TITGEMEYER

Tools for blind rivets / Hydropneumatic

TC60-H

Riveting tool with riveting process monitoring capability, for setting blind rivets from 4 to 6.4 mm in diameter. Integrated patented TIOS Control (TC) riveting process control system.

Benefits at a glance
– Evaluation results generated directly, in real-time, inside the device.
– High pulling force.
– Large working stroke.
– Intended for use with both standard and high strength blind rivets.
– Low noise and vibration levels.
– Simple operation and high reliability.
– Compressed air supply connection at the rear of the device, allowing easy operation by both left and right-handed operators.
– Removable mandrel collector.
– Pressure reducing valve.
– Pressure sensor mounted on nose cap prevents tool operation if the nose cap is not in contact with the application material.
– Optional accessories:
    – Perpendicularity detector
    – Remote-control operation

The TC System can recognize…
– The absence of a rivet
– A rivet not matching the specifications
– A damaged or defective rivet
– The absence of joined materials
– A change in quality of holes for rivets
– A poor seating of the rivet in the material
– A poor seating of the materials to be joined
– Damage or malfunction of the riveting device

Related product: K-PI control unit
– This unit ensures control and monitoring with the help of TC60-H, it also enables diagnostics of the tool and its setting itself. The device can be operated both independently and in connection with another superior control system.

Working range

Rivet Ø [mm]	4.0	4.8/5.0	6.0	6.4	6.4 High strength
Aluminium, brass	•	•	•	•	•
Steel	•	•	•	•	•
Stainless steel	•	•	•	•	

Technical specifications

Weight:	3,70 kg
Dimensions:	350 x 386 x 126 mm
Blind rivet diameter:	4,0 – 6,4 mm, max. mandrel Ø 4 mm
Pulling force:	18,1 kN / 6 bar
Stroke:	25 mm
Rivet cycle:	1,0 s
Air consumption for 1 rivet:	5,6 l [ANR]
Power voltage:	24 V
Communication protocol (Tools/K-PI):	Modbus RTU
Operating pressure:	6,0 bar
Air supply connection:	6 mm (G 1/4")
Hydraulic oil standard:	ISO VG 32, HLP (DIN 51524-2)
Hydraulic oil example:	OH-HM 32
Lubricant standard:	ISO XCCHB-2
Lubricant example:	LV2EP
Noise level:	89,0 dB (A)
Uncertainty for sound power level (KWA):	3,0 dB (A)
Emission sound pressure level (LpA):	83,0 dB (A)
Uncertainty for sound pressure level (KpA):	3,0 dB (A)
Vibration level, when installing a 6.4mm steel lockbolt:	3.2 m/s^2
Vibration level, uncertainty:	1.1 m/s^2

The noise and vibration values have been measured using a standardised measurement method and can be used to compare the tools with each other. The values are also suitable for a preliminary estimate of the effect. The figures shown represent the use of the tool on a 6.4mm steel lockbolt. Readings may vary when used in other applications, with other rivets or other settings. This may significantly increase the effect over the entire working time. For an accurate estimate of the effect, it is also necessary to take into account the time when the tool is switched off or when it is running but not in use. This can significantly reduce the exposure during the whole working time.

Scope of delivery
– TC60-H rivet installation tool
    Engineering part number: 99-0126:H
    ERP System material code: 431620004
– 6.4mm nose piece
– Oil refill set.

Additional items required to complete this tooling system
– KP-I Control unit
    Engineering part number: 99-0212
    ERP System material code: 431627000
– Pneumatic hose / data cable assembly
    Engineering part number: 87-0860
    ERP System material code: 431628000

Perpendicularity detector option
To ensure rivet is perpendicular to application material before the riveting cycle starts.

Compact sensor design
Complete quality control while keeping the design small and light.

Nose cap mounted pressure sensor
Triggering can be prevented if the nose cap is not in contact with the application material.

Robust construction
Suitable for industrial use.

Electric trigger button

Rear mounted compressed air and electrical supply connections
Allows easy operations by both left and right-handed operators.

TC system and SanAssist

TC riveting tools are fitted with several types of sensors. Thanks to these sensors, the quality of the riveted joint can be monitored. This function enables the integration of tools into controlled complex production lines. This also results in higher production efficiency and higher quality of the resulting products.

The Quality Control System performs quality control on the riveted joint, based on pre-set control parameters. The basis is two measured quantities – the force and stroke needed to deform the rivet. The combination of these two quantities, sensed in real time, creates a graph. The shape of this graph varies for different types of riveted joints, and so from this shape, it is possible to determine deviations from specification, their cause, and consequences. The results of this analysis are displayed as an OK or NOK signal. On their basis, further production activity can be stopped, or the complete measured data, including the evaluation, can be captured, and stored as a quality record.

To easily monitor the evaluation results of tools fitted with TC process monitoring capability, the SanAssist application has been developed, which is used for monitoring and configuring TC type riveting tools. This is a PC based application.

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