



TORQSET® SAFETY COUPLINGS

200-250,000 Nm



GENERAL INFORMATION ABOUT R+W SAFETY COUPLINGS:



FIT CLEARANCE

Overall shaft / hub clearance of 0.02 - 0.07 mm

TEMPERATURE RANGE

-30 to +120° C

SPECIAL SOLUTIONS

Automatic re-engagement

ATEX (Optional)

For use in hazardous areas available upon request.

DISENGAGEMENT BEHAVIOR

Full disengagement / manual reset is standard.



TORQSET® SAFETY COUPLINGS 200 – 250,000 Nm

MODEL

FEATURES

ST1



**with simple keyway mounting
for indirect drives
from 200 - 250,000 Nm**

- ▶ compact, simple design
- ▶ precise overload protection
- ▶ torsionally stiff
- ▶ integral bearing for overhung load support

Page 44-45

STR



**with keyway mounting
special robust version
from 200 - 250,000 Nm**

- ▶ compact, simple design
- ▶ precise overload protection
- ▶ torsionally stiff
- ▶ with heavy duty bearing for overhung load support

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STN



**with conical clamping ring
for indirect drives
from 200 - 165,000 Nm**

- ▶ high shaft clamping pressure
- ▶ compact, simple design
- ▶ precise overload protection
- ▶ torsionally stiff
- ▶ integral bearing for overhung load support

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STF



**with flange mounting both sides
from 200 - 45,000 Nm**

- ▶ compact design with customer specified interface for torque transducers and other mounting flanges
- ▶ precise overload protection
- ▶ torsionally stiff
- ▶ with special bearing for high speeds

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MODEL

FEATURES

STE



with keyway mounting and elastomer coupling from 200 - 14,000 Nm

- ▶ vibration damping
- ▶ precise overload protection
- ▶ wear resistant
- ▶ press fit design

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ST2



with simple keyway mounting and elastic coupling from 200 - 165,000 Nm

- ▶ highly elastic damping
- ▶ compensation for misalignment
- ▶ precise overload protection
- ▶ elastomer segments resistant to oil and dirt
- ▶ press fit design

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ST4



with simple keyway mounting and crowned gear coupling from 200 - 250,000 Nm

- ▶ high power density
- ▶ compensation for misalignment
- ▶ precise overload protection
- ▶ low reaction loads on shaft bearings
- ▶ extremely wear resistant

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ST

Options / Special Solutions

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ACCESSORIES

Accessories for Safety Couplings

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ST1

WITH SIMPLE KEYWAY MOUNTING

200 - 45,000 Nm



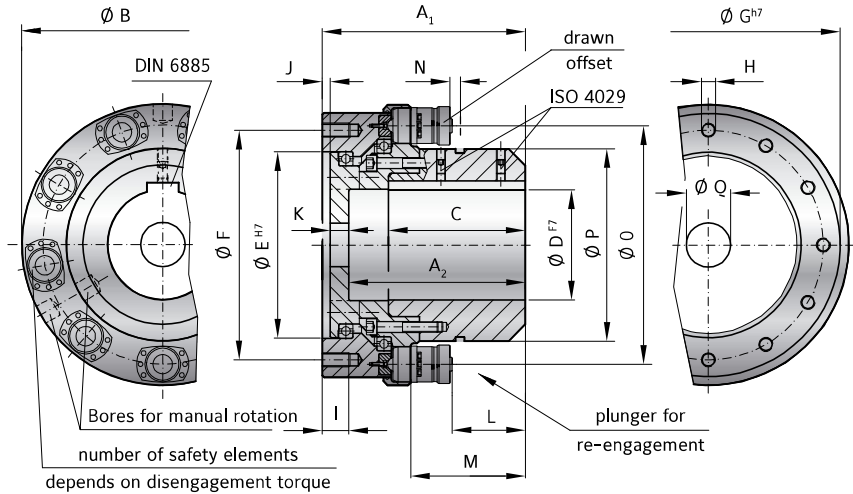
PROPERTIES

MATERIAL
Hardened steel (nitrocarburized surface)

► Driven side: output flange with 12x fastening threads and integral bearings

DESIGN
► Drive side: coupling hub with keyway connection (spline profile on request)

► Safety elements: evenly spaced around the circumference; externally adjustable



MODEL ST1 | SIZE 2 - 40

SIZE		2			5			10			25			40		
Adjustment range available from - to (KNm)		0.2-0.5	0.5-1.0	1.0-1.5	0.7-2	1.2-4	3.2-5	2-5	4-10	6-14	6-12	9-18	15-25	12-21	22-32	32-45
		3×ST10	6×ST10	6×ST10	3×ST15	6×ST15	6×ST15	3×ST15	6×ST15	9×ST15	6×ST15	9×ST15	12×ST15	6×ST30	6×ST30	9×ST30
Overall length (mm)	A ₁	120			150			183			230			305		
Bore depth (mm)	A ₂	100			124			158			200			210		
Outside diameter (mm)	B	198			220			270			318			428		
Fit length (mm)	C	100			121			120			155			210		
Bore diameter possible Ø to Ø F7 (mm)	D	30-75			40-90			40-110			60-140			90-170		
Flange centering diameter H7 (mm)	E	132			145			170			210			270		
Bolt circle diameter ±0.3 (mm)	F	162			170			220			260			330		
Flange outside diameter h7 (mm)	G	192			209			259			298			380		
Fastening threads	H	12xM10			12xM12			12xM16			12xM16			12xM20		
Thread depth (mm)	I	15			20			25			30			35		
Fit length (mm)	J	3.5			4			6			8			8		
Wall thickness (mm)	K	15			21			17			20			28		
Distance (mm)	L	10.5			16.5			45			80			102		
Distance (mm)	M	51.5			66.5			95			130			170		
Actuation path (mm)	N	3.5			4.5			4			4			7.5		
Mounting diameter - elements (mm)	O	154			171			220			270			350		
Hub outside diameter (mm)	P	104			120			170			218			265		
Bore for fastening screw (mm)	Q	max. Ø 75			max. Ø 90			max. Ø 110			max. Ø 140			max. Ø 144		
Moment of inertia (approx.) D max. + max. sgmnt (10 ⁻³ kgm ²)		77			151			370			780			3570		
Speed max. (rpm)		7000			6000			4200			3800			3000		
Allowable max. radial force standard* (kN)		5			10			20			30			40		
Approx. weight at D max. + max. sgmnt (kg)		15			24			40			63			166		

* larger radial loads possible with special bearings

ST1

WITH SIMPLE KEYWAY MOUNTING

11,000 - 250,000 Nm



PROPERTIES

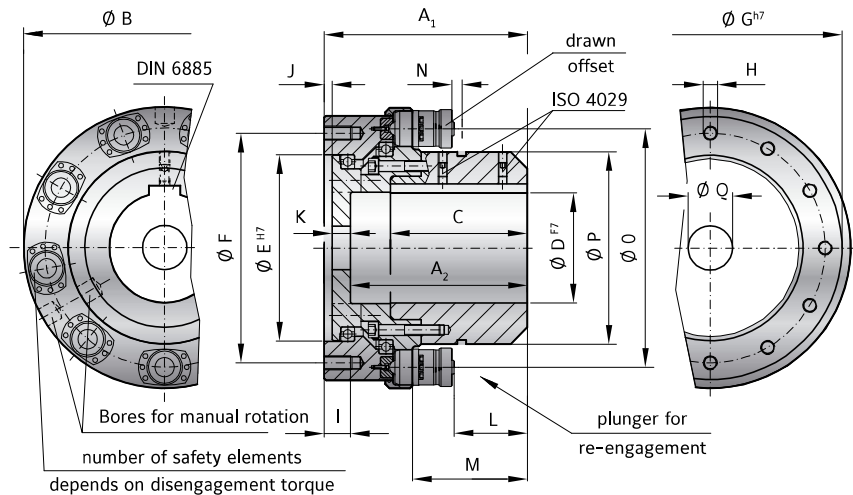
MATERIAL

Hardened steel (nitrocarburized surface)

- ▶ Driven side: output flange with 12x fastening threads and integral bearings

DESIGN

- ▶ Drive side: coupling hub with keyway connection (spline profile on request)
- ▶ Safety elements: evenly spaced around the circumference; externally adjustable

SAFETY COUPLINGS
ST

MODEL ST1 | SIZE 60 - 250

SIZE		60			100			160			250	
Adjustment range available from - to (KNm)		11-18	22-36	30-55	24-50	45-90	80-110	25-55	50-110	80-165	100-170	160-250
		3×ST 30	6×ST 30	9×ST 30	3×ST70	6×ST70	9×ST70	3×ST70	6×ST70	9×ST70	8×ST71	12×ST71
Overall length (mm)	A ₁	320			396			410			534	
Bore depth (mm)	A ₂	275			280			360			370	
Outside diameter	B	459			592			648			740	
Fit length (mm)	C	220			280			290			370	
Bore diameter possible Ø to Ø F7 (mm)	D	80-200			100-250			100-290			200-340	
Flange centering diameter H7 (mm)	E	300			390			450			508	
Bolt circle diameter ±0.3 (mm)	F	370			464			570			600	
Flange outside diameter h7 (mm)	G	418			530			618			680	
Fastening threads	H	12xM20			12xM24			12xM24			12xM36	
Thread depth (mm)	I	35			40			40			60	
Fit length (mm)	J	8			10			10			12	
Wall thickness (mm)	K	30			38			38			60	
Distance (mm)	L	99			128			135			135	
Distance (mm)	M	167			218			225			228	
Actuation path (mm)	N	7,5			10			10			10	
Mounting diameter - elements (mm)	O	376			490			532			630	
Hub outside diameter (mm)	P	295			380			418			508	
Bore for fastening screw (mm)	Q	max. Ø 200			max. Ø 216			max. Ø 290			max. Ø 290	
Moment of inertia (approx.) D max. + max. sgmnt (10 ⁻³ kgm ²)		4600			16850			24600			56800	
Speed max. (rpm)		2500			2200			2000			1200	
Allowable max. radial force standard* (KN)		50			60			100			120	
Approx. weight at D max. + max. sgmnt (kg)		179			403			463			850	

* larger radial loads possible with special bearings

STR

WITH SIMPLE KEYWAY MOUNTING, ROBUST 200 - 45,000 Nm



NEW

PROPERTIES

MATERIAL

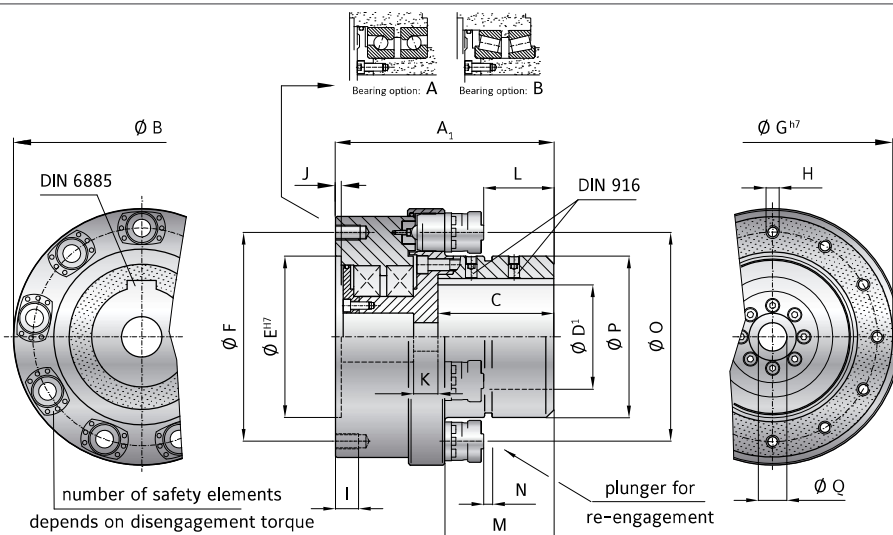
Hardened steel (nitrocarburized surface)

DESIGN

► Drive side: coupling hub with keyway connection (spline profile on request)

► Driven side: Output flange with attachment threads and reinforced bearings.

► Safety elements: evenly spaced around the circumference; externally adjustable



MODEL STR | SIZE 2 - 40

SIZE		2			5			10			25			40		
Adjustment range available from - to (KNm)		0.2-0.5	0.5-1.0	1.0-1.5	0.7-2	1.2-4	3.2-5	2-5	4-10	6-14	6-12	9-18	15-25	12-21	22-32	32-45
		3×ST11	6×ST11	6×ST11	3×ST16	6×ST16	6×ST16	3×ST16	6×ST16	9×ST16	6×ST16	9×ST16	12×ST16	6×ST31	6×ST31	9×ST31
Overall length (mm)	A ₁	170			190			230			264			330		
Outside diameter (mm)	B	198			220			270			318			428		
Fit length (mm)	C	95			112			122			150			191		
Bore diameter possible Ø to Ø F7(mm)	D	30-80			40-90			40-110			60-140			90-170		
Flange centering diameter H7 (mm)	E	132			145			170			210			270		
Bolt circle diameter ±0.3 (mm)	F	162			170			220			260			330		
Flange outside diameter h7 (mm)	G	192			209			259			298			380		
Fastening threads (mm)	H	12xM10			12xM12			12xM16			12xM16			12xM20		
Thread depth (mm)	I	18			22			28			28			36		
Fit length (mm)	J	3.5			3.5			6			8			8		
Wall thickness (mm)	K	16			21			25.0			28.0			48.0		
Distance (mm)	L	50.0			56.0			74			97			111		
Distance (mm)	M	81.0			96.5			115			138			171		
Actuation path (mm)	N	3.5			4.5			4.5			4.5			7.5		
Mounting diameter - elements (mm)	O	154			171			220			270			350		
Hub outside diameter (mm)	P	112			122			170			218			265		
Bore for fastening screw (mm)	Q	max. Ø 18			max. Ø 18			max. Ø 26			max. Ø 32			max. Ø 38		
Moment of inertia (approx.) D max. + max. sgmnt (10 ⁻³ kgm ²)		77			168			484			1028			4107		
Speed max. (rpm)		8500			6300			5000			4000			3600		
Allowable max. radial force standard* (kN)		10			20			40			60			80		
Approx. weight at D max. + max. sgmnt (kg)		21			28			55			86			196		

* Larger radial loads possible with special bearings

STR

WITH SIMPLE KEYWAY MOUNTING, ROBUST 11,000 - 250,000 Nm



NEW

PROPERTIES

MATERIAL

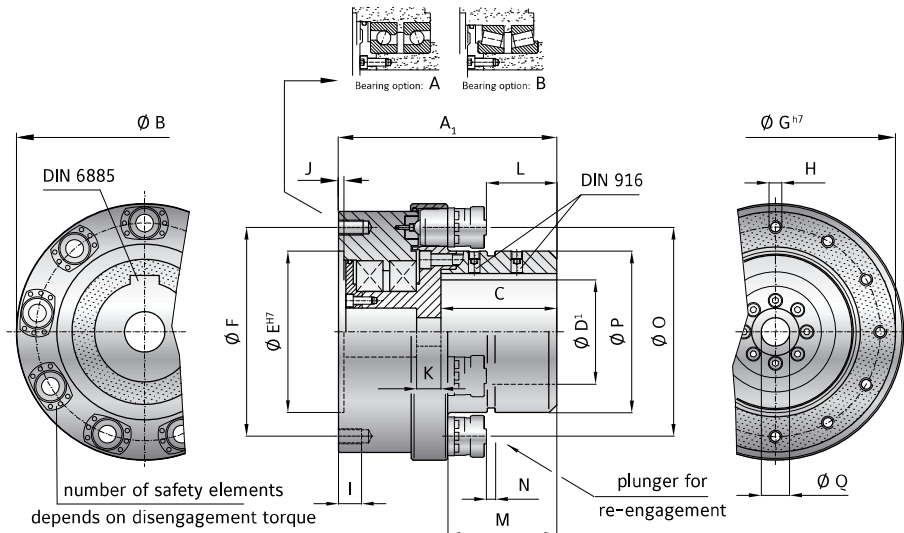
Hardened steel (nitrocarburized surface)

DESIGN

► Drive side: coupling hub with keyway connection (spline profile on request)

► Driven side: Output flange with attachment threads and reinforced bearings.

► Safety elements: evenly spaced around the circumference; externally adjustable



SAFETY COUPLINGS
ST

MODEL STR | SIZE 60 - 250

SIZE		60			100			160			250	
Adjustment range available from - to (KNm)		11-18	22-36	30-55	24-50	45-90	80-110	25-55	50-110	80-165	100-170	160-250
		3×ST31	6×ST31	9×ST31	3×ST71	6×ST71	9×ST71	3×ST71	6×ST71	9×ST71	8×ST71	12×ST71
Overall length (mm)	A ₁	370			470			490			600	
Outside diameter (mm)	B	459			592			648			740	
Fit length (mm)	C	212			275			282			361	
Bore diameter possible ϕ to ϕ F7 (mm)	D	80-200			100-250			130-290			200-340	
Flange centering diameter H7 (mm)	E	300			390			450			508	
Bolt circle diameter ± 0.3 (mm)	F	370			464			570			600	
Flange outside diameter h7 (mm)	G	418			530			618			680	
Fastening threads (mm)	H	12xM20			12xM24			12xM24			12xM36	
Thread depth (mm)	I	36			40			40			60	
Fit length (mm)	J	8			10			10			12	
Wall thickness (mm)	K	49.5			67.0			67.0			78.0	
Distance (mm)	L	99			179			189			273	
Distance (mm)	M	167			255			265			349	
Actuation path (mm)	N	7.5			10			10			10	
Mounting diameter - elements (mm)	O	376			490			532			630	
Hub outside diameter (mm)	P	295			380			422			508	
Bore for fastening screw (mm)	Q	max. ϕ 44			max. ϕ 44			max. ϕ 52			max. ϕ 52	
Moment of inertia (approx.) D max. + max. sgmnt (10^{-3} kgm ²)		5925			20000			31830			61300	
Speed max. (rpm)		3200			2200			2000			1800	
Allowable max. radial force standard* (KN)		100			130			200			240	
Approx. weight at D max. + max. sgmnt (kg)		244			502			636			978	

* larger radial loads possible with special bearings



PROPERTIES

MATERIAL

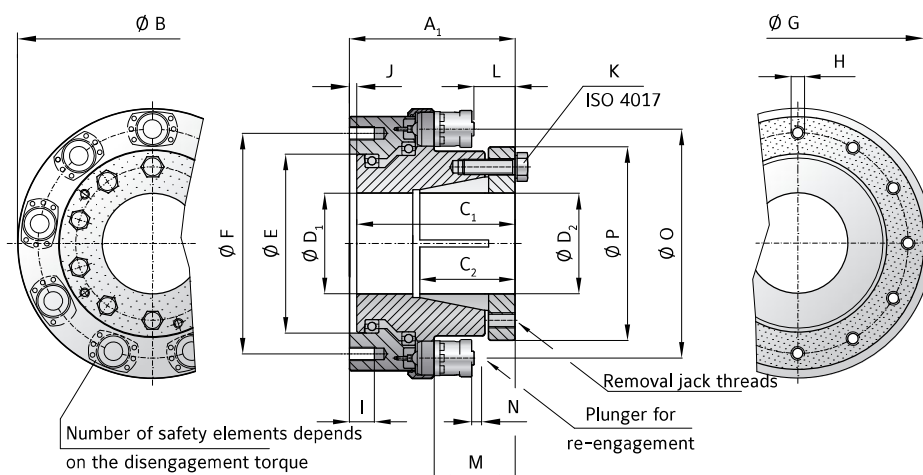
Hardened steel (nitrocarburized surface)

DESIGN

► Drive side: coupling hub with conical clamping bushing connection (spline profile on request)

► Driven side: output flange with 12x fastening threads and integral bearings

► Safety elements: evenly spaced around the circumference; externally adjustable



MODEL STN | SIZE 2 - 5

SIZE		2			5			
Adjustment range available from - to	(KNm)		0.2-0.5	0.5-1.0	1.0-1.5	0.7-2	1.2-4	3.2-5
			3xST10	6xST10	6xST10	3x ST15	6x ST15	6x ST15
Overall length	(mm)	A ₁	124.5			160		
Flange outside diameter	(mm)	B	198			220		
Fit length / keyway length	(mm)	C ₁	118			155		
Effective clamping length	(mm)	C ₂	45			82		
Bore diameter possible Ø to Ø F7	(mm)	D ₂	45-70			40-80		
Bore diameter max. Ø F7 with keyway	(mm)	D ₂	60			70		
Flange centering diameter H7	(mm)	E	132			145		
Bolt circle diameter ±0.3	(mm)	F	162			170		
Outside diameter h7	(mm)	G	192			209		
Fastening threads	(mm)	H	12xM10			12xM12		
Thread depth	(mm)	I	15			20		
Fit length	(mm)	J	3			4		
Tightening screw ISO 4017		K	6xM10			6xM10		
Tightening torque	(Nm)	K	59			59		
Distance	(mm)	L	18			26.5		
Distance	(mm)	M	56			76.5		
Actuation path	(mm)	N	3.5			4.5		
Mounting diameter - elements	(mm)	O	154			170		
Hub outside diameter	(mm)	P	119			136		
Moment of inertia (approx.) D max. + max. sgmnt	(10 ⁻³ kgm ²)		77			151		
Speed max.	(rpm)		7000			6000		
Allowable max. radial force standard*	(KN)		5			10		
Approx. weight at D max. + max. sgmnt	(kg)		15			24		

* larger radial loads possible with special bearings



PROPERTIES

MATERIAL

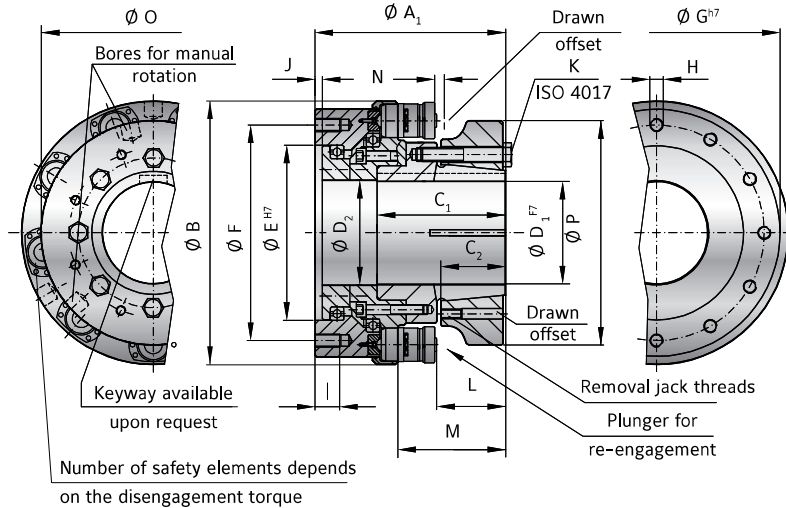
Hardened steel (nitrocarburized surface)

► Driven side: output flange with 12x fastening threads and integral bearings

DESIGN

► Drive side: coupling hub with conical clamping ring connection (spline profile on request)

► Safety elements: evenly spaced around the circumference; externally adjustable



MODEL STN | SIZE 10 - 160

SIZE		10			25			40			60			160		
Adjustment range available from - to (KNm)		2-5	4-10	6-14	6-12	9-18	15-25	12-21	22-32	32-45	11-18	22-36	30-55	25-55	50-110	80-165
		3xST15	6xST15	9xST15	6xST15	9xST15	12xST15	6xST30	6xST30	9xST30	3xST30	6xST30	9xST30	3xST70	6xST70	9xST70
Overall length (mm)	A ₁	210			227			286			318			425		
Flange outside diameter (mm)	B	270			318			428			459			648		
Fit length / keyway length (mm)	C ₁	147			152			191			218			305		
Effective clamping length (mm)	C ₂	62			67			93.5			93			125		
Bore diameter possible Ø to Ø F7 (mm)	D ₁	65-110			70-150			110-170			80-200			140-290		
Bore diameter max. Ø F7 with keyway (mm)	D ₁	100			140			160			180			270		
Flange centering diameter H7 (mm)	E	170			210			270			300			450		
Bolt circle diameter ±0.3 (mm)	F	220			260			330			360			570		
Outside diameter h7 (mm)	G	259			298			380			418			618		
Fastening threads (mm)	H	12xM16			12xM16			12xM20			12xM20			12xM24		
Thread depth (mm)	I	25			30			36			35			40		
Fit length (mm)	J	6			8			9			8			11		
Tightening screw ISO 4017	K	8xM16			9xM16			11xM16			8xM20			8xM24		
Tightening torque (Nm)		180			180			180			570			710		
Distance (mm)	L	72			80			82.5			94			151		
Distance (mm)	M	122			127			151			163			240		
Actuation path (mm)	N	4			4			8			7.5			10		
Mounting diameter - elements (mm)	O	220			270			350			376			532		
Hub outside diameter (mm)	P	218			278			322			378			535		
Moment of inertia (approx.) D max. + max. sgmnt (10 ⁻³ kgm ²)		446			789			3570			5700			30700		
Speed max. (rpm)		4200			3800			3000			2500			2000		
Allowable max. radial force standard* (KN)		20			30			40			50			100		
Approx. weight at D max. + max. sgmnt (kg)		50			65			166			200			550		

* larger radial loads possible with special bearings



WITH FLANGE MOUNTING

200 - 45,000 Nm



NEW

PROPERTIES

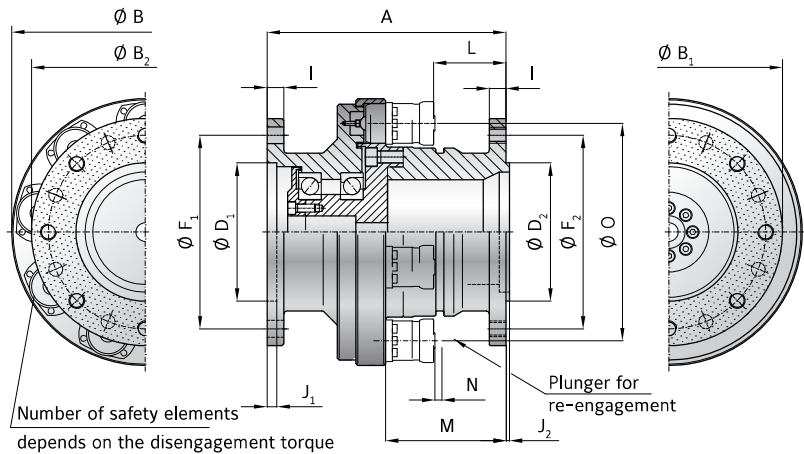
MATERIAL

Hardened steel (nitrocarburized surface)

DESIGN

► Drive side: Coupling hub with flange mounting

- Driven side: Mounting flange with fastening threads and integral bearing
- Safety elements: evenly spaced around the circumference; externally adjustable



MODEL STF | SIZE 2 - 40

SIZE		2		5		10		25		40							
Adjustment range available from to	(KNm)	0.2-0.5	0.5-1.0	1.0-1.5	0.7-2	1.2-4	3.2-5	2-5	4-10	6-14	6-12	9-18	15-25	12-21	22-32	32-45	
		3×ST10	6×ST10	6×ST10	3×ST15	6×ST15	6×ST15	3×ST15	6×ST15	9×ST15	6×ST15	9×ST15	12×ST15	3×ST31	6×ST31	9×ST31	
Overall length	(mm)	A		190		230		250		280		320					
Major outside diameter	(mm)	B		198		220		270		318		428					
Flange outside diameter	(mm)	B ₁		170		188		230		268		340					
Flange outside diameter	(mm)	B ₂		170		188		230		306		390					
Flange centering diameter H7	(mm)	D ₁		90		110		140		174		210					
Flange centering diameter h7	(mm)	D ₂		90		110		140		200		210					
Hole circle diameter	(mm)	F ₁		130		155.5		196		220		304					
Through hole diameter	(mm)	F ₁		8×Ø13		8×Ø15		8×Ø17		12×Ø19		16×Ø22					
Bolt circle diameter	(mm)	F ₂		130		155.5		196		270		350					
Thread size	(mm)	F ₂		8×M12		8×M14		8×M16		12×M18		16×M20					
Flange thickness	(mm)	I		14		17.5		20		22		25					
Fit length	(mm)	J ₁		3		4		5		5		6					
Fit length	(mm)	J ₂		2.5		3		3.5		4		4					
Distance	(mm)	L		45		63.5		75		83.5		105.5					
Distance	(mm)	M		83		113.5		125		124.5		165					
Actuation path	(mm)	N		3.5		4.5		4.5		4.5		7.5					
Moment of inertia (approx.) D max. + max. sgmnt	(10 ⁻³ kgm ²)	J.kst		83		150		380		830		3300					
Speed max.	(rpm)			9000		7500		6300		5000		3600					
Allowable max. radial force standard*	(KN)			7		12		17		22		30					
Approx. weight at D max. + max. sgmnt	(kg)	m.kst		20		30.4		50.3		73		180					

* larger radial loads possible with special bearings

STE

WITH SIMPLE KEYWAY MOUNTING

200 - 14,000 Nm



NEW: ATEX

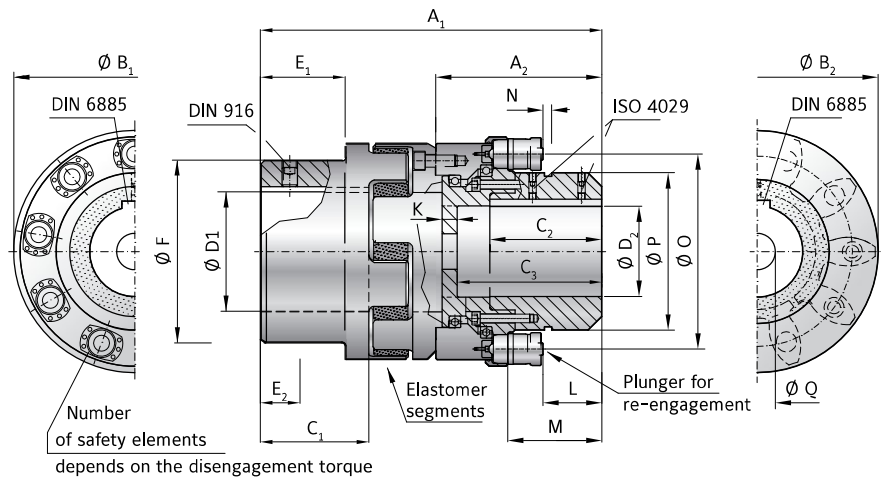
PROPERTIES

MATERIAL

- ▶ **Clutch segment:** hardened steel (nitrocarburized surface)
- ▶ **Elastomer segment:** TPU in various Shore hardnesses
- ▶ **Jaw coupling segments:** GGG40

DESIGN

- ▶ Drive side: coupling hub with simple keyway mounting
- ▶ Driven side: coupling hub with simple keyway mounting and elastomer segments
- ▶ Safety elements: evenly spaced around the circumference; externally adjustable



SAFETY COUPLINGS
ST

MODEL STE | SIZE 2 - 10

SIZE	2			5			10		
Adjustment range available from to (KNm)	0.2-0.5 3×ST10	0.5-1.0 6×ST10	1.0-1.5 6×ST10	0.7-2 3×ST15	1.2-4 6×ST15	3.2-5 6×ST15	2-5 3×ST15	4-10 6×ST15	6-14 9×ST15
Elastomer coupling size	2500			4500			9500		
Elastomer insert type	A / B / D			A / B / D			A / B / D		
Overall length ±2 (mm)	A ₁	282		A ₂	333			414	
Length of torque limiting portion (mm)	E ₁	120		E ₂	150			183	
Flange outside diameter (ST portion) (mm)	B ₁	198		B ₂	220			270	
Flange outside diameter (elastomer portion) (mm)	F	160		F	225			290	
Fit length/keyway length D1 (mm)	C ₁	88		C ₂	113			142.5	
Fit length/keyway length D2 (mm)	C ₂	100		C ₃	121			120	
Bore depth (torque limiting portion) (mm)	C ₃	100		C ₃	124			158	
Bore diameter (elastomer portion) Ø - Ø F7 (mm)	D ₁	30-95		D ₁	40-130			50-170	
Bore diameter (torque limiting portion) Ø - Ø F7 (mm)	D ₂	30-75		D ₂	40-90			40-110	
Length (mm)	E ₁	69		E ₁	70			70	
Length (mm)	E ₂	37		E ₂	47			22	
Hub diameter (mm)	F	154		F	190			160	
Bore for fastening screw (mm)	Q	max Ø75		Q	max Ø90			max Ø110	
Distance (mm)	L	13.5		L	16.5			45	
Distance (mm)	M	51.5		M	66.5			95	
Actuation path (mm)	N	3.5		N	4.5			4.5	
Mounting diameter - elements (mm)	O	154		O	171			220	
Hub outside diameter (mm)	P	104		P	120			170	
Moment of inertia (approx.) D max. + max. sgmnt (10 ⁻³ kgm ²)		145			337			1040	
Speed max. (rpm)		6000			3000			2400	
Approx. weight at D max. + max. sgmnt (kg)		31			47			95	
Axial (mm)		± 3			± 4			1.5	
Lateral Elastomer insert type A / B (mm)		0.5 / 0.3			0.5 / 0.3			0.6 / 0.4	
Angular Elastomer insert type A / B (degree)		1.5 / 1.0			1.5 / 1.0			1.5 / 1.0	
Dynamic torsional stiffness at T _{KN} (Elastomer insert type A / B) (10 ³ Nm/rad)		175 / 216			337 / 743			1180 / 1340	

For technical information about the elastomer insert segments see page 97.

ST2

WITH SIMPLE KEYWAY MOUNTING

200 - 25,000 Nm



NEW: ATEX

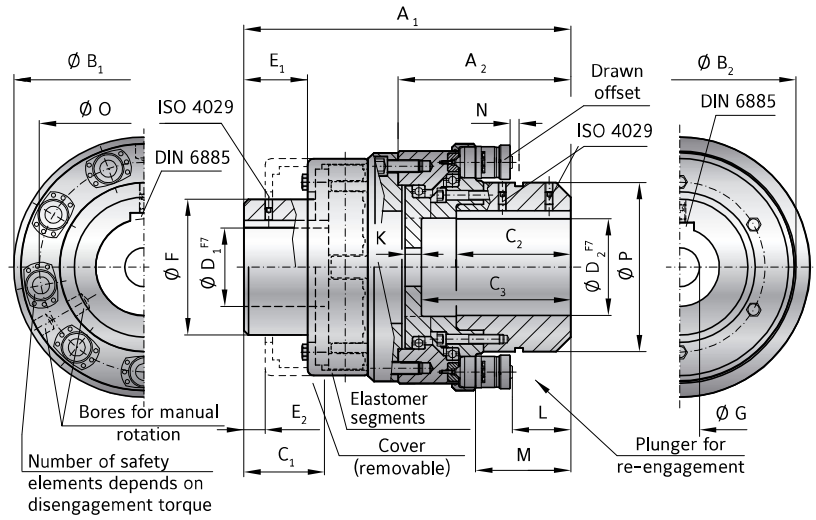
PROPERTIES

MATERIAL

- ▶ **Safety coupling portion:** hardened steel (nitrocarburized surface)
- ▶ **Elastomer segments:** precision molded, wear resistant rubber compound (75-80 Shore A)
- ▶ **Elastomer coupling:** hubs made from coated high strength cast steel

DESIGN

With keyway connection (spline profile on request). Elastomer segments compensate for misalignment and absorb vibration. Safety elements evenly spaced around the circumference. Field adjustable within the specified range.



MODEL ST2 | SIZE 2 - 25

SIZE		2			5			10			25		
Adjustment range available from - to (KNm)		0.2-0.5	0.5-1.0	1.0-1.5	0.7-2	1.2-4	3.2-5	2-5	4-10	6-14	6-12	9-18	15-25
		3×ST10	6×ST10	6×ST10	3×ST15	6×ST15	6×ST15	3×ST15	6×ST15	9×ST15	6×ST15	9×ST15	12×ST15
Overall length ±2 (mm)	A ₁	264			313			360			437		
Length of torque limiting portion (mm)	A ₂	120			150			183			230		
Flange outside diameter (ST portion) (mm)	B ₁	198			220			270			318		
Flange outside diameter (elastomer portion) (mm)	B ₂	221			250			290			330		
Fit length/keyway length D1 (mm)	C ₁	82			89			97			116		
Fit length/keyway length D2 (mm)	C ₂	100			121			120			155		
Bore depth (torque limiting portion) (mm)	C ₃	100			124			158			200		
Bore diameter (elastomer portion) Ø - Ø F7 (mm)	D ₁	30-80			40-100			40-105			60-130		
Bore diameter (torque limiting portion) Ø - Ø F7 (mm)	D ₂	30-75			40-90			40-110			60-140		
Length to cover (mm)	E ₁	65			70			70			87		
Length to (cover removed) (mm)	E ₂	24			23			22			26		
Hub diameter (mm)	F	130			145			160			200		
Bore for fastening screw (mm)	G	max. Ø 75			max. Ø 90			max. Ø 110			max. Ø 140		
Distance (mm)	L	10.5			16.5			45			80		
Distance (mm)	M	51.5			66.5			95			130		
Actuation path (mm)	N	3.5			4.0			4			4		
Mounting diameter - elements (mm)	O	154			171			220			270		
Hub outside diameter (mm)	P	104			120			170			218		
Moment of inertia (approx.) D max. + max. sgmnt (10 ⁻³ kgm ²)		152			289			854			1850		
Speed max. (rpm)		3400			3000			2400			2000		
Approx. weight at D max. + max. sgmnt (kg)		29			43.7			93			115		
Axial (mm)		1.5			1.5			1.5			1.5		
Lateral (mm)		0.3			0.4			0.4			0.5		
Angular (degree)		1			1			1			1		
Dynamic torsional stiffness at T _{KN} (Standard A Insert) (10 ³ Nm/rad)		58			92			145			230		

* larger bore diameters upon request. | For technical information about the elastomer insert segments see page 29.

ST2

WITH SIMPLE KEYWAY MOUNTING

12,000 - 165,000 Nm



NEW: ATEX

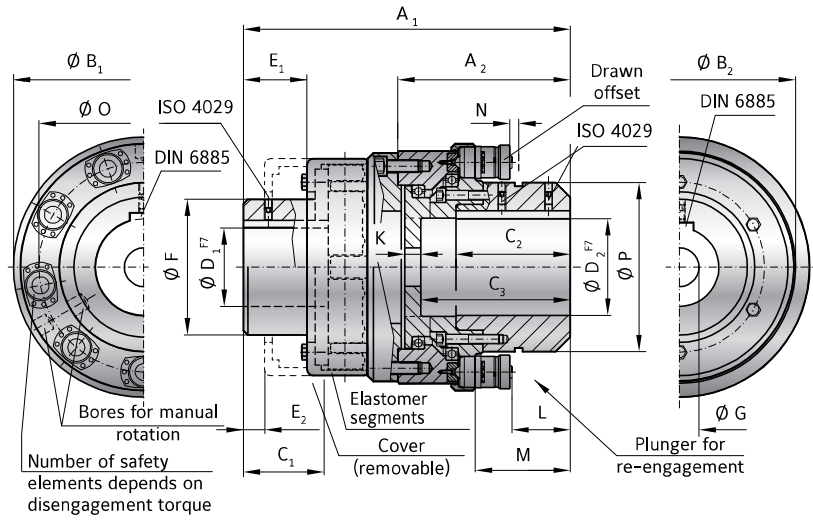
PROPERTIES

MATERIAL

- ▶ **Safety coupling portion:** hardened steel (nitrocarburized surface)
- ▶ **Elastomer segments:** precision molded, wear resistant rubber compound (75-80 Shore A)
- ▶ **Elastomer coupling:** hubs made from coated high strength cast steel

DESIGN

With keyway connection (spline profile on request). Elastomer segments compensate for misalignment and absorb vibration. Safety elements evenly spaced around the circumference. Field adjustable within the specified range.



SAFETY COUPLINGS
ST

MODEL ST2 | SIZE 40 - 160

SIZE	40			60			100			160			
	12-21 6×ST30	22-32 6×ST30	32-45 9×ST30	11-18 3×ST 30	22-36 6×ST 30	30-55 9×ST 30	24-50 3×ST70	45-90 6×ST70	80-110 9×ST70	25-55 3×ST70	50-110 6×ST70	80-165 9×ST70	
Adjustment range available from - to (KNm)													
Overall length ±2 (mm)	A ₁	565			580			716			730		
Length of torque limiting portion (mm)	A ₂	305			320			396			410		
Flange outside diameter (ST portion) (mm)	B ₁	428			459			592			648		
Flange outside diameter (elastomer portion) (mm)	B ₂	432			432			553			553		
Fit length/keyway length D1 (mm)	C ₁	160			160			230			230		
Fit length/keyway length D2 (mm)	C ₂	170			220			280			290		
Bore depth (torque limiting portion) (mm)	C ₃	210			275			280			360		
Bore diameter (elastomer portion) $\phi - \phi F7$ (mm)	D ₁	90-170			80-160			100-200			100-200		
Bore diameter (torque limiting portion) $\phi - \phi F7$ (mm)	D ₂	90-170			80-200			100-250			100-290		
Length to cover (mm)	E ₁	113			112			152			152		
Length to (cover removed) (mm)	E ₂	39			39			65			65		
Hub diameter (mm)	F	255			255			300			300		
Bore for fastening screw (mm)	G	max. ϕ 144			max. ϕ 200			max. ϕ 216			max. ϕ 290		
Distance (mm)	L	102			99			128			135		
Distance (mm)	M	170			167			218			225		
Actuation path (mm)	N	7.5			7.5			10			10		
Mounting diameter - elements (mm)	O	350			376			490			532		
Hub outside diameter (mm)	P	265			295			380			418		
Moment of inertia (approx.) D max. + max. sgmnt (10 ⁻³ kgm ²)		6010			8960			21890			36858		
Speed max. (rpm)		1800			1800			1500			1500		
Approx. weight at D max. + max. sgmnt (kg)		271			287			642			729		
Axial (mm)		2			2			2.5			2.5		
Lateral (mm)		0.6			0.6			0.7			0.7		
Angular (degree)		1			1			1			1		
Dynamic torsional stiffness at T _{KN} (Standard A Insert) (10 ³ Nm/rad)		500			580			850			1000		

* larger bore diameters upon request. | For technical information about the elastomer insert segments see page 29.

ST4

WITH SIMPLE KEYWAY MOUNTING

200 - 25,000 Nm



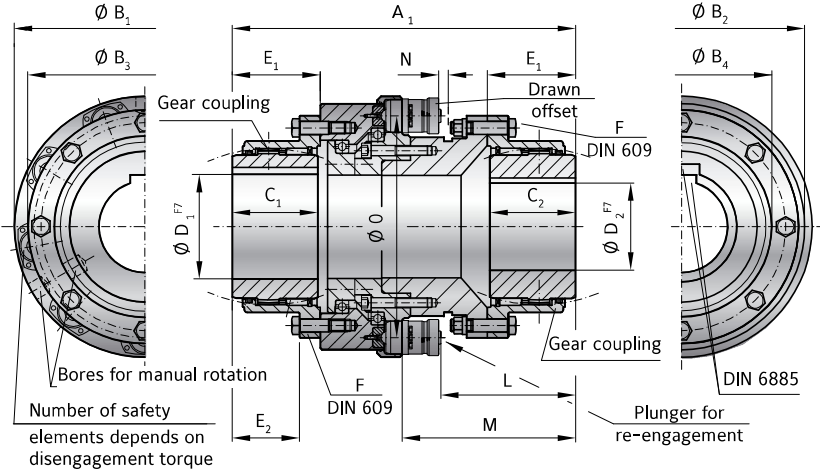
PROPERTIES

MATERIAL

- ▶ **Safety coupling portion:** hardened steel (nitrocarburized surface)
- ▶ **Gear coupling portion:** wear resistant high strength alloy steel (nitrocarburized surface)

DESIGN

With keyway connection (spline profile on request). Gear coupling for misalignment compensation. Safety elements evenly spaced around the circumference. Field adjustable within the specified range.



MODEL ST4 | SIZE 2 - 25

SIZE		2			5			10			25			
Adjustment range available from - to	(kNm)		0.2-0.5	0.5-1.0	1.0-1.5	0.7-2	1.2-4	3.2-6	2-5	4-10	6-14	6-12	9-18	15-25
			3×ST10	6×ST10	6×ST10	3×ST15	6×ST15	6 ST15	3×ST15	6×ST15	9×ST15	6×ST15	9× ST15	12×ST15
Overall length	(mm)	A_1	280			350			390			460		
Flange outside diameter (ST portion)	(mm)	B_1	198			220			270			318		
Mounting flange outside diameter (ST portion)	(mm)	B_2	192			209			259			300		
Flange outside diameter (gear coupling)	(mm)	B_3	168			200			225			265		
Hub diameter (gear coupling)	(mm)	B_4	130.5			158.4			183.4			211.5		
Fit length/keyway length	(mm)	$C_{1/2}$	62			76			90			105		
Bore diameter \varnothing bis $\varnothing F7$	(mm)	$D_{1/2}$	30-78			32-98			42-112			46-132		
Length	(mm)	E_2	63.5			78.5			92.5			108		
Screw	(mm)	F	6×M8			10×M12			12×M12			12×M16		
Tightening torque	(mm)	F	18			65			65			150		
Distance	(mm)	L	110			138			159.5			202		
Distance	(mm)	M	148			188			209.5			252		
Actuation path	(mm)	N	3.5			4.5			4.5			4.5		
Mounting diameter - elements	(mm)	O	154			171			220			270		
Moment of inertia (approx.) D max. + max. sgmnt	(10^{-3} kgm ²)		108			244			529			1117		
Speed max.	(rpm)		4000			3900			3700			3550		
Approx. weight at D max. + max. sgmnt	(kg)		25			45			65			100		
Axial	(mm)		1.5			2.5			2.5			3		
Angular	(Degrees)		2×0.35°			2×0.35°			2×0.35°			2×0.35°		

* Larger bore diameters upon request. | For technical information about the gear coupling segments see page 19.

ST4

WITH SIMPLE KEYWAY MOUNTING

12,000 - 250,000 Nm



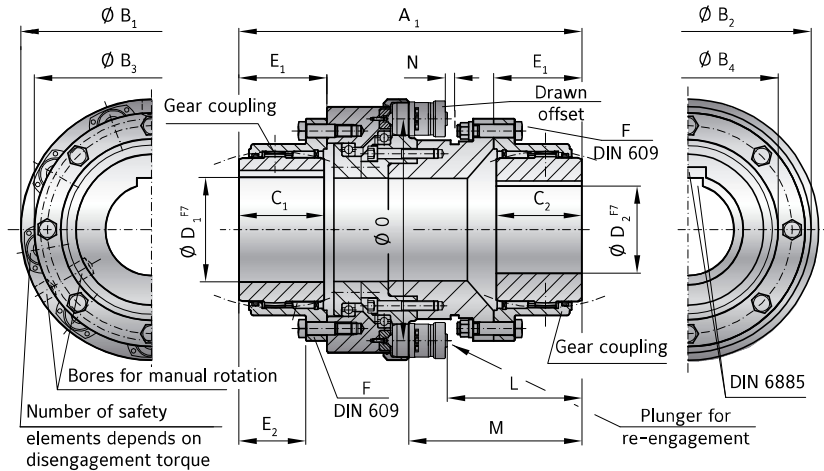
PROPERTIES

MATERIAL

- **Safety coupling portion:** hardened steel (nitrocarburized surface)
- **Gear coupling portion:** wear resistant high strength alloy steel (nitrocarburized surface)

DESIGN

With keyway connection (spline profile on request). Gear coupling for misalignment compensation. Safety elements evenly spaced around the circumference. Field adjustable within the specified range.



SAFETY COUPLINGS
ST

MODEL ST4 | SIZE 40-250

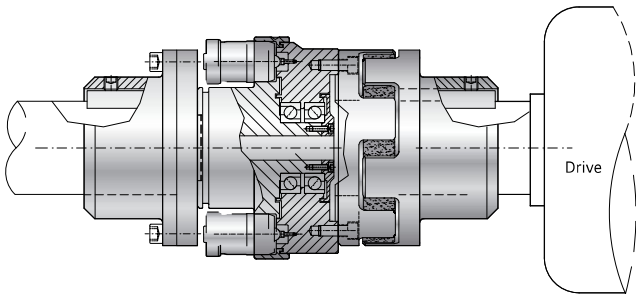
SIZE		40			60			100			160			250	
Adjustment range available from - to (kNm)		12-21	22-32	32-45	11-18	22-36	30-55	24-50	45-90	80-110	25-55	50-110	80-165	100-170	160-250
		6×ST30	6×ST30	9×ST30	3×ST30	6×ST30	9×ST30	3×ST70	6×ST70	9×ST70	3×ST70	6×ST70	9×ST70	8×ST71	12×ST71
Overall length (mm)	A_1	580			650			780			860			1060	
Flange outside diameter (ST portion) (mm)	B_1	428			459			592			648			740	
Mounting flange outside diameter (ST portion) (mm)	B_2	399			418			560			618			724	
Flange outside diameter (gear coupling) (mm)	B_3	330			370			438			525			639	
Hub diameter (gear coupling) (mm)	B_4	275.5			307			367			423			553	
Fit length/keyway length (mm)	$C_{1/2}$	135			150			190			220			290	
Bore diameter \varnothing bis \varnothing F7 (mm)	$D_{1/2}$	60-174			70-190			110-233			120-280			200-340	
Length (mm)	E_2	139			154			194			225			296	
Screw (mm)	F	14×M16			14×M18			14×M22			16×M24			22×M24	
Tightening torque (mm)	F	150			220			400			520			670	
Distance (mm)	L	238			275			318			360			458	
Distance (mm)	M	306			343			408			450			534	
Actuation path (mm)	N	8			8			10			10			10	
Mounting diameter - elements (mm)	O	350			376			490			532			630	
Moment of inertia (approx.) D max. + max. sgmnt (10^{-3} kgm ²)		4363			6650			20611			33820			84926	
Speed max. (rpm)		2750			2420			1950			1730			950	
Approx. weight at D max. + max. sgmnt (kg)		225			293			570			718			1280	
Axial (mm)		4			4			4			5			6	
Angular (Degrees)		2×0.35°			2×0.35°			2×0.35°			2×0.35°			2×0.35°	

* larger bore diameters upon request. | For technical information about the gear coupling segments see page 19.



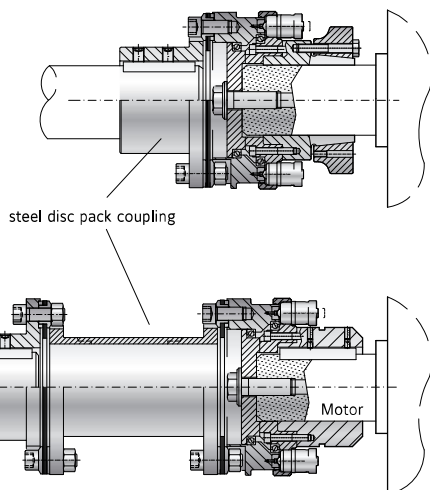
OPTIONS / SPECIAL SOLUTIONS

SAFETY COUPLINGS - FURTHER POSSIBILITIES



FOR EXTRUDER APPLICATIONS

- ▶ with elastic jaw coupling
- ▶ precise overload protection
- ▶ removable center section for lateral mounting



WITH TORSIONALLY STIFF DISC PACK COUPLING

- ▶ single or double flex
- ▶ high torsional stiffness
- ▶ disc packs from highly elastic spring steel



WITH TORSIONALLY STIFF BELLOWS COUPLING

- ▶ with clamping hubs, keyway mounting or flange mounting
- ▶ compensation for misalignment
- ▶ bellows made from highly elastic stainless steel



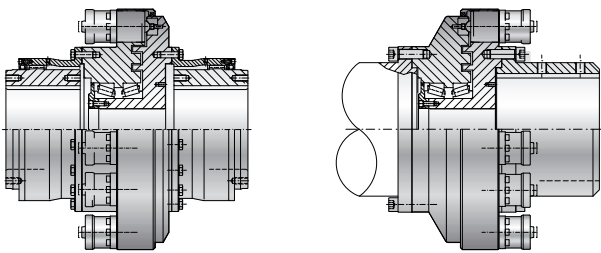
FOR HIGH SPEED APPLICATIONS

- ▶ integral ball-plunger system
- ▶ extremely compact with a low moment of inertia
- ▶ balanced for high speed



BUREAU VERITAS CERTIFIED

- ▶ for inland and offshore applications
- ▶ customized solutions
- ▶ rugged and special design for direct use in ship powertrains



MORE DESIGNS AVAILABLE

- ▶ for 1,000,000 Nm and more
- ▶ customer specified solutions
- ▶ for all branches and industries



TORQSET® SAFETY COUPLINGS ACCESSORIES

ST

SAFETY ELEMENT



PROPERTIES

MATERIAL

Hardened steel (nitrocarburized surface)

DESIGN

Two part assembly for installation into prefabricated coupling components.

Part 1: detent receptacle

Part 2: self-contained, spring loaded plunger module.

The spring force setting is adjustable in the field, with the settings clearly marked on an adjustment scale.

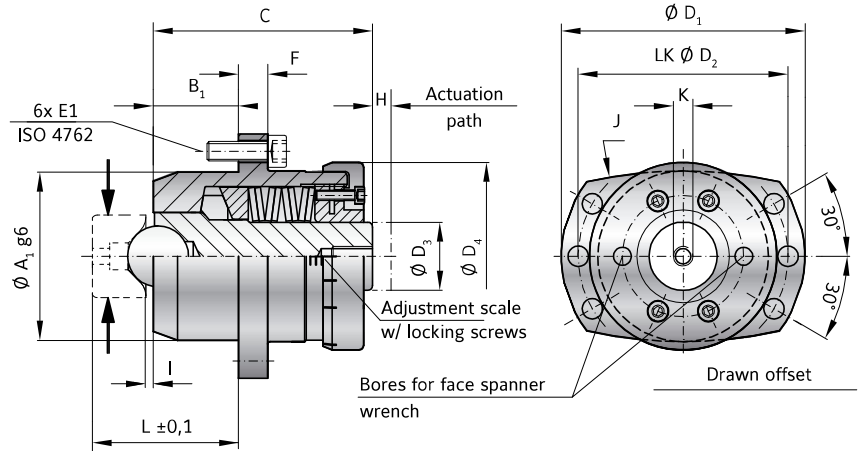
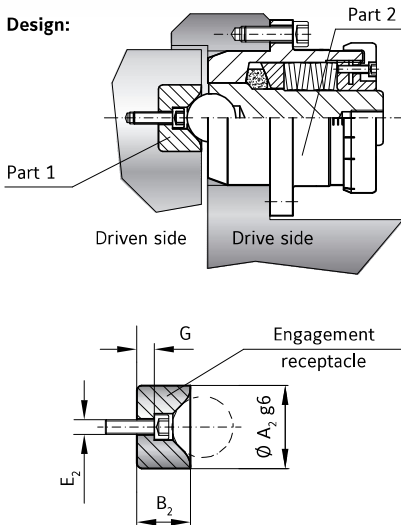
FIT TOLERANCE

For insertion of the safety elements H7 precision holes should be used for all centered components.

RE-ENGAGEMENT

When properly located over the detent receptacle the safety element can be re-engaged through the application of pressure to the back side of the plunger core.

Design:



MODEL ST | SIZE 10-70

SIZE		10	15	30	70
Tangential force (KN) Adjustment range available from - to (ranges)	1	0.8-2.2	1-4 2-8 6-15	5-10 10-20 20-32	8-20
	2	-	2-8	10-20	15-40
	3	2.0-3.3	6-20	20-35	30-70
Centering diameter of safety element g6 (mm)	A ₁	28	40	70	90
Centering diameter engagement receptacle g6 (mm)	A ₂	18	24	34	44
Centering length of safety element (mm)	B ₁	15	20	35	45
Centering length engagement receptacle (mm)	B ₂	13.5	14	22	30
Overall length (mm)	C	56	70	103	135
Outside diameter (mm)	D ₁	45	59	100	129
Bolt circle diameter (mm)	D ₂	37.5	50	86	110
Diameter plunger (mm)	D ₃	8	16	28	35
Diameter adjustment nut (mm)	D ₄	32	44	75	92
Screw / Tightening torque ISO 4762 (mm)	E ₁	6 x M4 x 12 / 4.5 Nm	6 x M5 x 16 / 10 Nm	6 x M8 x 25 / 40 Nm	6 x M12 x 35 / 120 Nm
Screw / Tightening torque ISO 4762 (mm)	E ₂	M4 x 20 4.5 Nm	M4 x 14 4.5 Nm	M6 x 20 15.5 Nm	M8 x 25 38 Nm
Flange thickness (mm)	F	5	7	12	16
Distance (mm)	G	6.5	5	8	10
Actuation path (mm)	H	3	4	7.5	10
Distance (mm)	I	1.5	2	3	4
Radius (mm)	J	100	110	200	250
Inner thread (mm)	K	M5 x 10	M8 x 15	M10 x 25	M16 x 30
Distance ± 0,1 (mm)	L	30	36	60	79
Weight (kg)		0.26	0.65	2.7	6

axial spring force = tangential force/1.4

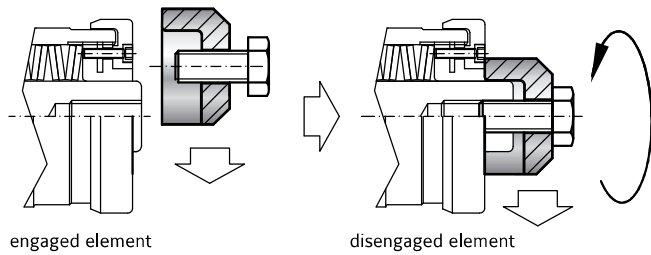
ORDERING EXAMPLE	ST	30	2	12	XX
Model	●				
Size		●			
Adjustment range 1/2/3			●		
Tangential force (KN)				●	
For custom features place an XX at the end of the part number and describe the special requirements (e.g. ST / 30 / 2 / 12 / XX)					

ACCESSORIES ST

TORQSET® SAFETY COUPLINGS

ENGAGEMENT AND DISENGAGEMENT

ST

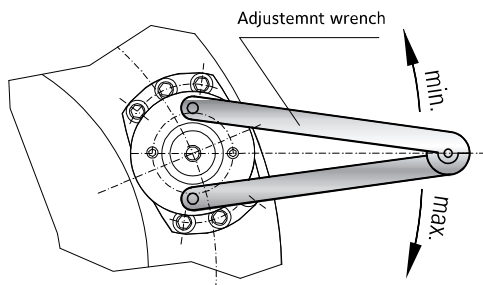


ORDER NUMBER

SIZE	ENGAGEMENT / DISENGAGEMENT TOOL
10	Order number AV / 0010
15	Order number AV / 0015
30	Order number AV / 0030
70	Order number AV / 0070

ADJUSTMENT WRENCH

ST

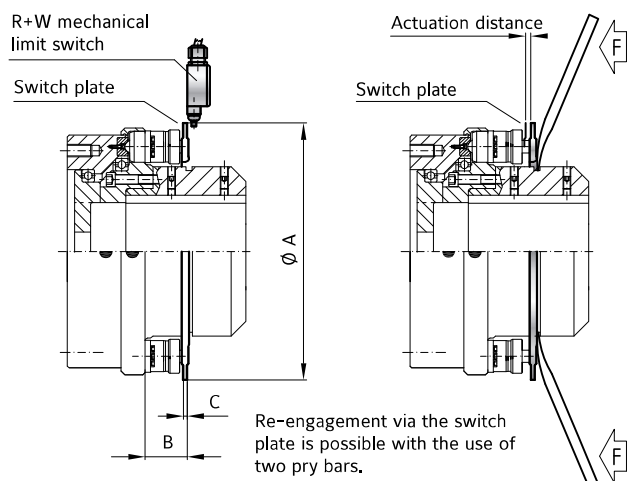


ORDER NUMBER

SIZE	ADJUSTMENT WRENCH
10	Order number SLS / 0010
15	Order number SLS / 0015
30	Order number SLS / 0030
70	Order number SLS / 0070

SWITCH PLATE

ST



Switch plates are available on request for all sizes and series.
Contact R+W for more information.

SAFETY COUPLINGS
ST

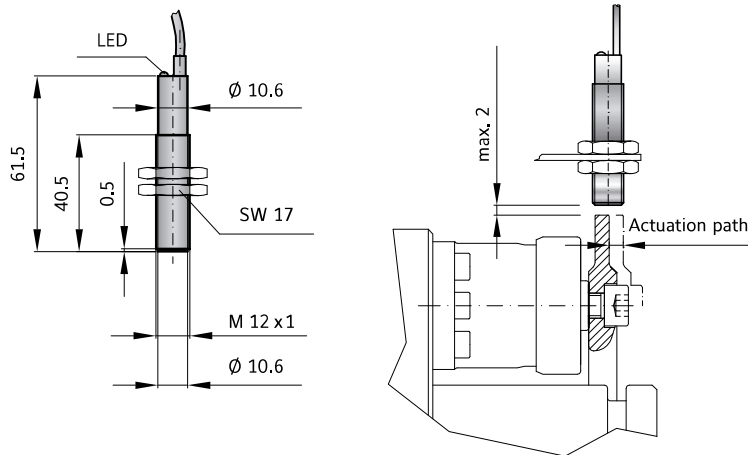
ACCESSORIES ST

TORQSET® SAFETY COUPLINGS

It is important the switches be 100% tested for proper functioning after mounting with safety coupling.

PROXIMITY SWITCH (E-STOP FUNCTION)

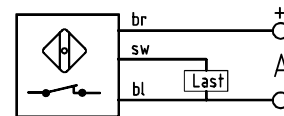
ST



ORDER NUMBER 650.2703.001

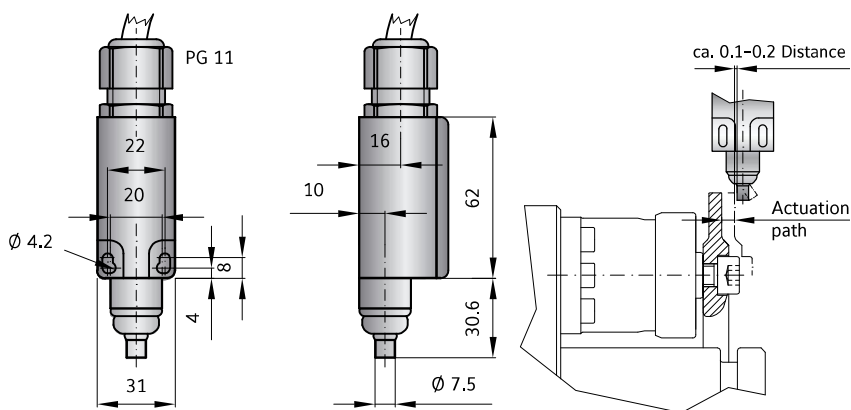
TECHNICAL DATA	ST
Voltage	10 to 30 V DC
Max. output current	200 mA
Max. switch frequency	800 KHz
Temperature range	-25° to +70° C
Protective system	IP 67
Switch type	normally open
Max. detection gap	max. 2 mm

SWITCH DIAGRAM ST



MECHANICAL LIMIT SWITCH (E-STOP FUNCTION)

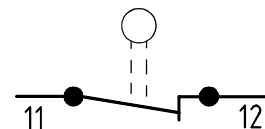
ST



ORDER NUMBER 618.6740.644

TECHNICAL DATA	ST
Max. voltage	250 V AC
Max. constant current	2.5h A
Protective system	IP 65
Contact system	Opener (forced separating)
Temperature range	-30° to +80° C
Actuation	Plunger (metal)

SWITCH DIAGRAM ST



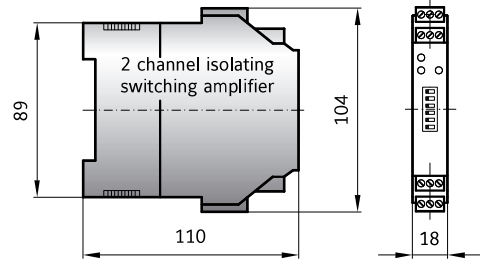
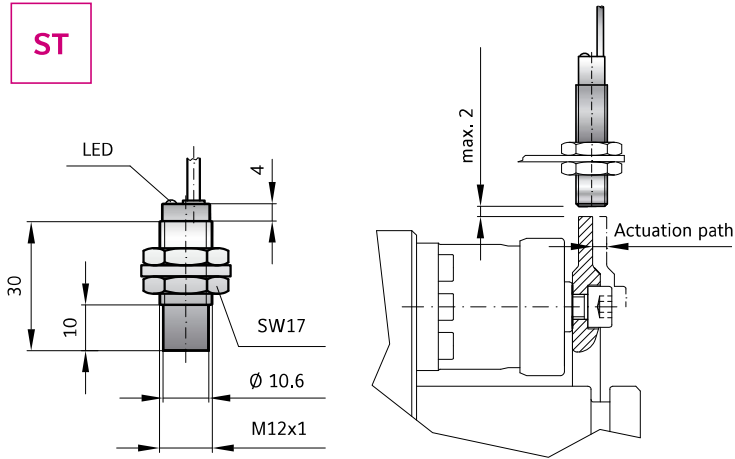
The switch plunger (pictured above and right) should be located as close to the actuation ring / limit switch plate as possible (approximately 0.1-0.2mm).

It is important the switches be 100% tested for proper functioning after mounting with safety coupling.

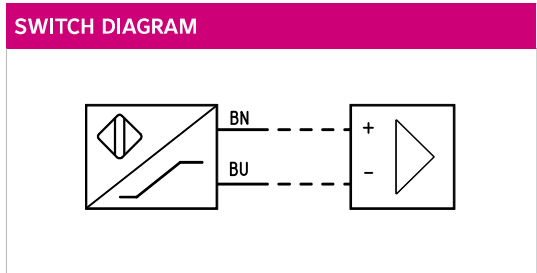
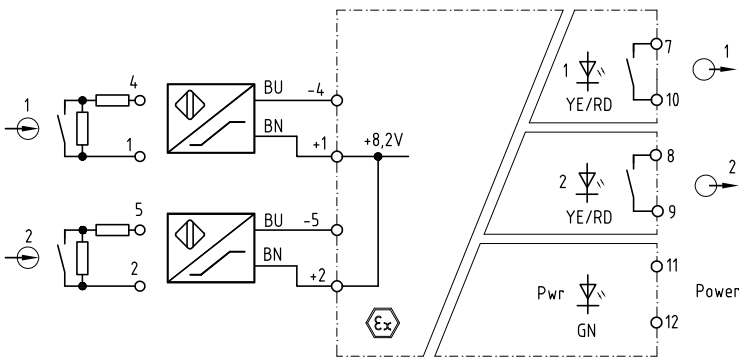
ATEX LIMIT SWITCH (E-STOP FUNCTION)

ORDER NUMBER EEX. 1624.004

ST



SAFETY COUPLINGS
ST



Technical data on request.