

# Elmedur D1,5

## Technical Datasheet

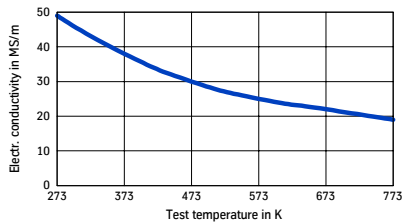
<b>Short name</b>		<b>Chemical</b>	Al <sub>2</sub> O <sub>3</sub>	Cu
<b>Code</b>	Cu Al 0,8	<b>Composition</b>	1,5	bal.
<b>Material-No.(old)</b>	-	(Weight %)		
<b>Classification</b>	as to DIN ISO 5182 R.W.M.A. AWS	Class A 2/2 Class 20 C 20.15760		
<b>Material Properties</b>	Dispersion-hardened copper alloy with high degree of hardness, strength and electrical conductivity at room temperature. Hardness retention up to around 1.273 K (1.000 °C); easily machinable (quick-cutting)			
<b>Applications</b>	<ul style="list-style-type: none"> <li>• Electrodes for resistance welding and for spark erosion</li> <li>• cold-extruded weld caps</li> <li>• Components in electrical devices and systems, which require good conductivity of high mechanical characteristics at room and high temperatures</li> <li>• Nozzles for MIG welding</li> </ul>			
<b>Mechanical Properties</b>	Condition		Extruded and cold drawn	
(reference value)	cross-section		<25 mm Ø	25 - 50 mm Ø
	Hardness (av. value)	HB 10/2,5	150	135
	Tensile strength	N/mm <sup>2</sup>	540	480
	Yield strength	N/mm <sup>2</sup>	470	350
	Elongation L = 5 D	%	7	8
	Modulus of elasticity	kN/mm <sup>2</sup>	110	110
	Tensile strength (after 1.000°C annealing)	N/mm <sup>2</sup>	360	350
	Squeeze strength	%	95 – 100 % of yield strength	
<b>Physical Properties</b>	Electrical conductivity	MS/m	46	
(reference values)	293 K (20 °C)		(82 % I.A.C.S.)	
	Electrical resistance	$\frac{\Omega \cdot \text{mm}^2}{\text{m}}$	0.021	
	293 K (20 °C)			
	Coefficient of electrical resistance	$\frac{1}{\text{K}}$	0.00367	
	273-573 K (0-300°C)			
	Coefficient of thermal expansion	$\frac{1}{\text{K}}$	17,0 · 10 <sup>-6</sup>	
	273-593 K (0-320°C)			
	Specific heat	$\frac{\text{J}}{\text{g} \cdot \text{K}}$	0,376	
	Thermal conductivity	$\frac{\text{W}}{\text{m} \cdot \text{K}}$	ca. 320	
	293 K ( 20 °C)			
	Density	$\frac{\text{g}}{\text{cm}^3}$	8.7	
<b>Available sizes</b>	Cold-headed caps, machined electrodes for spot welding and round, square, hexagonal and flat bars.			

# THYSSEN DURO METALL

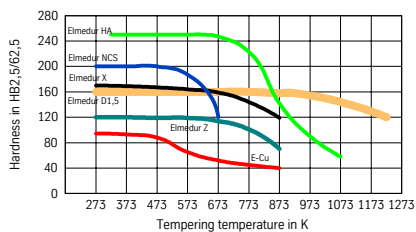
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Electrical conductivity of Elmedur D1,5 in dependency on the temperature



Retention to tempering for different Qualities



### Machining (Reference values) Condition: dispersion-hardened

#### Turning

	Tungsten Carbide K 20	High-speed steel THYRAPID 3207
Cutting speed m/min.	up to 300	up to 120
Rake angle	6 – 18	15 – 25
Feed and depth of cut	as to required surface finish	as to required surface finish
Chip breaker	recommended	recommended

#### Milling

	Tungsten Carbide K20	High-speed steel THYRAPID 3207
Cutting speed m/min.	up to 300	up to 100
Rake angle	positive	positive
Feed mm/min.	200 – 300	80 – 150

#### Drilling

	Twist drills acc. to DIN 338
Cutting speed m/min.	max. 20
Chip flow	No special measures necessary

#### Strength characteristics

The strength characteristics are dependent on the cross-section and cross-sectional shape.

#### Standards / Tolerances

DIN EN 12 163	Round bars for general use
DIN EN 12 167	Profiles and rectangular bars for general purpose.

All statements as to the properties or utilization of the materials and products mentioned in this datasheet are only for the purpose of description. Guarantees in respect of the existence of certain properties or utilization at the material mentioned are only valid if agreed upon in writing.