MODULAR WORKSTATION FOR JOINING OPERATIONS

Smart Single Stations for assembly and testing applications with state-of-the-art Kistler technology

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Application and component support from a single source with Smart Single Stations

Kistler's Smart Single Stations press and assembly workstations are more efficient than conventional systems in press-fitting and assembly processes for process and pre-series development. Compared to pneumatic or hydraulic methods, electromechanical joining systems offer significantly higher efficiency, precisely definable press-fitting forces, and extremely high repeat accuracy.

Advantages of press and assembly workstations

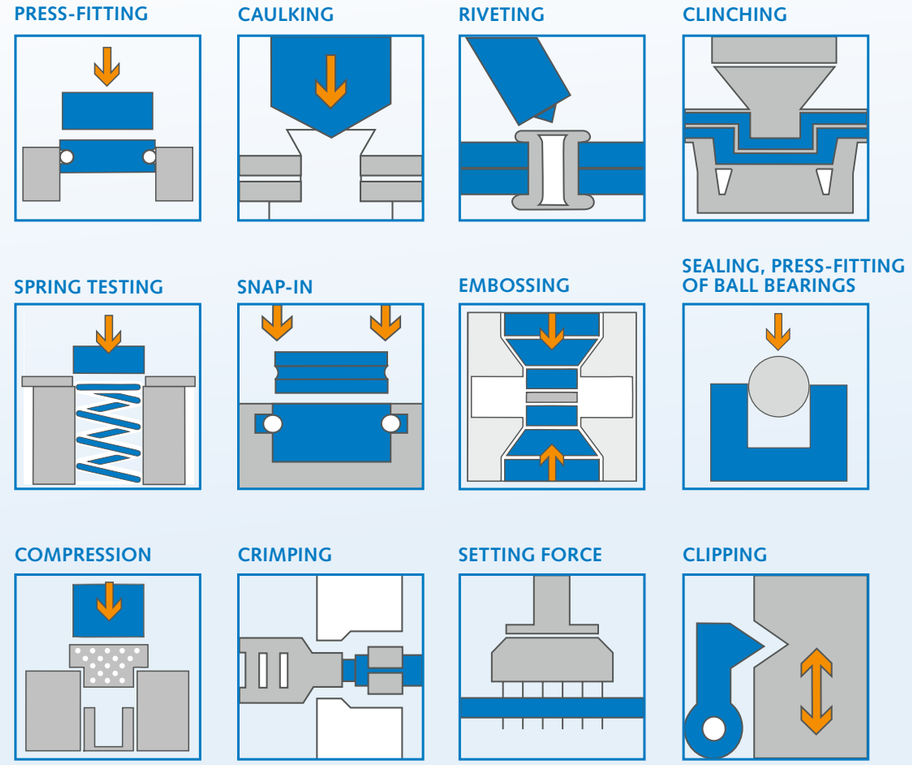
- Compact standalone solution for controlled prototyping and application development
- Flexible complete solution for easy implementation
- Less risk thanks to internal testing and application support
- Reliable and secure process with live visualization
- Embedded maXYmos evaluation system
- Competent global service with local teams
- Easy operation and detailed analysis function
- Minimized carbon footprint CO_2

Kistler Smart Single Stations for joining operations is the perfect solution for these applications. With our highly integrated and modular design, we can provide standard workstations based on joining systems, whether manual, automated C-frame or 4-column. Our solutions are flexible, simple, and economical for all customer applications, complemented by the most professional design, consultancy, and services.

The modular design also enables our customers to select the most optimal configuration for their needs.

In addition to standalone workstations, our integrated solutions can also be easily combined with other automated, integrated applications.

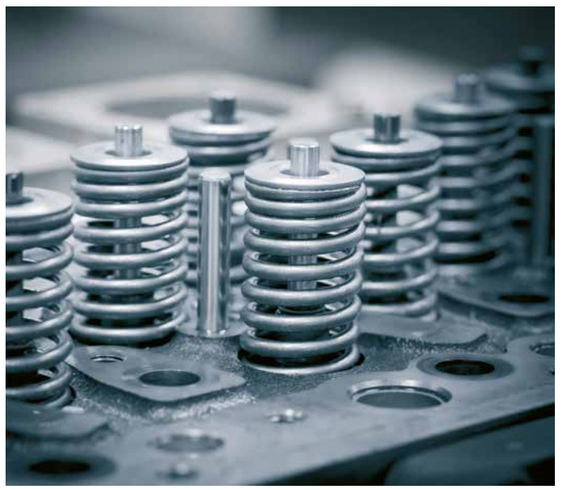
Typical applications



All press-related applications, such as e.g. pressing, riveting, clinching, and compression, require stable systems and components to meet high-precision requirements.

Greater economic efficiency from improved system utilization
Offering a comprehensive range of cutting-edge joining systems with a press force of up to 300 kN – from standardized compact single modules to fully customized designs – Kistler is setting new standards in the global market.

NC joining systems from Kistler allow for high-precision control of all traversing motions during assembly and product inspection. Better still, they can easily switch between different measuring ranges and measuring tasks, making it possible to use one system for a wide variety of components. This higher system utilization means lower costs in the long run.



Overview of Smart Single Stations for joining operations

1 Kistler NC Joining Module

- NCFT series
- NCFH series
- NCFS series
- NCFN series
- NCFE series

Note: Detailed information and data sheets on NC joining modules can be found at www.kistler.com.

2 Servo amplifier IndraDrive C

- Coordinated complete package with all components
- Control unit CSB02 NC joining module specifically parameterized
- SERCOS III connection to maXYmos NC
- Safe motion on-board (SMES, SMST2[1)], SMM1[1)])
- Applications up to Performance Level[1)] e (PL e) possible
- Diagnostics via Ethernet

Datasheet of Type 2180A (003-125) at www.kistler.com

3 Press module and tool

- C-Frame
- 4-column
- Tools on request

4 XY monitor for monitoring and controlling NC Joining Modules

- 128 independent programs, each with up to 10 evaluation objects using a variety of types with online and offline objects
- Integrated process control (sequencer) for maximum flexibility
- Real-time behavior through SERCOS III actuation of the servo amplifier
- On-board fieldbus interfaces for system control (PROFIBUS, PROFINET, EtherCAT, EtherNet/IP)
- Integrated curve memory for up to 5 000 curves
- Statistics and protocoling of the measurement results (Q-DAS, CSV, PDF, XML, IPM 5.0, QDA9, QWX)
- Self-monitoring and diagnosis, as well as visualization and remote control (VNC)

Datasheet of Type 5847B (003-272) at www.kistler.com

5 Electrical control cabinet

- Control units (e.g. PLC)
- Power units
- Safety protection units

6 IPC and display

- Siemens IPC with Touch panel
- 19" screen (1 366 x 768)
- Intel atomx6413E CPU (up to 3.0 GHz)
- 8 GB RAM 512 GB SSD
- Kistler operating software

7 Mechanical parts and accessories

- Base frames
- 2-hand safety control
- Safety light curtain or safety door
- Digital inputs and outputs for customer process control
- Pneumatic valves for customer process control

8 Optinal code scanner

- Combination of product information and result
- Wireless hand scanner

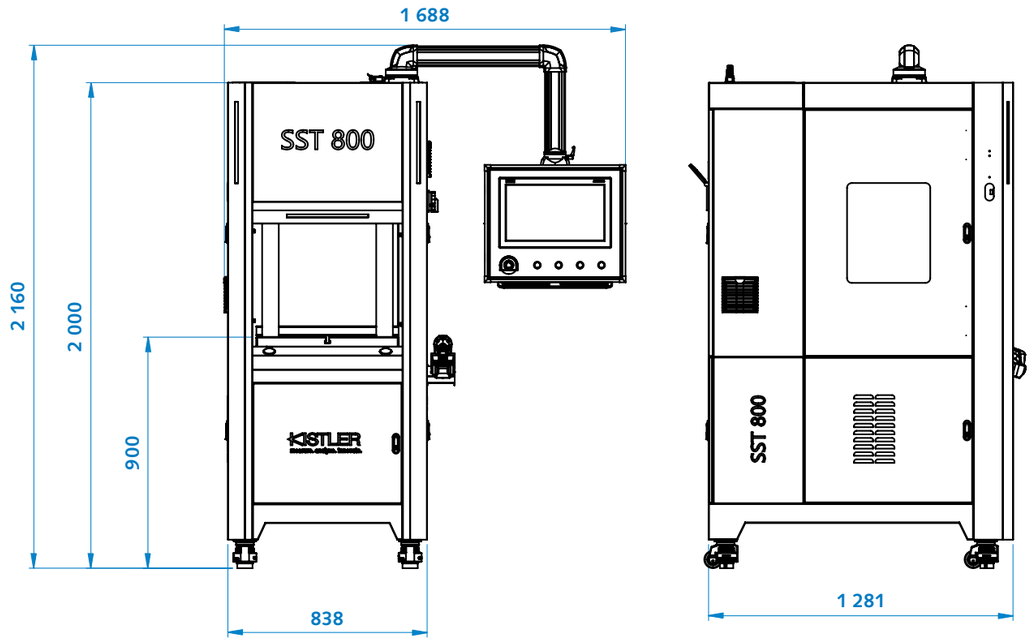
Smart Single Station SST 800

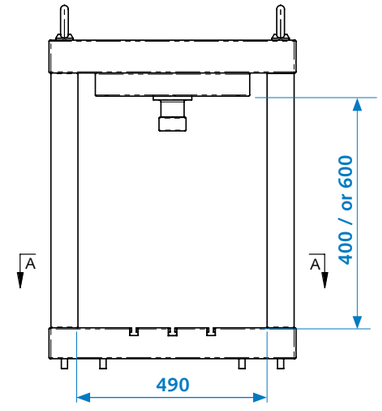
Technical data

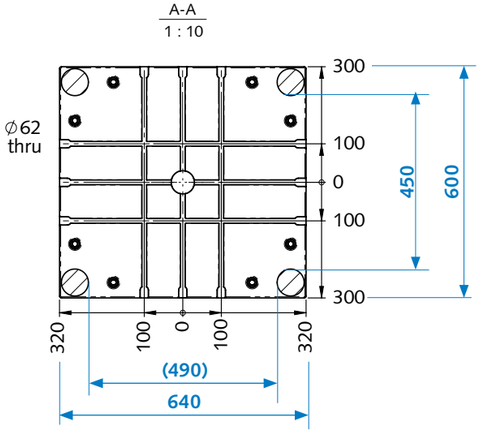
Type		SST 800
Dimensions (WxDxH)	mm	1 688x1 281x2 160 [1]
Table height	mm	900
Appearance frame		Sheet metal
Nominal joining force	kN	≤100
IPC		8 GB RAM 512 GB SSD
Screen		19" touchscreen
PLC control system		✓
Light curtain		optional
Air source supplier		✓
Manual lifting door		optional
Automatic lifting door		optional
Code scanner		optional
Additional force sensor		optional
Digital inputs and outputs		✓
Pneumatic valves		✓
CE certificate		✓
UL certificate		optional
Weight	kg	1 120 [2]
Environment temperature range	°C	10 ... 40
Evaluation unit		maXYmos NC Type 5847B…
Data storage in IPC		✓
Data output		✓
Data upload to server		optional
Pressing structure		4-pillar or C-frames
Operable area (WxDxH)	mm	490x600x600 or 490x600x400
Product fixture		optional, customized

[1] Height dimension not including joining module. The total height of the equipment need based on the adapted joining module to count.

[2] Weight not including joining module. The total weight of the equipment need based on the adapted joining module to count.







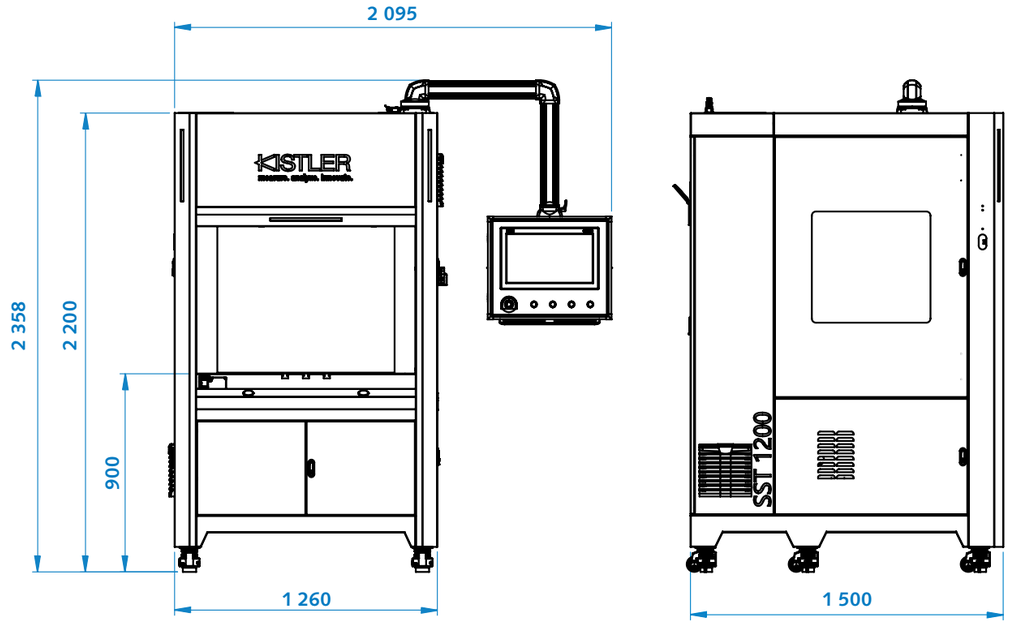
Smart Single Station SST 1200

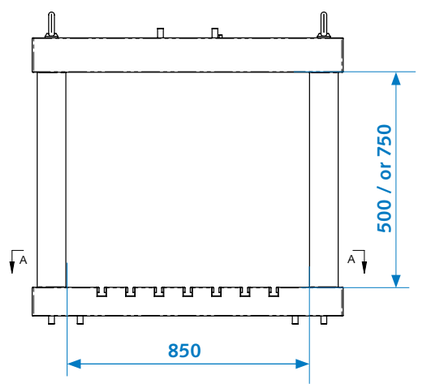
Technical data

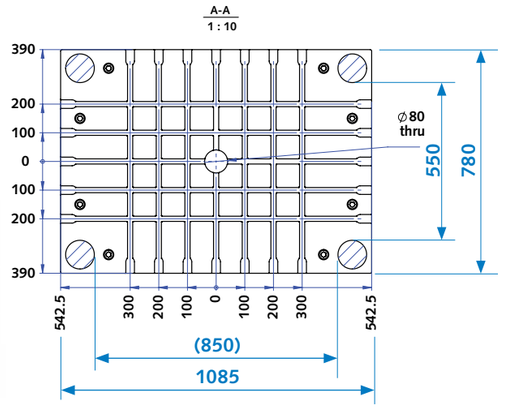
Type		SST 1200
Dimensions (WxDxH)	mm	2 095x1 500x2 358 [1]
Table height	mm	900
Appearance frame		Sheet metal
Nominal joining force	kN	≤300
IPC		8 GB RAM 512 GB SSD
Screen		19" touchscreen
PLC control system		✓
Light curtain		optional
Air source supplier		✓
Manual lifting door		optional
Automatic lifting door		optional
Code scanner		optional
Additional force sensor		optional
Digital inputs and outputs		✓
Pneumatic valves		✓
CE certificate		✓
UL certificate		optional
Weight	kg	2 770 [2]
Environment temperature range	°C	10 ... 40
Evaluation unit		maXYmos NC Type 5847B…
Data storage in IPC		✓
Data output		✓
Data upload to server		optional
Pressing structure		4-pillar or C-frames
Operable area (WxDxH)	mm	850x780x750 or 850x780x500
Product fixture		optional, customized

[1] Height dimension not including joining module. The total height of the equipment need based on the adapted joining module to count.

[2] Weight not including joining module. The total weight of the equipment need based on the adapted joining module to count.







Kistler provides the optimally configured system technology for each quality assurance strategy

Monitoring and control of NC Joining Modules

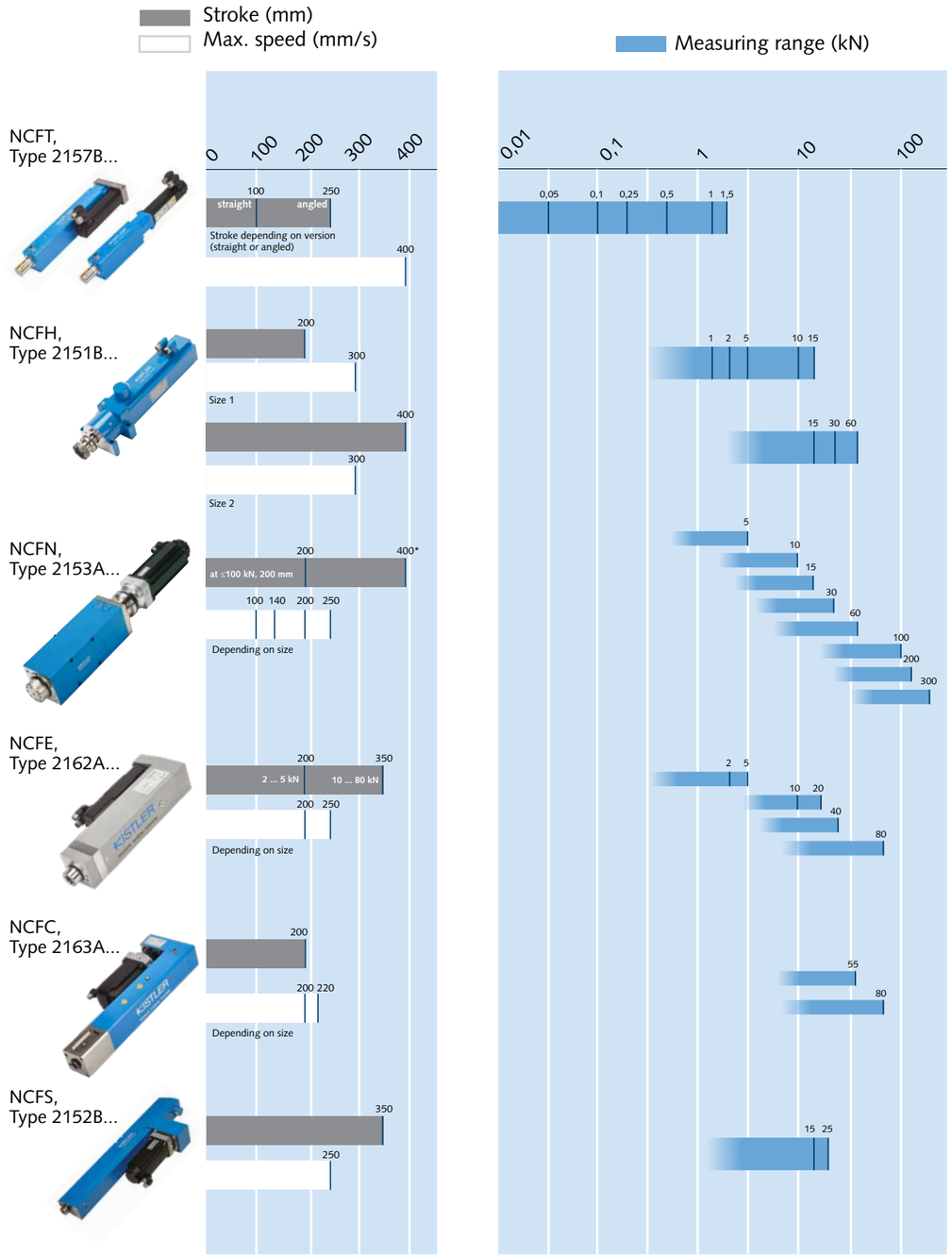
As the core element of the joining system, the maXYmos NC monitors and controls the entire joining process. Sporting an intuitive touch screen display and an integrated sequence control, the system offers exceptional usability and an outstanding degree of flexibility making it suitable for joining process ranging from simple to highly complex.

maXYmos NC controls, monitors, evaluates and documents XY curves for joining and press-fit processes, together with NC joining modules and the IndraDrive servo amplifier that is included in the system. The shape of the measurement curves allows the quality of individual manufacturing steps, assembly groups or even an entire product to be monitored and controlled via SERCOS III in real-time. This means that optimum cycle times can be implemented with maximum repeat accuracy. Since unplanned downtimes are minimized, machine availability and the productivity of the manufacturing process are increased.

Benefits

- 128 independent programs with up to 10 evaluation elements
- Storage for 500 curves, 8 000 measuring points per curve
- Flexible system concept: desktop/ wall-mounted
- Measuring modules can be cascaded
- Uniform operating philosophy

Overview NC Joining Modules



Note: Each NC joining module utilizes an integral absolute encoder for positioning. See the corresponding data sheet for additional technical data.

* Special versions with a stroke of up to 1,000 mm, max. force range of 600 kN or angled design are available on request

The Kistler test workstation comprising the frame, NC joining module, control cabinet with measurement technology, control and data acquisition unit

Optimize and validate joining processes before commissioning

Industrial manufacturing is constantly evolving – and with it, the demands on precise production processes like joining are increasing. Joining processes are essential across a wide range of industries, including medical technology, electronics, automotive, aerospace, household appliances (white goods), and the 3C market (computer, communication, consumer). They are also used in laboratories, prototype development, and small-batch production. With Kistler, joining processes can be reliably validated even before system commissioning – ensuring maximum process reliability right from the start.

Introducing new products or processes often involves challenges and uncertainties about production and assembly. But at the same time, manufacturers have to adhere to target development times and budgeted costs. To help customers achieve these goals, Kistler offers them the opportunity of using a test workstation for flexible validation of assembly and testing processes on parts such as bearings, sealing rings, rotor packages, bushings and springs.

The Kistler test workstation comprises a press frame with a wide selection of joining modules, together with a control cabinet containing the measurement and data acquisition technology. The workstation's adjustable mechanical structure gives users plenty of flexibility to install tools; process evaluation based on force and displacement is both variable and transparent thanks to the maXYmos NC process monitoring and control system.

Customer goals
- Validate the feasibility of joining processes
- Process development and optimization
- Determine and reduce cycle times

Customer benefits
- Minimized risks thanks to increased process knowledge
- Lower process design costs – and faster commissioning
- Better product quality, more reliable planning and increased productivity

Force-displacement monitoring with maXYmos NC
As tests are carried out on the workstation, the force and displacement sensing technology integrated into the joining module transmits the measurement data to maXYmos NC, the process monitoring and control system from Kistler.

Features and technical data of the test workstation
- Measurement range from a few newtons up to 100 kN
- Joining stroke: up to 400 mm
- Traverse speed: up to 700 mm/s
- Variable installation – height up to 700 mm, depth up to 600 mm
- Mounting plate on movable table
- Process control with the maXYmos NC Sequence Editor
- Process evaluation based on a wide choice of different evaluation objects (EOs)
- Option to use external sensors
- Measurement results are exported in various data formats

Your advantages
- Your joining processes are optimized and validated Measured values and process parameters are determined with high accuracy
- You save costs by avoiding over dimensioning
- You can plan your development work with greater certainty

Monitor the joining process with Kistler – watch online now!
View our animation to experience convincing first-class solutions from Kistler – the surest route to 100 percent quality in your production:
www.kistler.com/nc-joining

Would you like to learn more about our applications? Explore now:

www.kistler.com/applications

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