



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

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

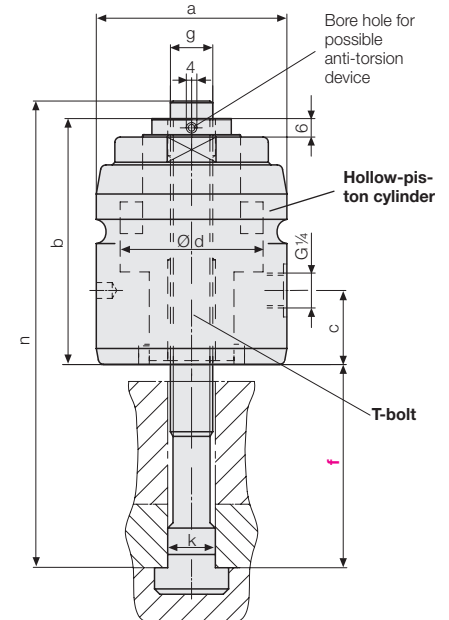
The element is manually placed on the clamping edge of the die.

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

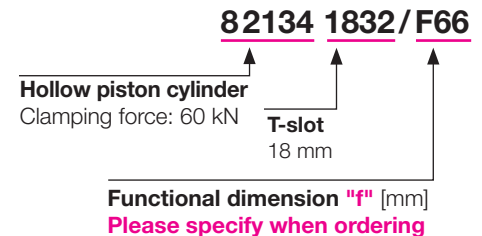
If hollow piston cylinder and T-bolt are supplied separately, adjust them to suit dimension "f" and secure them.

Hollow piston cylinder "L" design without spherical disk



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

Example of 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		G 1/8	G 1/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4
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

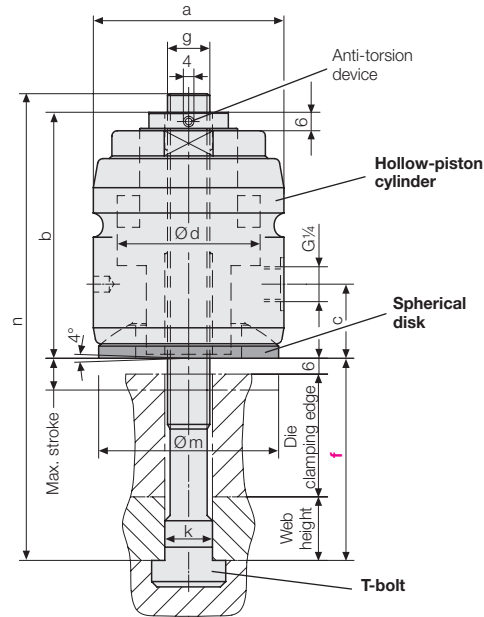
T-bolts as accessories see page 6

Hollow Piston Cylinder with Spherical Disk

Optimum Adaptation to uneven Clamping Surfaces



Hollow piston cylinder 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)

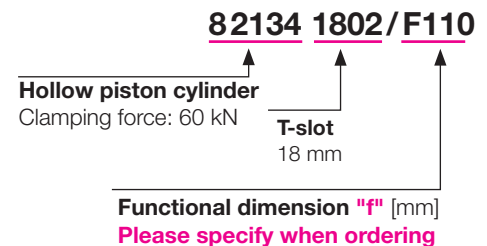
For T-slot	[mm]	18	22	28	36
Clamping force at 400 bar	[kN]	60	60	104*	104*
Dimension "f" min.	[mm]	30	36	56	60
Dimension "f" max.	[mm]	66	106	144	144
Spring return force, min.	[N]	320	320	570	570
Piston Ø d	[mm]	54	54	70	70
Stroke	[mm]	12	12	12	12
Total oil volume	[cm³]	18	18	32	32
a	[mm]	72	72	90	90
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. 821341802 821342202 821352802 821353602

Max. operating pressure 400 bar

Other sizes, dimension "f" settings and special versions are available on request

Example of ordering



Hollow piston cylinder without T-bolt

Weight	[kg]	2.1	2.09	3.67	3.49
Part no.		821340103	821341103	821350102	821351102

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

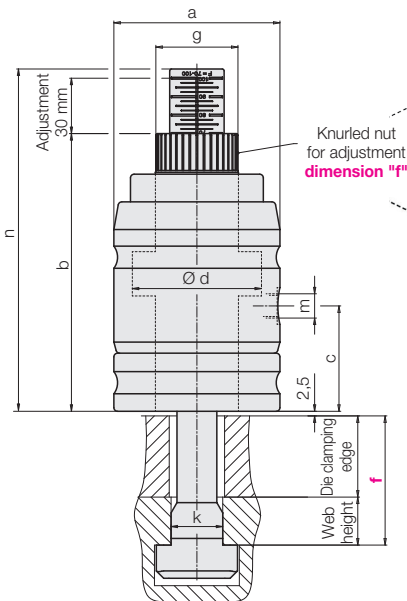
Important note

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

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

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	[cm³]	18	32
a	[mm]	72	90
b	[mm]	138	150
c	[mm]	59	57
Ø d	[mm]	54	70
g	[mm]	35	49.5
k	[mm]	22	28
m		G 1/4	G 1/4
n	[mm]	172	185
Weight	[kg]	3.7	7.4
Part no.		821345001	821355001

Clamping edge of the die	at web height	at web height
	22 mm	28 mm
Clamping edge min./max.	[mm] 48–78	42–72

Other clamping edge heights on request

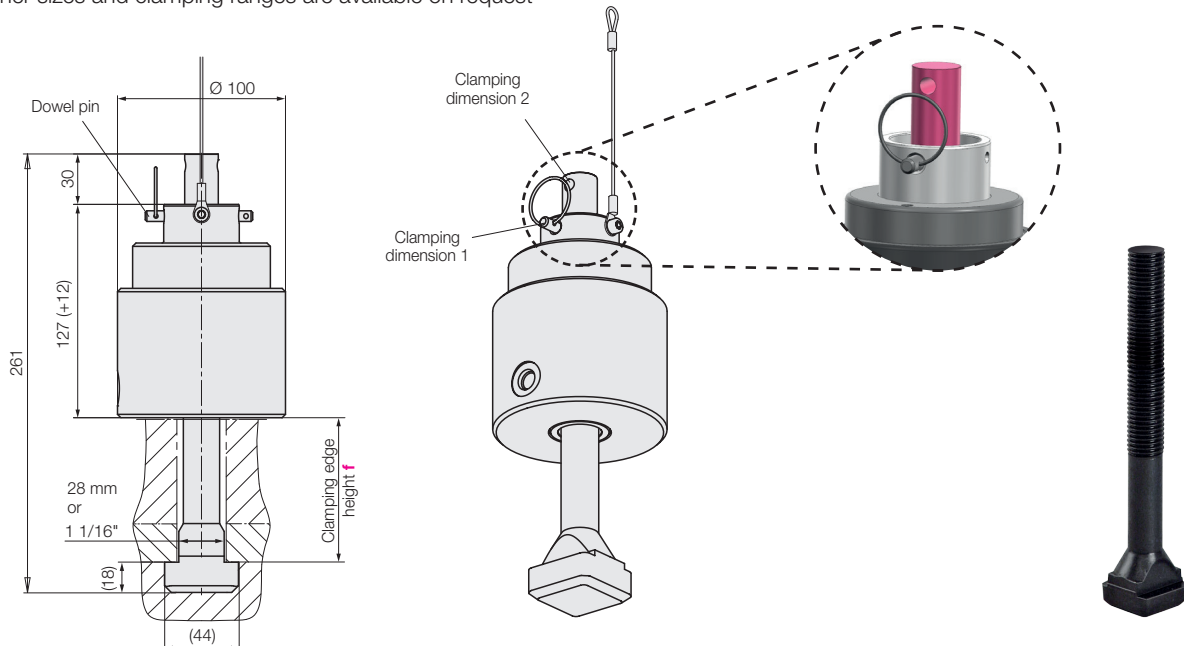
Hollow piston cylinder with socket pin for up to three clamping edge heights

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

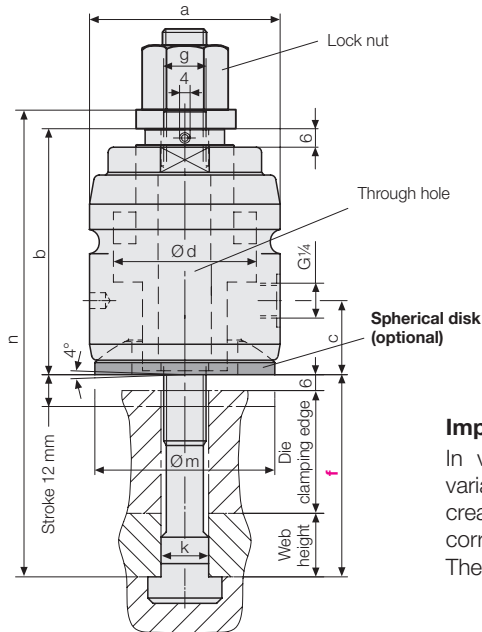
Part no. for T-slot 28 mm: **821357001**

Part no. for T-slot 1 1/16": **821359001**

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.



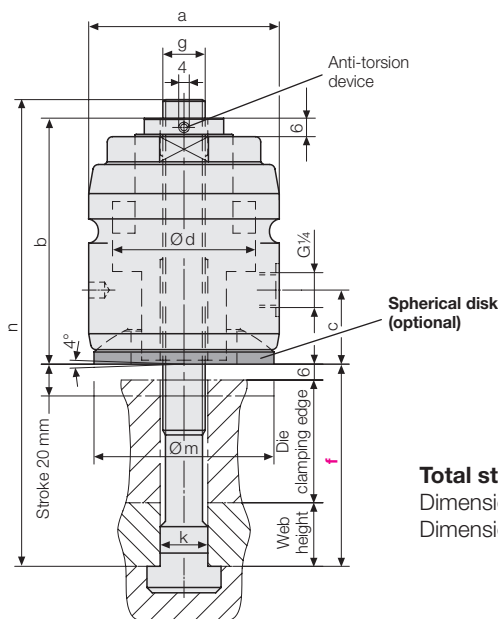
Important notes

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

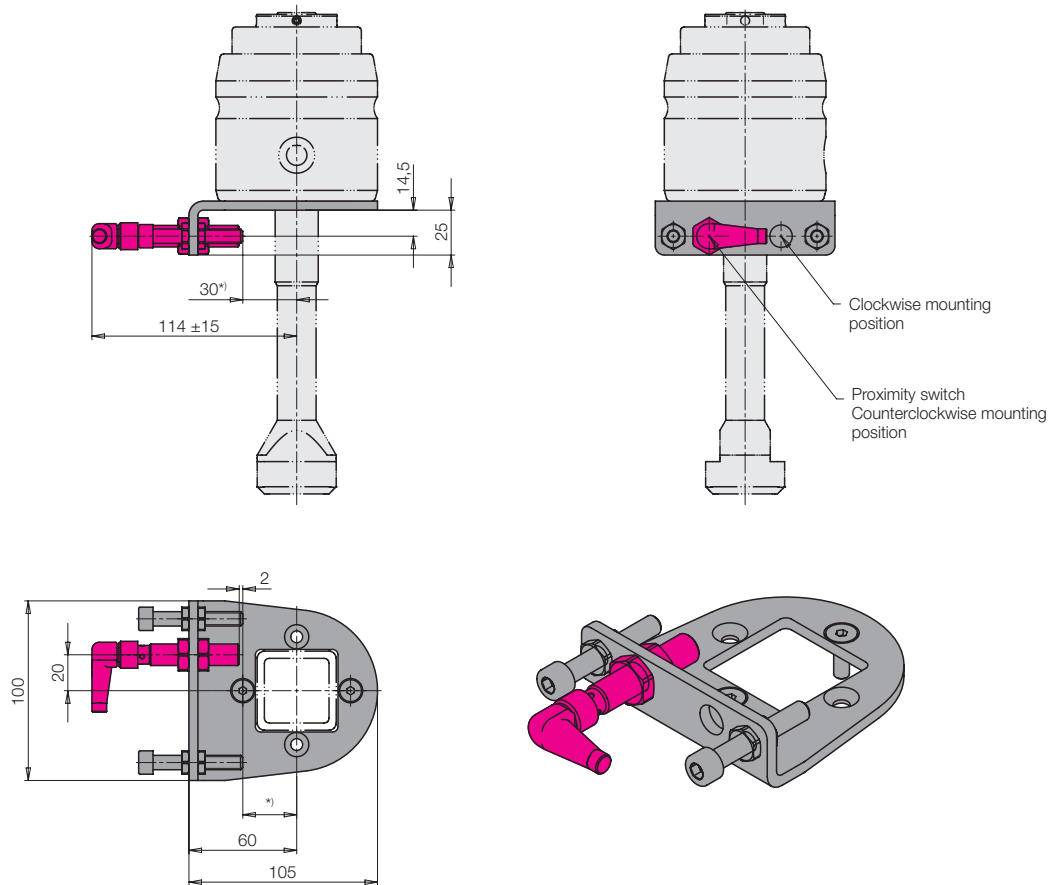
Dimension "b" with a clamping force of 104 kN: 132 mm

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

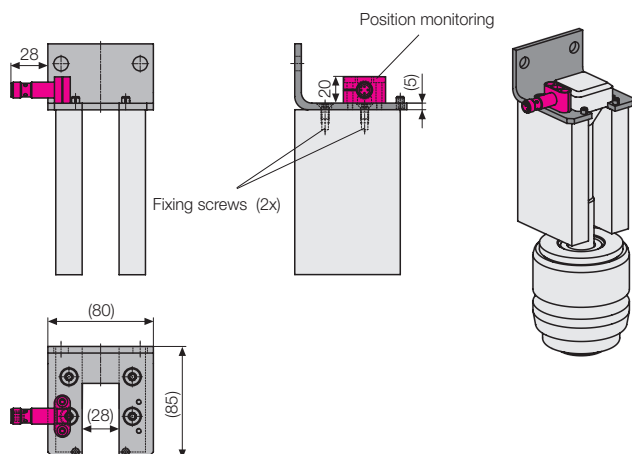
Part no. 721350015



*) 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

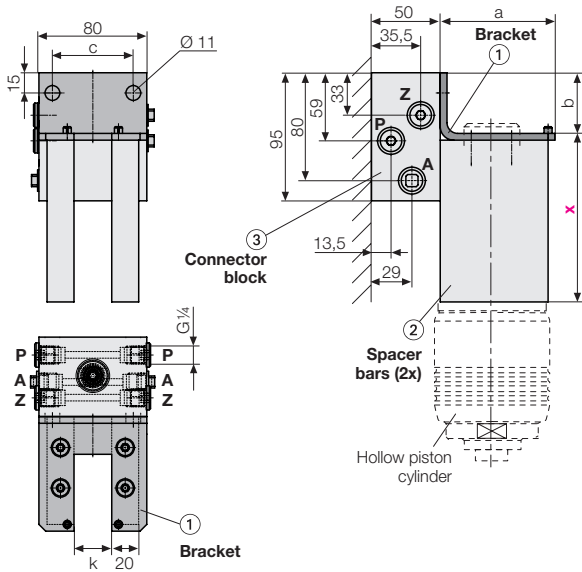
Please contact us!

Other accessories

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

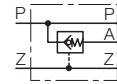
Parking station without position monitoring

Accommodates the hollow piston cylinder during die change

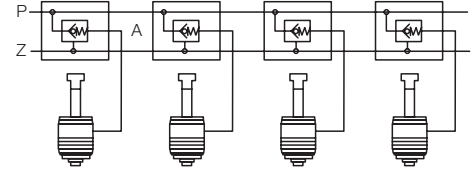


Distance dimension "x"
= dimension "f" – ½ stroke
Please specify when ordering

Hydraulic circuit diagram



Application with integral check valve



For hollow piston cylinder type

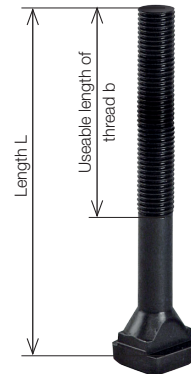
		2132	2133	2134	2134	2135	2135
T-slot width k	[mm]	14	16	18	22	28	36
a	[mm]	60	60	72	72	85	90
b	[mm]	40	40	45	45	45	45
c	[mm]	36	36	60	60	60	60
Bracket ①	Part no.	2753 140	2753 160	2753 180	2753 220	2753 280	2753 360
Bracket ① with mounted spacer bars ②	Part no.	8 2753 1430	8 2753 1630	8 2753 1830	8 2753 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	5700 147
		80	55	12.9	0.1	5700 148
		100	65	12.9	0.11	5700 149
		125	70	12.9	0.16	5700 143
		125	75	12.9	0.12	5700 168
16	M14	200	120	12.9	0.18	5700 150
		125	100	8.8	0.19	5700 144
18	M16	80	55	12.9	0.18	5700 151
		100	65	12.9	0.2	5700 152
		160	100	12.9	0.28	5700 022
		250	150	12.9	0.43	5700 153
22	M20	80	55	12.9	0.33	5700 154
		100	85	12.9	0.43	5700 155
		160	110	8.8	0.76	1 0787 0211
		200	150	12.9	0.58	5700 023
		315	190	12.9	0.82	5700 156
28	M24	160	110	12.9	0.8	5700 157
		250	150	12.9	1.12	5700 024
		400	240	12.9	1.49	5700 158
36	M30	125	80	8.8	1.25	5700 159
		160	110	8.8	1.44	5700 160
		200	135	8.8	1.63	5700 161
		250	140	8.8	1.8	5700 048
		250	150	8.8	1.92	5700 162
		315	200	8.8	2.1	5700 163
42	M36	160	100	8.8	2.2	5700 164
		250	175	8.8	2.82	5700 165
		400	250	8.8	3.93	5700 166
		600	340	8.8	5.48	5700 167



Important note

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