

sarbak



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SARBAK METAL TİC. ve SAN. A.Ş.

Our company was founded in 1976 and operating in its new facilities in Çerkezköy Organized Industrial Site manufacturing all dimensions of brass extruded and cold drawing; round, square, rectangular, hexagonal, octagonal rods, hollow rods, cold drawn coils etc. as well as special profiles in various dimensions and shapes, billets in various dimensions and lengths and continuous casting ingots for free casting furnaces and low pressure casting furnaces that are widely used in water armatures manufacturing with 8.000tonnes/month manufacturing capacity in European and American standards in line with the demands of its customers.





PRODUCT GROUPS



Rods and Profiles

Round, square, rectangular, hexagonal, octagonal profiles in all dimensions.



Hollow Rods and Profiles

For higher efficiency and low tool wear with less weight.



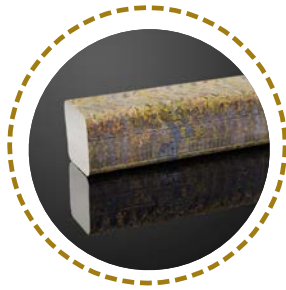
Cold Drawn Coils

Round brass coil manufacturing between 7 - 10 mm.



Brass Billet

Billet manufacturing in required dimensions and lengths up to 240 mm.



Ingot

Manufacturing of continuous casting ingots that are widely used in water armatures manufacturing.

Rods

Round, square, rectangular, hexagonal, octagonal profile rods in all dimensions

Designation				Cold Drawn		Extruded	Polygonal Cold Drawn		Polygonal Extruded	
Standards				Diameter (mm)			Width Between Parallel Surfaces (mm)			
Product Code	EN Symbol	EN No	ASTM	Min	Max	Max	Min	Max	Hexagon Max	Square Max
S614	CuZn39Pb3	CW614N	C38500	7	65	110	7	55	95	78
S617	CuZn40Pb2	CW617N	C38000	7	65	110	7	55	95	78
S600	CuZn35Pb1	CW600N	C34000	10	65	110	10	55	95	78
S602	CuZn36Pb2As	CW602N	C35330	10	65	110	10	55	95	78
S608	CuZn38Pb2	CW608N	-	7	65	110	7	55	95	78
S610	CuZn39Pb0,5	CW610N	C36500	7	65	110	7	55	95	78
S611	CuZn39Pb1	CW611N	-	7	65	110	7	55	95	78
S612	CuZn39Pb2	CW612N	C37700	7	65	110	7	55	95	78
S603	CuZn36Pb3	CW603N	C36000	9,5	65	110	9,5	55	95	78
S605	CuZn37Pb1	CW605N	C35000	10	65	110	10	55	95	78
S606	CuZn37Pb2	CW606N	C35300	10	65	110	10	55	95	78
S607	CuZn38Pb1	CW607N	C37000	8	65	110	8	55	95	78
Ecobrass	CuZn21Si3P	CW724R	C69300	10	65	90	10	55	-	-
Globrass	CuZn36Si1P	CW726R	C68370	8	65	110	8	55	95	78
S727	CuZn35Sn1P	CW727R	-	10	65	110	10	55	95	78
S508	CuZn37	CW508L	C27200	10	65	110	10	55	95	78
S509	CuZn40	CW509L	C27450	7	65	110	7	55	95	78
S510	CuZn42	CW510L	C28500	7	65	110	7	55	95	78
S511	CuZn38As	CW511L	C27453	10	65	110	10	55	95	78
S625	CuZn35Pb1,5AlAs	CW625N	-	10	65	110	10	55	95	78
S626	CuZn33Pb1,5AlAs	CW626N	-	10	65	110	10	55	95	78
S627	CuZn40Pb1	CW627N	-	7	65	110	7	55	95	78
S708	CuZn31Si	CW708R	C69800	10	65	110	10	55	95	78
S709	CuZn32Pb2AsFeSi	CW709R	-	8	65	110	8	55	95	78
S713	CuZn37Mn3Al2PbSi	CW713R	C67420	8	65	110	8	55	95	78
S725	CuZn33Pb1AlSiAs	CW725R	-	10	65	110	10	55	95	78

Sectional bars width across - flats over 55 mm and round bars diameter over 80 mm without straightening.

Hollow Rods

For higher efficiency and low tool wear with less weight

Designation				Cold Drawn	Extruded	Hexagonal Cold Drawn	Hexagonal Extruded	Octagonal Cold Drawn	Octagonal Extruded	Round and Polygonal						
Standards				Outer Diameter (mm)			Width Between Parallel Surfaces (mm)			Width Between Parallel Surfaces (mm)			Bore Diameter (mm)		Wall Thickness (mm)	
Product Code	EN Symbol	EN No	ASTM	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Min	Max
S614	CuZn39Pb3	CW614N	C38500	23	78	80	22	65	77	23	60	75	13	59	3	25
S617	CuZn40Pb2	CW617N	C38000	23	78	80	22	65	77	23	60	75	13	59	3	25
S600	CuZn35Pb1	CW600N	C34000	23	78	80	22	65	77	23	60	75	13	59	4	25
S602	CuZn36Pb2As	CW602N	C35330	23	78	80	22	65	77	23	60	75	13	59	4	25
S608	CuZn38Pb2	CW608N	-	23	78	80	22	65	77	23	60	75	13	59	4	25
S610	CuZn39Pb0,5	CW610N	C36500	23	78	80	22	65	77	23	60	75	13	59	3	25
S611	CuZn39Pb1	CW611N	-	23	78	80	22	65	77	23	60	75	13	59	3	25
S612	CuZn39Pb2	CW612N	C37700	23	78	80	22	65	77	23	60	75	13	59	3	25
S603	CuZn36Pb3	CW603N	C36000	23	78	80	22	65	77	23	60	75	13	59	4	25
S605	CuZn37Pb1	CW605N	C35000	23	78	80	22	65	77	23	60	75	13	59	4	25
S606	CuZn37Pb2	CW606N	C35300	23	78	80	22	65	77	23	60	75	13	59	4	25
S607	CuZn38Pb1	CW607N	C37000	23	78	80	22	65	77	23	60	75	13	59	4	25
Ecobrass	CuZn21Si3P	CW724R	C69300	23	78	80	22	65	77	23	60	75	13	59	4	25
Globrass	CuZn36Si1P	CW726R	C68370	23	78	80	22	65	77	23	60	75	13	59	4	25
S727	CuZn35Sn1P	CW727R	-	23	78	80	22	65	77	23	60	75	13	59	4	25
S509	CuZn40	CW509L	C27450	23	78	80	22	65	77	23	60	75	13	59	3	25
S510	CuZn42	CW510L	C28500	23	78	80	22	65	77	23	60	75	13	59	3	25
S511	CuZn38As	CW511L	C27453	23	78	80	22	65	77	23	60	75	13	59	4	25
S625	CuZn35Pb1,5AlAs	CW625N	-	23	78	80	22	65	77	23	60	75	13	59	4	25
S626	CuZn33Pb1,5AlAs	CW626N	-	23	78	80	22	65	77	23	60	75	13	59	4	25
S627	CuZn40Pb1	CW627N	-	23	78	80	22	65	77	23	60	75	13	59	3	25
S725	CuZn33Pb1AlSiAs	CW725R	-	23	78	80	22	65	77	23	60	75	13	59	4	25

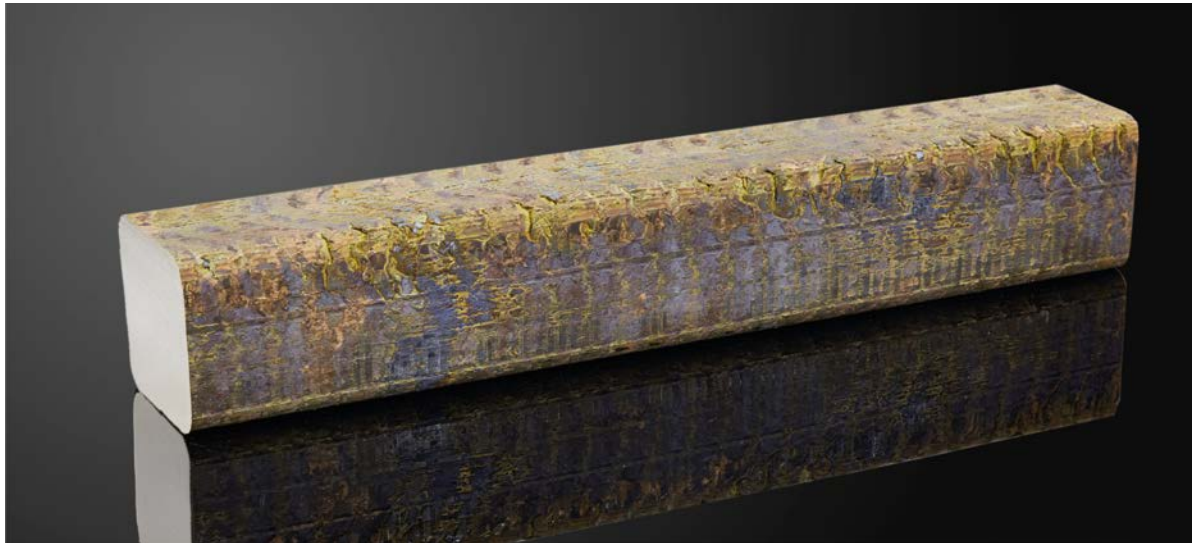
*Minimum wall thickness for products over 65mm is 5mm.
For hollow products, products with a maximum weight of 28 kg per meter are produced.*



Continuous Casting Ingots

Manufacturing of continuous casting ingots that are widely used in water armatures manufacturing

Continuous Casting CuZn39Pb1Al - C Fitting Ingots CC757S	Continuous Casting CuZn39Pb1Al - C Low Pressure Ingots CC757S	Ecobrass - Ecocast CuZn21Si3P Continuous Casting Unleaded Ingots CC768S	Continuous Casting CuZn36Pb - C Dzr Ingots CC770S	Continuous Casting CuZn42Al Unleaded Ingots CC773S	Continuous Casting CuZn35Al - C Dzr Ingots	Continuous Casting CuZn38AsSb - C Dzr Ingots CC771S
EN - 1982	EN - 1982	EN - 1982	EN - 1982	EN - 1982	-	EN - 1982
DIN 50930-6	DIN 50930-6	DIN 50930-6	DIN 50930-6	DIN 50930-6	DIN 50930-6	DIN 50930-6
UBA LIST	UBA LIST	UBA LIST	UBA LIST	UBA LIST	UBA LIST	UBA LIST
4MS	4MS	4MS	4MS	4MS	4MS	4MS
-	Polishable	Polishable	Polishable	Polishable	Polishable	Polishable



General Features

- * Ingots are transferred on Euro pallets between 1-2 tones. 64 mm x 64 mm x 380 mm, 12 - 13 kg / ingot.
- * It can be loaded with the robot thanks to its geometry.
- * Slag ratio is lower during melting compared to gravity die casting ingot as it is a continuous casting ingot.
- * It is used in water armatures manufacturing.

Applicable Standards

TS EN-1982	Standard for brass and copper alloys, ingots and casts.
DIN 50930-6	Standard for brass materials used areas contacting drinking water
UBA List	The list for brass materials used in drinking water published by German Federal Environment Agency.
4MS	Committee regulating the national approvals for materials and products contacting drinking water that France, Germany, the Netherlands and United Kingdom are members of.

Note : Please contact us for other alloys you require.

Cold Drawn Coils

Manufacturing in round form between 7-10 mm

Type	Manufacturing Range
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Round	7-10 (mm)
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Diameter (mm)	Weight (kg/m)	Max. Coil Weight (kg)	Material Condition
EN 12166 - CW614N			
7	0,225	120	R430
8	0,425	120	
9	0,538	120	
10	0,664	240	



Coil Internal Diameter	Ø 600 (mm)
Coil Width	250 - 400 (mm)
Coil Direction	Anticlockwise

Package Weight	500 ± 100 (kg)
Package Dimensions	Width x Length x Height 700 x 700 x 1300 (mm)

* Please contact us for coil weights and other alloys.

* Please contact us for detailed information.



Current Rectangular Dimensions

Dimension (mm)	~ Weight (kg)	Dimension (mm)	~ Weight (kg)	Dimension (mm)	~ Weight (kg)	Dimension (mm)	~ Weight (kg)
7 x 9	0,53	10 x 14	1,18	12.6 x 17.8	1,88	20 x 35	5,88
7 x 50	2,96	10 x 15	1,26	12.6 x 50.7	5,4	20 x 37	6,22
7.6 x 9.28	0,59	10 x 16	1,35	12.68 x 28.6	3,05	20 x 40	6,72
8 x 10	0,67	10 x 17.45	1,47	12.7 x 19.05	2,03	20 x 45	7,56
8 x 12	0,81	10 x 18	1,52	12.7 x 25.4	2,71	20 x 50	8,4
8 x 13	0,88	10 x 20	1,68	12.7 x 38.1	4,09	20 x 60	10,08
8 x 15	1,01	10 x 23	1,93	12.7 x 50.8	5,45	20 x 70	11,76
8 x 16	1,08	10 x 24	2,03	14.5 x 26.5	3,25	20,2 x 30	5,09
8 x 18	1,22	10 x 25	2,1	14.6 x 17.8	2,2	22 x 26	4,81
8 x 20	1,34	10 x 30	2,52	15 x 16	2,03	22.23 x 50.8	9,49
8 x 23	1,55	10 x 33.5	2,81	15 x 20	2,52	25 x 30	6,3
8 x 25	1,68	10 x 35	2,94	15 x 25	3,15	25 x 33.62	7,1
8 x 30	2,02	10 x 40	3,36	15 x 30	3,78	25 x 35	7,35
8 x 32	2,15	10 x 45	3,78	15 x 35	4,41	25 x 40	8,4
8 x 35	2,35	10 x 50	4,2	15 x 40	5,04	25 x 45	9,45
8 x 40	2,69	10 x 60	5,04	15 x 45	5,67	25 x 50	10,5
8 x 45	3,02	10.5 x 55	4,88	15 x 50	6,3	25 x 60	12,6
8 x 50	3,36	10.8 x 17.8	1,62	15 x 60	7,56	25.4 x 50.8	10,84
8 x 60	4,03	12 x 15	1,51	15.86 x 38	5,06	26 x 46	10,05
8.32 x 32	2,24	12 x 17	1,71	15.88 x 25.4	3,39	28 x 30	7,06
8.83 x 23.43	1,75	12 x 17.8	1,8	15.88 x 31.75	4,24	30 x 35	8,87
9 x 13	0,99	12 x 20	2,02	15.88 x 50.8	6,82	30 x 40	10,08
9 x 33	2,5	12 x 25	2,52	16 x 19	2,55	30 x 45	11,41
9 x 60	4,54	12 x 30	3,02	16 x 46	6,18	30 x 50	12,6
9.53 x 12.7	1,02	12 x 32	3,23	18 x 32	4,84	30 x 60	15,12
9.53 x 15.88	1,27	12 x 35	3,53	18 x 35 köşe R1	5,29	32 x 37	10
9.53 x 19.05	1,53	12 x 35.5	3,6	19 x 38	6,1	33 x 56	15,62
9.53 x 25.4	2,03	12 x 40	4,03	19.05 x 25.4	4,07	35 x 40	11,83
9.53 x 31.75	4,26	12 x 45	4,54	19.05 x 31.75	5,11	35 x 45	13,31
9.53 x 38.1	3,07	12 x 50	5,04	19.05 x 38,1	6,1	35 x 50	14,7
9.53 x 50.8	4,09	12 x 60	6,05	19.05 x 38.1	6,1	38.1 x 50.8	16,35
9.7 x 19.7	1,61	12.1 x 25	2,56	19.05 x 44.45	7,16	40 x 50	16,8
9.75 x 10.75	0,87	12.1 x 25.6	2,62	19.05 x 50.8	8,13	40 x 60	20,16
9.8 x 10.8	0,89	12.5 x 14	1,47	20 x 25	4,2	42 x 48	17,04
10 x 12	1,01	12.6 x 17.75	1,85	20 x 30	5,04		

Note : Please contact us for other dimensions.



EN 12167 - Rectangular Material Dimensional Tolerance

Nominal Width		Width Tolerance	Thickness Tolerance in Thickness Gaps				
over..	up to .. (incl.)		5 to 6 . incl. 6	over 6 up to 10 incl. 10	over 10 up to 18 incl. 18	over 18 up to 30 incl. 30	over 30 up to 50 incl. 50
6 incl.	18	±0,10	±0,07	±0,09	±0,10	-	-
18	30	±0,15	±0,07	±0,09	±0,10	±0,15	-
30	50	±0,20	±0,09	±0,010	±0,12	±0,15	±0,20
50	70	±0,25	±0,11	±0,12	±0,15	±0,20	±0,25

STANDARD		EN 12164			EN 12165		EN 12168					
Dimension Range		Round Rod		Hexagonal, Square	Round Rod		Round and Hexagonal Hollow Rod, Outer Dim. Tol.			Hole Tolerance Round		Hole Tol. Hexagonal
Over	Incl.	Class A	Class B	Rod	Class A	Class B	Class A	Class B	Class C	Class A	Class B	
7	10	0 -0,06	0 -0,036	0 -0,09	±0,25	±0,14	-	-	-	-	-	-
10	13	0 -0,07	0 -0,043	0 -0,11	±0,25	±0,14	-	-	-	-	-	-
13	18	0 -0,07	0 -0,043	0 -0,11	±0,25	±0,14	-	-	-	±0,35	-	+0,70 -0
18	20	0 -0,08	0 -0,052	0 -0,13	±0,30	±0,17	-	-	-	±0,42	-	+0,84 -0
20	23	0 -0,08	0 -0,052	0 -0,13	±0,30	±0,17	-	-	-	±0,42	±0,17	+0,84 -0
23	26	0 -0,08	0 -0,052	0 -0,13	±0,30	±0,17	-	0 -0,21	-	±0,42	±0,17	+0,84 -0
26	30	0 -0,08	0 -0,052	0 -0,13	±0,30	±0,17	-	0 -0,21	0 -0,13	±0,42	±0,17	+0,84 -0
30	50	0 -0,16	-	0 -0,16	±0,60	±0,20	-	0 -0,25	0 -0,16	±0,80	±0,20	+1,6 -0
50	55	0 -0,19	-	0 -0,19	±0,70	±0,37	-	0 -0,46	0 -0,30	±0,95	±0,37	-
55	65	0 -0,19	-	-	±0,70	±0,37	±0,60	0 -0,46	0 -0,30	±0,95	-	-
65	80	-	-	-	±0,70	-	±0,60	0 -0,46	0 -0,30	-	-	-
80	110	-	-	-	±2	-	-	-	-	-	-	-

For Hollow Rounds

Min. wall thickness is 3-4 mm.
Eccentricity : %10 (max.)

Outer Cold Drawn - Internal Extruded

Outer Class B - Hole Class A tolerance

Inner - Outer Cold Drawn

Outer Class C - Hole Class B tolerance

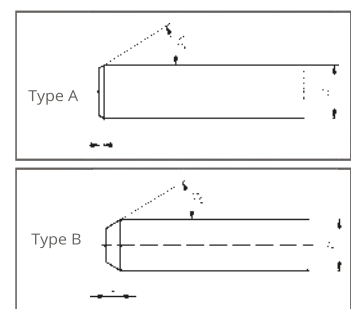
Inner-Outer Extruded

Outer Class A - Hole Class A tolerance

Indicative Shaped ends Dimensions

Nominal Diameter or width Across - Flats		Type A - Chamfer Length (L)		Type B - Dir. End Length (L)	
Over	Up To Incl.	Min	Max	Min	Max
7	10	0,2	1,5	2	7
10	02	0,2	2	3	10
20	30	0,2	3	4	12

- Unless customer states otherwise, manufacturer decides on the ends type over 30 mm.
- Sectional bars over 55 mm and rounds over 65 mm without chamfering.



Width Between Diameter or Parallel Surface	Rod Length Range	Tolerance
7 30	3.000 - 4.000	±50
30 65	3.000 - 4.000	±100

Tension Release

Tension release thermal process is applied to all hollow and multi-corner solid materials that are subjected to cold drawing

Packaging

3/5 metal rings, surface stretch film, rods under 10 mm in wooden boxes, bundless of 500 and 1000 kg.

Material Designation - Rod, Hollow Rod, Billet Chemical Composition % (in Mass)									
Product Code	EN Symbol	EN No	ASTM	Element	Cu	Zn	Pb	Sn	Fe
S508	CuZn37	CW508L	C27200	Min (%)	62.0	Kalan	-	-	-
				Max(%)	64.0		0.1	0.1	0.1
S508DW	CuZn37	CW508L-DW	C27200	Min (%)	62.0	Kalan	-	-	-
				Max(%)	64.0		0.1	0.1	0.1
S509	CuZn40	CW509L	C27450	Min (%)	59.0	Kalan	-	-	-
				Max(%)	61.5		0.2	0.2	0.2
S509DW	CuZn40	CW509L-DW	C27450	Min (%)	59.5	Kalan	-	-	-
				Max(%)	61.5		0.2	0.2	0.2
S510	CuZn42	CW510L	C28500	Min (%)	57.0	Kalan	-	-	-
				Max(%)	59.0		0.2	0.3	0.3
S510DW	CuZn42	CW510L-DW	C28500	Min (%)	57.0	Kalan	-	-	-
				Max(%)	59.0		0.2	0.3	0.3
S511	CuZn38As	CW511L	C27453	Min (%)	61.5	Kalan	-	-	-
				Max(%)	63.5		0.2	0.1	0.1
S511DW	CuZn38As	CW511L-DW	C27453	Min (%)	61.5	Kalan	-	-	-
				Max(%)	63.5		0.10	0.1	0.1
S600	CuZn35Pb1	CW600N	C34000	Min (%)	62.5	Kalan	0.8	-	-
				Max(%)	64.0		1.6	0.1	0.1
S602	CuZn36Pb2As	CW602N	C35330	Min (%)	61.0	Kalan	1.7	-	-
				Max(%)	63.0		2.8	0.1	0.1
S603	CuZn36Pb3	CW603N	C36000	Min (%)	60.0	Kalan	2.5	-	-
				Max(%)	62.0		3.5	0.2	0.3
S603DW	CuZn36Pb3	CW603N-DW	C36000	Min (%)	60.0	Kalan	2.5	-	-
				Max(%)	62.0		3.5	0.2	0.3
S605	CuZn37Pb1	CW605N	C35000	Min (%)	61.0	Kalan	0.8	-	-
				Max(%)	62.5		1.6	0.3	0.3
S606	CuZn37Pb2	CW606N	C35300	Min (%)	61.0	Kalan	1.6	-	-
				Max(%)	62.0		2.5	0.2	0.2
S607	CuZn38Pb1	CW607N	C37000	Min (%)	60.0	Kalan	0.8	-	-
				Max(%)	61.0		1.6	0.2	0.2
S608	CuZn38Pb2	CW608N	-	Min (%)	60.0	Kalan	1.6	-	-
				Max(%)	61.0		2.5	0.2	0.2
S610	CuZn39Pb0,5	CW610N	C36500	Min (%)	59.0	Kalan	0.2	-	-
				Max(%)	60.5		0.8	0.2	0.2
S611	CuZn39Pb1	CW611N	-	Min (%)	59.0	Kalan	0.8	-	-
				Max(%)	60.0		1.6	0.3	0.3
S612	CuZn39Pb2	CW612N	C37700	Min (%)	59.0	Kalan	1.6	-	-
				Max(%)	60.0		2.5	0.3	0.3
S612DW	CuZn39Pb2	CW612N-DW	C37700	Min (%)	59.0	Kalan	1.6	-	-
				Max(%)	60.0		2.2	0.3	0.3
S614	CuZn39Pb3	CW614N	C38500	Min (%)	57.0	Kalan	2.2	-	-
				Max(%)	59.0		3.5	0.3	0.3
S614DW	CuZn39Pb3	CW614N-DW	C38500	Min (%)	57.0	Kalan	2.5	-	-
				Max(%)	59.0		3.5	0.3	0.3
S617	CuZn40Pb2	CW617N	C38000	Min (%)	57.0	Kalan	1.6	-	-
				Max(%)	59.0		2.2	0.3	0.3
S617DW	CuZn40Pb2	CW617N-DW	C38000	Min (%)	57.0	Kalan	1.6	-	-
				Max(%)	59.0		2.2	0.3	0.3
S625	CuZn35Pb1,5AlAs	CW625N	-	Min (%)	62.0	Kalan	1.2	-	-
				Max(%)	64.0		1.6	0.3	0.1
S626	CuZn33Pb1,5AlAs	CW626N	-	Min (%)	64.0	Kalan	1.2	-	-
				Max(%)	66.0		1.7	0.3	0.1
S627	CuZn40Pb1	CW627N	-	Min (%)	57.0	Kalan	0.8	-	-
				Max(%)	59.0		1.6	0.3	0.3
S708	CuZn31Si	CW708R	C69800	Min (%)	66.0	Kalan	-	-	-
				Max(%)	70.0		0.8	-	0.4
S709	CuZn32Pb2AsFeSi	CW709R	-	Min (%)	64.0	Kalan	1.5	-	0.1
				Max(%)	66.5		2.2	0.3	0.2
S713	CuZn37Mn3Al2PbSi	CW713R	C67420	Min (%)	57.0	Kalan	0.2	-	-
				Max(%)	59.0		0.8	0.4	1.0
Ecobrass	CuZn21Si3P	CW724R	C69300	Min (%)	75.0	Kalan	-	-	-
				Max(%)	77.0		0.09	0.3	0.3
S725	CuZn33Pb1AlSiAs	CW725R	-	Min (%)	64.0	Kalan	0.4	-	-
				Max(%)	67.0		0.9	0.3	0.3
S725DW	CuZn33Pb1AlSiAs	CW725R-DW	-	Min (%)	64.0	Kalan	0.4	-	-
				Max(%)	67.0		0.6	0.3	0.3
Globrass	CuZn36Si1P	CW726R	C68370	Min (%)	60.5	Kalan	-	-	-
				Max(%)	64.5		0.10	0.2	0.2
9 S727	CuZn35Sn1P	CW727R	-	Min (%)	63.5	Kalan	-	0.5	-
				Max(%)	65.0		0.10	1.0	0.10

Table 1. Chemical composition and mechanical properties of the studied alloys												
	As	Ni	Al	Mn	P	Si	Others Total	Density (g/cm³)	DZR Feature		UBA 4MS Group	Machinability Index (%)
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.1	8,4	-	✓	-	35
	-	-	-	-	-	-	-	-	-	-	✓	-
	0.02	0.2	0.05	0.02	0.02	0.02	0.1	8,4	-	✓	B,C,D	35
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	✓	-	50
	-	-	-	-	-	-	-	-	-	-	✓	-
	0.02	0.2	0.05	0.02	0.10	0.10	0.2	8,4	-	✓	B,C,D	50
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	✓	-	70
	-	-	-	-	-	-	-	-	-	-	✓	-
	0.02	0.2	0.05	0.02	0.10	0.10	0.2	8,4	-	✓	B,C,D	70
	0.02	-	-	-	-	-	-	-	-	-	-	-
	0.15	0.3	0.05	-	-	-	0.2	8,4	✓	✓	-	40
	0.02	-	-	-	-	-	-	-	-	-	✓	-
	0.10	0.10	0.05	0.1	0.02	0.02	0.2	8,4	✓	✓	B,C,D	40
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.1	8,5	-	-	-	75
	0.02	-	-	-	-	-	-	-	-	-	-	-
	0.15	0.3	0.05	0.1	-	-	0.2	8,4	✓	-	-	80
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,5	-	-	-	90
	-	-	-	-	-	-	-	-	-	-	✓	-
	0.02	0.2	0.05	0.02	0.02	0.03	0.2	8,5	-	-	C,D	90
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,5	-	-	-	75
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	-	-	85
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	-	-	75
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	-	-	90
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	-	-	55
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	-	-	75
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	-	-	90
	-	-	-	-	-	-	-	-	-	-	✓	-
	0.02	0.1	0.05	0.02	0.02	0.03	0.2	8,4	-	-	B,C,D	90
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	-	-	100
	-	-	-	-	-	-	-	-	-	-	✓	-
	0.02	0.2	0.05	0.02	0.02	0.03	0.2	8,4	-	-	C,D	100
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	-	-	95
	-	-	-	-	-	-	-	-	-	-	✓	-
	0.02	0.1	0.05	0.02	0.02	0.03	0.2	8,4	-	-	B,C,D	95
	0.02	-	0.5	-	-	-	-	-	-	-	✓	-
	0.15	0.2	0.7	0.1	0.02	0.02	0.2	8,4	✓	-	B,C,D	80
	0.02	-	0.8	-	-	-	-	-	-	-	✓	-
	0.15	0.2	1.0	0.1	0.02	0.02	0.2	8,4	✓	-	B,C,D	70
	-	-	-	-	-	-	-	-	-	-	-	-
	-	0.3	0.05	-	-	-	0.2	8,4	-	-	-	90
	-	-	-	-	-	0.7	-	-	-	-	-	-
	-	0.5	-	-	-	1.3	0.2	8,4	-	-	-	40
	0.03	-	-	-	-	0.45	-	-	-	-	-	-
	0.08	0.3	0.05	-	-	0.8	0.2	8,4	✓	-	-	85
	-	-	1.3	1.5	-	0.3	-	-	-	-	-	-
	-	1.0	2.3	3.0	-	1.3	0.3	8,1	-	-	-	50
	-	-	-	-	0.02	2.7	-	-	-	-	✓	-
	0.02	0.2	0.05	0.05	0.10	3.5	0.2	8,25	✓	✓	B,C,D	80
	0.04	-	0.1	-	-	0.1	-	-	-	-	-	-
	0.08	0.2	0.3	0.04	0.02	0.3	0.2	8,55	✓	-	-	75
	0.04	-	0.1	-	-	0.1	-	-	-	-	✓	-
	0.08	0.2	0.3	0.04	0.02	0.3	0.2	8,55	✓	-	B,C,D	75
	-	-	-	-	0.01	0.7	-	-	-	-	-	-
	-	0.2	-	0.2	0.10	1.3	0.3	8,3	-	✓	-	80
	-	-	-	-	0.05	-	-	-	-	-	✓	-
	0.02	0.10	0.05	0.02	0.15	0.10	0.2	8,35	✓	✓	B,C,D	65
	10											



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