



# A-T Controls, Inc.

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**Engineer:** SLJ **No.:** DI00043  
**Date Created:** 07/09/2019  
**Date Modified:** 04/20/2023

## TSM Extensions

TSM's are designed for use with fugitive emissions to act as another form of packing on valve series that are already designed for fugitive emissions. When used manually the handles are lockable. TSM's also allow for an extended mounting pad to which an actuator can be directly mounted. They can be added to the 22, 24, 33, 55, 77, T77, H78, 8R, 88, 90, D9 and F91 Series. See dimensional drawings P02774, P02776, T11580 and P02997 below.

## Spring Return Handles

Spring return handles are designed for manual operation and can spring open or close. Depending on the set up the valve will either spring open or closed when the handle is released. They are made up of a triangle pad and a handle. The spring is contained in the handle and is attached to the triangle pad, which can be seen in P03000 along with dimensions and applicable sizes. They can be added to the 22, 33, 77, 88/F88, F91, D9, FD9, 8R, F8R, 83/F83, and 90/F90 series. The F91, 8R / F8R, 83/F83 and 90/F90 series will additionally require a TSM for mounting purposes.

## Oval Handles

Oval handles are designed to resist accidental operation due to snags or bumps and have a smaller footprint than standard lever handles to allow for operation in tighter spaces. The ability to lock-out valves is provided via an integral latch-lock. Our oval handles are compatible with the following valve series:

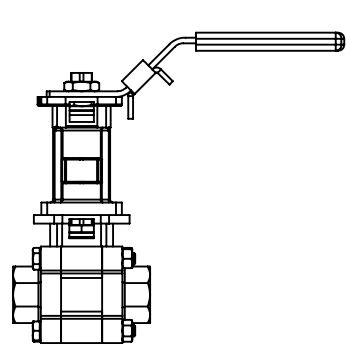
90, 55, 83, 8R, 88, 33, 77, H78, 22

Please note that oval handles are not compatible with TSM extensions.

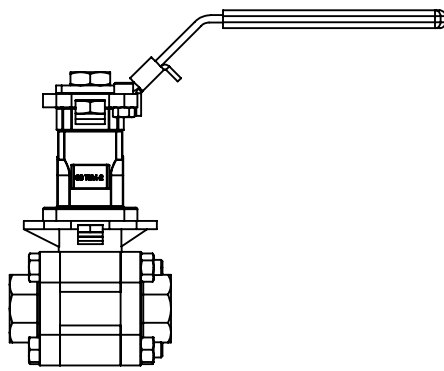


Manual and Automated Quarter Turn Valves  
Complete Valve and Damper Automation

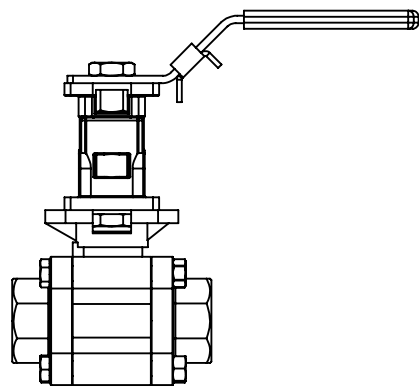




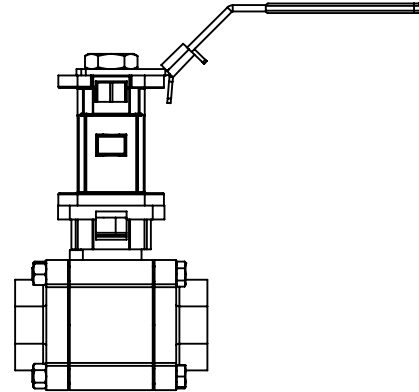
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1/4" - 1/2"



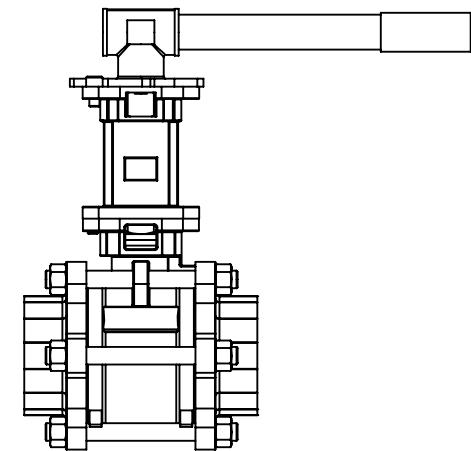
88-TSM-2  
3/4"



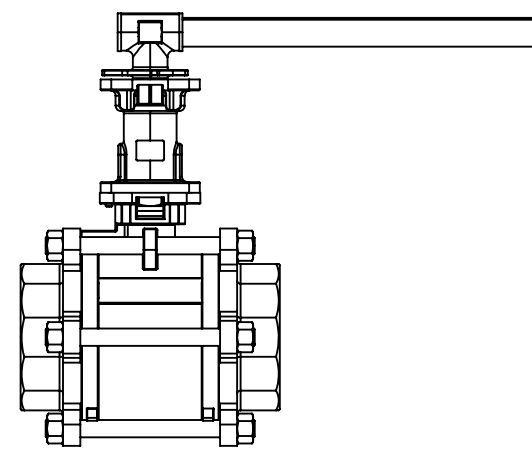
88-TSM-3  
1" - 1-1/4"



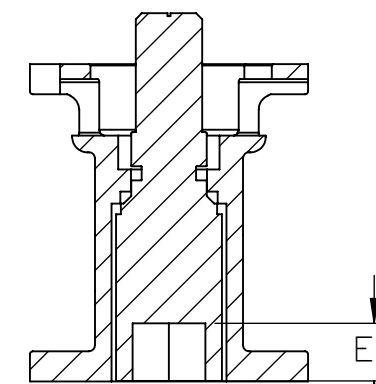
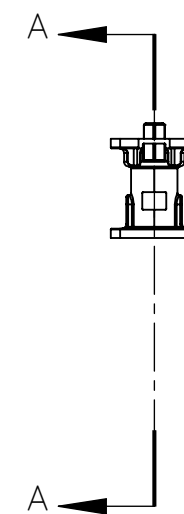
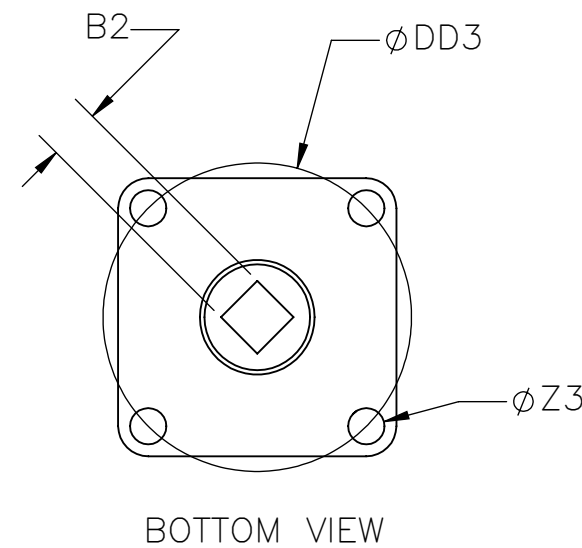
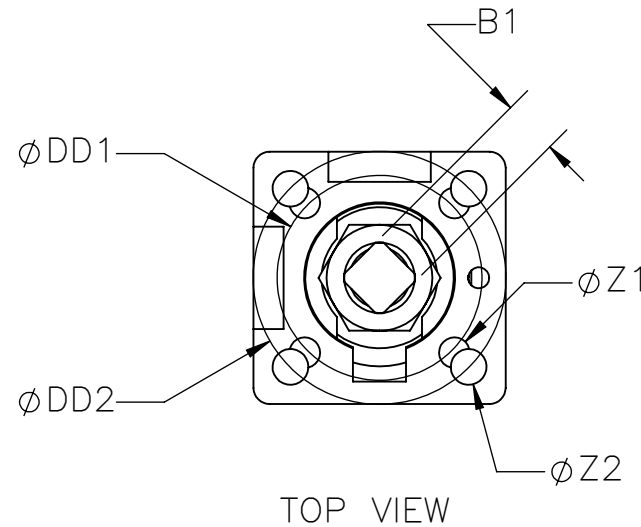
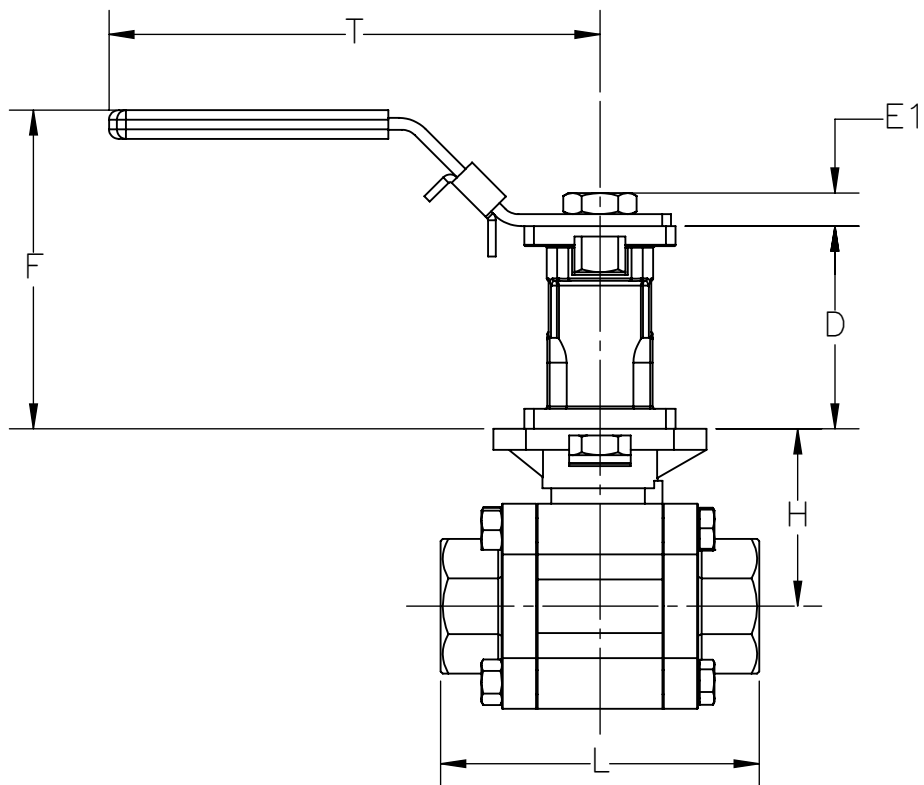
88-TSM-4  
1-1/2" - 2"



88-TSM-5  
2-1/2"



88-TSM-6  
3" - 4"



SECTION A-A  
SCALE 1 : 2.5

\*NOTE: 2-1/2" AND 3" 77 / T77 / H78 SERIES USE D9-TSM-3 WITH C11251 INSERT

TSM for Series 88 / 22 / 24 / 33 / 77 / T77 / H78 / and 91																																
TSM	88						22		24		33		77 / T77 / H78*		91		Valve		Top TSM Dimensions						Bottom TSM Dimensions							
	Sizes														L	H	D	E1	F	T	B1	phi DD1	phi DD2	ISO	phi Z1	phi Z2	phi DD3	ISO	phi Z3	B2	E2	
88-TSM-1	1/4" - 1/2"	1/4" - 3/4"	1/4" - 3/4"	1/4" - 1/2"	1/2" - 3/4"	N/A												2.43	0.35	3.78	5.47	0.354	1.417	1.654	F03/F04	0.24	0.24	1.654	F04	0.26	0.354	0.402
88-TSM-2	1/4" - 3/4"	1/4" - 3/4"	1/4" - 3/4"	1/4" - 1/2"	N/A	N/A												2.65	0.43	4.21	6.50	0.433	1.654	1.969	F04/F05	0.24	0.28	1.969	F05	0.30	0.354	0.520
88-TSM-3	1" - 1-1/4"	1" - 1-1/4"	1" - 1-1/4"	3/4" - 1"	1"	1/2" - 1"												2.65	0.43	4.21	6.50	0.433	1.654	1.969	F04/F05	0.24	0.28	1.969	F05	0.30	0.433	0.520
88-TSM-4	1-1/2" - 2"	1-1/2" - 2"	1-1/2" - 2"	1-1/4"	1-1/2" - 2"	1-1/2"												3.38	0.55	5.35	8.46	0.551	1.969	2.756	F05/F07	0.30	0.35	2.756	F07	0.47	0.551	0.677
88-TSM-5	2-1/2"	N/A	N/A	1-1/2" - 2-1/2"	4"	2-1/2" - 3"												4.14	0.66	6.46	11.81	0.748	2.756	4.016	F07/F10	0.39	0.47	4.016	F10	0.47	0.748	0.795
88-TSM-6	3" - 4"	N/A	N/A	N/A	N/A	N/A												4.14	0.66	6.46	14.45	0.748	2.756	4.016	F07/F10	0.39	0.47	4.016	F10	0.47	0.748	0.795



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**VALVES, ACTUATORS, AND AUTOMATION CONTROLS**

SHEET 1 of 1

DO NOT SCALE DRAWING

DESCRIPTION  
22 / 24 / 33 / 77 / 88 / 91 TSM DIMENSIONAL DRAWING

MATERIAL

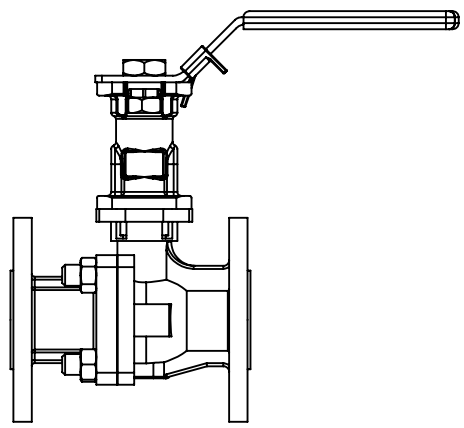
DRAWING NO.

P02774

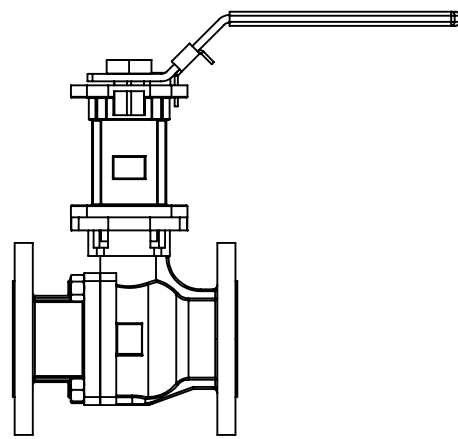
REVISION

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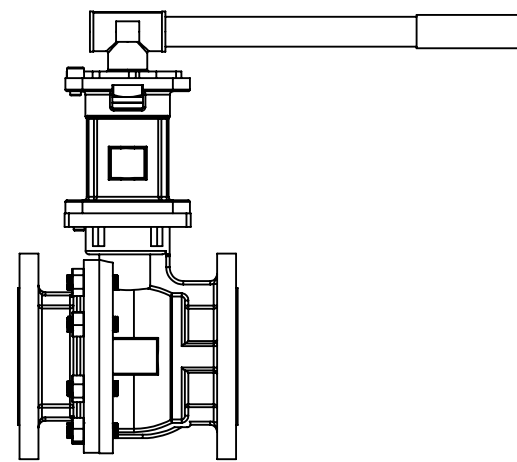
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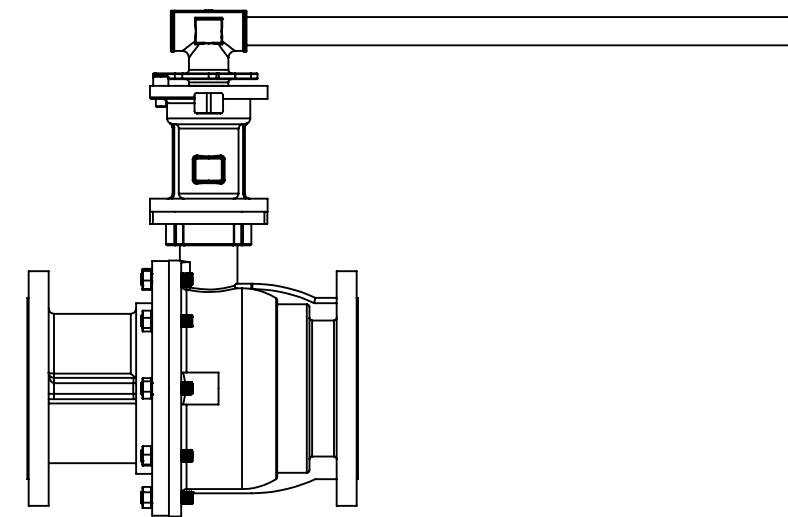
D9-TSM-1  
1/2" - 1"



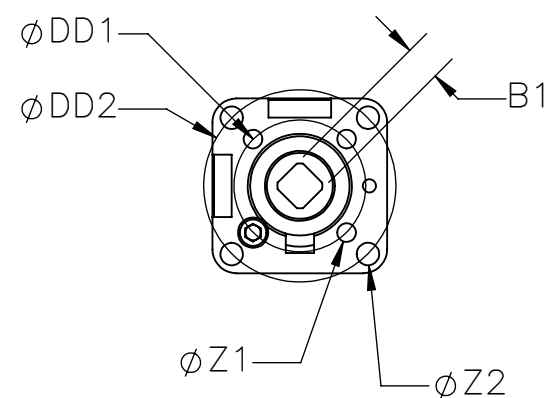
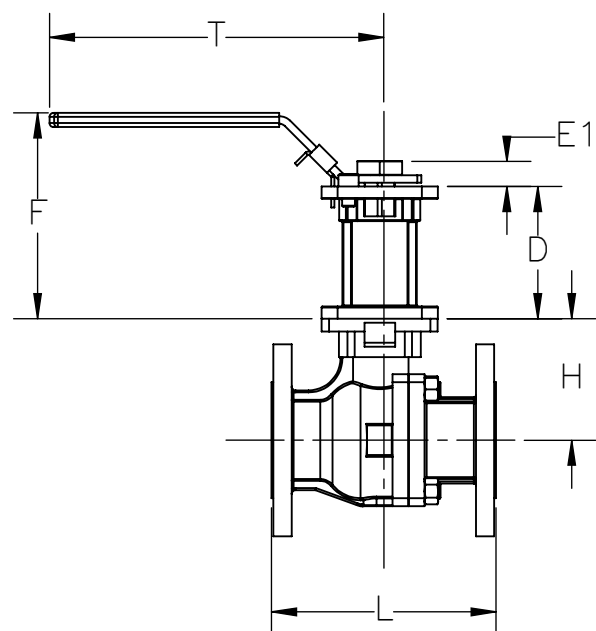
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1-1/2" - 2-1/2"



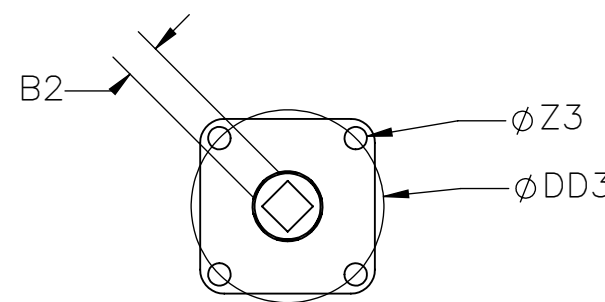
D9-TSM-3  
3" - 4"



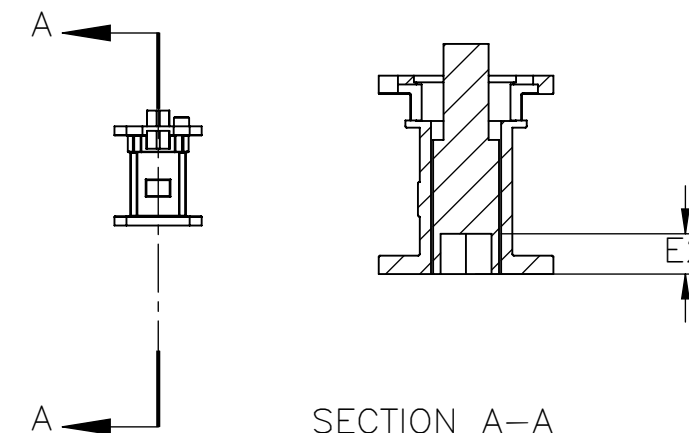
D9-TSM-4  
6"



TOP VIEW



BOTTOM VIEW



SECTION A-A

TABLE APPLIES TO CLASS 150/300/600  
NOTE: FOR THE 1" FD9-F6, USE 88-TSM-4  
CLASS 600 IS ONLY AVAILABLE UP TO 2"

Series D9 TSM																		
TSM	D9 Size	Valve Dimensions		Top TSM Dimensions								Bottom TSM Dimensions						
		L	H	D	E1	F	T	B1	ØDD1	ØDD2	ISO	ØZ1	ØZ2	ØDD3	ISO	ØZ3	B2	E2
D9-TSM-1	1/2" - 1"	Refer to catalog for valve dimensions		2.68	0.43	4.21	6.50	0.433	1.654	1.969	F04/F05	0.24	0.28	1.969	F05	0.30	0.433	0.52
D9-TSM-2	1-1/2" - 2-1/2"			4.17	0.66	6.26	10.35	0.748	2.756	4.016	F07/F10	0.39	0.47	4.016	F10	0.47	0.748	0.80
D9-TSM-3	3" - 4"			4.92	0.91	6.26	10.35	0.866	2.756	4.016	F10/F12	0.39	0.47	4.016	F10	0.47	0.866	0.80
D9-TSM-4	6"			5.91	1.12	8.50	27.76	1.063	4.921	5.512	F12/F14	0.55	0.71	4.921	F12	0.55	1.063	0.98



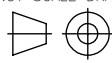
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VALVES, ACTUATORS, AND AUTOMATION CONTROLS

SHEET 1 of 1

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DESCRIPTION  
D9 TSM DIMENSIONAL DRAWING

MATERIAL

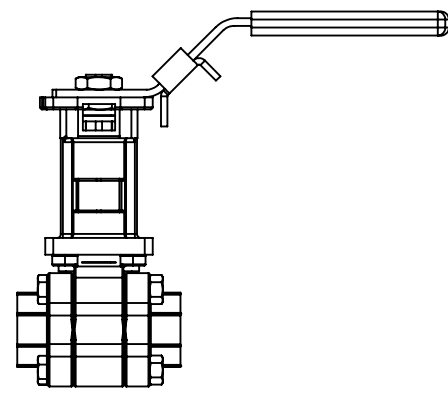
DRAWING NO.

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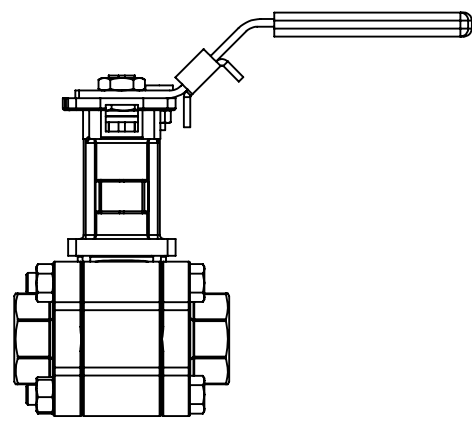
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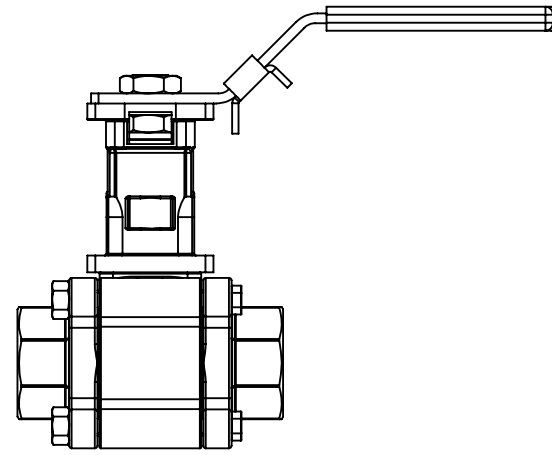
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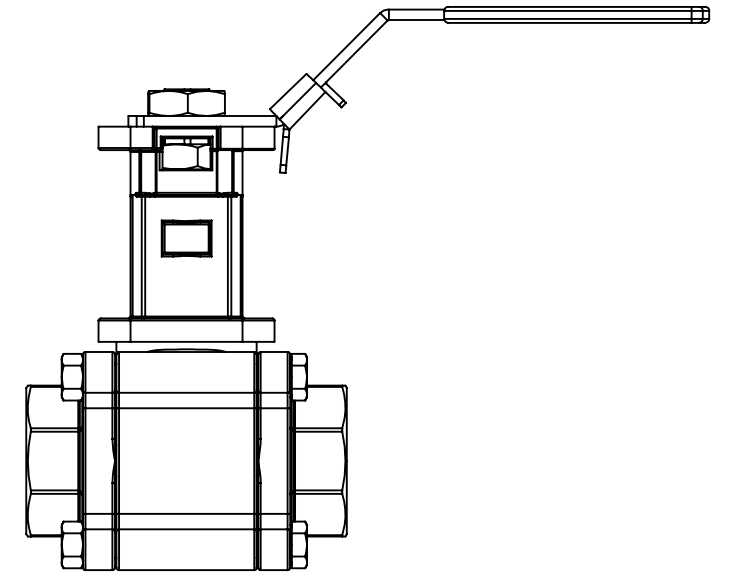
8R-TSM-1



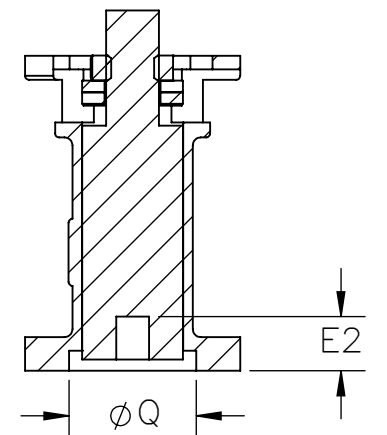
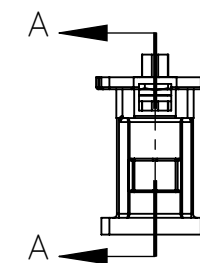
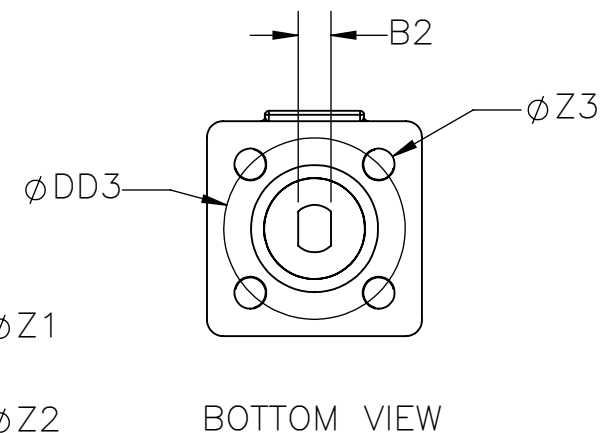
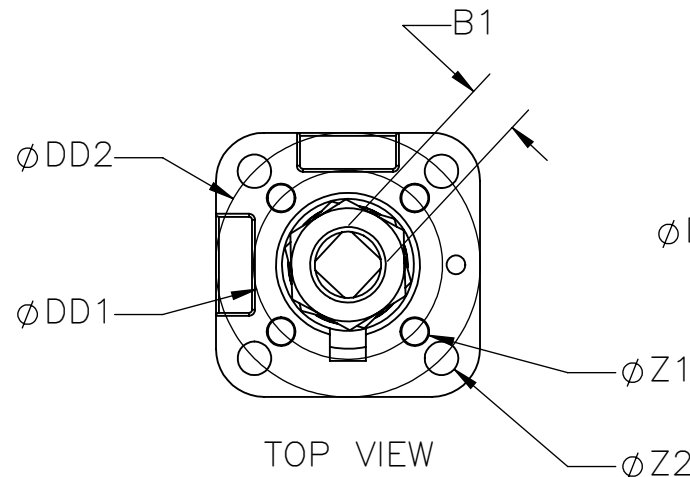
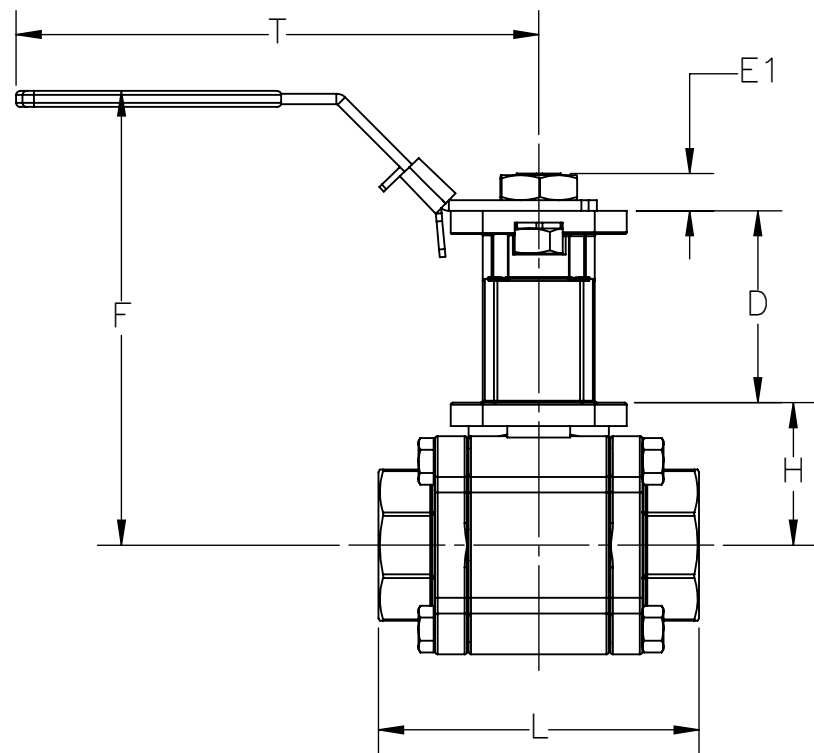
8R-TSM-2



8R-TSM-3



8R-TSM-4



SECTION A-A  
SCALE 1 : 1.5

NOTE: OPTIONAL SNIFFER PORT  
AVAILABLE FOR 8R TSM'S (SP)

TSM for Series 8R / 83 / 55

TSM	8R    83    55			Valve Dimensions		Top TSM Dimensions								Bottom TSM Dimensions								
	Sizes			L	H	D	E1	F	T	B1	ØDD1	ØDD2	ISO	ØZ1	ØZ2	SP	ØDD3	ISO	ØZ3	B2	E2	ØQ
8R-TSM-1	1/4" - 1/2"	1/4" - 3/8"	N/A	Refer to catalog for valve dimensions		2.52	0.39	3.96	5.535	0.354	1.417	1.654	F03/F04	0.24	0.24	1/16" NPT	1.417	F03	0.24	0.256	0.335	0.992
8R-TSM-2	3/4" - 1"	1/2" - 3/4"	1/4" - 3/4"			2.52	0.39	3.96	5.535	0.354	1.417	1.654	F03/F04	0.24	0.24	1/16" NPT	1.417	F03	0.24	0.256	0.768	0.992
8R-TSM-3	1-1/4" - 1-1/2"	1" - 1-1/4"	1" - 1-1/4"			2.54	0.43	4.09	6.496	0.433	1.654	1.969	F04/F05	0.24	0.28	1/8" NPT	1.654	F04	0.24	0.315	1.016	1.189
8R-TSM-4	2" - 2-1/2"	1-1/2" - 2"	1-1/2" - 2"			3.40	0.55	5.21	8.464	0.551	1.969	2.756	F05/F07	0.30	0.35	1/8" NPT	1.969	F05/F07	0.28	0.382	1.272	1.543



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VALVES, ACTUATORS, AND AUTOMATION CONTROLS

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DESCRIPTION  
8R / 83 / 55 TSM DIMENSIONAL DRAWING

SHEET 1 of 1

MATERIAL	
DRAWING NO.	REVISION
T11580	A

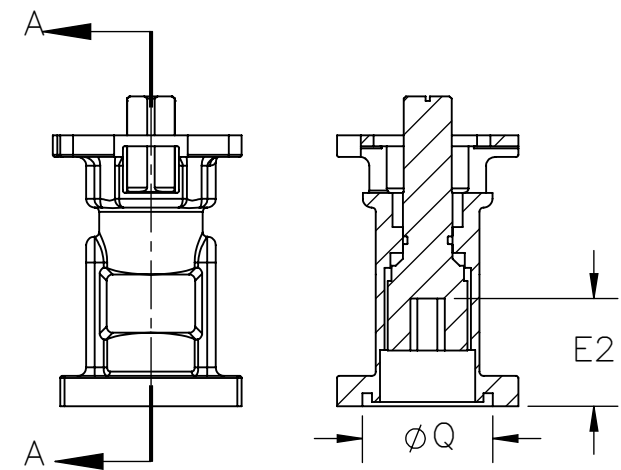
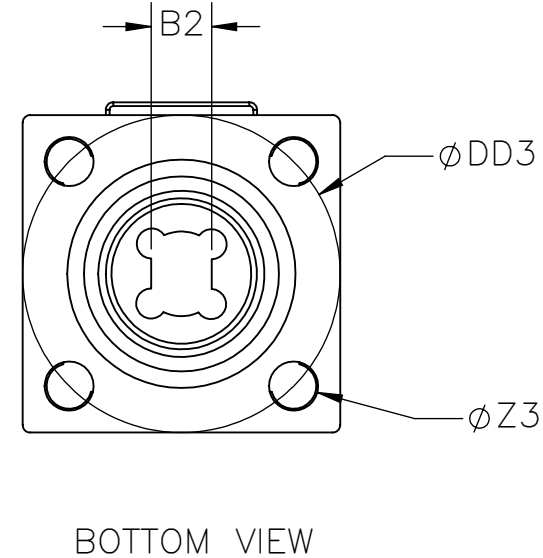
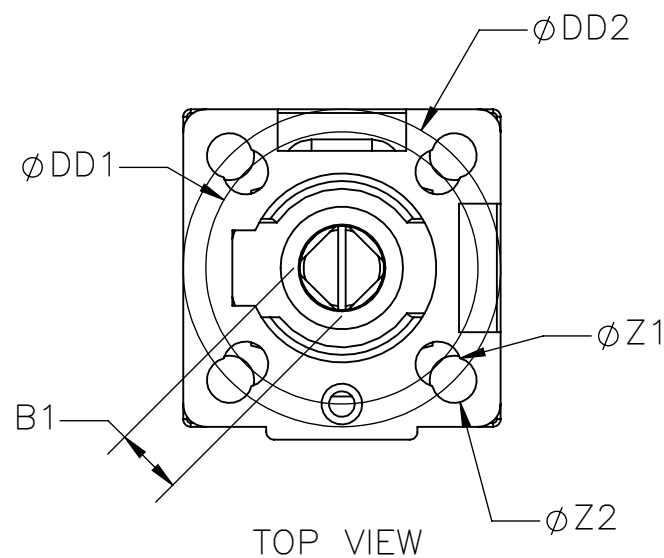
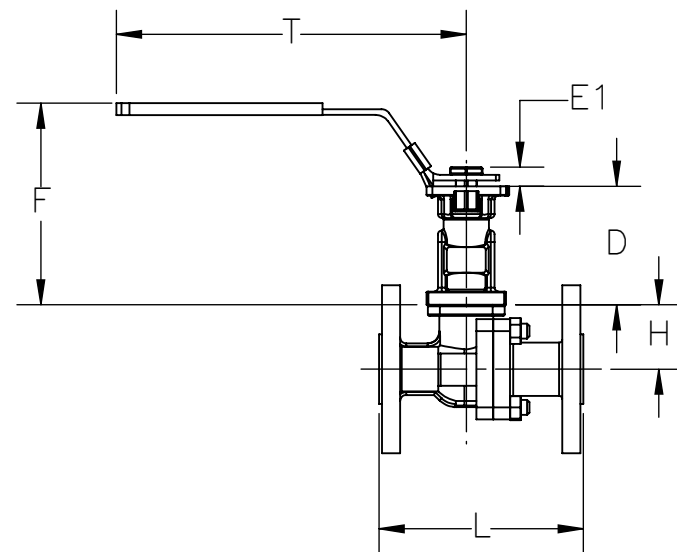
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90-TSM-1

90-TSM-2

90-TSM-3

90-TSM-4



SECTION A-A  
SCALE 1 : 1.75

NOTE: OPTIONAL SNIFFER PORT  
AVAILABLE FOR 90 TSM'S (SP)

Series 90 TSM																				
TSM	90 Sizes	Valve Dimensions		Top TSM Dimensions											Bottom TSM DIMENSIONS					
		L	H	D	E1	F	T	B1	ØDD1	ØDD2	ISO	ØZ1	ØZ2	SP	ØDD3	ISO	ØZ3	B2	E2	ØQ
90-TSM-1	1/2" - 3/4"	Refer to catalog for valve dimensions		2.47	0.35	4.06	7.28	0.354	1.417	1.654	F03/F04	0.24	0.24	1/16" NPT	1.654	F04	0.26	0.31	0.98	1.189
90-TSM-2	1"			2.64	0.43	4.33	8.35	0.433	1.654	1.969	F04/F05	0.24	0.28	1/8" NPT	1.969	F05	0.30	0.38	1.10	1.543
90-TSM-3	1-1/2" - 2-1/2"			3.39	0.55	5.28	10.35	0.551	1.969	2.756	F05/F07	0.30	0.35	1/8" NPT	2.756	F07	0.35	0.47	1.44	2.173
90-TSM-4	3" - 4"			4.13	0.66	6.50	14.57	0.669	2.756	4.016	F07/F10	0.39	0.47	1/4" NPT	4.016	F10	0.47	0.59	1.90	2.764



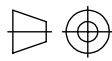
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**VALVES, ACTUATORS, AND AUTOMATION CONTROLS**

SHEET 1 of 1

DO NOT SCALE DRAWING



DESCRIPTION  
90 SERIES TSM DIMENSIONAL DRAWING

MATERIAL

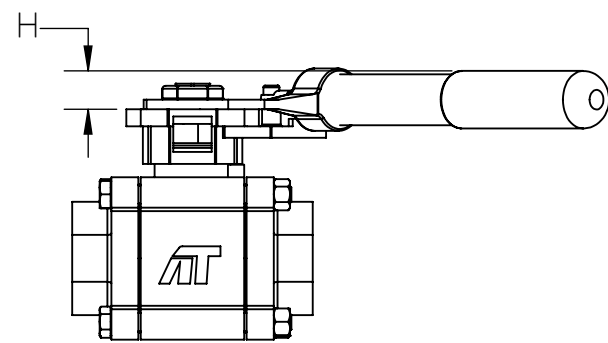
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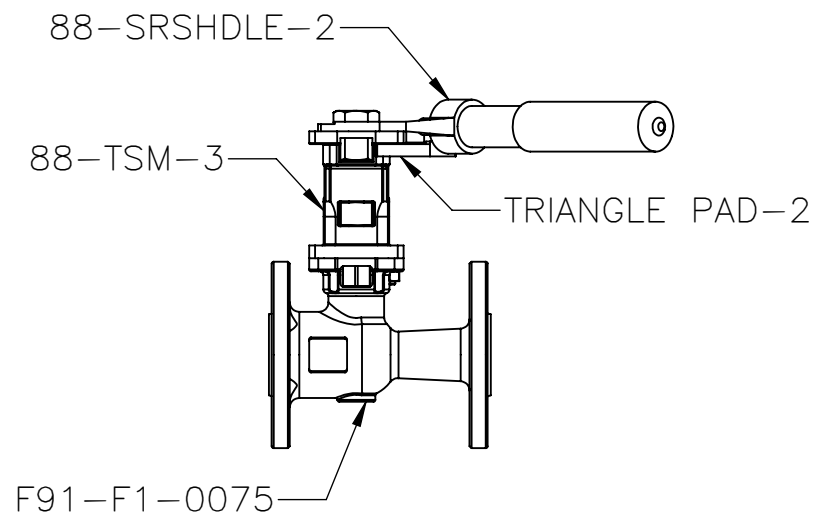
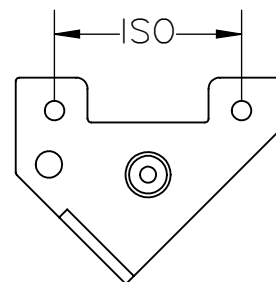
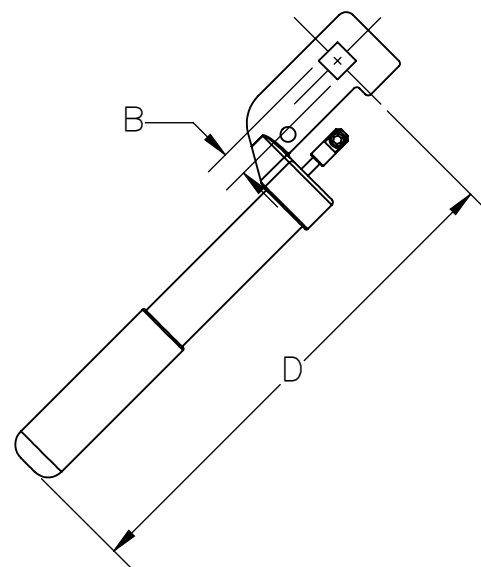
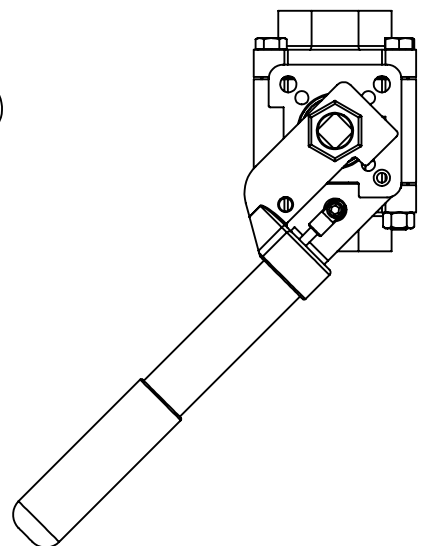
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88-TH-0150-XSX



Spring Return Handle								
Series	Sizes							
	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
22	TP2-H1	TP2-H1	TP2-H1	TP2-H1	TP2-H2	TP2-H2	TP4-H3	TP4-H3
33	TP2-H1	TP2-H1	TP2-H1	TP2-H2	TP3-H2	N/A	N/A	N/A
77	N/A	N/A	TP1-H1	TP1-H1	TP2-H2	N/A	TP4-H3	TP4-H3
88 / F88	TP2-H1	TP2-H1	TP2-H1	TP3-H1	TP3-H2	TP3-H2	TP4-H3	TP4-H3
F91	N/A	N/A	TP2-H2 + 88-TSM-3	TP2-H2 + 88-TSM-3	TP2-H2 + 88-TSM-3	N/A	TP4-H3 + 88-TSM-4	N/A
D9	N/A	N/A	TP2-H2 D9-TSM-1	TP2-H2 D9-TSM-1	TP2-H2 D9-TSM-1	N/A	N/A	N/A
FD9-F1	N/A	N/A	TP2-H2 + D9-TSM-1	TP2-H2 + D9-TSM-1	TP2-H2 + D9-TSM-1	N/A	N/A	N/A
FD9-F3	N/A	N/A	TP2-H2 + D9-TSM-1	TP2-H2 + D9-TSM-1	TP2-H2 + D9-TSM-1	N/A	N/A	N/A
FD9-F6	N/A	N/A	TP2-H2 + D9-TSM-1	TP2-H2 + D9-TSM-1	TP4-H3 + 88-TSM-4	N/A	N/A	N/A
8R / F8R	TP1-H1 + 8R-TSM-1	TP1-H1 + 8R-TSM-1	TP1-H1 + 8R-TSM-1	TP1-H1 + 8R-TSM-2	TP1-H1 + 8R-TSM-2	TP2-H2 + 8R-TSM-3	TP2-H2 + 8R-TSM-3	TP4-H3 + 8R-TSM-4
83 / F83	TP1-H1 + 8R-TSM-1	TP1-H1 + 8R-TSM-1	TP1-H1 + 8R-TSM-2	TP1-H2 + 8R-TSM-2	TP2-H2 + 8R-TSM-3	TP2-H3 + 8R-TSM-3	TP4-H3 + 8R-TSM-4	TP4-H3 + 8R-TSM-4
90 / F90	N/A	N/A	TP1-H1 + 90-TSM-1	TP1-H1 + 90-TSM-1	TP2-H2 + 90-TSM-2	N/A	TP4-H3 + 90-TSM-3	TP4-H3 + 90-TSM-3

Spring Return Handle Dimensions				
Triangle Pad	Part Number	ISO		
TP 1	TRIANGLE PAD-1	F04		
TP 2	TRIANGLE PAD-2	F05		
TP 3	TRIANGLE PAD-3	F07		
TP 4	TRIANGLE PAD-4	F07		
Handle	-	B	D	H
H1	88-SRSHDLE-1	0.354	7.99	0.62
H2	88-SRSHDLE-2	0.433	8.14	0.62
H3	88-SRSHDLE-3	0.551	10.58	0.78



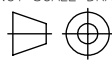
9955 INTERNATIONAL BLVD.  
CINCINNATI, OHIO 45246  
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DATE 04/19/23 DATE 04/19/23 DATE 04/19/23

**VALVES, ACTUATORS, AND AUTOMATION CONTROLS**

SHEET 1 of 1

DO NOT SCALE DRAWING



DESCRIPTION  
Spring Return Handle Dimensional Drawing

MATERIAL

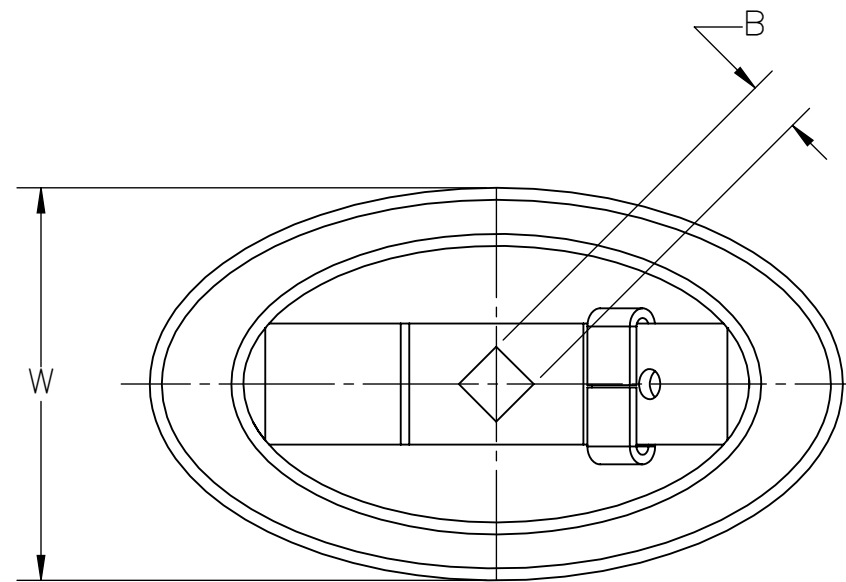
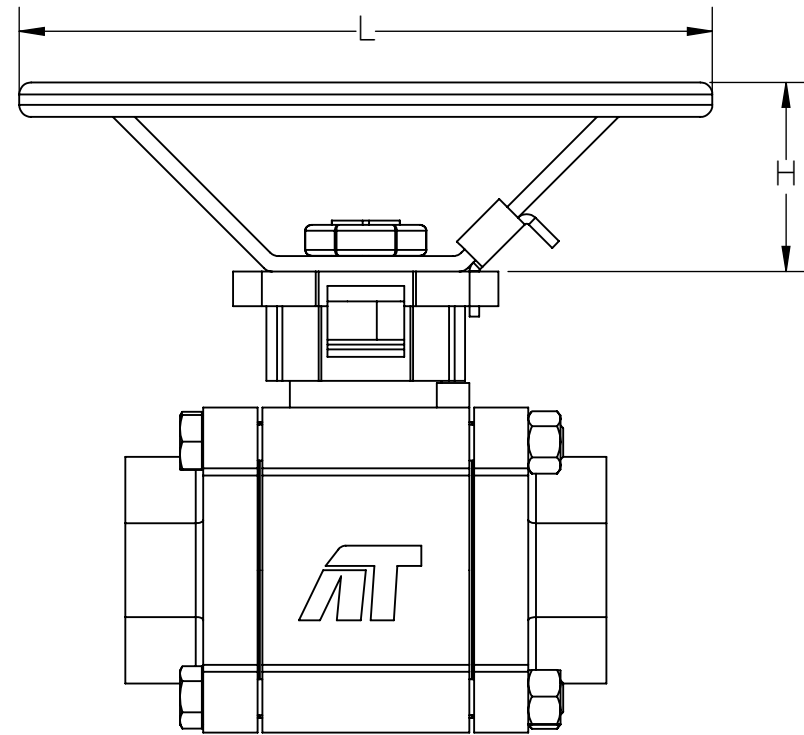
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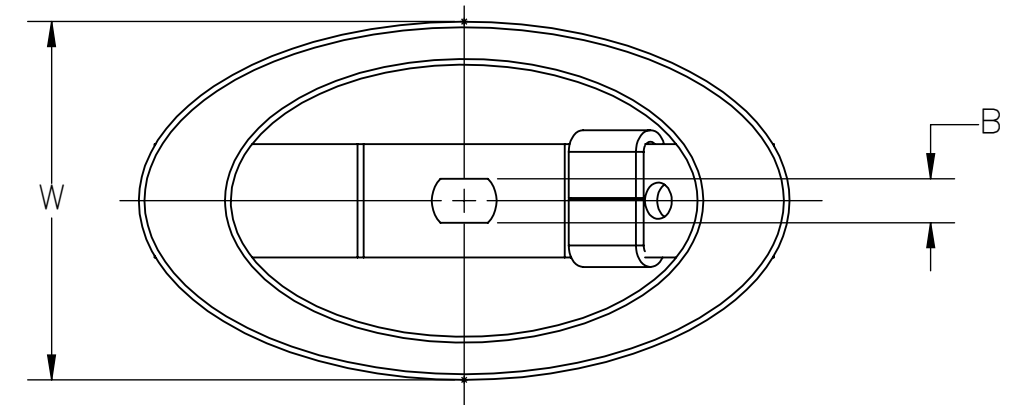
REVISION

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88 Series Oval Handles



55 and 90 Series Oval Handles

55 Series Oval Handle				
Handle	Dimensions			
	B	H	L	W
55-OVAL-1	0.256	1.04	3.46	1.99
55-OVAL-2	0.315	1.46	4.27	2.48
55-OVAL-3	0.382	1.69	5.65	3.03
88 Series Oval Handle				
Handle	Dimensions			
	B	H	L	W
88-OVAL-1	0.354	1.46	4.27	2.64
88-OVAL-2	0.354	1.69	5.65	3.17
88-OVAL-3	0.433	1.69	5.65	3.17
88-OVAL-4	0.551	1.97	7.22	4.09
90 Series Oval Handle				
Handle	Dimensions			
	B	H	L	W
90-OVAL-1	0.315	1.81	4.25	2.05
90-OVAL-2	0.382	1.65	5.61	3.15

Handle Compatibility									
Series	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
90			90-OVAL-1-LD	90-OVAL-1-LD	90-OVAL-2-LD				
55	55-OVAL-1-LD	55-OVAL-1-LD	55-OVAL-1-LD	55-OVAL-1-LD	55-OVAL-2-LD	55-OVAL-2-LD	55-OVAL-3-LD	55-OVAL-3-LD	
83	55-OVAL-1-LD	55-OVAL-1-LD	55-OVAL-1-LD	55-OVAL-1-LD	55-OVAL-2-LD	55-OVAL-2-LD	55-OVAL-3-LD	55-OVAL-3-LD	
8R	55-OVAL-1-LD	55-OVAL-1-LD	55-OVAL-1-LD	55-OVAL-1-LD	55-OVAL-1-LD	55-OVAL-2-LD	55-OVAL-2-LD	55-OVAL-3-LD	55-OVAL-3-LD
88	88-OVAL-1-LD	88-OVAL-1-LD	88-OVAL-1-LD	88-OVAL-2-LD	88-OVAL-3-LD	88-OVAL-3-LD	88-OVAL-4-LD	88-OVAL-4-LD	
33	88-OVAL-1-LD	88-OVAL-1-LD	88-OVAL-1-LD		88-OVAL-3-LD	88-OVAL-4-LD			
77			88-OVAL-1-LD	88-OVAL-1-LD			88-OVAL-4-LD	88-OVAL-4-LD	
H78			88-OVAL-1-LD	88-OVAL-1-LD			88-OVAL-4-LD	88-OVAL-4-LD	
22							88-OVAL-4-LD	88-OVAL-4-LD	



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DATE 04/19/23    DATE 04/19/23    DATE 04/19/23

**VALVES, ACTUATORS, AND AUTOMATION CONTROLS**

SHEET 1 of 1

DO NOT SCALE DRAWING



DESCRIPTION  
OVAL HANDLE DIMENSIONAL DRAWING

MATERIAL	
DRAWING NO.	REVISION
P03002	A

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