FIG NO.	MATERIALS	PED CATEGORY BY VALVE SIZE				PRODUCT APPLICATIONS			
		SEP Not CE Marked	1	2	3	Group 1 Gas	Group 2 Gas	Group 3 Gas	Group 2 Liquid
C1251/ C1252	BRONZE	8-50	65-80				✓	✓	✓
D151 D151A	BRONZE / DZR BRASS	8-50	65-100				✓	✓	✓
D151X	BRONZE	8-40	50-80				✓	✓	✓
D155C D255C	BRONZE	15-54							✓
D156	BRASS	8-50	65-100				✓	✓	✓
D159	BRONZE	8-32	40-50	65-80			✓	✓	✓
D160	BRONZE	20-50	65-80				✓	✓	✓
D161	BRONZE	20-50	65-80				✓	✓	✓
D162	BRONZE	20-50	65-80				✓	✓	✓
D166	BRONZE	8-32	40-50	65-80			✓	✓	✓
D180	BRONZE	8-32	40-50	65-80			✓	✓	✓
D185	BRONZE	8-25		32-50		✓	✓	✓	✓
D235	BRONZE	15-32	40-50	65-80			✓	✓	✓
D237/ D237A	BRONZE / DZR BRASS	15-80/ 15-50					✓	✓	✓
DM160	BRONZE	20-50	65-80				✓	✓	✓
DM161	BRONZE	20-40	50-80				✓	✓	✓
F52 / F54	CAST IRON	50-65	80-125	150-300			✓	✓	✓
F53 / F59	CAST IRON	50-65	80-125	150-300			✓	✓	✓
F58	CAST IRON	50-65	80-125	150-300			✓	✓	✓
F82	CAST IRON	50	65-100	125-300			✓	✓	✓
F84	CAST IRON	50-65	80-125	150-300			✓	✓	✓
FM52	CAST IRON	50-150	200-300				✓	✓	✓
FM57	CAST IRON	50-100	125-300				✓	✓	✓
FM63 FM263	CAST IRON	50	65-125	150-300			✓	✓	✓
FM82	CAST IRON	50	65-125	150-300			✓	✓	✓

The above products are not suitable for use with unstable fluids.

CRANE FLUID SYSTEMS

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FM311
ISO 9001

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

CFS_CIGV_0710
IOM_0A 03672U

CRANE FLUID SYSTEMS

CAST IRON, BRASS & BRONZE GATE VALVES

- Gate valves provide complete shut off, providing the seats remain undamaged, and offer very little resistance to flow in the open position. Gate valves are best suited to infrequent valve operation, as any dirt in the system can cause scuffing of the seats. Gate valves are not recommended for use in the partially open position because vibration and erosion of the disc may occur.
- Service temperature and pressure indicated on the identification plate or body marking should not be exceeded.
- Crane gate 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. In the UK - The Pressure Equipment Directive 97/23/EC and The Pressure Systems Safety Regulations 2000.

D151 Gate Valve

CRANE BUILDING SERVICES & UTILITIES

INSTALLATION

Preparation

- Ensure valve is suitable for service conditions e.g. pressure, temperature, service media.
- Remove dust caps/flange protectors, where fitted.
- The installation shall be designed to provide adequate means of draining and venting to permit cleaning, inspection and maintenance in the correct manner.
- The product has not been designed to include corrosion, erosion or abrasion allowances. Any queries regarding service applications should be addressed to the Crane Fluid Systems - Technical Sales Department.
- The valves have been designed for loadings, appropriate to their 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 valves do not exceed the allowable limits of pressure. However the equipment is designed to withstand a momentary pressure surge of up to 10% above the maximum working pressure. The piping system shall be so designed to reduce the risk of fatigue due to vibration of pipes.

Valve Location

- Valves should be located to ensure ease and safety of operation and access allowed for subsequent maintenance of the valve.
- Valves should be located to allow access for gland adjustment and re-packing.

Piping Supports

These must be carefully aligned and at the correct distance between centres for the size and type of pipe. The following publications provide details of correct spans and installation details:

BS3974, Specification for Pipe Supports (Available from BSI)

Flange Joints

Bronze and cast iron flanges may be damaged by over tightening the bolts. The following procedures will reduce this risk:

- Make sure the pipe flanges are correctly aligned.
- Full faced gaskets should be used with flat faced flanges to reduce stress.
- Low strength carbon steel bolting has traditionally been used to restrict the load imposed on grey iron flanges, but should not be used for temperatures above 200°C.
- Always use the correct size and number of bolts.
- Appropriate gaskets, bolting, and correct assembly torques should be used to ensure integrity of joint. Do not match flat-faced flanges to raised face flanges.

Threaded Joints

The valves are supplied with taper threads and, with the use of a thread sealant will give a pressure tight seal. To avoid distortion of the valve when fitting and tightening pipe, the valve must be held securely using the flats provided at the end of the valve to which the pipe is being fitted. Care should be taken to avoid 'pipe ending'. This is a condition that occurs when the pipe is screwed in too far resulting in distortion to the valve seat. The male thread on the pipe must have fully formed, undamaged threads.

Compression End Valves

When using compression type connections, make sure the pipe ends are cut square and free from burrs. The pipe must pass through the olive (compression ring) until it seats firmly in the bottom of the valve housing. The compression nut should be tightened sufficiently to firmly grip and slightly indent the pipe. This will occur at between $^{3}/_{4}$ and $1.^{1}/_{4}$ turns from hand tight. Sealant is not required.

OPERATION

Cast Iron and Bronze Gate valves are designed to seat with the Crane standard handwheel. Levers, wrenches or other tools should not generally be used to operate a valve. Excessive torque can cause damage to seating faces and/or stem/handwheel. With larger valves the use of a 'pinch bar' is acceptable providing the bar length does not exceed 1.5 x the handwheel diameter.

ROUTINE MAINTENANCE

- Check for leaks at gland. If gland is leaking tighten the gland nut(s). The gland nut(s) should be tightened only enough to prevent stuffing box leakage. Over-tightening can cause excessive wear on stem and packing and make valve difficult to operate. If leakages still occurring add additional or new packing.
- Rising Stem Valves with backseat facility are constructed so that packing can be replaced when the valve is fully open. It is strongly recommended that the pipeline be isolated when re-packing the stuffing box.
- Occasionally operate valves that remain open or closed for long periods to ensure they are in good working order, thus avoiding the possibility of being inoperable in a time of emergency.

GENERAL CONSIDERATIONS

- Maximum operating pressure reduces as service temperature increases. Pressure and temperature limitations are shown by the valve body marking or on the identification plate, and must not be exceeded.
- Valves are not designed to operate under high shock loadings. Where pressure increases occur due to shock loading (water hammer), they should be added to the working pressure to obtain the total pressure acting on the valve. The total must not exceed the pressure rating of the valve. A pressure surge, or shock, is usually caused by the rapid closure of a check valve or quarter turn valve resulting in a sudden reduction in flow rate.
- It is bad practice to install valves with the hand wheels pointing downwards, as damage may be caused to the gland packing and stem seal, by debris in the system.
- Where the handwheel, and therefore the identification plate, is removed for maintenance they must be refitted after the work is completed. The absence of the identification plate invalidates the valve's CE status.
- The surfaces of valves in service may be subject to extreme temperatures; care should be taken when handling.