IPSS	SPECIFICATION FOR GEAR TYPE FLEXIBLE COUPLINGS	IPSS:1-01-005-18 (First Revision)
		Formerly : IPSS:1-01-005-86

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 March, 1986. 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 capacities and characteristics of remote control hydraulic jacks used in steel plant 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 latest procedural requirements.

1. SCOPE

1.1 This Inter Plant Standard covers the requirement of Gear type flexible couplings including float shaft couplings used for connecting two shaft ends for torque transmission.

2. CLASSIFICATION

2.1 The coupling specified in this standard cover the following types-:

a) Type GCA – Gear type flexible coupling A type having internal sealing arrangement (See Figure-1)

b) Type GCB -- Gear Type flexible coupling B type having detachable sealing arrangement. (See Figure – 2)

c) Type GCFA -- Floating shaft flexible coupling to be used with one half of coupling Type – A (See Figure 3)

3. RATINGS AND DIMENSIONS

The rating, dimensions and other requirements of the couplings shall be as given in Table – 1 read with Figure-1 for Type – A and Table-2 read with Figure – 2 for Type B couplings and Table – 3 and Table – 4 with Figure – 3 for floating shaft couplings,

4. MATERIAL AND CONSTRUCTION

The half casing and toothed hub shall be made of steel conforming to 45C8 of IS 2004: 1991(R2016) ' Carbon Steel Forging for General Engineering Purposes – Specification ' and shall be heat treated to a hardness BHN 240-280

4.1 The half casing shall be interchangeable alternatively steel casting of equivalent quality { see IS : 2707-1996 (R2002) ' Carbon Steel castings for surface hardening purposes(fourth revision)}' may also be used for the manufacture of couplings, provided it is specifically agreed to between the supplier and the user.

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

4.3 The gear teeth shall be cut by module cutters only. The teeth characteristics including crowning and barreling shall be as agreed to between the supplier and the user.

4.4 The general shape of the coupling shall be as given in Figure-1 of IPSS 1-01-006-18. 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.

4.5 Spring Washers – shall conform to IS: 4072-1975 "Specification for steel for spring washers'. Mild steel plain washers may be used if required by the customer

5. SEALING

The sealing arrangement for the couplings shall be either integral with the casing or with an adapter plate.

5.1 Arrangement of Sealing, such as with felt conforming to IS: 1719 – 2000 'Specification for pressed wool felt (fourth revision), 'O' rings, lip seals etc shall be optional subject to agreement between supplier and the user.

5.2 Also see IPSS 1-02-013-18 for reference of Rotary shaft oil seal units.

6. LUBRICATION

Provision shall be made for easy filling and discharge of the lubricant with plug (%) suitably located.

6.1 For application where ambient temperature is below 65.5^0 C, mineral oil having a viscosity no lighter than 150 SSU (32.1 CS) and be not heavier than 1000 SSU (220 CS) at 99^0 C shall be used.

6.2 Alternatively, calcium base EP type grease consistency No. 2 or graphite grease of consistency No. 2 as per IS : 508 – 1987 ' Specification for grease, graphited (Fourth revision) and with graphite content10 to 20 percent shall be used.

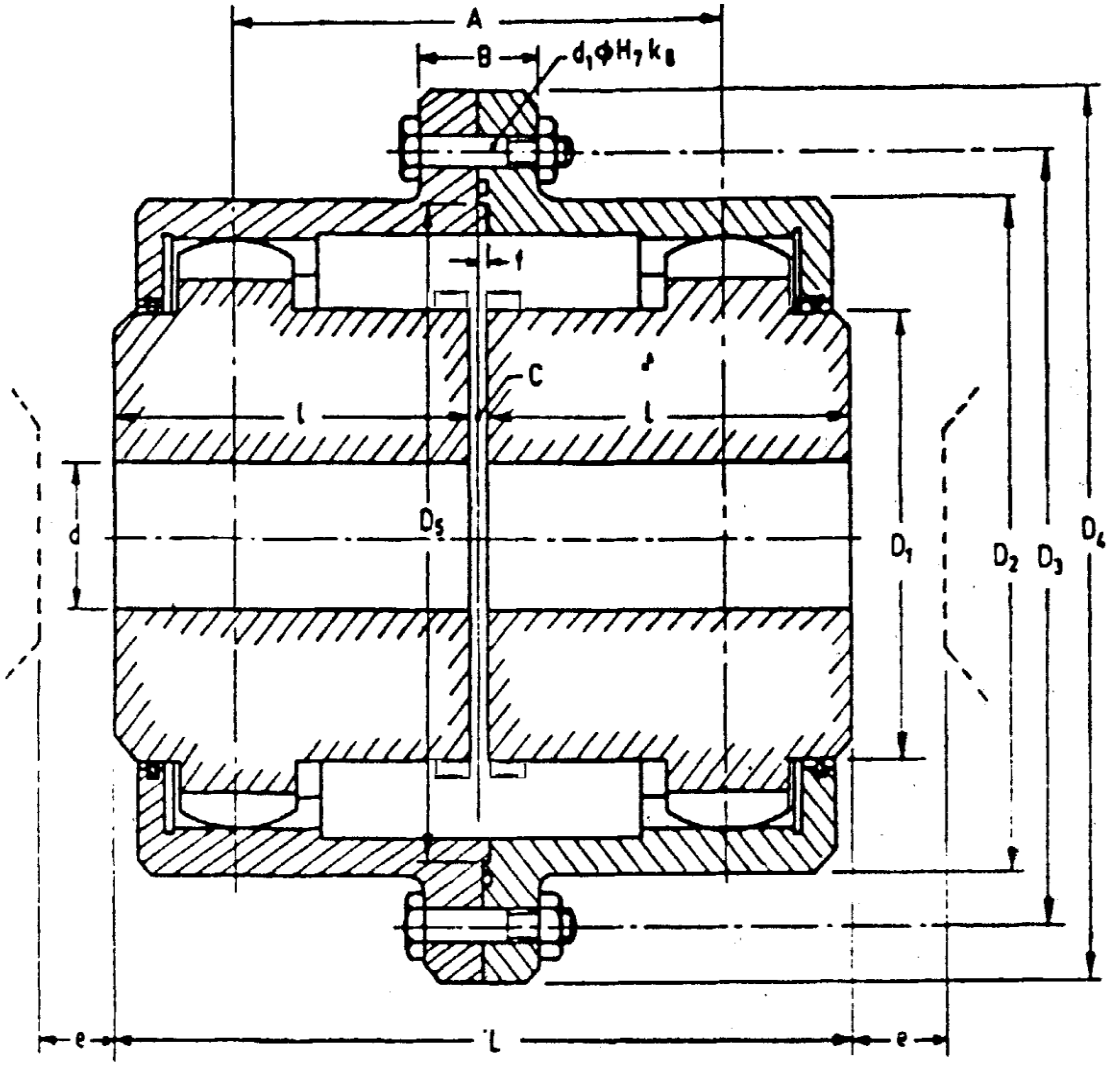

FIG. 1 GEAR COUPLING TYPE 'A'

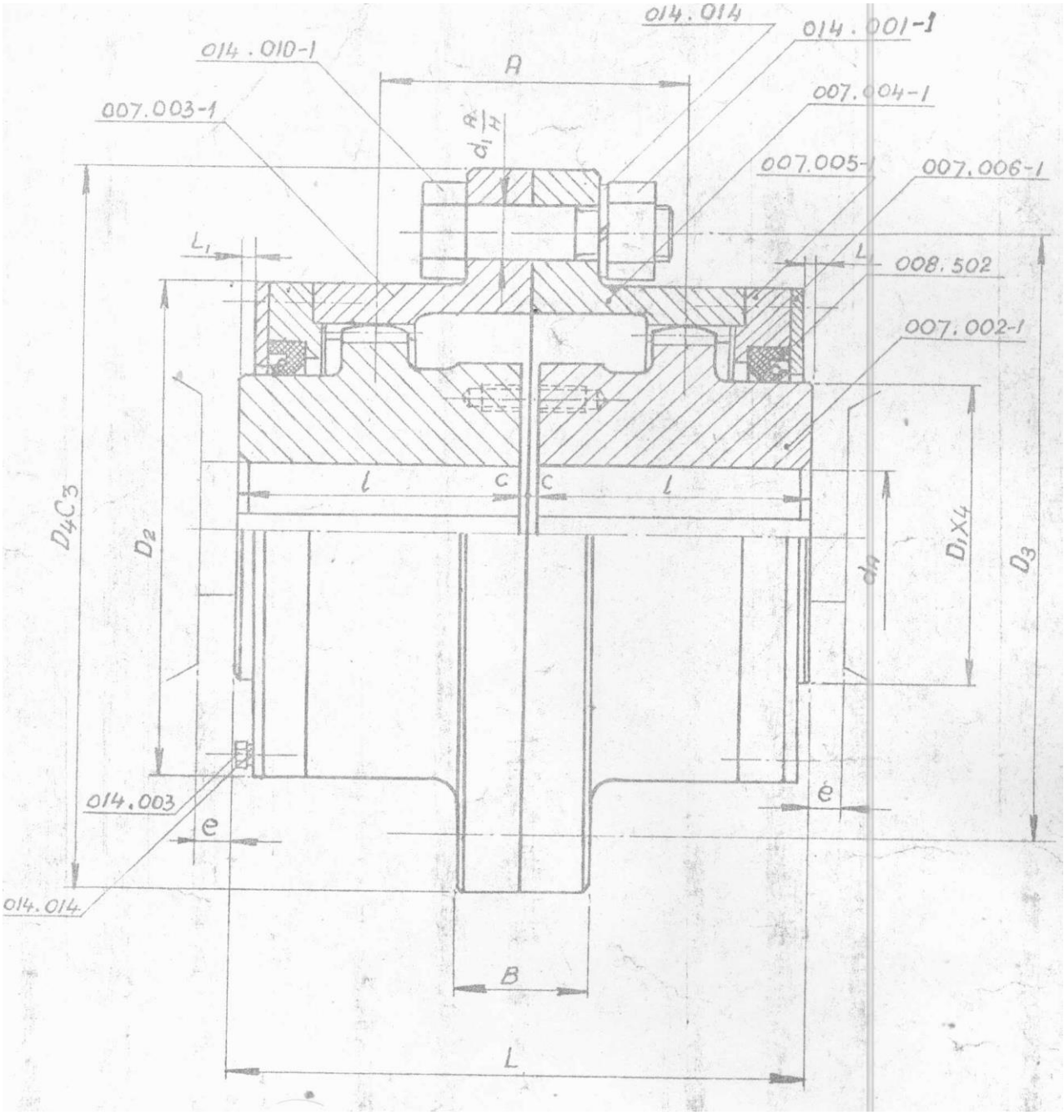

Figure – 2

Gear Coupling

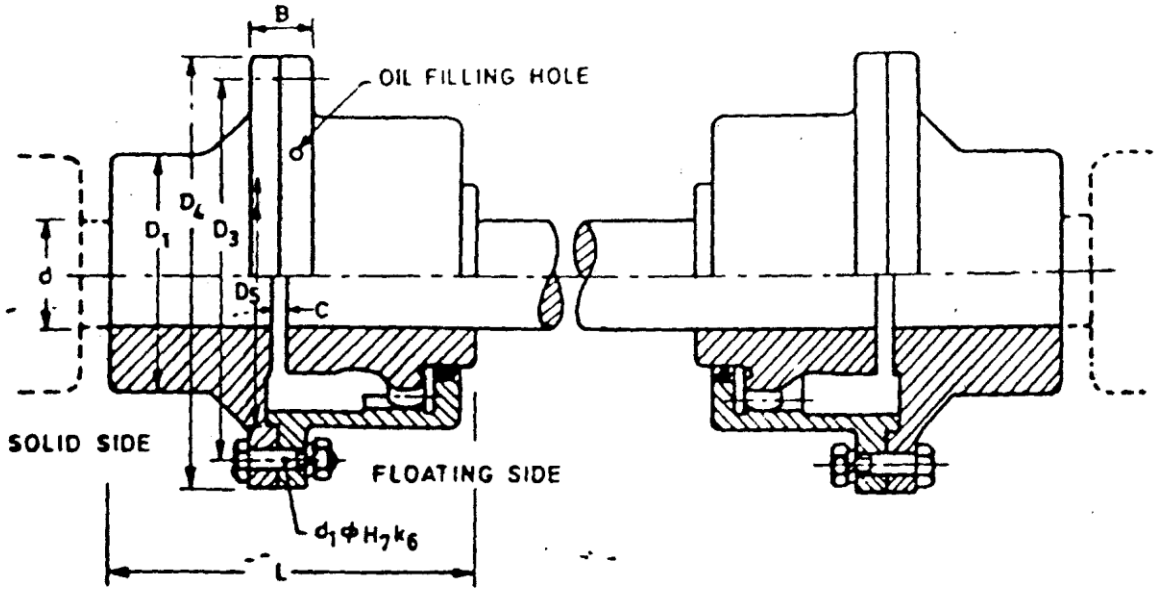

FIG. 3 FLOATING SHAFT FLEXIBLE COUPLING

6.3 The manufacturer shall indicate the grade and quality of lubricant to be used with each coupling.

7. **Marking**

The coupling shall be marked with the following details on the periphery of the casing:

a) Manufacture's name or trade mark

b) Type and coupling number as specified in col 1 of Table 1, 2 and 3

c) Designation of this standard.

8. **Packing**

The coupling shall be suitably packed in wooden boxes to prevent damage during transit.

9. **Guarantee**

The couplings shall be guaranteed for a minimum period of 18 months from the date of dispatch or 12 months from the date of commissioning whichever is earlier.

TABLE – 1

RATINGS AND DIMENSIONS OF GEAR TYPE FLEXIBLE COUPLINGS (TYPE A & TYPE B)

Coupling No.	Power per 100 rpm	Max. Torque in kgm	Max. rpm	d From	d To	D1	D2	D3	D4	Spigot H5/h5	L	B	C	A	Required End Clearance 'e'	Dia of Pilot Bore	Fit Bolts No.	Fit Bolts Size	Approx Weight in kg*	Approx 'DG' Value in kg.m²
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11) (12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
GC-A-170	7·40	71	6 300	20	40	55	110	140	170	100 5	115	34	55	5	49	25	15	6	M12×50	9·5	0·12
GC-A-185	14·55	140	5 000	30	50	70	125	155	185	115 5	145	34	70	5	75	25	25	6	M12×50	14·4	0·21
GC-A-220	32·8	315	4 000	40	60	90	150	185	220	125 5	175	40	85	5	95	25	35	6	M16×60	21·2	0·42
GC-A-250	58·5	560	3 350	45	75	110	175	215	250	150 5	215	40	105	5	125	25	40	8	M16×60	39	0·85
GC-A-290	84·9	800	2 800	50	90	130	200	245	290	175 5	240	50	115	10	145	28	45	8	M20×75	57	1·80
GC-A-320	123·0	1 180	2 500	65	105	140	230	275	320	200 5	260	50	125	10	160	28	60	8	M20×75	76	2·80
GC-A-350	196·0	1 900	2 120	80	120	170	260	305	350	225 5	290	50	140	10	185	30	75	10	M20×75	101	4·6
GC-A-380	244·0	2 360	1 900	95	140	190	290	335	380	275 5	330	50	160	10	210	30	90	12	M20×75	142	8·3
GC-A-430	312·5	3 000	1 700	105	160	210	330	380	430	300 5	340	50	165	10	220	35	100	10	M24×80	174	14·2
GC-A-490	520·0	5 000	1 400	120	180	260	390	440	490	350 5	370	50	180	10	245	40	115	12	M24×80	255	28
GC-A-545	740·0	7 100	1 250	130	220	300	345	495	545	400 5	410	60	204	10	280	40	125	12	M24×90	399	55
GC-A-590	1 040·0	10 000	1 120	140	250	340	490	540	590	450 5	490	60	240	10	350	40	135	14	M24×90	527	85
GC-A-680	1 562·0	15 000	1 000	180	280	380	555	620	680	500 5	535	70	260	15	375	40	170	14	M30×110	759	160
GC-A-730	2 080·0	20 000	900	230	320	420	610	670	730	575 5	575	70	280	15	405	45	220	16	M30×110	943	215
GC-A-780	2 600·0	25 000	800	270	360	480	660	720	780	625 5	655	70	320	15	480	45	260	18	M30×110	1 289	325
GC-A-900	3 920·0	37 500	710	310	400	530	755	830	900	725 5	720	90	350	20	535	45	300	18	M36×130	1 720	600
GC-A-1 000	5 840·0	56 000	630	350	450	630	855	930	1 000	800 5	820	90	400	20	625	50	340	20	M36×130	2 350	1 140
GC-A 1 100	7 850·0	75 000	560	380	500	710	950	1 030	1 100	900 5	920	110	450	20	710	60	370	20	M36×150	3 345	1 140
GC-A 1 250	10 400·0	100 000	500	420	560	800	1 050	1 150	1 250	1 000 5	1 000	110	485	30	730	60	410	22	M36×150	4 340	2 700

Note — Dimensions, tolerances, etc, as given in IS : 3640-1982 'Specification for hexagon fit bolts (*first revision*)'.

*Figures are for guidance only. Actual figures are to be given by the manufacturers.

TABLE 3 FLOATING SHAFT FLEXIBLE COUPLING (SOLID SIDE HALF)
(Clause 4)

Coupling No.	D_1	D_3	D_4	D_5	d	d_1	C
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GC-F-170	75	140	170	100	20	12	5
GC-F-185	80	155	185	115	30	12	5
GC-F-220	100	185	220	125	40	16	5
GC-F-250	115	215	250	150	40	16	10
GC-F-290	135	245	290	175	45	20	10
GC-F-320	160	275	320	200	60	20	10
GC-F-350	180	3 051	350	225	75	20	10
GC-F-380	220	335	380	275	90	20	10
GC-F-430	230	380	430	300	100	24	10

TABLE 4 FLOATING SHAFT FLEXIBLE COUPLING (SOLID SIDE HALF) TYPE B COUPLING ONLY
(Clause 3)

Size	*Min* Finish Bore	d_1	d_2 *Max*	d_3 P.C.D.	D	D_1	D_2	L	l	C	D_3H7	W	No. of Holes	Fit Bolt Size
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
40	24	40	55	126	160	100	80	130	60	5	90	6	12	M10
60	30	60	75	175	210	145	125	174·5	80	6	129	6	14	M10
80	35	80	100	215	255	185	165	214·5	100	6	164	6	14	M10
90	40	90	110	246	290	212	192	238·5	110	8	182	6	14	M12
110	58	110	130	282	330	236	224	278·5	130	8	216	6	14	M16
125	78	125	145	300	355	258	238	320	150	10	248	6	14	M16
140	88	140	165	352	410	304	284	352·5	165	10	268	6	14	M18
160	125	160	190	408	460	354	334	406	190	12	308	6	16	M18