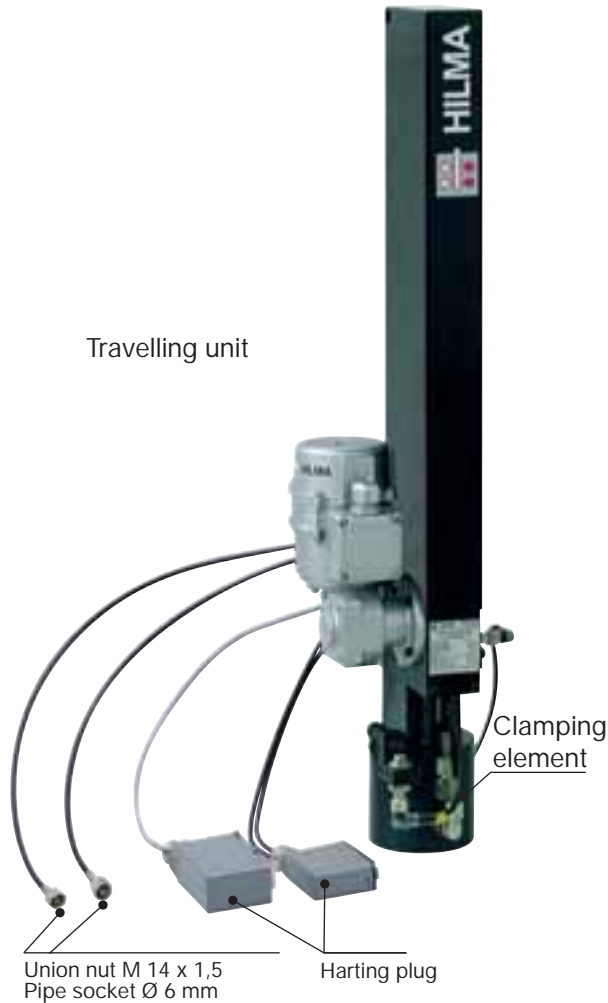


Rapid clamping system with pusher chain



HILMA



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.



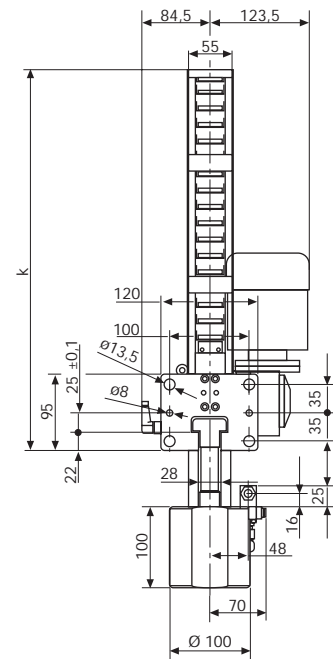
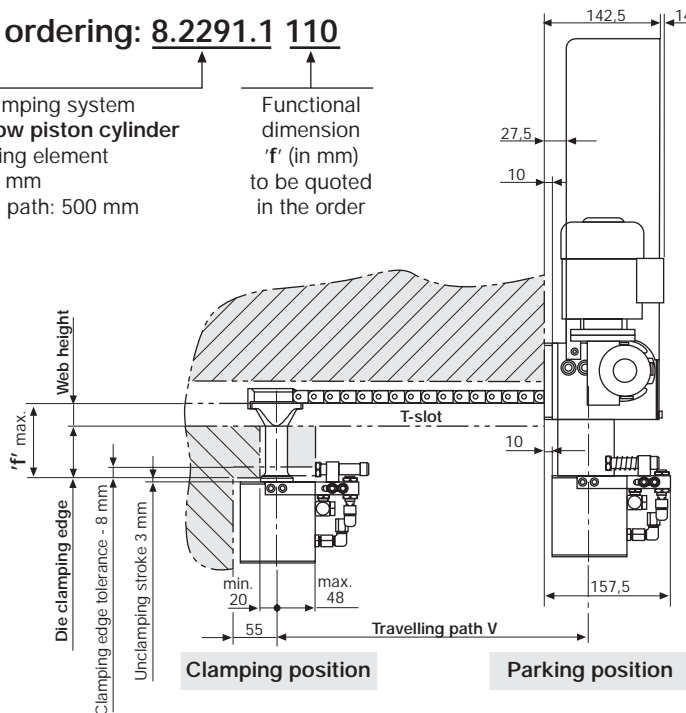


Design: Hollow piston cylinder, double-acting

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

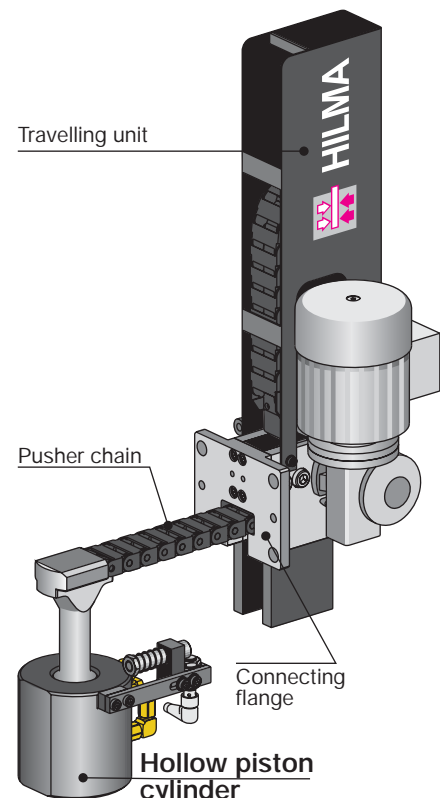


Part no.	T-slot to DIN 650 (mm)	Clamping force at 400 bar (kN)	Operating pressure (bar)	Oil consumption clamping/unclamping (cm ³ / mm)	Travelling path V (mm)	Dimension k (mm)	Clamping dimension 'f' tolerance (mm)
8.2291.1xxx	28	115	400	2,9 / 3,85	500	490	-8
8.2291.2xxx	28	115	400	2,9 / 3,85	1000	730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



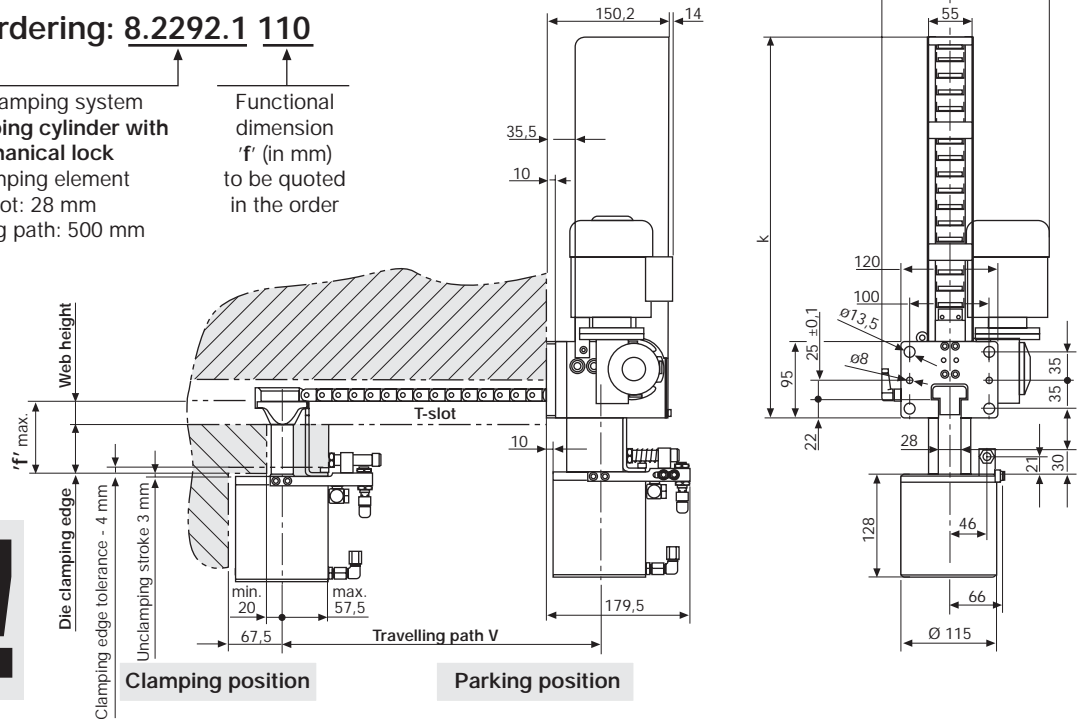
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Design: Clamping cylinder with mechanical lock, double-acting

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 pro-
vides 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)	Dimen- sion 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 *)

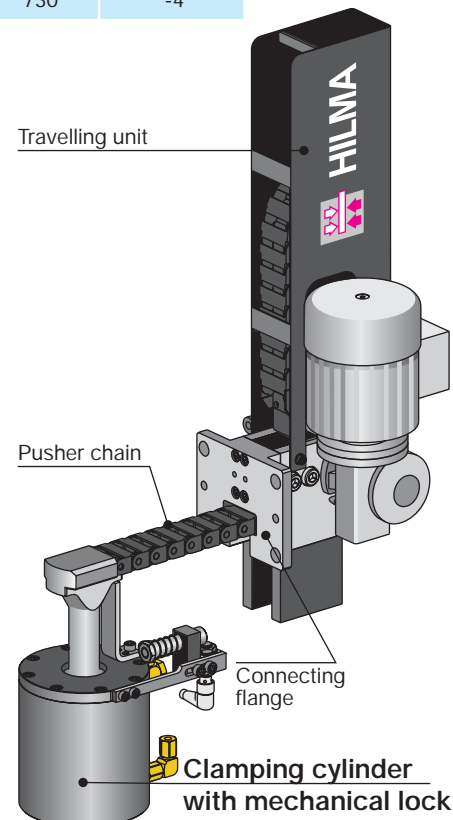
1. Parking position
2. Die position
3. A further proximity switch for "End of chain" is available on request

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.**



Subject to technical modification

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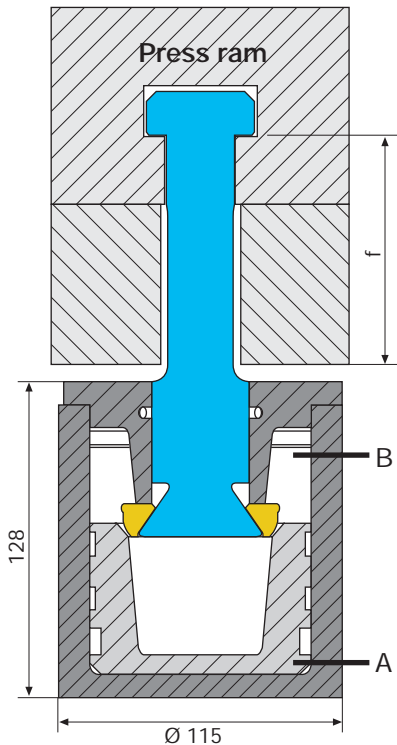
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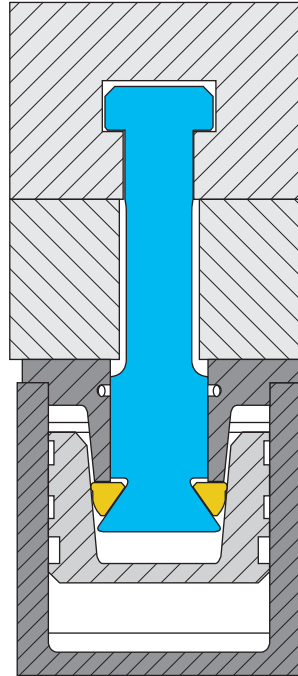


Other details: Pull-type clamping element with mechanical lock

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



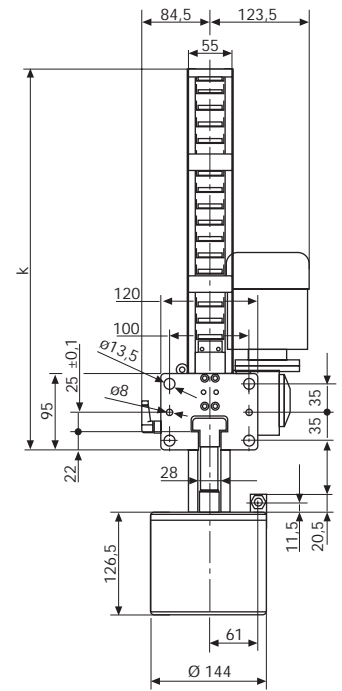
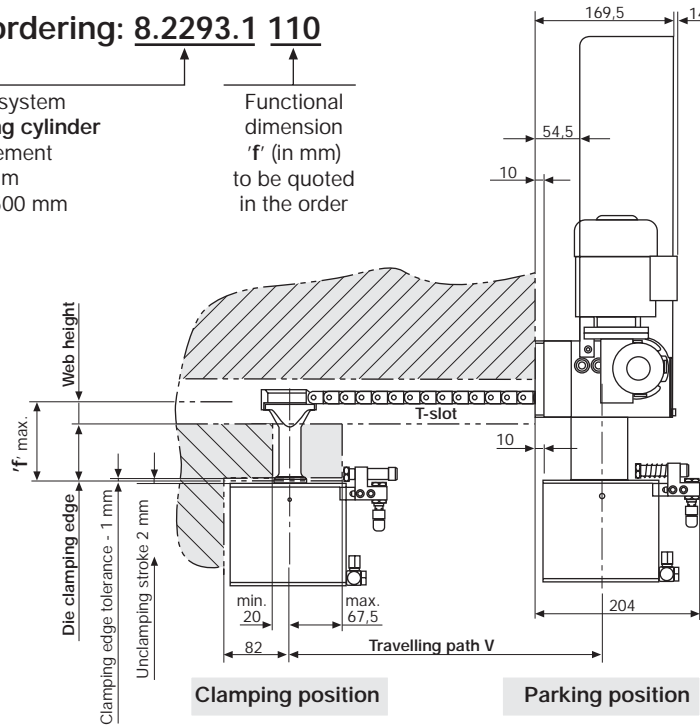
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Design: Spring clamping cylinder, single-acting

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

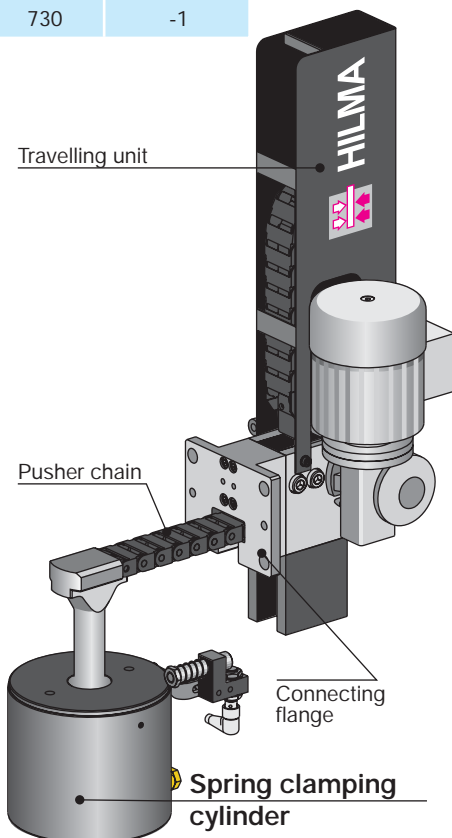
Functional dimension
'f' (in mm)
to be quoted
in the order



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.**

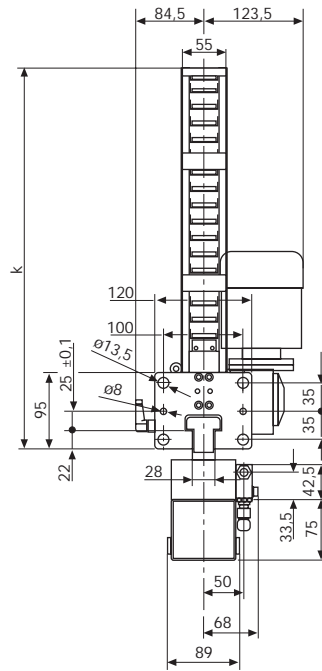
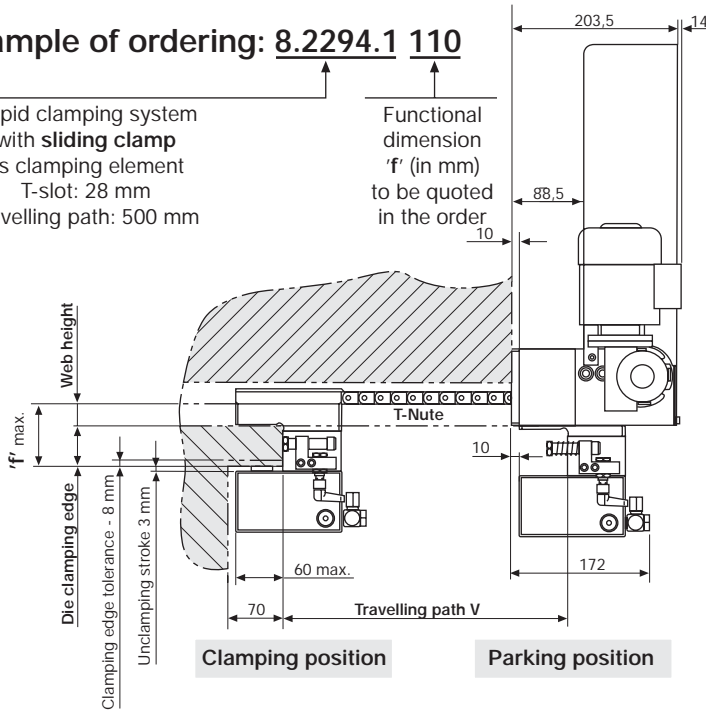


Design: Sliding clamp, single-acting

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

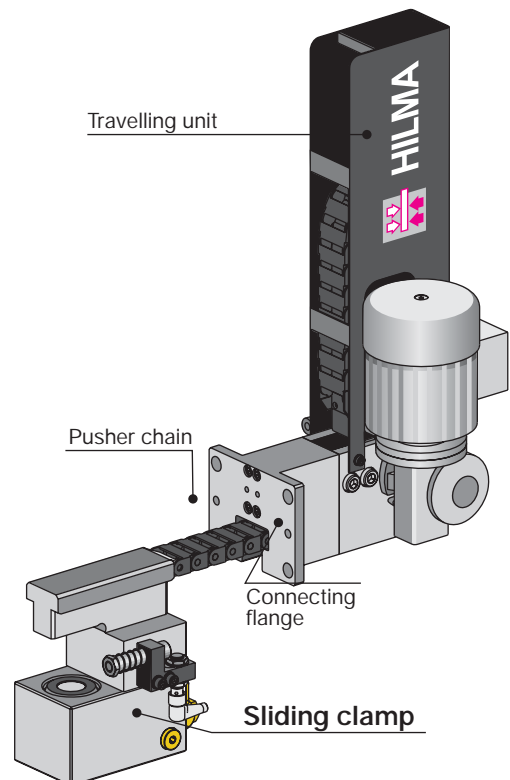


Part no.	T-slot to DIN 650 (mm)	Clamping force at 400 bar (kN)	Operating pressure (bar)	Oil consumption clamping (cm ³ / mm)	Travelling path V (mm)	Dimension k (mm)	Clamping dimension 'f' tolerance (mm)
8.2294.1xxx	28	78	400	1,5	500	490	-8
8.2294.2xxx	28	78	400	1,5	1000	730	-8

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.



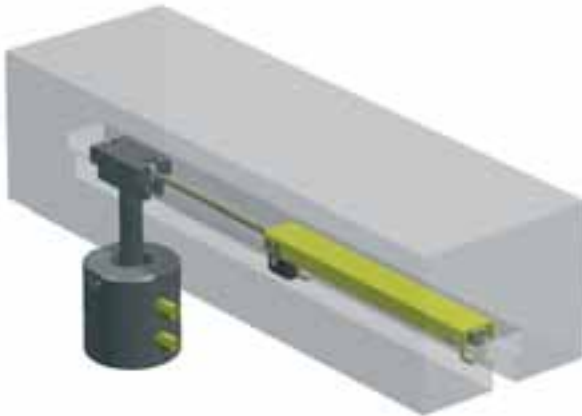
Rapid clamping system with pneumatic cylinder "Pneumatic travelling clamp"



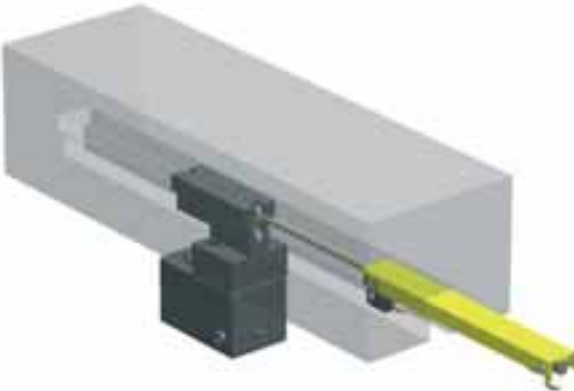
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Possible clamping elements:

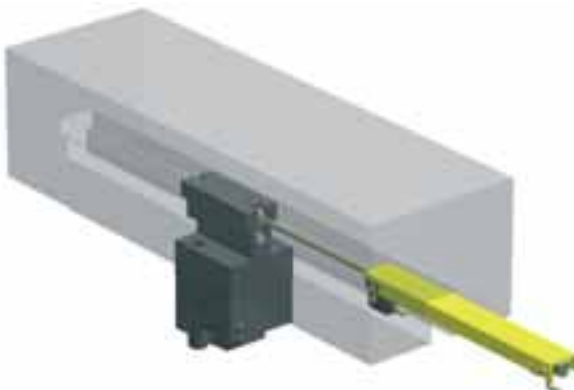
- Hollow piston cylinder double-acting with a max. clamping force of 115 kN
- Hollow piston cylinder single-acting with a max. clamping force of 104 kN
- Locking cylinder double-acting with a max. clamping force of 100 kN
- Spring clamping cylinder, single-acting with a max. clamping force of 100 kN



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

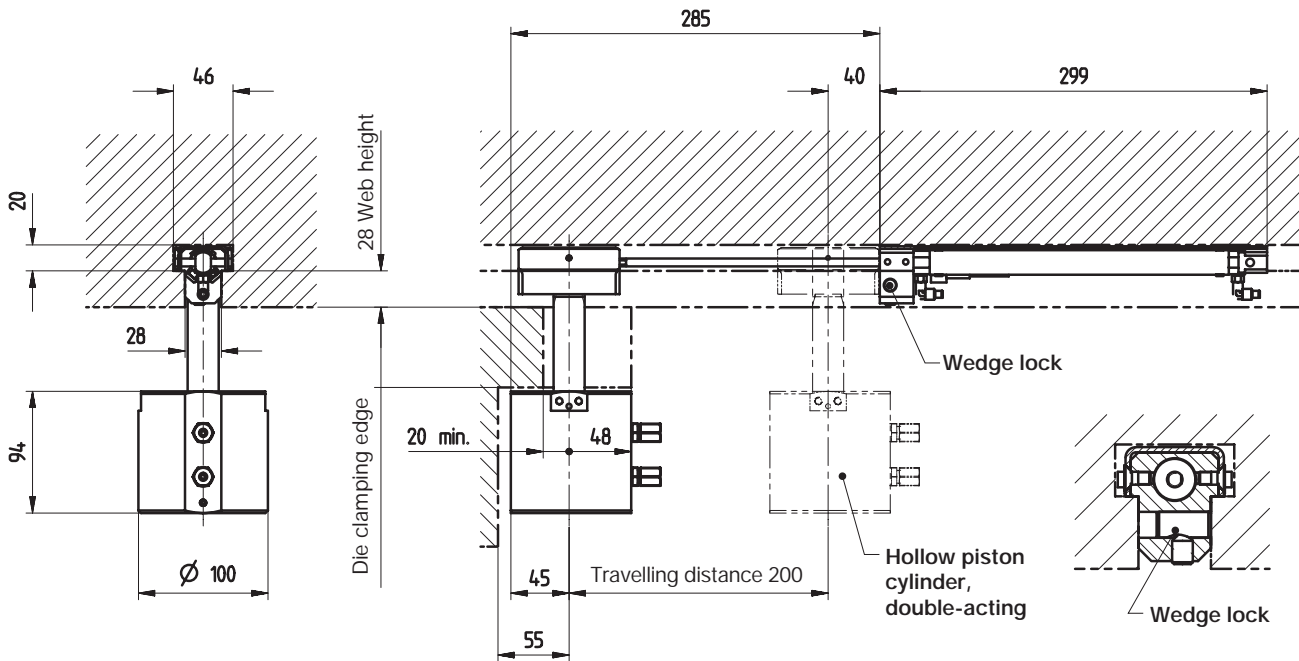
Technical data:

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

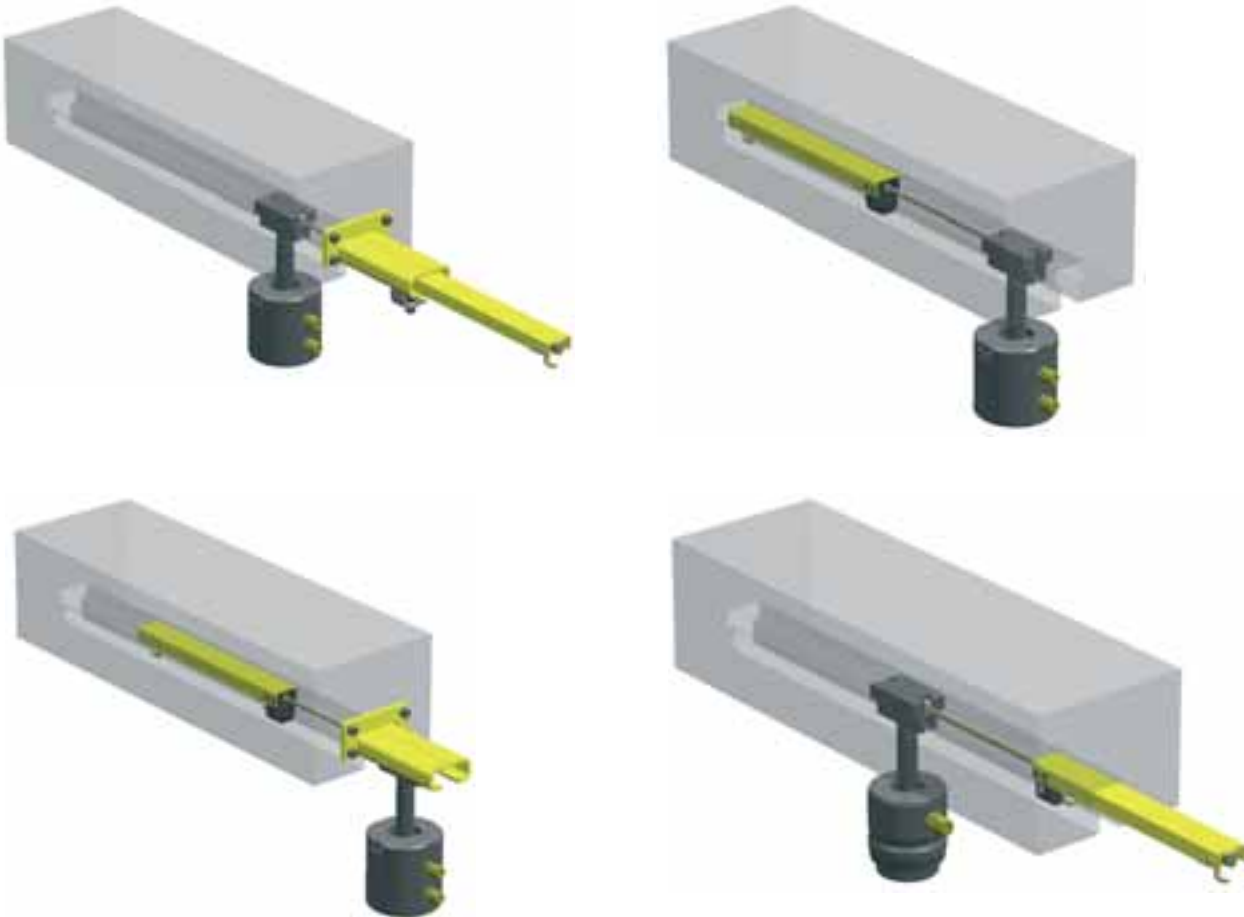


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Rapid clamping system with pneumatic cylinder "Pneumatic travelling clamp"



Optional extras and versions of installation



3.2295

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Subject to technical modification



Product information HILMA "Force Control"

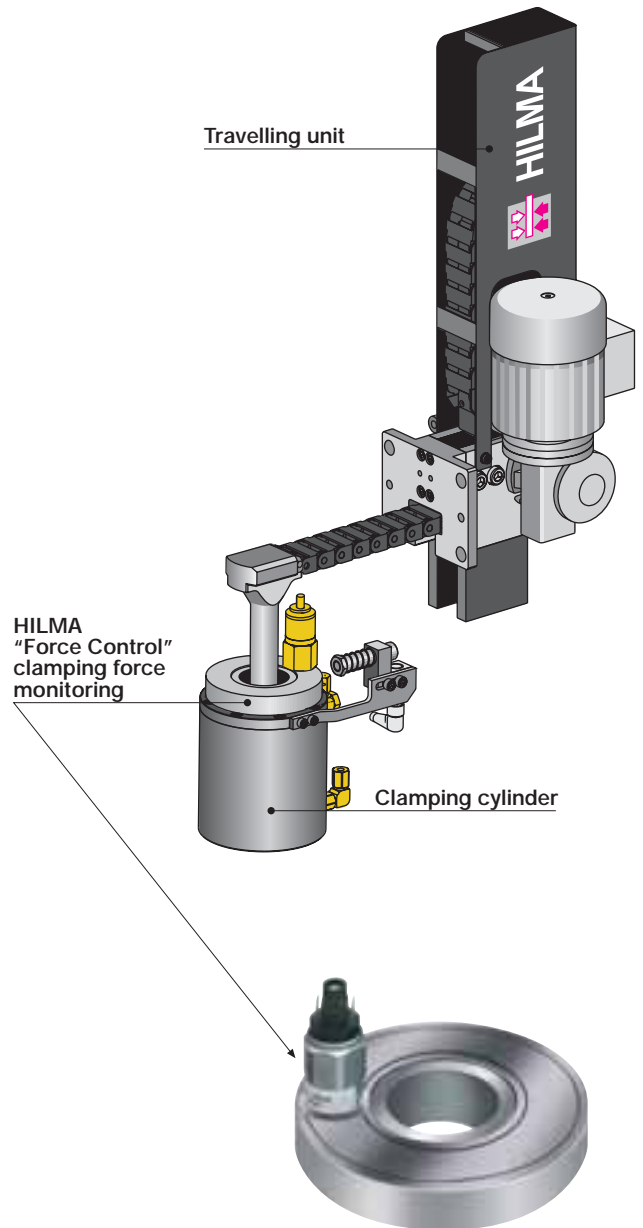
In automated die clamping systems, monitoring of the clamping position and of the clamping force is a central safety feature.

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.

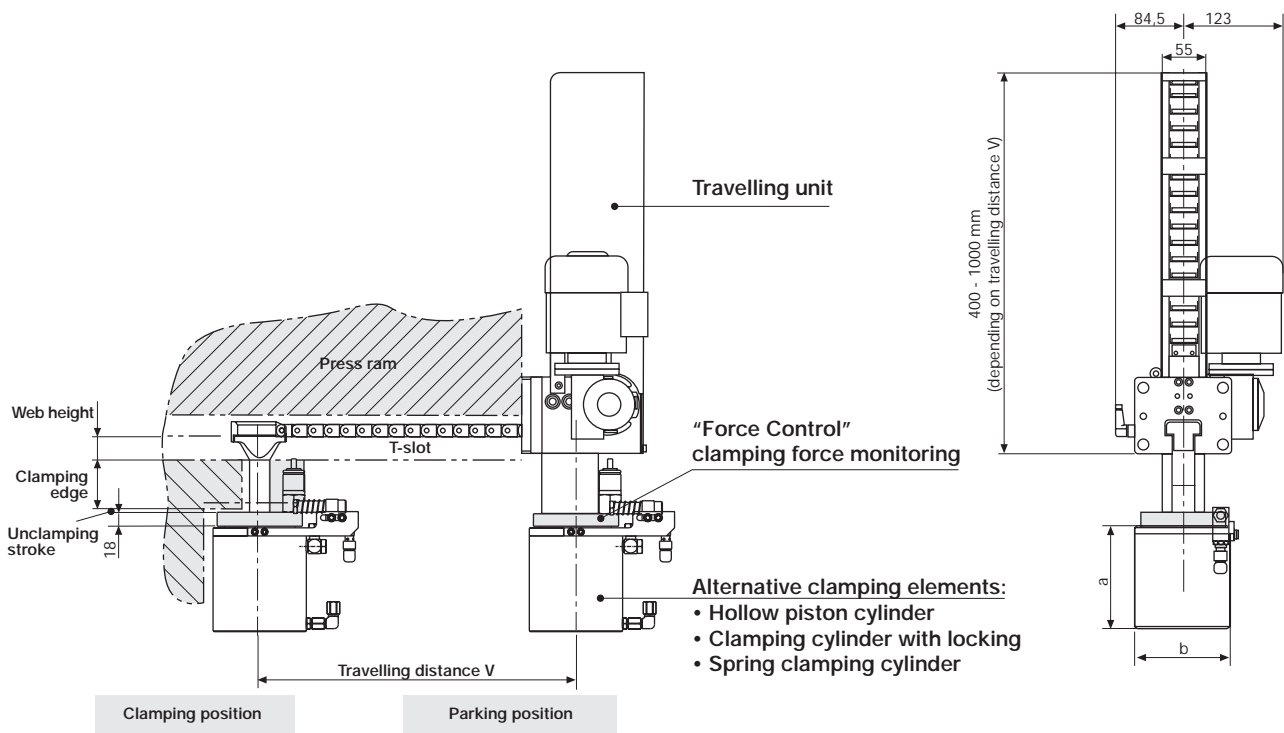
By means of a pressure switch, the internal pressure is constantly monitored, and consequently the clamping force is monitored directly at the clamping point. The pressure switch trips when the pressure has dropped to 80% of the nominal clamping force. The signal must be evaluated by the machine control 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

