

Rotary swaging machine RK25CNC

The rotary swaging machine RK25CNC is used for the reduction and calibration of pipe sections and sleeves.

- $\varnothing 3 - \varnothing 25$ mm compressible
- up to $\varnothing 1$ mm wall thickness machinable
- repeat accuracy 0.03 mm
- moulding cycle approx. 3-8 sec.

Machine setup

The handling of the machine is very simple. The work piece is inserted into the opening, usually positioned with the help of a chuck or a gripper, which assures that it does not move while the jaws move in stages axially towards the work piece. After each pressing process, the jaws are turned by 360° (number of dies $\times 2$). This way they receive a completely round form according to the given die diameter.

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.

Basic machine

- basic module for the reception of all functional components consists of:
- base panel with vertical assembly block
- drive system: 2 servomotors with toothed belt discs/toothed belt (2 CNC axes)
- recirculating ball screw with screw nut and double thrust bearings, adaption to shaft guide of cone ring for infeed of tools
- main ball screw mounted free of play by means of spring system for reception of tool holding disc
- includes protection cover with gas spring, handle and security sensor
- swaging head can be equipped with 6/8/12 dies
- servo drive enables exact control over driving parts

Positioning unit: chuck or gripper

- manually with longitudinal slide to admit straining module. Driven by crank and trapezoidal thread spindle TR24x5. Positioning with help of counting module.
- motor-driven with longitudinal slide to admit straining module. Driven by servomotor and trapezoidal thread spindle TR24x5.

Chuck module

- draw tube with chuck reception and end cone fitted on positioning unit
- a standard chuck is used for the straining of the work piece
- chuck geometry is adjustable to work piece
- position of component part in chuck can be adjusted with the help of a stopper
- stopper available with parts sensor
- chucking power adjustable by motor current

Protection measures

- protection door at front of swaging head; easy insertion of parts guaranteed
- front protection also available with light grid
- includes protection cover with gas spring, handle and security sensor over drive system
- emergency stop immediately stops all movements

Control system

- VIPA Speed7 SPS with user panel Siemens TP700 comfort
- parameterisation and user software installed
- process parameter for all three grooves per data set can be freely parameterised
- 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

Manual positioning

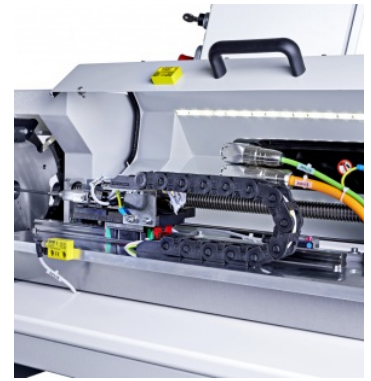
- swaging tool is opened; chuck in position for insertion
- component part is inserted manually into chuck/gripper
- position of component part is registered by sensor, chuck/gripper closes
- close protective door or take hands out of light grid
- swaging jaws move into pre-defined position and open; swaging tools turn by 360° (number of jaws x2)
- swaging process is repeated depending on program, until final diameter is achieved
- chuck/gripper opens automatically
- component part can be taken out of machine
- swaging time depending on diameter 4 - 10 sec.



Roll-forming can be surveyed with the help of an additional force-displacement-monitor. Error message when NOK. Machine restarts after acknowledgement.

Motor-driven positioning

- swaging tool is opened; chuck in position for insertion
- component part is inserted manually into chuck/gripper
- position of component part is registered by sensor, chuck/gripper closes
- close protective door or take hands out of light grid
- swaging jaws move into pre-defined position and open; swaging tools turn by 360° (number of jaws x2)
- elongation between processes can be compensated through positioning of chuck/gripper
- swaging process is repeated depending on program, until final diameter is achieved
- chuck moves back to foremost position and opens automatically
- component part can be taken out of machine
- swaging time depending on diameter 4 - 10 sec.



Roll-forming can be surveyed with the help of an additional force-displacement-monitor. Error message when NOK. Machine restarts after acknowledgement.

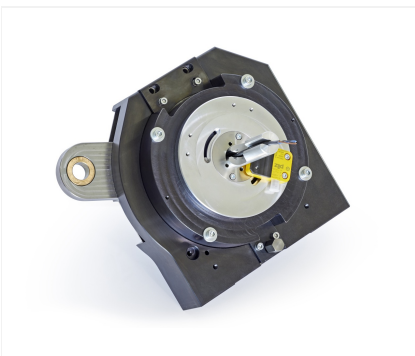
Handheld barcode scanner

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



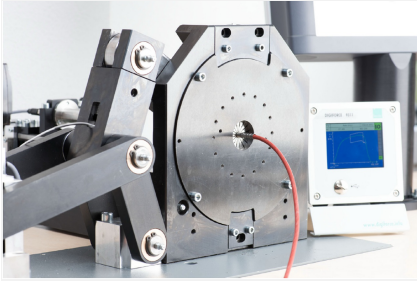
Product specific insertion aid

- 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
- plus travel expenses

Nonstandard models

- machine can be adjusted according to requirements
- integration of machine into entire machine complex possible
- cutting-off of component parts with circular knives (replace roll-forming rollers)
- further alternatives possible

Machine documents

Documentation

- user and maintenance manuals
- lists of parts, spare parts and working parts (item number + name + photo)
- 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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