



Fuel Gas Valve 83385 Series

GENERAL DESCRIPTION

The 83385 Series fuel gas valve provides positive shut off of fuel gas to internal combustion engines. With pressure applied to the diaphragm, the vent port is closed and the main port opens. Releasing the signal pressure immediately closes the main port and opens the vent port to exhaust all downstream fuel gas.

Generally used for on-off service, the 83385 permits modulating operation between 3 and 20 psi signal pressure. With 0 psi signal pressure, the main port is closed and the vent port is open. At approximately 6 psi the vent port is closed. At approximately 13 psi the main port begins to open and is fully open at 20 psi.

SPECIFICATIONS

Construction: See Table 1.

All vent port openings are tapped internally for 3/4" NPT.

All valves in the 83385 series are equipped with stroke indicator pins which extend downward from bottom of actuator housing.

Main poppet seal is provided by Buna-N O-rings. Vent port seal is provided by a neoprene insert. A bubble-tight seal is provided by both main and vent port poppets.

Dimensions: See Figure 1.

Operating Pressure Range:

Maximum pressure drop across seat – 65 psi.

Actuating pressure range – 3-20 psi.

Maximum actuator pressure – 40 psi.

CAUTION: Do not exceed maximum pressures.

Ordering Information:

Specify Model No.

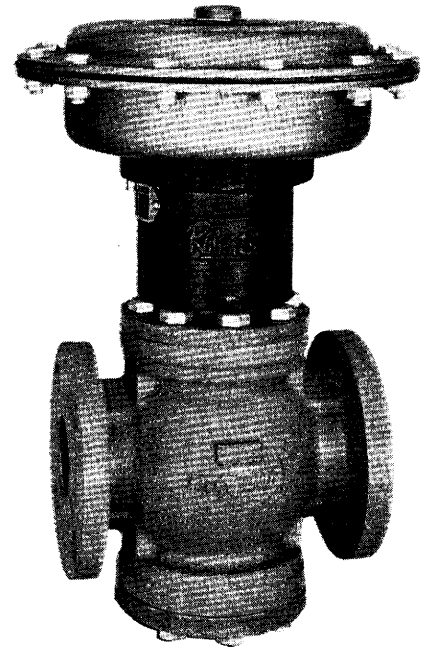
Order from:

ROBERTSHAW CONTROLS COMPANY

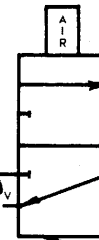
Industrial Instrumentation Division

P. O. Box 400

Knoxville, Tennessee 37901



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J.I.C. Symbol

Table 1

SIZE	VALVE NO.	ACTUATOR SIZE	FLANGE RATING & BODY MATERIAL	TRIM	MAXIMUM SUPPLY PRESSURE	C _v (Q.O.)
2"	83385-A1	40 sq. in.	150 lb. Cast Steel	Brass	210 psi	55
3"	83385-C1	40 sq. in.	150 lb. Cast Steel	Brass	190 psi	112

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Form No. P-2281, Rev. A

**ROBERTSHAW CONTROLS COMPANY
INDUSTRIAL INSTRUMENTATION DIVISION**

INSTALLATION

A. GENERAL

Prior to installation, check the valve body and actuator pilot for any foreign matter which may have entered the valve during packing or shipment.

B. LOCATION

The 83385 series valves may be installed indoors or out where the ambient temperature ranges between -30° and 160° F. If the valve is mounted outdoors, it should be mounted in the vertical upright position with the actuator up to prevent moisture from entering the actuator and possibly interfering with operation.

C. POSITION

These valves will operate satisfactorily in any position.

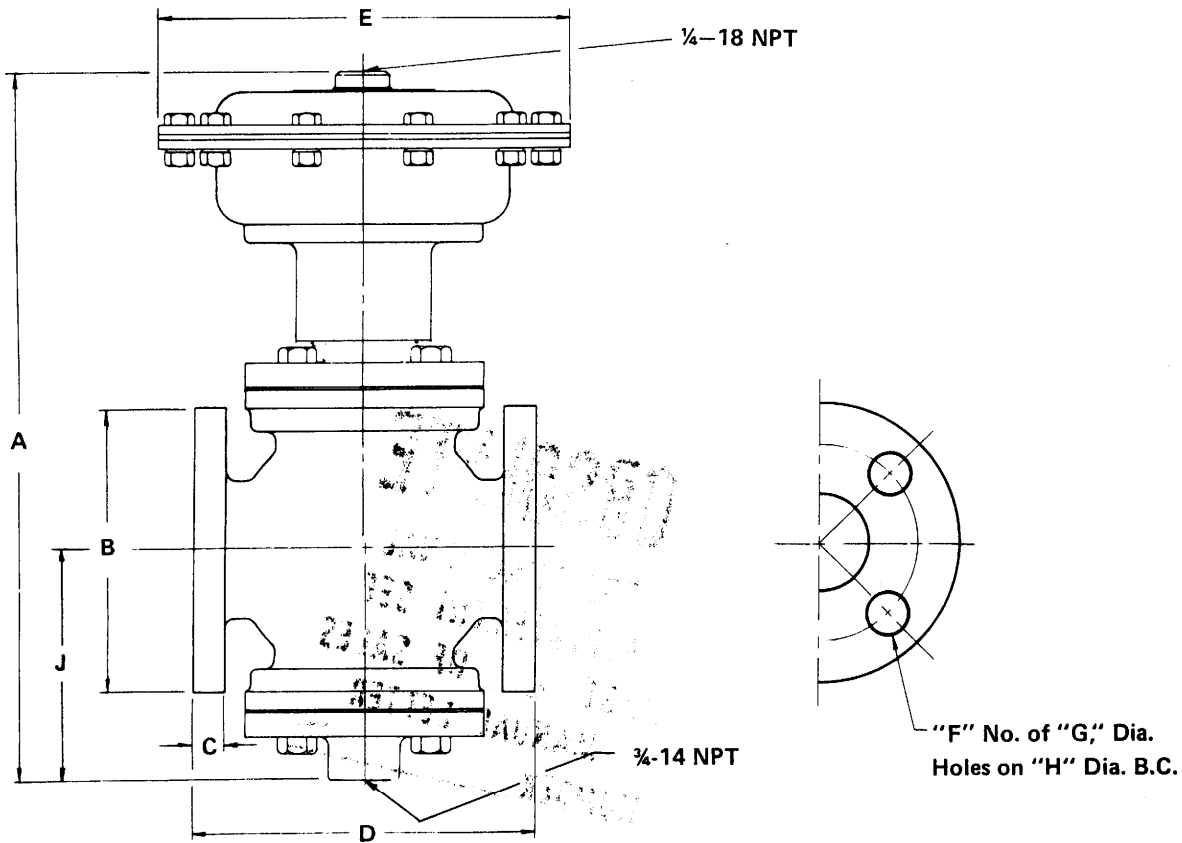


Figure 1

VALVE NO.	SIZE	FLANGE RATING	DIMENSIONS, INCHES								
			A	B	C	D	E	F	G	H	J
83385-A1	2"	150 psi	16-3/8	6	11/16	8	10-1/2	4	3/4	4-3/4	4-3/8
83385-C1	3"	150 psi	18-5/16	7-1/2	1	10	10-1/2	4	3/4	6	5-5/16

MAINTENANCE

Remove actuating and supply pressures from valve.

WARNING: Disassemble carefully – spring load forces present.

A. RECOMMENDED SPARE PARTS

The Following spare parts should be kept on hand for maintenance purposes:

1. Diaphragm.
2. Stem O-Ring Seal.
3. Plug O-Ring Seals.
4. Vent Plug Assembly.

B. TROUBLE SHOOTING

If valve fails to make complete stroke, check for (1) insufficient actuator pressure, (2) ruptured diaphragm in event air would be escaping around stroke indicator pin, (3) sticking valve stem, and (4) foreign matter interfering with plug travel.

If plug fails to return to closed position, check for (1) pressure on actuator, (2) foreign matter interfering with plug travel, (3) sticking valve stem, and (4) damaged load spring.

Pressure leakage through valve ports with no pressure on actuator, check for (1) worn or damaged O-ring seal, and (2) foreign matter under valve seats.

Pressure leakage out of vent port with main ports open, check for (1) worn or damaged vent plug assembly and (2) worn or eroded bottom cap.

Gas leakage around stroke indicator pin, check for damaged stem O-ring seal.

C. REPAIRS

DIAPHRAGM REMOVAL

1. Remove top of actuator housing by removing 12 housing bolts.
2. Remove diaphragm.

To replace diaphragm, reverse above procedure. **DO NOT USE GASKET CEMENT.** Torque screws (det. 3) to 14-16 ft.-lbs. alternating one side to the other.

PLUG REMOVAL

1. Remove bottom cap and spring.
2. Supply actuator with 15 to 20 psig air pressure.
3. Remove set screw (det. 22), from vent plug assembly (det. 42).
4. Insert pin or rod in hole of guide (det. 19) to prevent turning.

5. Remove vent plug assembly (det. 42).
6. Note height of stem nut (det. 21) on stem. (Relocate to this height during re-assembly.) Remove nut using screwdriver in slotted portion of nut. (CAUTION – Guide is spring-loaded)
7. Remove main plug assembly (det. 35).

To replace plug, reverse above procedure.

STEM SEAL REMOVAL

1. Remove valve plug assembly.
2. Remove two actuator cap screws (det. 3) 180° apart and replace with two 3/8" cap screws, 1-1/2" long (minimum). Remove all other cap screws. Alternately loosen the two long cap screws until spring load under diaphragm head is reduced to zero.
3. Remove diaphragm and loosen set screw (det. 24) in center of diaphragm head one-half turn only.
4. Remove stem assembly (det. 14).
5. Remove stem guide (det. 33) and replace stem seals (det. 12).

To replace parts, reverse above procedure.

D. REPAIR PARTS

For repair part numbers consult the repair parts lists in Figure 2.

ORDERING INFORMATION

When ordering please give the following information:

1. Valve number including suffix.
2. Valve size.
3. Invoicing instructions.
4. Shipping instructions.

Order From:

ROBERTSHAW CONTROLS COMPANY
Industrial Instrumentation Division
P. O. Box 400
Knoxville, Tennessee 37901

PARTS LIST

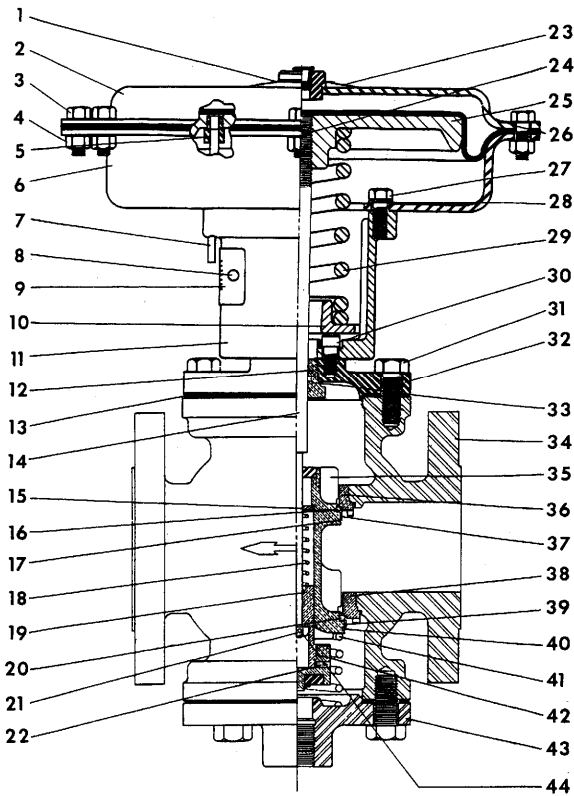


Figure 2

DET. NO.	DESCRIPTION	83385-A1		83385-C1	
		NO. REQ'D	PART NUMBER	NO. REQ'D	PART NUMBER
1	Retainer	1	25425-A1	1	25425-A1
2	Upper housing assembly	1	99030-A1	1	99030-A1
3	Cap screw	12	24739-A1	12	24739-A1
4	Nut	12	25100-A1	12	25100-A1
5	Travel indicator pin bushing	1	28546-A1	1	28546-A1
6	Lower housing	1	28545-A1	1	28545-A1
7	Travel indicator pin	1	26353-A3	1	26353-A3
8	Drive screw	2	2535	2	2535
9	Travel indicator plate	1	26373-A1	1	26373-A2
10	Spring seat	1	25111-A1	1	25111-A1
11	Housing	1	28543-A1	1	28543-A1
12	"O"-Ring	2	26359-A2	2	26359-A2
13	Gasket	2	8796-B1	2	12246-B1
14	Stem assembly	1	83383-A1	1	83383-A2
15	Spring seat washer	1	32452-A1		**
16	"O"-Ring seat	1	18593	1	18599
17	Snap ring	1	18586	1	18608
18	Spring	2	32453-A1	1	32772-A1
19	Guide	1	26367-A1	1	26367-A1
20	"O"-Ring seat	1	18591	1	18607
21	Stem nut	1	26355-B1	1	26355-B1
22	Set screw	1	8907-S1	1	8907-S1
23	Serial number plate	1	25424-A1	1	25424-A1
24	Set screw	1	26352-A1	1	26352-A1
25	Diaphragm plate	1	32454-A1	1	32454-A1
26	Diaphragm	1	24708-A1	1	24708-A1
27	Cap screw	6	25101-A1	6	25101-A1
28	Lock washer	6	24767-A1	6	24767-A1
29	Spring	1	28252-C1	1	28252-C1
30	Cap screw	4	28595-A1	4	28595-A1
31	Cap screw	16	4428-C	16	3501-C
32	Bonnet	1	32458-A1	1	24908-B1
33	Stem guide	1	32765-A1	1	32765-A1
34	Valve body assembly	1	83384-A1	1	83384-E1
35	Plug assembly	1	99580-A2	1	99582-A1
36	Upper insert	1	25147-A1	1	25155-A4
37	Retainer	1	18596	1	18603
38	Lower insert	1	25145-A4	1	12239
39	Retainer	1	18588	1	18598
40	Snap ring	1	18594	1	18606
41	Spring	1	28614-C1	1	24845-A1
42	Vent plug assembly	1	99579-A1	1	99579-A1
43	Bottom flange	1	26357-C1	1	26366-C1
44	Lock pin	1	24132-A2	1	24132-A2

**Not used in this valve.



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