

HENFEL

split flexible
COUPLINGS



HDFB

Our Vision

RINGFEDER POWER TRANSMISSION is the global market leader in niche markets in the power transmission industry, strongly preferred for its customised, need-based solutions that provide customers with outstanding and worry-free operation.



Our Mission

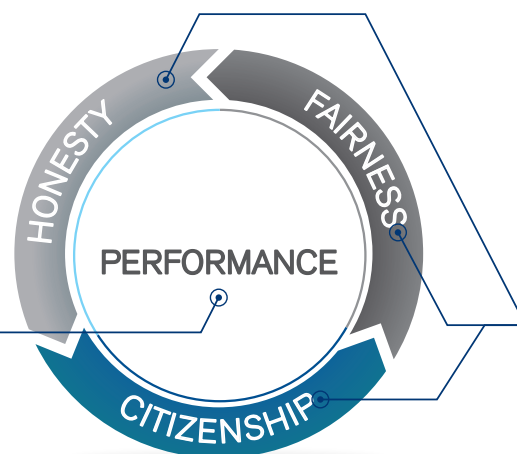
With all our energy we pursue the target to establish RINGFEDER POWER TRANSMISSION as the best solution on the market - wherever something is turning, moving or shaking.



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Our
Core



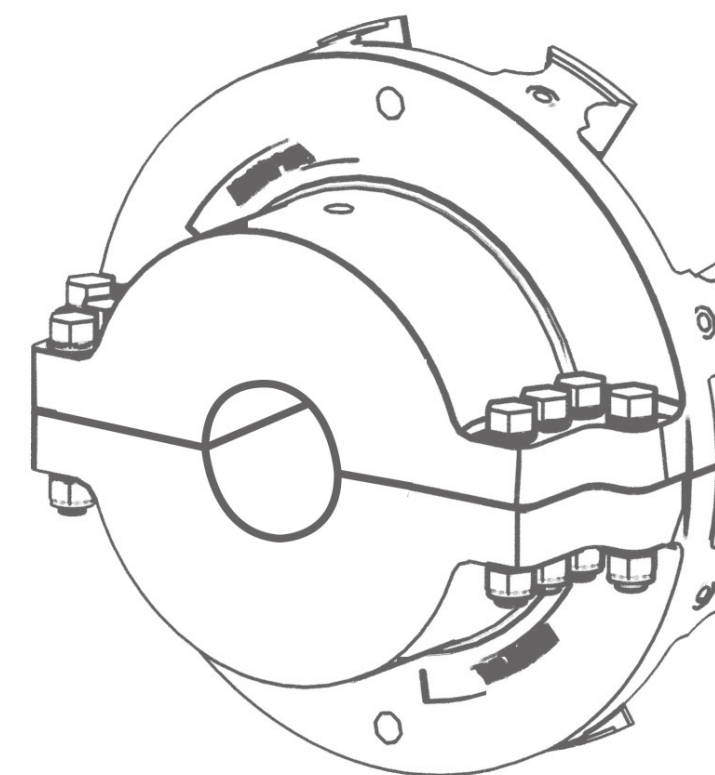
Our
Values

Our Slogan

Partner for Performance



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ABOUT US

1

WHAT DOES IT MAKE US INNOVATE?

We know that new ideas make room for new possibilities. With that in mind, we aim to shift the paradigms in order to make production processes simpler, more profitable and sustainable, adding benefits to all stakeholders. With this approach, combined with our constant field presence, our commitment to the development of human resources and process quality, the investments in Research and Development of new products and custom made solutions, we seek to help our clients to enable their investments with reliability and top notch performance. We introduce you now to the latest result of this work philosophy: The HDFB Split Flexible Couplings.



Henfel develops and manufactures mechanical products for power transmission, such as flexible couplings, constant and variable speed hydrodynamic couplings, besides a complete line of bearing housings. The company serves the strictest industrial segments, such as mining, steel, cement, sugar and ethanol, pulp and paper, oil and gas, among others.

The company is a division of RINGFEDER Power Transmission division, which with its premium brands RINGFEDER and GERWAH, is one of the world leaders when it comes to locking assemblies, shrink discs, friction springs and industrial couplings and their applications.

The synergies that result of this alliance adds many competences to the group and it is an important step towards serving customers with a complete range of solutions for power transmission drive systems and braking systems.

Developed under the most modern concepts of application engineering and advanced 3D Project and FEA techniques, the HDFB Split Flexible Couplings allow efficient torque transmission through the compression of its flexible elements, which also absorb shocks and vibrations from the drive and driven machine, besides compensating angular, radial and axial misalignments.

With EM-GJS-450-10 ductile cast iron and polyurethane flexible elements, the HDFB couplings resist to the most demanding applications and aggressive environments, such as mining, ports, steel factories, among others. They can operate within a broad temperature range (-30°C to 85°C) and they have a long lifespan, and simple, fast and low cost maintenance. Due to their simple construction forms, the installation is both fast and safe.

The HDFB Split Flexible Couplings are available in many sizes, for applications up to 600mm and torque capacity from 96.700Nm until 1.147.600Nm.

They are manufactured in two different constructive forms with interchangeable components and meet the requirements of low speed and high torque transmission applications.

For greater torque capacities, the application engineering department can be consulted.

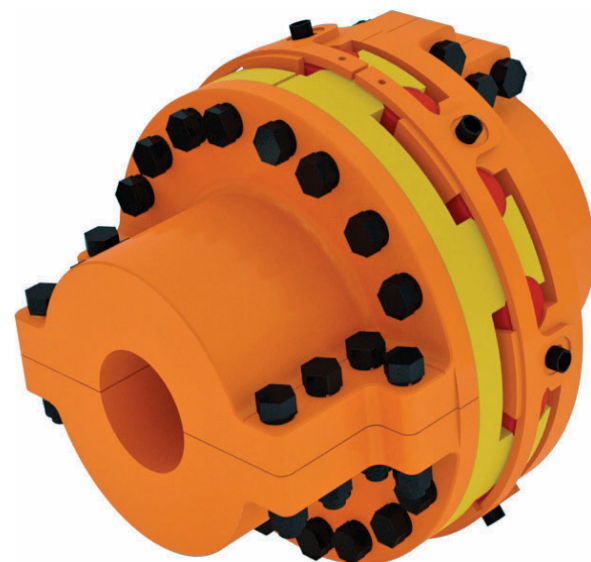
MAIN ADVANTAGES

- Radial mounting / dismounting*
- Maintenance can be made at the site
- Reduce the time and cost of the maintenance operations
- Do not require special tools
- Do not require drive or driven machines displacement*
- Preserve the alignment
- Lubrication free
- Interchangeable with traditional models of the Market

*Attention: These couplings allow radial mounting and dismounting on shafts with O1 feather key or O2 feather keys at 180°

HDFB SPLIT FLEXIBLE COUPLING

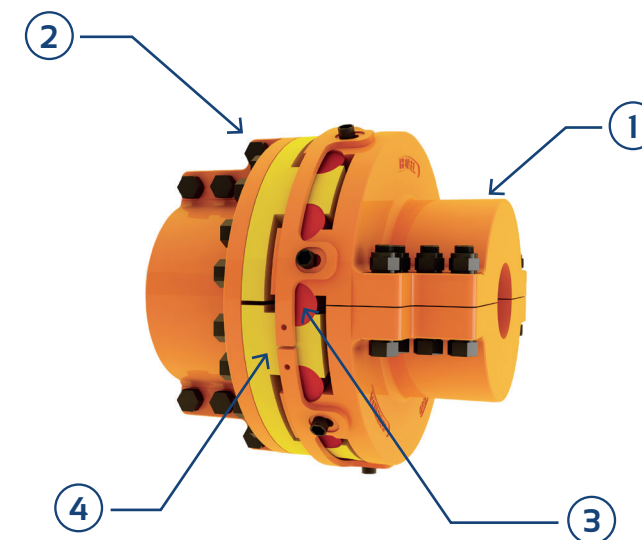
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CONSTRUCTIVE FORMS

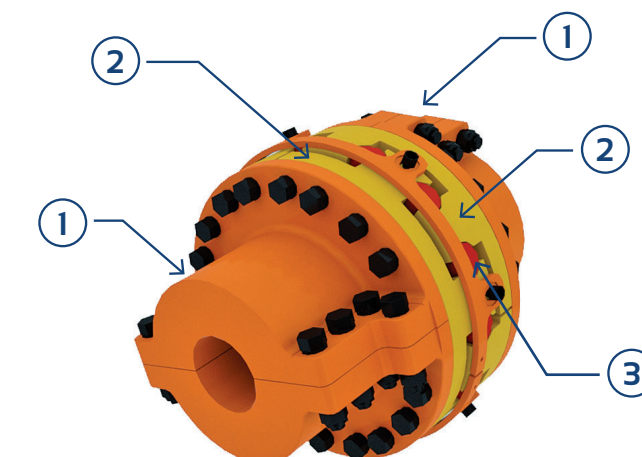
3

HDFB



Used in applications with small gap between the shafts of the driving and driven machines (Between 10 and 18mm). It's composed by a split hub with jaws (1), an additional split hub (2), a split flange with jaws (3) and elastic elements radially assembled between the jaws (4). Flexible elements in the tangential direction to the axis of the split hubs connect the drive side with the driven machine allowing the torque transmission. In applications with shafts with O1 feather key or O2 feather keys at 180°, it makes it easier to assemble and disassemble the couplings with no need to displace the drive or driven machine, keeping the alignment of the equipment drive.

HDFFB



This Coupling is derived from the HDFB constructive form and therefore, the same connection principles are applied. It consists of two split hubs (1), two split flanges with jaws (2), and elastic elements assembled radially between the jaws (3). One of the advantages of this model is that in case of an accident that causes damage to the jaws, it's possible to replace the flanges with jaws without removing the hubs that are assembled on the shafts of the driving and driven machines.



COUPLING SIZE SELECTION

4

ATTENTION The selection methods presented above are only valid if the environmental temperature where the coupling is applied ranges between -30°C and 85°C, with assembling and alignment as shown on the manual, with no more than 20 start ups per hour. For tougher applications or if you have any questions, please contact our engineering department.

It's also important to consider the shaft dimensions of the driving and driven machines as well as the admissible rotation speed of the couplings.

COUPLING'S SELECTION CHART

5

3.1) Determining the torque of the operation (T_o):

$$T_o = \frac{C \cdot P}{N_m}$$

References:
 T_o = System operational torque [Nm];
 P = Input power [kW ou HP];
 N_m = Rotation speed [rpm];
 C = 9550 for power in kW;
 C = 7030 for power in HP.

From the operational torque, the coupling's nominal torque is obtained (T_{na}), which is given by:
 $T_{na} = T_o \times f_1$; where f_1 is service factor.
 $T_{na} \geq T_o \times f_1$

Where:
 T_{na} = Coupling nominal torque;
 f_1 = Service factor (see Table 1).

3.2) Service Factor:

The service factor is a number obtained empirically that takes into account the operating regimes of the driving and driven machines.

The table below indicates the service factor considering the driven machine regimen and the drive type. In order to simplify the service conditions they were divided into three groups:

- Service condition with uniform load;
- With medium shocks;
- With strong shocks.

With the f_1 value established, it is possible to determine the T_{na} value. By comparing the T_{na} value with the ones on the dimensional tables, it's possible to find out the coupling size.

SERVICE FACTORS			
Load Type*	Drive		
	Electric Motor	4-6 cylinders internal combustion engines	1-3 cylinders internal combustion engines
Uniform Load <ul style="list-style-type: none">• Fans $P/n \leq 0,1$;• Centrifugal pumps (low viscosity);• Screw pumps;• Electric generators.	2.0	2.4	2.6
Medium shocks <ul style="list-style-type: none">• Blowers and fans $P/n > 0,1$;• Belt conveyors and chain conveyors;• Bucket elevators;• Hoisting gears;• Agitators, Centrifuges, Mixers;• Concrete mixers;• Washing machines;• Wood working machines;• Plastic calenders, extruders and mixers;• Metal working machines• Metal planing machines;• Marine propeller;• Kilns.	2.2	2.8	3.2
Choques Fortes <ul style="list-style-type: none">• Generators and transformers;• Piston pumps;• Mills;• Breakers;• Sugarcane crushing equipments;• Sugarcane chippers;• Defibrator;• Sugarcane apron feeder;• Cylinders and rotary kilns;• Paper machines;• Cranes;• Bucket wheel;• Metal rolling mills equipments;• Rubber mixers and extruders;• Elevators.	2.6	3.5	4

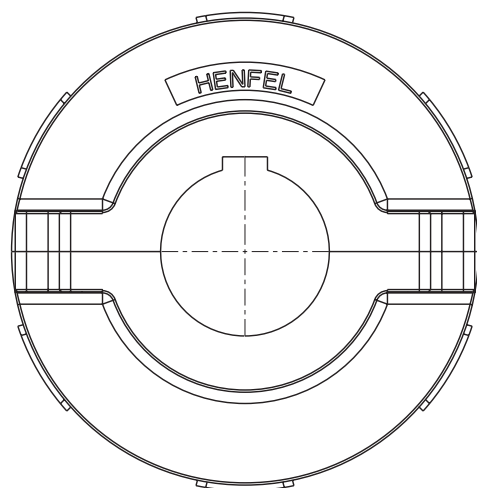
Table 1: Service factors f_1
*For other equipments and applications, please consult our application engineering department.



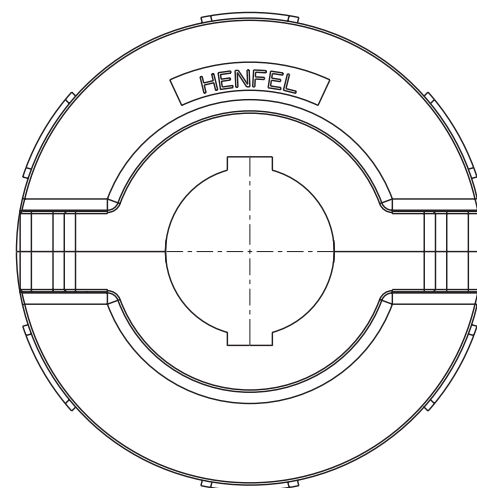
RADIAL MOUNTING AND DISMOUNTING

6

The HDFB Split Flexible Coupling allows radial mounting and dismounting as long as the feather key is placed at 90° of the split part of the hub or in applications with O2 feather keys at 180° perpendicular to the split part of the coupling.



90° DEGREE FEATHER KEY



O2 180° DEGREE FEATHER KEYS



HDFB

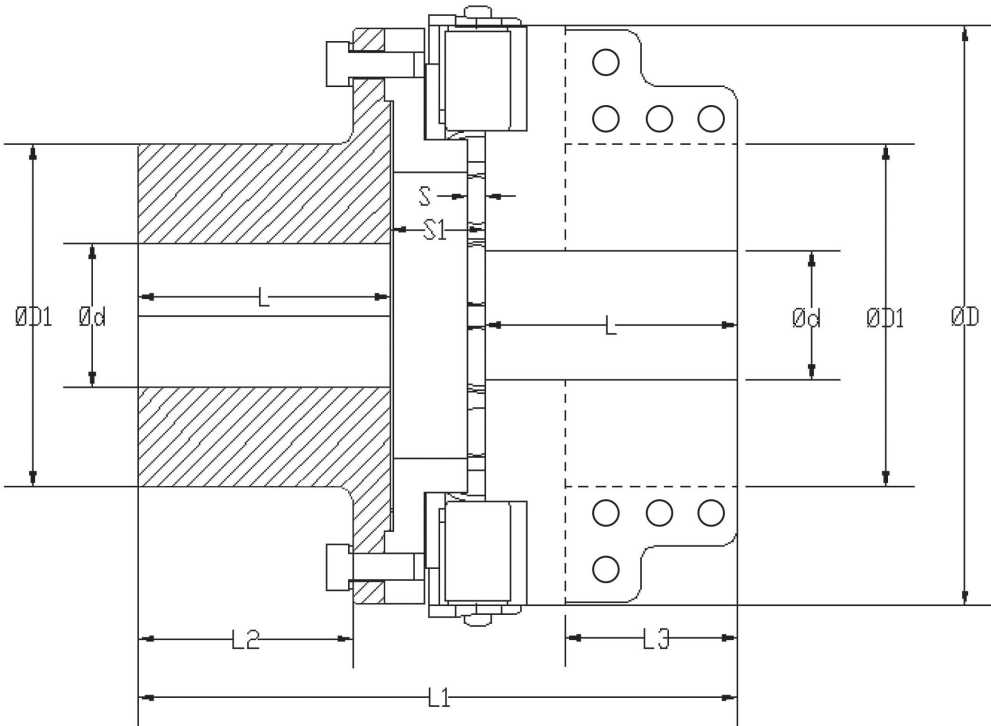


HDFFB



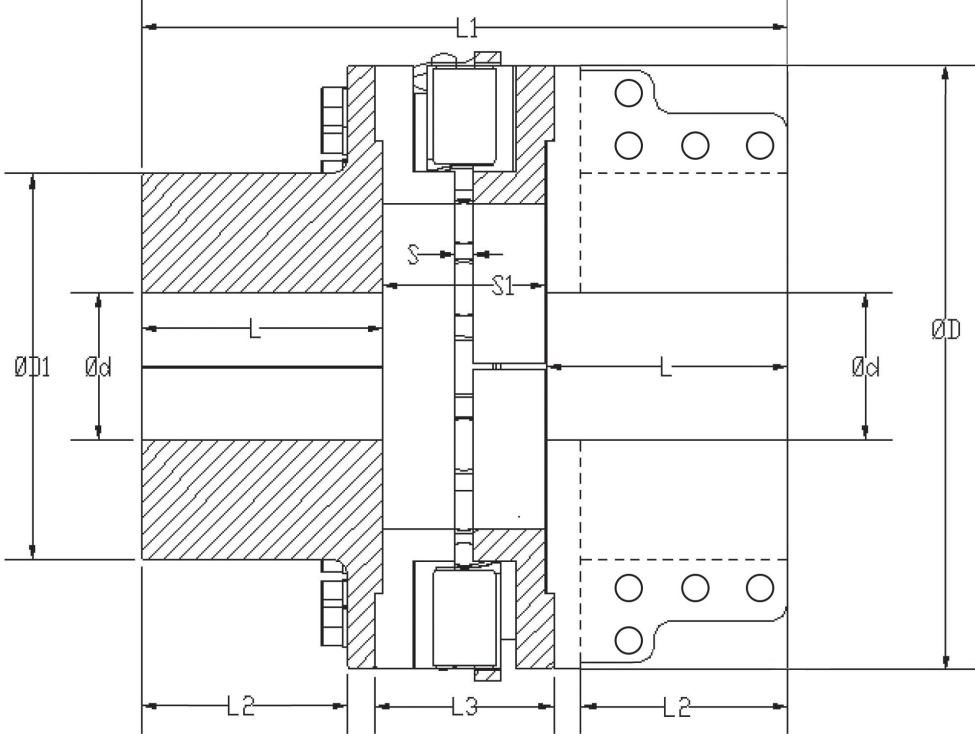
DIMENSIONAL TABLES

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SIZE	MAX MOMENTUM (Nm)	N MÁX (rpm)	d		D	DI	LI	L	L3	L2	S	SI	FLANGE FIXATION BOLT	J (kgm²)	WEIGHT (c/Ød mín.)
			mín	máx											
270	13700	320	30	95	265	153	339	142	94	119	10	55	M18	0,7	64
330	28500	280	45	125	325	180	384	160	103	135	10	64	M18	1,26	123
380	48500	190	80	150	375	205	424	180	114	154	10	64	M18	2,39	167
430	71800	190	100	180	435	240	450	190	126	161	10	70	M20	4,88	215
480	96700	170	115	210	485	290	470	200	131	171	10	70	M20	8,25	303
540	145700	160	140	220	545	310	539	228	155	195	14	83	M24	13,3	398
590	186900	140	150	260	585	365	539	228	152	195	14	83	M24	19,9	523
640	233150	130	155	290	645	405	604	258	180	222	14	88	M30	33	700
690	278800	120	165	310	695	435	609	258	174	222	14	93	M30	41,6	821
750	378900	110	190	340	760	470	698	298	205	262	14	102	M30	66,2	1058
850	556300	90	205	400	860	560	778	338	235	298	14	102	M30	129,2	1612
950	766600	90	225	470	960	660	784	338	218	297	14	108	M36	186,2	2040
1050	924000	70	250	525	1060	730	870	375	250	328	14	120	M36	351,8	3020
1250	1417600	50	300	600	1260	840	925	400	265	346	14	125	M36	6691	4384

Table 2: Size HDFB
Attention: In cases of application of smaller couplings, our technical department shall be consulted.
The LI measure of sizes 270, 330 and 380 are different than the same measure of the HDF couplings and similar models, therefore it should be taken in consideration.



SIZE	MAX MOMENTUM (Nm)	N MÁX (rpm)	d		D	DI	LI	L3	L	L2	S	SI	FLANGE FIXATION BOLT	J (kgm²)	WEIGHT (c/Ød mín.)
			mín	máx											
270	13700	320	30	95	265	153	384	108	142	119	10	100	M18	0,5	75
330	28500	280	45	125	325	180	438	126	160	135	10	118	M18	1,36	130
380	48500	190	80	150	375	205	478	128	180	154	10	118	M18	2,43	172
430	71800	190	100	180	425	240	512	141	190	161	10	132	M20	6,39	240
480	96700	170	115	210	485	290	532	150	200	171	14	132	M20	10,60	330
540	145700	160	140	220	535	310	608	169	228	195	14	152	M24	18,30	453
590	186900	140	150	260	585	365	608	169	228	195	18	152	M24	26,20	569
640	233150	130	155	290	635	405	678	187	258	222	18	162	M30	43,80	762
690	278800	120	165	310	685	435	688	194	258	222	18	172	M30	54,90	891
750	378900	110	190	340	750	470	786	204	298	262	14	190	M30	87,30	1149
850	556300	90	205	400	850	560	866	204	338	298	18	190	M30	164,80	1716
950	766600	90	225	470	950	660	878	247,5	338	297	18	202	M36	216,80	2395
1050	924000	70	250	525	1050	730	976	261,5	375	328	18	226	M36	455,00	3258
1250	1417600	50	300	600	1250	840	1034	276	400	346	20	234	M36	822,80	4716

Table 3: Size HDFFB
Attention: In cases of application of smaller couplings, our technical department shall be consulted.
The LI measure of sizes 270, 330 and 380 are different than the same measure of the HDFF couplings and similar models, therefore it should be taken in consideration.

ATTENTION Prior to the mounting, the information on the table 4 below should be checked. For information regarding the installation, operation and maintenance of these couplings, please access the manual available at our website, or get in touch with our engineering department.

Fixation: The HDFB coupling bore is normally with one parallel keyway, in accordance with the norm DIN6885 part I

COMPLEMENTARY
INFORMATION

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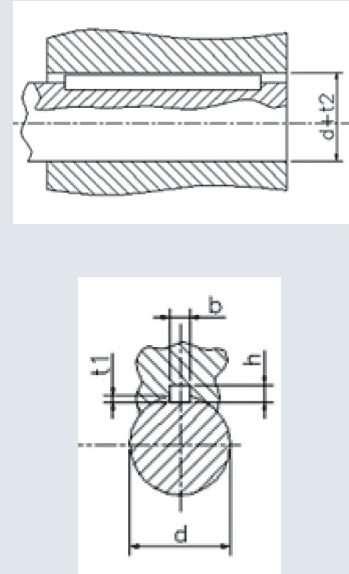
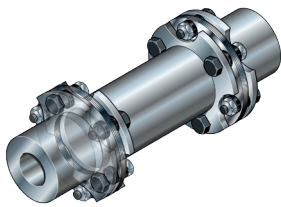
PARALLEL FEATHER KEY – DIN 6885/1						
DRAWING	Diameter d		width b* (mm)	height h (mm)	Keyway depth on the shaft t ₁ (mm)	Keyway depth on the hub d + t ₂ (mm)
	above of (mm)	until (mm)				
	8	10	3	3	1,8	d+ 1,4
	10	12	4	4	2,5	d+ 1,8
	12	17	5	5	3	d+ 2,3
	17	22	6	6	3,5	d+ 2,8
	22	30	8	7	4	d+ 3,3
	30	38	10	8	5	d+ 3,3
	38	44	12	8	5	d+ 3,3
	44	50	14	9	5,5	d+ 3,8
	50	58	16	10	6	d+ 4,3
	58	65	18	11	7	d+ 4,4
	65	75	20	12	7,5	d+ 4,9
	75	85	22	14	9	d+ 5,4
	85	95	25	14	9	d+ 5,4
	95	110	28	16	10	d+ 6,4
	110	130	32	18	11	d+ 7,4
	130	150	36	20	12	d+ 8,4
	150	170	40	22	13	d+ 9,4
	170	200	45	25	15	d+10,4
	200	230	50	28	17	d+11,4
	230	260	56	32	20	d+12,4
	260	290	63	32	20	d+12,4
	290	330	70	36	22	d+14,4
	330	380	80	40	25	d+15,4
	380	440	90	45	28	d+17,4
	440	500	100	50	31	d+19,5

Table 4: Dimensions of the feather key and keyway in accordance with the norm DIN 6885/1.

* The tolerance zone for the width “b” of the hub keyway is in accordance with the norms ISO JS9 or ISO P9 for severe operation conditions. (Eg. Loaded reversion)

• Rebore: The tolerance of the bores must be H7.

OTHER
PRODUCTS



Metal Disc Couplings



Elastic Couplings with Axial Pin



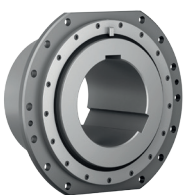
Highly Flexible Couplings



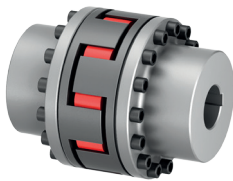
Gear Couplings



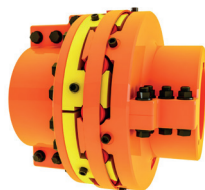
Flange Couplings



Barrel Couplings



Elastic Couplings



Split Elastic Couplings



Hydrodynamic Couplings



Shrink Discs



Locking Assemblies



Friction Springs

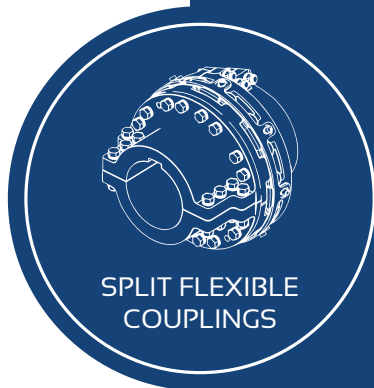


Variable Speed Hydrodynamic Couplings



Bearing Housings

Partner for Performance



MAIN ADVANTAGES

- Radial mounting / dismounting*
- Maintenance can be made at the site
- Reduce the time and cost of the maintenance operations
- Do not require special tools
- Do not require drive or driven machines displacement*
- Preserve the alignment
- Lubrication free
- Interchangeable with traditional models of the Market

*Attention: According informations in Chapter 6 of this catalog, page 10.

Partner for Performance



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