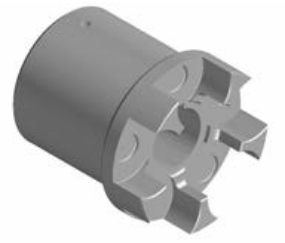
TRASCO® couplings

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.

"**A**" Execution



"**AL**" Execution

"**AR**" Spider

"**B**" Execution

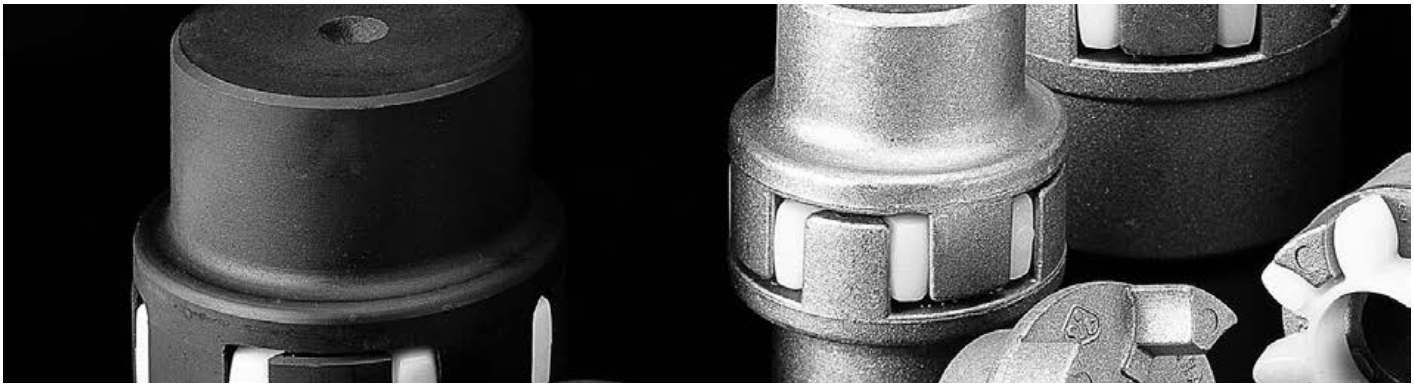
"**BL**" Execution

ATEX compliance

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

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.



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

(Shore)	Color	Compound	Admissible Temperature [°C]		Applications
			on work	peaks	
92 Sh A	Yellow	Polyurethane	from - 40 to + 90	from - 50 to + 120	• the most of industrial application (low-mid power)
98 Sh A	Red	Polyurethane	from - 30 to + 90	from - 40 to + 120	• high torque – narrow angular misalignment – torsional rigidity
64 Sh D	Green	Polyurethane	from - 30 to + 110	from - 30 to + 130	• dampened areas – internal combustion engines

Spiders for special applications

(Shore)	Color	Compound	Admissible Temperature [°C]		Applications
			on work	peaks	
80 Sh A	Blue	Polyurethane	from - 50 to + 80	from - 60 to + 120	• internal combustion engines / high dynamic solicitations / highly dampened areas
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 as per DIN 740/2

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.

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.

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

Note that:

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

Where P_N is the motor nominal power in kW.

2) Verify the maximum torque
The max torque of the coupling must be greater than or equal to the starting torque Ts multiplied by the safety factors S_θ, S_z, S_u where S_u is the higher value between driver and driven units.

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

3) Verify torque with reversal
In case of torque with reversals it must be verified that:

$$T_{KW} \geq T_W \cdot S_\theta \quad [Nm]$$

where *Tkw* = torque with reversal, which the coupling can bear, and *Tw* = torque variation of the drive.

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

Temperature 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

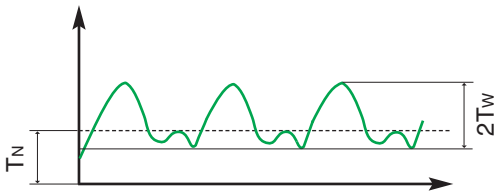
Hub shaft connection check
Hub shaft connection must always be checked by the user. It is important to verify the maximum torque in the drive is lower than the torque which the hub shaft connection can bear. In case of keyway connection, it is important to verify the tensile strength of the hub material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

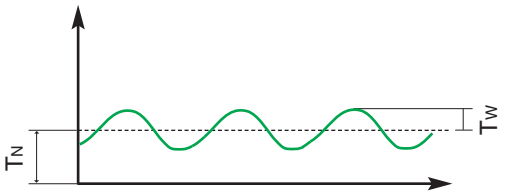
S_θ	Temperature factor	
S_Z	Start frequency factor	
S_u	Motor or driven-side shock factor	
P_N	Motor nominal torque	kW
n	rpm	min^{-1}

Type of stress

Periodic



Harmonic

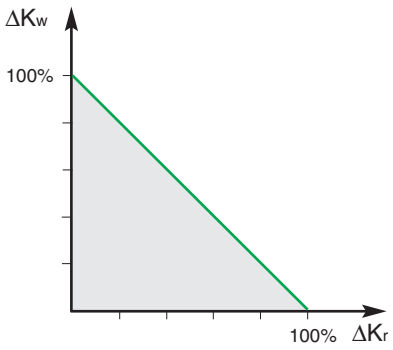


Misalignment

Size	ΔK_{aP} [mm]	ΔK_r [mm]	ΔK_w [°]
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 min^{-1}

The values shown in the table for radial and angular misalignment, must be corrected in case they are simultaneously acting on the coupling.

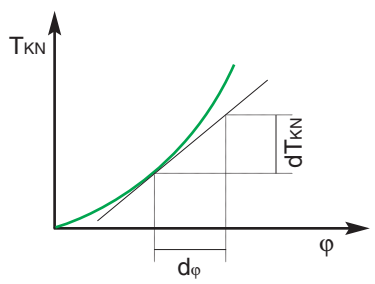


The sum of the admissible value (A) and the respective values shown in the table must be less than or equal to 1.

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

ΔK_{aP}	Maximum axial misalignment - ”P” execution	mm
ΔK_{aS}	Maximum axial misalignment - ”S” execution	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. ◘ 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.

Technical performances

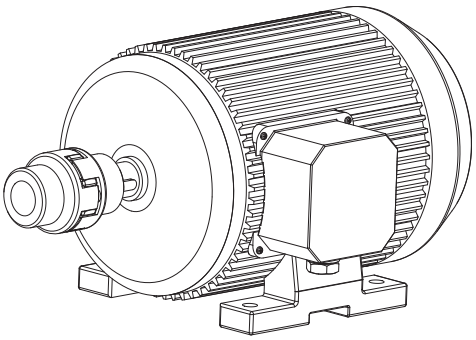
The technical performances below refer to all types of TRASCO® executions and are valid for the indicated spiders when couplings are properly selected.

For particular applications needed, such as very high chemical resistance, spiders made of special material are available. Contact our Technical Department.

Type	Hardness spider		Torque			Max. speed		Dynamic torsional rigidity			
	Color	Shore	T_{KN} [Nm]	T_{Kmax} [Nm]	T_{KW} [Nm]	n (v=30m/s) [min^{-1}]	n (v=40m/s) [min^{-1}]	C_{Tdin} (1 T_{KN}) [Nm/rad]	C_{Tdin} (0,75 T_{KN}) [Nm/rad]	C_{Tdin} (0,5 T_{KN}) [Nm/rad]	C_{Tdin} (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	Red	95 Sh.A	4950	9900	1287	2500	3350	383260	314270	237620	140850
110/125	Red	95 Sh.A	7200	14400	1872	2240	3000	690060	565850	427840	253600
125/145	Red	95 Sh.A	10000	20000	2600	2000	2650	1343640	1101790	833060	493790
140/160	Red	95 Sh.A	12800	25600	3328	1800	2360	1424580	1168160	883240	523540
160/185	Red	95 Sh.A	19200	38400	4992	1500	2000	2482230	2035430	1538980	912220
180/200	Red	95 Sh.A	28000	56000	7280	1400	1800	3561450	2920400	2208100	1308840

Color	Torsion angle		Dampening factor Ψ (-)	Resonance factor V_R (-)
	j (T_{KN}) (°)	j (T_{Kmax}) (°)		
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 (spider 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]	Size	K	P_N [kW]	T_N [Nm]	Size	K	P_N [kW]	T_N [Nm]	Size	K	P_N [kW]	T_N [Nm]	Size	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										

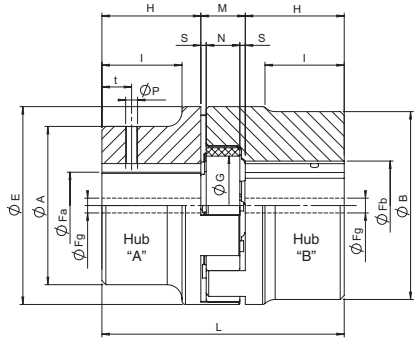
P_N	Motor nominal torque	kW
T_N	Motor nominal torque	Nm
K	Safety factor	
d x l	Motor shaft's end	mm

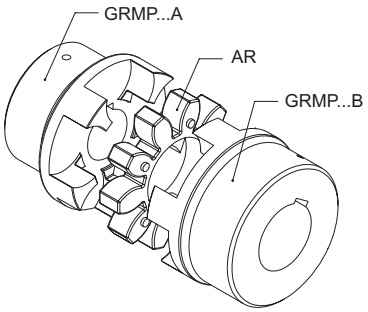
“GR” base program

TRASCO® couplings are dimensionally manufactured to hub types “A” and “B”, the difference being the maximum shaft diameter which hubs can accept (corresponding respectively to the first and second code number). The long hub execution “L” (allows full coverage of the motor shaft) is available in both “A” and “B” executions.

Materials used for manufacture are:
- cast iron grade GG25 (all sizes);
- aluminum, die-casting
- cast iron grade GGG40 and steel upon request.

Approved according to EC standard ATEX.





Dimensional specification hubs in GG25

Size	Fa max [mm]	Fb max [mm]	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	-	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	138	-	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 - Ductile Iron over.
Keyway according to DIN 6885 sheet 1 - JS9

Dimensional specification hubs in aluminum

Size	Fa max [mm]	Fb max [mm]	Fg [mm] execution		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

Order form

Hub **GRMP 48/60 AL F48**

GRMP: Standard TRASCO® hub
GRMALU: TRASCO® aluminium 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**

TRASCO® spider

Size

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

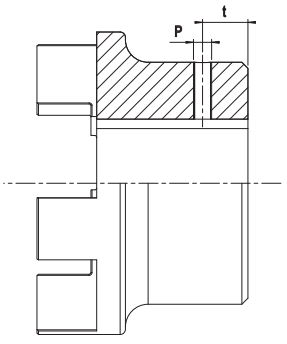
Stock range
Hubs with finished bore H7, keyway (DIN 6885 sheet 1 - JS9), setscrew

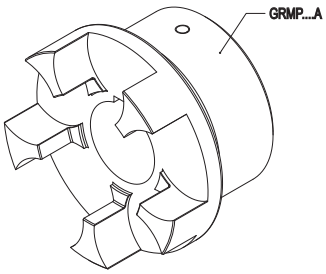
Type		19/24		24/32				28/38				38/45				42/55			48/60			55/70		65/75	75/90	90/100
Material*		ALU	AC	ALU		GG		ALU		GG		ALU		GG		ALU	GG		ALU	GG		GG		GG	GG	GG
Hub execution		B	B	A	B	A	B	A	B	A	B	A	B	A	B	B	A	B	B	A	B	A	B	A	A	A
Stock range bore [mm]	10	●	●																							
	11	●	●																							
	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																									●

*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



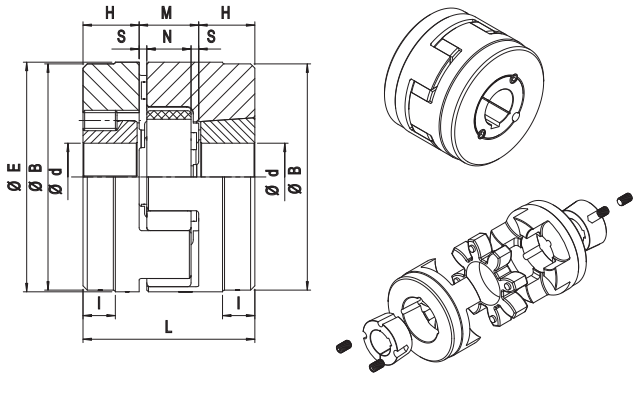


“GRB” taper bushing series

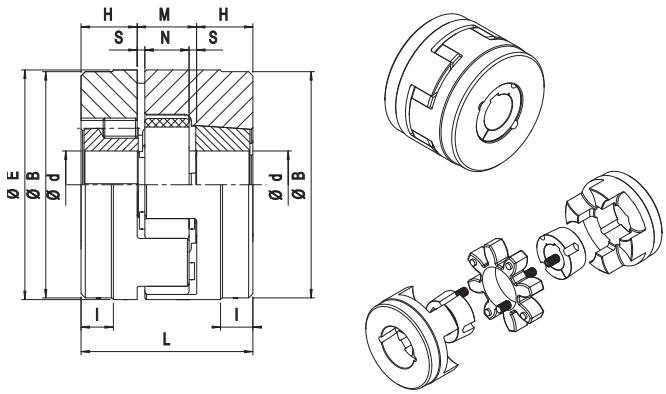
TRASCO® couplings type GRB for taper bushing SER-SIT®, are manufactured in cast iron GG25.
They combine the typical high performances of standard TRASCO® couplings with the advantages of easy mounting and dismounting offered by the taper bushing SER-SIT®.
These hubs are manufactured in two different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



B1



B2

Size	Taper bushing	E [mm]	B [mm]	L [mm]	H [mm]	M [mm]	S [mm]	N [mm]	I [mm]
28/38	1108 (2820)	65	65	66	23	20	2,5	15	-
38/45	1108 (2820)	80	78	70	23	24	3	18	15
42/55	1610 (4025)	95	94	78	26	26	3	20	16
48/60	1615 (4040)	105	104	106	39	28	3,5	21	28
55/70	2012 (5030)	120	118	96	33	30	4	22	20
65/75	2012 (5030)	135	133	101	33	35	4,5	26	19
75/90	2517 (6545)	160	158	130	45	40	5	30	36
90/100 *	3535 (9090)	200	180	223	89	45	5,5	34	70

* Only “B1” execution

Taper lock type	Diameter of the bore (H7) Keyway according to DIN 6885 sheet 1 - JS9		Transmissible torque [Nm]	Transmittable friction torque	
				Ø bore [mm]	[Nm]
1108 (2820)	[mm]	9 10 11 12 14 15 16 18 19 20 22 24 25 26 27 28	150	12 19 24 28	28 49 64 79
	[inches]	3/8 - 1/2 - 5/8 - 3/4 - 7/8 - 1 - 1 1/8			
1610 (4025)	[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
	[inches]	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 (4040)	[mm]	12 14 15 16 18 19 20 22 24 25 28 30 32 35 38 40 42	490	19 24 38 42	98 135 240 265
	[inches]	1/2 - 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			
2012 (5030)	[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	165 310 340 400 420
	[inches]	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 (6545)	[mm]	6 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
	[inches]	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 (9090)	[mm]	25 28 30 32 35 38 40 42 45 48 50 55 60 65 70 75 80 85 90	5000	42 60 75 90	1000 1580 2150 2600
	[inches]	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			

Order form

Hub **GRMB 48/60 B2**

- GRMB: TRASCO® GRMB for taper lock
- 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)

"GRCAL" series for use with SIT-LOCK® elements type 8

This execution has been introduced to incorporate advantages offered by the SIT-LOCK® 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.

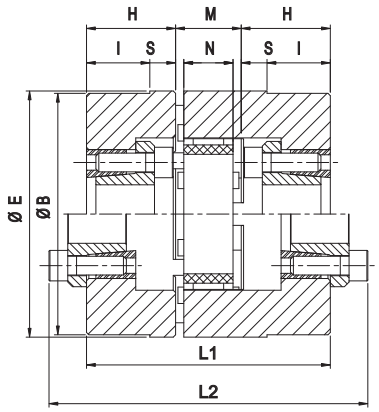


FIG 1

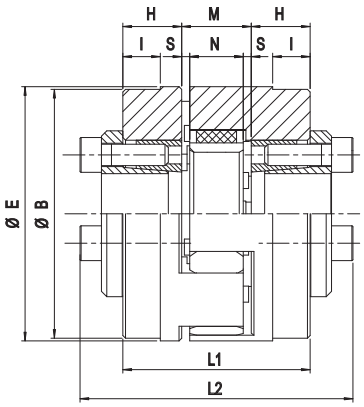


FIG 2

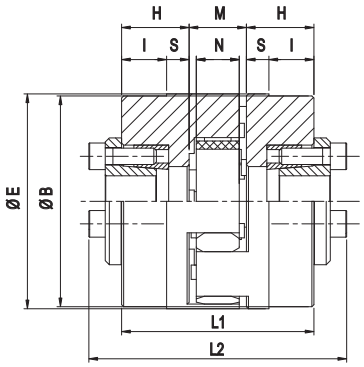


FIG 3

Size	d [mm]	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

Order form

Hub **GRMC 48/60**

- GRMC: TRASCO® hub for SIT-LOCK® type 8
- Size

Spider **AR 48/60 R**

- Anello elastico per TRASCO®
- Size
- Yellow if not indicated; R: red; V: green

SIT-LOCK® elements **CAL 8 F20 / 55**

- CAL: SIT-LOCK® element
- Size
- Bore diameter
- External bore diameter

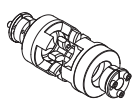


Fig. 1 External CAL

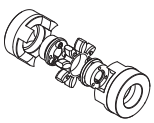


Fig. 1 Internal CAL

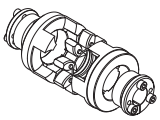


Fig. 2

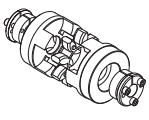
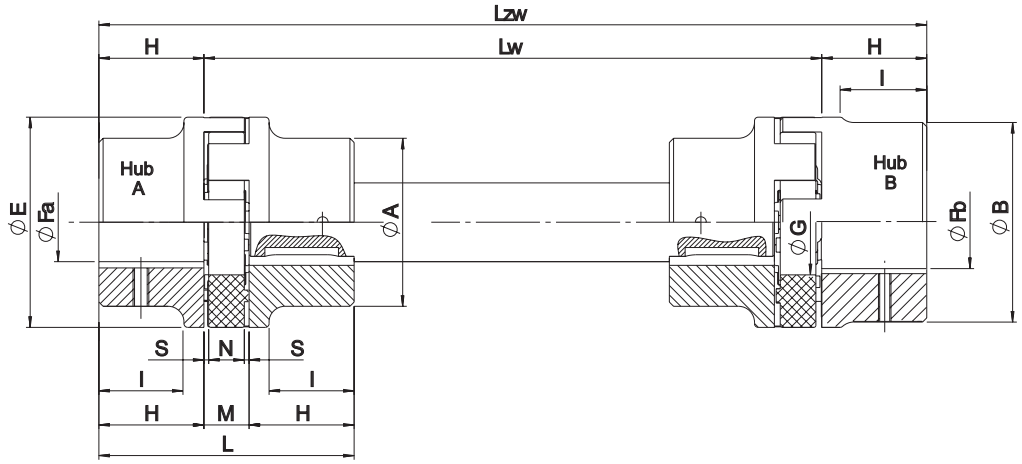


Fig. 3

"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.

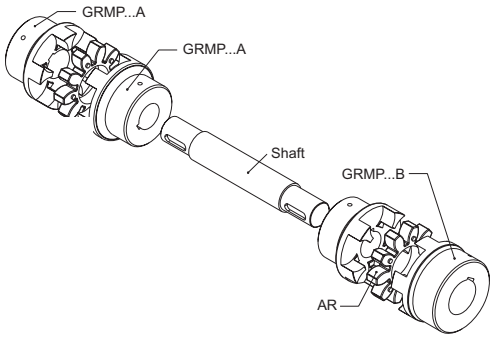


Size	Fa [mm]	Fb [mm]	E [mm]	A [mm]	B [mm]	H [mm] execution			L [mm]		M [mm]	S [mm]	N [mm]	I [mm] execution				G [mm]
						A-B	AL	BL	A-B	AL-BL				A	B	AL	BL	
24/32	9 - 24	11 - 32	55	40	55	30	50	60	78	128	18	2	14	24	-	44	-	27
28/38	9 - 28	11 - 38	65	48	65	35	60	80	90	160	20	2,5	15	28	-	53	-	30
38/45	11 - 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

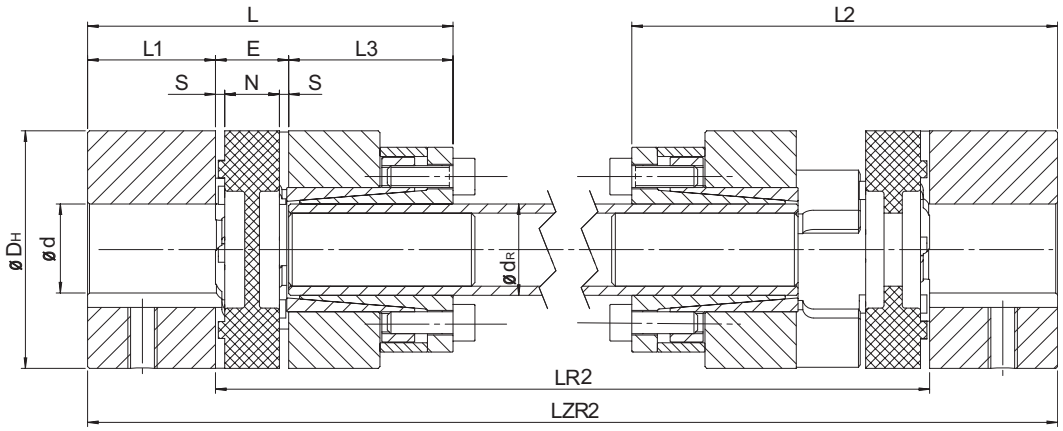
Coupling configurator

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…	



“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 “L_{R2}”) 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.

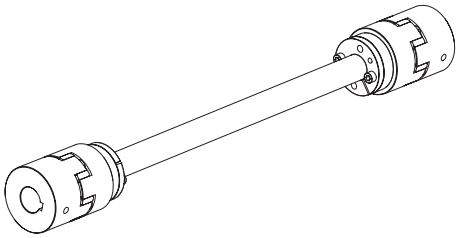


Size	External hub		Dimensions [mm] GRL-CAL3											Internal hub		
												Intermediate shaft		SITLOCK 3 elements		
	dmin	dmax	D_H	L_1	L_3	L	E	N	s	L_2	L_{R2} min.	L_{ZR2}	d_R	C [Nm/Rad·m]	Type	Screw Din 912-12.9 M·L	T_A [Nm]
14	4	15	30	11	26	50	13	10	1,5	61,5	109	LR2+22	10x2.0	68,36	10x16	M4X10	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…	



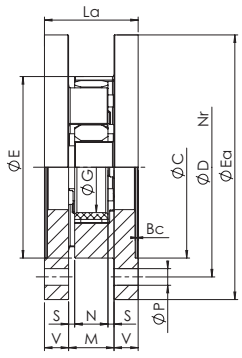
“GRF” flange series

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:

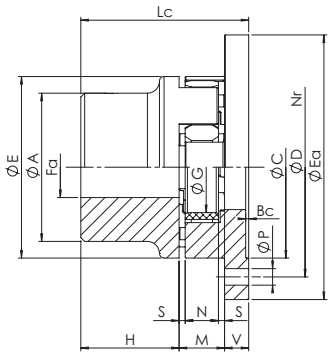
Flange-flange: using two hubs type “CF”

Flange-shaft: using one hub Trasco standard “GR” and one hub type ”CF”

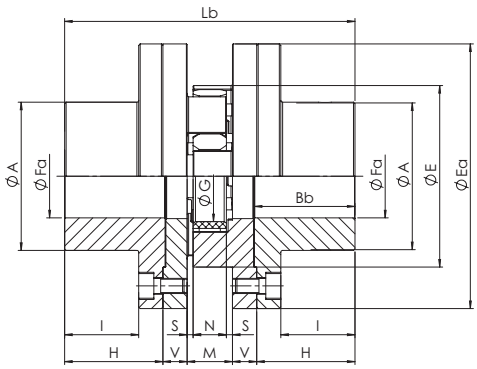
Shaft-shaft: using two hubs type “CFF”, allows the replacement of the elastic element without dismounting of either motor-machine or driven-machine.



flange - flange



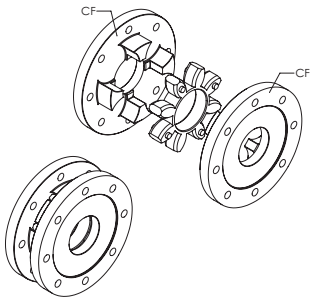
flange - shaft

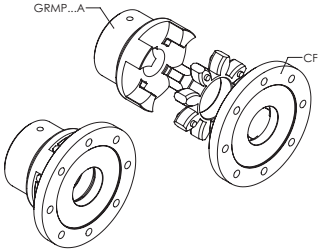


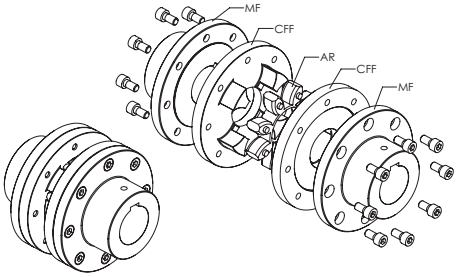
shaft - shaft

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.







Order form

Hub	GRF	CF	48

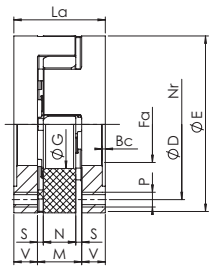
GRF: flange series

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

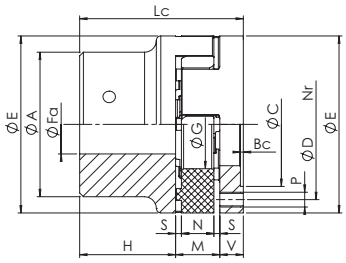
Size

“GRF C” flange series

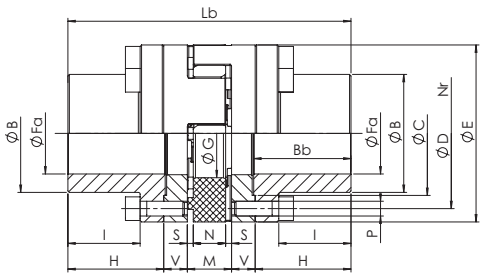
The GRF C series has the same characteristics as the BF series, while being compact in dimension.



flange - flange



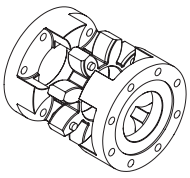
flange - shaft

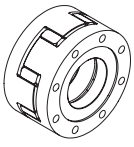


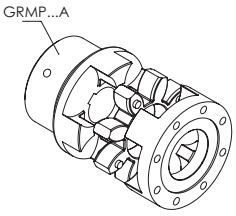
shaft - shaft

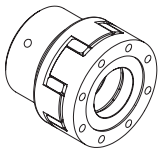
Size	Fa min [mm]	Fa max [mm]	E [mm]	A [mm]	B [mm]	H [mm]	I [mm]	La [mm]	Lb [mm]	Lc [mm]	V [mm]	M [mm]	S [mm]	N [mm]	Bb [mm]	Bc [mm]	G [mm]	D [mm]	Nr	C [mm]	P [mm]
24/32	8	24	55	40	36	30	22	34	94	56	8	18	2	14	31	1,5	27	45	8	36	M5
28/38	10	28	65	48	42	35	25	40	110	65	10	20	2,5	15	36	1,5	30	54	8	44	M6
38/45	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

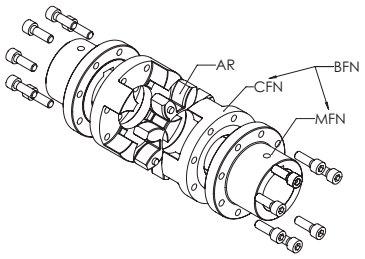
Keyway according to DIN 6885 sheet 1 - JS9.

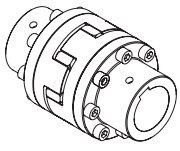












Order form

Hub	**GRFBFN**	**48**

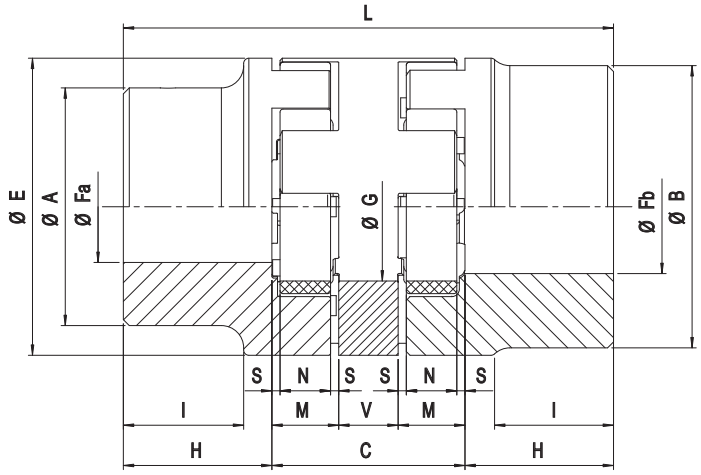
GRFBFN: shaft side flange “BFN” execution
GRFCFN: ring side flange “BFN” - “CFN” execution

Size

Nr Number of screws

“GRS” double cardanic series

The GRS series allows compensation of high axial, radial and angular misalignment. Additionally, the use of the double spider allows for twice the torsion angle and provides very high dampening effect.



Size	Fa [mm]	Fb [mm]	H [mm]	V [mm]	C [mm]	M [mm]	S [mm]	N [mm]	L [mm]	E [mm]	A [mm]	B [mm]	G [mm]	ΔKr [mm]	ΔKw [°]
24/32	9 - 24	11 - 32	30	16	52	18	2	14	112	55	40	55	27	0,89	
28/38	9 - 28	11 - 38	35	18	58	20	2,5	15	128	65	48	65	30	1	
38/45	11 - 38	13 - 45	45	20	68	24	3	18	158	80	66	80	38	1,15	
42/55	11 - 42	13 - 55	50	22	74	26	3	20	174	95	75	95	46	1,26	
48/60	13 - 48	13 - 60	56	24	80	28	3,5	21	192	105	85	105	51	1,36	1°30’
55/70	16 - 55	16 - 70	65	28	88	30	4	22	218	120	98	120	60	1,52	
65/75	16 - 65	16 - 75	75	32	102	35	4,5	26	252	135	115	135	68	1,75	
75/90	16 - 75	16 - 90	85	36	116	40	5	30	286	160	135	160	80	2	
90/100	21 - 90	21 - 100	100	40	130	45	5,5	34	330	200	160	180	100	2,5	

Keyway according to DIN 6885 sheet 1 - JS9

Order form

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

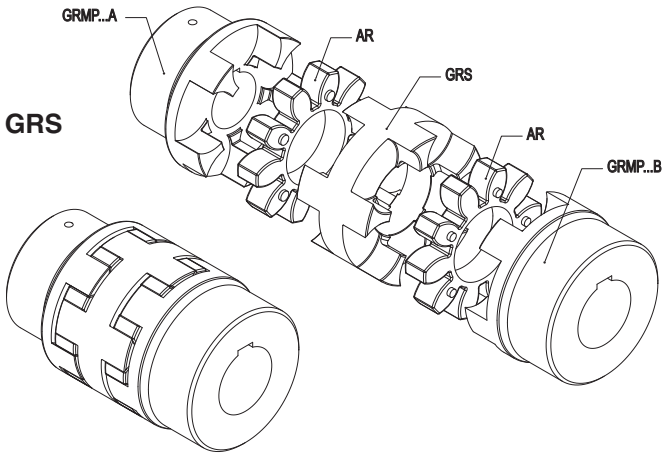
Spacer element	**GRS**	**48**

GRS: spacer element

Size

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	°

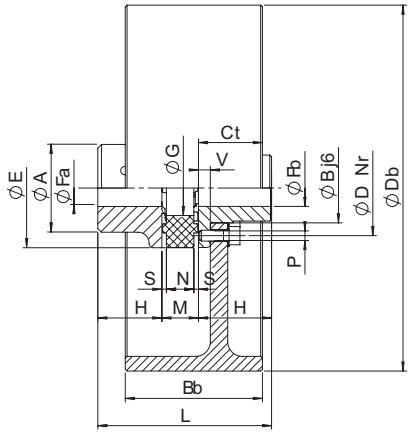
GRS



“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

GR FRT - drum brake												W_{FRT}	J_{FRT}	min^{-1} with Vmax 30 m/s
Db x Bb	28	38	42	48	55	65	75	90	100	110	125	[kg]	[kg m²]	
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]	Nr	V [mm]	M [mm]	S [mm]	N [mm]	D [mm]	P [mm]
		Fa	Fb (GG25)	Fb (GS400)	Fb (Steel)													
28 FR	10	28	20	22	24	65	48	38	35	90	30	8	6,5	20	2,5	15	52	M6
38 FR	12	38	28	32	34	80	66	50	45	114	38	8	7,5	24	3	18	66	M8
42 FR	14	42	30	38	42	95	75	60	50	126	46	12	9,5	26	3	20	80	M8
48 FR	15	48	35	45	48	105	85	68	56	140	51	12	10,5	28	3,5	21	90	M8
55 FR	20	55	42	50	55	120	98	78	65	160	60	8	12,5	30	4	22	102	M10
65 FR	22	65	48	55	65	135	115	92	75	185	68	12	13,5	35	4,5	26	116	M10
75 FR	30	75	58	70	75	160	135	106	85	210	80	15	15,5	40	5	30	136	M12
90 FR	40	90	75	90	100	200	160	140	100	245	100	15	18,5	45	5,5	34	172	M16
100 FR	45	115	-	100	-	225	180	156	110	270	113	15	20,5	50	6	38	195	M16
110 FR	55	125	-	110	-	255	200	176	120	295	127	15	23,5	55	6,5	42	218	M20
125 FR	55	145	-	130	-	290	230	204	140	340	147	15	27,5	60	7	46	252	M20

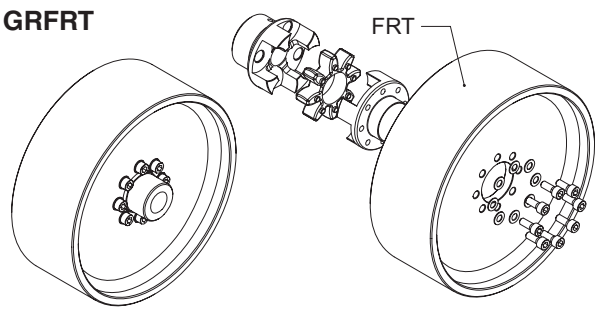
Order form

Hub	**GRFRT**	**48**

GRFRT: brake side hub

Size

GRFRT

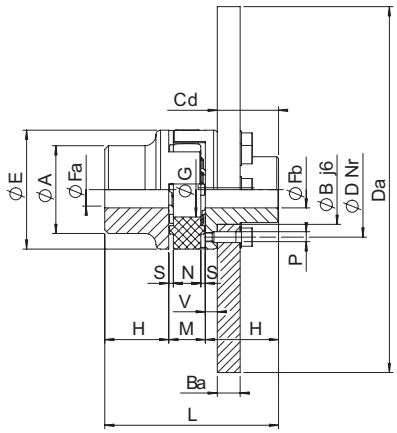


W_{FRT}	“GRFRT” weight	kg
J_{FRT}	“GRFRT” moment of inertia	kgm^2
Nr	Number of screws	

“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}	J_{FRD}	min^{-1} with Vmax 40 m/s
Da x Ba	28	38	42	48	55	65	75	90	100	110	125	[kg]	[kg m²]	
200x12,5	X	X	-	-	-	-	-	-	-	-	-	2,93	0,0154	3820
250x12,5	X	X	X	X	-	-	-	-	-	-	-	4,66	0,0376	3060
315x16	-	-	X	X	X	X	X	-	-	-	-	8,62	0,1118	2430
400x16	-	-	-	X	X	X	X	X	X	X	-	15,23	0,3152	1910
500x16	-	-	-	-	X	X	X	X	X	X	X	23,96	0,7680	1530
630x20	-	-	-	-	-	X	X	X	X	X	X	47,72	2,4264	1210
710x20	-	-	-	-	-	X	X	X	X	X	X	60,93	3,9151	1080
800x25	-	-	-	-	-	-	-	X	X	X	X	94,91	7,8790	950
900x25	-	-	-	-	-	-	-	-	-	X	X	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]	Nr	V [mm]	M [mm]	S [mm]	N [mm]	D [mm]	Cd [mm]	P [mm]
		Fa	Fb (GG25)	Fb (GS400)	Fb (Steel)														
28 FR	10	28	20	22	24	65	48	38	35	90	30	8	6,5	20	2,5	15	52	28,5	M6
38 FR	12	38	28	32	34	80	66	50	45	114	38	8	7,5	24	3	18	66	37,5	M8
42 FR	14	42	30	38	42	95	75	60	50	126	46	12	9,5	26	3	20	80	40,5	M8
48 FR	15	48	35	45	48	105	85	68	56	140	51	12	10,5	28	3,5	21	90	45,5	M8
55 FR	20	55	42	50	55	120	98	78	65	160	60	8	12,5	30	4	22	102	52,5	M10
65 FR	22	65	48	55	65	135	115	92	75	185	68	12	13,5	35	4,5	26	116	61,5	M10
75 FR	30	75	58	70	75	160	135	106	85	210	80	15	15,5	40	5	30	136	69,5	M12
90 FR	40	90	75	90	100	200	160	140	100	245	100	15	18,5	45	5,5	34	172	81,5	M16
100 FR	45	115	-	100	-	225	180	156	110	270	113	15	20,5	50	6	38	195	89,5	M16
110 FR	55	125	-	110	-	255	200	176	120	295	127	15	23,5	55	6,5	42	218	96,5	M20
125 FR	55	145	-	130	-	290	230	204	140	340	147	15	27,5	60	7	46	252	112,5	M20

Order form

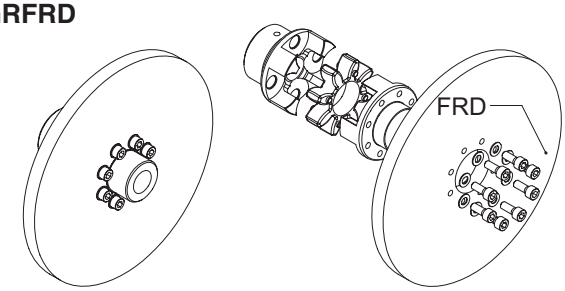
Hub	**GRFRD**	**48**

GRFRD: brake side hub

Size

W_{FRD}	“GRFRD” disc weight	kg
J_{FRD}	“GRFRD” moment of inertia	kgm^2
Nr	Number of screws	

GRFRD



TRASCO® Coupling Weights and Moments of Inertia

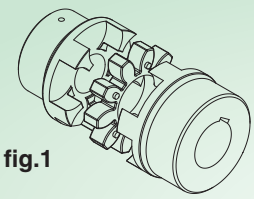


fig.1

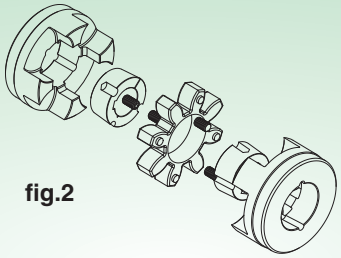


fig.2

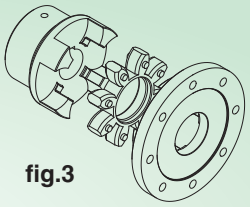


fig.3

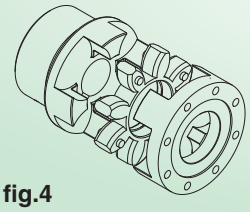


fig.4

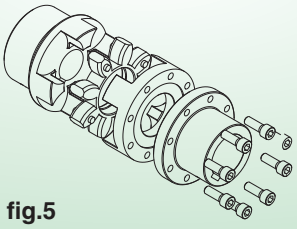


fig.5

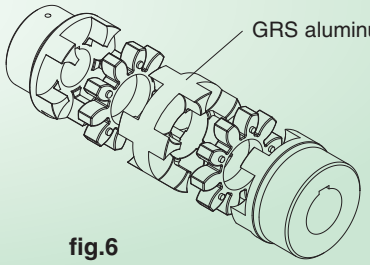
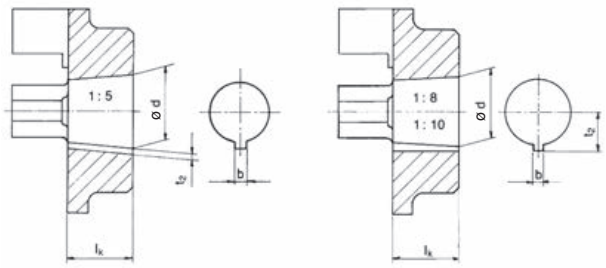


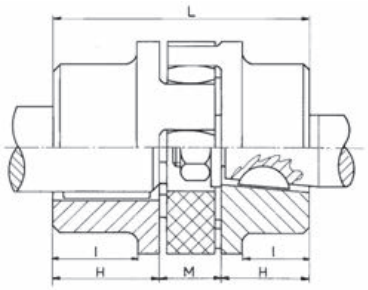
fig.6

Size		GR (A type) fig. 1	GR (B type) fig. 1	GR (AB type) fig. 1	GRALU (A type) fig. 1	GRALU (B type) fig. 1	GRALU (AB type) 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	-

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 per:
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 per:
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 1:10 per:
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

JUBOFLEX® elastic coupling

Description

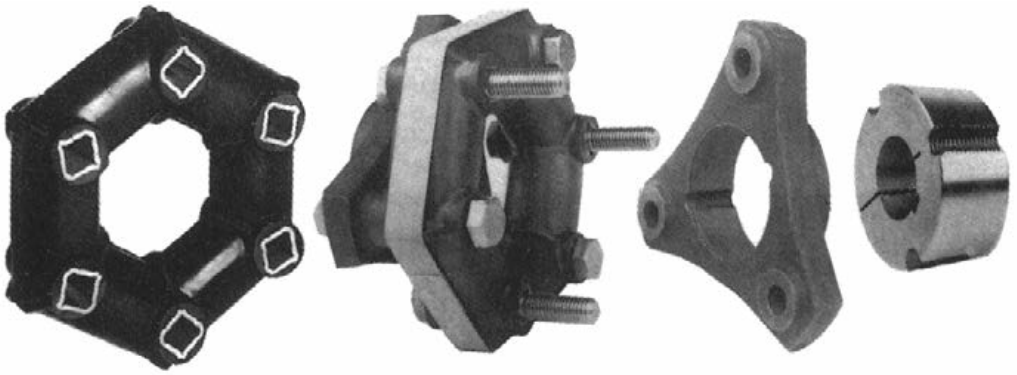
JUBOFLEX® couplings are made of:

- 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).

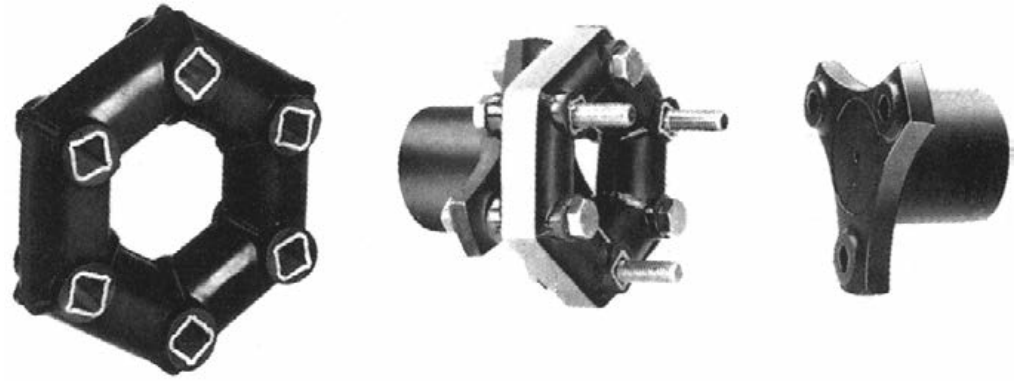
They are produced:

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

GJB4 - GJB25



GJ4 - GJ120



Features

JUBOFLEX® coupling has exceptional elastic properties.
In fact, it allows for:

- an excellent dampening effect of the load peaks;
- high safety factor and a very high resistance to alternating deformation, thanks to pre-compression;
- possibility of bearing misalignment values rarely possible with other couplings.

In this way it avoids the need of a precise alignment of the machines to be coupled. It is recommended to remove the metallic band of the elastic element after the coupling is mounted; pre compression will be assured by the fixing screws.

Coding

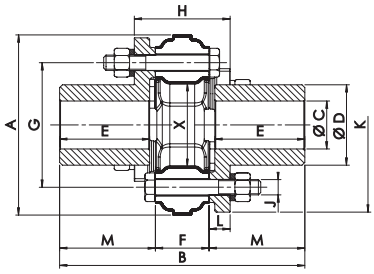
Codification of the JUBOFLEX® couplings is:

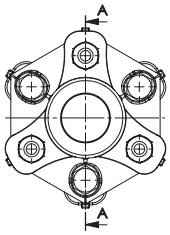
- GJ complete coupling solid hub;
- GJM hub;
- AJ elastic element.

To identify the desired size use the nominal torque of the coupling.

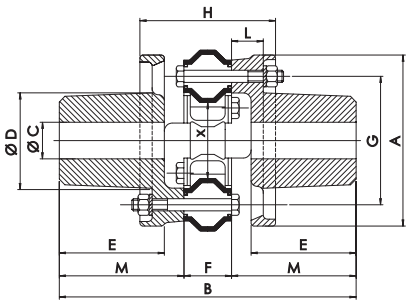
E.G.: GJ4 = complete coupling (2 hubs + 1 elastic element) with nominal torque of 40 Nm.

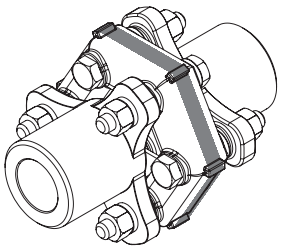
JUBOFLEX® elastic coupling - solid hub





GJ4 - GJ70



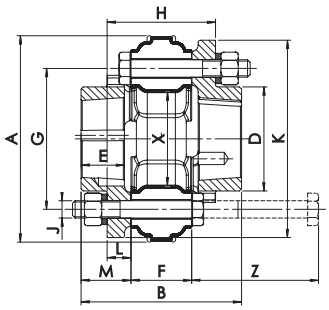


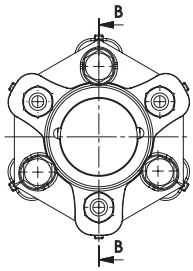
GJ120

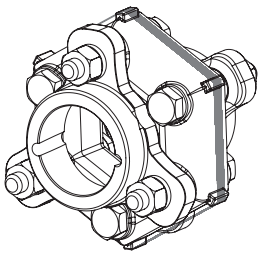
Size	C		A	B	D	E	F	G	H	J	K	L	M	X	W
	min [mm]	max [mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
GJ4	-	30	91	128	42	47	28	65	50	8	87	11	50	23	2
GJ9	-	40	117	172	56	66	32	85	60	10	113	14	70	35	3
GJ16	-	48	142	196	68	70	46	100	80	12	135	17	75	40	5
GJ25	-	60	181	247	90	93	51	132	93	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

JUBOFLEX® elastic coupling for mounting SERSIT® 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

SERSIT® taper bushing

Type	Diameter of the bore (H7) Keyway according to DIN 6885 sheet 1 - JS9		Length [mm]	Diam. max.	Screws				Ms [Nm]
					n°	withworth	Length [mm]	Sets screews wrench type	
1108 (28.20)	[mm]	9 10 11 12 14 15 16 18 19 20 22 24 25 **26 27 28**	22,3	38	2	1/4	13	M3	5,5
	[inches]	3/8 - 1/2 - 5/8 - 3/4 - 7/8 - 1 - **1 1/8**							
1210 (30.25)	[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
	[inches]	1/2 - 5/8 - 3/4 - 7/8 -1 -1 1/8 **-1 1/4**							
1610 (40.25)	[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
	[inches]	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 (50.30)	[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
	[inches]	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**							

Bore diameters in bold type are made in steel instead of cast iron.

Technical Data

Size	T_{KN} [Nm]	T_{Kmax} [Nm]	φ [°]	n_{max} [min^{-1}]	Nr	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	min^{-1}
Nr	Number of screws	

Order form

Hub — **GJM 16**

GJM: JUBOFLEX® solid hub
GJMB: JUBOFLEX® for mounting SER-SIT® taper bushing

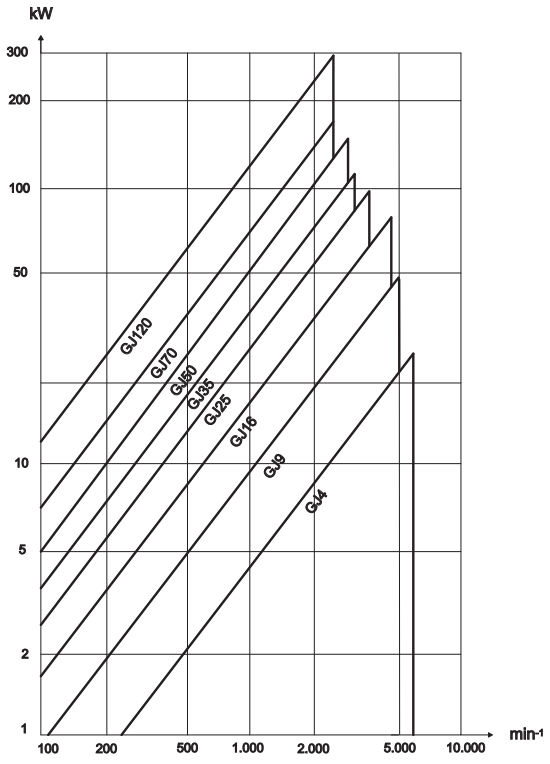
Size

Elastic element — **AJ 16**

AJ: elastic element

Size

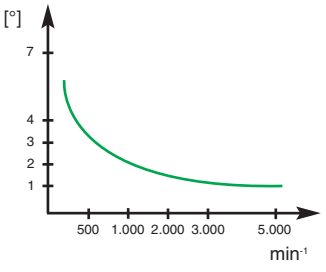
Power Rating



Radial Misalignment

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

Angular 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).

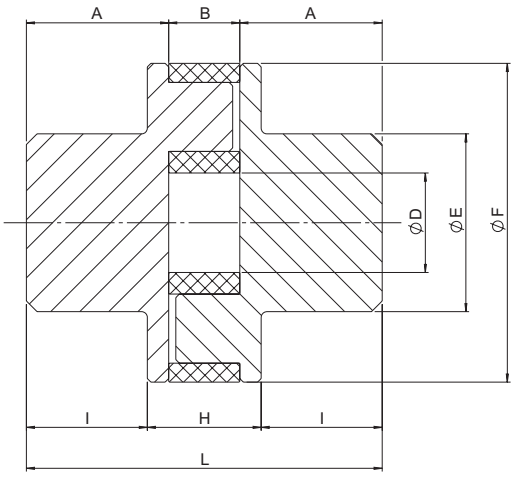
To mount the coupling, tighten the three screws not adjacent to the bores of the elastic element to the three arms of one hub and the three remaining bores of the elastic element to the other hub.

Tighten the screws with the torques indicated in the table.
Cut the metallic band when coupling is mounted.

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

"P" elastic coupling

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.

Order form

Hub **GOMP 35**

GOMP: "P" hub

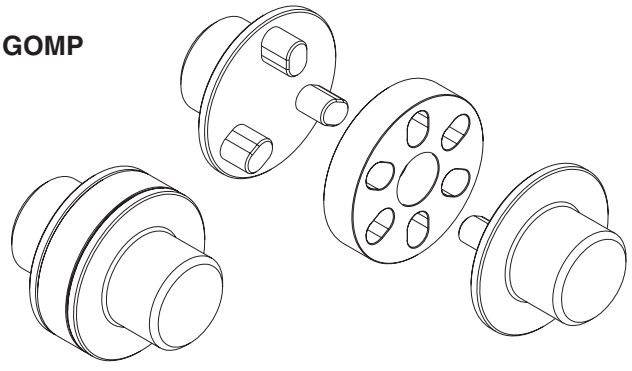
Size

Spider **AO 16**

AO: spider

Size

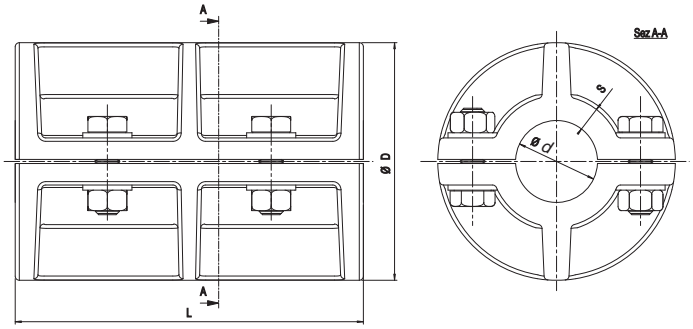
GOMP



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	°

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} [min^{-1}]	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	430	27,5	M24	10	870	710	-	11000
125	125	275	430	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

Order form

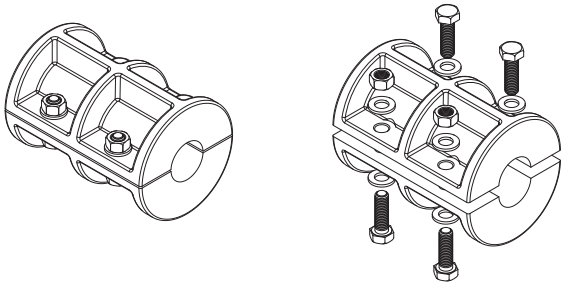
Coupling **GB 100**

GB: bolt coupling

Size

n_{max}	Maximum rpm	min^{-1}
M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm

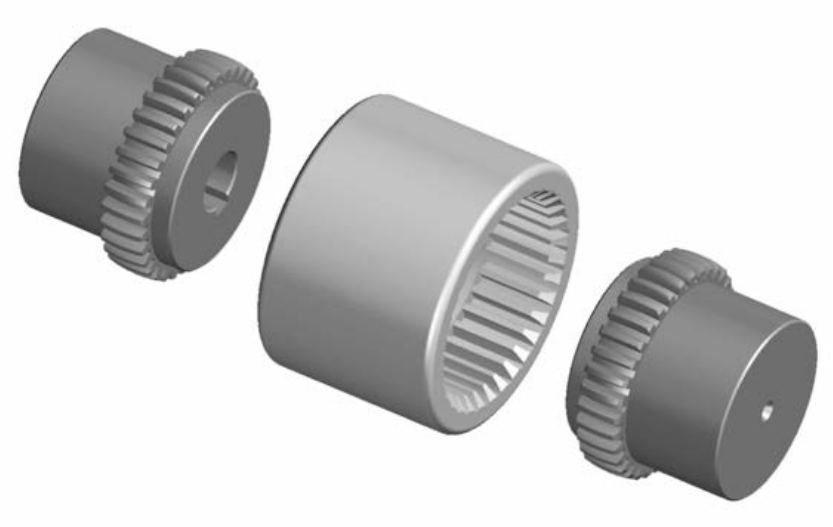
GB



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 super-polyamide resin.



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 compliance

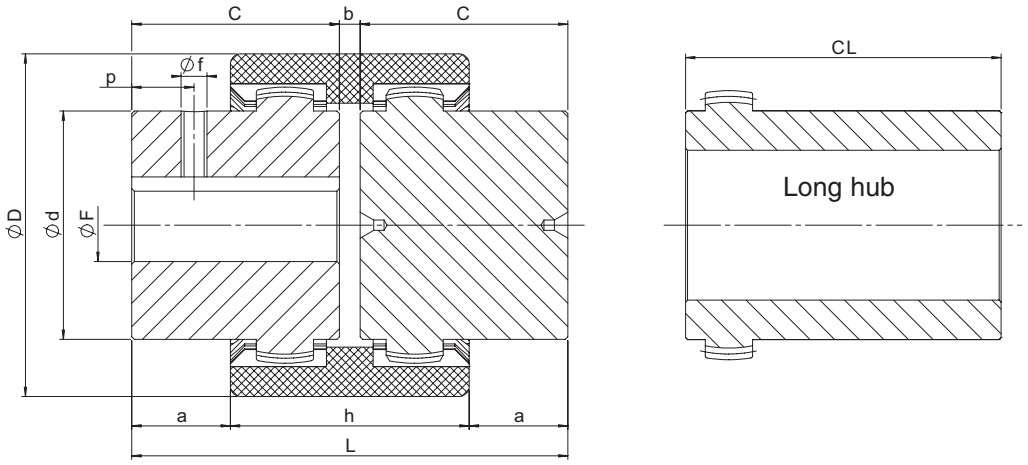
It is possible to ask for specific certification for use in hazardous area according to EC standard 94/9/EC. TRASCO couplings are available with specific mounting/operating instruction manual and conformity. For information, please contact our technical office.

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 EC standard ATEX.



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

* = 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

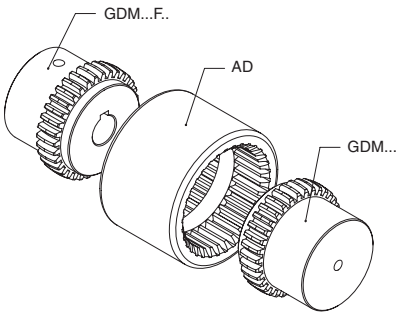
Order form

Hub **GDM 48 F32**

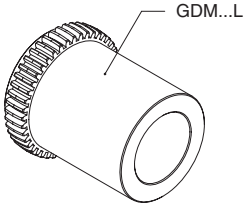
- GDM: SITEX® hub
- Size
- L: long hub execution
  F...: bore diameter

Manicotto **AD 48**

- AD: SITEX® sleeve
- Size



Standard couplings



Long hub execution

SITEX® coupling selection

Selection according to torque

The maximum starting torque of the driver or driven machine must not exceed the maximum torque capacity of SITEX®.
With uniform loading and well aligned shafts, SITEX® can be operated at all torques up to the maximum. In case of irregular torque, consider that the SITEX® coupling can bear peak loads up to 3 times the nominal torque indicated.

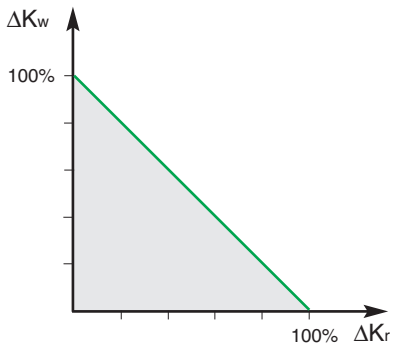
Technical characteristics

Size	T_{KN} [Nm]	T_{Kmax} [Nm]	T_{Kw} [Nm]	[kW]										n_{max} [min^{-1}]	W* [kg]	J* [kg.m^2]	ΔK_a [mm]	ΔK_r [mm]	ΔK_w [°]
				n = 500 [min^{-1}]		n = 750 [min^{-1}]		n = 1000 [min^{-1}]		n = 1500 [min^{-1}]		n = 3000 [min^{-1}]							
				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	11,7	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	20,4	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	43,3	0,329397	±1	±1,1	±1

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

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

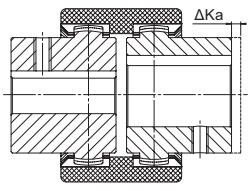
$$\frac{\Delta K_{rA}}{\Delta K_r} + \frac{\Delta K_{wA}}{\Delta K_w} \leq 1$$



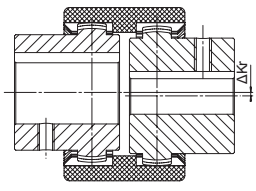
T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
W	Weight	kg
J	Coupling moment of inertia	kgm^2
ΔK_a	Maximum axial misalignment	mm
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°
n_{max}	Maximum rpm	min^{-1}

Mounting instructions

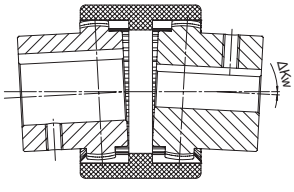
- Attach the hubs to the shafts, taking care to align the inner surfaces with the corresponding shaft ends.
- Insert the sleeve on the two hubs adjusting the distance (dimension “b”) of the same ones trying at the same time to align the two shafts as much as possible.
- Tighten into position the two elements to be coupled.
- Before rotating the coupling, be sure the sleeve is free to move axially.



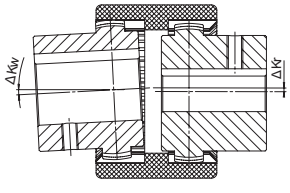
axial misalignment



radial misalignment

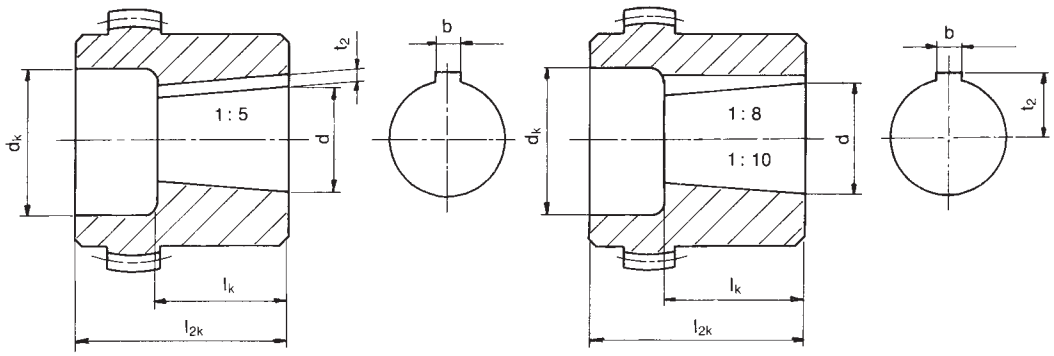


angular misalignment



both angular and radial misalignment

Tables for SITEX® couplings with taper or splined bores



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

Size	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

Size	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

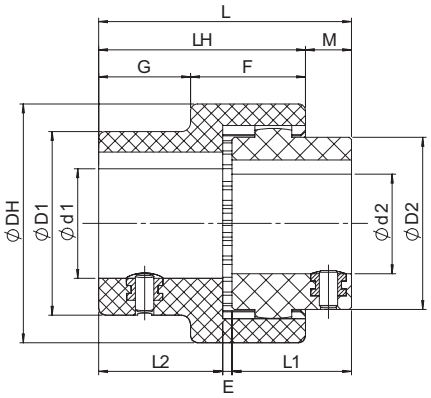
Taper 1 : 10 for
PARKER HANNIFIN NMF - TEVES

Size	d ø + 0,05	b^{JS9}	t^2+0,1	l_k	014		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

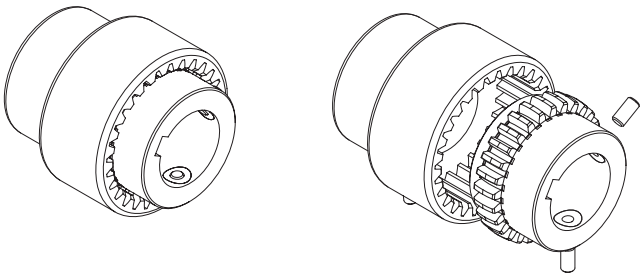
SITEX® Nylex

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).

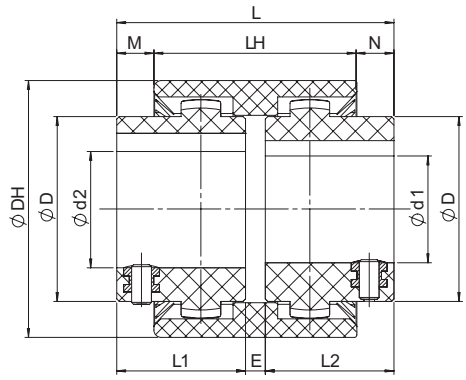
Designed for light applications, low cost and available with finished bore keyway and thread for set screw.
Temperature range: - 25 °C ÷ + 90 °C.
Approved according to EC standard ATEX.



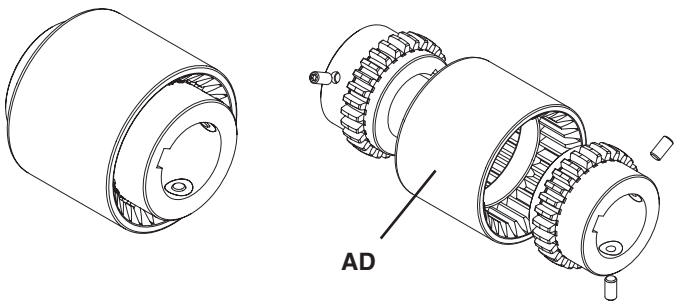
CV



Size	d1 [mm]			D1 [mm]	d2 [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} [min^{-1}]
	min	max	UNI keyway and set screw [mm]		min	max	UNI keyway and set screw [mm]														
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



Taglia	d1-d2 [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} [min^{-1}]
	min	max	UNI keyway and set screw [mm]													
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

Order form

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

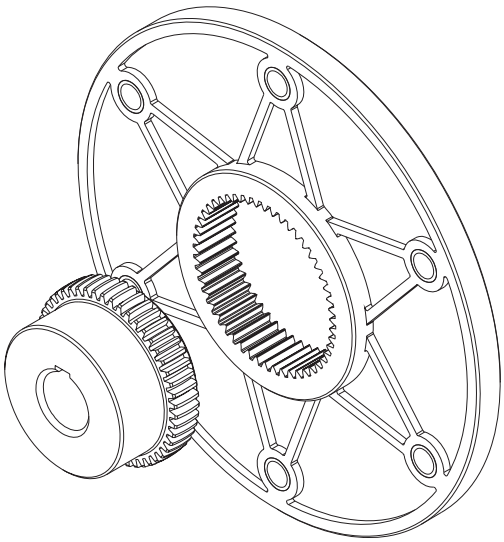
T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
T_{KW}	Torque with reversal transmissible by the coupling	Nm
n_{max}	Maximum rpm	min^{-1}

SITEX® FL

Description

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 EC standard ATEX.



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.

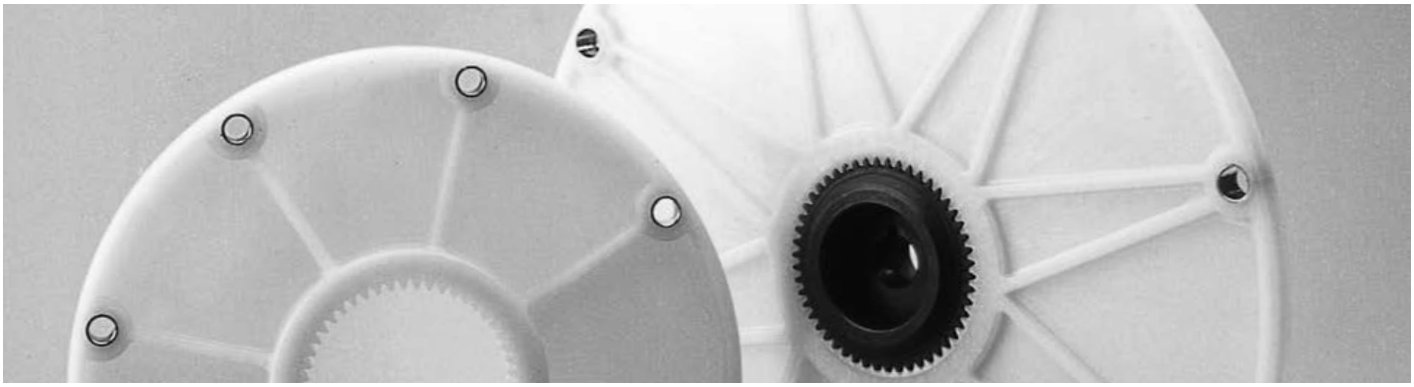
Maintenance free: The SITEX® FL joints are maintenance and lubrication free.

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

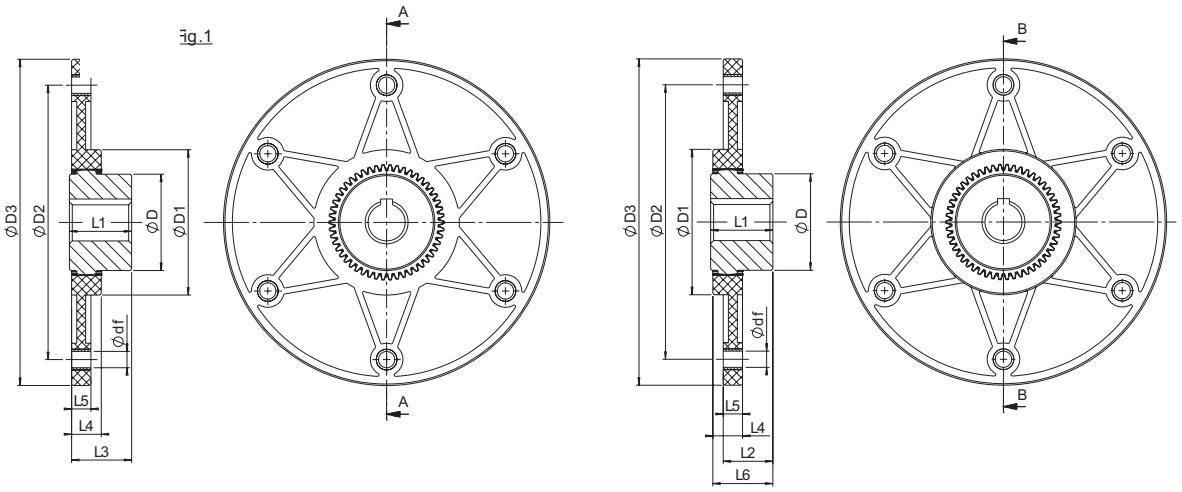
Angular misalignments: The special teeth allow angular misalignment correction, protecting the bearings against angular forces.

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.



Flange dimensions in accordance with SAE J620



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

Order form

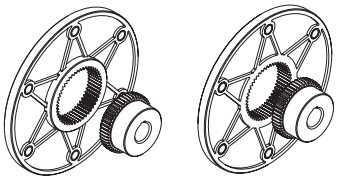
Hub **GDM 48 F32**

- GDM: SITEX® hub
- Size
- L: long hub execution
  F...: bore diameter

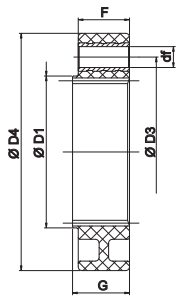
Flange **GDF 65 FL11-1/2**

- GDF: SITEX® FL Flange
- Bore
- SAE flange size

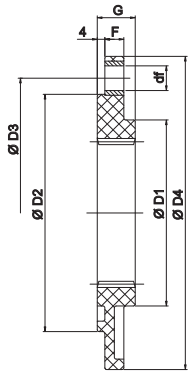
SITEX FL



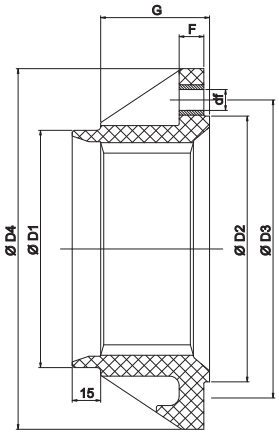
Special flange dimensions



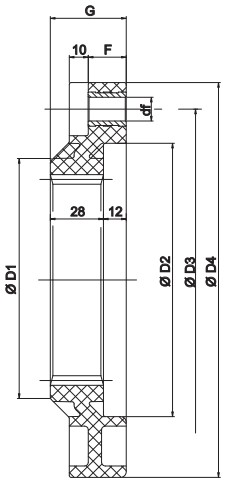
GDF 48 FL 125



GDF 48 FL 165
GDF 48P FL 165



GDF 65 FL 190

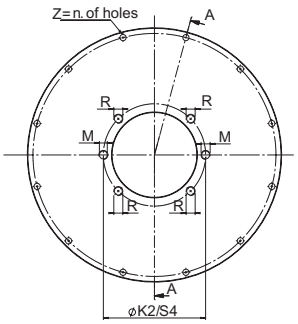


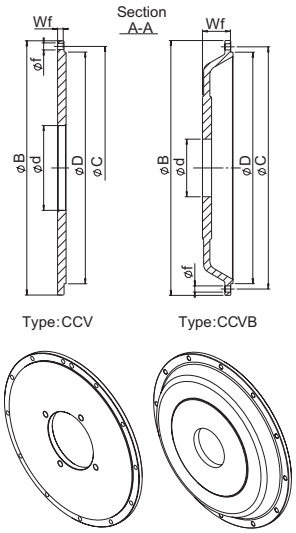
GDF 65 FL 208
GDF 65P FL 208

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

Flywheel bellhousing

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





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	-

Order form

Flywheel bell housing	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

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"

Technical characteristics

Size	Misalignment			Torque			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		SAE SITEX® FL 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	-				
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:

$$T_{KN} \geq T_N \quad k$$

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

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

Assembly

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:

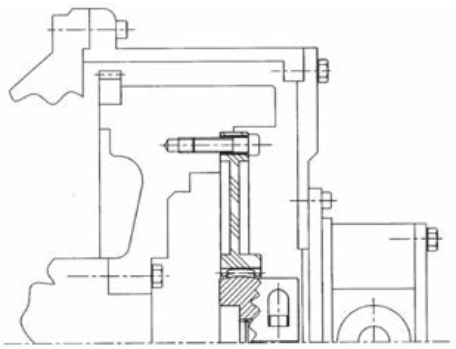
Screw	Ms
M 8	25 Nm
M 10	86 Nm
M 12	355 Nm

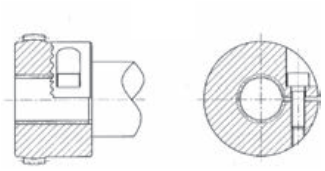
2) Center the fly-wheel cover plate in relation to the seat on the engine bellhousing. Tighten the screws.

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

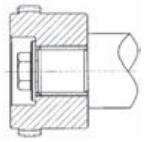
Coupling	Screw	Ms
42 - 48	M 10	49 Nm
65	M 12	86 Nm
80	M 16	355 Nm

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





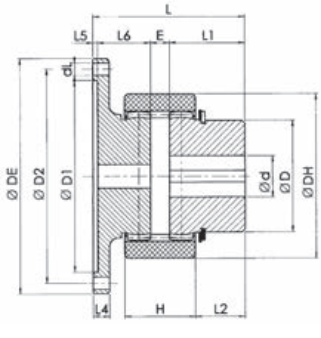
split clamp hub fastening



Lock nut & washer fastening

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
60 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

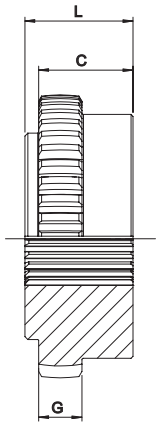


Fig.1

Splined bore hub

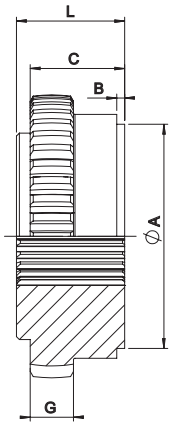


Fig.2

Splined bore hub

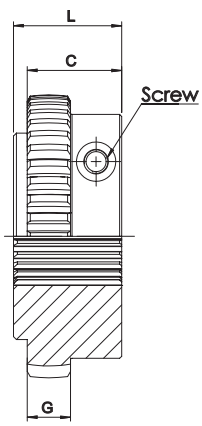


Fig.3

Clamping hub with splined bore

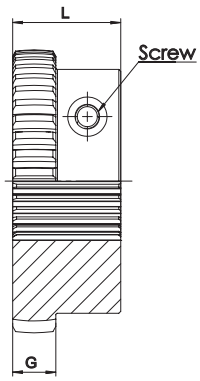


Fig.4

Clamping hub with splined bore

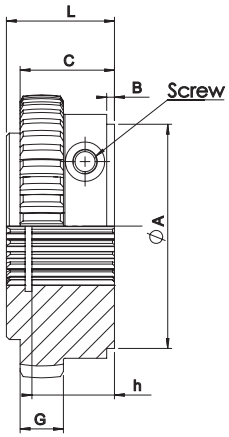


Fig.5

Clamping hub with splined bore and seeger-ring seating

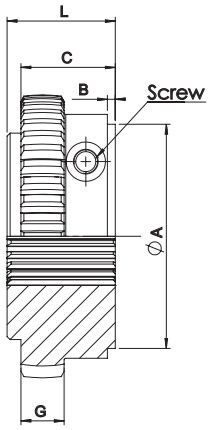


Fig.6

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

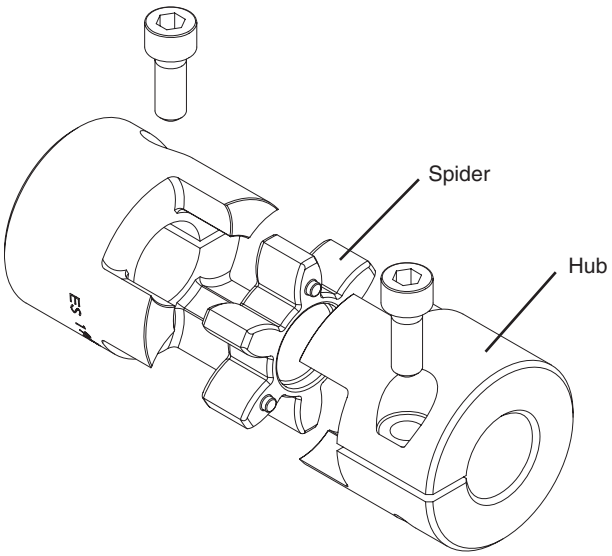
TRASCO® ES: “0” backlash coupling

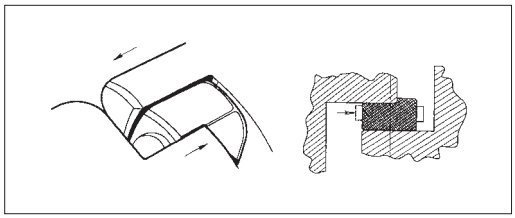
TRASCO® ES is our zero backlash coupling designed to compensate for misalignment and vibration dampening for indexing applications. The compact design of TRASCO® ES makes it the right choice for all precise motion applications.

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.

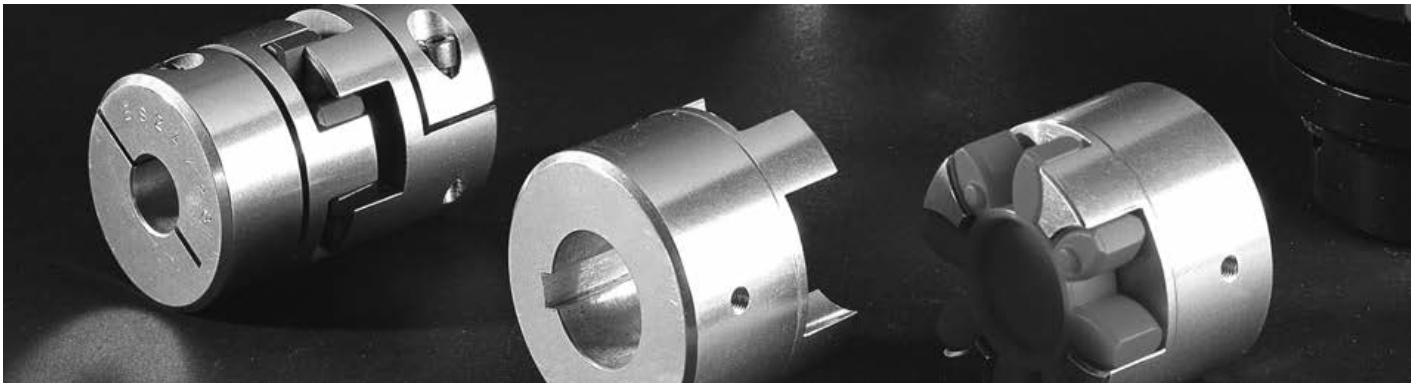
The element is available in 4 different hardnesses: **80 Sh. A (blue)**, **92 Sh. A (yellow)**, **98 Sh. A (red), 64 Sh. D (green).**
Coupling performance depends on the type of element selected (see **“Technical characteristics”**).
Other element hardnesses are available upon request to meet special 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.





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:

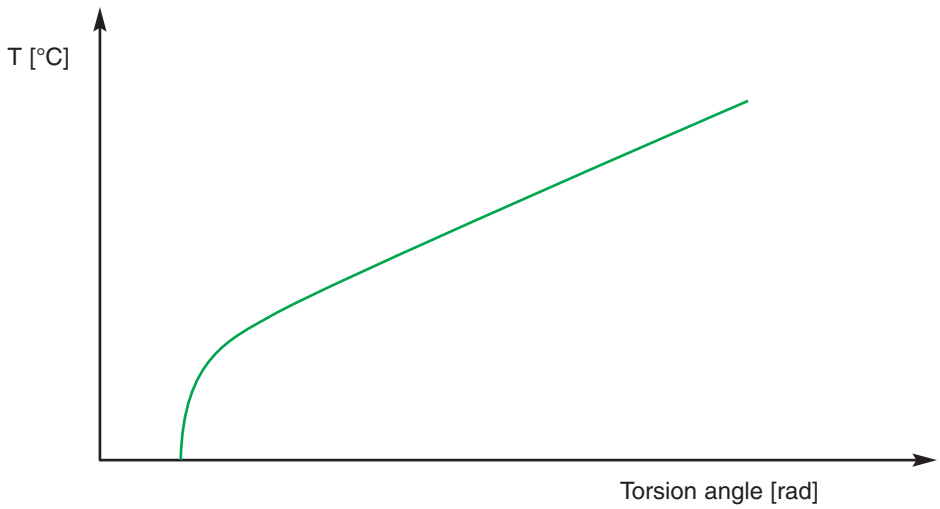
- servomotors
- robotics
- sliding tables
- spindle controls for drilling and grinding mandrels
- ball-bearing screws

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 compliance

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

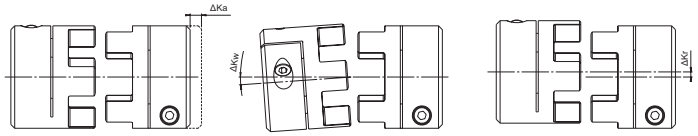
The following technical characteristics apply to all types of TRASCO® ES couplings.
When using the M, A and AP versions, check the torque values given in the table against the allowable hub transmission values for the respective versions given in the pertinent sections.
TRASCO® ES couplings can withstand 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	Shore	T_{KN} [Nm]	T_{Kmax} [Nm]	C_T stat. [Nm/rad]	C_T din. [Nm/rad]	Cr [N/mm]	▫Ka [mm]	▫Kr [mm]	▫Kw [°]
7	80 Sh.A (blue)	0,7	1,4	8	26	114	0,6	0,15	1,0
	92 Sh.A (yellow)	1,2	2,4	14	43	219	0,6	0,10	1,0
	98 Sh.A (red)	2,0	4	22	69	421	0,6	0,10	1,0
9	80 Sh.A (blue)	1,8	3,6	16	52	125	0,8	0,20	1,0
	92 Sh.A (yellow)	3,0	6	29	95	262	0,8	0,15	1,0
	98 Sh.A (red)	5,0	10	55	155	518	0,8	0,10	1,0
14	92 Sh.A (yellow)	7,5	15	114,6	344	336	1,0	0,15	1,0
	98 Sh.A (red)	12,5	25	171,9	513	604	1,0	0,09	0,9
	64 Sh.D (green)	16	32	234,2	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	1470	4470	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	2300	5130	1900	1,4	0,14	1,0
	98 Sh.A (red)	60	120	3700	8130	2940	1,4	0,10	0,9
	64 Sh.D (green)	75	150	4500	11500	4200	1,4	0,07	0,8
28/38	80 Sh.A (blue)	46	92	1370	2350	990	1,5	0,20	1,3
	92 Sh.A (yellow)	95	190	3800	7270	2100	1,5	0,15	1,0
	98 Sh.A (red)	160	320	4200	10800	3680	1,5	0,11	0,9
	64 Sh.D (green)	200	400	7350	18400	4900	1,5	0,08	0,8
38/45	92 Sh.A (yellow)	190	380	5600	12000	2900	1,8	0,17	1,0
	98 Sh.A (red)	325	650	8140	21850	5040	1,8	0,12	0,9
	64 Sh.D (green)	405	810	9900	33500	6160	1,8	0,09	0,8
42	92 Sh.A (yellow)	265	530	9800	20500	4100	2,0	0,19	1,0
	98 Sh.A (red)	450	900	15180	34200	5940	2,0	0,14	0,9
	64 Sh.D (green)	560	1120	16500	71400	7590	2,0	0,10	0,8
48	92 Sh.A (yellow)	310	620	12000	22800	4500	2,1	0,23	1,0
	98 Sh.A (red)	525	1050	16600	49400	6820	2,1	0,16	0,9
	64 Sh.D (green)	655	1310	31350	102800	9000	2,1	0,11	0,8
55	92 Sh.A (yellow)	410	820	13000	23100	3200	2,2	0,24	1,0
	98 Sh.A (red)	685	1370	24000	63400	7100	2,2	0,17	0,9
	64 Sh.D (green)	825	1650	42160	111700	9910	2,2	0,12	0,8
65	92 Sh.A (yellow)	625	1250	32560	43600	3800	2,6	0,25	1,0
	98 Sh.A (red)	950	1900	47500	71525	6400	2,6	0,18	0,9
	64 Sh.D (green)	1175	2350	117950	189000	8800	2,6	0,13	0,8
75	98 Sh.A (red)	1920	3840	79150	150450	8650	3,0	0,21	0,9
	64 Sh.D (green)	2400	4800	182300	316300	11900	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

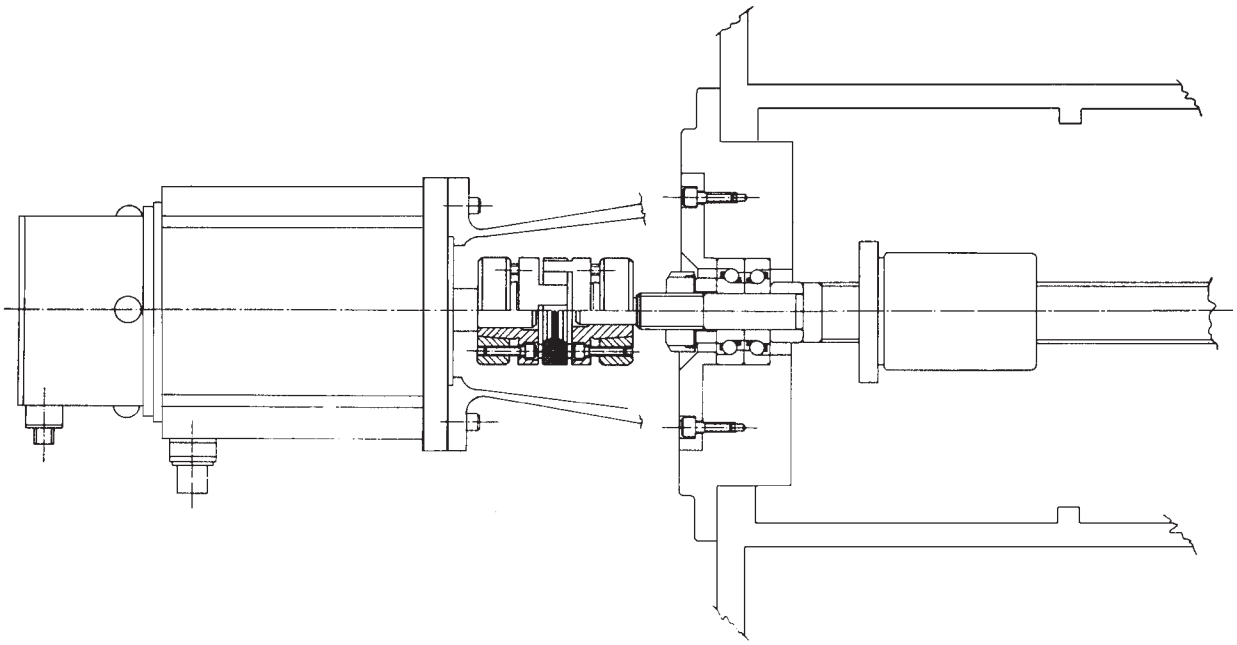


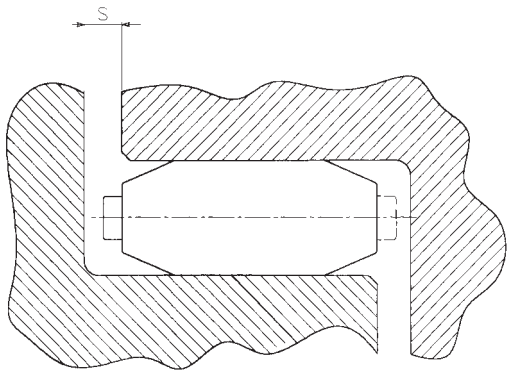
Axial Angular Radial

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	°

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.

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.

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

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.

$$T_{Kmax} \geq T_S \cdot S_Z \cdot S_\theta + T_K \cdot S_\theta \cdot S_D$$

Motor-side peaks: $T_S = T_{AS} \cdot \frac{1}{m+1} \cdot S_A + T_L$ (1)

Driven-side peaks: $T_S = T_{LS} \cdot \frac{m}{m+1} \cdot S_L + T_L$ (1)

3. Check the load with respect to periodic torque inversions

By means of resonance

When the resonance frequency is passed rapidly below the operational interval a few torque peaks will be seen.
The generated alternating loads must be compared with the maximum torque the coupling can support.

$$T_{Kmax} \geq T_S \cdot S_Z \cdot S_\theta + T_K \cdot S_\theta \cdot S_D$$

Motor-side peaks: $T_S = T_{AI} \cdot \frac{1}{m+1} \cdot V_R + T_L$ (1)

Driven-side peaks: $T_S = T_{LI} \cdot \frac{m}{m+1} \cdot V_R + T_L$ (1)

4. Check the load with respect to nonperiodic torque inversions

To check the load with respect to nonperiodic torque inversions, the following equations must be satisfied:

$$0{,}25\ T_{KN} = T_{KW} \geq T_W \cdot S_\theta \cdot S_f \cdot S_D$$

Motor-side peaks: $T_W = T_{AI} \cdot \frac{1}{m+1} \cdot V_{fi}$

Driven-side peaks: $T_W = T_{LI} \cdot \frac{m}{m+1} \cdot V_{fi}$

(1) T_L to be added if a torque peak occurs during acceleration.

Calculation coefficients

S_θ = Temperature factor

T [°C]	−30/+30	+40	+60	+80
S_θ	1	1,2	1,4	1,8

S_θ = Starting frequency factor

S/h	0-100	101-200	201-400	401-800	801-1.600
S_Z	1	1,2	1,4	1,6	1,8

S_f = Frequency factor

f in Hz	≤10	>10
S_f	1	$\sqrt{f/10}$

S_D = Torsional rigidity factor

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

S_L o S_A = Shock factor

Type of impact	S_L o S_a
Light	1,5
Medium	1,8
Strong	2,2

V_{fi} = Torque-Amplification factor = $\sqrt{\frac{1+\left(\frac{\psi}{2\pi}\right)^2}{\left(1-\frac{n^2}{n_R^2}\right)^2+\left(\frac{\psi}{2\pi}\right)^2}}$

n_R = Resonance frequency = $\frac{30}{\pi}\sqrt{C_{Tdin}\frac{J_A+J_L}{J_A \cdot J_L}}\ \left[\text{min}^{-1}\right]$

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_K = 10,0 Nm	Shock Type	Light
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 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:	Tcal = { 92 [Nm] bore 20 [mm]; 113 [Nm] bore 24 [mm]

Load check

$$T_{KN} = T_K \cdot S_\theta \cdot S_D = 10 \cdot 1{,}2 \cdot 4 = 48{,}0 \text{ [Nm]}$$

$$T_{KN} = 48{,}0 \text{ Nm} < T_{cal}$$

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

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

$$T_{Kmax} = T_S \cdot S_Z \cdot S_\theta + T_K \cdot S_\theta \cdot S_D = 13{,}2 \cdot 1{,}6 \cdot 1{,}2 + 12{,}5 \cdot 1{,}2 \cdot 4 = 85{,}34 \text{ [Nm]}$$

$$T_{Kmax} = 85{,}34 \text{ Nm} < T_{cal}$$

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}/T_{AI}	Driver-side peak torque	Nm
T_L	Acceleration delivered torque	Nm
T_{LS}/T_{LI}	Driven-side peak torque	Nm
V_R	Resonance factor	
V_{fi}	Torque amplification factor	
m	Mass factor	
J_A	Motor-side inertia	kgm²
J_L	Driven-side inertia	kgm²
Ψ	Dampening factor	

n_R	Resonance speed	min^{-1}
C_T	Torsional rigidity	Nm/rad
M_T	Transmissible torque moment	Nm
S_A	Motor-side shock factor	
S_L	Driven-side shock factor	
S_Z	Start frequency factor	
S_θ	Temperature factor	
S_D	Torsional rigidity factor	
S_f	Frequency factor	
T_W	Torque with reversal of the machine	Nm
T_{KW}	Torque with reversal transmissible by the coupling	Nm
T_{Cal}	Hub-shaft connection maximum torque	Nm

TRASCO® ES executions

FINISHED BORE HUBS EXECUTION

GES F execution

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

GES F C execution

From size 14.
Hub execution with finish bore, keyway and setscrew. Not suitable for backlash free drives with high reversing frequency or high start-tup frequency.

CLAMP HUBS EXECUTION

GES M execution

Clamping hub execution with single slot without keyway. Up to size 19/24. Backlash free hub design. Transmissible torque depends on bore diameter.

GES M execution

Clamping hub execution with double slot without keyway. From size 24/28. Backlash free hub design. Transmissible torque depends on bore diameter.

GES M...C execution

Camping hub execution with single slot and keyway. Up to size 19/24. The clamping pressure eliminates backlash in torque reversals.

GES M...C execution

Camping hub execution with double slot and keyway. From size 24/28. The camping pressure eliminates backlash in torque reversals.

GES 2M execution

Split camping hub execution for radial assembly of the coupling Torque depends on bore diameter. Execution “C” with keyway, as option can be delivered for a positive torque transmission with zero backlash. These executions are suitable for double cardanic applications.

SHRINK DISC EXECUTION

GES A 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.

GES AP execution

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

Standard type

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 EC standard ATEX.

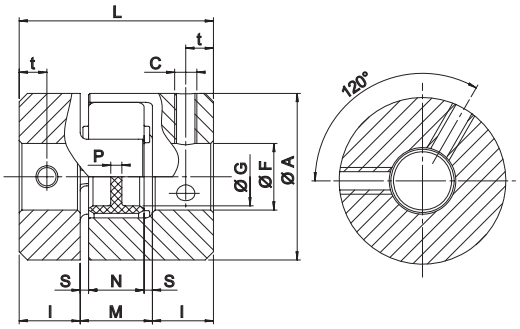


Fig. 1

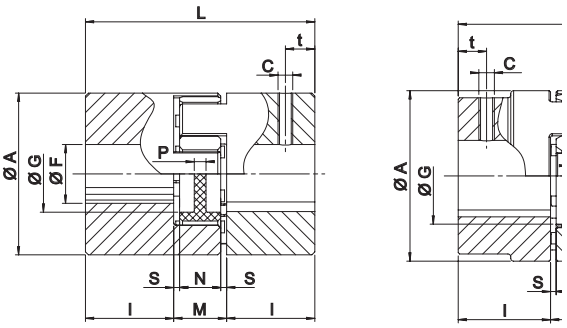


Fig. 2

Size	F min [mm]	F max [mm]	Hub W [kg]	Hub J [kgm²]	n_{max} [min⁻¹]
ALUMINUM HUBS					
7	3	7	0,003	0,085 x 10⁻⁶	40.000
9	4	9	0,009	0,49 x 10⁻⁶	28.000
14	4	15	0,020	2,8 x 10⁻⁶	19.000
19/24	6	24	0,066	20,4 x 10⁻⁶	14.000
24/28	8	28	0,132	50,8 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	27.464x 10⁻⁶	3.700

A [mm]	G [mm]	L [mm]	I [mm]	M [mm]	N [mm]	S [mm]	P [mm]	c	Ms [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
30	11	35	11	13	10	1,5	2,0	M4	1,5	5	2
40	18,5	66	25	16	12	2,0	3,5	M5	2	10	2
55	27,5	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	38,5	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	210	85	40	30	5,0	8,3	M10	17	25	2

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

Order form

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)

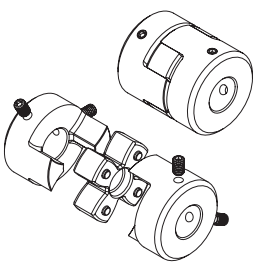


Fig. 1

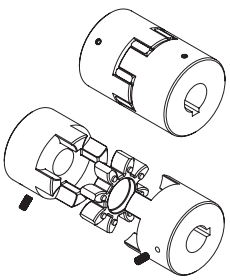


Fig. 2

M_S	Screw tightening torque	Nm
W	Weight	kg
J	Moment of inertia	kgm²
n_{max}	Maximum rpm	min⁻¹

"M" execution with clamp hubs

This type of coupling permits quick, positive mounting, without any shaft-hub backlash.
With the keyless coupling type, the torque applied for tightening down the screws (Ms) must be as given in the table.
The M coupling type is available with or without keyway.
Approved according to EC standard ATEX.

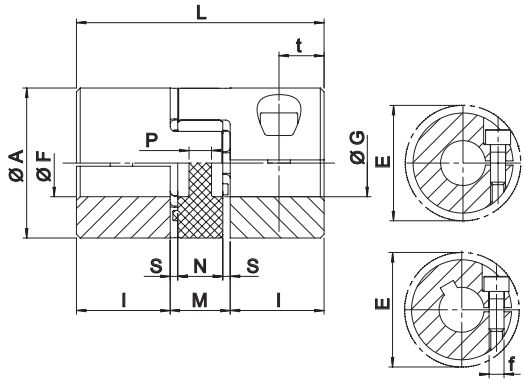


Fig. 1

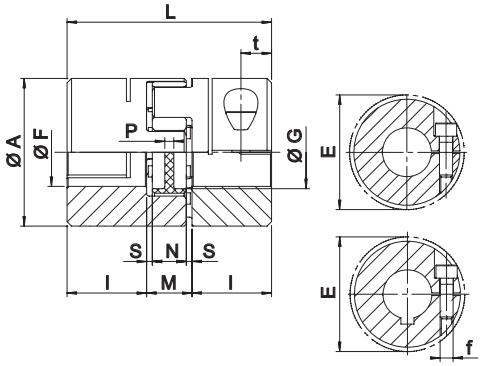


Fig. 2

Size	F min [mm]	F max [mm]	f	Ms [Nm]	Hub W [kg]	Hub J [kgm²]	nmax [min⁻¹]
ALUMINUM HUBS							
7	3	7	M2	0,35	0,003	0,085 x 10⁻⁶	40.000
9	4	9	M2,5	0,75	0,007	0,42 x 10⁻⁶	28.000
14	6	16	M3	1,4	0,018	2,6 x 10⁻⁶	19.000
19/24	10	20	M6	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	35	M8	25	0,240	163,9 x 10⁻⁶	8.500
38/45	19	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

Keyway position	A [mm]	G [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°	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
90°	55	27	78	30	18	14	2,0	4	12	56,4	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

From size 7 to 19/24: single slot execution
From size 24/28 to 65: double slot execution
Bore tolerance: F7 - JS9 (DIN 6885/1) keyway

Hub **GESM 48 F50**

GESM: TRASCO® ES hub

Size

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

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)

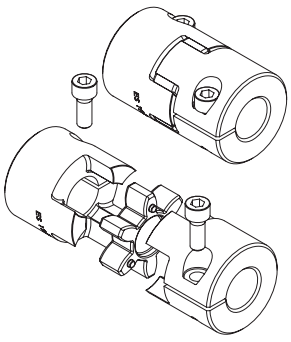


Fig. 1

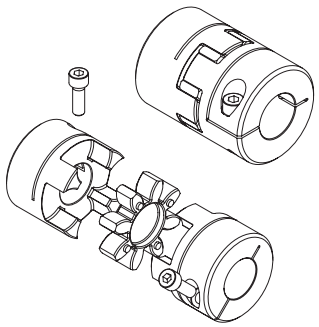


Fig. 2

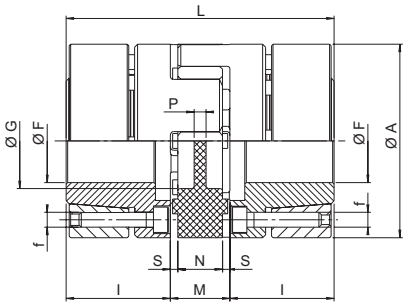
M_S	Screw tightening torque	Nm
W	Weight	kg
J	Coupling moment of inertia	kgm^2
n_{max}	Maximum rpm	min^{-1}

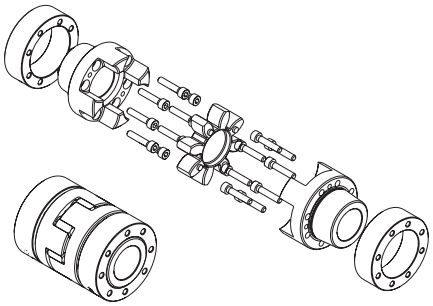
Using hub execution **M** without keyway, the maximum transmissible torque is the minor between the clamp-hub transmissible torque and the value stated in the section **"Technical characteristics".**

Size	Recommended **M** coupling Type Hub Bore Dia. [mm] and Transmissible Torque [Nm], valid for shaft tolerances k6																																	
	∅ 4	∅ 5	∅ 6	∅ 7	∅ 8	∅ 9	∅ 10	∅ 11	∅ 12	∅ 14	∅ 15	∅ 16	∅ 19	∅ 20	∅ 22	∅ 24	∅ 25	∅ 28	∅ 30	∅ 32	∅ 35	∅ 38	∅ 40	∅ 42	∅ 45	∅ 48	∅ 50	∅ 55	∅ 60	∅ 65	∅ 70	∅ 75	∅ 80
7	0,7	0,8	1	1,1																														
9	1,1	1,4	1,7	1,9	2,2	2,5																												
14			2,5	2,9	3,3	3,7	4,1	4,6	5	5,8	6,2	6,6																						
19/24							23	25	27	32	34	36	43	45																				
24/28							23	25	27	32	34	36	43	45	50	54	57	63																
28/38										58	62	66	79	83	91	100	104	116	124	133	145													
38/45													79	83	91	100	104	116	124	133	145	158	166	174	187									
42																	217	243	261	278	304	330	348	365	391	417	435							
48																	299	335	359	383	419	455	479	503	539	575	599	659						
55																					356	387	407	428	458	489	509	560	611	662	713			
65																							558	586	628	670	697	767	837	907	976	1046	1116	

“A” type - 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.
Approved according to EC standard ATEX.





Size	F min [mm]	F max [mm]	f	Screws per locking elements	Ms [Nm]	Hub W [kg]	Hub J [kgm²]	nmax [min-1]
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	38	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
40	18	66	25	16	12	2,0	3,5
55	27	78	30	18	14	2,0	4
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
120	60	160	65	30	22	4	9
135	68	185	75	35	26	4,5	8,3

Bore tolerance: H7

For the sizes 55 and 65 the ring changes with the bore. For further information please contact our Technical Office.

Using hub execution **A**, the shrink-disc maximum transmissible torque is the minor between the value stated in the table below and the value stated in section **“Technical characteristics”**.

Size	Recommended **A** coupling Type Hub Bore Dia. [mm] and Transmissible Torque [Nm], valid for shaft tolerances k6																								
	∅ 10	∅ 11	∅ 14	∅ 15	∅ 16	∅ 17	∅ 18	∅ 19	∅ 20	∅ 22	∅ 24	∅ 25	∅ 28	∅ 30	∅ 32	∅ 35	∅ 38	∅ 40	∅ 42	∅ 45	∅ 48	∅ 50	∅ 55	∅ 60	∅ 65	∅ 70
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

Order form

Hub — **GESA 48 F45**

- GESA: TRASCO® ES hub - “A” execution
- Size
- F...: bore diameter

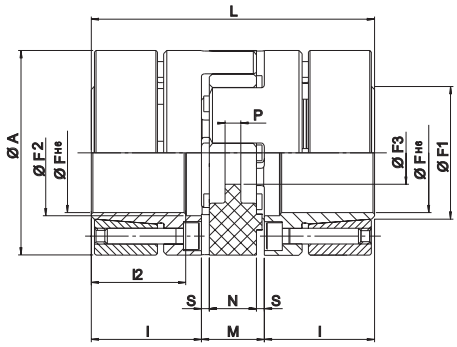
Spider — **AES 24/28 R**

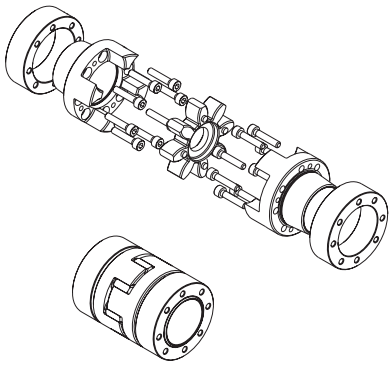
- TRASCO® ES spider
- Size
- B: blue; G: yellow; R: red; V: green

M_S	Screw tightening torque	Nm
W	Weight	kg
J	Coupling moment of inertia	kgm^2
n_{max}	Maximum rpm	min^{-1}

“AP” type - 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).



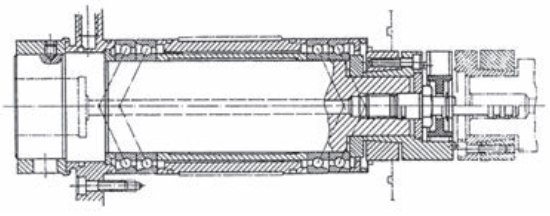


Size	F H6 [mm]	Ms [Nm]	Hub		nmax [min-1]
			W [kg]	J [kgm2]	
STEEL HUBS AND LOCKING ELEMENT					
14	14	1,89	0,080	11 x 10-6	28.000
19/24 - 37,5	16	3,05	0,160	37 x 10-6	21.000
19/24	19	3,05	0,190	46 x 10-6	21.000
24/28-50	24	4,90	0,330	136 x 10-6	15.500
24/28	25	8,50	0,440	201 x 10-6	15.500
28/38	35	8,50	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	35,00	4,740	10.020 x 10-6	6.300

A [mm]	L [mm]	I [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

Bore tolerance: H6

Spindle size	TRASCO® ES “AP”	98 Sh. A		64 sh. D	
		TKN [Nm]	TKmax [Nm]	TKN [Nm]	TKmax [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



Order form

Hub — **GESAP 48 F45**

- GESAP: TRASCO® ES hub - “AP” execution
- Size
- F...: bore diameter

Spider — **AESP 24/28 R**

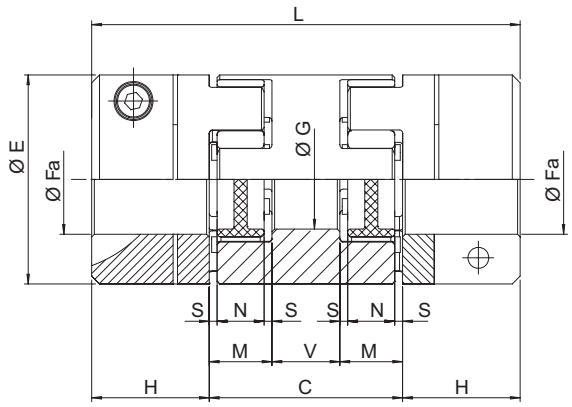
- TRASCO® ES spider - “AP” execution
- Size
- R: red; V: green

M_S	Screw tightening torque	Nm
W	Weight	kg
J	Coupling moment of inertia	kgm^2
n_{max}	Maximum rpm	min^{-1}

“GESS” 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.



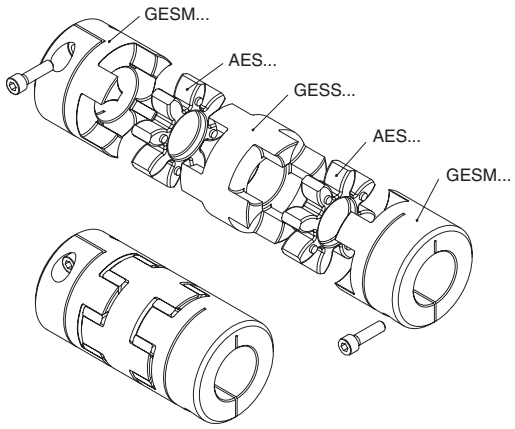
Size	Fa min [mm]	Fa max [mm]	E [mm]	A [mm]	C [mm]	H [mm]	L [mm]	V [mm]	M [mm]	S [mm]	N [mm]	G [mm]	W [kg]	J [kg m²]
					ALUMINUM HUBS			**ALUMINUM GESS**						
7	3	7	14	–	20	7	34	4	8	1	6	–	0,003	0,00000008
9	4	9	20	–	25	10	45	5	10	1	8	–	0,007	0,0000004
14	6	15	30	–	34	11	56	8	13	1,5	10	–	0,024	0,000003
19/24	10	20	40	–	42	25	92	10	16	2	12	18	0,05	0,000013
24/28	10	28	55	–	52	30	112	16	18	2	14	27	0,14	0,00006
28/38	14	35	65	–	58	35	128	18	20	2,5	15	30	0,22	0,00013
38/45	15	45	80	–	68	45	158	20	24	3	18	38	0,35	0,00035
					STEEL HUBS			**ALUMINUM GESS**						
42	20	45	95	75	74	50	174	22	26	3	20	46	0,51	0,0007
48	25	60	105	85	80	56	192	24	28	3,5	21	51	0,67	0,001
55	25	70	120	110	88	65	218	28	30	4	22	60	0,97	0,002
65	25	75	135	115	102	75	252	32	35	4,5	26	68	1,43	0,004

Order form

Spacer element **GESS 24**

GESS: spacer element

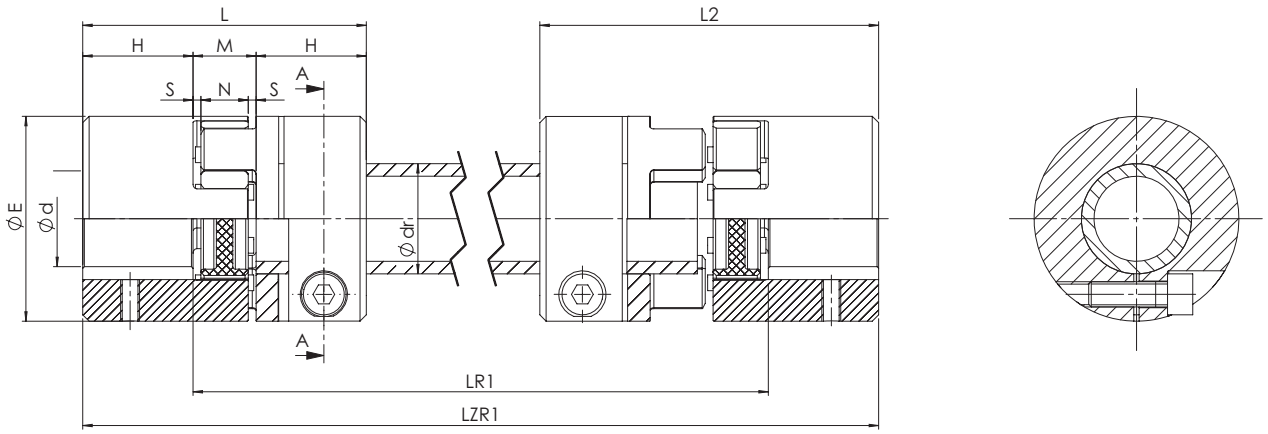
Size: 24/28



W	Weight	kg
J	Coupling moment of inertia	kgm^2

“GES LR1” execution with intermediate shaft

This zero backlash execution, allows connection to long distance shafts in applications such as lifting screw jacks, gantry robot etc. The intermediate shaft is made of steel but may be of different material for specific need.
The presence of 2 spiders, increases the dampening properties and allow high misalignments.

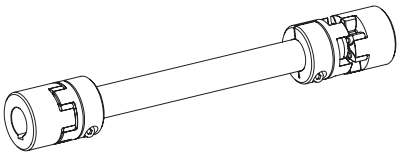


Size	External hub		Internal hub		
	Dimensions finished bores		Screws Din912-8.8 M·L	M_S [N·m]	M_T [N·m]
	dmin [mm]	dmax [mm]			
14	4	15	M3x12	1,34	6,1
19/24	6	24	M6x18	10	34
24/28	8	28	M6x20	10	45
28/38	10	38	M8x25	25	105
38/45	12	45	M8x30	25	123

E [mm]	H [mm]	L [mm]	M [mm]	N [mm]	s [mm]	L2 [mm]	LR1 [mm]	LR1 min [mm]	LZR1 [mm]	d_R x thickness [mm]
30	11	35	13	10	1,5	46,5	On request	65	LR1+22	14 x 2.0
40	25	66	16	12	2,0	80		85	LR1+50	20 x 3.0
55	30	78	18	14	2,0	94		96	LR1+60	25 x 2.5
65	35	90	20	15	2,5	107,5		111	LR1+70	35 x 4.0
80	45	114	24	18	3,0	135		126	LR1+90	40 x 4.0

Coupling configurator

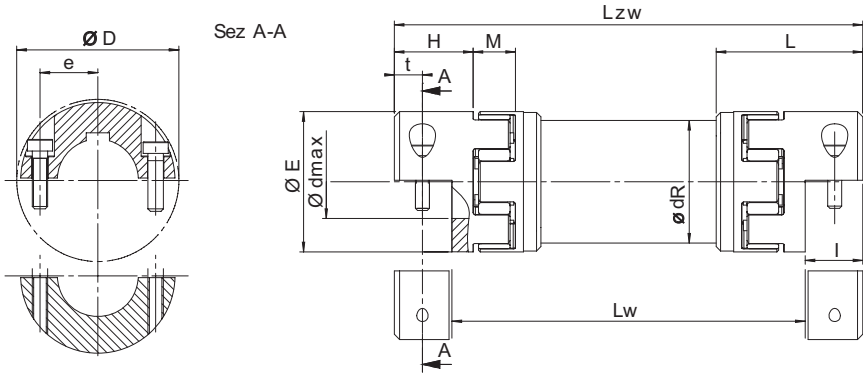
Coupling code	Item	Type	Execution	Bore diameter	Order example
GESL38/45	*Hub 1*	GESP	-	-	GESF38/45F35
		GESF	-	F…	
		GESM	F-C	F…	
		GESA	-	F…	
	Spider 1	AES	B-G-R-V	-	AES38/45V
	Length LR1				LR1= 1200 mm
	Spider 2	AES	B-G-R-V	-	AES38/45V
	Hub 2	GESP	-	-	GESF38/45F35
		GESF	-	F…	
		GESM	F-C	F…	
		GESA	-	F…	



M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm

“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.

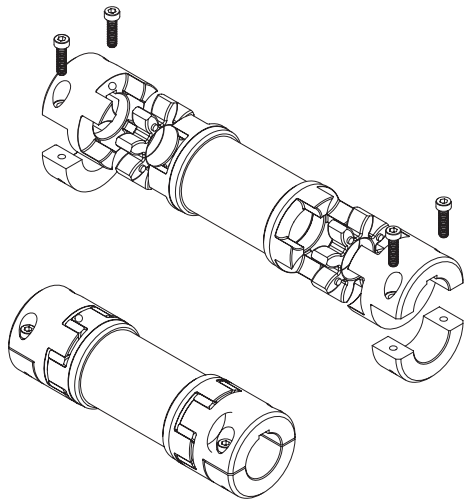


Size	Dimensions finished bores		Clamping		Moment of inertia [10^3 kgm^2] with d_{max} hub 1			Torsional rigidity
	dmin [mm]	dmax [mm]	Screws DIN 4762-8.8	Ms [Nm]	Hub 1 J_1	Hub 2 J_2	Shaft J_3	C_T [Nm/rad]
19	8	20	M6	10	0,02002	0,01304	0,340	3003
24	10	28	M6	10	0,07625	0,04481	0,0697	6139
28	14	38	M8	25	0,17629	0,1095	1,243	10936
38	18	45	M8	25	0,50385	0,2572	3,072	27114
42	22	50	M10	49	1,12166	0,5523	4,719	41591
48	22	55	M12	86	1,87044	1,1834	9,591	84384

E [mm]	H [mm]	I [mm]	L [mm]	M [mm]	Lw [mm]	Lw min [mm]	Lzw [mm]	D [mm]	t [mm]	e [mm]	dR [mm]
40	25	17,5	49	16	Length on request	98	Lw+35	47	8	14,5	40
55	30	22	59	18		113	Lw+44	57	10,5	20	50
65	35	25	67	20		131	Lw+50	73	11,5	25	60
80	45	33	83,5	24		163	Lw+66	84	15,5	30	70
95	50	36,5	93	26		180	Lw+73	94	18	36	80
105	56	39,5	103	28		202	Lw+79	105	18,5	36	100

Coupling configurator

Coupling code	Item	Type	Execution	Bore diameter	Order example
GESLR38/45	*Hub 1*	GESP	-	-	GESM38/45F35
		GESF	-	F…	
		GESM	F-C	F…	
		GESA	-	F…	
	Spider 1	AES	B-G-R-V	-	AES38/45V
	Distanza tra gli alberi Lw				Lw= 1200 mm
	Spider 2	AES	B-G-R-V	-	AES38/45V
	Hub 2	GESP	-	-	GESM38/45F35
		GESF	-	F…	
		GESM	F-C	F…	
		GESA	-	F…	



M_S	Screw tightening torque	Nm
J	Coupling moment of inertia	kgm^2
C_T	Torsional rigidity	Nm/rad

Size	Bores and torques for friction with hub without keyway [Nm]																								
	∅ 8	∅ 10	∅ 11	∅ 14	∅ 15	∅ 16	∅ 18	∅ 19	∅ 20	∅ 22	∅ 24	∅ 25	∅ 28	∅ 30	∅ 32	∅ 35	∅ 38	∅ 40	∅ 42	∅ 45	∅ 46	∅ 48	∅ 50	∅ 55
19	17	21	23	30	32	34	38	40	42															
24		21	23	30	32	34	38	40	42	47	51	53	59											
28				54	58	62	70	74	78	86	93	97	109	117	124	136	148							
38							70	74	78	86	93	97	109	117	124	136	148	156	163	175				
42										136	149	155	174	186	198	217	235	248	260	279	285	297	310	
48										199	217	226	253	271	290	317	344	362	380	407	416	434	452	498

Technical data for intermediate shaft couplings (GES LR1 - GES LR3)

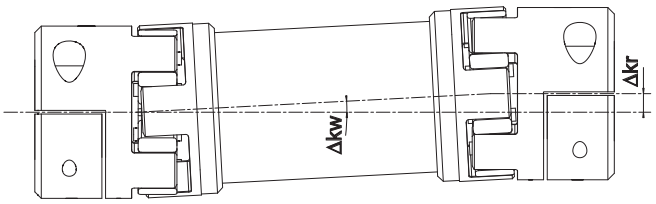
Size	Misalignment	
	Assial ΔK_a [mm]	Angular ΔK_w [°]
14	1,0	0,9
19/24	1,2	0,9
24/28	1,4	0,9
28/38	1,5	0,9
38/45	1,8	0,9

Angular misalignment = 0,9° per spider

$$C_{Tot} = \frac{1}{2 \cdot \frac{1}{C_{T\,spider}} + \frac{L_{intermediate\ shaft}}{C_{T\,intermediate\ shaft}}} \quad [Nm/rad]$$

$$L_{intermediate\ shaft} = \frac{L_{zw} - 2 \cdot L}{1000} \quad [mm]$$

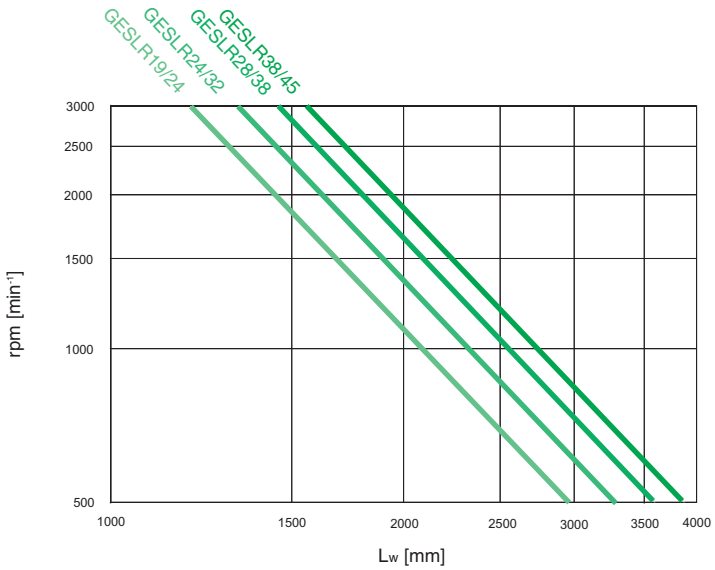
with L_{zw} = total coupling length



Radial misalignment

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

Selection diagram GES LR3 coupling



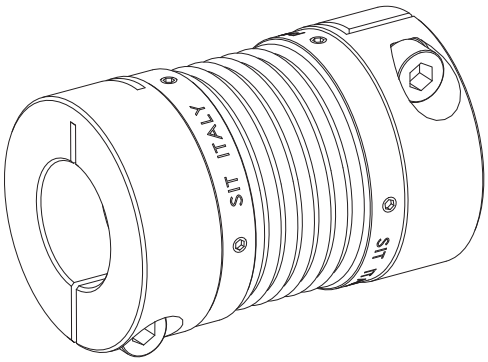
SERVOPLUS® couplings

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.

SERVOPLUS® couplings feature:

- 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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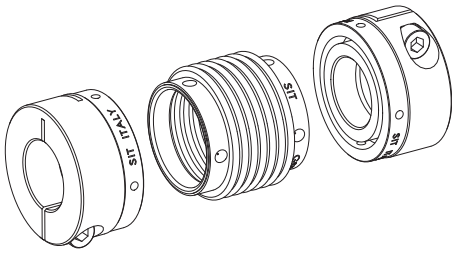
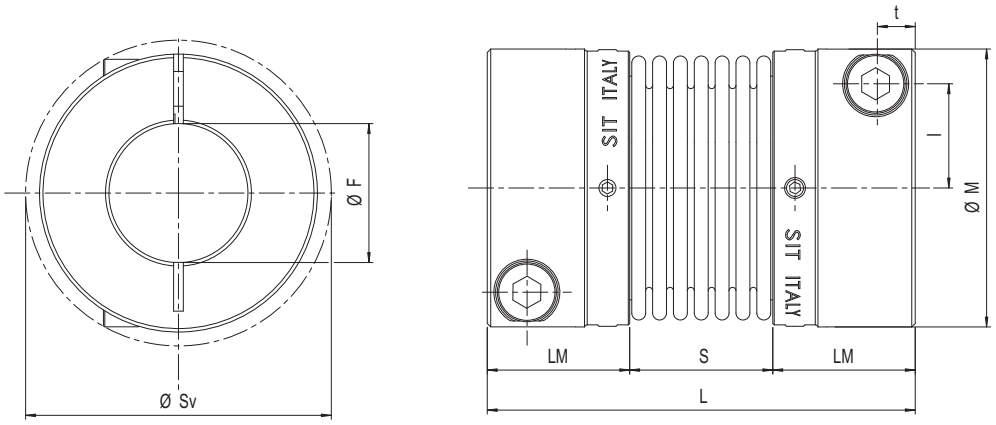


SERVOPLUS® high tech bellows couplings

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									
	Pilot bore	F		M	S_V	L_M	S	L	Type	t	l	M_S [Nm]	Type	M_S [Nm]	T_{KN} [Nm]	T_{Kmax} [Nm]	n_{max} [min^{-1}]	Moment of inertia [$x10^{-6}$ Kgm^2]	Torsional rigidity C_T [Nm/rad]	Axial spring stiffness [N/mm]	Radial spring stiffness [N/mm]	Misalignments			W*
		min	max																			□ka	□kr	□kw	[kg]
16	4,5	5	16	34	36	17	16,5	50,5	M4	4,5	12	2,9	M3	0,8	5	10	14000	14	3050	29	92	±0.5	0,2	1,5	0,082
20	7,5	8	20	40	44	20,5	21	62	M5	5,5	15	6	M3	0,8	15	30	11900	34	6600	42	126	±0.6	0,2	1,5	0,135
30	9,5	10	30	55	58	22,5	27	72	M6	6,5	20	10	M4	2	35	70	8700	140	14800	65	155	±0.8	0,25	2	0,289
38	13,5	14	38	65	73	26	32	84	M8	8	25	25	M4	2	65	130	7300	310	24900	72	212	±0.8	0,25	2	0,438
45	13,5	14	45	83	89	31	41	103	M10	9,5	30	49	M5	3,8	150	300	5800	1056	64000	88	492	±1,0	0,3	2	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**

Order form

Hub and Bellows **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	min^{-1}
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.

Coupling selection

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
Ts = 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 $= T_{LS} \cdot m_L$

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

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:

$$\beta = \frac{180 \cdot T_{AS}}{\pi \cdot C_T} \ [^\circ]$$

With C_T = torsional stiffness of the coupling [Nm/rad]

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

Verify misalignment
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%.

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

- **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 double of 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∝

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.

“SM” SERVOMATE disc couplings

SM 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.

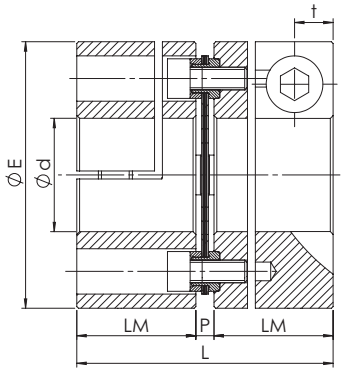


Fig. 1

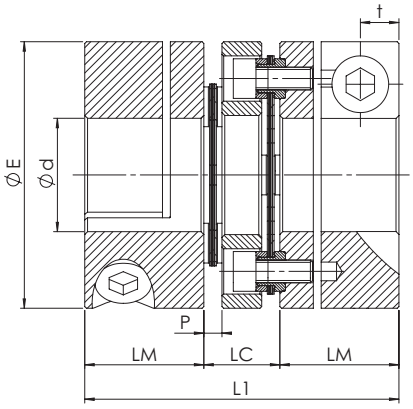


Fig. 2

Size	Dimensions [mm]								Screw		Weights and moments of inertia				T_{KN} [Nm]	T_{Kmax} [Nm]	Max. speed [rpm]
											Fig. 1		Fig. 2				
	d_{max}	E	LC	LM	L	L1	P	t	Type	M_S [Nm]	W* [Kg]	J* [Kg · m²]	W* [Kg]	J* [Kg · m²]			
15	20	47	13	21	45	55	3	6,8	M6	10	0,16	$52 \cdot 10^{-6}$	0,20	$63 \cdot 10^{-6}$	20	40	16000
20	25	59	19	24	52	67	4	6,5	M6	10	0,30	$149 \cdot 10^{-6}$	0,40	$194 \cdot 10^{-6}$	30	60	12000
25	35	70	24	32	69	88	5	9	M8	25	0,53	$384 \cdot 10^{-6}$	0,66	$492 \cdot 10^{-6}$	60	120	10000

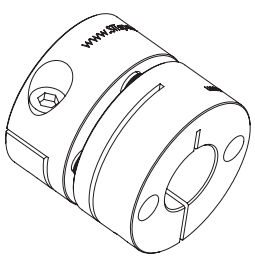
*= with max bore

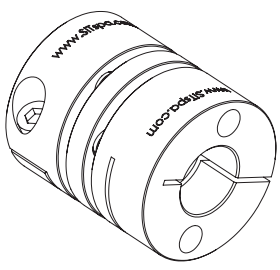
Size	Trasmissible torque [Nm] related to shaft diameter [mm]														
	Ø10	**Ø11**	**Ø12**	**Ø14**	**Ø15**	**Ø16**	**Ø19**	**Ø20**	**Ø22**	**Ø24**	**Ø25**	**Ø28**	**Ø30**	**Ø32**	**Ø35**
15	20	22	24	28	30	32	38	40	-	-	-	-	-	-	-
20	-	-	24	28	30	32	38	40	44	48	50	-	-	-	-
25	-	-	-	-	55	59	70	73	81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

Order form

Hub/Disc pack — **GSM 020 M**

- GSM SERVOMATE hub
- Size
- M: solid standard hub
  PL: Disc pack
  C: Spacer





SAFEMAX zero backlash 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 Ever 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 ofthe 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.

Features

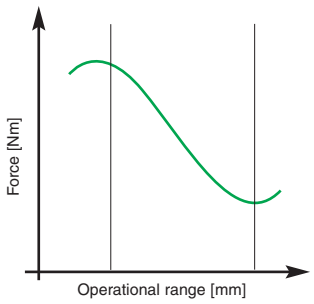
- Backlash-free torque transmission
- Low moment of inertia
- Compact design
- Maintenance-free
- Disengagement within 1-3 milliseconds
- Easy and safe adjustment of the torque
- Re-engagement to 360 ° or in phase

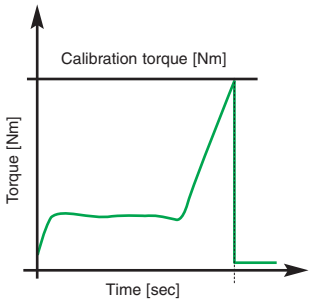
Applications

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

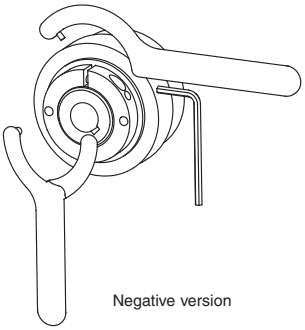
SIT torque limiters are available with regressive springs.
When an overload occurs, there is an immediate disengagement of the torque limiter within a few milliseconds, saving the machine from possible damage.
When the overload ends, the torque limiter re-engages after 360° or in optional preset phases.

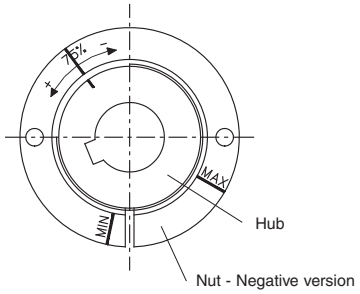
Graph of spring characteristic curve



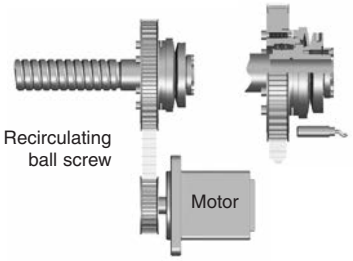
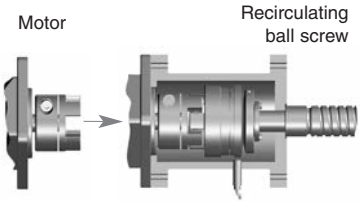
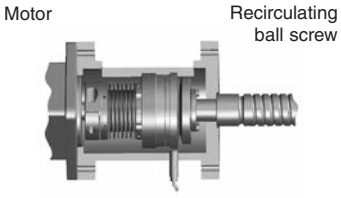
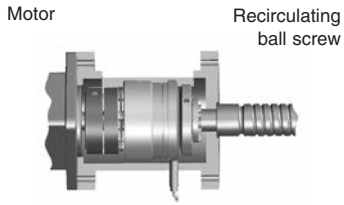


It is possible to govern the torque by the adjusting nut. Unless specifically requested, SIT limiters are designed to operate at 75% of the maximum transmissible torque. In order to allow different settings, there are reference markings on nut and hub. Moreover, there are the markings of the minimum 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 counter anticlockwise it increases.


Negative version



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	 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	 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	 Mounting with SERVOMATE® GSM coupling with clamping hub

Label code

www.sitspa.com	SAFEMAX	SPGLSNA35/E-4	150Nm	N13

Type: SPGLSN

Execution:
- = Torque limiter
A = with TRASCO ES Coupling
S = with SERVOPLUS Coupling
M = with SERVOMATE Coupling

Size

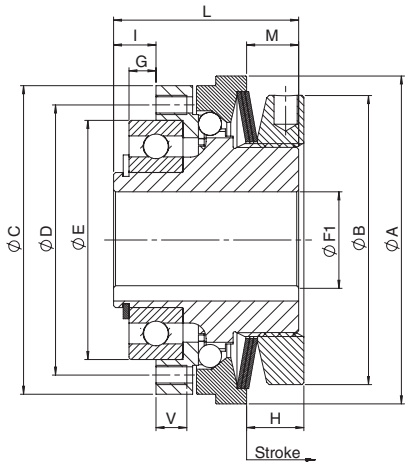
Re-engagement:
... = every 360°
/E = in equidistant phase

Number of springs

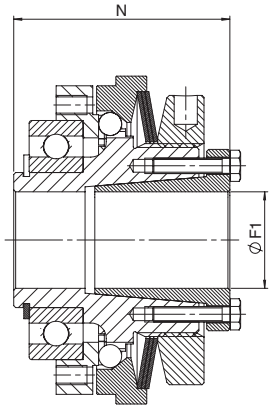
Torque

Production code

SAFEMAX - Torque limiters “GLS/SG/N”



Bore and keyway execution



Locking device execution

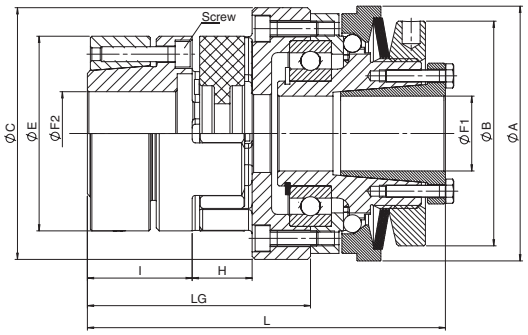
Torque limiter size	Dimensions											
	F1 max [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	I [mm]	L [mm]	M [mm]	N [mm]	V [mm]
12	12	44	38	40	35	30	2	4,5	24	7	28,5	5
17	17	50	42	47	42	37	2	5	29	8,5	34,5	5
20	20	70	62	65	56	47	4	8	40	12	47	6
25	25	85	75	80	71	62	7	11	48	13,5	56	7
35	35*	100	82	95	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

*F_1 : maximum diameter for finished bore with reduced keyway according to UNI 7510. Bore tolerance H7.

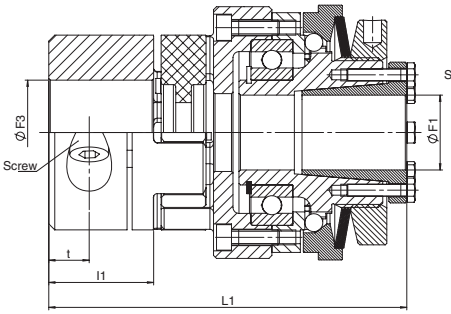
	Size			12	17	20	25	35	42	50
Torque limiter	Limit torques for overload		[Nm]	0,7 - 5	2 - 15	5 - 50	9 - 100	20 - 200	35 - 415	75 - 720
	Maximum speed		[rpm]	4000	4000	4000	3000	2500	2000	1200
	Thrust washer stroke on overload		[mm]	0,8	1,0	1,1	1,3	1,5	2,0	2,2
Mass moments of inertia	Nut side	Bore and keyway	[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
		Tightening 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	)	0,6 - 1,5	2 - 5	5 - 14	9 - 28	20 - 45	35 - 100	75 - 190
		2N	))	1,5 - 3	4 - 9	12 - 28	18 - 60	42 - 95	75 - 200	140 - 345
		3N	)))	2,7 - 5	7 - 15	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.

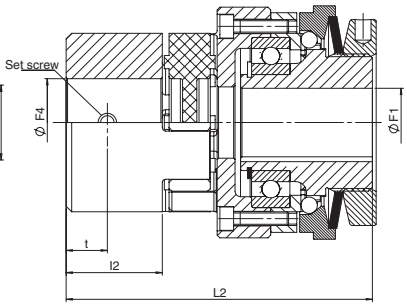
SAFEMAX - Torque limiters “GLS/SG/N” with TRASCO® ES



Locking device execution / GESA



Locking device execution / GESM

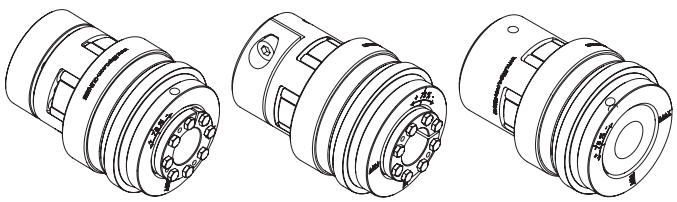


Bore and keyway execution / GESF

Torque limiter size	TRASCO® ES size	Dimensions											
		F_1 max [mm]	F_2 max [mm]	F_3 max [mm]	F_4 max [mm]	A [mm]	B [mm]	C [mm]	E [mm]	I [mm]	H [mm]	L_g [mm]	L [mm]
12	14	12	14	15	15	44	38	44	30	18,5	13	42	66
17	19/24	17	20	20	24	50	42	52	40	25	16	53	82,5
20	24/28	20	28	28	28	70	62	68	55	30	18	63	102
25	28/38	25	38	35	38	85	75	84	65	35	20	74,5	119,5
35	38/45	35*	45	45	45	100	82	100	80	45	24	93	146
42	42	42	50	50	55	115	97	115	95	50	26	100	157
50	48	50	60	55	60	135	117	138	105	56	28	110,5	178,5

*: maximum diameter for finished bore with reduced keyway according to UNI 7510.
F_1, F_2, F_3, F_4: bore tolerance H7.

	Size		12	17	20	25	35	42	50
Torque limiter	Limit torques for overload	[Nm]	0,7 - 5	2 - 15	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

Mass 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

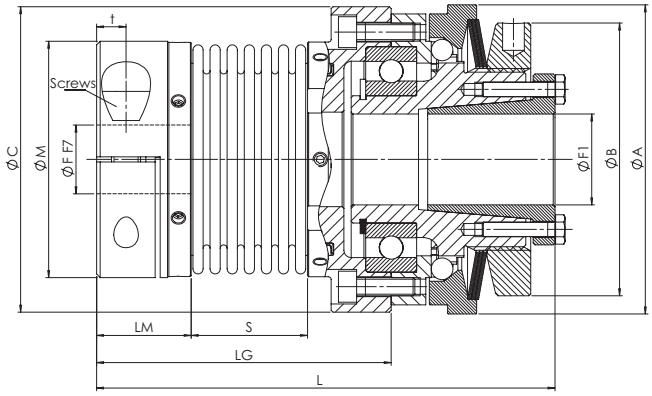
Screws	Clamping device torque limiter	N° and type	-	6 x M3	6 x M3	8 x M4	8 x M5	8 x M6	8 x M6	8 x M8
		Tightening torque	[Nm]	1,5	1,5	3,0	5,0	7,5	7,5	14,0
	GESF - Set screw	Type	-	M4	M5	M5	M6	M8	M8	M8
		Tightening torque	[Nm]	1,5	2,0	2,0	4,0	10,0	10,0	10,0
	GESM - Clamping screw	Type	-	M3	M6	M6	M8	M8	M10	M12
		Tightening torque	[Nm]	1,3	11,0	11,0	25,0	25,0	70,0	120,0
	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	4 x M8
		Tightening torque	[Nm]	1,3	2,9	6,0	6,0	10,0	35,0	35,0

TRASCO® ES Coupling Shrink Disc Transmissible Torque

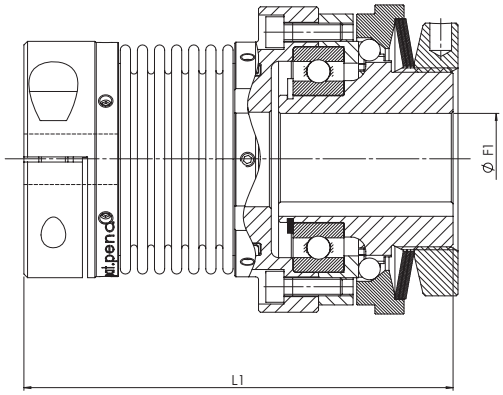
Type		Transmissible torque [Nm] related to shaft diameter [mm]																						
Torque limiters	Coupling	10	11	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60
12	**19/24**	48	53	67	72	77	81	86	91	96															
17	**24/28**				77	82	88	93	98	103	113	124	129	144											
20	**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

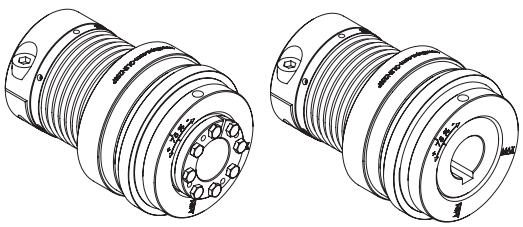


Bore and keyway execution / GSP

Torque limiter size	SERVOPLUS® Size	Dimensions											
		F min [mm]	F max [mm]	F1 max [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]	0,7 - 5	2 - 15	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

Mass 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

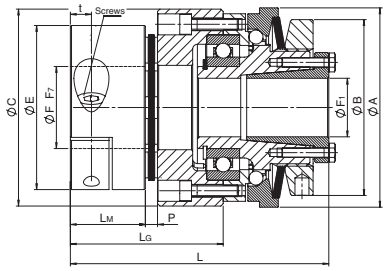
Screws	Clamping device torque limiter	N° and type	-	6 x M3	6 x M3	8 x M4	8 x M5	8 x M6
		Tightening torque	[Nm]	1,5	1,5	3,0	5,0	7,5
	GSP - Bellows set screw	Type	-	4 x M3	4 x M3	4 x M4	6 x M4	6 x M5
		Tightening torque	[Nm]	0,8	0,8	2,0	2,0	3,8
	Clamping screw	Type	-	M4	M5	M6	M8	M10
		Tightening torque	[Nm]	2,9	6,0	10,0	25,0	49,0

SERVOPLUS® Coupling Clamping Hub Transmissible Torque

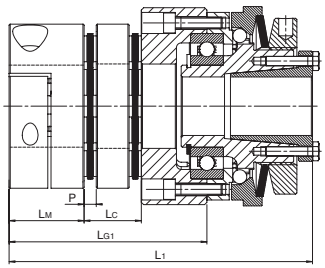
Type		Transmissible torque [Nm] related to shaft diameter [mm]																							
Torque limiters	Coupling	5	6	7	8	9	10	11	12	14	15	16	18	19	20	24	25	28	30	32	35	38	40	42	45
12	16	5	6	7	8	9	10	11	12	14	15	16													
17	20				13	14	16	18	19	22	24	25	29	30	32										
20	30							25	27	32	34	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.

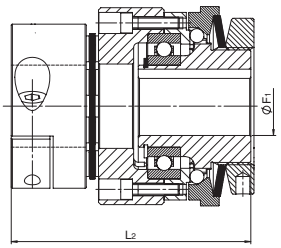
SAFEMAX - Torque limiters “GLS/SG/N” with SERVOMATE®



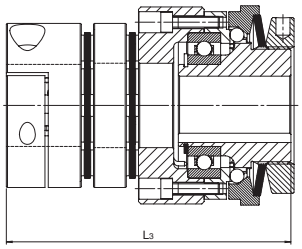
Locking device execution / GSM



Locking device execution / GSMC



Bore and keyway execution / GSM

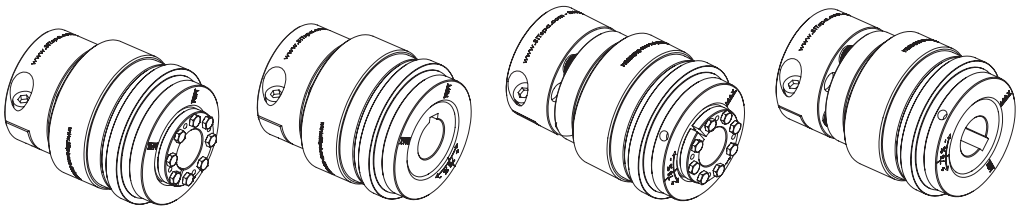


Bore and keyway execution / GSMC

Torque limiter size	SERVOMATE® Size	Dimensions														
		F max [mm]	F1 max [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]	2 - 15	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

Mass 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	N° 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.

General Information

Company Name
address

Contact Information

First Name Last Name
address
Job Title Phone Email address

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

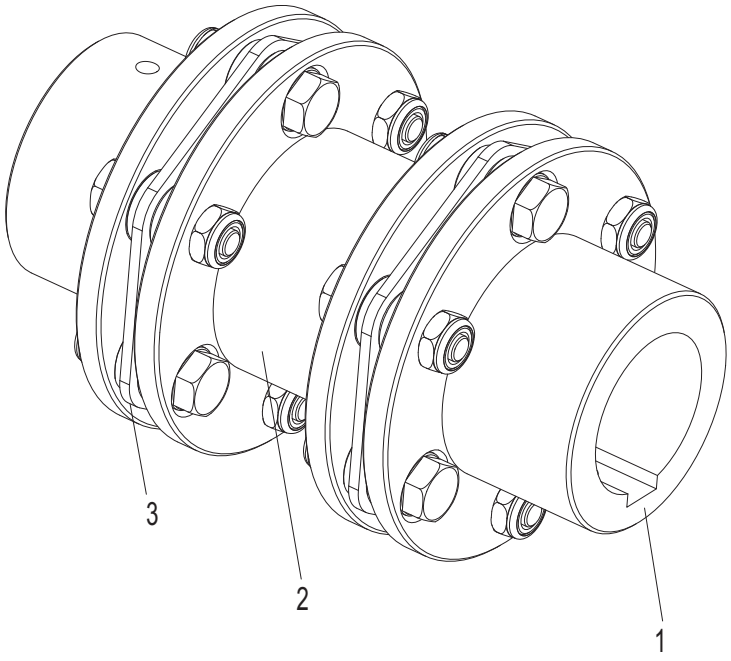
Type of component (Gear, sprocket, ... Parallel Transmission)
Type of coupling (coaxial Transmission)
Driven shaft diameter (mm)
Connection type driven shaft
bore and keyway
Clamping ring
Other

Notes

Please attach application drawing

METALDRIVE® disc couplings

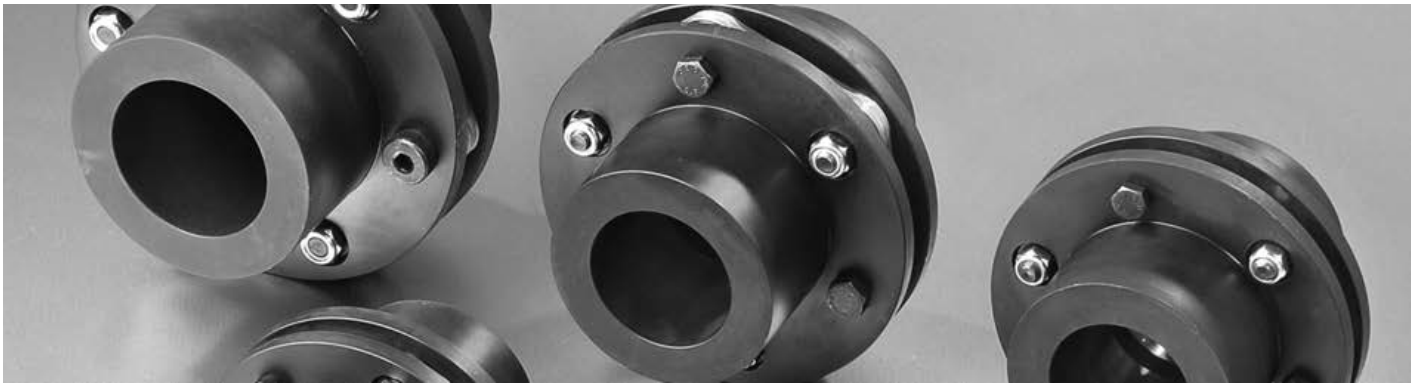
METALDRIVE® couplings are fully made of steel and are used in all applications where high reliability, precision, and no maintenance are required.



1) Hub
2) Spacer
3) Disc pack

Features

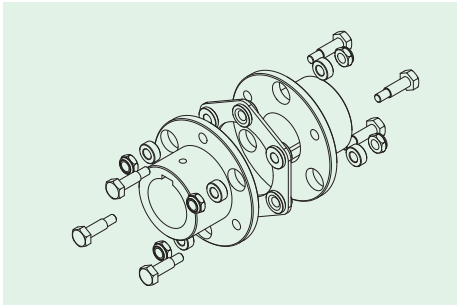
- All steel
- Superior disc pack profile and assembly optimized for higher torque and misalignment and lower restoring forces
- Maintenance, lubrication and wear free
- Backlash free and torsionally rigid
- Wide range of temperature allowed: -40 °C to 250 °C
- Easy installation
- Bi-directional
- Modular design
- Allow axial, angular, and radial misalignment (only with double disc pack)
- Available in stainless steel for corrosive environment application

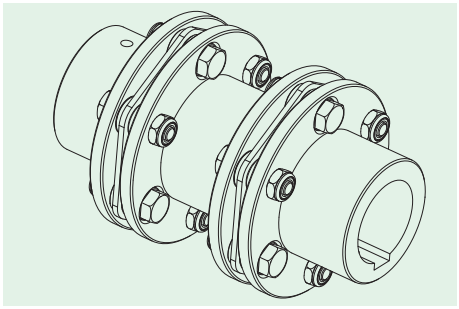


METALDRIVE® executions

GMD type S

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



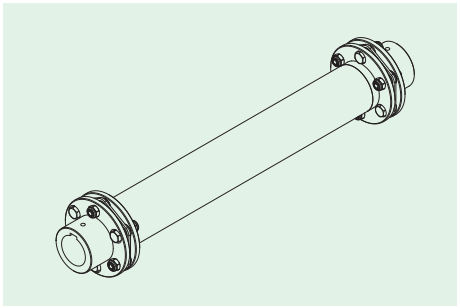


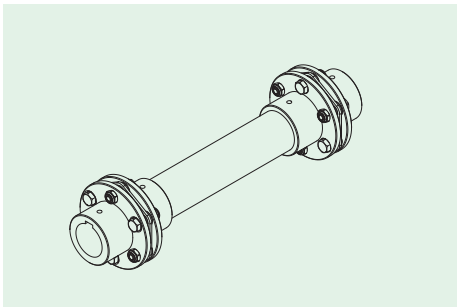
GMD type DC / DC 1MR / DC2MR

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 SA1

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



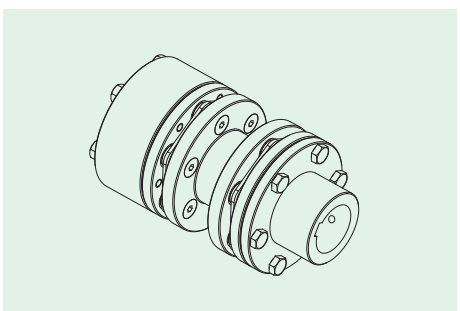


GMD type SA2

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

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.



Technical Features

Size	Torque (Nm)			Misalignment				Max rotation speed without balancing [min^{-1}]	Torsional stiffness per disc pack [Nm/rad •10^6]
	Nominal Tkn[Nm]	Max Tkmax [Nm]	Reverse Tkw [Nm]	Axial ▫Ka [mm] per disc pack	Angular ▫ [°] per disc pack	Radial ▫kr DCL execution	Radial ▫Kr [mm] with spacer		
32-6	100	200	30	0,8	0,75	0,32	$(P_1\text{-}P) \cdot \tan ▫$	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:

$$C_T = \frac{1}{\frac{2}{C_{TL}} + \frac{P_1 - 2P}{C_{TS}}}$$

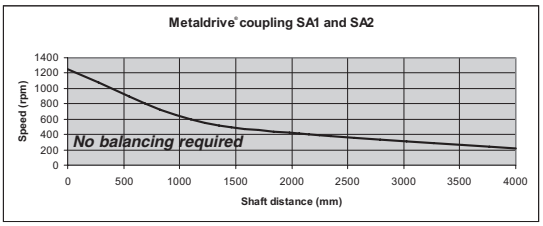
With C_{TS} = spacer torsional rigidity
Operating speed must be equal or less than permissible speed.

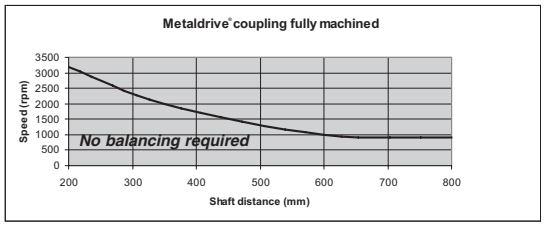
METALDRIVE® coupling balancing

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.



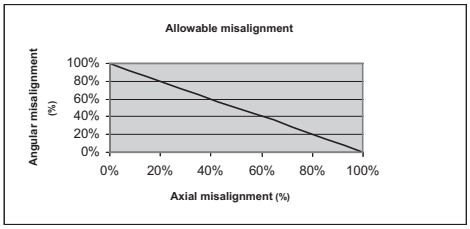


Working temperature

-40 °C + 250 °C

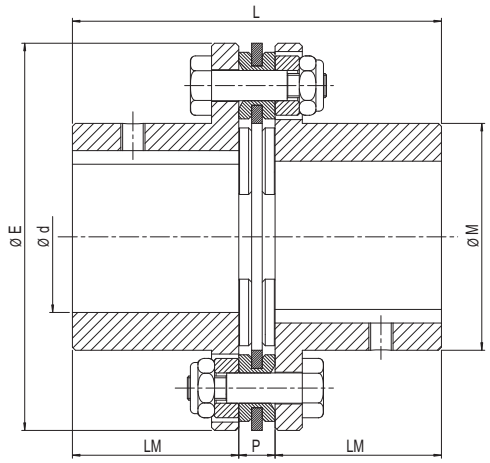
Misalignment

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.



METALDRIVE® GMD type “S”

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



Size	Dimensions [mm]							Screws		
	Prebored	d max	E	M	LM	P	L	n°	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	35	80	182	112	80	14	174	6	M10	69
90	50	90	206	130	80	15	175	6	M12	120
95	55	95	226	135	90	22	202	6	M14	190
110	65	110	252	155	100	25	225	6	M16	295
120	75	120	296	170	110	32	252	6	M24	1000
138	80	138	318	195	140	32	312	6	M24	1000
155	80	155	352	218	150	32	332	8	M24	1000
175	80	175	386	252	175	37	387	8	M27	1500
190	80	190	426	272	190	37	417	8	M30	2000
205	80	205	456	292	205	42	452	8	M33	2450

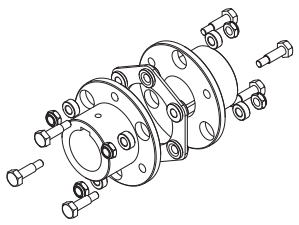
Order form

Hub/Disc pack **GMD 032 MF16**

GMD: METALDRIVE® hub

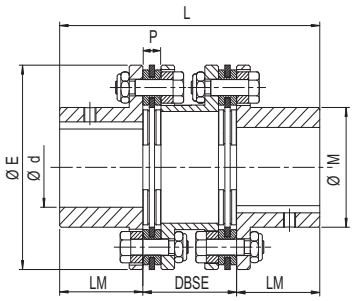
Size

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

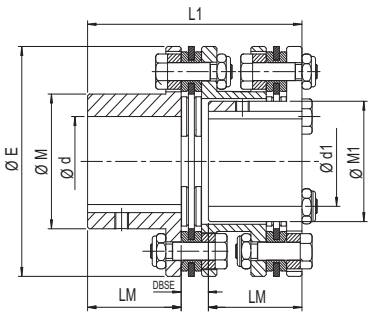


METALDRIVE® GMD type “DC”

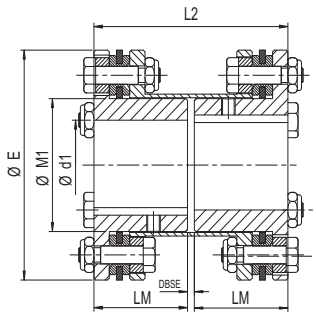
Standard version with double disc pack and spacer.



DC



DC 1MR



DC 2MR

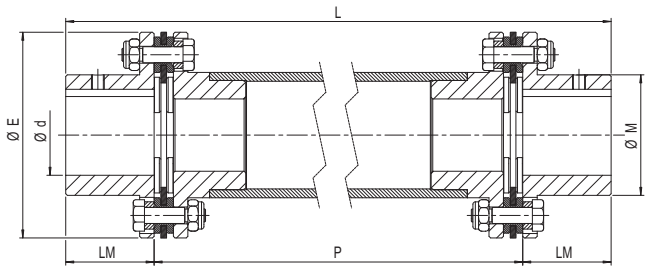
Size	Dimensions [mm]												
	d max	E	M	LM	P	DC		M1	d1	DC 1MR		DC 2MR	
						DBSE min.	L			DBSE min.	L1	DBSE min.	L2
32	32	80	45	40	8	45	DBSE + 80	35	25	12	DBSE + 80	3	DBSE + 80
38	38	92	53	45	8	50	DBSE + 90	43	30	12	DBSE + 90	3	DBSE + 90
45	45	112	64	45	10	52	DBSE + 90	54	38	14	DBSE + 90	3	DBSE + 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 “SA1” - “SA2”

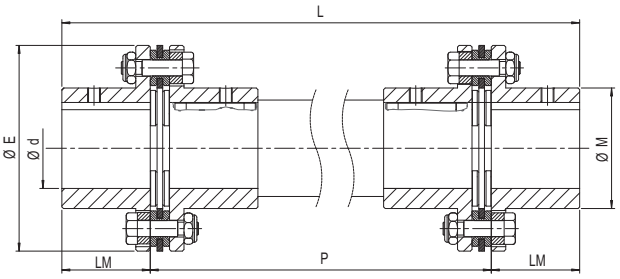
Metaldrive coupling with intermediate shaft is available in two versions:

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.

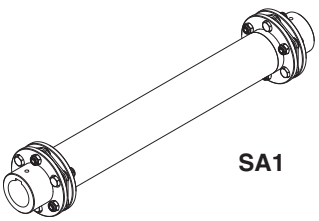


SA1



SA2

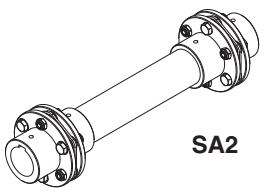
Size	Dimensions [mm]					
	d max	E	M	LM	P	L
32	32	80	45	40	Shaft lengths on request	P+ 80
38	38	92	53	45		P+ 90
45	45	112	64	45		P+ 90
52	52	136	75	55		P+ 110
65	65	162	92	65		P+ 130
80	80	182	112	80		P+ 160
90	90	206	130	80		P+ 160
95	95	226	135	90		P+ 180
110	110	252	155	100		P+ 200
120	120	296	170	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

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

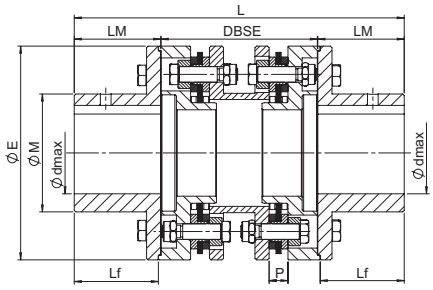


SA2

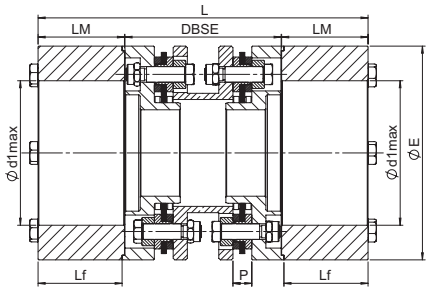
METALDRIVE® GMD type “DCA” (API 671-API 610)

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.

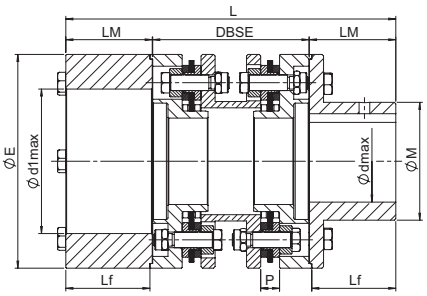
API 671



DCA2MP



DCA2MG



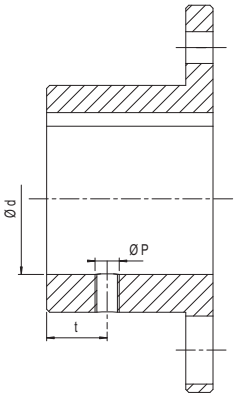
DCAMPMG

Size	Dimensions [mm]												
	d max.	d1 max.	E	M	Lf	P	LM	DBSE					L
								min.	100	140	180	250	
32	32	48	80	45	38,5	8	40	80	X	X			DBSE + 80
38	38	55	92	53	43,5	8	45	90	X	X			DBSE + 90
45	45	75	112	64	43,5	10	45	90	X	X			DBSE + 90
52	52	92	136	75	53,5	12	55	100	X	X	X		DBSE + 110
65	65	105	162	92	63,5	13	65	120		X	X	X	DBSE + 130
80	80	120	182	112	78	14	80	140		X	X	X	DBSE + 160
90	90	135	206	130	78	15	80	140		X	X	X	DBSE + 160
95	95	-	226	135	88	22	90	160			X	X	DBSE + 180
110	110	-	252	155	98	25	100	180			X	X	DBSE + 200
120	120	-	296	170	108	32	110	220	ON REQUEST				DBSE + 220
138	138	-	318	195	137	32	140	260					DBSE + 280
155	155	-	352	218	147	32	150	280					DBSE + 300
175	175	-	386	252	172	37	175	310					DBSE + 350
190	190	-	426	272	186	37	190	340					DBSE + 380
205	205	-	456	292	201	42	205	370					DBSE + 410

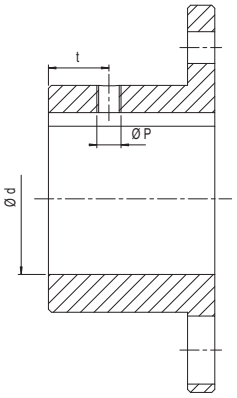
These DBSE sizes are more readily available. Other lengths to suit specific shaft separations are available on request.

Hub-shaft connections

keyway hub



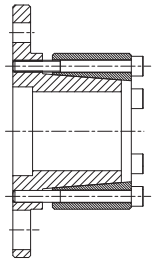
up to size 52



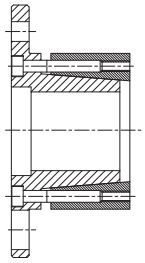
from size 65

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	35	80	M10	20	17
90	50	90	M12	25	40
95	55	95	M12	30	40
110	65	110	M12	30	40
120	75	120	M12	30	40
138	80	138	a richiesta		
155	80	155			
175	80	175			
190	80	190			
205	80	205			

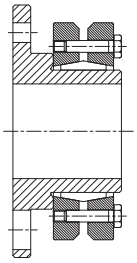
Shrink disc executions

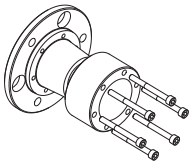


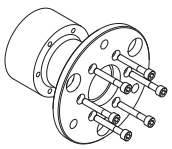
Shrink disc hub E

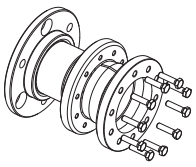


Shrink disc hub I

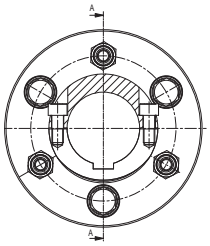


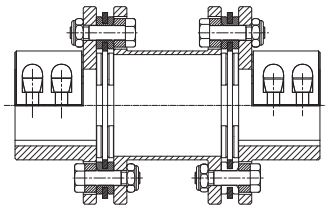


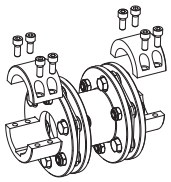




Split collar design







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 T_{KN} 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}:

$T_{Kn} \geq T_N \cdot k$

k = service factor

- Verify coupling maximum torque with machine peak and starting torque. It is allowed up to 5 peaks or start up per hour:

$T_{Kmax} \geq T_S$

Ts = starting or peak torque [Nm]

- In case of direct start with AC motor, it is important to consider driver and driven inertias. In case of transmission with torque inversion, the maximum torque variation T_W should not be higher than the maximum coupling torque T_{KW}.

$T_{KW} \geq T_W$

- Verify working conditions.

Particularly maximum speed must not exceed the permissible value. Dynamic balancing (optional) allows higher speeds. Permissible speed could be limited by the weight and critical speed of spacers. Please consult with our technical department.

Service factor k and load classification

Compressors	
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)	H
Roller tables (light)	M
Sheet mills	H
Forging presses	H
Hammers	H
Machine tools, auxiliary drive	U
Machine tools, main drives	M
Metal planning machines	H
Plate straightening machine	H
Presses	H
Sheet metal bending machines	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

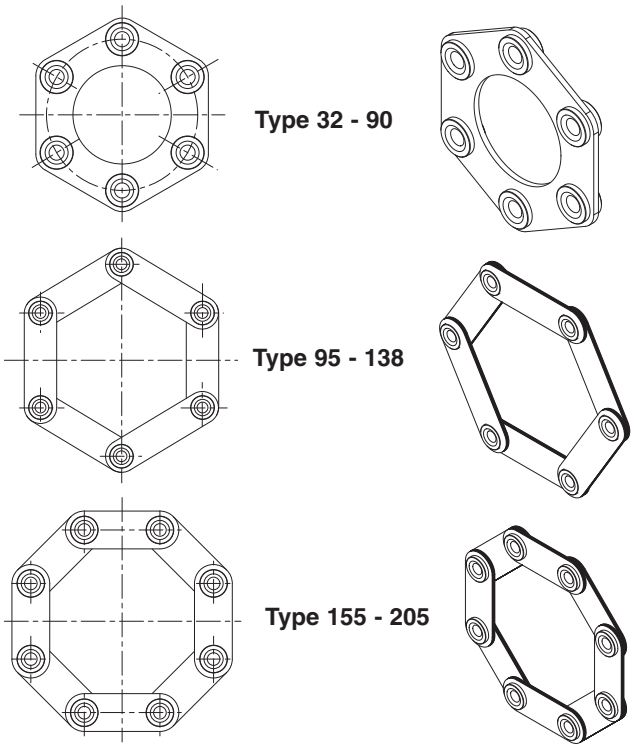
U = uniform load
M = medium frequency peak load
H = high frequency peak load

METALDRIVE® couplings weight and inertia

Size	Component										Complete coupling											
	Hub with max bore				Spacer GMD type DC				Disc pack		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	
	Hub M		Hub M1		Type P1		Type 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	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	0,38	0,000253	0,32	0,00021	0,52	0,00042	0,42	0,00038	0,078	0,000034	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	0,57	0,00049	0,5	0,0004	0,71	0,00081	0,58	0,0007	0,094	0,000109	1,2	0,0011	2	0,002	1,9	0,0019	1,9	0,0019	1,8	0,0018	1,8	0,0018
45	0,86	0,0011	0,76	0,00092	0,97	0,0016	0,82	0,0015	0,183	0,00031	1,9	0,0025	3,1	0,0044	3	0,0043	3	0,0042	2,9	0,004	2,9	0,0041
52	1,57	0,0029	1,22	0,0024	1,7	0,0044	1,5	0,0041	0,31	0,00076	3,5	0,0066	5,5	0,0117	5,3	0,0114	5,2	0,0112	4,9	0,0107	5	0,0109
65	2,5	0,0064	2,1	0,0055	2,4	0,009	2,1	0,0082	0,45	0,0015	5,5	0,0143	8,3	0,0248	8	0,024	7,9	0,0239	7,5	0,023	7,6	0,0231
80	4,3	0,0147	3,87	0,0126	4	0,02	3,4	0,018	0,56	0,0024	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	5,9	0,026	5,1	0,021	5,4	0,033	4,4	0,03	0,75	0,0042	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	7,2	0,037	6,4	0,032	6,8	0,05	5,8	0,045	1,7	0,012	16,1	0,086	24,6	0,148	23,6	0,143	23,8	0,143	23	0,138	22,8	0,138
110	10,3	0,068	9,2	0,057	10	0,09	8,3	0,08	2,4	0,022	23	0,158	35,4	0,27	33,7	0,26	34,3	0,259	33,2	0,248	32,6	0,249
120	14,4	0,125	13,1	0,11	13,7	0,17	11,8	0,16	4,9	0,058	33,7	0,308	52,3	0,536	50,4	0,526	51	0,521	49,7	0,506	49,1	0,511
138	22,6	0,232	18,9	0,19	21,3	0,3	17,4	0,27	5,4	0,078	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	29,86	0,38	24,73	0,3	32,1	0,54	25	0,46	6,1	0,113	65,8	0,873	104	1,526	96,9	1,446	98,9	1,446	93,8	1,366	91,8	1,366
175	46,3	0,73	37,7	0,55	46,9	0,97	35,7	0,81	9,3	0,215	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	59,9	1,14	47,7	0,88	59,9	1,53	47	1,32	11	0,3	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	74	1,63	57	1,21	85	2,36	64	1,98	15,3	0,48	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

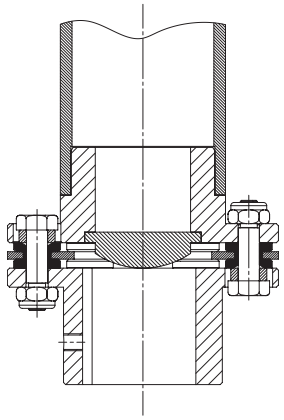


Installation and maintenance

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.



Metaldrive® with vertical assembling

- 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.
- 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.

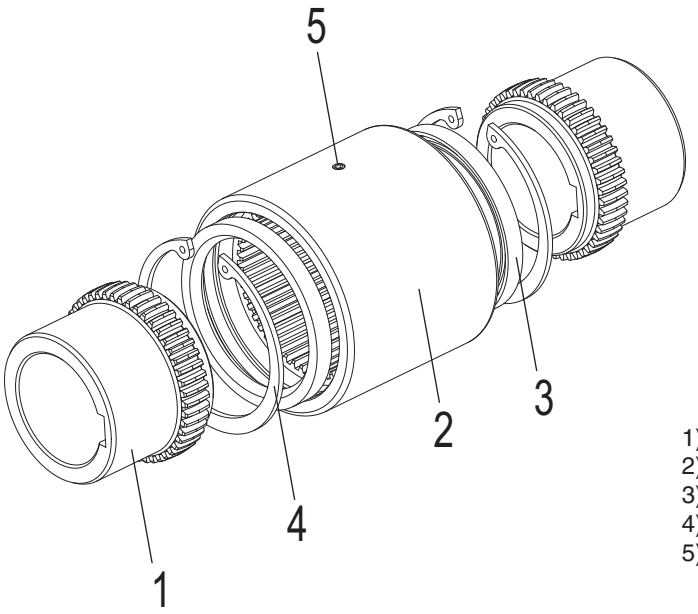
Safety norms

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

Description

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 a + 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, 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.

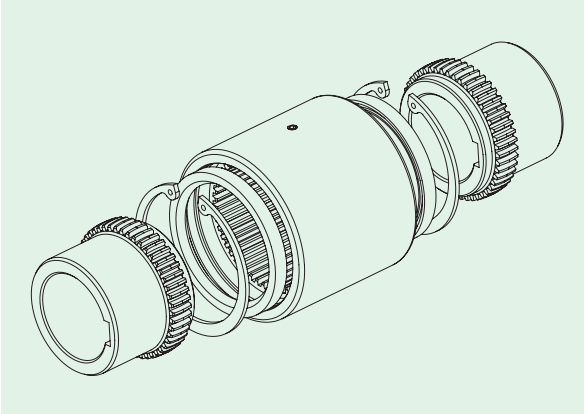
The most compact solution
Due to the exceptional torque transmission capability, SITEX® ST couplings are the most compact solution in weight and dimensions for a safe torque transmission.

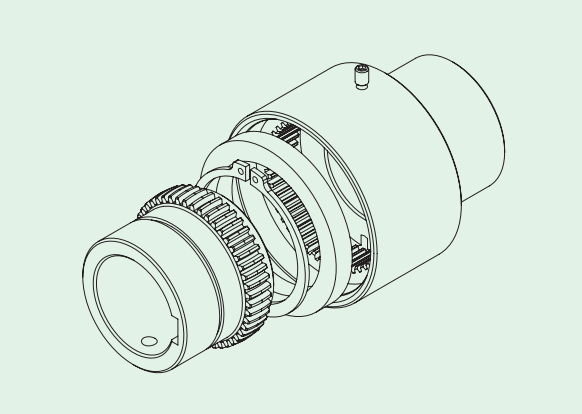
Special executions
Special executions are available for any application need. Accurate finite element analysis can be made for special high demanding applications.

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.

SITEX® ST executions

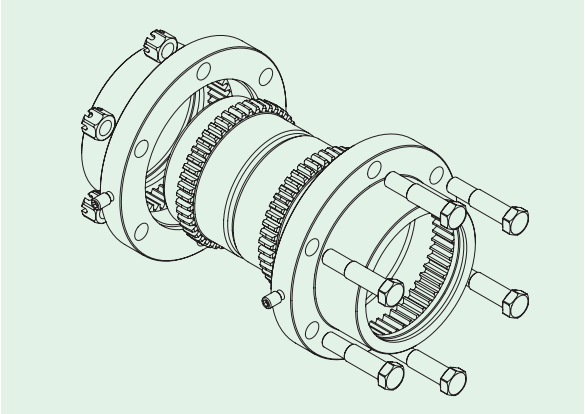
GST type C
Standard type with 2 hubs and one sleeve. Allows for axial, angular, and radial misalignment. Long hub version also available. Offers compact, powerful design, and easy assembly.





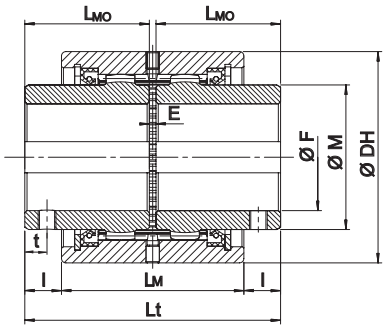
GST type CV
Standard type made of a single hub and one sleeve. It is also available in long hub execution. Offers an economical solution to an application without radial misalignment.

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.

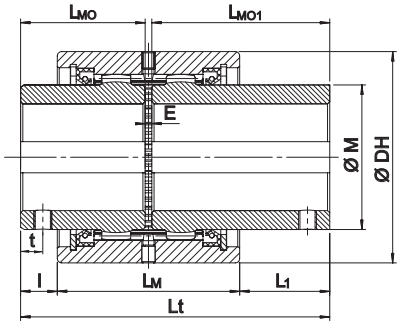


SITEX® ST type "C"

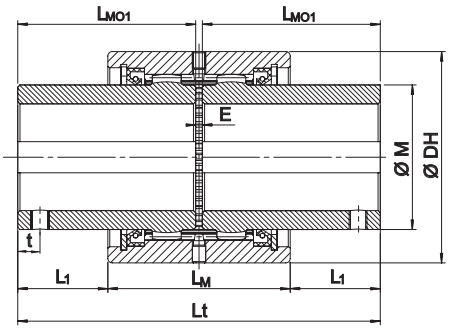
Standard type with 2 hubs and one sleeve. Allows for axial, angular and radial misalignment. Long hub version is also available. Offers compact, powerful design, and easy assembly. Maximum bore in the table is valid for keyway seat DIN 6885/1.



Type 1



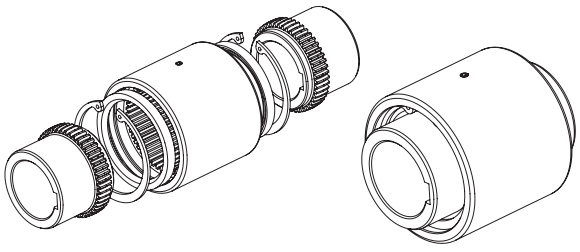
Type 2



Type 3

Size	Dimensions [mm]												
	DH	E	F_{max}	M	LM	I	L_{MO}	L1	L_{MO1}	t	L_t		
											Type 1	Type 2	Type 3
28	70	3	28	40	61	12	41	31	60	14	85	104	123
38	85	3	38	55	65	17,5	48,5	49	80	14	100	131,5	163
48	95	3	48	65	82	16,5	56	40,5	80	14	115	139	163
62	120	4	62	85	90	25	68	57	100	14	140	172	204
82	145	4	82	110	96	28,5	74,5	73,5	119,5	14	153	198	243
98	175	5	98	130	113	28,5	82,5	86,0	140	14	170	227,5	285
110	198	6	110	150	130	43	105	112,5	174,5	14	216	285,5	355
133	230	8	133	180	175	56,5	140	124	207,5	14	288	355,5	423
155	270	10	155	210	214	58	160	123	225	14	330	395	460
170	300	10	170	230	240	65	180	130	245	14	370	435	500

Size	Technical data						
	Torque [Nm]		n_{max} [min^{-1}]	ΔK_r [mm]	ΔK_W* [°]	Coupling**	
	T_{KN}	T_{Kmax}				Momento of inertia $x10^{-4}$ kg.m^2	W [kg]
28	600	1200	7700	0,13	2 x 1°	9,8	1,4
38	850	1700	5800	0,13	2 x 1°	22,7	2,2
48	1300	2600	5100	0,22	2 x 1°	43	3,1
62	2200	4400	4000	0,22	2 x 1°	124	5,7
82	3800	7600	3200	0,24	2 x 1°	285	8,8
98	7000	14000	2750	0,39	2 x 1°	693	14,6
110	10000	20000	2300	0,48	2 x 1°	1327	23,3
133	15000	30000	2000	0,79	2 x 1°	3260	39,7
155	24000	48000	1650	1,05	2 x 1°	7606	66,5
170	34000	68000	1550	1,31	2 x 1°	13235	94,0



Floating shaft designs and special executions are available upon request

* = maximum static misalignment for a correct mounting

** = considering maximum bore

T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
n_{max}	Maximum rpm	min^{-1}
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°
W	Weight	kg

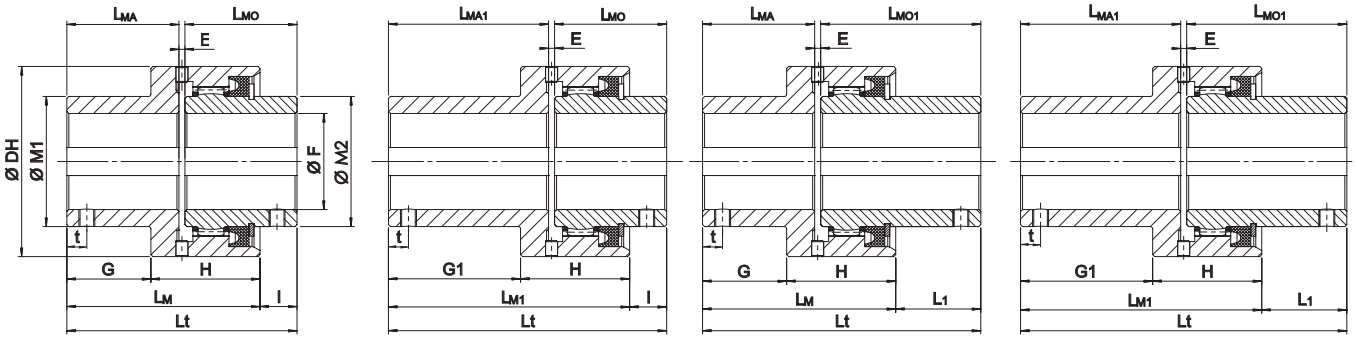
Order form

Hubs			
GST	**082**	**M**	**F40**
Sitex ST	Size	M: Std hub ML: Long hub	Bore [mm]

Sleeve		
GST	**082**	**AD**
Sitex ST C execution	Size	AD: std sleeve

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.
Maximum bore in the table is valid for keyway seat DIN 6885/1.

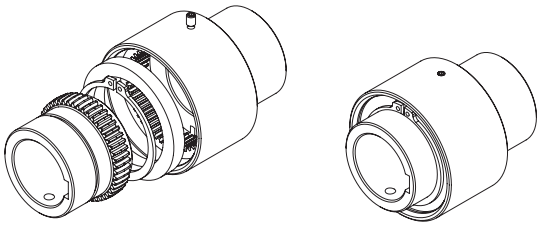


Type 1 Type 2 Type 3 Type 4

Size	Dimensions [mm]														
	DH	E	F_{max}	H	M1	M2	l	L_{MO}	L1	L_{MO1}	G	L_{MA}	G1	L_{MA1}	t
28	70	3	28	43	42	40	13	41	32	60	29	41	48	60	14
38	85	3	38	49	55	55	16	48,5	47,5	80	35	48,5	66,5	80	14
48	95	3	48	54,5	65	65	18,5	56	42,5	80	42	56	66	80	14
62	120	4	62	60	85	85	27	68	59	100	45	60	85	100	14
82	145	4	82	63	110	110	31	74,5	76	119,5	46	61,5	104	119,5	14
98	175	5	98	76	130	130	26	82,5	83,5	140	51	65,5	123,5	138	14
110	198	6	110	92	150	150	38	105	107,5	174,5	71	90	143	162	14

Size	Technical data					
	Torque [Nm]		n_{max} [min^{-1}]	ΔK_W* [°]	Coupling**	
	T_{KN}	T_{Kmax}			Momento of inertia $x10^{-4}$ kg . m^2	W [kg]
28	600	1200	7700	1°	7,1	1,1
38	850	1700	5800	1°	17,9	1,9
48	1300	2600	5100	1°	31,5	2,5
62	2200	4400	4000	1°	95	4,7
82	3800	7600	3200	1°	212	6,9
98	7000	14000	2750	1°	511	11,2
110	10000	20000	2300	1°	1080	19

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



T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
n_{max}	Maximum rpm	min^{-1}
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°
W	Weight	kg

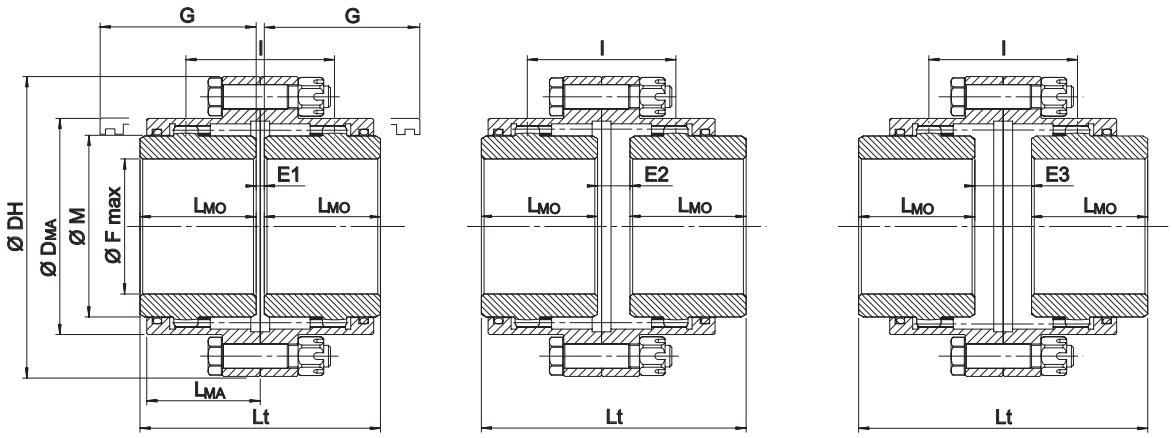
Order form

Hub			
GST	**082**	**M**	**F40**
Sitex ST	Size	M: Std hub ML: Long hub	Bore [mm]

Sleeve			
GSTV	**082**	**AD**	**F40**
Sitex ST CV execution	Size	AD: std hub-sleeve ADL: long hub-sleeve	Bore [mm]

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.



Type A Type B Type C

Size	Dimensions [mm]																Technical data						
								Type A			Type B			Type C			Torque [Nm]					Type A**	
	F_{max} [mm]	DH	D_{MA}	M	L_{MO}	L_{MA}	G*	l	Lt	E_1	l	Lt	E_2	l	Lt	E_3	T_{KN}	T_{Kmax}	n_{max} [min^{-1}]	ΔK_w [°]	ΔK_r [mm]	Moment of inertia x10^{-4} kg • m^2	W [kg]
48	48	117	83	65	43	42	74	55	89	3	55	98	12	55	107	21	1300	2600	5100	2 x 0,5°	0,48	53	3,1
62	62	152	107	85	50	48	84	59	103	3	59	109	9	59	115	15	2200	4400	4000	2 x 0,5°	0,51	193	6,6
82	82	178	129,5	110	62	59	104	79	127	3	79	141	17	79	155	31	3800	7600	3200	2 x 0,5°	0,69	423	10,6
98	98	213	156	130	76	69	123	93	157	5	93	169	17	93	181	29	7000	14000	2750	2 x 0,5°	0,81	1009	17,5
110	110	240	181	150	90	82	148	109	185	5	109	199	19	109	213	33	10000	20000	2300	2 x 0,5°	0,95	1822	25,3
133	133	280	211	180	105	98	172	128	216	6	128	233	23	128	250	40	15000	30000	2000	2 x 0,5°	1,12	4257	42,5
155	155	318	249,5	210	120	107	192	144	246	6	144	264	24	144	282	42	24000	48000	1650	2 x 0,5°	1,26	7920	61,4
170	170	347	274	230	135	120	216	164	278	8	164	299	29	164	320	50	34000	68000	1550	2 x 0,5°	1,43	11132	75,6

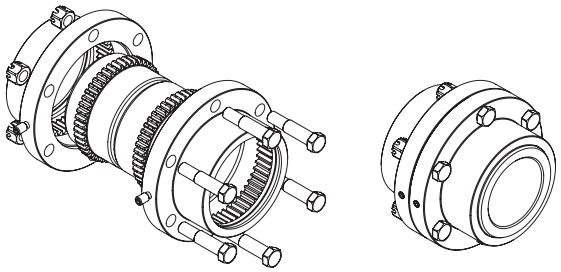
* = maximum static misalignment for a correct mounting

** = considering maximum bore

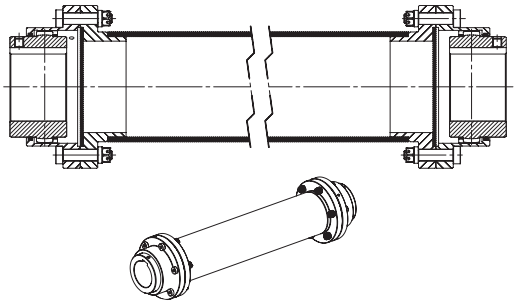
Maximum static misalignment for a correct mounting ΔK_w = 2 x 1°

Floating shaft designs and special executions are available upon request

T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
n_{max}	Maximum rpm	min^{-1}
ΔK_r	Maximum radial misalignment	mm
ΔK_w	Maximum angular misalignment	°
W	Weight	kg



Special execution with intermediate shaft



Order form

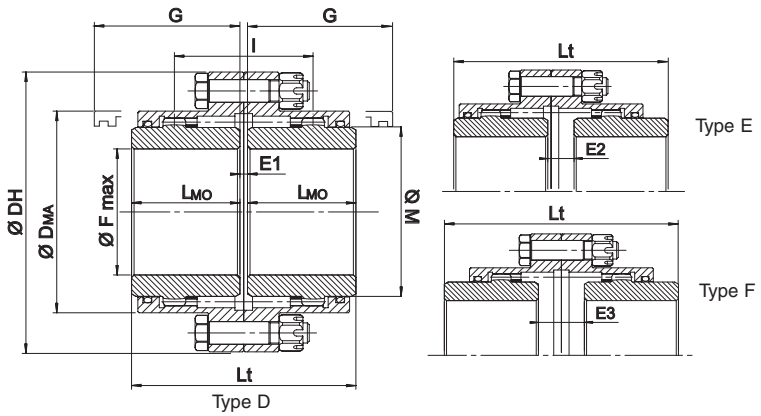
Hubs (2 pcs for coupling)				
GST	**F**	**082**	**M**	**F40**
Sitex ST	CF Execution	Size	Hub	Bore [mm]

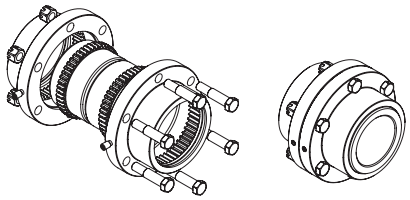
Flanges (2 pcs for coupling)			
GST	**F**	**082**	**AD**
Sitex ST	CF Execution	Size	Flange

Set of screw (1 kit for coupling)			
GST	**F**	**082**	**KIT**
Sitex ST	CF Execution	Size	set of screws

SITEX® ST type "CF" D-E-F

Double-cardanic crowned gear coupling. Allows for axial, angular, and radial shaft misalignment.





Size	Dimensions [mm]												Technical data					
	F_{max} [mm]	DH	D_{MA}	M	L_{MO}	*G	Type D		Type E		Type F		Torque [Nm]		n_{max} [min^{-1}]	ΔK_W [°]	**Moment of inertia x10^{-4} kg • m^2	**W [kg]
							Lt	E_1	Lt	E_2	Lt	E_3	T_{KN}	T_{Kmax}				
50	50	111	82,5	69	43	58	89	3	91	5	93	7	1800	4200	6000	2 x 0,5°	50	4
60	60	142	104,5	85	50	68	103	3	108	8	113	13	2700	6400	4620	2 x 0,5°	120	8
75	75	168	130,5	107	62	87	127	3	138	14	149	25	5500	13000	4140	2 x 0,5°	320	13
95	95	200	158,5	133	76	95	157	5	164	12	171	19	8600	21000	4000	2 x 0,5°	850	26
110	110	225	183,5	152	90	120	185	5	204	24	223	43	13500	34000	3860	2 x 0,5°	1620	37
130	130	265	211,5	178	105	130	216	6	237	27	258	48	22200	54000	3720	2 x 0,5°	3760	59
155	155	300	245,5	209	120	135	246	6	272	32	298	58	34200	83000	3190	2 x 0,5°	7280	91
170	170	330	275	234	135	155	278	8	307	37	336	66	43500	101000	2900	2 x 0,5°	12260	123
190	190	370	307	254	150	195	308	8	350	50	392	92	69200	156000	2570	2 x 0,5°	20990	170
210	210	406	335	279	175	220	358	8	403	53	448	98	82500	196000	2330	2 x 0,5°	34010	234
230	230	438	367	305	190	236	388	8	438	58	488	108	150500	349000	2150	2 x 0,5°	50520	295
280	280	505	423	355	220	273	450	10	512	72	574	134	198200	480000	1800	2 x 0,5°	103200	455
325	325	580	475	400	250	-	512	12	-	-	-	-	275000	551000	1200	2 x 0,5°	206000	685
370	370	630	520	450	275	-	562	12	-	-	-	-	381000	762000	980	2 x 0,5°	335000	920
400	400	700	556	490	305	-	622	12	-	-	-	-	492000	984000	900	2 x 0,5°	533000	1210
430	430	760	615	550	330	-	672	12	-	-	-	-	658000	1315000	800	2 x 0,5°	835000	1590
475	475	825	680	580	355	-	722	12	-	-	-	-	835000	1669000	700	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 ΔK_W = 2 x 1°
Seal flange sizes from 325 to 475

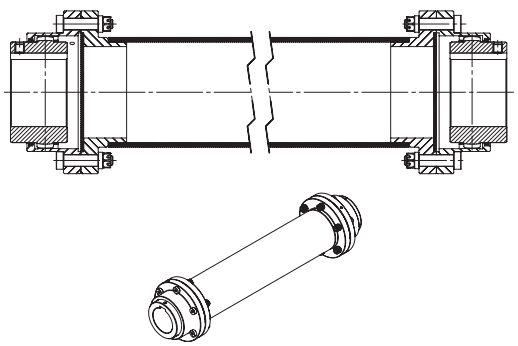
T_{KN}	Coupling nominal torque	Nm
T_{Kmax}	Coupling maximum torque	Nm
n_{max}	Maximum rpm	min^{-1}
ΔK_w	Maximum angular misalignment	°
W	Weight	kg

Order form

Coupling — GST FD 75 F40 L F50

- GST: 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)

Special execution with intermediate shaft



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:

$$T_{kn} \square T_N \cdot k_1 \cdot k_2$$

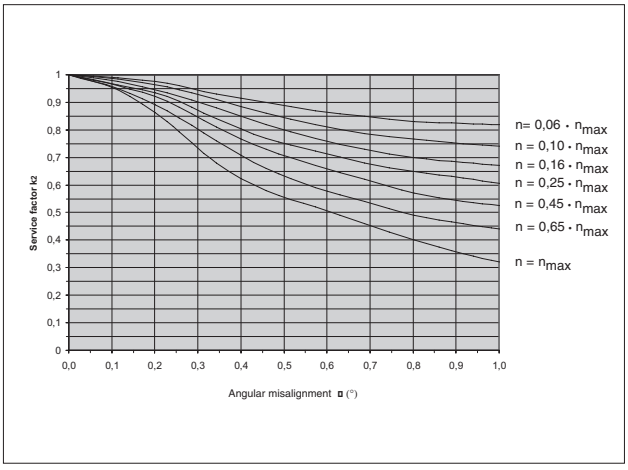
With k_1 application service factor and k_2 angular misalignment (per hub) service factor

5) Verify the machine peak or starting torque Ts is lower than the coupling maximum torque T_{kmax}
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
UNIFORM	Continuous duty without overloads, occasional starts up	Electrical generators Centrifugal pumps and compressors Light fans, escalators, belt and chain conveyors	1	1,25	1,5
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

Service factor k_2 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 Alvania grease EP R-0 or EP 1 Albida GC
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