

SCHMIDT® HydroPneumaticPress

Maximum Force Range from 15 kN to 220 kN

The **SCHMIDT® HydroPneumaticPress** range consists of a modular system suitable for transforming, joining and assembling optimally within the pressing force range 15 – 220 kN.

With the addition of the **SCHMIDT® PressControl 75** or **600** and the optional process monitoring, these presses become EC type-approved, CE-conformed workstations. Therefore these press systems can be used in either single cycle mode or automatic mode.

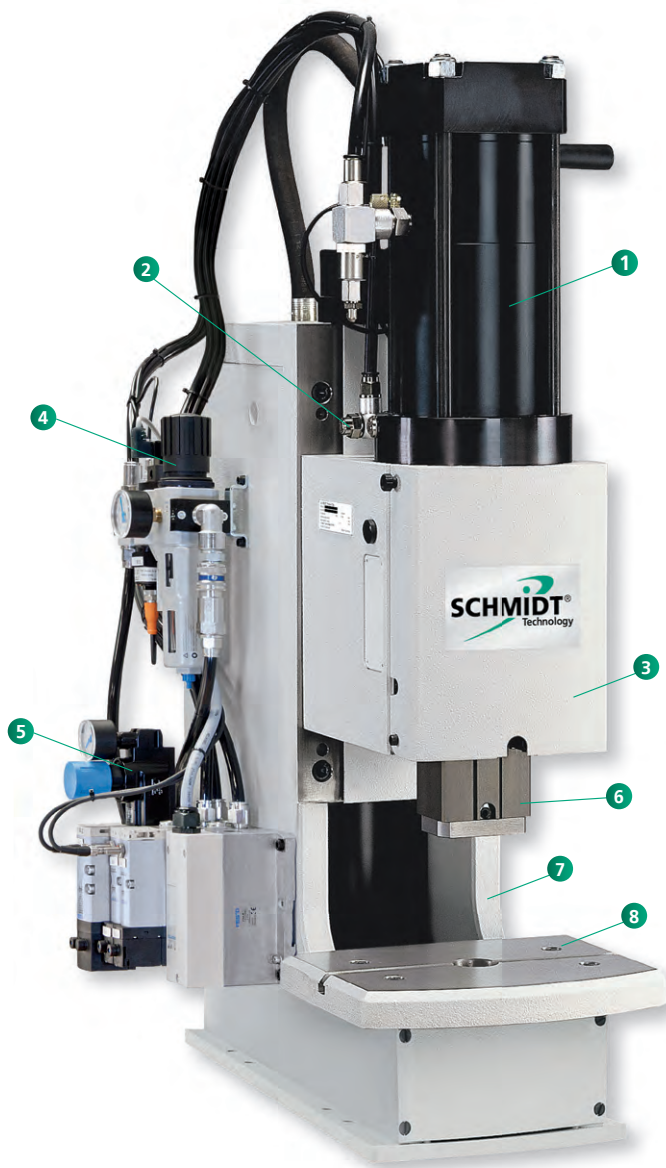
The application determines selection of the press system. Consideration is given to the flexible design of the assembly location taking into account the ergonomic and safety aspects. These characteristics are achieved by means of a finely adjusted, modular type product range. The efficiency and increased process reliability of these press systems have been proven many thousands of times, in single applications, semi-automated assembly systems and have been integrated into automated production lines.

Safety Concepts see page 72



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 & 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

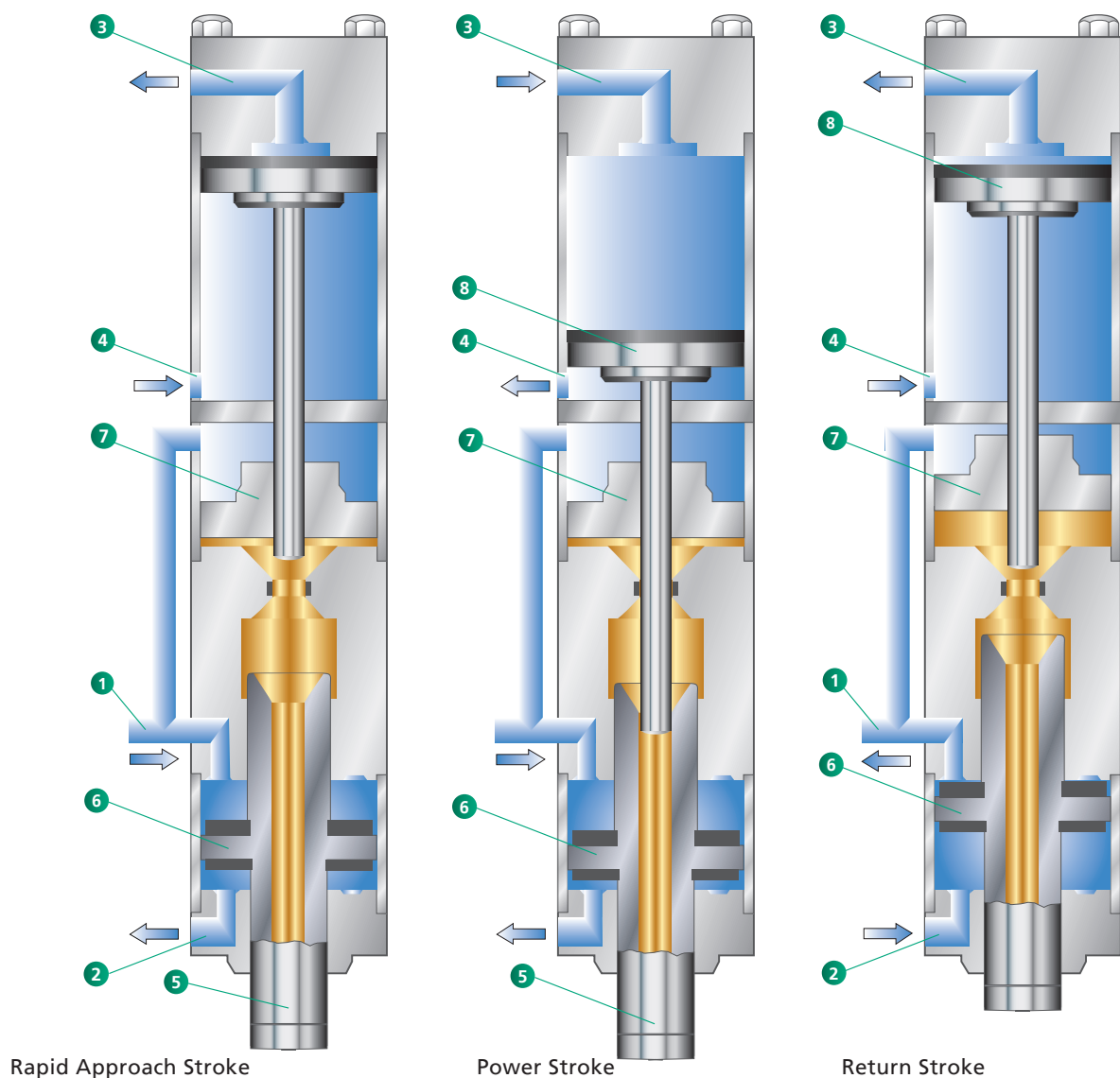


Stroke Feedback

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.

Features

- 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 platen
- 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

Features

- 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



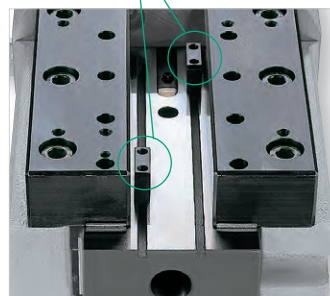
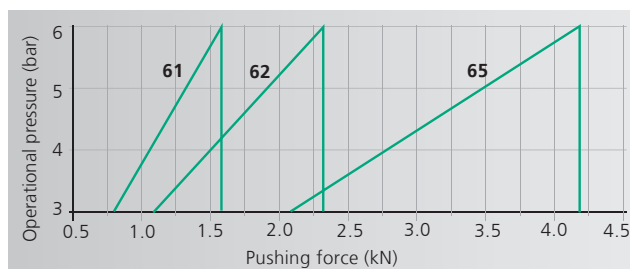
Press Type 61/62



Press Type 65

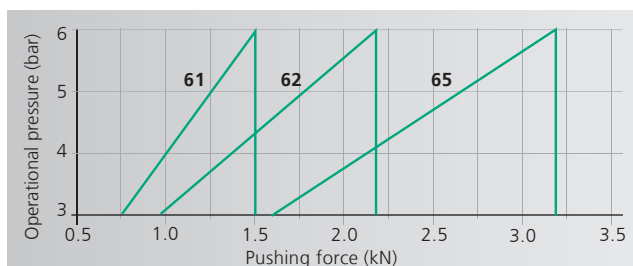
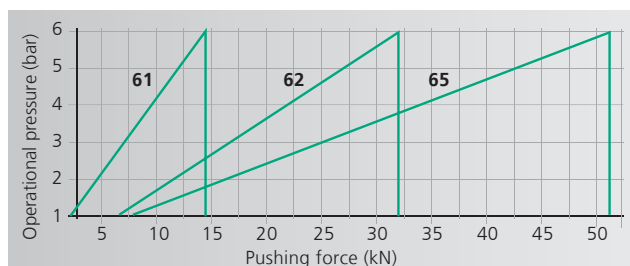
Adjustable switch target pieces for position detection via an inductive position sensor

Rapid Approach Stroke



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 ¹⁾		mm	50-6, 100-12	50-6, 100-12	50-6, 100-12
Nominal force at 6 bar		kN	15	30	52
Throat depth	C	mm	131	131	160
Throat depth frame $\circ$		mm	151	151	185
Fixture mounting plate suitable for throat depth frame			$\circ$	$\circ$	$\circ$
Ram bore	$\varnothing$	mm	20H7	20H7	20H7
External ram dimensions	G x H	mm	36 x 63	36 x 63	46 x 86
Working height ²⁾	F				
Frame No. 34		mm	100-250	100-250	
Frame No. 301 $\circ$		mm	160-400	160-400	
Frame No. 301-500 $\circ$		mm	310-550	310-550	
Frame No. 35		mm			80-235
Frame No. 35-500 $\circ$		mm			150-500
Frame No. 35-600 $\circ$		mm			250-600
Weight (standard)	approx. kg		95	110	160

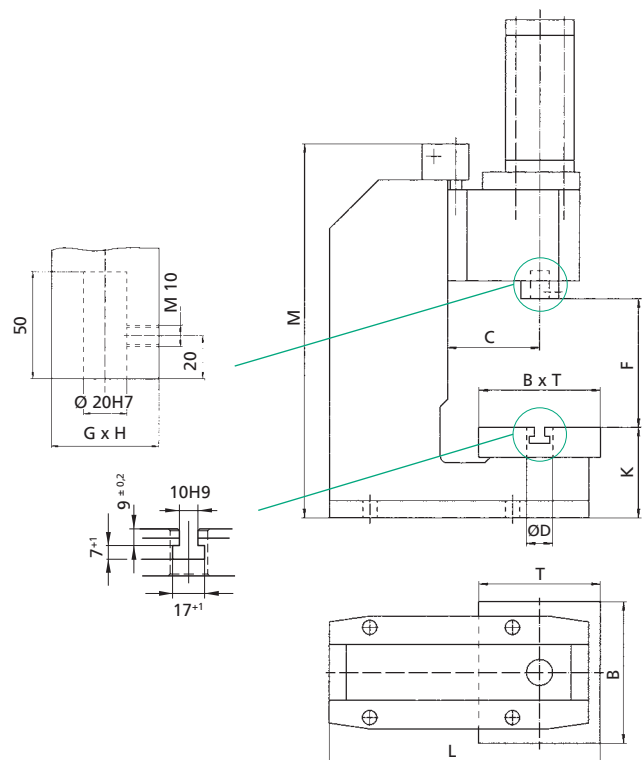
Frame Overview	Press Type	Frame Height M (mm)	Table Size B x T (mm)	Table Bore D $\varnothing$ mm	Table Height K (mm)	Mounting Surface B x L (mm)
No. 34	61, 62	630	200 x 160	25H7	111	200 x 370
No. 301	61, 62	830	250 x 200	40H7	145	250 x 460
No. 301-500	61, 62	990	250 x 200	40H7	145	250 x 480
Special fixture mounting plate with 3 longitudinal slots $\circ$			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 $\circ$			355 x 225 400 x 280	40H7		

Options

$\circ$ Additional charge applies

¹⁾ Special models total stroke/power stroke on request

²⁾ Typical values; can vary ± 3 mm due to cast and production tolerances



Please consult our Sales Department or Representative.
Detailed dimensional drawings can be downloaded: www.schmidttechnology.de

SCHMIDT® HydroPneumaticPress

C-Frame Design with welded Press Frame

Features

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



Press Type 68



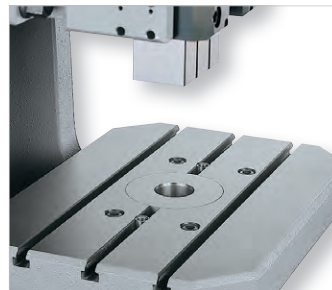
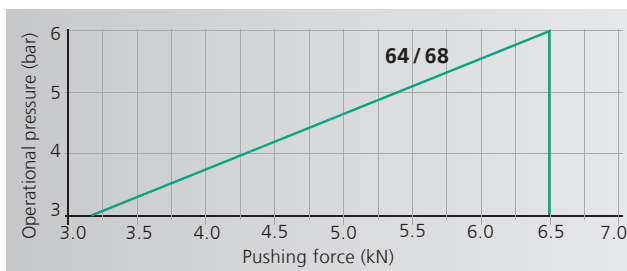
Press Type 64



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.

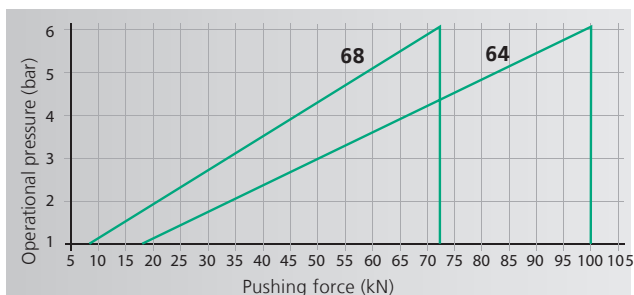
Rapid Approach Stroke



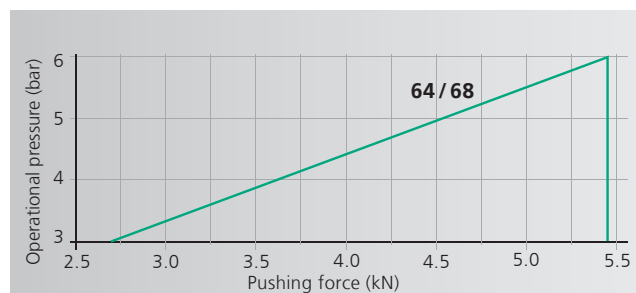
Fixture Mounting Plate (for Press No. 64)

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 ¹⁾		mm	50-6, 100-12	50-6, 100-12
Nominal force at 6 bar		kN	100	72
Throat depth	C	mm	160	160
Ram bore	E	Ø mm	25H7	20H7
External ram dimensions	G x H	mm	60 x 90	60 x 90
Working height ³⁾	F			
Frame No. 64		mm	180-350	
Frame No. 64-600 o		mm	430-600	
Frame No. 68 ²⁾		mm		130-300
Frame No. 68/5 ²⁾ 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 ²⁾	68	810	300 x 230	40H7	147	300 x 550
No. 68/5 ²⁾ 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

¹⁾ Special models total stroke/power stroke on request

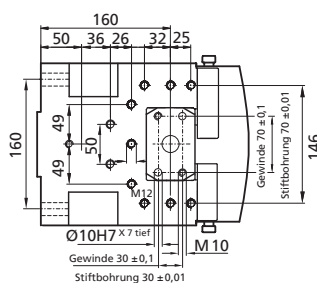
²⁾ Frame 68/5 required for 30 mm power stroke

³⁾ Typical values; can vary ± 3 mm due to cast and production tolerances

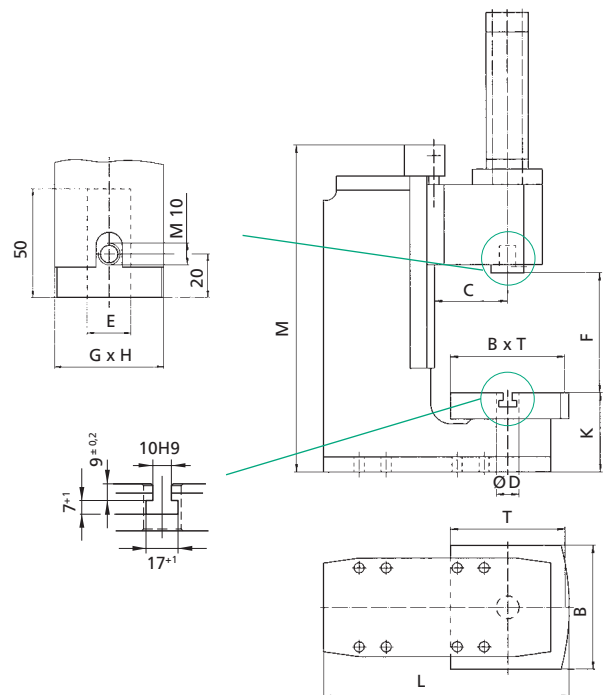
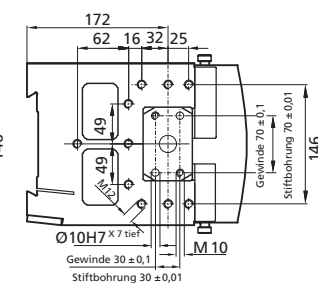
Bottom View of the Press Head

Mounting drill pattern flange/ram

Press Type 64



Press Type 68



Please consult our Sales Department or Representative.
Detailed dimensional drawings can be downloaded: 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 600**. These systems are characterized by sensors and signal amplification integrated in the press head. These signals are evaluated in real time.

Features

- 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

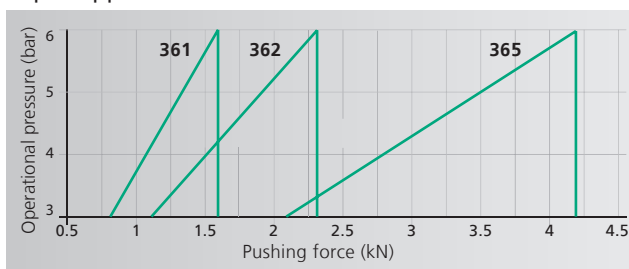


Press Type 362

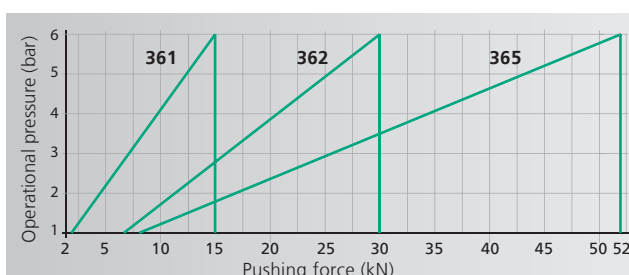


Press Type 365

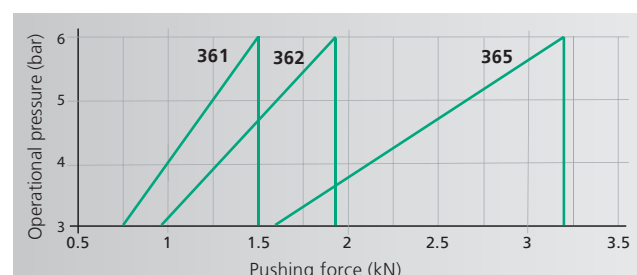
Rapid Approach Stroke



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 ¹⁾		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	C	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	G x H	mm	70 x 50	90 x 60	90 x 60
Working height ²⁾	F				
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

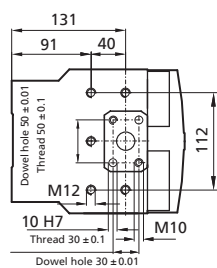
¹⁾ Special models total stroke/power stroke on request

²⁾ Typical values; can vary ± 3 mm due to cast and production tolerances

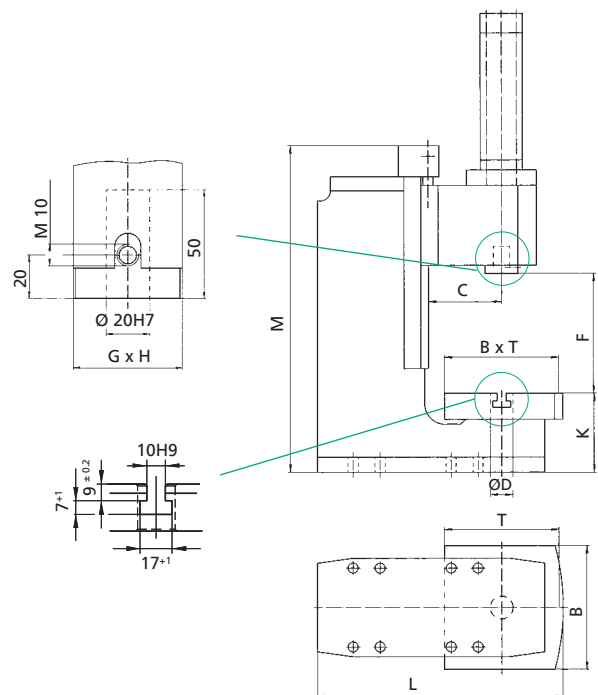
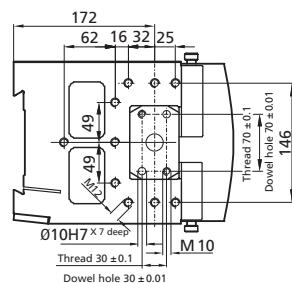
Bottom View of the Press Head

Mounting drill pattern flange/ram

Press Type 361



Press Type 362/365



Please consult our Sales Department or Representative.
Detailed dimensional drawings can be downloaded: 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.

Features

- 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

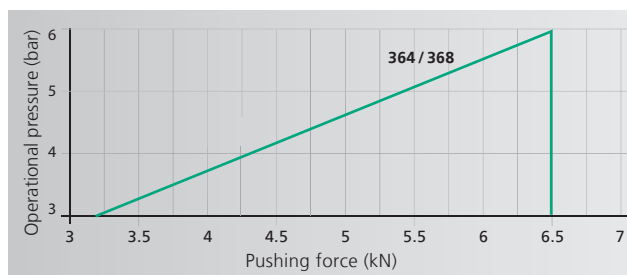


Press Type 364

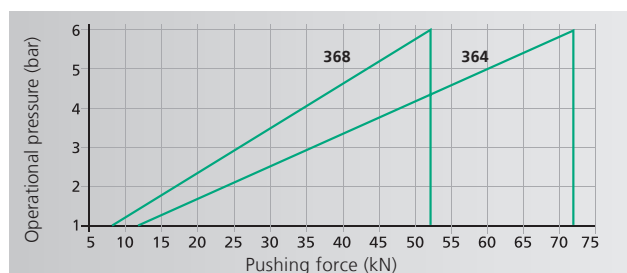


Press Type 368

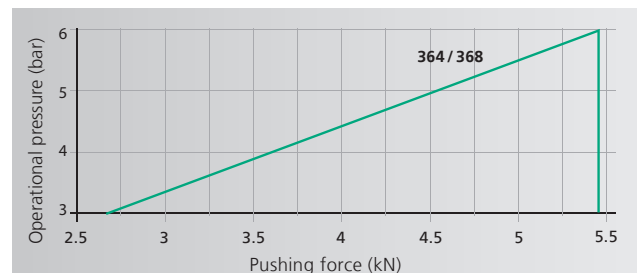
Rapid Approach Stroke



Power Stroke



Return Stroke



From 72 kN to 100 kN in Power Stroke

Press Type			364	368
Total stroke - Power stroke ¹⁾		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	C	mm	160	160
Ram bore	E	Ø mm	25H7	20H7
External ram dimensions	G x H	Ø mm	90 x 60	90 x 60
Working height ³⁾	F			
Frame No. 64		mm	180 - 350	
Frame No. 64 - 600 o		mm	430 - 600	
Frame No. 68 ²⁾		mm		130 - 300
Frame No. 68/5 ²⁾ 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 ²⁾	368	810	300 x 230	40H7	147	300 x 550
No. 68/5 ²⁾ 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

¹⁾ Special models total stroke/power stroke on request

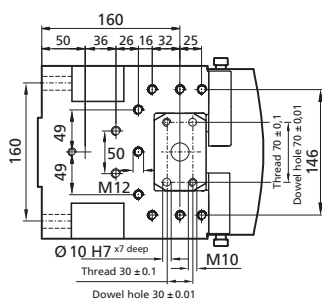
²⁾ Frame 68/5 required for 30 mm power stroke

³⁾ Typical values; can vary ± 3 mm due to cast and production tolerances

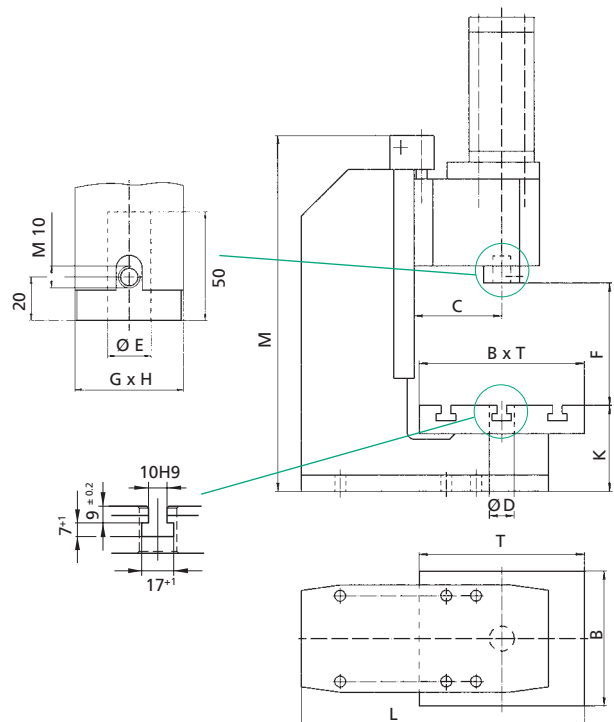
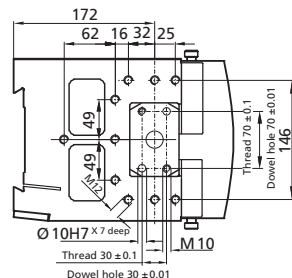
Bottom View of the Press Head

Mounting drill pattern flange/ram

Press Type 364



Press Type 368



Please consult our Sales Department or Representative.
Detailed dimensional drawings can be downloaded: www.schmidttechnology.de

SCHMIDT® HydroPneumaticPress

H-Frame Design with and without Force/Stroke Monitoring

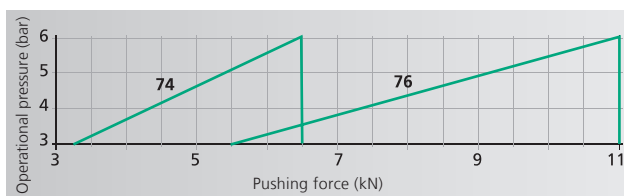
Features

- 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

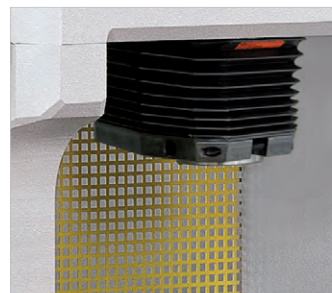
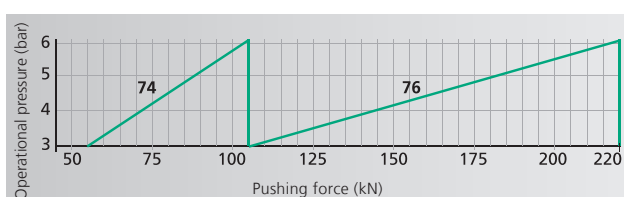


Press Type 74/76
374/376 (with force/stroke monitoring)

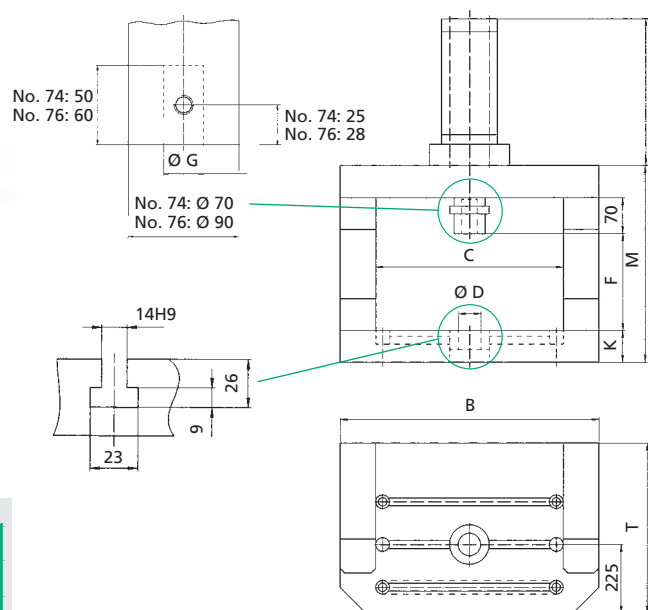
Rapid Approach Stroke



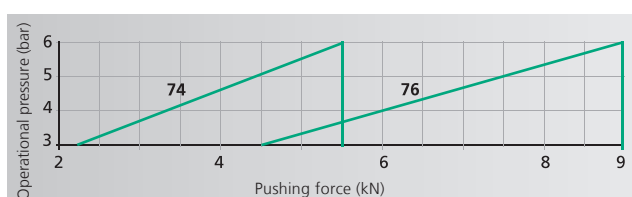
Power Stroke



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



Return Stroke



From 100 kN to 220 kN in Power Stroke

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

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

Options

o Additional charge applies

¹⁾ Special models total stroke/power stroke on request

²⁾ Typical values; can vary ± 3 mm due to cast 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.

SCHMIDT® Cylinder Units

For flexible Use

SCHMIDT® Double-acting cylinder units are useful components for the construction of special machines. They can be mounted independently and are equipped with a magnet kit for detecting

the corresponding end position using a cylinder switch. As flange or side-mount model, with toggle transmission or as hydropneumatic cylinder unit in the force range up to 100 kN.



Press Head (side-mount) Model



Flange Model

Technical Data	SCHMIDT® Cylinder Units	
Typ No.	Press head model	Flange model
20 - 29	•	•
32 - 36	•	
61 - 68	•	• (not for No. 61, 62, 65)
323 - 368	•	•

For the performance data, please refer to the chapters **SCHMIDT®** PneumaticPress and **SCHMIDT®** HydroPneumaticPress, optional with force/stroke monitoring.

Order Indications

Key for design options

Cylinder Unit / Stroke / Design

Order Example 65 - 50 - 6

Press no.
Total stroke
Power stroke

= **SCHMIDT®** Cylinder Unit No. 65
with total stroke 50 mm and power stroke 6 mm as press head model

Cylinder unit / stroke / design

Order Example 20 - 50 - FL

Press no.
Stroke
Model

= **SCHMIDT®** Cylinder Unit no. 20
with stroke 50 mm as flange model