



TTT_Tapping-Torque-Testsystem
Laboratory "screening- and analysis"
measurement system

Measuring tools & test bars

Conditions and tolerances

The following test materials and test tools will be delivered in consistent quality every time or will be used for customer specific laboratory examinations / requirements. **Further complementary test-methods** and -materials are in treatment

TTT_Laboratory Testbars

Aluminium

AlMgSi1 / 3.2315 / EN 6082 (AlSi/SAE/ASTM)
Hardness R_m 420-450 N/mm² / $R_{p0,2}$ 340-370 N/mm²
Ultimate elongation A 5 > 5-7% / 140 HB / $R_{p0,2}$ min. 340 N/mm²

AlZnMgCu0,5 / 3.4345 / EN 7022 (AlSi/SAE/ASTM)
Hardness R_m 420-450 N/mm² / $R_{p0,2}$ 340-370 N/mm²
Ultimate elongation A 5 > 5-7% / HB 140 / density 2.78 Kg/dm³

AlZnMgCu01,5 / 3.4365 / EN 7075 (AlSi/SAE/ASTM)
Hardness 420-450 N/mm² / $R_{p0,2}$ = 420 N/mm²
Ultimate elongation A 5 > 5-7% / HB 140 / density 2.78 Kg/dm³

G-AlSi12cu / 3.2583 / GD-3-2983
Hardness R_m 150-290 N/mm² / $R_{p0,2}$ 80-130 N/mm²
Ultimate elongation A 5 (1-3,5%) / HB 50 / density 2,65 Kg/dm³

Price each test bar
Price for delivery 5 resemble pieces

€ **300,-- / pcs.**
€ **250,-- / pcs.**

Dimensions & Methods

Test bar sizes: 125 x 47 x 18 mm with counter sinking
140 drilled array at 6 mm for TTT StandardTools – M4F and M4S
- Diameter 3,7mm / 15 mm depth for TTT-Tool M4F
- Diameter 3,3mm / 15 mm depth for TTT-Tool M4S

TTT_Tools / microtap AL measuring tools

Price for delivery 10 pieces
Single price

TTT-Tool M4F Standard (vaporised / nitrated forming)
TTT-Tool M4S Standard (blank or nitrated cutting)
TTT-Tolerance-gauge M4F and/or M4S

€ **500,-- / total**
€ **60,-- / pcs.**



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"When monitoring lubricants"

TTT_Laboratory Testbars

Steel / Titan

Carbon steel

C45N/C45E / 1.1730 (Ck45 / 1.1191) / AiSi/SAE/ASTM -1045
Hardness R_m 600N/mm² / 175 HB / 85 PSIx1000
Ultimate elongation A 5 (%) > 14 / R_e>355N/mm²

Price each test bar
Price for delivery 5 resemble pieces

€ **400,-- / pcs.**
€ **320,-- / pcs.**

Stainless Steel

X6CrNiMoTi17-12-2 / 1.4571 (V4A) / AiSi/SAE/ASTM - 316Ti
Hardness 725N/mm² / 225 HB / 112 PSIx1000
Ultimate elongation A 5 (%) > 40 / R_m = 775N/mm²

Price each test bar
Price for delivery 5 resemble pieces

€ **460,-- / pcs.**
€ **370,-- / pcs.**

Heat treated steel

42CrMo4V - / 1.7225 (CrMo4) / AiSi/SAE/ASTM - 4140
Hardness R_m 1100N/mm² / 300 HB / 145 PSIx1000
Ultimate elongation A 5 (%)

Price each test bar
Price for delivery 5 resemble pieces

€ **500,-- / pcs.**
€ **400,-- / pcs.**

Titan Grad 5

TiAl6V4 / 3.7164 (T-A6V) 49-11/-28/-35/-54/-/65/-67 (AiSi/SAE/ASTM)
Hardness R_m 1150N/mm² / 340 HB / 163 PSIx1000 / 36 HRC
Ultimate elongation / R_em²

Price each test bar
Price for delivery 5 resemble pieces

€ **600,-- / pcs.**
€ **500,-- / pcs.**

Dimensions & Methods

Testbar sizes: 125 x 47 x 18 mm with counter sinking
140 drilled array at 6 mm for TTT-Tools – M4F and M4S
- Diameter 3,7mm / 15 mm (3xD) measurement range for TTT-Tool M4F
- Diameter 3,3mm / 15 mm (3xD) measurement range for TTT-Tool M4S

TTT_Tools / microtap measuring tools

TTT-Tool M4F Standard (vaporised / nitrated forming)
TTT-Tool M4S Standard (blank or nitrated cutting)
TTT-Tool M4F-T for Titan applications (**new**)
TTT-Tolerance-gauge M4F and/or M4S

Price for delivery 10 pieces
Single price

€ **500,-- / total**
€ **60,-- / pcs.** (TiAl6V4 – 80 € / pcs.)

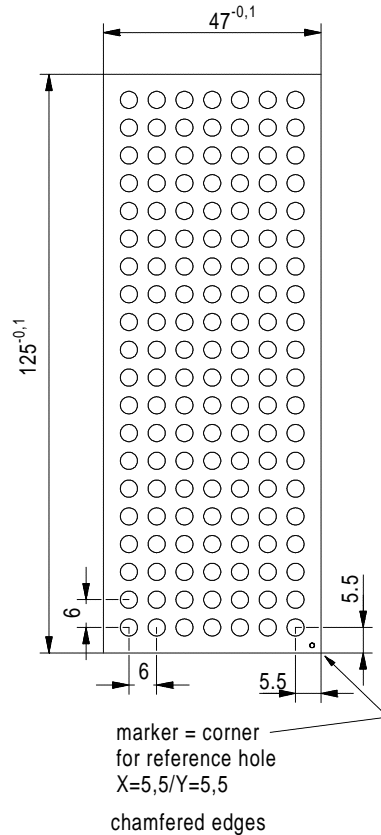
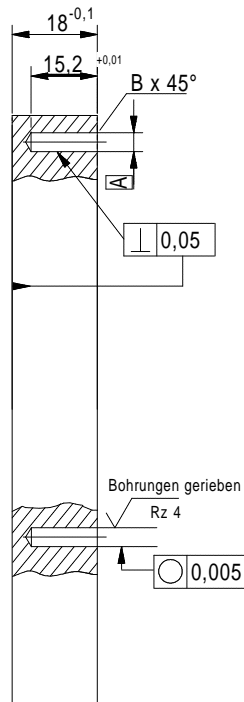
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<http://www.tapping-torque-test.com/>



TTT_Tapping-Torque-Testsystem
 Laboratory "screening- and analysis"
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Measuring test bars

Material conditions / tolerances
 for Standard TTT-tool M4F & M4S



Dimensions & Methods

TTT-Methodology

Forming

special
 Counterbore

Cutting

Counterbore

Conditions

Pricing
 Payment
 Delivery time

Test bars size 125 x 47 x 18 mm / 140 holes – M4

Forming, cutting and special applications

A = 3.70 mm / +0.03 - for standard TTT-Tool M4F
 A = 3.65 mm / +0.03 - for special TTT-Tool M4FX
 B = 0.2 mm

A = 3.3 mm / +0.03 for standard TTT-Tool M4S
 B = 0.4 mm

[Terms of delivery](#) of microtap GmbH

€ ex work, excl. packaging
 14 days net / Foreign countries payment in advance
 Approximately 2-4 weeks after order

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R_m Hardness
A Fracture strain

R_e Yield strength

R_{p0,2} 0,2% Yield point

Stress-Strain-Chart

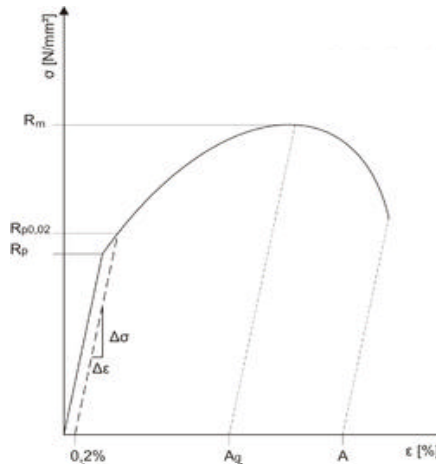
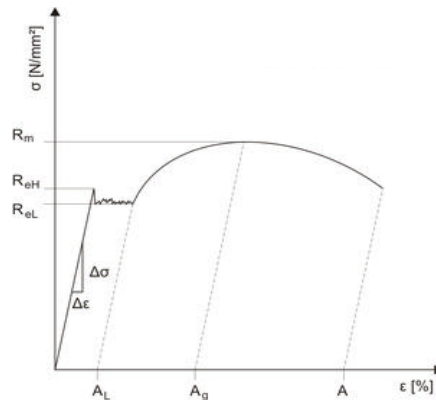
Legend

Indicates the tension at the peak of the stress-strain-chart.

Indicates the remaining distension when breaking. This is the measure for the utmost distension of a material.

Indicates the tension prevailing in material immediately before stretching.

Indicates the tension at which tension test displays a yield point of 0,2 % of plastic deformation after release. R_{p0,2} value is only used with materials lacking a yield strength.



- R_{eH}** Upper yield strength
- R_{eL}** Lower yield strength
- E** Flexibility module
- A_g** Symmetry distension / start of necking
- e** Distension [%]
- s** Tension [N/mm²]
- A** Fracture

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