SCHMIDT® PressControl
Machine control units

SCHMIDT® **PressControl 75, 600** and **5000** are control units of the latest generation, which allow the design of modern production processes – from the single workstation to complete automation. You benefit from our competence in:

- Safety technology – type-approved devices
- Process measurement technology – simultaneous measuring during the process
- Process documentation

SCHMIDT® **PressControl control units have the following features:**

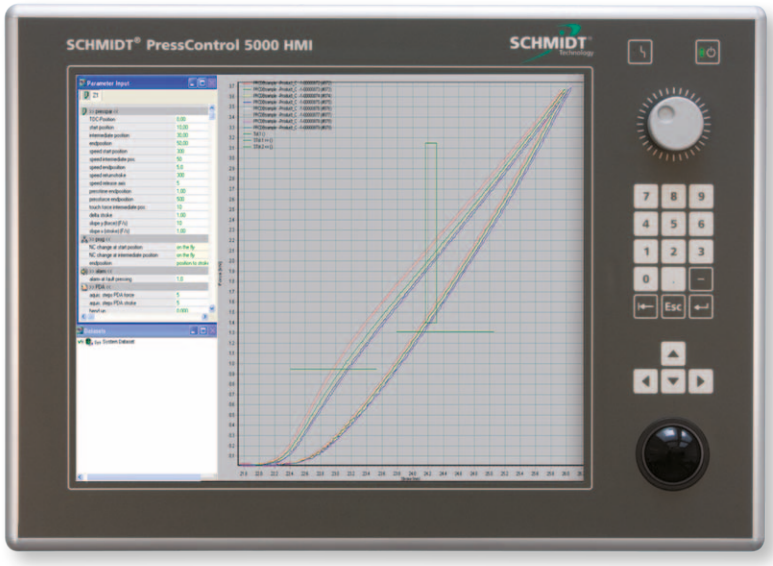
- Efficiency due to intuitive user interfaces
- Quick and secure process set-up e. g. thanks to the touchscreen and additional handwheel ram control function with **SCHMIDT**® **PressControl 600** and **5000** in combination with the **ServoPress/TorquePress**
- The integrated PLC allows programming of additional inputs/outputs or sensors/actuators and the application-specific design of the workstation or the line
- The integrated measurement data processing is insensitive against interferences (EMC). This results in a high measurement security of the entire system
- With integrated safety technology, the entire system becomes a type-approved single workstation
- Service functions such as "Firmware Update" ensure the liability in the future
- Guaranteed complete process documentation with full traceability

SCHMIDT® PressControl 75

SCHMIDT® PressControl 5000 RT

SCHMIDT® PressControl 600

SCHMIDT® PressControl 5000 HMI



SCHMIDT® PressControl 75
Compact functionality

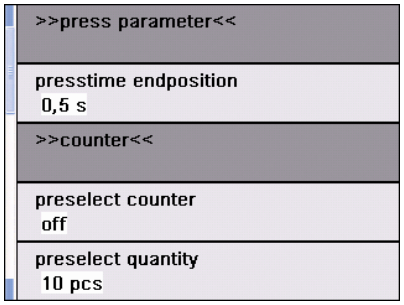
Highly compact yet multifunctional **SCHMIDT®** PressControl 75 available for these press systems:

- **SCHMIDT®** ElectricPress
- **SCHMIDT®** PneumaticPress
- **SCHMIDT®** HydroPneumaticPress

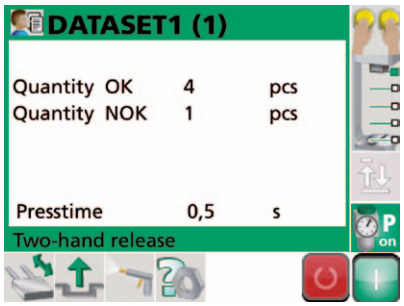
Its easy and intuitive touchscreen allows for quick and efficient process set-up or change-over. Process specific data can be stored in up to 24 datasets.

The **SCHMIDT®** SafetyModule allows the design of manual workstations with safety technology that meets the latest global standards for two-hand cycle initiation, guarding or light-curtain protection.

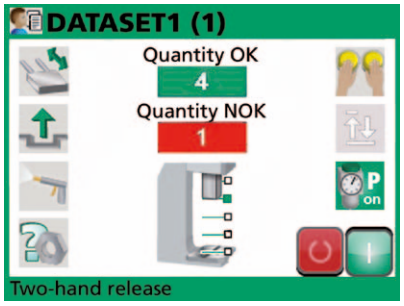
Data input



Data output



Data output



Technical Data

Supply voltage	24 V DC
Current	< 3 A
Operating temperature	0 – 40 °C
Protection class	IP 54
Interfaces	■ RK512 protocol ■ CANopen for PRC - Gateway or CANopen Compact Box IP 2401
Electrical connections	All connections are pluggable
Display	■ 2.8" TouchScreen ■ Process information
Operation	■ 4 function keys ■ 3 languages
Modes of operation	■ Two-hand release with SafetyModule ■ Light curtain with SafetyModule ■ Start button for operation without SafetyModule ■ Workpiece control ■ Activation of sliding table ■ Return stroke initation with external signal ■ Blow-out/blow-off
Operating functions	■ Piece- or preselection counter ■ Set-up mode ■ BDC dwell time ■ User Management
Dimensions	90x120x60 (hxwxd)
Mounting	Fastening screws, optional magnet holder

SCHMIDT® PressControl 600
with integrated PLC and Process Data Management

The **SCHMIDT® PressControl 600** with integrated PLC and process data management is made for intelligent process control of force/stroke monitored **SCHMIDT® ManualPress**, **SCHMIDT® (Hydro)PneumaticPress**, **SCHMIDT® ElectricPress** or **SCHMIDT® ServoPress/TorquePress**. Additional automation tasks around the press process can also be realized by the **SCHMIDT® PressControl 600**.

Control Unit

All process integrated system elements and data are controlled and managed centrally by the **SCHMIDT® PressControl 600**. The standard system configuration already includes a basic programming, special applications can be programmed as well.

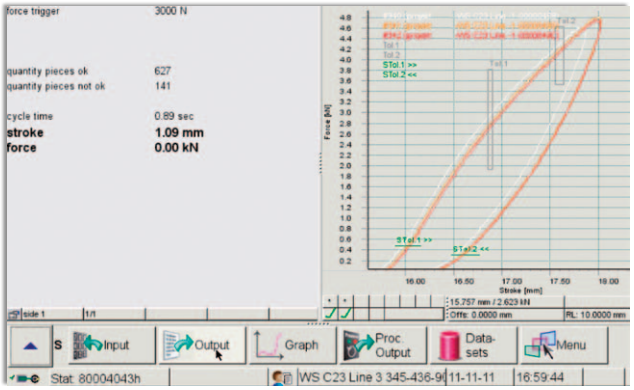
Integrated Operator Panel

The integrated operator panel of **SCHMIDT® PressControl 600** with complete operating interface is made for parametrizing and operating the control as well as for visualization, administration, and documentation of process data (dataset management).

Features

- User-friendly, intuitive menu navigation by touchscreen
- Individual design of user interface
- Keypad with integrated membrane for the input of numerical values and choice of functions
- Softkeys have different functions on different levels and simplify the handling
- Quality evaluation on the basis of force/stroke tolerances, and thus a reliable detection of NOK parts with process monitored presses
- Handwheel software for setup mode for **SCHMIDT® ElectricPress** (force/stroke monitored) or **SCHMIDT® ServoPress/TorquePress**, external handwheel as a handheld as an option (connection via **SCHMIDT® PRC Gateway**)
- Industrial strength, even in harsh environments
- Protection class IP 54

SCHMIDT® DataBase software maps the process data of all individual assembly steps into a data bank, including historic data. And with the **SCHMIDT® PRC OPC** software available on these models, data exchange will now become the automation standard.



Technical Data

Industry PC with	■ Integrated PLC ■ Integrated CNC (with **SCHMIDT® ServoPress/TorquePress**) ■ Intelligent process control ■ Diagnosis and service functions ■ Linux operating system
Drive	Solid State Drive
Field bus	■ CANopen with possibility to connect: - 1 force/stroke monitored **SCHMIDT® ManualPress 3xx**, 1 **SCHMIDT® (Hydro)PneumaticPress**, 1 **SCHMIDT® ElectricPress** or 1 **SCHMIDT® ServoPress/TorquePress** - **SCHMIDT® PRC Gateway** - CANopen Compact box ■ EtherNet TCP/IP ■ PROFIBUS (optionally via external CANopen/PROFIBUS-Gateway) 16 Byte input/output data ■ PROFINET (optionally via external CANopen/PROFINET-Gateway) 16 Byte input/output data ■ EtherCAT (optionally via external CANopen/EtherCAT-Gateway) 16 Byte input/output data
Interfaces	■ EtherNet (10 / 100 MBit) ■ 2 x USB
Panel with	■ Intuitive user interface ■ Diagnosis and service functions
Screen	■ Integrated 7" widescreen TFT display (800 x 480) with touchscreen
Power supply	■ 24 V DC with integrated UPS
Assembly	■ Mech. adaption VESA 75 for optional table or wall fixture as well as fixture for housing

SCHMIDT® PressControl 5000

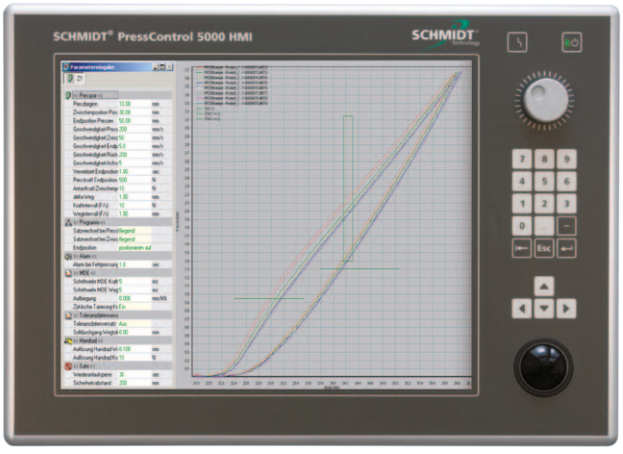
Compact system control for intelligent process control

Control 5000 RT

All system elements and data involved in the process are centrally controlled and administrated by the control unit **SCHMIDT® PressControl 5000 RT**. The integrated PROFIBUS interface permits integration of the press system as an intelligent Profibus slave into existing PROFIBUS networks. Parametrization, operation and programming will be effected by using software components which are installed on the operating panel **SCHMIDT® PressControl 5000 HMI** or on a user PC. The standard system configuration already includes a basic programming for different operating profiles; special applications can be additionally programmed.

Operating panel 5000 HMI

SCHMIDT® PressControl 5000 HMI can be parametrized and operated via operator panel **SCHMIDT® PressControl 5000 RT** with its complete operating interface. Furthermore visualization, administration and documentation of process data (dataset management) can be effected as well by this instrument.



Technical Data 5000 RT

Industry PC with	■ Integrated PLC ■ Integrated CNC with all-digital drive control (integrated force-, position- and speed control loop) for up to 6 axis ■ Intelligent process control ■ Diagnosis and service functions ■ Linux operating system ■ Assembly on DIN rail (TS 35) according to EN 50022 (35 mm x 7.5 mm)
Drive	■ Integrated hard disk 30 GB
Field bus	■ CANopen with possibility to connect: - up to 6 (application-dependent) controlled NC axis e.g. **SCHMIDT® Servo-Press-/Torque-Press** as well as press force monitored **SCHMIDT® ManualPress**, **SCHMIDT® (Hydro)-PneumaticPress** and **SCHMIDT® ElectricPress** - **SCHMIDT® PRC Gateway** - more than 2000 I/O's ■ EtherNet TCP/IP ■ PROFIBUS: - PPROFIBUS Slave interface - 48 Byte input/output data ■ PROFINET (optionally via external CANopen/ PROFINET-Gateway) 16 Byte input/output data ■ EtherCAT (optionally via external CANopen/ EtherCAT-Gateway) 16 Byte input/output data
Interfaces	■ EtherNet (10/100 Bit) ■ 6 x USB ■ 2 x RS 232 (COM 1/COM 2) for diagnosis purposes ■ 4 digital inputs (24 V) galvanically isolated ■ 4 digital outputs (24 V) galvanically isolated
EMC	Acc. to requirements of EMC law
Power supply	24 V DC with integrated UPS
Ambient temperature	0 – 40 °C

Technical Data 5000 HMI

Operating panel with	■ Intuitive user interface ■ Diagnosis and service functions ■ Microsoft Windows 7 operating system
Screen	■ Integrated 19" TFT display (SXGA resolution) with touchscreen
Drive	■ Integrated hard disk 80 GB
Interfaces	■ 1 x PS/2 keyboard ■ 1 x VGA ■ 3 x USB ■ 1 x RS232 ■ 2 x Ethernet (10/100 MBit)
EMC	■ Acc. to requirements of EMC law
Power supply	■ 24 V DC
Current consumption	■ 4 A
Ambient temperature	■ 0 – 40 °C
Protection class	■ IP 54
Weight	■ Approx. 15 kg

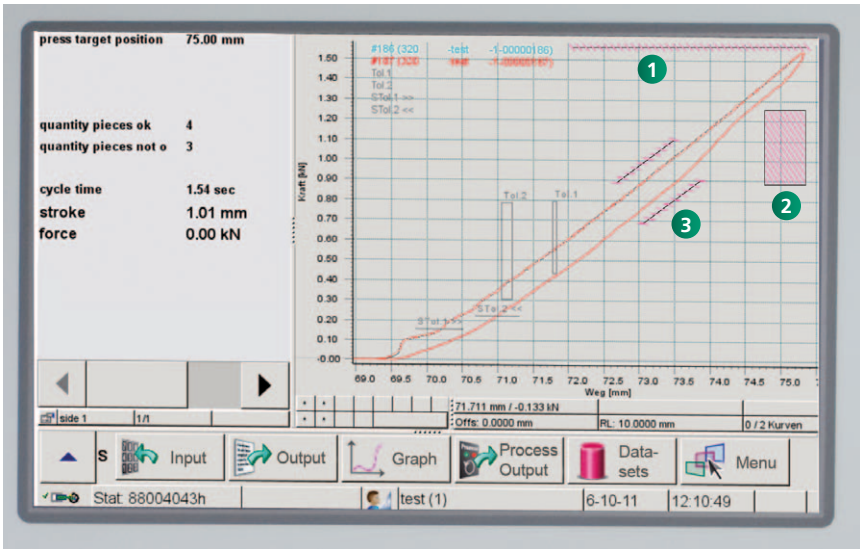
User interface for professional assembly
For **PressControl 600** and **5000**

The user interface for professional assembly is installed in the **SCHMIDT® PressControl 600** and **5000**. The functionality has been developed especially for assembly operations with direct intervention in the process.

The following functions are available
- Process visualization
- Process data management
- Development tool (PLC editor)
- **SCHMIDT®** PRC DataBase as an option

Features
- Easy and quick setup of the processes
- Definition of the data sets and operating profiles by parameters
- Process optimization due to switchover of the process display (F/s, F/t, s/t)
- Easy and quick definition and evaluation of the processes using the quality monitor
- 12 free definable process observers (F/s-windows or stroke tolerances)
- Guaranteed detection of "failed" parts
- Unambiguous documentation and component assignment
- Software PLC for freely programming processes
- Service functions for diagnosis and system updates

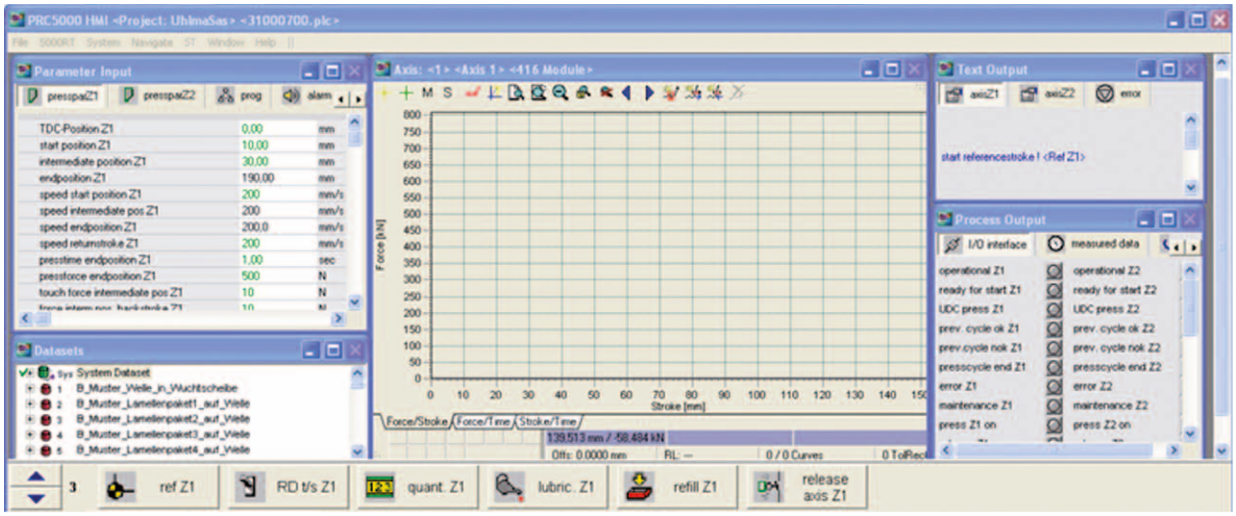
User Interface **SCHMIDT®** PRC 600



1 + 2 Each tolerance can be inverted, creating a do-not pass-through area or line.

3 Stroke tolerance can be positioned at any angle from horizontal to vertical.

User Interface **SCHMIDT®** PRC 5000



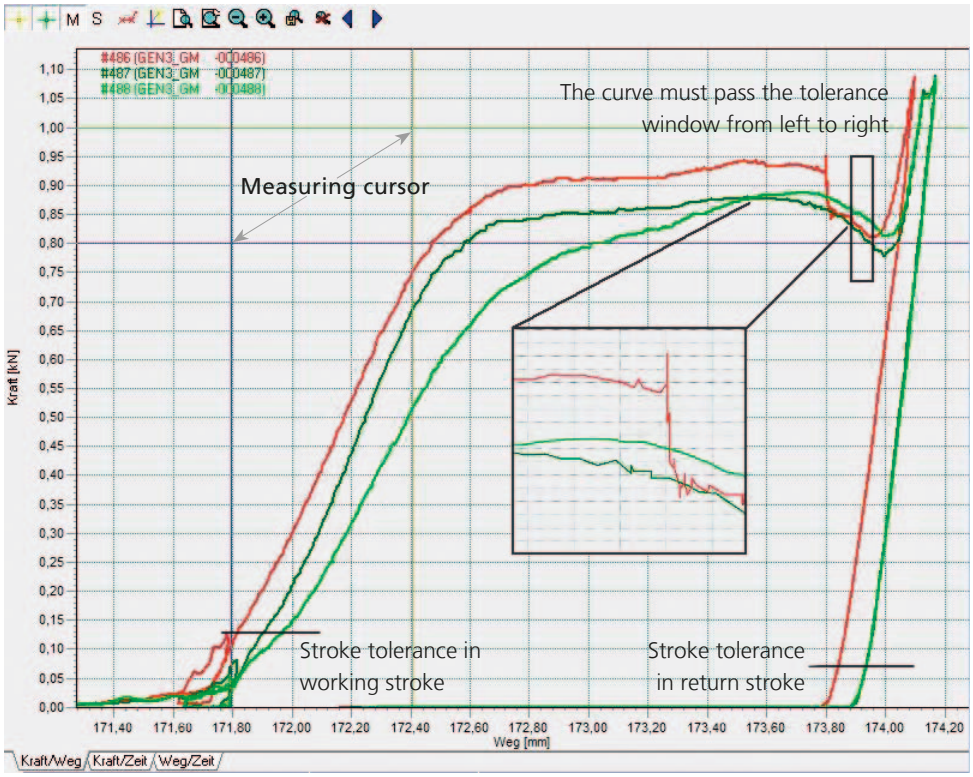
Visualization and process analysis
For **PressControl 600** and **5000**

Visualized Display

Force output and press stroke are important parameters for evaluating the quality of pressed assemblies. The data of these measurements are recorded during the process and displayed by the software as force/stroke behaviour curve F/s, F/t or s/t.

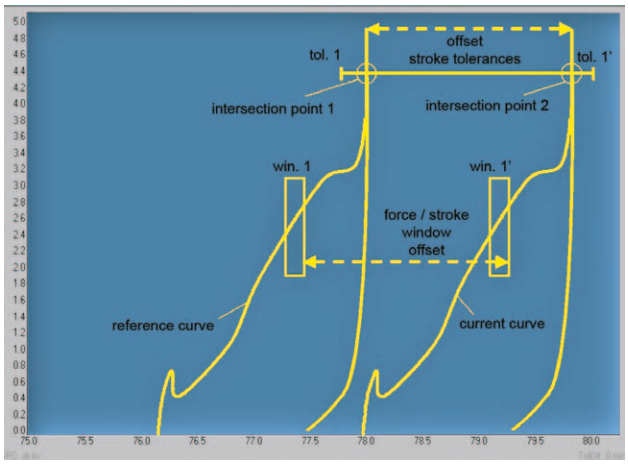
Freely definable tolerances in the form of force/stroke windows and stroke tolerances are provided for quality assurance of the assembly process. With the help of these criteria, quality critical areas can be monitored selectively. If the tolerances in the monitored curve areas are not met, application-specific interventions can be carried out (e. g. selection measures).

It is easy to create tolerance criteria and to display curve behaviour exactly. For an evaluation of the behaviour, the working stroke and the return stroke are important. The high resolution of our measurement systems allows a large number of measuring points that are required for a process-safe evaluation. Zoom and measuring functions allowing detailed documentation about the assembly processes.



Process analysis – graphic display force over stroke

SCHMIDT® MoveTol
Patented offset of tolerance, data software for **PressControl 600** and **5000**



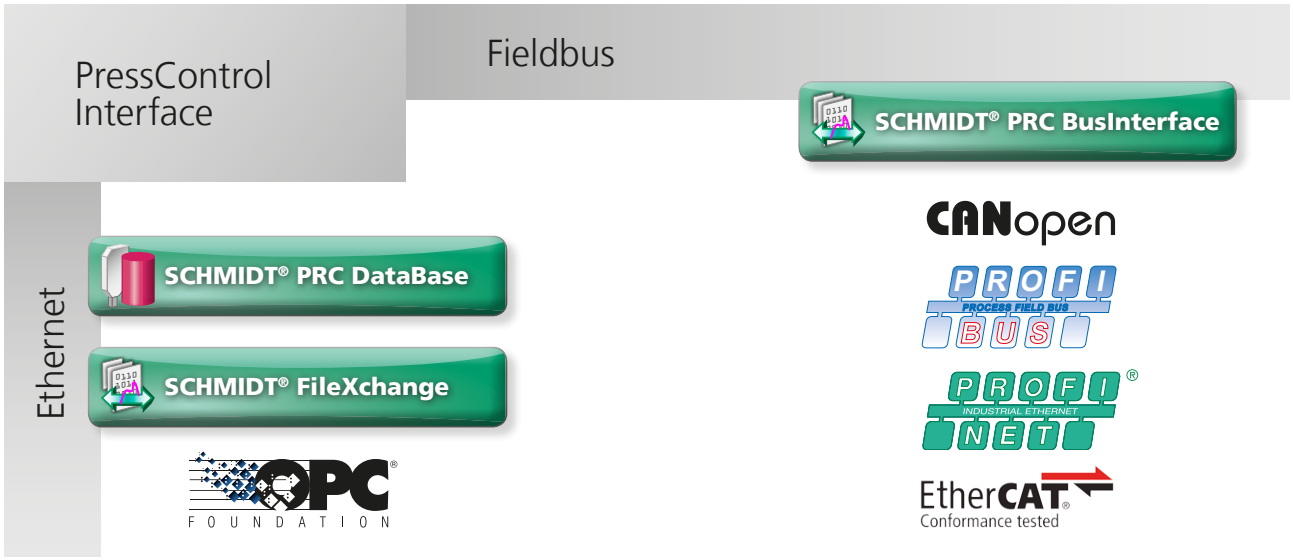
Assembled parts are subject to certain manufacturing tolerances. Dimensional deviations of the parts result in an offset of the curves in the curve window. The curves of the parts with higher tolerance deviations may then be situated outside of the defined tolerance limits and are classified as "failed" part.

Using the function "Offset of tolerance data", the altitude tolerances of parts can be taken into account. The defined tolerance windows and stroke tolerances are offset by the distance of a reference position. After that, the pass/fail evaluation is carried out.

Offset of tolerance data in relation to freely selectable reference

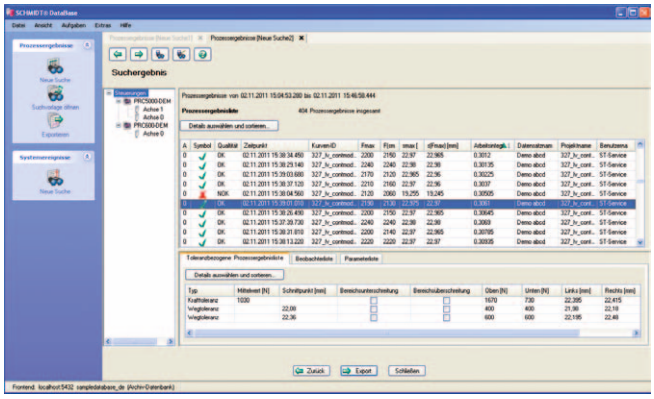
SCHMIDT® PRC Interface
Interface for data evaluation and control

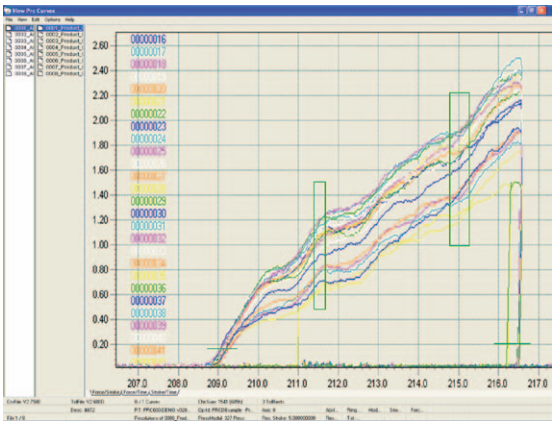
The modular **SCHMIDT® PRC Interface** of **SCHMIDT Technology** meets multiple requirements in the field of data management. It offers possibilities in the areas of system control, data storage, and exchange as well as visualization and analysis. Various requirements with respect to quality assurance, traceability, and optimization of production processes can be realized. A large number of current interfaces are available on fieldbus level and allow easy integration of the press system into master control systems. The data obtained during the press process allow conclusions on quality fluctuations in components or also in preliminary production processes. Not only do data acquisition and storage play a key role but also analysis and evaluation. **SCHMIDT® PRC DataBase** as well as **SCHMIDT® PRC FileXChange** offers a whole range of possibilities. Evaluation can be carried out either with standard tools or via the IT systems of the user to which the process results are transmitted.



SCHMIDT® PRC DataBase
Database software for **PressControl 600** and **5000**

SCHMIDT® PRC DataBase is an optional software for the modular control system **SCHMIDT® PressControl 5000** or **SCHMIDT® PressControl 600**. The database software is used for storing and analysing the data of the control system – process specifications and process results – particularly under quality assurance aspects.





Features
- Documentation
- Analysis
- Quality assurance
- Traceability
- Data export in CSV format
- Q-DAS interface with certification

SCHMIDT® PRC BusInterface
Bidirectional communication in the fieldbus world

The new PLC interface **PRC BusInterface** enables the communication between the **SCHMIDT® press system** and a master controller. It comprises the parameter setting of the system and safety functions. The generation and processing of process data is monitored and controlled as well.

For every position the following control parameters are available:
- set-up mode
- target position
- target speed
- target force
- force increase in the target
- dwell time after reaching the target (for self-running control sequences only)
- speed adjustment at the start of the movement

The following process results can be transmitted to the master control system:
- status signals of system, also error status
- status signals of press axis
- output of current position and force
- output of process data
- signals for data set handling

The procedure of the pressing process is defined as described in the previous points. Further conditions to consider are hardware release (Control On), safety aspects (ServoPress brake test), PDA handling including results and data handling as well as functions like bend up compensation, MoveTol and autmatic force taring.
The PDA records process data and produces the pressing results based on defined tolerances. After the pressing process, the master control system receives information about the pressing results together with further selectable result values and tolerance errors. The data transfer concerning the runtime performance of the whole signalling processes has basically been optimized so that very fast applications which require higher cycle rates can be realized.
Further functions such as MoveTol offer the possibility to modify the position of the tolerances or by presetting the offset via interface to adjust the evaluation to the individual product. Single tolerances can be influenced directly via PLC programme during runtime.

SCHMIDT® PRC FileXchange
Safe exchange of process data

In addition to data exchange within an automation solution via the interface PRC Businterface, data exchange can also be performed via data files.
For every press process, process results, tolerances, observer, and parameters are written into a file whose format and content can be configurated via intuitive user interface.
The following output formats are available:
- Microsoft Excel (CSV)
- Q-DAS
- **SCHMIDT®** CRV/TOL
- XML

Safe production data transmission from PressControl to PC (file system). That means, if the connection between PressControl and PC is broken, this is recorded and the process is stopped. Once the connection is reestablished, the data of the last press process will be transmitted again when needed.
It is also possible to import default values for press processes from a configuration file. A production range which comprises several different products can for example be managed via standard PC application and thus be used as production data base.

SCHMIDT® PRC OPC
Data exchange via the de facto automation standard

In the field of automation, the data communication, using co-ordinated systems and the reference level, is becoming increasingly important. OPC defines a manufacturer-independent interface.

All parties participating in the communication must only support this interface. The OPC-capable components can be combined just like elements of a construction kit.

OPC® FOUNDATION

SCHMIDT® PRC Interface – Hardware

SCHMIDT® PRC Gateway

- 2 CANopen connections for control (master) and PDA (Slave), with 24 V power supply
- 24 V interface with 16 inputs and 16 outputs
- Short-circuit-proof and overload-proof
- Status LED's for CAN bus and I/O´s
- Encoder interface for external handwheel as handheld
- Supply voltage 24 V DC
- Top hat rail mounting

The communication with co-ordinated control system is realized via a standardized interface program with **SCHMIDT® PressControl 600** and **5000**.
All relevant system states as well as "failed" productions are transferred from one control to another via a simple signal transfer. The production data stored in datasets are recallable via the SPS program. If e. g. tools are equipped with an explicit identification code, the production data automatically adapt themselves to the specific process.

All standard physical interfaces, such as

- I/O interface
- CANopen
- EtherNet
- PROFIBUS
- PROFINET (via CANopen/PROFINET-Gateway)
- EtherCAT (via CANopen/EtherCAT-Gateway)
- USB

can be used for signal transfer with the automation environment.

External Handwheel as Handheld
for **SCHMIDT® PressControl 600** and **5000 RT** in conjunction with press force monitored **SCHMIDT® ElectricPress** or **SCHMIDT® ServoPress/TorquePress**, connection via **SCHMIDT® PRC Gateway.**

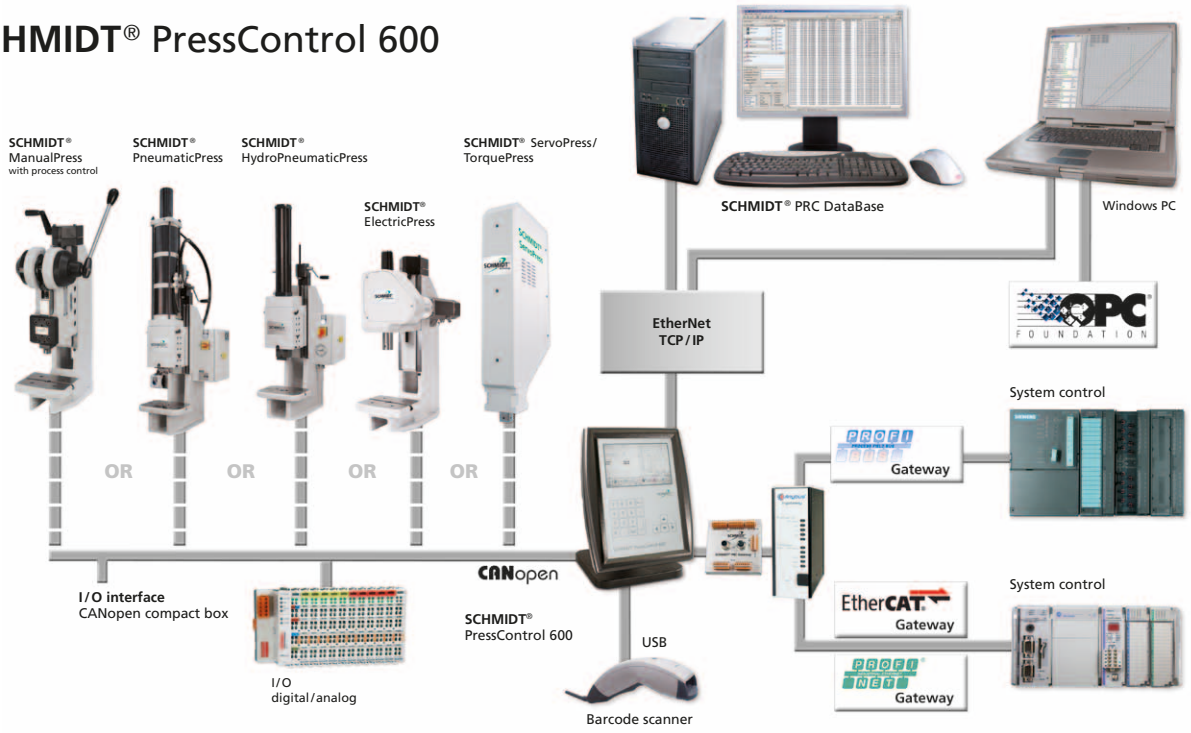
CANopen Compact Box

- 16 digital combination inputs/outputs (8 inputs and 8 outputs), useable optionally as input and output (24 V)
- Plug 4-pins M8 screw type

SCHMIDT® PressControl
System architecture

SCHMIDT® PressControl does work as a system control and takes over the process monitoring. The hard- and software components forming a system concept with real time characteristics. This is guaranteed by a system architecture with CANopen fieldbus. Press force monitored **SCHMIDT® ManualPress**, **SCHMIDT® (Hydro-)PneumaticPress**, **SCHMIDT® ElectricPress** or **SCHMIDT® ServoPress/TorquePress** will be activated via fieldbus. The collected measuring data as well as in-/output data will be exchanged by the fieldbus.

SCHMIDT® PressControl 600



SCHMIDT® PressControl 5000