



TUNGSTEN COPPER ALLOYS

BROCADUR ALLOYS

abbreviation	WK 20		WK 25		WK 30	
standard analysis (in percent by weight)	W	Cu	W	Cu	W	Cu
	80	20	75	25	70	30
description of material	Sintered tungsten-copper composite consisting of a framework (tungsten) into whose network of pores an impregnating metal (copper) is infiltrated. Thanks to the tungsten framework, a very high degree of burn-up strength is attained, with the proportion of copper guaranteeing good electrical conductivity. The material has, as a result of the manufacturing process, a fibre-free and uniformly fine-grained structure. The very high deformation resistance is also specific to this material.					

examples of application
<ul style="list-style-type: none"> • Electrodes for resistance welding engineering under extreme wear loads (e.g. welding of stainless-fine wire) • Sliding contacts for resistance-welding of steel reinforcements for concrete pipes • Electrodes for spark erosion • Hot-upsetting electrodes and contact jaws

mechanical properties

(at 20° C)		WK 20	WK 25	WK 30
hardness	HV	240	195	175
	HRB	99	90	87
modules of elasticity	N/mm ²	230 x 10 ³	225 x 10 ³	

physical properties

(at 20° C)		WK 20	WK 25	WK 30
Specific weight	$\frac{g}{cm^3}$	15,1	14,2	14,0
Heat conductivity	$\frac{W}{m \cdot k}$	134	150	154
Coefficient of elongation	$\frac{1}{°C}$	at 20 - 400° C 8,8 x 10 ⁻⁶		
Electrical conductivity	$\frac{W}{Ohm \cdot mm^2}$	19	21	24
Electrical resistance	$\frac{Ohm \cdot mm^2}{m}$	0,07	0,045	0,04

form of delivery
round, flat, square bars, forged plates, castings finished parts to drawing

processing information

Brocadur® WK components can be machined well. However, care should be taken to ensure that only those tools are used which have sharp cutting edges and positive cutting geometry.

Drilling

Drill	: HSS or cutting metal twist drill
Cutting speed	: up to 15 m/min with HSS up to 30 m/min with HM
Forward feed	: 0,05-0,1 mm/U

Turning

Tool	: Cutting metal ISO K 10
Cutting speed	: 80-130 m/min
Forward feed	: 0,05-0,3 mm/U
Rate of cut	: 0,3-5 mm (depending on size of plate)

Milling

Tool	: Cutting metal ISO K 10
Cutting speed	: 80-150 m/min
Forward feed/tooth	: 0,04-0,1 mm/U
Effective cutting angle	: +5 to + 10°
Tool cutting edge inclination	: 0 to + 8°

Grinding

Tool	: Special fused alumina or silicon carbide discs
Cutting speed	: 30-50 m/min
Infeed	: 0,01-0,02 mm

Joining workSoldering

Brocadur® WK can be joined most easily through brazing using a carrier. Openflame soldering in the air or furnace brazing using inert gas or under vacuum are both possible. Where possible use silver hard fillers for brazing with a working temperature of 600-800° C.

Electron Beam Welding

Electron beam welding is possible without any problems and is always recommended wherever special demands vis-a-vis the mechanical and physical properties are placed on the base material.

Information concerning quality and useability is for general purposes only.

Assurance concerning specific properties or uses are subject to written agreement.

BROUWER  **METAAL**
RESISTANCE WELDING **COPPER ALLOYS**

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