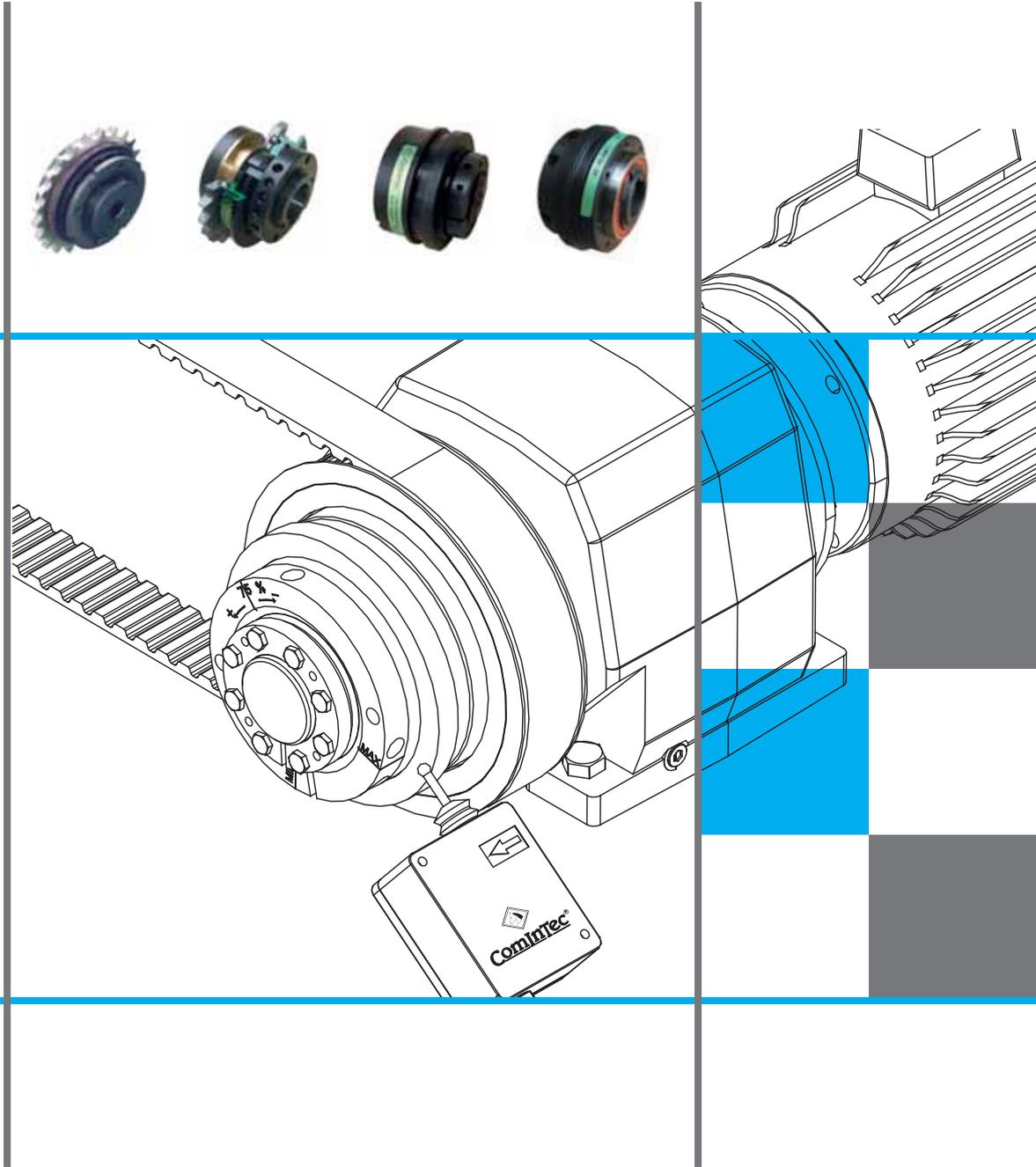


TORQUE LIMITERS - CLUTCHES

Up to 30.000 Nm of torque and 140 mm bores

(SAFETY COUPLINGS)



ComIntec[®]
Technology for Safety

Sold Exclusively in North America by:



30 Wilson Drive,
Suite B
Sparta, NJ 07871
info@hexelus.com
(973) 864-4548

TORQUE LIMITERS (SAFETY COUPLINGS) - CLUTCHES: introduction

ComInTec **torque limiters** (safety couplings) and **clutches** are mechanical components necessary to fit along the kinematic chain and are preferred to electronic safety devices because of a better response time, improved reliability, excellent configuration flexibility, easy fitting and adjustment, use at high speeds in hard environments in the presence of inertias and important masses. In fact the electronic systems, which normally act up to the transmission, present: delayed reaction time, many factors as a source of error, configuration and management complexity. The fitting of the mechanical torque limiters along the kinematic chain is therefore necessary for a reliable and complete protection, in order to improve the level of safety and the machine, according to the new EN ISO 13489-1 standards, reducing the average possible broken-down and unproductive downtime.

Benefit of our models:

- ⊙ Long product life with continuous reliability.
- ⊙ Optimum protection against environmental conditions.
- ⊙ Simple mounting for in-line and parallel transmission.
- ⊙ Easy setting and adjustment.
- ⊙ Highly accurate and fast machine protection.
- ⊙ Special designs to suit specific applications possible.
- ⊙ Competitive pricing without sacrificing quality.
- ⊙ "Made in Italy" with certified quality.

Our main product lines:

- ⊙ **Friction lines:** simple, economical, with sliding function suitable for use in dry and dusty environments .
- ⊙ **disengage lines:** high stability during transmission with instant disengagement and the possibility of free rotation.
- ⊙ **Axial lines:** Suitable for limiting compression and tension forces on crank mechanisms.
- ⊙ **Pneumatic clutch lines:** function of the clutch- disengagement with the possibility of variation of the torque during the motion.

FRICITION TORQUE LIMITER "DF"



Sliding Safety coupling where the transmission component is fitted between two friction rings and slides when the calibrated torque is reached. The minimum required to have a low cost protection.

Torque max 23000 Nm - Max bore ø140 mm.

ECONOMIC BALLS TORQUE LIMITER "EDF"



Safety coupling with simple and compact balls inserted directly in the drive element of transmission. The disengagement occurs quickly and safely if the calibrated torque is exceeded.

Torque max 1450 Nm - Max bore ø55 mm.

ROLLERS TORQUE LIMITER "DSR"



A Roller safety coupling that allows a complete disengagement when the calibrated torque is reached. Suitable for transmitting high torque with high reliability and small size.

Torque max 12000 Nm - Max bore ø120 mm.

BACKLASH FREE TORQUE LIMITER "DSS/SG"



Ball safety coupling with high technology and backlash free transmission. Device with high sensitivity of intervention, instant and precise disconnection.

Torque max 1200 Nm - Max bore ø65 mm.

FREE ROTATION TORQUE LIMITER "DSS/SG/RF"



Backlash free Safety coupling suitable for high speeds, with free rotation without residual torque after disengagement that occurs precisely and immediately. The re-engagement is manual.

Torque max 1200 Nm - Max bore ø65 mm.

MODULAR TORQUE LIMITER "DSM"



Modular Safety coupling, robust, suitable for "heavy industries" even at high speeds. After disconnection there is free rotation without residual torque, re-engagement is simple and manual.

Torque max 9000 Nm - Max bore ø140 mm.

TORQUE LIMITER FOR REDUCERS "PR"



Safety coupling to be mounted between the motor and gear unit thus reducing significantly the size of the device at the same power output.

Available in both slip release versions.

Torque max 2600 Nm - Max bore ø55 mm.

AXIAL FORCE LIMITER "DSA"



Safety coupling with linear limitation of force. The axial disengagement can take place in both compression and tension once the calibrated force is reached, the re-engagement is automatic.

Force max 4700 N - Max shaft ø20 mm.

PNEUMATIC CLUTCHES "AP"



Clutch or roller with torque control during motion and low residual torque after disengagement.

Ability to disconnect the driven portion from the driving through pneumatic control.

Torque max 30000 Nm - Max bore ø120 mm.

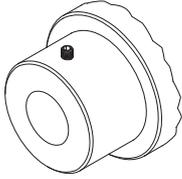
TORQUE LIMITERS (SAFETY COUPLINGS) - CLUTCHES: introduction

SELECTION GUIDE

									
	DF page 7	EDF page 17	DSR page 21	DSS/SG page 31	DSS/SG/RF page 43	DSM page 49	PR page 55	DSA page 61	AP page 65
TECHNICAL CHARACTERISTICS									
⊙ Manufactured in turned steel	■	■	■	■	■	■	■	■	■
⊙ Anticorrosive treatment std. phosphate	■	■	■	■	■	■	■	■	■
⊙ Compact size	■	■		■	■	■	■		
⊙ High torque possible			■			■			■
⊙ Maintenance-free		■	■	■	■	■	■	■	
⊙ High torsional stiffness				■	■				
⊙ Modular system						■			
⊙ Reduced inertia				■	■		■		
⊙ Noise during transmission	■								
⊙ Suitable for high speeds				■	■	■	■		■
⊙ Suitable for dusty environments	■								
⊙ Suitable for wet and oily		■	■	■	■	■	■	■	
⊙ Assembly with flexible couplings - rigid coupling possible	■	■	■	■	■	■	■		■
ADVANTAGES AND BENEFITS									
⊙ Protect the gear motor from jamming due to foreign bodies	■	■	■	■		■	■		■
⊙ Absorb starting torques without disconnecting the transmission	■								
⊙ Protect the film of the packaging in case of excessive traction	■								■
⊙ Protect slides or servomotors from impact or limit		■		■			■	■	
⊙ Keep the phases between the driving and driven after an overload			■	■					
⊙ Protect the final product from crushing or deformation	■	■	■	■		■	■	■	■
⊙ Protect indexers overload long transmission				■					
⊙ Where it is necessary to complete the transmission disconnect					■	■			■
⊙ Best simplicity and sensitivity compared to integrated solutions in gear box	■			■			■		
⊙ Protect the operating units of the machine tool from collisions				■					
⊙ Protecting mechanical devices during transmission at high speeds of rotation					■	■			
⊙ Engage / disengage different lines of transmission of the product									■
⊙ Greater durability of all the devices, thanks to the free rotation					■	■			
⊙ Protect axial movers within the transmission from overload								■	
APPLICATIONS									
⊙ Conveyors	■	■	■	■			■		
⊙ Extruders and laminators					■	■			
⊙ Heavy Industry	■		■			■			
⊙ Packaging machinery and equipment			■	■			■		
⊙ Labelling				■					
⊙ Conveyors		■	■						
⊙ Machine tools and CNC				■					
⊙ Servo motors and linear guides				■					
⊙ Machines with cycle variable torque									■
⊙ Agricultural machinery and earthmoving	■		■						
⊙ Winding and unwinding of coils									■
⊙ Test benches					■				■
⊙ Automotive	■			■					
⊙ Handling and eccentric cams								■	

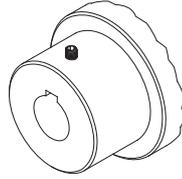
TORQUE LIMITERS (SAFETY COUPLINGS) - CLUTCHES: hub connection type on couplings application

Type **A** Plain bored H7 hub with set screw.



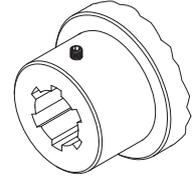
An economic and quick solution for low torque.

Type **A1** H7 bore with keyway and set screw.



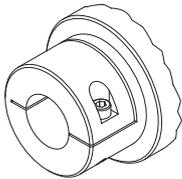
Standard solution on the hubs shown in the catalogue for horizontal assembling.

Type **A2** Splined bore with set screw.



Recommended solution in the case of hard transmission.

Type **B** Single split clamp hub with plain H7 bore.



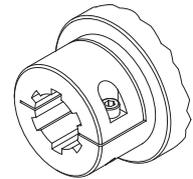
Reduction of angular backlash without change to the overall dimensions.

Type **B1** Single split clamp hub with H7 bore and keyway.



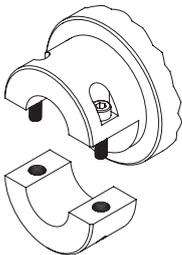
Reduction of angular backlash, during reversing drives, and high torques.

Type **B2** Single split clamp hub with splined bore.



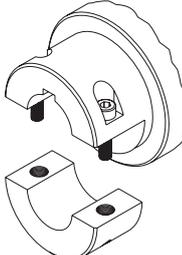
Reduction of angular backlash in the case of hard transmission.

Type **C** Two piece clamp hub with plain H7 bore.



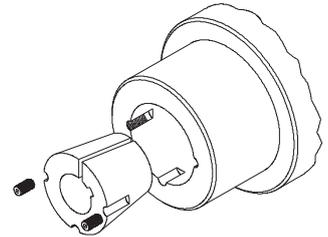
Reduction of angular backlash, and simple radial assembly/disassembly.

Type **C1** Two piece clamp hub with H7 bore and keyway.



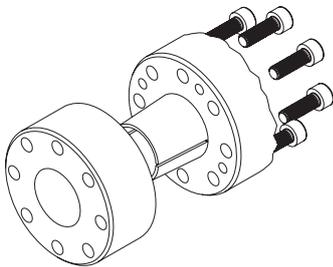
Simple assembly and reduction angular backlash, even with high torque.

Type **G** Clamp connection with internal Taper Bush.



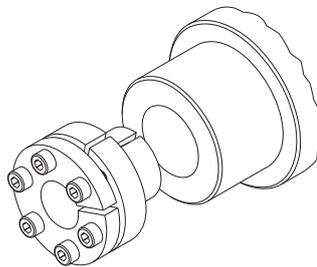
Flexibility of fitting for conical bushing without angular backlash.

Type **D** Clamp connection with integrated locking assembly.



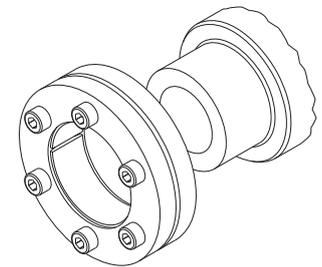
Suitable for high speeds without change to standard dimensions (.../CCE version).

Type **E** Clamp connection with internal locking assembly.

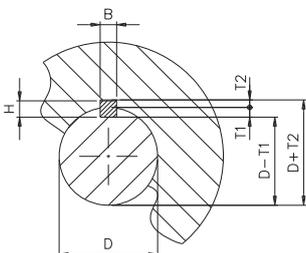


Reduction of angular backlash and reduced radial dimensions.

Type **F** Clamp connection with external locking assembly.



Fast and economic solution to transmit low torque.



Bore and Keyways according to UNI 6604 (DIN 6885-1)

D	>10 12	>12 17	<17 22	>22 30	>30 38	>38 44	>44 50	>50 58	>58 65	>65 75	>75 85	>85 95	>95 110	>110 130	>130 150	>150 170	>170 200
B H9	4	5	6	8	10	12	14	16	18	20	22	25	28	32	36	40	45
H	4	5	6	7	8	8	9	10	11	12	14	14	16	18	20	22	25
T1	2,5	3	3,5	4	5	5	5,5	6	7	7,5	9	9	10	11	12	13	15
T2	1,8	2,3	2,8	3,3	3,3	3,3	3,8	4,3	4,4	4,9	5,4	5,4	6,4	7,4	8,4	9,4	10,4
		+0,1 0								+0,2 0							+0,3 0

TORQUE LIMITERS (SAFETY COUPLINGS) - CLUTCHES: hub connection type on couplings application

HUB CONNECTIONS														
	.../TAC page 11	+GAS page 12	+GEC page 12	.../TAC page 20	+GTR page 27	+GAS page 27	+GEC page 28	+GAS/SG/ CCE page 38	+GAS/SG page 39	+GSF page 40	+GAS/SG page 47	+GAS page 52	+GTR page 52	+GEC page 68
● Pilot bore	●	●	●	●	●	●	●	●	×	○	●	●	●	●
▲ Type A	▲	▲	▲	▲	▲	▲	▲	▲	×	×	▲	▲	▲	▲
● Type A1	●	●	●	●	●	●	●	●	×	×	●	●	●	○
▲ Type A2	▲	▲	▲	▲	▲	▲	▲	▲	×	×	▲	▲	▲	▲
● Type B	▲	○	▲	▲	○	○	▲	○	×	●	○	×	×	▲
● Type B1	▲	▲	▲	▲	▲	▲	▲	▲	×	▲	▲	×	×	▲
● Type B2	▲	▲	▲	▲	▲	▲	▲	▲	×	×	▲	×	×	▲
● Type C	▲	▲	▲	▲	▲	▲	▲	▲	×	×	▲	×	×	▲
● Type C1	▲	▲	▲	▲	▲	▲	▲	▲	×	×	▲	×	×	▲
● Type G	▲	▲	▲	▲	▲	▲	▲	▲	×	×	▲	▲	▲	▲
● Type D	×	×	×	×	▲	×	×	●	●	×	×	×	●	●
● Type E	▲	▲	▲	▲	▲	▲	▲	▲	×	×	▲	▲	▲	▲
● Type F	▲	▲	▲	▲	▲	▲	▲	▲	×	×	▲	▲	▲	▲

Symbol	Description	Notes
●	Standard supply	<ul style="list-style-type: none"> All types of hub connections are carried out only on the finished bore. For the supply or feasibility of other types of hub locking and combinations please contact our technical department.
○	Optional standard supply	
▲	Supplied on request	
×	Not supplied	

TORQUE LIMITERS (SAFETY COUPLINGS) - CLUTCHES: selection and assembly

SUMMARY CHARACTERISTICS

Model	Function	Torque	Max bore	Speed	Main characteristics	Sensitivity
DF	friction	1 ÷ 23000	140	medium - low	economic solution	medium - low
EDF/F	mechanical	7,5 ÷ 1450	55	medium - low	compact solution with balls in phase	medium - high
DSR	mechanical	10 ÷ 12000	120	medium - low	with rollers in phase or equidistant	medium - high
DSS/SG	mechanical	0,8 ÷ 1200	50	medium - high	backlash free with balls in phase or equidistant	high
DSR/SG/RF	mechanical	10 ÷ 1200	65	medium - high	backlash free rotation	medium - high
DSM	mechanical	200 ÷ 9000	140	high	free rotation for high speed	medium - high
DSS/F/SG/PR-V	mechanical	3 ÷ 720	48	medium - high	compact solution for gearbox	medium - high
DF/TAC/PR-V	friction	1 ÷ 2600	55	medium - low	economic and compact solution for gearbox	medium - low
DSA	mechanical	30 ÷ 4700 N	-	medium	axial limitation	medium - high
DSR/F/AP	pneumatic	7 ÷ 30000	120	high	mechanical roller clutch	high
DSF/TF/AP	pneumatic	3 ÷ 875	65	medium - high	friction clutch	medium

ASSEMBLY EXAMPLES

FRICTION TORQUE LIMITERS



Transmission with parallel shafts



Transmission with in-line shafts

BALLS OR ROLLERS TORQUE LIMITERS



Transmission with parallel shafts



Transmission with in-line shafts

ECONOMIC BALL TORQUE LIMITER

(SAFETY COUPLINGS)

Up to 1.450 Nm of torque and 55 mm bore

EDF



ComInTec[®]
Technology for Safety

EDF/F - economic ball torque limiter: introduction



- ⦿ Reduced torsional backlash by ball drive.
 - ⦿ Maintenance free for long lasting, high reliability.
 - ⦿ Version with 360° phase re-engagement available.
 - ⦿ Model available only with plate wheel or other transmission component.
 - ⦿ Innovative calibration system by “H dimension” for an immediate calibration of the device.
 - ⦿ Possibility of combining a microswitch / proximity to stop the drive.
 - ⦿ Suitable for use in damp and oily environments.
- ON REQUEST
- ⦿ Complete with drive component or personalized plate wheel.
 - ⦿ Possibility of connections with locking assembly or other types of locking.
 - ⦿ Possibility of surface treatments for corrosion-specific needs.
 - ⦿ Personalized version with re-engagement in phase at 30°, 45°, 60°, 90°..

Safety coupling with the transmission of motion by means of hardened balls inserted directly in the drive element, obtaining a simple, compact and competitive device. The disengagement occurs quickly and safely allowing the stop of the transmission if the calibrated torque is exceeded.

	EDF/F: basic model for drive with platewheel or pulley, with parallel shafts	from 7,5 to 1450 Nm 55 mm max. bore	Page 19
	EDF/F/TAC: in-line shaft connection, simple and economic	from 7,5 to 1450 Nm 80 mm max. bore	Page 20

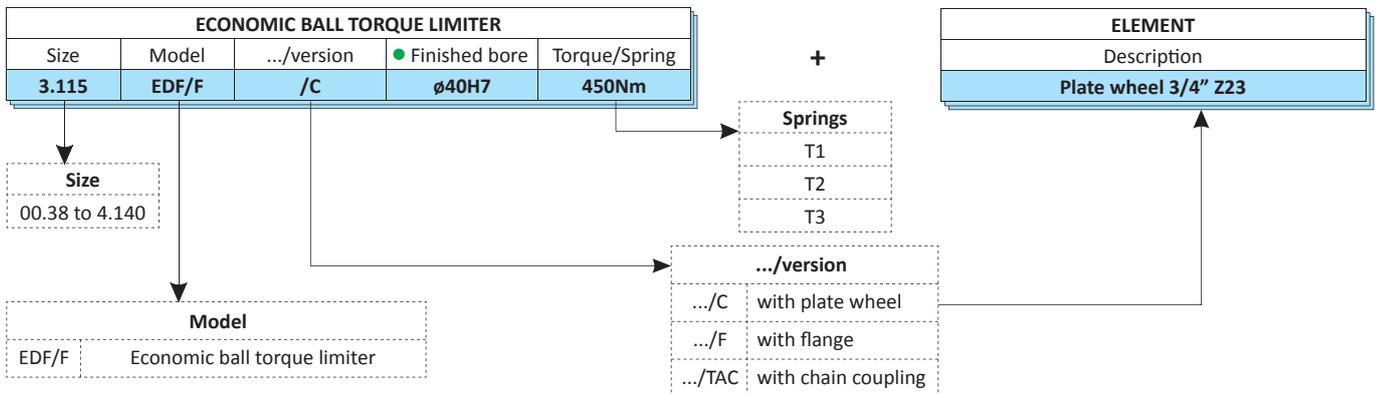
MAIN APPLICATION

- ⦿ Filling machines.
- ⦿ Metal chip conveyors.
- ⦿ Automatic conveyor belts.
- ⦿ Winches.

ADVANTAGES AND BENEFITS

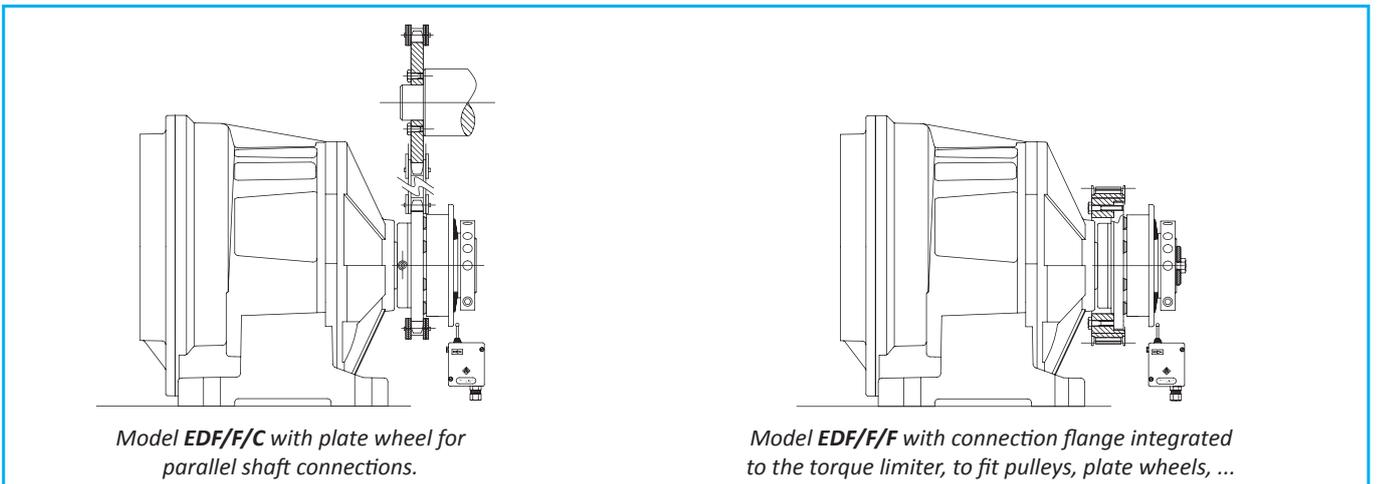
- ⦿ Protects the product from damage or wrong positioning.
- ⦿ Protect the gear motor from accidental product collisions.
- ⦿ Protect the drive against bumps or limit.
- ⦿ Protects conveyor belts in case of product collisions.

ORDER EXAMPLE



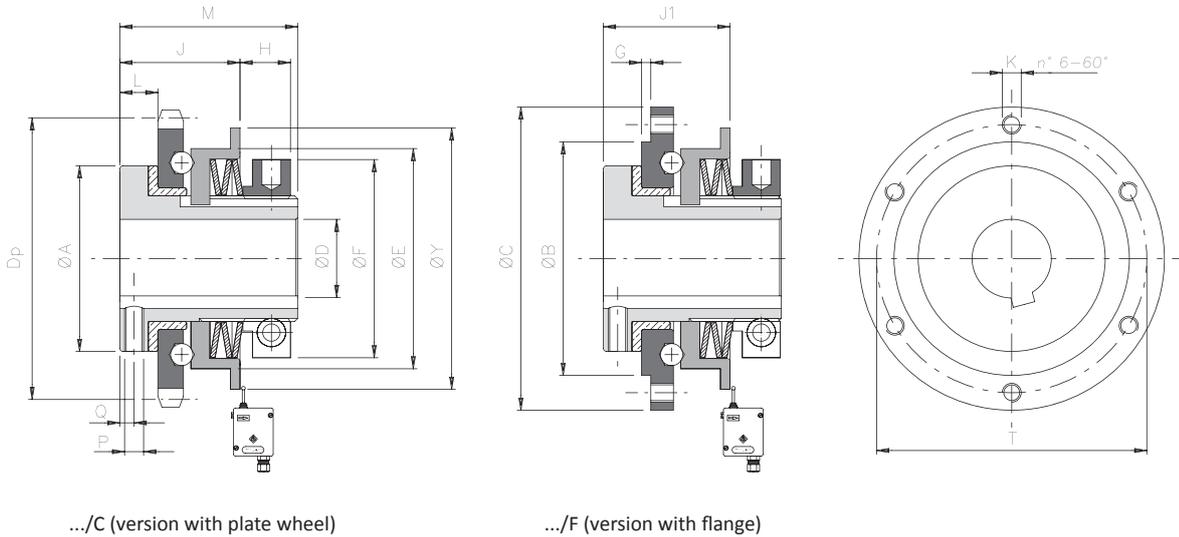
● If the version EDF/F/TAC state both finished bores (on the limiter and pinion TAC).
Torque limiter available only with finished bore.

APPLICATION EXAMPLE



EDF/F - economic ball torque limiter: technical data

- Mounting of the drive organ within the device similar to the friction series.
- Automatic re-engagement after the restoration of transmission.
- Available with radial ring statically balanced
- Model with flange for custom links: EDF/F/F.
- Model available only with finished bore.
- Torque range from 7.5 to 1.450 Nm; max. bore $\varnothing 55$ mm.



DIMENSIONS

Size	A	B h7	C	D H7		E	F	G	J1	K	L	M	P	Q	T	Y	Standard platewheel		
				pilot bore	max												lead	Dp	J
00.38	30	35	52	-	12	38	35	1	21	M4	6	33	M3	2	44	48	3/8" Z16	48,82	20,5
0.50	40	50	68	-	20	50	42	1,5	26	M5	8	42	M4	3	58	63	3/8" Z20	60,89	24,5
1.70	59	65	90	-	25	70	63	2	36	M5	11	55	M6	4	80	83	1/2" Z22	89,24	34
2.90	72	85	112	-	38	90	82	2	40	M6	12	61	M6	4,5	100	103	3/4" Z18	109,71	40
3.115	89	110	140	18	45	115	104	2	51	M8	14	71	M6	5,5	125	128	1" Z17	138,22	53
4.140	104	135	174	24	55	140	128	2	57,5	M10	15	86	M8	5,5	155	153	1" Z20	162,38	58,5

TECHNICAL DETAILS

Size	Torque [Nm]			Inertia [kgm ²]		Max speed [Rpm]	Weight [kg]	
	T1	T2	T3	Flange side	Nut side		EDF/F	EDF/F/F
00.38	7,5 - 15	14,5 - 30	-	0,000024	0,000032	1900	0,2	0,3
0.50	8 - 24	15 - 40	40 - 65	0,000076	0,000097	1400	0,5	0,7
1.70	12 - 37	30 - 68	53 - 120	0,000331	0,000562	1200	1,3	1,3
2.90	-	60 - 150	140 - 290	0,001001	0,001605	1000	2,4	2,5
3.115	-	145 - 385	215 - 580	0,003302	0,004868	800	4,1	4,1
4.140	-	-	550 - 1450	0,008578	0,012687	650	6,9	7,1

▲ On request

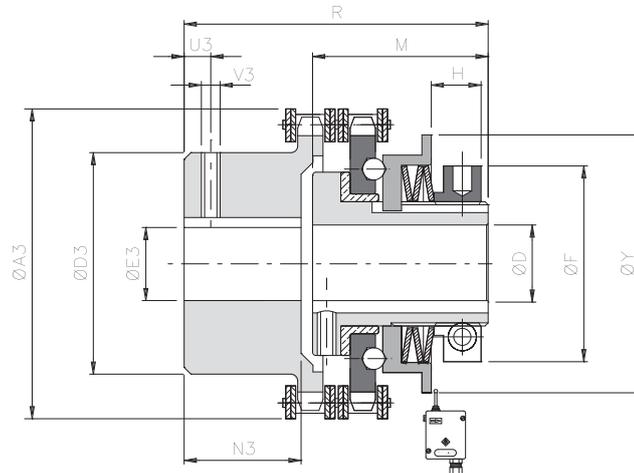
NOTES

- Weights are relevant to the torque limiter with pilot bore (EDF/F/TAC), inertias refer to the torque limiter (EDF/F/TAC) hole max.
- Microswitches EM1 or EM2 and inductive sensor PRX see page 73

.../TAC - version with chain coupling: technical data



- Simple and compact solution for transmission with in-line shafts.
- Automatic re-engagement after the restoration of transmission
- Model EDF/F available only with finished bore (dimension D) .
- Available with radial ring statically balanced
- Possibility of combining a microswitch / proximity to stop the drive.
- Torque range from 7.5 to 1.450 Nm; max. bore $\varnothing 80$ mm.



DIMENSIONS

Size	D H7		F	Y	M	R	A3	D3	E3 H7		N3	U3	V3
	pilot bore	max							pilot bore	max			
00.38	-	12	35	48	33	60	58	37	10	20	20	5	M3
0.50	-	20	42	63	42	67	75	50	12	28	19	8	M4
1.70	-	25	63	83	55	91	101	70	16	38	29	8	M4
2.90	-	38	82	103	61	107	126	89	20	55	38	12	M6
3.115	18	45	104	128	71	136	159	112	20	70	56,5	12	M6
4.140	24	55	128	153	86	156	184	130	28	80	59,5	15	M8

TECHNICAL DETAILS

Size	Torque [Nm]			Misalignments			Max speed [Rpm]	Weight [Kg]
	T1	T2	T3	Angular α [°]	Axial X [mm]	Radial K [mm]		
00.38	7,5 - 15	14,5 - 30	-	2°	1,50	0,20	1900	0,6
0.50	8 - 24	15 - 40	40 - 65		1,50	0,20	1400	1
1.70	12 - 37	30 - 68	53 - 120		2,40	0,25	1200	2,9
2.90	-	60 - 150	140 - 290		3,20	0,30	1000	6,1
3.115	-	145 - 385	215 - 580		4,50	0,35	800	9,5
4.140	-	-	550 - 1450		4,80	0,40	650	20

NOTES

▲ On request

- Weights are relevant to the whole group with pilot bore (EDF/F - EDF/F/TAC).
- Microswitches EM1 or EM2 and inductive sensor PRX see page 73