HOWMET AEROSPACE

Camloc///
Traditionally Innovative

Cam-Safe® Tooling

Cam-Safe®
POWER TOOL GC-PT-1

Camloc///

Cam-Safe® Grounding Connection Range

The Camloc Cam-Safe Grounding Connection is a unique system-based approach to provide solutions for electro-risk applications, suitable for many industries including transportation, renewable energy and more. The system-based approach focuses on complete quality process by offering full process management, traceability and archiving from start to finish to reduce the risk of failure. The specially adapted intelligent tooling, a vast improvement on traditional installation methods currently available on the market, makes the installation quick and easy, and provides a true quality documentation feature.

The system comprises of:

- Grounding Studs
- Grounding Nuts
- Intelligent Installation Tooling
- Repair Solution
- Supporting Accessories

Designed 'from scratch' to make the process as simple, easy, and as safe as possible, the Camloc Cam-Safe Grounding Connection system redefines the industry standard for safety critical electrical grounding. Patent pending.

Cam-Safe Tooling

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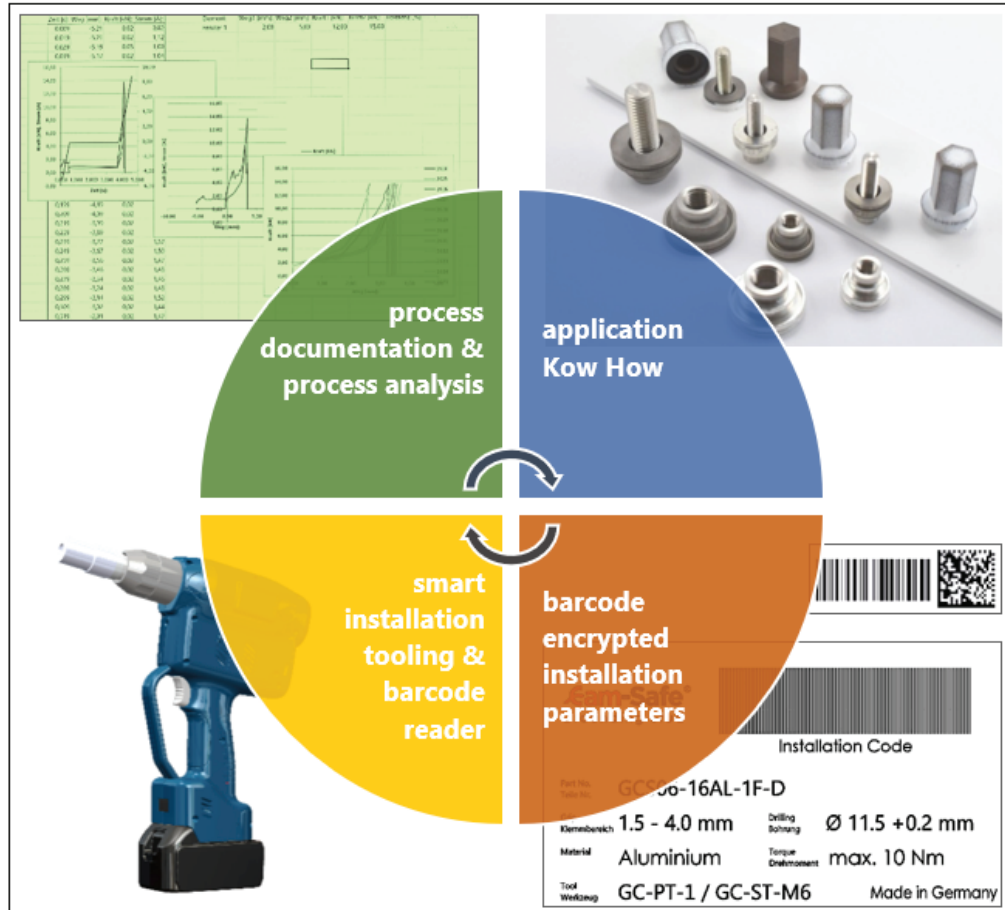
Contents

Power Tool   **4**
Nose pieces   **9**
Tool Case   **10**
Batteries   **10**
Charging Stations   **11**
Repair Tool   **13**
Drill   **14**
Limit Plug Gauge   **14**
Tool Balancer   **15**
Other Accessories   **15**

The intelligent battery powered Camloc® Cam-Safe® Grounding Connection Installation Tool - Your powered tool for a safe installation process!

Nose piece
Every connector type has an individual nosepiece. Quick and easy to change nosepieces.

Powerful LED
Optimum lighting even in poor light conditions.

Trigger
Press to start the installation process.

Optional Barcode-Scanner
Using the optional barcode scanner, components and /or assemblies can be assigned to the results data. Furthermore, by using the barcode scanner, a program saved in the tool can be activated and processed. The program called up contains the number of studs / nuts and the process parameters, force / stroke and time of the installation process.

Battery
Due to the Li-Ion battery, the power tool achieves even longer and more optimised standby times.

Configuration and process data will be saved directly in the tools memory.

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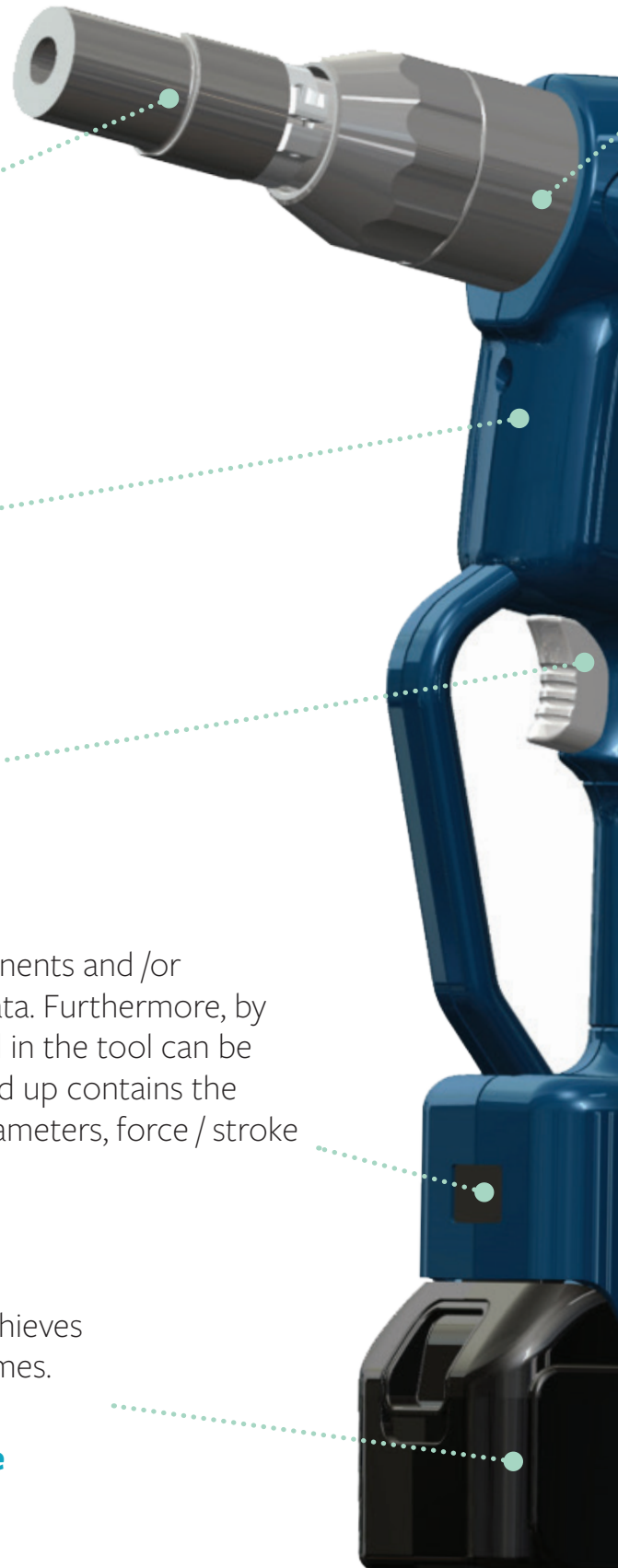
Integrated Force Sensor

Precision spindle

For fast setting processes.

OLED Display

The tool is equipped with an OLED Display for displaying the status. This makes the operators work easier and provides information such as the status of the process and control (results / battery status / active programme / error notification).

Ok / not-OK evaluation.

Multi-language setting available.

Brushless high-powered motor

For a faster, more powerful installation that's also maintenance free.

Ergonomic handle

Ensures a safe, easy and smooth installation..

Optional WiFi

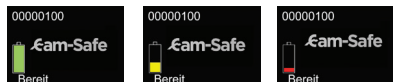To connect with your ERP System.
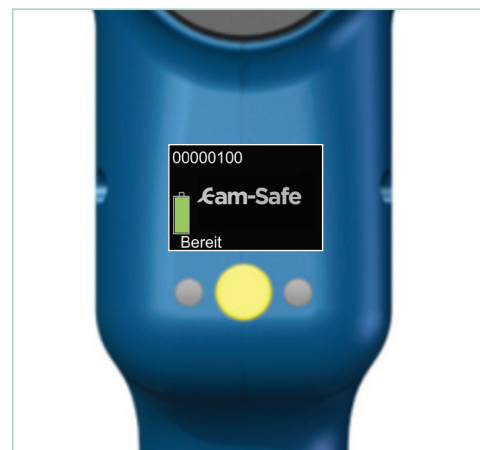
USB port on base

The tool can be set up or adjusted with the Tool Manager software. Process and quality control possible.

5

Power Tool Features

Multicolor LED control light

Can be individually programmed.

Intelligent battery management

Battery level indicator and effective protection against the Li-Ion battery deep de-charging.

Software HST-Tool-Manager

Intuitive and quick programming of HS-Technik power tool.

Handle vibration alarm

Not-OK status.

OLED Display

Visualisation of setting results and tool status.

Job / Sequence

Allows for sequences to be processed without additional controller.

Optional barcode reader integrated into the tool

Barcodes with up to 64 characters can be read and processed.

Optional Wi-Fi for data transmission

Connection to HST Controller.

Force sensor

Force sensor, precision class $\leq$ 0.5 %, guarantees continuous documentation of the setting process with a force stroke curve.

Recovery (counter memory function)

Status memory for the rivet counter when changing the battery.

03 / 05

Power Tool Configurations

GC-PT-1*
• One base tool for all stud and nut sizes
• Quick change of nose pieces•
• Integrated sensor for in-process Force measurement
• Predefined installation parameters for various installation environments
• Installation feedback via display and/or vibration (OK / not-OK)
• Language setting display (DE / EN)

| CONFIGURATIONS			
A	**B**	**C**	**D**
In connection with the tool manager customer access: • Setting of maintenance intervals • Basic display settings	In connection with the tool manager: • Reading of installation curves for quality documentation • Evaluation of the installations • Assignment of each installation to the installation date and time • Documentation of the installation via Tool Manager (force/stroke curve)		
Program selection via **tool display**		Program selection via **Barcode scanner**	Program specification via **Wi-Fi** (controller required)
		Customer-specific modification of the installation parameters	
		Several barcodes can be read one after the other, e.g. to assign the installations to the work orders	Specification and control of the installations by the customer's MRP system
			Wi-Fi module and controller for superior control and integration into the customer's MRP system

Nosepieces, Tool Case, Battery and Battery Charger need to be ordered separately.

All parts are compatible with each other.

Upgrade of tool-configuration A to B, C or D is possible.

Power Tool Configurations

Weight (kg)	Dimensions	Description
2.1	230 x 66.5 x 259 mm	Without battery and nosepiece
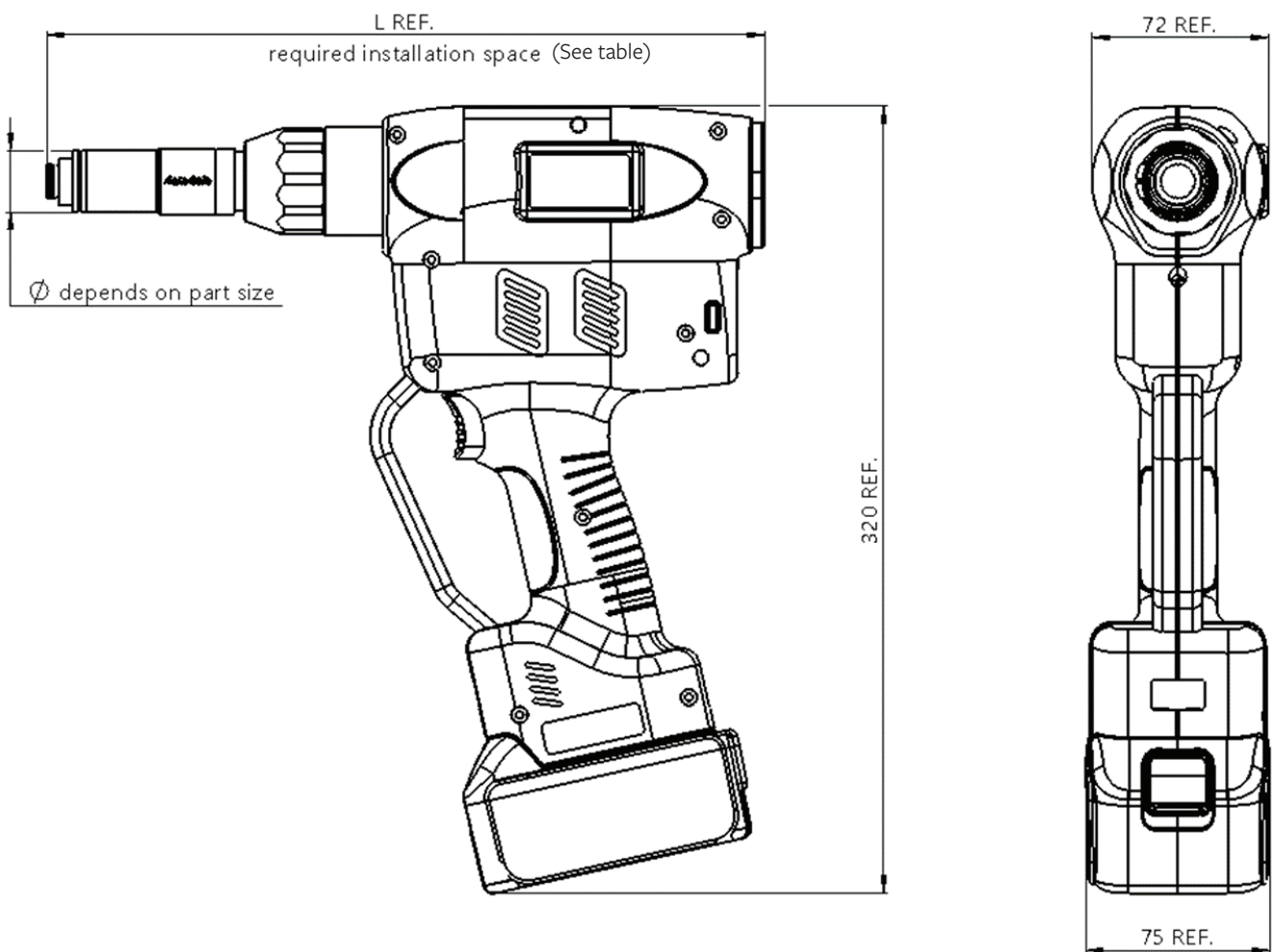
The tool and dimensions shown above, includes the medium sized battery (recommended).
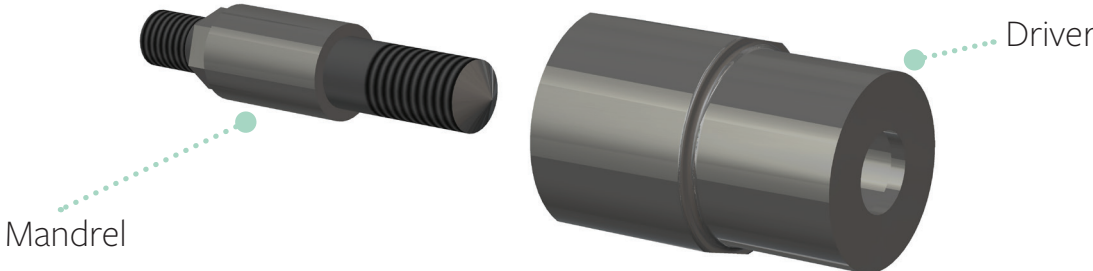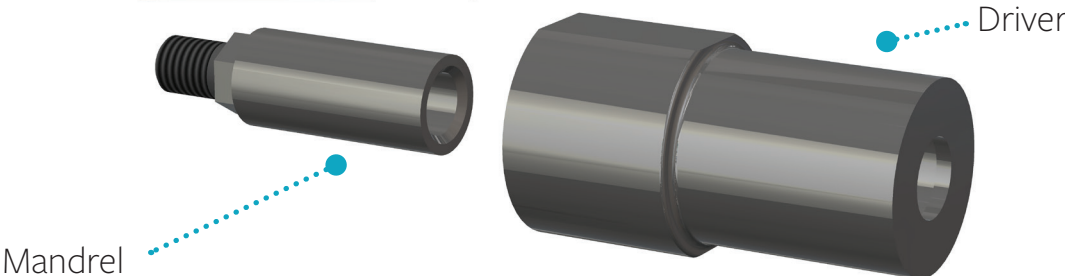
The dimension L is defined on the following page.

Nosepieces

Our nosepieces consist of two parts: Driver and Mandrel.

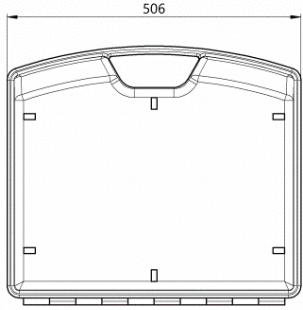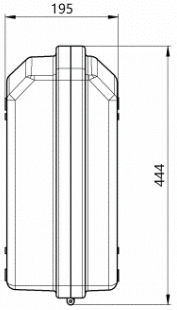Each connector size and type have an individual nosepiece.

The following table can help you to select the right nosepiece:

Nosepiece for Nut			
Part number	**Part number GCN**	***L (mm) required installation space**	**Ø**
GC- NT-M6	GCN06-**-1*-*		16
GC- NT-M8	GCN08-**-1*-*	Min. 290	20
GC- NT-M10	GCN10-**-1*-*		25

Driver

Mandrel

Nosepiece for Stud			
Part number	**Part number GCS**	**L (mm) required installation space**	**Ø**
GC- ST-M6	GCS06-****-1*-*	Min. 285	16
GC- ST-M8	GCS08-****-1*-*	Min. 290	20
GC- ST-M10	GCS10-****-1*-*	Min. 295	15

Driver

Mandrel

The nosepieces must be ordered separately to the power tool.

Tool Case

Part number	Description
GC-PT-TC	

Batteries

Li-Ion power tool batteries.

Select the right battery size according to your requirments.

Part number	**	Voltage	Capacity	Approx. installation cycles (size M6)	Weight (g)
HST-PR-18**	25	18 V	2,5 Ah	450	350
	50		5,0 Ah	850	600

Small
HST-PR-1825

Medium
HST-PR-1850

Charging Stations

4-bay-charger-station cube form

MV3-04W for Li-Ion power tool batteries.

Standby function

- As soon as the last circuit board is in standby, the power supply unit will shut off completely

- Power consumption in standby mode is < 0.75 watts

- Standby can be programmed for each charging slot

- Each circuit board separately goes into energy saving mode when not in use
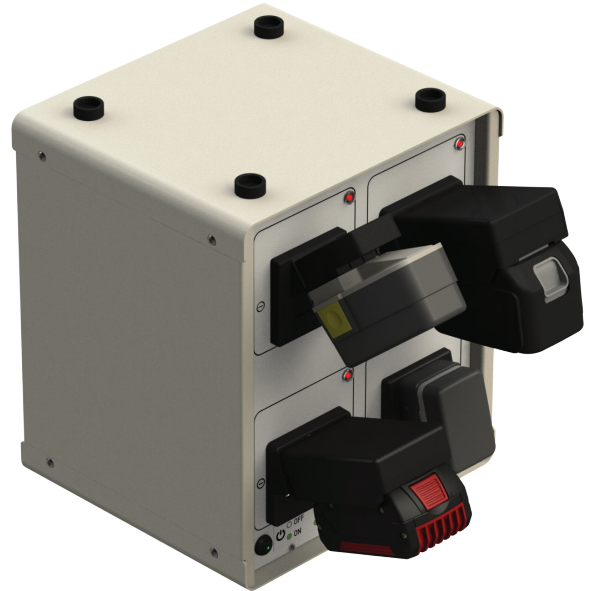
Part number	MV3-04W
Input	80 – 260 V AC, 47 – 63 Hz
Power output	Max. 824 W
Efficiency	> 89 %
Output	56 V / 624 VA
Power supply ventilator	≤ 45°C (off) ≥ 50°C (on)
Weight	MV3-04 row form approx. 7.6 Kg
Dimensions without battery adapters (W x H x D) in mm	MV3-04 (row form) 539 x 182 x 260 mm (incl. feet)
Tested	CE, EN55022B, EN61000-3-2,-3, EN61000-4-2, 3, 4, 5, 6, 8,11 EN60950

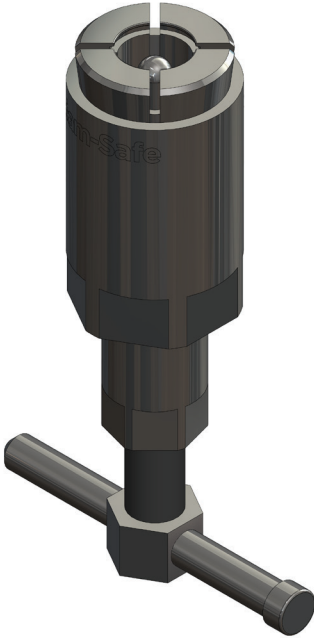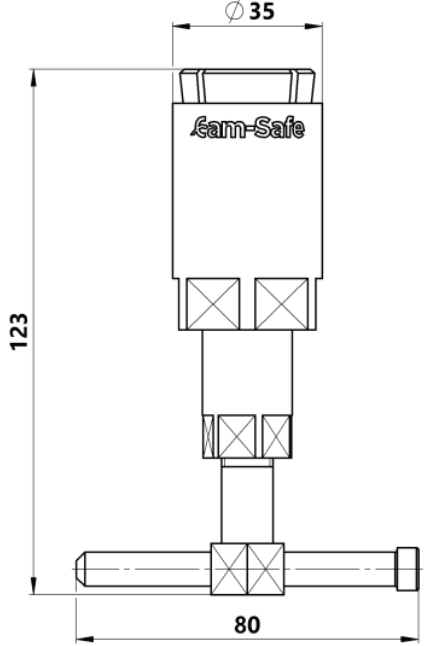# Charging Stations

Single Quick-Charge-Unit

- Battery defect detection
- Microprocessor-controlled charging:

  Charging time depends on the capacity of the battery
- No voltage conversion required:

  Battery voltage is detected automatically
- Reverse polarity protection

Part number	PR-2830	PR-2830-USA
Input	220 – 240 V AC, 50 – 60 Hz	110 V AC, 50 – 60 Hz
Charging current	3 A	3 A
Output	18 V	18 V
Charging time	max. 55 min for 2.5 Ah battery	max. 55 min for 2.5 Ah battery
Shut-off criteria	ΔU, temperature termination	ΔU, temperature termination
Weight	550 g	550 g
Dimensions (W x H x D) in mm	86 x 107 x 153	86 x 107 x 153

Repair System

The Camloc Cam-Safe repair system can be used for both connector types for the stud and nut. It offers a unique and effective repair solution to ensure a smooth operation to protect the environment and optimal joint integrity at any subsequent point of repair.

Part number	*	Description
GC-TR-M*	6	
	8	
	10	
GC-AB-M*	6	
	8	
	10	

Drill

If manual hole preparation is required, it is recommended to use specially developed drills to achieve good quality results with the required hole definition in Aluminum, Steel or Corrosion Resistant Steels.

Depending on the material specification and material thickness, it is recommended to pre-drill an index hole.

Part number	Used for GCN / GCS	Length (mm)	Diameter	Description
GC-HD-M6	GCN06-**-1*-* GCS06-****-1*-*	Total length 55 ref.; Shaft 25	Hole diameter: 11.5 $^{+0.2}$	Pre hole diameter > 5mm
GC-HD-M8	GCN08-**-1*-* GCS08-****-1*-*	Total length 65 ref.; Shaft 25	Hole diameter: 15.0 $^{+0.2}$	
GC-HD-M10	GCN10-**-1*-* GCS10-****-1*-*	Total length 75 ref.; Shaft 25	Hole diameter: 19.0 $^{+0.2}$	

Limit Plug Gauge

With the Camloc Cam-Safe limit plug gauge you can easily check the hole preparations according to the respective product specifications.

Part number	Used for GCN / GCS	Total length (mm)	Diameter	Description
GC-LG-M6	GCN06-**-1*-* GCS06-****-1*-*	105 ref.	Diameter: 11.5 $^{+0.2}$	
GC-LG-M8	GCN08-**-1*-* GCS08-****-1*-*	120 ref.	Diameter: 15.0 $^{+0.2}$	
GC-LG-M10	GCN10-**-1*-* GCS10-****-1*-*	140 ref.	Diameter: 19.0 $^{+0.2}$	

Tool Balancer

- Tools can be hung up effortlessly (floating)

- Precise work

- Protects tools against damage and soiling

- Allows rational work

- Carrying capacity of 0.5 to 70 kg*

- Cable pull out 1,300 mm

* For special variants, please contact us.

| Part number	Description
TSB-05 Carrying capacity of 2.5 to 5.0 kg Weight: 1.4 kg	

Other Accessories

Part number	Descriptions		
Controller	******		
BTC-O-** (**Selection of power lug)	EU	For higher-level control and integration into the customer ERP System - Weight: approx. 1.60 kg - Dimensions (L x B x H): 180 x 150 x 90 - Connection of 20 power tools possible	
	US		
	UK		
	AU		

For more information about Cam-Safe tooling accessories, please contact us.

Watch our videos to find out more about the Camloc Cam-Safe installation and repair process:
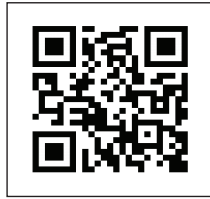
Scan for our repair video
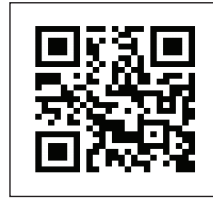
Scan for our installation video

Or request a data sheet or brochure.

Traditionally **Innovative**

The range of quick release fasteners, draw latches & solid inserts from Camloc brings together 75 years' worth of experience, traditional engineering skill and innovation, providing customers with effective, reliable and creative solutions for applications in electronics, industrial, transportation, aerospace and defence markets.

The Camloc range includes quarter-turn, push-turn and push-push fasteners for applications where quick and easy access is required on a regular basis such as electrical cabinets and machine guarding. Camloc quick release fasteners are captive meaning that the fasteners remain attached to the machine or the guarding when removed. Camloc draw latches provide an adjustable, high-performance method ideal for securing machine and equipment parts that must be opened or removed frequently.

Camloc Keenserts® are high strength, vibration resistant solid inserts for creating strong threads in weaker materials and repairing damaged threads. Make our engineers part of your team at the concept stage. Their unrivalled knowledge of advanced fastener function can make the impossible, possible. A standard fastener in our range may provide your answer. If not, we can produce a cost-effective, tailor-made solution.

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