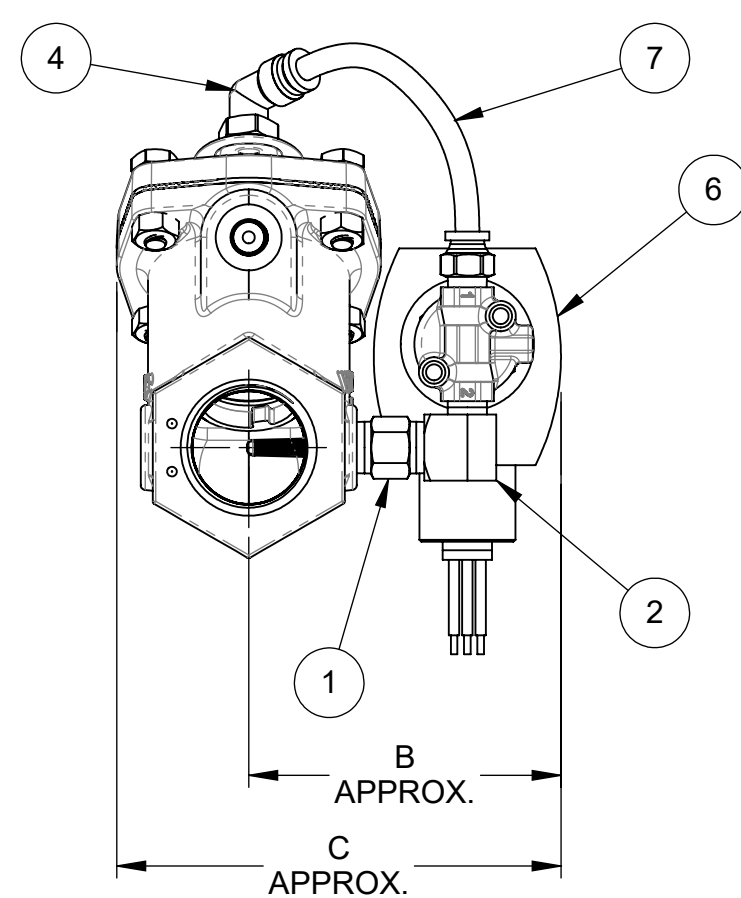


ITEM NO	PART NO	DESCRIPTION	421 EC QTY	424 EC QTY	425 EC QTY	426 EC QTY	427 EC QTY	427F EC QTY	428 EC QTY	429 EC QTY	421 EO QTY	424 EO QTY	425 EO QTY	426 EO QTY	427 EO QTY	427F EO QTY	428 EO QTY	429 EO QTY	UNITS
1	1074004	STRAINER ASSEMBLY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	EACH
2	1074040	ELBOW, REDUCER 1/4"FNPT X 1/8" MNPT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	EACH
3	1078763	FITTING, 1/8MNPT X 1/4, PUSH FIT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	EACH
4	1078766	FITTING, ELBOW, 1/4" MNPT X 1/4" TUBE	1	1	1	1	1	1	1	-	1	1	1	1	1	1	-	1	EACH
5	1078765	FITTING, ELBOW, 1/8NPT X 1/4TUBE	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	EACH
6	4510496-01	SOLENOID, 3 WAY, 120/60 VAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	EACH
	4510496-02	SOLENOID, 3-WAY, 220/60																	
	4510496-03	SOLENOID, 3-WAY, 24/60 VAC																	
	4510496-04	SOLENOID, 3-WAY, 24 VDC																	
7	1071936	TUBING, POLY 1/4" O.D. X .035	5	6	8	8	9	10	13	20	4	5	7	8	8	9	12	20	INCHES
8	43947	FITTING, ADAPTER, 1/4MNPT X 1/4FMNPT	-	-	-	-	-	1	1	-	-	-	-	-	-	1	1	-	EACH
9	1081648	FITTING, NIPPLE 1/4MNPTX1.38	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	EACH
10	1071900	FITTING, 1/4 FNPT, TEE, BRASS	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	EACH
11	1074037	FITTING, ELBOW, TUBE, 1/4NPT	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2	EACH
12	1071940	FITTING,TUBE,.37 OD	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-	20	INCHES

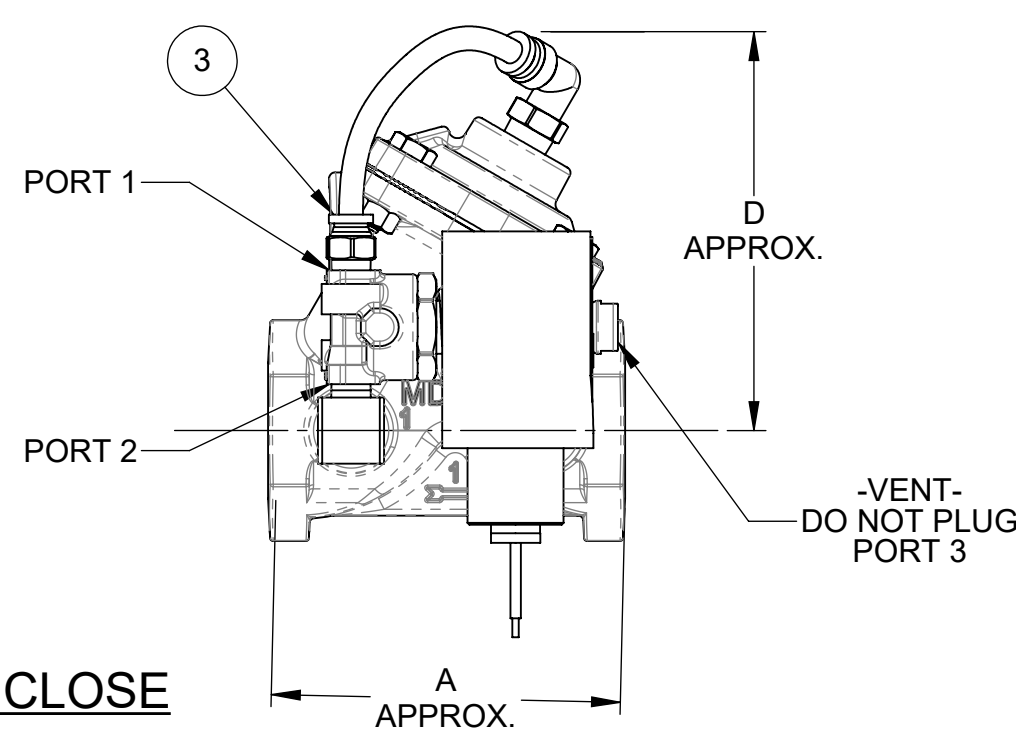
REVISIONS				
REV	ECN	DESCRIPTION	DATE	APP'D
H	1001	AQ-MATIC UPDATES AND VERIFIED PART NUMBERS	1/20/2017	MGS
I	1144	SERVICE PARTS ONLY 1075634 AND 1070651, REMOVED FROM CATALOG	10/19/2017	TRK/JJ
J	1257	FIX BOM/BALLOON ISSUES ON SHEETS ONE AND TWO	6/28/2018	KB
K	1365	FIX ISSUES WITH DRAWING VIEWS, CORRECT OTHER SMALL ERRORS	11/20/2018	KB
L	1386	REMOVE 1070650 SOLENOID	1/7/2019	TRK
M	1506	ADDED 24 VDC SOLENOID (1070651) OPTION	6/26/2019	KJB
N	1678	REDRAWN PER NEW MODEL, REPLACE SOLENOIDS WITH 4510496 SERIES	3/30/2020	PMJ
P	2132	429 BOM AND ASSEMBLY UPDATE	8/24/2022	PMJ



ENERGIZED TO CLOSE

SOLENOID ENERGIZED:
UPSTREAM PRESSURE, FROM SOLENOID PORT 2 TO PORT 1, IS APPLIED TO UPPER DIAPHRAGM CHAMBER TO CLOSE THE DIAPHRAGM VALVE.

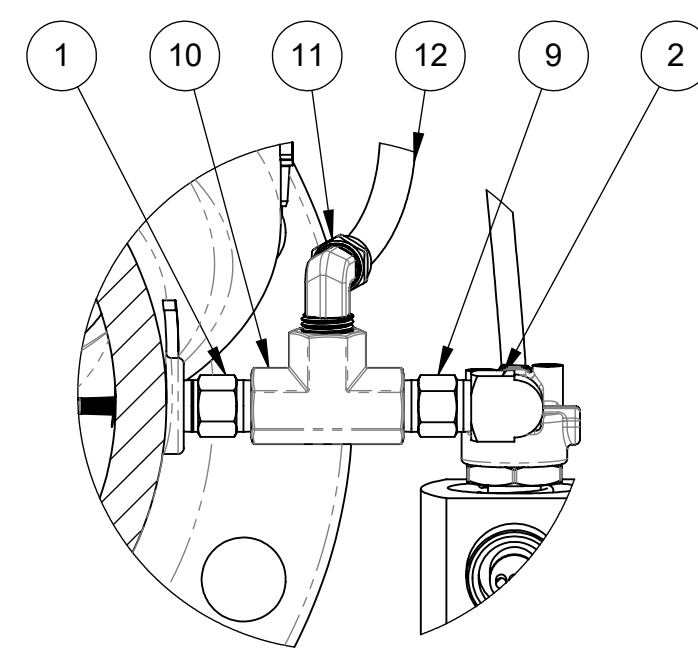
SOLENOID DE-ENERGIZED:
PRESSURE FROM UPPER DIAPHRAGM CHAMBER IS VENTED. UPSTREAM PRESSURE OPENS THE DIAPHRAGM VALVE.



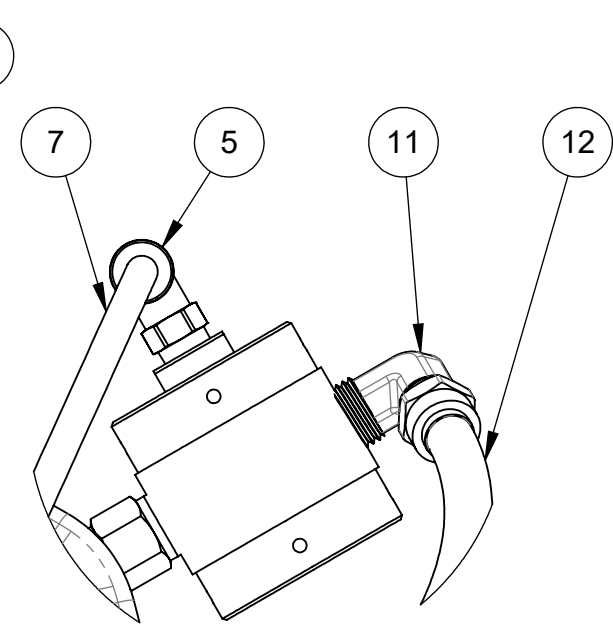
ENERGIZED TO OPEN

SOLENOID DE-ENERGIZED:
UPSTREAM PRESSURE, FROM SOLENOID PORT 3 TO PORT 1 IS APPLIED TO UPPER DIAPHRAGM CHAMBER TO CLOSE THE DIAPHRAGM VALVE.

SOLENOID ENERGIZED:
PRESSURE FROM UPPER DIAPHRAGM CHAMBER IS VENTED. UPSTREAM PRESSURE OPENS THE DIAPHRAGM VALVE

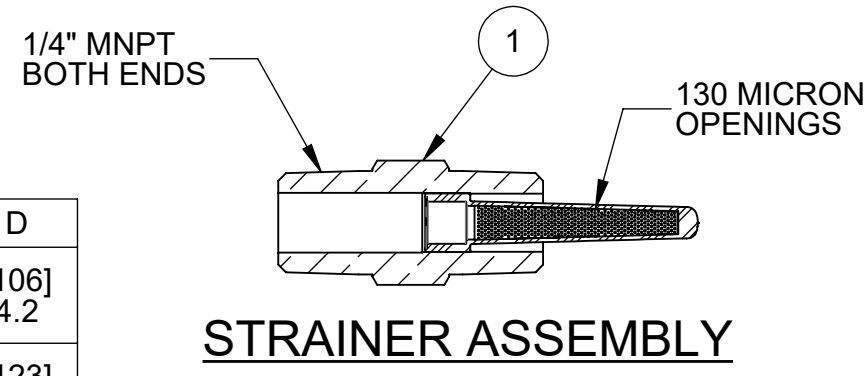


429 TEE ASSEMBLY

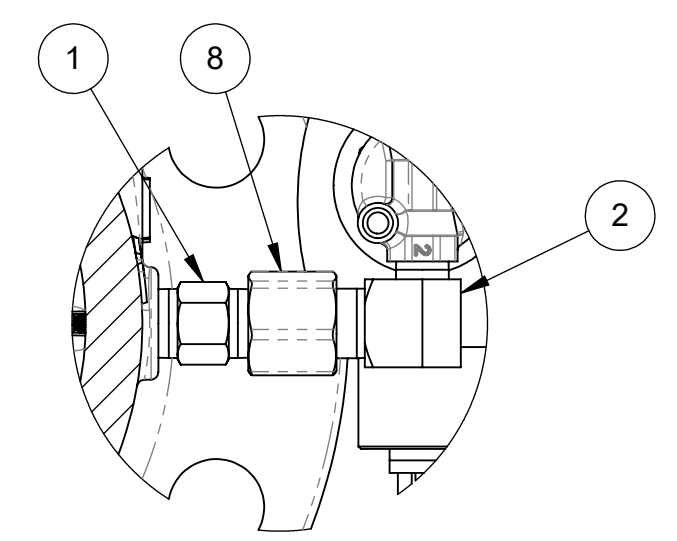


429 CAP FITTING

VALVE SERIES	PIPE SIZE	A	B	C	D
V42B	3/4"	[94] 3.7	[83] 3.3	[118] 4.6	[106] 4.2
V42C	1"				
V42D	1-1/4"	[120] 4.7	[91] 3.6	[136] 5.4	[123] 4.9
V42E	1-1/2"				
V42F	2"	[168] 6.6	[100] 3.9	[168] 6.6	[162] 6.4
V42G	2"	[187] 7.4	[111] 4.4	[189] 7.4	[172] 6.8
V42H	2-1/2"				
V42J	3" THREADED	[235] 9.3	[118] 4.6	[210] 8.3	[188] 7.4
	3" FLANGED	[270] 10.6	[146] 5.7	[238] 9.4	[190] 7.5
V42K	4"	[298] 11.8	[153] 6.0	[268] 10.5	[262] 10.3
V42L	6"	[432] 17.0	[292] 11.5	[450] 17.7	[347] 13.7



STRAINER ASSEMBLY



427 & 428 FLANGED ASSEMBLY

- NOTES:
- LENGTH OF TUBING VARIES WITH EACH SIZE OF DIAPHRAGM VALVE AND CONFIGURATION.
 - B.S.P.T. THREADED VALVES AVAILABLE UPON REQUEST.
 - DIAPHRAGM VALVE IS NORMALLY OPEN, PRESSURE TO CLOSE.
 - BOSS NO. 1 ON VALVE TAPPED 1/4" N.P.T.
 - SEE PAGE 2 FOR DRY DRAIN OPTION & PAGE 3 FOR INDEPENDANT PRESSURE.
 - "EC" REFERS TO ENERGIZED CLOSED. "EO" REFERS TO ENERGIZED OPEN. "427F" REFERS TO THE 427 FLANGED OPTION.

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INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M -1994

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES (mm)
CORNER FILLETS R.005-.020 [127-508]
TOLERANCES:
ANGLES: ±1°
1 PLACE .X: ±.100 [2.54]
2 PLACE .XX: ±.010 [0.25]
3 PLACE .XXX: ±.005 [0.13]

THE COMPONENT OR PRODUCT DESCRIBED IN THIS DOCUMENT MUST COMPLY WITH RoHS 3 EU (EUROPEAN UNION) DIRECTIVE 2015/863

THIRD ANGLE PROJECTION

APPROVALS: PMJ DATE: 3/13/2020

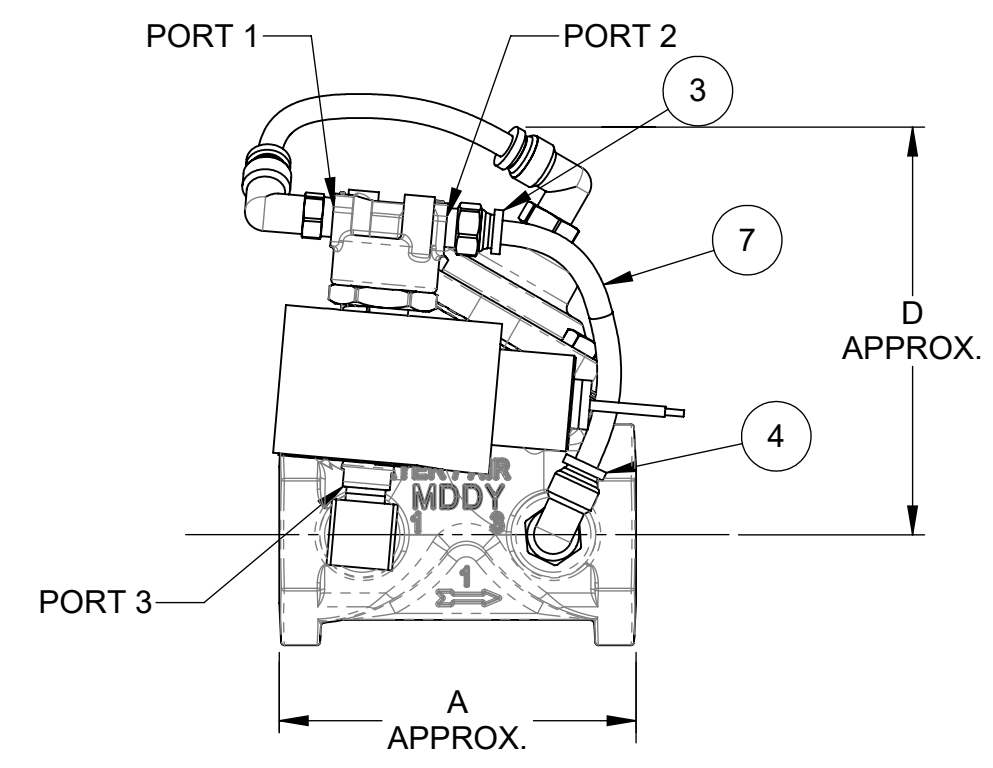
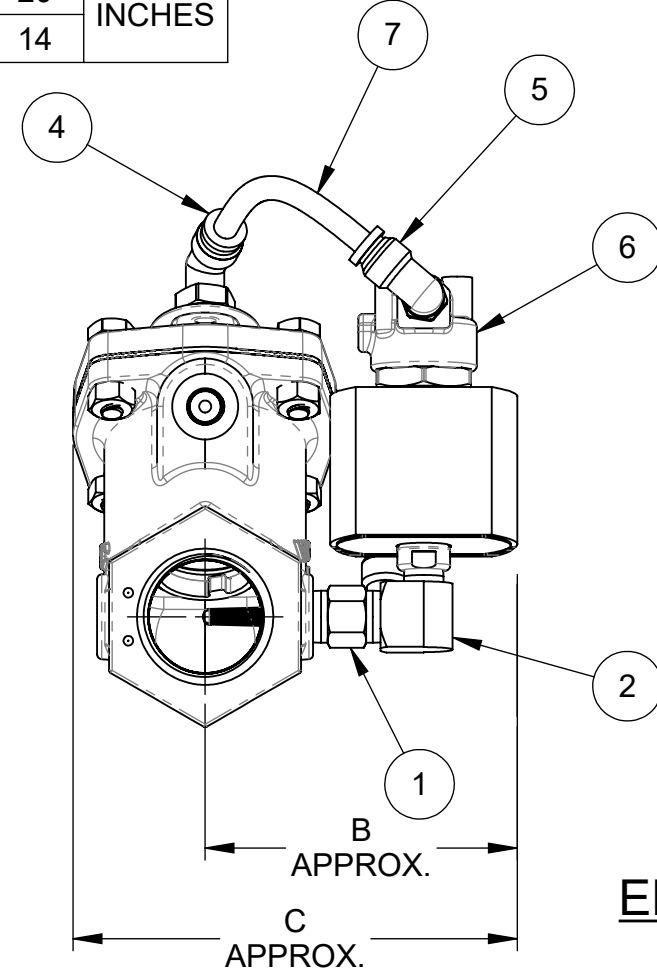
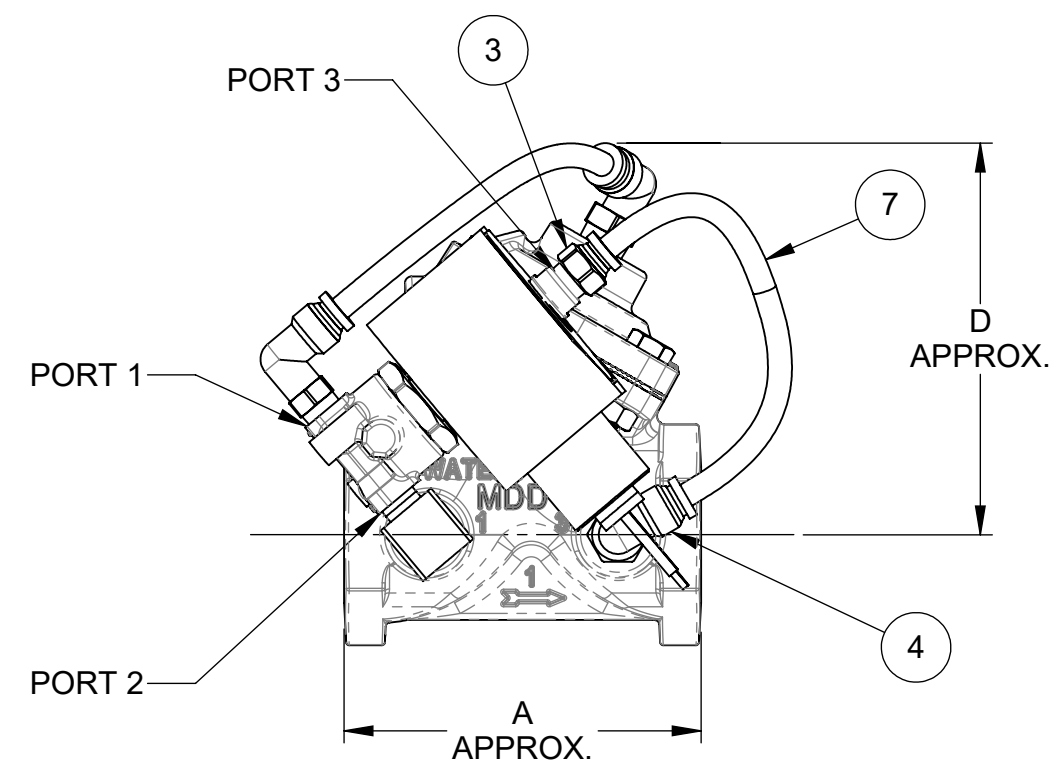
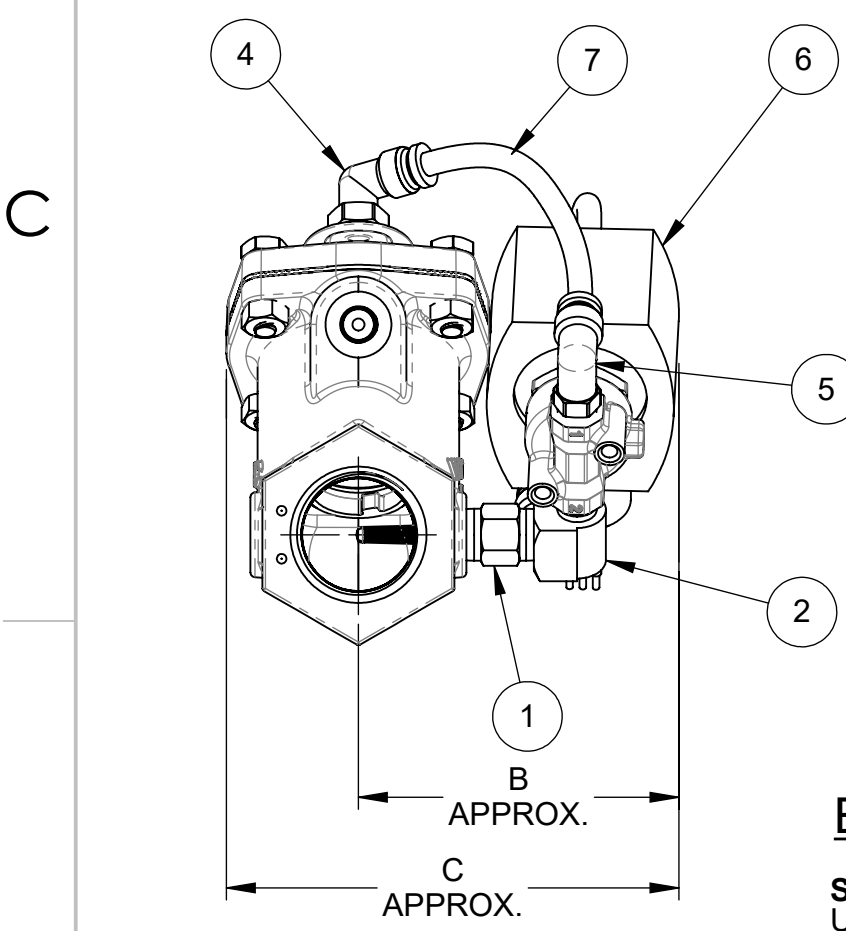
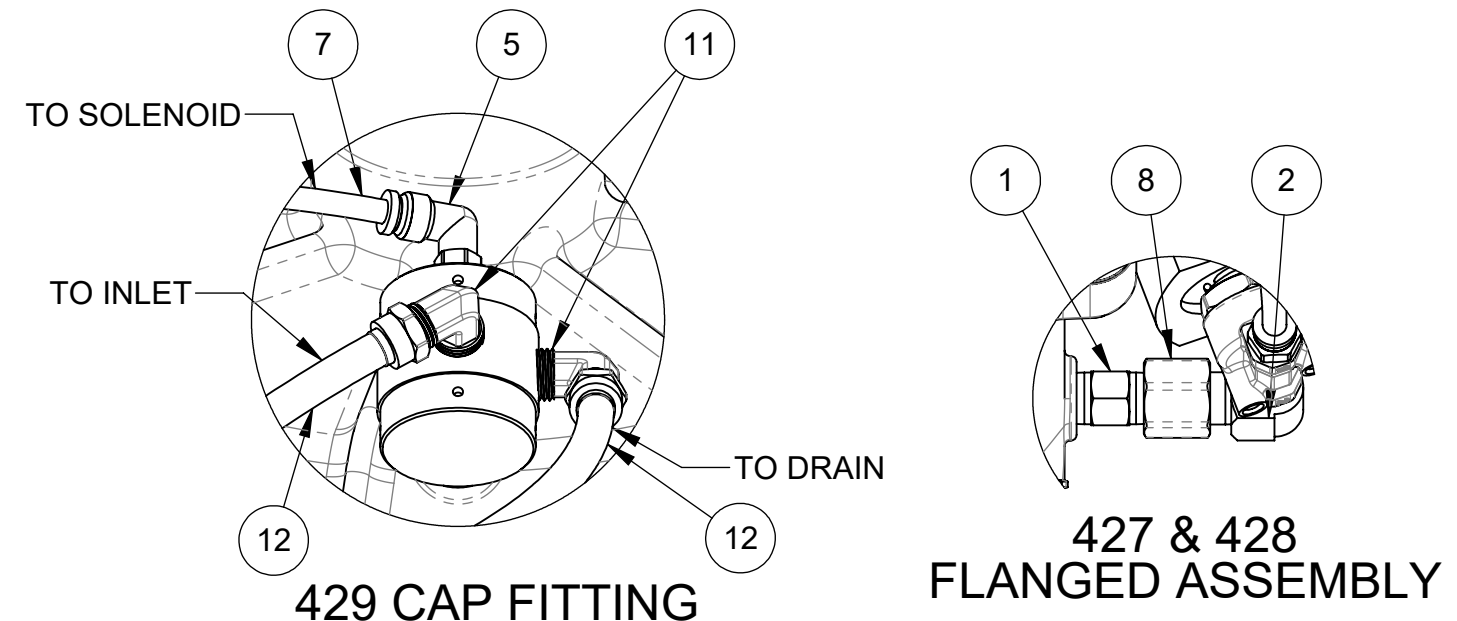
DESCRIPTION: CATALOG SHEET, V420, SOLENOIDS

SIZE: C DWG NO.: 1078113 REV.: P

SCALE: 1:2 SOLIDWORKS FORMAT SHEET 1 OF 4

ITEM NO	PART NO	DESCRIPTION	421 ECDD	424 ECDD	425 ECDD	426 ECDD	427 ECDD	427F ECDD	428 ECDD	429 ECDD	421 EODD	424 EODD	425 EODD	426 EODD	427 EODD	427F EODD	428 EODD	429 EODD	UNITS
1	1074004	STRAINER ASSEMBLY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	EACH
2	1074040	ELBOW, REDUCER 1/4"FNPT X 1/8" MNPT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	EACH
3	1078763	FITTING, 1/8MNPT X 1/4, PUSH FIT	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	EACH
4	1078766	FITTING, ELBOW, 1/4" MNPT X 1/4" TUBE	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	1	EACH
5	1078765	FITTING, ELBOW, 1/8NPT X 1/4TUBE	1	1	1	1	-	-	-	1	1	1	1	1	1	1	1	2	EACH
6	4510496-01	SOLENOID, 3 WAY, 120/60 VAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	EACH
	4510496-02	SOLENOID, 3-WAY, 220/60																	
	4510496-03	SOLENOID, 3-WAY, 24/60 VAC																	
	4510496-04	SOLENOID, 3-WAY, 24 VDC																	
7	1071936	TUBING, POLY 1/4" O.D. X .035	5	6	7	8	9	9	12	21	5	4	5	6	7	7	10	21	INCHES
			6	4	4	3	2	3	3	12	4	3	3	3	4	4	4	10	
8	43947	FITTING, ADAPTER, 1/4MNPT X 1/4FMNPT	-	-	-	-	-	1	1	-	-	-	-	-	-	1	1	-	EACH
9	1081648	FITTING, NIPPLE 1/4MNPTX1.38	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2	EACH
10	1071900	FITTING, 1/4 FNPT, TEE, BRASS	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2	EACH
11	1074037	FITTING, ELBOW, TUBE, 1/4NPT	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	4	EACH
12	1071940	FITTING,TUBE,..37 OD	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-	20	INCHES
			-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	14

REVISIONS				
REV	ECN	DESCRIPTION	DATE	APP'D
SEE PAGE ONE FOR LIST OF CHANGES				



ENERGIZED TO CLOSE, DRY DRAIN OPTION

SOLENOID ENERGIZED:
UPSTREAM PRESSURE, FROM SOLENOID PORT 2 TO PORT 1, IS APPLIED TO UPPER DIAPHRAGM CHAMBER TO CLOSE THE DIAPHRAGM VALVE.

SOLENOID DE-ENERGIZED:
PRESSURE FROM UPPER DIAPHRAGM CHAMBER IS VENTED. UPSTREAM PRESSURE OPENS THE DIAPHRAGM VALVE.

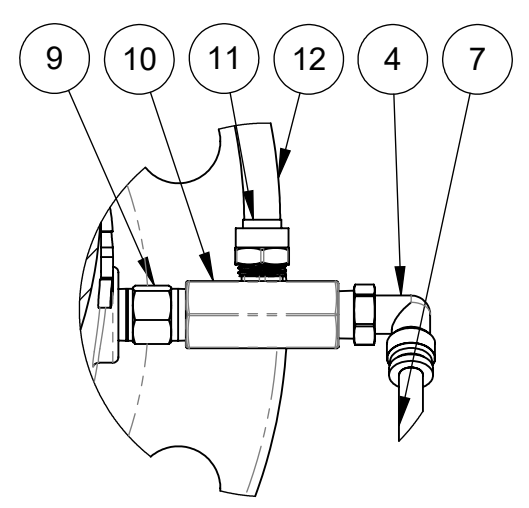
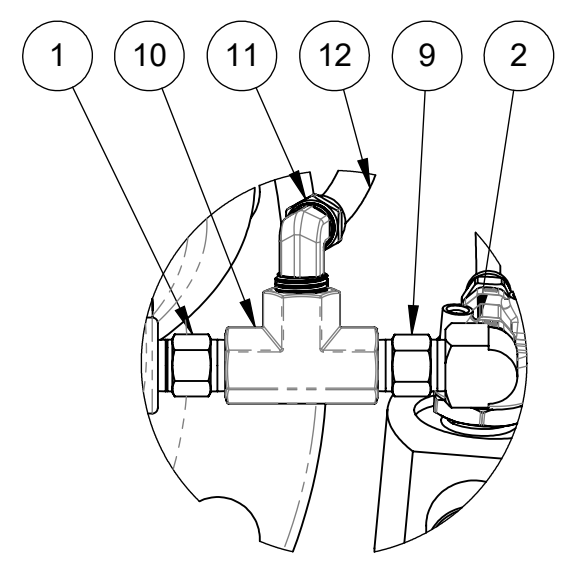
ENERGIZED TO OPEN, DRY DRAIN OPTION

SOLENOID DE-ENERGIZED:

UPSTREAM PRESSURE, FROM SOLENOID PORT 3 TO PORT 1 IS APPLIED TO UPPER DIAPHRAGM CHAMBER TO CLOSE THE DIAPHRAGM VALVE.

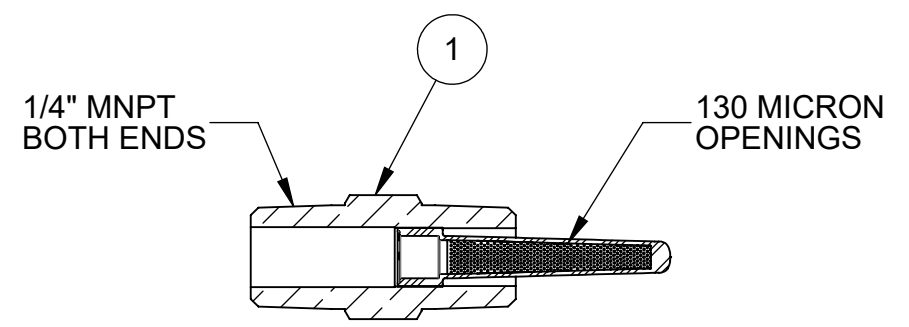
SOLENOID ENERGIZED:

PRESSURE FROM UPPER DIAPHRAGM CHAMBER IS VENTED. UPSTREAM PRESSURE OPENS THE DIAPHRAGM VALVE

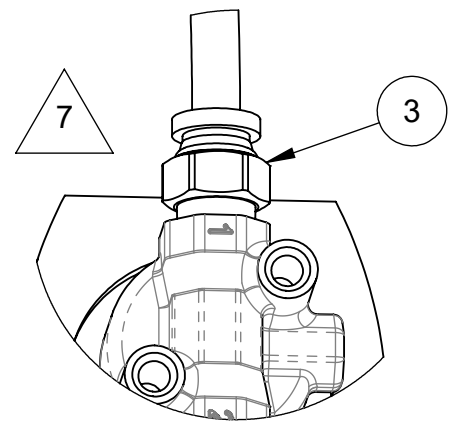


429 TEE ASSEMBLY

VALVE SERIES	PIPE SIZE	A	B	C	D
V42B	3/4"	[94] 3.7	[83] 3.3	[118] 4.6	[117] 4.6
V42C	1"				
V42D	1-1/4"	[120] 4.7	[91] 3.6	[136] 5.4	[125] 4.9
V42E	1-1/2"				
V42F	2"	[168] 6.6	[100] 3.9	[168] 6.6	[155] 6.1
V42G	2"	[187] 7.4	[111] 4.4	[189] 7.4	[165] 6.5
V42H	2-1/2"				
V42J	3" THREADED	[235] 9.3	[118] 4.6	[210] 8.3	[180] 7.1
	3" FLANGED	[270] 10.6	[146] 5.7	[238] 9.4	
V42K	4"	[298] 11.8	[153] 6.0	[268] 10.5	[249] 9.8
V42L	6"	[432] 17.0	[292] 11.5	[450] 17.7	[347] 13.7



STRAINER ASSEMBLY



427 - 429 ENERGIZED TO CLOSE DRY DRAIN

- NOTES:
- LENGTH OF TUBING VARIES WITH EACH SIZE OF DIAPHRAGM VALVE AND CONFIGURATION.
 - B.S.P.T. THREADED VALVES AVAILABLE UPON REQUEST.
 - DIAPHRAGM VALVE IS NORMALLY OPEN, PRESSURE TO CLOSE.
 - BOSS NO. 1 ON VALVE TAPPED 1/4" N.P.T.
 - SEE PAGE 2 FOR DRY DRAIN OPTION & PAGE 3 FOR INDEPENDANT PRESSURE.
 - "ECDD" REFERS TO ENERGIZED TO CLOSE, DRY DRAIN.
"EODD" REFERS TO ENERGIZED TO OPEN, DRY DRAIN.
"427F" REFERS TO FLANGED OPTION FOR 427 VALVES.
- 427 - 429 ECDD VALVES USE (X2) 1078763 FITTINGS ON THE SOLENOID.

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INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M -1994

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DIMENSIONS ARE IN INCHES (mm)
CORNER FILLETS R.005-.020 [127-508]
TOLERANCES:
ANGLES: ±1°
1 PLACE .X: ±.100 [2.54]
2 PLACE .XX: ±.010 [0.25]
3 PLACE .XXX: ±.005 [0.13]

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THIRD ANGLE PROJECTION

APPROVALS: PMJ DATE: 3/13/2020

DESCRIPTION: CATALOG SHEET, V420, SOLENOIDS

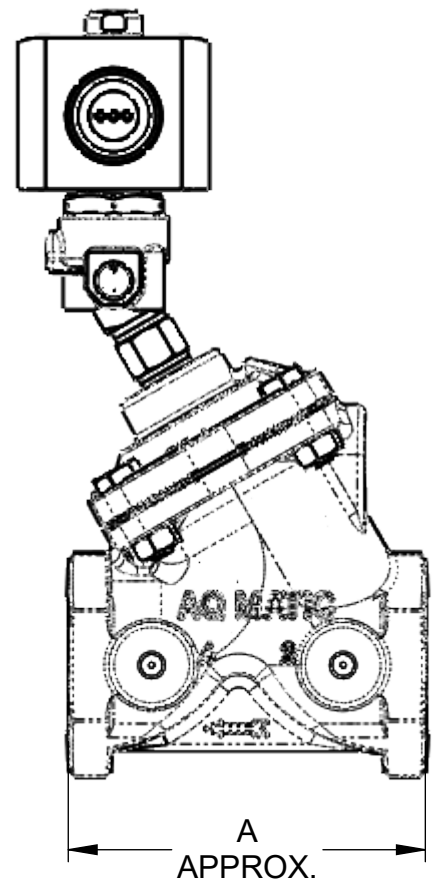
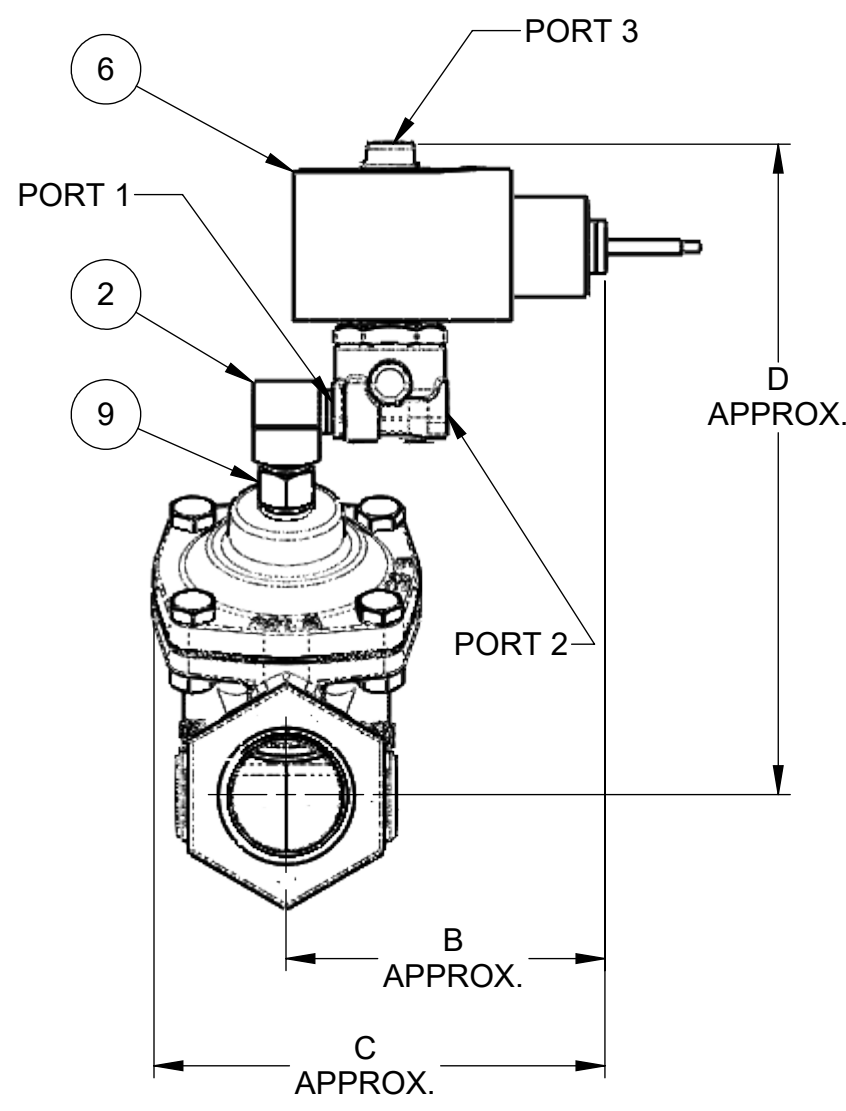
SIZE: C DWG NO.: 1078113 REV.: P

SCALE: 1:2 SOLIDWORKS FORMAT SHEET 2 OF 4

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ITEM NO	PART NO	DESCRIPTION	421 IP QTY	424 IP QTY	425 IP QTY	426 IP QTY	427 IP QTY	428 IP QTY	429 IP QTY	429 IP QTY.	UNITS
2	1074040	ELBOW, REDUCER 1/4"FNPT X 1/8" MNPT	1	1	1	1	1	1	1	1	EACH
6	4510496-01	SOLENOID, 3 WAY, 120/60 VAC	1	1	1	1	1	1	1	1	EACH
	4510496-02	SOLENOID, 3-WAY, 220/60									
	4510496-03	SOLENOID, 3-WAY, 24/60 VAC									
	4510496-04	SOLENOID, 3-WAY, 24 VDC									
9	1081648	FITTING, NIPPLE 1/4MNPTX1.38	1	1	1	1	1	1	-	EACH	
13	1074038	FITTING, NIPPLE, 1/4 X 1/8 REDUCER, BRASS	-	-	-	-	-	-	-	1	EACH

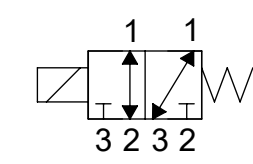
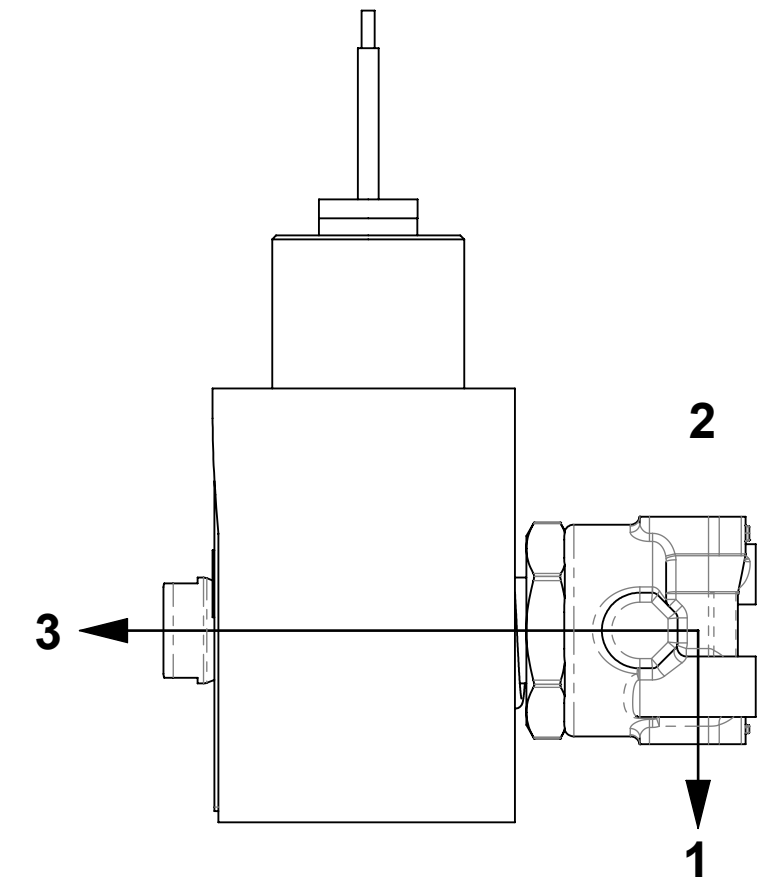
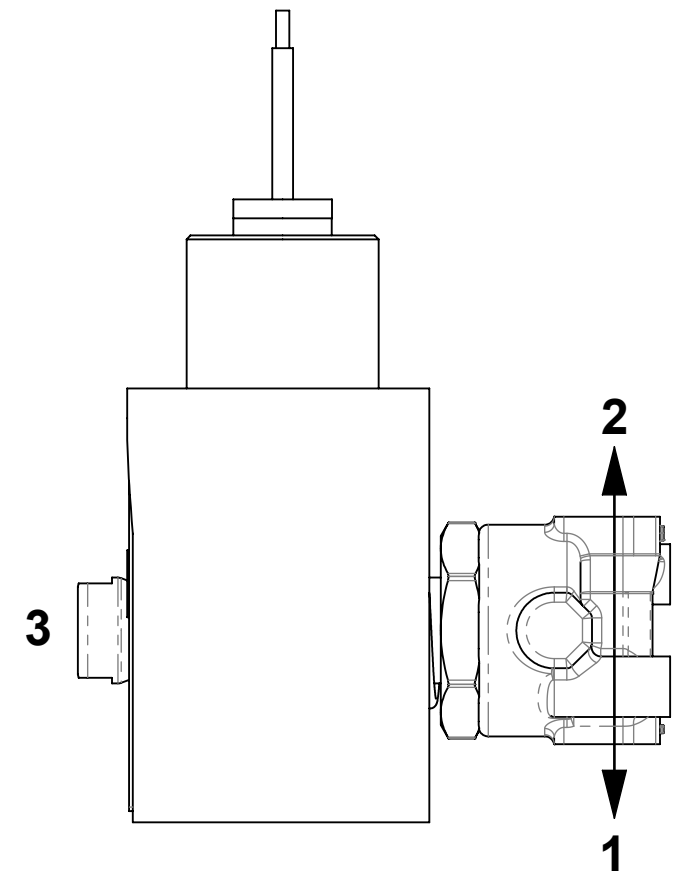
REVISIONS				
REV	ECN	DESCRIPTION	DATE	APP'D
SEE SHEET ONE FOR LIST OF CHANGES				



SOLENOID INFORMATION

SOLENOID ENERGIZED

SOLENOID DE-ENERGIZED



FLOW STATES - PRESSURE AT ANY PORT			
	PORT 1	PORT 2	PORT 3
ENERGIZED	OPEN	OPEN	CLOSED
DE-ENERGIZED	OPEN	CLOSED	OPEN

INDEPENDANT CONTROL PRESSURE

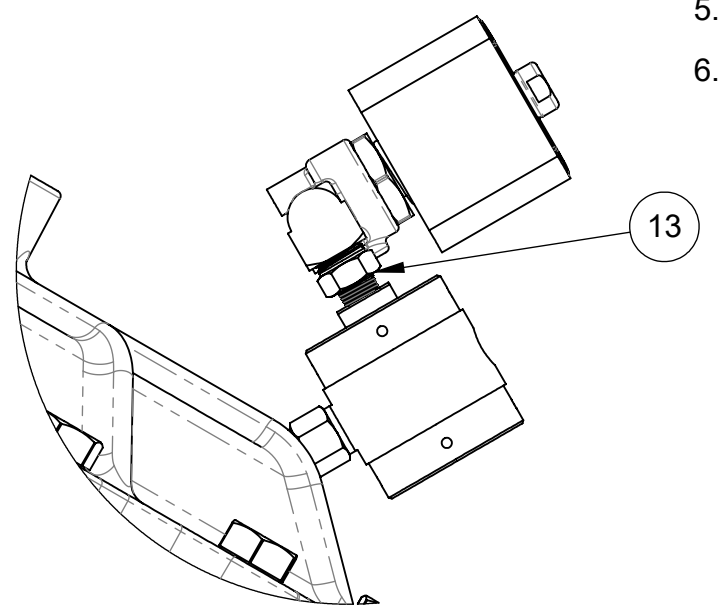
CONTROL PRESSURE MUST BE EQUAL TO OR GREATER THAN LINE PRESSURE.

ENERGIZE TO OPEN:
APPLY CONTROL PRESSURE TO SOLENOID PORT 3. (PORT 2 VENTED)

ENERGIZE TO CLOSE:
APPLY CONTROL PRESSURE TO SOLENOID PORT 2. (PORT 3 VENTED)

VALVE SERIES	PIPE SIZE	A	B	C	D
V42B	3/4"	[94]	[84]	[119]	[172]
V42C	1"	3.7	3.3	4.7	6.8
V42D	1-1/4"	[120]	[84]	[129]	[230]
V42E	1-1/2"	4.7	3.3	5.1	9.1
V42F	2"	[168]	[84]	[153]	[224]
V42G	2"	[187]	[84]	[162]	[234]
V42H	2-1/2"	7.4	3.3	6.4	9.2
V42J	3" THREADED	[235]	[92]	[184]	[248]
	3" FLANGED	[270]			
V42K	4"	[298]	[114]	[229]	[321]
V42L	6"	[432]	[157]	[315]	[347]
		17.0	6.2	12.4	13.7

429 ATTACHMENT



NOTES:

- LENGTH OF TUBING VARIES WITH EACH SIZE OF DIAPHRAGM VALVE AND CONFIGURATION.
- B.S.P.T. THREADED VALVES AVAILABLE UPON REQUEST.
- DIAPHRAGM VALVE IS NORMALLY OPEN, PRESSURE TO CLOSE.
- BOSS NO. 1 ON VALVE TAPPED 1/4" N.P.T.
- SEE PAGE 2 FOR DRY DRAIN OPTION & PAGE 3 FOR INDEPENDANT PRESSURE.
- "EC" REFERS TO ENERGIZED CLOSED. "EO" REFERS TO ENERGIZED OPEN. "427F" REFERS TO THE 427 FLANGED OPTION.

CURRENT DRAIN		
VOLTAGE	HOLDING	INRUSH
24 VAC	25 VA	50 VA
120 VAC	25 VA	50 VA
220 VAC	25 VA	50 VA
24 VDC	10.1 W	

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INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M -1994

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CORNER FILLETS R.005-.020 [127-508]
TOLERANCES:
ANGLES: ±1°
1 PLACE .X: ±.100 [2.54]
2 PLACE .XX: ±.010 [0.25]
3 PLACE .XXX: ±.005 [0.13]

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THIRD ANGLE PROJECTION

APPROVALS: DATE: 3/13/2020

DRAWN: PMJ

CHECKED BY:

APPROVED:

DESCRIPTION: CATALOG SHEET, V420, SOLENOIDS

SIZE: C DWG NO.: 1078113 REV.: P

SCALE: 1:2 SOLIDWORKS FORMAT SHEET 3 OF 4

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OPTIONAL VARIATIONS OF INDEPENDENT PRESSURE CONTROL

Table with columns: ITEM NO, PART NO, DESCRIPTION, and 16 columns for pressure control options (421 IP LS to 428 SAC IP).

REVISIONS

Table with columns: REV, ECN, DESCRIPTION, DATE, APP'D.

OPTIONAL VARIATIONS OF ENERGIZED OPEN AND ENERGIZED CLOSED

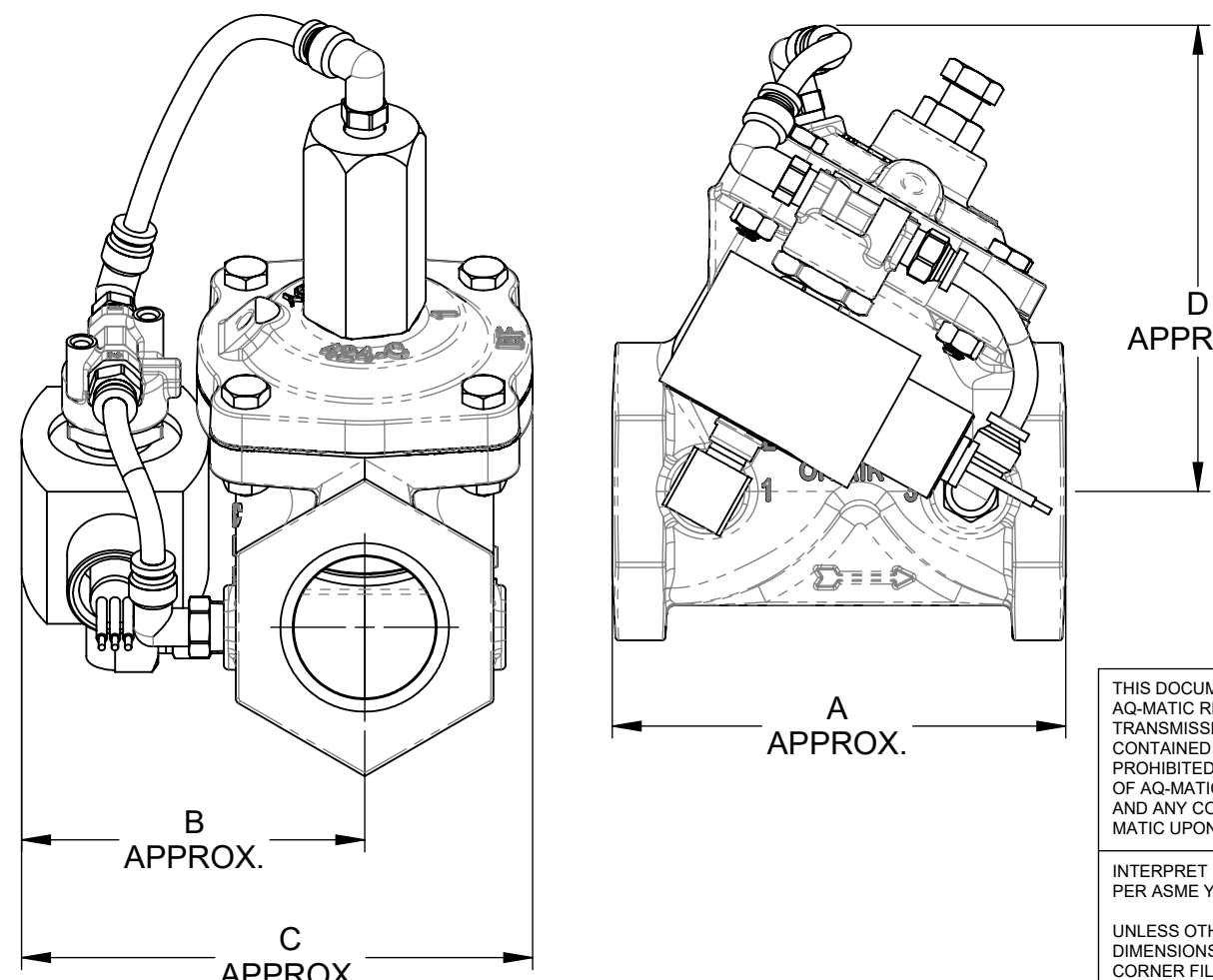
Table with columns: ITEM NO, PART NO, DESCRIPTION, and 28 columns for energized options (421 EC LS to 428 EO SAC) and UNITS.

Table with columns: ITEM NO, PART NO, DESCRIPTION, and 28 columns for energized options (421 ECDD LS to 428 EODD SAC) and UNITS.

ENERGIZED OPEN OR CLOSED

Table with columns: VALVE SERIES, PIPE SIZE, DIM A, DIM B, DIM C, DIM D (LS, SAC), and dimensions for various valve sizes (V42B to V42L).

INDEPENDENT PRESSURE



SAC, LS, & PI ATTACHMENT

NOTES:

- 1. LENGTH OF TUBING VARIES WITH EACH SIZE OF DIAPHRAGM VALVE AND CONFIGURATION.
2. B.S.P.T. THREADED VALVES AVAILABLE UPON REQUEST FOR 421-427
3. DIAPHRAGM VALVE IS NORMALLY OPEN, PRESSURE TO CLOSE.
4. SEE PAGE 1 FOR ENERGIZED OPEN OR CLOSED, PAGE 2 FOR DRY DRAIN OPTION, & PAGE 3 FOR INDEPENDANT PRESSURE.
5. "EC" REFERS TO ENERGIZED CLOSED. "EO" REFERS TO ENERGIZED OPEN. "ECDD" REFERS TO ENERGIZED CLOSED, DRY DRAIN. "EODD" REFERS TO ENERGIZED OPEN, DRY DRAIN. "427F" REFERS TO THE 427 FLANGED OPTION. "LS" REFERS TO VALVES WITH LIMIT STOP OR POSITION INDICATOR OPTION. "SAC" REFERS TO VALVES WITH SPRING ASSIST CLOSE OPTION.
6. 429 LIMIT STOP, POSITION INDICATOR, AND SPRING ASSIST CLOSE UNAFFECTED.

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INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M -1994
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES (mm) CORNER FILLETS R.005-.020 [127-508] TOLERANCES: ANGLES: ±1° 1 PLACE .X: ±.100 [2.54] 2 PLACE .XX: ±.010 [0.25] 3 PLACE .XXX: ±.005 [0.13]

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