ISO 9001
DNV
ACCREDITED BY ENAC
CERTIFICATED FIRM

couplings

JAURE®

Lamidisc®
all steel coupling

Lamidisc® coupling

Jaure has been engaged more than 35 years in the development and production of couplings that are used in a variety of applications ranging from light to heavy duty and low speed to high speed.

From our commitment for continuous improvement we have developped a new disc coupling that provides a reliable transmission of mechanical power from driving to driven machines.

Disc couplings provide compensation for axial, angular and radial[1] misalignment. In general they have the following advantages:

• No need for lubrication and maintenance.

• There is no need to disassemble the coupling to inspect. Additionally, the condition of the discs can be checked while the machine is running, using a strobe light.

• The machine misalignment can be assessed.

• Torsionally rigid without any backlash.

• No wearing parts, high resistance to harsh environmental conditions.

• Infinite life if properly aligned.

Nevertheless, disc pack couplings have only a few disadvantages:

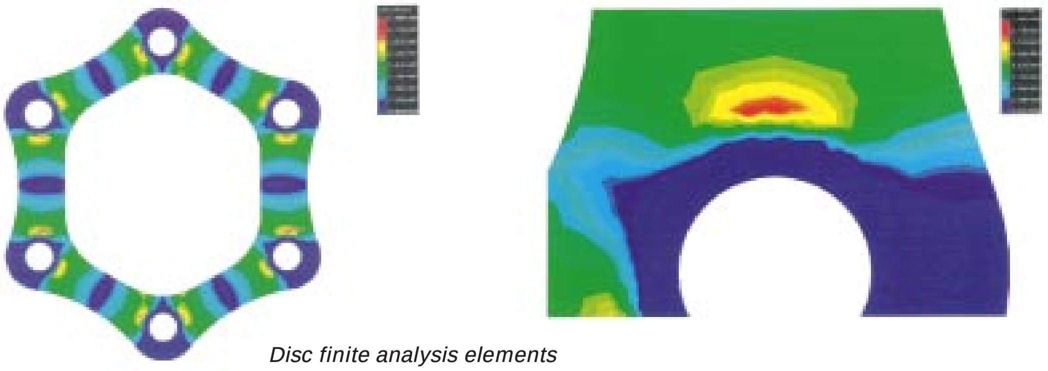
• They tend to impose large axial forces on the thrust bearings if the machines are not properly spaced.

• The life of the discs is a function of the operating misalignment of the coupling.

• Piloting of the disc pack to the hubs is a key factor especially for high speed applications.

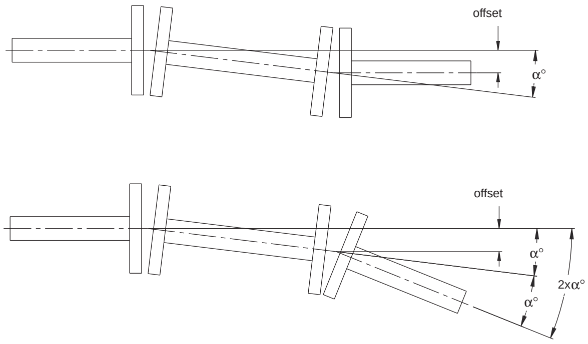
However, if misalignmet is kept within specified limits, these couplings can last as long as the machines on which they are installed.

To improve on these disadvantages, various couplings manufacturers have modified the profile in many ways. JAURE has accomplished a superior disc profile by using the more recent Finite Element Analysis[3]. As a result of our development work, the LAMIDISC - 6 Bolts, can operate at 1.5º angular misalignment[2] continuously without loosing any torque capability, or in other words: impose smaller forces on the bearings for a given misalignment and transmit more torque than other competitive couplings .



Disc finite analysis elements

The angular misalignment between shafts can vary from 0 to 2 times α as per the figure shown:



α = represents the angular misalignment per disc-pack.

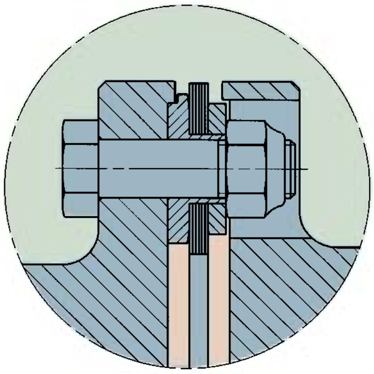
α (for Lamidisc-6 under 202) = 1.5°
α (for Lamidisc-6 above 202) = 1°
α (for Lamidisc-8) = 0.5°
α (for Lamidisc-10) = 0.4°

1- For radial misalignment 2 disc packs must be used.
2- See graph in Page 2.
3- Patent pending.

Technical modifications reserved

Lamidisc® coupling

JAURE uses fitted bolts to pilot their couplings but for high speed applications has also found a straight-forward method of piloting the disc packs to their hubs (see below). By machining rabbets in the washers that are used to unitize the disc pack[4], it ensures the repeatability of residual unbalance standards, as mandated by API 671.



Disc piloting

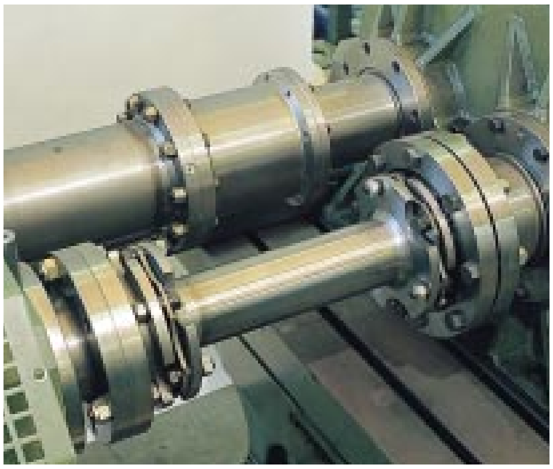
The discs of the LAMIDISC couplings are made of high - grade stainless steels (AISI-301), ensuring not only a high strength and high endurance to fatigue, but also the resistance to most environmental conditions. Furthermore, discs can be covered with a low friction coefficient coating to improve the resistance to fretting wear.

LAMIDISC couplings utilizes unitized disc packs with 6, 8 and 10 bolts. The higher the number of bolts, the larger the torque that can be transmitted but the smaller the misalignment the couplings can accomodate.

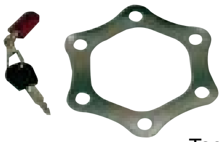
The Lamidisc couplings can also be fitted with overload bushings which also serve as an anti-flail device.

The design and manufacture of LAMIDISC couplings is integrated into a certified Quality System according to DIN ISO 9001 to fulfil the high quality demands on LAMIDISC couplings.

The LAMIDISC couplings are offered in a variety of configurations to fit most applications: in addition, our engineering department can customize a coupling to special requirements: close - coupled, drop-out, electrically insulated, vertical mounting, safety couplings, etc. A notable design is our Lamidisc CX (reduced moment) coupling, that not only has the anti-flail device mandated by API 610, but offers a low weight and a short center of gravity to bearing distance.



Testing machine



Different disc profiles

4- Patent pending

Technical modifications reserved

Selection procedure

1.- Select the coupling type.
2.- Select the driven machine service factor SF_A from Table 1.
3.- Select the driving machine service factor SF_D from Table 2.
Care should be taken when the driving machine is other than a standard electric motor or turbine. Some engines will impose extra fluctuations on the drive system and allowance should be made accordingly. Please refer to Table 2.

The two service factors SF_A and SF_D must be added resulting in the combined service factor SF.

Driven machine service factor SF_A) Table 1.

Driven equipment	SF_A
BLOWERS , FANS	
Centrifugal	1.0
Lobe / Vane / Turboblowers	1.25
Forced draught fans	1.5
Induc.draught with damper	1.5
Induc.draught without control	2.0
Cooling towers	2.0
CHEMICAL INDUSTRY	
Agitators (thin liquid)	1.0
Agitators (viscous liquid)	1.5
Centrifuges (light)	1.25
Centrifuges (heavy)	1.75
Mixers	1.75
COMPRESSORS	
Centrifugal	1.0
Lobe / Rotary	1.25
Turbocompressors	1.75
Reciprocating :	
1 to 3 cylinders	3.0
4 or more cylinders	1.75
CONVEYOR, HOISTS , ELEVATORS	
Conveyors :	
Screw / Apron / Belt / Chain	1.25
Bucket / Rotary / Lifts	1.5
Reciprocating	3.0
Hoists:	
Medium duty	2.5
Heavy duty	3.0
Elevators :	
Centrifugal and gravity disch.	1.25
DREDGERS	2.0
FOOD INDUSTRY	
Packaging machines and fillers.	1.25
Kneading machines.	1.5
Cane crushers	1.5
Cane cutters	1.5
Cane mills	2.0
Sugar beet cutters	1.5
Sugar beet washing machines	1.5
GENERATORS	
Even load	1.0
Frequency converters	1.5
Welding generators	2.0
MACHINE TOOLS	
Main Drives	2.0
Auxiliary and transverse drives	1.5
METAL WORKING	
Presses / Hammers.	2.0
Straighteners.	2.0
Bending machines / Shears.	1.5
Punching machines	2.0
MARINE APLICATIONS	2.5
MINING AND STONES	
Crushers	2.5
Mills	2.5
Mine ventilators	2.0
Vibrators	1.5
OIL INDUSTRY	
Pipeline pumps	1.5
Rotary drilling equipment	2.0
PAPER INDUSTRY	
Calenders	2.0
Couches	2.0
Drying cylinders	2.25
Pulpers	2.0
Pulp grinders	2.0
Suction rolls	2.0
Wet presses	2.0
Reels	2.0
Agitators	2.0
PLASTIC INDUSTRY	
Calenders , Crushers , Mixers.	1.75
PUMPS	
Centrifugal , General Feed or Boiler Feed	1.0
Centrifugal , Slurry	1.5
Centrifugal , Dredge	2.0
Rotary / Gear / Lobe or Vane	1.5
Reciprocating :	
1 cylinder	3.0
2 cylinder , single acting	2.0
2 cylinders , double acting	1.75
3 cylinders or more	1.5
ROLLING MILLS	
Billet shears	2.5
Chain transfers	1.5
Cold rolling mills	2.0
Continuous casting plants	2.5
Cooling beds	1.5
Cropping shears	2.0
Cross transfers	1.5
Descaling machines	2.0
Heavy and medium duty mills	3.0
Ingot and blooming mills	2.5
Ingot handling machinery	2.5
Ingot pushers	2.5
Manipulators	2.0
Plate shears	2.0
Roller adjustment drives	1.5
Roller straighteners	1.5
Roller tables (heavy)	2.5
Roller tables (light)	1.5
Sheet mills	2.5
Trimming shears	1.5
Tube and welding machines	2.0
Winding machines	1.5
Wire drawing benches	1.5
RUBBER INDUSTRY	
Extruder	1.75
Calender	2.0
Mixing mill / Refiner / Crusher	2.5
STEEL PLANTS	
Blast furnace blowers	1.5
Converters	2.5
Inclined blast furnace elev.	2.0
Crushers	2.0
TEXTILE MACHINES	
Printing and drying machines	1.5
Tanning vats	1.5
Calenders	1.5
Looms	1.5
WATER AND WASTE INDUSTRY	
Aerators , Screw pumps , Screens.	1.5
WOOD WORKING MACHINERY	
Trimmers , Barkers , Saws , Planes	2.0

The factors in Table 1 are for general guidance and can be modified by customers´ specialist knowledge of their own equipment.

Driving machine service factor SF_D Table 2.

Driving equipment	SF_D
Multi-cylinder engine	
8 or more	0.5
6	1.0
4 or 5	1.5
Less than 4	Refer to Jaure
Variable speed motors	0.8
Electric motors[1] and turbines	0

[1] Except variable speed motors

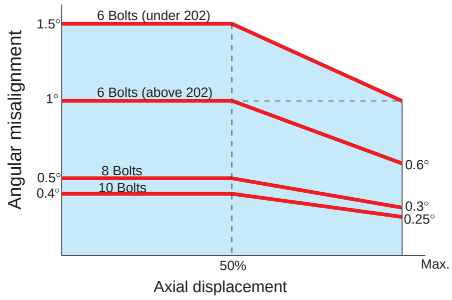
Please consult our Technical Department if quick axial excitations are foreseeable either on the driving of driven side.

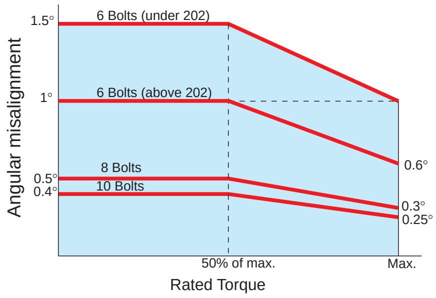
3.- Calculate the mimimum torque rating as per,

$$\text{Torque (Nm)} = \frac{9550 \cdot \text{Nominal power (kW)} \cdot SF}{n \text{ (rpm)}}$$

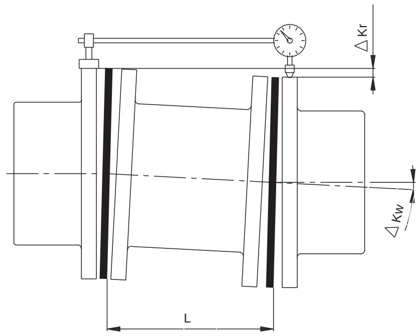
4.- The coupling to be selected must have an equal or greater rated torque capacity than the torque calculated in 3. Check the peak or starting torque capacity of the selected coupling. For systems which frequently utilize the peak torque capability of the power source, verify that the magnitude of the peak torque does not exceed twice the rated nominal torque of the coupling selected.

5..- Check if existing or predicted axial, angular and offset misalignments are within permissible values as shown in the catalog. The permissible axial misalignment and torque depend on the angular misalignment as per shown below. (Angular misalignment is given for a disc pack. Axial misalignment is measured for a complete coupling with 2 disc packs).

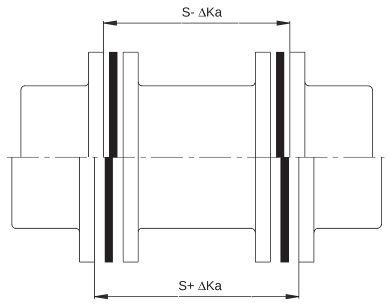




The listed values reperesent the total permissible misalignment which may occur during operation. Consult the appropiate operating instructions for allowable shaft misalignements when installing the coupling.



Angular and radial misalignment



Axial misalignment

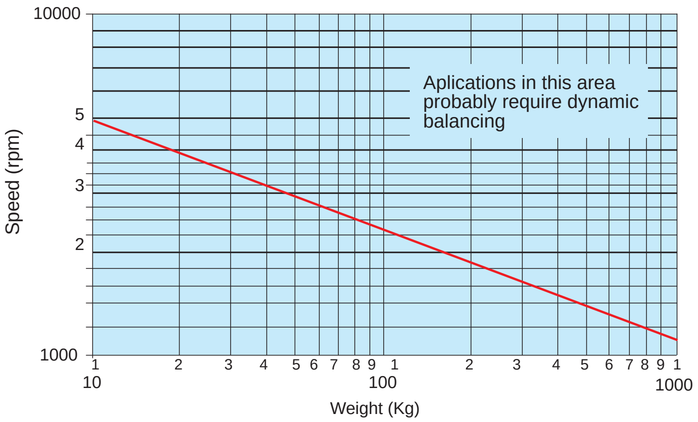
The permissible offset or radial misalignment is given by :

$\Delta K_R = \tan \Delta K_W \cdot L$, where L is the distance between the discs.

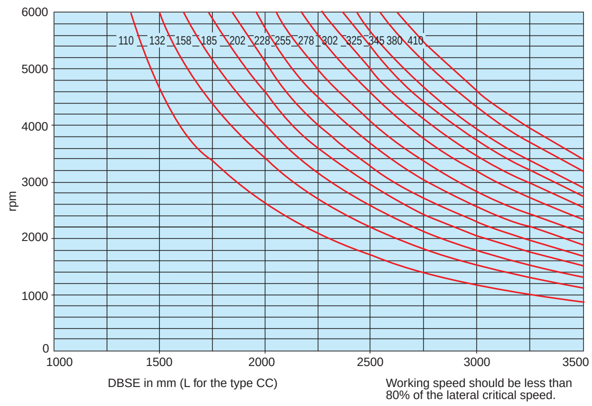
6- Check the maximum hub bores, speed and if the shaft to hub assembly will transmit the torque. If the speed exceds 3000 r.pm. consult our Technical Department.

7- Check if balancing is needed following the dynamic balancing guide below. This graph relates the maximum speed unbalanced with the total weight of the coupling and it should considered only as a guide. Tabulated speeds are based solely on the maximum stress considerations on the flange. For a through analysis please contact Jaure.

Dynamic Balancing guide



Lateral critical speeds



Technical modifications reserved

Lamidisc® coupling

Example of selection

Select a spacer coupling to connect a standard electric motor to rated at 250 kW to, running at 1000 r.pm, to a centrifugal pump rated at 230 kW. The shafts are 75 mm and 70 mm respectively.

1. Coupling type SX

2. Service factor

a) Centrifugal pump	1.0
b) Electric motor	0.0
TOTAL	1.0

3. Required minimum torque rating

$$\text{Torque} = \frac{9550 \times 230 \times 1}{1000} = 2197 \text{ Nm}$$

The coupling selected is SX size 185-6 with a nominal torque of 3300 Nm, peak torque of 6600 Nm, $\Delta Ka = \pm 3.7$ mm and $\Delta Kw = 1.5$ º.

4. Check peak torque (Coupling peak torque is 3300 x 2 = 6600 Nm)
5. Check expected misalignment .
6. Check maximum bores: Lamidisc 185-6 has a maximum bore of 80 mm, therefore this dimension is larger than the existing bores. The speed check shows it to be less than allowable speed (1000 rpm < 6850 rpm).

How to specify a LAMIDISC coupling

The following data have to be given JAURE in order to verify that a proper selection has been made.

Application and type of duty.
Type of prime mover , power and speed.
Shaft types and sizes , keyway dimensions , hub length.
Expected misalignments.
Type of driven equipment.
Coupling type , size and DBSE (Distance between shaft ends).
Space limitations.
Special requirements (vertical mounting , spark free , API 610 or 671 , etc).

Petrochemical

Paper industry

Applications: some examples

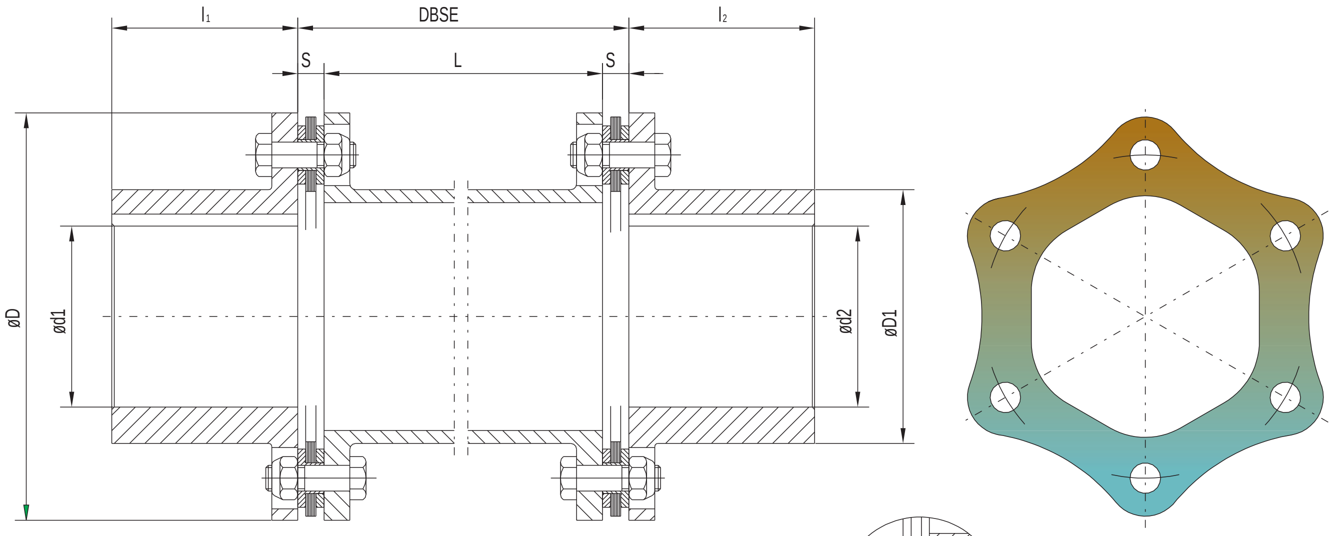
Windmills

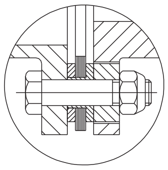
Marine applications

Technical modifications reserved

Lamidisc® coupling

SX-6, SXR-6 Types:
Standard Configuration with Variable Shaft Distance





SXR Type

Coupling Type **SX** Size	NOMINAL TORQUE Nm.	PEAK TORQUE Nm.	MAX 1) SPEED UNBALANCED r.p.m.	MAX. 2) SPEED BALANCED r.p.m.	DIMENSIONS (mm.)							5) Inertia J kgm²	5) Weight kg.	6) Axial Misalig. ±ΔKa mm.	6) Ang. Misalig. ±ΔKw deg.
					d1-d2 3) max.	D	D1	l_1-l_2	DBSE min 4)	L min.	S				
110-6	575	1150	7200	18000	46	110	65	50	88	71.2	8.4	0.004	2.9	2.1	1.5°
132-6	1100	2200	5840	14600	60	132	84	60	108	91.2	8.4	0.012	5.5	2.6	
158-6	2000	4000	4920	12300	70	158	98	70	124	101.6	11.2	0.025	8.6	3.1	
185-6	3300	6600	4200	10500	80	185	112	80	140	112.0	14.0	0.063	15	3.7	
202-6	4600	9200	3840	9600	90	202	125	90	158	127.0	15.5	0.11	21	3.8	1°
228-6	7000	14000	3400	8500	100	228	140	100	174	139.0	17.5	0.20	30	4.2	
255-6	10200	20400	3080	7700	110	255	155	115	196	155.0	20.5	0.32	40	4.7	
278-6	14200	28400	2800	7000	124	278	174	125	218	175.6	21.2	0.56	57	5.2	
302-6	20000	40000	2560	6400	135	302	190	135	234	185.2	24.4	0.86	74	5.7	
325-6	25000	50000	2400	6000	145	325	205	145	254	202.0	26.0	1.17	89	6.5	
345-6	31000	62000	2200	5500	155	345	217	155	270	213.6	28.2	1.63	109	6.9	
380-6	42300	84600	2040	5100	170	380	238	170	296	232.0	32.0	2.64	146	7.6	
410-6	57100	114200	1880	4700	180	410	255	185	320	253.6	33.2	4.04	190	8.2	
440-6	73500	147000	1740	4350	195	440	273	195	334	261.2	36.4	5.45	224	8.8	
475-6	92000	184000	1680	4200	210	475	295	210	358	281.6	38.2	8.20	288	9.5	
505-6	117000	234000	1520	3800	220	505	310	230	394	310.0	42.0	11.96	366	10.1	

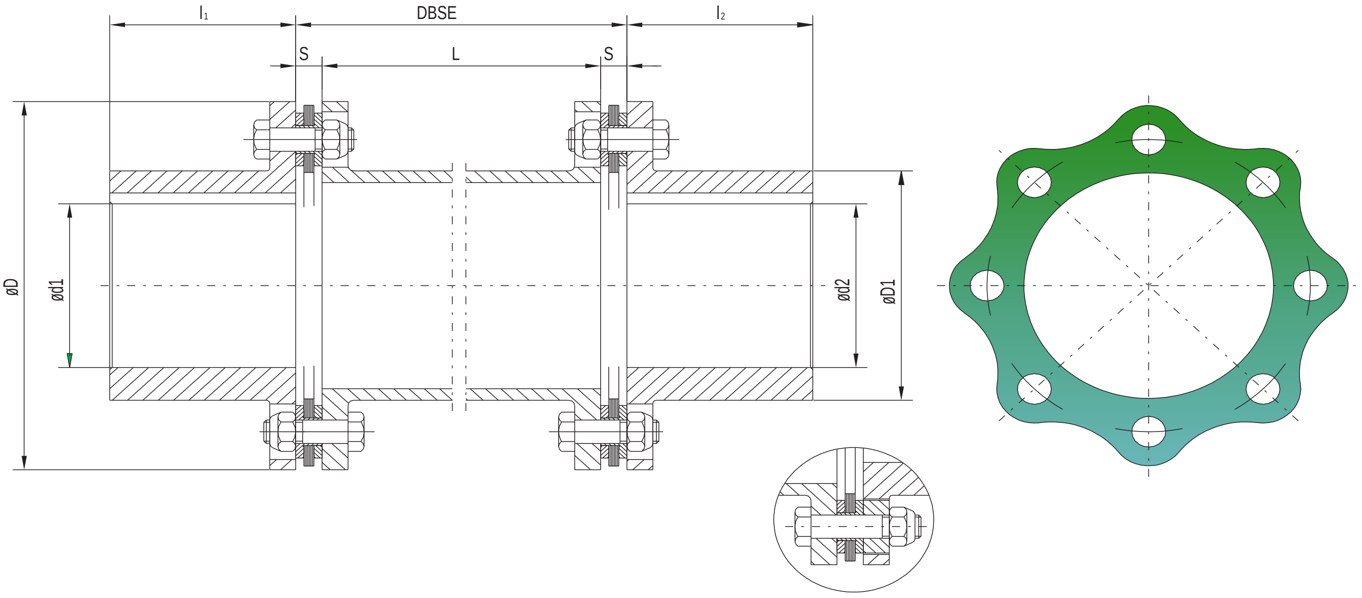
Larger sizes are available on demand.

1) Operating speed must be equal or less than permissible speed. Permissible speeds could be limited by the weight and critical speeds of spacers. Check the dynamic balancing guide on page 5.
2) For higher speeds consult JAURE.
3) The maximum bores shown are for cylindrical or taper shafts with keys. For other type of connections consult JAURE.
4) Dimension DBSE is the distance between shafts ends and is a variable parameter.
5) Value of complete coupling with DBSE min. dimension and d1, d2 max., $GD^2 = 4J$.
6) The value for axial misalignment is given for a complete 2 disc pack. Angular misalignment is given per pack. Refer to page 5 for combined permissible misalignment.

Technical modifications reserved

Lamidisc® coupling

SX-8, SXR-8 Types:
Standard Configuration with Variable Shaft Distance



SXR Type

Coupling Type **SX** Size	NOMINAL TORQUE Nm.	PEAK TORQUE Nm.	MAX 1) SPEED UNBALANCED r.p.m.	MAX. 2) SPEED BALANCED r.p.m.	DIMENSIONS (mm.)							5) Inertia J kgm²	5) Weight kg.	6) Axial Misalig. ±ΔKa mm.	6) Ang. Misalig. ±ΔKw deg.
					d1-d2 3) max.	D	D1	l_1-l_2	DBSE min 4)	L min.	S				
278-8	20000	40000	2800	7000	124	278	174	125	218	175.6	21.2	0.573	59	3.7	
302-8	30000	60000	2560	6400	135	302	190	135	234	185.2	24.4	0.878	77	4.0	
325-8	37000	74000	2400	6000	145	325	205	145	254	202.0	26.0	1.199	92	4.3	
345-8	46000	92000	2200	5500	155	345	217	155	270	213.6	28.2	1.660	112	4.6	
380-8	63000	126000	2040	5100	170	380	238	170	296	232.0	32.0	2.715	150	5.0	
410-8	86000	172000	1880	4700	180	410	255	185	320	253.6	33.2	4.11	195	5.4	
440-8	110000	220000	1740	4350	195	440	273	195	334	261.2	36.4	5.54	230	5.8	
475-8	138000	276000	1680	4200	210	475	295	210	358	281.6	38.2	8.32	295	6.3	
505-8	175000	350000	1520	3800	220	505	310	230	394	310.0	42.0	12.13	374	6.7	0.5°
540-8	220000	440000	1440	3600	235	540	330	240	416	324.0	46.0	16.77	454	7.2	
570-8	259000	518000	1360	3400	250	570	350	250	450	346.8	51.6	22.02	535	7.6	
605-8	315000	630000	1280	3200	265	605	370	265	474	367.6	53.2	28.00	617	7.8	
635-8	383000	766000	1240	3100	275	635	385	280	521	399.4	60.8	36.64	728	8.2	
675-8	454000	908000	1160	2900	290	675	410	300	558	427.6	65.2	48.62	875	8.4	
700-8	528000	1056000	1120	2800	300	700	420	315	595	457.4	68.8	62.26	1021	8.9	
730-8	608000	1216000	1080	2700	315	730	440	330	610	467.6	71.2	74.87	1130	9.2	
760-8	700000	1400000	1040	2600	330	760	460	350	642	496.4	72.8	94.87	1310	9.6	

Larger sizes are available on demand.

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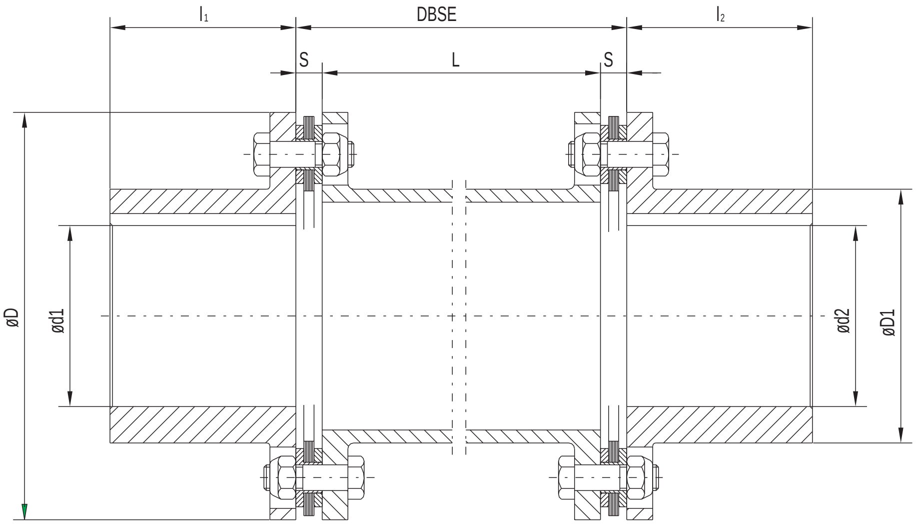
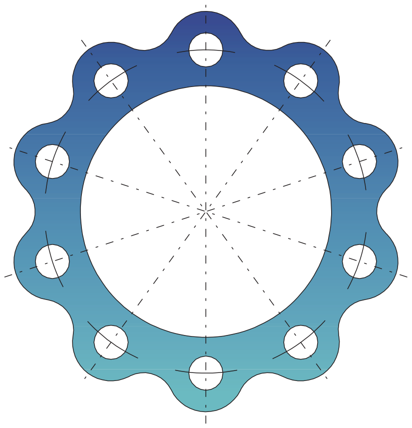
2) For higher speeds consult JAURE.
3) The maximum bores shown are for cylindrical or taper shafts with keys. For other type of connections consult JAURE.
4) Dimension DBSE is the distance between shafts ends and is a variable parameter.
5) Value of complete coupling with DBSE min. dimension and d1, d2 max., GD² =4J.
6) The value for axial misalignment is given for a complete 2 disc pack coupling. Angular misalignment is given per pack. Refer to page 5 for combined permissible misalignment.

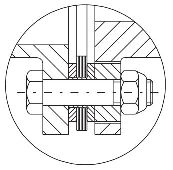
Technical modifications reserved

Lamidisc® coupling

SX-10, SXR-10 Types:
Standard Configuration with Variable Shaft Distance







SXR Type

Coupling Type **SX** Size	NOMINAL TORQUE Nm.	PEAK TORQUE Nm.	MAX 1) SPEED UNBALANCED r.p.m.	MAX. 2) SPEED BALANCED r.p.m.	DIMENSIONS (mm.)							5) Inertia J kgm²	5) Weight kg.	6) Axial Misalig. ±ΔKa mm.	6) Ang. Misalig. ±ΔKw deg.
					d1-d2 3) max.	D	D1	l_1-l_2	DBSE min 4)	L min.	S				
505-10	219000	438000	1520	3800	220	505	310	230	394	310.0	42.0	12.21	378	5.0	
540-10	274000	548000	1440	3600	235	540	330	240	416	324.0	46.0	16.86	459	5.4	
570-10	323000	646000	1360	3400	250	570	350	250	450	346.8	51.6	22.14	540	5.7	
605-10	394000	788000	1280	3200	265	605	370	265	474	367.6	53.2	28.14	622	5.8	
635-10	480000	960000	1240	3100	275	635	385	280	521	399.4	60.8	36.82	734	6.2	0.4°
675-10	570000	1140000	1160	2900	290	675	410	300	558	427.6	65.2	48.86	882	6.4	
700-10	660000	1320000	1120	2800	300	700	420	315	595	457.4	68.8	62.56	1029	6.7	
730-10	760000	1520000	1080	2700	315	730	440	330	610	467.6	71.2	75.20	1139	7.0	
760-10	870000	1740000	1040	2600	330	760	460	350	642	496.4	72.8	95.28	1320	7.5	

Larger sizes are available on demand.
1) Operating speed must be equal or less than permissible speed. Permissible speeds could be limited by the weight and critical speeds of spacers. Check the dynamic balancing guide on page 5.
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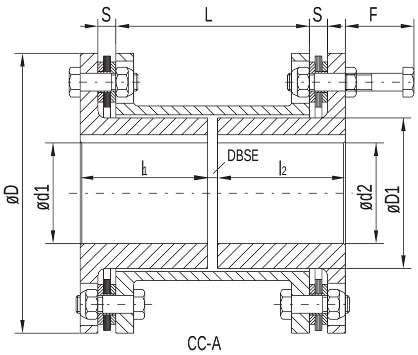
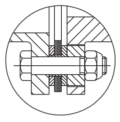
4) Dimension DBSE is the distance between shafts ends and is a variable parameter.
5) Value of complete coupling with DBSE min. dimension and d1, d2 max., GD² =4J.
6) The value for axial misalignment is given for a complete 2 disc pack coupling. Angular misalignment is given per pack. Refer to page 5 for combined permissible misalignment.

Lamidisc® coupling

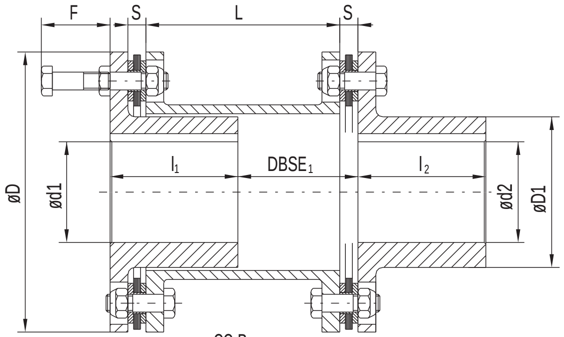
CC-6, CCR-6 Types: Close Coupled Configuration



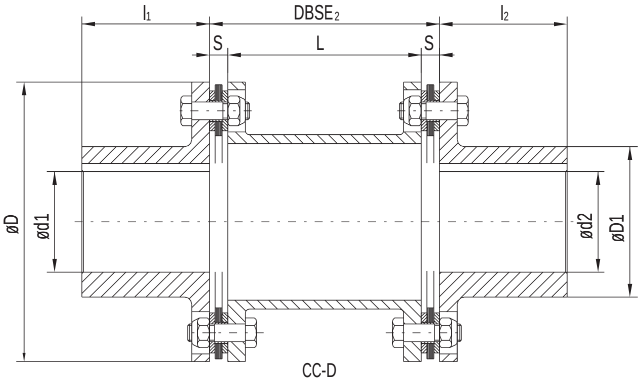
CC-A
Both hubs reversed.



CCR Type



CC-B
Only one hub reversed.



CC-D

Coupling Type CC Size	NOMINAL TORQUE Nm.	PEAK TORQUE Nm.	MAX 1) SPEED UNBALANCED r.p.m.	MAX. 2) SPEED BALANCED r.p.m.	DIMENSIONS (mm.)										5) Inertia J kgm²	5) Weight kg.	6) Axial Misalig. ±ΔKa mm.	6) Ang. Misalig. ±ΔKw deg.
					d1-d2 3) max.	D	D1	l_1-l_2	DBSE min 4)	DBSE1	DBSE2	L min.	F 7)	S				
110-6	575	1150	7200	18000	40	110	57	50	4	46	88	71.2	45	8.4	0.003	1.8	2.1	1.5°
132-6	1100	2200	5840	14600	50	132	73	60	4	56	108	91.2	45	8.4	0.010	3.8	2.6	
158-6	2000	4000	4920	12300	60	158	86	70	4	64	124	101.6	55	11.2	0.021	5.8	3.1	
185-6	3300	6600	4200	10500	70	185	98	80	4	72	140	112.0	65	14.0	0.053	10	3.7	
202-6	4600	9200	3840	9600	75	202	110	90	6	82	158	127.0	75	15.5	0.091	15	3.8	1°
228-6	7000	14000	3400	8500	85	228	123	100	6	90	174	139.0	85	17.5	0.17	21	4.2	
255-6	10200	20400	3080	7700	95	255	138	115	6	101	196	155.0	100	20.5	0.27	27	4.7	
278-6	14200	28400	2800	7000	105	278	152	125	8	113	218	175.6	105	21.2	0.46	36	5.2	
302-6	20000	40000	2560	6400	115	302	165	135	8	121	234	185.2	115	24.4	0.71	46	5.7	
325-6	25000	50000	2400	6000	125	325	174	145	8	131	254	202.0	115	26.0	0.96	55	6.5	
345-6	31000	62000	2200	5500	130	345	186	155	8	139	270	213.6	125	28.2	1.34	70	6.9	
380-6	42300	84600	2040	5100	145	380	204	170	10	153	296	232.0	140	32.0	2.17	92	7.6	
410-6	57100	114200	1880	4700	160	410	223	185	10	165	320	253.6	150	33.2	3.28	116	8.2	
440-6	73500	147000	1740	4350	165	440	233	195	10	172	334	261.2	165	36.4	4.46	136	8.8	
475-6	92000	184000	1680	4200	180	475	252	210	10	184	358	281.6	180	38.2	6.71	172	9.5	
505-6	117000	234000	1520	3800	195	505	276	230	12	203	394	310.0	195	42.0	9.76	228	10.1	

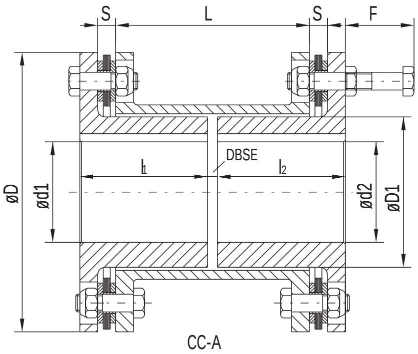
Larger sizes are available on demand.

1) Operating speed must be equal or less than permissible speed. Permissible speeds could be limited by the weight and critical speeds of spacers. Check the dynamic balancing guide on page 5.
2) For higher speeds, please consult JAURE.
3) The maximum bores shown are for cylindrical or taper shafts with keys. For other type of connections consult JAURE.
4) Dimension DBSE is the distance between shafts ends and is a variable parameter.
5) Value of complete coupling with DBSE min. dimension and d1, d2 max., $GD^2 = 4J$.
6) The value for axial misalignment is given for a complete 2 disc pack coupling. Angular misalignment is given per pack. Refer to page 5 for combined permissible misalignment.
7) The dimension F is required for dismounting the fitted bolts.

Technical modifications reserved

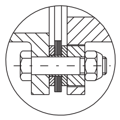
Lamidisc® coupling

CC-8, CCR-8 Types: Close Coupled Configuration

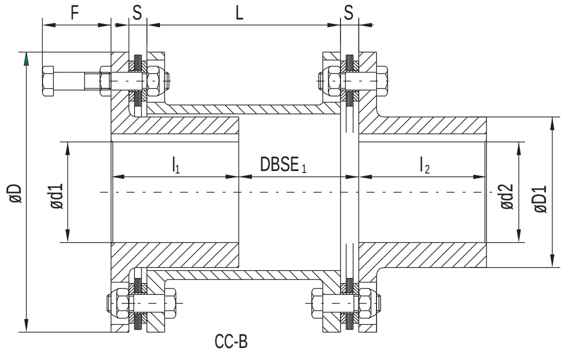


CC-A

Both hubs reversed.

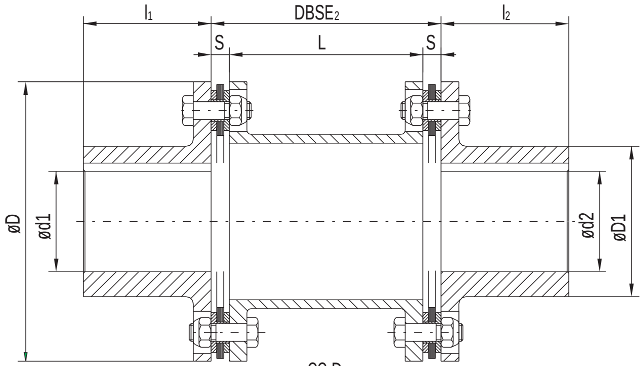


CCR Type



CC-B

Only one hub reversed.



CC-D

Coupling Type CC Size	NOMINAL TORQUE Nm.	PEAK TORQUE Nm.	MAX 1) SPEED UNBALANCED r.p.m.	MAX. 2) SPEED BALANCED r.p.m.	DIMENSIONS (mm.)										5) Weight J kgm²	5) Weight kg.	6) Axial Misalig. ±ΔKa mm.	6) Ang. Misalig. ±ΔKw deg.
					d1-d2 3) max.	D	D1	l_1-l_2	DBSE min 4)	DBSE1	DBSE2	L min.	F 7)	S				
278-8	20000	40000	2800	7000	100	278	144	125	8	113	218	175.6	105	21.2	0.466	36	3.7	
302-8	30000	60000	2560	6400	110	302	157	135	8	121	234	185.2	115	24.4	0.706	45	4.0	
325-8	37000	74000	2400	6000	115	325	166	145	8	131	254	202.0	115	26.0	0.954	51	4.3	
345-8	46000	92000	2200	5500	125	345	178	155	8	139	270	213.6	125	28.2	1.321	64	4.6	
380-8	63000	126000	2040	5100	140	380	196	170	10	153	296	232.0	140	32.0	2.16	84	5.0	
410-8	86000	172000	1880	4700	150	410	215	185	10	165	320	253.6	150	33.2	3.26	109	5.4	
440-8	110000	220000	1740	4350	160	440	225	195	10	172	334	261.2	165	36.4	4.43	130	5.8	
475-8	138000	276000	1680	4200	170	475	244	210	10	184	358	281.6	180	38.2	6.67	164	6.3	0.5°
505-8	175000	350000	1520	3800	190	505	268	230	12	203	394	310.0	195	42.0	9.54	212	6.7	
540-8	220000	440000	1440	3600	195	540	278	240	20	218	416	324.0	210	46.0	13.60	265	7.2	
570-8	259000	518000	1360	3400	205	570	288	250	40	245	450	346.8	230	51.6	18.04	311	7.6	
605-8	315000	630000	1280	3200	215	605	306	265	40	257	474	367.6	240	53.2	22.70	353	7.8	
635-8	383000	766000	1240	3100	230	635	322	280	65	293	521	399.4	265	60.8	29.53	406	8.2	
675-8	454000	908000	1160	2900	250	675	350	300	70	314	558	427.6	280	65.2	38.05	458	8.4	
700-8	528000	1056000	1120	2800	260	700	365	315	85	340	595	457.4	300	68.8	49.06	556	8.9	
730-8	608000	1216000	1080	2700	265	730	375	330	70	340	610	467.6	305	71.2	58.95	613	9.2	
760-8	700000	1400000	1040	2600	280	760	395	350	70	356	642	496.4	320	72.8	73.77	698	9.6	

Larger sizes are available on demand.

1) Operating speed must be equal or less than permissible speed. Permissible speeds could be limited by the weight and critical speeds of spacers. Check the dynamic balancing guide on page 5.

2) For higher speeds, please consult JAURE.

3) The maximum bores shown are for cylindrical or taper shafts with keys. For other types of connections consult JAURE.

4) Dimension DBSE is the distance between shafts ends and is a variable parameter.

5) Value of complete coupling with DBSE min. dimension and d1, d2 max., $GD^2 = 4J$.

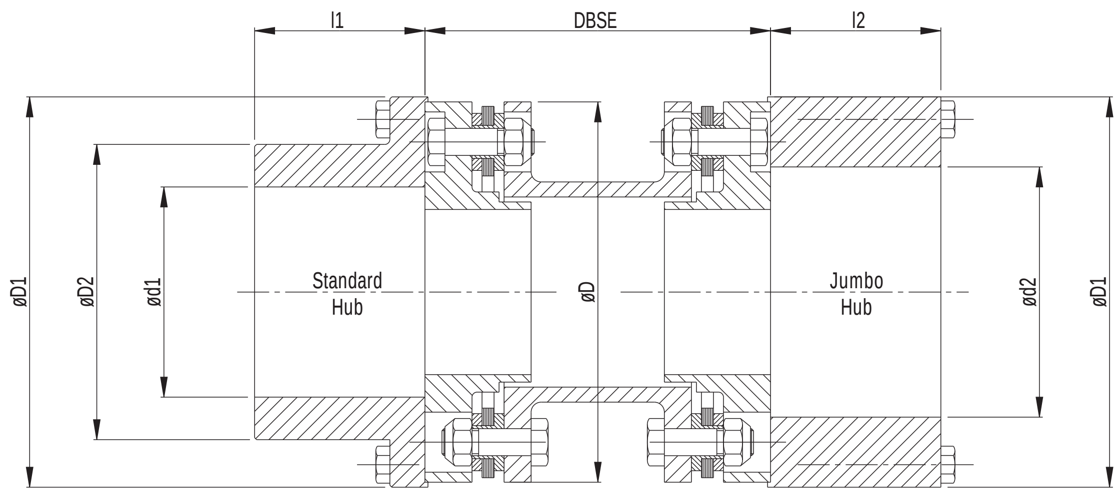
6) The value for axial misalignment is given for a complete 2 disc pack coupling. Angular misalignment is given per pack. Refer to page 5 for combined permissible misalignment.

7) The dimension F is required for dismounting the fitted bolts.

Technical modifications reserved

Lamidisc® coupling

DO-6 Type: Drop-Out Configuration According to API 610



Coupling Type **DO** Size	NOMINAL TORQUE Nm.	PEAK TORQUE Nm.	MAX 1) SPEED UNBALANCED r.p.m.	MAX SPEED BALANCED r.p.m.	DIMENSIONS (mm.)							4) Inertia J kgm²	4) Weight kg.	5) Axial Misalig. ±ΔKa mm.	5) Ang. Misalig. ±ΔKw deg.
					d1 2) max.	d2 2) max.	D	D1	D2	l_1-l_2	DBSE min. 3)				
110-6	575	1150	7200	18000	52	75	110	115	73	50	108	0.009	5.4	2.1	1.5°
132-6	1100	2200	5840	14600	67	90	132	139	95	60	110	0.024	10	2.6	
158-6	2000	4000	4920	12300	80	105	158	165	112	70	140	0.062	18	3.1	
185-6	3300	6600	4200	10500	95	125	185	193	134	80	160	0.13	28	3.7	
202-6	4600	9200	3840	9600	102	135	202	210	144	90	185	0.22	38	3.8	1°
228-6	7000	14000	3400	8500	115	150	228	236	160	100	205	0.41	55	4.2	
255-6	10200	20400	3080	7700	125	170	255	263	175	115	250	0.65	72	4.7	
278-6	14200	28400	2800	7000	140	185	278	286	195	125	255	1.12	101	5.2	
302-6	20000	40000	2560	6400	155	200	302	310	217	135	280	1.72	133	5.7	
325-6	25000	50000	2400	6000	170	215	325	333	240	145	285	2.35	160	6.5	
345-6	31000	62000	2200	5500	180	230	345	355	255	155	320	3.26	193	6.9	
380-6	42300	84600	2040	5100	210	250	380	390	295	170	345	5.32	262	7.6	
410-6	57100	114200	1880	4700	225	270	410	420	315	185	375	8.02	335	8.2	
440-6	73500	147000	1740	4350	235	290	440	450	330	195	415	10.78	397	8.8	
475-6	92000	184000	1680	4200	250	312	475	485	355	210	450	16.02	505	9.5	
505-6	117000	234000	1520	3800	275	332	505	515	385	230	490	22.94	631	10.1	

Larger sizes are available on demand.

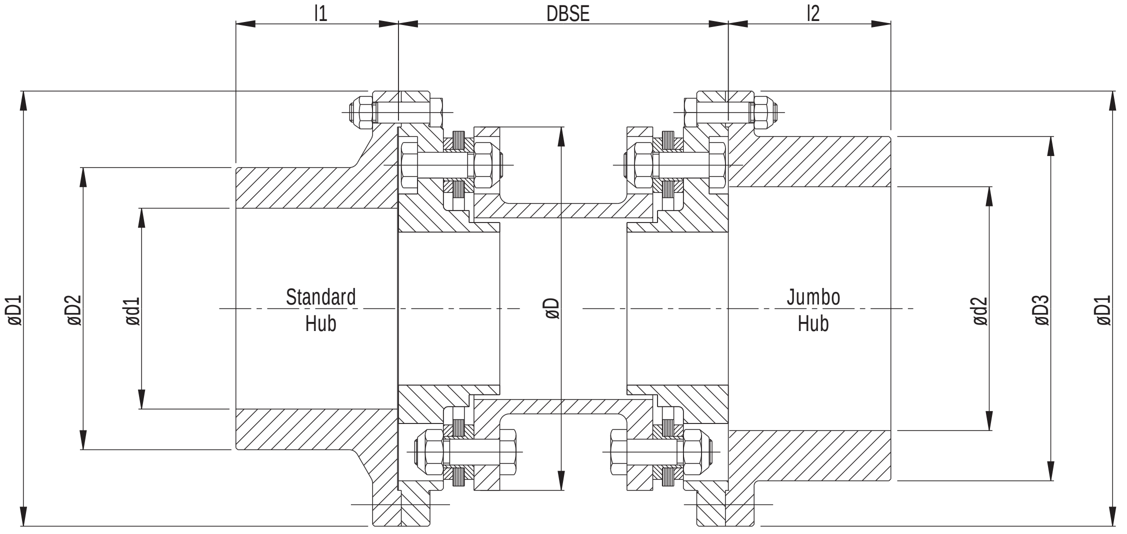
1) Operating speed must be equal or less than permissible speed. Permisible speeds could be limited by the weight and critical speeds of spacers. Check the dynamic balancing guide on page 5.
2) For higher speeds consult JAURE.
3) The maximum bores shown are for cylindrical or taper shaft with keys. For other type of connections consult JAURE.
4) Dimension DBSE is the distance between shaft ends and is a variable parameter.
5) Value of complete coupling with DBSE min., dimension d_1, $d_{2\ max.}$, GD^2-4J.
6) The value for axial misalignment is given for a complete 2 disc pack. Angular misalignment is given per pack. Refer to page 5 for combined permissible misalignment.

Overload bushings are available on demand.

Technical modifications reserved

Lamidisc® coupling

DO-8 Type:
Drop-Out Configuration
According to API 610



Coupling Type **DO** Size	NOMINAL TORQUE Nm.	PEAK TORQUE Nm.	MAX 1) SPEED UNBALANCED r.p.m.	MAX 2) SPEED BALANCED r.p.m.	DIMENSIONS (mm.)								5) Inertia J kgm²	5) Weight kg.	6) Axial Misalig. ±ΔKa mm.	6) Ang. Misalig. ±ΔKw deg.
					d1 2) max.	d2 2) max.	D	D1	D2	D3	l_1-l_2	DBSE min 4)				
278-8	20000	40000	2800	7000	140	185	278	332	195	260	125	255	2.69	130	3.7	0.5°
302-8	30000	60000	2560	6400	155	200	302	356	217	285	135	280	2.45	164	4.0	
325-8	37000	74000	2400	6000	170	215	325	400	240	305	145	285	3.95	213	4.3	
345-8	46000	92000	2200	5500	180	230	345	417	255	322	155	320	5.20	250	4.6	
380-8	63000	126000	2040	5100	210	255	380	455	295	360	170	345	7.80	325	5.0	
410-8	86000	172000	1880	4700	225	275	410	498	315	390	185	375	11.65	412	5.4	
440-8	110000	220000	1740	4350	235	300	440	528	330	420	195	415	15.20	480	5.8	
475-8	138000	276000	1680	4200	250	320	475	585	355	450	210	450	24.30	632	6.3	
505-8	175000	350000	1520	3800	275	340	505	615	385	480	230	490	34.40	794	6.7	
540-8	220000	440000	1440	3600	295	360	540	670	415	508	240	560	42.25	840	7.2	
570-8	259000	518000	1360	3400	320	385	570	702	450	540	250	605	51.14	950	7.6	
605-8	315000	630000	1280	3200	325	400	605	727	460	565	265	620	64.50	1120	7.8	

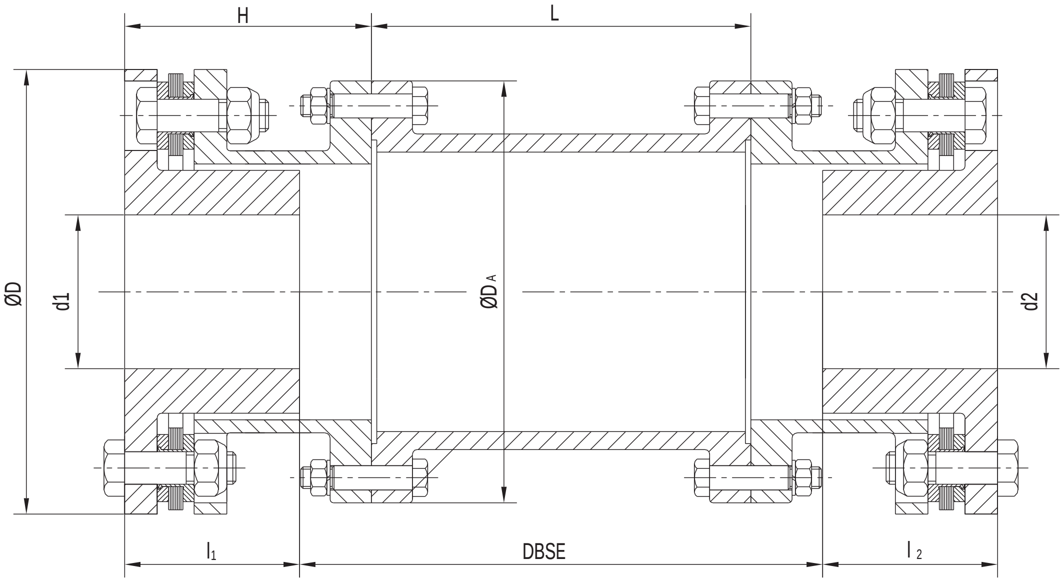
Larger sizes are available on demand.
1) Operating speed must be equal or less than permissible speed. Permisible speeds could be limited by the weight and critical speeds of spacers. Check the dynamic balancing guide on page 5.
2) For higher speeds consult JAURE.
3) The maximum bores shown are for cylindrical or taper shaft with keys. For other type of connections consult JAURE.
4) Dimension DBSE is the distance between shaft ends and is a variable parameter.
5) Value of complete coupling with DBSE min., dimension d_1, d_2 max., GD^2-4J.
6) The value for axial misalignment is given for a complete 2 disc pack. Angular misalignment is given per pack. Refer to page 5 for combined permissible misalignment.

Overload bushings are available on demand.

Technical modifications reserved

Lamidisc® coupling

CX Type: Reduced Moment Configuration with Spacer according to AGMA 516



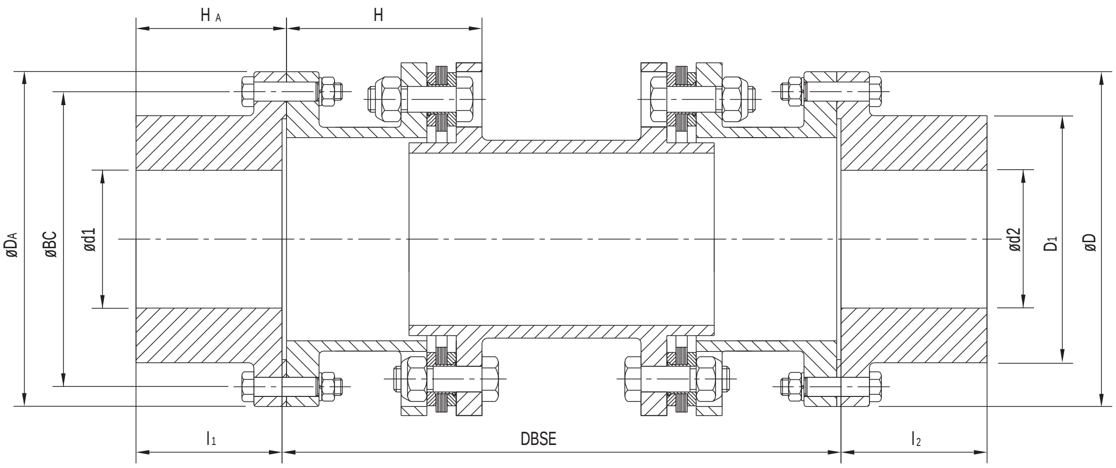
Coupling Type **CX** Size	NOMINAL TORQUE Nm.	PEAK TORQUE Nm.	MAX 1) SPEED UNBALANCED r.p.m.	MAX 2) SPEED BALANCED r.p.m.	DIMENSIONS (mm.)							5) Inertia J kgm^2	5) Weight kg.	6) Axial Misalig. ±ΔKa mm.	6) Ang. Misalig. ±ΔKw deg.
					L min.	d1-d2 3) max.	D	D_A	H	l_1-l_2	DBSE min 4)				
132-6/10	1100	2200	5840	14600	85	50	132	116	66	60	97	0.017	7.8	2.6	
158-6/15	2000	4000	4920	12300	110	60	158	152	81	70	132	0.056	16	3.1	1.5°
185-6/20	3300	6600	4200	10500	115	70	185	178	96	80	147	0.11	24	3.7	
202-6/25	4600	9200	3840	9600	135	75	202	213	110	90	175	0.23	38	3.8	1°
255-6/30	10200	20400	3080	7700	135	95	255	240	130	115	165	0.49	57	4.7	
278-8/35	20000	40000	2800	7000	175	100	278	279	150	125	225	1.02	91	3.7	
302-8/40	30000	60000	2560	6400	175	110	302	318	160	135	225	1.64	118	4.0	
325-8/45	37000	74000	2400	6000	175	115	325	346	165	145	215	2.23	134	4.3	
345-8/50	46000	92000	2200	5500	220	125	345	389	185	155	280	4.00	196	4.6	0.5°
380-8/55	63000	126000	2040	5100	220	140	380	425	200	170	280	5.92	245	5.0	
410-8/60	86000	172000	1880	4700	180	150	410	457	200	185	210	6.87	254	5.4	
540-8/70	220000	440000	1440	3600	200	195	540	527	235	240	190	21.13	508	7.2	

Larger sizes are available on demand.
1) Operating speed must be equal or less than permissible speed. Permisible speeds could be limited by the weight and critical speeds of spacers. Check the dynamic balancing guide on page 5.
2) For higher speeds consult JAURE.
3) The maximum bores shown are for cylindrical or taper shaft with keys. For other type of connections consult JAURE.
4) Dimension DBSE is the distance between shaft ends and is a variable parameter.
5) Value of complete coupling with DBSE min., dimension d_1, d_2 max., GD^2-4J.
6) The value for axial misalignment is given for a complete 2 disc pack. Angular misalignment is given per pack. Refer to page 5 for combined permissible misalignment.

Overload bushings are available on demand.

Lamidisc® coupling

DX Type: Drop-out Configuration
with Floating Assembly, Flanges according to AGMA 516



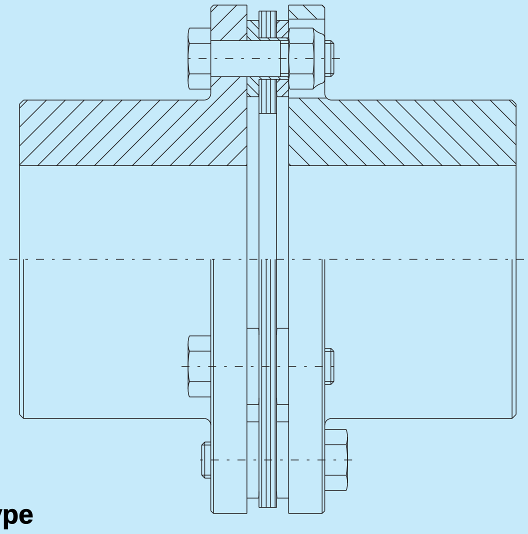
Coupling Type **DX** Size	NOMINAL TORQUE Nm.	PEAK TORQUE Nm.	MAX. 1) SPEED BALANCED r.p.m.	DIMENSIONS (mm.)									4) Inertia J kgm²	4) Weight kg.	5) Axial Misalig. ±ΔKa mm.	5) Ang. Misalig. ±ΔKw deg.
				d1-d2 2) max.	D_1	D	D_A	BC	H_A	l_1-l_2	H	DBSE min 3)				
132-6/10	1100	2200	14600	55	80	132	116	95.2	42.0	40	66	170	0.013	5	2.6	1.5°
158-6/15	2000	4000	12300	70	100	158	152	122.2	49.5	47	81	225	0.039	11	3.1	
185-6/20	3300	6600	10500	90	125	185	178	149.2	60.5	58	96	265	0.084	17	3.7	1°
202-6/25	4600	9200	9600	105	148	202	213	180.9	76.5	74	110	300	0.15	24	3.8	
255-6/30	10200	20400	7700	120	173	252	240	206.4	90.5	88	130	365	0.40	42	4.7	
278-8/35	20000	40000	7000	145	204	278	279	241.3	105	102	150	405	0.75	67	3.7	0.5°
302-8/40	30000	60000	6400	170	242	302	318	279.4	118	113	160	440	1.18	86	4.0	
325-8/45	37000	74000	6000	190	268	325	346	304.8	134	129	165	455	1.62	102	4.3	
345-8/50	46000	92000	5500	215	302	345	389	342.9	149	144	185	500	2.67	139	4.6	
380-8/55	63000	126000	5100	230	327	380	425	368.3	181	175	200	545	4.10	179	5.0	
410-8/60	86000	172000	4700	250	354	410	457	400.0	194	188	200	555	5.15	199	5.4	
540-8/70	220000	440000	3600	290	410	540	527	463.5	227	221	235	680	17.56	419	7.2	

Larger sizes are available on demand.
1) Due to their large DBSE, JAURE recommends that all DX couplings to be balanced.
2) The maximum bores shown are for cylindrical or taper shaft with keys. For other type of connections consult JAURE.
3) Dimension DBSE is the distance between shaft ends and is a variable parameter.
4) Value of complete coupling with DBSE min., dimension d_1, d_2 max., GD^2-4J.
5) The value for axial misalignment is given for a complete 2 disc pack. Angular misalignment is given per pack. Refer to page 5 for combined permissible misalignment.

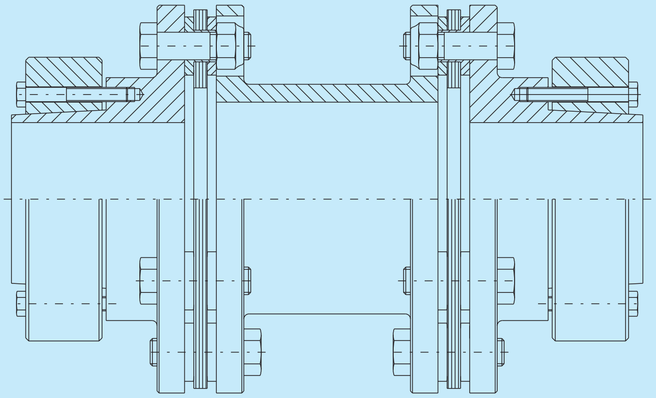
Overload bushings are available on demand.

Lamidisc® coupling

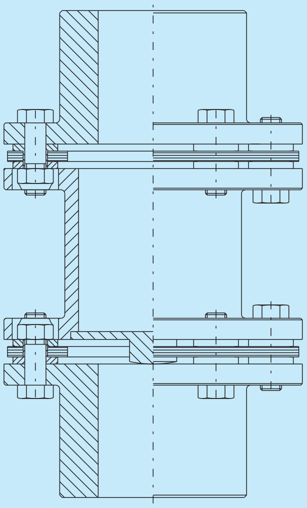
Herewith are shown various examples for the Lamidisc coupling.
Our technical department is ready to study the most suitable configuration to fit your requirements.



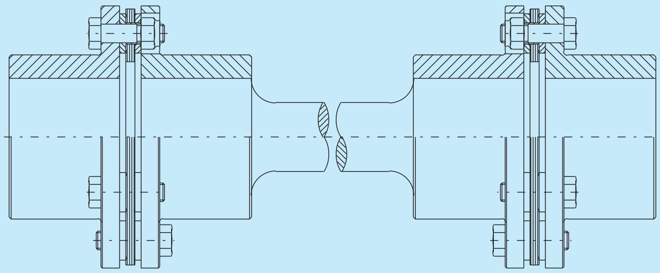
SU Type
(Single disc pack)



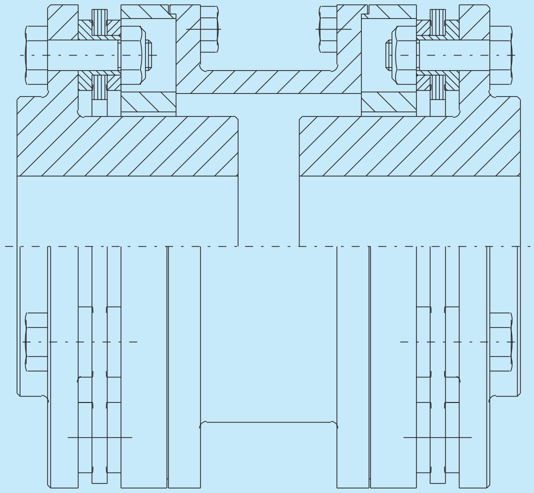
SXAC Type
(with clamping element)



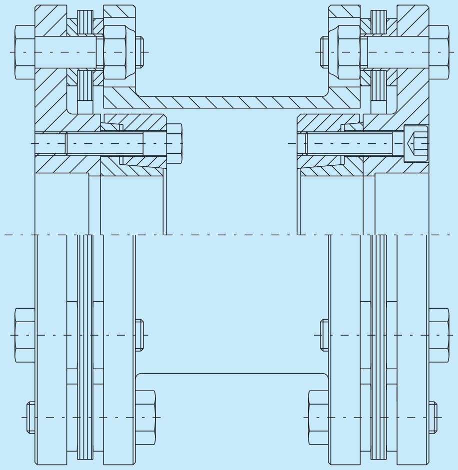
SXV Type
(For vertical mounting)



SDT Type
(With torsion shaft)



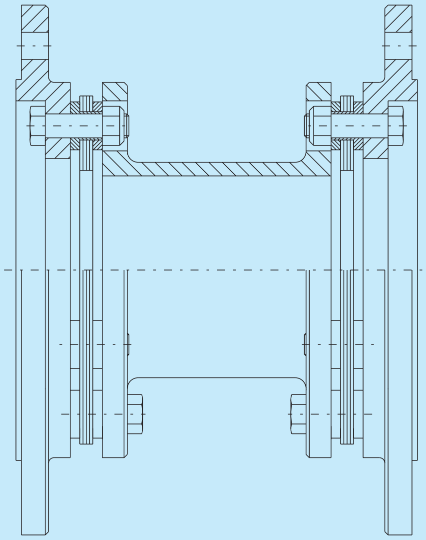
CC-E Type
(Spacer in 2 halves)



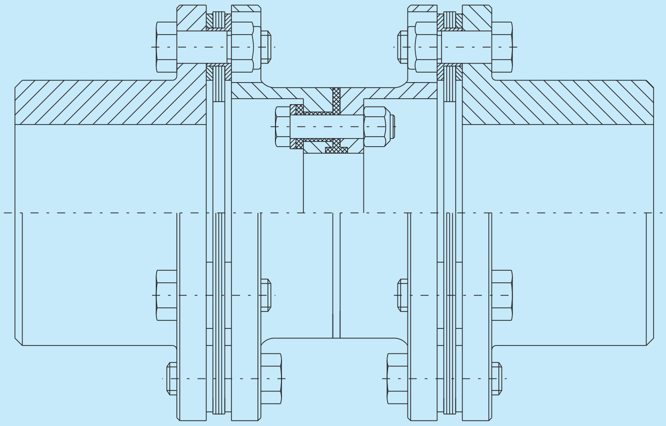
CCAC Type
(With internal clamping element)

Technical modifications reserved

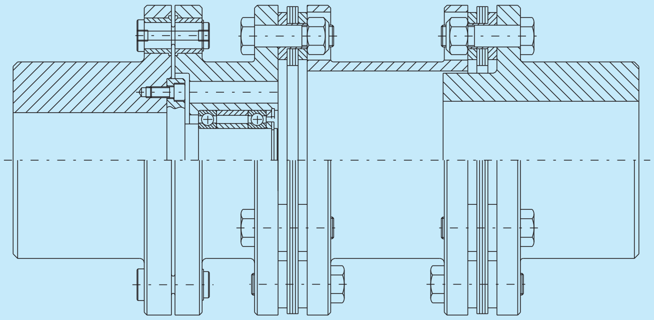
JAURE Lamidisc® coupling



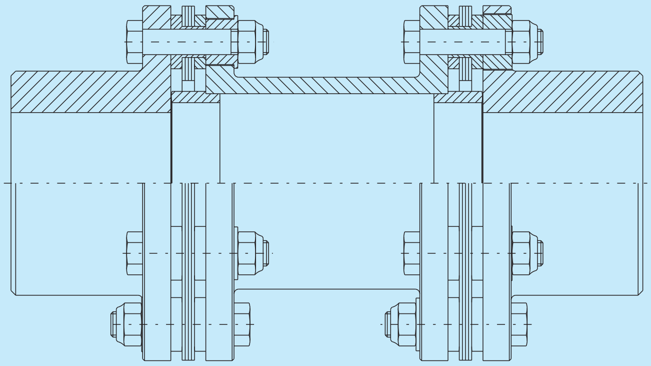
SXP Type
(With flange adaptors)



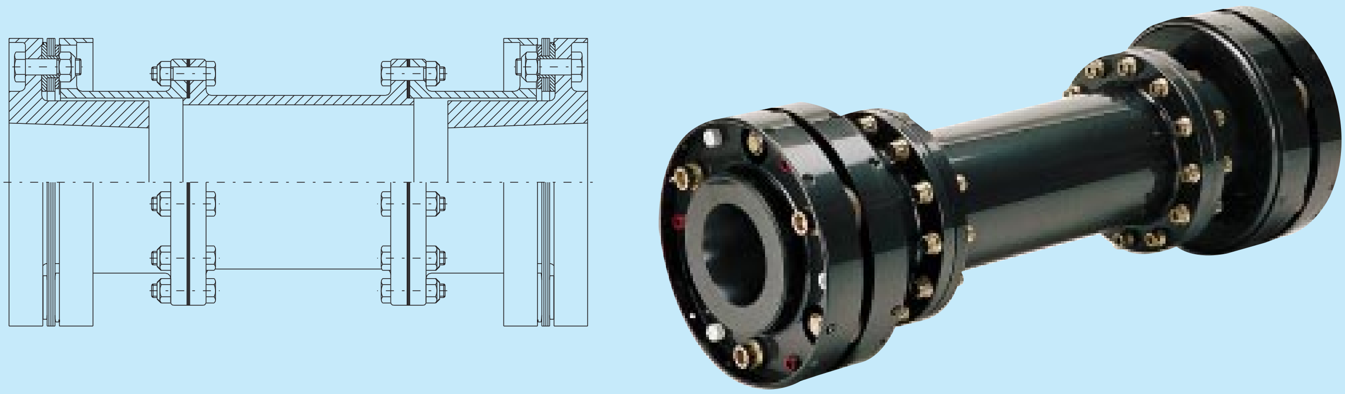
SXAE Type
(With electrical insulation)



SXBR Type
(Safety coupling)



SXL Type
(With axial limitation)



SXHP Type
(High performance)

Technical modifications reserved

Installation of hubs . Machinery alignment . Installation of disc packs and spacer.

1.- Installation of the hubs on the machine shafts.

a) Straight shafts with keyway.
Jaure supplies Lamidisc hubs machined machined with **H7** (ISO-286) tolerance. Jaure recommends that the shaft should be machined for an interference fit, using tolerance **s6** (ISO-286).

Whenever the shafts are already machined with a different tolerance from s6, Jaure will customize the hub bores. The following tolerances are recommended by Jaure.

Shaft tolerance	Hub tolerance
h6	**T7**
k6	**R7**
m6	**P7**
n6	**N7**
p6	**M7**

b) Clamping devices.

When clamping devices, such as tapered bushings, are used, Jaure recommends that the shafts should be machined with **g6** tolerances, for a standard Lamidisc bore.

For other type of connections, please consult our Technical Department.

2.- Machinery Alignment.

As long as the machines are aligned within the mounting specifications from this catalog, the Lamidisc couplings will operate for a long time. However, it should be understood that the useful life of any disc pack coupling is directly influenced by the operating misalignment: the better the alignment, the longer the coupling life.

Although the Lamidisc couplings can operate satisfactorily at the misalignment listed in the catalog, both the coupling life and machine bearing wear can be greatly improved if the machines are aligned better than the maximum value that the coupling can accomodate. Jaure recommends that the working misalignment should not exceed 20 % of the catalog values. Therefore, the following formulas show Jaure´s recommendations for maximum misalignment.

Three types of machine misalignment (offset, angular, and axial) should be checked. Jaure has the following recommendations:

• The maximum offset misalignment that the Lamidisc coupling can accomodate is a function of the distance between the disc packs. For the configurations SX this distance is practically the same as the distance between the shaft ends. This statement is not valid for other configurations, such as CC, DO, CX, DX.

If shafts have an offset misalignment with minimum angular misalignment, the following maximum values for the offset are applicable.

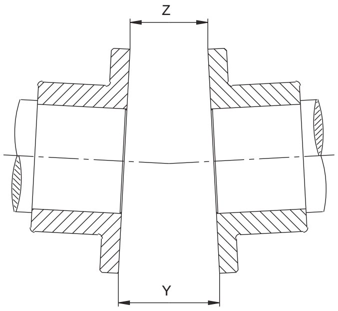
Lamidisc with 6 bolts	TIR ≤(disc pack to disc pack distance) / 150
Lamidisc with 8 bolts	TIR ≤ (disc pack to disc pack distance) / 300
Lamidisc with 10 bolts	TIR ≤ (disc pack to disc pack distance) / 350

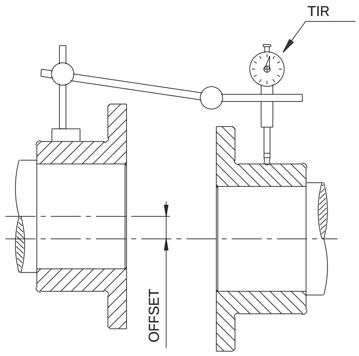
(NOTE : TIR is the Total Indicator Reading, which is twice the shaft offset)

• The maximum angular misalignment at each disc pack is listed in the tables. This angular misalignment can be verified by measuring the flange-to-flange distance (see figure below) and substracting the smallest reading from the largest reading (Y-Z). The maximum value of (Y-Z) depends on the flange diameter, therefore on the coupling size. Based on the data from the tables, the following maximum values for (Y-Z) are recommended:

Lamidisc with 6 bolts	(Y-Z) ≤ Coupling size / 300
Lamidisc with 8 bolts	(Y-Z) ≤ Coupling size / 600
Lamidisc with 10 bolts	(Y-Z) ≤ Coupling size / 700

Example: For Lamidisc size 380-6 (maximum angular misalignment of 1 º). (Y-Z) should not exceed 380/300 = 1.27 mm.





• The axial displacement allowable between shafts during installation, should not exceed 20% of the allowable displacement given in the catalog. This displacement is a function of the coupling size and the number of bolts utilized. The larger the size the larger axial displacement.
The axial displacement creates large stresses in the discs. For a long life it is recommended that the discs are as close as possible to being flat. Therefore, the movements of the shafts as caused by thermal expansion should be carefully considered. For instance, if the distance between shaft ends changes by -5 mm (the shafts are coming closer to each other) from cold to hot machines, the distance between shaft ends with cold machines should be intentionally be made larger by 5 mm when the coupling is installed.

3.- Installation of disc packs and spacer.

The installation of the coupling components depends of the type Lamidisc coupling: the only tool needed are regular wrenches or sockets, and a torque wrench. **Tightening the bolts of a coupling to specification is very important.**

Lamidisc® coupling

Values for Disc bolt tightening torque:

Size	Disc bolt non-lubricated tightening torque (Nm)	Size	Disc bolt non-lubricated tightening torque (Nm)	Size	Disc bolt non-lubricated tightening torque (Nm)
110	35	302	720	540	5000
132	35	325	720	570	6200
158	65	345	940	605	7500
185	115	380	1330	635	9500
202	185	410	1850	675	11900
228	275	440	2430	700	14600
255	545	475	3150	730	14600
278	545	505	4000	760	17600

Note : For lubricated threads reduce the given values by 20 %.

Values for spacer (type CX) and flange (type DX) bolt non-lubricated tightening torque in Nm.

Size	CX and DX types	Size	CX and DX types
132-6/10	8	302-8/40	230
158-6/15	20	325-8/45	230
185-6/20	68	345-8/50	325
202-6/25	108	380-8/55	325
255-6/30	108	410-8/60	325
278-8/35	230	540-8/70	565

Valves for dry tightening torque in Nm for flange connecting bolts. Types DO-6 and DO-8.

Size	Bolt tightening torque (Nm)	Size	Bolt tightening torque (Nm)	Size	Bolt tightening torque (Nm)	Size	Bolt tightening torque (Nm)
110-6	35	302-6	780	278-8	108	475-8	660
132-6	35	325-6	780	302-8	108	505-8	660
158-6	69	345-6	580	325-8	325	540-8	760
185-6	120	380-6	780	345-8	325	570-8	760
202-6	190	410-6	1000	380-8	325	605-8	760
228-6	295	440-6	1500	410-8	565		
255-6	580	475-6	2000				
278-6	280	505-6	2000				

Note : For lubricated threads reduce the given values by 20 %.

a) Standard configuration. SX and SXR types.
The only bolts to be installed and tightened are the ones that attach the disc packs to the hubs and spacer. Place the spacer and install the bolts with their heads at the flange and not at the disc pack. The nuts shall be turned with the torque wrench to the specified torque, while the heads of the bolts are held stationary.

b) Close coupled configuration. CC and CCR types.
The CC coupling type was created for use with machines that have the shafts too close for the use of the standard SX coupling. The outside diameter of the hubs was reduced to be inserted in the inside of the hole of the disc pack.

To install the hubs on their shafts, the shafts must be spaced apart at least the length of one hub (see dimension l1 and l2 in the table). To install the coupling, the disc packs can be first attached with their bolts to the spacer, and then slide over one of the hubs, and attached to it. Next, the machines must be brought in position so that the second disc pack can be attached to its hub.

The machine alignment can now be performed. Because the spacer covers the shaft ends, the axial spacing must be checked by measuring the flange to flange distance (dimension “S” in tables). The offset and angular misalignments can be checked as previously described.

The bolts that attach the disc packs to the hubs and spacer must be tighten to specification, using a torque wrench at the nuts, while the bolts heads are held stationary.

c) Drop-out configuration. DO type.
The drop-out configuration allows the installation and removal of the coupling assembly , without the need to remove the hubs from their shafts. The coupling is received from Jaure fully assembled, with the bolts tightened to specifications. If, however, there is a need to disassemble the coupling assembly (in case the disc packs need to be replaced) the nuts should be tightened to specification using a torque wrench, while the bolt heads are held stationary. Machine alignment should be done before the coupling assembly is in place.

The coupling assembly will not fit between the hubs, as long as the shaft-to-shaft distance was correctly set. The coupling ends should be brought together by compressing the disc packs using the shipping screws, so that the assembly will fit between the male rabbets.

Once in position, the coupling will snap in place, and the bolts that attach the assembly to the shaft hubs must be tightened to Jaure specifications using a torque wrench. This operation must be carefully performed, as these bolts transmit the full coupling torque.

To remove the coupling assembly first remove all the bolts that retain it to the hubs. Then compress the assembly by introducing the existing flange bolts in the shipping holes and press the coupling away from the male rabbets.

d) Reduced moment coupling with spacer according to AGMA 516, CX type.
The reduced moment configuration is used whenever the shaft stresses require that the center of gravity of the coupling is very close to the machine bearings. This configuration also allows either machine to be removed by dropping the spacer, without the need to disturb the disc-pack assemblies.

The installation of this coupling requires the following steps:
- Install the hubs on their shafts.
- Measure and adjust the shaft to shaft (DBSE) distance.
- Align the machine shafts as previously described.
- Attach one disc pack and a short sleeve at each hub, by tightening the nuts to specifications, while holding the bolt heads stationary.
- Place the spacer between the two sleeves. It should fit without interference, or without a gap remaining between the flanges. Correct the machine spacing if necessary, as any axial displacement can adversely affect coupling´s long term performance.
- Insert the flange bolts and tighten the nuts to specifications using a torque wrench and adaptor, while holding the bolt heads stationary.
- Recheck the alignment, and correct if necessary.

e) Drop-out coupling with floating assembly, flanges according to AGMA 516, DX type.
Machine alignment should be done before the coupling assembly is in place. The drop-out configuration allows the installation and removal of the coupling assembly, without the need to remove the hubs from their shafts. The coupling is received from Jaure fully assembled, with the bolts tightened to specifications. If, however, there is a need to disassemble the coupling assembly (in case the disc packs need to be replaced) the nuts should be tightened to specification using a torque wrench, while the bolt heads are held stationary.

The coupling assembly will fit between the hubs, as long as the shaft-to-shaft distance was correctly set. Once in position, the nuts that attach the assembly to the shaft hubs must be tightened to specifications using a torque wrench and adaptor, while the bolt heads are held stationary. This operation must be carefully performed, as these bolts transmit the full coupling torque.

Technical modifications reserved

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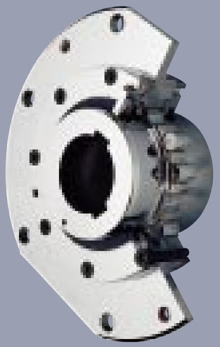

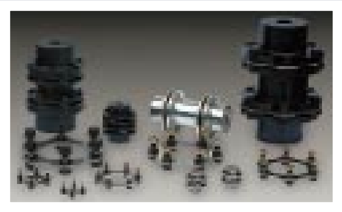

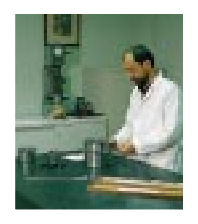

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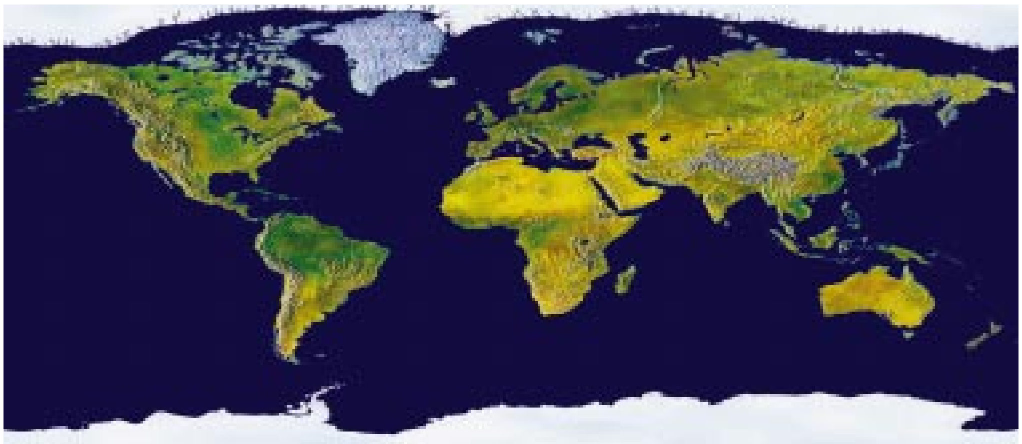

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JAURE, S.A.

Ernio bidea, s/n. - 20150 ZIZURKIL (Guipúzcoa) SPAIN
Phone: 34 943 69.00.54 - Fax: 34 943 69.02.95
Post address: P.O.Box 47 - 20150 VILLABONA (Guipúzcoa) SPAIN
e-mail:sales.dep@jaure.com - http://www.jaure.com

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