



SERIES 1800

HEAVY GLOBE CONTROL VALVES

TABLE OF CONTENTS

Overview	Cover
Valve Identification	2
Information Present on Valve.....	3-4
Body vs. Application.....	5
Dimensions & Weights.....	6-7
Installation	8-9
Maintenance	10
Packing Adjustment.....	10
Parts/Overhaul	10
Parts Kits	11-15
Drawings.....	16-23

1800_IOM_RevBa_0721



PRODUCT OVERVIEW

This document covers the installation, operation and maintenance of the Series 1800 Heavy Globe Control Valves presented in the "Series 1800 Product Specification", including the 1840 Two-Way Single Seat Unbalanced Valve, the 1843 Two-Way Single Seat Cylinder Balanced Valve, the 1850 Three-Way Mixing/ Diverting Valve, and the 1852 Three-Way Diverting/ Mixing Valve. Warren Controls Series 1800 Heavy Globe Control Valves feature rugged high capacity bodies of iron, steel, or stainless steel with a variety of trim materials and

port sizes. The equal percentage and linear plugs in the 2-way valves and linear plugs in the 3-way valves provide excellent modulating control of a wide variety of fluids. The Series 1800 is ideally suited where value and long life are important objectives for applications including but not limited to the Chemical, District Energy, Food & Beverage, General Service, Marine, Power, and Refining industries with temperatures from -20 to 800°F, severe service, high pressure drops, and corrosive fluids.

GENERAL INFORMATION

The instructions given herein cover generally the operation and maintenance of subject equipment. Should any questions arise which may not be answered specifically by these instructions, they should be referred to Warren Controls Inc. for further detailed information and technical assistance. This manual cannot possibly cover every situation connected with the operation, adjustment, inspection, test, overhaul and maintenance of the equipment furnished. Every effort is made to prepare the text of this manual so that engineering and design data is transformed into the most easily understood wording. Warren Controls Inc., in furnishing this equipment and this manual, must presume that the operation and

maintenance personnel assigned thereto have sufficient technical knowledge and experience to apply sound safety and operational practices which may not be covered herein. In applications where Warren Controls Inc. furnished equipment is to be integrated with a process or other machinery, these instructions should be thoroughly reviewed to determine the proper integration of the equipment into the overall plant operational procedures. Warren Controls does not assume responsibility for the selection, use, or maintenance of any product. Responsibility for proper selection, use, and maintenance of any Warren Controls product remains solely with the purchaser and end-user.

ACTUATORS AND ACCESSORIES

Series 1800 Heavy Globe Control Valves are available with a variety of actuators and accessories. These actuators and accessories have separate instructions. For complete control valve installation,

operation, and maintenance instructions see also the instructions for the actuator and accessories in use.

VALVE IDENTIFICATION

To use these instructions it is necessary to identify the configuration of the valve. Factory assembled control valves have a nameplate mounted on the actuator. The valve's part number (P/N) is present on the plate. The part number represents the configuration of the control valve. To identify the valve's type, size, actuator, accessories, and other characteristics decode the part number using configuration

table. If the information is incomplete, incorrect, or not present contact the factory with the valve serial number listed on the plate. (See **Information Present on Control Valves** section for location of part number, serial number, and other important information on valve.)

VALVE BODY										
Model	Valve Type	Size	Body Material	End Conn.	Trim Style	Trim Material	Trim Cv	Packing Type	Bonnet Construction	
18H 2" - 4" Bodies Diaphragm: 84" or 115" Cylinder: 6" or 8"	40 2-Way, Single Seat	050 1/2 inch 075 3/4 inch	W WCB F CF8M	F 125/150 lb. Flanged	E Equal % L Linear	S 316 SS 6 Alloy 6 Wrapped	F Full Port 1 1st Port Reduction 2 2nd Port Reduction 3 3rd Port Reduction	T Teflon G Graphite	S 450 Tmax G Graphalloy Bearings w/Ext Bonnet L Nickel Based Graphalloy w/Ext Bonnet 7 Oxidation Resistant Graphalloy Bearings w/Ext Bonnet	
	43 2-Way, Cage Balanced	100 1 inch 150 1-1/2 inch	R Cast Iron Cast Iron only avail. on 6"-10" 40, 6"-12" 43, 6"-12" 50, 6"-12" 52	G 250/300 lb. Flanged	Types 50/52 Linear Only					
	50 3-Way Mixing 52 3-Way Diverting	200 2 inch 250 2-1/2 inch 300 3 inch 400 4 inch								
18K 1/2" - 1 1/2" Bodies Diaphragm: 84"		600 6 inch 800 8 inch 010 10 inch 012 12 inch								

ACTUATOR				ACCESSORIES						
Actuator Series	Action	Spring Range	Hand-wheel	Positioners, I/P's & Limit Switches	X digit spec.	Air Filter Regulators	ASCO Solenoids	Special Options		
00 None DIAPHRAGMS:	0 None R Reverse Stem Fail Down	0 None or Cylinder L Low 3-9 psi R/D F Full 3-15 psi R/D H High 9-15 psi R/D X Xtra-High DL84XR & DL115XR	0 None R Reverse D Direct <i>Note: DL84; DL84XR; DL115 & DL115XR only- Must match action.</i>	0000 None POSITIONERS: 2xP BLX Pneumatic 2xE BLX ElectroPneumatic 2xI BLX ElectroPneu. Intrn. Safe 2xX BLX ElectroPneu. Exp. Proof 2xF BLX ElectroPneu. Fail Freeze 76P Moore760 Pneumatic 76E Moore 760 Electro-Pneumatic TOZO ABB TZIDC 4-20mA * THN ABB TZIDC 4-20mA w/HART Intrn. Safe & Non-Incend * TPN ABB TZIDC PROFIBUS PA Intrn. Safe & Non-Incend. TFN ABB TZIDC FOUNDATION Fieldbus Intrn. Safe & Non-Incend. THX ABB TZIDC 4-20mA w/HART Exp. Proof * TPX ABB TZIDC PROFIBUS PA Exp. Proof TFX ABB TZIDC FOUNDATION Fieldbus Exp. Proof PROXIMITY SWITCHES: PX11 Mark 1 Series-2 ea. SPDT PX12 Mark 1 Series-2 ea. SPDT w/2k Pot. PX13 Mark 1 Series-2 ea. SPDT w/4-20 Feedback PX14 Mark 1 Series-4 ea. SPDT PX15 Mark 1 Series-6 ea. SPDT I/P's - Use with Diaphragm Only MAP1 Type 500X I/P, 3-9 PSI MAP2 Type 500X I/P, 9-15 PSI MAP3 Type 500X I/P, 3-15 PSI MAP4 Type 500X I/P, 1-17 PSI MAP5 Type 500X I/P, 6-30 PSI MAP6 Type 550X I/P, 0-30 PSI MAP7 Type 550X I/P, 0-60 PSI-for 15 or 5X Only MAP9 Type 950X I/P, 3-15 EXP	0 Full Range Signal, 3-15 PSI or 4-20mA (Factory Default) L Low of Split Range, 3-9 PSI or 4-12mA H High of Split Range, 9-15 PSI or 20mA 4th digit spec. 0 No Additions F w/4-20 Feedback B w/Swtch's & Feedbck <i>NOTE: L, F, B not available for 2xI, 2xX.</i> 4th digit spec. Individual Options 0 No Additions F w/4-20 Feedback Module (4-20mA w/HART Models ONLY) K w/Digital Position Feedback Module (4-20mA w/HART Models ONLY) L w/24VDC/AC Micro-Switch's (Exp. Proof Models ONLY) P w/Proximity Switch's NC Option Combinations (For 4-20mA w/HART Models Only) A = F & K B = F & L (Exp. Proof Mod. ONLY) C = F & P E = K & L (Exp. Proof Mod. ONLY) G = K & P J = F & K & L (Exp. Proof Mod. ONLY) M = F & K & P <i>See Actuators, Positioners, & Accessories - Section of Product Specification for details.</i>	0 None A Type 300 0-30 PSI B Type 300 0-60 PSI C Type 300 0-120 PSI D Type 350SS 0-100 PSI	0 None A 8320G184 3-Way Brass B 8320G202 3-Way SS J 8342G1 4-Way Brass K 8342G701 4-Way SS L EF8320G184 3-Way EXP Br. M EF8320G202 3-Way EXP SS V EF8342G1 4-Way EXP Br. W EF8342G701 4-Way EXP SS 24 Vdc Coils: Y EF8320G184 Explosion Proof 3-Way Brass Z 8320G184 3-Way Brass 4 EF8320G202 24VDC Coil 3-Way EXP SS 24 Vac Coils: 3 8320G184 24 VAC Coil 3-Way Brass	0 None S Special Opts or Set-Up T SS Tubing G SS Tagging B SS Tubing & Tagging		

FAILURE MODES:

MODE	VALVE TYPE	ACTUATOR ACTION
Closed	40/43	Reverse
Open	40/43	Direct
Upper Closed*	50/52	Direct
Upper Open	50/52	Reverse

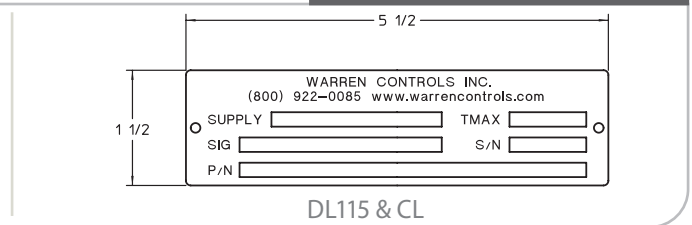
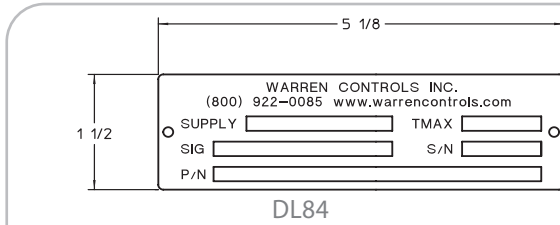
*Standard

INFORMATION PRESENT ON CONTROL VALVES

There is a great deal of information present on each control valve ranging in importance from the part number and serial number to the color of the paint and casting numbers. This information is important for identifying the valve, installing it correctly, and obtaining parts. Examples of the current factory nameplates and flow arrow plates used on Series 1800 control valves are shown here.

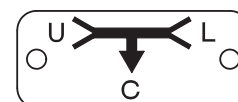
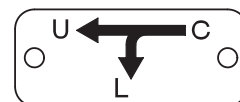
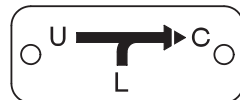
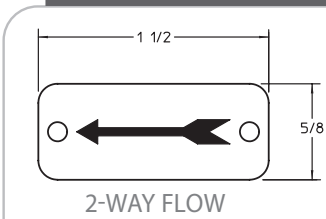
The accompanying table identifies the information present and where to find it on the control valve. There may also be other casting numbers and foundry marks present that do not provide useful information. Customer specific tagging may also present. The plates used, and information present, on Warren Controls other product lines or older valves may be different, contact the factory for details.

ACTUATOR NAMEPLATES

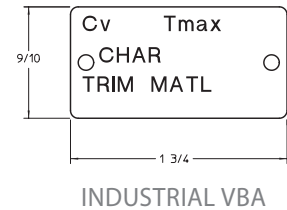


INFORMATION PRESENT ON CONTROL VALVE

FLOW ARROW PLATES



VBA NAMEPLATES



PART NUMBER & SERIAL NUMBER

Information	Symbol(s)	Location	Notes
Part number (Configuration)	P/N	On actuator	• On Actuator Nameplate attached to leg(s) of actuator.
Serial number	S/N	On actuator and valve body	• On Actuator Nameplate attached to leg(s) of actuator. • Sales order number only stamped on top of valve body bonnet.* * Number stamped using approximately 1/8 inch tall characters

FLOW DIRECTION(S)

Information	Symbol(s)	Location	Notes
Flow direction through valve		On valve body	• On Flow Arrow Plate attached to valve body bottom port flange (1800 3-way) between the end connections. • Arrow cast on valve body between the end connections (1800 2-way).
Port locations for 3-way valves	U upper port, L lower port, C common port	On valve body	• On Flow Arrow Plate attached to valve body bottom port flange (1800 3-way) between the end connections.

INPUT SIGNAL & SUPPLY

Information	Symbol(s)	Location	Notes
Input signal	SIG	On actuator	• On Actuator Nameplate attached to leg(s) of actuator.
Supply pressure	SUP or SUPPLY	On actuator	• On Actuator Nameplate attached to leg(s) of actuator.

VALVE ATTRIBUTES

Information	Symbol(s)	Location	Notes
Max temp. rating of valve body	TMAX or Tmax	On actuator and valve body	• On Actuator Nameplate attached to leg(s) of actuator. • On Industrial VBA Nameplate attached to valve body bonnet flange between the end connections on side opposite flow arrow plate.
Trim Cv (Flow coefficient)	Cv	On valve body	• On Industrial VBA Nameplate attached to valve body bonnet flange between the end connections on side opposite flow arrow plate.
Trim style (Characteristic)	CHAR	On valve body	• On Industrial VBA Nameplate attached to valve body bonnet flange between the end connections on side opposite flow arrow plate.
Trim material	TRIM MATL	On valve body	• On Industrial VBA Nameplate attached to valve body bonnet flange between the end connections on side opposite flow arrow plate.
Valve body material		On valve body	• If the factory applied paint is black the valve body material is iron. If WCB is cast on the valve, and or the factory applied paint is gray, the valve body material is steel. If CF8M is cast on the valve the valve body material is 316 stainless steel.

BODY STYLE VERSUS APPLICATION

2-WAY VALVES

(Control of Liquids, Gases, and Steam)

1840 2-Way Single Seat Unbalanced Valve

The most commonly applied solution with ANSI Class IV shut-off.

Sizes:	6, 8, 10, 12 inch (See 5840 for smaller sizes)
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange (6 thru 10) WCB Steel or CF8M Stainless Steel 150LB Flange or 300LB Flange (6 thru 12)
Trim:	EQ% or Linear, 316 Stainless Steel or Alloy 6
Packing:	TFE V-Ring, Spring Loaded (+32 to 450°F) Adjustable Graphite (+32 to 500°F) Adjustable Graphite w/Extension Bonnet (+32 to 800°F)
Temperature:	+32 to 350°F (125 FLG) +32 to 400°F (250 FLG) +32 to 800°F (150 or 300 FLG)
Rangeability:	50:1



Flow direction is reversed when used with Cylinder Actuator Fail Closed.

1843 2-Way Single Seat Cylinder Balanced Valve

A balanced valve that is an effective solution for higher pressures. It requires less force to operate than unbalanced valves so smaller actuators can be used. Its single seat o-ring seal design facilitates ANSI Class IV shut-off. It is limited to cleaner fluids.

Sizes:	6, 8, 10, 12 inch (See 5843 for smaller sizes)
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange WCB Steel or CF8M Stainless Steel 150LB Flange or 300LB Flange
Trim:	EQ% or Linear, 316 Stainless Steel or Alloy 6
Packing:	TFE V-Ring, Spring Loaded (+32 to 450°F) Adjustable Graphite (+32 to 500°F)
O-Ring:	Fluoraz 797
Temperature:	+32 to 350°F (125 FLG) +32 to 400°F (250 FLG) +32 to 500°F (150 or 300 FLG)
Rangeability:	50:1



Flow direction is reversed when used with Cylinder Actuator Fail Closed.

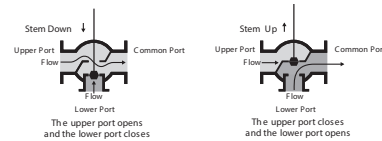
3-WAY VALVES

(Control of Liquids)

1850 3-Way Mixing Valve

This valve has two inlets and one outlet, and is the simplest solution for mixing or bypass applications with ANSI Class IV shut-off. In normal applications the inlet pressures are near equal and control is possible from 5% to 95% of travel with inlet pressures up to 300 PSI. In the 1/2 through 2 inch sizes, the flow can be reversed for diverting if this port configuration is desirable.

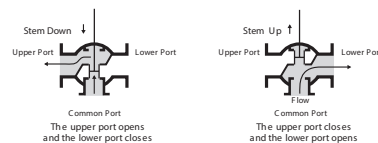
Sizes:	1/2, 3/4, 1, 1-1/2, 2, 2-1/2, 3, 4, 6, 8, 10, 12 inch
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange (8 thru 12) WCB Steel or CF8M Stainless Steel 150LB Flange or 300LB Flange (1/2 thru 12)
Trim:	Linear, 316 Stainless Steel
Packing:	TFE V-Ring, Spring Loaded (+32 to 450°F) Adjustable Graphite (+32 to 500°F) Adjustable Graphite w/Extension Bonnet (+32 to 800°F)
Temperature:	+32 to 350°F (125 FLG) +32 to 400°F (250 FLG) +32 to 800°F (150 or 300 FLG)
Rangeability:	30:1 (sizes 1/2 thru 2) 50:1 (sizes 2-1/2 thru 12)



1852 3-Way Diverting/Mixing Valve

Designed as a diverting valve with one inlet and two outlets with ANSI Class II shut-off. However, flow can be reversed for mixing if this port configuration is desirable. The difference between the upper port and lower port pressure **must not** exceed 50PSID.

Sizes:	2-1/2, 3, 4, 6, 8, 10, 12 inch
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange (8 thru 12) WCB Steel or CF8M Stainless Steel 150LB Flange or 300LB Flange (2-1/2 thru 12)
Trim:	Linear, 316 Stainless Steel or Alloy 6
Packing:	TFE V-Ring, Spring Loaded (+32 to 450°F) Adjustable Graphite (+32 to 500°F)
O-Ring:	Fluoraz 797 (2-1/2 thru 4) EPR (6 thru 12)
Temperature:	+32 to 150°F (125 or 250 FLG, 8 thru 12) +32 to 500°F (150 or 300 FLG, 2-1/2 thru 4) +32 to 150°F (150 or 300 FLG, 6 thru 12)
Rangeability:	50:1



PERFORMANCE/LIMITS

FLUID TEMPERATURE LIMITS						
Valve Type	Body Material & Code	End Connection & Code	Packing Type Code	Bonnet Construction & Code	T MAX	T MIN
40 2-Way Single Seat	WCB W , CF8M F	150 lb F , 300 lb G	Teflon T	Standard S	450°F	60°F
	WCB W , CF8M F	150 lb F , 300 lb G	Graphite G	Standard S	500°F	-20°F
	WCB W , CF8M F	150 lb F , 300 lb G	Graphite G	Ext. Bonnet X	800°F	-20°F
	Cast Iron R	125 lb F	Teflon T	Standard S	350°F	60°F
	Cast Iron R	125 lb F	Graphite G	Standard S	350°F	-20°F
	Cast Iron R	250 lb G	Teflon T	Standard S	400°F	60°F
43 2-Way Cage-Balanced w/Fluoraz 797 O-Ring	WCB W , CF8M F	150 lb F , 300 lb G	Teflon T	Standard S	450°F	60°F
	WCB W , CF8M F	150 lb F , 300 lb G	Graphite G	Standard S	450°F	23°F
	Cast Iron R	125 lb F	Teflon T	Standard S	350°F	60°F
	Cast Iron R	125 lb F	Graphite G	Standard S	350°F	23°F
	Cast Iron R	250 lb G	Teflon T	Standard S	400°F	60°F
	Cast Iron R	250 lb G	Graphite G	Standard S	400°F	23°F
50 3-Way Mixing	WCB W , CF8M F	150 lb F , 300 lb G	Teflon T	Standard S	450°F	60°F
	WCB W , CF8M F	150 lb F , 300 lb G	Graphite G	Standard S	500°F	-20°F
	WCB W , CF8M F	150 lb F , 300 lb G	Graphite G	Ext. Bonnet X	800°F	-20°F
	Cast Iron R	125 lb F	Teflon T	Standard S	350°F	60°F
	Cast Iron R	125 lb F	Graphite G	Standard S	350°F	-20°F
	Cast Iron R	250 lb G	Teflon T	Standard S	400°F	60°F
52 3-Way Divet. (2-1/2" - 4") w/Flz. 797 O-Ring Seal	WCB W , CF8M F	150 lb F , 300 lb G	Teflon T	Standard S	450°F	60°F
	WCB W , CF8M F	150 lb F , 300 lb G	Graphite G	Standard S	450°F	23°F
	WCB W , CF8M F	150 lb F , 300 lb G	Teflon T	Standard S	150°F	60°F
	WCB W , CF8M F	150 lb F , 300 lb G	Graphite G	Standard S	150°F	-20°F
52 3-Way Divet. (6" - 12") w/EPR OCT O-Ring	Cast Iron R	125 lb F , 250 lb G	Teflon T	Standard S	150°F	60°F
	Cast Iron R	125 lb F , 250 lb G	Graphite G	Standard S	150°F	-20°F
	Cast Iron R	125 lb F , 250 lb G	Teflon T	Standard S	150°F	60°F
	Cast Iron R	125 lb F , 250 lb G	Graphite G	Standard S	150°F	-20°F

NOTE: -20°F T MIN temperature limit is for indoor applications with low humidity where ice will not form on the stem.

BODY PRESSURE-TEMPERATURE RATINGS:

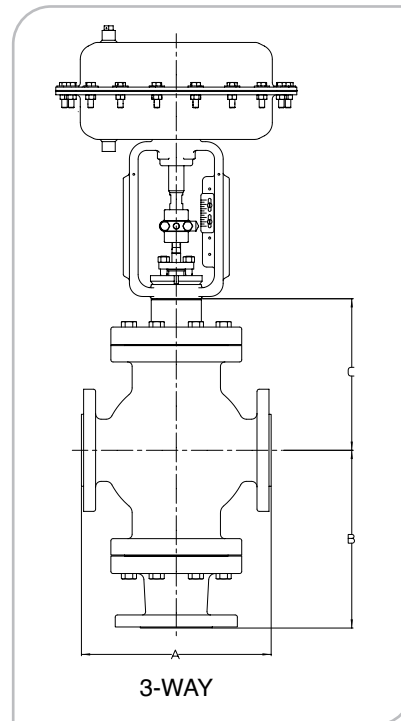
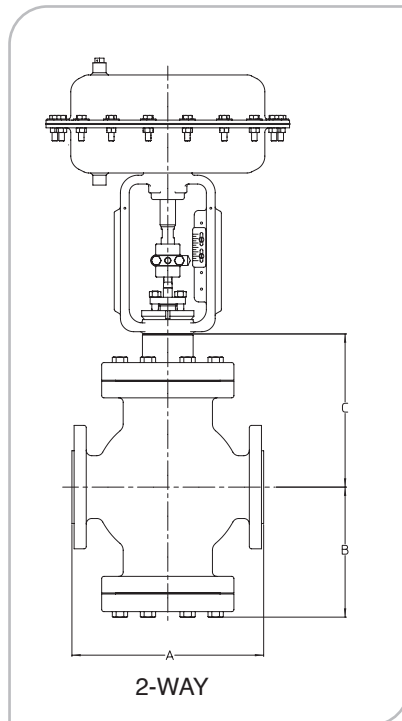
Temp. (F)	125 FLG Iron	250 FLG Iron	150 FLG Steel	300 FLG Steel	150 FLG St Steel	300 FLG St Steel
+32° To 100°	175	400	285	740	275	720
150°	175	400	272	710	255	670
175°	170	385	266	695	245	645
200°	165	370	260	680	235	620
225°	155	355	252	673	230	605
250°	150	340	245	667	225	590
275°	145	325	237	661	220	575
300°	140	310	230	655	215	560
325°	130	295	222	650	210	548
350°	125	280	215	645	205	537
375°	-	265	207	640	200	526
400°	-	250	200	635	195	515
450°	-	-	185	620	182	497
500°	-	-	170	605	170	480
550°	-	-	155	587	155	465
600°	-	-	140	570	140	450
650°	-	-	125	550	125	440
700°	-	-	110	530	110	435
750°	-	-	95	505	95	425
800°	-	-	80	410	80	420

Pressure ratings are PSIG

For applications below 32° consult factory

TRIM MATERIALS	FLOWING DIFFERENTIAL PRESSURE LIMIT
316 Stainless Steel	100 PSID
Alloy 6	300 PSID

DIMENSIONS & WEIGHTS



Valves shown with DL84 Actuator as typical.

For additional actuator information see [Series 1800 Product Specification](#) and the [Installation Operation and Maintenance Instructions](#) for the actuator in use.

DIMENSIONS & WEIGHTS

1840 2-way

DIMENSION (IN) 1840		VALVE SIZE (IN)			
		6	8	10	12
A	125 or 150FLG	17-3/4	21-3/8	26-1/2	29
	250 or 300FLG	18-5/8	22-3/8	27-7/8	30-1/2
B		11-7/8	13-3/4	15-1/4	15-1/4
C	Standard	13-7/8	15-1/4	16-1/8	17
	Extension Bonnet	17-5/8	CF	CF	CF
Weight (LB)	Standard	390	650	1160	CF
	Extension Bonnet	400	CF	CF	CF

1843 2-way

DIMENSION (IN) 1843		VALVE SIZE (IN)			
		6	8	10	12
A	125 or 150FLG	17-3/4	21-3/8	26-1/2	29
	250 or 300FLG	18-5/8	22-3/8	27-7/8	30-1/2
B		11-7/8	13-3/4	15-1/4	15-1/4
C		14-1/2	15-7/8	16-3/4	17-3/4
Weight (LB)		455	760	1360	CF

Face to face dimensions conform to ANSI/ISA S75.03

CF = Consult factory

Actual Shipping Weights May Vary

1850 3-way

DIMENSION (IN) 1850		VALVE SIZE (IN)											
		1/2	3/4	1	1-1/2	2	2-1/2	3	4	6	8	10	12
A	125 or 150FLG	7-1/4	7-1/4	7-1/4	8-3/4	10	10-7/8	11-3/4	13-7/8	17-3/4	21-3/8	26-1/2	29
	250 or 300FLG	7-1/2	7-5/8	7-3/4	9-1/4	10-1/2	11-1/2	12-1/2	14-1/2	18-5/8	22-3/8	27-7/8	30-1/2
B	125 or 150FLG	6-1/2	6-1/2	6-1/2	6-1/4	10	10-1/4	11-1/4	13-7/8	15-7/8	17-3/4	21-1/8	20-3/8
	250 or 300FLG	6-5/8	6-3/4	6-3/4	6-1/2	10-1/4	10-5/8	11-5/8	14-1/8	16-1/4	18-1/4	21-3/4	21-1/8
C	Standard	5-1/2	5-1/2	5-1/2	6-1/8	8-1/8	8-7/8	9-5/8	10-3/8	13-7/8	15-1/4	16-1/8	17
	Extension Bonnet	CF	CF	CF	CF	CF	CF	14-5/8	CF	17-5/8	CF	CF	CF
Weight (LB)	Standard	CF	CF	CF	CF	CF	140	210	390	545	900	1600	CF
	Extension Bonnet	CF	CF	CF	CF	CF	CF	215	CF	555	CF	CF	CF

1852 3-way

DIMENSION (IN) 1852		VALVE SIZE (IN)						
		2-1/2	3	4	6	8	10	12
A	125 or 150FLG	10-7/8	11-3/4	13-7/8	17-3/4	21-3/8	26-1/2	29
	250 or 300FLG	11-1/2	12-1/2	14-1/2	18-5/8	22-3/8	27-7/8	30-1/2
B	125 or 150FLG	10-1/4	11-1/4	13-7/8	15-7/8	17-3/4	21-1/8	20-3/8
	250 or 300FLG	10-5/8	11-5/8	14-1/8	16-1/4	18-1/4	21-3/4	21-1/8
C		9-1/2	10-1/4	11	14-1/2	15-7/8	16-3/4	17-3/4
Weight (LB)		140	210	390	545	900	1600	CF

Face to face dimensions conform to ANSI/ISA S75.03

CF = Consult factory

Actual Shipping Weights May Vary

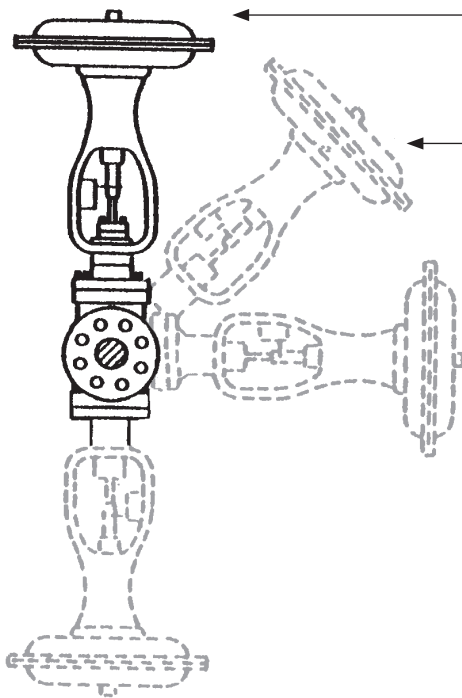
INSTALLATION

See also separate actuator and accessory instructions for additional installation guidelines.

- Be sure that the flow medium, ambient temperature and the selected location will not exceed the maximum temperature of the valve, actuator, or accessories. Information can be found in the product specifications and on the nameplate(s) regarding these limits (See Information Present on Control Valves section for location of important information on valve).
- Follow good piping practices. Install a bypass around the valve. Install stop valves in inlet and outlet piping to provide means to isolate valve.
- A straight run of pipe is recommended for 10 pipe diameters upstream of the valve and 20 pipe diameters downstream of the valve.
- Protect valve and downstream equipment with a self-cleaning strainer.
- Provide proper inlet and outlet drainage in steam service to prevent water hammer or possible erosion in equipment.
- Install gauges in inlet and outlet piping to provide means for checking adjustment and operation.
- For maximum efficiency and minimum wear install valve in vertical position with the stem pointing upward.



Check valve for any damage due to improper storage or transportation. Immediately notify your sales organization of any damaged goods upon receipt. Do not attempt to move or disturb the valve further so photos may be taken. If the shipping container is noticeably damaged refuse receipt, as the shipping company should be held liable until a shipping representative is available to take photos.



VERTICAL ABOVE PIPING IS CORRECT MOUNTING POSITION.

All other positions reduce service life of equipment.

NEXT BEST POSITION

45° from vertical above piping on either side. Valve must have an 8 Bolt Flange.

A non-vertical mounting position may be necessary to protect actuator in high temperature applications, but may reduce packing life.

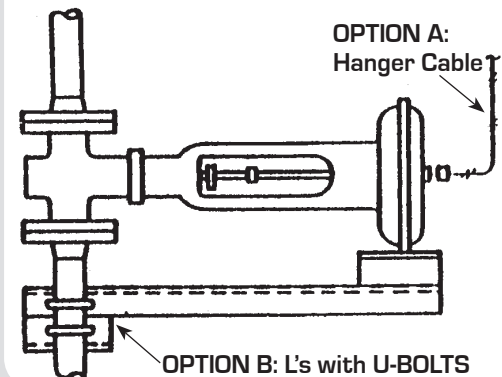
WORST POSITION

(Horizontal on either side).

VERTICAL BELOW PIPING

Position is suitable for gases, but **NOT** for liquids or steam.

Actuators mounted in any position other than vertical **MUST** be supported independent of the valve.



- Actuators mounted in any position other than vertical must be supported independent of the valve.
- Be sure to leave clearance to allow for actuator removal (See **Dimensions & Weights** section for actuator removal clearance).
- Before installing, be sure valve and piping are clean inside and free of scale, chips, welding spatter, and foreign material. Thoroughly blow out or flush pipe lines.
- The valve must be installed with the fluid flowing in the correct direction(s). For proper operation in all applications, control valves must be piped according to the corresponding flow arrows, inlet markings, and port markings present on each valve (See **Information Present on Control Valves** section for location of important information on valve).
- Pipes must be aligned squarely with the valve at each connection.
- If the valve has screwed ends, do not apply pipe dope to the threads of the valve body or to the first two threads of the pipe.
- If the valve has flanged ends, tighten flange bolts evenly to prevent excessive stress and the possibility of cracking.
- If the valve has welded ends, prevent plug and cage distortion by keeping excess heat from the body.
- The valve, actuator, and accessories (if so equipped) are assembled, tested, and calibrated at the factory. The actuator nameplate specifies set-up parameters used (See **Information Present on Control Valves** section for location of important information on valve). Do **not** exceed the supply pressure listed on the actuator nameplate or you will damage the valve and void the warranty.
- Supply air, instrument signal, and accessories should be connected to ports or terminals as indicated on the control valve.
- Final tuning may be required under actual operating conditions.
- On critical or dangerous equipment, provide suitable safety and emergency systems to protect personnel and property from injury due to a valve malfunction. If the valve handles flammable, toxic, corrosive or explosive fluids, provide for safety in the event of valve leakage or malfunction.
- Do not obscure flow arrow plates or nameplates with paint. If flow arrow plates or nameplates will be covered with insulation, it is recommended the information on the plates be transcribed on the outside of the insulation in the same location as the plate.

OPERATION

- Close inlet and outlet stop valves.
- Check that valve responds through rated travel in relation to changes in input signal. Rated travel is shown by position of travel indicator on valve stem relative to travel indicator on yoke.
- For valves fitted with a handwheel, manually operate valve with no air applied, using handwheel through rated travel to check freedom of movement. Return handwheel to its standby position.
- Place valve in operation.

For proper operation in all applications, control valves must be piped properly. If you need detailed information, please refer to the "Heat Exchanger Bypass Piping Applications" document.

MAINTENANCE

Series 1800 Heavy Globe Control Valves are for the most part maintenance free when properly selected and installed. Rebuilding of these valves should not be necessary under normal operating conditions. For best operation follow installation guidelines (See **Installation** section); maintain the fluid pressure, temperature, flow, flowing differential pressure, and shut-off differential pressure within the limits of the valve (See **Series 1800 Product Specification** for details). In installations where high vibration exists, pneumatic and/or electrical connections should periodically be checked for integrity. In water or water and glycol applications, good water quality must be maintained or the service life of the valve may be reduced (See **Water Quality Guidelines**). The valve stem must be kept free of debris, deposits, dirt, dust, and scratches or the packing parts may be damaged resulting in a packing leak. Control valve hunting will

cause excessive stroking of the valve stem and result in premature failure of the packing seal. The system must be stabilized to prevent hunting to ensure reasonable packing life and optimal control performance. Oversizing of a control valve will result in an unstable condition, which can cause noise, vibration, and premature trim and packing seal failure. The use of Warren Controls ValveWorks sizing program will facilitate the selection of the optimum valve.

PACKING ADJUSTMENT

Series 1800 Heavy Globe Control Valves have adjustable packing. If a packing leak is observed, tighten the hex nuts above the packing flange ¼ turn and observe. If the leak continues tighten the hex nuts

another ¼ turn and observe. Repeat as necessary. If the leak continues and the hex nuts cannot be tightened further with reasonable force replace the packing and if necessary the stem and plug assembly.

PARTS/OVERHAUL

Damaged or worn parts can decrease performance and shorten valve life.

Damaged or worn packing parts including the packing, bearings, spring, and other bonnet parts can cause a packing leak resulting in damage to the actuator, accessories, and surrounding equipment. Damaged or worn packing parts can also cause increased hysteresis resulting in poor control.

Damaged or worn trim parts including the plug, stem, seat ring, piston, piston guide, piston seal, and o-ring can cause increased hysteresis, poor control, excessive internal leakage, and poor shut-off. Damaged or worn trim parts can also cause damage to the packing parts resulting in a packing leak.

Damaged or worn body gaskets or o-ring seals can cause external leakage resulting in damage to the actuator, accessories, and surrounding equipment.

Should parts become worn or damaged, parts kits are available. Repack Kits are available to replace the packing. Repack/Inspection Kits are available to allow the valve to be opened for inspection of its internal parts. Rebuild/Repack Kits are available to completely rebuild/ overhaul the valve. Parts kits come with complete step-by-step instructions. Each kit has its own part number. Please provide the valve's serial number to ensure getting the correct kit part number and correct parts.



CAUTION

DO NOT attempt to service a Series 1800 valve without having a Repack/Inspection Kit & Supplemental instructions on hand.

PARTS KITS

REPACK KIT
FOR PACKING TYPE & BONNET CONSTRUCTION TS TEFLON 450 TMAX
SIZE 050 thru 150 (1/2 thru 1-1/2 inch)
SEE DWG C3762003

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
2	2	HEX NUT	8	1	SPRING
3	1	PACKING FLANGE	9	1	SLEVE BEARING 1/4 LG
4	1	PACKING FOLLOWER	10	1	STEM WIPER
5	1	SLEVE BEARING 1/2 LG	11	1	PACKING BOX RING
6	1	V-RING PACKING SET	12	1	WIPER RETAINER
7	1	PACKING LOAD WASHER	14	1	TUBE STEM LUBE

REPACK KIT
FOR PACKING TYPE & BONNET CONSTRUCTION TS TEFLON 450 TMAX
SIZE 200 thru 400 (2 thru 4 inch)
SEE DWG C3761307

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
2	2	HEX NUT	8	1	SPRING
3	1	PACKING FLANGE	9	1	SLEVE BEARING 3/8 LG
4	1	PACKING FOLLOWER	10	1	PACKING BOX RING
5	1	SLEVE BEARING 3/4 LG	11	1	STEM WIPER
6	1	V-RING PACKING SET	12	1	WIPER RETAINER
7	1	PACKING LOAD WASHER	14	1	TUBE STEM LUBE

REPACK KIT
FOR PACKING TYPE & BONNET CONSTRUCTION TS TEFLON 450 TMAX
SIZE 600 thru 012 (6 thru 12 inch)
SEE DWG C3762003

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
2	2	HEX NUT	8	1	SPRING
3	1	O-RING	9	1	PACKING BOX RING
4	1	PACKING FLANGE	10	1	STEM WIPER
5	1	SPACKING FOLLOWER	11	1	PWIPER RETAINER
6	1	V-RING PACKING SET	13	1	TUBE STEM LUBE
7	1	PACKING LOAD WASHER			

PARTS KITS

REPACK KIT
FOR PACKING TYPE & BONNET CONSTRUCTION GS GRAPHITE 500 TMAX
SIZE 050 thru 150 (1/2 thru 1-1/2 inch)
SEE DWG C3760824

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
2	2	HEX NUT	7	1	SLEVE BEARING 3/8 LG
3	1	PACKING FLANGE	8	1	PACKING SPACER
4	1	PACKING FOLLOWER	9	1	PACKING BOX RING
5	3	SLEVE BEARING 1/2 LG	11	1	TUBE STEM LUBE
6	9	GRAPHITE PACKING			

REPACK KIT
FOR PACKING TYPE & BONNET CONSTRUCTION GS GRAPHITE 500 TMAX
SIZE 200 thru 400 (2 thru 4 inch)
SEE DWG C3761306

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
2	2	HEX NUT	8	1	PACKING SPACER
3	1	PACKING FLANGE	9	1	SLEVE BEARING 3/8 LG
4	1	PACKING FOLLOWER	10	1	PACKING BOX RING
5	1	SLEVE BEARING 3/4 LG	11	1	SLEVE BEARING 5/8 LG
6	9	GRAPHITE PACKING RING	13	1	TUBE STEM LUBE
7	1	SLEVE BEARING 3/8 LG			

REPACK KIT
FOR PACKING TYPE & BONNET CONSTRUCTION GS GRAPHITE 500 TMAX
SIZE 600 thru O12 (6 thru 12 inch)
SEE DWG C3762002

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	2	HEX NUT	6	1	LANTERN RING WITHOUT LUBRICATOR
2	1	PACKING FLANGE	7	1	PACKING BOX RING
3	1	PACKING FOLLOWER	8	1	TUBE STEM LUBE
5	9	GRAPHITE PACKING			

PARTS KITS

REPACK KIT
FOR PACKING TYPE & BONNET CONSTRUCTION GG, GL, G7 GRAPHITE WITH EXTENSION
BONNET 800F TMAX
SIZE 050 thru 150 (1/2 thru 1-1/2 inch)
SEE DWG C3760834

CALL FACTORY

REPACK KIT
FOR PACKING TYPE & BONNET CONSTRUCTION GG, GL, G7 GRAPHITE WITH EXTENSION
BONNET 800F TMAX
SIZE 200 thru 400 (2 thru 4 inch)
SEE DWG C3761324

CALL FACTORY

REPACK KIT
FOR PACKING TYPE & BONNET CONSTRUCTION GG, GL, G7 GRAPHITE WITH EXTENSION
BONNET 800F TMAX
SIZE 600 thru 012 (6 thru 12 inch)
SEE DWG C3762004

CALL FACTORY

REPACK/INSPECTION KIT
FOR MODEL 18J VALVE TYPE 40
SEE DWG D3241932

ITEM	QTY	DESCRIPTION
11	2	GASKET
	1	TUBE ANTI-SEIZE LUBE
	1	REPACK KIT

REPACK/INSPECTION KIT
FOR MODEL 18J VALVE TYPE 43
SEE DWG D3241930

ITEM	QTY	DESCRIPTION
15	3	GASKET
19	1	TUBE THREAD SEALANT
20	1	TUBE O-RING LUBE
23	1	TUBE ANTI-SEIZE LUBE
	1	REPACK KIT

REBUILD/REPACK KIT
FOR MODEL 18J VALVE TYPE 40
SEE DWG D3241932

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	1	VALVE STEM	11	2	GASKET
6	1	GROOVE PIN	13	1	TUBE THREAD SEALANT
7	1	PLUG		1	TUBE ANTI-SEIZE LUBE
9	1	SEAT RING		1	REPACK KIT

PARTS KITS

**REBUILD/REPACK KIT
FOR MODEL 18J VALVE TYPE 43
SEE DWG D3241930**

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	1	VALVE STEM	15	3	GASKET
6	1	GROOVE PIN	19	1	TUBE THREAD SEALANT
8	1	BACK UP RING (Valve size 2-1/2 & 3 inch)	20	1	TUBE O-RING LUBE
9	1	O-RING	23	1	TUBE ANTI-SEIZE LUBE
11	1	PLUG		1	REPACK KIT
12	1	SEAT RING			

**REPACK/INSPECTION KIT
FOR MODEL 18K VALVE TYPE 50
SIZE 050 thru 200 (1/2 thru 2 inch)
SEE DWG D3260831**

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
7	2	GASKET		1	REPACK KIT
	1	TUBE ANTI-SEIZE LUBE			

**REBUILD/REPACK KIT
FOR MODEL 18K VALVE TYPE 50
SIZE 050 thru 200 (1/2 thru 2 inch)
SEE DWG D3260831**

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	1	VALVE STEM	16	1	TUBE THREAD SEALANT
7	2	GASKET	21	1	SELF LOCKING NUT (As Required)
9	2	SEAT RING		1	TUBE ANTI-SEIZE LUBE
10	1	GROOVE PIN (As Required)		1	REPACK KIT
11	1	PLUG			

**REPACK/INSPECTION KIT
FOR MODEL 18H & 18J VALVE TYPE 50
SIZE 250 thru 600 (2-1/2 thru 6 inch)
SEE DWG D3261531**

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
12	2	GASKET		1	REPACK KIT
	1	TUBE ANTI-SEIZE LUBE			

**REBUILD/REPACK KIT
FOR MODEL 18H & 18J VALVE TYPE 50
SIZE 250 thru 600 (2-1/2 thru 6 inch)
SEE DWG D3261531**

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	1	VALVE STEM	15	1	TUBE THREAD SEALANT
5	1	GROOVE PIN (Valve size 3 thru 6 inch)	18	1	STEM & PLUG ASSEMBLY (Valve size 2-1/2)
8	1	PLUG		1	TUBE ANTI-SEIZE LUBE
9	2	SEAT RING		1	REPACK KIT
12	2	GASKET			

PARTS KITS

REPACK/INSPECTION KIT
FOR MODEL 18J VALVE TYPE 50 SIZE 800 & 010 (8 & 10 inch)
SEE DWG D3261931

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
14	3	GASKET		1	REPACK KIT
	1	TUBE ANTI-SEIZE LUBE			

REBUILD/REPACK KIT
FOR MODEL 18J VALVE TYPE 50 SIZE 800 & 010 (8 & 10 inch)
SEE DWG D3261931

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	1	VALVE STEM	14	3	GASKET
7	1	GROOVE PIN	18	1	TUBE THREAD SEALANT
9	1	PLUG		1	TUBE ANTI-SEIZE LUBE
10	2	SEAT RING		1	REPACK KIT

REPACK/INSPECTION KIT
FOR MODEL 18H VALVE TYPE 52 SIZE 300 & 400 (3 & 4 inch)
SEE DWG D3261532

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
16	3	GASKET		1	REPACK KIT
	1	TUBE ANTI-SEIZE LUBE			

REBUILD/REPACK KIT
FOR MODEL 18H VALVE TYPE 52 SIZE 300 & 400 (3 & 4 inch)
SEE DWG D3261532

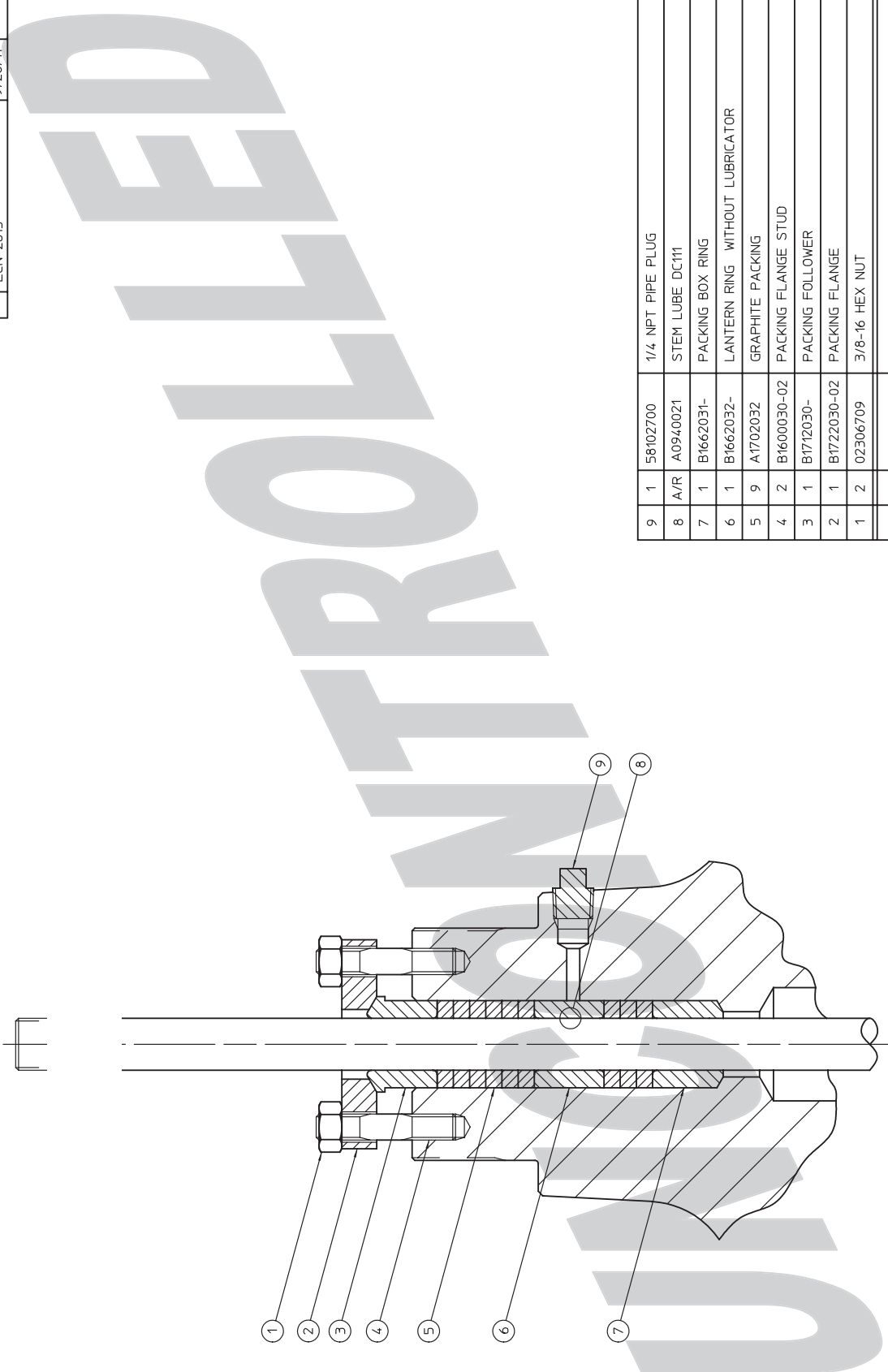
ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	1	VALVE STEM	12	2	SEAT RING
7	2	COTTER PIN	16	3	GASKET
8	2	HEX THICK SLOTTED NUT	18	1	TUBE O-RING LUBE
9	1	PISTON	19	1	TUBE THREAD SEALANT
10	1	O-RING		1	TUBE ANTI-SEIZE LUBE
11	1	PISTON GUIDE		1	REPACK KIT

REPACK/INSPECTION KIT
FOR MODEL 18J VALVE TYPE 52 SIZE 800 & 010 (8 & 10 inch)
SEE DWG D3261930

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	4	GASKET		1	REPACK KIT
	1	TUBE ANTI-SEIZE LUBE			

REBUILD/REPACK KIT
FOR MODEL 18J VALVE TYPE 52 SIZE 800 & 010 (8 & 10 inch)
SEE DWG D3261930

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	1	VALVE STEM	13	2	SEAT RING
6	2	COTTER PIN	17	4	GASKET
8	2	HEX THICK SLOTTED NUT	21	1	TUBE THREAD SEALANT
9	1	PISTON	22	1	TUBE O-RING LUBE
10	2	O-RING		1	TUBE ANTI-SEIZE LUBE
11	2	PISTON SEAL		1	REPACK KIT
12	1	PISTON GUIDE			



REVIEWS		
REV	DESCRIPTION	DATE
C	REDRAWN WITH CHANGE ECN 2615	9/28/11
		APPROVED

ITEM	QTY	PART NO	DESCRIPTION
9	1	58102700	1/4 NPT PIPE PLUG
8	A/R	A0940021	STEM LUBE DC111
7	1	B7662031-	PACKING BOX RING
6	1	B7662032-	LANTERN RING WITHOUT LUBRICATOR
5	9	A1702032	GRAPHITE PACKING
4	2	B1600030-02	PACKING FLANGE STUD
3	1	B1712030-	PACKING FOLLOWER
2	1	B1722030-02	PACKING FLANGE
1	2	02306709	3/8-16 HEX NUT

ITEM	QTY	PART NO	DESCRIPTION
			WARREN CONTROLS INCORPORATED BETHLEHEM, PENNSYLVANIA 18020-8010
			6 THRU 12 INCH TYPE 1800 GRAPHITE PACKING ARRANGEMENT 500°F
			SIZE C
			FRSH NO 03847
			DWG NO C3762002
			REV C

UNLESS OTHERWISE SPECIFIED	
DECIMAL	FRACTION
XX	XX
XXX	XXX
ANGLE	ANGLE

MATERIAL	
DRW	DATE
JMARTOCCI	1/8/97
CREATED	
APPROVED	

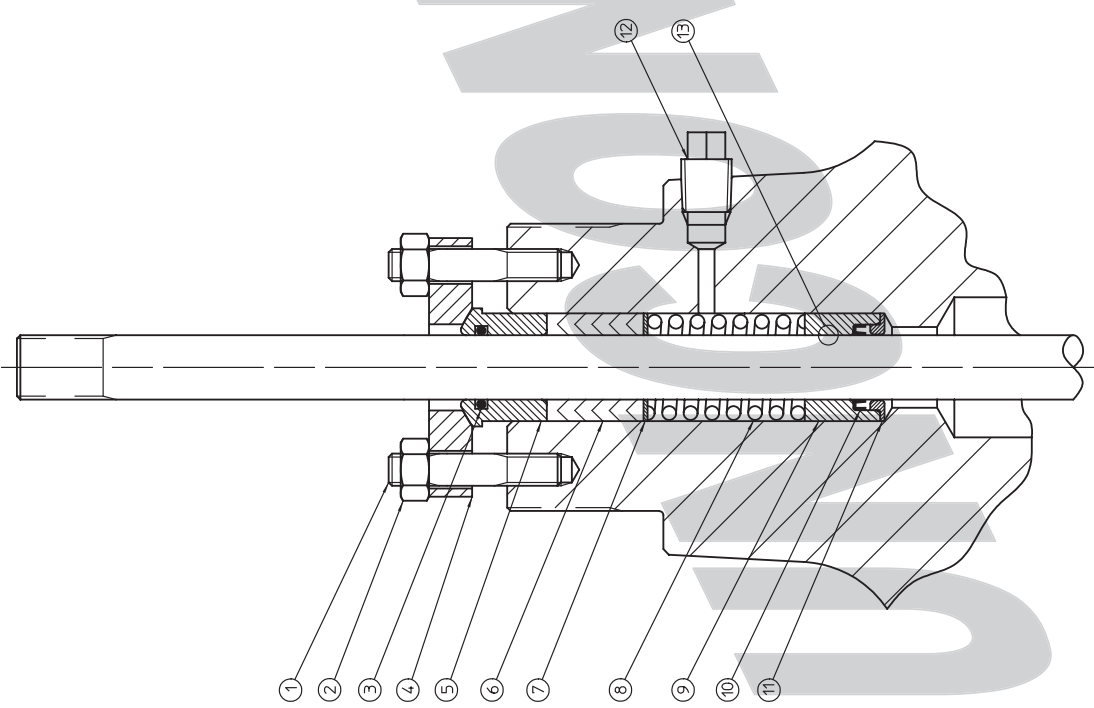
TREATMENT	
FINISH	ALL DIMENSIONS ARE IN INCHES

REMOVE ALL SHARP EDGES AND BURRS

THIRD ANGLE PROJECTION

NEXT ASSEMBLY

REVISIONS		
REV	DESCRIPTION	DATE
C	REDRAWN WITH CHANGE ECN 2615	BLB 9/28/11
		APPROVED



ITEM	QTY	PART NO	DESCRIPTION
13	A/R	A0940021	STEM LUBE DC111
12	1	58102700	PIPE PLUG 1/4 INCH SQ HEAD
11	1	B1802030-	WIPER RETAINER
10	1	FS11725	STEM WIPER
9	1	B1662033-	PACKING BOX RING W/ STEM WIPER GROOVE
8	1	B1822031	SPRING
7	1	B2060002-01	PACKING LOAD WASHER
6	1	B1700071	V-RING PACKING SET
5	1	B1712032-	PACKING FOLLOWER W/ O-RING GROOVE
4	1	B1722030-02	PACKING FLANGE
3	1	04907116	O-RING FLUORAZ 797
2	2	02306709	3/8-16 HEX NUT
1	2	B1600030-02	PACKING FLANGE STUD

ITEM	QTY	PART NO	DESCRIPTION
MATERIAL			
DRAWN	DATE	WARREN CONTROLS INCORPORATED	
BLB	2/18/09	BETHLEHEM, PENNSYLVANIA, 18020-8010	
CHECKED		6 THRU 12 INCH TYPE 1800	
APPROVED		V-RING PACKING ARRANGEMENT 450°F	
TREATMENT			
FRESH			
ALL DIMENSIONS ARE IN INCHES			
SIZE	FRSH NO	DMG NO	REV
C	03847	C3762003	C

REMOVE ALL SHARP EDGES
AND BURRS

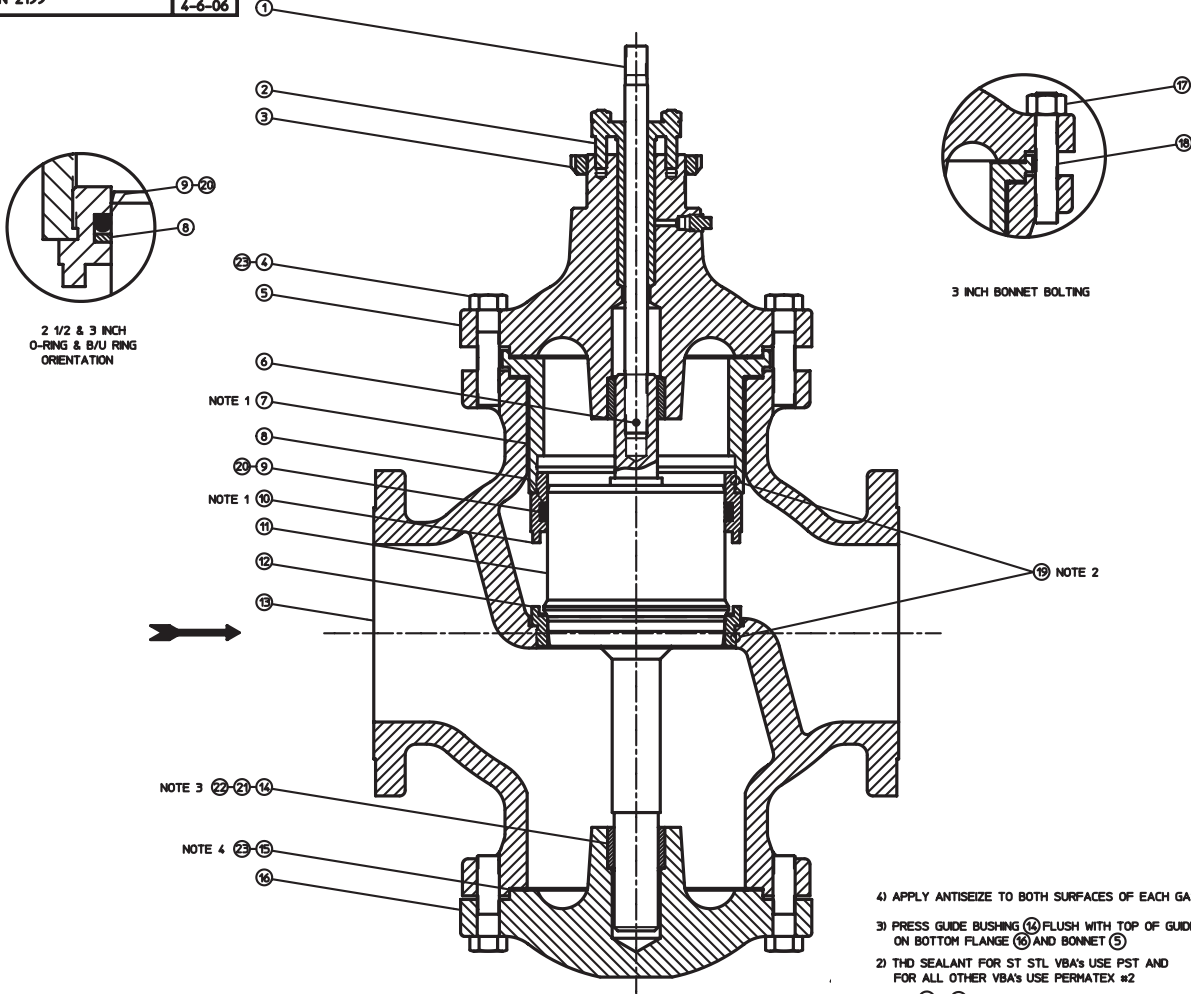
UNLESS OTHERWISE SPECIFIED:
DECIMAL .XX DECIMAL .XXX
FRACTION * ANGLE *

THIRD ANGLE PROJECTION

NEXT ASSEMBLY

D3241930

REV	DESCRIPTION	DATE
A	ECN 2199	DGS 4-6-06



NOTE 1

NOTE 1

NOTE 3

NOTE 4

NOTE 2

- 4) APPLY ANTISEIZE TO BOTH SURFACES OF EACH GASKET 3X.
- 3) PRESS GUIDE BUSHING (14) FLUSH WITH TOP OF GUIDE POST ON BOTTOM FLANGE (16) AND BONNET (5)
- 2) THD SEALANT FOR ST STL VBA'S USE PST AND FOR ALL OTHER VBA'S USE PERMATEX #2
- 1) ITEM (7) & (10) ARE 1 PIECE FOR 2 1/2 INCH TYPE 43 VBA'S

23	A/R	ANTISEIZE
22	A/R	LOCTITE PRIMER T
21	A/R	LOCTITE 609
20	A/R	O-RING LUBE
19	A/R	THD SEALANT
18	A/R	STUD
17	A/R	HEX NUT
16	1	BOTTOM FLANGE
15	3	GASKET
14	2	GUIDE BUSHING
13	1	VALVE BODY
12	1	SEAT RING
11	1	PLUG
10	1	PISTON GUIDE
9	1	O-RING
8	A/R	BACK UP RING
7	1	PISTON CHAMBER
6	1	GROOVE PIN
5	1	BONNET
4	A/R	HEX CAPSCREW OR HEAVY HEX BOLT
3	1	YOKE LOCKNUT
2	1	PACKING ARRANGEMENT SUBASSEMBLY SEE SEPARATE DWG
1	1	VALVE STEM

ITEM	QTY	DESCRIPTION
DRAWING ALL SHARP EDGES AND ROUNDS UNLESS OTHERWISE SPECIFIED		
DESIGNED FOR ASME Y14.3M-2004		
THIRD ANGLE PROJECTION		
SEE ASSEMBLY		
MATERIAL		TREATMENT
FINISH		COATING
DRAWN		DATE
CHECKED		DATE
APPROVED		DATE
DATE		DATE
DATE		DATE
DATE		DATE

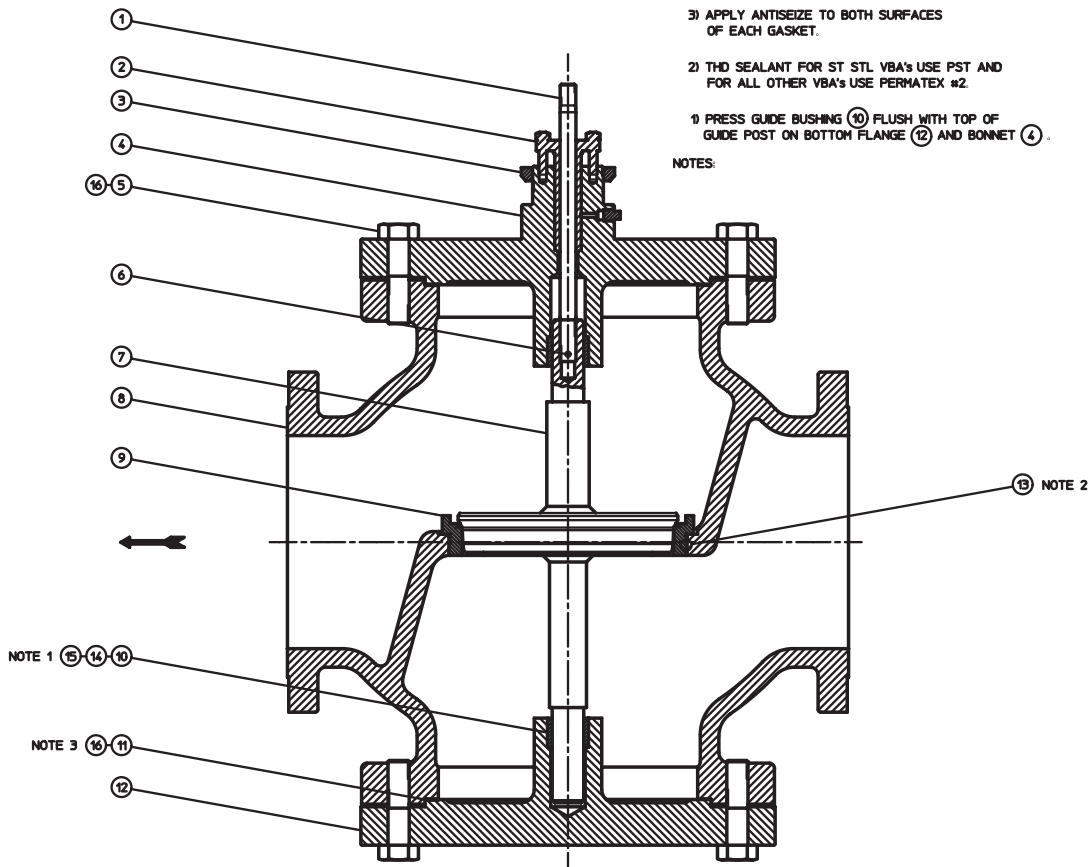
WARREN CONTROLS CORPORATION
BROADWAY, NEW JERSEY 08608

2 1/2 THRU 10 INCH TYPE 43 VBA

WARREN CONTROLS CORPORATION
D 03847 D3241930

D3241932

REV	DESCRIPTION	DATE
A	ECN 2286	DGS 8-16-07



- 3) APPLY ANTISEIZE TO BOTH SURFACES OF EACH GASKET.
- 2) THD SEALANT FOR ST STL VBA'S USE PST AND FOR ALL OTHER VBA'S USE PERMATEX #2.
- 1) PRESS GUIDE BUSHING (10) FLUSH WITH TOP OF GUIDE POST ON BOTTOM FLANGE (12) AND BONNET (4).

NOTES:

NOTE 1 (15) (14) (10)

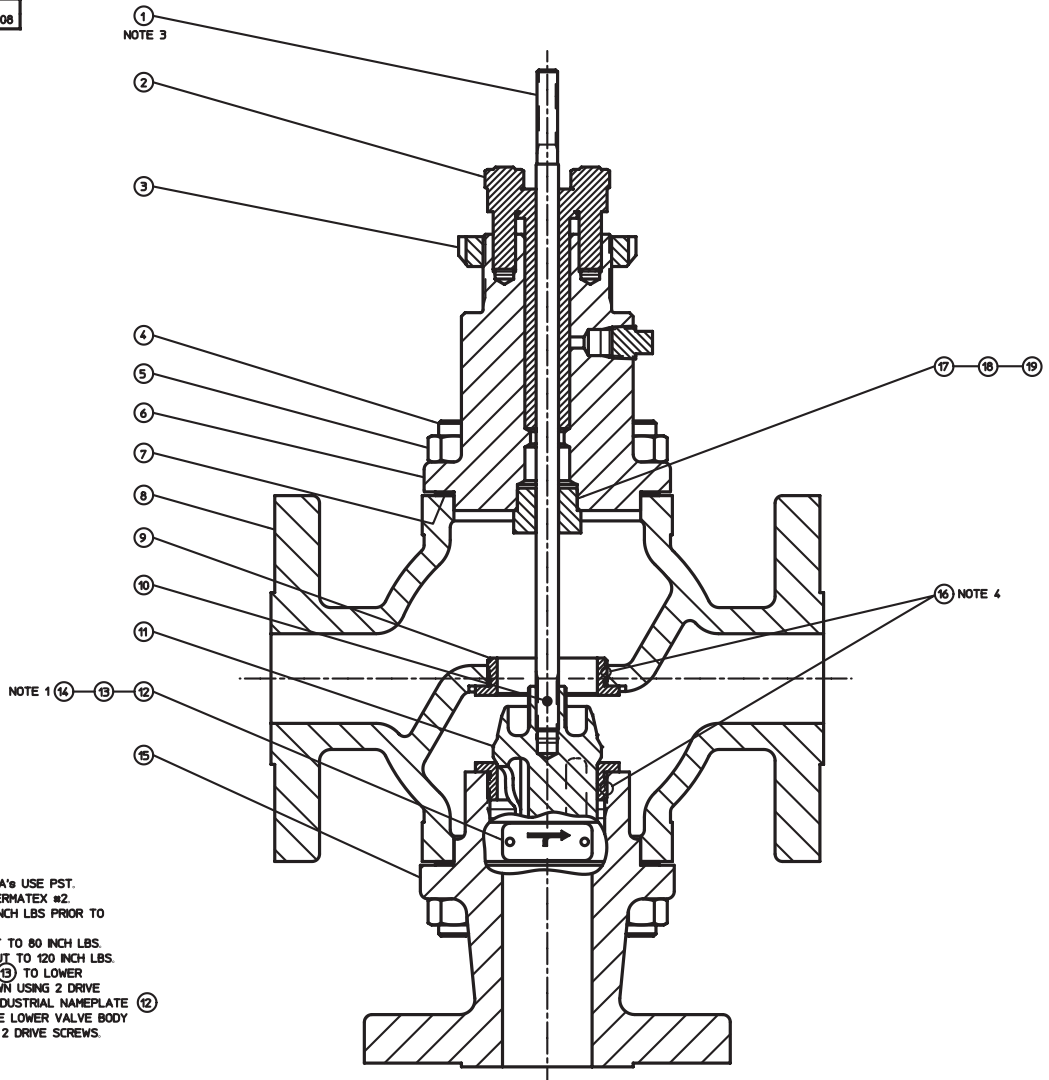
NOTE 3 (16) (11)

(13) NOTE 2

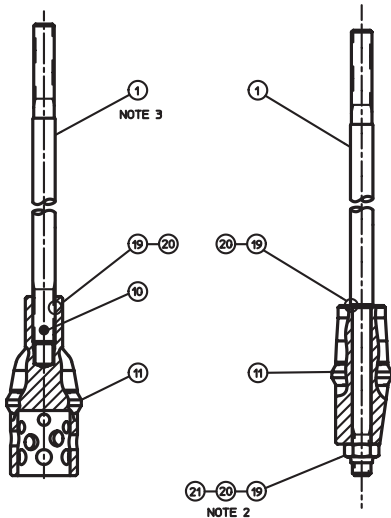
16	A/R	ANTISEIZE
15	A/R	LOCTITE PRIMER T
14	A/R	LOCTITE 609
13	A/R	THD SEALANT
12	1	BOTTOM FLANGE
11	2	GASKET
10	2	GUIDE BUSHING
9	1	SEAT RING
8	1	VALVE BODY
7	1	PLUG
6	1	GROOVE PIN
5	A/R	HEX CAPSCREW OR HEAVY HEX BOLT
4	1	BONNET
3	1	YOKE LOCKNUT
2	1	PACKING ARRANGEMENT SUBASSEMBLY SEE SEPARATE DWG
1	1	VALVE STEM
ITEM	QTY	DESCRIPTION
MATERIAL		DRAWN JHARTOCCI DATE 7/9/97
CHECKED		APPROVED
TREATMENT		WARREN CONTROLS CORPORATION BROADWAY, NEW JERSEY 06806
FINISH		2 1/2 THRU 10 INCH TYPE 40 VBA
SIZE D	PCB NO 03847	DWG NO D3241932
		REV A

D3260831

REV	DESCRIPTION	DATE
A	ECN 2367	DGS 8-8-08



- 4) THD SEALANT FOR ST STL VBA'S USE PST.
FOR ALL OTHER VBA'S USE PERMATX #2.
- 3) TORQUE VALVE STEM TO 215 INCH LBS PRIOR TO DRILLING FOR PIN.
- 2) TORQUE 1/4 SELF LOCKING NUT TO 80 INCH LBS.
TORQUE 5/16 SELF LOCKING NUT TO 120 INCH LBS.
- 1) FASTEN FLOW ARROW PLATE (13) TO LOWER VALVE BODY FLANGE AS SHOWN USING 2 DRIVE SCREWS (14). FASTEN THE INDUSTRIAL NAMEPLATE (12) ON THE OPPOSITE SIDE OF THE LOWER VALVE BODY FLANGE USING THE REMAINING 2 DRIVE SCREWS.
- NOTES:



ALTERNATE PLUG CONSTRUCTIONS

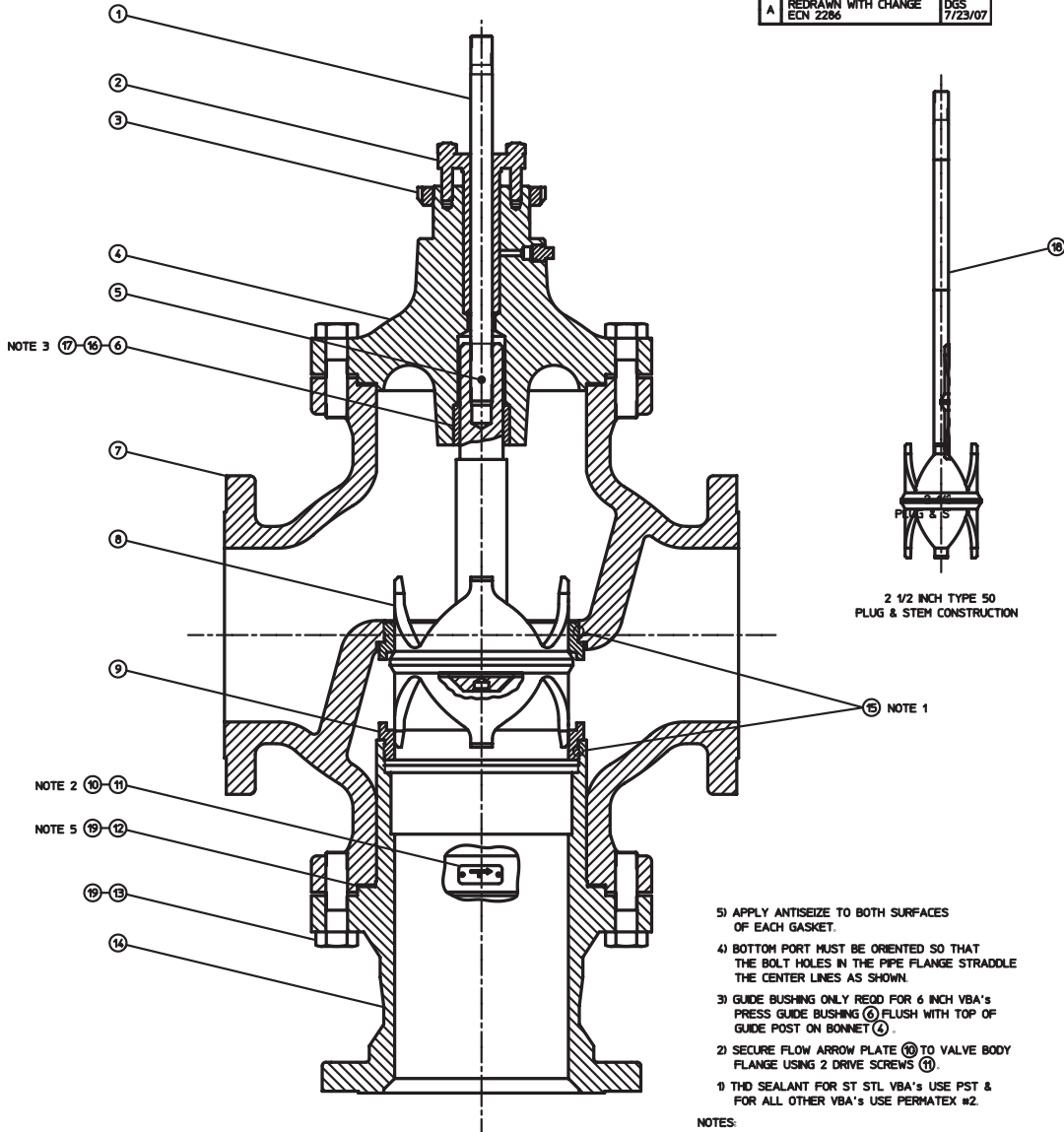
21	A/R	ALL METAL SELF LOCKING NUT
20	A/R	LOCTITE 272
19	A/R	LOCTITE PRIMER T
18	A/R	LOCTITE 609
17	1	GUIDE BUSHING
16	A/R	THD SEALANT
15	1	BOTTOM PORT
14	4	#4 x 1/4 LG DRIVE SCREW
13	1	FLOW ARROW PLATE
12	1	INDUSTRIAL NAMEPLATE
11	1	PLUG
10	A/R	GROOVE PIN
9	2	SEAT RING
8	1	VALVE BODY
7	2	GASKET
6	1	BONNET
5	8	HEX NUT
4	8	STUD
3	1	YOKE LOCKNUT
2	1	PACKING ARRANGEMENT SUBASSEMBLY - SEE SEPARATE DRAWING
1	1	VALVE STEM

ITEM	QTY	DESCRIPTION
REMOVE ALL SHARP EDGES UNLESS OTHERWISE SPECIFIED		
FINISH	ALL FINISHES	INTERNAL
UNFINISHED FOR	UNFINISHED FOR	UNFINISHED FOR
ALL FINISHES ARE IN INCHES	ALL FINISHES ARE IN INCHES	ALL FINISHES ARE IN INCHES
THIRD ANGLE PRACTICE	ALL PILET FACE 1/2 MAX	TREATMENT
FINISH ON ALL PACKED SURFACES		
VERY ASSEMBLY		

DATE	DATE	DATE	DATE
DGS	8/28/08	WARREN CONTROLS INCORPORATED	BETHLEHEM, PENNSYLVANIA 18020-8010
1/2 - 1 1/2 INCH TYPE 1850 VBA			
REV	PROJ NO	REV NO	REV NO
D	038647		D3260831

D3261531

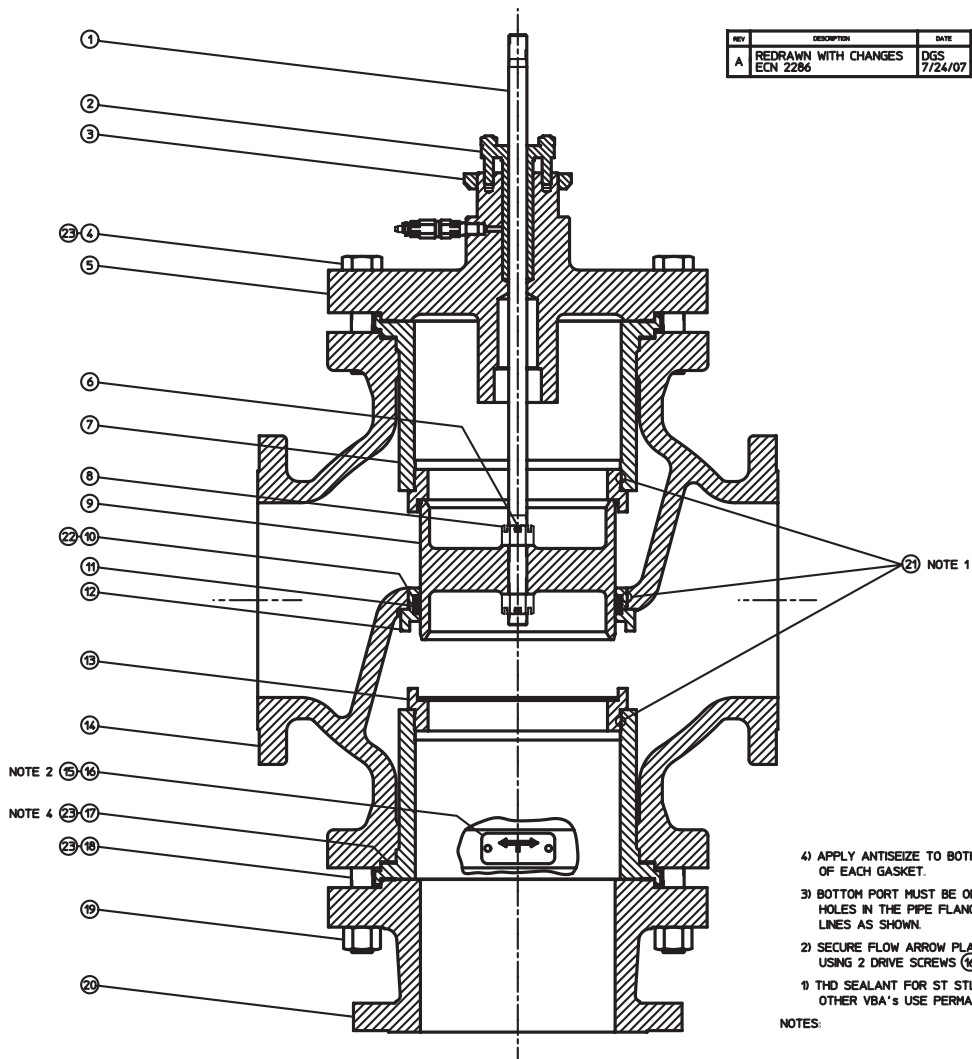
REV	DESCRIPTION	DATE
A	REDRAWN WITH CHANGE ECN 2286	DGS 7/23/07



19	A/R	ANTISEIZE
18	1	STEM & PLUG ASSEMBLY
17	A/R	LOCTITE PRIMER T
16	A/R	LOCTITE 609
15	A/R	THD SEALANT
14	1	BOTTOM PORT
13	A/R	HEX CAPSCREW OR HEAVY HEX BOLT
12	2	GASKET
11	2	DRIVE SCREW NO 4 x 1/4
10	1	FLOW ARROW PLATE
9	2	SEAT RING
8	1	PLUG
7	1	VALVE BODY
6	A/R	GUIDE BUSHING
5	1	GROOVE PIN
4	1	BONNET
3	1	YOKE LOCKNUT
2	1	PACKING ARRANGEMENT SUBASSEMBLY SEE SEPARATE DWG
1	1	VALVE STEM

ITEM	QTY	DESCRIPTION
<small>REMOVE ALL SHARP EDGES AND BURRS</small> <small>UNLESS OTHERWISE SPECIFIED</small> MATERIAL: JMARTOCCI 2/3/97 WARREN CONTROLS INCORPORATED BETHLEHEM, PENNSYLVANIA 18020-8010 APPROVED: _____ 2 1/2 THRU 6 INCH TYPE 50 VBA <small>THD ANGLE PROJECTION</small> <small>NEST ASSEMBLY</small>		
SIZE	D	03847
ISS TO		D3261531
REV		A

D3261930



REV	DESCRIPTION	DATE
A	REDRAWN WITH CHANGES ECN 2286	DGS 7/24/07

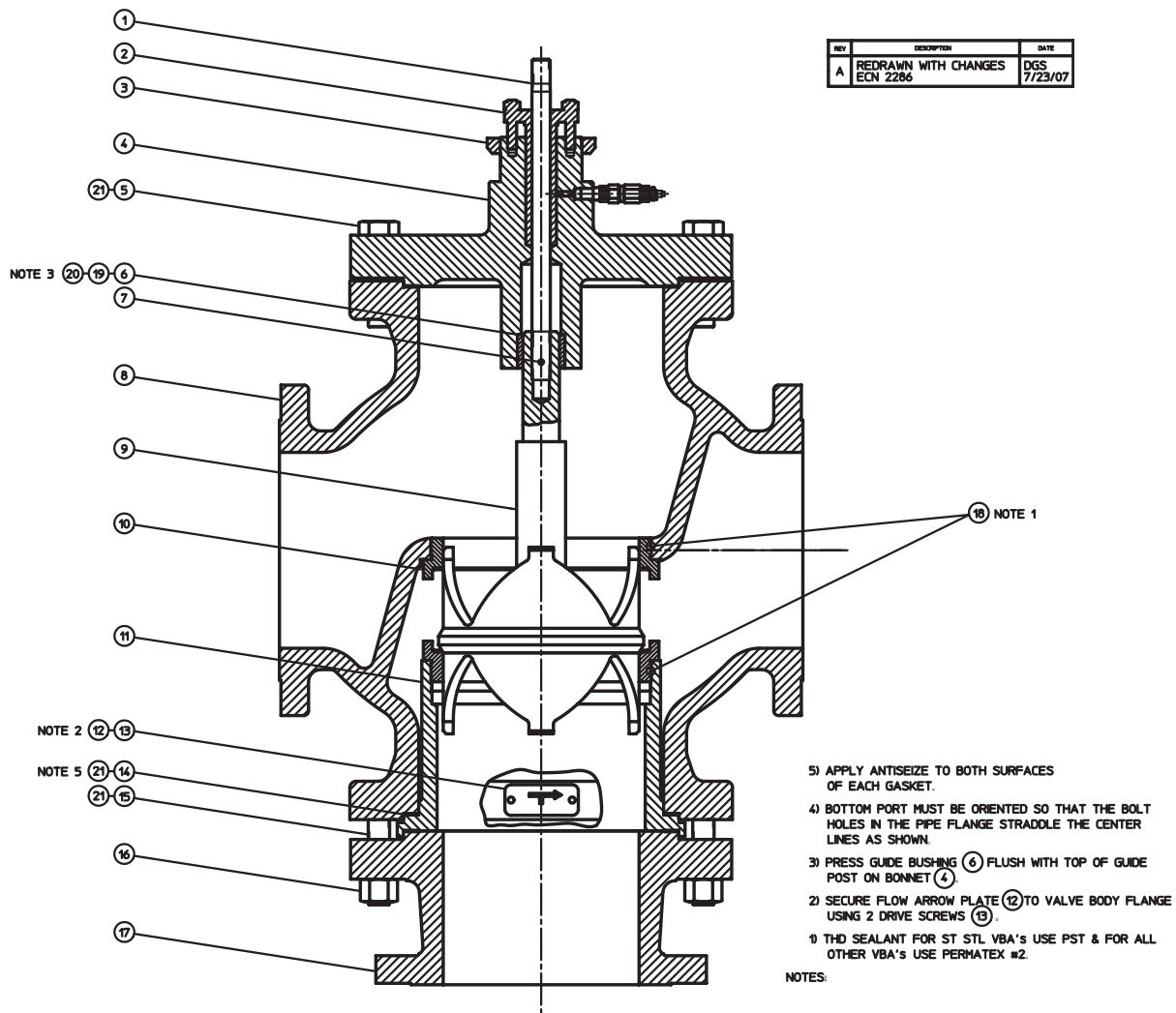
- 4) APPLY ANTISEIZE TO BOTH SURFACES OF EACH GASKET.
- 3) BOTTOM PORT MUST BE ORIENTED SO THAT THE BOLT HOLES IN THE PIPE FLANGE STRADDLE THE CENTER LINES AS SHOWN.
- 2) SECURE FLOW ARROW PLATE (15) TO VALVE BODY FLANGE USING 2 DRIVE SCREWS (16).
- 1) THD SEALANT FOR ST STL VBA's USE PST & FOR ALL OTHER VBA's USE PERMATEx #2.

NOTES:

23	A/R	ANTISEIZE
22	A/R	O-RING LUBE
21	A/R	THD SEALANT
20	1	BOTTOM PORT
19	A/R	HEAVY HEX NUT
18	A/R	STUD
17	4	GASKET
16	2	DRIVE SCREW NO 4 x 1/4
15	1	FLOW ARROW PLATE
14	1	VALVE BODY
13	1	SEAT RING
12	1	PISTON GUIDE
11	2	PISTON SEAL
10	2	O-RING
9	1	PISTON
8	2	HEX THICK SLOTTED NUT
7	2	PISTON CHAMBER
6	2	COTTER PIN
5	1	BONNET
4	A/R	HEAVY HEX BOLT
3	1	YOKE LOCKNUT
2	1	PACKING ARRANGEMENT SUBASSEMBLY SEE SEPARATE DWG
1	1	VALVE STEM

ITEM	QTY	DESCRIPTION
REMOVE ALL SHARP EDGES UNLESS OTHERWISE SPECIFIED		
FINISH: DECIMAL .XX DECIMAL .XXX		
TREATMENT: FRACTURE + ANGLE +		
THIRD ANGLE PROJECTION		
NEXT ASSEMBLY: ALL DIMENSIONS ARE IN INCHES		
DRAWN: JHARTOCCHI/20/97		DATE: 8/20/97
APPROVED:		DATE:
WARREN CONTROLS INCORPORATED BETHLEHEM, PENNSYLVANIA 18020-8000		
8 THRU 10 INCH TYPE 52 VBA		
SEE DWG NO	D 03847	DWG NO D3261930
REV	A	

D3261931



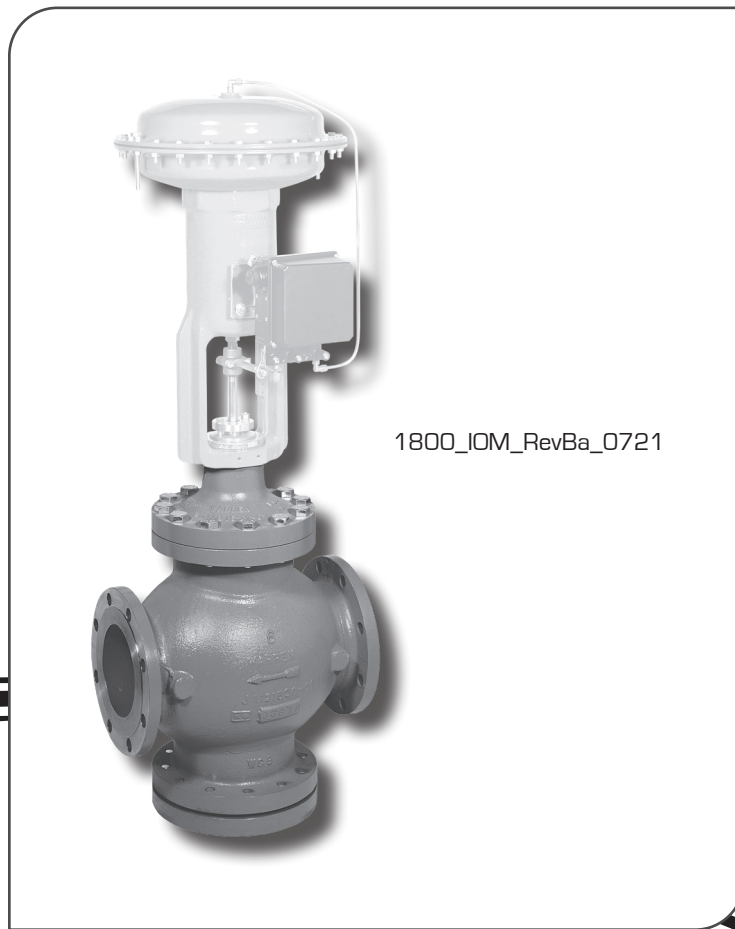
REV	DESCRIPTION	DATE
A	REDRAWN WITH CHANGES ECN 2286	DGS 7/23/07

- NOTES:
- 5) APPLY ANTISEIZE TO BOTH SURFACES OF EACH GASKET.
 - 4) BOTTOM PORT MUST BE ORIENTED SO THAT THE BOLT HOLES IN THE PIPE FLANGE STRADDLE THE CENTER LINES AS SHOWN.
 - 3) PRESS GUIDE BUSHING (6) FLUSH WITH TOP OF GUIDE POST ON BONNET (4).
 - 2) SECURE FLOW ARROW PLATE (12) TO VALVE BODY FLANGE USING 2 DRIVE SCREWS (13).
 - 1) THD SEALANT FOR ST STL VBA'S USE PST & FOR ALL OTHER VBA'S USE PERMATX #2.

21	A/R	ANTISEIZE
20	A/R	LOCTITE PRIMER T
19	A/R	LOCTITE 609
18	A/R	THD SEALANT
17	1	BOTTOM PORT
16	A/R	HEAVY HEX NUT
15	A/R	STUD
14	3	GASKET
13	2	DRIVE SCREW NO 4 x 1/4
12	1	FLOW ARROW PLATE
11	1	PISTON CHAMBER
10	2	SEAT RING
9	1	PLUG
8	1	VALVE BODY
7	1	GROOVE PIN
6	1	GUIDE BUSHING
5	A/R	HEAVY HEX BOLT
4	1	BONNET
3	1	YOKE LOCKNUT
2	1	PACKING ARRANGEMENT SUBASSEMBLY SEE SEPARATE DWG
1	1	VALVE STEM

ITEM	QTY	DESCRIPTION
<small>PROVIDE ALL SHARP EDGES AND BLANDS UNLESS OTHERWISE SPECIFIED</small>		
<small>DECIMAL</small>	<small>XX</small>	<small>DECIMAL</small> <small>XXX</small>
<small>FRACTION</small>	<small>+</small>	<small>ANGLE</small> <small>+</small>
<small>THIRD ANGLE PROJECTION</small>		<small>TREATMENT</small>
<small>NEXT ASSEMBLY</small>		<small>ALL DIMENSIONS ARE IN INCHES</small>

DRAWN	DATE	WARREN CONTROLS INCORPORATED BETHLEHEM, PENNSYLVANIA 18020-8010
JHARTOCCO	4/1/97	
APPROVED		8 & 10 INCH TYPE 50 VBA
SIZE	PAPER NO	DWG NO
D	03847	D3261931
		REV
		A



1800_IOM_RevBa_0721

WARREN CONTROLS

2600 EMRICK BLVD • BETHLEHEM, PA 18020 • USA • 800-922-0085 • WWW.WARRENCONTROLS.COM
DEPENDABLE, RUGGED, PRECISION CONTROL VALVES AND ACCESSORIES