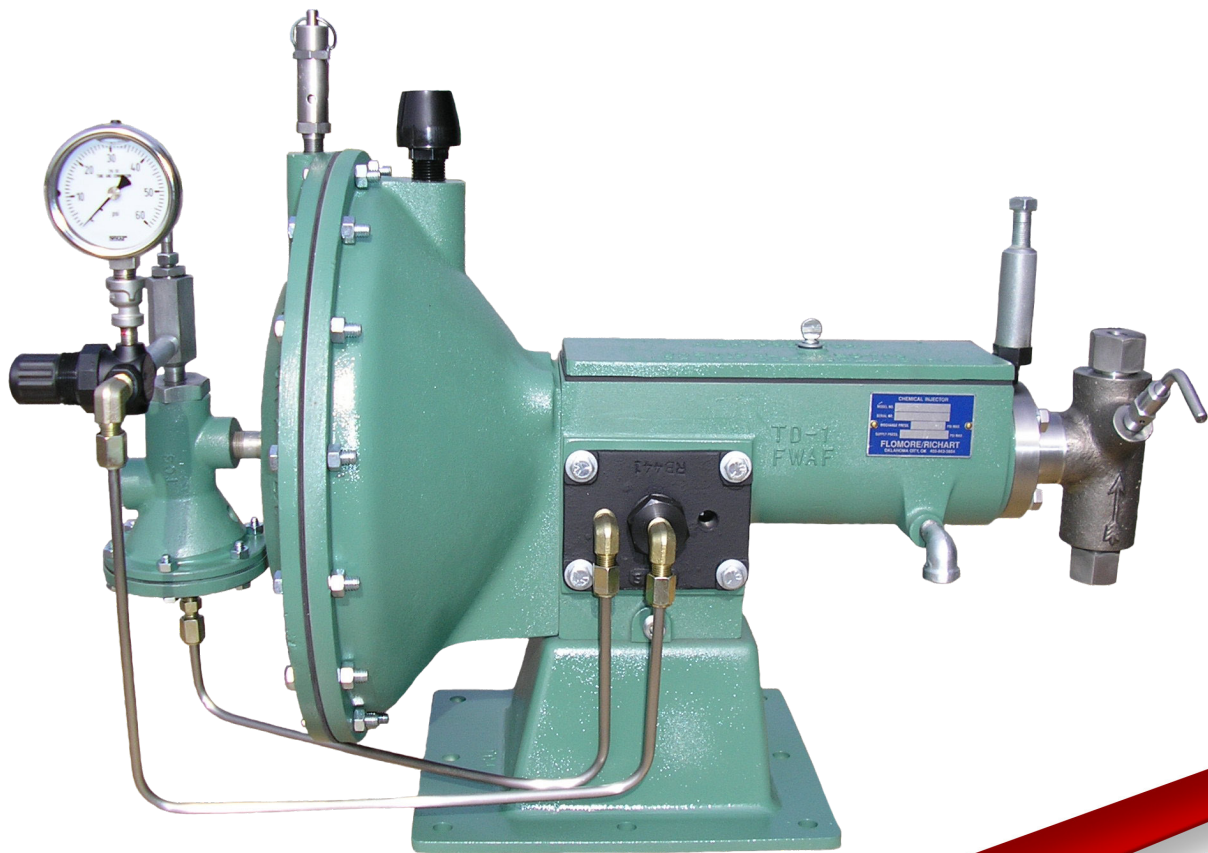




Different By Design

5020 Series Injector

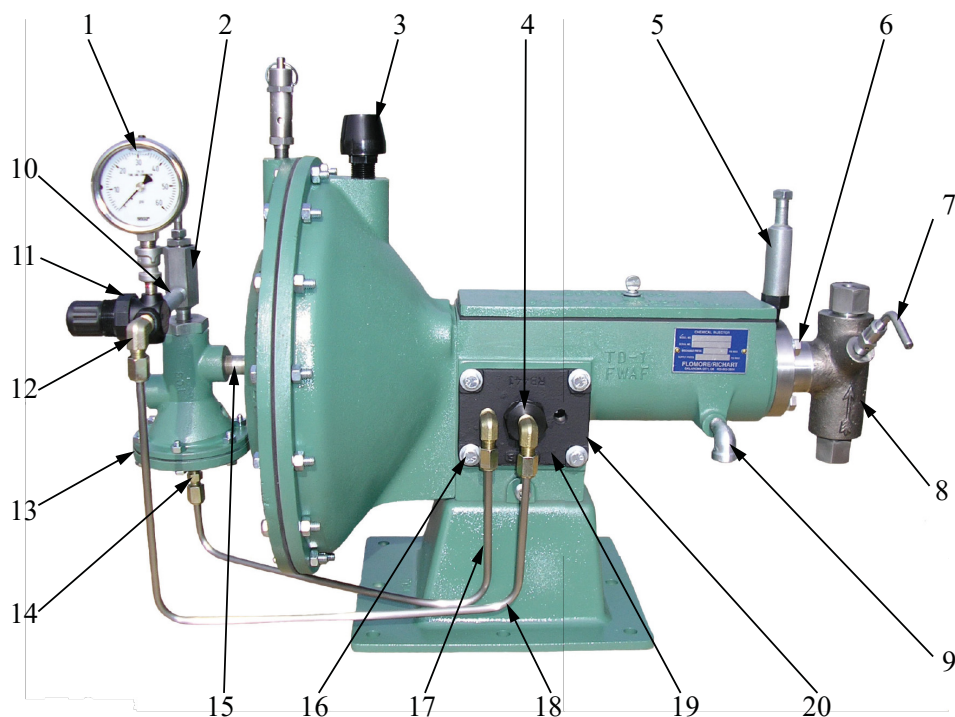




Maintenance Instructions to Inspect and Replace Plunger Packing

1. Turn off the pump. Isolate injection point from back flow or pressure.
2. Remove suction & discharge lines. (Caution: Pressure might be trapped inside head or lines.)
3. Loosen packing gland nut, then slide the nut back from the head.
4. Depending on pump model, loosen the brass jam nut from the yoke or body. You can now unscrew and remove the head body.
5. Remove packing gland from head if needed. This might remain on the plunger nut.
6. Inspect the plunger for wear. If the plunger needs to be replaced, remove the plunger pin and slide the plunger out. Insert the new plunger and reinstall the pin. (If plunger is good, move to step 7.)
7. Remove the plunger packing with a pick or small screwdriver. (Take note of packing orientation for reinstall.)
8. Inspect the throat of the head body for pitting and wear. Replace if needed.
9. Install new plunger packing one ring at a time, ensuring that each ring is seated flush.
10. Reinstall the packing gland. Insert the head onto the plunger and yoke. Thread the head back into the yoke until the jam nut touches. Align body into correct vertical position and tighten the jam nut securely. (Head should not be able to spin.)
11. Reinstall the packing gland nut until it makes contact with the packing. Apply an additional 1/4" turn into the packing.
12. Reinstall the suction and discharge lines. Open injection point valve and check for leaks.
13. Turn on the pump. Open the priming valve to bleed air from the suction lines and head. Confirm the pump is pumping and check for leaks.
14. Adjust the plunger packing as needed. Run the pump for 15 minutes and check for packing nut contact. If loose, tighten nut 1/4" at a time. (Make sure to bleed the head before making packing adjustments.)

5020 Series Injector



Parts List

Item #	Part #	# Req.	Description	Material	Alternate Part #
1	A-1854	1	0-12 PSI Pressure Gauge	▲	A-1295SS
2	A-0022	1	Inlet Gas Valve Assembly	Brass	A-0022SS
3	A-2599	1	Air Filter	Plastic	▲
4	A-0132	2	Elbow	Brass	A-0132SS
5	A-0558	1	Grease Jack	Steel	▲
6	A-4452	1	Bolt	316 Stainless Steel	▲
7	A-0123	1	Priming Valve	304 Stainless Steel	▲
8	See p. 10 & 11	1	Head Assembly	See p. 10 & 11	▲
9	A-0075	1	Street Elbow	Steel	▲
10	A-4692	1	Nipple	Steel	▲
11	A-1718	1	Regulator	Plastic	▲
12	A-0132	1	Half Union (90°)	Brass	A-0132SS
13	B-0037	1	Master Valve	Aluminum	B-0037SS
14	A-0137	1	Half Union	Brass	A-0137SS
15	A-0009	1	Attachment Nipple	Brass	A-0009SS
16	A-0141	1	Cap Screw	Steel	▲
17	A-1494	1	Master Valve Line	Copper	A-1494SS
18	A-1493	1	Pilot Valve Line	Copper	A-1493SS
19	C-0009	1	Pilot Valve Assembly	Steel Seat	▲
20	A-0058	1	Pilot Valve Gasket	Fiber	▲

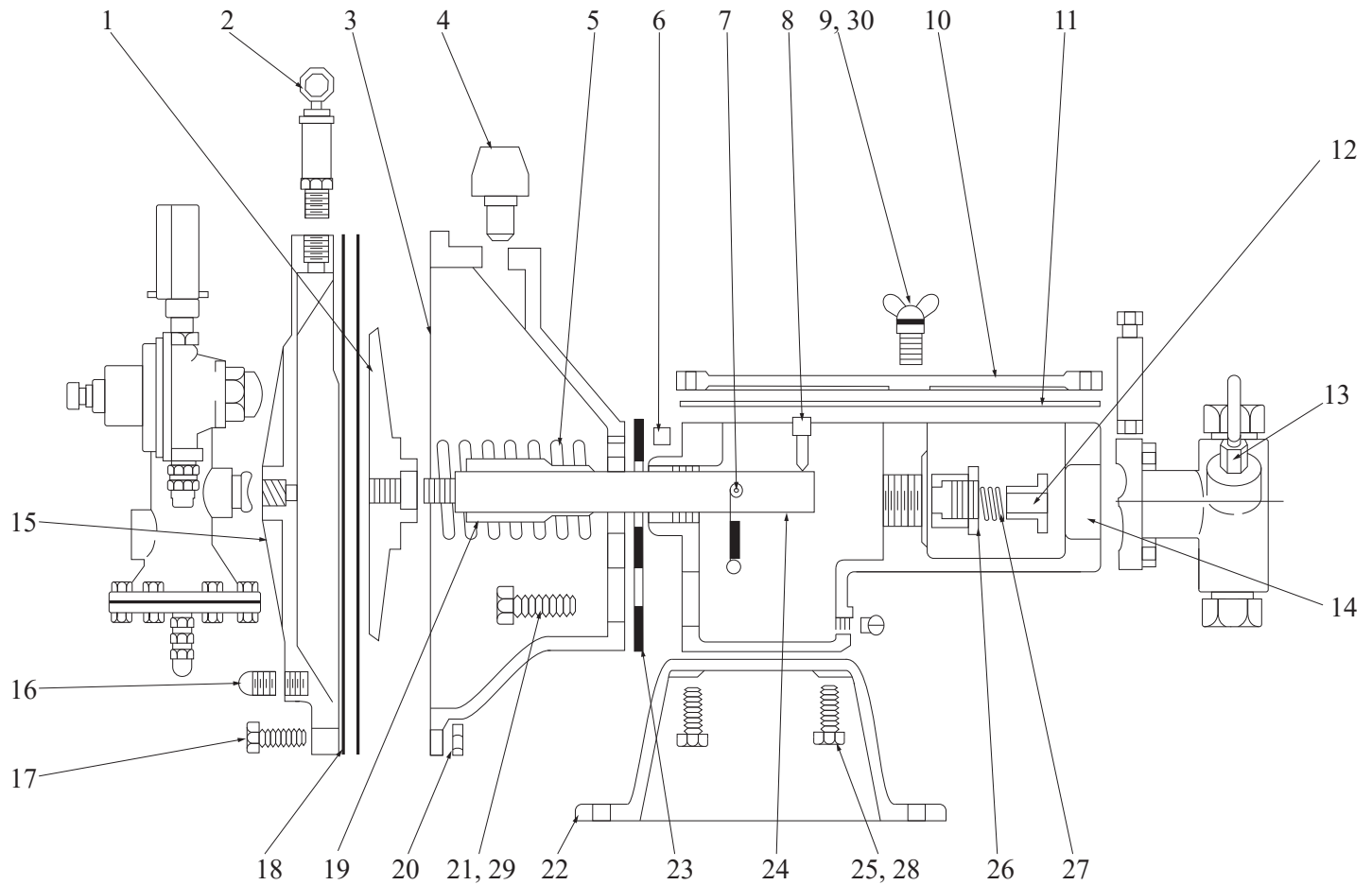
*Recommended Spare Parts

**Furnished on all plungers except 1 1/4"

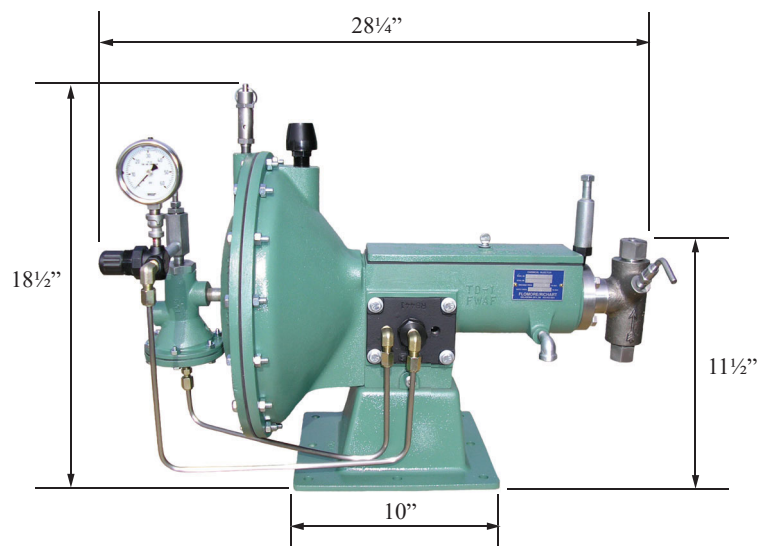
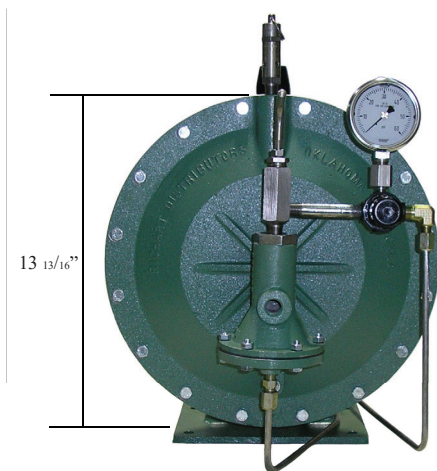
***Alternate Parts for Sour Gas Trim are all Stainless Steel

5020 Series Injector

Cross Section



Dimensions



5020 Series Injector

Parts List

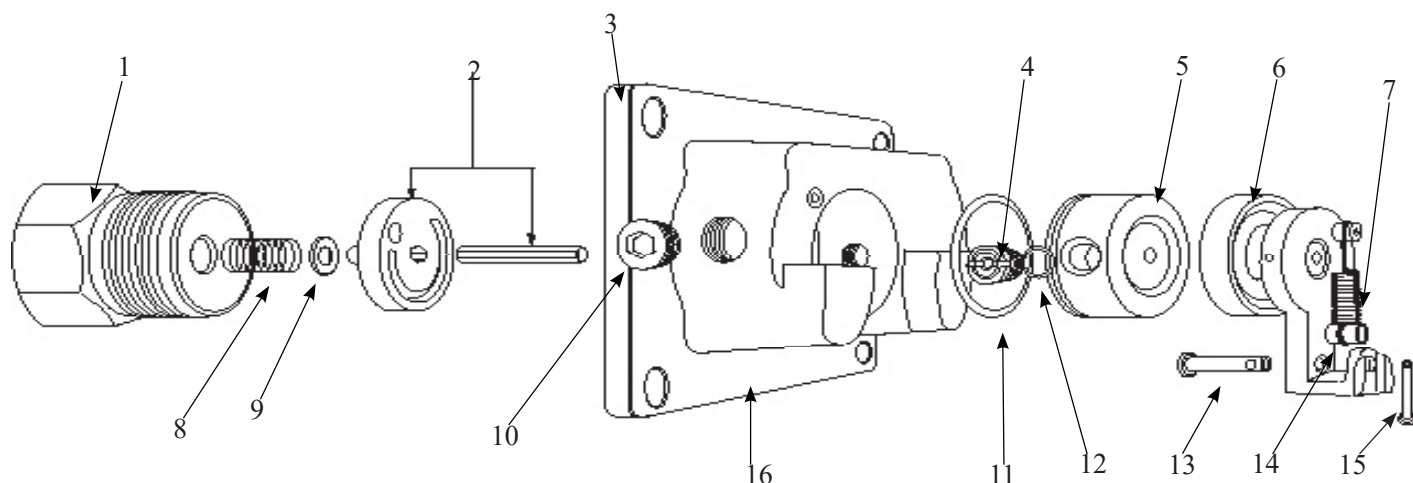
Item #	Part #	# Req.	Description	Material	Alternate Part #
1	B-0002	1	Disc	Aluminum	▲
2	A-0131	1	1/4" 50 PSI Safety Valve	Brass	A-0131SS
3	D-0434	1	Bell Housing	Aluminum	▲
4	A-2599	1	Air Filter	Plastic	▲
5	A-0025	1	Return Spring	Steel	▲
6	A-0143	2	Set Screw	Steel	▲
7	A-0020	1	Roll Pin	Steel	▲
8	A-0035	1	Stroke Adjustment Pin	Brass	▲
9	A-2970	1	Thumb Screw	Steel	▲
10	B-0004	1	Inspection Cover	Aluminum	▲
11	B-0036	1	1/8" Gasket	Buna-N	▲
12	A-0041	1	Packing Nut	Brass	▲
13	A-0123	1	Bleeder Valve	303 Stainless Steel	▲
14	D-0001	1	Plunger Housing	Aluminum	▲
15	C-0001	1	Diaphragm Cover	Aluminum	▲
16	A-0138	1	Drain Plug	Steel	▲
17	A-0142	16	Diaphragm Housing Bolts	Steel	▲
18	B-0010	2	Diaphragm	Buna-N	▲
19	A-0076	1	Rod Bushing	Steel	▲
20	A-0144	16	Nut	Steel	▲
21	A-0139	4	Hex Head Bolt	Steel	▲
22	C-0004	1	Support Base	Aluminum	▲
23	B-0011	1	Gasket	Fiber	▲
24	B-0003-SS	1	Thrust Rod	303 Stainless Steel	▲
25	A-0141	4	Hex Head Bolt	Steel	▲
26	A-0038	1	Stuffing Box	Brass	▲
27	A-0059	1	Stuffing Box Packing	Buna-N	▲
28	A-0425	4	Split Lock Washer	Steel	▲
29	A-0459	4	Split Lock Washer	Steel	▲
30	A-4092	1	Stat O Seal	▲	▲

*Recommended Spare Parts

**Alternate Parts for Sour Gas Trim are all Stainless Steel

5020 Series

C-0009 Pilot Valve Assembly

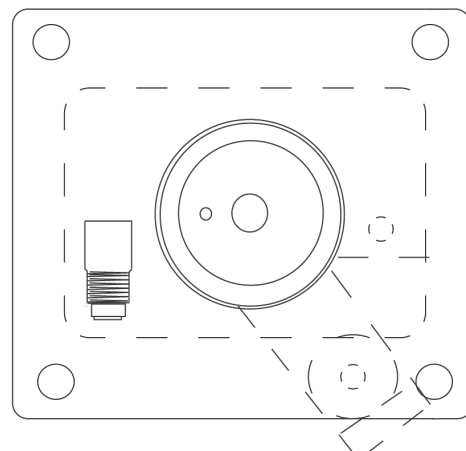


Parts List

NOTE: Using a small amount of grease, lubricate items #11 and #12, o-rings, before and after installation on item #5. This will keep o-rings in place and facilitate the pressing of the valve seat into position.

Item #	Part #	# Req.	Description	Material
1	C-0495	1	Disc Retainer	Steel
2	C-4668	1	Valve Disc and Pin	Stainless Steel
3	C-0441	1	Pilot Valve Body	Ductile Iron
*4	C-0463	2	Seat Seal Screw	Steel
5	C-0451	1	Pilot Valve Seat	Steel
6	A-0065	1	Flipper Arm Assembly	Iron
7	A-4600	1	Flipper Spring Assembly	Steel
8	A-0077	1	Ball Check Valve Spring	Steel
9	A-0579	1	Washer	Stainless Steel
10	C-3386	1	1/4" Flush Seal Pipe Plug	Steel
11	C-0485	1	Seal Seat O-Ring	Buna-N
*12	C-0474	2	Seal Seat Screw O-Ring	Buna-N
13	A-0170	1	Clevis Pin	Steel
14	A-0772	1	Spring Bushing	Brass
15	A-0168	1	Cotter Pin	Steel
16	A-0058	1	Pilot Valve Gasket	Fiber

Pilot Valve Assembly



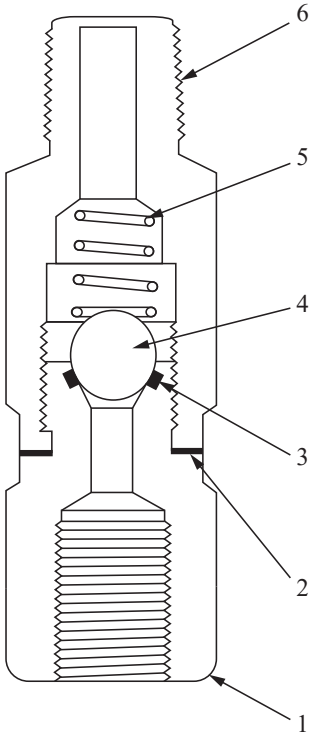
Time the disc with the hole at left or 9 o'clock and the flipper arm to the right.

*Recommended Spare Parts

*Items make up a C-0600 Pilot Valve Seat and Disc Assembly

5020 Series Accessories

A-0675 & A-0676 Line Check



Item #	Part #	#Req	Description	Material
1	A-0678	1	Inlet Body	Brass
	A-1297	1	Inlet Body	303 Stainless Steel
2	A-1574	1	Washer	304 Stainless Steel
3	A-0479	1	O-Ring	Buna-N
	A-2580	1	O-Ring	Viton
4	A-0054	1	3/8" Ball	316 Stainless Steel
5	A-0391	1	Spring	316 Stainless Steel
6	A-0677	1	Outlet Body	Brass
	A-1296	1	Outlet Body	303 Stainless Steel

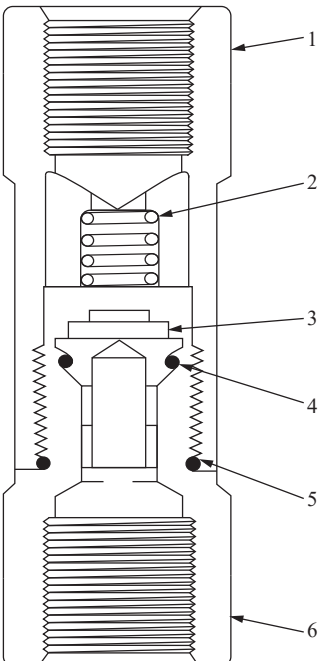
*Recommended Spare Parts

**A-0675 Only

***A-0676 Only

B-1288 Line Check

15,000 lbs. Working Pressure



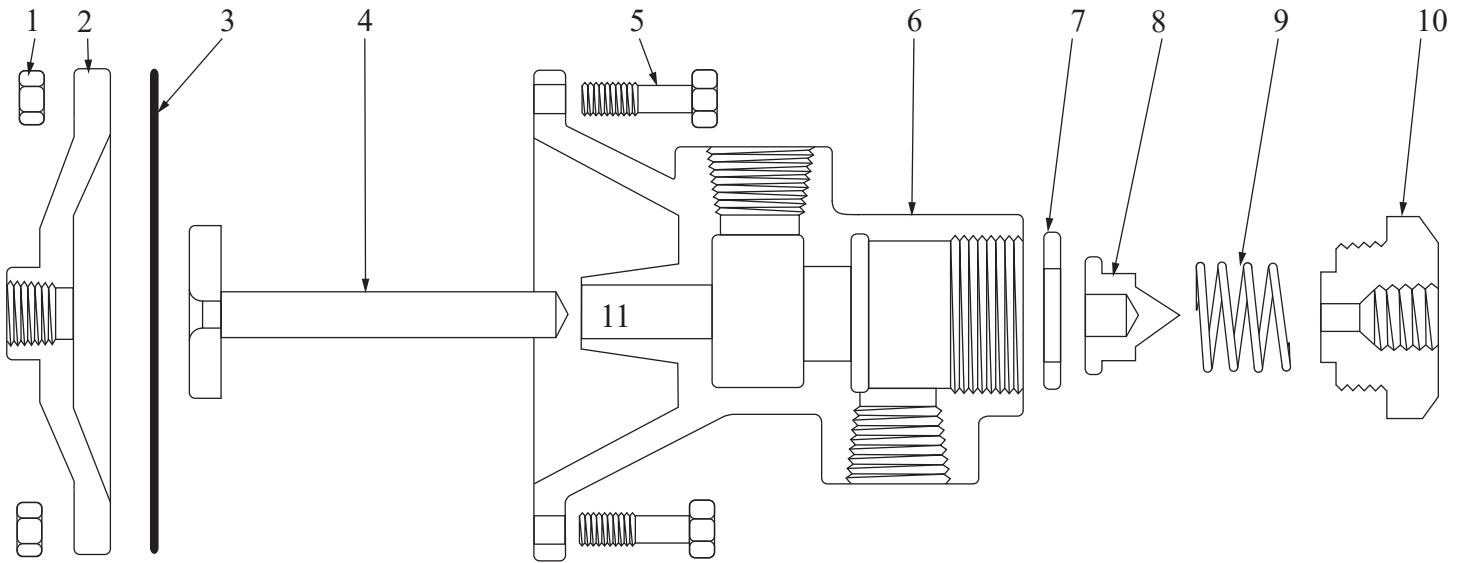
Item #	Part #	#Req	Description	Material
1	B-0271	1	Body	303 Stainless Steel
2	A-0391	1	Spring	Steel
3	A-1879	1	Valve	303 Stainless Steel
4	A-0612	1	O-Ring	Buna-N
	A-2184	1	O-Ring	Viton
5	A-1959	1	O-Ring	Buna-N
	A-3979	1	O-Ring	Viton
6	A-1880	1	Bushing	303 Stainless Steel

*Recommended Spare Parts

(Items sold separately)

5020 Series Components

B-0037 Master Valve Assembly



Parts List

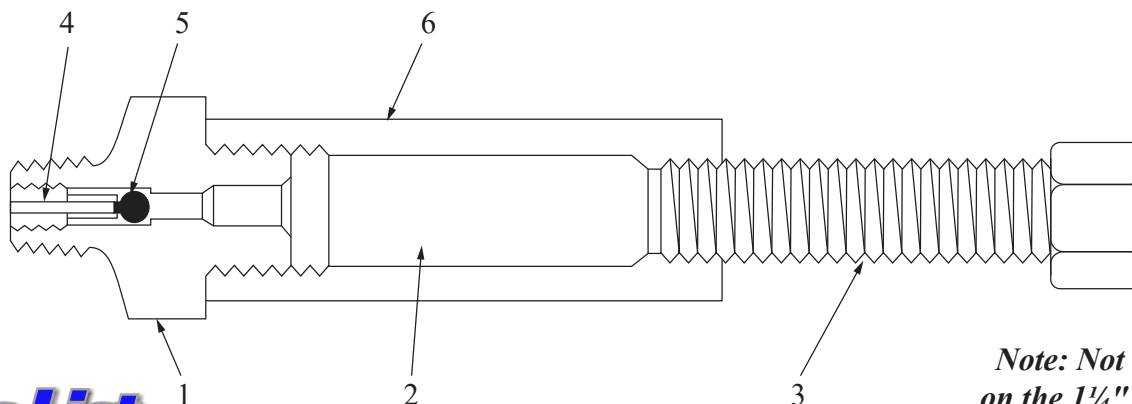
Item #	Part #	# Req.	Description	Material
1	A-0164	1	Cap Nut	Steel
2	A-0001	1	Housing Cap	Aluminum
3	A-1329	1	Diaphragm	Buna-N
4	A-0197	1	Valve Stem	Brass
	A-0197SS	1	Valve Stem	Stainless Steel
5	A-0163	1	Cap Bolt	Steel
6	C-0003	1	Master Valve Housing	Aluminum
7	A-0201	1	Lower Valve Seat	Buna-N
8	A-0196	1	Valve Disc	Brass
	A-0196SS	1	Valve Disc	Stainless Steel
9	A-0202	1	Valve Spring	Steel
10	A-0200	1	Upper Valve Seat	Brass
	A-0200SS	1	Upper Valve Seat	Stainless Steel
11	C-0003-B	1	Housing Stem Sleeve	▲

*Recommended Spare Parts

**Alternate Parts for Sour Gas Trim are all Stainless Steel

5020 Series Components

A-0558 Grease Jack Assembly

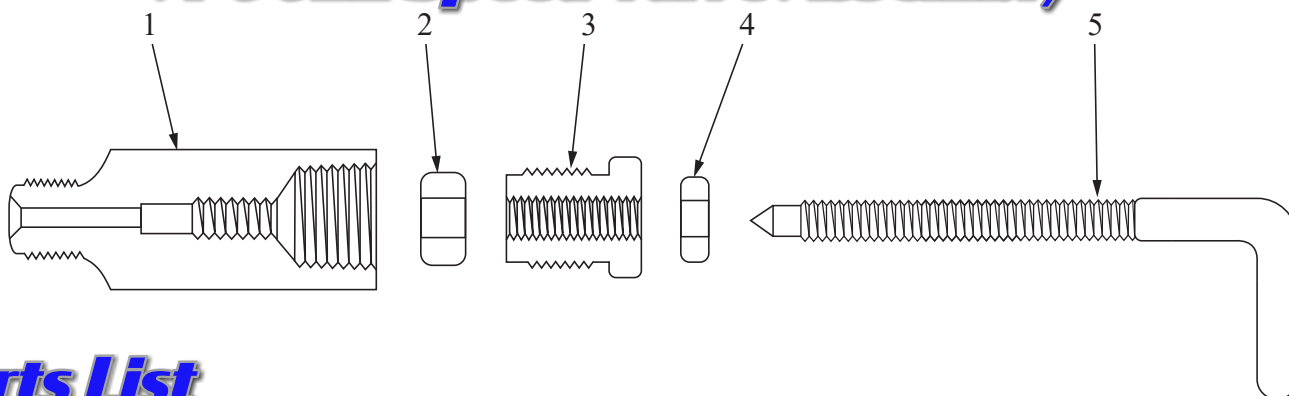


Parts List

Item #	Part #	# Req.	Description	Material
1	A-0561	1	Grease Jack Base	Steel
2	A-3179-1	1	Lubricant Stick	▲
	A-3179-2	1	72 Piece Lubricant Stick Carton	▲
3	A-0560	1	Grease Jack Bolt	Steel
4	A-0562	1	Grease Jack Retainer	Steel
5	A-0564	1	Grease Jack Ball	316 Stainless Steel
6	A-0559	1	Grease Jack Body	Steel

*Recommended Spare Parts

A-0022 Speed Valve Assembly



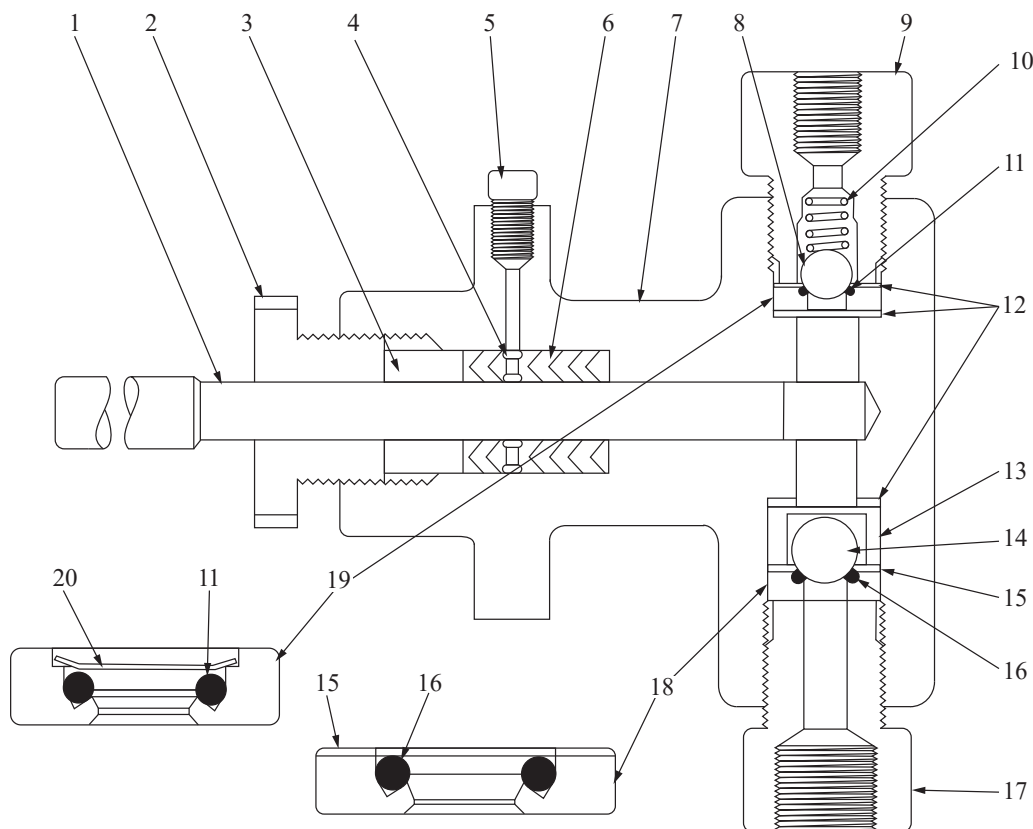
Parts List

Item #	Part #	# Req.	Description	Material
1	A-0010	1	Speed Control Body	Brass
2	A-0023	1	Speed Valve Packing	Graphite
3	A-0011	1	Gland Nut	Brass
4	A-0195	1	Needle Valve Nut	Brass
5	A-0013	1	Speed Control Stem	Brass

*Recommended Spare Parts

Injector Heads

(For 1/4", 3/8", 1/2", 3/4", and 1" Heads)



Alternate Components

Item #	Part #	Description	Material
11	A-2336	O-Ring	Viton
13	A-0157	Metal to Metal Top Seat for 1/4" & 3/8" Heads	303 Stainless Steel
16	A-2184	O-Ring (1/2" - 1 1/4")	Viton
	A-2336	O-Ring (1/4" & 3/8")	
19	A-0157	Metal to Metal Bottom Seat for 1/4" & 3/8" Heads	303 Stainless Steel
	A-0051	Metal to Metal Bottom Seat for 1/2", 3/4", & 1" Heads	

*Hard Packing for 3000 PSI and above service

Item #	Part #			Description
	Viton	Teflon	Hard*	
6	A-4102	A-1462	A-2295	1/4" Plunger Packing
	A-4101	A-1234	A-1875	3/8" Plunger Packing
	A-4103	A-1012	A-1874	1/2" Plunger Packing
	A-4657	A-2988	A-2772	3/4" Plunger Packing
	A-4658	A-1013	A-4135	1" Plunger Packing

Item #	Part #	Description
	Ceramic	
1	A-2764-C	1/4" Plunger
	A-0743-C	3/8" Plunger
	A-0032-C	1/2" Plunger
	A-2767-C	3/4" Plunger
	A-0158-C	1" Plunger

Parts List for Ductile Iron Head

Item #	1/4"	3/8"	1/2"	3/4"	1"	# Req.	Description	Material
▲	C-1609	C-0085	C-0068	C-0335	C-0019	1	Head Assembly	Ductile Iron with Stainless Steel Trim
1	A-2764	A-0743	A-0032	A-2767	A-0158	1	Plunger	Armaloy - 17.4 pH Stainless Steel
2	A-2765	A-0944	A-0055	A-2768	A-0047	1	Packing Gland Nut	Carbon Steel
3	A-1463	A-0957	A-1219	A-2769	A-0043	1	Packing Gland	303 Stainless Steel
4	A-2766	A-0742	A-0447	A-2770	A-0448	1	Lantern Ring	303 Stainless Steel
5	A-0516					1	Pipe Plug	▲
*6	A-1461	A-1456	A-0959	A-2771	A-0050	1	Plunger Packing	Buna-N
7	C-1608	C-0084	C-0022	C-0333	C-0020	1	Head Body	Ductile Iron
8	A-0054					1	3/8" Top Check Ball	316 Stainless Steel
9	A-0152					1	Top Bushing	303 Stainless Steel
10	A-0077					1	Ball Check Valve Spring	316 Stainless Steel
*11	A-2097					1	O-Ring	Buna-N
12	A-2350					3	Gasket	304 Stainless Steel
13	A-0444					1	Ball Cage	17.4 pH Stainless Steel
14	A-0054		A-0053			1	Bottom Check Ball	316 Stainless Steel
15	A-2350		A-2338			1	Gasket	304 Stainless Steel
*16	A-2097		A-0612			1	O-Ring	Buna-N
17	A-0153					1	Bottom Bushing	303 Stainless Steel
*18	B-0368		B-0698			1	Bottom Seat Assembly	303 Stainless Steel
*19	B-0368					1	Top Seat Assembly	303 Stainless Steel
20	A-3523					1	Retaining Ring	Stainless Steel

Parts List for Stainless Steel Head

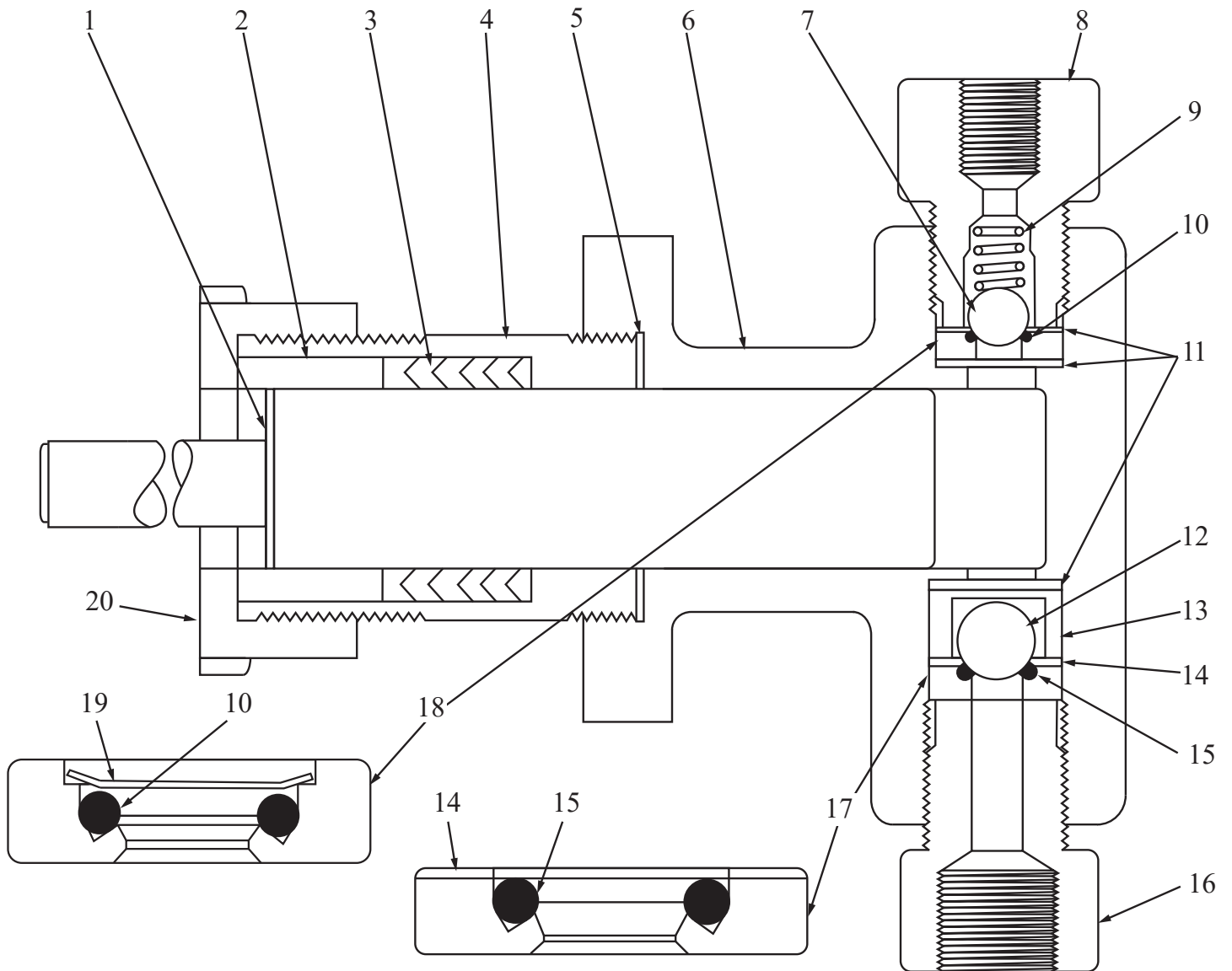
Item #	1/4"	3/8"	1/2"	3/4"	1"	# Req.	Description	Material
▲	C-1611	C-0148	C-0139	C-0337	C-0137	1	Head Assembly	Stainless Steel
*1	A-2764	A-0743	A-0032	A-2767	A-0158	1	Plunger	Armalyoy - 17.4 pH Stainless Steel
2	D-0250	D-0375	D-0500	D-0750	D-1000	1	Packing Gland Nut	Stainless Steel
3	A-1463	A-0957	A-1219	A-2769	A-0043	1	Packing Gland	303 Stainless Steel
4	A-2766	A-0742	A-0447	A-2770	A-0448	1	Lantern Ring	303 Stainless Steel
5	A-0516					1	Pipe Plug	▲
*6	A-1461	A-1456	A-0959	A-2771	A-0050	1	Plunger Packing	Buna-N
7	C-1610	C-0147	C-0140	C-0340	C-0138	1	Head Body	Stainless Steel
8	A-0054					1	3/8" Top Check Ball	316 Stainless Steel
9	A-0152					1	Top Bushing	303 Stainless Steel
10	A-0077					1	Ball Check Valve Spring	316 Stainless Steel
*11	A-2097					1	O-Ring	Buna-N
12	A-2350					3	Gasket	303 Stainless Steel
13	A-0444					1	Ball Cage	17.4 pH Stainless Steel
14	A-0054		A-0053			1	Bottom Check Ball	316 Stainless Steel
15	A-2350		A-2338			1	Gasket	304 Stainless Steel
*16	A-2097		A-0612			1	O-Ring	Buna-N
17	A-0153					1	Bottom Bushing	303 Stainless Steel
*18	B-0368		B-0698			1	Bottom Seat Assembly	303 Stainless Steel
*19	A-0368					1	Top Seat Assembly	303 Stainless Steel
20	A-3523					1	Retaining Ring	Stainless Steel

* Recommended Spare Parts

*Alternate Components Available (see tables on page 10)

Injector Heads

(For 1 1/4" Heads)



Injector Heads

(For 1 1/4" Heads)

Parts List

Item #	Part #	# Req.	Description	Material
▲	C-0048	1	Head Assembly	Ductile Iron with Stainless Steel Trim
	C-0134			Stainless Steel
1	A-0408	1	Plunger	Armaly - 17.4 pH Stainless Steel
2	A-0404	1	Packing Gland	303 Stainless Steel
*3	A-0405	1	Plunger Packing	Buna-N
4	A-0923	1	Adapter	303 Stainless Steel
5	A-0521	1	Gasket	Copper
6	C-0049	1	Head Body	Ductile Iron
	C-0135			Stainless Steel
7	A-0054	1	3/8" Top Check Ball	316 Stainless Steel
8	A-0152	1	Top Bushing	303 Stainless Steel
9	A-0077	1	Ball Check Valve Spring	316 Stainless Steel
*10	A-2097	1	O-Ring	Buna-N
11	A-2350	3	Gasket	304 Stainless Steel
12	A-0053	1	1/2" Bottom Check Ball	316 Stainless Steel
13	A-0444	1	Ball Cage	17.4 pH Stainless Steel
14	A-2338	1	Gasket	304 Stainless Steel
*15	A-0612	1	O-Ring	Buna-N
16	A-0153	1	Bottom Bushing	303 Stainless Steel
*17	B-0698	1	Bottom Seat Assembly	303 Stainless Steel
*18	B-0368	1	Top Seat Assembly	303 Stainless Steel
19	A-3523	1	Retaining Ring	Stainless Steel
20	A-0403	1	Packing Nut	Stainless Steel

* Recommended Spare Parts

* Alternate Components Available (see table below)

Alternate Construction

Item #	Part #	Description	Material
1	A-0408-C	Plunger (Stainless Steel Head)	Ceramic
3	A-4480	Plunger Packing	Viton
	A-1014		Teflon
	A-4133		Hard
10	A-2336	O-Ring	Viton
15	A-2184	O-Ring	Viton
17	A-0051	Metal to Metal Bottom Seat	303 Stainless Steel
18	A-0157	Metal to Metal Top Seat	303 Stainless Steel

Performance Data and Applications

Applications for 5020 Series Injectors

- ◆ Introducing detergents in air-gas drilling operations
- ◆ Blending foaming agents in water laden gas wells
- ◆ High pressure addition of fluid compounds in blending and chemical processing
- ◆ Pilot laboratory procedure involving high pressure circulation of mercury and other test substances
- ◆ Introduction of desalting agents, demulsifiers, inhibitors and flocculants in crude oil and gas streams
- ◆ High and low pressure lubrication systems
- ◆ Methanol and alcohol injection in gas systems to prevent freezing
- ◆ General high pressure injection applications
- ◆ Fluid blending of extreme pressures within varied, controlled processes
- ◆ Hydrostatic testing
- ◆ Glycol circulation
- ◆ Pumping liquefied gasses
- ◆ Water treatment
- ◆ High pressure sampling

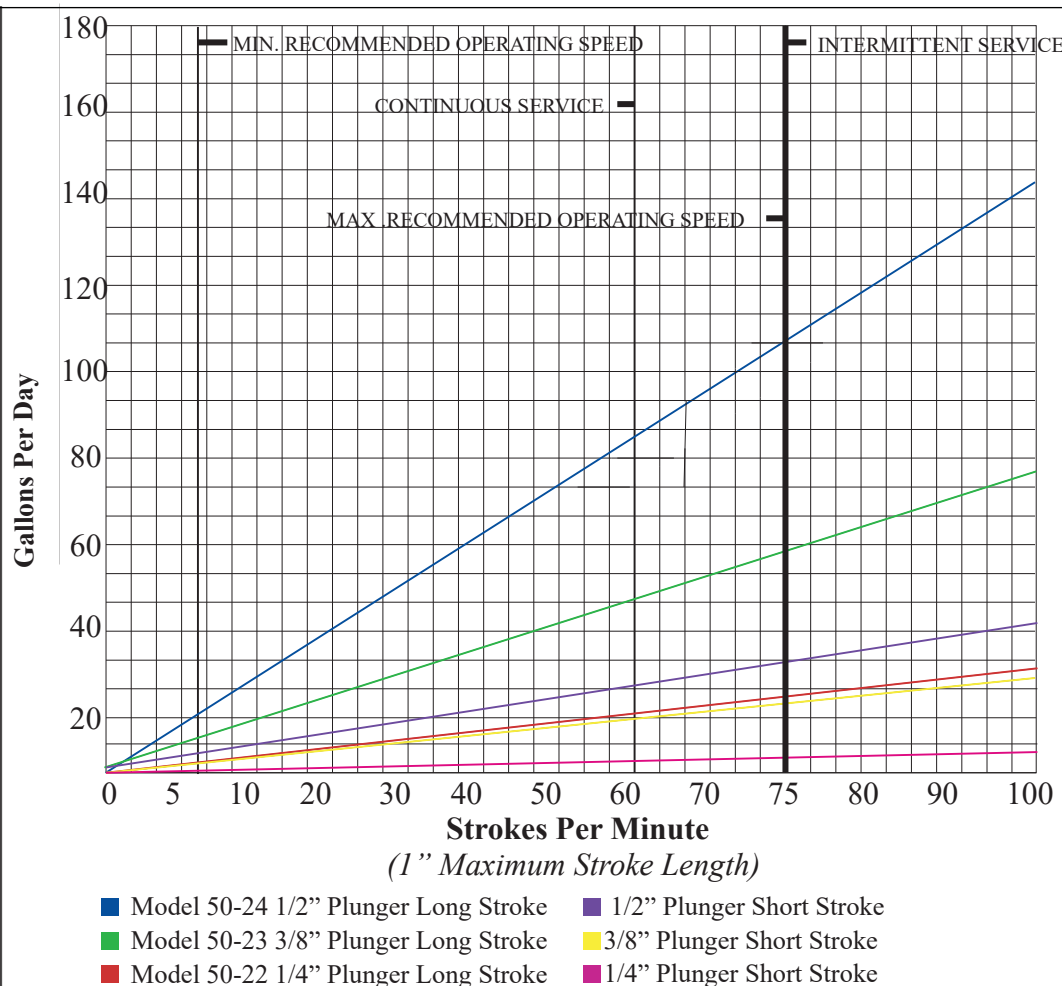
Performance Data

<i>Model #</i>	<i>Plunger Size</i>	<i>Operating Ratio (gas*/fluid)</i>	<i>Maximum Discharge Pressure (PSIG)</i>		<i>Maximum Volume</i>			
			<i>Hard Packing</i>	<i>Soft Packing</i>	<i>Intermittent</i>		<i>Continuous</i>	
					<i>GPH</i>	<i>GPD</i>	<i>GPH</i>	<i>PGD</i>
50-22	1/4"	1000/1	15,000	3,000	0.83	20	0.67	16
50-23	3/8"	497/1	15,000	3,000	2.33	56	1.79	43
50-24	1/2"	264/1	12,000	3,000	4.38	105	3.54	85
50-25	3/4"	115/1	5,000	3,000	7.42	190	6.67	160
50-26	1"	66/1	▲	2,000	16.66	400	13.33	320
50-27	1 1/4"	42/1	▲	2,000	26.04	625	20.83	500

*Maximum Power Gas Pressure: 50 PSI
Stroke Length - Long: 1 1/4"; Short: 1/2"

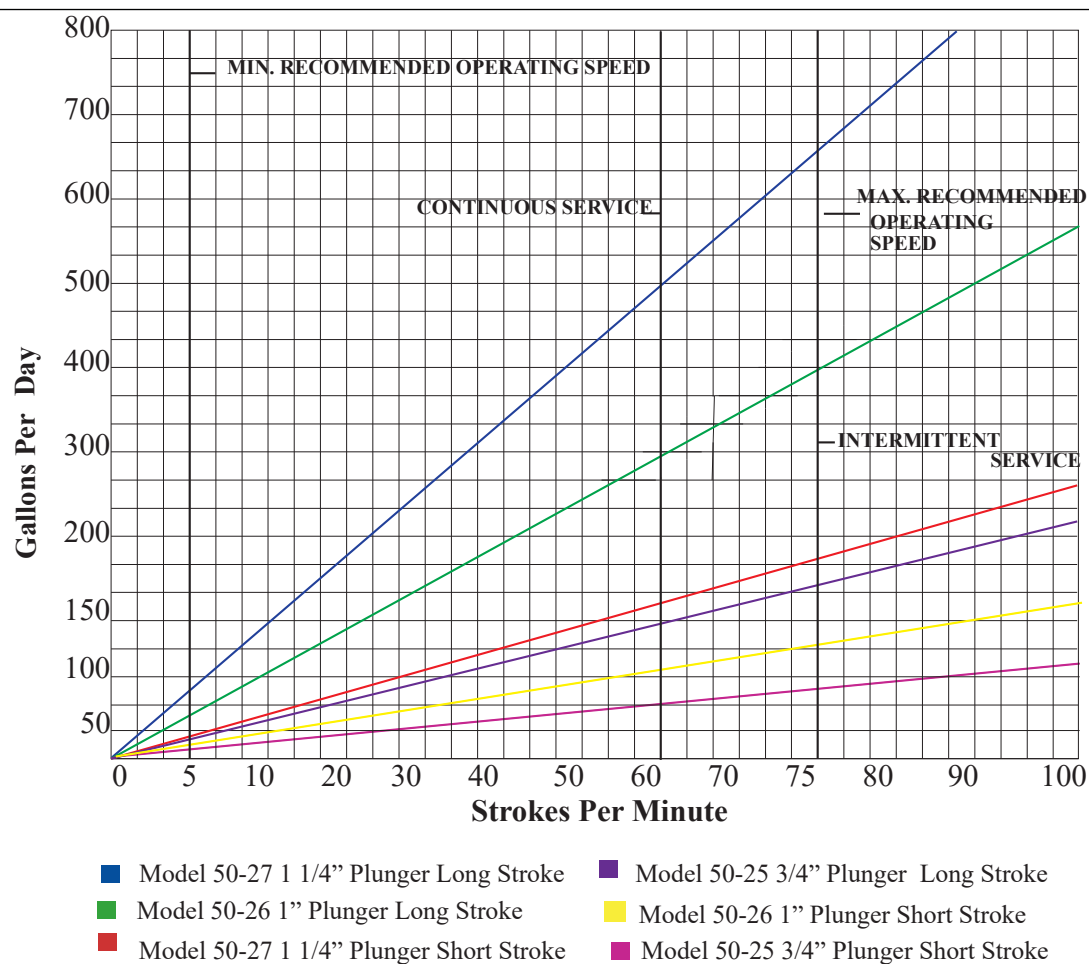
This information applies to FIOMORE pumps: 50-22, 50-23, 50-24

VOLUME



This information applies to FIOMORE pumps: 50-25, 50-26, 50-27

VOLUME



Performance Data and Applications

Gas Consumption Chart

Standard Cubic Feet of Gas Required to Pump One Gallon

Injection Pressure (PSI)	50	100	150	200	250	300	400	500	600	700	800	900
1/4" Piston Long Stroke	280	281.2	282.4	283.6	284.8	286	289	292	294.6	297.2	300	303
1/4" Piston Short Stroke	700	703	706	707	709	712	720	724	731	737	741	748
3/8" Piston Long Stroke	140	140.6	141.2	141.8	142.4	143	144.5	146	147.3	148.6	150	151.5
3/8" Piston Short Stroke	355	355.6	356.2	356.8	357.4	358	359.5	361	362.3	363.6	365	366.5
1/2" Piston Long Stroke	80.6	81.2	81.8	82.4	83	83.6	84.8	86	87.2	88.4	89.6	90.8
1/2" Piston Short Stroke	200.6	201.1	201.8	202.4	203	203.6	204.8	206	207	208.4	209.6	210.8
3/4" Piston Long Stroke	36	37	38	39	40	41	43	45	47.3	49.4	51.3	52.8
3/4" Piston Short Stroke	89	91	92	94	95	96	99	101	105	109	111	113
1" Piston Long Stroke	20.6	21.2	21.8	22.4	23	23.6	24.8	26	27.2	28.4	29.6	30.8
1" Piston Short Stroke	50.6	51.2	51.8	52.4	53	53.6	54.8	56	57.2	58.4	59.6	60.8
1 1/4" Piston Long Stroke	13.6	14.2	14.8	15.4	16	16.6	17.8	19	20.2	21.4	22.6	23.8
1 1/4" Piston Short Stroke	32.6	33.2	33.8	34.4	35	35.6	36.8	38	39.2	40.4	41.6	42.8

Gas Consumption Chart

Standard Cubic Feet of Gas Required to Pump One Gallon

Injection Pressure (PSI)	1000	1500	2000	3000	3500	4000	5000	6000	7000	8000	9000	10000
1/4" Piston Long Stroke	306	318	330	356	368	380	404	428	452	476	500	522
1/4" Piston Short Stroke	756	779	802	854	872	897	937	984	1017	1057	1090	1122
3/8" Piston Long Stroke	153	159	165	178	184	190	202	214	226	238	250	262
3/8" Piston Short Stroke	358	374	380	393	399	405	417	429	441	453	465	477
1/2" Piston Long Stroke	92	98	104	116	122	128	140	152	164	176	188	200
1/2" Piston Short Stroke	212	218	224	236	242	248	260	272	284	296	308	320
3/4" Piston Long Stroke	55.6	66	76.2	97	107	114	121					
3/4" Piston Short Stroke	117	132	145	172	183	190	191					
1" Piston Long Stroke	32	38	44	56	62							
1" Piston Short Stroke	62	68	74	86								
1 1/4" Piston Long Stroke	25	31	37	49								
1 1/4" Piston Short Stroke	44	50	56									

Installation and Operating Instructions

1. The discharge bushing is a ¼" NPT connection. This is where you will connect your fluid discharge line. You should always install a line check at the point of injection for additional safety. Our A-0675 stainless steel line check (sold separately) is a ¼" NPT male x female good for discharge pressure of 6,000 PSI. Our ½" NPT female x female line check is 10,000 PSI rated.

NOTE: Install line check valves with the flow arrow pointing in the direction of the flow.

2. The suction bushing is a ¼" NPT connection. Care should be taken to make sure no dirt, sand or other foreign objects are left in the suction line before hooking it up, as any of these items will not allow the check valves in the head assembly to operate properly.
3. Before connecting the gas line to power the pump, make sure there is no more than 50 PSI available. If the line pressure is higher than 50 PSI, you must reduce to this pressure. Make sure this line is free of debris and connect to the A-0022 inlet gas assembly. This is also a ¼" NPT connection. The regulator with a gauge is preset to 12 PSI and should always be set at this point. This regulator and gauge are used to regulate a very, very small amount of gas going through the pilot valve and the master valve and has nothing to do with regulating the incoming gas pressure to the pump.
4. Remove thumb screw and cover and pour 3 quarts of light weight motor oil (10 weight), Marvel Mystery, or transmission fluid into the chamber next to the large diaphragm. This is true on all size plungers except the 1¼". With it, plug the ¼" NPT drain and fill the chamber that the plunger operates in with oil, this will lubricate the plunger and lengthen the life of the packing.
5. After all connections are made, open the fluid valve on your storage tank and open priming valve (Item #7, Page 3), at the same time, slowly open the speed control valve (Item #2, Page 3) to start pump. After the stream of fluid from the priming valve is free of air bubbles, close this valve.
6. When you first start the pump you may see some fluid leakage around the plunger packing nut. This is OK for the first 2 or 3 minutes as this allows the packing to get wet and take a set. Next, stop the pump and very slightly tighten the packing nut, then restart the pump.

NOTE: DO NOT ATTEMPT PACKING ADJUSTMENT WITH PUMP RUNNING!

7. Volumes of fluid pumped are a function of plunger stroke length and speed (SPM). You have available two (2) stroke lengths and a variety of speeds up to 60 SPM continuous or 75 SPM intermittently. To change stroke length, move the plunger pin from one hole to the other. The hole nearer the injection head will give you the longest stroke.

Troubleshooting

NOTE: Make sure valves on suction and discharge lines are open.

Pump will not run.

1. If the pump will not run, make sure you have gas and pressure (50 PSI max) to the the A-0022 speed control valve. Check the pressure that is on the line that the pump is injecting into. Too high of pressure will result in a stalled pump.
2. Check the position of the pilot valve disc by removing the fitting and C-0495 disc retainer to expose the C-4668 valve disc.
3. With a long screwdriver, move the flipper arm forward towards the injection head. Then, check the hole in the C-4668 to make sure it aligns with the hole in the C-0451 body. This hole is at 9 o'clock.
4. The pump is now in time. Replace all items and start the pump.

NOTE: A hole in the diaphragm is evident by gas discharging constantly into the oil chamber.

Pump makes only one stroke forward and does not make return stroke.

1. Check the 1/4" NPT pilot hole located on the right side of the pilot valve assembly. This hole should be clear because it is the discharge port for the pilot gas system (very small amount), which is necessary for the pump to make the return stroke.
2. Pull the lift ring on the A-0131 safety valve. If there is a constant discharge of gas, check the A-1329 diaphragm of the B-0037 master valve for a hole. While you are there, make sure the A-0197 stem assembly will move up (against spring tension) and return. If not, disassemble the B-0037 completely. Wash all parts to remove sand, slag, rust, or other material that might be obstructing the proper operation of this valve. At the same time, check the A-0200 upper valve seat, the A-0196 valve disc seat, the A-0201 lower valve seat for excessive wear. Also, check the A-0202 spring for breakage.

Pump runs but will not pump.

1. Make sure the fluid to be pumped is getting to the suction bushing in quantity. Open the priming valve to bleed air from the head assembly. If you have a liquid level gauge (and you should), shut the valve on the gauge as if you were making a volume test. If fluid falls in the tube on the suction stroke then rises on the discharge stroke, the suction valve is leaking or bypassing fluid.
2. Disconnect the suction line, remove the suction bushing and replace the o-ring in the bottom check valve seat. Viton o-rings should be used in chemical service both in bottom and top check valve seats.
3. Restart the pump and set the speed for the volume needed.

Notes



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