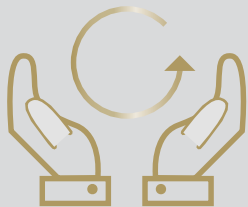
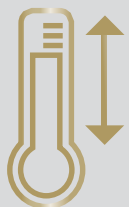


Torque limiter SecMatic Plus Type 588

Drive
elements are
our world.

Characteristics and features

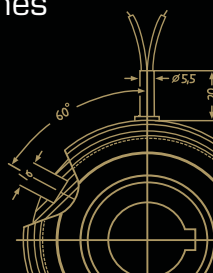
- particularly developed for the increasing safety demands of high-tech systems
- backlash-free torque transmission
- extremely high switching accuracy for static and dynamic loads
- high speeds caused by free release design
- long life cycle and high functional reliability due to special coating of toothing
- maintenance-free
- compactness allows easy integration
- safe due to sealed design
- fixed engagement position can manually be reengaged after overload only in original position



Mönninghoff power transmission represents an infinite variant diversity that is applied by all areas of modern mechanical engineering.

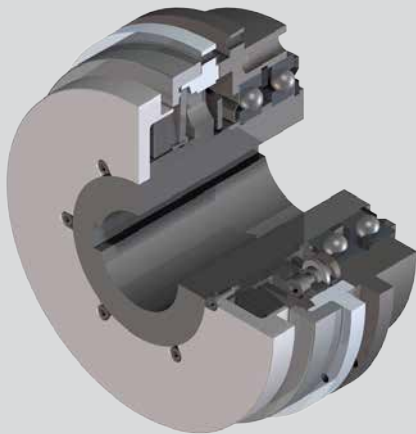
Our technologies are mostly designed to operate under extreme conditions. We offer high precision products for medical robotics, fail-proof security for aerospace technology or synchronization solutions for the packaging or printing industry.

We thus address customers who have the highest standards for their own machines or systems. To them, we can offer highly complex, application-specific solutions.



Match code

Mönninghoff torque limiters are indicated by the following match code:



588 . A . B . C

- A** clutch size
- B** design of stator
- C** design of armature

Other individual characteristics:

- toothing geometries
- bore size with keyway

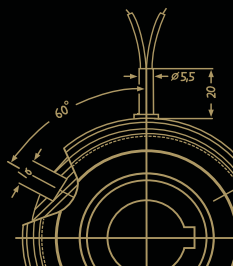
According to these characteristics, we design individual solutions concerning transmitted torque, engaging behavior or rotation speed.

Our engineers can assist with finding an application-specific clutch at any time. Together, we can develop individual and innovative solutions for extreme operating conditions.

Ordering example

Mönninghoff torque limiter SecMatic Plus
Typ 588.3.2

Nominal torque T_K = 200 Nm
Bore size d = 40 H7, keyway acc. to DIN 6885/1



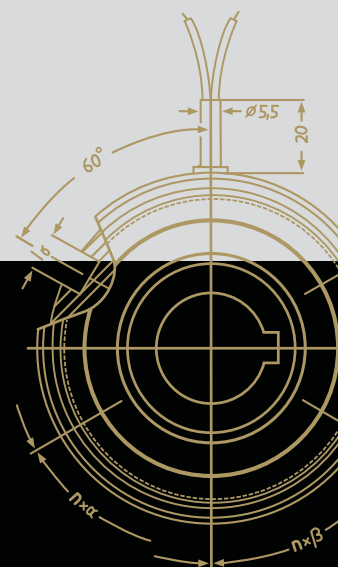
Clutch size

When dimensioning a Mönninghoff torque limiter, several technical preconditions should be considered:

- the overload torque should be at least 20% larger than the average torque
- for the selection of the correct size, not only the peak load but also the dynamic behavior of the drive have to be taken into account, especially for starting or slowing down
- generally, the selection of the correct clutch is based on torque:

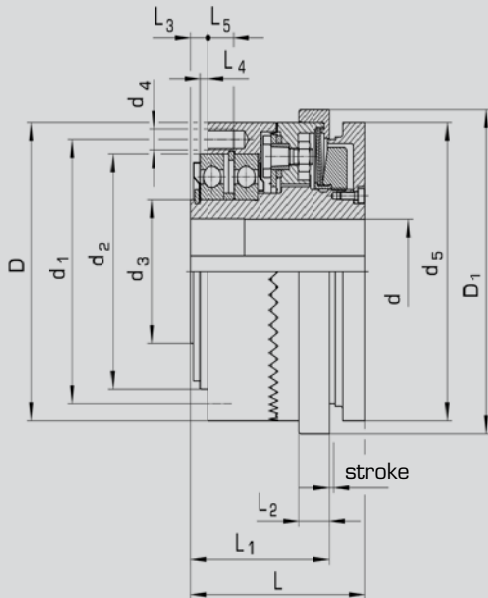
$$T_K = (T_a + T_L) \times K \quad [\text{Nm}]$$

- T_K = overload torque
- T_a = starting torque
- T_L = load torque
- K = service factor 1,2 to 3



Clutch size

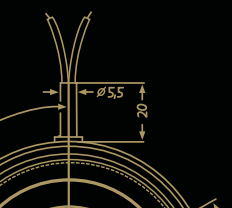
The SecMatic Plus torque limiter protects the value of high-tech machines and systems. Our engineers can help to design this vital safety mechanism according to the demands of any special application.



Type 3.2,
bearing mounted

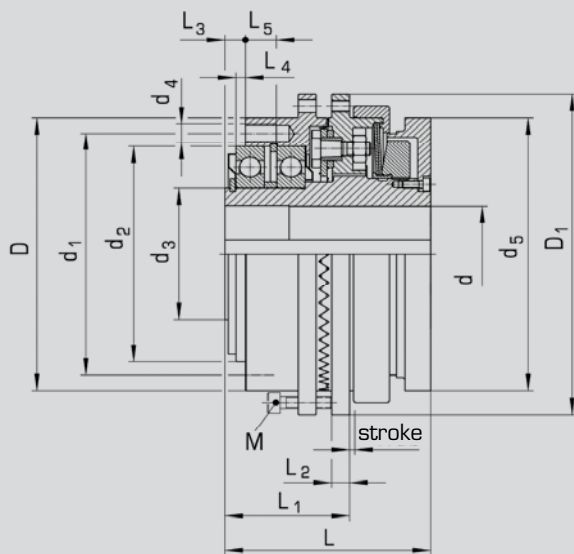
Technical data

Size			15	21	23	25	31	32
torque	T_{K1}	[Nm]	25 - 50	50 - 100	100-200	200-400	400-800	800-1600
max. speed	n	[min ⁻¹]	4000	4000	3500	3000	3000	2500
inertia	Type 3.2 l	[kg m ²]	0,0016	0,0033	0,0078	0,0172	0,0465	0,0912
weight	Type 3.2 m	[kg]	1,7	2,7	4,1	7,1	11,7	18,6
bearing DIN 625		[Type]	16007	16009	16011	16013	16017	16020
stroke		[mm]	0,9	0,9	1,2	2	2,5	3
keyway acc. to DIN 6885/1	d min	[mm]	12	14	18	24	28	45
bore H7	d max		22	30	40	45	65	80
keyway acc. to DIN 6885/3	d max		25	35	45	50	70	85
dimensions	D	[mm]	82	95	114	134	166	195
	D ₁		90	105	124	145	180	207
	d ₁		72	85	101	117	148	172
	d ₂		62	75	90	100	130	150
	d ₃		35	45	55	65	85	100
	d ₄	6 x 60°	M5	M6	M8	M10	M12	M12
	d ₅		82	95	114	134	166	190
	L		60	72	80	90	106	115
	L ₁		36	55	64	70	83,5	92,5
	L ₂		12	13	14	18	18	19
	L ₃		6,5	7	8	9	11	13
	L ₄		2,7	2,7	3,7	3,7	4,5	8
	L ₅		10	10	12	15	20	20



Clutch size

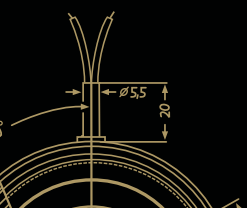
The SecMatic Plus torque limiter protects the value of high-tech machines and systems. Our engineers can help to design this vital safety mechanism according to the demands of any special application.



Type 3.6,
bearing mounted with switch-plate

Technical data

Size			15	21	23	25	31	32
torque	T_{K1}	[Nm]	25 - 50	50 - 100	100-200	200-400	400-800	800-1600
max. speed	n	[min ⁻¹]	4000	4000	3500	3000	3000	2500
inertia	Type 3.2 I	[kg m ²]	0,0018	0,0041	0,0095	0,0233	0,0532	0,1033
weight	Type 3.2 m	[kg]	1,9	3	4,6	8,1	12,5	20
bearing DIN 625		[Type]	16007	16009	16011	16013	16017	16020
stroke			0,9	1,2	2	2,5	3	3
keyway acc. to DIN 6885/1	d min	[mm]	12	14	18	24	28	45
bore H7	d max		22	30	40	45	65	80
keyway acc. to DIN 6885/3	d max		25	35	45	50	70	85
dimensions	D	[mm]	82	95	114	134	166	195
	D_1		96	110	134	166	190	215
	d_1	6 x 60°	72	85	101	117	148	172
	d_2		62	75	90	100	130	150
	d_3		35	45	55	65	85	100
	d_4		M5	M6	M8	M10	M12	M12
	d_5		82	95	114	134	166	190
	L		60	72	80	90	106	115
	L_1		36	43,5	48,5	53	65	67,5
	L_2		4	6	7	9	9	9
	L_3		6,5	7	8	9	11	13
	L_4		2,7	2,7	3,7	3,7	4,5	8
	L_5		10	10	12	15	20	20
	M		M4	M4	M5	M6	M6	M6



Functional characteristics

The accuracy of the switching operation can be achieved with the special combination of a disc pack without backlash, a foldable Belleville spring and a face gear with single fixed position.

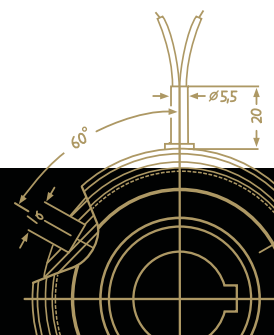
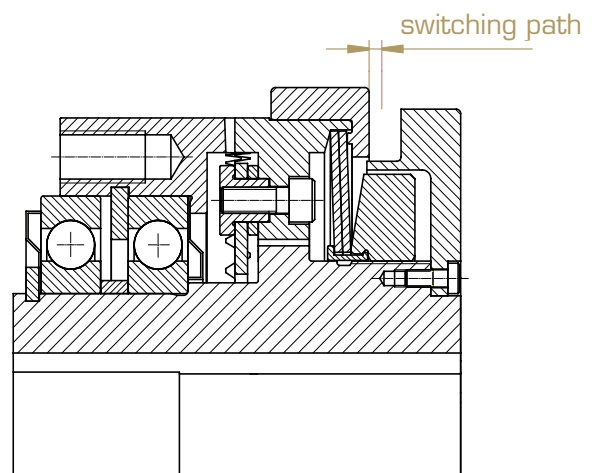
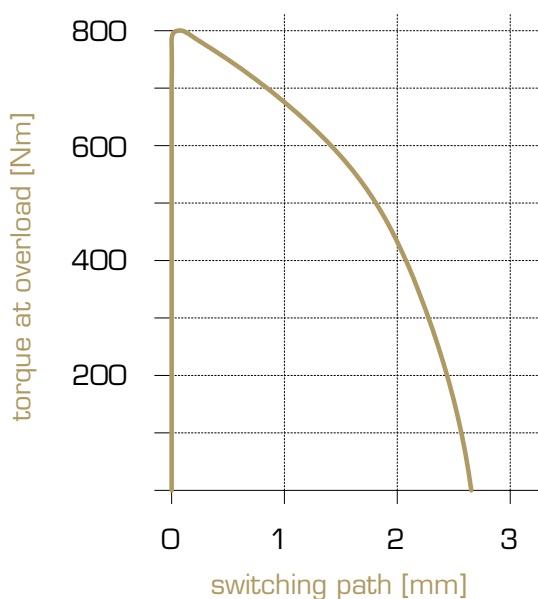
Standard operation:

- torque is transmitted without backlash (from hollow shaft via disc pack to face gear and switching ring)
- special Belleville spring (continuously adjustable) creates necessary axial force

Overload:

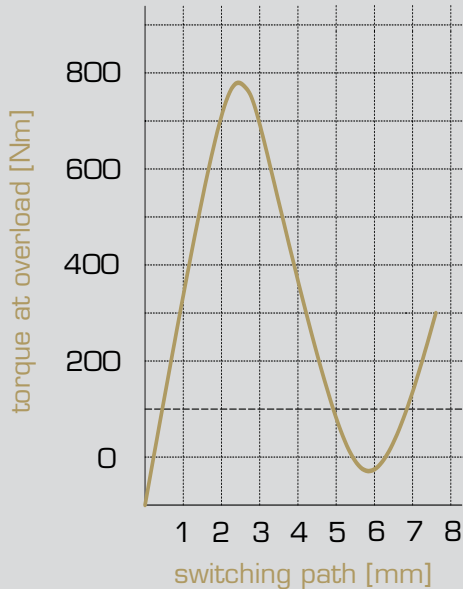
- toothed ring is moved axially towards Belleville spring
- from a specific predefined point on, the Belleville spring changes direction of its force
- face gear completely disengages and clutch operates without reengaging
- no torque transmission
- face gear can be reengaged manually

Characteristics of the switching path



Belleville spring

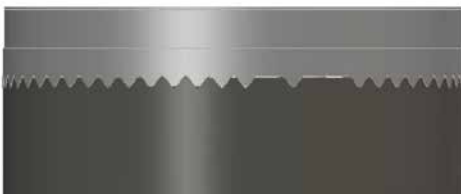
An important characteristic of the SecMatic Plus torque limiter is the folding Belleville spring:



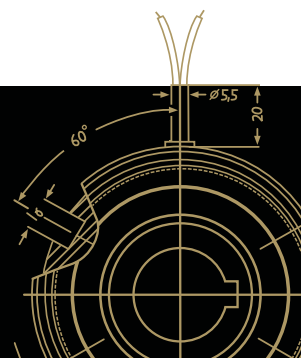
- when clutch disengages under overload, the Belleville spring is moved through origin of its characteristic line
- spring force is changing its direction

Toothing

The special single fixed position toothing of the SecMatic Plus is vital to the high safety demands of the torque limiter.

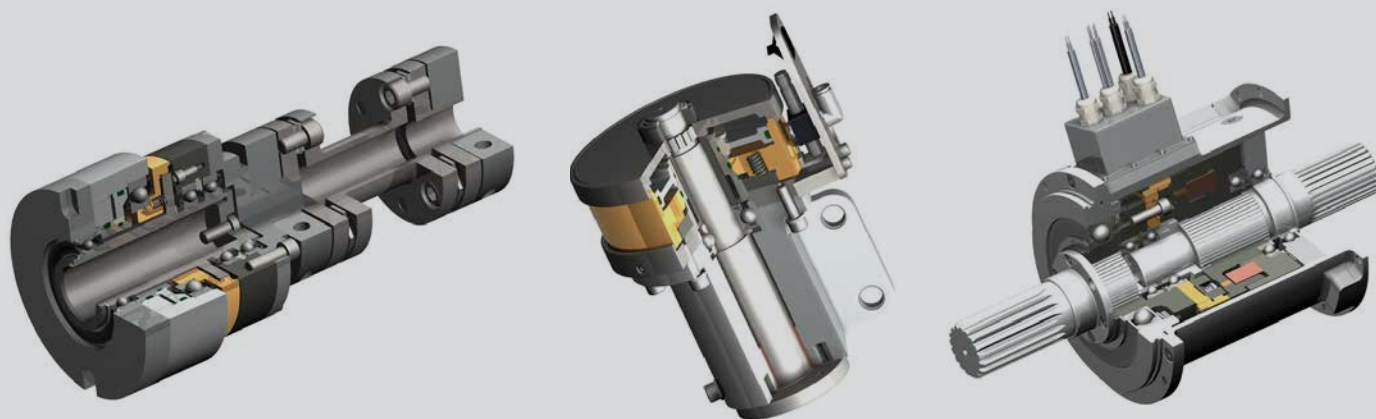


- single position toothing can only be manually reengaged after overload in one position
- without backlash
- toothed ring only moves very shortly before predefined overload is reached

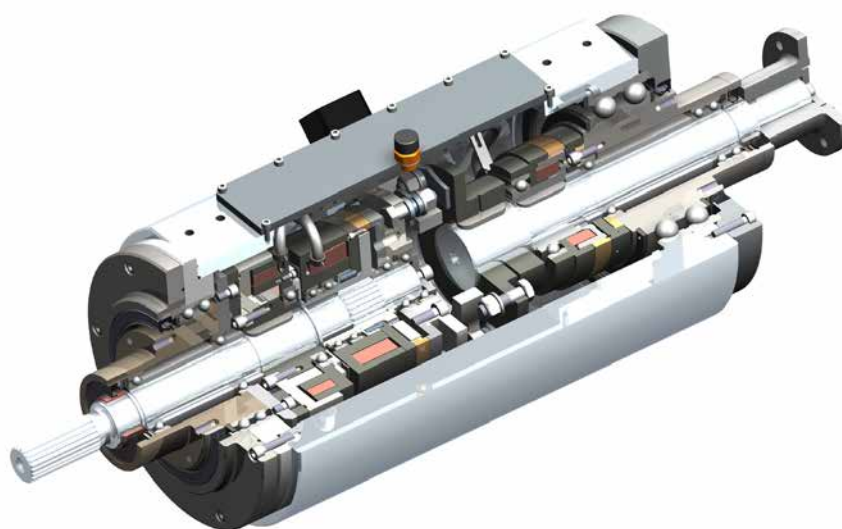


You need more?

Mönninghoff clutches can be combined with a variety of many other power transmission elements. Such complex high-tech systems can solve any application-specific tasks and can fulfill any customer-specific wishes.



In many cases, a combination of different drive elements is needed to solve the applications particular problems and difficulties. Being not just supplier but technological partner to our customers, our extensive engineering is part of extraordinary and challenging power transmission projects.



**Our product is the know-how,
with hardware as an added bonus.**

