MarForm

MarForm MMQ 400-2
with vertical measuring axis 900 mm
for long shafts

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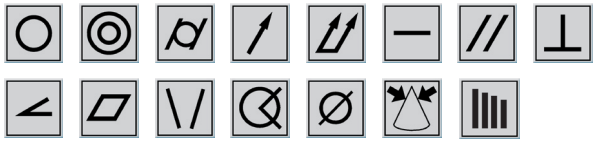
MarForm MMQ 400-2

The MMQ 400-2 is the universal form measuring machine in production and the inspection room



Features

MMQ 400-2 for universal use for extensive workpiece assessment as per DIN ISO 1101. High-precision measuring axes in Z and X make every form measuring task possible.

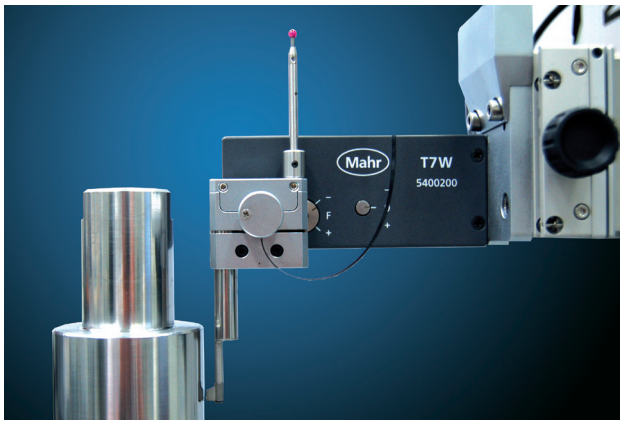
MarForm MMQ 400-2 for:

- High-precison workpieces
- Unusually long workpieces
- Large and heavy workpieces
- For use at the production site or in the inspection room

MarForm MMQ 400-2 is available in five versions for your needs and is therefore optimally designed for each task:

- with motorized or manual centering and tilting table
- vertical axis (Z) with 500 mm or (Z) 900 mm and horizontal axis (X) with 280 mm measuring length or
- vertical axis (Z) with 350 mm and horizontaler axis (X) with 180 mm measuring length
- with digital path control system in the linear axes X and Z for best reproducibility of measurements

Your **MarForm MMQ 400-2** is available as a semi-automatic measuring station with manual centering and tilting table or as a fully automatic measuring station which is perfectly desgined for the task of high-precision testing of your workpieces without any operator intervention due to the combination of the motorized centering and tilitng table and the T7W probe.



Motorized form probe T7W

The **T7W measuring probe** is equipped with a motorized swivel axis. This enables the probe arms to be gradually brought into the correspondingly desired contact position. This makes measurements on cylindrical surfaces possible just as well as on end faces. As a zero positioning probe, the **T7W** is also able to change automatically from inside and outside measurements or also between end face measurements from above and below without operator intervention.

The probe arms of the **T7W** can be changed. Due to its motorized swivel axis, so-called star probe arms - meaning probe arms with different contact elements - can be set up so that a change can be made between different probe ball geometries during a measuring run.

Option roughness measurement

Combine form and tolerance inspection with the monitoring of roughness parameters. Document the typical roughness parameters such as R_a and R_z when testing the form of your workpiece with **MarForm MMQ 400-2**, without having to clamp the workpiece on another measuring station.

The motorized, program controlled change between form probe with ruby ball and roughness probe PHT 6-350 makes it possible for you. Operator intervention is avoided and each probe is motorically positioned from the vertical position to the horizontal. The motorized swivel axis of the form probe T7W is used, which possition the corresponding probe in 1° increments.

MarForm Overview Standard Form Measuring Machines

Formtester	**MMQ 400-2 Z = 350 mm X = 180 mm**	**MMQ 400-2 Z = 500 mm X = 280 mm**	**MMQ 400-2 Z = 900 mm X = 280 mm**
Order no.:	**5440770 5440780**	**5440771 5440781**	**5440782**
Roundness measuring unit, C-axis			
Roundness deviation (µm+µm/mm measuring height)**	0.02 + 0.0005	0.02 + 0.0005	002 + 0.0005
Roundness deviation (µm+µm/mm measuring height)*	0.01 + 0.00025	0.01 + 0.00025	0.01 + 0.00025
Axial run-out (µm+µm/mm measuring radius)**	0.04 + 0.0002	0.04 + 0.0002	0.04 + 0.0002
Axial run-out (µm+µm/mm measuring radius)*	0.02 + 0.0001	0.02 + 0.0001	0.02 + 0.0001
Centering and tilting table	**manual/autom.**	**manual/autom.**	**automatic**
Table diameter (mm)	285	285	285
Table capacity, centric (N)	600	600	400***
Number of revolutions (1/min)	1 - 10	1 - 10	1 - 10
Vertical unit. Z-axis			
Motorized measuring path (mm)	350	500	900
Straightnesss deviation /100 mm measuring path (µm)**	0.15	0.15	0.15
Straightnesss deviation /total measuring path (µm)**	0.3	0.4	0.4
Parallelism deviation Z-/C-axis in tracing direction (µm)	0.5	0.8	2
Measuring speed (mm/s)	< 0.1 - 10	< 0.1 - 10	< 0.5 - 10
Positioning speed (mm/s)	< 0.5 - 100	< 0.5 - 100	< 0.5 - 100
Horizontal unit. X-axis			
Measuring path motorized (mm)	180	280	280
Straightnesss deviation /100 mm measuring path (µm)**	0.8	1.5	1.5
Straightnesss deviation /middle100 mm meas. path (µm)**	0.4	0.5	0.5
Straightnesss deviation /total measuring path (µm)**	0.8	1.5	1.5
Perpendicularity X-/C-axis (µm)	1	2	2
Measuring speed (mm/s)	< 0.1 - 10	< 0.1 - 10	< 0.1 - 10
Positioning speed (mm/s)	< 0.1 - 10	< 0.5 - 30	< 0.5 - 30
Maschine volume			
Distance C/Z - max. radius of interfering edge (mm)	220	364	364
max. testing radius external (mm)	-45 to 135	-15 to 265	-15 to 265
max. measuring height external with T20W/T7W (mm)	361 (475)	511 (625)	911 (1025)
Dimensions/Connection data			
Height x width x depth (mm)	1080 x 840 x 550	1330 x 840 x 550	1630 x 840 x 550
Weight (kg)	245	260	300
Mains connection	115 - 230 V +6% -10% 50 / 60 Hz -- 60 VA	115 - 230 V +6% -10% 50 / 60 Hz -- 60 VA	115 - 230 V +6% -10% 50 / 60 Hz -- 60 VA

* Values as maximum deviation from reference circle LSC, filter 15 upr at 5 rpm

** All values as per DIN ISO 1101 at 20 °C ±1 °C in oscillation-neutral environment, filter: 15 upr LSC or 2.5 mm. LSS; speed: 5 rpm or 5 mm/s (0.2"/s) and standard probe arm with ball ø 3 mm (0.12").
Verified with a standard taking the error separation procedure into considertation.
All technical data is subject to change.

*** Work piece length max. 900 mm, work piece diameter max. 285 mm, balance point below middle of work piece.

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