

# FORKARDT

*SKM 1200 / SKM 1500*

*Electronic Gripping Force Meter*



**WORKHOLDING SOLUTIONS WORLDWIDE**

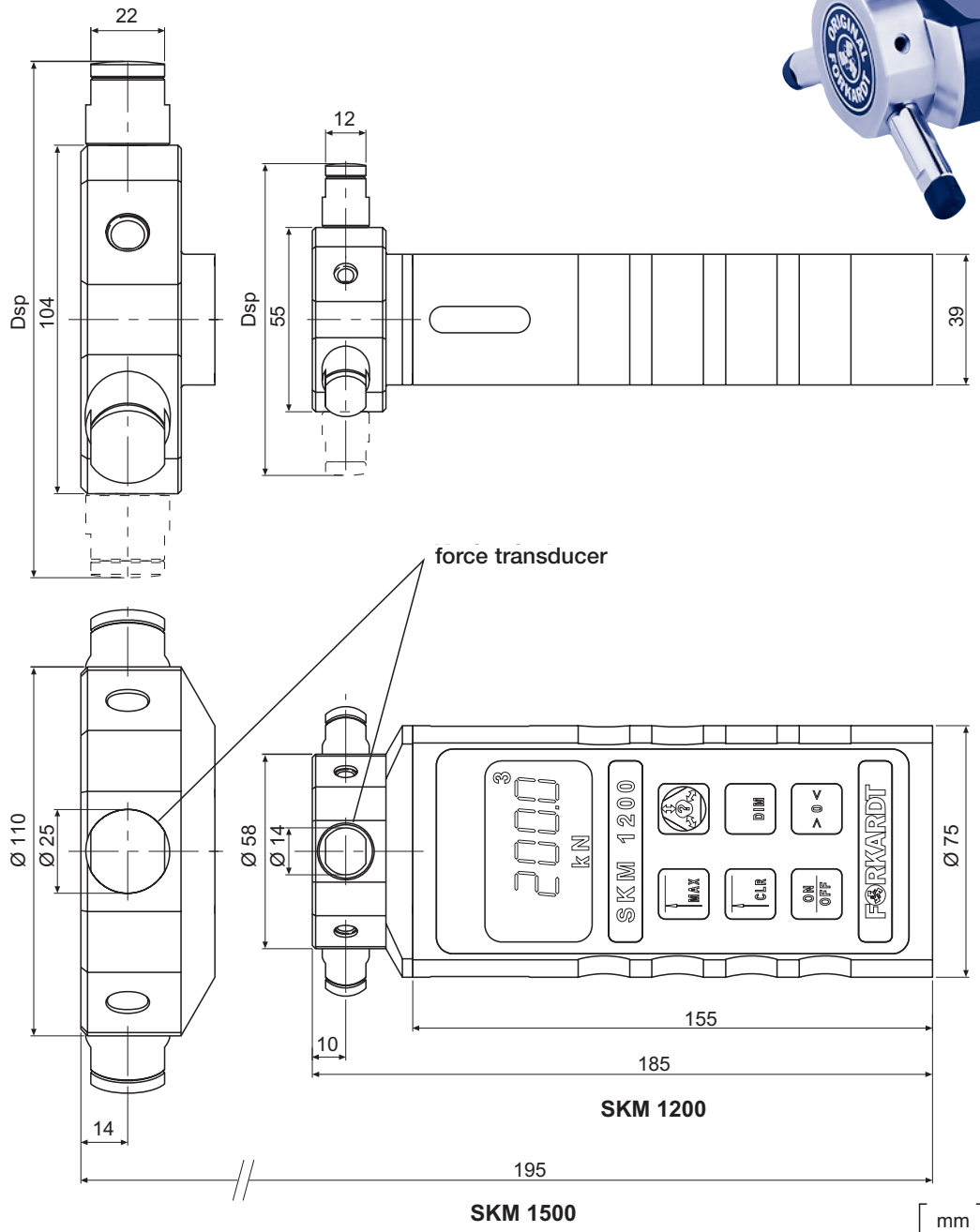
# SKM 1200 / SKM 1500 - Electron

## Features

The SKM gripping force meters are electronic / mechanical units in compact design. These devices are ready for stationary testing of 2 - 6 jaw chucks. They are equipped with high precision force pick-up heads. The electronics (C-MOS technology) is housed in an ergonomically designed aluminium casing. A microprocessor and program routine ensure the testing operation consistently with highest accuracy.

The SKM 1200 and SKM 1500 include many advanced features, such as:

- advanced technology
- lightweight, easy handling
- sophisticated software
- consistently high accuracy
- robust design
- service-free operation
- applicable for mobile use
- carry-case with accessories



# SKM 1200/1500 Static Gripping Force Meter

## Function

FORKARDT SKM devices contain a force receptor and processor-driven electronics with sophisticated software. The various functions are suitable for every day measuring and checking gripping forces of chucks.

The meters' microprocessor multiplies the level of jaw power by the previously selected number of jaws to give the total jaw force of the chuck. The results displayed by the device give you the safety to decide whether the workpiece can safely be gripped.

Previous settings remain stored in the meter when it is switched off. Upon switching it back on measuring operations can be started immediately. Rechargeable power cells in the meter and a main adapter allow problem-free and mobile use.

The ergonomic casing is made from aluminium. Its robust construction ensures usage even under rough production conditions in modern machining.

## Usage

The utilisation of modern CNC lathes and new cutting tool materials allows for ever increasing cutting speeds, thus considerably improving machine efficiency and productivity. High precision and quality chucking equipment from FORKARDT provide the gripping forces necessary to transmit the power to the workpiece, maximising accuracy and high speeds offered by the machine.

To ensure safety when machining, the European Norm EN 1550 clearly states that the operation of chucks should be regularly checked by measuring the static gripping forces. Utilizing FORKARDT SKM gripping force meters can satisfy this requirement.

## The SKM 1200 and SKM 1500 gripping force meters can be used to:

- check the safety of the chucking operation for high cutting speeds and feeds

- focus and optimise the use of the workholding fixture
- measure the gripping force of the chuck relative to the number of jaws without moving the jaws out of alignment
- determine the chuck factor (i.e. the ratio of gripping force to axial force or adjusted pressure)
- monitor lubrication of the chuck
- determine lubrication intervals for safe chucking
- provide information regarding preventative chuck servicing
- save energy, reduce stress, wear and tear on the chuck and minimise distortion of the workpiece through focused interpretation of dynamic gripping force ( $F_{sp0}$ )

The FORKARDT SKM meters are solely for testing stationary gripping forces at idle chucks. Furthermore, the measured levels of gripping forces should always be compared to the values quoted in the relevant chuck operators manual. By this, the expected loss of gripping force can be determined, especially when operating chucks at highest rotational speeds.

## Technical Details

The SKM 1200 and SKM 1500 gripping force meters meet the EMV regulation 89/336/EWG and are marked with the CE-sign to indicate conformity with the relevant European safety standards.

The gripping force meter automatically carries out an adjustment of the zero-point when it is switched on. If the zero-point has been displaced by more than 20% of the maximum measuring range value the display flashes. This indicates previous mechanical overloading of the gripping force meter and lasting distortion of the measuring bolt. In this case, the meter should be returned to FORKARDT for testing and maintenance.

A second set of tension and compression bolts is required for testing 6-jaw chucks. The corresponding part order numbers can be found in the „Accessories“ section.

	SKM 1200	SKM 1500
Measuring range	0 ... 200.0 kN	0 ... 500.0 kN
Lowest unit of measurement	0.1 kN	
Permitted overload	100 ... 120% of max. range value, ↑↓ and display flash	
Excess overload	> 120% of max. range value, ↑↓ flashes, display blank	
Display range	0 ... 20,000 Digit's	
Measuring tolerance	< +/- 0.5 % of of max. range value	
Measuring frequency	1000 Hz	
Display frequency	4 Hz (average value from 250 readings)	
Maximum value record	maximum value memory	
Unit scales	t, kN, k lbs	
Number of jaws	2, 3, 6	
Battery	rechargeable with mains adapter 230 VAC / 50 Hz	
Operating time	10 hours from a full charge	
Recharging time	8 hours with unit switched off	
Casing dimensions	155 x 75 x 39 mm	
Insulation	to IP 65 standards	
Dimensions measuring head	55 mm Ø	104 mm Ø
Chucking diameter (Dsp)	63 ... 293 mm Ø	114 ... 544 mm Ø
Weight	approx 1.3 kg	approx 2.9 kg



## Display

Number of jaws	2, 3, 6
↑/↓	Record maximum / overload
Gripping force	0-200 kN (SKM 1200) 0-500 kN (SKM 1500)
Battery	needs charging
Unit scale	t, kN, k lbs



## Key-Functions



### Record maximum value

The maximum value recorded is stored and displayed. Maximum value mode allows to take a reading in chucking situations when the display cannot be viewed. The maximum value remains displayed after unclamping the meter. The memory can be cleared before a new maximum value reading is taken by pressing the CLR button. If the memory isn't cleared manually it will be cleared automatically whenever the next reading is taken and the new result will be displayed. In order to avoid misinterpreted readings, the maximum recorded value is automatically deleted, whenever the meter is switched off.



### Changing number of jaws

The number of jaws changes each time this key is pressed. The chosen number of jaws is shown in the top right corner of the display. Possible values are 2, 3 and 6 jaws. The reading eventually displayed is the actual measurement multiplied by the number of jaws selected, and the maximum value is cleared.



### Clear maximum value

The recorded maximum value is cleared, but the unit remains in maximum value mode.



### Changing the unit scale

On pressing this button the unit scale is changed. Available unit scales are t, kN and klbs. The value read is recalculated and displayed when the unit scale is changed.

1 kN = 1000 N, 1 t = 9807 N, 1 k lbs = 1000 lbs = 4448 N



### Switching on / off

Current settings remain stored when the meter is switched off. Upon switching it back on, measuring operations can be started immediately.



### Adjusting the zero-point

The zero-point on the meter is adjusted by pressing this button. This function should only be used when the meter is not clamped or loaded.

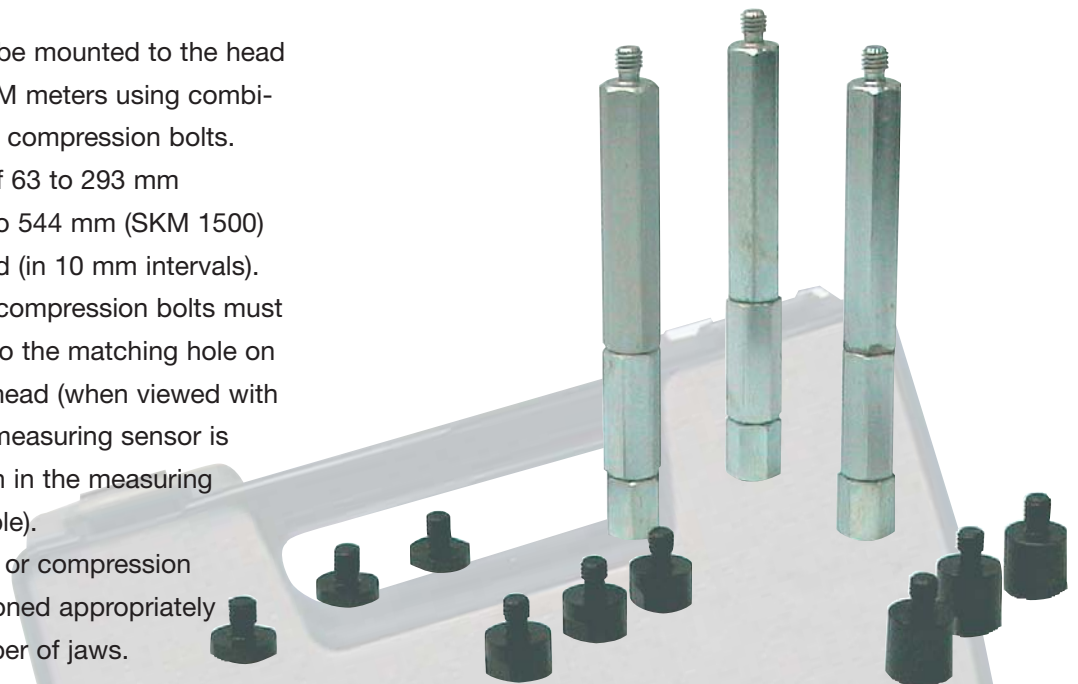
## Accessories

Extension pieces can be mounted to the head of the FORKARDT SKM meters using combinations of tension and compression bolts.

Chuck diameters of 63 to 293 mm (SKM 1200) and 114 to 544 mm (SKM 1500) can be accommodated (in 10 mm intervals).

One of the tension or compression bolts must always be screwed into the matching hole on top of the measuring head (when viewed with display side up). The measuring sensor is located at this position in the measuring (the joint is recognisable).

The remaining tension or compression bolts should be positioned appropriately according to the number of jaws.



SKM 1200			SKM 1500		
System M6 3 pieces each	Length 1 [mm]	Ident. No.	System M12 3 pieces each	Length 1 [mm]	Ident. No.
Tension bolt	4	D164809020	Tension bolt	5	D164814020
Tension bolt	9	D164809021	Tension bolt	10	D164814021
Tension bolt	14	D164809022	Tension bolt	15	D164814022
			Tension bolt	20	D164814023
Compression bolt	15	D164809025	Compression bolt	20	D164814025
Compression bolt	30	D164809026	Compression bolt	40	D164814026
Compression bolt	60	D164809027	Compression bolt	80	D164814027
			Compression bolt	160	D164814028
2 Spanners (gauge 12) Carry-case, mains adapter			2 Spanners (gauge 22) Carry-case, mains adapter		

**T**ension and Compression bolts can be reordered as a set.

### Example of order:

- SKM 1200 1 set tension and compression bolts  
Ident. No. D300224003
- SKM 1500 1 set tension and compression bolts  
Ident. No. D300229003

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