INTER PLANT STANDARD IN STEEL INDUSTRY		
IPSS	**SPECIFICATION FOR FLUID COUPLINGS**	**IPSS:1-01-008-18 (First Revision)**
		Formerly : IPSS:1-01-008-83

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). The Interplant Standards prepared by the standard committee on Mechanical Drives, IPSS 1:1, with the active participation of the representatives of all the steel plants and leading consultants and was originally adopted in 1983. Thereafter, this standard revised with first revision in **November, 2018**.

0.2 Interplant standardization for steel industry primarily aims at achieving rationalization and unification of parts and sub-assemblies used in steel plants equipments and accessories and provides 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 the products mentioned in this standards for the purpose of company standards of individual steel plants. It is not desirable to make deviations in technical requirements.

0.3 This revision is an updated version to take care of the recent changes in Specification of fluid couplings.

1. SCOPE

1.1 This Inter Plant Standard covers the requirement and dimensions of fluid couplings to be used between an electric motor and a driven equipment to connect two shaft ends.

1.2 This standard does not cover the design aspects of internal members of the couplings.

2. MATERIAL

2.1 Impeller, Casing and Runner

The Impeller, casing and runner shall be made of high tensile aluminum alloy castings conforming to a suitable alloy designation specified in IS: 617 -1994, “Specification for Cast Aluminums and its Alloy ingots and Castings for General Engineering Purposes (Third Revision).

2.2 Shaft

This shall be made of steel conforming to Class 4 of IS: 1875-1992 (R2014) “ Specification for Carbon Steel Billets, Blooms, slabs and Bars for Forgings (Fifth Revsion)” or C -40 of IS: 7283-1992 “Specification for hot rolled bars for production of bright bars and Machined parts”.

2.3 Output Coupling and Driving Boss

The material of the coupling shall conform to Grade 20-40 of IS: 1030-1998 “Specification for Carbon Steel Casings for General Engineering Purposes (Fifth Revision)”

2.4 Bolts

Bolts shall be made of high tensile steel, Grade 8.8 according to IS: 1367-2002 “Technical Supply Conditions for Threaded Steel Fasteners (Third Revision)”

2.5 Oil

The Oil to be used in the coupling shall be hydraulic oil, mineral type, conforming to Grade-3 of IPSS: 1-09-002, “Specification for hydraulic Oil, Mineral Oil type”. The supplier shall emboss on the body of the fluid coupling the recommended filling angel and quantity of Oil required for a particular rating.

3. DIMENSIONS

3.1 The overall dimensions of the fluid coupling, and the ratings at different speeds shall be given in Table 1 & 2 respectively. For accommodating couplings having different shaft distances ‘D”, a typical sketch of a make up piece and guidance for its use are given in Appendix A

4. Technical Requirements

4.1 The slip for the couplings for various quantities of oil shaft not exceed 4 percent for rated loads.

4.2 The coupling shall be able to stall at 150 to 250 percent of rated torque.

4.3 Fusible plugs shall be provided on the fluid coupling set to melt at predetermined temperature in case of overload or jamming.

4.3.1 A spare fusible plug shall be fitted on the boss. The tapped hole, for fixing the fusible plug on the boss, may also be used for fixing dial gauge for alignment purpose.

4.3.2 The fusible plugs of various sizes of the couplings shall be made of same size for effecting interchangeability.

4.4 The Operating characteristics of the coupling shall be same in either direction of rotation.

4.5 The driving boss and the output coupling shall be provided with a pilot bore as specified in Table -1.

4.6 The fluid coupling shall allow itself to be replaced for maintenance etc without disturbing the position of driving and driver machine.

4.7 A resilient driving plate shall be provided in the input side of the coupling to protect the coupling against severe misalignment.

4.8 The output side of the fluid coupling may be fitted with either all steel semi-flexible multi-disc coupling or ‘V’ groove- pulley, as specified by the purchaser. In case the output side of the fluid coupling is fitted with ‘V’ groove-pulley, provision of self aligning bearing shall be made to support the extended shaft.

4.8.1 The output of the fluid coupling may also be fitted with a brake drum on the option of the purchaser. In such cases, the specification of the brake drum shall be as agreed between the purchaser and the manufacturer.

4.9 The half coupling fitted on the fluid coupling shaft shall be fitted with taper lock bushing, unless specified by the purchaser for shrunk fitted coupling.

APPENDIX A

(*Clause* 3)

GUIDANCE FOR ACCOMMODATING COUPLINGS HAVING DIFFERENT SHAFT DISTANCES

A-1. Whenever an existing coupling is to be replaced by a coupling conforming to this standard, suitable distance piece shall be used to make up the difference in shaft distance '*D*'.

A-2. The size and number of such distance pieces shall be specified depending upon the requirements.

A-3. While indenting for distance pieces, the various sizes as given in Fig. 1 shall be specified, along with suitable tolerance on PCD '*P*' and dia '*d*'.

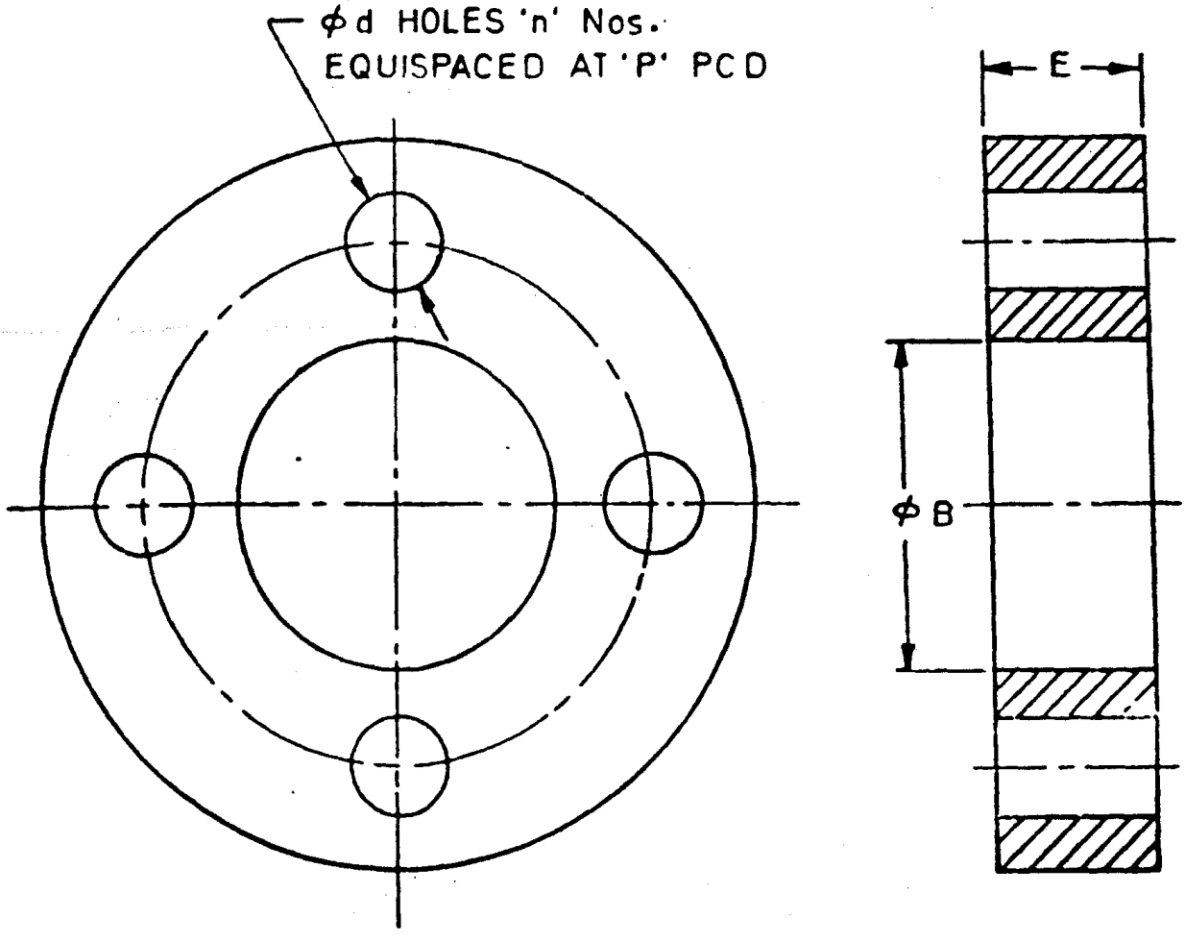

FIG. 1 TYPICAL SKETCH OF DISTANCE PIECE

TABLE 1 OVERALL DIMENSIONS OF FLUID COUPLING

(*Clauses* 3 *and* 4.5)

All dimensions in millimetres.

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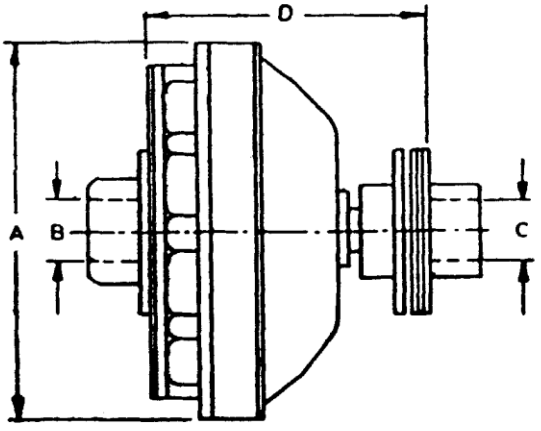

Coupling No.	Pilot Bore	A Max	B Max	C Max	D Max	Approx Mass kg	GD² kgm²
1	20	237	42	35	165	13·2	0·246
2	30	268	48	48	194	17·7	0·332
3	30	308	48	48	210	22·2	0·54
4	40	333	60	60	232	35	0·75
5	50	419	80	70	287	57·6	2·53
6	50	454	80	70	335	74	4·2
7	60	505	85	83	354	106	6·4
8	60	578	85	83	390	142	11·5
9	70	660	110	100	457	207	23
10	70	749	110	100	492	272	38
11	100	838	130	125	552	358	65
12	100	914	130	125	587	520	95
13	110	1 032	150	150	626	678	182
14	110	1 162	150	150	660	948	316

TABLE 2 MAXIMUM OPERATING kW RATINGS OF FLUID COUPLINGS AT VARIOUS SPEEDS

(*Clause* 3)

Coupling No.	Speed in rev/min			
	580	720	960	1 450
	Maximum Operating Rating in kW			
1	—	0·29	0·69	2·36
2	0·31	0·60	1·42	4·88
3	0·59	1·13	2·68	9·21
4	0·98	1·83	4·35	15·01
5	3·00	5·67	13·42	46·2
6	5·44	10·44	24·76	75·00
7	8·13	15·51	37·29	116·00
8	15·73	30·13	75·00	151·00
9	30·00	56·00	130·00	242·00
10	58·20	112·00	210·00	—
11	101·00	187·00	317·00	—
12	155·00	271·00	402·00	—
13	273·00	345·00	671·00	—
14	410·00	534·00	850·00	—