

Product Information Bulletin (PIB)

1" GEN 2 Pressure Regulator, Failsafe Air Motor (AKR)

REV	DATE	DESCRIPTION	ORIGIN (issued by)	APPROVED
001	2/25/21	Document No: 135-022521-001	AP	GM

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For more information:

Call (800) 469-8786

Gilmore@proserv.com

Gilmore, A Proserv Company
1231 Lumpkin Road
Houston, TX 77043

Product Information Bulletin (PIB)

1" GEN 2 Pressure Regulator, Air Motor (AKR)

Gilmore announces the new 1" GEN 2 Pressure Regulator with failsafe Air Motor product line for critical offshore and onshore applications. The GEN 2 Air Motor Pressure Regulator has been designed with the same hydraulic porting footprint as the legacy AKR Pressure Regulators. This thoroughly redesigned product offering provides an improvement in cycle life and performance.

Features and Benefits:

- Qualification exceeds API 16D requirements – 10,000 cycles at full flow rates and pressures
- Extended adjustable regulated pressure range – available up to 5500 psi with Air Motor
- Failsafe adjustment maintains set point hydraulic pressure indifferent of pneumatic pressure loss
- Proprietary guided hydraulic dampening technology
- Improved deadband performance
- Enhanced bolted plunger guide
- Upgraded dynamic plunger T-Seal
- Threaded seal carrier alignment
- CRA Material Construction
 - Refined Tungsten Carbide seal trim
 - Nitronic 60 Plunger and Seal Carrier
 - T316 Spring Housing
- Patent #10,739,796

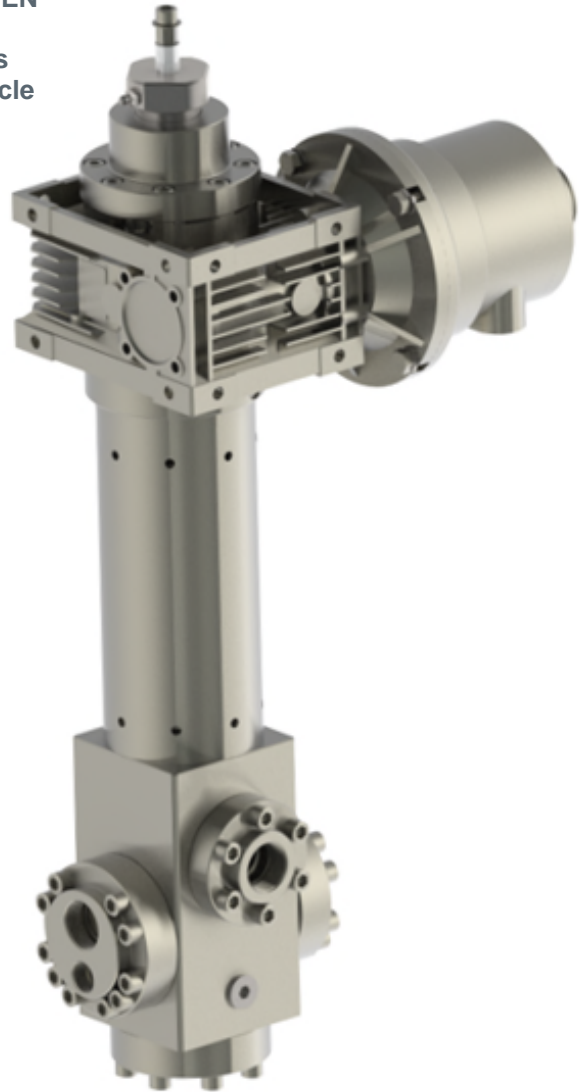


Figure 1. PN 29137: GEN 2 Pressure Regulator, Air Motor
1" NPT Outlet, 1" NPT Inlet, 1500 – 3500 psi range

Product Information Bulletin (PIB)

1" GEN 2 Pressure Regulator, Air Motor (AKR)

Gilmore has exceeded API 16D requirements by qualifying the new 1" GEN 2 Air Motor Regulator designs to 10,000 cycles, at a starting flow rate of 125 gpm per inlet, at 5000 psi, with 1% - 4% water glycol test fluid. Their qualification report is available upon request.

The new Gilmore 1" GEN 2 AKR Pressure Regulators have an identical hydraulic port footprint to the legacy regulators for simply drop-in replacement.

Gilmore will continue to sell and support the legacy 1" Air Motor Regulators with valve sales, repair kits, seal kits and Aftermarket support. Please note that GEN 2 Air Motor regulator kits **are not** interchangeable with legacy repair kits and seal kits and cannot be used in legacy regulators.

Gilmore's 1" GEN 2 Air Motor Regulators are now available for purchase. Please contact Gilmore Customer Service to request a quotation for the 1" GEN 2 Air Motor Pressure Regulators listed below, or any other configurations required that are not listed.

Table 1. 1" GEN 2 Air Motor Pressure Regulators and Legacy Cross-References:

Item	New Valve Description	Legacy PN Reference	New Valve PN	New Repair Kit PN	New Seal Kit PN
1	Valve, Pressure Regulator, Gen 2, Air Motor, 1500-500 psi range, NPT Ports, Single Inlet	44579-99	29096*	29096 RK	29096 SK
2	Valve, Pressure Regulator, Gen 2, Air Motor, 3500-1500 psi range, NPT Ports, Single Inlet	44577-98 44577-W30	29137*	29137 RK	29137 SK
3	Valve, Pressure Regulator, Gen 2, Air Motor, 1500-500 psi range NPT Ports, Single Inlet	45000-1	29138*	29138 RK	29138 SK
4	Valve, Pressure Regulator, Gen 2, Air Motor, 5500-2500 psi range, SAE Ports, Single Inlet	N/A	29139	29139 RK	29139 SK
5	Valve, Pressure Regulator, Gen 2, Air Motor, 1500-3500 psi range, SAE Ports, Double Inlet	N/A	29144	29144 RK	29144 SK
6	Valve, Pressure Regulator, Gen 2, Air Motor, 3500-1500 psi range, Code 62 Ports, Single Inlet	44577-96	29160*	29160 RK	29160 SK
7	Valve, Pressure Regulator, Gen 2, Air Motor, 2500-100 psi range, NPT Ports, Single Inlet	44577-W15	29161*	29161 RK	29161 SK
8	Valve, Pressure Regulator, Gen 2, Air Motor, 1500-500 psi range, Code 62 Ports, Single Inlet	44579-97	29162*	29162 RK	29162 SK
9	Valve, Pressure Regulator, Gen 2, Air Motor, 1500-500 psi range, SAE Ports, Single Inlet	44579-98 45000	29163*	29163 RK	29163 SK

*Gage port improvement from NPT to SAE.

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1" GEN 2 Pressure Regulator, Air Motor (AKR)

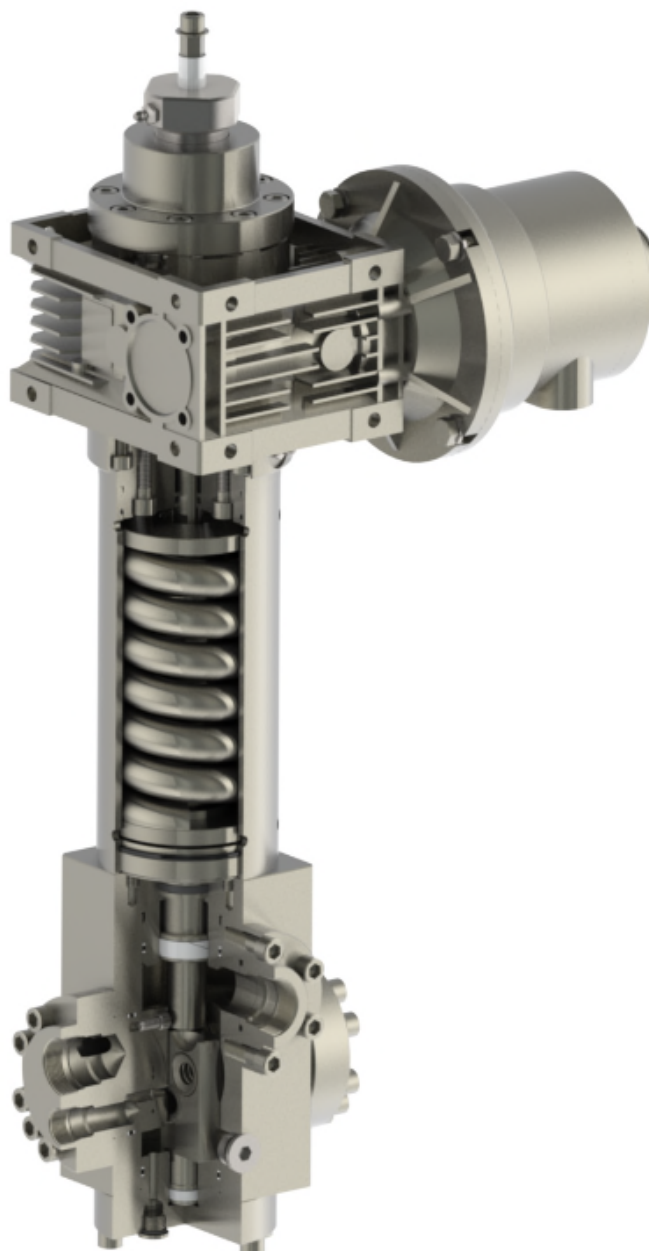


Figure 2. PN 29096: GEN 2 Pressure Regulator, Air Motor, 1" NPT Outlet, 1" NPT Inlet, 1500 – 500 psi range

Please contact Gilmore Customer Service to request any drawings, manuals and quotations for these new GEN 2 Air Motor Regulators at Gilmore@proserv.com.

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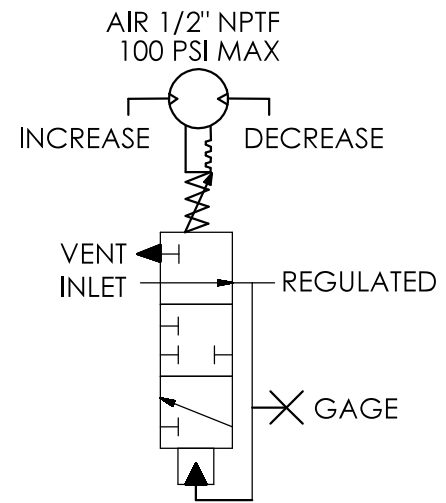
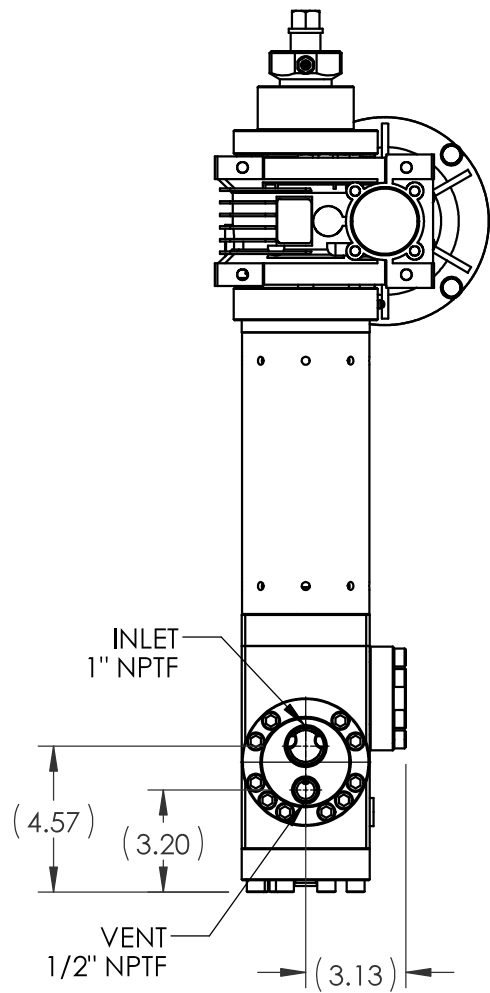
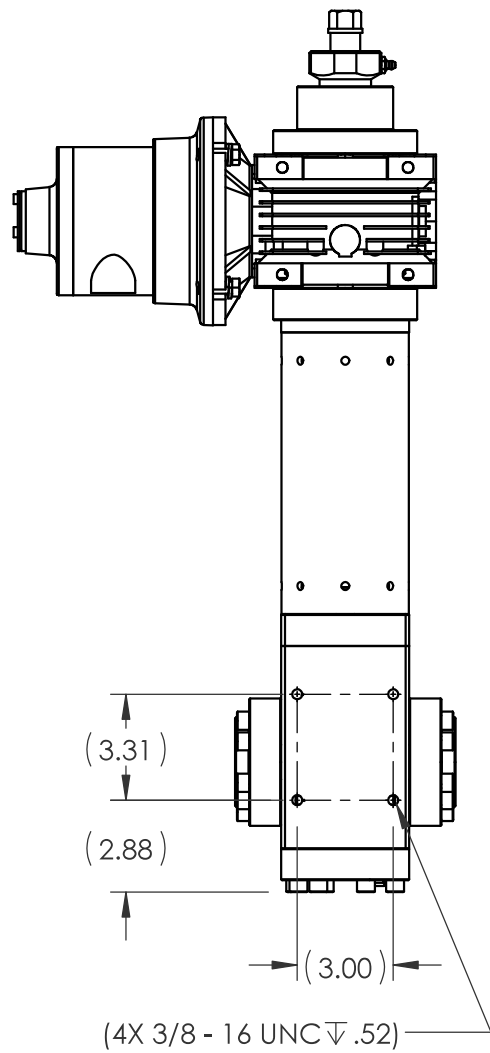
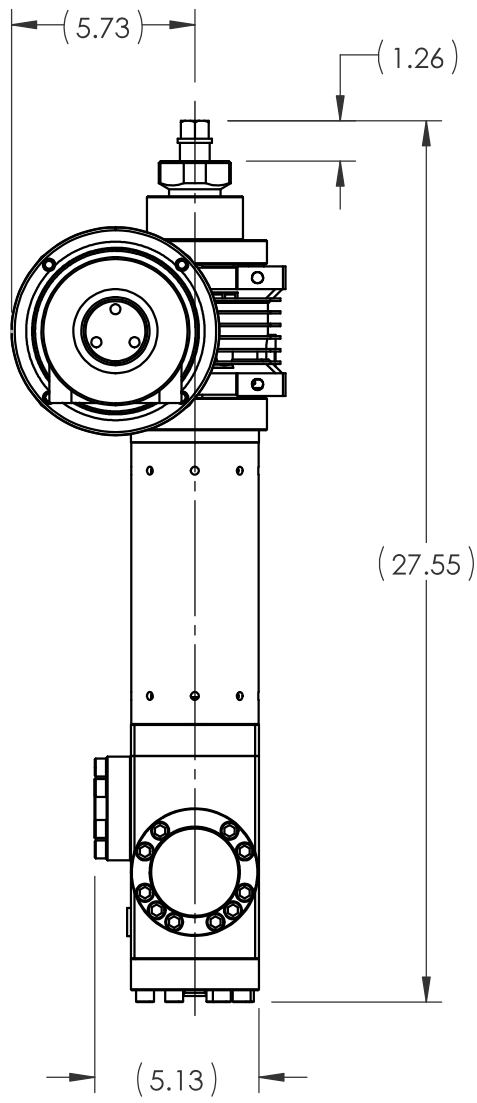
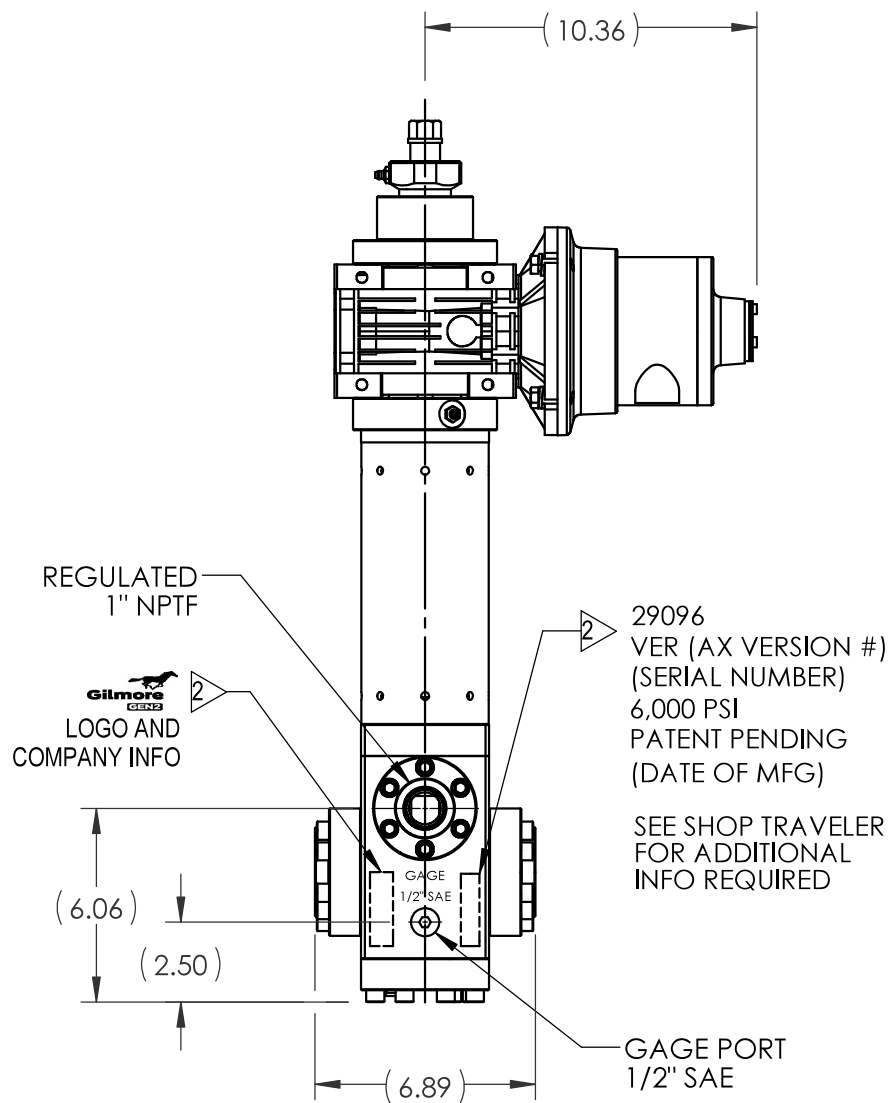
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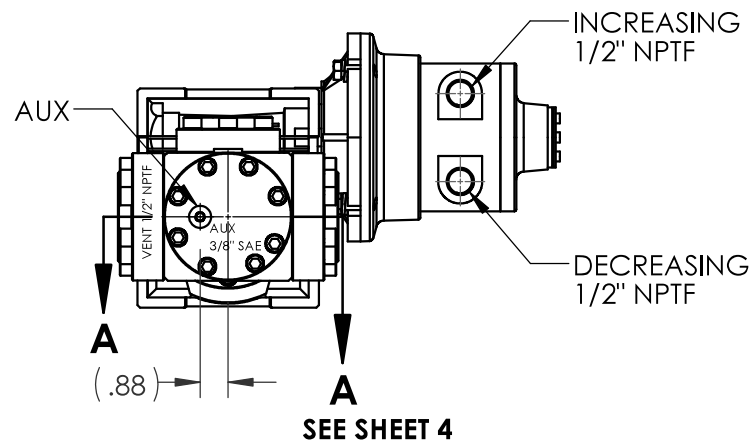
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REVISIONS				
REV	ERN /ECO NUMBER	DRAWN	CHECKED	APPROVED
A	ERN 02447	JZ 12/3/20	Cmf 12-3-20	AJP 12/3/20

B



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US PATENT 10,739,796

SCHEMATIC

MATERIAL: SEE INDIV BOM ITEMS		DIMENSIONS AND TOLERANCES ARE IN INCHES PER ASME Y14.5M-1994. UNLESS OTHERWISE SPECIFIED: 1) TOLERANCES: .X: ±.1 .XX: ±.01 .XXX: ±.005 ANGLES: ±.5° 2) SURFACE TEXTURE: 63/√ 3) CORADIAL FEATURES SHALL BE © WITHIN .010 4) BREAK SHARP EDGES .010 5) INTERNAL RADII SHALL BE .016 MAX 6) DRILL POINTS OPTIONAL WHEN SHOWN UNSPECIFIED, ALL DRILL POINT ANGLES SHALL BE BETWEEN 90°-140°		APPROVAL DRAWN BY JZ DATE 12/3/20 CHECKED BY Cmf DATE 12-3-20 ENGINEER AJP DATE 12/3/20 ERN NUMBER 02447 DATE 10/21/20		Gilmore ENGINEERING a pro/erv company	
CONDITION:						VALVE, PRESSURE REGULATOR, GEN 2, AIR MOTOR, 1" NPTF, SINGLE INLET, 1500/6000 PSI	
TREATMENT:	11					SIZE B	DWG NO 29096
PROCEDURE NUMBER:	5					SCALE 1:8	REV A
						SolidWorks SHEET 1 OF 5	

OPERATING DATA:

- 1. FOR TYPICAL FLOW CAPACITY REFER TO DRAWING 84006 FOR SINGLE INLET.
- 2. TO ADJUST SET POINT WHILE OBSERVING REGULATED PRESSURE, SUPPLY 100 PSI MAX TO INCREASING PORT OR DECREASING PORT.
- 3. SET POINT ADJUSTED TO LESS THAN 500 PSI MAY RESULT IN NON-LINEAR DROP IN FLOW CAPACITY.
- 4. THE ANGULAR POSITION OF THE AIR MOTOR MAY NOT BE AS SHOWN. THE ANGULAR POSITION OF THE AIR MOTOR CAN BE ADJUSTED IN 45 DEGREES INCREMENTS.
- 5. FOR MORE DETAILED OPERATIONS INFORMATION REFER TO SERVICE MANUAL 51031.

PRESSURE DATA:

MAXIMUM INLET PRESSURE RATING: 6,000 PSI
PRESSURE RANGE: 1500 - 500 PSI
TYPICAL DEADBAND AT 5,000 PSI SUPPLY: 400 ± 100 PSI
TYPICAL DEADBAND AT 3,000 PSI SUPPLY: 200 ± 50 PSI
MAXIMUM REGULATED AND VENT PRESSURE RATING: 1500 PSI
AIR MOTOR: 100 PSI

FLOW DATA:

FULLY OPEN Cv SUPPLY: 7 (CALC)
FULLY OPEN Cv VENT: 1 (CALC)
FULLY OPEN MAXIMUM REGULATED FLOW RATE: 100 GPM

FLUIDS: WATER BASED DRILLING CONTROL FLUID
MINERAL OIL BASED DRILLING CONTROL FLUID

PORTS:

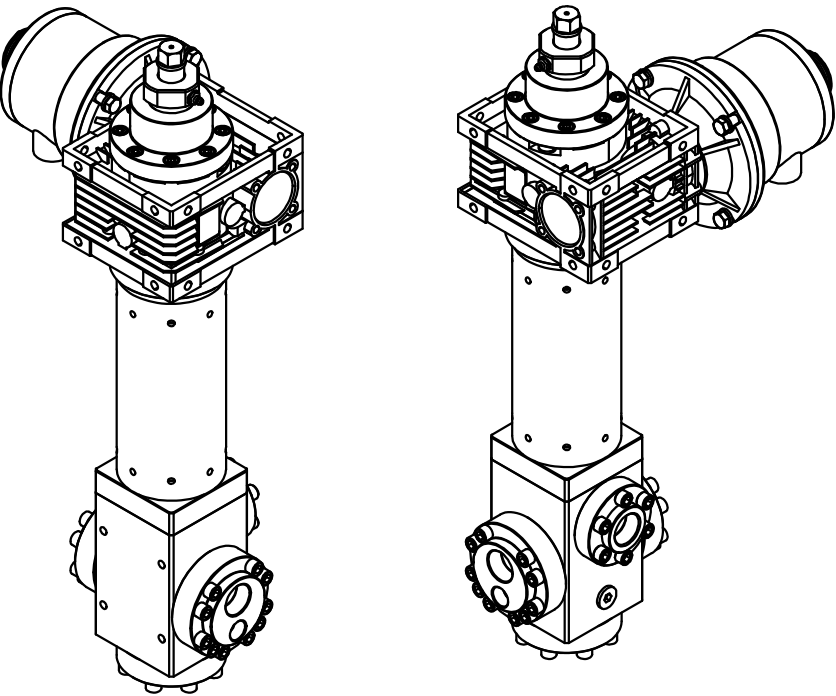
INLET: 1" NPTF
REGULATED: 1" NPTF
VENT: 1/2" NPTF
GAGE: 1/2" SAE
AUX: 3/8" SAE
AIR MOTOR: 1/2" NPTF

GENERAL DATA:

TEMP RANGE: 32°F TO 150°F
APPROX WEIGHT: 136 LBS

NOTES:

- 1 MARK "ASSEMBLY W.O." AT VALVE ASSEMBLY IN ACCORDANCE WITH MA-W-9-10, BY GILMORE.
- 2 MARK AS SHOWN USING LASER ETCH OR COMPUTER CONTROLLED DOT PEEN MARKING MACHINE, .06 HIGH MIN CHARACTERS.
- 3. REGULATED RANGE SPECIFIED ENSURES ADEQUATE AMOUNT OF SPRING PRELOAD IS PRESENT FOR RELIABLE AND REPEATABLE SET POINT ADJUSTMENT WITH SUPPLY PRESENT
- 4. X IN THE BOM INDICATES PARTS IN REPAIR KIT 29096 RK AND SEAL KIT 29096 SK.
- 5 SERVICE MANUAL : 51031
ASSEMBLY PROCEDURE: 50322
STANDARD FAT PROCEDURE: 50323
EXTENDED FAT PROCEDURE: 50324
- 6 TORQUE TO 10 FT-LB
- 7 TORQUE TO 20 FT-LB
- 8 TORQUE TO 5 FT-LB
- 9 TORQUE TO 40 FT-LB
- 10 TORQUE TO 20 FT-LB
- 11 ALL MANUFACTURED ITEMS ARE PASSIVATED.



Gilmore
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ENGINEERING

SIZE

B

DWG NO

29096

REV

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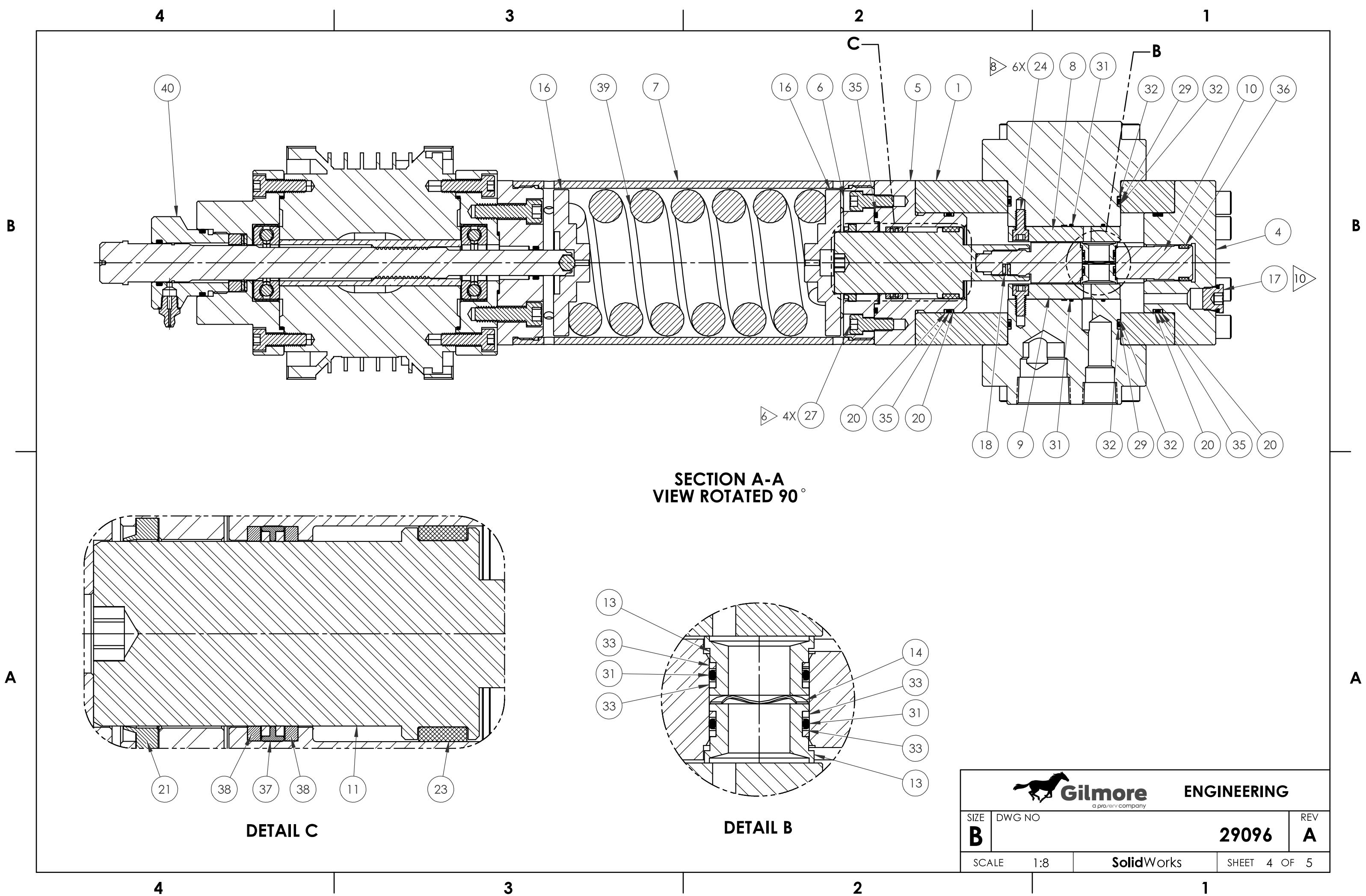
SCALE

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SolidWorks

SHEET 2 OF 5

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		1	153287	BODY	A564 TP 630 (17-4 PH)	1				25	18224-003	SHCS, 3/8-16 UNC X 1-1/2 LG	A286 GR 660	28		
		2	153289	FLANGE, 1" NPT INLET, 1/2" NPT VENT	A276 TP 316	1				26	18224-002	SHCS, 3/8-16 UNC X 1-1/4" LG	A286 GR 660	14		
		3	153291	FLANGE OULET	A276 TP 316	1				27	18224-045	SCHS, 5/16-18 UNC X 3/4" LG	A286 GR 660	4		
		4	153290	FLANGE BOTTOM	A276 TP 316	1				28	18100-103K1	O-RING	HNBR	1	X	X
		5	153298	GUIDE, PLUNGER, 1-1/2"	A276 TP 316	1				29	18100-051K1	O-RING	HNBR	2	X	X
		6	156614	ADAPTER, SPRING HOUSING	A276 TP S21800 (NITRONIC 60)	1				30	18100-026K1	O-RING	HNBR	4	X	X
		7	177586	HOUSING, SPRING	A276 TP 316	1				31	18100-009K1	O-RING	HNBR	6	X	X
		8	153293	INSERT, FLOW PORT, BLANK	TUNGSTEN CARBIDE / NICKEL	1	X			32	195435	RING, BACKUP	PEEK	4	X	X
		9	153292	INSERT, FLOW PORT, SUPPLY & VENT	TUNGSTEN CARBIDE / NICKEL	1	X			33	195436	RING, BACKUP	PEEK	4	X	X
		10	153294	CARRIER, SEAL	A276 TP S21800 (NITRONIC 60)	1				34	195437	RING, BACKUP	PEEK	8	X	X
		11	153297	PLUNGER, 1-1/2"	A276 TP S21800 (NITRONIC 60)	1				35	18100-082K1	O-RING	HNBR	3	X	X
		12	154597	RING, SEAL, SUPPLY	TUNGSTEN CARBIDE / NICKEL	4	X			36	161776	WEAR BAND, SEAL CARRIER	DELFIN AF	1	X	X
		13	154599	RING, SEAL, VENT	TUNGSTEN CARBIDE / NICKEL	2	X			37	18108-522	T-SEAL, ROD	CARBOXYLATED NITRILE / NYLATRON	1	X	X
		14	18701-002	WAVE SPRING	AMS5699 (X-750)	1	X			38	158317	RING, BACKUP	DELFIN AF	2	X	X
		15	154598	SPRING, COMPRESSION	AMS5699 (X-750)	2	X			39	197520	SPRING, COMPRESSION	AMS5670 (X-750)	1		
		16	154526	PLATE, SPRING	A276 TP 316	2				40	29136	AIR MOTOR, GEN 2	REFER TO PARTS LIST	1		
		17	18603-006	PLUG, HEX, 3/8" SAE	A240 TP 316	1	X									
		18	154797	PELLET, NYLOK	NYLON	1	X		X							
		19	18603-008	HOLLOW HEX PLUG, 1/2"	A240 TP 316	1	X									
		20	154659	RING, BACKUP	PEEK	4	X		X							
		21	161775	WIPER, D-STYLE, 1.500 PLUNGER	POLYURETHANE	1	X		X							
		22	153288	FLANGE, BLANK	A276 TP 316	1										
		23	184195	WEAR BAND, PLUNGER	DELFIN AF	1	X		X							
		24	154799	SHCS, THREAD-LOCKING, 1/4-20 UNC X 1/2" LONG	A593 T316 (& NYLON)	6	X		X							
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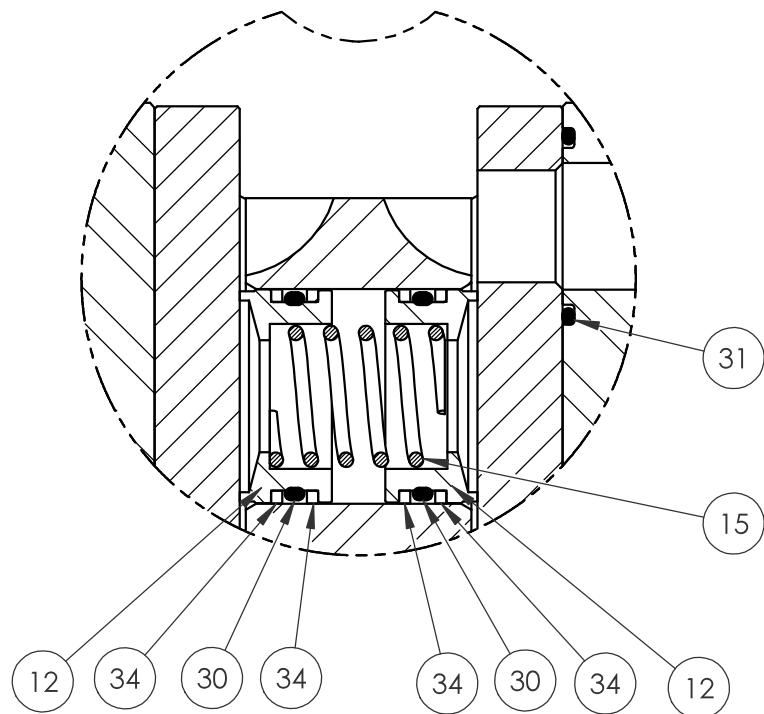
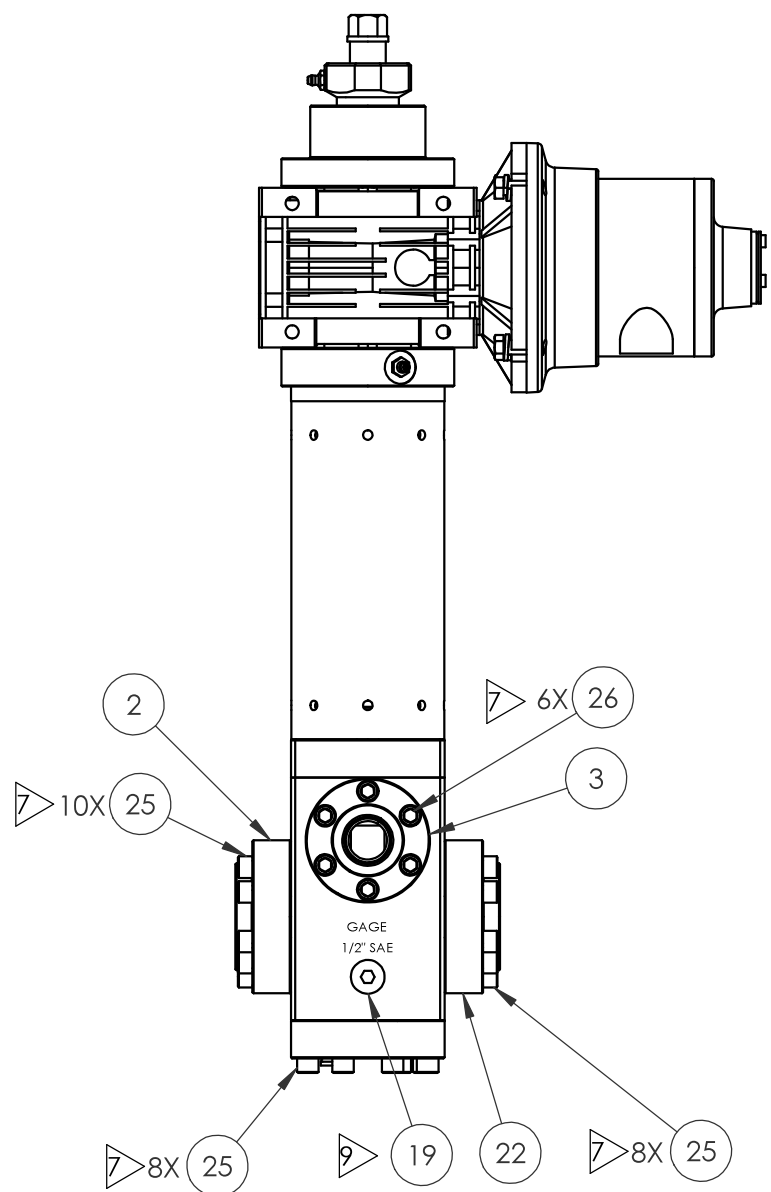
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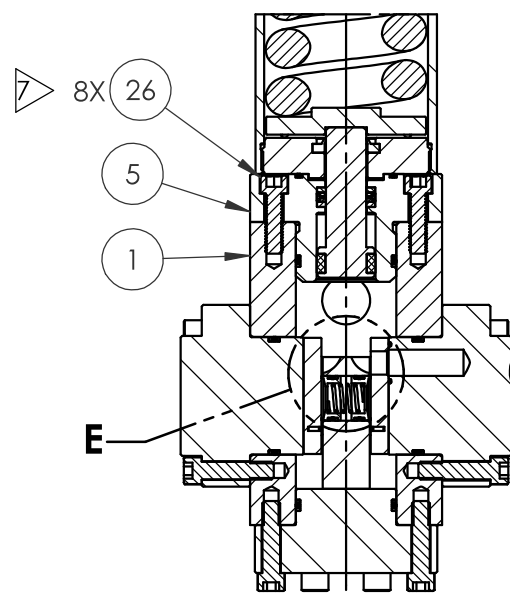
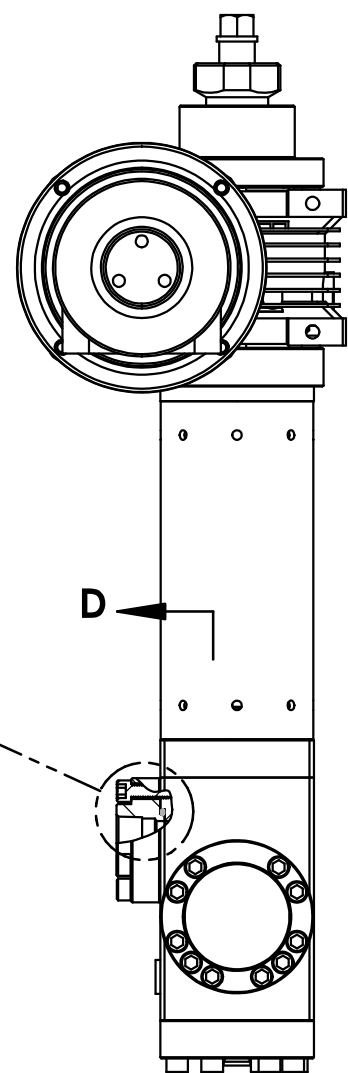
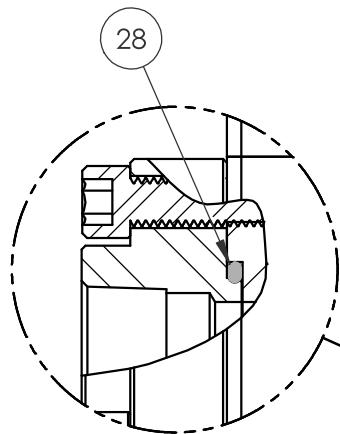
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DETAIL E
2 PLACES



SECTION D-D

 Gilmore <small>a proserv company</small> ENGINEERING			
SIZE B	DWG NO 29096	REV A	
SCALE 1:8	SolidWorks	SHEET 5 OF 5	

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1

OPERATING DATA:

- 1. FOR TYPICAL FLOW CAPACITY REFER TO DRAWING 84006 FOR SINGLE INLET.
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TYPICAL DEADBAND AT 3,000 PSI SUPPLY: 200 ±50 PSI
MAXIMUM REGULATED AND VENT PRESSURE RATING: 3500 PSI
AIR MOTOR: 100 PSI

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FULLY OPEN Cv VENT: 1 (CALC)
FULLY OPEN MAXIMUM REGULATED FLOW RATE: 125 GPM

FLUIDS: WATER BASED DRILLING CONTROL FLUID
MINERAL OIL BASED DRILLING CONTROL FLUID

PORTS:

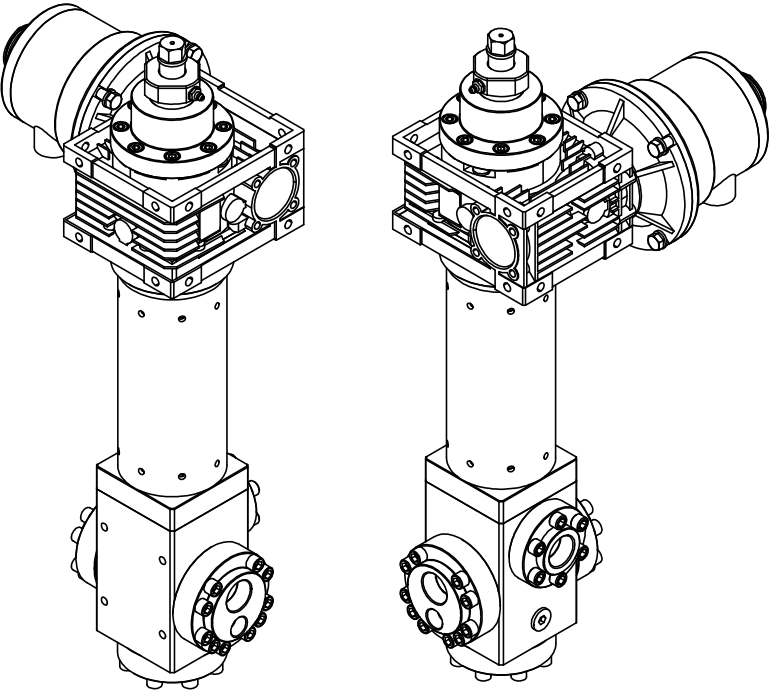
INLET: 1" NPTF
REGULATED: 1" NPTF
VENT: 1/2" NPTF
GAGE: 1/2" SAE
AUX: 3/8" SAE
AIR MOTOR: 1/2" NPTF

GENERAL DATA:

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APPROX WEIGHT: 138 LBS

NOTES:

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- 4. X IN THE BOM INDICATES PARTS IN REPAIR KIT 29137 RK AND SEAL KIT 29137 SK.
- 5 SERVICE MANUAL : 51031
ASSEMBLY PROCEDURE: 50322
STANDARD FAT PROCEDURE: 50323
EXTENDED FAT PROCEDURE: 50324
- 6 TORQUE TO 10 FT-LB
- 7 TORQUE TO 20 FT-LB
- 8 TORQUE TO 5 FT-LB
- 9 TORQUE TO 40 FT-LB
- 10 TORQUE TO 20 FT-LB
- 11 ALL MANUFACTURED ITEMS ARE PASSIVATED.



ENGINEERING

SIZE	DWG NO	REV
B	29137	A
SCALE	1:8	SHEET 2 OF 5
SolidWorks		

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			ITEM NO	PART NUMBER	DESCRIPTION	MATERIAL	QTY	RK	SK				ITEM NO	PART NUMBER	DESCRIPTION	MATERIAL	QTY	RK	SK
			1	153287	BODY	A564 TP 630 (17-4 PH)	1						25	18224-003	SHCS, 3/8-16 UNC X 1-1/2 LG	A286 GR 660	28		
			2	153289	FLANGE, 1" NPTF INLET, 1/2" NPTF VENT	A276 TP 316	1						26	18224-002	SHCS, 3/8-16 UNC X 1-1/4" LG	A286 GR 660	14		
			3	153291	FLANGE, 1" NPTF	A276 TP 316	1						27	18224-045	SCHS, 5/16-18 UNC X 3/4" LG	A286 GR 660	4		
			4	153290	FLANGE, BOTTOM, 3/8" SAE	A276 TP 316	1						28	18100-103K1	O-RING	HNBR	1	X	X
			5	153298	GUIDE, PLUNGER, 1-1/2"	A276 TP 316	1						29	18100-051K1	O-RING	HNBR	2	X	X
			6	156614	ADAPTER, SPRING HOUSING	A276 TP S21800 (NITRONIC 60)	1						30	18100-026K1	O-RING	HNBR	4	X	X
			7	177586	HOUSING, SPRING	A276 TP 316	1						31	18100-009K1	O-RING	HNBR	6	X	X
			8	153293	INSERT, FLOW PORT, BLANK	TUNGSTEN CARBIDE / NICKEL	1	X					32	195435	RING, BACKUP	PEEK	4	X	X
			9	153292	INSERT, FLOW PORT, SUPPLY & VENT	TUNGSTEN CARBIDE / NICKEL	1	X					33	195436	RING, BACKUP	PEEK	4	X	X
			10	153294	CARRIER, SEAL	A276 TP S21800 (NITRONIC 60)	1						34	195437	RING, BACKUP	PEEK	8	X	X
			11	153297	PLUNGER, 1-1/2"	A276 TP S21800 (NITRONIC 60)	1						35	18100-082K1	O-RING	HNBR	3	X	X
			12	154597	RING, SEAL, SUPPLY	TUNGSTEN CARBIDE / NICKEL	4	X					36	161776	WEAR BAND, SEAL CARRIER	DELFIN AF	1	X	X
			13	154599	RING, SEAL, VENT	TUNGSTEN CARBIDE / NICKEL	2	X					37	18108-522	T-SEAL, ROD	CARBOXYLATED NITRILE / NYLATRON	1	X	X
			14	18701-002	WAVE SPRING	AMS5699 (X-750)	1	X					38	158317	RING, BACKUP	PEEK	2	X	X
			15	154598	SPRING, COMPRESSION	AMS5699 (X-750)	2	X					39	12968	SPRING, COMPRESSION	A313 TP 316	1		
			16	154526	PLATE, SPRING	A276 TP 316	2						40	13125	SPRING, COMPRESSION	AMS 5699 (X-750)	1		
			17	18603-006	PLUG, HEX, 3/8" SAE	A240 TP 316	1	X					41	29136	AIR MOTOR, GEN 2	REFER TO PARTS LIST	1		
			18	154797	PELLET, NYLOK	NYLON	1	X	X										
			19	18603-008	HOLLOW HEX PLUG, 1/2"	A240 TP 316	1	X											
			20	154659	RING, BACKUP	PEEK	4	X	X										
			21	161775	WIPER, D-STYLE, 1.500 PLUNGER	POLYURETHANE	1	X	X										
			22	153288	FLANGE, BLANK	A276 TP 316	1												
			23	184195	WEAR BAND, PLUNGER, 1-1/2"	DELFIN AF	1	X	X										
			24	154799	SHCS, THREAD-LOCKING, 1/4-20 UNC X 1/2" LONG	A593 T316 (& NYLON)	6	X	X										
4				3				2				1							
												Gilmore ENGINEERING a pro/erv company							
SIZE B		DWG NO 29137										REV A							
SCALE		1:8		SolidWorks		SHEET 3 OF 5													

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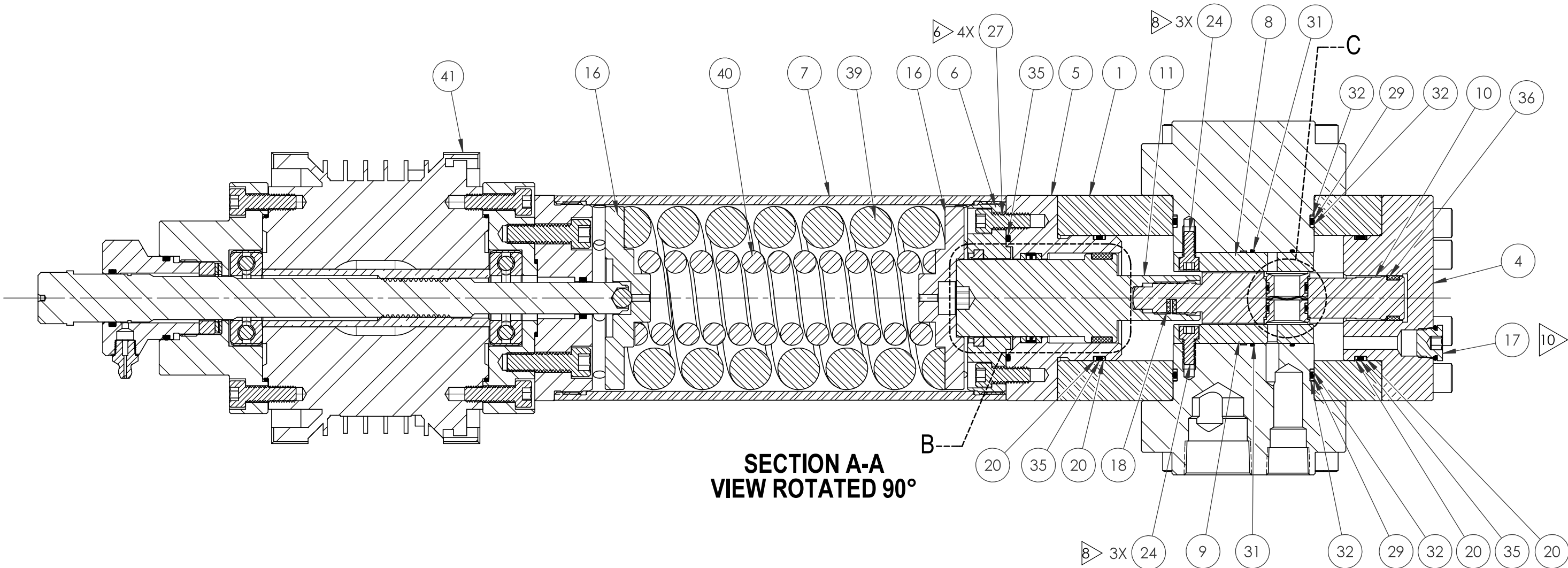
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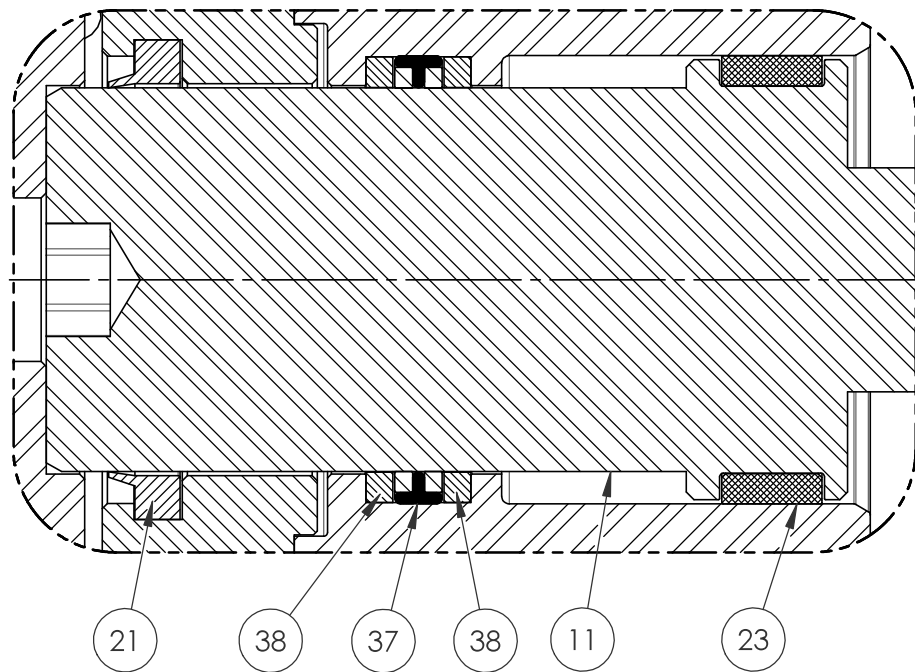
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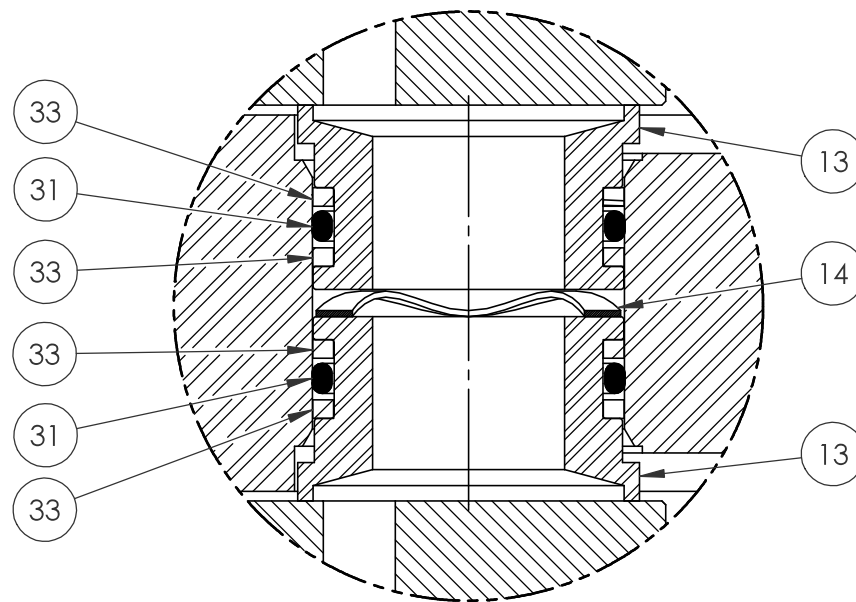


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DETAIL B



DETAIL C



Gilmore
a pro/erv company

ENGINEERING

SIZE B	DWG NO 29137	REV A
SCALE 1:4	SolidWorks	SHEET 4 OF 5

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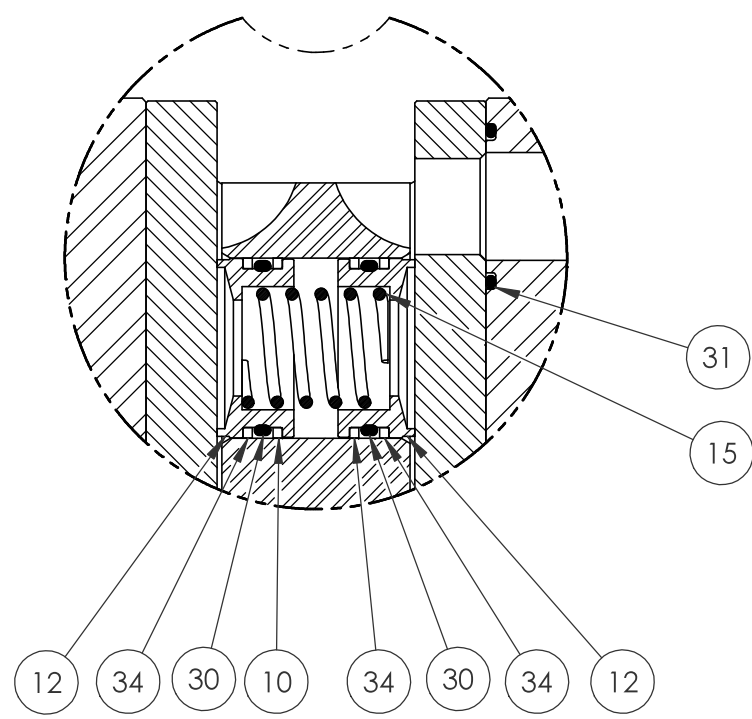
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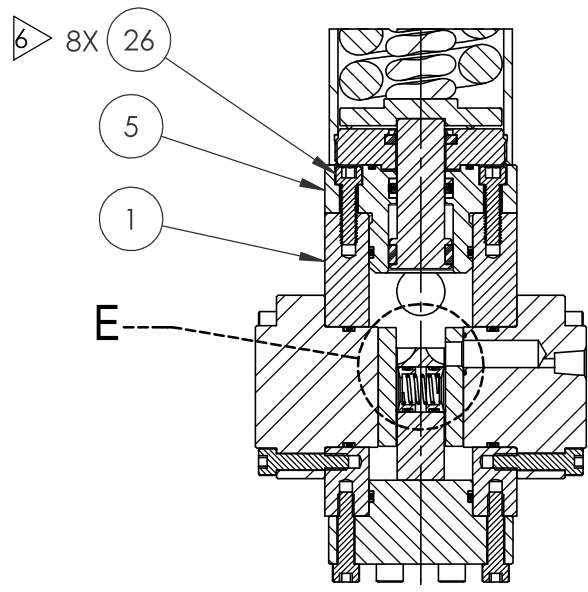
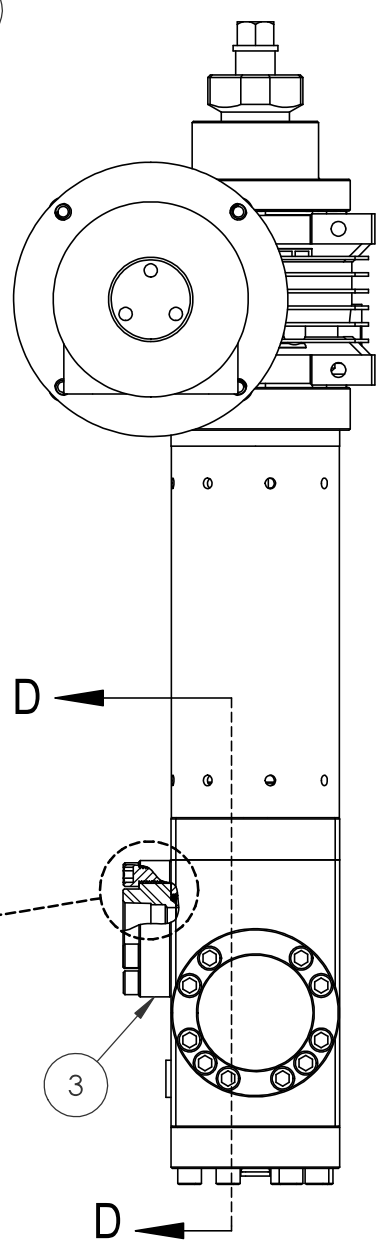
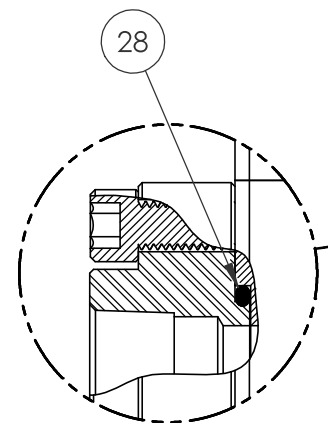
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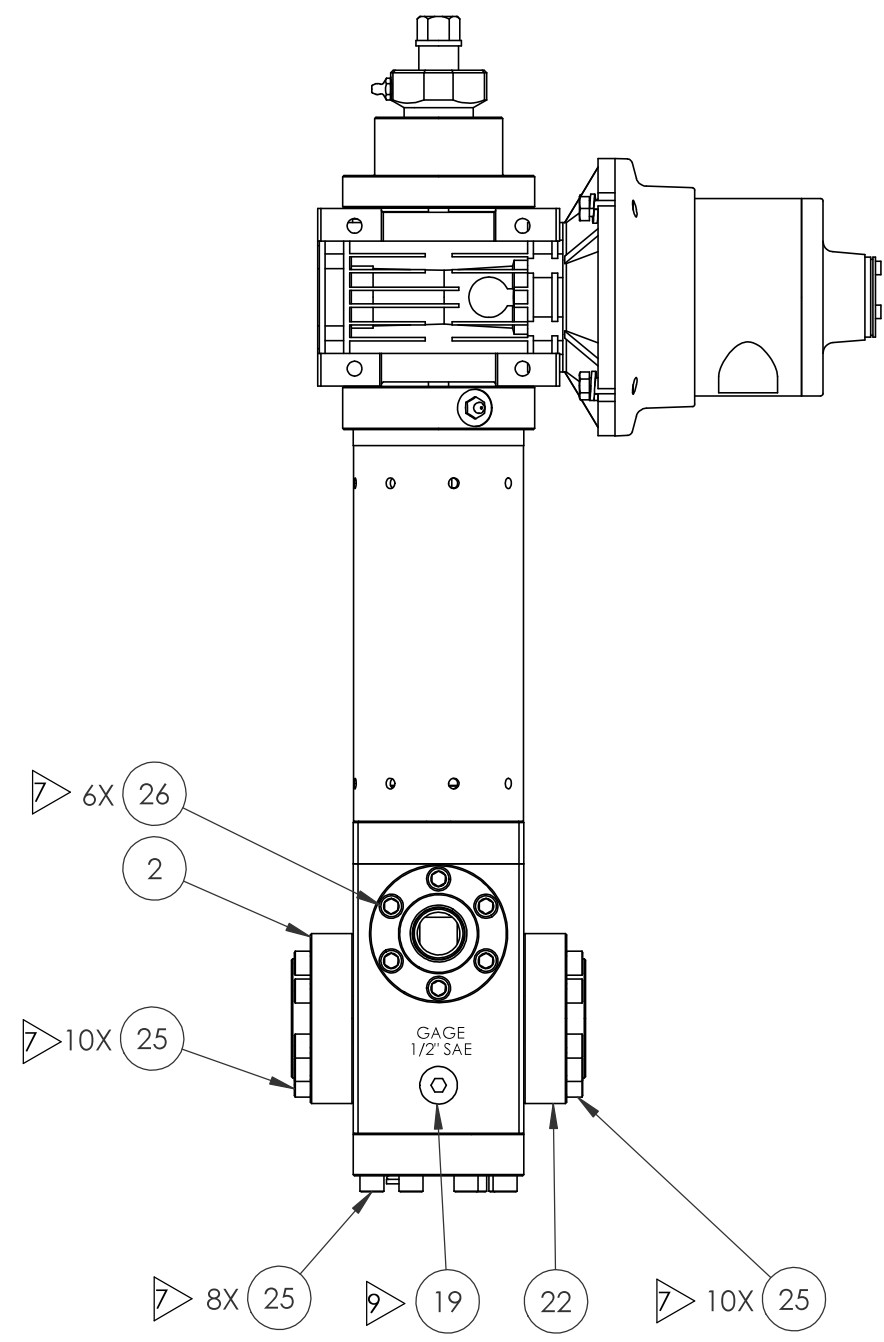
A



DETAIL E
2 PLACES



SECTION D-D



ENGINEERING

SIZE B	DWG NO 29137	REV A
SCALE 1:3	SolidWorks	SHEET 5 OF 5

4

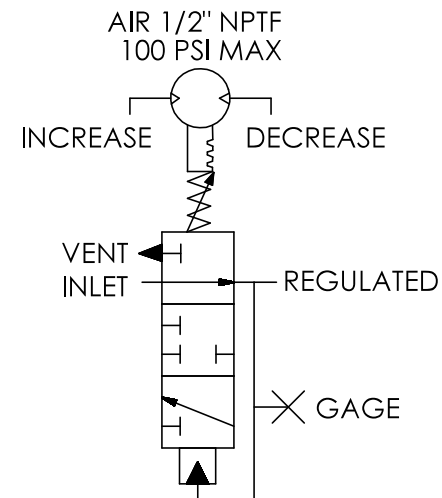
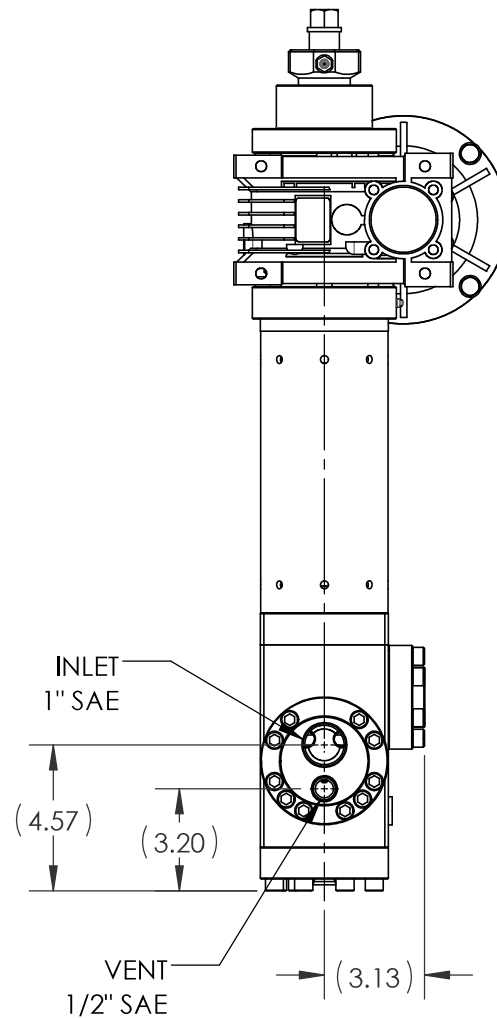
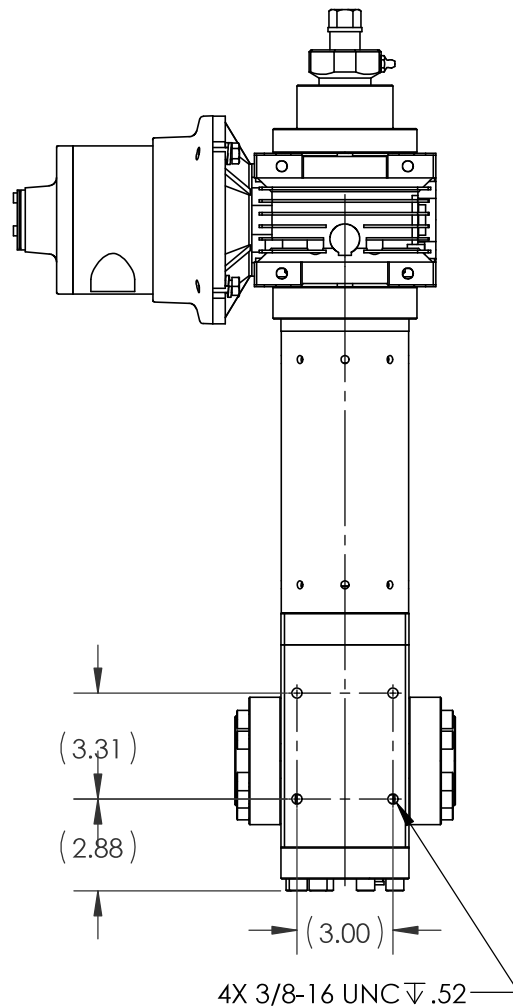
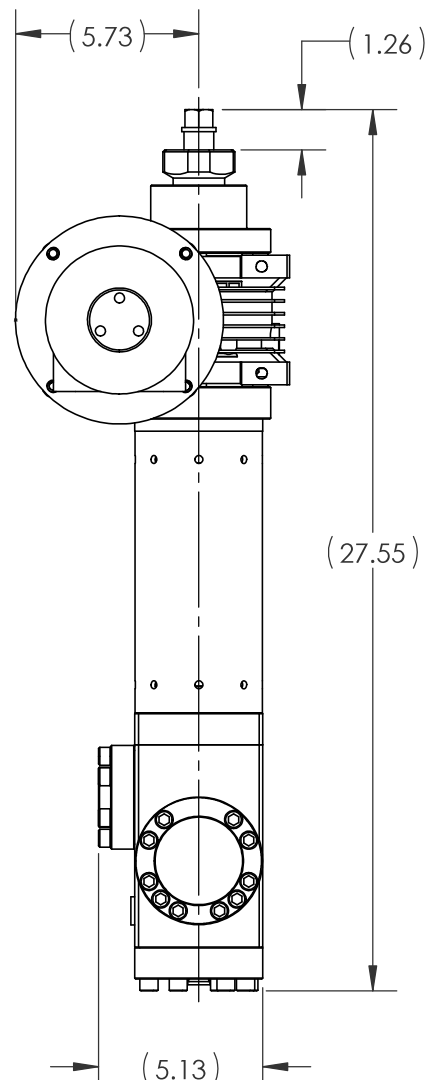
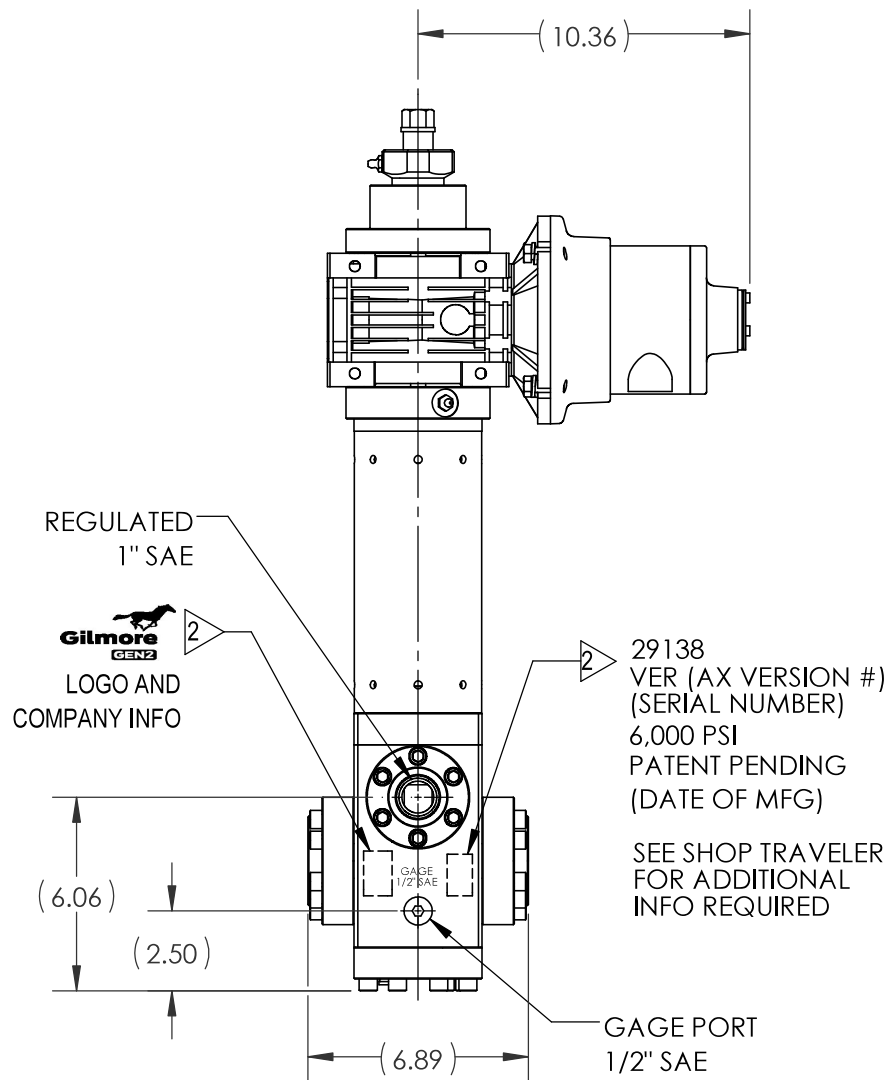
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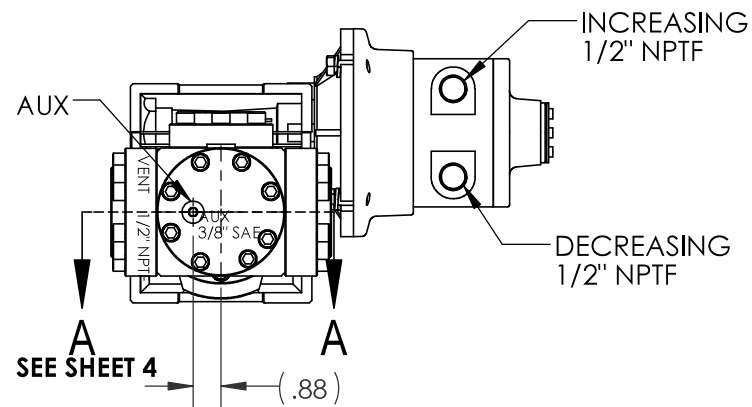
REVISIONS				
REV	ERN /ECO NUMBER	DRAWN	CHECKED	APPROVED
A	ERN 02447	JZ 12/3/20	Cmcf 12-2-20	AGP 12/1/20

B








SCHEMATIC

A



US PATENT 10,739,796

MATERIAL: SEE INDIV BOM ITEMS		<div>DIMENSIONS AND TOLERANCES ARE IN INCHES PER ASME Y14.5M-1994. UNLESS OTHERWISE SPECIFIED: 1) TOLERANCES: .X: ±.1 .XX: ±.01 .XXX: ±.005 ANGLES: ±.5° 2) SURFACE TEXTURE:  3) CORADIAL FEATURES SHALL BE  WITHIN .010 4) BREAK SHARP EDGES .010 5) INTERNAL RADII SHALL BE .016 MAX 6) DRILL POINTS OPTIONAL WHEN SHOWN UNSPECIFIED. ALL DRILL POINT ANGLES SHALL BE BETWEEN 90°-140°</div>	APPROVAL					
CONDITION:			DRAWN BY <i>JZ</i>	DATE 12/3/20	<div>VALVE, PRESSURE REGULATOR, GEN 2, AIR MOTOR, 1" SAE, SINGLE INLET, 1500/6000 PSI</div>			
TREATMENT:			CHECKED BY <i>Cmcf</i>	DATE 12-2-20				
			ENGINEER <i>AGP</i>	DATE 12/1/20				
PROCEDURE NUMBER:			ERN NUMBER 02447	DATE 11/2/20				
		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GILMORE VALVE CO UNLESS OTHERWISE STATED. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF GILMORE VALVE CO IS PROHIBITED.				SIZE B	DWG NO 29138	REV A
						SCALE 1:4	SolidWorks	SHEET 1 OF 5

4

3

2

1

B

A

B

A

B

A

OPERATING DATA:

1. FOR TYPICAL FLOW CAPACITY REFER TO DRAWING 84006 FOR SINGLE INLET.
2. TO ADJUST SETPOINT WHILE OBSERVING REGULATED PRESSURE, SUPPLY 100 PSI MAX TO INCREASING PORT OR DECREASING PORT.
3. SET POINT ADJUSTED TO LESS THAN 500 PSI MAY RESULT IN NON-LINEAR DROP IN FLOW CAPACITY.
4. THE ANGULAR POSITION OF THE AIR MOTOR MAY NOT BE AS SHOWN. THE ANGULAR POSITION OF THE AIR MOTOR CAN BE ADJUSTED IN 45 DEGREES INCREMENTS.
5. FOR MORE DETAILED OPERATIONS INFORMATION REFER TO SERVICE MANUAL 51031.

PRESSURE DATA:

MAXIMUM INLET PRESSURE RATING: 6,000 PSI

PRESSURE RANGE: 1500 - 500 PSI

TYPICAL DEADBAND AT 5,000 PSI SUPPLY: 400 ±100PSI

TYPICAL DEADBAND AT 3,000 PSI SUPPLY: 200 ±50 PSI

MAXIMUM REGULATED AND VENT PRESSURE RATING: 1500 PSI

AIR MOTOR: 100 PSI

FLOW DATA:

FULLY OPEN Cv SUPPLY: 7 (CALC)

FULLY OPEN Cv VENT: 1 (CALC)

FULLY OPEN MAXIMUM REGULATED FLOW RATE: 100 GPM

FLUIDS: WATER BASED DRILLING CONTROL FLUID

MINERAL OIL BASED DRILLING CONTROL FLUID

PORTS:

INLET: 1" SAE

REGULATED: 1" SAE

VENT: 1/2" SAE

GAGE: 1/2" SAE

AUX: 3/8" SAE

AIR MOTOR: 1/2" NPTF

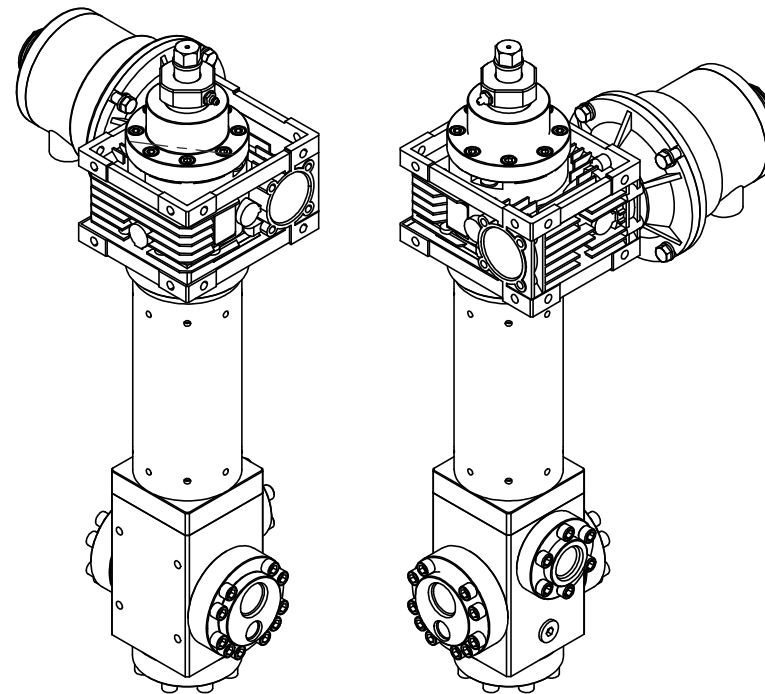
GENERAL DATA:

TEMP RANGE: 32°F TO 150°F

APPROX WEIGHT: 136 LBS

NOTES:

- 1 MARK "ASSEMBLY W.O." AT VALVE ASSEMBLY IN ACCORDANCE WITH MA-W-9-10, BY GILMORE.
- 2 MARK AS SHOWN USING LASER ETCH OR COMPUTER CONTROLLED DOT PEEN MARKING MACHINE, .06 HIGH MIN CHARACTERS.
3. REGULATED RANGE SPECIFIED ENSURES ADEQUATE AMOUNT OF SPRING PRELOAD IS PRESENT FOR RELIABLE AND REPEATABLE SET POINT ADJUSTMENT WITH SUPPLY PRESENT
4. X IN THE BOM INDICATES PARTS IN REPAIR KIT 29138 RK AND SEAL KIT 29138 SK.
- 5 SERVICE MANUAL : 51031
ASSEMBLY PROCEDURE: 50322
STANDARD FAT PROCEDURE: 50323
EXTENDED FAT PROCEDURE: 50324
- 6 TORQUE TO 10 FT-LB
- 7 TORQUE TO 20 FT-LB
- 8 TORQUE TO 5 FT-LB
- 9 TORQUE TO 40 FT-LB
- 10 TORQUE TO 20 FT-LB
- 11 ALL MANUFACTURED ITEMS ARE PASSIVATED.



ENGINEERING

SIZE	DWG NO	REV
B	29138	A
SCALE	1:8	SHEET 2 OF 5
SolidWorks		

BILL OF MATERIALS						
ITEM NO	PART NUMBER	DESCRIPTION	MATERIAL	QTY	RK	SK
1	153287	BODY	A564 TP 630 (17-4 PH)	1		
2	197568	FLANGE, 1" SAE INLET, 1/2" SAE VENT	A276 TP 316	1		
3	197569	FLANGE, 1" SAE	A276 TP 316	1		
4	153290	FLANGE, BOTTOM, 3/8" SAE	A276 TP 316	1		
5	153298	GUIDE, PLUNGER, 1-1/2"	A276 TP 316	1		
6	156614	ADAPTER, SPRING HOUSING	A276 TP S21800 (NITRONIC 60)	1		
7	177586	HOUSING, SPRING	A276 TP 316	1		
8	153293	INSERT, FLOW PORT, BLANK	TUNGSTEN CARBIDE / NICKEL	1	X	
9	153292	INSERT, FLOW PORT, SUPPLY & VENT	TUNGSTEN CARBIDE / NICKEL	1	X	
10	153294	CARRIER, SEAL	A276 TP S21800 (NITRONIC 60)	1		
11	153297	PLUNGER, 1-1/2"	A276 TP S21800 (NITRONIC 60)	1		
12	154597	RING, SEAL, SUPPLY	TUNGSTEN CARBIDE / NICKEL	4	X	
13	154599	RING, SEAL, VENT	TUNGSTEN CARBIDE 8-10% NICKEL	2	X	
14	18701-002	WAVE SPRING	AMS5699 (X-750)	1	X	
15	154598	SPRING, COMPRESSION	AMS5699 (X-750)	2	X	
16	154526	PLATE, SPRING	A276 TP 316	2		
17	18603-006	PLUG, HEX, 3/8" SAE	A240 TP 316	1	X	
18	154797	PELLET, NYLOK	NYLON	1	X	X
19	18603-008	HOLLOW HEX PLUG, 1/2"	A240 TP 316	1	X	
20	154659	RING, BACKUP	PEEK	4	X	X
21	161775	WIPER, D-STYLE, 1.500 PLUNGER	POLYURETHANE	1	X	X
22	153288	FLANGE, BLANK	A276 TP 316	1		
23	184195	WEAR BAND, PLUNGER, 1-1/2"	DELFIN AF	1	X	X
24	154799	SHCS, THREAD-LOCKING, 1/4-20 UNC X 1/2" LONG	A593 T316 (& NYLON)	6	X	X
25	18224-003	SHCS, 3/8-16 UNC X 1-1/2 LG	A286 GR 660	28		
26	18224-002	SHCS, 3/8-16 UNC X 1-1/4" LG	A286 GR 660	14		
27	18224-045	SCHS, 5/16-18 UNC X 3/4" LG	A286 GR 660	4		
28	18100-103K1	O-RING	HNBR	1	X	X

BILL OF MATERIALS						
ITEM NO	PART NUMBER	DESCRIPTION	MATERIAL	QTY	RK	SK
29	18100-051K1	O-RING	HNBR	2	X	X
30	18100-026K1	O-RING	HNBR	4	X	X
31	18100-009K1	O-RING	HNBR	6	X	X
32	195435	RING, BACKUP	PEEK	4	X	X
33	195436	RING, BACKUP	PEEK	4	X	X
34	195437	RING, BACKUP	PEEK	8	X	X
35	18100-082K1	O-RING	HNBR	3	X	X
36	161776	WEAR BAND, SEAL CARRIER	DELFIN AF	1	X	X
37	18108-522	T-SEAL, ROD	CARBOXYLATED NITRILE / NYLATRON	1	X	X
38	158317	RING, BACKUP	PEEK	2	X	X
39	197520	SPRING, COMPRESSION	AMS5670 (X-750)	1		
40	29136	AIR MOTOR, GEN 2	REFER TO PARTS LIST	1		

		ENGINEERING	
SIZE B	DWG NO <div style="text-align: right;">29138</div>		REV A
SCALE 1:8		SolidWorks	SHEET 3 OF 5

4

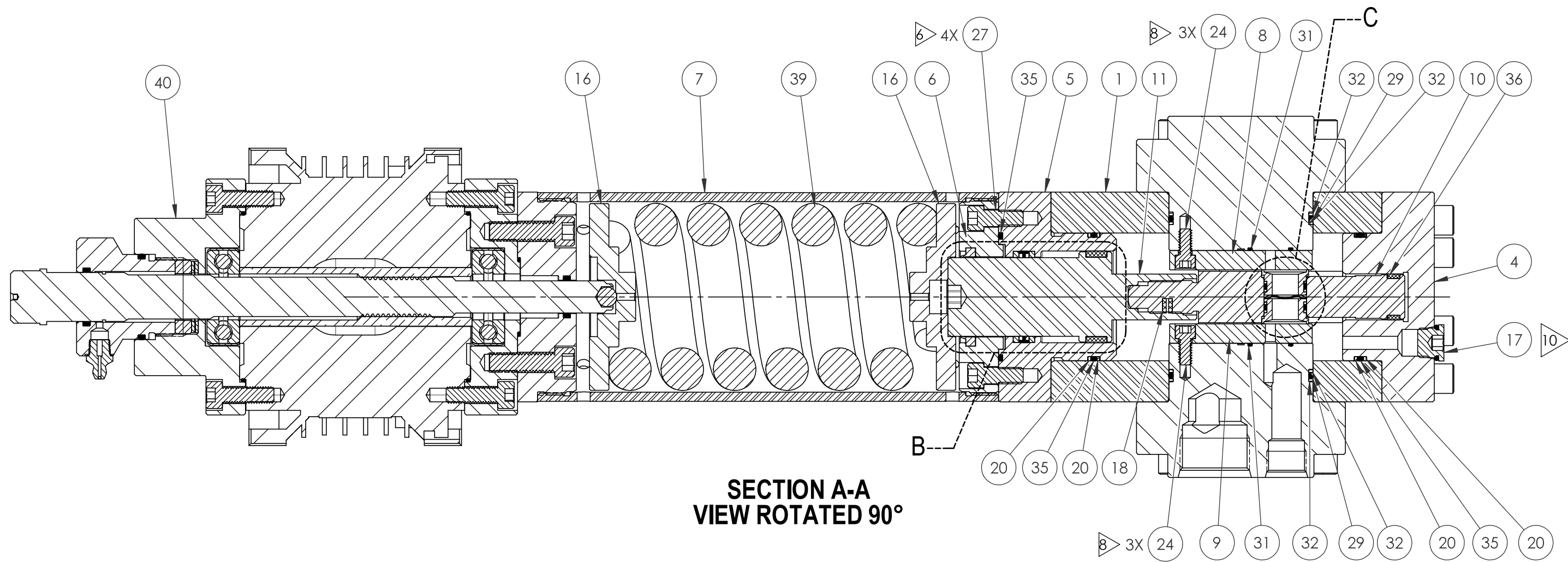
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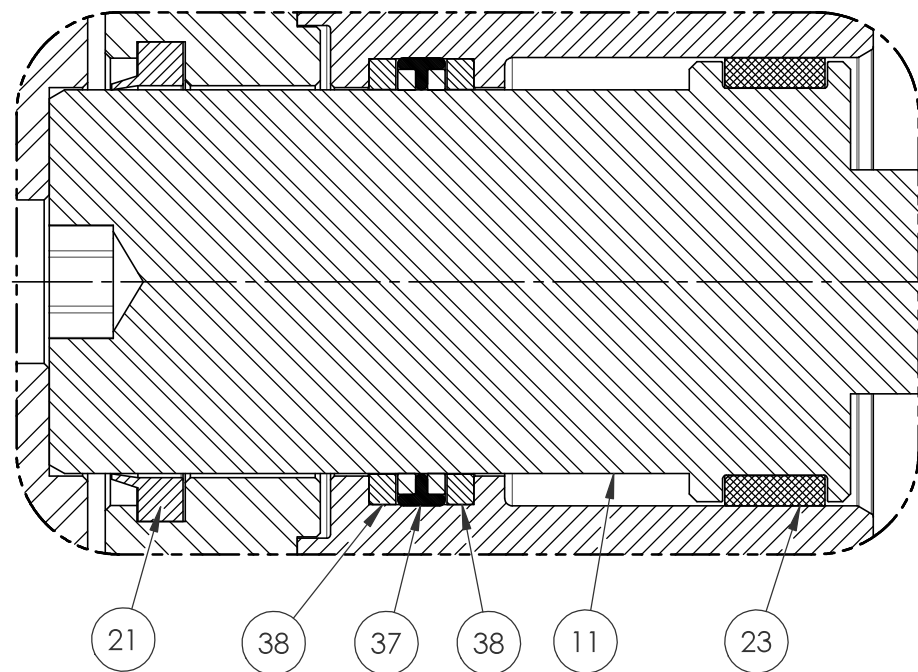
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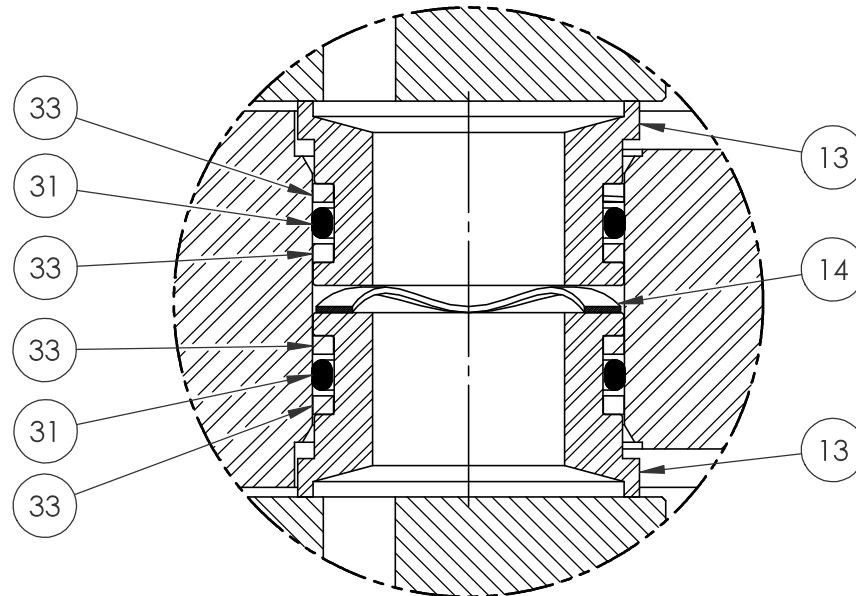
SECTION A-A
VIEW ROTATED 90°

A

A



DETAIL B



DETAIL C



Gilmore
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ENGINEERING

SIZE B	DWG NO 29138	REV A
SCALE 1:4	SolidWorks	SHEET 4 OF 5

4

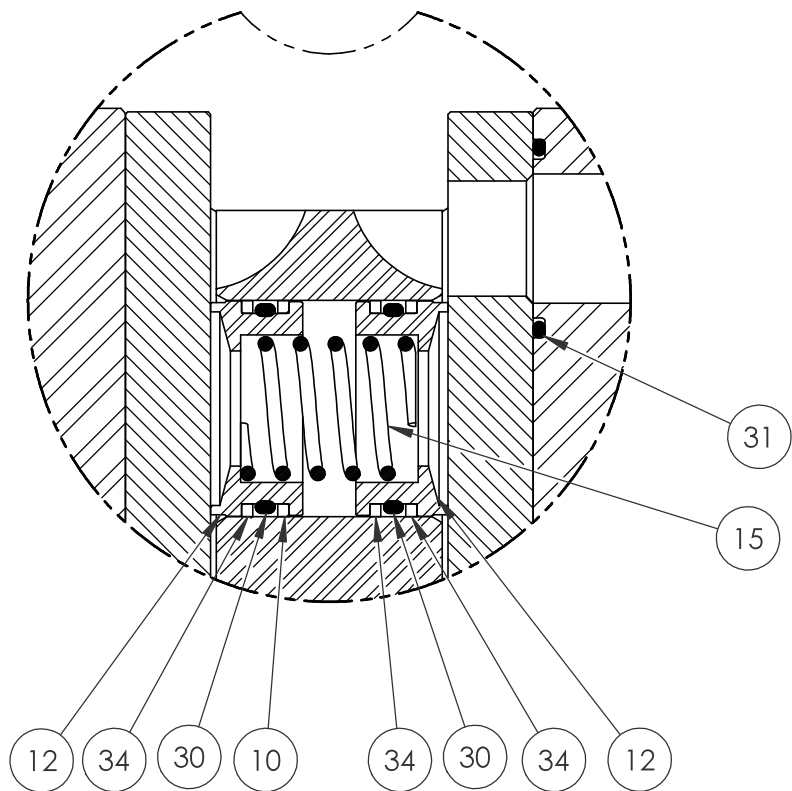
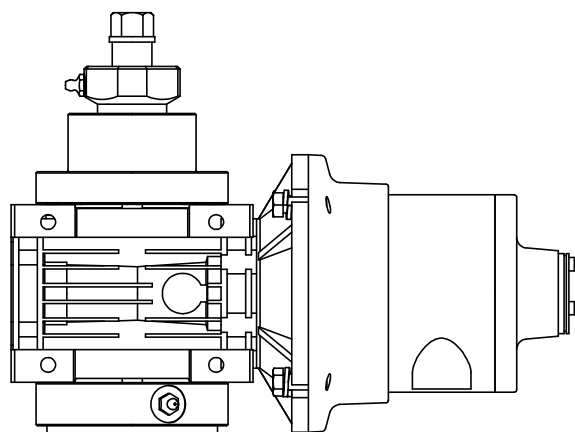
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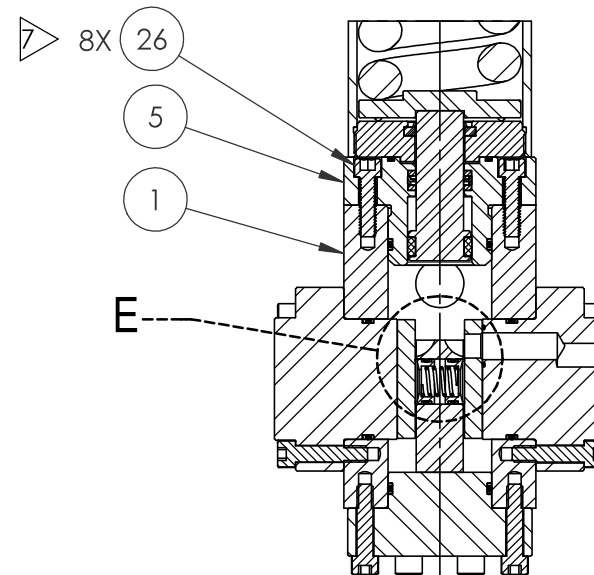
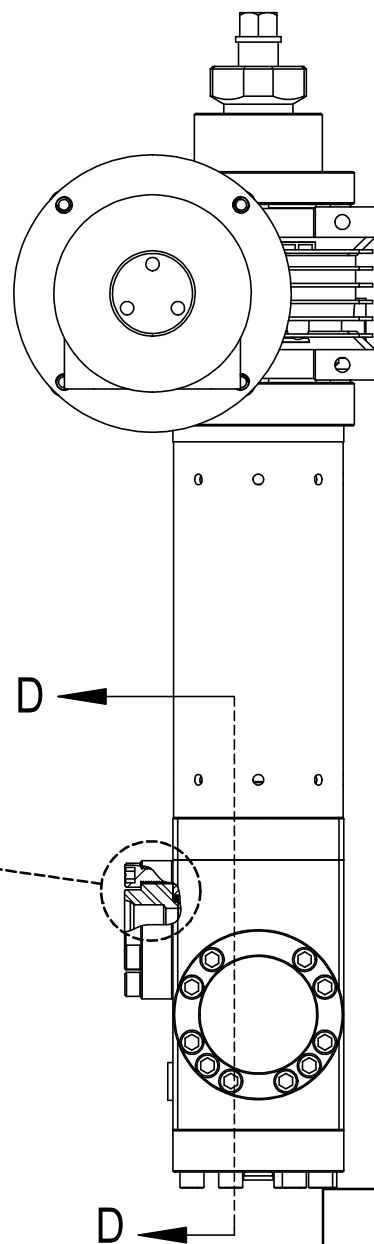
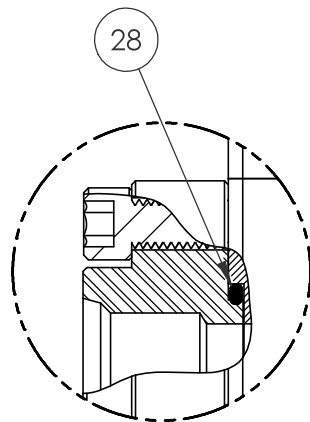
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B

B



DETAIL E
2 PLACES



SECTION D-D

A

A



ENGINEERING

SIZE	DWG NO	REV
B	29138	A
SCALE	1:3	SHEET 5 OF 5
SolidWorks		

4

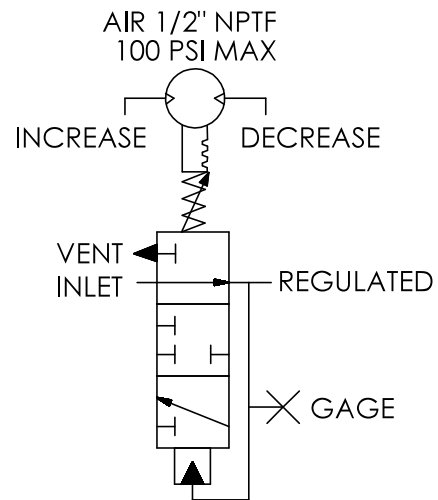
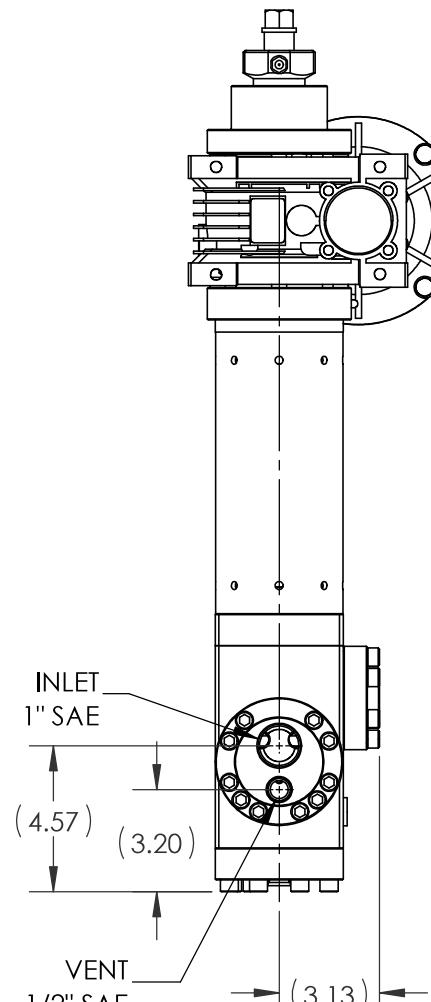
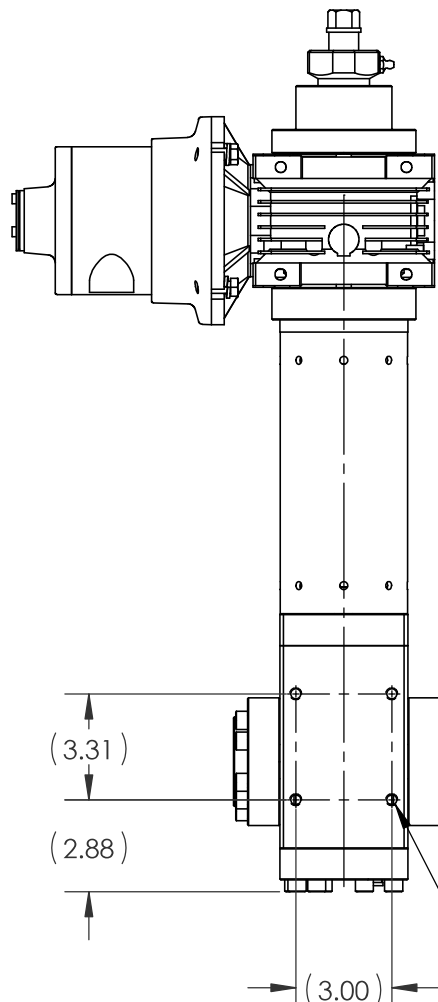
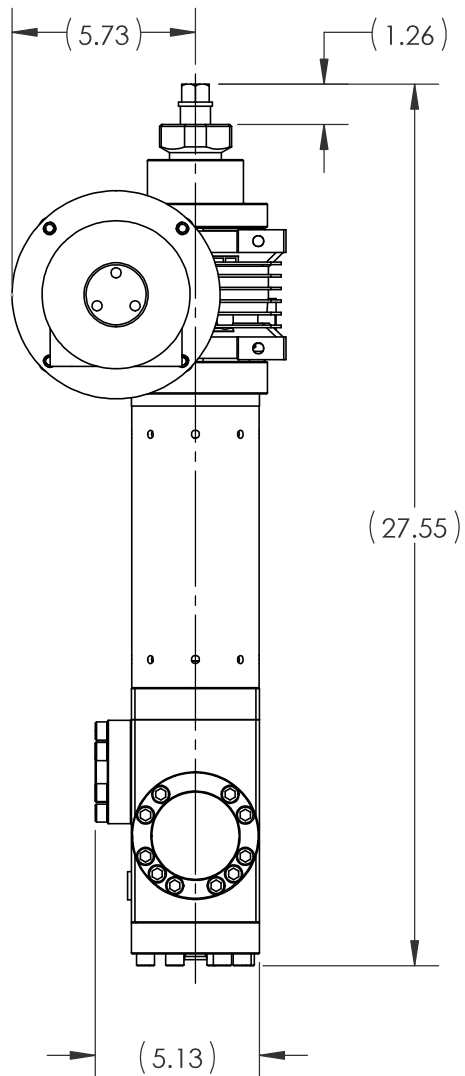
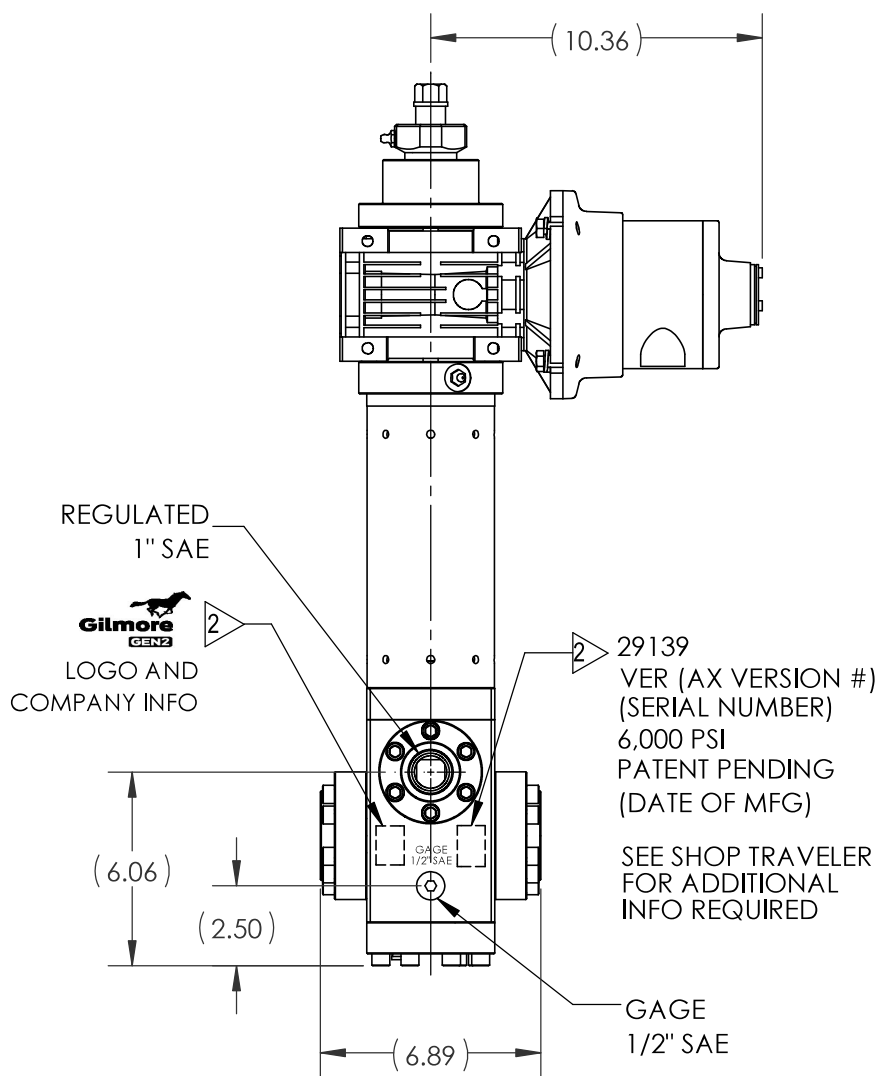
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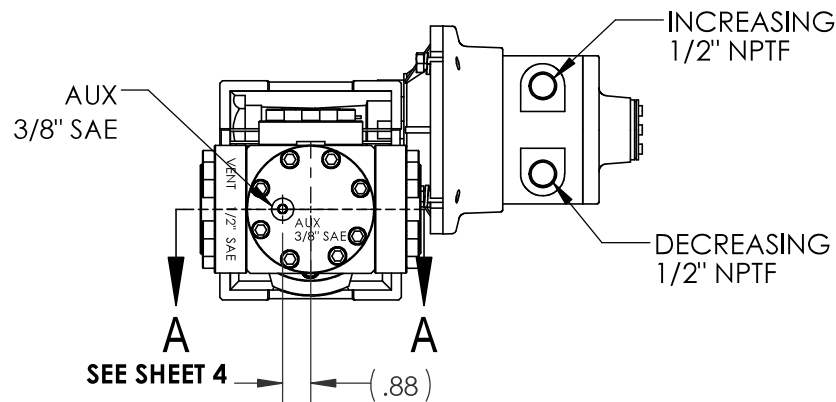
REVISIONS				
REV	ERN /ECO NUMBER	DRAWN	CHECKED	APPROVED
A	ERN 02247	JZ 12/3/20	CMCJ 12-2-20	AJP 12/1/20

B




SCHEMATIC

A



US PATENT 10,739,796

MATERIAL: SEE INDIV BOM ITEMS		DIMENSIONS AND TOLERANCES ARE IN INCHES PER ASME Y14.5M-1994. UNLESS OTHERWISE SPECIFIED:		APPROVAL		 ENGINEERING	
CONDITION:		1) TOLERANCES: .X: \pm .1 .XX: \pm .01 .XXX: \pm .005 ANGLES: \pm 5°		DRAWN BY JZ	DATE 12/3/20		
TREATMENT:		2) SURFACE TEXTURE: 63		CHECKED BY CMCJ	DATE 12-2-20	VALVE, PRESSURE REGULATOR, GEN 2, AIR MOTOR, 1" SAE, SINGLE INLET, 5500/6000 PSI	
PROCEDURE NUMBER:		3) CORADIAL FEATURES SHALL BE \odot WITHIN .010 4) BREAK SHARP EDGES .010 5) INTERNAL RADII SHALL BE .016 MAX 6) DRILL POINTS OPTIONAL WHEN SHOWN UNSPECIFIED, ALL DRILL POINT ANGLES SHALL BE BETWEEN 90°-140°		ENGINEER AJP	DATE 12/1/20		
				ERN NUMBER 02447	DATE 11/9/20	SIZE B	DWG NO 29139
				THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GILMORE VALVE CO UNLESS OTHERWISE STATED. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF GILMORE VALVE CO IS PROHIBITED.		SCALE 1:4	SHEET 1 OF 5

OPERATING DATA:

- 1. FOR TYPICAL FLOW CAPACITY REFER TO DRAWING 84006 FOR SINGLE INLET.
- 2. TO ADJUST SETPOINT WHILE OBSERVING REGULATED PRESSURE, SUPPLY 100 PSI MAX TO INCREASING PORT OR DECREASING PORT.
- 3. SET POINT ADJUSTED TO LESS THAN 2500 PSI MAY RESULT IN NON-LINEAR DROP IN FLOW CAPACITY.
- 4. THE ANGULAR POSITION OF THE AIR MOTOR MAY NOT BE AS SHOWN. THE ANGULAR POSITION OF THE AIR MOTOR CAN BE ADJUSTED IN 45 DEGREES INCREMENTS.
- 5. FOR MORE DETAILED OPERATIONS INFORMATION REFER TO SERVICE MANUAL 51031.

PRESSURE DATA:

MAXIMUM INLET PRESSURE RATING: 6,000 PSI

REGULATED RANGE: 5,500 - 2,500 PSI
TYPICAL DEADBAND AT 6000 PSI SUPPLY: 500 ±100 PSI
TYPICAL DEADBAND AT 3000 PSI SUPPLY: 200 ±50 PSI
MAXIMUM REGULATED AND VENT PRESSURE RATING: 5,500 PSI
AIR MOTOR: 100 PSI

FLOW DATA:

FULLY OPEN Cv REGULATED: 7 (CALC)
FULLY OPEN Cv VENT: 1 (CALC)
FULLY OPEN MAXIMUM REGULATED FLOW RATE: 125 GPM
FLUIDS: WATER BASED DRILLING CONTROL FLUID
MINERAL OIL BASED DRILLING CONTROL FLUID

PORTS:

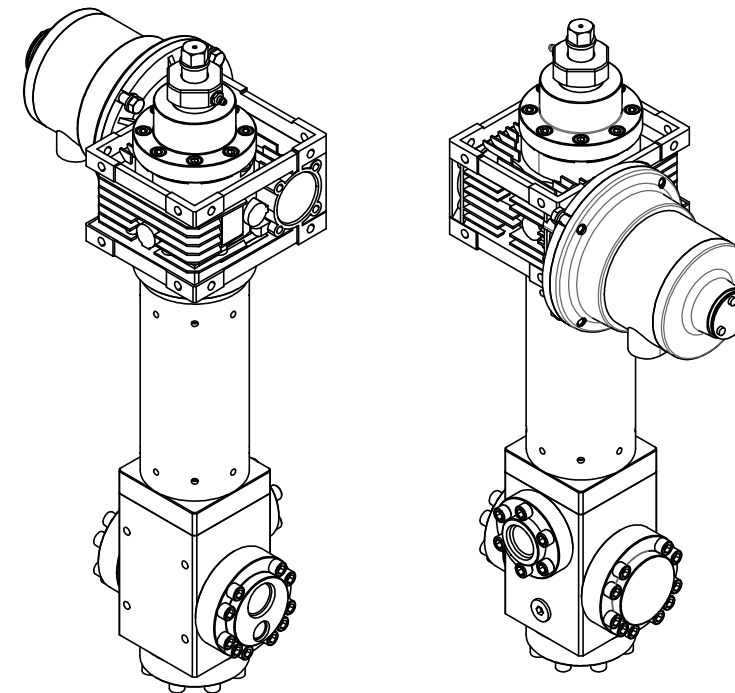
INLET: 1" SAE
REGULATED: 1" SAE
VENT: 1/2" SAE
GAGE: 1/2" SAE
AUX: 3/8" SAE
AIR MOTOR: 1/2" NPTF

GENERAL DATA:

TEMP RANGE: 32°F TO 150°F
APPROX WEIGHT: 139 LBS

NOTES:

- 1 MARK "ASSEMBLY W.O." AT VALVE ASSEMBLY IN ACCORDANCE WITH MA-W-9-10, BY GILMORE.
- 2 MARK AS SHOWN USING LASER ETCH OR COMPUTER CONTROLLED DOT PEEN MARKING MACHINE, .06 HIGH MIN CHARACTERS.
- 3. REGULATED RANGE SPECIFIED ENSURES ADEQUATE AMOUNT OF SPRING PRELOAD IS PRESENT FOR RELIABLE AND REPEATABLE SET POINT ADJUSTMENT.
- 4. X IN THE BOM INDICATES PARTS IN REPAIR KIT 29139 RK AND SEAL KIT 29139 SK.
- 5 SERVICE MANUAL : 51031
ASSEMBLY PROCEDURE: 50322
STANDARD FAT PROCEDURE: 50323
EXTENDED FAT PROCEDURE: 50324
- 6 TORQUE TO 10 FT-LB
- 7 TORQUE TO 20 FT-LB
- 8 TORQUE TO 5 FT-LB
- 9 TORQUE TO 40 FT-LB
- 10 TORQUE TO 20 FT-LB
- 11 ALL MANUFACTURED ITEMS ARE PASSIVATED.



Gilmore
a proserv company

ENGINEERING

SIZE	DWG NO	REV
B	29139	A
SCALE	1:4	SHEET 2 OF 5
SolidWorks		

4				3				2				1			
B	BILL OF MATERIALS							B	BILL OF MATERIALS						
	ITEM NO	PART NUMBER	DESCRIPTION	MATERIAL	QTY	RK	SK		ITEM NO	PART NUMBER	DESCRIPTION	MATERIAL	QTY	RK	SK
	1	153287	BODY	A564 TP 630 (17-4 PH)	1				27	18224-045	SCHS, 5/16-18 UNC X 3/4" LG	A286 GR 660	4		
	2	197568	FLANGE, 1" SAE INLET, 1/2" SAE VENT	A276 TP 316	1				28	18100-103K1	O-RING	HNBR	1	X	X
	3	197569	FLANGE, 1" SAE REGULATED	A276 TP 316	1				29	18100-051K1	O-RING	HNBR	2	X	X
	4	153290	FLANGE BOTTOM	A276 TP 316	1				30	18100-026K1	O-RING	HNBR	4	X	X
	5	192383	GUIDE, PLUNGER, 1-1/4"	A276 TP 316	1				31	18100-009K1	O-RING	HNBR	6	X	X
	6	192384	ADAPTER, SPRING HOUSING	A276 TP S21800 (NITRONIC 60)	1				32	195435	RING, BACKUP	PEEK	4	X	X
	7	177586	HOUSING, SPRING	A276 TP 316	1				33	195436	RING, BACKUP	PEEK	4	X	X
	8	153293	INSERT, FLOW PORT, BLANK	TUNGSTEN CARBIDE / NICKEL	1	X			34	195437	RING, BACKUP	PEEK	8	X	X
	9	153292	INSERT, FLOW PORT, SUPPLY & VENT	TUNGSTEN CARBIDE / NICKEL	1	X			35	18100-082K1	O-RING	HNBR	3	X	X
	10	153294	CARRIER, SEAL	A276 TP S21800 (NITRONIC 60)	1				36	161776	WEAR BAND, SEAL CARRIER	DELRIN AF	1	X	X
	11	192382	PLUNGER, 1-1/4"	A276 TP S21800 (NITRONIC 60)	1				37	18108-518	T-SEAL, ROD	BUNA-N / NYLATRON	1	X	X
	12	154597	RING, SEAL, SUPPLY	TUNGSTEN CARBIDE / NICKEL	4	X			38	193354	WEARBAND, 1-1/4"	DELRIN AF	2	X	X
	13	154599	RING, SEAL, VENT	TUNGSTEN CARBIDE / NICKEL	2	X			39	192847	SPRING, COMPRESSION	AMS5670 (X-750)	1		
	14	18701-002	WAVE SPRING	AMS5699 (X-750)	1	X			40	13125	SPRING, COMPRESSION	AMS5699 (X-750)	1		
	15	154598	SPRING, COMPRESSION	AMS5699 (X-750)	2	X			41	29136	AIR MOTOR, GEN 2	REFER TO PARTS LIST	1		
	16	193757	PLATE, SPRING	A276 TP 316	2										
	17	18603-006	PLUG, HEX, 3/8" SAE	A240 TP 316	1	X									
	18	154797	PELLET, NYLOK	NYLON	1	X	X								
	19	18603-008	HOLLOW HEX PLUG, 1/2"	A240 TP 316	1	X	X								
	20	154659	RING, BACKUP	PEEK	4	X	X								
	21	192385	WIPER, D-STYLE, 1-1/4" PLUNGER	POLYURETHANE	1	X	X								
	22	153288	FLANGE, BLANK	A276 TP 316	1										
	23	192473	WEAR BAND, PLUNGER, 1-1/4"	DELRIN AF	1	X	X								
	24	154799	SHCS, THREAD-LOCKING, 1/4-20 UNC X 1/2" LONG	F593 GR2 & NYLON	6	X	X								
	25	18224-003	SHCS, 3/8-16 UNC X 1-1/2 LG	A286 GR 660	28										
	26	18224-002	SHCS, 3/8-16 UNC X 1-1/4" LG	A286 GR 660	14										
4				3				2				1			

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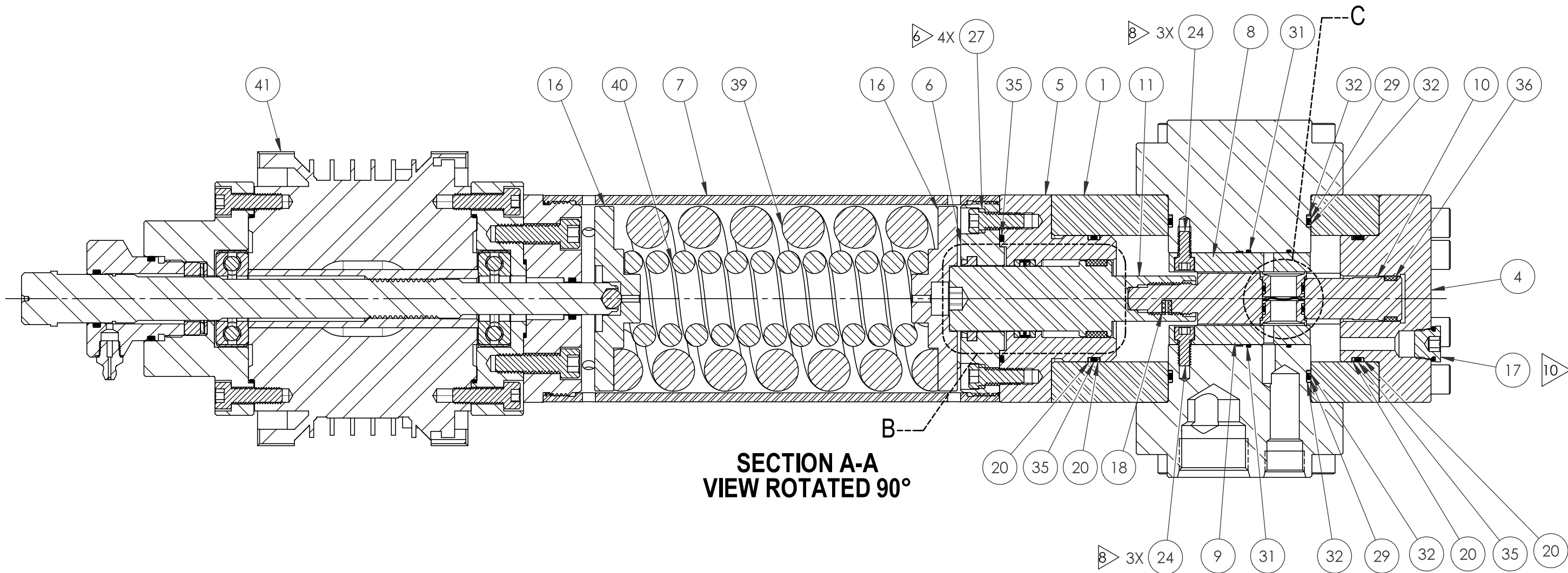
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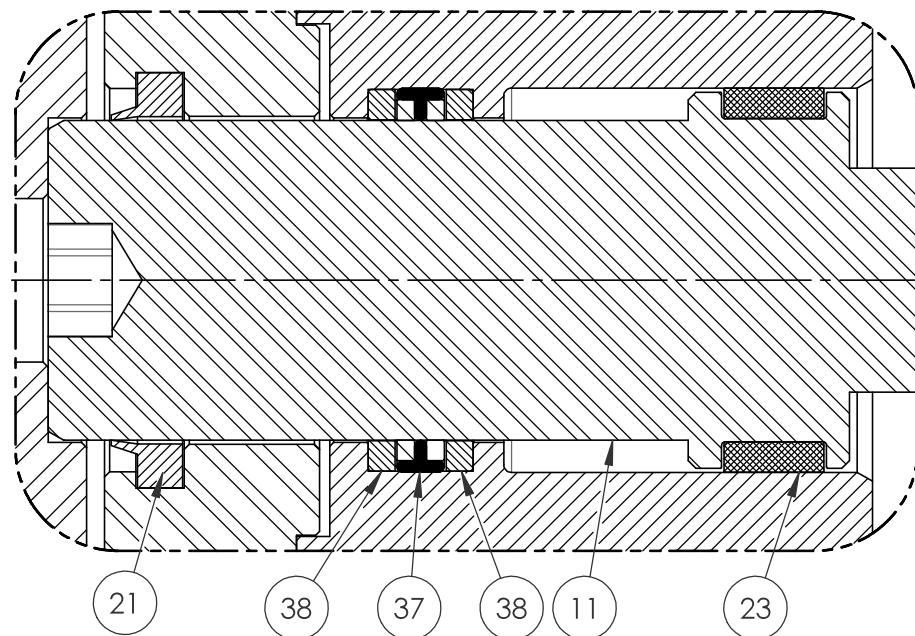
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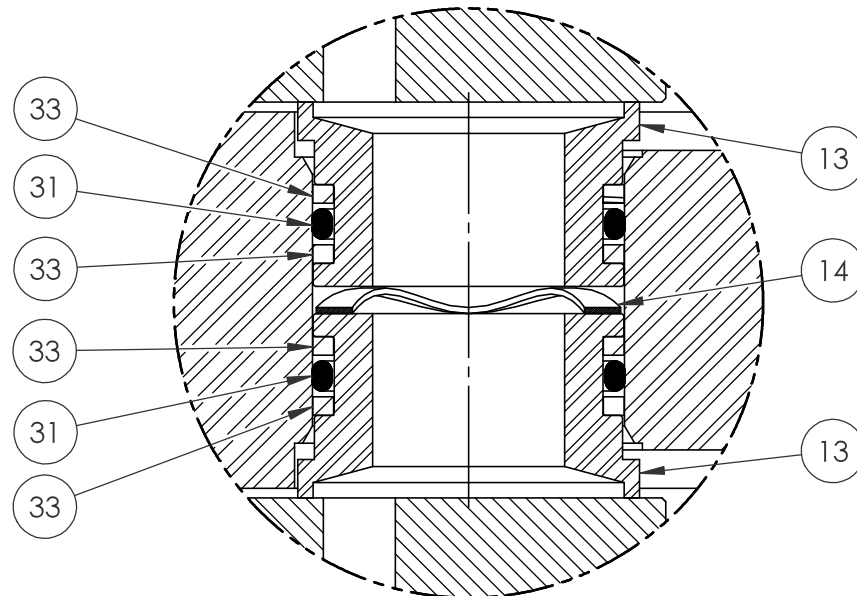
SECTION A-A
VIEW ROTATED 90°

A

A



DETAIL B



DETAIL C



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a pro/erv company

ENGINEERING

SIZE B	DWG NO 29139	REV A
SCALE 1:4	SolidWorks	SHEET 4 OF 5

4

3

2

1

4

3

2

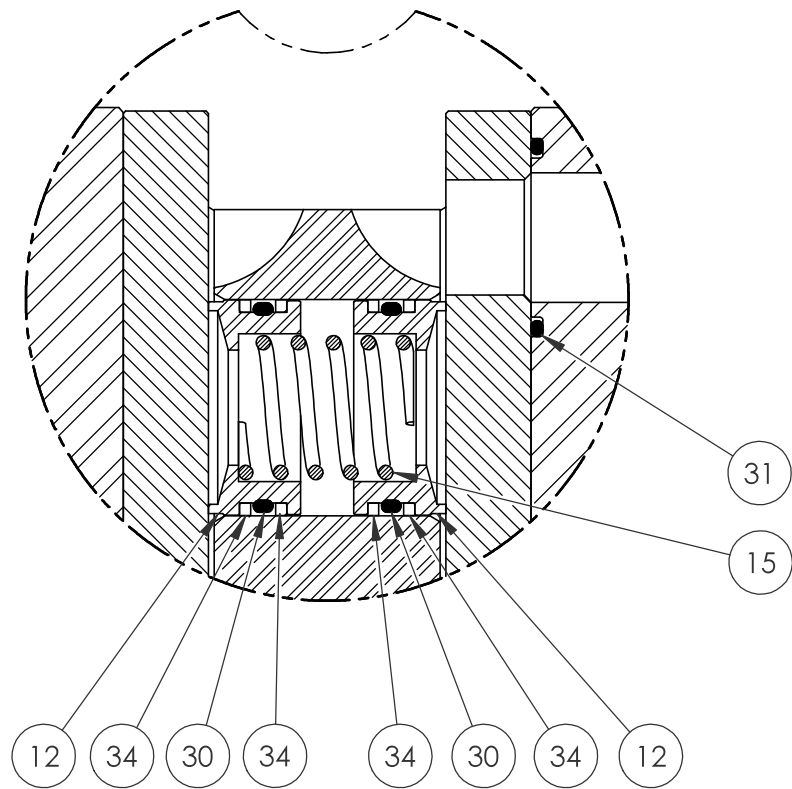
1

B

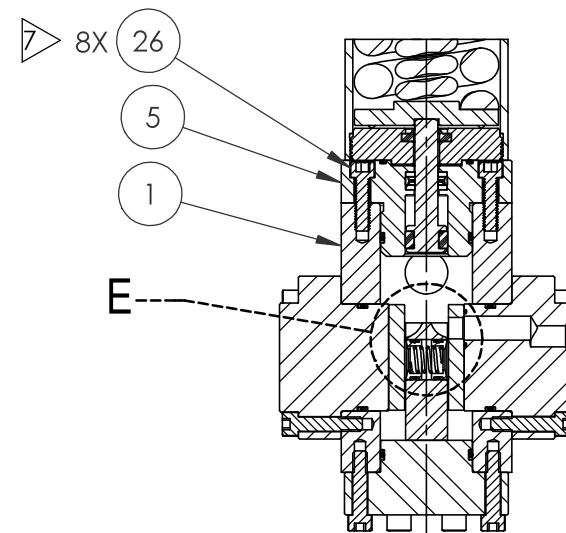
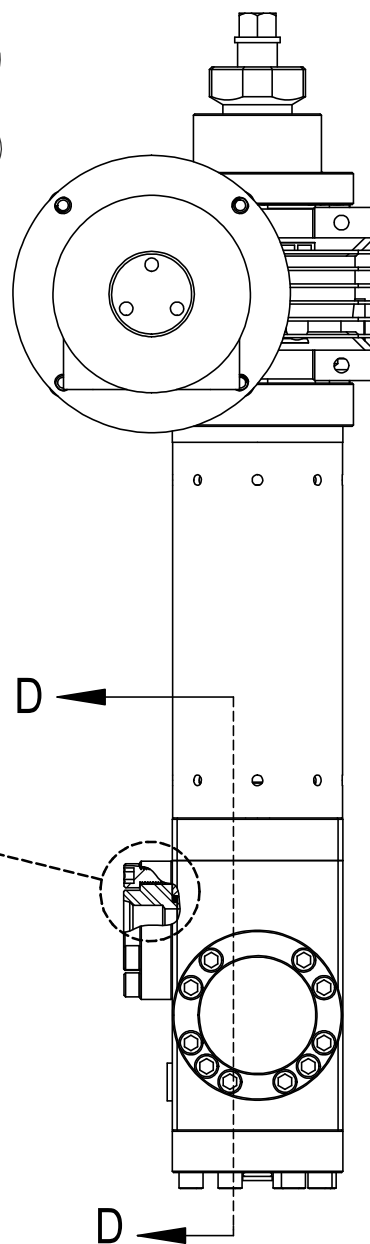
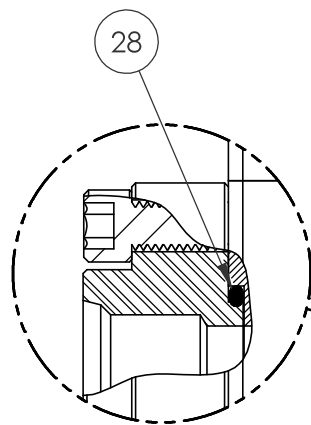
B

A

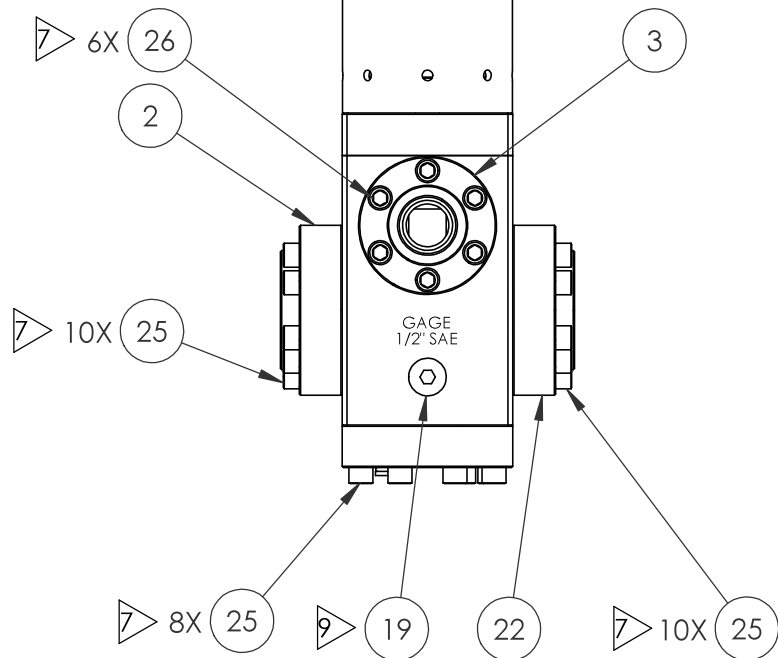
A



DETAIL E
2 PLACES



SECTION D-D



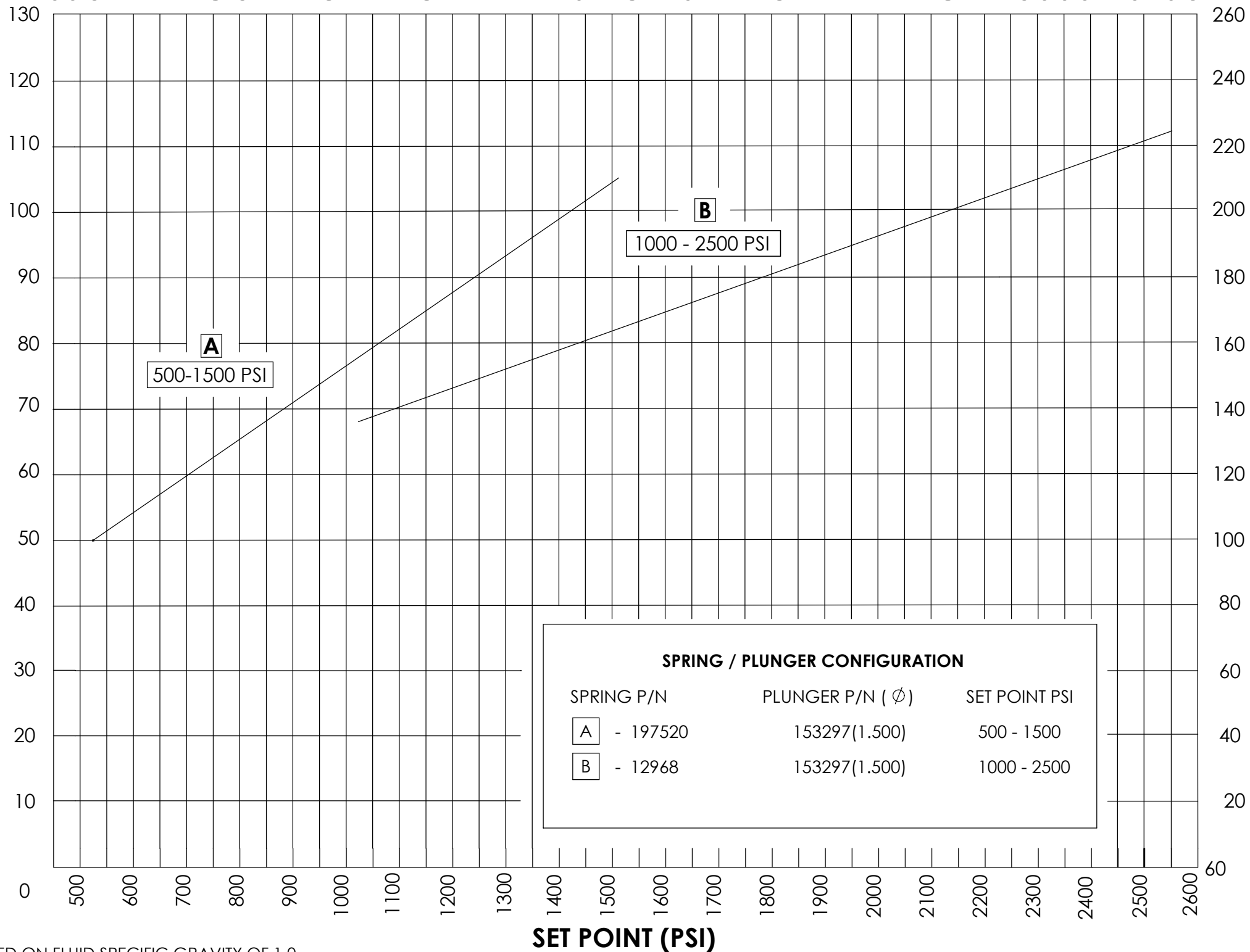
 Gilmore <small>a proserv company</small> ENGINEERING			
SIZE B	DWG NO 29139	REV A	
SCALE 1:3	SolidWorks	SHEET 5 OF 5	

GEN 2 PRESSURE REGULATOR FLOW RATES FOR SET POINT RANGE - 3000 PSI SUPPLY

TYPICAL REGULATOR DEMAND CYCLE FLOW CAPACITY Q (gpm)
WITH OUTLET PRESSURE APPROXIMATELY 50% OF SET POINT

SINGLE INLET FLOW

DOUBLE INLET FLOW



SPRING / PLUNGER CONFIGURATION		
SPRING P/N	PLUNGER P/N (Ø)	SET POINT PSI
A - 197520	153297(1.500)	500 - 1500
B - 12968	153297(1.500)	1000 - 2500

- NOTES:
1. FLOW CAPACITIES ARE ±10% AND BASED ON FLUID SPECIFIC GRAVITY OF 1.0
 2. FLOW CAPACITIES ARE APPROXIMATELY DOUBLED WHEN TWO INLETS ARE PROVIDED.
 3. BASED ON INLET AND REGULATED LINE SIZE OF 1 INCH XH PIPE @ 40 FEET LONG.
 4. ACTUAL SYSTEM FLOW RATES MAY VARY.
 5. CONSULT WITH GILMORE ENGINEERING IF OPERATING OUTSIDE THE LISTED SET POINT RANGE.

REVISIONS				
REV	ERN /ECO NUMBER	DRAWN	CHECKED	APPROVED
B	ECO 04997	JZ 9/14/20	CMY 9-14-20	AGP 9/14/20

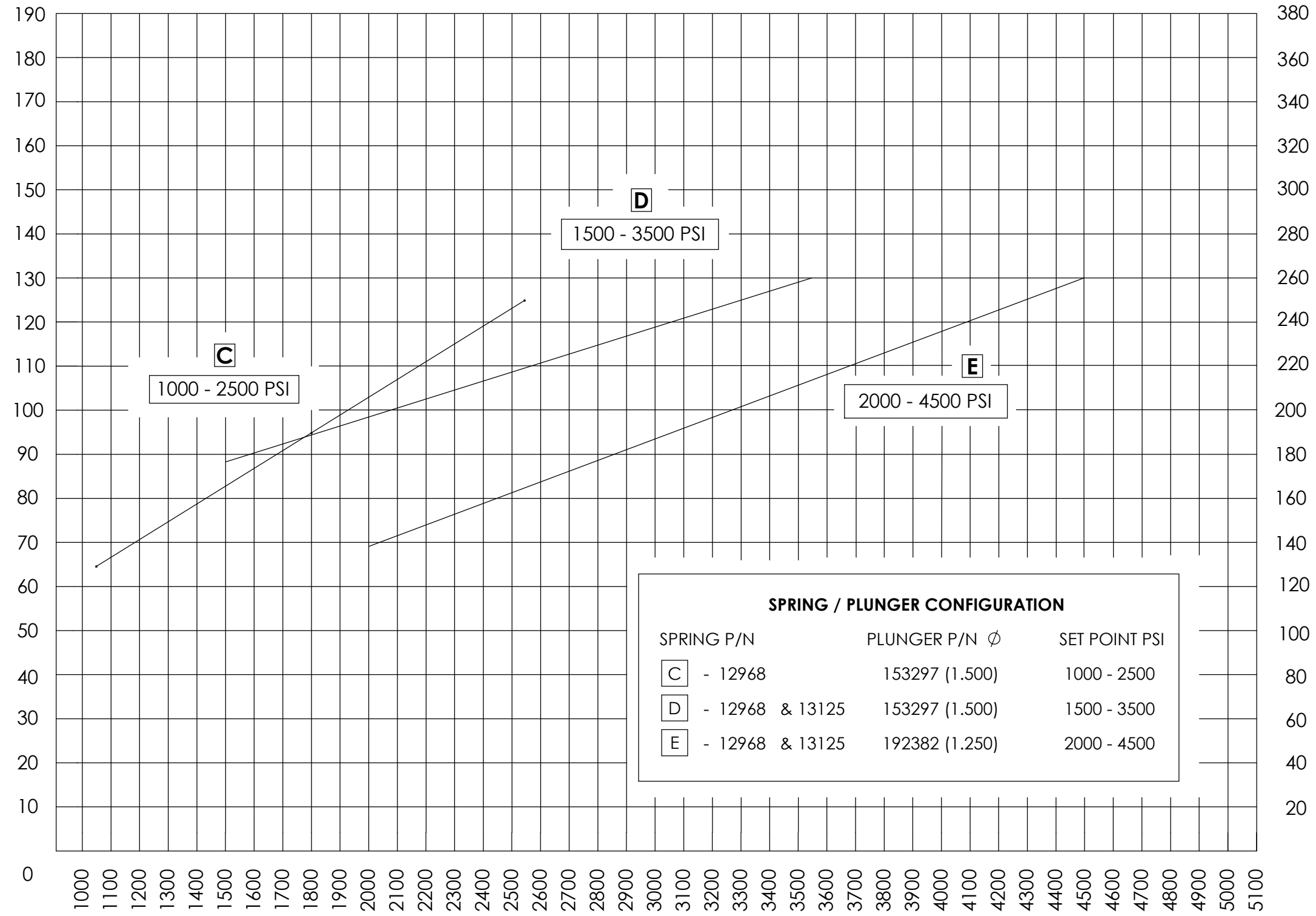
MATERIAL:	<div>DIMENSIONS AND TOLERANCES ARE IN INCHES PER ASME Y14.5M-1994. UNLESS OTHERWISE SPECIFIED: 1) TOLERANCES: .X: ±.1 .XX: ±.01 .XXX: ±.005 ANGLES: ±.5° 2) SURFACE TEXTURE: 63/ 3) CORADIAL FEATURES SHALL BE © WITHIN .010 4) BREAK SHARP EDGES .010 5) INTERNAL RADII SHALL BE .016 MAX 6) DRILL POINTS OPTIONAL WHEN SHOWN UNSPECIFIED, ALL DRILL POINT ANGLES SHALL BE BETWEEN 90°-140°</div>	APPROVAL		<div> ENGINEERING</div> <div>GEN 2 REGULATOR VALVE PUBLISHED FLOW CAPACITIES</div> <div>SIZE B DWG NO 84006 REV B</div> <div>SCALE 1:3 SolidWorks SHEET 1 OF 3</div>
CONDITION:		DRAWN BY JOP	DATE 6/9/20	
TREATMENT:		CHECKED BY CMY	DATE 6/9/20	
PROCEDURE NUMBER:		ENGINEER AP	DATE 6/9/20	
		ERN NUMBER 02366	DATE 6/9/20	
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GILMORE VALVE CO UNLESS OTHERWISE STATED. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF GILMORE VALVE CO IS PROHIBITED.				

GEN 2 PRESSURE REGULATOR FLOW RATES FOR SET POINT RANGE - 5000 PSI SUPPLY

TYPICAL REGULATOR DEMAND CYCLE FLOW CAPACITY Q (gpm)
WITH OUTLET PRESSURE APPROXIMATELY 50% OF SET POINT

SINGLE INLET FLOW

DOUBLE INLET FLOW



SPRING / PLUNGER CONFIGURATION		
SPRING P/N	PLUNGER P/N ϕ	SET POINT PSI
C - 12968	153297 (1.500)	1000 - 2500
D - 12968 & 13125	153297 (1.500)	1500 - 3500
E - 12968 & 13125	192382 (1.250)	2000 - 4500

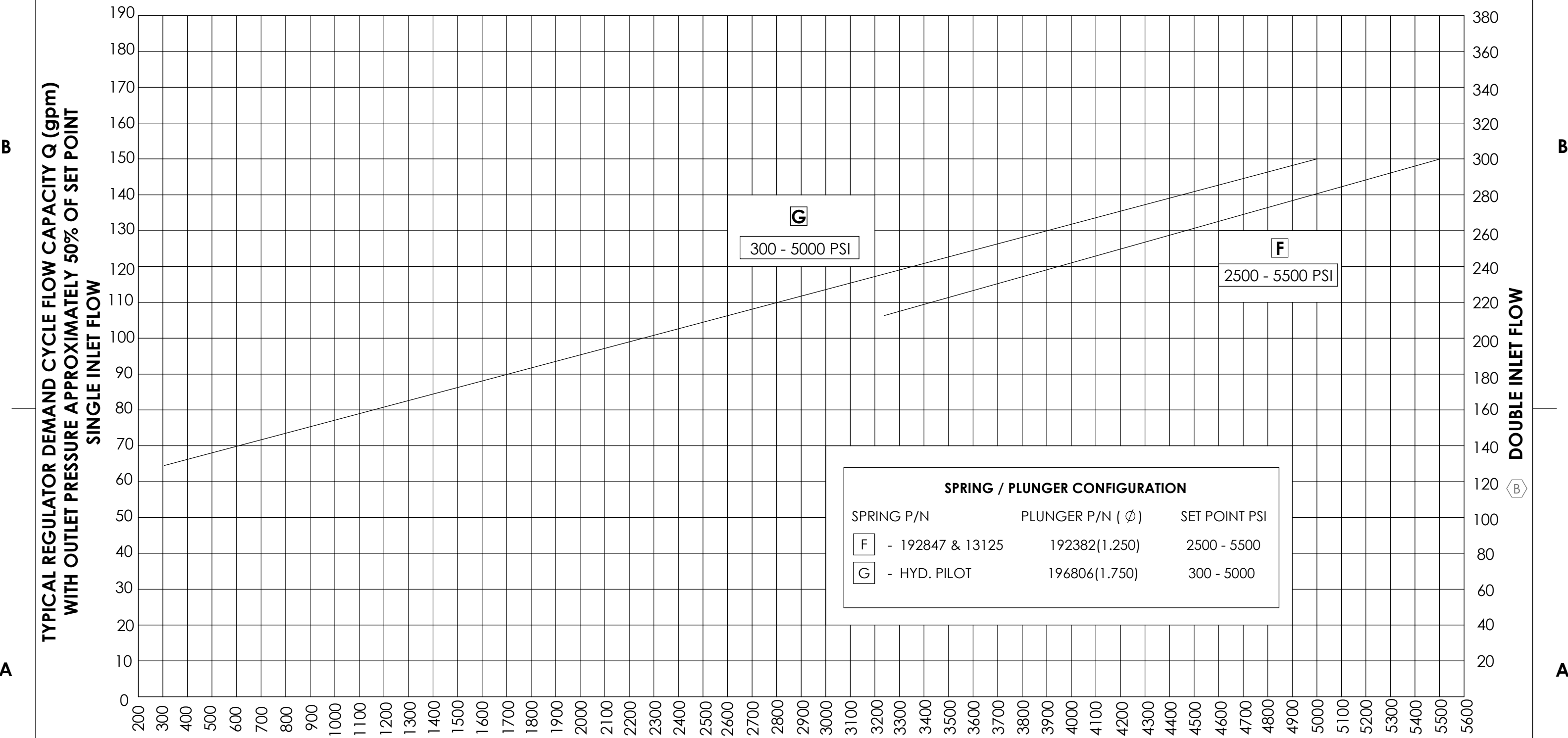
- NOTES:
- 1. FLOW CAPACITIES ARE $\pm 10\%$ AND BASED ON FLUID SPECIFIC GRAVITY OF 1.0
 - 2. FLOW CAPACITIES ARE APPROXIMATELY DOUBLED WHEN TWO INLETS ARE PROVIDED.
 - 3. BASED ON INLET AND REGULATED LINE SIZE OF 1 INCH XH PIPE @ 40 FEET LONG.
 - 4. ACTUAL SYSTEM FLOW RATES MAY VARY.
 - 5. CONSULT WITH GILMORE ENGINEERING IF OPERATING OUTSIDE THE LISTED SET POINT RANGE.



ENGINEERING

SIZE	DWG NO	REV
B	84006	B
SCALE	1:3	SHEET 2 OF 3
SolidWorks		

GEN 2 PRESSURE REGULATOR FLOW RATES FOR SET POINT RANGE - 6000 PSI SUPPLY



Spring / Plunger Configuration		
Spring P/N	Plunger P/N (Ø)	Set Point PSI
F - 192847 & 13125	192382(1.250)	2500 - 5500
G - HYD. PILOT	196806(1.750)	300 - 5000

- NOTES:
- 1. FLOW CAPACITIES ARE ±10% AND BASED ON FLUID SPECIFIC GRAVITY OF 1.0
 - 2. FLOW CAPACITIES ARE APPROXIMATELY DOUBLED WHEN TWO INLETS ARE PROVIDED.
 - 3. BASED ON INLET AND REGULATED LINE SIZE OF 1 INCH XH PIPE @ 40 FEET LONG.
 - 4. ACTUAL SYSTEM FLOW RATES MAY VARY.
 - 5. CONSULT WITH GILMORE ENGINEERING IF OPERATING OUTSIDE THE LISTED SET POINT RANGE.



ENGINEERING

SIZE	DWG NO	REV
B	84006	B
SCALE	1:3	SHEET 3 OF 3
SolidWorks		