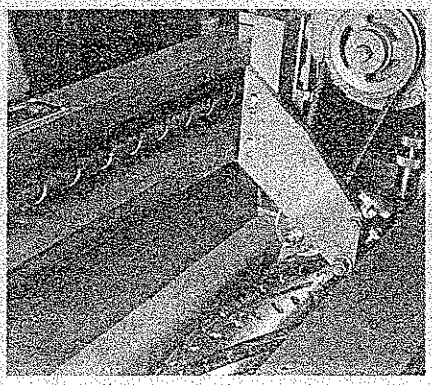
Cubic Export Crate Size ..... 170 cu. ft.

**Add 200 lbs. if knife grinder is ordered with machine. Knife grinder must be ordered with Helical Cutterhead option. 10 HP minimum for Helical Head option. Machine requires approximately 1500 CFM airflow for dust collection.*

EXTRAS

- ❑ Shavings hood for gravity exhaust system
- ❑ Shavings hood for connection to blower system
- ❑ Knife grinder and jointing attachment
- ❑ Idler rollers for edge of table
- ❑ Dial type knife and roll setting gauge
- ❑ Limit switch for hand brake
- ❑ NEMA 12 electrics with fused disconnect
- ❑ Powerlift table
- ❑ Hard chrome plated pressure bar
- ❑ Digital readout
- ❑ 3 HP feed motor
- ❑ Neoprene covered outfeed roll
- ❑ Higher or lower feed speeds
- ❑ Modifications to customer's order

Northfield HELICAL CARBIDE CUTTERHEAD



Cuts Maintenance

The Northfield Helical Carbide Cutterhead offers fast maintenance compared to other helical cutterheads. Northfield's Helical Carbide Cutterhead can be jointed and hollow ground in under two hours. Machined grinding alignment grooves on cutterheads assure accurate hollow grinding on each row of bits.

Runs Quietly

The Northfield Helical Cutterhead runs quietly, both loaded and unloaded. Cylinders are dynamically balanced and bits are arranged in helical, or spiral rows of 20° for low noise and smooth cutting.

Overlap Bits

Individual bits, or teeth, in the Northfield Helical Cutterhead overlap. This staggered bit arrangement places the space between bits in one row, directly in the cutting path of the bits in preceding and following rows. The result is a clean cut, free of surface ridges. Each cutterhead has 24 easily replaceable bits in a row, total of 96 bits.

Northfield FOUNDRY & MACHINE CO.

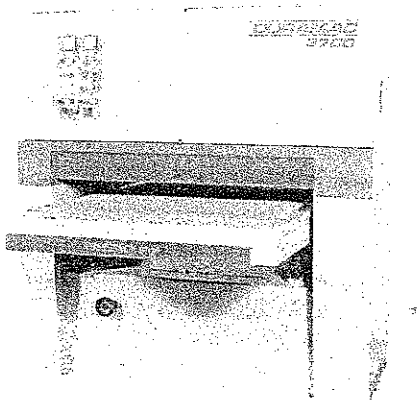
320 North Water Street
P.O. Box 140
Northfield, Minnesota 55057 USA

PHONE: 507-645-5641
FAX: 507-645-4005
E-mail: northfieldmachinery@microassist.com

Cantek, L.L.C.
4334 Brockton Dr SE, Suite I • Grand Rapids, MI 49512
Phone: 888-982-2683 Fax: 616-871-9879

C6

Exclusive distributors of Duramac Wide Belt Sanders



One New Duramac 3701 Wide Belt Sander
The Duramac Series wide belt sanders are constructed with features uncommon for machines in this price range. Heavy plate steel construction in a modular design provides a solid base unit. 75" long sanding units are adjustable by a positive worm screw mechanism to assure constant parallelity to the conveyor bed. The conveyor bed is solid top plate construction – not segments as with other manufactures. With an American made Rough Tex conveyor belt. Standard conveyor feed is through electronic inverter for speeds of 3-90 fpm with mechanical feed as an option. Four heavy jackscrews support the conveyor bed with an opening of up to 6". All heads are tracked with ***Allen Bradley electronic eye system.*** Each head has an amp meter for belt load and wear. The workpiece is held with spring-loaded double holddown system and an "oversize" shutoff prevents over thickness material from entering machine. All air and electrical components are high quality Camozzi and Telemecanique.

Standard Equipment:

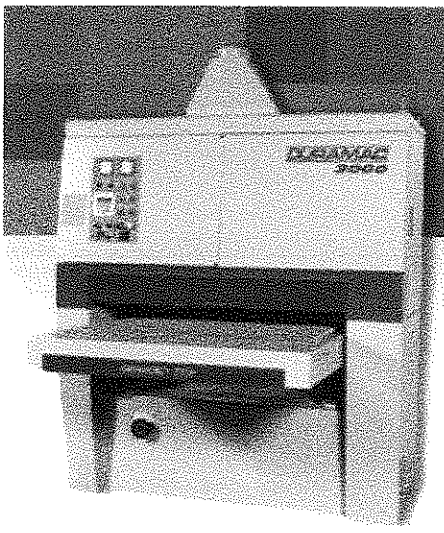
- 25 HP main motor; 220/440volt/3 phase electrics on all motors
- Automatic E-stop system at machine infeed and outfeed
- Full abrasive head braking system
- Over thickness shut off device
- AC electronic inverter on conveyor head – 2 HP with feed speeds of 3-90 fpm
- Four heavy jack screws for maximum bed support
- Allen Bradley electronic eye tracking for sanding heads
- ***Motorized bed opening up to 6" with pre-setting system***
- American made endless splice rough top conveyor belt
- Double pinch rolls – spring loaded at infeed
- 5 ½" drum with 3" wide adjustable platen
- Worm gear adjustment of sanding heads for constant parallelity of sanding head
- Camozzi air components
- Telemecanique electrical components
- Dust tight electrical cabinet
- 7" dust outlet for each head
- 12" roller infeed extension

PRICE.....$16,550.00

Delivery Time: To be determined at time of order.

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery

2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607



Series 3000 Features

DURAMAC

Series 3000
WIDEBELT SANDER

Series 3000 Features:

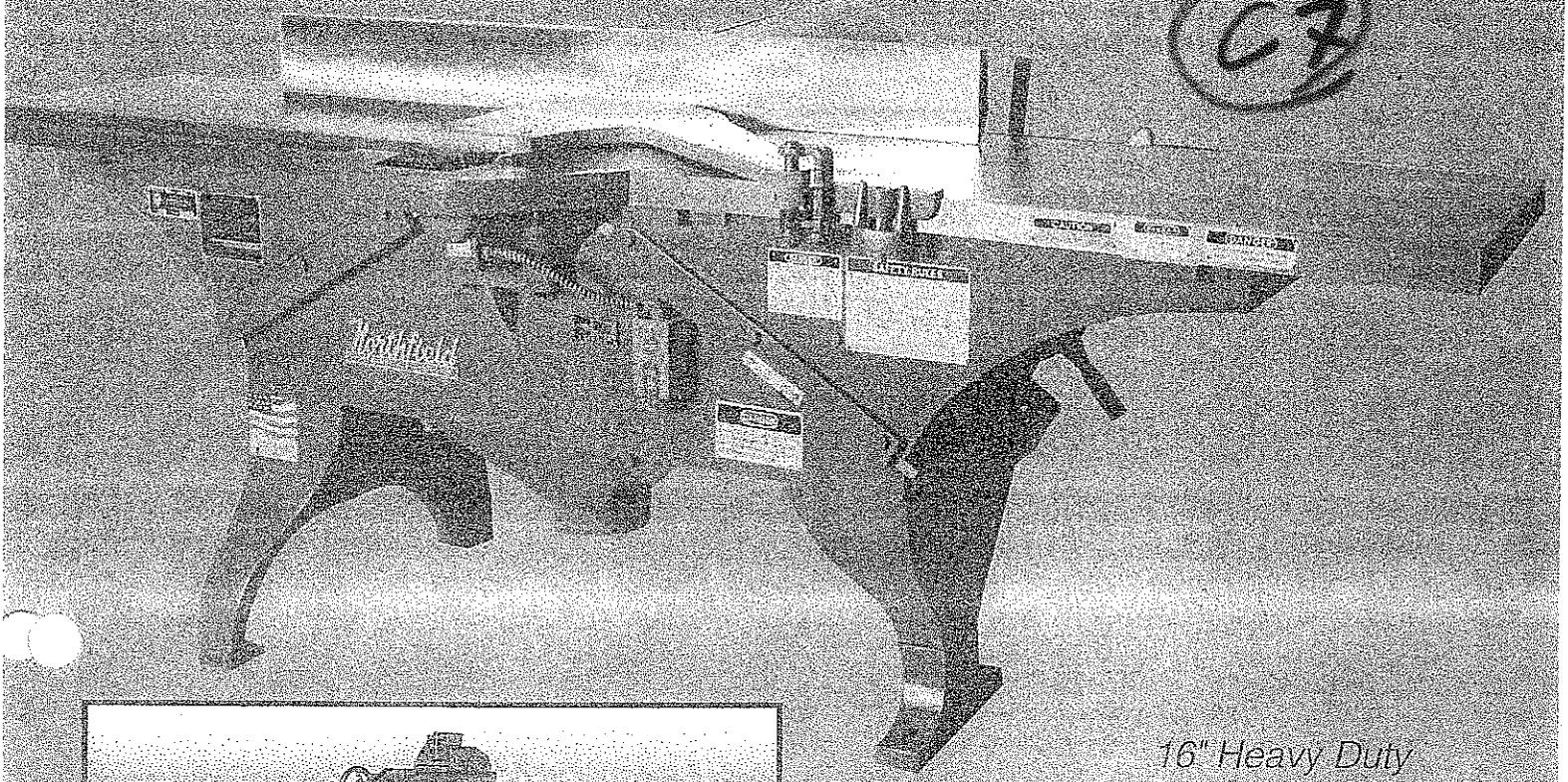
- Heavy steel plate modular construction
- Automatic e-stop system on infeed and outfeed
- Full abrasive head electronic braking system
- Over-thickness shutoff device
- 3 - 90 FPM feed speed
- Four heavy jack screws support bed
- Photoelectric head tracking
- Motorized bed opening to 6" with presets
- 75" abrasive belt standard with 103" belts optional
- Large 10" diameter contact drum
- 3" wide platen on polishing head
- Worm gear adjustment of sanding heads
- Camozzi air components
- Telemecanique electrical components
- Dust-tight electrical cabinet
- Single 7" dust port for each head

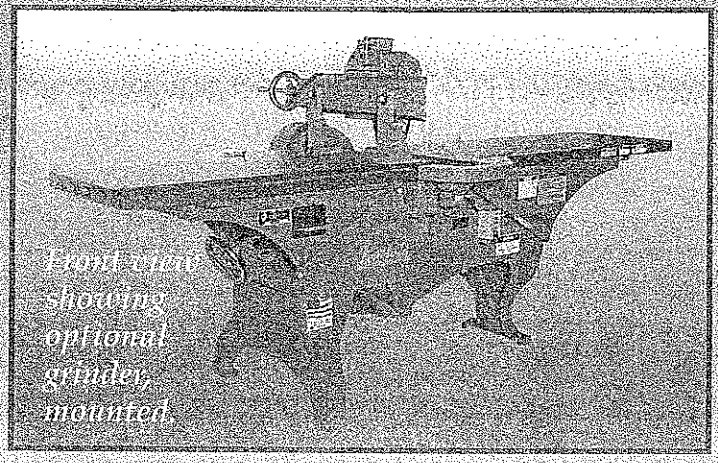
Enduro Group 616-871-9889 info@endurogroup.com

Northfield Heavy Duty and Patternmaker's 12", 16" & 24" JOINTERS

For accuracy, speed, precision & trouble-free dependability

C3





Front view showing optional grinder mounted.

16" Heavy Duty with Optional Electric Brake

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery

2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607

Northfield Heavy Duty and Patternmaker's Jointers are designed and built for production and educational work where accuracy and fine quality of work are desired. Their design is such that the working surfaces are easily accessible to the operator. The weight is well distributed throughout making a well balanced and smooth operating machine.

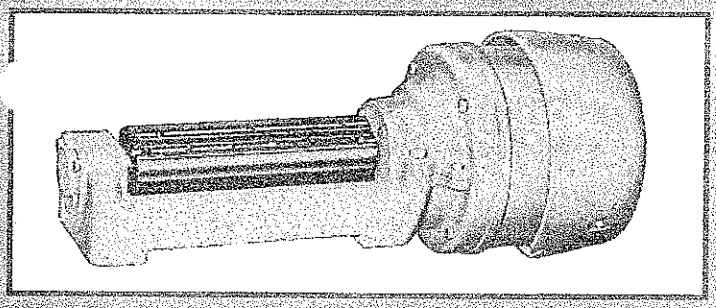
Delta Heavy Duty and ...

Heavy Ribbed and Cored Frame

The heavily ribbed and cored frame is cast in three pieces. The two inclines and bed are bolted to legs which are set to provide a wide, three point floor spread. Perfect alignment is insured at all times by the rocker base feature on the front leg. The legs are so placed as not to obstruct the feet of the operator permitting him to work in a comfortable, natural position.

Easily Adjustable Inclines

Inclines are placed at such an angle that they can be raised or lowered without interfering with the cutterhead. The outfeed incline is operated by a handwheel at the end of the machine. The infeed incline is adjustable and operated by a large wood spoked ships wheel on the side of the machine and within easy reach of the operator.



Accurately Machined, Dynamically Balanced Cutterhead

The cutterhead is made from high carbon steel that is accurately machined and dynamically balanced. Four-knife heads are standard on all direct motor drive and Patternmaker machines. Three-knife heads are standard on 16" heavy duty belt drive machines. Four-knife belt drive heads are available as optional extras on the 16" belt drive machines. All cutting circles are 4-1/4" except the 24" machine which is 4-1/2". The knives are adjusted by integral, micrometer-type knife raising screws and held in place by fitted wedges.

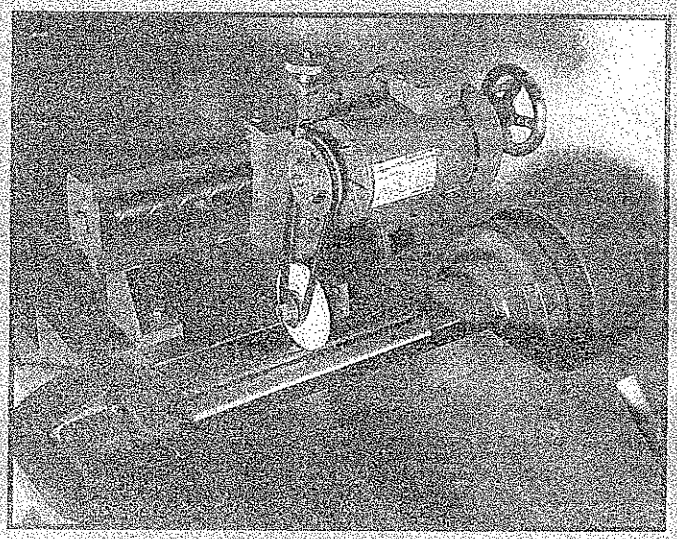
The cutterhead is mounted in a carefully machined, -piece, cast-iron yoke. The yoke is carefully fitted into heavy supports on the frame of the machine.

Sealed-For-Life, Precision Ball Bearings

Both the direct motor and the belt drive machines are equipped with heavy-duty, sealed-for-life, precision ball bearings.

Full Length Cored, Box Form Tables

The overall length of the tables on all machines is 8 feet. Both tables can be drawn away from the cutterhead on a level independent of the inclines leaving an opening around the cylinder head for adjustment of knives, etc. The rear table is provided with a rabbetting groove and the infeed table is equipped with a rabbetting arm. Both tables are of the box form construction and cored the full length. This is the finest type of table construction widely used in quality machine tools. This type of construction makes a very rigid table which cannot warp under any condition. The tables are equipped with removable steel lips.



Knife Grinding and Jointing Attachment

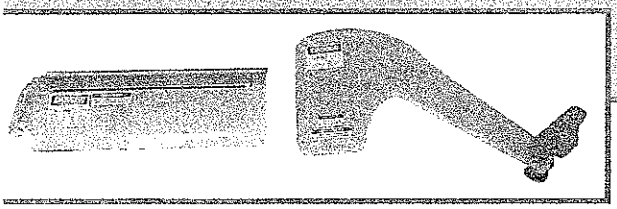
Knife grinders are available for all Heavy Duty Jointers. Features include 1/2 hp motor, fast helix rail screw, and positive stop indexing for heel grinding.

Patternmaker's JOINTERS

Guarding

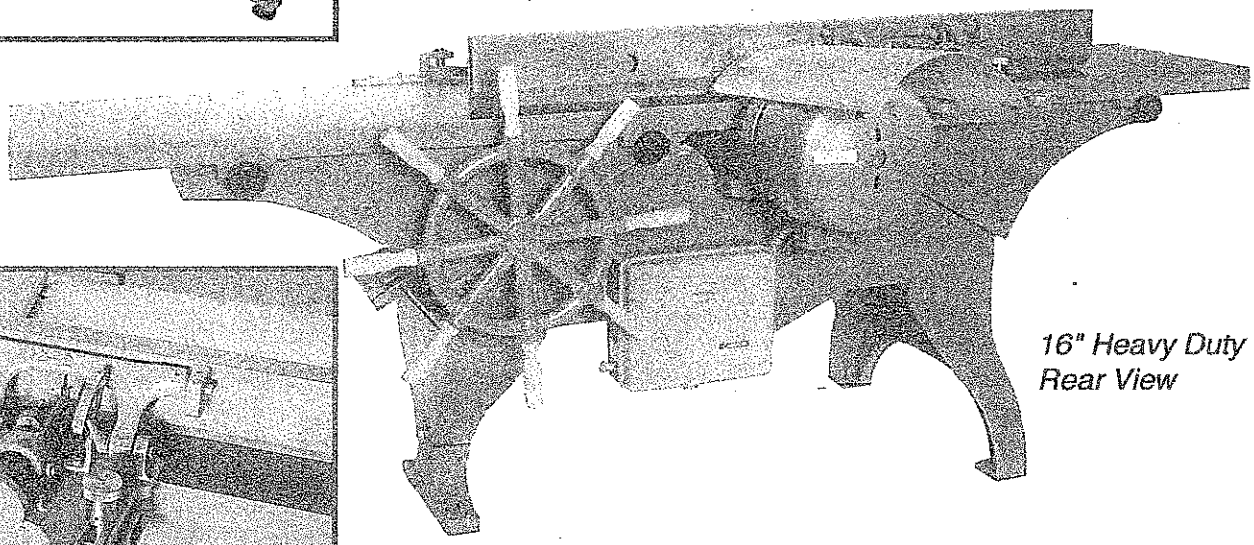
Standard equipment on Northfield Heavy Duty Jointers is the front and rear guards. The front guard is the swing out type with spring tension. The shield is made of aluminum. The rear guard is attached to the fence and moves with it, keeping the cutterhead in back of the fence protected at all times. A cutterhead hand brake is also standard. A switch that stops the power upon application of the hand brake can also be ordered as an option.

All of the above features are included on the Patternmaker's Jointers.

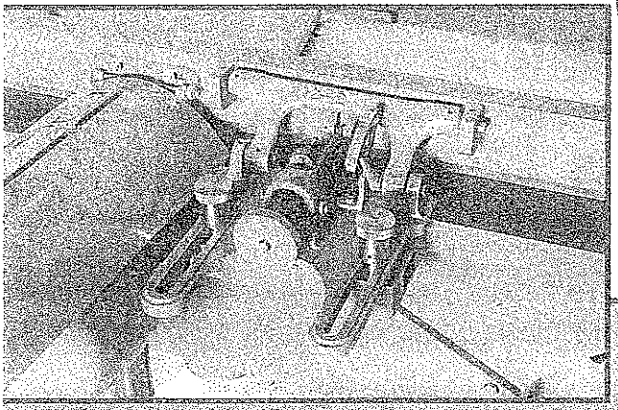


Direct Motor Drive Integral with Cylinder Head

12" and 16" machines are equipped with 3 hp, 3600 RPM, totally-enclosed, fan-cooled motors. The front plate of the motor is cast as part of the cylinder yoke. 24" machines are equipped with 5 hp motors of the same type. 5, 7-1/2 and 10 hp motors are available as optional extras on all models. The motor rotor is mounted on the cylinder head shaft which is extended through the motor. This design integrates the cylinder head bearings and motor as a complete unit. The motor is controlled by a magnetic starter with overload and low voltage protection and 110 volt at push button.



16" Heavy Duty Rear View



Quickly Adjustable Fence

On all Heavy Duty and Patternmaker machines a quickly adjustable fence which tilts 45° to the right is furnished. Fence angularity is accomplished through an Acme thread screw and hand knob, with a positive stop provided at the 90° position. As an optional extra, a fence that tilts both left and right 45° is available. Both styles of fences can be placed at an angle to the head for shear cutting.

Patternmaker Tilting Infeed Table

On the Patternmaker's Jointer the infeed table is adjustable to 5° in relation to the cutterhead. This is extremely useful for planing draft on deep ribs and large bevels on various pattern components.

Belt Drives to Your Specifications

Jointers can be furnished with a belt drive if desired. Cutterhead speeds to 4,500 RPM are available.

SPECIFICATIONS

Northfield Heavy Duty and Patternmaker's Jointers

Machine Size	12"	16"	24"	12" PM	16" PM	24" PM
Length of Knives	12"	16"	24"	12"	16"	24"
Knife Size	12" x 1-1/4" x 1/8"	16" x 1-1/4" x 1/8"	24" x 1-1/4" x 5/32"	12" x 1-1/4" x 1/8"	16" x 1-1/4" x 1/8"	24" x 1-1/4" x 5/32"
Knives per Head, DMD	4	4	4	4	4	4
Knives per Head, Belt Drive	4	3 (4 opt.)	4	4	4	4
Cutting Circle	4-1/4"	4-1/4"	4-1/2"	4-1/4"	4-1/4"	4-1/2"
Overall Length of Tables	96"	96"	96"	96"	96"	96"
Height of Tables from Floor	32-1/2"	32-1/2"	32-1/2"	32-1/2"	32-1/2"	32-1/2"
Rear Table – Width	17"	21"	27"	17"	21"	27"
Infeed Table – Tilts	Stationary	Stationary	Stationary	5°	5°	5°
Fence Size	52" x 5-1/2"	52" x 5-1/2"	52" x 5-1/2"	52" x 5-1/2"	52" x 5-1/2"	52" x 5-1/2"
Fence Tilts	45°	45°	45°	45°	45°	45°
Maximum Rabbet Depth	5/8"	5/8"	3/4"	5/8"	5/8"	3/4"
Drives Available	Direct Motor V-Belt	Direct Motor V-Belt	Direct Motor V-Belt	Direct Motor V-Belt	Direct Motor V-Belt	Direct Motor V-Belt
Motor Size	3 hp	3 hp	5 hp	3 hp	3 hp	5 hp
Cutterhead RPM Vee-Belt*	4500	4500	4500	4500	4500	4500
Cutterhead RPM Direct Motor Drive	3600	3600	3600	3600	3600	3600
Optional Motor Size	5, 7-1/2, 10 hp	5, 7-1/2, 10 hp	5, 7-1/2, 10 hp	5, 7-1/2, 10 hp	5, 7-1/2, 10 hp	5, 7-1/2, 10 hp
Hand Brake	Std.	Std.	Std.	Std.**	Std.**	Std.**
Net Weight	1650	1825	2200	1750	1975	2400
Domestic Shipping Weight	1800	2000	2300	1900	2100	2600
Export Shipping Weight	2300	2500	2900	2400	2500	3100
Cubic Measure	121 cu. ft.	144 cu. ft.	152 cu. ft.	121 cu. ft.	144 cu. ft.	144 cu. ft.
Floor Space	34" x 96"	38" x 96"	44" x 96"	34" x 96"	38" x 96"	44" x 96"

Or to customer's specification* * Includes switch to shut off power upon application of hand brake*

EQUIPMENT

Each machine is furnished complete with one set high speed steel knives, cutting depth gauge, necessary wrenches, steel lips, maintenance and parts manual, hand brake, 110 volt at push button. 208, 230/460, 575 volt, 3 phase 60 cycle motors are standard.

EXTRAS

- Knife grinder and jointing attachment
- Four knife heads
- Switch for hand brake
- Warner electric brake
- Balanced knife sets
- Dial type knife setting gauge
- Two way tilting fence
- 24 volt at push-button
- Nema 12 electrics with disconnect
- Surty front guard (12 & 16 only)
- Single phase in belt drive only
- And MORE! Contact:

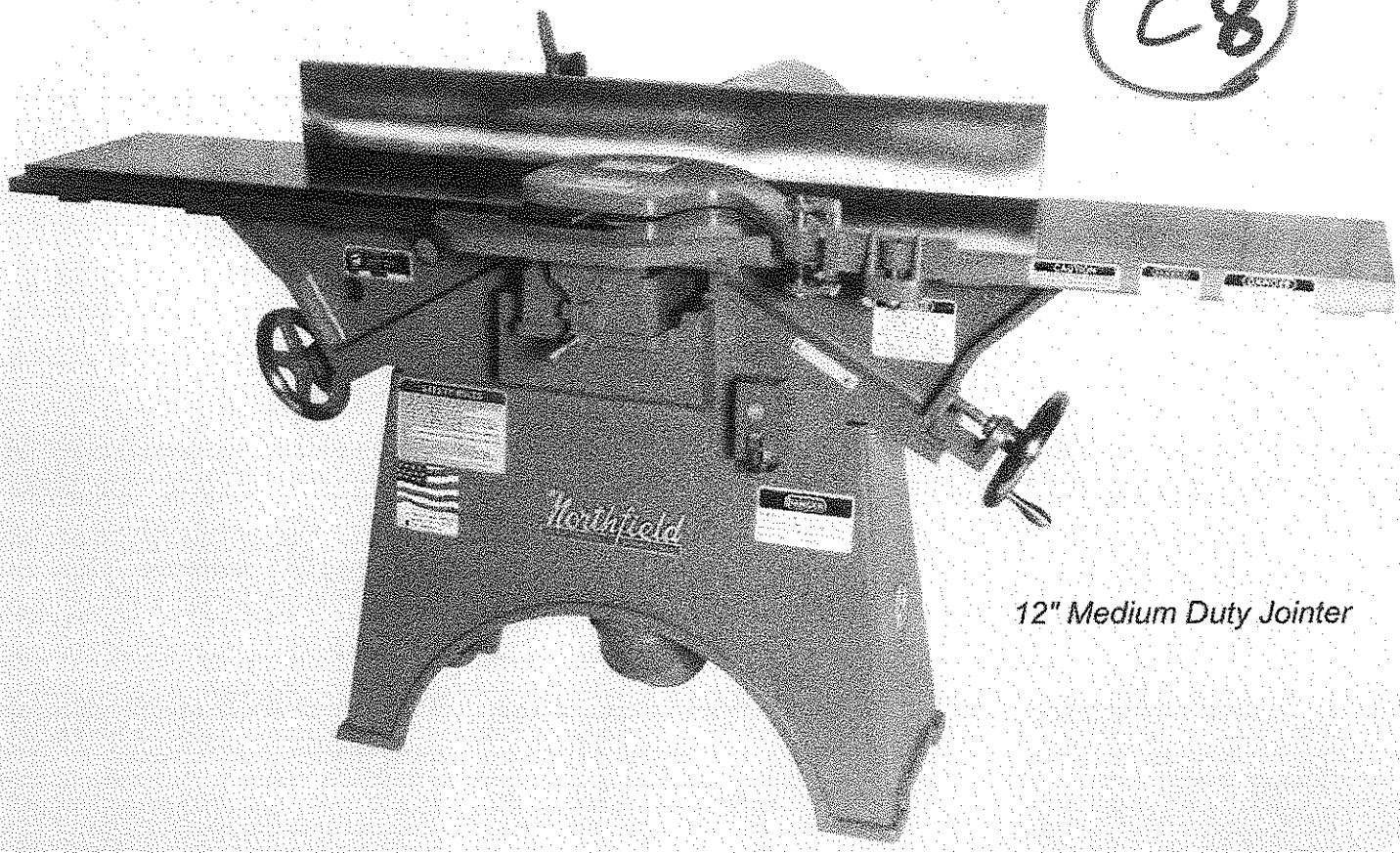
Northfield FOUNDRY & MACHINE CO.
320 North Water Street, P.O. Box 140
Northfield, Minnesota 55057 USA
PHONE: 507-645-5641
FAX: 507-645-4005

Printed in USA 4-96

Northfield Medium Duty Eight & Twelve Inch JOINTERS

For accuracy, speed, precision & trouble-free dependability

C8



12" Medium Duty Jointer

Northfield Medium Duty Jointers are designed and built for production and educational work where accuracy and fine quality of work are desired.

Their design is such that the working surfaces are easily accessible to the operator.

The weight is well distributed throughout, making a well-balanced, smooth operating machine.

PROFIT THROUGH AMERICAN TECHNOLOGY
WOOD MACHINERY MANUFACTURERS OF AMERICA
MEMBER

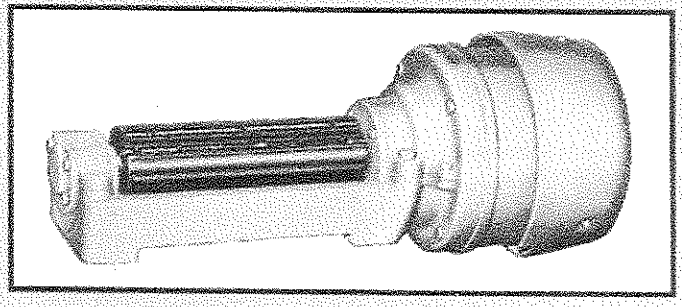
Northfield

Heavy Base and Incline Assembly

The heavily ribbed and cored frame is cast in four pieces. The two inclines and bed are bolted to a wide stance floor base. A 6" sheet metal dust spout is provided for connection to a central dust collection system. The base is placed so as not to obstruct the feet of the operator, permitting them to work in a comfortable, natural position.

Easily Adjustable Inclines

Inclines are placed at such an angle that they can be raised or lowered without interfering with the cutterhead. The inclines are operated by handwheels at the ends of the machine.



Accurately Machined, Dynamically Balanced Cutterhead

The cutterhead is made from high-carbon steel that is accurately machined and dynamically balanced. Four-knife heads are standard on all direct motor drive and belt-driven machines. Three-knife belt drive heads are available as an option. All cutting circles are 4-1/4". The knives are adjusted by integral, micrometer-type knife raising screws and held in place by fitted wedges.

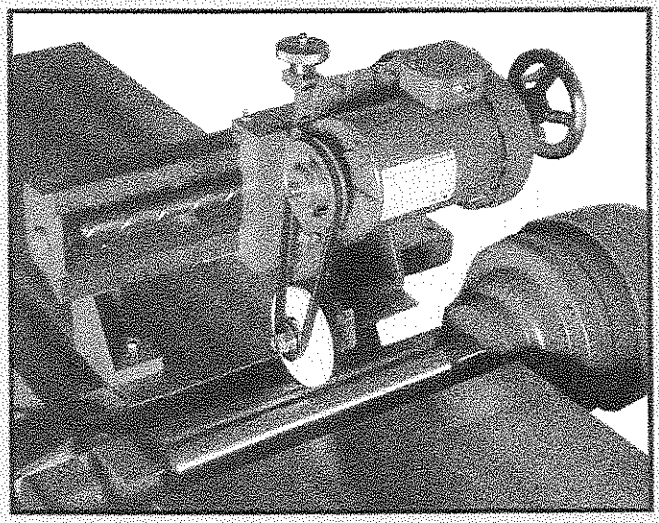
The cutterhead is mounted in a carefully machined, one-piece, cast-iron yoke. The yoke is carefully fitted into heavy supports on the frame of the machine.

Sealed-For-Life, Precision Ball Bearings

Both the direct motor and belt drive machines are equipped with heavy-duty, sealed-for-life, precision ball bearings.

Accurately Ground Tables

The overall length of the tables on all machines is 6' 2". Both tables can be drawn away from the cutterhead on a level independent of the inclines, leaving an opening around the cylinder head for adjustment of knives, etc. The rear table is provided with a rabbeting groove and the infeed table is equipped with a rabbeting arm. Both tables are mounted on planed inclines and are adjustable for precisely gauging the depth of cut. The tables are accurately machined to the top of the incline blocks without the use of adjusting gibs. They cannot come out of alignment. No adjusting screws or gibs are needed to keep the tables in alignment.



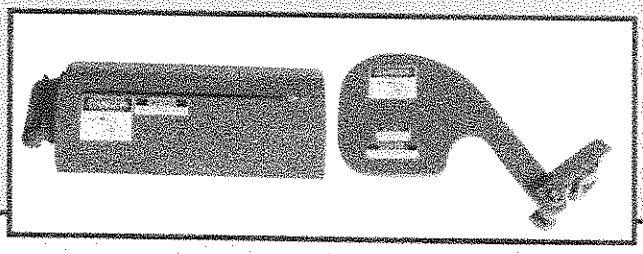
Knife Grinding and Jointing Attachment

Knife grinders are available for all Medium Duty Jointers. Features include 1/2 HP motor, fast helix rail screw, and positive stop indexing for heel grinding.

Medium Duty JOINTERS

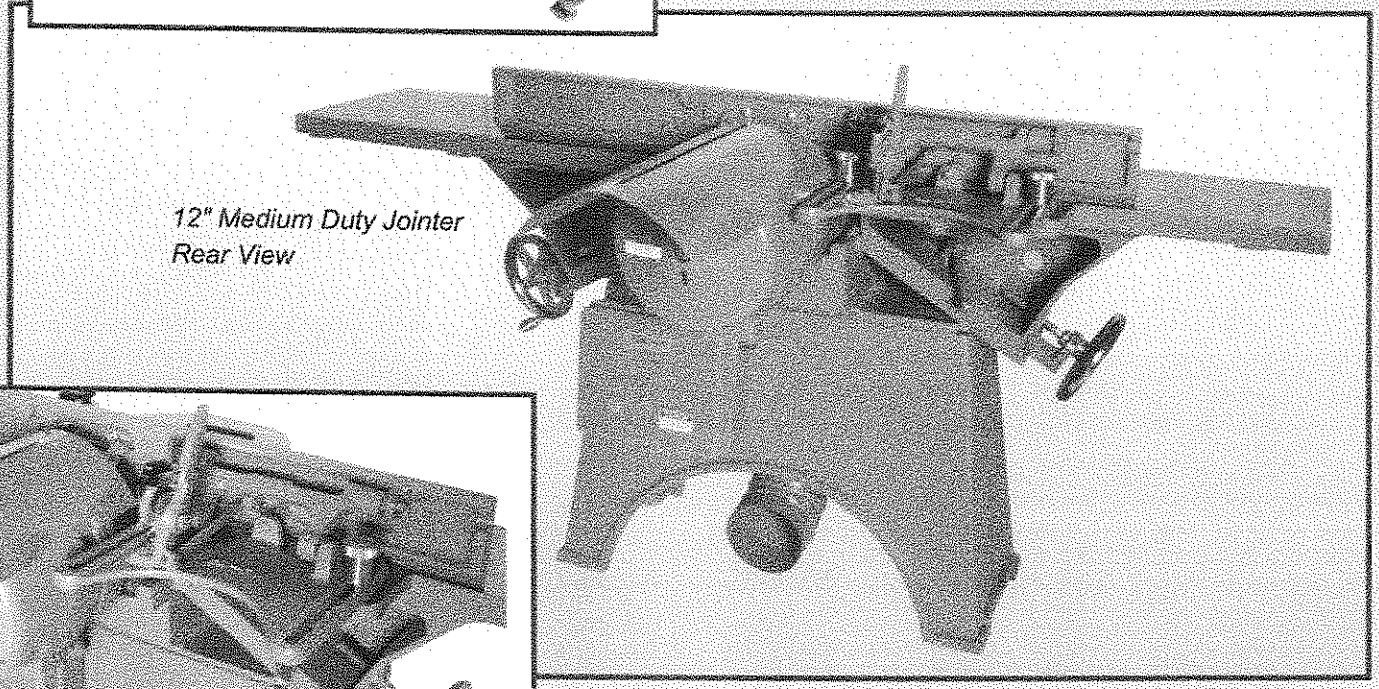
Guarding

Standard equipment on Northfield Medium Duty Jointers are the front and rear guards. The front guard is the swing out type with spring tension. The shield is made of aluminum. The rear guard is attached to the fence and moves with it, keeping the cutterhead in back of the fence protected at all times. A cutterhead hand brake is also standard. A switch that stops the power upon application of the hand brake can also be ordered as an option.



Direct Motor Drive Integral with Cylinder Head

8" and 12" machines are equipped with 3 HP, 3600 RPM, totally-enclosed, fan-cooled motors. The front plate of the motor is cast as part of the cylinder yoke. 5 and 7-1/2 HP motors are available as optional extras on all models. The motor rotor is mounted on the cylinder head shaft which is extended through the motor. This design integrates the cylinder head bearings and motor as a complete unit. The motor is controlled by a magnetic starter with overload and low voltage protection and 110 volt at push button.



12" Medium Duty Jointer Rear View

Quickly Adjustable Fence

On all Medium Duty machines a quickly adjustable fence which tilts 45° to the right is furnished. Fence angularity is accomplished through a degree handle with locking knob, with a positive stop provided at the 90° position. The fence can be placed at an angle to the head for shear cutting.

Belt Drives to Your Specifications

Jointers can be furnished with a belt drive if desired. Cutterhead speeds to 4,500 RPM are available.

SPECIFICATIONS

For Northfield Medium Duty Jointers

Machine Size	8"	12"
Length of Knives	8"	12"
Knife Size	8" x 1-1/4" x 1/8"	12" x 1-1/4" x 1/8"
Knives per Head, DMD	4	4
Knives per Head, Belt Drive	4 (3 opt.)	4
Cutting Circle	4-1/4"	4-1/4"
Overall Length of Tables	6' 2"	6' 2"
Height of Tables from Floor	33"	33"
Fence Size	45" x 5-1/4	45" x 5-1/4
Fence Tilts	45^0	45^0
Maximum Rabbet Depth	9/16"	9/16"
Drives Available	Direct Motor & V-Belt	Direct Motor & V-Belt
Motor Size	3 HP DMD	3 HP DMD
Cutterhead RPM, V-Belt*	4500 RPM*	4500 RPM*
Cutterhead RPM, DMD	3600 RPM	3600 RPM
Optional Motor Size	5 & 7-1/2 HP	5 & 7-1/2 HP
Net Weight	950 lbs.	1100 lbs.
Domestic Shipping Weight	1150 lbs.	1300 lbs.
Export Shipping Weight	1350 lbs.	1500 lbs.
Cubic Measure	84 cu. ft.	84 cu. ft.
Floor Space	30" x 74"	34" x 74"

*Or to customer's specification

EQUIPMENT

Each machine is furnished complete with one set of high-speed steel knives, cutting depth gauge, necessary wrenches, 6" dust chute, maintenance and parts manual, hand brake, 110 volt at push button. 208, 230/460, 575 volt, 3 phase 60 cycle motors are standard.

EXTRAS

- Knife grinder and jointing attachment
- Steel lips
- Switch for hand brake
- Warner electric brake
- Balanced knife sets
- Dial type knife setting gauge
- Carbide tipped knives
- 24 volt at push-button
- Nema 12 electrics with disconnect
- Surty front guard
- Single phase in belt drive only
- And MORE! Contact:

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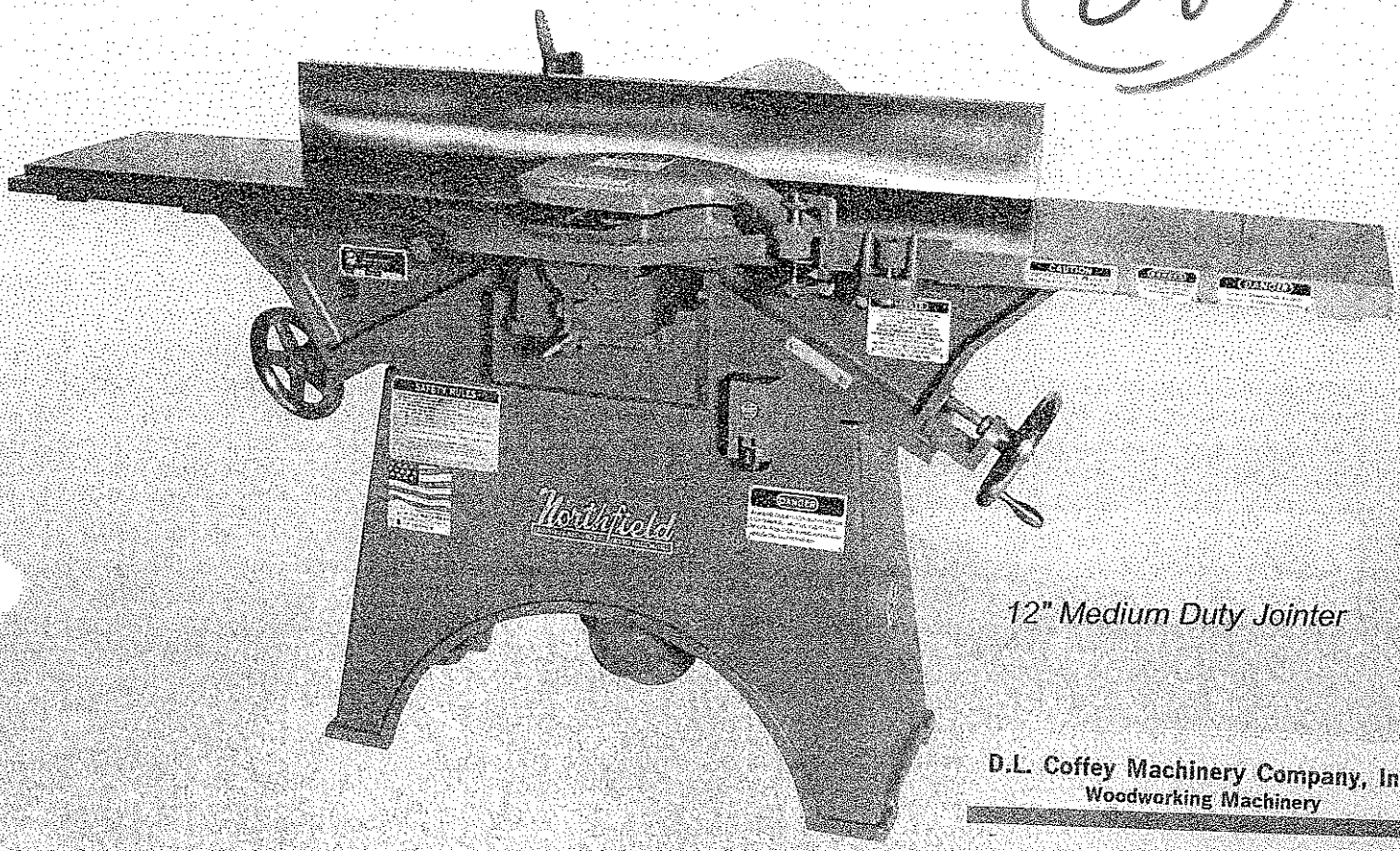

12" Medium Duty Jointer

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery

2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607

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Northfield

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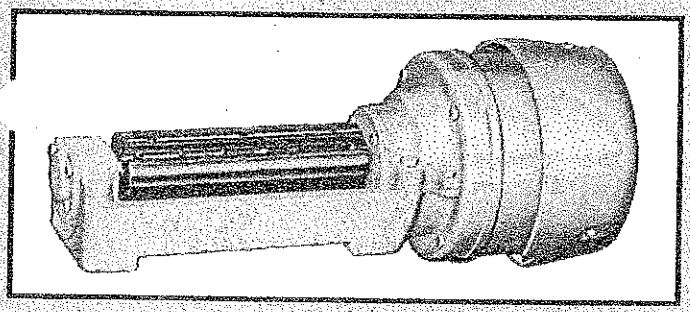

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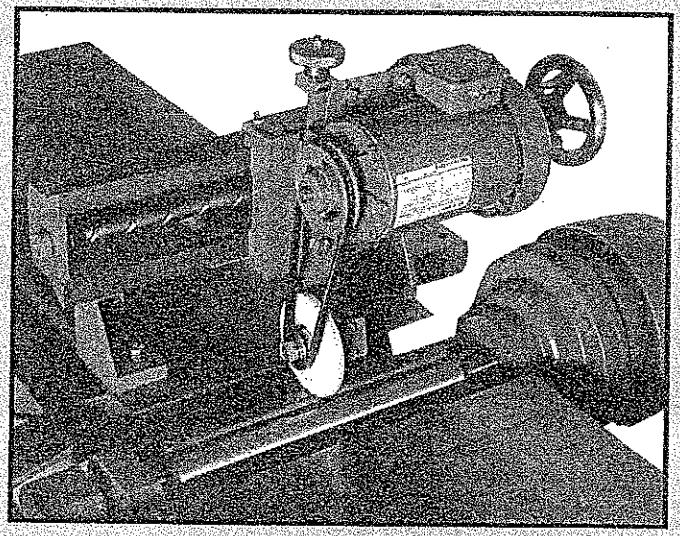

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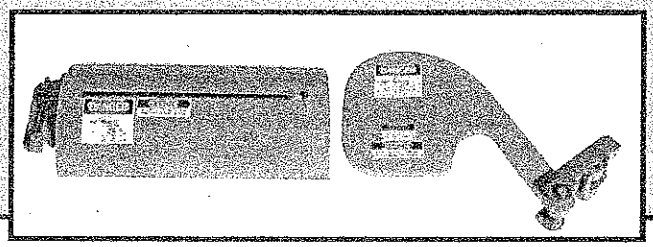

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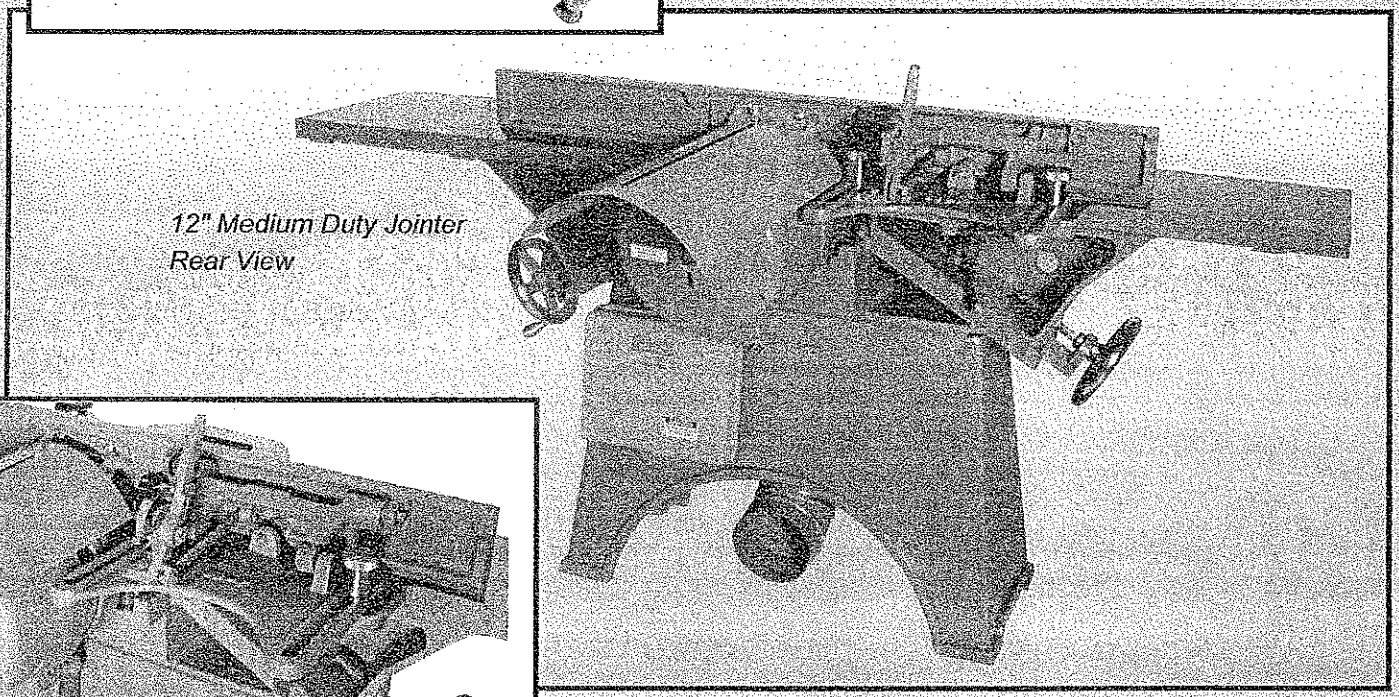

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Height of Tables from Floor	33"	33"
Fence Size	45" x 5-1/4	45" x 5-1/4
Fence Tilts	45^0	45^0
Maximum Rabbet Depth	9/16"	9/16"
Drives Available	Direct Motor & V-Belt	Direct Motor & V-Belt
Motor Size	3 HP DMD	3 HP DMD
Cutterhead RPM, V-Belt*	4500 RPM*	4500 RPM*
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EQUIPMENT

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- Warner electric brake
- Balanced knife sets
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- Carbide tipped knives
- 24 volt at push-button
- Nema 12 electrics with disconnect
- Surty front guard
- Single phase in belt drive only
- And MORE! Contact:

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DELTA

C9 ?

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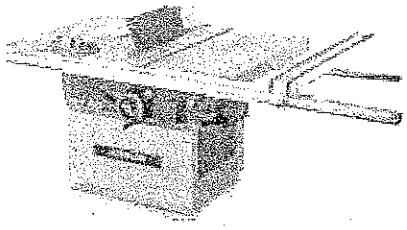
14"/16" Tilting Arbor Saw ? Possibly 16" Table Saw
Model 36-790

PACKAGE CONTENTS
• Model 36-790 14"/16" Tilting Arbor Saw includes a 7 1/2 HP, 200-220/440V (wired for 200-220V), 60 Hz., 3 phase motor with magnetic starter and automatic reset overload; blade guard splitter, Biesemeyer® Commercial Fence System, guide bar, miter gage, 43" x 59" table with two extension wings and fence support extension.



DELTA DIFFERENCE
• A powerful 7 1/2 HP motor handles the hardest woods. The standard 14" blade has a 4 1/2" depth-of-cut, 3 1/8" at a 45° angle. Attach a 16" blade and increase the depth-of-cut to 5 1/2" and 4 1/8" at a 45° angle.
• The drive system is powered by a totally enclosed, fan-cooled 7 1/2 HP motor. Double V-belt drive can be set for speeds of 3000 or 4500 rpm for best cutting performance. Motor plate, trunnions and arbor support bracket are constructed of cast-iron for solid support and vibration-free operation at the saw arbor. Arbor runs on pre-lubricated, sealed ball bearings and raises to the correct height and angle by a rack and wormscrew operating mechanism.
• T-slots on either side of saw blade hold miter gage securely, even beyond front of table. With miter gage fully extended, you get 30 1/2" cutoff on 1" stock using a 14" saw blade.
• Saw blade stops, adjustable from the top of the table, assure perfect 90° and 45° settings.
• Massive table (includeing extension wings) is 43" x 59" in size, providing extra support for handling large stock. Table is heavily-ribbed to prevent warping and distortion.
• The three-point locking Biesemeyer® T-Square® Commercial Saw Fence System ensures the fence will be precisely parallel to the blade and will provide a smooth clean cut accurate to 1/64th of an inch.

SPECIFICATIONS
Motor: 7 1/2 HP, 3 phase
Type of Motor: Induction
Key Feature: Double V-Belt
MOTOR: 7 1/2 HP, 3 phase
DIAMETER OF ARBOR: 1"
CAPACITIES: Maximum depth of cut (blade is not completely below table surface in fully lowered position - .4" with 14" blade, 1.4" with 16" blade):

With 14" blade: 4 1/2" (114 mm)

With 16" blade: 5 1/2" (140 mm)
Maximum rip to right of blade: 51 3/16" (1300 mm)
Maximum thickness of cut at 45° angle:

With 14" blade: 3 1/8" (79 mm)

With 16" bade: 4 1/8" (105 mm)
Distance, front of table to center of blade: 22 13/16" (579 mm)
Table in front of 14" blade at max. cut: 17 1/8" (435 mm)
Maximum width of cut-off:

With 14" blade (1" stock): 30 1/2 " (775 mm)

With width dado: 13/16" (21 mm)
TABLE: Height: 33 7/16" (849 mm)
Size: 39 3/8" x 43 1/4" (1000 x 1099 mm)
Size, including two extensions: 59" x 43.3" (1499 x 1100 mm)

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery
2814 Mountainhurst Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607

T-slot miter gage groove on either side of saw blade
Removable table insert with built-in leveling screws
CABINET SIZE: Width: 32 3/4" (832 mm)
Depth: 25 3/4" (654 mm)
CHIP EXHAUST OPENING: 4" O.D. (102 mm)
ARBOR SPEED: (2): 3000 & 4500 rpm
OVERALL DIMENSIONS: Length: 49 1/2" (1257 mm)
Width: 98" (2489 mm)
Height: 41" (1041 mm)
WEIGHT: Without fence: 1381 Lbs. (626 Kg)

RELATED ACCESSORIES
Sliding Shaper Jig: - Model 43-188

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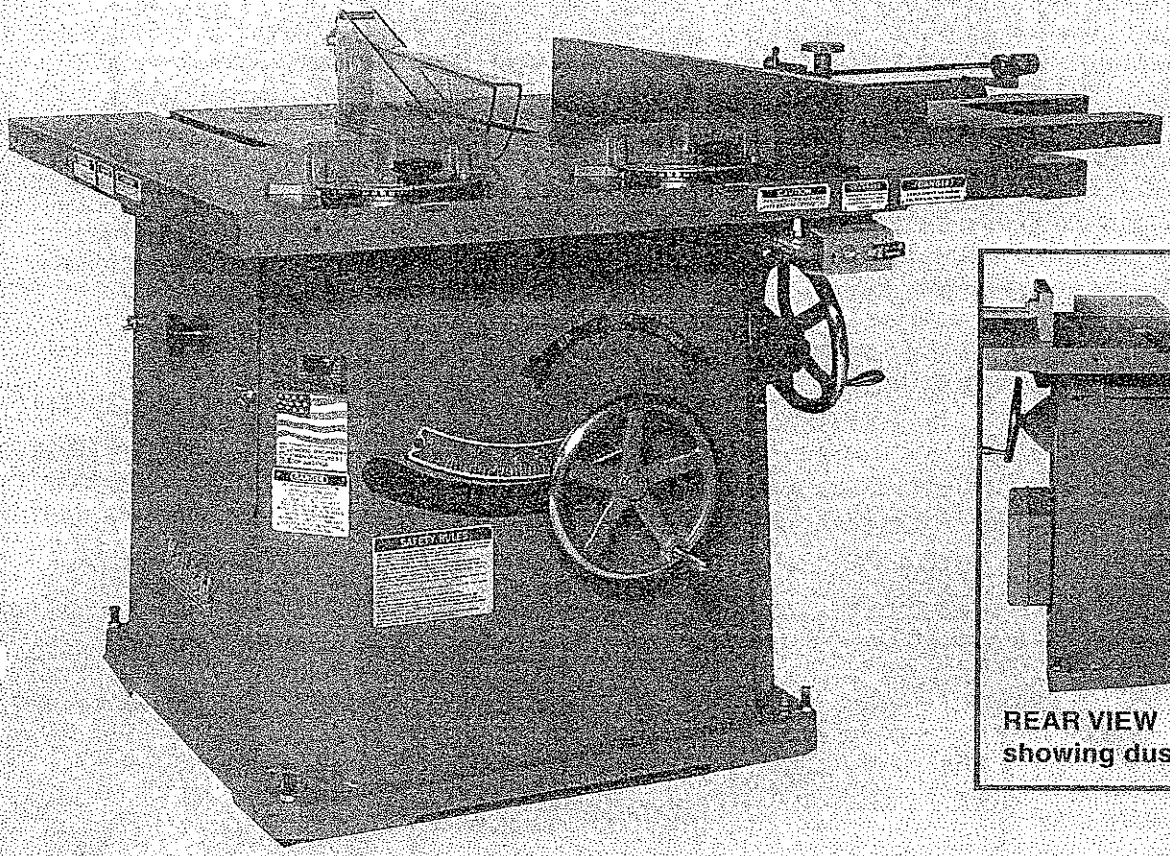
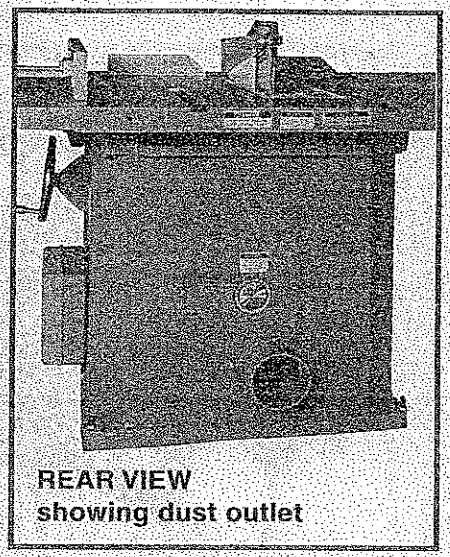
Northfield

Tilting Arbor VARIETY SAWS

#4 SAW (std.) with 12" Extended Table to Right and Micrometer Adjust on Rack & Pinion Fence





REAR VIEW
showing dust outlet

WIDE CHOICE OF MODELS

Northfield Tilting Arbor Variety Saws are available in four different models, each of which is designed for a variety of uses. Each model can accommodate saw blades from 14" to 18". The saw arbor can be tilted from 0° to 45° through a conveniently located hand wheel. A vertical saw adjustment of 4" is standard. The stock capacity for each machine is listed on the specification page.

EACH MACHINE IS ELECTRONICALY BALANCED

Each NORTHFIELD machine is carefully tested with modern vibration analyzing equipment. Even conditions hidden from view which might interfere with the smooth, long life of the machine are detected and corrected.

PRECISION TABLES

All tables on Northfield Tilting Arbor Variety Saws, whether stationary or rolling are carefully seasoned, heavily ribbed and precision planed and polished to maintain accuracy. A graduated scale is marked on the top for ripping widths. Dovetailed slots are provided for the sliding gauges.

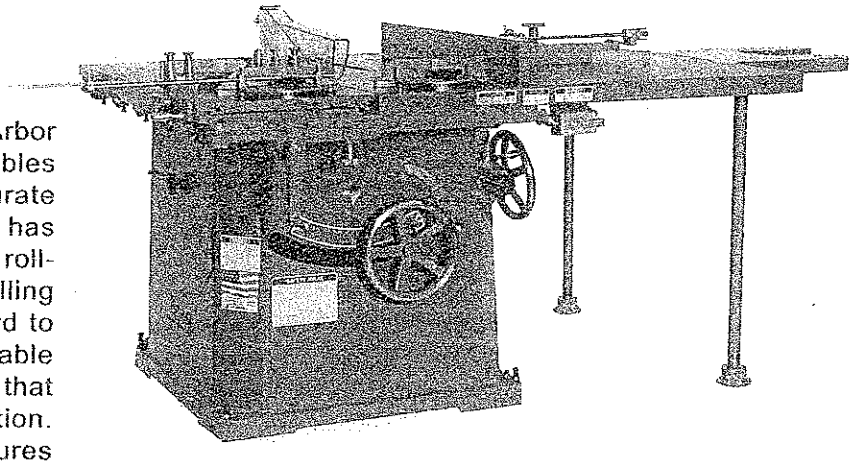
THE GAUGES

Two sliding, combination, cut-off or miter gauges are provided with dovetail slide strips permitting them to be drawn clear of the table without falling. An adjustable rack and pinion type rip fence is furnished.

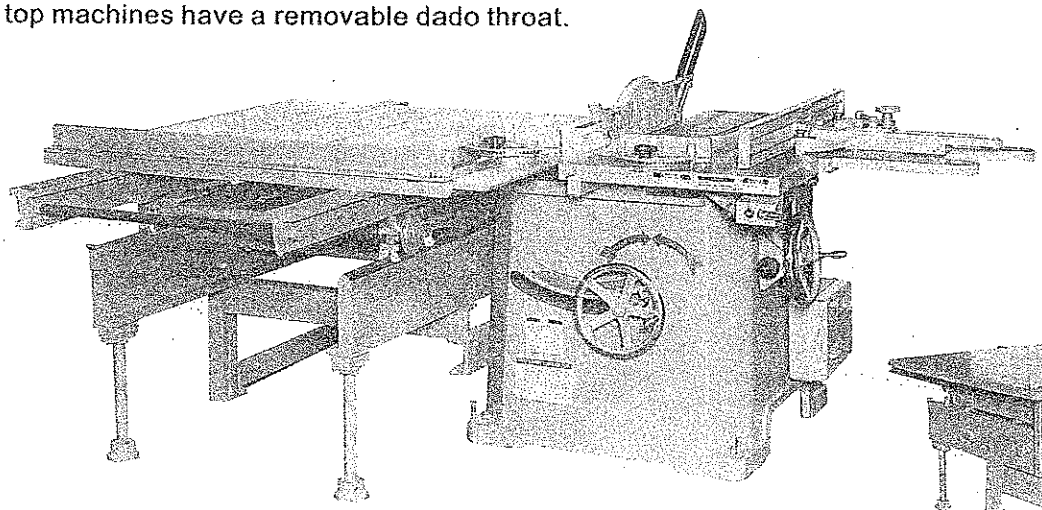
D.L. Coffey Machinery Company, Inc.
Woodworking Machinery
2814 Mountain Laurel Drive
Fultonham, PA 43825
Phone: 215-345-8555 Fax: 215-340-1607

ROLLING TABLES

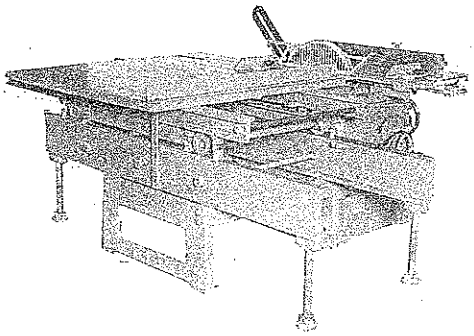
Three different models of the #4 Tilting Arbor Variety Saw are available with rolling tables to facilitate mitering, grooving and accurate cross cutting. The standard rolling top has a 17.5" x 45.5" rolling section. The solid rolling section model has a 50" x 54" rolling section to accurately cut wide and hard to handle panel stock. The slotted rolling table is designed for use with jigs and fixtures that need to be secured to the rolling section. The rolling section on this table measures 36" x 52". The non-stationary sections on all of the above machines roll on precision sealed-for-life ball bearings for long life and constant accuracy. Standard machines have sliding dado openings and the large rolling top machines have a removable dado throat.



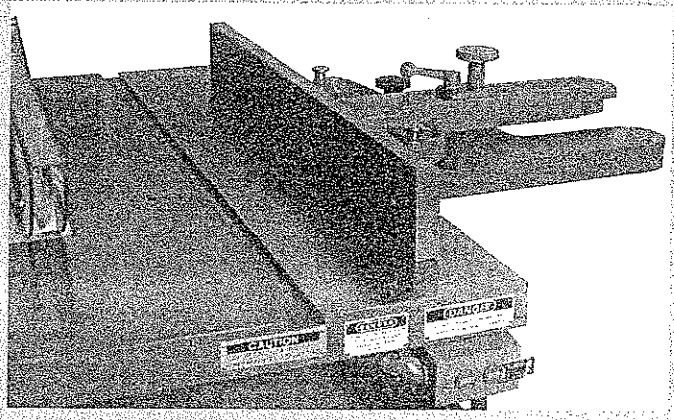
Northfield #4 Tilting Arbor Variety Saw with standard rolling table, 24" extended table to right, and Micrometer Adjust Fence.



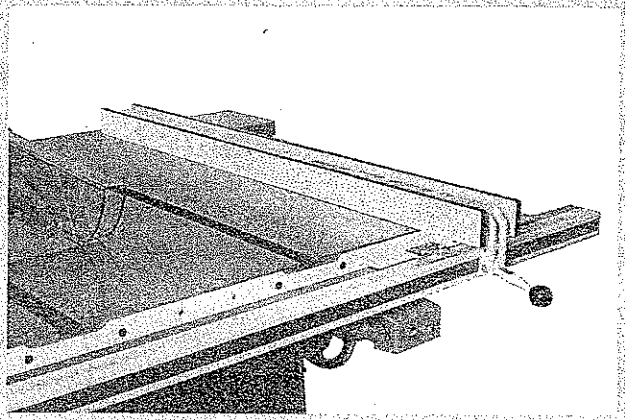
Northfield #4 Tilting Arbor Variety Saw with large 50" x 54" solid Rolling Table with optional Surty Guard.



CHOICE OF FENCES

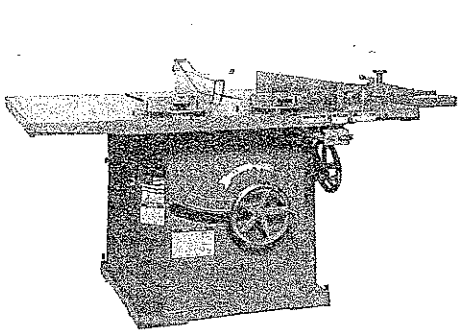


Rack & Pinion Fence (std.)

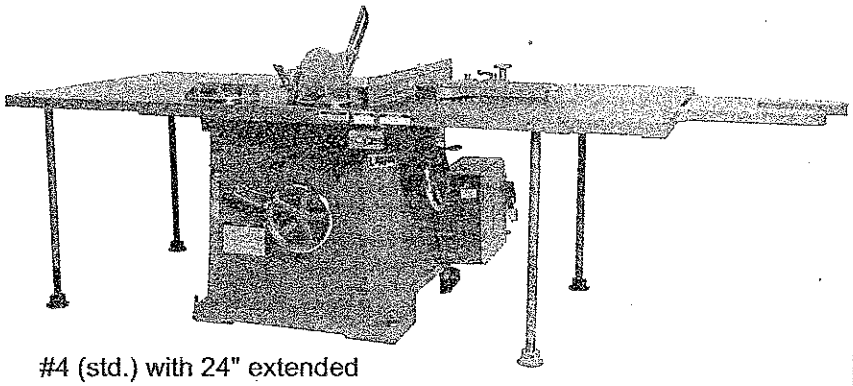


Biesmeyer® Double Face Fence (optional)

CHOICE OF EXTENDED TABLE COMBINATONS

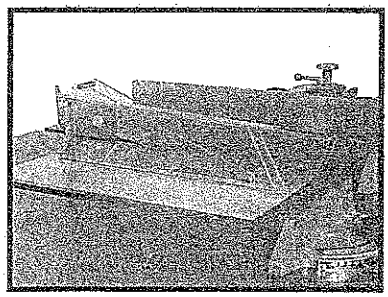


#4 (std.) with 12" extended tables right and left.

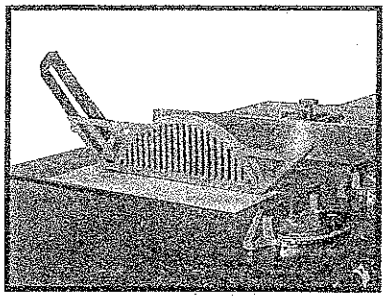


#4 (std.) with 24" extended table left and 36" extended table right both with legs.

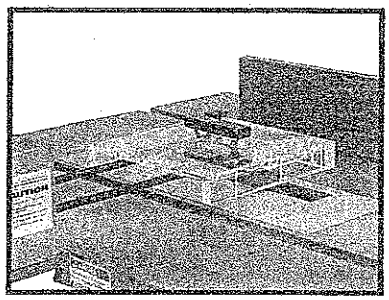
CHOICE OF GUARDS



Z-380 Lexan Guard (std.)



Surty Guard



Brett Guard for Dado work.

High Quality, Long Life, Direct Motor Drive Saw Arbor Motor

The Saw Arbor of high quality stress-proof steel runs in precision heavy-duty sealed-for-life ball bearings. An arbor extension can be furnished with the machine that accommodates dado heads up to 4" wide. The totally-enclosed, fan-cooled motor is built on the arbor and is controlled by a magnetic starter with push-button station. Available in 5, 7-1/2 & 10 HP. Arbor diameter available in 1, 1-1/8, 1-1/4 & detachable.

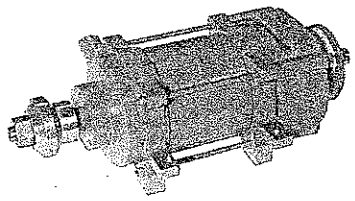
Extra Large Bearing Surfaces for Arbor Carriage Cradle

The arbor carriage cradle is mounted on two exceptionally large segments. These segments provide a large bearing surface which is vital to a precision machine of this type. Careful machining and close fit of these components enable the arbor to be smoothly tilted by a large easily reached hand wheel. A positive locking device is provided to lock the arbor in any position. The arbor carriage is mounted in gibbed ways in the cradle and can be adjusted vertically by a large hand wheel.

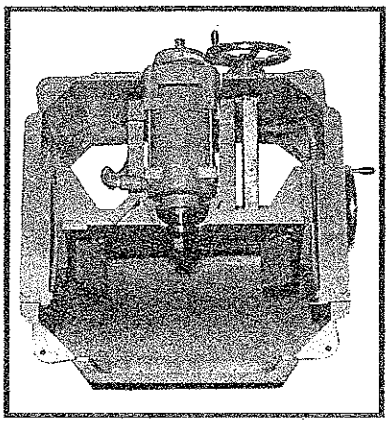
One Piece Maximum Strength Casting

The base is a heavy one-piece casting engineered for maximum strength and has a pleasing design. All machine components are securely attached to the base permitting vibration-free operation for optimum accuracy. A 6" outlet near the bottom of this base permits an easy connection to standard dust collection systems.

CHOICE OF ARBOR DIAMETERS & HORSEPOWERS



An automatic electric brake which is activated from the regular start-stop pushbutton station is standard equipment.



Interior view (with table removed).

SPECIFICATIONS

	Number 4 Standard	Number 4 with Standard Rolling Table	Number 4 with Solid Rolling Table	Number 4 with Slotted Rolliing Table
Saw Capacity	14", 16", 18"	14", 16", 18"	14", 16", 18"	14", 16", 18"
14" Saw Projects	3"	3"	3"	3"
14" Saw Projects of 45° Tilt#	2-1/4"	2-1/4"	2-1/4"	2-1/4"
16" Saw Projects	4"	4"	4"	4"
16" Saw Projects of 45° Tilt#	3"	3"	3"	3"
18" Saw Projects	5"	5"	5"	5"
18" Saw Projects of 45° Tilt#	3-5/8"	3-5/8"	3-5/8"	3-5/8"
Saw Arbor Tilts	0° to 45°	0° to 45°	0° to 45°	0° to 45°
Vertical Saw Adjustment	4"	4"	4"	4"
Arbor Speed (RPM)	3600	3600	3600	3600
Motor HP Std. (TEFC)	5	5	5	5
Optional Motor HP	7-1/2 - 10	7-1/2 - 10	7-1/2 - 10	7-1/2 - 10
Standard Arbor Diameter	1-1/8"	1-1/8"	1-1/8"	1-1/8"
Optional Arbor Diameter	1", 1-1/4"	1", 1-1/4"	1", 1-1/4"	1", 1-1/4"
Dado Capacity with Thin Collar*	13/16"	13/16"	13/16"	13/16"
Stationary Table Size	36" x 44"	22-1/2" x 45-1/2"	22-1/2" x 45-1/2"	22-1/2" x 45-1/2"
Size of Rolling Table	None	17-1/2" x 45-1/2"	50" x 54"	36" x 52"
Complete Table Size	36" x 44"	40" x 45-1/2"	**	**
Rip Capacity with Standard Rack & Pinion Type Fence	32"	36"	36"	36"
Rack and Pinion Rip Fence Size	35" x 4-1/4"	35" x 4-1/4"	35" x 4-1/4"	35" x 4-1/4"
Extended Tables Available with Rip Capacities (Opticnal Extras)	12"—44" Rip Capacity			
	24" w/legs—56" Rip Capacity	12"—48" Rip Capacity	12"—48" Rip Capacity	12"—48" Rip Capacity
	36" w/legs—68" Rip Capacity	24" w/legs—60" Rip Capacity	24" w/legs—60" Rip Capacity	24" w/legs—60" Rip Capacity
	12" (left)—21" Rip Capacity (left)	36" w/legs—72" Rip Capacity	36" w/legs—72" Rip Capacity	36" w/legs—72" Rip Capacity
	24" (left)—33" Rip Capacity (left)			
Crosscut Capacity	32"	31" Rolling	49" Rolling	49" Rolling
Dado Capacity of Table if Arbor Extension is Used	4" ##	Rolling Table Adjusts to 4"	3-1/2"	3-1/2"
Height ofTable Above Floor	34"	34"	34"	34"
Floor Space	44" x 56"	46" x 59-1/2"	55" x 92"	53" x 78"
Net Weight	1680	1960	3000	2900
Domestic Shipping Wt.	1800	2000	3300	3200
Export Shipping Wt.	2000	2200	3500	3400
Cubic Measure	67 cu. ft.	70 cu. ft.	170 cu. ft.	170 cu. ft.

Voltages Available (3 phase only): 200 - 208, 230/460, 575. Please specify.

 # Measured perpendicular to top of table from highest projection of blade. **Optional: specify when ordering* ***Rolling table longer than stationary table.*
Must use special Dado throat.

EQUIPMENT FURNISHED

Warner Automatic Electric Brake, 110 volt at pushbutton. Lexan Saw Guard, Two Dovetail Miter Gauges, Filler Strips for dovetail ways, Rack & Pinion Rip Fence, Arbor Nut Wrench, Arbor Holding Pin, "U" Extension for R & P Fence, Two Instruction/Parts Manuals.

EXTRAS (Special Modifications: contact factory)

12", 24" & 36" Cast Iron Table Extensions, Micrometer Adjust on R & P Fence, Tilting R & P Fence, 4" Screw-on Dado Extensions, Detachable Arbor Motor, Detachable Arbor Ends, Dado Throat Plate, Stock Stops for Miter Gauges, NEMA 12 Electrics with Fused Disconnect, NEMA 1 Electrics with Fused Disconnect, Thin Dado Collar 13/16" Dado Capacity on Std. Arbor.

Northfield FOUNDRY & MACHINE CO.
320 North Water Street, P.O. Box 140
Northfield, Minnesota 55057 USA
PHONE: 507-645-5641
FAX: 507-645-4005
E-Mail: northfieldmachinery@micrologist.com

10" Table Saw? 10" Table Saw (2) C10

DELTA® Your achievement. Our tools.™

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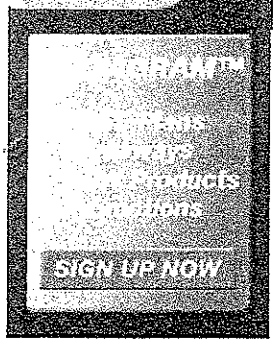
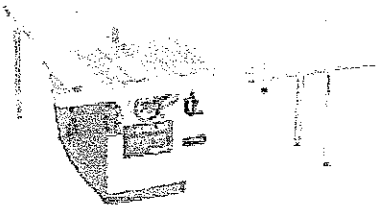


PRODUCTS » Tools

10" Unisaw® 5 HP, Three Phase Left Tilt

Browse Tools » Table Saws » 36-L53L thru 36-R53L



(Click Image to Enlarge)

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Model 36-L53L
Model 36-L53L with a 5 HP 200-230/460V, 60 Hz., 3450 rpm three phase motor with push-button station, magnetic starter. Includes TEFC motor enclosure, equipment mounting hooks, see-through blade guard, 10" diameter combination blade, miter gage, table insert, motor pulley, 3/4 bore, set of three matching V-belts, dust port for 4" dust colleciton hose and instruciton manual.
Three-phase electricals will be supplied wired for 230V unless 460V is specified.
24V with transformer and 3-leg overload protection (LVC).
Shown with optional BC50 Biesemeyer® Commercial Fence System Extension, No. 78-852 27x44 Laminated Table Board and No. 78-969 48x48 Rear Outfeed Support.

» Tool Registration » Warranty
» Owners Manual » Parts List
» Safety Sheet

Related Acces

Base Extension No. 50-284 View Now

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Outfeed Ta No. 50-302 View Now

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THE DELTA DIFFERENCE

• Widely-spaced, massive trunnions supports the husky saw carriage. Machined from fine-grained cast-iron, trunnions are completely adjustable to ensure perfect alignment.
• Precision-ground, stress-proof arbor is flanged-faced after assembly for accuracy.
• Positive traction, three belt V-Drive operates between two massive, lifetime ball bearings to eliminate vibration and assures smooth operation while making use of all power from the motor.
• T-Slot cast-iron table on either side of saw blade hold Auto-Set® Miter gage securely, even beyond front of table.
• Other Delta extras include built-in adjustable 90° and 45° stops, large conveniently placed controls, and equipment mounting hooks.

ADDITIONAL SPECIFICATIONS

Motor
• 5 HP, 3 phase
Type of Motor

BLADE SPEED (with 3450 rpm motor)
• 4000 rpm

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery
October 25, 2011
2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555

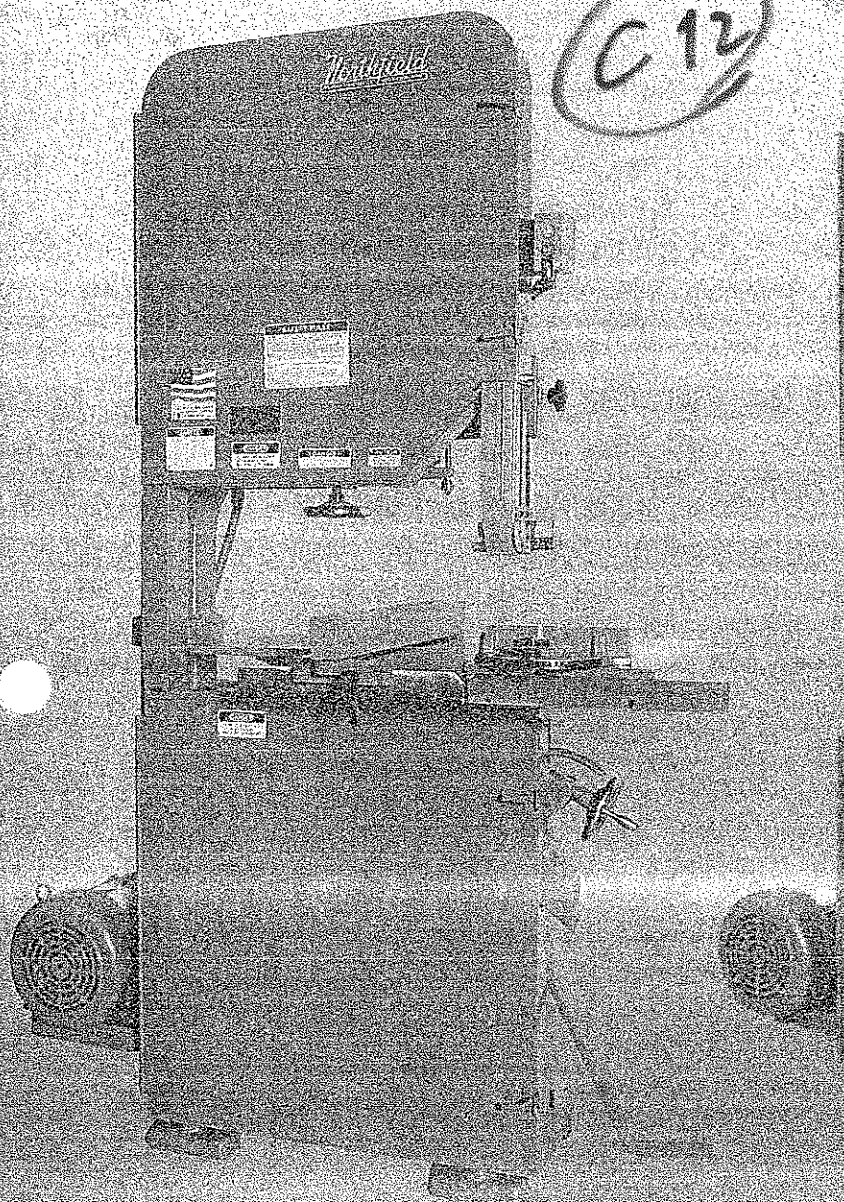
http://www.deltamachinery.com/index.asp?e=136&p=738

• Induction
Capacity
• Triple V-Belt
DIAMETER OF ARBOR
• 5/8"
DIAMETER OF BLADE
• 10" (254 mm)

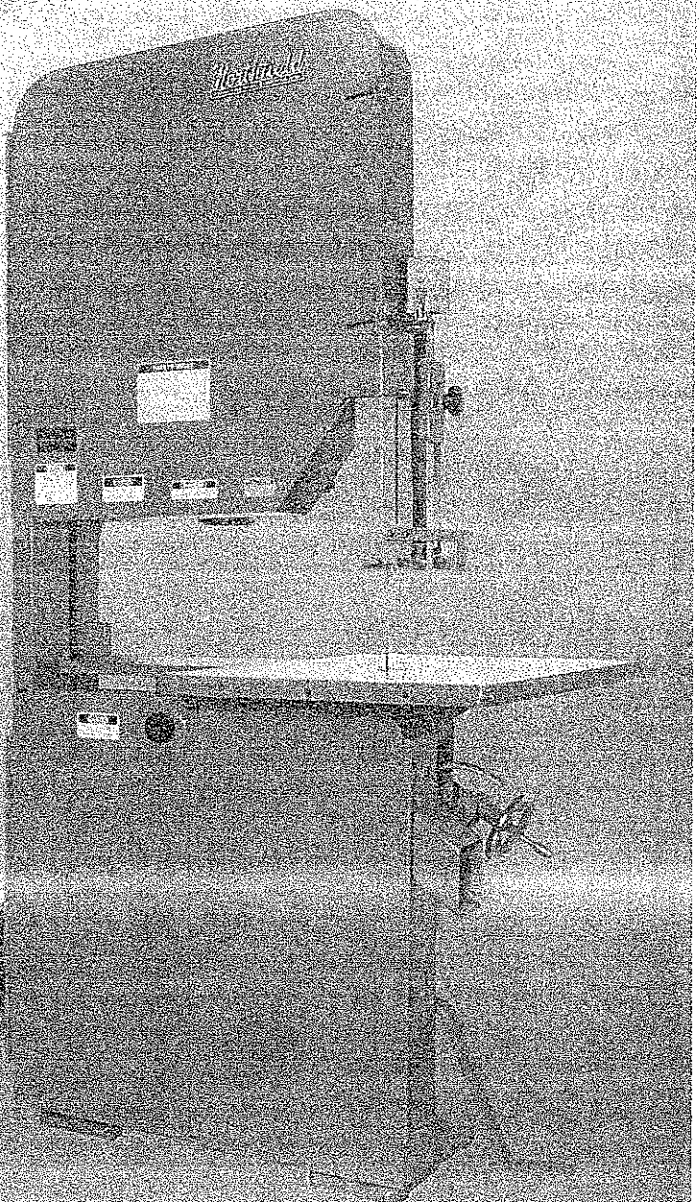
CAPACITIES
• Maximum depth of cut: 3 1/8" (79 mm)
• Maximum rip to right of blade
with Unifence® Saw Guide: 52" (1321 mm)
with Biesemeyer® Commercial Saw Fence System: 50" (1270 mm)
• Maximum thickness of cut at 45°: 2 1/8" (53 mm)
• Distance; front of table to center of blade: 16 13/16" (427 mm)
• Table in front of saw blade at maximum depth of cut: 12 1/4" (311 mm)
• Maximum width of dado: 13/16" (21 mm)
TABLE
• Height: 34" (864 mm), Size with Extension Wing and Unifence® Table Board: 76" x 27" (1930 x 686 mm)
• Biesemeyer® Table Board: 27" x 44"
• T-Slot Miter Gage Groove: 3/8" x 3/4"
OVERALL DIMENSIONS
• Height: 36 3/4" (933 mm)
• Width with Wings: 45 3/8" (1152 mm)
• Width with Wing and Unifence ® 52" Guide Rail: 83" (2108 mm), with Biesemeyer 50" Guide Rail: 84" (2134 mm)
• Depth: 35 3/4" (908 mm)
• Depth with Unifence® Rip Fence: 43" (1092 mm) long
• Biesemeyer® Fence: 42" (1067 mm) long
SHIPPING WEIGHT (saw only)
• 456 Lbs. (206 kg)

Northfield Heavy-Duty 27" & 32" BANDSAWS

C12



27" Belt Drive Bandsaw with double face rip fence and large cross cut gatige



32" Belt Drive Bandsaw

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery

2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607

Advanced Bandsaws for the Wood, Plastic and Metal Industries

PROFIT THROUGH AMERICAN TECHNOLOGY
WOOD MACHINERY MANUFACTURERS OF AMERICA
MEMBER

Powermatic STATE-OF-THE-ART FEATURES

Heavy One Piece Cast Iron Frame is hollow cored for strength and rigidity.

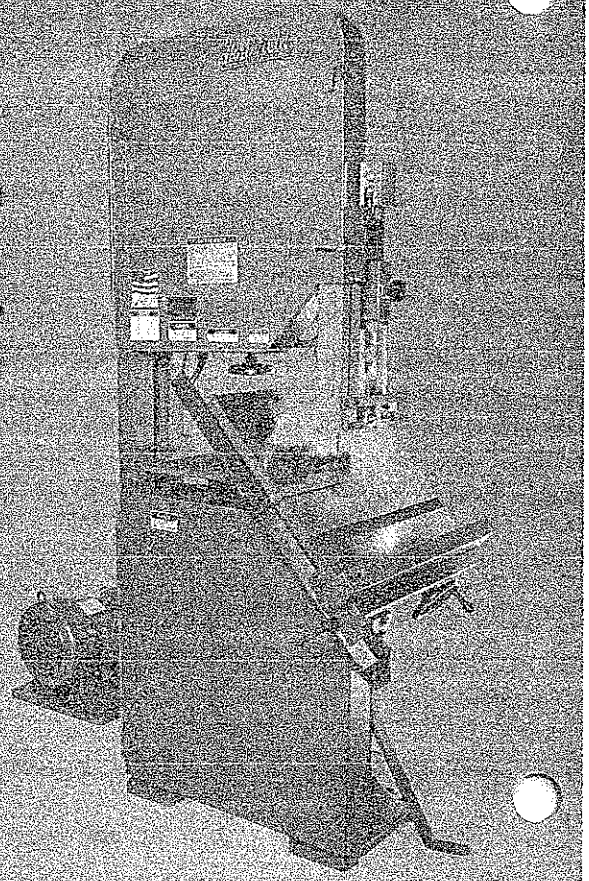
Aluminum Alloy Disc Wheels use endless neoprene tires which are epoxy adhered, crown ground and balanced to enhance blade tracking.

Long, Rigid Heavy Duty Quills use sealed for life bearings and stressproof steel shafts. The top quill is adjustable to easily control blade tracking.

Sensitive Saw Straining Device is of knife edge spring lever design which absorbs shock and provides proper tension. An easily read tension indicator is provided.

Heavy Steel Wheel Guards provide maximum blade containment yet allow fast and easy blade changes. The guide post guard adjusts with the upper guide.

Ball Bearing Guides are used both above and below the tables.



27" Constant Speed Belt Drive with table tilted to 45 degrees.

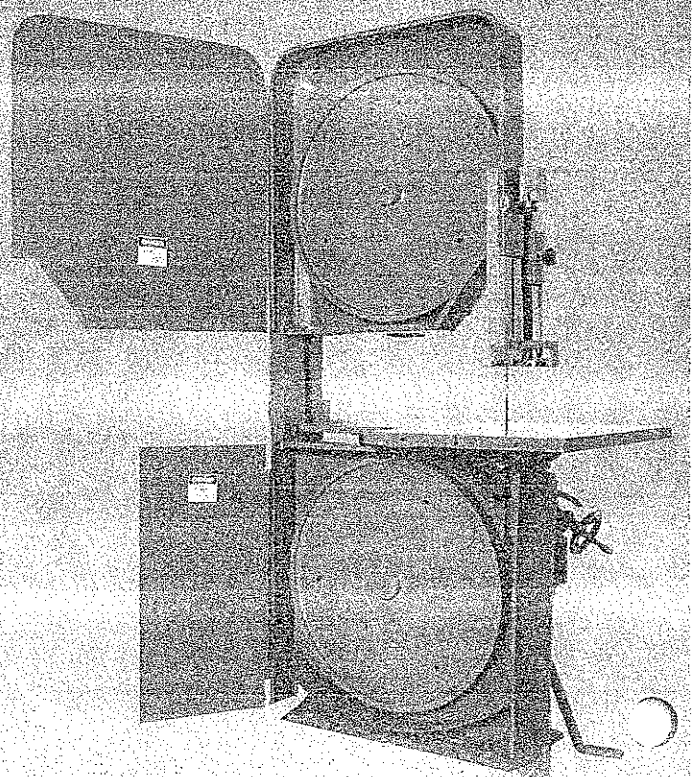
Braking Options

1. **Lower Wheel Foot Brake** is standard equipment. A switch can be added to turn off the drive motor upon application of foot brake.

2. **Two Wheel Mechanical Brakes** are also available.

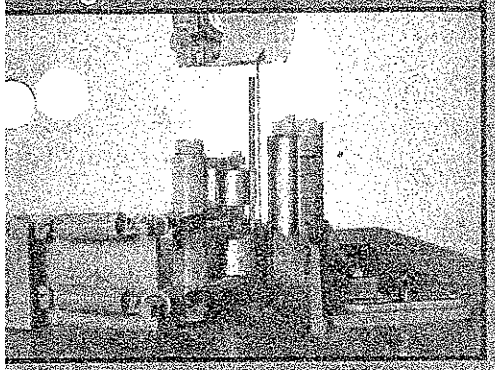
3. **Upper Wheel Auto Electric Brakes** can be added that automatically shuts down the drive motor and applies a fail safe brake to the upper wheel in the event of blade breakage or the blade running off the wheels. This braking action also activates from the stop station or application of foot brake.

4. **Two Wheel Auto Electric Brakes** provide the finest failsafe braking system used on any Bandsaw. This is available on any Bandsaw with factory installed motor. Both wheels automatically brake when 1) stop button is pressed, 2) foot pedal is activated, 3) blade breaks, or 4) blade runs off wheel.

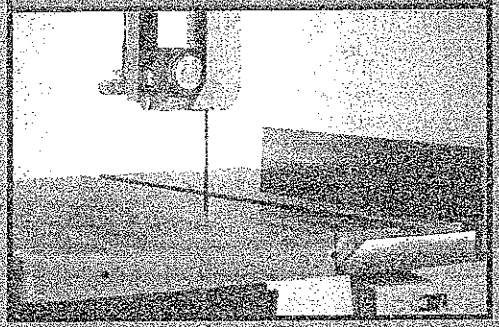


Front view of 32" Heavy-Duty Bandsaw showing wheels & guard interiors.

Single Roller Resaw Fence

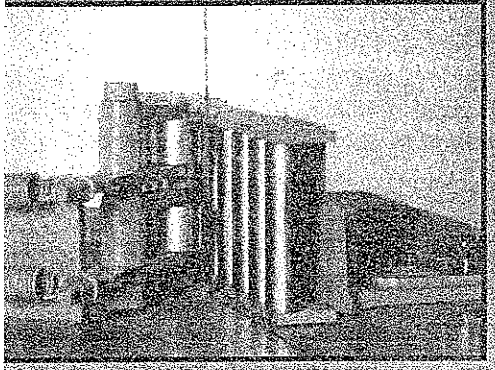


Single Face Rip Fences (left & right)



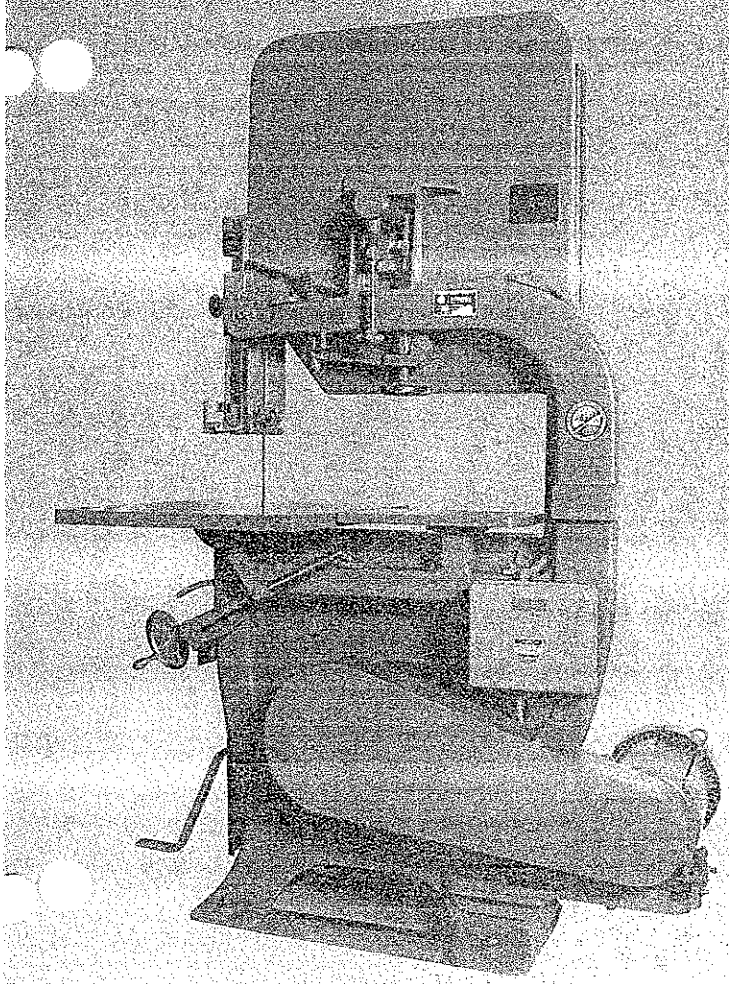
Miter Gauge with Dovetail Slot

11 Roller Resaw Fence

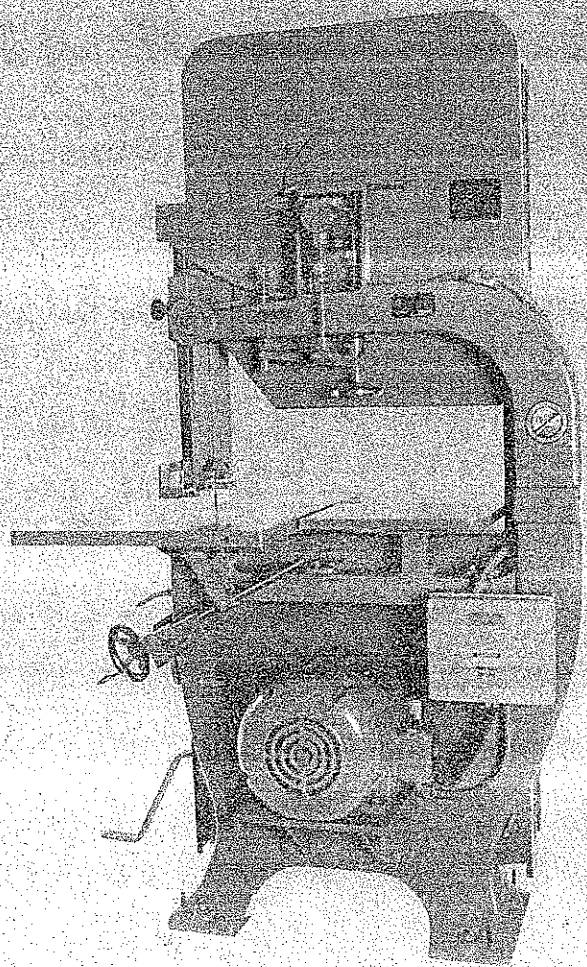


Double Face Rip Fence

Circle Cutting Attachment



Rear view of 32" Heavy-Duty Bandsaw showing Belt Drive configuration.



Rear view of 32" Heavy-Duty Bandsaw showing Direct Motor Drive configuration.

SPECIFICATIONS

Bandsaws	27"	32"
Wheel Face	1-1/2"	1-3/4"
Table Size	25" x 25"	26" x 33"
Front Edge of Table to Teeth of 3/8" Blade	9-1/2"	12"
Capacity Under Guide	15"	16"
Table Tilts to Right	45 degrees	
Table Tilts to Left	5 degrees	
Horizontal Cap.	26-1/2"	31-1/2"
Table Height	40"	41"
Wheels	Aluminum Disc with Neoprene Tires	
Brakes	Lower Wheel, Foot Operated	
Guides	Carter CP Size # 0	
Voltage	208 - 230/460, 575 60 HZ 3 Phase	
Floor Space	35" x 45"	42" x 54"
Height of Standard Saw	84"	89"
Domestic Shipping Wt.	1,400 lbs.	1,800 lbs.
Export Shipping Wt.	1,800 lbs.	2,400 lbs.
Cubic Export Crate Size	108 cu. ft.	140 cu. ft.
Wheel Circumference	7.068 ft.	8.377 ft.
Dust Outlet	3" W x 3-3/4" H Use 4" Pipe	4-1/2" W x 5-1/2" H Use 5" Pipe
Dust Collection Air Flow	400 CFM	600 CFM

Standard Equipment

Foot brake, magnetic starter, 110 volt at push button, 3/8" blade, Carter size #0 guides, neoprene tires, table alignment pin, 2 manuals

DRIVE PACKAGES - All motors TEFC

Direct Motor Drive, 3-phase only

3 HP - 900 RPM
3 HP - 1200 RPM
5 HP - 900 RPM
5 HP - 1200 RPM
7.5 HP - 900 RPM
7.5 HP - 1200 RPM

Belt Drive Single Speed

2, 3, 5, & 7-1/2 HP — Minimum 300 RPM, Maximum 1,200 RPM
Speeds lower than 300 RPM contact factory
Single phase, 220 volt available in belt drive only

3:1 Variable Speed Drive Assembly

3, 5 & 7-1/2 HP available in the following ratios:
200 to 600 RPM
300 to 900 RPM
400 to 1200 RPM

6:1 Variable Speed Drive Assembly

3, 5 & 7-1/2 HP available in any 6:1 range below 1,200 RPM

40:1 Variable Speed Drive Assembly

3 & 5 HP available in any 40:1 range below 1,200 RPM

To Calculate Blade Speed in FPM

For 27" Multiply RPM x 7.068 feet
900 RPM x 7.068' = 6361 FPM
For 32" Multiply RPM x 8.377 feet
900 RPM x 8.377' = 7,539 FPM

Extras for all 27" & 32" Bandsaws

- Hand Resaw Attachments
- Work light, 110V, plugs into customer's 110V receptacle, or work light 110V - 100W using transformer in starting box
- Miter Gauge with straight slot
- Rip fence, single face (specify right or left side of blade)
- Large crosscut gauge with dovetail slot
- Rip fence, double face for use on both sides of blade
- Switch for stopping power on application of foot brake
- NEMA 1 & NEMA 12 electrics with fused disconnect
- Blade welders
- Air nozzle assembly, connects to customer's airline
- Paddock Guides, Wright Guides, Guideall 400 Guides
- Two-wheel foot operated mechanical brakes
- Circle cutting attachment
- Left-hand machines
- 18", 24" & 36" under guide
- Upper wheel automatic electric brake includes automatic tension control
- Lower wheel automatic electric brake

320 North Water Street
P.O. Box 140
Northfield, Minnesota 55057 USA
PHONE: 507-645-5641
FAX: 507-645-4005

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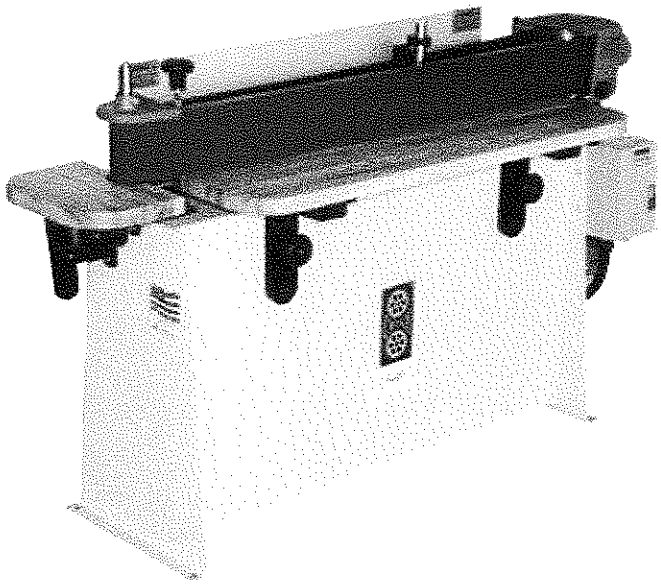
RITTER MANUFACTURING, INC.

We take the Work out of Woodworking

Model CR205503 Universal Edgebelt Sander

Designed for all types of edge finishing common to the furniture and custom woodworking industry. The ability to use the machine for a variety of platen, dead head and form block applications makes this the industry's most universal edge belt sander. Use of modern patented technology for maximizing abrasive belt life is another feature that gives the machine added value.



STANDARD FEATURES: CR205503

- 6" x 132" abrasive belt size
- 7" x 50" graphite covered maple platen
- 3 h.p. spindle drive motor, tefc
- Standard duty idler assembly
- 11" x 50" bias tilting maple front work table
- Manual table height adjustment
- Swing away dust hood
- 4" dust hood outlet
- Air-Jet belt cleaning device
- Tilting maple end table
- Form block and dead head holder
- Rear abrasive belt guard
- Magnetic controls, 3-phase or single phase
- Machine weight: 753 lbs

Ritter Manufacturing, Inc.
1300 B West 4th St.- Antioch, CA 94509
(925) 757-7296 - Fax (925) 757-7083

C 13

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery
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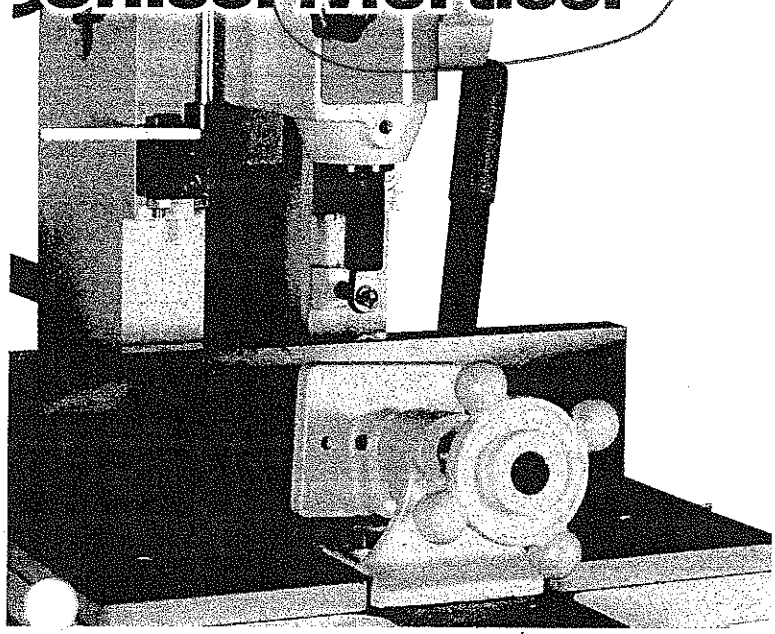
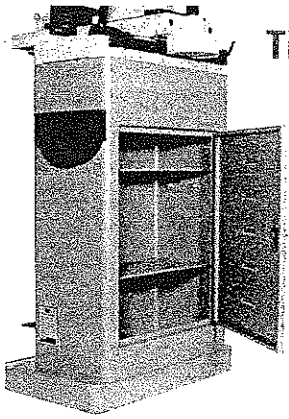
5125

Chisel Mortiser

OLIVER ESTABLISHED 1890



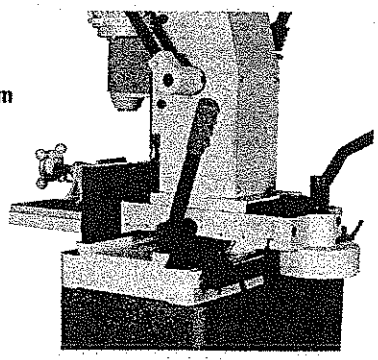


The 5125: Smart.

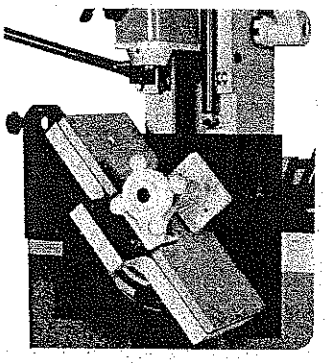
The 5125 is summed up in one word: smart. For instance, take the storage in the back of the heavy gauge steel stand. The extended capacity for entry doors and other large projects just examples of the ways this mortiser rises above the competition. Read on...

Model No.	5125
Stock No.	5125.001
Chuck Capacity (in.)	1/2
Bushing Sizes (in.)	3/4 I.D. or 5/8 I.D. (1-1/8 O.D.)
Chisel Stroke (in.)	6-1/8
Chisel Travel (in.)	Side to Side 9-1/8, Front to Back 3-3/8
Maximum Workpiece Height (Without Table/in.)	46
Maximum Workpiece Height (With Table Installed/in.)	11-1/2
Maximum Workpiece Width (in.)	6-1/2
Table Size (L x W/in.)	14-5/8 x 7-1/8
Table Tilt Limits (deg.)	+/- 45
Fence Size (L x H/in.)	14-5/8 x 11-3/4
Base Size (L x W/in.)	25-1/2 x 19-3/4
Overall Height (in.)	80
Motor Speed (RPM)	1,725
or	1-1/2HP, 1Ph, 220V Only
Gross Weight (lbs.)	622

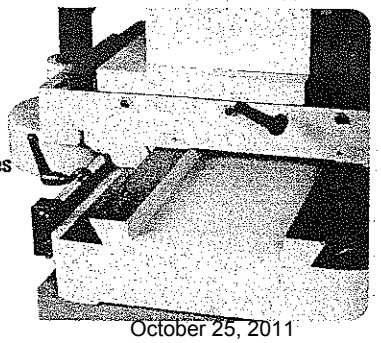
3 DIMENSIONS OF MOVEMENT give you maximum mobility for mortisering any kind of hole accurately, without having to re-clamp your workpiece



45° RIGHT/LEFT TILTING TABLE gives you the flexibility you need when doing complicated mortising.

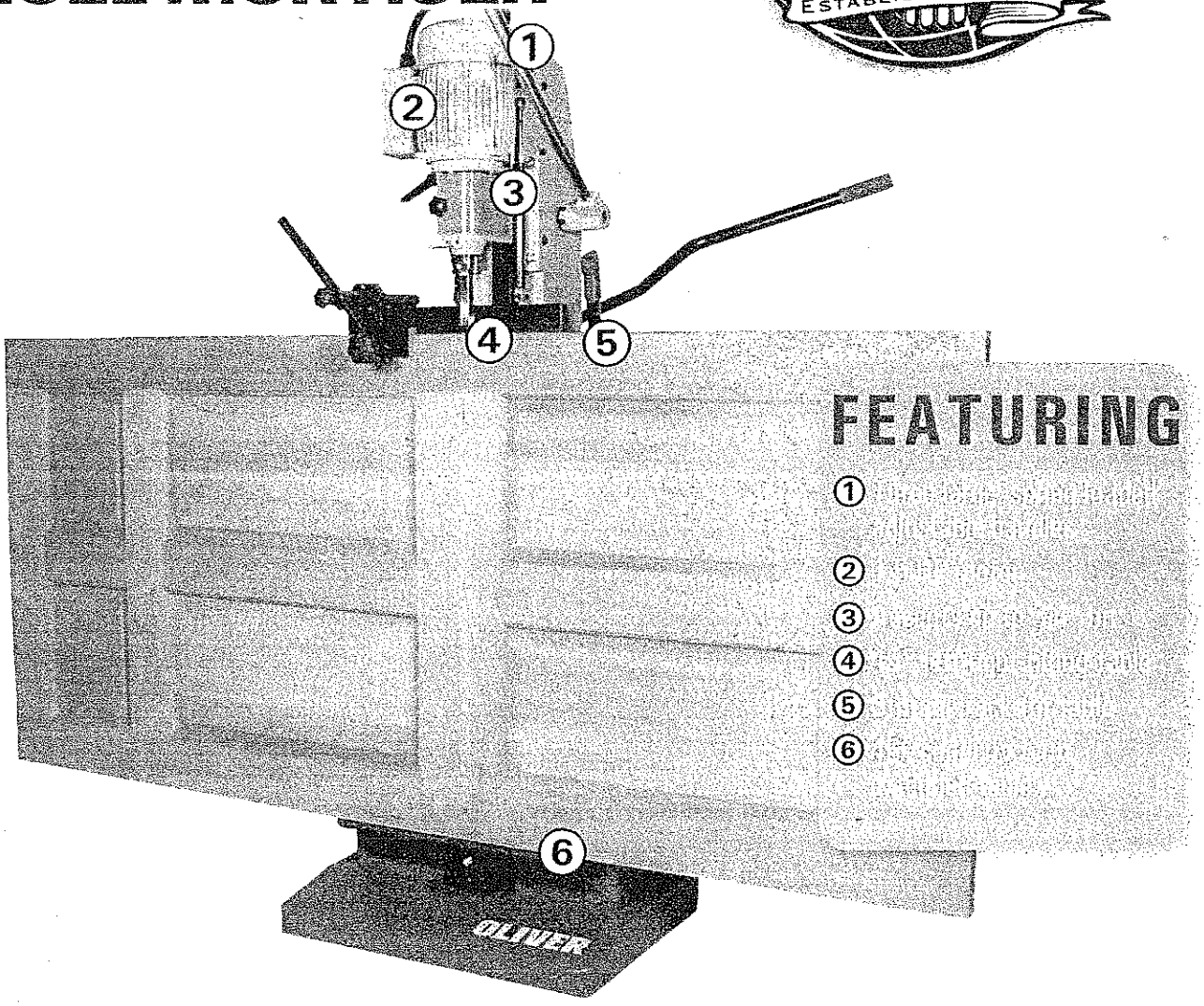


ADJUSTABLE LINEAR STOPS AND CROSS TRAVEL LOCK keep your mortises straight and accurate.



5125

CHISEL MORTISER



FEATURING

1.
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The Oliver 5125 Chisel Mortiser offers the capacity and flexibility you need to get those big tasks done. It has long, adjustable, spring loaded handles to give you maximum leverage on hard wood. A powerful 1.5HP motor rides on a heavy-duty vertical track, giving it a 6 1/8" vertical travel. The whole assembly can move almost 10" side to side, and almost 4" front to back. The table tilts 45° in either direction, or remove it entirely for big jobs and get up to 46" of capacity for entry doors and the like. Flip this sheet over to take a peek under the hood and find out why the 5240 could be right for you!

CALL: 1-800-559-5065
To find a dealer near you!

2YEAR WARRANTY

Lathe

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    - Specialty
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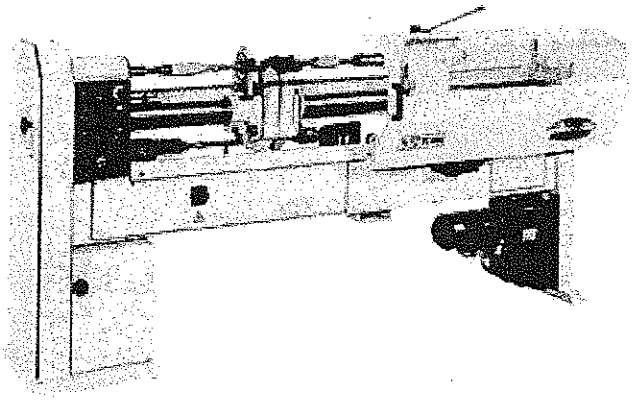
C 15



Centauro
TC-1200

TECHNICAL FEATURES

The TC 1200 is a mechanical copy turning lathe suitable for the produ small and medium batches of stair spindles, table and chair legs and f components in general. The double cantilever turning assembly works independent gouges in conjunction with the traveling steady rest. This allows the perfect reproduction of even the smallest diameter pieces. variable speed hydraulic saddle movement ensures the highest qualit finishing.

STANDARD EQUIPMENT

- Self-braking motor (for CE-version only)
- Drive centre with 2 interchangeable heads 28 and 45 mm Ø
- Tailstock revolving centre 12 mm Ø
- Traveling steady rest max. Ø 90 mm (square 65 x 65 mm) with reduc
- 2 vertical Tantung gouges, radius 1,2 mm and 1 precutting tool
- Workpieces centring device
- Tool support rest for hand turning 2 extraction ducts 100 mm dia
- Motor protection switch
- Emergency pushbutton
- Front sliding guard
- Service tools
- Abrasive stone for cutting edge dressing.

OPTIONAL

- Five tool kit for hand turning finishes (ref. A15)
- Three or Four jaw chuck 80 and 100 mm dia. (ref. A4)
- Selfcentring steady rest for square pieces 30x30 up to 60x60 mm ma
- AG125 tool grinding machine
- Bushes for traveling steady (available Ø 20-80 mm max.).

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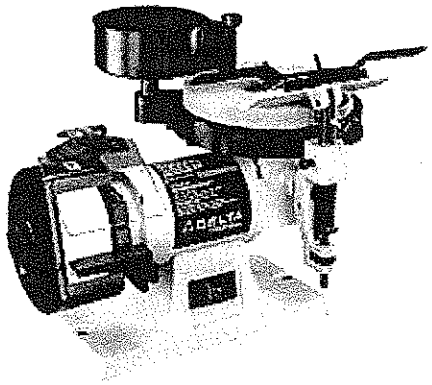
Item Details

Metalworking > Cutting > Tool Sharpeners

Grinder,Sharpener,120v

Grinder Sharpening Center, Wet/Dry, 1/5 Motor HP, 1 Phase, 120 Volts, 60 Hz, 400/3450 RPM, Overall Height 13 In, Overall Width 16 In, Overall Depth 21 In, Grinding Wheel Dia 5 And 8 In, Grit 120 Dry And 1000 Wet, On/Off Rocker Switch, Cast Iron Construction, Water Flow Regulator, For Sharpening Hardened Cutting Tools, Screwdrivers, Edging on Knives, Blades And Other Workshop Items, UL Listed, Includes 2 Wheels, Tool Rest Base, Sliding Tool Holder, Water Tank, Tool Rest, Eye Shield, Wrench

Grainger Item #	6PA43
Price (ea.)	**$211.25**
Brand	DELTA
Mfr. Model #	23-710
Ship Qty.	1
Sell Qty. (Will-Call)	1
Ship Weight (lbs.)	43.7
Usually Ships**	Today
Catalog Page No.	2633



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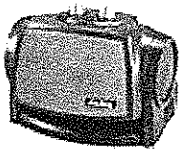

Ele Heater,120 V,1500/900 W,
Grainger Item #: 2RA11
Price (ea.): $35.30
Brand: AIR KING

Qty.

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See more like this below

Tech Specs | Additional Information | Notes & Restrictions | MSDS | Required Accessories | Optional Accessories | Alternate Products | Repair Parts

Item	Grinder Sharpening Center
Type	Wet/Dry
Motor HP	1/5
Phase	1
Voltage	120
Hz	60
RPM	400/3450
Overall Height (In.)	13
Overall Width (In.)	16
Overall Depth (In.)	21
Grinding Wheel Dia. (In.)	5 & 8
Width (In.)	1 & 2
Hole (In.)	1/2 & 7/8
Grit	120 & 1000
Features	On/Off Rocker Switch, Cast Iron Construction, Water Flow Regulator
Application	For Sharpening Hardened Cutting Tools, Screwdrivers, Edging on Knives, Blades And Other Workshop Items
Standards	UL Listed
Includes	5" 120-Grit Aluminum Oxide Dry Wheel, 8" 1000-Grit Wet Wheel, Wrench

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We Also Carry More...

Extension Cord,8 Ft

Grainger Item #: 1FD75
Price (ea.): $6.24
Brand: POWER FIRST

Qty.

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Item Details

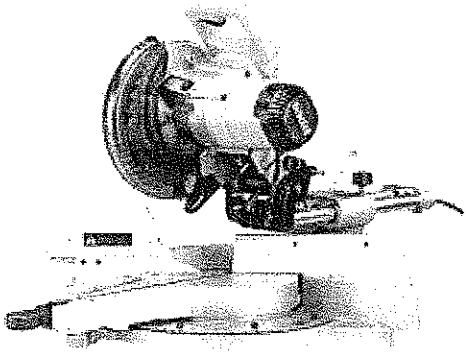
C18

Tools > Saws > Power Miter Saws

Miter Saw,8-1/2in

Coumpound Sliding Miter Saw, Blade Diameter 8-1/2 Inches, Current @ 120 Vac 15 Amps, Arbor 5/8 Inch, Blade Carbide Tipped 24 Tooth, Crosscut @ 45 Degrees Height 2,9 Inches, Width 8.3 Inches, Crosscut @ 90 Degrees Height 2 Inches, Width 12 Inches

Grainger Item #	3AB11
Price (ea.)	**$463.75**
Brand	DEWALT
Mfr. Model #	DW712
Ship Qty.	1
Sell Qty. (Will-Call)	1
Ship Weight (lbs.)	48.0
Usually Ships**	Today
Catalog Page No.	955



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Tech Specs | Additional Information | Notes & Restrictions | MSDS | Required Accessories | Optional Accessories | Alternate Products | Repair Parts

Item	Miter Saw
Blade Dia. (In.)	8 1/2
Arbor Hole (In.)	5/8
Compound	Yes
Bevel	Yes
Slide	Yes
No Load RPM	5400
Amps @ 120V	15
Crosscut @ 90 Deg. H (In.)	2
Crosscut @ 90 Deg. W (In.)	12
Crosscut @ 45 Deg. H (In.)	2 29/32
Crosscut @ 45 Deg. W (In.)	8 19/64
Tool Weight (Lb.)	43
Miter Capacity (Deg.)	50 Degrees Left and 60 Degrees Right
Bevel Stops	0 to 2, 33.9, 45 and 48 Degrees
Includes	Adjustable Detent Plate

MAX DISC SANDERS - GRINDERS

C 19

MODEL 20-SD

Specifications:

Overall Dimensions:
Width 29", Depth 30", Height 54"

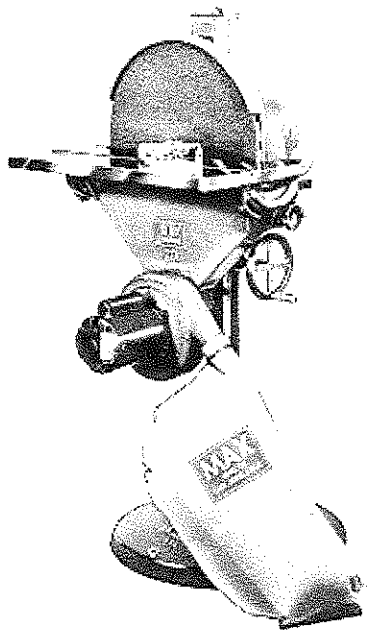
Table: 11" x 27", with 3 3/8" x 4 ? projections beyond disc. Raises and lowers from 1" below disc to 1" below center of disc. Tilts 45 degrees up and down. Locks securely in any position. Table stop - 90 degrees positive and adjustable. Protractor has 1 degree markings on sloping face. Table front edge machined parallel with disc and 3/8" x ? groove. Hand tilt table standard, gear tilt optional at extra cost.

Disc: 20" dia. Cast aluminum

Hub: 6" dis. Cast Iron

Motor: 2 or 3 HP; 3 phase

Starter: Manual, magnetic or reversing



MODEL 20SD

MODEL 24SDP

Specifications:

Overall dimensions:

Width 38", Depth 32", Height 53"

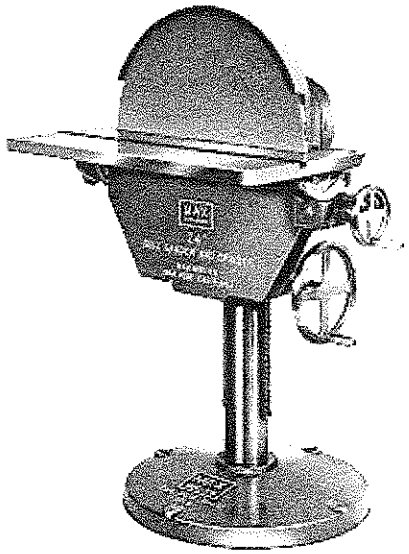
Table: 12" x 31 ?. Cast Iron surface ground. Tilts 45 degrees up or down. Gear tilt table and table elevating mechanisms are standard equipment. Guards above and below table.

Disc: 24" dia. Cast Aluminum

Hub: 8" dia. Cast Iron

Motor: 2, 3 or 5 HP; 3 phase

Starter: Manual, magnetic or reversing



MODEL 24-SDP

MODEL 30 SD

Overall Dimensions:

Width 46", Depth 47", Height 53"

Table: 14" x 38 ? plus 3 ? x 7 ? projections beyond disc.
Normalized, fine grain cast iron, heavily ribbed, surface ground.
Tilts 30 degrees up and 45 degrees down, using ball bearing mounted worm gear mechanism. Gear tilt table and table elevating mechanisms are standard equipment. Front and both ends are machined.
Top surface grooved 3/8" x ?.

Disc: 30" dia. Cast aluminum completely machined, electronically balanced, ? thick at rim, 1" thick at hub, centered by 10" flange to which it is attached by 4 studs. No holes in face of disc.
Grinding can be done by resting work on table or "off-the-hand".

Hub: 10" dia. Cast Iron

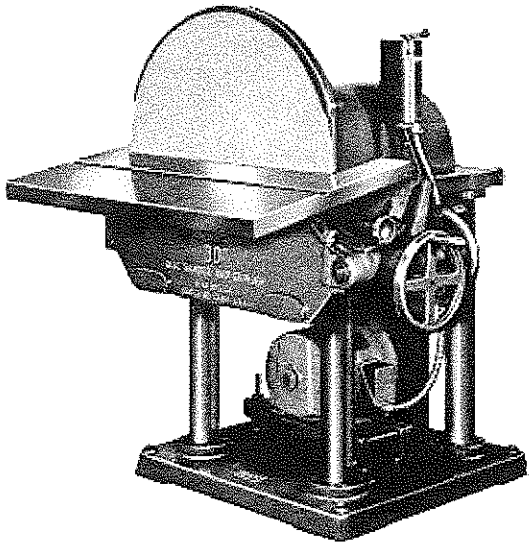
Drive: Multiple V-Belt. Main spindle runs on heavy duty, sealed, self aligning tapered roller bearings.

Operating Speed: 1000 RPM or other specified speeds

Base and Cap: Heavy ribbed Cast Iron. Base: 32" wide by 34" deep. Bolt centers 28 ? x 30 ?.

Motor: 5 or 7 ?HP, 3 phase

Starter: Manual, magnetic or reversing



MODEL 30-SD

MODEL 36DD

Overall dimensions: Width 59", Depth 67", Height 56"

Table: 16" x 46" plus 4 ? x 7 ? projections beyond disc.
Elevates to 1" below center and lowers to clear disc for removal, by use of an extra heavy duty worm gear and rack drive.
Tilts 30 degrees up and 45 degrees down on ball bearing mounted worm gear drive. Table stop 90 degrees, positive and adjustable.

Disc: 36" dia. Cast Aluminum, completely machined, electronically balanced, ? thick at rim, 1" thick at hub, centered by 10" flange to which it is attached by 4 studs. No holes in face of discs.

Hubs: 10" dia. Cast Iron

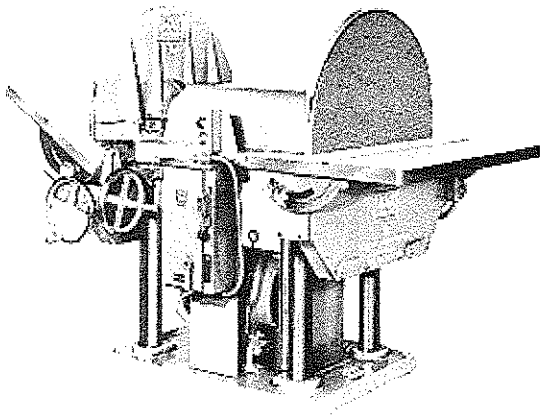
Drive: Multiple V-belt. Main spindle runs on heavy duty, sealed, self aligning tapered roller bearings.

Operating speed: 800 RPM or other specified speeds.

Base and Cap: Heavy ribbed Cast Iron, Base: 32" wide by 34" deep. Bolt centers 28 ? x 30 ?

Motor: 5, 7 ?or 10 HP, 3 phase

Starter: Manual, magnetic or reversing

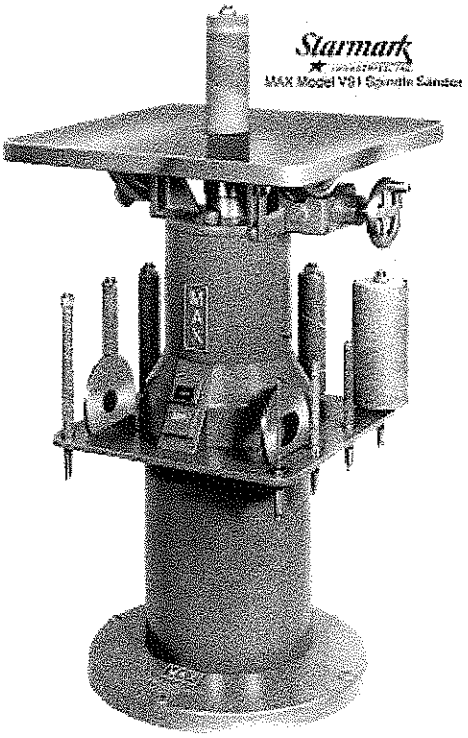


MODEL 36-DD

MAX DISK SANDERS

MODEL VS1

Just as a Disc Sander is unsurpassed for smoothing flat or outside curved surfaces, a Spindle Sander is unbeatable for smoothing concave surfaces. One machine complements the other and each contributes greatly to increasing worker efficiency and reducing labor costs. By providing a large tilting table and ten spindle sizes, almost any conceivable inside curve and angle can be sanded with speed and accuracy., By adding oscillation to the rotating spindle, cutting action is improved, sleeve life prolonged and sanding lines obliterated. MAX Oscillating Spindle Sanders are performing all of these functions in hundreds of shops with precision, convenience and complete reliability.



MODEL VS1

MAX DISK SANDERS

MODEL VS1

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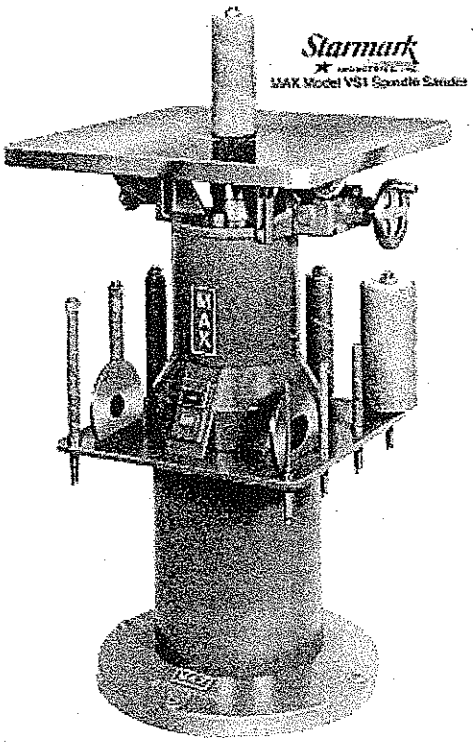


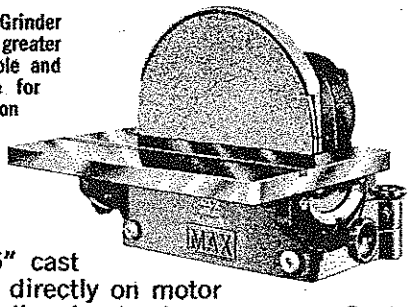
MODEL VS1

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery
2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607

MAX 16" DISC SANDER-GRINDER

BENCH MODEL 16-B

The original MAX Disc Sander-Grinder (1932). Now redesigned for greater convenience and efficiency. Table and front panel quickly removable for changing abrasives or grinding on full face of disc. Large protractor has sloping face.



FEATURES

Direct drive through 6" cast iron hub. Hub mounts directly on motor shaft and pilots into disc for lasting accuracy. Cast aluminum alloy disc machined all over, carefully balanced and true running, well guarded, easily and quickly changed without removing hub. No holes needed in abrasive cloth or paper.

SPECIFICATIONS

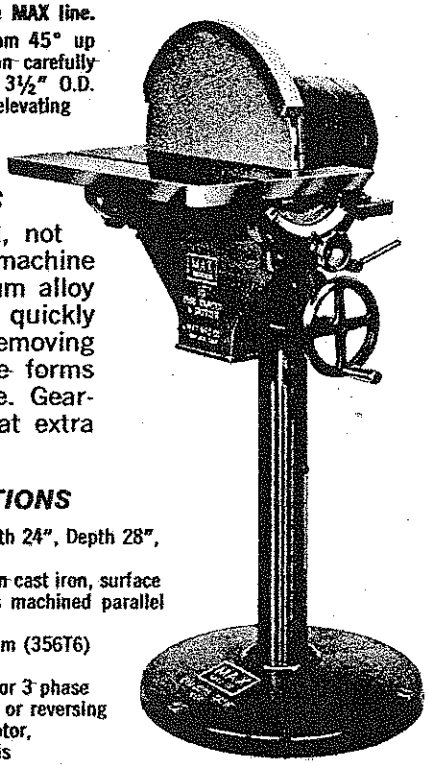
OVERALL DIMENSIONS: Width 22", Depth 23", Height 18"
TABLE: 10" x 22"; Tilts 45° up and 45° down. Also available with non-tilt table.
DISC: 16" dia. Cast aluminum (356T6)
HUB: 6" dia. Cast Iron
MOTOR: 1, 1½ or 2 HP; 1 or 3 phase
STARTER: Manual, magnetic or reversing
SHIPPING WEIGHT: With motor, approximately 180 pounds

MAX 16" DISC SANDER-GRINDER

STAND MODEL 16-SD

SHOWN WITH HAND-TILT TABLE

The all-time favorite of the MAX line. Table tilts to any angle from 45° up to 45° down and moves on carefully ground steel tube column 3½" O.D. Worm gear and rack table elevating mechanism gives positive control and lock.



FEATURES

Solid, well-balanced, not necessary to bolt machine down. Cast aluminum alloy discs easily and quickly changed without removing hub. Disc enclosure forms effective dust chute. Gear-tilt table available at extra cost.

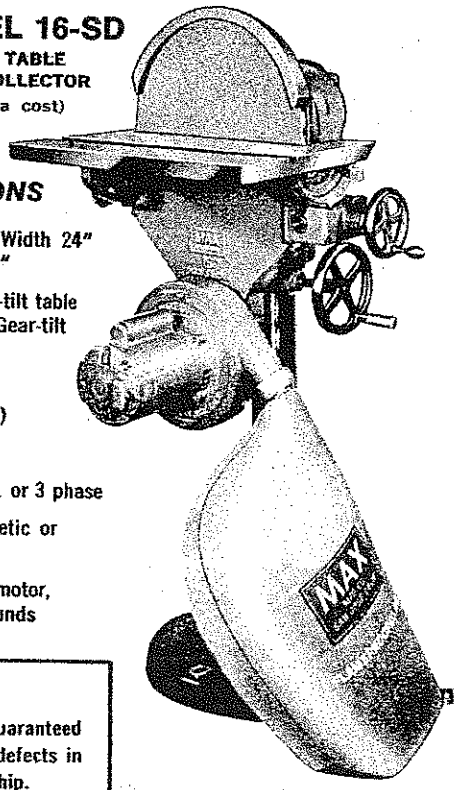
SPECIFICATIONS

OVERALL DIMENSIONS: Width 24", Depth 28", Height 52"
TABLE: 10" x 22". Fine grain cast iron, surface ground and front edge is machined parallel with slot and disc.
DISC: 16" dia. Cast aluminum (356T6)
HUB: 6" dia. Cast Iron
MOTOR: 1-1½ and 2 HP; 1 or 3 phase
STARTER: Manual, magnetic or reversing
SHIPPING WEIGHT: With motor, approximately 375 pounds

MAX 16" DISC SANDER-GRINDER

STAND MODEL 16-SD

WITH GEAR-TILT TABLE AND MAX DUST COLLECTOR
(Optional, at extra cost)



SPECIFICATIONS

OVERALL DIMENSIONS: Width 24" Depth 28", Height 52"

TABLE: 10" x 22"; Hand-tilt table standard equipment. Gear-tilt optional extra

DISC: 16" dia. Cast aluminum (356T6)

HUB: 6" dia. Cast Iron

MOTOR: 1-1½ or 2 HP; 1 or 3 phase

STARTER: Manual, magnetic or reversing

SHIPPING WEIGHT: With motor, approximately 425 pounds

GUARANTEE

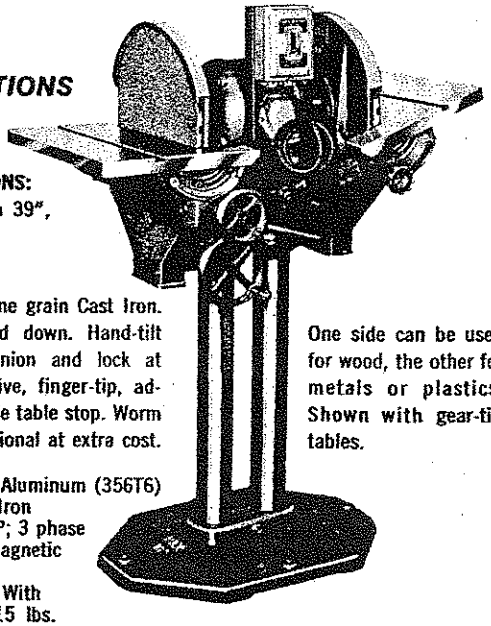
MAX Products are guaranteed for one year against defects in material or workmanship.

MAX 16" DISC SANDER-GRINDER

STAND MODEL 16-DD DOUBLE-DISC

FEATURES

Does the work of two single disc machines. More economical and convenient, saves time and floor space. Change operations without delay. One motor and one switch. Coarse and fine grits may be used on one machine for speed and efficiency. May grind up to an inside corner on opposite sides.



SPECIFICATIONS

OVERALL DIMENSIONS: Width 24", Depth 39", Height 52"

TABLE: 10" x 22" fine grain Cast Iron. Tilts 45° up and down. Hand-tilt tables have trunnion and lock at each end. Exclusive, finger-tip, adjustable right angle table stop. Worm gear table tilt optional at extra cost.

One side can be used for wood, the other for metals or plastics. Shown with gear-tilt tables.

DISC: 16" dia. Cast Aluminum (356T6)
HUB: 6" dia. Cast Iron
MOTOR: 1½ or 2 HP; 3 phase
STARTER: Manual, magnetic or reversing
SHIPPING WEIGHT: With motor, approx. 615 lbs.

#VS1-18 MAX OSCILLATING VERTICAL SPINDLE SANDER #23165

Item number: 7532329606

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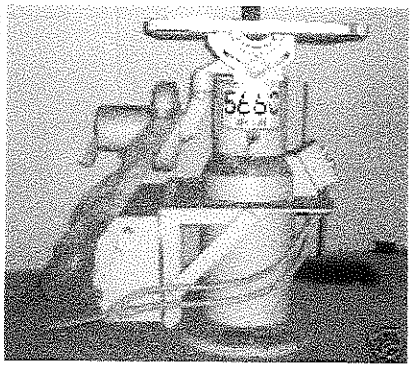

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#VS1-18 MAX OSCILLATING VERTICAL SPINDLE SANDER
New 1990, Serial No. 90320, Model VS1-18

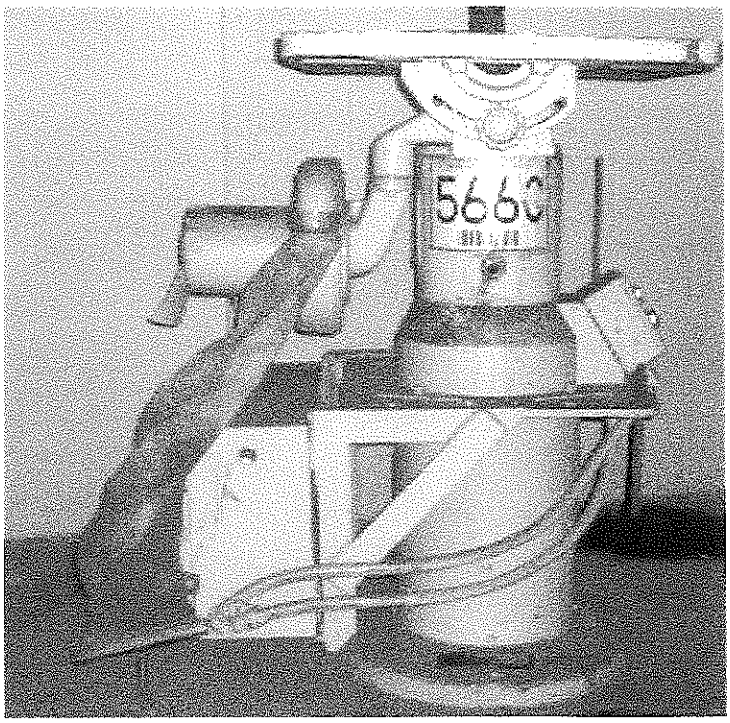
EQUIPPED WITH:
Worm & Bevel Gear Tilting Device With Handwheel
Adjustable Table Stop
Table Lock
Large Degree Indicator
Dust Collector
Heavy Duty Design

CATALOGUE SPECIFICATIONS:
Table Dimensions, L x W..... 24" x 24"
Table Tilt, Up..... 30-DEGREES
Table Tilt, Down..... 45-DEGREES
Taper Socket..... #2MT
Electrical System..... 480/3/60
Weight Approximately..... 355 LBS

NOTE: Machine Appears To Be In Very Good Condition With A Replacement Price Of $3,800.00 Base. This Sander Can Be Used On Wood, Metal, Or Plastics.

PRICE: F.O.B. OUR WAREHOUSE..... 1,950.00

All machines/equipment subject to prior sale.



Unique Door Machine

C23

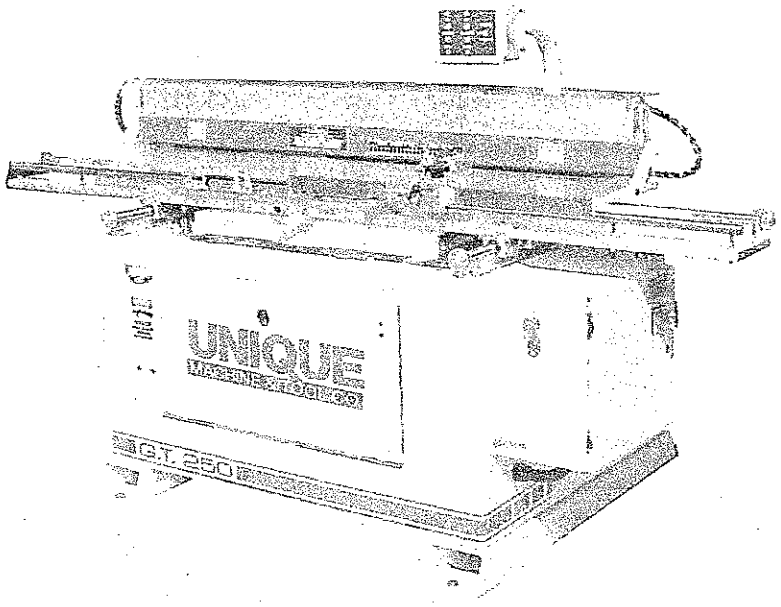
MODEL 250

UNIQUE MACHINE & TOOL CO.

THE ORIGINAL RAISED PANEL DOOR MACHINE

FEATURE LIST

- 10 HP DIRECT DRIVE VARIABLE SPEED MOTOR
- X/Y SLIDING TABLE FOR SAFETY AND ACCURACY
- ALL THREE CUTTERHEADS ON THE STACKABLE SPINDLE 5-1/4" OF AVAILABLE HEIGHT
- QUICK CHANGE TURRET FOR PRESET CUTTER HEIGHT
- SAFETY TABLE LOCK
- PNEUMATIC SPINDLE AND MATERIAL STOP POSITIONING
- COMES WITH STANDARD TOOLS AND TEMPLATE
- COMPLETE SQUARE OR ARCHED DOORS IN LESS THAN TWO MINUTES
- NO PRE-BANDSAWING NECESSARY FOR ARCHES
- ABILITY TO PRODUCE CABINET OR PASSAGE DOORS
- MANUFACTURE MULLIONS FOR GLASS DOORS, QUICK AND EASY



DESCRIPTION

UNIQUE MACHINE & TOOL CO. has been producing the 250 raised panel door machine for over 25 years with customers throughout the world! The model 250 allows an operator to machine all parts for a complete cabinet door in less than two minutes.

The 250 was designed with both small and large manufacturers in mind. It is both versatile and economical for small custom shop use, yet efficient and durable for even the largest of factories.

Every model 250 is set up and tested at our factory, and delivered with a complete sample door, ready for production.

D.L. Coffey Machinery Company, Inc.
Woodworking Machinery

2814 Mountain Laurel Drive
Furlong, PA 18925
Phone: 215-345-8555 Fax: 215-340-1607

2232 E. Magnolia St. Phoenix, Arizona 85034 USA Ph (602) 470-1611 Fax (602) 470-1612

Website: http://www.uniquemachine.com E-mail: sales@uniquemachine.com

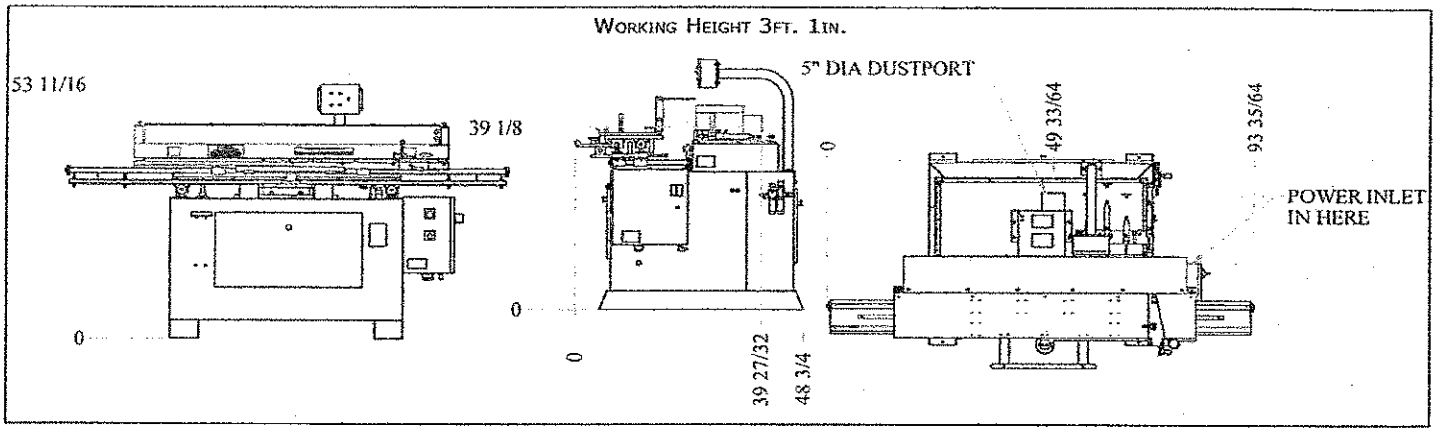
Due to continuous improvements, all specifications are subject to change without notice.

Model 250

UNIQUE MACHINE & TOOL CO

RAISED PANEL DOOR MACHINE

250 MACHINE DIMENSIONS



250 MACHINE SPECIFICATIONS

TECHNICAL SPECIFICATIONS

SOME SPECIFICATIONS MAY VARY BASED ON STATION CONFIGURATION

- Motor: 10HP Direct Drive
- Stacked spindle 1-1/4" stacking capacity 5-1/4"
- Air required 90 psi
- Machine weight 1,400 lbs
- Maximum arch width: 24"
- Maximum cut length: 50"
- Maximum arch height: 2" or Custom up to 3-7/8"
- Maximum material thickness: 1" or an optional 2-1/2" capacity
- Minimum material width: 1-1/2" plus the depth of cut.
- Electrical Requirements: 208-240VAC, 3PH, 60HZ, 35.47A or 440-480VAC, 3PH, 60HZ, 17.73A

DESIGN FEATURES

- Highly visible guards & protective clamp bar keep the operator shielded while operating the machine
- A turret stop system for cutter positioning. The 3-position turret system allows users of the machine to change tools on the spindle to a different profile while putting in a matching turret to greatly reduce changeover time
- The Model 250 offers a 3-position tooling stack
- No pre-bandsawing of cathedral arches or matching rails is necessary with the Unique system.
- Pneumatic fence stop system for accurate, repetitive part positioning
- Arch centering to position the panel & rail arches correctly every time.
- Standard or Custom template stacks are available from Unique, or can be made independently
- Climb cutting made possible to reduce tear out on top rail arches

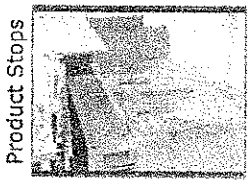
STANDARD 250 OPTIONS

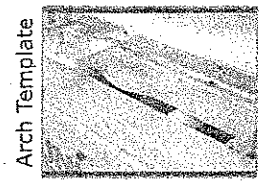
Entry

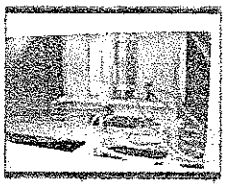
The 250-Entry provides for increased thickness to allow entry doors to be manufactured.

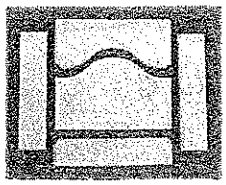
Increased Arch Height

This feature will allow you to increase the arch height up to 4 inch arch height capacity.



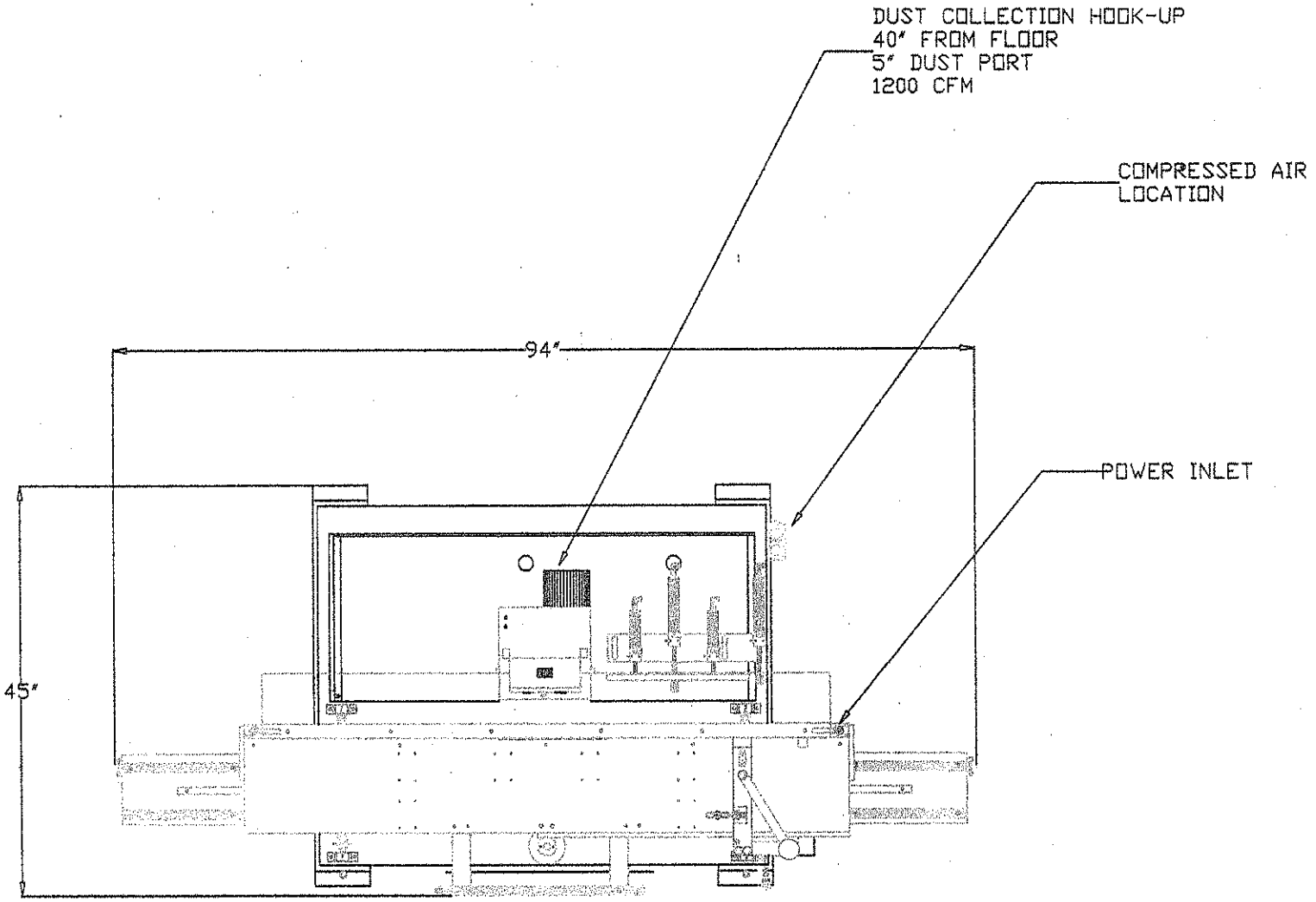






4210 E Magnolia St. Phoenix, Arizona 85034 U.S.A. ph: (602) 470-1911 fax: (602) 470-1915
Website: http://www.uniquemachine.com E-mail: sales@uniquemachine.com

Due to continuous improvements, all specifications are subject to change without notice.



ENGLISH	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	ORIG. RELEASE	UNIQUE
MACHINED SURFACES 125 AA	X.XX ± .025	DWG. BY: MJM	
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	X.XXX ± .010	DATE: 06/11/03	250 FOOTPRINT
THREAD LENGTH DIMS. ARE FULL THREAD	X.XXXX ± .005	CK. BY:	
INTERPRET DRAWINGS PER ANSI Y14.5	FRACTIONAL ± 1/16	APP'D BY:	
	PERFECT FORM AT MMC REQUIRED FOR INTERRELATED	REL. NO.	
		UNITS: INCHES	PART NO. 250 FP REV.
		SCALE:	
		NEXT ASSEMBLY:	SIZE

RT 1

IN G216

HEALTH TECH.

(OXYGEN OUTLET PANEL)

Have KR Provide Power Only

LEGEND

REQ	SYM	DESCRIPTION
1	O	OXYGEN OUTLET
1	A	AIR OUTLET
1	V	VACUUM OUTLET
3	E2	DUPLEX RECEPTACLE, 8300 IVORY, 20A, 125V, H.G., NORMAL POWER
4	E4	DUPLEX RECEPTACLE, 8300 RED, 20A, 125V, H.G., EMER. POWER
1	NC	NURSE CALL PROVISION
1	TL	TELEPHONE OUTLET PROVISION SINGLE CAT 5, RJ-45 RECEPTACLE
1	MO	MONITOR OUTPUT PROVISION
1	MC	MONITOR CHANNEL ONLY
2	VTF	VERTICAL EQUIPMENT MOUNTING TRACK, FASCIA

QTY	ACCESSORIES NOT SHOWN (PER UNIT)

NOTES:

1. COLOR TO MATCH FORMICA #923 'SURF'.
2. GAS OUTLETS TO BE MSC STANDARD BRAND OUTLET WITH CONNECTION TO MATCH EXISTING HOSPITAL EQUIPMENT
3. UNIT SHOWN IN 3 5/8" STUD WALL. ALSO AVAILABLE IN 3" STUD FOR MOUNTING TWO SINGLE SIDED UNITS BACK TO BACK IN A 6" STUD WALL.
4. SERVICES REVERSED ON OPPOSITE HAND UNITS.
5. CEILING HEIGHT: 7'6" MIN TO 9'6" MAX OTHER HEIGHTS ARE SUBJECT TO AN ADDTL CHARGE. CONTACT YOUR SALES REPRESENTATIVE FOR DETAILS.

MODULAR SERVICES COMPANY 110 N. E. 38TH TERRACE OKLAHOMA CITY, OK. 73105

PROJECT

REVISED

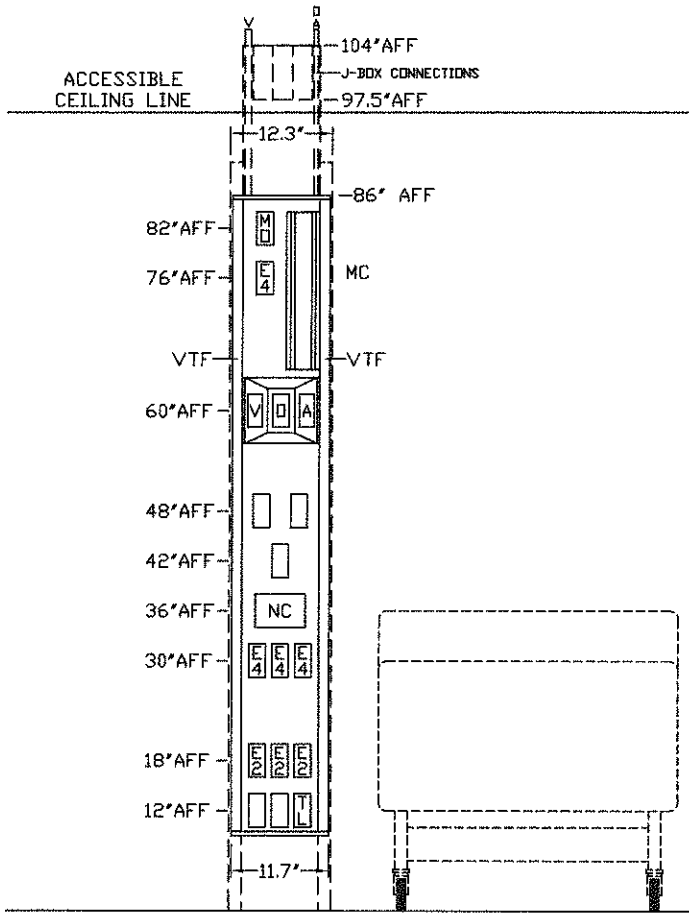
EXTENDED PROFILE™ SINGLE SIDED, SEMI-RECESSED MODEL 7111-IR

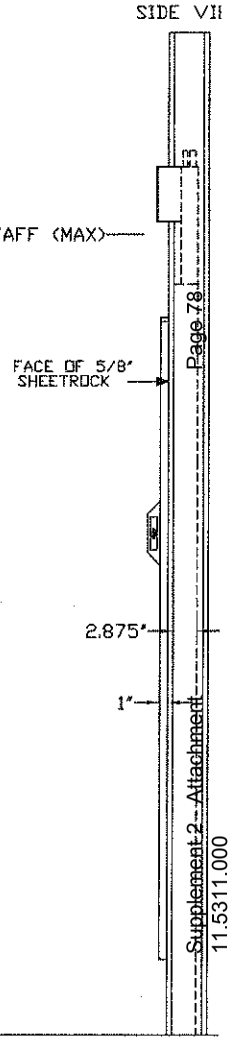
SCALE: =1'

DATE | DRAWN BY | DRAWING #

October 25, 2011

__ REQ'D: __ AS SHOWN __ OPPOSITE

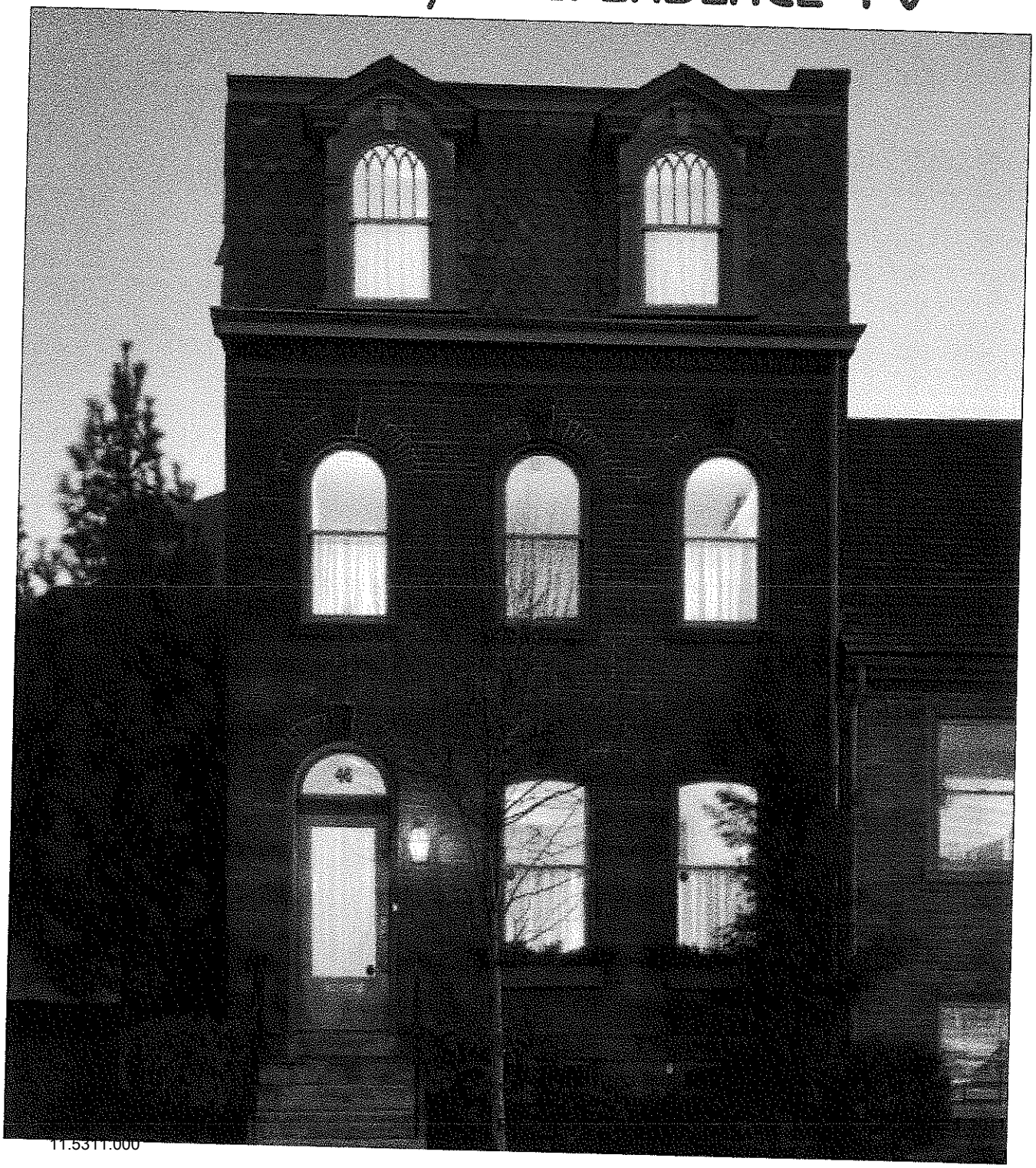




EFFICIENT & ECONOMICAL GAS-FIRED STEAM OR HOT WATER HOME HEATING

Burnham Hydronics

INDEPENDENCE®/INDEPENDENCE® PV



BURNHAM INDEPENDENCE SERIES GAS-FIRED STEAM OR HOT WATER BOILER

Long Term Home Comfort and Quality

Burnham's Independence® Series gas-fired boilers offer you all the benefits of hydronic heat with the advantages of quality cast iron construction and advanced engineering. Offered in steam or hot water, the Independence is a quiet, reliable, and efficient boiler.

The Independence natural draft boiler is available in ten sizes, and the power vented steam model is available in four sizes. Your contractor can size the Independence boiler to match the heating requirements of your home for optimum efficiency.

Independence PV — Power Vented Model Available

The Independence PV boiler offers you all the features of steam heat with the flexibility of a power vented boiler. The completely packaged Independence PV boiler installs almost anywhere because **no chimney is required for installation.**

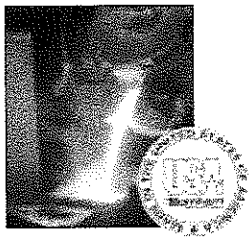
A draft-inducing fan pulls hot gases through the heat exchanger at just the right speed for optimum efficiency. Together, the heat exchanger and fan provide more heat with less fuel consumption. No vent damper is required.

So, if you don't have a chimney or if your old chimney is deteriorated or not up to code, you can install the Independence PV boiler and vent directly outside through the wall.

Quality Construction

Made in the USA

Every Burnham boiler is made in the U.S.A. All Burnham heat exchanger castings are produced "in-house" to ensure quality and availability. Burnham is the only boiler manufacturer that can make that claim.



Rugged cast iron sections

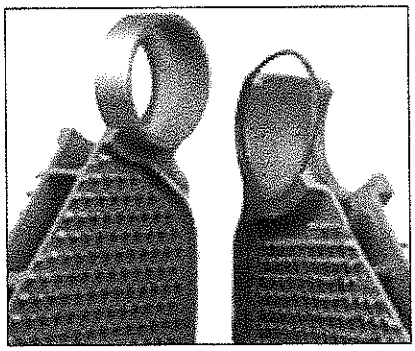
Hundreds of heat extracting pins extract the maximum amount of heat, reducing fuel consumption and saving you money.

Steel couplings called nipples

Steel nipples increase the longevity of the boiler by resisting petroleum based chemicals, including antifreeze. These inhibitors can deteriorate the rubber type gaskets which are commonly found in some competitors' boilers.

Lifetime True-Blue limited warranty

Burnham stands behind every Independence boiler with a 10-year limited warranty on the steam heat exchanger, and a lifetime limited warranty on the water heat exchanger. The additional purchase of Burnham's Winter Warmth Assurance plan extends the True Blue Warranty protection of the heat exchanger to 5 or 10-year blanket coverage. The program pays 100% for parts and labor on qualified repairs for 5 or 10 years from the date of installation. See your Burnham Home Heating Team contractor for more information



Burnham Nipple vs. Competitors' Gasket

Independence Advantages

- With an annual fuel utilization of 83.2%, the Independence gives you excellent value for your dollar.

- A **rear drafthood** (Indepen dence models only) installs in low overhead areas and allows for clearance and flexibility for existing piping.

- Standard on each Burnham Independence Series boiler is a **100% safety shutoff**, a time-proven safety feature with its own backup system.

- A **fuel saving vent damper** (Independence models only) automatically closes the flue to prevent heat from escaping up the chimney after the burner shuts off and reopens it again before the burner comes on.

- The Independence can also be equipped with a **spark-ignited electronic ignition** which improves energy efficiency.

• Burnham uses quality **Honeywell controls** on the Independence and the Independence PV.

• **Industrial quality pressuretrol** for accurate, trouble-free control.

• **Stainless steel burners** equal long life with no rusting like aluminized burners.

• **Step-opening gas valve** enables the boiler to start on low fire and continue on to high fire safely and smoothly providing quiet ignition and long life. The valve is concealed inside the boiler jacket, hidden from children and safe from accidental bumps and tampering.

• **Power vented model** simplifies installations when a chimney isn't available.

One Source for Total Comfort

Burnham is dedicated to leading the hydronic heating industry through product development and engineering expertise. With years of proven dependability, and the broadest product line, Burnham is the one brand you can rely on for your complete home heating comfort.

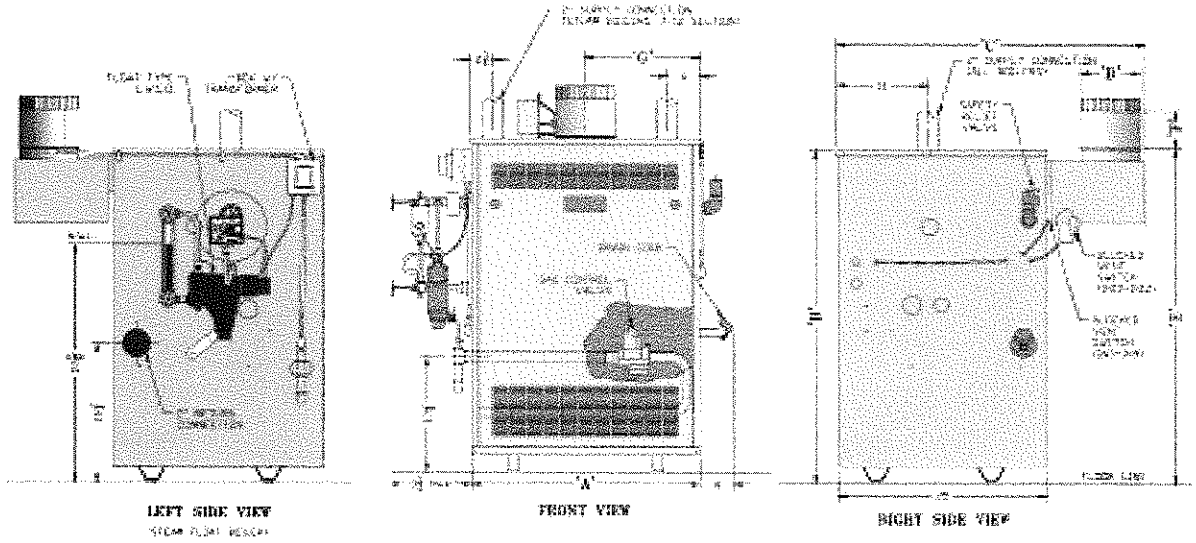
Why settle for just a high efficiency Burnham Independence boiler, when you can have a complete Burnham system? Improve upon your new boiler's efficiency with Burnham's complete line of system components including: the Alliance™ family of indirect water heaters, radiant heat pipe and accessories from Burnham Radiant Heating Company, low profile baseboard, modern radiators, and electronic controls. Burnham also offers the industry's most comprehensive technical support available. Now is the time to make Burnham the one source for your total hydronic heating system.

MODEL	'A'	'B'	'C'	'D'	'E'	'F'	'G'
IN3	14-1/2	40	33-3/4	4	40-1/4	4-3/4	7-1/4
IN4	17-3/4	40	34-3/4	5	40-1/4	4-3/4	8-7/8
IN5	21	40	35-3/4	6	40-1/4	5-1/4	10-1/2
IN6	24-1/4	40	35-3/4	6*	40-1/4	5-1/4*	12-1/8*
IN7	27-1/2	40	36-3/4	7	40-1/4	7-1/2	13-3/4
IN8	30-3/4	40	36-3/4	7*	40-1/4	7-1/2*	15-3/8*
IN9	34	40	37-3/4	8	40-1/4	7-1/2	17
IN10	37-1/4	45	38-3/4	8*	45-1/2	7-1/2	18-5/8
IN11	40-1/2	45	38-3/4	9	45-1/2	7-1/2	20-1/4
IN12	43-3/4	45	38-3/4	9	45-1/2	7-1/2	21-7/8
PIN3PV	14-1/2	45	N/A	3	N/A	N/A	4
PIN4PV	17-3/4	45	N/A	3	N/A	N/A	8-1/4
PIN5PV	21	45	N/A	3	N/A	N/A	9-1/4
PIN6PV	24-1/4	45	N/A	3	N/A	N/A	9-1/4

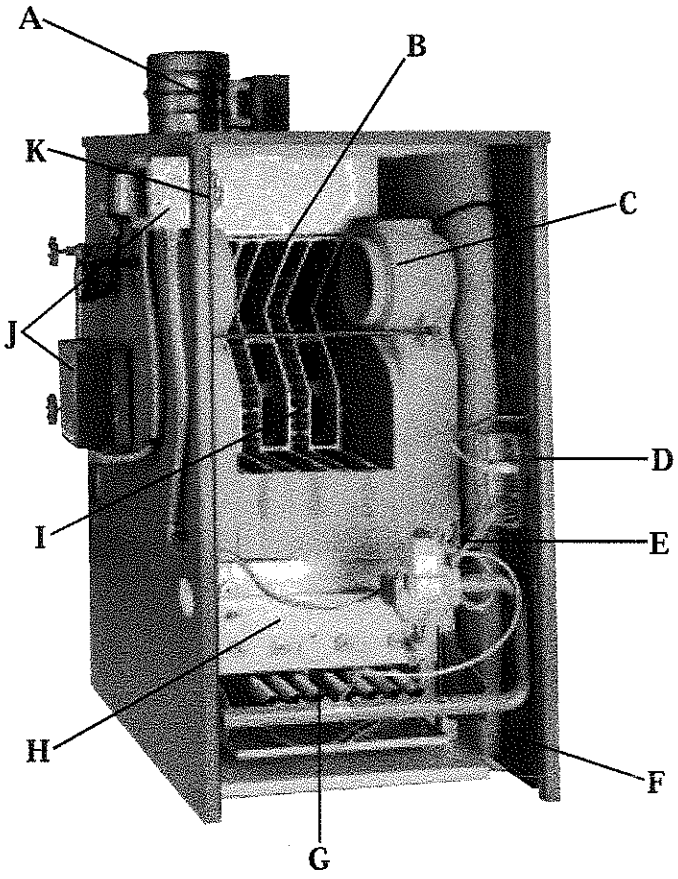
Dimensions (in inches) and Standard Equipment

*Dimensions indicated are for USA only - For Canada, use dimension on next larger model.

Standard Equipment:
Rear drafthood (Independence Only)
Cast Iron Sections
Combustible Floor Certified
Stainless Steel Burners
Flame Roll Out Switch (FRS)
Blocked Vent Switch (BVS) (Independence Only)
Concealed Step Opening Gas Valve
Safety Relief Valve
Pressure Limit Control (Steam)
Low Water Cut Off (Steam)
Steam Pressure Gauge (Steam)
Pressure Temperature Gauge (Water)
Thermostat Isolation Relay
Vent Damper - IN3-IN9 (Independence Only)
2" Supply Tapping
2" Return Tapping
(2) 1-1/4" Indirect Water Heater Tappings
3" AL29-4C® Stainless Steel Vent Connector/Terminal (Independence PV Only)



Burnham Hydronics



A. Rear Drafthood (Independence Only)
B. Large Steam Dome
C. Cast Iron Nipple
D. Deluxe Insulated Jacket
E. Step Opening Gas Valve
F. Combustible Floor Certified
G. Stainless Steel Burners
H. Heavy Duty Base Construction
I. Cast Iron Sections
J. Brand Name Quality Controls
K. Built-in Thermostat Isolating Relay

The Money Saving Solution

Since Burnham's Independence is one of the most efficient boilers you can buy - with an annual efficiency of 83.2% - you can save hundreds of dollars during your first heating season. Compare this to 60% efficiency for a typical 20 year old boiler or 50% for a typical 40 year boiler that may have been converted from coal firing. Your local Burnham dealer can test your current unit and tell you at what efficiency it is operating.

For example, say you spend $1500 on fuel in one year. To figure out what your annual savings would be, simply divide your existing boiler's efficiency rating by that of the Independence boiler. Multiply that amount by $1500 and you'll find out approximately how much it will cost to operate your new Independence boiler. You can see that much of the heat you're currently paying for is going right up the chimney!*

How to Determine Your Savings

Formula:

$$\frac{\text{Your Current Boiler's Efficiency Rating}}{83.2} \times \text{Your Current Annual Fuel Bill} = \text{Your Estimated New Fuel Bill}$$

Example:
Your present boiler's efficiency is rated at 60% and your annual fuel bill is $1500.

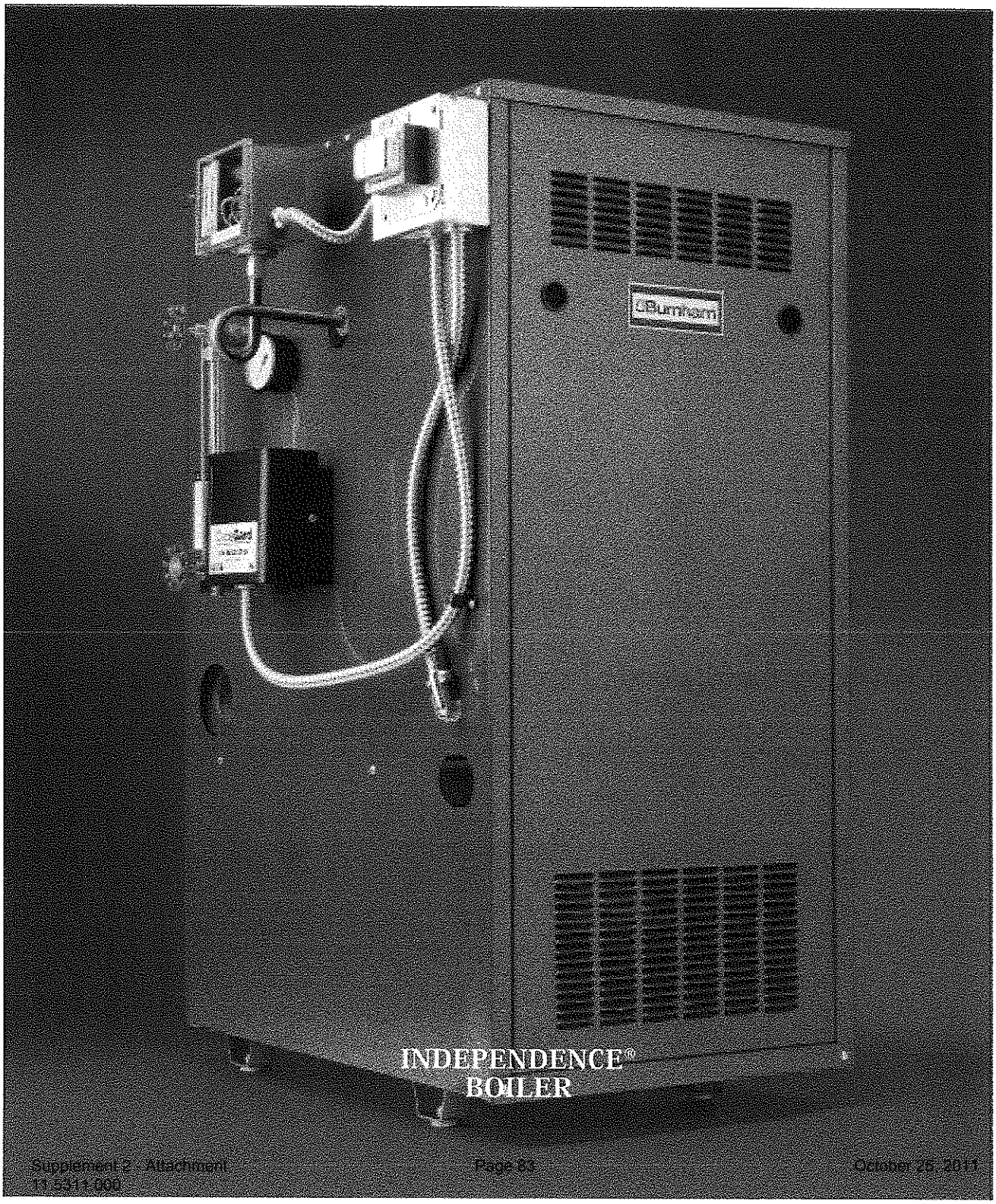
$$\frac{60}{83.2} \times \$1{,}500 = \$1{,}081$$

= $419 Annual Savings

Find out how you can enjoy winter warmth this year, and for many years to come. Burnham is the answer to all your heating needs.

(*Savings will vary based on yearly heating degree days.)

Burnham Hydronics



SPECIFICATIONS

Burnham Hydronics

INDEPENDENCE® RATINGS Natural or LP Gas*

BOILER NUMBER	INPUT MBH (1)	DOE HEATING CAPACITY MBH (1)(2)	I=B=R RATING (2)			AFUE				APPROX. SHIPPING WEIGHT (LBS.)	MINIMUM RECOMMENDED CHIMNEY SIZE ROUND Dia. (In.) x Ht.(Ft.) (4)(5)
						24V		EI			
			WATER MBH	STEAM MBH	STEAM SQ. FT.	WATER	STEAM	WATER	STEAM		
IN3	62	51	44	38	158	81.0	80.0	83.1	81.9	350	4 x 15
IN4	105	87	76	65	271	81.3	80.0	83.1	82.0	420	5 x 15
IN5	140	115	100	86	358	81.6	80.3	83.1	82.0	485	6 x 15
IN6	175	144	125	108	450	81.8	80.6	83.2	82.1	555	6 x 15(5)
IN7	210	173	150	130	542	82.1	80.9	83.2	82.1	620	7 x 15
IN8	245	202	176	152	633	81.1	80.0	83.2	82.2	690	7 x 15(5)
IN9	280	231	201	174	725	81.4	80.3	83.2	82.2	760	8 x 15
		GROSS OUTPUT MBH				COMBUSTION EFFICIENCY (%)					
						WATER		STEAM			
IN10(3)	315	259.87	226	195	812	83.5		82.5		815	8x15(5)
IN11(3)	349	287.92	250	216	900	83.5		82.5		885	9x15
IN12	385	317.62	276	239	996	83.5		82.5		955	9x15

* LP available on IN3-IN9

1. Ratings shown are for installations at sea level and elevations up to 2,000 ft. For elevations above 2,000 ft., ratings should be reduced at the rate of four percent (4%) for each 1,000 ft. above sea level.
2. Capacities, outputs and ratings are based on steam combustion efficiency of 82.5%. Water combustion efficiency is 83.5%.
3. For Canadian builds only: Reduce input and output by 3%.
4. 15 ft. height is measured from top of drafthood to top of chimney.
5. IN6, IN8, & IN10 - Canada only: Increase chimney diameter by 1".

Working Pressure: 15 PSI Steam; 30 PSI Water

ORDERING INFORMATION

The Independence is available as:

Packaged - Use prefix PIN (Sizes PIN3-PIN7)
Semi-packaged - Use prefix SIN (Sizes IN3-IN9)
Knocked-down - Use prefix KIN (Sizes KIN3-KIN12)

INDEPENDENCE® PV RATINGS Natural Gas Packaged Only

BOILER NUMBER	INPUT MBH	DOE HEATING CAPACITY MBH (1)	I=B=R NET RATINGS		MAXIMUM VENT LENGTH EQUIVALENT FT. (2)(3)	AFUE%	APPROX. SHIPPING WEIGHT (LBS.)
			STEAM MBH	STEAM SQ. FT.			
PIN3PV	62	52	39	163	45	83.2	355
PIN4PV	105	87	65	271	35	82.2	425
PIN5PV	140	116	87	363	35	82.2	490
PIN6PV	175	145	109	454	35	82.2	560

1. Capacities and ratings are based on steam combustion efficiency of 83.0%. (84.1% for PIN3PV)
2. The approved venting system for the Independence PV is 3" AL29-4C® stainless steel. Do not substitute other materials.
3. Vent pipe length is listed in equivalent feet. Any elbows or tees used have specific values which must be subtracted from the total length to determine maximum length of straight pipe. Consult Installation, Operating and Service Instructions for details.

Steam only - 15 PSI Working Pressure

Burnham Hydronics

Form No. PL81401101000d-02/03-15Ms
Printed in the U.S.A.

Phone: 717-397-4701
www.burnham.com

Dunkirk
America's Hottest Boiler Value!

Q90 50-100
Gas-Fired Direct Vent Condensing Hot Water Boiler

P/N# 240005687, Rev. 1.0 [10/05]

SPECIFICATIONS AND PERFORMANCE

90% AFUE Efficiency

ENERGY STAR

Available Heating Inputs of:

50 MBH through 100 MBH

Application – The Quantum 90 gas fired hot water boiler is available in natural or propane gas with heating inputs of 50, 75, and 100 MBH (14.7, 22.0, and 29.3 KW) and an AFUE of 90%. The boilers can be used for a wide variety of applications (with or without zones) including radiant floor heating, snow melting, baseboard heating, standing cast iron radiators and coil units. All boilers are factory-assembled with controls and wiring, and tested to ensure dependable performance. The compact size allows for easy installation in a basement, a closet, or an alcove enclosure.

Benefits:
- 90% AFUE Efficiency Dramatically reduced fuel consumption.
- ***Ideal for Use with Radiant Systems***: Efficiency is increased ***beyond*** 90% when used with low temperature systems.

Approvals – The cast aluminum boiler assembly is manufactured and tested in accordance with American Society of Mechanical Engineers standards (ASME), and certified by International Approval Services (IAS) in the US and Canada. The Annual Fuel Utilization Efficiencies (AFUE) are based on US DOE test procedures and FTC labeling regulations. AFUE and I=B=R ratings are certified in accordance with standards set by The Hydronics Institute Division of the Gas Appliance Manufacturers Association (GAMA). The boiler has been assigned a New York City Materials and Equipment Acceptance (MEA) 218.98E.

Warranty – 15-Year Limited Heat Exchanger Warranty. All of our boilers are backed by Dunkirk's reputation for quality and service to our customers, based on over 75 years of successful hydronic experience.

FEATURES AND BENEFITS

Cast Aluminum Boiler Assembly – The boiler sections and push nipples are constructed out of long life cast aluminum. When the boiler is heated, the sections and push nipples expand and contract in the same proportion, because they are constructed of like material, providing a positive watertight seal.

Benefit: Revolutionary Cast Aluminum Heat Exchanger transfers heat three times faster with greater thermal conductivity than conventional cast iron. It produces enormous gains in heat-up speed and operating efficiency. Also, the packaged boiler weighs only 220 pounds for easier installation.

Cabinet :
- Constructed from heavy gauge steel with a baked-on finish
- Front door removable for easy access to boiler components
- Furnished with right side exhaust for, gas, fresh air in and fuel in
- Top access for water supply and return
- Alternate openings also available for exhaust fuel in, water supply or return

Benefit: Easy maintenance though the service door (attached with slam latches) which makes the controls easily accessible.

Gas Control Valve – The electronically controlled 24 Volt combination gas control valve is designed to meet the requirements for use with hot surface ignition systems found in the Q90. The valve is piped to the gas/air mixer.

QUANTUM 90-100 NATURAL OR PROPANE GAS-FIRED BOILER

FEATURES AND BENEFITS *Continued*

Casting Temperature Safety Switch – In the event there is lack of water in the boiler, the casting temperature safety switch (located on the top of the aluminum boiler section) shuts down the boiler by turning off power to the Integrated Boiler Control (IBC). To restart the boiler, verify that the boiler is properly filled with water and then manually reset the switch. **WARNING! NEVER RUN WATER INTO A HOT EMPTY BOILER.**

High Limit Aquastat Control – The high limit aquastat control determines the maximum boiler water temperature and also provides a means for protecting the boiler and heating system from unsafe operating conditions which could damage the boiler. The aquastat is tied in with the IBC and is factory set at 100°F (37.8°C) water temperature. The high limit set point is field adjustable and may be set anywhere between 100°F (37.8°C) and 200°F (93.3°C). The field set point adjustment for each installation depends on the heating system's requirements.

Hot Surface Igniter – The 120 Volt hot surface igniter heats up to 1,800°F (98.2°C) to initiate combustion of the gas in the burner. The igniter is mounted next to the burner through the gas/air mixer. The igniter also serves as a means for proving the main burner flame by flame rectification. In case of a lack of flame signal on three consecutive trials for ignition, the IBC will lockout.

Vent Temperature Safety Switch – The vent temperature safety switch is a disc thermostat [180°F (82.2°C) set point] on the induced draft fan outlet port. The switch protects the fan and CPVC vent pipe (furnished with boiler) from high temperature conditions for the discharging of flue gases. The vent temperature safety switch automatically resets when the vent temperature decreases 15°F (9.4°C).

Draft Inducer – (blower) draws in the outside combustion air to mix with gas, which flows into the pre-mix burner and combusts. The fan then forces the resulting flue gases from the boiler unit and providing a positive removal of the flue gases discharged through the vent piping to the outdoors.

Benefits:
- Cooled flue gas can be safely vented through easy to install economical CPVC and PVC.
- Sealed Combustion, Premix Gas Burner, and Low Flame Temperature which drastically reduces CO and NOx emissions, and contributes to a cleaner and healthier environment.
- Combustion Air is drawn directly from the outdoors (sealed combustion, "direct vent") and does not compete with building occupants for fresh air.

Differential Pressure Air Proving Switch – The pressure switch monitors air flow by sensing the differential pressure measured in inches of water ("w.c.). The factory settings on these switches are 1.17" w.c. (2.9l mbar) for the Q90-100, 1.35" w.c. (3.36 mbar) for the Q90-75, and 1.55" w.c. (3.98 mbar) for the Q90-50. The contracts are normally open, but close when the draft inducer is running which causes the differential pressure at the switch to exceed the setting. The closed switch proves there is appropriate air flow for combustion. The pressure switch shuts off the main burner if the differential pressure is inadequate due to a blocked vent pipe, a blocked air intake, blocked boiler sections or a blocked draft inducer. After five (5) minutes of lack of the adequate differential pressure, the IBC will lockout. The "PURGE" indicator light will blink, indicating a failure to prove adequate combustion air flow or flue gas flow.

Integrated Boiler Control (IBC) – The Integrated Boiler Control operates the combustion air blower, the circulator pump and the hot surface igniter/flame sensor. The IBC contains four diagnostic indicator lights.

Benefit: Simplified Controls with high limit and low water cut-off for operation safety and maximum reliability.

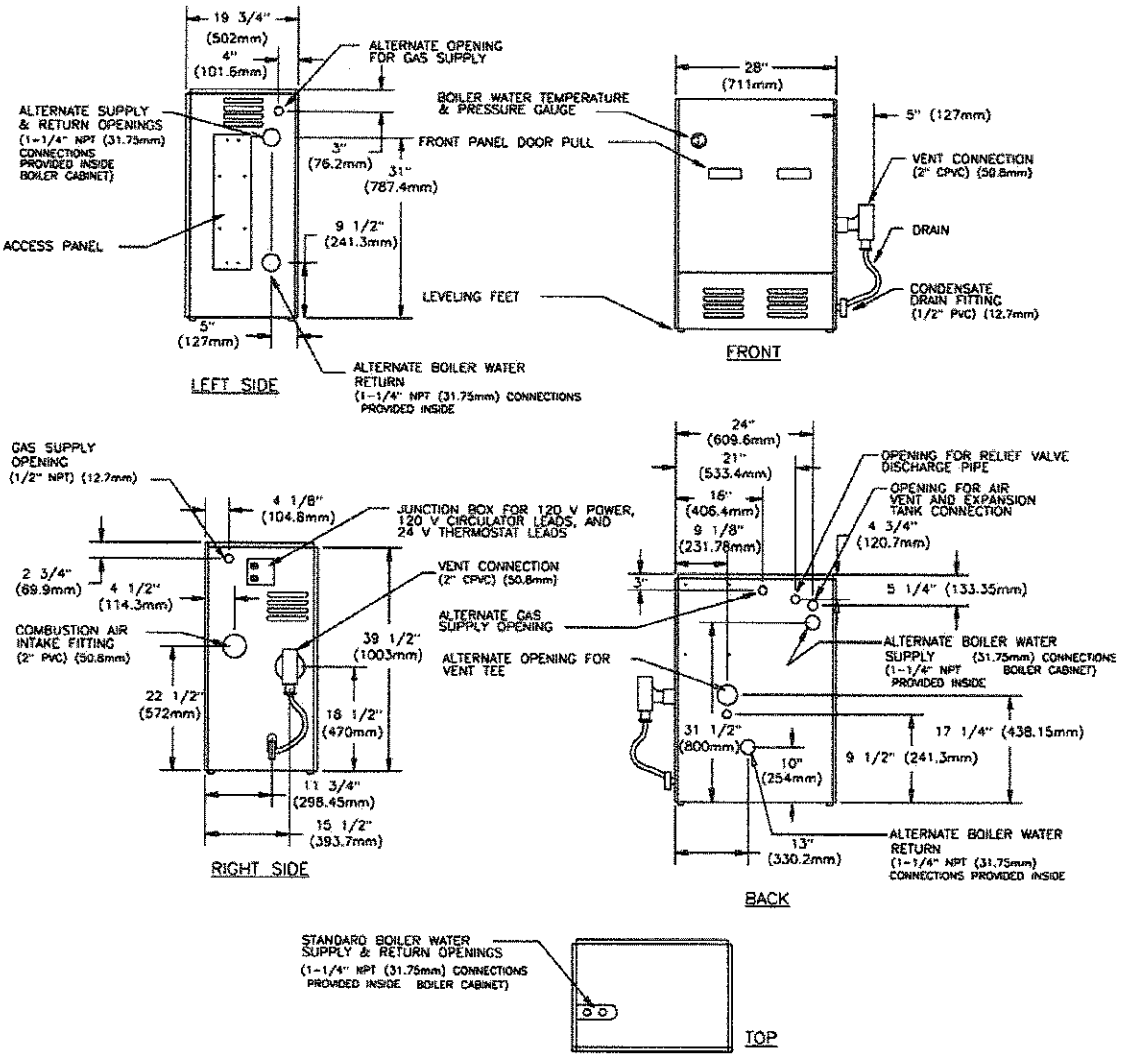
Circulator Pump – The water lubricated maintenance-free pump and isolation valves are furnished in the carton inside the boiler cabinet, and can be installed at the installer's preferred location. The isolation ball valves on the inlet and outlet of the pump eliminate the need to drain the heating system if pump servicing is required.

Drain Valve – The ¾" (19mm) drain valve is furnished on the front of the boiler. Any piping installed below the elevation of this drain valve will require additional drain valves to be installed at low points in the piping system in order to drain the entire system.

Relief Valve – The relief valve is furnished as standard on top of the boiler and provides for pressure relief of the heating system in case of abnormal operating conditions. The valve opens at 30 psig (201 kPa) and is ASME approved.

CONNECTIONS	
120 Volts AC, 60 Hertz, 1 Phase, Less Then 12 Amps	
Vent Pipe & Air Intake Pipe: • Vent Pipe - First 5' is Schedule 40 2" CPVC (Provided), Then Schedule 40 3" PVC	
• Air Intake - Schedule 40 3" PVC, Vent Length: - 6' Minimum - 60" Maximum	
Water In/Out	1-1/4" NPT
Gas In	1/2" NPT
Condensate Drain	1/2" NPT

BOILER RATINGS & CAPACITIES



SEA LEVEL THROUGH 2,000 FEET (609.6 m) ELEVATION SPECIFICATIONS Gas Fired Hot Water Boiler			
Model No. (Natural and Propane Gases)	**Q90-50**	**Q90-75**	**Q90-100**
Input – Btuh (KW)	50,000 (14.7)	75,000 (22.0)	100,000 (29.3)
Heating Capacity – Btuh (KW)	45,000 (13.2)	68,000 (19.9)	90,000 (26.4)
[1] Net I=B=R Btuh (KW)	39,000 (11.4)	59,000 (17.3)	78,000 (22.9)
[2] AFUE	90%		
Number of Boiler Sections	2		
Boiler Capacity – US Gallons (L)	2.6 (9.8)		
[3] Flue Size Outlet Diameter – in. (mm)	2 (50.8)		
Package Shipping Weight – lbs. (kg)	220 (3.1)		
Gas Piping Size IPS – in. (mm)	1/2 (12.7)		
Supply & Return Connection NPT – in. (mm)	1-1/4 (31.8)		
Drain Connection NPT – in. (mm)	3/4 (19)		

1) Net I=B=R ratings indicate the amount of remaining heat the boiler can provide to heat the radiation or terminal units under normal conditions and thermostatic control. Ratings are based on an allowance of 1.15 in Accordance with the piping and pickup factors shown in the I=B=R Standard as published by The Hydronics Institute, Inc. Selection of boiler size should be based on "Net I=B=R Rating" being equal to or greater than the calculated heat loss of the building.

2) AFUE (Annual Fuel Utilization Efficiency) and Heating Capacity is based on the Department of Energy's test procedure.

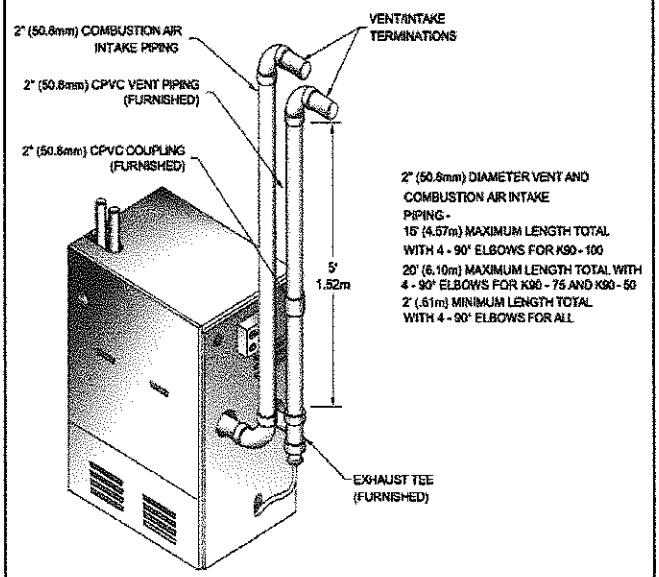
3) Maximum allowable length of vent and intake pipe is 20' (6.1 m) each of 2" (50.8 mm) PVC with 4 ells or 100' (30.5 m) each of 3" (76.2 mm) PVC with 4 ells for Models Q90-75 and Q90-50.

Maximum allowable length of vent and intake pipe is 15' (4.6 m) each of 2" (50.8 mm) PVC with 4 ells of 80' each (24.4 m) of 3" (76.2 mm) PVC with 4 ells for Model Q90-100.

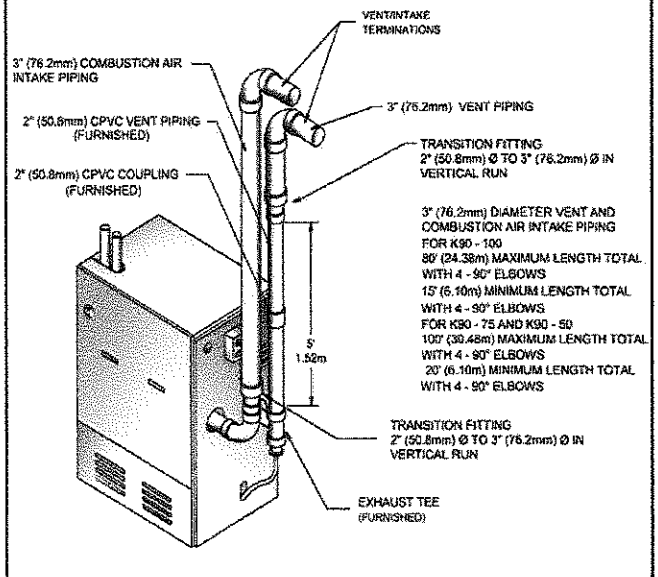
The first 5' (1.5 m) run on the vent pipe will be 2" (50.8 mm) CPVC (furnished).

QUANTUM 90-100 NATURAL OR PROPANE GAS-FIRED BOILER

2" Vent / Air Intake Piping



3" Vent / Air Intake Piping



BOILER CLEARANCES		
Unit	**Combustible Clearance** *Inch (mm)*	**Accessibility, Cleaning, and Servicing** *Inch (mm)*
Top	1 (25.4)	8 (203.2)
Left Side	1 (25.4)	24 (609.6)
Right Side	8 (203.2)	-
Base	1 (25.4)	-
Front	0 (0)	24 (609.6)
Back	1 (25.4)	-
Intake/Vent Piping	0 (0)	-
Near Boiler Hot Water Piping	1 (25.4)	-

All distances measured from the cabinet of the boiler.

QUANTUM 90-200 STANDARD EQUIPMENT	
Aluminum Boiler with Painted Jacket.	**Completely installed and wired safety control system with burner consisting of:** • Microprocessor Based Integrated Boiler Control (IBC) • Stainless Steel Premix Burner • Automatic Gas Valve • Hot Surface Igniter • Casting Temperature Safety Switch • Air Flow Proving Switches (2) • Forced Draft Blower
Hi Limit Aquastat	
Transformer	
1-1/4" Taco (or Grundfos) Circulator with Isolation Ball Valves	
Temperature and Pressure Gauge	
30 psi ASME Relief Valve	
Air Vent	
Service Switch	

SPECIFICATIONS
Gas-Fired, Direct-Vent Condensing Hot Water Boiler
May be installed on combustible flooring
1" clearance on top, right base, and back to combustible construction
8" Clearance left side for vent/air intake pipe installation
24" Clearance front and left side, 8" top clearance for servicing
0" Clearance for vent and air intake pipes to combustible construction

Dunkirk

85 Middle Rd.
Dunkirk, NY 14048
http://www.dunkirk.com

Wilcox ITEM 02

Manuf.

M2 ?

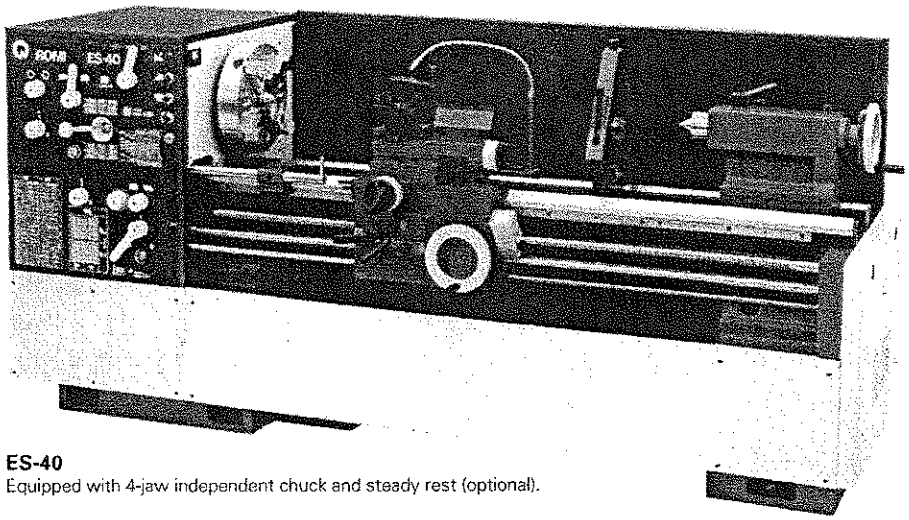
ROMI®

TorinaX Series
ES-40 Series

Engine Lathes

ES-40 Series. Engine lathes for tool room, production and maintenance

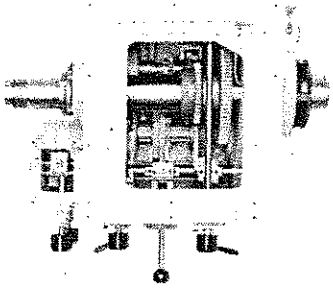
ES-40 Series lathes are robust and versatile with high power and torque. They provide the power and flexibility to machine many part configurations.



ES-40
Equipped with 4-jaw independent chuck and steady rest (optional).

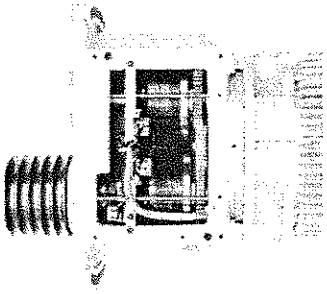
Headstock

Gears and shafts are hardened, ground and dynamically balanced. Pressure lubrication is used to minimize wear. The rigid housing together with the efficient transmission system provides excellent performance without vibration and noise. The wide range of speeds and the large number of speeds enables the selection of optimum metal cutting conditions.



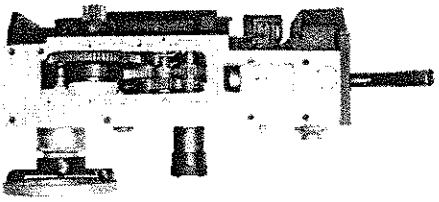
Electromagnetic clutches

Enables smooth and fast starting, braking and reversing of the main spindle and protects against motor overload.
The lubrication system has radiators for maintaining constant temperature of the lubricating oil and a pressure switch that shuts down the machine in case of oil flow interruption.



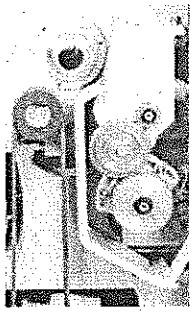
Four-way rapid traverse apron

The joystick enables carriage movement and centralizes control of work feed and rapid traverse in a single lever.
The rapid traverse and work feed selection is controlled by a pushbutton on the control lever. (3,500 mm/min longitudinal travel and 1,300 mm/min cross travel). (Optional available only for models ES-40 / ES-40A).



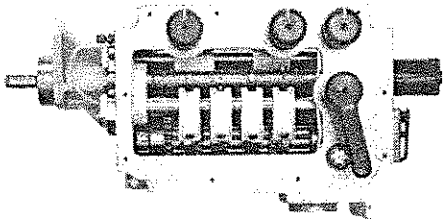
End gearing

All gears are made of SAE 8620 steel. There is no gear change required for conversion from Metric to Inch threads or from Module to Diametral Pitch threads. Gear change is required only for conversion from Metric and Inch threads to Module and Diametral Pitch threads.



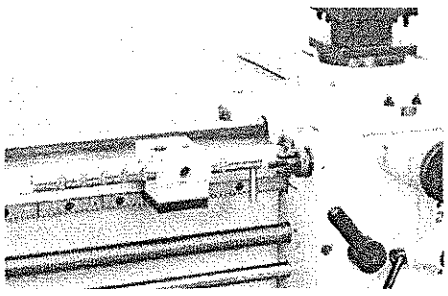
Thread and feed gearbox

Provides 385 thread pitches and feeds. Gears and shafts are hardened, run in precision bearings all in an oil bath for optimum lubrication.
Provides excellent performance and a long working life.



Automatic disengagement

Enables accurate repeatability of up to 4 linear measurements, decreasing cycle times for the production of multiple parts. ES-40 / ES-40A models also incorporate an adjustable single-position cross automatic disengagement.



Engine lathe - Tormax 20/20A

Standard equipment

- 8 - position square tool post mounted on a rotating base
- Manual pump for bed and cross slide guideway lubrication
- Chip pan
- Chuck guard
- Control electric switch and safety system incorporated in the apron
- Electrical system for 220V 60Hz
- Foot operated single disc brake coupled to main motor
- Reduction sleeve for main spindle with MT-3 x 60° center
- Safety micro-switch in end gearing door
- Set of instruction manuals
- Set of leveling screws and nuts
- Set of wrenches for machine operation
- Spindle nose ASA L0 with Ø 40 mm through hole
- Standard colors: Munsell Blue 10B-3/4 and Gray RAL 7035
- Tailstock MT-3 x 60° center, with quill graduated in millimeters and inches

Accessories

- 3 - jaw universal chuck, solid jaws, cast iron body Ø 160 mm (a) or Ø 200 mm (b)
- 3 - jaw universal chuck, solid jaws, steel body Ø 200 mm
- 4 - jaw independent chuck Ø 280 mm, ASA L0
- Automatic carriage disengagement, adjustable on 4 positions
- Bayonet type 5 (DIN 55027) spindle nose with Ø 40 mm through spindle (in place of standard)
- Camlock D1-4" spindle nose with 40mm hole diameter through (in place of standard)
- Complete coolant system
- Eletrical equipment for 380 V or 440 V, 50 Hz
- Follow rest with bronze tips, Ø 4.5 to Ø 50 mm diameter capacity
- Full length rear splash guard
- Graduated handwheel (mm) for apron
- Graduated handwheel (mm) for tailstock
- Live center MT-3
- Micrometer carriage stop
- Open sided rear tool post with fixed base
- Safety device with switches on travel limits
- Steady rest with bronze tips, Ø 4.5 to Ø 50 mm capacity
- Taper turning attachment Ø 210 mm turning length, 15° maximum angle
- Thread chasing dial
- Worklight attachment

(a) Maximum speed 2,100 rpm
(b) Maximum speed 1,700 rpm

Engine lathe – Tormax 30/30A/30B

Standard equipment

- 8 - position square tool post mounted on a rotating base
- Chip pan
- Chuck guard
- Control electric switch and safety system incorporated to the apron
- Electrical system for 220V 60Hz
- Foot operated single disc brake coupled to main motor
- Gap bed (TORMAX 30B, 2.25 m and 3.25 m between centers)
- Manual pump for bed and cross slide guideway lubrication
- Reduction sleeve for main spindle with MT-4 x 60° center
- Safety micro-switch in end gearing door
- Set of instruction manuals
- Set of leveling screws and nuts
- Set of wrenches for machine operation
- Spindle nose ASA L0 with Ø 50 mm through hole
- Standard colors: Munsell Blue 10B-3/4 and Gray RAL 7035
- Tailstock MT-4 x 60° center, with quill graduated in millimeters and inches

Accessories

- 3 - jaw universal chuck, solid jaws, cast iron body Ø 200 mm (c) or Ø 250 mm (d)
- 3 - jaw universal chuck solid jaws, steel body Ø 200 mm or Ø 250 mm
- 3 - jaw universal chuck, reversible jaws, steel body Ø 200 mm or Ø 250 mm
- 4 - jaw independent chuck, Ø 350 mm, ASA L0
- Adapter plate for universal chuck
- Automatic carriage disengagement, adjustable on 4 positions
- Bayonet type 6 (DIN 55027) spindle nose with Ø 52 mm through spindle (in place of standard)
- Camlock D1-6" spindle nose with Ø52 mm through hole (in place of standard)
- Complete coolant system
- Eletrical equipment for 380 V or 440 V, 50 Hz
- Faceplate
- Follow rest with bronze tips, Ø 8 to Ø 50 mm diameter capacity
- Full length rear splash guard
- Graduated handwheel (mm) for apron
- Graduated handwheel (mm) for tailstock
- Live center MT-4
- Open sided rear tool post with fixed base (TORMAX 30)
- Safety device with switches on travel limits.
- Steady rest (open) with bronze tips, Ø 8 to Ø 80 mm capacity
- Steady rest (closed) with bronze tips, Ø 8 to Ø 80 mm capacity
  - Additional set of bronze tips, Ø 80 to Ø 152 mm capacity
  - Additional set of rollers, Ø 8 to Ø 80 mm capacity
  - Additional set of rollers, Ø 8 to Ø 152 mm capacity
- Steady rest with bronze tips, Ø 60 to Ø 205 mm capacity (TORMAX 30B)
  - Additional set of bronze tips, Ø 152 to Ø 305 mm capacity
  - Additional set of rollers, Ø 60 to Ø 205 mm capacity
  - Additional set of rollers, Ø 152 to Ø 305 mm capacity

(c) Maximum speed 1,700 rpm
(d) Maximum speed 1,300 rpm

Engine lathe - Tormax 35/35A/35B

Standard equipment

- 8 - position square tool post mounted on a rotating base
- Chip pan
- Chuck guard
- Control electric switch and safety system incorporated to the apron
- Electrical system for 220V 60Hz
- Foot operated single disc brake coupled to main motor
- Gap bed (TORMAX 35A, 1.5 m and 2.0 m between centers)
- Manual pump for bed and cross slide guideway lubrication
- Reduction sleeve for main spindle with MT-4 x 60° center
- Safety micro-switch in end gearing door
- Set of instruction manuals
- Set of leveling screws and nuts
- Set of wrenches for operating machine
- Standard colors: Blue Munsell 10B-3/4 and Gray RAL 7035
- Tailstock MT-4 x 60° center, with quill graduated in millimeters and inches

Accessories

- 3 - jaw universal chuck, solid jaws, cast iron body Ø 200 mm (e) or Ø 250 mm (f)
- 3 - jaw universal chuck, solid jaws, steel body Ø 200 mm or Ø 250 mm
- 3 - jaw universal chuck, reversible jaws, steel body Ø200 mm or Ø 250 mm
- 4 - jaw independent chuck ASA L1 Ø 400 mm
- 4 - jaw independent chuck ASA L1 Ø 500 mm (TORMAX 35A and TORMAX 35B)
- Adapter plate for universal chuck
- Automatic carriage disengagement, adjustable on 4 positions (TORMAX 35/35A/35B)
- Automatic cross feed disengagement (TORMAX 35)
- Bayonet type 8 (DIN 55027) spindle nose with Ø 78 mm through spindle (in place of standard)
- Camlock D1-8" spindle nose with Ø 78 mm through hole (in place of standard)
- Complete coolant system
- Eletrical equipment for 380V or 440V, 50 Hz
- Faceplate
- Follow rest with bronze tips, Ø 8 to Ø 50 mm capacity
- Full length rear splash guard
- Graduated handwheel (mm) for apron
- Graduated handwheel (mm) for tailstock
- Live center MT-4
- Open sided rear tool post with fixed base (TORMAX 35)
- Safety device with switches on travel limits. (1.0 m) (TORMAX 35)
- Steady rest (open) with bronze tips, Ø 8 to Ø 80 mm capacity
- Steady rest (closed) with bronze tips, Ø8 to Ø 80 mm capacity
  - Additional set of bronze tips, Ø 80 to Ø 152 mm capacity
  - Additional set of rollers, Ø 8 to Ø 80 mm capacity
  - Additional set of rollers, Ø 8 to 152 mm capacity
- Steady rest with bronze tips, Ø 60 to Ø 205 mm capacity (TORMAX 35B)
  - Additional set of bronze tips, Ø 152 to Ø 305 mm capacity
  - Additional set of rollers, Ø 60 to Ø 205 mm capacity
  - Additional set of rollers, Ø 152 to Ø 305 mm capacity
- Taper turning attachment 350 mm turning length, 15° maximum angle
- Thread chasing dial
- Worklight attachment

(e) Maximum speed 1,700 rpm
(f) Maximum speed 1,300 rpm

Engine lathe - ES-40/40A/40B

Standard equipment

- 4 - position square tool post mounted on a rotating base (ES-40 and 40A)
- 8 - position square tool post (ES-40B)
- Electrical system for 220V, 60Hz
- Eletromagnetic clutches for starting, reversing and braking
- Rear chip guard (ES-40) with 1.0 m and 1.5 m between centers
- Reduction sleeve for main spindle with 60° center
- Set of instruction manuals
- Set of leveling screws and nuts
- Set of wrenches for operating machine
- Standard colors: Blue Munsell 10B-3/4 and Gray RAL 7035
- Tailstock MT-5 x 60° center, with quill graduated in millimeters and inches

Accessories

- 3 - jaw universal chuck, reversible jaws, steel body Ø 250 mm, Ø 315 mm or Ø 400 mm
- 3 - jaw universal chuck, solid jaws, cast iron body Ø 250 mm
- 3 - jaw universal chuck, solid jaws, steel body Ø 315 mm or Ø 400 mm
- 4 - jaw independent chuck, Ø 400 mm (ES-40), Ø 500 mm (ES-40A) and Ø 600 mm (ES-40B)
- 8 - position square tool post (in place of Prismatic 4 position) (ES-40 and ES-40A)
- Adapter plate for universal chuck
- Air operated tailstock quill (in place of standard) (ES-40 and ES-40A)
- Apron with disengagement for longitudinal and cross feeds. Four-way power rapid traverse
- Bayonet type 8 (DIN 55027) spindle nose with Ø 78 mm through spindle (in place of standard)
- Camlock D1-11" spindle nose with Ø104 mm through hole (in place of standard) (ES40)
- Camlock D1-11" spindle nose with Ø104 mm through hole (in place of standard) (ES40A)
- Camlock D1-8" spindle nose with Ø 78 mm through hole (in place of standard) (ES40)
- Complete coolant system
- Drive plate Ø 280 mm Camlock D1-8"
- Drive plate Ø 380 mm Camlock D1-11" (ES-40 and ES-40A)
- Eletrical equipment for 380 V or 440 V, 50 Hz
- Faceplate
- Follow rest with bronze tips, Ø 12 to Ø 105 mm capacity
- Graduated handwheel (mm) for apron
- Graduated handwheel (mm) for tailstock
- Live center MT-5
- Open sided rear tool post with fixed base (ES-40 and ES-40A)
- Steady rest with bronze tips, Ø12 to Ø 150 mm capacity
- Steady rest with rollers, Ø 12 to Ø 150 mm capacity
- Swivel base for 8 positions square tool post (ES-40 and ES-40A)
- Taper turning attachment 400 mm turning length, 12° maximum angle
- Thread chasing dial
- T-slotted faceplate Ø 500 mm Camlock D1-8"
- Worklight attachment

Technical Specifications		Tormax 20		Tormax 20A	Tormax 30	Tormax 30A	Tormax 30B
Capacity							
Centers height	mm	165		205	205	260	325
Distance between centers	m	0.5 / 1.0		0.5 / 1.0 / 1.5	0.5 / 1.0 / 1.5	1.0 / 1.5 / 2.25	1.5 / 2.25 / 3.25
Swing over bed	mm	325		405	420	520	660
Swing over saddle wings	mm	290		365	370	450	595
Swing over cross slide	mm	185		265	230	350	500
Swing through gap (A)	mm	-		-	-	705	855
Length of gap in front of chuck (A)	mm	-		-	-	220	220
Cross slide travel	mm	200		235	240	300	350
Tool post carriage travel	mm	100		100	120	120	120
Tool section	mm	20 x 20		20 x 20	20 x 20	20 x 20	20 x 20
Bed							
Width	mm	225	225	225	305	305	305
Height	mm	270	270	270	334	334	334
Headstock							
Spindle nose	ASA	L0	L0	L0	L0	L0	L0
Spindle hole diameter	mm	40	40	40	50	50	50
Spindle taper hole degrees	graus	1° 26'	1° 26'	1° 26'	1° 26'	1° 26'	1° 26'
Reduction sleeve taper hole	MT	3	3	3	4	4	4
Spindle diameter at front bearing	mm	66.67	66.67	66.67	83	83	83
Number of speeds		12	12	12	20	20	20
Speed ranges	rpm	50 to 2,500	50 to 2,500	50 to 2,500	45 to 2,240	35.5 to1,800	28 to 1,400
Gearbox threads and feeds							
Longitudinal feeds	mm / rot	(20) 0.042 to 0.730				(288) 0.048 to 8.654	
Cross feeds	mm / rot	(20) 0.019 to 0.330				(288) 0.022 to 3.900	
Inch threads	tpi	(46) 42 to 4				(145) 42 to 0.5	
Metric threads	mm	(46) 0.4 to 7				(144) 0.4 to 56	
Module threads	Mod	(46) 0.1 to 1.75				(144) 0.1 to 14	
Diametral Pitch threads	DP	(46) 168 to 16				(144) 168 to 2	
Leadscrew	tpi	4				4	
Tailstock							
Quill travel	mm	120				125	
Quill diameter	mm	44				50	
Quill taper	MT	3				4	
Motors							
Main motor	hp	5				7.5	
Coolant pump (D)	hp	0.125				0.125	
Clutch lubricating pump	hp						
Radiator fan motor	hp						
Dimension and weight (approximate)							
Floor space required	mm	1,000		1,000	1,000	1,000	1,500
Floor space required	mm	2,010 x 930		2,010 x 930	2,250 x 1,050	2,250 x 1,050	2,790 x 1,200
Net weight	kg	1,145		1,170	1,750	1,800	2,050
Additional weight for each 500 mm increment	kg	200		200	280	280	280

(A) Tormax 20, 30 with 0.5 / 1.0 / 1.5 m between centers and Tormax 30A with 1.0 m between centers are not provided with gap.
Tormax 30B with 2.25 and 3.25 m between centers are provided with gap as standard equipment.
Tormax 30A with 1.5 and 2.25 m between centers and Tormax 30B with 1.5 m between centers may be supplied with gap as optional equipment upon request.
Tormax 35, Tormax 35B and ES-40 are not provided with gap.
Tormax 35A with 1.5 and 2 m between centers are provided with gap as standard equipment.
ES-40A / ES-40B as an option and at extra cost may be provided with a gap bed and bridge

ROMI®

Tormax 35	Tormax 35A	Tormax 35B	ES-40	ES-40A	ES-40B
250	335	410	250	325	420
1.0 / 1.5 / 2.0	1.5 / 2.0 / 3.0	3.0	1 / 1.5 / 2 / 3 / 4	1 / 1.5 / 2 / 3 / 4	1 / 1.5 / 2 / 3 / 4 / 5
515	660	800	510	650	815
475	605	745	480	600	750
330	510	650	305	450	640
-	860	-	-	880	1,080
-	260	-	-	260	260
305	375	375	280	360	450
125	125	125	150	150	190
25 x 25	25 x 25	25 x 25	32 x 32	32 x 32	32 x 32
340	340	340	380	380	380
320	320	320	380	380	380
L1	L1	L1	L1	L1	L1
58	58	58	65 (B)	65 (B)	65
1º 26'	1º 26'	1º 26'	1º 26'	1º 26'	1º 26'
4	4	4	5	5	5
100	100	100	110 (B)	110 (B)	110
12	12	12	18	18	18
25 to 2,000	19 to 1,500	16 to 1,250	31.5 to 2,360 (B)	22.4 to 1,700 (B)	16 to 1,180
	(192) 0.047 to 8.336			(192) 0.046 to 8.224 (C)	
	(192) 0.023 to 4.158			(192) 0.022 to 3.984 (C)	
	(97) 42 to 0.5			(97) 42 to 0.5	
	(96) 0.4 to 56			(96) 0.4 to 56	
	(96) 0.1 to 14			(96) 0.1 to 14	
	(96) 168 to 2			(96) 168 to 2	
	4			4	
	170			200	
	56.5			88	
	4			5	
10	10	7.5		15	
0.125	0.125	0.125		0.125	
				0.5	
				0.33	
1,000	1,500	3,000	1,000	1,000	1,000
2,600 x 1,100	3,100 x 1,100	4,600 x 1,100	3,020 x 1,300	3,020 x 1,300	3,020 x 1,550
1,800	1,950	2,600	2,800	3,000	3,200
300	300	300	500	500	500

(B) (ES-40 / ES-40A) As an option and at extra cost may be provided with: Spindle with Ø 104 mm hole, Cam Lock D1-11 nose, spindle diameter at front bearing 140 mm and 18 speeds from 22.4 to 1,180 rpm.

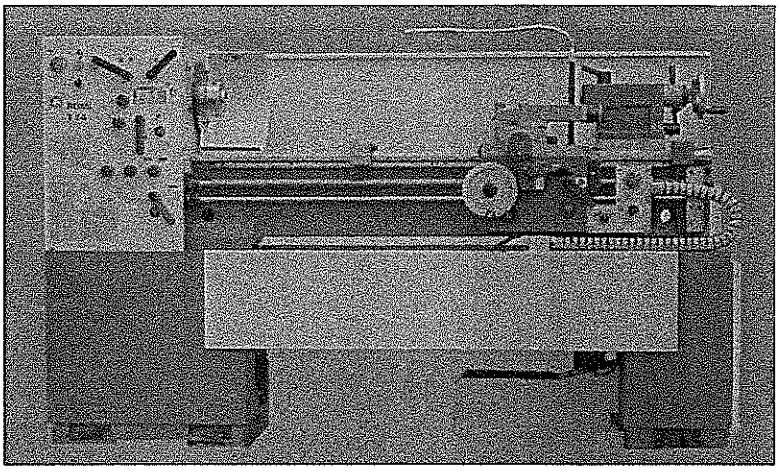
(C) (ES-40 / ES-40A) When equipped with four-way rapid traverse apron, longitudinal feeds are from 0.049 to 8.874 mm / rot and cross feeds from 0.017 to 3.005 mm/rot.

.) Optional at extra cost.

Romi T 14

March 1, 2005

The Romi T series incorporates the latest innovations available in Manual Lathes. Many new features have been added to bring the Romi Manual lathes that you have used for so many years into the 21st century.



• **D1-4"** Spindle Bore:	**1 9/16"**
• Spindle Speeds (12)	**50-2,500 RPM**
• Swing over Bed:	**13 7/8"**
• Swing over Cross Slide	**7 9/32"**
• Cross Slide Travel	**7 7/8"**
• Top Slide Travel	**3 15/16"**
• Bed Length-Longitudinal Travel	**20" / 40" / 60"**
• Spindle Horsepower	**5 HP**

M2 ?

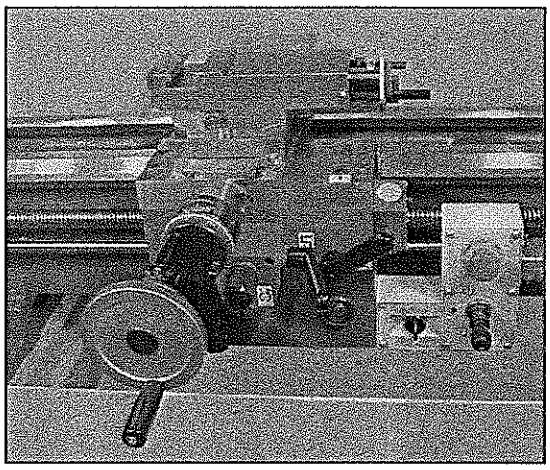
HEADSTOCK

- The headstock gears are alloy (Cr,Ni,Mo) steel, hardened and ground using Reishauer electronic gear grinders
- The D1-4" Camlock spindle utilizes high precision, individually lubricated, Timken roller bearings
- Oil bath lubrication prevents overheating and bearing failure
- Spindle Center 3 MT, Taper 1:20
- The large drive gear is located close to the spindle nose
- Electromagnetic brake with automatic actuation and release
- Single multi-ribbed vee belt to connect drive motor to headstock
- The end gear door locks, and there is a safety disconnect when door opens
- End gear set (steel) for 184 threads.
- Inch, diametral pitch, metric and module threads can be cut with standard quadrant gear set
- 46 Inch threads can be cut with standard quadrant set from 4 to 36 TPI, includes 32 TPI.

BED

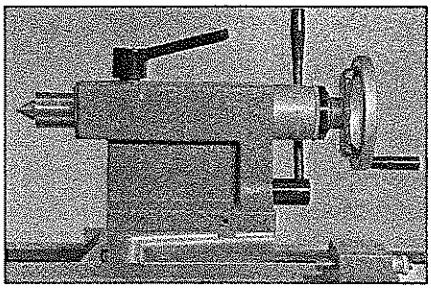
- One cast piece, full length, well ribbed, with extra depth
- Precision hardened and ground ways
- Bed ways are induction hardened to >45 Rc
- All way surfaces are ground in one set-up
- Full length rear splash guard
- Coolant system
- Chip pan pulls out to the front so the lathe can be placed close to a wall
- One shot lubrication system for bed and cross slide guideways
- Prepared for the addition of a taper attachment in the field

CARRIAGE AND APRON



- Large, easy to read, Inch/Metric dials
- Automatic longitudinal disengagement, 4 position stop
- Lead screw with Romi's exclusive backlash elimination feature
- Mechanical safety clutch on lead screw and shear pin on the feed rod to prevent serious damage when an accident occurs
- Duplicate Emergency Stop Button on the Apron
- Forward, reverse and stop control from apron lever
- Thread chasing dial for inch or metric threads
- Longitudinal feeds (36) .0013 IPR to .0277 IPR with standard end gears
- Cross feeds (35) .0006 IPR to .0137 IPR with standard end gears

TAILSTOCK



- Two piece for easy adjustment
- Quill Travel 4 3/4"
- Quill Diameter 1 3/4"
- Quill Morse Taper 3 MT
- Quill graduated Inch/Metric
- Tang Stop and Tool Knockout

STANDARD EQUIPMENT

- Chuck guard
- Two 3 MT dead centers
- Set of wrenches for machine operation
- Set of leveling screws and nuts
- Set of operation and parts manuals in English
- Electrical system for connection to 230V, 3 phase, 60 Hz
- 115V emergency stop button and control push buttons

T 14 X 20"
T 14 X 40"
T 14 X 60"

FOB Erlanger, Kentucky
Terms of Payment are 20% with order
Balance due 30 days after shipment
Terms are subject to credit approval by Romi Machine Tools, Ltd.

MACHINE ACCESSORIES

X35782 Automatic Cross Feed Disengagement
Note: Cannot be used with DRO
X11819 Romi Drive Plate 7 1/2" diameter
X11638 Romi T slotted Face Plate 11" diameter
X11664 Micrometer Carriage Stop (0.001") graduations
X33489 Follow Rest with Bronze Tips 3/16-2" capacity
X33491 Steady Rest Open with Bronze Tips 3/16-2" capacity
X33949 Steady Rest closed with Rollers 5/16-4" capacity
00113 Work Light
X15294 Taper Turning Attachment 8 1/4" turning length
15 degree maximum angle
S05301 Extra set of Operation and Parts Manuals
Electrics for 440V-480V or 600V
Metric Only Version – Special Order

LIVE CENTER

10853 **Royal** 3 MT Live Center .0001" TIR

TOOL POSTS

X36965 Open Sided rear tool post with fixed base
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SDN30BXA *Dorian Super Quick Change Tool Post Set* Includes
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DIGITAL READOUTS

ACU-RITE DRO 200 T, Installed
T 14 X 20
T 14 X 40
T 14 x 60

NEWALL C80 Microsyn/Spherosyn 40" only

Manual 3 Jaw Chucks

Note: Bison Chucks are available, but are sold without warranty
Atlas 6" 3-Jaw *Easy-Set* Semi Steel Body Chuck
with D1-4 mounting Plate and two piece jaws, 3,000 RPM
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with D1-4 mounting plate and one piece jaws

Collet Chucks

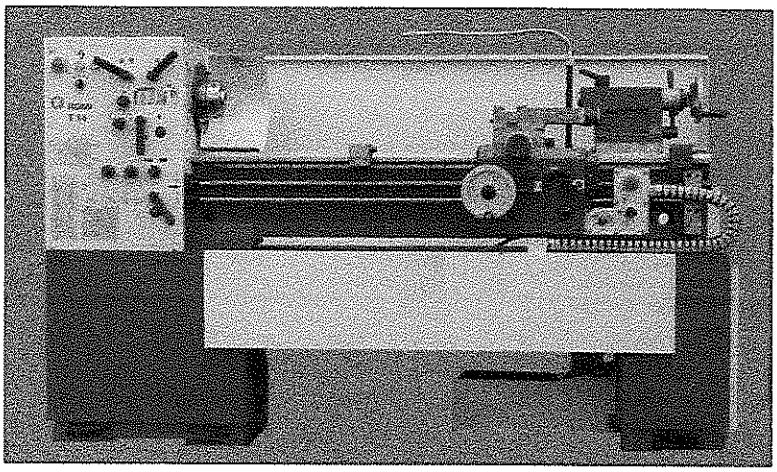
15901D 5C Lever Type Collet Closer with Cam-Lock Collet
adapter (can be opened while spindle rotates)

16901D 5C Air Operated Collet Closer with Cam-Lock Collet
adapter with Air Control Kit and Hand valve, installed

Romi T 14

March 1, 2005

The Romi T series incorporates the latest innovations available in Manual Lathes. Many new features have been added to bring the Romi Manual lathes that you have used for so many years into the 21st century.



• **D1-4"** Spindle Bore:	**1 9/16"**
• Spindle Speeds (12)	**50-2,500 RPM**
• Swing over Bed:	**13 7/8"**
• Swing over Cross Slide	**7 9/32"**
• Cross Slide Travel	**7 7/8"**
• Top Slide Travel	**3 15/16"**
• Bed Length-Longitudinal Travel	**20" / 40" / 60"**
• Spindle Horsepower	**5 HP**

HEADSTOCK

- The headstock gears are alloy (Cr,Ni,Mo) steel, hardened and ground using Reishauer electronic gear grinders
- The D1-4" Camlock spindle utilizes high precision, individually lubricated, Timken roller bearings
- Oil bath lubrication prevents overheating and bearing failure
- Spindle Center 3 MT, Taper 1:20
- The large drive gear is located close to the spindle nose
- Electromagnetic brake with automatic actuation and release
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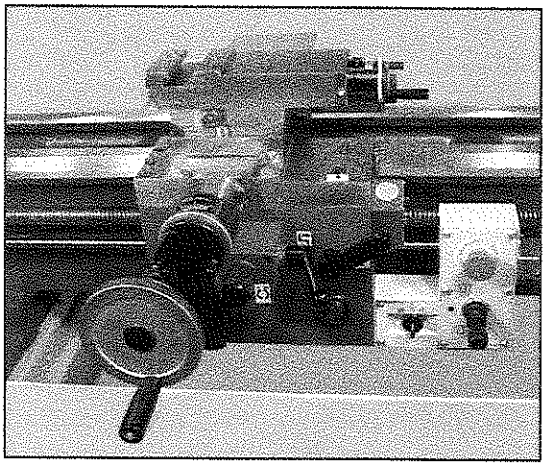

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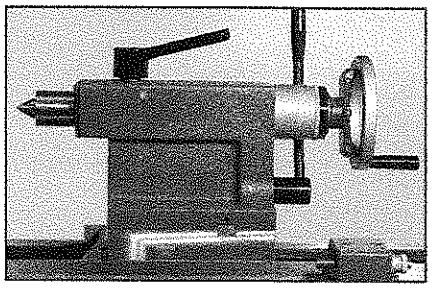

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HAAS
MILL AND LATHE

PRE-INSTALLATION INFORMATION

CONTENTS

PRE-INSTALLATION CHECKLIST

DEALER RESPONSIBILITY

1) Ensure the customer is provided with the correct electrical and air requirements.
2) Verify that the correct anchoring kit has been shipped from the Haas factory.
3) Verify that the customer has drilled and set the anchors for both the machine and the side-mount tool changer, if applicable. The machine anchors must be set in accordance with the Installation Guide instructions (do not set the tool changer anchors until the tool changer is installed).
4) Tell the customer the date the machine will be shipped from the factory and the date it is expected to arrive at his facility.
5) Inform the Haas Automation Service Coordinator of the date and time of installation agreed to by the customer and riggers. Please notify Haas at least 3 weeks prior to the installation date to allow time for travel arrangements to be made and tools to be shipped.
6) Schedule a dealer service technician to be on site for the duration of the installation.
7) Provide enough dry nitrogen to fully charge the counterbalance system. The HS-3(R)/4(R)/6(R)/7(R) require 250 cu ft. The VS-1/3 require 500 cu ft.

CUSTOMER RESPONSIBILITY

1) Ensure a proper machine foundation is present and fully cured by the scheduled time of installation. (see "Site Preparation" section for details). Anchor holes must be drilled and the anchors set before machine arrives. For HS-3/4/6 & 7 series, **Do not** set the tool changer anchors until the tool changer is installed.
2) Ensure that all the electrical and air requirements are met.
3) Inspect and verify that all of the anchors and related hardware were received (refer to anchoring instructions, Haas document ES0095).
4) Schedule the installation date and time with the riggers and notify the dealer of the schedule.

Before your new Haas machine arrives, you should review the machine dimensions and site requirements, and prepare your shop for the machine delivery.

When your machine is on site and positioned, you need to supply electricity and air to the machine. Once this is accomplished, a Haas service technician can finalize your machine installation.

Please contact your Haas Factory Outlet (HFO) Customer Advocate at (XXX) XXX-xxxx when you have completed all of the requirements for final installation. We will then schedule a Haas service technician to complete your machine installation process. The Factory Technicians need to be present to ensure no damage is done to the machine during the rigging process and to supervise the placement of the machine.

If after reading the guide, you have any questions or you are unsure in any way what is required, please contact the Haas Automation Service Department at (805) 278-1800.

Foundation Requirements

Machines must be set on a solid, sound and stable, steel bar-reinforced concrete slab poured directly on the grade. In general, the 6" (152mm) concrete floor of industrial buildings is suitable for machine placement.

Before the machine arrives it will be necessary to have the foundation poured and fully cured. It may also be necessary to install the anchors. Refer to the anchoring instructions, Haas document # ES-0095, for details.

For HS 3-7(including R), VS, VR, and GR series machines, when cutting metal, anchor holes must be drilled and set before machine arrives. Tool changer anchor holes must be drilled before the machine is set in place. However, do not pour epoxy for the tool changer until the tool changer is in place. Anchoring all other machines is optional. If opting for optional anchoring, contact the Haas Service Department (800-331-6746) prior to machine delivery for foundation requirements, the correct anchoring kit (if not included with the machine) and complete anchoring instructions.

Avoid placing the machine across two different slabs; they may shift and affect the geometry of the machine. Avoid slabs with vibrating machinery nearby; the vibration may affect performance. Do not place the machine on unstable surfaces such as asphalt, brick, wood or dirt.

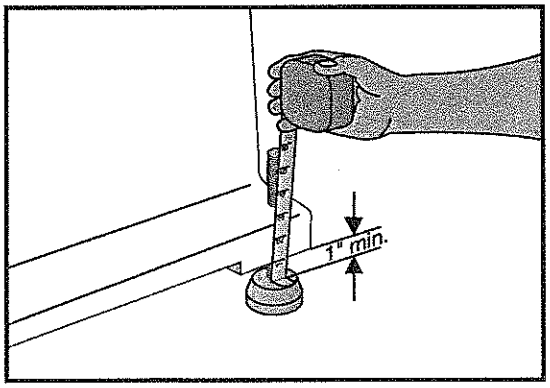
Check with your building engineer if you are placing the machine on floors other than the ground level.

Machine Placement

Access to the electrical control cabinet needs to be available at all times. A minimum of three (3) feet (.91 meter) of space is required between the control cabinet and any obstacle. It is recommended to have this unobstructed area (3 feet) (.91 meter) surrounding the machine for ease of daily operations.

A forklift will be needed to safely move the machine. For the HS, VS and VR machies it is necessary to schedule capable riggers with the proper equipment for lifting up to 40,000 lb. (1814kg). The weights of the machines are listed in their respective sections towards the end of this manual.

Additionally, a Tote Kit is included with each machine which includes the leveling pads the machine is to be placed upon. To set up for initial leveling the leveling screws should extend one inch from the bottom of the base casting.



Preparation For Installation Day

Have qualified personnel ensure that the machine is properly grounded, then connect the specified power to the machine (see electrical requirements in the following sections).

You should complete the air supply connection to the machine (see air requirements in the following sections).

Final leveling will be completed by an HFO service technician at the time of installation.

Electrical Power Requirements

Machine Model	Spindle Type	Peak HP	Continuous kVA	Standard 190-260 VAC Service Panel Breaker* (in amps)	Optional 360-480 VAC Service Panel Breaker* (in amps)
Office Mill	ISO 20/50K NSK	5.0/0.362	4.8	20 (Single Phase 240)	20**
Toolroom Mills	40 Taper	7.5	9	50 (Single Phase 240) 30 (Three Phase 208)	20**
Mini Mill	40 Taper	7.5	9	50 (Single Phase 240) 30 (Three Phase 208)	20**
Super Mini Mill	40 Taper	15	14	50	25
VF1-11†/MDC-500	All 40 Taper 10K/15K/30K	20	14	50	25
VF1-11†	HT10K	30	28	100	50
VF Super Speed	40 Taper	30	28	100	50
VF 5/50-11/50†	All 50 Taper	30	28	100	50
GR Series	40 Taper	15	14	50	25
GR Series 5K Option	40 Taper	20	14	50	25
EC-300/400/500	8K	20	14	50	25
EC-300/400/500 & VM	12K	30	28	100	50
EC-630/1600/2000/3000	50 Taper	30	28	100	50
Office Lathe	6K	5	4.8	20 (Single Phase 240)	20**
HPCL	3K	5	4.8	20 (Single Phase 240)	20**
GT-10/TL-1/TL-2	Standard	7.5/12	9	50 (Single Phase 240) 30 (Three Phase 208)	20**
TL-3	Standard	20	14	50	25
TL-3HT/TL-3B/TL-3W	Standard	30	28	100	50
TL-4	450 RPM	55	44	200	80
SL-10	6K	15	14	50	25
SL-10B/SL-20/TL-15/GT-20	Standard/7K	20	14	50	25
SL-20/TL-15	5K	30	28	100	50
SL-20B/TL-15B	Big Bore	30	28	100	50
SL-30/TL-25	Standard	30	28	100	50
SL-40/SL-40L	Standard	40	28	100	50
SL-30B/TL-25B//SL-40B	Big Bore	40	28	100	50
SL-40 with XP Option	Standard/Big Bore	55	44	200	80
HS-3(R)/4(R)/6(R)/7(R)	50 Taper	30	35	125	50
VR Mills	40 Taper	30	28	100	50
VS Mills	50 Taper	30	35	125	50

* These are recommended external service panel breaker sizes for the user-provided power supply to the machine.

** When a 366-428V 50/60 Hz internal transformer is used.

† Including TR models.

Wire Size (Gauge) Requirements

For 7.5 HP std voltage systems: less than 100' (30.48 meters) of wire, use 10 AWG (if high voltage use 12 AWG and an internal transformer); greater than 100' use 8 AWG (if high voltage use 10 AWG).

For 15- to 20-HP std voltage systems: less than 100' (30.48 meters) of wire, use 8 AWG (if high voltage use 12 AWG wire); greater than 100' use 6 AWG (if high voltage use 10 AWG).

For 30- to 40-HP std voltage systems: less than 100' (30.48m) of wire, use 4 AWG; greater than 100' use 2 AWG.

These are recommended minimum wire diameters (maximum AWG number). Always consult local electrical codes.

AC Input Power

• Most domestic machines require three-phase power, which may be either wye or delta type. The power source must be grounded: leg or center leg for delta; neutral for wye.

• A separate earth ground is required for three-phase power. Conduit type ground will not be sufficient.

• All phases must be balanced, and voltages must be within ±10%.

• Low-voltage power (208 or 240 VAC) can be set up on the standard machine.

• High-voltage power (480 VAC) requires a high-voltage option to be purchased with the machine.

• The exact supply voltage will be matched at the time of installation by the service technician, who will adjust the internal transformer taps.

• Some machines alternately allow single-phase power to be utilized (see previous page). In these instances, the supplied power must be 240 VAC ±6%.

WARNING!

A separate earth ground wire of the same conductor size as the input power must be connected to the chassis of the machine. This ground wire is required for operator safety and proper operation. This ground must be supplied from the main plant ground. A local cold-water pipe or ground rod cannot be used to supply this ground.

The current requirements shown reflect the circuit-breaker size internal to the machine. This breaker has an extremely slow trip-time. It may be necessary to increase the external service breaker size by 20-25% for proper operation. (See electrical requirements in this document.)

External 480 VAC (High Voltage) Transformer Option

The external transformer adds to the overall reliability and performance of the machine; however, it also requires extra wiring and floor space. The external transformer provides electrostatically shielded isolation. This type of transformer acts to isolate all common-mode line transients and reduce EMI conducted emissions.

When the high-voltage (HV) option is ordered, machines with 7.5 hp systems will get 15 kVA external transformers. Machines with 20-hp systems will get an internal isolation transformer, and machines with 30- or 40-hp systems will get a 45-kVA external transformer (see chart on previous page). The 55 hp option for SL-40 lathes requires a 75 kVA external transformer.

The external 480 VAC auxiliary transformer is floor-mounted. Please allow extra clearance for the transformer next to the machine. The transformer needs to be placed as close to the control cabinet as possible. The models and dimensions are listed in the following table.

Transformer	Height	Width	Depth
15 kVA	23" (584mm)	19" (483mm)	13.5" (343mm)
45 kVA	30" (762mm)	25" (635mm)	20" (508mm)
75 kVA	34" (867mm)	28" (711mm)	22" (559mm)

External 480 VAC (High Voltage) Transformer Installation

The transformer should be located as close as possible to the machine. The input and output wiring of the transformer must conform to local electrical codes and should be performed by a licensed electrician. The following information is for guidance only, and should not be construed as altering the requirements of local regulations.

The input wire should not be smaller than 6 AWG for the 45-kVA transformer. Cable longer than 100' (30.48 meters) requires at least one size larger-diameter wire (one size smaller AWG number).

The transformer is a 480 VAC to 240 VAC isolation transformer with delta-wound primary and secondary windings. The primary windings offer 7 tap positions, 2 above and 4 below the nominal input voltage of 480 VAC. The output wire for the external transformer should conform to the following:

Machine	480 VAC Input Cable	240 VAC Output Cable
Office Machines, HPCL		12 AWG
TM and TL 1&2 (3 PH), MM (3 PH), GT-10 (3 PH)		10 AWG
VF Series (40T), EC-300/400/500 (8K), SL-10 (6K & BB), SL-20 (7K), TL-15 (7K), GR Series, SR-100, TM and TL 1&2 (1 PH), TL-3, MM (1 PH), GT-10 (1 PH), GT-20, SMM,	12 AWG	8 AWG
VF Series (50T & HT10K), VM, SS Mills, EC-300/400/500 (12K), EC-630/1600/2000/3000, SL-20 (5K & BB), SL-30 (& BB), SL-40L, SL-40 (30-40 HP& BB), TL-15 (5K & BB), TL-25, TL-3B, TL-3HT, TL-3W	8 AWG	4 AWG
VS, HS-3/4/6/7	8 AWG	2 AWG
SL-40 (55 HP& BB), SL-40XP, TL-4		0 AWG

Acceptable Voltage Ranges	
208 VAC 1-phase (Office Models)	195-245 VAC RMS 50-60 Hz
208 VAC 3-phase (Mini Mill/Mini Lathe/Toolroom Mills/Toolroom Lathes 1-3)	195-245 VAC RMS 50-60 Hz
230 VAC 3-phase (15/20/30/40 hp machines)	195-260 VAC RMS 50-60 Hz
240 VAC 1--phase (Mini Mill/Toolroom Mills/Toolroom Lathes)	224-250 VAC RMS 50-60 Hz
480 VAC 3-phase (Internal Transformer, 15/20 hp machines)	354-488 VAC RMS 50-60Hz
480 VAC 3-phase (External Transformer)	420-510 VAC RMS 60Hz

While the standard internal transformers all accept either 50 or 60 Hz power, the external transformers are designed to operate only on 480 VAC 60 Hz power. For this reason, there are internal HV options available for 400 VAC 50 Hz applications. These internal HV options use a non-isolated internal transformer (isolation not required because of 4-wire grounded power used in 50 Hz applications). They can only be used on 400 VAC power.

7.5 to 20 hp (5.6 to 14.9 kW) machines:	Voltage range 366-425 VAC RMS	50-60Hz
30/40/55 hp (22.4 to 30 kW) machines:	Voltage range 354-428 VAC RMS	50-60Hz

Certification

All Haas CNC machine tools carry the *ETL Listed* mark, certifying that they conform to NFPA 79 Electrical Standards for Industrial Machinery, and the Canadian equivalent, CAN/CSA C22.2 No. 73.

Compressed Air Requirements

Air Pressure

Haas CNC machines require a minimum air pressure of 100 psi (6.90 bar) at the input to the pressure regulator on the back of the machine.

The required input air line size is 1/2" ID (12.7mm) for most machines. The exceptions are the 40-taper VF-1 thru VF-11 machines, which require a 3/8" ID (9.5mm) air line.

The recommended method for attaching the air hose is directly to the barb fitting on the back of the machine, secured with a hose clamp. If a quick coupler is desired, use a 3/8" (9.5mm) coupler for the 3/8" air hose, or a 1/2" (12.7mm) coupler for the 1/2" air hose.

NOTE: Auxiliary connections must be made on the input (unregulated) side of the air filter/regulator.

Air Flow (minimum requirements)

All VF, VM, MM, GR, TM, VR, VS models require 4 scfm (1.89 liters per second). For mills equipped with the auto air gun option, 10 scfm (4.72 liters/sec.) will be required for the machine. The auto air gun consumes an additional 6 scfm (2.83 liters/sec.).

Office models - OM: 1 scfm at 40-70 psi, OL: 2 scfm at 45 psi. All EC, HS, and MDC models: 9 scfm (4.25 liters per second). All SL, GT and TL models: 4 scfm

NOTE: Add 2 scfm to the above minimum requirements if the operator will be using the air nozzle during pneumatic operations.

The air requirements should be supplied by at least a 2-HP compressor with a minimum 20-gallon tank. Remember, In order to operate the machine properly if the air nozzel is used during pneumatic operations, the air flow will need to be increased as outlined in the previous note.

Note: For multiple machine installations, there is a 2-HP requirement per machine (i.e., an installation of 5 machines requires a 10-HP compressor).

Use copper pipe; galvanized piping or steel will rust and clog the orifices in the regulators.

Machine Lubricant & Coolant Capacities

Vertical Mills (Toolroom machines are grease lubricated and reguire general purpose lithium grease)

	Way lube	Transmission (If equipped)	Coolant
Capacity	80 ounces (2.37 liters)	40 Taper - 34 ounces (1.01 liters) 50 Taper - 42 ounces (1.25 liters)	OM: 13 gal VF 1-5, VM 2-3 and MDC 55 gallons (208.2 liters) (80 gal optional) VF 6-11, VM-6,VR,VS,GR series 80 gal. (302.8 liters) Mini Mills: 24 gallons (90.84 liters)
Lubricant Type	Mobil Vactra No. 2 (except OM, TMs)*	Mobil SHC 625	Water-soluble synthetic-oil based or synthetic-based coolant/lubricant.† **No Flammable Liquids**

Horizontal Mills

	Way Lube	Transmission (if equipped)	Coolant
Capacity	64 to 80 ounces (1.89 to 2.37 liters) (depending on pump style)	40 Taper - 34 ounces (1.01 liters) 50 Taper - 76 ounces (2.25 liters)	EC-300 55 gallons (208.2 liters) EC-400/500 80 gallons (302.8 liters) EC-630 160 gallons (605.7 liters) EC-1600/2000/3000 80 gallons (302.8 liters) HS Series 80 gallons (302.8 liters)
Lubricant Type	Mobil Vactra No. 2	Mobil SHC 625	Water soluble synthetic-oil based or synthetic based coolant/lubricant† **No Flammable Liquids**

Turning Centers (Toolroom machines are grease lubricated and reguire general purpose lithium grease)

	Way Lube	Transmission (If equipped)	Coolant*
Capacity	80 ounces (2.37 liters)	76 ounces (2.25 liters)	SL-10 / GT Series 15 gallons (56.8 liters) SL-20 / SL-20L / TL-15 40 gallons (151.4 liters) SL-30 / SL-30L / TL-25 50 gallons (189.3 liters) SL-40 / SL-40L 77 gallons (291.5 liters) TL-4 100 gallons (378.5 liters)
Lubricant Type	Mobil Vactra No. 2 (except OL, TL-1/2/3)*	Mobil SHC 625	Water-soluble synthetic-oil based or synthetic-based coolant / lubricant.† **No Flammable Liquids**

* Toolroom machines are grease-lubricated and require general-purpose lithium grease. Office machines are grease-lubricated via a battery/grease cartridge.

† Mineral cutting oils will damage rubber components throughout the machine. The use of coolants with extremely low lubricity can damage the TSC coolant tip and pump. Do not use pure water as a coolant; machine components will rust.

MACHINE DIMENSIONS FOR SITE AND FLOOR REQUIREMENTS

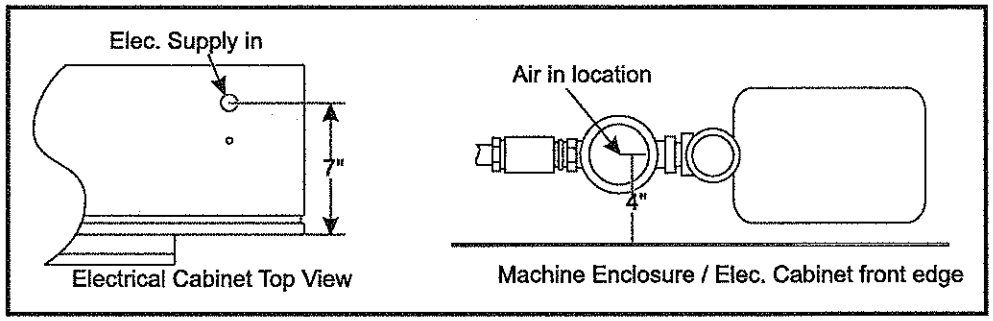
NOTE: A minimum clearance of 36 inches (914mm) is required around all machine.

NOTE: The operating dimensions are the maximum dimensions of the machine during operation, with the spindle head at its highest point, the control at its most forward position and the discharge tube, if equipped, installed.

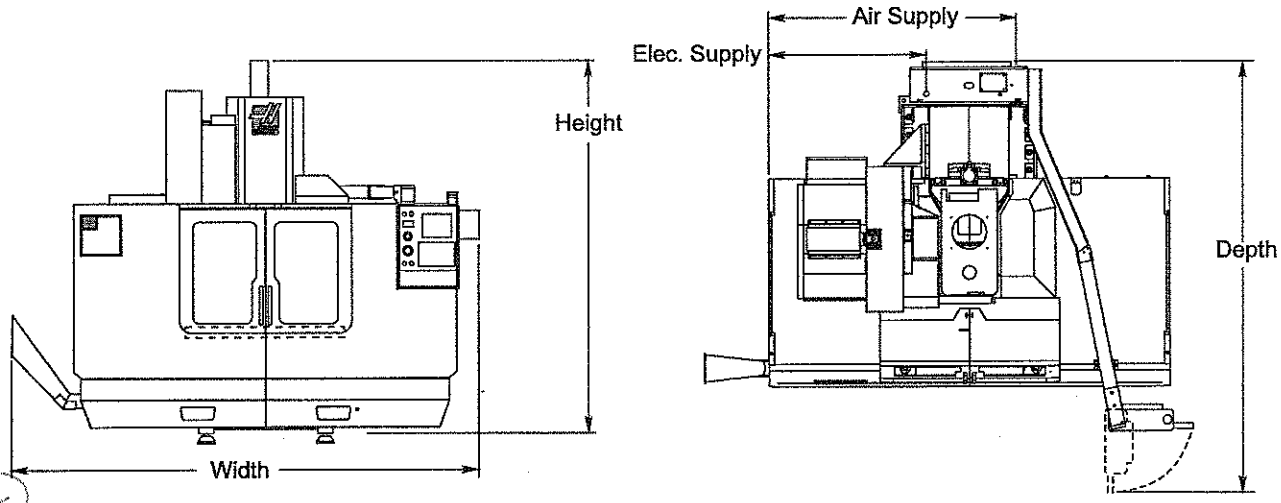
The optional 480V external transformer may require additional floor space. See electrical requirements for details.

Electric / Air supply measurements are included to help determine the necessary lengths of electrical cable and air hose from their respective shop supplies to the machine. Electric supply measurements are taken from the point at the top of the electrical cabinet where the electric cable enters to the nearest vertical edge of the machine. Air supply measurements are taken from the point at which air connects to the machine to the same edge as the electrical measurement.

When determining necessary lengths for electrical cable and air hose, include the depth measurements shown in the following diagrams:



VF / VM / VR Series



VF

Machine	Height (in/mm)	Width (in/mm)	Depth (in/mm)	Elec. (in/mm)	Air (in/mm)	Weight (lb/kg)
VF-1	104 / 2642	122 / 3099	119 / 3023	31 / 787	61 / 1549	7,100 / 3,221
VF-1YT	110 / 2794	122 / 3099	119 / 3023	31 / 787	61 / 1549	7,300 / 3,221
VF-2	104 / 2642	122 / 3099	117 / 2972	28 / 711	57 / 1448	7,100 / 3,221
VF-2YT	110 / 2794	122 / 3099	117 / 2972	28 / 711	57 / 1448	7,300 / 3,311
VF-3	118 / 2997	149 / 3785	124 / 3150	41 / 1041	79 / 2006	12,500 / 5,670
VF-3YT	119 / 3023	149 / 3785	135 / 3429	41 / 1041	79 / 2006	14,000 / 6,350
VF-3YT/50	126 / 3200	149 / 3785	135 / 3429	46 / 1168	74 / 1879	15,900 / 6,350
VF-4	118 / 2997	149 / 3785	124 / 3150	44 / 1118	80 / 2032	13,300 / 6,033
VF-5/40	119 / 3023	149 / 3785	150 / 3810	53 / 1346	89 / 2260	14,600 / 6,623
VF-5/50	126 / 3200	149 / 3785	150 / 3810	53 / 1346	89 / 2260	16,100 / 7,303
VF-6	124 / 3150	178 / 4521	153 / 3886	33 / 838	51 / 1295	21,000 / 9,526
VF-7	124 / 3150	193 / 4902	153 / 3886	67 / 1701	45 / 1143	23,000 / 10,433
VF-8	124 / 3150	178 / 4521	169 / 4293	95 / 2413	131 / 3327	24,000 / 10,887
VF-9	124 / 3150	193 / 4902	169 / 4293	69 / 1752	38 / 965	25,000 / 11,340
VF-10	124 / 3150	257 / 6528	153 / 3886	104 / 2641	82 / 2082	28,000 / 12,701
VF-11	124 / 3150	257 / 6528	169 / 4293	151 / 3835	179 / 4546	29,400 / 13,336
VM-2	110 / 2794	120 / 3048	117 / 2972	33 / 838	60 / 1524	7,300 / 3,311
VM-3	119 / 3023	149 / 3785	135 / 3429	53 / 1346	89 / 2260	14,000 / 6,350
VM-6	133 / 3378	179 / 4547	136 / 3454	33 / 838	51 / 1295	21,000 / 9,526
VR-8	124 / 3150	178 / 4521	169 / 4293	95 / 2413	131 / 3327	27,100 / 12,293
VR-9	124 / 3150	192 / 4877	169 / 4293	69 / 1752	38 / 965	28,100 / 12,746
VR-11B	124 / 3150	257 / 6528	169 / 4293	151 / 3835	179 / 4546	32,500/ 14,742

VF-6 to VF-11 50-Taper VMCs: Add 14" (356mm) to the machine height and 1500 lbs (680 kg) to machine weight.

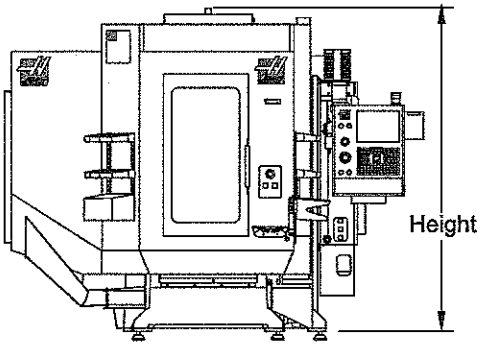
NOTE: Add 75" (1905mm) to the width of the VF-3 and VF-4 if equipped with an Automatic Pallet Changer (APC option); add 130" (3302mm) with dual APCs.

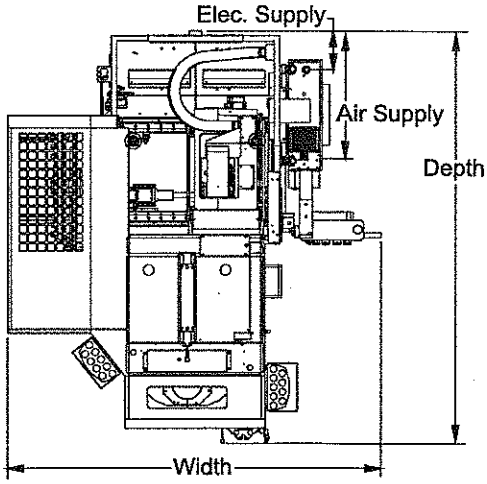
NOTE: VMCs may be lifted with the aid of cables and a crane. Cable Lift Instructions, Haas document ES-0246, describes these details.

Mill Drill (MDC-500)

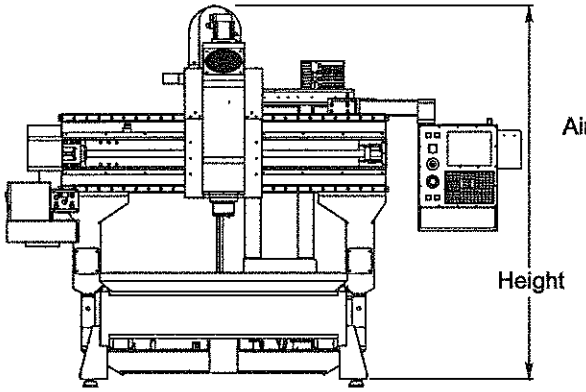
OPERATING DIMENSIONS

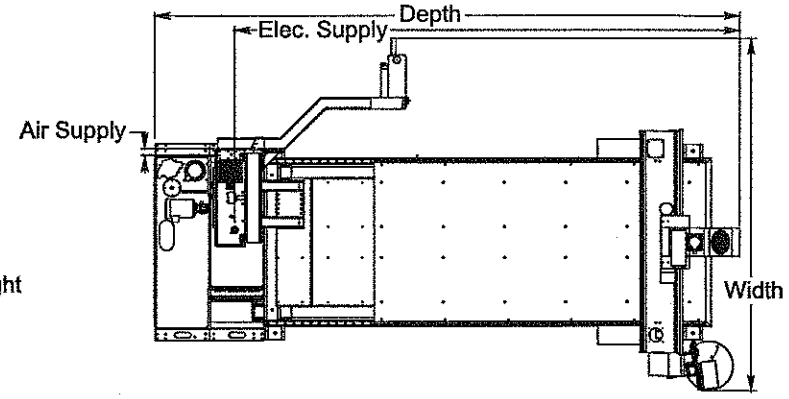
Height (in/mm)	114 / 2896
Width (in/mm)	120 / 3048
Depth (in/mm)	135 / 3429
Electric (in/mm)	11 / 279
Air (in/mm)	43 / 1092
Weight (lb/Kg)	14,000 / 6,350





GR Series





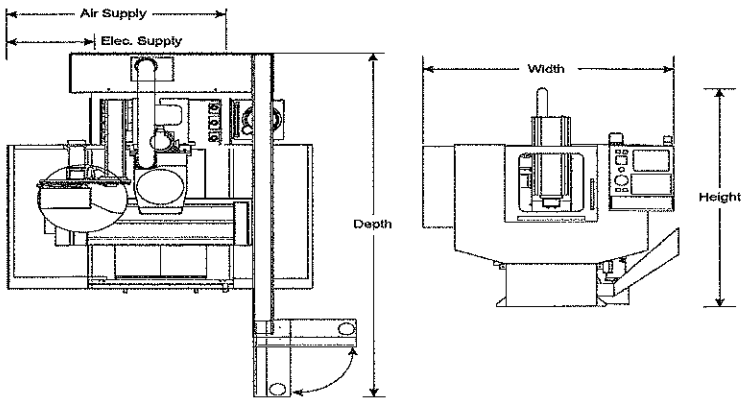
Machine	Height (in/mm)	Width (in/mm)	Depth (in/mm)	Elec. (in/mm)	Air (in/mm)	Weight (lb/kg)
GR-408	108 / 2743	123 / 3124	188 / 4775	39 / 991	39 / 991	10,000 / 4,536
GR-510	99 / 2515	137 / 3480	216 / 5486	33 / 838	0	15,000 / 6,804
GR-512	99 / 2515	137 / 3480	240 / 6096	33 / 838	0	18,000 / 8,165
GR-710	99 / 2515	164 / 4166	216/ 5486	33 / 838	0	16,500 / 7,484
GR-712	99 / 2515	164 / 4166	240 / 6096	33 / 838	0	19,500 / 8,845

Mini Mill / Super Mini Mill

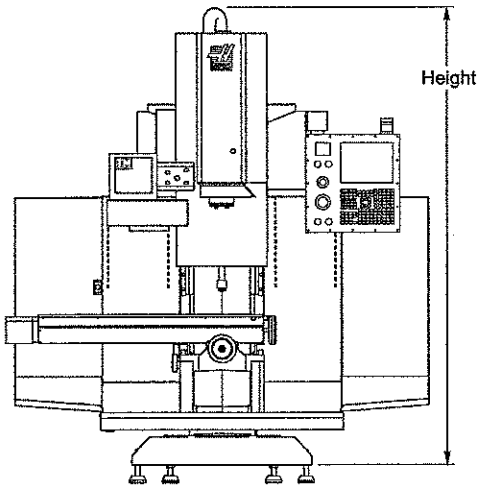
OPERATING DIMENSIONS

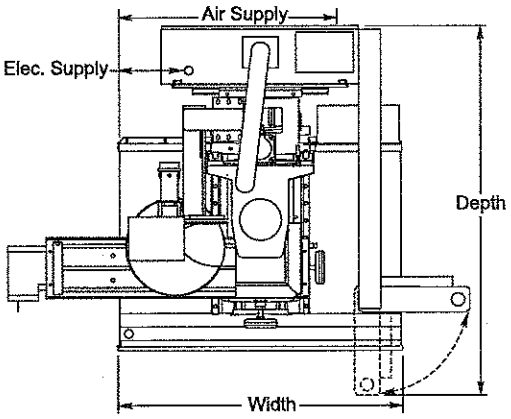
Height (in/mm)	98 / 2489
Width (in/mm)	70 / 1778
Depth (in/mm)	98 / 2489
Elec. Supply (in/mm)	12 / 305
Air Supply (in/mm)	36 / 915
Weight (lb/kg)	3,400 / 1,542

NOTE: A fully opened operator's door increases the width by 10" (254mm).



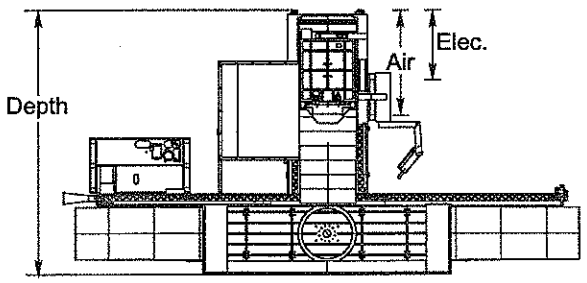
Toolroom Mills

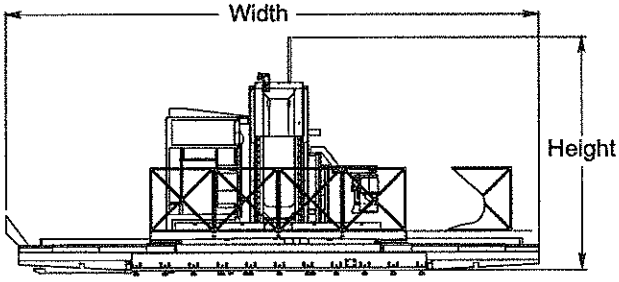




Machine	Height (in/mm)	Width (in/mm)	Depth (in/mm)	Elec. (in/mm)	Air (in/mm)	Weight (lb/kg)
TM-1	106 / 2692	86 / 2184	68 / 1727	11 / 279	9 / 229	2,900 / 1,315
TM-1P	106 / 2692	96 / 2438	86 / 2184	33 / 838	31 / 787	3,850 / 1,746
TM-2	103 / 2616	106 / 2692	69 / 1752	16 / 406	14 / 355	4,950 / 2,245
TM-3	103 / 2616	106 / 2692	87 / 2210	36 / 914	61 / 1549	10,300 / 4,672

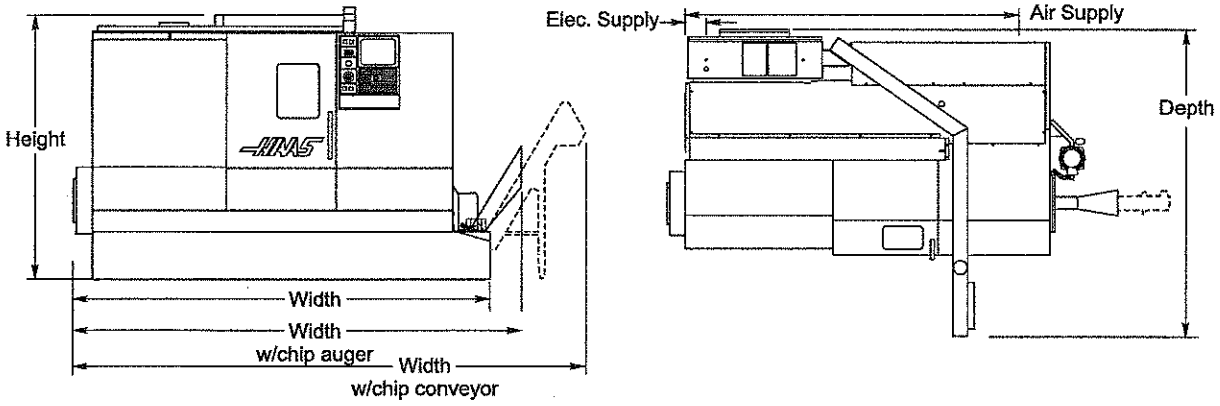
Large HS & VS Series





	HS 3/3R	HS 4/4R	HS 6/6R	HS 7/7R	VS-1	VS-3
Height (in/mm)	153 / 3886	169 / 4293	153 / 3886	169 / 4293	153 / 3886	167 / 4242
Width (in/mm)	378 / 9601	378 / 9601	264 / 6706	264 / 6706	264 / 6706	377 / 9576
Depth (in/mm)	194 / 4928	194 / 4298	194 / 4298	194 / 4298	253 / 6426	259 / 6579
Elec. (in/mm)	48 / 1219	48 / 1219	48 / 1219	48 / 1219	48 / 1219	48 / 1219
Air (in/mm)	79 / 2007	79 / 2007	79 / 2007	79 / 2007	79 / 2007	79 / 2007
Weight (lb/kg)	62,000/28,123	63,000/28,576	47,000/21,319	48,000/21,773	47,000/21,319	62,000/28,123

SL Series



OPERATING DIMENSIONS

Machine	Height (in/mm)	Width (in/mm)	Depth (in/mm)	Weight (lb/kg)
SL-10	69 / 1753	84 / 2134	55 / 1397	5,500 / 2,495
SL-20/TL-15	72 / 1829	104 / 2642	90 / 2286	9,000 / 4,082
SL-20L	70 / 1778	134 / 3404	87 / 2210	12,000 / 5,443
SL-30/TL-25	74 / 1880	126 / 3200	83 / 2108	16,000 / 7,255
SL-30L	83 / 2108	167 / 4242	111 / 2819	20,000 / 9,072
SL-40	89 / 2261	165 / 4191	117 / 2972	25,000/ 11,340
SL-40L	89 / 2261	234 / 5944	125 / 3175	31,000/14,062

		SL-10	SL-20/TL-15	SL-20L	SL-30/TL-25	SL-30L	SL-40	SL-40L
w/auger chute	(in)	92	127	159	150	181	190	234
	(mm)	2337	3226	4039	3810	4597	4826	5944
w/chip conveyor	(in)	n/a	138	178	162	193	193	252
	(mm)	n/a	3505	4521	4115	4902	4902	6401
Elec. supply	(in)	3	3	10	3	26	14	32
(mm)		76	76	254	76	660	355	812
Air supply	(in)	3	85	115	109	118	137	136
	(mm)	76	2159	2921	2768	2997	3479	3454

Add 102" (2591 mm) to the width of the lathe to include an Automatic Bar Feeder.

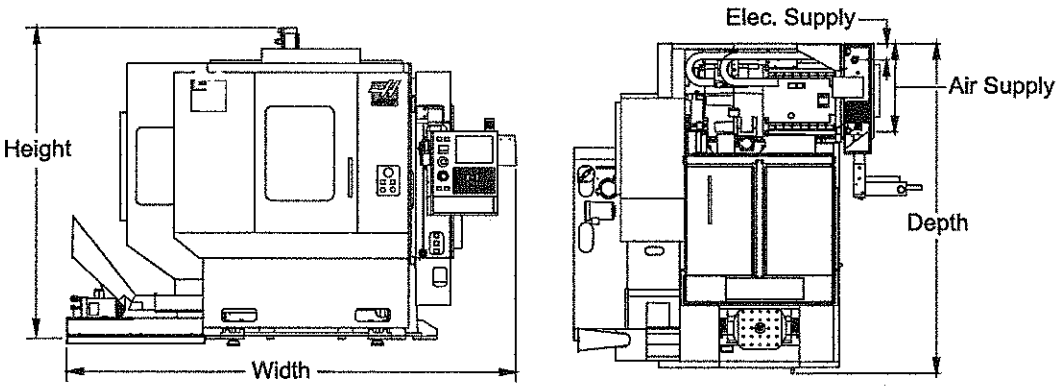
Add 46" (1168 mm) to the width of the lathe to include an Automatic Parts Loader (SL-20APL).

The operating dimensions are the maximum dimensions of the machine during operation, with the control at its most forward position.

The optional 480V external transformer may require additional floor space. See electrical requirements for details.

NOTE: Lathes may be lifted with the aid of cables and a crane. Cable Lift Instructions, Haas document ES-0356, describes these details.

EC Series



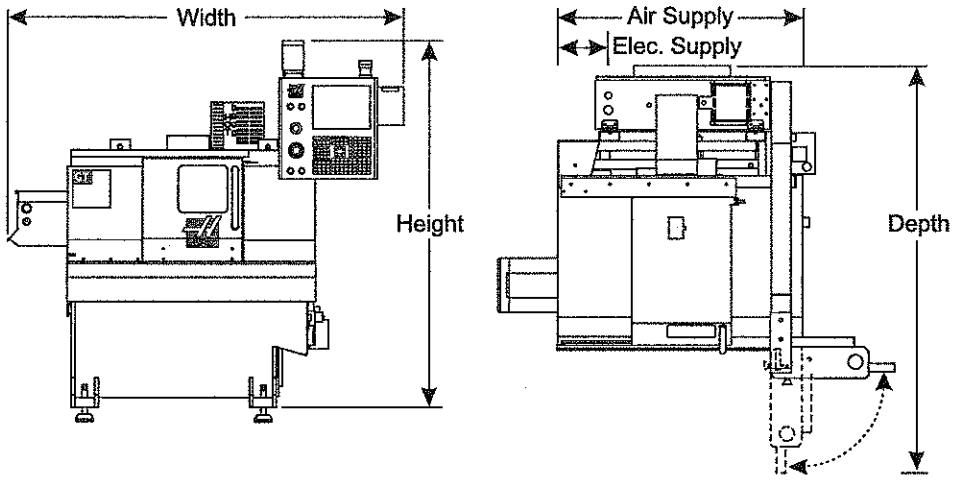
OPERATING DIMENSIONS

	EC-300	EC-400	EC-400PP	EC-500
Height (in/mm)	98 / 2489	104 / 2642	104 / 2642	104 / 2642
Width (in/mm)	122 / 3099	156 / 3962	151 / 3835	169 / 4293
Depth (in/mm)	135 / 3429	134 / 3404	225 / 5715	178 / 4521
Elec. (in/mm)	11 / 279	8 / 203	8 / 203	3 / 76
Air (in/mm)	43 / 1092	40 / 1016	40 / 1016	35 / 889
Weight (lb/kg)	16,000 / 7,257	21,140 / 9,589	30,080 / 13,644	24,000 / 10,886

	EC-630	EC-1600	EC-2000	EC-3000
Height (in/mm)	140 / 3556	119 / 3023	119 / 3023	119 / 3023
Width (in/mm)	162 / 4115	173 / 4394	195 / 4953	266 / 6756
Depth (in/mm)	298 / 7569	143 / 3632	143 / 3632	143 / 3632
Elec. (in/mm)	11 / 279	6 / 152	6 / 152	6 / 152
Air (in/mm)	34 / 864	34 / 864	34 / 864	34 / 864
Weight (lb/kg)	52,000 / 23,587	30,500 / 13,835	32,500 / 14,742	35,500 / 16,103

Maximum dimensions of the machine during operation, with the control at its most forward position.

GT Machines

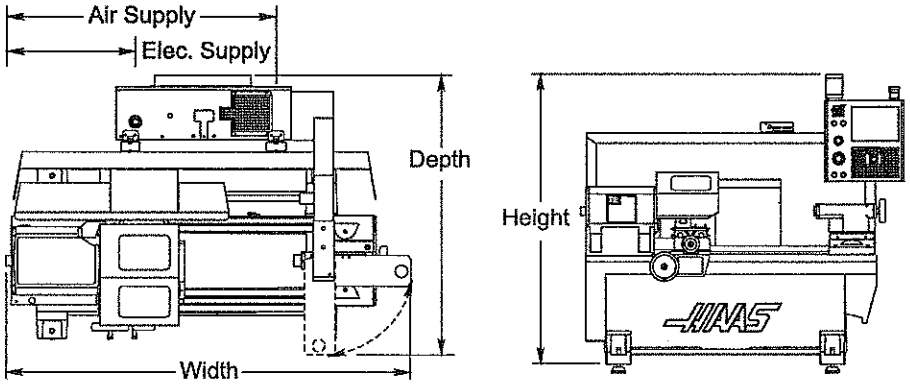


OPERATING DIMENSIONS

	GT-10	GT-20
Height (in/mm)	75 / 1905	75 / 1905
Width (in/mm)	82 / 2083	96 / 2438
Depth (in/mm)	85 / 2159	73 / 1854
Elec. (in/mm)	10 / 254	3 / 76
Air (in/mm)	36 / 914	63 / 1600
Weight (lb/kg)	5,000 / 2,268	6,020 / 2,731

Maximum dimensions of the machine during operation, with the control at its most forward position.

TL Series



M3

OPERATING DIMENSIONS

	TL-1	TL-2	TL-3	TL-3B	TL-3W	TL-4	HPCL
Height (in/mm)	79 / 2007	79 / 2007	79 /2007	79 / 2007	79 / 2007	85 / 2159	71 / 1803
Width (in/mm)	84 / 2134	104 / 2642	121 / 3073	120 / 3048	121 / 3073	228 / 5791	89 / 2261
Depth (in/mm)	78 / 1981	78 / 1981	92 / 2337	85 / 2159	92 / 2337	154 / 3912	54 / 1372
Elec. (in/mm)	26 / 660	25 / 635	53 / 1346	35 / 889	21 / 533	95 / 2413	Extension
Air (in/mm)	68 / 1727	65 / 1651	78 / 1981	97 / 2463	65 / 1651	125 / 3175	N/A
Weight (lb/kg)	4,000 / 1,814	4,600 / 2,086	6,500 / 2,948	7,000 / 3,204	6,750 / 3,062	25880 / 11739	1,500 / 680

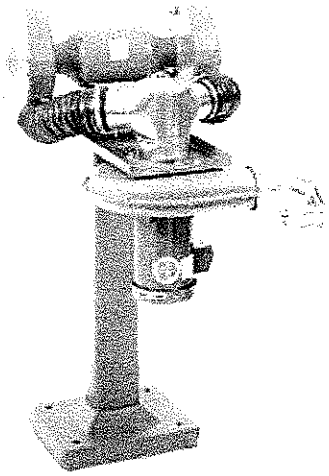
Maximum dimensions of the machines during operation, with the control at its most forward position.

WILCOX ITEMS 028-119

BALDOR

Accessories

Dust Control Units for Baldor Grinders



1022W
with DC10 and GA16

- Complete with dust control unit, hoses, fittings and brackets
- Easily mounts on existing Baldor grinder pedestals
- Totally-enclosed fan cooled industrial Baldor motor
- Single phase motor has switch, cord and plug
- Equipped with air-control valve
- Reusable cloth filter bag, chemically treated, flame retardant
- Quiet operation 83 DBA †

Catalog Number	Dust Control Unit Price	Grinding Wheel Maximum		Cubic Ft/Min		Air Control Valves	Shipping Weight
		Diameter	Width	Total Capacity	Required Per Wheel By OSHA*		
DC7	$854	7"	1"	440	220	Yes	60
DC8	854	8"	1"	440	220	Yes	60
DC10	854	10"	1"	440	390	Yes **	60
DC12	929	12"	2"	440	390	Yes **	62
DC12-3 +	929	12"	2"	440	390	Yes **	62
DC14-3 +	1517	14"	3"	700	590	Yes **	73

REPLACEMENT FILTER BAGS

Catalog Number	List Price	Dust Control Unit
ARB-1	48	DC7, 8, 10, 12
ARB-2	66	DC14-3

NOTES: † DB rating – 83, "A" scale weighing – taken at operator

** Air control valve required to direct total CFM of collector to only the wheel being used to meet OSHA CFM requirements on 10" and larger grinders.

* From Ventilation Section 1910.94 Table G-4 Federal Register Vol. 37 #202, 10-18-72:

Do not collect potentially reactive materials without consulting (NFPA) National Fire Protection Association Standards.
Powered by a 1/2 Hp TEFC single phase Baldor motor with cord, switch, and plug.
230 volt single phase units available and supplied less switch, cord, and plug. Specify for 230 volt single phase operation.
Add $30.00 to list price.
Collectors with three phase motor less cord, switch, and plug are available.
For 208-230/460 volt three phase, add suffix -3 to catalog number.
Add $30.00 to list price. Mount dust control units with Grinder and GA16 or GA20 pedestal.

+ **DC12-3 powered with 1/2 Hp TEFC 230/460 volt, three phase motor, less cord and plug, usable at 208 volts**
DC14-3 powered with 1 Hp TEFC 208-230/460 volt, three phase motor, less cord, switch, and plug.

Important Notes About Machine Installation

Once the machine is installed and incoming voltage is wired to the main circuit breaker, a service technician will adjust the internal transformer taps to match the incoming voltage exactly. This procedure is outlined in the Operator's manual. Machines installed with an external transformer may require additional steps to correctly set the voltage. The steps needed are described in the following paragraph:

External High Voltage Transformer Installation

Verify the transformer has been initially installed properly before final wiring to the machine (see the Electrical Power Requirements section). At the machine, connect the input of the internal 230 VAC transformer to the 227-243 VAC taps. Apply power to the machine and verify that the DC voltage between pins 2 and 3 of the vector drive (2nd and 3rd pins from the left) is 329-345 VDC. If not, return to the 480 VAC isolation transformer and readjust the taps as required. Do not use the internal 230 VAC transformer to adjust the voltage.

Insufficient Air Supply

When the machine is operating, if the pressure reading on the machine's regulator drops by more than 10 psi (.69 bar) during a tool change, the air supply volume is insufficient. A number of variables can cause this (i.e., compressor output, hose diameter, restrictions caused by fittings, etc.); refer to the Compressed Air Requirements section for the proper requirements and installation techniques.

Peak Performance

The rated horsepower of the machine may not be achieved if the imbalance of the incoming voltage is beyond an acceptable limit. The machine may function properly, yet may not deliver the advertised power. This is noticed more often when using phase converters. A phase converter should only be used if all other methods cannot be used.

WILCOX
ITEM U6

MG

Southwestern Industries, Inc.

Site Preparation Guide

TRAK DPMSX2 ?

Before an Authorized Field Service Technician can perform the machine's final checkout, the following requirements must be met:

- The machine must be in position and placed on its rest pads
- To offload the machine, a 10000 lb. forklift with 6' extension is required.
- The machine must be leveled (refer to installation and service manual).
- The machine must be wired (refer to the installation and service manual).
- The machine must have air hooked up if power drawbar is installed (see the installation and service manual).
- The machine must be cleaned. Remove all grease from the way surfaces.

Space & Weight

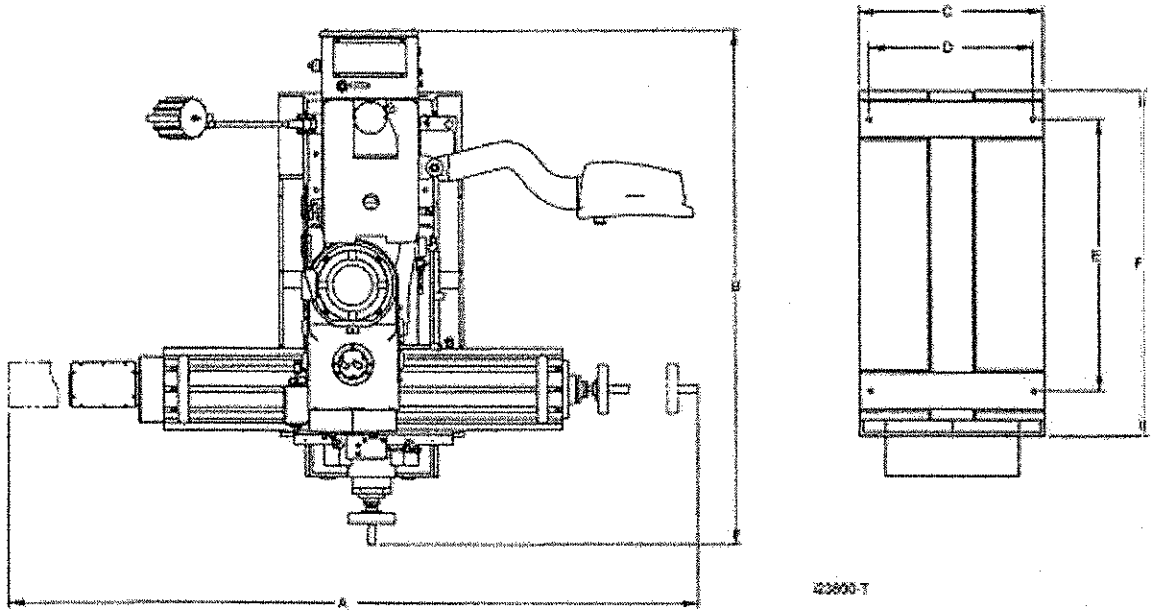
- Floor area = 101" x 63.5"
- Height = 89"
- Footprint = 23.125" x 43.3"
- Net (approx) Weight = 3200 lbs.
- Shipping (approx) Weight = 3500 lbs.
- Pallet Size = 70" x 70"
- Allow clearance at the rear of the mill to open and work on the electrical box.
- A solid and level foundation to maintain approximately 3200 lbs. plus the weight of the work piece (maximum total 4600 lbs) is required. Four leveling screws are provided.

Electrical

- Non spindle control: A separate 220/440 VAC, 8.5/4.25 Amps minimum, 60 Hz, 3 Phase circuit is required to maintain proper operation
- A separate 110 VAC, 8 Amps minimum, 60 Hz circuit is required to maintain proper operation.
- **Machine with Spindle Control Option is only available in the 220 VAC configuration.** A separate 220V, 11 amps minimum, 60 Hz, 3 phase circuit is required. For shops with 440 VAC, a step-down transformer to 220 VAC must be used. The transformer must be sized to carry a load of 11 amps minimum.

Air (for optional Power Draw Bar)

- ¼" NPT connection
- Air pressure not to exceed 100 psi

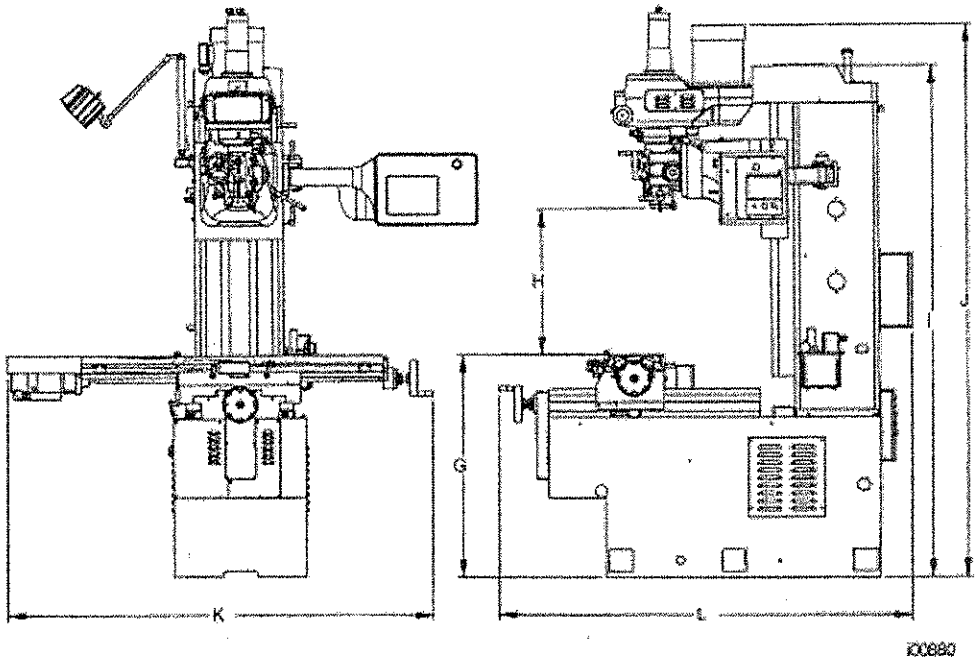


DPMSX2 Machine Footprints

A	Overall width	101"
B	Overall length	63.5"
C	Bed width	23.125"
D	Bed width between leveling screws	20.5"
E	Distance between leveling screws	32.5"
F	Bed length	40.5"

Southwestern Industries, Inc.

Site Preparation Guide
TRAK DPMSX2



DPMSX2 Overall Dimensions

G	Height of table from bottom of bed	34″
H	Maximum distance from spindle nose to table	23.5″
I	Height of machine from bottom of bed to top of column cover	78″
J	Maximum height of machine from bottom of bed to top of spindle motor	89″
K	Width of machine including table tray	70″
L	Length of machine with electric box door closed	64″

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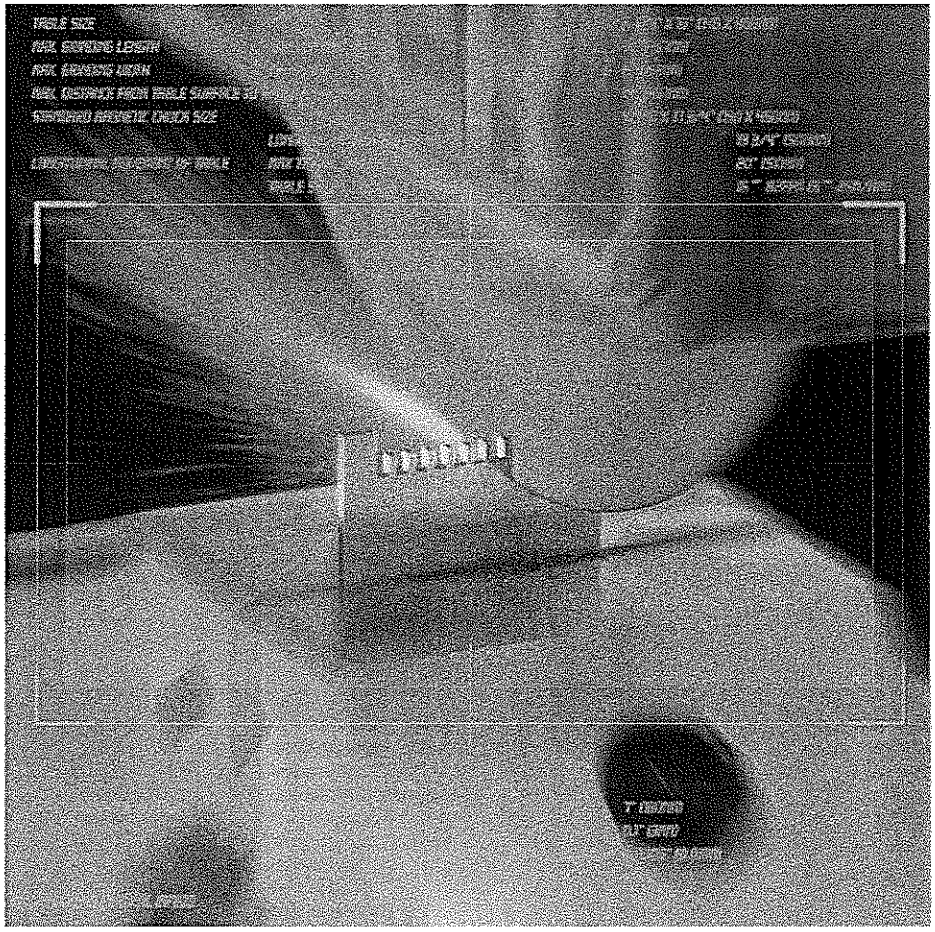
M11

CHEVALIER®



FSG-618M • 1A618 • 2A618

HIGH PRECISION SURFACE & FORM GRINDER

FEATURES

FSG-618M • 1A618 • 2A618
HIGH PRECISION SURFACE & FORM GRINDER

This high precision surface and form grinder has been specially developed and improved in recent years.

The tool cabinet in machine base is specially designed for operator's convenience (618M).

The interlock between electrical cabinet door and power supply is established to ensure safe operation.

The maximum distance from table surface to spindle centerline is 18" (450mm) which provides more clearance for grinding.

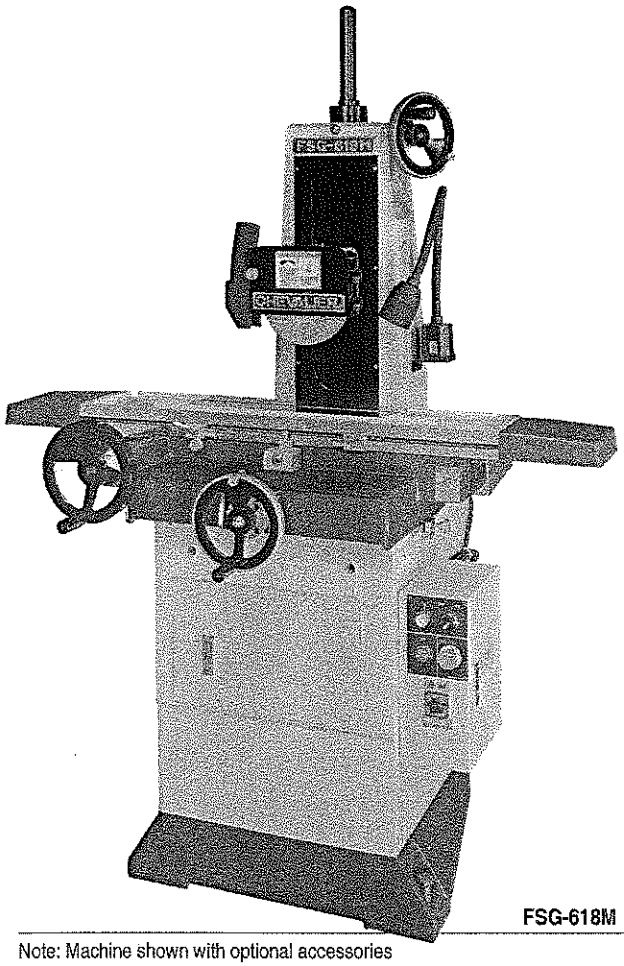
The spring loaded type table travel stops will dampen the overtravel caused by abnormal operations (618M).

The optimum span of double V crossfeed guideways is designed based on bending moment, kinematics and supporting force.

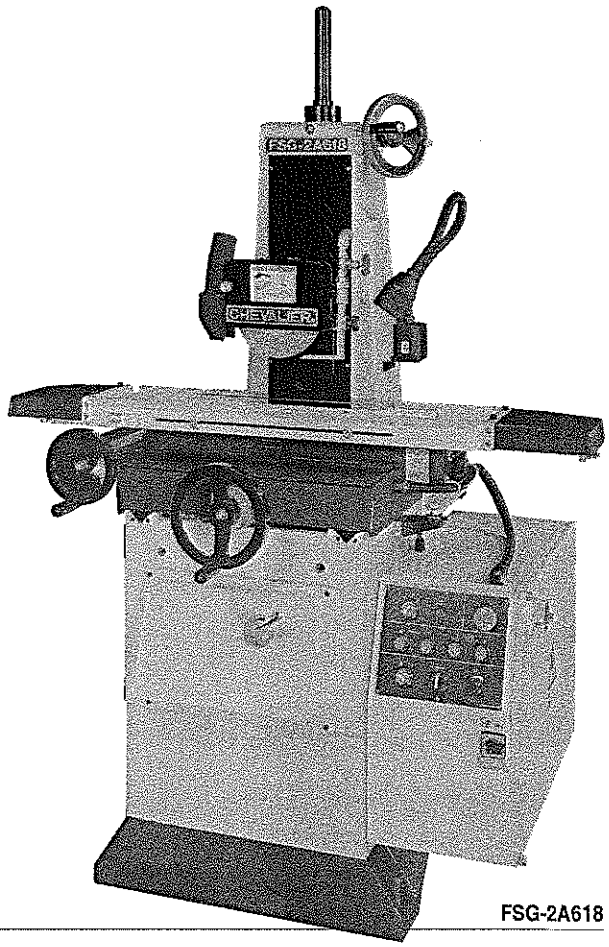
All essential castings are mode of high grade of Meehanite cast iron that is stress relieved through annealing to eliminate internal stress.

With the greatest stiffness and stability of the castings, this machine is suitable for both precision surface grinding and form grinding.

This grinder is offered with one-full-year limited warranty for mechanical and electrical parts.



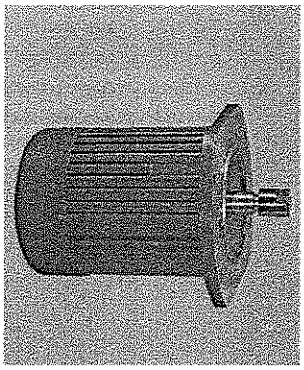
FSG-618M



FSG-2A618

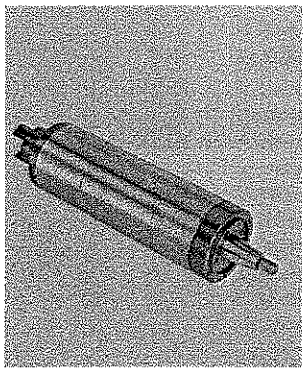
Note: Machine shown with optional accessories

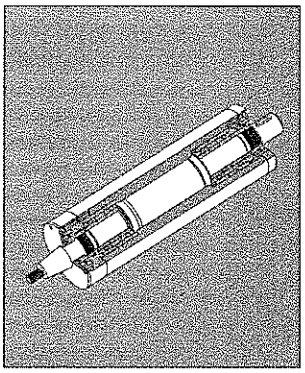
MACHINE CONSTRUCTION



2HP Low Vibration Spindle Motor

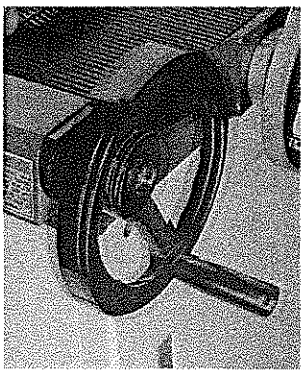
By using a 2HP class V3 low vibration spindle motor, both fine grinding and rough grinding can be performed to obtain the best grinding result.

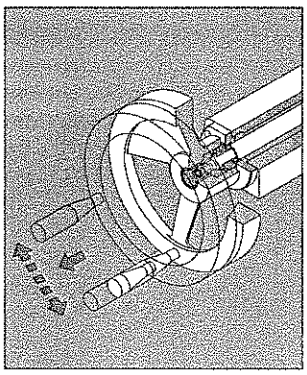




High Precision Cartridge Type Spindle

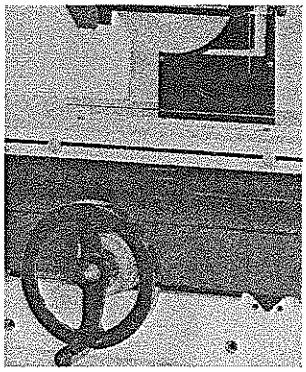
Spindle is supported by 4 pieces of class 7(P4) super precision angular contact ball bearings which have been accurately measured, selected and pre-loaded, and then assembled in a temperature controlled room to ensure better grinding accuracy and surface finish. The labyrinth seal type structure is designed to offer better water-resistance, thus enhance longevity of spindle bearings.





Indexable Table Handwheel

The table handwheel can be indexed to a comfortable position to enhance the ease of table traverse. (618M only)



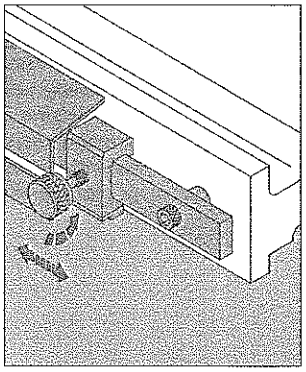
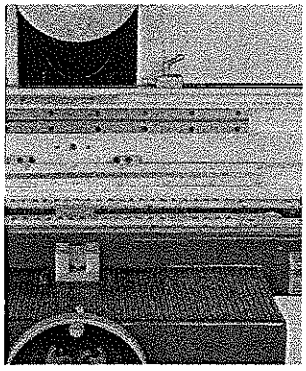
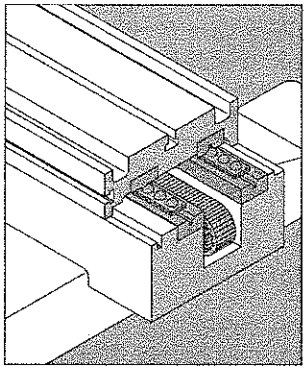


Table Reversing Mechanism

By using proximity switches, operator can easily set suitable table stroke for each workpiece to save grinding time and obtain higher grinding efficiency. The proximity switches have been properly covered for operator's safety. (1A/2A618)





Continuous Loop Type Table Transmission Mechanism

Table is driven by a continuous loop wire reinforced cog timing belt. This system ensures slip-free and smooth transmission of table, thus the life of a continuous cog timing belt is at least three times longer than that of wire type or reciprocating timing belt type. The table traverses on hardened & ground guideways with steel ball bearings providing smooth, accurate and efficient table movement. (618M)

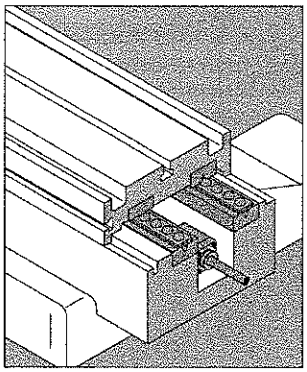
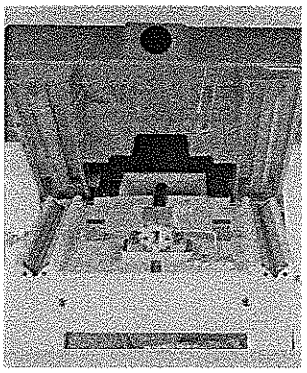
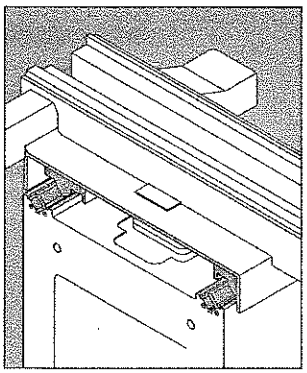


Table Guide Ways

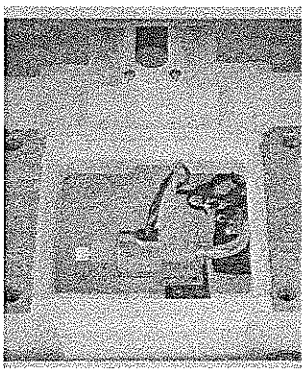
Table transverse on hardened & ground guidways with steel ball bearings, which have been accurately sieved, for smooth, accurate and efficient table movement. (1A/2A618)

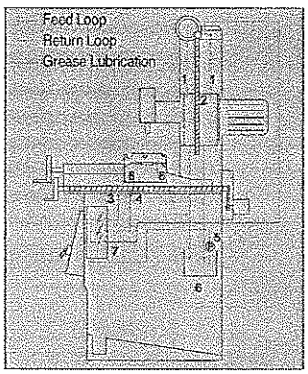




Durable Slideways

Machine base slideways are laminated with Turcite-B and precisely hand scraped. The low friction slideways incorporated with automatic forced lubrication system ensures high accuracy and longer way life.



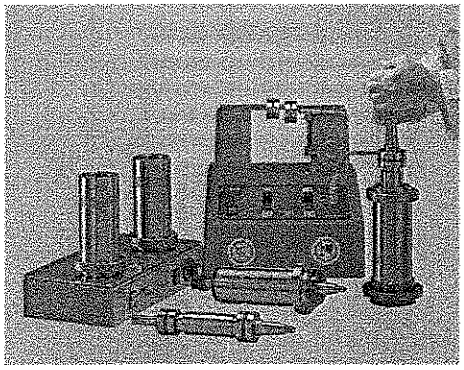


Automatic Forced Recirculated Type Lubrication System

The lubrication system provides lube oil to saddle & column ways, and to cross & elevating leadscrews. This system minimizes the chance of wear due to negligent operation and ensures the machine accuracy and prolongs the life of machine

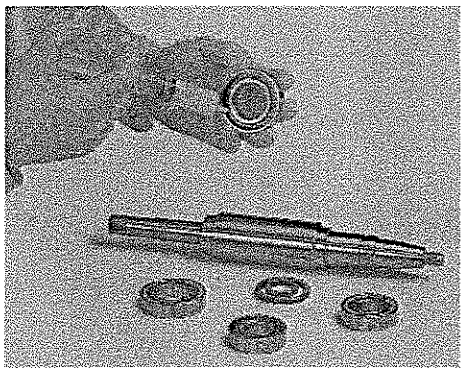
1. Column slideways
2. Elevating leadscrew
3. Crossfeed leadscrew
4. Machine base double V slideways
5. Solenoid pump
6. Lubricator
7. Flow divider
8. Table guideways with ball bearings lubricated by grease.

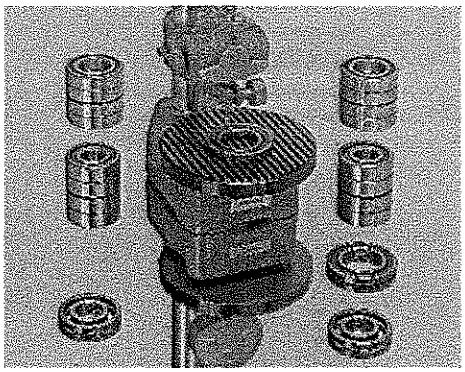
ASSEMBLY



Spindle Assembly

Spindle bearings and spindle cartridge sleeve are preheated at the proper stage of installation to assure no undue forces are applied to spindle bearings.



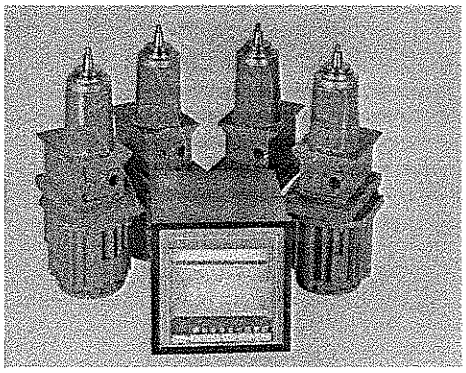


Spindle Bearing Spacer Measurement

In order to assure the best assembly accuracy, the flatness tolerance of both inner and outer spacers must be within 0.00004"(0.001mm).

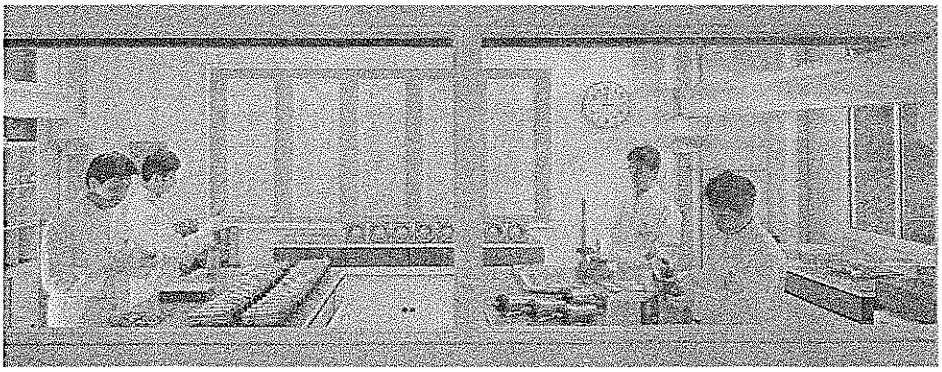
Spindle Bearing Grease Sealing

All spindle bearings are sealed with high grade grease to minimize thermal expansion for longer service life of bearings.



Spindle Temperature Rising Test

To assure spindle temperature rise does not exceed 10°C., spindle is tested under a no load condition for 8 hours minimum. During the test, the spindle is running throughout its permissible speeds and is being continuously monitored by a thermograph.



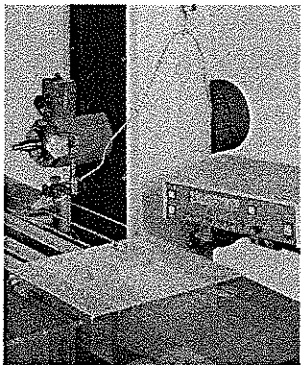
High Precision Spindle Assembly Room

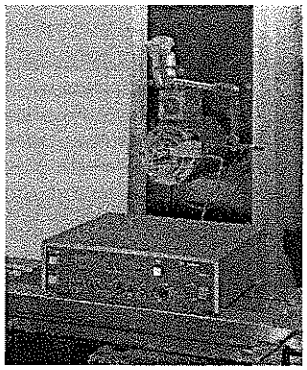
All spindles are assembled by skillful and experienced technicians following exact assembly procedures in a clean room.

INSPECTION

Parallelism of Table Surface to Table Cross Transverse

Attach the base of a test indicator to the wheel head. Touch the stylus of the indicator to the table surface. Traverse the table in and out, The indicator variation shall be within 0.00008"(0.002mm).



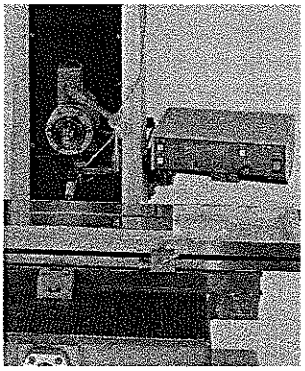


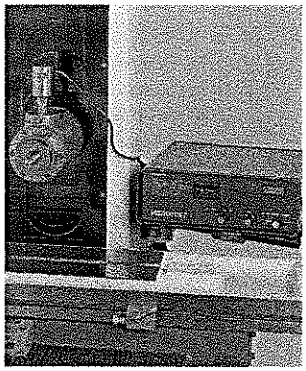
Runout of Wheel Spindle Conical Surface

Apply a test indicator to the rear, middle and front points of conical surface of the wheel spindle, and rotate the wheel spindle, the variation shall be under 0.00006"(0.0015mm).

Parallelism of Table Surface to Table Longitudinal Movement

Attache the base of test indicator the the wheel head. Touch the stylus of the indicator to the table surface. Move the table left to right and reverse. The indicator variation shall be within 0.0001"(0.0025mm).



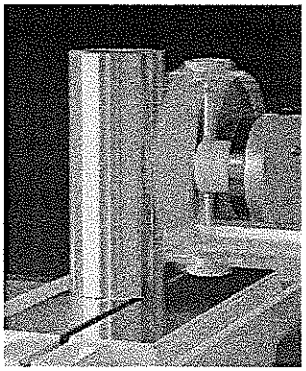


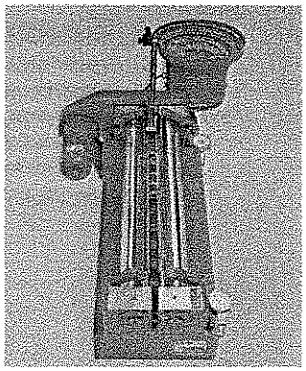
Spindle Dynamic Balancing Test

Before delivery, the spindle of each machine has to be calibrated by a portable precision dynamic vibration measuring equipment. The final amplitude of spindle vibration shall be under 0.0012"/s(0.03mm/s)

Parallelism and Squareness of Wheel Spindle Centerline to Table Surface

Place a cylinder gauge on the table swing the test indicator which fixed on the wheel spindle, and obtain the readings of the indicator when table is at its right, middle and left positions. The parallelism is 0.0003"(0.008mm) or less sand the squareness is under 0.0002"(0.005mm)



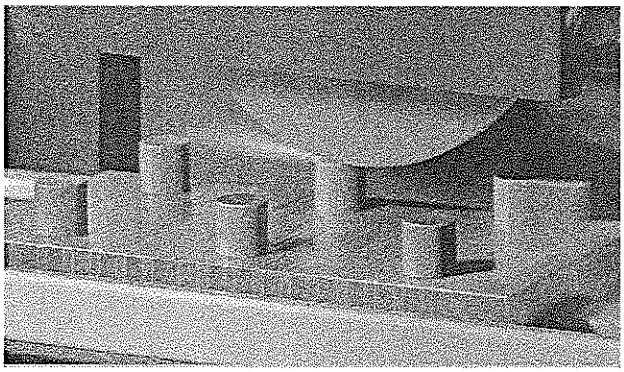


Steel Ball Sifting

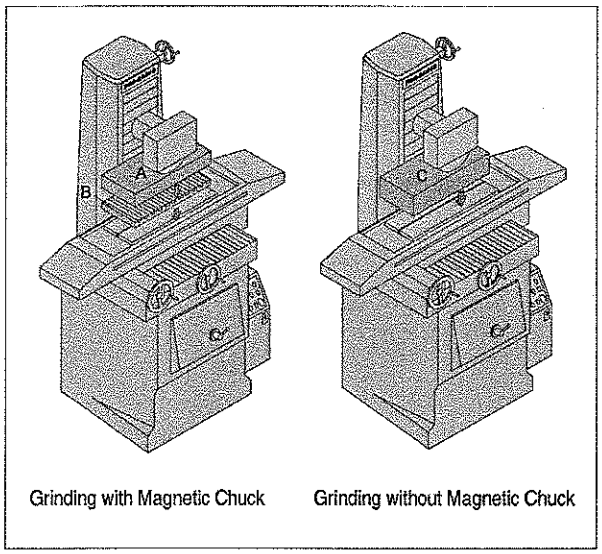
Steel balls used in longitudinal movement are all heat treated and sieved by automatic machine which assures the diameter tolerance of steel balls in the same machine is under 0.00008"(0.002mm)

Flatness of Ground Workpiece

Due to excellent rigidity and stability of machine structure, the flatness tolerance of ground workpieces shall be 0.00012"(0.003mm) or better.



PERMISSIBLE LOADS



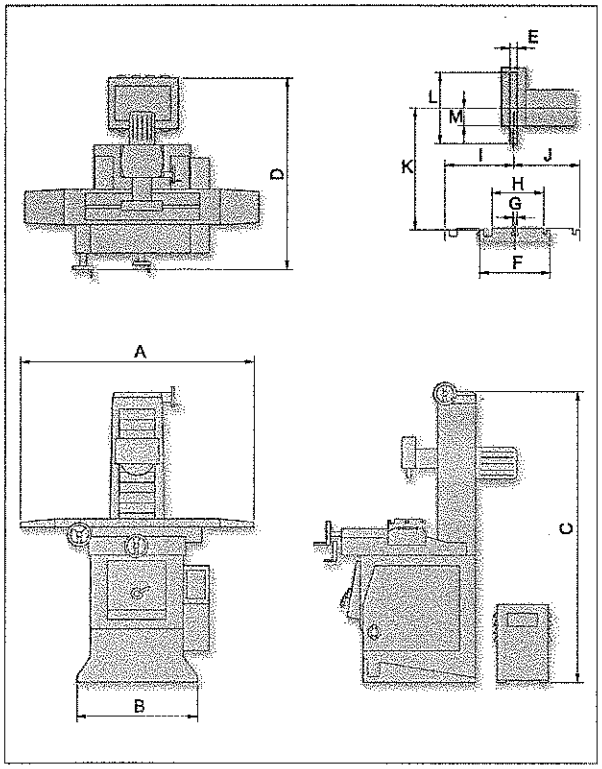
Grinding with Magnetic Chuck Grinding without Magnetic Chuck

The total suggested maximum loads of working table are shown as follows:

A = Workpiece **B** = Magnetic chuck **C** = A + B

MODEL	FSG-618M	FSG-1A618	FSG-2A618
A lbs (kg)	360 (180)		
B lbs (kg)	66 (30)		
C lbs (kg)	462 (210)		

DIMENSIONAL DRAWINGS



MODEL	FSG-618M	FSG-1A618	FSG-2A618
A	72" (1830mm)		
B	27 3/4" (690mm)		
C	84" (2130mm)		
D	55" (1400mm)	63" (1600mm)	
E	1/2" (12.7mm)		
F	7 7/8" (200mm)		
G	7/16" (11mm)		
H	5 3/4" (146mm)		
I	7 3/4" (197mm)		
J	7" (183mm)		
K	18" (457mm)		
L	8" (203mm)		
M	2" (50mm)		

GENERAL SPECIFICATIONS

DESCRIPTION		FSG-618M	FSG-1A618	FSG-2A618
Table Size		5 3/4" x 18" (146 x 460mm)		
Max. Grinding Length	Longitudinal	18" (457mm)		
Max. Grinding Width	Crosswise	6" (152mm)		
Max. Distance from Table Surface to Spindle Centerline		18" (457mm)		
Standard Magnetic Chuck Size		5 7/8" x 17 3/4" (150 x 450mm)		
Longitudinal Movement of Table	Longitudinal Travel, Hydraulic	19 3/4" (500mm)		
	Max. Travel, Manual	19" (482mm)	20" (510mm)	
	Table Speed, Infinitely Variable	16 ~ 82ipm (5 ~ 25m/min)		
Cross Transverse Travel	Rapid Travel, approx.			38ipm (960mm/min)
	Automatic Transverse Increment			0.02 ~ 0.24" (0.4 ~ 6mm)
	Max. Automatic Transverse Travel			6 3/4" (171mm)
	Max. Manual Transverse Travel	7" (180mm)		
	Handwheel per Revolution	0.1" (3mm)		
	Handwheel per Graduation	0.0005" (0.01mm)	0.0005" (0.01mm)	
Wheelhead Vertical Infeed	Per Revolution	0.05" (1mm)		
	Per Graduation	0.0001" (0.005mm)		
Grinding Spindle Drive	Speed	60Hz/3450r.p.m, 50Hz/2850r.p.m.		
	Power Rating	2HP(1.5kw)		
Hydraulic Drive		1HP (0.75kw)		
Crossfeed Drive				0.05P (40w)
Standard Grinding Wheel	Diameter	Ø8" (203mm)		
	Width	1/2" (12.7mm)		
	Bore	Ø1 1/4" (31.75mm)		
Floor Space L x W x H	Total Space Required	75" x 55" x 84" (1900 x 1400 x 2130mm)	75" x 63" x 84" (1900 x 1600 x 2130mm)	
Net Weight, approx.	Based on 2A Series	1496 lbs (680kg)	1695 lbs (770kg)	
Rated Power, approx.		2.2HP (1.65kw)	3.2HP (2.4kw)	3.3HP (2.5kw)
Packing Dimensions L x W x H		41" x 47" x 83" (1050 x 1200 x 2100mm)	56" x 48" x 83" (1430 x 1220 x 2100mm)	

Note: The manufacturer reserves the right to modify the design, specification, mechanisms,...etc. of the machine without notice. All the specifications shown above are just for reference.

Cat.: 0116-00005B00 / R00004436 / 2000520 / 2000 DTP Design: R&D CENTER / FALCON MACHINE TOOLS CO., LTD.
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DoALL
. . . the Productivity People

M 16

2013 & 3613 Series

General Purpose Contour Band Machines

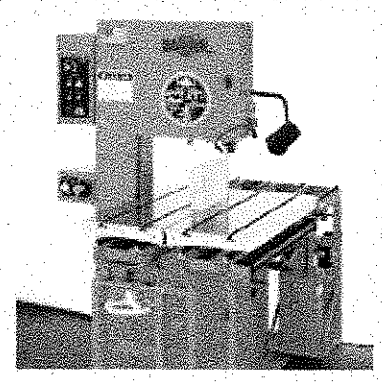
All four models have a 26" x 26" table that tilts 45° right and 10° left plus feature a 13" maximum workheight to handle a wide variety of material sizes. A variable speed drive and 2 speed transmission permit you to choose the optimum band speed when cutting different materials. And, you can use saw blades from 1/16" to 1" width.

Model 2013-V features a 2 hp AC drive motor with variable band speeds 55 to 300 fpm and 960 to 5200 fpm. Throat distance from band to column is 20" and band wheels are 20" in diameter.

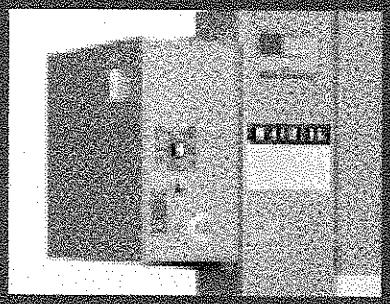
Model 3613-1 offers a 3 hp AC drive motor with variable band speeds from 50 to 300 fpm and 850 to 5200 fpm. Throat capacity is 35-1/2" and an optional secondary worktable is available to support larger width workpieces. Model 3613-1 is equipped with 3 band wheels 16-1/4" in diameter and can be set up for either 2-wheel or 3-wheel operation.

Models 2013-V3 and 3613-V3 are similar to above models but feature variable frequency AC inverter drive controls that start the motion of the band wheels slowly to reduce mechanical shock and increase drive train life, plus a dynamic braking function that rapidly stops motion when power is shut-off. They also offer variable band speeds in two speed ranges - 30 to 320 fpm or 550 to 5,500 fpm - that can be quickly changed with the turn of a dial.

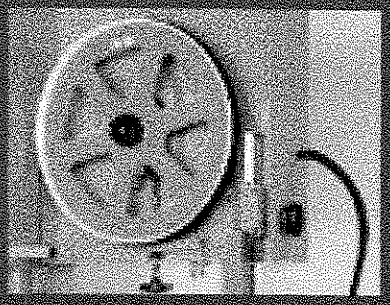
Accessories increase productivity even more.



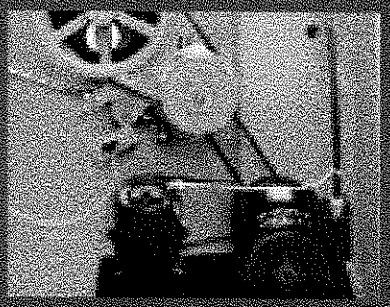
A wide variety of accessories are available to increase productivity and expand capabilities. The optional 34"x 42" HMD-36 hydraulic power feed table, for example, features a 36" table stroke, 0-24 ipm feed rate, and 1,100 lb. table capacity for production sawing of the heaviest cuts in the toughest materials. Other accessories offer a variety of attachments for mitering, disc-cutting and ripping.



V3 models feature a variable frequency AC inverter drive control for easily adjustable band speeds, soft starts and dynamic braking. 3 HP band drive is standard on all V3 models.

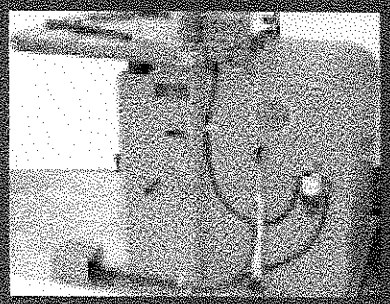


Adjustable aluminum band wheels feature crowned rubber tires. Band tension is easily set with convenient hand wheel.

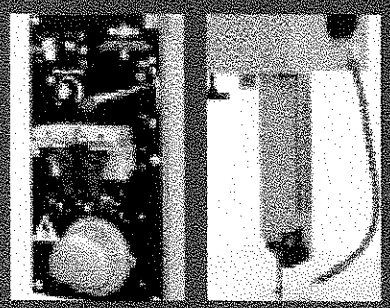


Drive motor and transmission are easily accessible for service or maintenance. (Optional mist coolant assembly shown.)

26" x 26" table tilts 45° R. 10° L and is pre-drilled to accept a variety of optional attachments.



Optional air feed attachment is foot pedal actuated and connected by cables and pulleys to a chain that pulls the workpiece into the saw band.



Optional welder (left) welds coil blade stock to length and allows for internal cuts.

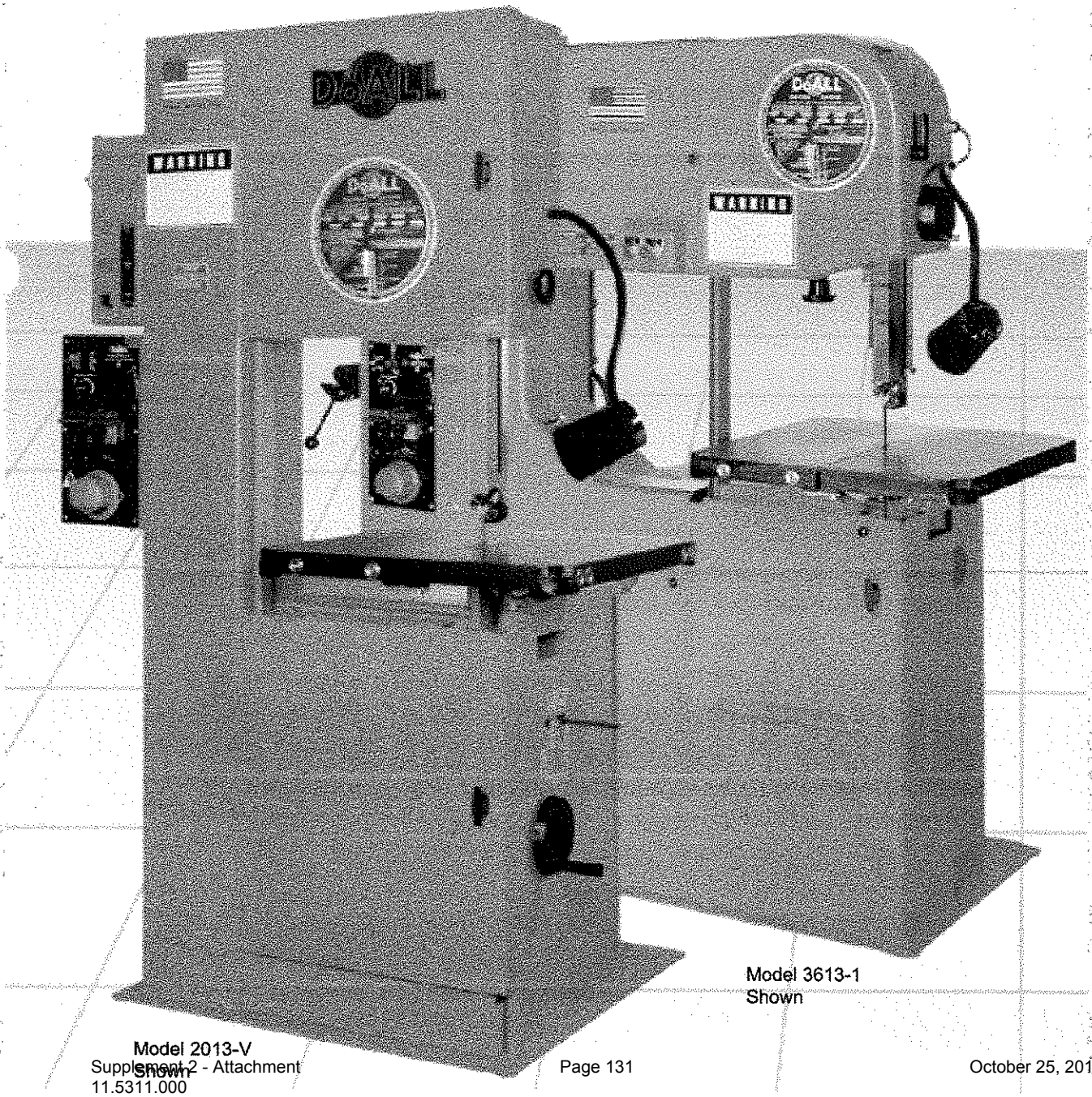
Optional chip blower (right) blows chips away from saw teeth at the

DoALL 2013 & 3613 Series

EFFICIENT, LOW-COST BAND MACHINING

- For contour sawing, band filing and band polishing.
- Cuts metal, wood, plastics and more.
- Used in machine shops, mold shops, maintenance departments and vocational schools.

The DoALL 2013 & 3613 Series Contour Band Machines are the most versatile machine tools of their kind. They will saw, file or polish aluminum, brass, copper, mild steel, tough tool steel, stainless steel, and sheet metal as well as cut non metals like plastics, wood, paper and fibrous materials. Couple this with their low purchase price and you can see why they're truly the most ideal machines for general purpose sawing



Model 3613-1 Shown

Model 2013-V Shown

2013 & 3613 Series

	2013-V	3613-1	2013-V3	3613-V3
Throat band to column	20 in. (510mm)	35-1/2 in. (900mm)	20 in. (510mm)	36 in. (915mm)
Maximum work height	13 in. (330mm)	13 in. (330mm)	13 in. (330mm)	13 in. (330mm)
Band width capacity	1/16 to 1 in. (1.5 to 27mm)	1/16 to 1 in. (1.5 to 27mm)	1/16 to 1 in. (1.5 to 27mm)	1/16 to 1 in. (1.5 to 27mm)
Saw Band Length	154 in. (3910mm)	2-wheel: 125 in. (3175mm) 3-wheel: 175 in. (4445mm)	154 in. (3910mm)	2-wheel: 125 in. (3175mm) 3-wheel: 175 in. (4445mm)
File band length	153 in. (3885mm)	123 or 174 in. (3125 or 4420mm)	153 in. (3885mm)	123 or 174 in. (3,125 or 4,420mm)
Variable band speed	55 to 300/960 to 5200 fpm (17 to 91/293 to 1585 mpm)	50 to 300/850 to 5200 fpm (15 to 91/259 to 1585 mpm)	30 to 320/550 to 5,500 fpm (10 to 97/168 to 1,675 mpm)	30 to 320/550 to 5,500 fpm (10 to 97/168 to 1,675 mpm)
Table (tilt 45°R 10°L)	26 x 26 in. (660 x 660mm)	26 x 26 in. (660 x 660mm)	26 x 26 in. (660 x 660mm)	26 x 26 in. (660 x 660mm)
Table height (Table to Floor)	39 in. (990mm)	43 in. (1090mm)	39 in. (990mm)	43 in. (1090mm)
AC Drive Motor	2 hp (1.5 kW)	3 hp (2.25 kW)	3 hp (2.25 kW)	3 hp (2.25 kW)
Wheels (Aluminum with Crowned Rubber Tire)	2 @ 20 in. (510mm)	3 @ 16-1/4 in. (410mm)	2 @ 20 in. (510mm)	3 @ 16-1/4 in. (410mm)
Upper Wheel Adjustment	3 in. (75mm)	3 in. (75mm)	3 in. (75mm)	3 in. (75mm)
Height, Maximum	80 in. (2040mm)	81 in. (2060mm)	80 in. (2040mm)	81 in. (2,070mm)
Floor Area Requirements (including Overhangs)	45 x 47 in. (1130 x 1195mm)	39 x 71 in. (990 x 1805mm)	45 x 47 in. (1130 x 1195mm)	39 x 78 in. (990 x 1980mm)
Weight	1,250 lbs. (570kg)	1,460 lb. (660kg)	1,250 lbs. (565kg)	1,460 lbs. (660kg)
Color	DoALL Blue	DoALL Blue	DoALL Blue	DoALL Blue

All specifications and designs in this brochure are subject to change without notice or obligation

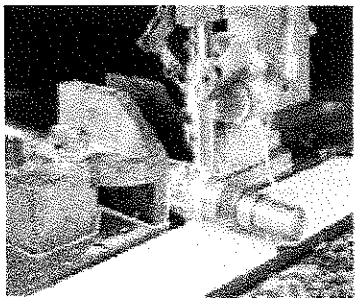
Standard Equipment

- Guide blocks and inserts for bands 1/16" through 1/2"
- Worklight
- Chip drawer (chip pan on 2013-V and 2013-V3)
- Dual range transmission
- Band speed indicator
- Band tension indicator
- Job selector

Optional Accessories

- Blade welder
- Air operated power feed assembly
- Chip blower
- Mist coolant assembly
- Hydraulic powered table feed
- Air powered work table
- Secondary table (3613-1 and 3613-V3 only)
- Guide blocks and inserts for bands 5/8" through 1"
- Universal vise (air table only)
- Contouring attachment (air table only)
- Disc cutting attachment
- Mitering attachment
- Standard rip fence
- Magnifying attachment
- Heavy work slide
- 5 hp AC inverter drive

Improve the productivity of any saw with DoALL blade and cutting fluids



No matter what material you are cutting, there's a DoALL band saw blade to increase your productivity and lower your cost. And, with a wide variety of cutting fluids and coolants available from DoALL, we can also recommend the right fluid for all of your sawing needs.

DoALL

DoALL Company
254 N. Laurel Avenue,
Des Plaines, IL 60016
Web Site: www.doall.com
E-mail: info @ doall.com

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Australia: 61-2-9671-5011
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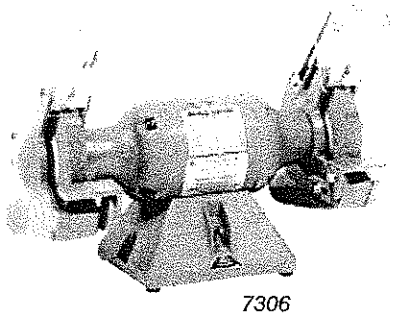
WILCOX #18
ITEMS 628 - 629

BALDOR

Industrial Grinders

7" Exhaust Type Industrial Grinders



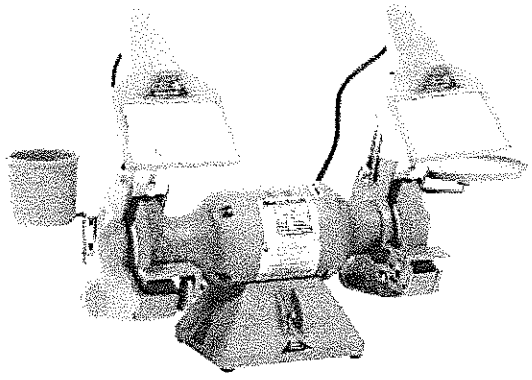
7306

- Built for heavy-duty grinding, powered by 1/2 HP Baldor single or three-phase motor.
- Slim design provides extra clearance for grinding odd-shaped pieces.
- Cast iron exhaust-type guards accommodate a 3" diameter vent pipe.
- Adjustable cast iron tool-rest, stamp steel spark-breaks and eyeshields.
- Grinder supplied with one coarse (36)-grit and one medium (60)-grit aluminum-oxide grinding wheel.
- Grinder/Buffer supplied with coarse (36)-grit aluminum-oxide grinding wheel and wire wheel brush (.014 wire).
- Wheels are 7" diameter, 5/8" arbor hole.
- Base mounted on/off switch and rubber feet to minimize vibration.
- Includes 8-ft. 3-conductor power cord (115/230 volt models)

Catalog Number	Hp	Voltage	Phase	Hz	RPM	Wheel Width	Shipping Weight	Agency Approvals	List Price	Style
712E *	1/2	115/230	1	60	3600	1"	69	UL CSA	$400	Grinder
762E *	1/2	115/230	1	60	3600	1"	68	UL CSA	400	Grinder/Buffer
7306	1/2	115/230	1	60	1800	1"	71	UL	437	Grinder
7307	1/2	115/230	1	60	3600	1"	70	UL CSA	437	Grinder
7351	1/2	115/230	1	60	3600	1"	68	UL CSA	437	Grinder/Buffer
7308	1/2	208-230/460	3	50/60	1500/1800	1"	71	UL CSA	437	Grinder
7309	1/2	208-230/460	3	50/60	3000/3600	1"	72	UL CSA	437	Grinder

NOTE: Slower speed grinders (1800 rpms) are ideal for sharpening plane blades, chisels and other woodworking tools. 3600 rpm grinders suitable for general purpose grinding. * Stamp-steel tool rests.

7" Exhaust Type Deluxe Industrial Grinders



7306D

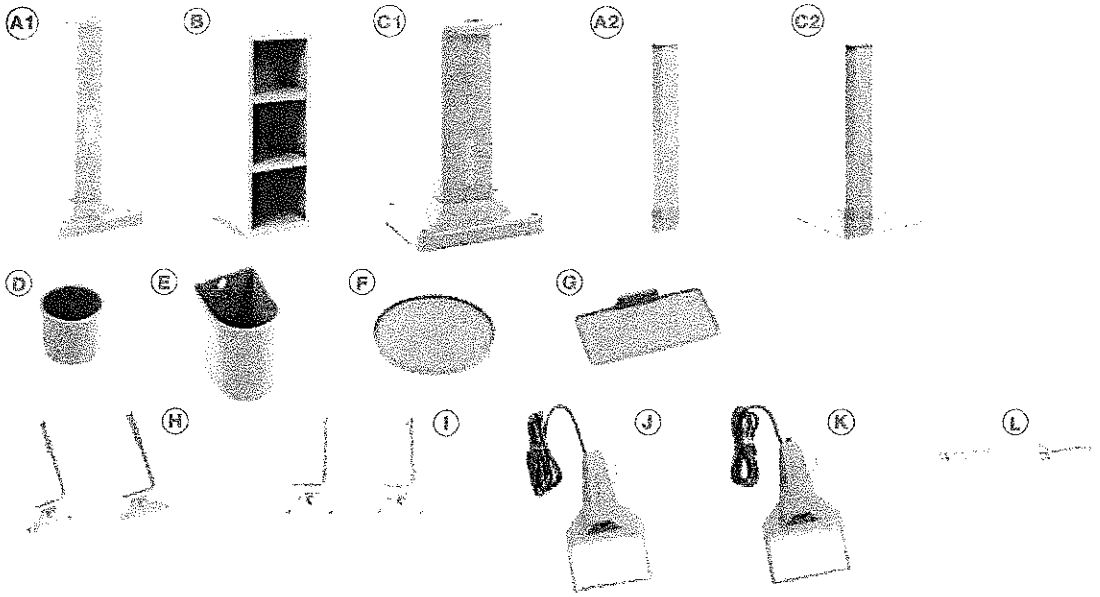
- Built for heavy-duty grinding, powered by 1/2 HP Baldor single or three-phase motor.
- Slim design provides extra clearance for grinding odd-shaped pieces.
- Cast iron exhaust-type guards accommodate a 3" diameter vent pipe.
- Adjustable cast iron tool-rest, stamp steel spark-breaks and eyeshields.
- Grinder supplied with one coarse (36)-grit and one medium (60)-grit aluminum-oxide grinding wheel.
- Supplied with GA24 water pot, GA25 tool tray and two GA9 lighted eyeshields*.
- Wheels are 7" diameter, 5/8" arbor hole.
- Base mounted on/off switch and rubber feet to minimize vibration.
- Includes 8-ft. 3-conductor power cord (115, 115/230 volt models)

Catalog Number	Hp	Voltage	Phase	Hz	RPM	Wheel Width	Shipping Weight	Agency Approvals	List Price	Style
7306D	1/2	115/230	1	60	1800	1"	84	UL	$564	Grinder
7307D	1/2	115/230	1	60	3600	1"	86	UL	564	Grinder
7312D ●	1/2 / 1/3	115	1	60	3600/1800	1"	90	UL	709	Grinder
7309D	1/2	208-230/460	3	50/60	3000/3600	1"	87	UL CSA	564	Grinder

NOTE: * Eye-shields wired through the start/stop switch on single-phase units.
● 7312D is a two speed grinder rated 1/2 HP @ 3600 & 1/3 HP @ 1800 RPMS.
Designed to comply with OSHA standards under normal usage.

BALDOR

Grinder - Buffer Accessories



Item Number	Description	List Price	Shipping Weight
A1	GA16 Pedestal Cast Iron	$284	62
A2	GA16E Pedestal Steel	185	36
B	GA14 Pedestal	214	64
C1	GA20 Pedestal Gast Iron	468	125
C2	GA20E Pedestal Steel	214	54
D	GA24 Water Pot	30	2
E	GA3 Water Pot	48	7
F	GA25 Tool Tray	32	4
G	GA4 Tool Tray	48	6
H	GA11 Eyeshield	38 pr	2
I	GA10 Eyeshield	35 pr	2
J	GA9 Lighted Eyeshield (less on/off switch)	119 pr	5
J-1	GA9-1 same as GA9 except packed 1 unit per carton	65 ea	3
K	GA9S Lighted Eyeshield (with on/off switch)	132 pr	6
L	GA13 Eyeshield for 6" Grinders	29 pr	2

(A) **GA16 PEDESTAL** for 6", 7", 8" and 10" grinders, carbide and diamond wheel grinders, 1/4 Hp through 1-1/2 Hp buffers and belt grinders. Height 32 7/8". **GA16RE** for 6" & 7" grinders "all steel construction". Height 34".

(B) **GA14 PEDESTAL** – Fabricated steel, for 6", 7", 8" and 10" grinders, 1/4 Hp through 1-1/2 Hp buffers. Height 34-1/2".

(C) **GA20 PEDESTAL** for 8", 10", 12" and 14" grinders and 3/4 through 7-1/2 Hp buffers. Height 30". **GA20RE** for 8" & 10" grinders "all steel construction". Height 34".

(D) **GA24 WATER POT** for 623E, 632E, 673E, 612E, 662E, and 7" (except #712, #712R, #762, & #762R), 8" and 10" grinders. Supplied with mounting bracket and swivel arm. Capacity 1-1/2 pints.

(E) **GA3 WATER POT** for GA20 pedestal. Capacity 3 pints.

(F) **GA25 TOOL TRAY** for 623E, 632E, 673E, 612E, 662E and all 7" (except #712, #712R, #762, & #762R), 8" and 10" grinders. Supplied with mounting bracket and swivel arm. Diameter 8". Area 48 square inches.

(G) **GA4 TOOL TRAY** for GA20 pedestal. Dimensions 12" x 6".

(H) **GA11 EYESHIELD** – 6" x 4" Shatter resistant Plexiglas®. Fits Baldor grinders 7" through 14".

(I) **GA10 EYESHIELD** – 5" x 4" Shatter resistant Plexiglas®. Fits Baldor 6" grinders and #712, #712R, #762 and #762R.

(J) **GA9 LIGHTED EYESHIELD** – 5 1/2" x 3 3/4" viewing area made of Shatter resistant Plexiglas®. Accommodates standard 115 volt 60-watt bulb. Easy to attach to all Baldor grinders except 600E, 602E, 600RE, 602RE, Baldor carbide tool grinders and belt grinders; Less on/off switch. U.L. Component Recognized / CSA Certified. Adjusts horizontally or vertically. * Supplied less bulbs.

(J-1) **GA9-1** – Same as GA9 except packed 1 per carton. 115 Volts, only.

(K) **GA9S LIGHTED EYESHIELD WITH ON/OFF SWITCH.** 115 Volts only.

(L) **GA13 EYESHIELD – Replacement** for 600E, 600RE, 602E and 602RE Grinders

NOTE: J, J1, & K lighted eyeshields supplied less bulbs. Rough service bulbs are suggested.

WILCOX
~~ITEM L18~~
M31 Existing

Southwestern Industries, Inc.

Site Preparation Guide

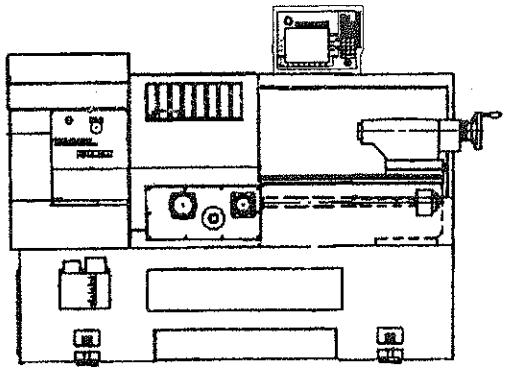
TRL 1630SX EXISTING

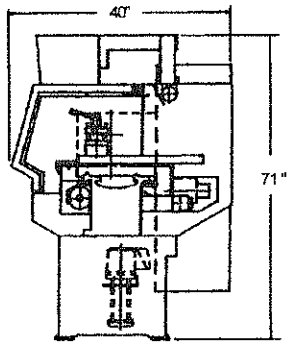
Before an Authorized Field Service Technician can perform the machine's final checkout, the following requirements must be met:

- The machine must be in position and placed on its rest pads
- To offload the machine, a 6000 lb. forklift with 6' extension is required.
- The machine must be leveled (refer to installation and service manual).
- The machine must be wired (refer to the installation and service manual).
- The machine must be cleaned. Remove all grease from the way surfaces.

Space & Weight

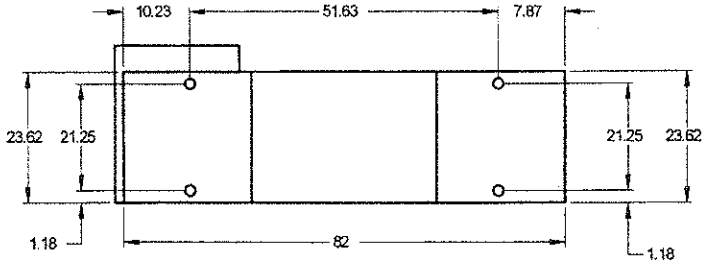
- Floor area = 84" x 40"
- Height = 71"
- Net (approx) Weight = 2200 lbs.
- Shipping (approx) Weight = 2750 lbs.
- A 36" clearance from the rear of the machine to the wall is required for repairs in the electrical enclosure.
- A solid and level foundation to maintain approximately 2200 lbs. plus the weight of the work piece is required. Four leveling screws are provided.
- For best results, it may be necessary to lag bolt the machine in order to remove any small amount of twist.





Electrical

- A separate 220 VAC, 25 Amp, 60 Hz, 3 phase circuit is required to maintain proper operation.
- A separate 110 VAC, 8 amps minimum, 60 Hz circuit is required to maintain proper operation.
- For shops with 440 VAC, a step-down transformer to 220 VAC must be used. The transformer must be sized to carry a load of 25 amps minimum.
- Machine tool must be earth grounded.



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Air

- Not required

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Rancho Dominguez, CA 90220-5610 USA
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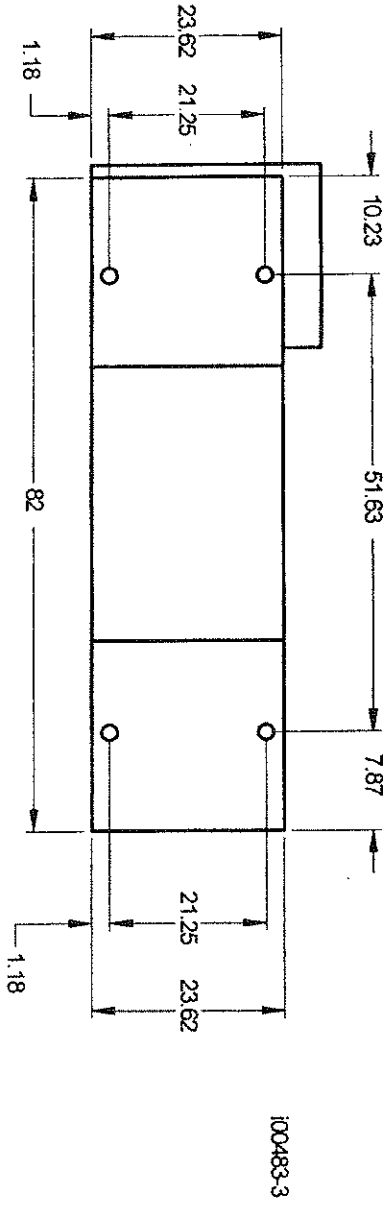
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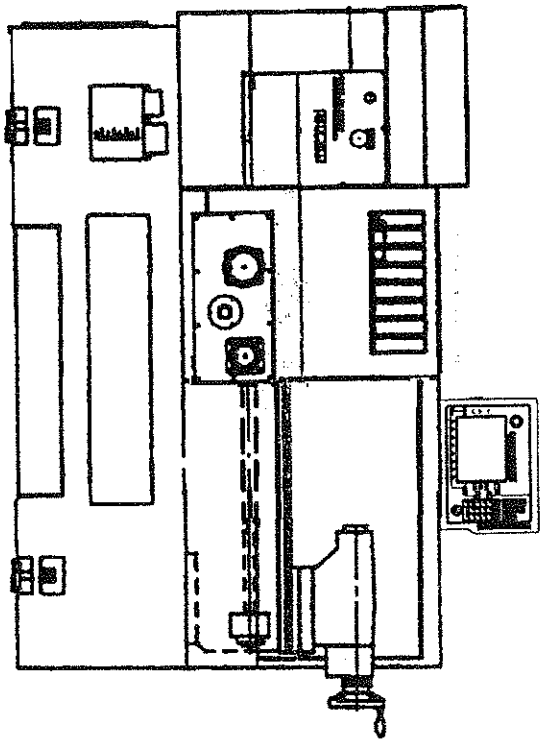
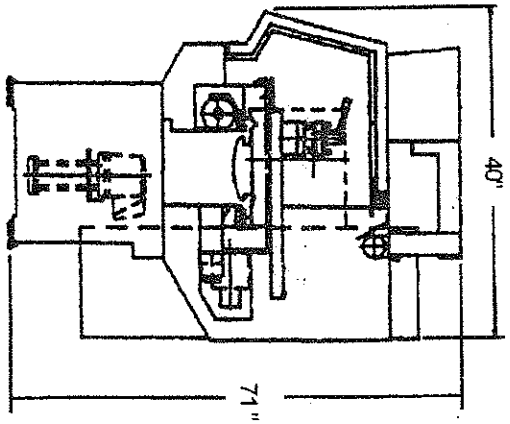
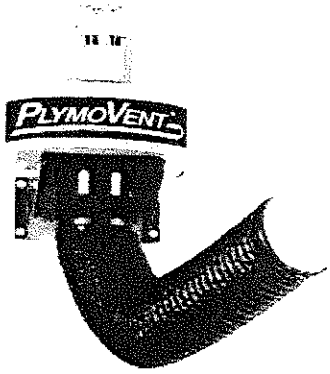
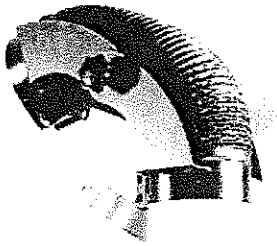



40"
71"

Ball-bearing KUA

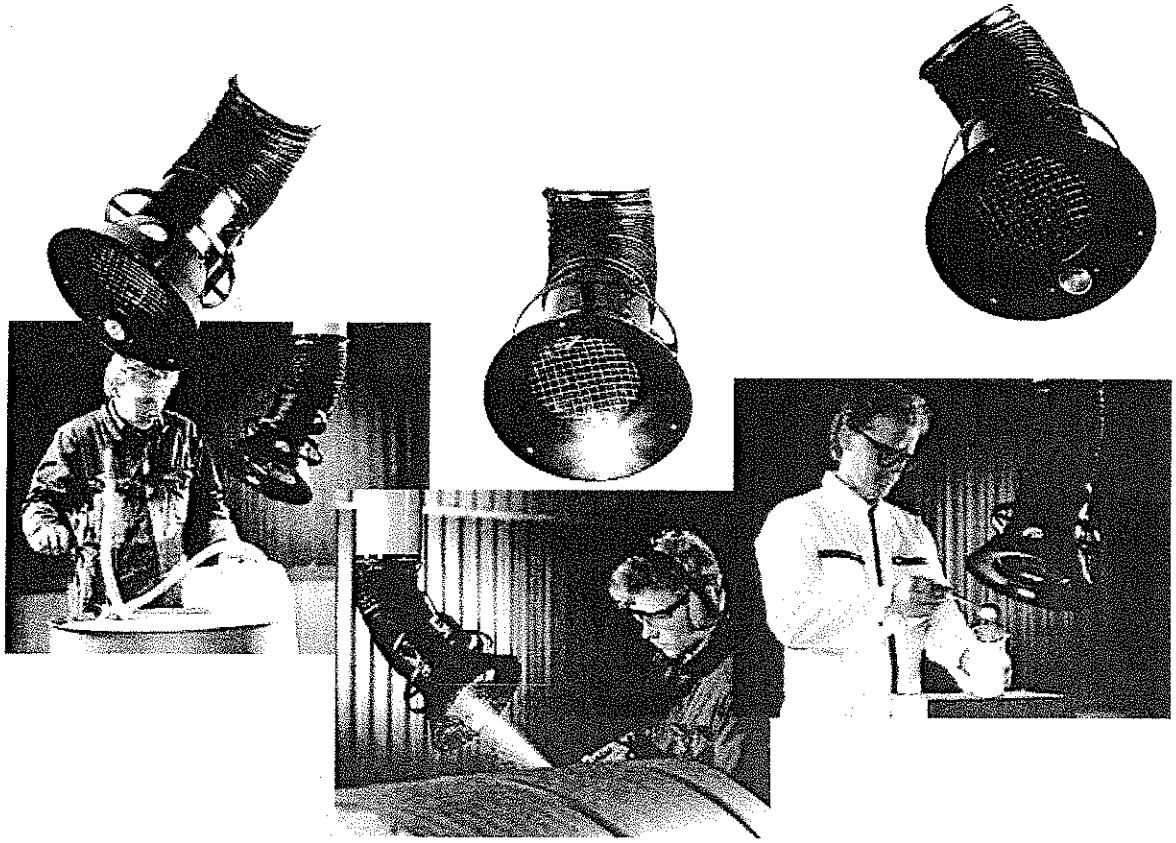


PLYMOVENT



A superflexible extractor for small and medium sized work places

M21



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Tel. (905) 564-4748, Fax (905) 564-4609
www.plymovent.com, info@plymovent.ca

PLYMOVENT®
INTELLIGENT PROCESS VENTILATION™

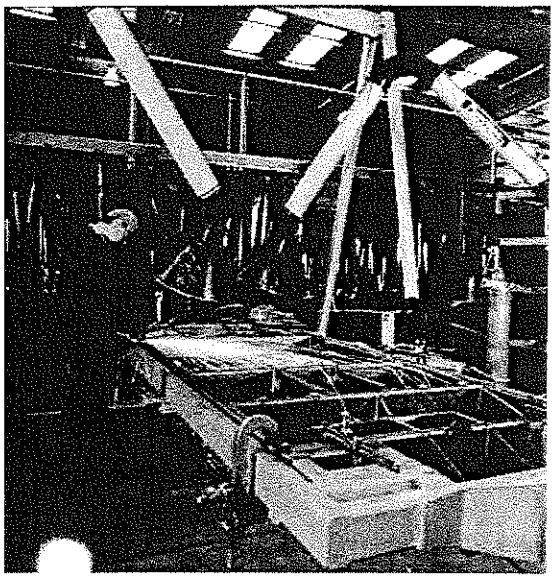
PlymoVent's "KUA" is the most flexible extraction arm on the market for fume, gases and oilmist.
All in all, the perfect solution technically, practically, economically and aesthetically.
Take a close look at it!
The KUA is, of course, compatible with all other products in the PlymoVent range.

Always at hand - PlymoVent's KUA

At your service.

Unique to the KUA is the combination of inner and outer arm of smooth aluminium tubing connected by a our unique middle joint.

The external easy-to-adjust elbow joint, together with the spring-assisted joint supported in double ball-bearings, make manoeuvring of the arm a simple, one movement operation. When you move the arms – vertically and horizontally – you use PlymoVent's easy-to-reach ring handle.

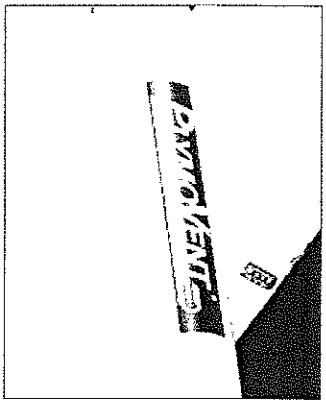


You position the arm exactly where you want it, when you want it! The hood can be angled 110° in any direction, which makes anything possible!

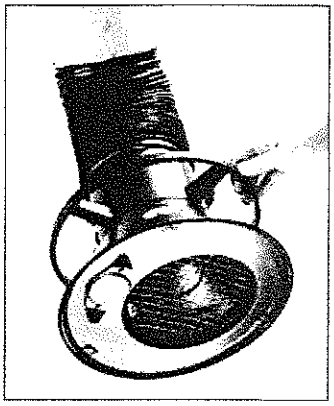
The KUA can even reach above its own mounting height, and can be turned through 360°. It can be folded back and put to one side according to your needs. In other words, the KUA will follow you around the workplace smoothly and faithfully.

Offers you the best.

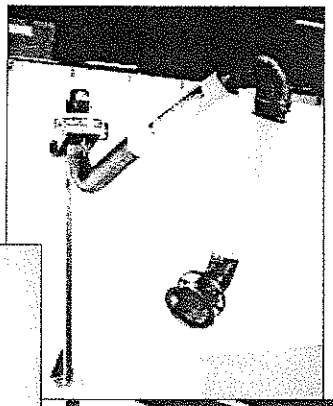
Another important feature is the construction of the KUA. The inner and outer arms are made of smooth aluminium tubing. This makes the arm more robust, allows better airflow and reduces the overall weight and noise level, even with large volumes of air going through. KUA combines quality with strength and has no equal!



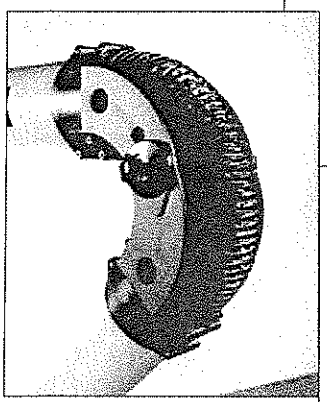
The smooth aluminium tubing, which replaces the hose, allows maximum airflow, increases the life span of the arm and reduces the need for servicing and maintenance.



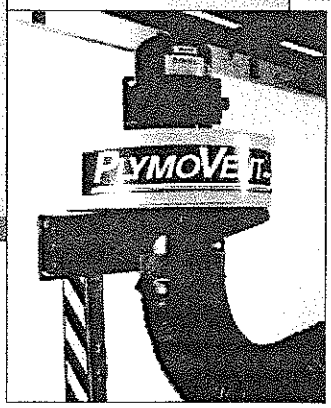
Large, ring handle which can be reached from any position. All manoeuvring is done with just one hand.



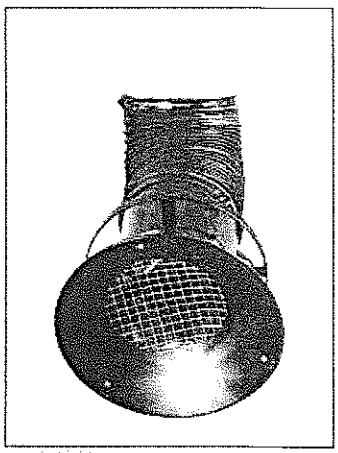
KUA can be mounted on a wall and also on a stanchion (PA-110 and PA-220). The arm has ball-bearings hinges and adjustable friction brakes turning through 360°.



Unique to the KUA is the external mounted middle joint. An innovation which makes the KUA extremely flexible and easy to adjust.



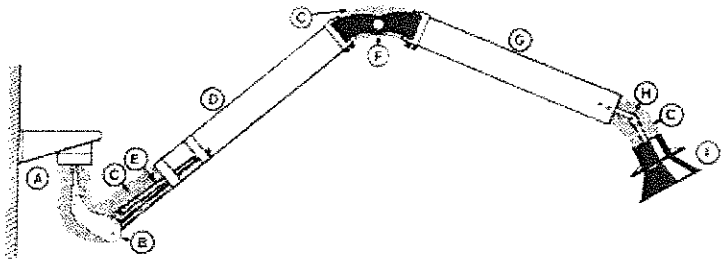
Three alternative fans offer you exactly the extraction capacity you need. We recommend between 500 and 700 CFM at the hood. The fan fits easily to the mounting bracket of the arm.



The PlymoVent 20 watt halogen lamp cartridge, HL-20/24 is also available – an accessory which compliments the arm.

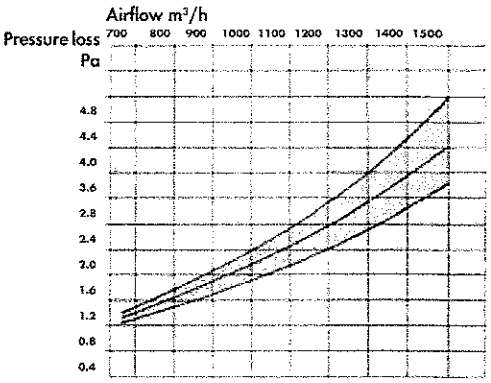
PlymoVent's KUA - smooth and easy going

ESSENTIAL FACTS



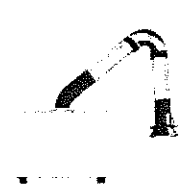
A Wall mounting bracket with ball-bearings and inlet spigot.
B Inner arm mounting bracket with friction pads for adjustment of tension of arm.
C Flame-proof double skin flexible hose of PVC-coated woven polyamide with internal steel spiral.
D Inner arm tubing in aluminium.
E Tensioned spring.
F External adjustable elbow joint.
G Outer arm tubing in aluminium.
H Universal joint with hood collar and shut-off damper.
I Hood with safety mesh and quick-fit coupling.
Hood opening Ø 300 mm . The hood can be turned 110° in all directions.

Pressure loss chart

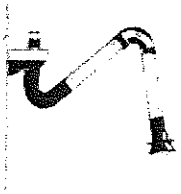


Welding: 500-700 CFM

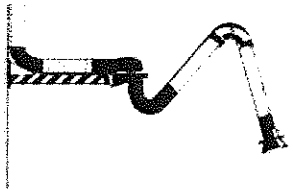
Mounting Examples for KUA



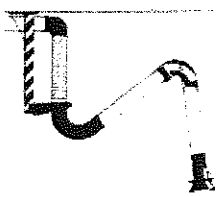
Standing version, for example on a filter.



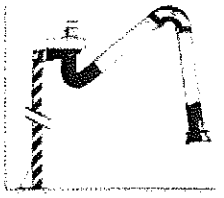
KUA with standard mounting bracket and individual fan.



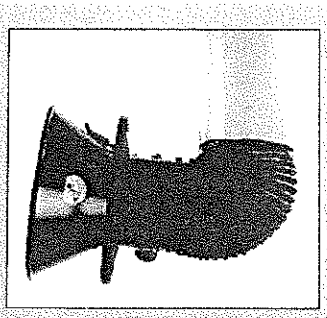
KUA wall mounted with stanchion PA-110 or PA-220.

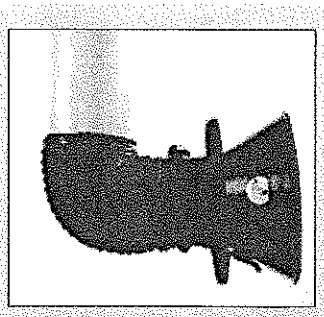


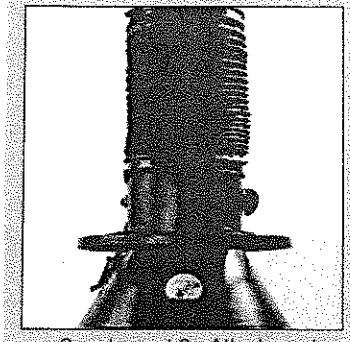
KUA ceiling mounted with stanchion PA-110 or PA-220.



KUA floor mounted with stanchion PA-220 and individual fan.

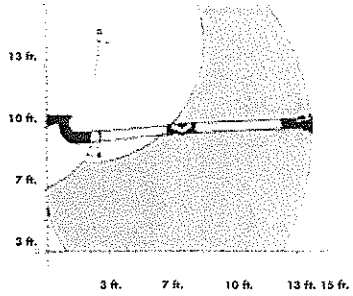




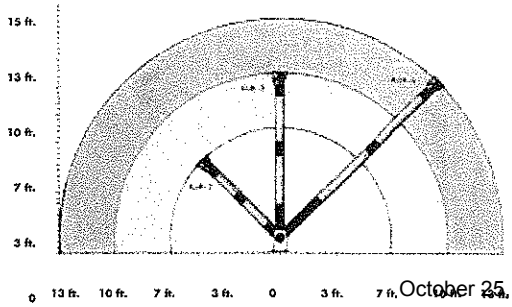


The black, anodized metal hood can be angled 110° in any direction. It is detachable, has a safety mesh and a controlspace-handle for the damper.

Working area of KUA -4



Maximum reach of KUA -2 -3 -4

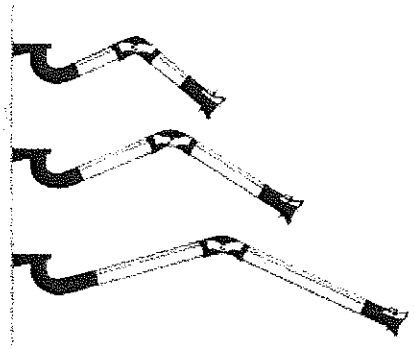


TECHNICAL DATA

Ball-bearing jointed extraction arms KUA

(Wall bracket, arm, hose and hood with damper included)

Prod. No.	Max. working radius in ft.	Hose diameter inches	Recommended airflow at hood CFM
KUA-2	7 ft.	6.25"	500-700
KUA-3	10 ft.	6.25"	500-700
KUA-4	14 ft	6.25"	500-700



Fans for mounting directly to wall bracket

(Note! The fans should be fitted with recommended motor overload)

Prod. No.	Airflow CFM freeblowing	Motor Hp	Voltage**	Approx. airflow at the hood with 30 ft. exhaust duct on outlet
FUA-1300	825	1/2	208/230/460/575, 3-ph.	560 CFM
FUA-1301	825	1/2	110/220, 1-ph	560 CFM
FUA-1800	1060	3/4	208/230/460/575, 3-ph.	710 CFM
FUA-2100	1300	1	208/230/460/575, 3-ph.	765 CFM
FUA-2101	1300	1	110/220, 1-ph	765 CFM

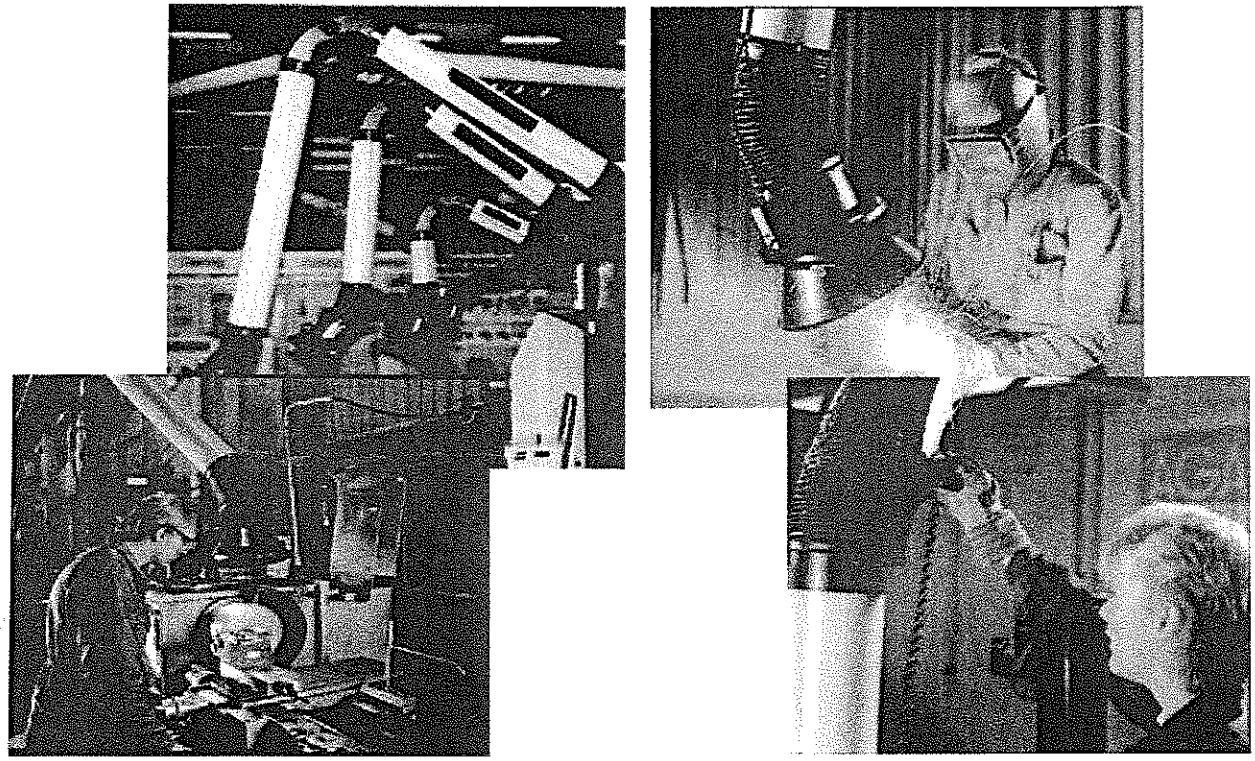
Complementary products and accessories.

Stanchions for ceiling, floor or wall mounting

Prod. no.	Length
PA-110	3 ft.
PA-220	7 ft.

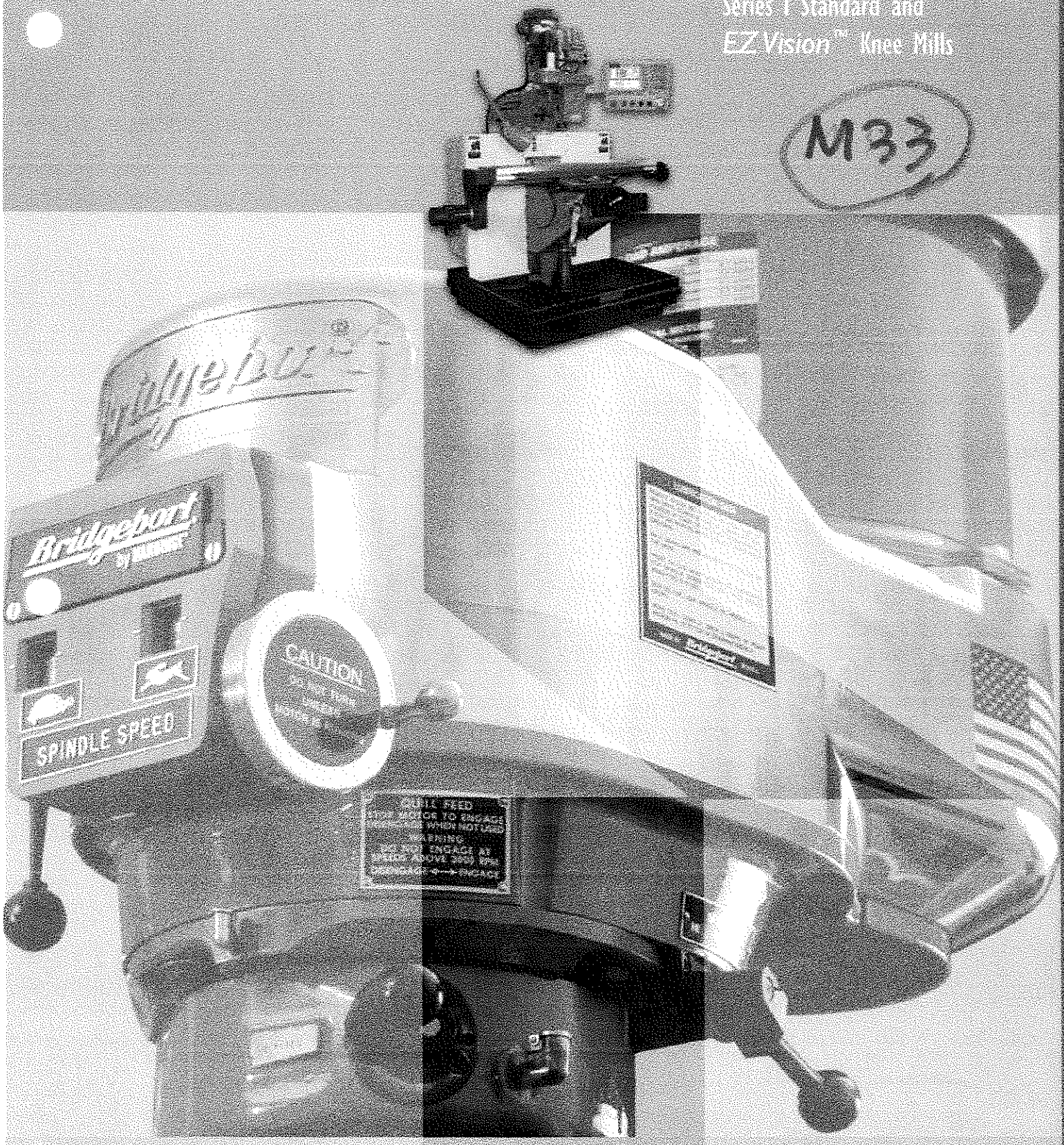
Halogen lamp cartridge

Prod. no.	Rating
HL-20/24	20 watt/24 V



Series I Standard and EZ Vision™ Knee Mills

M33



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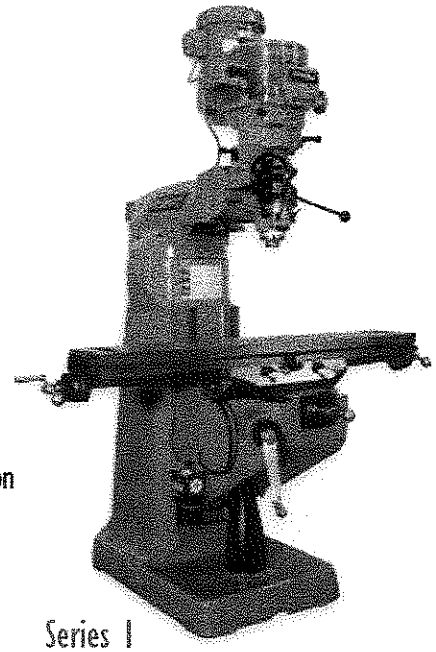
BRIDGEPORT
EXPECT MORE

Bridgeport® Series I Standard and *EZVision*™ Automated Knee Mills

The Original milling machines...there's nothing like the real Bridgeport knee mill

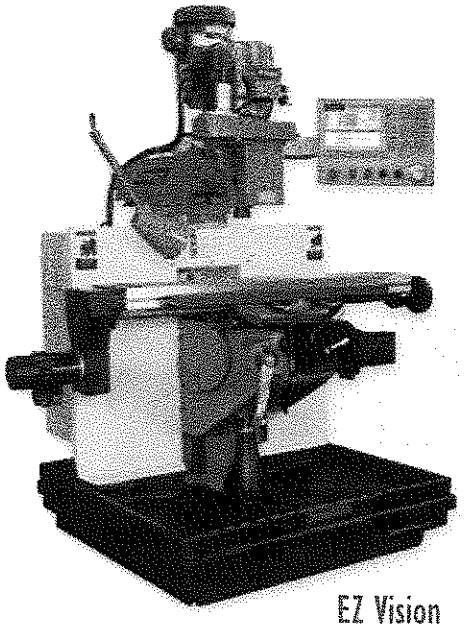
The Bridgeport Series I Standard Mill is the original milling, drilling and boring machine. It's the mill that is completely manufactured, under strict quality control standards, at Hardinge Inc. in Elmira, NY. Over 350,000 machines have been built over the past 60-plus years and on-going refinement ensures that every Series I mill offers the ultimate in rigidity for a long productive life.

- **Designed, engineered and built in the USA**
- **Rugged hand-scraped gray cast iron construction**
- **3-hp motor completely balanced, nickel-plate motor shaft—no lubrication needed**
- **Bridgeport patented airflow cooling system design requires no external fans**
- **Spindle taper is ground after the spindle is fully assembled, eliminating runout**
- **Dual-saddle and knee locks for rigidity**
- **1-Year full factory parts and service warranty**



Series I Standard

BUILT IN THE U.S.A.



EZ Vision

The *EZVision* automated knee mill is described on pages 4 and 5.

Features

- Quill power feed is standard. The quill (3-3/8" dia.) is hard chrome-plated, hand lapped for accuracy and long life.
- Quick-release micrometer adjust.
- Spindle taper is ground while on its own ABEC Class 7 bearings, eliminating runout.
- Ribbed cast table, precision ground.
- Knee lock and multiple table locks for high rigidity.
- Anti-friction bearings used throughout.
- Gibs are full length of saddle and knee.
- Bridgeport 50° angular ways, full bearing contact.
- Metered one-shot lube system.*
- Bridgeport-patented airflow cooling design uses no external fans.
- Bull and pinion gear completely balanced.
- Ram and turret are precision ground for superior fit, extra rigidity. No shims or gibs used. Patented ram and turret locks.
- Easy-to-read scales on the ram and turret.
- EZ-Reading dials on the table and cross-slide.
- All alignment ways and gibs are completely hand scraped to within tenths of a thousandth, ensuring full bearing support
- Single gib screw for easier adjustment.
- Chrome-plated ways and gibs ensure long life—an ideal lubricating surface and lowest possible coefficient of friction. Plated to MIL SPEC QQ-C 320 Class 2-A (exceeds Rockwell C-70).
- Dished column base.
- Optional 2-axis digital readout.*
- Optional power drawbar.
- Optional splashbacks and chip pan.

Other options shown: Worklight and NFPA electrics.

* Applies to Series I Standard mill only.

Built the Bridgeport® way

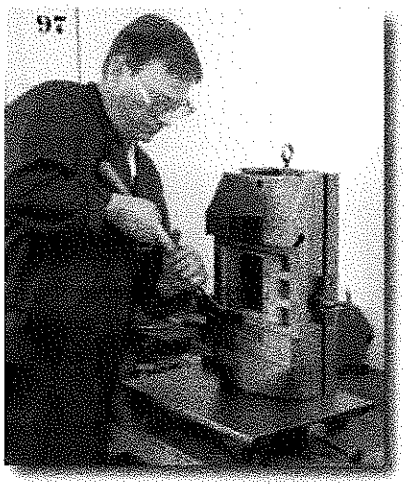
The long-term reliability of a Series I Standard mill or *EZ Vision*™ mill is the result of its design features, the quality of its components, and the craftsmanship of its hand-scraped ways and precision ground fits. We build every Bridgeport knee mill as though we're going to use it ourselves...even the paint finish is scrutinized before we ship it. That's why the resale value of a Bridgeport mill remains consistently high. The "bargain" imitators can't say that. Our competitive prices are a result of our higher volume—not from building a cheaper machine. Rigidity starts with the main frame components of a machine, and for this reason, the strength and damping qualities of gray cast iron was chosen. High-quality, close-grained cast iron is used throughout to ASTM grade 30/35 with a minimum hardness of 187 Brinell. Maximum strength and rigidity under cutting conditions is ensured, not only because of the robust construction of the major castings, but also the extra-wide way systems, twin knee/column locks, and twin table/saddle locks. The table is a coreless casting that is heavily ribbed for maximum robustness and strength.

Patented 2J head

The unique and patented air cooling system of the "2J" head ensures that any heat buildup in the spindle bearings, belt or quill area is kept to an absolute minimum. This is achieved by air being drawn into the belt housing and past the spindle bearings by the rotation of the drive belt. It is then exhausted out of the head assembly at the top of the casting. Distortion and inaccuracy due to excessive heat rise is kept to a minimum by maintaining the operating temperature within 20 degrees F of ambient temperature. This also results in increased belt and bearing life, as well as more consistent accuracy. Also, with no external cooling fans, vibration is reduced and the ongoing maintenance or threat of a fan failure is eliminated. Fans also frequently require a step-down transformer if the machine is wired for power greater than 110 Volts.

Series I One-shot lubrication

Adequate lubrication ensures a long accurate life for the machine. It also reduces maintenance and makes the machine more sensitive and easier for the operator to use. A metered, centralized system lubricates all of the ways and screw assemblies of the machine. Operation of the system by a single lever saves the operator time and makes it easy to always provide the correct amount of oil, predetermined by a series of metering valves built into the system. Many competitive systems do not meter lubrication, which allows the oil to flow to the point of least resistance. Thus one sliding member may receive more oil than another, possibly causing excessive wear to the area that is not getting properly lubricated. An optional Automatic Lubrication System is also available.



Hand-scraped ways

All alignment ways and gibs are completely hand scraped to within tenths of a thousandth. This ensures optimum machine geometry, rigidity and accuracy.

Dovetail ram design

The ram is positioned on a ground, close-fitted dovetail way. Backward and forward movement is achieved through an accurate rack and pinion mechanism. The ram expands into the dovetail way for highly-rigid clamping and reduced vibration (clamping method patented).

Bridgeport's signature painting process

Castings are fully inspected, shot blasted, annealed and oxide coated...totally free from rust and contamination. They are then spray filled, sanded and painted with the first of a two-part polyurethane coating to seal the castings. Painting before machining builds the depth of gloss, which is required of all Series I and *EZ Vision* machines. The last process prior to skidding for shipment is to spray a final finish coat of the best polyurethane coating available.

Milling accessories

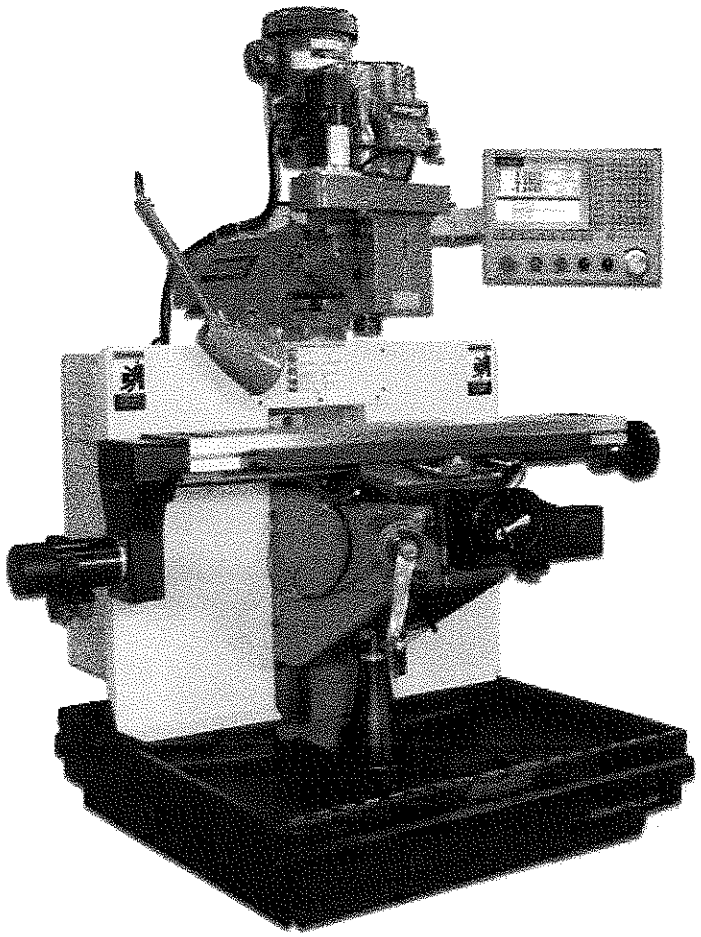
Bridgeport continues to develop new accessories to fill the changing needs of the metalworking industry. We offer these accessories and attachments based on our understanding of how our customers use our mills. For more information on our complete line of accessories and attachments, please contact your Bridgeport or Hardinge sales representative or call 800-243-4292.

Bridgeport® *EZVision*™ Automated Knee Mill

Milling machines for increased versatility, value and performance

The 2-axis controlled *EZVision* mill with enhanced electronics is designed to meet NFPA/NEMA requirements and comes factory-fit (not retrofit) with power feeds. The Bridgeport designed control is easier to operate than conventional CNCs and far more productive than manual machining. The 2D contouring capability lets you machine angles and radii without a rotary table. And it's a tremendous time-saver on repetitive work, such as bolt-hole circles. Batches, and even "one-offs", go faster; setup time on repeat batches is greatly reduced. A 3rd-axis option is available to further enhance the machine's productivity.

- **The only automated 2- and 3-axis milling machines built entirely in one location—Hardinge Inc. in Elmira, NY USA**
- **12.1" flat screen color TFT LCD**
- **Complete alpha numeric key pad**
- **Fully-adjustable control pendant**
- ***EZVision* software features include engraving, island pocketing routine, ellipse function, and more.**



Features

In addition to the features listed on page 2, the *EZ Vision* mill also includes:

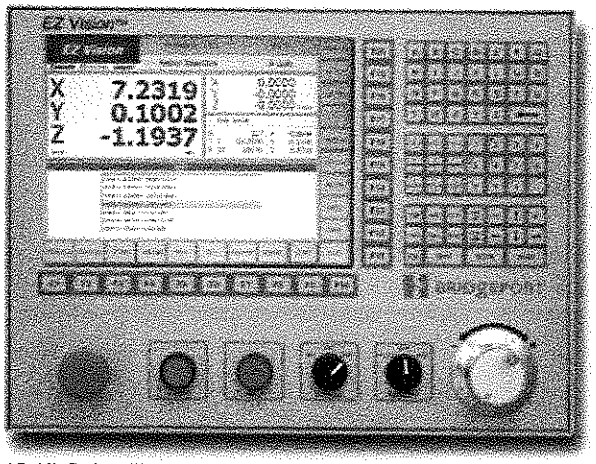
- EZ Vision control featuring a 12.1" color flat panel display, Windows-based PC operating system with 900 MHz Intel processor and 2 GB flash drive. The control is Ethernet-ready and includes two USB ports. Fill-in-the-blank format helps you enter machining data quickly.
- Machining data is entered by using the keypad. The control stores unlimited operations—there's no need for DNC operation! Plus you can call up to 13 pre-programmed routine mill and 4 routine drill cycles.
- Machine operations alternates between automatic and manual at the discretion of the operator.
- 300-lb Table load capacity.
- Power feeds for both X axis (longitudinal) and Y axis (cross) are infinitely variable for maximum metal cutting flexibility. Rapid traverse up to 100 ipm. Powerful AC servo motors let you make cuts consistent with 3-hp machining.
- Optional 3rd Axis providing full automatic control of the quill for R-8, Erickson 30 Q/C, or Universal spindles.
- Full 2-axis contouring capability while controlling the quill manually. Unlike competitive mills, the quill disengages from the 3rd-axis motor to allow smooth operation for drilling or setting tool depth.
- A 3rd-axis housing, containing a glass feedback scale for both manual and automatic operation. The quill assembly is driven by a 19 in-lb drive motor, 1:1 pulley and narrow cog-type toothed belt.

  (Note: installation will reduce quill travel by 0.5 inches for a total of 4.5 inches—see specifications on back cover).

  NEMA-12 electrical enclosure to NFPA specifications.

  Other options shown:
  Splashbacks, chip pan and worklight.

Bridgeport® *EZ Vision*™ programming



12.1" Color Flat Panel Display—complete alpha numeric keypad on a fully-adjustable pendant

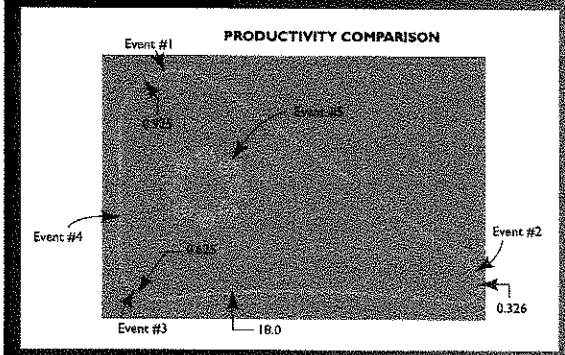
Unique *EZ Vision* Programming Features:

- Engraving
- Island pocketing routine
- Ellipse function
- G-Code compatible
- Geometry help

Time Study

This part requires milling of 3 radii, an angle, an arc—plus a bolt-hole pattern with 8 holes. Now you can get it done (without a rotary table) with five simple "operations" that are programmed in eight easy steps.

Comparison of setup and machining time:
Conventional Mill.....107.0 minutes
EZ Vision.....26.5 minutes



Here's how simple the programming is:

```
0010 RAPID ABS X.125 Y-2. Z-1
0020 BLEND[LIN ABS X.125 Y.7364 Z-1 R.625 CW F10
0030 BLEND[LIN ABS X6.941 Y4.0807 Z-1 R.326 CW F10
0040 BLEND[ARC]CNTRPT ABS CCW X.125 Y3.875 Z-1
     XC3. YC-71.6439 R.625 CW F10
0050 LINE ABS X.125 Y2. Z-1 F10
0060 DR[]SC R.5 XC1.5 YC-7. Z.05 Z-.5 Z0. Z0. Z0 F10
```

Control pendant

The *EZ Vision* mill features a full-color operator pendant control, incorporating a 12.1" flat screen color TFT LCD screen. An industrial-hardened front panel features a full alpha numeric keypad and a detent manual pulse generator. The rigid, heavy-duty, articulating pendant arm is fully adjustable for both the height and angle of the display.

Ideal for both new and experienced programmers

Entry-level programming is easily accomplished using *EZ Vision's* conversational feature, while users with a strong background in G-code programming will appreciate the control's powerful G-code support feature. Another key feature with the *EZ Vision* is the ability to upload part programs developed for earlier Bridgeport mills, such as *EZ PLUS*, ***without*** program modification!

Programming made EZ

There's no CNC programming "lingo" to learn. Simply enter the dimensions for each X- and Y-axis move directly from your part print...you can store unlimited individual operations. Then you can activate or recall them with the push of a button. You operate the Z axis yourself and the large digital readout portion of the screen tracks all the moves. *EZ Vision* can also give you a graphic preview of the operations you have stored so that you can easily verify the machining program created. Should you find an error in your program, you can quickly go to Bridgeport's conversational editor and make changes with the same menu-prompting format originally used to create the data. Of course, the option to run the machine manually, using power feed or handles, is always available.

Teach as you go

You can also "teach" the control how to machine a part by moving the table and hitting the "Enter" key at the end of each move to store the machine position. Tool radius compensation can be calculated automatically and saved, so you can use those reground milling cutters. *EZ Vision* provides routine milling and drilling cycles for bolt hole patterns, arcs, diagonals, slots, pockets, engraving, ellipse, and frame cycles. To machine a bolt-hole circle, for instance, you simply enter the values for the position, bolt circle diameter, and number of holes. The control does all the math! Then at the touch of a button, the power feeds move the workpiece in position to drill each hole.

G-Code compatibility

The full keyboard contains all of the symbols necessary for G-code and Parametric part programming (supports both Fanuc and Bridgeport-based G-code). Pressing the "New" key allows the programmer to enter a G-code program through the keyboard.

The Hardinge® Group

Bridgeport® milling machines, Hardinge turning centers, Hauser, Kellenberger®, Tripet and Tschudin grinding machines, and Workholding and industrial products

Hardinge produces more than just the Bridgeport mills shown in this brochure... we build a full range of value-packed and high-precision turning centers; vertical and horizontal machining centers; high-speed and 5-axis milling machines; jig, universal cylindrical and ID/OD grinding machines; and workholding systems and equipment. Hardinge machine tool technology is not only the most comprehensive on the market, it's also creating new benchmarks as a solutions provider for quality, productivity and reliability.

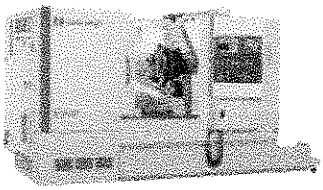
Whether you are an OEM or sub-contract precision engineering company—regardless of the sectors you serve (aerospace, automotive, medical, autosport, mold, tool and die or general engineering)—the Hardinge product portfolio will interest you.

Our advanced manufacturing technologies in combination with our range of after-sales and support services (maintenance and service contracts; operator training; technical and applications support) have been designed to help you improve your performance and maintain your competitive advantage.

If you would like to know more about our manufacturing solutions, call us at 800.843.8801 or 607.734.2281 and request our Product Guide #1325. You can also e-mail us at info@hardinge.com or visit our web site at www.hardinge.com.

Hardinge precision and Super-Precision® CNC turning centers

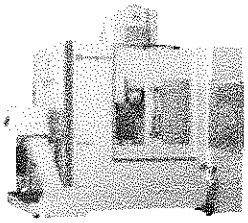
We can help you turn your business around. From our competitively-priced SV-Series range of machines to our TALENT® and ELITE® Series II range of quick-change-over bar and chucking machines right through



to our high-productivity RS-Series and SR-Series multi-tasking turning centers and QUEST® GT gang tool machines, we can provide you with the optimum turning solution.

Milling machines and machining centers

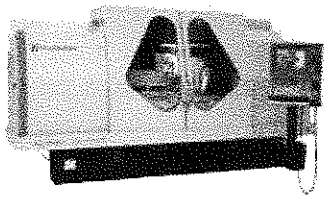
Our comprehensive line of Bridgeport milling machines have been designed to meet any manufacturing challenge you might be facing today or in the future. Our market-leading XR range of vertical machining centers continue to grow in popularity—and we have similar expectations with our new competitively-priced XV and GX VMCs as well. For



heavy-duty, high metal removal we offer our HMC range of Horizontal Machining Centers and for increased manufacturing flexibility and improved productivity there's our 5-axis (5AX) model that is well worthy of consideration. If you are making your first step up to CNC machining, you will find that our entry-level GX 480 and GX 480 DT machines provide the ideal solution. For high-speed machining applications, our HSC machining centers are second to none.

Grinding machines

The Hardinge grinding companies include Hauser, Kellenberger, Tripet, Tschudin and, most recently, Bridgeport. Collectively we have all the technology, experience and know-how you need to transform your manufacturing operations. From high-performance

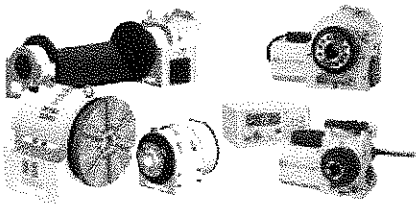


cylindrical and jig grinding machines through to multi-functional ID/OD and universal machines—not to mention Bridgeport's state-of-the-art Flexible Grinding Center (FGC 2). It doesn't get more comprehensive than this.

Workholding

Because we design and manufacture market-leading, technically-excellent machine tools it's no surprise that we know more than a thing or two about workholding solutions. From our extensive portfolio of CNC toolholders, collets and chucks—right through to our 5C Indexing systems—our workholding and fixturing

technology will improve your performance when and where it matters most.



Specifications

	Series I Standard	*EZ Vision*™
Range		
Table Travel (X-Axis)	36 in. (914 mm)	30 in. (762 mm)
Saddle Travel (Y-Axis)	12 in. (305 mm)	12 in. (305 mm)
Quill Travel	5 in. (127 mm)	5 in. (127 mm)
Quill Travel with 3rd Axis	—	4.5 in. (114 mm)
Knee Travel (Z-Axis)*	16 in. (406 mm)	16 in. (406 mm)
Ram Travel	12 in. (305 mm)	12 in. (305 mm)
Throat Distance (min.)	6.75 in. (171 mm)	6.75 in. (171 mm)
Throat Distance (max.)	18.75 in. (476 mm)	18.75 in. (476 mm)
Table to Spindle Nose Gage Line		
(min.)	2.5 in. (64 mm)	2.5 in. (64 mm)
(max.)	18.25 in. (463 mm)	18.25 in. (463 mm)
Table		
Overall Size	48 x 9 in. (1219 x 299 mm)	48 x 9 in. (1219 x 299 mm)
Working Surface	48 x 9 in. (1219 x 229 mm)	48 x 9 in. (1219 x 229 mm)
T-slots Centers	3 @ 2.5 in. (64 mm)	3 @ 2.5 in. (64 mm)
T-slot Size	0.625 in. (16 mm)	0.625 in. (16 mm)
Height above Floor (max.)	47.25 in. (1200 mm)	47.25 in. (1200 mm)
Weight of Workpiece (max.)	750 lb (340 kg)	300 lb (136 kg)
Spindle (2J Head)		
AC Power Rating		
(30 min. duty cycle)	3 hp (2.2 kW)	3 hp (2.2 kW)
(continuous)	2 hp (1.5 kW)	2 hp (1.5 kW)
Spindle Taper	R-8	R-8
Tooling	R-8 Collets	R-8 Collets
Optional Spindle Taper		
Spindle Taper	—	#30 ISO
Tool Holder	—	Erickson Quick-Change #30 ISO
Speed Range		
High (infinitely variable)	500 – 4200 rpm	500 – 4200 rpm
Low	60 – 500 rpm	60 – 500 rpm
Power Quill Feed	0.0015 in./rev (0.038 mm)	Programmable
Manual Adjust	0.003 in./rev (0.076 mm)	Programmable
	0.006 in./rev (0.152 mm)	Programmable
Drilling Capacity		
Power Quill Feed	3/4 in. (19 mm)	3/4 in. (19 mm)
Milling Capacity (mild steel)	3/4 in. (19 mm)	3/4 in. (19 mm)
Boring Range (mild steel)	6 in. dia. (152 mm)	6 in. dia. (152 mm)
Spindle Diameter	1.875 in. (48 mm)	1.875 in. (48 mm)
Quill Diameter	3.375 in. (86 mm)	3.375 in. (86 mm)
Axis Screws	Leadscrews	Ballscrews
Diameter	1.25 in. (32 mm)	1.25 in. (32 mm)
Pitch	0.200 in. (5.08 mm)	0.200 in. (5.08 mm)
Positioning		
Auto (X,Y)	—	100 ipm (2540 mm/min)
Manual (X,Y)	—	100 ipm (2540 mm/min)
Feedrate Range (X,Y)	—	0.1 – 100 ipm (2 – 2540 mm/min)
Minimum Increment	—	0.0001 in. (0.003 mm)
Space and Weight		
Floor Area	8.2 x 5.3 ft. (2.5 x 1.6 m)	8.2 x 5.3 ft. (2.5 x 1.6 m)
	—	8.2 x 7.8 ft. (2.5 x 2.4 m)**
Height	6.8 ft. (2.1 m)	6.8 ft. (2.1 m)
Net Weight	1950 lb (885 kg)	2340 lb (1061 kg)
Shipping Weight	2095 lb (950 kg)	2485 lb (1127 kg)
Power		
Input Power	208/230/460 volts	208/230/460 volts †
	3 phase, 50/60 cycle	3 phase, 50/60 cycle
Power Capacity	4kVA	5kVA

Series I Standard Features
- One-Shot Lubrication System
- Chrome-Plated Ways and Gibs
- Color—Machine Tool Gray

Series I Optional Features
- 2-Axis Digital Readout
- ACU-RITE® MILLPWR® CNC control (request brochure 1334)
- Power Drawbar for R-8 or #30 Quick-Change Spindle
- Flood Coolant System
- Splashbacks and Chip Pan
- Worklight
- Electrics—NFPA/NEMA-12 Standards, UL listed

***EZ Vision* Standard Features**
- Automatic Centralized Lubrication System
- Chrome-Plated Ways and Gibs
- Color—Machine Tool Gray
- Electrics—NFPA/NEMA-12 Standards

***EZ Vision* Optional Features**
- Remote Start/Stop Switch
- 3rd-Axis Control
- Splashbacks and Chip Pan
- Indexing Interface (M-code)
- Flood Coolant System †
- Worklight †
- Power Drawbar for R-8 or #30 Quick-Change Spindle †

***EZ Vision* Machine and Control Performance** ††

Positioning Accuracy over Saddle	±0.001 in. (±0.025 mm)
Positioning Repeatability over Saddle	±0.0008 in. (±0.020 mm)
Input Resolution	0.0001 in. (0.003 mm)
Servo Resolution	0.0001 in. (0.003 mm)
Display Resolution	0.0001 in. (0.003 mm)

- Windows-based PC control system—900 MHz Intel processor
- Memory Storage—2 GB Flash Drive
- Two USB Ports and Ethernet-ready
- Full 3-axis DRO
- Simultaneous 2-Axis Linear or 2-Axis Circular Interpolation
- 12.1" Color TFT LCD Display
- Absolute and Incremental Programming
- Automatic Corner Rounding
- Mathematical Help Modes
- Powerful Canned Cycles for machining arcs, diagonals, circles, bolt hole patterns, pocket milling, island pockets, ellipse and more
- Cutter Diameter Compensation
- English/Metric Conversion
- Maintenance—Diagnostic Routines Embedded in System

* Knee travel reduced by 1 in. (25.4mm) with Flood Coolant
** Power case door open
† Requires separate 115-volt electrical service for *EZ Vision* model
†† Accuracy based on laser interferometer testing to JIS and Bridgeport standards

HARDINGE

EXPECT MORE

Over the past 10 years Hardinge steadily diversified both its product offerings and operations. Today, the company has grown into a globally diversified player with manufacturing operations in North America, Europe and Asia. In addition to designing and building turning centers and collets, Hardinge is a world leader in grinding solutions with the addition of the Kellenberger, Hauser, Tripet and Tschudin brands to the Hardinge family. The company also manufactures Bridgeport machining centers and other industrial products for a wide range of material cutting, turnkey automation and workholding needs.

Expect more from your Hardinge products. Choose Hardinge precision and reliability for increased productivity and value!

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Table of Contents
Gilbane Project Manual
Additions and Alterations
HC Wilcox Regional Vocational Technical School
Gilbane Job No. 11.5311.000
State Project No. BI-RT-843-CMR

PROPOSAL FORM
FOR
ADDITIONS AND RENOVATIONS
HC WILCOX REGIONAL VOCATIONAL TECHNICAL SCHOOL
STATE PROJECT NO. BI-RT-843-CMR

GILBANE JOB NO. 11.5311.000
BID PACKAGE No. 09A Drywall & Related Work

PRE-BID CONFERENCE:	**October 11, 2011**	**PROPOSAL DUE DATE:**	**November 1, 2011**
TIME:	**3:00 PM**	**TIME:**	**2:00 PM**
LOCATION:	**HC Wilcox Technical School** **298 Oregon Road** **Meriden, CT 06451**	**LOCATION:**	**Gilbane Building Company** **208 New London Turnpike** **Glastonbury, CT 06033**

DEADLINE FOR SUBMISSION OF QUESTIONS: October 25, 2011

To: Gilbane Building Company
208 New London Turnpike
Glastonbury, CT 06033
Attention: Patrick J. Delany, District Chief Purchasing Agent

FIRM NAME:

_____

_____

_____the undersigned

A. Proposes to furnish all labor, materials, equipment and services as required to satisfactorily complete all **Drywall and Related Work** herein described as Bid Package **No. 09A** as required for the additions and alternations at HC Wilcox Regional Vocational Technical School Project, all in accordance with the Drawings and Specifications as prepared by Tai Soo Kim Partners, LLC, the Gilbane Project Manual, and this Proposal Form.

B. All work required by the foregoing documents will be accomplished for the Lump Sum Bid Price of _____

_____Dollars ($).
(Show amount in both words and figures. In case of discrepancy, amount shown in words will govern.)

The Lump Sum Bid Price above INCLUDES all applicable sales and/or use taxes; INCLUDES all insurance premiums required to meet contractual insurance requirements; and INCLUDES all premiums for a Performance Bond and a Labor and Material Payment Bond in the sum of one hundred percent of the Contract price.

C. Bidder agrees that if written notice of the acceptance of this bid is mailed or delivered to the undersigned within one hundred eighty (180) days after the Proposal Due Date, or any time thereafter before it is withdrawn, the undersigned shall meet a representative of the Gilbane Glastonbury office or a mutually agreed upon location to

execute the Contract. Performance and Payment Bonds and the appropriate insurance certificates will be delivered to the Construction Manager at the time of execution of the Contract. Failure to execute said contract within ten (10) days after receipt of Notice to Award may be considered a default under the obligation of the bid bond.

D. The above price includes all stipulations and requirements of the following Supplements:

Supplement __ dated _____
Supplement __ dated _____
Supplement __ dated _____
Supplement __ dated _____

which have been received and accepted by the undersigned. Note that it is incumbent of the bidder to include all Supplements issued in the bid. Failure to acknowledge a supplement does not relieve the bidder from the requirements of the supplement.

E. MILESTONE SCHEDULE DATES

See Gilbane Project Manual section 00 31 13 – Schedule for activity milestones, durations, and reference. This schedule represents the general milestones that need to be met to achieve the overall project completion dates, and provides guidance to the bidders to understand the time constraints the work must be performed under. The project detailed schedule, in accordance with the terms of the Contract and General Conditions, will be derived from a "Card Trick" scheduling session with mandatory attendance by all prime Trade Contractors.

1. Anticipated Date of Contract Award: ..... January 19, 2012
2. Commence Shop Drawings and Submittals..... January 19, 2012
3. Commence Work for the Proposal:..... June 25, 2012
4. Bid Package Substantial Completion:..... August 7, 2014
5. Project Substantial Completion..... November 5, 2014

F. TRADE SUBCONTRACTORS AND MAJOR SUPPLIERS

The following trade subcontractors are proposed for the item of work listed. Trade subcontractors are subject to review per the General Conditions.

ITEM OF WORK	TRADE SUBCONTRACTORS
_____	_____ EMR:___
_____	_____ EMR:___
_____	_____ EMR:___
_____	_____ EMR:___

G. UTILIZATION OF MINORITY CONTRACTORS AND SUPPLIERS

1. The Bidder will endeavor to obtain a minimum goal of twenty-five percent (25%) of the awarded amount to small business enterprises, with ten percent (10%) of the awarded amount to minority business trade subcontractors and/or suppliers certified by the **State of Connecticut.**

2. The successful Trade Contractor shall substantiate this participation within ten (10) days after receipt of Notice of Award. Refer to the General Instruction to Bidders for further information.

3. Indicate here the utilization of certified S/MBEs included in the base bid. Failure to comply with M/WBE participation goals may constitute a non-responsive proposal. IF NO INDICATION IS GIVEN, IT SHALL BE INTERPRETED THAT ZERO M/WBE PARTICIPATION IS INCLUDED.

   This proposal includes **_____%** certified SBE participation.

   This proposal includes **_____%** certified MBE participation.

4. S/MBE participation shall count toward stipulated contractual goals or requirements only as described in the General Instructions to Bidders.

H. UNIT PRICES

Unit Prices shall be used, where applicable, to make adjustments to the cost of the Work due to changes. All Unit Prices submitted shall be complete in-place prices (unless noted otherwise) and include all costs for overhead, profit, labor, materials, equipment, and any other incidentals related to the completion of the Work, and shall remain firm for the period of the contract. Unit prices listed are for additive work. Deductive unit prices will be calculated at no less than 85% of the additive unit price (100% if used in conjunction with an allowance).

UNIT PRICES:

1.	Wall Type C	$_____	/SF
2.	Wall Type C1	$_____	/SF
3.	Wall Type C2	$_____	/SF
4.	Wall Type D	$_____	/SF
5.	Wall Type E	$_____	/SF
6.	Wall Type F	$_____	/SF
7.	Wall Type G1	$_____	/SF
8.	Wall Type H	$_____	/SF
9.	GWB Ceiling	$_____	/SF
10.	Temporary partition wall, 14’ tall, 16 ga. 2x4, 16” o.c. stud wall, sound attenuation blankets, 5/8” gypsum wall board, taped and prime painted white both sides and fire/smoke sealed	$_____	/LF
11.	Spruce fir 2” X 6” X 8’	$_____	/EA
12.	4X8 Sheet of ¾” exterior grade plywood	$_____	/EA
13.	20’ x 100’ roll 6 mil flame retardant reinforced polyethylene type sheeting	$_____	/EA
14.	1” X 6” X 12’ #2 pine or similar	$_____	/EA
15.	Slab boot for vertical post	$_____	/EA
16.	4’ x 8’ White Board with aluminum trim and full length eraser tray installed and later removed	$_____	/EA
17.	5 gallon taping compound and tape	$_____	/EA

Changes in the Work. All bidders are herein advised that they are to provide, in the space provided below, a written description of how they would price lump sum changes. It is understood that the Unit Prices which you would insert in this Proposal Form response would be one element of the Change pricing, however, it is necessary to determine up front and reach agreement on, your intended method of determining units of labor productivity

and material pricing as well. Bidders are to be explicit as to what Manual(s), if any, are intended to be utilized. Once accepted by the Construction Manager, provide copies of all applicable pricing manuals for use by the Construction Manual in evaluating Change Order pricing.

_____
_____
_____
_____
_____
_____
_____
_____

Provide labor rates which may be used, subject to review and approval, in pricing any extra work that may be required. Rates are to be complete billing rates and are to include actual wages, taxes, fringes, insurance, small tools and incidentals and **15%** overhead and profit (combined). Base price on current rates in effect at time of bid. As prevailing wages and fringes rate change, these increases will be added to the labor rates at actual cost. Increases in wage rates are subject to audit. Complete the attached Wage Rate Breakdown Form for each classification of worker anticipated to work on the Project.

I. ALTERNATE PRICES

An Alternate Price shall include all costs associated with the changes, omissions, additions or other adjustments to the Work of this Bid Package (Contract) which are described in the Alternate, or are reasonably inferable therefrom. Claims for extras resulting from changes caused by the acceptance or rejection of any Alternate will not be allowed. Alternate Prices shall also include all costs of overhead, profit and bonds associated with the work of the Alternate, whether additive or deductive.

The Drawings, Specifications and other Contract Documents shall be considered appropriately modified by either the acceptance or rejection of the various Alternates. The Owner and the Construction Manager expressly reserve the right to accept or reject any, or all, Alternate Prices, and in any sequence prior to or after award. Acceptance or rejection of any Alternate does not relieve the Bidder of timely completion of the Work within the time periods indicated.

ALTERNATES:

None

J. ALLOWANCES

The Bidder includes the following Allowances and rates in the total Lump Sum Amount of the Base Bid for this Bid Package. Further to Article 10 in the General Conditions and unless noted otherwise below, the following allowance amounts include the Trade Contractor's cost of materials less applicable discounts, delivery to the site, applicable taxes, unloading, handling, installation, allowable overhead and profit. All other costs associated with completing the work described in the allowance is included in the base bid but outside of the allowance amount.

ALLOWANCES:

1. 800 man-hours of premium time portion of the labor rate to accelerate work in addition to the base scope requirements at the direction of the Construction Manager. Note that the Trade Contractor remains responsible to maintain the schedule and that this allowance will not be used for that purpose.

Carpenter Journeyman	$ _____ /Hr X 400 =	$ _____
Laborer Journeyman	$ _____ /Hr X 400 =	$ _____
Total		$ _____

2. 270 man-hours of journeyman time and 30 man-hours of foreman time to provide temporary protection measures in addition to the base scope requirements Include all necessary fasteners, 100- Spruce fir 2" X 6" X 8', 25- 4X8 sheets of ¾" exterior grade plywood, 4 rolls 20' x 100' roll 6 mil flame retardant reinforced polyethylene type sheeting at the direction of the Construction Manager. This is in addition to requirements of the base bid

Journeyman	$ _____ /Hr X 270 =	$ _____
Foreman	$ _____ /Hr X 30 =	$ _____
Spruce fir 2" X 6	$ _____ /EA X 100 =	$ _____
4X8 sheets of ¾" exterior grade plywood	$ _____ /EA X 25 =	$ _____
20' x 100' roll 6 mil flame retardant reinforced polyethylene type sheeting	$ _____ /EA X 4 =	$ _____
Total		$ _____

3. 100 Man hours to provide safety railings (100 – 2X6X8, 25 slab boots for vertical posts, 25- 1X6X12 Toe Board material, 20 sheets of 3/4 " plywood) in addition the base scope requirements at the direction of the Construction Manager.

Journeyman	$ _____ /Hr X 90 =	$ _____
Foreman	$ _____ /Hr X 10 =	$ _____
Spruce fir 2" X 6"	$ _____ /EA X 100 =	$ _____
Slab boot for vertical post	$ _____ /EA X 25 =	$ _____
1" X 6" X 12' # 2 pine or equivalent	$ _____ /EA X 25 =	$ _____
4X8 sheets of ¾" exterior grade plywood	$ _____ /EA X 20 =	$ _____
Total		$ _____

4. Twenty (20) Temporary White Boards – Furnish, install and remove 4' X 8' White Boards

Temporary 4' X 8' White Board	$ _____ /EA X 20 =	$ _____

5. 100 Taper hours, 10 five (5) gallon buckets of taping compound, and tape for taping and patching unassignable damage at the direction of the construction manager. This is in addition to the requirements of the base bid

Taper Journeyman	$ _____ /Hr X 100 =	$ _____
5 gal. buckets of taping compound and tape	$ _____ /EA X 10 =	$ _____
Total		$ _____

6. 200 Laborer hours for relocating loose supplies in the Shops area that are not indicated on the contract documents. This is in addition to the requirements of the base bid.

Laborer Journeyman	$ _____ /Hr X 200 =	$ _____

7. 1,000 LF of temporary partition beyond base contract requirements, consisting of 14' tall, 16 ga. 2x4 16" o.c. stud wall, sound attenuation blankets, 5/8" gypsum wall board, taped and prime painted white both sides and fire/smoke sealed. Include installation and demolition and removal.

Temporary partition consisting of 14' tall	$ _____ /LF X 1,000 =	$ _____

8. 40 Carpenter Journeyman hours to examine and inventory existing Shop Equipment that is indicated to be re-used. This is in addition to the requirements of the base bid.
   Carpenter Journeyman .....$ _____/Hr X 40 = $ _____

K. COST AND QUANTITY BREAKDOWN

In order to properly evaluate the Proposal, provide the following information. The Scope of Work to be awarded will not be influenced by the cost and quantity information requested here.

1. COST BREAKDOWN

Total Material .....$_____
Total Labor Cost .....$_____
Total Subcontractor/Equipment Cost.....$_____
Total Applicable Sales and Use Taxes.....$_____
Allowances.....$_____
Total Bond Cost .....$_____
Total Bid .....$_____
Total Estimated On-Site Man-hours ..... _____

2. QUANTITY BREAKDOWN (*Note: The items listed below are not intended to be an all inclusive listing, but merely to highlight some items of work.)*

THE INFORMATION LISTED BELOW IN THE QUANTITY BREAKDOWN SECTION IS REQUIRED AT THE TIME OF BID SUBMISSION.

Item	Quantity	Total Cost
Mobilization	_____ EA	$_____
Safety	L.S	$_____
Internal Partitions	_____ LF.	$_____
Gypsum Ceilings	_____ SF.	$_____
Exterior Framing	_____ SF.	$_____
Exterior Sheathing	_____ SF.	$_____
Projection Screens	_____ EA.	$_____
Doors & Hardware Installation	L.S.	$_____
Fixed Sound Absorbing Panels	L.S.	$_____
Visual Display Boards	L.S.	$_____
Roller Shades	L.S.	$_____
Equipment (New & Relocations)	L.S.	$_____
Allowances	L.S.	$_____
Other	L.S.	$_____
Total Bid	L.S.	$_____

L. SCOPE OF WORK

1. Description of Work Included

Except for those items (if any) specifically noted in the section below entitled "Description of Work Excluded", the Work of this Bid Package shall INCLUDE all of the following:

a. All items of work required by, and/or specified in, those Sections of the Specifications which are listed herein, under Section M SPECIFICATIONS.

b. All items of work related to the "Scope of Work", which are shown on the Drawings listed herein under Section N Contract Drawings.

c. The following "Significant Items of Work" are related to those required by the above referenced documents and are to be provided under, and hereby form a part of, the Scope of Work of this Bid Package (Contract). Should any conflict exist between this written scope of work and the scope of work inferred by the above referenced documents, this scope of work shall govern. All items are furnished and installed by this Trade Contractor unless noted otherwise.

GENERAL

1. Include all costs for Trade Contractor personnel and all sub-trade contractor personnel for safety orientation and other safety related meetings, etc. for all labor forces working on this jobsite. This orientation is mandatory for all personnel working on-site and is expected to last approximately 1/2 hour. Safety orientations will be scheduled by the Construction Manager. ALL PERSONNEL (including truck drivers) MUST ATTEND THE SAFETY ORIENTATION PRIOR TO PERFORMING ANY WORK ON SITE. Also, each week, in addition to safety training, safety meetings, and tool box talks that the Trade Contractor provides to their employees, include attendance by all on-site personnel to attend a weekly safety talk that will be conducted by the Construction Manager. This talk will take place on a regular basis one day a week immediately following the lunch break and will last no longer than 10 minutes.

2. Retainage of 7.5% is intended to be withheld until Substantial Completion however “partial payments may be made if agreed to by the DCS and Gilbane.”

3. This Trade Contractor will not be allowed to begin work on the project until the following items have been submitted: Certificate of Insurance, written Safety Program with Job Hazard Analysis, material status report and a list of all materials required under this Contract with indication of which materials require submittal for approval as outlined in the specifications and a schedule of anticipated date(s) of submittal for each.

4. The items listed herein are not intended to be an all-inclusive listing of the specified Contract Scope of Work, but merely highlight the major items of work. Review the scope of work closely and include all cost to provide all work as required by this bid package. Provide all work required by your scope of work which may be contained in other specifications, or on drawings whether or not specifically listed within this Proposal Form. Should a scope of work item be duplicated in another bid package, do not delete the item from your bid. Notify the Construction Manager immediately. Failure to include costs for a duplicated item will not alleviate the Trade Contractor’s responsibility to provide full credit for the item should it be deleted from the bid package after a contract is awarded.

5. Gilbane shall have the right to assemble the craftsmen for orientation, quality, daily stretching, and safety related matters at no additional cost

6. Parking will be available on site in areas to be designated by the Construction Manager. Please refer to the Site Utilization Plan detailing parking in Lot A. A portion of the lot will be provided for parking, general lay-down, and storage containers.

7. Construction is to be sequenced and phased per the Gilbane project schedule included in the Project manual and the Phasing Drawings. Review these documents carefully. The school will remain active during construction, and cannot be disrupted. Work within the existing building is to occur as the schedule depicts. Every effort will be made to work around the school schedule, vacations and days off will be utilized.

8. Provide all labor necessary to unload, distribute, and re-handle his material as required until such time that material is in place.

9. All costs required for transporting, erecting, dismantling, and removal of temporary facilities and equipment required by this Trade Contractor are to be included in the base bid amount.

10. Trade contractors shall participate with the inspection walkthroughs as requested by the Construction Manager. Provide suitable access for inspectors to perform all tests or inspections. Trade Contractor supplied temporary ladders and lifts to perform their work are to be available for the use of all parties.

11. The site is very restricted and the building will be occupied during the work. Deliveries and storage must be coordinated with the Construction Manager in advance. On site storage will not be available without prior approval by the Construction Manager.

12. All equipment used on the Jobsite shall be in good working order and maintained and operated as designed and have state of the art noise, vibration and exhaust control

13. Layout from a bench mark provided by others is the responsibility of the Trade Contractor requiring the layout.

14. Immediately notify the Construction Manager of any delays to the schedule of this bid package scope which is being caused by the work of any other Trade Contractor on site. This requirement supersedes other notice provisions in the Contract Documents for this type of delay.

15. This Trade Contractor shall keep all access roadways free and clean from equipment, material, soil or objects which may inhibit the flow of traffic.

16. Daily cleanup is to be provided on a daily basis to a central location and the adequate cost for same is to be carried in the proposal response. Daily clean up is defined as properly removing all debris, neatly organizing remaining material, and broom sweeping work areas, etc. after completion of the day's work at a minimum of EVERY SINGLE DAY.

17. The schedule of values will contain line items for clean up, submittals, safety and as-builts and close out in addition to line items apportioning "the Work". Payments made against these items will be directly related to Trade contractor's Performance. A schedule of values must be submitted and approved prior to the first application for payment being submitted.

18. Electrical power for 110 v. power tools and its consumption cost is by others. Include all cost for electrical connection or hook up required is by this bid package.

19. Sets of documents are available at the Trade Contractor's expense. Contact Service Point at 203.624.0079.

20. Whenever the contract documents require a certified engineer's stamp, review or report, it shall be understood to mean an engineer licensed in the applicable discipline, fully insured and registered in the State of Connecticut.

21. Demobilize/remobilize as the construction schedule and/or weather conditions require at no extra cost.

22. Each Trade Contractor will perform a First Delivery Inspection of materials with the Construction Manager to confirm that materials meet the Project Specifications and approved submittals. These reports shall be turned in with the daily report no more than 24 hours after material arrival. Submission of the First Delivery Inspection Report is a condition of monthly payment. All delays that result from failure to confirm materials delivered with the Construction Manager are at the Trade Contractor's cost, including those of other Trade Contractors on this Project. The Construction Manager will provide a form for this use, which is to be jointly filled out by the Construction Manager and the Trade Contractor. It is the Trade Contractor's responsibility to perform subsequent delivery inspections to ensure compliance with Specifications. Include Benchmarking of initial installations in accordance with the Quality Plan in the Project Manual.

23. There will be no deviations from the submittal format established by the Project Specifications. It is the Trade Contractor's responsibility to complete Submittals in a timely fashion, and to monitor the status of the A/E review. The Trade Contractors shall provide a Submittal Schedule no later than ten (10) days following the receipt of the Notice of Award. <u>All</u> submittals must be received by Construction Manager within 60 days of award, or earlier as required to meet delivery schedules. Include in the schedule a listing for any equipment or materials where shop drawings will take more than 4 weeks to prepare, and for equipment or materials that will take more than 6 weeks to arrive following shop drawing approval.

24. Any payment for overtime work, if authorized as an extra, is for labor, and not for equipment provided on job during regular shift.

25. The successful Bidder shall be responsible for all winter conditions and temporary protection associated with the work of this bid package. If applicable, Include snow removal as necessary to perform your work, except access to the site and slabs, which is by others

26. Each Trade Contractor, where applicable, will receive, unload, and distribute, secure and install all materials furnished by others for installation under this scope. All fittings and hardware required for final connection and installation shall be by the installer.

27. The Construction Manager will arrange to provide temporary electrical power panels for hand tools (by –Electrical Trade Contractor) and water (by HVAC & Plumbing Trade Contractor) at the site for the Trade Contractor's use.

28. Trade Contractor must not use building or site sewage or drainage systems for equipment cleaning purposes.

29. There will be no watchman or security guard on site. All trade Contractors are responsible for security of materials, equipment, and work in place until acceptance as it relates to your work. This includes safety barriers and precautions during off-hours.

30. It is the trade contractor's responsibility to request a preconstruction meeting 30 days prior to commencement of work or 30 days prior to the start of shop drawings where coordination with other trades are required.

31. Specification Section 01 45 00 Paragraph 1.4, B indicates that the re-testing or re-inspection of deficient items are the cost responsibility of the CMR. This will be the cost responsibility of the Trade Contractor. The Trade Contractor shall ensure to submit requests for ALL inspections to the Construction Manager and shall ensure that the assembly to be inspected has been reviewed in advanced of the inspector. Any costs associated with re-inspection will be the trade contractor's responsibility

32. The trade contractor shall request approval from the Construction Manager to work overtime 72 (Construction Manager has 48 hour notice request to the owner) hours in advanced

33. Deduct changes utilizing the Unit Prices per Specification Section 01 20 00 Part 1.5 D – Unit Prices will be issued at a 10% reduction of the Contract Unit Price

34. Specification Section 01 25 00 – Paragraph 1.4 A specifically indicates that the owner will consider requests for equal or substitutions if made prior to the Construction Manager's Subcontractor Competitive Bid. The trade contractor must submit (in the format indicated) requests for substitution or equals a minimum of two (2) week prior to the bid date as a means of allowing for adequate time for review and consideration by the owner and A/E.

35. RFIs process under the Contract Modification Procedures – Specification Section 01 26 00 – The trade contractor shall be timely in reviewing documents. The Construction Manager has a 5 day notice period to inform the owner of potential changes following the Architect's response per Specification Section 01 26 00 – Paragraph 1.3, Part 6. The trade contract will have two (2) calendar days to provide such notice to the Construction Manager or the trade contractor waives the right to seek additional time or cost.

36. RFPs issued by the architect and submitted to the trade contractor by the Construction Manager shall be responded to within 7 calendar days.

37. Specification Section 01 29 76 – Paragraph 1.3 – Part 4 specifically notes SOV requirements of the Construction Manager to the owner. Item Nos. b, d, e, f, and h are specifically tied to the deliverables required by the trade contractors. These items shall be specifically itemized in the trade contractor's SOV to the Construction Manager. The trade contractors inability to submit or perform the referenced work will result in forfeiting the monthly value and a deduct change order will be processed.

38. A minimum of one safety meeting per month is required per Specification Section 01 31 19, 1.6.

39. Fire Stop Systems – A single source fire stop manufacturer will be selected by the Construction Manager from the list of providers noted in the Contract Documents. The trade contractor will be required to provide fire stop systems as it applies to the individual scope. The trade contractors shall also include fire stop / safe labeling and tagging each penetration or application with data including but not limited to Installer, Contractor, Location, System used, and date. Also, the trade contractor shall provide data log entries for use in generating an as-built plan including location.

40. Refer to perimeter fencing and gates as indicated on the Site Utilization Plan. The site contractor will provide all fencing and it is each trade contractor's responsibility to keep the gates closed when entering or exiting the site. The gates shall be closed at all times. This will be included as part of the initial orientation process but must be reinforced by the trade contractor's project manager and field supervisor.

41. The State will utilize PM Web for electronic documentation submission for all daily reports, safety reports, submittals, as-builts, and RFIs. The license costs is $750 per trade contractor plus 20% each year (or any portion of a year) for maintenance. For example, if the license is purchased in February, 2012 and is needed through September of 2014, the cost would be $1,200, $750 for the license fee plus 20% ($150) per year for maintenance for 3 years ($450 total), even if the duration is only 31 months of usage.

42. Trade contractors will be required to enter daily reports in PM Web on a community computer provided and located by the Construction Manager. It is recommended that your field foreman is equipped with their own computer for efficiency in the event the community computer is not available due to use by other trade contractors during the work day.

43. All reference in the contract documents to the Construction Manager/CMR/General Contractor/Contractor as performing any field work or providing services in connection with any aspect of the Work shall be understood to mean the Trade Contractor. The Construction Manager will not layout, log, record, or otherwise provide actual work or service related to the Trade Contractor's scope of work, inclusive of Division 0 and Division 1 specifications.

44. Note specification section 01 78 30, 1.3, F; minimum warranty period is eighteen (18) months unless specified otherwise for a longer duration. The warranty period does not commence until final acceptance by the Owner. Do not assume a shorter warranty period regardless of a shorter period stipulated elsewhere in the documents and include all costs accordingly.

45. Gilbane has automated its monthly payment application process and solely utilizes an online web-based application provided by Textura LLC. Trade contractors will be required to participate and must implement Textura on the project. Textura will automatically generate the AIA G702/703 and Lien Release Documents. Any additional documentation required as part of the Gilbane application process must be uploaded in the form of a PDF prior to your submission. There is a nominal fee to use this service. These costs are summarized in the Textura brochure included as an attachment to this bid package. Include the costs of using this service in your bid. If you have any questions regarding Textura's Terms and Conditions, costs of service, or training implementation please contact Textura at 866-TEXTURA (839-8872).

46. Conduct an in-house kick-off meeting which must include the personnel that estimated the project and attended the scope review meeting with Gilbane and the personnel that will administer the project (project manager, lead field foreman, accounting, purchasing, etc.). The kick-off meeting must transfer the knowledge of the estimating team to the project administration team. Produce and submit for record the minutes of the meeting, complete with attendance sign-in sheet to the Construction Manager. In the event the Construction Manager is required to devote excessive amounts of time to educating trade contractor administrative personnel on the requirements of the project, the Trade Contractor may be billed for that time at the rates in the Construction Manager's contract with the Owner.

SPECIFIC ITEMS:

1. Provide all labor, materials, equipment and services required to complete all drywall and related work. The work includes, but is not limited to, all cold framed metal framing; rough carpentry, sheathing, integrated door assemblies, building insulation; through penetration fire stopping, fire resistive joint sealant work, joint sealants, door frame installation, door installation, hardware installation, access doors, metal framing, gypsum board; gypsum ceilings, fire protection specialties, projection screens, equipment, visual display boards, and window treatments in accordance with the Contract Documents.

2. Provide all work indicated on the drawing and as specified in the following Specification Sections. The work specified in the following specification sections is the sole responsibility of this Trade Contractor unless modified below:

    054000 Cold Formed Metal Framing
    061000 Rough Carpentry
    062013 Exterior Finish Carpentry
    072100 Thermal Insulation
    078446 Fire Resistive Joint Systems
    079200 Joint Sealants
    079500 Expansion Control
    081113 Hollow Metal Doors and Frames (install only)
    081416 Flush Wood Doors (install only)
    083113 Access Doors and Frames
    087100 Door Hardware (install only)
    092116 Gypsum Board Shaft Wall Assemblies
    092216 Non-Structural Metal Framing
    092900 Gypsum Board
    098413 Fixed Sound Absorbing Panels
    101100 Visual Display Boards
    104415 Fire Protection Specialties
    115000 Equipment
    115213 Projection Screens
    124940 Roller Shades

    In addition, the Trade Contractor shall provide work specified elsewhere in the Specifications and specifically listed within this scope of work.

3. Provide all fire extinguishers and cabinets at all locations regardless of the type of wall construction. Include signs for these. Coordinate with applicable trades. Do not install fire extinguishers until the end of the project and/or as requested by the Construction Manager.

4. Provide maintain and service temporary fire extinguishers for the project per the Project Safety Plan. Provide thirty (30) fully charged 20lb. Type ABC extinguishers and stands. Locations as requested by the Construction Manager. Provide six (6) new, fully charged 10lb. Type ABC extinguishers for the Construction Manager's Office; include labor for wall mounting.

5. Construct all temporary walls, doors, frames and hardware as shown on the phasing drawings. Provide all the doors, frames and hardware associated with these temporary walls. This is inclusive of the walls, doors and frames noted on 2/PH3A. Provide a weather tight assembly where the temporary wall is exposed to weather.

6. The permanent doors, frames and hardware will be furnished by others. Receive, unload, inventory, store, distribute and install all hollow metal door frames, hollow metal windows, hollow metal doors, wood doors and finish hardware. The inventory must be performed at the time of delivery. The doors, frames, hardware vendor will assist with the inventory. Sign all delivery slips after inventory is complete. Any discrepancies encountered after delivery slip is signed and accepted by this Trade Contractor are solely this Trade Contractor's responsibility, included all cost to replace missing items and any negative schedule impact costs. The hardware will be labeled by opening. Provide filling of all nail holes in wood door glazing stops after installation of glass. Glass is furnished and installed by others. Coordinate with BP08A for installation of the lock cylinders in aluminum entrances.

7. Include the setting of hollow metal frames in masonry assemblies. Include supplementary wood blocking shown on the drawings. Include spreaders at floor and at midpoint of all masonry frames. Do not remove until masonry work, including grouting of frame, is complete.

8. Return to project (4) separate times in the one year subsequent to occupancy to adjust hardware as required to ensure proper operation. (This is in addition to initial adjustment at the time of installation and at substantial completion of the project.)

9. Provide all in-wall/ceiling blocking indicated and or required. This shall include, but not be limited to, blocking required for doors, windows, curtainwall, millwork, casework, toilet accessories, toilet partitions, fire extinguishers, railing, shelving, hardware, and window treatment. All wood blocking is to be fire treated. Provide fire treated plywood and blocking in exterior wall around windows and storefronts as indicated in the contract documents. Coordinate the work with other trade contractors. Provide layouts of installed blocking when requested by others.

10. Provide all blocking at curtainwall, storefront, louvers and window heads and sills as shown.

11. Provide framing, sheathing, blocking and insulation associated with all details on A1.19, A1.20, A4.21, A4.22 and similar. Coordinate sheathing with roofer to ensure compatibility prior to installation. Also, provide all framing, sheathing, and insulation as required above the roof deck. Coordinate with the roofer for final wall heights which are dependent upon final tapered insulation heights. See details 4 & 8/A4.21 and 7/A4.22 as typical example of framing above the roof deck.

12. Provide trapeze suspension assemblies for ceiling assemblies where required to accommodate ductwork and other obstructions above the ceiling. Suspension systems must comply with all applicable seismic requirements per applicable building codes.

13. Provide all framing as necessary to support the gypsum board ceiling, soffits, and wall systems around obstructions.

14. Provide all drywall ceilings and/or drywall soffits as shown and/or inferable on the reflected ceiling drawings, finish schedule, specifications, and detail drawings. Where conflicts occur, include the ceilings of greater cost. Upon discovery of a conflict immediately notify the Construction Manager. Note and include the acoustic sealing requirement.

15. Receive and install access doors furnished by the others (reference Specification Section 083113). Provide all access doors and panels shown specifically on the drawings.

16. Provide all field engineering for layout of line and grade from line and grade points provided by the Construction Manager. This Trade Contractor shall permanently mark all floors with wall locations, both sides, and all door openings within the walls prior to erection of walls to allow layout and rough-in by other trades. Permanent markings shall be confined to areas that will be covered by the wall construction. No markings may extend into areas where the floor finish is sealed concrete. The mason contractor will be responsible for the layout of his work regardless of your layout work. The intent is to identify any discrepancies in dimensions and resolve them prior to partition work proceeding.

17. This Trade Contractor is responsible to correct any telegraphing of tape joints or poor quality of drywall seams after the application of primer or finish paint. A project benchmark will be established in accordance with the project Quality Plan. The Painter will coordinate with this Trade Contractor to ensure drywall assemblies are complete prior to the application of any paint. Any corrective work by this Trade Contractor which necessitates the repainting of a surface will be solely responsible for the repainting costs. All repainting will be performed by the project Painting Trade Contractor.

18. Provide framed openings in walls and ceilings for all opening, including, but not limited to, doors, borrowed lights, windows, window walls, fire extinguisher cabinets, toilet accessories, duct penetrations, return air openings, transfer ducts, diffusers, access panels, light fixtures, etc. Coordinate your work with other trade contractors.

19. Coordinate with other trades to ensure that all inserts, piping, conduit, fixtures, carriers, and the like are installed before closing up walls. This Trade Contractor shall also coordinate with other trades' inspections prior to closing up walls. This shall be coordinated through the Construction Manager. This Trade Contractor is responsible to sign-off on the In Wall Inspection Form prior to closing walls. Should a trade contractor sign-off on the In Wall Inspection Form and later required an in-wall item, all costs associated with installing that in-wall item shall be borne by that trade contractor.

20. The containment of dust and debris on this project is critical. This Trade Contractor is responsible for daily cleanup of the Work. Daily sweeping of all dirt and sanding debris, with wax based sweeping compound is required, as well as additional sweepings as requested by the Construction Manager. Include clean up of all unassignable trash in

addition to your own daily clean up. This Trade Contractor shall perform a thorough clean up of the building once weekly.

21. Provide a minimum of eight (8) new 1 yard wheeled rubber hoppers, and ten (10) full size heavy duty garbage cans on wheeled bases. In addition provide five (5) 55 gallon steel garbage cans at the exterior of the buildings. Maintain and secure all of the waste containers for the duration of the project. Distribute the waste receptacles to the various work areas each day, continually collect and empty to the dumpsters, and redistribute all of the containers throughout the project as required throughout the course of each workday. Where bulk debris piles are made by the trades in lieu of placing garbage in the containers, remove the debris piles to the dumpster by the end of each workday, or more often as directed by the Construction Manager. The containers shall become the property of this Bid Package on completion of the project.

22. Provide weekly cleaning for Construction Manager's trailer for the duration of the Project. Include vacuum, wet mop, dusting, empty trash receptacles and cleaning of bathroom.

23. Provide and maintain removable OSHA and Safety Plan compliant safety railing and protection of the elevator pits and all elevator landings.

24. Remove and replace perimeter protection cable system as necessary to access your work. Provide additional protection as required by OSHA and the Project Safety Plan during your operations.

25. Two (2) sections (maximum 12' wide) of your work (at the exterior walls) may be left out as directed by the Construction Manager to provide access for other Trade Contractors. This Trade Contractor is responsible for completion of this work (upon direction of Construction Manager) in such a way that it matches the original work surrounding the area and is done at no additional cost. Include the cost of two double sliding barn door style temporary doors with associated hardware and latches at all floors at both locations. Furnish and maintain a corral with removable rails, large enough for safe loading of materials at these openings and tie off point to allow for safe access beyond the guiderail protected point.

26. Storage of materials on floor slabs must be coordinated with the Construction Manager. Protect all gypsum panels from moisture accumulation and must be covered while stored. Gypsum panels with excessive moisture content shall be removed from the jobsite immediately and shall not be incorporated into the project.

27. Provide all lifts, staging, hoisting, etc., required to effectuate your work except as otherwise indicated herein.

28. Provide, maintain, remove and dispose of two temporary trash chutes for the duration of the addition and renovation work from second floor and roof level to ground level with OSHA and Project Safety Plan compliant access at each level. Include a weather tight enclosure with a latchable door at the second level and roof level. The minimum size shall be 3' diameter. Assume heavy duty PVC material. Provide all necessary fall protection at the roof level. Coordinate location and tie-back to the building with the Construction Manager and the masonry scaffolding, if applicable. Include initial installation at an area of the addition as directed by the Construction Manager. Include removal and reinstallation at an area of the renovation as directed by the Construction Manager. Removal and reinstallation will not be completed in the same mobilization.

29. Cutting or other modifications to structural steel will not be permitted without written authorization from the structural engineer.

30. Include all caulking and sealant in accordance with specification section 079200 Joint Sealants associated with this work and between this work and all adjacent work. Include caulking of door frames and access doors after installation.

31. Provide all fire stopping and fire safing assemblies for this bid package as specified in sections 078413 and 078446 and as shown and / or indicated on the drawings. Firestopping within sleeves is by the trade whose work passes through the sleeve. Penetrations made after the work of this bid package is in place will be firestopped by the trade contractor making the penetration.

32. Provide supplement lighting and power that may be required to perform any work of this bid package beyond what is indicated in General Conditions.

33. Provide fans and ventilation as may be required to aid in the drying of the taping compound. Heating and Cooling is by others.

34. Coordinate installation of your work with the Mechanical and Electrical Trade Contractors. Sign-off on coordination drawings. As a result of the coordination process, reflected ceiling plans may vary from original contract documents (i.e. light fixtures, diffusers, etc.). This Trade Contractor is responsible to incorporate these modifications at no additional cost.

35. Provide all closure plates at metal deck flutes as required to install your work.

36. Provide sound attenuation blankets and/or insulation within all partitions and above drywall ceilings as indicated.

37. Provide all clips and anchors required for lateral support whether shown or not.

38. Provide complete fire rated plywood lined walls to 8’ AFF for all electrical, telephone equipment, and data equipment rooms. Plywood to be installed on all four walls. Provide stud backup framing in areas indicated on MEP drawings, see drawing COM2.1.1 for typical condition.

39. Provide all labor necessary to receive handle and unload and install all items furnished under this scope of work. Provide all hoisting, rigging, staging necessary.

40. Perform all factory and field testing specified and as required by the specifications or local authorities.

41. Remove and dispose of all packaging, bracing, protective coatings/ blankets, spacers, etc.

42. Work with any scratches, marks, dents, or other deformations will not be accepted. Onsite repair procedures must be pre-approved by the architect. Items with unacceptable repair or deformations shall be removed and replaced. Unacceptable work shall not be removed until receipt of an acceptable replacement.

43. Coordinate all Blinds and roller shades with surrounding construction and notify the Construction Manager of any conflicts prior to installation. Provide appropriate fasteners and brackets for the corresponding wall or pocket on which the blinds are being installed.

44. Provide all required expansion joint assemblies for the project, both interior and exterior to the building with the exception of the roof joints. Coordinate with the trade contractor installing the work in which the joint assembly is installed. Closely coordinate with the roofer to ensure a weather tight transition from roof joints to the joint assemblies provided under this scope of work. The roofer has primary responsibility for the weathertight transition between the roof expansion joints and the joint assemblies provided under this scope of work.

45. Provide, maintain and remove temporary weather protection at all exterior wall openings from the time roof sheathing begins to when the building is fully enclosed. Protection shall at a minimum consist of fire retardant poly nailed or screwed in place using wood lath. In renovation areas, protect openings when windows or doors are removed and maintain until new windows are installed.

46. Provide 3’ x 20’ plan table with shelf and 40 LF of heavy duty shelving constructed out of plywood or MDF for Construction Manager’s trailer.

47. Provide a temporary enclosure for the main temporary power panel and the associated power distribution panels.

48. Protect new and existing roofs when working on or above roof areas. At a minimum provide plywood protection in areas under ladders, where material is stored and where debris can fall. Under scaffolding also provide sleepers in addition to plywood. Plywood should be placed in a manner and with sufficient protection underneath so as not to puncture roofing membrane.

49. Include temporary storage and re-installation of all built in casework and existing furniture in rooms A113 & A115 that will be removed by BP 02A for demolition of the exterior wall.

50. Provide all Fixed Sound Absorbing Panels as specified in section 098413 and as indicated in the contract documents.

51. Provide all Visual Display Surfaces as specified in section 101100.

52. Provide all Projection Screens as specified in section 115213 and as shown on the drawings. Provide all low voltage wiring. BP26A will provide all line voltage wiring and final electrical connections.

53. Provide all Roller Shades as specified in section 12494 and as indicated in the drawings. Provide all low voltage wiring. BP26A will provide all line voltage wiring and final electrical connections. See the 10 Series drawings with Room Finish Schedule as well as other drawings for the full extent of the work.

54. Provide all equipment as specified in equipment specification 115000. In addition, conduct a pre-condition survey, inventory, photograph, video all existing equipment to be removed and re-installed. Remove, store and replace all owner provided equipment as shown on the plans and indicated on drawing A12.09 as “relocate from existing shop”.

Inventory equipment prior to removing from existing spaces and store until needed for reinstallation after renovations are complete. It is likely that adequate storage facilities are not available on site so this contractor is to include costs for off-site storage and transportation. Receive, unload, set in place and protect all owner finished equipment per A12.09 and specification 011100 section 1.6. MEP connections/disconnects will be done by the respective trades.

55. Provide entire wood framed floor in as shown on 8/A6.02.

56. Include replacement of entire existing gypsum ceiling pocket in rooms A121, A128 & A145.

57. Include all aluminum closure panels at drywall soffits. See 15/A2.11 for typical example.

58. Ensure drywall is finished to within ½" of the finish floor. Fill in gaps exceeding ½" and any factory tapered edges.

59. Provide wood framing and plywood floor at the Mezzanine. See S6.06 and other drawings for more information.

60. Carefully remove existing furniture in room A113 and A115 where exterior wall demolition work is required. Store equipment and reinstall as designated.

61. Provide the plywood on furring shown on A1.04.

62. Where drywall assemblies intersects with structural steel or joists, include all costs to infill and complete wall to the underside of deck. Provide all firesafing systems between the tops of drywall partitions and underside of deck/slabs. Provide all fire rated joints including backer rod and sealants.

63. Provide aluminum closure panels at all locations where the closure panel abuts drywall assemblies. Aluminum closure panels shall be in accordance with 095113, 2.12, A. Aluminum closure panels that do not abut drywall assemblies are by others.

64. Include the framing and support system shown in 2 & 5/A4.07. The aluminum composite panel system is by others.

65. Include all framing, sheathing, insulation, blocking, and plywood shown in 2/A4.22.

66. Review the Door Schedule and include all work at existing hollow metal doors as may be noted in the schedule. Furnishing of hardware and new center mullions is by BP08B.

2. Description of Work Excluded

1. Hollow Metal Doors, Frames, Wood Doors and Door Hardware to be furnished by BP 08B, installed by this bid package. Aluminum door hardware to be installed by BP 08A
2. Roof expansion joint assemblies
3. Plywood subfloor and sleepers at the new stage
4. Cement board at roof

M. SPECIFICATIONS

The following Specifications Sections, together with the Drawings and other related items of work as described herein, further define the Scope of Work of the Bid Package (Contract):

1. Specific work of this trade as defined in the following Specification Sections:

   Gilbane Project Manual
   All Division 01 – General Requirements
   054000 Cold Formed Metal Framing
   061000 Rough Carpentry
   062013 Exterior Finish Carpentry
   072100 Thermal Insulation
   078446 Fire Resistive Materials
   079200 Joint Sealants
   079500 Expansion Control
   081113 Hollow Metal Doors and Frames
   081416 Flush Wood Doors
   083113 Access Doors and Frames
   087100 Door Hardware
   092116 Gypsum Board Shaft Wall Assemblies
   092216 Non-Structural Metal Framing
   092900 Gypsum Board
   098413 Fixed Sound Absorbing Panels
   101100 Visual Display Boards
   104415 Fire Protection Specialties
   115000 Equipment
   115213 Projection Screens
   124940 Roller Shades

2. Work related to this trade as defined in the following Specification Sections:

   All other specification sections as listed in the Project Manual for the Additions and Renovation HC Wilcox Regional Vocational Technical School project, Table of Contents, dated Rev. 102010 as prepared by Tai Soo Kim Partners, LLC. Note this table of contents may be modified by Bid Supplements and Addenda.

N. CONTRACT DRAWINGS

1. The following drawings are included in the Scope of Work of this Bid Package.

   All drawings as listed in Section 00 01 15 – List of Drawing Sheets with schedule titled Additions & Alterations HC Wilcox Technical High School, Meriden, CT, State Project No. BI-RT-843 Contract Drawing List, dated September 26, 2011. Note this list may be modified by Bid Supplements and Addenda.

O. The undersigned represents that this Proposal is made in good faith, without fraud, collusion, or connection of any kind with any other bidder of the same work, that he is competing in his own interest and in his own behalf, without connection of obligation to any undisclosed person, that no other person has any interest in regard to all conditions pertaining to the Work and in regard to the place where it is to be done, has made his own examination and estimates and from them makes this Proposal.

The undersigned represents that he has reviewed the Trade Contract Agreement issued as part of the bidding documents, agrees that if selected for award he will execute the Trade Contract Agreement without exceptions, exclusions, qualifications, clarifications and/or alterations, and is authorized to make such representation on behalf of the Bidder.

The undersigned represents that he has reviewed the insurance requirements in Article 6 of the Trade Contract Agreement, has included all costs to fully comply with same, and is authorized to make this representation on behalf of the Bidder.

Bidder:_____ _____
(Legal Signature) (Type/Print Name)

_____
(Title)

Firm:_____ Address:_____

Business Phone No.: (___)_____ _____

Business Fax No.: (___)_____

This bidder is a (an): _____Individual, Partnership, Corporation

Current Experience Modification Rating _____ Federal ID# _____

OSHA Incident Rates: Recordable _____

List here by title and number all licenses held by the bidder associated with the performance of this work.

License Title	License Number
_____	_____
_____	_____
_____	_____

Indicate the name of the health plan(s) to which benefits will be paid for all employees working on this project._____

The full names, addresses and telephone numbers of all persons interested in this Proposal, as principals are as follows:

_____ _____

_____ _____

NOTE: This Proposal must bear the written signature of the Bidder.

a. If the Bidder is an Individual doing business under a name other than his own name, the Proposal must so state, giving the address of the Individual.
b. If the Bidder is a Partnership, the Proposal must so state, setting forth the names and addresses of all Partners, and must be signed by a Partner so designated as such.
c. If the Bidder is a Corporation, the Proposal must be signed by a duly authorized officer or agent of such Corporation.

BREAKDOWN OF HOURLY RATES

WORKERS TITLE: _____

	STRAIGHT TIME	ADD for 1 ½ TIME PREMIUM	ADD for DOUBLE TIME PREMIUM
BASE WAGE RATE			
F.I.C.A.			
F.U.T.A.			
S.U.T.A.			
GEN. LIABILITY INS.			
WORKER'S COMP. INS.			
WELFARE FUND			
PENSION FUND			
APPRENTICE FUND			
VACATION FUND			
ED. & CULT. FUND			
DEFERRED INCOME FUND			
PAID HOLIDAYS			
INCIDENTALS			
OTHER: _____			
SUBTOTAL			
OVERHEAD & PROFIT (15%)			
TOTAL			

SUBMITTED BY: _____

Not to be included in the wages above:			
BOND PREMIUM			

Gilbane Building Company
Contract Agreement

Agreement # **60650-000**
Made as of **October 25, 2011**
Vendor # **20000**
Description: **Sample Contract**

Between

The Construction Manager:	**Address**	**City**	**State**	**Zip Code**
Gilbane Building Company	208A New London Turnpike	Glastonbury	CT	06033

And the Trade Contractor:	**Address**	**City**	**State**	**Zip Code**
Sample Trade Contractor	123 Any Street	Any Town	CT	06999

The Project Name:	**Address**	**City**	**State**	**Zip Code**
HC Wilcox Regional Vocational Technical School		Meriden	CT	06451

The Owner Name:	**Address**	**City**	**State**	**Zip Code**
State of Connecticut Department of Public Works	165 Capitol Avenue, 4th Floor	Hartford	CT	06106

The Architect Name:				
Tai Soo Kim Partners, LLC	Hartford Square West 146 Wyllys Street Suite 1-203	Hartford	CT	06106

ARTICLE 1

THE WORK

1.1 The Trade Contractor and the Construction Manager agree that the materials and equipment to be furnished and the work to be done by the Trade Contractor are as follows:

1. Bid Package No. XX Proposal Form dated XXXX XX, XXXX.
2. Standard Form of Agreement between Owner and Construction Manager-At-Risk (CMR) For Guaranteed Maximum Price (GMP) between State of Connecticut And Gilbane Building Company dated the 22th day of July in the year of 2011.
3. General Instruction to Bidders dated September 21, 2011.
4. General Conditions for Trade Contractors under Construction Management Administrator Agreements dated September 21, 2011.
5. Sample Performance Bond & Labor and Material Payment bond.
6. Project Safety Plan, dated September 21, 2011.
7. Gilbane Quality Plan dated September 21, 2011
8. Supplement X dated XXXX XX, XXXX
9. Supplement Y dated XXXX XX, XXXX
10. Supplement Z dated XXXX XX, XXXX
11. Pre-Bid Conference Meeting Minutes dated XXXX XX, XXXX
12. Scope Review Meeting Minutes dated XXXX XX, XXXX
13. This agreement includes XXXXX percent (XX%) SBE participation. Trade Contractor shall substantiate said participation as a condition precedent for the release of the first progress payment due under this agreement.
14. This agreement includes XXXXX percent (XX%) MBE participation. Trade Contractor shall substantiate said participation as a condition precedent for the release of the first progress payment due under this agreement.

1.2 The Trade Contractor shall be held accountable for the following Project related responsibilities: furnish all labor and supervision; furnish, supply and install all equipment, material, supplies, tools, scaffolding, hoisting, transportation, unloading and handling; do all things required to complete the work described above on the Project all in accordance with the drawings and specifications prepared by the Architect/Engineer; and furnish all necessary information, shop drawings, details, samples, brochures, etc. for Owner/Architect approval, as may be required.

ARTICLE 2

TIME OF COMMENCEMENT AND COMPLETION

2.1 The Trade Contractor shall start the work upon notice to proceed and shall execute the work with diligence and dispatch so as to maintain such schedules and milestones as established by the Construction Manager. The Trade Contractor agrees to complete portions and the whole of the work by the following anticipated dates:

Submit Shop Drawings and Product Data..... XXXX XX, XXXX

Commence field work..... XXXX XX, XXXX
Complete field work ..... XXXX XX, XXXX
Project Substantial Completion..... XXXX XX, XXXX

2.2 The Trade Contractor is cautioned that schedules and milestones are subject to review and revision, and in such event, such revisions will be made available for the Trade Contractor's information at the jobsite office of the Construction Manager. It is the sole responsibility of the Trade Contractor to attend job meetings, keep itself informed of any revisions, and conform to any such revisions.

2.3 In the event that the Trade Contractor should fail to maintain the Construction Manager's progress schedule or the schedule as established above, the Construction Manager reserves the right, after 48 hours formal notice, either by letter, telegram or confirmed email to the Trade Contractor, to procure the materials, equipment, and labor necessary to proceed with, or to complete the work, or any portion thereof from other sources and charge the cost thereof to the Trade Contractor.

2.4 Time is of the essence in this Agreement.

ARTICLE 3

THE CONTRACT SUM

3.1 The Construction Manager agrees to pay the Trade Contractor for the satisfactory performance of his work the total sum of:
XXXXX dollars and no cents (X.00)

The contract sum includes the following alternates:
Alt. 1 – Provide XXXXX
Alt. 2 – Delete XXXXX

Unit Prices and Labor Rates:
The following unit prices and labor rates are in accordance with Section H of the proposal form.
Unit Prices:
1. XXXX..... $XX.XX/XX

Labor Rates:

Worker Classification	Base	1 ½ Time	Double Time
XXXX	$XX.XX/Hr.	$XX.XX/Hr.	$XX.XX/Hr.
YYYY	$XX.XX/Hr.	$XX.XX/Hr.	$XX.XX/Hr.

Allowances:
The following allowances are part of this contract in accordance with Article J of the Bid Proposal and the definition of Allowance included in Article 10 of the General Conditions. Overhead and profit is included in the allowance amount.

Allowance #1: ..... $XX,XXX
Allowance #2: ..... XXX Tons
Allowance #3 ..... X,XXX SF

In current funds subject to additions and deductions for changes, as may be agreed upon, and to make payments on account thereof as follows:

3.2 On the established day of each month, the Trade Contractor shall deliver to the Construction Manager, a detailed, quadruplicate statement acceptable to the Construction Manager, and if required, supported by receipts, vouchers, etc. showing values of all materials delivered and work completed up to the established billing date for which payment is requested. Monthly and final payments will be made to the Trade Contractor by electronic funds transfer within seven (7) Calendar days after receipt of payment by the Construction Manager from the Owner. The retained percentage will be forwarded as soon as received by the Construction Manager from the Owner. It is specifically understood and agreed that payment to the Trade Contractor is dependent, as a condition precedent, upon the Construction Manager receiving contract payments, including retainer from the Owner. Prior to submission of the first statement, the Trade Contractor will deliver to the Construction Manager, for review and approval, a detailed breakdown of this contract sum showing a schedule of values for the various parts of the work. Once accepted, this schedule of values will be used as a basis for checking the Trade Contractor's monthly statement. This schedule of values shall include a line item allotting funds for clean-up. **This Article has been modified as allowed by Public act 99-153.**

3.3 The Trade Contractor shall, with the second and each succeeding monthly request for payment, submit receipts and/or an affidavit and waiver of lien showing all payments made for labor and materials and on account for all work covered in the previous months request for payment. Affidavit and waiver of liens may be required to be submitted from Trade Contractors, suppliers, and/or Trade-Subcontractors (all tier). The Trade Contractor shall be required to execute a general release prior to receiving final payment.

3.4 Ten percent (10%) of each payment shall be retained, unless specific provisions to the contrary are indicated in the contract documents.

3.5 No payment made under this Agreement, including the final payment, shall be conclusive evidence of the performance of the work, either wholly or in part, and no payment shall be construed as an acceptance of defective work or improper materials.

3.6 The Trade Contractor shall save and keep the Construction Manager, the Owner and the Owner's property free from all mechanics' and materialmens' liens and all other liens and claims, legal or equitable, arising out of the Trade Contractor's work hereunder. In the event any such lien or claim is

filed by anyone claiming by, through, or under the Trade Contractor, the Trade Contractor shall remove and discharge same, by bonding or otherwise, within five (5) days of the filing thereof.

ARTICLE 4

THE CONTRACT DOCUMENTS

4.1 The contract documents consist of this Agreement and any exhibits attached hereto; the Agreement between the Owner and the Construction Manager, the conditions of the Agreement between the Owner and the Construction Manager, General Conditions, Supplementary, Special and Other Conditions, the Drawings, Specifications, General Instructions to Bidders, Supplements to Bidder's documents, form of Proposal, all Addenda issued prior to and all modifications issued after execution of the Agreement between the Owner and Construction Manager and agreed upon by the parties.

4.2 The Trade Contractor agrees to perform the work under the general direction of the Construction Manager and subject to the final approval of the Architect/Engineer or other specified representative of the Owner, in accordance with the contract documents.

4.3 The Trade Contractor agrees to be bound to and assume toward the Construction Manager all of the obligations and responsibilities that the Construction Manager, by those documents, assumes toward the Owner. Contract documents are available, at reasonable times, at the office of the Construction Manager for examination by the Trade Contractor.

4.4 If there is a provision for liquidated damages in the contract documents, the Trade Contractor shall be liable to the Construction Manager for any liquidated damages for which the Construction Manager is held responsible by reason of the failure of the Trade Contractor to prosecute the work diligently and properly.

4.5 No extra work shall be performed under this Agreement, except upon receipt of a written order from the Construction Manager.

ARTICLE 5

INDEMNITY

5.1 FOR TEN ($10.00) DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION, THE RECEIPT WHEREOF IS HEREBY ACKNOWLEDGED, AND TO THE FULLEST EXTENT PERMITTED BY LAW, THE TRADE CONTRACTOR AGREES TO INDEMNIFY AND HOLD HARMLESS, THE CONSTRUCTION MANAGER, THE OWNER, THE ARCHITECT/ENGINEER, AND ALL OF THEIR AGENTS AND EMPLOYEES FROM AND AGAINST CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING BUT NOT LIMITED TO ATTORNEYS' FEES ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OR FAILURE IN PERFORMANCE OF THE TRADE CONTRACTOR'S WORK UNDER THIS AGREEMENT PROVIDED THAT ANY SUCH CLAIM, DAMAGE, LOSS, OR EXPENSE (1) IS ATTRIBUTABLE TO BODILY INJURY,

SICKNESS, DISEASE, OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY INCLUDING THE LOSS OF USE RESULTING THEREFROM, (2) TO THE EXTENT CAUSED BY ANY NEGLIGENT ACT OR OMISSION OF THE TRADE CONTRACTOR OR ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THE TRADE CONTRACTOR, OR ANYONE FOR WHOSE ACTS THE TRADE CONTRACTOR MAY BE LIABLE, REGARDLESS OF WHETHER CAUSED IN PART BY A PARTY INDEMNIFIED HEREUNDER. SUCH OBLIGATIONS SHALL NOT BE CONSTRUED TO NEGATE, ABRIDGE, OR OTHERWISE REDUCE ANY OTHER RIGHT OR OBLIGATION OF INDEMNITY WHICH WOULD OTHERWISE EXIST AS TO ANY PARTY OR PERSON DESCRIBED IN THIS PARAGRAPH. IN ANY AND ALL CLAIMS AGAINST THE CONSTRUCTION MANAGER, OR ANY OF ITS AGENTS OR EMPLOYEES, BY ANY EMPLOYEE OF THE TRADE CONTRACTOR, OR ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THE TRADE CONTRACTOR, OR ANYONE FOR WHOSE ACTS HE MAY BE LIABLE, THE INDEMNIFICATION OBLIGATION UNDER THIS PARAGRAPH 5.1 SHALL NOT BE LIMITED IN ANY WAY BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION, OR BENEFITS PAYABLE BY OR FOR THE TRADE CONTRACTOR UNDER WORKER'S COMPENSATION ACTS, DISABILITY BENEFIT ACTS, OR OTHER EMPLOYEE BENEFIT ACTS.

5.2 The obligations of the Trade Contractor, under paragraph 5.1, shall not extend to the liability of the Architect/Engineer, his agents, or employees, arising out of: the preparation or approval of maps, drawings, opinions, reports surveys, change orders, designs, or specifications and/or the giving of or failure to give directions or instructions by the Architect/Engineer, his agents or employees, providing such giving or failure to give is the primary cause of the injury or damage.

5.3 For ten ($10.00) dollars and other good and valuable consideration, the receipt whereof is hereby acknowledged, and to the fullest extent permitted by law, the Trade Contractor agrees to defend, indemnify and hold harmless, the Construction Manager, the Owner, the Architect/Engineer, and all of their agents and employees from and any and all against claims, damages, losses and expenses, including but not limited to attorneys' fees arising out of or resulting from any of the following:

- any act or omission of the Trade Contractor or any of its Trade Subcontractors, of any tier or any person or entity for whose acts or omissions any of them may be liable;
- the inaccuracy of any warranty or representation by the Trade Contractor given in accordance with or contained in the contract documents;
- any breach of this agreement by the Trade Contractor and/or its Trade Subcontractors of any tier;
- any claims by employees of the Trade Contractor and/or its Trade Subcontractors of any tier, including, without limitation, those alleging employment discrimination or sexual harassment;
- any claims of the Trade Subcontractors of any tier, including without limitation, those for additional compensation and claims against the Trade Contractor’s or Construction Manager’s bond; or
- any other wrongful or negligent act or omission of the Trade Contractor or any of its Trade Subcontractors, of any tier or any person or entity for whose acts or omissions any of them may be liable.

The provisions of this subparagraph 5.3 and the obligations of the Trade Contractor hereunder shall survive Final Completion and Termination of this Agreement.

ARTICLE 6

PERFORMANCE BOND AND LABOR AND MATERIAL BOND; INSURANCE

6.1 The Trade Contractor agrees to furnish and pay for a 100% Performance Bond and a 100% Labor and Material Payment Bond on the bond forms issued with this Agreement. Bonds must be issued by a company acceptable to the Construction Manager and must be accompanied by a Power of Attorney. The bonds are to be delivered with this executed Agreement.

6.2 If Performance and payment Bonds are not required under this Agreement, as designated in Paragraph 6.1, the Construction Manager, may, at its sole option, enroll Trade Contractor in the Construction Manager's default insurance program. If the Trade Contractor is enrolled into the Construction Manager's default insurance program, the Trade Contractor is required to comply with the terms and conditions of the Construction Manager's Trade Contractor prequalification procedures. Failure to comply with these terms and conditions may be a basis to require the Trade Contractor to obtain Performance and Payment Bonds, under the terms and conditions provided herein, within fifteen (15) days written notice from the Construction Manager. Failure to provide Performance and Payment Bonds under this provision shall constitute a breach of this Agreement and a basis for immediate termination of the Trade Contractor for cause.

6.3 The Trade Contractor shall purchase from, and maintain with, a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Trade Contractor from claims which may arise out of or result from the Trade Contractor's ongoing and completed operations under the Agreement and for which the Trade Contractor may be legally liable, whether such operations be by the Trade Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. All insurance required by this Agreement shall be written with insurance carriers that maintain an A.M. Best rating of A-(VII) or better. The insurance required by this Article shall be written for not less than the minimum limits of liability specified in this Agreement, or required by law, whichever coverage is greater. Any insurance limits required in this Article shall be denominated in US Dollars. Unless otherwise indicated in this Agreement, coverages, whether written on an occurrence or claims-made basis, shall be maintained at a minimum, without interruption, from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment.

(a) **Workers Compensation and Employer's Liability.** Trade Contractor shall provide workers compensation insurance. This insurance shall include coverage for claims under worker's compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed, and shall cover claims for damages because of bodily injury, occupational disease or death of Trade Contractor's employees, and whether or not trade contractor utilizes leased employees or labor services for such Work. Such insurance shall also include the broad form all-states endorsement and voluntary

compensation endorsement. United States Longshoreman and Harbor Workers Act coverage is required if Trade Contractor's performance under this Agreement includes working over or near navigable waters. Federal Employers Liability Act coverage is required if Trade Contractor's performance under this Agreement includes working in or around a railroad.

The employer's liability insurance required by this Article shall include the following minimum limits of liability: bodily injury by accident $500,000 per accident, bodily injury by disease $500,000 policy limit, and bodily injury by disease $500,000 per employee.

If Trade Contractor's performance under this Agreement requires it to work in North Dakota, Ohio, Wyoming, Washington State and/or Puerto Rico, then Trade Contractor shall purchase workers compensation insurance directly from the jurisdiction. When Trade Contractor is performing work in one of these jurisdictions, its employer's liability obligation under this Agreement shall be met by providing a 'stop-gap' endorsement to either its commercial general liability policy or a workers compensation insurance policy covering one or more states not listed in this paragraph.

(b) **Commercial General Liability ("CGL")**. Trade Contractor shall provide CGL coverage on an "occurrence" based form. This insurance shall include coverage for explosion, collapse and underground hazards (the "XCU" hazards), contractual liability including coverage for bodily injury, property damage and personal and advertising injury arising out of premises-ongoing operations and products-completed operations (without inclusion of CG 21 39 or any other endorsement which reduces the assumed tort liability of an insured contract provision of this coverage), independent contractors, products-completed operations, personal and advertising injury, and claims for damages because of injury to, or destruction of, tangible property including loss of use resulting thereof. The CGL insurance required by this Article shall not contain any residential limitation or residential exclusion related to premises operations or products-completed operations coverage. Products-completed operations coverage shall remain in effect after acceptance of Construction Manager's work by Owner, under the agreement between the Construction Manager and Owner, and from the date of such acceptance until the later of the period of the statute of limitations or the statute of repose for the types of claim(s) covered by this insurance. If such endorsement is necessary to provide such extended coverage, Trade Contractor shall require its insurers to endorse its policies showing this extension of coverage for products-completed operations coverage. The limits of liability for CGL insurance shall be at a minimum:

Each Occurrence	$1,000,000	Medical Expense	$ 5,000
Personal and Advertising Injury Limit	$1,000,000	General Aggregate Limit	$1,000,000
Products-Completed Operations Aggregate Limit	$1,000,000		

* The General Aggregate shall apply on a per project basis.

(c) **Business Automobile Liability.** Trade Contractor shall provide business automobile liability insurance to include coverage for claims for damages due to bodily injury or property damage arising out of the ownership, maintenance, or use of any land motor vehicle (including trailer or semitrailer) designed for use on public roads (but not including mobile equipment) including any owned, non-owned or hired

vehicle. The limits of liability for business automobile liability shall be at a minimum $1,000,000 combined single limit for each accident. If Trade Contractor will be hauling or transporting any hazardous materials, the business automobile policy required herein must include the CA 99 48 10 01 broadened pollution liability endorsement or its equivalent.

(d) **Umbrella or Excess Liability**. Trade Contractor shall provide umbrella or excess liability insurance and shall schedule any employer's liability, CGL and business automobile liability policies required by this Agreement onto such insurance. The umbrella or excess liability insurance shall not contain any residential limitation or residential exclusion related to premises-operations or products-completed operations coverage. Trade Contractor shall provide Construction Manager with the schedule of underlying policies for any umbrella or excess liability policy maintained in accordance with this Agreement. The limits of liability for the umbrella liability insurance shall be at a minimum $5,000,000 each occurrence and $5,000,000 annual aggregate.

(e) **Professional Liability**. If Trade Contractor's scope of work requires design and/or professional services, the Trade Contractor or Trade Contractor's designer, architect or engineer shall provide professional liability insurance (errors & omissions liability insurance) for protection from claims arising out of the performance of any design, engineering or professional services performed or furnished in connection with the Trade Contract Work caused by any negligent act, error or omission for which Trade Contractor and/or the Trade Contractor's Architect(s)/Engineer(s) may be liable. This insurance shall remain in effect after acceptance of Construction Manager's work by Owner, under the agreement between the Construction Manager and Owner, and from the date of such acceptance until the later of the period of the statute of limitations or the statute of repose for the types of claim(s) covered by this insurance. If such coverage is project specific, then an extended reporting endorsement shall be provided for such period. Professional Liability insurance shall include a retroactive date that precedes the commencement of any Work under this Agreement. The limits of liability for professional liability insurance shall be at a minimum $1,000,000 each claim and $1,000,000 annual aggregate.

(f) **Contractor's Pollution Liability**. If Trade Contractor's scope of Work requires removal, hauling or storage of hazardous or regulated materials including, but not limited to, asbestos, lead, mercury or polychlorinated biphenyls ("PCBs"), the Trade Contractor shall provide contractor's pollution liability insurance for protection from claims arising out of the performance of any work involving such materials. (In addition, pollution coverage shall be required in accordance with the business automobile liability coverage in this Article.) Coverage shall apply on an "occurrence form" basis, shall cover at a minimum bodily injury and property damage liability, defense costs, and clean-up costs. This insurance shall remain in effect after acceptance of the Construction Manager's work by Owner, under the agreement between the Construction Manager and Owner, and from the date of such acceptance until the later of the period of the statute of limitations or the statute of repose for the types of claim(s) covered by this insurance. If such coverage is project specific, then an extended reporting endorsement shall be provided for such period. If only "claims-made form" coverage is commercially available, then contractor's pollution liability insurance shall include a retroactive date that precedes the commencement of any Work under this Agreement. The limits of liability for this insurance shall be at a minimum $5,000,000 each occurrence and $5,000,000 annual aggregate.

(g) **Contractor's Equipment and Property**. Trade Contractor shall maintain property insurance coverage at its expense covering its tools, equipment and other business or personal property, whether owned or rented, the capital value of which is not incorporated into the cost of the Work. To the extent that Trade Contractor carries any property insurance, including any installation floater applicable to the Work to which this Agreement applies, such insurance will be primary insurance without any contribution from any other property insurance, including builder's risk insurance, applicable to their Work. Trade Contractor waives any right of action for damages against Construction Manager, Owner, both of their agents, officers, directors, and employees, and anyone else required by Owner for loss or damage, including loss of use, to any such property insured in accordance with this paragraph (g).

(h) **Additional Insured**. Construction Manager, Owner, both of their agents, officers, directors and employees, and any others required by Owner in its Contract Documents with Construction Manager (collectively 'Additional Insureds") shall be named as additional insureds on the CGL, business automobile liability, umbrella liability, excess liability and contractor's pollution liability insurance required of Trade Contractor by this Agreement on a primary basis, without contribution from any other insurance or self-insurance programs afforded to the Additional Insureds. Furthermore, the CGL, umbrella and excess liability additional insured coverage provided to the Additional Insureds shall cover actual or alleged bodily injury, property damage and personal and advertising liability arising out of any premises-ongoing operations and products-completed operations. The additional insured coverage applicable to the CGL policy shall be provided on form (a) **CG 20 10 1185** or forms (b) **CG 20 10 10 01** AND **CG 20 37 10 01,** or their equivalent(s), unless otherwise approved by Construction Manager. Where Trade Contractor's CGL insurance does not afford blanket additional insured coverage when such coverage is required by contract, but rather requires scheduling any additional insureds per specific endorsement, then the Additional Insureds shall be scheduled by endorsement. If specific endorsement is required on subsequent policy forms in order to continuously maintain additional insured status, then Trade Contractor shall cause any future policies to be similarly endorsed. The CGL, umbrella and excess liability additional insured coverage required in this paragraph shall remain in effect after Owner's acceptance of Construction Manager's work, as described in the agreement between the Construction Manager and Owner, and from the date of such acceptance until the later of the period of the statute of limitations or the statute of repose for the types of claims covered by the insurance to which the additional insured status applies. The limits of liability required of Trade Contractor in this Agreement are not intended to be the sole limits applicable to the Additional Insureds. If Trade Contractor's policy limits are greater than the minimum limits of liability required in this Agreement, those policy limits, and any excess policy limits, shall also be applicable to the Additional Insureds' coverage. Copies of any additional insured endorsements required by this Article shall be attached to the applicable certificate of insurance.

(i) **Self-Insured Retentions (SIR's); Deductibles**. Any costs not covered due to self-insured retentions ("SIR's") or deductibles for any insurance required to be provided and maintained by Trade Contractor under this Agreement, are the sole responsibility of the Trade Contractor. Any SIR or deductible in excess of $50,000 must be approved by Construction Manager. Trade Contractor shall be considered a self-insurer with respect to its additional insurance obligations under paragraph (h) for any self-insured retention or deductible applied by its insurer to Construction Manager.

(j) **Notice of Cancelation of Insurance**. Any of Trade Contractor's insurance required in accordance with this Agreement shall contain a provision whereby Construction Manager shall be provided with at least 30 days written notice prior to cancelation of such insurance.

(k) **Certificates of Insurance**. The Trade Contractor shall, prior to commencement of its Work or entering the Project site, and thereafter upon renewal or replacement of each required policy of insurance, provide a certificate of insurance in triplicate, including any endorsements required to be attached thereto, certifying the coverage as set forth in this Article. Any certificate of insurance issued pursuant to this Agreement shall include Construction Manager's project name and number. Trade Contractor shall deliver to Construction Manager such certificate(s) of insurance evidencing the coverage required in this Trade Contract within forty-eight (48) hours after request. If Trade Contractor fails to provide such certificate(s), Construction Manager may withhold monthly progress payments and Trade Contractor may be asked to discontinue its Work. Construction Manager may obtain such insurance for Trade Contractor and pay the premiums thereon. If Construction Manager does so, then Trade Contractor shall repay Construction Manager on demand for any premium costs incurred by Construction Manager to secure coverage, or Construction Manager may deduct the amount of such premiums from any sums that may become due to Trade Contractor under this Trade Contract. Construction Manager has no obligation to obtain such insurance for Trade Contractor, and Construction Manager's failure to do so shall in no way relieve Trade Contractor of its obligations to provide such insurance.

(l) **Waiver**. To the fullest extent permitted by the law governing this Agreement, Trade Contractor agrees to waive any right of action against Construction Manager, Owner, both of their agents, officers, directors, and employees, and anyone else required by Owner in its Contract Documents with Construction Manager (collectively the "Waiver Parties") for recovery of damages to the extent covered by insurance, or that should have been covered by insurance as required by either this Agreement or the Contract Documents between Owner and Construction Manager. Trade Contractor agrees to waive all rights to subrogate against the Waiver Parties and shall require all insurance required of it in accordance with this Agreement, or the Contract Documents between Owner and Construction Manager, to provide a waiver of subrogation endorsement in favor of the Waiver Parties.

(m) **Downstream Requirements**. Trade Contractor shall require its Trade Subcontractors of all tiers to meet the same insurance obligations as are required of it in this Agreement, except as it relates to limits of liability.

ARTICLE 7

WARRANTY

7.1 The Trade Contractor agrees to promptly make good, without cost to the Owner or Construction Manager, any and all defects, due to faulty workmanship and/or materials, which may appear within the guarantee or warranty period so established in the contract documents. If no such period be stipulated in the contract documents, then such guarantee shall be for a period of one (1) year from date of completion and acceptance of the work by the Owner. The Trade Contractor further agrees to provide any and all guarantees as required by the terms of the contract documents, as a condition precedent to final payment.

ARTICLE 8

CHANGES IN THE WORK

8.1 The Trade Contractor may be ordered in writing by the Construction Manager, without invalidating this Agreement, to make changes in the work within the general scope of this Agreement. These changes may consist of additions, deletions, or other revisions, the contract sum and the contract time being adjusted accordingly. The Trade Contractor, prior to the commencement of such changed or revised work, shall submit promptly to the Construction Manager written copies of any claim for adjustment to the contract sum and contract time for such revised work in a manner consistent with the contract documents.

8.2 Where changes in the work involve both additions and deletions, percentages for overhead and profit shall be applied to the net increase only of such values for labor and materials.

8.3 The amount to be paid by the Construction Manager for changes in the work, as outlined in paragraph 8.1 above, shall be made on the basis of one of the following methods:

(a) by mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation and agreed upon by the Construction Manager and the Trade Contractor, or

(b) by unit prices stated in the contract documents, or

(c) if no such unit prices are set forth and if the parties cannot agree upon a lump sum, then by actual net cost in money to the Trade Contractor of materials and labor (including insurance and applicable taxes) required, plus rental of plant equipment (other than small tools and small equipment) plus compensation for overhead and for profit as noted in Article 12. Field overhead will not be considered as part of actual net cost, or

(d) by the method provided in subparagraph 8.4.

8.4 If none of the above methods set forth in clauses 8.3 (a), 8.3 (b), 8.3 (c) is agreed upon, the Trade Contractor, provided he/she receives a written order signed by the Construction Manager shall promptly proceed with the work involved. The cost of such work shall be determined by the Construction Manager on the basis of reasonable expenditures and savings of those performing the work attributable to the change, including, in the case of an increase in the contract sum, a reasonable allowance for overhead and profit. In such case, and also under clauses 8.3 (c) and 8.3 (d) above, the Trade Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data for inclusion in a change order. Unless otherwise provided in the contract documents, cost shall be limited to the following: cost of materials including sales tax and cost of delivery, cost of labor including social security, old age and unemployment insurance and fringe benefits required by Agreement or custom; workers or workmen's compensation insurance; bond premiums; rental

value of equipment and machinery; and the additional costs of supervision and field office personnel directly attributable to the change. Pending final determination of cost, payments, on account shall be made as determined by the Construction Manager. The amount of credit to be allowed by the Trade Contractor for any deletion or change which results in a net decrease in the contract sum will be the amount of the actual net cost as confirmed by the Construction Manager when both additions and credits covering related work or substitutions are involved in any one change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any with respect to that change.

8.5 Construction Manager's Audit

(a) Construction Manager's duly authorized representative shall have access, at all reasonable times, to all Trade Contractor's personnel, books, records, correspondence, instructions, plans, drawings, receipts, vouchers and memoranda of every description pertaining to change for the purpose of auditing and verifying Trade Contractor's net cost of change or for any other reasonable purpose. Construction Manager's representative shall have the right to reproduce any of the aforesaid documents. Trade Contractor shall preserve, and shall cause its Subcontractors to preserve all the aforesaid documents for a period of two years after the completion and acceptance or termination of work.

8.6 For work performed by a Trade-Subcontractor, the Trade Contractor will be allowed to add 5% only and said Trade-Subcontractor mark-up shall not exceed the agreed upon percentages noted in Article 12 for overhead and profit.

ARTICLE 9

TRADE CONTRACTOR RESPONSIBILITIES

9.1 The Trade Contractor shall provide sufficient, safe, and proper facilities at all times for the inspection of the work by the Construction Manager and the Owner, or their authorized representatives. The Trade Contractor shall, within a 24-hour notice from the Construction Manager, proceed to take down all portions of the work and remove from the grounds or buildings, all materials, whether worked or unworked, which the Construction Manager, the Owner, or their authorized representatives shall condemn as unsound or improper, or as in any way failing to conform to the contract documents. The Trade Contractor shall made good at its own expense, all work damaged or destroyed thereby.

9.2 The Trade Contractor agrees, in the performance of this Agreement, to comply with all federal, state, municipal, and local laws, ordinances, codes and governing regulations, to pay all costs and expenses required thereby; to pay all fees, charges, assessments, and taxes, including sales and use taxes, and to pay all fringe and other benefits required by Agreement or law. The Trade Contractor shall comply with all federal, state, municipal and local employment and immigration laws and shall act in accordance with all rules, regulations and procedures which may be required to ensure full compliance with such laws and, if requested or required by Construction Manager and/or Owner, the Trade Contractor shall certify in writing that it is in compliance with all such laws.

9.3 The Trade Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner and Construction Manager harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified, but if the Trade Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Construction Manager.

9.4 Should the Trade Contractor become insolvent, or at any time, refuse or neglect to supply a sufficiency of properly skilled workers, or equipment and materials of the proper quality, or fail in any respect to prosecute the work with promptness and diligence, or fail in the performance of any of the Agreements herein contained, the Construction Manager shall be at liberty, after 48 hours written notice to the Trade Contractor, to provide any such labor, equipment, and materials and deduct the cost thereof, from any money then due or thereafter to become due to the Trade Contractor, under this Agreement. If such refusal, neglect, or failure is sufficient ground for such actions, the Construction Manager shall also be at liberty to terminate the employment of the Trade Contractor. Consequently, the Construction Manager may enter upon the premises to take possession, for the purpose of completing the work included under this Agreement, of all materials, tools, and appliances thereon, and to employ any other person or persons to finish the work and provide the materials therefore. In case of such discontinuance of the employment, the Trade Contractor shall not be entitled to receive any further payment under this Agreement until the said work shall be wholly finished. If the unpaid balance of the amount to be paid under this Agreement shall exceed the expense incurred by the Construction Manager in finishing the work, such excess shall be paid by the Construction Manager to the Trade Contractor. If such expense shall exceed such unpaid balance, the Trade Contractor shall pay the difference to the Construction Manager. The expense incurred by the Construction Manager, as herein provided, either for furnishing materials, or finishing the work, and any damage incurred through such default, shall be chargeable to the Trade Contractor. In the event that a Termination for Cause is not upheld by a properly empowered judicial or arbitral authority, then the Termination for Cause shall be deemed a Termination for Convenience and construed under Section 9.4.1. hereof.

9.4.1 Notwithstanding the above paragraph, the Construction Manager reserves the right to terminate this Agreement for its convenience upon written notice to the Trade Contractor. In such instance the Trade Contractor will be paid its share of the contract amount proportionate to the percentage of its work completed and other reasonable cancellation costs incurred as a result of said termination. No payments shall be made for anticipated overhead and profit. Prior to making any payments under this clause, the Construction Manager shall have the right to audit the records of the Trade Contractor.

9.5 The Trade Contractor agrees to adhere to the federal occupational safety act, state and local safety regulations and the Construction Manager's safety and health program so as to avoid injury or damage to persons or property, and to be directly responsible for damage to persons and property resulting from failure to do so.

9.6 In the event the Trade Contractor after a 24-hour written notice from the Construction Manager, fails to take corrective action to insure compliance with said safety regulations or removal of rubbish and

debris resulting from his work, the Construction Manager shall undertake these obligations and charge the cost of same to the Trade Contractor's account without further notice to the Trade Contractor.

9.7 The Trade Contractor agrees to notify the Construction Manager's representative on the jobsite of all accidents which may occur to persons or property and shall provide the Construction Manager's representative with a copy of all accident reports on appropriate forms. All reports shall be signed by the Trade Contractor or his authorized representative and submitted within five (5) days of occurrence.

9.8 The Trade Contractor shall procure its materials from such sources, and employ such labor subject to contract terms and conditions in order to ensure harmonious labor relations on the site and prevent strikes or labor disputes by its employees or other trade employees. The Trade Contractor, in the event of a labor dispute including strikes, shall take whatever action is required in order to prevent the disruption of work on the Project site.

9.9 The Trade Contractor will not assign this Agreement, nor any moneys due or to become due under this Agreement, nor sublet the whole or any part of the work to be performed hereunder, without the written consent of the Construction Manager. In the event of such a consent, a Trade-Subcontractor must comply with all the requirements of this Agreement.

9.10 The Trade Contractor agrees that all disputes concerning the jurisdiction of trades shall be adjusted in accordance with any plan for the settlement of jurisdictional disputes which may be in effect either nationally or in the locality in which the work is being done. The Trade Contractor shall be bound by, and shall abide by, all such adjustments and settlements of jurisdictional disputes, whether or not the Trade Contractor is signature bound by the Agreement establishing the impartial jurisdictional disputes board and/or its successors. The Trade Contractor agrees not to cause a work stoppage, due to the jurisdictional assignment of work.

9.11 The Trade Contractor shall submit to the Construction Manager upon request, copies of orders placed for the various materials required for the Project or authentic stock lists if such material is normally a stock item. Order copies need not reflect prices but should indicate type of material, quantity, vendor name, and address, etc. The Trade Contractor shall be required to submit to the Construction Manager a monthly material status report, or more often if required by the Construction Manager, as a prerequisite for the monthly progress payment. The Trade Contractor shall notify the Construction Manager immediately upon learning of a change of status of any material, equipment, or supplies.

9.12 The Trade Contractor shall continuously and adequately protect all his work and will immediately replace all damaged and defective work.

9.13 The Trade Contractor agrees to maintain an adequate force of experienced workers and the necessary materials, supplies, and equipment to meet the requirements of the Construction Manager and other trades in order to maintain construction progress schedules, as established by the Construction Manager and Owner. In the event that his/her force is, in the judgment of the Construction Manager , inadequate to meet the established schedules during the regular working hours, the Trade Contractor agrees to work sufficient overtime hours or increase their work force to meet such schedules at no extra

cost to the Construction Manager or Owner. If for reasons not already stated, the Construction Manager requires and directs the Trade Contractor to work overtime, including Saturdays, Sundays or Holidays, the Trade Contractor will be reimbursed the net premium rate only. The net premium rate is understood to mean the actual premium labor cost, including applicable taxes and wage additives required by trade Agreement or by law, but without additives for overhead, labor efficiency, or profit.

9.14 The Trade Contractor agrees to employ competent administrative, supervisory, and field personnel to accomplish the work, including layout, engineering, preparation and checking of shop drawings. If required, the Trade Contractor shall substantiate this employment of competent personnel to the Construction Manager's satisfaction before initiating any work.

9.15 The Trade Contractor shall insure that all construction tools, equipment, temporary facilities, and other items used in accomplishing the work, whether purchased, rented, or otherwise provided by the Trade Contractor or provided by others, are in a safe, sound, and good condition, must be capable of performing the functions for which they are intended and must be maintained in conformance with applicable laws and regulations.

9.16 If the Trade Contractor is delayed at any time in the progress of the work by any act or neglect of the Owner, Construction Manager, or the Architect/Engineer, or by any employee of either, or by any separate contractor employed by the Owner, or by changes ordered in the work, or by labor disputes, fire, unusual delay in transportation, adverse weather conditions not reasonably anticipatable, unavoidable casualties or any causes beyond the Trade Contractor's control, or by delay authorized by the Owner or Construction Manager, or by any other cause which the Construction Manager determines may justify the delay, then the contract time shall be extended by change order for such reasonable time as the Construction Manager and Owner may determine. In the event that a conflict exists between this section (9.16) and a like clause contained in a document having higher precedence, such like clause shall have preference to the extent of the conflict.

9.17 Right-To-Know - each Trade Contractor is required to implement the provisions of the right-to-know law, if any, as enacted by the state in which the work is being performed. Before using on site any material listed in the right-to-know substance list, each Trade Contractor will furnish the Construction Manager a copy of the material safety data sheet for that substance.

9.18 In the event the Trade Contractor employs independent contractors, as well as payroll labor, to discharge its obligations hereunder, the Trade Contractor acknowledges and understands that it does so at its own risk and that federal, state and/or local agencies may dispute the independent contractor status and assess penalties, fines, and costs should there be a determination to reclassify such workers. In that event, the Trade Contractor agrees that it will defend, indemnify and hold the Construction Manager and the Owner harmless from any fines, costs, damages, penalties, attorneys fees, and causes of action, including without limitation, personal injury or property damage, arising out of or relating in any way to such a determination.

9.19 NOTWITHSTANDING THE FOREGOING, IN THE EVENT ANY LITIGATION HEREUNDER INCLUDES THE OWNER AS A THIRD PARTY WHETHER BY IMPLEADER OR

OTHERWISE, AND THE OWNER HAS NOT WAIVED RIGHT TO TRIAL BY JURY, THIS PROVISION SHALL BE DEEMED TO BE OF NO FORCE AND EFFECT. TO THE EXTENT ALLOWED BY APPLICABLE LAW, THE TRADE CONTRACTOR HEREBY WAIVES TRIAL BY JURY IN ANY ACTION OR PROCEEDING TO WHICH THE TRADE CONTRACTOR MAY BE A PARTY ARISING OUT OF OR IN ANY WAY PERTAINING TO THIS AGREEMENT OR THE ENFORCEMENT THEREOF. IT IS AGREED AND UNDERSTOOD THAT THIS WAIVER CONSTITUTES A WAIVER OF TRIAL BY JURY OF ALL CLAIMS AGAINST ALL PARTIES TO SUCH ACTIONS OR PROCEEDINGS, INCLUDING CLAIMS AGAINST PARTIES WHO ARE NOT PARTIES TO THIS AGREEMENT. THIS WAIVER IS KNOWINGLY, WILLINGLY AND VOLUNTARILY MADE BY THE TRADE CONTRACTOR AND THE TRADE CONTRACTOR HEREBY REPRESENTS THAT NO REPRESENTATIONS OF FACT OR OPINION HAVE BEEN MADE BY ANY INDIVIDUAL TO INDUCE THIS WAIVER OF TRIAL BY JURY OR TO IN ANY WAY MODIFY OR NULLIFY ITS EFFECT. THE TRADE CONTRACTOR FURTHER REPRESENTS THAT IT HAS HAD THE OPPORTUNITY TO DISCUSS THIS WAIVER WITH INDEPENDENT LEGAL COUNSEL.

ARTICLE 10

CONSTRUCTION MANAGER RESPONSIBILITIES

10.1 The Construction Manager shall be bound to the Trade Contractor by the terms of this Agreement. To the extent that the provisions of the contract document between the Owner and the Construction Manager apply to the work of the Trade Contractor as defined in this Agreement, the Construction Manager shall assume toward the Trade Contractor all the obligations and responsibilities that the Owner, by those documents, assumes toward the Construction Manager. The Construction Manager shall have the benefit of all rights, remedies, and redress against the Trade Contractor which the Owner, by those documents, has against the Construction Manager. Where any provision of the contract documents between the Owner and the Construction Manager is inconsistent with any provision of this Agreement, this Agreement shall govern.

10.2 The Construction Manager shall pay the Trade Contractor by electronic funds transfer within seven (7) days after receipt of payment by the Owner, as noted in Article 3 of this Agreement. The amount of each progress payment to the Trade Contractor shall be equal to the percentage of completion allowed to the Construction Manager for the work of the Trade Contractor, applied to the Contract sum of the Agreement, plus the amount allowed for materials and equipment suitably stored by the Trade Contractor, less the percentage retained from payments to the Construction Manager. The Construction Manager shall make available to the Trade Contractor evidence of percentages of completion certified on it's account.

10.3 The Construction Manager shall not give instructions or orders directly to employees or workers of the Trade Contractor, except to persons designated as authorized representatives of the Trade Contractor.

ARTICLE 11

EQUAL OPPORTUNITY

11.1 During the performance of this Agreement, the Trade Contractor agrees not to discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Trade Contractor will take affirmative action to insure that applicants are employed without regard to their race, color, religion, sex, or national origin. The Trade Contractor will comply with all provisions of Executive Order No. 11246, Section 503 of the Rehabilitation Act of 1973, as Amended, the Vietnam Era Veterans' Readjustment Assistance Act of 1974, as Amended, (38 U.S.C. 4212) and their implementing regulations at 41 CFR Chapter 60.

11.2 The E.E.O. Certificate of Assurance (Exhibits A, and where applicable A-1 through A-4) is attached hereto and incorporated herein as if made a part hereof.

ARTICLE 12

ALTERATIONS

12.1 The overhead and profit allowable under Article 8.3. A, 8.3 B, 8.3 C is:
The maximum allowable mark-up for overhead and profit on changes is a sliding scale as follows:

Change Order Amount	Overhead and Profit
$0 to $ 5,000	20%
$5,001 to $15,000	17%
$15,001 to $25,000	15%
$25,000 and greater	12%

The maximum allowable mark-up on lower tier sub-trade contractors and vendors is six percent (6%) plus the allowable amount from the table above for self-performed work.

12.2 The Trade Contractor hereby agrees to defend, indemnify and hold the Construction Manager and the Owner harmless from and against any and all claims which arise out of or result from the Trade Contractor's negligence, errors, acts or omissions in the performance of the design services required under this Agreement.

12.3 The Trade Contractor shall provide immediate notification of any material adverse change to the Trade Contractor's financial condition from the date of the award, that there is no action, suit or proceeding, at law or in equity, before or by any court or governmental authority, pending, or to the best of the Trade Contractor's knowledge, threatened against the Trade Contractor, wherein an unfavorable decision, ruling, or filing or would materially adversely affect the performance of the Trade Contractor of its obligations under its Contract with the Construction Manager. If the Trade Contractor becomes aware of any material change in the financial condition of a Sub- trade contractor or supplier during the progress of the Work, the Trade Contractor shall give the Construction Manager prompt, written notice of such

change. The Trade Contractor shall include in each agreement it issued for the Work, the same obligation requirement.

12.4 Trade Contractor (and all tiers thereof) shall indemnify and hold harmless the Construction Manager, The Owner and Owner's Representative for any costs, expenses and damage which it may be obliged to pay by reason of any infringement or a patent or a copyright, at any time during the prosecution or after the Final Payment of the Work.

12.5 Pursuant to State of Connecticut General Statute (CGS) 4a-60a, the following provisions are included in this Agreement:

(a) Every contract for the Project to which the Trade Contractor is a party shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the state of Connecticut; and the contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved;

(2) The contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the commission;

(3) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the commission advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(4) The contractor agrees to comply with each provision of CGS 4a-60a and sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, 46a-68e and 46a-68f; and

(5) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of this section and section 46a-56.

(b) The contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials.

ARTICLE 13

COMPLETE AGREEMENT

13.1 This Agreement, together with all documents, specifications, drawings, incorporated herein by reference, constitute the entire Agreement between the Construction Manager and Trade Contractor. There are no terms, conditions, or provisions, either oral or written, between the parties hereto, other than those contained herein. This Agreement supersedes any and all written representations, inducements, or understandings of any kind or nature between the parties hereto, relating to the particular Project involved herein.

13.2 The said parties for themselves, their heirs, successors, executors, administrators and assigns, do hereby agree to the full performance of the covenants herein contained.

13.3 If any provision of the contract documents shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

In witness whereof they have hereunder set their hands the day and date first above written.

In the presence of

Sample Trade Contractor
Trade Contractor
_____ Accepted by: _____(Signature)
Witness

Name: _____(Print name)

Title: _____

Date: _____

Gilbane Building Company
Construction Manager

_____ _____
Witness By: Patrick J. Delany
Dist. Chief Purchasing Agent

Date: _____

Item	Job Number	Cost Code	Type	Description	Amount
1	115311000	20303200	4115	Building Stuff	$XX,XXX.XX
				Total Amount of Order	$XX,XXX.XX

Exhibit A
EQUAL OPPORTUNITY
CERTIFICATE OF ASSURANCE

I, _____, the undersigned, certifies that he does not and will not maintain or provide for the undersigned's employees any segregated facilities at any of the undersigned's establishments, and that the undersigned does not and will not permit the undersigned's employees to perform their services at any location, under the undersigned's control, where segregated facilities are maintained. The undersigned understands that the phrase "segregated facilities" means any waiting rooms, work areas, rest rooms, and wash rooms, restaurants, and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. The undersigned understands and agrees that maintaining or providing segregated facilities for the undersigned's employees to perform their services at any location, under the undersigned's control, where segregated facilities are maintained, is a violation of the equal opportunity clause required by executive orders 11246 of September, 1965 and 11375 of October 13, 1967 and the rules and regulations thereunder.

The undersigned further agrees that it will obtain identical certifications from proposed Trade Contractors prior to the award of subcontracts exceeding $10,000.00 which are not exempt from the provisions of the equal opportunity clause.

Further, pursuant to 41 CFR 60-2, the undersigned acknowledges that a written affirmative action program is required within 120 days from the commencement of a contract, if he/she has (a) 50 or more employees and (b) have entered into at least one government contract for $50,000 or more in any 12 month period with a federal “executive” agency.

The undersigned agrees to comply with all reporting requirements of Executive Orders 11246, as Amended, Section 503 of the Rehabilitation Act of 1973, as Amended, the Vietnam Era Veterans' Readjustments Assistance Act of 1974, as Amended, (38 U.S.C. 4212) and their implementing Regulations at 41 CFR Chapter 60. Employer Information Report EEO-1 (Standard Form 100) must be filed with the joint reporting committee no later than May 31 each year.

On Federal and/or Federally Assisted Projects, the undersigned acknowledges Exhibit A-1 through and includes A-4 as part of and included within the undersigned's contract Agreement and obligation.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Sample Trade Contractor

_____ _____

Authorized Signature Date