



## Hollow Piston Cylinders

single acting, hydraulic clamping and spring unclamping

max. clamping force of 30 kN up to 104 kN, max. operating pressure 400 bar



### Advantages

- Optimum adaptation to the clamping surface by spherical disk
- T-bolt, secured against loosening
- Ideal force transmission
- Convenient 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 plants, on press bed and ram.

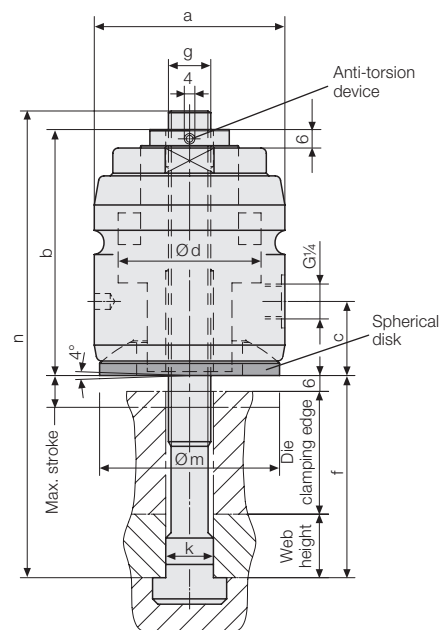
Due to the manageable and compact design, hollow-piston cylinders are especially suitable where space is limited.

The use is possible at ambient temperatures up to a maximum of 120 °C.

### Description

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

Clamping by the 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.



**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 on request

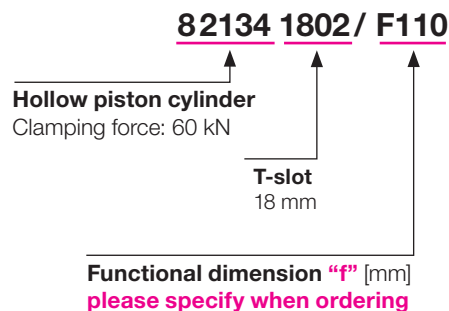
### Hollow piston cylinder without T-bolt

Weight	[kg]	2.1	2.09	3.67	3.49
<b>Part no.</b>		<b>821340102</b>	<b>821341102</b>	<b>821350102</b>	<b>821351102</b>

### 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
<b>Part no.</b>		<b>5700022</b>	<b>5700023</b>	<b>5700024</b>	<b>5700048</b>

### Example of ordering



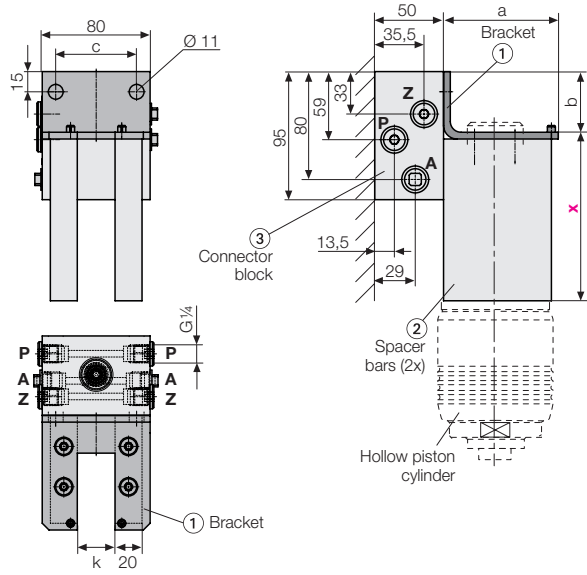
### Important note!

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

## Accessories

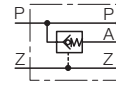
### Parking station without position monitoring

accommodates the hollow piston cylinder during die change.

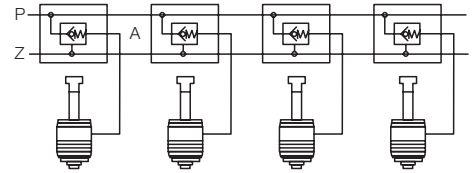


Distance dimension "x"  
= Dimension "f" - ½ stroke  
please specify when ordering

### Hydraulic circuit diagram



### Application with integral check valve



## Part numbers

### for hollow piston cylinder type

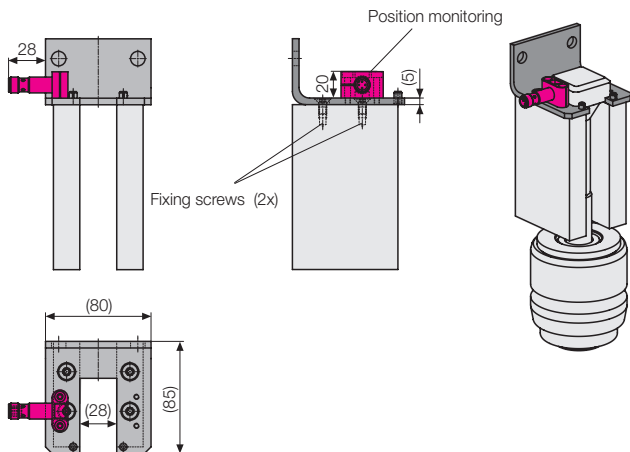
		2132	2133	2134	2134	2135	2135
T-slot width k		14	16	18	22	28	36
a	[mm]	60	60	72	72	85	90
b	[mm]	40	40	45	45	45	45
c	[mm]	36	36	60	60	60	60

<b>Bracket ①</b>	<b>Part no.</b>	<b>2753 140</b>	<b>2753 160</b>	<b>2753 180</b>	<b>2753 220</b>	<b>2753 280</b>	<b>2753 360</b>
<b>Bracket ① with mounted spacer bars ②</b>	<b>Part no.</b>	<b>82753 1430</b>	<b>82753 1630</b>	<b>82753 1830</b>	<b>82753 2230</b>	<b>82753 2830</b>	<b>82753 3630</b>
<b>Bracket ① with spacer bars ② and connector block ③</b>	<b>Part no.</b>	<b>82753 1450</b>	<b>82753 1650</b>	<b>82753 1850</b>	<b>82753 2250</b>	<b>82753 2850</b>	<b>82753 3650</b>
<b>Connector block ③ (separate) with integral check valve</b>	<b>Part no.</b>	<b>82753 4012</b>	<b>82753 4012</b>	<b>82753 4002</b>	<b>82753 4002</b>	<b>82753 4002</b>	<b>82753 4002</b>

Special designs on request

### 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 tool size is possible

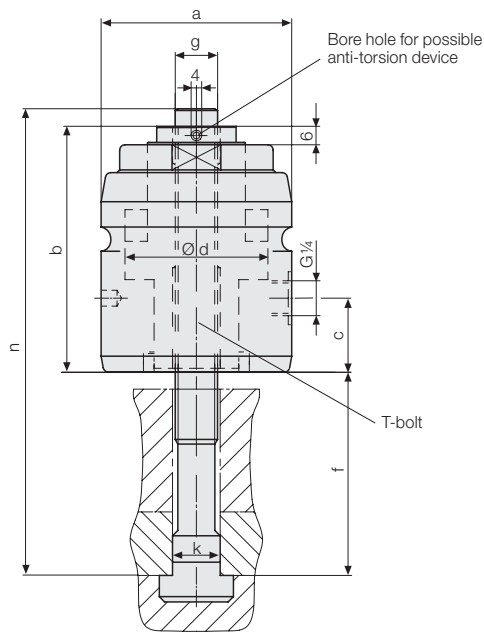
Please contact us!

## Other accessories

- **Hydraulic power units**  
see product group 7
- **Hydraulic accessories**  
see product group 11
- **Angular rotary coupling**  
Part no. 9208 176

## Hollow piston cylinder “L” design without spherical disk

### Hollow piston cylinder “L” design without spherical disk



### Hollow piston cylinder “L” design without spherical disk **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]	30	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 <sup>3</sup> ]	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	[mm]	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 designs on request

### Hollow piston cylinde “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

### Important note!

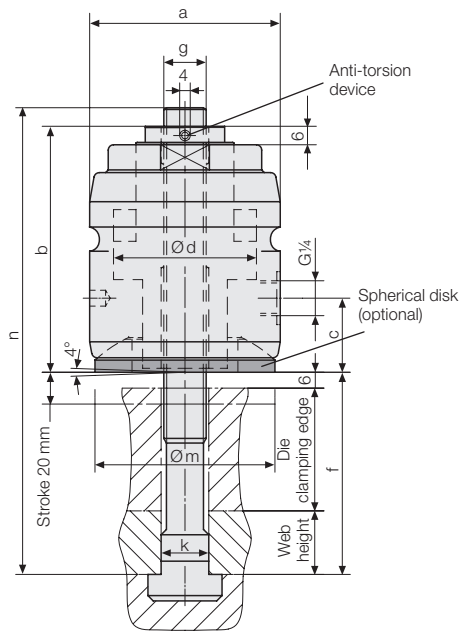
If hollow piston cylinder and T-bolt are supplied separately, adjust them to suit dimension “f” and secure them.

### Accessories

#### T-bolt, separate

For T-slot	[mm]	14	16	18	22	22	28	36
n	[mm]	125	125	160	160	200	250	250
Property class		12.9	8.8	12.9	8.8	12.9	12.9	8.8
Weight	[kg]	0.16	0.19	0.29	0.76	0.58	1.1	1.8
Part no.		5700143	5700144	5700022	107870211	5700023	5700024	5700048

## Variant 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).

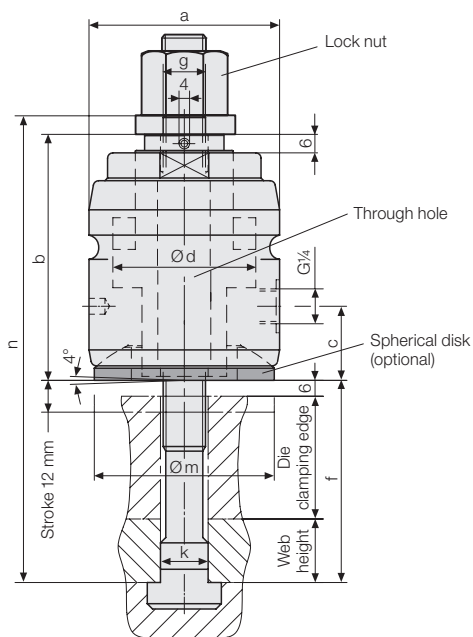
Technical design, clamping forces and dimensions correspond to the standard design. Due to the increased total stroke, dimension "b" is greater than indicated on page 1.

### 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

## Variant with variable clamping dimension



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 lock 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

Increased risk of injury in the case of an incorrect adjustment of the variants with higher total stroke or variable clamping dimension.

The clamping stroke must be less than 6 mm.