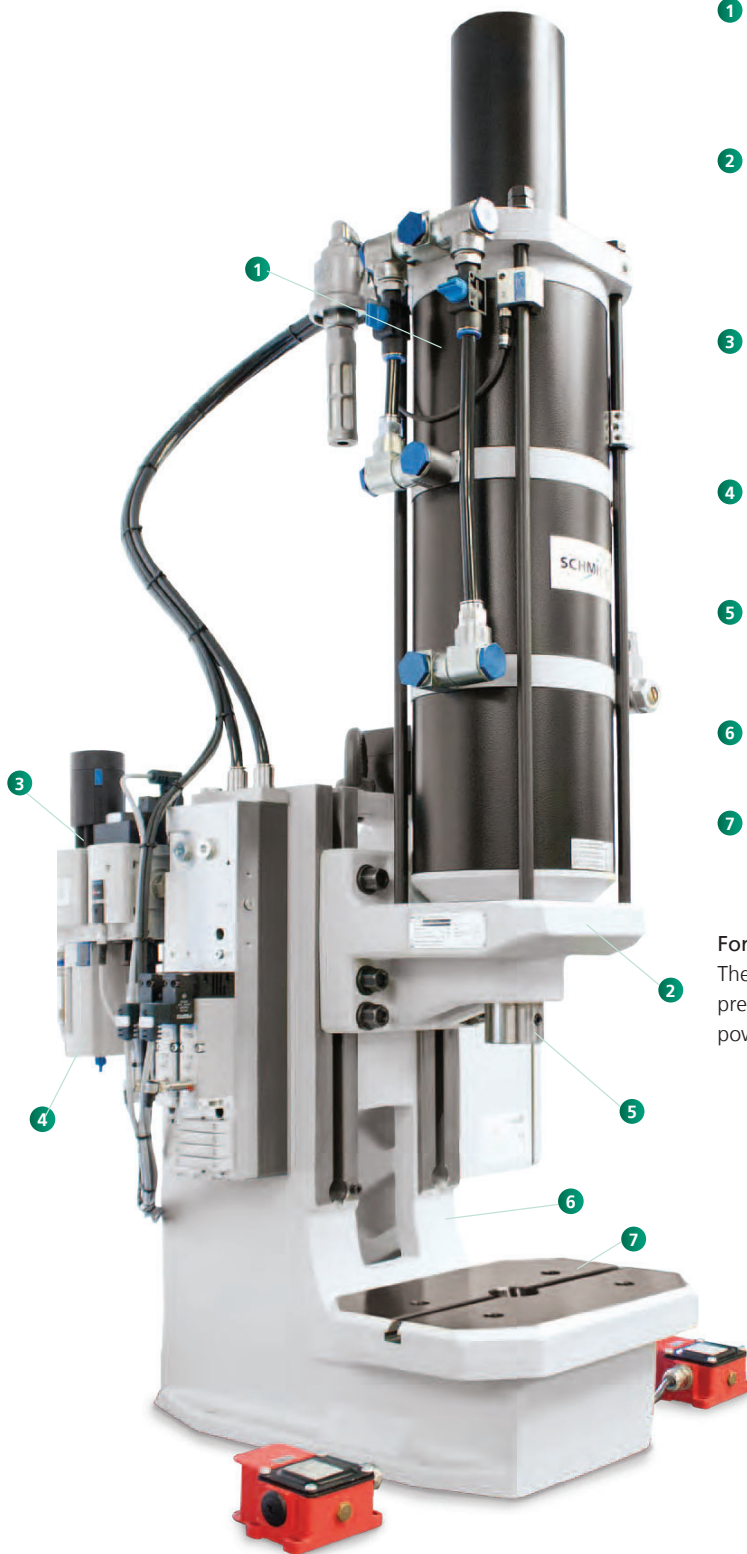


# SCHMIDT® PneumaticPress

Example of a system design with a direct acting press



**1 Cylinder unit**

Maintenance-free specially developed for the assembly technology; with flow control for speed regulation of the down-stroke.

**2 Press Head unit**

The working height can be rapidly and accurately adjusted due to the height adjustment's ease of use. Can be used without the frame as processing station in automated installations.

**3 Pneumatic control package**

Two-channel pneumatic package (as shown) is based on a modular valve block, designed to operate with filtered, non-lubricated air, supply pressure range of 3 – 6 bar.

**4 Force control**

The press force output can easily be controlled via a separate pressure regulator and pressure gauge (not shown).

**5 Ram**

With precision bore for tool holding and built-in adjustable stop.

**6 Frame**

With precision machined press head guide rails.

**7 Fixture mounting plate**

With precision T-slot and bore for tool location.

**Force output preselector (optional)**

The press force output can easily be controlled via a separate pressure regulator and pressure gauge. The pressure for the power stroke can be reduced to 1 bar

# SCHMIDT® PneumaticPress

## Principle of operation

Functional description considering the example of a 3-chamber pneumatic cylinder

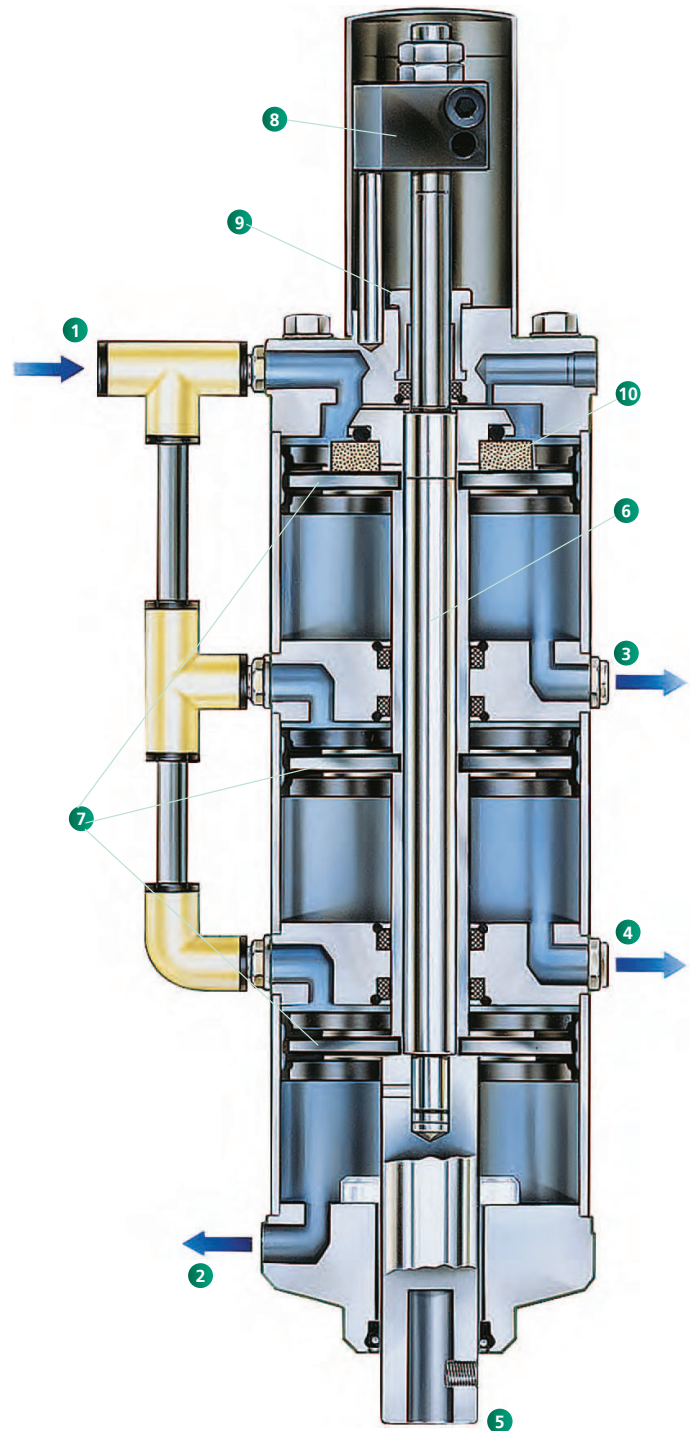
In working stroke, three pistons **7** connected by the piston rod **6** are pressurized with compressed air via the air connection **1** and move downward. The air below the pistons exhausts from the cylinder chambers via the depressurized connection **2** and the breather vents **3** and **4**. The ram **5** extends up to the maximum working stroke.

In return stroke, the upper cylinder chambers are depressurized via the connection **1** and only the bottom piston is pressurized with compressed air via the air connection **2**. Ambient air enters in both remaining cylinder chambers via the breather vents **3** and **4**. The ram with the three pistons moves upward.

This construction has the same effect as a parallel connection of three cylinders. Thus, a powerful working stroke is achieved with a compact design as well as an economic use due to the low air consumption in the return stroke.

The stroke can be limited by setting the Stroke Limit Block **8** to an approximate, desired position. The gap between Stroke Limit Block and Stroke Fine Adjustment **9** now determines the maximum stroke that the ram can travel. In order to fine-tune this stroke, the stop screw **9** can be adjusted.

All direct acting presses have a built-in permanent magnet **10**. This magnet facilitates sensing of the ram position via tie rod mounted sensors.



### Characteristics

- Optimally adapted to individual requirements due to its modular design
- Process optimization by means of adjustable parameters (stroke, force, speed)
- Easy adaptation to different tool and part heights because of simplistic stroke and height adjustment
- Additional safety measures when using heavy tools due to the optional device for retention of ram in home position
- End position control via cylinder switches as signal transmitter for peripheral processes
- Low noise level (< 75 dBA)
- Double-acting, wear-resistant cylinders with low air consumption for the return stroke
- High flexibility due to short changeover time
- Long service life and high precision due to wear-resistant Teflon coated bushings at top and bottom of cylinder
- Precision ground ram
- Precision double ram guides

# SCHMIDT® PneumaticPress

Direct acting with constant force over the entire stroke

## Characteristics

- Round anti-rotational ram
- Adjustable ram position in BDC by means of precision lower stop (1 division line = 0.05 mm) on scale
- T-slot with locking set screw in fixture mounting plate



Press Type 20



Press Type 23



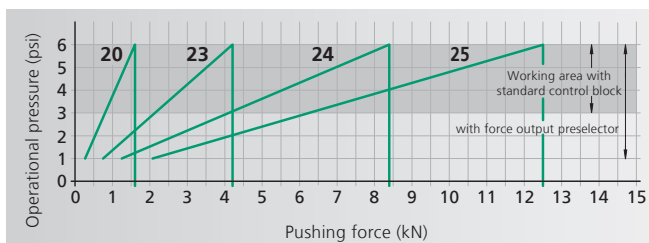
Press Type 24



Press Type 25



**Pneumatic cylinder**  
with piston and magnet kit  
for ram position via cylinder  
switch.





# SCHMIDT® PneumaticPress

Direct acting with constant force over the entire stroke

## Characteristics

- Round anti-rotational ram
- Adjustable ram position in BDC by means of precision lower stop (1 division line = 0.05 mm) on scale



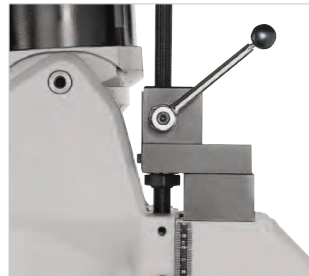
Press Type 27



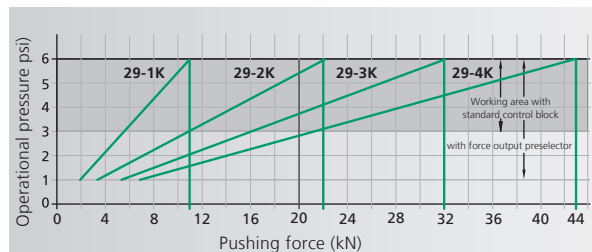
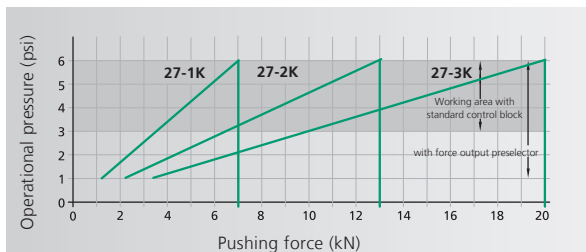
Press Type 29



Precision lower stop



**Height adjustment**  
Fast, accurate setting of the work height.



## From 7 kN to 43 kN

| Press Type                                                        |    |            | 27-1K                               | 27-2K                          | 27-3K                     | 29-1K                          | 29-2K                          | 29-3K                     | 29-4K         |
|-------------------------------------------------------------------|----|------------|-------------------------------------|--------------------------------|---------------------------|--------------------------------|--------------------------------|---------------------------|---------------|
| Working stroke                                                    | A  | mm         | 50, 75, 100<br>160, 200<br>250, 300 | 50, 75<br>100, 125<br>160, 200 | 50, 75<br>100, 125<br>160 | 50, 75<br>100, 160<br>200, 300 | 50, 75<br>100, 125<br>160, 200 | 50, 75<br>100, 125<br>160 | 50, 75<br>100 |
| Nominal force at 6 bar                                            |    | kN         | 7                                   | 13                             | 20                        | 11                             | 22                             | 32                        | 43            |
| Throat depth                                                      | C  | mm         | 131                                 | 131                            | 131                       | 140                            | 140                            | 140                       | 140           |
| Throat depth frame o                                              |    | mm         | 151                                 | 151                            | 151                       | 160, 185                       | 160, 185                       | 160, 185                  | 160           |
| Additional fixture mounting plate suitable for throat depth frame |    |            | o                                   | o                              | o                         | o                              | o                              | o                         | o             |
| Ram bore                                                          | Ø  | mm         | 20H7                                | 20H7                           | 20H7                      | 20H7                           | 20H7                           | 20H7                      | 20H7          |
| Ram diameter                                                      | Ø  | mm         | 40                                  | 40                             | 40                        | 50                             | 50                             | 50                        | 50            |
| Working height <sup>1)</sup>                                      | F  |            |                                     |                                |                           |                                |                                |                           |               |
| Frame No. 34                                                      |    | mm         | 90-270                              | 90-270                         | 90-270                    |                                |                                |                           |               |
| Frame No. 301 o                                                   |    | mm         | 160-400                             | 160-400                        | 160-400                   |                                |                                |                           |               |
| Frame No. 301-500 o                                               |    | mm         | 310-550                             | 310-550                        | 310-550                   |                                |                                |                           |               |
| Frame No. 29                                                      |    | mm         |                                     |                                |                           | 80-290                         | 80-290                         | 80-290                    | 80-290        |
| Frame No. 29-500 o                                                |    | mm         |                                     |                                |                           | 150-500                        | 150-500                        | 150-500                   | 150-500       |
| Frame No. 29-600 o                                                |    | mm         |                                     |                                |                           | 250-600                        | 250-600                        | 250-600                   | 250-600       |
| Weight (standard)                                                 |    | approx. kg | 85                                  | 85                             | 85                        | 120                            | 120                            | 120                       | 120           |
| <b>Flange model</b>                                               |    |            | 27-1K-FL                            | 27-2K-FL                       | 27-3K-FL                  | 29-1K-FL                       | 29-2K-FL                       | 29-3K-FL                  | 29-4K-FL      |
| Cylinder                                                          | Z  | Ømm        | 132                                 | 132                            | 132                       | 170                            | 170                            | 170                       | 170           |
| Flange                                                            | FL | Ømm        | 180                                 | 180                            | 180                       | 220                            | 220                            | 220                       | 220           |
| Width across flats                                                | SW | mm         | 140                                 | 140                            | 140                       | 180                            | 180                            | 180                       | 180           |
| Centering shoulder                                                | ZA | Ømm        | 68                                  | 68                             | 68                        | 80                             | 80                             | 80                        | 80            |

| Frame Overview                                             | Press Type | Frame Height M (mm) | Table Size B x T (mm)  | Table Bore D Ø mm | Table Height K (mm) | Mounting Surface B x L (mm) |
|------------------------------------------------------------|------------|---------------------|------------------------|-------------------|---------------------|-----------------------------|
| No. 34                                                     | 27         | 630                 | 200 x 160              | 25H7              | 111                 | 200 x 370                   |
| No. 301                                                    | 27         | 830                 | 250 x 200              | 40H7              | 145                 | 250 x 460                   |
| Frame No. 301-500 o                                        | 27         | 990                 | 250 x 200              | 40H7              | 145                 | 250 x 480                   |
| Special fixture mounting plate with 3 longitudinal slots o |            |                     | 300 x 220<br>400 x 230 | 40H7<br>40H7      |                     |                             |
| Frame No. 29                                               | 29         | 690                 | 300 x 220              | 40H7              | 141                 | 300 x 460                   |
| Frame No. 29-500 o                                         | 29         | 990                 | 300 x 220              | 40H7              | 166                 | 300 x 540                   |
| Frame No. 29-600 o                                         | 29         | 1110                | 300 x 220              | 40H7              | 166                 | 300 x 565                   |
| Special fixture mounting plate with 3 longitudinal slots o |            |                     | 355 x 225<br>400 x 230 | 40H7<br>40H7      |                     |                             |

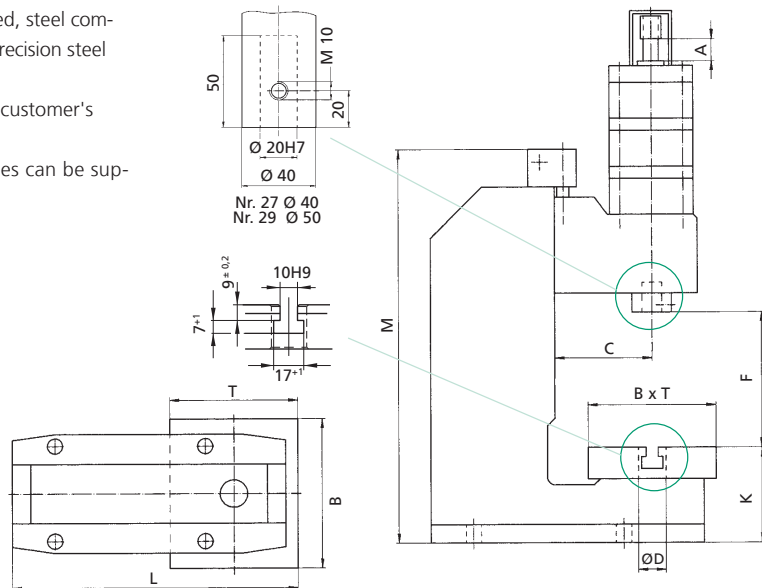
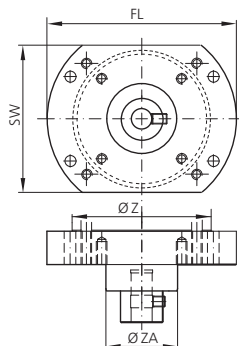
<sup>1)</sup> Typical values; can vary  $\pm 3$  mm due to casting and production tolerances

### Options

o Additional charge applies

### Other available options

- Nickel plated – cast parts are electroless nickel plated, steel components black oxide finished, aluminum anodized, precision steel surfaces are untreated
- Custom Paint – press and column can be painted to customer's color specification
- Bores for adapting tooling – customer specific sizes can be supplied



Detailed dimensional drawings can be downloaded: [www.schmidttechnology.de](http://www.schmidttechnology.de)

# SCHMIDT® PneumaticPress

Pneumatic Toggle Presses with maximum force at the end of stroke

## Characteristics

- Cross hole with locking screw in the press table for safe fixture of tool
- Accurate adjustable ram position via fine adjustment (type 33)
- T-slot with set screw in fixture mounting plate to secure bottom tool



Press Type 32



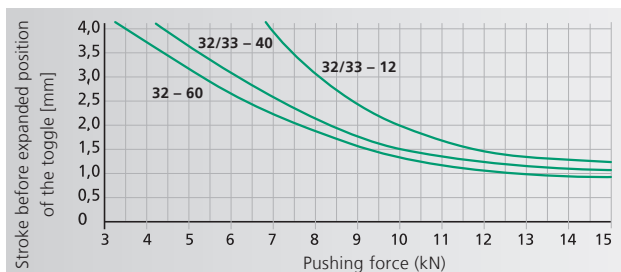
Press Type 33



Fine adjustment  
for press No. 33 with scale  
1 division line = 0.02 mm.



Flexible stroke adjustment  
reduces the air consumption  
for shorter strokes.



Up to 15 kN

| Press Type                                                        |             |            | 32                   | 33           |
|-------------------------------------------------------------------|-------------|------------|----------------------|--------------|
| Working stroke                                                    | A           | mm         | 0-12<br>4-40<br>6-60 | 0-12<br>4-40 |
| Nominal force at 6 bar                                            |             | kN         | 15                   | 15           |
| Throat depth                                                      | C           | mm         | 86                   | 86           |
| Throat depth frame $\phi$                                         |             | mm         | 111, 131             | 111, 131     |
| Additional fixture mounting plate suitable for throat depth frame |             |            | $\phi$               | $\phi$       |
| Ram bore                                                          | $\emptyset$ | mm         | 20H7                 | 20H7         |
| External ram dimensions                                           | $\emptyset$ | mm         | 40                   | 40           |
| Fine adjustment                                                   |             |            |                      | ●            |
| Working height <sup>1)</sup>                                      | F           |            |                      |              |
| Frame No. 3                                                       |             | mm         | 80 – 205             |              |
| Frame No. 5                                                       |             | mm         | 80 – 350             | 35 – 295     |
| Frame No. 2-600 $\phi$                                            |             | mm         | 200 – 575            | 155 – 520    |
| Frame No. 2-1000 $\phi$                                           |             | mm         | 330 – 1020           | 285 – 965    |
| Weight                                                            |             | approx. kg | 45                   | 50           |

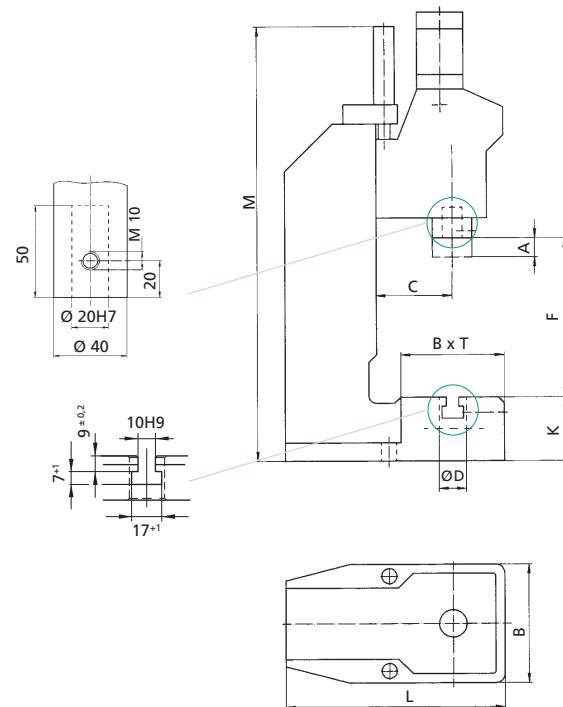
| Frame Overview          | Press Type | Frame Height<br>M (mm) | Table Size<br>B x T (mm) | Table Bore<br>D $\emptyset$ (mm) | Table Height<br>K (mm) | Mounting Surface<br>B x L (mm) |
|-------------------------|------------|------------------------|--------------------------|----------------------------------|------------------------|--------------------------------|
| No. 3                   | 32         | 540                    | 150 x 110                | 20H7                             | 60                     | 150 x 260                      |
| No. 5                   | 32, 33     | 536                    | 185 x 110                | 20H7                             | 60                     | 185 x 280                      |
| Frame No. 2-600 $\phi$  | 32, 33     | 810                    | 200 x 160                | 20H7                             | 98                     | 200 x 290                      |
| Frame No. 2-1000 $\phi$ | 32, 33     | 1248                   | 200 x 160                | 20H7                             | 98                     | 200 x 290                      |

#### Options

- Series standard with no additional charge
- Additional charge applies
- <sup>1)</sup> Typical values; can vary  $\pm 3$  mm due to casting and production tolerances

#### Other available options

- Nickel plated – cast parts are electroless nickel plated, steel components black oxide finished, aluminum anodized, precision steel surfaces are untreated
- Custom Paint – press and column can be painted to customer's color specification
- Bore for adapting tooling – customer specific sizes can be supplied



Detailed dimensional drawings can be downloaded: [www.schmidttechnology.de](http://www.schmidttechnology.de)

# SCHMIDT® PneumaticPress

Pneumatic Toggle Presses with maximum force at the end of stroke

## Characteristics

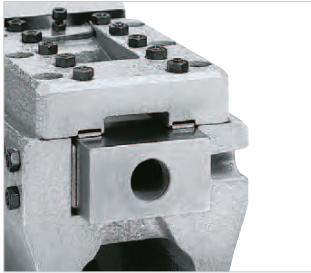
- Anti-rotational square ram with fully adjustable, Teflon lined gibs for precise travel, no die set required
- Exact positioning due to fine adjustment scale (1 division line = 0.05 mm)



Press Type 34



Press Type 36



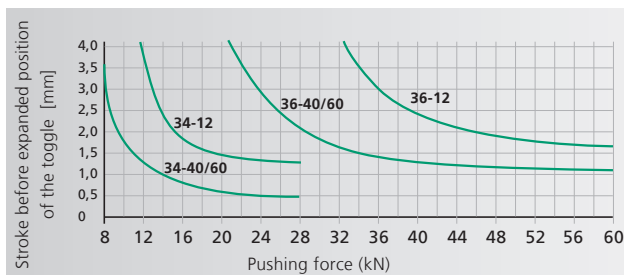
Square ram



Fine adjustment

## Pushing Force Diagram

Operational pressure: 6 bar



## From 28 kN to 60 kN

| Press Type                                             |       |            | 34                   | 36                   |
|--------------------------------------------------------|-------|------------|----------------------|----------------------|
| Working stroke                                         | A     | mm         | 0-12<br>4-40<br>6-60 | 0-12<br>4-40<br>6-60 |
| Nominal force at 6 bar                                 |       | kN         | 28                   | 60                   |
| Throat depth                                           | C     | mm         | 131                  | 160                  |
| Throat depth frame o                                   |       | mm         | 151, 170             | 185                  |
| Fixture mounting plate suitable for throat depth frame |       |            | o                    | o                    |
| Ram bore                                               | Ø     | mm         | 20H7                 | 20H7                 |
| External ram dimensions                                | G x H | mm         | 36 x 63              | 46 x 86              |
| Working height <sup>1)</sup>                           | F     |            |                      |                      |
| Frame No. 34                                           |       | mm         | 100-250              |                      |
| Frame No. 301                                          |       | mm         | 160-400              |                      |
| Frame No. 301-500                                      |       | mm         | 310-550              |                      |
| Frame No. 35                                           |       | mm         |                      | 100-250              |
| Frame No. 35-500                                       |       | mm         |                      | 150-500              |
| Frame No. 35-600                                       |       | mm         |                      | 250-600              |
| Weight                                                 |       | approx. kg | 90                   | 150                  |

| Frame Overview                                             | Press Type | Frame Height M (mm) | Table Size B x T (mm)  | Table Bore D Ø mm | Table Height K (mm) | Mounting Surface B x L (mm) |
|------------------------------------------------------------|------------|---------------------|------------------------|-------------------|---------------------|-----------------------------|
| No. 34                                                     | 34         | 630                 | 200x160                | 25H7              | 111                 | 200 x 370                   |
| No. 301                                                    | 34         | 830                 | 250x200                | 40H7              | 145                 | 250 x 460                   |
| No. 301-500                                                | 34         | 990                 | 250x200                | 40H7              | 145                 | 250 x 480                   |
| Special fixture mounting plate with 3 longitudinal slots o |            |                     | 300 x 220<br>400 x 230 | 40H7              |                     |                             |
| No. 35                                                     | 36         | 700                 | 300 x 220              | 40H7              | 141                 | 300 x 480                   |
| No. 35-500                                                 | 36         | 990                 | 300 x 220              | 40H7              | 166                 | 300 x 560                   |
| No. 35-600                                                 | 36         | 1110                | 300 x 220              | 40H7              | 166                 | 300 x 585                   |
| Special fixture mounting plate with 3 longitudinal slots o |            |                     | 355 x 225<br>400 x 280 | 40H7              |                     |                             |

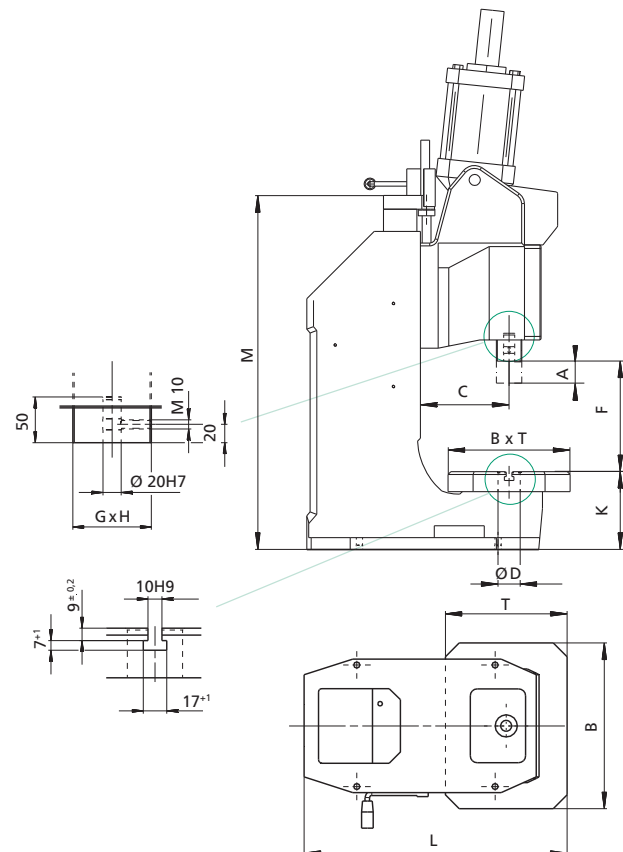
### Options

o Additional charge applies

<sup>1)</sup> Typical values; can vary  $\pm 3$  mm due to casting and production tolerances

### Other available options

- Nickel plated – cast parts are electroless nickel plated, steel components black oxide finished, aluminium anodized, precision steel surfaces are untreated
- Custom Paint – press and column can be painted to customer's color specification
- Bores for adapting tooling – customer specific sizes can be supplied



Detailed dimensional drawings can be downloaded: [www.schmidttechnology.de](http://www.schmidttechnology.de)

# SCHMIDT® PneumaticPress

## Direct acting Pneumatic Presses with force/stroke monitoring

SCHMIDT® PneumaticPresses with force/stroke monitoring are offered as complete system with control unit **SCHMIDT® Press-Control 700**. These systems are characterized by sensors and signal amplification integrated in the press head. These signals are evaluated in real time.

### Characteristics

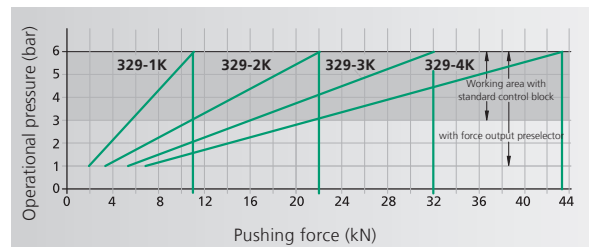
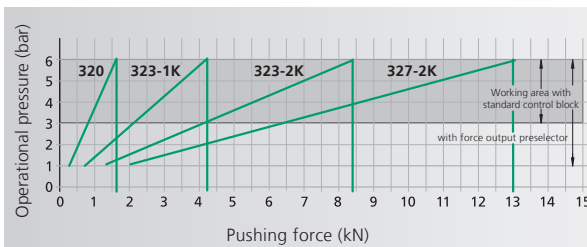
- Direct forces are measured due to the force sensor integrated in the ram. Insensitive against side loads
- Force and displacement sensors are immune to EMI and environmental conterminaton
- A measuring data amplification integrated in the press head provides short transmission paths of unamplified signals
- Anti-rotational square ram with two fully adjustable guiding gibs for precise work, also with tools without guide (not for type 320, here special anti-twist protection in the roller-guided round ram)



Press Type 323, 327, 329



Press Type 320



From 1.6 kN to 43 kN

| Press Type                                             |              |        | 320    | 323-1K                | 323-2K      | 327-2K                | 327-3K      | 329-2K           | 329-3K                | 329-4K      |
|--------------------------------------------------------|--------------|--------|--------|-----------------------|-------------|-----------------------|-------------|------------------|-----------------------|-------------|
| Working stroke                                         | <b>A</b>     | mm     | 100    | 50, 75, 100, 125, 150 | 50, 75, 100 | 50, 75, 100, 125, 150 | 50, 75, 100 | 50, 75, 100, 150 | 50, 75, 100, 125, 150 | 50, 75, 100 |
| Nominal force at 6 bar                                 |              | kN     | 1.6    | 4.2                   | 8.4         | 13                    | 20          | 22               | 32                    | 43          |
| Resolution, process data acquisition                   |              |        |        |                       |             |                       |             |                  |                       |             |
| - stroke                                               |              | µm/inc | 5      | 5                     | 5           | 5                     | 5           | 5                | 5                     | 5           |
| - force                                                |              | N/inc  | 0.5    | 1.25                  | 2.5         | 4                     | 6.25        | 6.25             | 10                    | 12.5        |
| Throat depth                                           | <b>C</b>     | mm     | 129    | 131                   | 131         | 131                   | 131         | 160              | 160                   | 160         |
| Throat depth frame o                                   |              | mm     |        | 151                   | 151         | 151                   | 151         |                  |                       |             |
| Fixture mounting plate suitable for throat depth frame |              |        |        | o                     | o           | o                     | o           |                  |                       |             |
| Ram bore                                               | Ø            | mm     | 20H7   | 20H7                  | 20H7        | 20H7                  | 20H7        | 20H7             | 20H7                  | 20H7        |
| External ram dimensions                                | <b>G x H</b> | mm     | Ø 40   | 70 x 50               | 70 x 50     | 70 x 50               | 70 x 50     | 90 x 60          | 90 x 60               | 90 x 60     |
| Working height <sup>1)</sup>                           | <b>F</b>     |        |        |                       |             |                       |             |                  |                       |             |
| Frame No. 7-420                                        |              | mm     | 50-420 |                       |             |                       |             |                  |                       |             |
| Frame No. 7-600 o                                      |              | mm     | 85-600 |                       |             |                       |             |                  |                       |             |
| Frame No. 301                                          |              | mm     |        | 140-350               | 140-350     | 140-350               | 140-350     |                  |                       |             |
| Frame No. 301-500 o                                    |              | mm     |        | 310-500               | 310-500     | 310-500               | 310-500     |                  |                       |             |
| Frame No. 329                                          |              | mm     |        |                       |             |                       |             | 130-300          | 130-300               | 130-300     |
| Frame No. 329-460 o                                    |              | mm     |        |                       |             |                       |             | 190-460          | 190-460               | 190-460     |
| Weight (standard)                                      | approx. kg   |        | 70     | 170                   | 170         | 170                   | 170         | 320              | 325                   | 330         |

| Frame Overview                                                           | Press Type | Frame Height M (mm) | Table Size B x T (mm)  | Table Bore D Ø mm | Table Height K (mm) | Mounting Surface B x L (mm) |
|--------------------------------------------------------------------------|------------|---------------------|------------------------|-------------------|---------------------|-----------------------------|
| No. 7-420                                                                | 320        | 740                 | 180 x 150              | 20H7              | 90                  | 220 x 362                   |
| No. 7-600                                                                | 320        | 960                 | 180 x 280              | 20H7              | 110                 | 220 x 465                   |
| No. 301                                                                  | 323, 327   | 830                 | 250 x 200              | 40H7              | 145                 | 250 x 460                   |
| No. 301-500                                                              | 323, 327   | 990                 | 250 x 200              | 40H7              | 145                 | 250 x 480                   |
| Special fixture mounting plate with 3 longitudinal slots <sup>2)</sup> o |            |                     | 300 x 220<br>400 x 230 | 40H7              |                     |                             |
| No. 329                                                                  | 329        | 810                 | 300 x 230              | 40H7              | 147                 | 300 x 550                   |
| No. 329-460                                                              | 329        | 990                 | 300 x 230              | 40H7              | 147                 | 300 x 620                   |
| Special fixture mounting plate with 3 longitudinal slots <sup>2)</sup> o |            |                     | 400 x 280<br>500 x 280 | 40H7              |                     |                             |

#### Options

o Additional charge applies

<sup>1)</sup> Typical values; can vary  $\pm 3$  mm due to casting and production tolerances

<sup>2)</sup> With Press type **320** only in combination with frame type

No. 7-600 with 168 mm, 208 mm or 248 mm

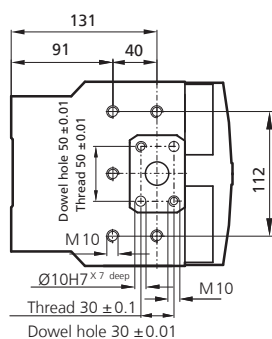
#### Other available options

- Nickel plated – cast parts are electroless nickel plated, steel components black oxide finished, aluminium anodized, precision steel surfaces are untreated
- Custom Paint – press and column can be painted to customer's color specification
- Bores for adapting tooling – customer specific sizes can be supplied

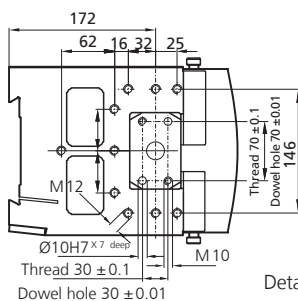
#### Bottom view of the press head

Fastening drill pattern flange/ram

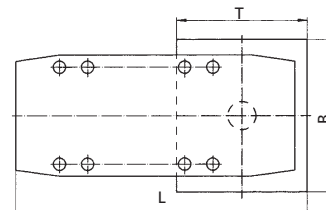
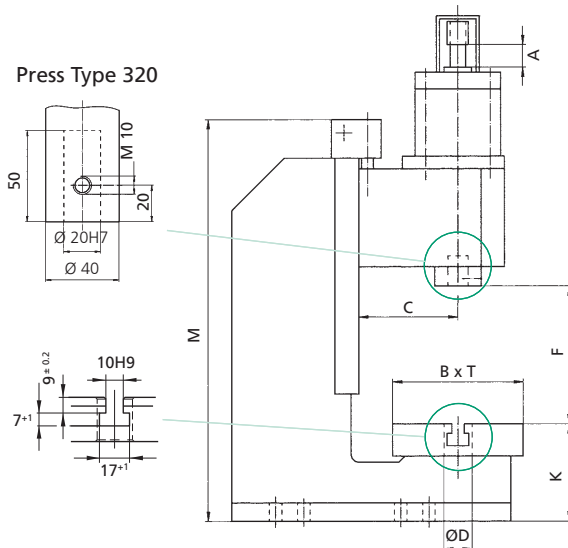
#### Press Type 323/327



#### Press Type 329



#### Press Type 320



Detailed dimensional drawings can be downloaded: [www.schmidttechnology.de](http://www.schmidttechnology.de)



**SCHMIDT®** PneumaticPress 323 with PressControl 700 and two-hand release on height-adjustable PU40 and transparent protective housing as EC type-examination approved single workstation.