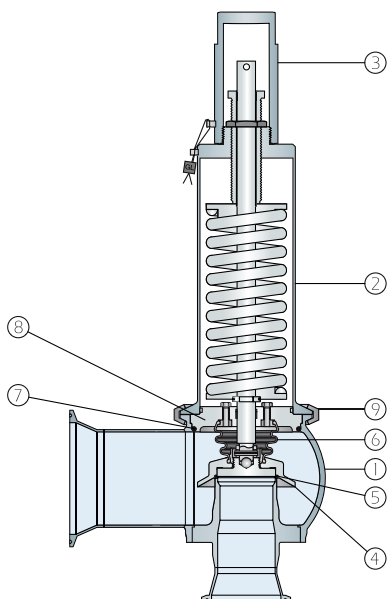




The Type 488 safety relief valve is intended for use in high purity steam, liquid and gas applications. Available with a range of orifice sizes, the 488 is intended for applications requiring a high capacity valve. The 488 design utilises an internal bellows to isolate the spring chamber during discharge. All sizes are both ASME Section VIII Division I and CE Category IV approved.



Pressure Rating

Up to 16 barg



Temperature Rating

Up to 150°C or 205°C with Kalrez seat seal



Orifice Diameter

23, 37, 46, 60, 74 or 92mm



Connections

ASME BPE clamp size:

Inlet	1-1/2"	2"	2-1/2"	3"	4"	4-1/2"
Outlet	2"	3"	4"	4-1/2"	5-1/2"	6-5/8"
Orifice (mm)	23	37	46	60	74	92

*Dimensions according to BS 4852



Seal Material

Seat seal - EPDM, Viton or Kalrez
Body seal and bellows - EPDM



Set pressure range

23 and 37mm orifices - 0.1 - 16 barg
46mm orifice - 0.2 - 15 barg
60 and 74mm orifices - 0.1 - 10.35 barg
92mm orifice - 0.1 - 8.2 barg



Surface Finish

Wetted inlet surfaces - 0.5 microns Ra
Wetted outlet surfaces - 1.5 - 3.2 microns Ra
External surfaces - satin finish (1.5 microns Ra)



Options

Enhanced surface finishes and electropolishing
Manual and pneumatic lifting devices
Alternative connection types



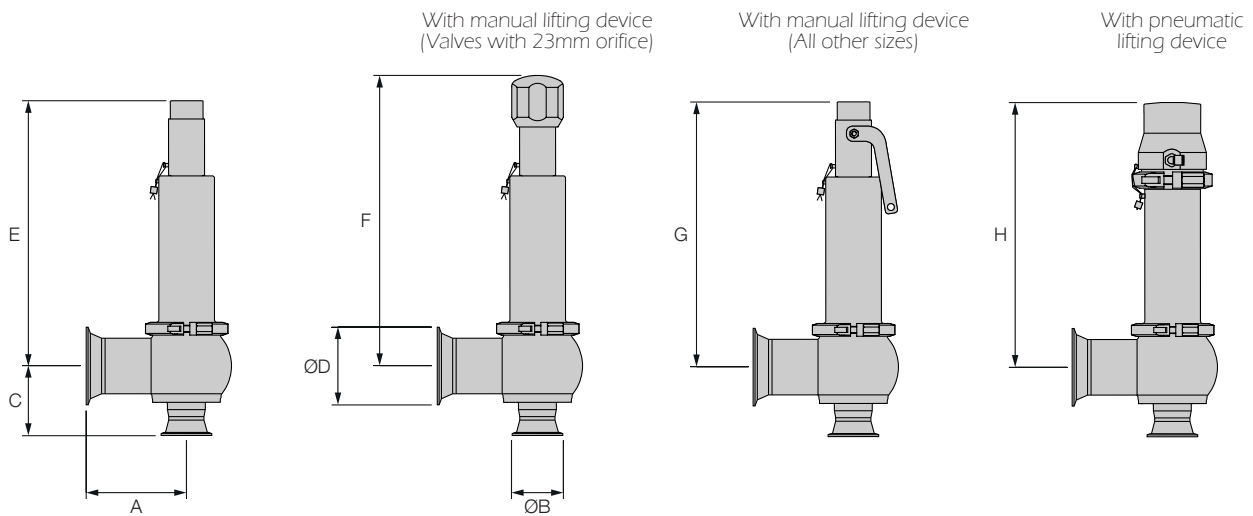
Available Certification

CofC	Certificate of Conformity
MTR's	Material Certification
FDA	FDA Elastomer compliance certificates
USP	USP Elastomer compliance certificates*
ADI	Certified 'Animal Derived Ingredient' free

*Seat seal USP certified. Bellows and body seal FDA compliant only

Part	Description	
1	Body	316L stainless steel
2	Spring chamber	316L stainless steel
3	Cap	316L stainless steel
4	Disc assembly	316L stainless steel
5	Seat seal	EPDM, Viton or Kalrez
6	Bellows	EPDM
7	Body seal	EPDM
8	Guide plate	316L stainless steel
9	Body clamp	316 stainless steel

Type 488



	ASME BPE connections			Dimensions (mm)								Weight (kg)
	Inlet	Outlet	Orifice (mm)	A	ØB	C	ØD	E	F	G	H	
	1-1/2"	2"	23	112	50.5	75	64	264	305	305	274	9
	2"	3"	37	147	64	92	91	398	426	426	399	20
	2-1/2"	4"	47	147	77.5	99	119	406	432	432	407	21.7
	3"	4-1/2"*	60	153	91	109	130	415	443	443	416	26.5
	4"	5-1/2"*	74	178	119	124	155	496	524	524	497	47
	4-1/2"*	6-5/8"*	92	181	130	149	183	514	542	542	515	56

*According to BS 4825 dimensions



Discharge Capacities

See page 3



Packaging

Individually capped, bagged



Service Parts

Seal kit comprising parts 5, 6 and 7



Discharge Capacities

Saturated steam (Kg/h)						
Set pressure (barg)	23mm orifice	37mm orifice	46mm orifice	60mm orifice	74mm orifice	92mm orifice
1.0	326	843	1302	2215	3370	5209
2.0	519	1343	2075	3531	5371	8302
3.0	699	1808	2794	4754	7232	11178
4.0	871	2254	3485	5928	9018	13938
5.0	1043	2699	4172	7097	10796	16687
6.0	1214	3142	4856	8262	12568	19426
7.0	1381	3574	5525	9399	14297	22098
8.0	1551	4014	6205	10556	16057	24818
9.0	1721	4454	6884	11712	17815	27535
10.0	1891	4893	7562	12866	19571	30250
12.0	2230	5770	8919	15174	23081	35675
14.0	2562	6629	10247	17433	26518	40987
16.0	2900	7505	11600	19735	30020	46400

Air@0°C (Nm³/h)						
Set pressure (barg)	23mm orifice	37mm orifice	46mm orifice	60mm orifice	74mm orifice	92mm orifice
1.0	388	1004	1552	2641	4017	6209
2.0	627	1622	2507	4265	6487	10026
3.0	854	2209	3414	5809	8836	13657
4.0	1990	5160	4286	7291	11091	17243
5.0	2230	5770	5157	8774	13346	20629
6.0	2440	6320	6029	10257	15601	24114
7.0	2640	6830	6900	11739	17857	27600
8.0	2820	7300	7771	13222	20112	31086
9.0	2990	7740	8643	14704	22367	34057
10.0	3150	8155	9514	16187	24622	38057
12.0	3460	9283	11257	19152	29132	45028
14.0	3730	10411	13000	22117	33642	52000
16.0	3686	11538	14743	25082	38143	58971

Water@20°C (Kg/h)						
Set pressure (barg)	23mm orifice	37mm orifice	46mm orifice	60mm orifice	74mm orifice	92mm orifice
1.0	9970	25800	39900	67900	103000	160000
2.0	14100	36500	56400	96000	146000	226000
3.0	17300	44700	69100	118000	179000	276000
4.0	19900	51600	79800	136000	206000	319000
5.0	22300	57700	89200	152000	231000	357000
6.0	24400	63200	97700	166000	253000	391000
7.0	26400	68300	106000	180000	273000	422000
8.0	28200	73000	113000	192000	292000	451000
9.0	29900	77400	120000	204000	310000	479000
10.0	31500	81600	126000	215000	326000	505000
12.0	34600	89400	138000	235000	358000	553000
14.0	37300	96290	149000	254000	386000	597000
16.0	39900	103000	160000	271000	413000	638000

Valve capacities with 10% overpressure according to DIN EN ISO 4126
 Maximum capacity achieved at set pressure +10%. Re-seating pressure achieved at set pressure -10%
 Discharge capacities according to ASME Section VIII, Division 1 available upon request
 Coefficients of discharge (Kdr): Steam and gases: 13mm orifice - 0.60, 25mm orifice - 0.38. Liquids: 13mm orifice - 0.40, 25mm orifice - 0.26