ASBW

Precision machining hexagonal brass rod

The satisfaction of our customers' requests is the guarantee of our high standards compliance and quality consistency

Quality machined to Perfection

Distinguishing parameters

- Strict control since raw material selection process ensure constant alloy properties
- Refined metallographic structure
- Reduced tool wear due to reduced impurity levels and adjusted beta content
- Fine chips deriving from homogeneous lead dispersion all over the material microstructure
- Geometric tolerances tighter than specified in the norm EN 12164 traduce in high productivity ratios
- Every rod is inspected individually to ensure the required straightness; Maximum deviation from straightness allowed for **ASBW** hexagonal rods:
  - 0.6 mm localized over any 400 mm length
  - 1.5 mm over the whole rod length
- Restrict control of the profile deviation by torsion (twist)
- Uniformity of the drawn rod surface
- Refined and adjusted chemical composition for the hexagonal profiles, to ensure product integrity, machinability and internal stress relieved characteristics
- Homogeneity of the surface appearance, mechanical properties and diameter within and across bundles
- Rod ends shaped to perfectly suit your automated machining process

Lead distribution

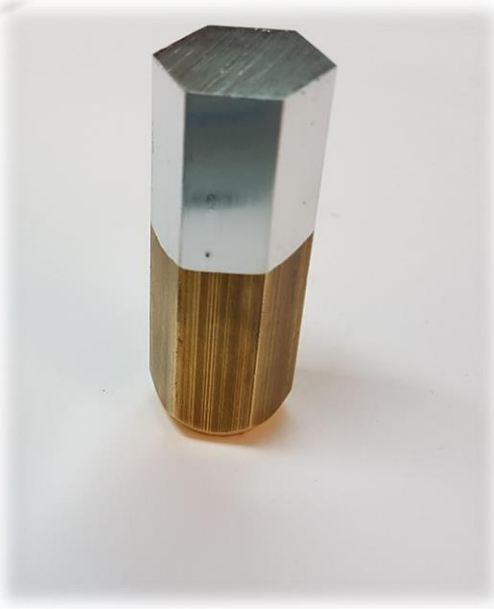
Lead acts as a lubricant, decreasing the friction coefficient between the machining tools and the material. **ASBW** machining brass rods have a homogeneous lead distribution, that promotes chips fragmentation during its conformation, reducing the cutting force and tool wear

- Best-selling alloys:

Material designation					Reference chemical composition (%)		
ASBW	**International**	**EN**	**UNS**	**JIS**	**Cu**	**Pb**	**Zn**
B14	CuZn39Pb3	CW614N	C38500	C3603 C3604	58,0	3,0	Rem.
B13	CuZn40Pb2	CW617N	C37800 C38000	C3603 C3604 C3651	58,0	2,0	Rem.

All **ASBW** hexagonal machining rod is supplied in thermally stress relieved condition, to ensure the best material behavior during machining process and in future service as a final product, preventing stress corrosion cracking.

ASBW's hexagonal machining rod, after testing to ensure the efficiency of the thermal stress relieving process



- All available alloys:

	Material Designation						Reference Chemical Composition in %(p/p) (Main Elements) ***										
	ASBW	International	EN	UNS	JIS	FURTHER RESTRICTIONS	Cu	Pb	Ni	Fe	As	Sn	Al	Mn	Bi	Si	Zn
Lead Containing Alloys	B01	CuZn35Pb1	CW600N	C34000	-	-	63,0	1,2	0,2	0,1	-	0,1	0,03	-	-	-	Rem.
	B02*	CuZn35Pb1.5Al As	CW625N	-	-	4 MS Common Approach, Part B	63,0	1,4	0,1	0,2	0,1	0,2	0,6	-	-	-	Rem.
	B03	CuZn37Pb1	CW605N	C35000	C3712	-	62,0	1,2	0,2	0,2	-	0,2	0,03	-	-	-	Rem.
	B04	CuZn36Pb3	CW603N	C36000	C3601 C3602 C3603	4 MS Common Approach, Part B	61,0	3,0	0,2	0,2	-	0,1	0,03	-	-	-	Rem.
	B07	CuZn39Pb1	CW611N	-	C3771	-	59,5	1,2	0,2	0,2	-	0,2	0,03	-	-	-	Rem.
	B08	CuZn39Pb0,5	CW610N	C36500	C4641	-	60,0	0,5	0,2	0,1	-	0,2	0,03	-	-	-	Rem.
	B09 *	CuZn39Pb2	CW612N	C37700	C3771	4 MS Common Approach, Part B	59,5	2,0	0,2	0,2	-	0,2	0,03	-	-	-	Rem.
	B10	CuZn36Pb2As	CW602N	C35330	-	-	62,0	2,3	0,2	0,1	0,1	0,1	0,03	-	-	-	Rem.
	B11	CuZn37Pb2	CW606N	C35300	C3601	-	61,5	2,0	0,2	0,1	-	0,1	0,03	-	-	-	Rem.
	B12	CuZn35Pb2	CW601N	C34200 C34500	C3601	-	62,5	2,0	0,2	0,1	-	0,1	0,03	-	-	-	Rem.
	B13 *	CuZn40Pb2	CW617N	C37800 C38000	C3603 C3604	4 MS Common Approach, Part B	58,0	2,0	0,1	0,2	-	0,2	0,03	-	-	-	Rem.
	B14 *	CuZn39Pb3	CW614N	C38500	C3603 C3604	4 MS Common Approach, Part B	58,0	3,0	0,2	0,2	-	0,2	0,03	-	-	-	Rem.
	B15	CuZn38Pb2	CW608N	C37700	C3771	-	60,5	2,0	0,2	0,1	-	0,1	0,03	-	-	-	Rem.
	B16	CuZn38Pb1	CW607N	C37000	C3712	-	60,5	1,0	0,2	0,1	-	0,1	0,03	-	-	-	Rem.
	B24	CuZn37Mn3Al2 PbSi	CW713R	C67420	C6782	-	58,0	0,6	0,5	0,5	-	0,2	1,8	1,0	-	0,7	Rem.
Low Lead Alloys	B17 *	CuZn42	CW510L	C28500	-	4 MS Common Approach, Part B	58,0	0,1	0,2	0,2	-	0,2	0,03	-	-	-	Rem.
	B18 *	CuZn40	CW509L	-	C3712	4 MS Common Approach, Part B	60,0	0,1	0,2	0,1	-	0,1	0,03	-	-	-	Rem.
	B20	CuZn38As	CW511L	C27453	-	4 MS Common Approach, Part B	62,5	0,1	0,2	0,1	0,1	0,1	0,03	-	-	-	Rem.
	B22	CuZn40Bi0,7Al 0,5Pb0,1**	According to SDWA of EPA****	-	-	-	58,0	0,1	0,2	0,2	-	0,2	0,03	-	0,7	-	Rem.
	B23	CuZn40Bi0,7Al 0,5Pb0,2**	According to SDWA of EPA****	-	-	-	58,0	0,2	0,2	0,2	-	0,2	0,03	-	0,7	-	Rem.

***For drinking water applications, there are restrictions to the chemical composition the materials listed in this table according to the specified in the 4 MS Common Composition List. In this case, on the ordering information must be specified the reference for DW (drinking water). This information is mandatory in the case in which the product is used in drinking water applications according to the 4 MS Common Composition List and not to be given in the other cases.**

**** Internal Designation.**

***** Deviations from these values may occur within the restrictions of the relevant standard specifications.**

****** Environment Protection Agency (EPA), Safe Water Drinking Act (SDWA) - ANSI/NSF Standard 61 and Copper Development Association (CDA)**

Geometric properties

Dimensions and tolerances for Hexagonal Rods				
Width across flats *W* (mm)	**Tolerances* (mm)**	**Straightness (According to EN 12164)**	**Note**	**Lengths (mm)**
5 – 10	+0 -0,050	Up on agreement between customer and supplier	Extruded and Drawn	3000±50 (more lengths possible up to 5000 mm upon costumer's request)
>10 - 30	+0 -0,070	0,6 mm (localized over any 400 mm length)		
>30 - 46	+0 -0,120			
> 46 - 65	± 0,6	Up on agreement between customer and supplier	Only extruded, not Drawn	
> 65 - 80	± 0,8			

* The rods are generally supplied with tolerances are acc. EN12164. However, is possible to go even further with tolerances of widths across flats tighter than specified in EN 12164 over the entire range of **ASBW** hexagonal machining rod, up to the values stated on the table.

Your satisfaction is our goal:

- Every rod is inspected individually to ensure the required straightness
- Dimension tolerances tighter than specified in the norm
- Homogeneity of the surface appearance, mechanical properties and width across flats within and across bundles
- Rod ends shaped to perfectly suit your automated machining process

Tailored for your production process

Types of end shaping

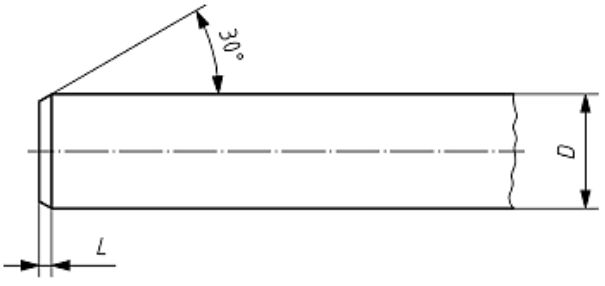
By standard, the **ASBW** machining rod is supplied with pointed and chamfered ends according to EN 12164.

Different combinations of rod ends finishing possible on customers request.

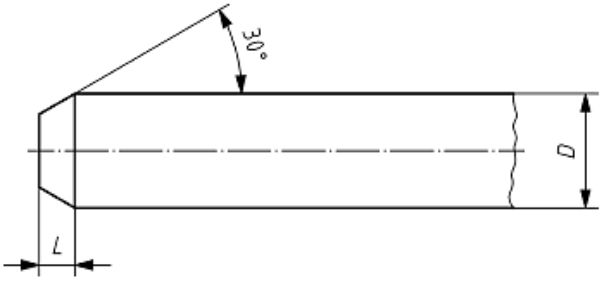
Diameter (mm)	Shaped ends*	Shaped ends dimensions**			
		Type A – Chamfer Length (mm)		Type B – Pointed Length (mm)	
		min.	max.	min.	max.
5	1 end chamfered, 1 end pointed	0,2	1,0	1,5	4,0
>5 - 10		0,2	1,5	2,0	7,0
>10 - 20		0,2	2,0	3,0	10,0
>20 - 30		0,2	3,0	4,0	12,0
>30 - 46	1 end chamfered, 1 end sawn without burr	0,5	3,0	4,0	12,0
>46 - 80	Both ends sawn, without burr				

* Different end shapes available upon customer request

** The ends are typically shaped with a 30° angle;
A 45° angle is possible upon customers request.



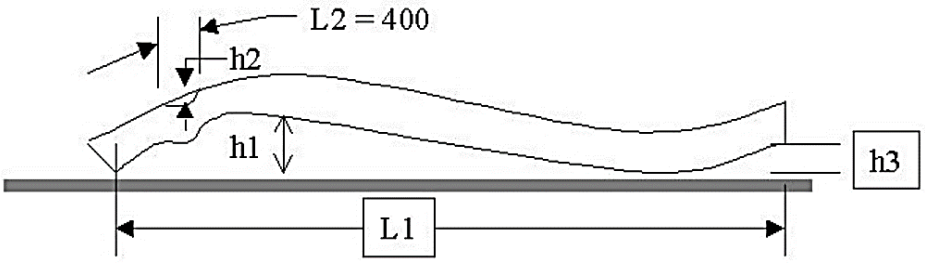
a) Shaped ends of rod, Type A – chamfered



b) Shaped ends of rod, Type B – pointed

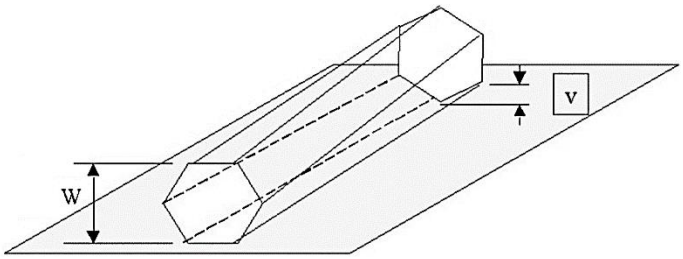
Straightness

The **ASBW** hexagonal machining rod is the ideal solution for your production process, offering high quality standards in terms of straightness in its entire length (**L1**), within the with across flats range from 10 mm to 50 mm. For hexagonal precision machining rods, we offer a gap for the entire deviation of 1,5 mm/m (**h1**) and a maximum local deviation of 0,6 mm/ ≤ 400 mm (**h2** or **h3**).



Twist tolerance for Hexagonal Rods

ASBW drawn hexagonal rod for machining complies with EN 12164, strictly following the specifications for deviation of the profile by torsion “V”, in reference to the control surface, as illustrated bellow.



Width across flats *W* (mm)	“V” per 1 meter of length (mm)
10 – 18	1
> 18 - 30	2
> 30 – 40 *	3

* For widths across flats over 40 mm, twist tolerance is subjected to agreement between **ASBW** and the customer

Packaging

Size range up to 10 mm
The rods are packed loose in a wooden box and protected with oiled paper (net weight of approx. 500 kg). Each box is strapped with 4 steel straps to ensure material integrity during shipping.

Size range above 10 mm
ASBW hexagonal machining rods are supplied by standard in bundles either of approximately 1.000 kg or 500 kg. Different bundle weights are also possible upon costumer’s request. Each bundle is steel strapped three times on cardboard and both ends are protected with burlap, to ensure the material integrity during the transportation.

Labeling

In order to ensure, the traceability according to NP EN ISO 9001:2015, each bale (wooden box or bundle) is marked with a label indicating the details mentioned below:

- customer
- number of customer’s order
- EN Standard of the material
- **ASBW** material code
- rod length
- **ASBW**’s PO number
- **ASBW**’s Quality Approval Seal

Corner radii for Hexagonal Rods

ASBW hexagonal machining rods are supplied with sharp edges only, over all the range of width across flats.

Nominal width across flats *W* (mm)	Radii for sharp corners
5 – 10	max. 0,4
10 – 18	max. 0,5
> 18 - 30	max. 0,6
> 30 – 40 *	max. 0,7

* For widths across flats over 40 mm, corner radii is subjected to agreement between **ASBW** and the customer

Quality and environment

ASBW has a certified quality management system in place according to EN ISO 9001:2015 and is committed to its customers in continuously improve the quality of production.

Environment is a concern and global responsibility, to which **ASBW** is compliant with. **ASBW** adopts a policy of Social Responsibility, reducing the environmental impact of its activities. Believing in the compatibility between technological progress and environmental preservation, we are licensed at environmental level with APA (Environmental Agency) license number 86120.

Technical service

At **ASBW** we see our customers as business partners. Considering that, we supply not only brass rods but also our expertise and technical know-how that results from decades of experience and research. Our commitment is on-time discussion of any aspect of your production from the planning stage, providing you with detailed information about product properties, further processing and delivery options.

Performance characteristics

Width across-flats [mm]	Note	Mechanical properties												Packaging		Width across-flats [mm]
		ISO Tolerance [mm]	Straight-ness	Twist Tolerance "V" (mm)	Length [mm]	Chamfer angle of inclination	Chanfer Length [mm]	Point Length [mm]	Tolera-nce on cut length [mm]	Material Condition	Rm (N/mm²) [MPa]	Rp0.2 (N/mm²) [MPa]	A [%]			
5	Extruded and Drawn	+0/ -0,050	Up on agreement between customer and supplier	-	3000±50 (more lengths possible up to 5000 mm upon costumer's request)	usually 30 degrees a 45 degree angle is possible on customer's request	0,2 to 1,0	1,5 to 4,0	±50	R 500	≥ 500	≥350	≥5	in boxes of 500kg 500kg lined with waxed paper	tops marked according to customer's specification	5
5,5							0,2 to 1,5	2,0 to 7,0								5,5
5,6																5,6
6																6
7																7
8																8
9																9
10				1												10
11		+0/ -0,070	0,6 mm (localized over any 400 mm length)				0,2 to 2,0	3,0 to 10,0		R 430	≥ 430	≥ 220	≥ 10	In bundles of approx. 500 kg (alternatively available in bundles of approx. 1.000 kg) with steel strap and corrugated cardboard as well as sack cloth on one side		11
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31		+0/ -0,120		3			0,5 to 3,0									31
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41				Up on agreement between customer and supplier						R360	≥ 360	≤350	≥20			41
42																42
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45																45
46																46

Width across-flats [mm]	Note	Mechanical properties												Packaging		Width across-flats [mm]
		ISO Tolerance [mm]	Straight-ness	Twist Tolerance "V" [mm]	Length [mm]	Chamfer angle of inclination	Chanfer Length [mm]	Point Length [mm]	Tolera-nce on cut length [mm]	Material Condition	Rm (N/mm²) [MPa]	Rp0.2 (N/mm²) [MPa]	A [%]			
47	Only extruded, not Drawn	± 0,6	Up on agreement between customer and supplier	Up on agreement between customer and supplier	3000±50 (more lengths possible up to 5000 mm upon costumer's request)	usually 30 degrees a 45 degree angle is possible on customer's request	Both ends sawn, without burr	Both ends sawn, without burr	±50	M	-	-	-	In bundles of approx. 500 kg (alternatively available in bundles of approx. 1.000 kg) with steel strap and corrugated cardboard as well as sack cloth on one side	tops marked according to customer's specification	47
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