

Customer Drawings Product Selection

Emerson offers a wide selection of drawing products; to include 2D drawings, 3D models, CAD files and Dimensional Data for Piping (DDP) to support all customer engineering, inspection and maintenance needs. This bulletin provides information and insight to help you select the correct Fisher Customer Drawing product properly to address your specific needs.

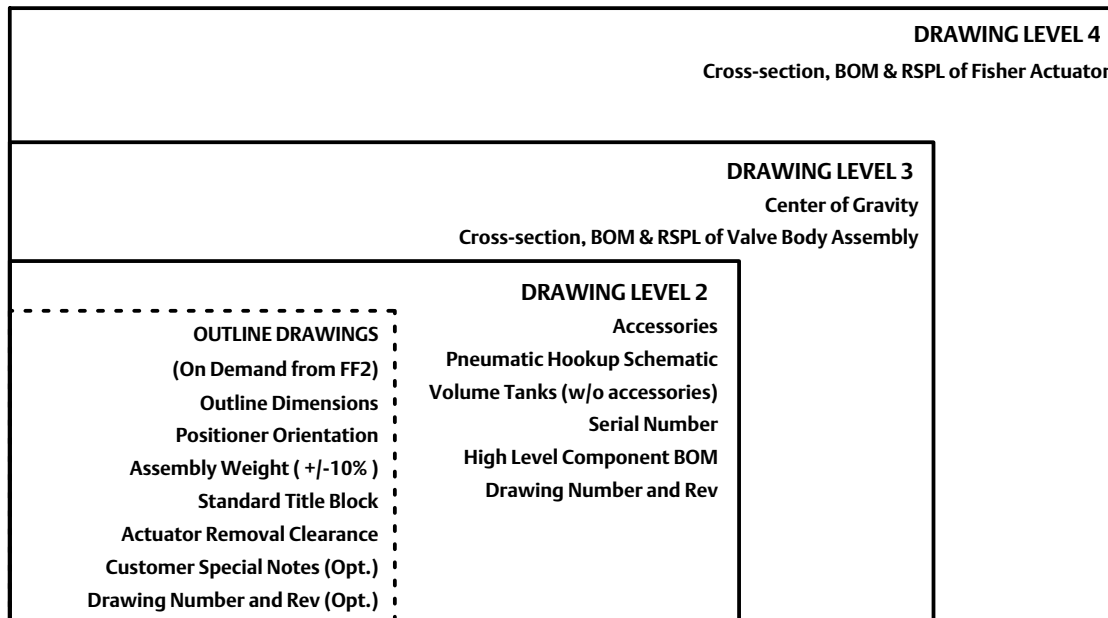
Quote to Order tool (FF2). Other drawing levels need to be selected and ordered using the FF2 ordering process. Refer to table 1 for detailed information.

Drawing Levels

Traditional flat sheet Drawings are organized by drawing levels and content increases with successive drawing levels. Based on your needs, drawing products have been organized into four levels of 2D base drawings with each successive level showing an expanded set of details. The most basic information is included in Outline Drawings that are created on demand by Emerson Sales Office using Fisher First 2

Outline Drawings

Outline Drawings are an exterior view drawing of Fisher valve product or product assembly up to valve, actuator, positioner and regulator (if selected with positioner component). These drawings are dimensioned to show necessary installation and “envelope” information needed to complete piping design work in projects or for final customer drawings direct from FF2. Users have the ability to insert any special notes and/or assign drawing number/revision as may be required per customer specification. Refer to figure 8 and 9 for sample Outline Drawings.



Note: Each higher level of drawing includes features from the lower levels. Drawing levels are different from processing levels and the two are not inter-related.

Table 1. Drawing Selection Matrix

Drawing Content	Outline	Level 2	Level 3	Level 4
Outline Dimensions	✓	✓	✓	✓
Positioner Orientation	✓	✓	✓	✓
Actuator Clearance Height	✓	✓	✓	✓
Assembly Weight +/-10%	✓	✓	✓	✓
Standard Title Block	✓	✓	✓	✓
Drawing Number & Rev.	•	✓	✓	✓
Customer Special Notes	•	✓	✓	✓
Accessories		✓	✓	✓
Pneumatic Hookup Schematic		✓	✓	✓
Volume Tanks (w/o accessories)		✓	✓	✓
High Level Component BOM		✓	✓	✓
Serial Number		✓	✓	✓
Center of Gravity		•	✓	✓
Cross Section Valve Body Assembly			✓	✓
BOM & RSPL Valve Body Assembly			✓	✓
Cross Section Fisher Actuator				✓
BOM & RSPL Fisher Actuator				✓
Special Butt Weld End Prep		•	•	•
Nameplate / Warning Tags		•	•	•
Lubricant Call-Outs			•	•
Volume Tank Accessories / Rep Accessories		•	•	•
Dual Dimensions		•	•	•
Customer Title Block		•	•	•
Other Languages		•	•	•
Wiring Diagram (Customer Provided)		•	•	•
After-Shipment Drawing Requests		•	•	•
✓ = Standard Content in Base Drawing • = Content Available as Option				

LEVEL 2 Drawings

Level 2 Drawings are an exterior view drawing of Fisher valve, actuator, positioner and other accessories (as ordered). This drawing also includes pneumatic hook up schematic, volume tank (if vol. tank accessories need to be shown in the drawing, appropriate option needs to be selected) and a high level BOM (list of components ordered in the assembly). Drawings are pictorially unique to the customer’s order. Drawing number, revision levels and serial numbers are assigned in the title block. Refer to figure 10, 11, and 12 for sample Level 2 Drawings.

LEVEL 3 Drawings

In addition to details included in base Level 2 Drawings, these drawings include a cross-sectional

view of valve body, bonnet, packing and trim parts including a BOM showing Fisher part numbers, part names and material specification for parts shown along with recommended spares. This drawing may be used for product/part traceability. Refer to figure 13 and 14 for sample Level 3 Drawings.

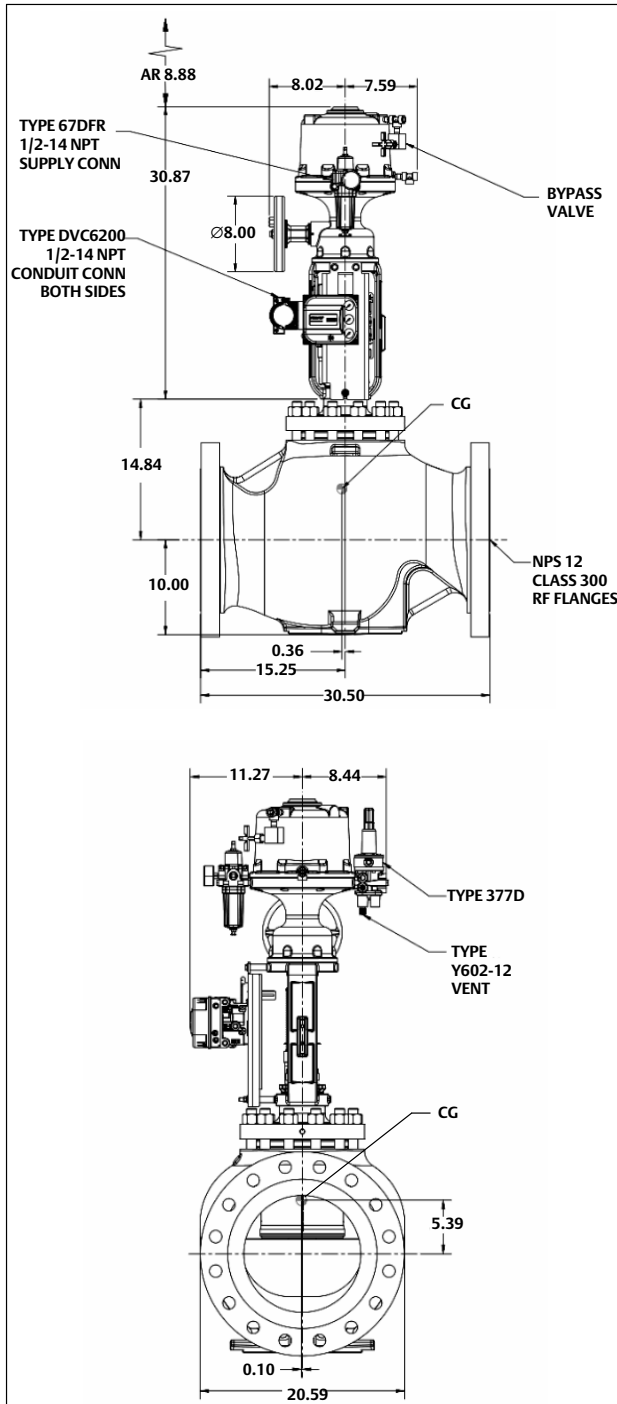
LEVEL 4 Drawings

In addition to details included in base Level 3 Drawings, these drawings include a cross-sectional view of Fisher actuator, BOM showing Fisher part numbers, part names and material specification along with recommended spares. This drawing may be used for product/part traceability. Refer to figure 15 and 16 for sample Level 4 Drawings.

Orderable Option Definitions

Center of Gravity: The point at which the entire weight of a body may be considered as concentrated so that if supported at this point the body would remain in equilibrium in any position. Refer to figure 1.

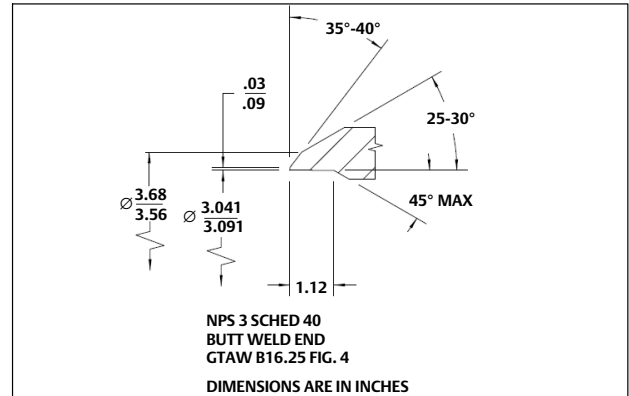
Figure 1. Center of Gravity



Special Butt Weld End Preparation:

ASME B16.25 covers the preparation of butt welding ends of piping components to be joined into a piping system by welding. It includes requirements for welding bevels. Options can be selected for any valve with Butt weld end connection to show the end preparation details. See figure 2.

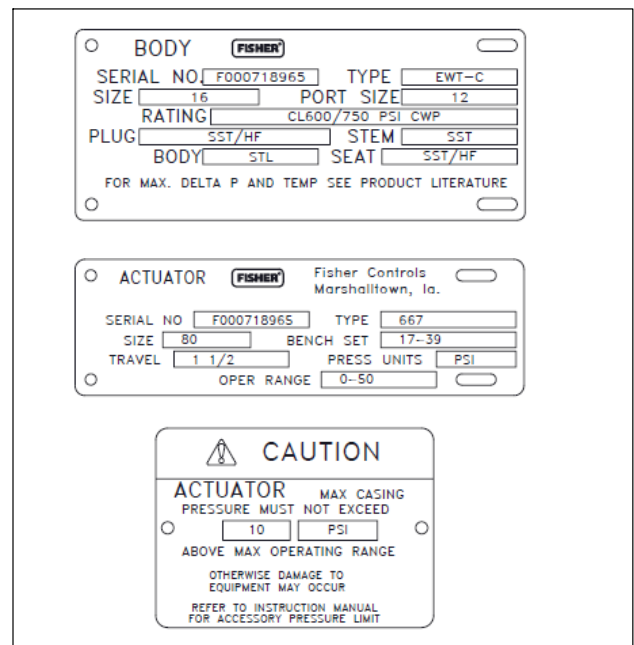
Figure 2. Butt Weld End Preparation



Nameplate / Warning Tags:

Name plates, warning and caution tags added to drawing content. See figure 3.

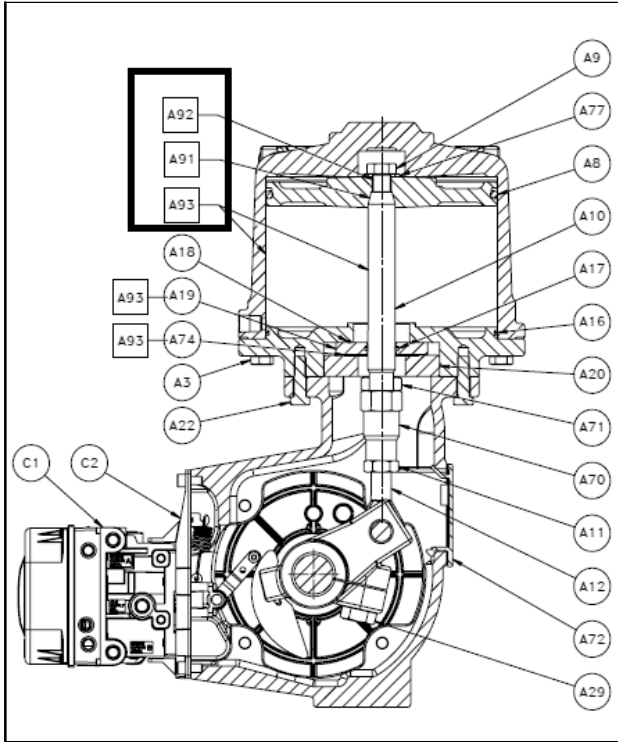
Figure 3. Nameplates and Warning Tags



Lubricant Call-Outs:

Details marking the area for lubrication, this helps the user in correct application of lubricants. See figure 4.

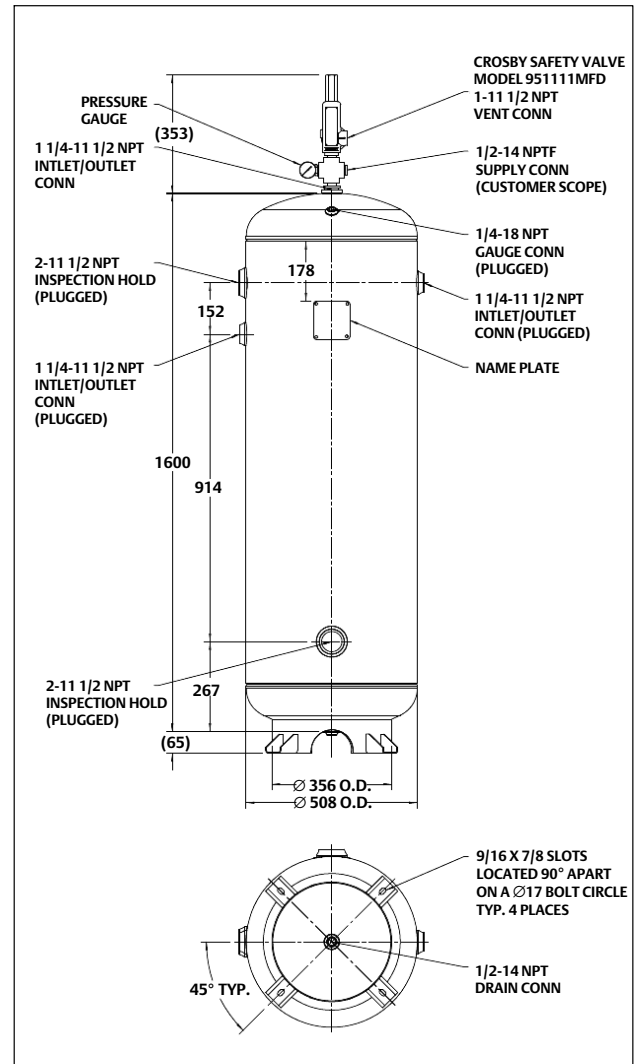
Figure 4. Lubricant Call-Outs



Volume Tank Accessories

Details of connection sizes, mounted accessories - like safety relief valves and gauges. Mounting leg configuration details. See figure 5.

Figure 5. Volume Tank Accessories



Dual Dimensions:

Standard drawing requests require users to specify either Metric or English/Imperial (inches) units for dimension markings. If this option is selected, dimensions will be provided in both metric and inches.

Other Languages:

Default language used in our drawings is English. Choices of other languages are offered through price book options.

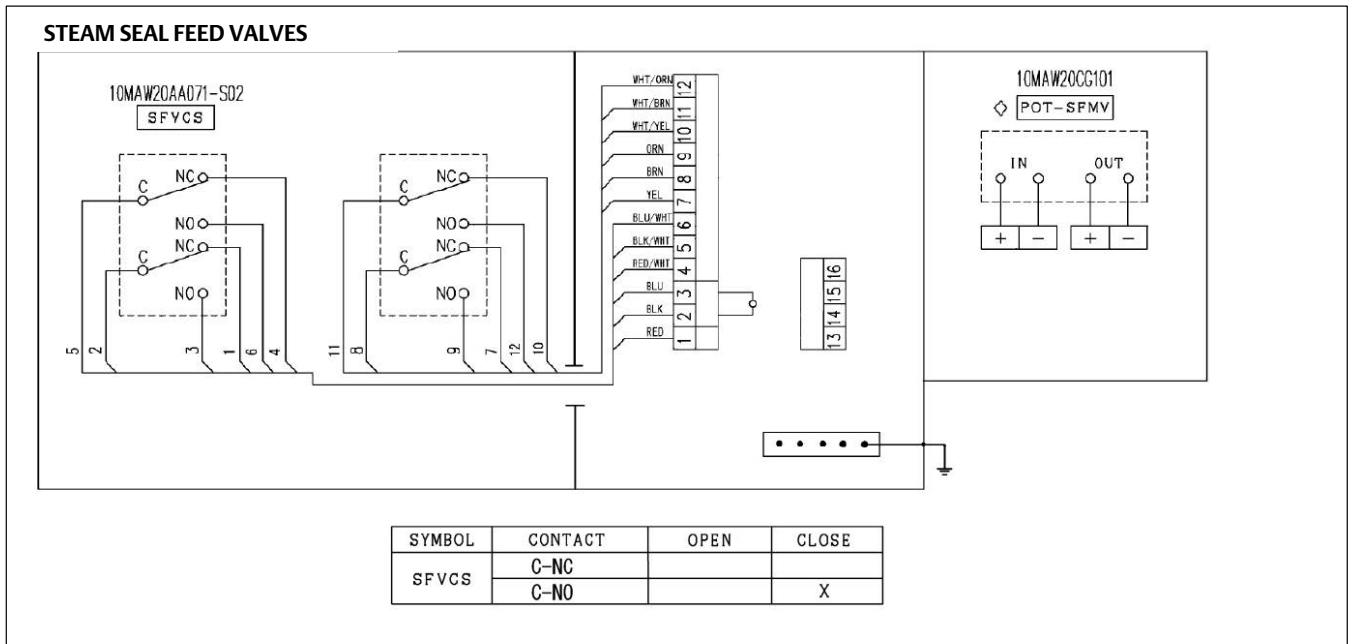
Customer Title Block:

Customer required title block can be added in addition to title block. Customer responsible to provide a CAD file with their title block format to be include in the drawing.

Wiring Diagram (Customer Provided):

CAD file must be provided for wiring diagrams that need to be shown in the drawing. You are responsible for content and accuracy of information of the supplied CAD file. See figure 6.

Figure 6. Customer Provided Wiring Diagram



After Shipment Drawing Requests:

In case drawings need to be requested for hardware that has already shipped from factory, our after-shipment process may be used to request such drawings, contact your [Emerson sales office](#) or Local Business Partner for more details.

Drawing Formats:

Drawing Formats	Outline	Level 2	Level 3	Level 4
PDF (Electronic)	✓	✓	✓	✓
Paper Copies		✓	✓	✓
2D CAD (.DWG or .DXF)	✓	✓	✓	✓
DDP (Standard)	✓			
DDP (Special)	✓			
3D CAD (.STP or other formats)	✓			

Note

For most standard constructions, FF2 users will be able to self-serve Outline Drawings in PDF, 2D CAD or Standard DDP formats on demand. Non-standard constructions and other formats will have to be requested from a Fisher product factory.

Default and most popular format for all of our drawings is .PDF. Due to Adobe and other companies offering free PDF reader programs and the format’s utility in preserving the graphic appearance in online and print versions, this format is widely used and acceptable to our customers. Our PDF drawings are searchable, allowing users to search for and locate any keyword in their drawing documents.

Paper Copies: You still have the option of ordering paper copies of Level drawings through Emerson if required.

2D CAD (.DWG or .DXF): For customers who may want to open and import our 2D drawings in their CAD software, they can order Level drawings in widely used .DWG or .DXF format. Refer to figure 17 for sample 2D CAD drawing.

DDP (Standard): In projects, many of our customers may be using a design solution like SmartPlant®

Instrumentation (or SPI). They may use a standard DDP (Dimensional Data for Piping) data file out of FF2 in .csv format. This output file also contains the control valve spec sheet data (as per SPI Form 90). Intergraph SPI/SPF/ S3D are pre-set up to easily import this standard DDP data and display 3D control valve shapes. Refer to figure 18 for sample DDP data file.

DDP (Special): It is possible for customers to be following different conventions for DDP depending on the particular design solution adopted by them. In this case, an Excel or a .csv data file and reference drawing(s) will be provided by the customer. The reference drawing defines each dimension variable. Fisher will manually populate the data file and return to customer.

3D Models: 3D envelope models may be requested for various Fisher components and assemblies to assist customers doing CAD work in 3D environment. Default output will be in .STP format but other formats may be supported on request. Refer to figure 7.

Figure 7. Sample 3D Model

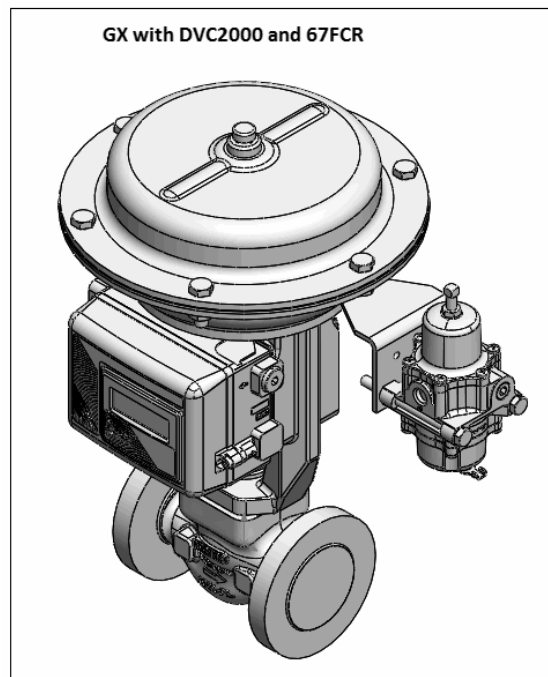


Figure 8. OUTLINE Drawing - Sliding-Stem

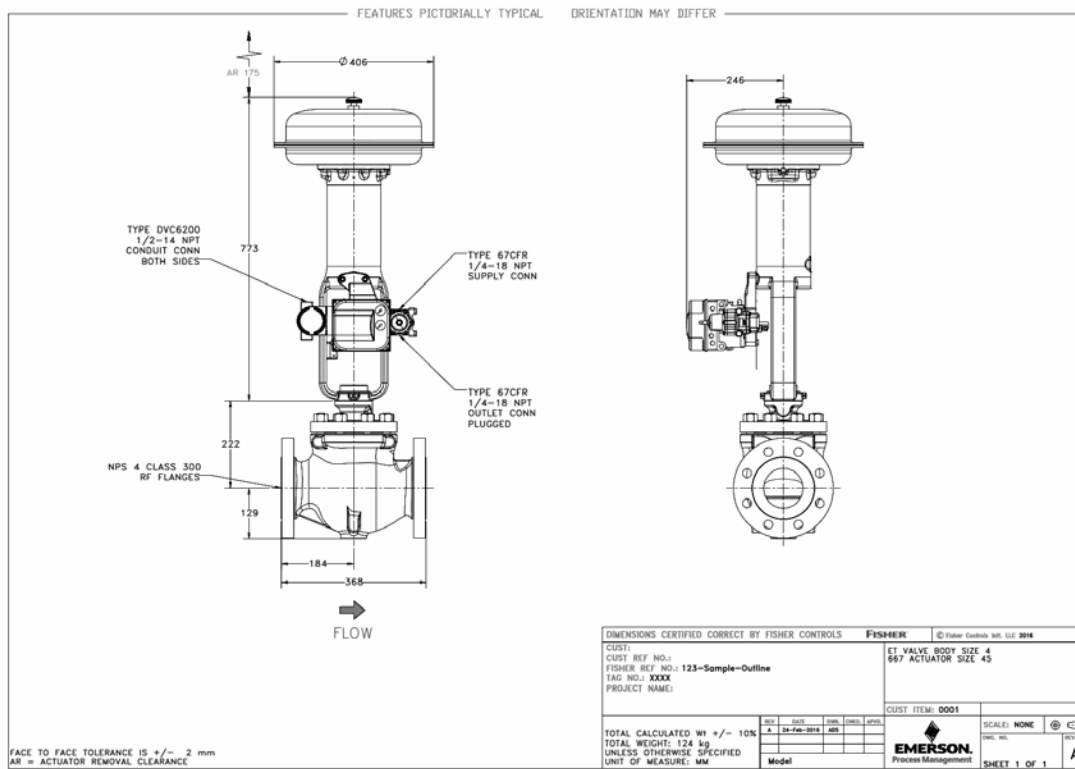


Figure 9. OUTLINE Drawing - Rotary

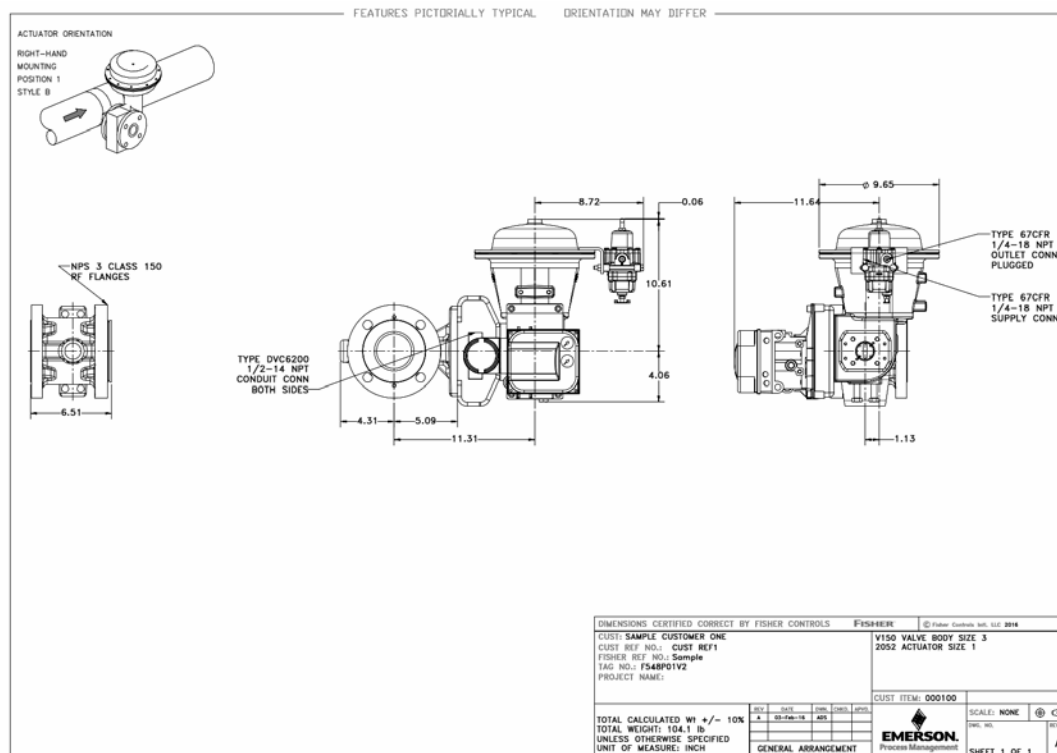


Figure 10. LEVEL 2 Drawing - Sliding-Stem (with Single-Acting Actuator)

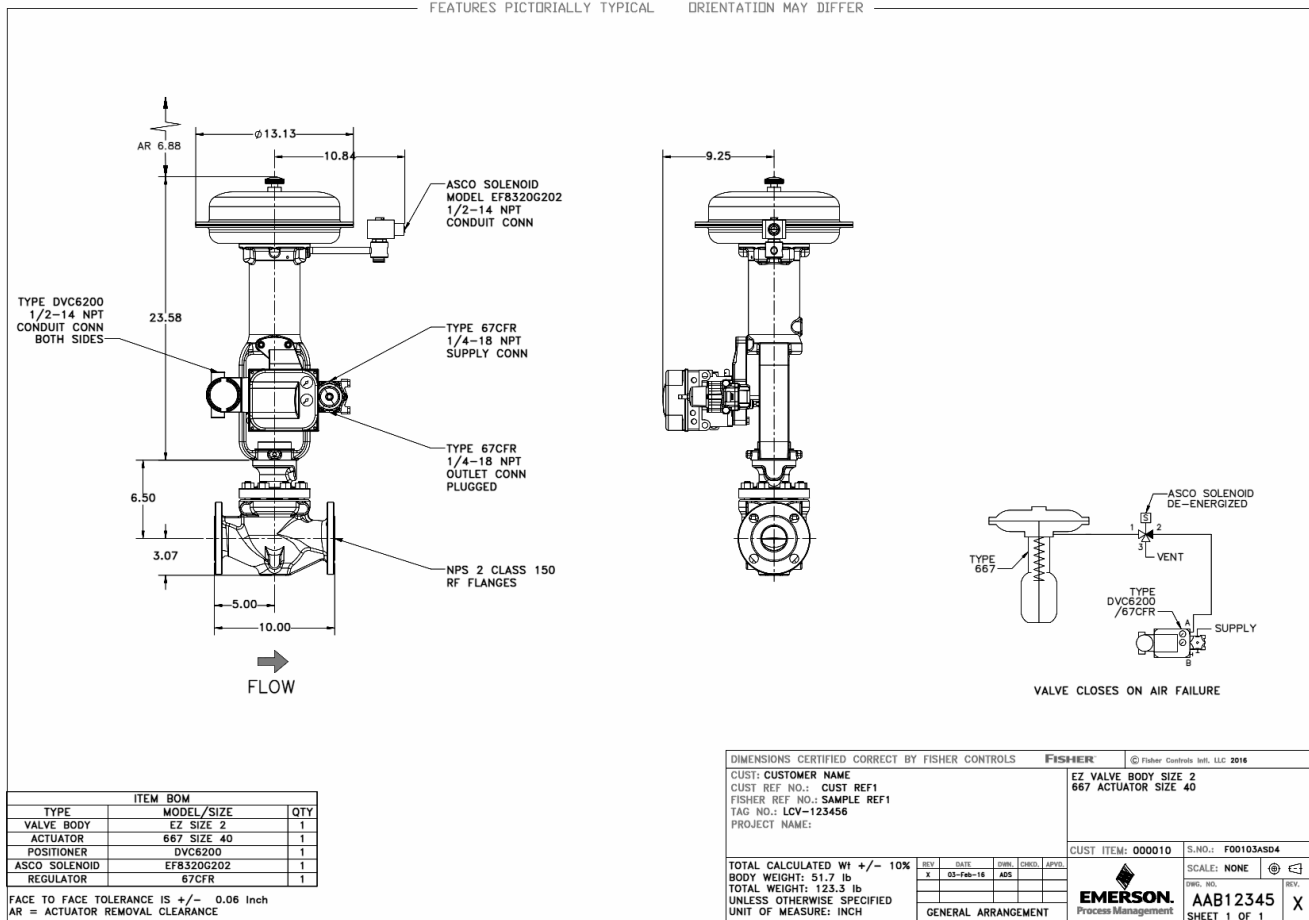


Figure 11. LEVEL 2 Drawing - Sliding-Stem (with Double-Acting Actuator and Volume Tank)

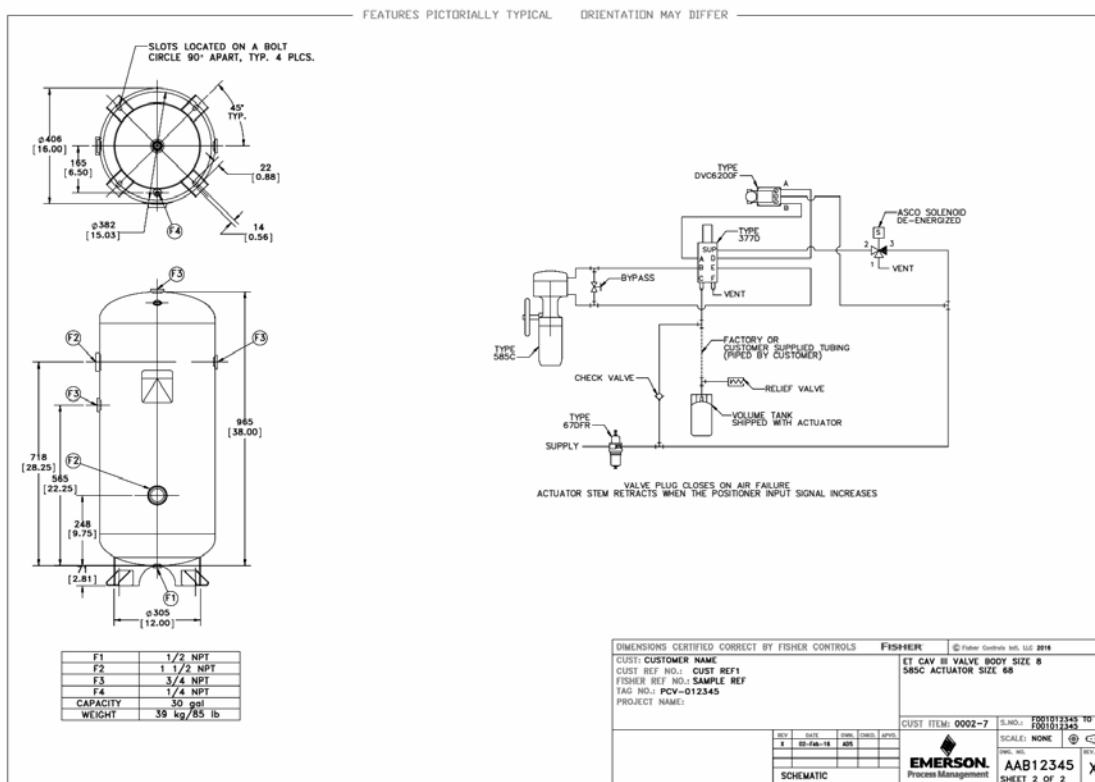
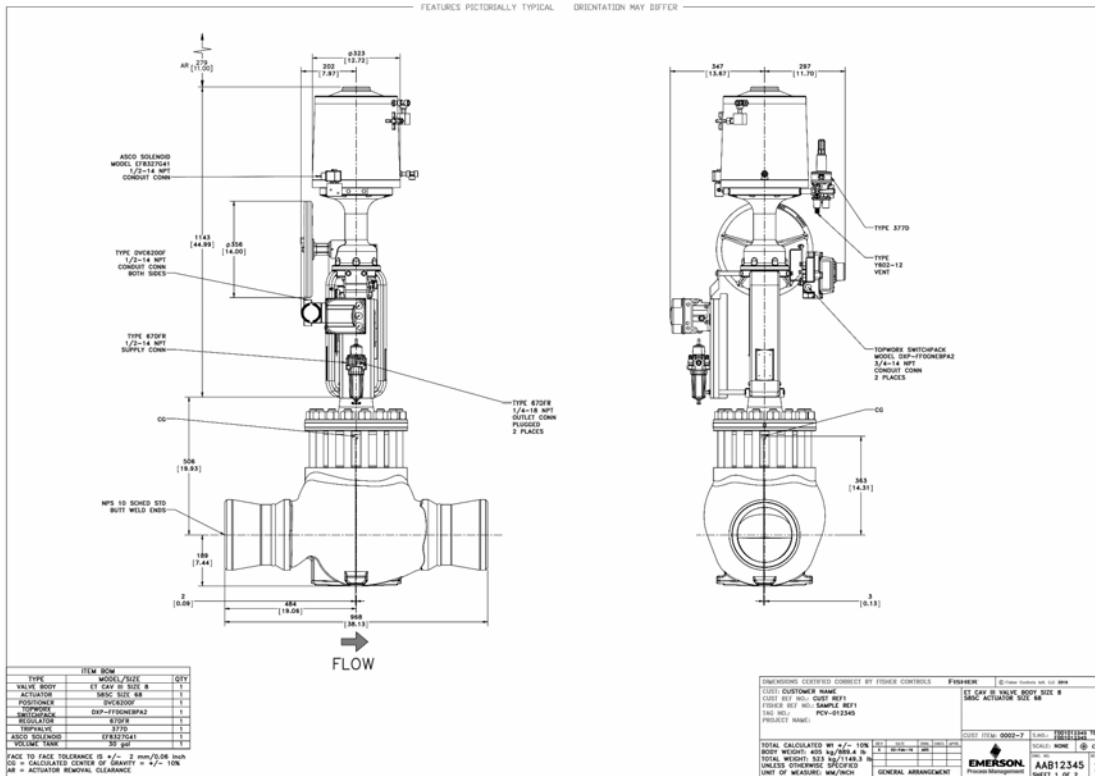


Figure 12. LEVEL 2 Drawing - Rotary (with Single-Acting Actuator)

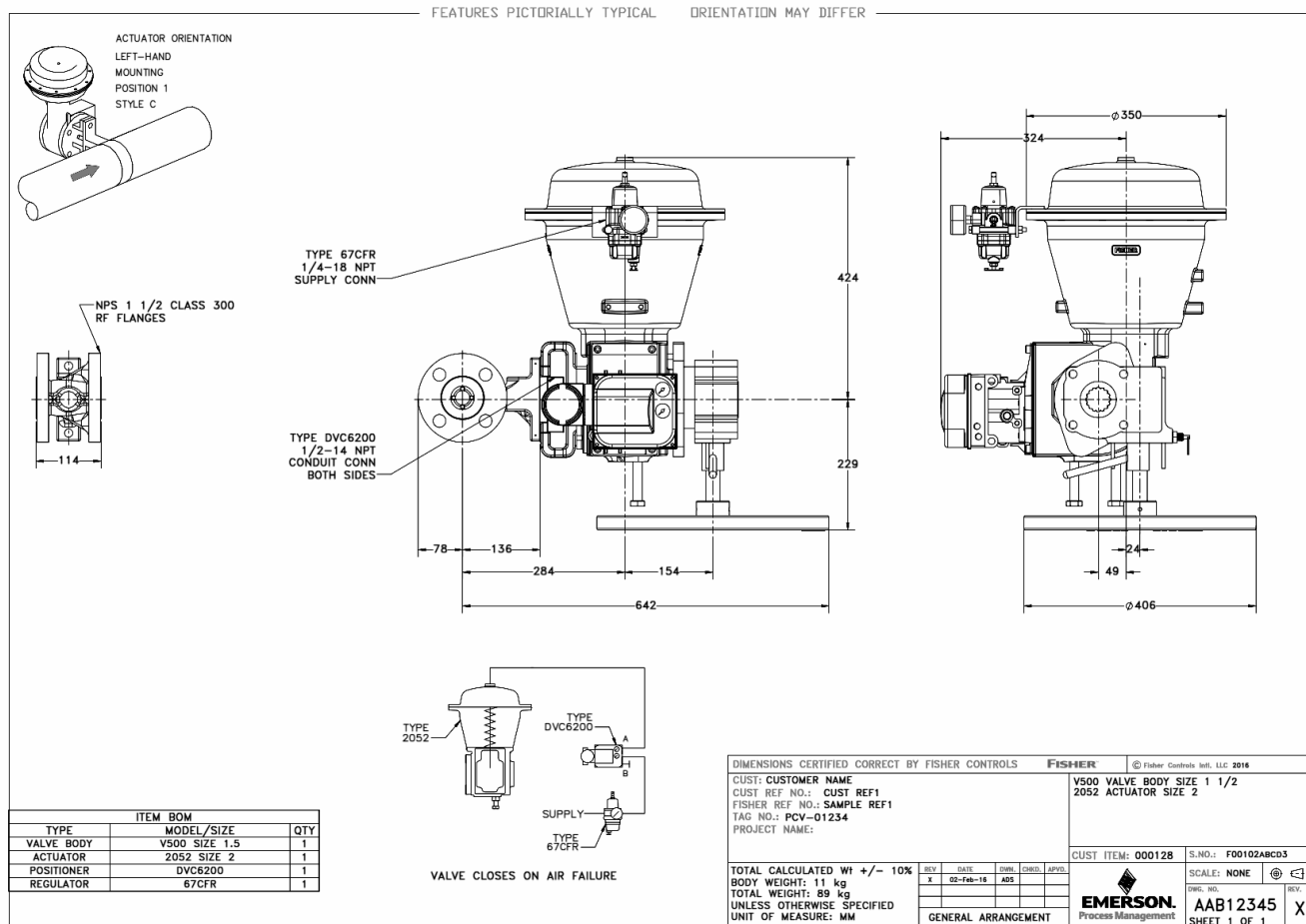


Figure 13. LEVEL 3 Drawing - Rotary (Sheets 1 and 2)

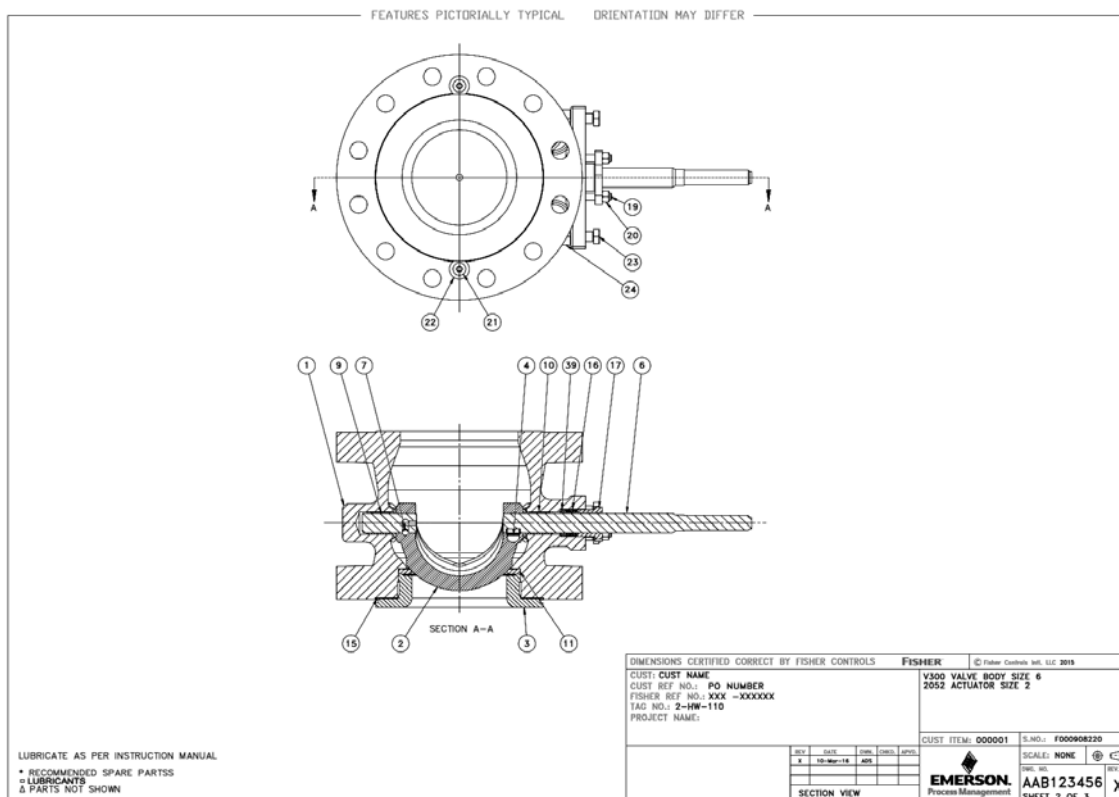
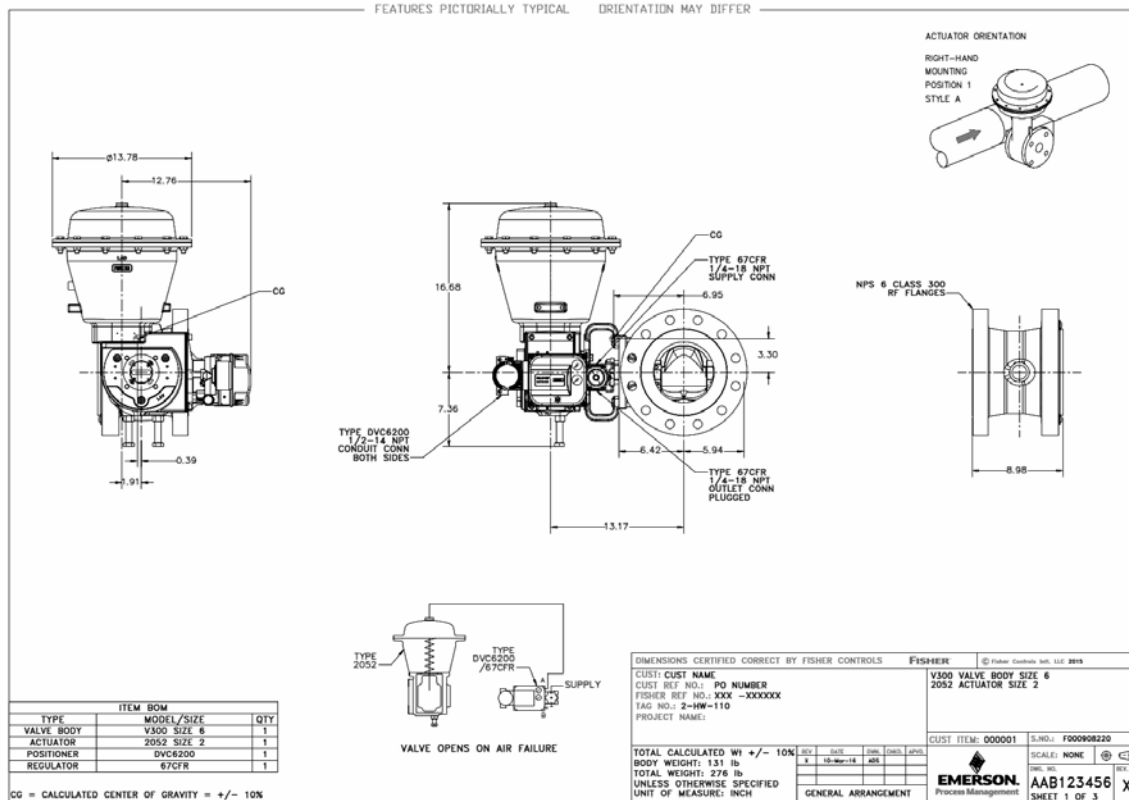


Figure 14. LEVEL 3 Drawing - Rotary (Sheet 3)

FEATURES PICTORIALLY TYPICAL ORIENTATION MAY DIFFER

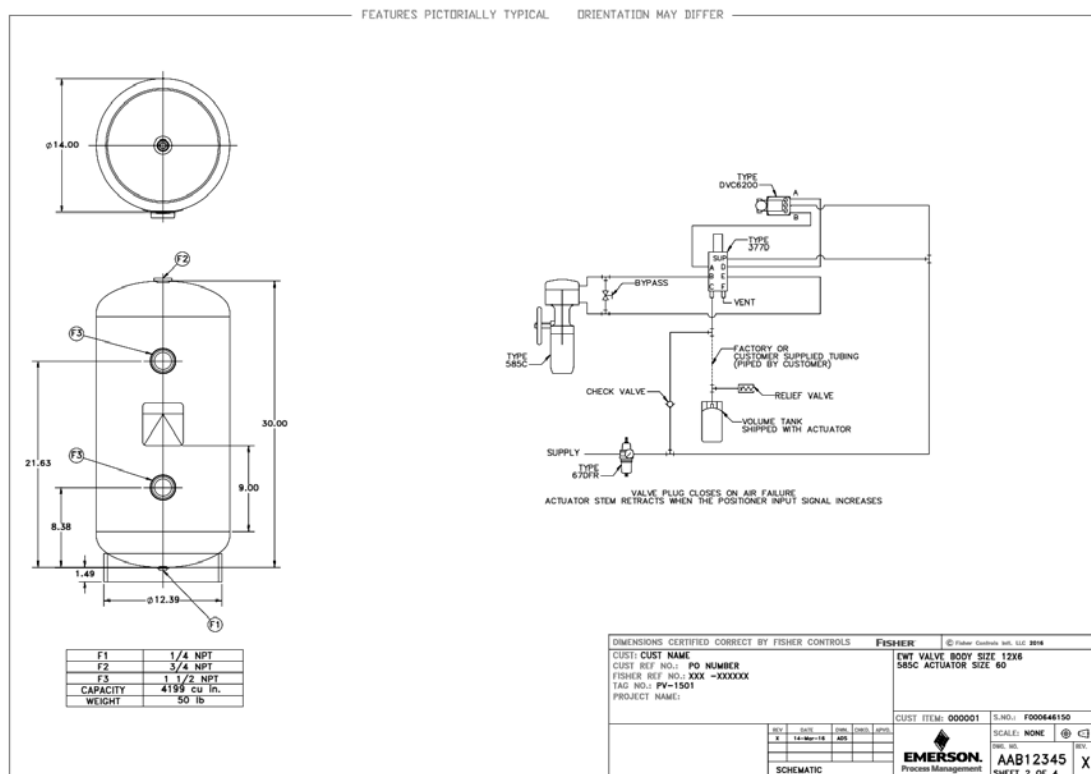
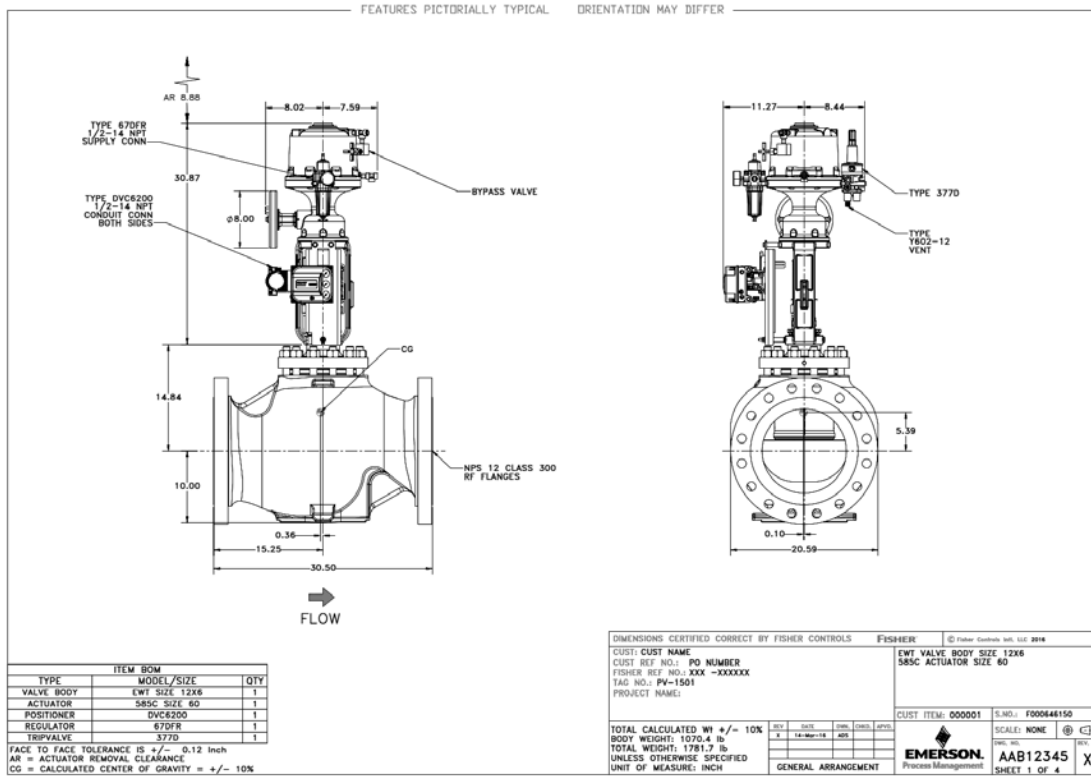
RSP	FIND NO.	QTY.	PART NUMBER	PART NAME	DESCRIPTION	MATERIAL
	1	1	47B6786X862	VALVE BODY	NPS 6 CL300 RF V300B W/O TAP	CGBM FMS20B114
*	2	1	GE11073X312	VEE-BALL,CAM CONTOUR	6 RH/LH MTG V150B,V200B,V300B	CGBM/CR PLATE
	3	1	21B0678X982	SEAL PROTECTOR RING	NPS 6,CL150-600,TCM,9.00 F-F	CF3M, FMS20B114
*	4	1	12B9531X012	KEY,TAPER,W/HEAD	1.26 DEC X 1.86	R30006,FMS 31A1
*	6	1	37B2507X022	DRIVE SHAFT	6 V150,V200,V300	S20910 FMS20B21
*	7	1	18A6138X012	PIN,GROOVE,TYPE 24	5/16X2.00	S31600
*	9	1	11B0733X012	SHAFT,FOLLOWER	6	S20910 FMS20B21
*	10	2	27B7136X012	BEARING LINED,COMPOSITE	6,1 IN. SHAFT,VLINE (B SERIES)	PTFE/PEEK
*	11	1	13A2619X112	SEAL, BALL	6 V150/V200/V300	PTFE/PEEK/MOS2
*	15	1	11B0681X032	GASKET	6.28X8.34X.01	GRAFOIL,GTB
*	16	1	12A8B32X022	PACKING,SET	1X1 3/8	
	17	1	26A6077X012	PACKING FOLLOWER	1 IN SHAFT	316-A FMS 20B64
	19	2	12A8B35X022	STUD, CONTINUOUS THREAD	3/8-16X 1.75,LE=1.24	BBM CLASS 2
	20	2	1A375335252	NUT,HEX	3/8-16	S31600
	21	2	13B8412X012	SCREW,CAP,HEX SOCKET	3/8-16X0.62 BUTTON HEAD	SST
	22	2	1A3756X0012	WASHER,PLAIN	3/8,.44X1.00X.08	SST
	23	4	1A3616X0062	SCREW,CAP,HEX HD	1/2-13X2.00	SAEGR5/NCF3
	24	4	1A3772X0892	NUT,HEX,HEAVY	1/2-13	SA194-2H/NCF2
Δ	26	1	18B2294X012	TAG	LABEL, V300	18-8 SST
Δ	27	4	1A368228982	SCREW, DRIVE	2X3/16	18-8 SST
Δ	30	1	12B6400X0A2	NAMEPLATE	ENGLISH, FISHER	SITE MUST PICK REQD PART NO.
Δ	31	1	1D8B4799012	SEAL & WIRE	12 LONG	LEAD
*	39	1	16A6085X012	PACKING BOX RING	1 SHAFT X 1 3/8	316-A FMS20B64

DIMENSIONS CERTIFIED CORRECT BY FISHER CONTROLS		FISHER		© Fisher Controls Intl, LLC 2015	
CUST: CUST NAME			V300 VALVE BODY SIZE 6		
CUST REF NO.: PO NUMBER			2052 ACTUATOR SIZE 2		
FISHER REF NO.: XXX -XXXXXX					
TAG NO.: 2-HW-110					
PROJECT NAME:					
CUST ITEM: 000001		S.NO.: F000908220			
REV.	DATE	OWN.	CHKD.	APVD.	
X	10-Mar-16	ADS			
BILL OF MATERIALS					
EMERSON Process Management			SCALE: NONE	⊕	REV.
			DWG. NO.		
			AAB123456		X
			SHEET 3 OF 3		

LUBRICATE AS PER INSTRUCTION MANUAL

* RECOMMENDED SPARE PARTSS
□ LUBRICANTS
Δ PARTS NOT SHOWN

Figure 15. LEVEL 4 Drawing - Sliding-Stem (Sheets 1 and 2)



Product Bulletin

39:001
August 2017

Customer Drawings
D104179X012

Figure 16. LEVEL 4 Drawing - Sliding-Stem (Sheets 3 and 4)

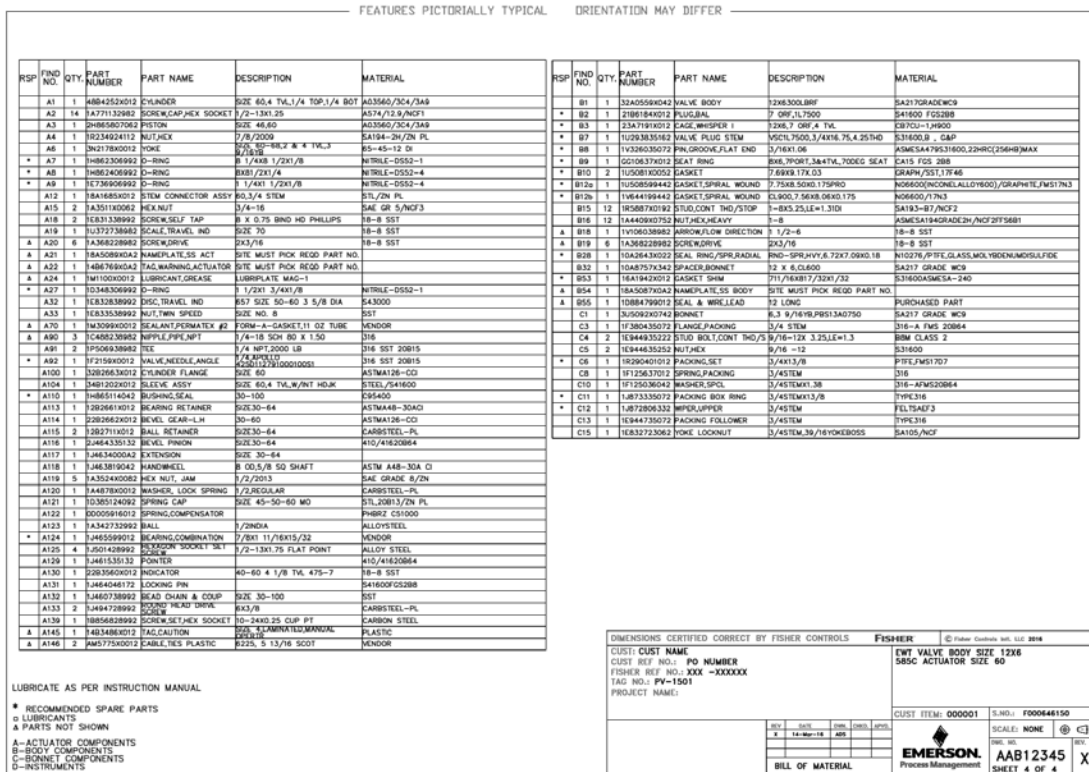
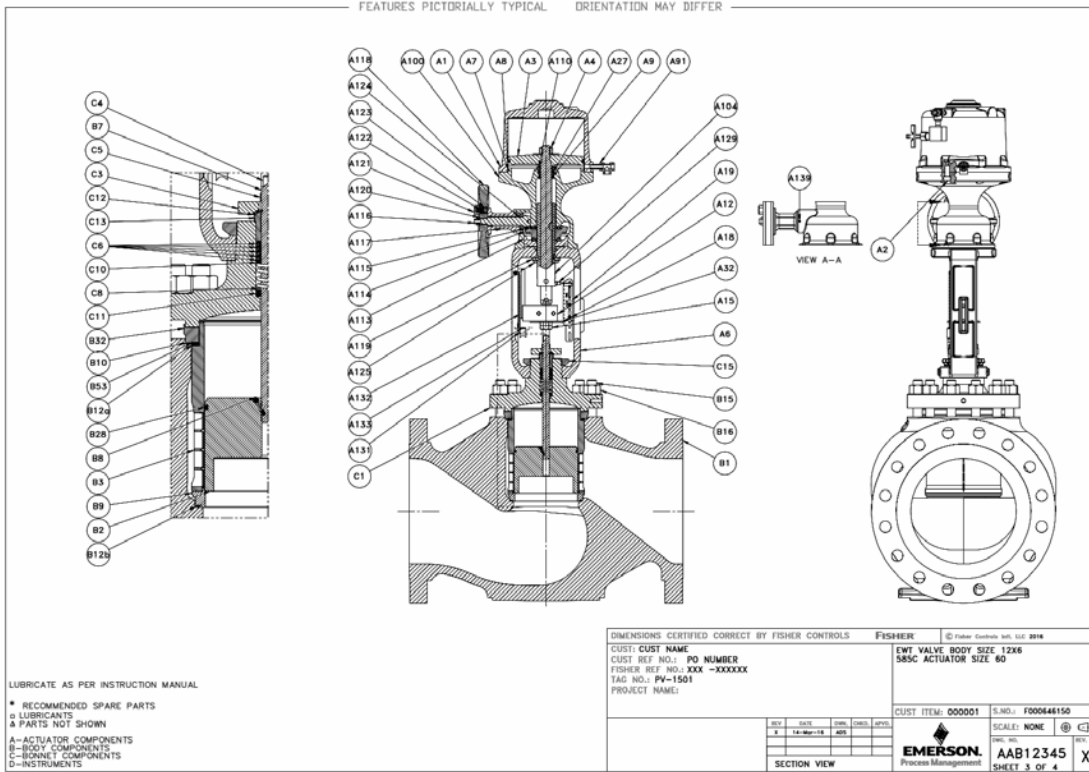


Figure 17. LEVEL 2 Drawing (2D CAD) - Rotary (with Single-Acting Actuator)

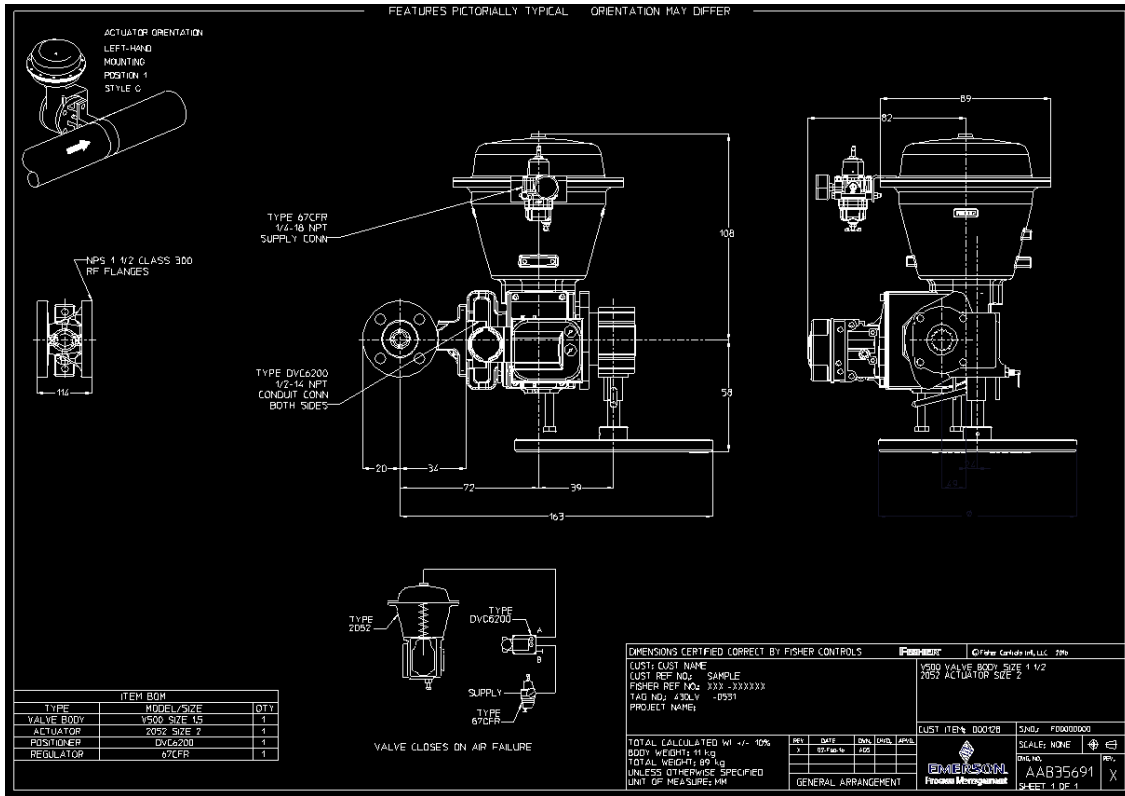
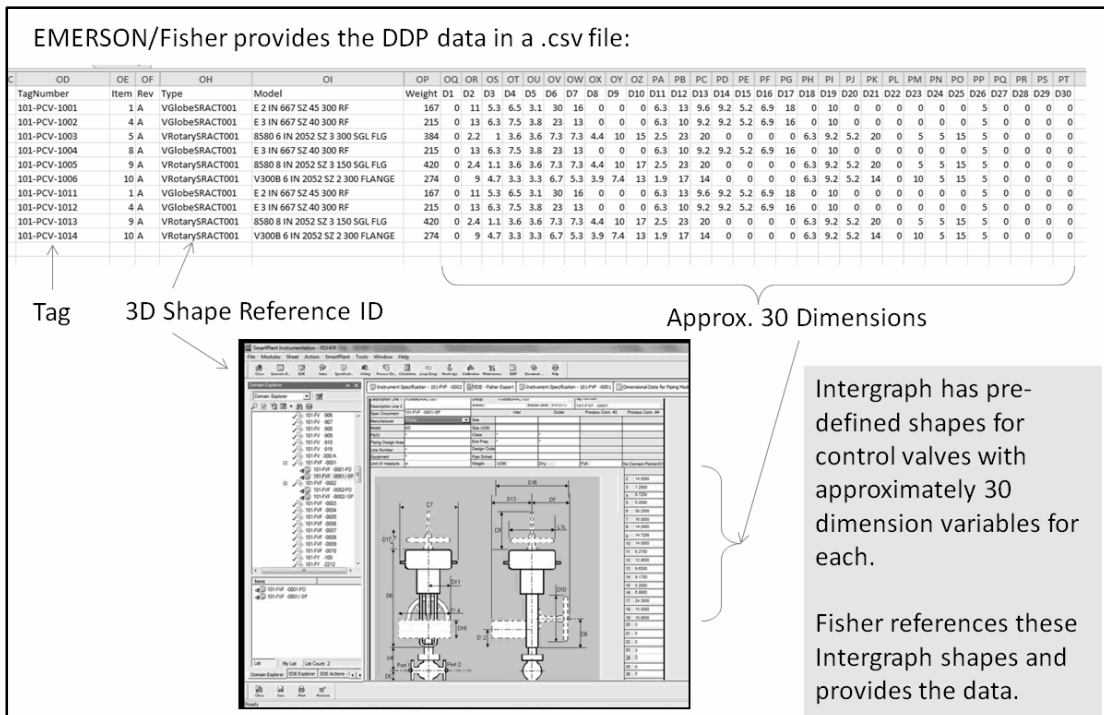


Figure 18. DDP (Dimensional Data for Piping)



Neither Emerson, Emerson Automation Solutions, nor any of their affiliated entities assumes responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Fisher is a mark owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. Emerson Automation Solutions, Emerson, and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Automation Solutions
Marshalltown, Iowa 50158 USA
Sorocaba, 18087 Brazil
Cernay, 68700 France
Dubai, United Arab Emirates
Singapore 128461 Singapore

www.Fisher.com

