

A close-up photograph of brass components, including a large circular ring and a smaller ring with a central hole, set against a blurred background of other brass parts.

DIEHL
Brass Solutions

**DIEHL 430 AND 434
WITH UNIQUE
PROPERTIES**

A PIONEERING SPECIAL BRASS

- HIGH STRENGTH
- VERY GOOD MACHINING PROPERTIES
- CORROSION RESISTANCE – WITHOUT ADDITIONAL COSTS
- LEAD-FREE FOR FUTURE-PROOF APPLICATIONS

Diehl 430 is a special brass of the latest generation, characterized by outstanding mechanical properties that were previously unattainable in conventional brass materials. Its combination of high strength and high elongation is typically only found in certain steel grades. The proven advantages of brass materials are retained.

- Excellent machinability
- Good workability

For applications with lower strength requirements, **Diehl 434** is a suitable

Compared to conventional free-cutting brasses, the corrosion resistance of **Diehl 430** is significantly improved, while **Diehl 434** offers even better corrosion resistance at a lower strength level. Based on established test methods, this special brass is highly resistant to stress cracking and dezincification—properties that are nearly unmatched by other brasses.

These characteristics make **Diehl 430 and 434** the ideal materials for applications in the automotive industry, building services, and most sanitary applications.

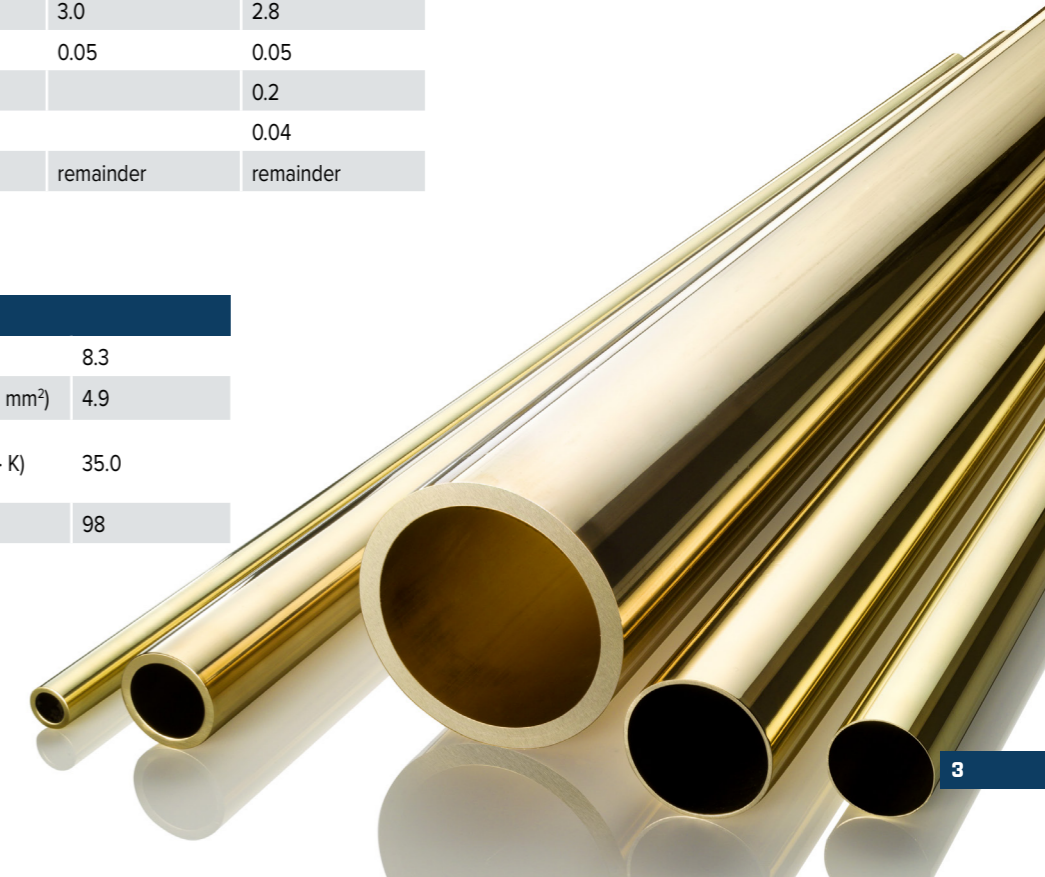
MATERIAL AND PROPERTIES

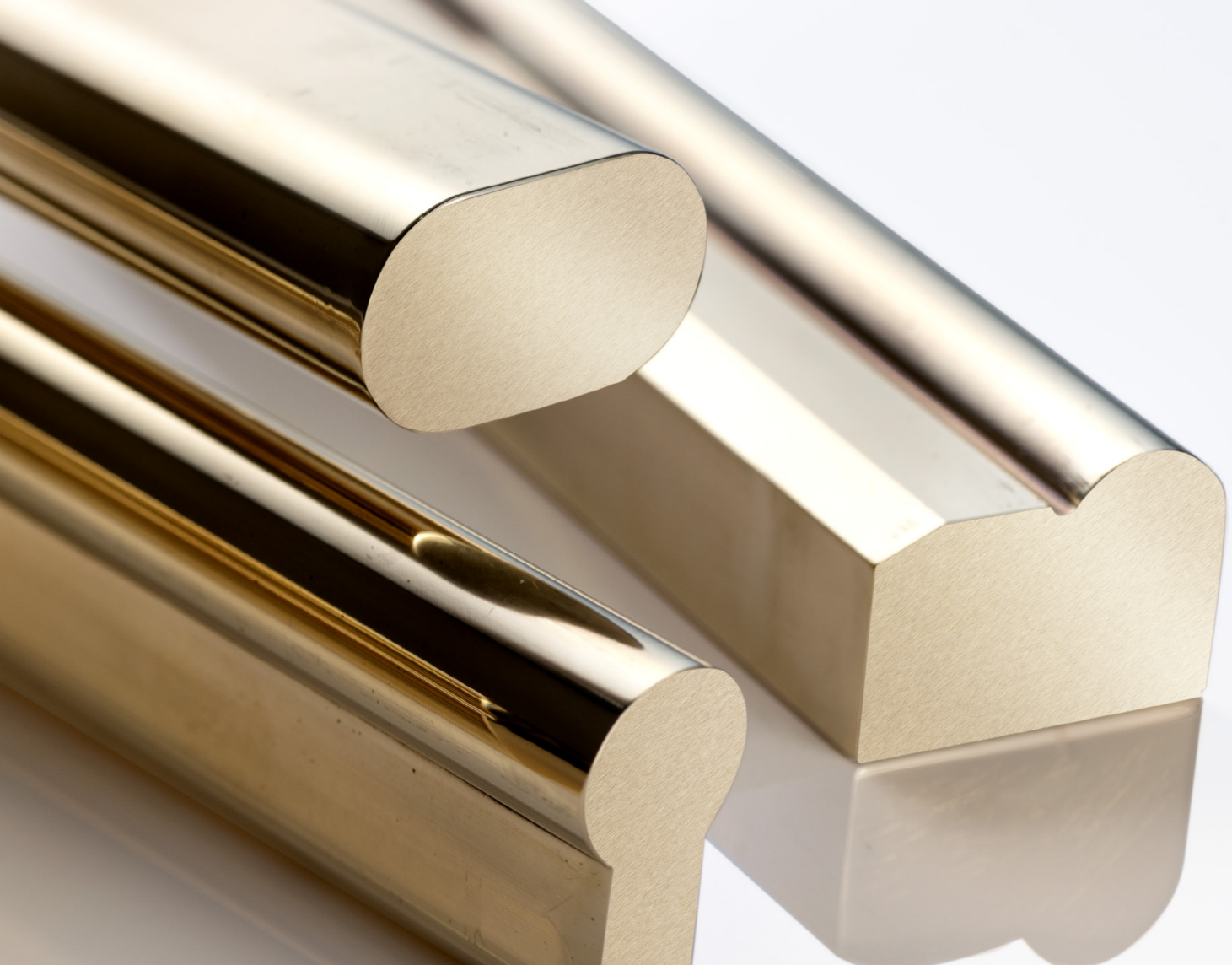
Chemical Composition

Composition (mass percentage, reference values)	Diehl 430	Diehl 434
Cu	76.0	76.0
Si	3.0	2.8
P	0.05	0.05
Sn		0.2
Al		0.04
Zn	remainder	remainder

Physical Properties

Physical Properties		
Density	g/cm ³	8.3
Electrical conductivity	m/(Ω · mm ²)	4.9
Thermal conductivity RT	W/(m · K)	35.0
Young's modulus	GPa	98





Mechanical Properties: (reference values apply to rods with a diameter of approx. 20 mm)	Diehl 430	Diehl 434
Tensile strength R_m	700 MPa	500 MPa
Yield strength $R_{p0.2}$	480 MPa	320 MPa
Elongation A5	23%	40%
Brinell hardness	180 HB	150 HB

Mechanical Properties

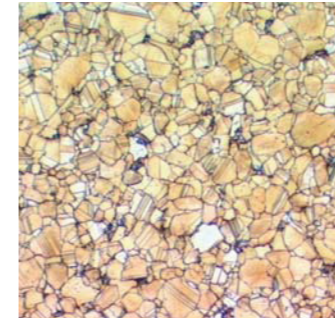
Diehl 430 and 434 demonstrates considerable strength potential for various applications. This opens up possibilities both for the dimensioning of new components and the design of specified ones.

Corrosion Properties

Based on relevant test methods, **Diehl 430 and 434** demonstrates both stress corrosion cracking resistance (SCCR) as well as dezincification resistance (DZR). Hardly any other material in drinking water installations can offer these properties in combination.

Microstructure

Diehl 430 and 434 has a unique microstructure consisting mainly of an α - and κ -phase. The silicon-rich κ -phase results in short breaking chips and thus good machinability. This eliminates the need for lead.



Diehl 430 and 434



Diehl 430 and 434



Diehl 002 (CuZn39Pb3)



PROCESSING PROPERTIES

Machinability	Very good, short breaking chips, tool wear slightly higher than CuZn39Pb3	
Forging	Forging forces	slightly increased
	Temperature control	tighter
Cold workability		moderate
Hot workability		very good
Surface treatment	Polishing properties	good
	Electroplating properties	good
Joining work	Inert gas / resistance welding	good
	Hard / soft soldering	very good
Heat treatment	Thermal stress relieving	200 – 300 °C
	Soft annealing	550 – 700 °C

FORMS OF DELIVERY

Diehl 430 and 434 is available as round or rectangular rods, as profiles or as hollow rods.

Rods, round	6 to 70 mm
Rods, rectangular	6 to 70 mm
Profile (diameter of the circumscribed circle)	6 to 70 mm
Rods, hollow (diameter x wall thickness)	20 – 120 x 2 – 12 mm

Diehl 430 and 434 can be purchased at full price or on a rework basis. We also offer this alloy as a casting material under the designation **Diehl 432**. Upon request, we would be happy to send you the relevant information brochure. Separation of the sorted chips is required. We would be pleased to assist you with chip logistics.



ECOLOGICAL ASPECTS

As a typical copper-based material, Diehl 430 and 434 helps conserve our scarce resources. Furthermore, it is fully recyclable thanks to an established and efficient recycling system.

Recycling not only conserves raw materials, but also helps to save energy. After all, recycling copper means that the energy associated with ore mining as well as with preparation and transport to the processing sites is rendered unnecessary.

For example, the energy input for melting down the scrap material is only a fraction of what is required for metal extraction from ores.

Thus, **Diehl 430 and 434** has the favorable energy balance typical of copper materials.

Support us!

Contribute to the positive energy balance of **Diehl 430 and 434**. Ensure that this material is sorted and separated at every stage of the recycling system (from dismantling to raw material recycling).

For the sake of the environment!



Based on the intended application, you can download all relevant specifications from our website. In our material specifications you will find a list of the physical, thermal, mechanical as well as resistance properties. If you have any questions on the materials and the processing thereof, please feel free to call our experts or send us your inquiry directly.

Your Contact Partner:

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