IPSS

SPECIFICATION FOR WATER HOSES OF RUBBER WITH BRAIDED TEXTILE REINFORCEMENT EXPOSED TO HIGH TEMPERATURE CONDITIONS

CORRESPONDING INDIAN STANDARD DOES NOT EXIST

IPSS : 1-02-021-85

0. Foreword

0.1 Interplant standardization activity in steel industry has been initiated under the aegis of the Indian Standards Institution (ISI) and the Steel Authority of India Limited (SAIL). This Interplant Standard prepared by the Standards Committee on Basic Standards and Hydraulic, Pneumatic and Lubricating Equipment, IPSS 1:2, with the active participation of the representatives of all the steel plants and established manufacturers of rubber hoses was adopted by the Approval Committee on Consumable Stores and General Equipment, IPSS 1, on 30 January 1985.

0.2 Interplant Standards for steel industry primarily aim at achieving rationalization and unification of parts and sub-assemblies used in steel plant equipment and accessoies, and provide guidance in indenting stores or equipment for existing or new installations by individual steel plants. For exercising effective control on the inventories, it is advisable to select a fewer number of sizes (or types) from among those mentioned in this standard for the purpose of company standards of individual steel plants. It is not desirable to make deviations in technical requirements.

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1. Scope — This Interplant Standard specifies the requirements for water hoses of rubber with braided textile reinforcement exposed to high temperature conditions in steel plants.

2. Construction

2.1 The seamless lining of the hoses shall be extruded from a high grade rubber compound suitable for water up to 100°C. The lining shall be uniform in thickness, smooth in bore, concentric and free from air blisters, porosity and visible defects.

2.2 The textile reinforcement consisting of high strength and low stretch yarn of natural or synthetic fibre shall be firmly and evenly braided over the lining. The braids of reinforcement shall be impregnated with rubber compound. The reinforcement shall resist shock blows, internal pressure and external crushing.

2.3 The cover shall be made of specially compounded rubber to resist wear abrasion and deterioration through exposure to sunlight. The cover shall be uniform in thickness, smooth, concentric and free from air blisters, porosity and splits.

2.4 The hoses shall be moulded by the lead press/wrapped method and vulcanized to bend the components inseparably. The hose shall be extremely flexible and non-kinking.

2.5 The hoses which are subjected to the high temperature conditions shall have a covering of asbestos cloth of the following quality woven externally:

The loss on drying 2 g of material for one hour at 104°C shall not exceed 2·5 percent by weight. Further loss on ignition of the portion thus dried, determined by heating in an open crucible in a gas muffle for 30 minutes shall not exceed 25 percent by weight of original undried sample.

3. Dimensions and Reinforcement Braids

3.1 The nominal bore size, tolerance on nominal bore size, numbers of reinforcement braids, lining thickness, cover thickness, approximate diameter and recommended working pressure shall be as given in Table 1.

3.2 The hoses shall be of green colour and be supplied in lengths of 15 metres unless otherwise stated. The tolerance on hose length shall be ±1 percent.

Amendments Issued (*to be filled up by the user department*) :

No.	Date of Issue	No.	Date of Issue
1		3	
2		4	

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TABLE 1 DIMENSIONAL SPECIFICATIONS AND WORKING PRESSURE

(Clause 3.1)

Nominal Bore Size mm	Tolerance on Nominal Bore Size mm	No. of Reinforcement Braids	Lining Thickness mm	Cover Thickness mm	Approximate Outside Diameter mm	Recommended Working Pressure kgf/cm²
12·5	±0·75	2	1·5	1·5	24·00	10
19·0	±0·75	2	1·5	1·5	31·30	10
25·0	±1·25	3	2·0	1·0	40·50	10
31·5	±1·25	3	2·0	1·0	46·00	10
36·0	±1·50	3	2·0	1·0	53·20	10
51·0	±1·50	4	2·5	1·0	69·20	10
63·0	±1·50	4	2·5	1·0	82·20	10
80	±1·50	4	2·5	1·0	105·00	10
100	±1·50	4	2·5	1·0	130·00	10

4. Designation — The hoses shall be designated by nominal bore.

Example: Water hose with a nominal bore 25 mm conforming to this standard shall be designated as:

Hose 25—IPSS : 1-02-021-85

5. Testing

5.1 The test regarding tensile strength, elongation at break, accelerated ageing, adhesion, bursting, pressure, proof pessure shall be carried out in accordance with IS : 913-1968 'Specification for water hose of rubber with braided textile reinforcement (*first revision*)'.

5.2 The hoses shall comply with the requirements given in Table 2.

TABLE 2 REQUIREMENTS OF TESTS ON FINISHED WATER HOSE

a) Tensile strength of lining and cover : 70 kgf/cm² *Min*

b) Elongation at break : 300% *Min*

c) Accelerated ageing test for lining and cover at 70°C :

  i) Variation for tensile strength : ± 25%

  ii) Variation for elongation at break : $^{+\ 10\%}_{-\ 30\%}$

d) Adhesion test rate of separation between lining and braid, between braids and between cover and braids shall not exceed 25 mm per minute under a load of 4·5 kg

e) Proof test pressure : 1·5 times working pressure for one minute.

f) Bursting pressure shall be four times the working pressure.

g) Maximum increase in outside diameter of hose at working pressure : 9% up to 25 mm bore.

Note — For hoses above 25 mm nominal bore, the bursting pressure and the maximum increase in outside diameter shall be as agreed to between the purchaser and the supplier.

5.3 The manufacturer shall furnish a test certificate for each consignment of hose giving the results of test specified in **5.2**.

6. Marking — The hose shall be indelibly marked at intervals of 5 metres with the manufacturer's name or trade-mark and size of hose, month and year of manufacture.

7. Packing — Each length of the hose shall be coiled and suitably packed. The packing shall be such as to protect the hose from damage during transit.

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