



Weaver

CONSTRUCTION MANAGEMENT

3679 S Huron Street, Suite 404 Englewood, Colorado 80110
Phone: (303) 789-4111 FAX: (303) 789-4310

SUBMITTAL TRANSMITTAL

June 26, 2012

Submittal No: 02641-004

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: **GMS, Inc.**
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan
Sewage Disposal District**
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: **Municipal Valve Co.**
17301 W Colfax Ave, #105
Golden, CO 80401
303-231-9175

SUBJECT: Submittal for Resilient Seated Butterfly Valve, AWWA Butterfly Valve,
Eccentric Plug Valve

SPEC SECTION: 02641 - Valves and Accessories

PREVIOUS SUBMISSION DATES:

DEVIATIONS FROM SPEC: ___ YES X NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver Construction Management and, unless indicated otherwise, has been found to be in conformance with the intent of the contract documents.

Contractor's Stamp:

Engineer's Stamp:

Date: 6/26/12

Reviewed by: Leslie Brown

(X) Reviewed Without Comments

() Reviewed With Comments

ENGINEER'S

COMMENTS:

B. Gate Valves (Buried Service) – 14" and Larger

1. Type: Mechanical joint; non-rising stem
2. Conformance: AWWA C509
3. Body: Cast Iron
4. Stem seal: O-ring
5. Operator: 2" square operating nut
6. Gates: Resilient wedge
7. Pipeline gaskets: Size and type suitable for service with the type and O.D. of pipe connection
8. Valve boxes: Refer to Section 02708
9. See coating requirements
10. Acceptable manufacturers: Mueller, M&H, Waterous

C. Gate Valves (Exposed Service) – 3-Inch and Larger

1. Type: Flanged ends; rising stem unless indicated otherwise on Drawings
2. Conformance: AWWA C509 or C515
3. Stem seal: O-ring
4. Operator: Handwheel
5. Gates: Resilient wedge
6. Pipeline gaskets: Size and type suitable for service with type and O.D. of pipe connection
7. See coating requirements
8. Acceptable manufacturers: Mueller, M&H, Waterous

D. Gate Valves (Exposed Service) – 2½-Inch and Smaller

1. Type: Bronze construction, rising stem
2. Conformance: Class 125
3. Stem seal: Screwed seal, teflon impregnated packing
4. Gates: Solid wedge
5. Design basis: Milwaukee, Stockham, Walworth

E. Butterfly Valves (Air Service)

1. Type: Wafer
2. Body: Cast iron
3. Disc: Bronze or cast iron with corrosion resistant metal plating
4. Shaft: AISI Type 304 or 316 stainless steel
5. Seat: EPDM or other elastomer
6. Shaft bearings: Bronze or reinforced teflon
7. Shaft seal: Synthetic rubber rings
8. Operator
 - a. Exposed service: Lever or handwheel as indicated on the Drawings
 - b. Buried service: 2" square operating nut
9. Valves and all components shall be suitable for
 - a. 15 psi air service
 - b. 100 ft/sec air velocity
 - c. Suitable for continuous operating temperatures up to 300°F
10. Design basis: Keystone, Crane, Sartell/DeZurik

6"
BOS
DEZURIK

DEZURIK

6", 3"

BAW

F. Butterfly Valves (Liquid Service)

1. Type: Wafer or flanged, as shown on the Drawings
2. Conformance: AWWA C504, Class 150
3. Body: ASTM A126 cast iron
4. Seat: One piece rubber bonded to the body
5. Vane: Cast or ductile iron with 316 stainless steel edge
6. Operator: Refer to manual actuator specifications in Paragraph 2.1.C.
7. Design basis: Keystone, Pratt, Mueller, Sartell/Dezurik, or equivalent
8. Conduct factory hydrostatic and leakage tests in accordance with AWWA C504

APCO

250

4", 6"

G. Check Valves (Liquid Service) – 2½-Inch and Larger

1. Type: Unobstructed waterway, quick closing, spring loaded, horizontal swing
2. Conformance: Class 125
3. Body: Cast iron
4. Seat and seat rings: Bronze
5. Hinge pins: AISI type 304 or 316 stainless steel
6. Stuffing boxes: Outside, grease lubricated or O-ring seals
7. Design basis: Dresser; Mueller, Clow, American Valve & Hydrant

H. Check Valves (Liquid Service) – 2-Inch and Smaller

1. Type: Y-pattern, horizontal swing
2. Conformance: Class 125
3. Construction: All bronze
4. Design basis: Nibco, Stockham

I. Check Valves (Air Service) – 2-Inch and Larger

1. Type: Wafer style
2. Suitable for continuous operating temperature of 300°F
3. Single center hinge design with butterfly action sealing plates
4. Design basis: Hoffman Air Check Valve; Lamson Check Valve

DEZURIK Plug Valves

PEC

PLUG VALVES

1. Type: Eccentric plug, opening motion lifting plug away from body seat, flanged or mechanical joint as shown on Drawings
2. Body: Semisteel ASTM A126, Class B; Cast Iron or carbon steel as required by pressure rating
3. Plug: Semisteel ASTM A126, Class B; Cast Iron or carbon steel as required by pressure rating
4. Plug facing: Neoprene or Buna-N, 70 durometer hardness
5. Seat: Cast into body, with raised welded-in nickel overlay, Brinnell hardness 200 min.
6. Upper and lower trunnion bearings: Sleeve type, 18-8 stainless steel or bronze
7. Upper thrust bearing: TFE or Delrin
8. Stem seal: V-type packing, Buna-N or TFE; U-type spring seals, neoprene
9. Valve port of at least 80% of connecting piping cross sectional area



June 18, 2012

APPROVAL DRAWINGS

PROJECT NAME
FOUNTAIN VALLEY

PURCHASE ORDER
TO FOLLOW

VALVE TYPE
RESILIENT SEATED BUTTERFLY VALVE
AWWA BUTTERFLY VALVE
ECCENTRIC PLUG VALVE

CONTRACTOR: WEAVER GENERAL CONSTRUCTION
3679 S. HURON STREET
ENGLEWOOD, CO 80110

LOCAL SUPPLIER: MUNICIPAL VALVE CO
17301 W COLFAX AVE
GOLDEN, CO 80401
303-231-9175

MANUFACTURER: DeZURIK
250 RIVERSIDE AVE NORTH
SARTELL, MN 56377
(320) 259-2000

Factory Work Order 802489
Factory Sales Order 613442



TABLE OF CONTENTS

A Data Sheet is included for each line item on the purchase order.
Document numbers are listed at the bottom of the Data Sheet.
Any one drawing may apply to more than one item number.
All documents are assembled in alpha/numeric order within each section,

DATA SHEETS

Data Sheets

INSTALLATION DRAWINGS

Dimensional Drawings

CROSS SECTION DRAWINGS

Cross Section/Parts List Drawings
Basic Valve Materials of Construction



WEAVER GENERAL CONSTRUCTION

3679 S. HURON STREET
SUITE 404
ENGLEWOOD, CO
80110

P.O. TO FOLLOW
FACTORY ORDER NO 802489
FACTORY SALES ORDER NO 613442
REV 0

PROJ. NAME FOUNTAIN VALLEY

Fact. ITEM	Cust. ITEM	QTY	DESCRIPTION	PART NO. 9613500
1	1	1	BOS,6,CL,L1,CI,EPDM,EPDM,DI-S4*LT	

Style	BOS	DeZURIK RESILIENT SEATED BUTTERFLY VALVE
Size	6	6 Inch
Body Style	CL	Center Line Seat
End Connection	L1	Lugged Drilling; ANSI 125/150
Body Material	CI	Cast Iron
Seat Type	EPDM	Terpolymer of Ethylene Propylene & A Diene; Temperature -30 to +250 Deg. F. (-35 to +121 C.)
Shaft Seal	EPDM	Terpolymer of Ethylene Propylene & A Diene; Temperature -30 to +250 Deg. F. (-35 to +121 C.)
Disc	DI	Ductile Iron, Nickel Plated
Shaft	S4	416 Stainless Steel
Coating		3 mils minimum of Blue Enamel on Exterior with Standard (SP10) surface prep
Act Type	LT	Lever; Ten Position

RELATED DOCUMENTS

A57807	DWG INST BOS CL L1 LT 1.5-6"
A57805	DWG VALVE ASSY BOS-CL L 1.5-24
A57859	DWG ACT LT BOS-CL



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PROJ. NAME FOUNTAIN VALLEY

Fact. ITEM	Cust. ITEM	QTY	DESCRIPTION	PART NO. 9434678
2	2	2	BAW,6,F1,CI,NBRN-NBR,150B,CI-S1,1304G0*MS-3-HD8	

Style	BAW	DeZURIK AWWA C504 Rubber-Seated Butterfly Valve
Size	6	6 Inch
End Connection	F1	Flanged, Drilled to ANSI B16.1 Class 125/150
Body Material	CI	Cast Iron, ASTM A126 Class B
Packing	NBRN	NBR (Acrylonitrile-Butadiene), Self-Adjusting Multiple V-Ring; -20 to 180°F (-29 to 82°C)
Seat Material	NBR	NBR (Acrylonitrile-Butadiene); -20 to 180°F (-29 to 82°C)
Service Class	150B	AWWA Class 150B
Disc	CI	Cast Iron, ASTM A48 Class 40C Type 316 Stainless Steel Seating Edge (3" - 20" =ASTM A276, 24" and larger - ASTM A240)
Shaft Coating	S1 1304G0	304 Stainless Steel, ASTM A276 8 mils minimum of Blue Epoxy Tnemec 141 (NSF Std. 61) on Interior with Standard (SP10) surface prep and 3 mils minimum of Blue Enamel on Exterior with Standard (SP10) surface prep
Act Type	MS-3-HD8	M-Series Scotch Yoke with Handwheel Operator

RELATED DOCUMENTS

A40989	DWG INST BAW F1 MB/MS-3-HD 3-1
A47532	DWG INST VALVE BAW F1 3-20"
A47525	DWG VALVE ASSY BAW F 3-12"
A40104	DWG ACT MS/MB-3/7-HD/N BAW



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PROJ. NAME FOUNTAIN VALLEY

Fact. ITEM	Cust. ITEM	QTY	DESCRIPTION	PART NO. 9615964
3	3	1	BAW,3,F1,CI,NBRN-NBR,150B,CI-S1,1304G0*MS-3-HD8	

Style	BAW	DeZURIK AWWA C504 Rubber-Seated Butterfly Valve
Size	3	3 Inch
End Connection	F1	Flanged, Drilled to ANSI B16.1 Class 125/150
Body Material	CI	Cast Iron, ASTM A126 Class B
Packing	NBRN	NBR (Acrylonitrile-Butadiene), Self-Adjusting Multiple V-Ring; -20 to 180°F (-29 to 82°C)
Seat Material	NBR	NBR (Acrylonitrile-Butadiene); -20 to 180°F (-29 to 82°C)
Service Class	150B	AWWA Class 150B
Disc	CI	Cast Iron, ASTM A48 Class 40C Type 316 Stainless Steel Seating Edge (3" - 20" =ASTM A276, 24" and larger - ASTM A240)
Shaft Coating	S1 1304G0	304 Stainless Steel, ASTM A276 8 mils minimum of Blue Epoxy Tnemec 141 (NSF Std. 61) on Interior with Standard (SP10) surface prep and 3 mils minimum of Blue Enamel on Exterior with Standard (SP10) surface prep
Act Type	MS-3-HD8	M-Series Scotch Yoke with Handwheel Operator

RELATED DOCUMENTS

A40989	DWG INST BAW F1 MB/MS-3-HD 3-1
A47532	DWG INST VALVE BAW F1 3-20"
A47525	DWG VALVE ASSY BAW F 3-12"
A40104	DWG ACT MS/MB-3/7-HD/N BAW



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PROJ. NAME FOUNTAIN VALLEY

Fact. ITEM	Cust. ITEM	QTY	DESCRIPTION	PART NO. 9374133
4	4	14	PEC,4,F1,CI,NBR,CR,1304G0*GS-6-HD8	

Style Size	PEC 4	Eccentric Plug Valve, Rectangular Port 4 Inch (Standard Port), Stainless Steel Bearings, Welded-In Nickel Seat (Except Rubber Lined or Stainless Steel Bodies)
End Connection	F1	Flanged, Drilled to ANSI Class 125/150
Body Material	CI	Cast Iron, ASTM A126, Class B
Packing	NBR	Acrylonitrile-Butadiene Reinforced, Multiple V-Ring with External Adjustment, -20 to 250 Degree F. (-29 to 121 Degree C.)
Plug Facing	CR	Chloroprene; -20 to 180°F (-29 to 83°C)
Temp. Rating		180 degrees F.
Pressure Rating		175 psig
Coating	1304G0	8 mils minimum of Blue Epoxy Tnemec 141 (NSF Std. 61) on Interior with Standard (SP10) surface prep and 3 mils minimum of Blue Enamel on Exterior with Standard (SP10) surface prep
Act Type	GS-6-HD8	G-Series Gear with Handwheel Operator

RELATED DOCUMENTS

A46423	DWG INST PEC F GR1 GS-6-HD 4-1
A20730	DWG VALVE ASSY PEC F 3.5-20"
A22553	DWG ACT GS-6-HD/CW/N & GS-12-H



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PROJ. NAME FOUNTAIN VALLEY

Fact. ITEM	Cust. ITEM	QTY	DESCRIPTION	PART NO. 9374132
5	5	8	PEC,6,F1,CI,NBR,CR,1304G0*GS-6-HD8	

Style Size	PEC 6	Eccentric Plug Valve, Rectangular Port 6 Inch (Standard Port), Stainless Steel Bearings, Welded-In Nickel Seat (Except Rubber Lined or Stainless Steel Bodies)
End Connection	F1	Flanged, Drilled to ANSI Class 125/150
Body Material	CI	Cast Iron, ASTM A126, Class B
Packing	NBR	Acrylonitrile-Butadiene Reinforced, Multiple V-Ring with External Adjustment, -20 to 250 Degree F. (-29 to 121 Degree C.)
Plug Facing	CR	Chloroprene; -20 to 180°F (-29 to 83°C)
Temp. Rating		180 degrees F.
Pressure Rating		175 psig
Coating	1304G0	8 mils minimum of Blue Epoxy Tnemec 141 (NSF Std. 61) on Interior with Standard (SP10) surface prep and 3 mils minimum of Blue Enamel on Exterior with Standard (SP10) surface prep
Act Type	GS-6-HD8	G-Series Gear with Handwheel Operator

RELATED DOCUMENTS

A46423	DWG INST PEC F GR1 GS-6-HD 4-1
A20730	DWG VALVE ASSY PEC F 3.5-20"
A22553	DWG ACT GS-6-HD/CW/N & GS-12-H



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PROJ. NAME FOUNTAIN VALLEY

Fact. ITEM	Cust. ITEM	QTY	DESCRIPTION	PART NO. 9439813
6	6	6	PEC,10,F1,CI,NBR,CR,1304G0*GS-6-HD8	

Style Size	PEC 10	Eccentric Plug Valve, Rectangular Port 10 Inch (Standard Port), Stainless Steel Bearings, Welded-In Nickel Seat (Except Rubber Lined or Stainless Steel Bodies)
End Connection	F1	Flanged, Drilled to ANSI Class 125/150
Body Material	CI	Cast Iron, ASTM A126, Class B
Packing	NBR	Acrylonitrile-Butadiene Reinforced, Multiple V-Ring with External Adjustment, -20 to 250 Degree F. (-29 to 121 Degree C.)
Plug Facing	CR	Chloroprene; -20 to 180°F (-29 to 83°C)
Temp. Rating		180 degrees F.
Pressure Rating		175 psig
Coating	1304G0	8 mils minimum of Blue Epoxy Tnemec 141 (NSF Std. 61) on Interior with Standard (SP10) surface prep and 3 mils minimum of Blue Enamel on Exterior with Standard (SP10) surface prep
Act Type	GS-6-HD8	G-Series Gear with Handwheel Operator

RELATED DOCUMENTS

A46423	DWG INST PEC F GR1 GS-6-HD 4-1
A20730	DWG VALVE ASSY PEC F 3.5-20"
A22553	DWG ACT GS-6-HD/CW/N & GS-12-H



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REV 0

PROJ. NAME FOUNTAIN VALLEY

Fact. ITEM	Cust. ITEM	QTY	DESCRIPTION	PART NO. 9469814
7	7	7	PEC,10,MJ,CI,NBR,CR,1302B0*GB-6-N	

Style Size	PEC 10	Eccentric Plug Valve, Rectangular Port 10 Inch (Standard Port), Stainless Steel Bearings, Welded-In Nickel Seat (Except Rubber Lined or Stainless Steel Bodies)
End Connection	MJ	Mechanical Joint, Conforms to ANSI/AWWA C111/A21.11
Body Material	CI	Cast Iron, ASTM A126, Class B
Packing	NBR	Acrylonitrile-Butadiene Reinforced, Multiple V-Ring with External Adjustment, -20 to 250 Degree F. (-29 to 121 Degree C.)
Plug Facing	CR	Chloroprene; -20 to 180°F (-29 to 83°C)
Temp. Rating		180 degrees F.
Pressure Rating		175 psig
Coating	1302B0	8 mils minimum of Blue Epoxy Tnemec 141 (NSF Std. 61) on Interior with Standard (SP10) surface prep and 4 mils minimum of Black Asphalt Varnish on Exterior with Standard (SP10) surface prep
Act Type	GB-6-N	G-Series Buriable Worm Gear with 2 Inch Square Nut Operator

RELATED DOCUMENTS

A46408	DWG INST PEC MJ GR1 GB-6-N 4-1
A22430	DWG VALVE ASSY PEC MJ 4-20"
A22555	DWG ACT GB-6-HD/N & GB-12-HD/N



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PROJ. NAME FOUNTAIN VALLEY

Fact. ITEM	Cust. ITEM	QTY	DESCRIPTION	PART NO. 9439815
8	8	1	PEC,4,F1,CI,NBR,CR,1304G0*GS-6-CW8	

Style Size	PEC 4	Eccentric Plug Valve, Rectangular Port 4 Inch (Standard Port), Stainless Steel Bearings, Welded-In Nickel Seat (Except Rubber Lined or Stainless Steel Bodies)
End Connection	F1	Flanged, Drilled to ANSI Class 125/150
Body Material	CI	Cast Iron, ASTM A126, Class B
Packing	NBR	Acrylonitrile-Butadiene Reinforced, Multiple V-Ring with External Adjustment, -20 to 250 Degree F. (-29 to 121 Degree C.)
Plug Facing	CR	Chloroprene; -20 to 180°F (-29 to 83°C)
Temp. Rating		180 degrees F.
Pressure Rating		175 psig
Coating	1304G0	8 mils minimum of Blue Epoxy Tnemec 141 (NSF Std. 61) on Interior with Standard (SP10) surface prep and 3 mils minimum of Blue Enamel on Exterior with Standard (SP10) surface prep
Act Type	GS-6-CW8	G-Series Gear with Chainwheel Operator

RELATED DOCUMENTS

A53708	DWG INST PEC F GR1 GS-6-CW 4-1
A20730	DWG VALVE ASSY PEC F 3.5-20"
A22553	DWG ACT GS-6-HD/CW/N & GS-12-H



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PROJ. NAME FOUNTAIN VALLEY

Fact. ITEM	Cust. ITEM	QTY	DESCRIPTION	PART NO. 9436838
9	9	6	PEC,6,F1,CI,NBR,CR,1304G0*GS-6-CW8	

Style Size	PEC 6	Eccentric Plug Valve, Rectangular Port 6 Inch (Standard Port), Stainless Steel Bearings, Welded-In Nickel Seat (Except Rubber Lined or Stainless Steel Bodies)
End Connection	F1	Flanged, Drilled to ANSI Class 125/150
Body Material	CI	Cast Iron, ASTM A126, Class B
Packing	NBR	Acrylonitrile-Butadiene Reinforced, Multiple V-Ring with External Adjustment, -20 to 250 Degree F. (-29 to 121 Degree C.)
Plug Facing	CR	Chloroprene; -20 to 180°F (-29 to 83°C)
Temp. Rating		180 degrees F.
Pressure Rating		175 psig
Coating	1304G0	8 mils minimum of Blue Epoxy Tnemec 141 (NSF Std. 61) on Interior with Standard (SP10) surface prep and 3 mils minimum of Blue Enamel on Exterior with Standard (SP10) surface prep
Act Type	GS-6-CW8	G-Series Gear with Chainwheel Operator

RELATED DOCUMENTS

A53708	DWG INST PEC F GR1 GS-6-CW 4-1
A20730	DWG VALVE ASSY PEC F 3.5-20"
A22553	DWG ACT GS-6-HD/CW/N & GS-12-H

VALVE SIZE	DIMENSIONS										
	INCHES MILLIMETERS										
	A	B	C	D	E	F	G	H	J	K	L
3	$\frac{5.00}{127}$	$\frac{.81}{21}$	$\frac{4.00}{102}$	$\frac{4.81}{122}$	$\frac{6.00}{152}$	$\frac{.75}{19}$	4	N/A	N/A	N/A	$\frac{7.50}{191}$
6	$\frac{5.00}{127}$	$\frac{1.06}{27}$	$\frac{6.03}{153}$	$\frac{7.00}{178}$	$\frac{9.50}{241}$	$\frac{.88}{22}$	4	3/4-10 UNC	4	$\frac{1.28}{33}$	$\frac{11.00}{279}$

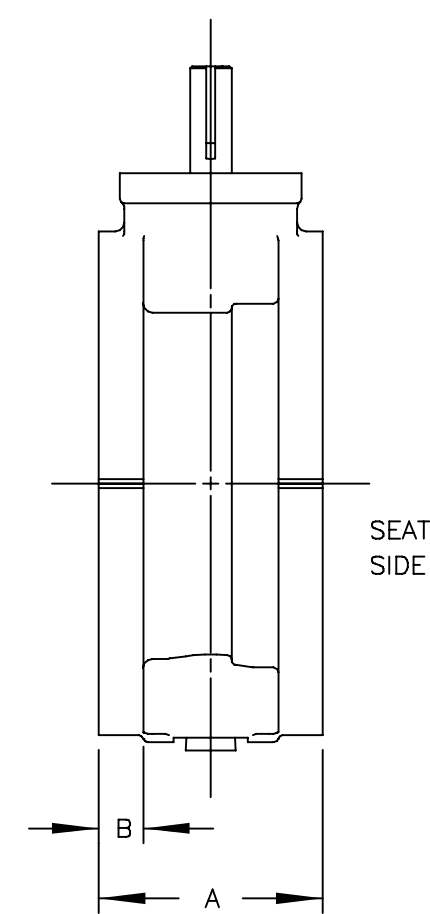
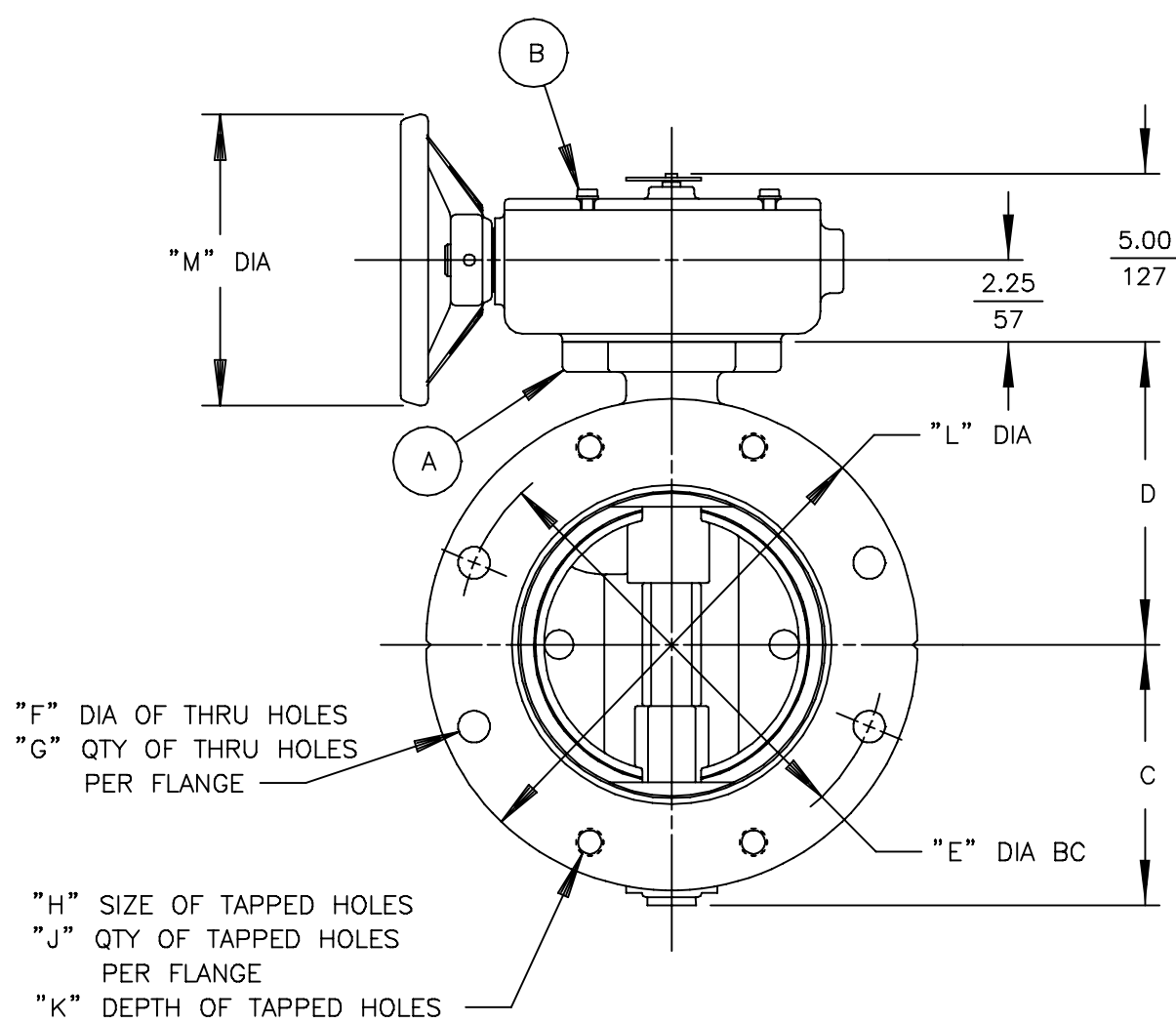
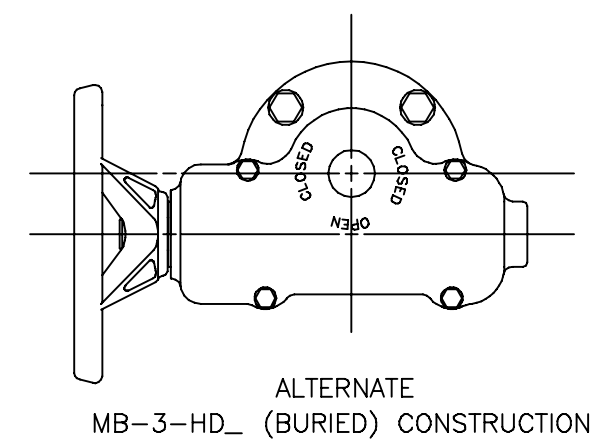
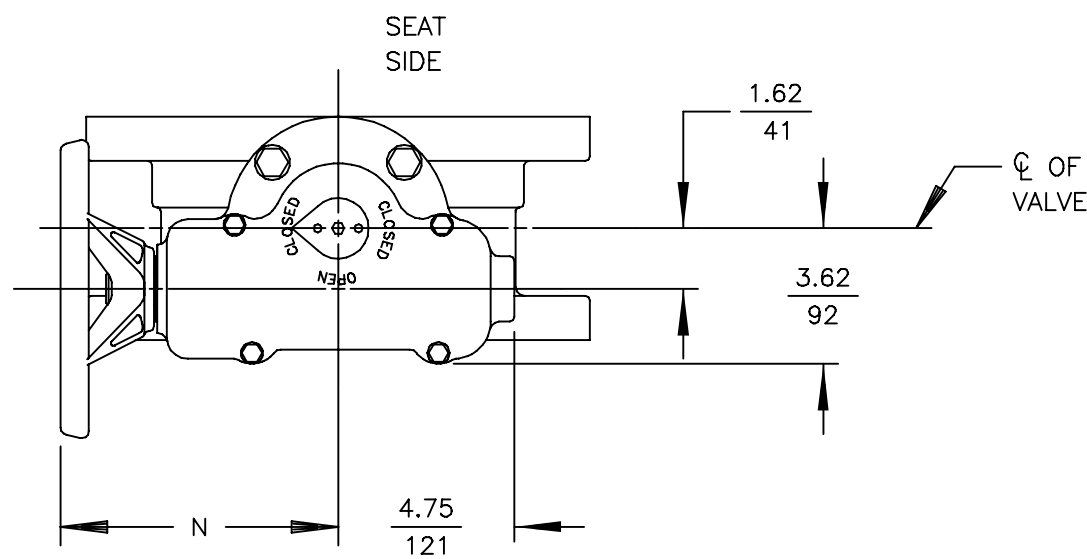
A	VALVE
B	ACTUATOR

NOTE:

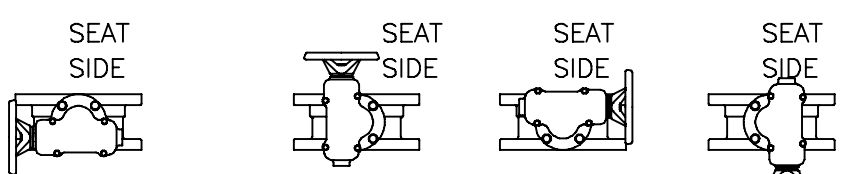
1. FLANGES ARE FLAT FACED WITH DIMENSIONS AND DRILLING TO ANSI B16.1 CLASS 125 EXCEPT FOR TAPPED HOLES AS INDICATED. SEE A-26506 FOR NON-ANSI FLANGE DATA.
2. FLOW MAY BE IN EITHER DIRECTION. THE PREFERRED INSTALLATION IS WITH THE SEAT SIDE UPSTREAM.
3. 29-1/4 TURNS OF HANDWHEEL ARE REQUIRED TO OPEN VALVE.

ACTUATOR NUMBER	DIMENSIONS				
	INCHES MILLIMETERS				
	N				
M	VALVE SIZE				
	3-8	10	12	14	
MS-3-HD8	$\frac{8.00}{203}$	$\frac{7.56}{192}$	$\frac{7.56}{192}$	$\frac{7.56}{192}$	$\frac{11.56}{294}$

NOTICE
THIS DRAWING DOES NOT SHOW ACTUATOR ACCESSORIES. IF ACCESSORIES ARE REQUIRED, REFER TO THE APPROPRIATE ACCESSORY INSTALLATION DRAWING FOR DIMENSIONS AND OTHER RELATED INFORMATION.



ACTUATOR MOUNTING POSITIONS



STANDARD POSITION SHOWN ON THIS DRAWING (HD8 ONLY)

K	61663	09/29/08
J	61336	09/12/07
H	61159	02/13/04
G	61123	10/08/03
F	60712	02/20/02
E	60018	09/07/99
D	54288	02/09/98
C	54211	01/19/98
B	54211	10/17/97
A	50312	05/17/93
L	61510	02/25/09

DeZURIK
Sartell, MN USA 56377
www.dezurik.com

AWWA BUTTERFLY VALVES SIZE 3 & 6 FLANGED MS-3-HD_ OR MB-3-HD_ HANDWHEEL ACTUATOR			
DOCT. CODE	DRAWN	APPROVED	
C1	RDD	GG	
CHECKED	DATE		
TNB	5-12-92		

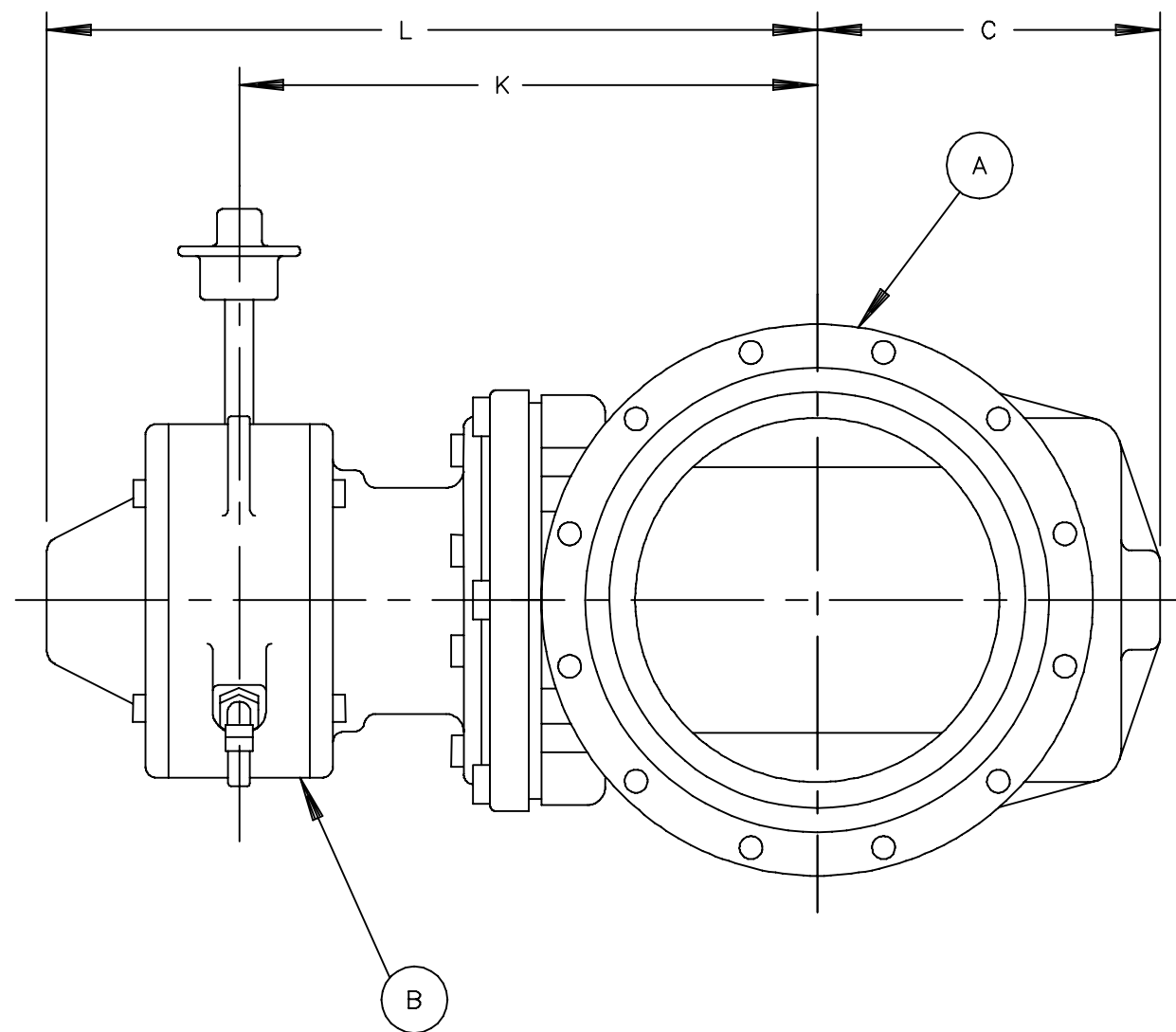
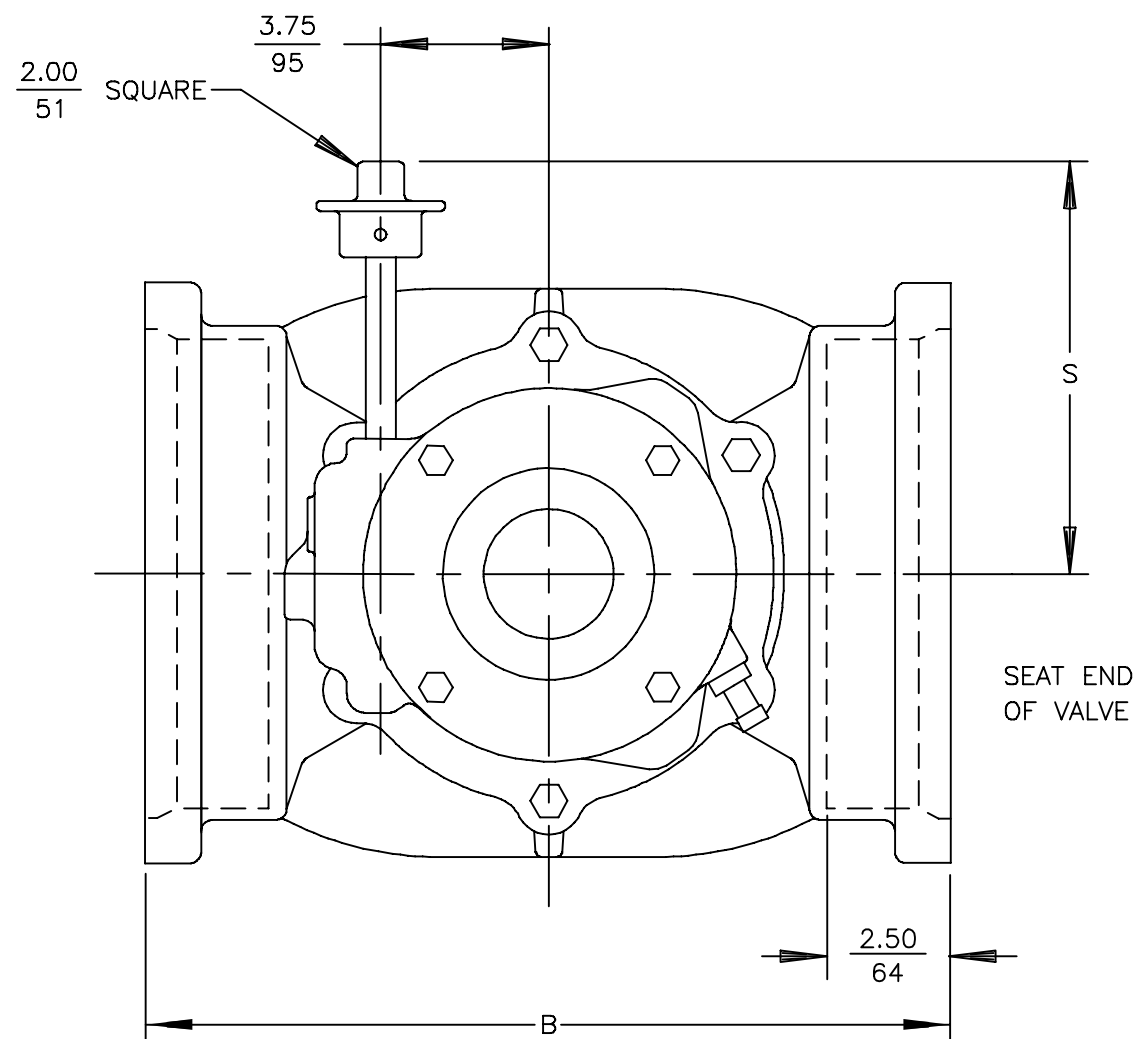
A40989

VALVE SIZE		DIMENSIONS <small>INCHES MILLIMETERS</small>				
INCH	MM	B	C	K	L	S
10	250	$\frac{19.38}{492}$	$\frac{10.28}{261}$	$\frac{15.12}{384}$	$\frac{19.34}{491}$	$\frac{14.50}{368}$

A	VALVE
B	ACTUATOR

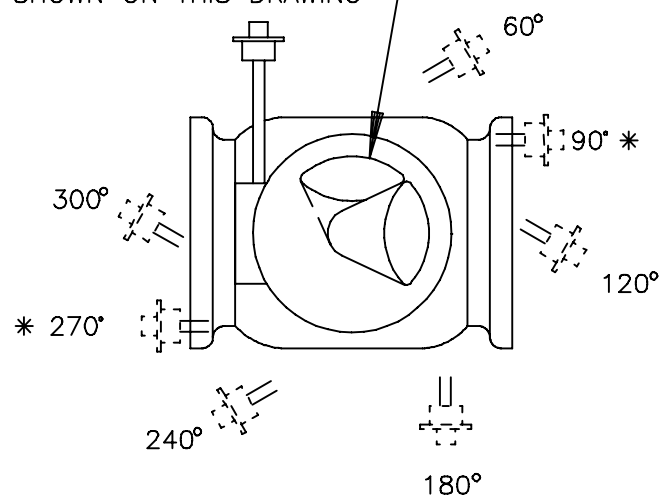
NOTE:

- MECHANICAL JOINT ENDS MEET AWWA STANDARD C111.
- 13 TURNS OF WRENCHING SQUARE ARE REQUIRED TO OPEN VALVE.
- INSTALLATION NOTE:
 - FOR LIQUIDS & GASES:
INSTALL VALVE WITH HIGHER PRESSURE AGAINST END OPPOSITE SEAT.
 - FOR SUSPENDED SOLIDS, SLURRIES, ETC:
INSTALL VALVE WITH HIGHER PRESSURE AGAINST SEAT END. IN HORIZONTAL PIPELINES, VALVE SHOULD BE INSTALLED ON IT'S SIDE SO PLUG ROTATES TO THE TOP OF THE PIPELINE WHEN OPEN. (SEE DIAGRAM BELOW).



PLUG IN OPEN POSITION.
SEE INSTALLATION NOTE.

STANDARD POSITION
SHOWN ON THIS DRAWING



ACTUATOR MOUNTING POSITIONS AS VIEWED
FROM TOP OF VALVE. DOTTED LINES SHOW
OPTIONAL MOUNTING POSITIONS.

* THE 90° AND 270° POSITIONS REQUIRE
DIFFERENT INTERNAL GEARING.
THESE POSITIONS MUST BE NOTED ON
THE PURCHASE ORDER.

6	1	8	4	2	0	2	1	2	1	1	0
6	1	8	4	2	0	2	1	2	1	1	0
6	1	8	4	2	0	2	1	2	1	1	0

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PEC ECCENTRIC VALVES SIZE 10 MECH JOINT MATERIAL GROUP 1 GB-6-N ENCLOSED GEAR ACTUATOR FOR SUBMERGED SERVICE WITH NUT ACTUATOR			
DOCT. CODE	DRAWN	APPROVED	
C1	BMP	TPK	
CHECKED	DATE		
TPK	02/08/99		
			A46408

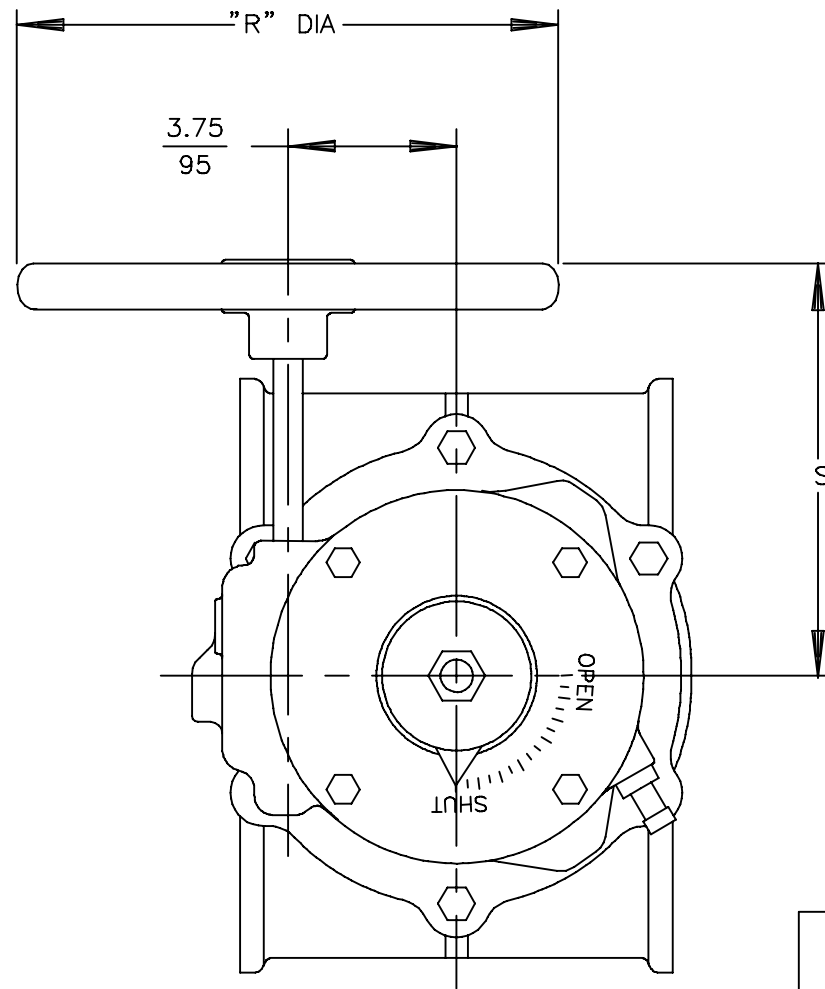
VALVE SIZE		DIMENSIONS <small>INCHES MILLIMETERS</small>										
INCH	MM	A	B	C	D	E	F	G	H	J	K	L
4	100	$\frac{.69}{18}$	$\frac{9.00}{229}$	$\frac{5.38}{137}$	$\frac{7.50}{191}$	NONE	NONE	NONE	$\frac{.75}{19}$	8	$\frac{9.62}{244}$	$\frac{13.27}{337}$
6	150	$\frac{.75}{19}$	$\frac{10.50}{267}$	$\frac{6.50}{165}$	$\frac{9.50}{241}$	NONE	NONE	NONE	$\frac{.88}{22}$	8	$\frac{11.81}{300}$	$\frac{15.46}{393}$
10	250	$\frac{.88}{22}$	$\frac{13.00}{330}$	$\frac{10.28}{261}$	$\frac{14.25}{362}$	7/8-9UNC	4	$\frac{.88}{22}$	$\frac{1.00}{25}$	8	$\frac{15.12}{384}$	$\frac{18.77}{477}$

A	VALVE
B	ACTUATOR

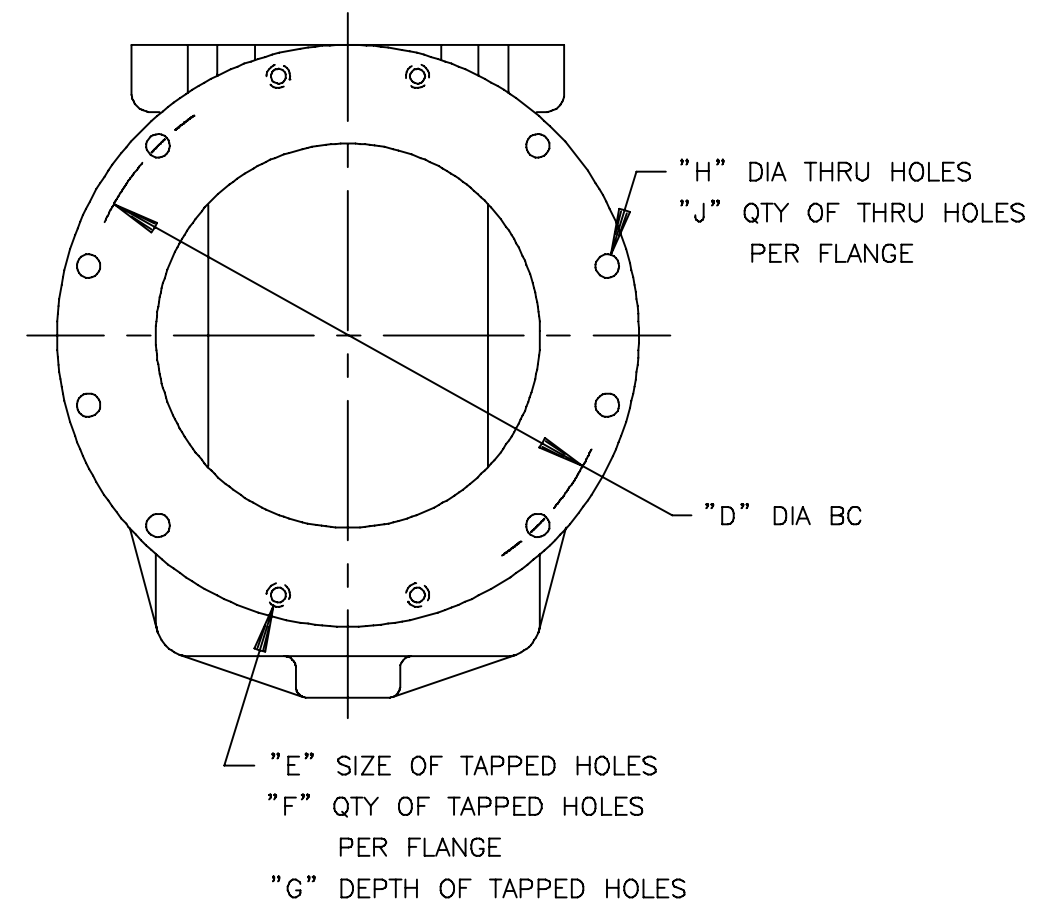
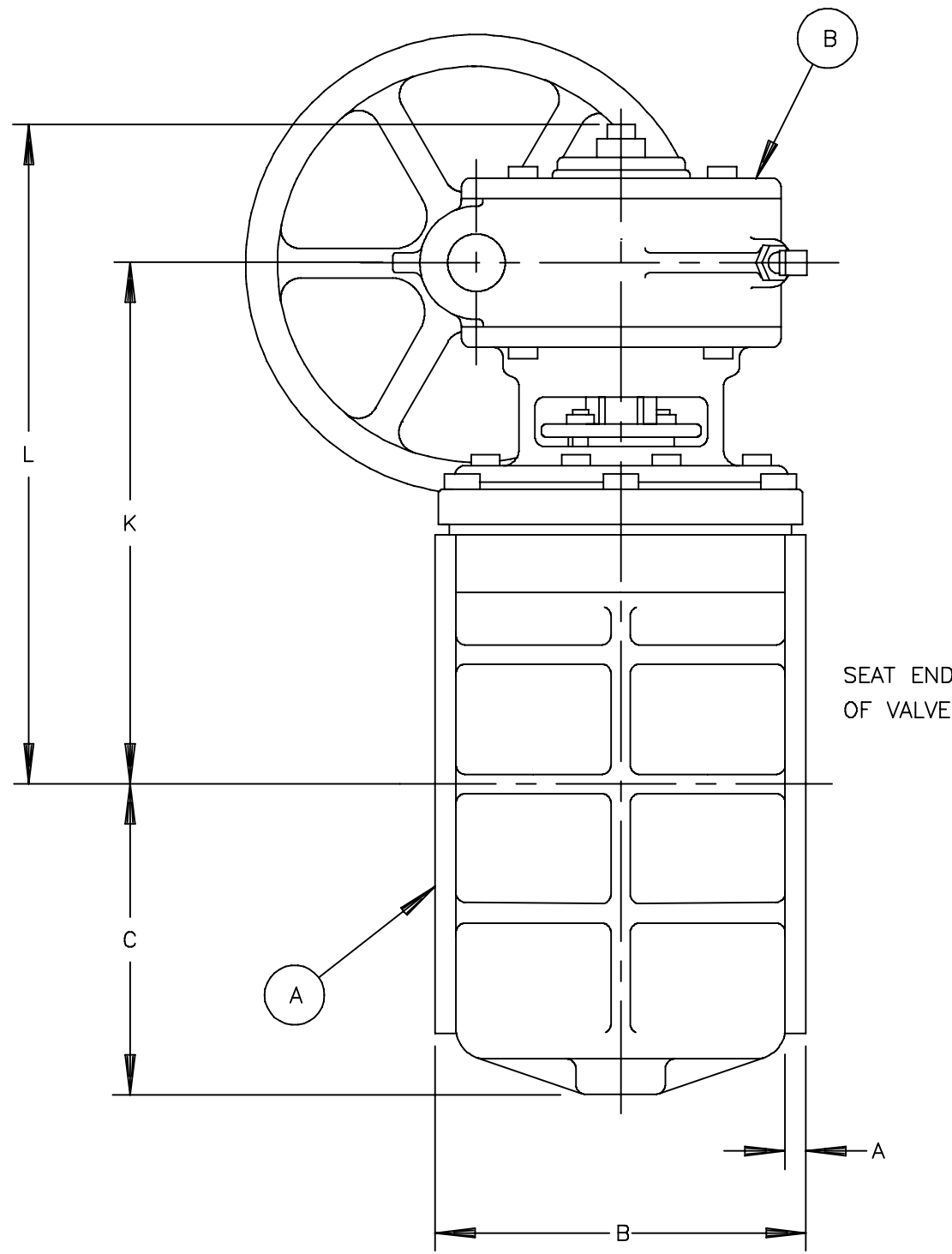
VALVE SIZE	ACTUATOR NUMBER	DIMENSIONS <small>IN MM</small>	
		R	S
4	GS-6-HD8	$\frac{8.00}{203}$	$\frac{6.88}{175}$
6	GS-6-HD8	$\frac{8.00}{203}$	$\frac{8.75}{222}$
10	GS-6-HD8	$\frac{8.00}{203}$	$\frac{11.12}{282}$

NOTE:

- FLANGES ARE FLAT FACED WITH DIAMETER AND DRILLING TO CLASS 125 ANSI STANDARD B16.1, EXCEPT FOR TAPPED HOLES AS INDICATED. SEE A-16368 FOR NON-ANSI FLANGE DATA.
- 13 TURNS OF HANDWHEEL ARE REQUIRED TO OPEN VALVE.
- INSTALLATION NOTE:
 - FOR LIQUIDS & GASES: INSTALL VALVE WITH HIGHER PRESSURE AGAINST END OPPOSITE SEAT.
 - FOR SUSPENDED SOLIDS, SLURRIES, ETC: INSTALL VALVE WITH HIGHER PRESSURE AGAINST SEAT END. IN HORIZONTAL PIPELINES, VALVE SHOULD BE INSTALLED ON IT'S SIDE SO PLUG ROTATES TO THE TOP OF THE PIPELINE WHEN OPEN. (SEE DIAGRAM BELOW).

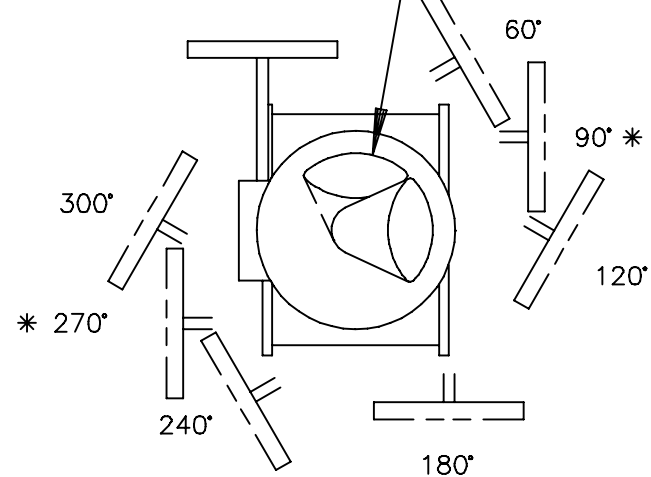


NOTICE
THIS DRAWING DOES NOT SHOW ACTUATOR ACCESSORIES. IF ACCESSORIES ARE REQUIRED, REFER TO THE APPROPRIATE ACCESSORY INSTALLATION DRAWING FOR DIMENSIONS AND OTHER RELATED INFORMATION.



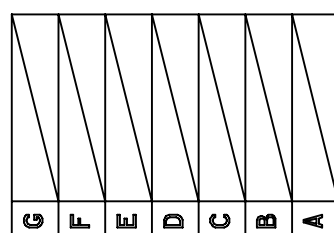
PLUG IN OPEN POSITION. SEE INSTALLATION NOTE.

STANDARD POSITION SHOWN ON THIS DRAWING



ACTUATOR MOUNTING POSITIONS AS VIEWED FROM TOP OF VALVE. DOTTED LINES SHOW OPTIONAL MOUNTING POSITIONS.

* THE 90° AND 270° POSITIONS REQUIRE DIFFERENT INTERNAL GEARING. THESE POSITIONS MUST BE NOTED ON THE PURCHASE ORDER.



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PEC ECCENTRIC VALVES SIZE 4, 6 & 10 FLANGED MATERIAL GROUP 1
GS-6-HD_ HANDWHEEL ACT'D

DOCT. CODE	DRAWN	BMP	APPROVED	TPK
C1	CHECKED	TPK	DATE	02/08/99

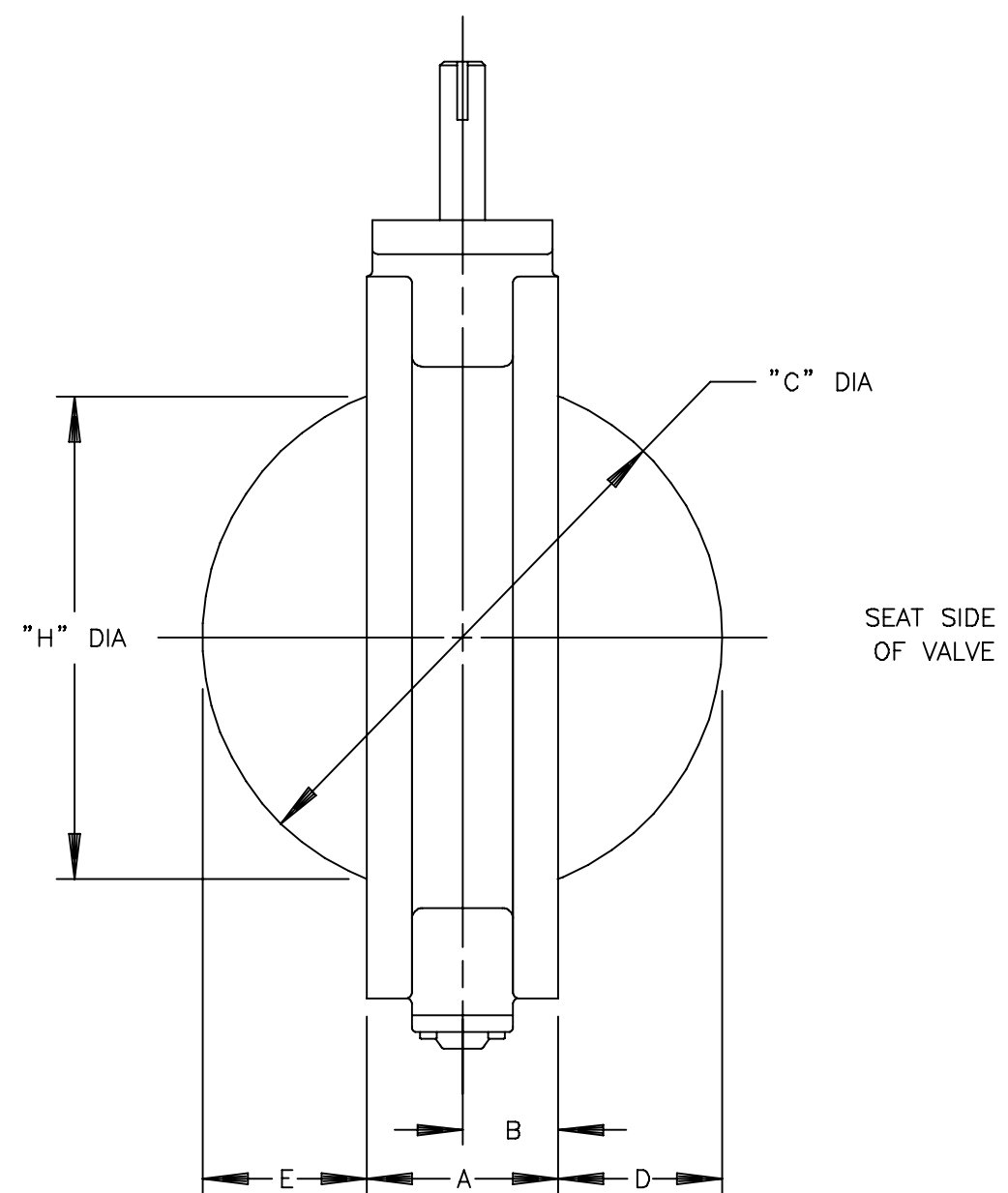
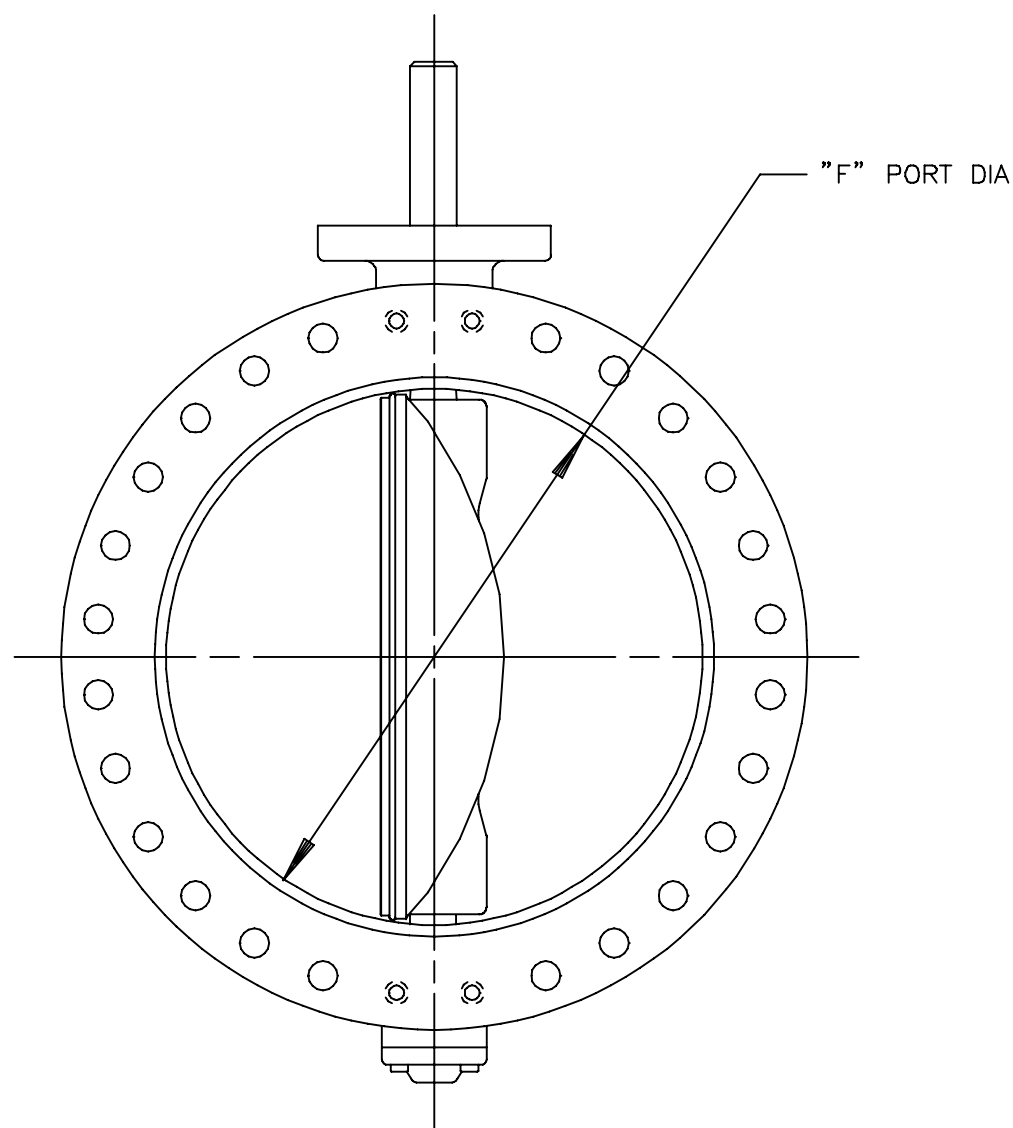
A46423

VALVE SIZE		VALVE CLASS	DIMENSIONS							
INCH	MM		A	B	C	D	E	F	H	
3	80	150B 250B	$\frac{5.00}{127}$	$\frac{2.50}{64}$	$\frac{3.00}{76}$	NONE	NONE	$\frac{2.88}{73}$	NONE	
4	100	150B 250B	$\frac{5.00}{127}$	$\frac{2.50}{64}$	$\frac{4.00}{102}$	NONE	NONE	$\frac{3.88}{99}$	NONE	
6	150	150B 250B	$\frac{5.00}{127}$	$\frac{2.50}{64}$	$\frac{5.75}{146}$	$\frac{.375}{9.5}$	$\frac{.375}{9.5}$	$\frac{5.62}{143}$	$\frac{2.88}{73}$	
8	200	150B 250B	$\frac{6.00}{152}$	$\frac{3.00}{76}$	$\frac{7.60}{193}$	$\frac{.80}{20}$	$\frac{.80}{20}$	$\frac{7.47}{190}$	$\frac{4.72}{120}$	
10	250	150B 250B	$\frac{8.00}{203}$	$\frac{4.00}{102}$	$\frac{9.62}{244}$	$\frac{.81}{21}$	$\frac{.81}{21}$	$\frac{9.46}{240}$	$\frac{5.40}{137}$	
12	300	150B 250B	$\frac{8.00}{203}$	$\frac{4.00}{102}$	$\frac{11.60}{295}$	$\frac{1.80}{46}$	$\frac{1.80}{46}$	$\frac{11.45}{291}$	$\frac{8.46}{215}$	
14	350	150B 250B	$\frac{8.00}{203}$	$\frac{4.00}{102}$	$\frac{13.60}{345}$	$\frac{2.80}{71}$	$\frac{2.80}{71}$	$\frac{13.40}{340}$	$\frac{11.06}{281}$	
16	400	150B 250B	$\frac{8.00}{203}$	$\frac{4.00}{102}$	$\frac{15.50}{394}$	$\frac{3.74}{95}$	$\frac{3.74}{95}$	$\frac{15.25}{387}$	$\frac{13.32}{338}$	
18	450	150B 250B	$\frac{8.00}{203}$	$\frac{4.00}{102}$	$\frac{17.25}{438}$	$\frac{4.61}{117}$	$\frac{4.61}{117}$	$\frac{17.00}{432}$	$\frac{15.34}{390}$	
20	500	150B	$\frac{8.00}{203}$	$\frac{4.00}{102}$	$\frac{19.25}{489}$	$\frac{5.61}{142}$	$\frac{5.61}{142}$	$\frac{19.00}{483}$	$\frac{17.56}{446}$	
20	500	250B	$\frac{8.00}{203}$	$\frac{4.00}{102}$	$\frac{19.06}{484}$	$\frac{5.51}{140}$	$\frac{5.51}{140}$	$\frac{19.00}{483}$	$\frac{17.56}{446}$	

SIZE	"G" (VALVE WEIGHT)									
	3	4	6	8	10	12	14	16	18	20
150B	33	45	65	100	156	250	325	470	505	675

NOTE:

- "G" IS BARE SHAFTED VALVE WEIGHT (LBS).



G	F	E	D	C	B	A
		50312	61159	50312	60712	50312
		09/24/08	02/13/04	09/11/02	02/20/02	02/07/97

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3-20 FLANGED AWWA BUTTERFLY VALVES SHOWING DISC CLEARANCE IN FULL OPEN POSITION, VALVE WEIGHTS AND PORT DIAMETER			
DOCT. CODE	DRAWN	APPROVED	A47532
C1	CHECKED	DATE	
	SJJ	09/17/96	

VALVE SIZE		DIMENSIONS										
INCH	MM	INCHES MILLIMETERS										
		A	B	C	D	E	F	G	H	J	K	L
4	100	.69 18	9.00 229	5.38 137	7.50 191	NONE	NONE	NONE	.75 19	8	9.62 244	13.27 337
6	150	.75 19	10.50 267	6.50 165	9.50 241	NONE	NONE	NONE	.88 22	8	11.81 300	15.46 393

A	VALVE
B	ACTUATOR

VALVE SIZE	ACTUATOR NUMBER	DIMENSIONS	
		R	S
4	GS-6-CWB	10.06 256	8.81 224
6	GS-6-CWB	10.06 256	9.62 244

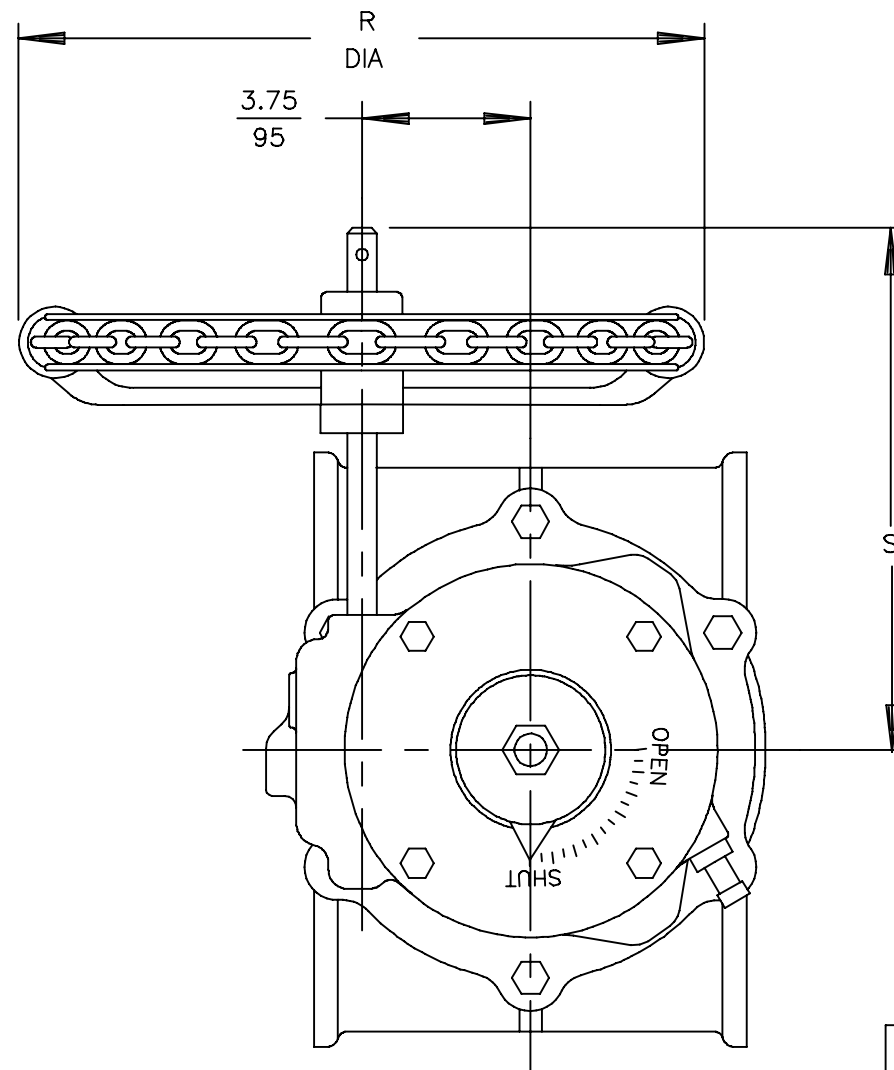
NOTE:

1. FLANGES ARE FLAT FACED WITH DIAMETER AND DRILLING TO CLASS 125 ANSI STANDARD B16.1, EXCEPT FOR TAPPED HOLES AS INDICATED. SEE A-16368 FOR NON-ANSI FLANGE DATA.

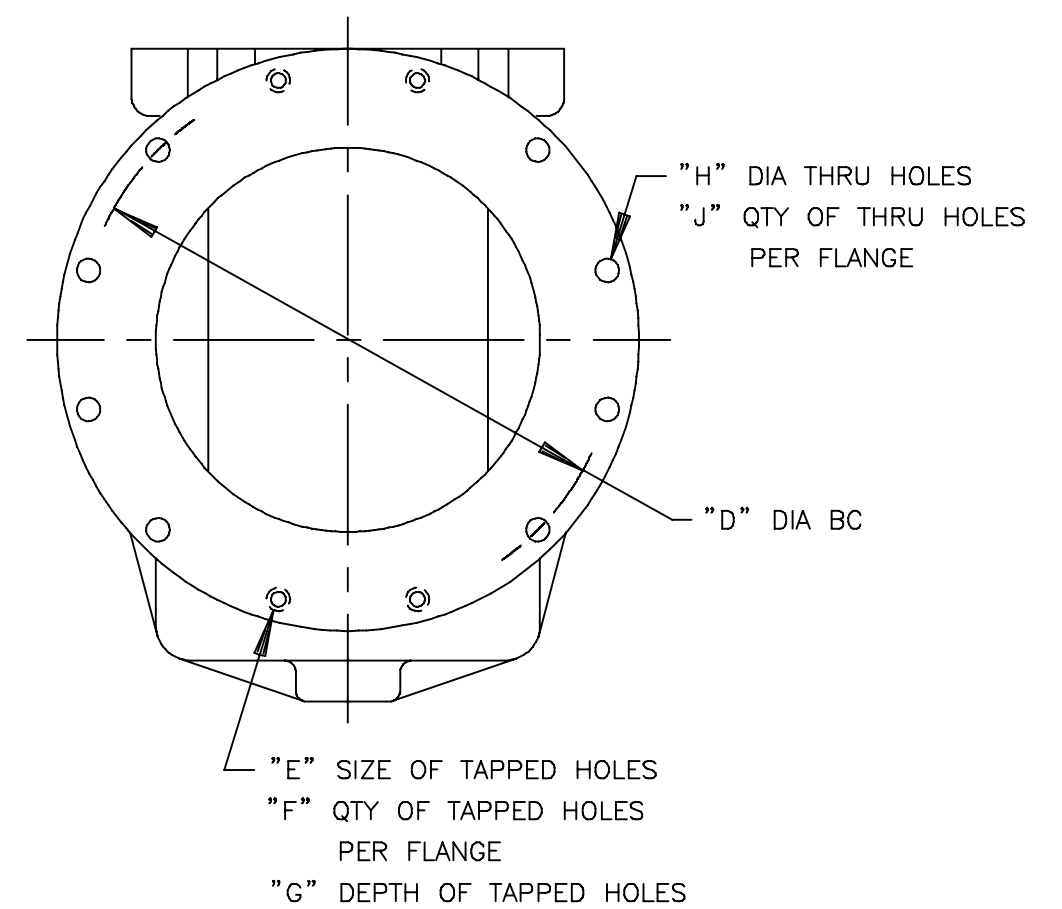
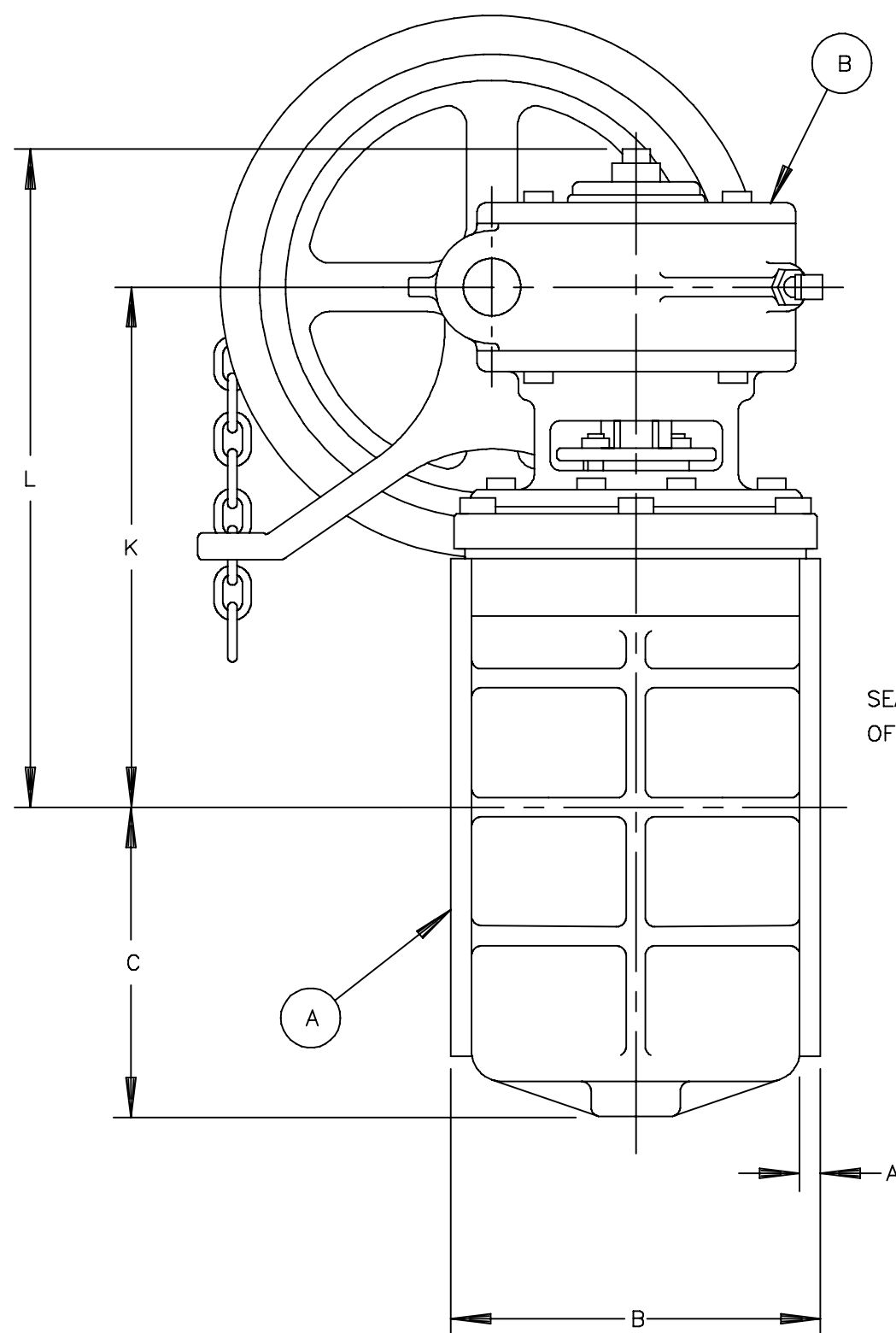
2. 13 TURNS OF CHAINWHEEL ARE REQUIRED TO OPEN VALVE.

3. INSTALLATION NOTE:

- FOR LIQUIDS & GASES:
INSTALL VALVE WITH HIGHER PRESSURE AGAINST END OPPOSITE SEAT.
- FOR SUSPENDED SOLIDS, SLURRIES, ETC:
INSTALL VALVE WITH HIGHER PRESSURE AGAINST SEAT END. IN HORIZONTAL PIPELINES, VALVE SHOULD BE INSTALLED ON IT'S SIDE SO PLUG ROTATES TO THE TOP OF THE PIPELINE WHEN OPEN. (SEE DIAGRAM BELOW).

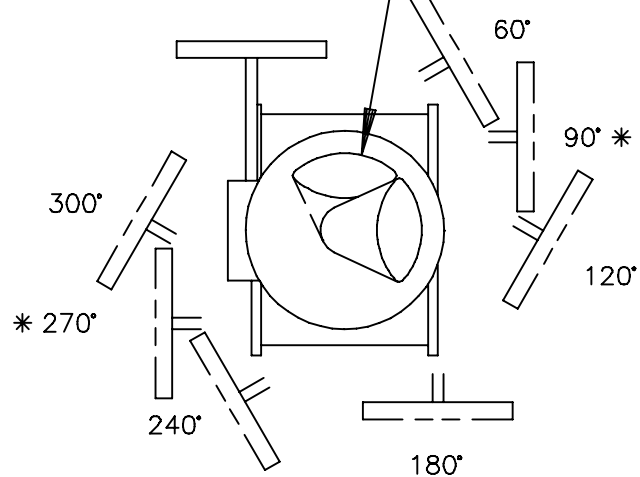


NOTICE
THIS DRAWING DOES NOT SHOW ACTUATOR ACCESSORIES. IF ACCESSORIES ARE REQUIRED, REFER TO THE APPROPRIATE ACCESSORY INSTALLATION DRAWING FOR DIMENSIONS AND OTHER RELATED INFORMATION.



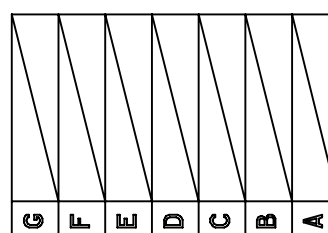
PLUG IN OPEN POSITION. SEE INSTALLATION NOTE.

STANDARD POSITION SHOWN ON THIS DRAWING



ACTUATOR MOUNTING POSITIONS AS VIEWED FROM TOP OF VALVE. DOTTED LINES SHOW OPTIONAL MOUNTING POSITIONS.

* THE 90° AND 270° POSITIONS REQUIRE DIFFERENT INTERNAL GEARING. THESE POSITIONS MUST BE NOTED ON THE PURCHASE ORDER.



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PEC ECCENTRIC VALVES SIZE 4 & 6 FLANGED MATERIAL GROUP 1
GS-6-CW_CHAINWHEEL ACT'D

DOCT. CODE	DRAWN	JSM	APPROVED	TPK
C1	CHECKED	TPK	DATE	08/02/01

A53708

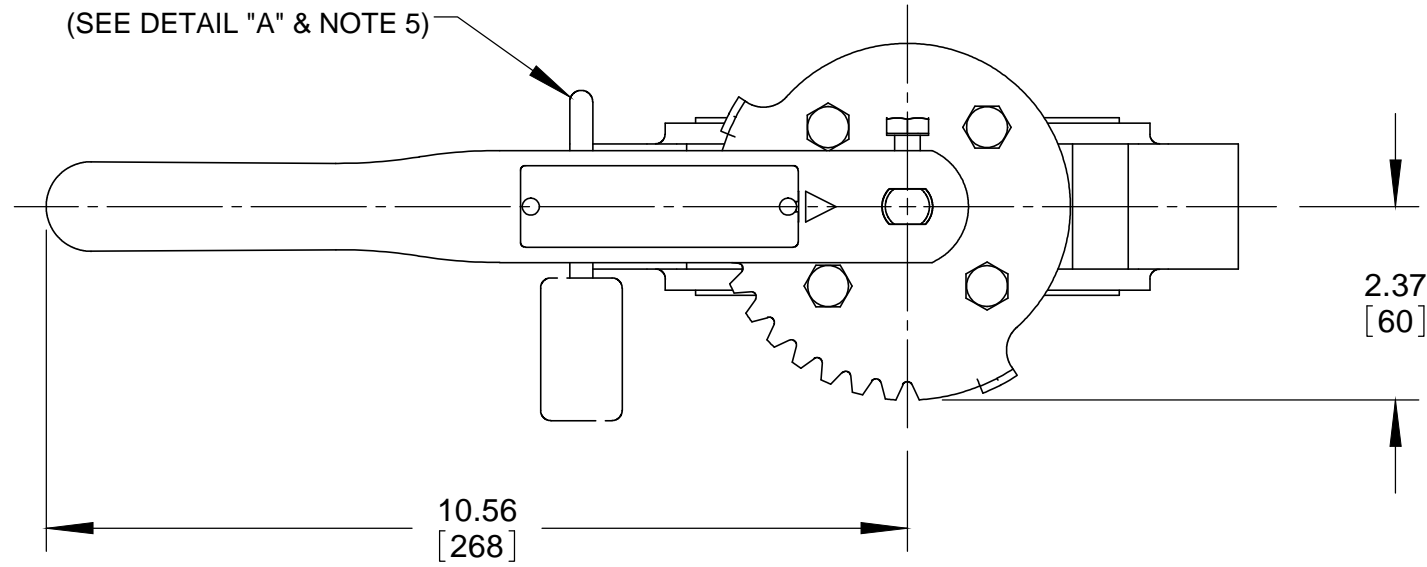
VALVE SIZE		DIMENSIONS IN [MM]							
IN	MM	A	B	C	D	E	F	G	
1-1/2	40	1.30 [33]	5.83 [148]	2.95 [75]	5.51 [140]	.43 [11]	4 1/2-13 UNC	3.88 [98]	
2	50	1.69 [43]	6.26 [159]	3.15 [80]	6.34 [161]	.51 [13]	4 5/8-11 UNC	4.75 [121]	
2-1/2	65	1.81 [46]	7.05 [179]	3.50 [89]	6.89 [175]	.51 [13]	4 5/8-11 UNC	5.50 [140]	
3	80	1.81 [46]	7.48 [190]	3.74 [95]	7.13 [181]	.51 [13]	4 5/8-11 UNC	6.00 [152]	
4	100	2.05 [52]	8.68 [221]	4.49 [114]	7.87 [200]	.51 [13]	8 5/8-11 UNC	7.50 [191]	
5	125	2.20 [56]	9.92 [252]	5.00 [127]	8.39 [213]	.51 [13]	8 3/4-10 UNC	8.50 [216]	
6	150	2.20 [56]	10.93 [278]	5.51 [140]	8.90 [226]	.51 [13]	8 3/4-10 UNC	9.50 [241]	

A	VALVE
B	ACTUATOR

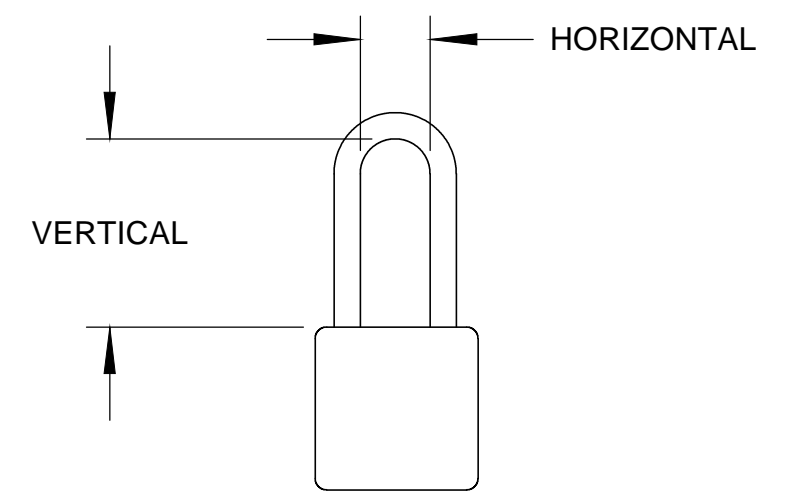
NOTE:

- DRAWING SHOWS MOUNTING HOLES FOR ANSI CLASS 125/150 FLANGES.
- FOR FLANGES OTHER THAN ANSI STANDARD SEE D10478 FOR DIMENSIONS.
- DO NOT USE GASKETS BETWEEN VALVE AND MATING FLANGES.
- FLOW MAY BE IN EITHER DIRECTION.
- LEVER WILL USE A .28[7] DIA X 2.00[51] VERTICAL X .81[21] HORIZONTAL ADJUSTABLE SHACKLE PADLOCK. DIMENSIONS ARE IN THE LOCKED POSITION.

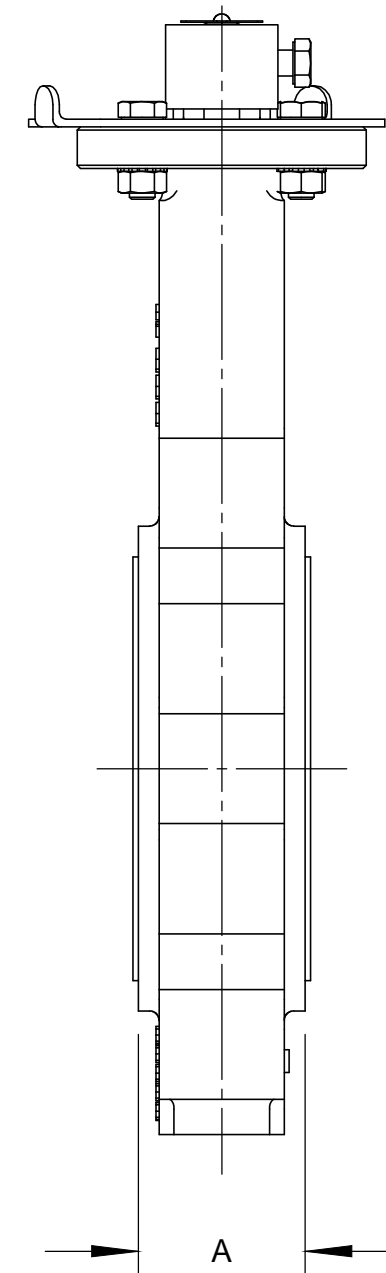
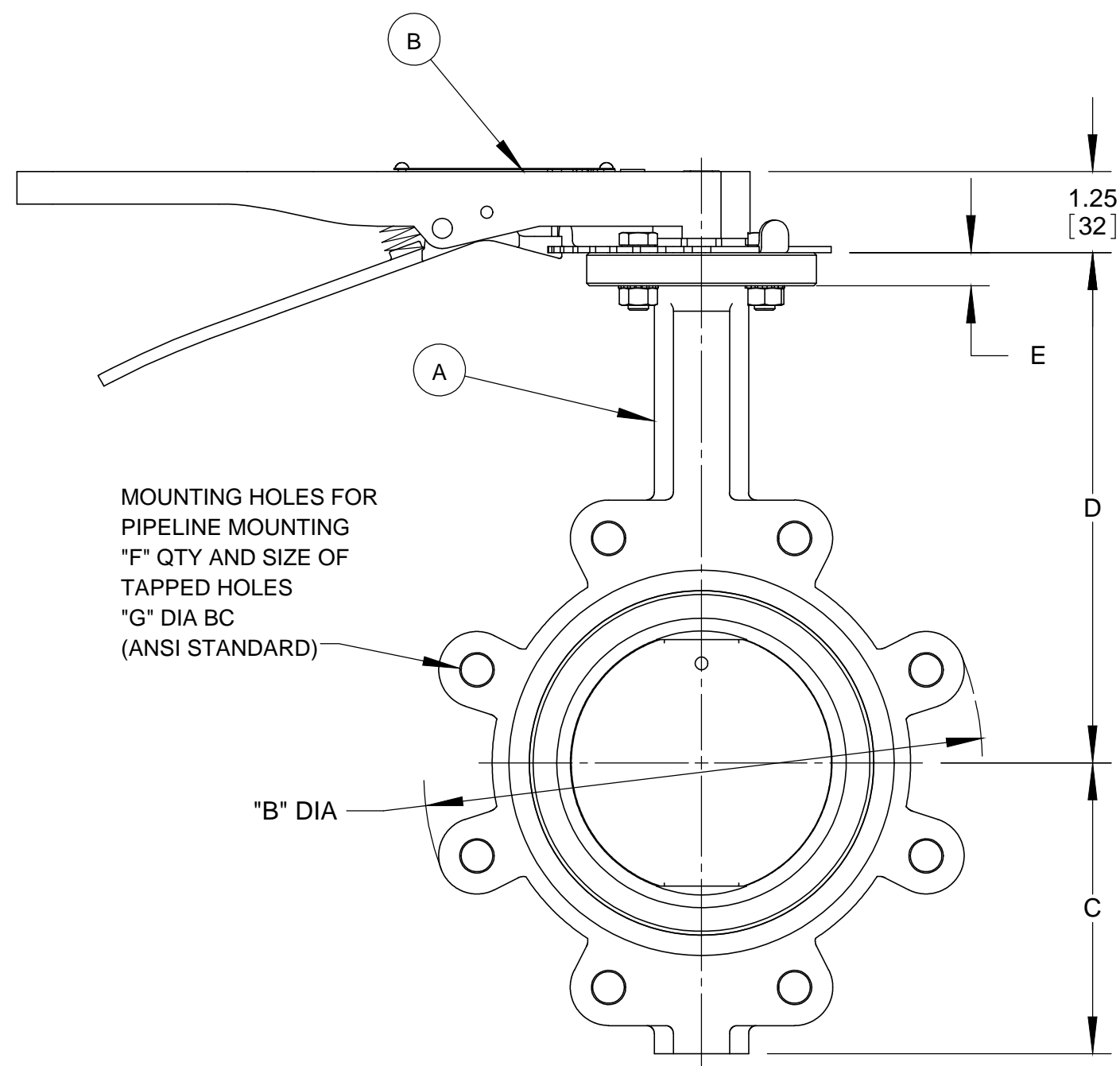
DOTTED LINES INDICATE
OPTIONAL LOCKING DEVICE
PROVIDED BY CUSTOMER
(SEE DETAIL "A" & NOTE 5)



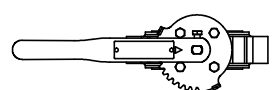
NOTICE
THIS DRAWING DOES NOT SHOW ACTUATOR ACCESSORIES. IF ACCESSORIES
ARE REQUIRED, REFER TO THE APPROPRIATE ACCESSORY INSTALLATION
DRAWING FOR DIMENSIONS AND OTHER RELATED INFORMATION.



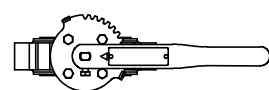
DETAIL "A"
LOCKING DEVICE
(PROVIDED BY CUSTOMER
SEE NOTE 5)



ACTUATOR MOUNTING POSITIONS



STANDARD POSITION
SHOWN ON THIS DRAWING



180° POSITION

U	L	E	D	C	B	A
						61928 5/19/10



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BOS-CL BUTTERFLY VALVES SIZE 2 - 6 LUGGED
LT 10 POSITION LEVER ACTUATOR

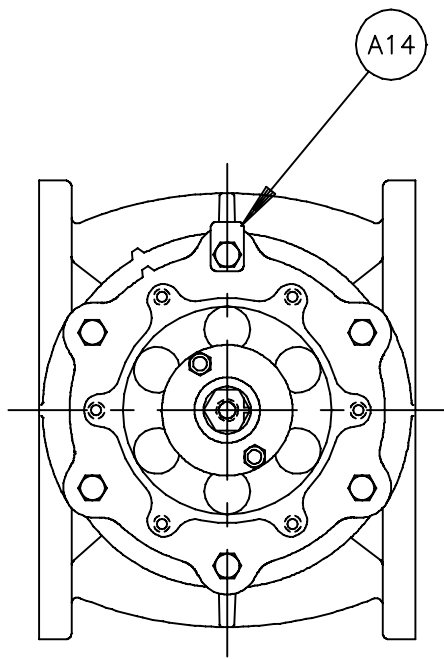
DOCT. CODE	DRAWN	SN	APPROVED	CEG
C1	CHECKED	CEG	DATE	1/06/09

A57807

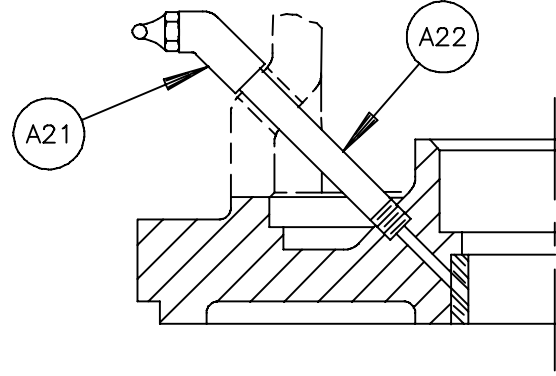
NO	PART NAME	QTY
A1	BODY	1
A2	BEARING (3.5 - 8 VALVES)	1
A2	BEARING (8.5 - 18 VALVES)	2
A2	BEARING (18.5 & 20 VALVES)	1
A3	PLUG	1
A4	THRUST WASHER (GRIT EXCLUDER WITH GE OPTION)	1
A5	GASKET (BODY)	1
A6	BONNET	1
A7	BEARING	1
A8	SCREW (3.5 - 18 VALVES)	6
A8	SCREW (18.5 & 20 VALVES)	10
A9	PACKING	-
A10	CONE, 3.5 - 8 NT (EXCEPT LOW FRICTION CAT. CHAR. NBRL & SQ. PACKING)	1
A11	GLAND	1
A12	STUD (3.5 - 20 GS--HD_ & GS--CW_)	2
A12	STUD (3.5 - 20 GS--C_)	2
A12	STUD (8.5 - 12 MNA)	NOT REQ'D
A12	STUD (8.5 - 12 LV)	NOT REQ'D
A12	STUD (3.5 - 20 GS--ML_)	2
A12	STUD (3.5 - 8 NT)	2
A12		
A12		
A13	NUT (3.5 - 20 GS--HD_ & GS--CW_)	2
A13	NUT (3.5 - 20 GS--C_)	2
A13	NUT (8.5 - 12 MNA)	NOT REQ'D
A13	NUT (8.5 - 12 LV)	NOT REQ'D
A13	NUT (3.5 - 12 GS--ML_)	2
A13	NUT (3.5 - 8 NT)	4
A13		
A13		
A14	CAUTION TAG	1
A15	PIPE PLUG (PU, PD OR PDU)	-
A18	GRIT EXCLUDER (OPTION GE ONLY)	-
A20	GREASE FITTING (OPTION GR ONLY)	1
A21	GREASE FITTING (OPTION GR ONLY)	1
A22	NIPPLE (EXCEPT LV & NT) (OPTION GR ONLY)	1

NOTE:

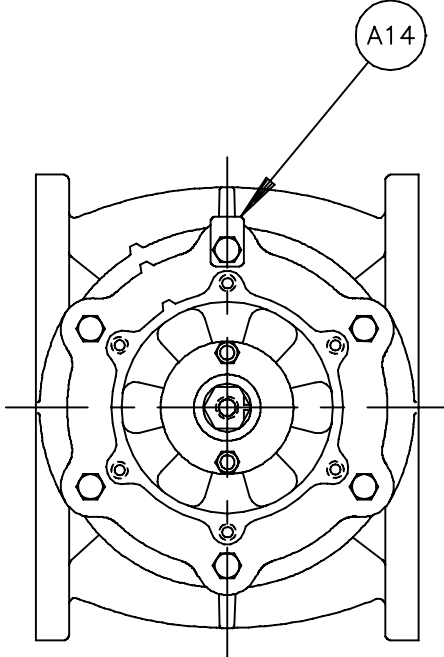
1. RECOMMENDED SPARE PARTS ARE ITEMS NUMBER A3, PLUG(IF RUBBER FACED), A4, A5 AND A9.
2. WHEN ORDERING PARTS, INCLUDE VALVE SIZE AND PART NUMBER FROM DATA PLATE. ALSO INCLUDE THIS DRAWING NUMBER WITH PART NAME, NUMBER AND QUANTITY.
3. CLOCKWISE ROTATION OF PLUG STEM CLOSSES VALVE.
4. ON THE SIZE 3.5, 4, 4.5, 5, 6, 8.5, & 10 VALVES BONNET SCREWS ARE USED FOR MOUNTING ACTUATOR.
5. VALVE MAY BE FURNISHED WITH EITHER THE UPPER JOURNAL GREASE FITTING, THE LOWER JOURNAL GREASE FITTING OR BOTH.



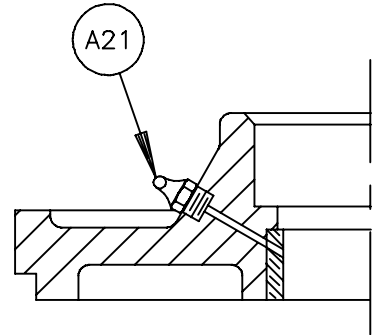
6.5 & 8 VALVES



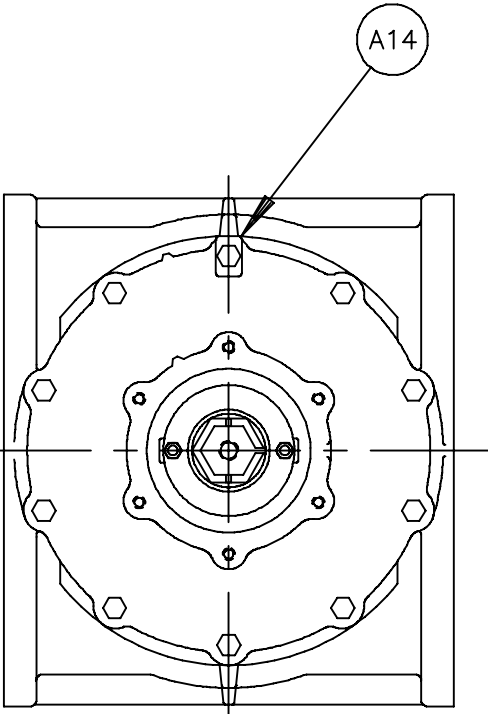
GREASE FITTING IN BONNET, ALL ACTUATORS EXCEPT LV & NT



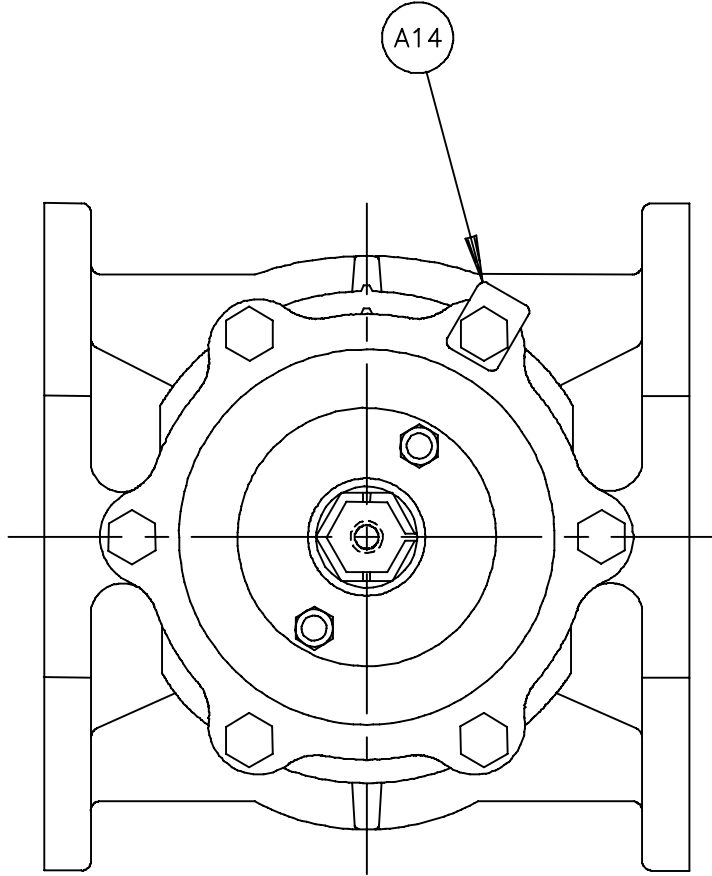
10.5 - 18 VALVES



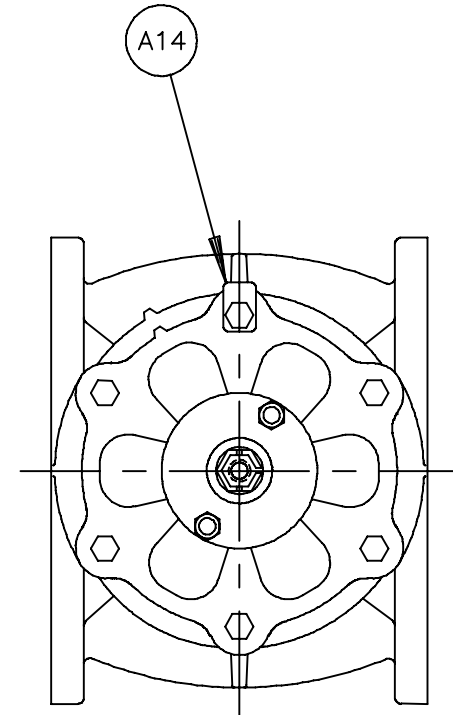
GREASE FITTING IN BONNET, LV & NT ACTUATORS



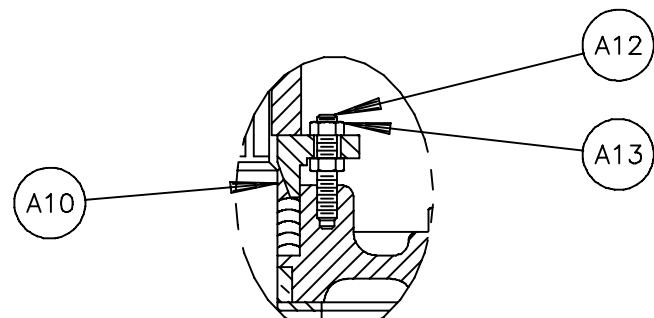
18.5 & 20 VALVES



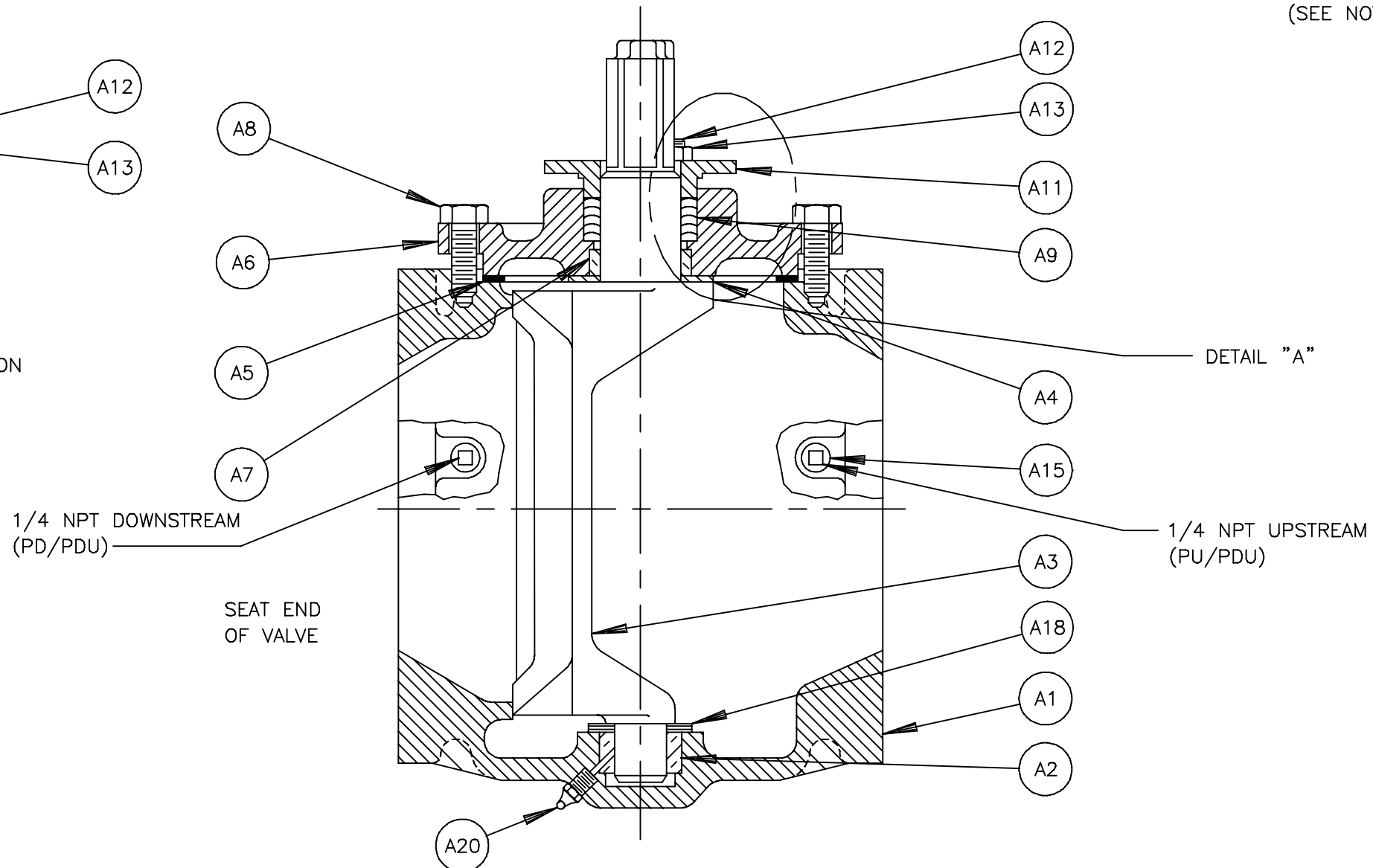
3.5 - 6 VALVES
(SEE NOTE 4)



8.5 - 10 VALVES
(SEE NOTE 4)



DETAIL "A"
3.5 - 8 NT CONSTRUCTION



R	62259	04/30/12	Q	62047	07/26/11	P	61845	11/16/09	N	61612	06/10/08	M	61602	04/02/08	L	61371	11/22/05	K	60295	10/19/00	J	54653	03/30/99	H	54620	02/11/99	G	53766	09/03/96	F	50312	03/22/93	E	50312	03/03/93	D	51112	03/05/91	C	16317	8/2/85	B	15276	11/22/82	A	14670	08/28/81
---	-------	----------	---	-------	----------	---	-------	----------	---	-------	----------	---	-------	----------	---	-------	----------	---	-------	----------	---	-------	----------	---	-------	----------	---	-------	----------	---	-------	----------	---	-------	----------	---	-------	----------	---	-------	--------	---	-------	----------	---	-------	----------

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PEC ECCENTRIC VALVE ASSEMBLY 3.5 - 20, FLANGED, EXCEPT BODY MATERIAL CIS, DIS & CIH			
DOCT. CODE	DRAWN	APPROVED	
C1	DENNY	RJP	
CHECKED	TNB	DATE	10-13-83
			A20730



MATERIALS OF CONSTRUCTION

DRAWING(S): A20730

WORK ORDER: 802489

PART NO: 9374132

DESCRIPTION: PEC,6,F1,CI,NBR,CR,1304G0*GS-6-HD8

ITEM	MATERIAL
A01	IRON, ASTM A126, CLASS B
A02	STAINLESS STEEL, TYPE 316L, SINTERED
A03	CHLOROPRENE (CR)
A03	IRON, ASTM A126, CLASS B
A04	PTFE, TYPE II, ASTM D3294 OR D3308, GRADE 1
A05	GASKET, NON-ASBESTOS COMPRESSED SHEET GASKET MATERIAL
A06	IRON, ASTM A126, CLASS B
A07	STAINLESS STEEL, TYPE 316L, SINTERED
A08	CARBON STEEL, ZINC PLATED
A09	ACRYLONITRILE-BUTADIENE (NBR)
A11	IRON, ASTM A126, CLASS B
A12	CARBON STEEL, ZINC PLATED
A13	CARBON STEEL, ZINC PLATED
A14	STAINLESS STEEL, TYPE 302



MATERIALS OF CONSTRUCTION

DRAWING(S): A20730

WORK ORDER: 802489

PART NO: 9374133

DESCRIPTION: PEC,4,F1,CI,NBR,CR,1304G0*GS-6-HD8

ITEM	MATERIAL
A01	IRON, ASTM A126, CLASS B
A02	STAINLESS STEEL, TYPE 316L, SINTERED
A03	CHLOROPRENE (CR)
A03	IRON, ASTM A126, CLASS B
A04	PTFE, TYPE II, ASTM D3294 OR D3308, GRADE 1
A05	GASKET, NON-ASBESTOS COMPRESSED SHEET GASKET MATERIAL
A06	IRON, ASTM A126, CLASS B
A07	STAINLESS STEEL, TYPE 316L, SINTERED
A08	CARBON STEEL, ZINC PLATED
A09	ACRYLONITRILE-BUTADIENE (NBR)
A11	IRON, ASTM A126, CLASS B
A12	CARBON STEEL, ZINC PLATED
A13	CARBON STEEL, ZINC PLATED
A14	STAINLESS STEEL, TYPE 302



MATERIALS OF CONSTRUCTION

DRAWING(S): A20730

WORK ORDER: 802489

PART NO: 9436838

DESCRIPTION: PEC,6,F1,CI,NBR,CR,1304G0*GS-6-CW8

ITEM	MATERIAL
A01	IRON, ASTM A126, CLASS B
A02	STAINLESS STEEL, TYPE 316L, SINTERED
A03	CHLOROPRENE (CR)
A03	IRON, ASTM A126, CLASS B
A04	PTFE, TYPE II, ASTM D3294 OR D3308, GRADE 1
A05	GASKET, NON-ASBESTOS COMPRESSED SHEET GASKET MATERIAL
A06	IRON, ASTM A126, CLASS B
A07	STAINLESS STEEL, TYPE 316L, SINTERED
A08	CARBON STEEL, ZINC PLATED
A09	ACRYLONITRILE-BUTADIENE (NBR)
A11	IRON, ASTM A126, CLASS B
A12	CARBON STEEL, ZINC PLATED
A13	CARBON STEEL, ZINC PLATED
A14	STAINLESS STEEL, TYPE 302



MATERIALS OF CONSTRUCTION

DRAWING(S): A20730

WORK ORDER: 802489

PART NO: 9439813

DESCRIPTION: PEC,10,F1,CI,NBR,CR,1304G0*GS-6-HD8

ITEM	MATERIAL
A01	IRON, ASTM A126, CLASS B
A02	STAINLESS STEEL, TYPE 316L, SINTERED
A03	CHLOROPRENE (CR)
A03	IRON, ASTM A126, CLASS B
A04	PTFE, TYPE II, ASTM D3294 OR D3308, GRADE 1
A05	GASKET, NON-ASBESTOS COMPRESSED SHEET GASKET MATERIAL
A06	IRON, ASTM A126, CLASS B
A07	STAINLESS STEEL, TYPE 316L, SINTERED
A08	CARBON STEEL, ZINC PLATED
A09	ACRYLONITRILE-BUTADIENE (NBR)
A11	IRON, ASTM A126, CLASS B
A12	CARBON STEEL, ZINC PLATED
A13	CARBON STEEL, ZINC PLATED
A14	STAINLESS STEEL, TYPE 302



MATERIALS OF CONSTRUCTION

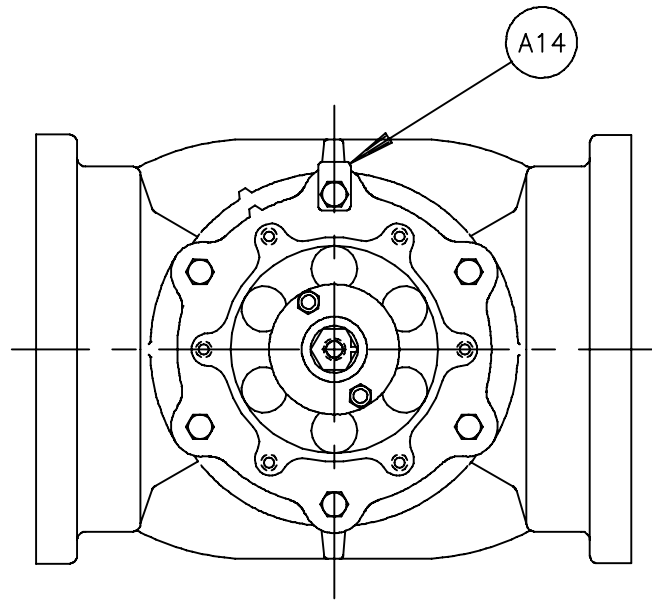
DRAWING(S): A20730

WORK ORDER: 802489

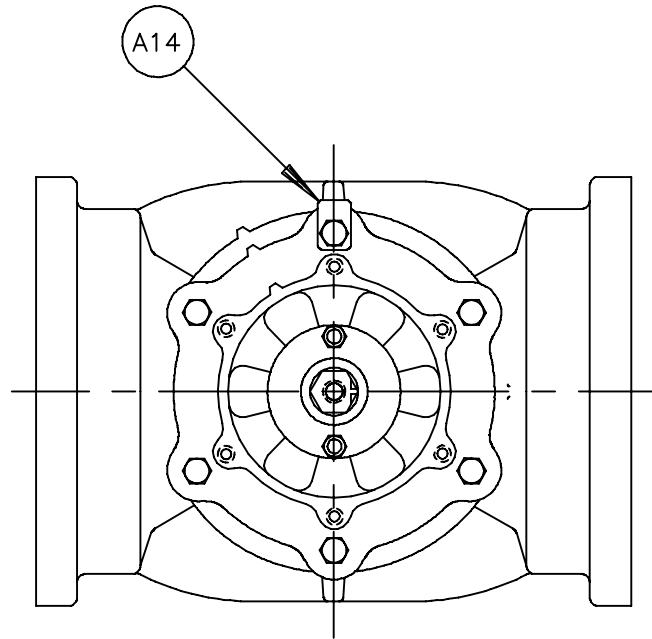
PART NO: 9439815

DESCRIPTION: PEC,4,F1,CI,NBR,CR,1304G0*GS-6-CW8

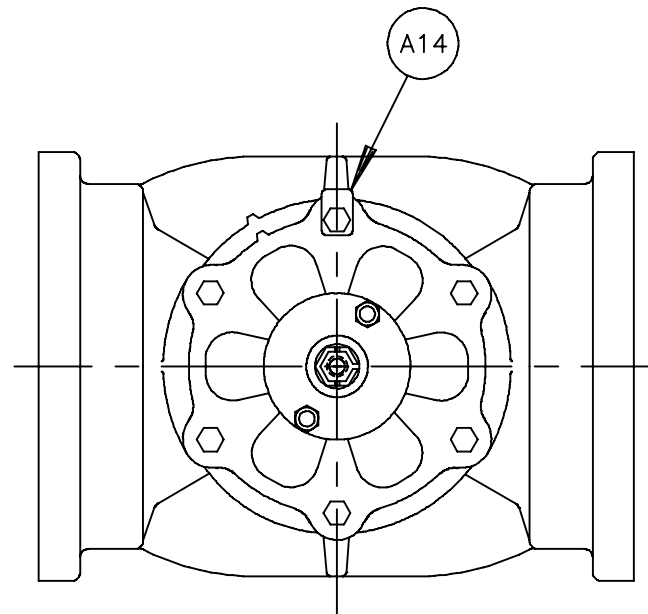
ITEM	MATERIAL
A01	IRON, ASTM A126, CLASS B
A02	STAINLESS STEEL, TYPE 316L, SINTERED
A03	CHLOROPRENE (CR)
A03	IRON, ASTM A126, CLASS B
A04	PTFE, TYPE II, ASTM D3294 OR D3308, GRADE 1
A05	GASKET, NON-ASBESTOS COMPRESSED SHEET GASKET MATERIAL
A06	IRON, ASTM A126, CLASS B
A07	STAINLESS STEEL, TYPE 316L, SINTERED
A08	CARBON STEEL, ZINC PLATED
A09	ACRYLONITRILE-BUTADIENE (NBR)
A11	IRON, ASTM A126, CLASS B
A12	CARBON STEEL, ZINC PLATED
A13	CARBON STEEL, ZINC PLATED
A14	STAINLESS STEEL, TYPE 302



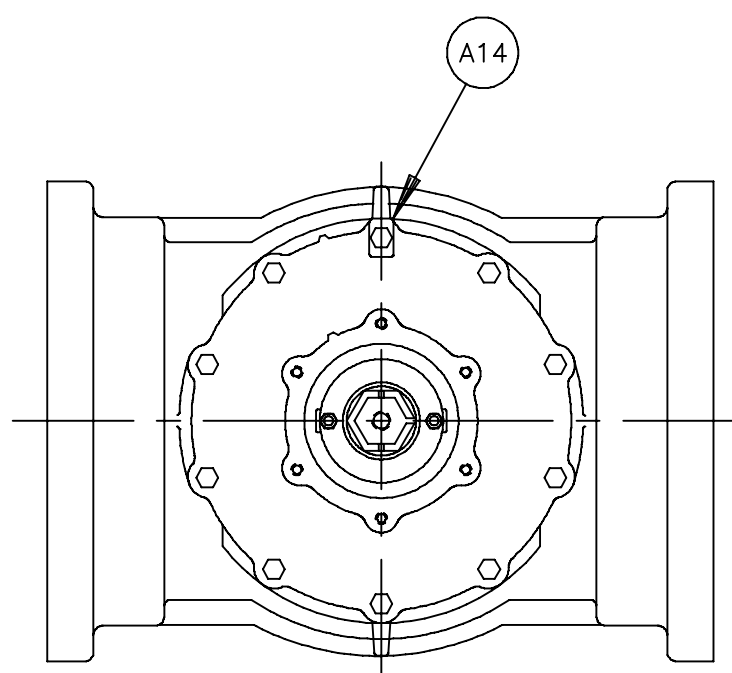
6.5 - 8 VALVES



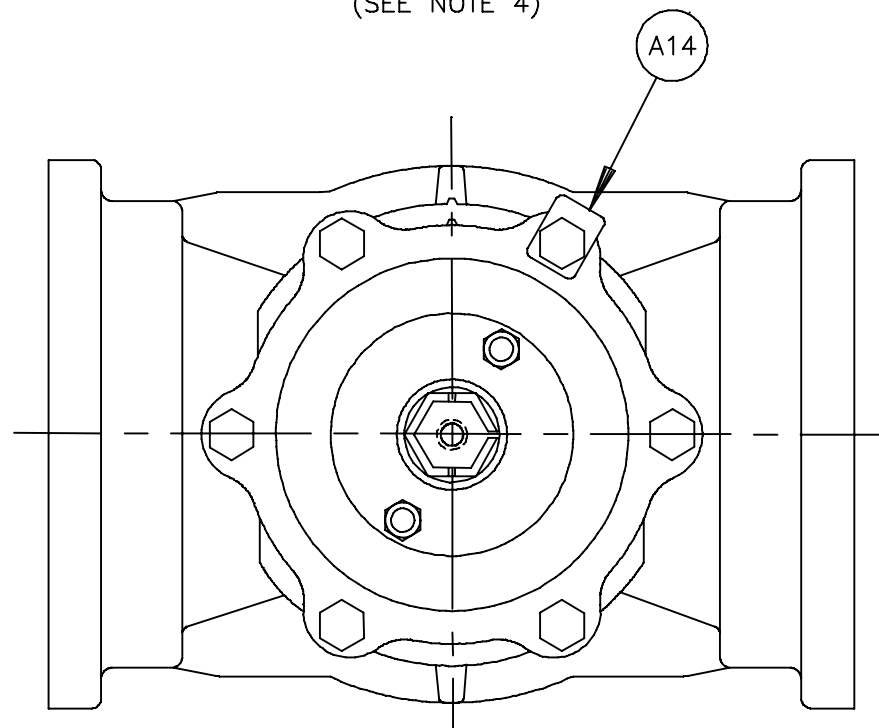
10.5 - 18 VALVES



8.5 - 10 VALVES
(SEE NOTE 4)



18.5 & 20 VALVES

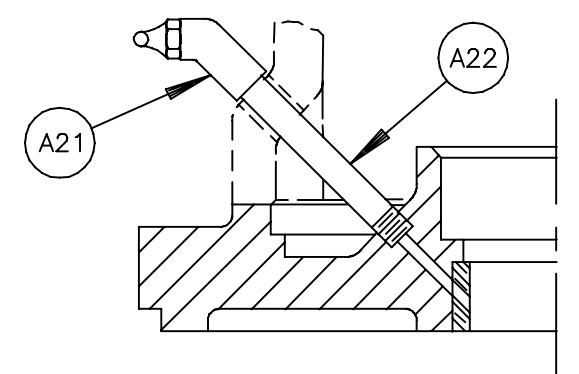


4 - 6 VALVES
(SEE NOTE 4)

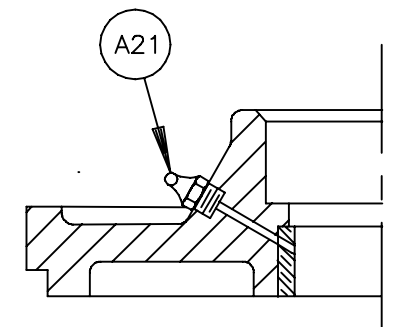
NOTE:

1. RECOMMENDED SPARE PARTS ARE ITEMS NUMBER A3, PLUG (IF RUBBER FACED), A4, A5, AND A9.
2. WHEN ORDERING PARTS, SPECIFY VALVE SIZE AND MODEL NUMBER FROM DATA PLATE, ALSO GIVE DRAWING NUMBER WITH PART NAME, ITEM NUMBER AND QUANTITY.
3. CLOCKWISE ROTATION OF PLUG STEM CLOSES VALVE.
4. ON THE SIZE 4, 4.5, 6, 8.5, & 10 VALVES BONNET SCREWS ARE USED FOR MOUNTING THE ACTUATOR.

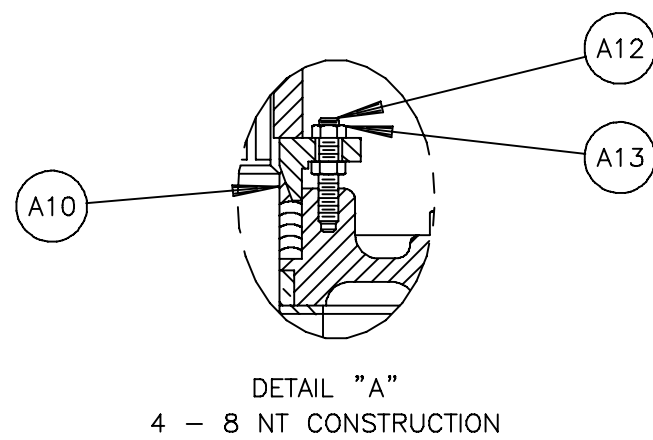
NO	PART NAME	QTY
A1	BODY	1
A2	BEARING (4-8 VALVES)	1
A2	BEARING (8.5-18 VALVES)	2
A2	BEARING (18.5-20 VALVES)	1
A3	PLUG	1
A4	THRUST WASHER (GRIT EXCLUDER WITH GE OPTION)	1
A5	GASKET (BODY)	1
A6	BONNET	1
A7	BEARING	1
A8	SCREW (4-18 VALVES)	6
A8	SCREW (18.5-20 VALVES)	10
A9	PACKING	-
A10	CONE, 4-8 NT (EXCEPT LOW FRICTION CAT. CHAR. NBRL & SQ. PACKING)	1
A11	GLAND	1
A12	STUD (4-20 GS--HD_ & GS--CW_)	2
A12	STUD (4-20 GS--C_)	2
A12	STUD (8.5-12 MNA)	NOT REQ'D
A12	STUD (8.5-12 LV)	NOT REQ'D
A12	STUD (4-20 GS--ML_)	2
A12	STUD (4-8 NT)	2
A13	NUT (4-20 GS--HD_ & GS--CW_)	2
A13	NUT (4-20 GS--C_)	2
A13	NUT (8.5-12 MNA)	NOT REQ'D
A13	NUT (8.5-12 LV)	NOT REQ'D
A13	NUT (4-12 GS--ML_)	2
A13	NUT (4-8 NT)	4
A14	CAUTION TAG	1
A15	PIPE PLUG (PU,PD OR PDU)	-
A18	GRIT EXCLUDER (OPTION GE ONLY)	-
A20	GREASE FITTING (OPTIONAL GR ONLY)	1
A21	GREASE FITTING (OPTIONAL GR ONLY)	1
A22	COUPLING	1



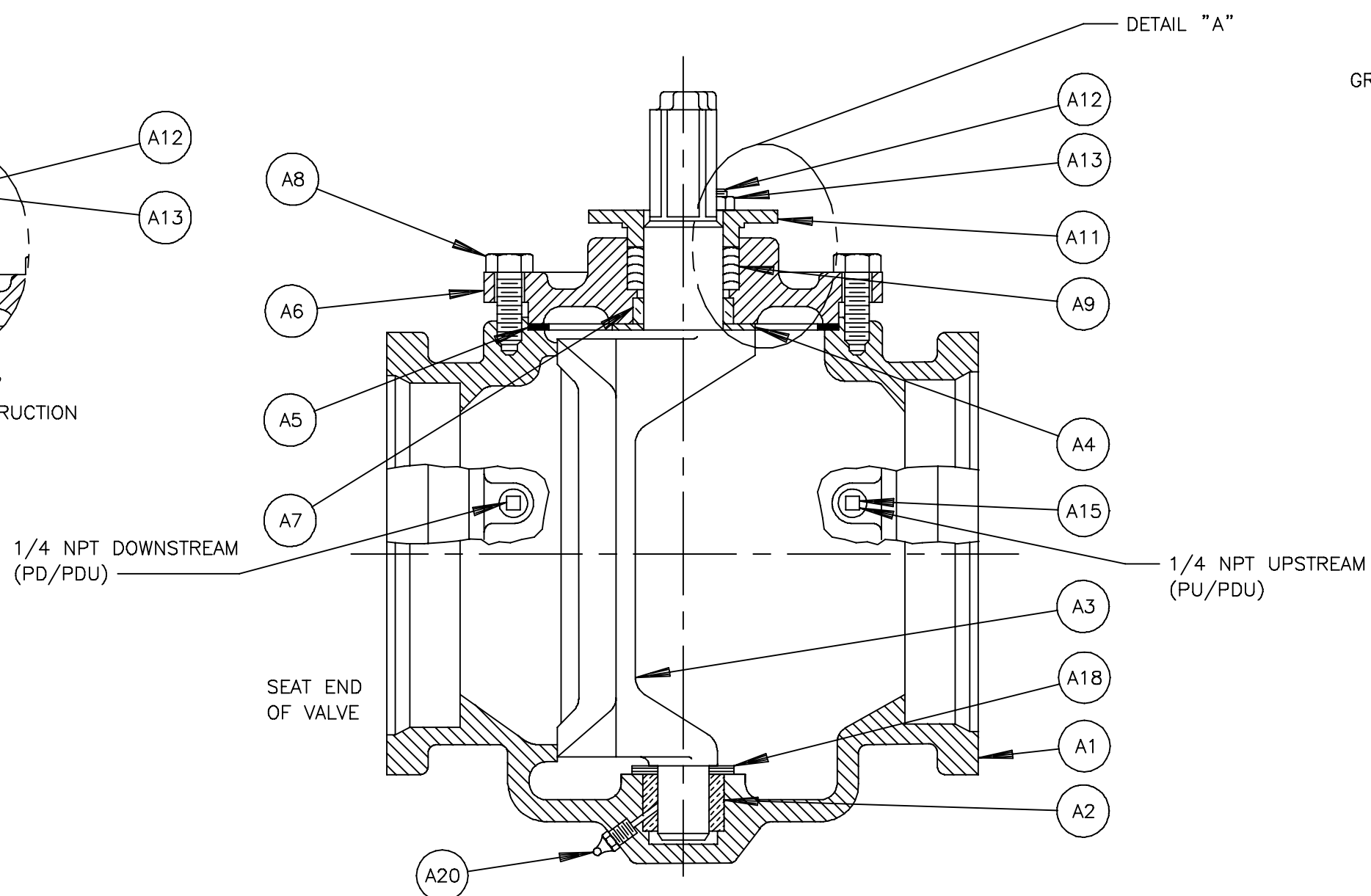
GREASE FITTING IN BONNET,
ALL ACTUATORS EXCEPT LV & NT



GREASE FITTING IN BONNET,
LV & NT ACTUATORS



DETAIL "A"
4 - 8 NT CONSTRUCTION



K	6/22/99	04/30/12
J	6/20/07	07/27/11
H	6/16/12	06/10/08
G	6/16/02	04/02/08
F	6/13/71	11/21/05
E	6/02/85	10/19/00
D	5/46/53	03/30/99
C	5/46/20	02/12/99
B	5/11/12	03/05/91
A	1/52/76	11/22/82

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PEC ECCENTRIC VALVE ASSEMBLY 4-20, MECHANICAL JOINT, BODY MATERIAL CI ONLY			
DOCT. CODE	DRAWN	APPROVED	A22430
C1	BR	RJP	
CHECKED	DATE		
TNB	10-13-83		



MATERIALS OF CONSTRUCTION

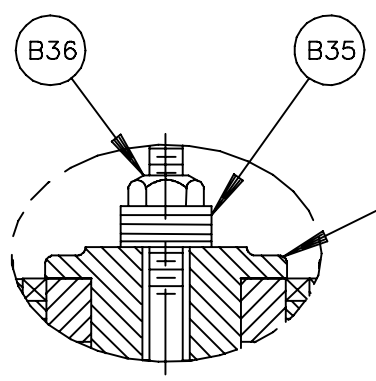
DRAWING(S): A22430

WORK ORDER: 802489

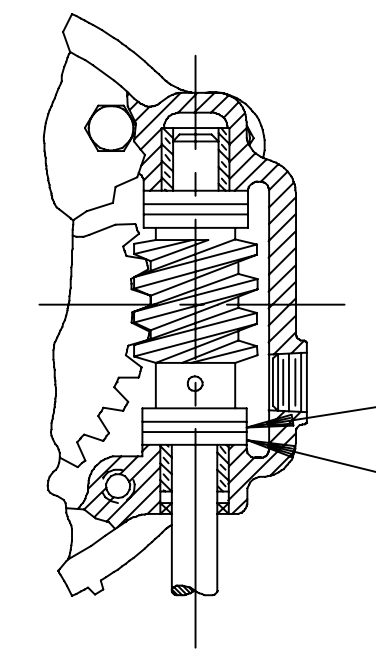
PART NO: 9469814

DESCRIPTION: PEC,10,MJ,CI,NBR,CR,1302B0*GB-6-N

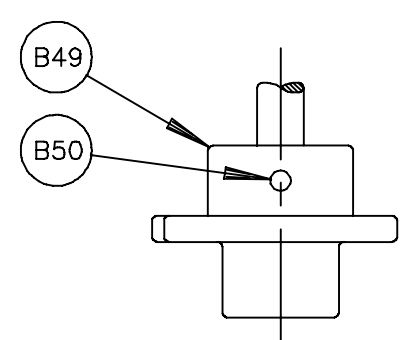
ITEM	MATERIAL
A01	IRON, ASTM A126, CLASS B
A02	STAINLESS STEEL, TYPE 316L, SINTERED
A03	CHLOROPRENE (CR)
A03	IRON, ASTM A126, CLASS B
A04	PTFE, TYPE II, ASTM D3294 OR D3308, GRADE 1
A05	GASKET, NON-ASBESTOS COMPRESSED SHEET GASKET MATERIAL
A06	IRON, ASTM A126, CLASS B
A07	STAINLESS STEEL, TYPE 316L, SINTERED
A08	CARBON STEEL, ZINC PLATED
A09	ACRYLONITRILE-BUTADIENE (NBR)
A11	IRON, ASTM A126, CLASS B
A12	CARBON STEEL, ZINC PLATED
A13	CARBON STEEL, ZINC PLATED
A14	STAINLESS STEEL, TYPE 302



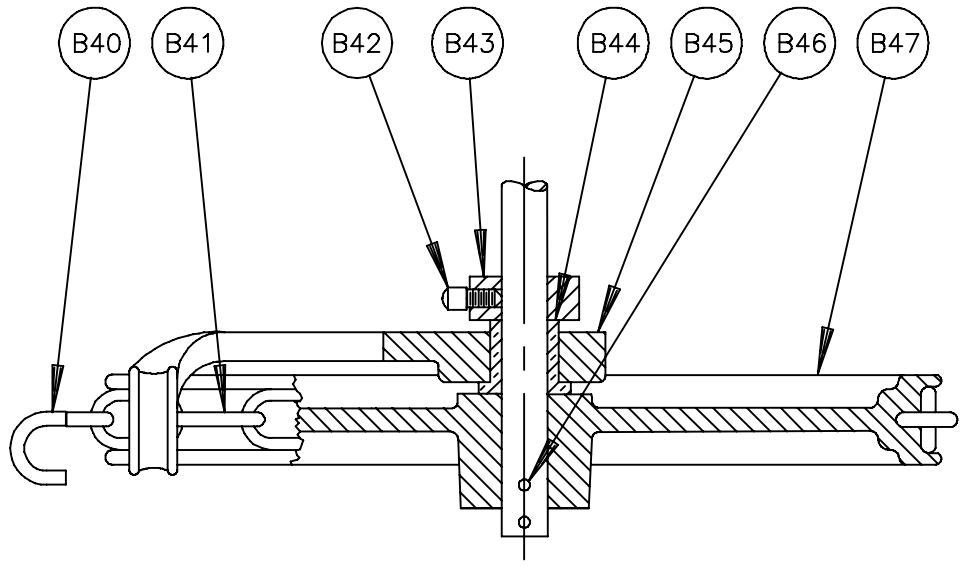
DETAIL "B"
CONSTRUCTION FOR
STONEL SWITCH



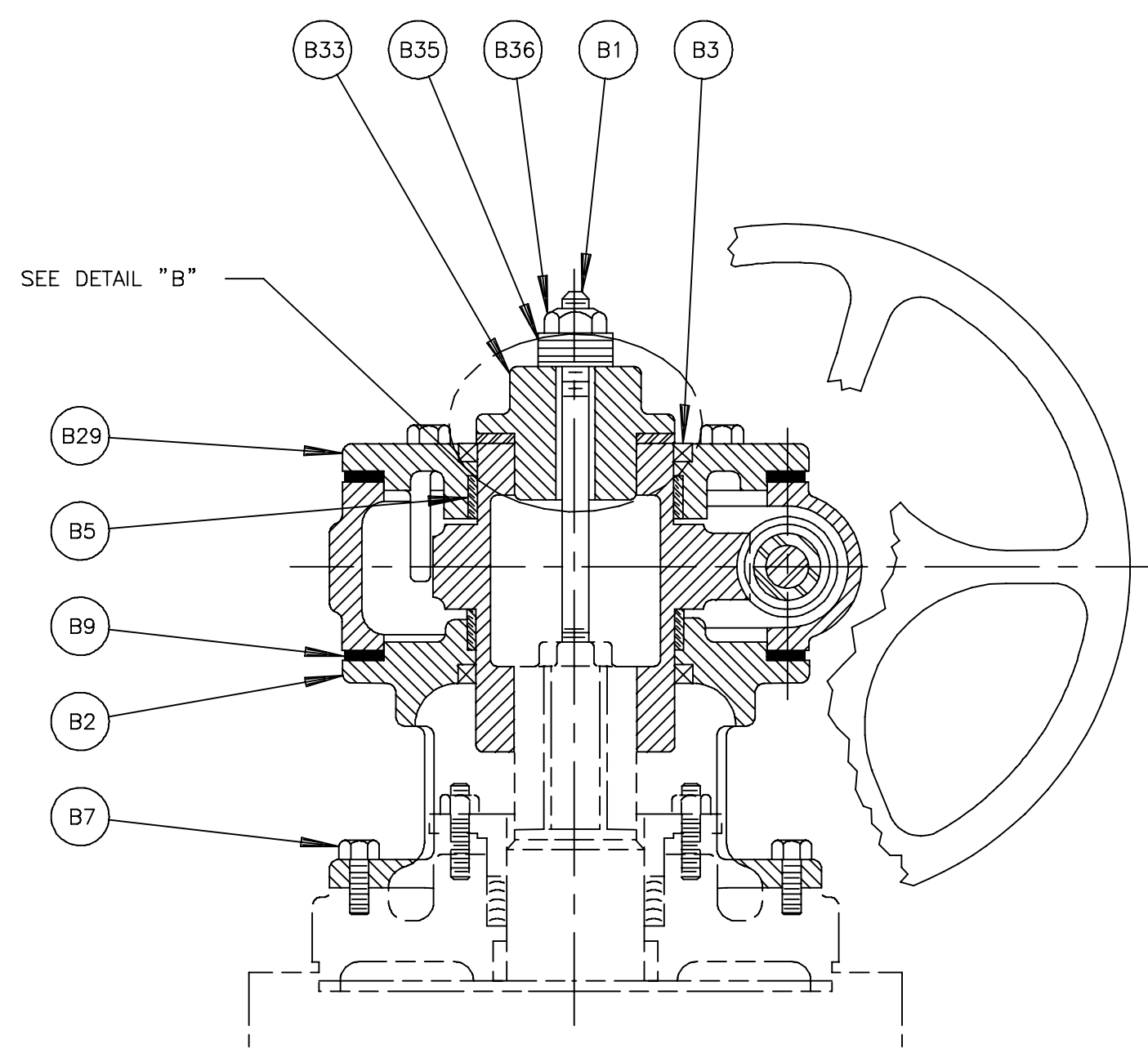
DETAIL A
GS-12 CONSTRUCTION



GS-N WRENCHING SQUARE



GS-6-CW
CHAINWHEEL ACTUATOR



NO	PART NAME	QTY	
B1	STUD	1	
B2	ADAPTOR	1	
B3	SEAL (GEAR SECTOR)	2	
B4			
B5	BEARING	2	
B6			
B7	SCREW	3.5, 4, 4.5, 5, 6, 8.5 & 10 VALVES SEE NOTE 3	NOT REQD
B7	SCREW	6.5, 8, 10.5, 12, 12.5, 14, 14.5, 16, 16.5, 18, 18.5 & 20 VALVES	6
B8	GEAR SECTOR		1
B9	GASKET (HOUSING)		2
B10			
B11	BEARING		1
B12	HOUSING		1
B13	WORM		1
B14	PIN		1
B15	THRUST BEARING (GS-6)		1
B15	THRUST BEARING (GS-12)		2
B16	BEARING		1
B17	SEAL (HOUSING)		1
B18	DRIVE SHAFT		1
B19	PIN		1
B20	HANDWHEEL		1
B21	BEARING RACE (GS-6)		2
B21	BEARING RACE (GS-12)		4
B22	PIPE PLUG		1
B23			
B24	JAM NUT		1
B25	SET SCREW		1
B26			
B27			
B28			
B29	COVER		1
B30	SCREW		8
B31	POINTER		1
B32			
B33	WRENCHING SQUARE (SEE NOTE 4)		1
B34			
B35	SPRING WASHER		5
B36	LOCK NUT		1
B37	DATA PLATE		1
B38	DRIVE SCREW		2
B39			
B40	CLOSING LINK		1
B41	CHAIN		-
B42	SET SCREW (SB16 OPTION ONLY)		1
B43	COLLAR & SET SCREW (CHAINWHEEL)		1
B44	BEARING		1
B45	CHAIN GUIDE		1
B46	PIN		2
B47	CHAINWHEEL (GS-6)		1
B48			
B49	WRENCHING SQUARE		1
B50	PIN		1
B51			
B52			
B53	OPEN TAG (24" HANDWHEELS ONLY)		1
B54	DRIVE SCREW (24" HANDWHEELS ONLY)		2

NOTE:

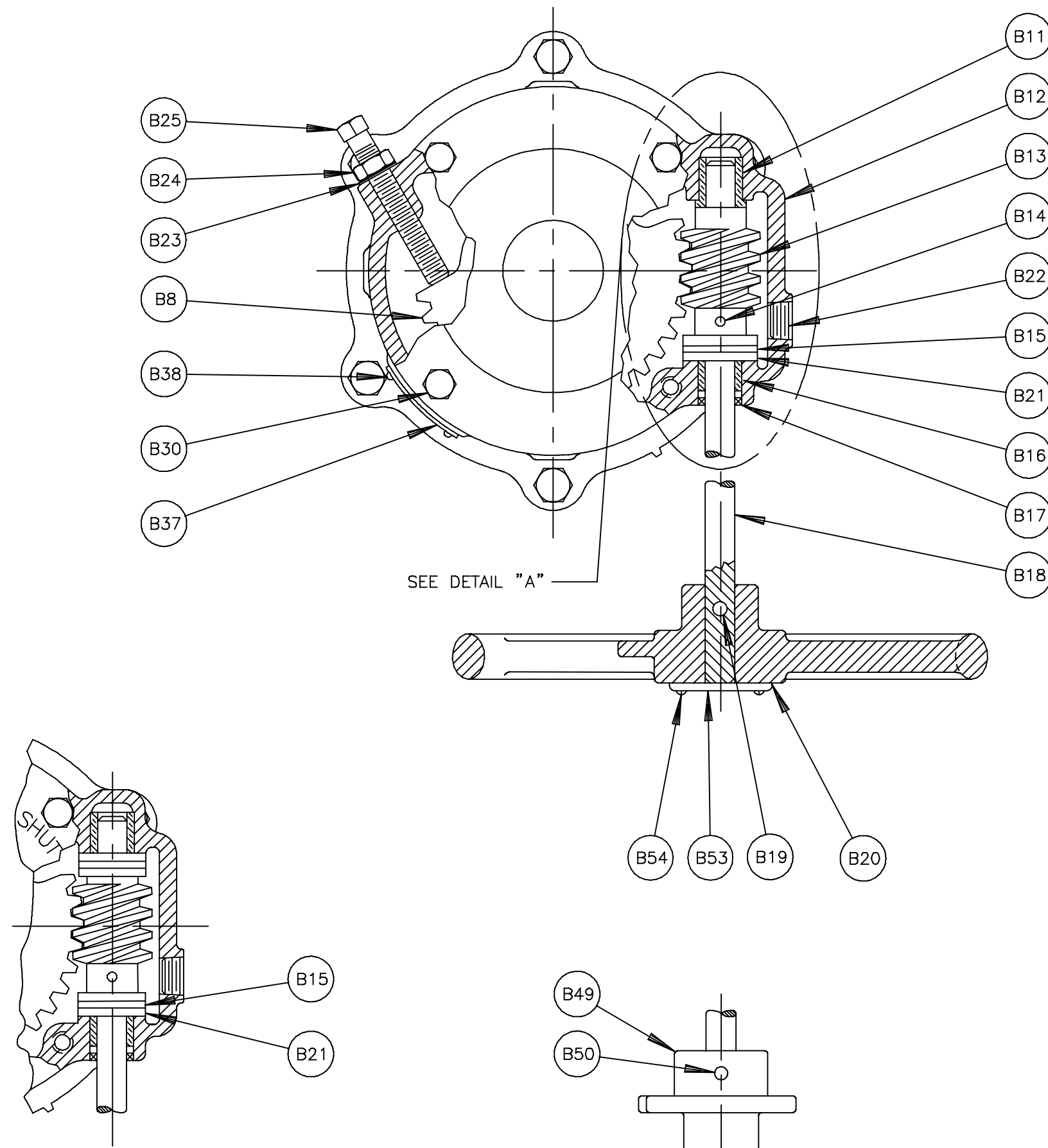
- RECOMMENDED SPARE PARTS ARE ITEMS NUMBER B3, B9 & B17.
- WHEN ORDERING PARTS, SPECIFY VALVE SIZE AND MODEL NUMBER FROM DATA PLATE, ALSO GIVE DRAWING NUMBER WITH PART NAME ITEM NUMBER AND QUANTITY.
- ITEM NUMBER B7 IS NOT REQUIRED ON THE 3.5, 4, 4.5, 5, 6, 8.5 & 10 VALVES USE BONNET SCREWS ON BODY ASSEMBLY TO MOUNT ACTUATOR TO VALVE.
- WHEN STONEL SWITCH IS USED, ITEM B33, WRENCHING SQUARE IS REPLACED BY A STUD SUPPORT.

L	61668	10/13/08	K	61398	03/24/06	J	60075	02/22/01	H	54620	04/28/99	G	54230	04/09/98	F	53449	12/23/96	E	53132	06/23/95	D	52951	12/01/94	C	52689	02/25/94	B	51744	06/15/92	A	51112	03/04/91
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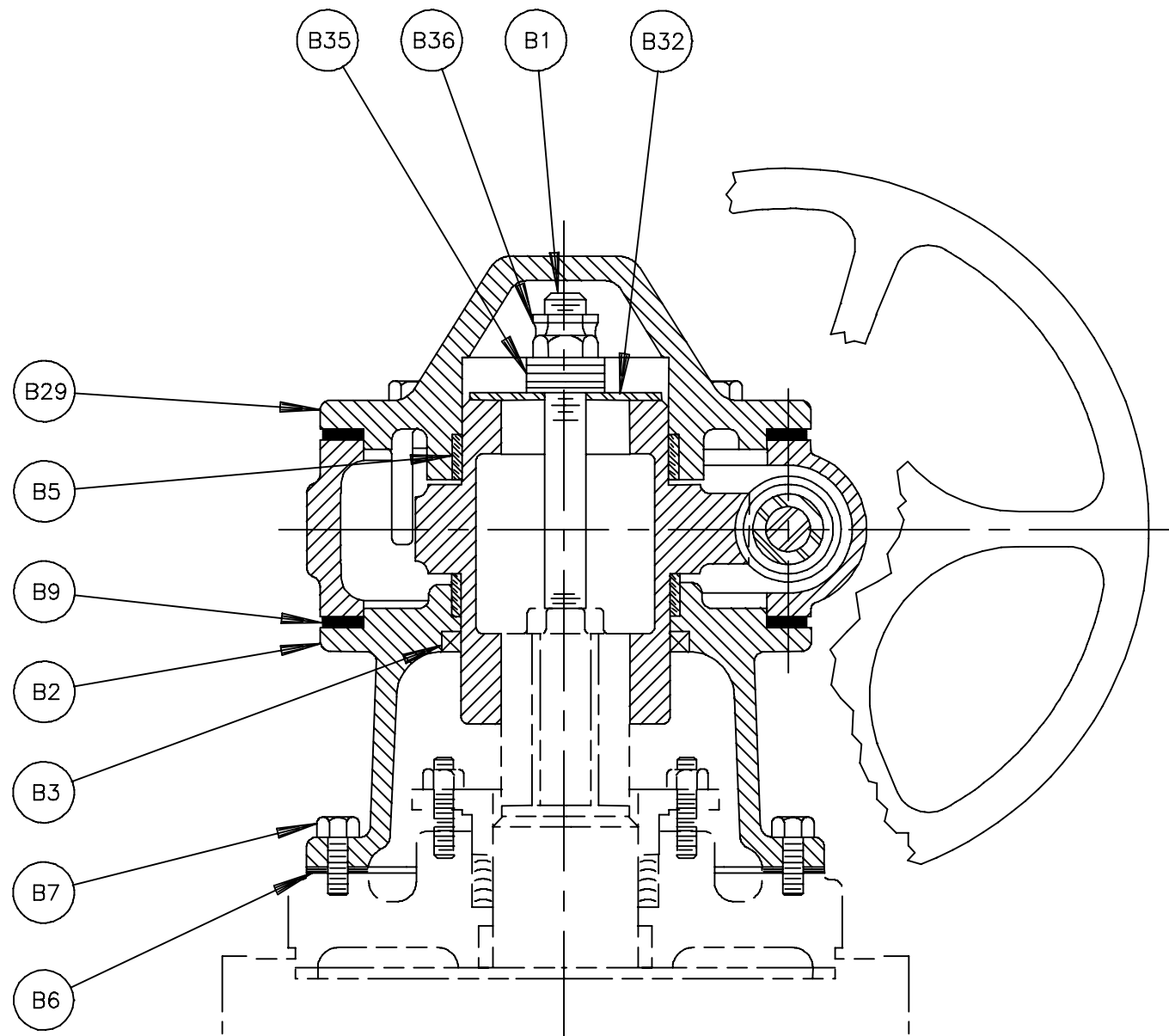
GS-6 WITH HANDWHEEL, CHAINWHEEL AND NUT ACTUATORS OR GS-12 WITH HANDWHEEL AND NUT FOR USE WITH ECCENTRIC VALVES

DOCT. CODE	DRAWN	APPROVED	A22553
C1	RJP	BOOS	
CHECKED	DATE		
	10-30-81		



DETAIL "A"
GB-12 CONSTRUCTION

GB--N WRENCHING SQUARE



NO	PART NAME	QTY	
B1	STUD	1	
B2	ADAPTOR	1	
B3	SEAL (GEAR SECTOR)	1	
B4			
B5	BEARING	2	
B6	GASKET	1	
B7	SCREW	3.5, 4, 4.5, 5, 6, 8.5 & 10 VALVES SEE NOTE 3	NOT REQD
B7	SCREW	6.5, 8, 10.5, 12, 12.5, 14, 14.5, 16, 16.5, 18, 18.5 & 20 VALVES	6
B8	GEAR SECTOR	1	
B9	GASKET	2	
B10			
B11	BEARING	1	
B12	HOUSING	1	
B13	WORM	1	
B14	PIN	1	
B15	THRUST BEARING (GB-6)	1	
B15	THRUST BEARING (GB-12)	2	
B16	BEARING	1	
B17	SEAL (HOUSING)	1	
B18	DRIVE SHAFT	1	
B19	PIN	1	
B20	HANDWHEEL	1	
B21	BEARING RACE (GB-6)	2	
B21	BEARING RACE (GB-12)	4	
B22	PIPE PLUG	1	
B23	SEAL (HOUSING)	1	
B24	JAM NUT	1	
B25	SET SCREW	1	
B26			
B27			
B28			
B29	COVER	1	
B30	SCREW	8	
B31			
B32	WASHER	1	
B33			
B34			
B35	SPRING WASHER	5	
B36	LOCK NUT	1	
B37	DATA PLATE	1	
B38	DRIVE SCREW	2	
B39			
B40			
B49	WRENCHING SQUARE	1	
B50	PIN	1	
B51			
B52			
B53	OPEN TAG (24" HANDWHEELS ONLY)	1	
B54	DRIVE SCREW (24" HANDWHEELS ONLY)	2	

NOTE:

1. RECOMMENDED SPARE PARTS ARE ITEMS NUMBER B3, B9 & B17.
2. WHEN ORDERING PARTS, SPECIFY VALVE SIZE AND MODEL NUMBER FROM DATA PLATE, ALSO GIVE DRAWING NUMBER WITH PART NAME, ITEM NUMBER AND QUANTITY.
3. ITEM NUMBER B7 IS NOT REQUIRED ON THE 3.5, 4, 4.5, 5, 6, 8.5 & 10 VALVES USE BONNET SCREWS ON BODY ASSEMBLY TO MOUNT ACTUATOR TO VALVE.

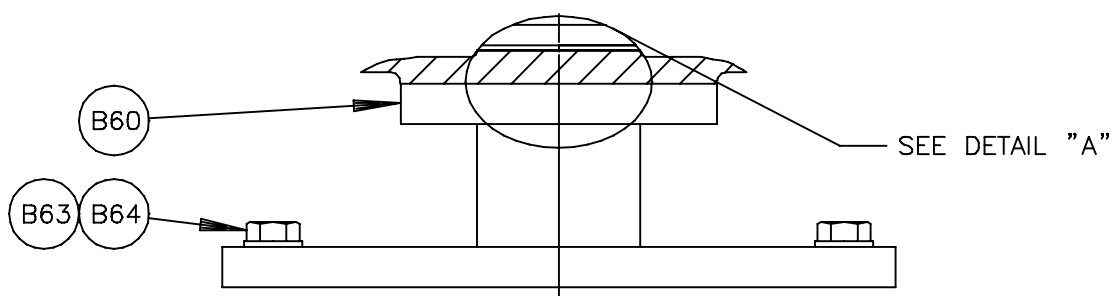
54620	04/28/99
50312	09/17/98
53449	12/23/96
52951	12/01/94
52689	02/25/94
51744	06/15/92
51112	03/04/91

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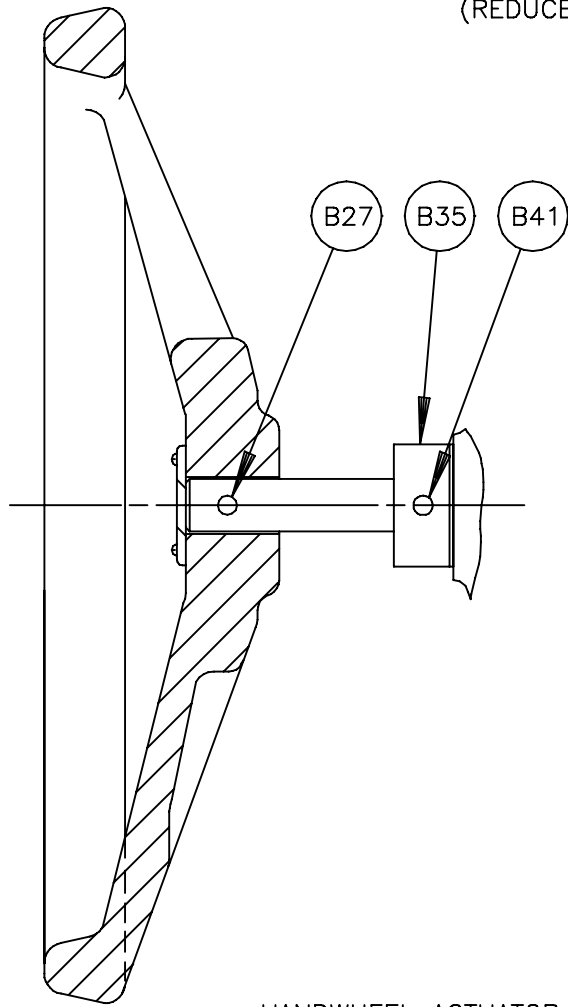
GB-6 AND GB-12 GEAR UNIT FOR SUBMERGED SERVICE
WITH HANDWHEEL AND NUT ACTUATORS

DOCT. CODE	DRAWN	APPROVED
C1	RBA	BOOS
CHECKED	RJP	DATE
		10-30-81

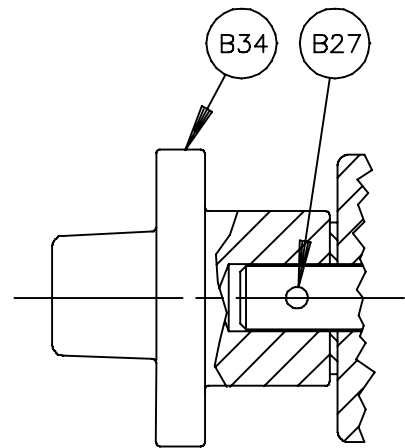
A22555



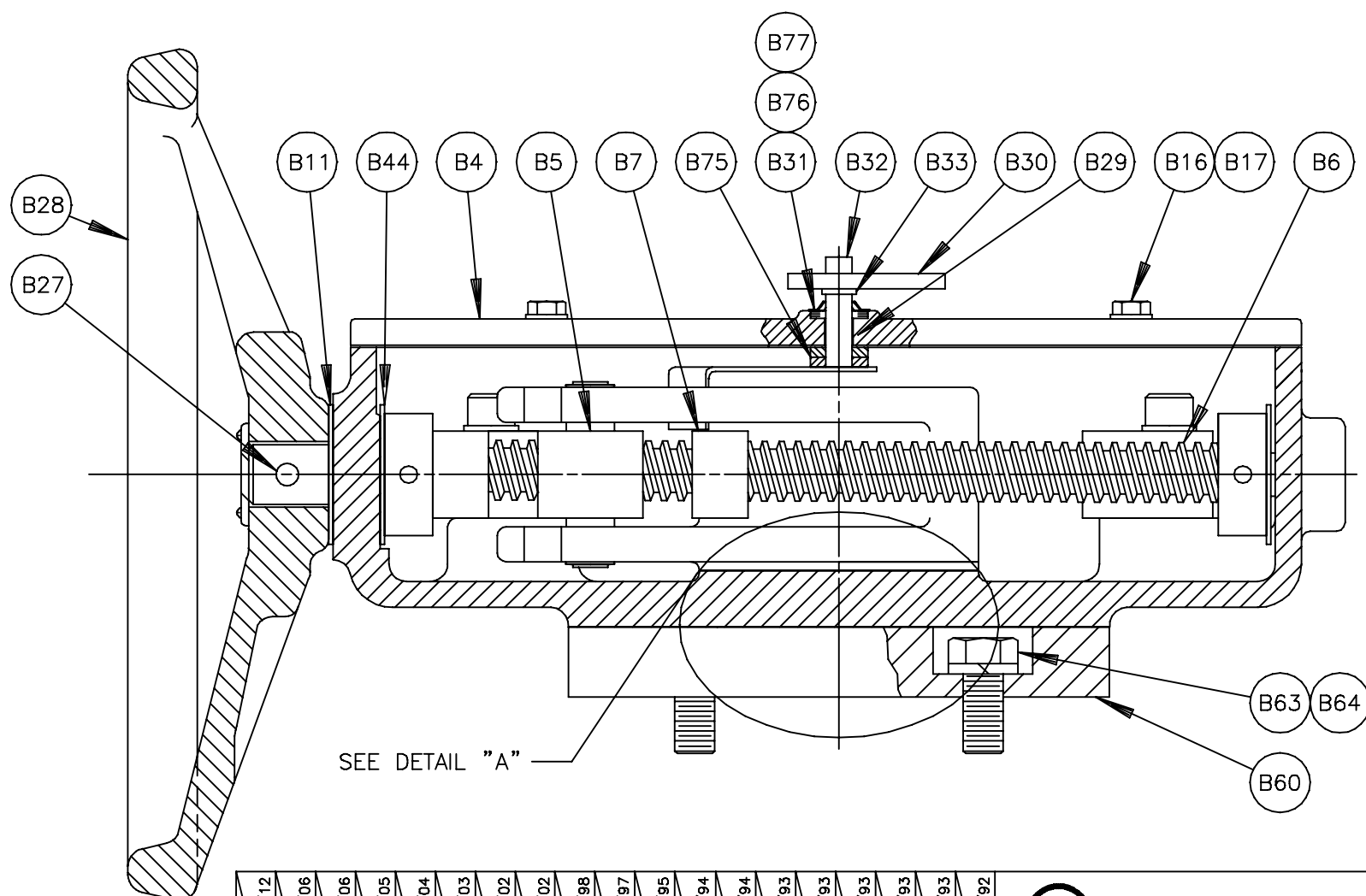
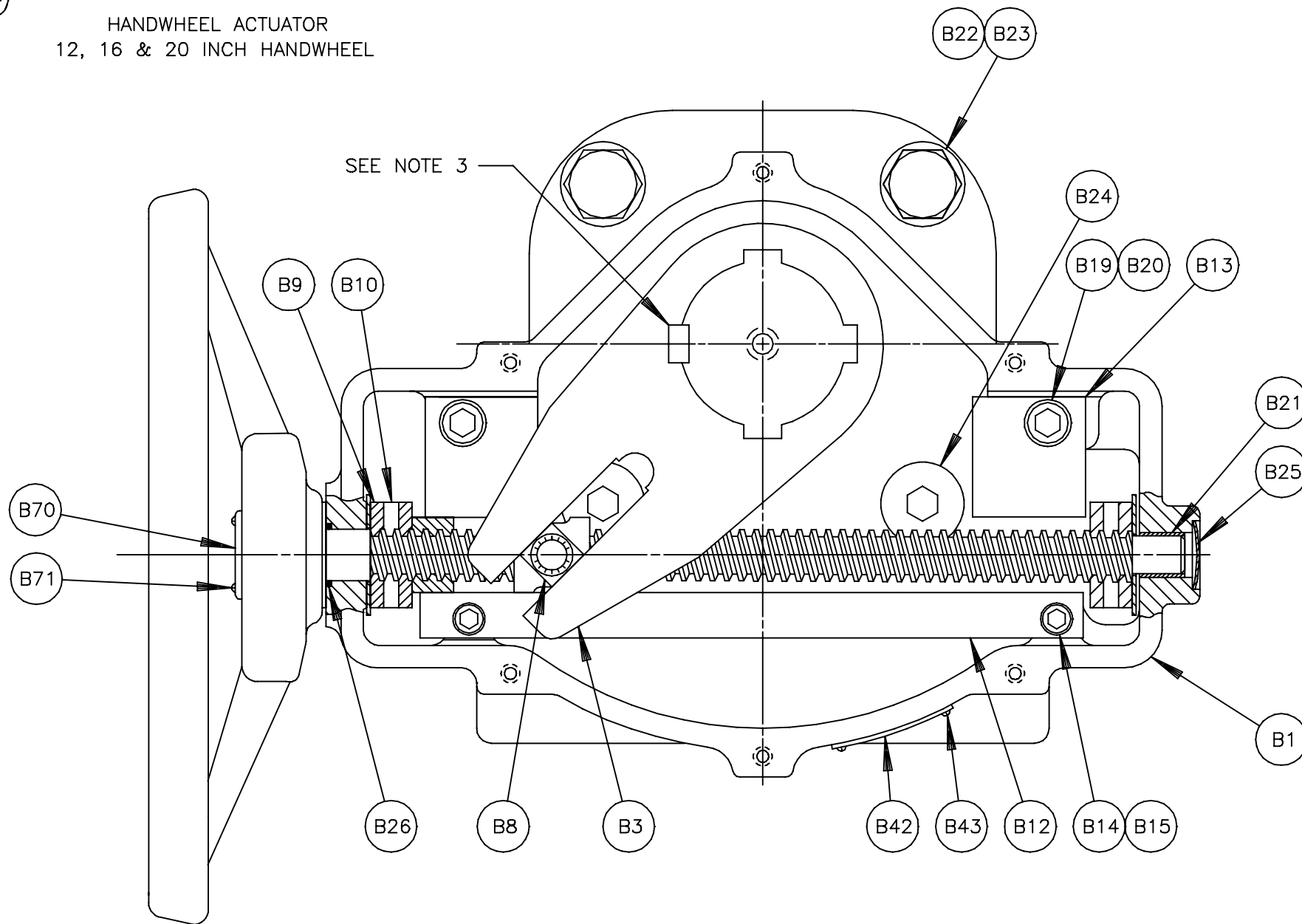
VIEW SHOWING ADAPTOR FAB FOR
24, 28, 30 & 36 VALVES W/ADJUSTABLE PACKING
(REDUCED)



HANDWHEEL ACTUATOR
12, 16 & 20 INCH HANDWHEEL



M-3-N & M-7-N
NUT ACTUATORS

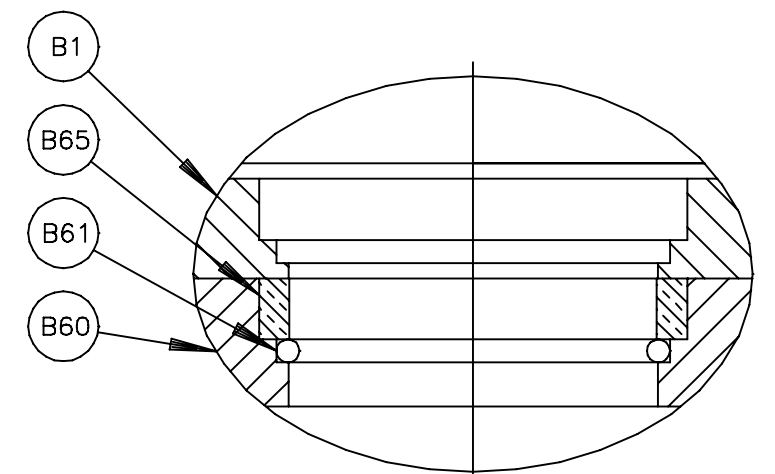


NO	PART NAME	QTY
B60	ADAPTOR (28, 30 & 36 VALVES W/O ADJ PKG OR 24, 28, 30 & 36 VALVES W/ADJ PACKING OR M-7 ACTUATOR ON 3-12 VALVES)	1
B61	O-RING (28, 30 & 36 VALVES)	1
B63	SCREW (24, 28, 30 & 36 VALVES W/ADJ PKG OR M-7 ACTUATOR ON 3-12 VALVES)	4
B64	LOCKWASHER (24, 28, 30 & 36 VALVES W/ADJ PKG OR M-7 ACTUATOR ON 3-12 VALVES)	4
B65	BEARING (28, 30 & 36 VALVES)	1
B70	OPEN TAG (24, 30 & 36 HANDWHEELS ONLY)	1
B71	DRIVE SCREW (24, 30 & 36 HANDWHEELS ONLY)	2
B75	WASHER NYLON (MS-3 ACTUATOR)	2
B75	WASHER NYLON (MS-7 ACTUATOR)	1
B76	WASHER FIBER (MS- ACTUATOR)	1
B77	NUT PUSH-ON (MS- ACTUATOR)	1

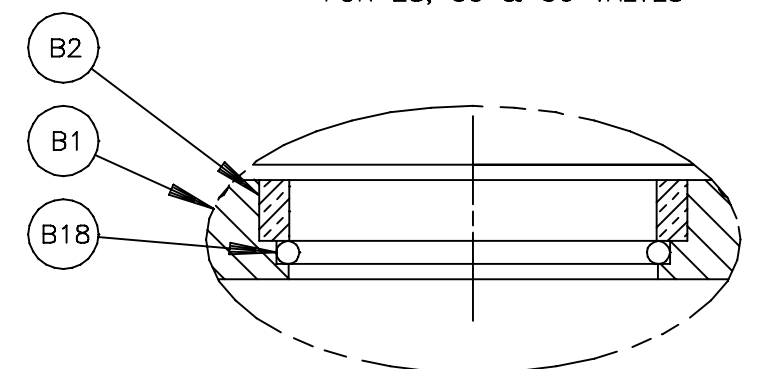
NOTE:

1. WHEN ORDERING PARTS, INCLUDE VALVE SIZE AND PART NUMBER FROM DATA PLATE. ALSO INCLUDE THIS DRAWING NUMBER WITH PART NAME, NUMBER AND QUANTITY.
2. RECOMMENDED SPARE PARTS ARE ITEMS NO B2, B5, B11, B18, B21, B26, B31, B44, B61, B65, B75, B76 AND B77.
3. KEY, ITEM A6 OR A16 IS STOCKED WITH VALVE ASSEMBLY.

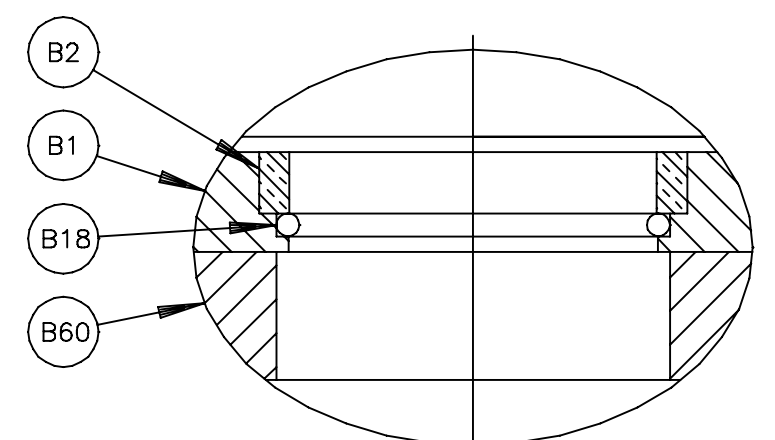
NO	PART NAME	QTY
B1	HOUSING	1
B2	BEARING (EXCEPT 28, 30 & 36 VALVES)	1
B3	YOKE	1
B4	COVER	1
B5	YOKE NUT ASSEMBLY	1
B6	SHAFT	1
B7	STOP NUT	2
B8	BEARING (YOKE NUT ASSEMBLY)	2
B9	COLLAR	2
B10	PIN	4
B11	THRUST WASHER (M-3 ACTUATOR)	3
B11	THRUST WASHER (M-7 ACTUATOR)	2
B12	YOKE GUIDE	1
B13	GUIDE BLOCK (28, 30 & 36 VALVES OR 3-24 VALVES WITH 450 FT/LB ACT'R)	2
B14	SCREW	2
B15	LOCKWASHER	2
B16	SCREW (M-3 ACTUATOR)	4
B16	SCREW (M-7 ACTUATOR)	6
B17	WASHER (M-3 ACTUATOR)	4
B17	WASHER (M-7 ACTUATOR)	6
B18	O-RING (EXCEPT 28, 30 & 36 VALVES)	1
B19	SCREW (28, 30 & 36 VALVES OR 3-24 VALVES WITH 450 FT/LB ACT'R)	2
B20	LOCKWASHER (28, 30 & 36 VALVES OR 3-24 VALVES WITH 450 FT/LB ACT'R)	2
B21	BEARING	1
B22	SCREW (M-3 ACTUATOR)	4
B22	SCREW (M-7 ACTUATOR)	2
B23	LOCKWASHER (M-3 ACTUATOR)	4
B23	LOCKWASHER (M-7 ACTUATOR)	2
B24	SCREW (M-7 ACTUATOR ONLY)	2
B25	EXPANSION PLUG	1
B26	O-RING	1
B27	PIN	1
B28	HANDWHEEL	1
B29	POINTER DRIVER (MS- ACTUATOR)	1
B30	POINTER (MS- ACTUATOR)	1
B31	SEAL (MS- ACTUATOR)	1
B32	SCREW (MS- ACTUATOR)	1
B33	LOCKWASHER (MS- ACTUATOR)	1
B34	WRENCHING SQUARE	1
B35	COLLAR (HDWHL)	1
B41	PIN (HDWHL)	1
B42	DATA PLATE	1
B43	DRIVE SCREW	2
B44	THRUST WASHER (M-7 ACTUATOR)	1
B58		
B59		



DETAIL "A"
FOR 28, 30 & 36 VALVES



DETAIL "A"
FOR 3 - 24 VALVES

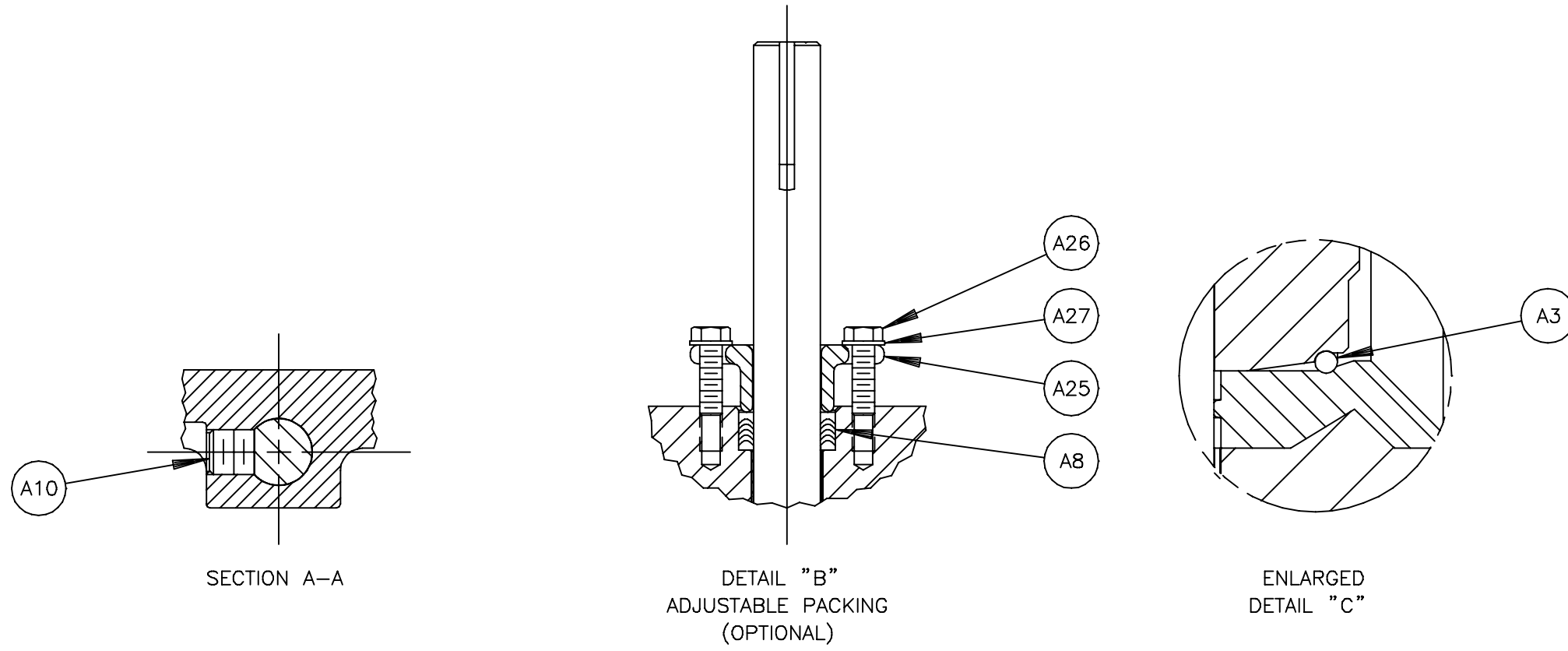


DETAIL "A"
FOR M-7 ACTR ON 3-12 VALVES

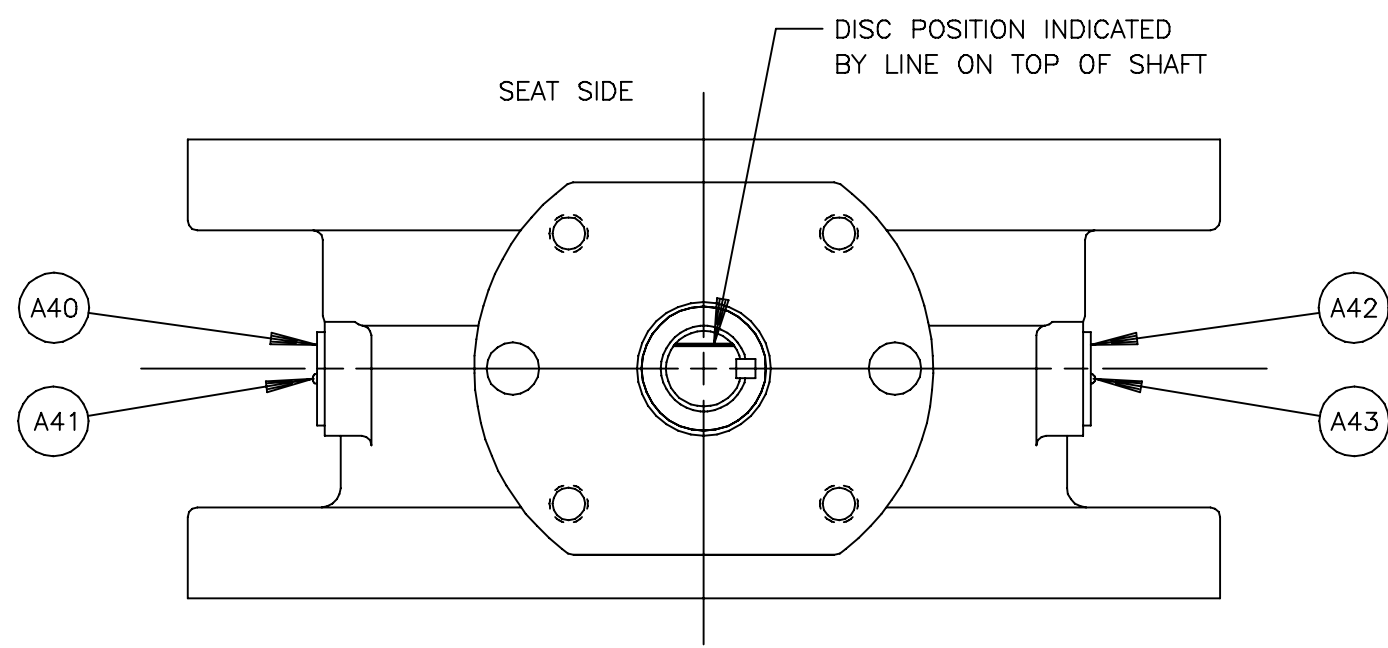
U	62220	03/15/12
T	50312	03/06/06
S	50312	01/18/06
R	61290	03/14/05
Q	61159	02/13/04
P	60992	01/19/03
N	50312	11/18/02
M	60712	02/20/02
L	50312	11/02/98
K	53449	01/06/97
J	53156	07/13/95
H	52951	12/01/94
G	52492	04/25/94
F	50312	06/16/93
E	50312	05/17/93
D	50312	05/11/93
C	50312	04/23/93
B	51744	04/05/93
A	50312	08/27/92

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M-3 & M-7 MANUAL ACTUATOR ASSEMBLY FOR USE WITH AWWA BUTTERFLY VALVES			
DOCT. CODE	DRAWN	SN	APPROVED
C1	CHECKED	TNB	DT
			DATE 05-07-92
			A40104

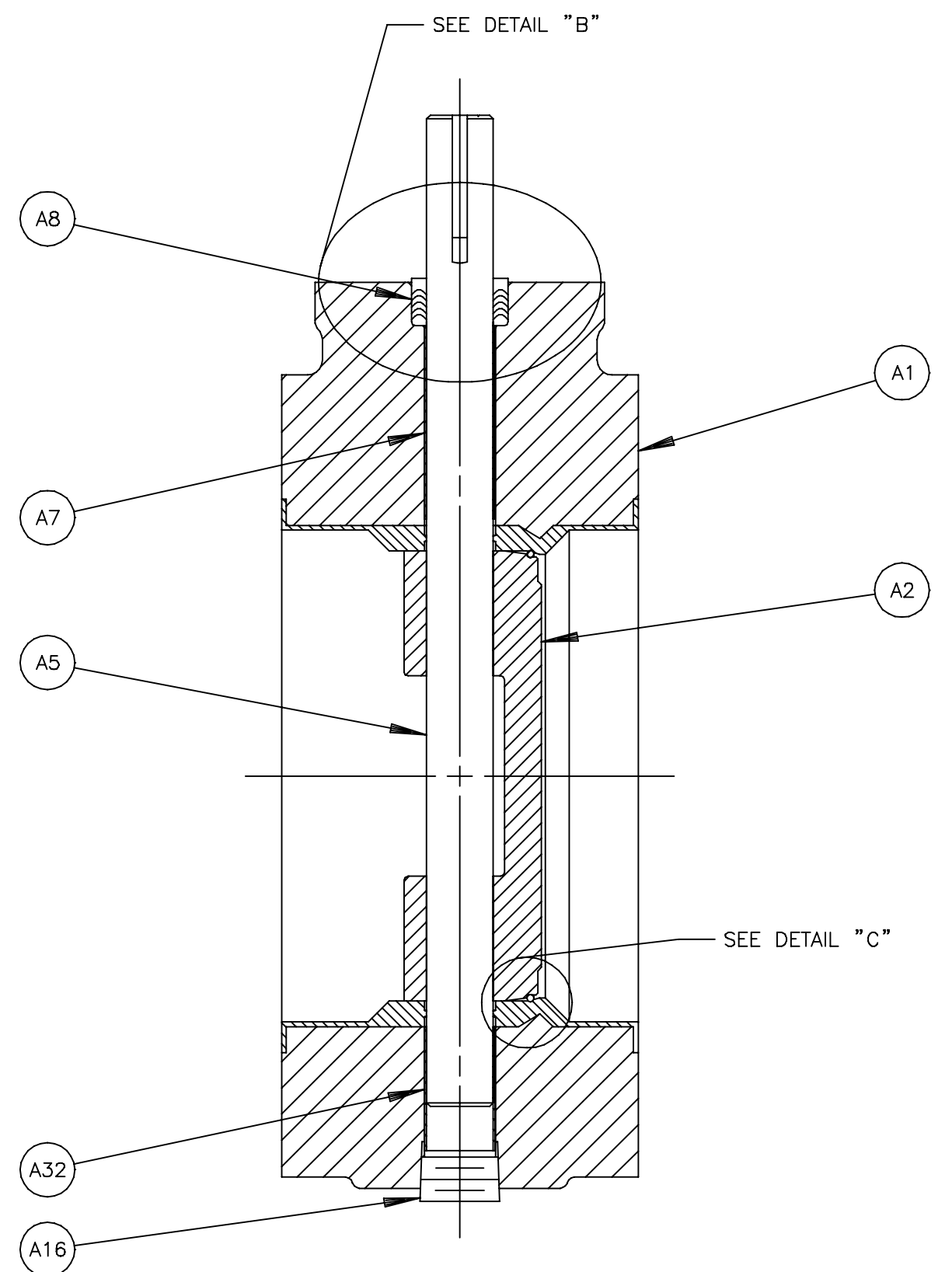
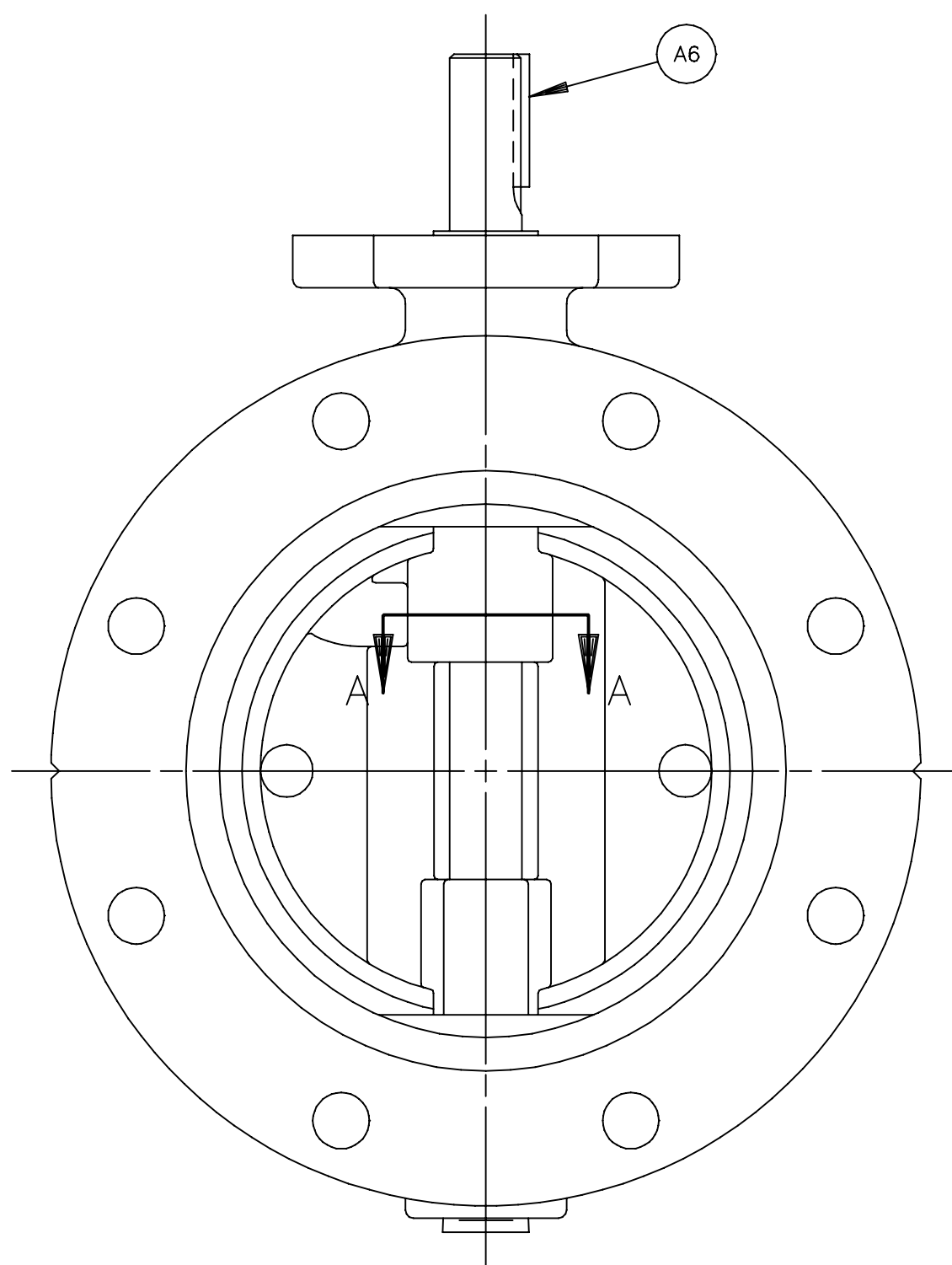


NO	PART NAME	QTY
A1	BODY	1
A2	DISC	1
A3	SEAT RING	1
A4		
A5	SHAFT	1
A6	KEY	1
A7	BEARING (UPPER JOURNAL)	1
A8	PACKING	-
A9		
A10	TORQUE PLUG	1
A11		
A12		
A13		
A14		
A15		
A16	PLUG	1
A25	GLAND	1
A26	SCREW	2
A27	WASHER	2
A32	BEARING (LOWER JOURNAL)	1
A40	VALVE CLASSIFICATION PLATE (WHEN REQ'D)	1
A41	DRIVE SCREW (USED WITH A40)	2
A42	SARTELL VALVES NAME PLATE (WHEN REQ'D)	1
A43	DRIVE SCREW (USED WITH A42)	2



NOTE:

1. WHEN ORDERING PARTS, INCLUDE VALVE SIZE AND PART NUMBER FROM DATA PLATE. ALSO INCLUDE THIS DRAWING NUMBER WITH PART NAME, NUMBER AND QUANTITY.
2. RECOMMENDED SPARE PARTS ARE ITEMS NO A7, A8 AND A32.



				61384	07/14/08		
				61159	02/13/04		
				60772	02/20/02		
G	F	E	D	C	B	A	

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BAW BUTTERFLY VALVES SIZE 3 - 12
FLANGED VALVE ASSEMBLY

DOCT. CODE	DRAWN	KW	APPROVED	WCB
C1	CHECKED	SJJ	DATE	09/11/96

A47525



MATERIALS OF CONSTRUCTION

DRAWING(S): A47525

WORK ORDER: 802489

PART NO: 9434678

DESCRIPTION: BAW,6,F1,CI,NBRN-NBR,150B,CI-S1,1304G0*MS-3-HD8

ITEM	MATERIAL
A01	IRON, ASTM A126, CLASS B
A01	ACRYLONITRILE-BUTADIENE (NBR)
A02	IRON, ASTM A48, CLASS 40C
A03	STAINLESS STEEL, TYPE 316, ASTM A276, CONDITION A
A05	STAINLESS STEEL, TYPE 304, ASTM A276, CONDITION A
A06	STEEL, COLD DRAWN, AISI 1018
A07	NYLON MOLYBDENUM DISULFITE
A08	ACRYLONITRILE-BUTADIENE (NBR)
A10	STAINLESS STEEL, TYPE 316
A16	STEEL CARBON, SAE J403, GRADE 1008 OR 1010
A32	NYLON MOLYBDENUM DISULFITE



MATERIALS OF CONSTRUCTION

DRAWING(S): A47525

WORK ORDER: 802489

PART NO: 9615964

DESCRIPTION: BAW,3,F1,CI,NBRN-NBR,150B,CI-S1,1304G0*MS-3-HD8

ITEM	MATERIAL
A01	ACRYLONITRILE-BUTADIENE (NBR)
A01	IRON, ASTM A126, CLASS B
A02	IRON, ASTM A48, CLASS 40C
A03	STAINLESS STEEL, TYPE 316, ASTM A276, CONDITION A
A05	STAINLESS STEEL, TYPE 304, ASTM A276, CONDITION A
A06	STEEL, COLD DRAWN, AISI 1018
A07	NYLON MOLYBDENUM DISULFITE
A08	ACRYLONITRILE-BUTADIENE (NBR)
A10	STAINLESS STEEL, TYPE 316
A16	STEEL CARBON, SAE J403, GRADE 1008 OR 1010
A32	NYLON MOLYBDENUM DISULFITE



MATERIALS OF CONSTRUCTION

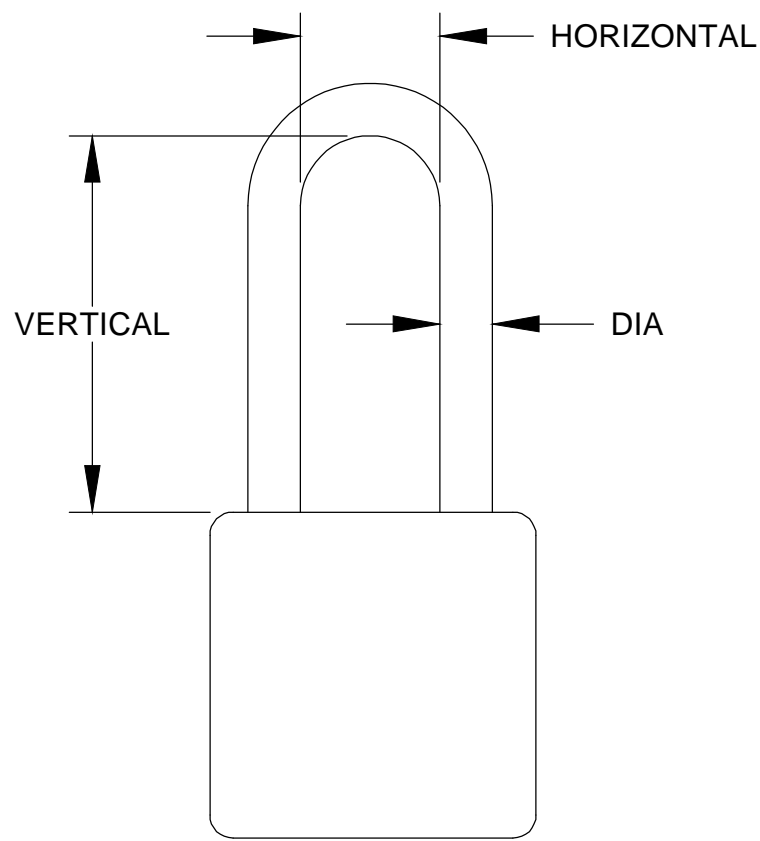
DRAWING(S): A57805

WORK ORDER: 802489

PART NO: 9613500

DESCRIPTION: BOS,6,CL,L1,CI,EPDM,EPDM,DI-S4*LT

ITEM	MATERIAL
A1	CAST IRON, ASTM A126 GRADE B
A2	GLASS BACKED PTFE
A3	EPDM-TERPOLYMER OF ETHYLENE PROPYLENE AND A DIENE
A4	DUCTILE IRON, ASTM A536, 65-45-12, NICKEL PLATED
A5	416 STAINLESS STEEL, ASTM A582
A6	416 STAINLESS STEEL, ASTM A582
A7	GLASS BACKED PTFE
A8	EPDM-TERPOLYMER OF ETHYLENE PROPYLENE AND A DIENE
A11	CARBON STEEL, ZINC PLATED
A12	CARBON STEEL, ZINC PLATED
A15	CARBON STEEL, ZINC PLATED
A16	300 SERIES STAINLESS STEEL
A17	CARBON STEEL
A18	EPDM-TERPOLYMER OF ETHYLENE PROPYLENE AND A DIENE
A19	STAINLESS STEEL, TYPE 316
A20	STAINLESS STEEL, TYPE 18-8

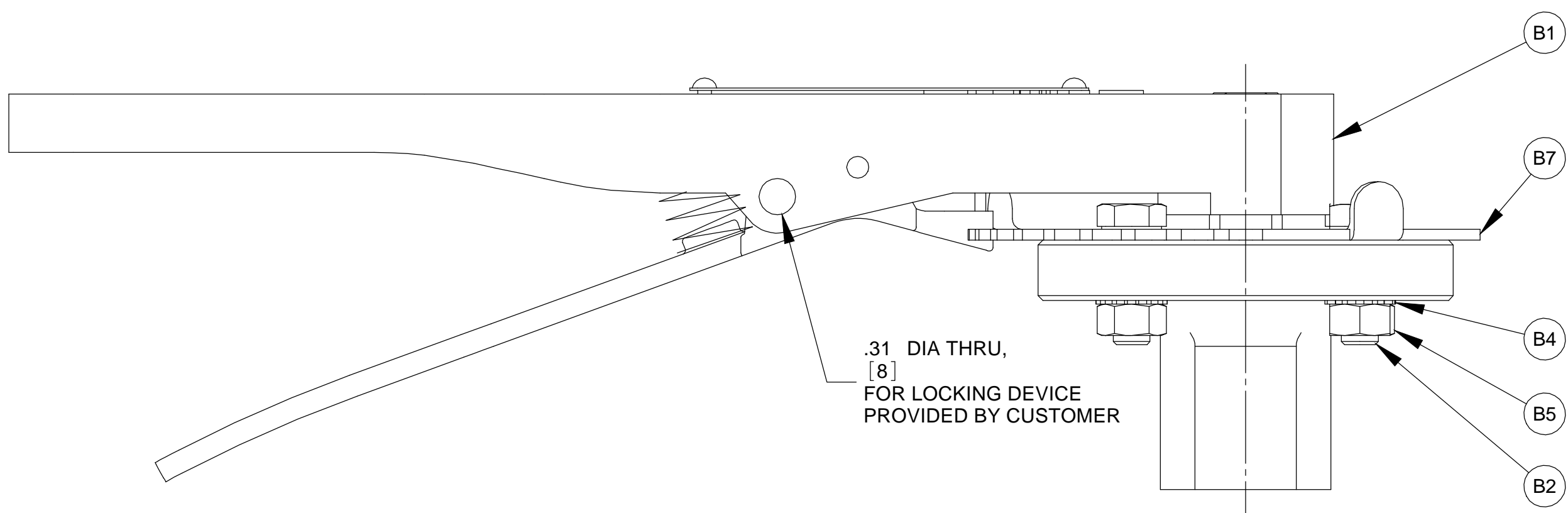
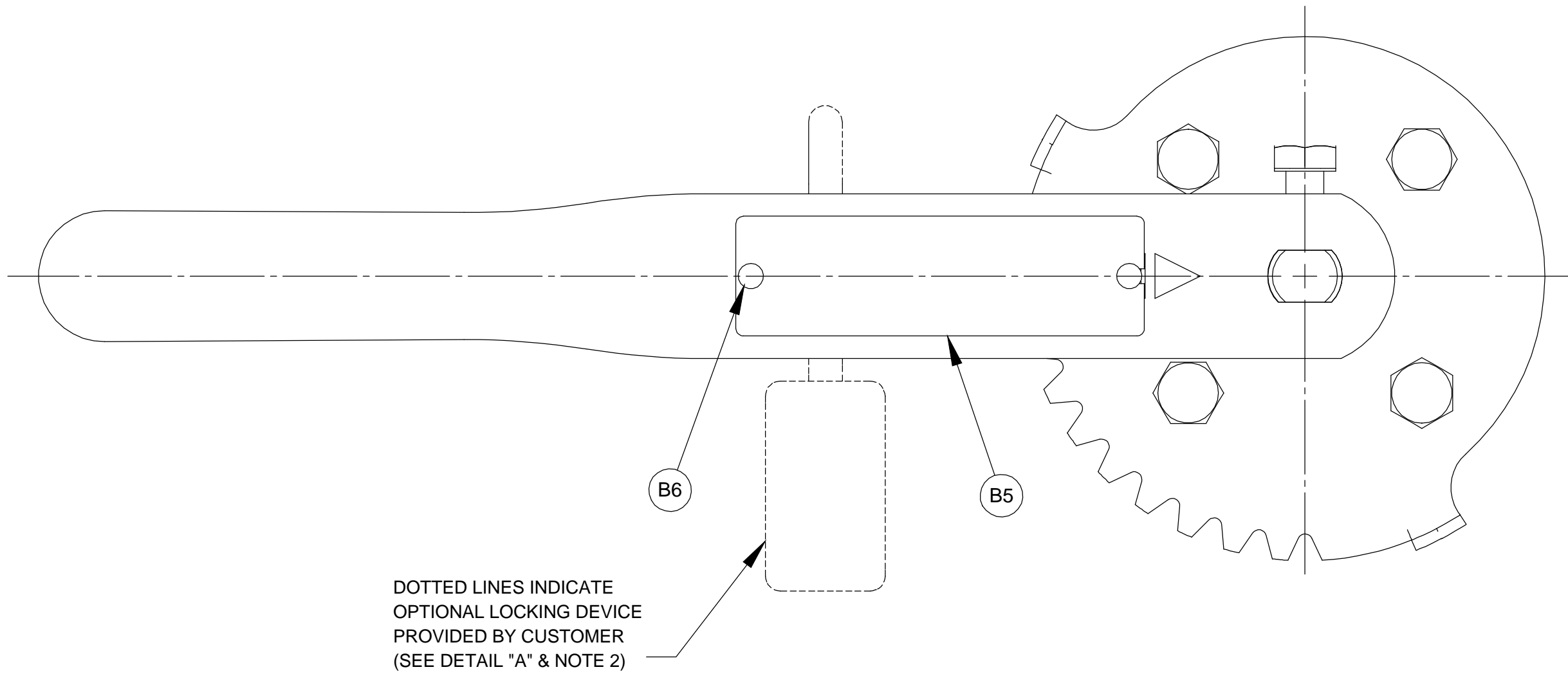


DETAIL "A"
LOCKING DEVICE
PROVIDED BY CUSTOMER
(SEE NOTE 2)

NO	PART NAME	QTY
B1	LEVER KIT	1
B2	SCREW	1
B3	NUT	4
B4	LOCKWASHER	4
B5	DATA PLATE	1
B6	DRIVE SCREW	2
B7	DIAL	1

NOTE:

1. WHEN ORDERING PARTS, INCLUDE VALVE SIZE AND PART NUMBER FROM DATA PLATE. ALSO INCLUDE THIS DRAWING NUMBER WITH PART NAME, NUMBER AND QUANTITY.
2. LEVER WILL USE A .28[7] DIA X 2.00[51] VERTICAL X .81[21] HORIZONTAL ADJUSTABLE SHACKLE PADLOCK. DIMENSIONS ARE IN THE LOCKED POSITION.



G	F	E	D	C	B	A
						61928 5/13/10

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LT 10 POSITION LEVER ACTUATOR WITH LK LOCKING OPTION
FUW BOS-CL BUTTERFLY VALVES

DOCT. CODE	DRAWN	SN	APPROVED
C1	CEG		CEG
CHECKED	DATE		
CEG	12/18/08		

A57859



RECOMMENDED LONG AND SHORT TERM STORAGE PROCEDURES

LONG-TERM STORAGE

1. All resilient seated valves shall be stored in the open (unseated) position.
2. All valves with adjustable packing glands should have the packing gland loosened prior to storage.
3. Valves shall be separately packaged in a sealed polyethylene plastic enclosure with a minimum of one package of desiccant inside, dependent upon valve size.
4. Prepared valves shall be warehoused in a clean, dry, indoor facility on concrete or raised racks, with temperature ranging from 35°F to 95°F (2°C to 35°C).
5. Valves shall not be near electric motors or other equipment which may emit Ozone which can cause deterioration of elastomers used for valve and actuator components.
6. The valves shall be inspected periodically to replace the desiccant if required, and to repair any damage to the polyethylene plastic enclosures.
7. Valves with cylinder operators and control valves which are stored for extended periods may be subject to cylinder blow-by caused by permanent distortion of any of the seals. Valves should be operated prior to installation and damaged seals replaced.
8. Valves with electric motor operators shall be stored in accordance with the individual motor manufacturer's recommended long-term storage procedures in addition to Paragraphs 1, 2 and 3 above.
9. All electrical components, if applicable, should be inspected and all electrical contacts cleaned before operation.
10. Valves shall be enclosed in fully sheathed wooden crates or boxes.

SHORT-TERM STORAGE

1. Valve should be protected from the weather, avoid exposure to excessive moisture or dirt. Store at temperatures ranging from 35°F to 95°F (2°C to 35°C).