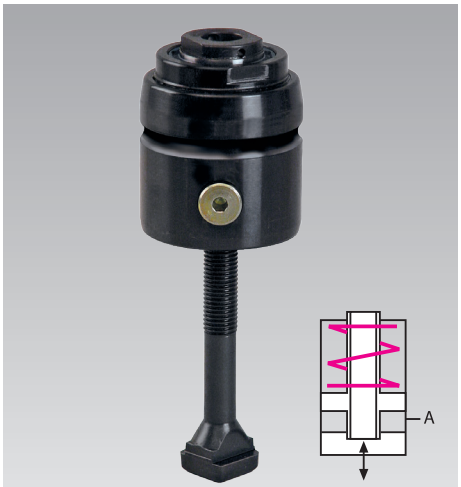
Hollow Piston Cylinder

Single acting, hydraulic clamping and spring unclamping
Max. operating pressure 400 bar, max. clamping force from 30 kN to 104 kN

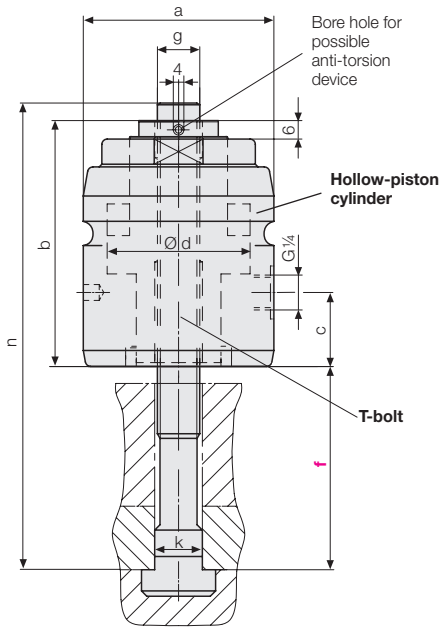


Hollow piston cylinder "L" design without spherical disk

Advantages

- T-bolt, secured against loosening
- Ideal force transmission
- Handy and compact design with gripping surface
- Large clamping stroke
- No interfering edges when inserting the dies
- Easy to retrofit
- Piston hardened and ground
- Easy installation
- Fully resilient stroke limitation

Hollow piston cylinder "L" design without spherical disk



Dimension "f" = die clamping edge + web height + ½ stroke

Application

These hollow piston cylinders are used for clamping and locking on machines and systems, on the press table and ram.
Because of their handy and compact design, hollow-piston cylinders are especially suitable where space is limited.
They can be used in ambient temperatures up to a maximum of 120°C.

Description

The element is manually placed on the clamping edge of the die.
Clamping by application of hydraulic pressure to the piston and unclamping by spring force. By means of the T-bolt the die is clamped against the clamping surface of the press ram or bed.

Important note

If hollow piston cylinder and T-bolt are supplied separately, adjust them to suit dimension "f" and secure them.

Example of ordering

82134 1832 / F66

Hollow piston cylinder
Clamping force: 60 kN

T-slot
18 mm

Functional dimension "f" [mm]
Please specify when ordering

Hollow piston cylinder "L" design with T-bolt

- with adjusted and secured T-bolt (specify dimension "f" when ordering)
- without spherical disk

For T-slot	**[mm]**	**14**	**16**	**18**	**22**	**22**	**28**	**36**
Clamping force at 400 bar	**[kN]**	**28**	**40**	**60**	**60**	**60**	**104**	**104**
Dimension "f" min.	**[mm]**	**32**	**31**	**30**	**32**	**36**	**56**	**60**
Dimension "f" max.	**[mm]**	**59**	**58**	**66**	**92**	**106**	**145**	**145**
Spring return force, min.	[N]	255	360	320	400	320	570	570
Piston Ø d	[mm]	35	42	54	54	54	70	70
Stroke	[mm]	8	8	12	6	12	12	12
Total oil volume	[cm^3]	6	8	18	9	18	32	32
a	[mm]	50	58	72	72	72	90	90
b	[mm]	64.5	66.5	92.5	67	92.5	104	104
c	[mm]	13	14	29	12	29	26	26
g	[mm]	M12	M14	M16	M20	M20	M24	M30
k		14	16	18	22	22	28	36
m		G1/8	G1/8	G1/4	G1/4	G1/4	G1/4	G1/4
Weight	[kg]	1.0	1.2	2.5	2.0	2.8	4.8	5.4
Part no.		**821321432**	**821331632**	**821341832**	**821342222**	**821342232**	**821352832**	**821353632**

Max. operating pressure 400 bar,
Other sizes, dimension "f" settings and special versions are available on request

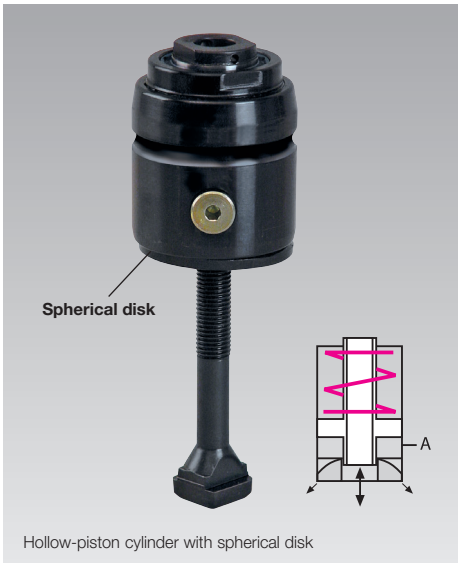
Hollow piston cylinder "L" design without spherical disk without T-bolt

- without spherical disk

For T-slot	**[mm]**	**14**	**16**	**18**	**22**	**22**	**28**	**36**
Weight	[kg]	0.75	1.0	2.2	1.7	2.2	3.8	3.6
Part no.		**821320132**	**821330132**	**821340132**	**821341122**	**821341132**	**821350132**	**821351132**

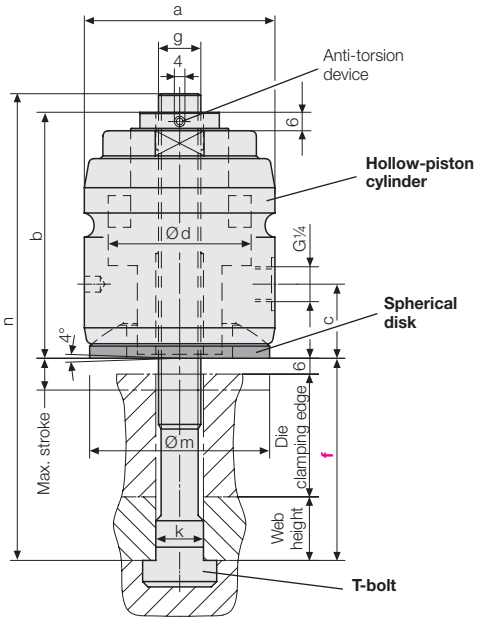
T-bolts as accessories see page 6

Hollow Piston Cylinder with Spherical Disk
Optimum Adaptation to uneven Clamping Surfaces



Hollow-piston cylinder with spherical disk

Hollow piston cylinder
design with spherical disk



Dimension "f" = die clamping edge
+ web height
+ ½ stroke

Hollow piston cylinder with T-bolt

Adjusted and secured (please specify dimension "f" when ordering)

For T-slot	[mm]	18	22	28	36
Clamping force at 400 bar	**[kN]**	**60**	**60**	**104***	**104***
Dimension "f" min.	**[mm]**	**30**	**36**	**56**	**60**
Dimension "f" max.	**[mm]**	**66**	**106**	**144**	**144**
Spring return force, min.	[N]	320	320	570	570
Piston Ø d	[mm]	54	54	70	70
Stroke	[mm]	12	12	12	12
Total oil volume	[cm^3]	18	18	32	32
a	[mm]	72	72	90	90
b	[mm]	93	93	105	105
c	[mm]	30	30	27	27
g	[mm]	M 16	M 20	M 24	M 30
k	[mm]	18	22	28	36
m	[mm]	68	68	78	78
Weight	[kg]	2.39	2.67	4.77	5.29
Part no.		**8213418 02**	**8213422 02**	**8213528 02**	**8213536 02**

Max. operating pressure 400 bar
Other sizes, dimension "f" settings and special versions are available on request

Example of ordering

8 2134 1802 / F110

Hollow piston cylinder
Clamping force: 60 kN

T-slot
18 mm

Functional dimension "f" [mm]
Please specify when ordering

Hollow piston cylinder without T-bolt

Weight	[kg]	2.1	2.09	3.67	3.49
Part no.		**8213401 03**	**8213411 03**	**8213501 02**	**8213511 02**

Important note

If hollow piston cylinder and T-bolt are supplied separately, adjust them to suit dimension "f" and secure them.

T-bolt, separate

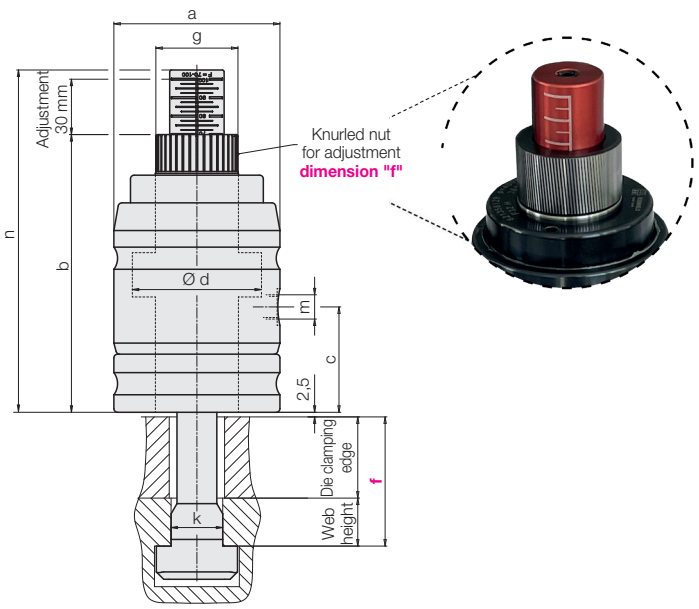
For T-slot	[mm]	18	22	28	36
n	[mm]	160	200	250	250
Property class		12.9	12.9	12.9	8.8
Weight	[kg]	0.29	0.58	1.10	1.8
Part no.		**5700022**	**5700023**	**5700024**	**5700048**

For accessories, such as **parking stations** or other **T-bolts** see page 6

PATENT

Hollow-piston cylinder with adjusting screw for customized and flexible adjustment

This version can be flexibly adjusted for different clamping edge heights. Adjustment is quick and easy using a knurled nut with an easy-to-read scale. The tie rod is adjusted to the correct clamping dimension by turning the knurled nut. With this version, there is no need to remove the tie rod or re-pin it.



Version 245 and 400 bar available

For T-slot	[mm]	22	28
Clamping force at 400 bar	**[kN]**	**60**	**104**
Dimension "f" min.	**[mm]**	**70**	**70**
Dimension "f" max.	**[mm]**	**100**	**100**
Adjustment track	[mm]	30	30
Total stroke	[mm]	7	7
Clamping stroke	[mm]	2.5	2.5
Total oil volume	[cm^3]	18	32
a	[mm]	72	90
b	[mm]	105	150
c	[mm]	61.5	57
Ø d	[mm]	54	70
g	[mm]	35	49.5
k	[mm]	22	28
m		G 1/4	G 1/4
n	[mm]	140	185
Weight	[kg]	5	7.4
Part no.		**8 2134 5001**	**8 2135 5001**

Clamping edge of the die		**at web height 22 mm**	**at web height 28 mm**
Clamping edge min./max.	[mm]	–	42–72

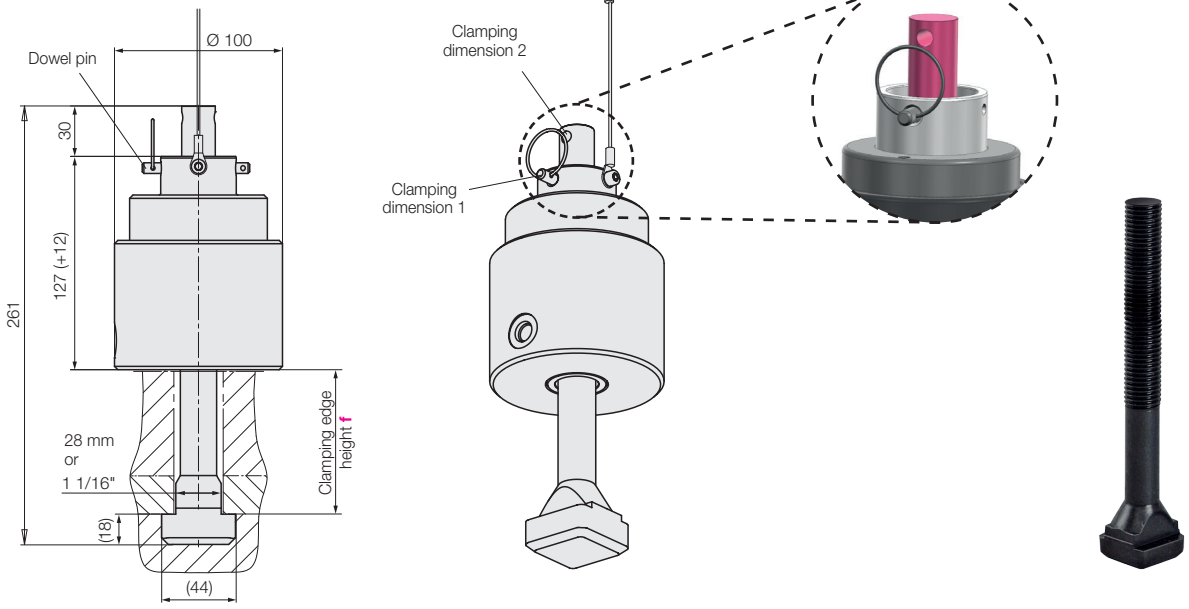
Other clamping edge heights on request

Hollow piston cylinder with socket pin for up to three clamping edge heights

This version with flexible clamping dimensions has two or three different adjustment options for different clamping edge heights. Adjustment is made by screwing in the tie rod to the plug-in hole or dimension 1, 2, or 3.
It is secured manually with a dowel pin.

Example figure and dimensions for T-slot 28 or 1 1/16"

Clamping force 100 kN at 245 bar
Further sizes and clamping ranges are available on request

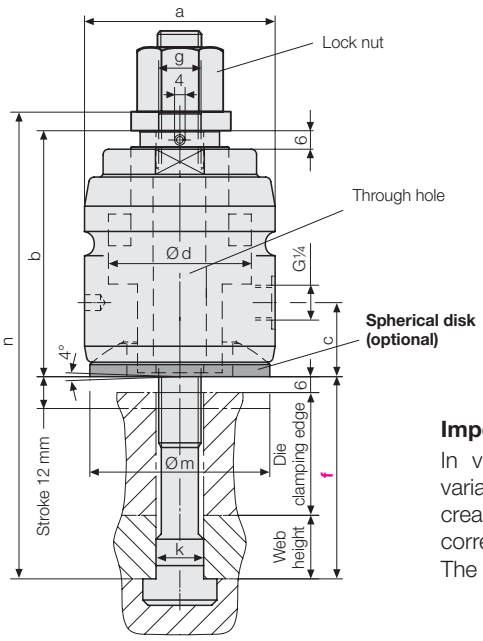


245 bar version

Part no. for T-slot 28 mm: **8 2135 7001**
Part no. for T-slot 1 1/16": **8 2135 9001**

Hollow piston cylinder with lock nut

Freely adjustable and flexible adaptation to suit varying heights of clamping edges of the dies by quick and easy adjustment of the tie rod by means of a lock nut. The tie rod is inserted through the hollow piston cylinder and adjusted to the correct dimension by means of the nut. In this design, the cylinder has a through hole instead of a thread.
Technical design, clamping forces and dimensions correspond to the standard design.

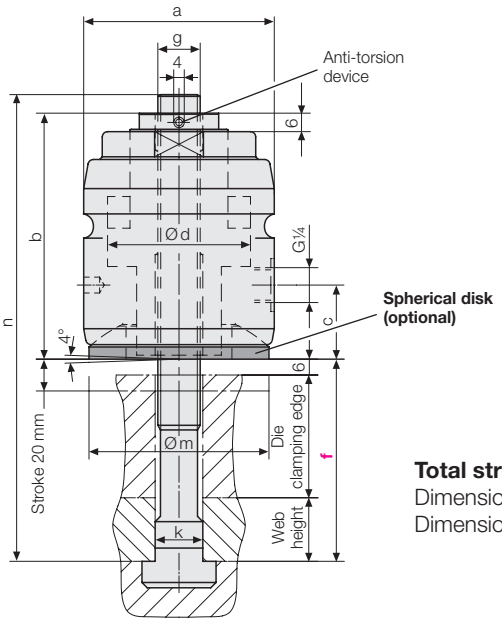


Important notes

In variants with increased overall stroke or variable clamping dimensions, there is an increased risk of crushing if the settings are incorrect.
The clamping stroke must be less than 6 mm.

Design with a total stroke of 20 mm

Optimum adaptation to varying heights of the clamping edges of dies by an increased total stroke of 20 mm (higher total stroke on request).
Technical design, clamping forces and dimensions correspond to the standard design. Due to the increased total stroke, dimension "b" is greater than indicated on page 1.

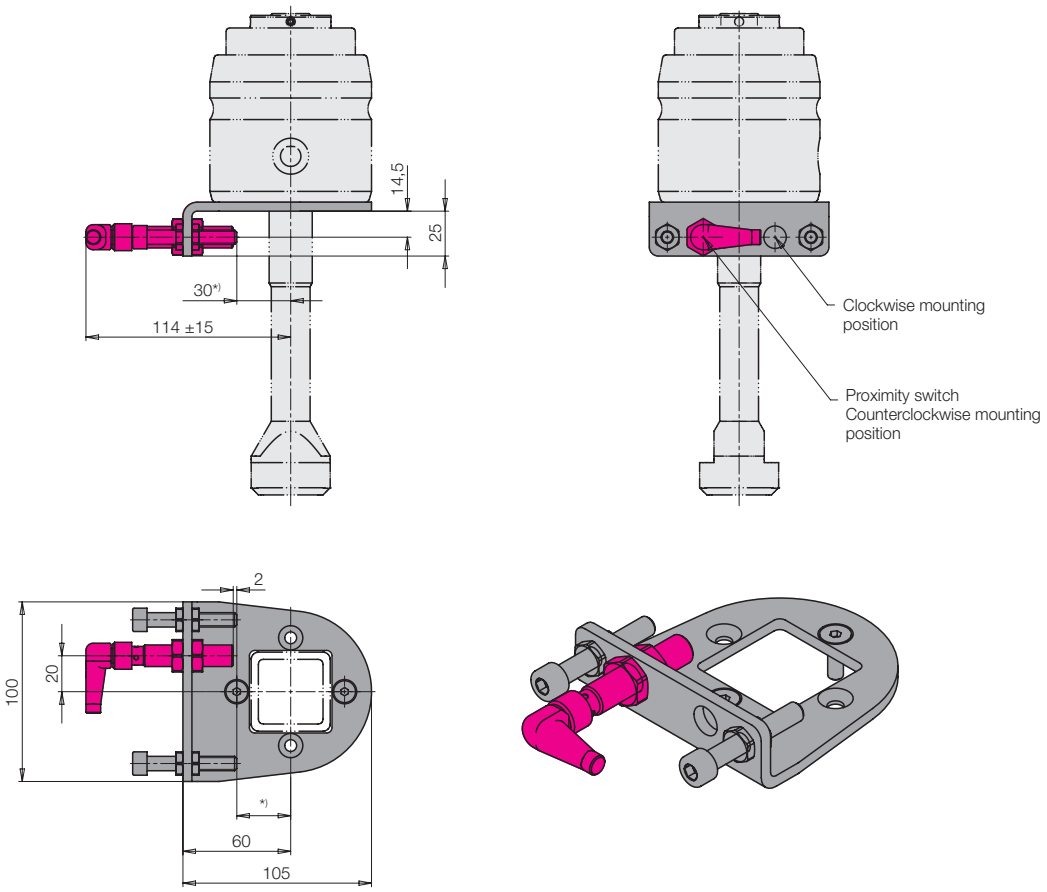


Total stroke 20 mm:
Dimension "b" with a clamping force of 60 kN: 120 mm
Dimension "b" with a clamping force of 104 kN: 132 mm

Position monitoring of the "die position" attached on the left or right hand side

In addition, each hollow piston cylinder can be equipped with inductive position monitoring for the die position.

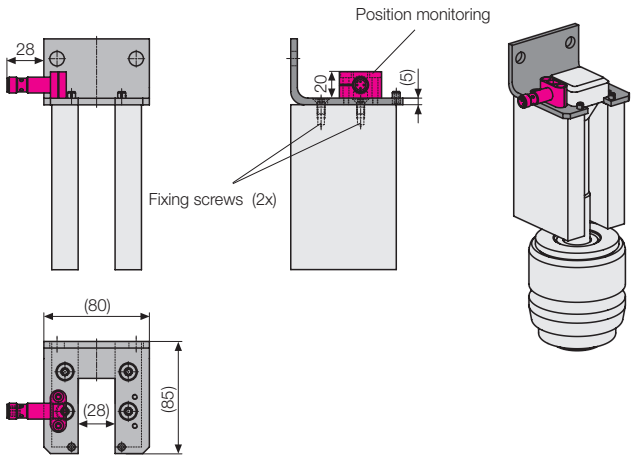
Version for hollow piston cylinder 104 kN
Part no. 721350015



*) Adjusting range 15 to 45 mm

Parking station with position monitoring

An inductive proximity switch indicates when a hollow piston cylinder is mounted to the parking station.



Position monitoring

Control options

- The correct number of clamping cylinders and thus sufficient clamping force is available
- Operator protection: no clamping cylinder will be forgotten
- Control of a selective selection per die size is possible

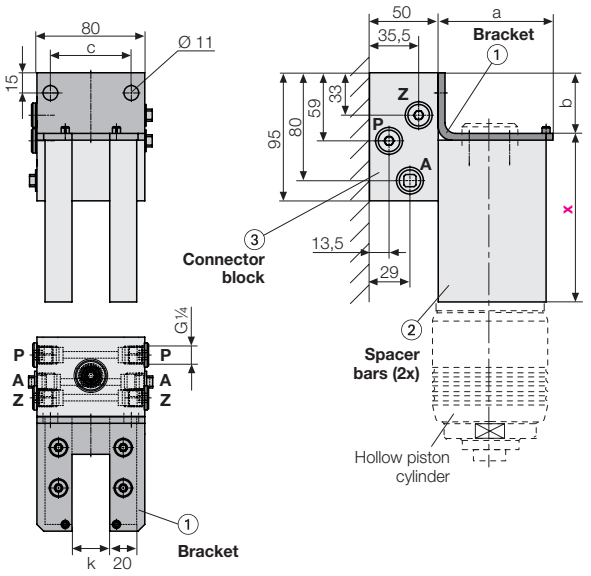
Please contact us!

Other accessories

- **Hydraulic power units**
  see product group 7
- **Hydraulic accessories**
  see product group 11
- **Angular rotary coupling**
  Part no. 9208176

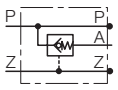
Parking station without position monitoring

Accommodates the hollow piston cylinder during die change

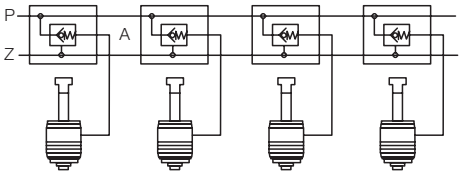


Distance dimension "x"
= dimension "f" – ½ stroke
Please specify when ordering

Hydraulic circuit diagram



Application with integral check valve



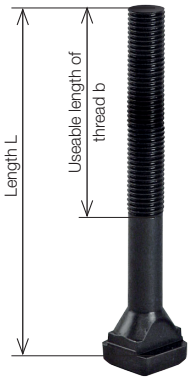
For hollow piston cylinder type		2132	2133	2134	2134	2135	2135
T-slot width k	[mm]	14	16	18	22	28	36
a	[mm]	60	60	72	72	85	90
b	[mm]	40	40	45	45	45	45
c	[mm]	36	36	60	60	60	60
Bracket ①	**Part no.**	**2753140**	**2753160**	**2753180**	**2753220**	**2753280**	**2753360**
Bracket ① with mounted spacer bars ②	**Part no.**	**8 2753 1430**	**8 2753 1630**	**8 2753 1830**	**8 2753 2230**	**8 2753 2830**	**8 2753 3630**
Bracket ① with spacer bars ② and connector block ③	**Part no.**	**8 2753 1450**	**8 2753 1650**	**8 2753 1850**	**8 2753 2250**	**8 2753 2850**	**8 2753 3650**
Connector block ③ with integral check valve (separate)	**Part no.**	**8 2753 4012**	**8 2753 4012**	**8 2753 4002**	**8 2753 4002**	**8 2753 4002**	**8 2753 4002**

Special designs on request

T-bolts, separate

Other sizes and thread lengths

For T-slot [mm]	Thread	L [mm]	Usable length Thread b	Property class	Weight [kg]	Part no.
14	M24	50	35	12.9	0.07	**5700147**
		80	55	12.9	0.1	**5700148**
		100	65	12.9	0.11	**5700149**
		125	70	12.9	0.16	**5700143**
		125	75	12.9	0.12	**5700168**
		200	120	12.9	0.18	**5700150**
16	M14	125	100	8.8	0.19	**5700144**
18	M16	80	55	12.9	0.18	**5700151**
		100	65	12.9	0.2	**5700152**
		160	100	12.9	0.28	**5700022**
		250	150	12.9	0.43	**5700153**
22	M20	80	55	12.9	0.33	**5700154**
		100	85	12.9	0.43	**5700155**
		160	110	8.8	0.76	**10787 0211**
		200	150	12.9	0.58	**5700023**
		315	190	12.9	0.82	**5700156**
28	M24	160	110	12.9	0.8	**5700157**
		250	150	12.9	1.12	**5700024**
		400	240	12.9	1.49	**5700158**
36	M30	125	80	8.8	1.25	**5700159**
		160	110	8.8	1.44	**5700160**
		200	135	8.8	1.63	**5700161**
		250	140	8.8	1.8	**5700048**
		250	150	8.8	1.92	**5700162**
		315	200	8.8	2.1	**5700163**
42	M36	160	100	8.8	2.2	**5700164**
		250	175	8.8	2.82	**5700165**
		400	250	8.8	3.93	**5700166**
		600	340	8.8	5.48	**5700167**



Important note

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