

**EN 12163, Copper and copper alloys — Rod for general 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.	
CW511L	CuZn38As	M	All			All			As manufactured								
		R280	6	-	80	5	-	60	280	-	200	-	25	30	-	-	
		H070	6	-	80	5	-	60	-	-	-	-	-	-	70	110	
		R320	6	-	60	5	-	50	320	200	-	-	15	20	-	-	
		H090	6	-	60	5	-	50	-	-	-	-	-	-	90	135	
		R400	4	-	15	4	-	13	400	250	-	-	5	8	-	-	
		H105	4	-	15	4	-	13	-	-	-	-	-	-	105	-	

**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.	
CW511L	CuZn38As	M	All			All			As manufactured								
		R280	6	-	80	5	-	60	280	-	200	-	25	30	-	-	
		H070	6	-	80	5	-	60	-	-	-	-	-	-	70	110	
		R320	6	-	60	5	-	50	320	200	-	-	15	20	-	-	
		H090	6	-	60	5	-	50	-	-	-	-	-	-	90	135	
		R400	4	-	15	4	-	13	400	250	-	-	5	8	-	-	
		H105	4	-	15	4	-	13	-	-	-	-	-	-	105	-	

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

Designations		Diameter		Hardness		
Material		mm		HB		
Number	Symbol	Material Condition	from	up to and including	min.	max.
CW511L	CuZn38As	M	All		As manufactured	
		H070	8	120	70	150