

Accessories – smart additions for efficiency and intelligent performance



Metal bellows couplings

Perfectionists you can count on

Metal bellows couplings are designed for the highest requirements in servo drive technology. The compact design ensures that installation space is kept to a minimum. High torsional rigidity enables precise results and dynamics.

- Compensation for shaft misalignment
- Completely backlash free
- Compact and easy to mount
- Maintenance-free and fatigue durable
- Corrosion resistant version available as an option (BC2, BC3, BCT)

Elastomer couplings

Harmonious endurance runners

Elastomer couplings ensure precisely manufactured hubs and attachable intermediate elements for maximum true-running accuracy in the drive train. In addition, torque peaks and vibrations are damped to ensure superior smooth running.

- Compensation for shaft misalignment
- Completely backlash free
- Choice of torsional rigidity/damping
- Compact design
- Extremely simple installation (plug-in)
- Maintenance-free and fatigue durable
- Ideal for connection to spindle drives, toothed belt drives, and linear modules

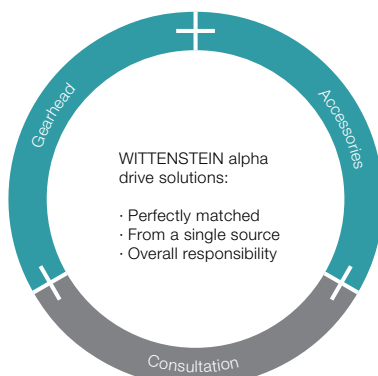
Torque limiters

Intelligent monitors

Torque limiters with integrated mechanical switching mechanism combine dynamic and precise transmission with TÜV-certified torque limitation. They therefore protect the drive and machine from overload.

- Machine downtimes are avoided
- High availability and productivity
- Precise, preset overload protection (switch-off in 1–3 ms)
- Precise repeat accuracy
- Compact and completely backlash free
- Just one protection element per axle

Gearheads, accessories and consulting from a single source



Flexibility without limits

Broad range of precision gearheads with perfectly matched accessories.

Surely an ideal solution for you!

WITTENSTEIN alpha accessories give you even greater design freedom and options.

In the fast lane with WITTENSTEIN alpha!

Gearheads and accessories

- Perfectly adapted
- One complete delivery
- One contact

Every detail is important for your success!



Shrink disks

Compact athletes

With our hollow shaft or mounted shaft gearheads for mounting directly on load shafts, machines can be designed to take up a minimal installation space.

- Reliable torque transmission
- Simple mounting and removal
- Quick selection, easy and convenient
- Optional: Corrosion resistant version



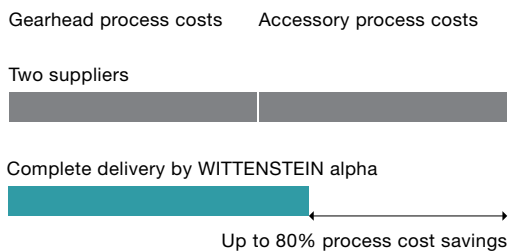
Flange shafts

Flexible design

Our flange shafts provide you with output options that are especially adapted for work with TP+, TPK+ and TK+ flange gearheads.

- Flexible shaft diameter
- Can be adapted to your output components
- Customized options available

Reduce costs



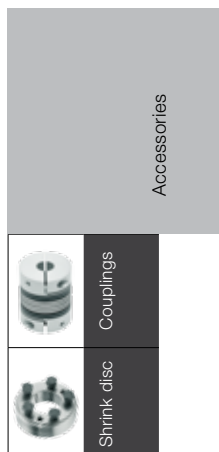
→ The savings in installation and process costs more than offsets the value of the accessories

Optimization of your added value chain

Use the combination of gearhead and accessories in a complete package to streamline your internal processes:

- One** consultation service
- One** complete delivery
- One** internal process

- Minimize your internal effort
 - Maximize your time and cost savings
- Your long-term advantage with complete delivery!



Couplings – securing – transmitting – equalizing



Your customized coupling completes the drive train:

- Flexible in design
- Fine-tuning your drive
- Maximum performance

Selection and calculation made easy:

Info- & CAD-Finder

cymex®



For further information, please visit
www.wittenstein-alpha.de/en/

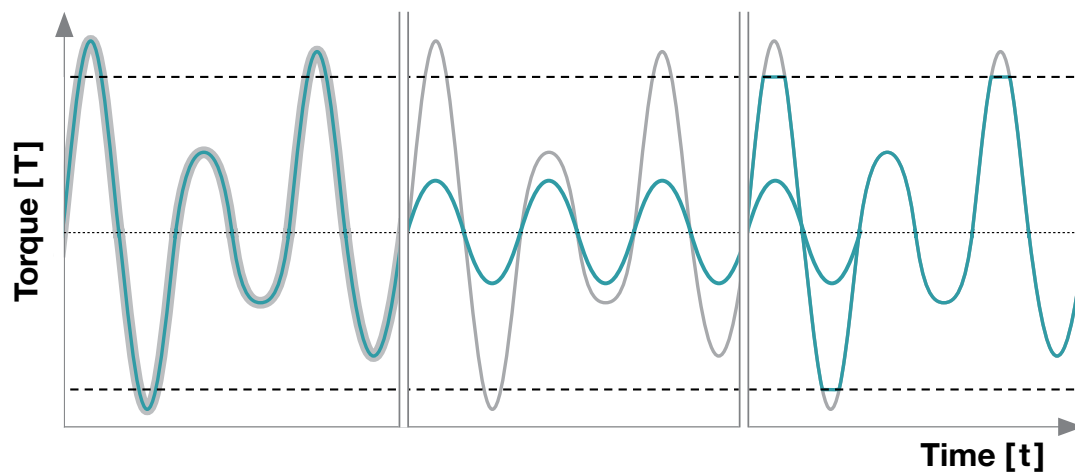
Quick coupling selection

		Metal bellows coupling					Elastomer coupling		Torque limiter		
Feature	Application	BCT	BCH	BC2	BC3	EC2	EL6	ELC	TL1	TL2	TL3
Transmission characteristics	High torsional rigidity	•	•	•	•	•			•	•	•
	Damping of torque peaks and vibration						•	•			
Compensation characteristics	Compensation of shaft misalignments (axial, angular, lateral)	•	•	•	•	•	•	•		•	•
Protection characteristics	Switching protection element for the protection of components in the event of overload								•	•	•
Mounting	Standard clamping hub (radial)	•	•	•		•		•	•	•	
	Conical clamping hub (axial)	•			•		•		•		•
	Plug-in connection						•	•			
Drive interfaces	Shaft		•	•	•	•	•	•	•	•	•
	Flange	•									
Output interfaces	Shaft	•	•	•	•	•	•	•		•	•
	Indirect (belt pulley, sprocket wheel)								•		

Versions and Applications

By combining gearheads and accessories, your application receives an individual drive concept with optimized overall performance.

- Maximum service life of all drive components
- Integrated safety functions
- Harmonious drive characteristics



Precise, torsionally rigid
transmission
→ Metal bellows coupling

Damping of peaks/vibrations
→ Elastomer coupling

Safe torque limitation
→ Torque limiter

Compare

Features	Metal bellows coupling					Elastomer coupling		Torque limiter		
	BCT	BCH	BC2	BC3	EC2	EL6	ELC	TL1	TL2	TL3
Max. acceleration torque T _B /T _{BE} /T _{Dis} [Nm]	50 – 8500	15 – 1500	15 – 6000	15 – 10000	2 – 500	6 – 2150	1 – 2150	0,1 – 2800	0,1 – 1800	5 – 2800
Torsional backlash	Completely backlash free									
Geometry										
Selectable bore diameter D ₁ /D ₂ [mm]	12 - 100	8 - 80	8 - 140	10 - 180	4 - 62	6 - 80	3 - 80	4 - 100	3 - 80	10 - 100
Bore D ₁ /D ₂ smooth	•	•	•	•	•	•	•	•	•	•
Bore D ₁ /D ₂ key	•	•	•	•	•	•	•	•	•	•
Selectable coupling length (A, B)		•	•	•					•	•
Options										
Corrosion resistant (stainless steel hubs, welded)	•		•	•						
Including self-opening clamp system					•					
Selectable disengagement mechanism								•	•	•
Torque adjusting wrench and switch								•	•	•
Selectable intermediate element (elastomer insert)						•	•			



BCT – bellows coupling with flange connection

			Standard series					HIGH TORQUE series	
Technical data			15	60	150	300	1500	1500	4000
Gearhead output	TP ⁺ , TPK ⁺ , TK ⁺ , VDT ⁺ , TPM, TPC		004 MF	010 MF	025 MF	050 MF	110 MF	110 MA	300 MA
Max. acceleration torque ^{a)} (max. 1000 cycles per hour)	T _B	Nm	50	210	380	750	2600	6000	8500
		in.lb	443	1859	3363	6638	23010	53104	75231
Max. speed	n _{Max}	rpm	10000						
Axial misalignment 	Max. values	mm	1	1.5	2	2.5	3	1.5	3
Angular misalignment 	Max. values	°	1	1	1	1	1	1	1
Lateral misalignment 	Max. values	mm	0.25	0.25	0.25	0.25	0.2	0.2	0.4
Axial spring stiffness	C _a	N/mm	28.6	76.9	86.9	112	322	1024	1154
Lateral spring stiffness	C _l	N/mm	475	1410	1620	3860	5890	21000	7750
Torsional rigidity	C _T	Nm/arcmin	6.7	21.0	41.0	156	379	437	1455
		in.lb/arcmin	59.3	185.9	362.9	1381	3354	3867	12877
Moment of inertia	J	kgcm ²	1.5	6.5	13.0	55	450	470	1850
		10 ⁻³ in.lb.s ²	1.3	5.8	11.5	49	398	416	1637
Hub material			Al	Al	Al	Steel	Steel	Steel	Steel
Bellows material			highly flexible stainless steel						
Adapter flange material			Steel						
Approx. weight	m	kg	0.3	0.7	1	2.8	10	10.5	27.4
		lb	0.67	1.5	2.21	6.18	22.5	23	60.3
Max. permitted temperature		°C	-30 to +100 (bonded)				-30 to +300 (welded)		
		F	-22 to +212 (bonded)				-22 to +XXX (welded)		
Dimensions									
Overall length including adapter flange (without L ₃)	L ₁	mm	51.5	73.5	77.5	96.5	148	139.5	207
Fit length ^{b)}	L ₂	mm	16.5	23	27.5	34	55	61	80
Distance	L ₃	mm	6.5	9.5	11	13	22.5	-	-
Distance between centers	L ₄	mm	1 x 17.5	1 x 23	1 x 27	1 x 39	2 x 55	-	-
Length installation space (without L ₃)	L ₇	mm	48.5	67	72	90	140	131.5	195
Screw head length	L ₈	mm	-	-	-	-	-	7.5	10
Bore diameter from Ø to Ø H7	D ₁	mm	12 - 28	14 - 35	19 - 42	24 - 60	50 - 80	35 - 70	50 - 100
TP flange hole circle diameter ^{c)}	D ₂	mm	31.5 8 x M5	50 8 x M6	63 12 x M6	80 12 x M8	125 12 x M10	125 12 x M12	145 12 x M20
Outer diameter (flange)	D ₃	mm	63.5	86	108	132	188	190	244
Outer diameter of hub/bellows	D ₅	mm	49	66	82	110	157	157	200
Adapter flange hole circle diameter ^{c)}	D ₆	mm	56.5 10 x M4	76 10 x M5	97 10 x M6	120 12 x M6	170 16 x M8	172 16 x M8	221 20 x M12

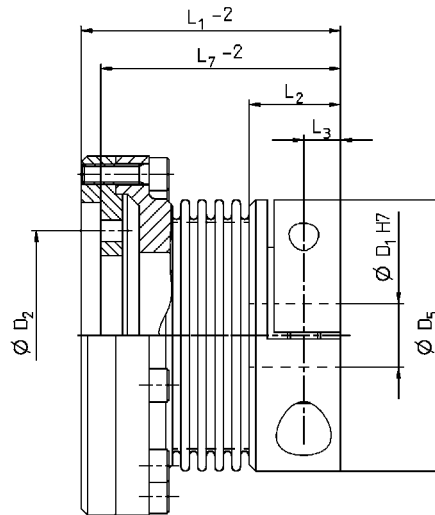
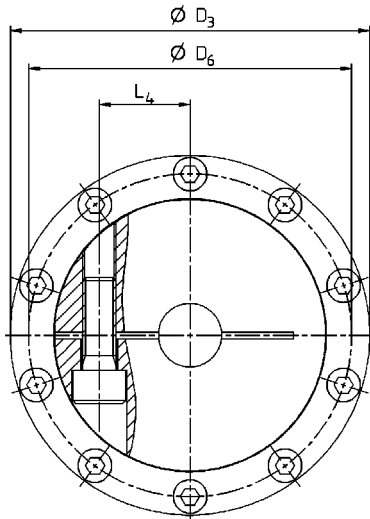
^{a)} valid for maximum bore diameter (see D₁)

^{b)} Tolerance for shaft/hub connection 0.01-0.05 mm.

^{c)} Adapter flange and screws included in scope of delivery

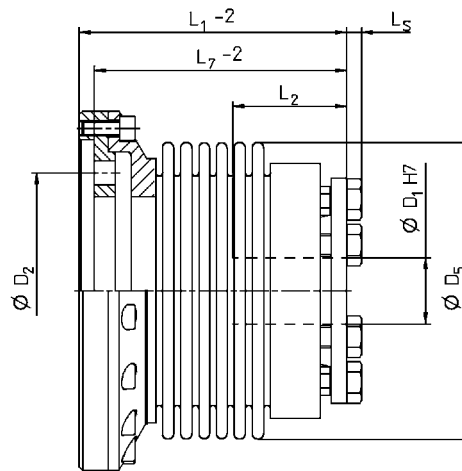
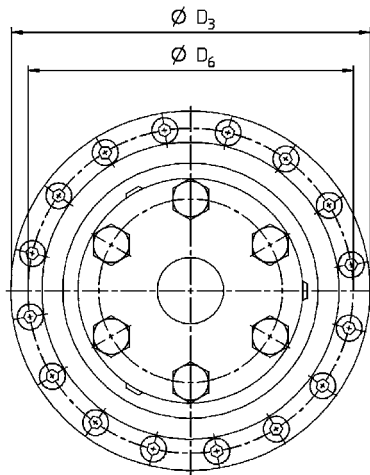
BCT Standard

with Standard clamping hub



BCT HIGH TORQUE

with conical clamping hub



Your benefits:

- Completely backlash free
- High torsional rigidity
- Small installation place and compactness
- Fatigue endurable and maintenance free
- Perfectly matched technically and geometrically to flange gearhead

Optional:

- Bores with key / involute
- Corrosion resistant version
- Other designs, geometry

BCH – bellows coupling with split clamping hub

			Series																			
Technical data			15		30		60		80		150		200		300		500		800		1500	
Length options (see ordering code)			A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A		A	
Max. acceleration torque (max. 1000 cycles per hour)	T _B	Nm	15		30		60		80		150		200		300		500		800		1500	
		in.lb	133		266		531		708		1328		1770		2655		4425		7080		13275	
EMERGENCY STOP torque (briefly permissible)	T _{Emer}	Nm	22.5		45		90		120		225		300		450		750		1200		2250	
		in.lb	199		398		797		1062		1991		2655		3983		6638		10620		19913	
Max. speed	n _{Max}	rpm	10000																			
Axial misalignment 	Max. values	mm	1.0	2.0	1.0	2.0	1.5	2.0	2.0	3.0	2.0	3.0	2.0	3.0	2.5	3.5	2.5	3.5	3.5		3.5	
Angular misalignment 	Max. values	°	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5	1.5		1.5	
Lateral misalignment 	Max. values	mm	0.15	0.2	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.25	0.3	0.25	0.30	0.30	0.35	0.35		0.35	
Axial spring stiffness	C _a	N/mm	25	15	50	30	72	48	48	32	82	52	90	60	105	71	70	48	100		320	
Lateral spring stiffness	C _l	N/mm	475	137	900	270	1200	420	920	290	1550	435	2040	610	3750	1050	2500	840	2000		3600	
Torsional rigidity	C _t	Nm/arcmin	5.8	4.4	11	8.1	22	16	38	25	51	32	56	41	131	102	148	146	227		379	
		in.lb/arcmin	52	39	100	72	196	142	332	219	451	283	492	361	1159	901	1313	1288	2009		3359	
Moment of inertia	J	kgcm ²	0.7	0.8	1.4	1.5	2.3	2.6	6.5	6.7	25	32	45	54	85	105	173	196	243		492	
		10 ⁻³ in.lb.s ²	0.6	0.7	1.2	1.3	2.0	2.2	5.5	5.7	21	27	38	46	72	89	147	167	207		418	
Hub material			Al		Al		Al		Al		Steel		Steel		Steel		Steel		Steel		Steel	
Bellows material			highly flexible stainless steel																			
Approx. weight	m	kg	0.15		0.30		0.40		0.80		1.7		2.5		4.0		7.5		7.0		12	
		lb	0.33		0.66		0.88		1.8		3.8		5.5		8.8		17		15		27	
Max. permitted temperature		°C	-30 to +100 (bonded)														-30 to +300 (welded)					
		F	-22 to +212 (bonded)														-22 to +572 (welded)					
Dimensions																						
Overall length	L ₁	mm	59	66	69	77	83	93	94	106	95	107	105	117	111	125	133	146	140		166	
Fit length ^{a)}	L ₂	mm	22		27		31		36		36		41		43		51		45		55	
Distance	L ₃	mm	6.5		7.5		9.5		11		11		12.5		13		16.5		18		22.5	
Distance between centers	L ₄	mm	17		19		23		27		27		31		39		41		48		55	
Insertion length	L ₇ ⁻²	mm	29	36	35	43	41	51	47	59	48	60	51	63	55	69	62	75	65.5		71	
Bore diameter from Ø to Ø H7	D _{1/2}	mm	8 - 28		10 - 30		12 - 35		14 - 42		19 - 42		22 - 45		24 - 60		35 - 60		40 - 75		50 - 80	
Outer diameter	D ₃	mm	49		55		66		81		81		90		110		124		134		157	

^{a)} Tolerance for shaft/hub connection 0.01-0.05 mm.

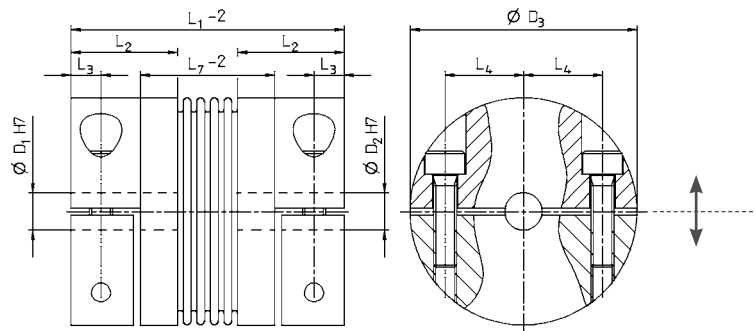
^{b)} per clamping hub, 180° apart

Your benefits:

- Mounting time is greatly reduced through clamping hubs in half-shell design
- Precise preliminary alignment of shafts possible
- Completely backlash free
- High torsional rigidity
- High dynamics through low mass moment
- Fatigue endurable and maintenance free

Optional:

- Bores with key / involute
- Other hub materials
- Other designs, geometry



BC2 – bellows coupling with clamping hub

			Series																					
Technical data			15		30		60		80		150		200		300		500		800		1500		4000	6000
Length options (see ordering code)			A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	A
Max. acceleration torque (max. 1000 cycles per hour)	T _B	Nm	15		30		60		80		150		200		300		500		800		1500		4000	6000
		in.lb	133		266		531		708		1328		1770		2655		4425		7080		13275		35400	53100
EMERGENCY STOP torque (briefly permissible)	T _{Emer}	Nm	22.5		45		90		120		225		300		450		750		1200		2250		6000	9000
		in.lb	199		398		797		1062		1991		2655		3983		6638		10620		19913		53100	79650
Max. speed	n _{Max}	rpm	10000																					
Axial misalignment 	Max. values	mm	1	2	1	2	1.5	2	2	3	2	3	2	3	2.5	3.5	2.5	3.5	3.5	4.5	3.5	4.5	3.5	3
Angular misalignment 	Max. values	°	1	1.5	1	1.5	1	1.5	1	1.5	1	1.5	1	1.5	1	1.5	1	1.5	1.5	2	1.5	2	1.5	1.5
Lateral misalignment 	Max. values	mm	0.15	0.2	0.2	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.25	0.3	0.25	0.3	0.3	0.35	0.35	1	0.35	1	0.4	0.4
Axial spring stiffness	C _a	N/mm	25	15	50	30	72	48	48	32	82	52	90	60	105	71	70	48	100	285	320	440	565	1030
Lateral spring stiffness	C _l	N/mm	475	137	900	270	1200	420	920	290	1550	435	2040	610	3750	1050	2500	840	2000	1490	3600	1700	6070	19200
Torsional rigidity	C _T	Nm/arcmin	5.8	4.4	11.3	8.1	22.1	16.0	37.5	24.7	50.9	32.0	55.6	40.7	131	102	148	145	227	207	379	343	989	1658
		in.lb/arcmin	51.5	38.6	100.4	72.1	195.7	141.6	332.1	218.8	450.5	283.2	491.7	360.4	1158	901	1313	1287	2008	1830	3357	3038	8753	14674
Moment of inertia	J	kgcm ²	0.6	0.7	1.2	1.3	3.2	3.5	8.0	8.5	19.0	20.0	32.0	34.0	76	79	143	146	162	170	435	450	1650	4950
		10 ⁻³ in.lb.s ²	0.5	0.6	1.1	1.2	2.8	3.1	7.1	7.5	16.8	17.7	28.3	30.1	67	70	127	129	143	150	385	398	1460	4381
Hub material			Al		Al		Al		Al		Steel		Steel		Steel		Steel		Steel		Steel		Steel	
Bellows material			highly flexible stainless steel																					
Approx. weight	m	kg	0.16		0.26		0.48		0.8		1.85		2.65		4.0		6.3		5.7		11.5		28.8	49.4
		lb	0.35		0.57		1.06		1.77		4.09		5.86		8.84		13.9		12.6		25.4		63.6	109
Max. permitted temperature		°C	-30 to +100 (bonded)															-30 to +300 (welded)						
		F	-22 to +212 (bonded)															-22 to +572 (welded)						
Dimensions																								
Overall length	L ₁	mm	59	66	69	77	83	93	94	106	95	107	105	117	111	125	133	146	140	179	166	230	225	252
Fit length ^{a)}	L ₂	mm	22		27		31		36		36		41		43		51		45		55		85	107
Distance	L ₃	mm	6.5		7.5		9.5		11		11		12.5		13		16.5		18		22.5		28	35
Distance between centers	L ₄	mm	17		19		23		27		27		31		39		41		2 x 48		2 x 55		65	90
Bore diameter from Ø to Ø H7	D _{1/2}	mm	8 - 28		10 - 30		12 - 35		14 - 42		19 - 42		22 - 45		24 - 60		35 - 60		40 - 75		50 - 80		50 - 90	60 - 140
Outer diameter	D ₃	mm	49		55		66		81		81		90		110		124		134		157		200	253

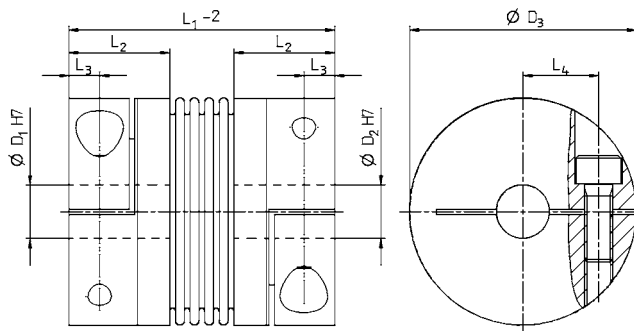
^{a)} Tolerance for shaft/hub connection 0.01-0.05 mm.

Your benefits:

- Completely backlash free
- Fatigue endurable and maintenance free
- High power density through compact design
- High dynamics through low mass moment
- Simple mounting thanks to clamping screw

Optional:

- Bores with key / involute
- Corrosion resistant version
- Other designs, geometry



BC3 – bellows coupling with conical clamping hub

			Series																		
Technical data			15		30		60		150		200		300		500		800	1500	4000	6000	10000
Length options (see order codes)			A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	A	A	A	A
Max. acceleration torque (max. 1000 cycles per hour)	T _B	Nm	15		30		60		150		200		300		500		800	1500	4000	6000	10000
		in.lb	133		266		531		1328		1770		2655		4425		7080	13275	35400	53100	88500
EMERGENCY STOP torque (briefly permissible)	T _{Emer}	Nm	22.5		45		90		225		300		450		750		1200	2250	6000	9000	15000
		in.lb	199		398		797		1991		2655		3983		6638		10620	19913	53100	79650	132750
Max. speed	n _{Max}	rpm	10000																		
Axial misalignment 	Max. values	mm	1	2	1	2	1.5	2	2	3	2	3	2.5	3.5	2.5	3.5	3.5	3.5	3.5	3	3
Angular misalignment 	Max. values	°	1	1.5	1	1.5	1	1.5	1	1.5	1	1.5	1	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5
Lateral misalignment 	Max. values	mm	0.15	0.2	0.2	0.25	0.2	0.25	0.2	0.25	0.25	0.3	0.25	0.3	0.3	0.35	0.35	0.35	0.4	0.4	0.4
Axial spring stiffness	C _a	N/mm	25	15	50	30	72	48	82	52	90	60	105	71	70	48	100	320	565	1030	985
Lateral spring stiffness	C _l	N/mm	475	137	900	270	1200	420	1500	435	2040	610	3750	1050	2500	840	2000	3600	6070	19200	21800
Torsional rigidity	C _T	Nm/arcmin	5.8	4.4	11.3	8.1	22.1	16.0	50.9	32.0	55.6	40.7	130.9	101.8	148	145	227	379	989	1658	3185
		in.lb/arcmin	51.5	38.6	100.4	72.1	195.7	141.6	450.5	283.2	491.7	360.4	1158.5	901.0	1313	1287	2008	3357	8753	14674	28189
Moment of inertia	J	kgcm ²	0.7	0.8	1.5	1.6	3.9	4.1	12.0	16.0	17.0	25.0	51.0	59.0	91	99	132	349	855	2540	6290
		10 ⁻³ in.lb.s ²	0.6	0.7	1.3	1.4	3.5	3.6	10.6	14.2	15.0	22.1	45.1	52.2	81	88	117	309	757	2248	5567
Hub material			Steel																		
Bellows material			highly flexible stainless steel																		
Approx. weight	m	kg	0.26	0.27	0.42	0.44	0.71	0.74	1.2		1.8		3		4.2		5.6	8.2	23	32.6	45.5
		lb	0.57	0.60	0.93	0.97	1.57	1.63	2.65		3.97		6.61		9.33		12.3	18.1	50.7	71.9	100.3
Max. permitted temperature		°C	-30 to +100 (bonded)														-30 to +300 (welded)				
		F	-22 to +212 (bonded)														-22 to +572 (welded)				
Dimensions																					
Overall length (without L ₃)	L ₁	mm	48	55	57	65	66	76	75	87	78	90	89	103	97	110	114	141	195	210	217
Fit length ^{a)}	L ₂	mm	19		22		27		32		32		41		41		50	61	80	85	92
Screw head length	L _s	mm	2.8		3.5		3.5		4		4		5.3		5.3		6.4	7.5	10	10	10
Bore diameter from Ø to Ø H7	D _{1/2}	mm	10 - 22		12 - 23		12 - 29		15 - 38		15 - 44		24 - 56		24 - 60		30 - 60	35 - 70	50 - 100	60 - 140	70 - 180
Outer diameter	D ₃	mm	49		55		66		81		90		110		124		133	157	200	253	303
Outer diameter of hub	D ₅	mm	49		55		66		81		90		110		122		116	135	180	246	295

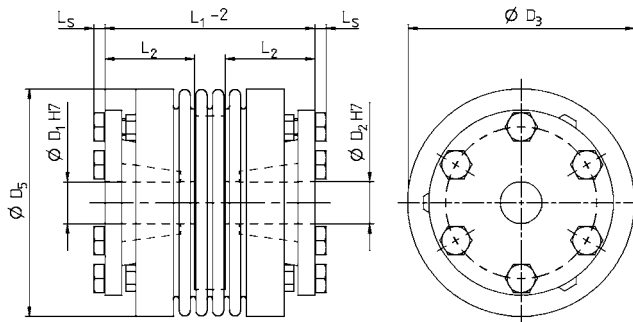
^{a)} Tolerance for shaft/hub connection 0.01-0.05 mm.

Your benefits:

- Completely backlash free
- Fatigue endurable and maintenance free
- High torques owing to conical clamping hub
- High dynamics through higher clamping forces
- Axial mounting via conical clamping hub

Optional:

- Bores with key / involute
- Corrosion resistant version
- Other designs



EC2 – bellows coupling Economy with clamping hub

			Series									
Technical data			2	4.5	10	15	30	60	80	150	300	500
Max. acceleration torque (max. 1000 cycles per hour)	T _B	Nm	2	4.5	10	15	30	60	80	150	300	500
		in.lb	18	40	89	133	266	531	708	1328	2655	4425
EMERGENCY STOP torque (briefly permissible)	T _{Emer}	Nm	3	6.75	15	22.5	45	90	120	225	450	750
		in.lb	27	60	133	199	398	797	1062	1991	3983	6638
Max. speed	n _{Max}	rpm	10000									
Axial misalignment 	Max. values	mm	0.5	1	1	1	1	1.5	2	2	2	2.5
Angular misalignment 	Max. values	°	1	1	1	1	1	1	1	1	1	1
Lateral misalignment 	Max. values	mm	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Axial spring stiffness	C _a	N/mm	8	35	30	30	50	67	44	77	112	72
Lateral spring stiffness	C _l	N/mm	50	350	320	315	366	679	590	960	2940	1450
Torsional rigidity	C _T	Nm/arcmin	0.44	2.0	2.6	6.7	9	21	23	41	46	84
		in.lb/arcmin	3.9	18	23	59	80	186	204	363	407	743
Moment of inertia	J	kgcm ²	0.02	0.07	0.16	0.65	1.2	3	7.5	18	75	117
		10 ⁻³ in.lb.s ²	0.02	0.06	0.14	0.58	1.1	2.7	6.6	16	66	104
Hub material			Al	Al	Al	Al	Al	Al	Al	Steel	Steel	Steel
Bellows material			highly flexible stainless steel									
Approx. weight	m	kg	0.02	0.05	0.06	0.16	0.25	0.4	0.7	1.7	3.8	4.9
		lb	0.044	0.110	0.132	0.353	0.551	0.882	1.54	3.75	8.38	10.8
Max. permitted temperature		°C	-30 to +100 (bonded)									
		F	-22 to +212 (bonded)									
Dimensions												
Overall length	L ₁	mm	30	40	44	58	68	79	92	92	109	114
Fit length ^{a)}	L ₂	mm	10.5	13	13	21.5	26	28	32.5	32.5	41	42.5
Distance	L ₃	mm	4	5	5	6.5	7.5	9.5	11	11	13	17
Distance between centers	L ₄	mm	8	11	14	17	20	23	27	27	39	41
Clamping hub from Ø to Ø H7	D _{1/2}	mm	4 - 12.7	6 - 16	6 - 24	8 - 28	10 - 32	14 - 35	16 - 42	19 - 42	24 - 60	35 - 62
Outer diameter	D ₃	mm	25	32	40	49	56	66	82	82	110	123

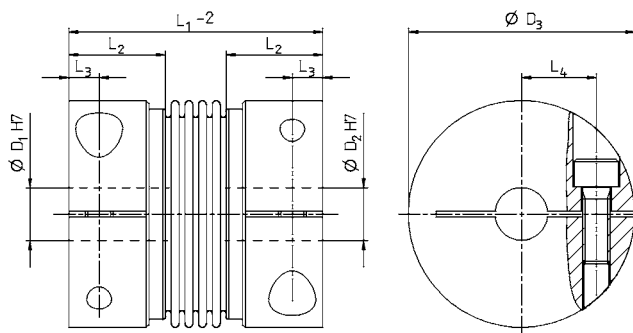
^{a)} Tolerance for shaft/hub connection 0.01-0.05 mm.

Your benefits:

- Completely backlash free
- Fatigue endurable and maintenance free
- Low-cost version
- High dynamics through very low mass moment
- Simple mounting thanks to clamping screw

Optional:

- Bores with key / involute
- Optional mounting / self-opening clamp system
- Different hub material (aluminum, steel)



EL – Elastomer couplings

Elastomer couplings ensure precisely manufactured hubs and attachable intermediate elements for maximum true-running accuracy in the drive train. In addition, torque peaks and vibrations are damped to ensure superior smooth running.



Your benefits:

- Compensation for shaft misalignment
- Completely backlash free
- Selectable torsional rigidity/damping
- Compact design
- Extremely simple installation (plug-in)
- Maintenance-free and fatigue endurable
- Ideal for connection to spindle drives, toothed belt drives and linear modules

Fields of application:

- Machine tools
- Packaging machines
- Automation and handling technology
- Printing presses
- Particularly linear drives (spindle drives, toothed belt axes)
- Applications in continuous operation

The elastomer insert you select largely determines the characteristics of the entire drive train. Select between 3 versions and thereby determine the damping characteristics and torsional rigidity you require.



Version A
Shore hardness 98 Sh A



Version B
Shore hardness 64 Sh D



Version C
Shore hardness 80 Sh A

Description of elastomer inserts

Version	Features	Relative damping (ψ)	Shore hardness	Material	Temperature range	Color
A	Good damping	0.4-0.5	98 Sh A	TPU	-30°C to +100°C	Red
B	High torsional rigidity	0.3-0.45	64 Sh D	TPU	-30°C to +120°C	Green
C	Very good damping	0.3-0.4	80 Sh A	TPU	-30°C to +100°C	Yellow

The values for proportional damping and the full torque load of the respective elastomer inserts were determined at 10 Hz and +20°C

EL6 – elastomer coupling with conical clamping ring

			Series																							
Technical data			10			20			60			150			300			450			800					
Elastomer insert version (see order code)			A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C			
Max. rated torque	T _{NE}	Nm in.lb	12.6 112	16 142	4.0 35	17 150	21 186	6.0 53	60 531	75 664	20 177	160 1416	200 1770	42 372	325 2876	405 3584	84 743	530 4691	660 5841	95 841	950 8408	1100 9735	240 2124			
Max. acceleration torque (max. 1000 cycles per hour)	T _{BE}	Nm in.lb	25 221	32 283	6 53	34 301	42 372	12 106	120 1062	150 1328	35 310	320 2832	400 3540	85 752	650 5753	810 7169	170 1505	1060 9381	1350 11948	190 1682	1900 16815	2150 19028	400 3540			
Max. speed	n _{Max}	rpm	20000			19000			14000			13000			10000			9000			4000					
Axial misalignment 	Max. values	mm	±1			±2			±2			±2			±2			±2			±2					
Angular misalignment 	Max. values	°	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2			
Lateral misalignment 	Max. values	mm	0.1	0.08	0.22	0.1	0.08	0.25	0.12	0.1	0.25	0.15	0.12	0.3	0.18	0.14	0.35	0.2	0.18	0.35	0.25	0.2	0.4			
Static torsional rigidity (at 50% T _{BE})	C _T	Nm/arcmin in.lb/arcmin	0.076 0.67	0.17 1.5	0.026 0.23	0.33 2.9	0.73 6.5	0.15 1.3	0.96 8.5	2.8 24.8	0.41 3.6	1.4 12.4	3.1 27.4	0.33 2.9	3.6 31.9	5.2 46	0.37 3.3	4.4 38.9	7.9 69.9	1.2 10.6	12 106	19 168	3.0 26.6			
Dynamic torsional rigidity (at T _{BE})	C _{Tdy}	Nm/arcmin in.lb/arcmin	0.16 1.4	0.48 4.2	0.065 0.58	0.74 6.6	1.3 11.5	0.25 2.2	2.3 20.4	3.5 31.0	0.39 3.5	3.9 34.5	8.5 75.2	1 8.9	6.9 61.1	12 106	1.8 15.9	16 142	24 212	3.4 30.1	24 212	52 460	8.3 73.5			
Moment of inertia	J	kgcm ² 10 ⁻³ in.lb.s ²	0.08 0.07			0.30 0.27			1.0 0.89			2.0 1.8			6.0 5.3			17 15			184 163					
Hub material			Al			Al			Al			Al			Al			Al			Steel					
Elastomer material			Polymer																							
Approx. weight	m	kg lb	0.08 0.18			0.12 0.27			0.3 0.66			0.5 1.1			0.9 2.0			1.5 3.3			9.6 21					
Dimensions																										
Overall length	L ₁	mm	42			56			64			76			96			110			138					
Fit length ^{a)}	L ₂	mm	15			20			23			28			36			42			53					
Bore diameter from Ø to Ø H7	D _{1/2}	mm	6 - 16			8 - 24			12 - 32			19 - 35			20 - 45			28 - 55			32 - 80					
Outer diameter	D ₃	mm	32			43			56			66			82			102			136.5					
Maximum internal diameter (elastomer insert)	D ₇	mm	14.2			19.2			26.2			29.2			36.2			46.2			60.5					
Fastening screws (ISO 4762(12.9))			3x M3			6x M4			4x M5			8x M5			8x M6			8x M8			8x M10					

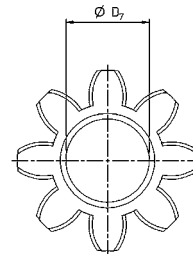
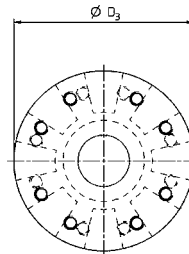
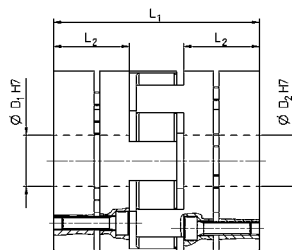
^{a)} Tolerance for shaft/hub connection 0.01-0.05 mm.

Your benefits:

- Extremely simple axial mounting (plug-in)
- Selectable damping characteristics/torsional rigidity (see elastomer options)
- Completely backlash free
- Damping of vibration and torque peaks
- Ideal for connecting linear modules
- High true-running accuracy and smooth running

Optional:

- Bores with key / involute
- Other designs



ELC – elastomer coupling

Compact version with clamping hub

			Series																										
Technical data			2			5			10			20			60			150			300			450			800		
Elastomer insert version (see order code)			A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Max. rated torque for elastomer insert ^{a)}	T _{NE}	Nm in.lb	2 18	2.4 21	0.5 4.4	9 80	12 106	2 18	12.5 111	16 142	4 35	17 150	21 186	6 53	60 531	75 664	20 177	160 1416	200 1770	42 372	325 2876	405 3584	84 743	530 4691	660 5841	95 841	950 8408	1100 9735	240 2124
Max. acceleration torque of elastomer insert (max. 1000 cycles per hour) ^{a)}	T _{BE}	Nm in.lb	4 35	4.8 42	1.0 8.9	18 159	24 212	4 35	25 221	32 283	6 53	34 301	42 372	12 106	120 1062	150 1328	35 310	320 2832	400 3540	85 752	650 5753	810 7169	170 1505	1060 9381	1350 11948	190 1682	1900 16815	2150 19028	400 3540
Max. speed	n _{Max}	rpm	15000			15000			13000			12500			11000			10000			9000			8000			4000		
Axial misalignment 	Max. values	mm	±1			±1			±1			±2			±2			±2			±2			±2			±2		
Angular misalignment 	Max. values	°	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2
Lateral misalignment 	Max. values	mm	0.08	0.06	0.2	0.08	0.06	0.2	0.1	0.08	0.22	0.1	0.08	0.25	0.12	0.1	0.25	0.15	0.12	0.3	0.18	0.14	0.35	0.2	0.18	0.35	0.25	0.2	0.4
Static torsional rigidity at (50% T _{BE})	C _T	Nm/arcmin in.lb/arcmin	0.02 0.13	0.03 0.29	0.01 0.04	0.04 0.39	0.10 0.89	0.02 0.13	0.08 0.67	0.17 1.5	0.03 0.23	0.33 2.9	0.73 6.5	0.15 1.33	0.96 8.5	2.8 25	0.41 3.6	1.4 12	3.1 27	0.33 2.9	3.6 32	5.2 46	0.37 3.3	4.4 39	7.9 70	1.2 11	12 106	19 168	3.0 27
Dynamic torsional rigidity at (T _{BE})	C _{Tdy}	Nm/arcmin in.lb/arcmin	0.03 0.26	0.07 0.59	0.01 0.09	0.09 0.77	0.2 1.8	0.03 0.27	0.16 1.4	0.48 4.2	0.07 0.58	0.74 6.5	1.3 12	0.25 2.2	2.3 20	3.5 30.9	0.39 3.5	3.9 35	8.5 75	1.0 8.9	6.9 61	12 106	1.8 16	16 142	24 212	3.4 30	24 212	52 460	8.3 73
Moment of inertia	J	kgcm ² 10 ⁻³ in.lb.s ²	0.01			0.04			0.06			0.20			0.80			1.60			6.00			13.2			160		
Hub material			Al			Al			Al			Al			Al			Al			Al			Al			Steel		
Elastomer material			Polymer																										
Approx. weight	m	kg lb	0.008 0.018			0.02 0.044			0.05 0.11			0.12 0.27			0.30 0.66			0.50 1.1			0.90 2.0			1.5 3.3			8.5 18.8		
Dimensions																													
Overall length	L ₁	mm	20			26			32			50			58			62			86			94			123		
Fit length ^{b)}	L ₂	mm	6			8			10.3			17			20			21			31			34			46		
Distance	L ₃	mm	3			4			5			8.5			10			11			15			17.5			23		
Distance between centers	L ₄	mm	5.5			8			10.5			15.5			21			24			29			38			50.5		
Hub length	L ₅	mm	12			16.7			20.7			31			36			39			52			57			74		
Bore diameter from Ø to Ø H7	D _{1/2}	mm	3 - 8			4 - 12.7			4 - 16			8 - 25			12 - 32			19 - 36			20 - 45			28 - 60			35 - 80		
Outer diameter	D ₃	mm	16			25			32			42			56			66.5			82			102			136.5		
Outer diameter with screw head	D _{3S}	mm	17			25			32			44.5			57			68			85			105			139		
Maximum internal diameter (elastomer insert)	D ₇	mm	6.2			10.2			14.2			19.2			26.2			29.2			36.2			46.2			60.5		

^{a)} Max. torque additionally dependent on minimum selected bore diameter on drive or output side (D_{1/2}).

This only applies to ELC couplings. Please check using "Maximum transmittable torque" table.

^{b)} Tolerance for shaft/hub connection 0.01-0.05 mm.

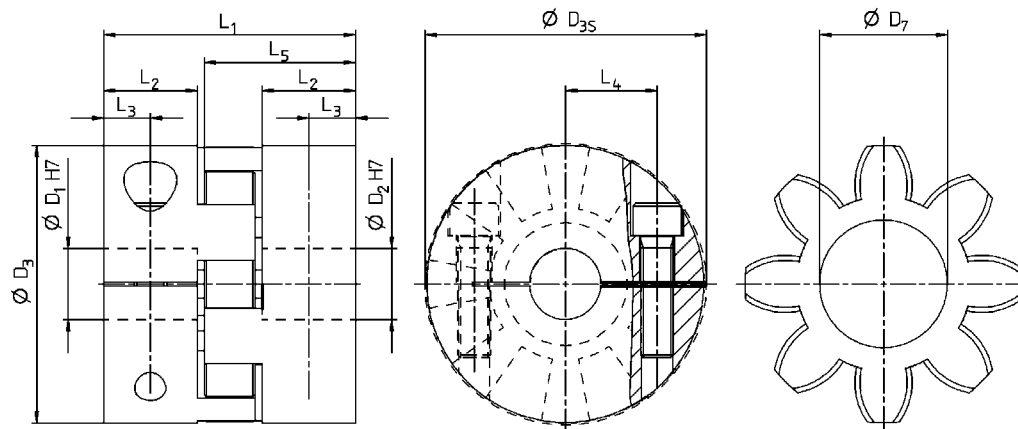
Maximum transmittable torque [Nm]

$D_{1/2}$ Series	Ø 3	Ø 4	Ø 5	Ø 8	Ø 16	Ø 19	Ø 25	Ø 30	Ø 32	Ø 35	Ø 45	Ø 50	Ø 55	Ø 60	Ø 65	Ø 70	Ø 75	Ø 80
2	0,2	0,8	1,5	2,5														
5		1,5	2	8														
10			4	12	32													
20				20	35	45	60											
60					50	80	100	110	120									
150						120	160	180	200	220								
300						200	230	300	350	380	420							
450								420	480	510	600	660	750	850				
800										700	750	800	835	865	900	925	950	1000

Maximum transmittable torque according to minimum selected bore diameter ($D_{1/2}$) and ELC series

If intermediate value, please perform linear interpolation

Higher torques possible by means of additional keys.



Your benefits:

- Extremely simple radial mounting (plug-in)
- Selectable damping characteristics/torsional rigidity (see elastomer options)
- Completely backlash free
- Damping of vibration and torque peaks
- Ideal for connecting linear modules
- High true-running accuracy and smooth running

Optional:

- Bores with key / involute
- intermediate cardan piece (higher lateral misalignment)
- Other designs

TL – torque limiters

Torque limiters with integrated mechanical switching mechanism combine dynamic and precise transmission with TÜV-certified torque limitation. They therefore protect the drive and machine from overload.



Your benefits:

- Machine downtimes are avoided
- High availability and productivity
- Precise, preset overload protection (switch-off in 1 – 3 ms)
- Precise repeat accuracy
- Compact and completely backlash free
- Just one protection element per axle

Your benefits:

- Extremely high machine availability
- Extremely high machine dynamics
- Minimal maintenance requirements
- Extremely high service life of machine and components
- TÜV certification

Selectable function systems – re-engagement after overload has been rectified

Single position re-engagement (W) (Standard)



Re-engagement after exactly 360°
Guaranteed synchronism
Switch signal in the event of overload*

Applications:
Packaging machines
Machine tools
Automation systems

Multi-position (D)



Re-engagement after exactly 60° (Standard)
Optionally after (30, 45, 60, 90, 120°)
System is immediately available again
Switch signal in the event of overload*

Applications:
Packaging machines
Machine tools
Automation systems

Full engagement (F)



Permanent separation of drive and output
Free deceleration of centrifugal masses
Manual re-engagement (every 60°)
Switch signal in the event of overload*

Applications:
Applications with extremely high speeds and kinetic energy

Load holding version (G)



None, or limited
Separation of drive and output
Only slow rotation possible during overload
Re-engagement after torque drop
Guaranteed load safety
Switch signal in the event of overload*

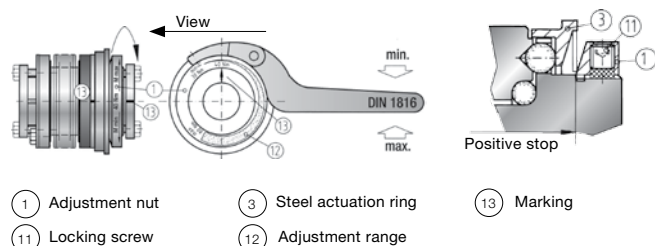
Applications:
Particularly for vertical axes such as presses, load-lifting equipment

*(For suitable switches, see Page 403)

Accessories for TL – torque limiters

Alpha torque limiters are factory adjusted to the specified disengagement torque, which is marked on the coupling.
Thanks to the installed disc springs with special degressive spring characteristics it is also possible to adjust the preset disengagement torque within the adjustment range.
Adjustment of the disengagement torque can be carried out using a torque adjusting wrench

Torque adjusting wrench for DIN 1816 nuts



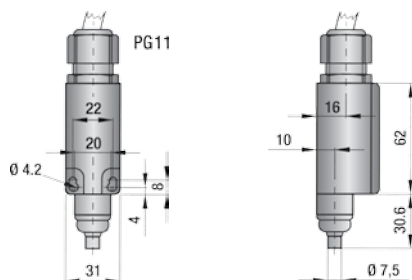
Smaller coupling sizes do not require a torque adjusting wrench.
The adjusting nut for the 1.5/2/4.5/10 series can be adjusted with a bolt or pin.

Torque adjusting wrench			
Series	Designation	AC according to the function system	
		W, D, G*	F*
15	GHS TL 15	20047730	20047730
30	GHS TL 30	20047731	20047731
60	GHS TL 60	20047732	20047749
80	GHS TL 80	20047733	20047733
150	GHS TL 150	20047733	20047733
200	GHS TL 200	20047734	20047750
300	GHS TL 300	20047735	20047735
500	GHS TL 500	20047736	20047736
800	GHS TL 800	20047737	20047751
1500	GHS TL 1500	20047738	20047738
2500	GHS TL 2500	20047739	20047752

*Function systems: single position (W), multi-position (D), load holding (G), full disengagement (F)

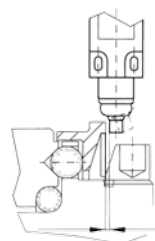
Mechanical limit switch (emergency cut-off)

Dimension drawings



Important:

The switch function must always be checked 100 % after mounting.



The actuation tappet should be positioned as close as possible to the actuation ring of the torque limiter (approx. 0.1–0.2 mm).

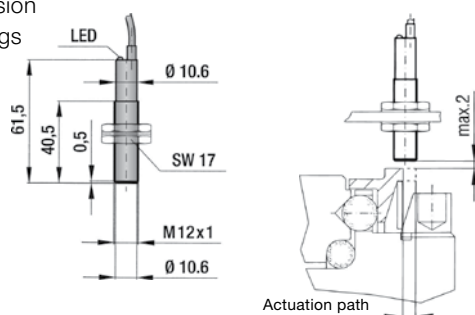
Distance approx. 0.1–0.2 mm

Technical data	ME TL AC: 20022999
Max. voltage:	500 V AC
Max. constant current:	10 A
Degree of protection:	IP 65
Contact type:	NC contact (positive opening)
Ambient temperature:	-30 °C to +80 °C
Actuation:	Tappet (metal)
Circuit symbol:	

The mechanical limit switch is suitable for size 30 and above.

Proximity switch (emergency cut-off)

Dimension drawings



Important:

The switch function must always be checked 100 % after mounting.

Technical data	NAS TL AC: 20022998
Voltage range:	10 to 30 V DC
Max. output current:	200 mA
Max. switching frequency:	800 Hz
Temperature range:	-25 °C to +70 °C
Degree of protection:	IP 67
Switch type:	PNP NC contact
Detection gap:	max. 2 mm
Circuit symbol:	

TL1 – Torque limiter for indirect drives

Technical data

			Miniature version (Standard clamping hub)				Standard version (Conical clamping hub)												
Series			1.5	2	4.5	10	15	30	60	150	200	300	500	800	1500	2500			
Adjustment range from min. to max. disengagement torque T _{Dis} (approx. values) Function systems: single position (W), multi-position (D) and load holding (G)	T _{Dis}	Nm in.lb	A	0.1-0.6	0.2-1.5	1-3	2-6	5-15	5-20	10-30	20-70	30-90	100-200	80-200	400-650	600-800	1500-2000		
				1-6	2-14	9-27	18-54	45-133	45-177	89-266	177-620	266-797	885-1770	708-1770	3540-5753	5310-7080	13275-17700		
		Nm in.lb	B	0.4-1	0.5-2.2	2-4.5	4-12	12-25	10-30	25-80	45-150	60-160	150-240	200-350	500-800	700-1200	2000-2500		
				4-9	5-20	18-40	36-107	107-222	89-266	222-708	399-1328	531-1416	1328-2124	1770-3098	4425-7080	6195-10620	17700-22125		
		Nm in.lb	C	0.8-2	1.5-3.5	3-7	7-18	20-40	20-60	50-115	80-225	140-280	220-440	320-650	650-950	1000-1800	2300-2800		
				8-18	14-31	27-62	62-160	177-354	177-531	443-1018	708-1992	1239-2478	1947-3894	2832-5753	5753-8408	8850-15930	20355-24780		
		Nm in.lb	D	-	-	-	-	35-70	50-100	-	-	250-400	-	-	-	-	-		
				-	-	-	-	310-620	443-885	-	-	222-3540	-	-	-	-	-		
	Adjustment range from min. to max. disengagement torque T _{Dis} (approx. values) Function system: Full engagement (F)	T _{Dis}	Nm in.lb	A	0.3-0.8	0.5-2	2.5-4.5	2-5	7-15	8-20	10-30	20-60	80-140	120-180	50-150	200-400	1000-1250	1400-2200	
					3-8	5-18	23-40	18-45	62-133	71-177	89-266	177-531	708-1239	1062-1593	443-1328	1770-3540	8850-11063	12390-19470	
Nm in.lb			B	0.6-1.3	-	-	4-10	-	16-30	20-40	40-80	130-200	160-300	100-300	450-850	1250-1500	1800-2700		
				6-12	-	-	36-89	-	142-266	177-354	354-708	1151-1770	1416-2655	885-2655	3983-7523	11063-13275	15930-23895		
Nm in.lb			C	-	-	-	8-15	-	-	30-60	80-150	-	300 - 450	250-500	-	-	-		
				-	-	-	71-133	-	-	266-531	708-1328	-	2655 - 3983	2213-4425	-	-	-		
Max. radial force (radial load capacity) within the permitted distance range S ^{a)}			F _R S	N		50	100	200	500	1400	1800	2300	3000	3500	4500	5600	8000	12000	20000
				mm		3 - 6	5 - 8	5 - 11	6 - 14	7 - 17	10 - 24	10 - 24	12 - 24	12 - 26	12 - 28	16 - 38	16 - 42	20 - 50	28 - 60
Moment of inertia	J	kgcm ²		0.1	0.2	0.5	0.7	1.5	2.5	5.0	16	27	52	86	200	315	2100		
		in.lb.s ² .10 ⁻³		0.1	0.2	0.4	0.6	1.3	2.2	4.4	14	24	46	76	177	279	1859		
Max. speed ^{b)}	n _{Max}	rpm	3000							2000			1000						
Material			Hardened steel																
Approx. weight	m	kg	0.03	0.065	0.12	0.22	0.4	0.7	1.0	1.3	2.0	3.0	4.0	5.5	10	28			
		lb	0.07	0.14	0.27	0.49	0.9	1.5	2.2	2.9	4.4	6.6	8.8	12	22	61			
Max. permitted temperature		°C	-30 to +120																
		F	-22 to +572																

^{a)} If different, additional bearing required (see illustration 1)

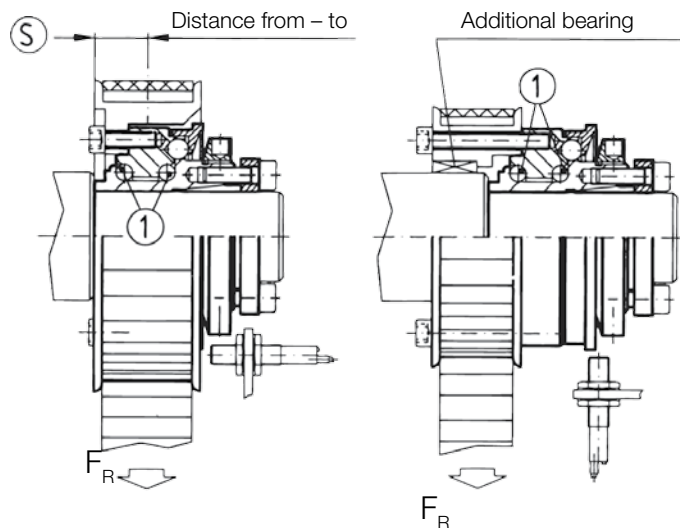
^{b)} If you have more stringent requirements, please contact WITTENSTEIN alpha

Your benefits:

- Ideal for connecting toothed belt pulleys and sprocket wheels
- Integrated bearing for indirect drives
- Certified disengagement mechanism in the event of overload
- Pre-set disengagement torque
- Completely backlash free
- Fatigue endurable and maintenance free
- High compactness
- High dynamics through low mass moment

Optional:

- Bores with key
- Other designs



1: Integrated bearings

F_R : Permitted radial force (radial load capacity)

S: permitted distance range

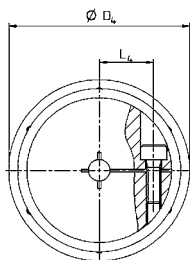
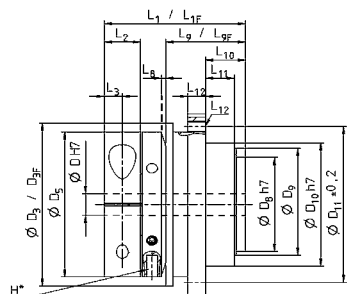
Dimensions

			Miniature version (Standard clamping hub)				Standard version (Conical clamping hub)									
Series			1.5	2	4.5	10	15	30	60	150	200	300	500	800	1500	2500
Overall length (without L ₉)	L ₁	mm	23	28	32	39	40	50	54	58	63	70	84	95	109	146
Overall length F (without L ₉)	L _{1F}	mm	23	28	32	39	40	50	54	58	66	73	88	95	117	152
Fit length ^{b)}	L ₂	mm	7	8	11	11	19	22	27.5	32	32	41	41	49	61	80
Distance	L ₃	mm	3.5	4	5	5	-	-	-	-	-	-	-	-	-	-
Distance between centers	L ₄	mm	6.5	8	10	15	-	-	-	-	-	-	-	-	-	-
Actuation path	L ₈	mm	0.7	0.8	0.8	1.2	1.5	1.5	1.7	1.9	2.2	2.2	2.2	2.2	3.0	3.0
Distance	L ₉	mm	11	15	17	22	27	35	37	39	44	47	59	67	82	112
Distance F	L _{9F}	mm	11.5	16	18	24	27	37	39	41.5	47	51.5	62	75	94	120
Distance	L ₁₀	mm	5	6	8	11	8	11	11	12	12	15	21	19	25	34
Centering length -0.2	L ₁₁	mm	2.5	3.5	5	8	3	5	5	5	5	6	9	10	13.5	20
Thread	L ₁₂		4xM2	4xM2.5	6xM2.5	6xM3	6xM4	6xM5	6xM5	6xM6	6xM6	6xM8	6xM8	6xM10	6xM12	6xM16
Thread length		mm	3	4	4	5	6	8	9	10	10	10	12	15	16	24
Distance	L ₁₃	mm	1	1.3	1.5	1.5	2.5	2.5	2.5	2.5	3	3	4	4	4.5	6
Screw head length	L ₈	mm	-	-	-	-	4	5	5	6	6	8	8	10	12	16
Bore diameter from Ø to Ø H7	D	mm	4-8	4-12	5-14	6-20	8-22	12-22	12-29	15-37	20-44	25-56	25-56	30-60	35-70	50-100
Outer diameter of actuation ring	D ₃	mm	23	29	35	45	55	65	73	92	99	120	135	152	174	242
Outer diameter of actuation ring F	D _{3F}	mm	24	32	42	51.5	62	70	83	98	117	132	155	177	187	258
Flange diameter -0.2	D ₄	mm	26	32	40	50	53	63	72	87	98	112	128	140	165	240
Outer diameter of hub	D ₅	mm	20	25	32	40	-	-	-	-	-	-	-	-	-	-
Diameter h7	D ₈	mm	11	14	17	24	27	32	39	50	55	65	72	75	92	128
Diameter	D ₉	mm	13	18	21	30	35	42	49	62	67	75	84	91	112	154
Centering diameter h7	D ₁₀	mm	14	22	25	34	40	47	55	68	75	82	90	100	125	168
Hole circle diameter ± 0.2	D ₁₁	mm	22	28	35	43	47	54	63	78	85	98	110	120	148	202

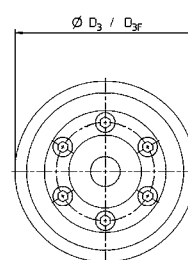
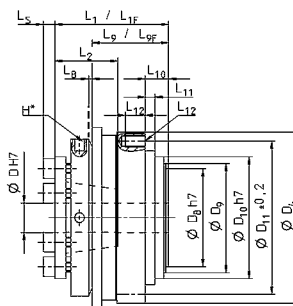
^{b)} Tolerance for shaft/hub connection 0.01-0.05 mm.

L_{1F} , L_{9F} , D_{3F} = Full disengagement version (F)

TL 1 miniature version (1.5-10 series)
with Standard clamping hub



TL 1 Standard version (15-2500 series)
with conical clamping hub



* Bore for torque adjusting wrench, see Page 403

Couplings

Accessories

TL2 – Torque limiter

Technical data

Series			1.5		2		4.5		10		15		30		60		80		150		200		300		500		800		1500					
Length options (see order codes)			A		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	A						
Adjustment range from min. to max. disengagement torque T _{Dis} (approx. values) Function systems: single position (W), multi-position (D) and load holding (G)	T _{Dis}	Nm	A	0.1-0.6		0.2-1.5		1-3		2-6		5-10		10-25		10-30		20-70		20-70		30-90		100-200		80-200		400-650		650-800				
				1-6		2-14		9-27		18-54		45-89		89-222		89-266		177-620		177-620		266-797		885-1770		708-1770		3540-5753		5753-7080				
		in.lb	B	0.4-1		0.5-2		3-6		4-12		8-20		20-40		25-80		30-90		45-150		60-160		150-240		200-350		500-800		700-1200				
				4-9		5-18		27-54		36-107		71-177		177-354		221-708		266-797		399-1328		531-1416		1328-2124		1770-3098		4425-2080		6195-10620				
		in.lb	C	0.8-1.5		-		-		-		-		-		-		-		80-180		120-240		200-320		300-500		650-850		1000-1800				
				8-14																708-1593		1062-2124		1770-2832		2655-4425		5753-7523		8850-15930				
Adjustment range from min. to max. disengagement torque T _{Dis} (approx. values) Function system: Full engagement (F)	T _{Dis}	Nm	A	0.3-0.8		0.5-2		2.5-4.5		2-5		7-15		8-20		20-40		20-60		20-60		80-140		120-180		60-150		200-400		1000-1250				
				3-8		5-18		22-40		18-45		62-133		71-177		177-354		177-531		177-531		708-1239		1062-1592		531-1328		1770-3540		8850-11063				
		in.lb	B	0.6-1.3		-		-		5-10		-		16-30		30-60		40-80		40-80		130-200		160-300		100-300		450-800		1250-1500				
				6-12						45-89				142-266		268-531		354-708		354-708		1151-1770		1416-2655		885-2655		3983-7080		11063-13275				
		in.lb	C	-		-		-		-		-		-		-		-		-		80-150		-		-		250-500		-		-		
																				708-1328						2213-4425								
Axial misalignment 	Max. values	mm	0.5		0.5	0.6	0.7	1	1	1.2	1	2	1	2	1.5	2	2	3	2	3	2	3	2	3	2.5	3.5	2.5	3.5	3.5	3.5				
Angular misalignment 	Max. values	°	1		1	1.5	1.5	2	1.5	2	1	1.5	1	1.5	1	1.5	1	1.5	1	1.5	1.5	2	1.5	2	2	2.5	2.5	2.5	2.5					
Lateral misalignment 	Max. values	mm	0.15		0.15	0.20	0.20	0.25	0.20	0.30	0.15	0.2	0.20	0.25	0.20	0.25	0.20	0.25	0.20	0.25	0.25	0.30	0.25	0.3	0.30	0.35	0.35	0.35	0.35					
Axial spring stiffness	C _a	N/mm	16		11	20	25	29	36	48	25	15	50	30	72	48	48	32	82	52	90	60	105	71	70	48	100	320						
Lateral spring stiffness	C _l	N/mm	70		40	30	290	45	280	145	475	137	900	270	1200	420	920	255	1550	435	2040	610	3750	1050	2500	840	2000	3600						
Torsional rigidity	C _r	Nm/arcmin in.lb/arc-min	0.20		0.35	0.38	2.0	1.5	2.6	2.3	5.8	4.4	11	8	22	16	38	25	51	32	56	41	122	102	148	145	227	379						
			1.8		3.1	3.3	18	13	23	21	51	39	100	72	196	142	332	219	451	283	492	360	1081	901	1313	1287	2008	3357						
Moment of inertia	J	kgcm² in.lb.s².10 ⁻³	0.1		0.1	0.1	0.2	0.2	0.6	0.7	1	1.5	2.7	3.2	7.5	8	18	19	25	28	51	53	115	118	228	230	420	830						
			0.09		0.09	0.09	0.18	0.18	0.53	0.62	0.89	1.33	2.39	2.83	6.64	7.1	16	17	22	25	45	47	102	104	202	204	372	735						
Hub material			Al		Al		Al		Al		Al		Al		Al		Al		Steel		Steel		Steel		Steel		Steel		Steel					
Max. speed ^{b)}	n _{Max}	rpm	3000														2000								1000									
Bellows material			highly flexible stainless steel																															
Protection element material			Hardened steel																															
Approx. weight	m	kg	0.035		0.07		0.2		0.3		0.4		0.6		1.0		2.0		2.4		4.0		5.9		9.6		14		21					
			0.08		0.15		0.44		0.66		0.88		1.32		2.21		4.41		5.30		8.82		13.1		21.2		30.9		46.3					
Max. permitted temperature		°C	-30 to +100 (bonded)																												-30 to +300 (welded)			
		F	-22 to +212 (bonded)																												-22 to +572 (welded)			

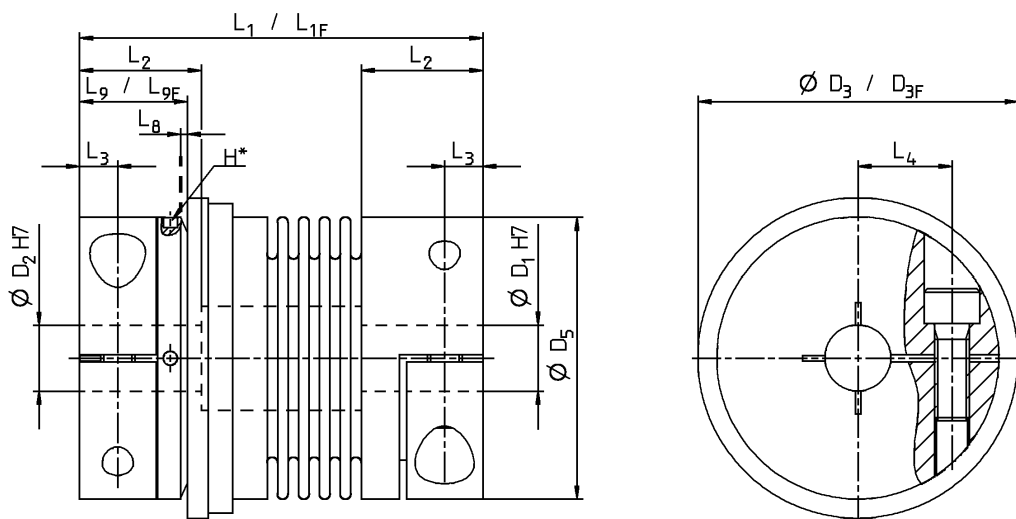
^{b)} If you have more stringent requirements, please contact WITTENSTEIN alpha

Dimensions

Series			1.5		2		4.5		10		15		30		60		80		150		200		300		500		800	1500
Length options (see order codes)			A	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A		A
Overall length	L ₁	mm	42	46	51	57	65	65	74	75	82	87	95	102	112	115	127	116	128	128	140	139	153	163	177		190	223
Overall length F	L _{1F}	mm	42	46	51	57	65	65	74	75	82	87	95	102	112	117	129	118	130	131	143	142	156	167	181		201	232
Fit length ^{a)}	L ₂	mm	11		13		16		16		22		27		31		35		35		40		42		51		48	67
Distance	L ₃	mm	3.5		4		5		5		6.5		7.5		9.5		11		11		12.5		13		17		18	22.5
Distance between centers	L ₄	mm	6		8		10		15		17		19		23		27		27		31		39		41		2x48	2x55
Actuation path	L ₈	mm	0.7		0.8		0.8		1.2		1.5		1.5		1.7		1.9		1.9		2.2		2.2		2.2		2.2	3.0
Distance	L ₉	mm	12		13		15		17		19		24		28		31		31		35		35		45		50	63
Distance (F)	L _{9F}	mm	11.5		12		14		16		19		22		29		31		30		33		35		43		54	61
Bore diameter from Ø to Ø H7	D _{1/2}	mm	3 - 9		4-12		5-14		6-20		10-26		12-30		15-32		19-42		19-42		24-45		30-60		35-60		40-75	50-80
Outer diameter of actuation ring	D ₃	mm	23		29		35		45		55		65		73		92		92		99		120		135		152	174
Outer diameter of actuation ring F	D _{3F}	mm	24		32		42		51.5		62		70		83		98		98		117		132		155		177	187
Outer diameter of hub	D ₅	mm	19		25		32		40		49		55		66		81		81		90		110		123		134	157
Max. internal diameter	D ₇	mm	9.1		12.1		14.1		20.1		21.1		24.1		32.1		36.1		36.1		42.1		58.1		60.1		60.1	68.1

^{a)} Tolerance for shaft/hub connection 0.01-0.05 mm.

L_{1F} , L_{9F} , D_{3F} = Full disengagement version (F)



* Bore for torque adjusting wrench, see Page 403

Your benefits:

- Certified disengagement mechanism in the event of overload
- Pre-set disengagement torque
- Completely backlash free
- Fatigue endurable and maintenance free
- Compensation of shaft misalignments
- Small installation space despite protection element
- Radial mounting via clamping screw

Optional:

- Bores with key / involute
- Other designs



TL3 – Torque limiter

Technical data

Series			15		30		60		150		200		300		500		800	1500	2500				
Length options (see order codes)			A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	A	A				
Adjustment range from min. to max. disengagement torque T _{Dis} (approx. values) Function systems: single position (W), multi-position (D) and load holding (G)	T _{Dis}	Nm	A	5-10		10-25		10-30		20-70		30-90		100-200		80-200		400-650		650-850		1500-2000	
		in.lb		45-89		89-222		89-266		177-620		266-797		885-1770		708-1770		3540-5753		5753-7523		13275-17700	
		Nm	B	8-20		20-40		25-80		45-150		60-160		150-240		200-350		500-800		700-1200		2000-2500	
		in.lb		71-177		177-354		222-708		399-1328		531-1416		1328-2124		1770-3098		4425-7080		6195-10620		17700-22125	
		Nm	C	-		-		-		80-200		140-280		220-400		300-500		600-900		1000-1800		2300-2800	
		in.lb								708-1770		1239-2478		1947-3540		2655-4425		5310-7965		8850-15930		20355-24780	
Adjustment range from min. to max. disengagement torque T _{Dis} (approx. values) Function system: Full engagement (F)	T _{Dis}	Nm	A	7-15		8-20		20-40		20-60		80-140		120-180		60-150		200-400		1000-1250		1400-2200	
		in.lb		62-133		71-177		177-354		177-531		708-1239		1062-1593		531-1328		1770-3540		8850-11063		12390-19470	
		Nm	B	-		16-30		30-60		40-80		130-200		160-300		100-300		450-800		1250-1500		1800-2700	
		in.lb				142-266		266-531		354-706		1151-1770		1416-2655		885-2855		3982-7080		11063-13275		15930-23895	
		Nm	C	-		-		-		80-150		-		-		250-500		-		-		-	
		in.lb								708-1328						2213-4425							
Axial misalignment 	Max. values	mm	1	2	1	2	1.5	2	2	3	2	3	2.5	3.5	2.5	3.5	3.5	3.5	3.5				
Angular misalignment 	Max. values	°	1	1.5	1	1.5	1	1.5	1	1.5	1.5	2	1.5	2	2	2.5	2.5	2.5	2.5				
Lateral misalignment 	Max. values	mm	0.15	0.20	0.20	0.25	0.20	0.25	0.20	0.25	0.25	0.30	0.25	0.30	0.30	0.35	0.35	0.35	0.35				
Axial spring stiffness	C _a	N/mm	25	15	50	30	72	48	82	52	90	60	105	71	70	48	100	320	1150				
Lateral spring stiffness	C _l	N/mm	475	137	900	270	1200	380	1550	435	2040	610	3750	1050	2500	840	2000	3600	6070				
Torsional rigidity	C _T	Nm/arcmin	5.8	4.4	11	8.1	22	16	51	32	56	41	122	102	148	145	227	379	989				
		in.lb/arcmin	51	39	100	72	196	142	451	283	492	360	1081	901	1313	1287	2008	3357	8753				
Moment of inertia	J	kgcm ²	1.0	1.5	2.8	3.0	7.5	8.0	19	20	28	30	55	60	110	128	200	420	2570				
		in.lb.s ² .10 ⁻³	0.85	1.3	2.4	2.6	6.4	6.8	16	17	24	26	47	51	94	109	170	357	2185				
Max. speed ^{b)}	n _{Max}	rpm	3000						2000						1000								
Hub material			Steel																				
Bellows material			highly flexible stainless steel																				
Protection element material			Hardened steel																				
Approx. weight	m	kg	0.3		0.4		1.2		2.3		3.0		5.0		6.5		9.0		16.3		35		
		lb	0.66		0.88		2.65		5.07		6.61		11.0		14.3		19.8		35.9		77.2		
Max. permitted temperature		°C	-30 to +100 (bonded)														-30 to +300 (welded)						
		F	-22 to +212 (bonded)														-22 to +572 (welded)						

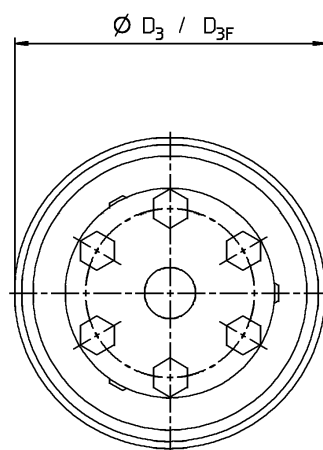
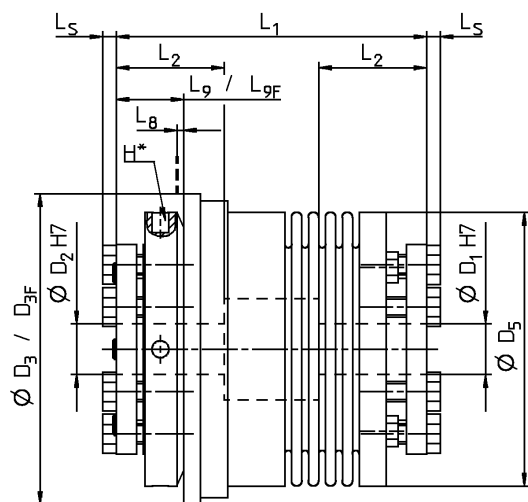
^{b)} If you have more stringent requirements, please contact WITTENSTEIN alpha

Dimensions

Series		15		30		60		150		200		300		500		800	1500	2500	
Length options (see order codes)		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	A	A	
Overall length (without L ₉)	L ₁	mm	62	69	72	80	84	94	93	105	99	111	114	128	123	136	151	175	246
Overall length F	L _{1F}	mm	62	69	72	80	84	94	93	105	102	114	117	131	127	140	151	184	252
Fit length ^{a)}	L ₂	mm	19		22		27		32		32		41		41		49	61	80
Actuation path	L ₈	mm	1.5		1.5		1.7		1.9		2.2		2.2		2.2		2.2	3	3
Distance	L ₃	mm	13		16		18		19		19		23		25		31	30	34
Distance F	L _{9F}	mm	13		14		17		18		17		20		22		20	26	31
Screw head length	L ₅	mm	2.8		3.5		3.5		4		4		5.3		5.3		6.4	7.5	10
Bore diameter from Ø to Ø H7	D _{1/2}	mm	10-22		12-23		12-29		15-37		20-44		25-56		25-60		30-60	35-70	50-100
Outer diameter of actuation ring	D ₃	mm	55		65		73		92		99		120		135		152	174	243
Outer diameter of actuation ring F	D _{3F}	mm	62		70		83		98		117		132		155		177	187	258
Outer diameter of hub	D ₅	mm	49		55		66		81		90		110		123		133	157	200

^{a)} Tolerance for shaft/hub connection 0.01-0.05 mm.

L_{1F} , L_{3F} , D_{3F} = Full disengagement version F



* Bore for torque adjusting wrench, see Page 403

Your benefits:

- Certified disengagement mechanism in the event of overload
- Pre-set disengagement torque
- Completely backlash free
- Fatigue endurable and maintenance free
- Compensation of shaft misalignments
- Small installation space despite protection element
- Axial mounting via conical clamping hub

Optional:

- Bores with key / involute
- Other designs



Shrink discs – Always well connected



Harmony in perfection:

Our shrink discs are ideally adapted to your extremely compact hollow shaft or mounted shaft connection. This means maximum performance of your drive!

The best accessories for the best gearhead in order to achieve full performance.



Your benefits:

- Technically and geometrically matched
- Compact version
- Simple mounting and removal
- Backlash-free, positive connection
- High true-running accuracy
- Two-part design

Your benefits

- Reliable and safe transmission
- Huge installation space reduction
- Multiple reuse
- High dynamism and accuracy
- Extremely smooth-running
- Corrosion resistant design

Quick shrink disc selection

Gearhead type	Order code/Article code				d	D	A	H*	H2*	J [kgcm²]
		Standard	Nickel plated	Stainless steel						
SP*/SPK*/HG* 060	Order code	SD 018x044 S2	SD 018x044 N2	SD 018x044 E2	18	44	30	15	19	0,252
	Article code	20000744	20048496	20048491						
SP*/SPK*/HG* 075	Order code	SD 024x050 S2	SD 024x050 N2	SD 024x050 E2	24	50	36	18	22	0,729
	Article code	20001389	20047957	20043198						
SP*/SPK*/HG* 100	Order code	SD 036x072 S2	SD 036x072 N2	SD 036x072 E2	36	72	52	22	27,5	3,94
	Article code	20001391	20048497	20035055						
SP*/SPK*/HG* 140	Order code	SD 050x090 S2	SD 050x090 N2	SD 050x090 E2	50	90	68	26	31,5	11,1
	Article code	20001394	20048498	20047937						
SP*/SPK*/HG* 180	Order code	SD 068x115 S2	SD 068x115 N2	SD 068x115 E2	68	115	86	29	34,5	31,1
	Article code	20001396	20048499	20048492						

* Apply for the unclamped state.
Shrink discs suitable for alpheno® and PKF gearheads upon request.

Gearhead type	Order code/Article code				d	D	A	H*	H2*	J [kgcm²]
		Standard	Nickel plated	Stainless steel						
VDH*/VDHe 040	Order code	SD 024x050 S2	SD 024x050 N2	SD 024x050 E2	24	50	36	18	22	0,729
	Article code	20001389	20047957	20043198						
VDH*/VDHe 050	Order code	SD 030x060 S2V	SD 030x060 N2	SD 030x060 E2	30	60	44	20	24	1,82
	Article code	20020687	20047934	20047885						
VDH*/VDHe 063	Order code	SD 036x072 S2V	SD 036x072 N2V	SD 036x072 E2	36	72	52	22	27,5	3,94
	Article code	20020688	20047530	20035055						
VDH* 080	Order code	SD 050x090 S2V	SD 050x090 N2V	SD 050x090 E2	50	90	68	26	31,5	11,1
	Article code	20020689	20047935	20047937						
VDH* 100	Order code	SD 062x110 S2V	SD 062x110 N2	SD 062x110 E2	62	110	80	29	34,5	27
	Article code	20020690	20047927	20047860						

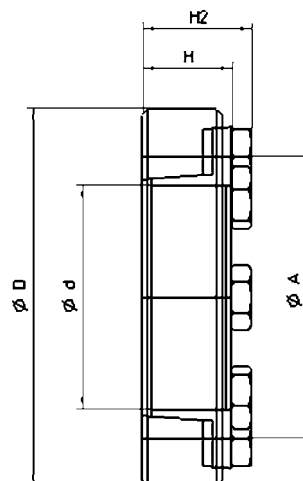
* Apply for the unclamped state.

One shrink disk per gearhead is sufficient. Please refer to the operating instructions for information on correct shrink disc installation.
The instructions are enclosed with the order.

Mounting/operating manual at www.wittenstein-alpha.de/en/download

Recommendation for the load shaft:
Tolerance h6
Surface roughness $\leq R_z 16$
Minimum yield strength $R_p 0.2 \geq 385 \text{ N/mm}^2$

The shrink disc is not included in the scope of delivery of the gearhead. Therefore, it must be ordered separately (for the V-Drive gearhead type, this is possible in the order code).



Flange shafts – Flexible in design



More design freedom for the output:
Our flange shafts provide you with
made to measure output shafts, es-
pecially adapted for TP⁺, TPK⁺, TK⁺
and TPC⁺ flange gearheads:

- Flexible shaft diameter
- Can be adapted to your output components
- Customized options possible

Your benefits

- Geometrically adapted to the gearhead
- Choice of shaft diameters
- Can also be combined with couplings
- Other options available on request (material, geometry)

Your benefits

- Simple selection
- Greater design freedom
- A flexible solution for your drive

Quick flange shaft selection

Gearhead TP+ / TPK+ / TK+ / TPC+	Diam. of shaft D1 option A [mm]	Order code	Diam. of shaft D1 option B [mm]	Order code	Effective shaft length L1 [mm]	Overall length L2 [mm]
004 MF	16	FLW TP 004-S-016-023-033	22	FLW TP 004-S-022-023-033	23	033
010 MF	22	FLW TP 010-S-022-030-041	32	FLW TP 010-S-032-030-041	30	041
010 MA	22	FLW TP 010-A-022-042-065	32	FLW TP 010-A-032-042-065	42	065
025 MF	32	FLW TP 025-S-032-038-051	40	FLW TP 025-S-040-038-051	38	051
025 MA	32	FLW TP 025-A-032-050-079	40	FLW TP 025-A-040-050-079	50	079
050 MF	40	FLW TP 050-S-040-038-054	55	FLW TP 050-S-055-038-054	38	054
050 MA	40	FLW TP 050-A-040-062-095	55	FLW TP 050-A-055-062-095	62	095
110 MF	55	FLW TP 110-S-055-052-073	75	FLW TP 110-S-075-052-073	52	073
110 MA	55	FLW TP 110-A-055-081-119	75	FLW TP 110-A-075-081-119	81	119
300 MF	90	FLW TP 300-S-090-123-150			123	150
300 MA	90	FLW TP 300-A-090-123-150			090	150

Technical characteristics:

Material

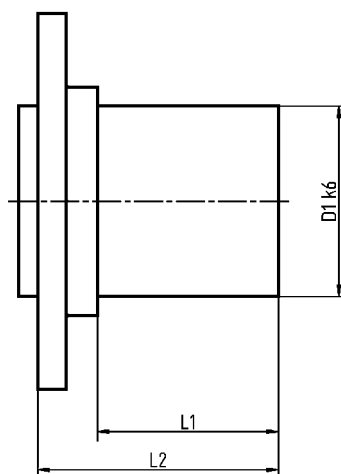
Yield strength

Tolerance k6

Surface roughness

The flange shaft and fastening screws are not included with the gearhead.

For more precise information on mounting, please see the gearhead operating instructions.



Schematic diagram:

D1 = Shaft diameter

L1 = Effective shaft length

L2 = Overall length

