



SOFTEX® COUPLINGS

SOFTEX® ES NO BACKLASH COUPLINGS

PRODUCT DESCRIPTION

- Under initial tension no backlash shaft connection
- Triple axially pluggable version
- Simple blind mounting, no time-consuming screwings
- Small structural dimensions – low flywheel effects
- Maintenance free, simple optical test
- Different elastomer hardnesses of the spiders
- Available for all common shaft dimensions
- Finish bores with ISO standard H7, (clamping hub F7), keyway from $\varnothing 6$ acc. to DIN 6885 sheet 1-JS9
- Hub materials: aluminium up to size 38/45, steel for larger sizes



HUB TYPES

1.0 Type 1.0 with keyway and fixing screw

- Positive transmission
- Permissible torque depending on permissible surface pressure
- Not suitable for backlash-free power transmission for heavily reversing operation

1.1 Type 1.1 without keyway with fixing screw

- Non-positive locking torque transmission
- Suitable for a backlash transmission of very low torques

2.0 Type 2.0 slotted once without keyway

- Frictional, backlash shaft-hub-connection
- Transmissible torques depending on bore diameter
- Up to size 19/24

2.1 Type 2.1 slotted once with keyway

- Positive transmission with additional frictional connection
- Due to frictional connection a reverse backlash is prevented resp. reduced
- Surface pressure of the keyway connection is reduced

2.5 Type 2.5 slotted twice without keyway

- Frictional, backlash shaft-hub-connection
- Transmissible torques depending on bore diameter
- From size 24/30

2.6 Type 2.6 slotted twice with keyway

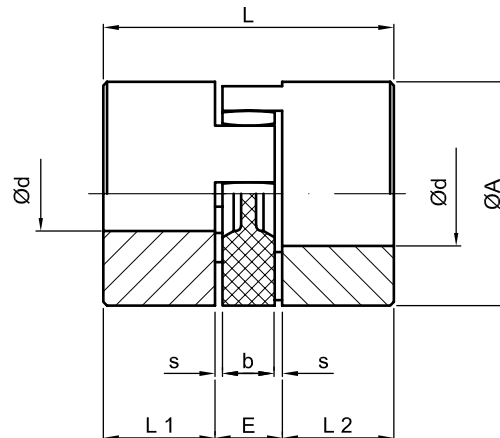
- Positive transmission with additional frictional connection
- Due to frictional connection a reverse backlash is prevented resp. reduced
- Surface pressure of the keyway connection is reduced

Order code SOFTEX® ES no backlash couplings

Coupling type	Size	Bore	Design	Bore	Design	Spider
SOFTEX® ES	19/24	24F7	2.0	19H7	1.0	98°

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DIMENSIONS



SOFTEX® ES type	Finish bores* [mm]			Dimensions [mm] 1.0/1.1								Clamping screw 2.0/2.5			
	Hub type			Ø A	L	L1 + L2	E	b	s	g	f	g ₁	f ₁	T _A [Nm]	
	1.0	1.1	2.0/2.5												
Material: aluminium															
9	9	11	11	20	30	10	10	8	1.0	M4	5	M2.5	5.0	0.76	
14	15	16	16	30	35	11	13	10	1.5	M4	5	M3	5.0	1.34	
19/24	24	24	20	40	66	25	16	12	2.0	M5	10	M6	12.0	10.5	
24/30	30	30	28	55	78	30	18	14	2.0	M5	10	M6	10.5	10.5	
28/38	38	38	38	65	90	35	20	15	2.5	M8	15	M8	11.5	25.0	
38/45	45	45	45	80	114	45	24	18	3.0	M8	15	M8	15.5	25.0	

*Special bores on request

BORE RANGE Ød AND CORRESPONDING TRANSFERABLE FRICTION TORQUES T_r [Nm] OF THE CLAMPING HUB

Type 2.0																				
SOFTEX® ES type	Finish bore [mm]																			
	8	9	10	11	14	15	16	19	20	24	25	28	30	32	35	38	40	42	45	50
9	2.5	2.6	2.7	2.8																
14	5.1	5.3	5.5	5.6	8.1	6.3	6.5													
19/24	25	26	27	27	29	30	31	32	34											

Type 2.5																				
SOFTEX® ES type	Finish bore [mm]																			
	10	11	14	15	16	19	20	24	25	28	30	32	35	38	40	42	45	50	55	60
24/30	34	35	36	38	39	19	41	43	45	46										
28/38			80	81	81	85	87	91	92	97	99	102	105	109						
38/45				92	94	98	99	104	105	109	112	113	118	122	123	126	130			
42/55							232	244	246	255	260	266	274	283	288	294	301	309	315	
48/60									393	405	413	421	434	445	454	462	473	486	494	514

Finish bores hub types 1.0 and 1.1 H7 fit,
types 2.0 and 2.5 F7 fit keyway acc. to DIN 6885, sheet 1 Tol. JS 9

SOFTEX® ES NO BACKLASH COUPLINGS (6.0 / 6.0P)

TYPE 6.0

- Zero backlash shaft connection under high friction torque
- For Servo motor applications such as main spindle drives of tooling machines and heavy load of presses
- No imbalances of keyways or slotted clamping elements
- Smooth running with good stability even at 40 m/s peripheral speed
- Also suitable for ATEX explosion protection applications (when considering the selection in accordance with the influence of high friction torques)
- Easy assembly by internal clamping screws
- ISO fit H7 up to \varnothing 50 mm and ISO fit G7 over \varnothing 50 mm
- Materials: Hub = aluminium / clamping ring = steel, both also available in steel S355J2



Order code type 6.0

Coupling type	Size	Bore	Type	Bore	Type	Spider
SOFTEX® ES	28	28H7	6.0	25H7	6.0	98°

TYPE 6.0P

- High precision, zero backlash shaft connection under high friction torque
- Developed for high speed short and multi spindles for tooling machines (DIN 69002)
- Smooth running with good stability even at 75 m/s peripheral speed
- Also suitable for ATEX explosion protection applications (when considering the selection in accordance with the influence of high friction torques)
- Easy assembly by internal clamping screws
- Spiders with 98° SH A or 64° SH D incl. bore required
- ISO fit H6
- Hub and clamping ring made of 42CrMo4

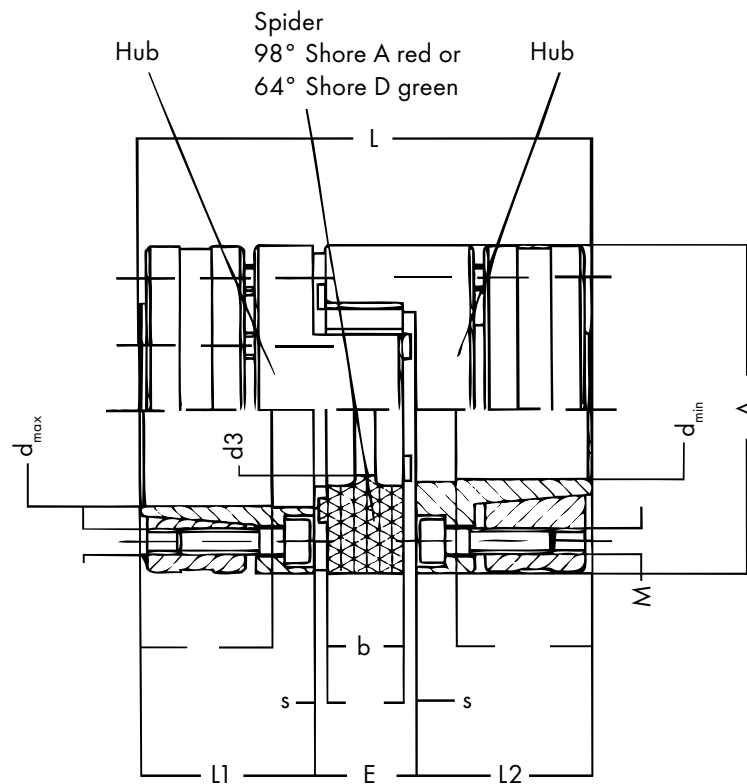


Order code type 6.0P

Coupling type	Size	Bore	Type	Bore	Type	Spider
SOFTEX® ES	28	28H6	6.0P	25H6	6.0P	64°

SOFTEX® ES NO BACKLASH COUPLINGS (6.0 / 6.OP)

DIMENSIONS



SOFTEX® ES type	Dimensions [mm]									
	A	L	L1 + L2	E	s	b	d _{min}	d _{max}	d3*	M
14P	30	50	18.5	13	1.5	10	8	14	8.5	M3
19P	40	66	25	16	2.0	12	10	20	9.5	M4
24P	55	78	30	18	2.0	14	14	28	12.5	M5
28P	65	90	35	20	2.5	15	18	38	14.5	M5
38P	80	114	45	24	3.0	18	20	40	16.5	M6
42P	95	126	50	26	3.0	20	28	50	18.5	M8
48P	105	140	56	28	3.5	21	32	48	20.5	M10

*only with type 6.OP

TECHNICAL DATA

SOFTEX® ES type	Material		Clamping screw 6.0			Hub 6.0		Clamping screw 6.0P			Hub 6.0P	
	Hub	Clamp- ing ring	Size	Number	TA	Weight [kg]	Moment of inertia J [kg cm ²]	Size	Number	TA	Weight [kg]	Moment of inertia J [kg cm ²]
			M	z	[Nm]			M	z	[Nm]		
14	AL-H	ST	M3	4	1.34	0.049	0.07	-	-	-	-	-
19	AL-H	ST	M4	6	3	0.120	0.31	-	-	-	-	-
24	AL-H	ST	M5	4	6	0.280	1.35	-	-	-	-	-
28	AL-H	ST	M5	8	6	0.450	3.13	-	-	-	-	-
38	AL-H	ST	M6	8	10	0.950	9.60	-	-	-	-	-
42	ST	ST	M8	4	35	2.300	31.7	-	-	-	-	-
48	ST	ST	M10	4	69	3.080	52.0	-	-	-	-	-
14P	42CrMo	-	-	-	-	-	-	M3	4	2	0.08	0.1
19P	42CrMo	-	-	-	-	-	-	M4	6	3	0.19	0.37
24P	42CrMo	-	-	-	-	-	-	M5	4	8.5	0.44	2.0
28P	42CrMo	-	-	-	-	-	-	M5	8	8.5	0.64	4.4
38P	42CrMo	-	-	-	-	-	-	M6	8	14	1.32	13.3
42P	42CrMo	-	-	-	-	-	-	M8	4	35	2.30	30.0
48P	42CrMo	-	-	-	-	-	-	M10	4	69	3.09	50.0

Bore range d and corresponding transferable friction torques Tr [Nm]
of the clamping ring hub

Nm	ø 6	ø 10	ø 11	ø 14	ø 15	ø 16	ø 19	ø 20	ø 24	ø 25	ø 28	ø 30	ø 32
14	8.6	13.8	15	22.7									
19		31	37	62	68	70	83	90					
24				67	74	80	90	97	112	120	143		
28					142	154	189	190	237	250	280	307	310
38								269	337	356	396	436	442
42										399	445	506	470
48												650	685

Bore range d and corresponding transferable friction torques Tr [Nm]
of the clamping ring hub

Nm	ø 35	ø 38	ø 40	ø 42	ø 45	ø 48	ø 50	ø 55
14								
19								
24								
28	353	389						
38	501	533	572	615	644			
42	566	581	647	630	728	836	858	
48	809	841	926	916	1042	1181	1125	1311

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TECHNICAL DATA SPIDERS

SOFTEX® ES type	Spider	Torque [Nm]			Max. speed [1/min] V=30 m/s	Static torsional stiffness [Nm/rad]	Permissible misalignment at n=1500 1/min			Radial elongation per unit force Cr [N/mm]	Weight* [kg]	Moment of inertia* J [kgcm ²]
		T _{SP}	Cont. T _{KN}	max. T _{Kmax}			Axial Δ ka [mm]	Radial Δ kr [mm]	Angular Δ kw [°]			
9	92A	0.45	3	6	28000	32	0.8	0.15	1.0	260	0.015	0.01
	98A		5	10		51		0.09	0.9	520		
	64D		6	12		74		0.05	0.9	739		
14	92A	1	7,5	15	13000	114	1.0	0.15	1.0	335	0.06	0.06
	98A		12,5	25		172		0.09	0.9	605		
	64D		16	32		234		0.06	0.8	856		
19/24	92A	2.5	10	20	10000	570	1.2	0.10	1.0	1120	0.13	0.37
	98A		17	34		855		0.07	0.9	2010		
	64D		21	42		1240		0.04	0.8	2830		
24/30	92A	-	35	70	7000	1430	1.4	0.14	1.0	1780	0.28	1.35
	98A		60	120		2060		0.10	0.9	2565		
	64D		75	150		2980		0.07	0.8	3696		
28/38	92A	-	95	190	6000	2292	1.5	0.15	1.0	1785	0.46	3.10
	98A		160	320		3440		0.11	0.9	3200		
	64D		200	400		4350		0.09	0.8	4348		
38/45	92A	-	190	380	5000	4.584	1.8	0.17	1.0	2350	0.90	9.62
	98A		325	650		7160		0.12	0.9	4400		
	64D		405	810		10540		0.09	0.8	6474		
42/55	92A	-	265	530	4000	9800	2.0	0.19	1.0	4100	2.70	57.40
	98A		450	900		15180		0.14	0.9	5940		
	64D		560	1120		16500		0.10	0.8	7590		
48/60	92A	-	310	620	3600	12000	2.1	0.23	1.0	4500	3.60	95.80
	98A		525	1050		16600		0.16	0.9	6820		
	64D		655	1310		31350		0.11	0.8	9000		

- In case of higher speeds a dynamic balancing of the hubs is required.
- The length dimension L is increased by the indicated Δ ka values.
- The specified misalignment values are general guide values.

- In case of current angular and radial misalignment the indicated values can only be utilised proportionately.
- In case of a temperature increase the permissible torques and the max. permissible radial and angular misalignment values must be multiplied by the temperature factor St.

*Complete coupling type 1.0 with medium bore on both sides

Temperature	-25°C < +30°C	+30°C < +40°C	+40°C < +60°C	+60°C < +80°C
Temperature factor St	1.0	1.2	1.4	1.8

Characteristics	92° Shore A		98° Shore A	64° Shore D
Colour				
Material	Polyurethane		Polyurethane	Hytrel
Permissible temperature range	-40°C up to +90°C		-30°C up to +90°C	-50°C up to +120°C
Permissible temperature peaks	-50°C up to +120°C		-40°C up to +120°C	-60°C up to +150°C
Applications	Servo drives, positioning drives, main spindle drives, planetary gears, no backlash gears			