



# **ACCESSORIES CATALOG PRECISION MEASURING CENTERS**

VALID FROM MAY 2022

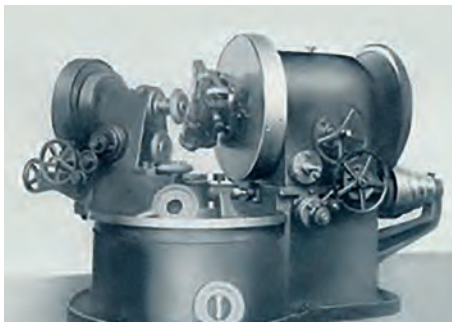


**KLINGELBERG**

# INNOVATIONS MADE BY KLINGELNBERG



## Leading the market in gearing technology – with tradition, expertise and passion



The first hobbing machine built at the Hückeswagen plant, model FK 150, construction year 1923

The Klingelberg Group is a leading company in the gearing industry. This includes developing and manufacturing machines for [bevel gear and cylindrical gear machining](#) and [precision measuring centers for axially symmetrical components and gearing](#). We also manufacture spiral-cut bevel gears to customer specifications – with ultimate precision using in-house technology.

The origins of this machine manufacturer date back to 1863. Still today, the Klingelberg family remains invested in the company as an anchor shareholder. The path from the company's origins to global market leadership has been shaped by a continuous striving toward first-rate quality and absolute reliability, both for products and service. With numerous R&D engineers worldwide and more than 200 registered patents, the company demonstrates its capacity for innovation each and every day.

Klingelberg operates engineering and manufacturing facilities in Switzerland, Germany, and Hungary. Furthermore, we guarantee our global presence with regional sales and service offices. The DIN EN ISO 9001 and DIN EN ISO 14001 certifications and participation in the VDMA's "Blue Competence" initiative underscore our sustainable and environmentally sound business practices.



## A leader in gear measuring technology for future-proof quality management of drive elements

Stringent precision requirements for gearing measurements and increasingly complex drive components demand the best measuring technology available and a machine and software concept optimized for these applications. That's why leading manufacturers put their trust in Klingelnberg precision measuring centers, which represent the most widely used standard in the industry, while also serving as the reference for metrology institutes.

Klingelnberg precision measuring centers (P-series) already accommodate the majority of measurement tasks in a broad range of industries. Users in the automotive and commercial vehicle industries, the aerospace and aeronautical engineering industries, as well as the wind power industry rely on this technology, which replaces up to six conventional measuring devices. This allows the following measurement tasks to be fully automated in a single setup:

- Gear measurement
- General coordinate measurement
- Form and position measurement
- Roughness measurement
- Contour measurement
- Optical measurement



KLINGELNBERG P 65

The modular concept used in the P-series offers precision measuring centers in just the right size with a broad range of applications to provide the utmost in accuracy:

- Precision measuring centers for workpieces up to 3800 mm in diameter and up to 20,000 kg in weight
- Gear measurements starting from a module of 0.1 mm

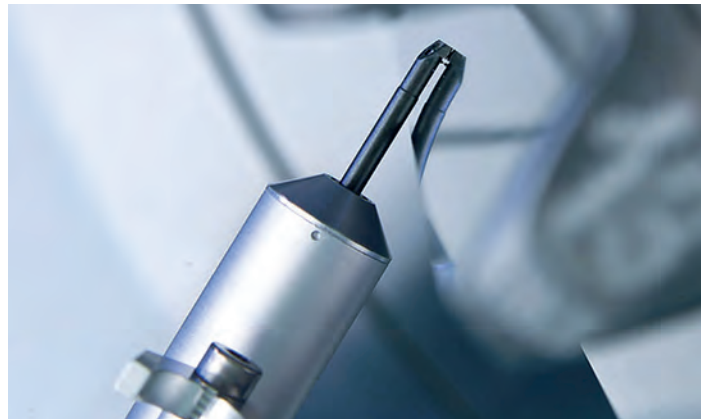
# GEAR MEASUREMENT

## Precise manufacturing of premium products

For decades, Klingelnberg precision measuring centers stand for accuracy, robustness and durability. Systematic advancement and innovative capacity on the part of the machine manufacturer have turned "gear measuring devices" into multifunctional, multi-sensor precision measuring centers. Consequently, almost any measurement task involving axially symmetrical components can be performed today – thanks to an extensive range of accessories.

The importance of surface quality has increased significantly in terms of gearing as well for as other machine elements. With the P-series from Klingelnberg, surface roughness on external and internal gearing can be measured, evaluated and documented in a fully automatic process, starting from modules as

small as 0.9 mm. Outside and inside diameters of shaft-shaped and circular components can also be measured. All Klingelnberg precision measuring centers can be equipped with various retrofit packages at the customer's request. The most recent technical highlight is Klingelnberg Optical Metrology, which can also be retrofitted on every machine in the P-series. Klingelnberg Optical Metrology is a clever combination of tactile and optical measuring technology. An extremely rapid changeover from the tactile system to the optical sensor makes this a hybrid system that combines the advantages of both measurement methods.



## Klingelnberg Precision Measuring Centers

- Gear measurement for a broad range of profile types
- Bevel gear testing against target coordinates or a master gear
- Measurement of distances, angles, diameters and positions; Fourier analysis evaluation
- Form measurement such as roundness, straightness, flatness and cylindrical shape
- Complete measurement of hobs
- Measurement of shaving cutters and shaper type cutters
- Measurement of sprockets, cycloids and other gearing against coordinates
- Analysis of waviness on cylindrical gears
- Roughness measurement on gearing and axially symmetrical components
- Optical measurement on gearing and shaft-shaped components

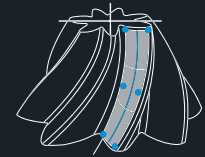
## Bevel gear



Tooth thickness

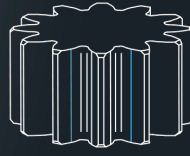


Pitch, concentricity

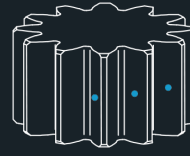


Topography

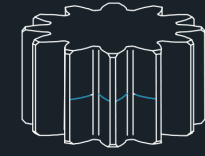
## Cylindrical gear



Lead line

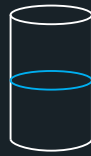


Pitch, concentricity



Profile

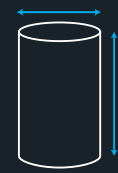
## Shaft



Roundness

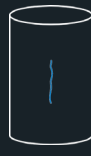


Straightness

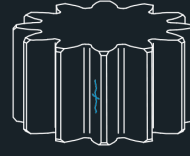


Diameter, length

## Roughness



Shaft



Cylindrical gear

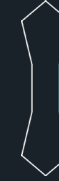


Bevel gear

## Contour



Radial and axial section scan

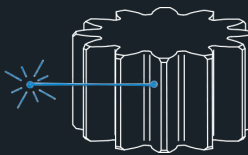


Tangential section scan



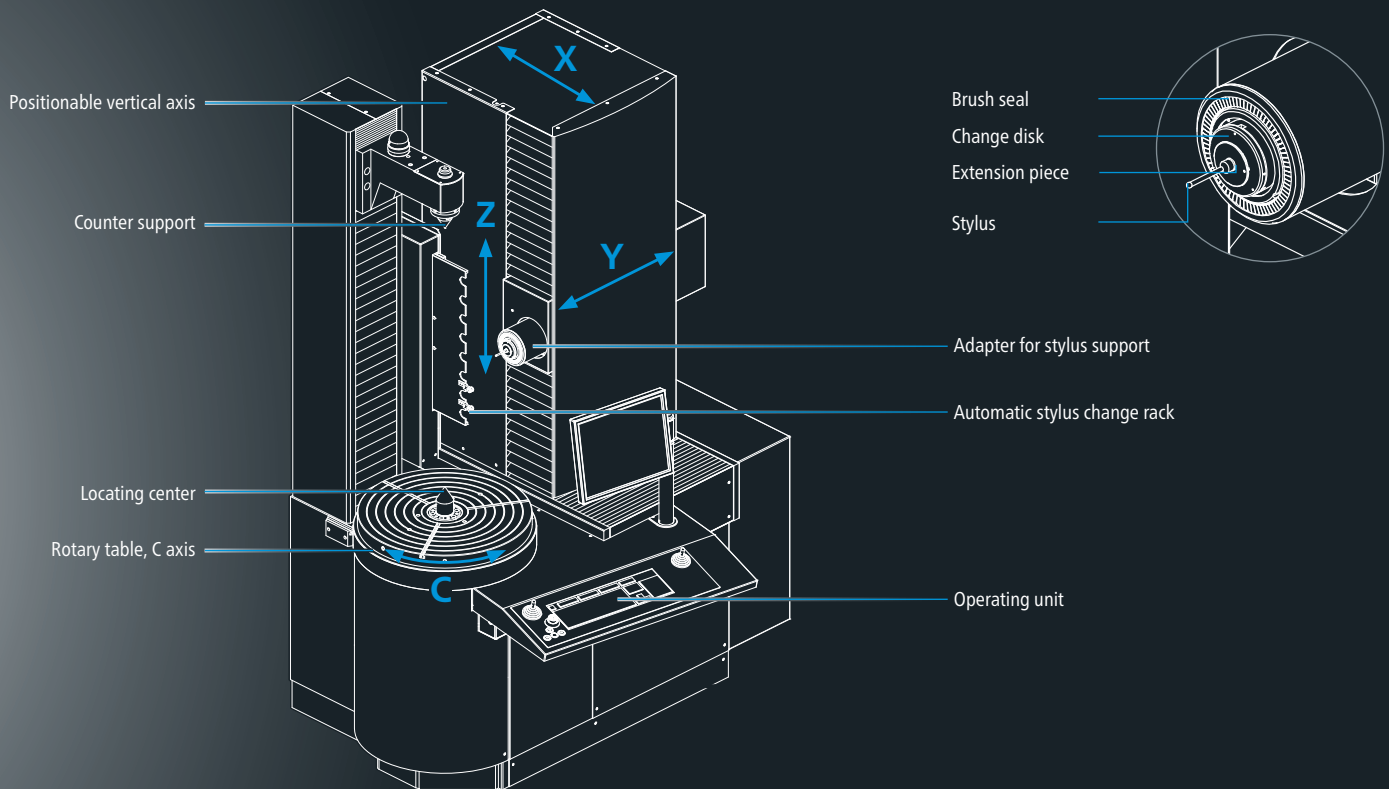
Normal section scan

## Optical measurement



Cylindrical gear

# SYSTEM COMPONENTS AND MODULES



## Leading technology for maximum safety and precision

A precise, heavy-duty rotary table is the central element in a precision measuring center. This rotary table is configured as a measuring axis (**C axis**) and provides concentric seating of the workpieces to be tested. In combination with the three linear measuring axes, tangential (**X axis**), radial (**Y axis**) and

vertical (**Z axis**), the precision measuring centers trace and inspect the functional surfaces of gearing and general drive components in generator mode. This guarantees maximum measuring accuracy and reproducibility.

## Key to symbols for the product tables

|     |                                   |            |   |
|-----|-----------------------------------|------------|---|
| D   | = Diameter                        | M42M       | = Digital rotating 2D probing system                |
| d   | = Stylus sphere diameter          | M43M       | = Digital 3D probing system (locking button)        |
| ds  | = Shaft diameter                  | M44M       | = Digital 3D probing system, temperature-neutral    |
| ds1 | = Active shaft diameter           | R          | = Stylus surface radius                             |
| ∅ D | = Seating diameter for shaft      | ∅ A        | = Seating diameter for tip                          |
| Da  | = Nominal diameter                | W          | = Clamping range for shaft                          |
| L   | = Length                          | B          | = Clamping range for bore hole                      |
| ML1 | = Length of active shaft diameter | WAF        | = Width across flats                                |
| ML2 | = Length of shaft diameter        | No.        | = Number  |
| ML  | = Total length of shaft           | Qty.       | = Quantity  |
| M5  | = Metric ISO thread 5 mm          | KL special | = Special version, available only from Klingelnberg |

**STYLUS ELEMENTS**

|  |    |                                       |    |
|--|----|---------------------------------------|----|
| Stylus construction kit.....                     | 09 | Stylus holders.....                   | 17 |
| Ball-type stylus pin .....                       | 12 | Stylus rods for internal gearing..... | 18 |
| Ball-type stylus.....                            | 13 | Needle styluses .....                 | 18 |
| Extension pieces (titanium 11 mm).....           | 14 | Stylus rods, special version .....    | 19 |
| Accessories for extension pieces D = 11 mm ..... | 15 | Special styluses for blades.....      | 19 |
| Change disks .....                               | 16 |                                       |    |

**ROUGHNESS SYSTEMS**

|   |    |
|---|----|
| Roughness styluses, angled .....              | 21 |
| Roughness styluses for internal gearing ..... | 21 |

**GAUGES AND STANDARDS**

|  |    |                                     |    |
|--|----|-------------------------------------|----|
| Stylus set-up gauge D = 15 mm .....    | 23 | SFP standard.....                   | 24 |
| Stylus set-up gauge D = 5 mm.....      | 23 | SFP multi-wave standard.....        | 24 |
| Stylus set-up gauge D = 2 mm.....      | 23 | Roughness standard .....            | 24 |
| Gearing standard / lead standard ..... | 24 | Seating and inspection mandrel..... | 25 |

**CLAMPING DEVICES, THREE-JAW QUICK-ACTION CHUCKS AND FACE PLATES**

|  |    |                                  |    |
|--|----|----------------------------------|----|
| Three-jaw quick-action chuck D < 70 mm ..... | 27 | Face plates .....                | 29 |
| Three-jaw quick-action chuck D < 125 mm..... | 27 | Alignment aids.....              | 29 |
| Three-jaw quick-action chuck D < 240 mm..... | 27 | Clamping device, blades.....     | 30 |
| Three-jaw quick-action chuck D < 350 mm..... | 27 | Carriers, special carriers ..... | 30 |
| Custom chuck jaws.....                       | 28 | Plug-on centers .....            | 31 |
| Jibs / Leveling elements.....                | 29 |                                  |    |

**ACCESSORIES**

|   |    |
|---|----|
| Cabinets.....                             | 33 |
| Dial indicators and connecting rods ..... | 34 |
| Digital encoder MT12.....                 | 35 |

**SERVICE**

|  |    |
|--|----|
| Training.....  | 37 |
| Recertification of standards,<br>arbors and calibration balls..... | 37 |

## STYLUS ELEMENTS



### Stylus elements and extension pieces

Owing to their design and workmanship, Klingelberg stylus elements provide key advantages compared with standard products:

- Longer service life
- Optimized shaft contours
- Less bending

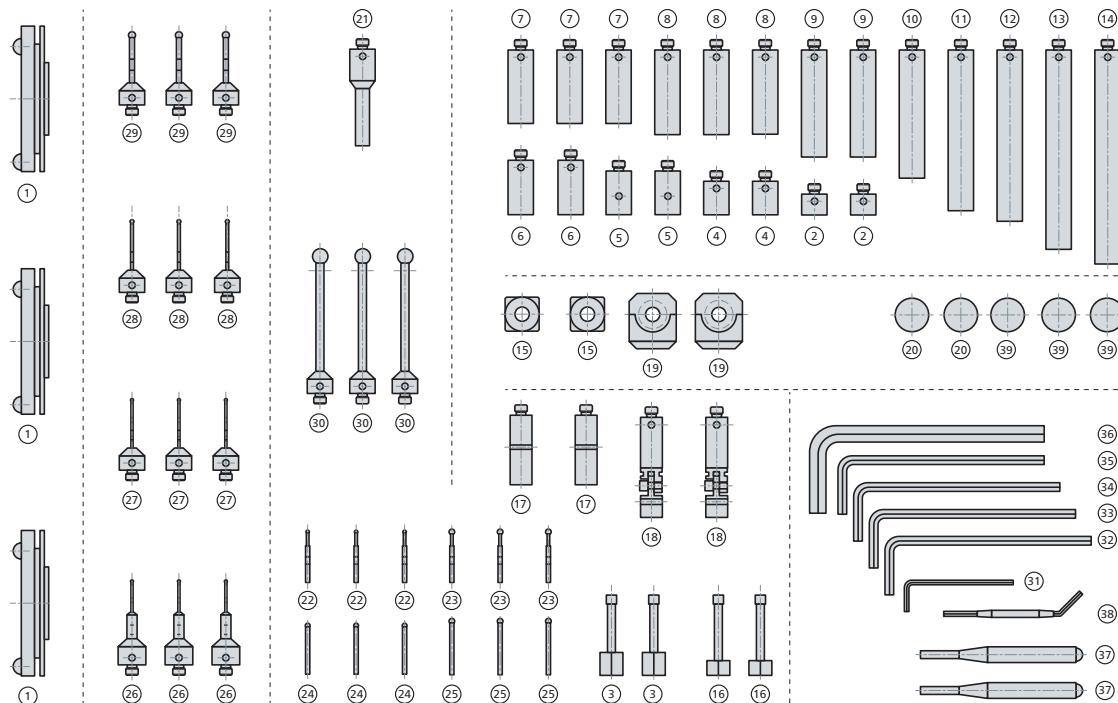
And thanks to advanced machining methods, we offer superior quality with our Klingelberg extension piece elements, along with low weight and extreme rigidity.

- Stylus construction kit
- Ball-type stylus pin
- Stylus elements
- Extension pieces (titanium 11 mm)
- Accessories for extension pieces D = 11 mm
- Stylus holder
- Stylus rods for internal gearing
- Stylus rods, special version
- Needle styluses
- Special styluses for blades



# STYLUS ELEMENTS

## Stylus kit P 26 – P 100

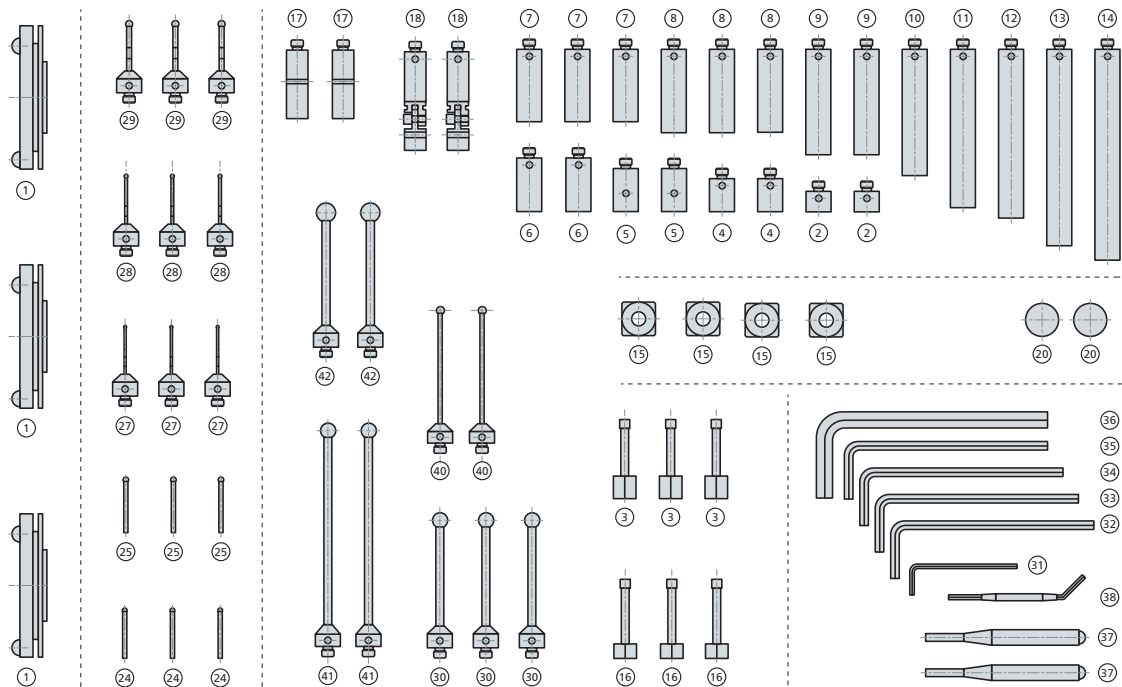


| Designation   | No. | Qty. | Mat. No. |
|---|-----|------|----------|
| Stylus kit, complete                                      | -   | 1    | 395450A  |
| Change disk   | 1   | 3    | 371670A  |
| Extension piece 10 mm                                     | 2   | 2    | 306604A  |
| Extension piece 10 mm with extended screw thread for cube | 3   | 2    | 309526A  |
| Extension piece 15 mm                                     | 4   | 2    | 306605A  |
| Extension piece 20 mm                                     | 5   | 2    | 306606A  |
| Extension piece 25 mm                                     | 6   | 2    | 306607A  |
| Extension piece 35 mm                                     | 7   | 3    | 306608A  |
| Extension piece 40 mm                                     | 8   | 3    | 306609A  |
| Extension piece 50 mm                                     | 9   | 2    | 306610A  |
| Extension piece 60 mm                                     | 10  | 1    | 306611A  |
| Extension piece 75 mm                                     | 11  | 1    | 306612A  |
| Extension piece 80 mm                                     | 12  | 1    | 306613A  |
| Extension piece 90 mm                                     | 13  | 1    | 306614A  |
| Extension piece 100 mm                                    | 14  | 1    | 306615A  |
| Cube, 15 x 15 mm  | 15  | 2    | 306618A  |
| Screw M5/L = 20 mm for cube                               | 16  | 2    | 393030A  |
| Revolving piece L = 29 mm                                 | 17  | 2    | 395449A  |
| Swiveling piece   | 18  | 2    | 395448A  |
| Angle bracket   | 19  | 2    | 395170A  |
| Holder for ball-type stylus pin with shaft D = 1.0 mm     | 20  | 2    | 365061A  |

| Designation  | No. | Qty. | Mat. No. |
|--|-----|------|----------|
| Holder for ball-type stylus pin with shaft D = 1.0 mm and D = 1.5 mm | 21  | 1    | 306624A  |
| Ball-type stylus pin D = 0.3 mm                                      | 22  | 3    | 397874A  |
| Ball-type stylus pin D = 0.5 mm                                      | 23  | 3    | 397873A  |
| Ball-type stylus pin D = 1.0 mm                                      | 24  | 3    | 365069A  |
| Ball-type stylus pin D = 1.5 mm                                      | 25  | 3    | 365070A  |
| Ball-type stylus D = 1.0 mm  | 26  | 3    | 36662A   |
| Ball-type stylus D = 1.5 mm  | 27  | 3    | 365073A  |
| Ball-type stylus D = 2.0 mm  | 28  | 3    | 365074A  |
| Ball-type stylus D = 3.0 mm  | 29  | 3    | 365075A  |
| Ball-type stylus D = 5.0 mm  | 30  | 3    | 365076A  |
| Offset screwdriver SW 0.9 DIN 911                                    | 31  | 1    | 113153A  |
| Offset screwdriver SW 1.5 DIN 911                                    | 32  | 1    | 055570A  |
| Offset screwdriver SW 2.0 DIN 911                                    | 33  | 1    | 055571A  |
| Offset screwdriver SW 2.5 DIN 911                                    | 34  | 1    | 055572A  |
| Offset screwdriver SW 3.0 DIN 911                                    | 35  | 1    | 055573A  |
| Offset screwdriver SW 4.0 DIN 6911                                   | 36  | 1    | 055554A  |
| Pin spanner 2.9 straight   | 37  | 2    | 365079A  |
| Pin spanner 1.7 cranked  | 38  | 1    | 306639A  |
| Holder for ball-type stylus pin with shaft D = 1.0 mm , 5-way        | 39  | 3    | 395446A  |

# STYLUS ELEMENTS

## Stylus kit P 150 – P 350



| Designation   | No. | Qty. | Mat. No. |
|---|-----|------|----------|
| Stylus kit, complete                                      | -   | 1    | 417450A  |
| Change disk   | 1   | 3    | 371670A  |
| Extension piece 10 mm                                     | 2   | 2    | 306604A  |
| Extension piece 10 mm with extended screw thread for cube | 3   | 3    | 309526A  |
| Extension piece 15 mm                                     | 4   | 2    | 306605A  |
| Extension piece 20 mm                                     | 5   | 2    | 306606A  |
| Extension piece 25 mm                                     | 6   | 2    | 306607A  |
| Extension piece 35 mm                                     | 7   | 3    | 306608A  |
| Extension piece 40 mm                                     | 8   | 3    | 306609A  |
| Extension piece 50 mm                                     | 9   | 2    | 306610A  |
| Extension piece 60 mm                                     | 10  | 1    | 306611A  |
| Extension piece 75 mm                                     | 11  | 1    | 306612A  |
| Extension piece 80 mm                                     | 12  | 1    | 306613A  |
| Extension piece 90 mm                                     | 13  | 1    | 306614A  |
| Extension piece 100 mm                                    | 14  | 1    | 306615A  |
| Cube, 15 x 15 mm  | 15  | 4    | 306618A  |
| Screw M5/L = 20 mm for cube                               | 16  | 3    | 393030A  |
| Revolving piece L = 29 mm                                 | 17  | 2    | 395449A  |
| Swiveling piece   | 18  | 2    | 395448A  |
| Holder for ball-type stylus pin with shaft D = 1.0 mm     | 20  | 2    | 365061A  |

| Designation  | No. | Qty. | Mat. No. |
|--|-----|------|----------|
| Ball-type stylus pin<br>D = 1.0 mm / DS = 1.0 mm / L = 16 mm | 24  | 3    | 365069A  |
| Ball-type stylus pin<br>D = 1.5 mm / DS = 1.0 mm / L = 16 mm | 25  | 3    | 365070A  |
| Ball-type stylus D = 1.5 mm / L = 33.5 mm                    | 27  | 3    | 365073A  |
| Ball-type stylus D = 2.0 mm / L = 33.0 mm                    | 28  | 3    | 365074A  |
| Ball-type stylus D = 3.0 mm / L = 33.5 mm                    | 29  | 3    | 365075A  |
| Ball-type stylus D = 5.0 mm / L = 53.0 mm                    | 30  | 3    | 365076A  |
| Offset screwdriver SW 0.9 DIN 911                            | 31  | 1    | 113153A  |
| Offset screwdriver SW 1.5 DIN 911                            | 32  | 1    | 055570A  |
| Offset screwdriver SW 2.0 DIN 911                            | 33  | 1    | 055571A  |
| Offset screwdriver SW 2.5 DIN 911                            | 34  | 1    | 055572A  |
| Offset screwdriver SW 3.0 DIN 911                            | 35  | 1    | 055573A  |
| Offset screwdriver SW 4.0 DIN 6911                           | 36  | 1    | 055554A  |
| Pin spanner 2.9 straight                                     | 37  | 2    | 365079A  |
| Pin spanner 1.7 cranked                                      | 38  | 1    | 306639A  |
| Ball-type stylus D = 3.0 mm / L = 58.0 mm                    | 40  | 2    | 307987A  |
| Ball-type stylus D = 5.0 mm / L = 75.0 mm                    | 41  | 2    | 411733A  |
| Ball-type stylus D = 7.0 mm / L = 55.0 mm                    | 42  | 2    | 365077A  |



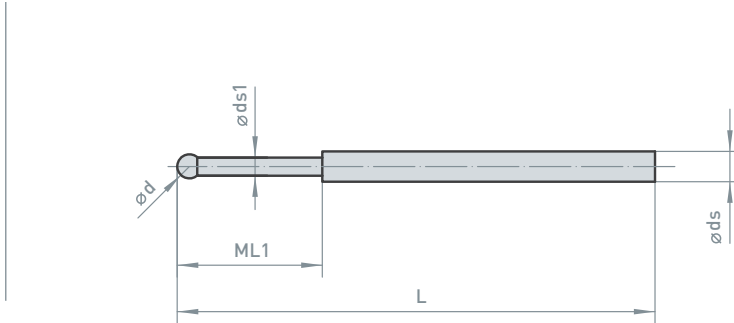
## Configuring stylus combinations with the Klingelberg Stylus Manager

The modern interface of the "Stylus Manager" software supports easy configuration of stylus combinations. Stylus sphere calibration is made extremely user-friendly through the use of templates or free input.



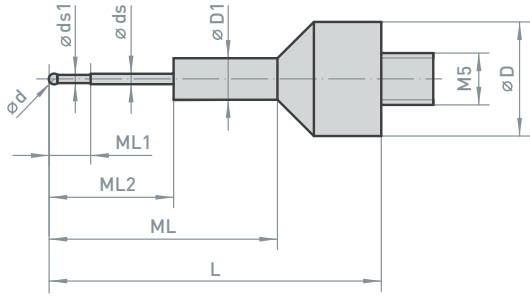
# STYLUS ELEMENTS

## Ball-type stylus pin



| Designation          | ø d | L    | ø ds | ø ds1      | ML1 | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|----------------------|-----|------|------|------------|-----|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Ball-type stylus pin | 0.1 | 15   | 1    | KL special | -   | 450196A  | •    | •      | •    | •    | •    | •     |       |       |       |         |         |         |
| Ball-type stylus pin | 0.2 | 15.2 | 1    | KL special | -   | 450122A  | •    | •      | •    | •    | •    | •     |       |       |       |         |         |         |
| Ball-type stylus pin | 0.3 | 15   | 1    | KL special | -   | 397874A  | •    | •      | •    | •    | •    | •     |       |       |       |         |         |         |
| Ball-type stylus pin | 0.5 | 15   | 1    | KL special | -   | 397873A  | •    | •      | •    | •    | •    | •     |       |       |       |         |         |         |
| Ball-type stylus pin | 1   | 16   | 1    | 0.8        | 5   | 365069A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 1.5 | 16   | 1    | -          | -   | 365070A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 0.3 | 3.5  | 1    | KL special | -   | 377925A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 0.3 | 5    | 1    | KL special | -   | 377924A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 0.3 | 7    | 1    | KL special | -   | 411714A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 0.3 | 10   | 1    | KL special | -   | 371866A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 0.5 | 5.5  | 1    | KL special | -   | 426386A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 0.5 | 7    | 1    | KL special | -   | 365147A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 0.5 | 10   | 1    | KL special | -   | 353002A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 0.5 | 12   | 1    | KL special | -   | 452678A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 0.6 | 15.6 | 1    | 0.4        | 4.6 | 317513A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 0.8 | 15.8 | 1    | 0.6        | 4.8 | 317514A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 1   | 21   | 1    | 0.8        | 5   | 315322A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 1   | 26   | 1    | 0.8        | 5   | 346765A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 1.5 | 26.5 | 1    | -          | -   | 317515A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 2   | 16   | 1    | -          | -   | 365071A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 2   | 27   | 1    | -          | -   | 334028A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Ball-type stylus pin | 2   | 27   | 1.5  | -          | -   | 317516A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |

## Ball-type stylus



| Designation      | ø d | L    | ML   | ML1 | ML2 | ø D | ø D1 | ø ds | ø ds1 | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |   |
|------------------|-----|------|------|-----|-----|-----|------|------|-------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|---|
| Ball-type stylus | 1   | 32   | 22   | 4   | 12  | 11  | 4    | 1    | 0.8   | 366662A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 1.5 | 33.5 | 24   | -   | 7   | 11  | -    | 1.5  | 1     | 365073A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 2   | 33   | 23   | -   | -   | 11  | -    | 1    | -     | 365074A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 3   | 33.5 | 23.5 | -   | -   | 11  | -    | 2    | -     | 365075A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 5   | 53   | 43   | -   | -   | 11  | -    | 3.5  | -     | 365076A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 7   | 55   | 45   | -   | -   | 11  | -    | -    | -     | 365077A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 10  | 65.5 | -    | -   | -   | -   | -    | -    | -     | 365078A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 0.5 | 32   | -    | -   | -   | -   | -    | -    | -     | 397941A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 0.8 | 22.3 | -    | -   | -   | -   | -    | -    | -     | 331192A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 0.8 | 32   | -    | -   | -   | -   | -    | -    | -     | 7809803A | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 1.4 | 33.5 | 23.5 | -   | -   | -   | -    | -    | -     | 442346A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 1.6 | 33.5 | 23.5 | -   | -   | -   | -    | -    | -     | 442347A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 1.8 | 33.5 | 23.5 | -   | -   | -   | -    | -    | -     | 442348A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 2   | 61   | -    | -   | -   | 11  | -    | 1.5  | -     | 359314A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 2.5 | 33.5 | 23.5 | -   | -   | -   | -    | -    | -     | 442349A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 3   | 58   | 48   | -   | -   | 11  | -    | 2    | -     | 307987A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 3   | 70   | -    | -   | -   | -   | -    | -    | -     | 411078A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 3   | 100  | -    | -   | -   | -   | -    | -    | -     | 417185A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 3.5 | 33.5 | 23.5 | -   | -   | -   | -    | -    | -     | 442350A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 3.7 | 33.5 | 23.5 | -   | -   | -   | -    | -    | -     | 452730A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 4   | 35   | 25   | -   | -   | -   | -    | -    | -     | 442351A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 4   | 35   | 25   | -   | -   | -   | -    | -    | -     | 442351A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 4   | 64   | -    | -   | -   | -   | -    | -    | -     | 435748A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 4   | 100  | -    | -   | -   | -   | -    | -    | -     | 452933A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 5   | 75   | -    | -   | -   | -   | -    | -    | -     | 411773A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 5   | 100  | 90   | -   | -   | 11  | -    | 3.5  | -     | 411747A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 5   | 120  | 110  | -   | -   | 11  | -    | 3.5  | -     | 452731A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 5.5 | 53   | 43   | -   | -   | 11  | -    | 3.5  | -     | 442354A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |
| Ball-type stylus | 6   | 50   | 40   | -   | -   | 11  | -    | 3.5  | -     | 428870A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       | • |

# STYLUS ELEMENTS

## Extension pieces D = 11 mm (titanium, CFRP, Nolex)

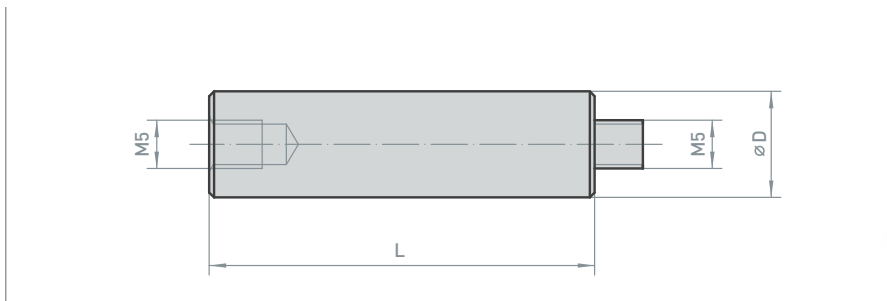


Fig.: Extension piece D = 11 mm

| Designation     | $\varnothing D$ | L   | Material | Other information    | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|-----------------|-----------------|-----|----------|----------------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Extension piece | 11              | 10  | Titanium | -                    | 306604A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 10  | Titanium | with 20 mm thread    | 309526A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 15  | Titanium | -                    | 306605A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 15  | Titanium | with internal thread | 458554A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 20  | Titanium | -                    | 306606A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 25  | Titanium | -                    | 306607A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 30  | Titanium | -                    | 309529A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 35  | Titanium | -                    | 306608A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 40  | Titanium | -                    | 306609A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 50  | Titanium | -                    | 306610A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 55  | Titanium | -                    | 331174A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 60  | Titanium | -                    | 306611A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 75  | Titanium | -                    | 306612A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 80  | Titanium | -                    | 306613A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 90  | Titanium | -                    | 306614A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 100 | Titanium | -                    | 306615A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 120 | Titanium | -                    | 306616A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 150 | Titanium | -                    | 306617A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 200 | Titanium | -                    | 307974A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 50  | CFRP     | -                    | 442114A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 60  | CFRP     | -                    | 442115A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 70  | CFRP     | -                    | 442116A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 100 | CFRP     | -                    | 442117A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 120 | CFRP     | -                    | 442118A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 120 | CFRP     | -                    | 442119A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 200 | CFRP     | -                    | 458135A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Extension piece | 11              | 250 | Nolex    | -                    | 439546A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |

## Accessories for extension pieces D = 11 mm



Fig.: Revolving piece L = 29 mm (395449A)



Fig.: Swiveling piece (395448A)

| Designation                                 | ø D | L    | Other information    | Mat. No.        | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|---|-----|------|----------------------|-----------------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Revolving piece                             | 11  | 29   | See kit item 17      | <b>395449A</b>  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Swiveling piece                             | 11  | 42.5 | See kit item 18      | <b>395448A</b>  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Cube B = 15 mm                              | -   | -    | See kit item 15      | <b>306618A</b>  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Socket head screw L = 20 for cube           | -   | 20   | See kit item 16      | <b>393030A</b>  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Cube B = 15 mm                              | -   | -    | with counterbore     | <b>334466A</b>  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Socket head screw M5 x 16                   | -   | 16   | DIN 6912 for 331166A | <b>050872A</b>  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Angle bracket                               | -   | -    | See kit item 19      | <b>395170A</b>  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Angle bracket MGN 614                       | -   | -    | Function-optimized   | <b>451082\$</b> | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Socket head screw for angle bracket M5 x 10 | -   | 10   | for 451082\$         | <b>451083\$</b> | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |

# STYLUS ELEMENTS

## Change disk



Fig.: Change disk M43M/M44M



Fig.: Change disk M43M (393708A) – back

| Designation                | Other information          | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|----------------------------|----------------------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Adapter                    | M42M                       | 278861A  |      |        |      |      |      |       |       |       |       |         |         |         |
| Change disk                | M43M                       | 393708A  |      |        |      |      |      |       |       |       |       |         |         |         |
| Change disk                | M43M, with magnetic ring   | 435749\$ |      |        |      |      |      |       |       |       |       |         |         |         |
| Change disk                | M44M, with packaging       | 393707A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Change disk                | M44M, high adhesion (h.a.) | 394127A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Change disk, grinding burn | M44M                       | 450082\$ |      |        | •    | •    | •    | •     | •     | •     | •     |         |         |         |



## Stylus holders

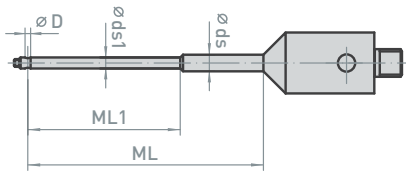


Fig.: Stylus holder mounted, with extension piece and cube

| Designation                            | $\varnothing D$ | $\varnothing ds$ | $\varnothing ds1$ | ML | ML1 | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|--|-----------------|------------------|-------------------|----|-----|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Stylus holder for small internal gears | 1               | 3                | 2                 | 44 | 29  | 452889\$ | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Stylus holder for small internal gears | 1               | 3                | 2                 | 60 | 29  | 452899\$ | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Stylus holder for small internal gears | 1               | -                | 4                 | 45 | -   | 452829\$ | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Stylus holder for small internal gears | 1               | -                | 4                 | 60 | -   | 458699\$ | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Holder for stylus for small bore holes | 1 – 1.5         | -                | 6                 | 27 | -   | 306624A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Holder for stylus 3-way                | -               | 1                | -                 | -  | -   | 365061A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Holder for stylus 5-way                | -               | 1                | -                 | -  | -   | 395446A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |

# STYLUS ELEMENTS

## Rods and equipment

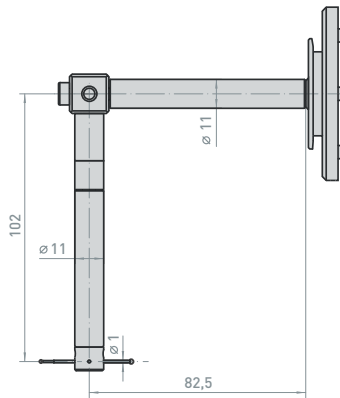


Fig.: Rod for internal gears (394486A)



Fig.: Set for measuring small modules on cylindrical gears (344735A)



Fig.: Equipment for checking diamond-coated gears (442019\$)

| Designation  | L  | d   | R    | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|--|----|-----|------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Ball-type stylus pin   | 16 | 0.1 | -    | 450466\$ | •    | •      | •    | •    | •    |       |       |       |       |         |         |         |
| Rod for internal gears (for Ball-type stylus pins)   | -  | -   | -    | 394486A  |      |        | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Rod  | -  | -   | -    | 394734A  |      |        |      |      | •    | •     | •     | •     | •     | •       | •       | •       |
| Device for checking small modules (needle stylus)  | -  | -   | -    | 344735A  | •    | •      | •    | •    | •    |       |       |       |       |         |         |         |
| Measuring stylus tip (needle stylus)   | 20 | -   | 0.05 | 344839A  | •    | •      | •    | •    | •    |       |       |       |       |         |         |         |
| Equipment for checking diamond-coated gears including the following items: 279143A, 281785A, 279144A, 271786A, 306603A | -  | -   | -    | 442019\$ | •    | •      | •    | •    | •    |       |       |       |       |         |         |         |
| Cross-cutting stylus, movable  | 35 | 1   | -    | 279143A  | •    | •      | •    | •    | •    |       |       |       |       |         |         |         |
| Ball-type stylus pin   | 35 | 1   | -    | 281785A  | •    | •      | •    | •    | •    |       |       |       |       |         |         |         |
| Cross-cutting stylus, movable  | 35 | 1.5 | -    | 279144A  | •    | •      | •    | •    | •    |       |       |       |       |         |         |         |
| Ball-type stylus pin   | 35 | 1.5 | -    | 281786A  | •    | •      | •    | •    | •    |       |       |       |       |         |         |         |
| Adapter F.KL DS = 4 mm stylus  | -  | -   | -    | 306603A  | •    | •      | •    | •    | •    |       |       |       |       |         |         |         |

## Carbon rods (CFRP)

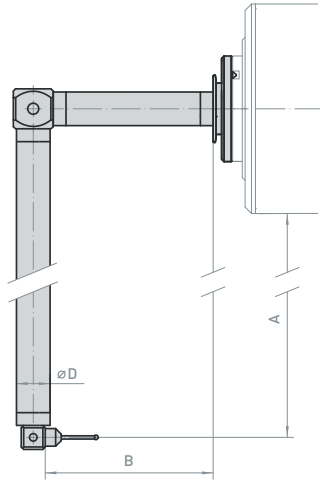
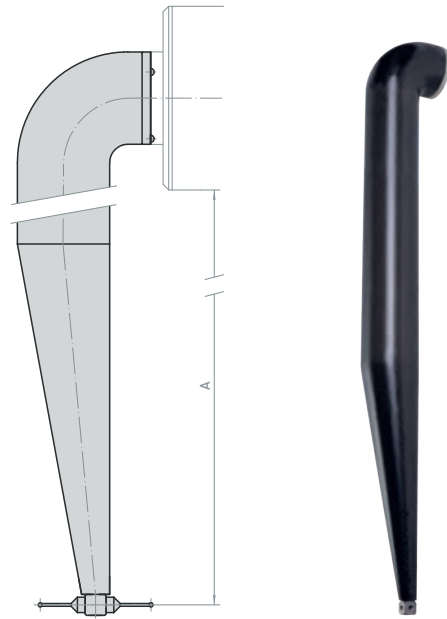


Fig.: CFRP internal gear rod (371837A)



Fig.: CFRP internal gear rod 500 (372303A)



| Designation                                      | L   | D  | Plunge depth A | Distance to change disk B | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |   |
|--|-----|----|----------------|---------------------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|---|
| CFRP int. gear. rod                              | -   | 21 | 265            | 105                       | 371837A  |      |        |      |      | •    | •     | •     |       |       |         |         |         |   |
| CFRP int. gear. rod                              | -   | 21 | 265            | 5                         | 377547A  |      |        |      |      |      |       |       | •     | •     |         |         |         |   |
| CFRP int. gear. rod                              | -   | 21 | 365            | 105                       | 371978A  |      |        |      |      | •    | •     | •     |       |       |         |         |         |   |
| CFRP int. gear. rod                              | -   | 21 | 365            | 5                         | 377549A  |      |        |      |      |      |       |       | •     | •     |         |         |         |   |
| CFRP extension piece                             | 50  | 21 | -              | -                         | 458128A  |      |        |      |      | •    | •     | •     | •     | •     | •       | •       | •       | • |
| CFRP extension piece                             | 100 | 21 | -              | -                         | 315303A  |      |        |      |      | •    | •     | •     | •     | •     | •       | •       | •       | • |
| CFRP extension piece                             | 100 | 21 | -              | -                         | 372221A  |      |        |      |      | •    | •     | •     | •     | •     | •       | •       | •       | • |
| CFRP extension piece                             | 120 | 21 | -              | -                         | 359993A  |      |        |      |      | •    | •     | •     | •     | •     | •       | •       | •       | • |
| CFRP extension piece                             | 150 | 21 | -              | -                         | 421113A  |      |        |      |      | •    | •     | •     | •     | •     | •       | •       | •       | • |
| CFRP extension piece                             | 175 | 21 | -              | -                         | 418986A  |      |        |      |      | •    | •     | •     | •     | •     | •       | •       | •       | • |
| CFRP extension piece                             | 250 | 21 | -              | -                         | 450231A  |      |        |      |      | •    | •     | •     | •     | •     | •       | •       | •       | • |
| CFRP extension piece                             | 300 | 21 | -              | -                         | 315302A  |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       | • |
| CFRP extension piece                             | 300 | 21 | -              | -                         | 458123A  |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       | • |
| CFRP extension piece                             | 400 | 21 | -              | -                         | 334416A  |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       | • |
| CFRP int. gear. rod (carbon rod, special stylus) | 500 | -  | 580            | -                         | 372303A  |      |        |      |      |      |       | •     | •     | •     |         |         |         |   |

## Special styluses for blades, stylus sets



| Designation          | L  | D | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|----------------------|----|---|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Stylus set, complete | 60 | 3 | 425532A  |      |        | •    | •    | •    | •     |       |       |       |         |         |         |
| Stylus set, complete | 80 | 5 | 398205A  |      |        | •    | •    | •    | •     |       |       |       |         |         |         |

Fig.: Complete stylus set in storage box (425532A)

# ROUGHNESS STYLUS SYSTEMS



## Roughness stylus systems

The surface quality of gearing and bearing surfaces is increasingly coming into focus due to steadily growing requirements for load capacity, service life and noise.

Roughness stylus systems for external and internal surfaces as well as gearing provide optimal prerequisites for measuring surface roughness reliably, reproducibly and fully automatically.

- Roughness styluses
- Roughness styluses, angled
- Roughness styluses for internal gearing

## Skid roughness stylus systems



Fig.: Roughness stylus, straight (458716\$)



Fig.: Roughness stylus, angled (458721\$)



Fig.: Roughness stylus for internal gearing (471092\$)

| Designation                             | Module        | Stylus tip | Mat. No.        | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|---|---------------|------------|-----------------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
|   |               |            |                 |      |        |      |      |      |       |       |       |       |         |         |         |
| Roughness stylus, straight              | 2 mm – 12 mm  | 0.005 mm   | <b>458716\$</b> | •    | •      | •    | •    | •    | •     | •     | •     | •     |         |         |         |
| Skid stylus system                      | 2 mm – 12 mm  | 0.002 mm   | <b>458717\$</b> | •    | •      | •    | •    | •    | •     | •     | •     | •     |         |         |         |
| Roughness stylus, straight              | 10 mm – 22 mm | 0.005 mm   | <b>458719\$</b> |      |        | •    | •    | •    | •     | •     | •     | •     |         |         |         |
| Roughness styluses                      | 10 mm – 22 mm | 0.002 mm   | <b>458720\$</b> |      |        | •    | •    | •    | •     | •     | •     | •     |         |         |         |
| Roughness stylus, straight              | 0.9 mm – 3 mm | 0.002 mm   | <b>458718\$</b> | •    | •      | •    | •    | •    | •     | •     | •     | •     |         |         |         |
| Roughness stylus, angled                | 2 mm – 12 mm  | 0.005 mm   | <b>458721\$</b> | •    |        | •    | •    | •    | •     | •     | •     | •     |         |         |         |
| Roughness stylus, angled                | 2 mm – 12 mm  | 0.002 mm   | <b>458722\$</b> | •    |        | •    | •    | •    | •     | •     | •     | •     |         |         |         |
| Roughness stylus, angled                | 10 mm – 22 mm | 0.005 mm   | <b>458723\$</b> |      |        |      |      | •    | •     | •     | •     | •     |         |         |         |
| Roughness stylus, angled                | 10 mm – 22 mm | 0.002 mm   | <b>458724\$</b> |      |        |      |      | •    | •     | •     | •     | •     |         |         |         |
| Roughness styluses for internal gearing | 0.9 mm – 3 mm | 0.002 mm   | <b>471092\$</b> |      |        | •    | •    | •    | •     | •     | •     | •     |         |         |         |

## GAUGES AND STANDARDS



### Gauges and standards

For years, the traceability of measuring results to certified standards has been a guarantee for the absolute precision of the measurement. Ease of use of the involute and lead standards, as well as the pitch standards and dimension, form, and position standards, ensures proper qualitative and quantitative quality monitoring. Using certified standards, the positions and probing errors of stylus elements are checked and calibrated at regular intervals to reliably detect and eliminate temporary environmental and wear influences.

- Stylus set-up gauge D = 15 mm
- Stylus set-up gauge D = 5 mm
- Stylus set-up gauge D = 2 mm
- Gearing standard / lead standard
- Pitch standard
- SFP standard
- SFP multi-wave standard
- Standard for rotary table guide
- Roughness standard
- Seating and inspection mandrel

## Stylus set-up gauge

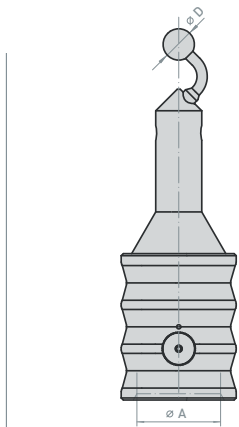


Fig.: Stylus set-up gauge D = 15 mm (458095\$)



Fig.: Stylus set-up gauge D = 5 mm (354067A)



Fig.: Stylus set-up gauge D = 2 mm (458423\$)

### Stylus set-up gauge D = 15 mm

| Designation   | Seating $\phi$ A | Ball $\phi$ D | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |   |
|---|------------------|---------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|---|
|   |                  |               |          |      |        |      |      |      |       |       |       |       |         |         |         |   |
| Stylus set-up gauge ball 15 w. certificate for chuck P 16 | -                | 15            | 458095\$ | •    | •      |      |      |      |       |       |       |       |         |         |         |   |
| Stylus set-up gauge ball 15 w. certificate for center     | 40               | 15            | 353086A  |      |        | •    | •    |      |       |       |       |       |         |         |         |   |
| Stylus set-up gauge ball 15 w. certificate for center     | 60               | 15            | 394706A  |      |        |      |      | •    | •     |       |       |       |         |         |         |   |
| Stylus set-up gauge ball 15 w. certificate for center     | 70               | 15            | 435774\$ |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       | • |

### Stylus set-up gauge D = 5 mm

| Designation  | Seating $\phi$ A | Ball $\phi$ D | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |  |
|--|------------------|---------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|--|
|  |                  |               |          |      |        |      |      |      |       |       |       |       |         |         |         |  |
| Stylus set-up gauge ball 5 w. certificate for chuck P 16 | -                | 5             | 458096\$ | •    | •      |      |      |      |       |       |       |       |         |         |         |  |
| Stylus set-up gauge ball 5 w. certificate for center     | 40               | 5             | 354067A  |      |        | •    | •    |      |       |       |       |       |         |         |         |  |
| Stylus set-up gauge ball 5 w. certificate for center     | 60               | 5             | 371907A  |      |        |      |      | •    | •     |       |       |       |         |         |         |  |

### Stylus set-up gauge D = 2 mm

| Designation  | Seating $\phi$ A | Ball $\phi$ D | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |  |
|--|------------------|---------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|--|
|  |                  |               |          |      |        |      |      |      |       |       |       |       |         |         |         |  |
| Stylus set-up gauge ball 2 w. certificate for chuck P 16 | -                | 2             | 458423\$ | •    | •      |      |      |      |       |       |       |       |         |         |         |  |
| Stylus set-up gauge ball 2 w. certificate for center     | 40               | 2             | 439606\$ |      |        | •    | •    |      |       |       |       |       |         |         |         |  |
| Stylus set-up gauge ball 2 w. certificate for center     | 60               | 2             | 439605\$ |      |        |      |      | •    | •     |       |       |       |         |         |         |  |

# GAUGES AND STANDARDS

## Standards for involutes and leads / SFP standards / roughness standard



Fig.: Standard for involutes and leads, type 100 (353173A)

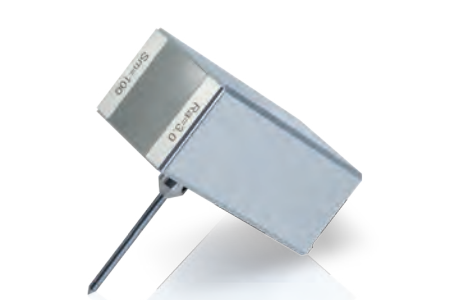


Fig.: Standard for involutes and leads, type 200 (353160A)



Fig.: Extended SFP reference standard (458163\$)

| Designation                                      | Seating $\varnothing$ A | Ball $\varnothing$ D | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|--|-------------------------|----------------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Standard f. involutes and leads, type 100        | -                       | -                    | 353173A  | •    |        | •    | •    | •    |       |       |       |       |         |         |         |
| Standard f. involutes and leads, type 200        | -                       | -                    | 353160A  |      |        |      |      |      | •     | •     | •     | •     | •       | •       | •       |
| SFP reference standard with certificate          |                         |                      | 458424\$ |      |        |      |      |      |       |       |       |       |         |         |         |
| Extended SFP reference standard with certificate | -                       | -                    | 458163\$ | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Roundness reference standard                     | 40                      | 15                   | 458432\$ |      |        | •    | •    |      |       |       |       |       |         |         |         |
| Roundness reference standard                     | 60                      | 15                   | 458433\$ |      |        |      |      | •    | •     |       |       |       |         |         |         |



## Roughness standard

| Designation                         | Roughness value | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|-------------------------------------|-----------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Roughness standard compl. with case | Ra 0.5          | 435647\$ | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Roughness standard compl. with case | Ra 3.0          | 417243A  | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |



## Acceptance and inspection mandrel

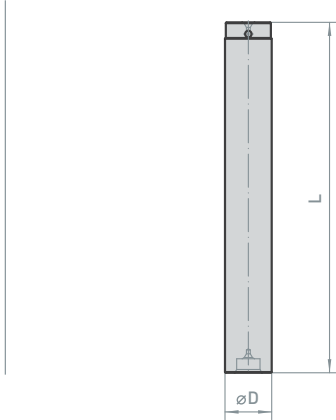


Fig.: Inspection mandrel

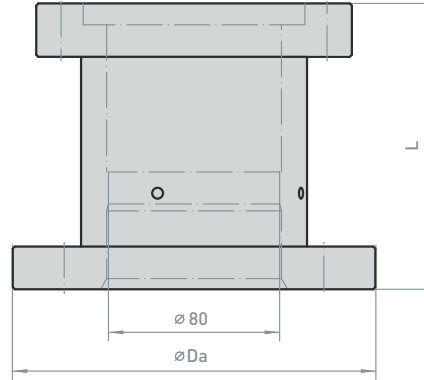


Fig.: Adapter for on-the-fly seating

| Designation   | L    | Da  | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|---|------|-----|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Inspection mandrel with certificate (Z axis 400)              | 450  | 60  | 445399\$ |      |        | •    | •    |      |       |       |       |       |         |         |         |
| Inspection mandrel with certificate (Z axis 550)              | 600  | 60  | 445400\$ |      |        | •    | •    | •    | •     |       |       |       |         |         |         |
| Inspection mandrel with certificate (Z axis 700)              | 750  | 60  | 445401\$ |      |        |      | •    | •    | •     |       |       |       |         |         |         |
| Inspection mandrel with certificate (Z axis 850)              | 900  | 60  | 445402\$ |      |        |      |      | •    | •     |       |       |       |         |         |         |
| Inspection mandrel with certificate (Z axis 1250)             | 1360 | 150 | 445403\$ |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       |
| Inspection mandrel with certificate (Z axis 1500)             | 1665 | 150 | 445404\$ |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       |
| Inspection mandrel with certificate (Z axis 2000)             | 2165 | 150 | 445405\$ |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       |
| Adapter for on-the-fly seating with center (P 150 – P 350)    | 134  | 150 | 421230A  |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       |
| Adapter for on-the-fly seating without center (P 150 – P 350) | 174  | 150 | 395947A  |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       |

# CLAMPING DEVICES, THREE-JAW QUICK-ACTION CHUCKS AND FACE PLATES



## Clamping devices, three-jaw quick-action chucks and face plates

A secure, quick and precise workpiece fixture for the measurement is becoming increasingly important, given that measurement times are continually decreasing as a result of innovative software solutions. Reducing set-up times is a key measure for minimizing floor-to-floor times.

- Three-jaw quick-action chuck D < 70 mm
- Three-jaw quick-action chuck D < 125 mm
- Three-jaw quick-action chuck D < 240 mm
- Three-jaw quick-action chuck D < 350 mm
- Three-jaw quick-action chuck with special jaws
- Jibs / leveling elements
- Face plates
- Alignment aids
- Clamping device, blades
- Carriers, special carriers
- Special center, bottom

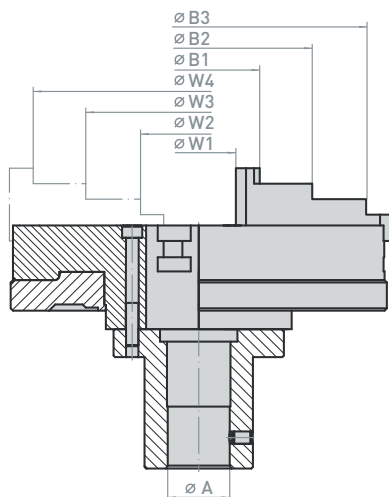


Fig.: Three-jaw quick-action chucks 70



Fig.: Three-jaw quick-action chucks 125



Fig.: Three-jaw quick-action chucks 240

### Three-jaw quick-action chuck 34 and 70

| Designation   | Seating $\varnothing A$ | W1       | W2        | W3        | B1        | B2        | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |  |
|---|-------------------------|----------|-----------|-----------|-----------|-----------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|--|
| Three-jaw quick-action chuck 34 DBF                 | -                       | -        | -         | -         | -         | -         | 450197A  |      |        |      |      |      |       |       |       |       |         |         |         |  |
|   | -                       | -        | -         | -         | -         | -         | 471500A  |      |        |      |      |      |       |       |       |       |         |         |         |  |
| Three-jaw quick-action chuck 70 DBF VA with adapter | 40                      | 2<br>-27 | 21<br>-46 | 39<br>-64 | 17<br>-42 | 35<br>-60 | 445499\$ |      |        |      |      |      |       |       |       |       |         |         |         |  |
| Three-jaw quick-action chuck 70 DBF VA with adapter | 60                      | 2<br>-27 | 21<br>-46 | 39<br>-64 | 17<br>-42 | 35<br>-60 | 450002\$ |      |        |      |      |      |       |       |       |       |         |         |         |  |

### Three-jaw quick-action chuck 125

| Designation  | Seating $\varnothing A$ | W1       | W2        | W3         | B1        | B2         | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |  |
|--|-------------------------|----------|-----------|------------|-----------|------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|--|
| Three-jaw quick-action chuck 125 DBF VA with adapter | 40                      | 3<br>-54 | 30<br>-81 | 67<br>-120 | 32<br>-83 | 69<br>-120 | 445494\$ |      |        |      |      |      |       |       |       |       |         |         |         |  |
| Three-jaw quick-action chuck 125 DBF VA with adapter | 60                      | 3<br>-54 | 30<br>-81 | 67<br>-120 | 32<br>-83 | 69<br>-120 | 450001\$ |      |        |      |      |      |       |       |       |       |         |         |         |  |

### Three-jaw quick-action chuck 240

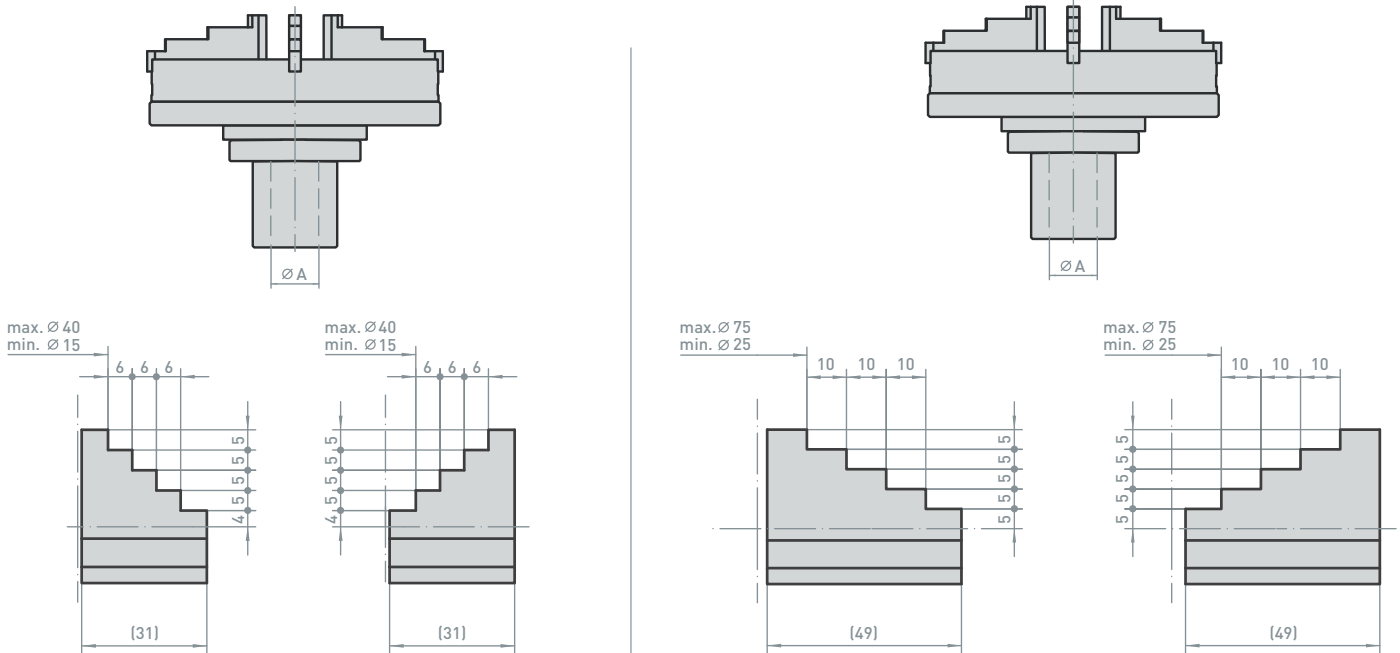
| Designation  | Seating $\varnothing A$ | W1        | W2         | W3          | W4          | B1         | B2          | B3          | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |  |
|--|-------------------------|-----------|------------|-------------|-------------|------------|-------------|-------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|--|
| Three-jaw quick-action chuck 240 DBF VA with adapter | 40                      | 4<br>-120 | 40<br>-152 | 108<br>-122 | 176<br>-292 | 38<br>-152 | 106<br>-222 | 176<br>-292 | 366816A  |      |        |      |      |      |       |       |       |       |         |         |         |  |
| Three-jaw quick-action chuck 240 DBF VA with adapter | 60                      | 4<br>-120 | 40<br>-152 | 108<br>-122 | 176<br>-292 | 38<br>-152 | 106<br>-222 | 176<br>-292 | 366815A  |      |        |      |      |      |       |       |       |       |         |         |         |  |

### Three-jaw quick-action chuck 315

| Designation  | Seating $\varnothing A$ | W1        | W2         | W3          | W4          | B1         | B2          | B3          | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |  |
|--|-------------------------|-----------|------------|-------------|-------------|------------|-------------|-------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|--|
| Three-jaw quick-action chuck 350 DBF VA with adapter | 60                      | 4<br>-200 | 85<br>-229 | 153<br>-297 | 227<br>-371 | 40<br>-177 | 111<br>-253 | 261<br>-404 | 452801\$ |      |        |      |      |      |       |       |       |       |         |         |         |  |

# CLAMPING DEVICES, THREE-JAW QUICK-ACTION CHUCKS AND FACE PLATES

## Three-jaw quick-action chuck with special jaws



| Designation  | Seating $\varnothing$ A | Mat. No. | P 16  | P 16 G | P 26    | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|--|-------------------------|----------|---|--------|---------|------|------|-------|-------|-------|-------|---------|---------|---------|
|  |                         |          | Three-jaw quick-action chuck D = 70 with special jaws | 40     | 393331A |      |      | •     | •     |       |       |         |         |         |
| Three-jaw quick-action chuck D = 125 with special jaws | 40                      | 393332A  |   |        | •       | •    |      |       |       |       |       |         |         |         |
| Three-jaw quick-action chuck D = 125 with special jaws | 60                      | 417333A  |   |        |         |      | •    | •     |       |       |       |         |         |         |

## Jibs / leveling elements

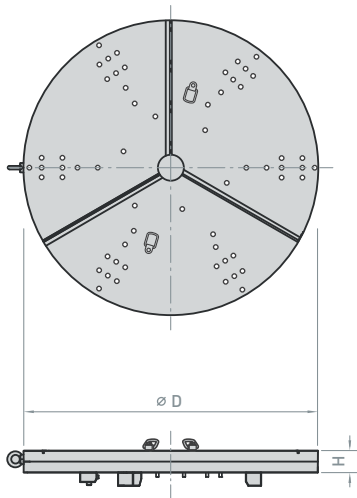
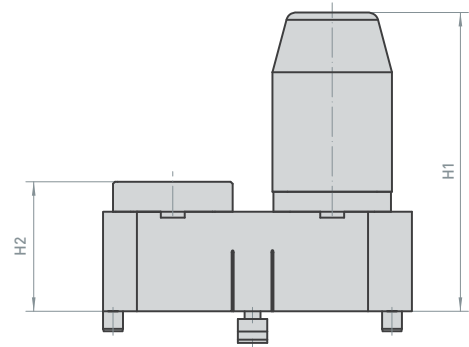


Fig.: Face plates



Fig.: Centering support compl. P 150 – P 350 411471A (3x)



## Jibs

| Designation                          | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|--------------------------------------|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Jib U30                              | 307880A  |      |        |      |      |      | •     |       |       |       |         |         |         |
| Leveling shoe                        | 256661A  |      |        | •    | •    |      |       |       |       |       |         |         |         |
| Jib f. U31 – 33 with coupling device | 417462A  |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       |

## Face plates

| Designation    | D    | H   | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|----------------|------|-----|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Face plate U32 | 1500 | 80  | 417213A  |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       |
| Face plate U33 | 2000 | 150 | 417122A  |      |        |      |      |      |       |       | •     | •     | •       | •       | •       |
| Face plate U31 | 3000 | 180 | 417258A  |      |        |      |      |      |       |       |       | •     | •       | •       | •       |

## Alignment aids

| Designation  | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|--|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Centering support compl. P 150 – P 350, (3 x 411471A)  | 411471A  |      |        |      |      |      |       | •     | •     | •     | •       | •       | •       |
| Centering support compl. P 65 – P 100L, (3 x 428577\$) | 428577\$ |      |        |      |      | •    | •     |       |       |       |         |         |         |

# CLAMPING DEVICES, THREE-JAW QUICK-ACTION CHUCKS AND FACE PLATES

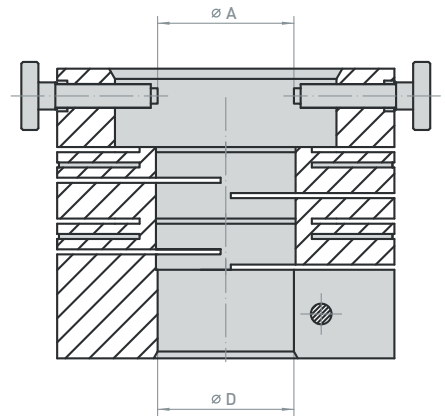
## Clamping device for stick blades



Fig.: Equipment for stick blades, Meteorit (450338\$)



Fig.: Carrier for P 26 / P 40 (353181A)



| Designation                          | Seating $\varnothing A$ | Mat. No.        | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|--------------------------------------|-------------------------|-----------------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Equipment for stick blades, Meteorit | For center D = 40       | <b>450338\$</b> |      |        | •    | •    |      |       |       |       |       |         |         |         |
| Equipment for stick blades, Meteorit | For center D = 60       | <b>450339\$</b> |      |        |      |      | •    | •     |       |       |       |         |         |         |

## Carrier

| Designation                                     | A        | D  | Mat. No.       | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|---|----------|----|----------------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Carrier for P 26 / P 40                         | 0 – 40   | 40 | <b>312826A</b> |      |        | •    | •    |      |       |       |       |       |         |         |         |
| Carrier for P 26 / P 40                         | 40 – 60  | 40 | <b>331124A</b> |      |        | •    | •    |      |       |       |       |       |         |         |         |
| Carrier for P 26 / P 40                         | 60 – 100 | 40 | <b>353181A</b> |      |        | •    | •    |      |       |       |       |       |         |         |         |
| Carrier for P 65 – P 100L                       | 0 – 60   | 60 | <b>359462A</b> |      |        |      |      | •    | •     |       |       |       |         |         |         |
| Carrier for P 65 – P 100L                       | 60 – 100 | 60 | <b>359171A</b> |      |        |      |      | •    | •     |       |       |       |         |         |         |
| Carrier for Reishauer grinding w. for P 26/P 40 | 65       | 40 | <b>315009A</b> |      |        | •    | •    |      |       |       |       |       |         |         |         |

## Plug-on centers

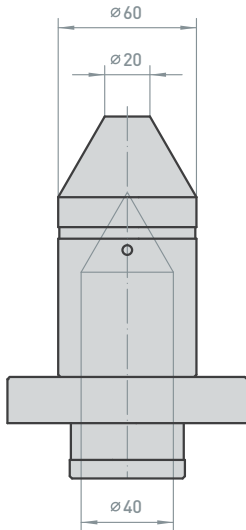


Fig.: Plug-on center paired w. machine center D = 60 (450366\$)

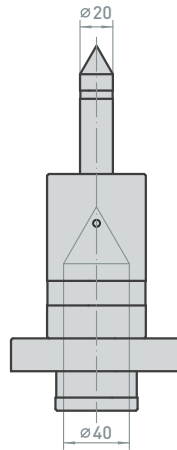


Fig.: Plug-on center paired w. machine center D = 20 (439737\$)

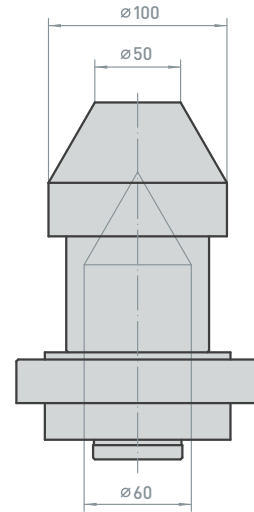


Fig.: Plug-on center paired w. machine center D = 100 (424720A)

| Designation   | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|---|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Plug-on center paired w. machine center<br>Plug-on center 959.020.066 D = 60 flat-topped D = 20<br>Machine center 962.011.001 D = 40  | 450366\$ |      |        | •    | •    |      |       |       |       |       |         |         |         |
| Plug-on center paired w. machine center<br>Plug-on center 959.020.121 D = 20<br>Machine center 962.011.001 D = 40                     | 439737\$ |      |        | •    | •    |      |       |       |       |       |         |         |         |
| Plug-on center paired w. machine center<br>Plug-on center 964.040.020 D = 100 flat-topped D = 50<br>Machine center 964.011.001 D = 60 | 424720A  |      |        |      |      | •    | •     |       |       |       |         |         |         |

## ACCESSORIES



### Accessories

Proper storage of accessories and wear parts is equally of extreme importance. Improper storage can quickly involve costs and result in damage that usually exceeds the purchase cost for safe storage.

- Cabinets
- Dial indicators and connecting rods
- MT 12



## Cabinets



Fig.: Storage cabinet for retrofitting of P 26, P 40, P 65, P 100 (458859\$)

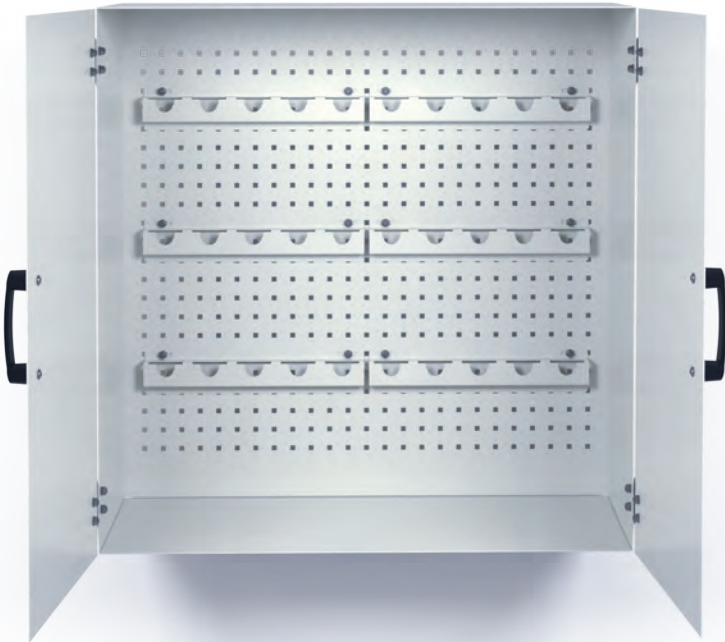


Fig.: Tool cabinet for stylus rods with 30 slots (458398\$)

| Designation                                | Mat. No.        | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|--|-----------------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Stylus case retrofit                       | <b>458859\$</b> |      |        | •    | •    | •    | •     |       |       |       |         |         |         |
| Tool cabinet for stylus rods with 30 slots | <b>458398\$</b> | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |

# ACCESSORIES

## Measuring rods / dial indicators



Fig.: Dial indicator stand with slide for T-grooves (426128A)



Fig.: Fisso articulated stand type 4400-45 F+S+SM (426126A)

| Designation   | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|---|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| "Mikrokator" dial indicator   | 475801\$ | •    | •      | •    | •    | •    | •     | •     | •     | •     | •       | •       | •       |
| Fisso articulated stand type 4400-45 F+S+SM (standard equipment P 26/P 40)    | 426126A  |      |        | •    | •    |      |       |       |       |       |         |         |         |
| Dial indicator stand with slide for T-grooves (standard equipment P 65/P 100) | 426128A  |      |        |      |      | •    | •     |       |       |       |         |         |         |



Fig.: Connecting rod for dial indicator



Fig.: "Mikrokator" dial indicator (475801\$)

| Designation                                     | Mat. No. | P 16 | P 16 G | P 26 | P 40 | P 65 | P 100 | P 150 | P 250 | P 350 | P 150 W | P 250 W | P 350 W |
|---|----------|------|--------|------|------|------|-------|-------|-------|-------|---------|---------|---------|
| Connecting rod for dial indicator P 100 – P 350 | 424527A  |      |        |      |      |      | •     | •     | •     | •     | •       | •       | •       |
| Connecting rod for dial indicator P 150 – P 350 | 439752\$ |      |        |      |      |      | •     | •     | •     | •     | •       | •       | •       |
| Connecting rod for dial indicator P 150 – P 350 | 393176A  |      |        |      |      |      | •     | •     | •     | •     | •       | •       | •       |
| Incremental stylus MT12*                        | 372368A  |      |        |      |      | •    | •     | •     | •     | •     | •       | •       | •       |

\*To use the MT12, the device must be fitted with an appropriate connection. An additional counter board may also be required.

## SERVICE



### Always on the leading position

Klingelberg training courses in measuring technology are offered throughout the year, either according to the training schedule or as mutually agreed.

Participants in these courses learn skills in the relevant measurement methods and the software designed for these methods. Alongside theory, participants receive practical training on current Klingelberg precision measuring centers and specific workpieces from the production floor.

- Small groups of no more than six to eight participants
- Pool of instructors comprising 15 application engineers

Recertification of standards ensures reliable precision for production and quality management and involves routine inspection at regular intervals of calibration standards subject to high demands.

Available services:

- Recertification of gearing standards and dimension, form and position standards
- Recertification of stylus set-up gauges



| Designation                                       | Art. No. Software Module | Art. No. Training | Duration |
|---|--------------------------|-------------------|----------|
| Training for clutch gearing                       | 590.097                  | 590.600           | 2 days   |
| Training for testing of gearshift sleeves         | 590.098                  | 590.602           | 5 days   |
| Training for hob software                         | 590.160                  | 590.605           | 2 days   |
| Training for shaper type cutter software          | 590.105                  | 590.610           | 1 day    |
| Training for shaving cutter software              | 590.100                  | 590.615           | 1 day    |
| Training for analysis of unknown gearing          | 590.095                  | 590.616           | 1 day    |
| Training for rack software                        | 590.097                  | 590.617           | 1 day    |
| Training for worm wheel software                  | 590.120                  | 590.620           | 1 day    |
| Training for cylindrical worm software            | 590.125                  | 590.621           | 1 day    |
| Training for bevel gear software, spur gearing    | 590.180                  | 590.623           | 1 day    |
| Training for bevel gear software, spiral gearing  | 590.182                  | 590.625           | 3 days   |
| Training for KOMET software                       | 590.400                  | 590.630           | 1 day    |
| Training for METEORIT stick blade software        | 590.217                  | 590.632           | 1 day    |
| Training for ROTOR software                       | 590.300                  | 590.640           | 2 days   |
| Training for curve measurement                    | 590.280                  | 590.645           | 2 days   |
| Training for camshaft software                    | 590.290                  | 590.646           | 2 days   |
| Training for tooth contact analysis               | 590.096                  | 590.650           | 2 days   |
| Training for SFP basic module                     | 590.262                  | 590.652           | 3 days   |
| Training for SFP basic module + GEI               | 590.263                  | 590.653           | 2 days   |
| Training for SFP basic module + GEI + TEACH IN    | 590.267                  | 590.655           | 5 days   |
| Training for sprocket software                    | 590.265                  | 590.660           | 1 day    |
| Training for "VIEWER" deviation analysis          | 590.093                  | 590.670           | 1 day    |
| Training for "OPTIMIZE & WAVE" deviation analysis | 590.931                  | 590.671           | 2 days   |
| Training for "WAVE PRODUCT" deviation analysis    | 590.932                  | 590.672           | 2 days   |
| Training for "PRODUCE" deviation analysis         | 590.094                  | 590.673           | 3 days   |

To schedule a date, please contact [TSPI.DEU@Klingelberg.com](mailto:TSPI.DEU@Klingelberg.com)



| Designation                                      | Mat. No. |
|--|----------|
| Recertification with new calibration ball D = 15 | 442056\$ |
| Recertification with new calibration ball D = 5  | 442057\$ |
| Recertification with new calibration ball D = 2  | 450252\$ |
| Inspection mandrel certification                 | 353089A  |
| Recertification lead standard type 100           | 331136A  |



# KLINGELNBERG SUBSIDIARIES



- Klingelberg headquarters
- Klingelberg location
- Klingelberg location with grinding service
- DKSH-Klingelberg Service Ltd.

As a globally operating company, we are naturally also represented at important international locations for our business partners, so that you can rely on our short distances and quick solutions even in far-away places.



# REQUEST FOR QUOTATION

**KLINGELNBERG**

Please fill out the form completely and legibly and return it by e-mail to: [TSPI.DEU@Klingelberg.com](mailto:TSPI.DEU@Klingelberg.com)

The data indicated below are collected and processed in compliance with the applicable data protection law (GDPR).  
For more information, read our data privacy notice at <https://klingelberg.com/en/protection-of-data-privacy>.

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|                        | Date / signature:           |
|                        | _____                       |

Please send me a non-binding quotation for the following products:

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Please call me back.

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**KLINGELNBERG GmbH**  
Peterstrasse 45  
42499 Hückeswagen, Germany  
Tel. +49 2192 81-0  
Fax +49 2192 81-200

## KLINGELNBERG Service

The KLINGELNBERG Group is a world leader in the development and manufacture of machines for bevel gear and cylindrical gear production, and precision measuring centers for gearing and axially symmetrical components, as well as the production of customized high-precision drive components. In addition to the headquarters in Zurich, Switzerland, further development and production facilities are located in Hückeswagen and Ettlingen, Germany.

The company also maintains a presence with Sales and Service offices and numerous marketing agents. On this basis, Klingelberg offers users a comprehensive range of services for all aspects of toothed gear design, manufacturing, and quality inspection. The spectrum includes technical consulting, on-site machine acceptance, operator and software training as well as maintenance contracts.

## KLINGELNBERG Solutions

Klingelberg solutions are used in the automotive, commercial vehicle, and aviation industries, as well as in shipbuilding, the wind power industry, and the general transmission manufacturing industry. With numerous R&D engineers around the globe and over 200 registered patents, the company consistently demonstrates its capacity for innovation.

EN 05/2022 - Subject to technical modifications without notice.

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