

SKO FLO

Back Pressure Regulator



SkoFlo Valve Model BPR500MFA

OPERATION AND MAINTENANCE INSTRUCTIONS

SKO FLO INDUSTRIES INC.

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SkoFlo Valve Model BPR5000MFA

OPERATION AND MAINTENANCE INSTRUCTIONS

INSTALLATION PROCEDURES:

1. Install valve so that the flow is in the proper direction. The "INLET" connection and the "OUTLET" connections are MP20000 connections for 3/4" tubing using the connection adapters on the valve. These connections are marked respectively and are suitable for Autoclave Engineers or Butech fittings.
2. The "VENT" connection is not under pressure and will see fluid only if the piston seal is leaking. This connection is 1/4" NPT and may be routed to a drain or atmospheric container if desired. The "VENT" must remain free and unrestricted, and should be visible.
3. The supply pump pulsations must be adequately dampened with a pulsation dampner to avoid setting up a resonant vibration in the SkoFlo valve. This generally may occur with high flow rates and high pressure differentials. However, we highly recommend installation of a pulsation dampner in all cases.

START UP PROCEDURES:

1. Open the supply isolation valve to the back pressure regulator **slowly**.
2. Turn the pressure adjustment handle until you are at the desired pressure. Always start at a pressure below the set pressure and increase to the desire setting.
3. The back pressure regulator is now set and further adjustments aren't required. Tighten the lock nut on the handle to avoid inadvertent changes to the adjustment.

OPERATION NOTES AND WARNINGS:

1. The SkoFlo Back Pressure Regulator has hard seats and is not designed to provide complete "bubble-tight" shut off. If tight shutoff is required, separate isolation valves should be used for shutting off the flow. **Overtightening the handle will not further reduce flow.** If back pressure does not increase when turning the handle in, see "Trouble Shooting Improper Valve Performance".
2. Do not flow backwards through the SkoFlo valve. Internal seals are designed for one direction only and could possibly become dislodged.
3. When lifting the SkoFlo valve, lift using M12x1.75 eyebolts in side of body. Do NOT lift using the handle as this can damage the handle.
4. Do not adjust the valve from open to closed position unless valve is pressurized to avoid the possibility of dislodging the stem seal.

MAINTENANCE NOTES:

1. **Replacing Seals:** When replacing valve seals, it is recommended that the new seals be lubricated with Parker Super Lube or equivalent. Install backup ring on low pressure side of o-ring. Make sure the backup ring is lined up at the joint.
2. **FASTENER & TORQUE SUMMARY**

PARTS JOINED	FASTENER DESCRIPTION	THREAD COMPOUND	TORQUE REQUIRED
CAP LOCK SCREWS	M8 -25 SHCS GRADE 70 316SS	NEVER SEIZE	10 -12 FT LBS
TIE ROD NUTS	7/8 NC TEFLON COATED NUT	NEVER SEIZE	80-90 FT LBS
IN/OUT ADAPTERS	MACHINED COMPONENTS	NEVER SEIZE	150-160 FT LBS
PRIMARY PIN HOLDER	MACHINED COMPONENTS	LOCKTITE #271	40-50 FT LBS
CHECK STEM JOINT	MACHINED COMPONENTS	LOCKTITE #271	30-35 FT LBS
CHECK SET SCREW	MACHINED COMPONENTS	LOCKTITE #271	4-5 FT LBS

NOTE: Loctite #271 requires heat (such as a propane torch) to disassemble.

TROUBLE SHOOTING IMPROPER VALVE PERFORMANCE:

<u>SYMPTOM</u>	<u>CAUSE</u>	<u>REMEDY</u>
1. No Flow	Upstream filter is plugged.	Clean or replace filter element.
	Back Pressure Regulator is plugged.	Take apart and clean. Correct cause of plugging such as leaking filter.
	Supply valve is shut off.	Open valve <u>slowly</u> .
	Discharge line is shut off.	Open valve.
2. Excessive Fluctuations in pressure(some fluctuation is normal, particularly with the large flow rate models)	Piston Springs are not installed properly.	Install springs in accordance with assembly drawings
	Seat or pin worn or damaged.	Replace seat holder or pin.
3. Back pressure not being controlled by handle	Piston Springs are not installed properly.	Install springs in accordance with assembly drawings
	Seat or pin worn or damaged.	Replace seat holder or pin.

RECOMMENDED SPARE PARTS:

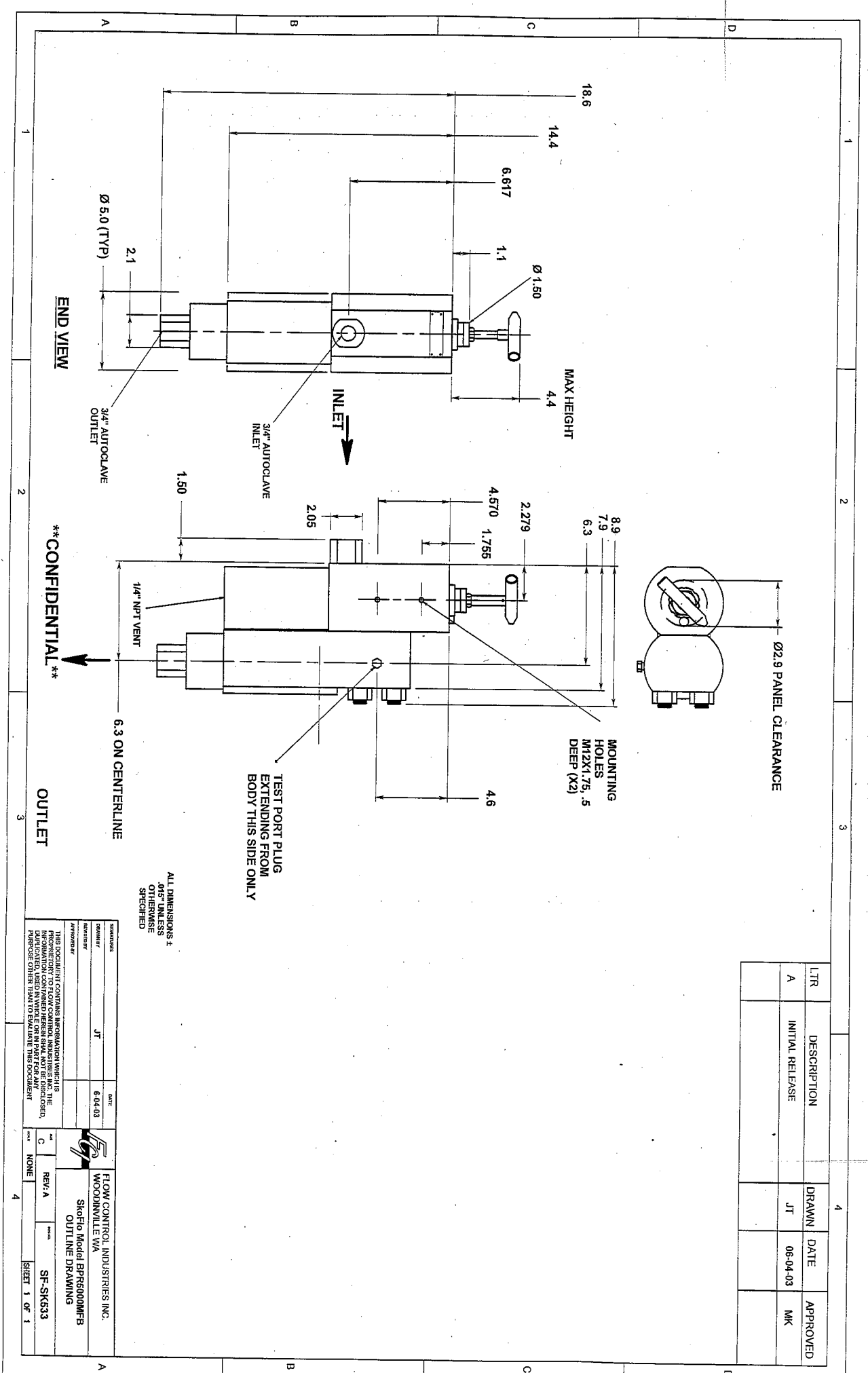
<u>QTY</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	BPR15000MFB-P-5	Primary Stage Seat Holder with Seat
1	BPR15000MFB-P-8	Primary Stage Ceramic Pin
1	BPR15000MFC-C-8	Check Stage Carbide Pin
1	BPR15000MFB-P-20	Primary Stage Seal Kit
1	BPR15000MFC-C-20	Check Stage Seal Kit

STORAGE:

1. When storing SkoFlo valves prior to first use, it is recommended that the valves be stored indoors. If stored outdoors, apply a light coating of protectant to the exterior of the valve. The shipping plugs in the HP INLET, RELIEF and VENT should remain in place.
2. When storing SkoFlo valves after being in use, dismantle, thoroughly clean and reassemble. Then store as noted in number 1 above.

Please call the factory in Woodinville, Washington USA at phone number (425)485-7816 if you have any questions.

E-Mail: butchs@skoflo.com



LTR	DESCRIPTION	DRAWN	DATE	APPROVED
A	INITIAL RELEASE	JT	06-04-03	MK

REVISIONS	DATE	BY	DESCRIPTION
1	6-04-03	JT	INITIAL RELEASE

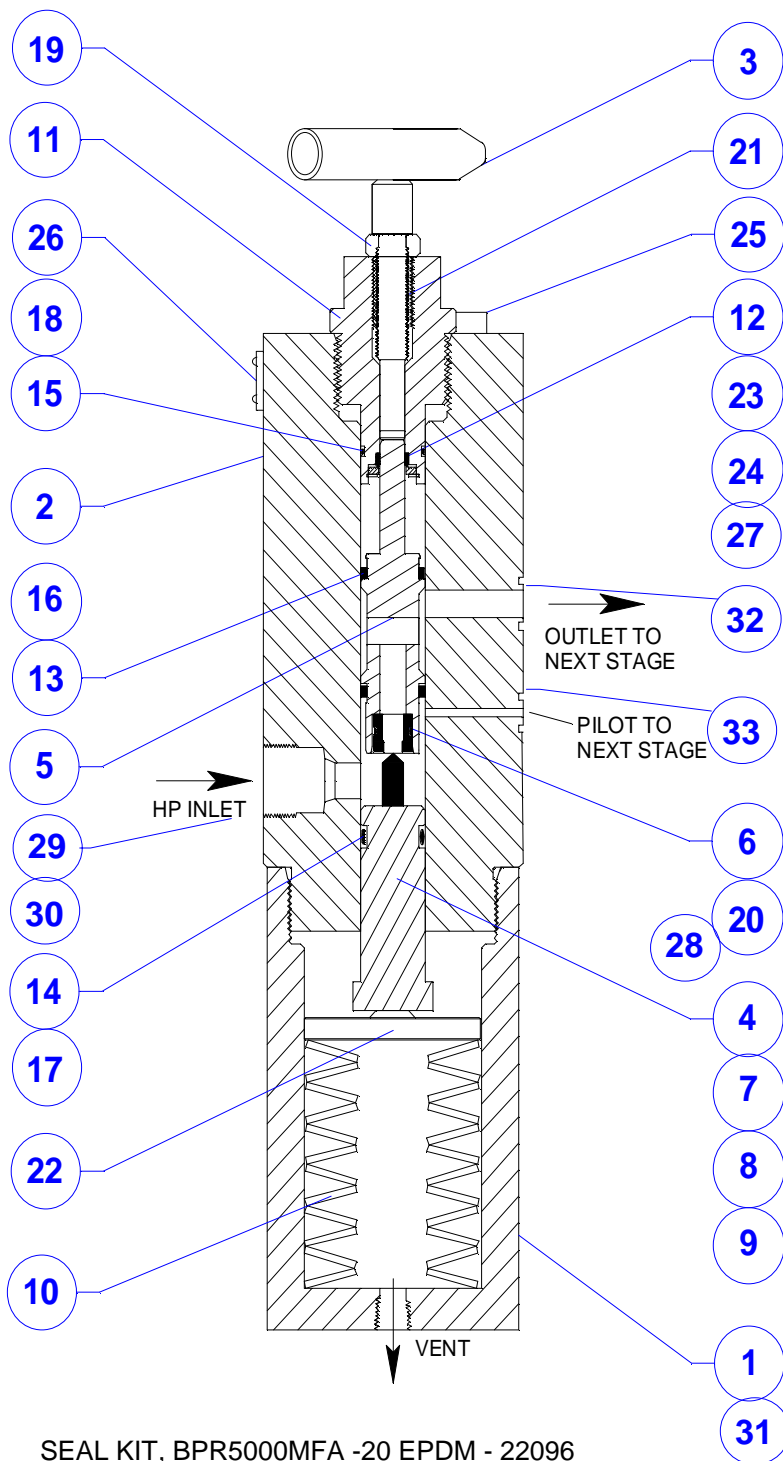
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FLOW CONTROL INDUSTRIES INC.
 WOODBRIDGE, VA
 Skoflo Model BPR6500MFB
 OUTLINE DRAWING
 SF-SK533
 SHEET 1 OF 1

MATERIAL LIST - Sko-Flo Valve

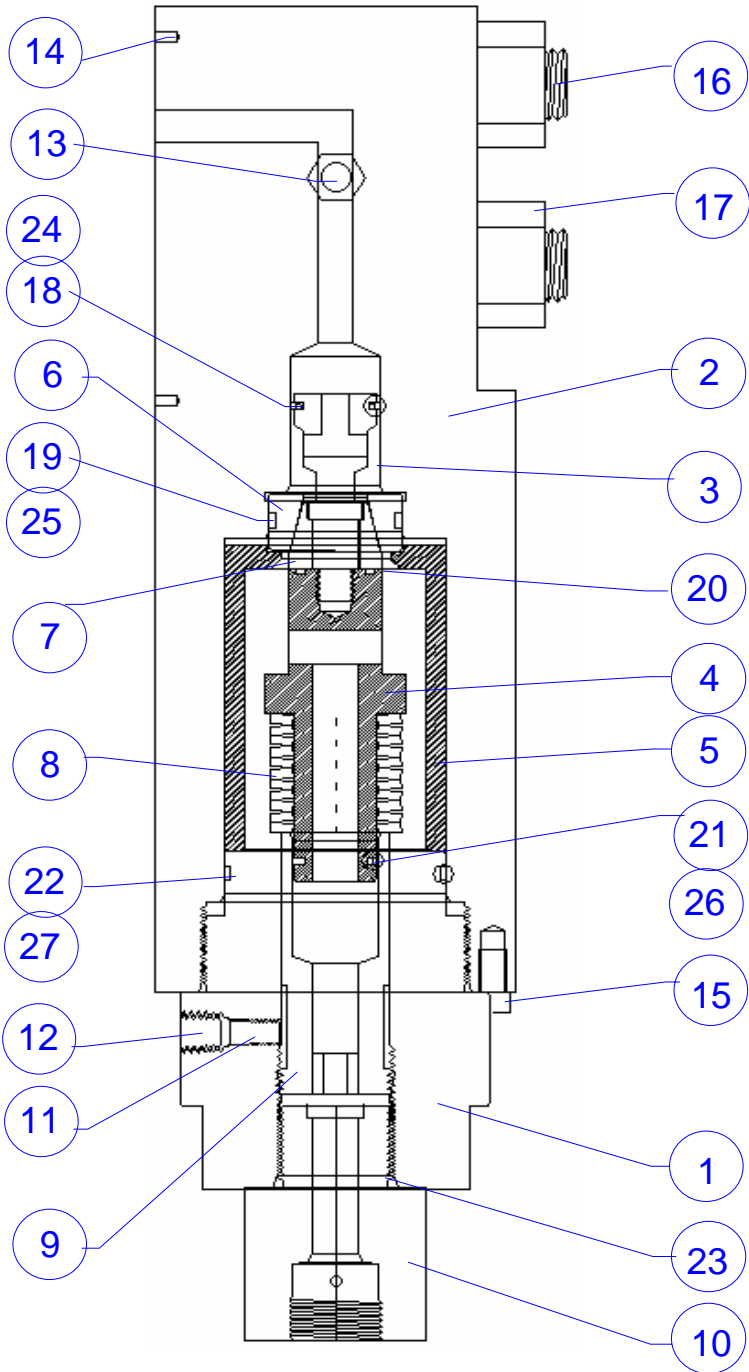
BPR5000MFA PRIMARY STAGE

ITEM	QTY	PART NO.	DESCRIPTION	MATERIALS
1	1	20536	BASE CAP	NITRONIC 60 SS
2	1	20548	BODY	NITRONIC 60 SS
3	1	20537	ADJUSTMENT HANDLE	N 60/316L/304 SS / NI-BRONZE
4	1	20763	PISTON	NITRONIC 60 SS
5	1	20539	SEAT HOLDER	NITRONIC 60 SS
6	1	20275	SEAT	CERAMIC
7	1	20312	PIN HOLDER	NITRONIC 60 SS
8	1	20544	PIN	CERAMIC
9	1	71002073	PIN SPRING	316 SS
10	15	22116	PISTON SPRINGS	17-7 SS
11	1	20565	STEM CAP	NITRONIC 60 SS
12	1	71001862	CUP SEAL (ATM)	TEFLON/ GRAPHITE/ 316 SS
13	2	71001864	CUP SEAL (SEAT HOLDER)	TEFLON/ GRAPHITE/ 316 SS
14	1	71001864	CUP SEAL (PISTON)	TEFLON/ GRAPHITE/ 316 SS
15	1	71001773	O-RING (STEM CAP)	EPDM
16	2	71001881	BACK UP RING FOR ITEM 13	PEAK
17	1	71001881	BACK UP RING FOR ITEM 14	PEAK
18	1	71001934	BACK UP RING FOR ITEM 15	PEAK
19	1	71002112	LOCK NUT (HANDLE)	316 SS
20	1	71001753	O-RING (SEAT)	EPDM
21	1	20681	HANDLE BUSHING	NI-BRONZE
22	1	20762	SPRING WASHER	NITRONIC 60 SS
23	1	20576	STEM SEAL RETAINER	NITRONIC 60 SS
24	1	71001949	RETAINING RING	316 SS
25	1	71002091	STEM CAP LOCK SCREW	316 SS
26	1	21352	NAMEPLATE	302 SS
27	1	71001879	ATM Seal B U Ring	TEFLON/ GRAPHITE
28	1	71001929	BACK UP RING FOR ITEM 20	PEAK
29	1	20531	3/4 A E Adapter	Nitronic 50 HS
30	1	71001829	A E Adapter O-Ring	EPDM
31	1	71001844	Bottom Cap O-Ring	EPDM
32	1	71001758	Body Outlet O-Ring	EPDM
33	1	71001748	Pilot Outlet O-Ring	EPDM



SEAL KIT, BPR5000MFA -20 EPDM - 22096
 SEAL KIT, BPR5000MFA -20 KALREZ - 22097

SkoFlo Valve Model BPR5000MFA		SKOFLO INDUSTRIES INC. Woodville, WA	
SCALE: NONE	APPROVED BY:	DRAWN BY: FJG	
DATE: 10/1/01		REVISED: 11/28/06	
BPR5000MFA BACK PRESSURE REGULATOR ASSEMBLY SECTION / PARTS LIST PRIMARY STAGE		DRAWING NUMBER SF-0742	REV A



MATERIAL LIST - Sko-Flo Valve
BPR5000MFA CHECK STAGE

ITEM	QTY	PART NO.	DESCRIPTION	MATERIALS
1	1	20705	OUTLET CAP	NITRONIC 60 SS
2	1	20711	BODY	NITRONIC 60 SS
3	1	20712	CONE RETAINER	NITRONIC 60 SS
4	1	20708	PISTON	NITRONIC 60 SS
5	1	20707	SEAT RETAINER	NITRONIC 60 SS
6	1	20713	SEAT	CARBIDE
7	1	20714	PIN	CARBIDE
8	11	22015	PISTON SPRINGS	316 SS
9	1	20706	SPRING TENSIONER	316 SS
10	1	20531	A E ADAPTER	316 SS
11	1	71002101	SET SCREW	316 SS
12	1	71002130	NPT PLUG	316 SS
13	1	71002083	3/8 A E PLUG	316 SS
14	2	71003528	BODY ALIGNMENT PIN	316 SS
15	1	71002091	OUTLET CAP LOCK BOLT	317 SS
16	4	71002109	TIE ROD	316 SS
17	4	NOT USED	TFE COATED SS NUT	316 SS
18	1	71001763	O-RING CONE RETAINER	EPDM
19	1	71001797	O-RING SEAT	EPDM
20	1	71001766	O-RING PISTON TO CONE	EPDM
21	1	71001763	O-RING SPRING RETAINER	EPDM
22	1	71001807	O-RING OUTLET CAP	EPDM
23	1	71001829	O-RING A E ADAPTER	EPDM
24	1	71001885	BU RING TO ITEM 18	PTFE
25	1	71001941	BU RING TO ITEM 19	PEEK
26	1	71001885	BU RING TO ITEM 21	PTFE
27	1	71001905	BU RING TO ITEM 22	PTFE

SkoFlo Valve Model BPR5000MFA



SCALE: NONE	APPROVED BY:	DRAWN BY: FJG
DATE: 10/2/02		REVISED: 11/28/06
BPR5000MFA BACK PRESSURE REGULATOR ASSEMBLY SECTION / PARTS LIST CHECK STAGE		DRAWING NUMBER: SF-0741
		REV: A

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Our focus is on you our customer and for ISO 9001:2000 compliance we have prepared and request that you take the time to complete this **customer satisfaction survey**.

Company:	
Contact:	
Email:	
Phone:	

Please rate following categories	Highly Dissatisfied		N/A			Highly Satisfied	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Product Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Product Features	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Reliability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. After sale support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Implementation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Score from 1 (Low) to 7 (High)	(Low)		N/A			(High)	
	1	2	3	4	5	6	7
Recommend SkoFlo to friend or colleague.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Likely to Purchase Products from SkoFlo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall quality of relationship with SkoFlo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall level of satisfaction with SkoFlo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall level of satisfaction with respect to Product Valve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall level of satisfaction with respect to product engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Level of confidence of SkoFlo abilities to provide compliant product	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:							