

Wrought copper-aluminium alloy **EBz-DGS** alloy 1430

EBz-DGS corresponds to Def Stan 02-833 (NES) and belongs to the group of high-strength aluminium multi-components bronzes. The material has a high corrosion resistance with high strength properties at the same time. It is similar to EBz- CW307G, but slightly softer and with higher notched impact strength.

ZOLLERN brand	EBz-DGS
Norm.:	Def Stan 02-833 (NES)

// Composition (weight by per cent in %)				
Cu	Al	Fe	Mn	Ni > Fe Ni
Rest	8.5 – 10.0	4.0 – 5.0	max. 0.5	4.5 – 5.5
Pb	Si	Sn	Zn	Mg
max. 0.05	max. 0.2	max. 0.1	max. 0.4	max. 0.05

// Strength properties at room temperature				
(minimum values)				
	R _{p0.2} N/mm ²	R _m N/mm ²	A ₅ %	Izod J
Forged bars 30 - 100 mm thickness	295	680	17	27
Forged bars From 100 mm thickness	245	620	15	23
Other forged pieces All wall thicknesses	245	620	15	23

Hardness (approx. 170HB) is not standardised
Notched bar impact test according to Izod
UT examination according to Def Stan 02-833

No heat treatment is prescribed for forged bars with a wall thickness of 30 mm or more.

Zollern cannot offer the additional tests required for pressed/drawn bars, such as the mercury nitrate test. Cross-sections smaller than 30 mm on request

// Physical properties	
Density at 20 °C	7.6 kg/dm ³
Melting temperature/range	1060 – 1075 °C
Coefficient of linear expansion	
from - 200° to 20°C	15 x 10 ⁻⁶ °C ⁻¹
from 20° to 100°C	15 x 10 ⁻⁶ °C ⁻¹
from 20° to 300°C	17 x 10 ⁻⁶ °C ⁻¹
Specific heat at 20°C	0.452 J/g x °C
Thermal conductivity at 20°C	0.63 W/cm x °C
Electr. conductivity at 20°C	4 - 6 MS/m 7 - 10% IACS
Electr. resistance at 20°C	0.167 - 0.25 Ω mm ² /m
Temperature coefficient of the Electr. resistance (0 - 100°C)	0.0005 °C ⁻¹
Permeability	< 1.9
Young's modulus	117 KN/mm ²

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Areas of application

EBz-DGS is high-strength material with a high load capacity and high corrosion resistance to Cl-containing water, neutral and acidic aqueous media. It has good resistance to scaling, erosion and cavitation.

- Pressure-tight high-pressure fittings for hydraulics and pneumatics.
- Bolts, sliding plates, large spindle nuts, bolts and drive shafts for pumps are in use, also in contact with seawater.

Machinability

Carbide tools are needed for turning and milling and sharp tools are needed for drilling and thread cutting. This results in a machinability that is better than that of austenitic stainless steel. Shorter rolling and flowing chips are formed. Cutting and die-sinking is easily possible, and the surface can also be structured decoratively by etching.

Relaxation

annealing 650 – 720°C

Soft annealing

800 - 850°C
with subsequent furnace cooling down to 650°C, then air cooling

Soft soldering

not recommendable

Brazing

poor, fluxes containing fluoride and chloride of type F - SH1 and silver solders are advantageous

Welding

good, both TIG, MIG and manual electrode welding is possible, filler metal e.g. CuAl9Ni4Fe2Mn2 = CF310G or S-CuAl8Ni2

Surface treatment

polishing, chemical structuring and galvanic treatments are possible. Undercoating is advisable for electroplated coatings

