Reich Kupplungen

Dipl.-Ing. Herwarth Reich GmbH

D2C
Designed to Customer

FlexDur FD-C

All steel coupling

Your drive is our strength. Your strength is our drive.





Contens

D2C – Designed to Customer

The principle of Designed to Customer describes the recipe for success of REICH-KUPPLUNGEN: Utilizing our product knowledge, our customers are supplied with couplings which are developed and tailor-made to their specific requirements. The designs are mainly based on modular components to provide effective and efficient customer solutions. The unique form of close cooperation with our partners includes consultation, design, calculation, manufacture and integration into existing environments. Adapting our manufacturing to customer-specific production and utilizing global logistics concepts provides better after sales service - worldwide. This customer-oriented concept applies to both standard products and production in small batch sizes.

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

REICH-KUPPLUNGEN supplies not only a coupling, but a solution: Designed to Customer.

Edition April 2017

The present FD-C catalogue renders parts of the previous FD-C catalogues obsolete.
All dimensions in millimeters.
We reserve the right to change dimensions and/or design details without prior notice.

General technical description

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 bolts offer a backlash-free torque transmission.

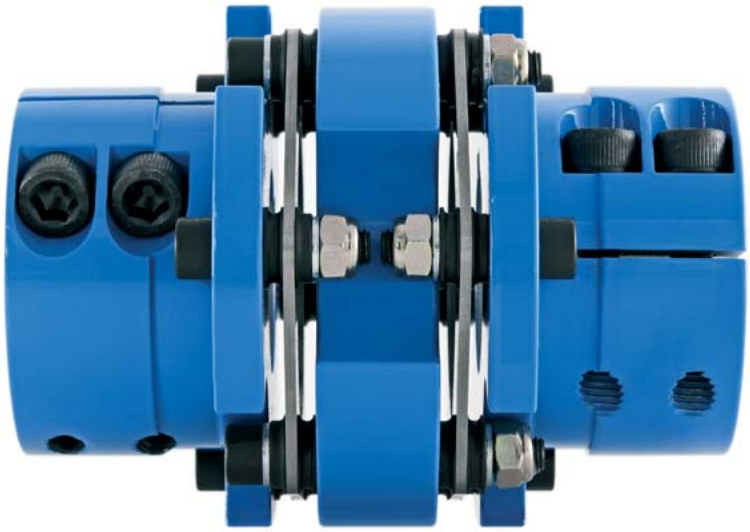
The FLEXDUR FD-C has been designed with modular components. Therefore the coupling can be fitted to many different installation situations:

FLEXDUR FD-C 1 single joint coupling (e.g. type N) with one flexible disc pack to compensate axial and angular misalignment.

FLEXDUR FD-C 2 double joint coupling (e.g. type S) with two flexible disc packs to compensate axial, radial and angular misalignment and thus flexible in all directions. Different installation lengths are available as standard.

Special designs e.g. for vertical or inclined mounting are possible on request.

Designs with clamping sets can be supplied for a total backlash-free connection.



Additional to the standard flexible FD-C there is a large type FD-CL available.
Special designs, e.g. for vertical application are on request possible.
For totally backlashfree torque transmission clamping hubs could be used.

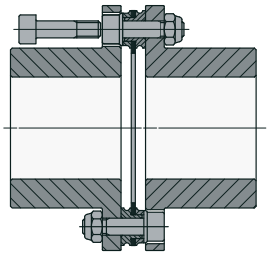
Advantages of the FLEXDUR FD-C:

- Torsionally rigid and backlash-free torque transmission
- Compensation of axial, radial and angular shaft displacement
- Small reaction forces at shaft misalignment
- Neither maintenance, nor lubrication required
- For use at ambient temperatures from – 25 °C to + 250 °C
- Compact design even suited for high speeds
- Almost unlimited lifetime and wear-free at proper shaft alignment

Types

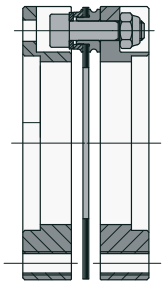
Single disc pack FD-C 1

FD-C N



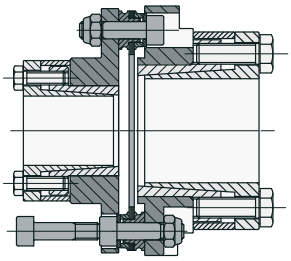
standard

FD-C NO



flange version

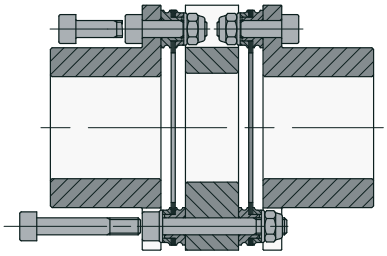
FD-C NX



with internal
clamping element

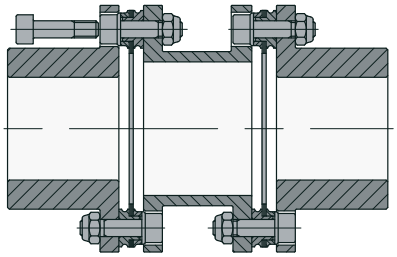
Double disc pack FD-C 2

FD-C S DBSEmin



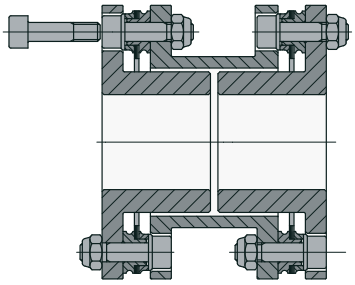
standard, short type

FD-C S



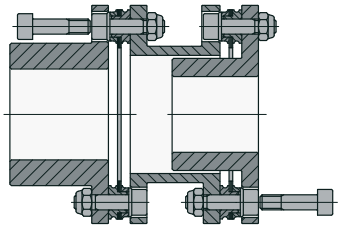
standard

FD-C CA



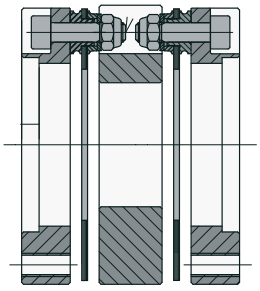
compact, short type

FD-C CB



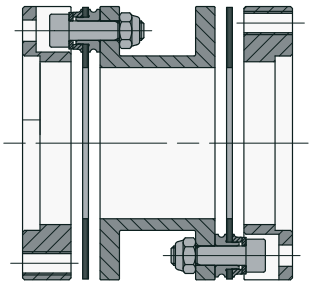
compact

FD-C SO DBSEmin



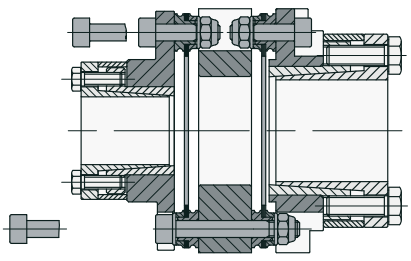
flange version, short type

FD-C SO



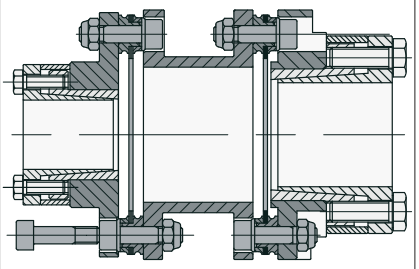
flange version

FD-C SX DBSEmin



with internal
clamping element, short type

FD-C SX

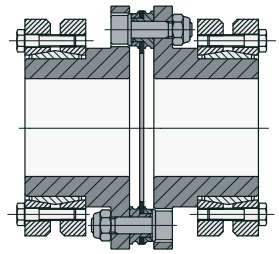


with internal
clamping element

Types

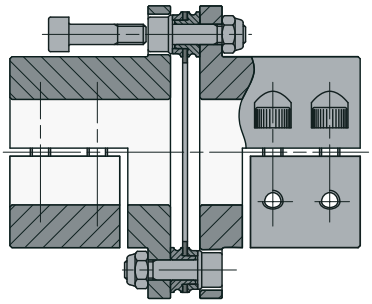
Single disc pack FD-C 1

FD-C NZ



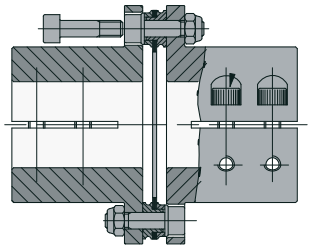
with shrink disc

FD-C NY



with clamping hub, split

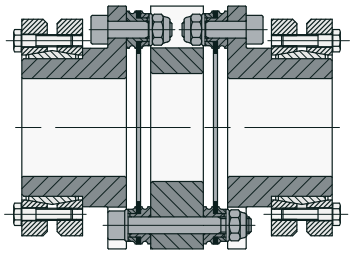
FD-C NK



with clamping hub, slotted

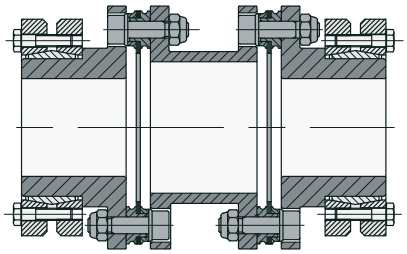
Double disc pack FD-C 2

FD-C SZ DBSEmin



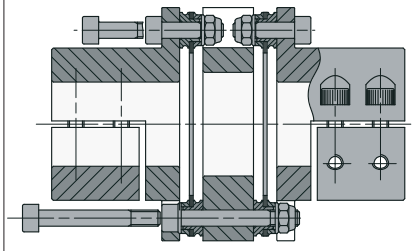
with shrink disc, short type

FD-C SZ



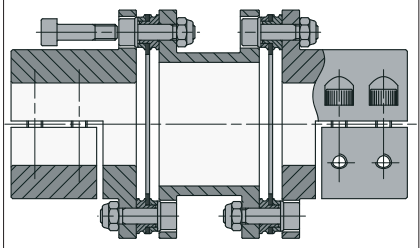
with shrink disc

FD-C SY DBSEmin



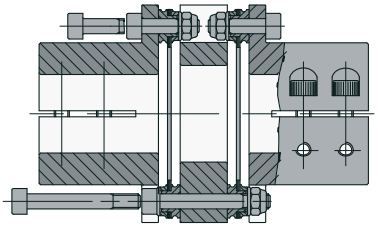
with clamping hub, split, short type

FD-C SY



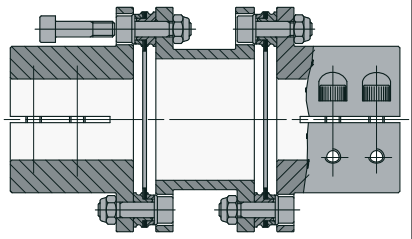
with clamping hub, split

FD-C SK DBSEmin



with clamping hub, slotted, short type

FD-C SK



with clamping hub, slotted

Technical Details

Size	FLEXDUR FD-C 1 Single disc pack								FLEXDUR FD-C 2 Double disc pack					
	Nominal torque	Maximum torque	Maximum speed	Permissible displacment			Moment of inertia	Torsional stiffness	Spacer	Permissible displacment			Moment of inertia	Torsional stiffness
	T_{KN}	T_{Kmax}	$n^{2)}$	ΔKr	ΔKa	ΔKw	J	C_T	DBSE[1)]	ΔKr	ΔKa	ΔKw	J	C_T
	[Nm]	[Nm]	[min^{-1}]	[mm]	[± mm]	[°]	[kgm^2]	[kNm/rad]	[mm]	[mm]	[± mm]	[°]	[kgm^2]	[kNm/rad]
FD-C 40	18	31,5	12000	0	0,4	1	0,00002	19	16	0,2	0,8	2	0,00004	9
									26	0,3			0,00004	9
FD-C 53	90	157	11500	0	0,4	1	0,00011	90	30	0,3	0,8	2	0,00016	44
									43	0,4			0,00019	37
FD-C 72	170	295	8800	0	0,5	1	0,00049	173	31,2	0,3	1,1	2	0,00071	84
									60	0,8			0,00076	71
									100	1,5			0,00081	59
									140	2,2			0,00087	51
FD-C 89	320	560	7000	0	0,6	1	0,0016	281	37,6	0,4	1,2	2	0,0022	136
									70	1			0,0025	126
									80	1,1			0,0026	123
									100	1,5			0,0027	116
									140	2,1			0,0028	105
FD-C 118	750	1310	6200	0	0,8	1	0,0059	637	46,3	0,5	1,6	2	0,0080	309
									100	1,4			0,0091	271
									140	2,1			0,0095	246
									180	2,8			0,0099	226
FD-C 142	1350	2360	5100	0	1	1	0,014	1173	55	0,7	2,1	2	0,018	569
									100	1,5			0,021	513
									140	2,1			0,022	469
									180	2,8			0,023	433
FD-C 168	2400	4200	4300	0	1,2	1	0,035	2000	62,6		2,5	2	0,039	
									100	1,4			0,052	914
									140	2,1			0,054	855
									180	2,8			0,056	803
FD-C 200	4000	7000	3600	0	1,4	1	0,084	2992	140	2	2,8	2	0,12	1306
									180	2,7			0,13	1229
FD-C 238	6500	11375	3000	0	1,7	1	0,23	5269	140	2	3,4	2	0,34	2467
									180	2,6			0,35	2375
									250	3,8			0,36	2231
FD-C 295	21000	36750	2500	0	1,1	0,5	0,70	21848	200	1,4	2,2	1	1,07	8995
									250	1,8			1,10	8265
FD-C 345	36000	63000	2100	0	1,3	0,5	1,75	37204	224	1,6	2,6	1	2,62	14975
									250	1,8			2,64	14302
									300	2,2			2,68	13163
FD-C 420	74000	129500	1800	0	1,6	0,5	3,26	46192	280	2,5	3,2	1	5,35	18116
FD-C 510	130000	227500	1500	0	2	0,5	8,65	87706	350	3	4	1	14,43	36134

[1)] Available up to 3000 mm upon request
[2)] Higher speed only with consultation of manufacturer

Technical Details

Size	Nominal torque	Maximum torque	Maximum speed	FLEXDUR FD-CL 1 Single disc pack: Permissible displacment			Moment of inertia	Torsional stiffness	FLEXDUR FD-CL 2 Double disc pack: Spacer	Permissible displacment			Moment of inertia	Torsional stiffness
	T_{KN}	T_{Kmax}	$n^{2)}$	ΔKr	ΔKa	ΔKw	J	C_T	DBSE[1)]	ΔKr	ΔKa	ΔKw	J	C_T
	[Nm]	[Nm]	[min^{-1}]	[mm]	[± mm]	[°]	[kgm^2]	[kNm/rad]	[mm]	[mm]	[± mm]	[°]	[kgm^2]	[kNm/rad]
FD-CL 72	230	402,5	8800	0	0,4	0,7	0,00049	184	31,4	0,2	0,8	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	0,5	0,7	0,016	312	38	0,3	1	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	0,6	0,7	0,0059	743	47,1	0,4	1,2	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	0,7	0,7	0,014	1251	55,4	0,5	1,4	1,4	0,01840	607
									100,4	1			0,021	543
									140,4	1,5			0,022	494
									180,4	2			0,023	454
FD-CL 168	3000	5250,0	4300	0	0,8	0,7	0,035	2082	62,6		1,6	1,4	0,039	
									100	1			0,052	948
									140	1,5			0,054	884
									180	2			0,056	829
FD-CL 200	5200	9100,0	3600	0	1	0,7	0,084	3142	140,4	1,5	2	1,4	0,12	1362
									180,4	2			0,13	1279
FD-CL 238	11000	19250,0	3000	0	1,2	0,7	0,23	6586	142,4	1,4	2,4	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	0,8	0,4	0,70	22285	200,4	1,2	1,6	0,8	1,07	9142
									250,4	1,5			1,10	8389
FD-CL 345	44000	77000,0	2100	0	0,9	0,4	1,75	37868	224,4	1,3	1,8	0,8	2,62	15190
									250,4	1,5			2,64	14497
									300,4	1,8			2,68	13328

[1)] Available up to 3000 mm upon request
[2)] Higher speed only with consultation of manufacturer

Technical data

Coupling size selection

First the service factor (Sf) is determined, it is based on the misalignment factor (S1), the load factor (S2) and the temperature factor (S3):

Sf = S1 • S2 • S3 (refer to the following sections)
The transmitted torque T multiplied by the service factor Sf may not be larger than the nominal torque T_{KN} (acc. to table “Technical data”).
$T_{KN} > T \bullet Sf$

Misalignment factor S1

The values for misalignment, which are shown in the table ´Technical data´, are maximum values which may not occur simultaneously. A present axial misalignment ΔKa reduces acc. to fig.1 the permissible values for the angular misalignment ΔKw and the radial misalignment ΔKr. The total misalignment ∑ΔK [°] is computed:

$$\sum\Delta K[°] = \frac{\Delta Kw}{2} + \arctan \frac{\Delta Kr}{(DBSE - S)}$$

(Values for DBSE and S per table ”Standard size“ on page 3) The misalignment factor (S1) is a function of ∑ΔK[°] acc. to fig. 2.

Load factor S2

For electric or hydraulic motors, gas or steam turbines

Driven machine	S2
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 semifluid materials	1.75
Presses	3.00
Blowers with low inertias	1.10
Blowers with high inertias	2.00

The load factor must be increased:
- S2+1: for applications with 4- or 5-cylinder engines
- S2+0.5: for applications with 6 cylinder engines or with start-up torque ≥ 2.
- Applications with repetitive large peak torques:
  - non-reversing duty: T_{KN} > peak torque
  - reversing duty: T_{KN} > 1.5 x peak torque

Temperature factor S3

FLEXDUR FD-C can be used up to 80° C as a standard. Due to the use of self-locking nuts with plastic rings, higher temperatures have to be specified in the order. For temperatures above 160° C the factor S3 acc. to fig.3 must be selected

Diagrams

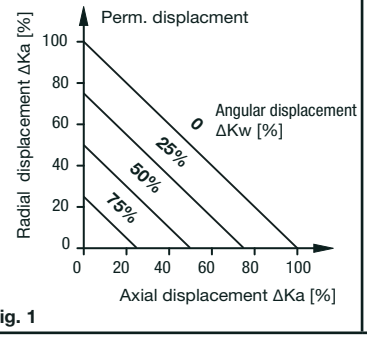


Fig. 1

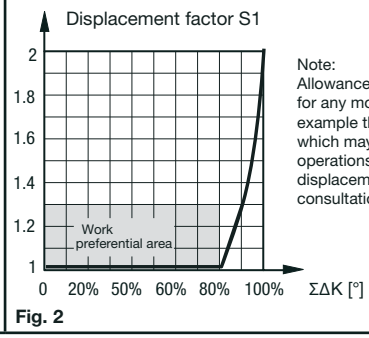


Fig. 2

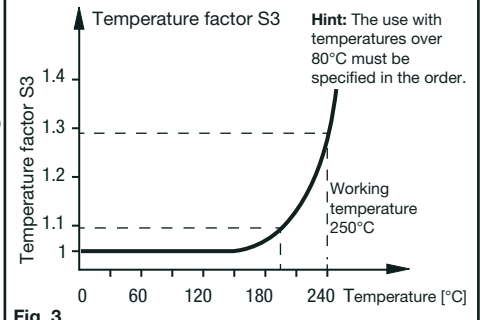


Fig. 3

The balancing class of the standard elements is G 6,3 - acc. to ISO 1940 medium speeds.

Balancing is recommended only over speed curve of figure 4 and 5.

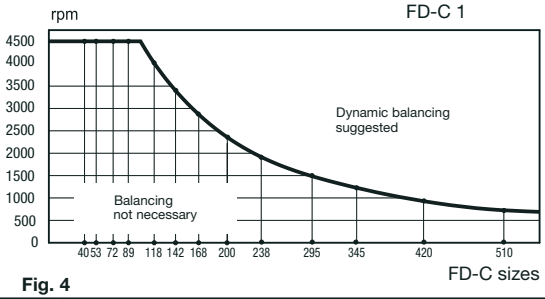


Fig. 4

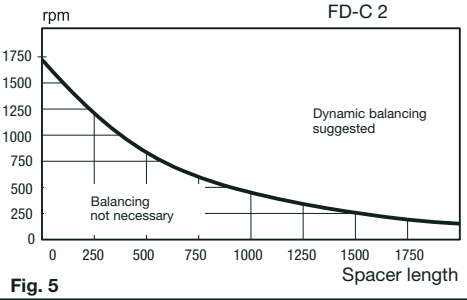


Fig. 5

Ordering example

FD-C 140 - 6 S 180 X 2820.50 - X 2820.55

Element version

FD-C = Flexible
FD-CL = Large

Size

Number of Screws

Type

N = Single disc pack, standard
S = Double disc pack, standard

CA = Compact, two hubs inward mounted
CB = Compact, one hub inward mounted

Mounting situation

- Distance between shaft ends (DBSE)
  (Type N - no declaration)

Nabenausführung

design with keyway - no declaration
O = Flange version for Drop-Out version

K = Clamping hub slotted
Z = Clamping hub with shrink disc
Y = Clamping hub, splitted
X = internal clamping element

V1 = small clamping bush design
V2 = large clamping bush design

Type of bore

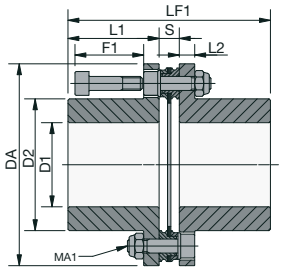
with keyway acc. to DIN 6885/1 => Ø D1 resp. Ø D9

with K => Ø D11
with Z => Ø D7 + Ø D6

with Y => type of clamping element + Ø D6
with X => type of clamping element + Ø D3

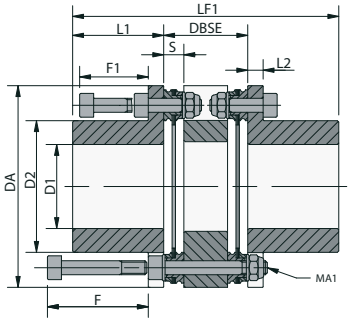
Type N + S

FD-C N



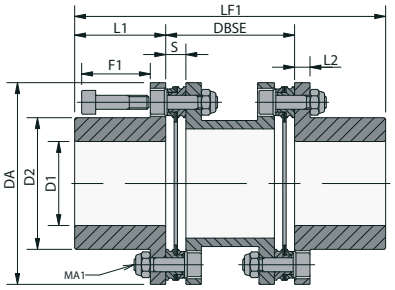
standard

FD-C S DBSEmin



standard, short type

FD-C S



standard

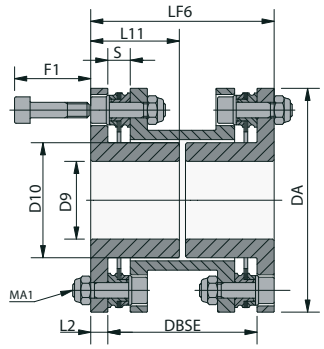
Standard version, pilot bore or finish bore with keyway.
The keyway connection is not recommended for backlash free transmissions.
Radial disc pack dismounting without displacement of the hubs.

Size	L1 [mm]	DA [mm]	pre-bored D1min [mm]	D1max [mm]	D2 [mm]	F [mm]	F1 [mm]	L2 [mm]	MA1 [-]	MA1 [Nm]	FD-C S [mm]	FD-C DBSE[1)] [mm]	FD-C LF1 [mm]	FD-C LF2 [mm]	FD-CL S [mm]	FD-CL DBSE[1)] [mm]	FD-CL LF1 [mm]	FD-CL LF2 [mm]
40	17	40	6	18	26	25	15	4	M3	1,5	2,9	16	36,9	50	-	-	-	-
												26		60				
53	24,5	53	6	22	32,5	43	24	5	M5	7	6,9	30	55,9	79	-	-	-	-
												43		92				
72	39,5	70,5	10	32	47	43	24	5	M5	8	7,5	31,2	86,5	110,2	7,6	31,4	86,6	110,4
												60		139		60,2		139,2
												100		179		100,2		179,2
												140		219		140,2		219,2
89	45	88	14	42	62,5	53	32	8	M6	14	8,8	37,6	98,8	127,6	9	38	99	128
												70		160		70,4		160,4
												80		170		80,4		170,4
												100		190		100,4		190,4
												140		230		140,4		230,4
118	55	116,5	15	55	82	67	40	10	M8	31	10,4	46,3	120,4	156,3	10,8	47,1	120,8	157,1
												100		210		100,8		210,8
												140		250		140,8		250,8
												180		290		180,8		290,8
142	60	140,5	19	65	98	82	47	11	M10	62	12	55	132	175	12,2	55,4	132,2	175,4
												100		220		100,4		220,4
												140		260		140,4		260,4
												180		300		180,4		300,4
168	75	166,5	25	80	118	94	55	12	M12	110	13	62,6	163	212,6	13	62,6	163	212,6
												100		250		100		250
												140		290		140		290
												180		330		180		330
200	90	198,5	30	95	141	-	64	14	M14	180	15	140	195	320	15,2	140,4	195,2	320,4
												180		360		180,4		360,4
238	125	238	39	115	169	-	81	16	15,75	280	20,8	140	270,8	390	22	142,4	272	392,4
												180		430		182,4		432,4
												250		500		252,4		502,4
295	160	295	59	140	205	-	112	22	M20	540	28	200	348	520	28,2	200,4	348,2	520,4
												250		570		250,4		570,4
345	200	345	79	175	254	-	133	26	M24	950	32,2	224	432,2	624	32,4	224,4	432,4	624,4
												250		650		250,4		650,4
												300		700		300,4		700,4
420	210	420	90	180	262	-	137	32	M10	60	34	280	454	700	-	-	-	-
510	240	510	100	215	316	-	172	38	M12	105	46,8	350	526,8	830	-	-	-	-

[1)] Available up to 3000 mm upon request

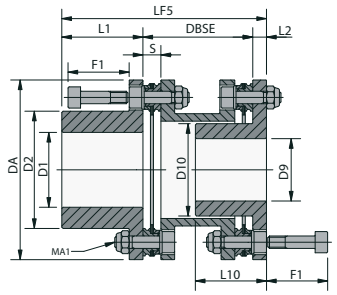
Type CB + CA

FD-C CA



compact, short type

FD-C CB



compact

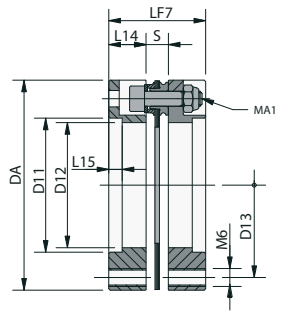
Compact, pilot bore or finish bore with keyway.
The keyway connection is not recommended in backlash free transmissions.
Radial disc pack dismounting without displacement of the hubs.

Size	L1 [mm]	L10 [mm]	L11 [mm]	DA [mm]	pre-bored D1min [mm]	pre-bored D9min [mm]	D1max [mm]	D9max [mm]	D2 [mm]	D10 [mm]	F1 [mm]	L2 [mm]	MA1 [-]	MA1 [Nm]	FD-C S [mm]	FD-C DBSE[1] [mm]	FD-C LF5 [mm]	FD-C LF6 [mm]	FD-CL S [mm]	FD-CL DBSE[1] [mm]	FD-CL LF5 [mm]	FD-CL LF6 [mm]
53	24,5	24,5	24,5	53	6	6	22	17	32,5	24,5	24	5	M5	7	6,9	43	72,5	53	-	-	-	-
72	39,5	39,5	34,5	70,5	10	10	32	25	47	37	24	5	M5	8	7,5	60	104,5	70	7,6	60,2	104,7	70,2
		39,5	39,5													100	144,5	110		100,2	144,7	110,2
		39,5	39,5													140	184,5	150		140,2	184,7	150,2
89	45	45	40	88	14	14	42	32	62,5	48	32	8	M6	14	8,8	70	123	86	9	70,4	123,4	86,4
		45	45													80	133	96		80,4	133,4	96,4
		45	45													100	153	116		100,4	153,4	116,4
		45	45													140	193	156		140,4	193,4	156,4
118	55	55	55	116,5	15	15	55	44	82	64	40	10	M8	31	10,4	100	165	120	10,8	100,8	165,8	120,8
		55	55													140	205	160		140,8	205,8	160,8
		55	55													180	245	200		180,8	245,8	200,8
142	60	60	58	140,5	19	19	65	50	98	77	47	11	M10	62	12	100	171	122	12,2	100,4	171,4	122,4
		60	60													140	211	162		140,4	211,4	162,4
		60	60													180	251	202		180,4	251,4	202,4
168	75	75	60	166,5	25	25	80	60	118	90,5	55	12	M12	110	13	100	187	124	13	100	187	124
		75	75													140	227	164		140	227	164
		75	75													180	267	204		180	267	204
200	90	90	81	198,5	30	30	95	75	141	114	64	14	M14	180	15	140	244	168	15,2	140,4	244,4	168,4
		90	90													180	284	208		180,4	284,4	208,4
238	125	125	-	238	39	39	115	90	169	135	81	16	15,75	280	20,8	140	281	-	22	142,4	283,4	-
		125	104													180	321	212		182,4	323,4	214,4
		125	125													250	391	282		252,4	393,4	284,4
295	160	160	-	295	59	59	140	115	205	170	112	22	M20	540	28	200	382	-	28,2	200,4	382,4	-
		160	140													250	432	294		250,4	432,4	294,4
345	200	200	-	345	79	79	175	120	254	180	133	26	M24	950	32,2	224	450-	-	32,4	224,4	450,4	-
		200	145													250	476	302		250,4	476,4	302,4
		200	168													300	526	352		300,4	526,4	352,4

[1] Available up to 3000 mm upon request

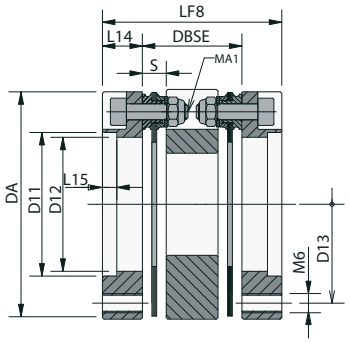
Type NO + SO

FD-C NO



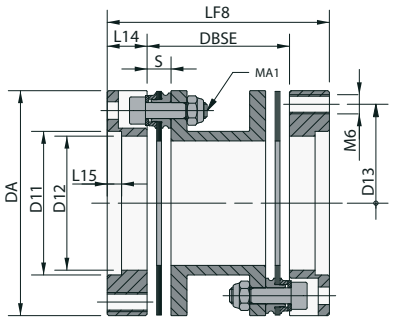
flange version

FD-C SO DBSEmin



flange version, short type

FD-C SO



flange version

Flange version. For radial disc pack dismounting need of axial displacement of the flanges.

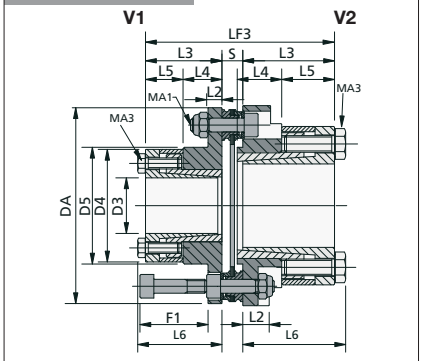
Drop out with corresponding hubs possible. The complete coupling can be radially dismounted without any displacement of the components, and without tightening/ releasing the screws of the disc pack.

Size	L14 [mm]	DA [mm]	D11 [mm]	D12 [mm]	L15 [mm]	MA1 [-]	MA1 [Nm]	M6 [mm]	D13 [mm]	FD-C S [mm]	FD-C DBSE[1)] [mm]	FD-C LF7 [mm]	FD-C LF8 [mm]	FD-CL S [mm]	FD-CL DBSE[1)] [mm]	FD-CL LF7 [mm]	FD-CL LF8 [mm]
72	12,5	70,5	45	42	4,5	M5	8	6xM8	62	7,5	31,2	32,5	56,2	7,6	31,4	32,6	56,4
											60		85		60,2		85,2
											100		125		100,2		125,2
											140		165		140,2		165,2
89	17	88	50	48	4,5	M6	14	6xM8	75	8,8	37,6	42,8	71,6	9	38	43	72
											70		104		70,4		104,4
											80		114		80,4		114,4
											100		134		100,4		134,4
											140		174		140,4		174,4
118	22	116,5	75	72	5	M8	31	6xM10	103	10,4	46,3	54,4	90,3	10,8	47,1	54,8	91,1
											100		144		100,8		144,8
											140		184		140,8		184,8
											180		224		180,8		224,8
142	27	140,5	92	89	5	M10	62	6xM12	116	12	55	66	109	12,2	55,4	66,2	109,4
											100		154		100,4		154,4
											140		194		140,4		194,4
											180		234		180,4		234,4
168	31	166,5	105	100	5	M12	110	6xM14	140	13	62,6	75	124,6	13	62,6	75	124,6
											100		162		100		162
											140		202		140		202
											180		242		180		242
200	34	198,5	120	115	7	M14	180	6xM16	175	15	140	83	208	15,2	140,4	83,2	208,4
											180		248		180,4		248,4
238	41	238	140	135	7	15,75	280	6xM20	210	20,8	140	102,8	222	22	142,4	104	224,4
											180		262		182,4		264,4
											250		332		252,4		334,4
295	52	306	160	155	7	M20	540	8xM24	240	28	200	132	304	28,2	200,4	132,2	304,4
											250		354		250,4		354,4
345	64	360	180	175	7	M24	950	8xM30	275	32,2	224	160,2	352	32,4	224,4	160,4	352,4
											250		378		250,4		378,4
											300		428		300,4		428,4

[1)] Available up to 3000 mm upon request

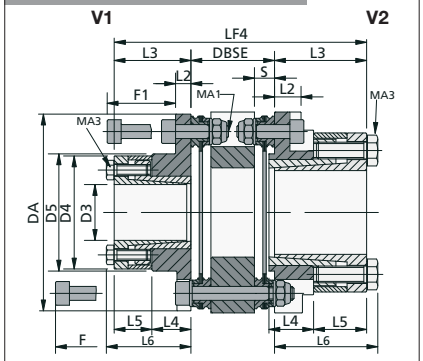
Type NX + SX

FD-C NX



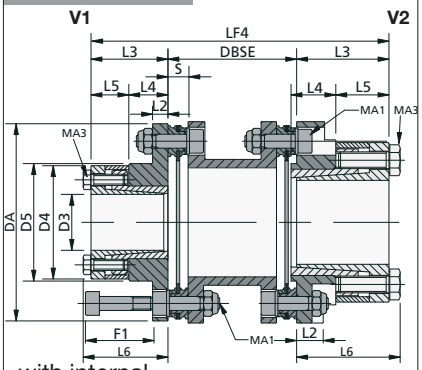
with internal
clamping element

FD-C SX DBSEmin



with internal
clamping element, short type

FD-C SX



with internal
clamping element

Hub with internal clamping element.
Backlashfree torque transmission.
V1, disc pack radial dismounting without hub displacement.
V2, Disc pack radial dismounting needs axial displacement of the clamping element.

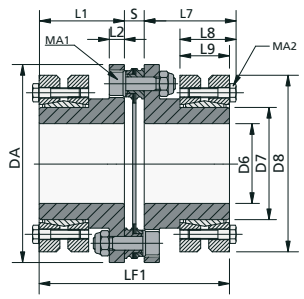
Type NX - SX Available bore sizes [mm]
Peak torque transmissible [Nm] by the clamping element for h8 shafts

Size	D3	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

Size	type	DA	L2	F	F1	L3	L4	L5	L6	D4	D5	MA1		MA3		FD-C				FD-CL			
																S	DBSE	LF3	LF4	S	DBSE	LF3	LF4
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[-]	[Nm]	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
53 + 145	V2	53	9,5	-	-	25,5	14	13,5	28,5	40,5	42	M5	7	M4	5	6,9	30	57,9	81	-	-	-	-
																	43		94				
72 + 145	V1	70,5	5	43	25	27,5	14	13,5	30,5	40,5	42	M5	8	M4	5	7,5	31,2	62,5	86,2	7,6	31,4	62,6	86,4
																	60		115		60,2		115,2
																	100		155		100,2		155,2
																	140		195		140,2		195,2
72 + 330	V2	70,5	10	-	-	33	14	19	37	57	58	M5	8	M6	17	7,5	31,2	73,5	97,2	7,6	31,4	73,6	97,4
																	60		126		60,2		126,2
																	100		166		100,2		166,2
																	140		206		140,2		206,2
89 + 500	V1	88	8	53	32	44,5	27	19	48,5	57	60	M6	14	M6	17	8,8	37,6	97,8	126,6	9	38	98	127
																	70		159		70,4		159,4
																	80		169		80,4		169,4
																	100		189		100,4		189,4
																	140		229		140,4		229,4
89 + 920	V2	88	15	-	-	44,5	25,5	19	48,5	70,5	72	M6	14	M6	17	8,8	37,6	97,8	126,6	9	38	98	127
																	70		159		70,4		159,4
																	80		169		80,4		169,4
																	100		189		100,4		189,4
																	140		229		140,4		229,4
118 + 1140	V1	116,5	10	67	40	35	16,5	18,5	39	74	80	M8	31	M6	17	10,4	46,3	80,4	116,3	10,8	47,1	80,8	117,1
																	100		170		100,8		170,4
																	140		210		140,8		210,4
																	180		250		180,8		250,4
118 + 1370	V2	116,5	19	-	-	44	27	19	50	89,5	92	M8	31	M6	17	10,4	46,3	98,4	134,3	10,8	47,1	98,8	135,1
																	100		188		100,8		188,4
																	140		228		140,8		228,4
																	180		268		180,8		268,4
142 + 920	V1	140,5	11	82	47	45,5	26,5	19	50	70,5	72	M10	62	M6	17	12	55	103	146	12,2	55,4	103,2	146,4
																	100		191		100,4		191,4
																	140		231		140,4		231,4
																	180		271		180,4		271,4
142 + 2820	V1	140,5	11	82	47	59,5	36,5	23	65	96,5	98	M10	62	M8	41	12	55	131	174	12,2	55,4	131,2	174,4
																	100		219		100,4		219,4
																	140		259		140,4		259,4
																	180		299		180,4		299,4
168 + 2820	V1	166,5	12	94	55	59,5	36,5	23	65	96,5	98	M12	110	M8	41	13	62,6	132	181,6	-	-	-	-
																	100		219				
																	140		259				
																	180		299				
200 + 2820	V1	198,5	14	-	64	59,5	36,5	23	65	96,5	98	M14	180	M8	41	15	140	134	259	-	-	-	-
																	180		299				

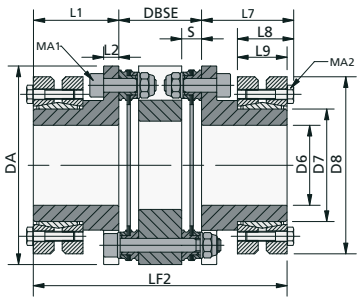
Type NZ + SZ

FD-C NZ



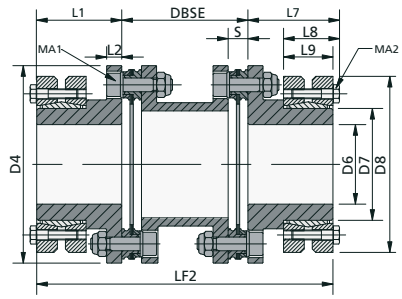
clamping with shrink disc

FD-C SZ DBSEmin



clamping with shrink disc, short type

FD-C SZ

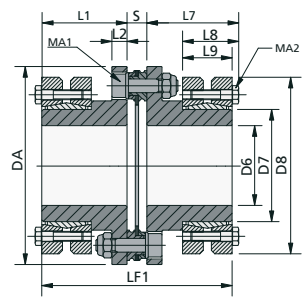


clamping with shrink disc

Size	D7	L1	L7	DA	D6[2)]	L2	D8	L8	L9	MA1		MA2		TL Torque, limited
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[-]	[Nm]	[-]	[Nm]	[Nm]
89	**30**	45	48,5	88	24-25-26	8	60	24,5	21	M6	14	M5	6	310-340-380
89	**36**		49		28-30-31		72	27	23			M6	12	460-590-630
89	**44**		49		32-35-36		80	29	25			M6	12	630-780-860
89	**50**		49		38-40-42		90	31	27			M6	12	940-1100-1300
118	**50**	55	59	116,5	38-40-42	10	90	31	27	M8	31	M6	12	940-1100-1300
118	**55**		59		42-45-48		100	34	30			M6	12	1200-1500-1900
118	**75**		60,5		50-55-60-65		138	37,5	32			M8	30	2000-2500-3200-3900
142	**68**	60	64	140,5	50-55-60	11	115	34	30	M10	62	M6	12	2000-2500-3100
142	**90**	63,5	69		65-70-75		155	44,5	39			M8	30	4700-6000-7200
168	**68**	75	79	166,5	50-55-60	12	110	34	30	M12	110	M6	12	2000-2500-3100
168	**90**	75	80,5		65-70-75		155	44,5	39			M8	30	4700-6000-7200
168	**115**	80,5	87		80-85-90		188	56,5	50			M10	59	8500-10000-12000
200	**68**	90	94	198,5	50-55-60	14	110	34	30	M14	180	M6	12	2000-2500-3100
200	**90**		95,5		65-70-75		155	44,5	39			M8	30	4700-6000-7200
200	**115**		96,5		80-85-90		188	56,5	50			M10	59	8500-10000-12000
200	**130**		97		90-95-100-110		215	59	52			M10	59	13700-15800-18200-23500
238	**100**	125	130,5	238	70-75-80	16	170	49,5	44	15,75	280	M8	30	6900-7500-9000
238	**130**	125	132		90-95-100-110		215	59	52			M10	59	13700-15800-18200-23500
238	**155**	125	132,5		105-110-115-120		265	71,5	64			M12	100	20000-23000-26000-29500
238	**165**	129	139		115-120-125-135		290	81	71			M16	250	36000-39000-44000-51200
295	**130**	160	167	295	90-95-100-110	22	215	59	52	M20	540	M10	59	13700-15800-18200-23500
295	**160**		167,5		110-115-120-125		265	71,5	64			M12	100	22500-25500-28600-33000
295	**175**		170		125-130-135-140		300	81	71			M16	250	40000-44000-49000-52500
295	**185**		170		130-140-145-150		330	96	86			M16	250	50000-55000-60000-65000
295	**195**		170		140-150-155-165		350	96	86			M16	250	66000-76000-82000-96000
345	**170**	200	210	345	120-125-130-135	26	290	81	71	24	950	M16	250	31700-35800-40000-45000
345	**195**		210		140-150-155-165		350	96	86			M16	250	66000-76000-82000-96000
345	**220**		210		160-165-170-180		370	114	104			M16	250	95000-102000-110000-128000
345	**250**		212,5		180-190-200-210		405	120,5	108			M16	250	160000-180000-200000-212000
420	**195**	210	220	420	140-150-155-165	32	350	96	86	M10	60	M16	250	66000-76000-82000-96000
420	**220**		220		160-165-170-180		370	114	104			M16	250	95000-102000-110000-128000
420	**260**		222,5		180-190-200-220		430	132,5	120			M20	490	165000-185000-204000-214000
510	**220**	240	250	510	160-165-170-180	38	370	114	104	M12	105	M16	250	95000-102000-110000-128000
510	**260**		252,5		180-190-200-220		430	132,5	120			M16	250	165000-185000-204000-214000
510	**300**		260		230-240-250-260		485	142	122			M20	490	274000-296000-316000-364000

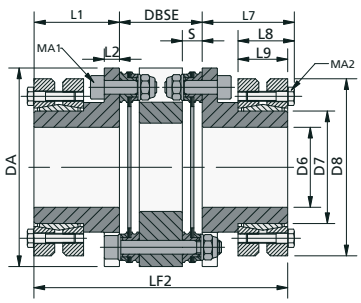
Type NZ + SZ

FD-C NZ



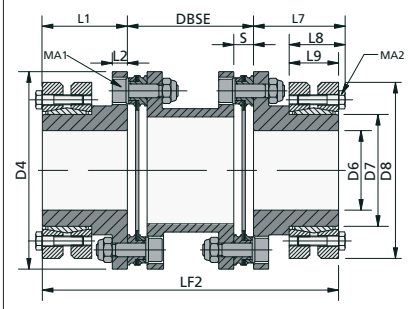
clamping with shrink disc

FD-C SZ DBSEmin



clamping with shrink disc, short type

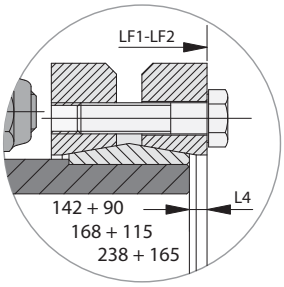
FD-C SZ



clamping with shrink disc

Size	FD-C				FD-CL			
	S [mm]	DBSE[1] [mm]	LF1 [mm]	LF2 [mm]	B [mm]	DBSE[1] [mm]	LF1 [mm]	LF2 [mm]
89	8,8	37,6	98,8	127,6	9	38	99	128
		70		160		70,4		160,4
		80		170		80,4		170,4
		100		190		100,4		190,4
		140		230		140,4		230,4
118	10,4	46,3	100,4	156,3	10,8	47,1	100,8	157,1
		100		210		100,8		210,4
		140		250		140,8		250,4
		180		290		180,8		290,4
142	12	55	132	175	12,2	55,4	132,2	175,4
		100		220		100,4		220,4
		140		260		140,4		260,4
		180		300		180,4		300,4
		55	139	182[3]		55,4	139,2	182,4
		100		227[3]		100,4		227,4[3]
		140		267[3]		140,4		267,4[3]
		180		307[3]		180,4		307,4[3]
168	13	62,6	163	216,6	13	62,6	163	216,6
		100		250		100		250
		140		290		140		290
		180		320		180		320
		100	174	261[4]		100	174	261[4]
		140		301[4]		140		301[4]
		180		341[4]		180		341[4]
200	15	140	195	320	15,2	140,4	195,2	320,4
		180		360		180,4		360,4
238	20,8	140	270,8	390	22	142,4	272	392,4
		180		430		182,4		432,4
		250		500		252,4		502,4
		140	278,8	398[3]		142,4	280	400,4[3]
		180		438[3]		182,4		440,4[3]
		250		508[3]		252,4		510,4[3]
295	28	200	348	520	28,2	200,4	348,2	520,4
		250		570		250,4		570,4
345	32,2	224	432,2	624	32,4	224,4	432,4	624,4
		250		650		250,4		650,4
		300		700		300,4		700,4
420	34	280	454	700	-	-	-	-
510	46,8	350	526,8	830	-	-	-	-

Hub with shrink disc.
Backlashfree torque transmission.
Radial disc pack dismounting needs the release and axial displacement of the shrink disc.



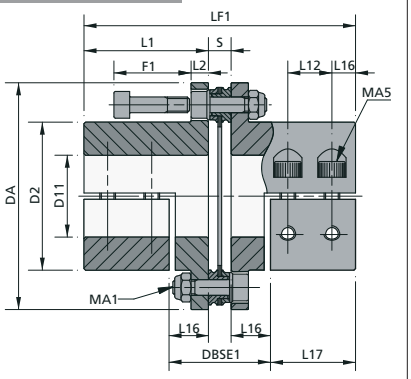
[1] Available up to 3000 mm upon request

Shaft and hub bore fit tollerances:
[2] Ø 24 - Ø 30 = H6-j6 / Ø 30 - Ø 50 = H6-h6 / Ø 50 - Ø 80 = H6-g6 / Ø 80 - Ø 260 = H7-g6

[3] L4= 3,5 - [4] L4=5,5 - [5] L4=4

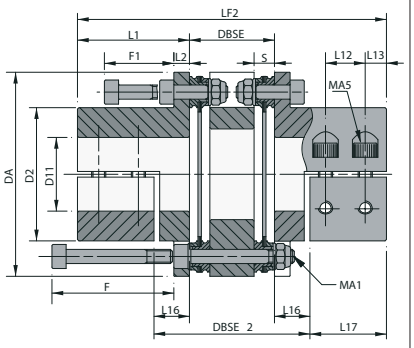
Type NY + SY

FD-C NY



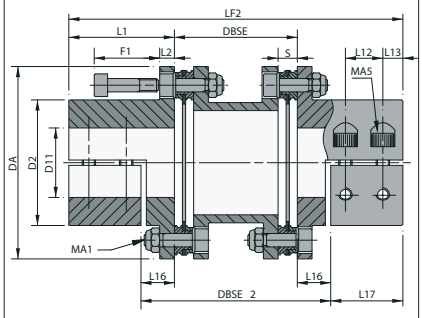
with clamping hub, split

FD-C SY DBSEmin



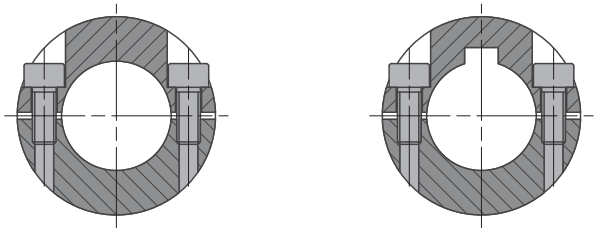
with clamping hub, split, short type

FD-C SY



with clamping hub, split

standard | **with keyway**



Clamping hub, split.
Keyway available.
Disc pack radial dismounting without hub displacement.
The complete coupling can be radially dismounted without any displacement of the shafts, and without tightening/ releasing the screws of the pack.

Typ NY - SY Available bore sizes [mm]
Peak torque transmissible [Nm] by the clamping element for h7 shafts, without keyway

Size \ D11 max	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65	70	75	80	MA5 [-]	MA5 [Nm]
72	130	140	155	165	175	190	210	220																	M6	17
									170	185															M5	9,7
89					320	350	385	400	450	480	515	560													M8	41
													335	350											M6	17
118										780	835	910	990	1040	1095	1175									M10	83
																	770	805	885						M8	41
142										780	835	910	990	1040	1095	1175	1250	1305	1435	1565	1700				M10	83
168												1350	1470	1545	1625	1740	1855	1935	2125	2320	2515	2700	2900	3095	M12	145

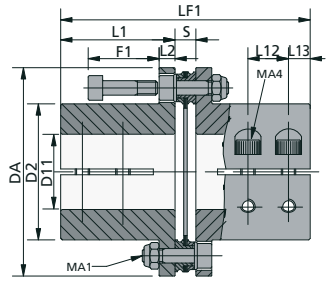
MA5 [Nm] = Clamping hub screw tightening torque

Size	L1	DA	D2	F	F1	L2	MA1		MA5		L13	L16	L12	L17	FD-C						FD-CL					
															S	DBSE[1)]	DBSE1	LF1	DBSE2	LF2	S	DBSE[1)]	DBSE1	LF1	DBSE2	LF2
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[-]	[Nm]	[-]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
72	39,5	70,5	47	43	24	5	M5	8	M6	17	7,5	12,5	13	27	7,5	31,2	32,5	86,5	56,2	110,2	7,6	31,4	32,6	86,6	56,4	110,4
																60			85	139		60,2			85,2	139,2
									M5	9,7						100			125	179		100,2			125,2	179,2
																140			165	219		140,2			165,2	219,2
89	45	88	62,5	53	32	8	M6	14	M8	41	8	17,5	14	27,5	8,8	37,6	43,8	98,8	72,6	127,6	9	38	44	99	73	128
																70			105	160		70,4			105,4	160,4
																80			115	170		80,4			115,4	170,4
									M6	17						100			135	190		100,4			135,4	190,4
																140			175	230		140,4			175,4	230,4
118	55	116,5	82	67	40	10	M8	31	M10	83	10	21	17	34	10,4	46,3	52,4	120,4	88,3	156,3	10,8	47,1	52,8	120,8	89,1	157,1
																100			142	210		100,8			142,8	210,8
									M8	41						140			182	250		140,8			182,8	250,8
																180			222	290		180,8			222,8	290,8
142	60	140,5	98	82	47	11	M10	62	M10	83	10	25	18,5	35	12	55	62	132	105	175	12,2	55,4	62,2	132,2	105,4	175,4
																100			150	220		100,4			150,4	220,4
																140			190	260		140,4			190,4	260,4
																180			230	300		180,4			230,4	300,4
168	75	166,5	118	94	55	12	M12	110	M12	145	13	30	23	45	13	62,6	73	163		212,6	13	62,6	73	163		212,6
																100			160	250		100			160	250
																140			200	290		140			200	290
																180			240	330		180			240	330

[1)] Available up to 3000 mm upon request

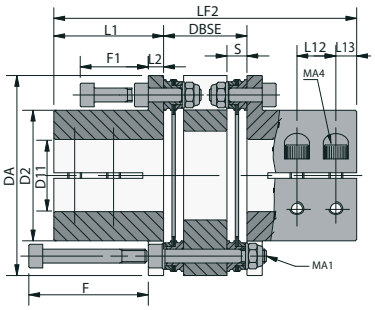
Type NK + SK

FD-C NK



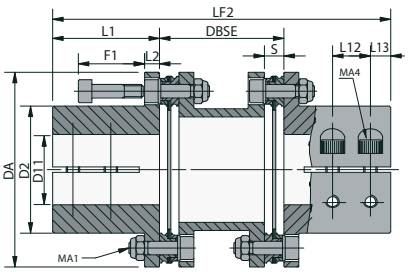
with clamping hub, slotted

FD-C SK DBSEmin



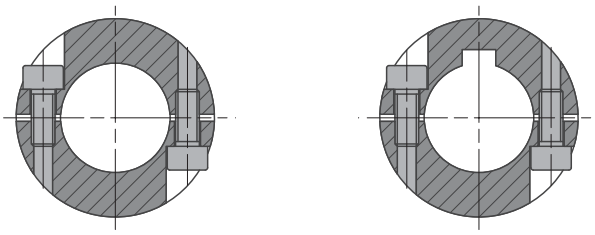
with clamping hub, slotted, short type

FD-C SK



with clamping hub, slotted

standard | **with keyway**



Clamping hub, slotted.
Keyway available.
Disc pack radial dismounting without hub displacement.

Typ NK - SK

Available bore size [mm]
Transmissible torque [Nm] without keyway for h7 shafts

Size \ D11 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	MA4 [-]	MA4 [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
89										120	150	180	210	250	300	350	360									M8	41
118															360	420	490	550	650	720	790					M10	83
142															340	380	420	470	500	600	650	750	900	1200	1450	M10	83

MA4 [Nm] = Clamping hub screw tightening torque

Size	L1 [mm]	DA [mm]	D2 [mm]	F [mm]	F1 [mm]	L2 [mm]	MA1 [-]	MA1 [Nm]	MA4 [-]	MA4 [Nm]	L12 [mm]	L13 [mm]	FD-C S [mm]	FD-C DBSE[1] [mm]	FD-C LF1 [mm]	FD-C LF2 [mm]	FD-CL S [mm]	FD-CL DBSE[1] [mm]	FD-CL LF1 [mm]	FD-CL LF2 [mm]
40	17	40	26	25	15	4	M3	1,5	M4	5,2	-	4,5	2,9	16	36,9	50	-	-	-	-
									M3	2,6				26		60				
53	24,5	53	32,5	43	24	5	M5	7	M4	5,2	9	5	6,9	30	55,9	79	-	-	-	-
														43		92				
72	39,5	70,5	47	43	24	5	M5	8	M6	17	13	7,5	7,5	31,2	86,5	110,2	7,6	31,4	86,6	110,4
														60		139		60,2		139,2
														100		179		100,2		179,2
														140		219		140,2		219,2
89	45	88	62,5	53	32	8	M6	14	M8	41	16	9	8,8	37,6	98,8	127,6	9	38	99	128
														70		160		70,4		160,4
														80		170		80,4		170,4
														100		190		100,4		190,4
														140		230		140,4		230,4
118	55	116,5	82	67	40	10	M8	31	M10	83	19,5	10,5	10,4	46,3	120,4	156,3	10,8	47,1	120,8	157,1
														100		210		100,8		210,8
														140		250		140,8		250,8
														180		290		180,8		290,8
142	60	140,5	98	82	47	11	M10	62	M10	83	20	11,5	12	55	132	175	12,2	55,4	132,2	175,4
														100		220		100,4		220,4
														140		260		140,4		260,4
														180		300		180,4		300,4

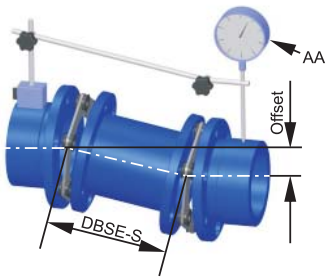
[1] Available up to 3000 mm upon request

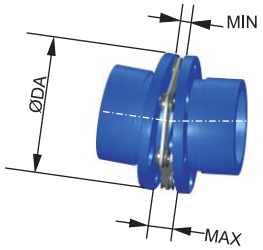
Mounting instructions

FlexDur FD-C hub bores are machined with a H7 (ISO-286) tolerance as a standard. For clamping set connections a g6 tolerance for the shaft is recommended. For other connection types please contact REICH-KUPPLUNGEN.

AA: max. difference of the total indicator reading after one rotation in mm corresponding to twice the radial displacement.

$$AA \leq \frac{DBSE - S}{150}$$



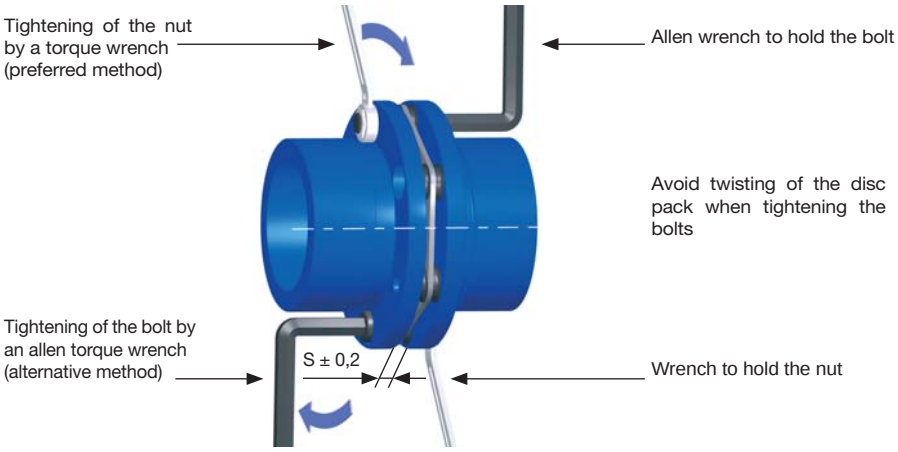


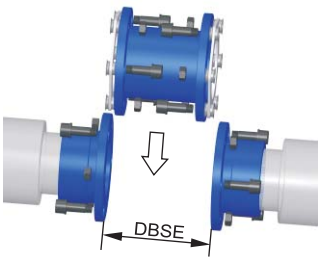
$$(MAX - MIN) \leq \frac{D_A}{300}$$

$$S=(MAX - MIN) / 2$$

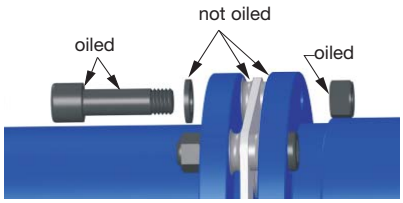
The coupling has to be aligned within the prescribed limits. The service life of the disc pack is directly dependent on the amount of the displacements as they actually occur during operation. Therefore the alignment for the expected operating conditions should be performed with best possible precision. The misalignment during mounting should not exceed 25% of the max. permissible misalignment.

The only tools required are a normal and a torque wrench. The bolts should be tightened uniformly one after the other in clockwise direction in several steps (e. g. 30%, 60%, 80%, 100%) of the respective bolt tightening torque MA1, MA2 or MA3.





Mounting of the spacer



After mounting with aligned shafts the dimension S must be kept to prevent a pretensioning of the disc pack.

Safety precautions

It is the customer´s and user´s responsibility to observe the national and international safety rules and laws. Check all bolted connections for proper fit preferably after the test run.

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