IS 9866 (1981): Marking system for valves [MED 17: Chemical Engineering Plants and Related Equipment]

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(Reaffirmed 2003)

Indian Standard

MARKING SYSTEM FOR VALVES

Industrial Valves Sectional Committee, EDC 81 [Ref : Doc : EDC 81 (3547)]

1. Scope — Covers the mandatory and optional marking of industrial valves and states the manner of applying the marking, namely, on the body, on the flange and on an identification plate. Markings on the body may be integral with the body or on a plate distinct from the identification plate mentioned above and securely fixed to the body.

These specified markings serve to identify the manufacturer and the valve, as well as to assist in proper application.

2. Required Markings — The data for which markings are normally provided on the valves and identification plates are listed in Appendix A.

3. Mandatory Marking on Body

a) Nominal size designation,

b) Rating designation,

c) Body material identification,

d) Manufacturer's name or trade-mark,

e) Melt identification,

f) Arrow to indicate direction of flow (unidirectional valves only), and

g) Ring joint numbers (for flanges grooved for ring joints).

3.1 *Mandatory Marking on Identification Plate*

a) Nominal size designation,

b) Rating designation,

c) Body material identification,

d) Manufacturer's name or trade-mark,

e) Valve trim identification,

f) Manufacturer's catalogue number or code number, and

g) Additional markings permitted.

3.2 *Optional Markings* — All markings listed in Appendix A other than those mentioned under **3** are optional unless specified otherwise in the standard appropriate to the individual type of valve.

4. Method of Applying the Markings — The mandatory body markings shall be cast, forged, stamped or shown on a plate permanently attached or securely fastened to the valve bodies.

Note 1 — Where steel stamps are used care should be taken to ensure that the marking does not cause cracks or reduce the wall thickness of the valve below minimum required thickness.

Note 2 — Cast lettering on steel valves that is obliterated during manufacture may be replaced by weld deposition or stamping at the option of the manufacturer. When stamping is used care must be taken to ensure that the requirements of Note 1 are met.

4.1 All other markings may be provided either on the body or on identification plate or both at the option of the manufacturer.

Adopted 10 July 1981

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5. Guidelines for Marking — Steel valves, except bar stock valves, are required to have identification plates. Steel bar stock valves may have all the required markings stamped on body or indicated in a suitable manner.

5.1 *Nominal Size Designation*

5.1.1 Numeral(s) denoting the nominal size valve : Numeral(s) can also be prefixed by the letters DN, for example, DN 100 for 100 mm valve.

5.2 *Rating Designation*

5.2.1 Rating designation for valves may be designated by class numbers alone or pressure class designations, for example, A Cl. 300 valve fully complying with the standard's requirements.

Body	*Identification Plate*
300	Cl. 300

5.2.2 Rating designation for valves which conform to the recognized standards *but are not suitable for full range of pressures or temperatures* (as, for example, usage of elastomers, PTFE, etc, for parts) of these standards may be marked as prescribed in **5.2.1** as appropriate and shall also show the limiting pressure and temperatures for which the valves are suitable for example, Cl. 300 valve conforming to the recognized standard but suitable for use up to 200° C.

Body	*Identification Plate*
300	Cl. 300/44 bar at 200°C *Max*
	or
300	Cl. 300/44 bar/200°C *Max*
	or
300	44 bar at 200°C/51 bar at 38°C

5.3 *Body Material Designation* — Carbon steel valves shall be marked with words STEEL or with relevant specification number and grade. Alloy steel valves shall be marked with relevant grade identification symbol.

5.3.1 Austenitic steel valves (stainless steel) shall be marked with symbols designated in appropriate material standards to indicate the grade of steels. Use of symbols description of the chemical content of the alloy may also be used at the option of the manufacturer.

5.3.2 *Body material identification*

a) *Cast Iron* — Material marking is not required for grey cast iron. Alloyed cast iron may be identified by a manufacturer's symbol provided that confusion with standard symbol is avoided.

b) *Non-ferrous Metals* — Material identification is not required for brass or bronze. Other non-ferrous alloys may be identified by using symbols listed in Appendix B.

c) *Non-Metallic Material* — Non-metallic materials may be identified by using symbols listed in Appendix C.

5.3.3 Malleable iron valves shall be marked with the letters 'MI'.

5.3.4 Ductile cast iron valves shall be marked with the word 'DUCTILE'. On valves of small size or shape which will not permit the use of the word 'DUCTILE' the letters 'DI' may be used.

5.4 *Ring Joint Number* — Valve and flanges and body/bonnet flanges grooved for ring joints shall be marked with the corresponding ring numbers. In the case of non-standard ring joints for body/bonnet flanges, the flanges shall be marked 'R spl'.

5.5 *Thread Identification* — Screwed and valves threaded with other than standard pipe threads shall be marked to indicate the type of thread. The style of marking may be the manufacturer's own symbols provided that confusion with standard symbols are avoided. Left hand threads shall be marked LH on the outside wall of the appropriate opening.

5.6 *Limiting Pressure Rating* — Valves whose construction limits its use to pressures less than those permissible for the rating marked on the valves shall carry marking of such limitations on an identification plate.

Example :

Valve with closure elements designed for closed pressure differentials lower than the basic rated pressure of the valve.

5.7 *Identification Number* — The identification number marking shall indicate the manufacturer's figure or number which identifies the valve in all respects. The same figure or number shall therefore only be used for valves which are identical in design, detail, dimensions and material and which have interchangeable parts.

5.8 *Indian Standard Specification Number* — Indian Standard number marking when applied shall indicate the IS number appropriate to the individual type of valve.

5.9 *Melt/Heat Identification* — All pressure containing castings and forgings shall be marked with melt/heat number or melt/heat identification in an unmachined location.

5.10 *Trim Identification* — The symbols that are to be used to identify the different trim materials are listed in Appendix B and Appendix C.

5.10.1 For gate, globe and angle valves, the trim markings shall consist of three symbols. The first shall indicate the material of the stem, the second shall indicate the material of the gate disc face and the third shall indicate the material of the seat face.

Symbols may either be preceded by the words 'STEM' 'GATE DISC' 'SEAT' or used along, but must appear in the order given.

Example :

Steel gate valve, 13 percent chromium steel stem, 13 percent chromium steel disc face, cobalt-chromium-tungsten alloy seat face:

STEM CR 13
DISC CR 13
SEAT HF

or

CR 13 CR 13 HF

or

CR 13
CR 13
HF

5.10.2 For check and other types of valves having no stem, the trim marking shall consist of two symbols. The first shall indicate the material of the disc face and second shall indicate the material of the seat face:

Example :

Steel check valve 13 percent chromium steel disc face, 13 percent chromium steel seat face :

DISC CR 13
SEAT CR 13

or CR 13 CR 13

or CR 13
CR 13

5.10.3 Plug, ball and butterfly valves or other quarter-turn valves require no trim identification marking unless the plug, disc, or closure member, or stem or both are of different material than the body. In such cases, trim identification symbols on the nameplate will first indicate the material of the stem, second indicate the material of plug, ball, disc or closure member. These valves with seating or sealing material different than the body material shall add a thrid symbol to indicate the material of the seat. In these cases, symbol identification shall be preceded by the words STEM, DISC (or PLUG, BALL, or GATE, as appropriate) and the word 'SEAT'. If used alone, symbols must appear in the order given.

5.11 *Service Symbols* — When service symbols are required the following letters shall be used. These symbols may be used in any order.

A to signify AIR
G to signify GAS
L to signify LIQUID
O to signify OIL
S to signify STEAM
W to signify WATER
D-M-V to signify DRAINAGE, WASTE and VENT

5.12 *Valves Lining* — Valves made one of material and lined with another shall carry the regular markings specified by this standard and additional marking which will indicate whether partially or completely lined and the material used for lining. These additional shall be cast (*see* **4**, Note 2) forged or stamped (*see* **4**, Note 1) on the valves or marked on plates securely fastened to the valves.

Note — A manufacturer having complied with the requirements specified above is not precluded from providing any other marking which may be mandatorily required by the standard appropriate to the individual type of valve.

6. Additional Markings — Additional markings given in Appendix A may be used at the option of the manufacturers, provided they do not conflict with any other markings specified in this standard.

7. Omission of Markings — On valves whose size or shape limiting the body and/or identification plate markings, they may be omitted to the degree which conditions required. The sequences of omission shall be:

a) Size designation,

b) Thread identification,

c) Valve trim identification,

d) Melt identification,

e) Rating designation, and

f) Material designation.

APPENDIX A

(*Clauses* 2, 6)

TABLE OF VALVE MARKINGS

Item	Markings
1	Size Designation
2	Nominal Pressure Rating
3	Material for Pressure Containing Parts
4	Manufacturer's Name or Trade-mark
5	Arrow for Director of Flow
6	Ring Joint Number
7	Limiting Temperature Rating
8	Thread Identification
9	Limiting Pressure Rating
10	Identification Number
11	Standard Number
12	Melt/Heat Identification
13	Trim Identification
14	Service Symbols
15	Valve Lining
16	Quality and Test Labels
17	Inspector's Stamp
18	Year of Manufacture
19	Flow Characteristic

APPENDIX B

[*Clauses* 5.3.2 (*b*), 5.10]

COMMON SYMBOLS FOR METALLIC MATERIALS

Material	Symbol
Aluminium	AL
Brass	BRS
Bronze	BRZ
Carbon steel	CS
Cast iron	CI
Hard facing material	HF
Copper-nickel alloy	CuNi
Ductile iron	DI
Melleable iron	MI
Nickel-copper alloy	NiCu
Soft Metal (lead, babbitt, copper, etc)	SM
Steel, 13 chromium	CR 13
Steel, 18 chromium	CR 18
Steel, 28 chromium	CR 28
Steel, 18-8	18-8
Steel, 18-8 with columbium	18-8 SCB
Steel, 18-8 with molybdenum	18-8 SMo
Steel, 18-8 with titanium	18-8 STI
Surface hardened steel	SH

Note — For valves in which the body seat face is integral with the body, the grade or symbol applicable to the body material shall be used to indicate the body seat face in the trim markings.

APPENDIX C

[*Clauses* 5.3.2 (*c*), 5.10]

COMMON SYMBOLS FOR NON-METALLIC MATERIALS

Material	Symbol
Asbestos	ASB
Butadiene rubber	BR
Butyle rubber	IIR
Chloroprene or neoprene	CR
Chlorosulfonated polyethylene	CCM
Chlorotrifluoroethylene	CIFE
Ethylene-propylene diene monomer	EPDM
Ethylene-propylene rubber	EPR
Ethylene-propylene ter polymer	EPT
Fluorocarbon or viton rubber	FPM
Fluorinated ethylene propylene	FEP
Isoprene rubber	IR
Natural rubber	NR
Nitrile or buna N rubber	NBR
Nylon	NYL
Polyacrylic rubber	ACM
Poly vinyl chloride	PVC
Silicone rubber	SI
Styrene butadiene rubber	SBR
Polytetrafluoroethylene	PTFE
Tetrafluoroethylene	TFE
Thermoplastic material	T PLAS
Thermosetting material	T SET

EXPLANATORY NOTE

In the preparation of this standard assistance has been taken from ISO/DIS, 5209, MSS-SP 25, ANSI B 16.34, BS 1873 and BS 759.

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