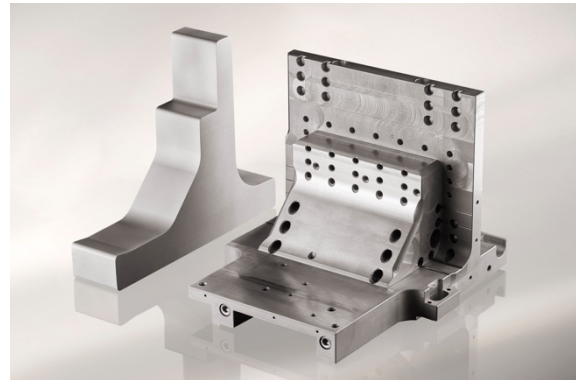


Dispall[®] S270

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	10.1 ± 0.5
	%IACS	17.4 ± 0.9
Heat capacity	J/gK	0.82 ± 0.02

Coefficient of thermal expansion

Property	Unit	Value
CTE-value 20 to 100°C	10-6/K	15.7 ± 0.5
CTE-value 20 to 200°C	10-6/K	16.2 ± 0.5
CTE-value 20 to 300°C	10-6/K	16.8 ± 0.5

Thermal conductivity

Temperature (°C)	30	100	200	300	400
Value (W/mK)	98.4	96.3	94.9	93.7	89.6

Thermal data

Solidus temperature = (539.3 ± 3)°C

Liquidus temperature = (773.9 ± 3)°C

Mechanical properties Heat treatment condition F: (minimum values)

Property	Unit	Temperature				
		20°C	150°C	200°C	250°C	300°C
Tensile strength, Rm	MPa	370	398	296	252	193
Yield strength, Rp0,2	MPa	240	260	220	167	120
Elongation, A5	%	0.8	1.6	1.8	3.0	6.5
Young's modulus, E	GPa	90	89	81	78	68
Hardness	HV30	160	-	-	-	-

Exemplary values Heat treatment condition F (mean values)

Shear modulus, G = 41 – 36 GPa

Poisson's ratio, μ = 0,284 – 0,292

Fatigue strength Heat treatment condition F

P50% rotary bending values for 5×10^7 cycles at 20°C

Property	Unit	Temperature			
		20°C	150°C	250°C	300°C
σ_{bW}	MPa	214.0	115.3	102.2	90.7

Mechanical properties Heat treatment condition T4 and T6 (minimum values)

Property	Unit	T4 ¹	T4 ²	T6 ¹	T6 ²
		20°C	20°C	20°C	20°C
Tensile strength, Rm	MPa	439	385	480	425
Yield strength, Rp0,2	MPa	335	279	470	373
Elongation, A5	%	0.3	0.7	0.15	0.2
Young's modulus, E	GPa	98	96	100	99
Hardness	HV30	180	175	230	200

¹ Quenching in water at room temperature.

² Quenching in water at 80°C to avoid stress cracking for large sections.

Mechanical properties Heat treatment condition T6(SB)³ (minimum values)

Property	Unit	Temperature			
		20°C	150°C	200°C	250°C
Tensile strength, Rm	MPa	486	447	370	264
Yield strength, Rp0,2	MPa	356	325	281	160
Elongation, A5	%	0.9	1.5	2.6	3.2
Young's modulus, E	GPa	97	89	82	80
Hardness	HV30	180	175	230	200

Fatigue strength Heat treatment condition T6¹ and T7¹

P50% rotary bending values for 5×10^7 cycles

Property	Unit	Temperature		
		20°C	150°C	250°C
σ_{bW}	MPa	246.2	146.2	117.4

¹ Quenching in salt bath.

