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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Predominantly key-operated cast iron gate valves for underground use

*Robinets-vannes en fonte généralement manœuvrés par clé à béquille pour installations
enterrées*

Reference number
ISO 7259 : 1988 (E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7259 was prepared by Technical Committee ISO/TC 153, *Valves*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Predominantly key-operated cast iron gate valves for underground use

0 Introduction

The purpose of this International Standard is the establishment of the basic requirements for predominantly key-operated cast iron gate valves for underground use with flanges or spigot ends or socket ends.

1 Scope

This International Standard specifies requirements for two types of predominantly key-operated cast iron gate valves for underground use with flanges or spigot ends or socket ends. The two types of valves shall be specified as type A or type B and shall include the following features :

- inside screw stem (non-rising);
- wedge or double obturator;
- metallic or elastomeric obturator seatings;
- metallic or elastomeric body seatings;
- ferrous metal and/or copper alloy trims;
- T-key operation, see clause 7 and annex A;
- ring key and bar operation, see clause 7 and annex A.

Type A valves are for T-key operation.

Type B valves are for ring key and bar operation.

2 Field of application

2.1 This International Standard deals with valves of the following nominal (DN) sizes :

50; 65; 80; 100; 125; 150; 200; 250; 300

2.2 This International Standard applies to valves of the following nominal (ISO PN) pressure designations :

- 10, 16 and 20 in flake graphite cast iron, and
- 10, 16, 25 and 40 in spheroidal graphite cast iron.

2.3 The dimensions of the valves with spigot ends or socket ends permit these valves to be fitted to

a) Cast iron pipes of DN 50 to DN 300

Valves with spigot ends or socket ends having dimensions in accordance with ISO 2531 and ISO 13 permit these valves to be fitted to cast iron pipes with external diameters in accordance with table 1.

Table 1 — External diameters of cast iron pipes

DN	50	65	80	100	125	150	200	250	300
Outside diameter mm	66	82	98	118	144	170	222	274	326

b) Steel pipes of DN 80 to DN 300

Valves with socket ends having dimensions in accordance with ISO 4200 permit these valves to be fitted to steel pipes with external diameters in accordance with table 2.

Table 2 — External diameters of steel pipes

DN	80	100	125	150	200	250	300
Outside diameter mm	88,9	114,3	139,7	168,3	219,1	273	323,9

The use of these gate valves in piping systems of other materials will be the subject of an agreement between the manufacturer and purchaser.

3 References

ISO 13, *Grey iron pipes, special castings and grey iron parts for pressure main lines.*

ISO 185, *Grey cast iron — Classification.*

ISO 1083, *Spheroidal graphite or nodular graphite cast iron.*

ISO 2531, *Ductile iron pipes, fittings and accessories for pressure pipelines.*

ISO 4200, *Plain end steel tubes, welded and seamless — General tables of dimensions and masses per unit length.*

ISO 5208, *Industrial valves — Pressure testing for valves.*

ISO 5209, *General purpose industrial valves — Marking.*

ISO 5752, *Metal valves for use in flanged pipe systems — Face-to-face and centre-to-face dimensions.*

ISO 7005-2, *Metallic flanges — Part 2 : Cast iron flanges.*

4 Design working pressure

Valves covered by this International Standard shall be designed for maximum permissible gauge working pressures, at ambient temperature, of

- 10 bar (1 MPa) for ISO PN 10 valves;
- 16 bar (1,6 MPa) for ISO PN 16 valves;
- 14 bar (1,4 MPa) for ISO PN 20 valves;
- 25 bar (2,5 MPa) for ISO PN 25 valves;
- 40 bar (4 MPa) for ISO PN 40 valves.

5 Design

5.1 Face-to-face dimensions

5.1.1 Flanged end valves (see figure 1)

The values shown in table 3 apply to unlined type A and type B valves.

**Table 3 — Face-to-face dimensions for flake graphite and spheroidal graphite cast iron gate valves
ISO PN 10 to ISO PN 40**

DN	Face-to-face dimensions mm				
	ISO PN 10/16/20		ISO PN 25		ISO PN 40
50	178	250	216	250	216
65	191	270	241	270	241
80	203	280	283	280	283
100	229	300	305	300	305
125	254	325	381	325	381
150	267	350	403	350	403
200	292	400	419	400	419
250	330	450	457	450	457
300	356	500	502	500	502
Basic series to ISO 5752	3	15	19	15	4

Table 4 — Tolerances on face-to-face dimensions

Dimensions and tolerances in millimetres

Face-to-face dimensions of unlined valves		Tolerances
over	up to and including	
0	250	± 2
250	500	± 3
500	800	± 4

5.1.2 Spigot end and socket end valves (see figures 2 and 3)

Spigot and socket end valves fit directly to the pipes. In accordance with ISO 2531 no dimensions of the sockets and joints are given. The interchangeability of the system components is ensured by standardization of the outside diameters of the spigot ends of pipes and valves. The end-to-end dimensions are not defined for valves with spigot and socket ends.

5.2 Body ends

5.2.1 Flanged body ends

The body flange dimensions for type A and type B valves shall comply with those given in ISO 7005-2.

5.2.2 Spigot or socket ends

Valves may have either spigot or socket ends (see figures 2 and 3). Valves with socket ends may be supplied with various types of socket.

The body ends shall accommodate cast iron pipe with outside diameters as given in table 1 and steel pipe with outside diameters as given in table 2.

NOTE — The standard external diameter of the spigot end of the valves remains the same for all types of joint. The external diameter is the same as that of the spigot end of flake cast iron pipes (see ISO 13), which makes it easier to joint the new ductile iron valves.

5.3 Stem sealing

The stem seal of type A and type B valves may be of the stuffing box and gland form, injector packing form or toroidal sealing rings (O-rings) type or other pressure-actuated types of seal.

If the seal is of the toroidal sealing ring or other pressure-actuated type, the following requirements shall be met :

- a) at least two such seals shall be used;
- b) seals shall be capable of being replaced with the valve under pressure and in the fully open position;

NOTE — The user is warned that there may be some leakage to the atmosphere during this operation.

- c) a dust seal shall be positioned above the seals to prevent ingress of foreign matter.

5.4 Obturator

The obturator design of valves according to this International Standard shall be at the option of the manufacturer.