SCHMIDT® ServoPress
Forces from 1 kN bis 250 kN

| Press type 605 | Press type 616 | Press type 617 | Press type 620 | Press type 650/655/660/680 |

Economical assembly is a decisive factor for the success of your product. The goal is to join precise assemblies from inexpensive individual components with high tolerances. Electrically driven presses – servo presses – are ideally suited for such tasks in terms of precision. The high-precision **SCHMIDT® ServoPress** systems offer them the perfect solution in the interaction of **SCHMIDT® ServoPress** modules and the **SCHMIDT® PressControl 700** or **PressControl 7000** control system developed for this purpose. These meet the most complex requirements, as "stand alone" machines or in automated production lines.

The full load resistant modules of the **SCHMIDT® ServoPress** series are **EC type tested** in combination with the safety technology options **SmartGate**, **SmartGuard** and **light curtain**. Furthermore, the servo presses have an integrated automatic spindle lubrication system and are protected by overload clutch from type 616 onwards.

SCHMIDT® ServoPress
Quality without compromise

The solid, unparalleled mechanics of the **SCHMIDT®** ServoPress are a basic prerequisite for precise joining results, even in the toughest industrial environments.

Bench test

Before series production, new modules are subjected to a stress test under the toughest conditions. Not least, these tests result in many properties that benefit the applications.

Test over 20 million load cycles over the full working stroke with nominal force and lateral force components at full travel speed with a cycle time of approx. 2 seconds.

Absolute, direct stroke measurement system

- Precise repeatability due to high system resolution
- Compensation of mechanical compressions under full load
- Compensation of pitch errors of the spindle
- Material length changes are eliminated as far as possible

Full load resistant modules

- With nominal force at 100% duty cycle
- Over the complete ram stroke
- With short process times
- Via precise, low-backlash guidance of the ram
- Peak force in S3 mode

Machine self-protection

- Fully automatic spindle lubrication
- Mechanical clutch as overload protection of the ServoPress in case of "crash"
- Active cooling with thermal monitoring of mechanics and electronics
- Current limitation when exceeding permissible load capacities
- Destruction by faulty operation is impossible

Service friendly

- Low maintenance
- Easy module change due to a high precision ram 0-position.
- Module is automatically detected
- No changes to existing data sets

Built-in safety in the light curtain system, workplace protection with SmartGate or equipped with protective enclosure SmartGuard and of course EC type approved. From ServoPress 650/655/660/680 integrated energy management, intermediate storage of braking energy.

As a result, this means the following for your application:
- ✓ Excellent efficiency
- ✓ Maximum capacity
- ✓ High production safety

Modules
With force outputs of 1 kN to 250 kN

Press type		605	616	617	620	650	655	660	680
Force F max. S3 25 %, 20 s	kN	1	5	14	35	75	110	160	250
Force F 100 % continuous run	kN	0.5	3	7.5	20	50	80	110	200
Ram stroke	mm	150	200	300	400	500	500	350	350
Resolution position control	µm	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ram speed	mm/s	0 – 300	0 – 200	0 – 200	0 – 200	0 -200	0 -100	0 – 100	0-50
Resolution PDA force	N/inc	0.3	1.5	3.75	10	24	32	48	75
Resolution PDA stroke	µm/inc	2.2	3.2	4.6	6.1	7.6	7.6	5.4	5.4
Overload protection		none	mechanical	mechanical	mechanical	mechanical	mechanical	mechanical	mechanical
Drive		ball screw			planetary roller screw				
Weight appr.	kg	11.6	25	64	113	225	225	283	283
Tool weight max.	kg	5	15	25	50	100	100	100	100
Power supply (50-60Hz)	VAC	200 – 240	200 – 240	400 – 480, 3~	400 – 480, 3~	400 – 480, 3~	400 – 480, 3~	400 – 480, 3~	400 – 480, 3~
Dimension H / W / D	mm	636 / 89 / 155	599 / 124 / 258	892 / 144 / 318	1077 / 190 / 384	1250 / 243 / 561	1250 / 243 / 561	1249 / 249 / 552	1249 / 249 / 552
Ram bore	mm	6H7	10H7	20H7	20H7	20H7	20H7	20H7	20H7
Ram dimension	mm	Ø 25	Ø 40	□ 42	□ 55	□ 65	□ 65	Ø 90	Ø 90

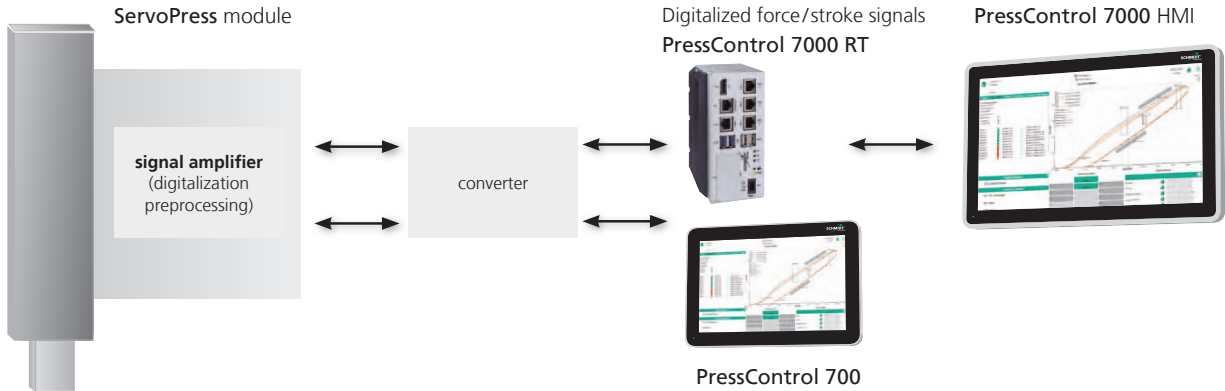| Overall dimensions with frame			605	616	617	620	650	655	660	680
Throat depth	C	mm	130	130	150	160	160	160	160	160
Table bore	D	mm	ø 20H7	ø 20H7	ø 40H7	ø 40H7	ø 40H7	ø 40H7	ø 40H7	ø 40H7
Working height (SP 680 in H-frame-version)	F	mm	246	300	387	518	612	507	500	500
Table height	K	mm	93	113	128	155	190	220	220	178
Table size	B x T	mm	160 x 140	220 x 175	250 x 200	300 x 200	370 x 230	370 x 230	370 x 230	370 x 230
Frame depth (SP 680 in H-frame-version)	SL 6	mm	365	405	460	563	636	725	761	614
Frame height (SP 680 in H-frame-version)	SH 1	mm	510	630	780	1080	1050	1050	1097	942
Total height	SH 2	mm	1015	1062	1467	1810	2012	2032	2036	2062
Weight appr.		kg	45	101	166	334	553	757	805	867
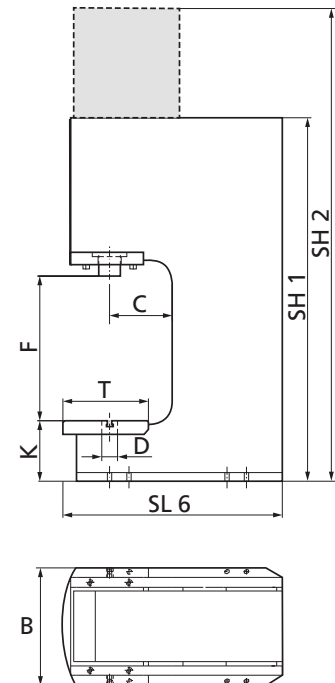
SCHMIDT® ServoPress / TorquePress
Superior controlled behaviour

The combination of a spindle with a servo drive is not sufficient to achieve optimum joining results. The key for intelligent assembly is quick and exact controlled behaviour of the press. This requires an integrated system consisting of drive unit, process measure-ment technology and control unit. These requirements have been taken into account in the system architecture of a **SCHMIDT®** ServoPress / TorquePress.

ServoPress module

signal amplifier
(digitalization preprocessing)

converter

Digitalized force / stroke signals
PressControl 7000 RT

PressControl 7000 HMI

PressControl 700

SCHMIDT® ServoPress / TorquePress modules operate with a true force control loop (force as a command variable).
That means:

- fast approach of the target values
- no overshooting of the target values
- precise positioning in the 1/100 mm range even with strongly fluctuating press-in forces
- highly accurate, continuous force control
- the control parameters can be adjusted
  - optimal adaptation to your application
  - no programming necessary
  - the system works with pre-set optimal acceleration values (no incorrect inputs possible)
- optimization of process times possible by additional graphical display. Force / time [F/t], and stroke / time [s/t] for analysis of the control behavior. The classic force / stroke [F/s] display of conventional electric axes is not comparable with the con-venient recording and visualization options of the ServoPress / TorquePress
- stable closed loop force control over a long period of time
- no over or under oscillation (no vibrations) during the control process

These properties are achieved by combining the following features:

- integrated measurement technology (Sample rate 2000 Hz)
  - backlash-free displacement recording, force measurement without transverse forces
- amplification of the process signals at the **SCHMIDT®** ServoPress module
  - insensitive to electromagnetic interference (EMI)
  - closed-loop control takes place in **SCHMIDT®** PressControl 700 or PressControl 7000RT, i.e. servo amplifier and motor receive the targets from the control system
  - optimized PLC control algorithm for external references
  - force [F], stroke [s] or other external reference parameters are processed simultaneously during the process.
  - the reference variables can be freely defined
- fast signal processing on software-based PLC with integrated CNC

Diagram force / time

800 N / 5 s

600 N / 4 s

400 N / 3 s

200 N / 2 s

force (kN)

time (s)