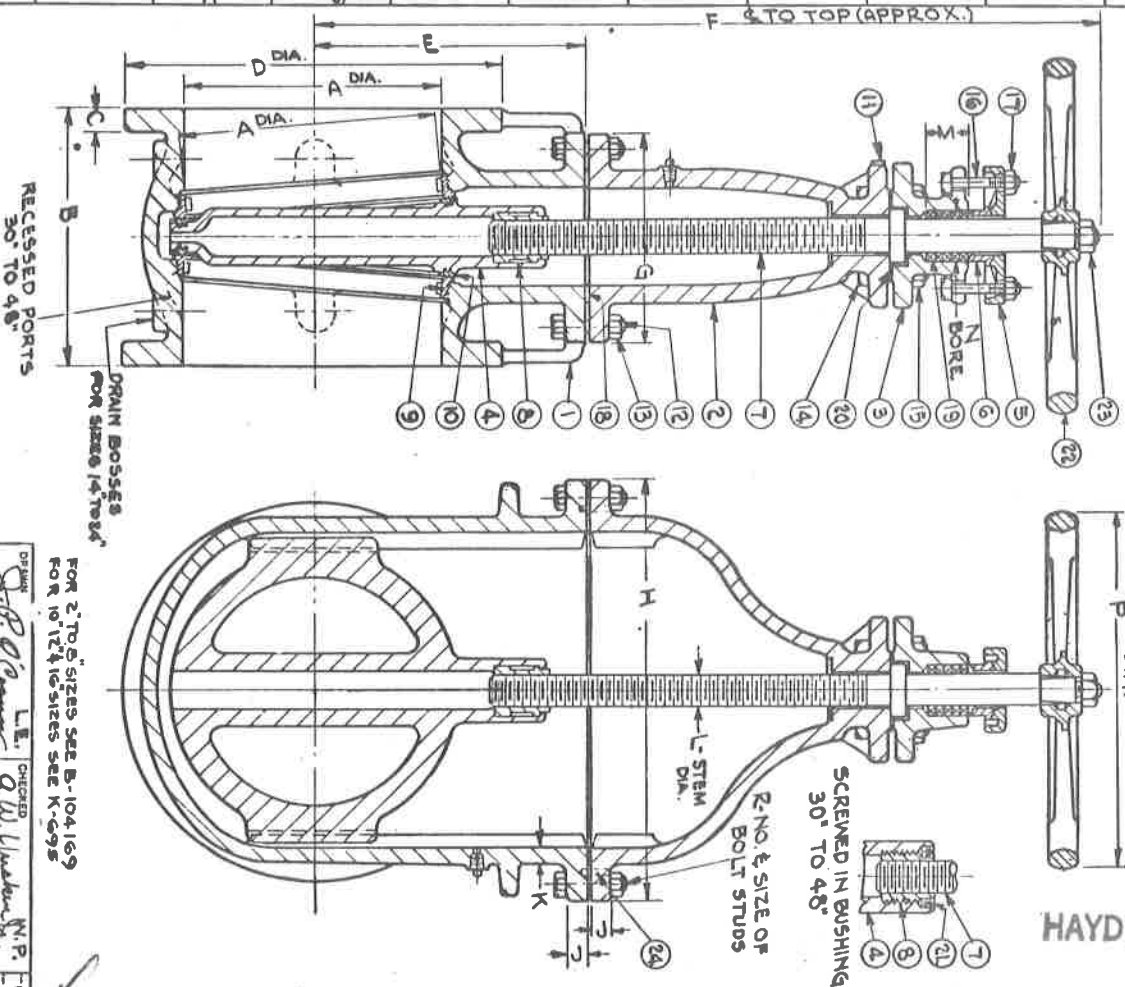


P.O. ITEM 3.

HAYDEN & HARDING



NO.	NAME OF PART	MATERIAL	SPECIFICATION
1	BODY	14" FERRO STEEL	A.S.T.M. A-126 CL. B
2	BOUNNET	18" TO 48" FERRO STEEL	A.S.T.M. A-126 CL. C
3	STUFFING BOX	FERROSTEEL	A.S.T.M. A-126 CL. B
4	DISC	FERROSTEEL	A.S.T.M. A-126 CL. B
5	GLAND FLANGE	MALLEABLE IRON	A.S.T.M. A-197
6	GLAND	BRONZE	A.S.T.M. B-62
7	STEM	MANGANESE BRONZE	A.S.T.M. B-132 ALLOW A
8	DISC BUSHING	BRONZE	A.S.T.M. B-62
9	BODY SEAT RING	BRONZE	A.S.T.M. B-62
10	DISC SEAT RING	BRONZE	A.S.T.M. B-62
11	IDENTIFICATION PLATE	ALUMINUM	—
12	BOUNNET BOLT STUDS	STEEL	A.S.T.M. A-108
13	BOUNNET BOLT NUTS	STEEL	A.S.T.M. A-307GR. B.
14	STUFFING BOX BOLTS	STEEL	A.S.T.M. A-108
15	STUFFING BOX BOLT NUTS	STEEL	A.S.T.M. A-307GR. B.
16	GLAND BOLTS	STEEL	A.S.T.M. A-307GR. B.
17	GLAND BOLT NUTS	STEEL	A.S.T.M. A-307GR. B.
18	BOUNNET GASKET	CRANITE	—
19	PACKING	ASBESTOS RINGS	—
20	STUFFING BOX GASKET	CRANITE	—
21	SET SCREWS	STEEL	A.S.T.M. A-109
22	HANDWHEEL	MALLEABLE IRON	A.S.T.M. A-197
23	HANDWHEEL NUT	STEEL	A.S.T.M. A-307GR. B.
24	ALIGNMENT PIN	STEEL	A.S.T.M. A-108

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	WEIGHT
14	14	15	1 3/8	21	14 1/2	99 1/2	12	2 1/2	1 1/4	7/8	1 3/4	2 1/6	2 3/16	20	14 1/2	850
16	16	17	1 7/16	25	17	14 3/8	108 1/2	1 3/8	1 3/8	1 1/16	2 3/8	2 1/2	3	24	16 7/8	1440
18	18	19	1 1/2	32	22	15 1/2	128 1/2	1 1/2	1 1/2	1 1/8	2 1/2	2 5/8	3 3/16	24	18 1/2	1740
20	20	21	1 5/8	40	30	18 1/2	158 1/2	1 5/8	1 5/8	1 1/4	2 3/4	2 3/4	3 1/2	30	20 7/8	2774
24	24	25	2 1/8	50	40	24 1/2	208 1/2	2 1/8	2 1/8	1 3/4	3 1/2	3 1/2	4 1/8	36	28 1/2	—
30	30	31	2 3/4	60	50	30 1/2	258 1/2	2 3/4	2 3/4	2 1/4	4 1/8	4 1/8	5 1/8	42	36 1/2	—
36	36	37	3 1/8	70	60	36 1/2	308 1/2	3 1/8	3 1/8	2 3/4	4 3/4	4 3/4	5 3/4	48	44 1/2	—
42	42	43	3 3/4	80	70	42 1/2	358 1/2	3 3/4	3 3/4	3 1/4	5 1/2	5 1/2	6 1/2	54	52 1/2	—
48	48	49	4 1/4	90	80	48 1/2	408 1/2	4 1/4	4 1/4	3 3/4	6 1/4	6 1/4	7 1/4	60	60 1/2	—

END FLANGE DIMENSIONS AND DRILLING CONFORM TO ANSI B16.1 - 1925.18.
 MADE TO FACE DIMENSIONS CONFORM TO ANSI B16.10 - 125 LB.
 14" TO 24" 150 LB. W.O.G.
 30" TO 48" 300 LB. W.O.G.

125 LB. FERROSTEEL WEDGE GATE VALVE
 NON-RISING STEM
 BRONZE TRIMMED
 CRANE CO.
 No K-696-D

LETTER CHANGE	DESCRIPTION
(A)	REWORK FROM DR. 3922 1-14-51
(B)	STD. PROGRAM 10-11-56
(C)	CHANGED TITLE TO FERROSTEEL 1-18-61 MRP
(D)	REVISIONS BY E.N.G.R.G. 1-12-71

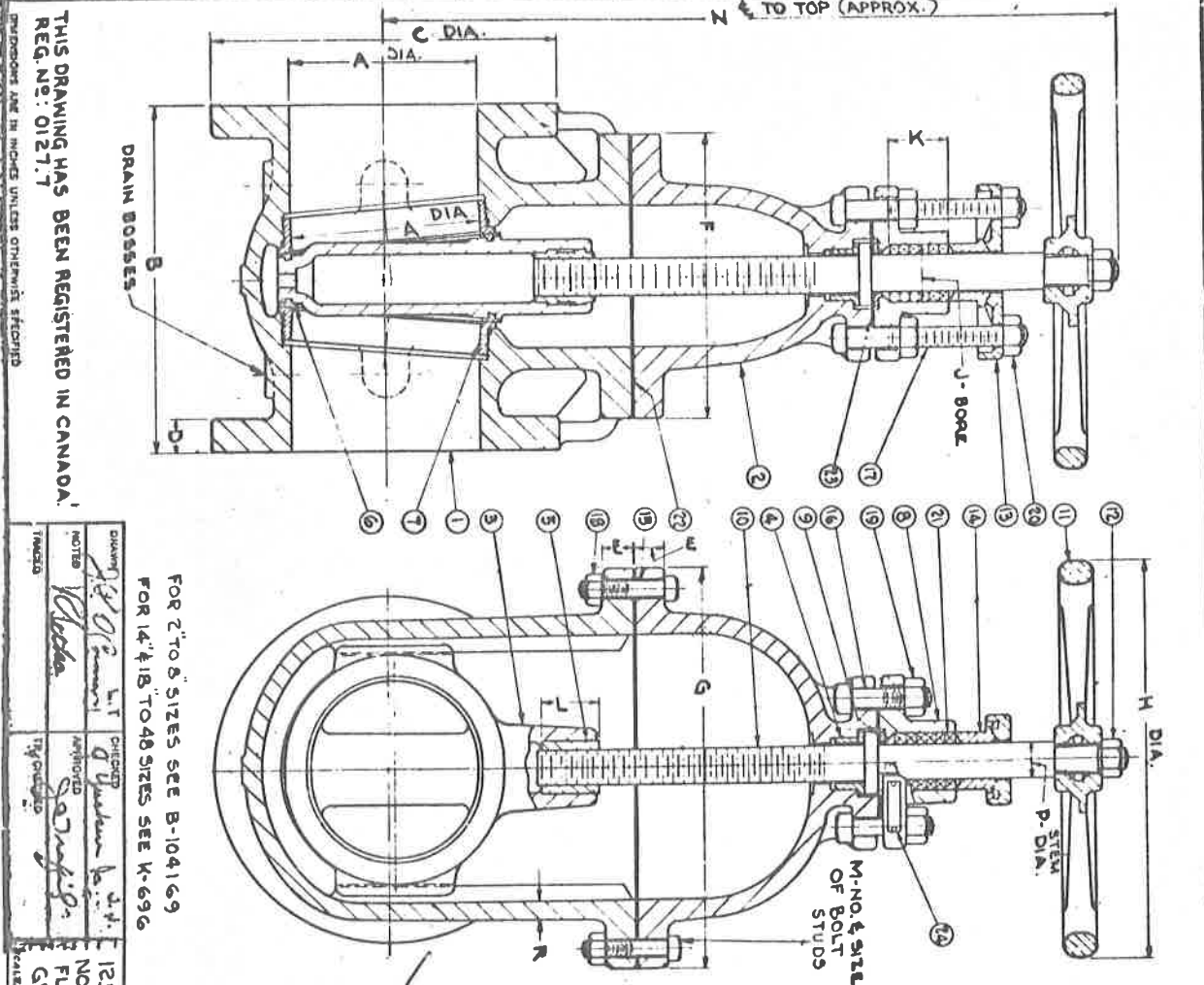
FOR 2" TO 5" SIZES SEE B-104.169
 FOR 10" TO 12" SIZES SEE K-695

GENERAL ASSEMBLY CAT. # 461 FLANGED END

P.O. Item 2

HAYDEN & HARDING

LETTER CHANGE
 REVISIONS BY ENG. 1-8-37
 CHANGED TITLE TO FERROTEEL
 1-19-41 NAB
 REGD. IN N. H.
 NEW BRONSWICK
 L.M.K. N.H.
 2" TO 8" PACKING WAS ONE PIECE MODDED ASBESTOS 9-29-58 W.R.P.
 STD. PROGRAM 10-11-56
 FROM 10-11-56
 FROM 10-11-56



THIS DRAWING HAS BEEN REGISTERED IN CANADA.
 REG. NO. 0127.7
 DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

FOR 2" TO 8" SIZES SEE B-104169
 FOR 14" & 18" TO 48" SIZES SEE K-696

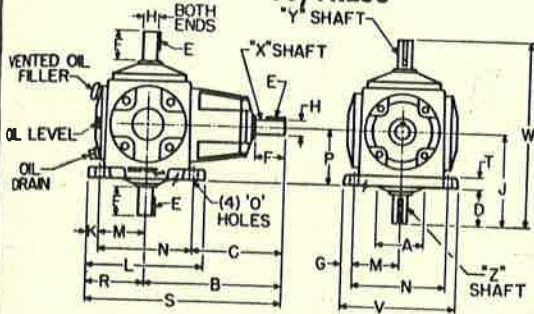
NO.	NAME OF PART	MATERIAL	SPECIFICATION
1	BODY	FERROSTEEL	ASTM. A26 CLASS B
2	BONNET	FERROSTEEL	ASTM. A126 CLASS B
3	DISC	FERROSTEEL	ASTM. A126 CLASS B
4	BONNET BUSHING	BRONZE	ASTM. B42
5	DISC BUSHING	BRONZE	ASTM. B62
6	DISC SEAT RING	BRONZE	ASTM. B62
7	BODY SEAT RING	BRONZE	ASTM. B62
8	STUFFING BOX BUSHING	FERROSTEEL	ASTM. A26 CLASS B
9	STUFFING BOX BUSHING	BRONZE	ASTM. B62
10	STEM	MANGANESE BRONZE	ASTM. B132 ALLOY A
11	HANDWHEEL	MALLEABLE IRON	ASTM. A197
12	HANDWHEEL NUT	STEEL	ASTM. A307 GR. B
13	GLAND FLANGE	MALLEABLE IRON	ASTM. A197
14	GLAND	BRONZE	ASTM. B-62
15	BONNET BOLT STUDS	STEEL	ASTM. A-108
16	STUFFING BOX BOLTS	STEEL	ASTM. A-307 GR. B
17	GLAND BOLTS	STEEL	ASTM. A-307 GR. B
18	BONNET BOLT NUTS	STEEL	ASTM. A-307 GR. B
19	STUFFING BOX BOLT NUTS	STEEL	ASTM. A-307 GR. B
20	GLAND BOLT NUTS	BRONZE	ASTM. B-16
21	PACKING	ASBESTOS RINGS	-
22	BONNET GASKET	GRANITE	-
23	STUFFING BOX GASKET	CRANITE	-
24	IDENTIFICATION PLATE	ALUMINUM	-

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	WGT. LBS.
10	10	13	16	1 1/2	1 1/8	10 1/2	18 1/2	20	23 1/2	24 1/2	2 1/2	16	33	1 1/2	7	490
12	12	14	19	1 3/4	1 1/4	11 1/8	20 1/2	20	23 1/2	24 1/2	2 1/2	18	36 1/2	1 1/2	12	672
16	16	16	23 1/2	1 1/2	1 1/2	14	26 1/2	22	26 1/2	28 1/2	3 1/2	20 1/2	40	1 1/2	11	1160

FACE TO FACE DIMENSIONS CONFORM TO ANSI B16.10 - 125LB.
 END FLANGE DIMENSIONS AND DRILLING CONFORM TO ANSI B16.1 - 125LB.
 10" & 12" 1255 - 200LB. W.O.G.
 16" 1258 - 150LB. W.O.G.
 125 LB. FERROSTEEL WEDGE GATE VALVES
 NON-RISING STEM
 FLANGED END
 BRONZE TRIMMED
 GENERAL ASSEMBLY
 CAT. 461
 CRANE CO.
 N°K695-G

DIMENSIONS

VR131/VR231, VR137/VR237, VR146/VR246
AND VR158/VR258



Units are furnished standard as shown above unless otherwise specified. See Pages 550 and 551 for other Mountings.

Catalog No.	A	B	C	D	E		F	G
					Sq.	Lg.		
VR131/VR231	...	5 1/2"	3 1/2"	1 3/4"	3/8"	3/8"	1 3/8"	1 1/2"
VR137/VR237	...	7 1/8"	4 5/8"	1 11/16"	5/8"	1"	1 11/16"	5 5/8"
VR146/VR246	3 3/4"	8 3/4"	5 3/4"	2 1/4"	1 1/4"	1 1/4"	1 11/16"	1 1/8"
VR158/VR258	4 1/2"	11 1/2"	8 1/2"	3 3/4"	5/8"	2 1/4"	3 3/8"	3/4"

Catalog No.	H	J	K	L	M	N	O	P
	+ .0000 - .0005							
VR131/VR231	.4905	3 3/8"	5/8"	5 1/8"	2 1/2"	4 1/8"	3/8"	2 5/8"
VR137/VR237	.7405	4 1/4"	3 1/8"	6 1/8"	2 3/8"	4 3/8"	3/8"	3"
VR146/VR246	.9905	5 1/4"	3 3/8"	7 3/8"	3"	6"	1/2"	3 1/2"
VR158/VR258	1.4905	8 3/4"	7/8"	9 1/4"	3 3/4"	7 3/8"	5/16"	4 1/2"

Catalog No.	R	S	T	V	W	Approx. Weight (Lbs.)	Oil Capacity
VR131/VR231	2 1/2"	8 1/2"	5 1/8"	5 1/2"	7 1/2"	14	6 Fl. Ozs.
VR137/VR237	3 3/8"	10 3/8"	6 1/8"	6 3/8"	9 3/8"	27	8 3/4 Fl. Ozs.
VR146/VR246	3 3/4"	12 3/4"	7 3/8"	7 3/8"	11 3/8"	51	19 1/2 Fl. Ozs.
VR158/VR258	4 1/2"	16 1/2"	9"	9"	16 1/2"	104	1 Qt. 8 Fl. Ozs.

SHOP DRAWING

PROJECT **65-170-11**

DATE **7-16-73**

APPROVED FOR GENERAL DESIGN CONFORMANCE ONLY, BY **HWQ**

DIMENSIONS NOT CHECKED. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK AND MATERIALS INCLUDED IN THE CONTRACT AND FOR FITTING HIS WORK ACCURATELY TO ACTUAL CONDITIONS AT BUILDING OR STRUCTURE.

HAYDEN & HARDING

CONSULTING ENGINEERS BOSTON, MASS. 02135

CRANE **CONVERTO-GEAR** VALVE OPERATORS

STANDARD SPECIFICATIONS

CATALOG NOS.	With Grey Iron Housing	3X-N	3X-P	4X-N	4X-P	6X-N	6X-P
	With Nodular Iron Housing	3XS-N	...	4XS-N	...	6XS-N	...
Gear ratio		2.92	2.92	4.11	4.11	6.16	6.16
Mechanical advantage		2.65	2.40	3.75	3.40	5.60	5.10
Torque capacityft.-lbs.		1000	1000	2500	2500	6000	6000
Stem diameter capacity*.....inches		1 7/8	1 7/8	3	3	4	4
Weight, less handwheelpounds		49	80	83	181	181	215
Weight with 6" handwheelpounds		55	..				
Weight with 9" handwheelpounds		..	86				
Weight with 12" handwheelpounds		61	89				
Weight with 16" handwheelpounds		..	95				
Weight with 20" handwheelpounds		75	..	109	138		
Weight with 24" handwheelpounds		126	150		243
Weight with 30" handwheelpounds		150	180		243
Extreme pressure gear lubricant, quantity		2	2 1/2	5 1/2	8	8	8 1/2

SHOP DRAWING

PROJECT **65170-11**

DATE **7-16-73**

APPROVED FOR GENERAL DESIGN CONFORMANCE ONLY BY **HWJ**

DIMENSIONS NOT CHECKED. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK AND MATERIALS INCLUDED IN THE CONTRACT AND FOR FITTING HIS WORK ACCURATELY TO ACTUAL CONDITIONS AT BUILDING OF STRUCTURE.

*For rising, non-turning stems such as used in most gate valves.

HAYDEN & HARDING

CONSULTING ENGINEERS BOSTON, MASS. 02195

OUTPUT TORQUES

The adjacent table lists practical output torques available from Converto-Gear operators, without utilizing the hammer-blow feature of the operators.

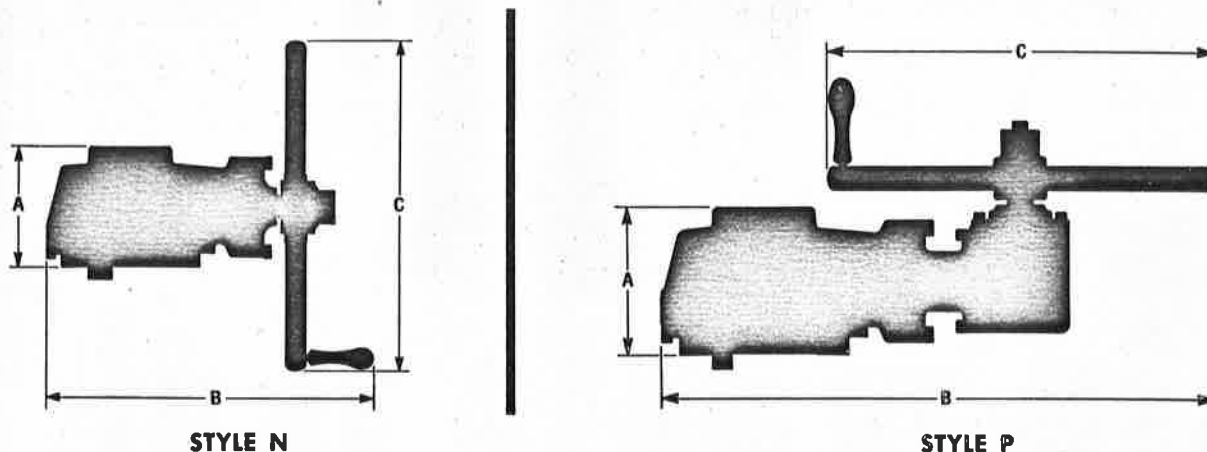
The torques available using the hammer-blow effect are the maximum ratings of the units, as shown in the table above. The hammer-blow feature is designed primarily for unseating valves and is not generally relied upon for normal closing or seating operations.

CONVERTO-GEAR STYLE	CONVERTO-GEAR CATALOG NO.	HANDWHEEL DIAMETER INCHES	RUNNING TORQUE† FT.-LBS.	SEATING TORQUE‡ FT.-LBS.
Style N	3X-N	6	40	100
		12	80	330
		20	130	550
	4X-N	20	185	775
		24	225	935
		30	280	1170
6X-N	30	420	1750	
Style P	3X-P	9	55	225
		12	70	300
		16	95	400
	4X-P	20	170	710
6X-P	24	305	1275	

†The running torque is the torque available to operate a valve from the fully-open position to the nearly-closed position, or vice-versa, when the handwheel is turned by means of the spinner handle.

‡The seating torque is the torque available to operate a valve from the nearly-closed position to the fully-closed position when the handwheel is turned by means of a two-hand pull on the rim.

DIMENSIONS - INCHES



CONVERTO-GEAR OPERATOR SIZE	STYLE N			STYLE P		
	A	B	C	A	B	C
3X	6 $\frac{1}{8}$	14	6	6 $\frac{1}{8}$	19	9
	6 $\frac{1}{8}$	16 $\frac{3}{8}$	12	6 $\frac{1}{8}$	20 $\frac{1}{2}$	12
	6 $\frac{1}{8}$	16 $\frac{3}{8}$	20	6 $\frac{1}{8}$	22 $\frac{1}{2}$	16
4X	7 $\frac{1}{4}$	20 $\frac{3}{8}$	20	7 $\frac{1}{4}$	28 $\frac{1}{2}$	20
	7 $\frac{1}{4}$	20 $\frac{3}{8}$	24			
	7 $\frac{1}{4}$	20 $\frac{1}{8}$	30			
6X	11 $\frac{3}{8}$	26 $\frac{1}{4}$	30	11 $\frac{3}{8}$	36 $\frac{1}{4}$	24

ORDERING INFORMATION

To order Converto-Gear operators for field-installation on valves already in service, please provide full identification of each valve to be equipped. Crane Co. products are described fully by listing their :

- (1) style (2) size (3) pressure class (4) catalog number

In the case of obsolete valve types, in addition to the above, please supply :

- (5) date of manufacture, if known.
 (6) a dimensional sketch of the yoke sleeve as seen with handwheel removed.
 (7) a dimensional sketch of the yoke hub end and bearing, or of the bonnet and stuffing box, as applicable.
 (8) the locations, dimensions, and thread data for all bolts, studs, and holes in the end of the stem and in the yoke, bonnet, or stuffing box.

