Process-Controller HPP-25

- *Riveting process monitoring*
- *6 different control parameters*
- *Touchscreen operation*
- *Windows diagnostics software*

BalTec

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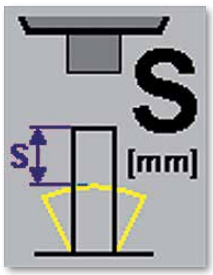
Process-Controller HPP-25

Riveting process monitoring

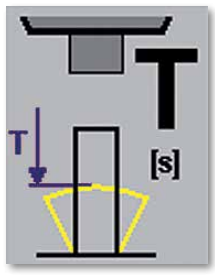
- The central and unique function of the HPP-25 process controller is exact rivet recognition. This function recognizes the start of the rivet without the need for pressure or speed reduction during the riveting process – prior sensing is not necessary.
- The process controller employs 6 different control parameters (39 riveting modes) depending on requirements.

The 6 available control parameters

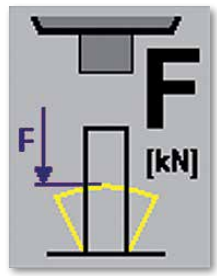
Riveting ends when the following conditions are achieved:



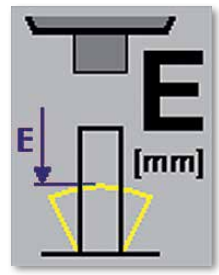
Forming distance



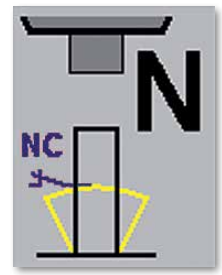
Riveting time



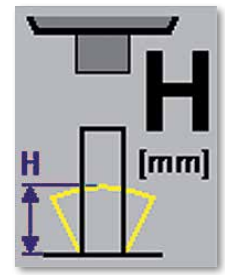
Riveting force



Spindle distance

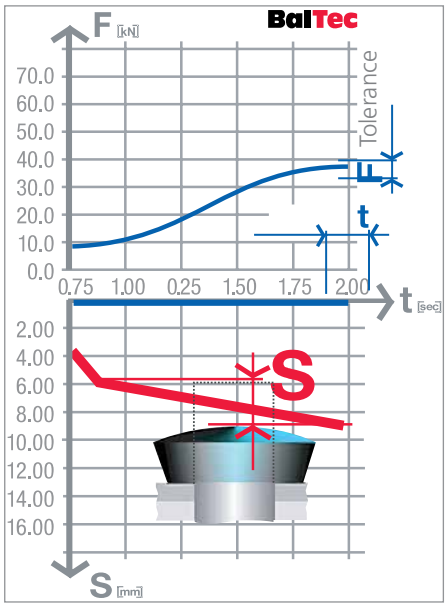


External contact



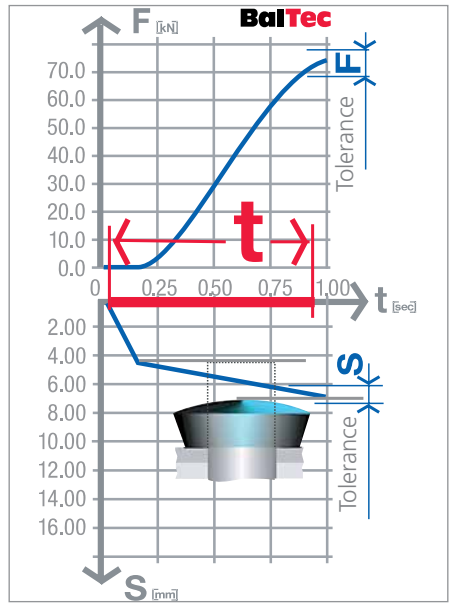
Rivet head height

Distance-controlled riveting/forming



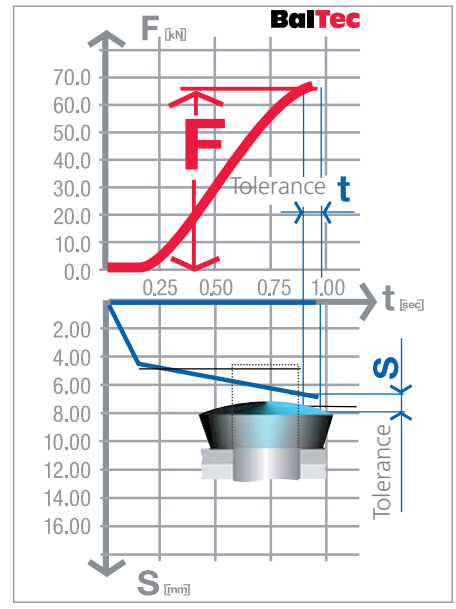
Time and force are recorded as quality control parameters for every riveting process and compared to the specified tolerance.

Time-controlled riveting/forming



Distance and force are recorded as quality control parameters for every riveting process and compared to the specified tolerance.

Force-controlled riveting/forming



Distance and time are recorded as quality control parameters for every riveting process and compared to the specified tolerance.

Special riveting mode functions

- Manual force trigger for rivet start recognition
- Rivet start recognition via external signal (e.g. laser)
- Shape factor for correcting head shape or machine frame warping
- Auto-compensation

Setup operating mode

Correction mode

Cycle mode

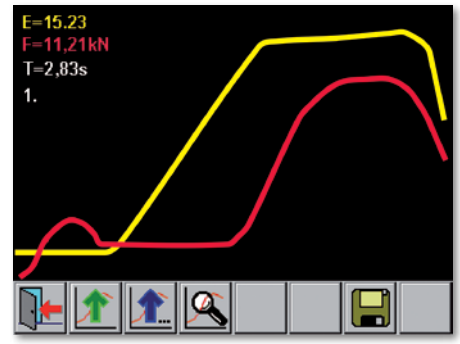
Operator-friendly HMI – the complete view of the riveting process – nothing escapes the attention of the operator

The operating functions

Operated via 5.7" color touchscreen

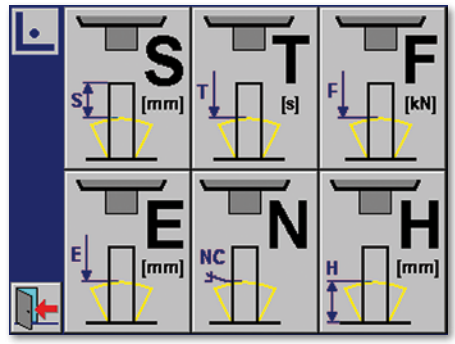
- 63 riveting programs can be addressed
- Displays target and actual values
- OK, NOK rivet counter
- 2 preset batch counters
- Integrated data loggger for recording process data
- Riveting data can be visualized as curves
- Integrated diagnostic assistance for sensors and input/output
- Backup options for logger data, riveting curves and alarm history
- Upload/download of parameters and riveting programs

Logger

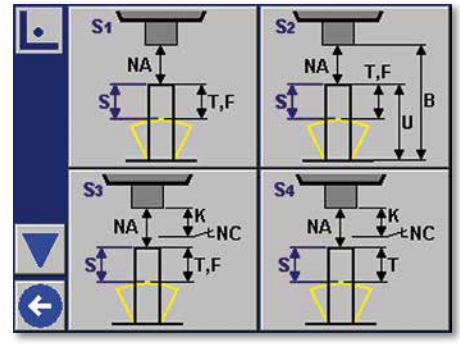


Riveting curves

Home

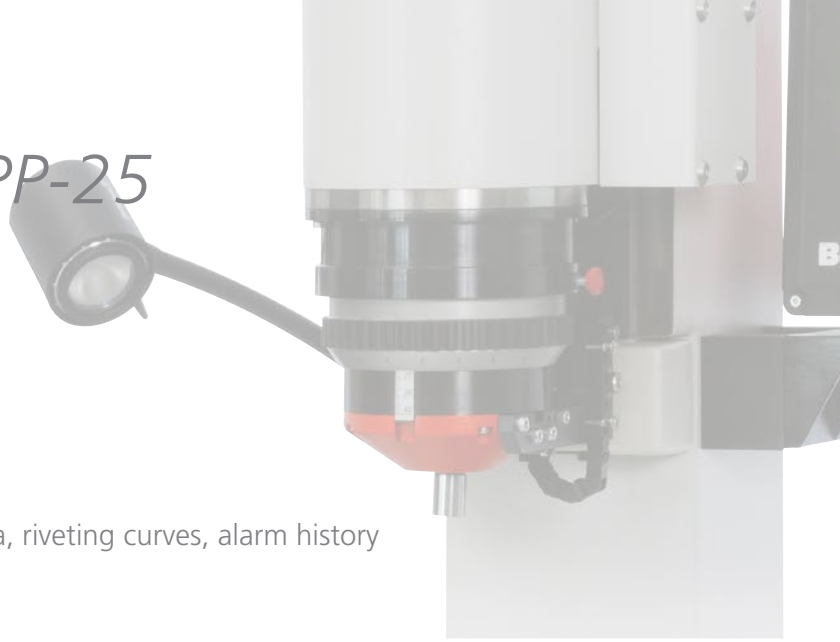


Riveting mode selection



S-mode selection

Process-Controller HPP-25



Interfaces

Front panel

USB interface for:

- Saving parameters, riveting programs, logger data, riveting curves, alarm history
- Loading parameters, riveting programs

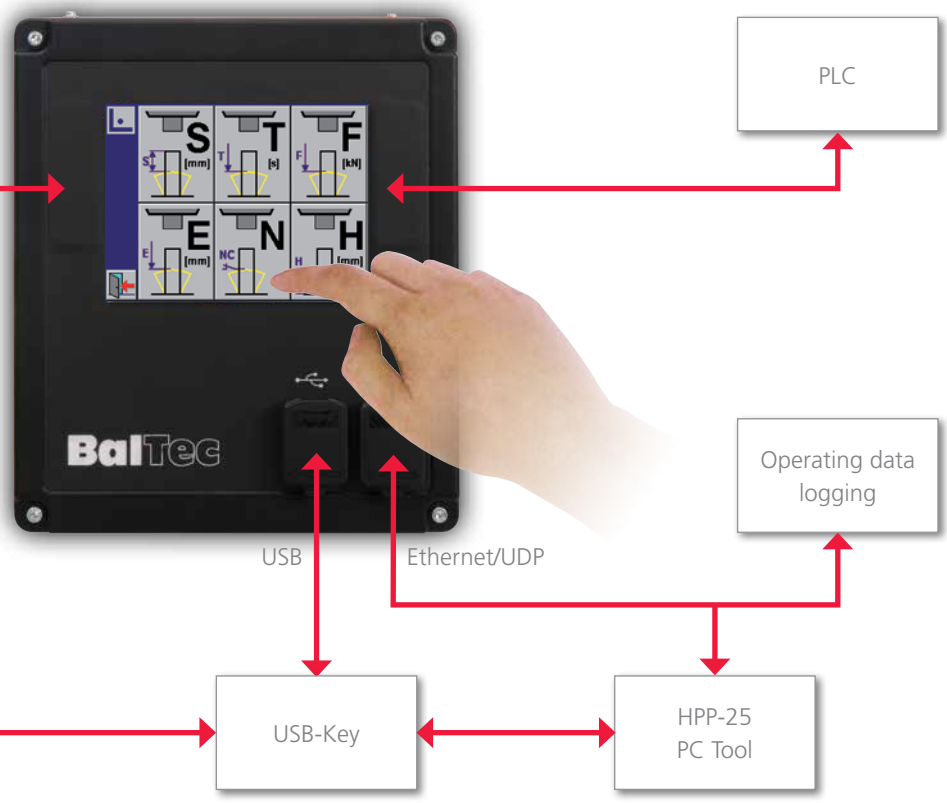
Rear panel

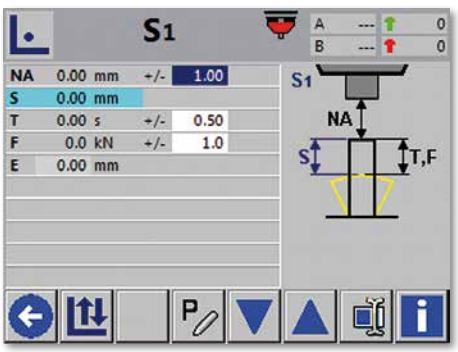
- Sockets for power supply, motors, valves, sensors/actuators
- Sockets for digital inputs/outputs to PLC

Ethernet interface for:

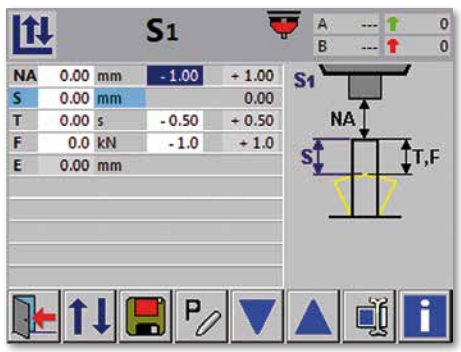
- Connecting to HPP-25 PC tool
- Connecting to operating data logger via UDP protocol

Riveting machine

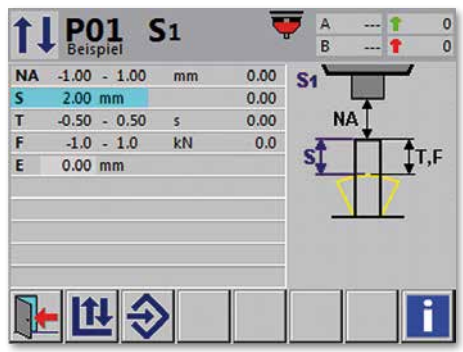




S-mode setup



S-mode correction



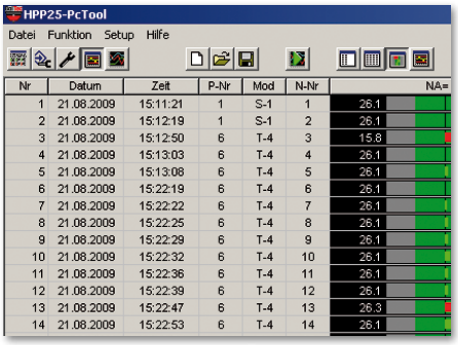
S-mode cycle

HPP-25 PC Tool

PC software with backup, diagnostics and logger functions.
Connection via Ethernet interface or importing saved HPP-25 data.

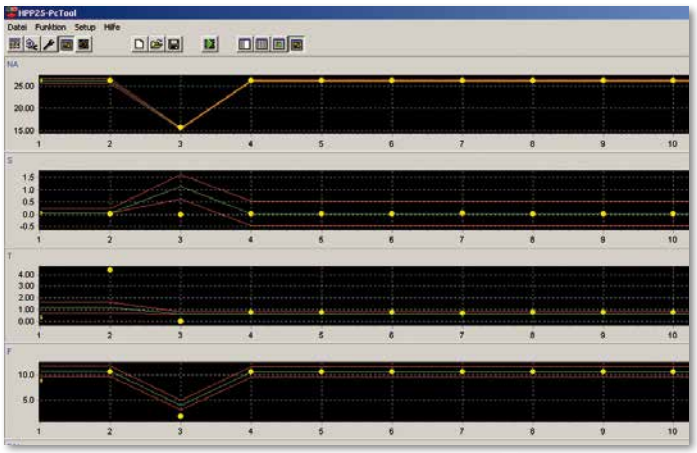
Functions

- Online diagnosis of sensors, inputs/outputs
- Upload/download of parameters and riveting programs
- Displays HPP-25 parameter and alarm history files
- Riveting result logger functions including table and graphical visualization
- Online riveting curve visualization with saving option



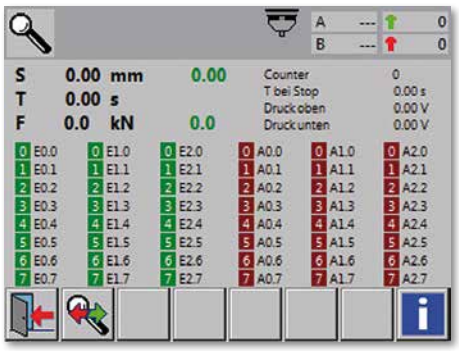
Logger

Up-/Download

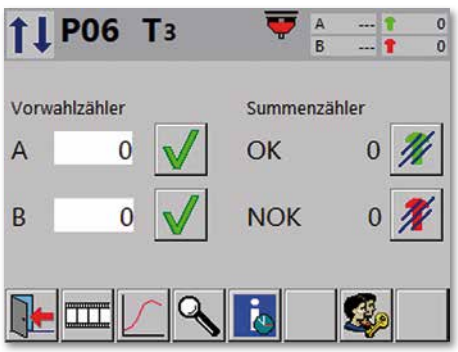


Logger

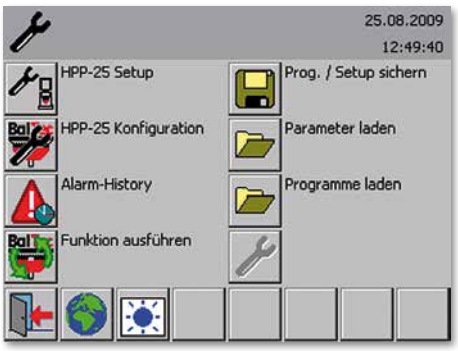
Riveting curves



Diagnostics



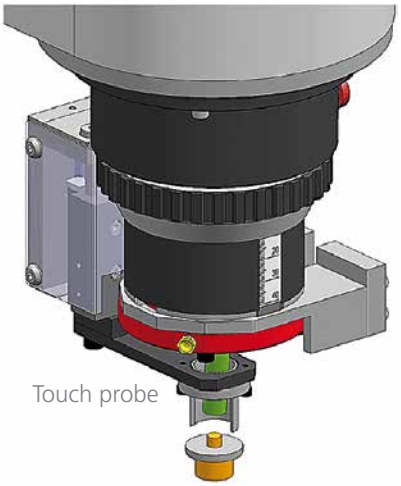
Info



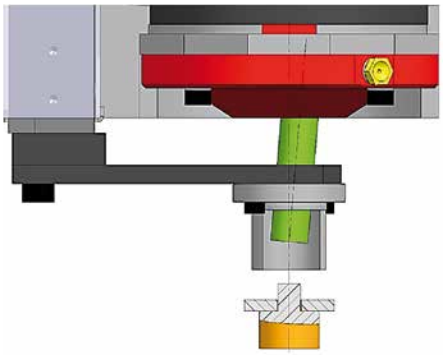
Setup

Riveting Projection Measurement – NHE, Riveting Stroke Limit Switch Unit

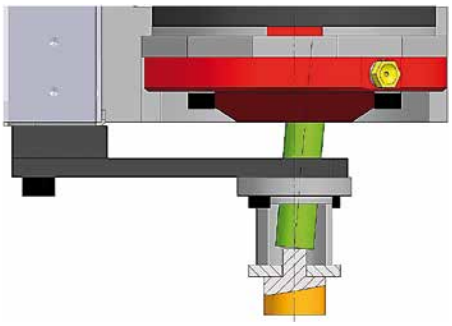
With the NHE, depending on the equipment, the presence and position of the parts as well as the riveting projection can be verified. This prevents assemblies with tolerance errors or missing components from being processed. The HPP-25 hence takes charge of the testing before or after the riveting allowing for cost savings by not requiring additional measuring stations.



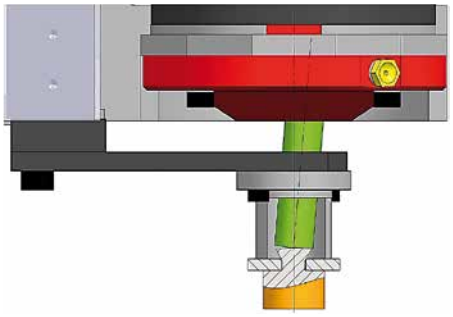
NHE



Machine in home position



Touch probe on work piece – measuring sensor NHE retracted



End of riveting (rivet formed)

Additional functions of the NHE which can be realized with the HPP-25:

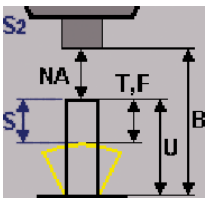
- Auto-compensation of rivets with large length tolerances
- Riveting of rivet head height when different work piece-heights exist
- Controlling of rapid speed/working speed depending on base of rivet
- Rivet up without fixed stop

Versions of NHE:

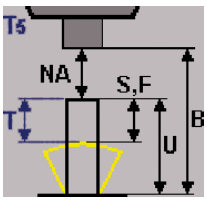
NHE-U: with My-Com switch – for riveting mode with projection measurement U, control parameter S or T

NHE-H: with magnetic field, for riveting mode with control parameter H (closing head hight)

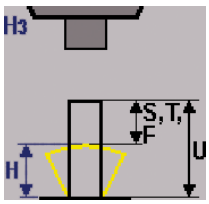
NHE-E: with My-Com switch and spindle, for example for riveting mode with control parameter N (riveting spindle path from OT till riveting end)



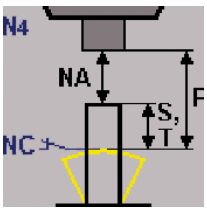
S2 mode



T5 mode



H3 mode



N4 mode

NHE-Combi: combination of NHE-U and NHE-H

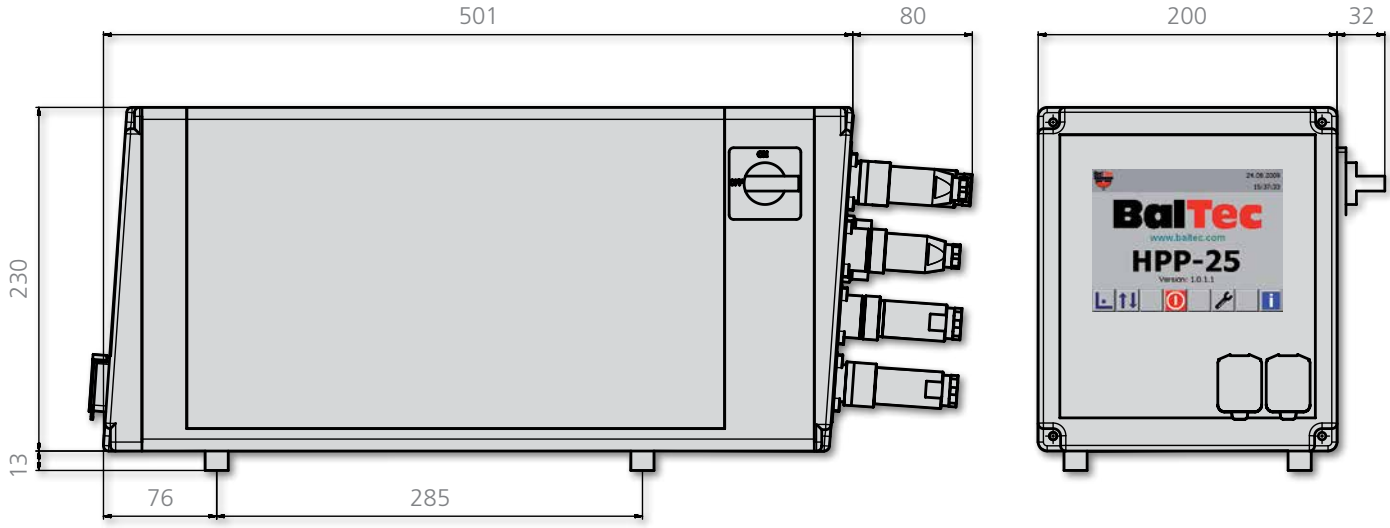
NHE-Big: For larger riveting applications, where higher forces of the pressure pads are necessary (possible for RN/RNE 331 and 481).

Process-Controller HPP-25

Technical specifications

Design:	sheet metal design with die cast front and rear panels
Degree of protection:	IP53
Cable entry:	all connections with plugs
Power supply:	three-phase 50/60 Hz
	L1, L2, L3 and PE plugs, all poles can be switched off with lockable main switch
Possible supply voltages:	1x 100–120 VAC
	1x 160–190 VAC
	3x 160–190 VAC
	1x 200–240 VAC
	3x 200–240 VAC
	3x 320–380 VAC
	3x 380–500 VAC
	3x 500–600 VAC
Internal supply voltage:	24 VDC +/– 2%, 4 A, can be utilized for customer-side loads
Control outputs:	24 VDC, pnp, (+switching), max. each 0.3 A
Valve outputs:	24 VDC, pnp, (+switching), max. each 0.3 A
Control inputs, initiators:	24 VDC, pnp, (+switched), 6 mA
Control inputs, general:	24 VDC, pnp, (+switched), 10 mA
Floating inputs:	24 VDC, min. 10 mA, max. 1 A (immediate stop, release, safety circuit)
Interfaces:	USB and Ethernet (UDP protocol)
Processor:	ARM 9
Operating system:	Windows CE
Display:	5.7" color touchscreen, LED backlight
Operating temperature:	0 °C to + 50 °C
Bearing temperature:	–10 °C to + 70 °C
Weight:	12 kg / 26.4 LBS

Dimension drawing



Subject to technical changes (dimensions in mm)

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