

BRASS EXTRUDED PRODUCTS

RODS - TUBES - SECTIONS - FLATS - WIRES







FITCO is a subsidiary of Halcor, an industrial company specializing in copper processing for over sixty years.

FITCO thus benefits from the accumulated experience a worldwide international presence of its parent company.

The company production plant, situated at Inofyta- Greece occupies over a 58.000 square meter site and processes copper alloy products manufacturing a wide range of quality products.

The company is dedicated to achieving high quality. It has ISO 9001:2008 certification, uses state-of-the-art technology and employs highly skilled personnel. Substantial, continual investment in research and know-how allows the company to create innovative new products, which support its aim of being a market leader.

At the same time, FITCO is committed to sustained development and environmental protection. As such, its production processes are regulated by an ISO 14001:2004 certified Environmental Management System.

Aiming at the total satisfaction of all of its customers' needs, the company focuses on responding reliably and rapidly to demand. It provides exceptional support for its products, which are distributed to more than fifty countries worldwide. FITCO combines size, strength and technology to achieve its overall vision of putting metals at man's disposal.



BRASS EXTRUDED PRODUCTS

RODS
TUBES
SECTIONS
FLATS
WIRES

ALLOYS FOR BRASS PRODUCTS

MATERIAL DESIGNATION			CHEMICAL COMPOSITION %							
ALLOY	EUROPE EN	USA USN	Cu	Pb	Zn	Sn	As	Ni	Al	Other Named Elements
CuZn39Sn1	CW719R	C46400	59-61	0,2	REM	0,5-1	-	0,2	1,8-2,3	
CuZn36Pb2Sn1	CW711R	C48500	59,5-61,5	1,3-2,2	REM	0,5-1	-	0,3	0,05-0,5	
CuZn40Pb2	CW617N	C37710	57-59	1,6-2,5	REM	0,3	-	-	0,05	
CuZn39Pb3	CW614N	C38500	57-59	2,5-3,5	REM	0,3	-	0,3	0,05	
CuZn39Pb2	CW612N	C37700	59-60	1,6-2,5	REM	0,3	-	0,3	0,05	
CuZn38Pb2	CW608N	-	60-61	1,6-2,5	REM	0,2	-	0,3	0,05	
CuZn38Pb1	CW607N	-	60-61	0,8-1,6	REM	0,2	-	0,3	0,05	
CuZn36Pb3	CW603N	C36000	60-62	2,5-3,5	REM	0,2	-	0,3	0,05	
CuZn36Pb2As	CW602N	C35330	61-63	1,7-2,8	REM	0,1	0,02-0,15	0,3	0,05	
CuZn35Pb2	CW601N	C34200	62-63,5	1,6-2,5	REM	0,1	-	0,3	0,02	
CuZn37	CW508L	C27200	62-64	0,1	REM	0,1	-	0,3	0,02	
CuZn40Si	CF724R	-	58,5-61,5	0,02	REM	0,2	-	-	0,01	Si: 0,2-0,4
CuZn40Mn1Pb1AlFeSn	CW721R	-	57-59	0,8-1,6	REM	0,2-1	-	0,3	0,3-1,3	
CuZn40Mn1Pb1	CW720R	-	57-59	1,0-2,0	REM	0,3	-	0,6	0-0,2	
CuZn37Mn3Al2PbSi	CW713R	-	57-59	0,2-0,8	REM	0,4	-	1	1,3-2,3	
CuZn36Sn1Pb	CW712R	-	61-63	0,6	REM	1,0-1,5	-	0,2	-	
CuZn35Ni3Mn2AlPb	CW710R	-	58-60	0,2-0,8	REM	0,5	-	2,0-3,0	0,3-1,3	
CuZn38As	CW511L	-	61-63,5	0,2	REM	0,1	-	0,3	0,1	
CuZn40	CW509L	-	59-61,5	0,2	REM	0,2	-	0,3	0,05	
CuZn42	CW510L	-	57-59	0,2	REM	0,3	-	0,3	0,05	

SPECIFICATIONS

	Rods	Tubes	Sections	Flats	Soldering	Wires
EN	12164	12449	12167	12167	133\52	12166
	12165					
	12168					
ASTM	B16	B135	B249	B16		B134
	B249	B587		B249		B250
		B251				



BRASS RODS

SOLID

APPLICATIONS

- A) Machining Products
- B) Hot Stamping-Forging Products

ALLOYS

CW614N, CW617N, CW608N, CW711R, CW603N, CW602N.
Other alloys upon request.

TEMPER

Hard Hexagonal and Square are delivered thermally stress relieved or soft (annealed).

PACKING

Bundles and Wooden Cases.

CHAMFERING

From 4.8mm up to 65mm

MANUFACTURING RANGE

			PROCESS	LENGTH
DIA= 2 - 70	AF= 5 - 50	AF = 5 - 50	Drawn	1.5-5 meters
DIA=71 - 100	AF=51 - 60	AF = 51 - 60	Extruded	1.5-5 meters

Values in mm

For alloy CW603N the minimum size is 3/8 inch (9.53 mm). Brass rods are produced with standard tolerances Class A according to EN standards, but can also be supplied with tolerances Class B upon request. Comprehensive range of imperial sizes is available.

TOLERANCE FOR ROUND BRASS RODS FOR FORGING (EN 12165)(mm)

Diameter		Tolerance
From	Up to	CLASS C
6	10	+/-0,06
10	18	+/-0,07
18	30	+/-0,08
30	50	+/-0,16
50	80	+/-0,19

TOLERANCE FOR ROUND-HEXAGONAL- SQUARE BRASS RODS FOR MACHINING (EN 12164) (mm)

Diameter or distance of parallel sides		Tolerance Round	Tolerance Hexagonal -square
From	Up to	CLASS A	
2	3	0-0,04	0-0,06
3	6	0-0,05	0-0,08
6	10	0-0,06	0-0,09
10	18	0-0,07	0-0,11
18	30	0-0,08	0-0,13
30	50	0-0,16	0-0,16
50	80	0-0,19	0-0,19

Note: Maximum allowed circularity counterbalances with the half of the tolerance

MECHANICAL PROPERTIES FOR THE BASIC ALLOYS CW614N, CW617N (EN 12164)

Material		Metallurgical Condition	Ø mm (Round)		A.F. mm Hexagonal and Square		Rm (N/mm²) min	A (%) min	HB
Symbol	EN		From	Up to	From	Up to			
CuZn39Pb3	CW614N	M	2	80	2	60	(as manufactured)-Without Specific Mechanical Properties (as manufactured)		
		R360	40	80	35	60	360	20	(90)
		R430	2	40	2	35	430	10	(120)
		R500	2	14	2	10	500	8	(150)
CuZn40Pb2	CW617N	R550	2	6	2	5	550	–	(150)



HOLLOW RODS TOLERANCE FOR MACHINING (EN 12168) (mm)

Diameter or distance of parallel sides		Tolerance
From	Up to	CLASS C
12	18	0-0,11
18	30	0-0,13
30	50	0-0,16
50	80	0-0,30

INTERNAL DIAMETER TOLERANCE FOR HOLLOW RODS (EN 12168) (mm)

Internal Diameter		Tolerance
From	Up to	CLASS A
8	10	+/-0,29
10	18	+/-0,35
18	30	+/-0,42
30	50	+/-0,80
50	70	+/-0,95

Class B upon request

ECCENTRICITY TOLERANCE FOR HOLLOW RODS (EN 12168)

Dimension Wall Thickness(mm)	CLASS A	CLASS B
2<w≤3	12%	10%
w>3	10%	8%

% Eccentricity = $(W_{\max} - W_{\min} / W_{\max} + W_{\min}) \times 100$, where $W_{\max}$, $W_{\min}$ the maximum and the minimum wall thickness.

HOLLOWS

APPLICATIONS

Mainly for the manufacturing of fittings

ALLOYS

CW614N, CW603N, CW602N, CW617N
Other alloys upon request.

TEMPER

Hollow rods are delivered thermally stress relieved or soft (annealed).

PACKING

Bundles.

MANUFACTURING RANGE

 DIA	MINIMUM THICKNESS (mm)	 AF	PROCESS
DIA = 15 - 30	3,0	AF = 16 - 30	Drawn (minimum I.D. 8 mm)
DIA = 31 - 40	3,5	AF = 31 - 40	
DIA = 41 - 48	4,0	AF = 41 - 50	
DIA = 49 - 60	5,0		

values in mm

All brass hollows rods can be supplied with shaped ends (chamfered/pointed) according to international standards or upon agreement.

TOLERANCE OF STRAIGHTNESS (EN 12164/12165/12168)

Diameters	Divergence per meter (mm)		
	Solid and Drawn	Hollow	Extruded
Brass Rods Ø10-50 or Hollows with Outside diameter 12-50 mm	1,0	1,5	6,0
Hexagonal, Square Brass Rods AF 10-50 mm Or Hollows with Outside diameter AF 12-50	1,5	2,0	6,0



BRASS TUBES

SEAMLESS

PRODUCTION RANGE

THICKNESS (mm)	DIAMETER (mm)
0,40 - 0,44	5,70 - 32,00
0,45 - 0,49	4,75 - 40,00
0,50 - 0,54	4,75 - 50,00
0,55 - 0,59	4,75 - 55,00
0,60 - 0,64	4,75 - 57,15
0,65 - 0,74	4,75 - 60,00
0,75 - 0,84	4,75 - 63,50
0,85 - 0,94	4,75 - 76,20
0,95 - 1,20	4,75 - 80,00
1,21 - 1,50	6,00 - 80,00
1,51 - 2,00	8,00 - 80,00
2,01 - 2,25	10,00 - 80,00
2,26 - 2,40	15,00 - 80,00
2,41 - 3,00	20,00 - 80,00
3,01 - 3,50	27,00 - 80,00
3,51 - 4,00	30,00 - 80,00
4,01 - 4,50	35,00 - 70,00
4,51 - 5,00	40,00 - 70,00

TOLERANCES FOR BRASS TUBES (EN 12165) Tolerances on Diameter

Diameter		Tolerance
From	Up to	
3	10	+/-0,06
10	20	+/-0,08
20	30	+/-0,12
30	50	+/-0,15
50	100	+/-0,20

APPLICATIONS

Components production, architectural applications, interior design, modern art, furnishing and lamps, pumps, gunwales, plumbing, heat exchangers, vehicles, musical instruments, spray equipment etc.

PROCESS

Seamless brass tubes are produced as extruded and cold drawn in various shapes such as round, square, roped and reeded.

ALLOYS

CuZn37

Other alloys upon request.

TEMPER

Hard, half-hard, light annealed and annealed.

PACKING

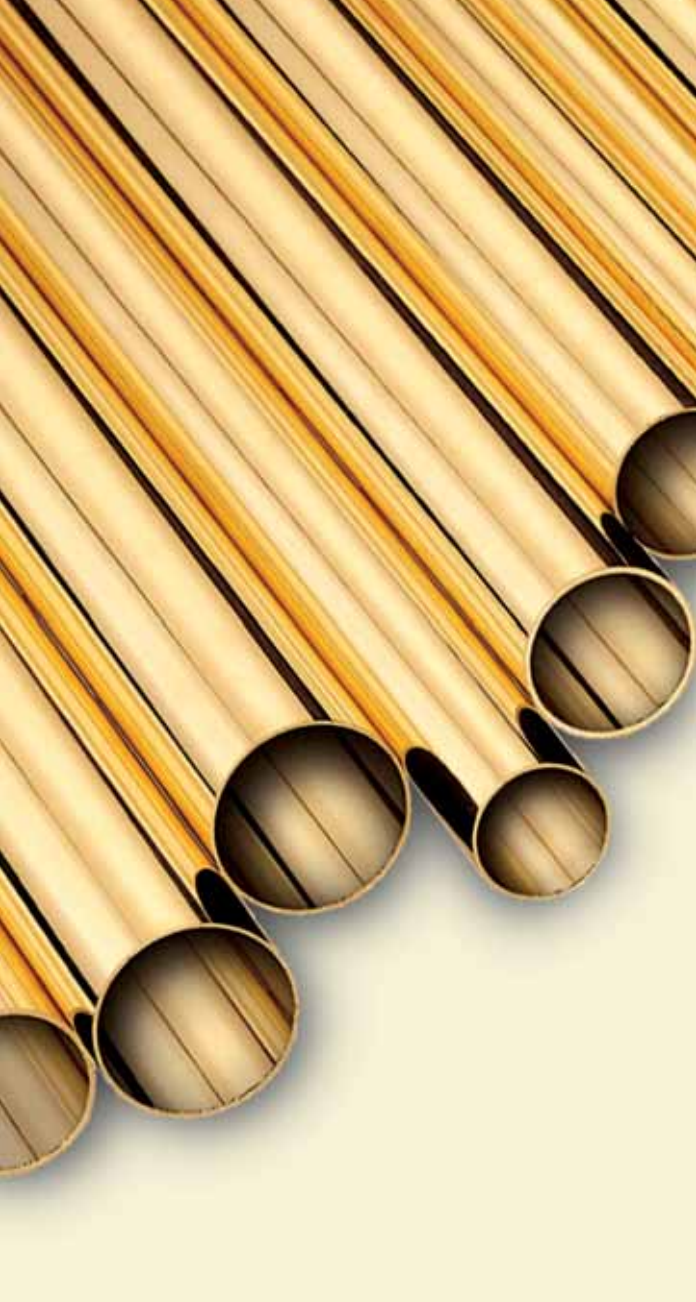
In random-cut straight lengths approx. 4 m or cut to customer requirements. Packed in wooden cases from 200 kg to 500 kg. Tubes can be delivered stress relieved, upon customer request.

TOLERANCES ON WALL THICKNESS %

Outside Diameter mm		From 0,3mm up to 1mm	From 1,0mm up to 3mm	From 3,0mm up to 6mm	From 3,0mm up to 10mm	From 10mm -
From	Up to					
3	40	+/-15	+/-13	+/-11	+/-10	-
40	120	+/-15	+/-13	+/-12	+/-11	+/-10

MECHANICAL PROPERTIES FOR THE BASIC ALLOY CW508L (EN 12449)

Material		Material Condition	Wall thickness <i>t</i> mm	Tensile strength <i>Rm</i> N/mm ²	0,2% proof strength <i>Rp0,2</i> N/mm		Ellogation A (%)	Hardness			
								HV		HB	
Symbol	Number		max.	min.	min.	max.	min	min	max.	min	max.
CuZn37	CW508L	M	20	-	-	-	-	-	-	-	-
		R300	20	300	-	220	45	-	-	-	-
		H060	20	-	-	-	-	60	90	55	85
		R370	10	370	200	-	25	-	-	-	-
		H085	10	-	320	-	-	85	120	80	115
		R440	5	440	-	-	10	-	-	-	-
		H115	5	-	-	-	-	115	-	110	-



WELDED

APPLICATIONS

Automotive and ship building industry, heat exchange and condenser tubes, chemical industry and desalination, plumbing and bathroom accessories, decoration and redraw applications.

PROCESS

Brass welded tubes are produced with the welding of brass strip with the high frequency method. Hydraulic, pneumatic, expansion and eddy current tests acc. to ASTM B543 and ASTM B587 ensure the high quality of welded tubes.

ALLOYS

Copper alloys: (CuZn5/10/15/20/30/33/37 CuZn36Pb0.5 CuZn20Al2).

Copper Nickels: (CuNi 10/20/30).

Brasses: (CuZn28Sn1, CuSn4/6/8).

Phosphor bronzes.

Other alloys upon request.

TEMPER

Welded (Type I and II ASTM B 587): Soft, half-hard.

Welded and drawn (Type III ASTM B 587): Soft, half-hard, hard.

PACKING

In straight lengths acc. to customer requirements.

PRODUCTION RANGE

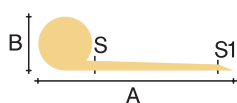
Outside diameter: 4,5 - 63,5 mm

Wall thickness:: 0,4 - 1,5 mm



BRASS SECTIONS

HINGE (mm)



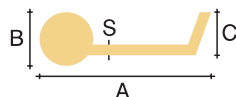
A	30-58
B	8-16
S	1,8-3
S1	1,8-3



A	32-117
B	10-19
S	2-6



A	22,7-69
B	5,5-15
S	2-3



A	101-81
B	19
C	33
S	6-5,5

APPLICATIONS

Architectural and deco rational applications such us lock profiles, brass furniture's and in the manufacturing of mechanical and electrical fittings.

PROCESS

Drawn or extruded

ALLOYS

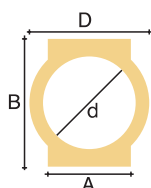
CuZn44Pb3, CuZn39Pb3,
Other alloys upon request

PACKING

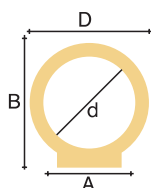
Generally in 5 m lengths packed in wooden cases.
Shorter lengths subject to agreement.

MANIFOLD (HOLLOW SECTION) (mm)

	1"(B1)	1"(E1)	1"(E2)	Y"(K1)
D	38,0	37,5	37,5	32,0
B	46,0	40,0	40,0	34,0
A	25,0	26,0	26,0	26,0
d	29,0	29,0	30,0	23,5

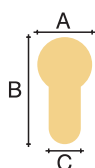


	1 O"(M1)
D	48,0
B	48,0
A	26,0
d	37,0



LOCK PROFILE (mm)

	PR 20	PR 20A
A	17,0	16,9
B	32,8	33,0
C	10,0	9,9



PRODUCTION RANGE

Some of the commonly produced sections are shown on this page.
Also according to customer drawing or sample,
subject to agreement.



BRASS WIRES

APPLICATIONS

Springs, screws and other small parts.

ALLOYS

CuZn37, CuZn39Pb3, CuZn40Pb2, CuZn40Si, CuZn36Pb3.

TEMPER

Spring hard, hard, half hard, soft.

PACKING

In coils with I.D. = 300 mm for diameters 0,6-1,5 mm.

For larger diameters in coils with I.D. = 520 mm (on pallets).

Also in straight lengths subject to agreement (for diameters larger than 4 mm) in wooden cases.

PRODUCTION RANGE:

Diameter: 0,8 - 10 mm.

BRASS FLATS

APPLICATIONS

Mostly in components production and for architectural applications.

ALLOYS

CuZn36Pb3, CuZn39Pb3, CuZn39Pb2.

TEMPER

Hard or soft (annealed).

PACKING

In straight lengths of 3 m in wooden cases of 500 kg each. Other lengths subject to agreement.

PRODUCTION RANGE

THICKNESS (mm)	3	4	5	6	8	10	12	15	20
Min. width	40	30	6	8	10	12	20	20	25
Max. width		50	60	60	100	100	80	80	60

SOLDERING RODS

APPLICATIONS

1) For welding copper-tin alloys.

2) For brazing metals and alloys.

ALLOYS

CuZn40Si.

TEMPER

As drawn (through die).

PACKING

In straight lengths of 1 m in wooden cases.

PRODUCTION RANGE

Rods with diameter 2-6 mm.

ALUMINUM WIRE

APPLICATIONS

For anodes, electrical engineering, antennae, screws, bolts etc.

ALLOY

Aluminium 1050 (Al ≥ 99.5%).

TEMPER

Ø (annealed), H₄ (half - hard), H₆ (hard).

PACKING

In coils with I.D. = 400 or 250 mm on pallets.

Straight length from 3 to 4 meters.

PRODUCTION RANGE

Diameter: 2.5 - 8 mm.



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