SPECIFICATION FOR BRASS STOP VALVES

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BRASS STOP VALVES

1.0 General

1.1 Stop valves shall provide leak- free, tight closure (complete stop) of water flow through the valve in the closed position.

1.2 It shall comprise of a body on which head, handle, spindle, gland, stuffing box etc. with seals and washers mounted.

1.3 During operation washer plate & stem assembly with the spindle is screwed down causing the washer to shut on the seat against the water pressure.

1.4 All components shall be of "water works" standard and shall be of a well proven robust design and manufacture.

1.5 The castings, forgings, and die castings shall be close grained, sound, smooth and shall be carefully cleaned & dressed.

1.6 All castings shall be free of blowholes & other defects. No plugging will be permitted in case of blowholes.

1.7 All non-metallic materials to be provided shall be listed in current "water fittings and materials directory."

1.8 If the washer plate is sand or shell casting, it shall be machined all over.

2.0 Specification

2.1 List of components

i. body
ii. spindle
iii. gland
iv. handle
v. stuffing box
vi. washer plate
vii. washer
viii. washer seat
ix. washer in gland
x. packing
xi. head
xii. head seal

2.2 Applicable Standards

The stop valves shall comply with BS 1010:Part 2:1973 in every respect unless otherwise stated in the specifications.

2.3 Markings on the body

Stop valves shall be legibly marked with the following, by embossing integrally during casting.

i. Trade name of the product
ii. BS number
iii. The nominal size and direction of flow

2.4 Size

Sizes of the valves shall be ½ inches and ¾ inches.

2.5 Materials

General - Cast, pressure die Cast, forged and other methods of manufacture mentioned in the relevant standards of this specification are acceptable, if they satisfy other conditions included in the specifications.

i. Metallic parts shall be Brass.

ii. Composition of Brass (Cast) excluding die castings, for body & components shall conform to BS 1400:1985 SCB 1 or SCB 3 or DCB1or DCB 3 or PCB 1 equivalent grades in BSEN 1982 : 2017.

iii. Brass gravity die castings for body & components shall conform to BS 1400:1985 DCB 3 or equivalent grade in BSEN 1982 : 2017.

iv. Brass pressure die castings for body & components shall conform to BS 1400:1985 PCBI or equivalent grade in BSEN 1982 : 1999.

v. Brass for hot pressings for body & components shall conform to BS 2872:1989 CZ 122 or equivalent grade in BS EN 12420 : 2014.

vi. Washers - Vulcanized synthetic Rubber complying with clause 06 of BS 3457:1973.

vii. Head Seals -

- Head Seals shall be fiber joint washers to BS 5292:1980.

viii. O – rings -
according to the appendix A to E of BS 1010:1973.

ix. Jointing materials & components for portable water installations – BS 5292:1980 / BS 6956-1:1988.

2.6 Construction

i. seat - seat shall be integrally cast in the body & machined

ii. threads - inlet & outlet threads shall be female BS pipe parallel threads of the nominal Size as the valve.

iii. head seal - when 'O' rings are used, the dimensions shall be in accordance with the requirement of BS ISO 3601-2:2016 or BS 4578:1970 and rubber shall conform to the specifications in Appendix A of BS1010:1973.

- flat head seats shall be made from specially selected fiber complying with the requirements of BS 1737:1951 or BS 5292:1980 or a no less suitable material.

iv. Washer plate & washer plate unit -

- the washer plate with its stem shall be made in one piece.

- the washer plate shall have a stud for the attachment of the washers, if not screwed, shall be of such shape and size as will prevent the valve from becoming detached under working conditions.

- the valve plate shall be free to rotate in the hole in the spindle and shall be so secured as to lift with the spindle.

- the top of the washer plate shall be clear of the bottom of the head when fully open.

v. Body, head, spindle

- the construction, dimensions etc. of body, head, spindle etc shall be according to the requirements given in BS 1010:1973.

vi. Method of attaching handle

- handle shall be fixed on a squared spindle or the handle shall be secured on a serrated spindle or by the use of a similar positively engaging method.

- all handles shall be a close sliding fit on the spindle (without shake)

- handles shall be fixed by on axial screw with the handle on a sliding fit on the spindle but without shake.

vii. Spindle - spindle shall be of rising type.

viii. Clearance between head & handle

- the distance between the underside of the handle and the top of the head, with the valve closed, shall be according to the values given for each size of valve in Tables 5 and 6 of BS 1010:1973.

ix. Seat Washer - washer shall be of vulcanized synthetic rubber complying with the requirements of Clause 6 of BS 3457:1973.

x. Gland packing - the gland packing shall be a type of packing suitable for potable water. A suitable washer shall be fitted in the bottom of the gland. This may be omitted if the packing is in the form of moulded composition packing.

- when 'O' rings are to be employed a minimum of 2 rings shall be employed and these shall be made of synthetic rubber as specified in Appendix A of BS 1010:1973 and dimensions shall be according to BS ISO 3601-2:2016 or BS 1982+A2:2014.

- they shall be capable of being renewed.

- the 'O' rings shall not be less than 1.6 mm. in sectional diameter.

2.7 Pressure Test

i. Seat Test

Every Stop Valve, in the closed position shall show no leakage when subjected to an internal hydraulic pressure of 20 bars.

ii. Body Test

In the open position and with the outlet sealed, shall be capable of withstanding without leakage an internally applied hydraulic pressure of 20 bars.

2.8 List of tests

The list of tests carried out on the samples submitted with the offer and samples drawn from the delivered lots are as shown in **Annex 1.**

Composition of materials will be tested at an accredited testing laboratory.

Annex - I

TESTING REPORT OF STOP VALVES

Tests for Stop Valves at National Water Supply & Drainage Board Work Shop

1. Nominal Size

    - Bore of seating
    - Height of seating
    - Width of seal on face of body for joint washer
    - Depth of bore for internal thread BS pipe (parallel)
    - Width across flats of unflanged Hexagon on stop valve ends.

2. Testing

    - Test Pressure
    - Seat Test
    - Body Test
    - Comments

3. Marking

    - Manufacture's name or mark
    - The number of BS
    - The nominal size and direction of flow

4. Water way

    - System Flow rate
    - Flow rate through the value
    - Pressure before the value
    - Pressure after the value
    - Area through the seat of the value
    - Minimum area of water way

5. Inlet and Outlet threads (BSEN 10226)

    - Inlet thread
    - Outlet thread

6. Washer plate and washer plate unit

    - The washer plate with its stem shall be made in one piece
    - If the washer plate is a sand or shell casting, it shall be machined all over
    - The washer plate in all tap sand valve shall be free to rotate in the hole in the spindle and shall be so secured as to lift with the spindle.

7. Dimensions of heads and glands

- Dia. of face of flange for head seal
- Min. No. of threads in full engagement with body.
- Axial length of stuffing box
- Length of external thread on gland
- Thickness of flange of gland
- Axial length of hexagon.
- Size of hexagon over flats.

8. Dimensions of spindle, washer, washer plate and handle

- Size across flats of squire end of spindle
- Dia. of stem of washer plate
- Outside dia of washer plate (flat type)
- Inside dia. of washer plate (Shrouded type)
- Inside dia of washer plate (Shrouded type)
- Length of washer plate stem
- Thickness of washer plate
- Thickness of washer
- Lift of washer plate (with washer in position)
- Outside dia. of washer.