

Reliable protection for your machine.



The demands on machines and systems are continuously increasing. Performance limits are more and more maxed out or newly defined. At the same time, safety and protection are becoming increasingly important. This not only applies to human-machine interaction but also to machines and systems.

In order to keep the system efficiency high and possible cost low, long downtimes and expensive component replacements caused by collisions/ overload must be avoided. Torque limiters reliably protect the mechanical drive train of your machine/ system from damage or destruction. Tailored to the demands and the construction of your machine, we offer you various solutions for overload protection.

Highlights

- Reliable protection of your machine
- Friction-fit or positive-fit
- Range of variation of $\pm 5\%$ only depending on the type/version
- By default for torques between 0.5 Nm to 60,000 Nm
- Customised versions are possible on request

Overview of torque limiters

Structure/function

In the field of torque limiters, a general distinction is made between **friction-fit and positive-fit torque transmission**. The friction-fit versions are cost-optimised, however, their variation ranges of the release torque are wider. Positive-fit torque limiters can be implemented in the most various designs. Torque limiters of the SecMatic type feature a variation range of only $\pm 5\%$.

You can install torque limiters into the drive train directly in a row, or implement an additional transmission step via a belt drive. In order to compensate for shaft misalignments or to dampen vibrations from the drive train, torque limiters can be combined with shaft couplings.

Information relating to the dimensioning of torque limiters:

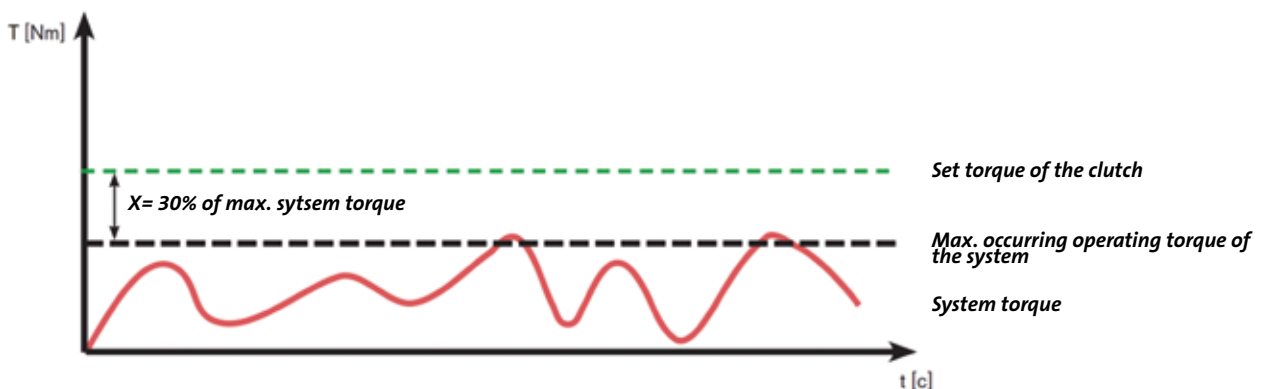
in order to prevent torque limiters from already being triggered by process-related torque peaks, the switching torque should be at least 30% higher than the maximum operating torque (see diagram).

Automatically re-engaging slipping clutches and overload systems should only be used with a reduced speed. Frequent or too long slipping or engaging increases the wear of the torque limiter.

When the torque limiter has separated the drive side from the output side in the event of overload, due to a great mass inertia in the drive train, it may take some time until the drive reaches a standstill. This may increase the wear of slipping clutches and automatically re-engaging overload systems. For drives with a great mass inertia or for higher speeds, we therefore recommend using mechanically disengaging overload systems.








We basically recommend electronic control of the torque limiters to disconnect the drive immediately in case of overload.

Smooth operation can only be ensured if the overload torque set is higher than the max. operating torque of the system (see diagram).



We will be happy to advise you with regard to individual dimensioning and any other questions you may have.

Overview of torque limiters

	RUFLEX®	KTR-SI	KTR-SI FRE	SYNTEX®	SYNTEX®-NC	KTR-SI Compact	SecMatic
							
Type/version	Slipping hub	Overload system		Backlash-free overload system			
Type of torque limitation	Friction fit	Positive fit					
Type of shaft-hub joint	Positive-fit			Positive fit			
Synchronous ratcheting (load separating)		•		•	•	•	•
Ratcheting (load separating)		•		•	•	•	•
Idle-rotation (load separating)		•	•				•
Locked (load holding)		•					•
Backlash-free				•	•	•	•
High adjustment accuracy	+	++	++	++	+++	+++	++++
High repeat accuracy		•	•	•	•	•	•
Quick separation in case of overload					•	•	•
Signal per limit switch/sensor		•	•	•	•	•	•
Torque adjustment when installed	•	•	•	•	•	•	•
Torque range TKN [Nm]	0,5 – 12.000	2,5 – 8.200	60.000 (and more)	6 – 400	5 – 550	3 – 3.100	5 – 24.000 (and more)
Max. hole size [mm]	140	100	200 (and more)	50	60	80	85 (and more)
max. speed [rpm]	10000	5000	3300	1500	3000	4000	4500
Special features	high power density, cost-effective	hardened surfaces, robust design	modular structure for high torques	for individual solutions, cost-effective, ideal for higher quantities	high power density, light design	hardened surfaces, robust design	highest repeat accuracy, even if extremely frequently addressed in case of overload
Application areas	slowly rotating drives (e.g. chain and V-belt drives), conveying belts, ...	Robust drive situations, e.g.: Crushers, ...	Shredders, extruders, steelworks, test benches	Customised design, packaging machines, linear drives, ...	Dynamic drives, packaging machines, machine tools, linear drives, ...	Packaging machines, special machine construction, materials handling technology, ...	Extruders, packaging, printing, machine tools, test benches
Can be combined with shaft couplings	•	•	•	•	•	•	•
Integrated ball bearing			•		•	•	•

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