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NC Joining Module NCFS

Type 2152B...

for Joining Operation with Small Center Distance

The joining module Type 2152B… with integral piezoelectric force sensor and two predefined measuring ranges of 25 and 15 kN is ideal for force-displacement monitored press-fit and joining processes in compact configurations.

- Force signal
- Integral charge amplifier
- High measuring accuracy in two ranges
- High speed
- High rigidity
- Precise guidance
- High level of sensor overload protection

Description

The NC joining module NCFS Type 2152B... consists of a robust case with integral piezoelectric force sensor for measuring both compression and tension. Its motor has an absolute encoder for exact positioning. The compression or tensile forces acting on the sensor's piezoelectric measuring element generate a proportional electric charge converted by the integral charge amplifier into an analog voltage signal. The drive motor is an electronically commutated AC servo type handled by a matching controller to ensure constant rotational and hence translational speed. Standard functions such as block pressing, position pressing and force feedback controlled pressing as well as intermediate positioning are supported.

The NC joining module NCFS can be operated with the IndraDrive servo amplifier in combination with maXYmos NC Type 5847... . The communication between IndraDrive and maXYmos NC takes place in real-time via SERCOS III. Several field bus slave interfaces are available onboard for customer controlling. PROFIBUS, PROFINET, EtherNet/IP or even EtherCAT can be used with the maXYmos NC at the customer's choosing. Quality data can be transmitted via the Ethernet interface through different protocols and a visualization via VNC® or a data backup can be performed.

Application

The NCFS joining module Type 2152B... is ideal for use in automated production systems. Its special design allows close workstation spacing. The previously practiced clocking of the stations is no longer performed, therefore reducing the throughput time The installation is possible vertically as well as horizontally. Fixation of the joining units at a machine frame is provided through flange mounting. Load-conforming dimensioned tapped holes for a tool receptacle are available at the plunger of the threaded spindle drive (Fig. 1).

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Technical Data

Dimensions	mm	Fig. 1
Assembly		Flange assembly
Weight	kg	89
Max. tool weight[1]	kg	25
Direction of measurement		compression/ tension
Measuring range	kN	15, 25
Length of stroke	mm	350
Practical repeatability	mm	0,01
Anti rotate tool fitting		Fig. 1
Max. speed	mm/s	250
Displacement sensor system		Absolute encoder
Resolution	mm	0.001
Force sensor		piezoelectric
Temperature range	°C	10 ... 40
Protection class		IP54

Linearity in all ranges	%FSO	≤1
Accuracy class force sensor	%	0.5
Service life of spindle (acc. to defined drive profile)	cycles	approx. 10 million
Short stroke	mm	≤60
Lubrication connection (exterior)	number	3

Servo amplifier[2]	Bosch-Rexroth Type 2180A...
Standard interface	SERCOS III (internal bus)
Evaluation unit[3]	maXYmos NC Type 5847...
Standard interface	PROFIBUS, PROFINET, EtherNet/IP, EtherCAT
Power supply	VDC 24 ±5 %

[1] Possible radial forces must be considered independent of the mounting. Permissible tool weight may have to be reduced for manual feed.

A bending of the plunger depending on the tool weight must be considered for a horizontal installation.

[2] Servo amplifier see accessories data sheet 003-125 Type 2180A...
[3] Evaluation unit maXYmos NC Type 5847B... see data sheet 003-272

Dimensions

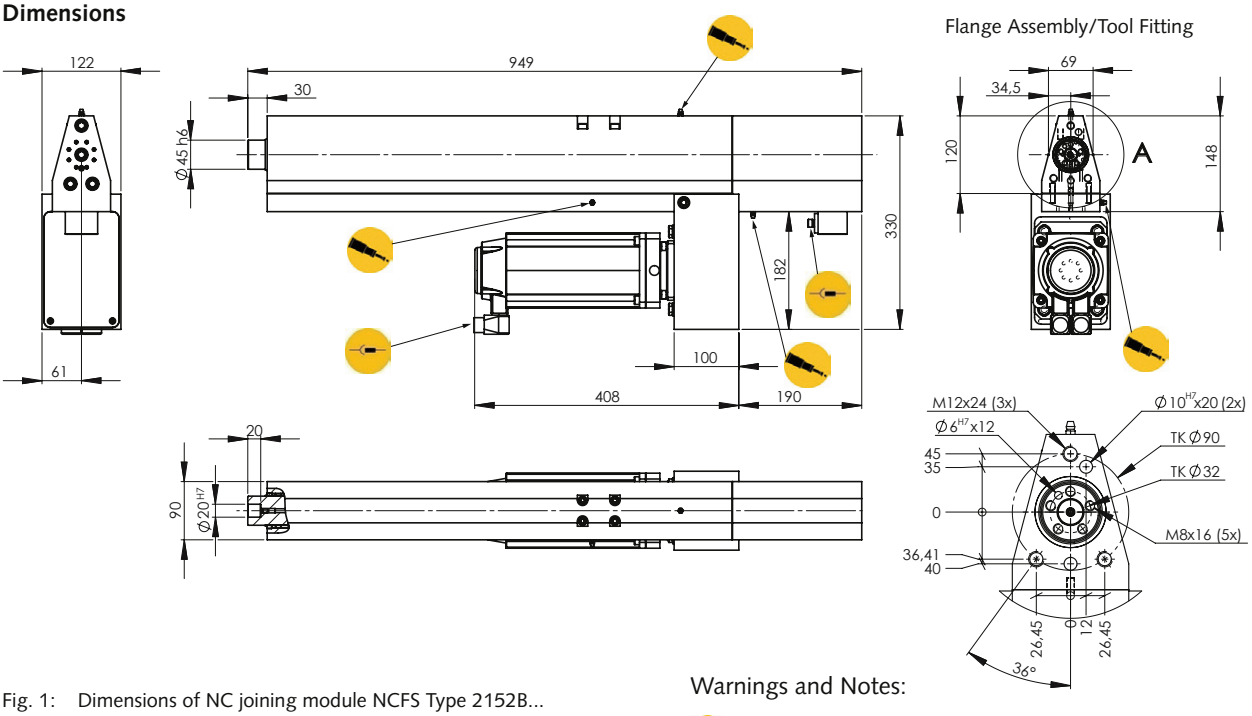

Fig. 1: Dimensions of NC joining module NCFS Type 2152B...

The radial forces (for example due to the weight of the tool) must be considered for the installation. An external guide may have to be provided for the plunger.

Warnings and Notes:

- Lubrication points
- Electrical connection points
- Warning high temperatures
- Attachment points

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Functional Principle with maXYmos NC Type 5847...

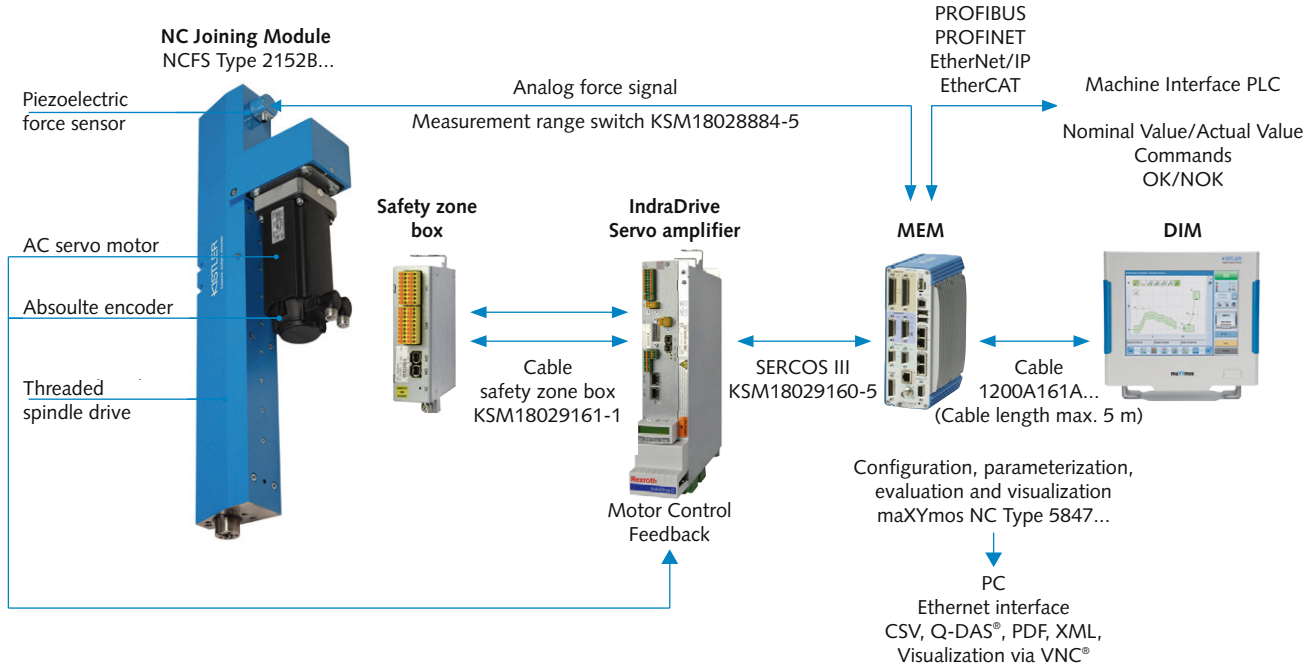

Fig. 2: Functional principle of NC joining system with NC joining module NCFS Type 2152B... and maXYmos NC Type 5847...

Included Accessories

- None

Optional Accessories	Type/Art. No.
• Evaluation unit maXYmos NC[4] (MEM)	5847...
• Bearing rail adapter for 35 mm Cap rail including 2 fastening screws M3x10	5700A31
• Display module (DIM) with pedestal	5877AZ000
• Connection cable maXYmos MEM on DIM, length 5 m	1200A161A5
• Servo amplifier[2]	2180A...

[2] Servo amplifier see accessories data sheet 003-125 Type 2180A...
[4] Evaluation unit maXYmos NC Type 5847B... see data sheet 003-272

Cable	Type/Art. No.
• NCFS 25 motor cable, length 5 m RKL4302	KSM341600-5
• NCFS MSK Feedback cable, length 5 m RKG4200	KSM303500-5
• maXYmos Force transmitter cable, length 5 m	KSM18028884-5
• SERCOS III connection cable, length 5 m	KSM18029160-5
• Safety zone box cable, 2 cables required), length 1 m	KSM18029161-1

Other length on request.

Ordering Key Servo Amplifier for NCFS

Type 2180A ☐☐

Power section for NC joining module

NCFS	2152B 25...	**NCFS0025**

Safety technology

with safety zone box	**SB**

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Possible Assembly

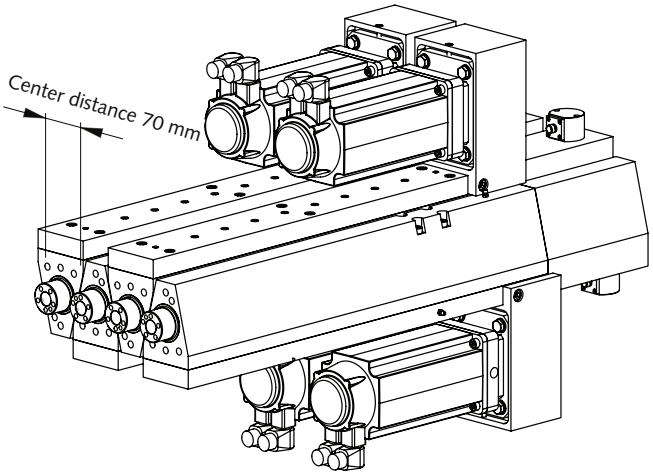

Fig. 3: Extremly narrow assembly space requirements from NC joining module NCFS

Ordering Key

Type 2152B ☐☐

Nominal Force [kN]		
Measuring range 1	25	**25**
Measuring range 2	15	
Stroke [mm]		
350		**350**

Ordering Example

Type 2152B25350

NC Joining Module NCFS **Type 2152B...**, nominal force, measuring range 1: 25 kN, measuring range 2: 15 kN **25 kN**, stroke **350** mm

Our services:

- Application consulting
- Commissioning support
- User- and operator training
- System optimisation
- Accredited calibrations
- MFU / MSA
- Maintenance contracts
- Maintenance and repair support
- 24/7-hotline

Details and further services
on request at www.kistler.com/service/joining

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