EN 12164, Copper and copper alloys — Rod for free machining purposes

Designations			Diameter			Width across - flats			Tensile Strength	0,2% proof strength		Elongation			Hardness	
Material		Material Condition	mm			mm			Rm (Mpa)	Rp 0,2 (Mpa)		A 100 (%)	A 11,3 (%)	A (%)	HBW	
Number	Symbol		from	over	up to and including	from	over	up to and including	min.	min.	max.	min.	min.	min.	min.	max.
CW713R	CuZn37Mn3Al2PbSi	M	All			All			As manufactured							
		R540	5	-	80	5	-	60	540	280	-	-	12	15	-	-
		H130	5	-	80	5	-	60	-	-	-	-	-	-	130	170
		R590	5	-	50	5	-	40	590	370	-	-	8	10	-	-
		H150	5	-	50	5	-	40	-	-	-	-	-	-	150	220

EN 12165, Copper and copper alloys — Wrought and unwrought forging stock

Designations			Diameter		Hardness	
Material		Material Condition	mm		HB	
Number	Symbol		from	up to and including	min.	max.
CW713R	CuZn37Mn3Al2PbSi	M	All		As manufactured	
		H130	8	80	130	220

EN 12168, Copper and copper alloys — Hollow rod for free machining purposes

Designations			Nominal Wall Thickness		Hardness				Tensile Strength	0,2% proof strength	Elongation
Material		Material Condition	mm		HB		HV		Rm (Mpa)	Rp 0,2 (Mpa)	A (%)
Number	Symbol		up to and including	over	min.	max.	min.	max.	approx.	approx.	min.
CW713R	CuZn37Mn3Al2PbSi	M	ALL		As manufactured						
		H170	10	-	170	220	180	230	(620)	(350)	(8)
		H150	-	10	150	200	160	210	(540)	(280)	(15)