

OPERATING INSTRUCTIONS



JAW-FLEX COUPLINGS

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GENERAL

- I) Standard features of Jaw-Flex Couplings (Pg. 1)
- II) Detail knowledge of this Operating Instructions will ensure trouble free operation of the Jaw-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.

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STANDARD FEATURES

- Simple in construction
- No need of lubrication
- Low initial & operational cost
- Provides torsional vibration isolation and damping
- No metal to metal contact, hence electrically insulated
- Endures momentary overload or overspeed
- Easy to assemble and dismantle (even without disturbing shafts)
- Permits angular, axial, parallel or combination of these misalignments
- All metal parts are coated with anti-corrossive agents
- Can be modified as per customer's specific requirement

AT A GLANCE

- Sizes : 29 (L-035 to HR-9011)
 - Power Rating : 0.06 to 10,620 kW @ 1500 rpm
(0.08 to 14,230 HP @ 1500 rpm)
 - Max. Bore : Upto 300 mm.
 - Misalignment
 - a) Parallel - 0.4 mm.
 - b) Angular - 1°
 - c) Axial - For sizes
 - from 035 to 050 ⇒ ± 0.5 mm.
 - from 070 to 100 ⇒ ± 1.0 mm.
 - from 110 to 4567 ⇒ ± 1.5 mm.
 - from 5069 to 9011 ⇒ ± 3.0 mm.
- } Depends on sizes

JAW-FLEX FAMILY

- Basic Types - L/SW, H, HR
- Application wise -
 - Spacer type : SWQ, RRS, SWS, HQ
 - Flange type : LF, SWF, HF, HRF, SWSF
 - Drum type : LD, SWD, HD, HRD
 - Shear Pin type : LS, SWSH, HS, HRS

Other combinations are available on request.

e.g. Flange with spacer type

Flange with shear pin type

Type	Sizes available
L	035 to 075
L/SW	095 to 350
RRS	095 to 226
SWQ	095 to 350
SWS/SWSF	226 to 350
LF/SWF	095 to 350
LD	095 to 226
SWD	276 to 350
LS/SWSH*	100 to 350
H/HF/HD/HS	3067 to 3667
HQ	3067 to 9011
HR/HRF/HRD/HRS	4067 to 9011

* SWSH: SW coupling with Shear pin

ELASTOMER INFORMATION

- Rathi is the only manufacturer, which produces its own rubber elements in a whole range of compounds, by conducting specific research and development into rubber engineering technology.
- By combining the benefits of this technology with mechanical expertise we can optimise power transmission solutions.
- Full laboratory control and a wide range of specialised equipments ensure high quality and consistency in product performance.
- Specialised compounds can be developed in our laboratories to meet specific requirements.

Recommended Elastomers for Jaw-flex Coupling

Sr. No.	Type of Elastomer Criteria	Nitrile	High Strength Nitrile	Neoprene	Poly-urethane	Silicone	Viton	Polyacrylic
1	Temperature (° C) Working Intermittent	100 120	100 120	100 120	100 110	100 to 200 300	200 250	170 200
2	Resistant to Grease, Oils Chemicals Abrasion Hot Water	Good Fair Good Good	Good Fair Very Good Good	Good Fair Good Good	Very Good Fair Excellent Poor	Poor Good Poor Excellent	Excellent Very Good Good Excellent	Very Good Good Good Good
3	Insulation (° C)	Good	Good	Good	Good	Excellent	Good	Good
4	Shore Hardness 'A'	80 ±5	90 ±5	80 ±5	90 ±5	70 ±5	80 ±5	80 ±5
5	Torsional Rigidity	Soft	Medium	Medium	Rigid	Soft	Medium	Medium
6	Torque Carrying Capacity	Good	Very Good	Good	Excellent	Fair	Good	Good
7	Application	For all normal applications	High torque & low speed applications	Resistant to Ozone atmosphere	Very high torque & low speed applications	If working temp. is 100° to 200° C & no oil is present	High working temp. & oil resistant	Working temp. 150° & oil upto resistant

STD. MATERIAL OF CONSTRUCTION

Component	Type	Size	Material
Hub / Adapter	L	035 to 075	Sintered Iron
	L	050 to 110	Aluminium
	L/SW/RRS/SWQ/TL	095 to 225	CI BS 1452-61 Gr. 12
	L/SW/SWQ/TL/RRS-226	226 to 350	CI BS 1452-61 Gr. 14
	H/TH/HR/HQ	3067 to 9011	CI BS 1452-61 Gr. 17
Spacer Jaw Body	RRS	095 to 226	Aluminium
	SWQ	095 to 225	CI BS 1452-61 Gr. 12
	SWQ	226 to 350	CI BS 1452-61 Gr. 14
	HQ/HR	3067 to 9011	CI BS 1452-61 Gr. 17
Spacer or Flange	SWS/SWSF	226 to 350	BS 970 070 M20/M.S.
Outside Ring	SW/SWQ/TSW	095 to 350	BS 970 070 M20/M.S.
	RRS	095 to 226	
	H/TH/HQ/HR	3067 to 9011	
Inside Ring	H/TH/HQ/HR	3067 to 9011	BS 970 070 M20/M.S.
Chiesel Head Screws	SW/SWQ/TSW	095 to 350	Stainless Steel AISI 304
	RRS	095 to 226	
Hex Head Screw	H/TH	3067 to 3667	High Tensile Steel BS 1083 Gr. 10.9
	SWQ/SWS	226 to 350	
	HR	4067 to 9011	
	HQ	3067 to 7069	
Spider Snapwrap 'T' Cushion Cushion	L	030 to 350	Nitrile Rubber
	SW/TSW/RRS/SWQ	095 to 225	
	SW/TSW/SWQ/RRS-226	226 to 350	
	H/HQ/HR	3067 to 9011	

SPECIAL FEATURES OF VARIOUS TYPES OF
JAW-FLEX COUPLING

A. L TYPE (Refer fig. 1)

- Simple in construction. Consists of two hubs & a spider.
- Every other spider arm is an idler arm and can be advanced to load carrier jaws. Hence it functions as a spare spider in every coupling.
- Spiders can be provided of various materials with different shore hardness to meet application requirement.
- Couplings can be supplied with taper bushes (ref. fig. 2)

B. SW TYPE (Refer fig. 3)

- Replacement / inspection of elastomeric member (i.e. snapwrap) done without disturbing existing alignment.
- Less down time & easy for replacement of snapwrap.
- Couplings can be supplied with taper bushes (ref. fig. 4)

C. RRS TYPE (Refer fig. 8)

- Spacer type coupling and is simple in construction.
- Use of Aluminium spacer gives advantage of lightweight coupling & lower MI.
- Spacer can be dropped out very easily without bolt extraction problems.
- Use of two elastomeric members gives double misalignment capacity, flexibility & smoother power transmission.
- Easy for visual inspection / replacement of snapwrap. Hence less down time.
- Low inventory cost as no need to stock all parts due to interchangeability with L/SW couplings.

D. H TYPE (Refer fig. 5)

- Ratings are higher than L/SW type, hence used for heavy duty application.
- Individual free floating load cushions held in place by outside ring.
- Easy to assemble & dismantle.
- Cushions easily inspected at all times.
- Couplings can be supplied with taper bushes (ref. fig. 7)

E. HR TYPE (Refer fig. 6)

- Higher in rating than L/SW, H type.
- Fixed spacer length type coupling helps to provide independent running requirement.
- Less down time of replacement of cushions and rapid disconnection without disturbing existing alignment.

F. SWQ TYPE (Refer fig. 9)

- Spacer type coupling using snapwrap / T cushions as flexible elements.
- Snapwraps are available from SWQ-095 to SWQ-225 sizes and T cushions are available from SWQ-226 to SWQ-350 sizes.
- Individual replacement of T cushion reduces replacement cost.
- Used where rapid disconnection without disturbing the drive or driven unit is required.

G. HQ TYPE (Refer fig. 10)

- Spacer type coupling using cushions as flexible elements.
- Individual replacement of cushions reduces replacement cost.
- Used where rapid disconnection without disturbing the drive or driven unit is required.

H. SWS TYPE (Refer fig. 11)

- Modified Jaw type spacer coupling for back pull out pump & motor.
- Comparatively light in weight.
- Suitable for horizontal & vertical application.
- Low inventory cost.

I. SWSF TYPE (Refer fig. 12)

- Modified Jaw type spacer coupling for diesel engine & back pull out pump.
- Uses std. SAE flanges, which can accommodate different sizes of couplings.
- Suitable for high speed application.
- Std. SWS coupling can be converted into flange connection.

J. DRUM TYPE COUPLING (Refer fig. 13, 14)
(LD/SWD/HD/HRD)

- Used in applications where braking is required. Brake shoes applies braking force on drum provided with coupling eg. conveyors, elevators, etc.

- Drums are provided in two types.
 - Integral drum - 095 to 226
 - Fabricated drum - 276 & above

Drums are available in C.I./M.S./C.S.

K. FLANGE TYPE COUPLING (Refer fig. 15, 16)
(LF/SWF/HF/HRF/SWSF)

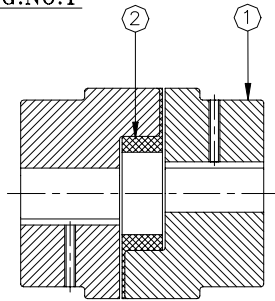
- Used for connecting coupling in engine driven applications e.g. generators, fire fighting pumps, etc.
- Flanges are available in two types.
 - Integral with coupling hub/adaptor
 - Bolted with coupling hub/adaptor
- Std. SAE flanges are available. Non standard flanges can be given on request.
- Integral flanges are available in C.I./C.S.
- Bolted type flanges are available in M.S.

L. SHEAR PIN TYPE COUPLING (Refer fig. 17)
(LS/SWSH/HS/HRS)

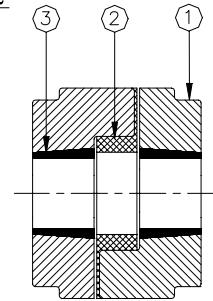
- Used in limited torque applications e.g. torque transmission is to be stopped at some specified torque given by user.
- Protects equipment from damaging in case of overload.
- Shear pins can be replaced easily hence less down time.

M. LQ TYPE (Refer fig. 18)

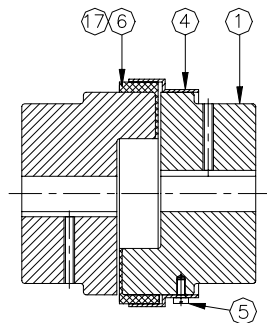
- Spacer type coupling using spider as a flexible element.
- Rapid disconnection without disturbing the drive or driven unit.

CONSTRUCTION DETAILS OF VARIOUS TYPESFIG.NO.1

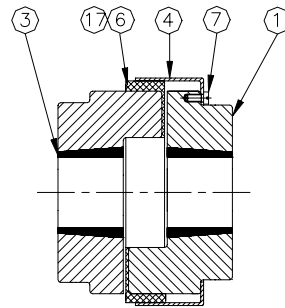
TYPE - L ASSLY.

FIG.NO.2

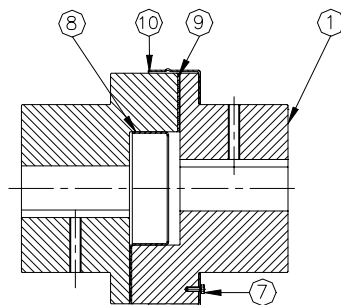
TYPE - TL ASSLY.

FIG.NO.3

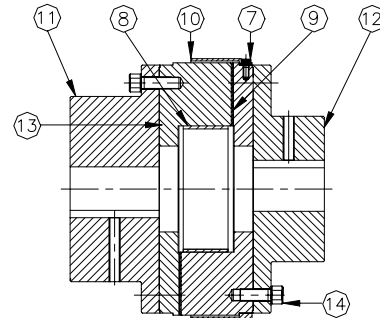
TYPE - SW ASSLY.

FIG.NO.4

TYPE - TSW ASSLY.

FIG.NO.5

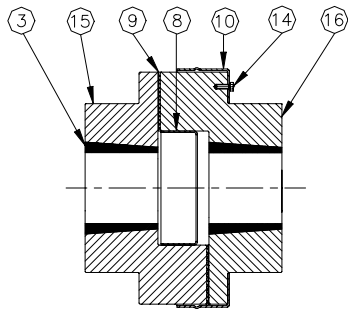
TYPE - H ASSLY.

FIG.NO.6

TYPE - HR ASSLY.

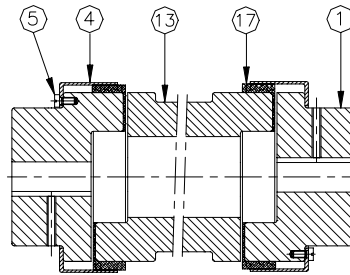
CONSTRUCTION DETAILS OF VARIOUS TYPES

FIG.NO.7



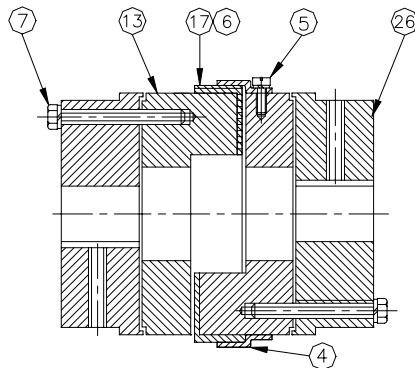
TYPE - TH ASSLY.

FIG.NO.8



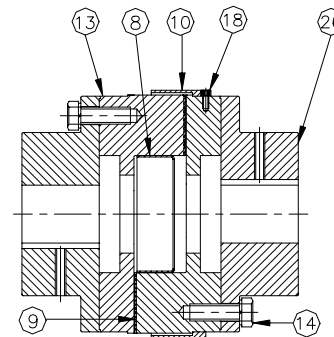
TYPE - RRS ASSLY.

FIG.NO.9



TYPE - SWQ ASSLY.

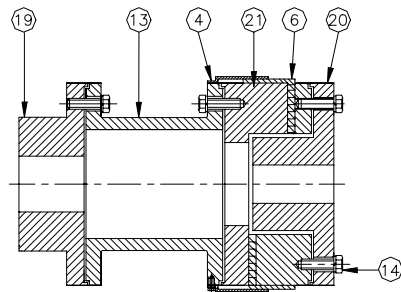
FIG.NO.10



TYPE - HQ ASSLY.

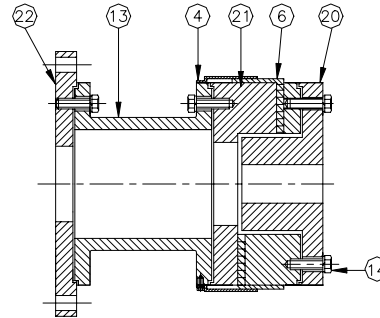
CONSTRUCTION DETAILS OF VARIOUS TYPES

FIG.NO.11



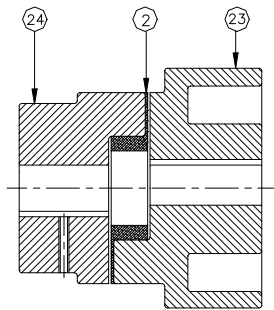
TYPE - SWS ASSLY.

FIG.NO.12



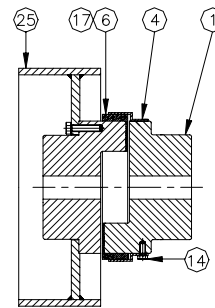
TYPE - SWSF ASSLY.

FIG.NO.13



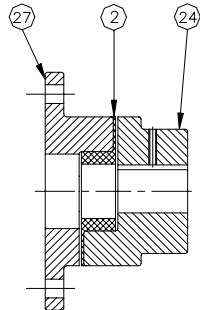
TYPE - LD ASSLY.

FIG.NO.14



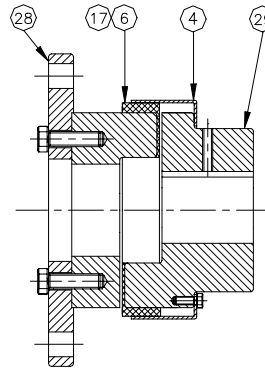
TYPE - SWD ASSLY.

FIG.NO.15



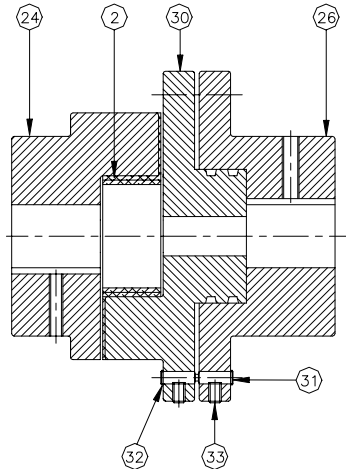
TYPE - LF ASSLY.

FIG.NO.16



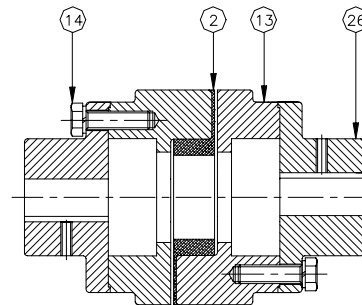
TYPE - SWF ASSLY.

FIG.NO.17



TYPE - LS ASSLY.

FIG.NO.18



TYPE - LQ ASSLY.

1) E	13) Spacer	24) Hub L
2) Spacer	14) Hex Head Bolt	25) Fabricated Drum
3) Taper Bush	15) Hub 'H'	26) Adapter
4) 'SW' Ring	16) Hub 'F'	27) Integral Flange Jaw Body
5) Cheese Head Screw	17) Snap Wrap	28) Bolted Flange Jaw Body
6) 'T' Cushions	18) Socket Head Cap Screw	29) Hub 'SW'
7) Hex. Head Screw	19) Adapter Motor Side	30) Flange Jaw Body
8) Inside Ring	20) Adapter Pump Side	31) Shear Pin
9) Cushion	21) Jaw Body	32) Circlip
10) Outside Ring	22) SAE Flange - Engine Side	33) Set Screw
11) Adapter 1		

FEATURES OF CONVERSION OF RRS-SW-L

A. RRS Type

- Consists of a SW Assembly, an Aluminium spacer with two SW kits. (The SW kit comprises of a SW ring, a Snapwrap & a set of screws & washers.)
- No need to stock all parts except spacer kits (a RRS spacer & a SW kit). Hence low inventory cost.
- Consists of two elastomeric members i.e. snapwraps, hence gives increased misalignment capability.
- Use of Aluminium spacer gives advantage of lightweight coupling & lower moment of inertia.

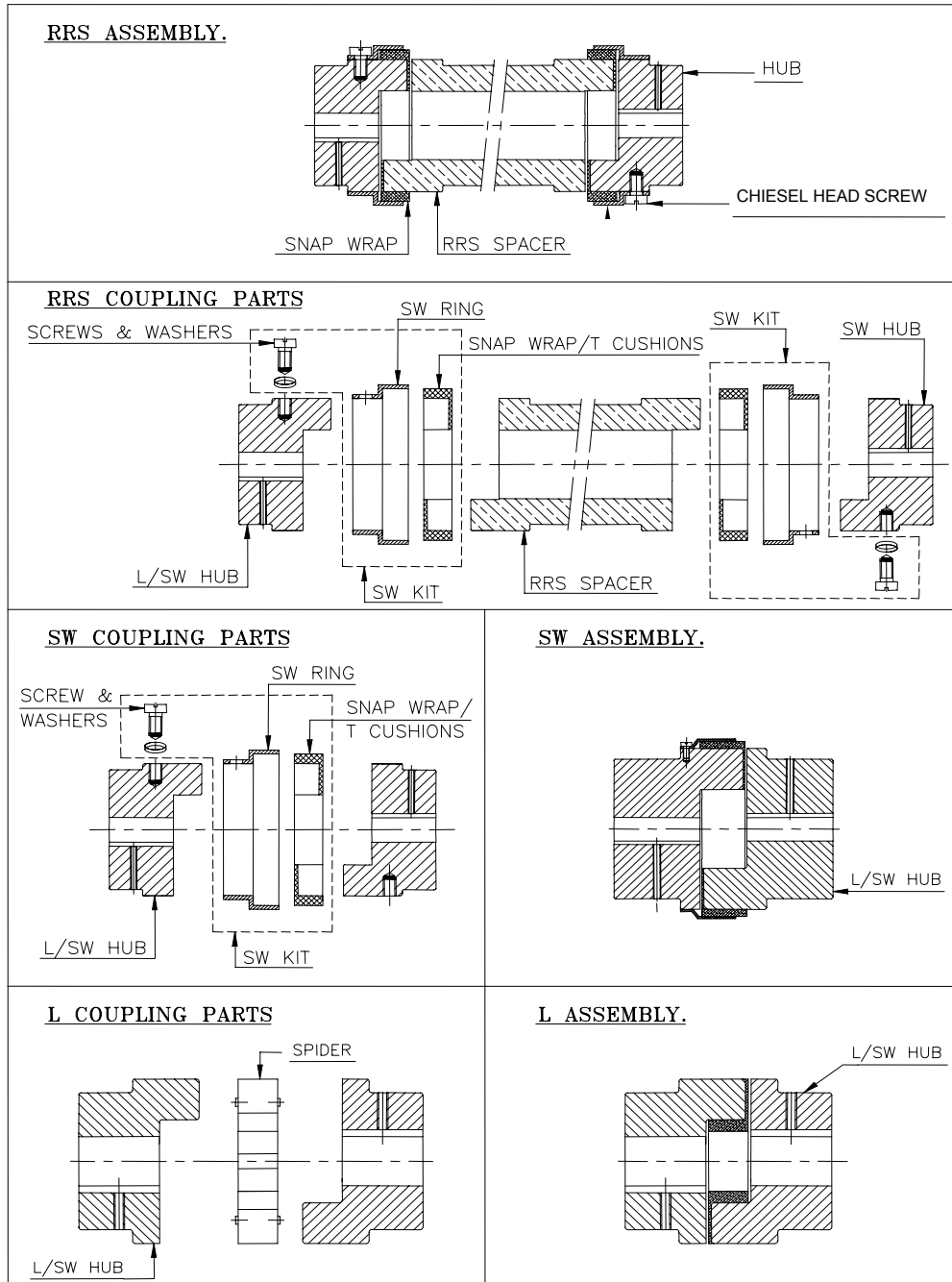
B. SW Type

- Consists of two hubs and a SW kit.
- L assembly can be converted into SW assembly by replacing spider from L assy. with SW kit.
- Only SW kit to be kept in stock. Hence low inventory cost.
- Replacement/inspection of snapwrap done without disturbing existing alignment. Hence less down time.

C. L Type

- Consists of two L hubs and a spider. Hence simple in construction.
- Tapped holes are provided on jaw OD, which helps to use same hubs for SW & RRS Assy.
- Every other spider arm is an idler arm and can be advanced to load carrier jaws. Hence it functions as a spare spider in every coupling.

FEATURES OF CONVERSION OF RRS-SW-L





JAW-FLEX COUPLING

STANDARD RATINGS FOR JAW-FLEX COUPLINGS

Coupling Size	Rated Torque			Rated Power			
	Nm	Kg-m	Lbs-in.	@100 RPM		@1500 RPM	
				kW	HP	kW	HP
35	0.38	0.04	3	0.004	0.005	0.06	0.08
50	2.80	0.21	18	0.03	0.040	0.45	0.60
70	4.9	0.50	43	0.05	0.07	0.75	1.05
75	9.8	1.00	87	0.1	0.13	1.5	1.95
95	21.1	2.15	187	0.22	0.29	3.3	4.4
99	35.1	3.58	311	0.37	0.50	5.55	7.5
100	46.4	4.73	411	0.49	0.66	7.35	9.9
110	89	9.07	787	0.93	1.25	13.95	19
150	141	14.37	1248	1.49	2.00	22.35	30
190	190	19.37	1681	2.01	2.69	30.15	40
225	265	27.01	2345	2.76	3.70	41.4	56
226	327	32.31	2805	3.43	4.60	51.45	69
276	532	53.72	4663	5.6	7.51	84	113
280	782	79.71	6919	8.2	11	123	165
295	1279	130.38	11316	13.4	18	201	270
2955	2132	217.33	18863	22.4	30	336	450
300	3047	310.60	26959	31.9	43	478.5	645
350	4308	439.14	38116	45	60	675	900
3067	5338	544.14	47229	55.9	75	838.5	1125
3567	7124	726.20	63031	74.6	100	1119	1500
3667	9931	1012.33	87867	104	139	1560	2085
4067	14228	1450	125885	149	200	2235	3000
4567	19195	1957	169832	201	270	3015	4050
5069	22822	2326	201923	239	320	3585	4800
6069	33518	3417	296558	351	470	5265	7050
7069	46982	4789	415683	492	660	7380	9900
8069	58442	5957	517078	612	820	9180	12300
9011	67610	6892	598194	708	949	10620	14235

WEIGHT & MI. FOR L - TYPE JAW FLEX COUPLINGS

COUPLING SIZE	APPROX. Wt. kg	MI. in Kgm ² (Approx.)	
		WR ²	GD ²
L-035 SI	0.02	7.28 X 10 ⁻⁸	2.912 X 10 ⁻⁷
L-050 SI	0.12	1.21 X 10 ⁻⁶	4.84 X 10 ⁻⁶
L-070 SI	0.26	4.67 X 10 ⁻⁶	1.87 X 10 ⁻⁵
L-075 SI	0.44	1.19 X 10 ⁻⁵	4.76 X 10 ⁻⁵
L-070 AL	0.12	2.14 X 10 ⁻⁶	8.56 X 10 ⁻⁶
L-075 AL	0.19	5.34 X 10 ⁻⁶	2.14 X 10 ⁻⁵
L-095 AL	0.31	1.15 X 10 ⁻⁵	4.6 X 10 ⁻⁵
L-100 AL	0.61	3.13 X 10 ⁻⁵	1.25 X 10 ⁻⁴
L-095 CI	0.75	2.88 X 10 ⁻⁵	1.15 X 10 ⁻⁴
L-100 CI	1.50	7.67 X 10 ⁻⁵	3.07 X 10 ⁻⁴
L-110 CI	3.20	2.77 X 10 ⁻⁴	1.11 X 10 ⁻³
L-150 CI	3.90	4.19 X 10 ⁻⁴	1.68 X 10 ⁻³
L-190 CI	7.50	0.0120	0.048
L-225 CI	10.50	0.0180	0.072
L-226 CI	13.00	0.0280	0.112
L-276 CI	19.00	0.0500	0.2
L-280 CI	25.00	0.0960	0.384
L-295 CI	44.00	0.2560	1.024
L-2955 CI	51.00	0.3020	1.208
L-300 CI	58.00	0.3800	1.52
L-350 CI	86.00	0.7620	3.048

Note: Weight & MI. are with Min. Bores.

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WEIGHT & MI. FOR SW, H, HR - TYPE JAW FLEX COUPLINGS

COUPLING SIZE	APPROX. Wt. kg	MI. in Kgm ² (Approx.)	
		WR ²	GD ²
SW-095	0.80	3.67 X 10 ⁻⁴	1.59 X 10 ⁻³
SW-100	1.58	8.73 X 10 ⁻⁴	3.5 X 10 ⁻³
SW-110	3.31	3.02 X 10 ⁻³	0.01208
SW-150	4.05	4.62 X 10 ⁻³	0.01848
SW-190	7.70	0.0128	0.0512
SW-225	10.70	0.0190	0.076
SW-226	15.00	0.0300	0.12
SW-276	21.00	0.0530	2.12
SW-280	29.00	0.1020	0.408
SW-295	48.00	0.2710	1.084
SW-2955	59.00	0.3200	1.28
SW-300	86.00	0.4100	1.64
SW-350	132.00	0.8210	3.284
H-3067	60.00	0.4080	1.632
H-3567	79.00	0.6510	2.604
H-3667	108.00	1.0350	4.14
HR-4067	99.00	1.2410	4.964
HR-4567	174.00	2.7180	10.872
HR-5069	185.00	3.0850	12.34
HR-6069	252.00	5.4870	21.948
HR-7069	374.00	10.5720	42.288
HR-8069	574.00	20.5760	82.304
HR-9011	850.00	37.7900	151.16

Note: Weight & MI. are with Min. Bores.

WEIGHT & MI. FOR SWQ-TYPE JAW FLEX COUPLINGS

COUPLING SIZE	APPROX. Wt. kg	MI. in Kgm ² (Approx.)	
		WR ²	GD ²
SWQ-095 (100)	2.31	0.0020	0.008
SWQ-095 (140)	2.93	0.0022	0.0088
SWQ-095 (180)	3.53	0.0024	0.0096
SWQ-100 (100)	3.52	0.0021	0.0084
SWQ-100 (140)	4.38	0.0027	0.0108
SWQ-100 (180)	5.24	0.0031	0.0124
SWQ-110 (100)	5.62	0.0053	0.0212
SWQ-110 (140)	7.06	0.0067	0.0268
SWQ-110 (180)	8.48	0.0083	0.0332
SWQ-150 (100)	7.95	0.0098	0.0392
SWQ-150 (140)	9.77	0.0122	0.0488
SWQ-150 (180)	11.57	0.0146	0.0584
SWQ-190 (100)	11.18	0.0191	0.0764
SWQ-190 (140)	13.72	0.0239	0.0956
SWQ-190 (180)	16.26	0.0289	0.1156
SWQ-225 (100)	14.65	0.0305	0.122
SWQ-225 (140)	17.73	0.0377	0.1508
SWQ-225 (180)	20.81	0.0449	0.1796
SWQ-226 (140)	22.50	0.0583	0.2332
SWQ-226 (180)	26.00	0.0681	0.2724
SWQ-276 (140)	27.75	0.0846	0.3384
SWQ-276 (180)	32.75	0.1016	0.4064
SWQ-280 (140)	35.00	0.1590	0.636
SWQ-280 (180)	42.00	0.1968	0.7872
SWQ-295 & 2955 (140)	57.60	0.3900	1.56
SWQ-295 & 2955 (180)	68.50	0.4700	1.88
SWQ-300 (140)	69.30	0.5300	2.12
SWQ-300 (180)	81.00	0.6400	2.56
SWQ-350 (140)	101.50	1.0670	4.268
SWQ-350 (180)	119.30	1.3070	5.228

Note: Weight & MI. are with Min. Bores.

WEIGHT & MI. FOR RRS-TYPE JAW FLEX COUPLINGS

COUPLING SIZE	APPROX. Wt. kg	MI. in Kgm ² (Approx.)	
		WR ²	GD ²
RRS-095 (90)	1.1	4.5 X 10 ⁻⁴	1.8 x 10 ⁻³
RRS-095 (100)	1.13	4.6 X 10 ⁻⁴	1.84 x 10 ⁻³
RRS-095 (140)	1.3	5.1 X 10 ⁻⁴	2.04 x 10 ⁻³
RRS-100 (90)	2.17	1.34 X 10 ⁻³	5.36 x 10 ⁻³
RRS-100 (100)	2.2	1.37 X 10 ⁻³	5.48 x 10 ⁻³
RRS-100 (140)	2.38	1.46 X 10 ⁻³	5.84 x 10 ⁻³
RRS-110 (90)	3.93	3.8 X 10 ⁻³	0.0154
RRS-110 (100)	4.02	3.92 X 10 ⁻³	0.0157
RRS-110 (140)	4.4	4.24 X 10 ⁻³	0.0169
RRS-150 (90)	4.97	6.25 X 10 ⁻³	0.025
RRS-150 (100)	5.0	6.18 X 10 ⁻³	0.0247
RRS-150 (140)	5.3	6.5 X 10 ⁻³	0.026
RRS-190 (90)	9.0	0.015	0.06
RRS-190 (100)	9.2	0.016	0.064
RRS-190 (140)	9.7	0.017	0.068
RRS-225 (90)	12.2	0.024	0.96
RRS-225 (100)	12.4	0.025	0.1
RRS-225 (140)	12.9	0.026	0.104
RRS-226 (100)	15.6	0.037	0.148
RRS-226 (140)	16.4	0.039	0.156
RRS-226 (180)	17.1	0.041	0.164

Note: Weight & MI. are with Min. Bores.

WEIGHT & MI. FOR HQ, SWS - TYPE JAW FLEX COUPLINGS

COUPLING SIZE	APPROX. Wt. kg	MI. in Kgm ² (Approx.)	
		WR ²	GD ²
HQ-3067 (140)	71.00	0.5460	2.184
HQ-3067 (180)	80.00	0.6480	2.592
HQ-3567 (140)	88.00	0.8190	3.276
HQ-3567 (180)	100.00	0.9710	3.884
HQ-3667 (180)	109.00	1.2130	4.852
HQ-3667 (250)	124.00	1.4110	5.644
HQ-4067 (180)	167.00	2.2950	9.18
HQ-4067 (250)	204.00	2.9100	11.64
HQ-4567 (180)	293.00	4.9680	19.872
HQ-4567 (250)	336.00	5.3140	21.256
HQ-5069 (180)	298.00	5.4950	21.98
HQ-5069 (250)	350.00	6.5600	26.24
HQ-6069 (180)	306.00	8.7500	35
HQ-6069 (250)	440.00	10.5800	42.32
HQ-7069 (250)	658.00	21.0500	84.2
SWS-226 (140)	17.40	0.0400	0.16
SWS-226 (180)	18.00	0.0400	0.16
SWS-276 (140)	22.50	0.0570	0.228
SWS-276 (180)	23.10	0.0580	0.232
SWS-280 (140)	33.40	0.1320	0.528
SWS-280 (180)	34.30	0.1350	0.54
SWS-295 (140)	56.90	0.3460	1.384
SWS-295 (180)	58.60	0.3540	1.416
SWS-2955 (140)	59.30	0.3560	1.424
SWS-2955 (180)	60.90	0.3640	1.456
SWS-300 (140)	74.90	0.5150	2.06
SWS-300 (180)	77.10	0.5300	2.12
SWS-350 (140)	98.00	0.6800	2.72
SWS-350 (180)	101.00	0.6900	2.76

Note: Weight & MI. are with Min. Bores.

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WEIGHT & MI. FOR SWSF - TYPE JAW FLEX COUPLINGS

COUPLING SIZE	APPROX. Wt. kg	MI. in Kgm ² (Approx.)	
		WR ²	GD ²
SWSF W/O FLANGE			
SWSF-226 (140)	12.50	0.0290	0.116
SWSF-226 (180)	13.10	0.0300	0.12
SWSF-276 (140)	15.70	0.0400	0.16
SWSF-276 (180)	16.30	0.0410	0.164
SWSF-280 (140)	23.90	0.1000	0.4
SWSF-280 (180)	24.80	0.1030	0.412
SWSF-295 (140)	42.60	0.2700	1.08
SWSF-295 (180)	44.20	0.2770	1.108
SWSF-2955 (140)	43.80	0.2800	1.12
SWSF-2955 (180)	45.40	0.2850	1.14
SWSF-300 (140)	51.70	0.3820	1.528
SWSF-300 (180)	54.00	0.3900	1.56
SWSF-350 (140)	71.60	0.4540	1.816
SWSF-350 (180)	73.70	0.4640	1.856

Note: Weight & MI. are with Min. Bores.

APPLICATIONS OF JAW-FLEX COUPLING

JAW-FLEX couplings are suitable for general engineering applications requiring reliable power transmission, even under conditions of shaft misalignments, which are often unavoidable.

Typical applications of JAW-FLEX couplings are:

Agitators	Band Resaw (Lumber)
Barge Haul Puller	Beaters
Blowers	Bottling Machinery
Brew Kettles (distiling)	Can Filling Mach.
Car Dumpers	Car Pullers
Card Machine	Chiller (Oil)
Compressors	Conveyors
Cookers (Brewing, Distiling)	Cranes & Hoist
Crushers	Dredges
Dynamometer	Evaporators
Fans	Feeders
Filter, Press-oil	Generators
Hammer Mills	Kilns
Laundry Washers	Lumber Machinery
Machine Tools	Metal Forming Machines
Mills	Mixers
Paper Mills	Printing Presses
Pug Mill	Pumps
Rubber Machinery	Screens
Shredders	Steering Gears
Stokers	Suction Roll (Paper)
Textile Machinery	Tumbling Barrels
Windlass	Woodworking Machinery

TYPICAL SERVICE FACTORS

Determination of service factors depends on torque fluctuations, duration of operation, misalignment, type of application, rotating speed, no. of start-stops, no. of load/speed reversals, etc.

From experience, typical service factors recommended for different applications are:

SERVICE FACTOR TABLE A

DRIVEN MACHINE CLASS	TYPE OF DRIVING UNIT		
	Electric motor, steam turbine	Multi cylinder IC engine or steam engine or water turbine	Single cylinder IC engine or steam engine
<u>UNIFORM</u> Agitators, Brewing machinery, Centrifugal Blowers, Conveyors, Centrifugal fans and pumps, Generators, Sewage disposal equipments, Evaporators, Feeders, Textile machines, Wood working machines.	1.00	1.25	1.50
<u>MODERATE SHOCK</u> Clay working machinery, Crane Hoists, Laundry machinery, Machine Tools, Rotary mills, Paper mill machinery, Non-uniformly loaded centrifugal pumps, Rotary screens, Centrifugal compressors, Shredders, Printing presses, Oil industry, Mixers, Food industry, Beaters, Bucket elevators, Gear pumps, Wood working machinery, Textile machinery.	1.25	1.50	1.75
<u>HEAVY SHOCK</u> Reciprocating conveyors, Crushers, Shakers, Metal mills, Rubber machinery (Banbury mixers & mills), Reciprocating compressors, Welding sets, Freight & passenger elevators, Cooling tower fans, Hammer mills, Reciprocating pumps, Vibrating screens, Winches, Wire drawing machines.	1.75	2.00	2.25

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 Jaw-flex 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.

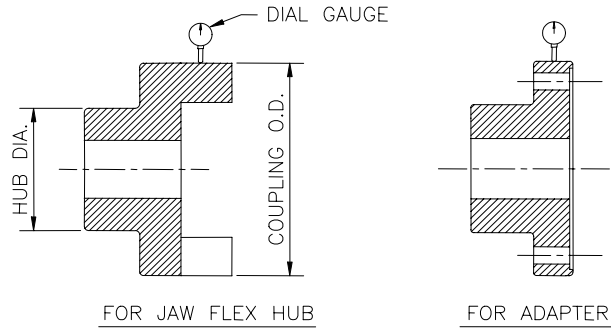
For fitting couplings on splined shaft / taper shaft, please consult RATHI.



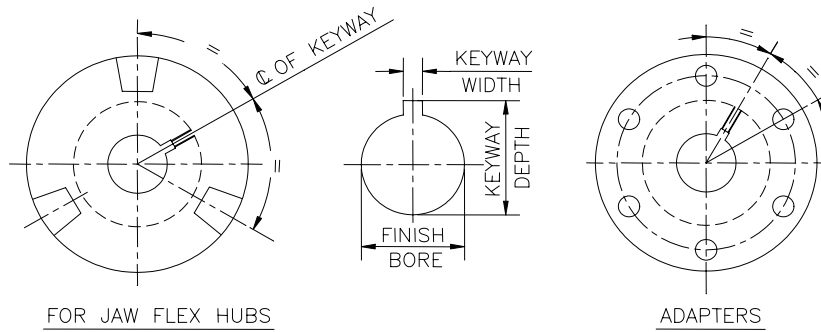
Non observance of these instructions may lead to failure of the coupling.

FINISH BORE & KEYWAY PROCEDURE

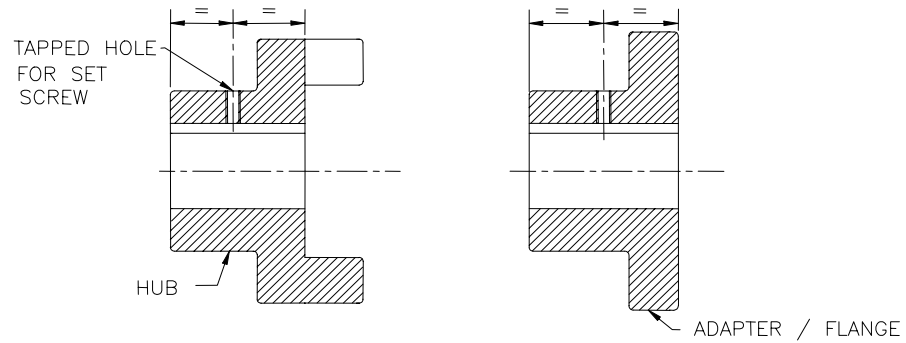
FINISH BORE TO BE DONE W.R.T. COUPLING O.D. (FIG.A)



LOCATION OF KEYWAY. (FIG. B)



LOCATION OF SET SCREW HOLE (FIG. C)



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.**

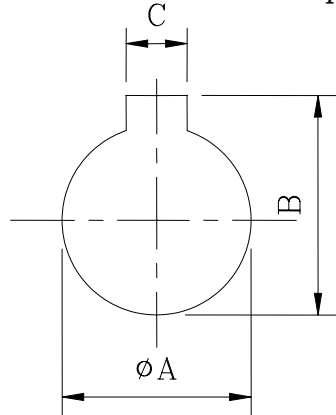


If these instructions on selection of fit are not followed there is danger of bursting of the coupling.

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

STANDARD TOLERANCES FOR FINISH BORE & KEYWAY

Unless otherwise specified, couplings are supplied with finish bores & keyways in H7 & Js9 tolerances respectively & are as per standard ISO 286-2:1988.



$\varnothing A$ - Bore
 B - Keyway Depth
 C - Keyway Width

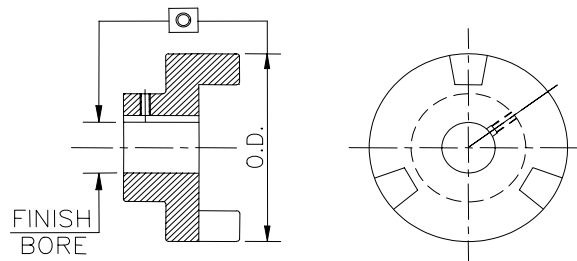
Basic Size (mm.)		H7	Js9	For
Above	Upto & including	For Bores (mm.)	For Keyway Width (mm.)	Keyway Depth (mm.)
3	6	+ 0.012 0	± 0.015	+ 0.1 0
6	10	+ 0.015 0	± 0.018	
10	18	+ 0.018 0	± 0.021	
18	30	+ 0.021 0	± 0.026	+ 0.2 0
30	50	+ 0.025 0	± 0.031	
50	80	+ 0.030 0	± 0.037	
80	120	+ 0.035 0	± 0.043	
120	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

INSTALLATION & ASSEMBLY INSTRUCTIONS

(A) BEFORE INSTALLATION

- a. After removing the coupling from packing, thoroughly inspect to ensure that they is/are as ordered & there no is transit damage or loss.
- b. Remove protective coating/lubricant from bores & keyways. Remove all the bolts & nuts and dismantle the assembly. (In RRS, SWQ, HQ, HR, SWS)
- c. Follow instruction given on page no. 26, if couplings are pilot bored. (Fig. 1)

Fig. 1



(B) MOUNTING PROCEDURE

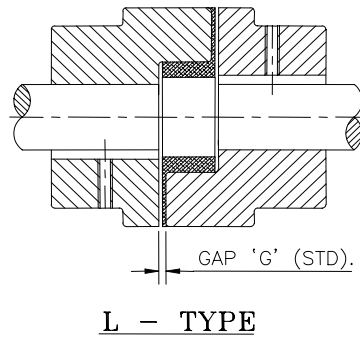
Mount hubs/adapters (*) on their respective shafts with keys such that the shaft ends are flush with inner face of the adapter & tighten the set screw over the keys. Bring both the coupling hubs/adapters (along with equipments) closer so as to maintain gap 'G' as shown in fig. 2a.

L type couplings: insert the spider in one of the hubs. In case of Non-spacer couplings the distance between shaft end (DBSE) is equal to the total length of the coupling less length through bore of both the hubs. In case of spacer type of couplings, the spacer length is normally equal to the distance between shaft ends of the equipments. Refer fig.2b. Dimension 'G' is shown in table 'C2' (page 36).

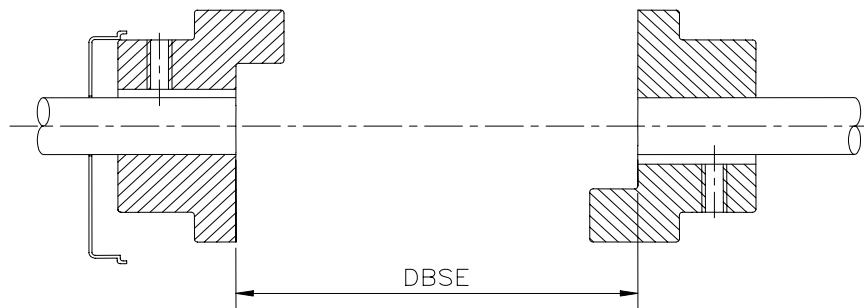
- * HUB - Coupling half with jaws.
- * ADAPTER - Coupling half without jaws.

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(a) IN CASE OF NON SPACER COUPLING (FIG. 2a)



(b) IN CASE OF SPACER COUPLING (FIG. 2b)



For normal applications the shaft ends should be flush with inner face of hub/adapters, they can protrude beyond the inner face of hub/adapters or remain inside if reqd. but sufficient gap should be allowed to take care of end float of both shafts (i.e. axial misalignment)

Ensure that the effective length of key is sufficient to transmit the rated torque of the coupling.

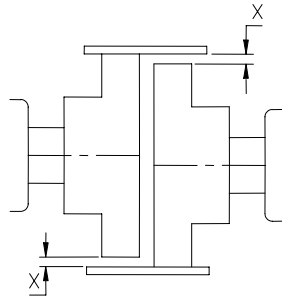
H, HR & HQ couplings: insert the inner ring before bringing the equipments for to their final mounting positions. In case of couplings with outer ring (i.e. SW, SWS, RRS, SWQ, H, HR & HQ) mount the outer ring on one of the adapters and slide it towards the nearest equipment.

(C) ALIGNMENT PROCEDURE

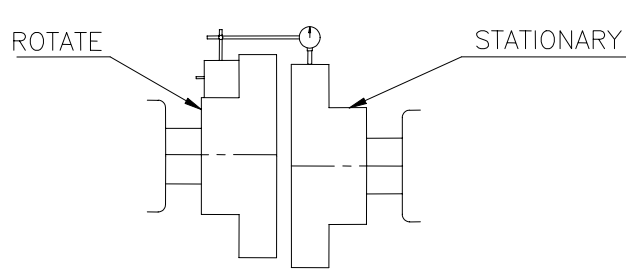
Alignment procedure is given separately for each type of alignment for simplicity. However combination of all 3 types of misalignments may be present at the same time.

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(I) CHECKING PARALLEL/RADIAL ALIGNMENT (FIG. 3)

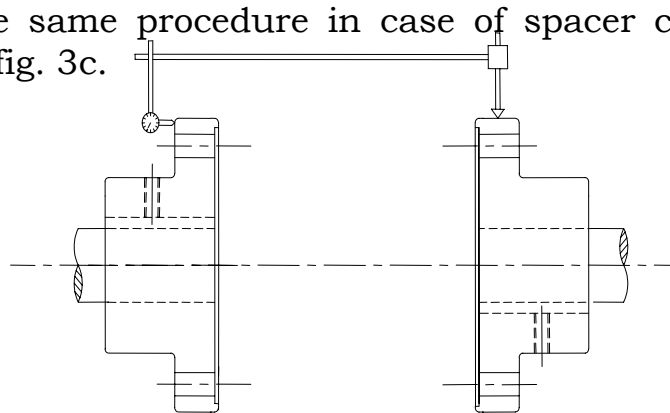


(fig 3a)



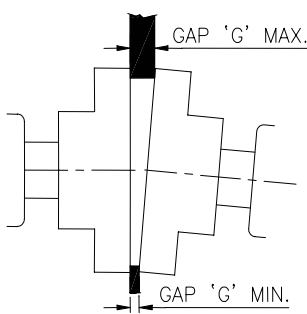
(fig 3b)

- Using straight edge (fig 3a): Align straight edge on OD of one half measure gap 'X' at 4 places 90° apart without rotating shafts. Gap 'X' should be less than the allowable initial parallel misalignment (P) mentioned in Table 'C1' (page 35).
- Using dial gauge (fig 3b): Fix dial gauge on the hub of one of the half & set plunger on the OD of another half. Rotate the coupling slowly to one complete revolution by taking dial gauge reading at 4 places 90° apart. The parallel misalignment is half of the Total Indicated Reading (TIR) of dial gauge which should not exceed the value 'P' given in Table 'C1'.
- Follow the same procedure in case of spacer coupling as shown in fig. 3c.

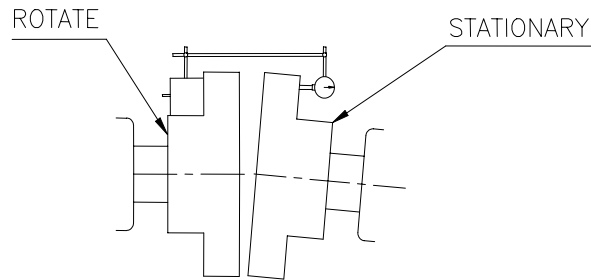


(fig. 3c)

(II) CHECKING ANGULAR ALIGNMENT (FIG. 4)

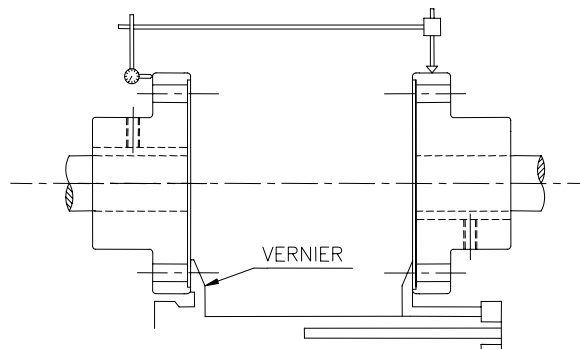


(fig. 4a)



(fig. 4b)

- Using feeler gauge (fig 4a) : Measure gap 'G' at 4 places 90° apart without rotating shafts. The difference in maximum & minimum gap will be the Total Indicated Reading (TIR), which will be the angular misalignment present (Refer Table 'C1' for allowable TIR values in mm).
- The values for deviation in standard gap i.e. angular misalignment should be within the limits as shown in table 'C1' on page no 35.
- Using dial gauge (fig 4b) : Fix the dial gauge on hub OD of one of the halves & set plunger on the face of the another half as shown. Rotate the coupling slowly to one complete revolution by taking dial readings at 4 intervals 90° apart. The Total Indicated Readings (TIR) will be the angular misalignment (Refer Table 'C1').
- Follow the same procedure in case of spacer coupling as shown in fig. 4c.



(fig . 4c)

III) CHECKING AXIAL MISALIGNMENT (End-Float)

- Deviation from standard DBSE due to axial movement of shaft is defined as axial misalignment (End float). [For normal applications the shaft ends should be flushed with inner face of hub/adapter. In some special cases the shaft ends may protrude beyond the inner face of hub/adapter or may remain inside if required.]
- The distance between two faces of coupling halves is to be maintained as specified. The variation in this distance should not exceed the permissible initial axial misalignment given in table 'C1'. (Refer Fig. 2a, 2b)
- Repeat the above steps until the required permissible initial misalignment limits are achieved. Tighten foundation/base frame bolts & ensure the tightening of set screws over keys.

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)



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.

TABLE C1

SR NO	COUPLING SIZE	PERMISSIBLE INITIAL MISALIGNMENT				* GAP 'G' (mm)
		Angular		Axial mm	Parallel / Radial (mm) P'	
		Degree	Total Indicated Reading (TIR) (mm)			
1	035	0.25°	0.07	± 0.25	0.1	1
2	050	0.25°	0.110	± 0.25	0.1	1
3	070	0.25°	0.157	± 0.5	0.1	2
4	075	0.25°	0.194	± 0.5	0.1	2
5	095	0.25°	0.235	± 0.5	0.1	2
6	099	0.25°	0.283	± 0.5	0.1	2
7	100	0.25°	0.283	± 0.5	0.1	2
8	110	0.25°	0.370	± 0.75	0.1	3
9	150	0.25°	0.419	± 0.75	0.1	3
10	190	0.25°	0.502	± 0.75	0.1	3
11	225	0.25°	0.554	± 0.75	0.1	3
12	226	0.25°	0.598	± 0.75	0.1	3
13	276	0.25°	0.685	± 0.75	0.1	3
14	280	0.25°	0.837	± 0.75	0.1	3
15	295	0.25°	1.034	± 0.75	0.1	3
16	2955	0.25°	1.034	± 0.75	0.1	3
17	300	0.25°	1.108	± 0.75	0.1	3
18	350	0.25°	1.330	± 0.75	0.1	3
19	3067	0.25°	1.108	± 0.75	0.1	3
20	3567	0.25°	1.221	± 0.75	0.1	3
21	3667	0.25°	1.330	± 0.75	0.1	3
22	4067	0.25°	1.475	± 0.75	0.1	3
23	4567	0.25°	1.702	± 1.5	0.1	3
24	5069	0.25°	1.745	± 1.5	0.1	6
25	6069	0.25°	1.942	± 1.5	0.1	6
26	7069	0.25°	2.216	± 1.5	0.1	6
27	8069	0.25°	2.508	± 1.5	0.1	6
28	9011	0.25°	2.770	± 1.5	0.1	6

- In case of RRS couplings, double the values of axial & angular misalignment for corresponding size.
- For RRS (sizes from 095 to 226) Parallel misalignment = 0.005 mm per mm of DBSE

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

Note: For permissible maximum misalignments, refer table 'C2'.

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 C2

SR NO	COUPLING SIZE	PERMISSIBLE MAXIMUM MISALIGNMENT				* GAP 'G' (mm)
		Angular		Axial (mm)	Parallel / Radial (mm) 'P'	
		Degree	Total Indicated Reading (TIR) (mm)			
1	035	1°	0.27	±1	0.4	1
2	050	1°	0.40	±1	0.4	1
3	070	1°	0.6	±2	0.4	2
4	075	1°	0.7	±2	0.4	2
5	095	1°	0.9	±2	0.4	2
6	099	1°	1.1	±2	0.4	2
7	100	1°	1.1	±2	0.4	2
8	110	1°	1.4	±3	0.4	3
9	150	1°	1.6	±3	0.4	3
10	190	1°	2.0	±3	0.4	3
11	225	1°	2.2	±3	0.4	3
12	226	1°	2.4	±3	0.4	3
13	276	1°	2.7	±3	0.4	3
14	280	1°	3.3	±3	0.4	3
15	295	1°	4.1	±3	0.4	3
16	2955	1°	4.1	±3	0.4	3
17	300	1°	4.4	±3	0.4	3
18	350	1°	5.3	±3	0.4	3
19	3067	1°	4.4	±3	0.4	3
20	3567	1°	4.9	±3	0.4	3
21	3667	1°	5.3	±3	0.4	3
22	4067	1°	5.9	±3	0.4	3
23	4567	1°	6.8	±3	0.4	3
24	5069	1°	7.0	±6	0.4	6
25	6069	1°	7.7	±6	0.4	6
26	7069	1°	8.8			
27	8069	1°	10.0	±6	0.4	6
28	9011	1°	11.0	±6	0.4	6

- In case of RRS couplings, double the values of axial & angular misalignment for corresponding size.
- For RRS (from sizes 095 to 226) Parallel misalignment = 0.02 mm per mm of DBSE.
- Gap 'G' in above tables is when angular and axial misalignments are zero.

Important : At the time of installation, INITIAL misalignments should not exceed 25% or permissible maximum misalignments.

Note : For permissible initial misalignments, refer table 'C1'.

ATTENTION

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

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

(D) ASSEMBLY PROCEDURE

After ensuring that the equipments are aligned properly, follow the instructions as given below for assembly of couplings.

a) For L

For L type couplings as the spider has been already inserted in one of the hubs while aligning the equipments, no separate procedure is required to be followed.

b) For SW, H

Wrap the snap wrap(s)/insert cushions of required size in the space between the jaws. Then slide the outer ring over the snap wrap(s)/cushions & fix it to the hub with the help of screws/bolts provided along with the washers.

c) For SWQ, HR & HQ

Take the spacer jaw body assembly. with the inside & outside rings without elastomeric elements. Insert spacer assembly. in the steps provided in the adapters. Tighten the bolts with the torque given in table 'B' (page 39) for tightening torque. Wrap the snap wrap(s)/insert cushions of required size in the space between jaws. Then slide the outer ring over the snap wrap(s)/cushions accordingly & fix it to the hub with the help of screws/bolts alongwith the washers.

d) For RRS

Insert the spacer between RRS hubs mounted earlier as explained in mounting procedure. Wrap/insert the snapwrap/'T' cushions in the space between jaws. Then slide the outer ring over the snap wrap(s)/T-cushions & fix it to the hub with the help of screws/bolts along with washers.

e) For SWS

Insert jaw body over the pump side adapter. Assemble one half of the jaw body with the pump side adapter with the help of bolts. Slide another jaw body over pump side adapter. Insert the space alongwith outer ring between motor side adapter & jaw body as shown in fig. A on page no. 38. Locate the spacer in steps provided on motor side adapter and jaw body and assemble each other with the help of bolts. Then insert the cushions between jaws of jaw bodies & fix the outer ring over the cushions.

IMPORTANT: If the coupling is supplied with dynamic balancing, ensure that the match marks (e.g. nos., alphabets) are in straight line & unidirectional before bolting the spacer assembly with both the adapters. Same is applicable to non-spacer couplings where match marks on hubs / adapters have to be matched.

The necessity of shields and guards varies with individual installations. The owner or user must provide the required safety guards. Safety guards or shields are not in our scope of supply.

ASSY OF SWS COUPLING (FIG. A)

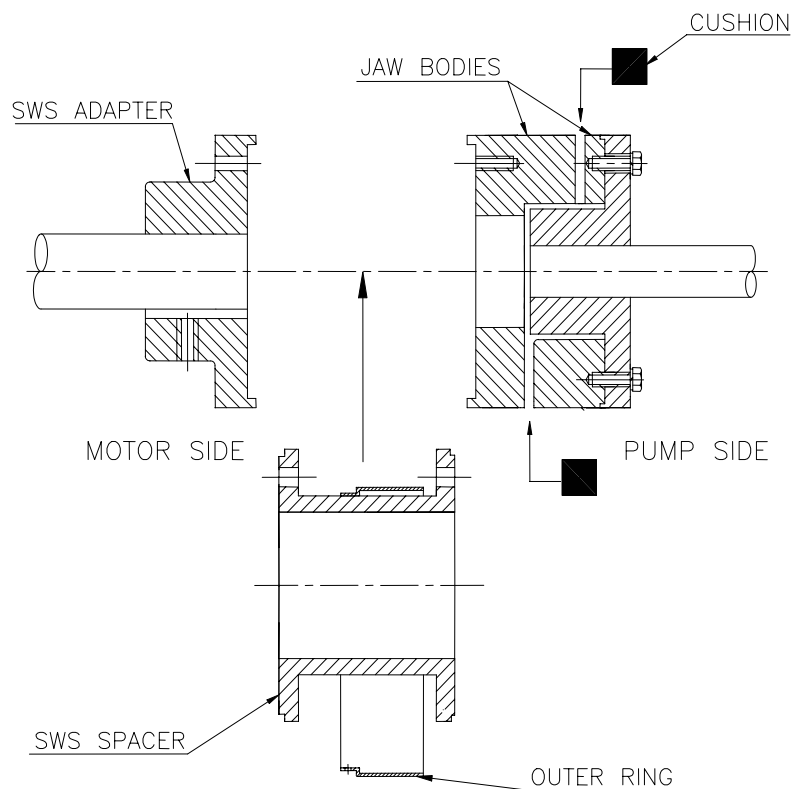


TABLE B
RECOMMENDED TIGHTENING TORQUE

SR NO	COUPLING SIZE	BOLT SIZE	TIGHTENING TORQUE (Nm)
1	095	M6 X 1P	5
2	100	M6 X 1P	5
3	110	M8 X 1.25P	12.5
4	150	M10 X 1.5P	25
5	190	M10 X 1.5P	25
6	225	M12 X 1.75P	44
7	226	M12 X 1.75P	44
8	276	M12 X 1.75P	44
9	280	M14 X 1.75P	70
10	295	M16 X 2P	70
11	2955	M16 X 2P	107
12	300	M20 X 2.5P	215
13	350	M20 X 2.5P	215
14	3067	M20 X 2.5P	215
15	3567	M22 X 2.5P	293
16	3667	M22 X 2.5P	293
17	4067	M24 X 3P	372
18	4567	M24 X 3P	372
19	5069	M24 X 3P	372
20	6069	M24 X 3P	372
21	7069	M24 X 3P	372
22	4067	M16 X 2P	107
23	4567	M16 X 2P	107
24	5069	M16 X 2P	107
25	6069	M16 X 2P	107
26	7069	M16 X 2P	107
27	8069	M20 X 2.5P	215
28	9011	M20 X 2.5P	215

Note: These tightening torques are for the bolts engaging with the spacer & driving/driven equipments.



The necessity of shields and guards varies with individual installations. The owner or user must provide the required safety guards. Safety guards or shields are not in our scope of supply.

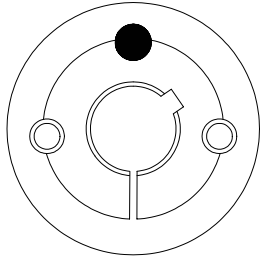
ATTENTION

IF THE SUPPLIED COUPLING IS DYNAMICALLY BALANCED. ENSURE THAT THE MATCH MARKS (e.g. ALPHABETS) ARE IN STRAIGHT LINE & UNIDIRECTIONAL BEFORE BOLTING BOTH THE HUBS

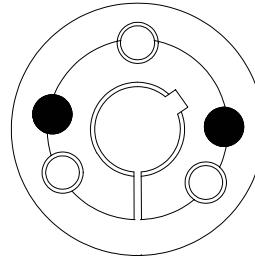
ATTENTION

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

INSTALLATION & REMOVAL OF HUBS/ADAPTERS WITH TAPER BUSHES.



Sizes - 1008 to 3030



Size - 3525 to 5050

A) TO ASSEMBLE

1. Clean and de-grease the bore and tapered surfaces of the bush and the tapered bore of the Hubs/Adapters. Insert the bush in the coupling hubs/adapters and line up the holes (half threaded holes must line up with half straight holes)
2. Lightly oil the grub screws (bush size 1008 to 3030) or the cap screws (bush size 3525 to 5050) and screw them loosely in holes threaded in hub/adaptor shown thus ● in diagram, do not tighten yet.
3. Clean and de-grease the shaft. Fit the coupling hub/adaptor with taper bush on shaft and locate in desired position.
4. When using a key it should first be fitted in the shaft keyway. There should be a top clearance between the key and the keyway in the bore.
5. Using a hexagon socket wrench, gradually tighten the grub/cap screws in accordance with the torques as listed in the Table 'D' of screw tightening torques.
6. After running the drive under load about half to one hour check whether screws are loosened. If found loose take appropriate steps.
7. In order to eliminate the ingress of dirt, fill all empty holes with grease.

B) FOR REMOVAL

1. Slacken all screws. Remove one or two according to number of jacking off holes shown thus ● in the diagram. Insert these screws in jacking off holes.

2. Tighten screw(s) uniformly and alternately until the bush is loose in the Hubs/Adapters and coupling is free on the shaft.

3. Remove coupling assembly from the shaft.

TABLE 'D'

Taper Bush Size	Screw tightening Torque(Nm]	Screw	
		Size	Qty
1008 1108	5.6	1/4" BSW	2
1210 1215	20	3/8" BSW	2
1610 1615	20	3/8" BSW	2
2012 2017	31	7/16" BSW	2
2517 2525	48	1/2" BSW	2
3020 3030	90	5/8" BSW	2
3525 3535	112	1/2" BSW	3
4030 4040	170	5/8" BSW	3
4545	192	3/4" BSW	3
5050	271	7/8" BSW	3