High conductivity copper alloys

		CuBe2 (C17200)	CuNi2Si (C18000)
Chemical analysis: %			
Cr		-	0,5
Co		0,2	-
Be		2,0	-
Cd		-	-
Zr		-	-
Ni		-	2,4
Si		0,2	0,6
Others, max		0,2	-
Cu		Rest	Rest
Physical and mechanical properties			
Tensile strength	N/mm^2	≥1150	655
Yield point	N/mm^2	990	520
Brinell hardness	HB	400	210
Extension	A5%	2–5	15
Density	kg/dm^3	8.3	8.7
Yield point, compression	N/mm^2		
Electrical conductivity	$m/\Omega \cdot mm^2$	≥16	28
Thermal conductivity	W/m·K	120–170	225

Nominal values

Properties and applications
Further information is available in our technical data sheets for each type.

CuBe2 is a beryllium copper that meets the requirements of RWMA class 4. It has extremely good mechanical properties, at the same time as conducting electricity and heat well. These properties make CuBe2 into an excellent material in welding jaws for resistance welding, as well as in heat sinks, electrical components, and cores and moulds when injection moulding plastics.

CuNi2Si is an alloy that meets the requirements of RWMA class 3 without containing beryllium. It is used when you want a material with both high conductivity and good mechanical properties. CuNi-2Si is used as a material in, among other things, stainless steel and Monel spot welding electrodes, as well as in pistons for die casting aluminium and moulding tools for injection moulding plastics. In most cases, CuNi2Si replaces CuCo2Be.

High conductivity copper alloys

		CuCo2Be (C17500/175100)	CuCrZr (C18150)
Chemical analysis: %			
Cr		-	1,0
Co		2,5	-
Be		0,5	-
Cd		-	-
Zr		-	0,12
Ni		-	-
Si		-	-
Others, max		-	0,3
Cu		Rest	Rest
Physical and mechanical properties			
Tensile strength	N/mm^2	680–810	350–480
Yield point	N/mm^2	550	-
Brinell hardness	HB	280	300–350
Extension	A5%	14–17	14–18
Density	kg/dm^3	8	8.8
Yield point, compression	N/mm^2		
Electrical conductivity	$m/\Omega \cdot mm^2$	25	See datasheet
Thermal conductivity	W/m·K	230–250	300

Nominal values

Properties and applications
Further information is available in our technical data sheets for each type.

Annealed beryllium copper that meets the requirements of RWMA class 3.
It has great mechanical properties and conducts electricity and heat well.
It is used as a material in electrodes for spot welding and in welding jaws/seam welding wheels for resistance welding/seam welding of stainless steel, Monel and nickel alloys. Also used as piston material for die casting of aluminium and as mould material in injection moulding of plastics.

An annealed chromium copper alloy that meets the requirements of RWMA class 2. It has greater wear resistance and retains its physical properties at elevated temperatures better than pure copper. Alloys have very good strength at elevated temperatures. They are suitable for welding coated and galvanised metals.
Often used as a material in electrode holders for spot welding, axles for seam welding wheels, spot welding electrodes, seam welding wheels, moulds for continuous casting of steel and aluminium, and various electrical components.

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JOHNSON METALL AB

Aluminium bronzes

Aluminium bronzes

Aluminium bronzes

		WEARLESS® 954 (C95400)	WEARLESS® 625 (C62500)	WEARLESS® 37 (NBM37)	WEARLESS® 630 (C63000)	WEARLESS® 459 (AMS4590)
Chemical analysis: %						
Al		10,8	13	15	10	10,5
Fe		4	4,3	5	3,5	4,7
Ni		-	-	-	4,5	5,1
Mn		-	-	-	1,5	1
Others, max		0,5	2	0,5	0,5	0,5
Cu		Rest	Rest	Rest	Rest	Rest
Physical and mechanical properties						
Tensile strength	N/mm^2	655	690	-	700	900
Yield point	N/mm^2	310	379	-	420	620
Brinell hardness	HB 30	170	285	360–400	225	261
Extension	A5%	12	1	-	14	6
Nominal values						
Product forms						
Round Bar		•	•	•	•	•
Rectangel & flatbar bar		•	•	•		
Tube		•				•
Forge		•	•	•	•	•
Properties and applications *Further information is available in our technical data sheets for each type.*		WEARLESS® 954 is the most widely used of all of the WEARLESS alloys. It has excellent wear, abrasion and fatigue properties. A further advantage is that it slides easily against other metals, and also against stainless steel. Due to its excellent sliding characteristics WEARLESS® 954 is often used for wear parts, gears, gear racks, bushings, support rails during centreless grinding, mould materials during injection moulding of plastic etc.	WEARLESS® 625 is a very hard alloy with a low extension value. WEARLESS® 625 is used as a material for support rails during centreless grinding, guide rails, various wear parts, and in pads when deep drawing steel.	WEARLESS® 37 is an alloy with unique sliding characteristics. This is due to the ideal combination of high hardness and low coefficient of friction. Its excellent sliding characteristics make WEARLESS® into a material that is simultaneously durable, while also being soft on the material it is sliding against. WEARLESS® 37 is used in pads and stamps for deep drawing of stainless steel and in rollers for pipe manufacture and drift pins in pipe bending.	WEARLESS® 630 is an alloy that is used when you want a material that can withstand considerable mechanical loads in corrosive environments. Applications for WEARLESS® 630 include valve seats, pumps, bushings in aircraft landing gear and shafts in marine environments	WEARLESS® 459 is a very special nickel aluminium bronze that has been developed to meet the aviation industry's requirements to bearing and bushing material. WEARLESS® 459 can be seen at its best when you require a corrosion resistant material with good mechanical properties at elevated temperatures. WEARLESS® 459 is used in heavily loaded bushings, drift pins and smoothers during pipe bending, mould tools, etc.

WEARLESS® 954 can be machined using conventional high-speed steel tools.

The harder alloys, WEARLESS® 625 and WEARLESS® 37 should be machined using hard metal tools. Turning requires negative cut angles and thread requires taps with special geometries.