

Flexible Disc Couplings and Bearing Isolators



Lamiflex do Brasil

Lamiflex do Brasil is a manufacturer of Flexible Disc and Elastomeric Couplings, Gears, Diaphragm Couplings, Floating Shafts, Bearing Isolators and coupling protectors. It was founded in 1999 with the name **Powerflex Transmission** and after its restructuring came to be known as Lamiflex do Brasil Equipamentos Industriais Ltda.

In July, 2012 Lamiflex do Brasil merged with Altra Industrial Motion S.A., and this acquisition brought to Lamiflex the ability to offer the market a wide spectrum of products related to power transmission.

Our goal is to provide a full range of products that bring our customers cost savings and high productivity through excellent product quality, support, and service.

Innovation, Quality and Manufacturing Capacity

With our constant commitment to innovation, Lamiflex engineers are supported by research and mechanical test labs, CAD and FEA systems, 3D modeling, and other tools to quickly respond to the demands and requirements of our clients.

Our quality program, certified by the ISO 9001-2008 standard, guarantees a method that ensures our trustworthiness, the process reliability, and the products we make. Other continuous improvement programs, such as Kaizen, TQM, and 5S help us to increase the benefits to our clients and the community.

Constant investment in the manufacturing process and acquiring modern centers of machining, drilling, dynamic balancing and tools, form the basis of a management always focused on cost reduction and excellent service to our clients.

VISIT OUR SITE **LAMIFLEXCOUPLINGS.COM**

Altra Motion

Altra is a leading global designer and producer of a wide range of electromechanical power transmission and motion control components and systems. Providing the essential control of equipment speed, torque, positioning, and other functions, Altra products can be used in nearly any machine, process or application involving motion. From engine braking systems for heavy duty trucks to precision motors embedded in medical robots to brakes used on offshore wind turbines, Altra has been serving customers around the world for decades.

Altra's leading brands include **Ameridrives**, **Bauer** Gear Motor, **Bibby** Turboflex, **Boston** Gear, **Delevan**, **Delroyd** Worm Gear, **Deltran**, **Formsprag** Clutch, **Guardian** Couplings, **Huco**, **Jacobs** Vehicle Systems, **Kilian**, **Kollmorgen**, **Lamiflex** Couplings, **Marland** Clutch, **Matrix**, **Nuttall** Gear, **Portescap**, **Stieber**, **Stromag**, **Svendborg** Brakes, **TB Wood's**, **Thomson**, **Twiflex**, **Warner** Electric, **Warner** Linear and **Wichita** Clutch.

VISIT US ON THE WEB AT **ALTRAMOTION.COM**



Sections

Pages

L1	Flexible Disc Couplings	Powerflex - Flexible Disc Couplings 2-3 Selection Procedure 4 PWF Series.....5 PWE Series 6 PWH Series 7 PWB Series 8
L2	Coupling Guards	Coupguard 9-10
L3	Bearing Isolators	Bearing Isolators..... 11-12 Ecoblock Maxx..... 13 Ecobearing 14
L4	Shims for Alignment	Powershim 15-17
L5	Floating Shafts	Fiber Carbon Shaft 18-19 Transmission Axles - PWZ 20

L1 Flexible Disc Couplings

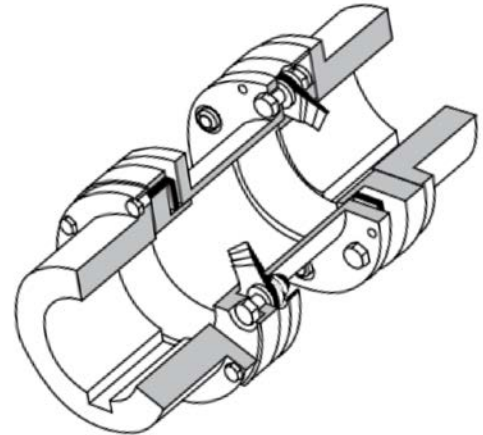


- Lubrication free
- High reliability
- Low maintenance
- No mechanical wearing parts
- Operates in high temperatures
- Flexible units designed for infinite life
- Flexible units manufactured in highly resistant 300 series stainless steel
- Easy visual inspection
- High level of inherent balance
- Anti-corrosion protection

Over 15 Years Experience in Developing and Manufacturing Flexible Couplings

Full Range of Products

- Torque capacity up to 30,000 HP/1000 rpm
- Couplings WITHOUT and WITH spacer and also Floating Shafts



Highly Resistant Parts

- Zero backlash and no mechanical wearing parts

Applications

- Pumps
- Fans
- Generators
- Compressors
- Paper Machines

Flexible Units in High Resistance Stainless Steel

- High torsional stiffness
- Lubrication free
- Easy Visual Inspection

Completely Metallic Design

- Wide operating temperature range
- Available in carbon and stainless steel

Typical Applications

• PUMPS

Lamiflex couplings comply with all types of pumps and pumping system applications.

• PAPER AND POSITIONING MACHINES

Zero backlash and high torsional stiffness make Lamiflex couplings the first choice in power transmission for precision equipment.

• CRITICAL EQUIPMENT

Powerflex couplings are capable to meet the industry's most demanding needs with their use in operationally critical equipment increasing the reliability. Lamiflex couplings meet the following standards: API, DIN and ISO.

Ideal for applications, through the sum of the additional to the drive equipment and the coupling's service factor.

- Determine the appropriate service factor for the application.

Driver + Driven Equipment = Service Factor

Determine the HP/1000 rpm using the formula:

$$\text{HP/1000 rpm} = \frac{\text{Power HP} \times \text{Service Factor} \times 1000}{\text{RPM}}$$

- Select from the Technical Data Table the coupling with a rating equal or superior to the calculation above.
- Check if the maximum bore of the chosen coupling is equal or superior to the shaft's equipment diameter. If not, choose a larger coupling.
- Check the total length and external diameter of the coupling and make sure it will not interfere with the coupling guard, pipelines and other equipment's lodgings.
- Check the speed capacities and specific balancing needs.
- Specify the distances between the shafts (BE), and choose a standard spacer from the stock, if possible.

Note:

These service factors suppose motors and turbines in light work. The additional ones listed below for both drives need to be added to the service factors, shown in the Driven Equipment table.

SERVICE FACTOR TABLE

<i>Additional - Motors and Drivers</i>		<i>Driven Equipment</i>		<i>SF</i>
DRIVER	ADD			SF
ELECTRIC MOTORS	0	CONVEYORS - Nonuniform Load		
TURBINE	0.50	Belt		2.00
COMBUSTION ENGINES		Buckets		2.00
1-4 Cylinders	2.00	Chains		2.00
5 or more	1.00	Alternator		2.00
		Thread		2.00
<i>Driven Equipment</i>	<i>SF</i>	Vibrating		2.50
AGITATORS		FANS		
Pure liquid	1.30	Centrifuge		1.00
Liquid and solids	1.50	Induced draft fan		2.00
PUMPS		Forced draft fan		1.50
Centrifugal	1.30	Cooling towers fan		2.00
Spindle, Lobe	1.00			
Alternative	1.50	GENERATORS		
COMPRESSORS		Uniform load		1.00
Centrifuge	1.00	PAPER MACHINES		
Alternative	2.00	Calenders and Press Rollers		2.00
Screws, Lobe	1.50	Drying Cylinder		1.75
CONVEYORS - Uniform Load		Winders		2.00
Belt	1.50			
Bucket	1.50			
Chains	1.50			
Threads	1.50			

Notes:

- All couplings come with guide bore. For finished bores with key consult the factory.
- Correct installation and alignment of the couplings is essential for the machines' reliable performance and for a long useful life of the flexible units. As a general orientation in assembling and aligning, it is recommended that the initial misalignment be no greater than 10% of the values indicated in the catalog or follow the orientation of the manufacturers of the equipment being coupled.

Flexible Disc Couplings PWF Series

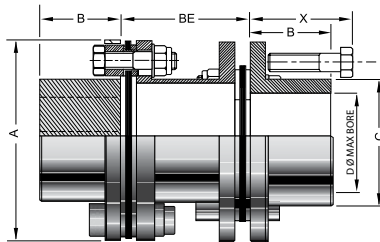


PWF Series

The PWF couplings were designed to meet the demand for a more economic configuration of flexible disc couplings, with the advantages of a reduced number of parts, no lubrication, and maintenance cost reductions to yield a long useful life

It consists of three main parts: two hubs and one central spacer assembled with two flexible units that can be removed, simplifying maintenance. The disc pack and the fixture parts ensure a good inherent balancing; AGMA Class 8 is the factory standard.

For specifications requiring higher speeds or applications requiring the full specifications of API 610 or 671, consult us about other models available from our product line.



Notes:

1. Maximum Angular Misalignment: 1/2° per flexible unit.
2. The maximum bore indicated below is for cylindrical bore and rectangular key DIN and AGMA standard. For maximum bore for tapered bore or special requirements, consult the factory.
3. Machined hubs with finished bores and keyways can be offered.
4. Consult the factory when rotations above the maximum are necessary.



Technical Data

Coupling Size	Rating (HP/1000 RPM)	Maximum Rotation (RPM)	Weight (BE min.) kg (4)	Weight (per extra meter) kg.	Maximum Axial Misalign (mm)	Maximum Parallel Misalignment (with 1/20° angle) mm (1).
PWF-4	4	5000	1.01	4.05	2	1.00
PWF-12	12	5000	2.53	5.72	3	1.00
PWF-28	28	4500	4.58	7.05	35	1.00
PWF-40	40	4000	7.76	9.16	45	1.00
PWF-110	110	4000	14.28	12.04	55	1.00
PWF-230	230	3600	25.28	18.03	6	1.00
PWF-350	350	3600	32.32	15.26	75	1.00
PWF-540	540	3600	25.06	13.52	3	1.00
PWF-750	750	3600	37.83	17.48	35	1.5
PWF-1000	1000	3600	48.53	21.58	4	1.5
PWF-1500	1500	3600	64.90	30.54	5	1.5
PWF-2000	2000	3600	50.88	37.51	25	1.5
PWF-2500	2500	2000	64.42	44.88	3	1.5
PWF-4000	4000	2000	104.32	61.68	4	1.5
PWF-5500	5500	2000	148.13	70.48	45	1.5
PWF-8000	8000	1800	214.30	94.95	45	1.5
PWF-12000	12000	1800	319.33	148.536	55	1.5
PWF-16000	16000	1500	415.75	183.19	65	2.00
PWF-20000	20000	1500	520.20	224.32	7	2.00
PWF-30000	30000	1200	831.50	229.85	85	2.00

Dimensional Data (in mm)

Coupling Size	A	B	C	D - Maximum Hole (2)	X	BE minimum		BE-Standard		
PWF-4	74	30	40	30	40	40	100 (3.5 in.)	140 (5 in.)	—	—
PWF-12	97	37	55	40	62	56	100 (3.5 in.)	140 (5 in.)	—	—
PWF-28	117	48	67	50	76	70	100 (3.5 in.)	140 (5 in.)	—	—
PWF-40	144	55	85	57	82	76	100 (3.5 in.)	140 (5 in.)	180 (7 in.)	—
PWF-110	175	75	110	76	98	88	100 (3.5 in.)	140 (5 in.)	180 (7 in.)	250 (10 in.)
PWF-230	204	90	125	90	123	100	100	140 (5 in.)	180 (7 in.)	250 (10 in.)
PWF-350	228	95	146	100	124	100	100	140 (5 in.)	180 (7 in.)	250 (10 in.)
PWF-540	222	97	140	102	—	122	—	140 (5 in.)	180 (7 in.)	250 (10 in.)
PWF-750	248	108	160	116	—	138	—	140	180 (7 in.)	250 (10 in.)
PWF-1000	272	117	178	130	—	151	—	—	180 (7 in.)	250 (10 in.)
PWF-1500	297	132	196	138	—	158	—	—	180 (7 in.)	250 (10 in.)
PWF-2000	266	127	177	127	—	129	—	140	180 (7 in.)	250 (10 in.)
PWF-2500	292	138	190	139	—	139	—	140	180 (7 in.)	250 (10 in.)
PWF-4000	341	165	227	163	—	155	—	—	180 (7 in.)	250 (10 in.)
PWF-5500	384	188	260	186	—	170	—	—	180 (7 in.)	250 (10 in.)
PWF-8000	429	207	288	208	—	197	—	—	—	250 (10 in.)
PWF-12000	486	242	335	242	—	218	—	—	—	250 (10 in.)
PWF-16000	535	263	366	263	—	238	—	—	—	250 (10 in.)
PWF-20000	571	290	402	288	—	248	—	—	—	250 (10 in.)
PWF-30000	683	349	486	349	—	276	—	—	—	300

Flexible Disc Couplings PWE Series



PWE Series

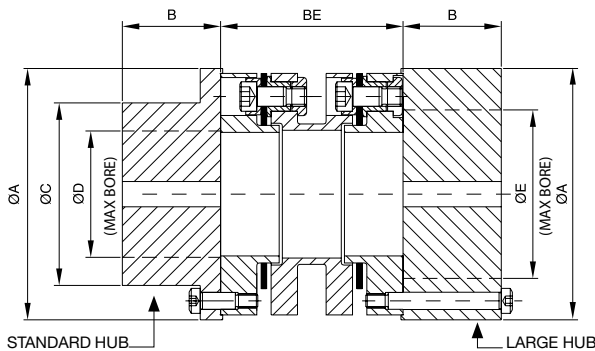
PWE couplings are designed for medium power service, with a high level of reliability in rotating equipment transmission and with the use of spacers. PWE couplings are specifically designed to meet API 610 specifications and also meet most of the API 671 specifications.

It consists of three main parts, two hubs and one flexible center unit assembled in the factory that is installed and removed as a combined unit, simplifying the installation and maintenance.

The central unit is piloted which ensures excellent dynamic balance standards; AGMA class 9 is the factory standard. The AGMA balance Class 10 and 11 or ISO 2.5 and 1.0 are available options.

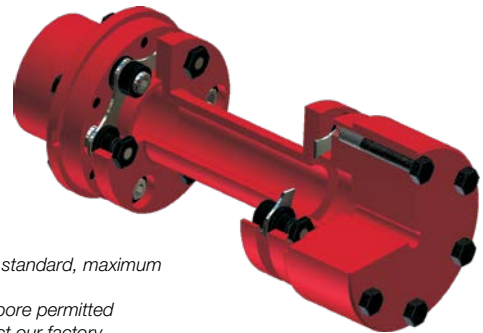
An anti-fail safety device is also included in the assembly of the flexible central unit. For specifications requiring higher power or for simpler and more economic applications, contact us about other models in our product line.

- Medium power services.
- Specifically projected to meet API 610.
- The flexible center unit is assembled as a cartridge for simple installation and removal while maintaining the inherent balance.
- The anti-fail safety device retains the spacer in the event of a flexible unit failure.
- The high resistance blades are manufactured in 300 series stainless steel and other components in carbon steel with phosphate coating.



Notes:

1. Maximum angular misalignment per flexible unit
Rotations to 3,600 rpm: 1/2° from 3600 to 7,500 rpm: 1/3° Above 7,500rpm: 1/4°
2. Weight and inertia of couplings with maximum bore, standard hubs and minimum BE
3. The maximum bore indicated are based on cylindrical bore and rectangular keys of DIN or AGMA standard, maximum bores for conic drilling or special needs, contact the factory
4. For hubs with finished bores in sizes up to PWE-100 contact the factory to find out the maximum bore permitted
5. Hubs machined with cylindrical or conical drilling and keyways can be produced by design. Contact our factory.
6. Couplings with mechanical locking on the Flexible Unit are available in the PWEL version. Maximum Rotation: 3,600 rpm. Ask us if needed



Technical Data

Coupling Size	Rating (HP/1000 RPM)	Maximum Rotation (Balanced) RPM	Weight (BE min.) Kg (2)	Weight (p/ extra meter) Kg (2)	Moment of Inertia Kg* m ² (2)	Moment of Inertia Kg* m ² (power extra meter)	Maximum Axial Misalignment (mm)	Maximum Parallel Misalignment (with / 1/2 ° angle) mm. (1)
PWE-18	18	25000	2.33	3.16	0.00180	0.00082	1.1	0.40
PWE-45	45	25000	4.51	5.33	0.00523	0.00177	1.2	0.45
PWE-100	100	20000	8.89	6.83	0.01819	0.00649	1.4	0.50
PWE-180	180	18000	14.90	8.99	0.04313	0.01509	1.8	0.60
PWE-310	310	14000	23.04	13.09	0.09400	0.03057	2.3	0.65
PWE-480	480	10000	33.06	12.47	0.18132	0.03957	2.8	0.65
PWE-680	680	9000	42.55	15.66	0.29077	0.06324	3.5	0.65
PWE-1000	1000	8000	59.59	19.74	0.50390	0.10460	3.8	0.70
PWE-1200	1200	7000	73.85	23.38	0.76731	0.14612	4.2	0.75
PWE-2000	2000	6000	102.70	31.35	1.27845	0.22562	5.0	0.80

Dimensional Data (in mm)

Coupling Size	A	B	C	Max. Hole (3)		BE minimum	BE – Standard			
				ØD	ØE					
PWE-18	86	40	53	36	52	70	100 (3.5 in.)	140 (5 in.)	180 (7 in.)	250 (9 in.)
PWE-45	105	45	68	48	72	80	100 (3.5 in.)	140 (5 in.)	180 (7 in.)	250 (9 in.)
PWE-100	130	55	88	65	90	100	–	140 (5 in.)	180 (7 in.)	250 (9 in.)
PWE-180	152	63	110	80	100	125	–	140 (5 in.)	180 (7 in.)	250 (9 in.)
PWE-310	179	70	130	90	120	130	–	140	180 (7 in.)	250 (9 in.)
PWE-480	197	90	163	116	–	135	–	140	180 (7 in.)	250 (9 in.)
PWE-680	222	97	180	130	–	135	–	140	180 (7 in.)	250 (9 in.)
PWE-1000	247	110	205	140	–	140	–	140	180 (7 in.)	250 (9 in.)
PWE-1200	272	115	222	158	–	150	–	–	180 (7 in.)	250 (9 in.)
PWE-2000	297	130	248	175	–	175	–	–	180 (7 in.)	250 (9 in.)

Flexible Disc Couplings PWH Series



PWH Series

Powerflex High Performance couplings have an innovative design that provides a high reliability for transmissions of rotating machines.

They are designed to meet API 671 standards with respect to assembly, tolerances, materials, and balancing. Hubs, guard rings and spacers are manufactured with high alloy steel, and flexible elements are made with high grade stainless steel. The fixture parts undergo rigorous quality control.

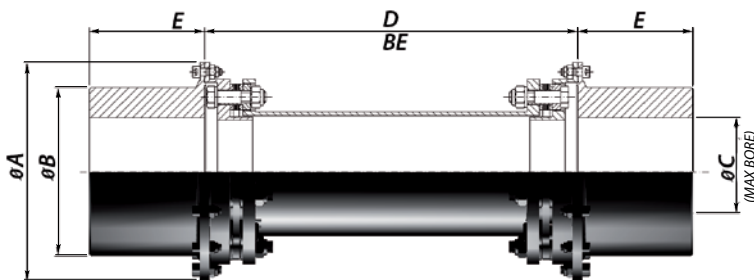
As a result of the factory's assembly, the pilot guide of interference and bolts with controlled tolerance ensure the balancing integrity even after repeated assemblies.

The flexible coupling must handle two functions: (1) Transmit drive torque to the driven machine and (2) accommodate misalignment of the axes.

High Performance Powerflex couplings are specifically designed to handle these tasks required in critical applications such as: compressors, centrifugal pumps, injection pumps, generators, gas and steam turbines and most API 671 applications.

Advantages of the Powerflex High-Performance Couplings

- More flexibility.
- Low reaction forces.
- Uniform stress distribution.
- Reduced weight and inertia.
- Compact assembly.
- Hubs allow high bore capacity.
- Utilization of high mechanical strength materials
- Tolerances and balancing that comply with the API 671 standard.



Notes:

1. Maximum angular misalignment per flexible unit
2. Weight, Inertia and Torsional Stiffness of the couplings are based on standard couplings with maximum bore, standard hubs and minimum BE.
3. Maximum capacity of bore and hub dimensions are only nominal. Contact our factory for specific applications.

Technical Data

Coupling Size	HP Rating/1000 RPM	Maximum Rotation RPM	Weight (Kg) (2)		Moment of Inertia (Kg* m ²) (2)		Torsional Rigidity MNm/rad
			Combined (BE min.)	p/ extra meter	Set. (BE min.)	p/ extra meter	
PWH-800	800	13000	21.0	6.5	0.080	0.013	0.26
PWH-1400	1400	11000	34.0	9.3	0.180	0.026	0.54
PWH-2000	2000	9000	50.5	12.0	0.360	0.042	0.90
PWH-2800	2800	8500	72.0	15.0	0.655	0.073	1.50
PWH-4000	4000	8000	95.0	19.0	1.100	0.115	2.30
PWH-5500	5500	8000	125.0	23.0	1.740	0.170	3.30
PWH-7000	7000	7500	160.0	28.0	2.600	0.240	4.60
PWH-9000	9000	7200	163.0	28.0	2.640	0.240	5.90
PWH-11500	11500	7000	248.0	46.0	5.140	0.555	8.50
PWH-15000	15000	6500	260.0	46.0	5.720	0.555	9.40
PWH-22000	22000	6000	361.0	56.0	10.310	0.880	21.0
PWH-30000	30000	5500	504.0	75.0	18.300	1.420	34.0

Dimensional Data (in mm)

Coupling Size	Dimensions (mm)					Angular Misalignment (degrees) Max. (1)	Axial Misalignment (mm) Max.
	ØA	ØB	ØC Maximum Bore (3)	D (BE min.)	E (3)		
PWH-800	176	138	96	215	110	0.25	1.0
PWH-1400	204	166	115	230	135	0.25	2.0
PWH-2000	236	190	130	250	150	0.25	2.0
PWH-2800	264	214	147	265	175	0.25	2.0
PWH-4000	289	240	165	290	200	0.25	2.5
PWH-5500	326	262	180	285	210	0.25	3.0
PWH-7000	350	287	195	300	225	0.25	3.5
PWH-9000	350	287	195	300	225	0.15	2.0
PWH-11500	404	338	234	340	265	0.25	4.5
PWH-15000	404	338	230	335	265	0.15	3.0
PWH-22000	444	380	260	365	305	0.15	3.5
PWH-30000	506	424	292	410	335	0.15	4.0

Flexible Disc Couplings PWB Series



PWB Series

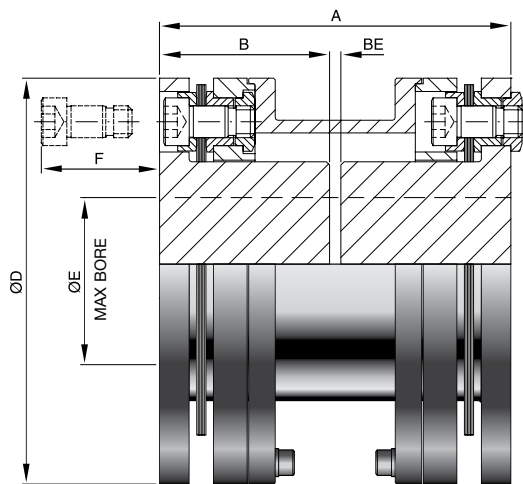
PWB couplings are designed with flexible units. This coupling's spacer has a split setup, making it possible to conduct inspections and maintenance of the coupling unit without the need to separate or misalign the equipment coupled.

This design is especially recommended for equipment that does not have separation between the shaft ends.

The split spacer is positioned from a safety guide, which increases the levels of dynamic balancing.

Typical Applications:

- Engines
- Reducers
- Fans
- Compressors
- Pumps

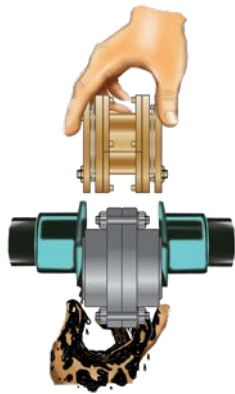


PWB Disc Couplings

- Eliminate grease
- Eliminate lubrication
- Prolong life cycle

Notes:

1. The maximum bore "E" is based on rectangular keys in accordance with DIN 6885 standard.
2. Maximum angular misalignment per flexible unit 1/3°



Technical and Dimensional Data (in mm)

MODEL	TORQUE HP/1000 rpm	ROTATION max. rpm	DIMENSIONS (mm)						Misalignments (2)	
			A	B	BE	D	E (1)	F	Axial (mm)	Radial (mm)
					STD.		Max. Bore			
PWB-18	18	7000	85	41	3	106	28	27	1.00	0.5
PWB-45	45	6500	101	49	3	127	35	33	1.00	0.6
PWB-100	100	6000	143	70	3	128	45	51	1.50	0.9
PWB-180	180	5400	171	84	3	153	61	54	1.50	1.1
PWB-310	310	5000	191	93	5	180	76	68	2.50	1.2
PWB-480	480	4800	199	97	5	204	83	71	2.50	1.3
PWB-680	680	4500	217	105	7	228	95	75	3.30	1.4
PWB-1000	1000	4200	221	107	7	255	105	98	3.80	1.5
PWB-1200	1200	4000	248	120	8	278	117	101	4.30	1.7
PWB-2000	2000	3800	266	129	8	304	127	109	5.00	1.8
PWB-4000	4000	3800	330	160	10	350	154	108	4.00	2.3
PWB-5500	5500	3500	361	175	11	390	180	112	4.40	2.5
PWB-8000	8000	3000	413	200	13	437	196	142	5.00	2.8
PWB-12000	12000	2900	467	227	13	494	230	152	6.00	3.2
PWB-16000	16000	2300	541	263	15	548	252	173	6.80	3.7
PWB-20000	20000	2000	539	262	15	581	272	179	7.50	3.6



- Available in 6 sizes (CG-100 to CG-500)
- Maximum Shaft Diameter to 220mm
- Maximum Length to 720mm
- Constructed in galvanized carbon steel
- Painted in safety orange color in compliance with ABNT/NR 26
- Fixing parts in high resistance steel with anti-corrosive protection
- In compliance with standard NR-12 art 12.47 and 12.50
- Operates in ambient temperatures up to 155°C
- Radial and axial ventilation
- Length and height adjustment
- Base fastening by welding or screws
- Optional availability (by consultation) of longer pedestal or base and special sizes
- Easy for visual inspection

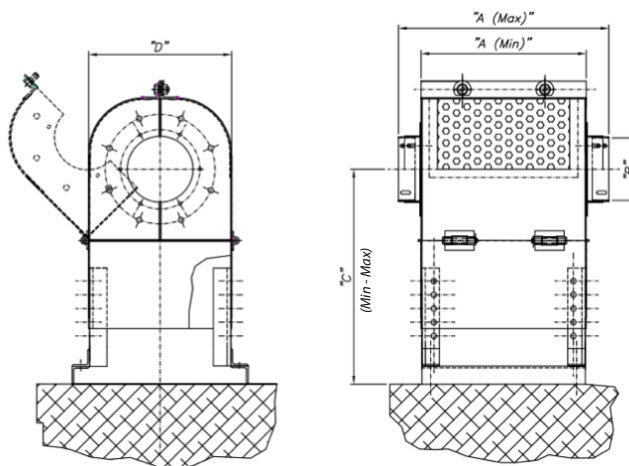
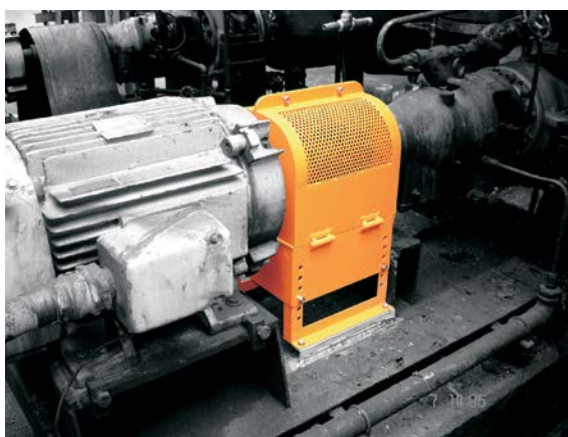
Coupguard

COUPGUARD Coupling Guards are the most effective and safe solution for the protection of industrial rotary machines and equipment. Equipment couplings and axles, when in operation, may not be exposed due to risk of damage to people, equipment, and facilities. COUPGUARD is installed and mounted onto the equipment base to protect and allow maintenance procedures when necessary.

Normally, other available or homemade models do not provide sufficient safety nor contain devices adequate for inspection and maintenance, often leaving the axle exposed during operation.

COUPGUARD can be installed on pumps, compressors, fans, electric motors, turbines, paper machines, steel machines, and complies with all editions of API 610 standards, and ANSI and OSHA safety standards. Special designs are available by consultation to meet additional requirements and standards. Manufactured with robust materials to resist impacts up to 900N and prevent contact between the coupling and the shaft; comes with safety painting and articulated inspection door for easy maintenance of the coupling.

Adjustable height and length make this device the most versatile in the market, adapting to a wide range of equipment. The standardized COUPGUARD protectors have a low initial cost and avoid improvised or homemade solutions.



Dimensional Data (mm)

Model	"A" (min/max)	"B"	"C" (min/max)	"D"	Mass
CG-100	110-215	50	90-145	180	3.0 kg
CG-200	205-320	90	160-280	230	6.7 kg
CG-300	300-435	110	250-430	260	11.3 kg
CG-350	370-515	138	250-430	260	12.9 kg
CG-400	415-580	200	380-580	480	27.9 kg
CG-500	540-720	250	500-650	570	40.0 kg

All dimensions above are in millimeters

Notes:

- During installation of the COUPGUARD, all moving parts must be protected. For access to these parts, there must be no spaces bigger than 10 mm.
- Inside, we recommend a minimum distance of 15 cm between the rotating parts and the COUPGUARD protection, following the dimensions A, B and D indicated above

COUPGUARD coupling guards are designed in compliance with safety standards certified by ASME, ANSI, OSHA and NR-12 Art.12.47 and 12.50



International and National Patents by PETROBRAS
and manufactured under license by LAMIFLEX



- Increases the life cycle of bearings
- Protects the environment
- Permanent sealing
- Easy installation
- No contact
- Zero oil and grease leakage

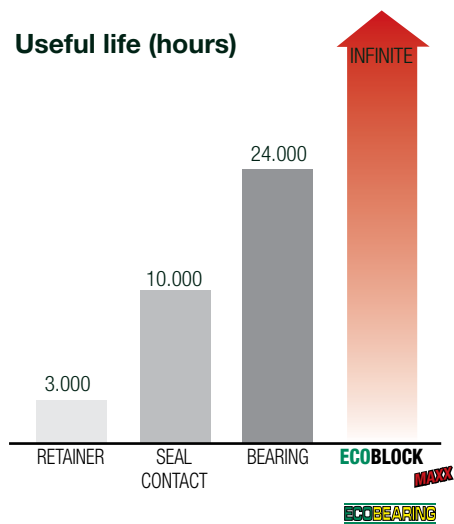
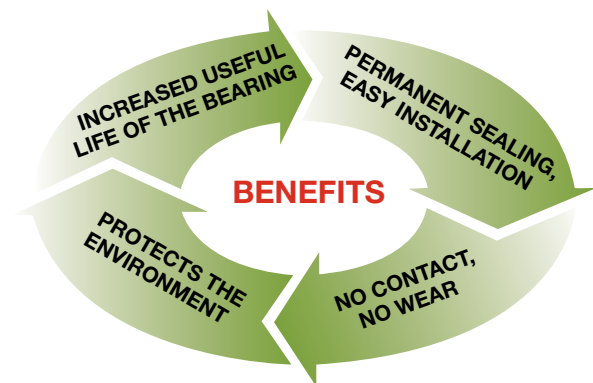


Bearing Isolators

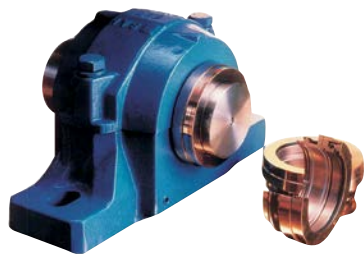
Bearing Isolators

The bearing guards **Ecoblock Maxx** and **Ecobearing** have been developed with the highest technology in sealing equipment. Designed for applications in rotating bearings, their proven efficiency significantly extends bearing life.

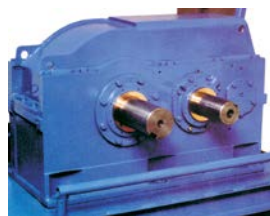
Manufactured with non-sparking brass in the standard configuration, the EcoBlock Maxx and Ecobearing bearing protectors replace the traditional lip-seals, eliminating any leakage of lubricating oil, grease and oil mist, at the same time preventing the penetration of external contaminant residues.



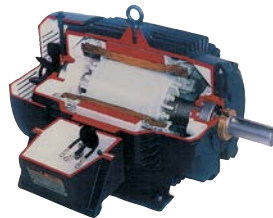
Typical Applications



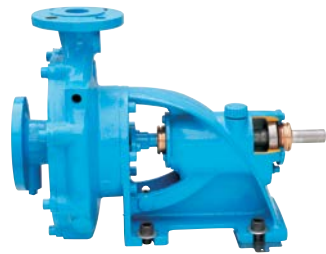
Pillow Blocks / Bearings



Gearboxes / Speed Reducers



Electrical Motors



Centrifugal Pumps

Ecoblock Maxx

Ecoblock Maxx M92 bearing isolators are developed with the latest technology in equipment sealing. Designed for applications in rotary bearings, it's proven to infinitely extend the bearing life. Ecoblock replaces the traditional seal, eliminating any leakage of lubricating oil, grease and oil mist while also preventing the penetration of waste contaminants from the external environment.

- Zero leakage
- No contact, no friction, no heating, no wear, even during operation
- Emission and leakage control protects the environment
- Increases life of the bearing
- Static and dynamic sealing

M92 Series

Technical specifications

- Standard material: non-sparking brass
- Temperature: -20°C to +200°C
- Maximum Rotation: 3,500 m/min.
- Pressure limit: atmospheric
- Shaft tolerance: $\pm 0.07\text{mm}$
- Box tolerance: $\pm 0.025\text{mm}$
- Shaft eccentricity: $\pm 0.18\text{mm TIR}$
- Operation: Vertical or horizontal position

Dimensions (mm)

MODEL	ØA	ØB	C	D
M92-M0020	20	46	22	13
M92-M0025	25	51	22	13
M92-M0030	30	56	22	13
M92-M0035	35	61	22	13
M92-M0040	40	66	22	13
M92-M0045	45	71	22	13
M92-M0050	50	76	22	13
M92-M0055	55	81	22	13
M92-M0060	60	86	22	13
M92-M0065	65	91	22	13
M92-M0070	70	96	22	13
M92-M0075	75	101	22	13
M92-M0080	80	106	22	13
M92-M0085	85	111	22	13
M92-M0090	90	116	22	13
M92-M0095	95	121	22	13
M92-M0100	100	126	22	13
M92-M0105	105	131	22	13

MODEL	ØA	ØB	C	D
M92-M0110	110	136	22	13
M92-M0115	115	141	22	13
M92-M0120	120	146	22	13
M92-M0125	125	151	22	13
M92-M0130	130	156	22	13
M92-M0135	135	161	22	13
M92-M0140	140	166	22	13
M92-M0145	145	171	22	13
M92-M0150	150	176	22	13
M92-M0155	155	181	22	13
M92-M0160	160	186	22	13
M92-M0165	165	191	22	13
M92-M0170	170	196	22	13
M92-M0175	175	201	22	13
M92-M0180	180	206	22	13
M92-M0185	185	211	22	13
M92-M0190	190	216	22	13
M92-M0195	195	221	22	13

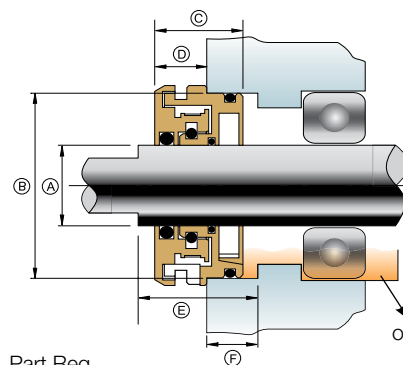
Dimensions (inches)

MODEL	ØA	ØB	C	D
M92-P0875	0.875	1.875	0.866	0.512
M92-P1000	1.000	2.000	0.866	0.512
M92-P1125	1.125	2.125	0.866	0.512
M92-P1250	1.250	2.250	0.866	0.512
M92-P1375	1.375	2.375	0.866	0.512
M92-P1500	1.500	2.500	0.866	0.512
M92-P1625	1.625	2.625	0.866	0.512
M92-P1750	1.750	2.750	0.866	0.512
M92-P1875	1.875	2.875	0.866	0.512
M92-P2000	2.000	3.000	0.866	0.512
M92-P2125	2.125	3.125	0.866	0.512
M92-P2250	2.250	3.250	0.866	0.512

MODEL	ØA	ØB	C	D
M92-P2375	2.375	3.375	0.866	0.512
M92-P2500	2.500	3.500	0.866	0.512
M92-P2625	2.625	3.625	0.866	0.512
M92-P2750	2.750	3.750	0.866	0.512
M92-P2875	2.875	3.875	0.866	0.512
M92-P3000	3.000	4.000	0.866	0.512
M92-P3250	3.250	4.250	0.866	0.512
M92-P3375	3.375	4.375	0.866	0.512
M92-P3500	3.500	4.500	0.866	0.512
M92-P3750	3.750	4.750	0.866	0.512
M92-P4000	4.000	5.000	0.866	0.512
M92-P4500	4.500	5.500	0.866	0.512

Selection Procedure

- Check the shaft diameter (protector internal diameter) (A)
- Check the bearing box diameter (protector external diameter) and the depth of the box (F)
- Check the distance to the obstruction (E)
- Check if the rotation, temperature, shaft and bearing box tolerances are according to the technical specifications.
- Consult the appropriate model in the tables above



*Special Sizes for specific applications made to order.
Please consult our factory.*

Bearing Isolators Ecobearing

Ecobearing

The ECOBEARING bearing isolator is a revolutionary device that protects the bearing housing by preventing contaminants from entering, oil leaks and air circulation. The majority of bearing guards utilize the "L" concept, where an external deflector protects against water spray but also causes strong air circulation. The Ecobearing bearing guards are built with a "U" concept, delivering highly efficient internal and external sealing without causing air circulation.

Because its dimensions are compatible with the models available in the market, the majority of cases do not need to perform any type of machining for installation.



Technical Specifications:

- Standard material: non-sparking brass
- Temperature: -20°C to + 150°C
- Maximum speed: 3,500 m/min.
- Shaft tolerance: $\pm 0.10\text{mm}$
- Box tolerance: $\pm 0.05\text{ mm}$
- Shaft eccentricity: $\pm 0.30\text{mm TIR}$
- Operation: vertical or horizontal position

Dimensions (in mm)

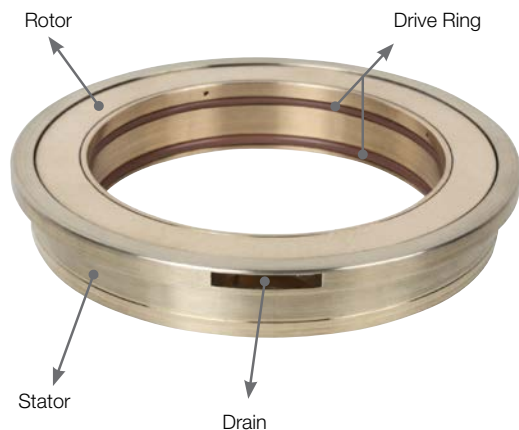
Code	Ø A	Ø B
PB6-M0200-0460-0900	20	46
PB6-M0220-0480-0900	22	48
PB6-M0250-0510-0900	25	51
PB6-M0270-0530-0900	27	53
PB6-M0280-0540-0900	28	54
PB6-M0300-0560-0900	30	56
PB6-M0310-0570-0900	31	57
PB6-M0320-0580-0900	32	58
PB6-M0350-0610-0900	35	61
PB6-M0360-0620-0900	36	62
PB6-M0380-0640-0900	38	64
PB6-M0400-0660-0900	40	66
PB6-M0450-0710-0900	45	71
PB6-M0470-0730-0900	47	73
PB6-M0500-0760-0900	50	76
PB6-M0540-0800-0900	54	80
PB6-M0550-0810-0900	55	81

Code	Ø A	Ø B
PB6-M0570-0830-0900	57	83
PB6-M0580-0840-0900	58	84
PB6-M0600-0860-0900	60	86
PB6-M0630-0890-0900	63	89
PB6-M0650-0910-0900	65	91
PB6-M0700-0960-0900	70	96
PB6-M0750-1010-0900	75	101
PB7-M0800-1060-0900	80	106
PB7-M0850-1110-0900	85	111
PB7-M0900-1160-0900	90	116
PB7-M0950-1210-0900	95	121
PB7-M1000-1260-0900	100	126
PB7-M1050-1310-0900	105	131
PB7-M1100-1360-0900	110	136
PB7-M1150-1410-0900	115	141
PB7-M1200-1460-0900	120	146

Dimensions (inches)

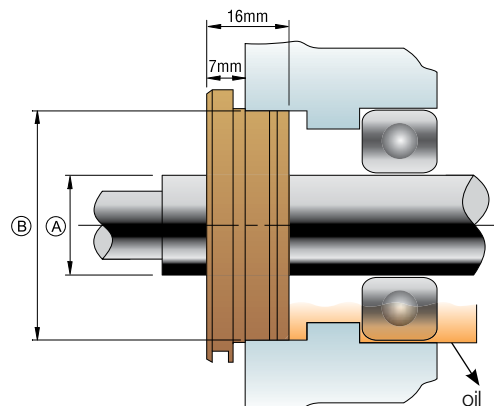
Code	Ø A	Ø B
PB6-P0875-1875-0900	7/8"	1.7/8"
PB6-P1000-2000-0900	1"	2"
PB6-P1125-2125-0900	1.1/8"	2.1/8"
PB6-P1250-2250-0900	1.1/4"	2.1/4"
PB6-P1375-2375-0900	1.3/8"	2.3/8"
PB6-P1500-2500-0900	1.1/2"	2.1/2"
PB6-P1625-2625-0900	1.5/8"	2.5/8"
PB6-P1750-2750-0900	1.3/4"	2.3/4"
PB6-P1875-2875-0900	1.7/8"	2.7/8"
PB6-P2000-3000-0900	2"	3"
PB6-P2125-3125-0900	2.1/8"	3.1/8"
PB6-P2250-3250-0900	2.1/4"	3.1/4"

Code	Ø A	Ø B
PB6-P2375-1875-0900	2.3/8"	3.3/8"
PB6-P2500-3500-0900	2.1/2"	3.1/2"
PB6-P2625-3625-0900	2.5/8"	3.5/8"
PB6-P2750-3750-0900	2.3/4"	3.3/4"
PB6-P2875-3875-0900	2.7/8"	3.7/8"
PB7-P3000-4000-0900	3"	4"
PB7-P3250-4250-0900	3.1/4"	4.1/4"
PB7-P3375-4375-0900	3.3/8"	4.3/8"
PB7-P3500-4500-0900	3.5"	4.5"
PB7-P3750-4750-0900	3.3/4"	4.3/4"
PB7-P4000-5000-0900	4"	5"
PB7-P4500-5500-0900	4.1/2"	5.1/2"



Special size for specific applications made to order. Please consult our factory.

International and National Patents by Petrobras and manufactured under Lamiflex License.



ECOBEARING



- Cost reduction
- Reduced alignment time
- Inventory control
- Safety
- Reliability
- Machine alignment with precision



Shims for Alignment Powershim

Powershim

The Powershim line includes different sizes with openings for mounting onto base screws: M12, M18, M27, M36 and M52.

The solid stainless steel shims are provided in packs containing 10 shims of each thickness (0.05 to 2 mm) or kits with 50 selected shims. The cases can be continuously used by purchasing the replacement kits, according to the consumption of each thickness and size.

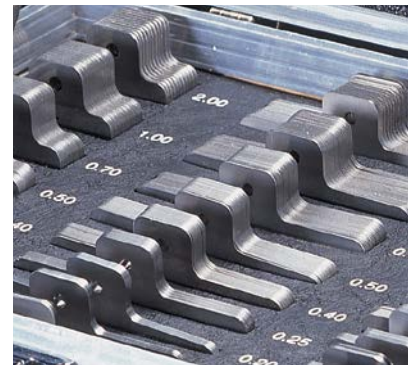
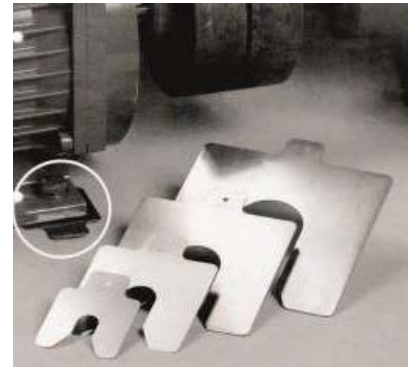
Cost reduction: No time is lost looking for the material and tools to cut.

Inventory control: The kits are packed individually, helping the control of stock and consumption.

Safety: Powershim shims contribute to workers' safety by reducing accidents and cuts during installation. All pads are finished with rounded corners and supplied entirely in stainless steel.

Reliability: Powershim also offers reliability, because the better and more accurate the alignment, is, the greater the equipment uptime will be without downtime or accidents.

Precision: When the precision of hundredths of a millimeter is vital for the correct setting of the machine on its base during rotary operation, a small fraction of misalignment can cause vibration and result in a breakdown, sudden stops and high costs of production downtime.



Cases with Selected Shims

Code	Contents	
MALS-00001	Total 360 shims 50mm x 50mm 75mm x 75mm 100mm x 100mm	20 of each thickness 0.05mm, 0.10mm, 0.25mm, 0.50mm, 1.00mm & 2.00mm
MALS-00002	Total 510 shims 50mm x 50mm 75mm x 75mm 100mm x 100mm	20 of each thickness 0.05mm, 0.10mm, 0.20mm, 0.25mm, 0.40mm, 50mm 0.70mm, 1.00mm 10 of 2.00mm
MALS-00003	Total 340 shims 100mm x 100mm 125mm x 125mm	20 of each thickness 0.05mm, 0.10mm, 0.20mm, 0.25mm, 0.40mm, 50mm 0.70mm, 1.00mm 10 of 2.00mm
MALP-00002	Total 720 shims 50mm x 50mm 75mm x 75mm 100mm x 100mm 125mm x 125mm	20 of each thickness 0.05mm, 0.10mm, 0.20mm, 0.25mm, 0.40mm, 50mm 0.70mm, 1.00mm & 2.00mm

Case with solid shims

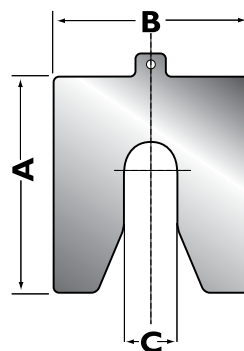


The shims are also available in a practical aluminum case with separate compartments for each size.

Kits with Selected Shims

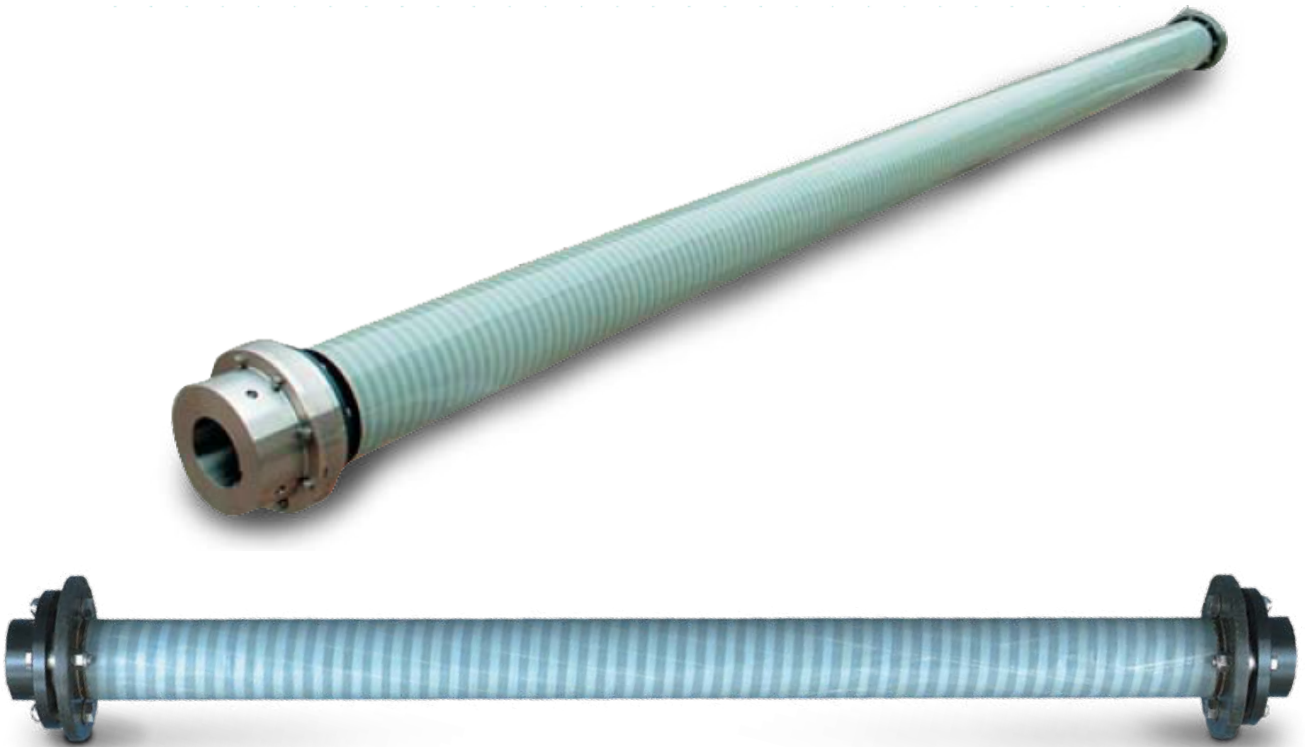
Code	Contents
LKT1-00050	50 shims size 50mm x 50mm 10 of each thickness: 0.05, 0.10, 0.25, 0.50 & 1.00mm
LKT2-00075	50 shims size 75mm x 75mm 10 of each thickness: 0.05, 0.10, 0.25, 0.50 & 1.00mm
LKT3-00100	50 shims size 100mm x 100mm 10 of each thickness: 0.05, 0.10, 0.25, 0.50 & 1.00mm
LKT4-00125	50 shims size 125mm x 125mm 10 of each thickness: 0.05, 0.10, 0.25, 0.50 & 1.00mm
LKT5-00200	50 shims size 200mm x 200mm 10 of each thickness: 0.05, 0.10, 0.25, 0.50 & 1.00mm

Kits with Shims by Thickness



Code		Shim quantity	A	B	C	Thickness	Size of the screw
50 x 50	L501-00050	10	50mm	50mm	13mm	0.05mm	M12
	L401-00050	10	50mm	50mm	13mm	0.10mm	M12
	L601-00050	10	50mm	50mm	13mm	0.20mm	M12
	L301-00050	10	50mm	50mm	13mm	0.25mm	M12
	L701-00050	10	50mm	50mm	13mm	0.40mm	M12
	L201-00050	10	50mm	50mm	13mm	0.50mm	M12
	L801-00050	10	50mm	50mm	13mm	0.70mm	M12
	L101-00050	10	50mm	50mm	13mm	1.00mm	M12
75 x 75	L001-00050	10	50mm	50mm	13mm	2.00mm	M18
	L502-00075	10	75mm	50mm	21mm	0.05mm	M18
	L402-00075	10	75mm	50mm	21mm	0.10mm	M18
	L602-00075	10	75mm	75mm	21mm	0.20mm	M18
	L302-00075	10	75mm	75mm	21mm	0.25mm	M18
	L702-00075	10	75mm	75mm	21mm	0.40mm	M18
	L202-00075	10	75mm	75mm	21mm	0.50mm	M18
	L802-00075	10	75mm	75mm	21mm	0.70mm	M18
100 x 100	L102-00075	10	75mm	75mm	21mm	1.00mm	M18
	L002-00075	10	75mm	75mm	21mm	2.00mm	M18
	L503-00100	10	100mm	100mm	21mm	0.05mm	M27
	L403-00100	10	100mm	100mm	32mm	0.10mm	M27
	L603-00100	10	100mm	100mm	32mm	0.20mm	M27
	L303-00100	10	100mm	100mm	32mm	0.25mm	M27
	L703-00100	10	100mm	100mm	32mm	0.40mm	M27
	L203-00100	10	100mm	100mm	32mm	0.50mm	M27
125 x 125	L803-00100	10	100mm	100mm	32mm	0.70mm	M27
	L103-00100	10	100mm	100mm	32mm	1.00mm	M27
	L003-00100	10	100mm	100mm	32mm	2.00mm	M27
	L504-00125	10	125mm	125mm	45mm	0.05mm	M36
	L404-00125	10	125mm	125mm	45mm	0.10mm	M36
	L604-00125	10	125mm	125mm	45mm	0.20mm	M36
	L304-00125	10	125mm	125mm	45mm	0.25mm	M36
	L704-00125	10	125mm	125mm	45mm	0.40mm	M36
	L204-00125	10	125mm	125mm	45mm	0.50mm	M36
	L104-00125	10	125mm	125mm	45mm	0.70mm	M36
	L004-00125	10	125mm	125mm	45mm	1.00mm	M36
	L505-00200	10	200mm	200mm	55mm	0.05mm	M52
200 x 200	L405-00200	10	200mm	200mm	55mm	0.10mm	M52
	L305-00200	10	200mm	200mm	55mm	0.25mm	M52
	L205-00200	10	200mm	200mm	55mm	0.50mm	M52
	L105-00200	10	200mm	200mm	55mm	1.00mm	M52
	L005-00200	10	200mm	200mm	55mm	2.00mm	M52

L5 Fiber Carbon Shaft

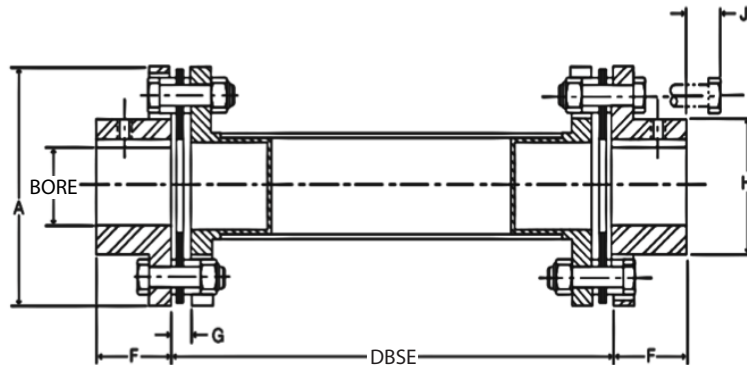


- High durability
- Increases the equipment reliability
- Safety in the event of failures
- Savings in operational costs
- Ease of installation
- Appropriate for vertical movements

Fiber Carbon Shaft

The Form-Flex Fiber composite couplings by TB Wood's are the most economic floating axles option in the market. They are made from a diverse range of materials that fully meet the needs of the operation.

The entire Form-Flex line uses the True-Tube, high resistance, carbon fiber technology, and extremely light tubes for long distances between shaft ends.



Coupling Model	Nominal Torque	HP by 100 RPM	Coupling Product No.	Maximum DBSE - Inches			Dimensions in Inches						
	LB IN			Max	1800 RPM	1500 RPM	Maximum Bore		A	F	G	H	J
							STD hub	AZ hub					
A520	2.200	3.49	A520-CS2G	83	70	77	1.62	2.12	4.08	1.32	0.34	2.40	2.30
			A520-CS2R	83	83	83							2.30
A525	3.800	6.03	A525-CS2G	83	70	77	2.00	2.37	4.95	1.62	0.45	2.80	2.30
			A525-CS2R	83	83	83							2.30
A530	6.930	11.0	A530-CS3B	128	102	112	2.37	2.87	5.63	1.88	0.47	3.30	3.25
			A530-CS4R	128	116	127							3.25
A535	11.340	18.00	A535-CS4R	146	118	129	2.87	3.75	6.63	2.25	0.55	4.15	4.25
			A535-CS4B	146	134	146							4.25
			A535-CS6R	179	142	155							6.30
			A535-CS6B	179	160	175							6.30
			A535-CS8B	196	175	191							8.31
			A535-CS8R	196	190	207							8.31
A540	18.270	29.00	A540-CS4B	146	118	129	3.25	4.00	7.63	2.50	0.60	4.65	4.25
			A540-CS4B	146	134	146							4.25
B558	34.000	54.00	B558-CS6R	179	142	155	3.75		9.00	2.75	0.56	5.43	6.30
			B558-CS6B	179	160	175							6.30
			B558-CS6X	182	165	181							6.30
			B558-CS8R	196	17	191							8.31
			B558-CS8B	196	190	207							8.31
			B558-CS10R	236	206	224							10.31
			B558-CS10B	236	210	230							10.31

Quick Guide For Selection of Couplings for Cooling Towers				
1800 RPM		Coupling Model	1500 RPM	
DBSE	Max HP		Max HP	DBSE
70"	30	A520-CS2G	25	77"
	50	HD4-CS2G	42	
	50	A525-CS2G	42	
83"	30	A525-CS2R	25	83"
	50	HD4-CS2R	42	
	50	A525-CS2R	42	
102"	100	A530-CS3R	83	112"
116"	100	A530CS3B	83	127"
118"	150	A535-CS4R	125	129"
	250	A540-CS4R	208	
134"	150	A535-CS4B	125	146"
	250	A540-CS4B	208	
142"	150	A535-CS6R	125	155"
	400	B558-CS6R	333	
160"	150	A535-CS6B	125	175"
	400	B558-CS6B	333	
165"	400	B558-CS6X	333	181"
175"	150	A535-CS8R	125	191"
	400	B558-CS8R	333	
190"	150	A535-CS8B	125	207"
	400	B558-CS8B	333	
206"	400	B558-CS10R	333	224"
210"	400	B558-CS10B	333	230"
227"	400	B558-CS12B	333	236"

All selections utilize service factor of 2.0

Code	Material
G	Fiber
R	Carbon fiber and glass hybrid
B	Carbon Fiber
X, Z	Special carbon fiber

The model's code and the last letter on the coupling model.

The xx number on the model number CSxxB indicates the nominal | shaft ID

Class Material	Material		
	Hub	Fixing Parts	Flanges
A	Steel	Steel	Composite
B	Steel	Steel; Zinc PLT	Composite
C	Zinc PLT	304SS	Composite
E	304SS	304SS	Composite
H	316SS	316SS	Composite

Notes:

* Length is restricted by available mandrels for winding composite tubes. Consult factory for longer lengths.

** Tube diameter is larger than coupling "A" diameter. Consult factory for coupling drawing.

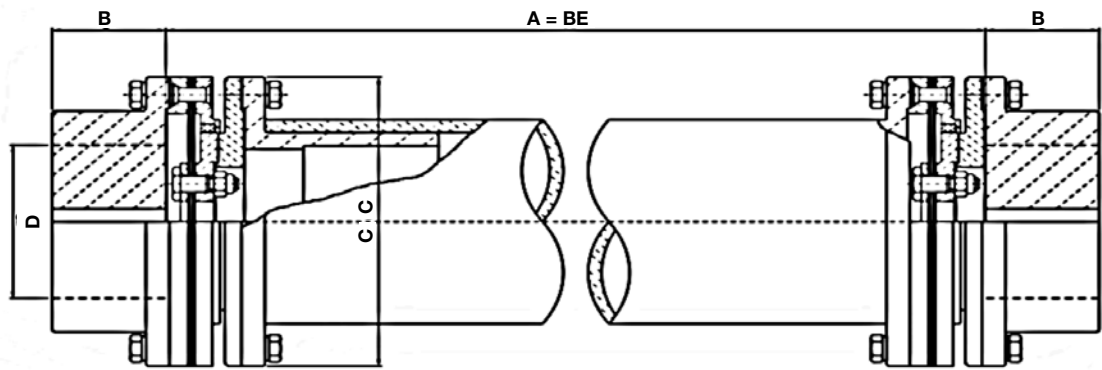
*** HD4-CS coupling are an all composite, high misalignment coupling.

PWZ

Transmission shafts in carbon fiber for cooling towers and vertical pumps.

Benefits of Diaphragm Couplings with Carbon Fiber Shaft

- Up to 80% lighter than the tubular or solid shafts made out of metal.
- Up to 6 meters without the use of an intermediate bearing.
- Corrosion resistant in cooling tower environments and temperatures up to 150°C.
- The hubs, membrane units and the bolts are available in stainless steel in the “PWZC” series which increases resistance to corrosion.
- In the event extreme conditions cause a break down, diaphragm couplings and the non metallic supports that hold the spacer protect the transmission set.
- Increases the life cycle of the equipment. When operating in normal conditions, the coupling is designed to have infinite life.
- Does not require lubrication since it is not subject to wear or relative movements of the components.
- Safety in the event of failures: incorrect operation and excessive demand conditions can cause equipment failure. In the rare case of total failure of the membrane, the drive is disconnected, avoiding further damage to the machine. A safety system containing a non metallic support retains the spacer, avoiding damage to adjacent components, such as fan blades. The design of this coupling makes the diaphragms work as if they were fuses, thus avoiding the excess torque be transmitted to the driver.
- Appropriate for vertical drive due to the light weight of the spacer, the coupling can be used in vertically mounted applications.



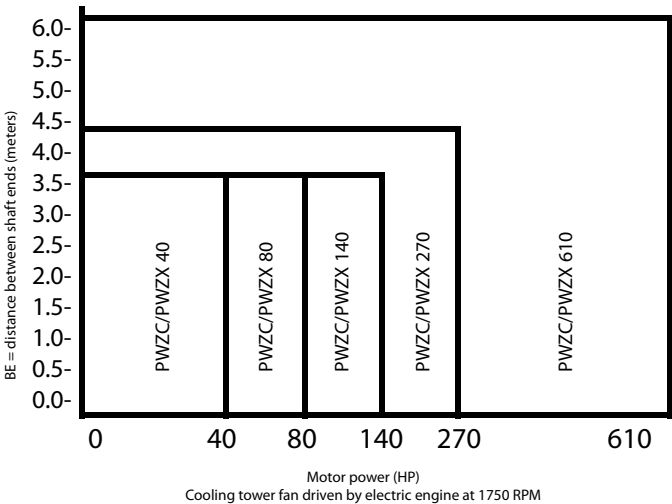
Coupling Size	HP/1000 RPM	A (meters) “BE” max.	B (mm) length of hub	C (mm) max. diameter	D (mm) max. bore
PWZC/PWZX-00040	40	3.5	40	148	70
PWZC/PWZX-00080	80	3.5	55	170	90
PWZC/PWZX-00140	140	3.5	65	189	100
PWZC/PWZX-00270	270	4.4	80	218	120
PWZC/PWZX-00610	610	6.0	92	262	140

Notes:

PWZC: Diaphragm in stainless steel, shaft in carbon fiber and coupling in stainless steel.

PWZX: Diaphragm in stainless steel, shaft in carbon fiber and coupling in carbon steel.

The graph on the side shows a simple selection based on fans driven by electric motors, 60HZ, four poles.
For other types of driven equipment contact our factory.



[illegible]



Altra Service Center LamiService

Couplings Maintenance Service

- Fast support response in emergencies
- Complete reconditioning and inspection services
- Recommendation of replacements for substitutions
- Failure analysis and inspection reports
- Horizontal and vertical balancing
- Field service
- Couplings reverse engineering and retrofitting
- Torquetronics Torquemeter service center



Premier Industrial Company Leading Brands

OTHER PRODUCT SOLUTIONS FROM **ALTRA MOTION**

Our comprehensive product offerings include various types of clutches and brakes, overrunning clutches, engineered bearing assemblies, gearing and gear motors along with linear motion products, belted drives, couplings, limit switches, precision motors, drives & controls, miniature motors and engine braking systems. With thousands of product solutions available, Altra provides true single source convenience while meeting specific customer requirements. Many major OEMs and end users prefer Altra products as their No. 1 choice for performance and reliability.

WWW.ALTRAMOTION.COM



Electric Clutches & Brakes

Inertia Dynamics
Matrix
Stromag
Warner Electric



Precision Motors & Automation

Kollmorgen



Heavy Duty Clutches & Brakes

Industrial Clutch
Stromag
Svendborg Brakes
Twiflex
Wichita Clutch



Miniature Motors

Portescap



Overrunning Clutches

Formsprag Clutch
Marland Clutch
Stieber



Linear Systems

Thomson
Warner Linear



Engineered Couplings & Universal Joints

Ameridrives
Bibby Turboflex
Guardian Couplings
Huco
Lamiflex Couplings
Stromag
TB Wood's



Engine Braking Systems

Jacobs Vehicle Systems



Gear Drives & Gear Motors

Bauer Gear Motor
Boston Gear
Delroyd Worm Gear
Nuttall Gear



Specialty Components

Kilian
Stromag
TB Wood's

Lamiflex Couplings Facilities

South America

Brasil

Avenida João Paulo Ablas, 2970
Jardim da Glória, Cotia - SP,
06711-250 - Brasil
+55 (11) 4615-6300
lamiflex.vendas@altramotion.com.

*Flexible Couplings, Bearing
Isolators, and Coupling Guards*

The Brands of Altra Motion

Couplings

Ameridrives
www.ameridrives.com

Bibby Turboflex
www.bibbyturboflex.com

Guardian Couplings
www.guardiancouplings.com

Huco
www.huco.com

Lamiflex Couplings
www.lamiflexcouplings.com

Stromag
www.stromag.com

TB Wood's
www.tbwoods.com

Linear Systems

Thomson
www.thomsonlinear.com

Warner Linear
www.warnerlinear.com

Geared Cam Limit Switches

Stromag
www.stromag.com

Engineered Bearing Assemblies

Kilian
www.kilianbearings.com

Electric Clutches & Brakes

Matrix
www.matrix-international.com

Stromag
www.stromag.com

Warner Electric
www.warnerelectric.com

Deltran
www.thomsonlinear.com

Belted Drives

TB Wood's
www.tbwoods.com

Heavy Duty Clutches & Brakes

Twiflex
www.twiflex.com

Stromag
www.stromag.com

Svendborg Brakes
www.svendborg-brakes.com

Wichita Clutch
www.wichitaclutch.com

Gearing & Specialty Components

Bauer Gear Motor
www.bauergears.com

Boston Gear
www.bostongear.com

Delevan
www.delevan.com

Delroyd Worm Gear
www.delroyd.com

Nuttall Gear
www.nuttallgear.com

Engine Braking Systems

Jacobs Vehicle Systems
www.jacobsvehiclesystems.com

Precision Motors & Automation

Kollmorgen
www.kollmorgen.com

Miniature Motors

Portescap
www.portescap.com

Overrunning Clutches

Formsprag Clutch
www.formsprag.com

Marland Clutch
www.marland.com

Stieber
www.stieberclutch.com

Neither the accuracy nor completeness of the information contained in this publication is guaranteed by the company and may be subject to change in its sole discretion. The operating and performance characteristics of these products may vary depending on the application, installation, operating conditions and environmental factors. The company's terms and conditions of sale can be viewed at <http://www.altramotion.com/terms-and-conditions/sales-terms-and-conditions>. These terms and conditions apply to any person who may buy, acquire or use a product referred to herein, including any person who buys from a licensed distributor of these branded products.

©2019 by Lamiflex Couplings LLC. All rights reserved. All trademarks in this publication are the sole and exclusive property of Lamiflex Couplings LLC or one of its affiliated companies.