COUPLINGS

DRIVE SOLUTIONS

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FOR GENERAL PURPOSE

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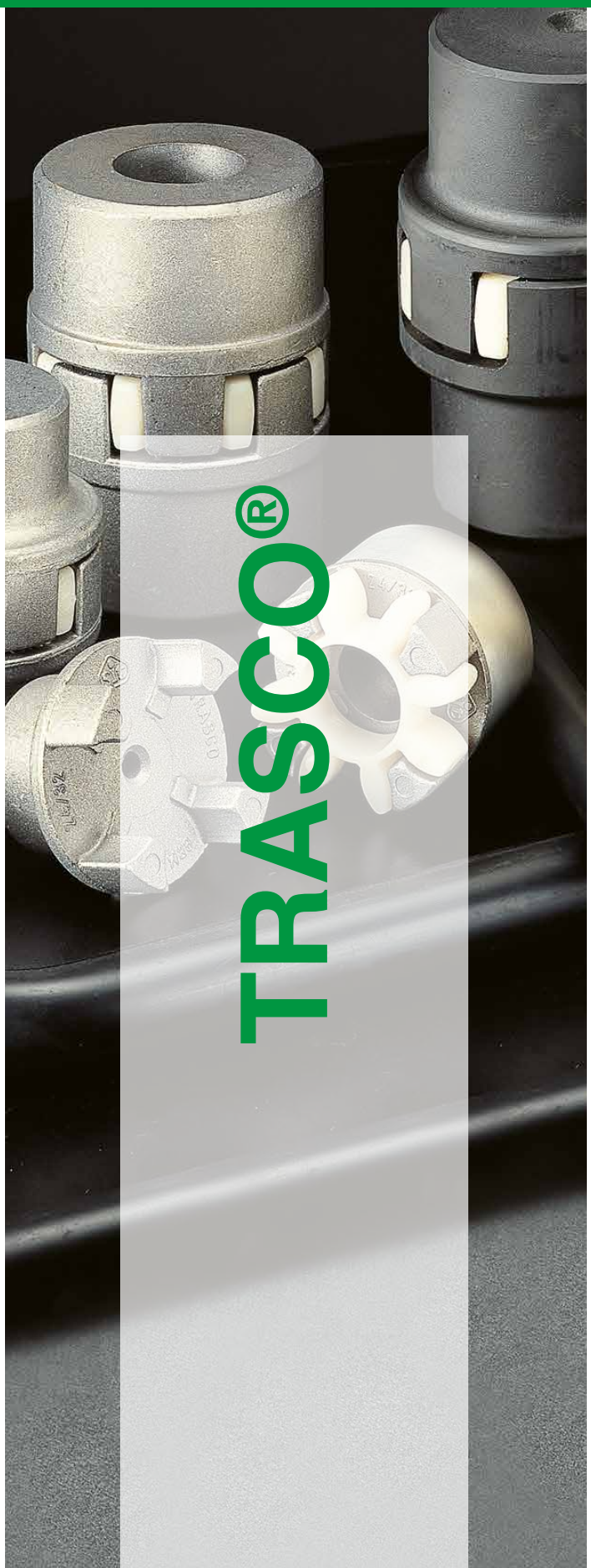
TRASCO® COUPLINGS

sit DRIVE SOLUTIONS

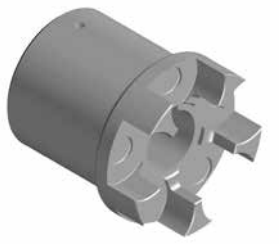


TRASCO® Couplings

Description

TRASCO® flexible coupling is the flexible and omocinetic coupling that assures the best performance in relation to the physical space occupied in its class. It has a very compact design and allows safe power transmission by absorbing peak loads and torsional vibrations. Moreover, the elastic design of the polyurethane gear ring compensates for angular and radial misalignments and also absorbs small shaft length variation. The involute profile of the gear ring teeth prevents high stress concentrations on reduced surfaces and the crowned profile and avoids the transmission of axial stress. The high duty factor of TRASCO® couplings is due to the fact that the elastic element works under compression and never under flexion.
TRASCO® couplings are suitable for working in both horizontal and in vertical positions and easily support any load variation or reversal motion. The two coupling halves are electrically insulated from each other.

Type "**A**"
execution
Ø hub reduced



Type "**AL**"
execution
long hub
Ø reduced

"**AR**" spider

Type "**B**"
execution

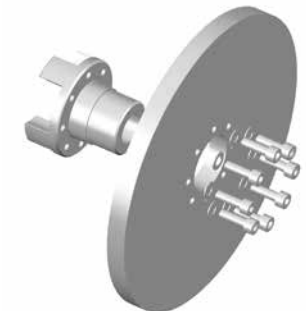
Type "**BL**"
execution
long hub

Type "**GRB**"
execution
for SER-SIT® taper bushing

Type "**GRS**"
execution

Execution for SIT-LOCK® 8
locking devices

Type "**GRF**"
execution flanged



Type "**GRFRD-GRFRT**"
execution

ATEX Directive 2014/34/EU

It is possible to ask for specific certification for use in hazardous area according to ATEX Directive 2014/34/EU.
TRASCO® couplings are available with specific mounting/operating instruction manual and conformity. For information, please contact our technical office.

Hubs

TRASCO® flexible couplings consist of two precision machined metal hubs and an elastic gear ring (spider) which is resistant to oils, chemical agents, and heat.
Hubs are available in cast iron GG25 or aluminum and, in case of special request, in steel or cast iron GGG40.
Each hub is available in version "A" and "B" (in standard or long hub "L" version) which can accommodate different size of bores, leaving unchanged the performance and the technical features.

Note: It is possible to have aligned keyways upon inquiry.

Spider

The gear ring is made of a particular polyurethane resin which shows great advantages in comparison to the standard polyurethanes available on the market. The urethane compound of our polyurethane gear ring offers resistance to aging, hydrolysis, fatigue, and abrasion making it suitable for even the most demanding applications in high humidity conditions. It is self-dampening and shows a great resistance to the main chemical agents, acids, oils, and ozone.
Special types of gear rings are available in order to provide the right solution for each specific application covering a large range of temperatures and resisting specific chemical agents.

Standard spiders					
Standard spiders	Colors	Compound	Admissible temperature [°C]		Applications
			on work	peaks	
92 Sh A	Giallo	Poliuretano	from -40 to +90	from -50 to +120	the most of industrial application (low-mid power)
98 Sh A	Rosso	Poliuretano	from -30 to +90	from -40 to +120	high torque/narrow angular misalignment/torsional rigidity
64 Sh D	Verde	Poliuretano	from -30 to +110	from -30 to +130	dampened areas/internal combustion engines

Spiders for special applications					
Standard spiders	Colors	Compound	Admissible Temperature [°C]		Applications
			on work	peaks	
80 Sh A	Blue	Polyurethane	from -50 to +80	from -60 to +120	Applications with small loads and high misalignments
PA	Grey	Polyamide	from -20 to +110	from -30 to +150	high torsion rigidity/high temperature areas high resistance

Available on request spiders with different compound for special applications:

- High working temperature
- Heavy working conditions
- Heavy environment conditions
- Resistance to specific chemicals

TRASCO® coupling sizing

TRASCO® coupling sizing is made according to DIN 740/2. Couplings must be selected to ensure that the maximum admissible torque is never exceeded during operation.
It is necessary to have correct sizing, so that all conditions hereunder are respected.

Verification should be conducted on both nominal torque and maximum transmissible torque:

1) Verify the nominal torque
The nominal torque of the coupling must be greater than or equal to the nominal torque of the drive multiplied by the temperature safety factor.

$$T_{KN} \geq T_N \cdot S_\theta \quad [Nm]$$

where the nominal torque of the T_N motor side is obtained by the formula:

$$T_N = 9550 \frac{P_N}{n} \quad [Nm]$$

Where P_N is the motor nominal power in kW ed ***n*** is is the number of rpm.

2) Verify the maximum torque
The maximum torque of the coupling must be greater than the starting torque and multiplied by the temperature coefficients, starting frequency and shock frequency

$$T_{Kmax} \geq T_S \cdot S_\theta \cdot S_Z \cdot S_U \quad [Nm]$$

3) Verify torque with reversal
In the case of torque with reversals in addition to 1) and 2), it must also be verified that the torque with reversals supportable by the T_{KW}, sia maggiore o uguale alla variazione di coppia T_W della trasmissione, corretta con il coefficiente di temperatura

$$T_{KN} \geq T_N \cdot S_\theta \quad [Nm]$$

In case of drives with high torsional vibrations (e.g. piston compressors, combustion engine) it is recommended to make a torsional vibration calculations in order to guarantee the correct functioning of the coupling. Please consult our technical office.

Shock load safety factor

Shock load type	S_U
Light	1,4
Medium	1,5
Hard	1,8

Shock load safety factor

T (°C)	-30 °C / +30 °C	+40 °C	+60 °C	+80 °C
S_θ	1	1,2	1,4	1,8

Safety factor for frequency of starting

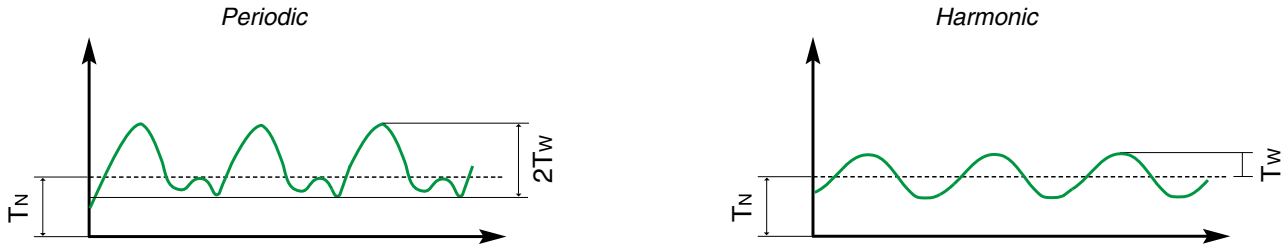
Starts/h	0 ÷ 100	101 ÷ 200	201 ÷ 400	401 ÷ 800
S_Z	1	1,2	1,4	1,6

Hub shaft connection check
Hub shaft connection must always be checked by the user. It is important to verify the maximum torque in the drive is lower than the torque which the hub shaft connection can bear. In case of keyway connection, it is important to verify the tensile strength of the hub material with the load which the keyway seat must transmit.

T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
T_{KW}	Torque with reversal transmissible by the coupling	Nm
T_N	Motor nominal torque	Nm
T_S	Motor peak torque	Nm

T_W	Torque with reversal of the machine	Nm
S_θ	Temperature factor	
S_Z	Start frequency factor	
S_U	Motor or driven-side shock factor	
P_N	Motor nominal torque	kW
n	Number of engine operating revolutions	rpm

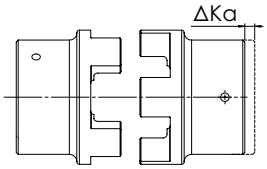
Type of stress



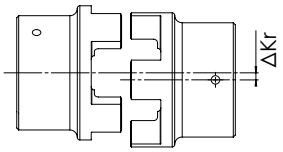
Misalignment

Size	ΔKa [mm]	ΔKr [mm]	ΔKw [°]
19/24	1,2	0,20	1°30’
24/32	1,4	0,22	1°30’
28/38	1,5	0,25	1°30’
38/45	1,8	0,28	1°30’
42/55	2,0	0,32	1°30’
48/60	2,1	0,36	1°30’
55/70	2,2	0,38	1°30’
65/75	2,6	0,42	1°30’
75/90	3,0	0,48	1°30’
90/100	3,4	0,50	1°30’
100/110	3,8	0,52	1°30’
110/125	4,2	0,55	1°30’
125/145	4,6	0,60	1°30’
140/160	5,0	0,62	1°30’
160/185	5,7	0,64	1°30’
180/200	6,4	0,68	1°30’

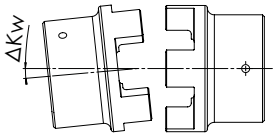
n=1500 rpm



Axial misalignment

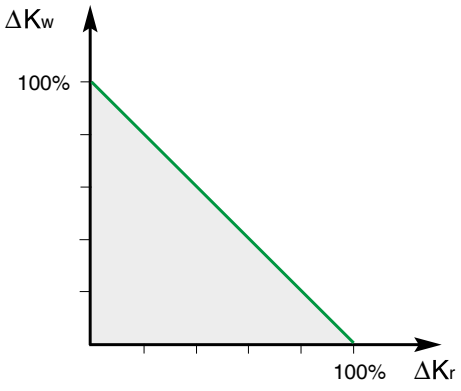


Radial misalignment



Angular misalignment

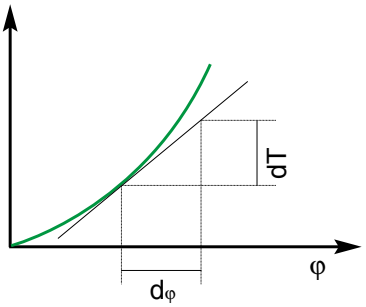
The values shown in the table for radial and angular misalignment, must be corrected in case they are simultaneously acting on the coupling.
The sum of the admissible value (A) and the respective values shown in the table must be less than or equal to 1.



$$\frac{\Delta K_{rA}}{\Delta K_r} + \frac{\Delta K_{wA}}{\Delta K_w} \leq 1$$

ΔK_a	Maximum axial misalignment	mm
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°

Dynamic torsional rigidity



Dynamic torsional rigidity C_{Tdin} is the first derivate of the nominal torque of half coupling in respect to the torsion angle.
φ is the torsion angle of half coupling in respect to the second half. As a general rule, C_{Tdin} is greater than C_T and depends on the stress acting on the coupling.

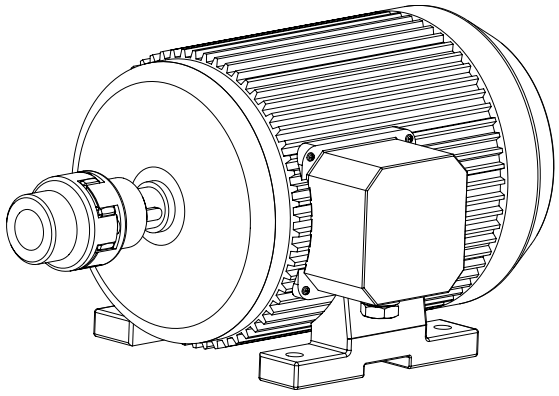
TRASCO® Technical performances

The technical performances below refer to all types of TRASCO® executions and are valid for the indicated spiders when couplings are properly selected.
For particular applications needed, such as very high chemical resistance, spiders made of special material are available.
Contact our Technical Department.

Size	Hardness spider		Torque			Max. speed	Dynamic torsional rigidity				
	Color	Shore	T_{KN} [Nm]	T_{Kmax} [Nm]	T_{KW} [Nm]	n (v=30m/s) [rpm]	n (v=40m/s) [rpm]	CTdin (1 T_{KN}) [Nm/rad]	CTdin (0,75 T_{KN}) [Nm/rad]	CTdin (0,5 T_{KN}) [Nm/rad]	CTdin (0,25 T_{KN}) [Nm/rad]
19/24	Yellow	92 Sh A	10	20	2,7	14000	19000	1280	1050	800	470
	Red	98 Sh A	17	34	4,4	14000	19000	2920	2390	1810	1070
	Green	64 Sh D	21	42	5,5	14000	19000	5350	4390	3320	1970
24/32	Yellow	92 Sh A	35	70	9	10600	14000	4860	3980	3010	1790
	Red	98 Sh A	60	120	16	10600	14000	9930	8140	6160	3650
	Green	64 Sh D	75	150	19,5	10600	14000	15110	12390	9370	5550
28/38	Yellow	92 Sh A	95	190	25	8500	11800	10900	8940	6760	4010
	Red	98 Sh A	160	320	42	8500	11800	26770	21950	16600	9840
	Green	64 Sh D	200	400	52	8500	11800	27520	22570	17060	10120
38/45	Yellow	92 Sh A	190	380	49	7100	9500	21050	17260	13050	7740
	Red	98 Sh A	325	650	85	7100	9500	48570	39830	30110	17850
	Green	64 Sh D	405	810	105	7100	9500	70150	57520	43490	25780
42/55	Yellow	92 Sh A	265	530	69	6000	8000	23740	19470	14720	8730
	Red	98 Sh A	450	900	117	6000	8000	54500	44690	33790	20030
	Green	64 Sh D	560	1120	145	6000	8000	79860	65490	49520	29350
48/60	Yellow	92 Sh A	310	620	81	5600	7100	36700	30090	22750	13490
	Red	98 Sh A	525	1050	137	5600	7100	65290	53540	40480	24000
	Green	64 Sh D	655	1310	170	5600	7100	95510	78320	59220	35100
55/70	Yellow	92 Sh A	410	820	107	4750	6300	50720	41590	31450	18640
	Red	98 Sh A	680	1250	178	4750	6300	94970	77880	58880	34900
	Green	64 Sh D	825	1650	215	4750	6300	107920	88500	66910	39660
65/75	Yellow	92 Sh A	625	1250	163	4250	5600	97130	79650	60220	35700
	Red	98 Sh A	950	1900	245	4250	5600	129510	106200	80300	47600
	Green	64 Sh D	1175	2350	305	4250	5600	151090	123900	93680	55530
75/90	Yellow	92 Sh A	1280	2560	333	3550	4750	113320	92920	70260	41650
	Red	98 Sh A	1950	3900	500	3550	4750	197500	161950	122450	72580
	Green	64 Sh D	2410	4820	325	3550	4750	248220	203540	153900	91220
90/100	Yellow	92 Sh A	2400	4800	624	2800	3750	190090	155870	117860	69860
	Red	98 Sh A	3600	7200	936	2800	3750	312200	256000	193560	114730
	Green	64 Sh D	4500	9000	1170	2800	3750	674520	553110	418200	247890
100/110	Yellow	92 Sh A	3300	6600	860	2500	3350	253080	207530	156910	93010
	Red	98 Sh A	4950	9900	1290	2500	3350	383260	314270	237620	140850
	Green	64 Sh D	6200	12400	1600	2500	3350	861170	706160	533930	316480
110/125	Yellow	92 Sh A	4800	9600	1250	2240	3000	311610	255520	193200	114520
	Red	98 Sh A	7200	14400	1870	2240	3000	690060	565850	427840	253600
	Green	64 Sh D	9000	18000	2340	2240	3000	1138590	933640	705920	418430
125/145	Yellow	92 Sh A	6650	13300	1730	2000	2650	474860	389390	294410	174510
	Red	98 Sh A	10000	20000	2600	2000	2650	1343640	1101790	833060	493790
	Green	64 Sh D	12500	25000	3250	2000	2650	1435380	1177010	889930	527500
140/160	Red	98 Sh A	12800	25600	3328	1800	2360	1424580	1168160	883240	523540
160/185	Red	98 Sh A	19200	38400	4992	1500	2000	2482230	2035430	1538980	912220
180/200	Red	98 Sh A	28000	56000	7280	1400	1800	3561450	2920400	2208100	1308840

Spider hardness	Torsion angle		Dampening factor	Resonance factor
Color	j (T_{KN}) (°)	j (T_{Kmax}) (°)	Ψ (-)	V_R (-)
Yellow	3,2°	5°	0,8	7,9
Red	3,2°	5°	0,8	7,9
Green	2,5°	3,6°	0,75	8,5

TRASCO® couplings for motors according to IEC standards (sppider hardness 92 shore)

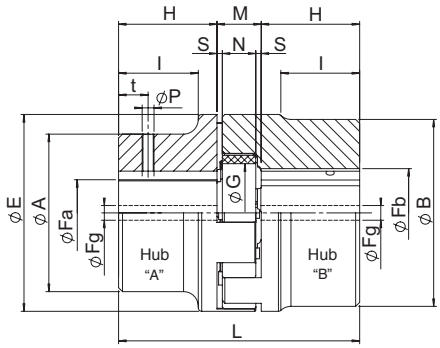


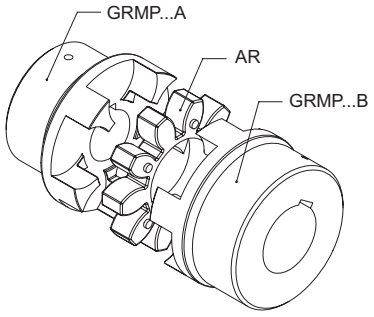
Size	3000 [1/min]				1500 [1/min]				1000 [1/min]				750 [1/min]				d x l [mm]	
	P_N [kW]	T_N [Nm]	Type	K	P_N [kW]	T_N [Nm]	Type	K	P_N [kW]	T_N [Nm]	Type	K	P_N [kW]	T_N [Nm]	Type	K	2 poles	4 - 6 - 8 poles
80	0,75	2,5	**19/24**	9,2	0,55	3,7	**19/24**	6,2	0,37	3,9	**19/24**	5,8	0,18	2,5	**19/24**	9,2	19x40	
	1,1	3,7		6,2	0,75	5,1		4,5	0,55	5,8		3,9	0,25	3,5		6,5		
90 S	1,5	5		4,6	1,1	7,5		3	0,75	8		2,8	0,37	5,3		4,3	24x50	
90 L	2,2	7,4		3,1	1,5	10		2,3	1,1	12	**24/32**	6,6	0,55	7,9		2,9		
100 L	3	9,8	**24/32**	8,1	2,2	15	**24/32**	5,3	1,5	15		5,3	0,75	11	**24/32**	7,2	28x60	
					3	20		4					1,1	16		5		
112 M	4	13		6,1	4	27		2,9	2,2	22		3,6	1,5	21		3,8		
132 S	5,5	18	**28/38**	12,7	5,5	36	**28/38**	6,3	3	30	**28/38**	7,6	2,2	30	**28/38**	7,6	38x80	
	7,5	25		9,2														
132 M					7,5	49		4,6	4	40		5,7	3	40		5,7		
									5,5	55		4,1						
160 M	11	36	**38/45**	12,5	11	72	**38/45**	6,2	7,5	74	**38/45**	6	4	54	**38/45**	8,3	42x110	
	15	49		9,1									5,5	74		6		
160 L	18,5	60		7,5	15	98		4,5	11	108		4,1	7,5	100		4,5		
180 M	22	71	**42/55**	8,7	18,5	121	**42/55**	5,1			**42/55**				**42/55**		48x110	
180 L					22	144		4,3	15	148		4,1	11	145		4,2		
200 L	30	97		6,3	30	196		3,1	18,5	181		3,4	15	198		3,1	55x110	
	37	120		5,1					22	215		2,8						
225 S					37	240	**48/60**	3			**48/60**		18,5	244	**48/60**	2,9	55x110	60x140
225 M	45	145		4,2	45	292		2,4	30	293		2,4	22	290		2,4		
250 M	55	177	**48/60**	4	55	356	**55/70**	2,4	37	361	**55/70**	2,3	30	392	**65**	2,6	60x140	65x140
280 S	75	241	**55/70**	3,5	75	484	**75/90**	5,1	45	438	**75**	5,7	37	483	**75**	5,1	65x140	75x140
280 M	90	289		2,9	90	581		4,3	55	535		4,6	45	587		4,2		
315 S	110	353		2,4	110	707	**75/90**	3,5	75	727	**75/90**	3,4	55	712	**75/90**	3,5		80x170
315 M	132	423	**75/90**	5,9	132	849		2,9	90	873		2,8	75	971		6,2		
315 L	160	513		4,8	160	1030	**90/100**	5,9	110	1070	**90**	5,7	90	1170	**90**	5,2		
	200	641		3,9	200	1290		4,7	132	1280		4,7	110	1420		4,2		
355 L	250	801		3,1	250	1610	**90/100**	3,7	160	1550	**90/100**	3,9	132	1710	**90/100**	3,5	75x140	95x170
			90/100						200	1930		3,1	160	2070	**100**	2,9		
	315	1010		6	315	2020		3	250	2420	**100**	2,5	200	2580		2,3		
400 L	355	1140		5,3	355	2280	**100**	2,6	315	3040	**100**	2	250	3220	**100**	1,8	80x170	110x210
	400	1280		4,7	400	2560		2,3										

P_N	Motor nominal torque	kW
T_N	Motor nominal torque	Nm
K	Safety factor	
d x l	Motor shaft's end	mm

TRASCO® “GR” base program

The basic series of TRASCO® GR hubs of the TRASCO® coupling is manufactured in various designs and in different materials. For particularly heavy-duty applications, the use of hubs made of nodular cast iron or steel is suggested. Please consult our technical department in this regard. **ATEX-compliant couplings are available from stock.**





Dimensional specification

Size	Fa max [mm]	Fb max [mm]	Prebored Fg [mm] executions				E [mm]	A [mm]	B [mm]	A execution [mm]			B execution [mm]			AL execution [mm]			BL execution [mm]			M [mm]	S [mm]	N [mm]	G [mm]
			A	B	AL	BL				H	L	I	H	L	I	H	L	I	H	L	I				
19/24	-	24	-	-	-	-	40	-	40	-	-	-	25	66	-	-	-	-	50	-	-	16	2	12	18
24/32	24	32	8	10	8	10	55	40	55	30	78	24	30	78	-	50	118	44	60	116	-	18	2	14	27
28/38	28	38	8	10	8	10	65	48	65	35	90	28	35	90	-	60	140	53	80	180	-	20	2,5	15	30
38/45	38	45	10	12	14	14	80	66	80	45	114	37	45	114	-	80	184	72	110	244	-	24	3	18	38
42/55	42	55	10	12	16	16	95	75	95	50	126	40	50	126	-	110	246	100	110	246	-	26	3	20	46
48/60	48	60	12	12	16	16	105	85	105	56	140	45	56	140	-	110	248	99	140	308	-	28	3,5	21	51
55/70	55	70	15	15	16	16	120	98	120	65	160	52	65	160	-	110	250	97	140	310	-	30	4	22	60
65/75	65	75	15	15	20	20	135	115	135	75	185	61	75	185	-	140	315	126	140	315	-	35	4,5	26	68
75/90	75	90	15	15	22	22	160	135	160	85	210	69	85	210	-	140	320	124	170	380	-	40	5	30	80
90/100	90	100	20	20	30	30	200	160	180	100	245	81	100	245	81	170	385	151	210	465	191	45	5,5	34	100
100/110	115	-	45	-	-	-	225	180	-	110	270	89	110	270	-	-	-	-	-	-	-	50	6	38	113
110/125	125	-	55	-	-	-	255	200	-	120	295	96	120	295	-	-	-	-	-	-	-	55	6,5	42	127
125/145	145	-	55	-	-	-	290	230	-	140	340	112	140	340	-	-	-	-	-	-	-	60	7	46	147
140/160	160	-	55	-	-	-	320	255	-	155	375	124	-	-	-	-	-	-	-	-	-	65	7,5	50	165
160/185	185	-	75	-	-	-	370	290	-	175	425	140	-	-	-	-	-	-	-	-	-	75	9	57	190
180/200	200	-	80	-	-	-	420	325	-	195	475	156	-	-	-	-	-	-	-	-	-	85	10,5	64	220

Material: 19/24 sintered steel - from 24/32 to 90/100 cast iron - from 100/110 ductile iron.
Keyway according to DIN 6885 sheet 1 - JS9

Dimensional specification hubs in aluminum

Size	Fa max [mm]	Fb max [mm]	Prebored Fg [mm] executions		E [mm]	A [mm]	B [mm]	L [mm]	H [mm]	M [mm]	S [mm]	N [mm]	I [mm]	G [mm]	t [mm]	P [mm]
			A	B												
19/24	-	24	-	-	40	40	40	66	25	16	2	12	-	18	10	M5
24/32	24	32	-	-	55	40	55	78	30	18	2	14	24	27	10	M5
28/38	28	38	12	28	65	48	65	90	35	20	2,5	15	28	30	15	M6
38/45	38	45	22	38	80	66	77	114	45	24	3	18	37	38	15	M8
42/55	-	55	-	22	95	-	95	126	50	26	3	20	-	46	20	M8
48/60	-	60	-	30	105	-	105	140	56	28	3,5	21	-	51	20	M8

Hub **GRMP 48/60 AL F48**

GRMP: Standard TRASCO® hub
GRMALU: TRASCO® aluminum hub

Size

A: execution A
B: execution B
AL: long execution A
BL: long execution B

F...: diameter of the bore

Spider **AR 48/60 R**

Spiderper TRASCO®

Size

92 Sh A (yellow) if not indicated
R: 98 Sh A (red)
V: 64 Sh D (green)

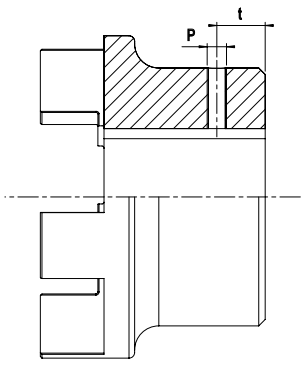
Stock range
Hubs with finished bore H7, keyway (DIN 6885 sheet 1 - JS9), setscrew

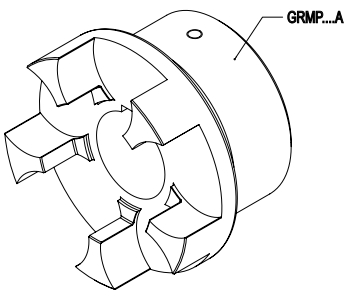
Type		19/24		24/32				28/38				38/45				42/55			48/60			55/70		65/75		75/90		90/100	
Material*		ALU	AC	ALU		GG		ALU		GG		ALU		GG		ALU		GG				GG		GG		GG		GG	
Hub execution		B	B	A	B	A	B	A	B	A	B	A	B	A	B	B	A	B	B	A	B	A	B	A	B	A	B	A	B
Stock range bore [mm]	10	●	●																										
	11	●	●																										
	12	●	●																										
	14	●	●	●		●		●		●																			
	15	●	●	●		●		●		●																			
	16	●	●	●		●		●		●																			
	18		●	●		●		●		●																			
	19	●	●	●		●		●		●				●															
	20	●	●	●		●		●		●																			
	22			●		●		●		●				●															
	24	●	●	●	●	●	●	●		●		●		●			●												
	25				●		●	●		●		●		●		●	●												
	28				●		●	●		●		●		●		●	●												
	30						●		●		●	●		●		●	●			●		●							
	32						●				●	●		●		●	●		●	●		●							
	35								●		●	●		●		●	●		●	●		●							
	38								●		●	●		●		●	●		●	●		●				●			
	40												●		●	●	●		●	●		●		●					
	42												●		●	●	●	●	●	●		●							
	45														●	●		●	●	●		●		●		●			
	48															●		●	●	●		●		●		●			
	50															●		●	●		●	●		●		●		●	
	55															●		●	●		●	●		●		●		●	
	60																		●		●		●	●		●		●	
	65																						●	●		●		●	
	70																						●			●	●	●	
	75																								●	●	●	●	
	80																										●	●	
	85																										●	●	
	90																										●	●	
	95																												●
	100																												●

*= ALU: Aluminum - AC: Steel - GG: Cast iron

Setscrews types for single hubs

Hub dimension	P	t [mm]	Screw tightening torque [Nm]
19/24	M5	10	2
24/32	M5	10	2
28/38	M6	15	4,8
38/45	M8	15	10
42/55	M8	20	10
48/60	M8	20	10
55/70	M10	20	17
65/75	M10	20	17
75/90	M10	25	17
90/100	M12	30	40
100/110	M12	30	40
110/125	M16	35	80
125/145	M16	40	80
140/160	M20	45	140
160/185	M20	50	140
180/200	M20	50	140



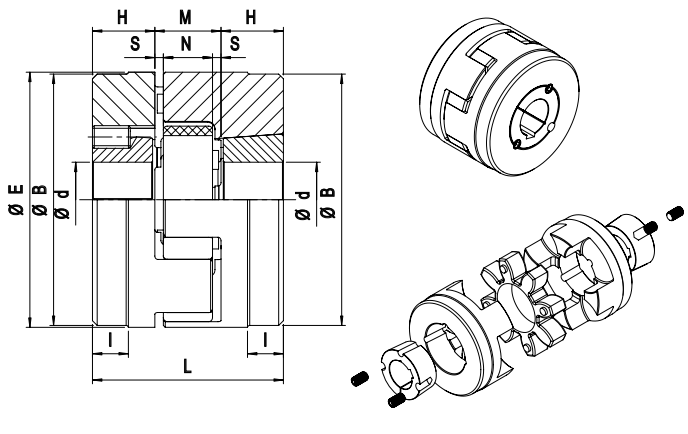


TRASCO® couplings "GRB" series for SER-SIT® taper bushing

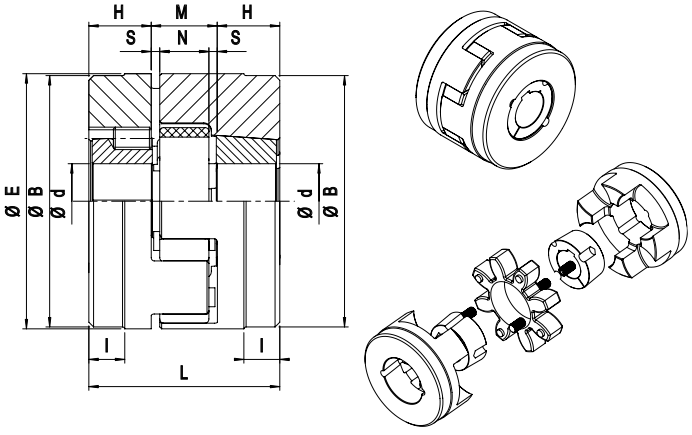
TRASCO® couplings type GRB for taper bushing SER-SIT®, are manufactured in cast iron GG25. They combine the typical high performances of standard TRASCO® couplings with the advantages of easy mounting and dismounting offered by the taper bushing SER-SIT®.
These hubs are manufactured in two different mounting executions:

- B1: installing of taper bushing from outside
- B2: installing of taper bushing from inside (not available for size 90/100)

The GRB execution eliminate the problem of fitting corrosion, making it suitable for all type of machinery. Hubs type B1 may be axially moved for spider replacement. **ATEX-compliant couplings are available from stock.**



B1



B2

Size	Taper bushing	E [mm]	B [mm]	L [mm]	H [mm]	M [mm]	S [mm]	N [mm]	I [mm]
28/38	1108	65	65	66	23	20	2,5	15	-
38/45	1108	80	78	70	23	24	3	18	15
42/55	1610	95	94	78	26	26	3	20	16
48/60	1615	105	104	106	39	28	3,5	21	28
55/70	2012	120	118	96	33	30	4	22	20
65/75	2012	135	133	101	33	35	4,5	26	19
75/90	2517	160	158	130	45	40	5	30	36
90/100*	3535	200	180	223	89	45	5,5	34	70

*Only "B1" execution

SER-SIT® taper bushing type		Diameter of the bore	Transmissible torque [Nm]	Transmittable friction torque	
				Ø bore [mm]	[Nm]
1108	[mm]	11 12 14 15 16 17 18 19 20 22 24 25 **26 27 28***	150	12 - 19 24 - 28	28 - 49 64 - 79
	[pollici]	3/8 1/2 5/8 3/4 7/8 1 **1 1/8***			
1610	[mm]	12 14 15 16 18 19 20 22 24 25 26 28 30 32 35 38 **40 42**	490	19 - 24 38 - 42	98 - 135 240 - 265
	[pollici]	3/8 1/2 5/8 3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2 **1 5/8**			
1615	[mm]	12 14 15 16 18 19 20 22 24 25 26 28 30 32 35 38 **40 42***	490	19 - 24 38 - 42	98 - 135 240 - 265
	[pollici]	1/2 5/8 3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2 **1 5/8***			
2012	[mm]	14 15 16 18 19 20 22 24 25 26 28 30 32 35 38 40 42 45 48 **50**	800	24 - 38 - 42 48 - 50	65 - 310 - 340 400 - 420
	[pollici]	5/8 3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2 1 5/8 1 3/4 1 7/8 **2**			
2517	[mm]	18 19 20 22 24 25 28 30 32 35 38 40 42 45 48 50 55 60 **65***	1300	24 - 38 - 42 48 - 55 - 60	220 - 380 - 430 510 - 600 - 670
	[pollici]	3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2 1 5/8 1 3/4 1 7/8 2 2 1/8 2 1/4 2 3/8 2 1/2			
3535	[mm]	25 35 38 40 42 45 48 50 55 60 65 70 75 80 85 90	5000	42 - 60 75 - 90	1000 - 1580 2150 - 2600
	[pollici]	1 1/2 1 5/8 1 3/4 1 7/8 2 2 1/8 2 1/4 2 3/8 2 1/2 2 5/8 2 3/4 2 7/8 3 3 1/8 3 1/4 3 3/8 3 1/2			

Taper bushing having bore diameters in bold type are made in steel instead of cast iron.
* = reduced keyway

Hub **GRMB 48/60 B2**

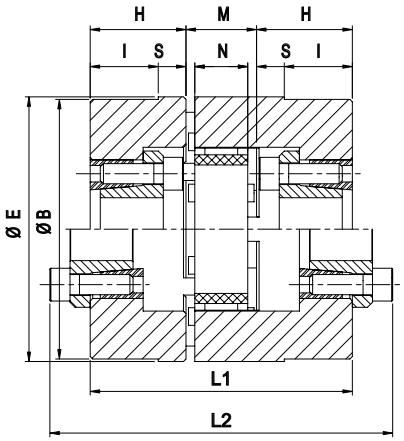
GRMB: TRASCO® GRMB for taper bushing
Size
B1: execution B1
B2: execution B2

Spider **AR 48/60 R**

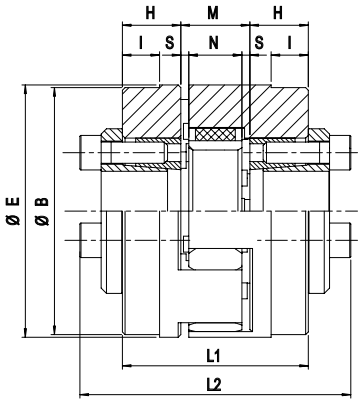
TRASCO® spider
Size
92 Sh A (yellow) if not indicated
R: 98 Sh A (red)
V: 64 Sh D (green)

TRASCO® couplings "GRCAL" series for use with SIT-LOCK® 8

This execution has been introduced to incorporate advantages offered by the SIT-LOCK® 8 locking elements in the shaft-hub connection. The system allows for a quick, safe and backlash free mounting without the use of keyway and eliminating the need for lock washers, spacers and stop rings. Many different solutions may be created to solve all kinds of application needs. We include hereunder a very useful example. In fact, the same hub bore allows the fitting of different shaft diameters.



1



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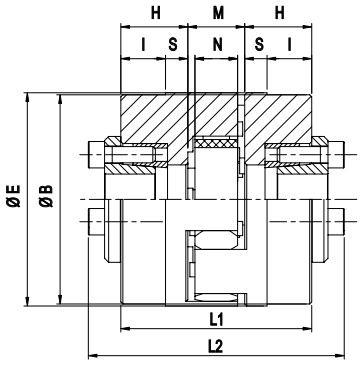


3

Size	Internal bore diameter of the locking device d [mm]	External bore diameter of the locking device D [mm]	H [mm]	E [mm]	B [mm]	L1 [mm]	L2 [mm]	M [mm]	S [mm]	N [mm]	I [mm]	Material*	Fig.
38/45	14 -16 -18 -19 - 20 - 22 - 24 - 25 - 28 - 30	55	30	80	78	84	116	24	3	18	22	AC	3
42/55	14 - 16 - 18 - 19 - 20 - 22 - 24 - 25 - 28 - 30	55	22	95	93	70	102	26	3	20	14	GS-400	2
	24 - 25 - 28 - 30 - 32 - 35 - 38 - 40	65	32			90	122				22	AC	3
48/60	14 - 16 - 18 - 19 - 20 - 22 - 24 - 25 - 28 - 30	55	38	105	103	104	136	28	3,5	21	27	GS-400	1
	24 - 25 - 28 - 30 - 32 - 35 - 38 - 40	65	33			94	126				22	AC	3
55/70	14 -16 -18 -19 - 20 - 22 - 24 - 25 - 28 - 30	55	38	120	118	106	138	30	4	22	25	GG25	1
	24 - 25 - 28 - 30 - 32 - 35 - 38 - 40	65	38			106	138				25	GS-400	1
	30 - 32 - 35 - 38 - 40 - 42 - 45 - 48 - 50	80	38			106	138				25	AC	3
65/75	14 - 16 - 18 - 19 - 20 - 22 - 24 - 25 - 28 - 30	55	38	135	133	111	143	35	4,5	26	24	GG25	1
	24 - 25 - 28 - 30 - 32 - 35 - 38 - 40	65	38			111	143				24	GS-400	1
	30 - 32 - 35 - 38 - 40 - 42 - 45 - 48 - 50	80	25			85	117				11	GS-400	2
75/90	14 - 16 - 18 - 19 - 20 - 22 - 24 - 25 - 28 - 30	55	38	160	158	116	148	40	5	30	22	GG25	1
	24 - 25 - 28 - 30 - 32 - 35 - 38 - 40	65	38			116	148				22	GG25	1
	30 - 32 - 35 - 38 - 40 - 42 - 45 - 48 - 50	80	41			122	154				25	GS-400	1
90/100	14 - 16 - 18 - 19 - 20 - 22 - 24 - 25 - 28 - 30	55	38	200	180	121	153	45	5,5	34	19	GG25	1
	24 - 25 - 28 - 30 - 32 - 35 - 38 - 40	65	38			121	153				19	GG25	1
	30 - 32 - 35 - 38 - 40 - 42 - 45 - 48 - 50	80	41			127	159				22	GG25	1

*= **AC**: steel / **GG 25**: cast iron 25 / **GS-400**: Spheroidal cast-iron 400

Hub **GRMC 48/60**

GRMC: TRASCO® hub for SIT-LOCK® 8

Size

Spider **AR 48/60 R**

TRASCO® spider

Size

Yellow if not indicated; R: red; V: green

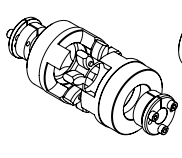
Locking device **CAL 8 F20 / 55**

SIT-LOCK®

Size

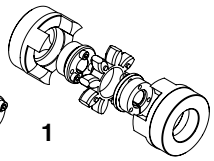
Bore diameter

External bore diameter

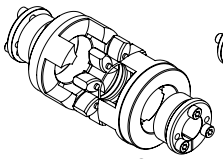


1

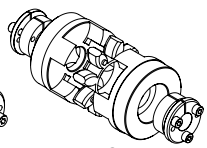
For mounting from the outside of SIT-LOCK® 8



For mounting from the inside



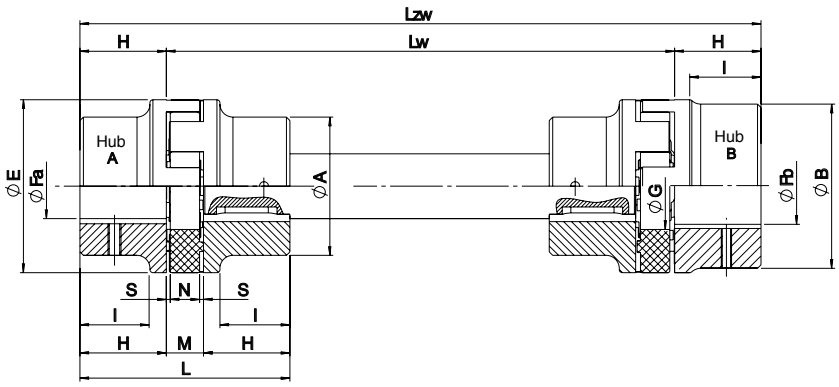
2



3

TRASCO® couplings "GRL" series with intermediate shaft

The GRL series allows the joining of two shafts (even very distant) through two TRASCO® couplings and an intermediate shaft (length "Lw") of customized dimension. The presence of two polyurethane rings allows high dampening capability and greater radial misalignments. As a standard, hubs are made of cast iron, while shafts are from steel; though, different materials can be used, according to different applications.

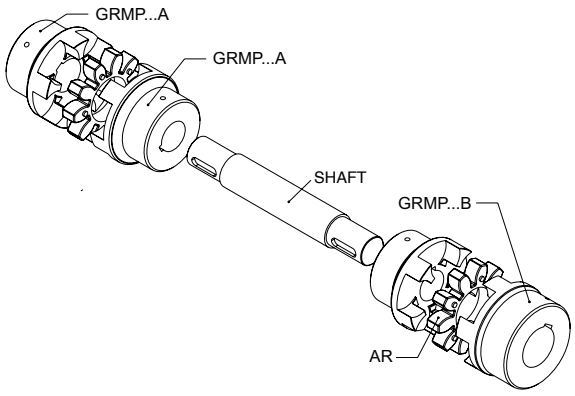


Size	Fa [mm]	Fb [mm]	E [mm]	A [mm]	B [mm]	H [mm] execution			L [mm]		M [mm]	S [mm]	N [mm]	I [mm] execution				G [mm]
						A-B	AL	BL	A-B	AL-BL				A	B	AL	BL	
24/32	9 - 24	11 - 32	55	40	55	30	50	60	78	128	18	2	14	24	-	44	-	27
28/38	9 - 28	11 - 38	65	48	65	35	60	80	90	160	20	2,5	15	28	-	53	-	30
38/45	11 - 38	13 - 45	80	66	80	45	80	110	114	214	24	3	18	37	-	72	-	38
42/55	11 - 42	13 - 55	95	75	95	50	110	110	126	246	26	3	20	40	-	100	-	46
48/60	13 - 48	13 - 60	105	85	105	56	110	140	140	278	28	3,5	21	45	-	99	-	51
55/70	16 - 55	16 - 70	120	98	120	65	110	140	160	280	30	4	22	52	-	97	-	60
65/75	16 - 65	16 -75	135	115	135	75	140	140	185	315	35	4,5	26	61	-	126	-	68
75/90	16 - 75	16 - 90	160	135	160	85	140	170	210	350	40	5	30	69	-	124	-	80
90/100	21 - 90	21 - 100	200	160	180	100	170	210	245	425	45	5,5	34	81	81	151	191	100
100/110	46 - 115	-	225	180	-	110	-	-	270	-	50	6	38	89	-	-	-	113
110/125	56 - 125	-	255	200	-	120	-	-	295	-	55	6,5	42	96	-	-	-	127
125/145	56 - 145	-	290	230	-	140	-	-	340	-	60	7	46	112	-	-	-	147

Keyway according to DIN 6885 sheet 1 - JS9

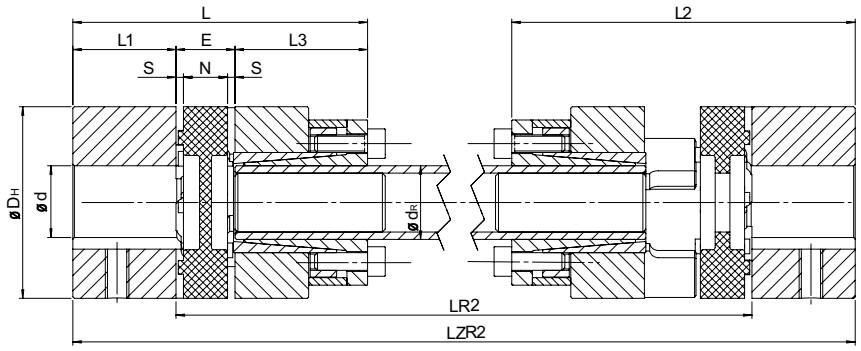
Coupling configurator

Coupling code	Item	Type	Execution	Bore diameter	Order example
GRL38/45	*Hub 1*	GR	A-B-AL-BL	F…	GRMP38/45AF35
		GRB	B1-B2	F…	
		GRCAL	-	F…	
	Spider 1	AR	G-R-V	-	AR38/45V
	Distance between two side shafts Lw				Lw = 1200 mm
	Spider 2	AR	G-R-V	-	AR38/45V
	Hub 2	GR	A-B-AL-BL	F…	GRMP38/45BF40
		GRB	B1-B2	F…	
		GRCAL	-	F…	



TRASCO® couplings “GRL CAL3” series with intermediate shaft

The GRL CAL3 series allows the joining of two shafts (even two spaced) through two TRASCO® couplings and an intermediate shaft (length “LR2”) of customized dimension, mounted with shrink discs on the hubs.
The presence of two polyurethane elements allows high dampening capability and greater radial misalignments.
As a standard, hubs are made of cast iron, while shafts are made of steel; though different materials can be used according to different applications.

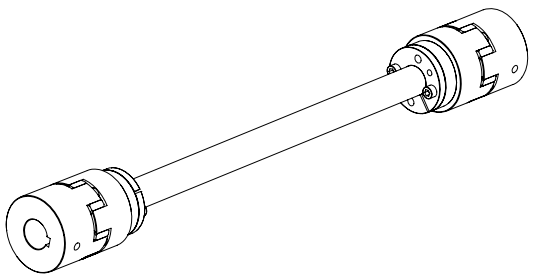


Size	External hub		Dimensions [mm] GRL-CAL3										Internal hub			
												Intermediate shaft		SIT-LOCK® 3 locking device		
	dmin	dmax	D_H	L1	L3	L	E	N	s	L2	LR2 min.	LZR2	dR	C [Nm/Rad · m]	Type	Screw Din 912-12.9 M · L	T_A [Nm]
14	4	15	30	11	26	50	13	10	1,5	61,5	109	LR2+22	10x2.0	68,36	10x16	M4X10	4,9
19/24	6	24	40	25	26	67	16	12	2	81	120	LR2+50	12x2.0	130	12x18	M4X10	4,9
24/32	8	28	55	30	38	86	18	14	2	102	156	LR2+60	20x3.0	954,9	20x28	M6X18	17
28/38	10	38	65	35	45	100	20	15	2,5	117,5	177	LR2+70	25x2.5	1811	25x34	M6X18	17
38/45	12	45	80	45	45	114	24	18	3	135	192	LR2+90	32x3.5	5167	32x43	M6X18	17
42/55	14	55	95	50	52	128	26	20	3	151	214	LR2+100	40x4.0	11870	40x53	M6X18	17
48/60	15	60	105	56	70	154	28	21	3,5	178,5	261	LR2+112	45x4.0	17486	45x59	M8X22	41
55/70	20	74	120	65	80	175	30	22	4	201	288	LR2+130	55x4.0	33543	55x71	M8X22	41
65/75	22	80	135	75	80	190	35	26	4,5	220,5	307	LR2+150	60x4.0	44362	60x77	M8X22	41

Keyway according to DIN 6885 sheet 1 - JS9

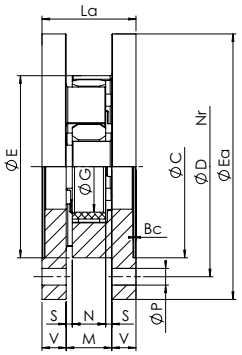
Coupling configurator

Coupling code	Item	Type	Execution	Bore diameter	Order example
GRLC38/45	*Hub 1*	GR	A-B-AL-BL	F…	GRMP38/45AF35
		GRB	B1-B2	F…	
		GRCAL	-	F…	
	Spider 1	AR	G-R-V	-	AR38/45V
	Distance between two side shafts LR2				LR2 = 1200 mm
	Spider 2	AR	G-R-V	-	AR38/45V
	Hub 2	GR	A-B-AL-BL	F…	GRMP38/45BF40
		GRB	B1-B2	F…	
		GRCAL	-	F…	

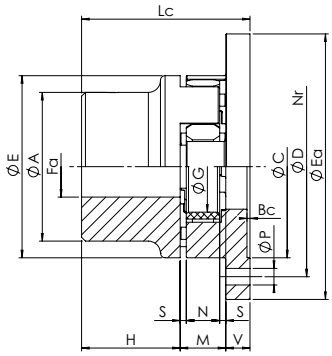


TRASCO® couplings “GRF” flange series

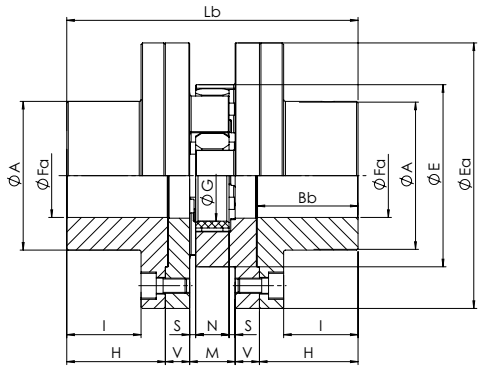
The GRF series with flanges has been developed for applications on heavy machinery and to combine different shafts and flange solutions. There are different assembling options:
Flange-flange: using two hubs type “CF”
Flange-shaft: using one hub Trasco standard “GR” and one hub type “CF”
Shaft-shaft: using two hubs type “CFF”, allows the replacement of the elastic element without dismounting of either motor-machine or driven-machine.



flange - flange



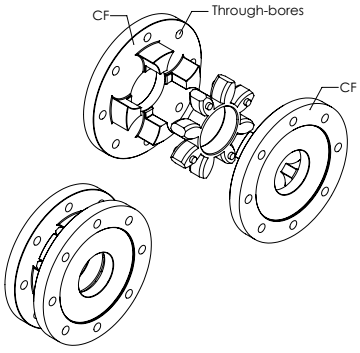
flange - shaft

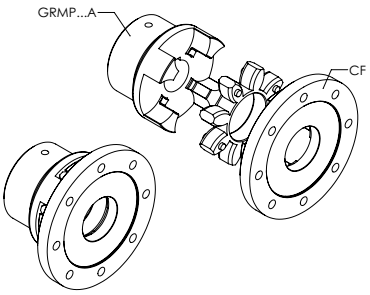


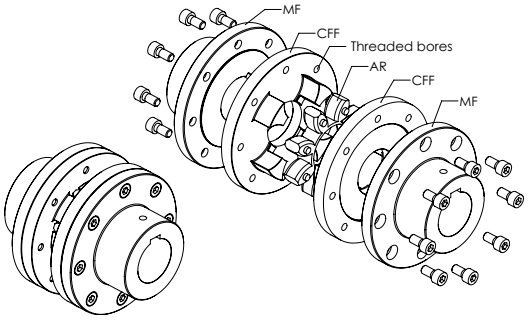
shaft - shaft

Size	Fa min [mm]	Fa max [mm]	E [mm]	Ea [mm]	A [mm]	C [mm]	D [mm]	N° viti	P [mm]	G [mm]	H [mm]	Bb [mm]	Bc [mm]	I [mm]	V [mm]	M [mm]	S [mm]	N [mm]	La [mm]	Lb [mm]	Lc [mm]
19/24	6	19	40	65	40/32	40	50	5	4,5	18	25	26	1,5	17	8	16	2	12	32	82	49
24/32	8	24	55	80	55/40	55	65	5	4,5	27	30	31	1,5	22	8	18	2	14	34	94	56
28/38	10	28	65	100	65/48	65	80	6	6,5	30	35	36	1,5	25	10	20	2,5	15	40	110	65
38/45	12	38	80	115	66	80	95	6	6,5	38	45	46	1,5	35	10	24	3	18	44	134	79
42/55	14	42	95	140	75	95	115	6	9	46	50	51	2	38	12	26	3	20	50	150	88
48/60	15	48	105	150	85	105	125	8	9	51	56	57	2	44	12	28	3,5	21	52	164	96
55/70	20	55	120	175	98	120	145	8	11	60	65	66	2	49	16	30	4	22	62	192	111
65/75	22	65	135	190	115	135	160	10	11	68	75	76	2	59	16	35	4,5	26	67	217	126
75/90	30	75	160	215	135	160	185	10	14	80	85	87	2,5	66	19	40	5	30	78	248	144
90/100	40	90	200	260	160	200	225	12	14	100	100	102	3	80	20	45	5,5	34	85	285	165
100/110	45	115	225	285	180	225	250	12	14	113	110	112	4	85	25	50	6	38	100	320	185
110/125	55	125	255	330	200	255	290	12	18	127	120	122	4	94	26	55	6,5	42	107	347	201
125/145	55	145	290	370	230	290	325	16	18	147	140	142	5	110	30	60	7	46	120	400	230

Keyway according to DIN 6885 sheet 1 - JS9. Material GJS400.







Hub	**GRF**	**CF**	**48**

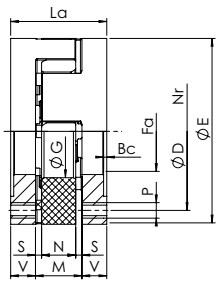
GRF: flange series

CF: Flange “CF” execution
CFF: Flange “CFF” execution

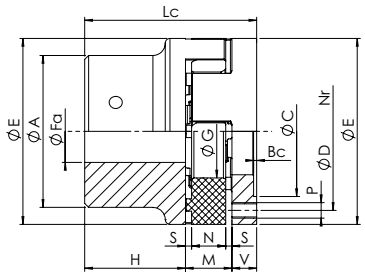
Size

TRASCO® couplings “GRF C” flange series

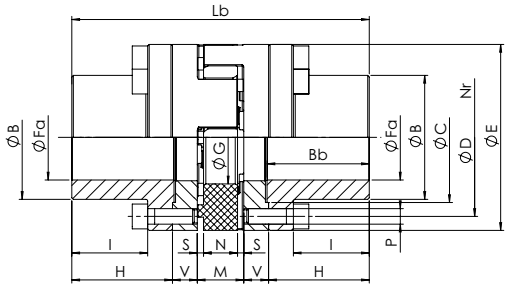
The GRF C series has the same characteristics as the BF series, while being compact in dimension.



flange - flange



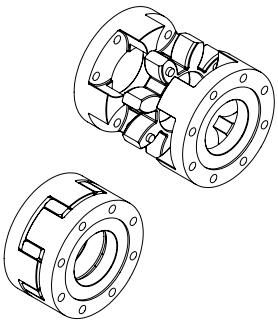
flange - shaft

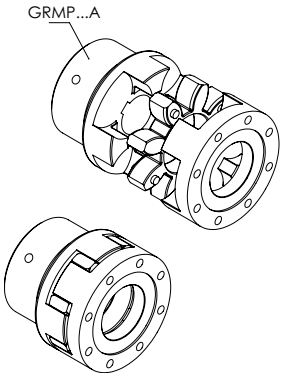


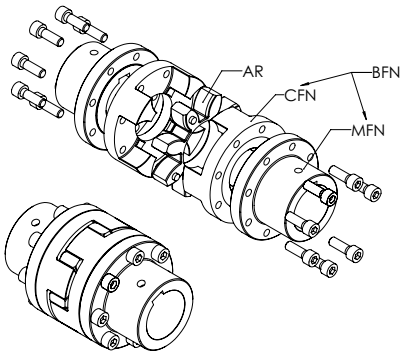
shaft - shaft

Size	Fa min [mm]	Fa max [mm]	E [mm]	A [mm]	B [mm]	H [mm]	I [mm]	La [mm]	Lb [mm]	Lc [mm]	V [mm]	M [mm]	S [mm]	N [mm]	Bb [mm]	Bc [mm]	G [mm]	D [mm]	N° viti	C [mm]	P [mm]
24/32	8	24	55	40	36	30	22	34	94	56	8	18	2	14	31	1,5	27	45	8	36	M5
28/38	10	28	65	48	42	35	25	40	110	65	10	20	2,5	15	36	1,5	30	54	8	44	M6
38/45	12	38	80	66	52	45	35	44	134	79	10	24	3	18	46	1,5	38	66	8	54	M8
42/55	14	42	95	75	62	50	38	50	150	88	12	26	3	20	51	2	46	80	12	65	M8
48/60	15	48	105	85	70	56	44	52	164	96	12	28	3,5	21	57	2	51	90	12	75	M8
55/70	20	55	120	98	80	65	49	62	192	111	16	30	4	22	66	2	60	102	8	84	M10
65/75	22	65	135	115	94	75	59	67	217	126	16	35	4,5	26	76	2	68	116	12	96	M10
75/90	30	75	160	135	108	85	66	78	248	144	19	40	5	30	87	2,5	80	136	15	112	M12
90/100	40	90	200	160	142	100	80	85	285	165	20	45	5,5	34	102	3	100	172	15	145	M16
100/110	45	115	225	180	158	110	85	100	320	185	25	50	6	38	112	4	113	195	15	165	M16
110/125	55	125	255	200	178	120	94	107	347	201	26	55	6,5	42	122	4	127	218	15	180	M20
125/145	55	145	290	230	206	140	110	120	400	230	30	60	7	46	142	5	147	252	15	215	M20
125/145	55	145	290	370	230	290	325	16	18	147	140	142	5	110	30	60	7	46	120	400	230

Keyway according to DIN 6885 sheet 1 - JS9. Material GJS400 (Spheroidal graphite iron).



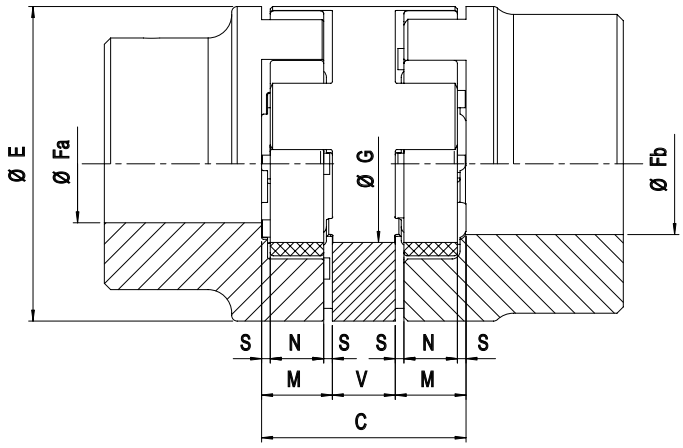




Hub	**GRFBFN**	**48**
GRFBFN: shaft side flange “BFN” execution GRFCFN: ring side flange “BFN” - “CFN” execution		
Size		

TRASCO® couplings “GRS” double cardanic series

This series allows compensation of high axial, radial and angular misalignments. The use of two snap rings also allows a high vibration damping effect resulting in a decrease in transmission noise and a reduction in wear of connected components (e.g., bearings). The intermediate element is made of aluminum and can be coupled with hubs of any design. By way of example only, the GRS element coupled with two GR hubs is shown.



Size	Fa [mm]	Fb [mm]	V [mm]	C [mm]	M [mm]	S [mm]	N [mm]	E [mm]	G [mm]	ΔKr [mm]	ΔKw [°]
24/32	9 - 24	11 - 32	16	52	18	2	14	55	27	0,89	
28/38	9 - 28	11 - 38	18	58	20	2,5	15	65	30	1	
38/45	11 - 38	13 - 45	20	68	24	3	18	80	38	1,15	
42/55	11 - 42	13 - 55	22	74	26	3	20	95	46	1,26	
48/60	13 - 48	13 - 60	24	80	28	3,5	21	105	51	1,36	1°30’
55/70	16 - 55	16 - 70	28	88	30	4	22	120	60	1,52	
65/75	16 - 65	16 - 75	32	102	35	4,5	26	135	68	1,75	
75/90	16 - 75	16 - 90	36	116	40	5	30	160	80	2	
90/100	21 - 90	21 - 100	40	130	45	5,5	34	200	100	2,5	

Keyway according to DIN 6885 sheet 1 - JS9

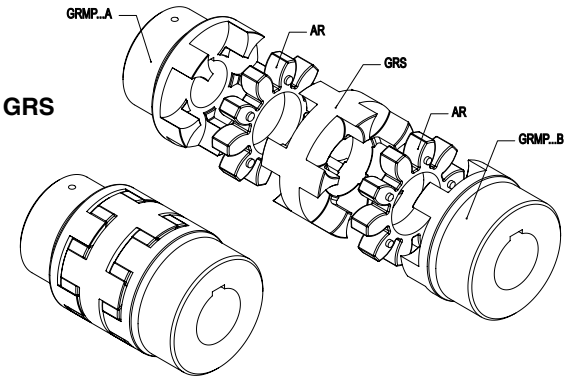
Spacer element	**GRS**	**48/60**

GRS: spacer element

Size

For hub “GR” order form please see TRASCO® GR base program

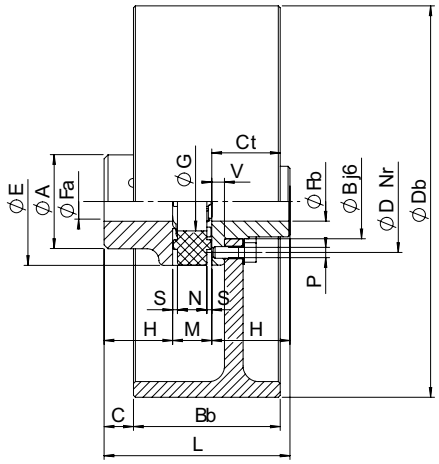
GRS



F_a	Bore of hub “A”	mm
F_b	Bore of hub “B”	mm
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°

TRASCO® couplings “GR FRT” drum brake series

The GR FRT series has been developed to suit drum brake (FRT) transmission according to DIN 15431/15435.
It is considered an elastic coupling consisting of:
• Standard hub (any of TRASCO® family)
• Elastic spider
• Special hub attached to brake drum
Components are either made of cast-iron (G25), spheroidal cast-iron (GS400), or steel according to application.
Also, assembling of different dimensioned brake drum to any kind of coupling is allowed. See below tables.



Keyway according to DIN 6885 sheet 1 - JS9

Db x Bb [mm]	Size											W_{FRT} [kg]	J_{FRT} [kg·m²]	rpm with Vmax 30 m/s
	28/38	38/45	42/55	48/60	55/70	65/75	75/90	90/100	100/110	110/125	125/145			
	GR FRT - drum brake - Ct [mm]													
160x60	30	31	-	-	-	-	-	-	-	-	-	2,12	0,01	3580
200x75	35	36	38	39	41	-	-	-	-	-	-	3,45	0,03	2860
250x95	43	44	46	47	49	50	52	-	-	-	-	6,87	0,08	2290
315x118	-	-	55	56	58	59	61	64	-	-	-	14,95	0,28	1820
400x150	-	-	68	69	71	72	74	77	79	82	-	31,20	0,89	1430
500x190	-	-	-	-	-	87	89	92	94	97	101	60,00	2,70	1150
630x236	-	-	-	-	-	-	107	110	112	115	119	112,00	8,01	910
710x265	-	-	-	-	-	-	-	-	123	126	130	161,00	14,90	810
800x300	-	-	-	-	-	-	-	-	-	-	144	202,00	27,20	720

Size	Fa; Fb min [mm]	Fa;Fb max [mm]				E [mm]	A [mm]	B [mm]	H [mm]	L [mm]	G [mm]	No. of screws	V [mm]	M [mm]	S [mm]	N [mm]	D [mm]	P [mm]
		Fa	Fb (GG25)	Fb (GS400)	Fb (Acciaio)													
28/38	10	28	20	22	24	65	48	38	35	90	30	8	6,5	20	2,5	15	52	M6
38/45	12	38	28	32	34	80	66	50	45	114	38	8	7,5	24	3	18	66	M8
42/55	14	42	30	38	42	95	75	60	50	126	46	12	9,5	26	3	20	80	M8
48/60	15	48	35	45	48	105	85	68	56	140	51	12	10,5	28	3,5	21	90	M8
55/70	20	55	42	50	55	120	98	78	65	160	60	8	12,5	30	4	22	102	M10
65/75	22	65	48	55	65	135	115	92	75	185	68	12	13,5	35	4,5	26	116	M10
75/90	30	75	58	70	75	160	135	106	85	210	80	15	15,5	40	5	30	136	M12
90/100	40	90	75	90	100	200	160	140	100	245	100	15	18,5	45	5,5	34	172	M16
100/110	45	115	-	100	-	225	180	156	110	270	113	15	20,5	50	6	38	195	M16
110/125	55	125	-	110	-	255	200	176	120	295	127	15	23,5	55	6,5	42	218	M20
125/145	55	145	-	130	-	290	230	204	140	340	147	15	27,5	60	7	46	252	M20

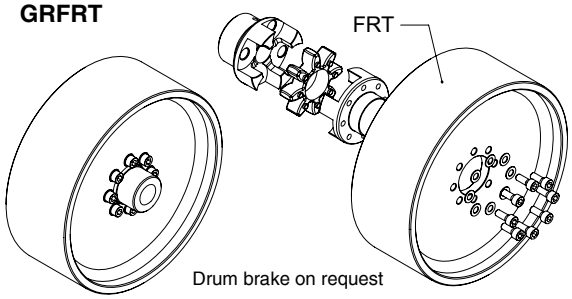
Hub **GRFRT 48/60**

GRFRT: brake side hub

Size

W_{FRT}	“GRFRT” weight	kg
J_{FRT}	“GRFRT” moment of inertia	kgm²

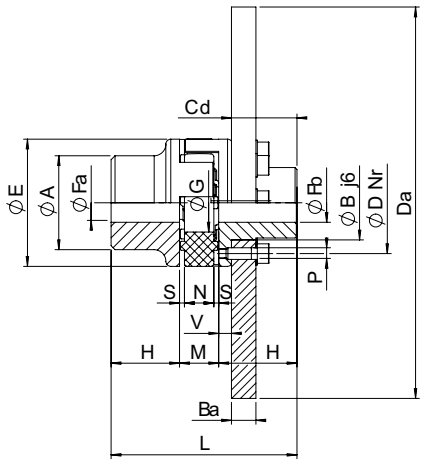
GRFRT



Drum brake on request

TRASCO® couplings “GR FRD” brake disc series

The GR FRD series has been developed to suit disc-brake (FRD) transmissions.
It is considered an elastic coupling consisting of:
• Standard hub (any of TRASCO® family)
• Elastic spider
• Special hub attached to the brake disc
Components are either made of cast-iron (GG25), spheroidal cast-iron (GS400), or steel according to application. Also, assembling of different dimensioned brake discs to any kind of coupling is allowed. See below tables.



Keyway according to DIN 6885 sheet 1 - JS9

GR FRD - brake disc												W_{FRD} [kg]	J_{FRD} [kg m2]	rpm with Vmax 40 m/s
Da x Ba	28/38	38/45	42/55	48/60	55/70	65/75	75/90	90/100	100/110	110/125	125/145			
200x12,5	•	•	-	-	-	-	-	-	-	-	-	2,93	0,0154	3820
250x12,5	•	•	•	•	-	-	-	-	-	-	-	4,66	0,0376	3060
315x16	-	-	•	•	•	•	•	-	-	-	-	8,62	0,1118	2430
400x16	-	-	-	•	•	•	•	•	•	•	-	15,23	0,3152	1910
500x16	-	-	-	-	•	•	•	•	•	•	•	23,96	0,7680	1530
630x20	-	-	-	-	-	•	•	•	•	•	•	47,72	2,4264	1210
710x20	-	-	-	-	-	•	•	•	•	•	•	60,93	3,9151	1080
800x25	-	-	-	-	-	-	-	•	•	•	•	94,91	7,8790	950
900x25	-	-	-	-	-	-	-	-	-	•	•	118,95	12,6091	850

Size	Fa;Fb min [mm]	Fa;Fb max [mm]				E [mm]	A [mm]	B [mm]	H [mm]	L [mm]	G [mm]	No. of screws	V [mm]	M [mm]	S [mm]	N [mm]	D [mm]	Cd [mm]	P [mm]
		Fa	Fb (GG25)	Fb (GS400)	Fb (Steel)														
28/38	10	28	20	22	24	65	48	38	35	90	30	8	6,5	20	2,5	15	52	28,5	M6
38/45	12	38	28	32	34	80	66	50	45	114	38	8	7,5	24	3	18	66	37,5	M8
42/55	14	42	30	38	42	95	75	60	50	126	46	12	9,5	26	3	20	80	40,5	M8
48/60	15	48	35	45	48	105	85	68	56	140	51	12	10,5	28	3,5	21	90	45,5	M8
55/70	20	55	42	50	55	120	98	78	65	160	60	8	12,5	30	4	22	102	52,5	M10
65/75	22	65	48	55	65	135	115	92	75	185	68	12	13,5	35	4,5	26	116	61,5	M10
75/90	30	75	58	70	75	160	135	106	85	210	80	15	15,5	40	5	30	136	69,5	M12
90/100	40	90	75	90	100	200	160	140	100	245	100	15	18,5	45	5,5	34	172	81,5	M16
100/110	45	115	-	100	-	225	180	156	110	270	113	15	20,5	50	6	38	195	89,5	M16
110/125	55	125	-	110	-	255	200	176	120	295	127	15	23,5	55	6,5	42	218	96,5	M20
125/145	55	145	-	130	-	290	230	204	140	340	147	15	27,5	60	7	46	252	112,5	M20

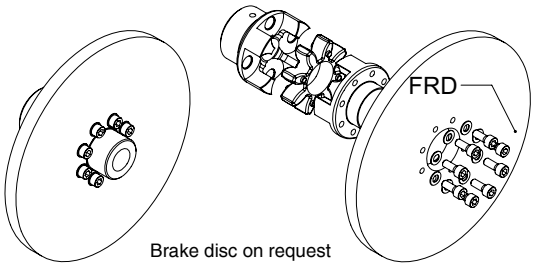
Hub **GRFRD 48/60**

GRFRD: brake side hub

Size

W_{FRT}	“GRFRD” disc weight	kg
J_{FRT}	“GRFRD” moment of inertia	kgm²

GRFRD



Brake disc on request

TRASCO® coupling weights and moments of inertia

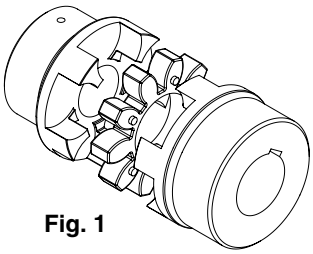


Fig. 1

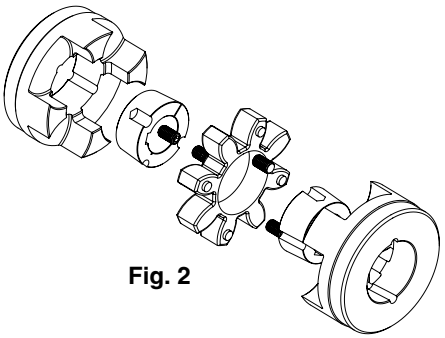


Fig. 2

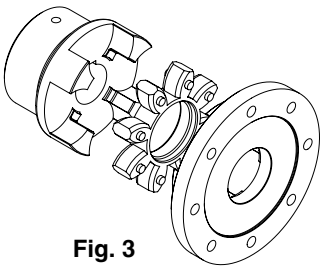


Fig. 3

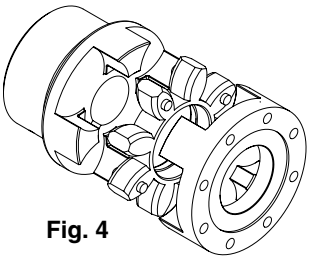


Fig. 4

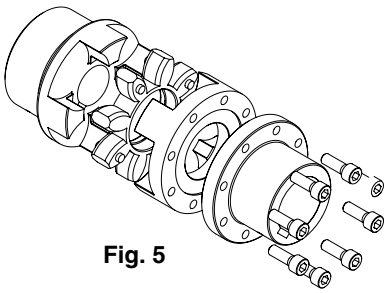


Fig. 5

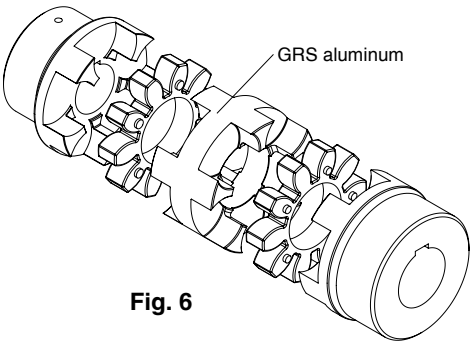
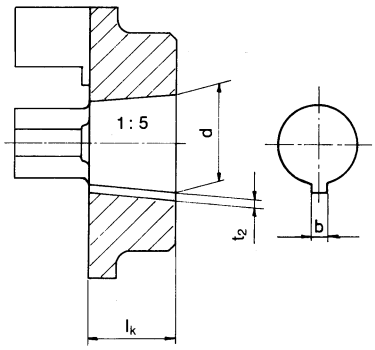


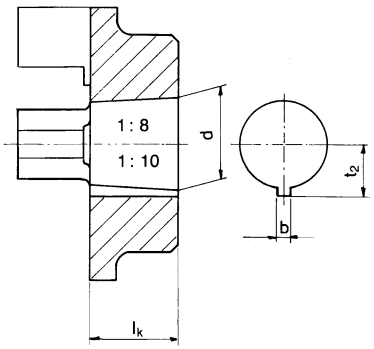
Fig. 6

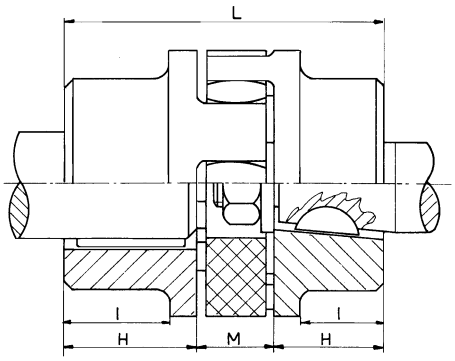
Size		GR execution A fig. 1	GR execution B fig. 1	GR execution AB fig. 1	GRALU execution A fig. 1	GRALU execution B fig. 1	GRALU execution AB fig. 1	GRB fig. 2	GRF (CF) fig. 3	GRF (CFN) fig. 4	GRF (BFN) fig. 5	Spacer element GRS fig. 6
19/24	W [kg]	-	0,37	-	-	0,14	-	-	0,23	-	-	-
	J [kgm²]	-	0,0001	-	-	0,00004	-	-	0,00006	-	-	-
24/32	W [kg]	0,56	0,78	0,67	0,22	0,31	0,26	-	0,3	0,18	0,42	0,14
	J [kgm²]	0,0002	0,0004	0,0003	0,00008	0,00015	0,00012	-	0,0003	0,00009	0,00018	0,00006
28/38	W [kg]	0,92	1,25	1,1	0,36	0,49	0,43	1	0,58	0,3	0,69	0,22
	J [kgm²]	0,0005	0,0009	0,0007	0,0002	0,00034	0,00027	0,0007	0,0008	0,00021	0,00041	0,00013
38/45	W [kg]	1,97	2,5	2,25	0,77	0,98	0,9	1,7	0,8	0,313	0,933	0,35
	J [kgm²]	0,0017	0,0027	0,002	0,0007	0,001	0,00084	0,0026	0,001	0,00047	0,00097	0,00035
42/55	W [kg]	3,1	3,85	3,46	-	1,5	-	2,8	1,41	0,76	1,81	0,51
	J [kgm²]	0,0035	0,006	0,0047	-	0,002	-	0,0036	0,004	0,0012	0,0023	0,0007
48/60	W [kg]	4,2	5,3	4,75	-	2	-	4,7	1,62	0,89	2,27	0,67
	J [kgm²]	0,006	0,01	0,008	-	0,004	-	0,0078	0,005	0,0017	0,0035	0,001
55/70	W [kg]	6,4	7,8	7,1	-	-	-	5	2,82	1,47	3,55	0,97
	J [kgm²]	0,012	0,02	0,015	-	-	-	0,012	0,012	0,0035	0,007	0,002
65/75	W [kg]	9,7	11,8	10,8	-	-	-	6,9	3,46	1,89	4,89	1,43
	J [kgm²]	0,024	0,035	0,03	-	-	-	0,014	0,017	0,0059	0,0123	0,004
75/90	W [kg]	15,2	20,8	18	-	-	-	14,8	5,03	3	7,86	2,2
	J [kgm²]	0,051	0,082	0,07	-	-	-	0,065	0,032	0,0125	0,0275	0,009
90/100	W [kg]	26,2	30,2	28,2	-	-	-	35,4	7,9	4,87	13,54	3,9
	J [kgm²]	0,13	0,17	0,15	-	-	-	0,162	0,073	0,033	0,108	0,025
100/110	W [kg]	32,6	-	-	-	-	-	-	13,5	7,55	20,15	-
	J [kgm²]	0,22	-	-	-	-	-	-	0,139	0,063	0,14	-
110/125	W [kg]	45,5	-	-	-	-	-	-	18,8	10,15	27,05	-
	J [kgm²]	0,38	-	-	-	-	-	-	0,255	0,11	0,242	-
125/145	W [kg]	68,8	-	-	-	-	-	-	27,4	14,9	40,9	-
	J [kgm²]	0,76	-	-	-	-	-	-	0,463	0,21	0,48	-
140/160	W [kg]	93,0	-	-	-	-	-	-	-	-	-	-
	J [kgm²]	1,30	-	-	-	-	-	-	-	-	-	-
160/185	W [kg]	137,0	-	-	-	-	-	-	-	-	-	-
	J [kgm²]	2,46	-	-	-	-	-	-	-	-	-	-
180/200	W [kg]	197,0	-	-	-	-	-	-	-	-	-	-
	J [kgm²]	4,40	-	-	-	-	-	-	-	-	-	-

Weight and moments of inertia are calculated on hubs with max diameter bore.

Tables for TRASCO® couplings with taper or splined bores







Taper 1:5 for:
BOSCH - BUCHER- LEDUC - DÜSTERLOH

Code	ø d + 0,05	b JS9	t2 + 0,1	lk
a1	9,85	2	1	11,5
a2	16,85	3	1,8	18,5
a3	19,85	4	2,2	21,5
a4	21,95	3	1,8	21,5
a5	24,85	5	2,9	26,5
a6	29,85	6	2,6	31,5
a7	34,85	6	2,6	36,5
a8	39,85	6	2,6	41,5

Taper 1:8 for:
ATOS - CASAPPA - GARBE LAHMEYER
- JOTTI & STROZZI - MARZOCCHI - SALAMI - SAUER-FLUID

Code	ø d + 0,05	b + 0,05	t2 + 0,1	lk
b1	9,7	2,4	6	17
b2	11,6	3	7,1	16,5
b3	13	2,4	7,3	21
b4	14	3	8,5	17,5
b5	14,3	3,2	8,5	19,5
b6	17,287	3,2	9,6	24
b7	17,287	4	10,3	24
b8	17,287	3	9,7	24
b9	22,002	3,99	12,4	28
b10	25,463	4,78	15,1	36
b11	25,463	5	15,5	36
b12	27	4,78	15,3	32,5
b13	28,45	6	15,1	38,5
b14	33,176	6,38	18,8	44
b15	33,176	7	18,8	44
b16	43,057	7,95	3,378	51
b17	41,15	8	3,1	42,5

Taper 1:8 for:
PARKER HANNIFIN NMF - TEVES

Code	ø d + 0,05	b JS9	t2 + 0,1	lk
c1	19,95	5	12,1	32
c2	24,95	6	14,1	45
c3	29,75	8	17	50

SAE splined profile

Code	Size	Head	Pitch	N. of teeth	∢
PH-S	5/8”	14,28	16/32	9	30°
PI-S	3/4”	17,46	16/32	11	30°
PB-S	7/8”	20,63	16/32	13	30°
PB-BS	1”	23,81	16/32	15	30°
PJ	1 1/8”	26,98	16/32	17	30°
PC-S	1 1/4”	29,63	dic-24	14	30°
PA-S	1 3/8”	33,33	16/32	21	30°
PD-S	1 1/2”	36,51	16/32	23	30°
PE-S	1 3/4”	42,86	16/32	27	30°
PF	2 9/16”	63,5	16/32	40	30°

DIN 5482

Code	Size	Head	Pitch	N. of teeth	Tolerance
P 8217	A 17 x 14	14,4	1,6	9	0,6
P 8228	A 28 x 25	26,25	1,75	15	0,302
P 8230	A 30 x 27	28	1,75	16	0,327
P 8235	A 35 x 31	31,5	1,75	18	0,676
P 8240	A 40 x 36	38	1,9	20	0,049
P 8245	A 45 x 41	44	2	22	0,181
P 8250	A 50 x 45	48	2	24	0,181

DIN 5480

Size	Head	Pitch	N. of teeth
20 x 1 x 18 x 7 H	18	1	18
20 x 1,25 x 14 x 7 H	17,5	1,25	14
25 x 1,25 x 18 x 7 H	22,5	1,25	18
30 x 2 x 13 x 7 H	26	2	13
30 x 2 x 14 x 7 H	26	2	14
35 x 2 x 16 x 7 H	32	2	16
40 x 2 x 18 x 7 H	36	2	18
45 x 2 x 21 x 7 H	41	2	21
48 x 2 x 22 x 9 H	44	2	22
50 x 2 x 24 x 7 H	48	2	24

ESAPLUS® ELASTIC COUPLINGS

sit DRIVE SOLUTIONS

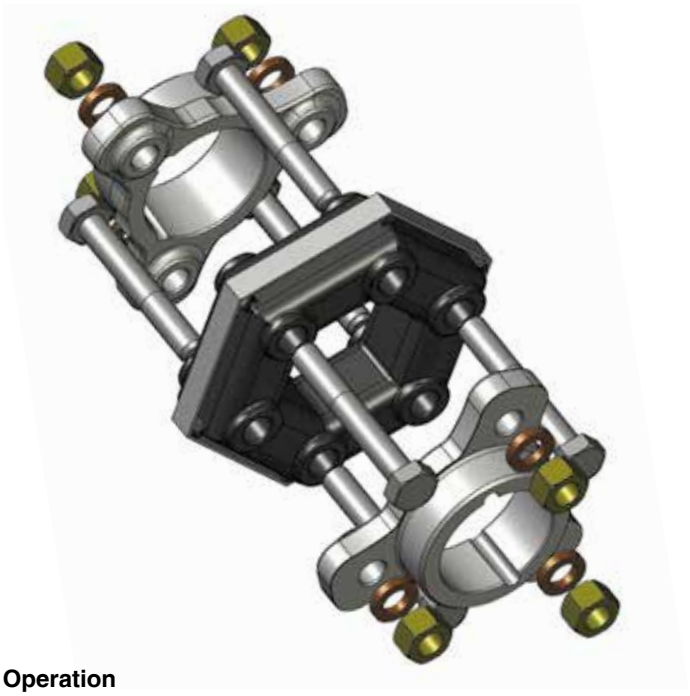
ESAPLUS® elastic couplings

Description

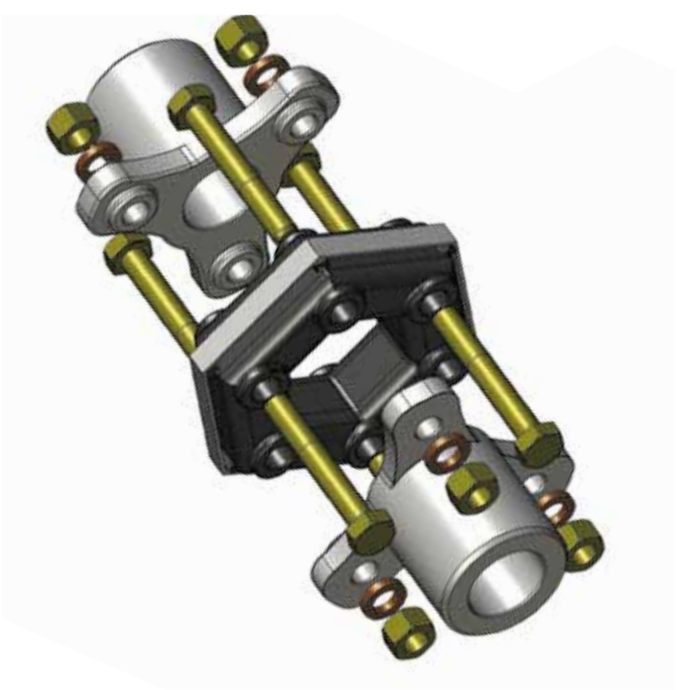
ESAPLUS® couplings are made of:
- one elastic element made of pre-compressed, natural rubber, reinforced with steel to be fitted with fixing screws and a metallic band (to be removed after mounting);
- two metallic hubs made of forged steel (size 120 produced in cast iron).

They are produced:
- for mounting with SER-SIT® taper bushing from size 4 to 25;
- solid hub from size 35 to 120.

GJB4 - GJB25



GJ4 - GJ120



Operation

The ESAPLUS® joint is a joint with exceptional elastic properties.

It allows in fact:
- a very effective attenuation of cyclic irregularities and torque peaks;
- a great safety of use and a very good resistance to alternating deformations, thanks to prestressing;
- possibility of accepting misalignment values that are difficult to find in other couplings. This avoids the need for the precise alignment of the machines to be coupled.

It is recommended that the metal band cerclage of the elastic element be removed after the application and tightening of the screws to the hubs.

Coding

Codification of the ESAPLUS® couplings is:

- GJ complete coupling solid hub
- GJM hub
- AJ elastic element
- GJMKIT mounting screws

The following number, expressed in daNm, identifies the nominal transmittable torque.
E.g.: GJ4 = complete joint (2 hubs + 1 elastic element) with nominal transmittable torque of 40 Nm.

Hub	GJM	16
GJM: ESAPLUS® solid hub GJMB: ESAPLUS® for mounting SER-SIT® taper bushing		
Size		

Elastic element	AJ	16
AJ: elastic element		
Size		

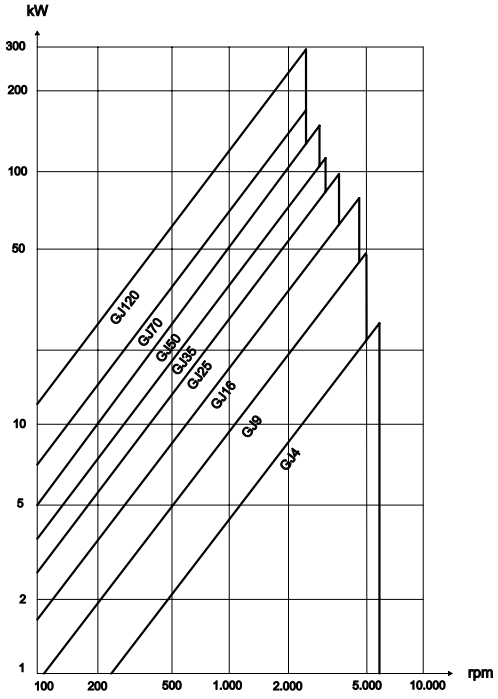
KIT	GJM16KIT
ESAPLUS® mounting screws	

Technical Data

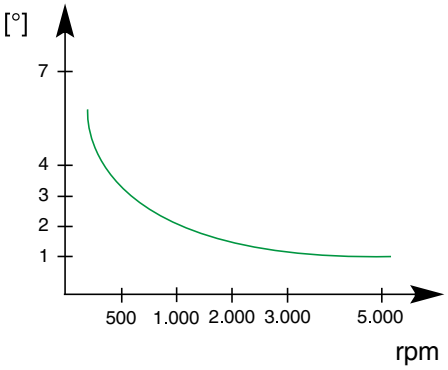
Size	T_{KN} [Nm]	T_{Kmax} [Nm]	φ [°]	n_{max} [rpm]	Number of screws	Screws/Type
GJ4	40	120	8	6.000	6	M8 x 50
GJ9	90	270	8	5.000	6	M10 x 65
GJ16	160	480	8	4.500	6	M12 x 80
GJ25	250	750	7	3.500	6	M14 x 90
GJ35	350	1050	7	3.000	6	M18 x 100
GJ50	500	1500	7	2.800	6	M20 x 115
GJ70	700	2100	8	2.400	6	M20 x 115
GJ120	1200	3600	6,5	2.400	8	M20 x 150

T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
φ	Torsion angle	°
n_{max}	Maximum rpm	rpm

Power Rating

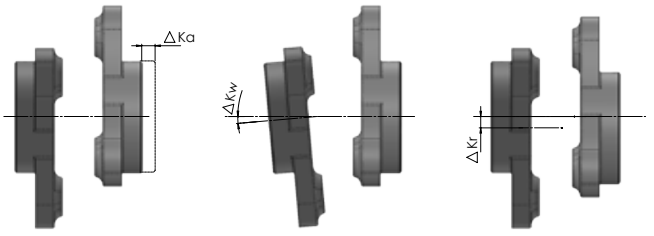


Angular Misalignment



Radial Misalignment

Nominal torque [Nm]	Radial misalignment 1.500 giri/min [mm]
40	0,7
90	0,9
160	1,4
250	1,5
350	1,8
500	2
700	2,1
1200	2,4



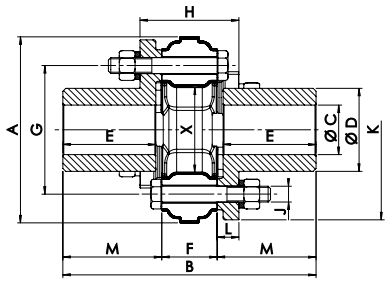
Axial misalignment *Angular misalignment* *Radial misalignment*

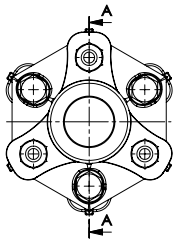
Mounting

The precompression, for the initial mounting, is achieved by securing the metallic band around the elastic element (all elements are supplied with metallic band of precompression).
To mount the coupling, tighten the three screws not adjacent to the bores of the elastic element to the three arms of one hub and the three remaining bores of the elastic element to the other hub. Tighten the screws with the torques indicated in the table.
Cut the metallic band when coupling is mounted.

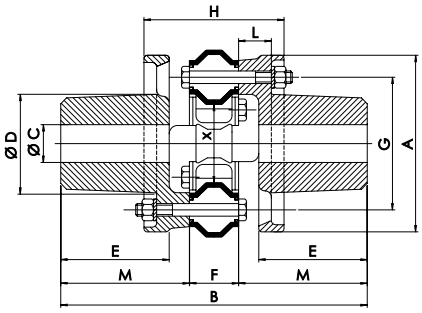
Size	Tightening torque Ms [Nm]
GJ4	21
GJ9	41
GJ16	72
GJ25	113
GJ35	240
GJ50	350
GJ70	350
GJ120	350

Technical features of ESAPLUS® elastic coupling - solid hub

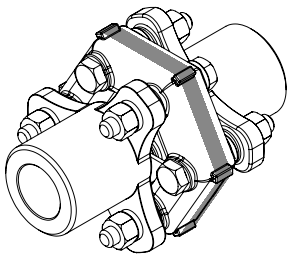




GJ4 - GJ70



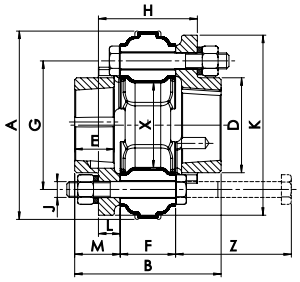
GJ120

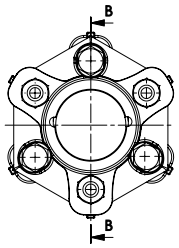


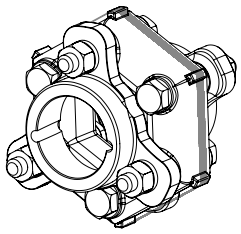
Size	C		A [mm]	B [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	J [mm]	K [mm]	L [mm]	M [mm]	X [mm]	W [kg]
	min. [mm]	max. [mm]													
GJ4	-	30	91	128	42	47	28	65	50	8	87	11	50	23	2
GJ9	-	40	117	172	56	66	32	85	60	10	113	14	70	35	3
GJ16	-	48	142	196	68	70	46	100	80	12	135	17	75	40	5
GJ25	-	60	181	247	90	93	51	132	93	14	172	21	98	63	12
GJ35	-	70	202	284	105	109	54	150	96	18	196	21	115	68	18
GJ50	-	75	232	322	115	124	62	170	108	20	225	23	130	75	25
GJ70	-	80	263	346	122	133	68	190	116	20	246	24	139	82	32
GJ120*	60	100	280	486	156	172	78	210	222	20	-	52	204	110	57

*= 8 lobes execution

Technical features of ESAPLUS® elastic coupling - for mounting SER-SIT® taper bushing







Size	SER-SIT® taper bushing	A [mm]	B [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	J [mm]	K [mm]	L [mm]	M [mm]	X [mm]	W [mm]	Z [mm]
GJB4	1108	91	74	48	20	28	65	54	8	91	11	23	23	0,8	65
GJB9	1210	117	90	60	25	32	85	65	10	121	14	29	35	1,6	75
GJB16	1610	142	106	70	25	46	100	81	12	140	17	30	40	2,7	90
GJB25	2012	181	121	95	30	51	132	91	14	177	21	35	63	5	100

SER-SIT® taper bushing	Diameter of the bore		Length [mm]	Diameter max.	Screws				Ms [Nm]
					No.	withworth	Length [mm]	Sets screews wrench type	
1108	[mm]	11 12 14 15 16 17 18 19 20 22 24 25 **26 27 28***	22,3	38	2	1/4	13	M3	5,5
	[pollici]	3/8 1/2 5/8 3/4 7/8 1 **1 1/8***							
1210	[mm]	11 12 14 15 16 18 19 20 22 24 25 26 28 **30 32**	25,4	47	2	3/8	16	M5	20
	[pollici]	1/2 5/8 3/4 7/8 1 1 1/8 **1 1/4**							
1610	[mm]	12 14 15 16 18 19 20 22 24 25 26 28 30 32 35 38 **40 42**	25,4	57	2	3/8	16	M5	20
	[pollici]	3/8 1/2 5/8 3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2 **1 5/8**							
2012	[mm]	14 15 16 18 19 20 22 24 25 26 28 30 32 35 38 40 42 45 48 **50**	31,8	70	2	7/16	22	M5	20
	[pollici]	5/8 3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2 1 5/8 1 3/4 1 7/8 **2**							

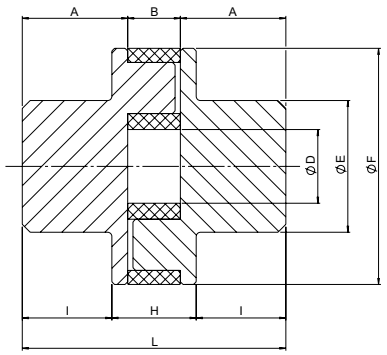
Taper bushing having bore diameters in bold type are made in steel instead of cast iron.
* = reduced keyway

“P” BRASS ELASTIC COUPLINGS

DRIVE SOLUTIONS

“P” brass elastic couplings

Hubs made in brass and spider in rubber. Suitable for low power.



Size	A [mm]	B [mm]	D [mm]	E [mm]	F [mm]	H [mm]	I [mm]	L [mm]	T_{KN} [Nm]	T_{Kmax} [Nm]
P 35	18	7	12	20	35	12	15	43	5	10
P 45	20	10	14	25	45	16	17,5	51	10	20

Misalignment

Size	Δk_a [mm]	Δk_r [mm]	Δk_w [°]
P 35	1	0,25	2
P 45	1	0,25	2

Highest misalignment values cannot simultaneously act on the hub.

Hub **GOMP** **35**

Hub for “P” brass coupling

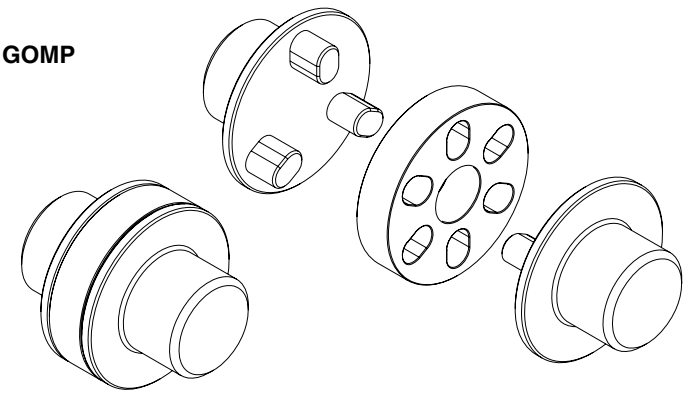
Size

Spider **AO** **35**

Spider for “P” brass coupling

Size

GOMP



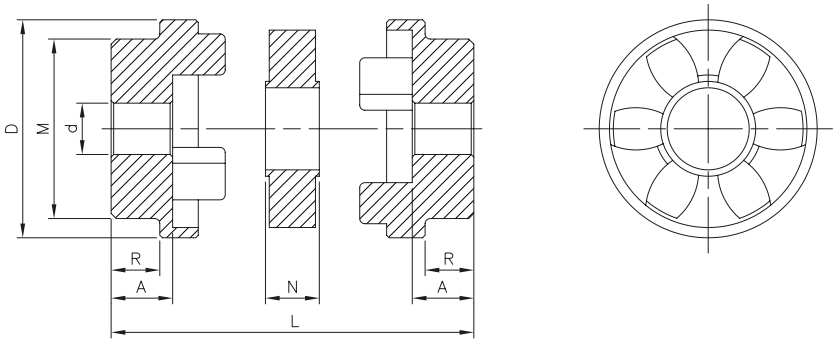
T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
Δk_a	Maximum axial misalignment	mm
Δk_r	Maximum radial misalignment	mm
Δk_w	Maximum angular misalignment	°

HRC-GRH ELASTIC COUPLINGS

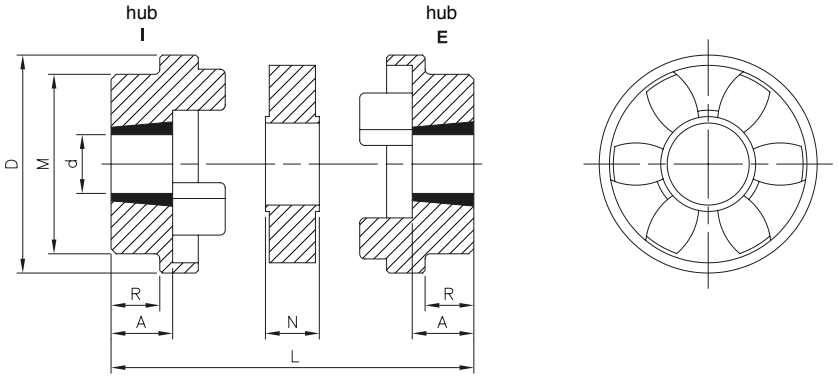
sit DRIVE SOLUTIONS

HRC-GRH

HRC-GRH Dimensions



Size	Code	prebore (d) [mm]	Max bore [mm]	M [mm]	D [mm]	N [mm]	R [mm]	A [mm]	L [mm]	kg	Material
70	GRH070	10	32	60	69	18,0	20,0	23,5	65,0	0,60	cast iron GG25
90	GRH090	10	42	70	85	22,5	26,0	30,0	82,5	1,07	cast iron GG25
110	GRH110	10	55	100	112	29,0	37,0	45,0	119,0	3,05	cast iron GG25
130	GRH130	20	60	105	130	35,0	39,0	47,5	130,0	4,45	cast iron GG25
150	GRH150	20	70	115	150	40,0	46,0	56,0	152,0	6,10	cast iron GG25
180	GRH180	28	80	125	180	46,0	58,0	70,0	186,0	9,20	cast iron GG25
230	GRH230	45	100	155	225	58,0	77,0	90,0	238,0	17,75	cast iron GG25
280	GRH280	55	115	206	275	72,0	90,0	105,5	283,0	35,75	cast iron GG25



For taper bush

Size	Hub BI code	Hub BE code	SER-SIT® taper bush	Bore diameter		M [mm]	D [mm]	N [mm]	R [mm]	A [mm]	L [mm]	kg	Material
				Min. [mm]	Max. [mm]								
70	GRHBI070	GRHBE70	1008	11	25	60	69	18,0	20,0	23,5	65,0	0,44	cast iron GG25
90	GRHBI090	GRHBE90	1108	11	28	70	85	22,5	19,5	23,5	69,5	0,72	cast iron GG25
110	GRHBI110	GRHBE110	1610	12	42	100	112	29,0	18,5	26,5	82,0	1,60	cast iron GG25
130	GRHBI130	GRHBE130	1610	12	42	105	130	35,0	18,0	26,5	88,0	2,27	cast iron GG25
150	GRHBI150	GRHBE150	2012	15	50	115	150	40,0	23,5	33,5	107,0	3,30	cast iron GG25
180	GRHBI180	GRHBE180	2517	19	65	125	180	46,0	34,5	46,5	139,0	5,37	cast iron GG25
230	GRHBI230	GRHBE230	3020	25	75	155	225	58,0	39,5	52,5	163,0	9,53	cast iron GG25
280	GRHBI280	GRHBE280	3525	35	90	206	275	72,0	51,0	66,5	205,0	20,50	cast iron GG25

Spider

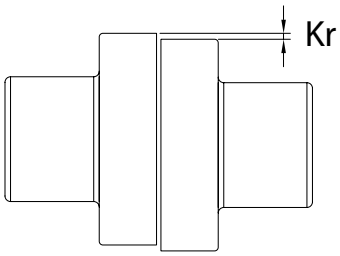
Size	Code	kg
70	ARH070	0,016
90	ARH090	0,050
110	ARH110	0,080
130	ARH130	0,150
150	ARH150	0,220
180	ARH180	0,380
230	ARH230	0,800
280	ARH280	1,530

Technical characteristics and misalignments

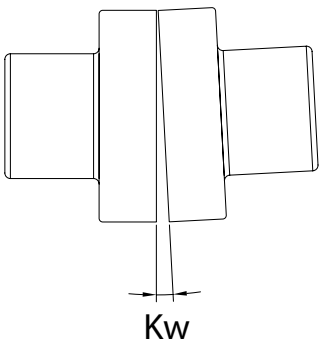
Size	Max speed [rpm]	Torque* [Nm]		Torsion spring rigidity [Nm/°]	Moments of inertia [kgm²]	Max. shaft misalignment**		
		T_{KN}	T_{Kmax}			Radial ΔK_r [mm]	Angular ΔK_w [°]	Axial ΔK_a [mm]
70	8100	31	72	-	0,00085	0,3	1	+0,2
90	6500	80	180	-	0,00115	0,3	1	+0,5
110	5200	160	360	65	0,00400	0,3	1	+0,6
130	4100	315	720	130	0,00780	0,4	1	+0,8
150	3600	600	1500	175	0,01810	0,4	1	+0,9
180	3000	950	2350	229	0,04340	0,4	1	+1,1
230	2600	2000	5000	587	0,12068	0,5	1	+1,3
280	2200	3150	7200	1025	0,44653	0,5	1	+1,7

* Valid for shaft fit with keyway

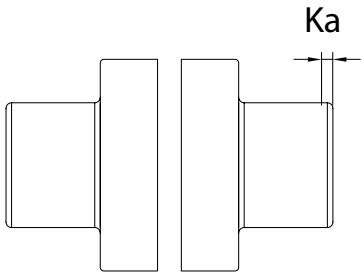
** Values valid for n = 600 rpm and considered individually.
For speeds above 600 rpm there is a reduction in the offset and displacement values.
≤ 0,8 601 - 1000 rpm
≤ 0,65 1001 - 1500 rpm
≤ 0,50 1501 - 3000 rpm



Radial misalignment



Angular misalignment



Axial misalignment

Solid hub **GRH 180**

Hub HRC-GRH

Size

Hub for taper bushing **GRH BE 180**

Hub HRC-GRH

Taper bushing type
BE: mounting bushing from outside
BI: mounting bushing from inside

Size

Spider **ARH 180**

Elastic spider for HRC-GRH coupling

Size

SITEX® TEETH COUPLINGS

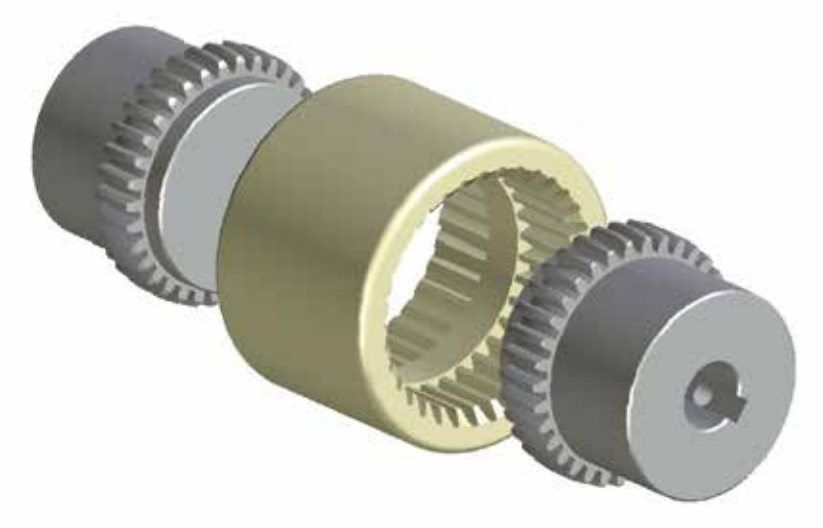
DRIVE SOLUTIONS

SITEX®
SITEX® FL

SITEX® teeth couplings

Description

SITEX® couplings consist of two toothed hubs which are connected with one internally toothed sleeve. The hubs are made of steel and the teeth, which are both profiled and section crowned, are milled. The sleeve is manufactured from stabilized 6.6 superpolyamide resin. **Note:** It is possible to have aligned keyways upon inquiry.



Features

SITEX® couplings are members of the elastic coupling family range. Sitex couplings are well suited for applications with axial, radial, and angular displacement of the connected shafts. The double cardanic action eliminates the imposition of loads on the shafts which results from radial and axial misalignment. The torsional rigidity of the sleeve prevents angular speed variation. The combination of steel hubs with Polyamide sleeve makes the coupling maintenance and lubrication free.
The particular toothed profile prevents contact of tooth edges with the sleeve, ensuring long life of the coupling.

Performance

Mounting can be in both the horizontal and vertical planes. Installation is simple and quick, which lowers installation costs.
The coupling is suitable for operating in temperatures ranging from - 25 °C to +90 °C.
For short intervals, temperatures of +125 °C can be tolerated.
Components of the coupling are resistant to all types of lubricants and hydraulic fluids.

ATEX Directive 2014/34/EU

It is possible to ask for specific certification for use in hazardous area according to ATEX Directive 2014/34/EU.
SITEX® couplings are available with specific mounting/operating instruction manual and conformity.
For information, please contact our technical office.

SITEX® coupling selection

Size	T_{KN} [Nm]	T_{Kmax} [Nm]	T_{KW} [Nm]	Transmissible power at various speeds [kW]										n_{max} [rpm]	W* [kg]	J* [kg·m²]	ΔKa [mm]	ΔKr [mm]	ΔKw [°]
				n = 500 [rpm]		n = 750 [rpm]		n = 1000 [rpm]		n = 1500 [rpm]		n = 3000 [rpm]							
				std	max	std	max	std	max	std	max	std	max						
14	10	30	5	0,5	1,6	0,8	2,4	1,0	3,1	1,6	4,7	3,1	9,4	14.000	0,18	0,000026	±1	±0,3	+1
19	16	48	8	0,8	2,5	1,3	3,8	1,7	5,0	2,5	7,5	5,0	15,1	11.800	0,24	0,000054	±1	±0,3	±1
24	21	63	10,5	1,1	3,3	1,6	4,9	2,2	6,6	3,3	9,9	6,6	19,8	10.500	0,30	0,000088	±1	±0,3	±1
28	45	135	22,5	2,4	7,1	3,5	10,6	4,7	14,1	7,1	21,2	14,1	42,4	8.500	0,73	0,000312	±1	±0,4	±1
32	60	180	30	3,1	9,4	4,7	14,1	6,3	18,8	9,4	28,3	18,8	56,5	7.600	0,99	0,000572	±1	±0,4	±1
38	81	243	40,5	4,2	12,7	6,4	19,1	8,5	25,4	12,7	38,2	25,4	76,3	6.700	1,20	0,000877	±1	±0,4	±1
42	100	300	50	5,2	15,7	7,9	23,6	10,5	31,4	15,7	47,1	31,4	94,2	6.000	1,62	0,001467	±1	±0,4	±1
48	142	426	71	7,4	22,4	11,2	33,6	14,9	44,8	22,3	67,1	44,6	134,3	5.580	1,79	0,001869	±1	±0,4	±1
65	380	1140	190	19,9	59,7	29,8	89,5	39,8	119,4	59,7	179,1	119,4	358,1	4.000	5,28	0,010542	±1	±0,6	±1
80	700	2100	350	36,6	109,9	55,0	164,9	73,3	219,9	109,9	329,8	219,9	659,7	3.100	11,70	0,036774	±1	±0,7	±1
100	1210	3630	605	63,4	190,1	95,0	285,1	126,7	380,1	190,1	570,2	380,1	1140,3	3.000	20,40	0,095742	±1	±0,8	±1
125	2500	7500	1250	130,9	392,7	196,3	589,0	261,8	785,3	392,7	1178,0	-	-	2.100	43,30	0,329397	±1	±1,1	±1

*= Values are for complete couplings, max bore diameter, only.

SITEX® coupling sizing

SITEX® coupling sizing shown below is carried out according to DIN 740/2. The sizing requires that the maximum moments to be transmitted by the coupling under the various operating conditions be less than the maximum allowable stresses of the coupling itself.

Verification should be conducted on both the nominal torque and the maximum transmissible torque:

1) Verify the nominal torque
The nominal torque to be transmitted multiplied by the temperature coefficient must be less than the nominal torque supportable of the coupling.

$$T_{KN} \geq T_N \cdot S_\theta \quad [Nm]$$

where the nominal torque of the T_N motor side is obtained by the formula:

$$T_N = 9550 \frac{P_N}{n} \quad [Nm]$$

where P_N is the rated power of the motor in kW and ***n*** is the number of revolutions per minute.

2) Peak torque verification.
The maximum torque of the coupling must be greater than the starting torque and multiplied by the temperature coefficients, starting frequency and shock frequency.

$$T_{Kmax} \geq T_S \cdot S_\theta \cdot S_Z \cdot S_U \quad [Nm]$$

3) Verification of torque with reversals.
In the case of torque with reversals in addition to 1) and 2), it must also be verified that the torque with reversals that can be borne by the T_{KW}, coupling, is greater than or equal to the T_W torque variation of the transmission, corrected by the temperature coefficient.

$$T_{KN} \geq T_N \cdot S_\theta \quad [Nm]$$

In the case of transmissions subject to high torsional vibrations (e.g., piston compressors, internal combustion engines), a calculation of the torsional vibrations themselves should be carried out to ensure proper operation of the coupling. For this purpose, consult our Technical Department.

T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
T_{KW}	Torque with reversal transmissible by the coupling	Nm
T_N	Coppia nominale del motore	Nm
T_S	Coppia di spunto del motore o coppia d'urto	Nm
T_W	Coppia con inversioni dell'impianto	Nm
S_θ	Temperature factor	
S_Z	Start frequency factor	
S_U	Motor or driven-side shock factor	

P_N	Motor nominal torque	kW
n	Number of engine operating revolutions	rpm
W	Weight of the complete coupling with max bore	kg
ΔK_a	Maximum axial misalignment	mm
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°
J	Coupling moment of inertia	kgm²
n_{max}	Maximum rpm	rpm

Shock load safety factor

Shock load type	S_U
Light	1,5
Medium	1,8
Hard	2,5

Shock load safety factor

T (°C)	-25 °C / +60 °C	-60 °C / +80 °C	-80 °C / +90 °C
S_θ	1	1,4	1,6

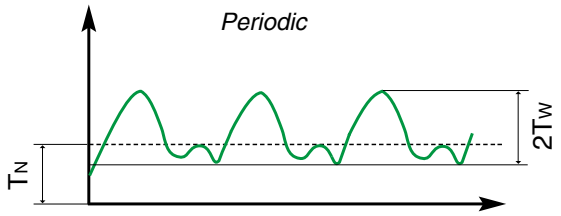
Safety factor for frequency of starting

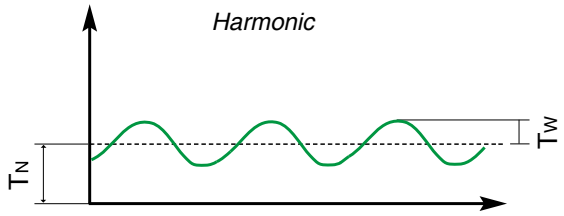
Starts/h	0 ÷ 100	101 ÷ 200	201 ÷ 400	401 ÷ 800
S_Z	1	1,2	1,4	1,6

Hub shaft connection check

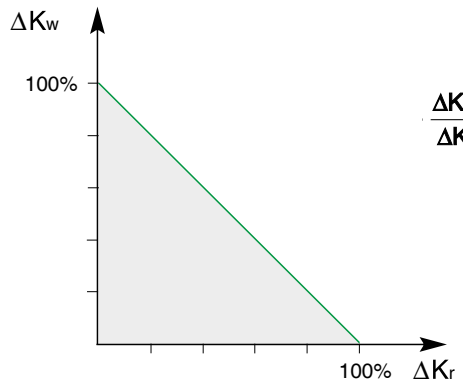
Hub shaft connection must always be checked by the user. It is important to verify the maximum torque in the drive is lower than the torque which the hub shaft connection can bear. In case of keyway connection, it is important to verify the tensile strength of the hub material with the load which the keyway seat must transmit.

Type of stress





The values shown in the table for radial and angular misalignment, must be corrected in case they are simultaneously acting on the coupling.
The sum of the admissible value (A) and the respective values shown in the table must be less than or equal to 1.

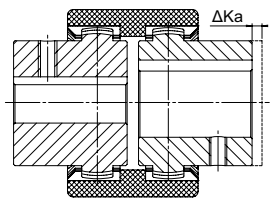


$$\frac{\Delta K_{rA}}{\Delta K_r} + \frac{\Delta K_{wA}}{\Delta K_w} \leq 1$$

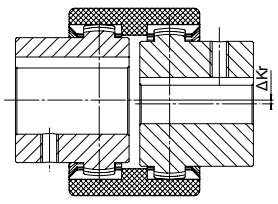
ΔK_a	Maximum axial misalignment	mm
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°

Mounting standards

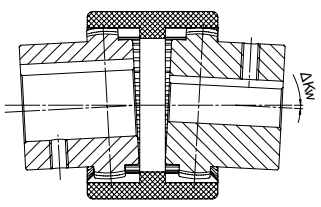
- Attach the two hubs to the shafts, making sure that the inner faces are flush with the respective ends of the shafts.
- "Thread the sleeve onto the two half-hubs by adjusting the distance between them (dimension "b") while simultaneously trying to align the as much as possible between the two shafts.
- Secure the two elements to be coupled in place.
- Before rotating the coupling, check that the sleeve is free to move axially.



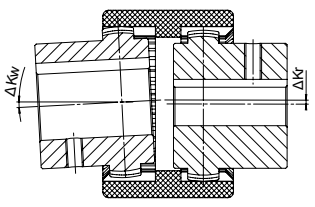
Axial misalignment



Radial misalignment



Angular misalignment



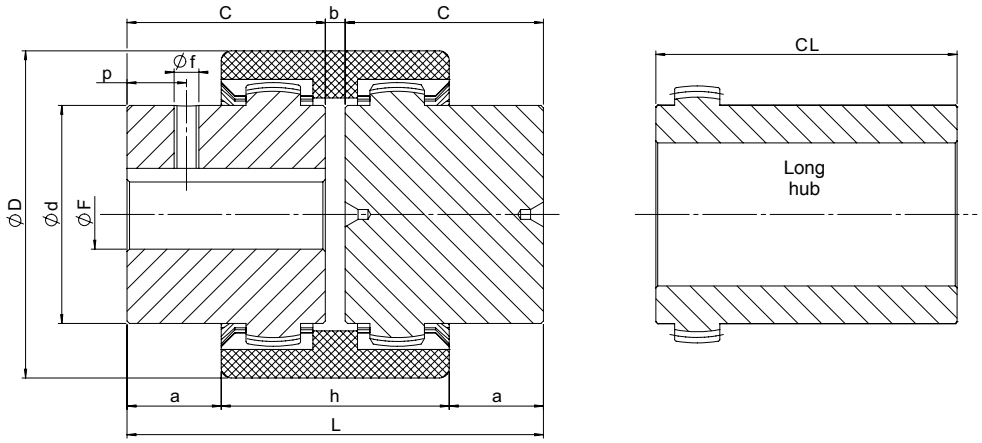
Angular and radial misalignment

T_N	Motor nominal torque	Nm
T_W	Torque with reversal of the machine	Nm
S_θ	Temperature factor	

S_Z	Start frequency factor
S_U	Motor or driven-side shock factor

SITEX® dimensional characteristics

Due to compact dimensions and excellent performances, SITEX® couplings may be used in a wide range of applications. Couplings are available from stock, both the standard and the “long” hub execution, which entirely covers the motor shaft.
SITEX® hubs are available with certain stock bores as listed below. The standard solid hub has a pilot center concentric to the hub OD and can be bored to specific needs. **Approved according to ATEX Directive.**



Size	D [mm]	d [mm]	F (H7)			C [mm]	CL [mm]	b [mm]	a [mm]	h [mm]	L [mm]	f [mm]	p [mm]	Hub teeth number
			min. [mm]	max. [mm]	UNI keyway and set-screw* [mm]									
14	40	24,5	8	14	8 - 11 - 12 - 14	23	30	4	6,5	37	50	M5	6	20
19	48	30	8	19	11 - 14 - 16 - 18 - 19	25	-	4	8,5	37	54	M5	6	24
24	52	35	11	24	11 - 14 - 19 - 20 - 22 - 24	26	50	4	7,5	41	56	M5	6	28
28	66	43	11	28	11 - 16 - 19 - 20 - 22 - 24 - 25 - 28	40	60	4	18,5	47	84	M8	10	34
32	76	50	14	32	14 - 20 - 22 - 24 - 25 - 28 - 30 - 32	40	60	4	17,5	48	84	M8	10	40
38	83	58	14	38	14 - 19 - 20 - 24 - 28 - 30 - 32 - 38	40	80	4	18	48	84	M8	10	44
42	92	65	14	42	14 - 25 - 28 - 32 - 38 - 42	42	110	4	18,5	51	88	M8	10	50
48	100	68	19	48	18 - 19 - 25 - 32 - 38 - 42 - 48	50	110	4	27	50	104	M8	10	50
65	142	96	19	65	19 - 38 - 42 - 48 - 55 - 60 - 65	70	140	4	35,5	73	144	M10	20	42
80	175	124	-	80	-	90	-	6	46,5	93	186	M10	20	46
100	210	152	36	100	-	110	-	8	63	102	228	M10	20	48
125	270	192	45	125	-	140	-	10	78	134	290	M10	20	62

* = Up to size 24, set-screw is 180° from keyway; from size 28 set-screw is set onto the keyway.
Keyway according to DIN 6885 sheet 1 - JS9

Hub **GDM** **48** **F32**

GDM: SITEX® Hub

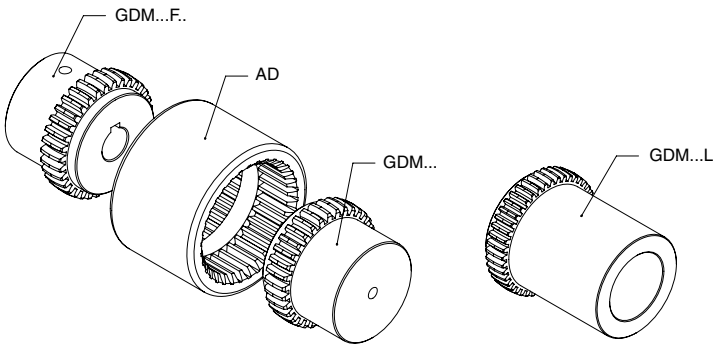
Size

L: long hub execution
F...: bore diameter

Sleeve **AD** **48**

AD: SITEX® sleeve

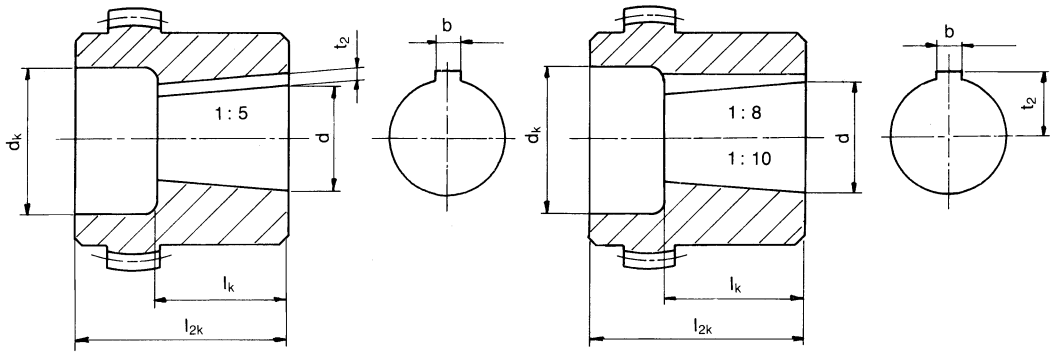
Size



Standard couplings

Long hub execution

Tables for SITEX® couplings with taper or splined bores



Taper 1 : 5 for
BOSCH - BUCHER -LEDUC - DÜSTERLOH

Type	dø + 0,05	b JS9	t^2+0,1	l_k	14		19		24		28		32		38		42		48		65	
					d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}
a1	9,85	2	1	11,5	18	23	22	25	24	26	35	26	36	26	45	26						
a2	16,85	3	1,8	18,5			25	30	28	30	35	40	36	40	45	40	45	42	45	42	45	50
a3	19,85	4	2,2	21,5					28	36	35	40	36	40	45	40	45	42	45	42	45	50
a4	21,95	3	1,8	21,5					30	26	32	40	32	40	42	40	45	42				
a5	24,85	5	2,9	26,5							35	40	36	40	45	40	45	42	45	42	55	50
a6	29,85	6	2,6	31,5											45	55	45	55	45	55	55	55
a7	34,85	6	2,6	36,5															52	60	55	60
a8	39,85	6	2,6	41,5															52	60	65	70

Taper 1 : 8 for
ATOS - CASAPPA - GARBE LAHMEYER - JOTTI & STROZZI - MARZOCCHI - SALAMI - SAUER-FLUID

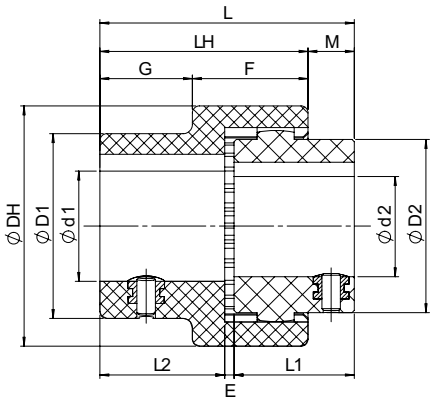
Type	dø + 0,05	b JS9	t^2+0,1	l_k	14		19		24		28		32		38		42		48		65	
					d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}
b1	9,7	2,4	6	17	18	26	19	25	24	26	35	30	36	30	36	30						
b2	11,6	3	7,1	16,5	18	23			26	26	32	30										
b3	13	2,4	7,3	21					26	30	32	30			32	30						
b4	14	3	8,5	17,5	20	23	24	30	24	30	32	30	36	40								
b5	14,3	3,2	8,5	19,5																		
b6	17,287	3,2	9,6	24					28	35	32	40	36	40	42	40	45	42	45	42	45	50
b7	17,287	4	10,3	24					28	35	32	40	36	40	42	40	45	42	45	42	45	50
b8	17,287	3	9,7	24					28	35					42	40			45	42		
b9	22,002	3,99	12,4	28							32	40	36	40	42	40	45	42	45	42	55	50
b10	25,463	4,78	15,1	36							34	50	36	50	42	50	45	50	45	50	55	62
b11	25,463	5	15,5	36							34	50					45	50	45	50	55	62
b12	27	4,78	15,3	32,5											42	50						
b13	28,45	6	15,1	38,5											42	60	45	60				
b14	33,176	6,38	18,8	44											44	60	45	60	45	60	55	62
b15	33,176	7	18,8	44													45	60			55	62
b16	43,057	7,95	3,378	51																		
b17	41,15	8	3,1	42															48	60	55	60

Taper 1 : 10 for
PARKER HANNIFIN NMF - TEVES

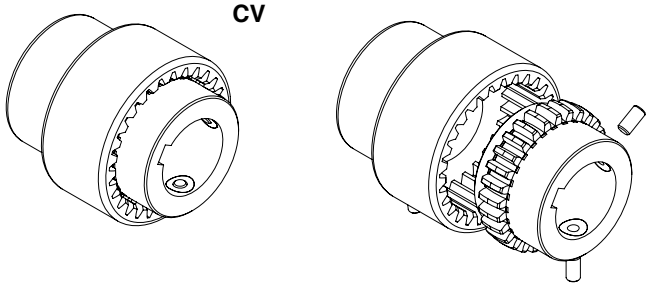
Type	dø + 0,05	b JS9	t^2+0,1	l_k	14		19		24		28		32		38		42		48		65	
					d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}	d_k	l_{2k}
c1	19,95	5	12,1	32							35	50			42	50	45	50	45	50		
c2	24,95	6	14,1	45									36	55			45	60	45	60	55	60
c3	29,75	8	17	50													54	60	54	60	55	70

SITEX® Nylex

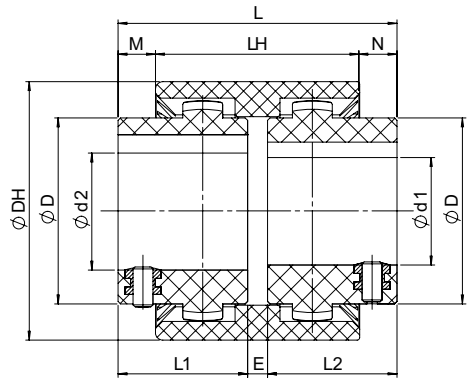
SITEX® Nylex couplings are made of 100% Polyamide. Two executions are available:
• **CV**: in 2 parts (1 hub and one sleeve including the hub);
• **C**: in 3 parts (2 hubs and one sleeve).
Designed for light applications, low cost and available with finished bore keyway and thread for set screw.
Temperature range: -25 °C ÷ +90 °C. **Compliant with ATEX Directive.**



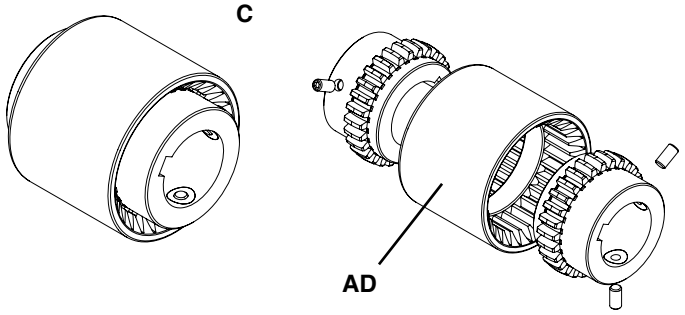
CV



Size	GDNV hub d1 [mm] min	max	UNI keyway and set screw [mm]	D1 [mm]	GDN hub d2 [mm] min	max	UNI keyway and set screw [mm]	D2 [mm]	DH [mm]	L1 [mm]	L2 [mm]	E [mm]	L [mm]	LH [mm]	M [mm]	F [mm]	G [mm]	T_{KN} [Nm]	T_{Kmax} [Nm]	T_{KW} [Nm]	n_{max} [rpm]
14	6	14	14	25	6	14	7-9-10-11-12-14	26	40	23	23	2	48	40	8	23	17	5	10	2,5	6.000
19	14	19	18-19	31,5	14	19	14-17-19	40	48	25	25	2	52	42	9	23	19	8	16	4	6.000
24	10	24	19-20-24	37,5	10	24	10-14-16-19-20-24	40	52	26	26	2	54	45	10	25	20	12	24	6	6.000



C



Size	d1 - d2 [mm] min	max	UNI keyway and set screw [mm]	D [mm]	DH [mm]	L1 [mm]	L2 [mm]	E [mm]	L [mm]	LH [mm]	M [mm]	N [mm]	T_{KN} [Nm]	T_{Kmax} [Nm]	T_{KW} [Nm]	n_{max} [rpm]
14	6	14	7-9-10-11-12-14	25	40	23	23	4	50	37	6,5	6,5	5	10	2,5	6.000
19	14	19	14-17-19	31,5	48	25	25	4	54	37	8,5	8,5	8	16	4	6.000
24	10	24	10-14-16-19-20-24	37,5	52	26	26	4	56	41	7,5	7,5	12	24	6	6.000

Hub **GDN** **14** **F14**

GDN: SITEX® Nylex hub
GDNV: SITEX® Nylex sleeve hub

Size

F...: bore diameter

"C" execution sleeve **AD** **24**

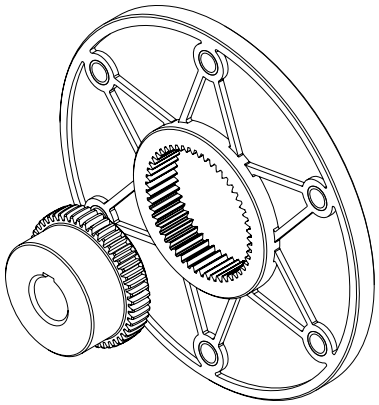
AD: SITEX® Nylex sleeve

Size

T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
T_{KW}	Torque with reversal transmissible by the coupling	Nm
n_{max}	Motor maximum rpm	rpm

SITEX® FL

The SITEX® FL couplings are designed for optimizing the connections between reciprocating engines and driven equipment such as pumps, compressors, generators, etc. SITEX® FL couplings consist of a steel hub and fiberglass reinforced polyamide flange which offers both mechanical strength and dimensional stability in a variety of temperature ranges. The special teeth allow SITEX® FL couplings to compensate for small misalignments thus avoiding wear. The steel-Polyamide coupling allows maintenance free continuous operation. **Approved according to ATEX Directive.**



Main characteristics and advantages

Minimum dimensions: The entire coupling is usually installed inside an engine housing, minimizing the axial dimensions thus reducing the tools required for installation.

Axial misalignments: The hub toothing can move freely axially inside the Polyamide flange avoiding axial forces which may arise on the pump shaft.

Heat stability: The special fiberglass reinforced Polyamide flange is designed to operate in internal combustion engine environments without air cooling and up to 140° C.

Maintenance free: The SITEX® FL joints are maintenance and lubrication free.

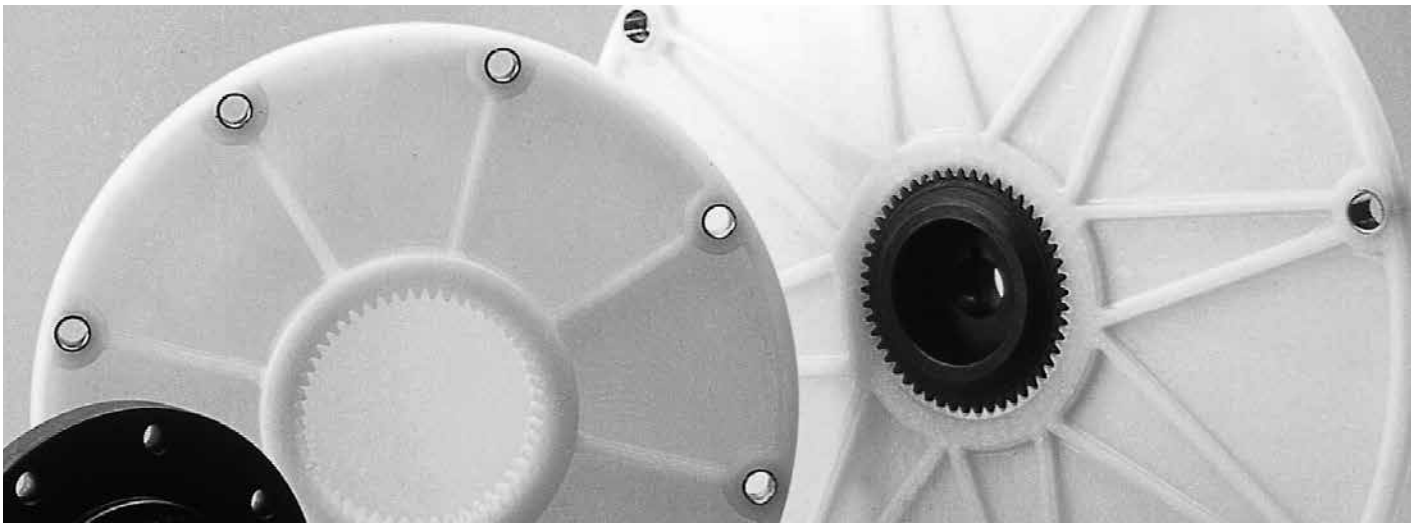
Quick assembling: Blind assembly makes installation of the SITEX® FL quick and easy.

Angular misalignments: The special teeth allow angular misalignment correction, protecting the bearings against angular forces.

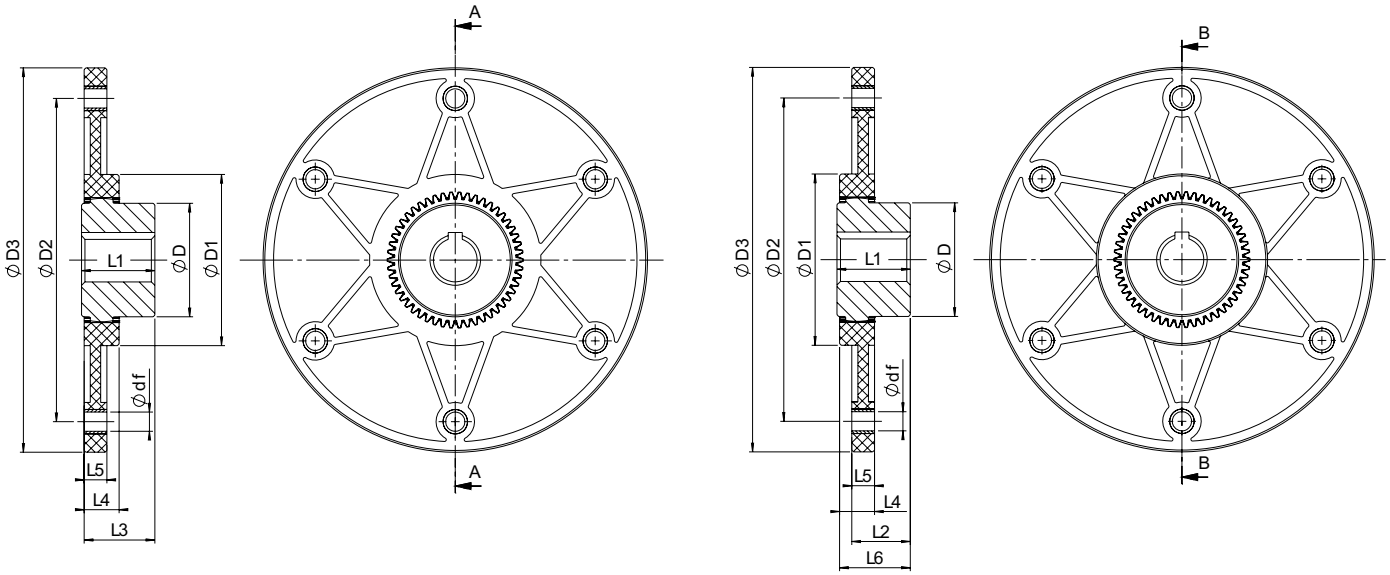
Stiffness: The stiffness of the SITEX® FL coupling allow for torsionally vibration-free operation.

The SITEX® FL couplings are used in connections between the flywheels of the internal combustion engines and: hydro-pumps, rotating pistons, and compressor blades.

Note: It is possible to have aligned keyways upon inquiry.



Flange dimensions in accordance with SAE J620



SAE flange size	Dimensions [mm]												
	Coupled hub size	Max. bore	D	D1	D2	D3	df x z	L1	L2	L3	L4	L5	L6
GDF 42/48 FL 6 1/2"	42	42	65	100	200,02	215,9	9 x 6	42	33	42	20	13	40
	48	48	68	100	200,02	215,9	9 x 6	50	41	50	20	13	48
	48P	48	68	100	200,02	215,9	9 x 6	50	38	45	20	13	46
GDF 42/48 FL 7 1/2"	42	42	65	100	222,25	241,3	9 x 8	42	33	42	20	13	40
	48	48	68	100	222,25	241,3	9 x 8	50	41	50	20	13	48
	48P	48	68	100	222,25	241,3	9 x 8	50	38	45	20	13	46
GDF 42/48 FL 8"	42	42	65	100	244,47	263,52	11 x 6	42	33	42	20	13	40
	48	48	68	100	244,47	263,52	11 x 6	50	41	50	20	13	48
	48P	48	68	100	244,47	263,52	11 x 6	50	38	45	20	13	46
GDF 42/48 FL 10"	42	42	65	100	295,27	314,32	11 x 8	42	33	42	20	13	40
	48	48	68	100	295,27	314,32	11 x 8	50	41	50	20	13	48
	48P	48	68	100	295,27	314,32	11 x 8	50	38	45	20	13	46
GDF 55 FL 7"1/2	55	55	85	115	222,25	241,3	9 x 8	50	37	48	24	13	48
GDF 65 FL 8"	65	65	96	132	244,47	263,52	11 x 6	70	60	69	27	21	66
	65P	65	93	132	244,47	263,52	11 x 6	70	60	69	27	21	66
GDF 65 FL 10"	65	65	96	132	295,27	314,32	11 x 8	70	60	69	27	21	66
	65P	65	93	132	295,27	314,32	11 x 8	70	60	69	27	21	66
GDF 65 FL 11 1/2"	65	65	96	132	333,37	352,42	11 x 8	70	60	69	27	21	66
	65P	65	93	132	333,37	352,42	11 x 8	70	60	69	27	21	66
GDF 80 FL 11 1/2"	80	80	124	170	333,37	352,42	11 x 8	90	78	87	30	21	87

48P and **65P** are for hubs with over-sized toothed disc.

Hub **GDM 48 F32**

GDM: SITEX® hub

Size

L: long hub execution
F...: bore diameter

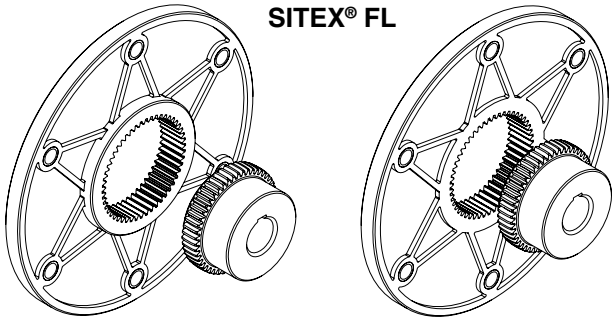
Flange **GDF 65 FL11-1/2**

GDF: SITEX® FL Flange

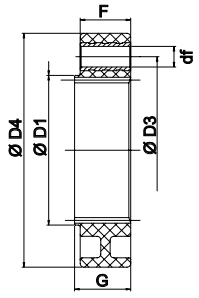
Size

SAE flange size

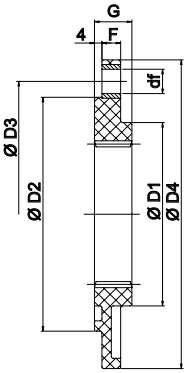
SITEX® FL



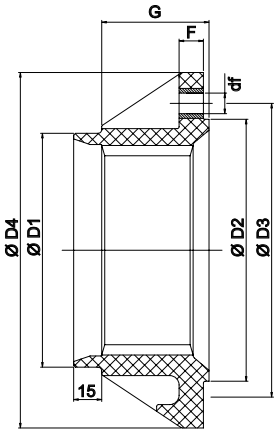
Special flange dimensions



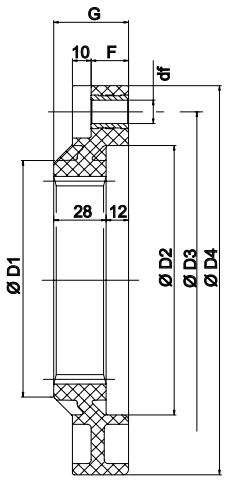
GDF 48 FL 125



GDF 48 FL 165
GDF 48P FL 165



GDF 65 FL 190



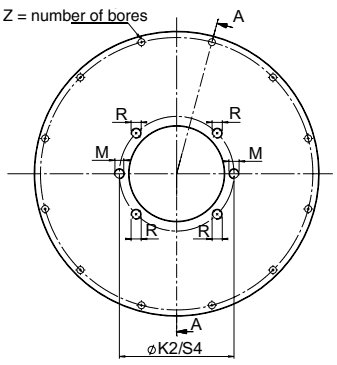
GDF 65 FL 208
GDF 65P FL 208

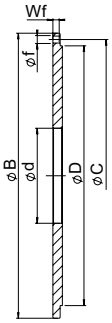
Special flange size	Dimensions [mm]								
	Coupled hub size	Max. bore	D1	D2	D3	D4	F	G	df x z*
GDF 42/48 FL 125	42	42	80	-	100	125	27	30	11 x 3
	48	48	80	-	100	125	27	30	11 x 3
	48P	48	80	-	100	125	27	30	11 x 3
GDF 42/48 FL 165	42	42	98	125	142	165	10	20	13 x 6
	48	48	98	125	142	165	10	20	13 x 6
	48P	48	98	125	142	165	10	20	13 x 6
GDF 65 FL 190	65	65	125	140	160	190	13	57	11 x 6
GDF 65 FL 208	65	65	125	144	180	208	20	40	18 x 8
GDF 65P FL 208	65P	65	125	144	180	208	20	40	18 x 8

* z = number of bushes.

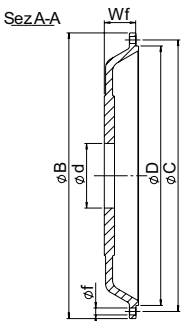
Flywheel bellhousing

The dimensions of the flywheel bBell housing plates are in accordance with SAE 617.



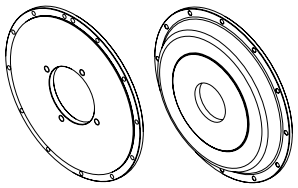


CCV type



CCVB type

SAE - Flywheel bellhousing							
SAE type	D [mm]	B [mm]	C [mm]	Number of holes Z	f [mm]	**CCV** Wf	**CCVB** Wf
SAE 6	266,7	308	285,8	8	11	10,5	-
SAE 5	314,32	356	333,4	8	11	10,5	25
SAE 4	361,95	403	381	12	11	10,5	35
							50
SAE 3	409,58	451	428,6	12	11	10,5	50
SAE 2	447,68	489	466,7	12	11	14	-



Pump assembly SAE dimensions							
SAE Pump	Center bore d [mm]	Pump mounting holes					
		n. 2 holes			n. 4 holes		
		K2	M		S4	R	
AA	50,8	82,6	M8	5/16"	-	-	-
A	82,55	106,4	M10	3/8"	104,6	M10	3/8"
B	101,6	146	M12	1/2"	127	M12	1/2"
C	127	181	M16	5/8"	162	M12	1/2"
D	152,4	228,6	M16	5/8"	228,6	M16	5/8"

Flywheel bellhousing **CCV** **6** **B/4**

CCV **B** **6** **B/4**

Flywheel bellhousing

"B" type

SAE type for engine flange

SAE type of pump flange and number of pump mounting holes

Technical characteristics

Size	Misalignment			Coppia			Weight / Moment of inertia							Dynamic torsional rigidity +60 °C dampening factor [Ψ] = 0,4 [Nm/rad]			
	Axial [mm]	Angular [°]	Radial [mm]	Nominal T_{KN} [Nm]	Max T_{Kmax} [Nm]	Reversible T_{KW} [Nm]	Hub		SITEX® FL SAE flange								
									6-1/2"	7-1/2"	8"	10"	11-1/2"	0,25 T_{KN}	0,50 T_{KN}	0,75 T_{KN}	1,00 T_{KN}
42	2	1°	0,2	240	600	120	Kg	0,68	0,39	0,455	0,565	0,8	-	33 x 10^3	78 x 10^3	110 x 10^3	130 x 10^3
							Kgm^2	0,0006	0,003	0,004	0,006	0,011	-				
48	2	1°	0,2	250	620	125	Kg	0,75	0,4	0,52	0,5	0,75	-	33 x 10^3	78 x 10^3	110 x 10^3	130 x 10^3
							Kgm^2	0,0007	0,003	0,004	0,006	0,011	-				
48 P	1	1°	0,2	310	780	155	Kg	0,85	0,4	0,52	0,5	0,75	-	38 x 10^3	88 x 10^3	125 x 10^3	148 x 10^3
							Kgm^2	0,0007	0,003	0,004	0,006	0,011	-				
55	1	1°	0,2	500	1250	250	Kg	1,4	-	0,45	-	-	-	50 x 10^3	140 x 10^3	175 x 10^3	200x 10^3
							Kgm^2	0,0019	-	0,0035	-	-	-				
65	2	1°	0,3	660	1650	330	Kg	2,4	-	-	0,8	0,93	1,08	58 x 10^3	142 x 10^3	205 x 10^3	250 x 10^3
							Kgm^2	0,005	-	-	0,009	0,015	0,023				
65 P	1	1°	0,2	800	1950	400	Kg	2,45	-	-	0,8	0,93	1,08	76 x 10^3	185 x 10^3	270 x 10^3	330 x 10^3
							Kgm^2	0,005	-	-	0,009	0,015	0,023				
80	2	1°	0,3	1300	3100	650	Kg	5,1	-	-	-	-	1,13	190 x 10^3	420 x 10^3	590 x 10^3	710 x 10^3
							Kgm^2	0,015	-	-	-	-	0,023				

Selection

For a proper sizing a safety factor k = 1,3 - 1,6 must be considered in accordance to the application. Or, the coupling nominal torque must be greater than or equal to the engine torque multiplied by k:

$$T_{KN} \geq T_N \cdot k \cdot S_\theta$$

T_{KN} = coupling nominal torque
T_N = engine side torque
k = safety factor selected in accordance with the use
S_θ = temperature factor

Temperature factor

T (°C)	-25 °C / +60 °C	-60 °C / +80 °C	-80 °C / +90 °C
S_θ	1	1,2	1,4

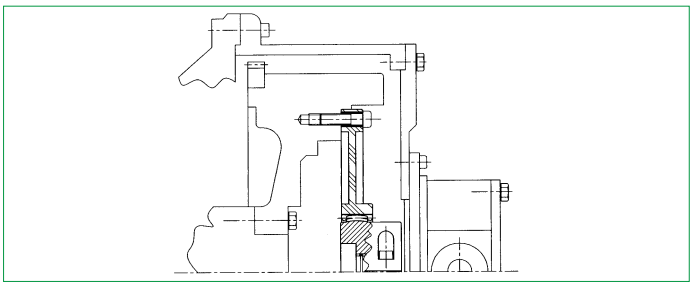
Applications	k factor
Tandem rollers	1,6
Asphalt processing machines	1,4
Agricultural machines	1,4
Fork lift trucks	1,6
Concrete Mixer	1,3
Self-propelled cranes	1,4
Excavators	1,4
Farm tractors	1,4
Road working machines	1,4

Assemby

The versatility of the SITEX® FL couplings allows for numerous assembly options with different hub lengths giving consumers the ability to obtain the suitable dimension for every application.

1) Center the flange on the fly-wheel in correspondence to the seat and tighten the mounting screws DIN 912 – 8.8 class in accordance with the torque values shown in the table:

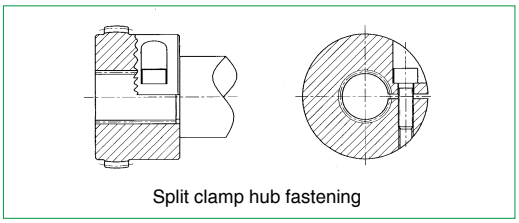
Screw	Ms
M8	25 Nm
M10	86 Nm
M12	355 Nm



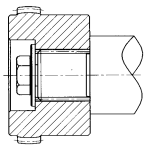
2) Center the fly-wheel cover plate in relation to the seat on the engine bellhousing. Tighten the screws.

3) Install the toothed hub onto the pump shaft. For split clamp hub, tighten in accordance with the torques shown in the table.

Couplings	Screw	Ms
42 - 48	M10	49 Nm
65	M12	86 Nm
80	M16	355 Nm



Split clamp hub fastening

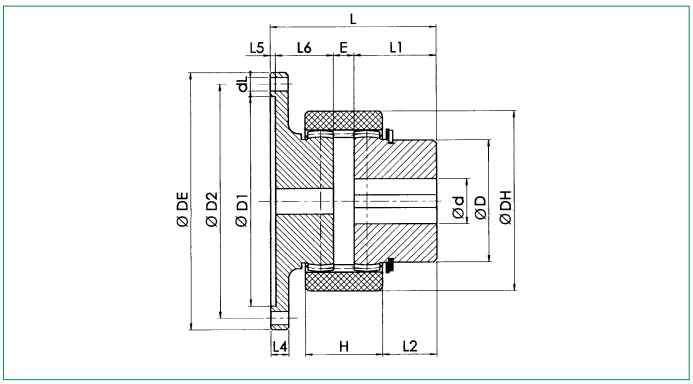


Lock nut & washer fastening

4) Move the pump-hub assembly through the fly-wheel cover plate and up to the stop. Tighten the screws.

FLD execution

The SITEX® FLD couplings are designed for applications which combine with engine pulleys.
These couplings allow for belt replacement without pump disassembly. The operating temperature range is from -25 °C to 100 °C.



Size	T_{KN} [Nm]	T_{Kmax} [Nm]	T_{KW} [Nm]	d_{max} [mm]	L5 [mm]	L1 [mm]	L4 [mm]	L6 [mm]	E [mm]	L [mm]	H [mm]	L2 [mm]	D [mm]	DH [mm]
28 FLD	45	90	23	26	4	35,5	10	28,5	13	81	39	22,5	42	70
32 FLD	60	120	30	30	4	35,5	12	28,5	13	81	40	21,5	48	84
42 FLD	140	280	70	42	5	37,5	13	30,5	13	86	43	22,5	63	100
65 FLD	380	780	190	65	5	64	16	44	16	129	60	42	95	140
80 FLD	700	1400	350	80	6	83	20	53	20	162	69	58,5	120	175

T_{KN} = Nominal Coupling torque - T_{Kmax} = Max Coupling torque - T_{KW} = Max reversal torque

Splined bore hub

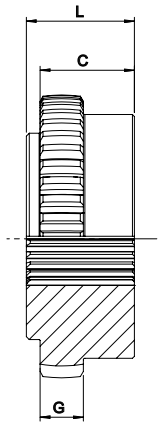


Fig.1

Splined bore hub

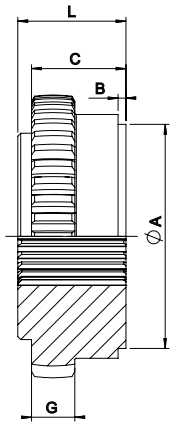


Fig.2

Splined bore hub

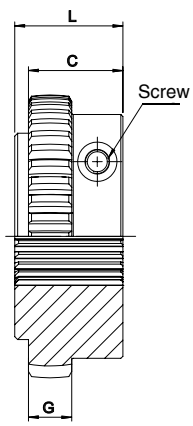


Fig.3

Clamping hub with splined bore

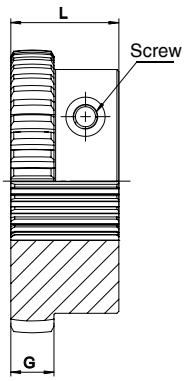


Fig.4

Clamping hub with splined bore

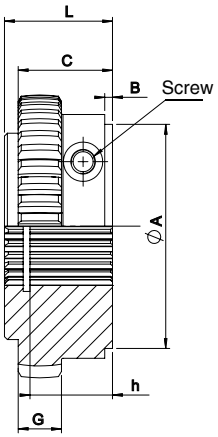


Fig.5

Clamping hub with splined bore and seeger-ring seating

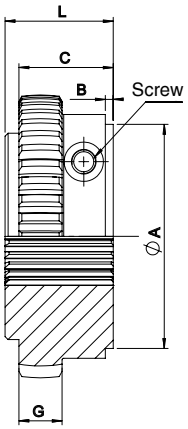


Fig.6

Clamping hub with splined bore

Hub	Splines DIN 5480									
	Fig.	Splines type	A [mm]	B [mm]	C [mm]	G [mm]	h [mm]	L [mm]	Screw	Ms [Nm]
42	1	25 x 1.25 x 18	-	-	37	13	-	42	-	-
	3	25 x 1.25 x 18	-	-	37	13	-	42	M10	49
	6	30 x 2 x 14	60	6	37	13	-	42	M10	49
48	2	30 x 2 x 14	60	6	45	13	-	50	-	-
	6	30 x 2 x 14	60	6	45	13	-	50	M10	49
65	2	35 x 2 x16	60	6	49	20	-	55	-	-
	6	35 x 2 x16	60	6	54	20	-	60	M12	86
	2	40 x 2 x 18	78	6	49	20	-	55	-	-
	6	40 x 2 x 18	78	6	54	20	-	60	M12	86
	6	45 x 2 x 21	78	6	49	20	-	55	M12	86
80	3	50 x 2 x 24	-	-	49	25	-	55	M16	295

Hub	Splines SAE J498											
	Fig.	Splines type	Tooth	DP	A [mm]	B [mm]	C [mm]	h [mm]	G [mm]	L [mm]	Screw	Ms [Nm]
42	3	PH-S 5/8”	9	16/32	-	-	37	-	13	42	M10	49
	4	PI-S 3/4”	11	16/32	-	-	-	-	13	42	M10	49
	6	PB-S 7/8”	13	16/32	60	3	37	-	13	42	M10	49
	5	PB-BS 1”	15	16/32	50	6	37	27	13	42	M10	49
48	5	PA-S 1 3/8”	21	16/32	52	7	45	45	13	50	M10	49
65	5	PA-S 1 3/8”	21	16/32	52	5	49	48	20	55	M12	86
	5	PC-S 1 1/4”	14	12/24	52	5	49	44	20	55	M12	86
80	3	PE 1 3/4”	27	16/32	-	-	49		25	55	M16	295

Ms= clamp screws tightening torque
Other splined bores and executions are available upon request.

SITEX® FL coupling selection

Motor side

- Engine nominal power [kW]
- Number of rotations at nominal power [rpm]
- SAE dimension of the engine housing
- Engine max torque [Nm]
- Number of rotations [rpm]

Engine flywheel dimension

Driven side

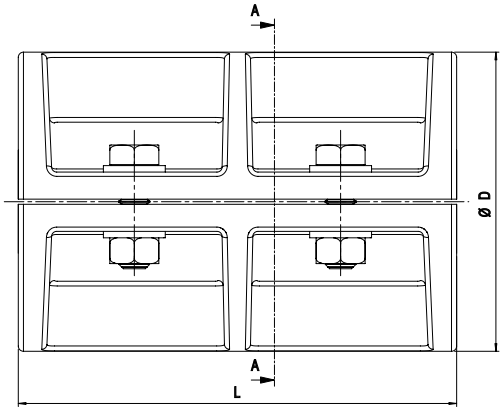
- Type of the pump shaft (specify splined type, diameter and length)
- Type of the pump flange

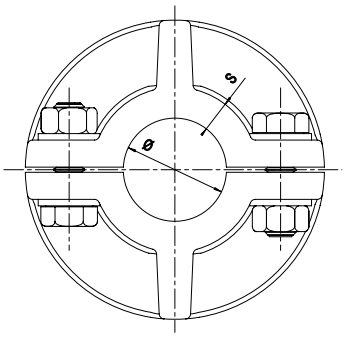
DRIVE SOLUTIONS

Bolt couplings

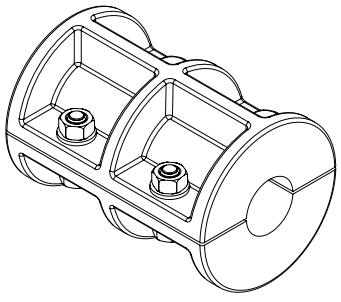
Bolt couplings

The bolt coupling is a rigid coupling. It is made of two halves, which are cast iron grade GG25 connected by means of bolts. It is maintenance and lubrication free. Additionally, its construction prevents fretting corrosion and allows for easy mounting and dismounting. The bolt coupling is designed to connect horizontal shafts with similar diameters. If different application, contact our technical department. The indicated torque values refer to couplings without keyways. To transmit higher torques it is possible to machine keyways by following DIN 6885/1.
The values of the torque have been calculated with a coefficient of friction equal to 0,15 and with a screw tightening torque according to the indicated value (DIN 912 - 8.8).

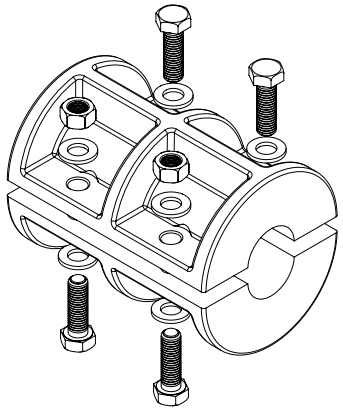




Size	d [mm]	D [mm]	L [mm]	S [mm]	Type of screws	Nr. screws	n_{max} [rpm]	Ms [Nm]	M_T [Nm]	
									Without keyway	With keyway
20	20	74	110	5,5	M8	4	3098	25	20	25
25	25	74	115	6,5	M8	4	3098	25	20	40
30	30	96	145	8	M10	4	2388	49	35	60
35	35	103	158	7	M10	4	2226	49	40	80
40	40	116	174	7	M12	4	2029	86	65	100
45	45	113	190	7	M12	4	1976	86	75	125
50	50	120	205	7	M12	6	1910	86	120	150
55	55	140	220	11	M14	6	1637	135	200	600
60	60	140	242	13	M14	6	1637	135	215	850
65	65	150	250	13	M14	6	1528	135	235	1250
70	70	160	260	15	M14	6	1433	135	255	1700
80	80	185	279	16	M14	6	1239	135	290	2500
90	90	210	310	20	M16	8	1091	210	310	3800
100	100	225	343	20	M16	8	1019	210	600	5400
110	110	250	390	22	M24	8	920	710	-	7500
120	120	275	420	27,5	M24	10	870	710	-	11000
125	125	275	420	25	M24	10	870	710	-	11000
140	140	325	490	35	M27	10	800	1050	-	15000
160	160	365	560	40	M27	12	750	1050	-	23000



GB



Coupling	**GB**	**100**
GB: bolt coupling		
Size		

n_{max}	Motor maximum rpm	rpm
Ms	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm

PRECISION UNIVERSAL JOINTS

sit DRIVE SOLUTIONS

Universal Joints

Sit universal joints with plain or needle roller bearings (DIN 808)

Types “E” are with sliding bushes while type “H” has needle roller bearings.

Joints with plain bearings are available in 2 versions:
- **“E” series according with DIN 808;**
- **“EB” series according with DIN 808/7551**

Joints with roller bearings are available in 2 versions:
- **“H” series according with DIN 808;**
- **“HB” series according with DIN 808/7551**

Every execution is made by 2 hubs with forks and a central block.
Between pins and bores there are:

- “E” series: with sliding bushes
- “H” series: with needle roller bearings

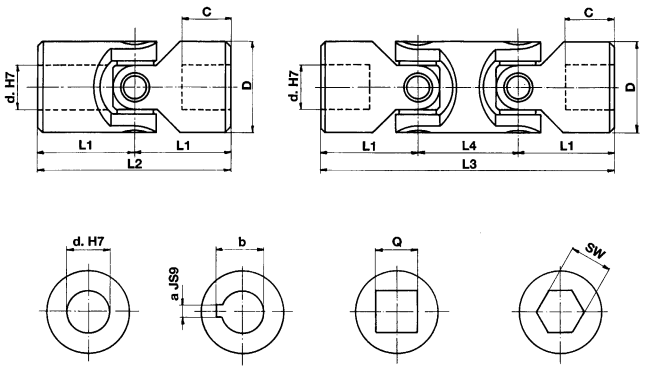
In the central blocks of “E” series there are the holes for the lubrication. For the “H” series (for high speed applications) no lubrication is needed, because the roller bearing are maintenance free.

“E” series joint with sliding bushes are used for low-medium speed and when some shock load can occur. For high speed and medium torque, we suggest the type “H” with roller bearings. The maximum working angle is 45° for single joints, 90° for double joints.
The maximum speed is 1000 rpm for “E” series, 4000 rpm for “H” series. Every execution can be supply with extensible shaft.

Precision joints
Series “E” (DIN 808)

- Wear resistant sliding bushes from cemented and hardened steel.
- Strong, precise, and versatile; wide application field.
- Max. angle: 45° type “E”, 90° type “ED”. max. speed 1.000 rpm.
- Max. temperature 150 °C
- Standard executions: circular bore
  Special executions on request: bore and keyway, square bore, hexagonal bore

E **ED**



Part number	Double part number	d [mm]	D [mm]	L2 [mm]	L1 [mm]	C [mm]	L4 [mm]	L3 [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Weight [kg]		
													E	ED	
GU01E	**GU01ED**	6	16	34	17	8	22	56	2	7	6	6	0,05	0,08	**DIN 808**
GU02E	**GU02ED**	8	16	40	20	11	22	62	2	9	8	8	0,05	0,08	
GU03E	**GU03ED**	10	22	48	24	12	26	74	3	11,4	10	10	0,10	0,15	
GU04E	**GU04ED**	12	25	56	28	13	30	86	4	13,8	12	12	0,16	0,25	
GU05E	**GU05ED**	14	28	60	30	14	36	96	5	16,3	14	14	0,20	0,40	
GU1E	**GU1ED**	16	32	68	34	16	36	104	5	18,3	16	16	0,30	0,45	
GU2E	**GU2ED**	18	36	74	37	17	40	114	6	20,8	18	18	0,45	0,70	
GU3E	**GU3ED**	20	42	82	41	18	46	128	6	22,8	20	20	0,60	1,00	
GU4E	**GU4ED**	22	45	95	47,5	22	50	145	6	24,8	22	22	0,95	1,55	
GU5E	**GU5ED**	25	50	108	54	26	55	163	8	28,3	25	25	1,20	2,00	
GU6E	**GU6ED**	30	58	122	61	29	68	190	8	33,3	30	30	1,85	2,90	
GU6E1	**GU6ED1**	32	58	130	65	33	68	198	10	35,3	30	30	2,00	3,00	
GU7E	**GU7ED**	35	70	140	70	35	72	212	10	38,3	••	••	3,15	4,75	
GU8E	**GU8ED**	40	80	160	80	39	85	245	12	43,3	••	••	4,60	7,20	
GU9E	**GU9ED**	50	95	190	95	46	100	290	14	53,8	••	••	7,60	12,00	

Part number	Double part number	d [mm]	D [mm]	L2 [mm]	L1 [mm]	C [mm]	L4 [mm]	L3 [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Weight [kg]		
													E	ED	
GU03EB	**GU03EBD**	10	16	52	26	15	22	74	3	11,4	8	8	0,05	0,08	**DIN 808/7551**
GU04EB	**GU04EBD**	12	22	62	31	18	26	88	4	13,8	10	10	0,12	0,20	
GU1EB	**GU1EBD**	16	25	74	37	21	30	104	5	18,3	12	12	0,20	0,30	
GU3EB	**GU3EBD**	20	32	86	43	24	38	124	6	22,8	16	16	0,35	0,50	
GU5EB	**GU5EBD**	25	42	108	54	31	48	156	8	28,3	20	20	0,80	1,20	
GU6EB	**GU6EBD**	30	50	132	66	38	56	188	8	33,3	25	25	1,20	1,70	
GU8EB	**GU8EBD**	40	70	166	83	47	72	238	12	43,3	••	••	2,90	4,30	

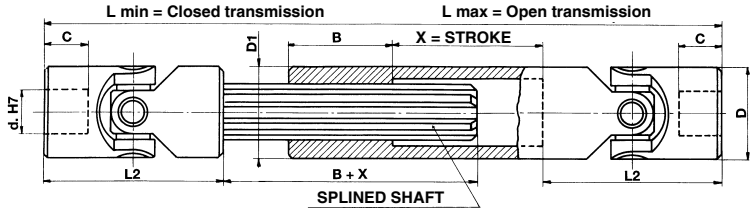
•• = upon request

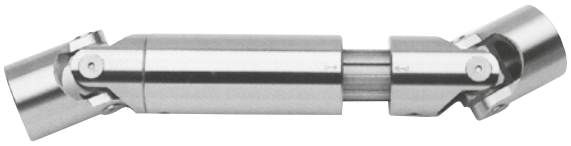
Extensible transmissions
Series “E” (DIN 808)

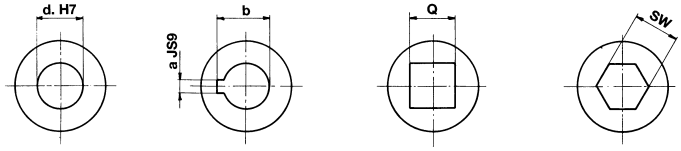
- Joints series “E” type “EA” with wear resistant sliding bushes.
- Min. and max. length upon request:

$$L_{MIN} \geq \frac{L_{MAX} + 2\,L2 + B}{2} \qquad \text{Stroke } X \geq \frac{L_{MAX} - 2\,L2 - B}{2}$$

- Standard executions: bore and keyway on both sides
  Special executions on request: circular bore, square bore, hexagonal bore, custom lengths







Part number	d [mm]	D [mm]	L2 [mm]	C [mm]	Lmin [mm]	Lmax [mm]	X [mm]	B [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Albero	D1 [mm]	Weight [kg]
GU01EA	6	16	34	8	••	••	••	25	2	7	6	6	SW 8	16	-
GU02EA	8	16	40	11	••	••	••	25	2	9	8	8	SW 8	16	-
GU03EA	10	22	48	12	140	170	30	30	3	11,4	10	10	11 x 14 Z6	22	0,310
					160	200	40								0,360
					180	240	60								0,380
					230	330	100								0,500
GU04EA	12	25	56	13	160	190	30	40	4	13,8	12	12	13 x 16 Z6	26	0,500
					180	225	45								0,560
					200	270	70								0,620
					220	300	80								0,670
					250	355	105								0,760
					280	420	140								0,840
					300	450	150								0,900
GU05EA	14	28	60	14	170	200	30	40	5	16,3	14	14	13 x 16 Z6	29	0,620
					180	220	40								0,640
					200	260	60								0,720
					220	300	80								0,780
					250	350	100								0,870
					280	420	140								0,960
					300	450	150								1,030
					350	550	200								1,170
					400	650	250								1,330
GU1EA	16	32	68	16	190	220	30	40	5	18,3	16	16	16 x 20 Z6	32	0,900
					210	250	40								0,980
					240	320	80								1,100
					250	350	100								1,140
					275	390	115								1,240
					300	430	130								1,330
					380	590	210								1,600
					400	630	230								1,730

•• = upon request

Part number	d [mm]	D [mm]	L2 [mm]	C [mm]	Lmin [mm]	Lmax [mm]	X [mm]	B [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Shaft	D1 [mm]	Weight [kg]
GU2EA	18	36	74	17	230	280	50	40	6	20,8	18	18	18 x 22 Z6	37	1,350
					250	320	70								1,460
					270	370	100								1,550
					290	400	110								1,660
					300	415	115								1,710
					400	620	220								2,230
					500	820	320								2,750
GU3EA	20	42	82	18	250	300	50	45	6	22,8	20	20	21 x 25 Z6	42	1,990
					270	340	70								2,120
					290	380	90								2,250
					320	440	120								2,460
					380	560	180								2,860
					420	640	220								3,130
					500	800	300								3,660
GU4EA	22	45	95	22	250	280	30	45	6	24,8	22	22	23 x 28 Z6	47	2,350
					270	320	50								2,510
					290	350	60								2,670
					330	430	100								3,000
					350	470	120								3,160
					470	710	240								4,130
GU5EA	25	50	108	26	295	345	50	45	8	28,3	25	25	26 x 32 Z6	52	3,390
					310	375	65								3,520
					350	450	100								3,920
					380	500	120								4,200
					420	590	170								4,590
					460	660	200								4,980
					500	745	245								5,370
GU6EA	30	58	122	29	330	380	50	50	8	33,3	30	30	32 x 38 Z8	58	4,900
					350	420	70								5,170
					370	455	85								5,420
					400	510	110								5,850
					450	620	170								6,480
					500	720	220								7,140
					540	795	255								7,690
GU7EA	35	70	140	35	••	••	••	70	10	38,3	••	••	36 x 42 Z8	70	-
GU8EA	40	80	160	39	••	••	••	80	12	43,3	••	••	42 x 48 Z8	80	-
GU9EA	50	95	190	46	••	••	••	90	14	53,8	••	••	46 x 54 Z8	95	-

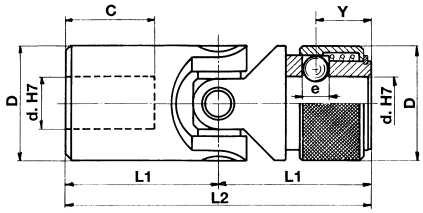
Part number	d [mm]	D [mm]	L2 [mm]	C [mm]	Lmin [mm]	Lmax [mm]	X [mm]	B [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Shaft	D1 [mm]
GU03EBA	10	16	52	14	••	••	••	25	3	11,4	8	8	SW 8	16
GU04EBA	12	22	62	18	••	••	••	30	4	13,8	10	10	11 x 14 Z6	22
GU1EBA	16	25	74	21	••	••	••	40	5	18,3	12	12	13 x 16 Z6	26
GU3EBA	20	32	86	24	••	••	••	40	6	22,8	16	16	16 x 20 Z6	32
GU5EBA	25	42	108	31	••	••	••	45	8	28,3	20	20	21 x 25 Z6	42
GU6EBA	30	50	132	38	••	••	••	45	8	33,3	25	25	26 x 32 Z6	52
GU8EBA	40	70	166	47	••	••	••	75	12	43,3	••	••	36 x 42 Z8	70

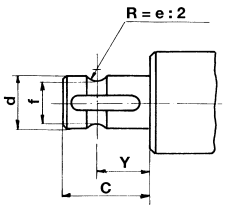
•• = upon request

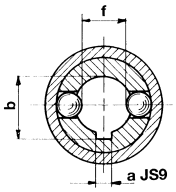
Precision joints
Series “ER” (sliding bushes)

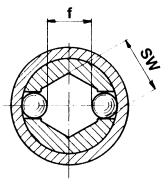
- Type “ER”: max. speed 1.000 rpm.
- Max. angle 45°.

- Executions:
  - quick coupling side: bore and keyway or hexagonal bore
  - other side: circular bore









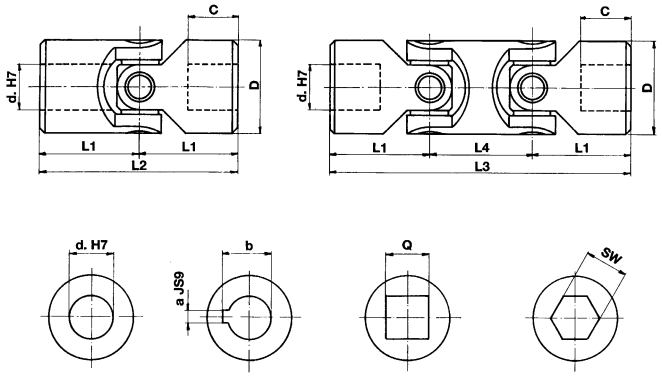
Part number	d [mm]	D [mm]	L2 [mm]	L1 [mm]	C [mm]	Y [mm]	e [mm]	f [mm]	a [mm]	b [mm]	SW [mm]
GU02ER	8	16	52	26	14	9,5	3,5	6,3	2	9	8
GU03ER	10	22	62	31	17	11,5	4	8,7	3	11	10
GU04ER	12	25	74	37	21	13,5	4	11	4	13,3	12
GU05ER	14	25	74	37	21	13,5	4	13	5	15,3	14
GU1ER	16	32	86	43	24	14	6,35	14,8	5	17,3	16
GU2ER	18	36	96	48	28	19	8	16	6	19,8	18
GU3ER	20	42	108	54	31	19	8	18	6	22,8	20
GU4ER	22	45	120	60	34	20,5	10	20	6	24,8	22
GU5ER	25	50	132	66	38	20,5	10	23	8	28,3	25
GU6ER	30	58	166	83	49	25	10	28	8	33,3	30

High speed precision joints with needle roller bearings
Series "H" (DIN 808)

- Roller bearings lubricated for life. No maintenance required.
- Precise and versatile, silent and smooth running; wide application field.
- Max. angle: 45° type "H", 90° type "HD", max. speed 4.000 rpm.
- Max. temperature: 120 °C

- Standard executions: circular bore
  Special executions on request: bore and keyway, square bore, hexagonal bore

H **HD**



Part number	Double part number	d [mm]	D [mm]	L2 [mm]	L1 [mm]	C [mm]	L4 [mm]	L3 [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Weight [kg]		
													H	HD	
GU03H	**GU03HD**	10	22	48	24	12	26	74	3	11,4	10	10	0,10	0,15	DIN 808
GU04H	**GU04HD**	12	25	56	28	13	30	86	4	13,8	12	12	0,16	0,25	
GU05H	**GU05HD**	14	28	60	30	14	36	96	5	16,3	14	14	0,20	0,40	
GU1H	**GU1HD**	16	32	68	34	16	36	104	5	18,3	16	16	0,30	0,45	
GU2H	**GU2HD**	18	36	74	37	17	40	114	6	20,8	18	18	0,45	0,70	
GU3H	**GU3HD**	20	42	82	41	18	46	128	6	22,8	20	20	0,60	1,00	
GU4H	**GU4HD**	22	45	95	47,5	22	50	145	6	24,8	22	22	0,95	1,55	
GU5H	**GU5HD**	25	50	108	54	26	55	163	8	28,3	25	25	1,20	2,00	
GU6H	**GU6HD**	30	58	122	61	29	68	190	8	33,3	30	30	1,85	2,90	
GU6H1	**GU6HD1**	32	58	130	65	33	68	198	10	35,3	30	30	2,00	3,00	
GU7H	**GU7HD**	35	70	140	70	35	72	212	10	38,3	••	••	3,15	4,75	
GU8H	**GU8HD**	40	80	160	80	39	85	245	12	43,3	••	••	4,60	7,20	
GU9H	**GU9HD**	50	95	190	95	46	100	290	14	53,8	••	••	7,60	12,00	

Part number	Double part number	d [mm]	D [mm]	L2 [mm]	L1 [mm]	C [mm]	L4 [mm]	L3 [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Weight [kg]		
													HB	HBD	
GU04HB	**GU04HBD**	12	22	62	31	18	26	88	4	13,8	10	10	0,12	0,20	DIN 808/7551
GU1HB	**GU1HBD**	16	25	74	37	21	30	104	5	18,3	12	12	0,20	0,30	
GU3HB	**GU3HBD**	20	32	86	43	24	38	124	6	22,8	16	16	0,35	0,50	
GU5HB	**GU5HBD**	25	42	108	54	31	48	156	8	28,3	20	20	0,80	1,20	
GU6HB	**GU6HBD**	30	50	132	66	38	56	188	8	33,3	25	25	1,20	1,70	
GU8HB	**GU8HBD**	40	70	166	83	47	72	238	12	43,3	••	••	2,90	4,30	

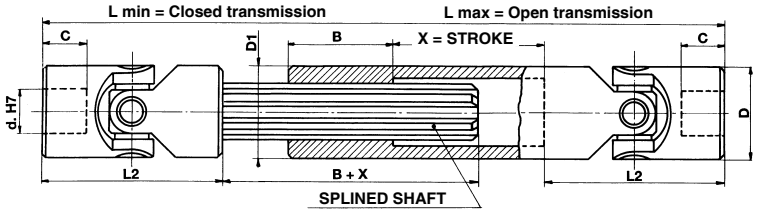
•• = upon request

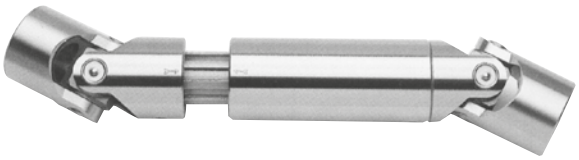
Extensible transmissions high speed
Series “H” (DIN 808)

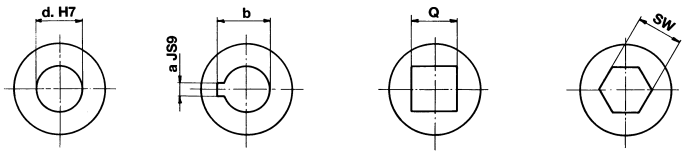
- High speed joints series “H”, type “HA”, with needle roller bearings.
- Min. and max. length upon request:

$$L_{MIN} \geq \frac{L_{MAX} + 2\,L2 + B}{2} \qquad \text{Stroke } X \geq \frac{L_{MAX} - 2\,L2 - B}{2}$$

- Standard executions: bore and keyway on both sides
  Special executions on request: circular bore, square bore, hexagonal bore, custom lengths







Part number	d [mm]	D [mm]	L2 [mm]	C [mm]	Lmin [mm]	Lmax [mm]	X [mm]	B [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Shaft	D1 [mm]	Weight [kg]
GU03HA	10	22	48	12	140	170	30	30	3	11,4	10	10	11 x 14 Z6	22	0,310
					160	200	40								0,360
					180	240	60								0,380
					230	330	100								0,500
GU04HA	12	25	56	13	160	190	30	40	4	13,8	12	12	13 x 16 Z6	26	0,500
					180	225	45								0,560
					200	270	70								0,620
					220	300	80								0,670
					250	355	105								0,760
					280	420	140								0,840
					300	450	150								0,900
GU05HA	14	28	60	14	170	200	30	40	5	16,3	14	14	13 x 16 Z6	29	0,620
					180	220	40								0,640
					200	260	60								0,720
					220	300	80								0,780
					250	350	100								0,870
					280	420	140								0,960
					300	450	150								1,030
					350	550	200								1,170
					400	650	250								1,330
GU1HA	16	32	68	16	190	220	30	40	5	18,3	16	16	16 x 20 Z6	32	0,900
					210	250	40								0,980
					240	320	80								1,100
					250	350	100								1,140
					275	390	115								1,240
					300	430	130								1,330
					380	590	210								1,600
					400	630	230								1,730

•• = upon request

Part number	d [mm]	D [mm]	L2 [mm]	C [mm]	Lmin [mm]	Lmax [mm]	X [mm]	B [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Shaft	D1 [mm]	Weight [kg]
GU2HA	18	36	74	17	230	280	50	40	6	20,8	18	18	18 x 22 Z6	37	1,350
					250	320	70								1,460
					270	370	100								1,550
					290	400	110								1,660
					300	415	115								1,710
					400	620	220								2,230
					500	820	320								2,750
GU3HA	20	42	82	18	250	300	50	45	6	22,8	20	20	21 x 25 Z6	42	1,990
					270	340	70								2,120
					290	380	90								2,250
					320	440	120								2,460
					380	560	180								2,860
					420	640	220								3,130
					500	800	300								3,660
GU4HA	22	45	95	22	250	280	30	45	6	24,8	22	22	23 x 28 Z6	47	2,350
					270	320	50								2,510
					290	350	60								2,670
					330	430	100								3,000
					350	470	120								3,160
					470	710	240								4,130
GU5HA	25	50	108	26	295	345	50	45	8	28,3	25	25	26 x 32 Z6	52	3,390
					310	375	65								3,520
					350	450	100								3,920
					380	500	120								4,200
					420	590	170								4,590
					460	660	200								4,980
					500	745	245								5,370
GU6HA	30	58	122	29	330	380	50	50	8	33,3	30	30	32 x 38 Z8	58	4,900
					350	420	70								5,170
					370	455	85								5,420
					400	510	110								5,850
					450	620	170								6,480
					500	720	220								7,140
					540	795	255								7,690
GU7HA	35	70	140	35	••	••	••	70	10	38,3	••	••	36 x 42 Z8	70	-
GU8HA	40	80	160	40	••	••	••	80	12	43,3	••	••	42 x 48 Z8	80	-
GU9HA	50	95	190	50	••	••	••	90	14	53,8	••	••	46 x 54 Z8	95	-

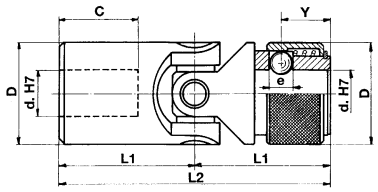
Part number	d [mm]	D [mm]	L2 [mm]	C [mm]	Lmin [mm]	Lmax [mm]	X [mm]	B [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Shaft	D1 [mm]
GU04HBA	12	22	62	18	••	••	••	30	4	13,8	10	10	11 x 14 Z6	22
GU1HBA	16	25	74	21	••	••	••	40	5	18,3	12	12	13 x 16 Z6	26
GU3HBA	20	32	86	24	••	••	••	40	6	22,8	16	16	16 x 20 Z6	32
GU5HBA	25	42	108	31	••	••	••	45	8	28,3	20	20	21 x 25 Z6	42
GU6HBA	30	50	132	38	••	••	••	45	8	33,3	25	25	26 x 32 Z6	52
GU8HBA	40	70	166	47	••	••	••	70	12	43,3	••	••	36 x 42 Z8	70

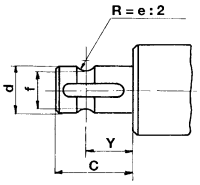
•• = upon request

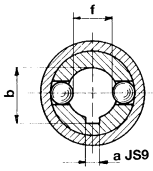
Precision joints
Series “HR” (needle roller bearings)

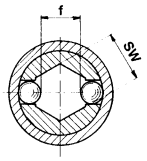
- Type “ER”: max. speed 4.000 rpm.
- Max. angle 45°.

- Executions:
  - quick coupling side: bore and keyway or hexagonal bore
  - other side: circular bore









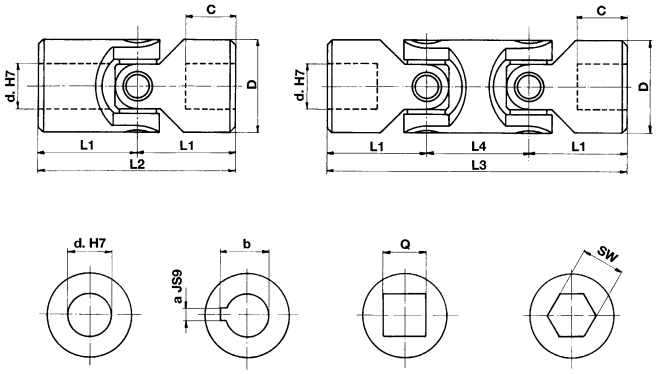
Part number	d [mm]	D [mm]	L2 [mm]	L1 [mm]	C [mm]	Y [mm]	e [mm]	f [mm]	a [mm]	b mm]	SW [mm]
GU03HR	10	22	62	31	17	11,5	4	8,7	3	11	10
GU04HR	12	25	74	37	21	13,5	4	11	4	13,3	12
GU05HR	14	25	74	37	21	13,5	4	13	5	15,3	14
GU1HR	16	32	86	43	24	14	6,35	14,8	5	17,3	16
GU2HR	18	36	96	48	28	19	8	16	6	19,8	18
GU3HR	20	42	108	54	31	19	8	18	6	22,8	20
GU4HR	22	45	120	60	34	20,5	10	20	6	24,8	22
GU5HR	25	50	132	66	38	20,5	10	23	8	28,3	25
GU6HR	30	58	166	83	49	25	10	28	8	33,3	30

Stainless steel joints
Series "X" (DIN 808)

- Max. speed 250 rpm.
- Max. angle: 45° type "X", 90° type "XD".
- Max. temperature 200 °C

- Standard executions: circular bore
  Special executions on request: bore and keyway, square bore, hexagonal bore

X **XD**

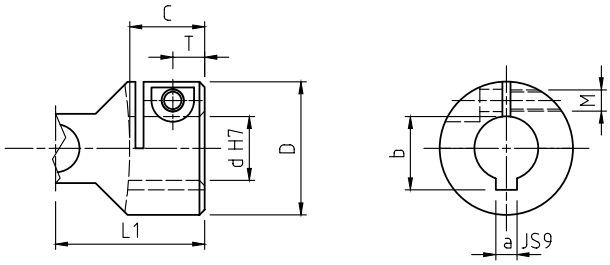


Part number	Double part number	d [mm]	D [mm]	L2 [mm]	L1 [mm]	C [mm]	L4 [mm]	L3 [mm]	a* [mm]	b* [mm]	Q* [mm]	SW* [mm]	Weight [kg]	
													X	XD
GU01X	**GU01XD**	6	16	34	17	8	22	56	2	7	6	6	0,05	0,08
GU02X	**GU02XD**	8	16	40	20	11	22	62	2	9	8	8	0,05	0,08
GU03X	**GU03XD**	10	22	48	24	12	26	74	3	11,4	10	10	0,10	0,15
GU04X	**GU04XD**	12	25	56	28	13	30	86	4	13,8	12	12	0,16	0,25
GU1X	**GU1XD**	16	32	68	34	16	36	104	5	18,3	16	16	0,30	0,45
GU3X	**GU3XD**	20	42	82	41	18	46	128	6	22,8	20	20	0,60	1,00
GU5X	**GU5XD**	25	50	108	54	26	55	163	8	28,3	25	25	1,20	2,00
GU6X	**GU6XD**	30	58	122	61	29	68	190	8	33,3	30	30	1,85	2,90

* = check availability

Special joints with clamping hubs

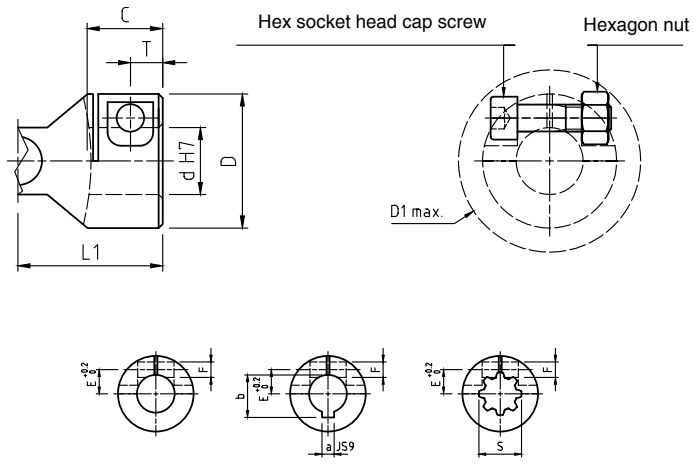
- Suitable for quick and easy connections
- Suitable on applications with the presence of vibration
- Suitable for single, double and extensible joints
- With seat for the lock nut (type 2)
- Special executions on request



Type 1

Special part number	d [mm]	D [mm]	L1 [mm]	C [mm]	a [mm]	b [mm]	M [mm]	T [mm]	*Ta Nm]
03CL1	10	22	24	12	3	11,4	M4	5	5
04CL1	12	25	28	13	4	13,8	M4	6	5
05CL1	14	28	30	14	5	16,3	M4	6	5
1CL1	16	32	34	16	5	18,3	M5	7	9
2CL1	18	36	37	17	6	20,8	M5	7	9
3CL1	20	42	41	18	6	22,8	M6	8	16
4CL1	22	45	47,5	22	6	24,8	M6	8	16
5CL1	25	50	54	26	8	28,3	M6	9,5	16
6CL1	30	58	61	29	8	33,3	M8	11	36
7CL1	35	70	70	33	10	38,3	M8	13	36
8CL1	40	80	80	38	12	43,3	M10	14	65
9CL1	50	95	95	46	14	53,8	M12	17,5	100

*Ta = torque screws



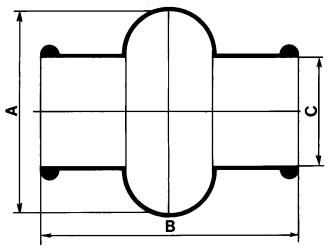
Type 2: clamping hub + lock nut seat

Special part number	d [mm]	D [mm]	L1 [mm]	C [mm]	a [mm]	b [mm]	F [mm]	T [mm]	E [mm]	*Ta [Nm]	S DIN 5482	Ingombro max.
1CL2	16	32	34	16	5	18,3	Ø 6,2	7	9	M6 = 15	17x14 Z9	Ø 42
2CL2	18	36	37	17	6	20,8	Ø 8,2	7.5	10	M8 = 25	18x15 Z10	Ø 51
3CL2	20	42	41	18	6	22,8	Ø 8,2	8	12	M8 = 25	20x17 Z12	Ø 57
5CL2	25	50	54	26	8	28,3	Ø 10,2	12	16	M10 = 60	25x22 Z14	Ø 68

*Ta = torque screws

Protection muffs
Series “M”

- Special neoprene rubber.
- Resistant to acids, oils, grease, dust and moisture.
- Filled with grease to ensure constant lubrication.



Part number	A [mm]	B [mm]	C [mm]	Joint external diameter D [mm]
GUM01M	28	34	15	16
GUM02M	32	40	16,5	18
GUM03M	40	45	20,5	22
GUM04M	48	50	24,5	25/26
GUM05M	52	56	27,5	28/29
GUM1M	56	65	30,5	32
GUM2M	66	72	35,5	36/37
GUM3M	75	82	40	42
GUM4M	84	95	45	45/47
GUM5M	92	108	50	50/52
GUM6M	100	122	56	58

Selecting criteria

Matching one single joint with two shafts (of which the driving one is rotating at a constant speed), it forms an angle which causes a periodic variation of the driven shaft, exactly four fluctuations per revolution.
The difference between the maximum and the minimum speed of the driven shaft depends on the angle formed by the two shafts. The difference grows when increasing of the angle α. To have a homokinetic transmission, you have to fit either two opposite single joints (paying attention that the two central yokes lie on the same plaine and the angles are equal) or a double joint.
The irregularity caused by the former articulation is cancelled by the latter. The overall length resulting from the coupling of the two single joints is even more reduced using a double joint. In other words, the double joint is to be considered the shortest homokinetic transmission. For low speed applications (max 1.000 rpm) joint with plain bearings (rubbing bearings) are suggested: types E/EB. They are able to support shock loads, drive reserves, irregular runnings and relatively high torques. The working angles must be reduced in operation between 500 and 1.000 rpm. For high rotation speeds, relatively low torques or wide angles, joints with needle roller bearings (type V - H) are preferred. They can reach 5.000 rpm always relating to the angle.

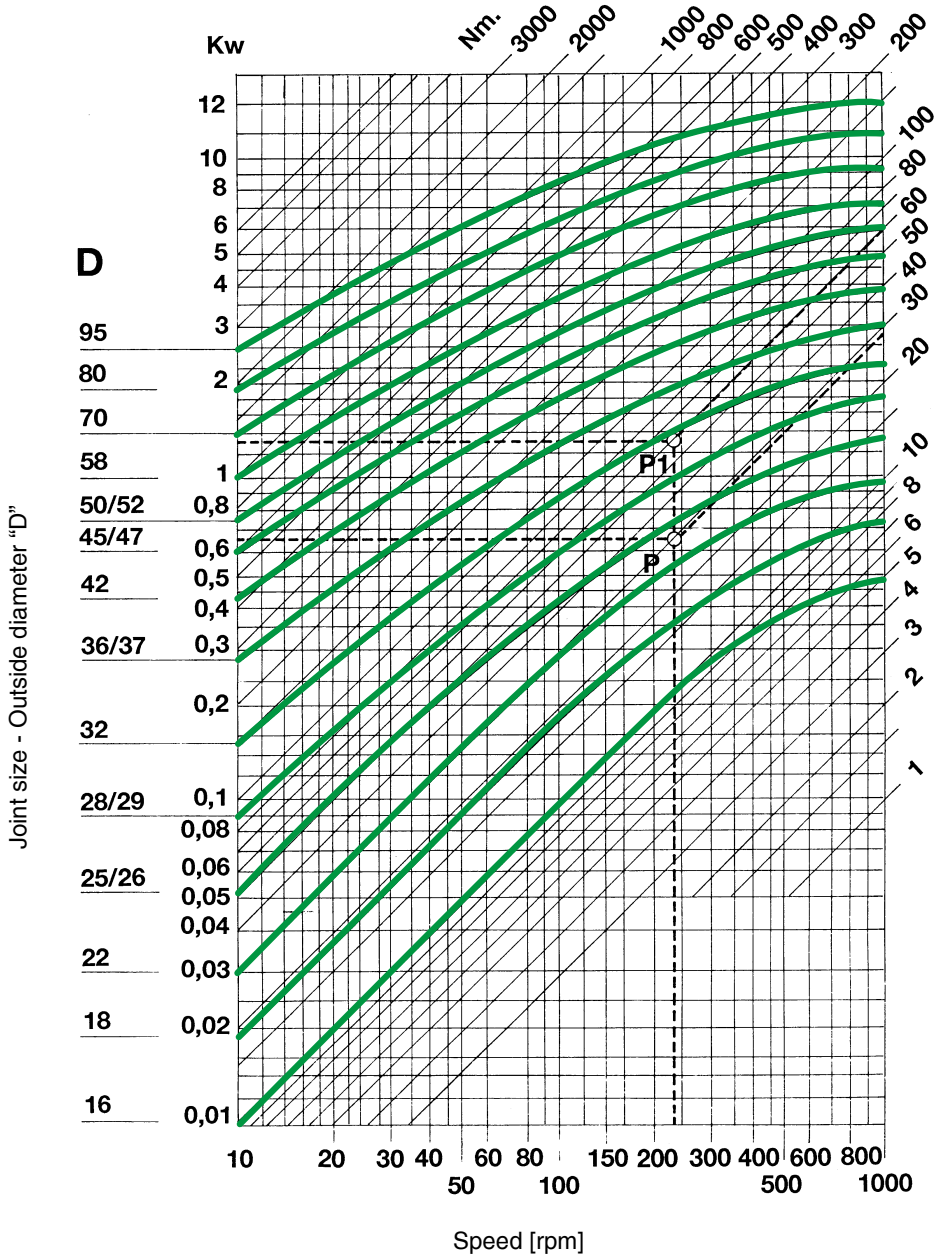
How to read diagrams

The joint capacity to transmit a regular torque at a constant load with no shocks for a more or less long period, mainly depends on the number of revolutions per minute and the inclination angle a of the two axes. The following diagrams are based upon the criteria below. Each curve corresponds to the joint size (outside diameter D) and represents the torque that the joint can transmit depending upon speed and working angle α. The diagrams can be directly read if angle a is 10°; for wider angles, torques are reduced, therefore the values are to be corrected using correction factors (F) relating to the angle shown in the table.

Note:

Diagrams values are merely indicative. Each application has its own particular motion characteristics, such as: shock loads, motion reversals, connected masses, type of starting, presence of elastic joints, stops and starts, etc. We, therefore, suggest calling our technical department.

Diagram for joints Series “E”



Torque M_T in [Nm]

WORKING ANGLE “α”	5°	10°	15°	20°	25°	30°	35°	40°	45°
CORRECTION FACTOR “F”	1,25	1,00	0,80	0,65	0,55	0,45	0,38	0,30	0,25

EXAMPLE

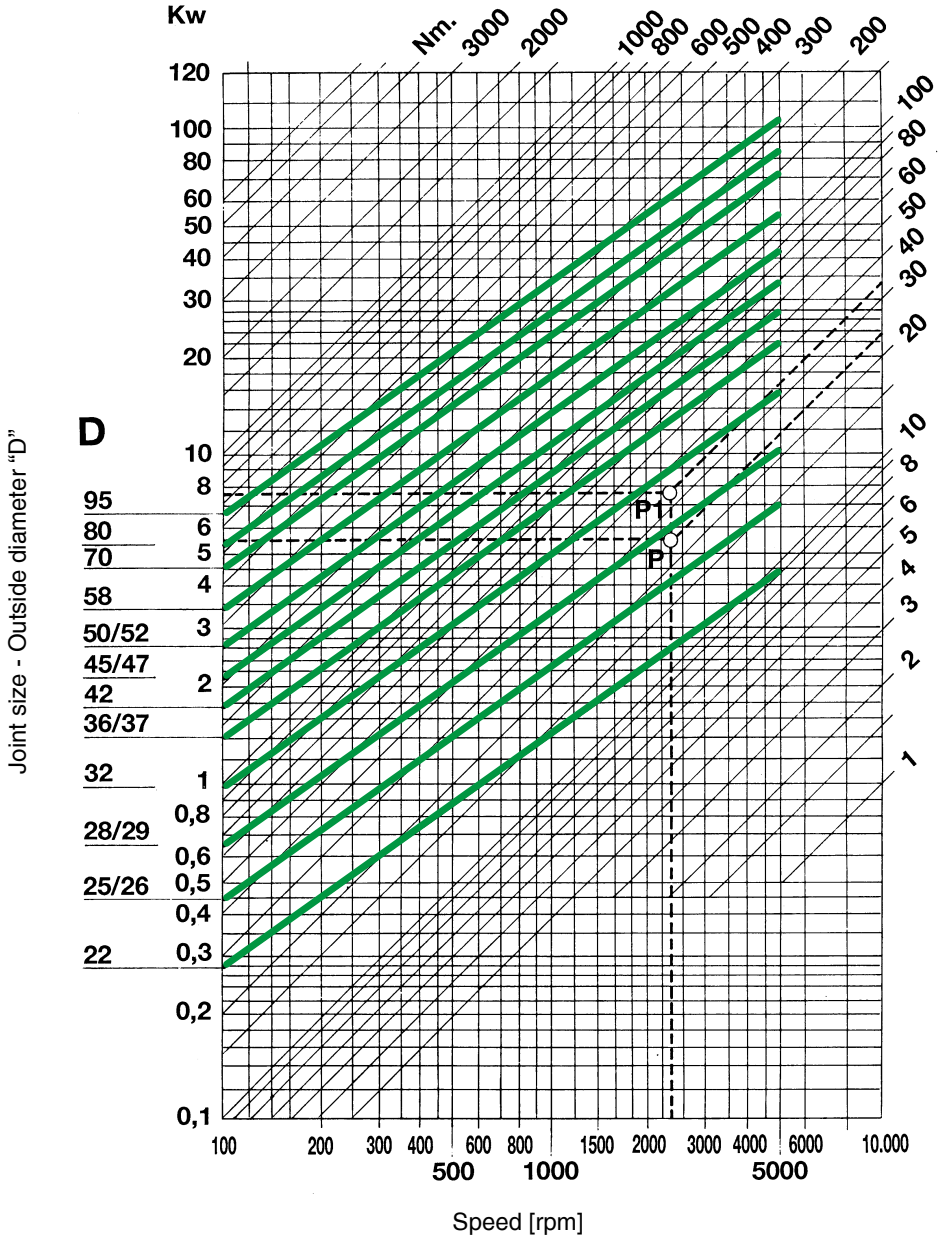
- Power: 0,65 kW
- Speed: 230 rpm
- With working angle a = 10°, Factor F = 1,00 (0,65 kW : 1,00 = 0,65 kW) we get point P and Torque M_T = 27 Nm corresponding to joint size D = 25/26 mm (type 04E, 1EB)
- With working angle a = 30°, Factor F = 0,45 (0,65 kW : 0,45 = 1,44 kW) we get point P1 and Torque M_T = 60 Nm corresponding to joint size D = 32 mm (type 1E, 3EB).

Consider that:

$$M_T = 9.550 \times \frac{\text{Power [kW]}}{\text{rpm}} \text{ [Nm]}$$

$$M_T = 7.020 \times \frac{\text{Power [CV]}}{\text{rpm}} \text{ [Nm]}$$

Diagram for joints
Series “H” - High Speed



Torque M_T in [Nm]

WORKING ANGLE “α”	5°	10°	15°	20°	25°	30°	35°	40°	45°
CORRECTION FACTOR “F”	1,25	1,00	0,90	0,80	0,70	0,50	0,40	0,30	0,25

EXAMPLE

- Power: 5,5 kW
- Speed: 2300 rpm
- With working angle a = 10°, Factor F = 1,00 (5,5 kW : 1,00 = 5,5 kW) we get point P and Torque M_T = 23 Nm corresponding to joint size D = 28/29 mm (type 05H, 1HB)
- With working angle a = 25°, Factor F = 0,70 (5,5 kW : 0,70 = 7,85 kW) we get point P1 and Torque M_T = 33 Nm corresponding to joint size D = 32 mm (type 1H, 3HB).

Consider that:

$$M_T = 9.550 \times \frac{\text{Power [kW]}}{\text{rpm}} \quad \text{[Nm]}$$

$$M_T = 7.020 \times \frac{\text{Power [CV]}}{\text{rpm}} \quad \text{[Nm]}$$

Instructions for a correct mounting

Fig. 1

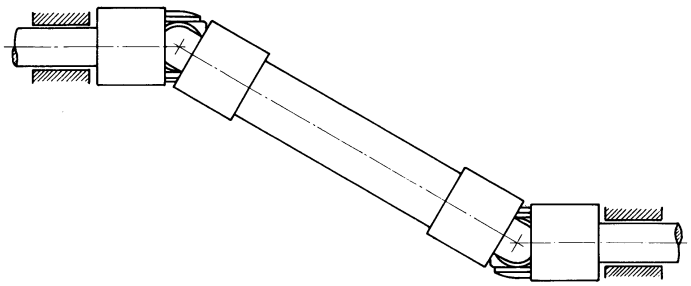
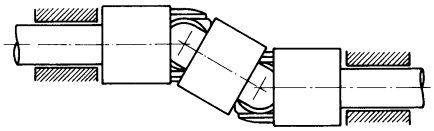
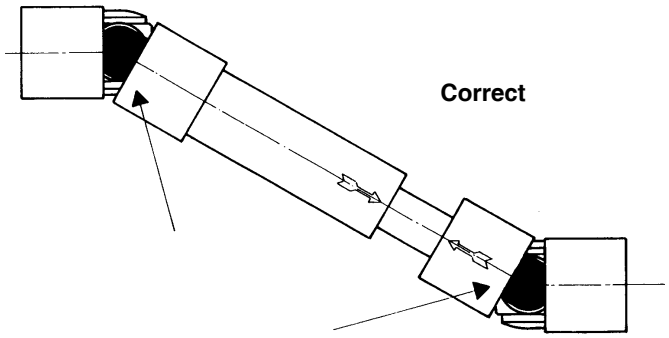


Fig. 2



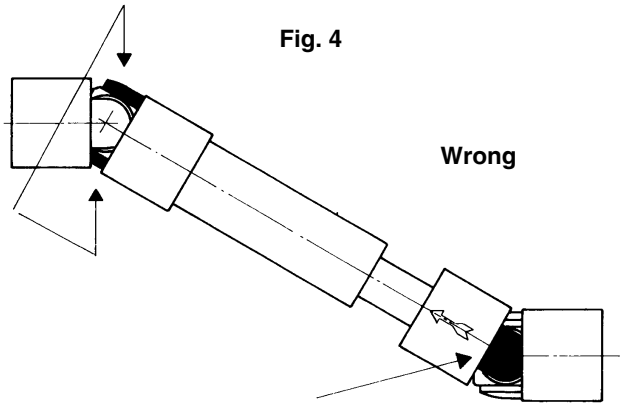
To obtain a uniform rotary motion, always use two opposite single joints or one double joint. The pillow blocks must be positioned as close as possible to the joints (see Picture 1 and 2).

Fig. 3



Correct

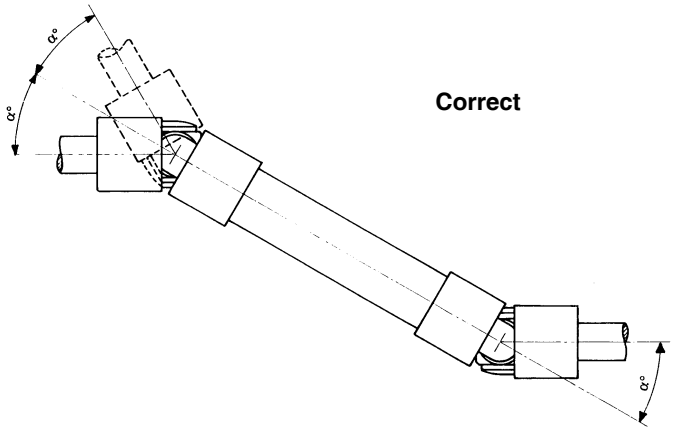
Fig. 4



Wrong

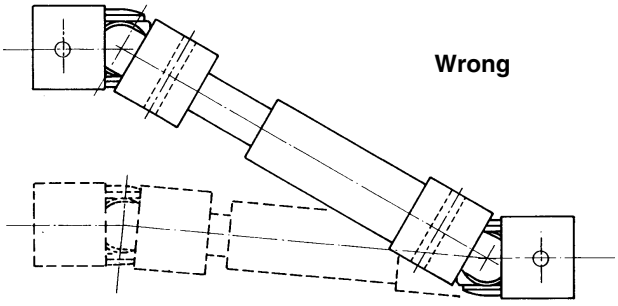
When using two opposite single joints, respect the alignment of the inside yokes. In extensible transmissions also pay attention to the arrows stamped tally (see Picture 3 CORRECT, Picture 4 WRONG).

Fig. 5



Correct

Fig. 6



Wrong

The joints angle a must be equal (see Picture 5). The shafts can be moved one from the other either parallel or symmetrically. Pin holes must not be executed over the yokes to avoid damage (see Picture 6).

“0” BACKLASH COUPLINGS

DRIVE SOLUTIONS

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TRASCO® ES: “0” BACKLASH COUPLINGS

DRIVE SOLUTIONS

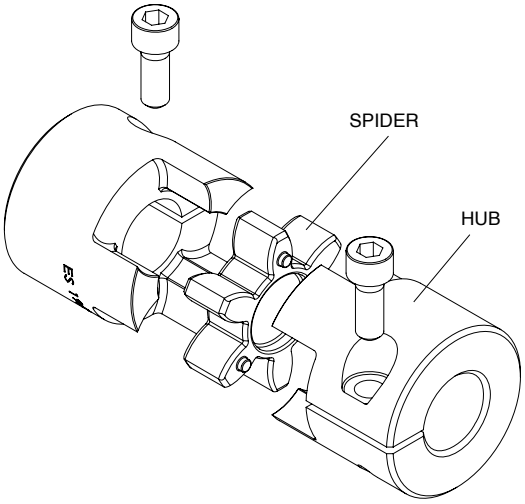
TRASCO® ES

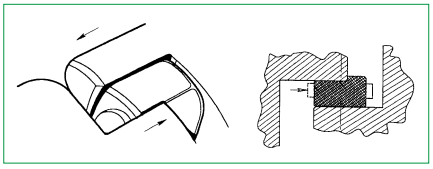
TRASCO® ES: “0” backlash couplings

TRASCO® ES is our zero backlash coupling designed to compensate for misalignment and vibration dampening for indexing applications. The compact design of TRASCO® ES makes it the right choice for all precise motion applications.

Description

The TRASCO® ES consists of two hubs, which are either made of high-strength aluminum (up to the 38/45 size) or steel (from size 42) that are connected with an elastic element.
The precise dimensional characteristics of TRASCO® ES are obtained through our accurate machining process.
The special compound polyurethane elastic element, developed through extensive research and laboratory testing, is made through a press-forming process which guarantees high dimensional accuracy.
The element is available in 4 different hardnesses: **80 Sh. A (blue), 92 Sh. A (yellow), 98 Sh. A (red), 64 Sh. D (green).**
Coupling performance depends on the type of element selected (see “**Technical characteristics**”).
Other element hardnesses are available upon request to meet special operating conditions, such as high temperatures and/or high torques, and for providing a high degree of vibration dampening capability. Please contact our Engineering Office for help in selecting the appropriate element hardness.
Note: It is possible to have aligned keyways upon inquiry.





Operation

When the polyurethane element is installed in its special seats between the hubs, it becomes precompressed, thereby providing the zero backlash feature which characterizes the transmission performance of this coupling.
With zero backlash, the coupling remains torsionally rigid within the range of the precompression load, but does permit the absorption of radial, angular, and axial misalignments as well as undesired vibrations.
The significantly wide precompressed area of the flexible element keeps the contact pressure against the elastic element low. Therefore, the element teeth can be overloaded many times without undergoing any wear or taking a permanent set.

Advantages

The TRASCO® ES coupling provides the following advantages:

- **"zero-backlash" motion transmission**
- **dampening** (up to 80%) **of vibrations** from motor shaft
- **low heat and electrical conductivity**
- **easy and fast installation**
- **perfect balance** (A & AP type)
- **low moment of inertia** (due to compact design and types of materials used).

Main applications

TRASCO® ES couplings are most frequently used with:

- servomotors
- robotics
- sliding tables
- spindle controls for drilling and grinding mandrels
- ball-bearing screws

Operating Temperature Range

The operating temperature range for the TRASCO® ES depends on the type of element. For the **92° Sh. A (yellow), the range is between -40 and +90 °C, and for the 98° Sh.A (red), the range is between -30 and +90 °C.** Peak temperatures as high as 120 °C can be tolerated for brief instances. High operating temperatures can cause the elastic element to lose a considerable amount of elasticity, thus substantially lowering the torque handling capacity.
Therefore, when selecting a coupling, the operating temperature must be carefully considered (see "**Technical characteristics**").

ATEX Directive 2014/34/EU

It is possible to ask for specific certification for use in hazardous area according to EC standard **94/9/EC**. TRASCO® ES couplings are available with specific mounting/operating instruction manual and conformity. For information, please contact our technical office.

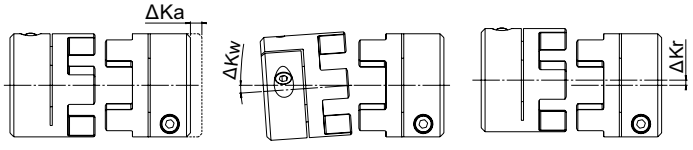
Technical characteristics

The following technical characteristics apply to all types of TRASCO® ES couplings. When using the M, A and AP versions, check the torque values given in the table against the allowable hub transmission values for the respective versions given in the pertinent sections. TRASCO® ES couplings can withstand axial, radial, and angular misalignment. Even after operating for an extended period with a misalignment, there is still zero backlash because the elastic element is only stressed by pressure loads. When an application causes a high degree of misalignment, a double flexing type coupling can be provided which avoids the formation of reaction forces. Please contact our Engineering Office.

Size	Spider hardness	Performances		Spider stiffness			Misalignments		
	Shore color	T_{KN} [Nm]	T_{Kmax} [Nm]	C_T statics [Nm/rad]	C_T dynamics [Nm/rad]	Cr radial [N/mm]	ΔKa [mm]	ΔKr [mm]	ΔKw [°]
7	80 Sh A (blue)	0,7	1,4	8	26	114	0,6	0,15	1,1
	92 Sh A (yellow)	1,2	2,4	14	43	219	0,6	0,10	1,0
	98 Sh A (red)	2	4	22	69	421	0,6	0,10	0,9
9	80 Sh A (blue)	1,8	3,6	16	52	125	0,8	0,20	1,1
	92 Sh A (yellow)	3	6	29	95	262	0,8	0,15	1,0
	98 Sh A (red)	5	10	55	155	518	0,8	0,10	0,9
	64 Sh D (green)	6	12	75	225	740	0,8	0,08	0,8
12	80 Sh A (blue)	3	6	85	250	275	0,9	0,20	1,1
	92 Sh A (yellow)	5	10	165	480	470	0,9	0,15	1,0
	98 Sh A (red)	9	18	240	720	845	0,9	0,08	0,9
	64 Sh D (green)	12	24	330	980	1200	0,9	0,05	0,8
14	80 Sh A (blue)	4	8	60	180	153	1,0	0,21	1,1
	92 Sh A (yellow)	8	15	115	344	336	1,0	0,15	1,0
	98 Sh A (red)	13	25	170	513	604	1,0	0,09	0,9
	64 Sh D (green)	16	32	235	702	856	1,0	0,06	0,8
19/24	80 Sh A (blue)	5	10	370	1120	740	1,2	0,15	1,1
	92 Sh A (yellow)	10	20	820	1920	1260	1,2	0,10	1,0
	98 Sh A (red)	17	34	990	2350	2210	1,2	0,06	0,9
	64 Sh D (green)	21	42	2500	3800	2970	1,2	0,04	0,8
24/28	80 Sh A (blue)	17	34	860	1390	840	1,4	0,18	1,1
	92 Sh A (yellow)	35	70	2.300	5.130	1.900	1,4	0,14	1,0
	98 Sh A (red)	60	120	3.700	8.130	2.940	1,4	0,10	0,9
	64 Sh D (green)	75	150	5.000	11.000	3.700	1,4	0,07	0,8
28/38	80 Sh A (blue)	46	92	1.370	2.350	990	1,5	0,20	1,1
	92 Sh A (yellow)	95	190	3.800	7.270	2.100	1,5	0,15	1,0
	98 Sh A (red)	160	320	4.200	10.800	3.680	1,5	0,11	0,9
	64 Sh D (green)	200	400	10.000	20.000	4.400	1,5	0,08	0,8
38/45	80 Sh A (blue)	95	190	3.000	6.100	1.400	1,8	0,22	1,1
	92 Sh A (yellow)	190	380	5.600	12.000	2.900	1,8	0,17	1,0
	98 Sh A (red)	325	650	8.140	21.850	5.040	1,8	0,12	0,9
	64 Sh D (green)	405	810	25.000	40.000	6.500	1,8	0,09	0,8
42	80 Sh A (blue)	130	270	4.500	9.600	1.950	2,0	0,24	1,1
	92 Sh A (yellow)	265	530	9.800	20.500	4.100	2,0	0,19	1,0
	98 Sh A (red)	450	900	15.180	34.200	5.940	2,0	0,14	0,9
	64 Sh D (green)	560	1.120	37.000	70.000	7.300	2,0	0,10	0,8
48	80 Sh A (blue)	150	300	5.500	11.200	2.100	2,1	0,27	1,1
	92 Sh A (yellow)	310	620	12.000	22.800	4.500	2,1	0,23	1,0
	98 Sh A (red)	525	1.050	16.600	49.400	6.820	2,1	0,16	0,9
	64 Sh D (green)	655	1.310	57.000	100.000	8.300	2,1	0,11	0,8
55	80 Sh A (blue)	200	400	6.000	11.000	1.500	2,2	0,28	1,1
	92 Sh A (yellow)	410	820	13.000	23.100	3.200	2,2	0,24	1,0
	98 Sh A (red)	685	1.370	24.000	63.400	7.100	2,2	0,17	0,9
	64 Sh D (green)	825	1.650	100.000	130.000	9.200	2,2	0,12	0,8
65	92 Sh A (yellow)	625	1.250	23.500	35.000	6.410	2,6	0,25	1,0
	98 Sh A (red)	900	1.800	48.000	71.500	6.620	2,6	0,18	0,9
	64 Sh D (green)	1.040	2.080	118000	19000	8850	2,6	0,13	0,8
75	98 Sh A (red)	1.920	3.840	79.150	150.450	8.650	3,0	0,21	0,9
	64 Sh D (green)	2.400	4.800	182.000	315.000	12.000	3,0	0,15	0,8

All the technical data in the catalogue are valid for rotation speeds of 1500 rpm and a working temperature of 30 °C.
For linear speed over 30 m/s, dynamic balancing is recommended.

Misalignments



Axial Radial Angular

T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
C_T	Torsional rigidity	Nm/rad
C_r	Radial stiffness	N/mm
ΔK_a	Maximum axial misalignment	mm
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°

Selection in according to DIN 740.2

The coupling must be chosen so the applied working loads do not exceed the allowable values whatever the working conditions are.

1. Check the load with respect to the nominal torque
The nominal coupling torque must be greater than or equal to the nominal torque of the drive machine for all working temperatures.

$$T_{KN} \geq T_N \cdot S_\theta \cdot S_D$$

2. Check the load with respect to the torque peak values
The maximum coupling torque must be greater than or equal to the torque peaks that occur during operation for all working temperatures.

$$T_{KN} \geq T_S \cdot S_\theta \cdot S_D + T_N \cdot S_\theta$$

Motor-side peaks: $T_S = T_{AS} \cdot \frac{1}{m+1} \cdot S_Z$

Driven-side peaks: $T_S = T_{LS} \cdot \frac{m}{m+1} \cdot S_Z$

Or, in case of sporadic peaks: $T_{Kmax} \geq T_S \cdot S_\theta \cdot S_D + T_N \cdot S_\theta$

If the peak does not cover the nominal T_N, contribution, the $T_N\ S_\theta$ factor can be disregarded.

Calculation coefficients

S_θ = Temperature factor

T (°C)	-30 °C / +30 °C	+40 °C	+60 °C	+80 °C
S_θ	1	1,2	1,4	1,8

S_D = Torsional rigidity factor

Tooling machines	Positioning system	Speed and angular acceleration indicator
2-5	3-8	10 ≥

Starting frequency factor

S/h	< 20	< 60	< 120	< 180	< 240	> 240
S_z	1	1,2	1,4	1,6	1,8	2

m = Mass factor = $\frac{J_A}{J_L}$

Example of selection

Application

Servomotor driving a recirculating ball screw on a machine tool

Nominal torque	T_N	= 10,0 Nm	Shock type	S_D	= 3
Peak torque	T_{AS}	= 22,0 Nm	Table moment of inertia	J_3	= 0,0038 kg · m²
Rpm	n	= 3.000 1/min	Driven shaft	dc	= 20 mm h6 (without keyway)
Moment of inertia	J_1	= 0,0058 kg · m²	Motor shaft	dm	= 24 mm h6 (without keyway)
Temperature	T	= +40 °C			

Selection

24/28 "A" type TRASCO® ES coupling with "Red" elastic element (98 Sh. A)

Standard coupling torque:	T_{KN}	= 60 [Nm]
Maximum torque:	T_{Kmax}	= 120 [Nm]
Hub Moment of Inertia:	J_2	= 0,000135 [kg · m²]
Couple Transmitted by taper locking ring:	T_{cal}	= 92 [Nm] bore 20 [mm] 113 [Nm] bore 24 [mm]

Load check

$$T_N \cdot S_\theta \cdot S_D = 10 \cdot 1{,}2 \cdot 3 = 36{,}0 \text{ [Nm]}$$

$$T_{KN} > 36{,}0 \text{ Nm} < T_{cal}$$

$$m = \frac{J_A}{J_L} \qquad J_A = J_1 + J_2 \qquad J_L = J_3 + J_2 \qquad m = 1{,}5$$

$$T_S = T_{AS} \cdot \frac{1}{m+1} \cdot S_z = 22{,}0 \cdot \frac{1}{1{,}5+1} \cdot 1{,}5 = 13{,}2 \text{ [Nm]}$$

$$T_S \cdot S_D \cdot S_\theta = 13{,}2 \cdot 3 \cdot 1{,}2 = 47{,}52 \text{ [Nm]}$$

$$T_{KN} > 47{,}52 \text{ Nm} < T_{cal}$$

T_{KN}	Coupling nominal torque	Nm
T_K	Motor-side nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
T_S	Motor peak torque	Nm
T_{AS}	Driver-side peak torque	Nm
m	Mass factor	Nm
J_A	Motor-side inertia	kgm²
J_L	Driven-side inertia	kgm²
S_Z	Start frequency factor	
S_θ	Temperature factor	
S_D	Temperature factor	
T_{Cal}	Hub-shaft connection maximum torque	Nm

TRASCO® ES executions

FINISHED BORE HUBS EXECUTION

GESF execution

From size 7 to 9.
Hub execution with finish bores, and two setscrew.

GESF C execution

From size 14.
Hub execution with finish bore,

CLAMP HUBS EXECUTION

GESM execution

Clamping hub execution.

GESM...C execution

Clamping hub execution with double slot and keyway.

GESMC execution

Compact clamping hub execution.

GES2M execution

Split clamping hub execution for radial assembly of the coupling torque depends on bore diameter.

SHRINK DISC EXECUTION

GESA execution

Execution with locking ring. This execution is suitable for high speed and high torque. Screws mounting from spider side. Transmissible torque depends on bore diameter.

GESAP execution

Execution with locking ring with high machining accuracy: design suitable for application on spindles according to DIN 69002.

TRASCO® ES zero backlash copulings - GESP e GESF execution solid or bore hub

SIT coupling hubs are available from stock with either solid hub or with finished bores of standard shaft diameters. The setscrews of our finished bore execution are positioned 120 degrees from each other with one positioned 180 degrees from the keyway. Both the solid hub and bored hub coupling are generally available from stock for quick delivery. **Approved according to ATEX Directive.**
Note: It is possible to have aligned keyways upon inquiry.

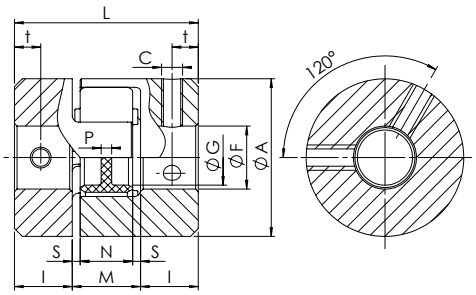


Fig. 1

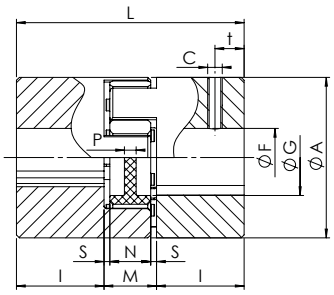


Fig. 2

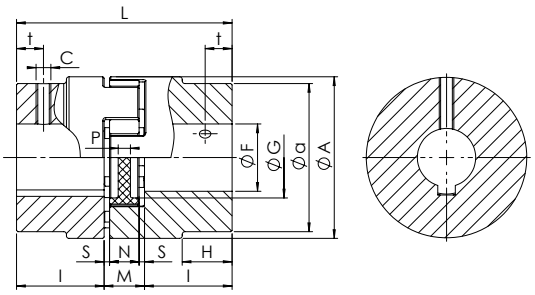


Fig. 3

Size	F min [mm]	F max [mm]	Mozzo W [kg]	Mozzo J [kgm²]	n_{max} [rpm]
ALUMINUM HUBS					
7	3	7	0,003	0,085 x 10^{-6}	40.000
9	4	10	0,008	0,48 x 10^{-6}	28.000
12	4	12	0,015	1,5 x 10^{-6}	22.000
14	4	16	0,019	2,7 x 10^{-6}	19.000
19/24	6	24	0,066	20,4 x 10^{-6}	14.000
24/28	8	32	0,140	74,5 x 10^{-6}	10.600
28/38	10	38	0,253	200,3 x 10^{-6}	8.500
38/45	12	45	0,455	400,6 x 10^{-6}	7.100
STEEL HUBS					
42	14	55	2,000	2.246 x 10^{-6}	6.000
48	20	60	2,520	3.786 x 10^{-6}	5.600
55	25	70	4,100	9.986 x 10^{-6}	5.000
65	25	80	5,900	18.352 x 10^{-6}	4.600
75	30	95	6,900	27.402 x 10^{-6}	3.700

A [mm]	G [mm]	H-a [mm]	L [mm]	l [mm]	M [mm]	N [mm]	S [mm]	P [mm]	c	M_S [Nm]	t [mm]	Fig.
ALUMINUM HUBS												
14	-	-	22	7	8	6	1,0	6,0	M3	0,3	3,5	1
20	7,2	-	30	10	10	8	1,0	2,0	M3	0,3	5	1
25	8,5	-	34	11	12	10	1,0	3,0	M4	1,5	5	1
30	10,5	-	35	11	13	10	1,5	2,0	M4	1,5	5	2
40	18	-	66	25	16	12	2,0	3,5	M5	2	10	2
55	27	-	78	30	18	14	2,0	4,0	M5	2	10	2
65	30	-	90	35	20	15	2,5	5,2	M6	4	15	2
80	38	-	114	45	24	18	3,0	5,6	M8	10	15	2
STEEL HUBS												
95	46	-	126	50	26	20	3,0	5,6	M8	10	20	2
105	51	-	140	56	28	21	3,5	6,0	M8	10	25	2
120	60	-	160	65	30	22	4,0	9,0	M10	17	20	2
135	68	-	185	75	35	26	4,5	8,3	M10	17	20	2
160	80	53-135	210	85	40	30	5,0	8,3	M10	17	25	3

Bore tolerance: H7 - JS9 (DIN 6885/1) keyway

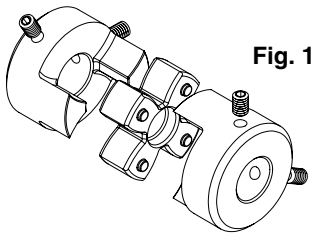


Fig. 1

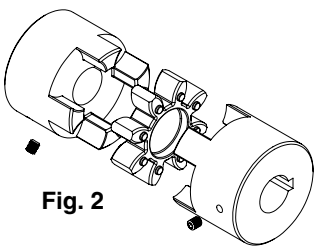


Fig. 2

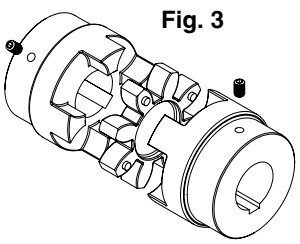


Fig. 3

Hub — **GESF 24/28 F20**

GESP: solid hub
GESF: bore + keyway + set-screw

Size

F...: bore diameter

Spider — **AES 24/28 R**

TRASCO® ES spider

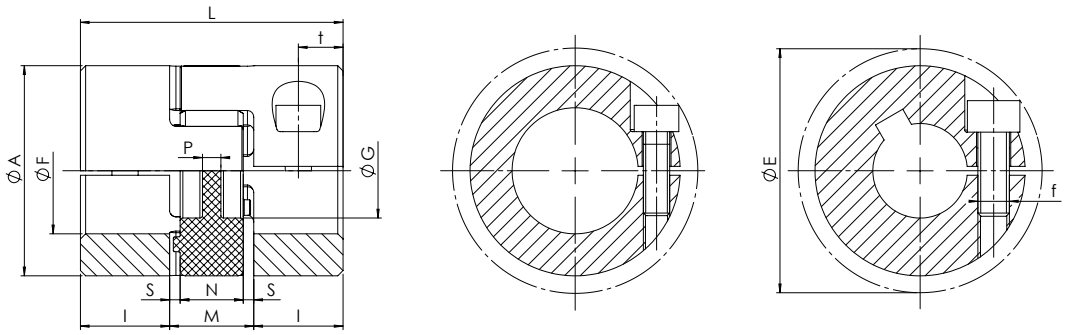
Size

B: 80 Sh A (blue) - G: 92 Sh A (yellow)
R: 98 Sh A (red) - V: 64 Sh D (green)

M_S	Screw tightening torque	Nm
W	Weight	kg
J	Moment of inertia	kgm²
n_{max}	Maximum rpm	rpm

TRASCO® ES zero backlash copulings - GESM C compact execution with clamp hubs

Compact version with reduced overall length. They guarantee the same performances as the normal version with reduced overall dimensions. **Approved according to ATEX Directive. Note:** It is possible to have aligned keyways upon inquiry.



Size	F min [mm]	F max [mm]	f	M_S [Nm]	n_{max} [rpm]	A [mm]	L [mm]	I [mm]	M [mm]	N [mm]	S [mm]	P [mm]	t [mm]	E [mm]
ALUMINUM HUBS														
7	3	7	M2	0,6	40.000	14	18	5	8	6	1,0	6	2,5	16,6
9	4	10	M2,5	1,0	28.000	20	24	7	10	8	1,0	2	3,5	21,3
12	4	12	M3	1,4	22.000	25	26	7	12	10	1,0	3	3,5	26,2
14	6	16(1)	M4	2,9	19.000	30	32	9,5	13	10	1,5	2	4,8	30,5
19/24	10	24(1)	M6	11,0	14.000	40	50	17	16	12	2,0	3,5	8,5	45,0(1)
24/28	10	32	M6	11,0	10.600	55	54	18	18	14	2,0	4	9,0	57,5
28/38	14	35	M8	25,0	8.500	65	62	21	20	15	2,5	5,2	10,5	69,0
38/45	18	45	M10	49,0	7.100	80	76	26	24	18	3,0	5,6	13,0	86,0

(1) Size 14 up to bore Ø screw 12 M4, over screw M3. size 19/24 up to bore Ø 20 screw M6, over screw M5 (Ø E= 46,7 mm)

Size	Recommended **M** coupling Type Hub Bore Dia. [mm] and Transmissible Torque [Nm], valid for shaft tolerances k6																										
	3	4	5	6	7	8	9	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45
7	0,8	0,9	1,0	1,0	1,1																						
9		2,1	2,2	2,3	2,5	2,6	2,7	2,8																			
12		3,4	3,6	3,8	3,9	4,1	4,3	4,4	4,6	4,8																	
14				7,4	7,7	8,0	8,3	8,6	8,9	9,2	5,8	6,0	6,1														
19/24								25,8	26,5	27,1	28,5	29,2	29,9	31,2	31,9	32,6	25,4	26,3									
24/28								23	25	27	32	34	36	41	43	45	50	54	57	63	68	72					
28/38											58	62	66	75	79	83	91	100	104	116	124	133	145				
38/45														119	125	132	145	158	165	184	198	211	230	250	263	277	296

Hub **GESMC 24/28 F22**

GESMC: hub TRASCO® ES execution with clamp hubs - compact execution

Size

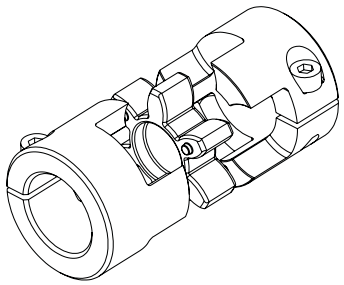
F...: bore diameter

Spider **AES 24/28 R**

TRASCO® ES spider

Size

B: 80 Sh A (blue) - G: 92 Sh A (yellow)
R: 98 Sh A (red) - V: 64 Sh D (green)



n_{max}	Maximum rpm	rpm

TRASCO® ES zero backlash copulings - GESM execution with clamp hubs

It allows quick and secure fastening with no shaft-hub play. It is important to observe the tightening torque (Ms) of the screw shown in the table when using the keyless version, and check the torque transmissible by the clamp as a function of the shaft diameter (as well as the coupling size) shown in the table on the next page. Hubs with or without keyway and compact version with reduced overall length are available as standard. **Compliant with ATEX Directive. Note:** It is possible to have phase slots on request.

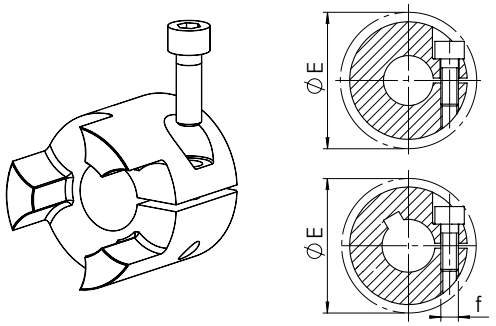


Fig. 1

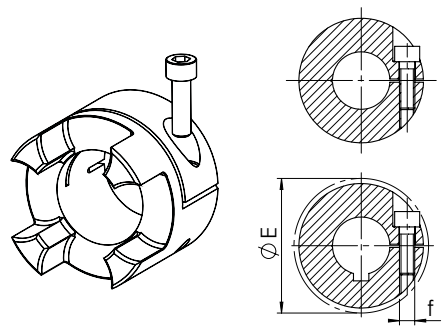
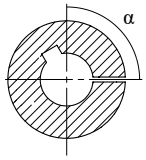


Fig. 2



Posizione cava

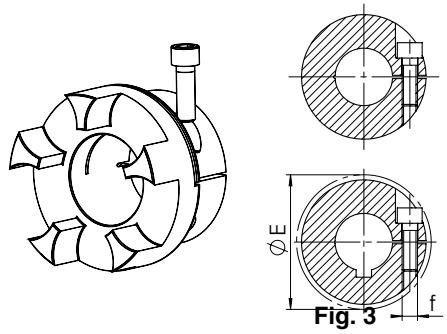


Fig. 3

Fig.3

Keyway position

Size	F min [mm]	F max [mm]	f	M_S [Nm]	Hub		n_{max} [rpm]
					W [kg]	J [kgm²]	
ALUMINUM HUBS							
7	3	7	M2	0,35	0,003	0,085 x 10^{-6}	40.000
9	4	10	M2,5	0,75	0,007	0,42 x 10^{-6}	28.000
12	4	12	M3	1,4	0,015	1,4 x 10^{-6}	22.000
14	6	16	M3	1,4	0,018	2,6 x 10^{-6}	19.000
19/24	10	24(1)	M5	11	0,071	18,1 x 10^{-6}	14.000
24/28	10	32	M6	11	0,156	74,9 x 10^{-6}	10.600
28/38	14	38	M8	25	0,240	163,9 x 10^{-6}	8.500
38/45	18	45	M8	25	0,440	465,5 x 10^{-6}	7.100
STEEL HUBS							
42	25	50	M10	70	2,100	3.095 x 10^{-6}	6.000
48	25	55	M12	120	2,900	5.160 x 10^{-6}	5.600
55	35	70	M12	120	4,000	9.737 x 10^{-6}	5.000
65	40	80	M14	190	5,800	17.974 x 10^{-6}	4.600
75	40	80	M16	295	8,100	29.304 x 10^{-6}	2.950

Keyway position α	A [mm]	G [mm]	H-a [mm]	L [mm]	I [mm]	M [mm]	N [mm]	S [mm]	P [mm]	t [mm]	E [mm]	Fig.
ALUMINUM HUBS												
-	14	-	-	22	7	8	6	1,0	6	4	15,0	1
-	20	7,2	-	30	10	10	8	1,0	2	5	23,4	1
180°	25	8,5	-	34	11	12	10	1,0	3	5	27	1
180°	30	10,5	-	35	11	13	10	1,5	2	5,5	32,2	1
120°	40	18	-	66	25	16	12	2,0	3,5	12	45,7(1)	1
90°	55	27	-	78	30	18	14	2,0	4	12	57,5	2
90°	65	30	-	90	35	20	15	2,5	5,2	13,5	72,6	2
90°	80	38	-	114	45	24	18	3,0	5,6	16	83,3	2
STEEL HUBS												
-	95	46	-	126	50	26	20	3,0	5,6	20	78,8	2
-	105	51	-	140	56	28	21	3,5	6	21	108,0	2
-	120	60	-	160	65	30	22	4,0	9	26	122,0	2
-	135	68	-	185	75	35	26	4,5	8,3	27,5	139,0	2
-	160	80	53-135	210	85	40	30	5,0	8,3	30	147,5	3

(1) Size 19/24 up to hole 20 screw M6, beyond screw M5 (E= 46.7 mm)
Size 7 to 19/24: single-cut execution.
Size 24/28 to 65: double-cut execution.

Hole tolerance: F7
Keyway tolerance for keyway JS9.
Keyway seat according to DIN 6885/1 and UNI 6604.

M_S	Screw tightening torque	Nm
W	Weight	kg

J	Moment of inertia	kgm²
n_{max}	Maximum rpm	rpm

Hub **GESM 48 F50**

GESM: TRASCO® ES hub with clamp hubs

Size

F...: bore diameter
F...C: bore diameter and keyway

Spider **AES 48 R**

TRASCO® ES spider

Size

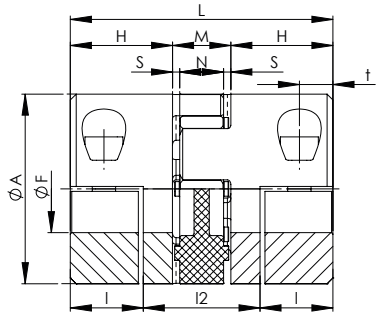
B: 80 Sh A (blue) - G: 92 Sh A (yellow)
R: 98 Sh A (red) - V: 64 Sh D (green)

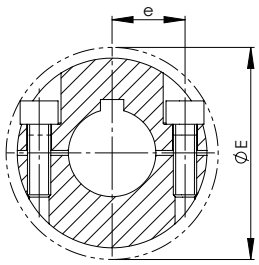
Using hub execution **M** without keyway, the maximum transmissible torque is the minor between the clamp-hub transmissible torque and the value stated in the section "**Technical characteristics**".

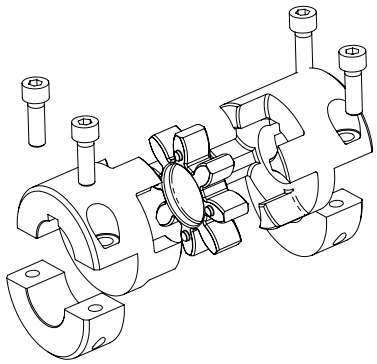
Size	Recommended **M** coupling Type Hub Bore Dia. [mm] and Transmissible Torque [Nm], valid for shaft tolerances k6																																	
	3	4	5	6	7	8	9	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65	70	75	80
7	0,9	1,0	1,0	1,1	1,2																														
9		2,1	2,3	2,4	2,5	2,6	2,7																												
12		4,1	4,2	4,4	4,6	4,8	5,0	5,2	5,4	5,5																									
14			5,0	5,2	5,4	5,5	5,7	5,9	6,1	6,3	6,7	6,8	7,0																						
19/24								28	29	29	31	31	32	34	34	35	30	32																		
24/28								24	27	29	34	37	39	44	46	49	54	59	61	68	73	78														
28/38											58	62	66	75	79	83	91	100	104	116	124	133	145													
38/45												62	66	75	79	83	91	100	104	116	124	133	145	158	166	174	187									
42																139	153	167	174	195	209	223	243	264	278	292	313	334	348						
48																			254	285	305	326	356	387	407	428	458	489	509	560					
55																						326	356	387	407	428	458	489	509	560	611	662	713		
65																							488	530	558	586	628	670	697	767	837	907	976	1046	1116
75																									769	808	865	923	961	1057	1154	1250	1346	1442	1538

TRASCO® ES zero backlash copulings - GES2M execution with clamp hubs

Split clamping hub execution for radial assembly of the coupling torque depends on bore diameter. **Compliant with ATEX Directive.**
Note: It is possible to have aligned keyways upon inquiry.







Size	F min [mm]	F max [mm]	f	M_S [Nm]	Hub W [kg]	Hub J [kgm²]	n_{max} [rpm]
ALUMINUM HUBS							
14	5	16	M3	1,3	0,025	$4,6 \times 10^{-6}$	12.700
19/24	8	20	M6	10	0,078	$2,0 \times 10^{-6}$	9.550
24/28	10	28	M6	10	0,160	$76,3 \times 10^{-6}$	6.950
28/38	14	38	M8	25	0,240	$176,3 \times 10^{-6}$	5.850
38/45	18	45	M8	25	0,470	$503,9 \times 10^{-6}$	4.750
42	22	50	M10	49	0,750	$1.121,7 \times 10^{-6}$	4.000
48	22	55	M12	86	1,08	$1.870,4 \times 10^{-6}$	3.600

A [mm]	H [mm]	I [mm]	I2 [mm]	L [mm]	M [mm]	N [mm]	S [mm]	E [mm]	t [mm]	e [mm]
ALUMINUM HUBS										
30	18,5	14,5	21	50	13	10	1,5	32	7,5	11,5
40	25	17,5	31	66	16	12	2	47	8,0	14,5
55	30	22	34	78	18	14	2	57	10,5	20,0
65	35	25	40	90	20	15	2,5	73	11,5	25,0
80	45	33	48	114	24	18	3	84	15,5	30,0
95	50	36,5	53	126	26	20	3	94	18,0	36,0
105	56	39,5	61	140	28	21	3,5	105	18,5	36,0

Size	Recommended **M** coupling Type Hub Bore Dia. [mm] and Transmissible Torque [Nm], valid for shaft tolerances k6																											
	5	6	7	8	9	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55
14	2,8	3,3	3,9	4,4	5,0	5,6	6,1	6,7	7,8	8,3	8,9																	
19/24				18	20	23	25	27	32	34	36	41	43	45														
24/28						23	25	27	32	34	36	41	43	45	50	54	57	63										
28/38									58	62	66	75	79	83	91	100	104	116	124	133	145	158						
38/45										62	66	75	79	83	91	100	104	116	124	133	145	158	166	174	187			
42														132	145	158	165	184	198	211	230	250	263	277	296	316	329	
48															212	231	241	270	289	308	337	366	385	404	433	462	481	529

Hub **GES2M 28/38 F24**

GES2M: TRASCO® ES hub with clamp hubs

Size

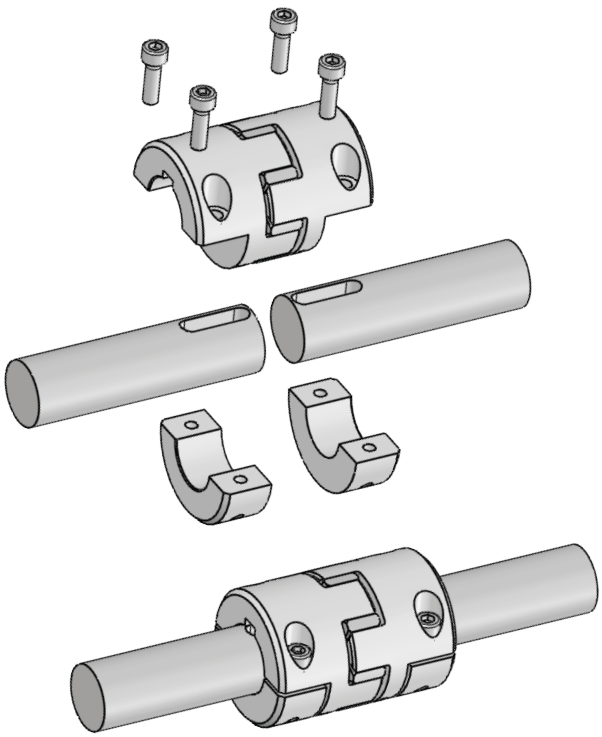
F...: bore diameter

Spider **AES 28/38 R**

TRASCO® ES spider

Size

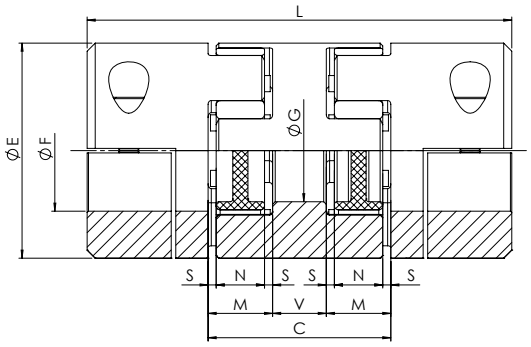
B: 80 Sh A (blue) - G: 92 Sh A (yellow)
R: 98 Sh A (red) - V: 64 Sh D (green)



M_S	Screw tightening torque	Nm
W	Weight	kg
J	Moment of inertia	kgm²
n_{max}	Maximum rpm	rpm

TRASCO® ES zero backlash copulings - GESS execution double cardanic execution

This execution allows higher misalignments. The 2 spiders allow a high vibration dampening providing a decrease in drive noise and longer life of related components (ex. bearings). The intermediate element is made of aluminum alloy and may be used in combination **with any type of hub execution. Note:** It is possible to have aligned keyways upon inquiry.



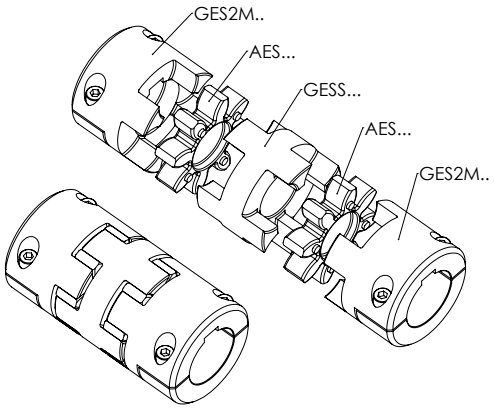
Size	Fa max* [mm]			E [mm]	C [mm]	L [mm]			V [mm]	M [mm]	S [mm]	N [mm]	G [mm]
	GESF	GESM	GES2M			GESF	GESM	GES2M					
	ALUMINUM HUBS					ALUMINUM GESS							
7	7	7	-	14	20	34	34	-	4	8	1	6	–
9	10	10	-	20	25	45	45	-	5	10	1	8	–
14	16	16	16	30	34	56	56	71	8	13	1,5	10	–
19/24	24	24	20	40	42	92	92	92	10	16	2	12	18
24/28	32	32	32	55	52	112	112	112	16	18	2	14	27
28/38	38	38	38	65	58	128	128	128	18	20	2,5	15	30
38/45	45	45	45	80	68	158	158	158	20	24	3	18	38
	ALUMINUM HUBS					ALUMINUM GESS							
42	55	50	50	95	74	174	174	174	22	26	3	20	46
48	60	55	55	105	80	192	192	192	24	28	3,5	21	51
55	70	70	-	120	88	218	218	-	28	30	4	22	60
65	80	80	-	135	102	252	252	-	32	35	4,5	26	68

* The max bore depends on the type of hub used.

Spacer element	**GESS**	**24**

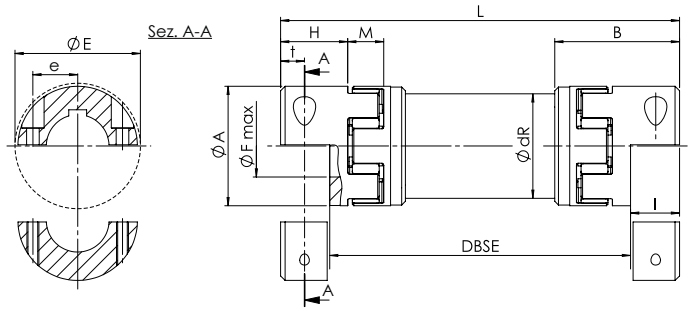
GESS: spacer element

Size: 24/28



TRASCO® ES zero backlash copulings - GES LR3 execution with intermediate shaft

Ideal execution for long distance shaft connections. Torque transmission is zero backlash. It is used in applications such as automatic machines, lifting machines, palletizing machines, and handling machines. Designed for length up to 4 m without bearing support (depending on rotation speed). The double slot execution, allows spider mounting and replacement without driver/driven machine displacement. All aluminum alloy for a very low inertia. **Note:** It is possible to have aligned keyways upon inquiry.



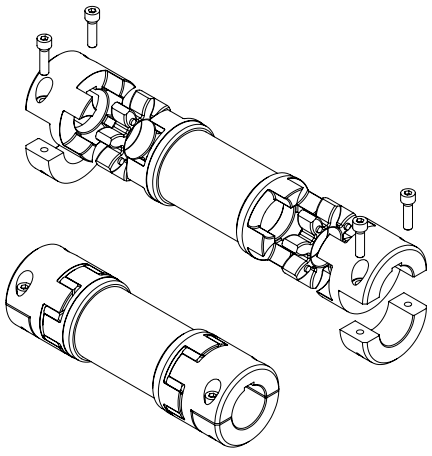
Size	Dimensions finished bores		Clamping		Moment of inertia [10^{-3} · kgm²] with d_{max} hub 1			Torsional rigidity
	d_{min} [mm]	d_{max} [mm]	Screws DIN 4762-8.8	M_S [Nm]	Hub J1	Hub 2 J2	Albero J3	C_T [Nm/rad]
14	5	16	M3	1,34	0,00406	0,00238	0,091	893
19/24	8	20	M6	10	0,02002	0,01304	0,329	3244
24/28	10	28	M6	10	0,07625	0,04481	0,0693	6632
28/38	14	38	M8	25	0,17629	0,1095	1,199	11814
38/45	18	45	M8	25	0,50385	0,2572	2,972	29290
42	22	50	M10	49	1,12166	0,5523	4,560	44930
48	22	55	M12	86	1,87044	1,1834	9,251	91158

A [mm]	H [mm]	l [mm]	B [mm]	M [mm]	DBSE min. [mm]	L [mm]	E [mm]	t [mm]	e [mm]	dR [mm]
30	18,5	14,5	36	13	72	DBSE + 29	32	7,5	11,5	27
40	25	17,5	49	16	98	DBSE + 35	47	8,0	14,5	40
55	30	22	59	18	121	DBSE + 44	57	10,5	20	50
65	35	25	67	20	137	DBSE + 50	73	11,5	25	60
80	45	33	83,5	24	169	DBSE + 66	84	15,5	30	70
95	50	36,5	93	26	180	DBSE + 73	94	18,0	36	80
105	56	39,5	103	28	202	DBSE + 79	105	18,5	36	100

Size	Recommended **M** coupling Type Hub Bore Dia. [mm] and Transmissible Torque [Nm], valid for shaft tolerances k6																												
	5	6	7	8	9	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	55
14	2,8	3,3	3,9	4,4	5,0	5,6	6,1	6,7	7,8	8,3	8,9																		
19/24				18	20	23	25	27	32	34	36	41	43	45															
24/28						23	25	27	32	34	36	41	43	45	50	54	57	63											
28/38									58	62	66	75	79	83	91	100	104	116	124	133	145	158							
38/45										62	66	75	79	83	91	100	104	116	124	133	145	158	166	174	187				
42														132	145	158	165	184	198	211	230	250	263	277	296	316	329		
48															212	231	241	270	289	308	337	366	385	404	433	462	481	529	529

Coupling configurator

Coupling code	Item	Type	Execution	Bore diameter	Order example
GESLR38/45	*Hub 1*	GES2M	F-C	F....	GES2M38/45F35
	Anello 1	AES	B-G-R-V	-	AES38/45V
	Distance between shaft DBSE				*DBSE= 1200 mm*
	Anello 2	AES	B-G-R-V	-	AES38/45V
	Hub 2	GES2M	F-C	F....	GESM38/45F35

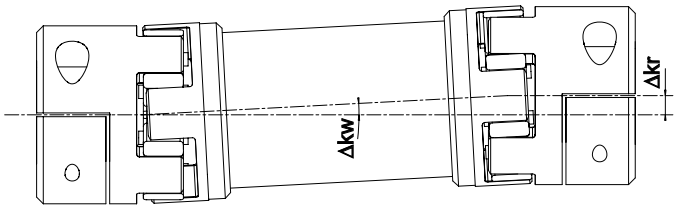


M_S	Screw tightening torque	Nm
J	Moment of inertia	kgm²
C_T	Torsional rigidity	Nm/rad

Technical data for intermediate shaft couplings

Size	Misalignment	
	Axial ΔKa [mm]	Angular ΔKw [°]
14	1,0	0,9
19/24	1,2	0,9
24/28	1,4	0,9
28/38	1,5	0,9
38/45	1,8	0,9

Angular misalignment = 0,9° for spider



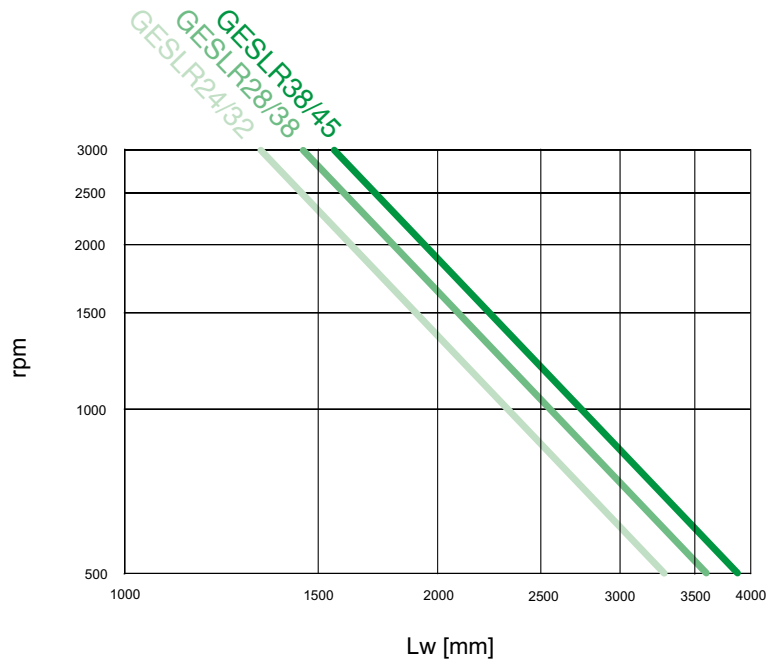
Radial misalignment

$\Delta Kr = (L_z - 2 \cdot H - M) \cdot \tan(\Delta Kw)$ [mm]

$$C_{Tot} = \frac{1}{2 \cdot \frac{1}{C_{T\,anello}} + \frac{L_{allunga}}{C_{T\,allunga}}} \text{ [Nm/rad]}$$

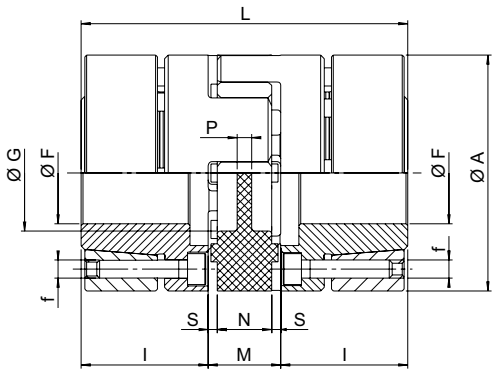
$$L_{allunga} = \frac{L_{zw} - 2 \cdot L}{1000} \text{ [mm]}$$ with Lzw = total coupling length

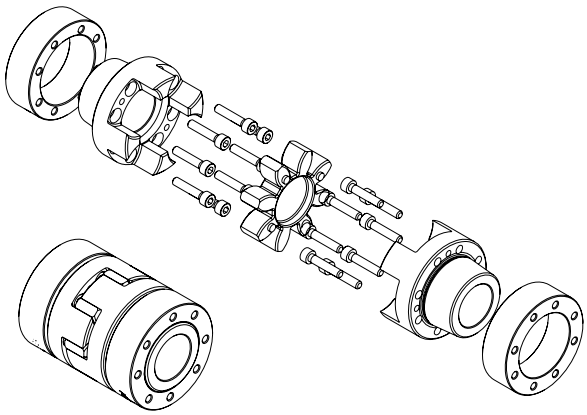
Selection diagram GES LR3 coupling



TRASCO® ES zero backlash copulings - GESA execution shrink disc execution

This type of coupling provides excellent kinetic uniformity. Furthermore, the absence of keys or set screws makes it a well-balanced coupling and greatly facilitates installation and removal. An exact radial/axial positioning is easy for those applications which require it. The absence of keyways also avoids fretting corrosion and backlash between the shaft and the hub. This is the ideal type of coupling for applications requiring precision and/or high rotational speeds. **Compliant with ATEX Directive.**
Note: It is possible to have aligned keyways upon inquiry.





Size	F min [mm]	F max [mm]	f	Screws for locking elements	M_S [Nm]	Hub		n_{max} [rpm]
						W [kg]	J [kgm²]	
ALUMINUM HUBS AND STEEL LOCKING ELEMENT								
14	6	14	M3	4	1,3	0,049	7 x 10-6	28.000
19/24	10	20	M4	6	2,9	0,120	30 x 10-6	21.000
24/28	15	28	M5	4	6,0	0,280	135 x 10-6	15.500
28/38	19	38	M5	8	6,0	0,450	315 x 10-6	13.200
38/45	20	45	M6	8	10,0	0,950	960 x 10-6	10.500
STEEL HUBS AND LOCKING ELEMENT								
42	28	50	M8	4	35,0	2,300	3.150 x 10-6	9.000
48	35	60	M8	4	35,0	3,080	5.200 x 10-6	8.000
55	35	65	M10	4	71,0	4,670	10.300 x 10-6	6.300
65	40	70	M12	4	120,0	6,700	19.100 x 10-6	5.600

A [mm]	G [mm]	L [mm]	I [mm]	M [mm]	N [mm]	S [mm]	P [mm]
ALUMINUM HUBS AND STEEL LOCKING ELEMENT							
30	10,5	50	18,5	13	10	1,5	2,0
40	18	66	25	16	12	2,0	3,5
55	27	78	30	18	14	2,0	4,0
65	30	90	35	20	15	2,5	5,2
80	38	114	45	24	18	3,0	5,6
STEEL HUBS AND LOCKING ELEMENT							
95	46	126	50	26	20	3,0	5,6
105	51	140	56	28	21	3,5	6,0
120	60	160	65	30	22	4,0	9,0
135	68	185	75	35	26	4,5	8,3

Size	Recommended **A** coupling Type Hub Bore Dia. [mm] and Transmissible Torque [Nm], valid for shaft tolerances k6																								
	Ø10	Ø11	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70
14	10	12	22																							
19/24	42	46	60	65	69	74	79	84	88																	
24/28				66	72	77	82	87	92	102	113	118	135													
28/38								175	185	205	225	235	266	287	308	339	373									
38/45									255	283	312	326	367	398	427	471	515	545	577	620						
42													420	460	500	563	627	670	714	790	850	880				
48																557	612	649	687	744	801	840	932	1033		
55																	986	1112	1140	1185	1284	1412	1420	1652	1680	1691
65																		1531	1580	1772	1840	1960	2049	2438	2495	2590

Bore tolerances: H7.
For sizes 55 and 65 the shrinking ring depends on the diameter of the hole to be made. For further information please contact our Technical Department.
When using the coupling with hub in execution **A**, the maximum torque (transmissible by the shrink disk) will be the lower of that indicated in the table below and that indicated in the "**Technical characteristics**" section.

Hub **GESA 48 F45**

GESA: TRASCO® ES hub shrink disc execution

Size

F...: bore diameter

Spider **AES 48 R**

TRASCO® ES spider

Size

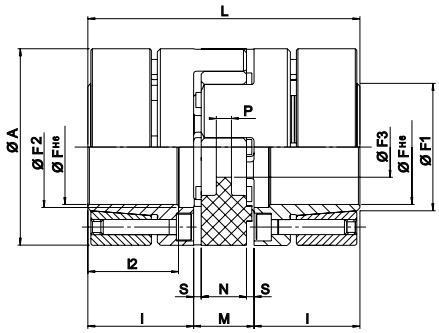
B: 80 Sh A (blue) - G: 92 Sh A (yellow)
R: 98 Sh A (red) - V: 64 Sh D (green)

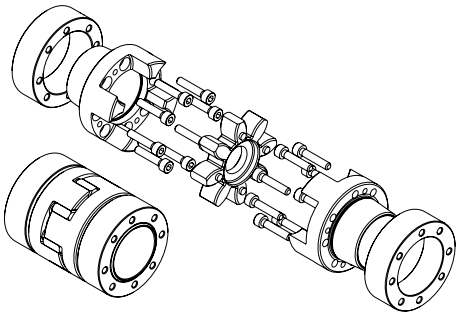
M_S	Screw tightening torque	Nm
W	Weight	kg

J	Moment of inertia	kgm²
n_{max}	Maximum rpm	rpm

TRASCO® ES zero backlash copulings - GESAP execution shrink disc execution according to DIN 69002

Precision “zero-backlash” coupling designed for multi spindle devices on machine tools or controls with reduced mass, such as short center spindles, multi-centers primary spindles in work stations, or joined to high speed bearings with limited tolerance range. It is suitable for very high speeds of rotation (up to speeds of 50 m/s). **Note:** It is possible to have aligned keyways upon inquiry.





Size	F [mm]	M_S [Nm]	Hub		n_{max} [rpm]
			W [kg]	J [kgm^2]	
STEEL HUBS AND LOCKING ELEMENT					
14	14	1,89	0,080	11 x 10^{-6}	28.000
19/24 - 37,5	16	3,05	0,160	37 x 10^{-6}	21.000
19/24	19	3,05	0,190	46 x 10^{-6}	21.000
24/28-50	24	4,90	0,330	136 x 10^{-6}	15.500
24/28	25	8,50	0,440	201 x 10^{-6}	15.500
28/38	35	8,50	0,640	438 x 10^{-6}	13.200
38/45	40	14,00	1,320	1.325 x 10^{-6}	10.500
42	42	35,00	2,230	3.003 x 10^{-6}	9.000
48	45	35,00	3,090	5.043 x 10^{-6}	8.000
55	50	71,00	4,740	10.020 x 10^{-6}	6.300

A [mm]	L [mm]	l [mm]	l2 [mm]	M [mm]	N [mm]	S [mm]	P [mm]	F1 [mm]	F2 [mm]	F3 [mm]
STEEL HUBS AND LOCKING ELEMENT										
32	50	18,5	15,5	13	10	1,5	2,0	17	17	8,5
37,5	66	25	21	16	12	2,0	3,5	20	19	9,5
40	66	25	21	16	12	2,0	3,5	23	22	9,5
50	78	30	25	18	14	2,0	4,0	30	29	12,5
55	78	30	25	18	14	2,0	4,0	32	30	12,5
65	90	35	30	20	15	2,5	5,2	42	40	14,5
80	114	45	40	24	18	3,0	5,6	49	46	16,5
92	126	50	45	26	20	3,0	5,6	54	55	18,5
105	140	56	50	28	21	3,5	6,0	65	60	20,5
120	160	65	58	30	22	4,0	9,0	65	72	22,5

Spindle size	TRASCO® ES AP	98 Sh. A		64 sh. D	
		T_{KN} [Nm]	T_{Kmax} [Nm]	T_{KN} [Nm]	T_{Kmax} [Nm]
25 x 20	14	12,5	25	16	32
32 x 25	19/24 - 37,5	14	28	17	34
32 x 30	19/24	17	34	21	42
40 x 35	24/28 - 50	43	86	54	108
50 x 45	24/28	60	120	75	150
63 x 55	28/38	160	320	200	400

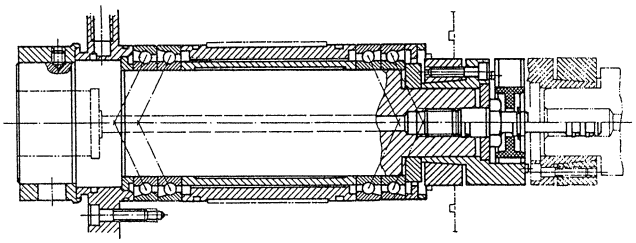
Bore tolerance: H6

Hub — **GESAP 48 F45**

- GESAP: TRASCO® ES hub shrink disc execution
- Size
- F...: bore diameter

Spider — **AESP 48 R**

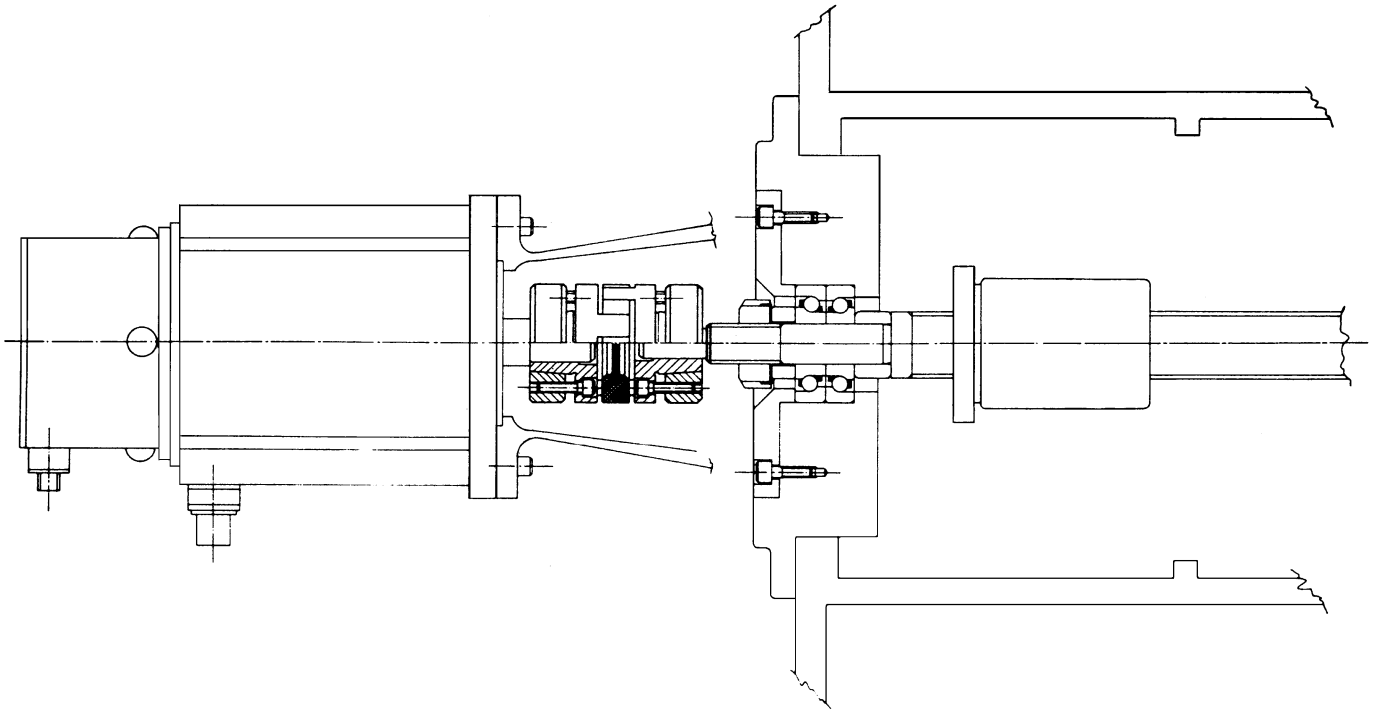
- Spider for TRASCO® ES “AP” execution
- Size
- R: 98 Sh A (red)
  V: 64 Sh D (green)

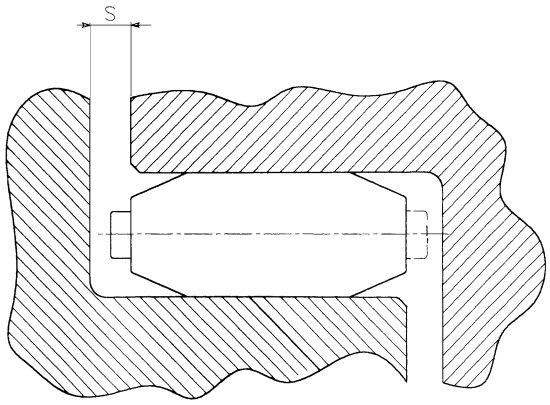


M_S	Screw tightening torque	Nm
W	Weight	kg
J	Moment of inertia	kgm^2
n_{max}	Maximum rpm	rpm

Installation and maintenance

1. Carefully clean the shafts
2. Insert the hubs onto shafts being connected. With the M, A and AP versions, be sure to tighten the screws with the Ms torque value given in the catalogue. Be careful with the A and AP versions to tighten the screws uniformally and crosswise to the recommended torque
3. Position the element in one of the two coupling hubs
4. Fit together the two coupling halves, making sure the “s” dimension is properly observed. This must be done to insure proper elastic element function and long service life, as well as to assure the coupling is properly insulated electrically





With the A and AP versions, mounting the hubs can be facilitated by lubricating the shaft contact surfaces with an oil, but do not use a molybdenum bisulphide based oils. When mounting the TRASCO® ES coupling an axial thrust is generated which disappears when the mounting has been completed to avoid putting axial loads on the bearings. Lubrication of the elastic element will reduce the amount of axial force required during installation.

Note: All rotating parts must be guarded.

SERVOPLUS® BELLOW COUPLINGS

DRIVE SOLUTIONS

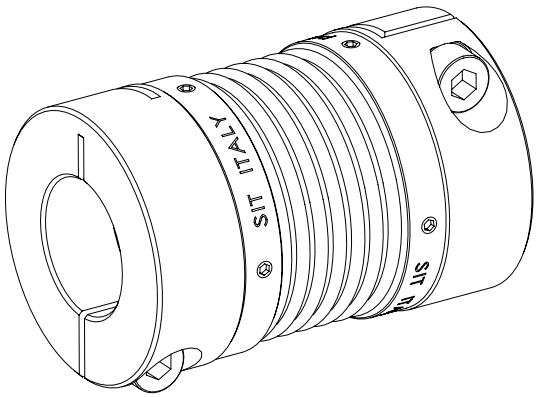
SERVOPLUS® bellow couplings

Description

SERVOPLUS® bellows couplings are the perfect coupling in all servo motor applications where high torsional rigidity, truly backlash free torque transmission, low inertia, and superior reliability are required. The innovative modular system allows quick delivery and competitive cost advantage.
Note: It is possible to have aligned keyways upon inquiry.

Features

- backlash free for highest torque transmission precision
- low moment of inertia
- excellent dynamic characteristics for superior drives at high speed and torque inversions
- allow for axial, radial and angular misalignment
- easy mounting
- high torsional rigidity
- wear and maintenance free
- working temperature up to 300 °C
- innovative modular execution
- material: aluminum hub, bellow in stainless steel



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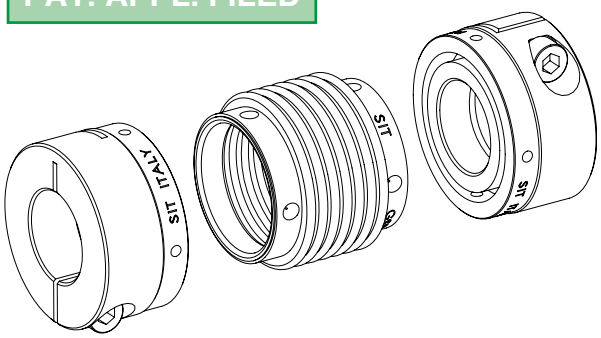
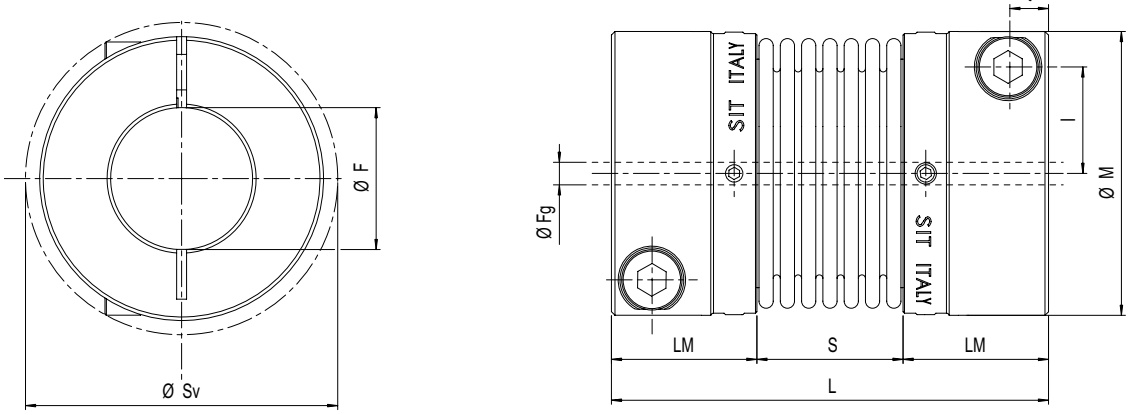


SERVOPLUS® high tech bellows couplings

The innovative modular system allows competitive costs and very quick delivery for any shaft combination. Additional benefits include bellows replacement without moving shaft.

Standard execution



Size	Dimensions [mm]								Screws				Socket set screws		Technical data										
	Prebored Fg	F		M	Sv	LM	S	L	Type	t	l	Ms [Nm]	Type	Ms [Nm]	T_{KN} [Nm]	T_{Kmax} [Nm]	n_{max} [rpm]	Moment of inertia [$x10^{-6} \cdot Kgm^2$]	Torsional rigidity C_T [Nm/rad]	Axial spring stiffness [N/mm]	Radial spring stiffness [N/mm]	Misalignments			W* [kg]
		min	max																			Δka	Δkr	Δkw	
16	4,5	5	16	34	36	17,0	16,5	50,5	M4	4,5	12	2,9	M3	0,8	5	7,5	14000	14	3050	29	92	±0.5	0,2	1,5	0,082
20	7,5	8	20	40	44	20,5	21,0	62	M5	5,5	15	6	M3	0,8	15	22,5	11900	34	6600	42	126	±0.6	0,2	1,5	0,135
30	9,5	10	30	55	58	22,5	27,0	72	M6	6,5	20	10	M4	2,0	35	52,5	8700	140	14800	65	155	±0.8	0,25	2,0	0,289
38	13,5	14	38	65	73	26,0	32,0	84	M8	8,0	25	25	M4	2,0	65	97,5	7300	310	24900	72	212	±0.8	0,25	2,0	0,438
45	13,5	14	45	83	89	31,0	41,0	103	M10	9,5	30	49	M5	3,8	150	225	5800	1056	64000	88	492	±1,0	0,3	2,0	0,924

*= with max bore
Bore tolerance F7

Size	SERVOPLUS® coupling																							
	Bore range and dampening hub transmissible torque [Nm]																							
	5	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**14**	**15**	**16**	**18**	**19**	**20**	**24**	**25**	**28**	**30**	**32**	**35**	**38**	**40**	**42**	**45**
16	4,9	5,9	6,9	7,8	8,8	9,8	10,8	11,8	13,7	14,7	15,7													
20				12,8	14,4	16	17,6	19,2	22,3	23,9	25,5	28,7	30,3	31,9										
30							24,9	27,1	31,7	33,9	36,2	40,7	43	45,2	54,3	56,5	63,3	67,9						
38												74,6	78,8	82,9	99,5	104	116	124	133	145	158			
45														132	158	165	184	198	211	231	250	263	277	296

Additional hub executions available upon request:

- **taper bore for taper bushings**
- **conical bore for FANUC motors**

Hub **GSP** **30** **MF** **20**

GSP: SERVOPLUS® coupling

Size

M: hub with pilot bore
S: bellows
MF: hub with finished bore

Bore diameter in mm (only in case of hub with finished bore)

M_S	Screw tightening torque	Nm
T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
n_{max}	Maximum rpm	rpm
C_T	Torsional rigidity	Nm/rad
ΔK_a	Maximum axial misalignment	mm
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°
W	Weight	kg

To configure a complete coupling select two hubs with the requested pilot bore/finish bore and one bellows.

Technical data SERVOPLUS® couplings

Verify the torque to be transmitted
The torque transmissible by the coupling T_{KN} must always be higher than the maximum torque applied to the driver and driven shaft.
Being:

T_{AS} = peak torque of motor side [Nm]
T_{LS} = peak torque of driven side [Nm]
k = service factor

$T_{KN} \geq k \cdot T_{AS/LS}$

Verify acceleration torque
T_S = acceleration torque (driver or driven side)
The nominal torque must be higher than the acceleration torque.

$T_{KN} > T_S \cdot k$

T_S $= T_{AS} \cdot m_A$
T_S $= T_{LS} \cdot m_L$

con: $m_A = \frac{J_A}{J_A + J_L}$ $\quad m_L = \frac{J_L}{J_A + J_L}$

k = 1,5 with uniform load
k = 2 with non-uniform load
k = 2,5 - 4 with peak or impact load

For drives in machine tools k = 1,5 - 2

For applications with extreme precision requirements it could be important to verify the transmission error which is calculated as follows:

$\beta = \frac{180 \cdot T_{AS}}{\pi \cdot C_T}$ [°] with C_T = torsional stiffness of the coupling [Nm/rad]

Verify misalignment
After having selected the coupling verify the required shaft diameters are compatible with the selected coupling size. (F_{min}/F_{max}).

Verifica disallineamento
Misalignment in the application must be compatible with the allowable misalignment of the coupling. It must be considered that the maximum values of misalignment of the coupling cannot be reached simultaneously.
Given the values of misalignment of the application and converted in percentage with respect to the corresponding maximum values of the coupling, the percentage sum must not exceed 100%.

Con: $\frac{\Delta k_{aM}}{\Delta k_a} \cdot 100\% + \frac{\Delta k_{rM}}{\Delta k_r} \cdot 100\% + \frac{\Delta k_{wM}}{\Delta k_w} \cdot 100\% < 100\%$

• Δk_{aM}, Δk_{rM}, Δk_{wM} respectively axial, radial, and angular misalignment of the machine

• Δk_a, Δk_r, Δk_w respectively axial, radial, and angular misalignment which the coupling can bear

- **axial misalignment:** usually due to temperature variation
- **angular misalignment:** values up to 2° are acceptable
- **radial misalignment:** pay close attention not to exceed maximum radial misalignment. It could bring to bellows distortion.

Verify hub transmissible torque
It is important to verify the torque required in the drive is compatible with the transmissible load of the hub-shaft connection. It is possible to deliver couplings with different clamping systems in case a special application is needed. Also it is possible to deliver couplings with minimum bore smaller than indicated in catalogue. In such a case, the hub shaft connection transmissible torque will be lower.

Technical features

Long lasting
SERVOPLUS® couplings are designed for an infinite number of cycles when the maximum misalignment values and peak torque are respected.

Peak torque
SERVOPLUS® couplings allow for short periods a peak torque equal to the 1,5 time the nominal torque.
The hub shaft connection must be correctly dimensioned.

Bearing load
Due to flexibility in handling axial, angular and radial misalignment, SERVOPLUS® couplings allow reduced bearing load which reduces maintenance cost.

Working temperature
SERVOPLUS® couplings may be used up to +300° C without limitation.

Maintenance and wear
SERVOPLUS® couplings are wear and maintenance free.

Mounting instructions

SERVOPLUS® couplings are delivered with finished bore and ready for installation.
• carefully clean the contact surfaces
• position the coupling on the shafts ends and carefully tighten the radial clamping screws to the indicated torque T_A

Dismounting
• loosen radial screws
• pull apart the drive and remove the coupling

The special design of the SERVOPLUS® coupling allows the removal of the coupling or the bellows replacement without pulling apart the drive.
• loosen the socket screws
• loosen the radial clamping screws
• move the clamping hubs on the shafts
• remove the clamping hubs

Shaft requirements for a safe torque transmission are:

- **tolerance h6**
- **roughness R_{tmax} 16**µ

Note
It is recommended to pay careful attention during the mounting and dismounting operation. Damaging the bellows may render coupling unusable.

Safety norms

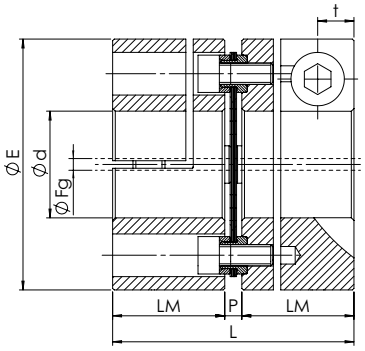
All rotating parts must be protected against any possibility of contact with people. Protection must be designed so that even in case of coupling failure, personnel and equipment is protected.

SERVOMATE® DISC COUPLINGS

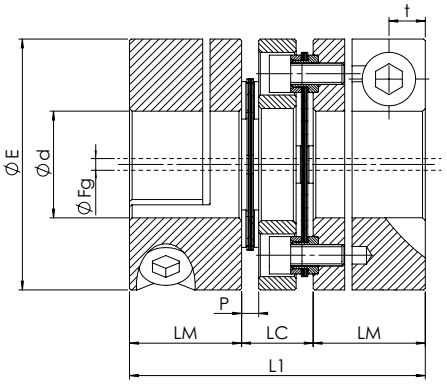
sit DRIVE SOLUTIONS

SERVOMATE® disc couplings

SERVOMATE® disc couplings have been specially designed for servomotor applications. The aluminium hubs and the compact design provide low mass moment of inertia resulting in a reliable and maintenance free coupling for high speeds. The double disk pack execution has been designed for applications with radial misalignment. **Note:** It is possible to have aligned keyways upon inquiry.



1 disc pack GSM version



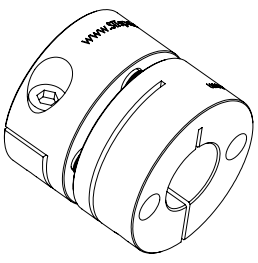
2 disc packs GSMC version

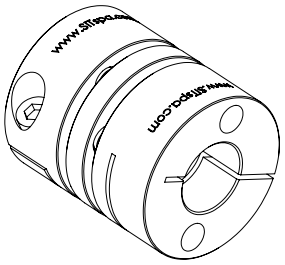
Size	Dimensions [mm]								Screws		Weights and moments of inertia				T_{KN} [Nm]	T_{Kmax} [Nm]	Torsional rigidity C_T [Nm/rad]		Max. speed [rpm]
											GSM		GSMC						
	** Prebored Fg	d_{max}	LC	LM	L	L1	P	t	Type	Ms [Nm]	W* [Kg]	J* [Kg · m²]	W [Kg]	J* [Kg · m²]			GSM	GSMC	
15	5,5	20	13	21	45	55	3	6,8	M6	10	0,16	52 · 10-6	0,20	63 · 10-6	20	40	12.000	6.000	16.000
20	7,5	25	19	24	52	67	4	6,5	M6	10	0,30	149 · 10-6	0,40	194 · 10-6	30	60	30.000	15.000	12.000
25	9,5	35	24	32	69	88	5	9,0	M8	25	0,53	384 · 10-6	0,66	492 · 10-6	60	120	60.000	30.000	10.000

*= with max bore.
**= prebored not in tolerance.

Size	**GSM** misalignment			**GSMC** misalignment		
	Radial [mm]	Axial [mm]	Angular [°]	Radial [mm]	Axial [mm]	Angular [°]
15	-	0,5	1	0,16	1,0	2
20	-	0,6	1	0,25	1,2	2
25	-	0,8	1	0,30	1,6	2

Size	Trasmissible torque [Nm] related to shaft diameter [mm]														
	Ø10	**Ø11**	**Ø12**	**Ø14**	**Ø15**	**Ø16**	**Ø19**	**Ø20**	**Ø22**	**Ø24**	**Ø25**	**Ø28**	**Ø30**	**Ø32**	**Ø35**
15	20	22	24	28	30	32	38	40	-	-	-	-	-	-	-
20	-	-	24	28	30	32	38	40	44	48	50	-	-	-	-
25	-	-	-	-	55	59	70	73	81	88	92	103	110	117	128





Coupling	**GSM**	**020**

1 disc pack execution: GSM
2 disc packs + spacer execution: GSMC

Size

M_S	Screw tightening torque	Nm
T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
C_T	Torsional rigidity	Nm/rad
J	Moment of inertia	Kg · m²
W	Weight	kg

Selection in according to DIN 740.2

The coupling must be chosen so the applied working loads do not exceed the allowable values whatever the working conditions are.

1. Check the load with respect to the nominal torque
The nominal coupling torque must be greater than or equal to the nominal torque of the drive machine for all working temperatures.

$$T_{KN} \geq T_N \cdot S_\theta \cdot S_D$$

2. Check the load with respect to the torque peak values
The maximum coupling torque must be greater than or equal to the torque peaks that occur during operation for all working temperatures.

$$T_{KN} \geq T_S \cdot S_\theta \cdot S_D + T_N \cdot S_\theta$$

Motor-side peaks: $T_S = T_{AS} \cdot \frac{1}{m+1} \cdot S_Z$

Driven-side peaks: $T_S = T_{LS} \cdot \frac{m}{m+1} \cdot S_Z$

Or, in case of sporadic spikes: $T_{K\,max} \geq T_S \cdot S_\theta \cdot S_D + T_N \cdot S_\theta$

If the peak does not cover the nominal T_N, ontribution, the T_N S_θ factors can be disregarded.

Calculation coefficients

S_θ = Temperature factor

T (°C)	-30 °C / +90 °C
S_θ	1

S_D = Torsional rigidity factor

Tooling machines	Positioning system	Speed and angular acceleration indicator
1,5	2	2,5/4

Per macchine utensili - servomotori applicare 1,5 - 2.

Starting frequency factor

S/h	< 20	< 60	< 120	< 180	< 240	> 240
S_z	1	1,2	1,4	1,6	1,8	2

m = Mass factor = $\frac{J_A}{J_L}$

HEAVY-DUTY APPLICATIONS COUPLINGS

DRIVE SOLUTIONS

HEAVY-DUTY APPLICATIONS

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METALDRIVE® DISC COUPLINGS

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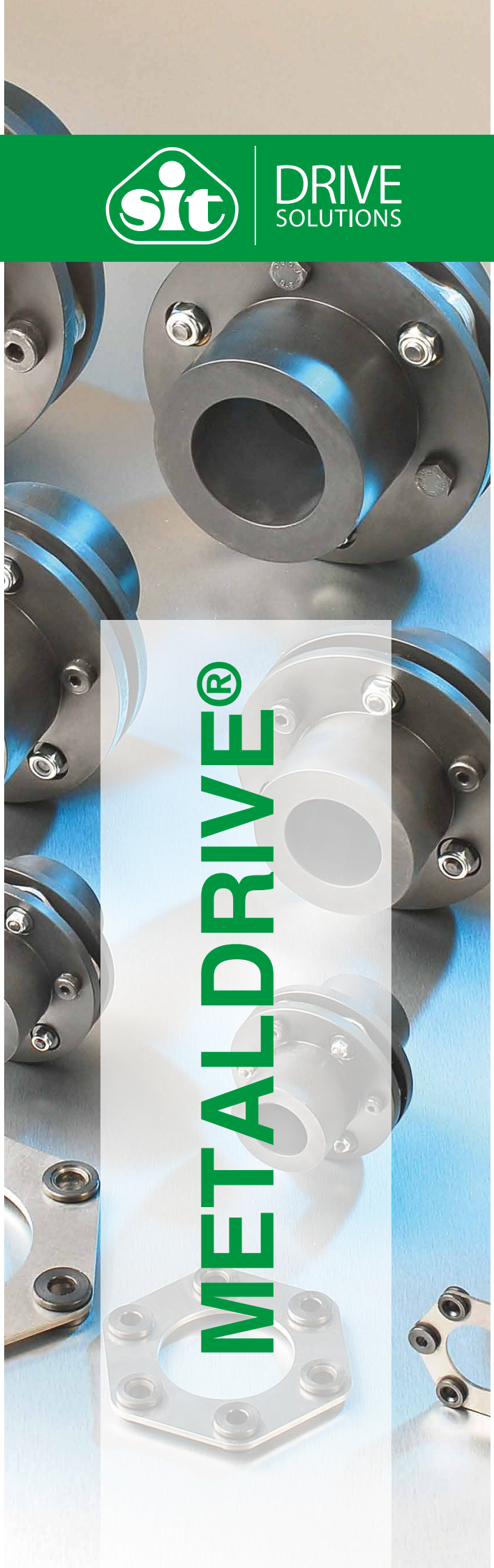
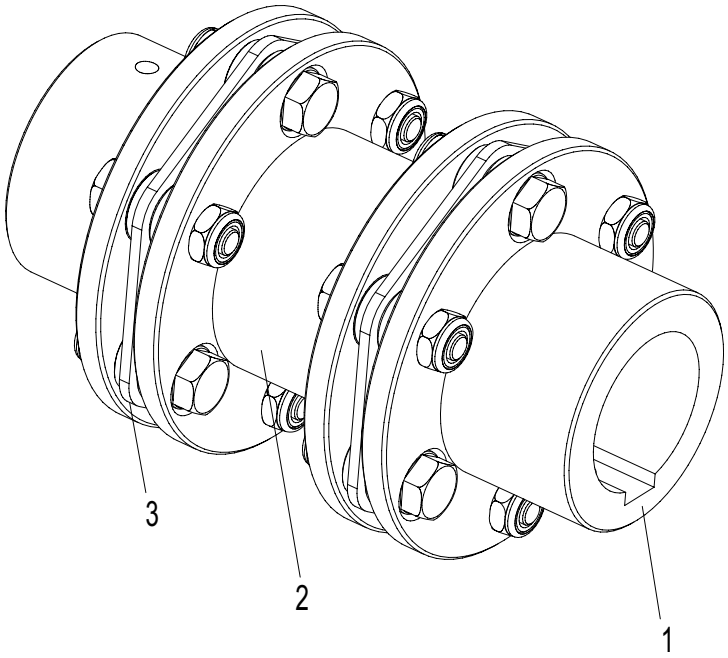


METALDRIVE® disc couplings

METALDRIVE® couplings are fully made of steel and are used in all applications where high reliability, precision, and no maintenance are required.

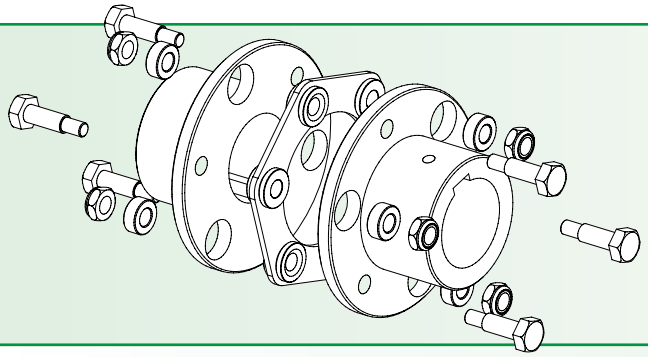


1) Hub
2) Spacer
3) Disc pack

Features

- All steel
- Superior disc pack profile and assembly optimized for higher torque and misalignment and lower restoring forces
- Maintenance, lubrication and wear free
- Backlash free and torsionally rigid
- Wide range of temperature allowed: -40 °C to +250 °C
- Easy installation
- Bi-directional
- Modular design
- Allow axial, angular, and radial misalignment (only with double disc pack)
- Available in stainless steel for corrosive environment application
- **Approved according to ATEX Directive 2014/34/EU.**
- **Note:** It is possible to have aligned keyways upon inquiry.

METALDRIVE® couplings executions

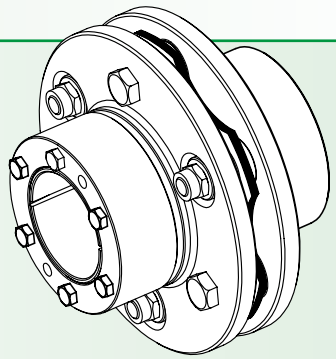


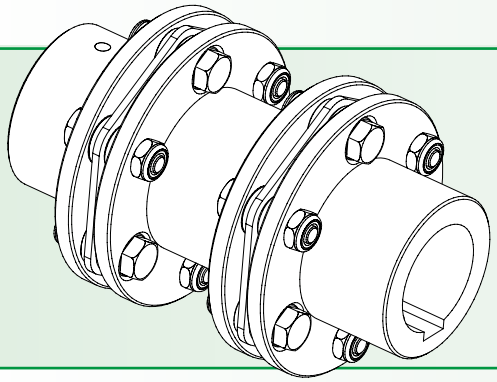
GMD type S

Standard version with single disc pack. The coupling allows axial and angular misalignment. No radial misalignment is allowed.

GMD type E-I

Standard version with shrink disc.



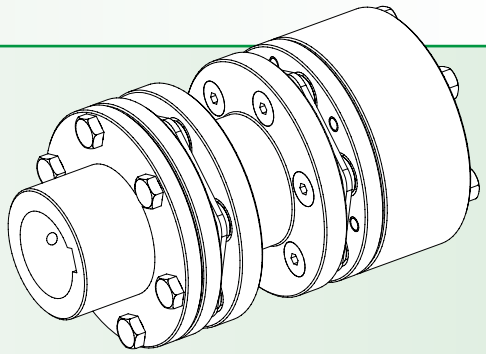


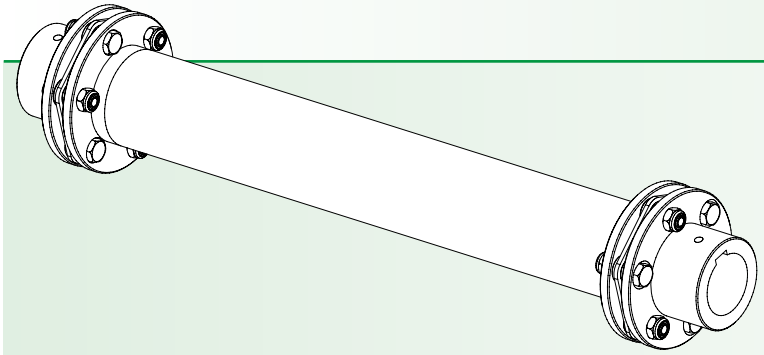
GMD type DC

Standard version with double disc pack and standard length spacer. Allows axial angular and radial misalignment.
It is possible to mount the hubs reverse (hub R) to obtain a compact drive.
It is not possible the radially mounting of the spacer.

GMD type DCA

Double disc pack execution and anti-fail device.
Standard spacer lengths for pump applications.
This execution is available in conformity to API 610 e API 671.



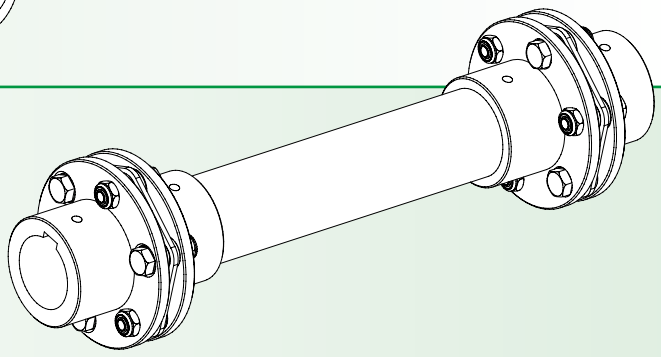


GMD type SA1

Tubular shaft version. Shaft is available in various lengths and can be delivered in welded aluminum or steel.
Available with carbon shaft.

GMD type SA2

Shaft version with solid shaft construction.
Variable shaft lengths are available.



Technical Features

Size	Torque [Nm]			Misalignment				Max rotation speed without balancing [rpm]	Torsional stiffness per disc pack [Nm/rad · 10^6] C_{TL}
	Nominal K_n [Nm]	Max T_{Kmax} [Nm]	Reverse T_{KW} [Nm]	Axial ΔK_a [mm] for disc pack	Angular [°] for disc pack	Radial Δk_r DC execution	Radial ΔK_r [mm] with spacer		
32-6	100	200	30	0,8	0,75	0,32	$\Delta K_r = (DBSE\text{-}P) \cdot tg\ \alpha$	11500	0,12
38-6	150	300	50	0,9	0,75	0,42		10000	0,16
45-6	300	600	100	1,2	0,75	0,53		8200	0,42
52-6	700	1400	230	1,4	0,75	0,74		6700	0,98
65-6	1100	2200	370	1,6	0,75	0,84		5700	1,85
80-6	1700	3400	570	1,8	0,75	0,92		5000	2,24
90-6	2600	5200	870	1,8	0,75	0,96		4500	3,6
95-6	4000	8000	1330	2	0,75	1,45		4100	9
110-6	7000	14000	2330	2,2	0,75	1,45		3600	11,90
120-6	9000	18000	3000	2,4	0,75	1,6		3100	14,20
138-6	12000	24000	4000	2,6	0,75	1,6		2900	15,60
155-8	25000	50000	8330	2,9	0,5	2,95		2600	37,80
175-8	35000	70000	11670	3,1	0,5	3,15		2400	51,60
190-8	50000	100000	16670	3,4	0,5	3,4		2200	64,40
205-8	65000	130000	21670	3,8	0,5	3,85		2000	69,50

The torsional rigidity of a coupling with spacer is calculated as follows: $C_T = \dfrac{1}{\dfrac{2}{C_{TL}} + \dfrac{P_1 - 2P}{C_{TS}}}$

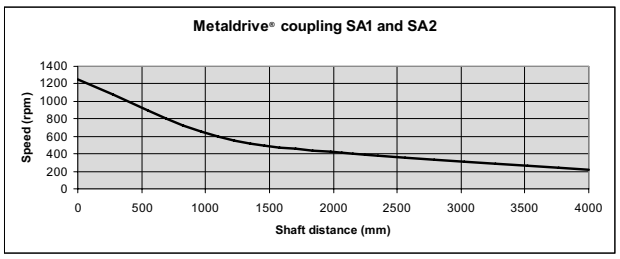
With C_{TS} = spacer torsional rigidity
Operating speed must be equal or less than permissible speed.

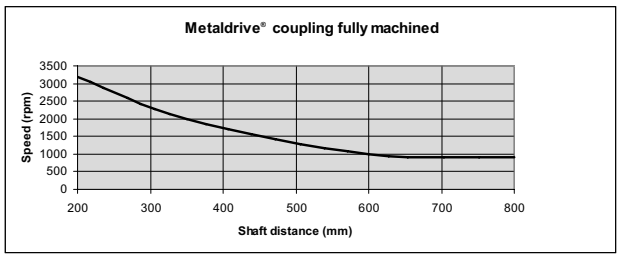
METALDRIVE® coupling balancing

All the components of the METALDRIVE® couplings are completely machined (spacer excluded) and balanced in class DIN ISO 1940-1 Q 6,3. Therefore, the balancing is unnecessary in most applications.
In cases where a higher degree of balancing is required, it is important to consider:

- Rotation speed and coupling diameter
- Rotation speed and intermediate shaft length
- Rotation speed and special balancing need of the machine

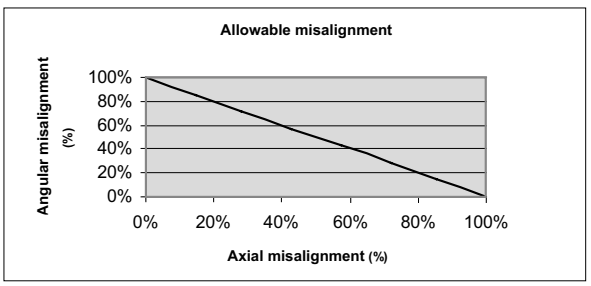
According to the requirement, METALDRIVE® coupling can be statically or dynamically balanced according to DIN ISO 1940-1.
As a standard, the balancing is made on the single coupling component. On specific request the assembled coupling can be balanced. Also as a standard the balancing is made before the key seat machining. The balancing after the key seat machining is made on specific request. Permissible speed could be limited by the weight and critical speed of spacers. Please consult our technical department.





Misalignment

METALDRIVE® couplings with double disc packs allow axial, angular, and radial misalignment.
METALDRIVE® couplings with a single disc pack allows only axial and angular misalignment.
Please note that application must not have the maximum value of axial and angular misalignment at the same time.

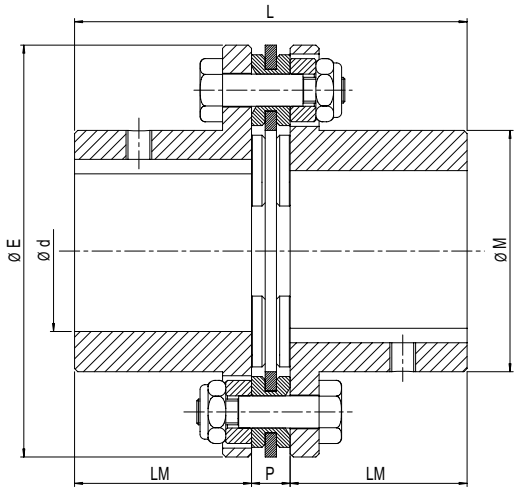


Working temperature

-40 °C +250 °C

METALDRIVE® GMD type “S”

Standard version with single disc pack. The coupling allows axial and angular misalignment. No radial misalignment is allowed.
Note: It is possible to have aligned keyways upon inquiry.



Size	Dimensions [mm]							Screws		
	Prebored* [mm]	d max	E	M	LM	P	L	no.	Type	Tightening torque Ms [Nm]
32	-	32	80	45	40	8	88	6	M5	8,5
38	-	38	92	53	45	8	98	6	M5	8,5
45	-	45	112	64	45	10	100	6	M6	14
52	-	52	136	75	55	12	122	6	M8	35
65	-	65	162	92	65	13	143	6	M10	69
80	29	80	182	112	80	14	174	6	M10	69
90	29	90	206	130	80	15	175	6	M12	120
95	29	95	226	135	90	22	202	6	M14	190
110	34	110	252	155	100	25	225	6	M16	295
120	37	120	296	170	110	32	252	6	M24	1000
138	47	138	318	195	140	32	312	6	M24	1000
155	60	155	352	218	150	32	332	8	M24	1000
175	60	175	386	252	175	37	387	8	M27	1500
190	70	190	426	272	190	37	417	8	M30	2000
205	70	205	456	292	205	42	452	8	M33	2450

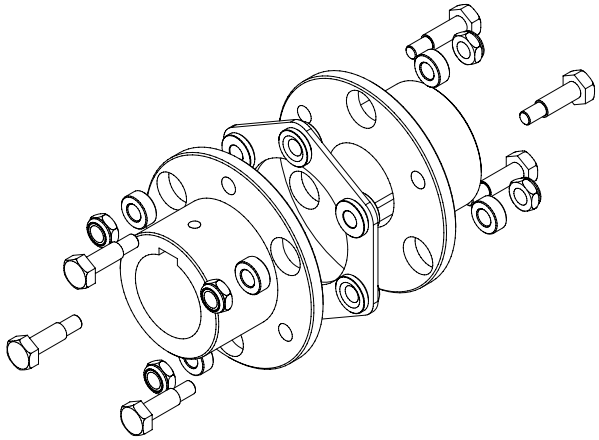
* = Prebore not in tolerances

Hub/disc pack **GMD 032 MF16**

GMD: METALDRIVE® hub

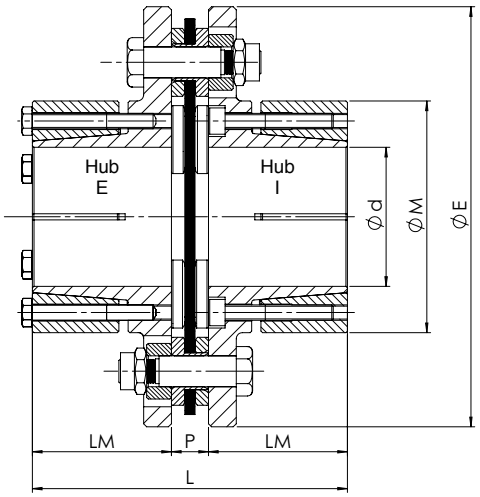
Size

M: solid standard hub
PL: disc pack
F…: bore diameter

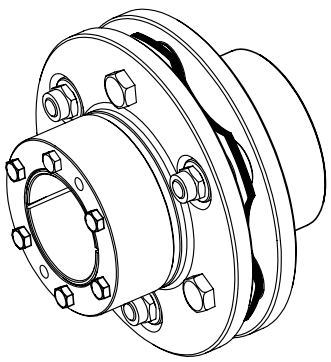


METALDRIVE® GMD type "E-I"

Standard version with shrink disc. **Note:** It is possible to have aligned keyways upon inquiry.

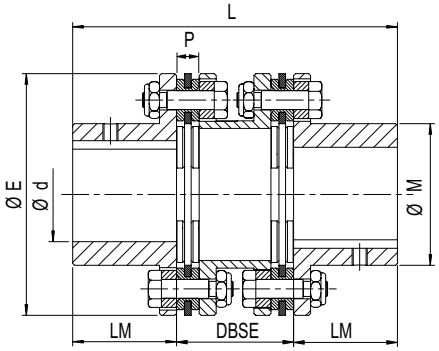


Size	Dimensions [mm]							Screws			Disc pack screws		
	F min	F max	E	M	LM	P	L	No.	Type	Tightening torque Ms [Nm]	No.	Type	Tightening torque Ms [Nm]
38	14	26	92	55	40	8	88	4	M5	6	6	M5	8,5
45	14	38	112	65	40	10	90	8	M5	6	6	M6	14
52	25	45	136	75	45	12	102	6	M5	8	6	M8	35
65	30	48	162	85	50	13	113	6	M6	8	6	M10	69
80	35	60	182	105	55	14	124	6	M8	35	6	M10	69
90	35	65	206	120	60	15	135	6	M8	35	6	M12	120

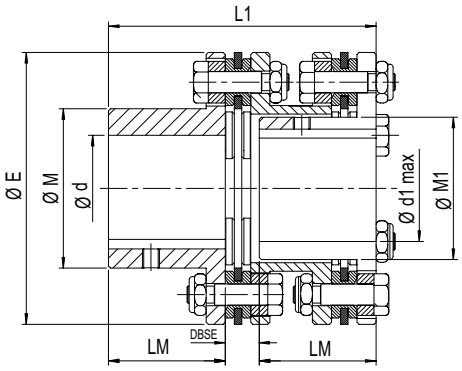


METALDRIVE® GMD type "DC"

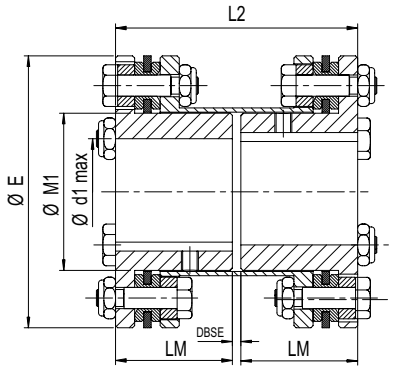
Standard version with double disc pack and spacer. **Note:** It is possible to have aligned keyways upon inquiry.



DC



DC 1MR

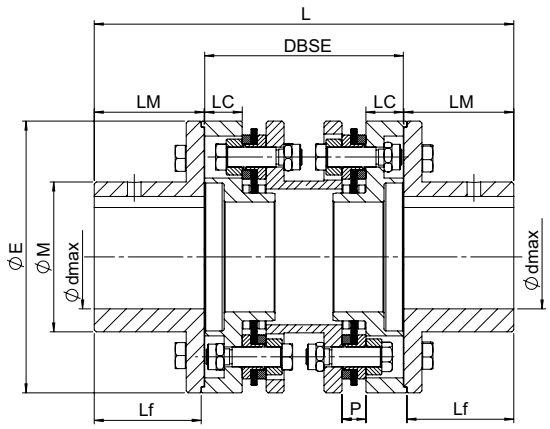


DC 2MR

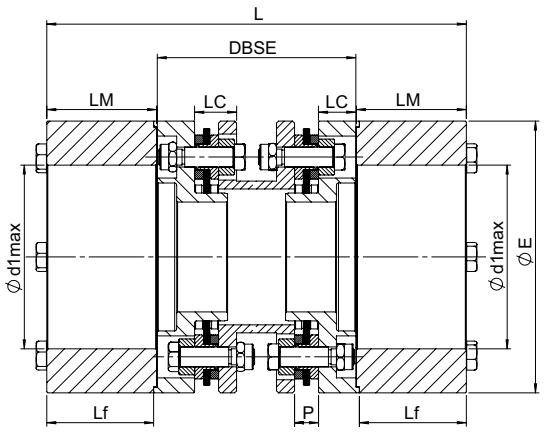
Size	Dimensions [mm]												
						DC				DC 1MR		DC 2MR	
	d max	E	M	LM	P	DBSE min.	L	M1	d1 max	DBSE min.	L1	DBSE min.	L2
32	32	80	45	40	8	45	DBSE + 80	35	25	12	DBSE + 80	3	DBSE + 80
38	38	92	53	45	8	50	DBSE + 90	43	30	12	DBSE + 90	3	DBSE + 90
45	45	112	64	45	10	52	DBSE + 90	54	38	14	DBSE + 90	3	DBSE + 90
52	52	136	75	55	12	62	DBSE + 110	63	45	16	DBSE + 110	3	DBSE + 110
65	65	162	92	65	13	73	DBSE + 130	73	52	17	DBSE + 130	4	DBSE + 130
80	80	182	112	80	14	86	DBSE + 160	85	60	18	DBSE + 160	4	DBSE + 160
90	90	206	130	80	15	87	DBSE + 160	101	72	19	DBSE + 160	6	DBSE + 160
95	95	226	135	90	22	103	DBSE + 180	102	75	26	DBSE + 180	6	DBSE + 180
110	110	252	155	100	25	114	DBSE + 200	126	90	29	DBSE + 200	6	DBSE + 200
120	120	296	170	110	32	135	DBSE + 220	132	95	41	DBSE + 220	6	DBSE + 220
138	138	318	195	140	32	157	DBSE + 280	154	110	37	DBSE + 280	8	DBSE + 280
155	155	352	218	150	32	163	DBSE + 300	180	130	35	DBSE + 300	8	DBSE + 300
175	175	386	252	175	37	191	DBSE + 350	210	150	43	DBSE + 350	10	DBSE + 350
190	190	426	272	190	37	203	DBSE + 380	230	170	43	DBSE + 380	10	DBSE + 380
205	205	456	292	205	42	220	DBSE + 410	235	175	48	DBSE + 410	12	DBSE + 410

METALDRIVE® GMD type “DCA” (API 671-API 610)

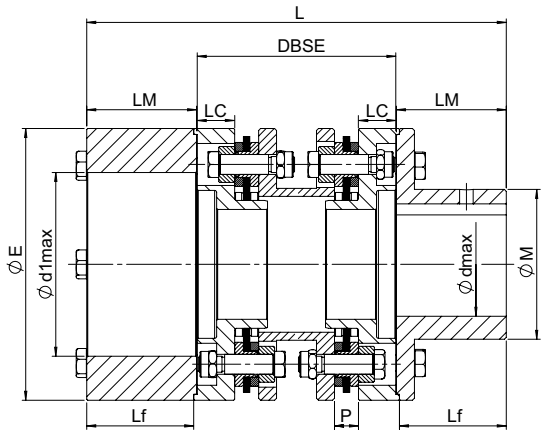
Standard version with double disc pack and standard length spacer. Double disc pack execution with anti-fail device. Various spacer lengths available for pump applications. Conforms to API 610 - API 671. Note: It is possible to have aligned keyways upon inquiry.



DCA2MP



DCA2MG



DCAMPMG

Size	Dimensions [mm]													
	d max.	d1 max.	E	M	Lf	LC	P	LM	DBSE					L
									min.	100	140	180	250	
32	35	48	80	50	38,5	17,5	8	40	80	X	X			DBSE + 80
38	42	55	92	60	43,5	20	8	45	90	X	X			DBSE + 90
45	52	75	112	74	43,5	19	10	45	90	X	X			DBSE + 90
52	65	92	136	90	53,5	19	12	55	100	X	X	X		DBSE + 110
65	80	105	162	112	63,5	23,5	13	65	120		X	X	X	DBSE + 130
80	95	120	182	132	78	27	14	80	140		X	X	X	DBSE + 160
90	105	135	206	145	78	26,5	15	80	140		X	X	X	DBSE + 160
95	118	-	226	165	88	28,5	22	90	160			X	X	DBSE + 180
110	125	-	252	175	98	33	25	100	180			X	X	DBSE + 200
120	140	-	296	198	108	42,5	32	110	220	ON REQUEST				DBSE + 220
138	155	-	318	217	137	51,5	32	140	260					DBSE + 280
155	180	-	352	245	147	58,5	32	150	280					DBSE + 300
175	190	-	386	270	172	59,5	37	175	310					DBSE + 350
190	205	-	426	290	186	68,5	37	190	340					DBSE + 380
205	230	-	456	325	201	75	42	205	370					DBSE + 410

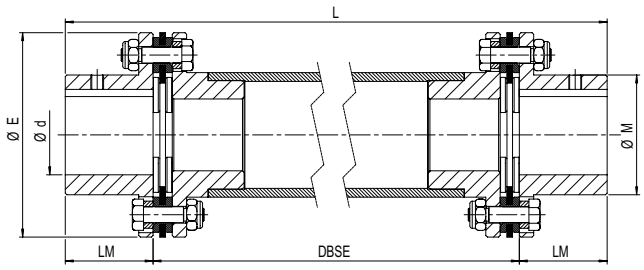
These DBSE sizes are more readily available. Other lengths to suit specific shaft separations are available on request.

METALDRIVE® GMD type “SA1” - “SA2”

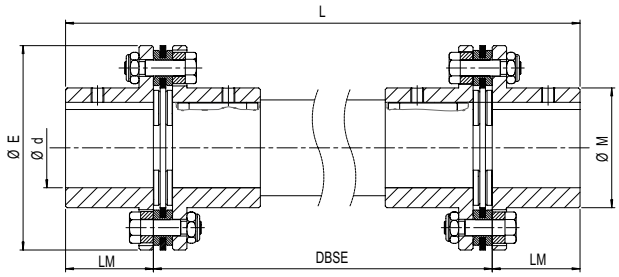
METALDRIVE® coupling with intermediate shaft is available in two versions:

SA1: Tubular Shaft version. Shaft is available in various lengths and can be delivered in welded aluminum, steel or carbon.
SA2: Solid shaft construction. Shaft is available in various lengths.

Note: It is possible to have aligned keyways upon inquiry.

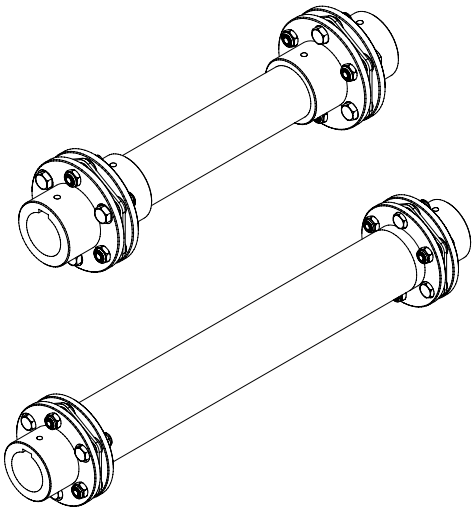


SA1



SA2

Size	Dimensions [mm]					
	d max	E	M	LM	DBSE	L
32	32	80	45	40	Shaft lengths on request	P+ 80
38	38	92	53	45		P+ 90
45	45	112	64	45		P+ 90
52	52	136	75	55		P+ 110
65	65	162	92	65		P+ 130
80	80	182	112	80		P+ 160
90	90	206	130	80		P+ 160
95	95	226	135	90		P+ 180
110	110	252	155	100		P+ 200
120	120	296	170	110		P+ 220
138	138	318	195	140		P+ 280
155	155	352	218	150		P+ 300
175	175	386	252	175		P+350
190	190	426	272	190		P+ 380
205	205	456	292	205		P+ 410



SA1

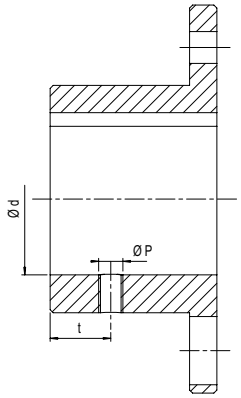
SA2

Coupling configurator

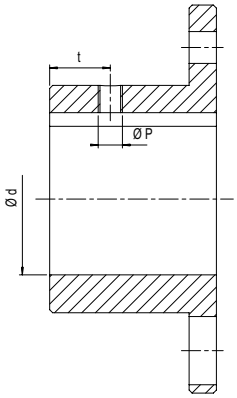
Coupling code	Item	Type	Execution	Bore diameter	Order example
GMDL032	*Hub 1*	GMD	S	F…	GMD032MF30
	(SA1 o SA2) type and distance between two side shaft Length P				SA1 P = 1200 mm
	Hub 2	GMD	S	F…	GMD032MF25

Hub-shaft connections

keyway hub



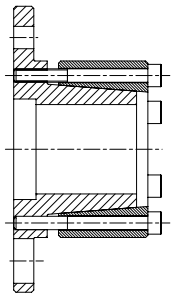
up to size 52



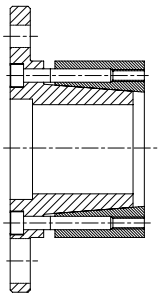
from size 65

Size	Prebored [mm]	d max [mm]	P	t [mm]	Setscrew tightening torque Ms [Nm]
32	-	32	M6	15	4,8
38	-	38	M6	15	4,8
45	-	45	M8	20	10
52	-	52	M8	20	10
65	-	65	M8	20	10
80	29	80	M10	20	17
90	29	90	M12	25	40
95	29	95	M12	30	40
110	34	110	M12	30	40
120	37	120	M12	30	40
138	47	138	ON REQUEST		
155	60	155			
175	60	175			
190	70	190			
205	70	205			

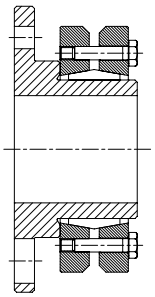
Shrink disc executions



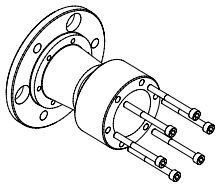
Shrink disc hub E

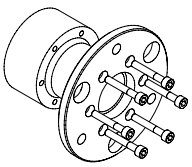


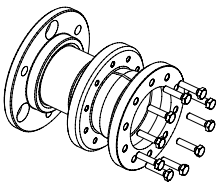
Shrink disc hub I



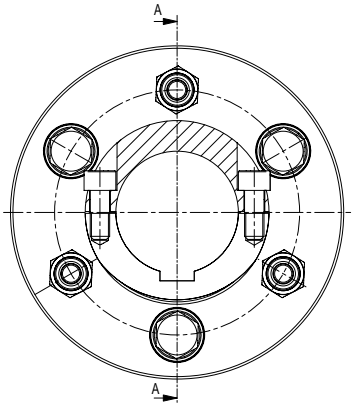
With SIT-LOCK® 11S

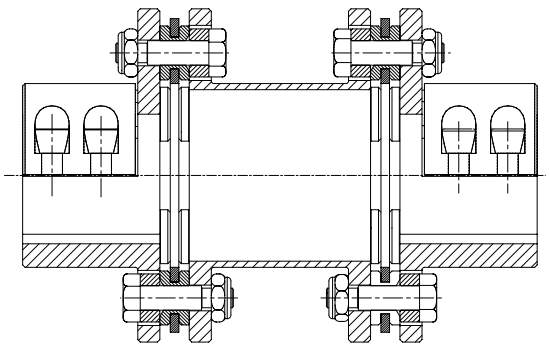


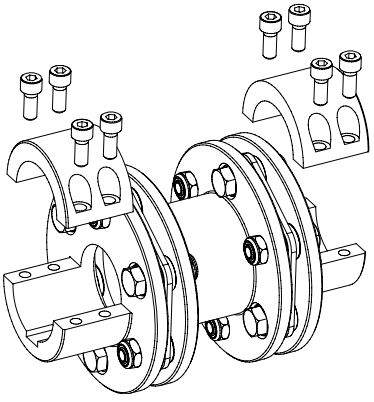




Split collar design







METALDRIVE® selection procedure

Definitions

T_{Kmax} = peak torque capacity for a maximum of 10^5 times [Nm]
T_{Kn} = torque transmissible by the coupling at the maximum rpm with the allowable misalignments [Nm]
T_{KW} = maximum torque variation allowable by the coupling from the nominal torque TKN with a frequency of 10 Hz [Nm]

Coupling selection

- Calculate the nominal torque to be transmitted:

$$T_N = \frac{9550 \cdot P}{n}$$

T_N = nominal torque of the machine [Nm]
P = input power (kW)
n = rpm (1/min)

- Verify coupling nominal torque T_{KN}:

$$\mathbf{T_{KN} \geq T_N \cdot k \cdot S_\theta \cdot S_D}$$

k = service factor

S_θ = Temperature coefficient

T (°C)	-40 °C / +150 °C	< 200	< 250
S_θ	1	1,1	1,3

S_D = Service factor

Unidirectional motion	1
Alternate motion	1,7

Starting frequency factor

S/h	< 10	< 25	< 50
S_z	1	1,2	1,4

- Verification of the maximum allowable torque from the coupling against peak machine torque and starting torque.

$$\mathbf{T_{Kmax} \geq (T_{S+} T_N) \cdot S_Z \cdot S_\theta \cdot S_D}$$

T_S = starting or peak torque [Nm]
T_N can be omitted if not present

- In the case of direct starts with AC motors, it is important to consider the inertias of the motor and the driven part.
In the case of torque reversing transmissions, the maximum torque variation T_W should not exceed the maximum torque value with reversing coupling T_{KW}.

$$\mathbf{T_{KW} \geq T_W \cdot S_\theta}$$

- Check working conditions. It is important that the maximum speed of the joint does not exceed the catalog values. Dynamic balancing allows higher speeds.
The maximum allowable speed of the joint may be affected by the weight and critical speed of the spacer. Our technical department should be consulted in such cases.

Service factor k and load classification

Compressor	
Piston compressors	H
Turbo compressors	M
Blowers, Ventilators	
Rotary piston blowers	M
Blowers (axial / radial)	U
Cooling tower fans	M
Turbo blowers	U
Pumps	
Centrifugal pumps (low viscosity liquid)	U
Centrifugal pumps (viscous liquid)	M
Piston pumps	H
Plunger pumps	H
Pressure pumps	H
Food industry machinery	
Bottling and container filling	U
Cane crushers, knives, mills	M
Bread machines	U
Packaging machines	U
Sugar beet machines	M
Chemical industry	
Agitators (liquid material)	U
Agitators (semi-liquid material	M
Centrifuges (heavy)	M
Centrifuges (light)	U
Drums	M
Mixers	M

Building machinery	
Concrete mixers	M
Hoists	M
Road construction machinery	M
Generators, transformers	
Frequency transformers	H
Generators	M
Welding generators	M
Cranes	
Hoisting	U
Slewing	M
Travelling	H
Laundry machines	
Tumblers	M
Washing machines	M
Wood working machines	
Barkers	H
Planning machines	M
Saw frames	H
Wood working machines	U
Marble, clay, and stone working machines	
Mills	H
Breakers	H
Brick presses	H
Ovens (rotary)	H

Metal rolling mills	
Cold rolling mills	H
Casting plants (continuous)	H
Heavy and medium plate mills	H
Manipulators	H
Roller tables (heavy)	M
Roller tables (light)	H
Sheet mills	H
Forging presses	H
Hammers	H
Machine tools, auxiliary drive	H
Machine tools, main drives	U
Metal planning machines	M
Plate straightening machine	H
Presses	M

Driver machine	Driver machine load class		
	U	**M**	**H**
Electric motor, turbine, hydraulic motor	1,1	1,5	2
Piston engines with more than 3 cylinders	1,5	1,7	2,3
Piston engines up to 3 cylinders	1,7	2	2,6

U = uniform load
M = medium frequency peak load
H = high frequency peak load

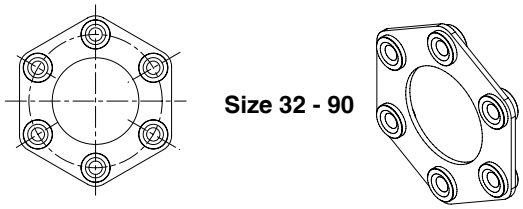
METALDRIVE® couplings weight and inertia

Size	Component									
	Hub with max bore				Spacer GMD type DC				Disc pack	
	Hub M		Hub M1		Hub P1		Hub P2			
	Weight [kg]	Moment of inertia [kg x m²]	Weight [kg]	Moment of inertia [kg x m²]	Weight [kg]	Moment of inertia [kg x m²]	Weight [kg]	Moment of inertia [kg x m²]	Weight [kg]	Moment of inertia [kg x m²]
32	0,38	0,000253	0,32	0,00021	0,52	0,00042	0,42	0,00038	0,078	0,000034
38	0,57	0,00049	0,5	0,0004	0,71	0,00081	0,58	0,0007	0,094	0,000109
45	0,86	0,0011	0,76	0,00092	0,97	0,0016	0,82	0,0015	0,183	0,00031
52	1,57	0,0029	1,22	0,0024	1,7	0,0044	1,5	0,0041	0,31	0,00076
65	2,5	0,0064	2,1	0,0055	2,4	0,009	2,1	0,0082	0,45	0,0015
80	4,3	0,0147	3,87	0,0126	4	0,02	3,4	0,018	0,56	0,0024
90	5,9	0,026	5,1	0,021	5,4	0,033	4,4	0,03	0,75	0,0042
95	7,2	0,037	6,4	0,032	6,8	0,05	5,8	0,045	1,7	0,012
110	10,3	0,068	9,2	0,057	10	0,09	8,3	0,08	2,4	0,022
120	14,4	0,125	13,1	0,11	13,7	0,17	11,8	0,16	4,9	0,058
138	22,6	0,232	18,9	0,19	21,3	0,3	17,4	0,27	5,4	0,078
155	29,86	0,38	24,73	0,3	32,1	0,54	25	0,46	6,1	0,113
175	46,3	0,73	37,7	0,55	46,9	0,97	35,7	0,81	9,3	0,215
190	59,9	1,14	47,7	0,88	59,9	1,53	47	1,32	11	0,3
205	74	1,63	57	1,21	85	2,36	64	1,98	15,3	0,48

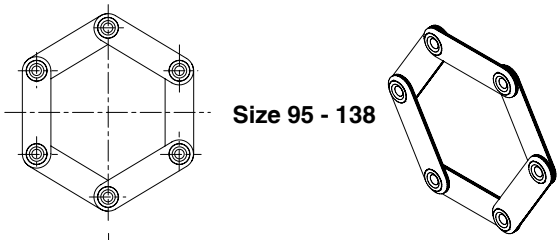
Size	Complete coupling											
	GMD type S hub with max bore		GMD type DCL hub with max bore		GMD type DCC hub with max bore		GMD type DC1MR hub with max bore		GMD type 2MR hub with max bore		GMD type DCC1MR hub with max bore	
	Weight [kg]	Moment of inertia [kg x m²]	Weight [kg]	Moment of inertia [kg x m²]	Weight [kg]	Moment of inertia [kg x m²]	Weight [kg]	Moment of inertia [kg x m²]	Weight [kg]	Moment of inertia [kg x m²]	Weight [kg]	Moment of inertia [kg x m²]
32	0,8	0,0005	1,4	0,001	1,3	0,001	1,3	0,001	1,2	0,001	1,2	0,001
38	1,2	0,0011	2	0,002	1,9	0,0019	1,9	0,0019	1,8	0,0018	1,8	0,0018
45	1,9	0,0025	3,1	0,0044	3	0,0043	3	0,0042	2,9	0,004	2,9	0,0041
52	3,5	0,0066	5,5	0,0117	5,3	0,0114	5,2	0,0112	4,9	0,0107	5	0,0109
65	5,5	0,0143	8,3	0,0248	8	0,024	7,9	0,0239	7,5	0,023	7,6	0,0231
80	9,2	0,0318	13,7	0,0542	13,1	0,0522	13,3	0,0521	12,9	0,05	12,7	0,0501
90	12,6	0,0562	18,7	0,0934	17,7	0,0904	17,9	0,0884	17,1	0,0834	16,9	0,0854
95	16,1	0,086	24,6	0,148	23,6	0,143	23,8	0,143	23	0,138	22,8	0,138
110	23	0,158	35,4	0,27	33,7	0,26	34,3	0,259	33,2	0,248	32,6	0,249
120	33,7	0,308	52,3	0,536	50,4	0,526	51	0,521	49,7	0,506	49,1	0,511
138	50,6	0,542	77,3	0,92	73,4	0,89	73,6	0,878	69,9	0,836	69,7	0,848
155	65,8	0,873	104	1,526	96,9	1,446	98,9	1,446	93,8	1,366	91,8	1,366
175	101,9	1,675	158,1	2,86	146,9	2,7	149,5	2,68	140,9	2,5	138,3	2,52
190	130,8	2,58	201,7	4,41	188,8	4,2	189,5	4,15	177,3	3,89	176,6	3,94
205	163,3	3,74	263,6	6,58	242,6	6,2	246,6	6,16	229,6	5,74	225,6	5,78

Note: Values for hubs refer to maximum bore execution. Values for disc packs include bolts.

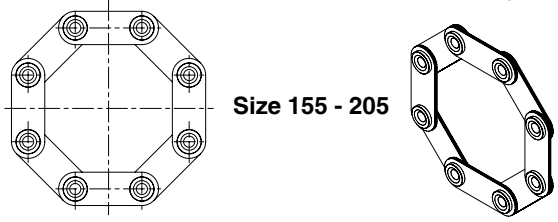
Disc pack executions



Size 32 - 90



Size 95 - 138



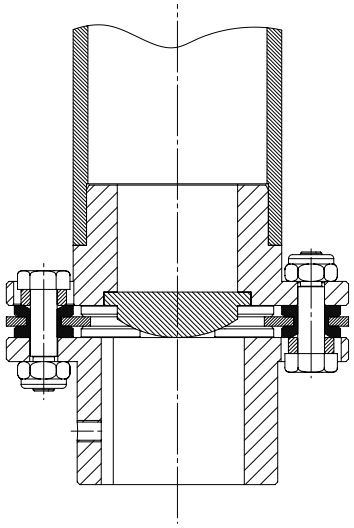
Size 155 - 205

Installation and maintenance

METALDRIVE® couplings come standard unassembled (unless ordered to be assembled).

When mounting the coupling, it is important to follow the specific recommendations.
Due to the modular design of the METALDRIVE® coupling, single parts can be replaced. For optimum performance all components must be in perfect conditions.

METALDRIVE® couplings are designed for horizontal mounting. In case of vertical mounting, the coupling weight must be supported.



Coupling METALDRIVE® con montaggio verticale

- Carefully clean bores, shaft ends and the flange where the screws are positioned.
- Position the hubs on the shafts of the machines. Hub faces must be flush with shaft end. Introduce setscrew and tighten properly.
- Position the driver and driven unit to be connected.
- Carefully align the shafts to be connected. Proper initial alignment allows misalignments during motion and ensures transmission durability. It is therefore suggested to check shaft alignments with an indicator before the machine start up (SIT LINE-LASER®).
- Mount the disc pack with screws and nuts. Tighten to torque M_S holding the screws and turning the nuts.
- Install the spacer between the hubs and connect it to the already assembled disc pack with screws and nuts (in case of long spacer, it is important to support the spacer). Tighten to torque M_S holding the screws still and turning the nuts
- Check shaft alignment again.

In case hubs are machined by the user, it is recommended to ask for correct concentricity and perpendicularity tolerances which could affect coupling life.

There is no need for lubrication.

Safety norms

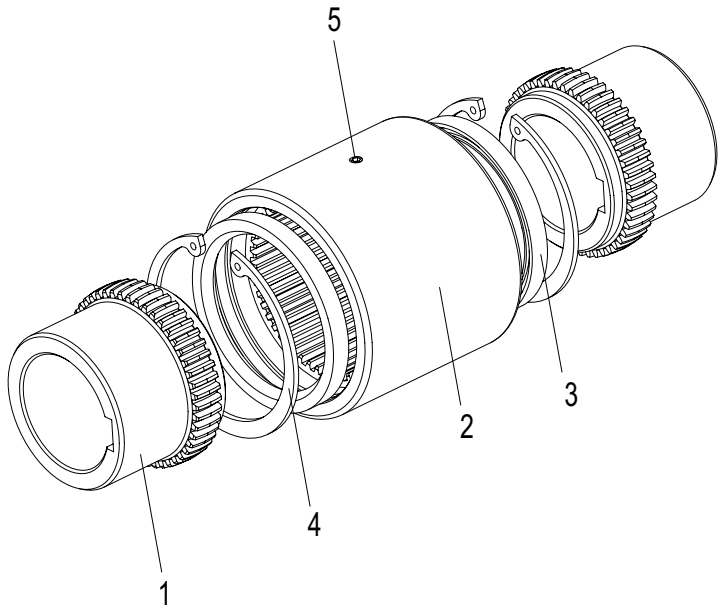
All rotating parts must be protected against any possibility of contact with people.
Protection must be designed so that even in case of coupling failure, personnel and equipment is protected.

SITEX® ST COUPLINGS

DRIVE SOLUTIONS

SITEX® ST couplings

SITEX® ST couplings are fully manufactured in high quality steel. They are made of 1 or 2 geared hubs which are coupled with one sleeve through which the torque is transmitted.
The special **OPTIGEAR** profile allows very high torque transmission and the compensation of axial, angular and radial misalignment (only in the version with 2 hubs). The maximum recommended working temperature is -10 °C to + 80 °C.
For special applications special materials should be used. Please contact our technical department for information.



1) Hub
2) Sleeve
3) Seal
4) Snap ring
5) Grease nipple

Features
With the special design of the **OPTIGEAR** crown, the contact surface area under misalignment is larger than conventional crown. Therefore, the surface stresses are reduced resulting in a longer coupling life. Therefore, backlash is reduced to a minimum, reducing impact load in reverse application, and allow optimum torque transmission and low vibration. All this results in an improved machine design.

OPTIGEAR profile
SITEX® ST couplings are machined with the unique **OPTIGEAR** profile, that allows backlash reduced to a minimum reducing impact load in reverse applications and allow optimum torque transmission and low vibration. The machine design is then optimized by using the most compact solution in coupling.

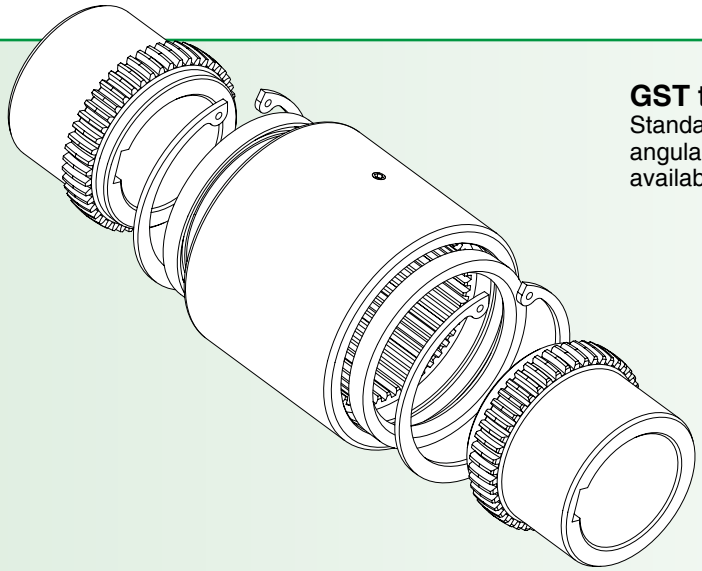
Interchangeability
The range GST CF “A-B-C” conforms to **AGMA** specification in flange dimensions, type and positions of the screws. They are, therefore, interchangeable with any other AGMA coupling half.
The most compact solution
Due to the exceptional torque transmission capability, SITEX® ST couplings are the most compact solution in weight and dimensions for a safe torque transmission.

Special executions
Special executions are available for any application need. Accurate finite element analysis can be made for special high demanding applications.

Corrosion protection
SITEX® ST couplings are protected against corrosion with a special surface treatment. Mounting and dismounting are, therefore, guaranteed even after many years of use in difficult environment conditions.

Note: It is possible to have aligned keyways upon inquiry.

SITEX® ST executions

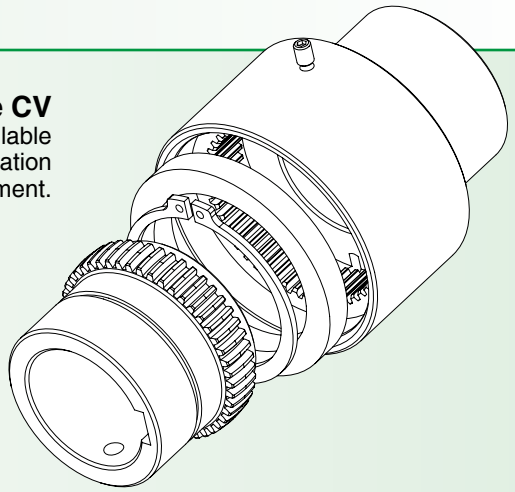


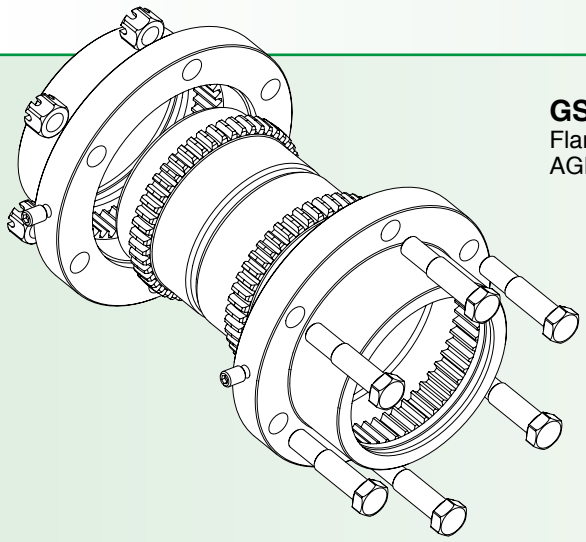
GST type C

Standard type with 2 hubs and one sleeve. Allows for axial, angular, and radial misalignment. Long hub version also available. Offers compact, powerful design, and easy assembly.

GST type CV

Standard type made of a single hub and one sleeve. It is also available in long hub execution. Offers an economical solution to an application without radial misalignment.



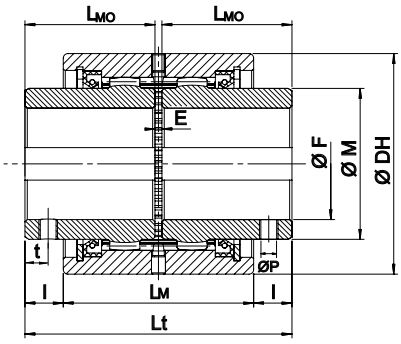


GST type CF

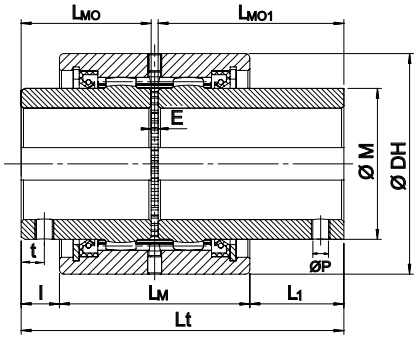
Flanged type made of 2 semi couplings. Flanges dimensions are according to AGMA standards (type A-B-C). They will fit any AGMA standard half.

SITEX® ST type “C”

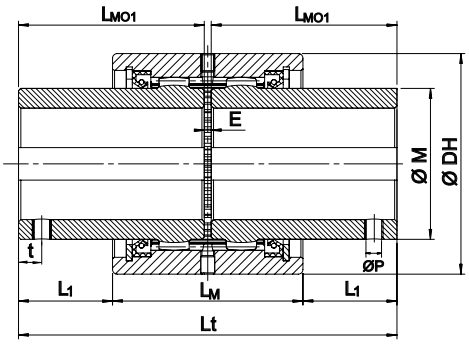
Standard type with 2 hubs and one sleeve. Allows for axial, angular and radial misalignment. Long hub version is also available. Offers compact, powerful design, and easy assembly. Maximum bore in the table is valid for keyway seat DIN 6885/1.
Note: It is possible to have aligned keyways upon inquiry.



Type 1



Type 2



Type 3

Size	Dimensions [mm]												Technical data							
	DH	E	F_{max}	M	L_M	l	L_{mo}	L_1	L_{MO1}	L_t			Torque [Nm]		n_{max} [rpm]	ΔKa [mm]	ΔKr [mm]	ΔKw* [°]	Coupling**	
										Type 1	Type 2	Type 3	T_{KN}	T_{Kmax}					Moment of inertia x10^{-4} kg · m^2	W [kg]
28	70	3	28	40	61	12	41	31	60	85	104	123	600	1200	7700	-/+ 1	0,13	0,13	9,8	1,4
38	85	3	38	55	65	17,5	48,5	49	80	100	131,5	163	850	1700	5800	-/+ 1	0,13	0,13	22,7	2,2
48	95	3	48	65	82	16,5	56	40,5	80	115	139	163	1300	2600	5100	-/+ 1	0,22	0,22	43	3,1
62	120	4	62	85	90	25	68	57	100	140	172	204	2200	4400	4000	-/+ 1	0,22	0,22	124	5,7
82	145	4	82	110	96	28,5	74,5	73,5	119,5	153	198	243	3800	7600	3200	-/+ 1	0,24	0,24	285	8,8
98	175	5	98	130	113	28,5	82,5	86,0	140	170	227,5	285	7000	14000	2750	-/+ 1	0,39	0,39	693	14,6
110	198	6	110	150	130	43	105	112,5	174,5	216	285,5	355	10000	20000	2300	-/+ 1	0,48	0,48	1327	23,3
133	230	8	133	180	175	56,5	140	124	207,5	288	355,5	423	15000	30000	2000	-/+ 1	0,79	0,79	3260	39,7
155	270	10	155	210	214	58	160	123	225	330	395	460	24000	48000	1650	-/+ 1	1,05	1,05	7606	66,5
170	300	10	170	230	240	65	180	130	245	370	435	500	34000	68000	1550	-/+ 1	1,31	1,31	13235	94

* = maximum static misalignment for a correct mounting
** = considering maximum bore

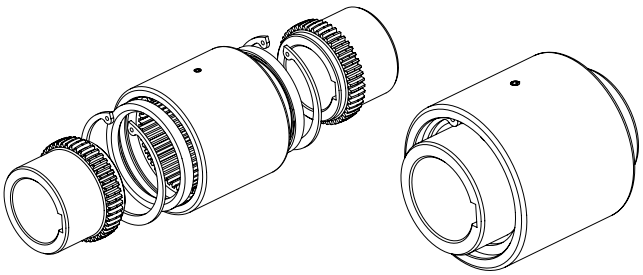
Setscrews type

Bore size [mm]	Ø P [mm]	t [mm]
up to 38	M8	14
> 38 - 44	M10	14
> 44 - 50	M12	14
> 50 - 55	M14	14
over 55	M16	14

Note: set screw position 90° from the keyway.

Hub **GST 082 M F40**

SITEX® ST coupling
Size
M: Standard hub - ML: Long hub
Bore diameter [mm]



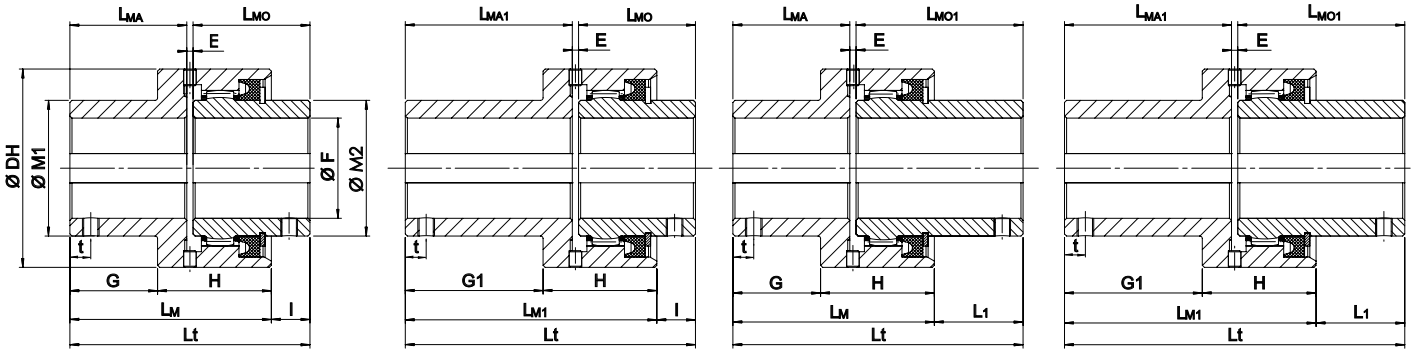
Manicotto **GST 082 AD**

Coupling SITEX® ST C
Size
AD: standard sleeve

T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
n_{max}	Maximum rpm	rpm
ΔK_a	Maximum axial misalignment	m
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°
W	Weight	Kg

SITEX® ST type "CV"

Standard type made of a single hub and one sleeve. It is also available in long hub execution. Offers an economical solution in applications without radial misalignment.
Nota: è possibile avere le cave in fase su richiesta.



Size	Dimensions [mm]															Torque [Nm]		Technical data					
	DH	E	F_{max}	H	M1	M2	I	L_{MO}	L_1	L_{MO1}	G	L_{MA}	G1	L_{MA1}	t	T_{KN}	T_{Kmax}	n_{max} [rpm]	ΔKa [mm]	ΔKr [mm]	ΔKw* [°]	Coupling** Moment of inertia x10^{-4} kg · m^2	Coupling** W [kg]
28	70	3	28	43	42	40	13	41	32	60	29	41	48	60	14	600	1200	7700	-/+ 5	0,13	1°	7,1	1,1
38	85	3	38	49	55	55	16	48,5	47,5	80	35	48,5	66,5	80	14	850	1700	5800	-/+ 5	0,13	1°	17,9	1,9
48	95	3	48	54,5	65	65	18,5	56	42,5	80	42	56	66	80	14	1300	2600	5100	-/+ 5	0,22	1°	31,5	2,5
62	120	4	62	60	85	85	27	68	59	100	45	60	85	100	14	2200	4400	4000	-/+ 5	0,22	1°	95	4,7
82	145	4	82	63	110	110	31	74,5	76	119,5	46	61,5	104	119,5	14	3800	7600	3200	-/+ 5	0,24	1°	212	6,9
98	175	5	98	76	130	130	26	82,5	83,5	140	51	65,5	123,5	138	14	7000	14000	2750	-/+ 5	0,39	1°	511	11,2
110	198	6	110	92	150	150	38	105	107,5	174,5	71	90	143	162	14	10000	20000	2300	-/+ 5	0,48	1°	1080	19

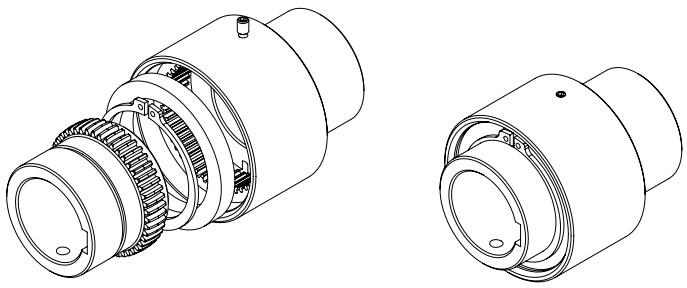
* = maximum static misalignment for a correct mounting
** = considering maximum bore

Hub **GSTV 082 M F40**

SITEX® ST coupling
Size
M: Standard hub - ML: Long hub
Bore diameter [mm]

Hub **GSTV 082 AD F40**

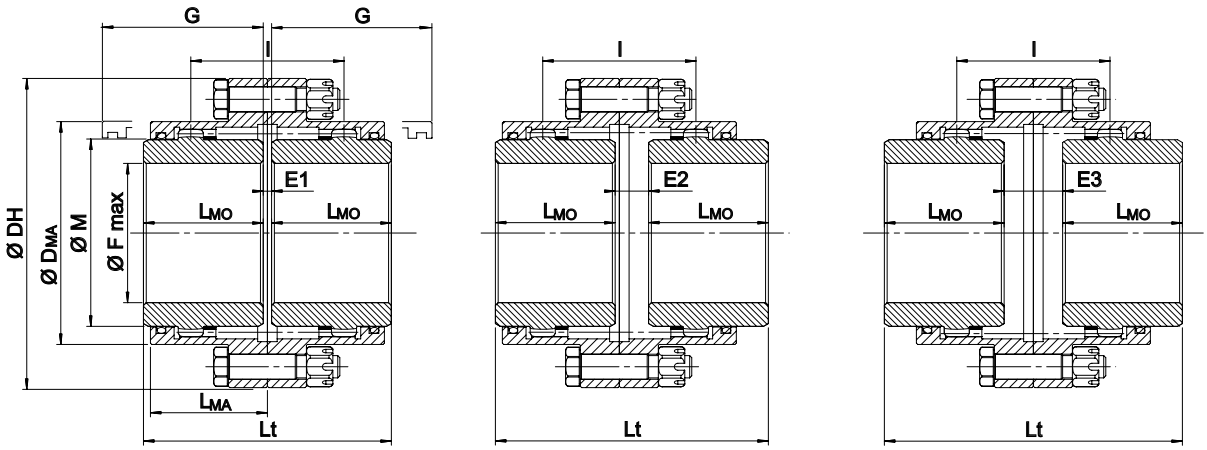
SITEX® ST CV coupling
Size
AD: std hub-sleeve
ADL: long hub-sleeve
Bore diameter [mm]



T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
n_{max}	Maximum rpm	rpm
ΔK_a	Maximum axial misalignment	m
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°
W	Weight	Kg

SITEX® ST type "CF" A-B-C (AGMA)

STCF A-B-C range conforms to AGMA specifications with regard to flange dimensions, type, and positions of the screws. They are interchangeable with any AGMA coupling half. **Note:** It is possible to have aligned keyways upon inquiry.



Type A **Type B** **Type C**

Size	Dimensions [mm]										Type A			Type B			Type C			Technical data						Type A**	
	F_{max}	DH	D_{MA}	M	L_{MO}	L_{MA}	G*	No. Screw	Screw type	M_s [Nm]	I	L_t	E_1	L	L_t	E_2	I	L_t	E_3	Torque [Nm] T_{KN}	Torque [Nm] T_{Kmax}	n_{max} [rpm]	ΔKa [mm]	ΔKr [mm]	ΔKw* [°]	Moment of inertia x10^{-4} kg · m^2	W [kg]
48	48	117	83	65	43	42	74	6	M5	8,5	55	89	3	55	98	12	55	107	21	1300	2600	5100	-/+ 1	2 x 0,5°	0,48	53	3,1
62	62	152	107	85	50	48	84	8	M8	35	59	103	3	59	109	9	59	115	15	2200	4400	4000	-/+ 1	2 x 0,5°	0,51	193	6,6
82	82	178	129,5	110	62	59	104	6	M10	69	79	127	3	79	141	17	79	155	31	3800	7600	3200	-/+ 1	2 x 0,5°	0,69	423	10,6
98	98	213	156	130	76	69	123	6	M12	120	93	157	5	93	169	17	93	181	29	7000	14000	2750	-/+ 1	2 x 0,5°	0,81	1009	17,5
110	110	240	181	150	90	82	148	8	M12	120	109	185	5	109	199	19	109	213	33	10000	20000	2300	-/+ 1	2 x 0,5°	0,95	1822	25,3
133	133	280	211	180	105	98	172	8	M16	295	128	216	6	128	233	23	128	250	40	15000	30000	2000	-/+ 1	2 x 0,5°	1,12	4257	42,5
155	155	318	249,5	210	120	107	192	8	M16	295	144	246	6	144	264	24	144	282	42	24000	48000	1650	-/+ 1	2 x 0,5°	1,26	7920	61,4
170	170	347	274	230	135	120	216	10	M16	295	164	278	8	164	299	29	164	320	50	34000	68000	1550	-/+ 1	2 x 0,5°	1,43	11132	75,6

* = required space to align the coupling or replace the sealing ring
** = considering maximum bore
Maximum static misalignment for a correct mounting ΔKw = 2 x 1°
Floating shaft designs and special executions are available upon request

Hubs (2 pcs for coupling) **GST F 082 M F40**

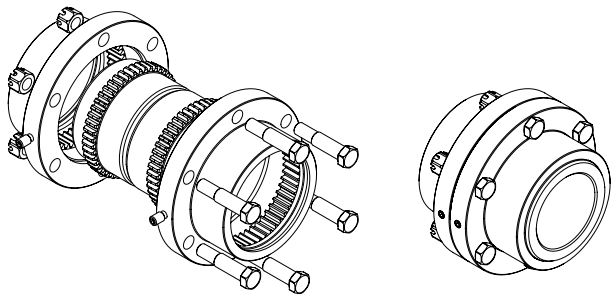
- SITEX® ST coupling
- CF execution
- Size
- Hub
- Bore diameter [mm]

Flanges (2 pcs for coupling) **GST F 082 AD**

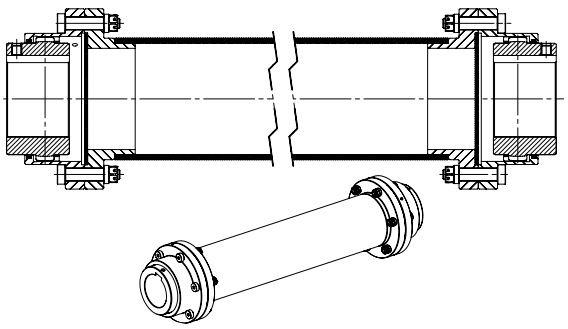
- SITEX® ST oupling
- CF execution
- Size
- Flange

Set of screw (1 kit for coupling) **GST F 082 KIT**

- SITEX® ST coupling
- CF execution
- Size
- Set of screws



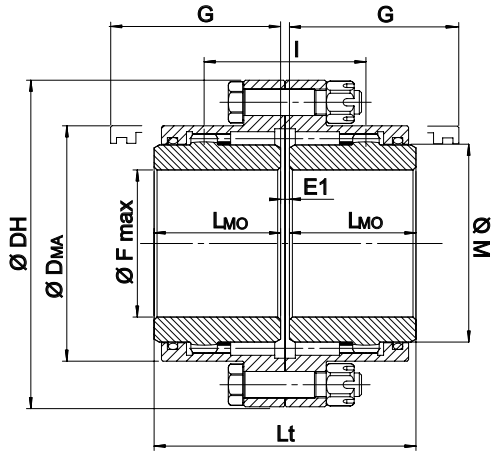
Special execution with intermediate shaft



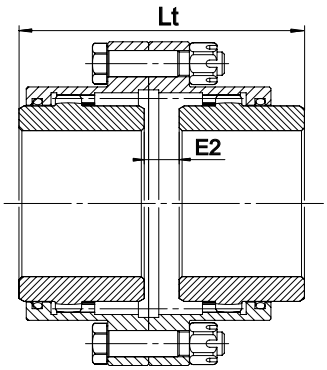
M_s	Screw tightening torque	Nm
T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
n_{max}	Maximum rpm	rpm
ΔK_a	Maximum axial misalignment	m
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°
W	Weight	Kg

SITEX® ST type "CF" D-E-F

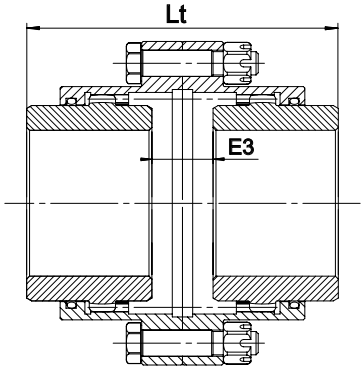
Double-cardanic crowned gear coupling. Allows for axial, angular, and radial shaft misalignment.
Note: It is possible to have aligned keyways upon inquiry.



Type D



Type E

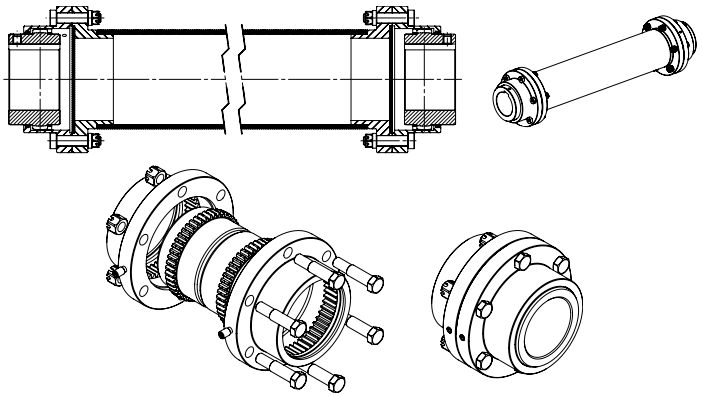


Type F

Size	Dimensions [mm]																Technical data							
	F_{min}	F_{max}	DH	D_{MA}	M	L_{MO}	G*	No. Screw	Screw type	M_s [Nm]	Type D		Type E		Type F		Torque [Nm]		n_{max} [rpm]	ΔKa [mm]	ΔKr [mm]	ΔKw* [°]	** Moment of inertia x10^{-4} kg · m^2	**W [kg]
											L_t	E_1	L_t	E_2	L_t	E_3	T_{KN}	T_{Kmax}						
50	12	50	111	82,5	69	43	58	6	M8	26	89	3	91	5	93	7	1800	4200	6000	-/+ 1	0,25	2 x 0,5°	50	4
60	18	60	142	104,5	85	50	68	8	M10	52	103	3	108	8	113	13	2700	6400	4620	-/+ 1	0,25	2 x 0,5°	120	8
75	28	75	168	130,5	107	62	87	10	M10	52	127	3	138	14	149	25	5500	13000	4140	-/+ 1	0,25	2 x 0,5°	320	13
95	40	95	200	158,5	133	76	95	10	M12	91	157	5	164	12	171	19	8600	21000	4000	-/+ 1	0,25	2 x 0,5°	850	26
110	50	110	225	183,5	152	90	120	12	M12	91	185	5	204	24	223	43	13500	34000	3860	-/+ 1	0,50	2 x 0,5°	1620	37
130	60	130	265	211,5	178	105	130	12	M16	215	216	6	237	27	258	48	22200	54000	3720	-/+ 1	0,50	2 x 0,5°	3760	59
155	70	155	300	245,5	209	120	135	14	M16	215	246	6	272	32	298	58	34200	83000	3190	-/+ 1	0,50	2 x 0,5°	7280	91
170	85	170	330	275	234	135	155	14	M16	215	278	8	307	37	336	66	43500	101000	2900	-/+ 1	0,50	2 x 0,5°	12260	123
190	95	190	370	307	254	150	195	14	M18	310	308	8	350	50	392	92	69200	156000	2570	-/+ 1	0,50	2 x 0,5°	20990	170
210	110	210	406	335	279	175	220	14	M22	575	358	8	403	53	448	98	82500	196000	2330	-/+ 1	0,90	2 x 0,5°	34010	234
230	120	230	438	367	305	190	236	14	M22	575	388	8	438	58	488	108	150500	349000	2150	-/+ 1	0,90	2 x 0,5°	50520	295
280	130	280	505	423	355	220	273	16	M24	735	450	10	512	72	574	134	198200	480000	1800	-/+ 1	0,90	2 x 0,5°	103200	455
325	150	325	580	475	400	250	Please, contact our Technical Department.				512	12	-	-	-	-	275000	551000	1200	-/+ 1	1,00	2 x 0,5°	206000	685
370	170	370	630	520	450	275					562	12	-	-	-	-	381000	762000	980	-/+ 1	1,00	2 x 0,5°	335000	920
400	190	400	700	556	490	305					622	12	-	-	-	-	492000	984000	900	-/+ 1	1,00	2 x 0,5°	533000	1210
430	210	430	760	615	550	330					672	12	-	-	-	-	658000	1315000	800	-/+ 1	1,00	2 x 0,5°	835000	1590
475	240	475	825	680	580	355					722	12	-	-	-	-	835000	1669000	700	-/+ 1	1,00	2 x 0,5°	128400	2060

* = required space to align the coupling or replace the sealing ring
** = considering hub without bore
Maximum static misalignment for a correct mounting ΔKw = 2 x 1°
Seal flange sizes from 325 to 475

Special execution with intermediate shaft



Coupling	GST	FD	75	F40	L	F50
SITEX® ST coupling						
CF execution type D						
Size						
F...: hub bore 1 end execution [mm]						
L: long hub						
F...: hub bore 2 end execution [mm]						

M_s	Screw tightening torque	Nm
T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
n_{max}	Maximum rpm	rpm
ΔK_a	Maximum axial misalignment	m
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°
W	Weight	Kg

Technical data for SITEX® ST coupling selection

1) Select the coupling according to the largest shaft diameter
2) Calculate the nominal torque T_N to be transmitted:

$$T_N = \frac{9550 \cdot P}{n} \quad [Nm]$$

With P = nominal power installed (kW), n = rpm in the drive (1/min)

3) Select the correct service factors k_1 and k_2
4) Verify the nominal torque of the coupling is greater than the corrected machine nominal torque:

$$T_{KN} \geq T_N \cdot \frac{k_1}{k_2} \cdot S_\theta \cdot S_D$$

With k_1 application service factor and k_2 angular misalignment (for hub) service factor

S_θ = Coefficiente di temperatura

T (°C)	-10 °C / +80 °C
S_θ	1

S_D = Fattore di servizio

Moto unidirezionale	1
Moto alternato	1,7

Coefficiente di frequenza degli avviamenti

S/h	< 10	< 25	< 50
S_z	1	1,2	1,4

5) Verify that the starting torque is less than the maximum torque transmissible by the coupling

$$T_{Kmax} \geq (T_S + T_N) \cdot S_Z \cdot S_\theta \cdot S_D$$

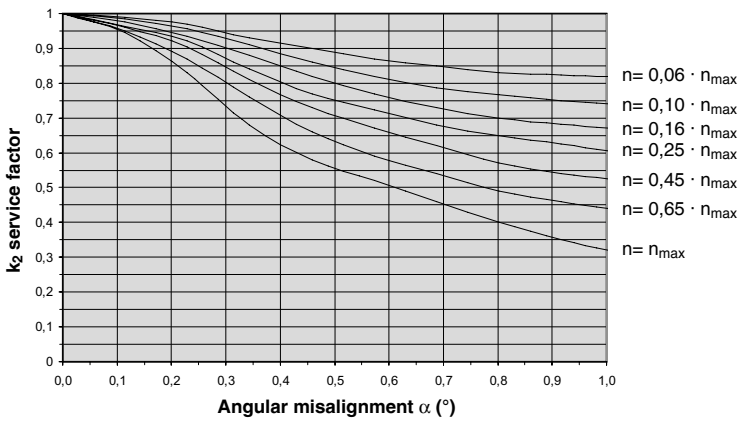
T_S torque spike or peak [N · m]
T_N can be omitted if absent

6) Verify the maximum misalignments are respected.
7) Verify the hub shaft connection could bear the transmission peak torque. If necessary change the hub shaft connection type.
8) Verify the maximum rpm of the coupling is respected.

Application service factor k_1

LOAD TYPE	TYPE OF SERVICE	APPLICATION DRIVEN MACHINE	DRIVER MACHINE		
			Electric motors or turbines	Hydraulic motors, gears drivers	Reciprocating engine Electric motors frequent starts
LIGHT peak torque	Continuous duty with light overloads and shocks for a short time and not frequent	Multistage centrifugal blowers, Steel wire machine Reciprocating pumps, Large fansAgitators (liquids) Machine tools main drive Conveyor and elevators not uniform loaded	1,4	1,75	2
MEDIUM peak torque	Intermittent duty with frequent light shocks, medium overloads (short time)	Reciprocating compressors and pumps Cranes, Agitators (solids) Hoisting equipment, Calenders for rubber or plastic Winding machine (paper industry)	1,75	2	2,5
HEAVY peak torque	Duty with very high and frequent shocks, frequent load reversal	Laundry machines, Mixers for rubber and plastic Road and rail machines/equipment, Cranes (heavy duty) Pulp grinders and refiners, paper presses Marine drives, mine fans, Wire drawing, Metal mills drives Heavy duty drives in steel mills, Hammer mills, rubber and plastic mills Stone crushers	2	2,5	3

k_2 service factor for angular misalignment



Installation and maintenance

Good alignment of the shafts help to reduce reaction forces on shafts and bearing and is important for the coupling life.
In case the hubs are machined by the user in order to adapt them to the machine, it is user responsibility:
- to control all parameters regarding balancing, bore concentricity and any other parameter which may affect coupling life and a safe transmission, are respected.
- to verify the hub length and corresponding keyway seat are compatible with the necessary toque transmission considering the peak loads. Maximum bore diameters allowed in hubs as described in dimensional tables.
- to verify the hub material is adequate for the clamping system.

During compensation of misalignments, axial forces are generated. These forces must be considered when sizing machine bearing. For a calculation, please consult our technical office. It is also recommended that hubs are axially secured in order to avoid axial forces on the seals which may cause lubricant leakage and, therefore, shorter coupling life. It is recommended to secure the set screw with Loctite, use an end plate, or interference fit.

Warning
Gear couplings are rotating parts and potentially dangerous. It is recommended to protect the rotating parts and comply with existing safety regulations in order to keep personnel and equipment safe.

Mounting
SITEX® ST couplings must stored in a non-corrosive environment prior to installation.
In case of environment with high humidity it is the user's, responsibility to protect the couplings, or to ask for a special surface treatment.
Prior to starting the mounting operation, it is recommended to:

- verify there are no missing or damaged components
- have the necessary mounting instructions and tools required for mounting and shaft alignment.
- make sure the machine is shut down and there is no risk of accidental start up
- be careful in handling the coupling components. Particular care should be taken with the geared crown

1) Check all components to be assembled are clean.
2) Position one snap ring and one seal on every shaft.
3 Position the hubs on the respective shafts. If necessary in order to facilitate the mounting operation, it is possible to heat the hubs (max. 120 °C). In such cases avoid contact between hub and seal until room temperature is reached. For a safe mounting hub must be positioned flush with the shaft. Mount the set screws and tighten properly. In order to avoid accidental screws loosening due to vibration, use some Loctite glue.
4) Mount the sleeve on the longer shaft.
5) Position the units to be connected respecting the dimension "E" between the shafts.
6) Align the 2 shafts being careful that the catalogue values are respected. It is possible to use the SIT LINE-LASER® to facilitate the operation.
7) Couplings are delivered without lubricant. Lightly grease the geared parts of hubs and sleeve. Lightly lubricate the seal and position them on the respective hubs.
8) Position the sleeve on the hubs. Insert the seals and the snap rings on the proper groove.
9) Remove the grease nipple and properly fill the chamber with grease. For the CF type, repeat the operation on the second half coupling. Position the grease nipple and tighten properly. Inspect and maintain.

It is recommended to make a regular inspection which may detect abnormal noise, vibration, or leakage.
Every 5.000 hours, or once a year, remove grease nipples, position the coupling with one nipple at 45° with respect to the rotation axis, force grease from the bottom hole until clean grease flows. Reinsert the nipples and tighten properly.
Every 10.000 hours or every 2 years, remove snap rings and seals, clean and inspect seals and geared parts, verify alignments and mount the coupling. Low viscosity oil may be used to clean the coupling from used grease.

Recommended lubricants
Coupling lubrication is important for a long coupling duration.

1. Standard speed and load

Agip GR MV/EP 1
Amoco coupling grease
API: API grease PGX-0
Caltex Coupling Grease
Castrol Impervia MDX
Chevron Polyurea grease EP0
Esso Fibrax 370
Fina Marson EPL 1
Kübler Klüberplex GE 11-680
IP: ATHESIA-EPO
Mobil Mobilux EP0, Mobilgrease XTC
Q8 Rembrandt EP0
Shell Gadus S2 V220
Texaco Coupling Grease
Total Specis EPG
Tribol 3020/1000-1
Unirex RS 460, Pen-0- Led EP

2. High speed (> 50 m/s), high loads

Caltex Coupling Grease
Klüber Klüberplex GE 11-680
Mobil Mobilgrease XTC
Shell Albida GC1

SAFEMAX® TORQUE LIMITERS

DRIVE SOLUTIONS

SAFEMAX® torque limiters “GLS/SG/N”

In industrial applications, the increase of automation in the manufacturing processes is becoming a strict requirement; performances are constantly improving and the increase of precision utilizing servo systems results in the increase of higher speeds.
Moreover, in order to improve the production capacity it is also important the increase of stiffness of the systems thus the increase of the resistance to global dynamic loads.
The torque overload generated by human error, mechanical malfunction or other causes is, however, unpredictable and if not intercepted can damage to the machine and, consequently, cause downtimes which can be long and, therefore, expensive.
SAFEMAX® torque limiters prevent these problems from happening through instant disengagement of the motor side from the driven side in case of torque overload, thus eliminating the risk of expensive downtimes. In addition, our torque limiters, being torsionally rigid and backlash free, allow a rapid and accurate resumption of machine operations once the cause of the overload has been eliminated.
Note: It is possible to have aligned keyways upon inquiry.

Features

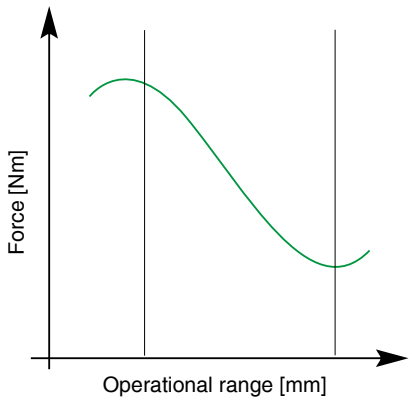
- Backlash-free torque transmission
- Low moment of inertia
- Compact design
- Maintenance-free
- Disengagement within 1-3 milliseconds
- Easy and safe adjustment of the torque
- Re-engagement to 360° or in phase

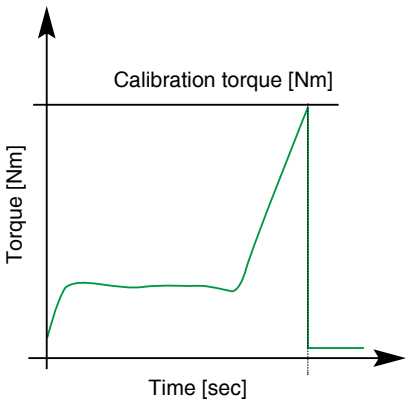
Applications

- Machine tools
- Packaging machines
- Printing machines
- Textile Machinery
- Industrial Robots
- Cartoning machines
- Woodworking machines
- Automatic equipment

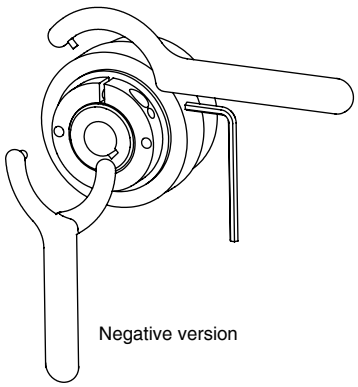
SIT torque limiters are available with regressive springs. When an overload occurs, there is an immediate disengagement of the torque limiter within a few milliseconds, saving the machine from possible damage. When the overload ends, the torque limiter re-engages after 360° or in optional preset phases.

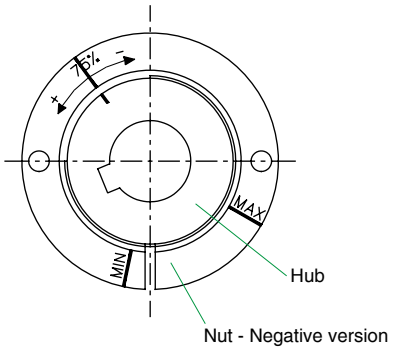
Graph of spring characteristic curve



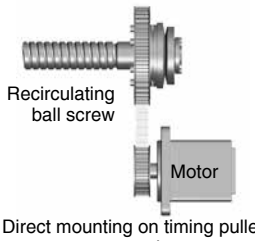
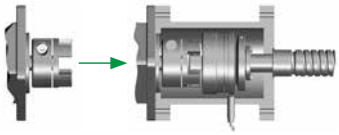
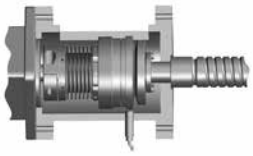
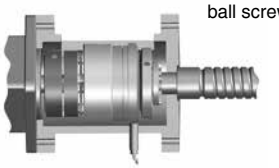


It is possible to govern the torque by the adjusting nut. Unless specifically requested, SIT limiters are designed to operate at 75% of the maximum transmissible torque. In order to allow different settings, there are reference markings on nut and hub. Moreover, there are the markings of the minimum and maximum torque of the limiter and an indication of the direction of rotation of the nut to increase and decrease the torque of disengagement. Turning the nut clockwise the disengagement torque decreases, turning anticlockwise it increases.

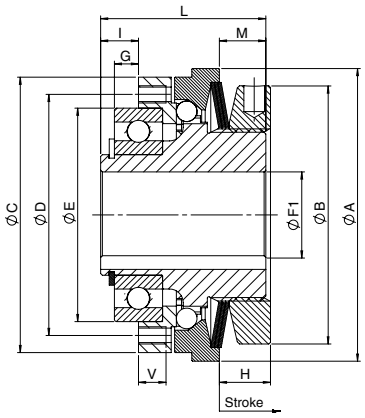




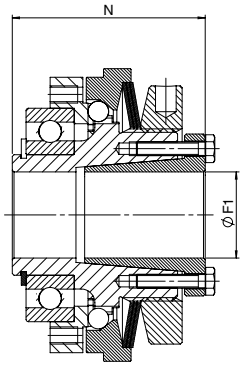
Characteristics

Design	Description	Characteristics	Assembly example
SAFEMAX® - Torque limiters 	For direct mounting on timing pulley or power transmission component. Available designs: • With locking device shaft connection • With bore and keyway shaft connection On request also available in stainless steel.	Transmittable torque range: from 0,7 to 720 Nm Sizes: from 12 to 50	 Direct mounting on timing pulley or sprocket
SAFEMAX® - Torque limiters with TRASCO® ES coupling 	For connection of two shafts in combination with TRASCO® ES zero backlash coupling. Compensates for axial, radial and angular misalignment and absorb vibrations. Available designs: • Bore and keyway both sides • Locking device + clamping hub • Locking device + shrink disc On request also available in stainless steel.	Transmittable torque range: from 0,7 to 720 Nm Sizes: from 12 to 50	Motor Recirculating ball screw  Mounting with TRASCO® ES coupling with clamping hub
SAFEMAX® - Torque limiters with SERVOPLUS® coupling 	For connection of two shafts in combination with SERVOPLUS® torsionally rigid bellows coupling. Compensates for axial, radial and angular misalignment. Available designs: • Bore and keyway + clamping hub • Locking device + clamping hub On request also available in stainless steel.	Transmittable torque range: from 0,7 to 200 Nm Sizes: from 12 to 35	Motor Recirculating ball screw  Mounting with SERVOPLUS® GSP coupling with clamping hub
SAFEMAX® - Torque limiters with SERVOMATE® coupling 	For connection of two shafts in combination with SERVOMATE® torsionally rigid coupling. Available designs: • Bore and keyway + clamping hub • Locking device + clamping hub On request also available in stainless steel.	Transmittable torque range: from 0,7 to 200 Nm Sizes: from 15 to 25	Motor Recirculating ball screw  Mounting with SERVOMATE® GSM coupling with clamping hub

SAFEMAX® - Torque limiters "GLS/SG/N"



Bore and keyway execution



Locking device execution

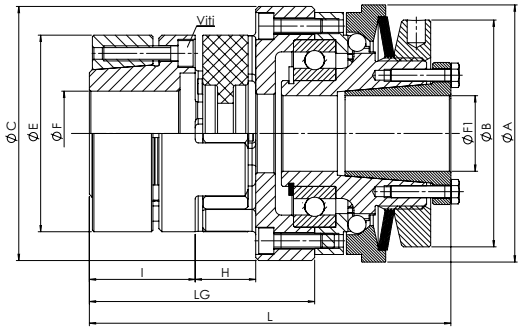
Torque limiter size	Dimensions											
	F1 max [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	I [mm]	L [mm]	M [mm]	N [mm]	V [mm]
12	12	44	38	40	35	30	2	4,5	24	7	28,5	5
17	17	50	42	47	42	37	2	5	29	8,5	34,5	5
20	20	70	62	65	56	47	4	8	40	12	47	6
25	25	85	75	80	71	62	7	11	48	13,5	56	7
35	35*	100	82	95	85	75	9	14	59	16	67	9
42	42	115	97	110	100	90	8	16	64	17	73	10
50	50	135	117	130	116	100	6,5	18	75	20,5	86	11

*F1 : maximum diameter for finished bore with reduced keyway according to UNI 7510. Bore tolerance H7.

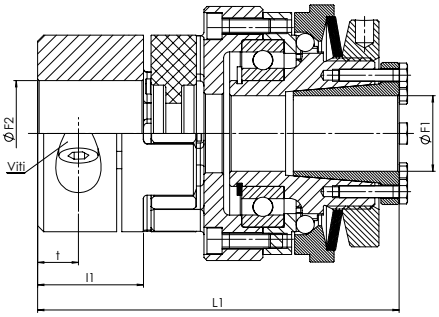
	Size			12	17	20	25	35	42	50
Torque limiter	Limit torques for overload		[Nm]	0,8 - 7	3 - 23	5 - 50	9 - 100	20 - 200	35 - 415	75 - 720
	Maximum speed		[rpm]	4000	4000	4000	3000	2500	2000	1200
	Thrust washer stroke on overload		[mm]	0,8	1,0	1,1	1,3	1,5	2,0	2,2
Moments of inertia	Nut side	Bore and keyway	[x10^{-6} · kgm^2]	20	40	270	680	1510	2620	6330
		Locking device	[x10^{-6} · kgm^2]	20	40	280	710	1580	2820	6820
	Pressure flange side		[x10^{-6} · kgm^2]	9	15	80	290	680	1290	3150
Weight	Bore and keyway		[kg]	0,200	0,400	0,900	1,500	2,800	3,700	6,700
	Locking device		[kg]	0,200	0,400	0,900	1,600	3,000	4,100	7,300
Screws	Nut side	N° and type	-	6 x M3	6 x M3	8 x M4	8 x M5	8 x M6	8 x M6	8 x M8
		Torque	[Nm]	1,5	1,5	3,0	5,0	7,5	7,5	14,0
Springs	Torque transmissible according to the set of springs [Nm]	1N	)	0,8 - 2,5	3 - 7,5	5 - 14	9 - 28	20 - 45	35 - 100	75 - 190
		2N	))	2,4 - 4,5	5 - 15	12 - 28	18 - 60	42 - 95	75 - 200	140 - 345
		3N	)))	3,5 - 7	8,5 - 23	24 - 50	40 - 100	-	-	-
		4N	))))	-	-	-	-	85 - 200	195 - 415	245 - 720

Note:
G: installation tolerance + 0,1.
The weights refer to the torque limiter with pilot bore.
Inertias refer to the torque limiter with maximum bore.

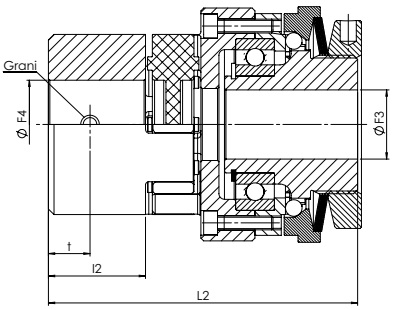
SAFEMAX® - Torque limiters “GLS/SG/N” with TRASCO® ES



Locking device execution / GESA



Locking device execution / GESM

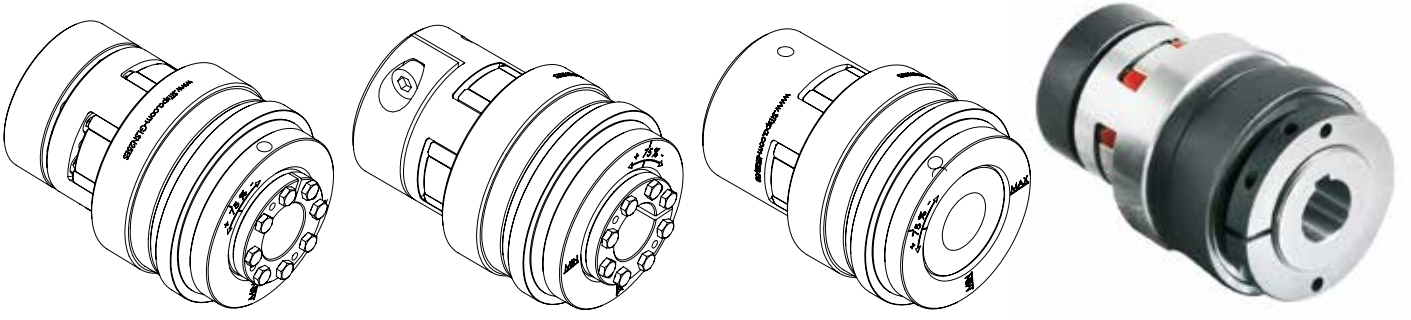


Bore and keyway execution / GESF

Torque limiter size	TRASCO® ES size	Dimensions															
		Fmax [mm]	F1 max [mm]	F2 max [mm]	F3 max [mm]	F4 max [mm]	A [mm]	B [mm]	C [mm]	E [mm]	H [mm]	I [mm]	I1 - I2 [mm]	Lg [mm]	L [mm]	L1 [mm]	L2 [mm]
12	14	14	12	15	12	15	44	38	44	30	13	18,5	11	42	66	58,5	54
17	19/24	20	17	20	17	24	50	42	52	40	16	25	25	53	82,5	82,5	77
20	24/28	28	20	28	20	28	70	62	68	55	18	30	30	63	102	102	95
25	28/38	38	25	35	25	38	85	75	84	65	20	35	35	74,5	119,5	119,5	111,5
35	38/45	45	35*	45	35*	45	100	82	100	80	24	45	45	93	146	146	138
42	42	50	42	50	42	55	115	97	115	95	26	50	50	100	157	157	148
50	48	50	50	55	50	60	135	117	138	105	28	56	56	110,5	178,5	178,5	167,5

*= foro finito diametro massimo con cava ribassata secondo UNI 7510.
F, F1, F2, F3, F4: tolleranza foro H7.

Torque limiter	Size		12	17	20	25	35	42	50
	Limit torques for overload	[Nm]	0,8 - 7,5	3 - 23	5 - 50	9 - 100	20 - 200	35 - 415	75 - 720
	Maximum speed	[rpm]	4000	4000	4000	3000	2500	2000	1200
	Thrust washer stroke on overload	[mm]	0,8	1	1,1	1,3	1,5	2	2,2



	Size			14	19/24	24/28	28/38	38/45	42	48
TRASCO® ES coupling	Nominal torque	92 Sh A	[Nm]	7,5	10	35	95	190	265	310
		98 Sh A		12,5	17	60	160	325	450	525
		64 Sh D		16	21	75	200	405	560	655
	Maximum torque	92 Sh A		15	20	70	190	380	530	620
		98 Sh A		25	34	120	320	650	900	1050
		64 Sh D		32	42	150	400	810	1120	1310
	Maximum axial misalignment	92 Sh A	[mm]	1,0	1,2	1,4	1,5	1,8	2,0	2,1
		98 Sh A		1,0	1,2	1,4	1,5	1,8	2,0	2,1
		64 Sh D		1,0	1,2	1,4	1,5	1,8	2,0	2,1
	Maximum radial misalignment	92 Sh A		0,15	0,10	0,14	0,15	0,17	0,19	0,23
		98 Sh A		0,09	0,06	0,10	0,11	0,12	0,14	0,16
		64 Sh D		0,06	0,04	0,07	0,08	0,09	0,10	0,11
	Maximum angular misalignment	92 Sh A	[°]	1,0	1,0	1,0	1,0	1,0	1,0	1,0
		98 Sh A		0,9	0,9	0,9	0,9	0,9	0,9	0,9
		64 Sh D		0,8	0,8	0,8	0,8	0,8	0,8	0,8

				14	19/24	24/28	28/38	38/45	42	48
Moments of inertia	Pressure flange side	Bore and keyway	[x10^{-6} · kgm^2]	20	40	270	680	1510	2620	6330
		Locking device		20	40	280	710	1580	2820	6820
	Hub side	GESF - Bore and keyway		23	61	228	763	1747	6303	13434
		GESM - Clamping hub		23	59	252	727	1812	7152	14808
		GESA - Shrink disc		27	71	312	878	2306	7207	14848

	Combinations			Total weight						
	Torque limiters	**Coupling**								
Weight	Bore and keyway	GESF	[kg]	0,269	0,543	1,190	2,028	3,715	7,061	11,453
	Clamping device	GESM		0,267	0,548	1,214	2,115	3,900	7,561	12,433
	Clamping device	GESA		0,298	0,597	1,338	2,325	4,410	7,761	12,613

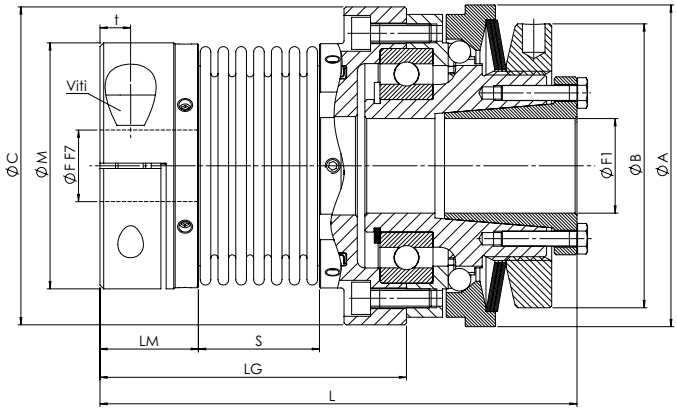
Screws	Clamping device torque limiter	N° and type	-	6 x M3	6 x M3	8 x M4	8 x M5	8 x M6	8 x M6
		Tightening torque	[Nm]	1,5	1,5	3,0	5,0	7,5	7,5
	GESF - Set screw	Type	-	M4	M5	M5	M6	M8	M8
		Tightening torque	[Nm]	1,5	2,0	2,0	4,0	10,0	10,0
	GESM - Clamping screw	Type	-	M3	M6	M6	M8	M8	M10
		Tightening torque	[Nm]	1,3	11,0	11,0	25,0	25,0	70,0
	GESA - Shrink disc screws	N° and type (12.9)	-	4 x M3	6 x M4	4 x M5	8 x M5	8 x M6	4 x M8
		Tightening torque	[Nm]	1,3	2,9	6,0	6,0	10,0	35,0

TRASCO® ES Coupling Shrink Disc Transmissible Torque

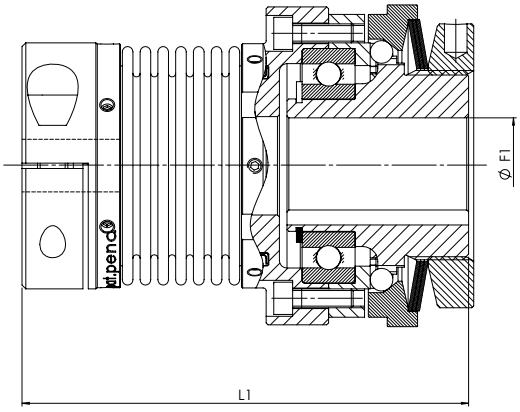
Type		Transmissible torque [Nm] related to shaft diameter [mm]																							
Torque limiter	Coupling	**10**	**11**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**22**	**24**	**25**	**28**	**30**	**32**	**35**	**38**	**40**	**42**	**45**	**48**	**50**	**55**	**60**
12	**19/24**	48	53	67	72	77	81	86	91	96															
17	**24/28**				77	82	88	93	98	103	113	124	129	144											
20	**28/38**							186	196	206	227	247	258	289	309	330	361	392							
25	**38/45**									291	320	349	364	408	437	466	510	553	582	612	655	699			
35	**42**													345	584	623	681	740	779	818	876	934	973	1071	
50	**48**																681	740	779	818	876	934	973	1071	1168

Notes:
The data are related to application with red AES spider 98 Sh A. The weights refer only to applications with coupling with pilot bore. Inertias refer to applications with couplings with maximum bore.

SAFEMAX® - Torque limiters “GLS/SG/N” with SERVOPLUS®



Locking device execution / GSP

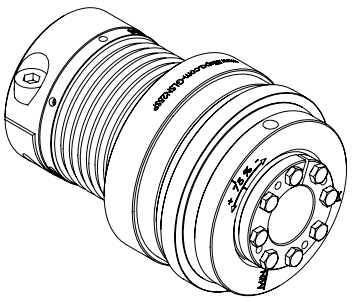


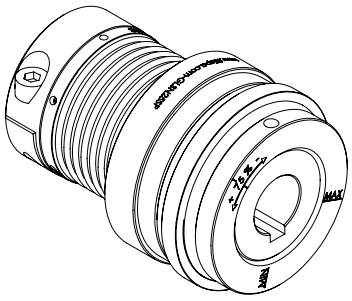
Bore and keyway execution / GSP

Torque limiter size	SERVOPLUS® size	Dimensions											
		Fmin [mm]	Fmax [mm]	F1max [mm]	A [mm]	B [mm]	C [mm]	M [mm]	Lm [mm]	S [mm]	Lg [mm]	L [mm]	L1 [mm]
12	16	5	16	12	44	38	43	34	17	16,5	48	72	67,5
17	20	8	20	17	50	42	49	40	20,5	21	58	87,5	82
20	30	10	30	20	70	62	65	55	22,5	27	69	108	101
25	38	14	38	25	85	75	84	65	26	32	81	126	118
35	45	14	45	35*	100	82	104	83	31	41	102	155	147

F: bore tolerance F7.
F1: bore tolerance H7.
*: maximum diameter for finished bore with reduced keyway according to UNI 7510.

Torque limiter	Size		12	17	20	25	35
	Limit torques for overload	[Nm]	0,8 - 7	3 - 23	5 - 50	9 - 100	20 - 200
	Maximum speed	[rpm]	4000	4000	4000	3000	2500
	Thrust washer stroke on overload	[mm]	0,8	1,0	1,1	1,3	1,5





	Size		16	20	30	38	45
SERVOPLUS® coupling	Nominal torque	[Nm]	5	15	35	65	150
	Maximum torque	[Nm]	10	30	70	130	300
	Maximum axial misalignment	[mm]	-/+0,5	-/+0,6	-/+0,8	-/+0,8	-/+1,0
	Maximum radial misalignment	[mm]	0,20	0,20	0,25	0,25	0,30
	Maximum angular misalignment	[°]	1,5	1,5	2,0	2,0	2,0

Moments of inertia	Pressure flange side	Bore and keyway	[x10^{-6} · kgm^2]	20	40	270	680	1510
		Locking device		20	40	280	710	1580
	Hub side	Clamping hub		28	55	248	726	2152

	Combinations			Total weight				
Weight	**Torque limiters**	**Coupling**	[kg]					
	Bore and keyway	Clamping hub		0,290	0,539	1,212	2,004	3,870
	Locking device	Clamping hub		0,290	0,539	1,212	2,104	4,070

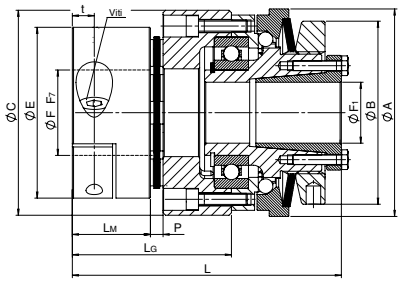
Screws	Clamping device torque limiter	No. and type	-	6 x M3	6 x M3	8 x M4	8 x M5	8 x M6
		Tightening torque	[Nm]	1,5	1,5	3,0	5,0	7,5
	GSP - Bellows set screw	Type	-	4 x M3	4 x M3	4 x M4	6 x M4	6 x M5
		Tightening torque	[Nm]	0,8	0,8	2,0	2,0	3,8
	Clamping screw	Type	-	M4	M5	M6	M8	M10
		Tightening torque	[Nm]	2,9	6,0	10,0	25,0	49,0

SERVOPLUS® coupling clamping hub transmissible torque

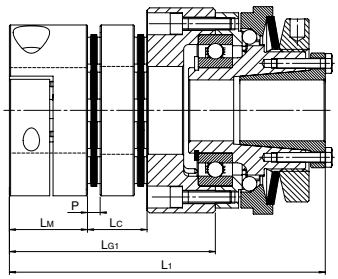
Type		Transmissible torque [Nm] related to shaft diameter [mm]																							
Torque limiters	Coupling	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**14**	**15**	**16**	**18**	**19**	**20**	**24**	**25**	**28**	**30**	**32**	**35**	**38**	**40**	**42**	**45**
12	**16**	5	6	7	8	9	10	11	12	14	15	16													
17	**20**				13	14	16	18	19	22	24	25	29	30	32										
20	**30**							25	27	32	34	36	41	43	45	54	57	63	68						
25	**38**												75	79	83	100	104	116	124	133	145	158			
35	**45**														132	158	165	183	198	211	231	248	263	277	295

Notes:
The data are related to applications with pilot bore coupling.
The weights refer only to application with couplings with pilot bore.

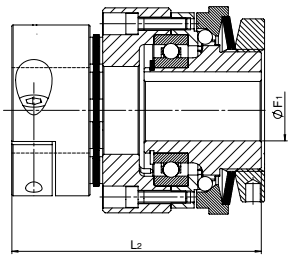
SAFEMAX® - Torque limiters “GLS/SG/N” with SERVOMATE®



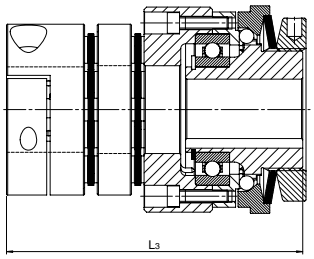
Locking device execution / GSM



Locking device execution / GSMC



Bore and keyway execution / GSM

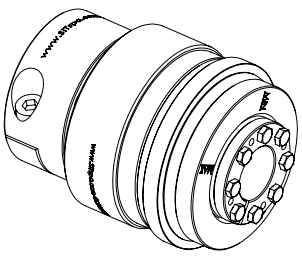


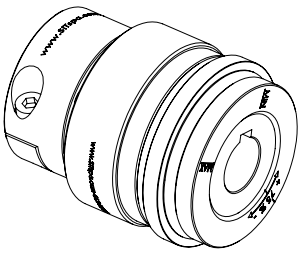
Bore and keyway execution / GSMC

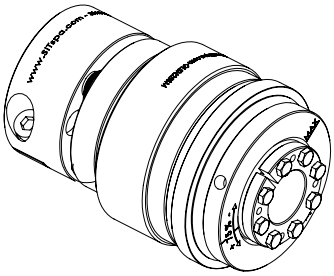
Torque limiter size	SERVOMATE® size	Dimensions														
		Fmax [mm]	F1max [mm]	A [mm]	B [mm]	C [mm]	E [mm]	Lm [mm]	P [mm]	Lc [mm]	Lg [mm]	Lg1 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]
17	15	20	17	50	42	52	47	21	3	13	40	50	69,5	79,5	64	74
20	20	25	20	70	62	68	59	24	4	19	48	63	87	102	80	95
25	25	35	25	85	75	84	70	32	5	24	65	84	110	129	102	121

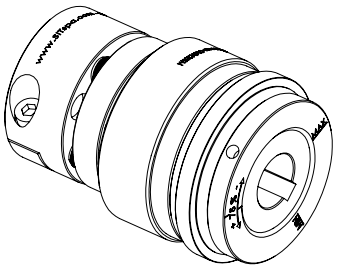
F: bore tolerance F7.
F1: bore tolerance H7.

Torque limiter	Size		17	20	25
	Limit torques for overload	[Nm]	3 - 23	5 - 50	9 - 100
	Maximum speed	[rpm]	4000	4000	3000
	Thrust washer stroke on overload	[mm]	1,0	1,1	1,3









	Size		Standard			With spacer		
			15	20	25	15	20	25
SERVOMATE® coupling	Nominal torque	[Nm]	20	30	60	20	30	60
	Maximum torque	[Nm]	40	60	120	40	60	120
	Maximum axial misalignment	[mm]	0,5	0,6	0,8	1,0	1,2	1,6
	Maximum radial misalignment	[mm]	-	-	-	0,16	0,25	0,30
	Maximum angular misalignment	[°]	1,0	1,0	1,0	1,0	1,0	1,0

Moments of inertia	Pressure flange side	Bore and keyway	[x10^{-6} · kgm^2]	40	270	680	40	270	680
		Locking device		40	280	710	40	280	710
	Hub side	Clamping hub		70	272	838	82	318	950

	Combinations			Total weight					
	Torque limiters	Coupling							
Weight	Bore and keyway	Clamping hub	[kg]	0,556	1,218	2,090	0,594	1,310	2,247
	Locking device	Clamping hub		0,556	1,218	2,190	0,594	1,310	2,347

Screws	Clamping device torque limiter	No. and type	-	6 x M3	8 x M4	8 x M5
		Tightening torque	[Nm]	1,5	3,0	5,0
	Clamping screw	Type	-	M6	M6	M8
		Tightening torque	[Nm]	10,0	10,0	25,0

SERVOMATE® Coupling Clamping Hub Transmissible Torque																
Type		Transmissible torque [Nm] related to shaft diameter [mm]														
Torque limiters	Coupling	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35
17	**15**	20	22	24	28	30	32	38	40	-	-	-	-	-	-	-
20	**20**	-	-	24	28	30	32	38	40	44	48	50	-	-	-	-
25	**25**	-	-	-	-	55	59	70	73	81	88	92	103	110	117	128

Notes:
The data are related to applications with pilot bore coupling.
The weights refer only to application with couplings with pilot bore.

Engineered data acquisition module for design

General Information

Company Name _____

Address _____

Contact Information

First Name _____ Last Name _____

Address _____

Job Title _____ Phone _____ Email _____

Requested quantity _____ **Annual expected quantity** _____

Application _____ **Application field** _____

Type of machine _____

Where the Torque limiter will be applied and whats to be protected _____

_____

Rated torque (Nm) _____ **Speed (rpm)** _____

Work Environment

- ☐ Clean
- ☐ Presence of dust
- ☐ Presence of oil
- ☐ Humidity% _____
- ☐ Other elements _____

_____

Re-engagement position

- ☐ Equidistant
- ☐ 360°
- ☐ Not important
- ☐ Other _____

_____

Transmission type

☐ Parallel ☐ Coaxial **Motor shaft diameter (mm)** _____

Shaft connection type

- ☐ Bore and keyway
- ☐ Clamping ring
- ☐ Other _____

Type of component (gear, sprocket, parallel transmission) _____

Type of coupling (coaxial transmission) _____

Driven shaft diameter (mm) _____

Connection type driven shaft

- ☐ Bore and keyway
- ☐ Clamping ring
- ☐ Other _____

Notes _____

_____

_____

_____

Please attach application drawing

SERLOCK® SELF-LOCKING BUSHING

sit DRIVE SOLUTIONS

SERLOCK®

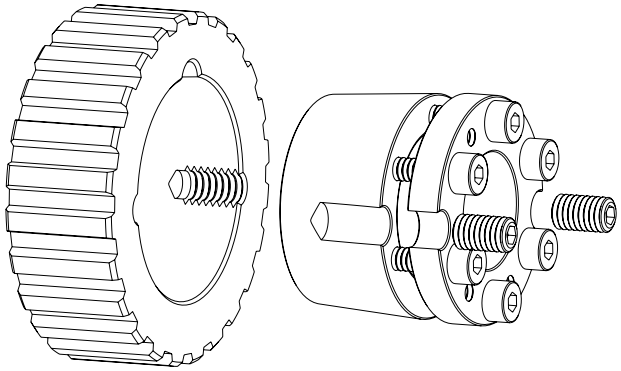
SERLOCK®

SERLOCK® is the new patented, keyless self locking bushing for immediate use with all power transmission components suitable for the SER-SIT®, T/L or similar tapered bushings:

- Is directly interchangeable with SER-SIT® or T/L tapered bushings
- Available in 1108, 1210, 1610, 2012, 2517, 3020 sizes
- With bore diameters from 12 to 70 mm according to the bush sizes
- Allows infinite axial and angular adjustments

SERLOCK® is an innovative clamping system which combines all the advantages of SIT-LOCK® friction keyless bushings with the extensive availability of a wide range of PT components for tapered bushings such as:

- V and Poly-V Pulleys
- Timing Pulleys
- Couplings
- Sprockets



SERLOCK® eliminates:

- All problems related to conventional keyway systems (backlash, breakage, fretting corrosion, difficult disassembly, restrained axial and angular positioning of the component on the shaft);

- Additional machining on the component to be fixed on the shaft, required when using conventional cone/clamping elements.

With the following benefits:

- Immediate availability of the system (element to be clamped + advanced clamping system);
- Easy assembly and disassembly;
- Possibility of reducing the diameter of the shafts used by up to 25%;
- Easy angular and axial adjustment of the component with respect to the shaft;
- Possibility of using SERLOCK® also on shafts with keyway.

All this means an immediate advantage for the user as a result of the potential increase in productivity.

Assembly is extremely simple and fast:

1) Assemble SERLOCK® bushing to the hub by means of the two set screws;
2) Position the part on the shaft in the required axial and angular position;
3) Gradually tighten the set screws until the torque Ms, indicated in the technical tables, is achieved;
4) Tighten the clamping screws gradually and evenly according to the cross outline until the torque Ms, indicated in the technical tables is achieved.

Note:
Do not lubricate the SERLOCK® bushing or the shaft on which it is mounted.

To disassemble:

1) Disassemble the tightening screws;
2) Insert the screws in the threaded disassembly holes, tightening them until the tapered bushing is released;

In order to remove the outer ring, if necessary:

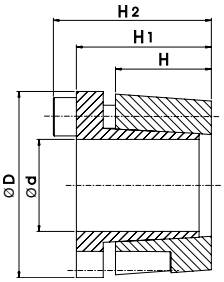
3) After having removed the inner bushing, loosen the set screws;
4) Keeping the loosened set screws in place, position the inner bushing rotated 30° in relation to the original position;
5) Insert the screws and tighten them gradually until the inner ring is released.

SERLOCK® dimensions and performances of standard types

For different bore, sizes, or hollow shaft application, please contact our Technical Depaertment.
Shaft tolerance h8 or better if not otherwise specified, are shown in mm dimensions.

SERLOCK® 1108

Type	Dimensions [mm]					Performances		Screws				Setscrews			
	d	H	H1	H2	D	M_T [Nm]	F_{ax} [N]	No.	Type	M_S	Key	No.	Type	M_S	Key
SL1108F12	12	20	29,5	33,5	39	109	18200	6	M4	4,9	3	2	1/4 W	4,9	3
SL1108F14	14	20	29,5	33,5	39	128	18200	6	M4	4,9	3	2	1/4 W	4,9	3
SL1108F15	15	20	29,5	33,5	39	137	18200	6	M4	4,9	3	2	1/4 W	4,9	3
SL1108F16	16	20	29,5	33,5	39	146	18200	6	M4	4,9	3	2	1/4 W	4,9	3
SL1108F18	18	20	29,5	33,5	39	164	18200	6	M4	4,9	3	2	1/4 W	4,9	3
SL1108F19	19	20	29,5	33,5	39	173	18200	6	M4	4,9	3	2	1/4 W	4,9	3
SL1108F20	20	20	29,5	33,5	39	182	18200	6	M4	4,9	3	2	1/4 W	4,9	3
SL1108F22	22	20	29,5	33,5	39	201	18200	6	M4	4,9	3	2	1/4 W	4,9	3



SERLOCK® 1210

Type	Dimensions [mm]					Performances		Screws				Setscrews			
	d	H	H1	H2	D	M_T [Nm]	F_{ax} [N]	No.	Type	M_S	Key	No.	Type	M_S	Key
SL1210F14	14	25	37,5	43,5	49	246	35100	6	M6	14	5	2	3/8 W	14	5
SL1210F15	15	25	37,5	43,5	49	263	35100	6	M6	14	5	2	3/8 W	14	5
SL1210F16	16	25	37,5	43,5	49	281	35100	6	M6	14	5	2	3/8 W	14	5
SL1210F18	18	25	37,5	43,5	49	316	35100	6	M6	14	5	2	3/8 W	14	5
SL1210F19	19	25	37,5	43,5	49	333	35100	6	M6	14	5	2	3/8 W	14	5
SL1210F20	20	25	37,5	43,5	49	351	35100	6	M6	14	5	2	3/8 W	14	5
SL1210F22	22	25	37,5	43,5	49	386	35100	6	M6	14	5	2	3/8 W	14	5
SL1210F24	24	25	37,5	43,5	49	421	35100	6	M6	14	5	2	3/8 W	14	5
SL1210F25	25	25	37,5	43,5	49	438	35100	6	M6	14	5	2	3/8W	14	5

SERLOCK® 1610

Type	Dimensions [mm]					Performances		Screws				Setscrews			
	d	H	H1	H2	D	M_T [Nm]	F_{ax} [N]	No.	Type	M_S	Key	No.	Type	M_S	Key
SL1610F14	14	25	37,5	43,5	59	246	35100	6	M6	14	5	2	3/8 W	14	5
SL1610F15	15	25	37,5	43,5	59	263	35100	6	M6	14	5	2	3/8W	14	5
SL1610F16	16	25	37,5	43,5	59	281	35100	6	M6	14	5	2	3/8 W	14	5
SL1610F18	18	25	37,5	43,5	59	316	35100	6	M6	14	5	2	3/8W	14	5
SL1610F19	19	25	37,5	43,5	59	333	35100	6	M6	14	5	2	3/8 W	14	5
SL1610F20	20	25	37,5	43,5	59	351	35100	6	M6	14	5	2	3/8W	14	5
SL1610F22	22	25	37,5	43,5	59	386	35100	6	M6	14	5	2	3/8 W	14	5
SL1610F24	24	25	37,5	43,5	59	421	35100	6	M6	14	5	2	3/8W	14	5
SL1610F25	25	25	37,5	43,5	59	438	35100	6	M6	14	5	2	3/8W	14	5
SL1610F26	26	25	37,5	43,5	59	456	35100	6	M6	14	5	2	3/8W	14	5
SL1610F28	28	25	37,5	43,5	59	491	35100	6	M6	14	5	2	3/8 W	14	5
SL1610F30	30	25	37,5	43,5	59	526	35100	6	M6	14	5	2	3/8W	14	5
SL1610F32	32	25	37,5	43,5	59	561	35100	6	M6	14	5	2	3/8 W	14	5
SL1610F35	35	25	34,8	40,8	59	614	35100	6	M6	14	5	2	3/8W	14	5

M_T	Screw tightening torque	Nm
M_S	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	kN

Part Number **SL 1108 F10**

SERLOCK®

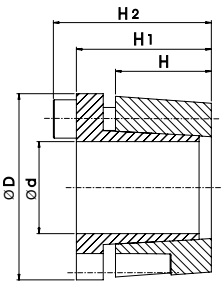
Size

Bore diameter [mm]

SERLOCK® dimensions and performances of standard types

SERLOCK® 2012

Type	Dimensions [mm]					Performances		Screws				Setscrews			
	d	H	H1	H2	D	M_T [Nm]	F_{ax} [N]	No.	Type	M_S	Key	No.	Type	M_S	Key
SL2012F19	19	30	45,5	53,5	71	436	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F20	20	30	45,5	53,5	71	459	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F22	22	30	45,5	53,5	71	505	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F24	24	30	45,5	53,5	71	551	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F25	25	30	45,5	53,5	71	574	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F26	26	30	45,5	53,5	71	597	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F28	28	30	45,5	53,5	71	643	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F30	30	30	45,5	53,5	71	689	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F32	32	30	45,5	53,5	71	735	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F35	35	30	45,5	53,5	71	804	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F38	38	30	45,5	53,5	71	873	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F40	40	30	45,5	53,5	71	919	45900	6	M8	25	6	2	7/16 W	25	6
SL2012F42	42	30	45,5	53,5	71	965	45900	6	M8	25	6	2	7/16 W	25	6



SERLOCK® 2517

Type	Dimensions [mm]					Performances		Screws				Setscrews			
	d	H	H1	H2	D	M_T [Nm]	F_{ax} [N]	No.	Type	M_S	Key	No.	Type	M_S	Key
SL2517F24	24	45	60,5	68,5	86	551	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F25	25	45	60,5	68,5	86	574	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F26	26	45	60,5	68,5	86	597	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F28	28	45	60,5	68,5	86	643	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F30	30	45	60,5	68,5	86	689	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F 32	32	45	60,5	68,5	86	735	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F35	35	45	60,5	68,5	86	804	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F38	38	45	60,5	68,5	86	873	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F40	40	45	60,5	68,5	86	919	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F42	42	45	60,5	68,5	86	965	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F45	45	45	60,5	68,5	86	1034	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F48	48	45	60,5	68,5	86	1103	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F50	50	45	60,5	68,5	86	1148	45900	6	M8	25	6	2	1/2 W	35	6
SL2517F55	55	45	60,5	68,5	86	1263	45900	6	M8	25	6	2	1/2 W	35	6

SERLOCK® 2517

Type	Dimensions [mm]					Performances		Screws				Setscrews			
	d	H	H1	H2	D	M_T [Nm]	F_{ax} [N]	No.	Type	M_S	Key	No.	Type	M_S	Key
SL3020F30	30	50	68,5	78,5	108	993	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F32	32	50	68,5	78,5	108	1059	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F35	35	50	68,5	78,5	108	1159	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F38	38	50	68,5	78,5	108	1258	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F40	40	50	68,5	78,5	108	1324	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F42	42	50	68,5	78,5	108	1391	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F45	45	50	68,5	78,5	108	1490	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F48	48	50	68,5	78,5	108	1589	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F50	50	50	68,5	78,5	108	1655	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F55	55	50	68,5	78,5	108	1821	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F60	60	50	68,5	78,5	108	1986	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F65	65	50	68,5	78,5	108	2152	66200	6	M10	49	8	2	5/8 W	65	8
SL3020F70	70	50	68,5	78,5	108	2318	66200	6	M10	49	8	2	5/8 W	65	8

M_T	Screw tightening torque	Nm
M_S	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	kN

NOTES

NOTES

NOTES

In accordance with the SIT S.p.A. policy, for a constant improvement of our products, technical data contained in this catalog may be changed without notice.

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