



Hollow piston cylinder,
single-acting

3.1403
3.2130
3.2131



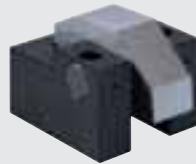
Sliding clamp,
single-acting



3.2200



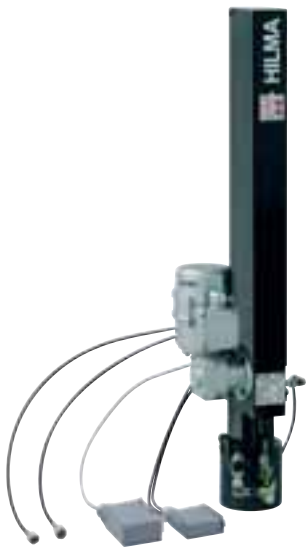
Angular clamping element,
single-acting



3.2201

Rapid clamping system

- with pusher chain
- with pneumatic adjustment



3.2290 - 3.2295

Hollow piston cylinder, single-acting



- spring clamping
- hydraulic unclamping

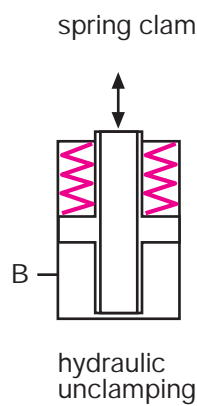


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T-bolt

Spring clamping
cylinder



spring clamping

hydraulic
unclamping

Applications:

- ▶ un-pressurised long-term clamping of dies or fixtures on press beds and rams
- ▶ when the space available is limited

Function:

Manual positioning of the cylinder on the die clamping edge. Unclamping is carried out by the application of hydraulic pressure to the piston, clamping takes place by spring power. By means of the T-bolt the die is clamped against the clamping surface of the press ram or bed.

Special features:

- ▶ Hydraulic supply is only required for unclamping, i.e. for a short time
- ▶ Ideal power transmission
- ▶ Convenient and compact design with gripping surface
- ▶ No colliding edges, smooth die positioning
- ▶ Suitable for retrofit
- ▶ Easy fastening

For suitable **power units**,
please refer to product group 7,
for accessories,
please refer to product group 11

Recommended accessory:
Angular rotary coupling
part no. 9208-043



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Hollow piston cylinder, single-acting

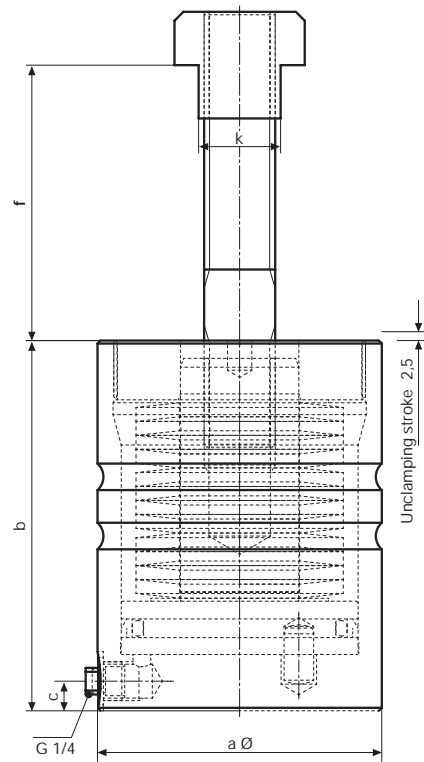
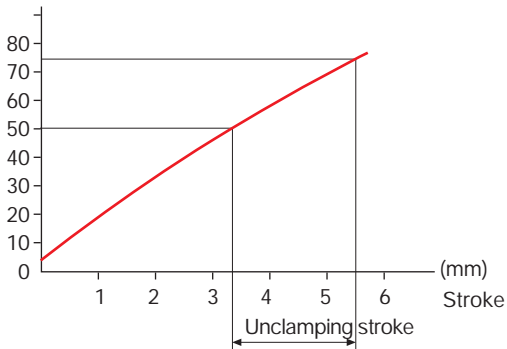


- spring clamping
- hydraulic unclamping

Spring clamping cylinder, complete with adjusted and secured T-bolt
Dimension 'f' to be quoted in the order

For T-slot	(mm)	22	28
Clamping force	(kN)	50	50
Unclamping pressure	(bar)	175	175
Unclamping stroke	(mm)	2,5	2,5
Oil consumption/1 mm of stroke	(cm ³)	5	5
a	(mm)	96	96
b	(mm)	125	125
c	(mm)	10	10
k	(mm)	22	28
Weight	(kg)	6,8	7,0
Part no.		8.1403.2200	8.1403.2800

Clamping force
kN



Dimension 'f' =
die clamping edge
+ web height + unclamping stroke

Parking station during die change

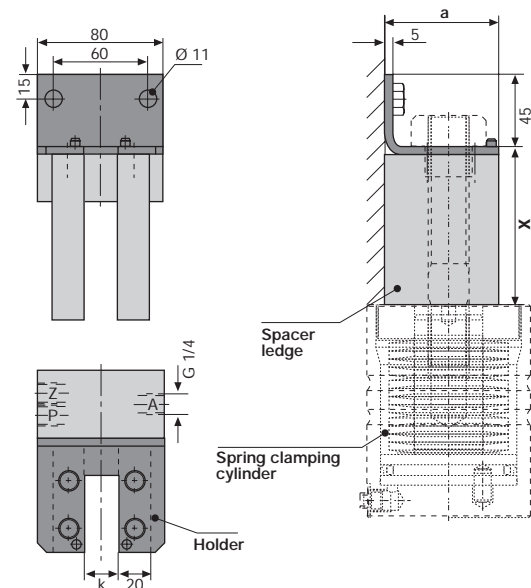
Holder with spacer ledges fastened
(without a connector block)

Part no. 8.2753.2230 8.2753.2830

Separate holder

for spring clamping cylinder	2134-110	2135-010
Width of T-slot k (mm)	22	28
a (mm)	72	85
Part no.	2753-220	2753-280

Special versions are available on request



Distance 'x':

x = dimension 'f' - 4 mm
(to be quoted in the order)

3.1403

03/2006

Hilma-Römheld GmbH

Schützenstraße 74 · D-57271 Hilchenbach

Phone +49 (0) 2733 / 281-0 · Fax +49 (0) 2733 / 281-113 · www.hilma.de

Subject to technical modification

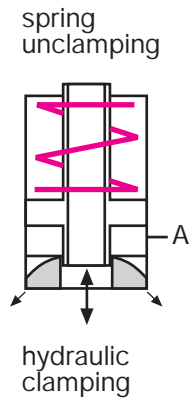
Hollow piston cylinder single-acting



- hydraulic clamping
- spring unclamping



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Applications:

- ▶ on press beds and rams
- ▶ on machines and equipment for clamping and locking
- ▶ when the available space is limited
- ▶ when temperatures may reach 120° C

Function:

The sliding clamp is manually placed on the clamping edge of the die. The die is clamped by applying hydraulic pressure to the piston and mechanically unclamped by a spring return. The T-bolt clamps the die on the clamping surface of the press ram or bed.

Special features:

- ▶ Spherical disk for optimum adaptation to the clamping surface
- ▶ T-bolt, pinned
- ▶ Ideal power transmission
- ▶ Convenient and compact design with gripping surface
- ▶ Clamping force of between 60 and 104 kN
- ▶ Large clamping stroke
- ▶ No colliding edges, smooth die positioning
- ▶ Suitable for retrofit
- ▶ Hardened and ground piston
- ▶ Easy fastening
- ▶ Fully utilisable stroke

For power units

please see product group 7

For accessories

please see product group 11

Recommended accessories:

Angular rotary coupling
Part no. 9280-043

Hollow piston cylinders
fastened to the
press ram





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Hollow piston cylinder single-acting

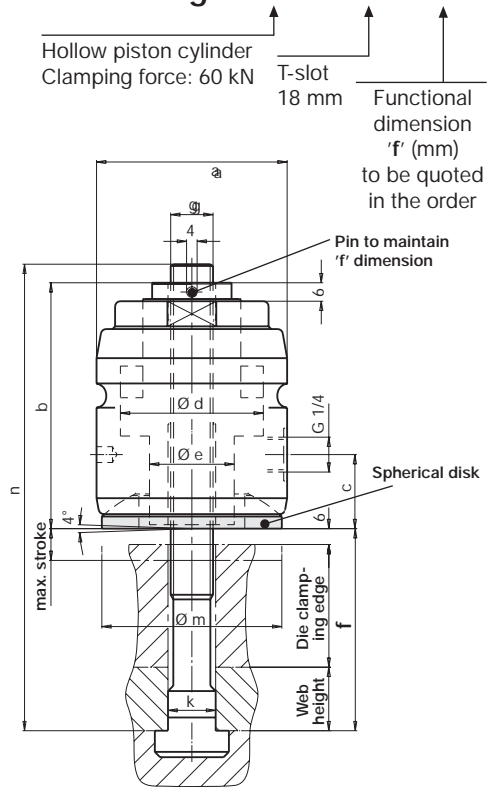
- hydraulic clamping
- spring unclamping

Hollow piston cylinder complete with T-bolt, adjusted and pinned Dimension 'f' to be quoted in the order

for T-slot	(mm)	18	22	28	36
Clamping force at 400 bar (kN)		60	60	104	104
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 consumption (cm ³)		18	18	32	32
a	(mm)	72	72	90	90
b	(mm)	93	93	105	105
c	(mm)	28	28	24	24
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.		8.2134.1802	8.2134.2202	8.2135.2802	8.2135.3602

max. operating pressure 400 bar

Example of ordering: 8.2134.1802/ 110



Dimension 'f' =
die clamping edge
+ web height + 1/2 stroke

Hollow piston cylinder without a T-bolt

Part no.	8.2134.0102	8.2134.1102	8.2135.0102	8.2135.1102
Weight (kg)	2,1	2,09	3,67	3,49

T-bolt, detached

for T-slot	(mm)	18	22	28	36
Length n	(mm)	160	200	250	250
Strength		8.8	8.8	8.8	8.8
Weight	(kg)	0,29	0,58	1,10	1,8
Part no.		5700022	5700023	5700024	5700048

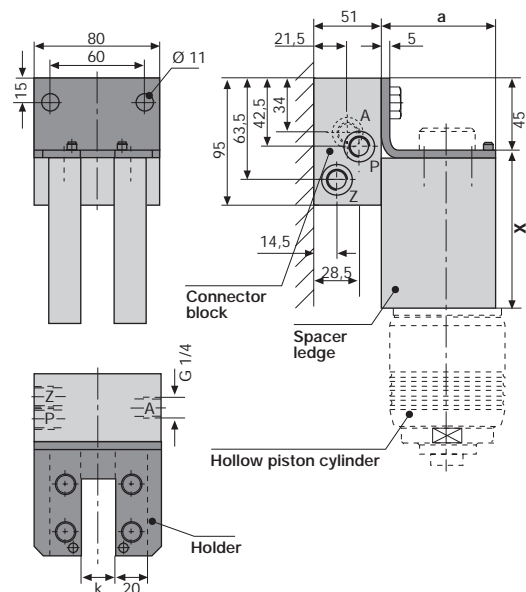
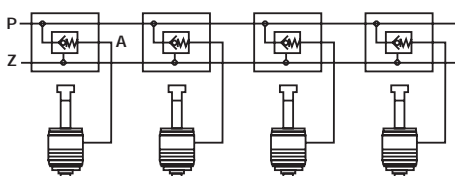
If hollow piston cylinder and T-bolt are supplied separately, adjust them to suit dimension 'f' and secure them.

Parking station which accommodates the clamping element during die change

Complete holder (holder, spacer ledge and connector block)				
Part no.	8.2753.1850	8.2753.2250	8.2753.2850	8.2753.3650
Holder with spacer ledges fastened (without a connector block)				
Part no.	8.2753.1830	8.2753.2230	8.2753.2830	8.2753.3630
Connector block with integral check valve				
Part no.	2753-400	2753-400	2753-400	2753-400
Separate holder				
for hollow piston cylinder	2134	2134	2135	2135
Width of T-slot k (mm)	18	22	28	36
a (mm)	72	72	85	90
Part no.	2753-180	2753-220	2753-280	2753-360

Special versions are available on request

Application with integral check valve



Distance 'x':
x = dimension 'f' - 1/2 stroke
(to be quoted in the order)

Hollow piston cylinder single-acting



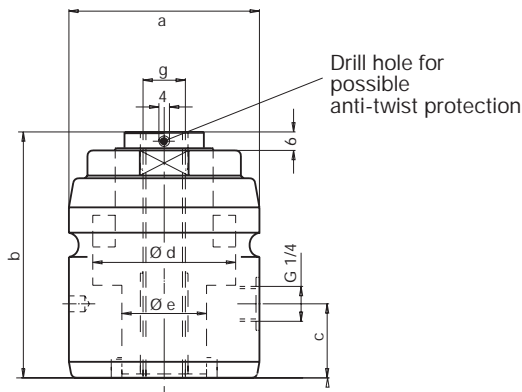
- hydraulic clamping
- spring unclamping



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Hollow piston cylinder 'L' design, without spherical disc

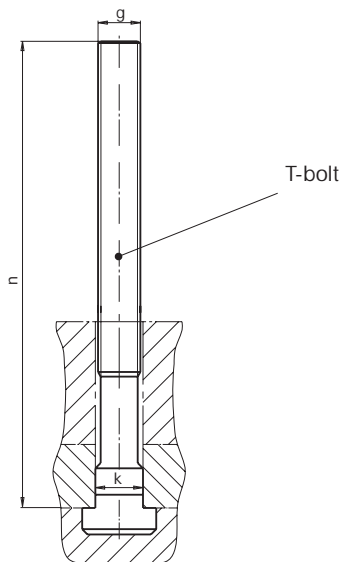
- without spherical disc for an adaptation to the clamping surface
- T-bolt, detached, dimension 'f' not adjusted



Separate hollow piston cylinder

Clamping force at 400 bar (kN)	60	60	104	104
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 consumption (cm ³)	18	18	32	32
a (mm)	72	72	90	90
b (mm)	92,5	92,5	104	104
c (mm)	28	28	24	24
g (mm)	M 16	M 20	M 24	M 30
Weight (kg)	2,2	2,16	3,75	3,58
Part no.	8.2134.0132	8.2134.1132	8.2135.0132	8.2135.1132

Max. operating pressure 400 bar



T-bolt, detached

for T-slot (mm)	18	22	28	36
g (mm)	M 16	M 20	M 24	M 30
k (mm)	18	22	28	36
Length n (mm)	160	200	250	250
Strength	8,8	8,8	8,8	8,8
Weight (kg)	0,29	0,58	1,10	1,8
Part no.	5700022	5700023	5700024	5700048

Safety information:

When the hollow piston cylinder and the T-bolt are supplied separately, the elements must be adjusted to a fixed clamping dimension and then secured. Failing this, there will be an increased risk of maladjustment of the clamping dimension.

For a suitable parking station, please refer to 3.2130M

Hollow piston cylinder 'L' design + T-bolt

- adjusted using the T-bolt and then secured
Dimension 'f' to be quoted in the order
- without spherical disc

for T-slot (mm)	18	22	28	36
g (mm)	M 16	M 20	M 24	M 30
Weight (kg)	2,49	2,74	4,85	5,38
Part no.	8.2134.1832	8.2134.2232	8.2135.2832	8.2135.3632

Sliding clamp single-acting

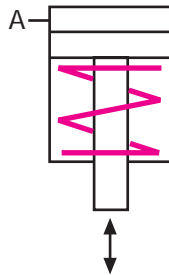


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Hydraulic
clamping block

T-slot adapter



Applications:

- ▶ on press beds and rams
- ▶ on machines and equipment for clamping and locking when the available space is limited
- ▶ when temperatures may reach 120° C

Function:

The sliding clamp is manually placed in the T-slot provided in the press ram or bed. The die is clamped on its clamping edge by applying hydraulic pressure to the piston and mechanically unclamped by a spring return. The clamping block may also be fastened directly, without a T-slot adapter (please see product group 2, page 18).

Special features:

- ▶ Ideal power transmission
- ▶ Compact design
- ▶ Clamping force of between 19 and 78 kN
- ▶ Easy fastening
- ▶ Compensates for large clamping edge tolerances
- ▶ No colliding edges, smooth die positioning
- ▶ Suitable for retrofit
- ▶ No need for die standardisation (width and depth)

For power units

please see product group 7

For accessories

please see product group 11

Recommended accessories:

Angular rotary coupling

Part no. 9280-043

Sliding
clamps



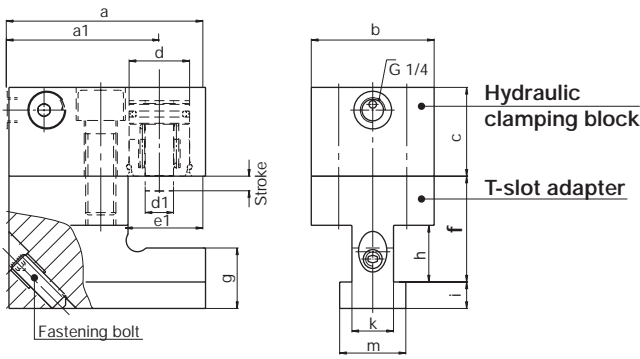
Sliding clamps fastened to bed and ram of a double column press. Dies are entered from the front using consoles.



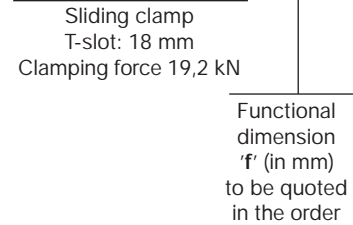
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Sliding clamp single-acting



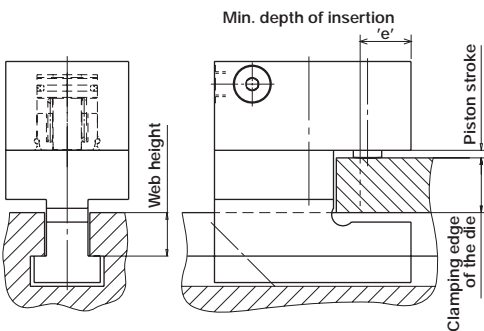
Example of ordering: **8.2202.1850/60**



Sliding clamp complete with T-slot adapter

Part no.	T-slot to DIN 650 (mm)	Clamping force at 400 bar (kN)	Stroke (mm)	Oil consumption (cm ³)	Dimensions in mm													Weight (kg)
					a	a1	b	c	d	d1	e	e1	g	h	i	k	m	
8.2202.1850	18	19,2	8	4	95	77	65	40	25	15	23	32	24	25	10	18	28	2,9
8.2202.2250	22	19,2	8	4	95	77	65	40	25	15	23	32	32	30	14	22	35	3,2
8.2203.2250	22	32	8	7	104	81	65	47	32	15	28	41	32	30	14	22	35	3,6
8.2204.2250	22	50	8	10	111	85	65	50	40	20	31	48	32	30	14	22	35	3,9
8.2203.2850	28	32	8	7	104	81	65	47	32	15	28	41	42	37	18	28	44	4,2
8.2204.2850	28	50	8	10	111	85	65	50	40	20	31	48	42	37	18	28	44	4,5
8.2205.2850	28	78	12	24	132	99	80	75	50	25	38	60	42	37	18	28	44	7,5

max. operating pressure 400 bar Please consult us if aggressive spray is used

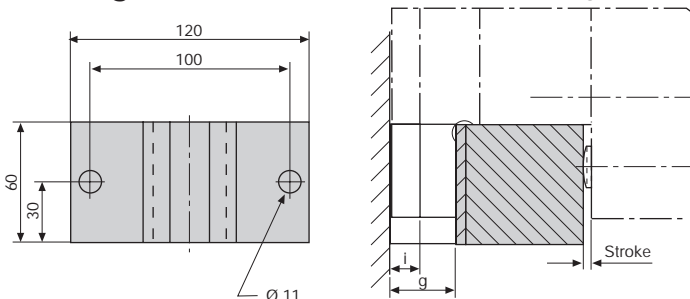


Functional dimension 'f':

1/2 stroke
+ height of die clamping edge
+ web height of T-slot
= dimension 'f'

Part no.	Dimension 'f'	
	min.	max.
8.2202.1850	42	90
8.2202.2250	50	106
8.2203.2250	50	106
8.2204.2250	50	106
8.2203.2850	55	106
8.2204.2850	55	112
8.2205.2850	60	117

Parking station accommodates the clamping element during die change

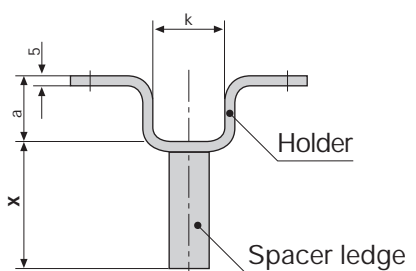


Distance 'x':

$$x = f + i - g - 1/2 \text{ stroke}$$

Dimension x to be quoted in the order

For suitable power units, please refer to product group 7, for hydraulic hoses, please refer to product group 11



T-slot to DIN 650 (mm)	Parking station complete with holder and spacer ledge Part no.	Holder Part no.	spacer ledge Part no.	a mm	k mm	i mm	g mm
18	8.2754.1850	2754-180	2754-500	25	30	10	24
22	8.2754.2250	2754-220	2754-500	33	37	14	32
28	8.2754.2850	2754-280	2754-500	43	46	18	42

3.2200

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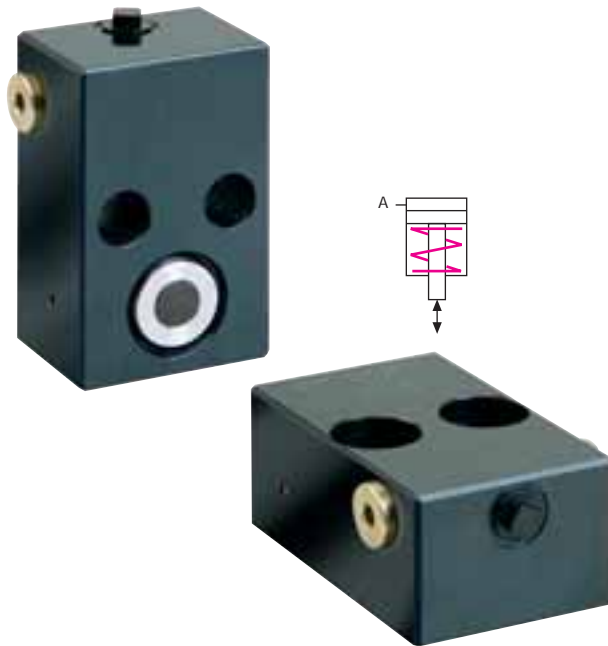
Schützenstraße 74 · D-57271 Hilchenbach

Phone +49 (0) 2733 / 281-0 · Fax +49 (0) 2733 / 281-113 · www.hilma.de

Subject to technical modification



Clamping block - Sliding clamp single-acting with spring return

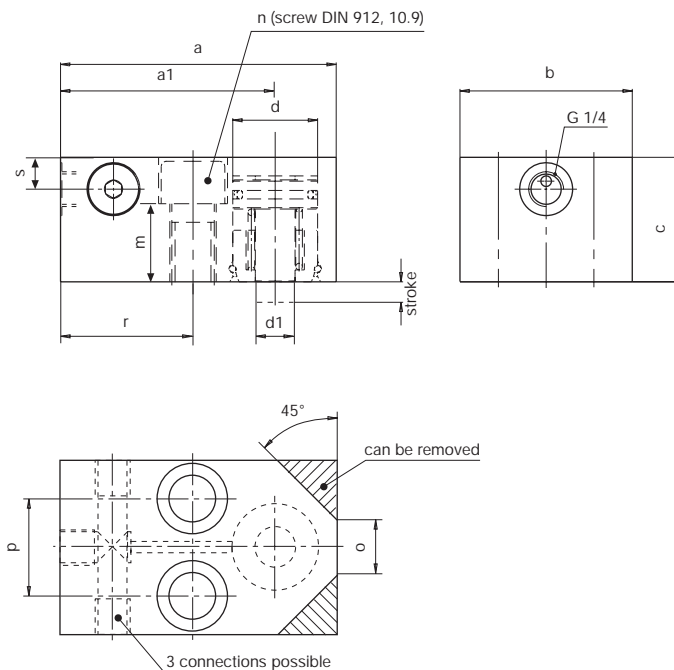


Applications:

- ▶ on press beds and rams
- ▶ on machines and equipment for clamping and locking
- ▶ when the available space is limited

Function:

The workpiece is clamped on its clamping edge by applying hydraulic pressure to the piston and mechanically unclamped by a spring return. The clamping block may be fastened by screwing it to stationary spacer ledges or in combination with a T-slot adapter for clamping workpieces in the T-slots of a press bed or ram.



Hydraulic clamping block without T-slot adapter

Part no.	Clamping force at 400 bar (kN)	Stroke (mm)	Oil consumption (cm ³)	Dimensions in mm											Weight (kg)	
				a	a1	b	c	d	d1	m	n	o	p	r		s
8.2202.1301	19,2	8	4	95	77	65	40	25	15	24	M16	18	36	50	12,0	1,6
8.2203.1301	32	8	7	104	81	65	47	32	15	29	M16	20	36	50	15,0	2,0
8.2204.1301	50	8	10	111	85	65	50	40	20	32	M16	20	36	50	16,5	2,3
8.2205.1301	78	12	24	132	99	80	75	50	25	53	M20	28	43	57	22,0	4,9

Max. operating pressure: 400 bar.

Fastening screws M16 or M20, DIN 912, 10.9 are not included.

Angular clamp single-acting



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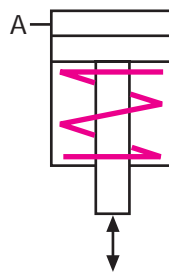


Applications:

- ▶ on press beds and rams
- ▶ on machines and equipment for clamping and locking
- ▶ when the available space is limited
- ▶ when temperatures may reach 120° C

Function:

The angular clamp is manually placed in the T-slot provided in press ram or bed. The die is clamped on its clamping edge by applying hydraulic pressure to the piston and mechanically unclamped by a spring return. The clamping block may also be fastened directly, without a T-slot adapter.

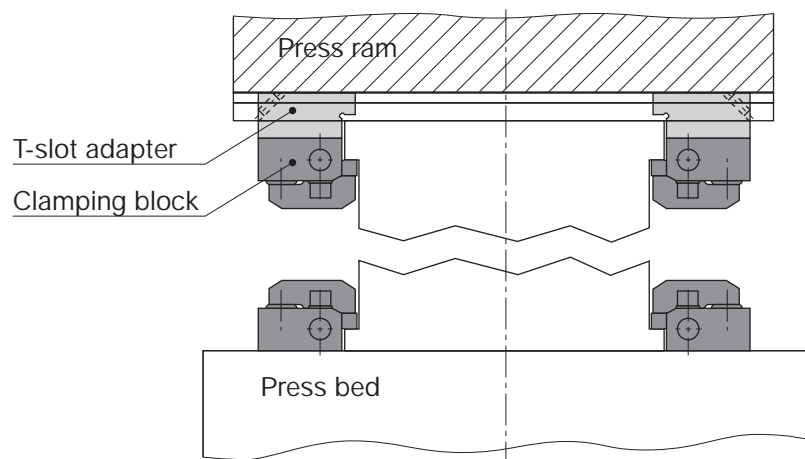


Special features:

- ▶ Ideal power transmission
- ▶ Compact design
- ▶ Easy fastening
- ▶ Suitable for small clamping edges
- ▶ Suitable for retrofit
- ▶ No need for die standardisation (width and depth)

For power units
please see product group 7
For accessories
please see product group 11

Example for application

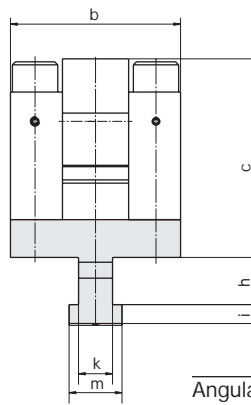
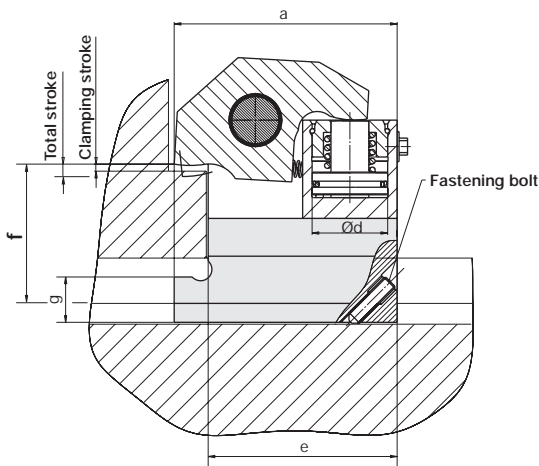




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Angular clamp single-acting



Example for ordering: **8.2314.2210/110**

Angular clamp
Clamping force: 66 kN

T-slot: 22 mm

Functional dimension 'f' (in mm)
to be quoted in the order

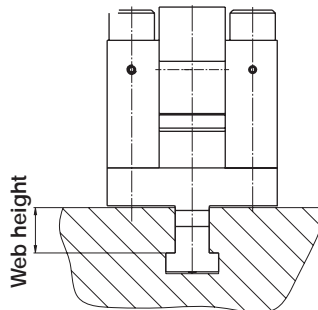
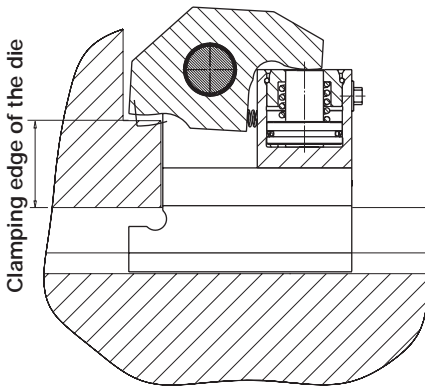
Angular clamp complete with T-slot adapter

Part no.	T-slot to DIN 650 (mm)	Clamping force at 400 bar (kN)	Clamping force (kN) at 100 bar	Total stroke (mm)	Clamping stroke (mm)	Oil consumption (cm ³)	Dimensions in mm										Weight (kg)		
							a	b	c	d	e	'f' min.	'f' max.	g	h	i		k	m
8.2312.1801	18	40	10	5,5	2,5	6,5	101	75	92	32	85	63	103	24	25	10	18	28	4
8.2312.2201	22	40	10	5,5	2,5	6,5	101	75	90	32	85	67	107	32	31	14	22	35	4,4
8.2312.2801	28	40	10	5,5	2,5	6,5	101	75	90	32	85	73	113	42	37	18	28	44	4,8
8.2314.1810	18	66	16,5	6	3	10	118	90	105	40	100	73	113	24	25	10	18	28	6,4
8.2314.2210	22	66	16,5	6	3	10	118	90	103	40	100	77	127	32	31	14	22	35	6,7
8.2314.2810	28	66	16,5	6	3	10	118	90	103	40	100	83	133	42	37	18	28	44	7,4
8.2315.2810	28	110	27,5	6	3	16	147	120	130	50	125	97	157	41	37	18	28	44	14,2
8.2315.3610	36	110	27,5	6	3	16	147	120	130	50	125	107	167	53	47	23	36	54	15,5

max. operating pressure 400 bar Please consult us if aggressive spray is used

Please note:

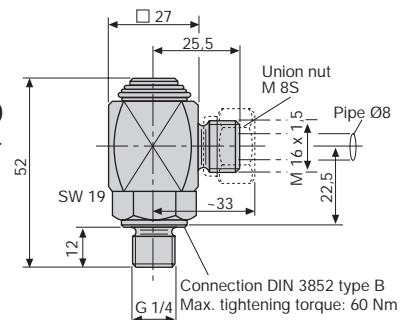
Further dimensions with other clamping forces and T-slots are available on request. The angular clamp may also be fastened directly, without a T-slot adapter. Position monitoring using laterally installed proximity switches on request.



Functional dimension 'f':

clamping stroke
+ height of die clamping edge
+ web height of T-slot
= dimension 'f'

Recommended accessories:
Angular rotary coupling (M 8S / G 1/4)
For easier handling when changing dies.
Max. operating pressure: 400 bar.
Part no. 9208-043



3.2201

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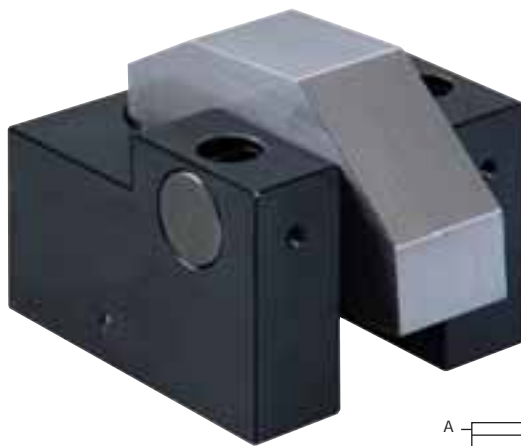
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Subject to technical modification

Clamping block - Angular clamp single-acting with spring return



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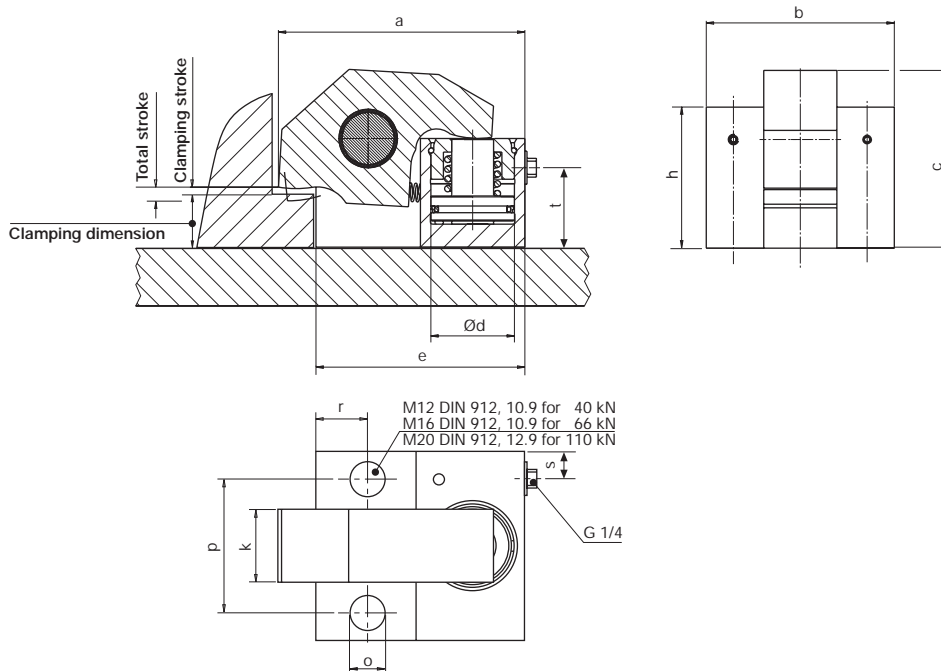
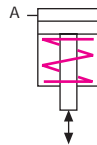
Applications:

- ▶ on press beds and rams
- ▶ on machines and equipment for clamping and locking
- ▶ when the available space is limited

Function:

The workpiece is clamped on its clamping edge by applying hydraulic pressure to the piston and mechanically unclamped by spring return.

The clamping block may be fastened by screwing it directly to the press bed or flexibly so that it may be moved in combination with a T-slot adapter in the T-slots of a press bed or ram.



Hydraulic clamping block without T-slot adapter

Part no.	Clamping force at 400 bar (kN)	Clamping force at 100 bar (kN)	Total stroke (mm)	Clamping stroke (mm)	Clamping dimension (mm)	Oil consumption (cm ³)	Dimensions in mm											Weight (kg)	
							a	b	c	d	e	h	k	o	p	r	s		t
8.2312.0101	40	10	5,5	2,5	20,5	6,5	101	75	77	32	85	62,5	25	12,5	50	20	13	32	2,6
8.2314.0501	66	16,5	6	3	25	10	118	90	85	40	100	67,5	35	16,5	64	25	13	38	4,0
8.2315.0501	110	27,5	6	3	32	16	147	120	105	50	125	85,0	55	22,0	90	30	20	45	8,6

Max. operating pressure: 400 bar.

Other sizes are available on request. Please consult us if aggressive fluids are used

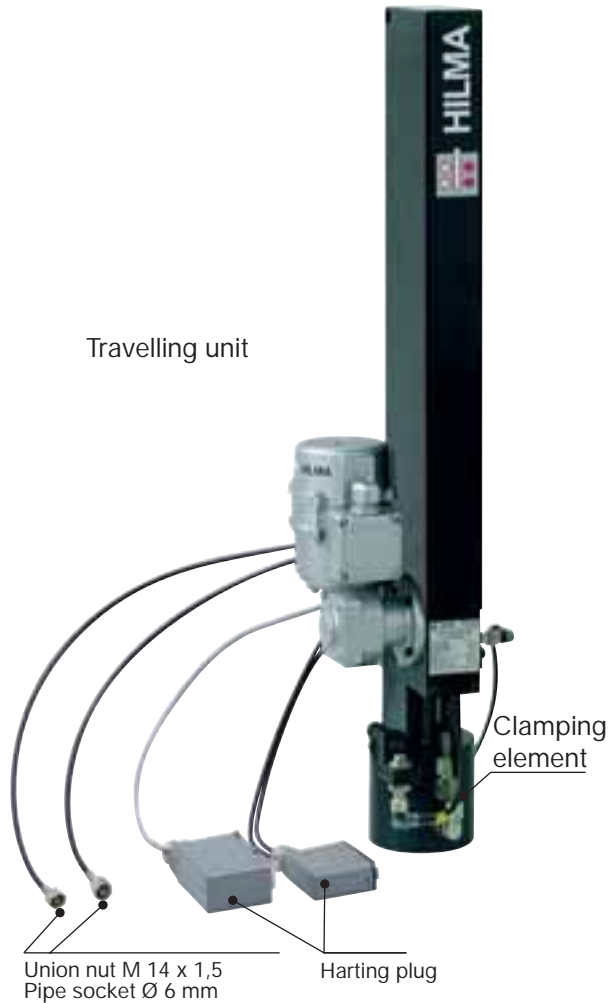
Fastening screws are not included.

With position control for version 66 kN, **Part No.:** 8.2314.0504

Rapid clamping system with pusher chain



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Applications:

- ▶ automatic clamping of dies on press rams
- ▶ for dies varying in width

Function:

A pusher chain driven with an electric motor moves the rapid clamping system with its attached clamping cylinder automatically to the clamping edge. The T-slot in the machine provides guidance for the chain and the clamping element. Clamping and unclamping of the cylinder is carried out by applying pressure to the cylinder, depending on the design. Following unclamping, the clamping element moves automatically from the clamping position into the parking position.

Special features:

- ▶ High functional safety by position monitoring and automatic travelling sequence
- ▶ Suitable for retrofit and installation in original equipment
- ▶ Tie rod made from high-strength forge steel
- ▶ No need for die standardisation (width and depth)
- ▶ Optimum utilisation of the ram area
- ▶ Clamping force of between 78 and 115 kN (other clamping forces on request)
- ▶ Central operation of all clamping elements
- ▶ Additional safety by mechanical self-locking clamp available on request

For power units

please see product group 7

For accessories

please see product group 11

Rapid clamping system with pusher chain fastened to the press ram of a double column press. A hollow piston cylinder serves as clamping element.



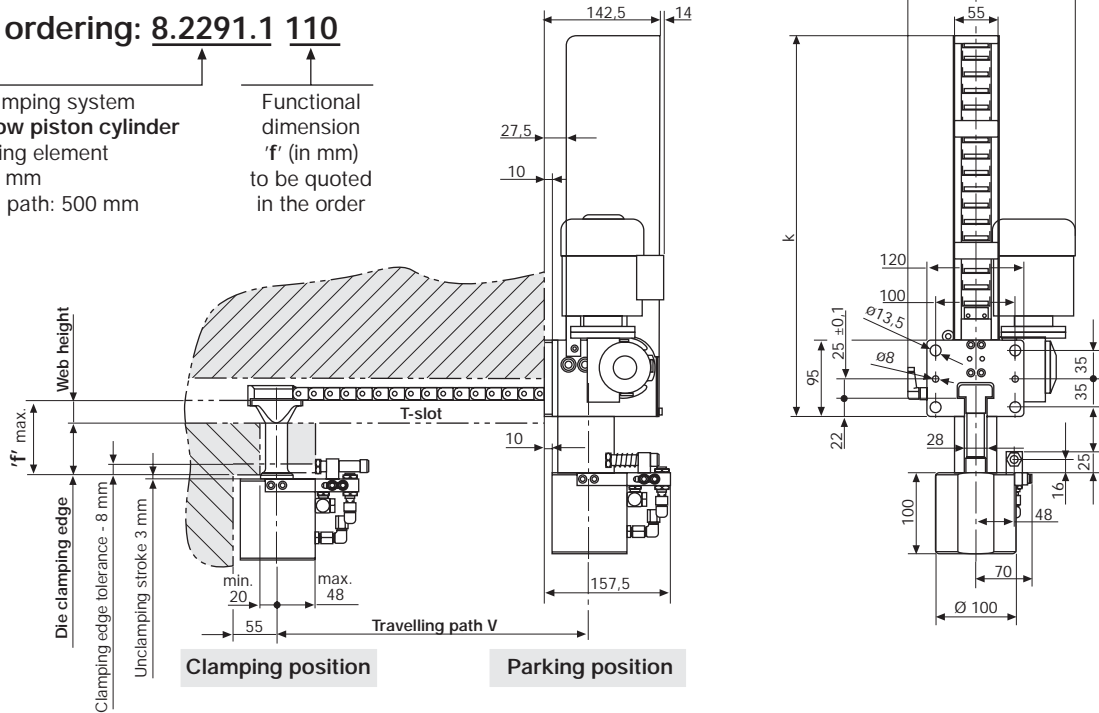


Design: Hollow piston cylinder, double-acting

Example of ordering: **8.2291.1 110**

Rapid clamping system with **hollow piston cylinder** as clamping element
T-slot: 28 mm
Travelling path: 500 mm

Functional dimension 'f' (in mm) to be quoted in the order

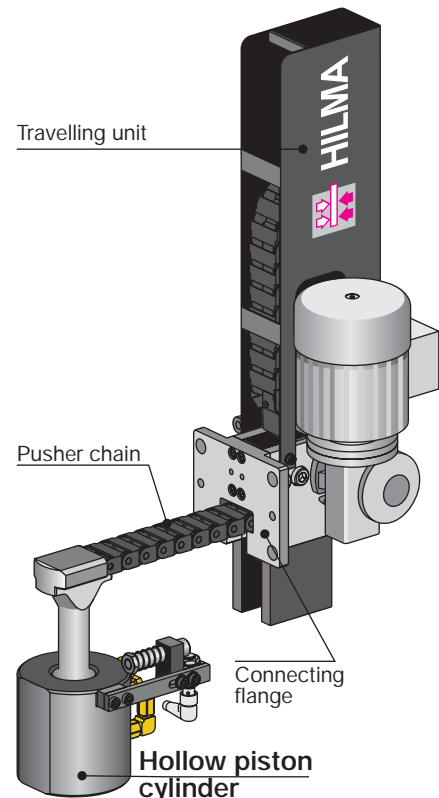


Part no.	T-slot to DIN 650 (mm)	Clamping force at 400 bar (kN)	Operating pressure (bar)	Oil consumption clamping/unclamping (cm ³ / mm)	Travelling path V (mm)	Dimension k (mm)	Clamping dimension 'f' tolerance (mm)
8.2291.1xxx	28	115	400	2,9 / 3,85	500	490	-8
8.2291.2xxx	28	115	400	2,9 / 3,85	1000	730	-8

Technical data:

- Travelling path V _____ see table *)
- Travelling speed _____ 150 mm/s
- Width of T-slot _____ see table DIN 650 *)
- Motor voltage _____ 400 V / 50 Hz / 3~ *)
- Rated motor current _____ 0,18 A
- Motor output _____ 45 W
- Two proximity switches _____ 24 (10-30) V DC *)
 1. Parking position
 2. Die position
 3. A further proximity switch for "End of chain " is available on request
- Motor connection _____ Harting HAN3HvE *)
(plug with 500 mm cable length)
- Connections for proximity switches _____ Harting HAN10E *)
(plug with 500 mm cable length)
- Hydraulic connection _____ Union nut M 14 x 1,5 *)
(free hose length 500 mm)

***) other versions as well as a spindle drive are available on request.**



Rapid clamping system with pusher chain



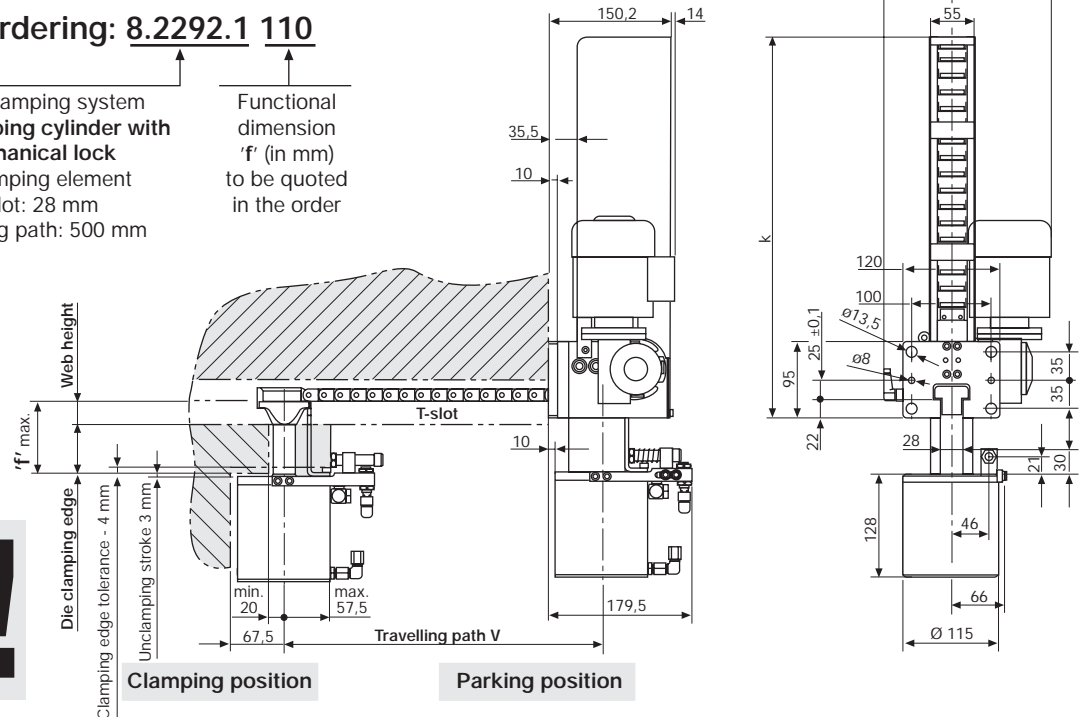
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Design: Clamping cylinder with mechanical lock, double-acting

Example of ordering: **8.2292.1 110**

Rapid clamping system
with clamping cylinder with
mechanical lock
as clamping element
T-slot: 28 mm
Travelling path: 500 mm

Functional
dimension
'f' (in mm)
to be quoted
in the order



Mechanical self-locking clamp provides a high degree of safety in the event of pressure loss!

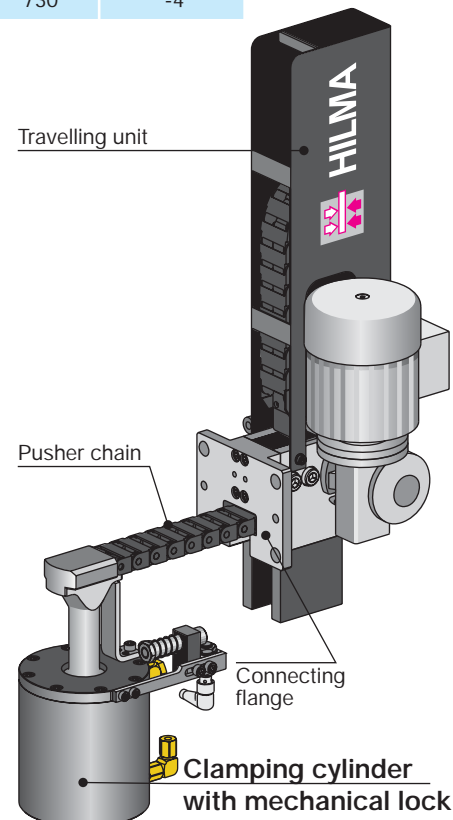
Part no.	T-slot to DIN 650 (mm)	Clamping force at 80 bar (kN)	Operating pressure (bar)	Oil consumption clamping/unclamping (cm ³ / mm)	Travelling path V (mm)	Dimension k (mm)	Clamping dimension 'f' tolerance (mm)
8.2292.1xxx	28	100	80	31 / 31	500	490	-4
8.2292.2xxx	28	100	80	31 / 31	1000	730	-4

For details concerning clamping cylinders with mechanical lock, please see next page

Technical data:

- Travelling path V _____ see table *)
- Travelling speed _____ 150 mm/s
- Width of T-slot _____ see table DIN 650 *)
- Motor voltage _____ 400 V / 50 Hz / 3- *)
- Rated motor current _____ 0,18 A
- Motor output _____ 45 W
- Two proximity switches _____ 24 (10-30) V DC *)
 1. Parking position
 2. Die position
 3. A further proximity switch for "End of chain" is available on request
- Motor connection _____ Harting HAN3HVE *)
(plug with 500 mm cable length)
- Connections for proximity switches _____ Harting HAN10E *)
(plug with 500 mm cable length)
- Hydraulic connection _____ Union nut M 14 x 1,5 *)
(free hose length 500 mm)

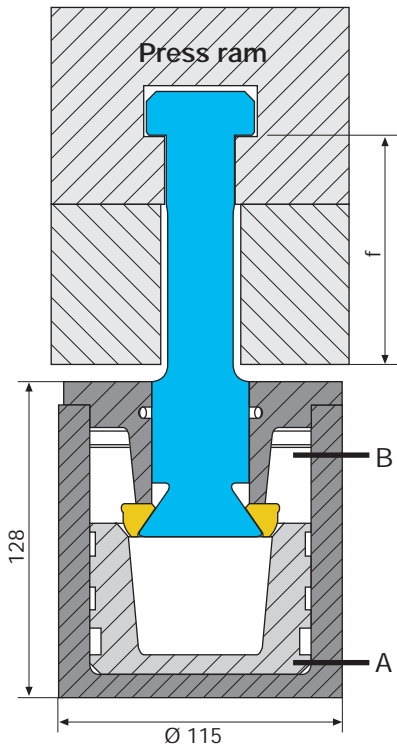
***) other versions as well as a spindle drive are available on request.**



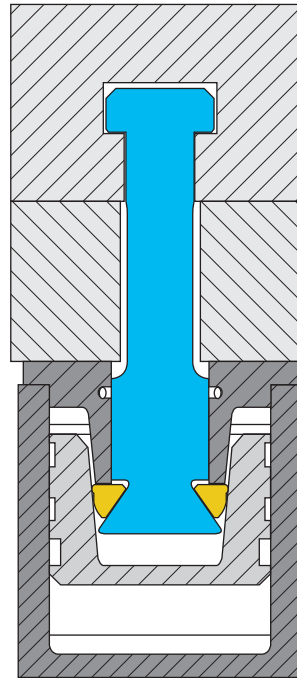


Other details: Pull-type clamping element with mechanical lock

Clamping element unclamped



Clamping element clamped



Application:

For clamping dies on the ram, the clamping force must be maintained by self-locking in the event of a hydraulic pressure drop.

Function:

The rapid clamping system moves the clamping element automatically into its clamping position. Pressure is applied to port A, the pull-type clamping element moves towards the clamping edge. Once the clamping element has come in contact with the die clamping surface, the maximum clamping power is applied, and the clamping element locks mechanically.

Mechanical self-lock ensures that the full clamping power will be maintained in the event of pressure drop.

For safety reasons, it is recommended that the hydraulic pressure is maintained.

For unclamping, relieve pressure at port A and apply pressure to port B. Following unclamping, the clamping element returns automatically into the parking position.

Technical data:

Clamping force:	100	kN
Max. operating pressure:	80	bar
Max. stroke:	8	mm
Positioning stroke:	3	mm
Max. clamping stroke:	4	mm

Rapid clamping system with pusher chain



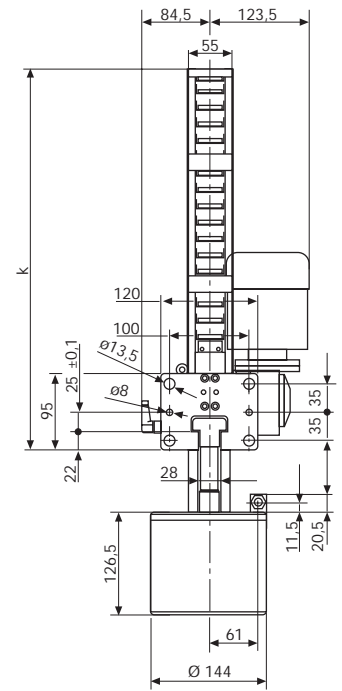
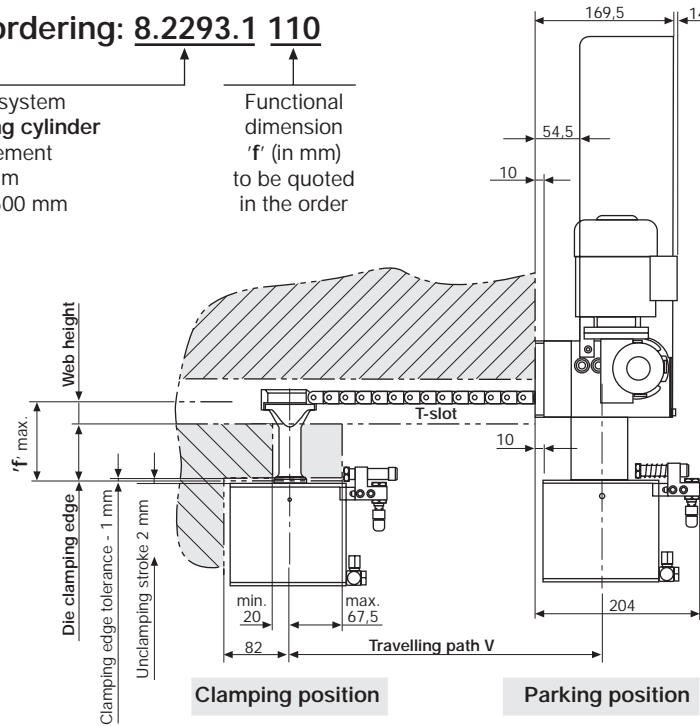
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Design: Spring clamping cylinder, single-acting

Example of ordering: **8.2293.1 110**

Rapid clamping system
with **spring clamping cylinder**
as clamping element
T-slot: 28 mm
Travelling path: 500 mm

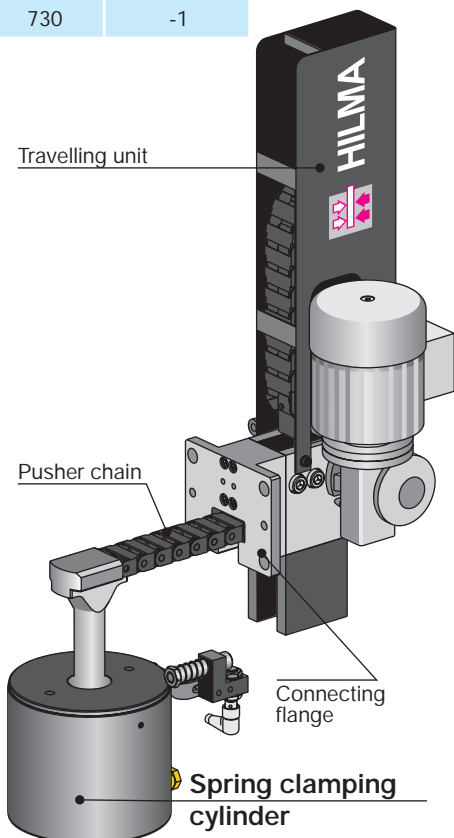
Functional dimension
'f' (in mm)
to be quoted
in the order



Part no.	T-slot to DIN 650 (mm)	Clamping force (kN)	Operating pressure unclamping (bar)	Oil consumption unclamping (cm ³ / mm)	Travelling path V (mm)	Dimension k (mm)	Clamping dimension 'f' tolerance (mm)
8.2293.1xxx	28	100	120	12,3	500	490	-1
8.2293.2xxx	28	100	120	12,3	1000	730	-1

Technical data:

- Travelling path V _____ see table *)
- Travelling speed _____ 150 mm/s
- Width of T-slot _____ see table DIN 650 *)
- Motor voltage _____ 400 V / 50 Hz / 3- *)
- Rated motor current _____ 0,18 A
- Motor output _____ 45 W
- Two proximity switches _____ 24 (10-30) V DC *)
 1. Parking position
 2. Die position
 3. A further proximity switch for "End of chain " is available on request
- Motor connection _____ Harting HAN3HVE *)
(plug with 500 mm cable length)
- Connections for proximity switches _____ Harting HAN10E *)
(plug with 500 mm cable length)
- Hydraulic connection _____ Union nut M 14 x 1,5 *)
(free hose length 500 mm)



***) other versions as well as a spindle drive are available on request.**

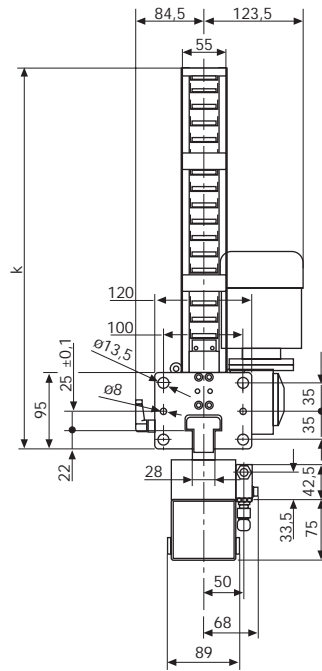
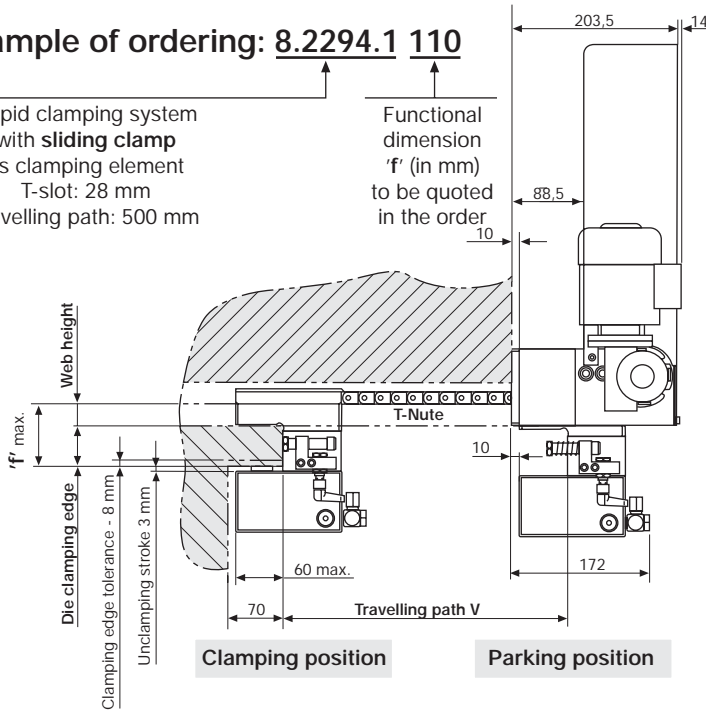


Design: Sliding clamp, single-acting

Example of ordering: **8.2294.1 110**

Rapid clamping system with **sliding clamp** as clamping element
T-slot: 28 mm
Travelling path: 500 mm

Functional dimension 'f' (in mm) to be quoted in the order

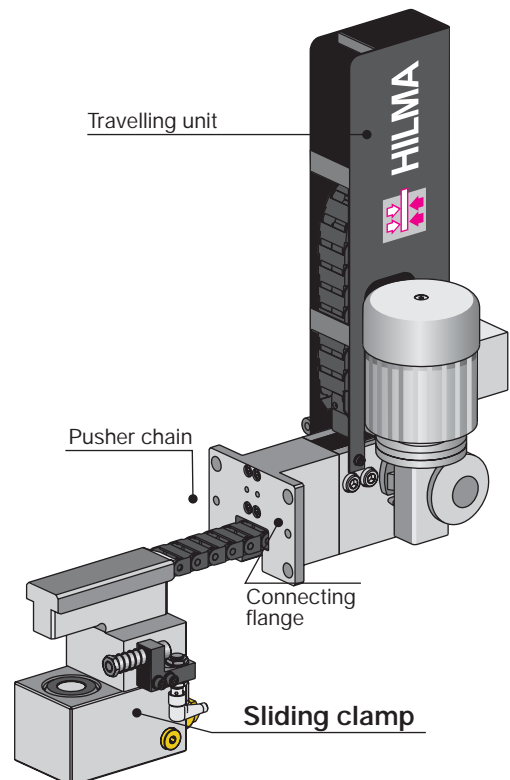


Part no.	T-slot to DIN 650 (mm)	Clamping force at 400 bar (kN)	Operating pressure (bar)	Oil consumption clamping (cm ³ / mm)	Travelling path V (mm)	Dimension k (mm)	Clamping dimension 'f' tolerance (mm)
8.2294.1xxx	28	78	400	1,5	500	490	-8
8.2294.2xxx	28	78	400	1,5	1000	730	-8

Technical data:

- Travelling path V _____ see table *)
- Travelling speed _____ 150 mm/s
- Width of T-slot _____ see table DIN 650 *)
- Motor voltage _____ 400 V / 50 Hz / 3~ *)
- Rated motor current _____ 0,18 A
- Motor output _____ 45 W
- Two proximity switches _____ 24 (10-30) V DC *)
 1. Parking position
 2. Die position
 3. A further proximity switch for "End of chain " is available on request
- Motor connection _____ Harting HAN3HvE *)
(plug with 500 mm cable length)
- Connections for proximity switches _____ Harting HAN10E *)
(plug with 500 mm cable length)
- Hydraulic connection _____ Union nut M 14 x 1,5 *)
(free hose length 500 mm)

*) other versions as well as a spindle drive are available on request.



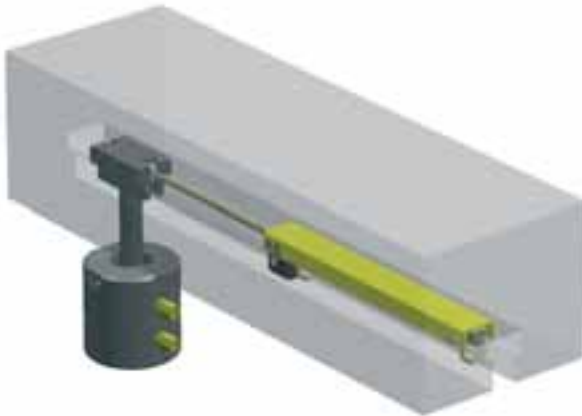
Rapid clamping system with pneumatic cylinder "Pneumatic travelling clamp"



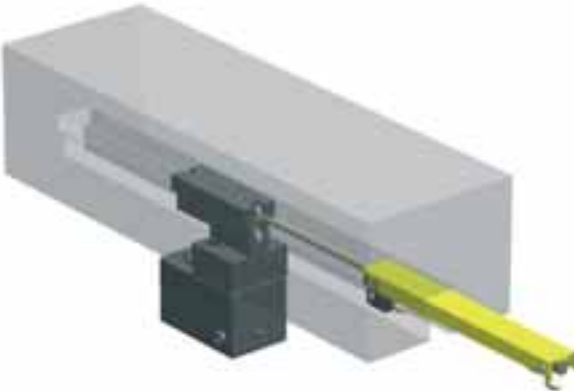
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Possible clamping elements:

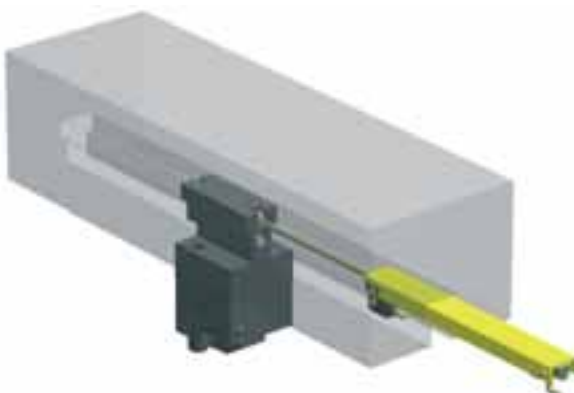
- Hollow piston cylinder double-acting with a max. clamping force of 115 kN
- Hollow piston cylinder single-acting with a max. clamping force of 104 kN
- Locking cylinder double-acting with a max. clamping force of 100 kN
- Spring clamping cylinder, single-acting with a max. clamping force of 100 kN



Sliding clamp single-acting
with a max. clamping force of 78 kN



Angular clamping element single-acting
with a max. clamping force of 66 kN



Application and special features:

Low-cost rapid clamping system for short distances of travel. In this version, standard clamping elements are moved by means of a pneumatic cylinder. The pneumatic positioning drive fits completely into a T-slot as per DIN 650 with a slot width of 28 mm, therefore the positioning cylinder can be positioned 'upstream' or 'downstream' of the clamping element. The positioning drive is fastened in the T-slot using a wedge lock without the need to modify the press ram. Interrogation of the unclamping and clamping positions is carried out using inductive magnetic sensors on the pneumatic cylinder.

- ▶ robust and cost-effective system for short distances of travel
- ▶ easy installation using standard clamping elements
- ▶ for fastening, no modification to the press ram is required
- ▶ rapid adaptation to various die sizes

Scope of supply:

Pneumatic positioning drive unit including screw fittings for pneumatic connection and position interrogation on the cylinder.

Clamping element

High-pressure hose and screw fittings for hydraulic connections on the clamping element

Optional extras:

- ▶ Parking station (for the unclamping position outside of the press ram)
- ▶ Travelling distance up to 400mm
- ▶ Reed contacts instead of inductive magnetic sensors
- ▶ Pneumatic one-way restrictors for adjusting the positioning speed

Other optional extras including adaptation are available upon request

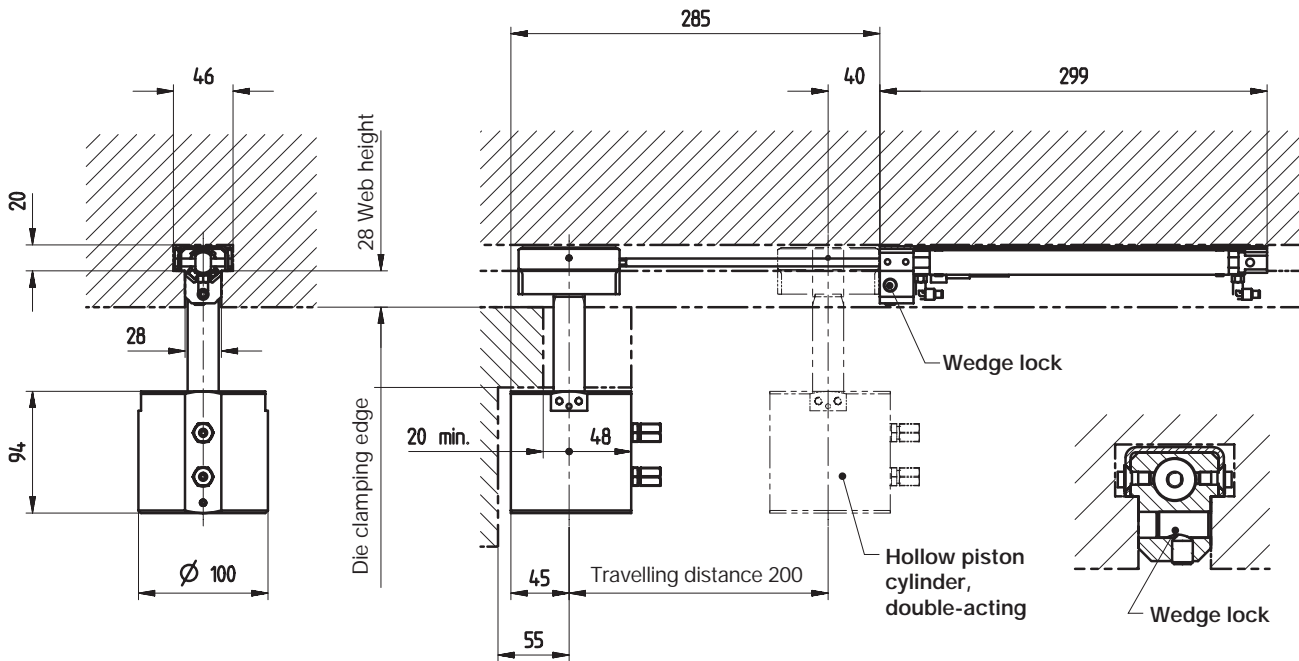
Technical data:

Operating pressure, pneumatic:	min. 6 bar (max. 10 bar)
Weight of the clamping element:	max. 8.5 kg (for 6 bar), 14 kg (for 10 bar)
Travelling distance:	200 mm
Temperature range:	max. 70°C

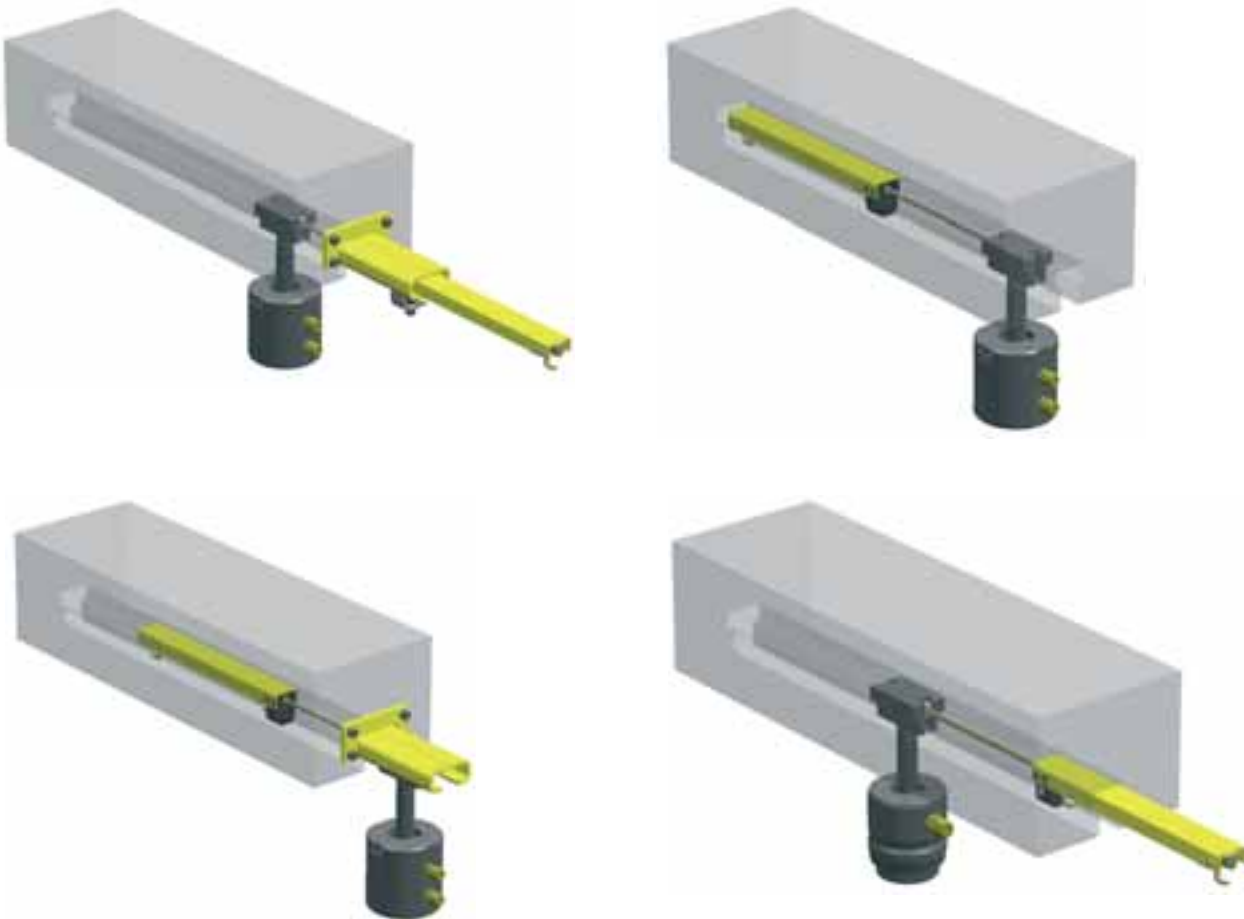


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Rapid clamping system with pneumatic cylinder "Pneumatic travelling clamp"



Optional extras and versions of installation



3.2295



Product information HILMA "Force Control"

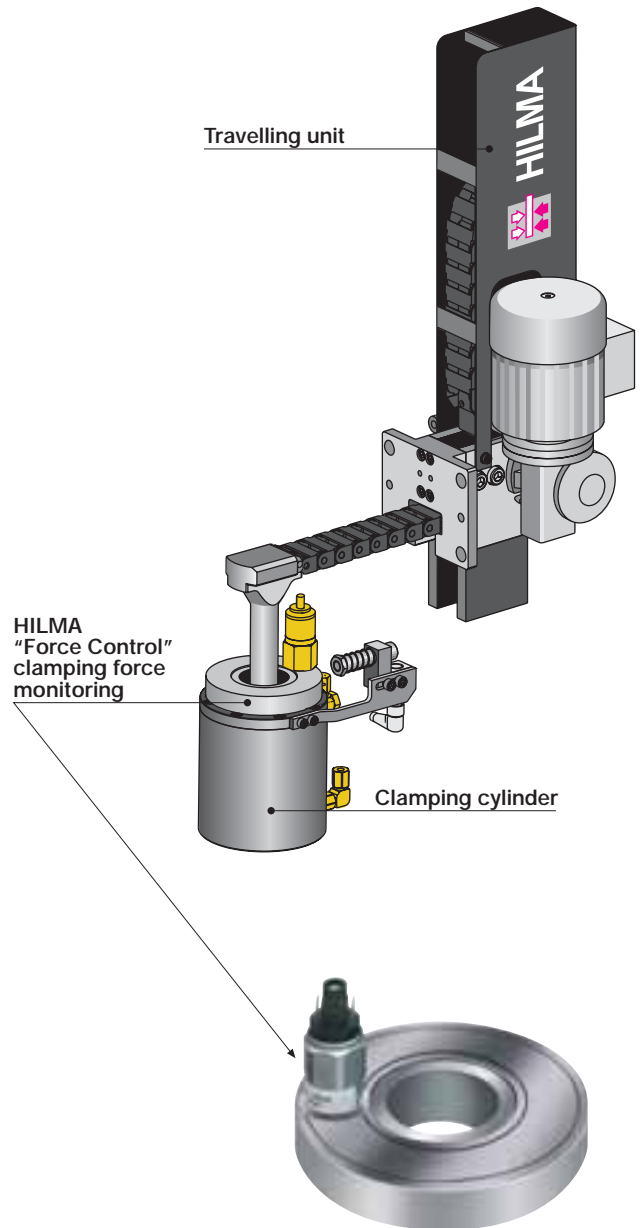
In automated die clamping systems, monitoring of the clamping position and of the clamping force is a central safety feature.

In addition to the well-known methods, i.e. monitoring of the clamping position by proximity switches and monitoring of the clamping force by pressure switches in the clamping circuit, Hilma-Römheld offers with immediate effect a new system for clamping force monitoring. The Hilma "Force Control" is designed as a loop and is installed between the clamping element and the clamping edge. "Force Control" is a closed system comprising a hydraulic piston and cylinder. The internal pressure increases and decreases in proportion to the clamping force.

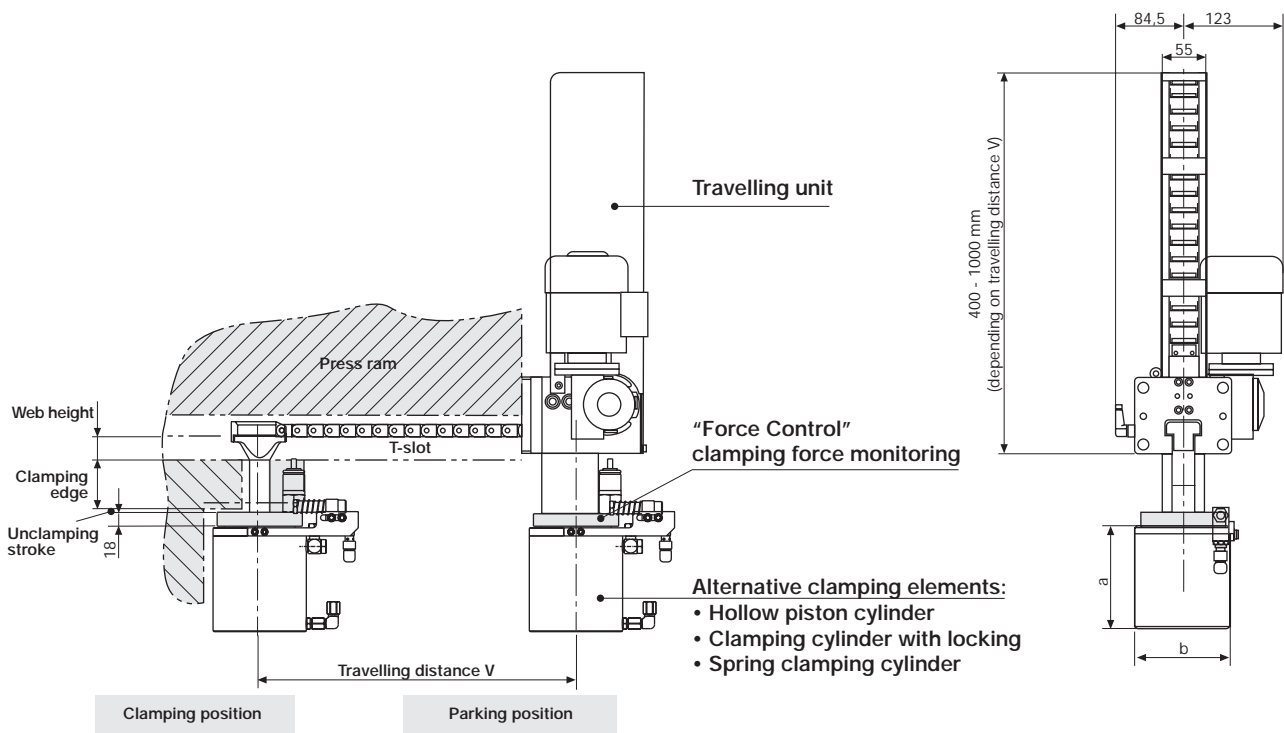
By means of a pressure switch, the internal pressure is constantly monitored, and consequently the clamping force is monitored directly at the clamping point. The pressure switch trips when the pressure has dropped to 80% of the nominal clamping force. The signal must be evaluated by the machine control system. As a result, the power unit operates again for a short time, or the operation of the machine is interrupted.

Benefits to you:

- Real and permanent monitoring of the clamping force directly at the clamping point at an affordable price.
- Enhanced functional reliability is achieved by constant monitoring of the clamping force.
- In the case of mechanically locked clamping elements, a decrease of the clamping force is clearly visible by settlement. In the clamped condition, the pressure need not be maintained.
- Especially suitable for automated rapid clamping systems.



Use of rapid clamping systems with pusher chain on the press ram of a double-sided press



Technical data clamping element

Clamping element	Clamping force	Travelling distance	a	b
Hollow piston cylinder, double acting	115 kN at 400 bar	as requested	100	Ø 100
Clamping cylinder with locking, double acting	100 kN at 80 bar		128	Ø 115
Spring clamping cylinder, single acting	100 kN spring clamping force		127	Ø 144

Technical data travelling unit

Travelling speed	150 mm/s
Motor voltage	400 V / 50 Hz / 3~
Nominal motor current	0,39 A
Motor output	60 W
Proximity switch	24 V DC (parking and clamping position)

Technical data "Force Control"

Installation position	any
Ambient temperature	between -25°C and 85°C
Switching element	microswitch contacts silver-coated
Voltage	24 V DC
Switching capacity	5 A inductive load
Max. switching frequency	100/min.
Electrical connection	flat-cable plug 2 x 6,3 x 0,8
Type of protection	IP 65, with protective shroud
Wiring schematics	 normally open contact (NO)
Part no.	8.1111.0501

