

# SCHMIDT® HydroPneumaticPress

## System design



- 1 **Cylinder unit**  
Hydro pneumatic
- 2 **Air throttle rapid approach stroke**  
For speed control of the downstroke
- 3 **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
- 4 **Pneumatic control package**  
Two-channel pneumatic package (as shown) is based on a modular valve block
- 5 **Force output preselector**  
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
- 6 **Square ram**  
Square ram with fully adjustable, Teflon lined gibs for precise travel, precision machined bore
- 7 **Frame**  
With precision machined press head guide rails (for No. 68 and 368 designed as dovetail guide)
- 8 **Fixture mounting plate**  
With precision T-slot and bore for tool location

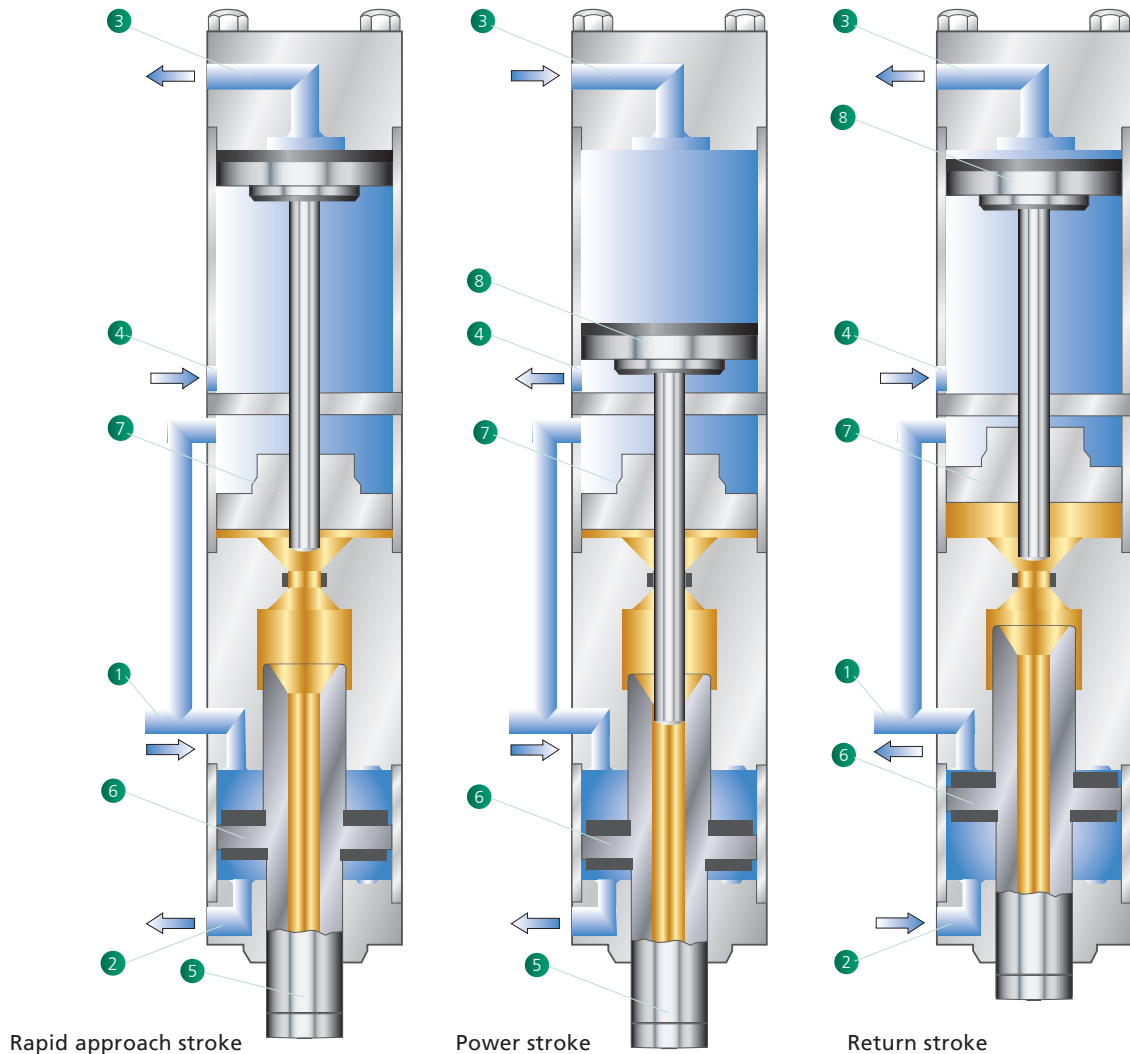


### Stroke feedback

Ram with key-ways for switch target pieces for an inductive position feedback. Optional: Stroke-dependent activation of the power stroke by means of the proximity switch.

# SCHMIDT® HydroPneumaticPress

## Principle of operation



### Rapid approach stroke

In rapid approach stroke, the air connections ① and ④ are pressurized with compressed air. The air connections ② and ③ are depressurized. The approach stroke piston ⑥ and the reservoir piston ⑦ are moving with low force until the ram ⑤ encounters resistance.

### Power Stroke

If the ram ⑤ encounters resistance, a valve switches the compressed air from ④ to connection ③, and the power stroke piston ⑧ moves downwards. A rod enters the high pressure cylinder, separating the hydraulic oil between reservoir piston ⑦ and approach stroke piston ⑥. The ram ⑤ moves out with boosted force.

### Return Stroke

For the return stroke, the connections ① and ③ are depressurized, and the connections ② and ④ are pressurized. Approach stroke ⑥ and power stroke piston ⑧ move back simultaneously. After the hydraulic connection between approach ⑥ and reservoir piston ⑦ oil flows back into the reservoir, moving the reservoir piston into its home position.

### Characteristics

- Optimally adapted to individual requirements due to its modular design
- High flexibility and economic efficiency due to short changeover times
- Easy and accurate positioning of tools due to the precise alignment between ram bore and the ground fixture mounting plate.
- The force output preselector allows reducing the pressure for the power stroke to 1 bar. This reduces the nominal press force to 1/6 of the maximum force.
- The end positions of the ram can be sensed via the inductive proximity switches.
- No mechanical compression spring in the cylinder of the hydro-pneumatic system, providing a long service life
- Low maintenance resulting in high productivity
- Long service life and precision due to maintenance-free guides
- Tool protection due to smooth switchover from rapid approach stroke to power stroke
- Additional safety when using heavy tools due to the optional ram drift lock device for retention of ram in home position.
- Low noise level (< 75 dBA)

# SCHMIDT® HydroPneumaticPress

## C-Frame design

### Characteristics

- The C-Frame design offers full accessibility when manually inserting and removing parts
- Easy adaptation to different tool and part heights because of simplistic height adjustment with angular gear
- Anti-rotational square ram with fully adjustable, Teflon lined gibs for precise travel. No die set required
- High precision due to long precise guides of the square ram

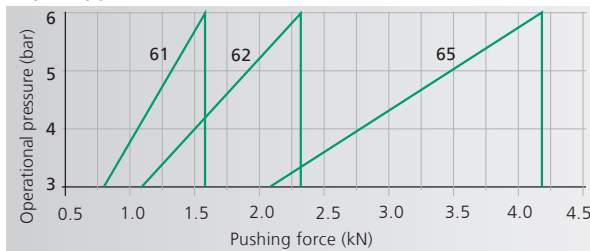


Press type 61/62

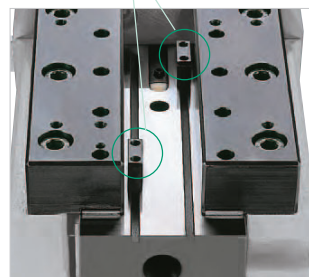


Press type 65

### Rapid approach stroke

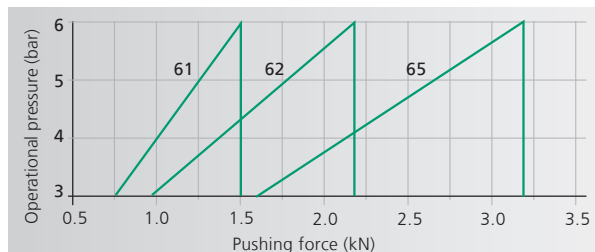
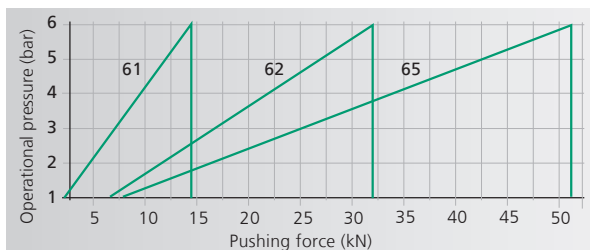


Adjustable switch target pieces for position detection via an inductive position sensor



**Square ram**  
with bilaterally adjustable, play-free gibs, precision machined bore with set screw for mounting of tooling.

### Power stroke



Operational pressure < 3 bar: can only be operated with press force preselector!

From 15 kN to 52 kN in power stroke

Press Type			61	62	65
Total stroke - Power stroke <sup>1)</sup>		mm	50 – 6, 100 – 12	50 – 6, 100 – 12	50 – 6, 100 – 12
Nominal force at 6 bar		kN	15	30	52
Throat depth	<b>C</b>	mm	131	131	160
Throat depth frame o		mm	151	151	185
Fixture mounting plate suitable for throat depth frame			o	o	o
Ram bore	Ø	mm	20H7	20H7	20H7
External ram dimensions	<b>G x H</b>	mm	36 x 63	36 x 63	46 x 86
Working height <sup>2)</sup>	<b>F</b>				
Frame No. 34		mm	100 – 250	100 – 250	
Frame No. 301 o		mm	160 – 400	160 – 400	
Frame No. 301-500 o		mm	310 – 550	310 – 550	
Frame No. 35		mm			80 – 270
Frame No. 35-500 o		mm			150 – 500
Frame No. 35-600 o		mm			250 – 600
Weight (standard)		approx. kg	95	110	160

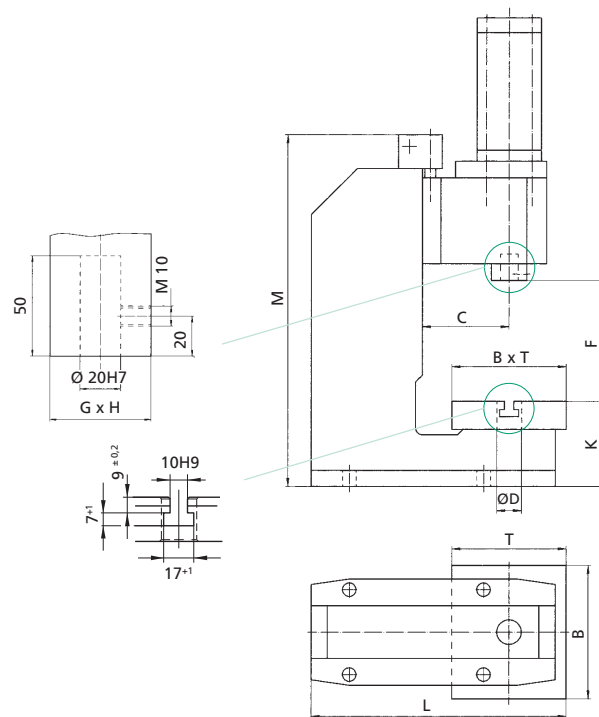
Frame Overview	Press Type	Frame Height M (mm)	Table Size B x T (mm)	Table Bore D Ø mm	Table Height K (mm)	Mounting Surface B x L (mm)
No. 34	61, 62	630	200 x 160	25H7	111	200 x 370
No. 301	61, 62	830	250 x 200	40H7	145	250 x 460
No. 301-500	61, 62	990	250 x 200	40H7	145	250 x 480
Special fixture mounting plate with 3 longitudinal slots o			300 x 220 400 x 230	40H7		
No. 35	65	700	300 x 220	40H7	141	300 x 480
No. 35-500	65	990	300 x 220	40H7	166	300 x 560
No. 35-600	65	1110	300 x 220	40H7	166	300 x 585
Special fixture mounting plate with 3 longitudinal slots o			355 x 225 400 x 280	40H7		

#### Options

o Additional charge applies

<sup>1)</sup> Stroke variants on request

<sup>2)</sup> Typical values; can vary  $\pm 3$  mm due to casting and production tolerances



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

# SCHMIDT® HydroPneumaticPress

## C-Frame design with welded press frame

### Characteristics

- The welded press frame offers highest stability
- Space-saving and compact due to separate working cylinder for press No. 68



Press type 68

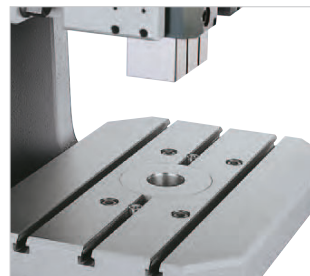
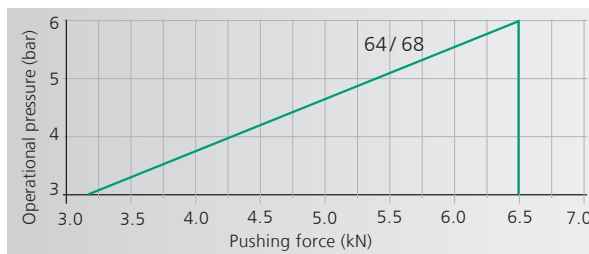
Press type 64



### Square ram

with bilaterally adjustable, play-free gibs, precision machined bore with set screw for mounting of tooling. Some models feature additional provisions for tooling adaption.

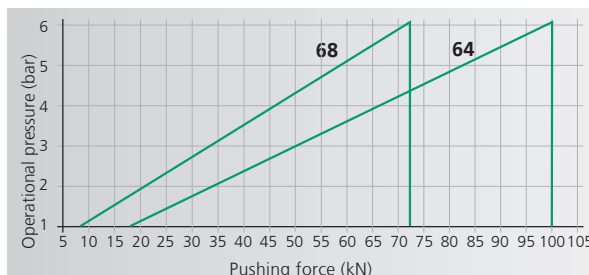
### Rapid approach stroke



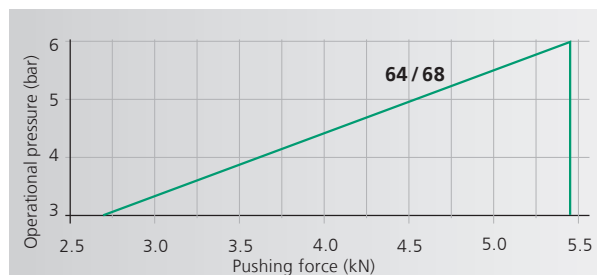
### Fixture mounting plate

(for Press No. 64) with 3 T-slots and precision machined bore for tool location.

### Power stroke



### Return stroke



Operational pressure < 3 bar: can only be operated with press force preselector!

## From 72 kN to 100 kN in power stroke

Press Type			64	68
Total stroke - Power stroke <sup>1)</sup>		mm	50 - 6, 100 - 12	50 - 6, 100 - 12
Nominal force at 6 bar		kN	100	72
Throat depth	<b>C</b>	mm	160	160
Ram bore	<b>E</b>	Ø mm	25H7	20H7
External ram dimensions	<b>G x H</b>	mm	60 x 90	60 x 90
Working height <sup>2)</sup>	<b>F</b>			
Frame No. 64		mm	180 - 350	
Frame No. 64-600 o		mm	430 - 600	
Frame No. 68 <sup>2)</sup>		mm		130 - 300
Frame No. 68/5 <sup>2)</sup> o		mm		190 - 460
Weight (standard)		approx. kg	420	350

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. 64	64	940	400 x 290	40H7	185	400 x 625
No. 64-600 o	64	1200	400 x 290	40H7	185	400 x 685
No. 68 <sup>2)</sup>	68	810	300 x 230	40H7	147	300 x 550
No. 68/5 <sup>2)</sup> o	68	990	300 x 230	40H7	147	300 x 620
Special fixture mounting plate with 3 longitudinal slots o			400 x 280 500 x 280	40H7		

### Options

o Additional charge applies

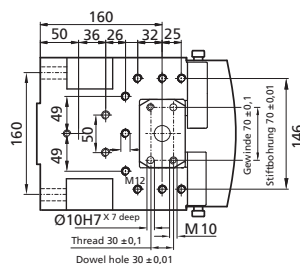
<sup>1)</sup> Stroke variants on request

<sup>2)</sup> Frame 68/5 required for 30 mm power stroke

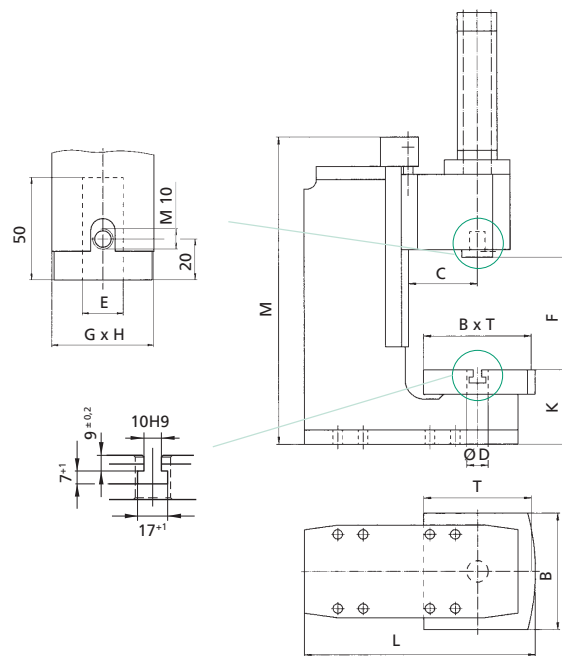
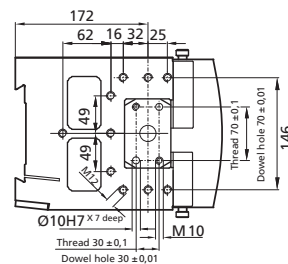
<sup>3)</sup> Typical values; can vary  $\pm 3$  mm due to casting and production tolerances

### Bottom view of the press head Mounting drill pattern flange/ram

#### Press type 64



#### Press type 68



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

# SCHMIDT® HydroPneumaticPress

## C-Frame design with force/stroke monitoring

**SCHMIDT® HydroPneumaticPresses** with force / stroke monitoring are offered as complete system with control unit **SCHMIDT® PressControl 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 forces
- Signal readings are not affected by outside interference
- A measuring data amplification integrated in the press head provides short transmission paths of unamplified signals
- Precision guide rails for precise working. Bilaterally adjustable, play-free gibs, precision machined bore for tool location. No die-set required

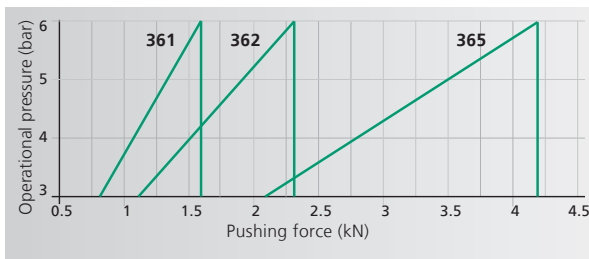


Press type 361

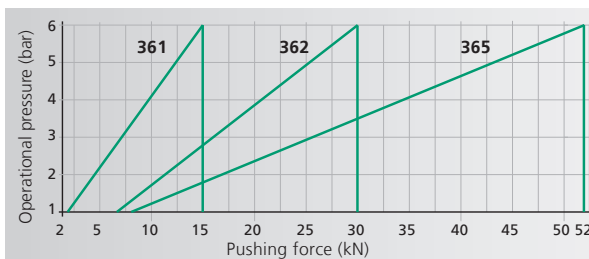
Press type 362

Press type 365

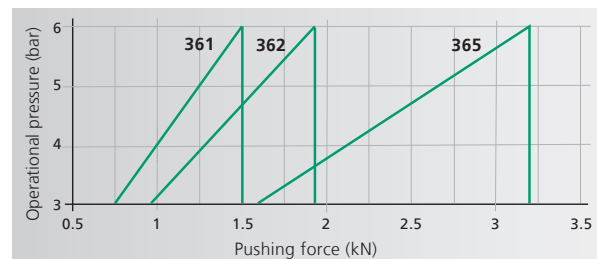
### Rapid approach stroke



### Power stroke



### Return stroke



Operational pressure < 3 bar: can only be operated with press force preselector!



From 15 kN to 52 kN in power stroke

Press Type			361	362	365
Total stroke - Power stroke <sup>1)</sup>		mm	50-6, 100-12	50-6, 100-12	50-6, 100-12
Nominal force at 6 bar		kN	15	30	52
Process data acquisition stroke force		µm/inc	5	5	5
		N/inc	4.5	9	15
Throat depth	<b>C</b>	mm	131	160	160
Throat depth frame o			151		
Fixture mounting plate suitable for throat depth frame			o		
Ram bore	Ø	mm	20H7	20H7	20H7
External ram dimensions	<b>G x H</b>	mm	70 x 50	90 x 60	90 x 60
Working height <sup>2)</sup>	<b>F</b>				
Frame No. 301		mm	160-355		
Frame No. 301-500 o		mm	310-500		
Frame No. 329		mm		130-300	130-300
Frame No. 329-460 o		mm		190-460	190-460
Weight (standard)		approx. kg	170	320	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. 301	361	830	250 x 200	40H7	145	250 x 460
No. 301-500 o	361	990	250 x 200	40H7	145	250 x 480
Special fixture mounting plate with 3 longitudinal slots o			300 x 220 400 x 230	40H7		
No. 329	362, 365	810	300 x 230	40H7	147	300 x 550
No. 329-460 o	362, 365	990	300 x 230	40H7	147	300 x 620
Special fixture mounting plate with 3 longitudinal slots o			400 x 280 500 x 280	40H7		

#### Options

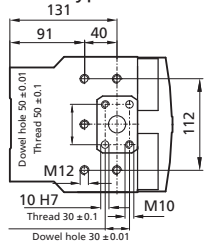
o Additional charge applies

<sup>1)</sup> Stroke variants on request

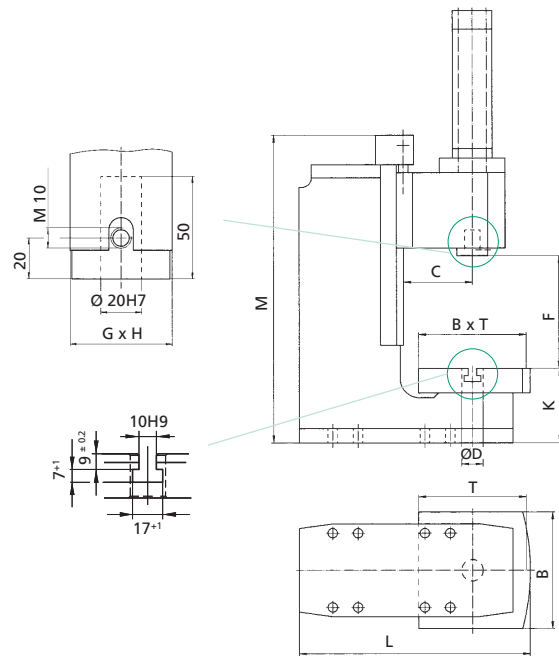
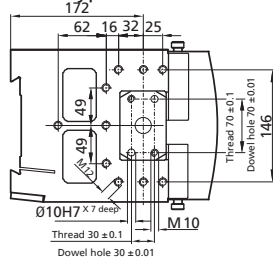
<sup>2)</sup> Typical values; can vary  $\pm 3$  mm due to casting and production tolerances

Bottom view of the press head  
Mounting drill pattern flange/ram

Press Type 361



Press Type 362/365



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



# SCHMIDT® HydroPneumaticPress

## In C-Frame design with force/stroke Monitoring

SCHMIDT® HydroPneumaticPress with force/stroke monitoring are offered as complete system with control unit **SCHMIDT® PressControl 600**. 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 forces
- Signal readings are not affected by outside interference
- A measuring data amplification integrated in the press head provides short transmission paths of unamplified signals
- Precision bilaterally adjustable, play-free gibs, precision ground bore for tool location. No die-set required

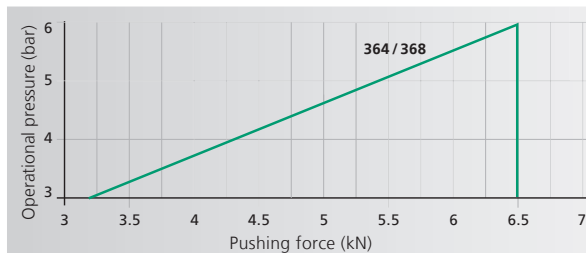


Press type 364

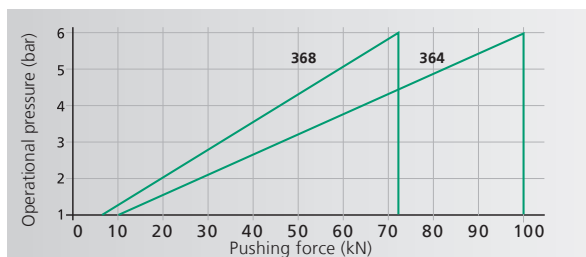


Press type 368

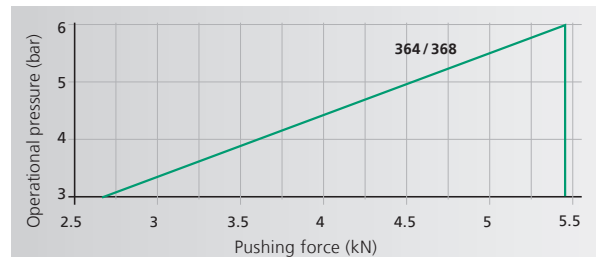
### Rapid approach stroke



### Power stroke



### Return stroke



## From 72 kN to 100 kN in power stroke

Press Type			364	368
Total stroke - Power stroke <sup>1)</sup>		mm	50 - 6, 100 - 12	50 - 6, 100 - 12
Nominal force at 6 bar		kN	100	72
Process data acquisition				
Stroke		µm/inc	5	5
Force		N/inc	32	20
Throat depth	<b>C</b>	mm	160	160
Ram bore	<b>E</b>	Ø mm	25H7	20H7
External ram dimensions	<b>G x H</b>	Ø mm	90 x 60	90 x 60
Working height <sup>3)</sup>	<b>F</b>			
Frame No. 64		mm	180 - 350	
Frame No. 64-600 o		mm	430 - 600	
Frame No. 68 <sup>2)</sup>		mm		130 - 300
Frame No. 68/5 <sup>2)</sup> o		mm		190 - 460
Weight (standard)		approx. kg	420	350

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. 64	364	940	400 x 290	40H7	185	400 x 625
No. 64-600 o	364	1200	400 x 290	40H7	185	400 x 685
No. 68 <sup>2)</sup>	368	810	300 x 230	40H7	147	300 x 550
No. 68/5 <sup>2)</sup> o	368	990	300 x 230	40H7	147	300 x 620
Special fixture mounting plate with 3 longitudinal slots o			400 x 280 500 x 280	40H7		

### Options

o Additional charge applies

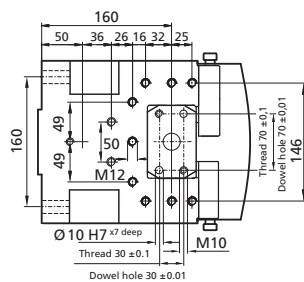
<sup>1)</sup> Stroke variants on request

<sup>2)</sup> Frame 68/5 required for 30 mm power stroke

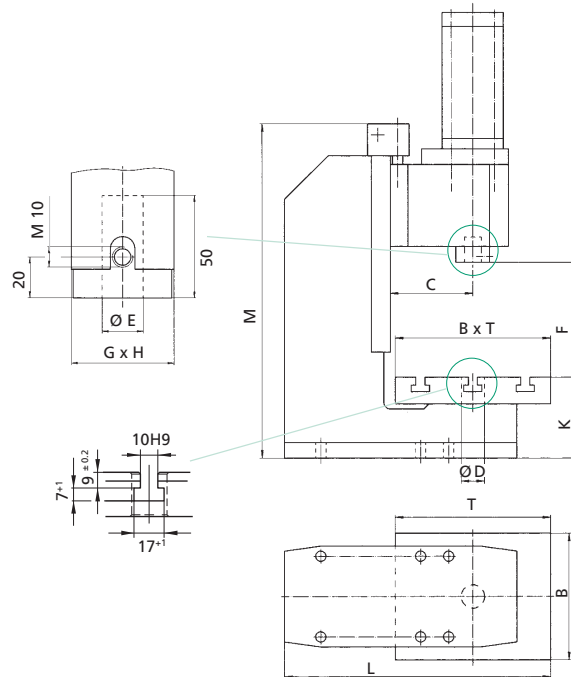
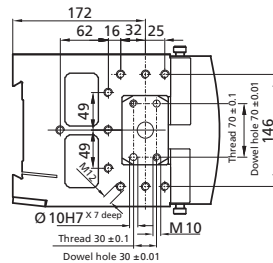
<sup>3)</sup> Typical values; can vary  $\pm 3$  mm due to casting and production tolerances

### Bottom View of the Press Head Mounting drill pattern flange/ram

#### Press Type 364



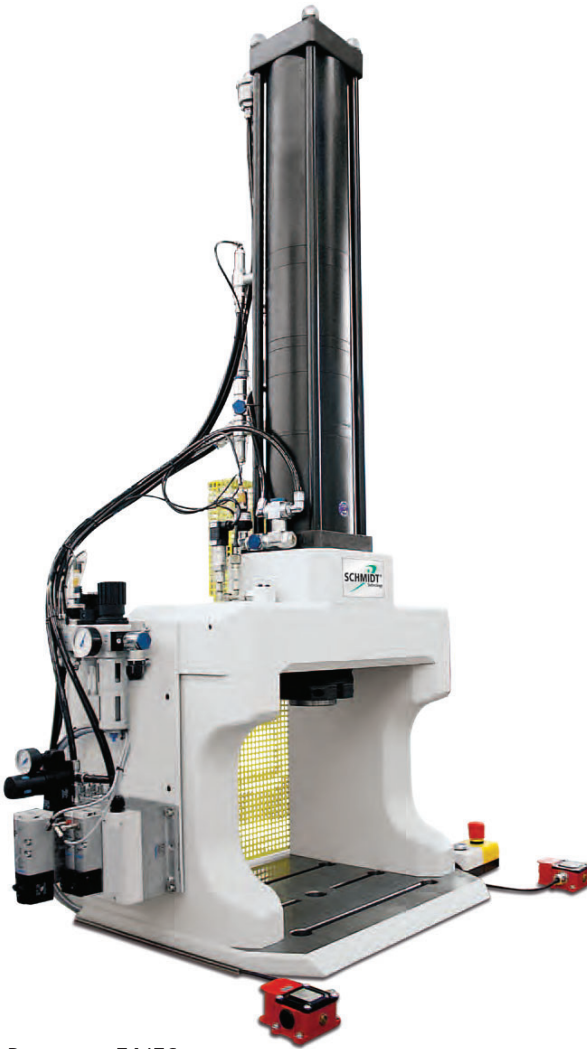
#### Press Type 368



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# SCHMIDT® HydroPneumaticPress

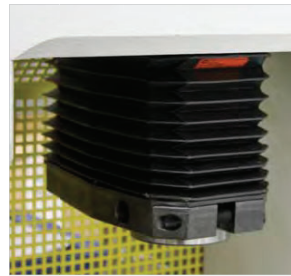
## H-Frame design with and without force/stroke monitoring



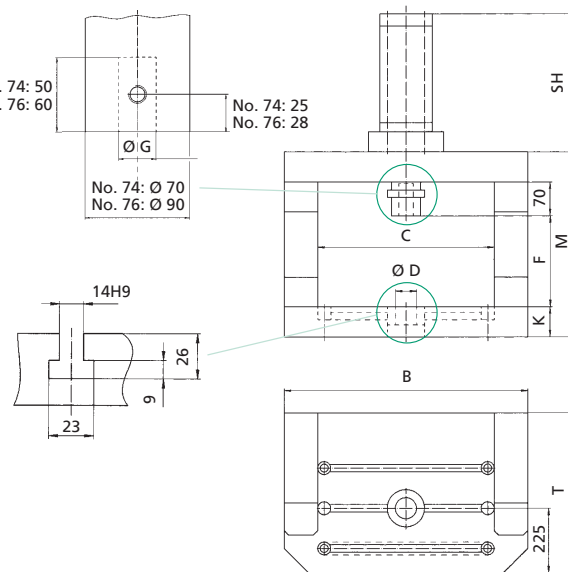
Press type 74/76  
374/376 (with force/stroke monitoring)

### Characteristics

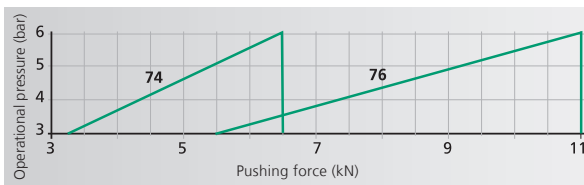
- Stable frame with low bending for the absorption of high forces
- Flexible tool location in the fixture mounting plate due to replaceable centering bushing with precision bore
- The large working area offers sufficient space for large tools
- The force is determined via a pressure transducer with force/stroke monitored presses



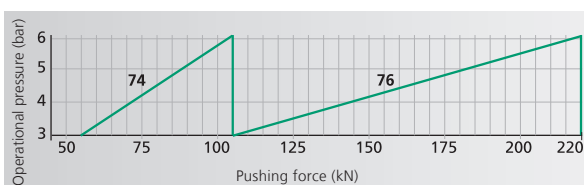
Round ram locked against Rotation with TDC switch (74/76) or position measuring system (374/376) on the rotational guide rod.



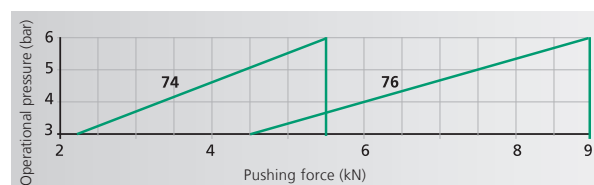
### Rapid approach stroke



### Power stroke



### Return stroke



## From 100 kN to 220 kN in power stroke

Press Type			74	76
Total stroke - Power stroke <sup>1)</sup>		mm	100 - 12	100 - 12
Nominal force at 6 bar		kN	100	220
Ram bore	<b>G</b>	Ø mm	25H7	32H7
External ram dimensions		Ø mm	70	90
Working height <sup>2)</sup>	<b>F</b>		350	350
Table height	<b>K</b>	mm	95	95
Frame height	<b>M</b>	mm	640	640
Table size	<b>B x T</b>	mm	640 x 480	640 x 480
Table bore	<b>D</b>	Ø mm	40H7	40H7
Clearance	<b>C</b>	mm	420	420
Clearance o		mm	520	520
Weight (standard)		approx. kg	730	760

Press Type			374	376
Total stroke - Power stroke <sup>1)</sup>		mm	<b>100 - 12</b>	<b>100 - 12</b>
Nominal force at 6 bar		kN	100	220
Process data acquisition				
Stroke		µm/inc	5	5
Force		N/inc	32	62.5
Ram bore	<b>G</b>	Ø mm	25H7	32H7
External ram dimensions		Ø mm	70	90
Working height <sup>2)</sup>	<b>F</b>		350	350
Table height	<b>K</b>	mm	95	95
Frame height	<b>M</b>	mm	640	640
Table size	<b>B x T</b>	mm	640 x 480	640 x 480
Table bore	<b>D</b>	Ø mm	40H7	40H7
Clearance	<b>C</b>	mm	420	420
Clearance o		mm	520	520
Weight (standard)		approx. kg	730	760

### Options

- o Additional charge applies

<sup>1)</sup> Stroke variants on request

<sup>2)</sup> Typical values; can vary  $\pm 3$  mm due to casting and production tolerances

### Accessories



#### High-pressure switch

After switching from rapid approach stroke to power stroke, the oil pressure rises in the hydraulic chamber of the cylinder. The high-pressure switch can be adjusted to reach a determined press force through the output generated by the oil pressure in the press.



#### Adjustment bushing for SCHMIDT® HydroPneumatic-Press No. 74 and 76

For a simplistic adjustment of the working height with a setting range of 100 mm. This greatly reduces the need for spacers to accommodate different working heights during setup changes.



#### Oil pump

For an air-free refilling of the SCHMIDT® HydroPneumatic-Press with hydraulic oil, including 1 liter Hydraulic oil.