

### installation, operating, and maintenance instructions

# series 66

## basic control valve

#### **GENERAL DESCRIPTION**

The OCV Series 66 Power-Actuated Valve is a hydraulically-operated, diaphragm type valve. The diaphragm is a nylon fabric bonded with an elastomer. An elastomeric seat disc forms a tight seal with the valve seat when the valve is closed. The valve contains upper and lower diaphragm chambers, separated and sealed from each other by the diaphragm itself. The lower chamber is sealed from the flow passage by means of a stem seal.

Because of the twin-chamber design, the Series 66 valve requires no line pressure differential to operate. Thus, it is particularly useful where line pressure is extremely low, pressure loss is critical or where line fluid is too dirty or otherwise unsuitable for operating the valve.

The Series 66 valve is designed to operate in a temperature range from -40 degrees F to +180 degrees F, depending upon the type of fluid being transported. It is available in either globe or angle configuration in ductile iron (150 lb. or 300 lb.) or in cast steel (150 lb. or 300 lb.) construction.

#### FUNCTIONAL DESCRIPTION

The Series 66 valve may be operated by line pressure or by an independent pressure source (equal to or greater than line pressure). Applying that pressure to the lower diaphragm chamber and simultaneously venting the upper diaphragm chamber causes the valve to move to its full open position. Conversely, applying pressure to the upper diaphragm chamber and simultaneously venting the lower chamber causes the valve to go fully closed.

#### INSTALLATION

In order to insure safe, accurate and efficient operation of the Series 66 valve, the following list of checkpoints and procedures should be followed when installing the valve.

- 1. Make a careful visual inspection of the valve to insure that there has been no damage to the external piping, fittings or controls. Check that all fittings are tight.
- 2. It is recommended that either gate or block valves be installed on the inlet and discharge sides of the valve to facilitate isolating the valve for preventive or corrective maintenance.
- 3. It is recommended that pressure gauges be installed at the inlet and discharge ports to provide monitoring of the valve during initial start-up and during operation.
- 4. Prior to mounting the valve, all interconnecting piping should be thoroughly flushed of chips, scale and foreign matter.
- 5. Install the valve in the line according to the flow arrow on the inlet flange. The arrow should point downstream.



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#### Series 66

- 6. It is recommended that for maximum efficiency and serviceability, valves 6" and larger be installed in a horizontal position.
- 7. Allow sufficient room around the valve for ease of adjustment and maintenance service.
- 8. Because of the venting action, a quantity of fluid will be exhausted each time the valve opens or closes. Provisions should be made to drain or dispose of this vented fluid.

	Discharge
Valve Size	Capacity (gallons)
1.25-1.5"	.02
2"	.05
2.5"	.06
3"	.1
4"	.2
6"	.6
8"	1.3
10"	2.5
12"	4.0
14"	6.5
16"	9.6

#### MAINTENANCE

The OCV control valve requires no lubrication or packing and a minimum of maintenance. However, a periodic inspection should be established to determine how the fluid being handled is affecting the efficiency of the valve. In a water system, for example, the fluid velocity as well as the substances occurring in natural waters, such as dissolved minerals, colloidal and suspended particles vary in every installation. The effect of these actions or substances must be determined by inspection. It is recommended that an annual inspection, which includes examination of the valve interior, be conducted. Particular attention should be paid to the elastomeric parts, i.e., the diaphragm and seat disc. Any obviously worn parts should be replaced.

#### TROUBLESHOOTING

In the event of malfunction of the OCV control valve, troubleshooting should be conducted according to the procedures outlined for the specific model of valve. Then, if those steps indicate a problem with the main valve, this section will outline the procedures necessary to correct the problem.

Problems with the main valve can be classed in three basic categories:

- 1. MAIN VALVE FAILS TO OPEN
  - a. Closed isolation valves or cocks in pilot system or in main line—*Open valves or cocks*.
  - b. Insufficient operating pressure—*Check pressure*.
- 2. MAIN VALVE FAILS TO CLOSE
  - a. Closed cocks in control system or in main line—*Open cocks*.
  - b. Lack of cover chamber pressure—*Check upstream pressure strainer, tubing, cocks, needle valves for restriction.*
  - c. Diaphragm damaged (see note)—*Replace diaphragm*.
  - d. Diaphragm assembly inoperative. Corrosion or excessive scale buildup on valve stem— *Clean and polish stem. Replace any defective, damaged or badly eroded parts.*
  - e. Mechanical obstruction. Object lodged in valve—*Remove obstruction*.
  - f. Worn seat disc—*Replace seat disc.*
  - g. Badly scored seat—*Replace seat*.

<u>NOTE</u>: Assuming control system is functioning properly.



DIAPHRAGM FAILURE = VALVE FAILS TO OPEN



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	ANSI VALVE SIZE												
DIM.	P\$1	14,14	2	22.3	4	6	8	10	12	14	16		
	SCREWED	8 3/4	9 <b>∛e</b>	101/2									
A	125-150	81/2	93/a	101/2	13 Vz	173/4	213/8	26.3/4	34	39	40 1/		
	250-300	83/4	97/8	11/4	141/8	185/8	223/8	281/8	351/2	40 2	42		
	SCREWED	1 /16	3	1 7/8 2 /4									
В	125-150	2 1/16 21/2	3	31/2, 33/4	4 /2	51/2	6 <sup>3</sup> /4	<u>8</u>	91/2	10 VB	113/4		
	250-300	25/8.31/6	31/4	344.4 / 由	5	61/4	71/2	83/4	<u>  01/4</u>	111/2	123/4		
~	SCREWED	43/8	4 3/4	6 1/4		<del></del>							
C	125-150	4 /4	43/4	6	<u>7∜8</u>	.10	12 3/4		17				
	250-300	43/8	5	63/e	7 15/16	10 1/2	131/4		173/4				
D	SCREWED	3.1/8	3 7/0	4 1/2									
	125-150		<u>3 7/e</u>	4	5 1/16	6	8	<u> </u>					
	250-300	3 1/8	4	4 3/8	<u>5 %</u>	<u>6 1/2</u>	81/2		113/4				
	SCREWED	63/4	6 3/4	7 7/8									
E	125-150	63/4	63/4	<u>7 7/a</u>	<u>8 7/a</u>	<u>  _!/2_</u>	12 7/16	153/8	18 78	23	24 Y		
	250-300	6 3/4	6 /4	7 7/8	8 7/8	11/2	12 7/16	15 3/8	18 7/0	23	24 1/		
	SCHEWED	3 70	3 70	370						<u> </u>			
F	125-150	3 //8	3 70	3 1/6	3.70	3.78	370	63/0	<u>6 7</u> 1.	<u></u>	<u>16 y</u> a		
	250-300	3 7/0	376	376	370	370	370	6 /8	670	5.78	6.70		
	SCREWED	6	6.94	/ Vin			· ·						
G	125-130	16	63/4	7196	IQ .	14	17.74	21 1/0	_28	31/4	[344		
PIA.	250-300	6	63/4	711/16	10	14	17 3/4	21 7/8	28	31 /4	341/		
	SCREWED	10	H	11				<b>_</b>					
н	125-150	ið			12	13	4	17	16	20	20		
	250-300	ið i	tii		12	13	4	17	18	20	20		

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1				* Recom	mended Spare Parts							
				** Provided with	Stn. Steel Seat Ring C	Dniy	ITEM	OCV NO.	QT	DESCRIPTION	MA	TERIAL
							1	301000	1	BODY ANSI 150#	DUCT	ILE IRON
5								301300		BODY ANSI 150#	CAS	T STEEL
							2	303030	1	BONNET	DUCT	ILE IRON
			(13)	(2) (5) (1)	(12)			303330			CAS	T STEEL
			Ĩ				3	306430	1	INTERMEDIATE PLATE	s	TEEL
[		(3)					4*	693008	1	GASKET	BL	JNA-N
	<b>A</b> .				(19)		ļ	693108			l v	ITON
1			ļ				5*	690011	1	DIAPHRAGM	BL	JNA-N
l l		$\langle \rangle$						690111			VI	
	(1)	$\mathbf{X}$	1	the Martin Martin			6	307430	2	DIAPHRAGM PLATE	S	TEEL
			$\Lambda$		CA II		7	306440	1	SEAT PLATE	S	TEEL
						-(6)	8	309000	1	SEAT RETAINER	STN.	STEEL
				A CONTRACTOR		`	9	311100	1	SEAT RING	BR	ONZE
22		14			777	_		311700			STN	STEEL
						(14)	10	313719	1	STEM	STN	STEEL
			~				11	590709	2	STEM NUT	STN	STEEL
	h						12	685703	2	LOCKWASHER	STN	STEEL
01	ĥ.						13	531012	8	CAPSCREW	ZINC P	L STEEL
						(18)	14	620701	2	DOWEL PIN	STN.	STEEL
ł				*/XTX		_	15**	300037	1	S.S. SEAT RING BUSHING	DE	LRIN
	7)	- 777	77					300035		BZ. SEAT RING BUSHING	DE	
			Ż	$\sim$ / $\mathcal{V}$ \ (	$\mathcal{N}/\mathcal{A} =$	20	16	300165	1	GUIDE BUSHING	BB	222
		1		Kat N		· .		300065				
	/			Tupation			17*	690500	1	SEAT DISC		
	19					77		691500		- ··· <b>-···</b>		
					$\backslash$		18*	610018	1	O-RING	BUI	
						[	19*	611012	2	O-RING	VIT	ON
	רי	1/12)	/	$\prime$ / $\backslash$			20*	611111	1	O-RING	VIT	ON NO
			(9)	$\sim 10^{-1}$	$\overline{\mathbf{N}}$		21**	630705	2	SNAP RING (S.S. SEAT RING)	STN :	STEEL
				(15) (16)	)) (2 <b>4</b> )			630700	ĺ	SNAP RING (BZ SEAT RING)	STN 9	STEEL
							22	630711	1	SNAP RING	STN S	STEEL
				r	1							····
	·				MATERIAL	TOLERA	NCE	S _				·····
						UNLESS NOTE	D			Control Valves New Book C.		1 0
					1	FRACTIONAL ±	1/64			name of aniana tont best Co	ntroi Va	Ive Source
				······			195	,				
			L			ANGULAR ± 1/2*	<sup>,,,,</sup> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	/ ]		2" Power Actua	ted 6	66
					NO, REO'D	DRAWN BY	DAT	E	_			
CHG	E.C. NO	DATE	BY			SCOTT A.	10-1-9		<b>i</b> -	DRAWING NUMBER		_ REV.
	REVISIC	DNS		REF DWG NO'S	SCALE 20%	CHKD. BY	DAT					А

\* Recommended Spare Parts \*\* Provided with Stainless Seat Ring Only 2 (12)23) ITEM OCV NO. QTY DESCRIPTION MATERIAL  $(\mathbf{n})$ 1 301011 1 BODY, 150# DUCTILE IRON 301611 BODY, 300# DUCTILE IRON 6) (18) 2 303040 1 BONNET DUCTILE IRON 7 3 306432 1 INTERMEDIATE PLATE STEEL (16) 4 306449 1 SEAT PLATE STEEL 14 20 17 3 5 311111 1 SEAT RING BRONZE 311711 (13) STN, STEEL 6 307439 2 DIAPHRAGM PLATE STEEL 7 300179 1 **GUIDE BUSHING** BRONZE ... 300046 DELRIN 9 8 309039 1 SEAT RETAINER STN. STEEL 4 9 313748 1 STEM STN. STEEL 5 10 590709 1 HEX NUT, JAM STN. STEEL 11 531011 8 CAPSCREW ZINC PL. STEEL 12 590710 1 HEX NUT, JAM STN. STEEL (19) 13 620701 2 DOWEL PIN STN. STEEL 14 532707 4 SCREW STN. STEEL 15 685727 4 LOCKWASHER STN. STEEL 16\* 690056 1 DIAPHRAGM STN. STEEL 17\* 693027 1 GASKET BUNA-N 18\* 611014 3 **O-RING** VITON 19\* 611116 1 O-RING VITON 20\* 610024 1 **O-RING** BUNA-N 21\* 610152 1 **O-RING** BUNA-N 8 22\* 690510 1 SEAT DISC **BUNA-N** 10(15) 23 685709 1 LOCKWASHER STN. STEEL 24\*\* 300024 BUSHING (not shown) 1 TEFLON 25\*\* 630705 2 RETAINER RING (not shown) STN. STEEL MATERIAL TOLERANCES OCY Control Valves UNLESS NOTED FRACTIONAL ±1/64 TULSA. OKLAHOMA U.S.A. DECIMAL ±.005 2-1/2" POWER-ACTUATED VALVE ASSY. MACH. FINISH 125/ ANGULAR ±1/2° NÔ, REÔ'D DRAWN BY DATE SIZE DRAWING NUMBER REV. SDJ 6-26-92 CHG E.C. NO. DATE BY SCALE CHKD. BY DATE Α 2850 REVISIONS 40% **REF DWG NO'S** 

				* D		]	ITEM	OCV NO.	QTY	DESCRIPTION	MA	TERIAL
					commended Spare Par	ts [	1	301001	1	BODY ANSI 150#	DUCT	ILE IRON
				Provided	with Stn. Steel Seat Ri	ng Only		301301		BODY ANSI 150#	CAS	TSTEEL
				5 5			2	303031	1	BONNET		ILE IRON
			(	2) 🏸 🥲	1,02)			303331			CAS	T STEEL
		14)			20	-	3	306431	1	INTERMEDIATE PLATE	S	TEEL
		-1		\ / n /			4*	693010	1	GASKET	BU	JNA-N
	હ્	,	$\backslash$			9		693110			V	ITON
				Jacker & WALL	$\sim$	Ī	5*	690012	1	DIAPHRAGM	BU	JNA-N
	-		_ \-					690112			V	ITON
(	4						6	307431	2	DIAPHRAGM PLATE	S	TEEL
		_					7	306441	1	SEAT PLATE	S	TEEL
				CTRATIC VIENTA		16	8	309001	1	SEAT RETAINER	STN	. STEEL
പ		$\nabla \lambda$		THUM AND ALL		_	9	311101	1	SEAT RING	BR	ONZE
		-+//	$\langle II \rangle$		V/A			311701			<u>STN</u>	. STEEL
		V/A-			Som HA		10	313721	1	STEM	STN	STEEL
		-7/12	U/L	THE L			11	590710	2	STEM NUT	STN	STEEL
23			$\sim$				12	685709	2	LOCKWASHER	STN	STEEL
Ú			- X		9	2	13	530702	4	CAPSCREW	STN	STEEL
	and in the second second		$\rightarrow$				14	531013	8	CAPSCREW	ZINC.	PL. STEEL
67			<b>₩</b>				15	620701	2	DOWEL PIN	STN	STEEL
0			т				16	300060	1	BZ. SEAT RING BUSHING	DE	ELRIN
							••	300039		S.S. SEAT RING BUSHING	Ι TE	FLON
(18)		7777	ZX		VX	ſ	17	300115	1	GUIDE BUSHING	BI	RASS
		VA	$\sim q$		XIIX VIR		**	300076			DE	ELRIN
				- HALLINGUL	$\ll \setminus \varnothing \setminus$		18*	690501	1	SEAT DISC	BL	INA-N
		XD.	/					691501			l v	iton I
				$/$ $/$ $\land$			19*	610020	1	O-RING	BL	NA-N
	60							6,11020			v v	ITON
	- <del>-</del>		1			F	20*	611014	2	O-RING	v	ITON
	1112		/		$\langle \rangle$	fa [	21*	611113	1	O-RING	V	ITON
:	$\sim$				22		22	630706	2	SNAP RING (BZ SEAT RING)	STN	STEEL
		ത്	6				**	630711		SNAP RING (S.S. SEAT RING)	STN	STEEL
		$\odot$	(1	3)	<b>(U)</b>		23	630707	1	RETAINING RING	STN	STEEL
					MATERIAL							
						UNLESS NOTE		- I NO	"li e	antaal Valuaa		
				· · · · · · · · · · · · · · · · · · ·		FRACTIONAL	±1/64		見り	UIIU'UI Vaivus Your Best Cor	utrol Va	lve Source
						DECIMAL ±.00	5					
						MACH. FINISH ANGULAR ±1/2	, <sup>125</sup> √	1	3"	Power Actuated	66	
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		211Q			1							



	ITEM	PART NO	QTY	DESCRIPTION	MATL						
	1	301091	1	BODY	DUCT. IRON						
	2	303092	1	BONNET	DUCT. IRON						
	3	306091	1	INTERMEDIATE PLATE	DUCT, IRON						
	4	306491	1	SEAT PLATE	STN. STL.						
	5	307092	2	DIAPHRAGM PLATE	STN. STL.						
	6	309092	-	SEAT RETAINER	STN. STL.						
	7	311191	1	SEAT RING	BRONZE						
		311791	<u>'</u>		STN. STL.						
	8	313792	1	STEM	STN. STL.						
	9	690092×	1	DIAPHRAGM	NYL/BUNA-N						
	10	690591·	1	SEAT DISC	BUNA-N						
	11	693091*	1	GASKET	BUNA-N						
	12	320115	f	GUIDE BUSHING	BRONZE						
		320076*			DELRIN						
	13	620701	_ 2	DOWEL PIN	STN. STL.						
	14	590714	2	HEX NUT	STN. STL.						
l	_15_	685712	2	LOCK WASHER	STN. STL.						
ļ	16	530700	3	SKT. HD. CAPSCREW	STN. STL.						
l	17	<u>530702</u>	2	SKT. HD. CAPSCREW	STN. STL.						
l	18	300681	8	STUD	ZN PL STL						
	19	590011	8	HEX NUT	ZN PL STL						
	20	610123×	1	O-RING	BUNA-N						
	21	610214	1	O-RING	BUNA-N						
	22	610016-	2	O-RING	BUNA-N						
ſ	23	610154	1	O-RING	BUNA-N						
	24	300071*	1	LOWER BUSHING	TEFLON.						
ĺ	25	630711*	2	SNAP RING	STN. STL.						
т #	RECOMMENDED SPARE PARTS PARTS USED WITH STAINLESS STEEL SEAT RING										
S		00	V	Control Valv	res						
			<b>.</b> _								

E							MATERIAL	TOLER	ANCES		OCV Control Valves		
D							150# DIBT	UNLESS NOT	ED	}			
C							OR		5	<u> </u>			
В							150∗ DIST	ANGULAR H	±0.5 <sup>-</sup> H <b>125</b>	3" 3100 POWER-ACTUATED VALVE			
A							NO. REO'D	DRAWN BY	DATE	SIZE	DRAWING NUMBER REV		
СНС	FCN	DATE	BY					SDJ	8-2-02	Λ	0150		
				l			SCALE	<u>CHKD BY</u>	DATE				
	REVISIO	DNS		IREF	DWG	NO'S	40%		3				



ITEM	PART NO	QTY	DESCRIPTION	MATI
1	301044	1	BODY	DUCT IRON
2	303045	1	BONNET	DUCT, IRON
3	303044	1	INTERMEDIATE PLATE	DUCT. IRON
4	306404	1	SEAT PLATE	STN. STL
5	307746	2	DIAPHRAGM PLATE	STN. STL.
6	309045	1	SEAT RETAINER	STN. STL.
7	311744	f	SEAT RING	STN. STL.
_8	313742	1	STEM	STN. STL.
9	<u>69</u> 0387·	1	DIAPHRAGM	NYLON/BUNA-N
10	690544	1	SEAT DISC	BUNA-N
11	693044×	1	GASKET	BUNA-N
12	320046	1	GUIDE BUSHING	DELRIN
13	300708	2	DOWEL PIN	STN. STL.
14	590733	2	HEX NUT	STN. STL.
15	<u>685</u> 708	2	LOCK WASHER	STN. STL.
16	530719	4	SKT. HD. CAPSCREW	STN. STL.
17	530701	6	SKT. HD. CAPSCREW	STN. STL.
18	530707	4	SKT. HD. CAPSCREW	STN. STL.
19	300094	8	STUD	ZN PL STL
20	590005	8	HEX NUT	ZN PL STL
21	6101 <u>29</u> -	1	O-RING	BUNA-N
22	610216	1	O-RING	BUNA-N
23	610018×	2	O-RING	BUNA-N
_24	610245	1	O-RING	BUNA-N
25	300645	1	LOWER BUSHING	TEFLON
26	630707	2	SNAP RING	STN. STL.
* <u>-</u>	RECOMMEN	IDED	SPARE PARTS	
SPA	RE PARTS	KIT	P/N 906044	

E							MATERIAL	TOLER	ANCES			Control Val		
D									TED		001		vc3	
С							150* DIST	XXX ±.00	, )5					
В								ANGULAR $\pm 0.5^{\circ}$ MACH, FINISH 125		4	4400	POWER-ACTUATED	D VALVE	
A							NO. REQ'D	DRAWN BY	DATE	SIZE		DRAWING NUMBER	REV	
CHG	ECN	DATE	BY				FOALE	SDJ	10-04-04	Λ				
	REVISIO	ONS		REF	DWG	NO'S	30%	CHKU BY		A		4450		



### 1.13.0.2



#### NOTES:

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- $L \Delta$  RECOMMENDED SPARE PARTS
- 2. PARTS USED WHEN STAINLESS STEEL SEAT RING IS REQUIRED
- 3. WHEN ORDERING PARTS, PLEASE SPECIFY
  - a. SERIES NUMBER
  - **b. PART NUMBER**
  - C. MATERIAL

	28	685726	<u> </u>	LOCKWA	SHER				STN'L S	TEEL
	27	590735	1	HEX NU	r				STN'L S	TEEL
		611020					····-		VITON	
Δ	26	610020	1 '	O-RING					BUNA-N	
$\odot$	25	630723	2	RETAININ	G RING	(NÖ	TS	IOWN)	STN'L S	TEEL
$\sim$	24	300059	1	LOWER E	USHING	(NO	TS	HOWN)	TEFLON	
		611218	1			1.12			VITON	
	23	610218	1 1	0-RING					BUNA-N	
	22	306450	īī	SEAT PL	ATE				STEEL	
	-	691503	Ι.						VITON	
	21	690503	1 '	SEAT DI	SC				BUNA-N	
	20	309417	1	SEAT RE	TAINER				STEEL	
$\sim$	<u>}</u>	311714							STN'L ST	FFL
$\cup$	19	311114	1 1	SEAT RIN	IG				BRONZE	
	18	313743	1	STEM					STN'L S	TEFL
		611259	† <u> </u>						VITON	
$\Delta$	1 17	610259	1'	O-RING					BUNA-N	
	16	530701	6	SOCKET	HEAD C	AP S	CRF	W	STNL S	(FFI
		300086							DELRIN	
	15	300186	11	GUIDE BU	JSHING				BRONZE	
•		611220	<u>.</u>						VITON	
$\Delta$	14	610220	11	O-RING					BUMA-N	
	13	300708	2	GUIDE PI	GUIDE PIN				STNL ST	FFI
		306339							CAST ST	<u>55</u>
	12	306039	1 1		DIATE I	PLA	ΓE	CAST ISC	<u></u>	
		690143	<u> </u>						VITON AD	
Δ	1 11	690043	įΙ.	DIAPHRA	GM				PUNA AL	
	10	307433	2	DIADUDA		TE			BUNA-N,	NTLON_
	- a-	685712		LOCKWAS		16			SIEL	
		590721	<u> </u>	HEY NUT	SUCK .	-			SINL S	
	<u> </u>	611016	<u> </u>	THEY NOT		<u>.</u>			STNL ST	TEEL
Δ	7	610016		O-RING					VITON	-
	-	810704		DERAMIN	A 8447				BUNA-N	
	<u> </u>	600006		THE TAININ	U NING				STN'L. ST	EEL
		300003	12	THEX NUT		<u> </u>			CACIPL S	TEEL
		300094	12	STUD					CAD.PL. S	TEEL
	3	303333		BONNET					STEEL	
		303033	<u> </u>					·	CAST IRO	N
	<u> </u>	693014		GASKET					BUNA-N	
	1	301/03		BODY, 30	<u>00 LB,</u>			······································	STEEL	
		301303	1	BODY, 15	OLB.					
		301003		BODY, 2	DULB.				CAST IPO	N
		301003		18007, 12	<u> 2 L.B.</u>					
	ITEM	O.C.V. NO.	QTY	<u> </u>	DESCR	IPTI	ON		MATER	IAL
				MATERIAL	TOLEMAN	CEB	ľ	inev -	instant 15-	hane
					PRACTIONAL DECIMAL #	± 1/84				
						<u>,</u> •••	6"	POWER A	CTUATED \	ALVE
		<u> </u>		NO REOD	RON	10-63	- <b>1</b> -2-6	0#A1		
REVISIO	ONB	REF DWA	10'6	BEALE	-	DATE	С	6	195	A

······································		11 <u>6</u> M	PART NODIY	DESCRIPTION	MATERIAL
		i	303085	BONNET	<u>-0001, IRON</u> 10001, IRON
		3	306084	INTER PLATE	DUCT IRON
		.1	306484	SEAT PLATE	STIEL
		Ę.	307384 2	DIAPHRAGM PLATE	STEFL
		6	309085	SEAT RETAINER	DUC'L IRON
		7	311184 1	SEAT RING	BRONZE
			313785 1	<u>STEM</u>	<u>SIN, STEEL</u>
		- <u> </u>	300287 1	GUIDE BUSHING	BRONZE
			690085 1	UTAPHRAGM	NYL/BUNA-N
			693084 1	<u>SLAT DISU</u>	DUNA "N DUNA N
		12	610268 1	OAGALI O-RING	PUNA N
		1	6:1214 2	$0 \cdot R \mid NG$	VITON
	Sate a constant of the second	15	610227 1	<u>0-R!NG</u>	BUNA-N
		16	610327 2	O-RING	BUNA-N
		17	300684 12	STUD	ZN PL STI
		18 (	590010 12	HEX NUT	ZN PL STL
	•	÷ ý	590724 2	HEX NUT	STN. STEEL
			685717 2	LOCA WASHER	STN. STEEL
	$\lambda = 17(22)$	- 1	530716 8	SKI HU CAPSCREW	SIN. SIELE
		23	300708 2	<u>ort hu carourew</u> Dowel din	STN. STEEL
		23	530700 4	SKT HD CAPSOREW	STN STELL
		25	650768   1	SPRING	STN STEEL
					JIN. JILL
		(S) :	RECOMMENDE	) SPARE PARTS	
				Z SEARCE FARTS	
	<u>)</u>				
· · · · · · · · · · · · · · · · · · ·	· · · = · · · · · · · · · · · · · · · ·	<del>,</del>			
MATE:	<u>RIAL TOLERANCES</u>		$\cap \cap V$	Control Val	VAC
	UNIESS NOTED				ves
	() [전 · 전 · 전 · 전 · 전 · 전 · 전 · 전 · 전 · 전				
	ANSULAR -FIZE MACK FIXER COS	č	" POWER-	ACTUATED VALY	VE ASSY
NO REOT	ORAWN BY JOATE	<u>sızı</u>		DRAWING NUMBER	Rεν
	50.) 030600	Δ Λ			
SCALE	VEND BY DATE	-  A		269007	
				·/····································	

				** Prov	*Recom ided wit	mended Spare Parts h Stn. Steel Seat Ring Only	
SENSING PORTS			ITEM	OCV NO.	QTY	DESCRIPTION	MATERIAL
	11 - 11 - 11 - 11 - 11 - 11 - 11 - 11		1	301004	1	BODY, 150#	DUCTILE IRON
				301304			CAST STEEL
		(l2)	2	303034	1	BONNET	DUCTILE IRON
		2		303334			CAST STEEL
	×/// /	(6)	3	306034	1	INTERMEDIATE PLATE	DUCTILE IRON
		(6)	4	306444	1	SEAT PLATE	STEEL
			5	311104	1	SEAT RING	BRONZE
		O		311704			STN, STEEL
			6	307434	2	DIAPHRAGM PLATE	STEEL
		( <u>3</u> )	7	300113	1	GUIDE BUSHING	BRONZE
	HATTA ITA	(7)	••	300601			DELRIN
Kill Kreen Market Market	A ZZ	·(B)	8	309034	1	SEAT RETAINER	DUCTILE IRON
	A ZA-	(14)	9	313729	1	STEM	STN. STEEL
VIIIA H OT LO		 200	10	590724	2	HEX NUT	STN. STEEL
			11	300094	12	STUD	ZINC PL. STEEL
The and the an			12	590005	12	HEX NUT	ZINC PL. STEEL
			13	300708	2	DOWEL PIN	STN. STEEL
		(18)	14	530700	4	MACHINE SCREW	STN, STEEL
		(4)	15	685717	2	LOCKWASHER	STN, STEEL
	A		16*	690015	1	DIAPHRAGM	NYLON-BUNA-N
		(25)	17*	693017	1	GASKET	BUNA-N
	11 Tranza		18*	611214	2	O-RING, STEM	VITON
			19"	611222	1	O-RING	VITON
			20*	610226	1	O-RING, GUIDE BUSHING	BUNA-N
	XX		21*	610270	1	O-RING, SEAT RING	BUNA-N
		(5)	22*	690504	1	SEAT	BUNA-N
			23**	300074	1	BUSHING (Stn. Steel Seat Ring)	TEFLON
	$\sim$	(24)	24**	630713	2	SNAP RING	STN. STEEL
		<u> </u>	25	530701	12	SCREW SOC, HD. CAP	STN. STEEL
			26	650706	1	SPRING (optional)	STN. STEEL
	<u> </u>		27	532452	2	EYE BOLT	CARBON STEEL
	MATERIAL	TOLERA	NCES		_		
		UNLESS NOTED		I nev	Contro	A Valves Vous Bash Com	- J Malan Course
		FRACTIONAL ±1	±1/64 four bound of thirton four best Control valve				
		DECIMAL ±.005 MACH, FINISH 1 ANGULAR ±1/2°	<sup>25</sup> 🗸	✓ 8" Power Actuated 66			
	NO. REQ'D	DRAWN BY	DATE	SIZE		DRAWING NUMBER	REV
CHG E.C. NO. DATE BY		SCOTT A.	10-1-97				
REVISIONS REF DWG NO'S	SCALE 20%	CHKD. BY	DATE				A

#### \* Recommended Spare Parts \*\* Provided with Stn. Steel Seat Ring Only

						<u> </u>	ITEM	OCV NO.	ΩΤΥ	DESCRIPTION	MATERIAL
	(2)					(19)(20)	1	301025	1	BODY, 150#	DUCTILE IRON
								301625		BODY, 300#	DUCTILE IRON
(18	(17) 🔨					(2)	2	303041	1	BONNET	DUCTILE IRON
$\sim$	$\sim$ $\sim$					$\overline{\mathbf{a}}$	3	306025	1	INTERMEDIATE PLATE	DUCTILE IRON
				Æ		(5)	4	306470	1	SEAT PLATE	STEEL
				TITLE TITLE	hr /	ĕ	5	307440	2	DIAPHRAGM PLATE	STEEL
	(m)	┝	X	/L X		-116	6	309035	1	SEAT RETAINER	DUCTILE IRON
			Ď			<u>A</u>	7	311105	1	SEAT RING	BRONZE
	-	-H.K				~		311705			STN. STEEL
	(12)		AN			-(9)	8	313754	1	STEM	STN. STEEL
	$\sim$	<u>_</u> <u>N-N</u>	N		N H	X	9	300232	1	GUIDE BUSHING	BRONZE
	_	77	$\sim$	TILL BUILT		-(23)	**	300236			DELRIN
	(15)	-7/	tn			-(8)	10*	690073	1	DIAPHRAGM	BUNA-N
		ГИ			- And	<u> </u>	11*	690505	1	SEAT DISC	BUNA-N
	14-h					-(4)	12*	693036	1	GASKET	BUNA-N
	-		2			$\odot$	13*	610277	1	O-RING	BUNA-N
			X				14	610218	2	O-RING	BUNA-N
			S				15*	610227	1	O-RING	BUNA-N
	Į į		/ )			-(22)	16*	610327	1	O-RING	BUNA-N
					A /	-	17	300479	16	STUD	ZINC PL. STEEL
		//				$\sim$	18	590010	16	HEX NUT	ZINC PL. STEEL
	(1)	4			V VIII	U	19	59073 <b>8</b>	2	HEX NUT	STN. STEEL
	X	$\sim$				$\sim$	20	685713	2	LOCK WASHER	STN, STEEL
	UU			77/1///////////////////////////////////		(1)	21	531725	8	HEX HEAD CAPSCREW	STN. STEEL
					アア	$\mathbf{}$	22	530711	16	SKT HEAD CAPSCREW	STN. STEEL
					(6) (21)		23	300708	2	DOWEL PIN	STN, STEEL
					$\sim$ $\circ$		24**	300007	1	LOWER BUSHING (not shown)	TEFLON
							25**	630714	2	SNAP RING (not shown)	STN. STEEL
					MATERIAL		NCES				
						UNLESS NOTE		001	Contro	Value Var Bast Cant	1 Males Carries
						FRACTIONAL ±	1/64	UUV.	บุษแนง	I TUITGO IOUR Dest Cond	of valve Source
						DECIMAL ±.005					
						MACH. FINISH ANGULAR ±1/2°	<sup>125</sup>	1	0" PC	OWER ACTUATED	VALVE
					NO, REQ'D	DRAWN BY SCOTT A.	DATE	SIZE		DRAWING NUMBER	REV.
CHG	E.C. NO.	DATE	BY		SCALE						
	REVISIO	DNS		REF DWG NO'S	20%						

			* F	Recommended Spare Pa	irts								
		**	Provid	led with Stn. Steel Seat F	Ring Only		ITEM	OCV NO.	QTY	DESCRIPTION	MA	TERIAL	
							1	301006	1	BODY	DUCT	TILE IRON	
				$\sim$			2	309036	1	SEAT RETAINER	DUCT	TILE IRON	
			$\sim$	(14)		ļ	3	590723	1	HEX NUT	STN	I. STEEL	
		ത	ு	(15)		、 、	4	685713	1	SPLIT LOCK WASHER	STN	I. STEEL	
		S)			707 d	,	5	311106	1	SEAT RING	BF	RONZE	
		\	1		4 9	$\sim$		311706			STN	I. STEEL	
			1	╠┝╌╌╌╾┦╽┥┼┸╽╱╌┈╱		(21)	6	530711	16	SOCKET HEAD CAP SCREW	STN	I. STEEL	
			ہے ہ				7	306466	1	SEAT PLATE	s	TEEL	
		77		Setto /		´ 22	8	313716	1	STEM	STN	I. STEEL	
	- F	4	<i></i>		<u>~</u> 4 / >4144		9*	610328	1	O-RING	BI	UNA-N	
			$ \rightarrow $				10	630703	1	SNAP RING	STN	I. STEEL	
6		$7 \times$	$\mathcal{N}$		44 N 777	23	11			NOT USED			
		<u> </u>	$\geq$				12	303036	1	BONNET	DUCT	TILE IRON	
୍		$- \forall$	$\int_{1}^{2}$				13	556004	A.R.	PIPE PLUG	s	TEEL	
9			<u>+</u>			6	14	590724	1	HEX NUT	STN	I. STEEL	
G	5	$\sim V$	(	~~~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		- <u>  </u> <sup>1</sup>	15	685717	1	SPLIT LOCK WASHER	STN	I. STEEL	
	′	Y					16*	610121	1	O-RING	BI	JNA-N	
0_		لا _ھ_	ch_ √th			®	17	307436	2	DIAPHRAGM PLATE	s	TEEL	
		Y	4				18*	690017	1	DIAPHRAGM	BUNA	N, NYLON	
			0				19	300075	20	STUD	ZINC	PL. STEEL	
$\sim$					$  \lambda $	1 27	20	590028	20	HEX NUT	ZINC	PL. STEEL	
6					$\land$ $\checkmark$	$\parallel$ $\sim$	21	306036	1	INTERMEDIATE PLATE	DUCT	ILE IRON	
					$\backslash$		22*	693007	1	GASKET	BL	JNA-N	
		>					23°	610145	1	O-RING		JNA-N	
		$\smallsetminus \mathbb{Z}$		<u> </u>	$\chi T \chi T L$		24	300118	1	GUIDE BUSHING	BR	ONZE	
	<u> </u>						••	300240			וס		
									1	O-RING	BL	JNA-N	
				•	<b>(</b> )		26*	690506	1	SEAT	BL	JNA-N	
							27*	610456	1	O-RING	BL	JNA-N	
						ſ	28	620012	2	DOWEL PIN (not shown)	STN	STEEL	
					29**	300097	1	LOWER BUSHING (not shown)	TE	FLON			
					30**	630714	2	SNAP RING (not shown)	STN	STEEL			
					MATERIAL	TOLERA	NCES						
	· - · · · · · · ·					UNLESS NOTED		Incv'	ARV Control Valves Your Part Control Value Source				
		FRACTIONA					/64	Unit of the sect control valve					
					-	DECIMAL ±.005 MACH. FINISH 1 ANGULAR ±1/2°	<sup>25</sup> 🗸		12" Power Actuated			66	
0.10	50.10				NO. REQ'D	DRAWN BY SCOTT A.	DATE	SIZE		DRAWING NUMBER		REV.	
CHG   E.C. NO.   DATE   BY REVISIONS			BY	REF DWG NO'S	SCALE 20%	CHKD. BY	DATE					Α	

		* Recommended Spare Parts ** Provided with Stn. Steel Seat Ring Only								
() $(13)$	$(5)^{\circ}$			ITEM	OCV NO.	QTY	DESCRIPTION	MATERIAL		
(4) (24) T	$\gamma$	(8)	$\hat{\mathbf{D}}$	1	301007	1	BODY, 150#	DUCTILE IRON		
					301607		BODY, 300#	DUCTILE IRON		
$\langle \rangle \rangle \langle \rho \rangle = 0$					301307		BODY, 150#	STEEL		
		(	)		301707		BODY, 300#	STEEL		
	uuu maa			2	306037	1	INTERMEDIATE PLATE	DUCTILE IRON		
				3	303037	1	BONNET	DUCTILE IRON		
		1 6	١	4	307437	2	DIAPHRAGM PLATE	STEEL		
A A CONTRACTOR		$\nabla$	, 	5	590736	2	HEX NUT	STN. STEEL		
		(12	:)	6	685762	2	LOCKWASHER	STN. STEEL		
A A A A A A A A A A A A A A A A A A A			-	7.	610222	2	O-RING	BUNA-N		
				8	300019	20	STUD	ZINC PL. STEEL		
	<u> </u>			9	590028	20	HEX NUT	ZINC PL. STEEL		
				10*	690055	1	DIAPHRAGM	BUNA-N		
		1		11*	693025	1	GASKET	BUNA-N		
				12	620011	2	DOWEL PIN	STN. STEEL		
				13*	610335	1	O-RING	BUNA-N		
			$\sim$	14	300178	1	GUIDE BUSHING	BRONZE		
			(4)	15	306447	1	SEAT PLATE	STEEL		
	$\overline{\Psi}$			16	530711	16	SOCKET HEAD CAPSCREW	STN. STEEL		
	ADA A		17	311107	1	SEAT RING	BRONZE			
				311707			STN. STEEL			
				18	309037	1	SEAT RETAINER	DUCTILE IRON		
	$\land \land \land \land Y$			19	313749	1	STEM	STN. STEEL		
	$\land$ $\land$ $\land$ $\land$			20	531722	16	HEX HEAD CAPSCREW	STN. STEEL		
$\begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $		́И		21*	610459	1	O-RING	BUNA-N		
				22*	690507	1	SEAT DISC	BUNA-N		
	$\land \land \land \land$			23*	610338	1	O-RING	BUNA-N		
	アアア	_		24	530718	4	SOCKET HEAD CAPSCREW	STN. STEEL		
	) (2) (17) (20) (2	1)		25**	300078	1	LOWER BUSHING	TEFLON		
	(27) (26)	~		26	685701	16	LOCKWASHER	STN. STEEL		
	$\bigcirc$			27**	630718	2	RETAINING RING	STN. STEEL		
	MATERIAL		NCES		<b>.</b>					
		UNLESS NOTED	UNLESS NOTED			(IAV Control Velvee New Part Control Value Control				
┠·····		FRACTIONAL ±1	/64	our dest control valve Source						
	-	MACH. FINISH 1 ANGULAR ±1/2*	25 🗸		14'' Pov		wer Actuated 66			
	NO. REQ'D	DRAWN BY SCOTT A.	DATE 10-1-97	SIZ	E	1	RAWING NUMBER	REV		
BEVISIONS REF DWG NO'S	SCALE 20%	CHKD. BY	DATE	1 A				Α		
								E .		

			/	(13)	$(5^6)$	_	* Recommended Spare Parts ** Provided with Stn. Steel Seat Ring Only					Only	
		$\mathcal{Q}$	(	4 T	$\gamma$	(8)	9)	ITEM	OCV NO.	QTY	DESCRIPTION	MATERIAL	
						$\sim$		1	301008	1	BODY, 150#	DUCTILE IRON	
		,	$\backslash$						301608		BODY, 300#	DUCTILE IRON	
			4			6	5		301308		BODY, 150#	STEEL	
		A A	fX	$22\sqrt{\lambda^2 + \chi^2}$	LL M ar	$\checkmark$			301708		BODY, 300#	STEEL	
G	2 (	1.1.1.1.1.1	15	$\overline{}$ $()$ $()$		ET.		2	306038	1	INTERMEDIATE PLATE	DUCTILE IRON	
		111			X		5	3	303038	1	BONNET	DUCTILE IRON	
$\sim$				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		$\mathbb{N}$	ノ	4	307438	2	DIAPHRAGM PLATE	STEEL	
(н		┍╍╍╺╴╴	<u> </u>				12)	5	590736	2	HEX NUT	STN. STEEL	
$\sim$		$\overline{\mathbf{X}}$		AK FAR			$\smile$	6	685762	2	LOCKWASHER	STN. STEEL	
		$\overline{// }$	in the second		THE REAL PROPERTY AND INCOMENT			7•	610222	2	O-RING	BUNA-N	
		[[]]	$\Delta$	- A HA	< (//)			8	300098	20	STUD	ZINC. PL. STEEL	
		ÍA		-				9	590029	20	HEX NUT	ZINC. PL. STEEL	
$\bigcirc$		$\sim$						10*	690042	1	DIAPHRAGM	BUNA-N	
(23)-	-	-M				$\sim$ 1		11*	693028	1	GASKET	BUNA-N	
$\frown$		$\vee$	1					12	620011	2	DOWEL PIN	STN. STEEL	
(22)-		\	λ –	111111111111111111111111111111111111111				13*	610335	1	O-RING	BUNA-N	
-			$\nabla$				(14)	14	300178	1		BRONZE	
			$-\sum_{i=1}^{n}$				-	15	306448	1	SEAT PLATE	STEEL	
			7					16	530712	16	SOCKET HEAD CAPSCREW	STN. STEEL	
				THE REAL REAL	MALL IN		$\sim$	17	311108	1	SEAT RING	BRONZE	
			/	$/$ $/7318^{\circ}$	$ \land \land \lor $		(15)	L	311708	ļ		STN STEEL	
		/	/     /	/ / ٩ ┣/	$\land \land \land$	$\sim$		18	309038	1	SEAT RETAINER	DUCTILE IRON	
		$\langle /$			$\land$ $\land$ $\land$ $)$			19	313720	1	STEM	STN. STEEL	
	N N	$\Delta / -$		// <del>Ψ</del> \\	$ \land \land \land \land /$			20	531704	16	HEX HEAD CAPSCREW	STN. STEEL	
	ليكا	YZ	722	4777774XX				21*	610463	1	O-RING	BUNA-N	
			/	/ / '\`	$\land \land \land \land$			22*	690508	1	SEAT DISC	BUNA-N	
	1 /	/ /	/	<pre>/ / \</pre>	$\gamma $			23*	610338	1	O-RING	BUNA-N	
				<u></u>	(25) (7) (20) (	20		24	530718	4	SOCKET HEAD CAPSCREW	STN, STEEL	
(	1) (16)	$ \prec $	G.	5		9		25**	300078	1	LOWER BUSHING	TEFLON	
`	$\sim$	(18)	$\mathcal{O}$	(6)				26	685703	16	LOCKWASHER	STN. STEEL	
		-		$\bigcirc$				27**	630718	2	RETAINING RING	STN. STEEL	
			_	· · · ·	MATERIAL		NCES						
				· · · · · · · · · · · · · · · · · · ·		UNLESS NOTED	1111 Control Valves - Your Best Control Valve Source						
	-					FRACTIONAL ±1/64		Tour Desi Control valve Source					
					5	DECIMAL ±.005 MACH. FINISH ANGULAR ±1/2°	125 🗸		16'' Po		ower Actuated 66		
					NO. REQ'D	DRAWN BY	DATE	017	'F		DRAWING NUMBER	REV	
		DATE	ov.	· · · · · · · · · · · · · · · · · · ·		SCOTT A.	10-1-97	312	· • • • • • • • • • • • • • • • • • • •				
CHG	BEVISIC	DATE NS	BY	REF DWG NO'S	SCALE 20%	CHKD, BY	DATE	<b>]</b>				A	