



KISTLER
measure. analyze. innovate.

Universal Manual Workstation

**Stand-Alone
Workstation with
Electromechanical
NC Joining Module
and Integrated
Force-Displacement-
Monitoring**

Versatile Applications

Universal manual workstations by Kistler are stand-alone workstations for joining processes with safety gate and integrated force monitoring. They are designed for use in development, sample construction and small batch production.

Electromechanical NC joining modules

Electromechanical NC joining modules by Kistler are the core components of the manual workstations. The six standard types with integrated force-displacement monitoring cover a very wide measuring range from 0,25 ... 300 kN and thereby seamlessly fulfill the needs of both the watchmaking industry and engineering. Customized versions are available.

Monitoring via PC

The controller of the manual workstation, the NC Control Center (NCCC) is supported by a high-performance industrial PC running Windows 7®.

Future-proof through flexibility

The manual workstation can be easily adapted to various joining tasks. Any number of running and measurement programs facilitate the refitting. The manual workstation by Kistler is thus always a future-proof investment.

Applications for manual workstations in development and small batch production include:

- Braking systems
- Steering components
- Injection systems
- Gearbox production
- Electrical control systems
- Chassis components



Benefits

of Electromechanical NC Joining Systems

- + High traverse speeds up to 300 mm/s
- + Force control
- + Dynamic operation
- + Integrated force-displacement monitoring

Manual workstation Type 2171B... with 10 kN joining force, piezoelectric force monitoring and industrial PC

Robust Mechanical Design

Universal manual workstations are specially designed for use with the electromechanical NC joining modules by Kistler. These joining modules offer a high degree of flexibility, exact positioning, extremely high repeatabilities and accurately defined press-fitting forces. The robust mechanical design of the workstation ensures a high degree of operational safety and secures a long service life.

Electromechanical NC joining modules

With their high traverse speed of up to 300 mm/s, they offer a quick return stroke, even for long feed travels and thereby facilitate a short machine cycle. NC joining modules offer the measurement of tension and compression forces as standard. The tool holder is designed as a separately utilizable flange. The joining modules by Kistler are a particularly precise system solution for various force-displacement monitored press-fitting and joining tasks.

The joining modules NCFT, NCFH or NCFN are in use in the following manual workstations:

- Type 2157A... NCFT: Electromechanical NC joining module with integrated piezoelectric force sensor for a 1 kN nominal joining force and measurement ranges of 0,25, 0,5 and 1 kN
- Type 2151B... NCFH: Electromechanical NC joining module with space-saving, gearless, hollow-shaft motor and integrated piezoelectric force sensor for up to 60 kN nominal joining force and measurement ranges of 1, 2, 5, 10, 15, 30 and 60 kN
- Type 2153A... NCFN: Electromechanical NC joining module with integrated DMS force sensor for nominal joining forces of 100, 200 and 300 kN

Manual workstation with integrated NC joining module

The manual workstations with integrated NC joining modules are mounted on an aluminium base plate. The joining station is designed as a sturdy, steel structure – up to 30 kN joining force in a C-frame, from 60 ... 300 kN joining force in a 4-pillared support frame.

The base frame of the manual workstation is constructed from professional aluminium profiles. It is compact, with dimensions of WxHxD 1 000x850x800 mm and ± 40 mm height adjustable feet. The control cabinet is partly integrated, fitted or is free-standing, depending on the design. It is lacquered in light grey (RAL 7035), the same as the frame for the joining station.

The base frame of the manual workstation Type 2171B... with 10 kN joining force is designed as a sturdy C-frame, from 60 kN joining force in a 4-pillared support frame



Standard Designs

Technical Data		Type 2177B...	Type 2171B05... Type 2171B10... Type 2171B15...	Type 2171B30...	Type 2171B60...
Version of NC joining module		NCFT	NCFH frame size 1	NCFH frame size 2	NCFH frame size 2
Dimensions					
Distance* (A)	mm	105	160	≈190	depending on shape and size of the joining parts
Max. access height (B)	mm	150 ±30	230 ±55	430 ±55	500
Working stroke (C)	mm	100	200	400	400
Height of assembly (D)	mm	≈837 ±30	≈951 ±55	≈1 458 ±55	≈1 407
Overall height (E)	mm	≈1 687	≈1 801 ±55	≈2 308 ±55	≈2 257
Total weight	kg	≈230	≈350	≈560	≈840
Mechanical system					
Base frame		C frame	C frame	C frame	4 pillar frame
Max. joining force	kN	1	10/15	30	60
Max. speed	mm/s	300	300	300	300
Holding brake		integrated	integrated	integrated	integrated
Max. tool weight	kg	<5	<25	<25	<25
Sensor system					
Force sensor		piezoelectric	piezoelectric	piezoelectric	piezoelectric
Measuring ranges	kN	0,25/0,5/1,0	1/2/5/10/15	15/30	15/30/60
Displacement sensor system		absolute encoder	absolute encoder	absolute encoder	absolute encoder
Resolution	mm	0,0005	0,001	0,001	0,001
Versions					
		Type 2177B1	Type 2171B05012001	Type 2171B30154002	Type 2171B60154002
		Type 2177B2	Type 2171B05022001		Type 2171B60304002
		Type 2177B3	Type 2171B10012001		
			Type 2171B10022001		
			Type 2171B10052001		
			Type 2171B15022001		
			Type 2171B15052001		

This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

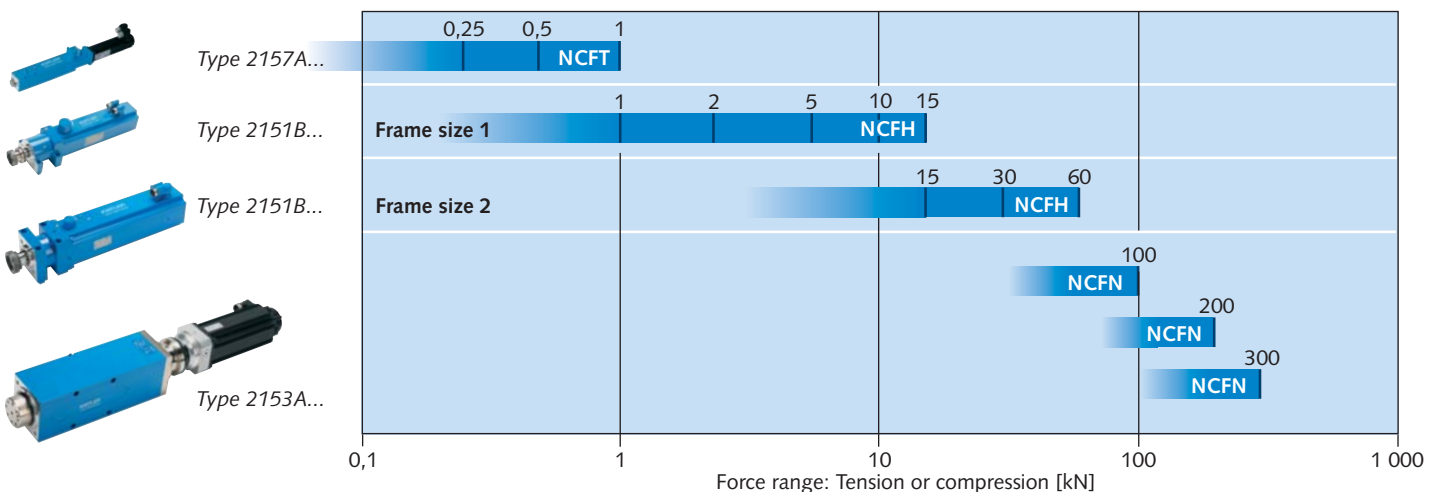
* Distance from working axis to rear

Options

- 2156A301 Monitor and keyboard in industrial version in place of standard version
- 2156A302 External displacement sensor with TTL signal
- 2156A303 Windows 7® english

Technical Data		Type 2173B100...	Type 2173B200...	Type 2173B300...
Version of NC joining module		NCFN	NCFN	NCFN
Dimensions				
Distance* (A)	mm	depending on shape and size of the joining parts	depending on shape and size of the joining parts	depending on shape and size of the joining parts
Max. access height (B)	mm	500	500	500
Working stroke (C)	mm	400	400	400
Height of assembly (D)	mm	≈2 086	≈2 311	≈2 414
Overall height (E)	mm	≈2 936	≈3 161	≈3 264
Total weight	kg	≈1 050	≈1 200	≈1 700
Mechanical system				
Base frame		4 pillar frame	4 pillar frame	4 pillar frame
Max. joining force	kN	100	200	300
Max. speed	mm/s	200	140	100
Holding brake		integrated	integrated	integrated
Max. tool weight	kg	<25	<25	<25
Height	mm	225	225	225
Sensor system				
Force sensor		DMS	DMS	DMS
Measuring ranges	kN	100	200	300
Displacement sensor system		absolute encoder	absolute encoder	absolute encoder
Resolution	mm	0,001	0,001	0,001
Versions				
		Type 2173B1002002HG	Type 2173B2004001HG	Type 2173B3004000HG
		Type 2173B1004002HG		

* Distance from working axis to rear



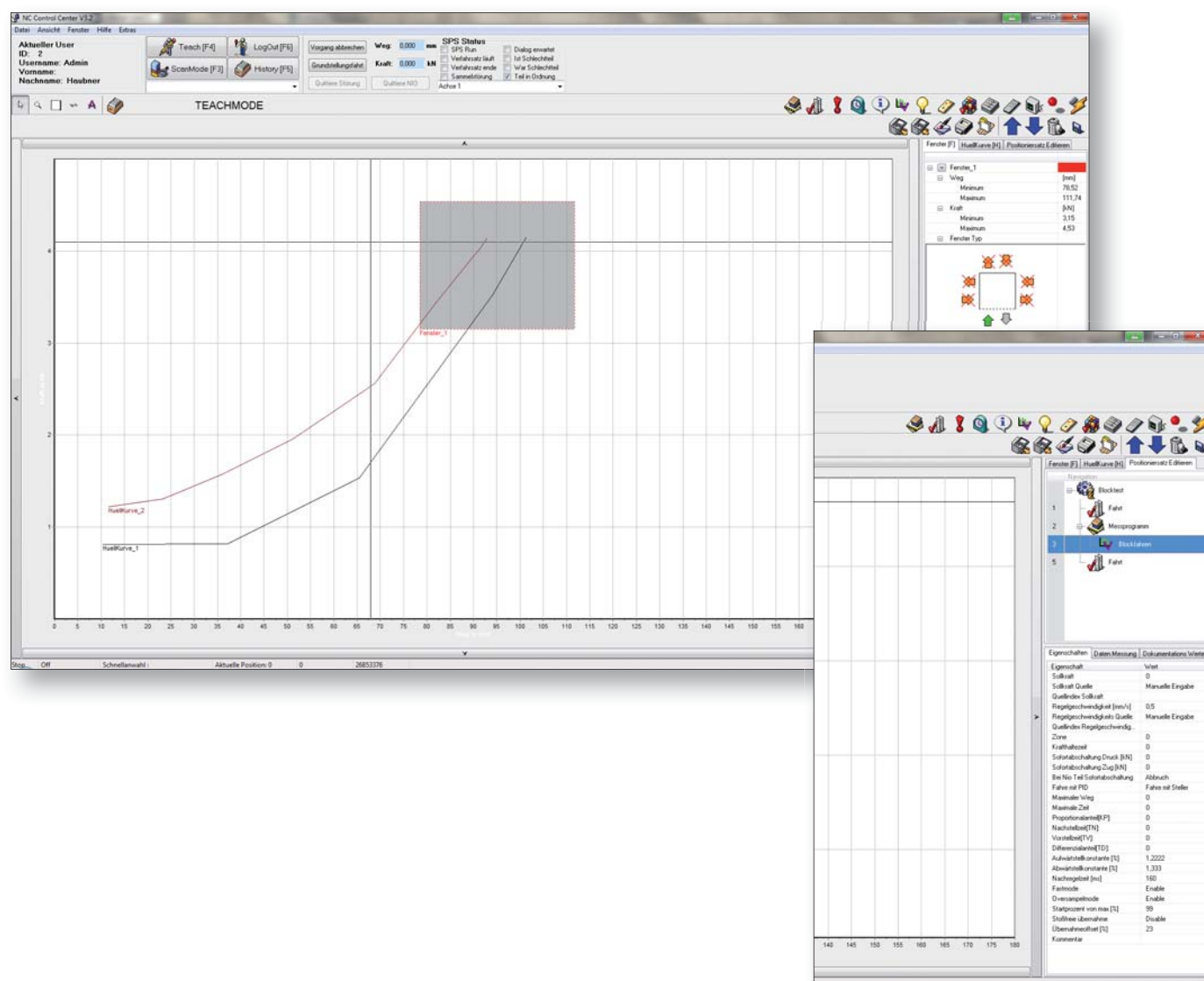
Electromechanical NC joining systems by Kistler seamlessly cover a force range of up to 300 kN in manual workstations

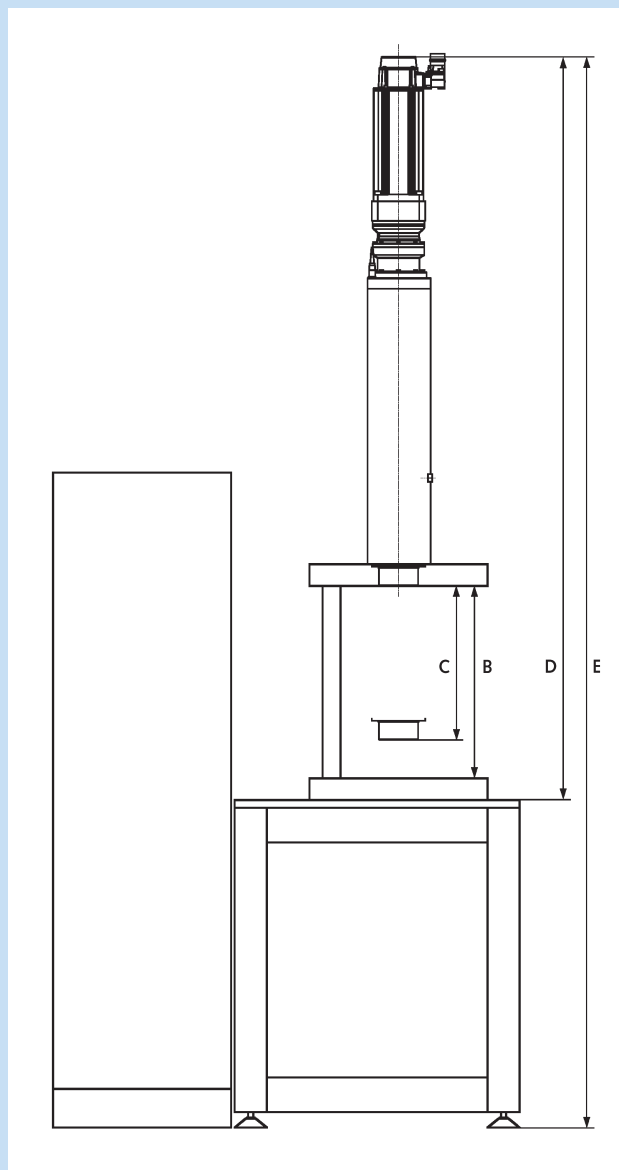
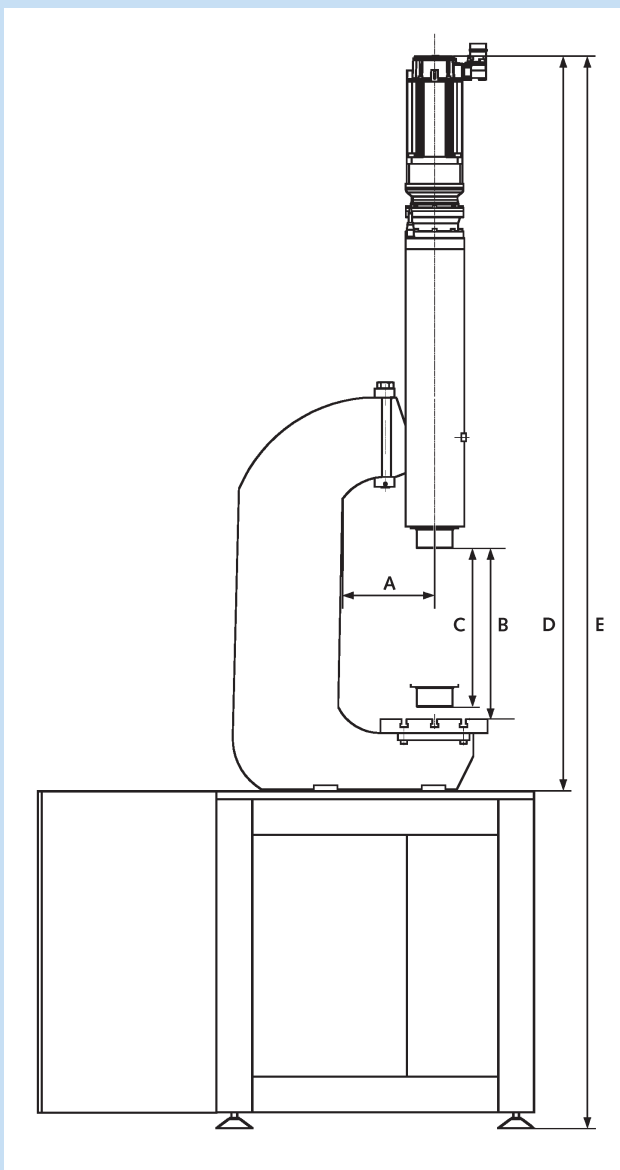
High-Performance Control Technologies

The standard version of the manual workstation is fitted with an indicator board and an operating device. Standard features also include the high-performance NC Control Center (NCCC) with a Beckhoff PLC and servo controller (IndraDrive) by Bosch Rexroth.

Scope of performance of the NC Control Center (NCCC)

- Online teach-in recording
- User management with Administrator, Supervisor and Operator levels
- Several measurement programs in a single position set
- External database connection to Access, SQL, etc.
- Combined window/envelope curve evaluation
- Running highly dynamic joining processes
- Implementation and computation with external variables
- Export in tabular (e.g. Excel®) format
- Export files can be created in TXT format
- Tension-compression applications
- OK/NOK counter
- Drag and drop creation of position set
- Windows and envelope curves can be entered with mouse or edited in table
- Export of measurement curves as BMP or JPEG file
- Option of collecting several curves and superimposing for comparison purposes





A: Distance from working axis to rear, B: Max. access height, C: Working stroke, D: Height of assembly, E: Overall height

Dimensions of manual workstations with joining station in a C-frame (left, Types 2171B05..., 2171B10..., 2171B15..., and 2171B30... up to 30 kN joining force) side view and in a 4-pillar frame (right, Types 2171B060..., 2173B100..., 2173B200..., and 2173B300... with 60 ... 300 kN joining force) side view

Services

- Integrating external sensors etc.
- Training and start-up support
- Process trials
- Maintenance contracts

Windows 7® and Excel® are registered trademarks of Microsoft Corporation.

Kistler Worldwide

Europe

Austria

Kistler GmbH
Lemböckgasse 49f
1230 Wien
Tel. +43 1 867 48 67 0
sales.at@kistler.com

Czech Republic/Slovakia

Kistler, s.r.o.
Zelený pruh 99/1560
140 00 Praha 4
Tel. +420 296 374 878
sales.cz@kistler.com

Denmark

Kistler Nordic DK
Grønlandsvej 4
4681 Herfølge
Tel. +45 70 20 85 66
info.dk@kistler.com

Finland

Kistler Nordic AB
Särkiniementie 3
00210 Helsinki
Tel. +358 9 612 15 66
info.fi@kistler.com

France

Kistler France
ZA de Courtabœuf 1
15, avenue du Hoggar
91953 Les Ulis cedex
Tel. +33 1 69 18 81 81
info.fr@kistler.com

Germany

Kistler Instrumente GmbH
Daimlerstrasse 6
73760 Ostfildern
Tel. +49 711 34 07 0
info.de@kistler.com

Italy

Kistler Italia s.r.l.
Via Ruggero di Lauria, 12/B
20149 Milano
Tel. +39 02 481 27 51
sales.it@kistler.com

Netherlands

Kistler B.V. Nederland
Leeghwaterstraat 25
2811 DT Rijswijk
Tel. +31 182 304 444
sales.nl@kistler.com

Spain

Kistler Ibérica S.L, Unipersonal
C/Pallars, 6 Planta 2
08402 Granollers
Barcelona
Tel. +34 93 860 33 24
info.es@kistler.com

Sweden/Norway

Kistler Nordic AB
Aminogatan 34
431 53 Mölndal
Tel. +46 31 871 566
info.se@kistler.com

Switzerland/Liechtenstein

Kistler Instrumente AG
Eulachstrasse 22
8408 Winterthur
Tel. +41 52 224 12 32
sales.ch@kistler.com

United Kingdom

Kistler Instruments Ltd.
13 Murrell Green Business Park
Hook, Hampshire RG27 9GR
Tel. +44 1256 74 15 50
sales.uk@kistler.com

Asia

China, People's Republic of

Kistler China Ltd.
Unit D, 24/F Seabright Plaza
9-23 Shell Street North Point
Hong Kong
Tel. +852 25 915 930
sales.cn@kistler.com

India

Kistler Instruments (India) Pvt. Ltd.
TA-3, 3rd floor, Crown Plaza,
Sector-15 A, Faridabad - 121 007
Haryana/India
Tel. +91 129 4113 555
sales.in@kistler.com

Japan

Kistler Japan Co., Ltd.
23rd floor, New Pier Takeshiba North Tower
1-11-1, Kaigan, Minato-ku
Tokyo 105-0022
Tel. +81 3 3578 0271
sales.jp@kistler.com

Korea, Republic of

Kistler Korea Co., Ltd.
Gyeonggi Venture Anyang
Technical College Center 801
572-5, Anyang-Dong, Manan-Gu,
Anyang-City, Gyeonggi-Do 430-731
Tel. +82 31 465 6013
sales.kr@kistler.com

Singapore

Kistler Instruments (Pte) Ltd.
50 Bukit Batok Street 23
#04-06 Midview Building
Singapore 659578
Tel. +65 6316 7331
sales.sg@kistler.com

Taiwan

Kistler Branch Office in Taiwan
5F-17, No. 6, Lane 180
Sec. 6, Mincyan E. Road
Taipei 114
Tel. +886 2 7721 2121
sales.tw@kistler.com

Thailand

Kistler Instrument (Thailand) Co., Ltd.
26/56 TPI Tower, 20th Floor
Nanglingee Rd., (Chan Tat Mai Rd.)
Thungmahamek, Sathorn
Bangkok 10120
Tel. +66 2678 6779-80
sales.thai@kistler.com

America

USA/Canada/Mexico

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

Australia

Australia

Kistler Instruments Australia Pty Ltd
Unit 1.23/202 Jells Rd.
Wheelers Hill, Victoria 3150
Tel. +61 3 9560 5055
sales.au@kistler.com

Other Countries

Kistler Instrumente AG
Export Sales
Eulachstrasse 22, 8408 Winterthur
Switzerland
Tel. +41 52 224 11 11
sales.export@kistler.com

www.kistler.com

KISTLER

measure. analyze. innovate.

Headquarters

Switzerland

Kistler Group
Eulachstrasse 22, 8408 Winterthur
Tel. +41 52 224 11 11
Fax +41 52 224 14 14
info@kistler.com