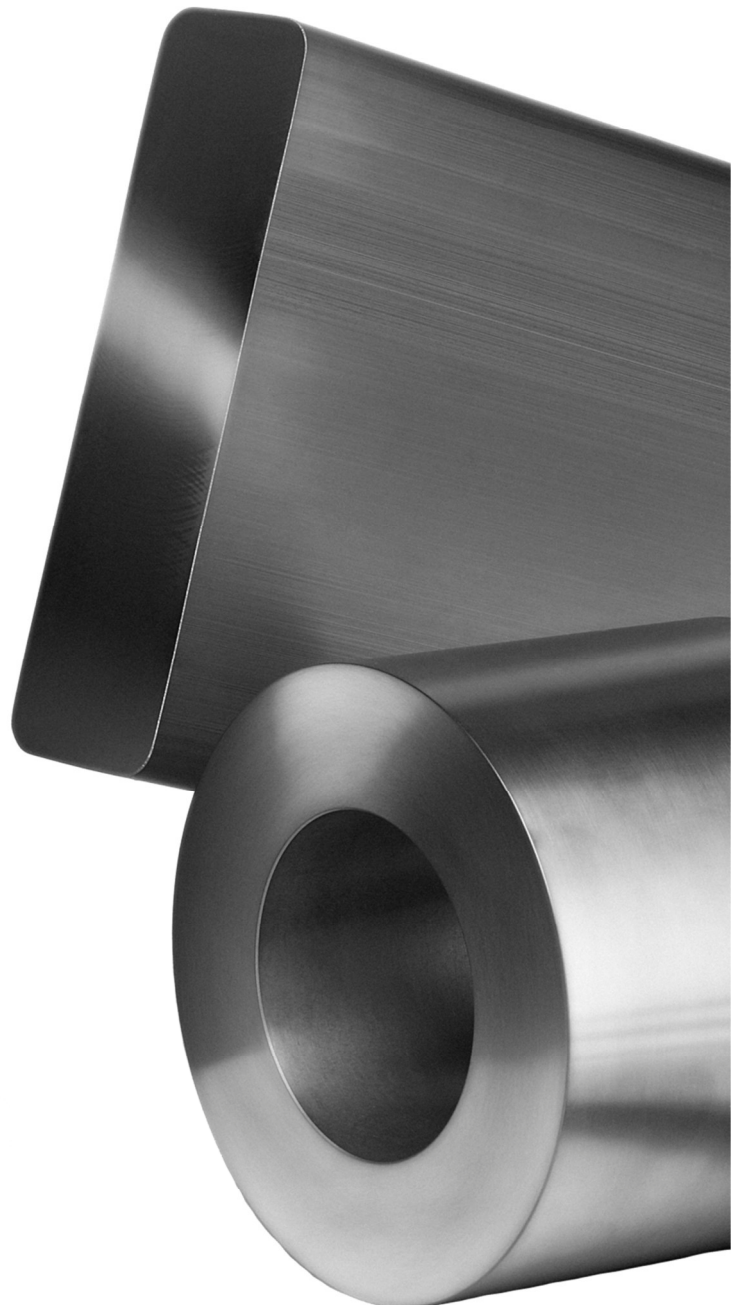


DATA SHEET: GPM-4.3.0-DB-010 Rev. 00 (replaced P-4.3-DB-010)

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The physical and mechanical properties depend on geometry and the production process. All mechanical properties are preliminary minimal values (average minus 3 Sigma) taken from specimen Ø30mm and for all other geometries only for reference.



PHYSICAL PROPERTIES

(At 20°C)

| Property | Unit | Value |
|-------------------------|-------------------|-------------|
| Density | g/cm ³ | 2.79 ± 5% |
| Electrical conductivity | MS/m | 12.8 ± 0.5 |
| | %IACS | 22.1 ± 0.9 |
| Heat capacity | J/gK | 0.88 ± 0.02 |

THERMAL CONDUCTIVITY

| Temperature (°C) | 30 | 100 | 200 | 300 | 400 |
|------------------|-------|-------|-------|-------|-------|
| Value (W/mK) | 116.8 | 117.9 | 122.1 | 131.7 | 125.7 |

COEFFICIENT OF THERMAL EXPANSION

| Property | Unit | Value |
|-----------------------|---------------------|------------|
| CTE-value 20 to 100°C | 10 ⁻⁶ /K | 18.4 ± 0.5 |
| CTE-value 20 to 200°C | 10 ⁻⁶ /K | 19.0 ± 0.5 |
| CTE-value 20 to 300°C | 10 ⁻⁶ /K | 19.8 ± 0.5 |

THERMAL DATA'S

Solidus temperature = (518.9 ± 3)°C

Liquidus temperature = (734.5 ± 3)°C

MECHANICAL PROPERTIES

HEAT TREATMENT CONDITION T6¹: (minimum values)

| Property | Unit | Temperature | | | | | |
|-----------------------|------|-------------|-------|-------|-------|-------|-------|
| | | 20°C | 100°C | 150°C | 200°C | 250°C | 300°C |
| Tensile strength, Rm | MPa | 490 | | | | | |
| Yield strength, Rp0,2 | MPa | 448 | | | | | |
| Elongation, A5 | % | 0.6 | | | | | |
| Young's modulus, E | GPa | 88 | | | | | |
| Hardness | HV30 | 175 | - | - | - | - | - |

EXEMPLARY VALUES IN CONDITION T6¹: (mean values)

| | | | | | | | |
|------------------------|-----|--|--|--|--|--|--|
| Shear modulus, G | GPa | | | | | | |
| Poisson's ratio, μ | | | | | | | |

FATIGUE STRENGTH IN CONDITION T6¹: (P50% rotary bending values for 5x10⁷ cycles)

| Property | Unit | Temperature | | | | | |
|-------------|------|-------------|-------|-------|-------|-------|-------|
| | | 20°C | 100°C | 150°C | 200°C | 250°C | 300°C |
| σ bW | MPa | | | | | | |

¹ Quenching in water at room temperature.

MECHANICAL PROPERTIES

HEAT TREATMENT CONDITION T6x¹: (minimum values)

| Property | Unit | Temperature | | | | | |
|-----------------------|------|-------------|-------|-------|-------|-------|-------|
| | | 20°C | 100°C | 150°C | 200°C | 250°C | 300°C |
| Tensile strength, Rm | MPa | 470 | | 411 | 314 | | |
| Yield strength, Rp0,2 | MPa | 405 | | 362 | 260 | | |
| Elongation, A5 | % | 1.0 | | 1.6 | 4.1 | | |
| Young's modulus, E | GPa | 88 | | 80 | 76 | | |
| Hardness | HV30 | 170 | - | - | - | - | - |

EXEMPLARY VALUES IN CONDITION T6x¹: (mean values)

| | | | | | | | |
|------------------------|-----|-------|-------|-------|-------|-------|-------|
| Shear modulus, G | GPa | 35 | 34 | 33 | 32 | 31 | 31 |
| Poisson's ratio, μ | | 0.332 | 0.334 | 0.337 | 0.339 | 0.342 | 0.343 |

FATIGUE STRENGTH IN CONDITION T6x¹: (P50% rotary bending values for 5x10⁷ cycles)

| Property | Unit | Temperature | | | | | |
|-------------|------|-------------|-------|-------|-------|-------|-------|
| | | 20°C | 100°C | 150°C | 200°C | 250°C | 300°C |
| σ bW | MPa | 225.4 | | | | | |

¹ Quenching in water at room temperature.