

GENERAL CONSIDERATIONS

- Operating pressures and temperatures must not exceed the limitations on the valve nameplates. If for any reason the nameplate is missing, refer to Crane Fluid Systems Technical Department for advice.
- Lifting lugs are supplied for safe handling of these products. Ensure that lifting equipment is correctly rated for the weight of valve being handled.
- Care must be taken to avoid any damage to faces of these valves. The rubber facings are used to seal valves against pipe flanges, and any damage to these faces may result in leakage.
- The surfaces of valves in service may be subject to extreme temperatures; care should be taken when handling valves.

TECHNICAL DETAILS / LIMITS OF USE

Fig No	Body Style	Liner Material/ Temperature Limits	PED Category by Valve Size (DN)				Product Applications				
			SEP	1	2	3	Group 1 Gas	Group 2 Gas	Group 1 Liquid	Group 2 Liquid	
FM700	Lugged Gear Operated	EPDM -20 to 120°C	1400 to 1800	700 to 1200						✓	
FM700B	Lugged Bareshaft										✓
FM725G	Lugged Gear operated DRV		700 to 900							✓	
FA700	Lugged Gear Operated		56"	26" to 48"							✓
FA700B	Lugged Bareshaft										
FA725G	Lugged Gear operated DRV		26" to 36"								✓



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CRANE FLUID SYSTEMS

CRANE HOUSE, EPSILON TERRACE
WEST ROAD, IPSWICH
SUFFOLK IP3 9FJ

TELEPHONE: +44 (0)1473 277400
FAX: +44 (0)1473 277301
EMAIL: enquiries@cranefs.com

www.cranefs.com



FM311 ISO 9001

- Designed and manufactured under quality management systems in accordance with BS EN ISO 9001-2008

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CFS_Series 700_0314
IOM_OA_03905K

CRANE FLUID SYSTEMS

INSTALLATION, OPERATING
AND MAINTENANCE INSTRUCTIONS

GEM BUTTERFLY VALVES – 700 SERIES

FM700, FM700B, FM725G: PN10 and PN16
FA700, FA700B, FA725G: ANSI Class 150

GEARBOX OPERATED, BARESHAFT, AND DOUBLE REGULATING VALVE OPTIONS.

- These instructions relate only to Crane GEM rubber lined butterfly valves, which are designed and manufactured to provide isolation, or can be used for flow regulation, of suitable fluids.
- Design, manufacture and testing of these valves are subject to a Quality Assurance System and procedures according to EN ISO 9001.
- Service temperature and pressure indicated on the identification plate, or body marking, should not be exceeded. See Table 1.
- Crane GEM butterfly valves have not been designed as fire safe valves.
- Valves must be installed into a well-designed system and it is recommended that the system be inspected in accordance with the appropriate member state legislation.

INSTALLATION

STORAGE:

- If valves are to be stored prior to installation, ensure that action is taken to protect the valves:
- Store valves with the discs at 5° from fully closed position.
- Protect against frost, or excessive heat, contamination and corrosion.
- Cover valves to prevent ingress of dust and debris.
- Protect faces of valves as these are sealing faces, and any damage may result in leaks.

PREPARATION:

- Before installation, ensure that the valve is suitable for service conditions e.g. pressure, temperature and service media.
- Ensure that pipe flanges are clean, to prevent damage to valve flanges / liners on installation.
- Check that the internal pipe diameter has sufficient clearance for valve disc to be fully operated.
 - Check that there are no restrictions in pipework, i.e. internal welding of flanges.
 - See Table 1 for clearance dimensions of disc in pipe-work.
- Check that pipe flanges are parallel, and on same centreline before installation of valves. This will enable bolting to be fitted through flanges and valves without damage to threads on bolting or tapped holes in valve bodies.
- Ensure that all welding and heat treatment of pipe flanges is completed prior to installation of valves to prevent damage to liners from excessive heat.

INSTALLATION

PREPARATION (continued):

These valves have been designed for loadings appropriate to intended use and other reasonably foreseeable operating conditions. Loadings caused by traffic, wind and earthquake have not been taken into account.

- It is the responsibility of the installer to ensure that the system pressure does not exceed the allowable limits as stated on the nameplate. However, the equipment is designed to withstand a momentary surge of up to 10% of the maximum working pressure.
- The piping system shall be designed to reduce the risk of fatigue due to vibration of pipes.
- The installation shall be designed to provide adequate means of drainage and venting to avoid harmful effects such as water hammer, vacuum collapse, corrosion and uncontrolled chemical reactions and to permit cleaning, inspection and maintenance in the correct manner.
- These products have not been designed to include corrosion, erosion or abrasion allowances. Any queries regarding service applications should be addressed to the Crane Fluid Systems technical office.

HANDLING

- Care should be taken when handling these valves. Weights of valves are shown in Table 1 and detailed drawings can be provided on request. It is the responsibility of the installer to ensure that all lifting equipment is rated for the required lifting weight, and is properly maintained and safe to use. When unloading, lifting and positioning of these valves, care must be taken to avoid damage to the faces of the valves as these are used as sealing faces on the pipe flanges.

PIPE FLANGES

- Before installation, check that the pipe flanges are to the correct size and standard to match the valve flanges.
- Ensure that all pipe flanges are cleaned prior to installation of the valves and that there are no damaged areas that may create a leak path.
- **It is prohibited to add an additional gasket between the pipe flange and the valve body.**

PIPE SUPPORTS

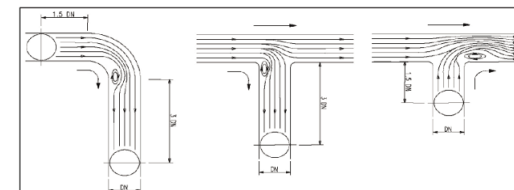
- Pipe supports must be carefully aligned and at the correct distance between centres for the size and types of pipe, and must be adequate for the combined weights of pipe and valves.

Size and Pressure Rating				Weights (Kg)	
FM700, FM700B, FM725G*		FA700, FA700B FA725G*		Valve with Gearbox	Bareshaft Valve
DN	PN Rating (bar)	IN	ANSI Class		
-		26"	150	490	410
700	16	28"	150	548	468
-		30"	150	647	550
800	16	32"	150	725	628
-		34"	150	852	755
900	16	36"	150	972	875
-		38"	150	1145	980
1000	16	40"	150	1249	1084
-		42"	150	1385	1220
1200	16	48"	150	1900	1560
1400	10	56"	150	2300	1960
1600	10	64"	150	3540	3200
1800	10	72"	150	5900	5310

*FM725G AVAILABLE IN SIZES DN700 to DN900
*FA725G AVAILABLE IN SIZES 28" to 36"

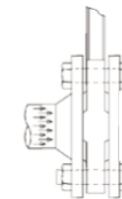
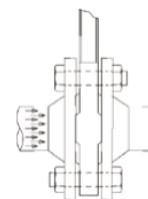
VALVE LOCATION IN PIPEWORK

- Valves should be located to ensure ease and safety of operation and access should be allowed for subsequent maintenance of the valve, especially if actuators are fitted.
- It is also important to ensure that flow through the valves is not subject to turbulent flow, and our recommendations are shown to the right:



END OF LINE SERVICE

- It is not recommended to use these valves for end of line service.
- If valves are installed at end of line, **a blanking flange must be fitted on downstream side of valve.**



Standard Installation.

Max. Diff Pressure
FM700, FM700B ≤ DN1200 = 16 bar
FM700, FM700B ≥ DN1400 = 10 bar
FA700, FA700B = Class 150
FM725G = 16 bar
FA725G = Class 150

End of Line.

- Blanking Flange
- Fitted to support liner and prevent unintentional operation

Temporary Installation.

Valves should not be left in this condition when system is filled.

DOUBLE REGULATING FEATURE (FM725G AND FA725G)

The memory stop device is factory fitted. This device enables the commissioning engineer to set the position of the valve at correct flow rate. The valve can be closed for isolation purposes as required, and when re-opened, can be returned to the set position without re-commissioning

To set the memory stop:

- Slacken the set screw 'A' to allow plate to rotate.
- During commissioning, turn gearbox handwheel as normal, moving the valve disc to the correct position for flow required.
- Rotate the position limiting plate until it touches the raised stop on the indicator plate.
- Tighten set screw 'A'. This will then limit the maximum opening position.
- Record the set position.

