

# Segment forming machine SF25CNC



The segment forming machine SF25CNC is used for the pressing of rotationally symmetric components (pipes, sleeves, shells) without pinch points, which can be inserted into the machine between the jaws.

- Ø 3 – Ø 25 mm compressible
- up to Ø 1 mm wall thickness machinable
- repeat accuracy 0.05 mm
- moulding cycle approx.. 3-8 sec.

## Machine setup

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The segment forming machine SF25CNC represents a consistent enhancement of existing systems for the processing of pipes, pipe ends, sleeves, shells, armatures and many other applications.

A typical example is the implementation of sensor sleeves which mechanically protect connection leads from being pulled out and seal them at the same time. This procedure also allows crimping of plugs into sensor sleeves. Wall thicknesses of up to 1.0 mm with a diameter of 3 – 25 mm are possible.

The handling of the machine is very simple. The work piece is inserted into the opening, usually positioned with the help of a stopper, which assures that it does not move while the jaws move axially towards the work piece. The corresponding working parameters can be stored and managed in the machine control system. The user interface allows easy and logical operation. All essential processes are electronically monitored and the data is stored in the control system. This ensures high process safety and reproducibility.

Other applications in the fields of cutting, chipless isolation, calibration and scoring are also possible.

### Basic machine

- basic module with fastening holes for the reception of all functional components consists of: base panel with carrier for motor with gearing and spindle ball bearing
  - drive system: 1 servomotor + gearing + encoder and motor cable 3/5m (1 CNC axis) gear belt ratio + ball roller spindle with screw nut for infeed of compression lever system to transmit power to connecting member with tools
- setup (consisting of connecting member, lever and die guide conduct) available in 2 versions:
  - option 1 – narrow model setup designed for pressing of standard components (wall thickness ≤ 1mm)
  - option 2 – reinforced model setup designed for pressing of thick-walled components (wall thickness ≥ 1mm)
- jaws (forming tools) adjusted to client specific final outline
- flat and circular compression possible; for round compression jaws have to be fitted to a diameter
- possible number of jaws: 6, 8, 12 or 16
- closing and opening stroke are steered over relevant curves by a servomotor

### Protection measures

- covering of drive mechanism
- protective tube at back of forming head prevents reaching inside
- protective cover at front of forming head; easy insertion of parts guaranteed
- front protection also available with light grid
- emergency stop immediately stops all movements

## Control system

- VIPA Speed7 SPS with user panel Siemens TP700 comfort; S7 and TIA portal V13
- parameterisation and user software installed
- control cabinet installed into frame
- additional buttons for start, stop and emergency stop
- pedal button for release of forming process by operator
- data sets selectable via user panel (by means of bar code scanner if desired)

## Software

- data display on user interface
- calibration instructions are set up and selectable at all times via button
- standard databank for product specific parameter with 50 data sets (expandable up to 4,000)
- 3 access levels for machine control (user, service and administrator)
- language can be chosen as requested (default German and English, other languages with extra charge)

## Frame

- holds all machine components
- standing work station, length x width x depth approx. 1,010 x 1,010 x 890 mm
- working height approx.. 1,123 mm
- 4 rotatable wheels, 2 with locking brake
- welded and coated steel frame, colour can be chosen as requested
- desk top made of steel or wood

# Optional components – additions

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## SF25CNC

### Stopper

- determines press position of component part (can be set manually or motor-driven)
- stopper with component part recognition available (existence check via sensor)
- positioning through readable linear encoder

### Manual positioning

- data set is selected, machine in automatic mode
- forming jaws are open
- stopper is set in position manually, position has to be set for each data set
- cable and shell are joined by workman (pre-assembly)
- component part has to be inserted and held manually
- component position at stopper is registered by a sensor
- machine is started automatically or via additional pedal switch
- forming jaws position according to required dimensions and are opened
- 1 press position possible
- component part can be taken out of machine
- moulding time depending on diameter 2-4 sec.
- machine can be used for large quantities with little model variance and minor pre-assembly



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## Motor-driven positioning

- data sequence freely programmable (max. 30 commands per data set)
- forming jaws are open
- stopper is motor-driven into position by selection of data set
- cable and shell are joined by workman (pre-assembly)
- component part is inserted manually
- component position at stopper is registered by a sensor
- gripper takes component part
- do not reach into light grid
- machine is started automatically or via additional pedal switch
- component part moves through servo axis to first press position
- forming jaws position according to required dimensions and are opened
- up to 5 press positions possible through data set programming
- gripper opens and component part can be taken out
- moulding time depending on press type and diameter 2-4 sec.
- machine can be used for large quantities with high model variance, pre-assembly and multiple pressing. Pre-assembly can occur during moulding time. No dead time for staff.



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## Handheld barcode scanner

- data set selection via handheld barcode scanner
- 1D or 2D codes
- with rack



## Product specific insertion aid

- product adapted insertion handle with insertion flange for easy concentric positioning
- optional  $\varnothing$  25, 30 or 35 mm
- with release magnet PSEN



## Load-displacement monitoring

- load cell in toggle lever calculates load in lever
- graphic display of loads on separate measuring device
- OK and NOK evaluation



## Height adjustable frame

- desktop mounted on height adjustable legs
- height adjustable up to 300 mm
- 4 rotatable wheels, 2 with locking brake



## External data protection with HSDBASE software

- software for reading process data from SPS, e.g. current operator
- storage and back-up of any selected data from OP on server/individual PC
- data collection controllable in different modes (cyclic, change in value etc.)
- connection of machine to company network via TCP/IP-address
- reading of data in different formats, e.g. \*.csv, access, mySQL etc.

## Transport, instruction and operation setup at customer's premises

- transport to customer is carried out by Fichter formtec GmbH
- setup and start of operation carried out by Fichter formtec GmbH
- instruction approx. 2 hours on customer's premises
- production support approx. 1 hour on customer's premises

## Nonstandard models

- machine can be adjusted according to requirements
- integration of machine into entire machine complex
- edges on component parts can be beaded
- further alternatives possible

# Machine documents

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## Documentation

- user and maintenance manuals
- lists of parts, spare parts and working parts
- electric diagram
- specimens: 1 x paper, 1 x CD; language: German or English
- production drawings of parts and source codes of software are not included
- transfer of documentation after starting of machine

## Hazard analysis, CE mark

- hazard analysis is carried out and documented
- machine / unit delivered with CE mark

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Fichter formtec GmbH  
Bruckmatten 6  
DE-79356 Eichstetten

Vertretungsberechtigte:  
Florian Eckerle + Pascal Spöri

Tel.: +49 7663/914397-0  
Email: [info@fichter-formtec.de](mailto:info@fichter-formtec.de)