

# MarGear

NEW



## MarGear GMX 400 W Breakthrough into a new dimension

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**Mahr**

EXACTLY

► | With the W-series, gear metrology from Mahr moves into the MarWin platform

- MarEcon control with tracking mode
- Gear software under MarWin
- Comfortable GDE interface for gear data
- MarForm Advanced and Professional
- Easy creation of programs in Teach-In mode
- Integration of data matrix code scanners
- Uninterrupted travel movements
- Target positioning with highest accuracy
- 3D visualization of the gear geometry

## MarGear GMX 400 W. Universal Gear Measuring Center



### Features

High-precision and fully automatic testing of gears and complete gear shafts up to an outside diameter of 400 mm.

More easily than ever before, gear measurement tasks can be combined with numerous form & location characteristics.

In the environment of MarWin - the Mahr software that has been sold over 6000 times - complete programs in the teach-in mode can be easily programmed and clearly depicted. With this software, the efficiency in programming is increased and possible erroneous operation decreased. The proven GMX machine error correction in real time is used with the new MarEcon control also for positioning movement so that the entire measuring and movement sequence has the utmost precision and speed!

### Features

**Gear, form and dimension measurements** are realized on one measuring machine

**High-precision 3D scanning sensor** in combination with directly driven C axis guarantees precision and speed

**Control**  
5-axis control

**Long tailstock (option)**  
To clamp gear shafts up to 700 mm in length

#### Test features

- Straight and helical cylindrical gears
- GDE interface for inside and outside gears
- Data export to QS-STAT
- Form and length measurements
- 3D geometries such as distances, taper angle,...

### Accuracies

#### MarGear GMX 400 W

Gear measuring unit in Accuracy Class 1 for gear measurements as per

**VDI/VDE 2612/2613 Group 1** at 20 °C ± 2 K  
(rotational axis in formtester accuracy)

### Technical Data

Measuring path (mm), X axis	200
Measuring path (mm), Y axis	200
Measuring path (mm), Z axis	320
Diameter max.* [mm]	400
Distance between centers [mm]	700
Length	1560
Width	600
Height	1787 / 2147
Weight [kg]	700
Max. workpiece weight [kg]	60 (80 upon request)
Axial runout ( $\mu\text{m} + \mu\text{m}/\text{mm}$ measuring radius)	0.11 $\mu\text{m}$ + 0.0008 $\mu\text{m}/\text{mm}$
Radial runout ( $\mu\text{m}$ in table height)	$\leq 0.11 \mu\text{m}$

#### Connection data

Supply voltage	110 / 230 V: 50 Hz up to 60 Hz
Power consumption	2300 Va

#### Permissible ambient conditions

Humidity	40 % up to 60 %
Environmental temperature for operational readiness	+15 °C up to +35 °C

Specified accuracy class is ensured at 20 °C ± 2 K

\* max. diameter of cylindrical gears

## MarGear GMX 400 W

### Features

- Measurement and evaluation of outside and inside gears ( $B < 90^\circ$ )
- Evaluation as per: DIN 3962, ISO 21771, ISO 1328, and more
- Measurement and evaluation of profile, flank line, pitch, runout, tooth thickness, dimension over balls and dimension over pins
- Crowned and tapered gears
- Relief of tooth
- Tolerance fields, K-diagrams
- Distortion measurement
- Measurement of head and root circle diameter
- Measurement of segment gears
- Measurement and evaluation starting from module 0.3 mm

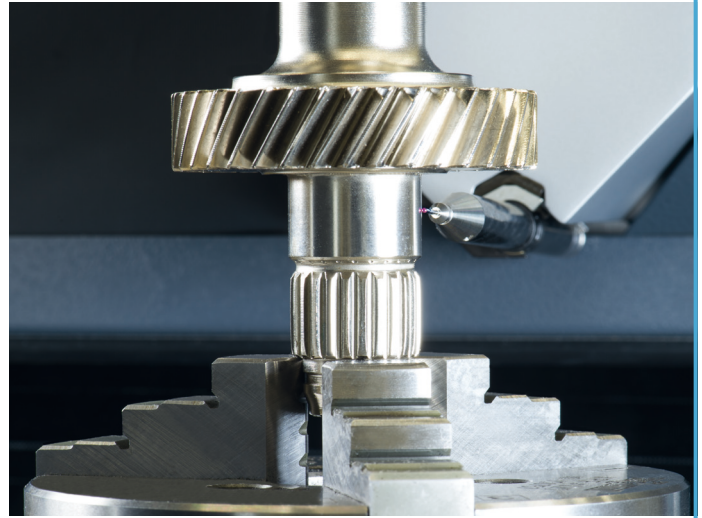
### Components

#### Hardware

- MarGear GMX 400 W
- Cylindrical gear measuring station including:
  - Reference probe
  - Diameter of calibration ball: 5 mm and 25 mm
  - Probe arm set "tooth"
  - Probe arm set "star probe"
  - Probe arm set "G probe"
- Round table in formester accuracy
- Worktable / E-tower
- Complete measuring station including PC, printer and TFT monitor

#### Software

- MarWin QE CYLINDRICAL GEAR for the measurement and evaluation of cylindrical gears (inside and outside)
- Adjustment modules from the form construction set
- Centering and tilting with calculated wobble correction
- Distortion measurement
- Software package for the measurement of conical cylindrical gears
- Software package for the measurement of segment gears



### Expansions

#### Hardware

- Quick clamping chuck for 110 mm or 220 mm
- Standard tailstock up to 450 mm clamping length
- Long tailstock up to 700 mm clamping length
- Revolving mounting centers for tailstock
- Data matrix code scanner
- Active damping system

#### Software

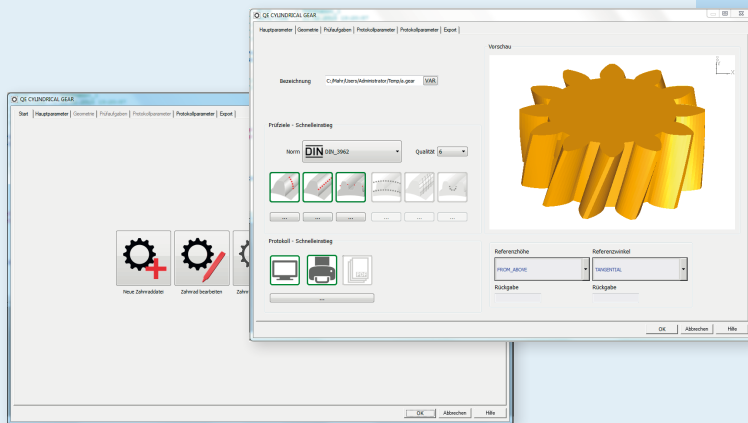
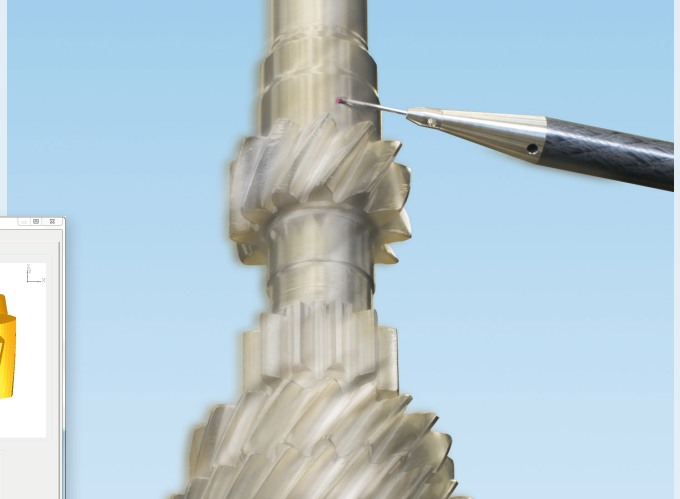
- Mahr statistics interface for data export to QS-STAT
- GDE interface
- K-profile evaluation
- MarWin Advanced Form



## MarGear GMX 400 W

### Software description

In addition to easy operation, the new software offers the user different interfaces for even easier automation of the measuring sequence. Even when importing gear data, e.g. in GDE format, a 3D model of the gear is presented for optical control and the tooth geometry is checked for plausibility. This further minimizes operation errors!



### Software highlights

The clear user interface „QE Cylindrical Gear“ offers numerous interfaces for the import and export of data.

With the QEP interface (Quick& Easy Profile), profile and result data of a gear measurement can be comfortably archived in the MarWin specific format and loaded again at a later time for retrospective evaluation.

With the new module „QE Cylindrical Gear“ the range of measuring modules is expanded by yet another element in the MarWin platform.

Q&E modules from the MarWin construction set can now be quickly and easily connected to create a complete program for a gear shaft.

PROGRAMM	
HAUPTPROGRAMM	
	QE AXIAL RUN_OUT
	QE CYLINDRICITY
	QE CYLINDRICAL GEAR
	QE DIAMETER
	QE FLATNESS
	QE PERPENDICULARITY
	QE CYLINDRICAL GEAR
	QE QSSTAT
PROGRAMM ENDE	

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