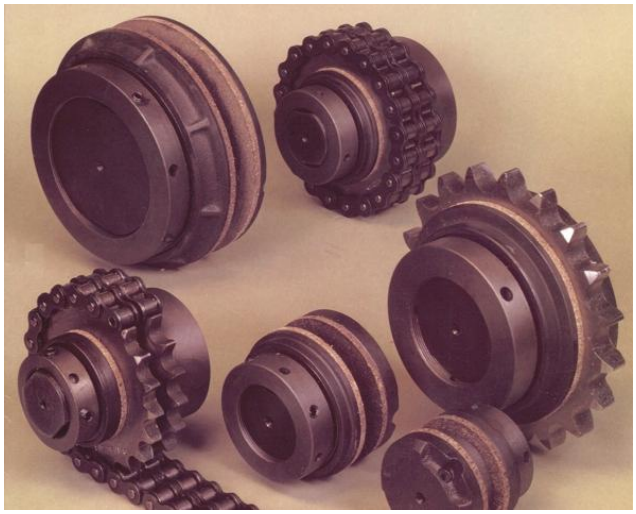
WEISS
MOTOREN

Produktkatalog / *product catalogue*



Rutschkupplungen
Safety Couplings

Warengruppe / *group*:	Transmissionen / *transmissions*
Dateiname / *filename*:	weiss-motoren_rkp.pdf
Versionsdatum /*date of version*:	2004-02-03

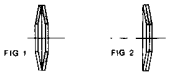
GENERAL DESCRIPTION
In the friction-type torque limiters the torque is transmitted by means of the friction forces which arise between surfaces pushed one against the other. Therefore the moment which can be transmitted has a maximum value, which depends upon the moment of the friction forces with reference to the axis of rotation. Once this limit is reached, the limiter will slip. This is an useful phenomenon against eventual overloads, rough startings, reversal of the rotating direction or, even worse against possible sudden stopping of the driven part. In fact, as soon as one of these circumstances occurs, if the torque limiter is not installed, considerable damages could arise, for instance: breakage of the transmission elements (chain, belt, etc.), burning of the electric motor, damages to the driven machine.

WHERE THE TORQUE LIMITER CAN BE USED
Because of their form and of the adopted functional concept the torque limiter can be used with the following mechanical parts:
1 — Timing pulleys
2 — Sprockets and wheels for chain
3 — V-belt pulleys
4 — Flexible couplings
5 — Chain-type couplings

WORKING PRINCIPLE
The piece to be connected (pulley, sprocket, etc.) is located between the two friction discs. The friction force is therefore obtained by means of the compression of the cup-shaped springs, by locking the ring. During the normal working of the transmission unit, if suitable safety torque limiter has been chosen and if the ring has been properly tightened, there is no relative motion between the piece and the torque-limiter. The transmission is of rigid type.
As soon as overload occurs, the resisting moment increases. When its value is equal to the value of the torque to be transferred, between the driven part and the friction-type packing there is a slipping action. The motion transmission is therefore interrupted.
When the overload condition disappears, the piece to be connected will stop slipping and start again with its normal running, without any external action, and switches-in again the motion transmission.

TYPES OF TORQUE LIMITERS AND THEIR CHARACTERISTICS
The torque limiters are available in 4 different types, for torques from 1 to 125 Nm.
They can be used both in dry conditions and in oil bath. When used in oil bath, the device has a torque efficiency which is of 25% lower than the nominal value. In these cases, before assembling, it is necessary to sink the friction discs into SAE 30 oil.
For each type, two different position of the cup-shaped springs are foreseen:

— Position A: opposite springs, fig. 1
— Position B: coupled springs, fig. 2



The table Nr. 1 shows, for the various dimensions and according to the position of the springs, the torques which can be transmitted and also the most important dimensions.

The friction discs to be fitted on the torque limiters and safety couplings of make are made of asbestos-free materials.

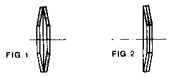
ALLGEMEINES
Bei den Drehmomentbegrenzer wird das Drehmoment durch Reibungskräfte übertragen. Die Tellerfedern pressen zwei Reibbeläge gegen das eingespannte Uebertragungselement. Die Anpresskraft bestimmt das übertragbare Drehmoment. Wenn diese Grenze überschritten wird, rutscht das eingespannte Uebertragungselement durch. Die Drehmomentbegrenzer sorgt damit für die Sicherheit der Maschine bei Ueberlastung, plötzlichem Starten, Aendern der Drehrichtung oder noch schlimmer, bei plötzlichem Blockieren des angetriebenen Teiles. Tatsächlich könnte das Eintreten eines dieser Umstände ohne Drehmomentbegrenzer zu einer erheblichen. Beschädigung der Maschine führen. Auch Brüche der Antriebselemente oder das Verbrennen des Elektromotors können richt ausgeschlossen werden.

WAS WIRD AUF DIE POGGI-DREHMOMENTBEGRENZER MONTIERT
Auf die Drehmomentbegrenzer können alle folgenden mechanischen Uebertraugungselemente montiert werden:
1 — Kettenradscheiben
2 — Zahnriemenscheiben
3 — Keilriemenscheiben
4 — Elastische Kupplungen
5 — Kettenkupplungen

FUNKTIONSPRINZIP
Das eingebaute Uebertragungselement (Kettenradscheibe, Riemenscheibe usw.) wird zwischen den bieden Reibbelagscheiben eingespannt. Die Reibungskraft erhält man durch das Zusammendrücken der Tellerfedern, indem man die Nutmulter anzieht. Wenn die richtige-Rutschnabengrösse ausgewählt wurde und die Nutmutter angezogen ist, tritt bei normalen Funktionieren der Uebertragung keine Bewegung zwischen dem Uebertragungselement und dem Drehmomentbegrenzer auf. Es liegt eine starre uebertragung vor. Bei Ueberlastung nimmt das Drehmoment zu und sobald es den eingestellten Wert erreicht hat, rutscht das Uebertragungselement auf den Drehmomentbegrenzer zwischen den Reibbelägen durch. Die Uebertragung der Drehbewegung ist unterbrochen. Liegt keine Ueberlastung mehr vor, wird das Uebertragungselement durch die Reibkräfte automatisch wieder mitgedreht, es rutscht nicht mehr durch und nimmt die Drehmomentübertragung wieder auf, ohne dass es dazu eines äusseren Eingreifens bedarf.

DREHMOMENTBEGRENZER UND IHRE MERKMALE
Die Drehmomentbegrenzer sind in 4 verschiedenen Grössen mit einem Drehmomentbereich von 1 bis 125 mN erhältlich und können sowohl trocken als auch im Oelbad eingesetzt werden. Beim Einsatz im Oelbad ligen die übertragbaren Drehmomente 25% unter dem Normalwert. Die Reibbelagscheiben müssen in diesem Fall vor der Montage in Oel (SAE 30) getaucht werden. Für jeden Typ sind zwei Stellungen der Tellerferden vorgesehen:

— Stellung A: Gegenüberliegende Tellerfedern, Fig. 1
— Stellung B: Gepaarte Tellerfedern, Fig. 2



Die Tabelle 1 gibt für die verschiedenen Grössen und die jeweiligen Stellungen der Tellerfedern die übertragbaren Drehmomente und die Haupt-Abmessungen an.

Mit den asbestfreien Reibscheiben aus organischem Material werden alle Drehmomentbegrenzer und Rutsch-Kupplungen hergestellt.

SELECTION PROCEDURE

Pcv = Power Rating (HP)
n = Rev./min.
M_t = Nominal Torque (Nm)

Determine the nominal torque from the formula:

$$1)\ M_t = 7020 \frac{Pcv}{n}$$

when the power is in HP.

$$2)\ M_t = 9550 \frac{PkW}{n}$$

when the power is in kW.

Example: A machine must be driven through a 3-phase asynchronous motor with P = 2kW and n = 1450 RPM.
Refer to formula 1) and determine the maximum torque to be transmitted:

$$Mt = 9550 \frac{2}{1450} = 13{,}17 \text{ Nm}$$

then choose the type LC1 to protect the motor.

AUSWAHLHINWEISE

Pcv = Leistungsdaten (PS)
n = Drehzahl/Min.
M_t = Drehmoment (Nm)

Für die Drehmomentberechnung gilt die Beziehung:

$$1)\ M_t = 7020 \frac{Pcv}{n}$$

wenn die Leistung in PS ist.

$$2)\ M_t = 9550 \frac{PkW}{n}$$

wenn die Leistung in kW ist.

Zum Beispiel: Gesucht wird eine Kupplungsgröße für den Schutz eines Dreiphasenstrom-Asynchronmotors.
Nennleistung P = 2kW bei n = 1450 UPM.
Aus der Beziehung 1) ist das zu übertragende maximale Drehmoment zu entnehmen:

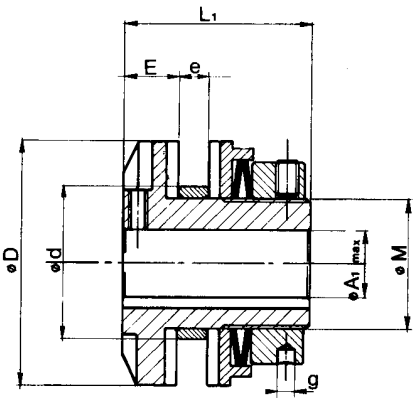
$$Mt = 9550 \frac{2}{1450} = 13{,}17 \text{ Nm}$$

Gewählt. Kupplungsgröße LC1.

Torque Limiters
Drehmomentbegrenzer
Limiteurs de couple
Limitadores de par

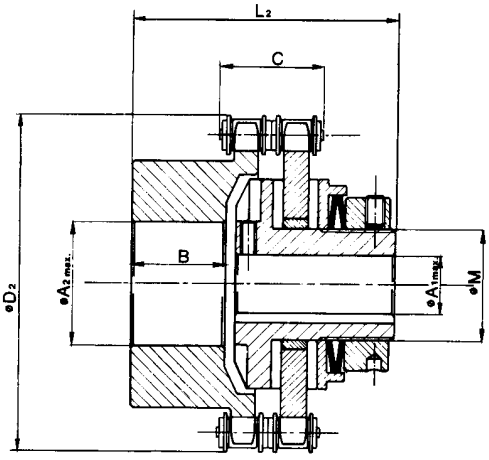
Tab. 1

TYPE TYP TYPE TIPO	Torque Drehmoment Couple Par Nm		D	L_1	A_1 max	E	e max	d H8/g7	M	g	Weight without hole Gewicht ohne Bohrung Poids sans alésage Peso sin taladro Kg.
LC 1	10- 40	20- 80	63	60	24	17	15	48	40	6	1,0
LC 2	30-100	60- 200	85	65	28	19	15	53	45	6	1,7
LC 3	80-250	160- 500	128	70	45	20	18	68	63	8	3,8
LC 4	200-630	400-1250	170	80	65	20	20	110	100	8	8



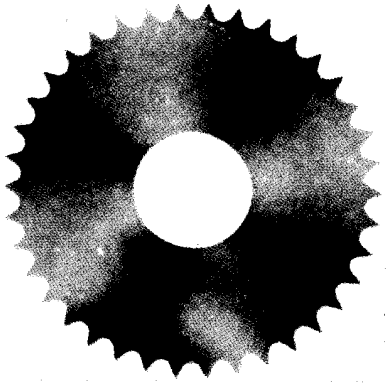
Safety Couplings
Rutsch-Kupplungen
Accouplement de sécurité
Acoplamientos de seguridad

TYPE TYP TYPE TIPO	Built-in Torque Limiter Eingebauter Begrenzer Limiteur incorporé Limitador incorporado	D_2	L_2	C	A_2 max	B	Misalignment Versatz Désalignement Desalineamiento		Weight without hole Gewicht ohne Bohrung Poids sans alésage Peso sin taladro Kg.
							Max. Parallel Max. Parallel-V. Parallèle Max. Paralelo Max.	Max. Angular Max. Winkel-V. Angulaire Max. Angular Max.	
GS 1	LC 1	116	90	36	50	26	0,25	0°30'	3,1
GS 2	LC 2	138	106	42	60	38	0,31	0°30'	5,1
GS 3	LC 3	184	120	68	70	44	0,38	0°30'	12,5
GS 4	LC 4	250	155	80	120	68	0,51	0°30'	31,5



Ground Sprockets
Geschliffene Kettenradscheiben
Disques rectifiés
Ruedas rectificadas

Pitch - Teilung Pas - Paso		For torque limiter type - Für Drehmomentbegrenzer typ Pour limiteur type - Para limitador tipo			
mm	Inches Zoll Pouces Pulgadas	LC 1	LC 2	LC 3	LC 4
9,525	3/8"	25-38	38		
12,70	1/2"	19-25-38	25-38	38	
15,875	5/8"	19-20	25-38	38	
19,05	3/4"	19-20	20-25-38	25-38	
25,40	1"			19-20	25-38
31,750	1" 1/4				22



SECUREX

LIMITATORE DI COPPIA A STRISCIAMENTO

Il limitatore di coppia Securex agisce come una protezione dai sovraccarichi in azionamenti che impiegano ingranaggi o pulegge. Si tratta di un dispositivo di impiego molto semplice ed efficace, che offre una completa affidabilità operativa ed è adatto ad applicazioni che comportano sovraccarichi occasionali a basse velocità. Il limitatore di coppia protegge parti meccaniche o macchine che possono essere soggette a sovraccarichi, slittando quando la coppia richiesta oltrepassa un valore pretarato. Mantiene inoltre il reinserimento automatico al valore di coppia pre-tarato quando il sovraccarico cessa. La coppia di slittamento è tarata al valore richiesto tramite la regolazione del carico delle molle a tazza sulle guarnizioni di attrito.

REGOLAZIONE DELLA COPPIA DI SLITTAMENTO

Tipi 30 ÷ 85: la ghiera che fornisce il carico alle molle a tazza e alle guarnizioni di attrito viene regolata con una chiave.
Al raggiungimento della coppia di slittamento desiderata, la ghiera è mantenuta in posizione dal bloccaggio della relativa rosetta di fermo.
Tipi dal 95 e oltre: la regolazione della coppia di slittamento si ottiene agendo su 4 o più viti, che trasmettono un carico assiale alle molle a tazza, e quindi alle guarnizioni di attrito. Questo sistema permette una grande semplicità di taratura.
La precisione di regolazione della coppia può essere sostanzialmente migliorata con un rodaggio (in due o tre volte per evitare sovratemperature) delle superfici di frizione per 200 giri al 25% della coppia massima del tipo a una molla, a una velocità di non oltre 100 giri/1'.

CORONE A STOCK E LIMITATORI CON FORO E CHIAVETTA

Compomac può fornire i limitatori SECUREX pronti per il montaggio sulla macchina, completi di corona (pag. 16, tabella in basso) e con foro finito e chiavetta (pag. 16, tabella in alto, ultima colonna).

LUNGHEZZA BOCCOLE ANTIFRIZIONE

Compomac fornisce solo una lunghezza di boccole come standard, corrispondente alla larghezza di corona più comune. Il montaggio di altre corone richiede di modificare la larghezza della boccola per assicurare che la boccola supporti ambedue i dischi di attrito (vedi pag. 16, tabella in basso).

FRICTION TORQUE LIMITER

The torque limiter Securex acts as an overload protection in machine drives using sprockets or pulleys.
These devices are extremely simple to use and offer complete operating security for applications involving occasional overloads at low speed.
The torque limiter protects mechanical parts and machines which may be subjected to overloading of various kinds, by slipping when the torque demand exceeds a preset value. It maintains re-engagement at pre-set torque when the overload torque has passed; no resetting is required. Slip torque is presetted by adjustment of the spring force on the pressure plate and friction surfaces.

TORQUE ADJUSTMENT

Type 30 ÷ 85: the nut providing axial load to the disk spring can be adjusted with an adjustable wrench. After the slip torque preset, the nut is locked in position by means of the appropiate locking washer.
Type 95 and over: slip torque is presetted by adjustment of 4 or more screws on the nut, providing axial load to the disk spring. This system make the adjustment easy.
The accuracy of the torque setting can be basically improved with a run-in (in two or three steps to avoid over heating) of the friction faces for 200 revolutions at 25% maximum torque rating for the single spring unit, at speed not exceeding 100 r.p.m.

STANDARD STOCK PLATEWHEELS AND HUBS C/W BORE AND KEYWAY

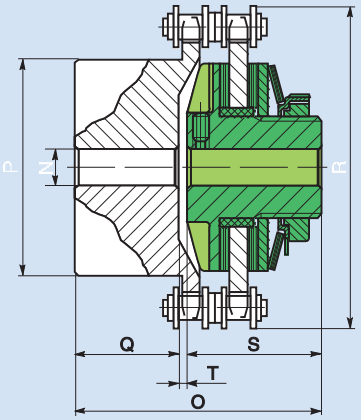
Compomac can supply as standard SECUREX torque limiters ready to be mounted on the machine, complete of platewheel (page 16, table down), and with hubs with bore and keyway (page 16, table up, last column).

LENGHT OF THE ANTI-FRICTION BUSHES

Compomac supply only one bush lenght as standard, corresponding to the most common platewheel thickness. The mounting of other platewheels requires to modify the lenght of the bush to ensure that bush supports both friction facings (see page 16, table down).

SECUREX C

(limitatore di coppia + giunto a denti)
(standard torque limiter + roller chain coupling)

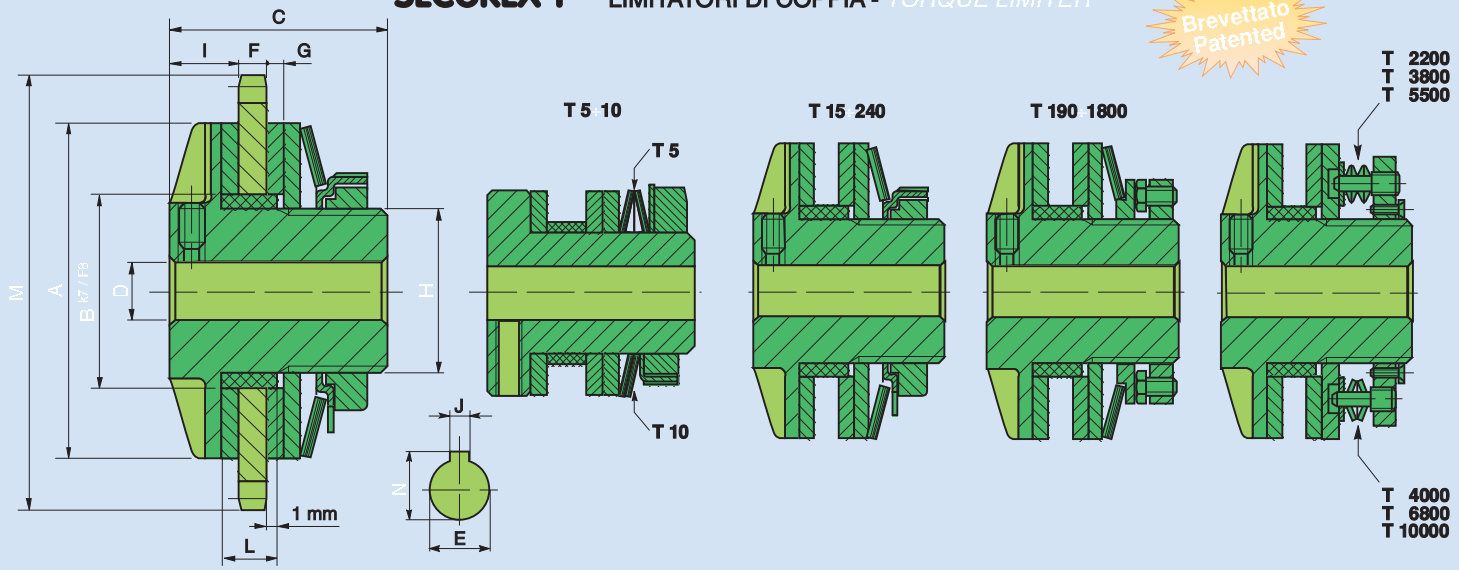


Dimensioni limitatore: vedi pag. seguente
Torque limiter dimensions: see next page

Tipo *Type*	Max. Coppia *Torque* (Nm)	Nr. Molle *Springs*	Max. disallineamento *Max. misalignment*		N Alesaggio giunto *Coupling bore*		O	P	Q	R	S	T	Ingranaggio per catena *Chain sprocket*	
			Parallelo *Parallel*	Angolare *Angular*	Min.	Max.							N. denti *Nr. teeth*	Passo *Pitch*
C 5/30	5	2	0.20	30'	11	22	55	37	22.5	57.1	31	1.5	16	3/8
C 10/30	10	2												
C 15/40	15	1	0.20	30'	8	40	55	55	25	75.2	28	2	22	3/8
C 28/40	28	2												
C 40/40	40	3												
C 30/45	30	1	0.25	30'	8	40	59.5	55	25	75.2	33	1.5	22	3/8
C 55/45	55	2												
C 70/45	70	3												
C 70/65	70	1	0.25	30'	15	48	85	70	32	106.2	50	3	18	5/8
C 120/65	120	2												
C 130/85	130	1	0.35	30'	15	60	100	90	42	138	55	3	20	3/4
C 240/85	240	2												
C 190/95	190	1	0.35	30'	15	60	110	90	42	138	66	3	20	3/4
C 340/95	340	2												
C 350/120	350	1	0.40	30'	20	80	130	120	50	183.5	77	3	20	1"
C 650/120	650	2												
C 650/140	650	1	0.50	30'	25	100	149	130	60	199.5	86	3	22	1"
C 1200/140	1200	2												
C 1000/170	1000	1	0.50	30'	30	100	170	158	74	231.6	93	3	26	1"
C 1800/170	1800	2												
C 2200/200	2200	24	0.50	30'	35	100	194	150	85	264	105	3	30	1"
C 4000/200	4000	24												
C 3800/254	3800	32	0.80	30'	50	150	255	230	130	390.7	120	5	36	1" 1/4
C 6800/254	6800	32												
C 5500/280	5500	32	0.80	30'	50	150	255	230	130	390.7	120	5	36	1" 1/4
C 10000/280	10000	32												

SECUREX T LIMITATORI DI COPPIA - *TORQUE LIMITER*

Brevettato Patented



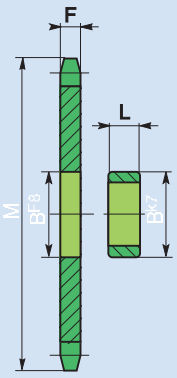
Tipo *Type*	Max. Coppia *max Torque* (Nm)	Nr. Molle *Springs nr*	A	B K7/F8	C	D Prealesato *Predrilled*	Max. Alesaggio/chiavetta *Max Bore/keyway* DIN 6885/1 Emax.	DIN 6885/1 N	DIN 6885/3 Emax.	DIN 6885/3 N	F(•) max	G	H	I	L Standard
T 5/30	5	2	30	21	31	4.5	11	12.8	12	13.4	6	2.5	18	9	6
T 10/30	10	2													
T 15/40	15	1	40	26	28	7	14	16.3	16	17.4	7	2.8	22	8	8
T 28/40	28	2													
T 40/40	40	3													
T 30/45	30	1	45	35	33	7	20	22.8	22	23.8	8	3	32	8.5	9
T 55/45	55	2													
T 70/45	70	3													
T 70/65	70	1	65	45	50	10	22	24.8	25	27.3	13	4	3616		14
T 120/65	120	2													
T 130/85	130	1	85	52	55	15	30	33.3	30	32.4	15	4	4217		16
T 240/85	240	2													
T 190/95	190	1	95	60	66	15	35	38.3	38	40.8	15	4	5218		16
T 340/95	340	2													
T 350/120	350	1	120	73	77	20	45	48.8	48	50.8	20	4	6421		21
T 650/120	650	2													
T 650/140	650	1	140	90	86	20	60	64.4	60	63.3	20	4	8523		22
T1200/140	1200	2													
T1000/170	1000	1	170	100	93	28	65	69.4	70	73.3	20	4.6	9026.5		24
T1800/170	1800	2													
T 2200/200	2200	24	200	120	105	35	80	85.4	80	83.8	25	5	11027		24
T 4000/200	4000	24													
T 3800/254	3800	32	254	140	120	48	90	95.4	100	104.3	29	5	12533		32
T 6800/254	6800	32													
T 5500/280	5500	32	280	170	120	48	120	127.4	—	—	29	5	15533		32
T10000/280	10000	32													

Disponibilità di magazzino / *Availability in stock*		
Ingranaggio per catena *Chain sprocket*	Alesaggio H7 + chiavetta *Bore H7 + keyway* E H7	Js9
	DIN 6885/1 - *DIN 6885/3	
3/8"z 16	10	3
3/8" z18 - 3/8" z22 1/2" z14	10 12 14	3 4 5
3/8" z19 - 3/8" z22 1/2" z15	14-15-16 18-19-20-22*	5 6
3/8" z25 - 1/2" z20 5/8" z16 - 5/8" z18	16 18-19-20-22 24-25*	5 6 8
3/8" z32 - 1/2" z25 5/8" z21 - 3/4" z18 - 3/4" z20	18-19-20 25-28-30	6 8
1/2" z28 - 5/8" z24 3/4" z20	20 25-30 35	6 8 10
1/2" z34 - 5/8" z28 3/4" z24 - 1" z18 - 1" z20	30 35-40 45	8 10-12 14
3/4" z28 - 1" z22	50-60	14-18
3/4" z32 - 1" z26	50-60	14-18
1" z30	—	—
—	—	—
—	—	—

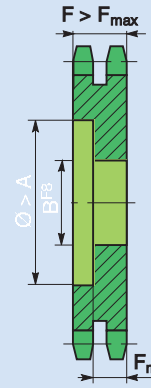
SECUREX T

Corone con superfici lavorate a 1,6 µm disponibili a stock

Platewheels with 1,6 µm surface finish available as stock items



Grand. *Size*	Passo *Pitch*	Z n. denti	F	M	L Standard	L*
30	3/8"	16	4.7	52.3	6.0	3.7
40	3/8"	18	4.7	58.3	8.0	8.0
	3/8"	22	4.7	71.0		8.0
	1/2"	14	6.6	61.8		10.5**
45	3/8"	19	4.7	61.3	9.0	9.0
	3/8"	22	4.7	71.0		9.0
	1/2"	15	6.6	65.5		10.5**
65	3/8"	25	4.7	80.0	14.0	10.2
	1/2"	20	6.6	85.8		12.1
	5/8"	16	8.5	88.0		14.0
	5/8"	18	8.5	98.3		14.0
85	3/8"	32	4.7	101.3	16.0	10.2
	1/2"	25	6.6	105.8		12.1
	5/8"	21	8.5	113.4		14.0
	3/4"	18	10.5	118.0		16.0
	3/4"	20	10.5	129.7		16.0
95	1/2"	28	6.6	118.0	16.0	12.1
	5/8"	24	8.5	128.3		14.0
	3/4"	20	10.5	129.7		16.0
120	1/2"	34	6.6	142.6	21.0	12.1
	5/8"	28	8.5	148.7		14.0
	3/4"	24	10.5	153.9		16.0
	1"	18	15.7	157.0		21.0
	1"	20	15.7	173.2		21.0
140	3/4"	28	10.5	178.0	22.0	16.0
	1"	22	15.7	189.3		22.0
170	3/4"	32	10.5	203.3	24.0	16.6
	1"	26	15.7	221.6		21.8
200	1"	30	15.7	254.0	24.0	22.5



(•) Le corone di lughezza superiore a F_{max} richiedono uno scarico, per il montaggio sul limitatore.

Platewheels with thickness exceeding F_{max} require recess to fit torque limiter

* Lunghezza boccole

Il montaggio di alcune corone richiede di modificare la lunghezza assiale della boccola da $L_{STANDARD}$ a L. I casi marcati con ** richiedono l'impegno di 2 boccole.

** Bush lenght*

*The mounting of some plate wheels requires to change the axial lenghts of the bush from $L_{STANDARD}$ to L. The cases marked with ** require the mounting of 2 bushes*