INTER PLANT STANDARD IN STEEL INDUSTRY		
IPSS	SPECIFICATION FOR AIR PRESSURE REGULATORS	**IPSS: 1-02-009-18** *(First Revision)*
	Corresponding IS does not exist	Formerly : IPSS:1-02-009-84

0. FOREWORD

0.1 Interplant standardization 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 Standards prepared and revised by the Standard Committee on Basic Standards, Hydraulic, Pneumatic and Lubricating Equipment, IPSS 1:2 , with the active participation of the representatives of all the steel plants and leading consultants and was adopted in March, 1984. Thereafter, standard was revised in January, 2018.

0.2 Interplant standardization for steel industry primarily aims at achieving rationalization and unification of parts and sub-assemblies used in plant equipment and accessories, 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 type) 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.

0.3 Air pressure regulator is meant for ensuring availability of a constant regulated air pressure at its outlet port, irrespective of the variation in flow.

1.0 SCOPE

1.1 This Interplant Standard covers the main dimensions, operation and constructional features of air pressure regulators used in the compressed air lines for the supply of the required pressure of air for air actuated equipment in steel plants.

2 DIMENSIONS

The main dimensions of the regulator shall be as indicated in Fig. 1

3. STYLE

For the purpose of this standard, the air pressure regulators shall be of the following two styles:

Style NR: Non-relieving, and

Style SR: Self-relieving

4. OPRATIONAL FEATURES

4.1 Flow and Pressure Characteristics – The regulators shall be designed to

give constant regulated pressure at the work point and compensate for flow level changes and variations in supply pressure. The reduced pressure shall vary within 0.4 kg/cm2 Max when supply pressure varies from the maximum value up to the set reduced (secondary) value.

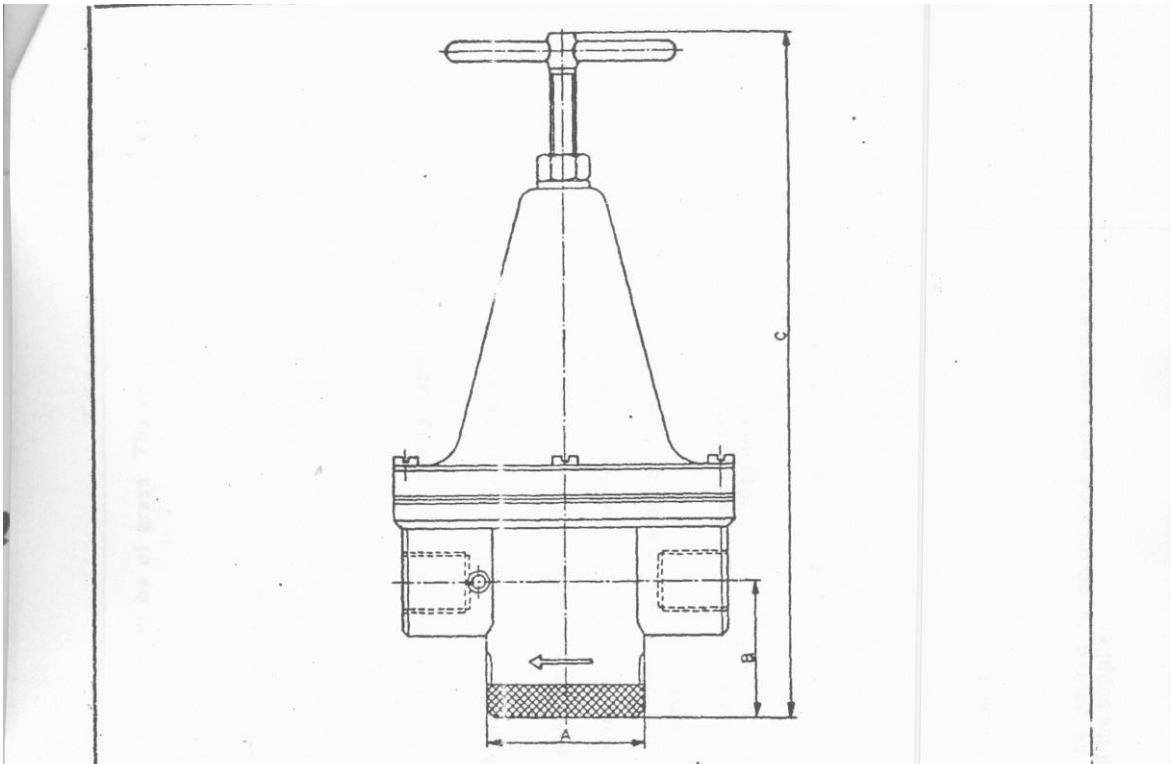
4.2 In the case of regulators of self-relieving style, their design shall be such that the outlet pressure shall not rise above the set pressure even with a damaged valve seat, and on further regulation to a lower pressure than the initial set pressure, it will blow off air until the pressure at the outlet side falls to the newly set low level.

4.3 The regulators shall be operated at 48degree Celsius ambient temperature in compressed air lines in air pressure lines at the pressure ranges of:

a) Type A – 0 to 78 x 10 N/m2 (0 to 8 kgf/cm2), and

b) Type B - 0 to 176 x 10 N/m2 (0 to 18 kg/cm2)

Any other pressure may be specified while ordering.



Pipe Size N.B.	A	B	C
6 (¼ in), 9 (⅜ in), 12 (½ in)	70 mm (2¾ in)	35 mm (1⅜ in)	150 mm (6 in)
19 (¾ in), 25 (1 in)	125 mm (5 in)	44 mm (1¾ in)	241 mm (9½ in)
31 (1¼ in), 38 (1½ in)	125 mm (5 in)	50 mm (2 in)	255 mm (10 in)
50 (2 in)	50 mm (6 in)	62 mm (2½ in)	300 mm (12 in)

Regulated Pressure Range:
0 - 4 kg/cm² (0 - 60 p sig)
0 - 8·5 kg/cm² (0 - 125 p sig)
0 - 17 kg/cm² (0 - 250 p sig)

FIG. 1 AIR PRESSURE REGULATOR

FIG.1 AIR PRESSURE REGULATOR

Pipe Size N.B.	A	B	C
6 (1 /4 in), 9 (3/4 in), 12(1/2 in)	70 mm (2 in)	35 mm (1 in)	150 mm (6 in)
19 (¾ in), 25 (1 in)	125 mm (5 in)	44 mm (1 3/4 in)	241 mm (9 1/2 in)
31 (1 1/4 in), 38 (1 ½ in)	125 mm (5 in)	50 mm (2 in)	255 mm (n)
50 (2 in)	50 mm (6 in)	62 mm (2 1/2 in)	300 mm (12 in)
Regulated Pressure Range: 0-4 kg/cm2 (0-60 P sig) 0-8.5 kg/cm2 (0-125 p Sig) 0-17 kg/cm2 (0-250 p Sig)			

5. CONSTRUCTION FEATURE

The regulator is to be engineered and designed for the most rigorous general purpose applications.

5.1. The body shall be of forged brass / aluminium / die cast zinc or as specified by the purchaser. The inlet and outlet shall have taper pipe threads, confirming to IS: 554-1999 'Dimensions, Tolerance and Designation for Pipe Threads where Pressure tight joints are required on the threads (Fourth Revision)'. An arrow mark depicting direction of air flow shall be engraved / embossed on the body.

The spring cage shall be of aluminium: Springs shall be galvanized / cadmium plated to prevent corrosion and shall conform to Gr 3 of IS: 3431-1982 'Specification for Manufacture of volute, helical and laminated springs for automotive suspension (Second Revision).

5.2. The diaphragm shall be of phosphor bronze or nylon reinforced Buna N. The disc shall be of Buna N.

5.3. The valve seat and the spindle and its moving poppet shall be of brass. The valve seat seal shall be of hard Teflon.

5.4. The strainer shall be of stainless steel or brass.

5.5. The bottom plug shall be removable by hand for easy servicing.

5.6. All "O" ring seals shall conform to IS: 9975:(All Parts)

5.7. The regulators shall be provided with two mounting holes. Two inch BSP gauge ports on either side shall be provided and sealed with pipe plugs.

6. DESIGNATION

Air pressure regulator shall be designated by the style (See 3) type (See 4.3) and nominal bore, for example:

Air pressure regulator of style NR, Type A having a nominal bore of 50 mm shall be designated as:

Air Pressure regulator NR – A – 50, IPSS: 1-02-009-18

Note: - If pressure gauge is required to be mounted on the regulators, it should be specifically mentioned.

7. TEST CERTIFICATE

The manufacturer shall provide a certificate with every air pressure regulators for conforming of the air pressure regulator to this standard.

8. GUARANTEE

The air pressure regulator shall be guaranteed by the manufacturer for a period of one year from the date of dispatch or six months from the date of commissioning, whichever is earlier.

9. MARKING

The air pressure regulator shall be provided with a name-plate giving the following information:

a) The manufacturer's name, trade-mark;

b) NB and NP of the valve;

c) Year of manufacture, serial number and batch number ; and

d) IPSS designation.

10. PACKING

The air pressure regulator shall be packed in accordance with best prevalent practice or as agreed to between the purchaser and the supplier.