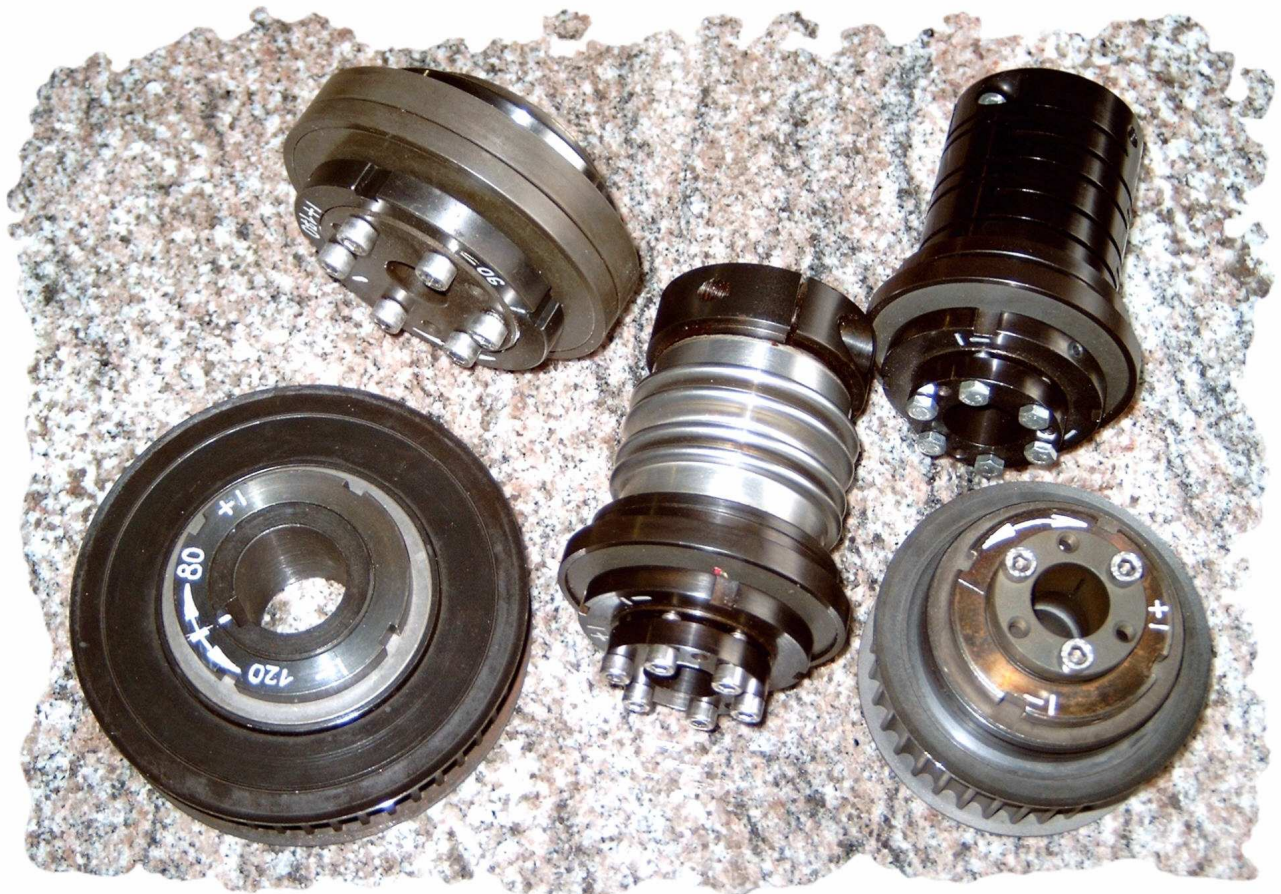


**ÜV Überlastschutz u.
Verbindungssysteme GmbH**

Safety couplings



www.uev-gmbh.de



ÜV Überlastschutz u. Verbindungssysteme GmbH

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Product range Safety couplings

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Safety coupling TYPE 2001 - up to 680 Nm

With integrated anti friction bearing

Characteristics:

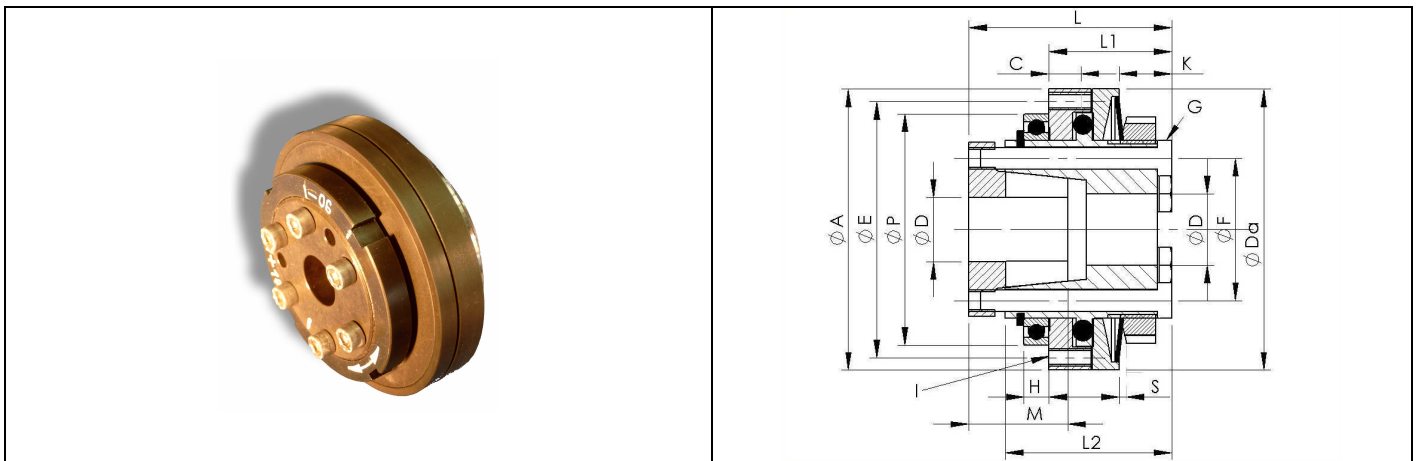
- Short mounting length
- Fixed point slipping
- Fast slipping action
- Disc spring with decreasing pressure
- No backlash
- Stepless and finely adjustable slipping moment

Application:

Installation in drive units for

- Machine tools
- Textile machines
- Conveyor systems
- Industrial robots etc.

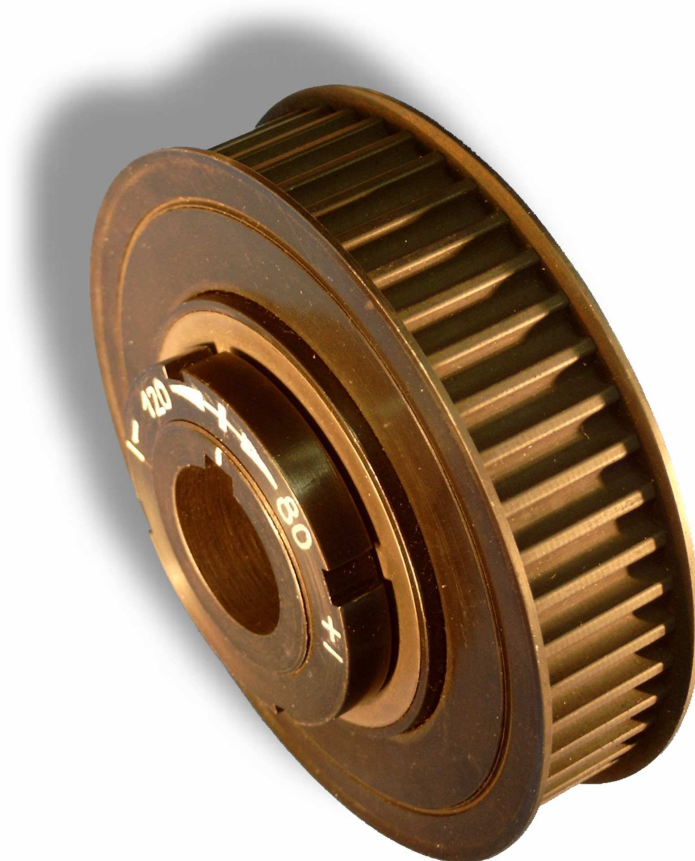
This version is capable of being mounted on very short shaft ends.



Size	Setting range M_A in Nm	Moment of inertia (in 10^{-3}kg/m^2)	Weight app. in kg	L	L ₁	L ₂	M	H	S	C	K	A	D _a	F	D	P	E	I	G (DIN 931)
5	1,3...3, 2,5...5	0,2	0,5	45	25	37	22	7	0,8	8	11	59	57	26	...16	47	53	6 x M4	3 x M5
18	3...6, 4...10, 8...18	0,35	0,7	50	29	42	23	7	1	10	12	67	67	31	12...20	52	61	6 x M4	3 x M5
55	12...30, 24...55	0,85	1,2	57	36	48	28	7	1,3	12	14	79	78	40	15...28	65	72	6 x M5	6 x M6
170	30...70, 50...120, 90...170	2,9	1,9	66	39	55	30	10	1,8	12	17	106	106	51	22...38	85	95	6 x M6	6 x M6
680	130...270, 240...480, 440...680	12,8	5,5	90	48	77	34	22	2	15	21	148	138	65	26...48	125	136	6 x M8	6 x M8

At customers request, the toothed Pulley or gear can be fitted and supplied from our plant.

Safety coupling with integrated toothed Pulley:



Available with keyway according to DIN 6885.

Standard bore H7.

Suggested fits:

Shaft k6	Bore F7
Shaft g7	Bore J7
Shaft h7	Bore H7

Couplings with bolts according to DIN 912 instead of DIN 933/931 are available.

Safety coupling TYPE 2003/2005- up to 680 Nm

Characteristics:

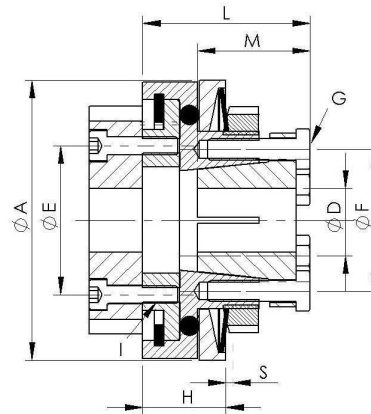
- Lower moment of inertia
- Reasonably priced
- Fixed point slipping
- Fast slipping function
- No backlash
- Stepless slipping moment
- Low residual torque
- Tapered bores and bushings are slotted

Application:

Mounting of toothed Pulleys or – sprockets for assembly in drive units for:

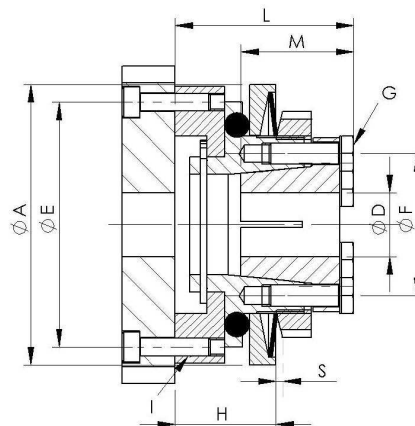
- Machine tools
- Packaging machines
- Conveyor systems
- Transportation systems
- Industrial robots etc.

Type 2003 – Specially for mounting on small toothed Pulleys



Size	Setting range M_A in Nm	Moment of inertia (in 10^{-3}kg/m^2)	Weight app. in kg	L	A	E	H	S	D	F	M	I	G DIN 933
5	1,3...3 2,5...5	0,18	0,4	35	57	28	17	0,8	...16	26	26	4 x M4 / 8 deep	3 x M5
18	3...6, 4...10 8...18	0,3	0,65	39	67	33	18	1	12...20	31	27	4 x M5 / 10 deep	3 x M5
55	12...30, 24...55	0,8	1,1	46	78	42	22	1,3	15...28	40	32	6 x M5 / 10 deep	6 x M6
170	30...70, 50...120, 90...170	2,8	1,8	56	106	57	28	1,8	22...38	51	34	6 x M8 / 12 deep	6 x M6
680	130...270, 240...480, 440...680	11	5,0	67	138	75	35	2	26...48	65	39	6 x M8 / 15 deep	6 x M8

Type 2005 – Specially for mounting on large toothed Pulleys



Size	Setting range M_A in Nm	Moment of inertia (in 10^{-3}kg/m^2)	Weight app. in kg	L	A	E	H	S	D	F	M	I	G-DIN 933
5	1,3...3, 2,5...5	0,18	0,4	34	57	50	17	0,8	...16	26	26	4 x M4 / 8 deep	3 x M5
18	3...6, 4...10, 8...18	0,3	0,65	39	67	58	18	1	12...20	31	27	4 x M5 / 10 deep	3 x M5
55	12...30, 24...55	0,75	1,1	46	78	69	22	1,3	15...28	40	32	6 x M5 / 10 deep	6 x M6
170	30...70, 50...120, 90...170	2,7	1,8	56	106	94	28	1,8	22...38	51	34	6 x M8 / 12 deep	6 x M6
680	130...270, 240...480, 440...680	10,9	4,9	67	138	124	35	2	26...48	65	39	6 x M8 / 15 deep	6 x M8

Ordering details

For example:

TYPE 2005 – 170 50...120 Ø 30H7

Type Size Setting range Diameter (D)



Safety coupling with metal bellows compensation element

TYPE 1550/1560- up to 680 Nm

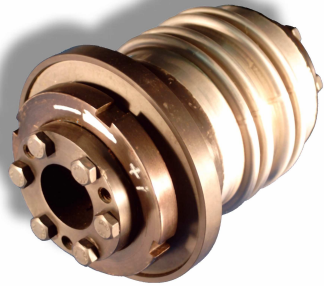
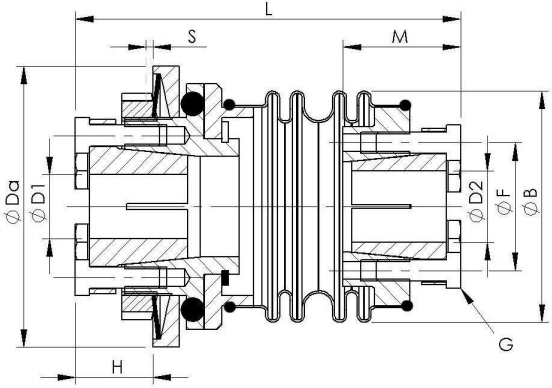
Characteristics:

- Operational temperature up to 300°C
- No backlash and torsionally resistant
- Maintenance- free (Wear only occurs as a result of frequent slipping)
- Can also be used for high rotational speeds
- Positive splitting (disc spring with characteristic decreasing power curve)
- Standard fixed points slipping available
- Tapered bores and bushings are slotted

Application:

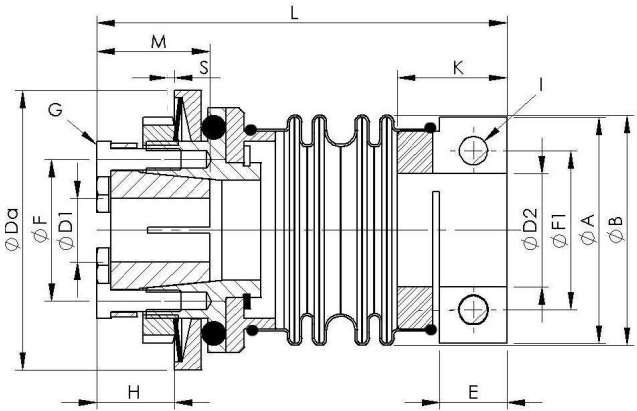
- Machine tools
- Packaging machines
- Handling machines
- Textile machines
- Woodworking machines
- Transportation systems
- Industrial robots etc.

Available with keyway according to DIN 6885.

Type 1550															
															
Size	Setting range M_A in Nm	Moment of inertia (in 10^{-3} kg/m ²)	Weight app. in kg	Torsional rigidity in 10^3 Nm/rad	Spring constant in N/mm lateral	Spring constant in N/mm axial	L	Da	H	F	M	B	S	D1/D2	6 x G DIN 933
18	3...6, 4...10 8...18	0,4	0,8	26	171	102	98	67	21	31/36	27	56	1	D1:12...20, D2:12...24	M5
55	12...30, 24...55	1,1	1,45	78	253	102	108	78	24	36/40	32	66	1,3	D1:15...28, D2:15...24	M6
170	30...70, 50...120, 90...170	3,3	2,5	110	249	87	138	106	28	51	34	82	1,8	22...38	M6
680	130...270, 240...480, 440...680	13,5	6,8	360	325	188	170	138	32	65	39	122	2	26...48	M8



TYPE 1560



Size	Setting range M_A in Nm	Moment of inertia (in 10^{-3} kg/m ²)	Weight app. in kg	Torsional rigidity in 10^3 Nm/rad	Spring constant in N/mm lateral	Spring constant in N/mm axial	L	Da	H	F	F1	M	S	D1	D2	A	B	6 x G-DIN 933	I DIN EN ISO 4762 (Old DIN 912)	K	E
5	1,3...3, 2,5...5	0,23	0,45	7	43	25	72	57	18	26	27	26	0,8	...16	...18	40	40	3x M5	M5	15,5	11
18	3...6, 4...10, 8...18	0,45	0,85	26	171	102	102	67	21	31	40	27	1	12...20	15...28	54	56	3xM5	M6	25	15
55	12...30, 24...55	1,2	1,5	78	253	102	117	78	24	40	45	32	1,3	15...28	18...32	64	66	6xM6	M8	31	19
170	30...70, 50...120, 90...170	3,5	2,55	110	249	87	145	106	28	51	54	34	1,8	22...38	25...40	82	82	6xM6	M10	32	20
680	130...270, 240...480, 440...680	13,6	6,9	360	325	188	177	138	32	65	82	29	2	26...48	36...60	119	122	6xM8	M14	40	28

Ordering details

For example:

TYPE 1560 – 170 50...120 Ø 30H7 Ø 30H7

⏟
⏟
⏟
⏟
⏟

Type Size Setting range D1 D2

Safety coupling with sprung compensation element

TYPE 1330/1340- up to 270 Nm

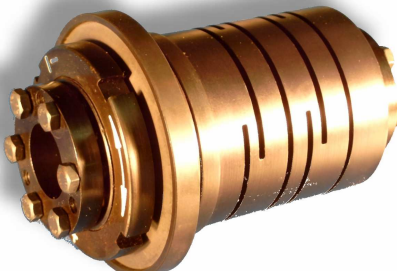
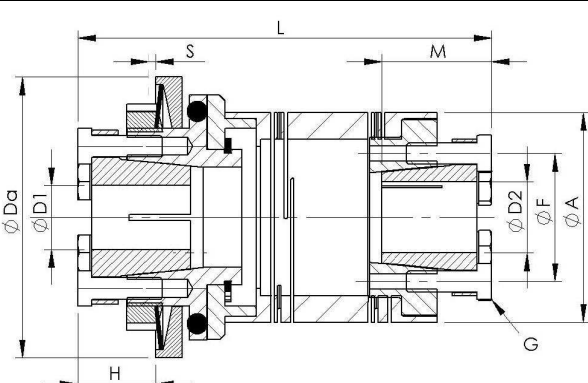
Characteristics:

- Operational temperature up to 150°C
- No backlash and torsionally rigid
- Maintenance- free (Wear only occurs as a result of frequent slipping)
- Can also be used for high rotational speeds
- Positive splitting (disc spring with characteristic decreasing power curve)
- Fixed point slipping
- Tapered bores and bushings are slotted
- Sprung compensation element with rounded edges

Application:

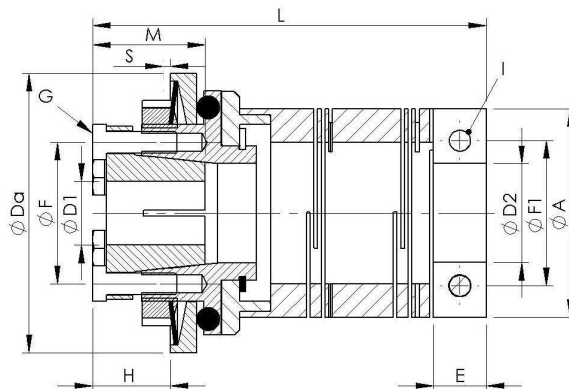
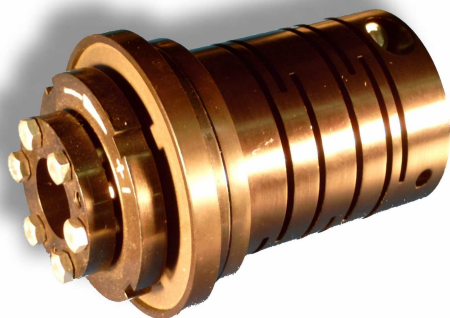
- Chain systems
- Conveyor systems
- Textile machines
- Packaging machines
- Machine tools
- Industrial robots etc.

Available with keyway according to DIN 6885.

Type 1330																
																
Size	Setting range M_A in Nm	Moment of inertia (in 10^{-3}kg/m^2)	Weight app. in kg	Torsional rigidity in 10^3Nm/rad	Spring constant in N/mm lateral	Spring constant in N/mm axial	L	Da	H	F	M	A	S	D1/D2	G	G DIN 933
18	3...6, 4...10 8...18	0,45	0,85	54	257	306	110	67	21	31/36	32	59	1	D1:12...20, D2:12...24	M5	
55	12...30, 24...55	1,0	1,4	54	257	306	115	78	24	36/40	32	59	1,3	D1:15...28, D2:15...24	M6	
170	30...70, 50...120, 90...165	3,4	2,6	85	394	361	142	106	28	51	34	79	1,8	22...38	M6	
680	130...270	12,4	6,2	170	434	421	167	138	32	65	39	99	2	26...48	M8	



TYPE 1340



Size	Setting range M_A in Nm	Moment of inertia (in 10^{-3}kg/m^2)	Weight app. in kg	Torsional rigidity in 10^3Nm/rad	Spring constant in N/mm lateral	Spring constant in N/mm axial	L	Da	H	F	F1	M	S	D1	D2	A	E	G DIN 933	I DIN EN ISO 4762 (Old DIN 912)
5	1,3...3 2,5...5	0,23	0,45	5,6	86	82	80	57	18	26	27	26	0,8	...16	...18	40	11	3 x M5	M5
18	3...6 4...10 8...18	0,4	0,75	12	147	168	94	67	21	31	36	27	1	12...20	15...26	50	15	3xM5	M5
55	12...30, 24...55	0,95	1,35	54	257	306	112	78	24	40	41	32	1,3	15...28	20...30	59	15	6xM6	M6
170	30...70, 50...120, 90...165	3,3	2,5	85	394	361	142	106	28	51	55	34	1,8	22...38	26...45	79	20	6xM6	M8
680	130...270	11,7	5,9	170	434	421	170	138	32	65	68	39	2	26...48	30...50	99	24	6xM8	M12

Ordering details

For example:

TYPE 1340 – 170 50...120 Ø 30H7 Ø 28H7

Type
Size
Setting range
D1
D2

Special couplings

Do you have a special requirement? We also can help you with this. Our product range includes not all possibilities of applications, but we are able to produce special couplings for your uses. Due to our system some standard parts, can be used to its modular design. Advice us of your requirements and you will get, together with our offer, a drawing with dimensions and details you will need.

Samples of special couplings:



Type 3... with toothed pulley



Taper clamping system for toothed sprockets



Type 2003 with toothed pulley



Important points for Assembly and Disassembly

Assembly

1. Align the shafts
2. Clean shafts and bores (a thin film of oil is recommended)
3. Connect both shafts with coupling (Type 13../15..)
4. Tighten bolts on taper clamping bush diagonally

Disassembly

1. Loosen the retaining bolts
2. Force taper off against bellows holder (3 threads per taper bushing provided)

Shaft misalignment (TYPE 13..)

Allowed	Lateral	Axial
Assembly	0,8 mm	1,5 mm
Operating	0,25 mm	0,4 mm

Shaft misalignment (TYPE 15..)

Allowed	Lateral	Axial
Assembly	0,8 mm	2 mm
Operating	0,2 mm	0,5 mm

Main functional characteristics of safety couplings

1. Stepless, precise slipping moment
2. Low slipping moment and disc springs with characteristic decreasing power curve optimize the function.
3. Minimum and maximum slipping moment is indicated on the coupling. Operational safety is ensured within this range.
4. Free slipping safety couplings can be, according to type, expensive. Please advise us of your requirements.
- 5.

Delivery of couplings for each application.

Due to our approved system we are able to deliver safety couplings for nearly all requirements. At customers request we supply with free slipping safety couplings and also toothed pulleys, etc. can be fitted by our plant.





Tighten torque of bolts:

Size	Tighten torque in Nm
M 2,5	1
M 3	1,5
M 4	3,5
M 5	7
M 6	12
M 8	25
M 10	50
M 12	85
M 14	135
M 16	220
M 20	430

Calculations

Accelerating torque

$$M_b = \frac{F_1 * J_{Mot} * \Delta n}{9,55 * T_A * \eta}$$

$$F_1 = \frac{J_{Mot} + J_{Mach}}{J_{Mot}}$$

Cutting torque

$$M_s = \frac{F_A * S * L}{\eta * 628}$$

$$M_d = \frac{9550 * P}{n}$$

$$M_{Ad} = F * L$$

Drive side acceleration torque

$$M_{Ab} = \frac{J_{AK} * A_n}{9,55 * T_a * \eta}$$

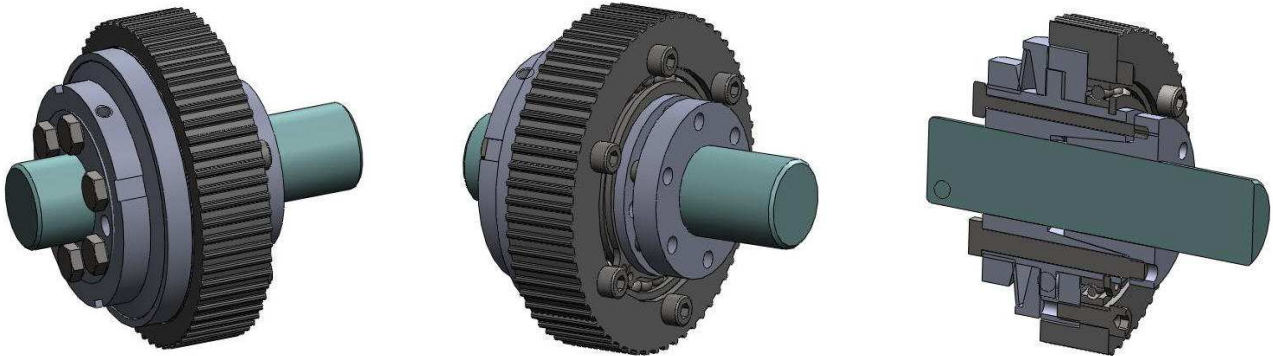
$$J_{AK} = J_y * \left[\frac{n_y}{n_x} \right]^2$$

- F₁ = Inertia factor
- J_{Mot} = Motor moment of inertia (kg m²)
- J_{Mach} = Machine moment of inertia (kg m²)
- n = RPM (min⁻¹)
- Δ n = RPM (difference) (min⁻¹)
- T_A = Start time (s)
- η = Degree of efficiency
- F_A = Cutting force (axel vector in N)
- S = Spindle pitch (cm)
- L = Withstanding ratio (app. 3)
- P = Power (kW)
- M_d = Driving torque in Nm
- M_{Ad} = Output torque in Nm
- M_{Ab} = Output acceleration torque in Nm
- F = Circumferential force of Pulley acting on safety coupling (in N)
- L = Length of drive arm (m)
- N_y = Input speed (min⁻¹)
- N_x = Input speed (min⁻¹)
- J_{AK} = Mass moment of inertia on load point reduced to output shaft (kgm²)
- A_n = Speed difference (RPM)
- T_a = Acceleration time (s)
- J_y = Mass moment of inertia of drive shaft

Possibilities for assembly

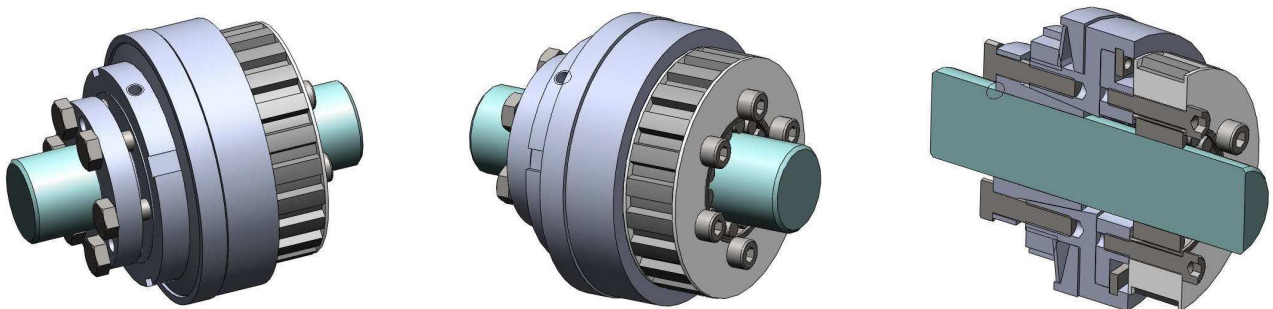
TYPE 2001

The safety coupling type 2001 is specially made for mounting into very large toothed pulley. The toothed pulley is centered on the integrated bearing. This type of coupling can even be mounted on very short shafts.



TYPE 2003

The safety coupling type 2003 is specially made for using it with very small toothed pulley. The pulley is centered by the shaft. In case of high speeds a bearing should be added between the toothed pulley and the shaft.



TYPE 2005

The safety coupling type 2005 is specially made for using it with large toothed pulley. The pulley is centered by the shaft. In case of high speeds a bearing should be added between the toothed pulley and the shaft.



More informations of our products you
can get any time - please call.



Our complete product range is also available
on CD-Rom. Or you can see our Website
www.uev-gmbh.de