INTER PLANT STANDARD IN STEEL INDUSTRY		
IPSS	**SPECIFICATION FOR GRID TYPE RESILIENT COUPLINGS**	**IPSS:1-01-006-18 (Second Revision)**
		Formerly : IPSS:1-01-006-86 (First Revision)

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 1982 and revised with first revision in March, 1986. Thereafter, this standard revised with Second 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 mainly to rationalize the dimensions of the coupling to remove the difficulties experienced in their manufacture, the other changes effected in this version include modification of the hardness values of grid members and inclusion of coupling designation in line with the decision taken with respect to all specifications on different type of couplings under the purview of IPSS. 1:1.

1. **SCOPE**

1.1 This Inter Plant Standard covers the requirement of Grid Type resilient couplings.

2. **Rating and dimensions**

2.1 The rating and dimensions of the couplings shall be as specified in Table – 1.

2.2 The mass, GD^2 and quantity of grease for these couplings are given in Table-2

3. **Material of Construction and Heat Treatment**

3.1 The toothed hubs and cover of the couplings shall be made of 45C8 of IS: 2004-1991 OR Cast steel 280-520W of IS: 1030- 1998 ‘Carbon Steel Castings for General Engineering Purposes.’

3.2 The grid members shall be made of steel conforming to suitably heat treated to a hardness of 420 BHN, MINIMUM.

4. **Performance Requirements**

The couplings shall be able to transmit the required power (in KW, 100 rev, min) rating as specified in **Table – 1**.

5. **Construction**

5.1 The general shape of the coupling shall be as given in Figure-1. The toothed hubs and the covers shall be machined all over for balancing. The couplings shall be fitted with suitable grease nipples for lubricating the teeth and grids. Suitable seals shall be fitted to prevent leakages of lubricants.

5.2 The bolts shall be of property class – 8.8 and nuts shall conform to property class 8 of IS 1367: 2002.

6. **Lubrication**

The manufacturer shall indicate the grade and quantity of lubricants to be used.

7. **Designation**

The grid type resilient couplings shall be designated by the outer diameter of the casing (see Ø A in Figure -1) along with the prefix ' GRC' (see Table -1) and the number of this standard. For example, a grid type resilient coupling having outer diameter of casing 190 mm shall be designated as:

GRC 190, IPSS: 1-01-006-18

coupling shall not be used for an application, where the rotational speed is higher than the specified maximum permissible speed given in the interplant standards. For such applications, it shall be treated as a special case.

8. **MARKING**

The Couplings shall be marked with the coupling designation and manufacturer's name.

9. **PACKING**

The Coupling assembly shall be suitably packed to withstand rough handling during transit.

10. **GAURENTEE**

The Coupling shall be guaranteed for a period of 18 months from the date of dispatch or 12 months from the date of commissioning, which ever is earlier.

TABLE 1 RATING AND DIMENSIONS OF GRID TYPE RESILIENT COUPLINGS

(*Clauses* 2 *and* 4)

Coupling Designation	Rated Power to be Transmitted in kW/100 rev/min	Revolutions (rev/min)	Pilot Bore φd	Maximum Bore	*A*	*B*	*C*	*D*	*E*	*F*	Size of Bolts	No. of Bolts/ Hole	Grid Details	
													No. of Grid Layers	No. of Segments Per Set
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
GRC 105	0·45	5 625	9	28	105	38·0	0·79	45	53	86·0	Hexagonal screw M6 x 25 mm	4	1	1 circle
GRC 120	0·67	4 700	10	38	120	38·0	0·79	58	53	100·0	do	6	1	1 circle
GRC 144	0·12	4 420	15	40	144	44·6	0·79	62	60	113·0	Hexagonal head bolt M6 x 25	4	1	1 circle
GRC 172	1·86	3 360	15	55	172	51·0	0·79	87	60	140	do	4	1	2 segments
GRC 190	3·00	3 130	15	55	190	51·0	0·79	85	80	152·5	Hexagonal head bolt M8 x 30	4	1	2 segments
GRC 197	4·50	2 900	15	60	197	57·0	0·79	100	80	162·0	do	6	1	1 circle
GRC 222	6·70	2 430	25	70	222	63·5	0·79	120	80	187·0	do	6	1	1 circle
GRC 254	9·00	2 050	25	92	254	70·0	0·79	143	81	214·5	Hexagonal head bolt M10 x 30	4	1	2 segments
GRC 276	13·43	1 860	25	108	276	89·0	0·79	165	81	236·5	do	4	1	2 segments
GRC 295	26·00	1 765	35	101	295	102·0	1·59	155	129	254·0	Hexagonal head bolt M10 x 35	6	2	2 circles
GRC 324	33·0	1 560	50	120	324	101·5	1·59	187	148	282·5	do	6	1	2 segments
GRC 336	48·5	1 500	50	120	336	101·5	1·59	184	148	295·3	do	8	2	4 segments
GRC 375	67·16	1 290	50	145	375	114·0	1·59	222	148	333·0	do	8	2	4 segments
GRC 425	93·0	1 130	50	165	425	127·0	1·59	254	148	378·0	Hexagonal head bolt M12 x 40	6	2	4 segments

TABLE-2

MASS, GD2 AND QUANTITY OF GREASE

TABLE 2 MASS GD² AND QUANTITY OF GREASE

(*Clause 2.2*)

Coupling Designation	Mass in kg	GD² kg m²	Quantity of Grease g
GRC 105	3	0·008 0	30
GRC 120	4	0·016 0	30
GRC 144	5	0·027 2	30
GRC 172	9	0·076 0	60
GRC 190	11	0·105 2	120
GRC 197	15	0·162 0	120
GRC 222	20	0·295 2	150
GRC 254	26	0·515 2	200
GRC 276	42	1·029 6	250
GRC 295	53	1·380 0	500
GRC 324	62	2·093 3	750
GRC 336	71	2·488 6	750
GRC 375	103	4·671 5	1 250
GRC 425	147	8·605 6	1 250

Note — All values are approximate.

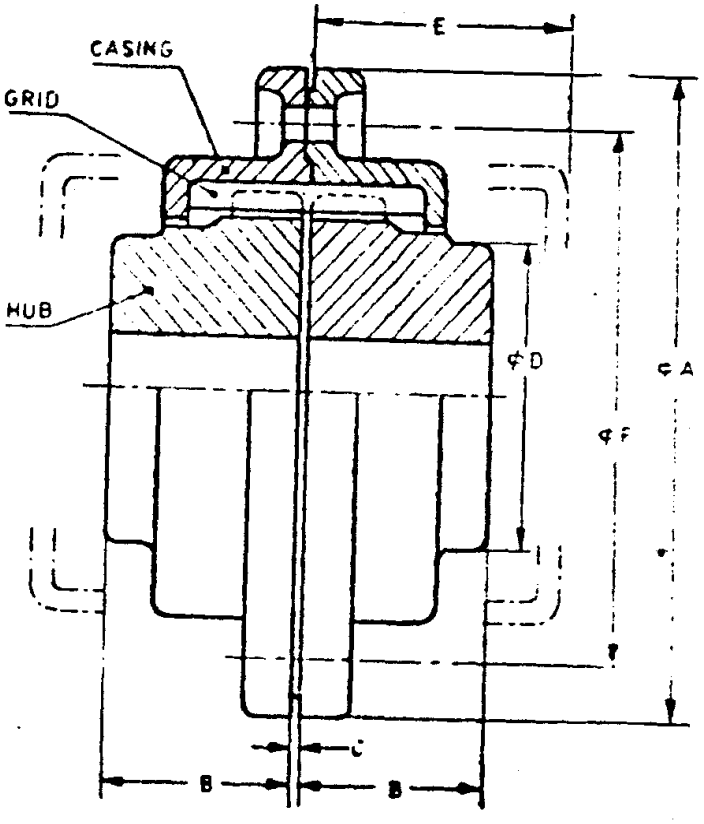

FIG. 1 GRID TYPE RESILIENT COUPLING

FIGURE-1
GRID TYPE RESILIENT COUPLING