

Catalogue and Performance Literature for **J48KH**

Pressure Relief Valves
 $\frac{3}{4}$ " – 1" Sizes

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CS4805A

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Max. Relief Capacity J48KH

G4807B

3/4" & 1"

The J48KH is a special version of the highly versatile and well proven J48K pressure relief valve. The J48KH has a higher inlet pressure rating and incorporates the spring adjustment mechanism of the high pressure J48 regulator.

J48KH APPLICATION

The J48KH high pressure relief valve guards against excess pressure. The valve is fully automatic in operation and resets when the pressure falls below the pre-set value.

PRESSURE

J48KH Maximum Relief Pressure:
770mb (11 PSIG)

CONTROL

A comprehensive range of springs is available, as described overleaf. The relief pressure can be easily and accurately adjusted by turning the spring adjusting stem located under the top cap. The setting is maintained by a lock nut. The design of this mechanism provides virtually frictionless adjustment and eliminates "spring wind up". The complete spring adjustment mechanism can be removed easily for maintenance and spring changes. If required the units can be supplied factory set with a security seal at extra cost.

TEMPERATURE

The J48 range is suitable for operation in a wide range of temperatures from -20° C to +70° C.

SIZE

J48KH – 3/4" and 1"

ORIENTATION

The J48KH can be mounted in any orientation. If not fitted with the diaphragm in the horizontal plane however, the unit may need to be reset after installation.

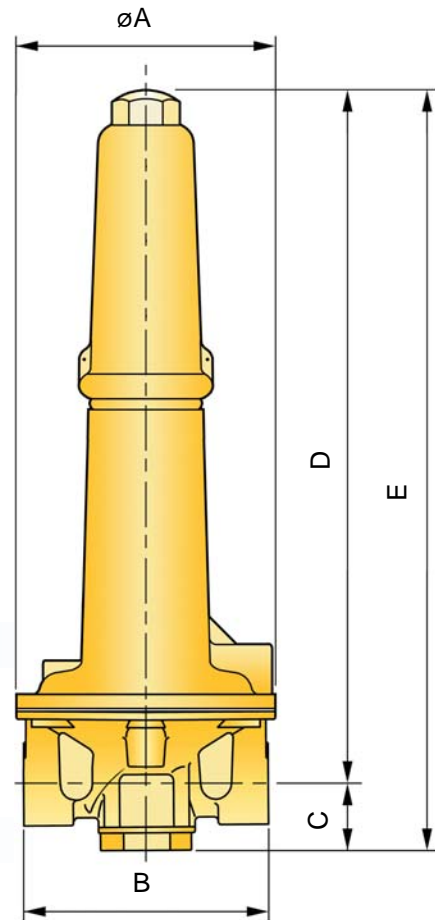
**CONNECTIONS**

The J48KH is supplied as standard with a tapered screwed thread to BS21 (ISO7) or NPT. Other threads may be available upon request.

SERVICING

The J48KH has been designed for ease of access, inspection and servicing of all internal components. A standard soft spares kit is available for all sizes.

3/4" - 1" reference number SK4806-05



DIMENSIONS & WEIGHTS

SIZE	A	B	C	D	E	Weight (Kg)
3/4" & 1"	134	125	34	356	390	2.66

MATERIAL SPECIFICATION

A summary of the material specification for the J48KH is given for reference. All material has been selected to provide maximum durability and reliability in service.

Components	Specification
Body, cover, bottom plug, valve spacer, valve spindle guide, diaphragm spacer and valve disc clamping washer.	Aluminium Alloy
Diaphragm plate, bottom spring holder, valve spindle, spring adjusting screw, spring adjusting screw locknut and top spring holder.	Mild steel
Main diaphragm, secondary diaphragm, valve disc and "O" rings.	Nitrile (Buna)
Springs	Carbon Steel

PERFORMANCE

Detailed performance data is provided on separate technical datasheets.

QUALITY

Elster Jeavons is committed to a programme of continuous quality enhancement. All equipment designed and manufactured by Elster Jeavons benefits from the company's quality assurance standards which are approved to BS EN ISO9001.

Elster Jeavons has a programme of continuous product development and improvement and in consequence the information in this leaflet may be subject to change or modification without notice.

SPRINGS

Spring Range mbar	"wg	Part Number	Colour Code
70 - 210	1 - 3	J4806-076	Light Green / Gold
210 - 350	3 - 5	J4808-063	Grey
350 - 770	5 - 11	J4806-078	Light Green / Pink

MAXIMUM CAPACITY

All capacities in SCMh 0.64 sg

PRESSURE DROP VERSUS MAXIMUM CAPACITY

For the data below the relief valve was physically held open. With the outlet pressure at atmospheric the listed pressure drops were set across the relief valve and the full open capacities recorded.

J48K

CAPACITY (SCMH)

Size	3/4"	1"	1 1/4"	1 1/2"	2"
PRESSURE DROP (mbar)					
"K" Factor	0.174	0.235	0.437	0.477	0.856
1	8	11	20	21	39
3	14	18	34	37	67
5	18	24	44	48	86
7	21	28	52	57	102
10	25	34	62	68	122
15	30	41	77	84	150
25	39	53	99	108	194
35	47	63	118	128	230
50	56	76	141	154	276
70	67	90	168	183	328
100	80	108	202	220	395
140	96	129	241	263	471

J48KH

CAPACITY (SCMH)

Size	3/4"	1"
PRESSURE DROP (mbar)		
"K" Factor	0.174	0.235
70	67	90
140	96	129
210	119	161
350	159	214
500	196	264
700	241	325
1000	303	409

The above capacities are for natural gas (0.64 SG).
For other gases multiply the capacity by:

$$\sqrt{\frac{0.64}{\text{gas sg}}}$$

GAS	SG
Air	1.00
Towns Gas	0.50
Propane	1.53
Propane / Air	1.20

If the tables overleaf do not provide sufficient information a formula is provided to calculate the fully open capacity for all sizes of regulator at any pressure drop.

The full open formula is: $Q = K \sqrt{(P_i^2 - P_o^2)}$

Where: Q = Flow rate corrected to standard pressure and temperature conditions (SCMH).
 P_i = Inlet Pressure (mbar absolute units)
 P_o = Outlet Pressure (mbar absolute units)
 K = Flow constant for each size of relief valve (see table).

PRESSURE DROP

The natural loss of pressure from the inlet to the outlet of a regulator due to friction in the full open condition.

RELIEF CAPACITY

All capacities in SCMH 0.64 s.g.

J48KH RELIEF VALVE: Size 3/4"

RANGE (mbar)	SPRING No.	SETTING (mbar)	PRESSURE BUILD UP ABOVE RELIEF SETTING (mbar)									
			7	17	35	50	70	105	140	210	350	490
70 - 210	J4806-076 Lt Green / Gold	70	9	32	76	85	94	108	119	138	181	218
		140	16	46	101	108	119	127	138	158	196	239
		210	19	53	120	131	138	145	156	177	218	259
210 - 350	J4808-063 Grey	210	27	50	106	124	138	149	159	170	223	262
		280	28	53	124	145	152	166	182	204	246	281
		350	35	57	149	159	172	189	204	219	260	299
350 - 770	J4806-078 Lt Green / Pink	350	32	50	90	150	166	181	196	223	258	304
		560	35	53	205	246	248	251	257	281	324	-
		770	39	60	281	288	294	303	326	345	-	-

J48KH RELIEF VALVE: Size 1"

RANGE (mbar)	SPRING No.	SETTING (mbar)	PRESSURE BUILD UP ABOVE RELIEF SETTING (mbar)									
			7	17	35	50	70	105	140	210	350	490
70 - 210	J4806-076 Lt Green / Gold	70	18	50	92	110	124	138	154	191	242	294
		140	21	51	101	124	143	166	182	214	271	320
		210	25	58	118	155	167	195	217	244	296	345
210 - 350	J4808-063 Grey	210	25	50	87	103	150	198	175	245	285	334
		280	35	53	99	111	161	204	229	257	306	375
		350	37	56	107	130	186	229	250	281	331	384
350 - 770	J4806-078 Lt Green / Pink	350	25	37	81	99	136	198	248	275	331	378
		560	50	62	93	130	180	254	297	344	396	-
		770	74	87	114	142	190	277	368	423	-	-

The relief valve will begin to open and relieve when the inlet pressure rises to the setting pressure. In the tables above the inlet pressure is increased above the listed setting pressure and the resultant relief flow is recorded.

The above capacities are for natural gas (0.64 SG).
For other gases multiply the capacity by:

GAS	SG
Air	1.00
Towns Gas	0.50
Propane	1.53
Propane / Air	1.20

$$\sqrt{\frac{0.64}{\text{gas sg}}}$$

CHOOSING THE CORRECT PIPE SIZE

The above tests were carried out with pipe size equal in diameter to the regulator and pressure tapings conforming to BS3554 Part 2 positioned 5 diameters from the regulator.

It is recommended that the actual velocity of the gas in the pipe is limited to 60 m/s (200 ft/s).

To do this, it may be necessary to select larger inlet and outlet pipe sizes if higher flowrates are being passed through the regulator.

J48KH High Pressure Relief Valve
Maximum Capacity

