

ENEMAC Operating instructions Torque Limiters types ECE ECG ECH ECI ECR

mode of function

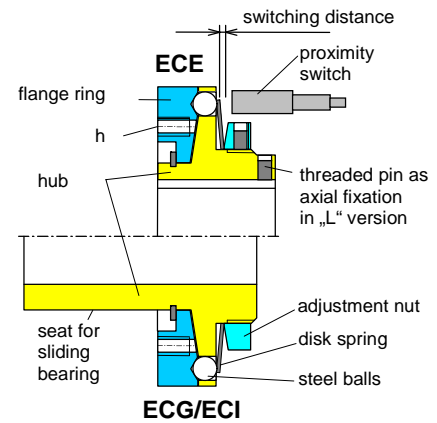
When the machine is operating normally the steel balls are pressed by the disk spring into the cupped recesses located in the flange ring, thereby transmitting the torque from the hub to the flange ring and vice-versa.

overload

In the event of overloading the hub turns round in relation to the flange ring and presses the balls out of the recesses back against the disk spring - the clutch clicks over - (once per revolution in case of fixed point switching) and actuates the proximity switch, which has to shut off the drive immediately. The clutch is only designed to click over for a short period !

engage

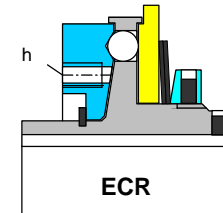
After elimination of the disturbance, the clutch has to be rotated - with low rotational speed or by hand - and reengages automatically (audible) in the fixed point position. The clutch now is operational, the adjusted disengagement torque is effective.



technical data

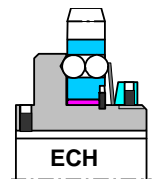
ECE ECG	5	10	16	25	40	63	100	200	315		630		1100	2000
ECI	5	10	16	25	40	63	100	200		315		630		
torque range (adjustable)														
TA max (Nm)	5	10	16	25	40	63	100	200	315	315	630	630	1100	2000
TA min (Nm)	2	4	7	10	16	25	40	80	120	120	250	250	450	800
max. rotational speed (min ⁻¹)	3000	3000	3000	3000	3000	3000	2500	2500	1800	1800	1800	1800	1000	800
thread of flange ring h	6x M5	M5	M6	M6	M6	M6	M6	M6	M8	M10	M8	M10	M16	M16
max. screw position i (mm)	6	6	8	8	8	8	12	12	15	15	15	15	24	24

ECR (stainless steel)	50	100	160	240
torque range (adjustable)				
TA max (Nm)	50	100	160	240
TA min (Nm)	15	40	60	100
max. rotational speed (min ⁻¹)	3000	3000	2500	2500
thread of flange ring h	6x M6	M6	M8	M8
max. screw position i (mm)	8	8	12	12



The screws *h* for the drive element must be tightened with the usual torque ! Please take notice of the *max. screw position i* (into the flange ring).

ECH (chain wheel integrated)	5	16	25	40	63	80	140	200	400	630
torque range (adjustable)										
TA max (Nm)	5	16	25	40	63	80	140	200	400	630
TA min (Nm)	2	6	10	16	25	32	56	80	160	250
max. rotational speed (min ⁻¹)	3000	3000	3000	2800	2800	2500	2500	2000	2000	1500



installation instructions

general remarks

- The fit between the hub and shaft should be chosen as close sliding fit (e. g. H7/j6 or G7/k6). Keyway according to DIN 6885 sheet 1.
- For axial fixation (against displacement on the shaft) threaded pins are provided that clamp the hubs against the keyways. An exception is the version „K“ in the types ECE/ECG and ECI, which are for example fixed by a stop collar and washer.
- The maximum rotational speeds specified in the *Technical data* refer only to the respective clutch by itself. If drive elements are incorporated that permit lower rotational speeds, these are obviously decisive, (e. g. the maximum permissible chain speed).
- Emergency switching
In order to protect the machine and clutch, the drive must be shut off in the event of overloading !
Normally the disk spring of the clutch activates, via the switching distance, a proximity switch arranged in axial direction and which disconnects the motor power circuit.

for types ECE, ECG, ECI and ECR:

- The drive element (e. g. pulley) is simply bolted onto the clutch, the torque being transmitted by friction.
- ECE and pulley are both centred on the shaft and must not be additionally centred relative to one another by a fit bearing.
- With type ECE the drive element (e. g. pulley) must have its own sliding bearing on the shaft, which supports the tractive force of the belt. The clutch cannot absorb this force.
- Points 6 and 7 apply as appropriate to types ECG, ECI and ECR. In this case the drive element is centred and mounted directly on the clutch bearing instead of on the shaft. In order to have a lower sliding speed in the event of overloading, the sliding bearing is incorporated in the drive element (is therefore not included in the delivery specification of the ECG, ECI or ECR).
- The slide bearing clearance has to be < 0,03 mm.
For the types ECG, ECI and ECR we recommend the installation of the slide bearing SKF type GLYCODUR F.
The *tolerance f 7 of the bearing* is matched to these slide bearings.
- With type ECE an adapter flange enables also small pulleys or chain wheels to be installed.

adjustment of disengagement torque T_A

The disengagement torque T_A is continuously adjustable (without change the disk spring) !
 Special torque ranges on request.
 The couplings are pre-set by the manufacturer on assembly at about 70% of the maximum torque.

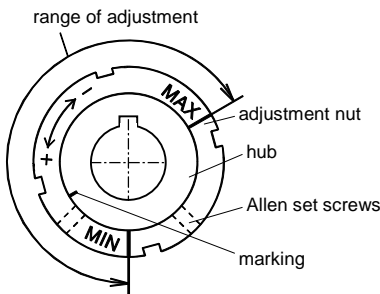
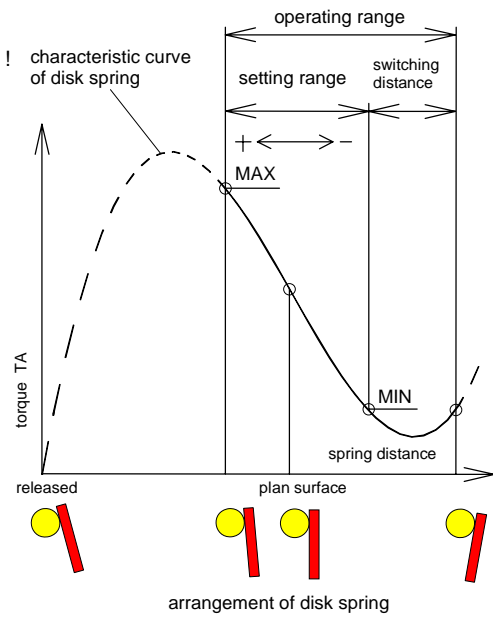
The torque can be subsequently adjusted by turning the adjustment nut with a sickle spanner. Loosen the Allen set screws beforehand !

IMPORTANT ! The characteristic curve of the disk spring is diminishing within the setting range !

Opposite to the common practice this results in the effect, that turning the adjustment nut ...

- clockwise $\Rightarrow T_A$ decreases
- counter-clockwise $\Rightarrow T_A$ increases

(see illustration to the right and foot)



The marking on the hub (see illustration to the left) must be between MIN and MAX in the adjustment range (=greater part of the circumference of the adjustment nut).
 By no means adjust torque below MIN, because in that case the disk spring will be blocked during disengagement, and the coupling will not operate.
 After adjustment the nut has to be fixed against turning by means of the Allen set screws (fixed with LOCTITE 222 or similar).

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