

In today's economic climate we understand the need to be aware of your options. We also know that you can't afford to wait for replacement parts or material. so don't!

Before you make your decision about where to buy your Continuous or Spuncast Bronze, speak to the team at IFS and discover why Fraser Bronze is THE leading Continuous or Spuncast Bronze.

A.W. Fraser is the leading supplier/manufacturer of Continuous Cast and Spuncast Bronze in the Pacific Rim region. We have reached this position because we do the little things better. For example:

- * Immediate Technical Back up available.
- * On Time Delivery
- Competitive Pricing
- An extensive Product Range (LG2, Aluminium Bronze-954 and Phosphor Bronze-PB1 ex Stock)
- * A size range from 1/2" to 20" in both solid & hollows. Plus the range of Finished Machined Bushes.
- Your requirements are manufactured under the strictest Quality Control to Australian and International Standards.
- * All materials manufactured and distributed under quality systems meeting ISO 9001:2008

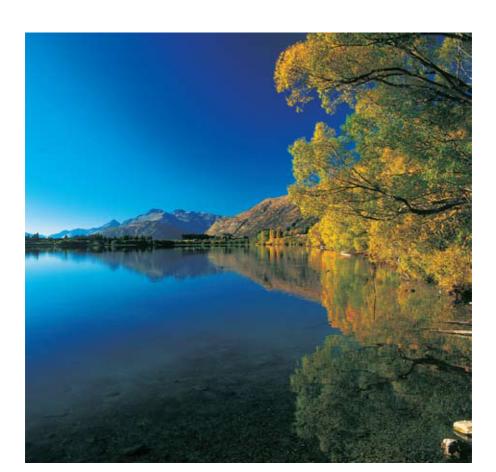
The above are not hopes or dreams, they are facts. We have built our reputation over many years of involvement in this market. Our involvement is due to our intention to support all of the market, by means of our distributors.

If the above is of interest to you, we would appreciate the opportunity to provide you with further details. Contact your local IFS branch Today!

Environmental awareness and focus are at the very heart of our business.

A W Fraser utilises recycling processes to produce all of our bronze and has in place programmes to conserve resources and recycle waste, whilst minimising energy consumption and carbon emissions. 70% of the electricity consumed is from renewable resources.

The factory has accreditation to the highest international Environmental Management Standard AS/NZ ISO 14001. All emissions are closely monitored both by A W Fraser and external regulating bodies to ensure compliance with New Zealand's stringent environmental requirements.



A.W. Fraser Alloy LG2 is a general purpose leaded gunmetal conforming to the requirements of B.S.1400 – 1985 alloy LG2. (BS EN 1982 CuSn5Zn5Pb5). See page 9 for stock list and weights.

LG2 has excellent machining properties, medium strength, good pressure tightness and is not subject to dezincification (Category I alloy), and has reasonable corrosion resistance to seawater and brine, making it suitable for pump and valve components.

LG2 is suitable for bearings having light loads and low to medium speeds with adequate lubrication, and for very light duty gears when loading is negligible.

The composition of A.W. Fraser alloy LG2 is strictly controlled as are the casting conditions. LG2 products are manufactured using the latest continuous and centrifugal casting technology.

ALLOY LG2 - LEADED GUNMETAL (85-5-5-5) SUMMARY OF PROPERTIES

Chemical Composition - percent

Element			Nominal
Tin	Sn	4.0 – 6.0	4.4
Lead	Pb	4.0 – 6.0	5.5
Zinc	Zn	4.0 – 6.0	5.5
Nickel	Ni	1.0 maximum	
Iron	Fe	0.30 maximum	
Aluminium	Al	0.005 maximum	
Antimony	Sb	0.25 maximum	
Copper	Cu	Balance	
Total Impurities:		0.80 maximum	

Mechanical Properties [Typical]

Yield Strength Ultimate Tensile Strength Elongation Typical Hardness	, , ,) 120 MPa (17,400 psi)) 270 MPa (39,000 psi) 20% 75 BHN
Compressive Strength 0.1% Permanent Set Specific Gravity Machinability Rating (Free Machining Brass=100) Max. Operating Temperature Stress Relieving Temperature	100 MPa (15,000 psi) 8.8 84 230°C (450°F) 260°C (500°F))

Continuous Cast

1 hour per 25mm of section thickness

Centrifugal Cast

Comparative Specifications

Time at Temperature

BS1400 – LG2; AS1565 83600; ASTM B505, B271 – 83600; SAE 40; JIS (Japan) H5111 – BC6; DIN (Germany) 1705 – RG5; ISO 1338 – CuPb5Sn5Zn5; BS EN 1982 CuSn5Zn5Pb5

A.W.Fraser Alloy 954 is a high strength aluminium bronze conforming to the requirements of ASTM B505 for Continuous Cast and ASTM B271 for Centrifugal Cast alloy 95400. See page 10 for stock list and weights.

Alloy 954 is very hard and abrasion resistant, having excellent strength and wear resistance with reasonable machining properties. These physical properties remain good at elevated temperatures. General corrosion resistance is good but under some circumstances may suffer dealuminification.

Alloy 954 is suitable for high strength bearings, and has good impact resistance, but poor anti seizure properties requiring reliable full film lubrication to prevent metal to metal contact and possible scoring.

The composition of A.W. Fraser alloy 954 is strictly controlled as are the casting conditions. Alloy 954 products are manufactured using the latest continuous and centrifugal casting technology.

ALLOY 954 - ALUMINIUM BRONZE SUMMARY OF PROPERTIES

Chemical Composition - percent

Elemer	nt		Nominal
Aluminium	Al	10.0 – 11.5	10.5
Iron	Fe	3.0 - 5.0	4.0
Nickel	Ni	1.5 maximum	0.5 maximum
Manganese	Mn	0.5 maximum	
Copper	Cu	Balance	
Total Impuritie	s:	0.5 maximum	

Mechanical Properties [Typical] Continuous Cast Centrifugal Cast

 Yield Strength (minimum)
 221 MPa (32,000 psi). 205 MPa (29,500 psi)

 Ultimate Tensile Strength (minimum)
 586 MPa (84,500 psi). 515 MPa (74,500 psi)

 Elongation
 12% mm.
 12% min.

 Hardness (Typical)
 180 BHN
 170 BHN

Shear Strength (Typical) 324 MPa (46,500 psi)

Compressive Strength 0.1% Permanent Set (Typical) 265 MPa (38,000 psi) Specific Gravity 7.45

Machinability Rating (Free Machining Brass=100) 60

Max. Operating Temperature 260°C (500°F)

Stress Relieving Temperature 316°C (600°F)

Time at Temperature 1 hour per 25mm of section thickness

Comparative Specifications

AS1565 95400; ASTM B505, B271 - C95400; SAE J461, J462; DIN 1714 - G·CuAl11Fe4; UNI 5274 - CuAl11Fe4

Other Alloys 5

We have a huge range of other alloys available for specific purposes. Generally speaking there is a 500 Kg minimum order quantity for these other alloys. This can be alleviated if you were to use our machine shop for manufacturing the part in question · we would simply re-melt any excess material and build this into the component price.

The list of alloys includes:

Alloy 274	Alloy 678	Alloy CuAl10Fe5Ni5
Alloy 352	Alloy 686	Alloy CuSn12
Alloy 360	Alloy 844	Alloy CuSn12Ni Micrograin®
Alloy 370	Alloy 857	Alloy CuSn12Ni
Alloy 385	Alloy 862	Alloy CuZn25Al5
Alloy SAE 430B	Alloy 863	Alloy CuZn34Al2
Alloy 464	Alloy 865	Alloy CZ132
Alloy 464LL	Alloy 867	Alloy EMS 210
Alloy 486	Alloy 905	Alloy G1
Alloy 630	Alloy 907	Alloy HTB2
Alloy 642	Alloy 938	Alloy LB2
Alloy 643	Alloy C94100 (EMS 403)	Alloy LB4
Alloy 660	Alloy 952	Alloy LG1
Alloy 668	Alloy 953	Alloy LG2
Alloy 673	Alloy 954	Alloy LG2 Low Lead
Alloy 673 Continuous Cast	Alloy 955	Alloy LG2M
Alloy 673 Extrusions 1-2	Alloy 959	Alloy LG4
Alloy 673 Extrusions Under 1	Alloy AB1	Alloy PB1
Alloy 673 Heat Treated	Alloy AB2	Alloy PB2
Alloy 674	Alloy CA 104	Alloy UNI 5275

Data sheets are available for all of the above alloys. There may be other alloys available as well, please feel free to inquire with our staff who will be only be to happy to answer your enquiry.

Machining allowance

All sizes have the following allowance for finish machining.

<	3- ³ /4	."		OD	+	.040"
				ID	-	.060"
>	4"	≤	5"	OD	+	.070"
				ID	-	.090"
>	5"	≤	6"	OD	+	.094"
				ID	-	.108"
>	6"	≤	20"	OD	+	.109"
				ID		.120"

(note: allowances are approximate)

Nominal chemical analysis %

Copper	85	Tin	5
Zinc	5	Lead	5

Mechanical properties

U.T.S.	17.5 – 22.0 tons/in ²	(270 - 340 MPa)
Proof Stress	$0.2\% 6.5 - 9 \text{ tons/in}^2$	(100 - 140 MPa)
Elongation	13 – 35%	
Hardness	75 – 90 BHN	

Material specification

B.S.	1400	LG2	Equivalent to:
U.S.A.	SAE 40	C83600	
Japan	JIS	H5111	BC6C
Germany	DIN	1705	RG5
Australia	AS	1565	Alloy C83600

Machining allowance

For alloys LG2, 660, PB1, PB2, CuSn12Ni, 844, LB2, 907, 922 927 Hollow and Solid Round Bars - Where tolerances are not specified by Customer or job sheet.

Nominal Outside Diameter	Outside Diameter Machining	Inside Diameter Machining
	allowance + tolerance	allowance + tolerance
≤ 3 3/4" (102mm)	+0.030 / + 0.040" (+0.76 / 1.02mm)	-0.050 / -0.064" (-1.27 / -1.62mm)
> 4" (102mm) ≤ 5" (127mm)	+0.060 / + 0.071" (+1.52 / 1.80mm)	-0.080 / -0.090" (-2.03 / -2.29mm)
> 5" (127mm) ≤ 6" (153mm)	+0.080 / + 0.094" (+2.03 / 2.38mm)	-0.100 / -0.108" (-2.54 / -2.74mm)
> 6" (153mm) ≤ 8" (204mm)	+0.100 / + 0.140" (+2.54 / 2.89mm)	-0.110 / -0.120" (-2.81 / -3.04mm)
> 8" (204mm) ≤ 10" (255mm)	+0.157 / + 0.177" (+4.00 / 4.50mm)	-0.177 / -0.197" (-4.50 / -5.00mm)

For alloys 954, 864, 865, 955, 953, AB2, 857, 360, 352 Hollow and Solid Round Bars- Where tolerances are not specified by Customer or job sheet.

Nominal Outside Diameter	Outside Diameter Machining	Inside Diameter Machining
	allowance + Tolerance	allowance + Tolerance
≤ 3" (76.2mm)	+0.067 / +0.077" (+1.70 / 1.97mm)	-0.115 / - 0.125" (-2.92 / -3.17mm)
> 3" (76.2mm) ≤ 4" (102mm)	+0.100 / +0.110" (+2.54 / 2.81mm)	-0.115 / -0 .125" (-2.92 / -3.17mm)
> 4" (102mm) ≤ 5 1/2" (140mm)	+0.120 / +0.130" (+3.04 / 3.30mm)	-0.125 / - 0.145" (-3.18 / -3.68mm)
> 5 1/2" (140mm) ≤ 6 1/2" (165mm)) +0.140 / +0.170" (+3.55 / 4.31mm)	·0.135 / · 0.155" (-3.43 / -3.93mm)
> 6 1/2" (165mm) ≤ 10" (255mm)	+0.180 / +0.210" (+4.57 / 5.33mm)	·0.190 / · 0.210" (·4.83 / ·5.33mm)

Standard Bar Length: Where not specified by Customer or job sheet.

LG2, 660, C863, 864, C865 $124" \pm 1" \ (3150 \text{mm} \pm 25 \text{mm})$ C954 $146.5" \pm 0.5" \ (3721 \text{mm} \pm 13 \text{mm})$ C955 $145" \pm 1" \ (3680 \text{mm} \pm 25 \text{mm})$

FB Imperial size range progressive size list in inches (indexed by inside diameter)

	inside d.	outside d.	length	part no.	inside d.	outside d.	length	part no.	inside d.	outside d.	length	part no.
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	٥/٥	3/4	1-1/2	LR30/	13/16	15/16	1.1/2	FB602	1-1/8	1-1/4	1-1/2	LRA00

FB metric size range (indexed by inside diameter)

				FB
inside d. 1·1/8 1·1/8	outside d. 1·1/4 1·1/4	length 2 2·1/2	part no. FB901 FB902	inside 08
1-1/8	1.1/4	3	FB903	
1·1/8 1·1/8	1-3/8 1-3/8	2	FB904	00
1.1/8	1.3/8	3·1/2	FB906 FB907	80
1-1/8	1-3/8	4	FB908	
1·1/8 1·1/4	1·1/2 1·3/8	3 1·1/2	FB909 FB1000	10
1.1/4	1.3/8	3	FB1000	10
1.1/4	1.1/2	1	FB912	
1·1/4 1·1/4	1·1/2 1·1/2	1·1/2 1·3/4	FB914 FB1002	10
1.1/4	1.1/2	2	FB1002	
1-1/4	1.1/2	2.1/2	FB1004	
1·1/4 1·1/4	1·1/2 1·1/2	3 3·1/2	FB1005 FB1007	12
1.1/4	1.1/2	4	FB1007	
1-1/4	1.5/8	1.3/4	FB1009	
1·3/8 1·3/8	1·5/8 1·5/8	2	FB1010 FB1011	12
1.3/8	1.5/8	4	FB1011 FB910	
1.3/8	1-3/4	4	FB1012	
1.1/2	1.5/8	2	FB1013	16
1·1/2 1·1/2	1·3/4 1·3/4	1·1/2 2	FB996 FB998	
1.1/2	1.3/4	2-1/2	FB1014	
1.1/2	1.3/4	3	FB1015	1.0
1·1/2 1·1/2	1·3/4 1·3/4	3·1/2 4	FB1016 FB1017	16
1.1/2	2	2-1/2	FB1020	
1.1/2	2	3	FB1021	
1·1/2 1·1/2	2	3·1/2 4	FB1022 FB1023	
1.3/4	2	2-1/2	FB1030	
1.3/4	2	3	FB1031	
1·3/4 1·3/4	2	3-1/2 4	FB1032 FB1033	Spe
1.3/4	2.1/8	4	FB1018	
1.3/4	2.1/4	2-1/4	FB1036	Frase to A5
1·3/4 1·3/4	2·1/4 2·1/4	3 3-1/2	FB1037 FB1038	
1.3/4	2.1/2	4	FB1039	Mech
2	2.1/4	2-1/2	FB1040	Max. Max
2	2·1/4 2·1/4	3 3-1/2	FB1041 FB1019	Tensi
2	2.1/2	2-1/2	FB1050	Proof
2	2-1/2	3	FB1051	Elong Hard
2	2·1/2 2·1/2	3·1/2 4	FB1052 FB1053	Coeff
2-1/4	2-3/4	2-1/2	FB1060	Ther
2-1/4	2-3/4	3	FB1061	Toler
2-1/4 2-1/4	2-3/4 2-3/4	3·1/2 4	FB1062 FB1063	
2.1/4	3	2.1/2	FB1003	Insid
2.1/2	3	3	FB1071	Outsi
2-1/2 2-1/2	3	3·1/2 4	FB1072 FB1073	Juisi
2.1/2	S	+	FD10/3	Leng

i <mark>nside d.</mark> 08	outside d. 10	length 10	inside d. 20	outside d. 24	length 30	inside d. 35	outside d. 40	length 40
-		20			40	55	40	50
		30			30			60
		40			60			80
08	12	10			80			100
		20	20	30	30	35	45	40
		30			40			50
		40			50			60
10	12	20			60			80
		30			80			100
		40	25	30	30	40	45	40
10	16	20			40			50
		30			50			60
		40			60			80
		50			80			100
12	16	20			100	40	50	40
		30	25	35	30			50
		40			40			60
		50			50			80
12	20	20			60			100
		30			80	45	55	50
		40			100			60
		50	30	35	30			80
16	20	20			40			100
		30			50	50	60	50
		40			60			60
		50			80			80
1.0	0.4	60	20	40	100			100
16	24	30 40	30	40	30			
		50			40 50			
		60			60			
		80			80			
		00			100			
		I			100			

ecifications

ser bronze bearings are manufactured from continuously cast bronze conforming 51565 grade C83600 (85 1400 LG2).

chanical properties

Max. operating temperature	230°C
Max unit pressure loud	270 MPa
Tensile strength	270-230 MPa
Proof stress 0.2%	100-140 MPa
Elongation	13-30%
Hardness brinell	75-90 BHN
Coefficient of friction	0.14-0.8
Thermal coefficient of expansion	19.6 ^x 10 ⁶ per °C

erances

	Imp.	Metric
Inside dia.	0005	-0.01
	+.0015	+0.04
Outside dia.	+.002	+0.06
	+.004	+0.10
Length	+.010	+0.25
	010	-0.21

Stock sizes & weights imperial size (note: weights are approximate only)

	.cs & 110	igitta impo	ilul S	120 (110)	٠.	Wolging	arc ap	proximiato	Offiy)				
outside d.	kg/ft	kg/metre	≥	outside	d	inside d.	kg/ft	kg/metre	outside	d	inside d.	kg/ft	kg/metre
ig 1/2 5/8	0.392	1.285	hollow	1	Х	1/2	1.258	4.127	3-1/2	Х	2	11.934	39.152
ν _{5/8}	0.596	1.956	~	1		5/8	1.090	3.577			2-1/4		34.510
3/4	0.843	2.766	ᅩ	1		3/4	0.880	2.886			2-1/2	9.178	30.112
7/8	1.133	3.718		1.1/8	Х	3/4	1.260	4.134			2-3/4	7.431	24.381
1	1.466	4.809		1.1/4	Х	1/2	2.062	6.765			3	5.514	18.089
				1.1/4	^	5/8			3.3/4	х			
1-1/8	1.841	6.041					1.894	6.214	3.3/4	Х	1.1/2		54.968
1-1/4	2.260	7.413				3/4	1.684	5.523			1.3/4		51.448
1.3/8	2.720	8.925		1 0 /0		1	1.134	3.721			2		47.367
1-1/2	3.224	10.578		1-3/8	Χ	3/4	2.150	7.053			2-1/4		42.725
1-5/8	3.771	12.371				1	1.600	5.250			2-1/2	11.437	
1-3/4	4.360	14.304		1.1/2	Х	1/2	3.037	9.963			2-3/4	9.946	32.630
2	5.667	18.592				3/4	2.659	8.722			3	8.028	26.338
2-1/4	7.145	23.440				1	2.109	6.920	4	Х			70.443
2-1/2	8.794	28.850				1-1/4	1.389	4.556			1-1/4		68.109
2-3/4	10.613	34.821		1-5/8	Х	1	2.661	8.729			1-1/2		65.213
3	12.604	41.353				1-1/4	1.940	6.366			1-3/4	18.823	61.756
3-1/4	14.766	48.446		1.3/4	Χ	3/4	3.805	12.482			2	17.599	57.738
3.1/2	17.100	56.100				1	3.255	10.679			2-1/4	16.203	53.159
3.3/4	19.604	64.316				1-1/4	2.535	8.316			2-1/2	14.636	48.019
4	22.617	74.202				1.1/2	1.643	5.391			2-3/4	12.898	42.317
4-1/2	28.522	93.576		2	х	3/4	5.010	16.435			3	11.276	36.995
5	35.112	115.194				1	4.572	15.000			3.1/4	9.206	30.204
5-1/2	42.713	140.134				1-1/4	3.852	12.637	4-1/4	Х			67.144
6	50.701	166.338				1-1/2	2.960	9.712	1	^	2.1/2		57.425
7	69.116	226.756		2.1/4	Х	3/4	6.487	21.284	4-1/2	х			77.112
8	89.935	295.057		2 1/4	^	1	5.928	19.448	- 1/2	^	2.1/2		67.393
Ü	05.500	233.007				1.1/4	5.340	17.519			3		55.428
						1.1/2	4.448	14.594			3.1/2		42.294
						1.3/4	3.386	11.108			4	7.897	25.908
				2.1/2	v	3/4	8.136	26.694	4.3/4	х	3.1/2		51.748
				2.1/2	^	1	7.577	24.858	5	X	2		98.731
									3	X	2.1/2		
						1.1/4	6.846	22.460					89.011
						1.1/2	6.108	20.037			3		77.047
						1-3/4	5.045	16.552			3.1/2		62.838
				0.0/4		2	3.811	12.504			4		47.594
				2-3/4	Χ	1	9.397	30.828	5-1/2	Х	2		123.995
						1-1/4	8.666	28.431			2.1/2		114.361
						1-1/2	7.764	25.473			3		102.482
						1-3/4	6.875	22.556			3.1/2		88.359
						2	5.642	18.509			4		71.990
						2-1/4	4.237	13.901			4.1/2		54.722
				3	Χ			37.360	6	Х			150.200
						1-1/4		34.963			2-1/2		140.566
						1-1/2	9.755	32.005			3		128.687
						1-3/4	8.682	28.485			3-1/2	34.919	114.563
						2	7.643	25.075			4		98.195
						2-1/4	6.238	20.466			4-1/2	24.257	79.582
						2-1/2	4.663	15.297			5	18.350	60.204
				3-1/4	Х	1	13.550	44.454	6-1/2	Х	4	39.080	128.213
Standard	l lengths	i				1-1/4	12.819	42.056			5	27.079	88.841
						1.1/2	11.917	39.098	7	Х	3	57.727	189.390
<4" dia. 10t	ft					1-3/4	10.844	35.578			4	48.463	158.997
						2	9.601	31.497			5	36.462	119.625
≥4" <u><</u> 8" dia	. 12ft					2-1/4	8.410	27.593			5-1/2		96.572
(some sizes	1 metre ma	x)				2-1/2	6.835	22.424			6		73.024
						2-3/4	5.088	16.693	7.1/2	Х	6		104.303
>8" dia. 1 n	netre maxin	num		3.1/2	х	1		52.108	8	Х	3		257.691
(bars may be	e cut to orde	er)			•	1.1/4		49.711	1		4		227.298
						1.1/2		46.752	1		5		187.926
						1-3/4		43.233			6		139.576
						- 0, .	10.177	. 5.200			7		84.265
			'						1			_0.00∓	00

ъ	outside	d.	inside d.	kg/ft	kg/metre
≒	1			1.322	4.338
Š	1 1/4			2.011	6.597
	1 1/2			2.843	9.329
	2			4.940	16.206
	2 1/2			7.612	24.972
	2 3/4			9.163	30.062
	3			10.859	35.625
	3 1/4			12.951	42.491
	3 1/2			14.953	49.059
	4			19.389	63.611
	5			30.222	99.151
	6			43.590	143.009
	7			59.565	195.420
≥	1 1/2	х	1	1.952	6.405
≗	1 3/4	х	1	2.929	9.608
우			1 1/4	2.350	7.711
_	2		1	4.049	13.283
	2 1/4	Х	1 1/2	4.013	13.164
			1 3/4	3.147	10.324
	2 1/2	Х	1	6.720	22.049
			1 1/2	5.420	17.783
			2	3.545	11.630
	2 3/4	Х	2	5.096	16.720
	3	Х	1 1/2	8.667	28.436
			2	6.792	22.283
	3 1/2	Х	1 1/2	12.762	41.870
			2	10.887	35.717
			2 1/2	8.436	27.676
	4	Х	1	18.498	60.688
			2	15.322	50.269
	4.1.0		3	9.845	32.301
	4 1/2 5	X	1 1/2	22.468 26.219	73.714 86.021
	5	Х	3	20.777	68.165
	6	.,	2	39.631	130.020
	U	Х	3	34.211	112.240
			4	26.491	86.910
	7	х	5	33.055	108.446
	9 1/8	X	2	96.217	315.668
	5 1/0	^	_	50.217	313.000

Standard lengths

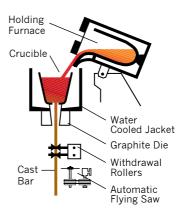
4" dia. 12ft

 \geq 4" \leq 8" dia. 12ft (some sizes 1 metre max)

>8" dia. 1 metre maximum (bars may be cut to order)



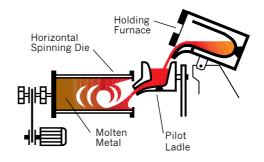
Molten bronze is poured from a furnace into a crucible which is cemented to the neck of a graphite die. The lower half of the die is water cooled, and the metal sets in this section, and is withdrawn through two sets of rollers. A flying saw mounted below the roller cuts the bar to the required length. Continuous cast rod has greatly improved physical properties as compared with normal sand-cast material. Because of the bottom pouring conditions and rapid cooling that the metal receives in the cooling zone, inclusions are completely eliminated. grain structure is tight and even, giving excellent pressure tightness qualities. Tensile strength and wearing qualities are increased by up to 35%.



Principle of centrifugal casting

Molten bronze is poured from a furnace into a pilot ladle which directs the stream of metal into a horizontal spinning die. This die determines the O.D. of the casting produced, and the amount of molten bronze fed to the die determines the wall thickness. When the die is fully charged with the correct amount of metal it continues spinning for a predetermined period. On the completion of the spinning process, the die is removed, the casting withdrawn, proof machined and inspected.

As with continuous casting this method produces an improved close grained defect free material.







AW Fraser manufactures and exports machined bronze to Australia and around the globe. AW Fraser has a modern, well-equipped machine tool facility at its manufacturing location in in Christchurch, New Zealand. The key advantage to the client base is that foundry, extrusion mill and CNC machine shop are all located on the one site, eliminating waste and allowing excellent quality control at each stage of the process.

The experienced staff continue to develop efficiencies with the use of the latest machinery and manufacturing cells which allow skilled operators to run multiple machines or complete secondary tasks.

The latest acquisition in the machine shop is the magnificent Okuma LU45, the world's largest production twin turret lathe, which allows for fast accurate turning of bushes up to 26" in diameter.

The industries serviced by the machine shop include Mining, Rail / Heavy Diesel, Actuators / Gear Assemblies / Transmission Products, Marine, Hydraulic Components and any other industries requiring machined bronze components.

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