

TORQUE LIMITERS

Safety Couplings Overload Clutches

selection acc. your application

mounting a flange

- ECOL** with slide bearing + clamping hub
- ECB** parts are separately centered to the shaft
- ECE** axially short version

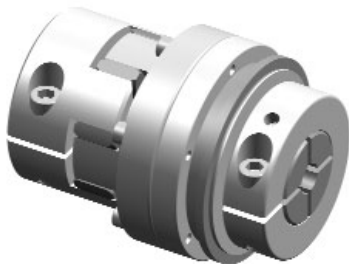
toothed belt drives

- ECP** ball bearing + clamping hub
- ECK** ball bearing + conical hub
- ECU** ball bearing + keyway
- ECA** ball bearing + conical hub
- ECI** with bearing for extra-wide pulleys



chain drives

- ECH** with integrated sprock
- ECG** with small bearing for drive elements



shaft- to shaft-connections

- ECPB** metal bellows + clamping hub
- ECKH** metal bellows + conical hub
- ECPD** elastomer + clamping hub
- ECUD** elastomer + keyway
- ECKE** elastomer + conical hub

stainless steel

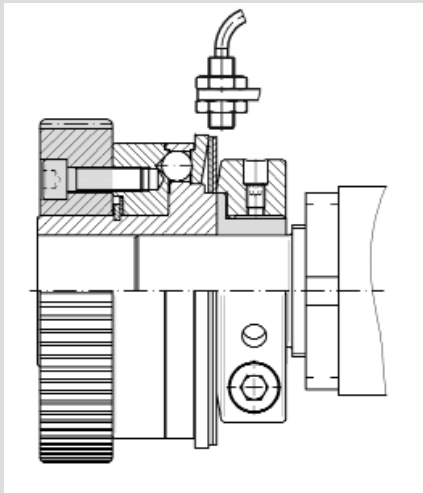
- ECR** all parts stainless steel

EDELSTAHL

ENEMAC Torque Limiters are the life insurance for your machines, no matter whether the error is due to incorrect operation, programming error, material overload or tool breakage. The couplings reduce expensive machine damages, repairs and down time by acting as torque limiters and overload protection, absolutely reliably. Our Torque Limiters are the result of decades of continuous research and development as well as the experience gained from thousands of different applications worldwide.

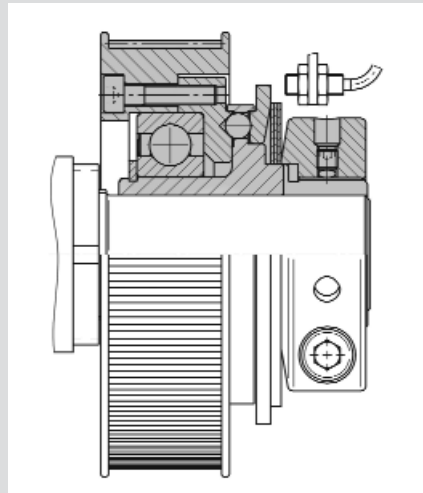
Torque Limiters for toothed belt and chain drives

type ECOL



- with slide, integrated bearing
- low cost standard version
- with radial clamping hub for simple installation
- with small centric diameter for attachment small size parts

type ECP

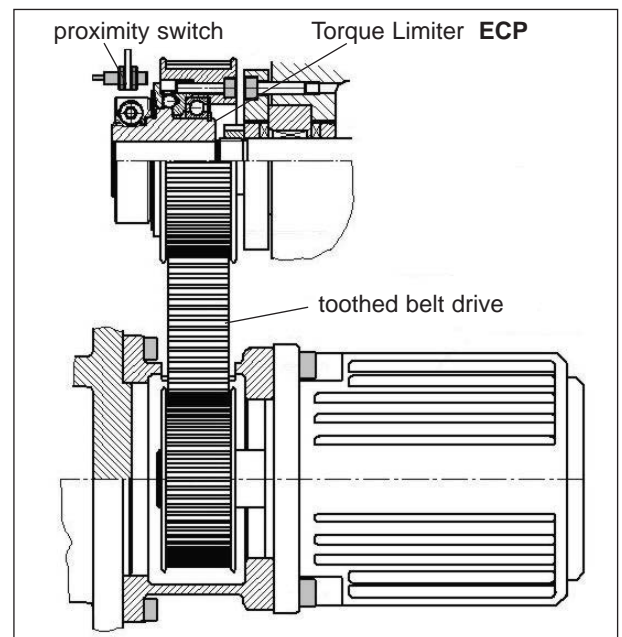


- with integral ball bearing
- with radial clamping hub for simple installation
- true-running accuracy
- for high radial and axial load
- for large shaft diameter



characteristics:

- optimum overload and crash protection
- backlash free torque transfer
- stepless disengagement torque adjustment
- fixed point reengagement (360° synchronised position)
- automatic re-engaging
- degressive spring characteristic
- excellent dynamic functional characteristics
- large selection of types (modular system)
- compensation of shaft misalignments
- integral fitting of pulleys



Torque Limiter type ECP

with integrated ball bearing
 simple installation with clamping hub
 for high radial load, compact performance

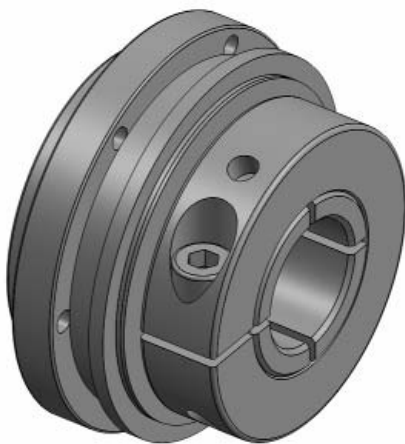
NEW!

technical data:

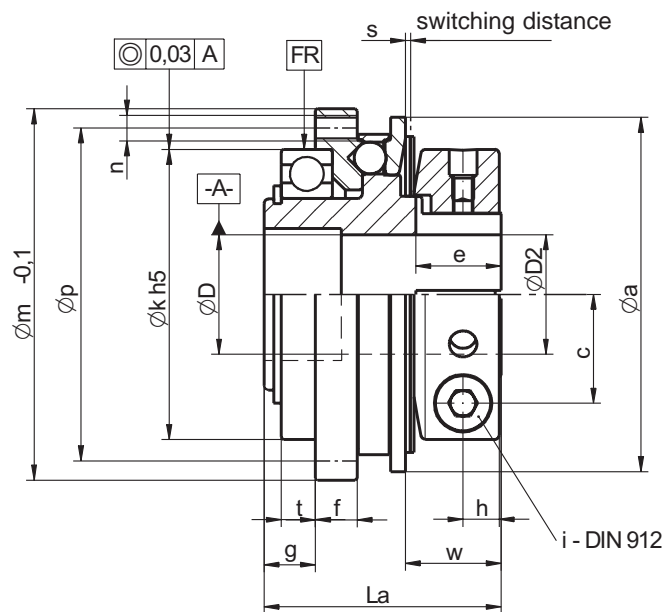
ECP	disengagement torque TA [Nm] <setting range>	moment of inertia [10 ⁻³ kgm ²]	mass approx. [kg]	tightening torque of screw "i" [Nm]	max. radial load FR [N]	bore diameters ØD		
						prebored	min	max
25 - 6	* 3,6 - 6	0,09	0,36	M 5 / 10	5.000	6	6 / 16	
25 - 12	7 - 12						8 / 16	
35 - 15	* 8 - 15	0,36	0,80	M 6 / 18	8.000	10	10 / 25,4	
35 - 30	13 - 30						12 / 25,4	
35 - 45	22 - 45	1,10	1,50	M 8 / 40	9.500	17	4 / 25,4	
46 - 60	* 25 - 60						18 / 35	
46 - 100	40 - 100	4,20	3,30	M 10 / 80	23.000	21	18 / 35	
46 - 150	60 - 150						24 / 35	
65 - 230	* 80 - 230	12,20	6,20	M 14 / 220	30.000	27	24 / 44	
65 - 330	130 - 330						32 / 44	
80 - 500	200 - 500	76	20	2x M 16 / 290	50.000	38	28 / 58	
80 - 800	350 - 800						40 / 58	
115 - 1000	500 - 1000	76	20	2x M 16 / 290	50.000	38	42 / 100	
115 - 2000	800 - 2000						48 / 100	
115 - 3000	1500 - 3000						60 / 100	

the disengagement torque TA is continuously adjustable, unless otherwise specified by the customer, TA is preset to TA max. !

* smaller torque range possible on request



material: heat-treated steel



dimensions: (mm) length dimensions according to DIN ISO 2768 mH

ECP	Øa (Øa*)	Øb	c	e	f	g	h	Øk h5	Øm	Øp	La	n	s	t	w
25 - 6/12	48 (42)	38,5	13,5	13	8	9,8	6	42	52	47	41	6xM3	0,9	7	15,8
35 - 15/30/45	66 (60)	53	19,5	15	9	11,5	7,5	55	69	62	48	6xM4	1,2	8	18,5
46 - 60/100/150	83 (76)	68	25,5	18,5	9	12	8,5	68	87	78	55,5	6xM6	1,6	8	22,4
65 - 230/330	109 (104)	87	32	21	14	16,5	10,5	90	113	102	71,5	6xM8	1,8	12	25,6
80 - 500/800	132 -	115	42	30	15	17	13,5	110	136	124	87,5	8xM8	2,5	12	37
115 - 1000-3000	185 -	172	69	76	16	28	17/30	140	181	165	142±2	12xM10	3,7	22,5	77

* note: smaller outer diameters of the switch plate are possible (see values in brackets)

ordering example: **ECP 35-30 D=24 H7 TA=25Nm**

Torque Limiter type ECK

with integrated ball bearing
 simple installation with conical hub
 for high radial load, compact performance

technical data:

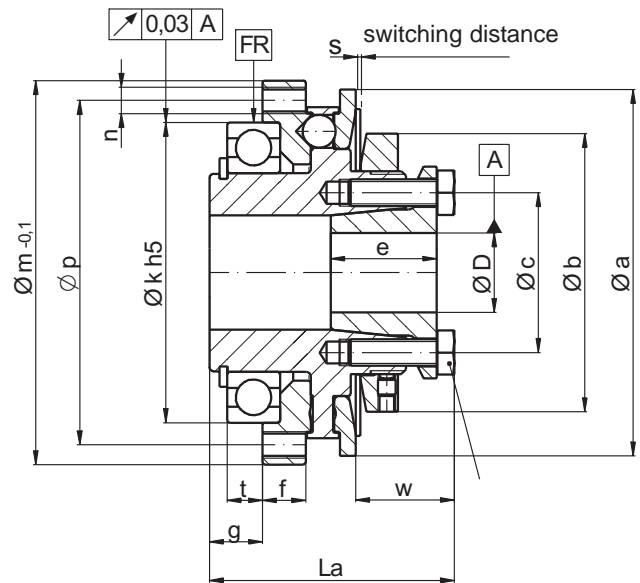
ECK	disengagement torque TA [Nm] < setting range >	moment of inertia [10 ⁻³ kgm ²]	mass approx. [kg]	tightening torque of screw 6x "i" - [Nm]	max. radial load FR [N]	bore diameters ØD		
						prebored	min	max
25 - 6	* 3,6 - 6						5	/ 12
25 - 12	7 - 12	0,08	0,3	M3 - ISO 4762 - [2]	5.000	-	5	/ 12
35 - 15	* 8 - 15						9	/ 17
35 - 30	13 - 30	0,31	0,65	M4 - ISO 4762 - [4]	8.000	8	9	/ 17
35 - 45	22 - 45						10	/ 17
46 - 60	* 25 - 60						12	/ 24
46 - 100	40 - 100	0,95	1,3	M6 - ISO 4017 - [14]	9.500	11	12	/ 24
46 - 150	60 - 150						14	/ 24
65 - 230	* 80 - 230						18	/ 35
65 - 330	130 - 330	3,8	2,9	M6 - ISO 4017 - [14]	23.000	17	22	/ 35
80 - 500	200 - 500						28	/ 44
80 - 800	350 - 800	10	5,1	M8 - ISO 4017 - [35]	30.000	25	30	/ 44
115 - 1000	500 - 1000						40	/ 62
115 - 2000	800 - 2000	53	14	M12 - ISO 4017 - [115]	50.000	38	42	/ 62
115 - 3000	1500 - 3000						48	/ 62

the disengagement torque TA is continuously adjustable, unless otherwise specified by the customer, TA is preset to TA max. !

* smaller torque range possible on request



material: heat-treated steel



dimensions: (mm) length dimensions according to DIN ISO 2768 mH

ECK	Øa (Øa*)	Øb	Øc	e	f	g	Øk h5	Øm	Øp	La	n	s	t	w
25 - 6/12	48 (42)	33	19	15	8	9,8	42	52	47	39	6xM3	0,9	7	13,8
35 - 15/30/45	66 (60)	45	27	18	9	11,5	55	69	62	47,5	6xM4	1,2	8	18,1
46 - 60/100/150	83 (76)	63	36	24	9	12	68	87	78	55,5	6xM6	1,6	8	22,4
65 - 230/330	109 (104)	84	50	27	14	16,5	90	113	102	70	6xM8	1,8	12	24
80 - 500/800	132	-	105	62	32	15	110	136	124	84	8xM8	2,5	12	33,4
115 - 1000-3000	185	-	168	90	45	16	140	181	165	130	12xM10	3,7	22,5	64,5

* note: smaller outer diameters of the switch plate are possible (see values in brackets)

ordering example: **ECK 35-30 D=24 H7 TA=25Nm**

Torque Limiter type ECU

with integrated ball bearing
 simple installation with keyway
 for high radial load, compact performance

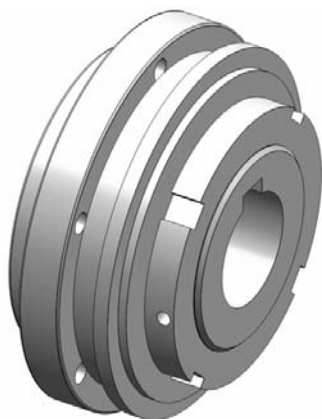


technical data:

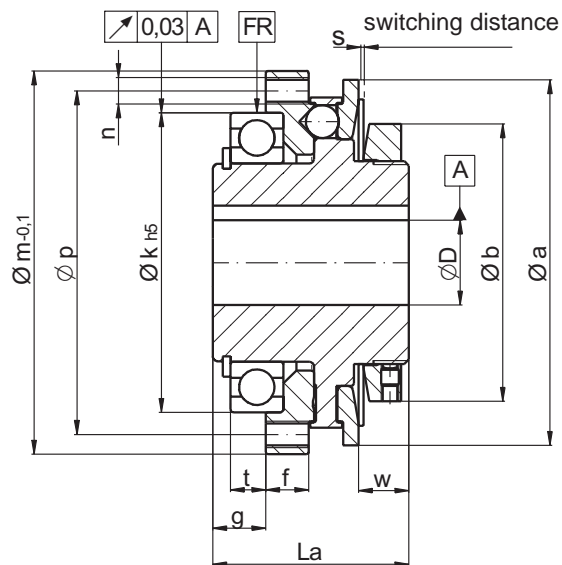
ECU	disengagement torque TA [Nm] < setting range >	moment of inertia [10 ⁻³ kgm ²]	mass approx. [kg]	max. radial load FR [N]	bore diameters ØD	
					min	max
25 - 6	* 3,6 - 6	0,08	0,28	5.000	6	13
25 - 12	7 - 12				6	13
35 - 15	* 8 - 15	0,3	0,63	8.000	8	22
35 - 30	13 - 30				10	22
35 - 45	22 - 45				10	22
46 - 60	* 25 - 60	0,91	1,25	9.500	11	34
46 - 100	40 - 100				13	34
46 - 150	60 - 150				16	34
65 - 230	* 80 - 230	3,7	2,8	23.000	18	38
65 - 330	130 - 330				21	38
80 - 500	200 - 500	9,25	4,8	30.000	26	55
80 - 800	350 - 800				38	55
115 - 1000	500 - 1000	52	15,5	50.000	39	90
115 - 2000	800 - 2000				52	90
115 - 3000	1500 - 3000				66	90

the disengagement torque TA is continuously adjustable, unless otherwise specified by the customer, TA is preset to TA max. !

* smaller torque range possible on request



material: heat-treated steel



dimensions: (mm) length dimensions according to DIN ISO 2768 mH

ECU	Øa	(Øa*)	Øb	f	g	Øk h5	Øm	Øp	La	n	s	t	w
25 - 6/12	48	(42)	33	8,5	9,8	42	52	47	31	6xM3	0,9	7	5,8
35 - 15/30/45	66	(60)	45	9,3	11,5	55	69	62	38	6xM4	1,2	8	8,6
46 - 60/100/150	83	(76)	63	9,8	12	68	87	78	44,5	6xM6	1,6	8	11,4
65 - 230/330	109	(104)	84	14,8	16,5	90	113	102	59,5	6xM8	1,8	12	13,7
80 - 500/800	132	-	105	15,7	17	110	136	124	68,5	8xM8	2,5	12	18,1
115 - 1000-3000	185	-	168	19	28	140	181	165	106	12xM10	3,7	22,5	40,4

* note: smaller outer diameters of the switch plate are possible (see values in brackets)

ordering example: ECU 35-30

D = 22 H7 with keyway 6 P9

TA = 25Nm

Torque Limiter type ECOL

with radial clamping hub for simple installation

with longer bearing journal for integrated slide bearing

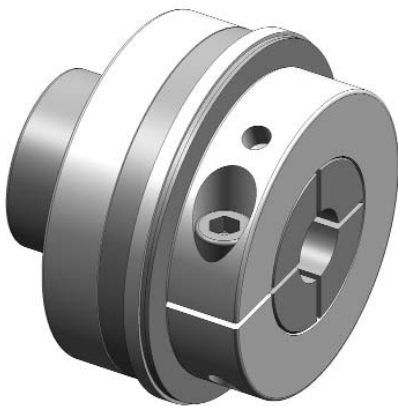
with small centric diameter for attachment of small size pulleys, gear wheels, sprockets

technical data:

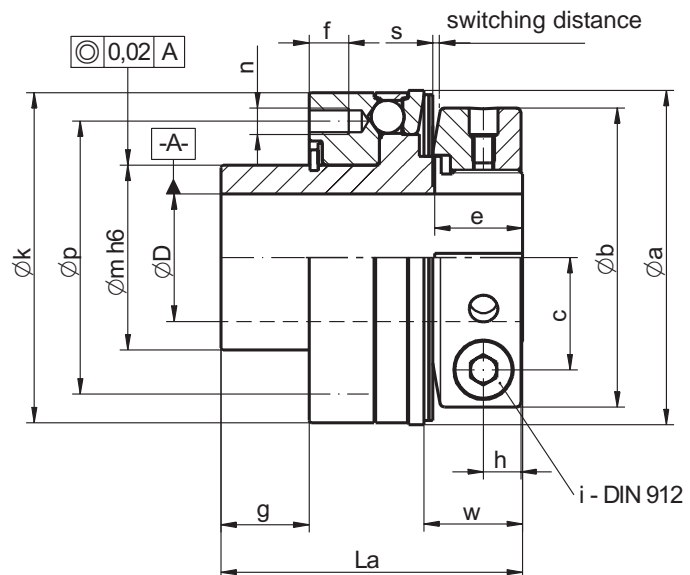
ECOL	disengagement torque TA [Nm] < setting range >	moment of inertia [10 ⁻³ kgm ²]	mass approx. [kg]	tightening torque of screw "i" [Nm]	prebored	bore diameters ØD	
						min.	max
25 - 6	* 3,6 - 6	0,05	0,25	M 5 / 10	6	6	16
25 - 12	7 - 12					8	16
35 - 15	* 8 - 15	0,25	0,65	M 6 / 18	10	10	25,4
35 - 30	13 - 30					12	25,4
35 - 45	22 - 45					14	25,4
46 - 60	25 - 60	0,95	1,5	M 8 / 40	17	18	35
46 - 100	40 - 100					18	35
46 - 150	60 - 150					24	35
65 - 230	80 - 230	3,34	3	M 10 / 80	21	24	42
65 - 330	130 - 330					32	42
80 - 500	200 - 500	10,70	6	M 14 / 220	27	28	58
80 - 800	350 - 800					40	58

the disengagement torque TA is continuously adjustable, unless otherwise specified by the customer, TA is preset to TA max. !

* smaller torque range possible on request



material: heat treated steel



dimensions: (mm) length dimensions according to DIN ISO 2768 mH

ECOL	Øa (Øa*)	Øb	c	e	f	g**	h	Øk	Øm _{h6}	Øp	La	6xn	s	w
25 - 6/12	42 (48)	38,5	13,5	13	5	10	6	40	20	32	46	M3	0,9	15,8
35 - 15/30/45	60 (66)	53	19,5	15	7	15	7,5	58	30	46	52	M4	1,2	18,6
46 - 60/100/150	76 (83)	68	25,5	18,5	9	20	8,5	75	42	62	69	M6	1,6	22,4
65 - 230/330	104 (109)	87	32	21	12	25	10,5	98	50	74	84	M8	1,8	26,7
80 - 500/800	132 -	115	42	30	14	30	13,5	120	65	92	104	M10	2,5	37

* note: bigger outer diameters of the switch plate are available if required

** alternative bearing length are possible on request

ordering example: **ECOL 46-150 - D=28 H7 - TA=120 Nm**

Torque Limiter type ECPB

for shaft- to shaft-connections, with bellow attachment
with radial clamping hub on both sides, simple installation
compensation of misalignments, low restoring forces

NEW!

technical data:

ECPB	disengagement torque TA [Nm] < setting range >	moment of inertia of inertia [10 ⁻³ kgm ²]	mass approx. [kg]	torsional stiffness [Nm/arcmin]	max. shaft displacement [mm]		tightening torque of screws		Ø D1		Ø D2	
					axial ± lateral		"f" [Nm]	"i" [Nm]	min	max	min	max
25 - 6	* 3,6 - 6	0,13	0,45	2,6	0,4	0,15	M 5 [7]	M 5 [10]	6 / 21	6 / 16	8 / 21	8 / 16
25 - 12	7 - 12											
35 - 15	* 8 - 15	0,5	1,0	9	0,5	0,2	M 6 [14]	M 6 [18]	9 / 30	10 / 25,4	12 / 30	12 / 25,4
35 - 30	13 - 30											
35 - 45	22 - 45											
46 - 60	25 - 60	1,5	1,9	20	0,6	0,2	M 8 [35]	M 8 [40]	15 / 38	18 / 35	20 / 38	18 / 35
46 - 100	40 - 100											
46 - 150	60 - 150											
65 - 230	80 - 230											
65 - 330	130 - 330	5,5	3,8	28	0,8	0,2	M 10 [65]	M 10 [80]	25 / 43	24 / 44	32 / 43	32 / 44
80 - 500	200 - 500	14,0	6,8	52	0,8	0,2	M 12 [115]	M 14 [220]	35 / 55	28 / 58	42 / 70	40 / 58
80 - 800	350 - 800	16,0	7,2	106	0,7	0,2	M 14 [200]	M 14 [220]	42 / 70	40 / 58	40 / 75	42 / 100
115 - 1000	500 - 1000	80	21,5	80	1	0,3	M 14 [185]	2xM16 [290]	40 / 75	42 / 100	45 / 85	45 / 100
115 - 2000	800 - 2000	90	22,5	140	1	0,3	M 16 [290]	2xM16 [290]	45 / 85	45 / 100	60 / 88	60 / 100
115 - 3000	1500 - 3000	111	30	280	1,3	0,2	4xM16 [290]	2xM16 [290]	60 / 88	60 / 100		

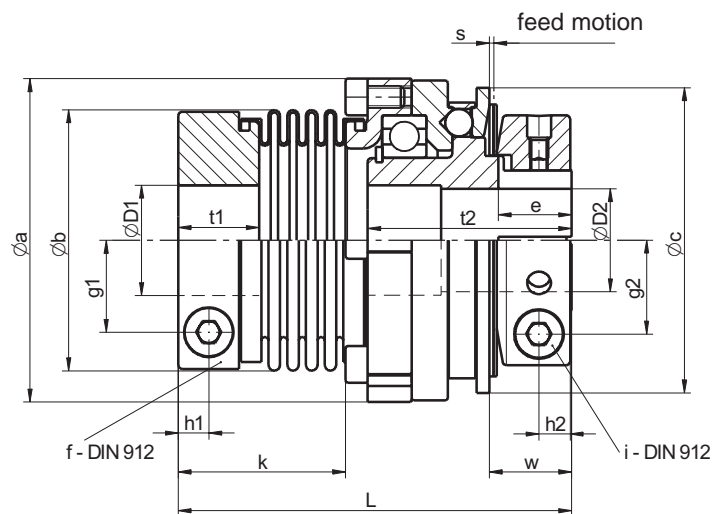
the disengagement torque TA is continuously adjustable, unless otherwise specified by the customer, TA is preset to TA max. !

* smaller torque range possible on request



material:

- safety part: heat treated steel
- clamping hub: high tensile aluminium
- bellows: stainless steel
- screws: nickel plated



dimensions: (mm) length according to DIN ISO 2768 mH

ECPB	Ø a	Ø b	Ø c	e	g1	g2	h1	h2	k*	L±1	s	t1	t2	w
25 - 6/12	52,5	44,5	48	14	13	13,5	6	6	36,6	81	0,9	16,5	41	16
35 - 15/30/45	69	56	66	16	19	19,5	7,5	7,5	43	94,5	1,2	20	48	18,5
46 - 60/100/150	88	71	83	20	25	25,5	8,5	8,5	45,5	107	1,6	22	55,5	22
65 - 230/330	115	82	109	23	28,5	32	10,5	10,5	52	132	1,8	26	72	26
80 - 500	137	101	132	32	35	42	12	13,5	56,5	152,5	2,5	29	87,5	37
80 - 800	137	122	132	32	45,5	42	13,5	13,5	72,5	169	2,5	30	87,5	37
115 - 1000	181	133	185	74	47	69	18,5	17/30	103,5	236±2	3,7	45	124	74
115 - 2000	181	157	185	74	54	69	19	17/30	105,5	239±2	3,7	45	124	74
115 - 3000	181	157	185	74	54	69	18/30	17/30	128	263±2	3,7	64	124	77

* note: alternative length of bellows are possible on request

ordering example: **ECPB 35-30 D1 = 28 G7 D2 = 24 H7 TA = 25Nm**

Torque Limiter type ECKH

for shaft- to shaft-connections, with bellow attachment
with conical hub on both sides, simple installation
compensation of misalignments, low restoring forces

technical data:

ECKH	disengagement torque TA [Nm] < setting range >	moment of inertia [10 ⁻³ kgm ²]	mass approx. [kg]	torsional stiffness [Nm/arcmin]	max. shaft displacement [mm]		tightening torque of screws		Ø D1		Ø D2	
					axial ±	lateral	"f" [Nm]	"i" [Nm]	min	max	min	max
25 - 6	* 3,6 - 6	0,12	0,5	2,1	0,5	0,15	M 4 [3]	M 3 [2]	6 / 16	5 / 12	6 / 16	8 / 12
25 - 12	7 - 12											
35 - 15	* 8 - 15	0,44	0,98	9	0,5	0,2	M 4 [4]	M 4 [4]	9 / 19	9 / 17	9 / 19	9 / 17
35 - 30	13 - 30											
35 - 45	22 - 45											
46 - 60	* 25 - 60	1,4	1,9	20	0,6	0,2	M6 [14]	M 6 [14]	12 / 25	12 / 24	12 / 25	14 / 24
46 - 100	40 - 100											
46 - 150	60 - 150											
65 - 230	* 80 - 230	5,1	3,9	28	0,8	0,2	M6 [14]	M6 [14]	18 / 35	18 / 35	18 / 35	22 / 35
65 - 330	130 - 330											
80 - 500	200 - 500	12,5	6,7	52	0,8	0,2	M8 [34]	M8 [34]	28 / 42	28 / 42	28 / 42	28 / 42
80 - 800	350 - 800	14,6	7,7	106	0,7	0,2	M10 [65]	M8 [34]	30 / 48	30 / 44	30 / 48	30 / 44
115 - 1000	500 - 1000	58	16	80	1	0,3	M10 [65]	M12 [115]	40 / 60	40 / 62	40 / 60	40 / 62
115 - 2000	800 - 2000	69	18,5	140	1	0,3	M12 [115]	M12 [115]	42 / 70	42 / 62	42 / 70	42 / 62
115 - 3000	1500 - 3000	70,5	19	260	1,4	0,2	M12 [115]	M12 [115]	48 / 70	48 / 62	48 / 70	48 / 62

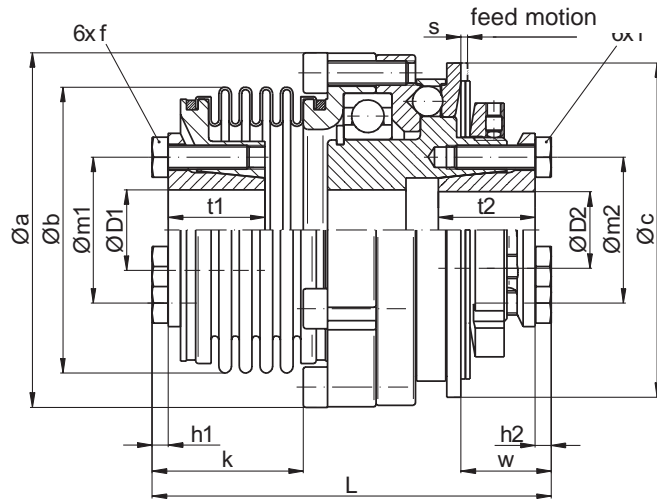
the disengagement torque TA is continuously adjustable, unless otherwise specified by the customer, TA is preset to TA max. !

* smaller torque range possible on request



material:

- safety part: heat treated steel
- clamping hub: high tensile aluminium
- bellows: stainless steel
- screws: nickel plated



dimensions: (mm) length dimensions according to DIN ISO 2768 mH

ECKH	Ø a	Ø b	Ø c	m1	m2	h1	h2	k*	L±1	s	t1	t2	w
25 - 6/12	52,5	39,5	48	27	19	4	3	37,5	80	0,9	19	15	14
35 - 15/30/45	69	56	66	30	27	2,8	4	34,8	86	1,2	18	18	18
46 - 60/100/150	88	71	83	36	36	4	4	37,5	99	1,6	24	24	22
65 - 230/330	115	82	109	50	50	4	4	40	117	1,8	27	27	24
80 - 500	137	101	132	62	62	5,3	5,3	45,8	138	2,5	32,5	32	33
80 - 800	137	122	132	70	62	6,4	5,3	60	152	2,5	36	32	33
115 - 1000	181	132	185	83	90	6,4	7,5	85	208	3,7	44	45	64
115 - 2000 / 3000	181	157	185	98	90	7,5	7,5	88,5	211	3,7	45	45	64

* note: alternative length of bellows are possible on request

ordering example: **ECKH 80-500 D1 = 38 H7 D2 = 32 H7 TA = 400Nm**

Torque Limiter type ECPD

NEW!

for shaft- to shaft-connections, with elastomer attachment
with radial clamping hub on both sides
plug in, backlash free, flexible, robust, oscillation dampening

technical data:

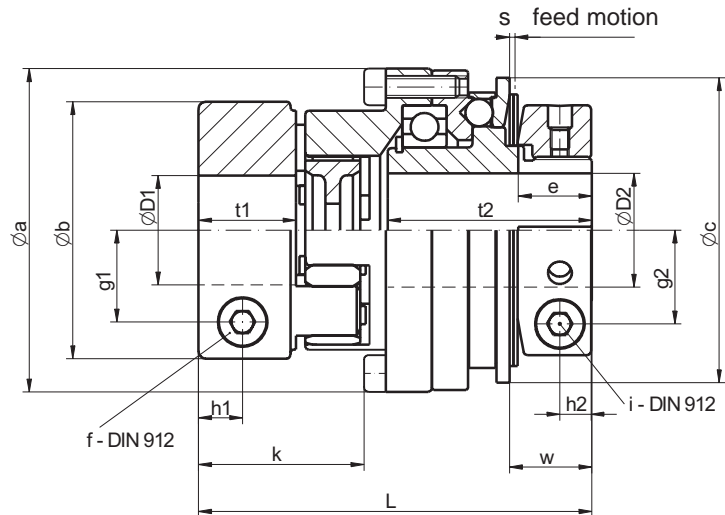
ECPD	disengagement torque TA [Nm] < setting range >	moment of inertia [10 ⁻³ kgm ²]	mass approx. [kg]	torsional stiffness [Nm/arcmin]	max. shaft displacement [mm]		tightening torque of screws		Ø D1		Ø D2	
					axial ±	lateral	"f" [Nm]	"i" [Nm]	min	max	min	max
25 - 6	* 3,6 - 6	0,13	0,44	0,24	0,5	0,1	M 5 [8]	M 5 [10]	8 / 20	6 / 16		
25 - 12	7 - 12								8 / 20	8 / 16		
35 - 15	* 8 - 15	0,5	1	0,61	0,5	0,1	M 6 [14]	M 6 [18]	12 / 32	10 / 25,4		
35 - 30	13 - 30								12 / 32	12 / 25,4		
35 - 45	22 - 45								14 / 32	14 / 25,4		
46 - 60	25 - 60	1,5	2	1,05	1	0,1	M 8 [35]	M 8 [40]	16 / 38	18 / 35		
46 - 100	40 - 100								19 / 38	18 / 35		
46 - 150	60 - 150								22 / 38	24 / 35		
65 - 230	80 - 230	5,6	4,2	2	1	0,12	M 12 [115]	M 10 [80]	24 / 43	24 / 42		
65 - 330	130 - 330								32 / 43	32 / 42		
80 - 500	200 - 500	17	8,6	8	1	0,15	M 14 [185]	M 14 [220]	30 / 70	28 / 58		
80 - 800	350 - 800								42 / 70	40 / 58		
115 - 1000	500 - 1000	79	19,5	12	1	0,1	M 14 [185]	M 16 [290]	48 / 70	42 / 100		

the disengagement torque TA is continuously adjustable, unless otherwise specified by the customer, TA is preset to TA max. !

* smaller torque range possible on request



- material:
- safety part: heat treated steel
 - clamping hub: high tensile aluminium
 - elastomer spider: polyurethane 98 shore-A
 - screws: nickel plated



dimensions: (mm) length imensions according to DIN ISO 2768 mH

ECPD	Ø a	Ø b	Ø c	e	g1	g2	h1	h2	k	L ±1	s	t1	t2	w
25 - 6/12	52,5	40	48	14	13	13,5	8	6	33	77	0,9	17	41	16
35 - 15/30/45	69	55	66	16	20	19,5	10	7,5	39	91,5	1,2	21	48	18,5
46 - 60/100/150	88	70	83	20	25	25,5	12	8,5	45	107	1,6	26,5	55,5	22
65 - 230/330	115	85	109	23	29	32	14	10,5	54	134	1,8	31	72	26,5
80 - 500/800	137	120	132	32	44	42	18	13,5	71	167,5	2,5	38	87,5	37
115 - 1000	181	120	185	74	44	69	18	17/30	72	204	3,7	38	89	74

note: other shore hardness of the elastomer spider are possible on request

ordering example: ECPD 35-45 D1 = 28 G7 D2 = 24 H7 TA = 35Nm

Torque Limiter type ECUD

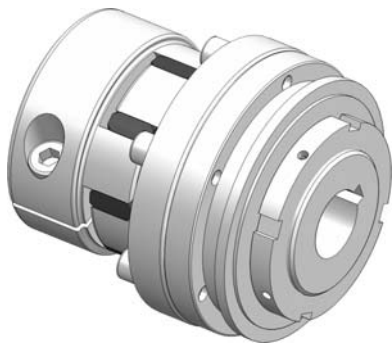
NEW!

for shaft- to shaft-connections, with elastomer attachment
with radial clamping hub on D1 and keyway on D2
plug in, backlash free, flexible, robust, oscillation dampening, compact

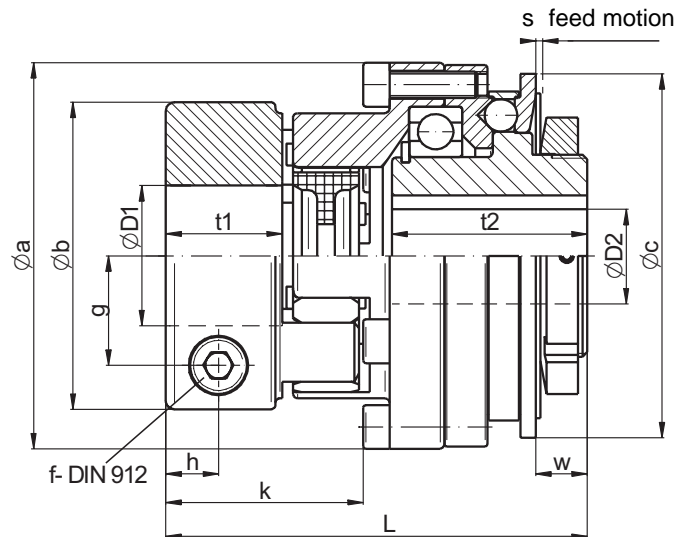
technical data:

ECUD	disengagement torque TA [Nm] <setting range>	moment of inertia [10 ⁻³ kgm ²]	mass approx [kg]	torsional stiffness [Nm/arcmin]	max. shaft displacement [mm]		tightening torque of screws f [Nm]	ØD1		ØD2	
					axial ±	lateral		min	max	min	max
25-6	*3,6 - 6	0,11	0,4	0,24	0,5	0,1	M 5 [8]	8 / 20	6 / 13		
25-12	7 - 12	0,11	0,4	0,24	0,5	0,1	M 5 [8]	8 / 20	6 / 13		
35-15	*8 - 15	0,44	0,9	0,6	0,5	0,1	M 6 [14]	12 / 32	8 / 22		
35-30	13 - 30	0,44	0,9	0,6	0,5	0,1	M 6 [14]	12 / 32	10 / 22		
35-45	22 - 45	0,44	0,9	0,6	0,5	0,1	M 6 [14]	14 / 32	10 / 22		
46-60	25 - 60	1,35	1,7	1,05	1	0,1	M 8 [35]	16 / 38	11 / 34		
46-100	40 - 100	1,35	1,7	1,05	1	0,1	M 8 [35]	19 / 38	13 / 34		
46-150	60 - 150	1,35	1,7	1,05	1	0,1	M 8 [35]	22 / 38	16 / 34		
65-230	80 - 230	5,1	3,9	2	1	0,12	M 12 [115]	24 / 43	18 / 38		
65-330	130 - 330	5,1	3,9	2	1	0,12	M 12 [115]	32 / 43	21 / 38		
80-500	200 - 500	14,4	7	8	1	0,15	M 14 [185]	30 / 70	26 / 55		
80-800	350 - 800	14,4	7	8	1	0,15	M 14 [185]	42 / 70	38 / 55		
115-1000	500 - 1000	54	15,1	12	1	0,1	M 14 [185]	48 / 70	39 / 90		

the disengagement torque TA is continuously adjustable, unless otherwise specified by the customer, TA is preset to TA max. !
* smaller torque range possible on request



- material:
- safety part: heat treated steel
 - clamping hub: high tensile aluminium
 - elastomer spider: polyurethane 98 shore-A
 - screws: nickel plated



dimensions: (mm) length imensions according to DIN ISO 2768 mH

ECUD	Øa	Øb	Øc	g	h	k	L ±1	s	t1	t2	w
25-6/12	52,5	40	48	13	8	33	67	0,9	17	31	5,8
35-15/30/45	69	55	66	20	10	39	81,5	1,2	21	38	8,6
46-60/100/150	88	70	83	25	12	45	96	1,6	26,5	44,5	11,4
65-230/330	115	85	109	29	14	54	121	1,8	31	59,5	13,7
80-500/800	137	120	132	44	18	71	148,5	2,5	38	68,5	18,1
115-1000	181	120	185	44	18	72	170,5	3,7	38	90	40,4

note: other shore hardness of the elastomer spider are possible on request
the diameter "D1" are possible with keyway on request
axial fixing of safety part optional possible

ordering example: ECUD 46-60 D1 = 32 G7 D2 = 24 H7 with keyway 8P9x3,3 TA = 35Nm

Sicherheitskupplung Typ

Torque Limiter type

ECKE

für Welle- / Welle-Verbindungen, mit Elastomeranbau mit Konus, Elastomerkupplung mit Konus-Spannringnabe steckbar, spielfrei, flexibel, robust schwingungsdämpfend, kompakt

for shaft- to shaft-connections, with elastomer attachment with conical hub on both sides plug in, backlash free, flexible, robust oscillation dampening, compact

Technische Daten / technical data:

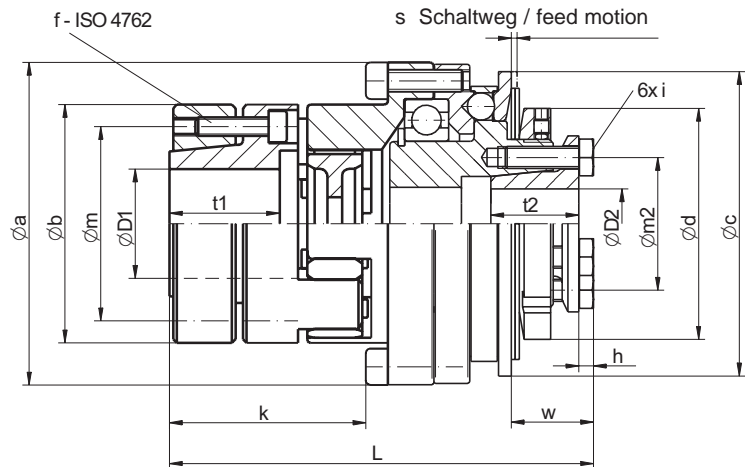
ECKE	Einstellbereich	Trägheitsmoment moment of inertia [10 ⁻³ kgm ²]	Masse ca. mass approx. [kg]	Torsionssteife torsional stiffness [Nm/arcmin]	max. Wellenversatz [mm]		Anzugsmoment der Klemmschrauben		ØD1 min max [mm]	ØD2 min max [mm]
	torque range				max. shaft displacement		tightening torque of screws			
	TA [Nm]				axial ±	lateral	f [Nm]	i [Nm]		
25-6	*3,6 - 6	0,13	0,5	0,24	0,5	0,1	6x M4 [4]	ISO4762/M3[2]	9 / 19	5 / 12
25-12	7 - 12	0,13	0,5	0,24	0,5	0,1			9 / 19	5 / 12
35-15	*8 - 15	0,5	1	0,6	0,5	0,1			12 / 26	9 / 17
35-30	13 - 30	0,5	1	0,6	0,5	0,1	4x M5 [8]	ISO4762/M4[4]	12 / 26	9 / 17
35-45	22 - 45	0,5	1	0,6	0,5	0,1			14 / 26	10 / 17
46-60	*25 - 60	1,4	1,9	1,05	1	0,1			12 / 36	12 / 24
46-100	40 - 100	1,4	1,9	1,05	1	0,1	8x M5 [8]	ISO4017/M6[18]	12 / 36	12 / 24
46-160	60 - 150	1,4	1,9	1,05	1	0,1			14 / 36	14 / 24
65-230	80 - 230	5,5	4,3	2	1	0,12	4x M8 [35]	ISO4017/M6[18]	19 / 40	18 / 35
65-330	130 - 330	5,5	4,3	2	2	0,12			19 / 40	22 / 35
80-500	200 - 500	18	8,8	8	1	0,15	4x M12[115]	ISO4017/M8[35]	25 / 60	28 / 44
80-800	350 - 800	18	8,8	8	1	0,15			25 / 60	30 / 44
115-1000	500 - 1000	57	16	12	1	0,1	4x M12[115]	ISO4017/M12[115]	48 / 60	40 / 62

das Ausrückmoment TA ist stufenlos einstellbar, falls nicht vom Besteller vorgegeben wird es auf TA max. eingestellt!

* kleinere Einstellbereiche auf Anfrage möglich

the disengagement torque TA is continuously adjustable, unless otherwise specified by the customer, TA is preset to TA max.!

* smaller disengagement torque range possible on request



Abmessungen / dimensions: (mm) Längenmaße nach / length dimensions acc. to DIN ISO 2768 cH

ECKE	Øa	Øb	Øc	Ød	h	k	L ±1	Ø m1	Ø m2	s	t1	t2	w
25-6/12	52,5	40	48	33	3	41	83	31	19	0,9	21	15	14
35-15/30/45	69	55	66	45	4	48	100	43	27	1,2	25	18	18
46-60/100/150	88	70	83	63	4	53,5	115,5	53	36	1,6	30	24	22
65-230/330	115	85	109	84	4	68	145,5	64	50	1,8	40	27	24
80-500/800	137	120	132	105	5,3	94	187	96	62	2,5	54	32	33
115-1000	181	120	185	168	7,5	95	217,5	96	90	3,7	54	45	64

Hinweis: Elastomerstern optional mit alternativer Shorehärte auf Anfrage erhältlich

note: elastomer spider optional available with alternating shore hardness on request

Werkstoff:
 Sicherheitsteil: Vergütungsstahl
 Klemmnabe: hochfestes Aluminium
 Konusring: Vergütungsstahl
 Elastomerstern: Polyurethan - 98 Shore-A
 Schrauben: vernickelt

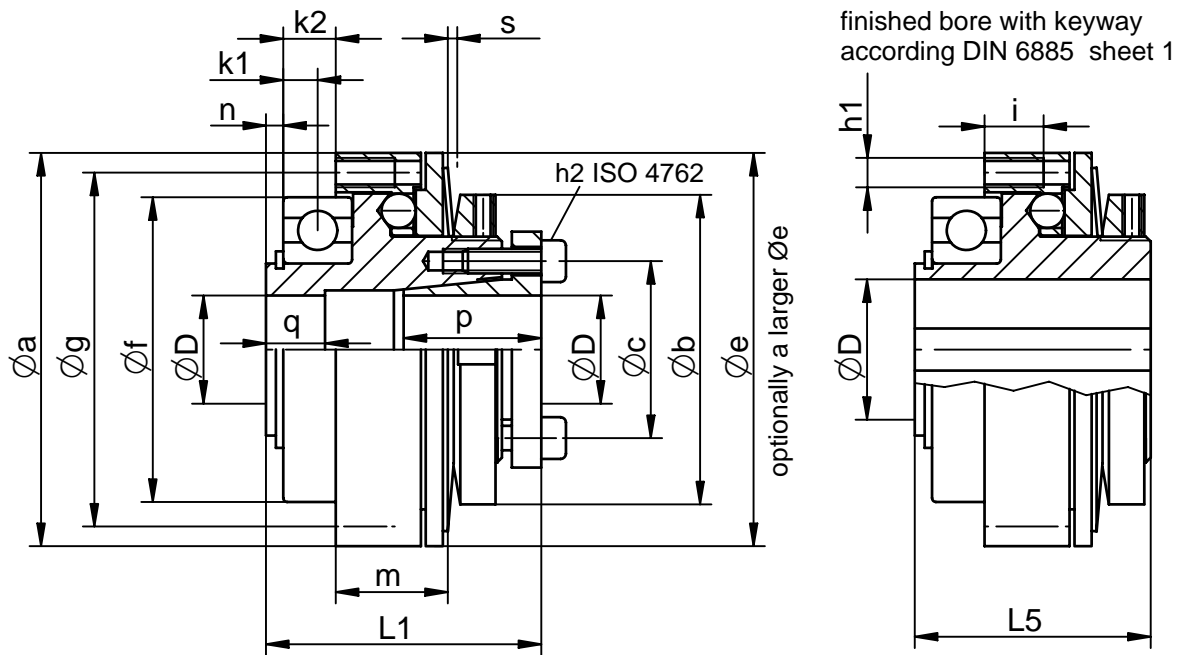
material:
 safety part: heat treated steel
 clamping hub: high tensile aluminium
 conical ring: heat treated steel
 elastomer spider: polyurethane 98 shore-A
 screws: nickel plated

Bestellbeispiel / ordering example: ECKE 35-45 D1 = 20 H7 D2 = 12 H7 TA = 35 Nm

ENEMAC safety coupling type ECA

www.enemac.de

with built-in bearing for direct mounting of a pulley onto the coupling. This results in a compact and axially short unit, requiring nearly no additional space, mountable during assembling. Model ECA is of particular interest for machine tools under development.

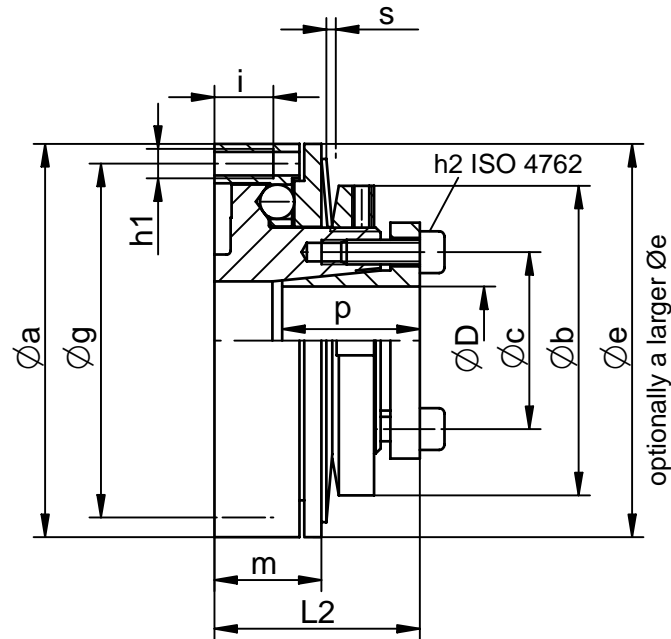


* the disengagement torque TA is continuously adjustable. Special adjustment on request.
 Unless otherwise specified by the customer, TA is preset to approx. 70% of TA max.
 torque of hubscrews h2 are valid for the tightening screws of the bushing only.

technical data + dimensions (mm)		we reserves the right to make alterations										
ECA	1	3	6	16	25	40	63	75	100	130	250	400
torque range *	0,9	3	6	16	25	45	75	75	130	130	250	400
TA max (Nm)	0,5	1,2	2,5	6	10	20	30	30	50	50	100	160
TA min (Nm)												
max. rotational speed (min ⁻¹)	3000	3000	3000	3000	3000	3000	2500	2500	2500	2500	2000	2000
moment of inertia (10 ⁻³ kgm ²)	0,03	0,17	0,17	0,36	0,85	0,85	2,9	2,8	2,9	2,8	12,1	12,4
mass (kg)	0,15	0,4	0,4	0,65	1,1	1,1	2,3	2,2	2,3	2,2	5,5	5,6
torque of hub screws h2 (Nm)	1	1,5	1,5	2,5	3	4	6	6	8	8	35	35
Ø a	40	59	59	67	80	80	103	103	103	103	140	140
Ø b	33	45	45	52	63	63	85	85	85	85	105	105
Ø c	19	27	27	32	36	36	50	50	50	50	62	62
Ø e	43	59	59	67	79,5	79,5	103	103	103	103	134	134
Ø f h5	30	47	47	55	62	62	85	80	85	80	110	110
Ø g	35	53	53	61	72	72	95	95	95	95	127	127
6x h1	M3	M4	M4	M4	M6	M6	M6	M6	M6	M6	M8	M8
6x h2	M3	M4	M4	M4	M5	M5	M6	M6	M6	M6	M8	M8
i	6	8	8	10	12	12	12	12	12	12	16	16
k1	3,5	6	6	6,5	7	7	5	8	5	8	10	10
k2	4	9,2	9,2	9,4	10,7	10,7	6,6	12,6	6,6	12,6	18,1	18,1
L1	30	39,5	39,5	46,5	55	55	60	66	60	66	87	87
L5	25	33,5	33,5	39,5	47	47	51	57	51	57	77	77
m	12,9	14	14	18	23	23	27	27	27	27	34	36
n	2,5	3	3	3,5	3,5	3,5	4,5	4,5	4,5	4,5	5,5	5,5
p	15	19	19	22	28	28	29	29	29	29	37,5	37,5
q	8	10	10	10	12	12	14,5	14,5	14,5	14,5	18	18
s (switching distance)	0,7	1,0	1,0	1,2	1,4	1,4	1,7	1,7	1,7	1,7	2,4	2,4
D max	12	16	16	20	24	24	35	35	35	35	42	42
D min	6	10	10	12	16	16	20	20	20	20	25	25
D max keyway	12	17	17	21	24	24	50	35	50	35	54	54

ordering example: ECA 63 D=28G7 TA=50Nm or ECA 63 D=28G7 with keyway 8P9 TA=50Nm KW09/12

can be attached to existing pulleys (with built-in shaft bearing). By means of an intermediate flange even an assembly with small pulleys is possible.



* the disengagement torque TA is continuously adjustable. Special adjustment on request.
 Unless otherwise specified by the customer, TA is preset to approx. 70% of TA max.
 torque of hubscrews h2 are valid for the tightening screws of the bushing only.

technical data + dimensions (mm) we reserves the righth to make alterations									
ECB	3	6	16	25	40	63	100	250	400
torque range *									
TA max (Nm)	3	6	16	25	45	75	130	250	400
TA min (Nm)	1,2	2,5	6	10	20	30	50	100	160
max. rotational speed (min ⁻¹)	3000	3000	3000	3000	3000	2500	2500	2000	2000
moment of inertia (10 ⁻³ kgm ²)	0,14	0,14	0,3	0,7	0,7	2,5	2,5	10,4	10,8
mass (kg)	0,3	0,3	0,5	0,9	0,9	1,9	1,9	4,3	4,4
torque of hub screws h2 (Nm)	1,5	1,5	2,5	3	4	6	8	35	35
Ø a	59	59	67	80	80	103	103	140	140
Ø b	45	45	52	63	63	85	85	105	105
Ø c	27	27	32	36	36	50	50	62	62
Ø e	59	59	67	79,5	79,5	103	103	134	134
Ø g	53	53	61	72	72	95	95	127	127
6x h1	M4	M4	M4	M6	M6	M6	M6	M8	M8
6x h2	M4	M4	M4	M5	M5	M6	M6	M8	M8
i	8	8	10	12	12	12	12	16	16
L2	27,5	27,5	34	41	41	49	49	64	64
m	14	14	18	23	23	27	27	34	36
p	19	19	22	28	28	29	29	37,5	37,5
s (switching distance)	1,0	1,0	1,2	1,4	1,4	1,7	1,7	2,4	2,4
D max	16	16	20	24	24	35	35	42	42
D min	10	10	12	16	16	20	20	25	25

ordering example: ECB 63 D=28G7 TA=50Nm

Torque Limiter type ECE

The drive element (e.g. pulley) must have its own bearing on the shaft, which supports the tractive force of the belt.

on request
STAINLESS STEEL

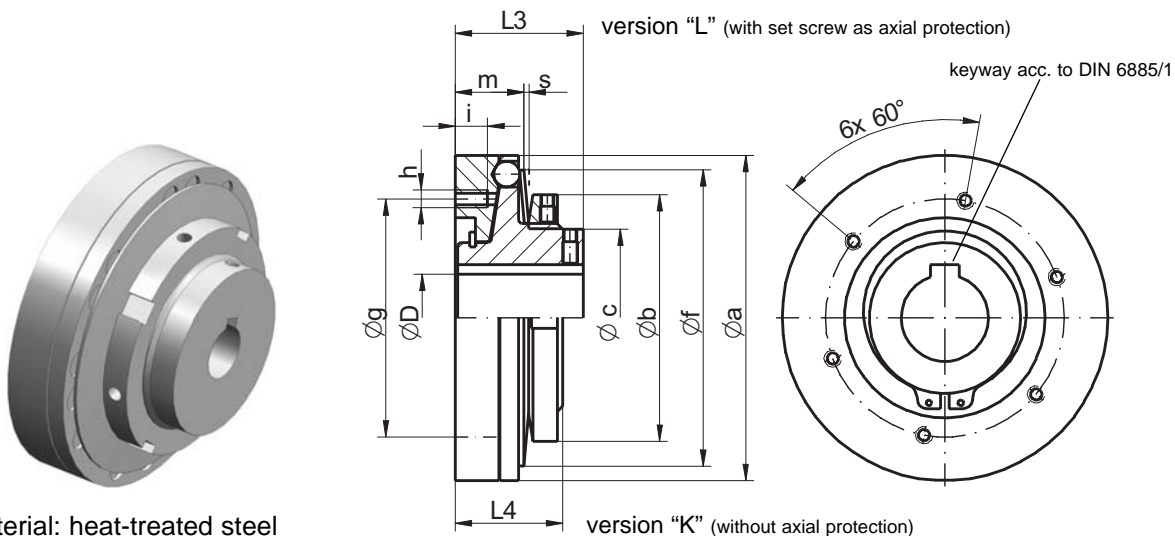
technical data:

ECE	disengagement **torque TA [Nm] *setting range	moment of inertia [10 ⁻³ kgm ²]	mass ca. [kg]	max. speed ^l [min ⁻¹]	prebored	bore diameters ØD	
						min	***max
5	2 - 5					10	/ 17
10	4 - 10	0,16	0,35	3000	8	10	/ 17
16	7 - 16					12	/ 20
25	10 - 25	0,36	0,58	3000	9	12	/ 20
40	16 - 40					16	/ 30
63	25 - 63	0,66	0,8	3000	12	16	/ 30
100	40 - 100					20	/ 42
200	80 - 200	2,9	1,9	2500	17	25	/ 42
315	140 - 315	11,9				30	/ 50
630	280 - 630	12,3	4,35	1800	26	40	/ 50
900	400 - 900	12,7				45	/ 50

* the disengagement torque TA is continuously adjustable, other torque range possible on request

** unless otherwise specified by the customer, TA is preset to approx. 70% of TA max.!

*** larger bore holes with keyway acc. to DIN 6885/3 on request



material: heat-treated steel

dimensions: (mm) length dimensions according to DIN ISO 2768 mH

ECE	Øa	Øb	Øc	Øf	m	s	g	6x h	i	L3	L4
5/10	64	45	32	59	12	1	47	M5	6	26	20
16/25	73	52	38	66	15	1,2	53	M6	8	31	25
40/63	82	63	43	74	19	1,4	62	M6	8	38	31
100/200	112	85	61	102	23	1,7	82	M6	12	44	37
315/630	148	105	76	132	31/33	2,4	102	M8 [M10*]	15	54	47
900	148	105	76	132	35	2,4	102	M10	15	54	47

* 6x M10 on version STAINLESS STEEL

ordering example: ECE 63 L - D=28H7 with keyway 8P9 - TA=50 Nm
ECE 63 K - D=28H7 with keyway 8P9 - TA=50 Nm

Torque Limiter type ECG

With an small bearing for small chain wheels or pulleys. The combination with this small drive elements in particular provides a compact and axially short unit that can be assembled beforehand and then only has to be mounted on the machine shaft. A sliding bearing must be incorporated in the drive element by the customer.

on request
STAINLESS STEEL

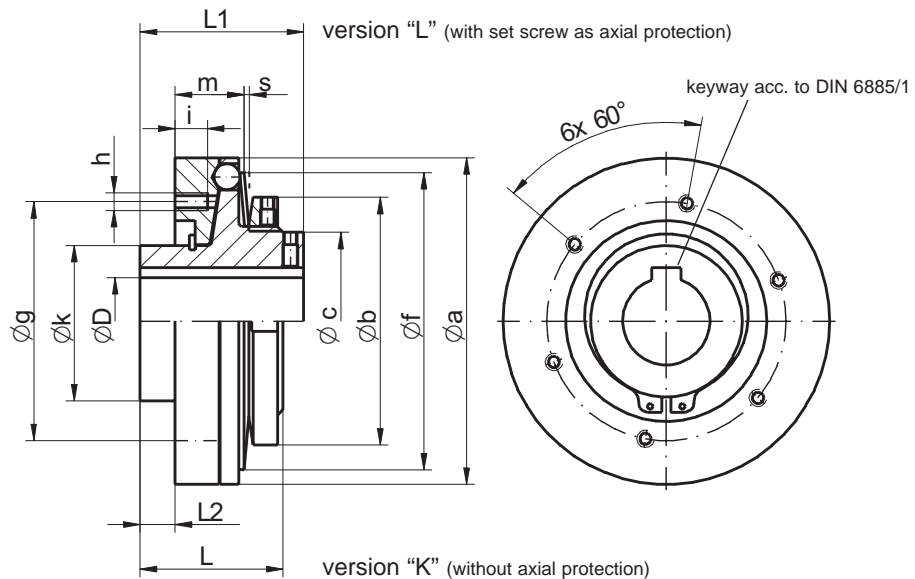
technical data:

ECG	disengagement **torque TA [Nm] *setting range	moment of inertia [10 ⁻³ kgm ²]	mass ca. [kg]	max. speed [min ⁻¹]	prebored	bore diameters ØD		
						min	***max	
5	2 - 5					10	/	17
10	4 - 10	0,17	0,37	3000	8	10	/	17
16	7 - 16					12	/	20
25	10 - 25	0,37	0,6	3000	9	12	/	20
40	16 - 40					16	/	30
63	25 - 63	0,67	0,83	3000	12	16	/	30
100	40 - 100					20	/	42
200	80 - 200	3	2	2500	17	20	/	42
315	140 - 315	12				30	/	50
630	280 - 630	12,4	4,6	1800	26	35	/	50
900	400 - 900	12,8				40	/	50

* the disengagement torque TA is continuously adjustable, other torque range possible on request

** unless otherwise specified by the customer, TA is preset to approx. 70% of TA max.!

*** larger bore holes with keyway acc. to DIN 6885/3 on request



material: heat-treated steel

dimensions: (mm) length dimensions according to DIN ISO 2768 mH

ECG	Øa	Øb	Øc	Øf	m	s	g	6x h	i	Øk h6	L2	L1	L
5/10	64	45	32	59	12	1	47	M5	6	25	6	32	26
16/25	73	52	38	66	15	1,2	53	M6	8	30	8	39	33
40/63	82	63	43	74	19	1,4	62	M6	8	40	10	48	41
100/200	112	85	61	102	23	1,7	82	M6	12	55	12	56	49
315/630	148	105	76	132	31/33	2,4	102	M8 [M10*]	15	65	16,5	71	64
900	148	105	76	132	35	2,4	102	M10	15	65	16,5	71	64

* 6x M10 on version STAINLESS STEEL

ordering example: ECG 63 L - D=28H7 with keyway 8P9 - TA=50 Nm
ECG 63 K - D=28H7 with keyway 8P9 - TA=50 Nm

Torque Limiter type ECI

With an extra-wide bearing for wide chain wheels or pulleys. The combination with this drive elements in particular provides a compact and axially short unit that can be assembled beforehand and then only has to be mounted on the machine shaft. A sliding bearing must be incorporated in the drive element by the customer.

on request
STAINLESS STEEL

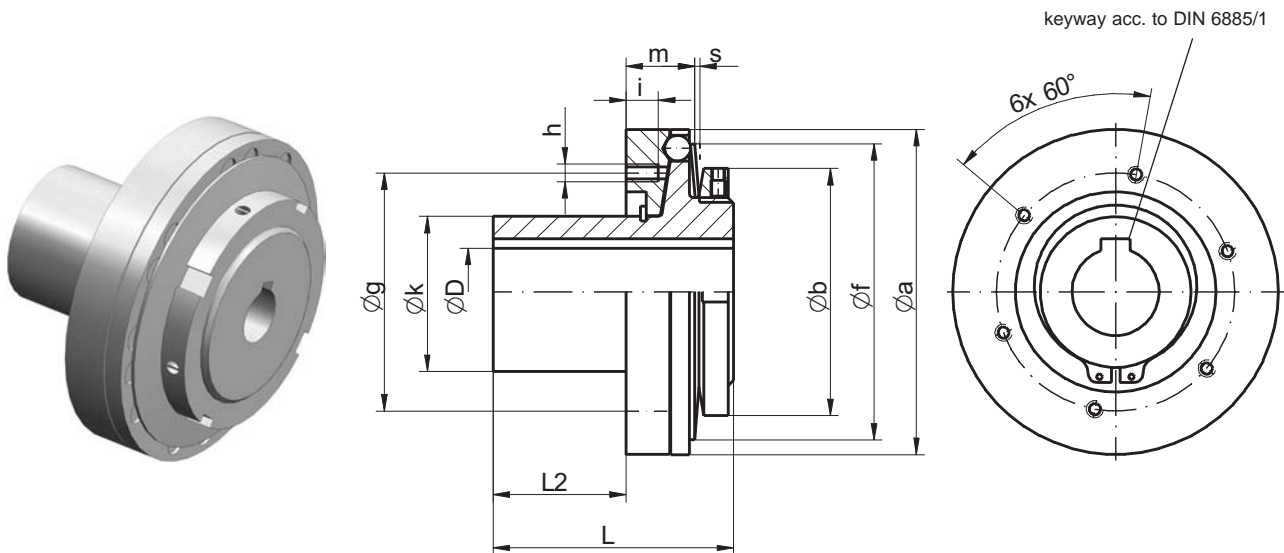
technical data:

ECI	disengagement **torque TA [Nm] setting range*	moment of inertia [10 ⁻³ kgm ²]	mass ca. [kg]	max. speed [min ⁻¹]	prebored	Nabenbohrung ØD		
						min	max	***max
5	2 - 5					10	/	17
10	4 - 10	0,17	0,38	3000	8	10	/	17
16	7 - 16					12	/	20
25	10 - 25	0,37	0,64	3000	9	12	/	20
40	16 - 40					16	/	30
63	25 - 63	0,74	0,95	3000	12	16	/	30
100	40 - 100					20	/	42
200	80 - 200	3,3	2,3	2500	17	20	/	42
315	140 - 315	12,3				30	/	50
630	280 - 630	12,7	4,9	1800	26	35	/	50
900	400 - 900	13,1				40	/	50

* the disengagement torque TA is continuously adjustable, other torque range possible on request

** unless otherwise specified by the customer, TA is preset to approx. 70% of TA max.!

*** larger bore holes with keyway acc. to DIN 6885/3 on request



material: heat-treated steel

dimensions: (mm) length dimensions according to DIN ISO 2768 mH

ECI	Øa	Øb	Øc	Øf	m	s	g	6x h	i	Øk h6	L2	L
5/10	64	45	32	59	12	1	47	M5	6	25	25	45
16/25	73	52	38	66	15	1,2	53	M6	8	30	30	55
40/63	82	63	43	74	19	1,4	62	M6	8	40	40	71
100/200	112	85	61	102	23	1,7	82	M6	12	55	50	87
315/630/900	148	105	76	132	31/33/35	2,4	102	M10	15	65	60	107,5

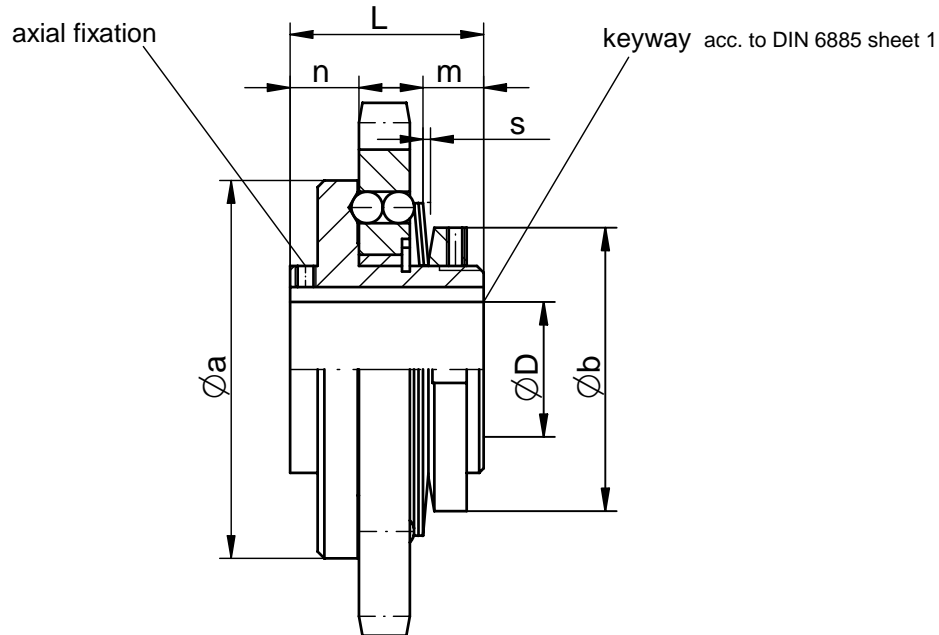
ordering example: ECI 63 - D=28H7 with keyway 8P9 - TA=50 Nm

ENEMAC torque limiter type ECH

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with integrated sprocket, very compact, axially short unit

These clutches are a low-cost alternative to conventional slip clutches and are interchangeable with the latter at the same or smaller external dimensions. They avoid the known problems of slip clutches, such as inaccurate disengagement torque, sensitivity to oil and moisture, large development of heat during slipping, and wear of the friction coatings. The sprocket is integrated as a functional part in the coupling, thus providing a very compact and axially short unit.



* the disengagement torque TA is continuously adjustable. Special adjustment on request.
Unless otherwise specified by the customer, TA is preset to approx. 70% of TA max.

n*) the value »n« applies to simple sprockets, please ask for further information of wide sprockets.

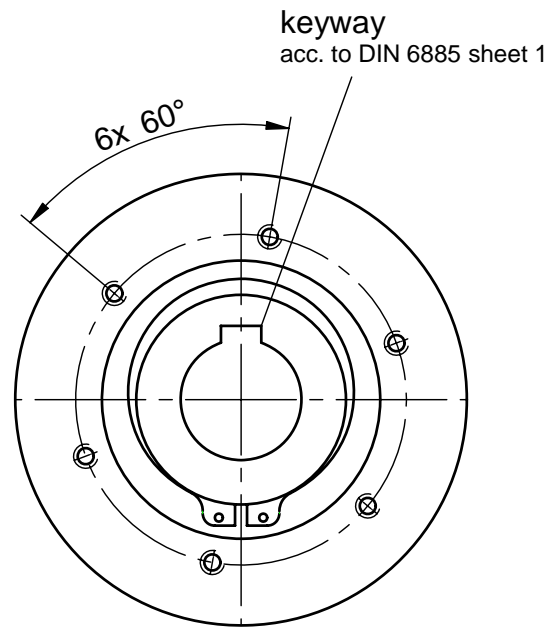
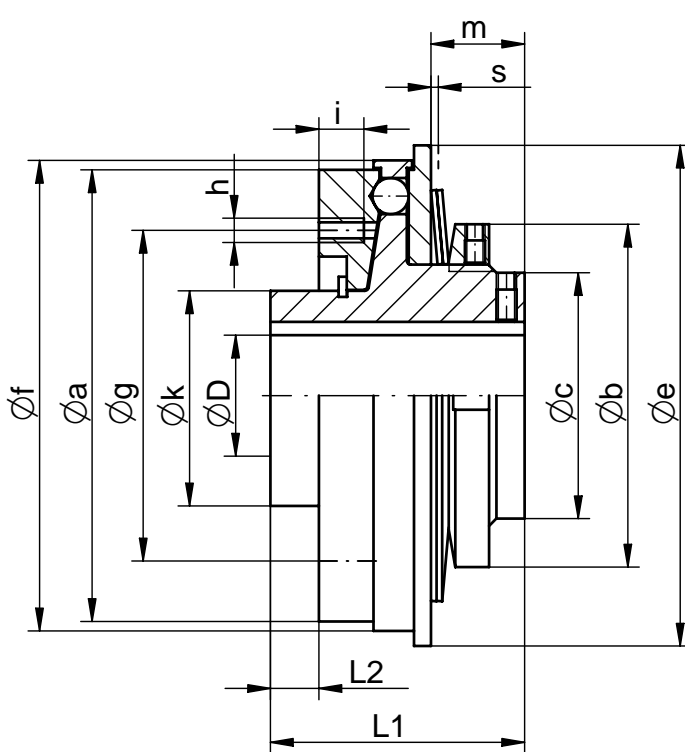
technical data + dimensions (mm)												we reserves the righth to make alterations											
ECH	5	16	25	40	63	80	140	200	400	630	900												
torque range *	5	16	25	40	63	80	140	200	400	630	900												
TA max (Nm)	2	7	10	16	25	32	56	80	160	280	400												
TA min (Nm)																							
max. rotational speed (min ⁻¹)	3000	3000	3000	2800	2800	2500	2500	2000	2000	1500	1500												
moment of inertia (10 ⁻³ kgm ²)	0,15	0,16	0,16	0,29	0,30	0,52	0,54	2,54	2,64	10,9	11,2												
mass (kg)	0,35	0,35	0,36	0,5	0,5	0,7	0,7	1,6	1,7	4,0	4,1												
Ø a	64	64	64	72	72	82	82	110	110	148	148												
Ø b	45	45	45	52	52	63	63	85	85	105	105												
Ø D min	10	12	14	16	18	18	20	22	26	30	35												
Ø D max	22	22	22	28	28	32	32	50	50	60	60												
L	33	33	33	36	36	43	43	57	57	75	75												
m	10,9	10,3	9,7	9,9	9,1	13,6	12,6	14,2	12,8	18,9	17												
n*	14	14	14	16	16	16,5	16,5	22	22	29,5	29,5												
s (switching distance)	1,0	1,0	1,0	1,2	1,2	1,4	1,4	1,7	1,7	2,4	2,4												
smallest possible sprockets (simple)																							
pitch p												number of teeth z											
3/8"	25	25	25	28	28	31	31																
1/2" x 5/16"	20	20	20	22	22	24	24	32	32														
5/8"	16	16	16	18	18	20	20	26	26	34	34												
3/4"				15	15	17	17	22	22	28	28												
1"						14	14	17	17	22	22												
1 1/4"								15	15	18	18												

ordering example: ECH 140 D=30H7 with keyway 8P9 with sprocket p=1/2" z=25 TA=100Nm

ENEMAC torque limiter type ECR

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incl bearing for chain wheels (also pulleys, cardan shafts, parts with connection flange). The type ECR is a further development of the type ECG. All parts of the clutch (including the disk springs) are made of STAINLESS STEEL.



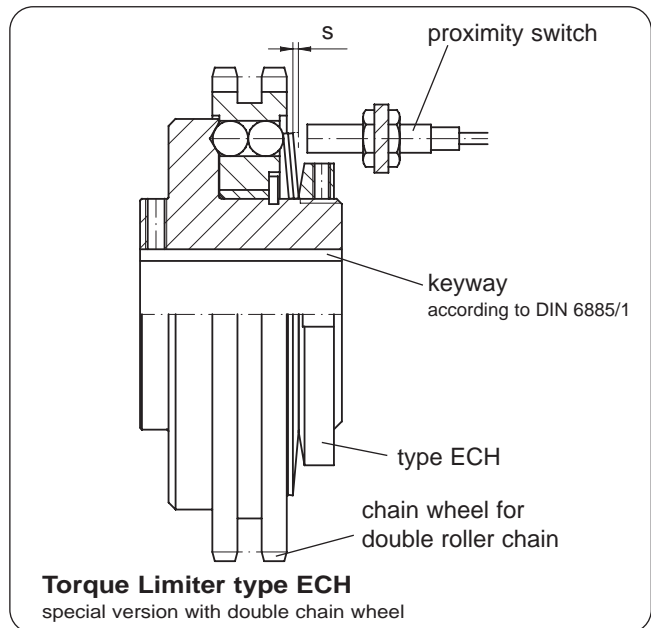
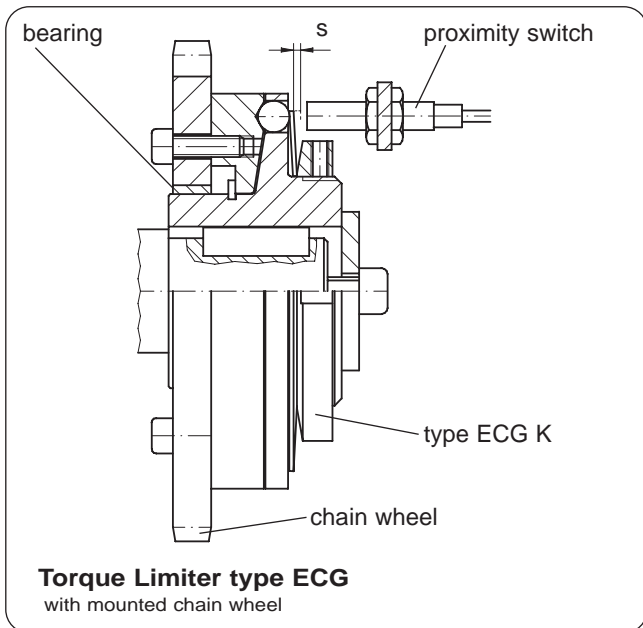
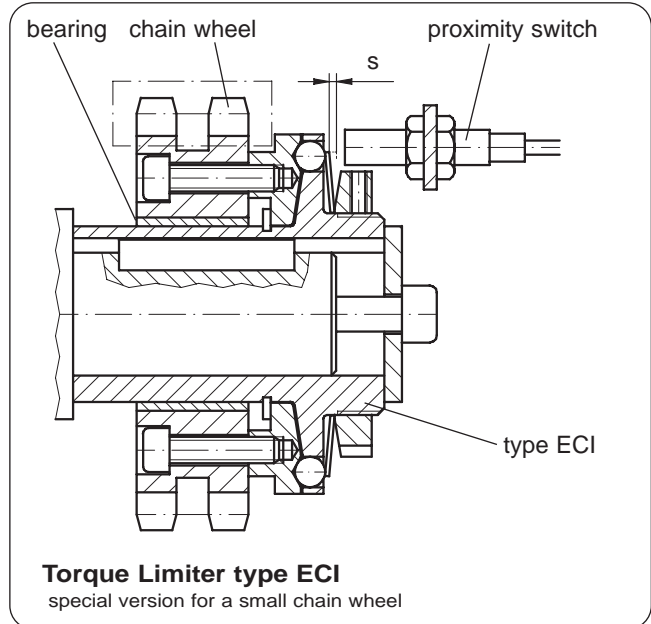
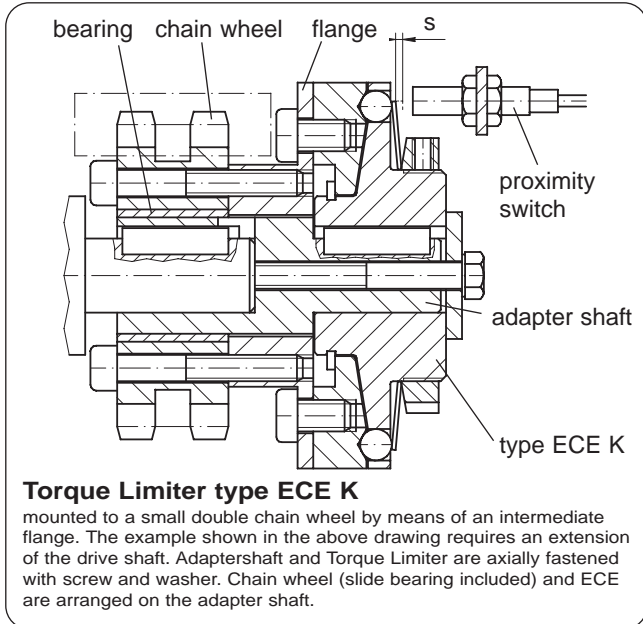
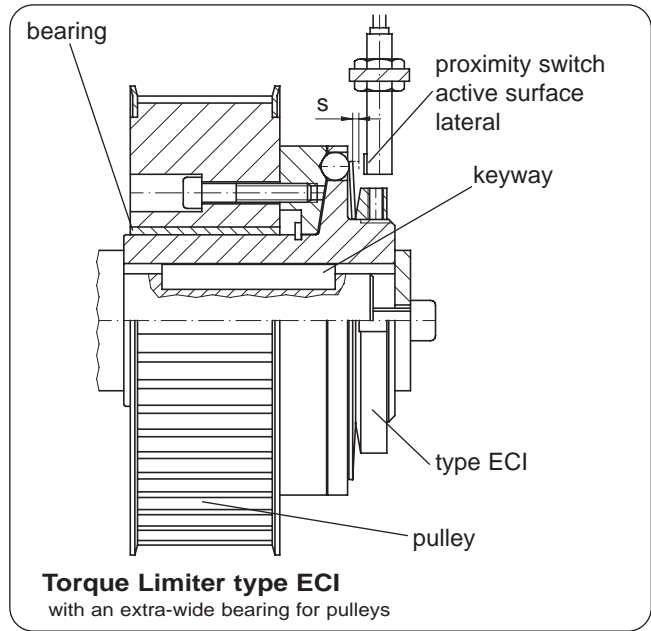
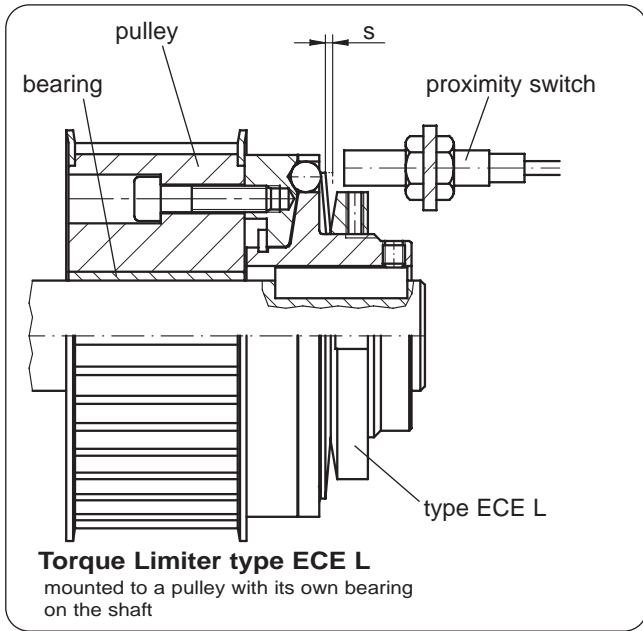
STAINLESS STEEL

* the disengagement torque TA is continuously adjustable. Special adjustment on request. Unless otherwise specified by the customer, TA is preset to approx. 70% of TA max.

technical data + dimensions (mm)					we reserves the right to make alterations
ECR	50	100	160	240	
torque range *					
TA max (Nm)	50	100	160	240	
TA min (Nm)	15	40	60	100	
max. rotational speed (min ⁻¹)	3000	3000	2500	2500	
moment of inertia (10 ⁻³ kgm ²)	1,2	1,2	3,9	4,0	
mass (kg)	1,3	1,3	2,3	2,4	
Ø a	82	82	112	112	
Ø b	75	75	75	75	
Ø c	52	52	52	52	
Ø D min	16	16	20	20	
Ø D max	30	30	40	40	
Ø e	90	90	123	123	
Ø f	85	85	116	116	
Ø g	62	62	82	82	
6x h	M6	M6	M8	M8	
i	8	8	12	12	
Ø k h6	40	40	55	55	
L1	55	55	63	63	
L2	10	10	12	12	
m	22	22	22,7	22,7	
s (switching distance)	1,4	1,4	1,7	1,7	

ordering example: ECR 100 D=28G7 with keyway 8P9 TA=50Nm

Installations examples



ENEMAC Operating instructions Safety couplings types ECA ECB (ECC)

mode of function

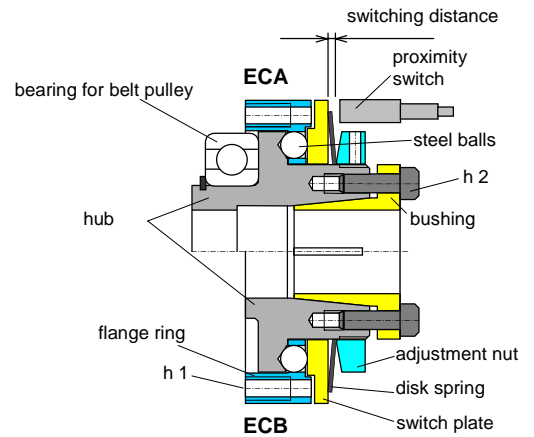
When the machine is operating normally the steel balls are pressed by the disk spring into the cupped recesses located in the flange ring, thereby transmitting the torque from the hub to the flange ring and vice-versa.

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 coupling 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 coupling is only designed to click over for a short period !

engage

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



technical data

ECA	1	3	6	16	25	40	63	75	100	130	250	400	
ECB + ECC		3	6	16	25	40	63		100		250	400	
torque range (adjustable)													
TA max (Nm)		0,9	3	6	16	25	45	75	75	130	130	250	400
TA min (Nm)		0,5	1,2	2,5	6	10	20	30	30	50	50	100	160
max. rotational speed (min ⁻¹)		3000	3000	3000	3000	3000	3000	2500	2500	2500	2500	2000	2000
thread of screws h 2 6x		M3	M4	M4	M4	M5	M5	M6	M6	M6	M6	M8	M8
torque of hub screws h 2 (Nm)		1	1,5	1,5	2,5	3	4	6	6	8	8	35	35
thread of flange ring h 1 6x		M3	M4	M4	M4	M6	M6	M6	M6	M6	M6	M8	M8
max. screw position i (mm)		6	8	8	10	12	12	12	12	12	12	16	16
metal bellows data type ECC (type ECC is no longer available)													
max. shaft misalignment													
lateral (mm)			0,27	0,27	0,2	0,2	0,2	0,2		0,2		0,2	0,2
axial ± (mm)			0,8	0,8	0,8	0,9	0,9	1,3		1,2		1,2	1,0
torsion resistance (10 ³ Nm/Rad)			5	5	21	33	33	54		66		108	164
lateral spring rate (N/mm)			29	29	189	262	262	218		401		503	692

The torque data are valid for the *tightening screws h 2* of the bushing only.

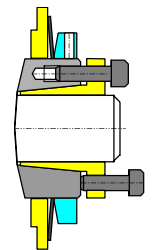
The *screws h 1* for the pulley must be tightened with the usual torque !

Please take notice of the *max. screw position i* (into the flange ring)

installation instructions

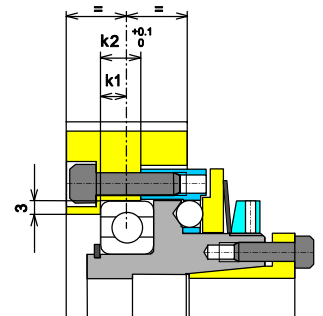
general remarks

- The kind of fit between bushing and shaft must be a sliding fit (e. g. H7/j6 or G7/k6).
The frictional connection will not be impaired by existing keyways.
- During delivery the screws of the bushing are slightly tightened. To enable the hub slipping on the shaft, the bushing and it's screws have to be loosened.
- The screws must be tightened cross-wise to avoid axial run-out of the coupling. Especially with type ECB a severe wobble will cause tilting of the pulley and seizing up on the shaft end. In case of collision the pulley cannot rotate and the coupling cannot disengage.
Tightening torque of screws see *Technical data*.
- dismounting
After unscrewing the 6 tightening screws the bushing is released from the hub by means of 3 draw-off screws (see illustration to the right). If axial space is restrictive it is advisable to screw in the draw-off screws before mounting the coupling and to counter check them against the hub.
- emergency switching
In case of overload the drive must be turned off immediately by means of an emergency switching. A proximity switch can be activated by the axial motion of the switch plate of the coupling and initiate the machine stop.
All couplings are designed for 250 overload cycles.
- mounting in vertical axes of CNC machine tools
It must be taken in consideration that after disengagement the EC-coupling has a residual torque so low that in most of cases it is insufficient to prevent the descending of the machine axle.



for safety couplings type ECA

- The axial center lines of the belt pulley and the ball bearing of type ECA should be in alignment, to prop the traction of the belt directly by the bearing (see illustration to the right).
- The kind of fit between pulley and bearing must be a sliding fit (H7/h5).
Dimension k2 must be machined *within 0 trough +0.1 mm*. The stop collar at left of the outer race of the bearing must at least have 3 mm to guarantee the plane rest of both parts (see illustration to the right).



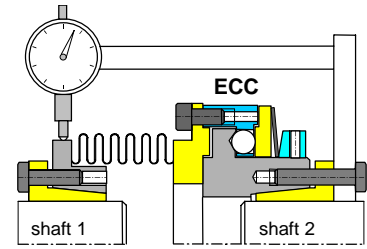
for safety couplings type ECB

- A pulley to be attached to type ECB must have *a complete plane surface on the side of the coupling*.
As well the ECB as the pulley are separately centered to the shaft thus an additional centering between both is in no way tolerable.

ENEMAC Operating instructions Safety couplings types ECA ECB (ECC)

for safety couplings type ECC (type ECC is no longer available)

- ATTENTION!** The metal bellows of the ECC's are made of thin stainless steel thus being susceptible to shocks. Damage to bellows can result in an unserviceable coupling !
- The ECC can compensate for shaft misalignments within certain limits (= max. lateral shaft misalignment see *Technical data*).



It must be acted upon the following instructions to obtain the actual *lateral shaft misalignment*:

The set-up of the dial gauge is shown by the picture, i. e. fastening of the gauge to one side (*shaft 2*) of the already mounted coupling and zero adjustment of the caliper. A 360° turn of the complete measuring system and observation of the maximum reading. The *lateral shaft misalignment* is half of this reading.

In case of a set-up without a mounted ECC the dial gauge has to be fastened to *shaft 2* and the caliper adjusted to *shaft 1*. Turning *shaft 2* by 360° the maximum reading will include the amount of defect of form (=out of round), but this deviation can be neglected in nearly all cases.

The complete 360° turn of the measuring system is essential !

- Mounting of the ECC-coupling

The first step is to position the coupling loose on both shaft ends and then to tighten it to *shaft 2*. Possible axial tension of the bellows must be released by turning one shaft end while stopping the other one. The bushing of *shaft 1* may not be tightened before completing this tension release. During mounting the bellows shall not be deformed too much. Permitted are 0.6 mm lateral and ± 1 mm axial. Under operation conditions however the values of *Technical data* are valid.

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.

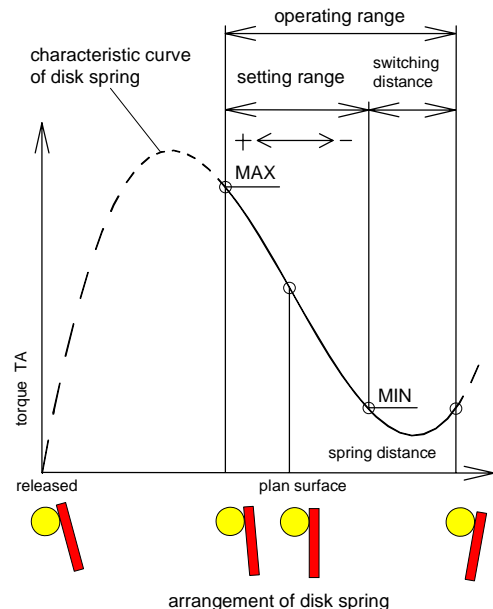
The torque can be subsequently adjusted by turning the adjustment nut with a sickle spanner. Loosen the Allen set screws beforehand !

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

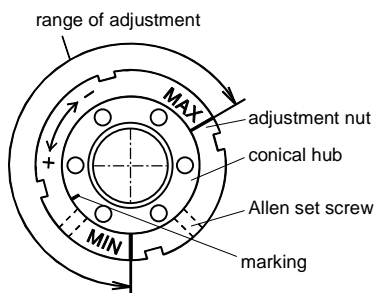
- clockwise $\Rightarrow T_A$ decreases
- counter-clockwise $\Rightarrow T_A$ increases

(see illustration to the right and foot)



The really effective T_A can only be measured precise, if

- ◆ coupling and belt-pulley or intermediate flange are assembled or
- ◆ the measuring device simulates this assembly and
- ◆ points 7 through 9 of the *Installation instructions* are taken into consideration



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).

ENEMAC Operating instructions Torque Limiters types ECE ECG ECH ECI ECR

mode of function

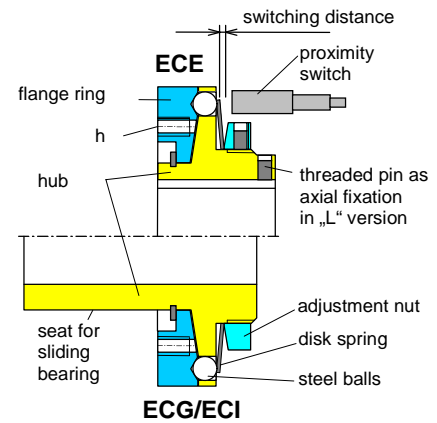
When the machine is operating normally the steel balls are pressed by the disk spring into the cupped recesses located in the flange ring, thereby transmitting the torque from the hub to the flange ring and vice-versa.

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

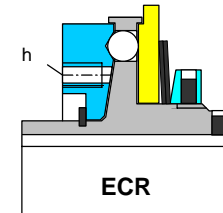
After elimination of the disturbance, the clutch has to be rotated - with low rotational speed or by hand - and reengages automatically (audible) in the fixed point position. The clutch now is operational, the adjusted disengagement torque is effective.



technical data

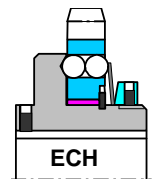
ECE ECG		5	10	16	25	40	63	100	200	315		630		900
ECI		5	10	16	25	40	63	100	200		315		630	900
torque range (adjustable)														
TA max	(Nm)	5	10	16	25	40	63	100	200	315	315	630	630	900
TA min	(Nm)	2	4	7	10	16	25	40	80	140	140	280	280	400
max. rotational speed	(min ⁻¹)	3000	3000	3000	3000	3000	3000	2500	2500	1800	1800	1800	1800	1800
thread of flange ring	h	6x	M5	M5	M6	M6	M6	M6	M6	M8	M10	M8	M10	M10
max. screw position	i	(mm)	6	6	8	8	8	8	12	12	15	15	15	15

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	900
torque range (adjustable)												
TA max	(Nm)	5	16	25	40	63	80	140	200	400	630	900
TA min	(Nm)	2	6	10	16	25	32	56	80	160	280	400
max. rotational speed	(min ⁻¹)	3000	3000	3000	2800	2800	2500	2500	2000	2000	1500	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.

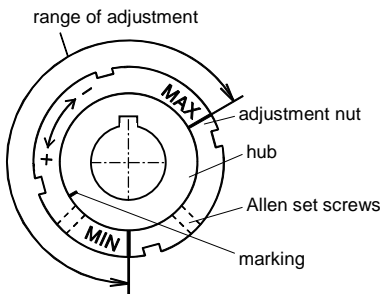
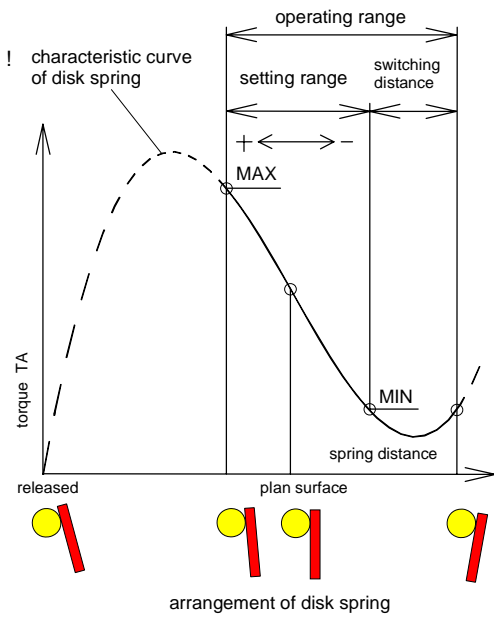
The torque can be subsequently adjusted by turning the adjustment nut with a sickle spanner. Loosen the Allen set screws beforehand !

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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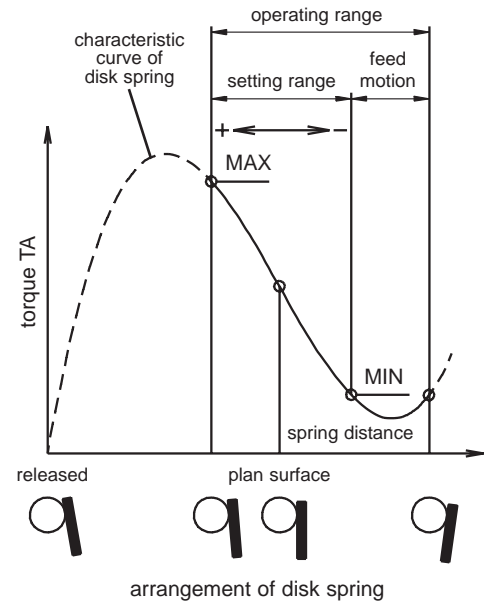
Daimler Ring 42
 Germany
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Torque Limiters type ECOL, ECP..., ECK..., ECU, ECAG

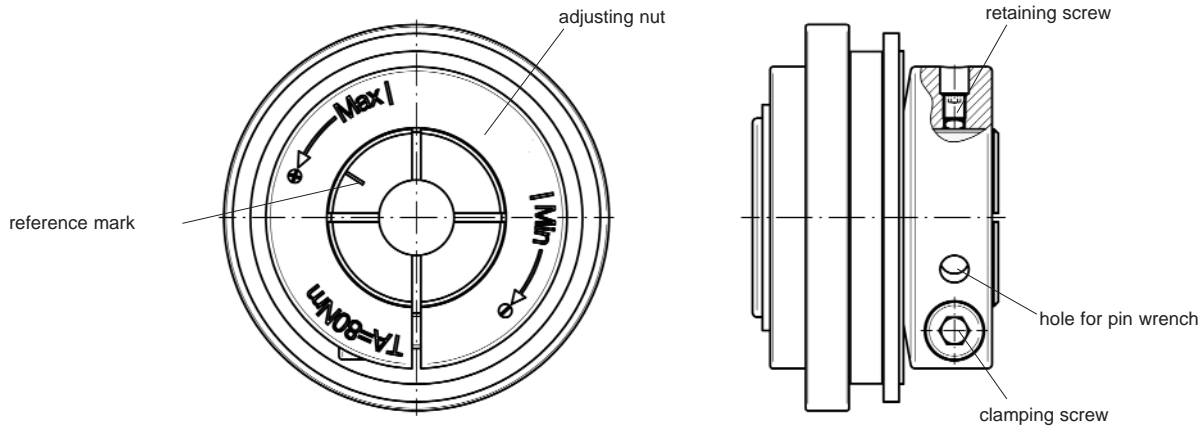
Setting the disengagement torque TA

The disengagement torque is generally between aprox. 40% and 100% of the nominal torque of the coupling and is stepless adjustable. If the customer does not specify a setting value, the setting is done at the maximum torque (nominal torque). The set static disengagement torque can be adjusted (on the machine) if necessary at a later date by turning the adjusting nut with a pin wrench. Adjusting nuts are provided with a user friendly scale; the disengagement torque, and the reference marks for TA min and TA max, are engraved on the face side of the adjusting nut to facilitate setting. Disengagement torques greater than TA max are possible (on request); a stronger wear of the disengagement mechanic is resulted.

CAUTION! Due to the degressive spring characteristic within the setting range, a turning back (counter-clockwise) of the adjusting nut means an increase, or a turning in clockwise direction means a reduction of the disengagement torque! (see direction arrow at clamping nut).

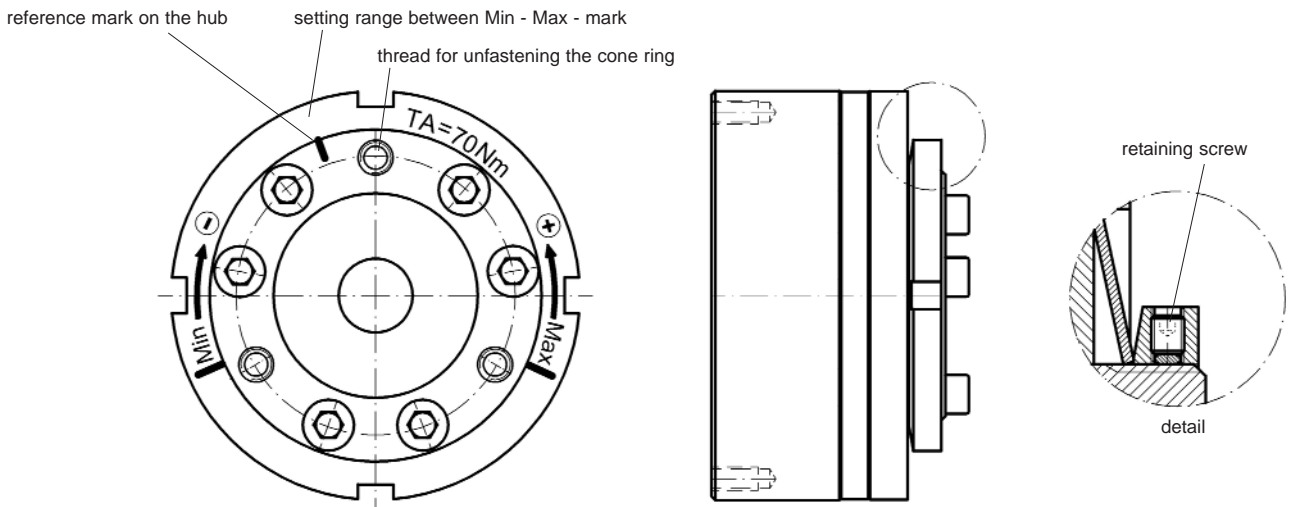


setting marking by ECOL / ECP... / ECK... / ECU



Release retaining screw. Turn adjusting nut with pin wrench (note reference mark). Tighten retaining screw after setting the required disengagement torque. Setting can be done by turning the adjusting nut with scale till the torque value to be set is in line with the reference mark. In mounted status the clamping screw must be released and after setting the disengagement torque it has to be fastened again.

setting marking by ECAG



Unscrew retaining screw (see detail) completely; turn adjusting nut with pin wrench; after adjustment secure the adjustment nut against turning by drilling and tightening the self tapping screw.