

OPERATING INSTRUCTIONS



DISC-O-FLEX COUPLINGS

Rathi Transpower Pvt. Ltd.

Rathi Chambers, 7, Deccan College Road, PUNE – 411 006 (INDIA)

Phone : 91-20-6696 820, Fax: 91-20-6695 655

E-mail : info@rathigroup.com

GENERAL

- I) Standard features of Disc-O-Flex Couplings (Pgs. 1-2)
- II) Detail knowledge of this Operating Instructions will ensure trouble free operation of the Disc-O-Flex Coupling. Persons responsible for handling, installation & use of the coupling shall required & understand these Operating Instructions.



ATTENTION

This coupling is suitable for applications in stationery/mobile use in engineering industry.

The copyright of these Operating Instructions remains the property of Rathi Transpower Pvt. Ltd.

For all technical queries please contact –

Rathi Transpower Pvt. Ltd.

Rathi Chambers, 7, Deccan College Road, PUNE – 411 006 (INDIA)

Phone : 91-20-6696 820, Fax: 91-20-6695 655

E-mail : info@rathigroup.com

Website : www.rathitranspower.com

INDEX

<u>CONTENTS</u>	<u>PAGE</u>
• Standard Features	1-2
• At a Glance	3
• Disc-o-flex Family	4-5
• Std. Material of Construction	6
• The Discpack - Heart of the Coupling	7
• Constructional Details & How to order	8-11
• Torque Transmission	12
• Flexibility	13
• Ratings for Standard Couplings	14
• Power Rating Graphs	15-18
• Min. DBSE of LM & LMC Couplings	19
• Min. DBSE of EM/AM Couplings	20
• Non-spacer couplings - Type LMK	21
• Couplings with Taper Bushes - Type LMT	22
• Couplings with Taper Bushes - Type EMT/AMT	23
• Requirements of API-671 & API-610	24
• Fit tolerance guide lines for bores with parallel keys	25
• Finish Bore & Keyway Procedure	26-27
• Std. Tolerances for Finish Bore & Keyway	28
• Advantages over Gear Coupling	29
• Selection Procedure	30
• Installation Instructions	31-44
• Applications	45
• Weight & M.I. for Disc-O-Flex Couplings	46-47

STANDARD FEATURES

- Zero maintenance
- High power to weight ratio : All metallic couplings in steel having high torque carrying capacity with light weight.
- No wearing parts
- No lubrication
- Zero backlash : Manufactured with precise tolerances to accommodate zero backlash which is required for the applications where lost motion is not acceptable such as servo or stepper driven positioning systems, custom designs for high torque applications & where dynamic balancing to accurate grades is required.
- Inherently balanced : As these couplings are machined symmetrically with the axis of rotation & all are in steel construction, there is no possibility of casting defects like porosity, blow holes. Hence the coupling is inherently balanced.
- Dynamically balanced to any precise grade of balancing as per ISO-1940.
- Easy installation with drop out spacer : Replacement of flexible element is possible without disturbing either of the equipments.

Contd...

...contd

- Can be visually inspected without disturbing the assembly.
- All the non-stainless steel parts are coated with anti-corrosive agent.
- Antifly spacers : Available in construction with antifly spacers. Unlikely breakage of flexible elements will not allow the spacer to fly off the assembly.
- Non-standard material, length thru' bore, hub dia., spacer lengths are also available on request.
- Available with std. SAE flanges for the application like diesel engine flywheels.
- Available with floating shafts for the applications like cooling tower fans.
- Available with single discpack : used where parallel misalignment is zero.
- Available in non-sparking constructions : Used where the electrically insulated couplings are required.

AT A GLANCE

COUPLING TYPE \ FEATURES	LM	EM	AM
Size Range	5 to 12500 (30 Sizes)	4 to 9330 (30 Sizes)	4 to 9330 (30 Sizes)
Power Rating Range kW / 1500 RPM	5 to 22500		
Torque Range (kg.m)	3.4 to 14602		
Bore Range (mm)	8 to 460	5 to 500	
Dynamic Balancing Grade as per ISO-1940	Optional #	Optional #	2.5
Individual Component Balancing	Yes	Yes	Yes
Std. material of Hubs & Spacer	* C.S. BS 970	* C.S. BS 970	Alloy Steel EN- 19 BS 970
Other materials (Available on request)	Optional	Optional	Alloy Steel (Optional)
Material for Flexible Element	Special Stainless Steel (Refer mechanical properties on Page No. 6)		
Meets API Specification	610 Optional	610 Optional	610 671
Anti-fly Spacer	No	Yes	Yes
Non sparking	Optional	Optional	Optional
Max. Working Temp.	250°C	250°C	250°C

ATTENTION

AM type couplings will be supplied with compliance certificate of RTPL with serial number punched on the couplings.

Dynamic balancing is optional in case of LM and EM.

Balancing can be done to Grade 6.3, 2.5 or 1.0 at extra cost.

* C. S. – Carbon Steel.

DISC-O-FLEX FAMILY

SR	PART DESCRIPTION	TYPE LM	TYPE EM/AM
1	Adapter 1	●	●
2	Adapter 2	●	●
3	Spacer	●	●
4	Distance Piece		●
5	Discs	●	●
6	Socket Head Cap Screws for Discpack	●	●
7	Bushes	●	●
8	Sleeves	●	
9	Nylock Nuts	●	
10	Caps		●
11	Special Nuts		●
12	Socket Head Cap Screws for Adapters		●

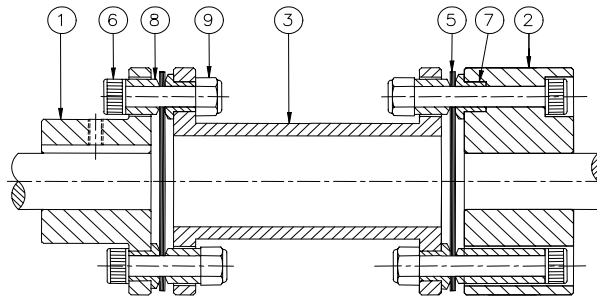
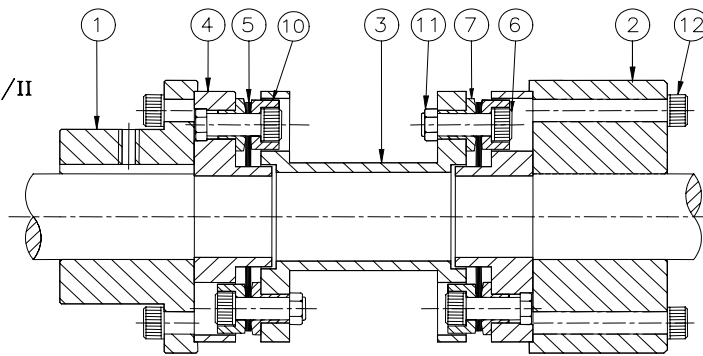
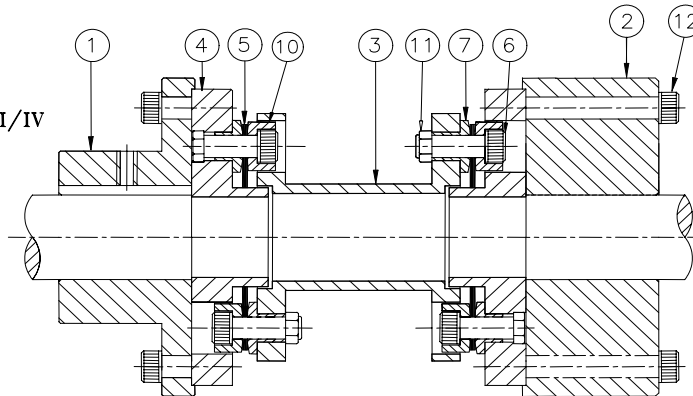
- Applicable

For type LM, refer fig. A
For type EM/AM, refer fig. B & C

ATTENTION

Red coloured bolts & sleeves are provided to protect the shims from damage in transportation & handling only. These should not be used during operation.

In place of adapters type 1 & type 2, adapters type 3 & type 4 are available in type EM/AM whenever required.
These are used to accommodate bores more than max. bore sizes irrespective of coupling size.

DISC-O-FLEX FAMILY**FIG. A**
LM-I/II**FIG. B**
EM/AM-I/II**FIG. C**
EM/AM-III/IV

STD. MATERIAL OF CONSTRUCTION

PART	LM	EM	AM
ADAPTERS	C.S. BS 970		EN-19 BS 970
SPACERS	C.S. BS 970		EN-19 BS 970
DISTANCE PIECE	--	C.S. BS 970	EN-19 BS 970
• DISCS	SPECIAL STAINLESS STEEL (See Mechanical Properties)#		
• BUSHES	EN- 8 BS 970		
• SLEEVES	EN- 8 BS 970	--	
• CAPS	--	EN- 8 BS 970	
SPECIAL NUT	--	EN- 8 BS 970	
SOCKET HEAD CAP SCREWS	HIGH TENSILE GR. 12.9		

ATTENTION

- **For non-sparking Discs : Special alloy**
Bushes, Sleeves, Caps : Phosphor Bronze

Optional materials for adapters, spacers & distance pieces are Forged C.S., Forged EN-8, EN-8, EN-19, Stainless Steel.

Mechanical properties for special stainless steel –
 Ultimate Tensile Strength, Min. – 1034 N/mm²
 Yield Stress, Min. – 758 N/mm²
 % Elongation, Min. – 18
 Hardness – 254 to 385 VPN.
 Condition – Half hard, Half Rolled.

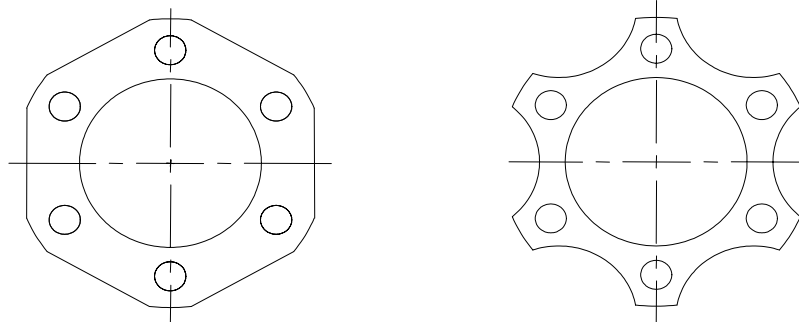
For other requirement of material, consult RATHI.

THE DISCPACK - HEART OF THE COUPLING

The set of flexible discs is the heart of the Disc-o-flex high performance couplings & transmits torque while accommodating angular, parallel & axial misalignment (i.e. end float).

A. DESIGN

Fig. D



SCALLOPED DISC

Disc-o-flex discs have a `SCALLOPED' link design as shown in fig. D. This results in increased flexibility & subsequent lower reaction forces on the connected equipment bearings. This SCALLOPED shape of disc offers uniform stress distribution, increased misalignment capabilities & lower fatigue stresses on discs.

While transmitting torque, the discpack is exposed to constant stresses due to torque, centrifugal force, axial misalignment & pretension. It is also exposed to alternating stress due to angular misalignment.

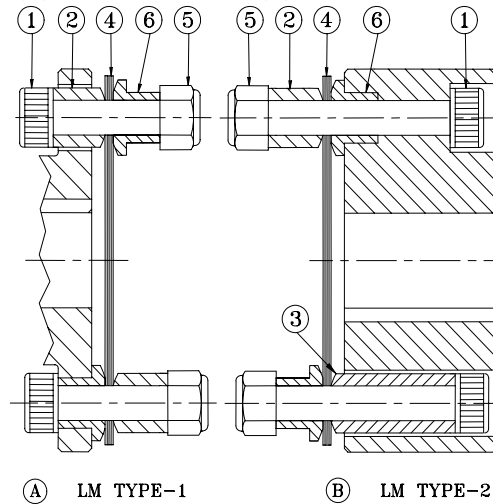
B. CONSTRUCTION OF FLEXIBLE DISCPACK

The flexible disc material is special high strength AISI 301 Half hard cold rolled Stainless Steel. It is manufactured on high precision tooling to get the dimensional accuracy & consistency.

LM-Series Discpack

It is a series of discs (4) assembled with sleeves (2) & or (3), bushes (6), socket head cap screws (1) & nylock nuts (5) as shown in fig. E.

Fig. E



6	BUSH	EN-8 BS 970	3	3	PH. BRONZE	6	6
5	NYLOCK NUT	STD.	6	6	STD.	6	6
4	DISCS	Special S.S.	1 SET	1 SET	SPECIAL ALLOY	1 SET	1 SET
3	SLEEVE 2	EN-8 BS 970	--	3	PH. BRONZE	--	3
2	SLEEVE 1	EN-8 BS 970	6	3	PH BRONZE	6	3
1	SOCKET HEAD CAP SCREWS	H.T. GR. 12.9	6	6	H.T. GR. 12.9	6	6
SR	DESCRIPTION	MATERIAL	A	B	MATERIAL	A	B
			QTY.			QTY.	
		STANDARD			NON-SPARKING		

ATTENTION Given quantity is for the sizes upto & including - 2500
For sizes above & including - 2700, consult RATHI.

Contd.....

HOW TO ORDER THE SPARES

TYPE LM (Refer Page No. 8.)

Given quantity is for the sizes upto & including - 2500.
For sizes above & including - 2700, consult RATHI.

1) Adapter with 6 bolts :

- Adapter1 + Sr. No. 1 + Sr. No. 2 + Sr. No. 5 + Sr. No. 6
- Adapter2 + Sr. No. 1 + Sr. No. 2 + Sr. No. 3 + Sr. No. 5
+ Sr. No. 6

ATTENTION - **Mention the type of adapter 1 or 2.**

2) Non sparking kit:

- For Adapter 1→ Sr. No. 1 + Sr. No. 2 + Sr. No. 4 + Sr. No. 5
+ Sr. No. 6
- For Adapter 2→ Sr. No. 1 + Sr. No. 2 + Sr. No. 3 + Sr. No. 4
+ Sr. No. 5 + Sr. No. 6
- Spacer couplings require - 2 Nos.
- Nonspacer couplings require - 1 No.

ATTENTION - **Please specify the type of adapter 1 / 2.**

3) Only spacer without bolts :

- Spacer + Sr. No. 6 press fitted in both the flanges.

ATTENTION - **Mention the DBSE.**

4) Membrane pack / Shim pack without bolts : Sr. No. 4

- Spacer couplings require - 2 Nos.
- Nonspacer couplings require - 1 No.

5) Hardware :

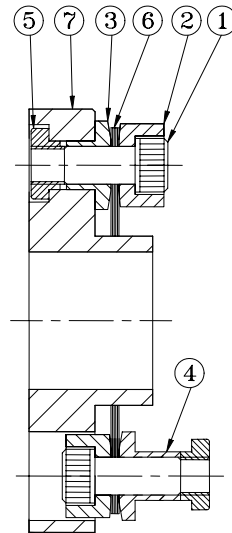
- For Adapter 1 → Sr. No. 1 + Sr. No. 2 + Sr. No. 5
- For Adapter 2 → Sr. No. 1 + Sr. No. 2 + Sr. No. 3 + Sr. No. 5

ATTENTION - **Mention the type of adapter 1 / 2.**

EM/AM-Series Discpack (Factory assembled)

It is a series of discs (6) assembled with caps (2), bushes (3) &/or (4), socket head cap screws (1) & special nuts (5) alongwith distance piece (7) as shown in fig. G.

Fig. G



For EM - C.S. BS 970
For AM - EN-19 BS 970

7	DISTANCE PIECE (D.P.)	#	1	#	1
6	DISCS	Special S.S.	1 SET	SPECIAL ALLOY	1 SET
5	SPECIAL NUT	EN-8 BS 970	6	EN-8 BS 970	6
4	SPACER BUSH	--	--	PH. BRONZE	3
3	D.P. BUSH	EN-8 BS 970	3	PH. BRONZE	3
2	CAP	EN-8 BS 970	6	PH BRONZE	6
1	SOCKET HEAD CAP SCREWS	H.T. GR. 12.9	6	H.T. GR. 12.9	6
SR	DESCRIPTION	MATERIAL	QTY.	MATERIAL	QTY.
		STD.		NON-SPARKING	
		MATERIAL OF CONSTRUCTION			

ATTENTION

**Given quantity is for the sizes upto & including 1880.
For sizes above & including - 2015, consult RATHI.**

Contd.....

HOW TO ORDER THE SPARES

TYPE EM/AM : (Refer Page No. 10.)

Given quantity is for the sizes upto & including - 1880.
For sizes above & including - 2015, consult RATHI.

1) Standard Discpack :

-Sr. No. 1 + Sr. No. 2 + Sr. No. 3 + Sr. No. 5
+ Sr. No. 6 + Sr. No. 7.

ATTENTION - **Mention the type of adapter 1 / 2 or 3 / 4.**

-2 Nos. are required per coupling.

2) Non sparking kit :

- Sr. No. 1 + Sr. No. 2 + Sr. No. 3 + Sr. No. 4 + Sr. No. 5
+ Sr. No. 6 + Sr. No. 7.

ATTENTION - **Mention the type of adapter 1 / 2 or 3 / 4.**

- 2 Nos. are required per coupling.

3) Adapter with 6 bolts

ATTENTION - **Mention the type of adapter 1, 2, 3 or 4.**

4) Only spacer without bolts

-Spacer + Sr. No. 4 press fitted in both the flanges.

ATTENTION - **Mention the DBSE.**

5) Membrane pack / Shim pack without bolts Sr. No. 6

6) Hardware

Adapter bolts only.

ATTENTION - **Mention the type of adapter 1, 2, 3 or 4.**

ATTENTION - **Discpack bolts can not be given as spares. In case of the failure in discpack bolts, the entire discpack has to be replaced.**

TORQUE TRANSMISSION

Fig. H shows holes 1, 3 & 5 in the discpack are bolted to the driving hub & are free in the clear holes either in spacers or in driven hub, while holes 2, 4 & 6 are bolted either to the driven hub or to the spacer & are free in the clear holes of driving hub. The torque path is from holes 1 to 6, 5 to 4 & 3 to 2.

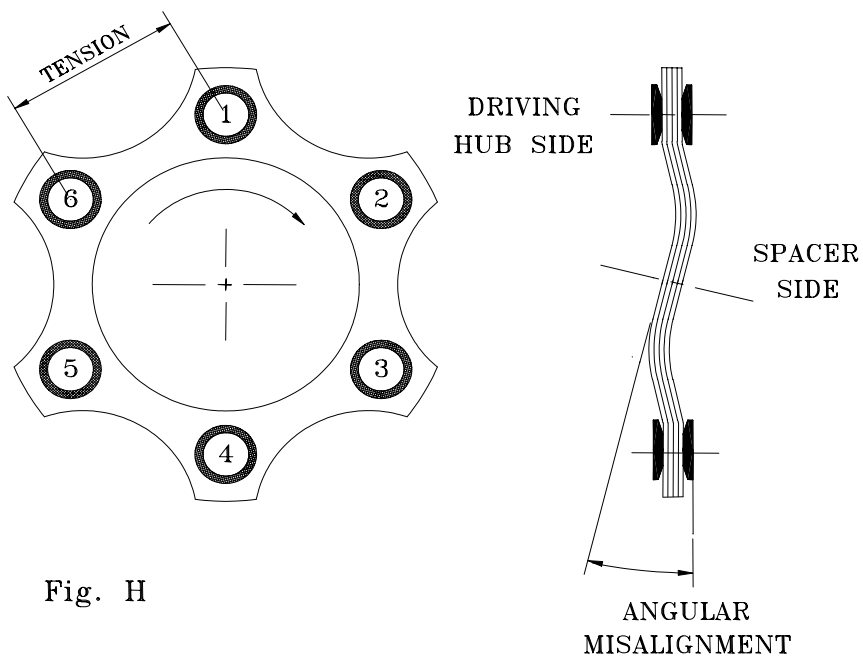


Fig. H

FLEXIBILITY

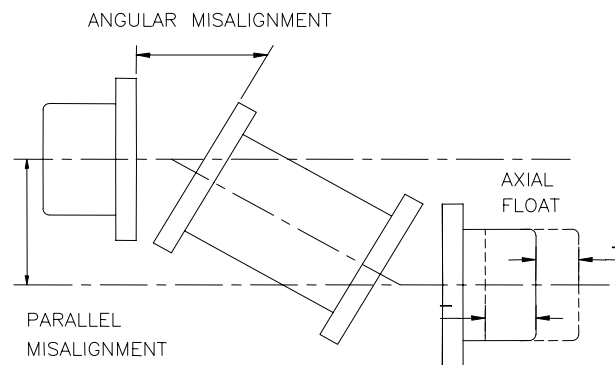
Flexibility depends upon the span between driving & driven bolts & thickness of the discpack. The flexibility of the coupling is more for longer span & smaller thickness.

Increase in no. of bolts with same PCD reduces the span resulting in less flexibility.

However, increasing the no. of bolts on same PCD increases the torque carrying capacity. Therefore for larger diameter couplings, it is necessary to increase no. of bolts &/or thickness of the discpack to achieve required torque carrying capacity, without allowing the power to weight ratio to decrease.

Hence larger sizes couplings are generally less flexible.

Fig. I



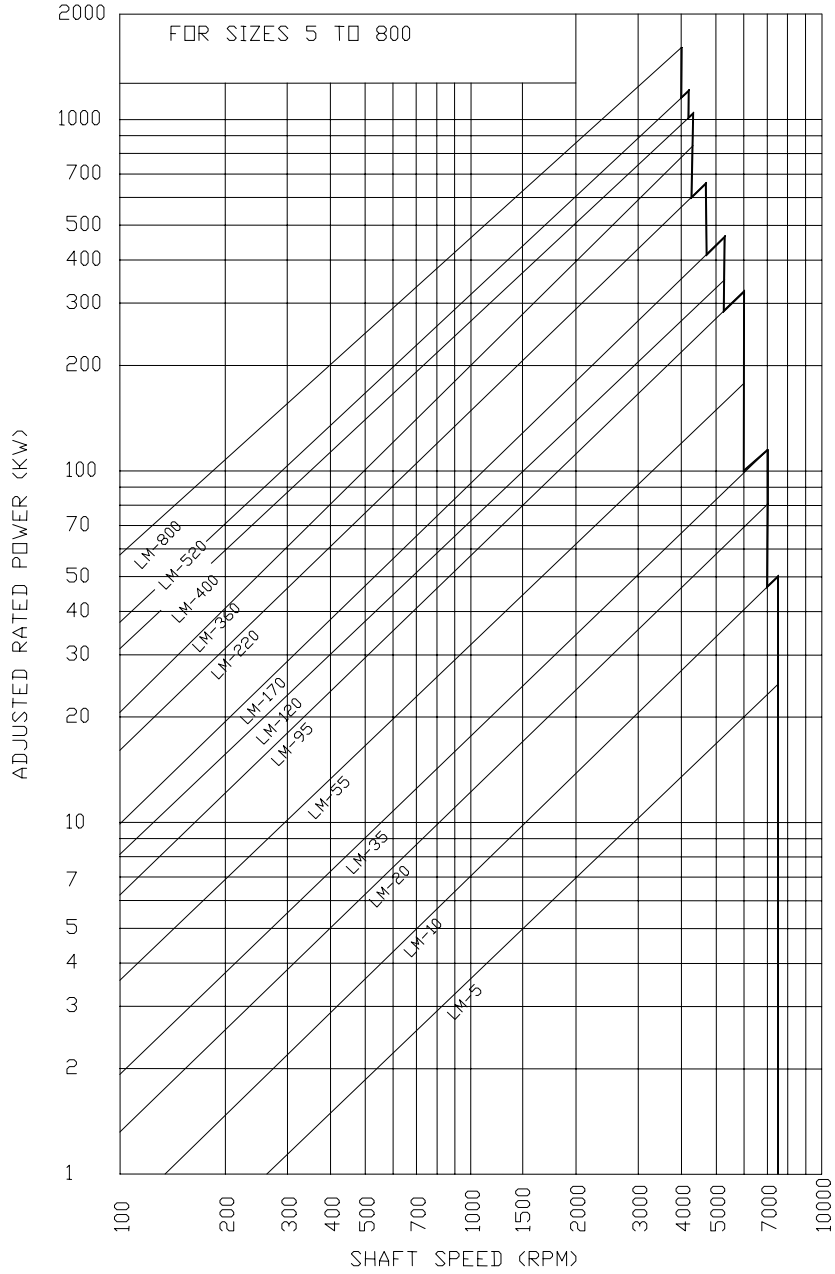
Each discpack can only accept angular & axial misalignment. Therefore two discpacks are required to accommodate parallel misalignment as shown in fig. I.

RATINGS FOR STANDARD COUPLING

Sr. No.	Coupling		Rated Torque			Rated Power			
	Size		Nm	kg m	Lbs-inch	@100 RPM		@1500 RPM	
	LM	EM/AM				Kw	HP	Kw	HP
1	5	4	33	3.4	296	0.35	0.47	5.25	7
2	10	8	64	6.5	566	0.67	1	10.05	14
3	20	15	109	11.1	963	1.14	2	17.10	23
4	35	25	159	16.3	1411	1.67	2	25.05	34
5	55	40	287	29.2	2536	3.0	4	45	60
6	95	65	516	52.6	4564	5.4	7	81	109
7	120	90	640	65.2	5663	6.7	9	101	135
8	170	125	860	87.6	7607	9.0	12	135	181
9	220	165	1337	136.3	11832	14.0	19	210	282
10	360	270	1815	185.0	16058	19.0	25	285	382
11	400	370	2388	243.4	21129	25.0	34	375	503
12	520	390	3343	340.7	29581	35.0	47	525	705
13	800	600	4011	408.9	35497	42.0	56	630	845
14	1000	790	5062	516.0	44794	53.0	71	795	1066
15	1100	825	5348	545.2	47330	56.0	75	840	1126
16	1300	1025	7163	730.1	63388	75.0	101	1125	1508
17	1500	1125	8022	817.7	70995	84.0	113	1260	1689
18	2000	1425	10028	1022.2	88743	105.0	141	1575	2111
19	2250	1680	10696	1090.3	94660	112.0	150	1680	2252
20	2500	1880	13370	1362.9	118325	140.0	188	2100	2820
21	2700	2015	17668	1801.0	156357	185.0	248	2775	3720
22	3400	2535	22920	2336.4	202842	240.0	322	3600	4830
23	4400	3280	28650	2920.5	253553	300.0	402	4500	6030
24	5000	3730	34380	3504.6	304263	360.0	482	5400	7230
25	5800	4250	40110	4088.7	354974	420.0	563	6300	8445
26	6800	5075	57300	5841.0	507105	600.0	804	9000	12060
27	7800	5820	71625	7301.2	633881	750.0	1005	11250	15075
28	9000	6710	85950	8761.5	760658	900.0	1206	13500	18090
29	10500	7835	114600	11682.0	1014210	1200.0	1608	18000	24120
30	12500	9330	143250	14602.4	1267763	1500.0	2010	22500	30150

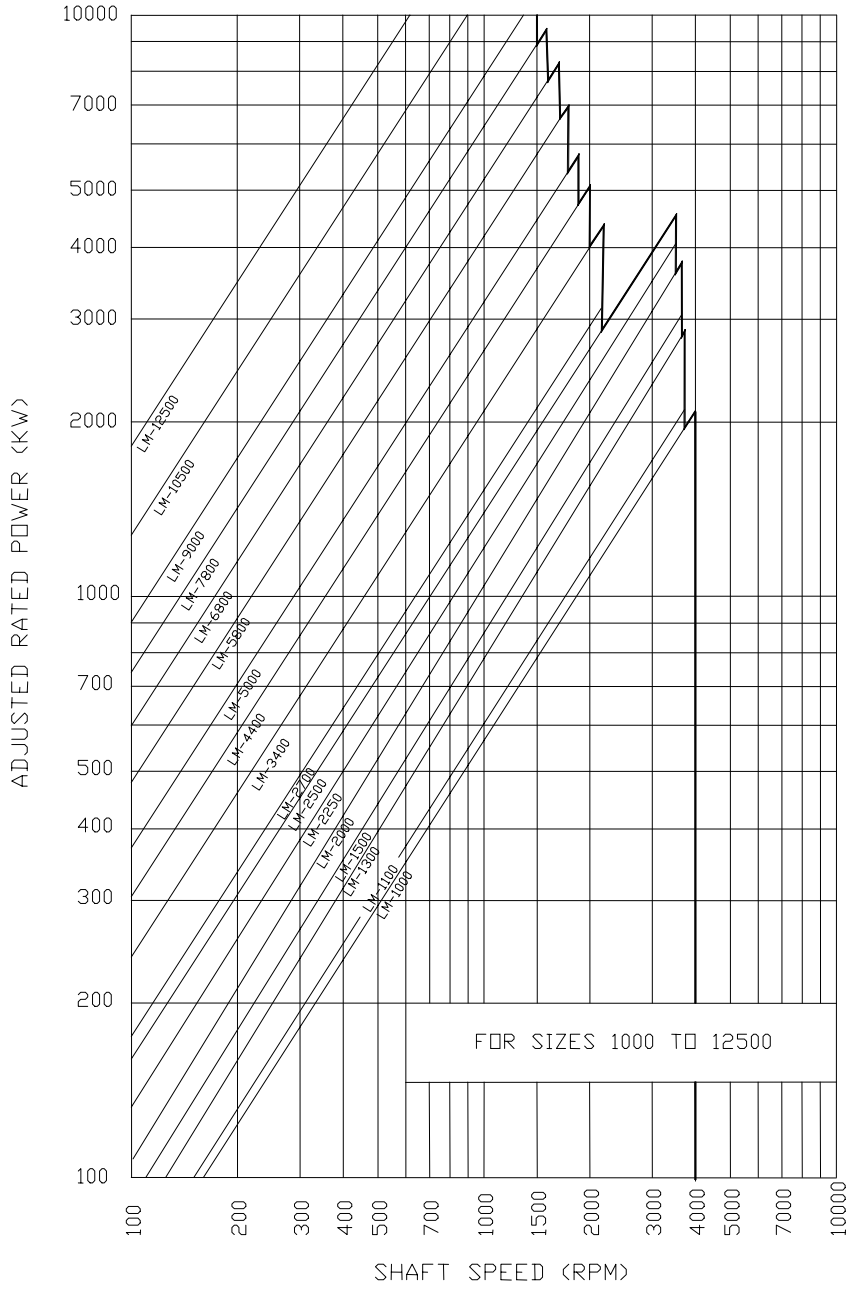
POWER RATING FOR TYPE - LM

POWER RATING FOR TYPE - LM



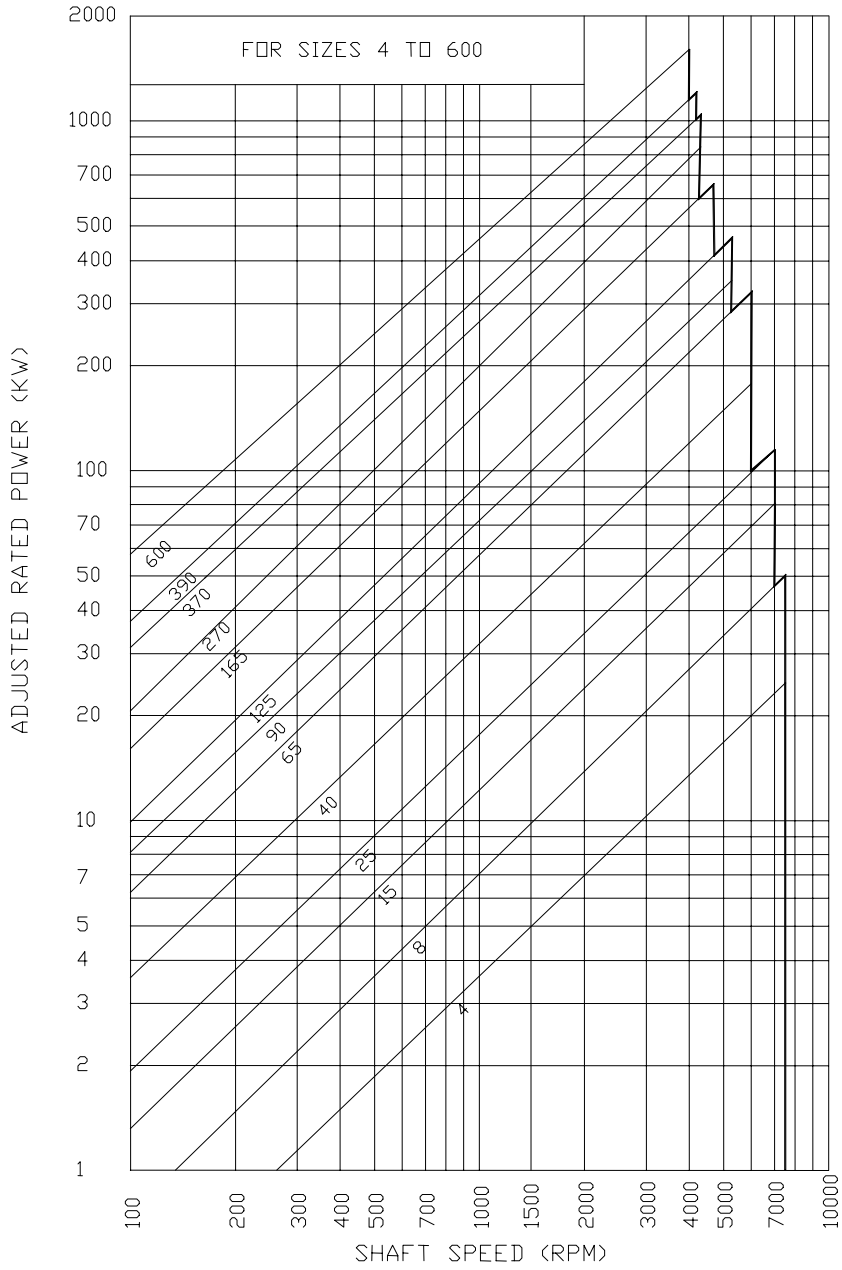
POWER RATING FOR TYPE - LM

POWER RATING FOR TYPE - LM



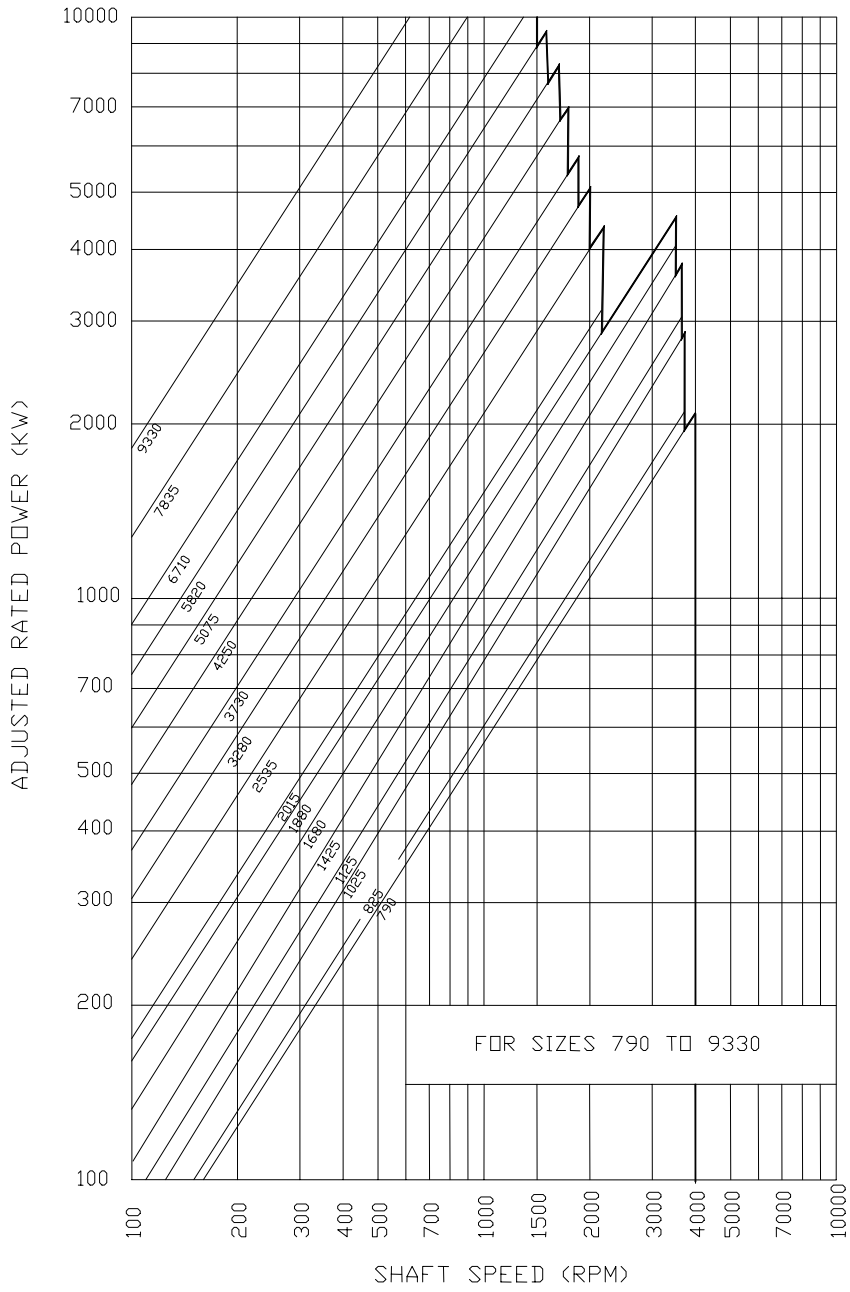
POWER RATING FOR TYPE - EM/AM

POWER RATING FOR TYPE - EM/AM

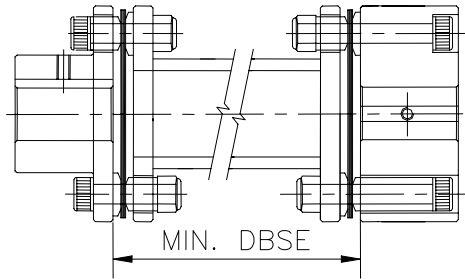


POWER RATING FOR TYPE - EM/AM

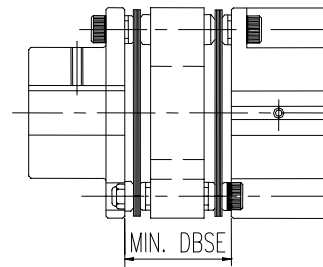
POWER RATING FOR TYPE - EM/AM



MIN. DBSE OF LM & LMC COUPLING



TYPE - LM



TYPE - LMC

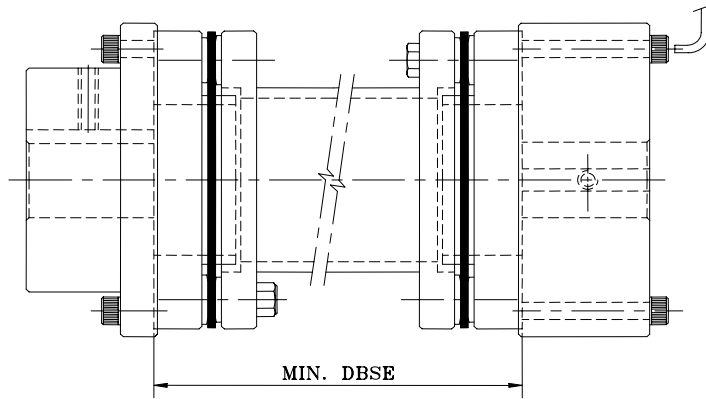
SIZE	MIN. DBSE		SIZE	MIN. DBSE	
	FOR LM	FOR LMC		FOR LM	FOR LMC
LM 5	40	30	1300	150	100
10	48	35	1500	160	110
20	48	35	2000	165	110
35	50	40	2250	175	120
55	62	40	2500	180	120
95	64	45	2700	220	170
120	74	55	3400	250	200
170	76	55	4400	230	170
220	78	70	5000	240	170
360	85	75	5800	270	200
400	90	75	6800	250	170
520	115	85	7800	260	170
800	120	90	9000	290	200
1000	130	90	10500	300	200
1100	140	100	12500	310	200

ATTENTION * **ALL DIMENSIONS ARE IN mm.**

* **IN CASE OF LM TYPE COUPLING THE MIN. DBSE WHICH CAN BE GIVEN IN THE SAME CONSTRUCTION AS SHOWN IN CATALOGUE. STILL SMALLER DBSE MAY BE POSSIBLE WITH A DIFFERENT CONSTRUCTION AS TYPE-LMC (AS SHOWN IN FIG. LMC)**

* **OVERALL DIMENSIONS OF LMC ARE SAME AS THAT OF STANDARD CONSTRUCTION OF LM.**

MIN. DBSE OF EM/AM COUPLING

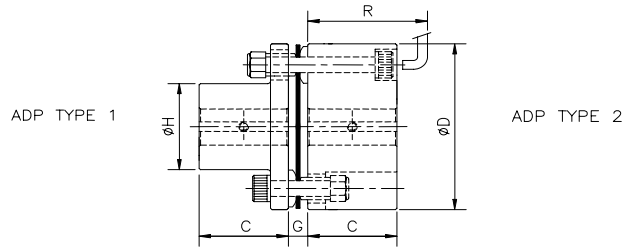


TYPE - EM/AM

SIZE EM/AM	MIN. DBSE	SIZE EM/AM	MIN. DBSE
4	53	1025	138
8	61	1125	148
15	70	1425	148
25	70	1680	171
40	79	1880	171
65	79	2015	300
90	89	2335	350
125	89	3280	365
165	120	3730	370
270	130	4250	400
370	130	5075	415
390	130	5820	420
600	133	6710	450
790	133	7835	465
825	138	9330	470

ATTENTION ALL DIMENSIONS ARE IN mm.

DISC-O-FLEX NON SPACER COUPLING TYPE - LMK

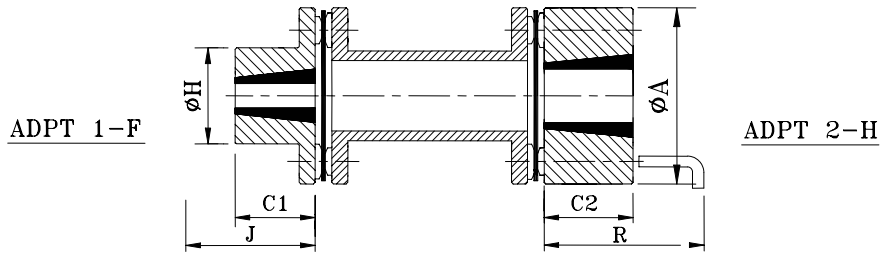


COUP. SIZE	kW AT 1500 RPM	MAX SPEED RPM	MIN	BORE		C	ø D	ø H	G	R	WEIGHT IN Kgs	M.I. IN Kgs2	TORS'L STIF. (Mnim/Radian)
				MAX.									
				TYPE 1	TYPE 2								
5	5	7500	8	20	22	25	55	30	5.2	65	0.64	0.0002	0.0357
10	10	7500	10	24	25	30	63	35	6.5	75	0.98	0.0003	0.043
20	17	7000	12	28	38	40	79	42	6.5	85	1.98	0.0010	0.05325
35	25	7000	12	30	38	40	82	45	7.5	85	2.47	0.0012	0.06148
55	45	6000	17	38	48	45	98	55	8	95	3.27	0.0029	0.1178
95	81	6000	17	40	50	45	102	57	8	95	3.87	0.0033	0.2541
120	101	5200	17	48	62	55	124	74	9.5	110	6.41	0.0091	0.25988
170	135	5200	17	52	70	55	128	77	9.5	110	7.38	0.0101	0.49203
220	210	4800	22	65	80	60	146	94	12	120	8.99	0.0186	0.81908
350	285	4400	27	78	100	70	173	112	13	140	14.07	0.0409	1.2276
400	375	4400	27	80	100	70	176	115	13	140	15.13	0.0444	1.9264
520	525	4200	32	90	115	90	197	132	14.4	170	24.04	0.0778	2.775
800	630	4000	42	102	130	95	222	145	16.2	165	30.36	0.1679	3.6126
1000	795	4000	42	105	130	95	225	147	16.2	165	32.46	0.1714	5.4
1100	840	3800	47	112	140	105	247	160	19.5	195	45.30	0.2846	O N
1300	1125	3800	47	115	140	105	250	162	19.5	195	47.53	0.2946	
1500	1260	3700	52	118	155	115	272	175	21.5	195	62.47	0.4486	
2000	1575	3700	52	120	155	115	275	178	21.5	195	65.39	0.4736	
2250	1680	3600	62	132	165	130	297	186	23.5	235	81.78	0.7329	
2500	2100	3600	62	135	165	130	300	190	23.5	235	83.78	0.7529	
2700	2775	2400	82	160	200	145	370	235	34	265	144.21	1.9457	
3400	3600	2200	92	180	225	165	400	255	38	310	179.55	2.8295	
4400	4500	2000	102	200	250	175	440	300	34	295	234.63	4.5078	
5000	5400	1900	112	220	280	185	460	320	34	300	280.84	5.4058	
5800	6300	1800	122	240	310	200	500	350	38	330	334.00	8.1583	
6800	9000	1700	132	260	330	220	530	380	34	335	405.51	11.2413	
7800	11250	1600	137	280	360	230	560	410	34	345	477.37	14.8349	
9000	13500	1500	142	310	390	240	600	450	38	380	555.90	20.3163	
10500	18000	1300	152	335	430	250	650	490	38	390	660.58	29.2059	
12500	22500	1000	162	375	460	270	700	550	38	410	774.98	44.5443	

ATTENTION

- * ALL DIMENSIONS ARE IN mm. UNLESS OTHERWISE SPECIFIED.
- * COUPLING DYNAMICALLY BALANCED TO GR. 6.3 ISO 1940 (AFTER F.B. & KW)
- * WT., STIFFNESS & M.I. ARE AT MAX. BORES WITH ONE TYPE 1 & ONE TYPE 2 ADAPTERS.

DISC-O-FLEX COUPLINGS WITH TAPER BUSHES TYPE LMT

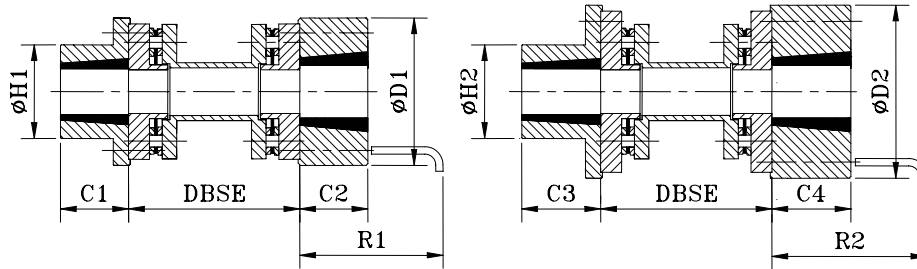


COUP SIZE	KW AT 1500 RPM	MAX SPEED RPM	BUSH NO.		BORE				DBSE STD.	A	H	C1	C2	# J	# R
			ADPT. 1	ADPT. 2	MIN.		MAX.								
					ADPT. 1	ADPT. 2	ADPT. 1	ADPT. 2							
55	45	6000	1108	1210	10	12	28	32	100	98	55	23	26	52	76
95	81	6000	1108	1210	10	12	28	32		102	57	23	26	52	76
120	101	5200	1610	1610	14	14	42	42		124	74	26	26	64	81
170	135	5200	1610	1610	14	14	42	42	140	128	77	26	26	64	81
220	210	4800	2012	2517	14	16	50	60		146	94	33	45	75	105
360	285	4400	2517	3020	16	24	60	75	180	173	112	33	45	93	120
400	375	4400	2517	3020	16	24	60	75		176	115	45	50	93	120
520	525	4200	3020	3020	24	24	75	75	140	197	132	50	50	105	130
800	630	4000	3525	3525	35	35	90	90	180	222	145	65	65	132	135
1000	795	4000	3525	3525	35	35	90	90		250	225	147	65	65	132
1100	840	3800	4040	4040	40	40	100	100	247		160	103	103	163	195
1300	1125	3800	4040	4040	40	40	100	100	250	162	103	103	163	195	
1500	1260	3700	4040	4545	40	55	100	115	180	272	175	103	115	163	220
2000	1575	3700	4040	4545	40	55	100	115	250	275	178	103	115	163	225
2250	1680	3600	4545	5050	55	70	115	127	300	297	186	115	128	186	235
2550	2100	3600	4545	5050	55	70	115	127	300	300	190	115	128	186	235
2700	2775	2400	5050	5050	70	70	127	127	250 350	370	235	128	128	199	265

ATTENTION

- ALL DIMENSIONS ARE IN mm.
 - SPECIFY THE STYLE & TYPES OF ADAPTERS (i.e. 1H, 2H, 1F OR 2F).
 - NON-STD. DBSE AVAILABLE ON REQUEST. COUPLINGS WITHOUT SPACER ARE AVAILABLE. HOWEVER, THESE CAN'T TAKE PARALLEL OFFSET.
 - SPECIFIED MAX. SPEEDS ARE WITHOUT BALANCING. WITH BALANCING, SPEED CAN BE INCREASED. CONSULT MFRS.
 - AVAILABLE FOR NON-SPARKING APPLICATIONS ON REQUEST.
- # 'J' - WRENCH CLEARANCE REQUIRED FOR TIGHTENING & LOOSENING OF BUSH ON SHAFT.
 # 'R' - CLEARANCE REQUIRED FOR DISMANTLING THE DISCPACK WHEN ADPT. 2 IS USED.

DISC-O-FLEX COUPLINGS WITH TAPER BUSHES TYPE EMT / AMT



ADPT 1-F

ADPT 2-H

ADPT 3-F

ADPT 4-H

COUP SIZE	kW AT 1500 RPM	MAX SPEED RPM	BUSH NO.				MAX. BORE FOR ADPT. TYPES				DBSE	C1	C2	C3	C4	Ø D1	Ø D2	Ø H1	Ø H2	# J1	# J2	# R1	# R2
			1	2	3	4	1	2	3	4													
			15	17	7000	1108	1210	1610	2012	38													
25	25	7000	1108	1210	1610	2012	38	50	48	72	100	23	26	26	32	90	108	55	70	52	62	76	92
40	45	6000	1610	2012	2012	2517	48	70	65	90	140	26	32	32	45	105	130	70	86	62	72	92	110
65	81	6000	1610	2012	2012	2517	48	72	65	92	140	26	32	32	45	108	135	70	86	62	72	92	110
90	101	5200	2012	2517	2517	3020	65	90	80	102	180	32	45	45	51	130	152	86	108	72	90	110	120
125	135	5200	2012	2517	2517	3020	65	92	80	104	180	32	45	45	51	135	155	86	108	72	90	110	120
165	210	4800	2517	3020	3020	3020	80	102	90	120	140	45	51	51	51	152	179	108	130	90	100	120	120
270	285	4400	3020	3020	3525	4040	90	120	108	140	140	51	51	65	102	179	197	130	158	100	120	120	170
370	375	4400	3020	3020	3525	4040	90	122	108	142	140	51	51	65	102	182	200	130	158	100	120	120	170
390	525	4200	3525	4040	4040	4545	108	140	127	155	180	65	102	102	115	197	222	158	181	120	165	170	180
600	630	4000	4040	4545	5050	5050	127	155	140	175	250	102	115	127	127	222	247	181	206	165	200	180	195
790	795	4000	4040	4545	5050	5050	127	158	140	178	250	102	115	127	127	225	250	181	206	165	200	180	195
825	840	3800	5050	5050	-	-	140	175	-	-	250	127	127	-	-	247	-	206	-	200	-	195	-

REQUIREMENTS OF API-671

We offer Disc-o-flex Type AM coupling in compliance with API-671 (3rd edition) with following details.

Material of construction - Alloy Steel EN-19

Component balancing - Gr. 2.5 as per ISO-1940

Service factor - 1.5 (unless otherwise specified) OR
Min. 1.25 (with mutual agreement with Purchaser)

DBSE - Min. 457 mm. (unless otherwise specified)
Can be as per customer's requirement.

Spacer - Antifly (fail safe design)

Spacers are removable without disturbing the factory assembled discpack which is used in intermediate - or high-speed applications.

Eccentricity of hub bore -
≤ 5 microns for bores ≤ 102 mm.
≤ 13 microns for bores ≥ 102 mm.

Face runout of mating faces is 25 microns per foot of dia.

When specified, electrically insulated (non-sparking) couplings can be given.

REQUIREMENTS OF API-610

Disc-o-flex couplings in compliance with API-610 with following details can be supplied.

- Spacer type (Min. DBSE 125 mm. unless otherwise specified).
- Dropout spacer.
- DYNAMIC BALANCING TO GR. 1.
- Component balance to be checked to max. 3800 rpm.
- Inherent balance to be minimised by machining all over.
- Coupling hubs with tapped puller holes.

FIT TOLERANCE GUIDE LINES FOR BORES WITH PARALLEL KEYS

Required Fit	Bore		Shaft Tolerances	Bore Tolerances
	Above mm	To mm		
Shaft tolerance as per RATHI		25	k6	H7
	25	100	m6	
	100		n6	
Shaft tolerance as per DIN 740/1		50	k6	H7
	50		m6	
Shaft with unified system		50	h6	K7
	50			M8
		all	h8	N7

ATTENTION

It is necessary to select required fit in order to -

- 1) Keep low backlash between hub & shaft.**
- 2) Keep the hub stress under permissible range.**



If these instructions on selection of fit are not followed there is danger of bursting of the coupling.

There is a danger to human life due to broken parts flying around.

FINISH BORE & KEYWAY PROCEDURE

1. Rathi couplings are supplied with pilot bore unless asked for finish bore. It should be bored to reqd. finish bore size by taking the reference of the outside diameter (OD) of coupling i.e. turn bore concentrically with respect (true) to the coupling OD & not the hub dia. (Refer fig. A)
2. Clamp the hub OD on lathe and true the coupling OD. Ensure finish bore concentricity w.r.t. coupling OD is better than 0.1mm.
3. Unless specified, std. tolerances provided for FB & keyway is H7 and Js9 respectively.
4. Use dial bore gauge or plug gauges for respective size of bore. (If plug gauge is used then ensure that Go end of gauge will pass straight way throughout bore length.)

ATTENTION

The maximum bore capacity as specified should not be exceeded.

5. Make chamfer of reqd. size on both sides of bore.
6. Keyway to be done on slotting m/c. or broaching m/c. Mark the keyway centre line such that key should come in between two holes in coupling flange. (Refer fig. B)
7. Keyway shift from marked keyway centre line should be within 0.1 mm.
8. A tapped hole is provided on the hub at keyway location to hold (lock) the key in shaft-hub with a set screw of suitable size. This tapping is generally provided at midpoint of the length through bore distance. If it is not possible to use set screw at midpoint, suitable distance nearer to midpoint of the length through bore is provided. (Refer fig. C)



1) Length of the set screw to be used on key for tightening should be of length that will cover the threaded length of hole.

2) Diameter of set screw should be equal to or less than keyway width.

9. Use appropriate set screw to ensure effective locking of the key.

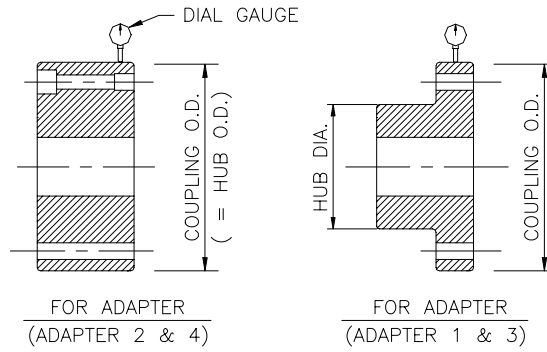
For fitting couplings on splined shaft / taper shaft, please consult RATHI.



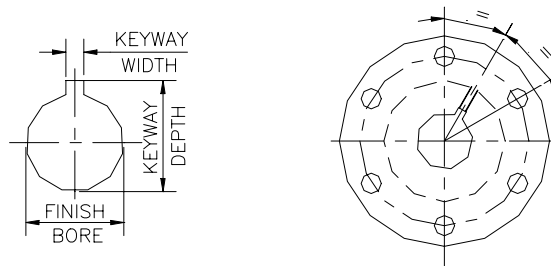
Non observance of these instructions may lead to failure of the coupling.

FINISH BORE & KEYWAY PROCEDURE

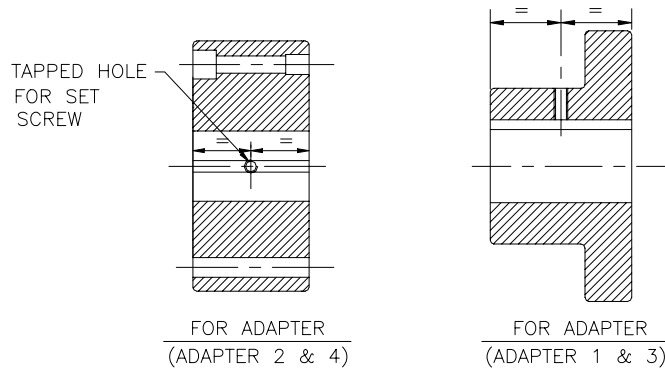
FINISH BORE TO BE DONE W.R.T. COUPLING O.D. (FIG.A)



LOCATION OF KEYWAY. (FIG.B)

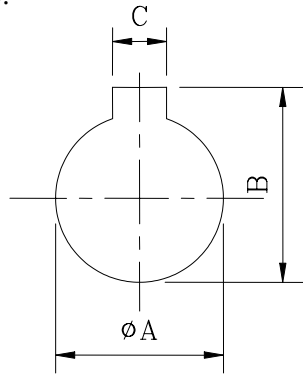


LOCATION OF SET SCREW HOLE (FIG. C)



STANDARD TOLERANCES FOR FINISH BORE & KEYWAY

Unless otherwise specified, couplings are supplied with finish bore & keyway in H7 & JS9 tolerances respectively as per standard ISO 286-2:1988.



ØA - Bore
 B - Keyway Depth
 C - Keyway Width

Basic Size (mm.)		H7 For Bores (mm.)	JS9 For Keyway Width (mm.)	For Keyway Depth (mm.)
Above	Upto & including			
3	6	+ 0.012 0	± 0.015	+ 0.1 0
6	10	+ 0.015 0	± 0.018	
10	18	+ 0.018 0	± 0.021	
18	30	+ 0.021 0	± 0.026	+ 0.2 0
30	50	+ 0.025 0	± 0.031	
50	80	+ 0.030 0	± 0.037	
80	120	+ 0.035 0	± 0.043	
120	180	+ 0.040 0	± 0.050	+ 0.3 0
180	250	+ 0.046 0	± 0.057	
250	315	+ 0.052 0	± 0.065	+ 0.4 0
315	400	+ 0.057 0	± 0.070	
400	500	+ 0.063 0	± 0.077	+ 0.5 0

ADVANTAGES OF RATHI DISC-O-FLEX COUPLINGS
OVER GEAR COUPLINGS.

1) No backlash - Gear Couplings must have the backlash to accommodate different types of misalignments. This backlash may result in the loss of motion to some extent & jerks during starts, stops & reversal of torque.

Rathi Disc-o-flex couplings do not have any backlash.

2) Due to small relative movement between internal & external gears, gear couplings need lubrication.

Rathi Disc-o-flex couplings do not need any lubrication because there is no relative movement between any of the components during torque transmission.

3) Most of the lubricants used in gear couplings lose their desired lubricating properties at higher temperatures rendering the couplings unsuitable for high temperature applications.

Due to the absence of any lubricant in Lovejoy Disc-o-flex couplings, these couplings can be used for high temperature application (upto 250°C).

4) In case of gear couplings, the power transmitting elements cannot be visually inspected unless the entire coupling is disassembled.

In Rathi Disc-o-flex couplings all the power transmitting elements can be visually inspected without disassembling any of the components.

INSTALLATION INSTRUCTIONS

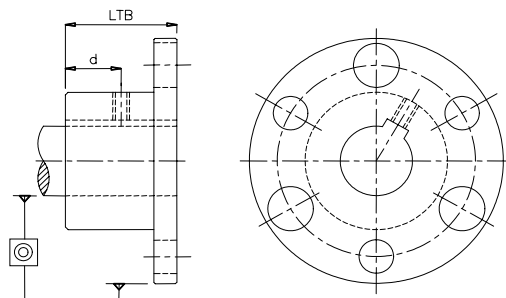
(A) BEFORE INSTALLATION

1. Remove the coupling from packing & thoroughly inspect for signs of damage.
2. Remove red coloured bolts & sleeves which are provided for the protection of shims from bending due to spacer weight & from damage during transportation & handling.

ATTENTION The spacers of DBSEs less than the specified min. Std. DBSEs in catalogue may not be available with red coloured bolts & sleeves.

3. Remove protective coatings/lubricants from bores & keyways.
4. Disassemble the coupling by removing reqd. bolts & nuts. Find the couplings in disassembled conditions as shown in mounting procedure.
5. If the coupling is supplied in pilot bore, the finish bore must be done w.r.t. to Outside Diameter, not w.r.t. Hub Diameter. Keyway is to be slotted between two adjacent holes of adapter as shown in fig. It is recommended that the distance 'd' should be half of the length through bore 'LTB'. (Ref. Fig. 1) Follow the detail instructions given in finish bore & keyway procedure, if the couplings are pilot bored.

Fig. 1

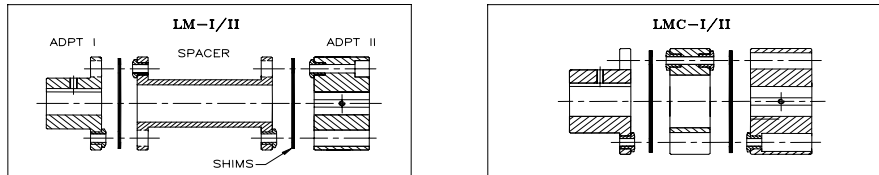


contd.....

(B)(a) MOUNTING PROCEDURE (For LM/LMC Couplings)

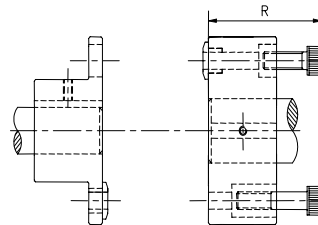
1. Disassemble the coupling by removing all nuts & bolts. Find the couplings in disassembled conditions as shown below:-

Fig. 2



2. Mount the adapters on corresponding shafts with the help of the keys & set screws. For adapters type II min. bolt clearance 'R' is required for disengagement of the spacer assembly. So confirm the distance 'R' before mounting the adapters. Value of R is given in respective catalogue.

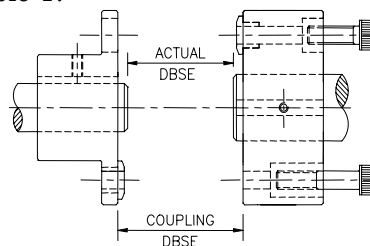
Fig. 3



With one machine firmly bolted down, set the reference length 'A' equal to the distance between shaft ends (DBSE) as shown in fig. No. 3. DBSE of coupling is measured between inside faces of adapter as shown in fig. 3.

Deviation in standard DBSE is defined as axial misalignment (end float). For normal applications the shaft end should be flushed with inner face of the adapter. In some special cases the shaft ends may protrude beyond the inner face of the adapter or may remain inside, if required. The distance between two faces of adapter flanges is to be maintained as specified. The variation in this distance should not exceed the permissible initial axial misalignment given in table 1.

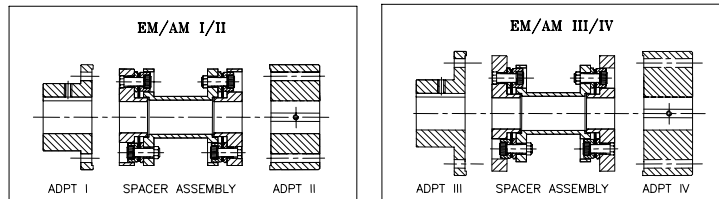
Fig. 4



(B)(b) MOUNTING PROCEDURE (For EM/AM/FLM/FM Couplings)

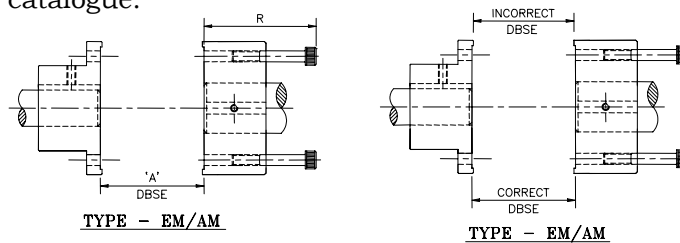
- Disassemble the coupling by removing adapters & bolts. Find the couplings in disassembled conditions as shown below :

Fig. 5



- Mount the adapters on corresponding shafts with the help of the keys & set screws. For adapters type II min. bolt clearance 'R' is required for disengagement of the spacer assembly. So confirm the distance 'R' before mounting the adapters as shown in fig 6. Value of R is given in respective catalogue.

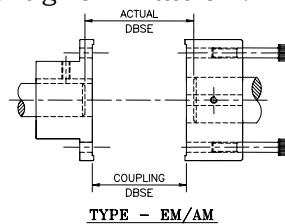
Fig. 6



With one machine firmly bolted down, set the reference length 'A' equal to the distance between shaft ends (DBSE) as shown in fig. DBSE of coupling is measured between inside faces of adapter's steps as shown in fig. 3.

Deviation in standard DBSE is defined as axial misalignment (end float). For normal applications the shaft end should be flushed with inner face of the adapter. In some special cases the shaft ends may protrude beyond the inner face of the adapter or may remain inside, if required (Ref. Fig. 7). The distance between two faces of adapter flanges is to be maintained as specified. The variation in this distance should not exceed the permissible initial axial misalignment given in table 1.

Fig. 7



(C) ALIGNMENT PROCEDURE

Alignment procedure is given separately for each type of alignment, for simplicity. However all 3 types of misalignments may be present at the same time.

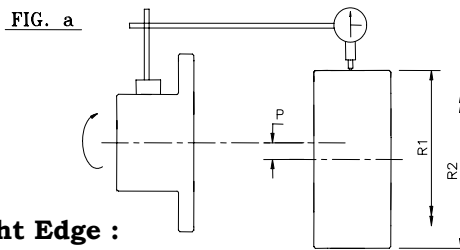
For Permissible *INITIAL* misalignments refer table 1

For Permissible *MAXIMUM* misalignments refer table 2

(I) CHECKING PARALLEL / RADIAL ALIGNMENT

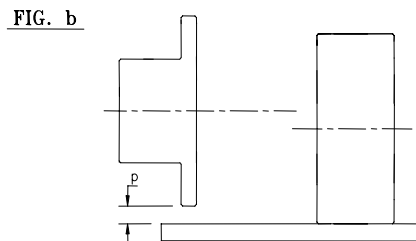
(a) **Using Dial Gauge :**

Clamp the dial indicator at one end and rest the plunger on O.D. Take the reading at each quarter revolution of adapter by rotating one end. The parallel misalignment (P) is half the Total Indicated Reading (TIR) shown on dial gauge. (Refer Fig. a)



(b) **Using Straight Edge :**

If the field constraints do not permit the use of dial indicator then use straight edge. Measure gap 'P' by using filler gauge (Refer Fig. b)



ATTENTION The parallel misalignment 'P' should not exceed the permissible initial parallel misalignment mentioned in table 1.

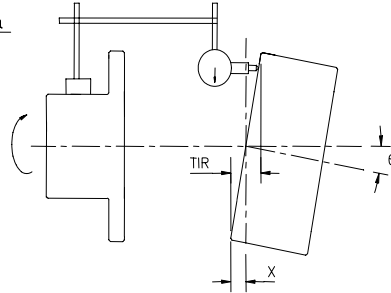
(II) CHECKING ANGULAR ALIGNMENT

(a) **Using Dial Gauge :**

Clamp the dial indicator at one end and rest the plunger on face of the adapter. Take the reading at each quarter revolution of adapter by rotating one end. The angular misalignment (X) is half the Total Indicated Reading (TIR) shown on dial gauge.

(Refer Fig. a)

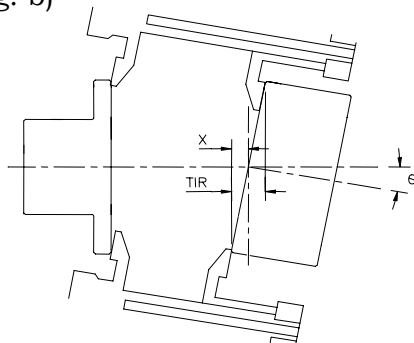
FIG. a



(b) **Using Vernier Calliper :**

If the field constraints do not permit the use of dial indicator then use vernier calliper. Measure DBSE at 4 places 90° apart. The angular misalignment is half the Total Indicated Reading (TIR) shown on vernier scale. (Refer Fig. b)

FIG. b



ATTENTION

The angular misalignment should not exceed the permissible initial angular misalignment mentioned in table 1.

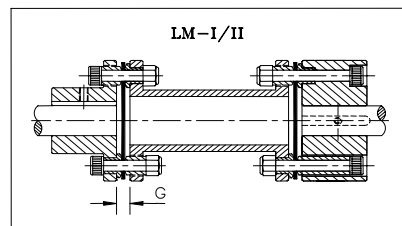
ATTENTION

The misalignment capabilities shown in drawings & product literature allow for dynamic conditions & variations. For optimum service from the coupling, the installation misalignment (initial misalignment) should not exceed 25% of the maximum allowable misalignment limits. Allowance should be made for any anticipated movements, which will occur during operation (e.g. thermal movements)

(D).a) ASSEMBLY PROCEDURE FOR LM TYPE COUPLING

Clean all the parts carefully.

- 1) Support the spacer between two adapters in such a way that the clear holes of spacer flange will be in line with the press fitted bushes in the adapter.
- 2) Hold the flexible membrane between the adapters & spacer flanges.
- 3) Insert socket head cap screws with sleeves from adapter side through the clear holes of adapters, membrane holes & press fitted bushes on spacer and tighten the nylock nut.
- 4) Then insert the socket head cap screws from adapter side through the press fitted bushes in the adapters, membrane holes and clear hole on spacer flange. Insert the sleeve from spacer side & tighten the Nylock nut.
- 5) Follow the same procedure from other side also. Then tighten all the nylock nuts to the required tightening torques for disc pack bolts given in table 3.



- 6) Ensure the Gap 'G' is equal at both sides of spacer. Value of gap 'G' is given in table 1 & 2. Tighten the foundation bolts of both equipments.

ATTENTION

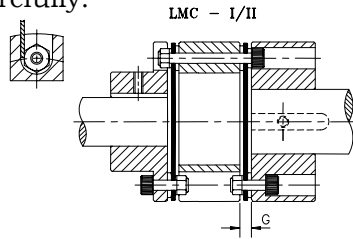
If the coupling is dynamically balanced, ensure that the matchmarks are in straight line & unidirectional before bolting the assembly.



IMPORTANT: The necessity for shields & guards varies with individuals installations. The owner or user must provide the required safety guards. Safety guards or shields are not furnished by us with this equipments.

(D).b) ASSEMBLY PROCEDURE FOR LMC TYPE COUPLING

Clean all the parts carefully.



- 1) Support the spacer plate between two adapters in such a way that the slot of the spacer plate will be in line with the press fitted bushes of adapters.
- 2) Insert one flexible membrane set between adapter & spacer plate.
- 3) First Insert Allen head bolts (having small length) from adapter side, through press fitted bushes on adapter flange, membrane holes and slot of spacer plate as shown in fig. 1. Then insert plain washer & Nylock nut through slot of spacer. Keep the across flat of nut parallel to slot size by keeping 1.5 mm Thk. strip in between nut A/F and slot size, tighten the allen head bolts by allen key. After tightening remove the strip from slot. (For tightening torque refer table no. 3).
- 4) Insert another flexible membrane set on other side and tighten the bolts same way as mentioned above.
- 5) Then insert the remaining 3 long allen head bolts with plain washer from clear hole side of adapter through membrane holes, press fitted bushes of spacer plate and slot of adapter flange. Insert plain washer and nylock nut from slot side of adapter flange. By keeping 1.5 mm Thk. strip in between nut A/F and slot size, tighten the allen head bolts by allen key. After tightening remove the strip from slot. (For tightening torque refer table no. 3).
- 6) To avoid loosening of nut, apply thread locker, loctite 270 solution on threads before tightening the bolts. Tighten all foundation bolts.
- 7) Ensure that Gap "G" is maintained equally at four places 90° apart on both sides without rotating either of the shaft. For Gap "G" refer table no. 1 & 2. If the gap G is not maintained with the adapters flush with the shaft ends, adjust the adapters such that gap G is equal on both side of spacer. This ensures that the shims are not subjected to initial stresses due to excessive misalignments.

ATTENTION **If the coupling is dynamically balanced, ensure that the matchmarks are in straight line & unidirectional before bolting the assembly.**

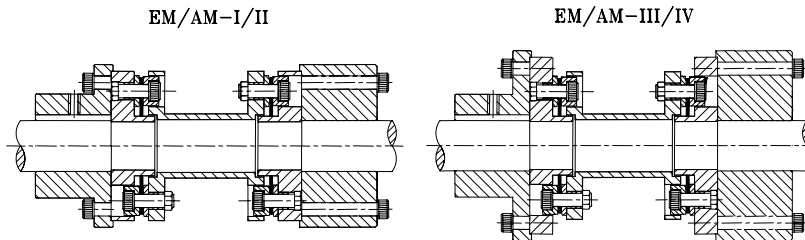


IMPORTANT: The necessity for shields & guards varies with individuals installations. The owner or user must provide the required safety guards. Safety guards or shields are not furnished by us with this equipments.

(D).c) ASSEMBLY PROCEDURE FOR EM/AM TYPE COUPLING

Clean all the parts carefully.

- 1) First ensure tightening all the nuts & bolts for reqd. tightening torque for disc pack bolts of spacer assly.
- 2) Ensure that the shims in spacer assly. are in straight position and total length of spacer assly which is equal to distance between adapter faces.
- 3) Compress lightly the spacer assly and insert it in between adapter's faces and ensure that it has rest evenly in steps provided in both adapters.



- 4) Bring the tapped hole of D. P. in line with clear holes of adapter. Insert the adapter bolts with spring washers & tighten to reqd. tightening torque as given in table 3.
- 5) Ensure that gap 'G' is equal all over on both side of spacer assly. (For gap 'G' refer table no. 1 & 2)
- 6) Tighten all the foundation bolts of both equipments.
- 7) Use thread locker locktite 270 solution to prevents the loosening of bolts, if reqd.

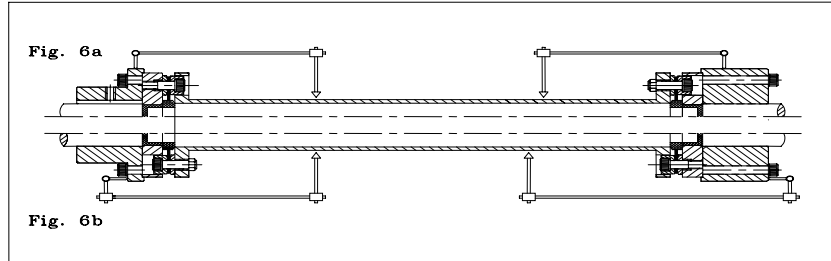
ATTENTION If the coupling is dynamically balanced, ensure that the matchmarks are in straight line & unidirectional before bolting the assembly.



IMPORTANT: The necessity for shields & guards varies with individuals installations. The owner or user must provide the required safety guards. Safety guards or shields are not furnished by us with this equipments.

(D).d) ASSEMBLY PROCEDURE FOR FLM/FM TYPE COUPLING

Clean all the parts carefully.



Note : If the FLM coupling is without distance piece, then follow the same assly procedure of LM coupling type. For FLM coupling having D.P. both side and for FM coupling, follow the assly. Procedure as given below.

- 1) First ensure tightening all the nuts & bolts of spacer assly. to reqd. tightening torque as given in table no. 3.
- 2) Ensure that the shims in spacer assly. are in straight position and total length of spacer assly which is equal to distance between adapter faces.
- 3) Insert the spacer assly. between two adapter faces and ensure that it has rest evenly in the steps provided in both adapters.
- 4) Bring the tapped hole of D. P. in line with clear holes of adapter. Insert the adapter bolts with spring washers & tighten to reqd. tightening torque as given in table 3.
- 5) Mount dial indicator on both side of assly. as shown in fig. And follow the same alignment procedure for checking angular & parallel alignment as given in page no. 34 & 35.
- 6) The deviation in readings is total Indicated Readings (TIR). The actual misalignments are half of the TIR. These values should not exceeds initial misalignment values given in table no. 1
- 7) Tighten all the foundation bolts of both equipment.

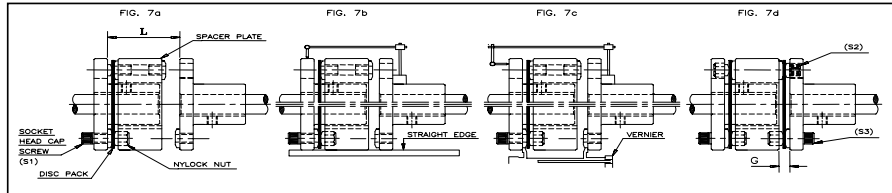
ATTENTION If the coupling is dynamically balanced, ensure that the matchmarks are in straight line & unidirectional before bolting the assembly.



IMPORTANT: The necessity for shields & guards varies with individuals installations. The owner or user must provide the required safety guards. Safety guards or shields are not furnished by us with this equipments.

(D).e) ASSEMBLY PROCEDURE FOR INVERTED ADAPTER TYPE LM/LMC TYPE COUPLING

Clean all the parts carefully.



After mounting adapters on respective shaft, Insert one disc pack & spacer on inverted hub as shown in fig.

- 1) **For LM** type spacer assy, bring clear hole of spacer in line with bush of adapter flange. **For LMC** type spacer, bring the spacer slot in line with bush of adapter flange.
- 2) Insert the socket head cap screw from adapter side through bush hole, membrane hole and clear hole of spacer flange. Tighten these bolt by using plain washer/sleeve and nylock nut from spacer side to required tightening torque given in table no.3 Then insert socket head cap screw with sleeve from spacer through membrane hole adapter bush hole and tighten them by nylock nut. In case of **LMC** type spacer having slot, keep 1.5 mm thk. strip in between nut A/F and slot face. Then tighten the allen head bolt (having small length) by allen key to required tightening torque. After tightening, remove the strip from spacer slot.
- 3) Bring another adapter along with equipment closer to spacer mounted adapter and set the distance L as shown on respective assy drg.
- 4) Check the alignment as per the alignment procedure given on page No. 34& 35.
- 5) Hold another side disc pack in between spacer and adapter. Insert socket head cap screw along with sleeve and follow the same the same procedure as given in Sr. No. 2. For tightening of another side socket head cap screw (of smaller length). Then insert longer socket head cap screw along with plain washer/sleeve from clear hole of adapter flange. It passes through membrane holes, spacer bush hole and tighten them with plain washer & nylock nut in the slot provided on adapter flange as per procedure given in Sr. No.2.
- 6) Ensure that gap G is equal all over on both side of spacer assy.

ATTENTION **If the coupling is dynamically balanced, ensure that the matchmarks are in straight line & unidirectional before bolting the assembly.**



IMPORTANT: The necessity for shields & guards varies with individuals installations. The owner or user must provide the required safety guards. Safety guards or shields are not furnished by us with this equipments.

(E) DISMANTLING PROCEDURE

Failures are rare & can be attributed to excessive misalignment, severe overload or a combination of the both. In all cases of the coupling failure, it is advisable that the cause of failure is first identified & then corrected. Failure of coupling will generally be a failure of membrane assembly. These assemblies should be replaced in pairs. Failure of one will usually result in damage to the other.

Support the spacer such that the shims should not be under stresses due to external loads, such as spacer weight.

Remove the reqd. bolts, nuts such that spacer/spacer assly. will get free from complete assly.

If the spacer assly. is located in adapters step then compress the spacer assly. and disengage it from adapter's locating step.

ATTENTION

It is recommended that the entire disc pack should be replaced with the new factory assembled disc pack.

TABLE 1
PERMISSIBLE *INITIAL* MISALIGNMENTS FOR DISC-O-FLEX COUPLING

COUPLING SIZE		PERMISSIBLE INITIAL MISALIGNMENTS				* GAP 'G' (Std) mm	
LM	EM/AM	Angular		Axial (± mm)	Parallel (mm/mm) SPAN) #	LM	EM/AM
		Degree per disc pack	Diff. in gap (mm)				
5	4	0.18°	± 0.125	0.25	0.003	5.2	5.2
10	8					6.5	7.5
20	15					6.5	7.5
35	25					7.5	7.5
55	40					8	8.5
95	65					8	8.5
120	90					9.5	9.3
170	125		9.5	9.3			
220	165		± 0.375	0.5		12	12.4
360	270					13	10.4
400	370					13	10.4
520	390					14.4	13.8
800	600					16.2	14.6
1000	790					16.2	14.6
1100	825	19.5			16		
1300	1025	± 0.7	0.5	19.5	16		
1500	1125			21.5	17.4		
2000	1425			21.5	17.4		
2250	1680			23.5	16.9		
2500	1880			23.5	16.9		
2700	2015			0.75	0.75	34	34
3400	2535					38	38
4400	3280	0.12°	± 1.0.5	0.002	34	34	
5000	3730				34	34	
5800	4250				38	38	
6800	5075	0.09°	± 0.95	1	34	34	
7800	5820				34	34	
9000	6710				38	38	
10500	7835	0.06°	± 0.875	1.25	0.001	38	38
12500	9330				38	38	

* Gap 'G' in above table is given when angular and axial misalignments are zero.

SPAN = DBSE - G

ATTENTION

The permissible initial misalignments given in the above table must not be exceeded during installation.

The permissible initial misalignments given in the above table – parallel, axial and angular must not occur simultaneously.

TABLE 2
PERMISSIBLE MAXIMUM MISALIGNMENTS FOR DISC-O-FLEX COUPLING

COUPLING SIZE		PERMISSIBLE MAXIMUM MISALIGNMENTS			* GAP 'G' (Std) mm		
LM	EM/AM	Angular		Axial (± mm)	Parallel (mm/mm) SPAN) #	LM	EM/AM
		Degree per disc pack	Diff. in gap (mm)				
5	4	0.75°	± 0.5	1	0.013	5.2	5.2
10	8					6.5	7.5
20	15					6.5	7.5
35	25					7.5	7.5
55	40					8	8.5
95	65					8	8.5
120	90		9.5	9.3			
170	125		9.5	9.3			
220	165		12	12.4			
360	270		13	10.4			
400	370		13	10.4			
520	390		14.4	13.8			
800	600		16.2	14.6			
1000	790		16.2	14.6			
1100	825		19.5	16			
1300	1025		± 2.8	2		0.013	19.5
1500	1125	21.5			17.4		
2000	1425	21.5			17.4		
2250	1680	23.5			16.9		
2500	1880	23.5			16.9		
2700	2015	34			34		
3400	2535	38	38				
4400	3280	0.5°	± 4.2	0.008	34	34	
5000	3730				34	34	
5800	4250				38	38	
6800	5075				34	34	
7800	5820	0.375°	± 3.8	0.006	34	34	
9000	6710				38	38	
10500	7835	0.25°	± 3.5	5	0.004	38	38
12500	9330					38	38

* Gap 'G' in above table is given when angular and axial misalignments are zero.

SPAN = DBSE - G

ATTENTION

The maximum permissible misalignments given in the above table must not be exceeded during installation.

The maximum permissible misalignments given in the above table – parallel, axial and angular must not occur simultaneously.

TABLE 3
'TIGHTENING TORQUES'

COUPLING SIZE		For DiscPack Bolts		For Adapter Bolts	
LM	EM/AM	Bolt Size	Nm	Bolt Size	Nm
5	4	M5	7.6	M5	7.6
10	8	M6	12.8	M6	12.8
20	15	M6	12.8	M6	12.8
35	25	M6	12.8	M6	12.8
55	40	M8	31.2	M8	31.2
95	65	M8	31.2	M8	31.2
120	90	M10	61.6	M10	61.6
170	125	M10	61.6	M10	61.6
220	165	M12	108	M10	61.6
360	270	M14	172	M10	61.6
400	370	M14	172	M10	61.6
520	390	M16	264	M10	61.6
800	600	M18	360	M10	61.6
1000	790	M18	360	M10	61.6
1100	825	M20	520	M10	61.6
1300	1025	M20	520	M10	61.6
1500	1125	M22	696	M12	108
2000	1425	M22	696	M12	108
2250	1680	M24	888	M16	264
2500	1880	M24	888	M16	264
2700	2015	M30	1800	M16	264
3400	2535	M36	3080	M16	264
4400	3280	M30	1800	M16	264
5000	3730	M30	1800	M16	264
5800	4250	M36	3080	M20	520
6800	5075	M30	1800	M20	520
7800	5820	M30	1800	M20	520
9000	6710	M36	3080	M20	520
10500	7835	M36	3080	M24	888
12500	9330	M36	3080	M24	888

Note : All the above values are for socket head cap screws high Tensile Grade 12.9 as per DIN-912.

ATTENTION

Tightening torque must be observed as given above & tightening of the opposite bolts to be done.

APPLICATIONS

Disc-O-flex couplings can be used effectively & economically for transmission of mechanical power for :

Agitators	Hammer mills
Blowers	Line shafts
Conveyors	Machine tools
Crushers	Metal forming machines
Elevators	Mixers
Escalators	Pulverisers
Extruders	Pumps
Feeders	Screens
Generators	Wenches

In industries like

- Cement Brewing & Distilling Food
- Rolling Mills
- Oil & Petroleum
- Chemical & Fertiliser
- Paper Mills
- Rubber
- Sewage Disposal, Sugar, Textile
- Thermal Power Houses

WEIGHT & M.I. FOR LM-TYPE COUPLINGS

Coupling Size	Wt. in kgs		M.I. in kg m ²			
	Min. STD DBSE	Per Metre. Extra DBSE	W R ²		G D ²	
5	0.698	1.572	0.0002	0.00005	0.0008	0.0002
10	1.06	2.145	0.0003	0.00009	0.0012	0.00036
20	2.11	3.108	0.0010	0.00019	0.004	0.00076
35	2.60	3.108	0.0012	0.00019	0.0048	0.00076
55	3.85	6.413	0.0035	0.00083	0.014	0.00332
95	4.5	6.413	0.0040	0.00083	0.016	0.00332
120	7.22	7.005	0.011	0.00099	0.044	0.00396
170	8.2	7.005	0.012	0.00099	0.048	0.00396
220	10.62	10.976	0.025	0.00244	0.1	0.00976
360	16.54	16.131	0.054	0.00527	0.216	0.02108
400	17.6	16.131	0.0575	0.00527	0.23	0.02108
520	27.73	23.031	0.1	0.01075	0.4	0.043
800	36.5	33.791	0.21	0.02315	0.84	0.0926
1000	38.94	33.791	0.22	0.02315	0.88	0.0926
1100	54.1	45.284	0.36	0.04157	1.44	0.16628
1300	56.75	45.284	0.38	0.04157	1.52	0.16628
1500	75.73	56.630	0.6	0.06501	2.4	0.26004
2000	78.65	56.630	0.625	0.06501	2.5	0.26004
2250	99.4	67.877	0.96	0.09340	3.84	0.3736
2500	101.4	67.877	0.98	0.09340	3.92	0.3736
2700	174.6	87.461	2.5	0.15507	10	0.62028
3400	218.6	106.058	3.6	0.22802	14.4	0.91208
4400	292.7	133.781	5.7	0.36281	22.8	1.45124
5000	321.0	174.034	6.9	0.61399	27.6	2.45596
5800	420.0	211.524	10.4	0.90702	41.6	3.62808
6800	505.0	228.617	10.4	1.05952	41.6	4.23808
7800	602.0	335.440	19.4	2.28099	77.6	9.12396
9000	722.0	394.018	26.8	3.14722	107.2	12.58888
10500	883.0	450.131	38.9	4.10744	155.6	16.42976
12500	1061.0	621.550	59.4	7.83153	237.6	31.32612

ATTENTION Weight & M.I. are at max. bores with min. std. DBSE with one type I and one type II adapt.

WEIGHT & M.I. FOR EM/AM-TYPE COUPLINGS

Coupling Size	Wt. in kgs		M.I. in kg m ²			
	Min. STD DBSE	Per Metre. Extra DBSE	W R ²		G D ²	
4	1.43	1.20	0.0004	0.00002	0.0016	0.00008
8	2.18	1.32	0.0009	0.00003	0.0036	0.00012
15	3.84	2.29	0.0023	0.00011	0.0092	0.00044
25	3.86	2.29	0.0023	0.00011	0.0092	0.00044
40	6.40	4.32	0.0054	0.00038	0.0216	0.00152
65	6.45	4.32	0.0054	0.00038	0.0216	0.00152
90	11.60	5.92	0.0148	0.00071	0.0592	0.00284
125	11.68	5.92	0.0148	0.00071	0.0592	0.00284
165	18.29	9.00	0.0319	0.00164	0.1276	0.00656
270	29.67	13.17	0.0714	0.00352	0.2856	0.01408
370	29.78	13.17	0.0716	0.00352	0.2864	0.01408
390	41.23	16.13	0.1162	0.00527	0.4648	0.02108
600	55.95	22.69	0.2055	0.01044	0.822	0.04176
790	57.20	22.69	0.206	0.01044	0.824	0.04176
825	78.65	28.63	0.353	0.01662	1.412	0.06648
1025	80.00	28.63	0.386	0.01662	1.544	0.06648
1125	103.00	34.78	0.567	0.02452	2.268	0.09808
1425	105.10	34.78	0.579	0.02452	2.316	0.09808
1680	134.80	41.24	0.884	0.03448	3.536	0.13792
1880	137.00	41.24	0.921	0.03448	3.684	0.13792
2015	245.50	55.35	2.42	0.06210	9.68	0.2484
2535	337.70	66.00	3.92	0.08831	15.68	0.35324
3280	454.00	81.49	6.51	0.13462	26.04	0.53848
3730	489.00	104.18	7.25	0.22003	29	0.88012
4250	654.00	125.20	11.9	0.31775	47.6	1.271
5075	784.00	152.92	15.7	0.47405	62.8	1.8962
5820	837.00	194.26	17.5	0.76499	70	3.05996
6710	1078.00	222.57	27.1	1.00425	108.4	4.017
7835	1340.00	249.46	40.4	1.26151	161.6	5.04604
9330	1518.00	312.16	49.8	1.97532	199.2	7.90128

ATTENTION
Weight & M.I. are at max. bores with min. std. DBSE with one type I and one type II adapt.