MÄDLER®
GEGRÜNDET 1882

Power transmission for your success

Operating Instructions

Torque Limiters FS

Size 120 - 180

Size 250 - 350

Size 500 - 700

D

PCA 1, 2, 3
Subsidiary
MÄDLER GmbH
Brookstieg 16
D-22145 Stapelfeld
Tel. +49 40-60 04 75 10
hamburg@maedler.de
www.maedler.de

D

PCA 0, 4, 5
Subsidiary
MÄDLER GmbH
Bublitzer Str. 21
D-40599 Düsseldorf
Tel. +49 211-97 47 10
duesseldorf@maedler.de
www.maedler.de

D

PCA 6, 7, 8, 9
Headquarter
MÄDLER GmbH
Tränkestr. 6-8
D-70597 Stuttgart
Tel. +49 711-7 20 95 0
stuttgart@maedler.de
www.maedler.de

A

MÄDLER
Österreich GmbH
Schottenfeldgasse 14/3
A-1070 Wien
Tel. +43 1398 1398-00
info@maedler.at
www.maedler.at

CH

MÄDLER
NORM-ANTRIEB AG
Haldenstr. 14
CH-8245 Feuerthalen
Tel. +41 52 647 40 40
info@maedler.ch
www.maedler.ch

General
Read this installation manual carefully before installing the torque limiter. Pay particular attention to the safety instructions! The installation manual is an important document. Store it carefully and in the vicinity of the coupling. The copyright for this installation manual shall remain with MÄDLER GmbH Stuttgart, Germany. The language of the origin manual is German.

General hazard warnings
Rotating parts must always be protected by the user from unintentional contact according to the requirements of the law. Moving parts can catch hair, clothing, jewellery, tools or body parts. This could injure or kill persons. Before working on the torque limiter, switch of the power and ensure that nobody will switch it on. Even without power supply, machine parts can begin to rotate, if there is still kinetic energy left in the machine.

Assembly
Before assembly, the friction facings as well as the center member (sprocket, sheave plate etc.) must be cleaned from oil, grease, dirt and rust. The center member should be ground on both sides to assure that both sides are parallel.

Assemble the torque limiter hub: the bushing, one friction facing, the center member, another friction facing, the pressure plate, the spring, the lockwasher (on hex nut model only), the pilot plate (at size 500 and 700 only), the adjustment nut.

Note: The required bush length depends on the width of the component to be joined (the center member). Up to product no. 612 006 00: Bush length 4.2 mm for a component width of 5.3 to 6.0 mm. From product no. 612 010 00: Bush length in mm = width of friction plate x 1.5 plus width of the center member. Bushes are available in several lengths.

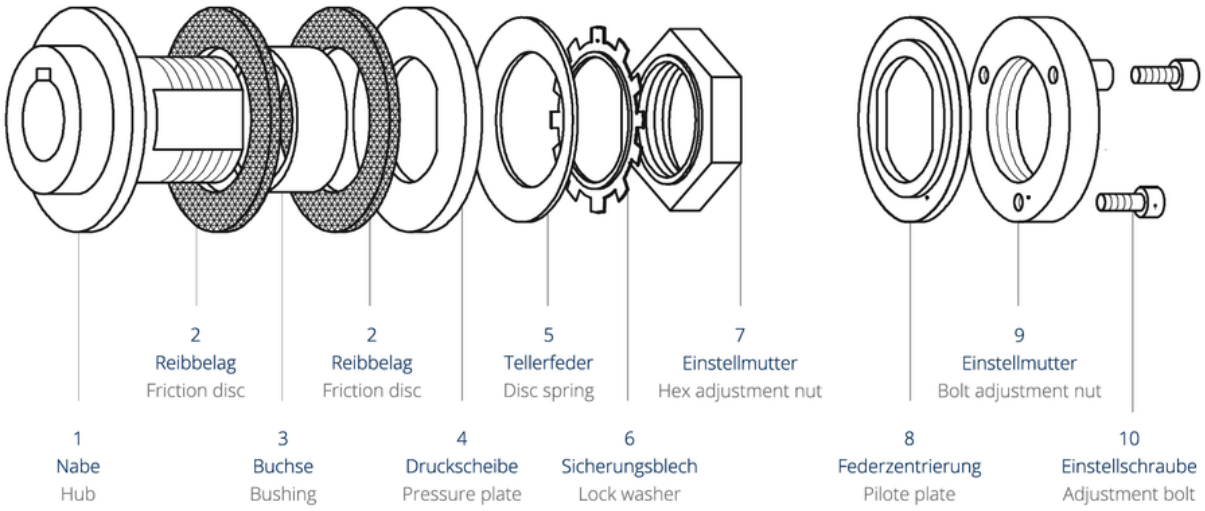
At the various sizes, there are different kinds of adjustment nuts:

Size 120-180: Round nut with clamp screw (new in year 2024, instead of part. 6 and 7).

Size 250-350: Hexagon nut with lockwasher (part 6 and 7).

Size 500-700: Hexagon nut with axial bolts and plate (part. 8-10).

Take care of the right number and mounting direction of the springs, see next page.

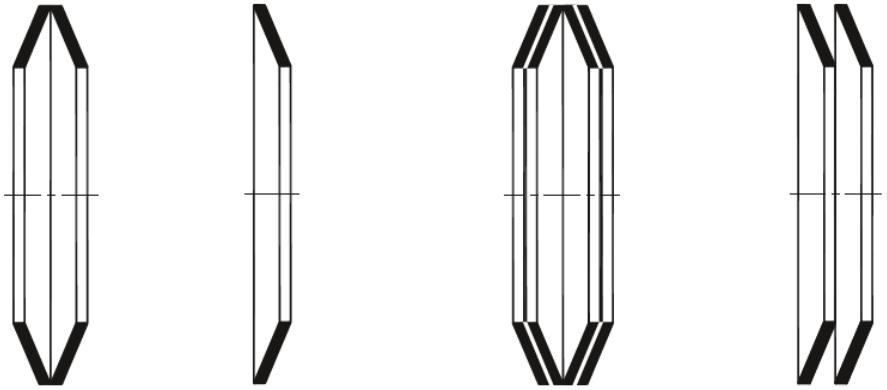


Springs, Quantity and Mounting Direction

At the various sizes, there are different numbers of springs:

Size 120-1: 2 springs	Size 120-2: 4 springs
Size 180-1: 1 spring	Size 180-2: 2 springs
Size 250-1: 1 spring	Size 250-2: 2 springs
Size 350-1: 1 spring	Size 350-2: 2 springs
Size 500-1: 1 spring	Size 500-2: 2 springs
Size 700-1: 1 spring	Size 700-2: 2 springs

Einfach-Schichtung Single layer Zweifach-Schichtung Two layers



1 TFD 1 TF 2 TFD 2 TF

120-1 **180-1 up to 700-1** **120-2** **180-2 up to 700-2**

Torque Setting for Torque Limiters

- Types with round nut with clamp screw (product no. 612 000 00 - 612 006 00):
  The spring must be pre-loaded by turning the adjustment nut (60°-steps, see table on page 4). The disk spring must not be completely flattened. After adjusting, the clamp screw must be tightened by hand.

- Types with hexagon nut (product no. 612 010 00 - 612 040 00):
  The spring must be pre-loaded by turning the adjustment nut (60°-steps, see table on page 4). The disk spring must not be completely flattened. After adjusting, a few flaps of the lockwasher must be bent.

- Types with round nut with axial bolts (Art.-Nr. 612 050 00 - 612 080 00):
  First screw back the three adjustment bolts, so that they don´t protrude. Then hand tightening the nut. Screw the three adjustment bolts fully into the nut. The maximum torque has now been set. When a lesser torque setting is desired, the three adjustment screws have to be turned back into the nut to allow the nut to be turned counterclockwise in 60° increments in accordance with the table on page 4). Then the three screws have to be screwed completely into the nut again.

Locking after Torque Setting

The sizes 120 and 180 have a round nut with clamp screw. After adjusting, the clamp screw must be tightened by hand. The sizes 250 and 350 have a crowned lock washer. After adjusting, several flats must be bent to the nut. The sizes 500 and 700 have not a lock washer, but adjustment bolts. After adjusting, these bolts must be tightened:
Size 500, screws M8: 18 Nm.
Size 700, screws M10: 38 Nm.

Running-in

Torque limiters should be run-in for the most consistent results. For this run-in period adjust the torque limiter to 50 % of the desired torque and let the center member slip for about 4 minutes at 60 RPM.

Installation Conditions and Environmental Influences

It should be observed, that the torque limiter is protected against oil, dirt, dampness and rust to assure its proper function.

Maintenance - Torque Testing

If it is necessary to obtain a precise torque setting, the following procedure is suggested. The torque limiter should be mounted, prior to installation, in a vice held by the outer diameter of the center member. With a short piece of shaft with key in the bore the torque can now be set by the use of a torque wrench. This procedure can of course only be used in small size torque limiters.
From time to time the torque setting should be checked and, if necessary, it should be adjusted.

Torque Adjustment Table

Table of Torque Limiter Adjustment (in Nm) [1]													
Limiter Type	*HEX NUTS – CLOCKWISE MOVEMENTS IN 60° INCREMENTS*												
Art.-No.	0 [2]	1	2	3	4	5	6	7	8				
612 000 00	0,5	1,5	2,5	3,4	4,0	4,6	5,0						
612 001 00	1	3	5	6,8	8	9,2	10						
612 005 00	1	2	4	6	7	9	10						
612 006 00	2	4	8	12	14	18	20						
612 010 00	7	13	23	30	34	35	36						
612 020 00	14	26	46	60	68	70	72						
612 030 00	20	26	48	59	70	79	84	87	90				
612 040 00	40	52	96	118	140	159	168	174	180				
Limiter Type	*NUT-COUNTERCLOCKWISE MOVEMENTS in 60° INCREMENTS*												
Art.-No.	0	1	2	3	4	5	6	7	8	9	10	11	12
612 050 00	300	280	253	218	176	126	69	50					
612 060 00	600	560	506	436	352	252	138	100					
612 070 00	690	673	664	635	606	560	515	450	387	302	217	144	115
612 080 00	1380	1346	1328	1270	1212	1120	1030	900	774	604	434	288	230

1) Smallest torque adjustable is between 0° and 60°.
2) These torque settings have been developed theoretically and may vary in practical application.