



FLEXDUR

All steel coupling

www.reich-kupplungen.com



SIMPLY **POWERFUL.**





D2C – Designed to Customer

The guiding principle of Designed to Customer is the recipe for success behind REICH. In addition to the catalogue products, we supply our customers with couplings developed to their specific requirements. The designs are mainly based on modular components to provide effective and efficient customer solutions. The special nature of our close cooperation with our partners ranges from; consulting, development, design, manufacture and integration to existing environments, to customer-specific production, logistics concepts and after-sales service - worldwide.

This customer-oriented concept applies to both standard products and production in small batch sizes.

The company policy at REICH embraces, first and foremost, principles such as customer satisfaction, flexibility, quality, prompt delivery and adaptability to the requirements of our customers.

REICH provides you with not only a coupling, but a solution:

Designed to Customer – SIMPLY **POWERFUL**.

D2C
Designed to Customer



FLEXDUR

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FLEXDUR

General Technical Description

FLEXDUR

Torsionally rigid, flexible coupling

The coupling uses bushed flexible disc packs of stainless spring steel as power transmitting elements. The special shape of the precision bushes results in a uniform tension distribution of the disc pack. The high grade fitting screws ensure backlash-free torque transmission.

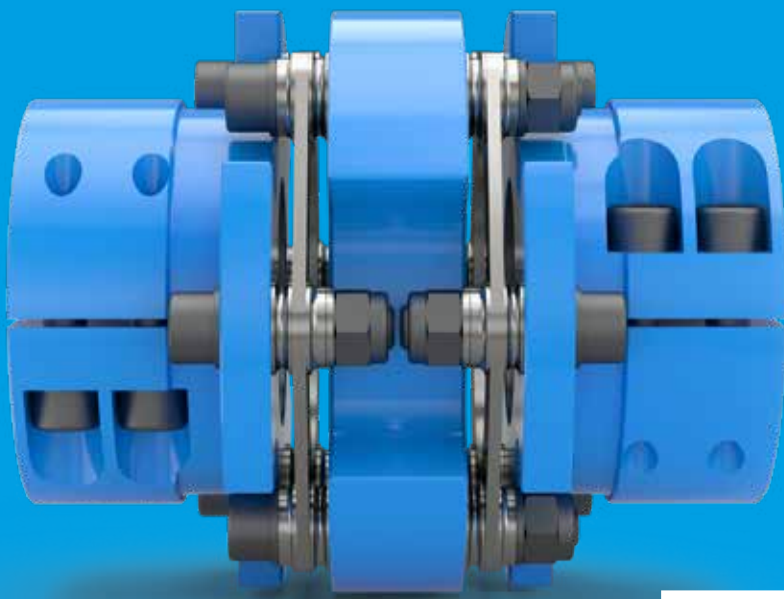
The FLEXDUR (short form: FD-C) has a modular design and can therefore be adapted to a wide variety of installation situations:

FLEXDUR 1 (e.g. type N) can be used as a single joint coupling with a flexible disc pack to compensate for axial and angular displacement.

FLEXDUR 2 (e.g. type S) as a double-jointed coupling with two flexible disc packs compensates for axial, radial and angular displacement and is therefore flexible in all directions. Different mounting lengths are available as standard.

In addition to the standard FD-C version a design with strengthened discs, FD-CL, is available. Special designs e.g. for vertical mounting positions are possible on request.

For totally backlash free connection, designs with clamping hubs can be used.



FLEXDUR

Nominal torques from 18 Nm to 130 000 Nm

FLEXDUR

Advantages

Salient features and advantages of the torsionally rigid, flexible FLEXDUR coupling:

- Torsionally rigid and backlash-free torque transmission
- Compensation of axial, radial and angular shaft displacements
- Small restoring forces at shaft displacement
- Neither maintenance, nor lubrication required
- For use at ambient temperatures from -25°C to $+250^{\circ}\text{C}$
- Compact design, also suitable for high speeds
- Almost unlimited lifetime and wear-free at proper shaft alignment
- ATEX 

FLEXDUR

Standard Types

Single joint FD-C 1



FD-C N
Standard

Single joint FD-C 1



FD-C NO
Flange version

Single joint FD-C 1



FD-C NX
with internal locking
device

Double joint FD-C 2



FD-C S DBSEmin
Standard, short type

Double joint FD-C 2



FD-C S
Standard

Double joint FD-C 2



FD-C CA
Compact, short type

Double joint FD-C 2



FD-C CB

Compact

Double joint FD-C 2



FD-C S0 DBSEmin

Flange version, short type

Double joint FD-C 2



FD-C S0

Flange version

Double joint FD-C 2



FD-C SX DBSEmin

with internal locking
device, short type

Double joint FD-C 2



FD-C SX

with internal locking
device

FLEXDUR

Special Types

Single joint FD-C 1



FD-C NZ

clamping with shrink disc

Single joint FD-C 1



FD-C NY

with clamping hub, split

Single joint FD-C 1



FD-C NK

with clamping hub,
slotted

Double joint FD-C 2



FD-C SZ DBSEmin

clamping with shrink
disc, short type

Double joint FD-C 2



FD-C SZ

clamping with shrink disc

Double joint FD-C 2



FD-C SY DBSEmin

with clamping hub, split,
short type

Double joint FD-C 2



FD-C SY

with clamping hub, split

Double joint FD-C 2



FD-C SK DBSEmin

with clamping hub, slotted,
short type

Double joint FD-C 2



FD-C SK

with clamping hub,
slotted

FLEXDUR

General Technical Data



Standard Type

Coupling size	FD-C 1 Single joint coupling								FD-C 2 Double joint coupling					
	Nominal torque	Maximum torque	Maximum speed	Permissible displacement			Moment of inertia	Dynamic torsional stiffness	Spacer	Permissible displacement			Moment of inertia	Dynamic torsional stiffness
	T_{KN} [Nm]	T_{Kmax} [Nm]	$n^{2)}$ [min ⁻¹]	ΔK_a [± mm]	ΔK_r [mm]	ΔK_w [°]	J [kgm ²]	C_T [Nm/rad]	DBSE ¹⁾ [mm]	ΔK_a [± mm]	ΔK_r [mm]	ΔK_w [°]	J [kgm ²]	C_T [Nm/rad]
FD-C 40	18	31.5	12000	0.4	0	1.0	0.00002	19	16.0 26.0	0.8	0.2 0.3	2	0.00004 0.00004	9 9
FD-C 53	90	157	11500	0.4	0	1.0	0.00011	90	30.0 43.0	0.8	0.3 0.4	2	0.00016 0.00019	44 37
FD-C 72	170	295	8800	0.5	0	1.0	0.00049	173	31.2 60.0 100.0 140.0	1.1	0.3 0.8 1.5 2.2	2	0.00071 0.00076 0.00081 0.00087	84 71 59 51
FD-C 89	320	560	7000	0.6	0	1.0	0.0016	281	37.6 70.0 80.0 100.0 140.0	1.2	0.4 1 1.1 1.5 2.1	2	0.0022 0.0025 0.0026 0.0027 0.0028	136 126 123 116 105
FD-C 118	750	1310	6200	0.8	0	1.0	0.0059	637	46.3 100.0 140.0 180.0	1.6	0.5 1.4 2.1 2.8	2	0.0080 0.0091 0.0095 0.0099	309 271 246 226
FD-C 142	1350	2360	5100	1.0	0	1.0	0.014	1173	55.0 100.0 140.0 180.0	2.1	0.7 1.5 2.1 2.8	2	0.018 0.021 0.022 0.023	569 513 469 433
FD-C 168	2400	4200	4300	1.2	0	1.0	0.035	2000	62.6 100.0 140.0 180.0	2.5	- 1.4 2.1 2.8	2	0.039 0.052 0.054 0.056	- 914 855 803
FD-C 200	4000	7000	3600	1.4	0	1.0	0.084	2992	140.0 180.0	2.8	2 2.7	2	0.12 0.13	1306 1229
FD-C 238	6500	11375	3000	1.7	0	1.0	0.23	5269	140.0 180.0 250.0	3.4	2 2.6 3.8	2	0.34 0.35 0.36	2467 2375 2231
FD-C 295	21000	36750	2500	1.1	0	0.5	0.70	21848	200.0 250.0	2.2	1.4 1.8	1	1.07 1.10	8995 8265
FD-C 345	36000	63000	2100	1.3	0	0.5	1.75	37204	224.0 250.0 300.0	2.6	1.6 1.8 2.2	1	2.62 2.64 2.68	14975 14302 13163
FD-C 420	74000	129500	1800	1.6	0	0.5	3.26	46192	280.0	3.2	2.5	1	5.35	18116
FD-C 510	130000	227500	1500	2.0	0	0.5	8.65	87706	350.0	4	3	1	14.43	36134

1) H available up to 3000 mm upon request 2) Higher speeds only following consultation

FLEXDUR FD-CL

General Technical Data

Standard Type

Coupling size				FD-CL 1 Single joint coupling					FD-CL 2 Double joint coupling					
	Nominal torque	Maximum torque	Maximum speed	Permissible displacement			Moment of inertia	Dynamic torsional stiffness	Spacer	Permissible displacement			Moment of inertia	Dynamic torsional stiffness
	T_{KN} [Nm]	$T_{K max}$ [Nm]	$n^2)$ [min ⁻¹]	ΔK_a [± mm]	ΔK_r [mm]	ΔK_w [°]	J [kgm ²]	C_T [Nm/rad]	DBSE ¹⁾ [mm]	ΔK_a [± mm]	ΔK_r [mm]	ΔK_w [°]	J [kgm ²]	C_T [Nm/rad]
FD-CL 72	230	402.5	8800	0.4	0	0.7	0.00049	184	31.4	0.8	0.2	1.4	0.00070	89
									60.2		0.6		0.00076	75
									100.2		1.1		0.00081	62
									140.2		1.5		0.00087	53
FD-CL 89	420	735.0	7000	0.5	0	0.7	0.016	312	38.0	1.0	0.3	1.4	0.00219	151
									70.4		0.7		0.0025	139
									80.4		0.8		0.0026	134
									100.4		1.1		0.0027	127
									140.4		1.6		0.0028	114
FD-CL 118	1050	1837.5	6200	0.6	0	0.7	0.0059	743	47.1	1.2	0.4	1.4	0.00812	360
									100.8		1.1		0.0091	308
									140.8		1.5		0.0095	277
									180.8		2.1		0.0099	251
FD-CL 142	1750	3062.5	5100	0.7	0	0.7	0.014	1251	55.4	1.4	0.5	1.4	0.01840	607
									100.4		1.0		0.021	543
									140.4		1.5		0.022	494
									180.4		2.0		0.023	454
FD-CL 168	3000	5250.0	4300	0.8	0	0.7	0.035	2082	62.6	1.6	-	1.4	0.039	-
									100.0		1.0		0.052	948
									140.0		1.5		0.054	884
									180.0		2.0		0.056	829
FD-CL 200	5200	9100.0	3600	1.0	0	0.7	0.084	3142	140.4	2.0	1.5	1.4	0.12	1362
									180.4		2.0		0.13	1279
FD-CL 238	11000	19250.0	3000	1.2	0	0.7	0.23	6586	142.4	2.4	1.4	1.4	0.34	3035
									182.4		1.9		0.35	2898
									252.4		2.7		0.36	2686
FD-CL 295	26000	45500.0	2500	0.8	0	0.4	0.70	22285	200.4	1.6	1.2	0.8	1.07	9142
									250.4		1.5		1.10	8389
FD-CL 345	44000	77000.0	2100	0.9	0	0.4	1.75	37868	224.4	1.8	1.3	0.8	2.62	15190
									250.4		1.5		2.64	14497
									300.4		1.8		2.68	13328

¹⁾ H available up to 3000 mm upon request ²⁾ Higher speeds only following consultation

FLEXDUR

Selection of the Coupling Size

First the service factor (S_f) is determined, it is based on the displacement factor (S_1), the load factor (S_2) and the temperature factor (S_3):

$$S_f = S_1 \cdot S_2 \cdot S_3 \text{ (see following sections).}$$

The product of service factor (S_f) and transmitted torque T must not exceed the nominal torque T_{KN} (acc. table "General Technical Data").

$$T_{KN} > T \cdot S_f$$

Displacement factor S_1

The values for displacement, given in the table "General technical data", are maximum values which may not occur simultaneously. An existing axial displacement ΔK_a as shown in Fig. 1 reduces the permissible values for radial displacement ΔK_r and angular displacement ΔK_w . The total angular displacement $\Sigma \Delta K$ [°] is computed:

$$\Sigma \Delta K [^\circ] = \frac{\Delta K_w}{2} + \arctan \frac{\Delta K_r}{(DBSE - S)}$$

(Values for DBSE and S per table "Standard size" on page 10)

The displacement factor (S_1) is a function of $\Sigma \Delta K$ [°] acc. to fig. 2.

Load factor S_2

for electric or hydraulic motors, gas or steam turbines.

The load factor must be increased:

Driven machine	S_2
Paper machines and textile machines	2.00
Woodworking machines, gear pumps, conveyors	1.50
Machine tools: main drives	1.75
Machine tools: auxiliary drives	1.10
Elevators and cranes	2.00
Mills, reciprocating pumps	2.50
Centrifugal pumps: small inertias and thin fluid materials	1.10
Centrifugal pumps: large inertias or semi-fluid materials	1.75
Presses	3.00
Blowers with low inertias	1.10
Blowers with high inertias	2.00

- S_2+1 : for applications with 4- or 5-cylinder combustion engines
- $S_2+0.5$: for applications with 6-cylinder combustion engines, hydraulic turbines or at starting torque ≥ 2 .
- Applications with high recurring peak loads:
 - non-reversing duty: $T_{KN} > \text{max peak load}$
 - reversing duty: $T_{KN} > 1.5 \times \text{max. peak load}$

Temperature factor S_3

FLEXDUR can be used up to 80 °C as a standard. Higher temperatures must be specified in the order due to the use of self-locking nuts with plastic ring. For temperatures above 160 °C, the factor S_3 must be selected acc. to Fig. 3.

Technical Note

The technical data applies only to the complete coupling or the corresponding coupling elements. It is the customer's/user's responsibility to ensure there are no inadmissible loads acting on any of the components. In particular, existing connections, e.g. bolted connections, must be checked with regard to the torques to be transmitted. If necessary, further measures, such as additional reinforcement with pins, may be necessary. It is the customer's/user's responsibility to make sure the dimensioning of the shaft and keyed or other connection, e.g. shrinking or clamping connection,

is correct. All components that can rust are protected against corrosion as standard.

REICH have an extensive range of couplings and coupling systems to cover nearly every drive configuration. Customized solutions can be developed and manufactured even in small batches or as prototypes. In addition calculation programs are available for all necessary dimensioning.

Diagrams

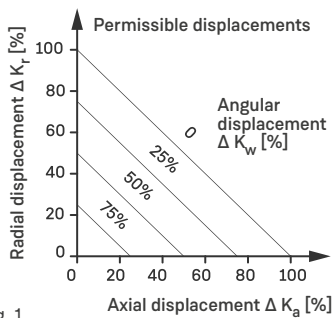


Fig. 1

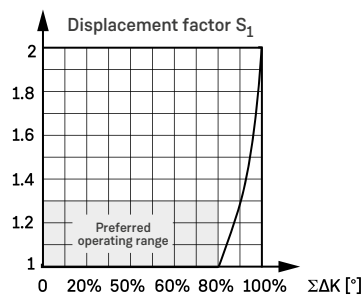


Fig. 2

i Note: Displacements that occur during operation (e.g. thermally influenced) must be taken into account. For larger displacements please contact us.

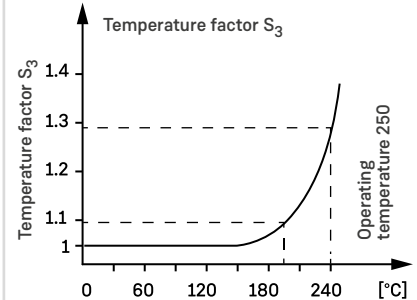


Fig. 3

i Note: Application temperatures above 80° must be specified in the order.

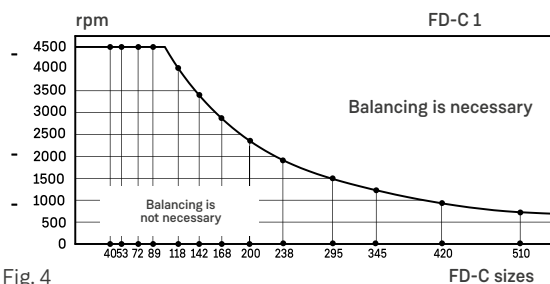


Fig. 4

i The balancing grade for the standard elements is G 6.3 according to DIN ISO 2194. Balancing is recommended at operating speeds above the curves shown in Figures 4 and 5.

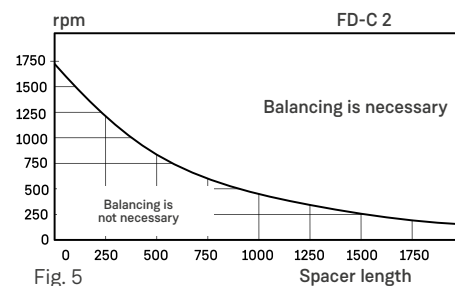


Fig. 5

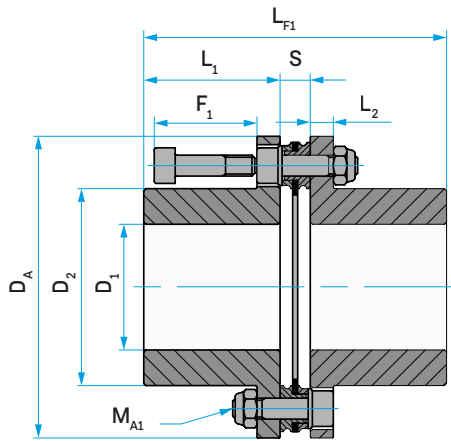
Ordering example

Element version	Size	Number of screws	Version	Mounting situation	Hub type	Type of bore
FD-C = Standard			N = Single joint coupling standard	Distance between shaft ends (DBSE)	design with key connection - no declaration	with key connection acc. to DIN 6885/1 => Ø D ₁ or Ø D ₉
FD-CL = Strengthened			S = Double joint coupling standard	(Type N - no declaration)	O = Flange coupling for Drop-Out version	with K => Ø D ₁₁ with Z => Ø D ₇ + Ø D ₆
			CA = Compact, two hubs mounted to the inside		K = Clamping hub, slotted	with Y => type of clamping element + Ø D ₆
			CB = Compact, one hub mounted to the inside		Z = outside clamping set	with X => type of clamping element + Ø D ₃
					Y = Clamping hub, split	
					X = internal locking device	
					V ₁ = small clamping bush design	
					V ₂ = small clamping bush design	
FD-C	142 - 6	6	S	180	X	2820.50/2820.55

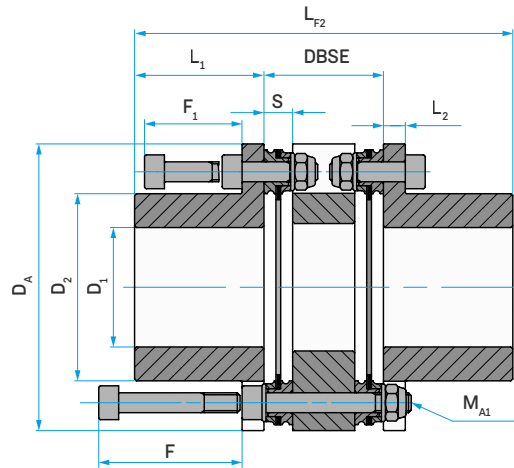
Designation: FD-C 142 - 6 S 180 X 2820.50 - X 2820.55

FLEXDUR

Type N + S



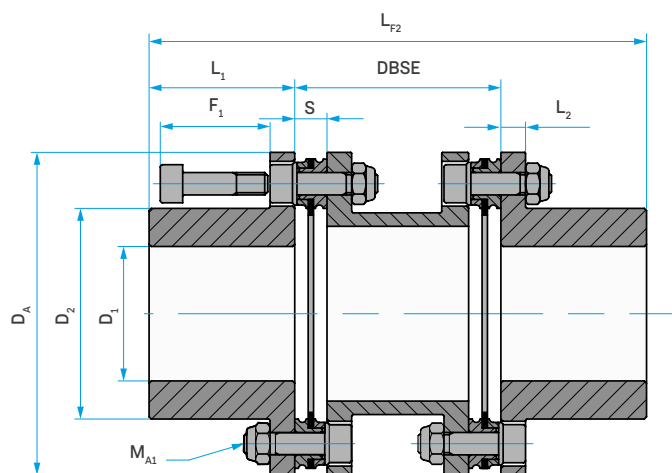
FD-C N: Standard



FD-C S DBSE_{min}: Standard, short type

Coupling details

Coupling size	L ₁ [mm]	D _A [mm]	D _{1min} prebored [mm]	D _{1max} [mm]	D ₂ [mm]	F [mm]	F ₁ [mm]	L ₂ [mm]
40	17.0	40.0	6	18	26.0	25	15	4
53	24.5	53.0	6	22	32.5	43	24	5
72	39.5	70.5	10	32	47.0	43	24	5
89	45.0	88.0	14	42	62.5	53	32	8
118	55.0	116.5	15	55	82.0	67	40	10
142	60.0	140.5	19	65	98.0	82	47	11
168	75.0	166.5	25	80	118.0	94	55	12
200	90.0	198.5	30	95	141.0	-	64	14
238	125.0	238.0	39	115	169.0	-	81	16
295	160.0	295.0	59	140	205.0	-	112	22
345	200.0	345.0	79	175	254.0	-	133	26
420	210.0	420.0	90	180	262.0	-	137	32
510	240.0	510.0	100	215	316.0	-	172	38



FD-C S: Standard

Mounting instruction:

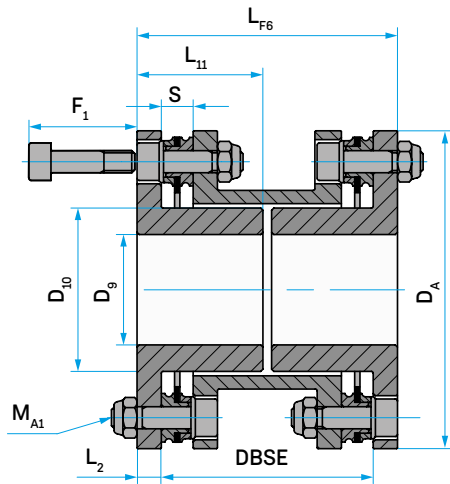
Standard type, pilot bore or finish bore with keyway.
Key connection not suitable for backlash-free torque transmission. Disc pack radial dismounting without hub displacement.

Coupling size	FD-C						FD-CL					
	M _{A1}		S	DBSE ¹⁾	L _{F1}	L _{F2}	M _{A1}		S	DBSE ¹⁾	L _{F1}	L _{F2}
	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]
40	M3	1.5	2.9	16.0 26.0	36.9	50.0 60.0	-	-	-	-	-	-
53	M5	7.0	6.9	30.0 43.0	55.9	79.0 92.0	-	-	-	-	-	-
72	M5	8.0	7.5	31.2 60.0 100.0 140.0	86.5	110.2 139.0 179.0 219.0	M5	9.0	7.6	31.4 60.2 100.2 140.2	86.6	110.4 139.2 179.2 219.2
89	M6	14.0	8.8	37.6 70.0 80.0 100.0 140.0	98.8	127.6 160.0 170.0 190.0 230.0	M6	15.0	9.0	38.0 70.4 80.4 100.4 140.4	99.0	128.0 160.4 170.4 190.4 230.4
118	M8	31.0	10.4	46.3 100.0 140.0 180.0	120.4	156.3 210.0 250.0 290.0	M8	35.0	10.8	47.1 100.8 140.8 180.8	120.8	157.1 210.8 250.8 290.8
142	M10	62.0	12.0	55.0 100.0 140.0 180.0	132.0	175.0 220.0 260.0 300.0	M10	73.0	12.2	55.4 100.4 140.4 180.4	132.2	175.4 220.4 260.4 300.4
168	M12	110.0	13.0	62.6 100.0 140.0 180.0	163.0	212.6 250.0 290.0 330.0	M12	130.0	13.0	62.6 100.0 140.0 180.0	163.0	212.6 250.0 290.0 330.0
200	M14	180.0	15.0	140.0 180.0	195.0	320.0 360.0	M14	210.0	15.2	140.4 180.4	195.2	320.4 360.4
238	M16	280.0	20.8	140.0 180.0 250.0	270.8	390.0 430.0 500.0	M16	320.0	22.0	142.4 182.4 252.4	272.0	392.4 432.4 502.4
295	M20	540.0	28.0	200.0 250.0	348.0	520.0 570.0	M20	620.0	28.2	200.4 250.4	348.2	520.4 570.4
345	M24	950.0	32.2	224.0 250.0 300.0	432.2	624.0 650.0 700.0	M24	1000.0	32.4	224.4 250.4 300.4	432.4	624.4 650.4 700.4
420	M10	60.0	34.0	280.0	454.0	700.0	-	-	-	-	-	-
510	M12	105.0	46.8	350.0	526.8	830.0	-	-	-	-	-	-

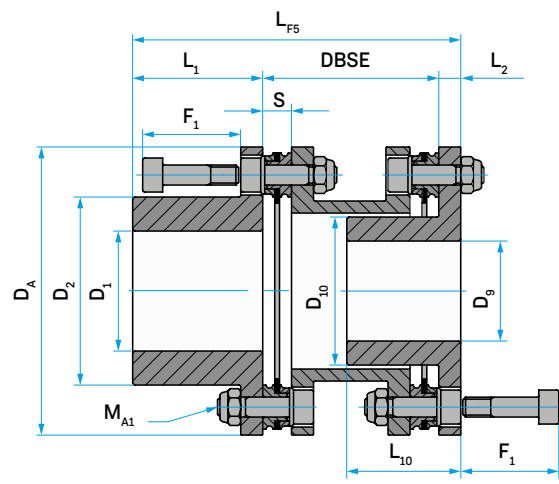
¹⁾ H available up to 3000 mm upon request

FLEXDUR

Type CA + CB



FD-C CA: compact, short type



FD-C CB: compact

Coupling details

Coupling size	L ₁	L ₁₀	L ₁₁	D _A	D _{1min} prebored	D _{9min} prebored	D _{1max}	D _{9max}	D ₂	D ₁₀	F ₁	L ₂
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
53	24.5	24.5	24.5	53.0	6	6	22	17	32.5	24.5	24	5
72	39.5	39.5	34.5	70.5	10	10	32	25	47.0	37.0	24	5
		39.5	39.5									
		39.5	39.5									
89	45.0	45.0	40.0	88.0	14	14	42	32	62.5	48.0	32	8
		45.0	45.0									
		45.0	45.0									
		45.0	45.0									
		45.0	45.0									
118	55.0	55.0	55.0	116.5	15	15	55	44	82.0	64.0	40	10
		55.0	55.0									
		55.0	55.0									
142	60.0	60.0	58.0	140.5	19	19	65	50	98.0	77.0	47	11
		60.0	60.0									
		60.0	60.0									
168	75.0	75.0	60.0	166.5	25	25	80	60	118.0	90.5	55	12
		75.0	75.0									
		75.0	75.0									
200	90.0	90.0	81.0	198.5	30	30	95	75	141.0	114.0	64	14
		90.0	90.0									
		90.0	90.0									
238	125.0	125.0	-	238.0	39	39	115	90	169.0	135.0	81	16
		125.0	104.0									
		125.0	125.0									
295	160.0	160.0	-	295.0	59	59	140	115	205.0	170.0	112	22
		160.0	140.0									
		160.0	160.0									
345	200.0	200.0	-	345.0	79	79	175	120	254.0	180.0	133	26
		200.0	145.0									
		200.0	168.0									

**Mounting instruction:**

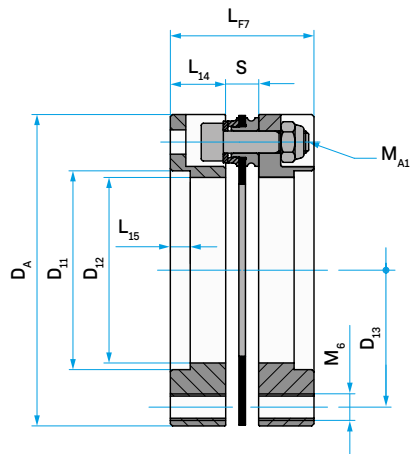
Compact type. Prebored or finish bore with keyway.
Key connection not suitable for backlash-free torque transmission.

Coupling size	FD-C						FD-CL					
	M _{A1}		S	DBSE ¹⁾	L _{F5}	L _{F6}	M _{A1}		S	DBSE ¹⁾	L _{F5}	L _{F6}
	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]
53	M5	7.0	6.9	43	72.5	53	-	-	-	-	-	-
72	M5	8.0	7.5	60	104.5	70	M5	9.0	7.6	60.2	104.7	70.2
				100	144.5	110				100.2	144.7	110.2
				140	184.5	150				140.2	184.7	150.2
89	M6	14.0	8.8	70	123.0	86	M6	15.0	9.0	70.4	123.4	86.4
				80	133.0	96				80.4	133.4	96.4
				100	153.0	116				100.4	153.4	116.4
				140	193.0	156				140.4	193.4	156.4
118	M8	31.0	10.4	100	165.0	120	M8	35.0	10.8	100.8	165.8	120.8
				140	205.0	160				140.8	205.8	160.8
				180	245.0	200				180.8	245.8	200.8
142	M10	62.0	12.0	100	171.0	122	M10	73.0	12.2	100.4	171.4	122.4
				140	211.0	162				140.4	211.4	162.4
				180	251.0	202				180.4	251.4	202.4
168	M12	110.0	13.0	100	187.0	124	M12	130.0	13.0	100.0	187.0	124.0
				140	227.0	164				140.0	227.0	164.0
				180	267.0	204				180.0	267.0	204.0
200	M14	180.0	15.0	140	244.0	168	M14	210.0	15.2	140.4	244.4	168.4
				180	284.0	208				180.4	284.4	208.4
238	M16	280.0	20.8	140	281.0	-	M16	320.0	22.0	142.4	283.4	-
				180	321.0	212				182.4	323.4	214.4
				250	391.0	282				252.4	393.4	284.4
295	M20	540.0	28.0	200	382.0	-	M20	620.0	28.2	200.4	382.4	-
				250	432.0	294				250.4	432.4	294.4
345	M24	950.0	32.2	224	450.0	-	M24	1000.0	32.4	224.4	450.4	-
				250	476.0	302				250.4	476.4	302.4
				300	526.0	352				300.4	526.4	352.4

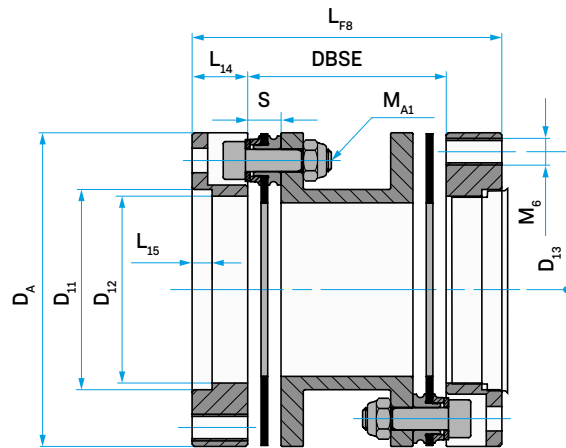
i 1) H available up to 3000 mm upon request

FLEXDUR

Type N0 + S0



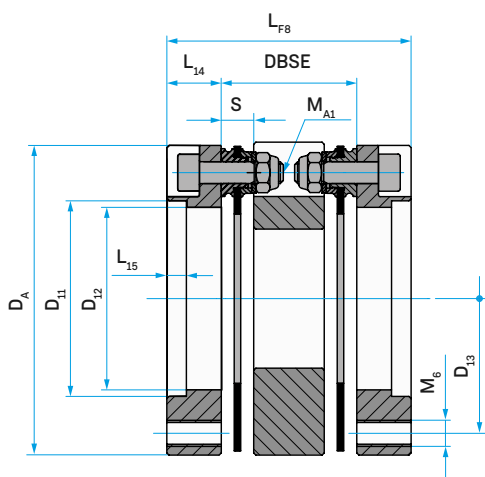
FD-C N0: flange version



FD-C S0: flange version

Coupling details

Coupling size	L ₁₄ [mm]	D _A [mm]	D ₁₁ [mm]	D ₁₂ [mm]	L ₁₅ [mm]	M ₆ [mm]	D ₁₃ [mm]
72	12.5	70.5	45	42	4.5	6xM8	62
89	17.0	88.0	50	48	4.5	6xM8	75
118	22.0	116.5	75	72	5.0	6xM10	103
142	27.0	140.5	92	89	5.0	6xM12	116
168	31.0	166.5	105	100	5.0	6xM14	140
200	34.0	198.5	120	115	7.0	6xM16	175
238	41.0	238.0	140	135	7.0	6xM20	210
295	52.0	306.0	160	155	7.0	8xM24	240
345	64.0	360.0	180	175	7.0	8xM30	275



FD-C SO DBSE_{min}: flange version, short type

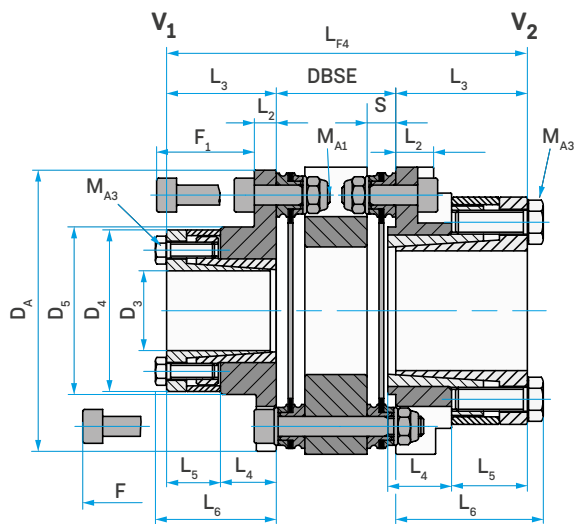
Mounting instruction:

Flange coupling. For disc pack disassembly, axial displacement of the flanges required.

Drop out with appropriate hubs possible. The complete coupling can be radially dismantled without any displacement of the components, and without releasing the screws of the disc pack.

Coupling size	FD-C						FD-CL					
	M _{A1}		S	DBSE ¹⁾	L _{F7}	L _{F8}	M _{A1}		S	DBSE ¹⁾	L _{F7}	L _{F8}
	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]
72	M5	8.0	7.5	31.2	32.5	56.2	M5	9.0	7.6	31.4	32.6	56.4
				60.0		85.0				60.2		85.2
				100.0		125.0				100.2		125.2
				140.0		165.0				140.2		165.2
89	M6	14.0	8.8	37.6	42.8	71.6	M6	15.0	9.0	38.0	43.0	72.0
				70.0		104.0				70.4		104.4
				80.0		114.0				80.4		114.4
				100.0		134.0				100.4		134.4
118	M8	31.0	10.4	140.0	54.4	174.0	M8	35.0	10.8	140.4	54.8	174.4
				46.3		90.3				47.1		91.1
				100.0		144.0				100.8		144.8
				140.0		184.0				140.8		184.8
142	M10	62.0	12.0	180.0	66.0	224.0	M10	73.0	12.2	180.8	66.2	224.8
				55.0		109.0				55.4		109.4
				100.0		154.0				100.4		154.4
				140.0		194.0				140.4		194.4
168	M12	110.0	13.0	180.0	75.0	234.0	M12	130.0	13.0	180.4	75.0	234.4
				62.6		124.6				62.6		124.6
				100.0		162.0				100.0		162.0
				140.0		202.0				140.0		202.0
200	M14	180.0	15.0	180.0	83.0	242.0	M14	210.0	15.2	180.0	83.2	242.0
				140.0		208.0				140.4		208.4
				180.0		248.0				180.4		248.4
				140.0		222.0				142.4		224.4
238	M16	280.0	20.8	180.0	102.8	262.0	M16	320.0	22.0	182.4	104.0	264.4
				250.0		332.0				252.4		334.4
				200.0		304.0				200.4		304.4
				250.0		354.0				250.4		354.4
295	M20	540.0	28.0	224.0	132.0	352.0	M20	620.0	28.2	224.4	132.2	352.4
				250.0		378.0				250.4		378.4
				300.0		428.0				300.4		428.4
				224.0		352.0				224.4		352.4
345	M24	950.0	32.2	250.0	160.2	378.0	M24	1000.0	32.4	250.4	160.4	378.4
				300.0		428.0				300.4		428.4
				224.0		352.0				224.4		352.4
				250.0		378.0				250.4		378.4

¹⁾ H available up to 3000 mm upon request



FD-C SX DBSE_{min}: with internal locking device, short type

Mounting instruction:

Hub with internal locking device.

Backlash-free torque transmission.

V₁: Disc pack radial dismounting without hub displacement.

V₂: Radial disassembly of the disc pack after loosening and axial shifting of the clamping device possible.

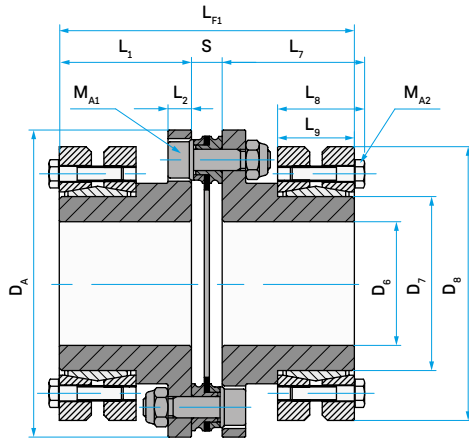
Coupling size	FD-C						FD-CL					
	M _{A1}		S	DBSE	L _{F3}	L _{F4}	M _{A1}		S	DBSE	L _{F3}	L _{F4}
	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]
53 + 145	M5	7.0	6.9	30.0 43.0	57.9	81.0 94.0	-	-	-	-	-	-
72 + 145	M5	8.0	7.5	31.2	62.5	86.2	M5	9.0	7.6	31.4	62.6	86.4
				60.0		115.0				60.2		115.2
				100.0		155.0				100.2		155.2
				140.0		195.0				140.2		195.2
72 + 330	M5	8.0	7.5	31.2	73.5	97.2	M5	9.0	7.6	31.4	73.6	97.4
				60.0		126.0				60.2		126.2
				100.0		166.0				100.2		166.2
				140.0		206.0				140.2		206.2
89 + 500	M6	14.0	8.8	37.6	97.8	126.6	M6	15.0	9.0	38.0	98.0	127.0
				70.0		159.0				70.4		159.4
				80.0		169.0				80.4		169.4
				100.0		189.0				100.4		189.4
89 + 920	M6	14.0	8.8	140.0	97.8	229.0	M6	15.0	9.0	140.4	98.0	229.4
				37.6		126.6				38.0		127.0
				70.0		159.0				70.4		159.4
				80.0		169.0				80.4		169.4
118 + 1140	M8	31.0	10.4	100.0	80.4	170.0	M8	35.0	10.8	100.8	80.8	170.4
				140.0		210.0				140.8		210.4
				180.0		250.0				180.8		250.4
				46.3		134.3				47.1		135.1
118 + 1370	M8	31.0	10.4	100.0	98.4	188.0	M8	35.0	10.8	100.8	98.8	188.4
				140.0		228.0				140.8		228.4
				180.0		268.0				180.8		268.4
				46.3		134.3				47.1		135.1
142 + 920	M10	62.0	12.0	55.0	103.0	146.0	M10	73.0	12.2	55.4	103.2	146.4
				100.0		191.0				100.4		191.4
				140.0		231.0				140.4		231.4
				180.0		271.0				180.4		271.4
142 + 2820	M10	62.0	12.0	55.0	131.0	174.0	M10	73.0	12.2	55.4	131.2	174.4
				100.0		219.0				100.4		219.4
				140.0		259.0				140.4		259.4
				180.0		299.0				180.4		299.4
168 + 2820	M12	110.0	13.0	62.6	132.0	181.6	M12	130.0	-	-	-	-
				100.0		219.0				-		-
				140.0		259.0				-		-
				180.0		299.0				-		-
200 + 2820	M14	180.0	15.0	140.0	134.0	259.0	M14	210.0	-	-	-	-
				180.0		299.0				-		-

Type NX - SX Preferred bores [mm]/Transmittable torque [Nm] of the clamping element for shaft tolerance h8

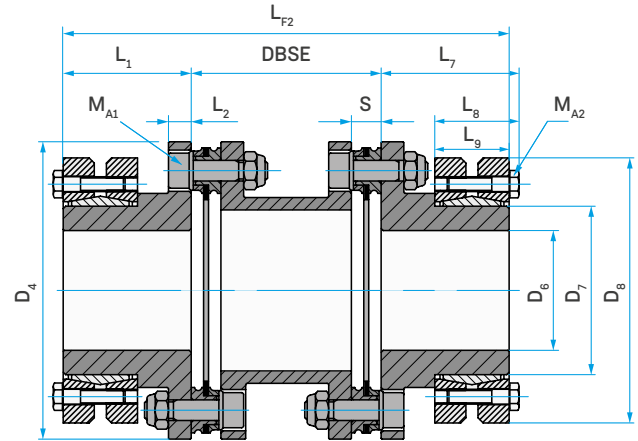
Size	D ₃	[mm]	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60
145	[Nm]		50	55	90	95	115	130	140	145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
330	[Nm]		-	-	-	-	-	-	195	200	240	265	275	310	330	-	-	-	-	-	-	-	-	-	-
500	[Nm]		-	-	-	-	-	-	310	330	360	400	410	460	500	-	-	-	-	-	-	-	-	-	-
920	[Nm]		-	-	-	-	-	-	-	-	-	470	490	550	590	700	770	840	880	920	-	-	-	-	-
1140	[Nm]		-	-	-	-	-	-	-	-	-	-	-	-	-	540	710	780	820	950	1020	1090	1140	-	-
1370	[Nm]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1250	1370
2820	[Nm]		-	-	-	-	-	-	-	-	-	-	-	1240	1330	1420	1550	1780	1880	1970	2110	2250	2350	2590	2820

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Type NZ + SZ



FD-C NZ: with outside clamping set



FD-C SZ: with outside clamping set

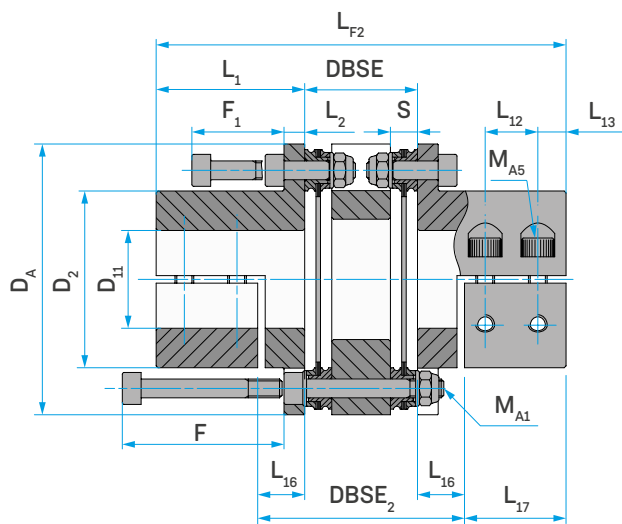
Coupling details

Coupling size	D ₇ [mm]	L ₁ [mm]	L ₇ [mm]	D _A [mm]	D ₆ ²⁾ [mm]	L ₂ [mm]	D ₈ [mm]	L ₈ [mm]	L ₉ [mm]	M _{A2} [-]	M _{A2} [Nm]	TL Limited torque [Nm]
89	30	45.0	48.5	88.0	24-25-26	8	60	24.5	21	M5	6	310-340-380
	36		49.0		28-30-31		72	27.0	23	M6	12	460-590-630
	44		49.0		32-35-36		80	29.0	25	M6	12	630-780-860
	50		49.0		38-40-42		90	31.0	27	M6	12	940-1100-1300
118	50	55.0	59.0	116.5	38-40-42	10	90	31.0	27	M6	12	940-1100-1300
	55		59.0		42-45-48		100	34.0	30	M6	12	1200-1500-1900
	75		60.5		50-55-60-65		138	37.5	32	M8	30	2000-2500-3200-3900
142	68	60.0	64.0	140.5	50-55-60	11	115	34.0	30	M6	12	2000-2500-3100
	90	63.5	69.0		65-70-75		155	44.5	39	M8	30	4700-6000-7200
168	68	75.0	79.0	166.5	50-55-60	12	110	34.0	30	M6	12	2000-2500-3100
	90	75.0	80.5		65-70-75		155	44.5	39	M8	30	4700-6000-7200
	115	80.5	87.0		80-85-90		188	56.5	50	M10	59	8500-10000-12000
200	68	90.0	94.0	198.5	50-55-60	14	110	34.0	30	M6	12	2000-2500-3100
	90		95.5		65-70-75		155	44.5	39	M8	30	4700-6000-7200
	115		96.5		80-85-90		188	56.5	50	M10	59	8500-10000-12000
	130		97.0		90-95-100-110		215	59.0	52	M10	59	13700-15800-18200-23500
238	100	125.0	130.5	238.0	70-75-80	16	170	49.5	44	M8	30	6900-7500-9000
	130	125.0	132.0		90-95-100-110		215	59.0	52	M10	59	13700-15800-18200-23500
	155	125.0	132.5		105-110-115-120		265	71.5	64	M12	100	20000-23000-26000-29500
	165	129.0	139.0		115-120-125-135		290	81.0	71	M16	250	36000-39000-44000-51200
295	130	160.0	167.0	295.0	90-95-100-110	22	215	59.0	52	M10	59	13700-15800-18200-23500
	160		167.5		110-115-120-125		265	71.5	64	M12	100	22500-25500-28600-33000
	175		170.0		125-130-135-140		300	81.0	71	M16	250	40000-44000-49000-52500
	185		170.0		130-140-145-150		330	96.0	86	M16	250	50000-55000-60000-65000
	195		170.0		140-150-155-165		350	96.0	86	M16	250	66000-76000-82000-96000
345	170	200.0	210.0	345.0	120-125-130-135	26	290	81.0	71	M16	250	31700-35800-40000-45000
	195		210.0		140-150-155-165		350	96.0	86	M16	250	66000-76000-82000-96000
	220		210.0		160-165-170-180		370	114.0	104	M16	250	95000-102000-110000-128000
	250		212.5		180-190-200-210		405	120.5	108	M16	250	160000-180000-200000-212000
	195		220.0		140-150-155-165	32	350	96.0	86	M16	250	66000-76000-82000-96000
420	220	210.0	220.0	420.0	160-165-170-180		370	114.0	104	M16	250	95000-102000-110000-128000
	260		222.5		180-190-200-220		430	132.5	120	M20	490	165000-185000-204000-214000
	220		250.0		160-165-170-180	38	370	114.0	104	M16	250	95000-102000-110000-128000
510	260	240.0	252.5	510.0	180-190-200-220		430	132.5	120	M16	250	165000-185000-204000-214000
	300		260.0		230-240-250-260		485	142.0	122	M20	490	274000-296000-316000-364000

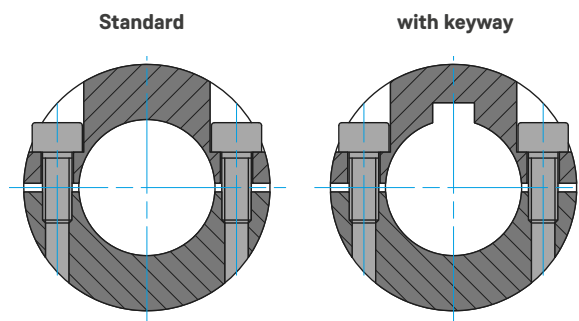


Hub with outside clamping set. Backlash-free torque transmission. Radial disassembly of the disc pack after loosening and axial shifting of the clamping device possible.

1) H available up to 3000 mm upon request 2) Fitting tolerances for shaft and hub: $\emptyset 24 - \emptyset 30 = H6-j6 / \emptyset 30 - \emptyset 50 = H6-h6 / \emptyset 50 - \emptyset 80 = H6-g6 / \emptyset 80 - \emptyset 260 = H7-g6$ 3) $L_A = 3.5$ - 4) $L_A = 5.5$ - 5) $L_A = 4$



FD-C SY DBSE_{min}: with clamping hub, split, short type



Mounting instruction:

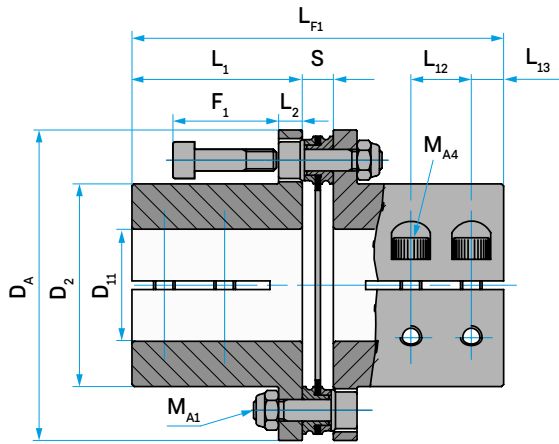
Clamping hub, split. Bore with keyway available. Backlash-free torque transmission. Disc pack radial dismounting without hub displacement. The complete coupling can be radially dismounted without any displacement of the shafts, and without releasing the screws of the disc pack.

Coupling size	FD-C								FD-CL							
	M _{A1}		S	DBSE ¹⁾	DBSE ₁	L _{F1}	DBSE ₂	L _{F2}	M _{A1}		S	DBSE ¹⁾	DBSE ₁	L _{F1}	DBSE ₂	L _{F2}
	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
72	M5	8	7.5	31.2	32.5	86.5	56.2	110.2	M5	9	7.6	31.4	32.6	86.6	56.4	110.4
				60.0			85.0	139.0				60.2			85.2	139.2
				100.0			125.0	179.0				100.2			125.2	179.2
				140.0			165.0	219.0				140.2			165.2	219.2
89	M6	14	8.8	37.6	43.8	98.8	72.6	127.6	M6	15	9.0	38.0	44.0	99.0	73.0	128.0
				70.0			105.0	160.0				70.4			105.4	160.4
				80.0			115.0	170.0				80.4			115.4	170.4
				100.0			135.0	190.0				100.4			135.4	190.4
118	M8	31	10.4	46.3	52.4	120.4	88.3	156.3	M8	35	10.8	47.1	52.8	120.8	89.1	157.1
				100.0			142.0	210.0				100.8			142.8	210.8
				140.0			182.0	250.0				140.8			182.8	250.8
				180.0			222.0	290.0				180.8			222.8	290.8
142	M10	62	12.0	55.0	62.0	132.0	105.0	175.0	M10	73	12.2	55.4	62.2	132.2	105.4	175.4
				100.0			150.0	220.0				100.4			150.4	220.4
				140.0			190.0	260.0				140.4			190.4	260.4
				180.0			230.0	300.0				180.4			230.4	300.4
168	M12	110	13.0	62.6	73.0	163.0	-	212.6	M12	130	13.0	62.6	73.0	163.0	-	212.6
				100.0			160.0	250.0				100.0			160.0	250.0
				140.0			200.0	290.0				140.0			200.0	290.0
				180.0			240.0	330.0				180.0			240.0	330.0

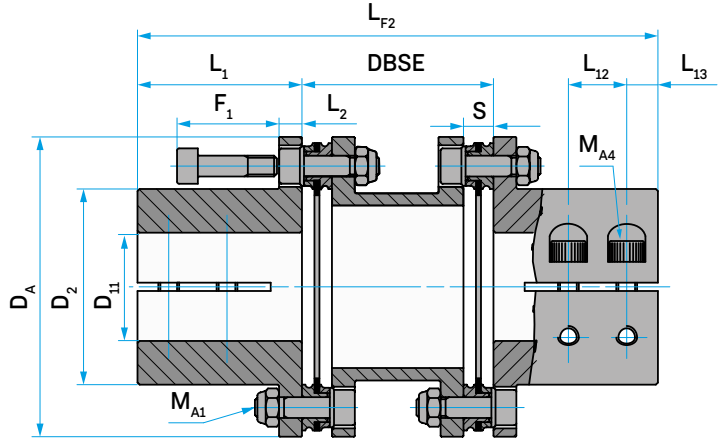
¹⁾ H available up to 3000 mm upon request

FLEXDUR

Type NK + SK



FD-C NK: with clamping hub, slotted



FD-C SK: with clamping hub, slotted

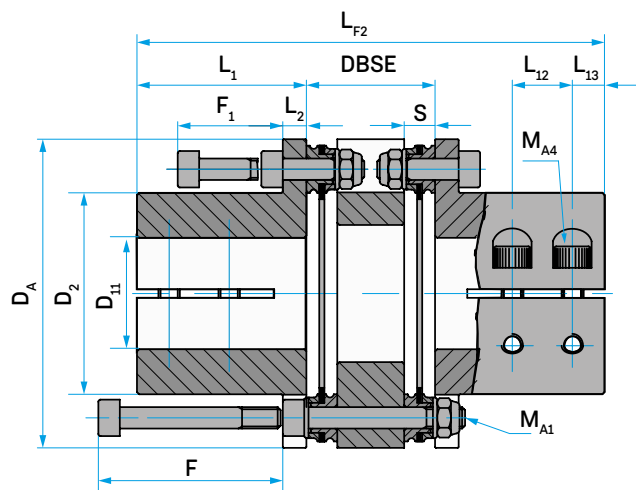
Coupling details

Coupling size	L ₁ [mm]	D _A [mm]	D ₂ [mm]	F [mm]	F ₁ [mm]	L ₂ [mm]	M _{A4}		L ₁₂ [mm]	L ₁₃ [mm]
							[-]	[Nm]		
40	17.0	40.0	26.0	25.0	15.0	4.0	M4	5.2	-	4.5
							M3	2.6		
53	24.5	53.0	32.5	43.0	24.0	5.0	M4	5.2	9.0	5.0
72	39.5	70.5	47.0	43.0	24.0	5.0	M6	17.0	13.0	7.5
89	45.0	88.0	62.5	53.0	32.0	8.0	M8	41.0	16.0	9.0
118	55.0	116.5	82.0	67.0	40.0	10.0	M10	83.0	19.5	10.5
142	60.0	140.5	98.0	82.0	47.0	11.0	M10	83.0	20.0	11.5

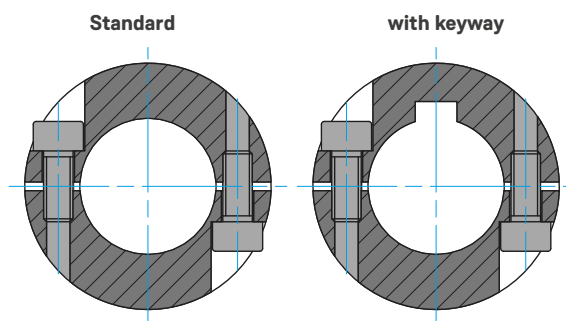
Type NK - SK Preferred bores [mm]/Transmittable torque [Nm] of the clamping set for shaft tolerance h7 without parallel key

Size	D ₁₁ max	8	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	M _{A4}	M _{A4}
		[-] [Nm]																										
40		9	12	12	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M4	5.2
		-	-	-	-	12	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M3	2.6
53		-	-	-	50	55	60	70	82	95	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M4	5.2
72		-	-	-	-	-	65	75	90	100	115	140	170	180	-	-	-	-	-	-	-	-	-	-	-	-	M6	17.0
89		-	-	-	-	-	-	-	-	-	120	150	180	210	250	300	350	360	-	-	-	-	-	-	-	-	M8	41.0
118		-	-	-	-	-	-	-	-	-	-	-	-	-	-	360	420	490	550	650	720	790	-	-	-	-	M10	83.0
142		-	-	-	-	-	-	-	-	-	-	-	-	-	-	340	380	420	470	500	600	650	750	900	1200	1450	M10	83.0

M_{A4} [Nm] = Clamping hub screw tightening torque



FD-C SK DBSE_{min}: with clamping hub, slotted, short type



Mounting instruction:

Clamping hub, slotted. Bore with keyway available.
Backlash-free torque transmission.
Disc pack radial dismounting without hub displacement.

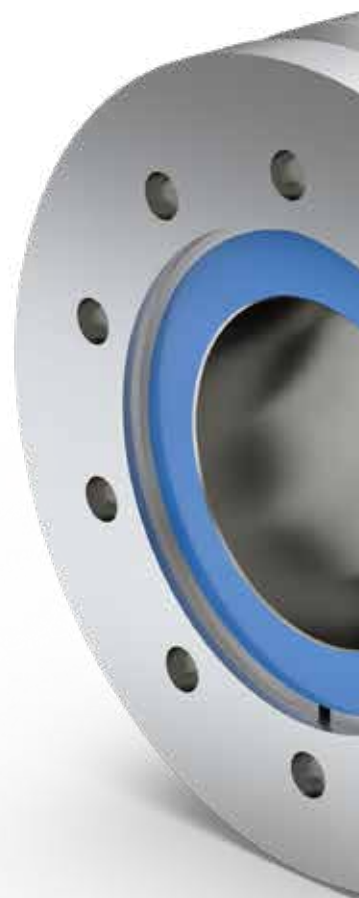
Coupling size	FD-C						FD-CL					
	M _{A1} [-]	M _{A1} [Nm]	S [mm]	DBSE ¹⁾ [mm]	L _{F1} [mm]	L _{F2} [mm]	M _{A1} [-]	M _{A1} [Nm]	S [mm]	DBSE ¹⁾ [mm]	L _{F1} [mm]	L _{F2} [mm]
40	M3	1.5	2.9	16.0	36.9	50.0	-	-	-	-	-	-
				26.0		60.0						
53	M5	7.0	6.9	30.0	55.9	79.0	-	-	-	-	-	-
				43.0		92.0						
72	M5	8.0	7.5	31.2	86.5	110.2	M5	9	7.6	31.4	86.6	110.4
				60.0		139.0				60.2		139.2
				100.0		179.0				100.2		179.2
				140.0		219.0				140.2		219.2
89	M6	14.0	8.8	37.6	98.8	127.6	M6	15	9.0	38.0	99.0	128.0
				70.0		160.0				70.4		160.4
				80.0		170.0				80.4		170.4
				100.0		190.0				100.4		190.4
				140.0		230.0				140.4		230.4
118	M8	31.0	10.4	46.3	120.4	156.3	M8	35	10.8	47.1	120.8	157.1
				100.0		210.0				100.8		210.8
				140.0		250.0				140.8		250.8
				180.0		290.0				180.8		290.8
142	M10	62.0	12.0	55.0	132.0	175.0	M10	73	12.2	55.4	132.2	175.4
				100.0		220.0				100.4		220.4
				140.0		260.0				140.4		260.4
				180.0		300.0				180.4		300.4

¹⁾ H available up to 3000 mm upon request



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