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## Characteristics for grade BrAZHMTs10-3-1.5 ( БpAЖMц10-3-1.5 )

Grade :	BrAZHMTs10-3-1.5 ( БpAЖMц10-3-1.5 ) ( CuA110Fe3Mn1 )
Classification :	Tin-free pressure-worked bronzes
Equivalent grades:	<a href="#">Go here</a>

## Chemical composition in % for grade BrAZHMTs10-3-1.5 ( БpAЖMц10-3-1.5 )

Fe	Si	Mn	P	Al	Cu	Pb	Zn	Sn	Impurity
2 - 4	max 0.1	1 - 2	max 0.01	9 - 11	82.3 - 88	max 0.03	max 0.5	max 0.1	all 0.7

Comment: Cu is a basis; the percentage of Cu is given approximately.

## Mechanical properties under T=20°C for grade BrAZHMTs10-3-1.5 ( БpAЖMц10-3-1.5 )

Assortment	Dimension	Direct.	$\sigma_B$	$\sigma_T$	$\delta_5$	$\psi$	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m <sup>2</sup>	-
Pipe, GOST 1208-90			540-590		12			
Bar, GOST 1628-78			590		12			

Brinell hardness for BrAZHMTs10-3-1.5 ( БpAЖMц10-3-1.5 ) , Pipe GOST 1208-90	HB 10 <sup>-1</sup> = 129 - 200 MPa
Brinell hardness for BrAZHMTs10-3-1.5 ( БpAЖMц10-3-1.5 ) , Bar GOST 1628-78	HB 10 <sup>-1</sup> = 130 - 200 MPa

## Friction coefficient of the material BrAZHMTs10-3-1.5 ( БpAЖMц10-3-1.5 ) .

Friction coefficient with oil :	0.012
Friction coefficient without oil :	0.21

## Technological properties of the material BrAZHMTs10-3-1.5 ( БpAЖMц10-3-1.5 ) .

Melting temperature :	1045 °C
Forging temperature :	750 - 850 °C
Annealing temperature :	650 - 750 °C

## Physical properties for grade BrAZHMTs10-3-1.5 ( БpAЖMц10-3-1.5 )

T	E 10 <sup>-5</sup>	$\alpha$ 10 <sup>6</sup>	$\lambda$	$\rho$	C	R 10 <sup>9</sup>
Grade	MPa	1/Grade	Watt/(m·Grade)	kg/m <sup>3</sup>	J/(kg·Grade)	Ohm·m
20	1		80	7500		190
100		16.1				

## Equivalent steels for grade BrAZHMTs10-3-1.5 ( БpAЖMц10-3-1.5 )

Warning! Indicated both exact and nearest equivalents.

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Germany	European	Poland	Czechia	Austria	Inter
DIN,WNr	EN	PN	CSN	ONORM	ISO
2.0936 CuAl10Fe3Mn3 CuAl10Fe3Mn2	CuAl10Fe3Mn2	CuAl10Fe3Mn2	423046	CuAl10Fe3Mn2	CuAl10Fe3

**Types of delivery of grade BrAZHMTs10-3-1.5 ( БpАЖМц10-3-1.5 )**

B05 - Welding and cutting of metals., Soldering, riveting

B55 - Bars

B64 - Pipes of non-ferrous metals and alloys

**Specification :**

**Mechanical properties :**

$\sigma_B$	- Tensile strength , [MPa]
$\sigma_T$	- Yield stress, [MPa]
$\delta_5$	- Specific elongation at fracture , [ % ]
$\psi$	- Reduction of area , [ % ]
<b>KCU</b>	- Impact strength , [ kJ / m <sup>2</sup> ]
<b>HB</b>	- Brinell hardness , [MPa]

**Physical properties :**

<b>T</b>	- Test temperature , [Grade]
<b>E</b>	- Young modulus , [MPa]
$\alpha$	- Coefficient of linear expansion (range 20° - T ) , [1/Grade]
$\lambda$	- Thermal (heat) conduction coefficient , [Watt/(m·Grade)]
$\rho$	- Density , [kg/m <sup>3</sup> ]
<b>C</b>	- Specific heat ( range 20° - T ), [J/(kg·Grade)]
<b>R</b>	- Electrical resistance , [Ohm·m]

**BrAZHMTs10-3-1.5 ( БpАЖМц10-3-1.5 ) - Tin-free pressure-worked bronzes: chemical composition, mechanical and physical properties, hardness**

**Database of steels and alloys (Marochnik) contains information about chemical composition and properties more than 3000 steels and alloys**