

# Operating Manual

## Clamping force measuring system SKM(B) with hand-held display unit HDMB-2 / HDMS-2



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## General information

### Information about this manual

This manual contains important information on using the product safely and properly. It is an integral part of the product and must always be kept in its close vicinity and accessible to the staff at all times. The staff must carefully read and understand this manual before starting work. Working safely requires compliance with all the safety instructions and guidelines in this manual. The illustrations provide a basic understanding but might differ from the actual product design.

### Design and function

The modular BERG clamping force measuring system consists of a hand-held display unit (variant HDMB-2 or HDMS-2) and one or more precision measuring cartridges that are connected with the display unit with a strain gauge data transmission cable. It is suitable for static clamping force measurement at the tool interfaces SK, HSK and PSC as well as on BERG clamping heads, zero point clamping systems and Hydrodock clamping units.

The actual clamping force is determined by the factory-set and factory-calibrated force sensor system in the unit and then shown on the display. Depending on the model, the measurement data can also be transmitted to PCs with Windows operating system.

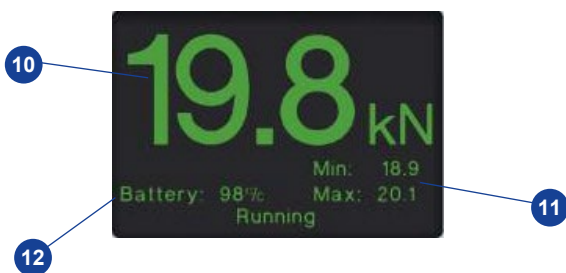
A USB port is used to recharge the integrated lithium-ion battery pack.



## Hand-held display unit HDMB-2 (basic version)



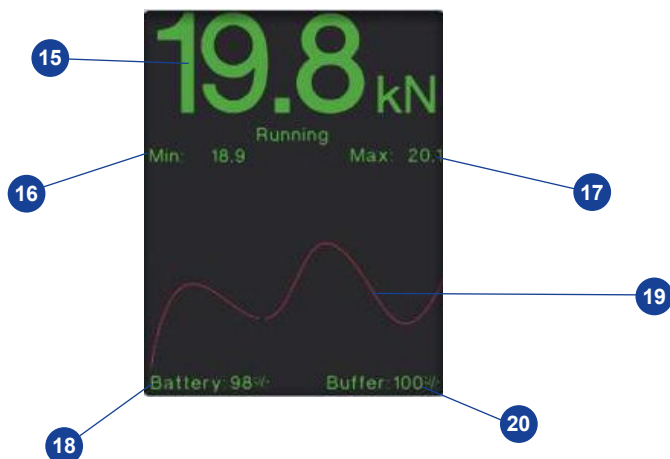
- 1 ON/OFF slide switch
- 2 Micro USB port charger
- 3 Display unit
- 4 Connection strain gauge data transmission cable
- 5 LED charging and USB status
- 6 LED charging and USB status
- 7 Calibration button
- 8 Toggle button unit N / lbf / kp or kN / lbf / Mp
- 9 not assigned
- 10 Clamping force value
- 11 Minimum/maximum value
- 12 Charging status battery pack



## Hand-held display unit HDMS-2 (comfort version)



- 1 ON/OFF slide switch
- 2 Micro USB port charger and PC
- 3 Display unit
- 4 Connection strain gauge data transmission cable
- 5 LED charging and USB status
- 6 LED charging and USB status
- 7 Calibration button
- 8 Navigate up
- 9 Navigate right
- 10 Navigate down
- 11 Navigate left
- 12 Return
- 13 Toggle button unit N / lbf / kp or kN / lbf / Mp
- 14 Menu/confirm button
- 15 Clamping force value
- 16 Minimum value
- 17 Maximum value
- 18 Charging status battery pack
- 19 Clamping force curve
- 20 Value caching

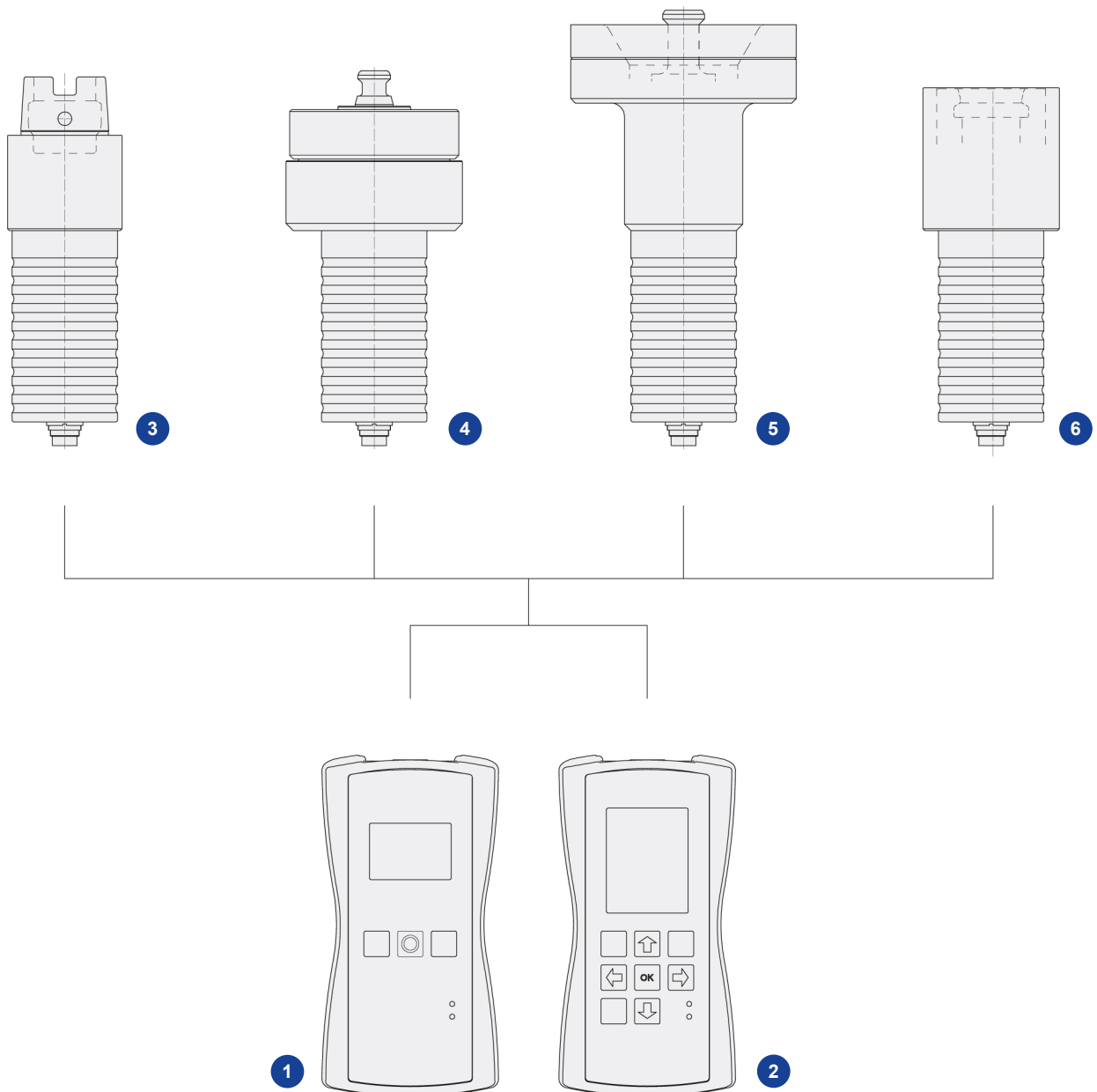


### **Delivery scope**

- Waterproof display unit including lithium-ion battery pack and micro USB connector
- Power supply, USB charging cable and USB-C adapter
- Strain gauge data transmission cable
- Interface-specific precision measuring cartridges
- Transport case
- Operating manual and test certificate
- Available options, if required: Precision measuring pull studs for SK and/or SPH measuring cartridges
- The comfort version also includes: USB data stick with PC software

### Cross-interface application (modularity)

By replacing the measuring cartridge, our clamping force measuring devices are universally applicable for various interfaces. Each measuring cartridge comes pre-programmed with a serial number, a name and the data for measuring range, overload and amplification factor. This ensures that no settings are needed when working with different measuring cartridges for different interfaces on the machine tool.



- 1** Display unit HDMB-2

**2** Display unit HDMS-2

**3** Measuring cartridges for clamping cartridges or tool clamping systems in machining spindles (type M-HSK, also available for standard interfaces PSC and SK)
- 4** Measuring cartridges for zero point clamping systems (type M-NSM-HV, M-NSM-PV)

**5** Measuring cartridges for clamping heads (type M-SPM-HV, M-SPH)

**6** Measuring cartridges for Hydrodock clamping units (type M-Hydrodock)

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## Technical data


### Hand-held display unit


Dimensions (L x W x D)	18.5 x 9.8 x 4.0 cm
Weight	330 g
Supply	Lithium-ion battery pack
Operating time with fully charged battery pack	approx. 6 hours
Nominal voltage	3.6 V
Charge capacity	2,600 mAh
Current consumption switched off	1.5 mA
Charger	Micro USB
Charging time	Depends on the charger selected
Protection type	IP 54


## Safety


### Safety and hazard warnings

Working safely requires compliance with all the safety instructions and guidelines in this manual. The warnings can be identified by symbols and are introduced by signal words that express the degree of danger.

	<b>DANGER</b>
	Imminent danger; probable consequences: Death or severe injury


	<b>WARNING</b>
	Warning of a hazardous situation; possible consequences: Death or severe injury


	<b>CAUTION</b>
	Calls attention to a hazardous situation; possible consequences: Moderate or minor injury

	<b>ATTENTION</b>
	Warning of a harmful situation; possible consequences: Damage to the product or surrounding equipment.

The warnings must absolutely be complied with to avoid accidents and damage to people or property. In addition to the instructions for use contained in this operating manual, also observe the statutory safety and accident prevention regulations. Prior to initial operation read the entire operating manual and pay particular attention to the safety information. Observe all safety and hazard warnings at the measuring system and keep them in legible condition at all times!

### Information on safety during operation


	<b>WARNING</b>
	The clamping force measuring device may only be used for aggregates at zero speed with switched-off drives, not for rotating axes or spindles.

	<b>WARNING</b>
	The device is optimised for precise measurements when running on battery power alone.
	<b>Restriction on use</b> It is strictly forbidden to use the measuring device to carry out measurements whilst it is charging.


	<p><b>Disclaimer of liability</b></p> <p>The manufacturer accepts no liability for incorrect measurements, damage to the device or accidents resulting from non-compliance with this restriction. Connecting the power supply during a measurement may cause electromagnetic interference to affect measurement accuracy or compromise the electrical safety of the entire system.</p> <p><b>Intended use</b></p> <p>The included power supply is intended exclusively for charging the internal battery whilst the device is in non-operating mode.</p>
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### Safety instructions for lithium-ion battery pack

BERG's clamping force measurement systems use lithium-ion battery packs. Use only micro USB chargers with tested safety. Never dismantle, open or crush battery packs. Do not expose the battery packs to fire or temperatures above 60 °C. Avoid exposing the battery packs to the cold. If the battery pack has been mechanically damaged, it may not be used any longer.

	<p><b>CAUTION</b></p>
	<p>In case of malfunctions, interrupt the charging process immediately. Unplug all plug connectors and set the ON/OFF slide switch to OFF.</p>

Burning lithium-ion battery packs constitute an incalculable risk, so they should be fought only by fire safety assistants based on the risk assessment, established measures and special operational circumstances (see item 1.2 under DGUV Information 205-023, "Fire safety assistants – training and ability").

	<p><b>INFORMATION</b></p>
	<p><b>Safe transport with batteries</b></p> <p>With the mechanical ON/OFF slide switch, the battery pack is completely separated from the measuring device. This is required for safe transport in an aircraft based on the valid regulations.</p>

### Intended use

The measuring device is intended for measuring the clamping force at interfaces in CE-compliant machine tools. It is intended exclusively for the purpose described in this manual and may only be operated within the indicated technical values. It must also be maintained at regular intervals (factory calibration service).

Only use the clamping force measuring device

- when it is in perfect technical condition,
- in compliance with the operating manual,
- for the intended use according to the product drawing and the description of the operating functions in this operating manual.

Any other or additional application is deemed as not in accordance with the intended use. The manufacturer/supplier accepts no liability for any resulting damage. The risk is borne solely by the user.

## Storage

When storing the clamping force measuring devices, the following points must be observed:

- Keep them secure, dry and free from dust (preferably in the original case)
- Do not expose them to any corrosive media
- Do not store outdoors
- Keep them away from sunlight
- Avoid mechanical vibrations
- Storage temperature: -20 °C to +70 °C
- Relative humidity: maximum 60 %
- Clean before re-storage

## Operating conditions

Temperature range for storage	-20 °C to +70 °C
Temperature range for operations	10 °C to +50 °C
Humidity for storage	20 % to 95 %, non-condensing
Humidity for operations	20 % to 95 %, non-condensing

## Operating requirements


Before using the clamping force measuring system, the following requirements must be met to be able to carry out a measurement safely and accurately:

- Only operate the clamping force measuring system when all protection devices and safety relevant equipment (such as detachable protection devices, proximity limit switches and emergency stop systems) are fitted and fully functioning.
- The clamping force measuring system is in perfect technical condition.
- The operator has read and will comply with the operating manual. It must be kept at the place of use of the clamping force measuring system at all times.
- The hand-held display unit's battery pack must be charged or grid operation must be ensured.
- Only fitting original BERG measuring cartridges may be used.
- The calibration of the measuring device may not be older than two years.
- Only authorised and instructed personnel may work on the clamping systems and perform the clamping force measurement.

- The clamping force measuring system and the measurement points must be clean and free from contamination (see Cleaning, p. 25).
- The strain gauge data transmission cable must be correctly inserted and screwed into the hand-held display unit and measuring cartridge.
- The measuring cartridge must be correctly inserted into the interface.
- The counter surfaces or plane surfaces on the machine must be clean and undamaged.

### Qualification of operating personnel

The clamping force measuring system has been built according to the state of the art and the approved technical safety rules. However, this does not rule out hazards for the user or third parties or impairment of the machine and other assets when used, unless it is employed in accordance with its intended use and the pertinent safety and hazard information while adhering to the contents of the operating manual.

	<b>ATTENTION</b>
	<p>Please ensure that only authorised and trained personnel work on the clamping devices. Refrain from any unsafe operating methods and practices. In case of doubt, always contact the responsible department/person.</p>

### Limitation of liability


All the information and details in this manual were compiled in consideration of applicable standards and guidelines, the state of the art and many years of knowledge and experience.


The manufacturer accepts no liability for damage caused by:


- Non-compliance with the operating manual
- Improper use
- Use by untrained personnel
- Unauthorised modification
- Technical modifications
- Use of unapproved spare parts

The actual scope of delivery can differ from the explanations and illustrations shown here because of custom designs, the use of additional ordering options or the newest technical changes.

The obligations agreed in the supply contract, the general terms and conditions of business as well as the manufacturer's terms of delivery and the statutory regulations that are valid when the contract is concluded will apply.

	<b>WARNING</b>
	<p>The clamping force measuring system may not be used with an interface or a clamping element for which it is not designed (specification according to the order drawing).</p>

	<b>WARNING</b>
	<ul style="list-style-type: none"><li>• In the event of unauthorised repairs and interventions of a technical nature that require dismantling and subsequent calibration or testing of the clamping force measuring unit, all warranties will become invalid.</li><li>• To maintain the warranty conditions, a regular inspection must be carried out at BERG every 24 months.</li></ul>

	<b>CAUTION</b>
	<p>Only BERG spare parts may be used during repair work. They ensure correct function and a long system service life. The manufacturer is not liable for any damage resulting from the use of parts and accessories other than the original.</p>

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## **Commissioning and application (“How to use”)**

The freely exchangeable measuring cartridges of the clamping force measuring units SKMB or SKM allow the clamping force to be measured at various machine interfaces:

- SK, HSK and PSC tool clamping systems in machining spindles
- Clamping heads on machine tables
- Zero point clamping systems on machine tables and devices
- Hydrodock clamping systems at spindle heads

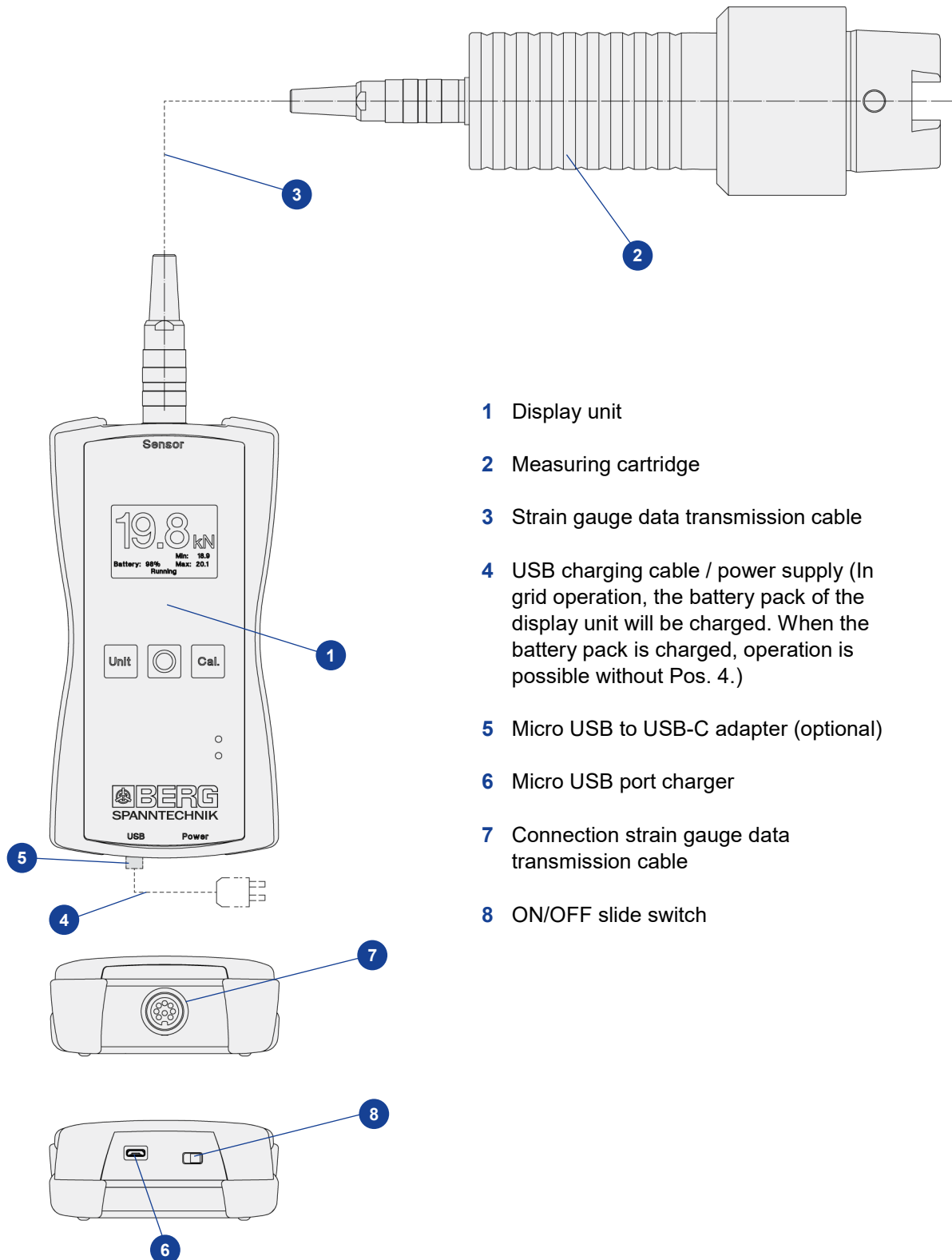
After the measuring cartridge and display unit are connected via the strain gauge data transmission cable and the device is switched on, the device will calibrate itself automatically and is ready for operation. The respective clamping system will retract the inserted or surface-mounted measuring cartridge. The actual clamping force will then be determined by the unit's factory-set and factory-calibrated force sensor system and shown directly on the hand-held display unit.

In the SKM variant, the measured clamping force will be stored internally (if the settings are adjusted accordingly) and can be transmitted to PCs with Windows operating systems using the software included in the delivery.

For the clamping force measurement at hydraulic BERG clamping heads of the SPH type, universal measuring cartridges with exchangeable pull studs are available for various clamping head sizes.

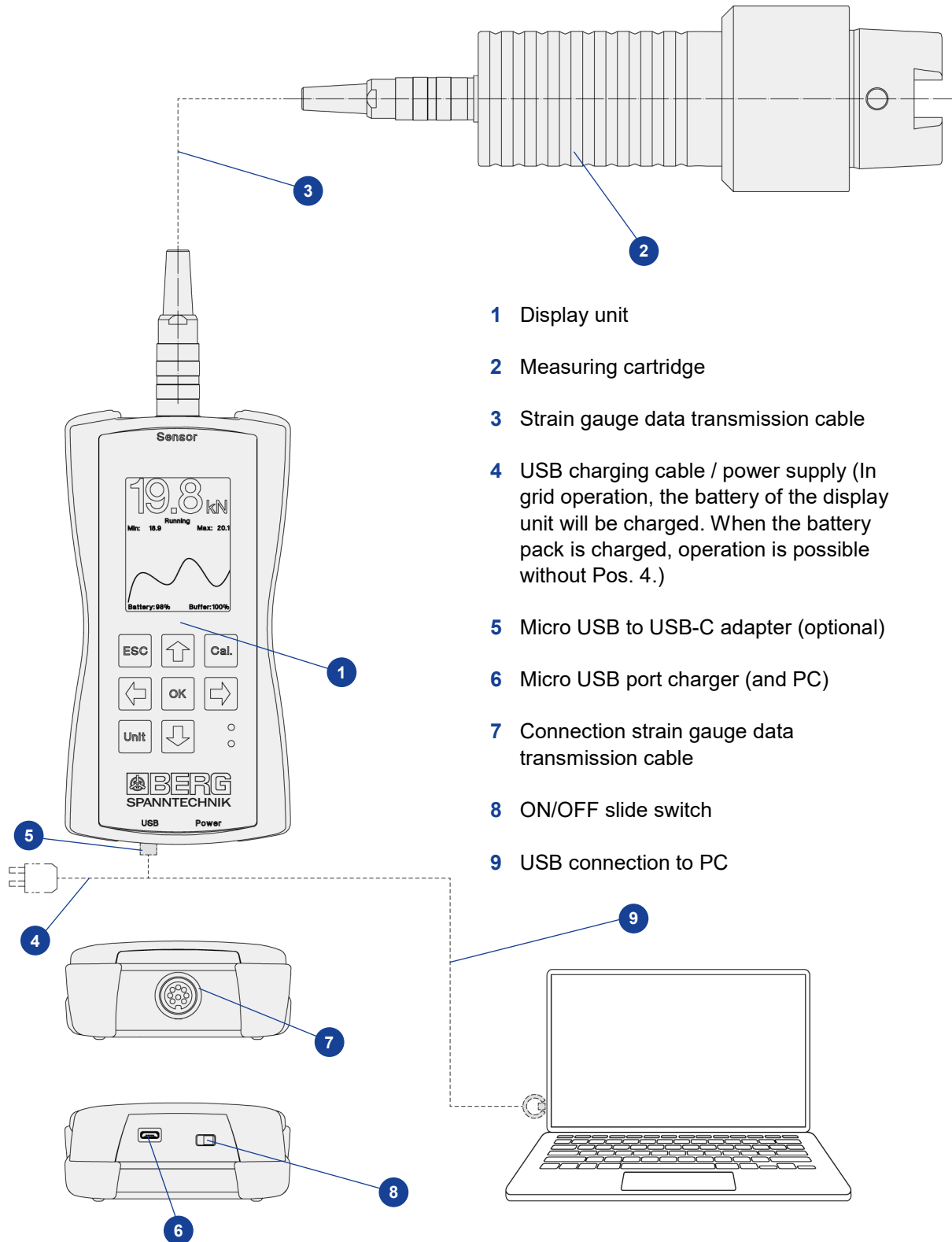
## Connection diagram

### Hand-held display unit HDMB-2



- 1 Display unit
- 2 Measuring cartridge
- 3 Strain gauge data transmission cable
- 4 USB charging cable / power supply (In grid operation, the battery pack of the display unit will be charged. When the battery pack is charged, operation is possible without Pos. 4.)
- 5 Micro USB to USB-C adapter (optional)
- 6 Micro USB port charger
- 7 Connection strain gauge data transmission cable
- 8 ON/OFF slide switch


## Hand-held display unit HDMS-2





- 1 Display unit
- 2 Measuring cartridge
- 3 Strain gauge data transmission cable
- 4 USB charging cable / power supply (In grid operation, the battery of the display unit will be charged. When the battery pack is charged, operation is possible without Pos. 4.)
- 5 Micro USB to USB-C adapter (optional)
- 6 Micro USB port charger (and PC)
- 7 Connection strain gauge data transmission cable
- 8 ON/OFF slide switch
- 9 USB connection to PC


## Clamping force measurement

### Safety-relevant information regarding clamping force measurement







	<b>CAUTION</b>
	<p><b>Risk of injury from rotating machine parts</b></p> <ul style="list-style-type: none"> <li>• Due to the danger of crushing, operation of the clamping force measuring unit is only permitted if the hazard zone is adequately protected by protection devices/guards.</li> <li>• The clamping force measuring device may only be used for aggregates at zero speed with switched-off drives, not for rotating axes or spindles.</li> <li>• No rotary motion may be initiated on the machine spindle during measurement.</li> </ul> <p><b>Danger of crushing or injury from falling measuring cartridges</b></p> <ul style="list-style-type: none"> <li>• After releasing the clamping system, the measuring cartridges will be freed immediately. So always hold the measuring cartridges firmly when releasing the tension.</li> </ul>







	<b>ATTENTION</b>
	<p><b>Inaccurate measurements due to tilting</b></p> <p>When measuring on clamping heads, the measuring cartridge must always be in straight and full contact with the cone to prevent tilting.</p>

	<b>ATTENTION</b>
	<p><b>Inaccurate measurements due to air circulation</b></p> <p>The cleaning/blowing air should be switched off to avoid incorrect clamping.</p>

	<b>INFORMATION</b>
	<p><b>Special features of clamping force measurement</b></p> <p>After the unit is switched on with the ON/OFF slide switch, the controller in the hand-held display unit automatically recognises the installed measuring cartridge and performs a zero calibration. No further adjustments by the operator are required.</p> <p>The display initially shows data in the smallest possible unit of Newton (N). It might even display negative numbers. During the first clamping operation, the hand-held display unit automatically converts to the most technically reasonable measurement unit (usually kN).</p> <p>The zero adjustment required for each new measuring device is performed automatically when the unit is switched on or manually by pressing a button (key 7). The display range of the unit is from 0.1 to 199.9 kN. The power units can be switched over to lbf or Mp (key 8 or 13, depending on the version). System errors are signalled in the display device.</p>

## Performing a clamping force measurement

Measurement with a hand-held display unit HDMB-2 (tool interface)	Measurement with a hand-held display unit HDMS-2 (special interface)	Description of the workflow
		<ol style="list-style-type: none"> <li>1. Connect the strain gauge data transmission cable to the measuring cartridge and screw it tight.</li> </ol>
		<ol style="list-style-type: none"> <li>2. Connect the strain gauge data transmission cable to the display unit and screw it tight.</li> </ol>
		<ol style="list-style-type: none"> <li>3. Turn on the display unit using the slide switch. Calibration is performed automatically.</li> </ol>

		<p>4. Insert the measuring cartridge into the machine spindle or onto the clamping system to be tested and allow it to be pulled in.</p>
		<p>5. The clamping force is measured and displayed. The "Unit" key can be used to switch between newton (N), pound (lbf) or kilopond (kp) as well as kilonewton (kN), pound (lbf) or megapond (Mp).</p>
		<p>6. Firmly hold the measuring cartridge and release the clamping system.</p>

## Data transfer to PC

The PC software allows the display and storage of clamping force measurement data in a force-time diagram (requirements: PC with Windows operating system, program from the supplied USB memory stick installed on the PC).

## Measuring cartridges

### Standard interfaces



#### M-SK

- For use in measuring clamping force in steep taper holders in accordance with DIN 69871, ISO 7388/1
- Use the pull studs according to the standard applied (DIN, ANSI, JIS, BT). Precise measuring pull studs are available on request.
- Use special pull studs for steep taper holders that do not comply with DIN 69871, ISO 7388/1.

BERG measuring cartridges	SK tool holders	Nominal load
M-SK 30	30	18 kN
M-SK 40	40	24 kN
M-SK 45	45	38 kN
M-SK 50	50	70 kN
M-SK 60	60	100 kN



#### M-HSK

For use in measuring clamping force in hollow taper shank holders in accordance with DIN 69893 or DIN SPEC 28999

BERG measuring cartridges	HSK shape and HSK size	Nominal load
M-HSK 11	EZ 15	2 kN
M-HSK 15	E20	4 kN
M-HSK 19	A/T/E25	6 kN
M-HSK 24	A/T/E 32 · B/F 40	15 kN
M-HSK 30	A/T/E 40 · B/F50	20 kN
M-HSK 38	A/T/E 50 · B/F 63	24 kN

M-HSK 48	A/T/E 63 · B/F 80	50 kN
M-HSK 60	A/T/E 80 · B/F 100	80 kN
M-HSK 75	A/T/E 100 · B/F 125	100 kN
M-HSK 95	A/T/E 125 · B/F 160	120 kN
M-HSK 120	A/T/E 160	160 kN



### M-Capto

For use in measuring clamping force in polygonal taper shank holders in accordance with ISO 26623 / SANDVIK Coromant specifications

<b>BERG measuring cartridges</b>	<b>PSC or Capto® tool holders</b>	<b>Nominal load</b>
M-Capto C3	32	20 kN
M-Capto C4	40	33 kN
M-Capto C5	50	43 kN
M-Capto C6	63	55 kN
M-Capto C8	80	75 kN
M-Capto C10	100	130 kN

## Special interfaces



### M-SPH

#### M-SPH-HV

- For use in measuring clamping force at clamping heads SPH and SPM-HV
- Hydraulic clamping heads (SPH) require additional, freely exchangeable measuring pull studs.
- For mechanical clamping heads with integrated spring stack (SPM-HV), the pull studs are permanently mounted with the measuring cartridges at the factory. The measuring pull studs are not exchangeable.

BERG measuring cartridges	BERG clamping head type	Measuring cartridges with pull studs (freely exchangeable)	Nominal load pull studs
M-SPH ... universal	SPH 20	AZB 3	20 kN
	SPH 25	AZB 3	25 kN
	SPH 28	AZB 5	28 kN
	SPH 35	AZB 4	35 kN
	SPH 40	AZB 4	40 kN

BERG measuring cartridges with permanently installed pull studs	BERG clamping head type	Nominal load pull studs
M-SPM-HV 5/15	SPM-HV 5	15 kN
	SPM-HV 15	15 kN
M-SPM-HV 20/25	SPM-HV 20	25 kN
	SPM-HV 25	25 kN
M-SPM-HV 30	SPM-HV 30	30 kN
M-SPM-HV 40	SPM-HV 40	40 kN
M-SPM-HV 50	SPM-HV 50	50 kN



### M-NSM-PV and M-NSM-HV

- For use in measuring clamping force at zero point clamping systems NSM-PV and NSM-HV
- The pull studs are permanently mounted with the measuring cartridges and are not exchangeable.

BERG measuring cartridges	BERG zero point clamp type	Nominal load pull studs
M-NSM-PV 6	NSM-PV 6	10 kN
M-NSM-HV 10	NSM-HV 10	10 kN
M-NSM-HV 20	NSM-HV 20	20 kN
M-NSM-HV 22	NSM-HV 20	20 kN
M-NSM-HV 40	NSM-HV 40	40 kN



### M-Hydrodock

- For use in measuring clamping force at a changing interface with Hydrodock clamping units
- These are special measuring devices for special customer applications.

BERG measuring cartridges	BERG Hydrodock type	Nominal load
M-Hydrodock 10	Hydrodock 10	10 kN
M-Hydrodock 20	Hydrodock 20	20 kN
M-Hydrodock 30	Hydrodock 30	30 kN
M-Hydrodock 40	Hydrodock 40	40 kN
M-Hydrodock 50	Hydrodock 50	50 kN
M-Hydrodock 85	Hydrodock 85	85 kN
M-Hydrodock 120	Hydrodock 120	120 kN

#### ATTENTION



#### Measuring clamping force at SPH, SPM-HV, NSM-PV and NSM-HV


Place the measuring device straight and flat on the clamping head or zero point clamping system. The measuring device is designed with increased weight in order to overcome the lifting forces from the lock and blow-out air. It can remain on the clamping element in the released position. The measurement should be carried out in a closed working space by initiating the clamping process.



**INFORMATION**


If a measuring cartridge for a special interface is included in the scope of delivery, the corresponding drawing is enclosed (information on maximum clamping force, etc.).

## Maintenance

	<b>ATTENTION</b>
	To guarantee an exact measurement, the measuring cartridges must undergo a calibration cycle at BERG at least every 24 months.


Only use BERG spare parts for repairs during maintenance, as they guarantee the correct function and a long service life of the system.

Repairs and technical interventions that require the dismantling or calibration of the clamping force measuring system may only be performed by qualified BERG specialists. We recommend having the repairs carried out exclusively by BERG in order to maintain the validity of the warranty conditions.

	<b>WARNING</b>
	Any technical interventions not performed by the manufacturer will void any warranty. The manufacturer is not liable for any damage resulting from the use of parts and accessories other than the original.

## Cleaning

In general, the clamping force measuring system should be kept free from dirt and contamination. It must be cleaned at the beginning of maintenance or an inspection. Thoroughly remove all lubricants.

	<b>ATTENTION</b>
	Do not use harsh cleansers. Use non-fibrous cleaning cloths if possible.


## Factory calibration service

To guarantee an exact measurement, the hand-held display unit and measuring cartridges must undergo a calibration cycle at BERG at least every 24 months. The factory calibration service is documented with a calibration certificate and an inspection sticker on the devices.

## Malfunctions

Procedure in the event of a malfunction:

1. In the event of danger to persons or tangible assets: Immediately press the emergency stop on the machine tool.
2. Determine the cause of the fault.
3. If work is necessary in the danger zone: Switch the machine to set-up mode.
4. Inform the person responsible on site immediately.
5. Depending on the type of fault, have it rectified by authorised specialists only.

	<b>ATTENTION</b>
	If the fault was not caused by the measuring system, a malfunction of the machine tool should be considered. In this case, the instructions in the machine tool operating manual must be observed.

## Light signals

### Visualising the charging status

The charging status for the battery pack can be read on the display when the device is switched on.

Without a USB connection, the exact charging status will be shown as a percentage.

With a USB connection, the exact charging status is indicated by colour:

Red = battery pack in the lower charging range

Yellow = battery pack in the medium charging range, device usable

Green = battery pack in the upper charging range, device usable

### Visualising the charging process

Condition/requirement	Signal	Status/action
Emergency charging with a deeply discharged battery pack, device can no longer be switched on.	Red light blinks quickly, green light not lit	Emergency charging, switch on the device and establish power supply via USB cable
	Red light blinks slowly, green light not lit	Emergency charging process ended, device can be used
USB cable connected	Green light blinks	Device is switched on, but too little power to charge via USB connection
	Green light is lit, red light blinks	Device is switched on and charging
	Red and green lights blink in alternation	Device is switched off
No USB cable connected	Green light blinks	Device is switched on, battery pack is empty.

	Green light not lit	Device is switched on, battery pack is okay
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## Fault displays and warnings


The fault and warning codes shown inform the users and allow quick troubleshooting by the BERG Service.

Fault code	Fault message	Cause
0xff01	KSVSup	Power supply not working
0xff00	KSVSup_Batt	Power supply battery pack not working
0xfeee	PARAM_PRIM	Loss of parameter
0xbbbb	Need_Reboot	Reboot necessary
0xc0ff	CAL_NoSync	System error
0xc0fe	SID_NotRead	SID not read
0xc081	CAL_Batt	Battery pack too weak for calibration
0xc080	CAL_Vdms	Voltage strain gauge not working
0xc021	ID_Range	Wrong Prefactor
0xc020	SID_Range	Wrong correction factor SID
0xc004	CAL_SID	General calibration error
0xc003	CAL_Range	Zero point out of range
0xc002	CAL_NoGain	No gain found
0xc001	CAL_Total	Strain gauge specs not working

Warning code	Fault message	Cause
0xf000	KSVSup	Such as error as prewarning
0xefff	KSVSup_Batt	Such as error as prewarning
0xfeee	PARAM_PRIM	Parameter rescued
0xfeed	PARAM_USER	User parameter rescued

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## Disposal

	<p><b>WARNING</b></p> <p>Disposing of the product improperly might be hazardous and cause serious injuries and considerable damage to property and the environment.</p>
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When the measuring device has reached the end of its service life, please recycle or dispose of the product components in accordance with local regulations.

Hand-held display units and rechargeable batteries must not be disposed of with household waste, but must be disposed of in accordance with applicable environmental regulations. Rechargeable batteries are subject to special waste treatment and may only be disposed of by authorised specialist companies.

It is possible to return the measuring device to BERG for disposal. When doing so, please note “for disposal” on the delivery note. The respective carrier's guidelines for transporting lithium-ion battery packs installed in equipment must be strictly observed.

## Contact

Berg & Co. GmbH Spanntechnik  
Gildemeisterstr. 80  
33689 Bielefeld  
Germany

[info@berg-spanntechnik.de](mailto:info@berg-spanntechnik.de)  
[www.berg-spanntechnik.de](http://www.berg-spanntechnik.de)

### Service hotline

+49 5205 759-242  
+49 5205 759-243

Monday to Friday  
7:30 a. m. to 3:30 p. m.