

## Kistler – The Industrial Partner for Cost-effective Assembly Systems

### One-Stop Shop for Sensors, Servo Press Systems, Engineering and Service

As a pioneer and technology leader of piezoelectric measurement of pressure, force, torque and acceleration, Kistler has established an excellent reputation for its products worldwide over five decades. Ongoing practical development has grown what began in 1959 with just a few sensors is now a wide portfolio of sensors, systems, accessories and services.

Assembly techniques make extensive use of force and torque sensors from Kistler for process optimization, production monitoring and reject separation. Directly from the process, these sensors yield force-displacement or torque-rotation angle curves that can be evaluated with the aid of analysis systems. Read more for the latest sensors and systems from Kistler.



**Servo Press / Spindle**  
Type 2151B...  
(see page 2 for details)



**Torque**  
Type 4510B...  
(see page 3 for details)  
  
Type 4520A...  
(see page 3 for details)



**Force**  
Type 9383A...  
(see page 3 for details)  
  
Type 9129A...  
(see page 3 for details)



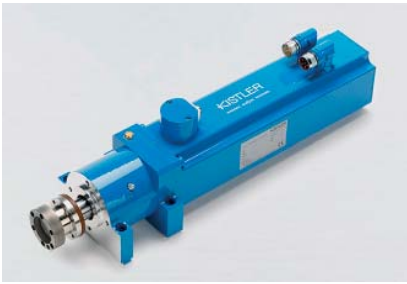
**Pressure / Injection  
Molding**  
Type 6184A...  
(see page 4 for details)  
  
Type 6189A...  
(see page 4 for details)

**Servo Press / Spindle -  
Joining Force**  
Page 2

**Rotating Torque / Force**  
Page 3

**Injection Molding /  
Monitoring and Control**  
Page 4

# Servo Press / Spindle – Joining Force



Size 1 electromechanical NC servo press NCFH with Rated Joining Force of 15 kN (3.4 klbf)

The tried and tested electromechanical NC servo presses NCFH Type 2151B... are now also available with a rated joining force of 15 kN (3.4 klbf). The new model is of heavier construction yet just as compact as the established 10 kN (2.2 klbf) version. The piezoelectric force sensor gives the option of a second measuring range of 5 kN (1.1 klbf) (Type 2151B15052001) or 2 kN (0.45 klbf) (Type 2151B15022001). With an overall height of 475 mm (19") the servo presses offer a stroke of 200 mm (7.9"), speed of up to 300 mm/s (12 in/s), tension and compression force as standard, and a regular holding brake.



## Operating Panel

Type 2158A...: Parametrization, Visualization and Data Backup

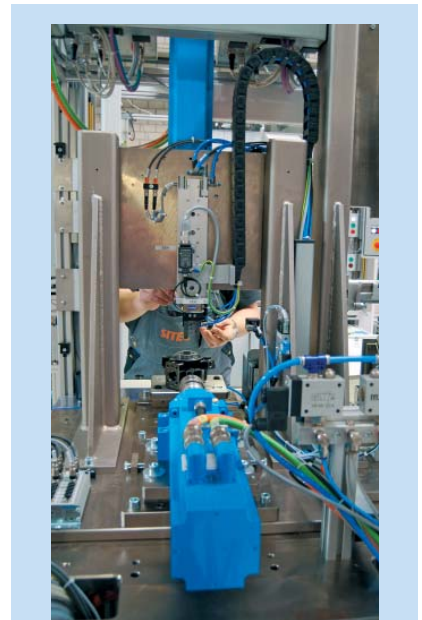
- 5.7" TFT color display touch screen operation
- Visualization of diagram and window evaluation
- Parameterization for set-points (position, speed, window, type of shutoff)
- Calibration menu X/Y axis for strain gage and Piezo
- Documentation with OK/NOK stats
- Data backup, securing parameter sets

## Video: NC Joining Systems in Practice

Kistler has installed many hundreds of electromechanical NC joining systems on site over the last few months alone. A new video offers an insight into the development and production of NC joining systems at Kistler and the use of systems by customers in a wide variety of industries.

- [www.kistler.com](http://www.kistler.com)  
> Support/Download > 3D CAD Models of Kistler Products

- [www.kistler.com](http://www.kistler.com)  
> Support/Download > Videos  
> NC joining systems from Kistler



Assembly with NC servo presses in factory of special machinery manufacturer SITEC



## NC Compact Firmware

Type 2159A...: Force/Displacement Monitoring for NC Joining Modules

- Single-channel force/displacement monitoring including process control
- Simple and fast operation
- Touch screen operation
- Sample rate 1 kHz
- 16 programs available
- 3 windows for force/displacement monitoring per program
- 4 positions (home position/idle stroke/joining stroke/intermediate position) per program
- 4 functions selectable per program
- Simple OK/NOK statistics
- Fast shutdown in idle stroke



## NC Joining Module NCFB

Type 2160A...: for Joining Operation with Single-Channel Control Systems

- Force control
- Direction of measurement: tension
- Integral charge amplifier
- High accuracy in two ranges
- Practical repeatability <0.01 mm
- High rigidity
- High sensor overload protection

# Force



## Multichannel Charge Amplifier

Type 5070A...: for Multi-Comp Force Measurement

- 4-channel version for cutting force measurements
- 8-channel version for multi-component force-torque measurement
- 8-channel version optionally with 6-component analog summing calculator
- Menu-controlled operation as with Type 5015A...
- Direct signal evaluation
- Suitable for data acquisition software DynoWare Type 2825A-02



## Multi-Comp Dynamometer

Type 9129A...: -10 ... 10 kN, Mounting Plate 90x105 mm

- Compact design
- Wide measuring range
- Minimal temperature error
- For cutting force measurements
- For general multicomponent force measurements



## Press Force Sensor

Type 9383A...: 0 ... 100 N to 0 ... 300 kN

- Compression forces from 0 ... 100 N to 0 ... 300 kN
- Each individual sensor offers an extremely wide measuring range
- Calibration certificate for 3 ranges: 100 %, 10 % and 1 %
- SCS calibration optional
- Simple mechanical adaptation with flanges on both ends
- Easily mounted in connecting rods or press plungers
- Factor of safety against overload of up to 100 when using lowest ranges

# Rotating Torque



## Torque Measuring Flange

Type 4510B...: Dual-Range Sensor, Assembly with Clamping Set

- Rated torque: 100 to 20000 N·m
- Ratio for second range: 1:10 or 1:5 of rated torque
- Speed ranges up to 12000 rpm
- Accuracy class in standard measuring range: 0.2 in the extended measuring range: 0.4
- Integral speed sensor with 60 pulses/revolution
- Maintenance-free, bearingless



## Entry Level Torque Sensor

Type 4520A...: Rotating with Contact-free Signal Transmission

- Measuring ranges from 1 ... 1000 N·m
- Speed up to 10000 rpm
- High frequency response
- Maintenance-free thanks to contact-free signal transmission
- Shaft end
- Integral speed measurement
- Great value for money



# Injection Molding

## Mold Cavity Pressure Sensor

Type 6184A...: with Front  $\varnothing$  1.2 mm



- Minimum size for installation in a mold insert
- Ideal for multi-cavity applications
- Diaphragm-free design with flat, machinable measuring front

## p-T-Sensor

Type 6189A...: for Mold Cavity Pressure and Temperature with Front  $\varnothing$  2.5 mm



- Pressure sensor with integrated thermocouple for pressure and temperature measurement
- Mounting dimensions compatible with Kistler pressure sensors 6182A and 6158A...

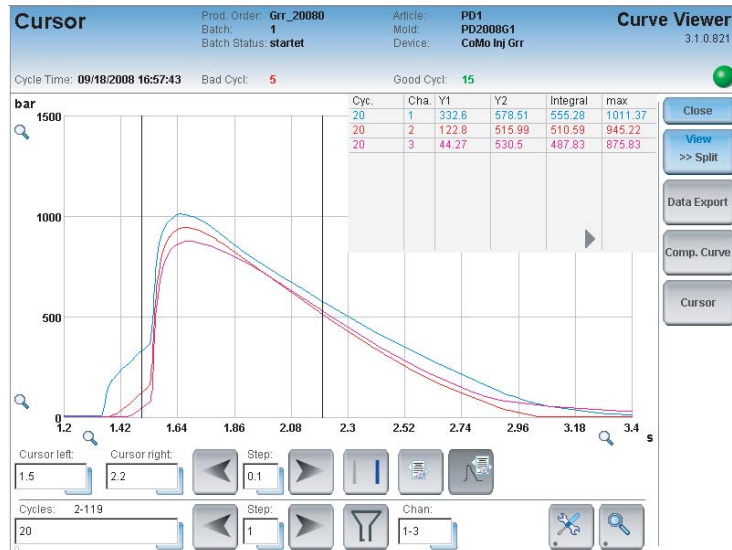
# Monitoring and Control

## CoMo MIS

CoMo MIS (manufacturing Information Systems) stores the production data in a database application, which subjects it to statistical analysis and clearly describes the production status. It supplements and supports Kistler's CoMo Injection in automating the flow of information during production.

The most recent update, version 3.1 includes several high value enhancements including:

- New user interface: The way in which CoMo MIS is used has been completely revised and considerably simplified. Several records can now be selected and edited at the same time.
- Powerful filter functions: Comprehensive filter functions are available for production orders and batches. Several criteria can now be combined with one another.
- Data reduction: The volume of data from production orders or batches can be reduced according to different criteria at the click of a button. This makes it possible to keep the size of the database small without losing valuable information.
- Available languages: English, German, French, Spanish, Japanese and Chinese.
- Reference curves in Curve Viewer: For each channel a reference curve can be selected and shown or hidden. The reference curves can be loaded and saved in the same file format as the exported curves.
- Cursor function in Curve Viewer: The cursor function familiar from DataFlow is now also available in the Curve Viewer.
- Live function in Curve Viewer: The Curve Viewer display updates automatically when a cycle is saved in the database. This always enables, for example, the last 10 curves of a current production run to be displayed.



## North America

USA/Canada/Mexico  
Kistler Instrument Corp.  
75 John Glenn Drive  
Amherst, NY 14228-2171  
Tel. +1 716 691 5100  
sales.us@kistler.com