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“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 2587 (1975): Pipe Vices (Open Side Type and Fixed Sides Type) [PGD 6: Earth, Metal And Wood Working Hand Tools]



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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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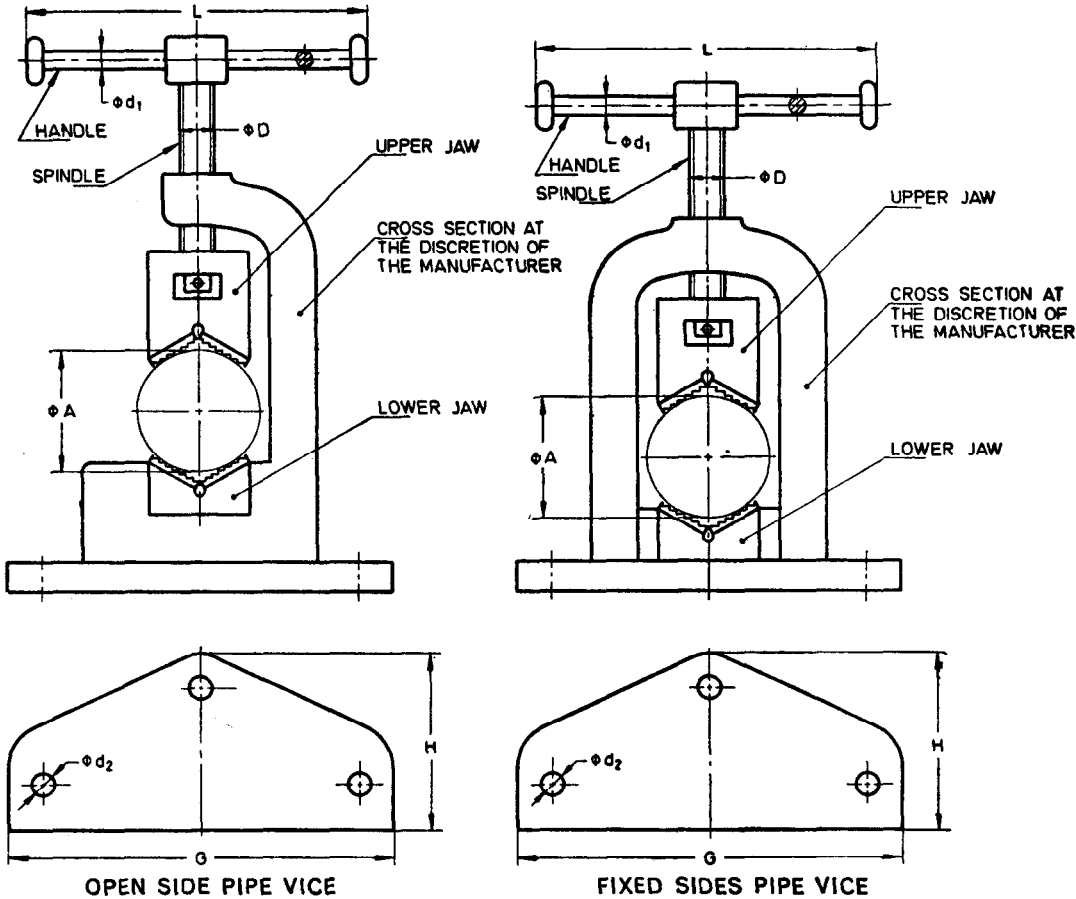


Indian Standard
SPECIFICATION FOR PIPE VICES
(OPEN SIDE TYPE AND FIXED SIDES TYPE)
(First Revision)

1. Scope — Covers the requirements for pipe vices of open side type and fixed sides type, commonly used for clamping pipes.

2. Dimensions

2.1 Pipe Vices



All dimensions in millimetres.

Nominal Size (Jaw Opening) A	Suitable for Pipe Having Outer Diameter	G	H	L	d ₁	d ₂	D
80	10 to 77	250	115	220	12	15	SQ 22×3* or ST 22×3† or Tr 22×3‡
105	10 to 102	280	145	270	14	15	SQ 24×3* or ST 24×3† or Tr 24×3‡
130	10 to 128	315	165	300	16	15	SQ 28×3* or ST 28×3† or Tr 28×3‡
170	21 to 166	355	180	350	18	15	SQ 30×3* or ST 30×3† or Tr 30×3‡

Note — The dimensions G and H are approximate and are for guidance only.

*According to IS : 4694-1968 ' Basic dimensions for square threads '.

†According to IS : 4698-1968 ' Basic dimensions for saw tooth threads '.

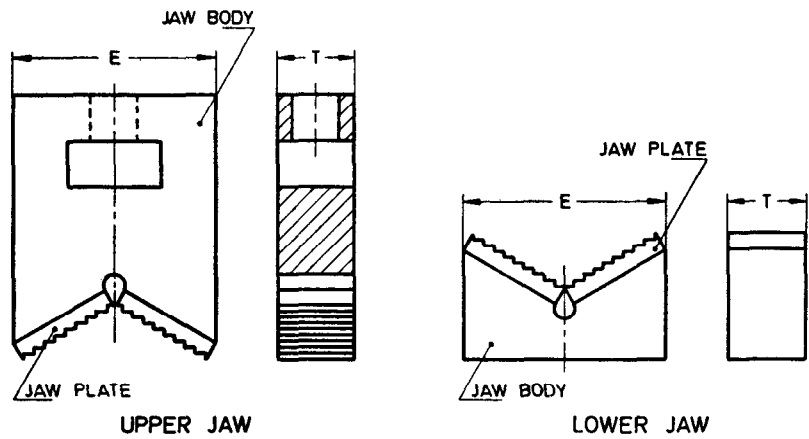
‡According to IS : 7008-1973 ' ISO metric trapezoidal screw threads '.

Adopted 17 October 1975

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Gr 2

2.2 Jaws



All dimensions in millimetres.

Nominal Size of Vice	E Min	T Min
80	65	25
105	80	25
130	110	25
170	130	25

Note—The shapes shown in the figures in 2.1 and 2.2 are only to illustrate the dimensions, the actual shapes and other design details are left to the discretion of the manufacturer.

2.3 The dimensions may have a variation of ± 2 percent.

3. Materials — The materials for various components of vices shall be such as to meet the requirements laid down in 4 and 9. Following are the recommended materials for various components:

Component	Material
Body and jaw body	Steel casting conforming to Grade 3 of IS : 1030-1974 'Specification for steel castings for general engineering purposes (second revision) '.
	Or
	Grey cast iron Conforming to Grade 35 of IS : 210-1970 'Specification for grey iron castings (second revision) '.
Jaw plates	Tool steel conforming to Designation T75 of IS : 1570-1961 'Schedules for wrought steels for general engineering purposes '.
Screw spindle and handle	Steel conforming to Designation St42 of IS.: 1570-1961

4. Hardness — The hardness of the jaw plates shall be 390 to 445 HV (\approx 40 to 45 HRC).

5. Manufacture

5.1 Body — The column(s) of pipe vices shall be integral with the base. The base shall have provisions for at least three holes for mounting; the central mounting hole shall be on a line perpendicular to the jaws and the other two holes parallel to the jaws equidistant from the central mounting hole. The threads in the body for screw spindle shall be properly and accurately cut.

Note — Bolts and nuts conforming to IS : 1363-1967 'Specification for black hexagon bolts, nuts and lock nuts (dia 6 to 39 mm) and black hexagon screws (dia 6 to 24 mm) (first revision) ' may be employed for mounting the vices on the work benches.

5.2 Jaws — The serrated clamping surfaces of the jaws shall be V-shaped and have V-grooves of suitable size for gripping the pipe.

5.3 Screw Spindle — The screw spindle shall have square, saw tooth or trapezoidal threads which shall be properly and accurately cut.

5.4 Handle — The handle shall be straight and slide freely in the hole provided at the end of screw spindle and shall not slide out of the hole during use. The sharp corners shall be suitably rounded off.

6. Workmanship and Finish — The vices shall be finished smooth all over, and shall be free from burrs, cracks or other manufacturing defects. The screw spindle shall provide for proper alignment of the jaws, and the jaws shall distribute even pressure over the entire area of contact. The movement of the spindle shall be easy without undue slackness or resistance throughout the opening and the backlash shall not exceed one-eighth of the pitch of the screw.

7. Designation — A pipe vice with open side (OS for open side and FS for fixed sides) having nominal jaw opening 130 mm shall be designated as:

Pipe Vice OS 130 IS : 2587

8. Sampling — Refer IS : 2586-1975 'Specification for bench vices (machinist's vices) (first revision)' for sampling procedure.

9. Tests

9.1 Clamping Test — A bar of 30 mm diameter and smooth surface, having a hardness of about 515 HV (≈ 50 HRC) shall be gripped in the vice and turning moment as given in Table 1 shall be applied to the screw spindle. The bar shall then be twisted with a turning moment as given in Table 1. The bar shall not rotate and the vice shall not show any sign of damage.

TABLE 1 MOMENT TO BE APPLIED TO THE SCREW SPINDLE AND THE TEST BAR FOR CLAMPING TEST

Nominal Size	Turning Moment to be Applied	
	To Screw Spindle	To Test Bar
mm	N.m	N.m
80	70	100
105	90	120
130	90	130
170	100	140

9.1.1 A mild steel bar of 30 mm diameter and smooth surface shall be gripped tightly in the vice and then removed. After removal the lines on the bar shall show a uniform pressure throughout the contact area.

10. Preservative Treatment — The vices shall be painted on all non-working surfaces including the underside of the base. The working surfaces shall be covered with rustproofing material.

11. Marking — The vices shall be marked with the nominal size and the manufacturer's name, initials or trade-mark.

11.1 ISI Certification Marking — Details available with the Indian Standards Institution.

EXPLANATORY NOTE

This standard deals with pipe vices (open side type and fixed sides type). The standard was first issued in 1964 and the present revision has been taken up to include certain modifications in order to bring the standard in line with the modern manufacturing practices.

Pipe vices are required generally for plumbing jobs and erection of other types of pipe lines. The most commonly used types are the open side type and fixed sides type.