SMITHS
METAL CENTRES

SigmaChip B2

FREE MACHINING BRASS FOR TURNED PARTS

- Unsurpassed machinability
- Excellent surface finish
- Guaranteed highest quality
- Good mechanical properties
- Very good corrosion resistance

No compromise brass bar for the turned parts professional

SMITHS METAL CENTRES

The brass alloy of choice for the turned parts professional

SigmaChip B2 is the natural choice when your requirement is for high speed machining brass of the highest quality. For free chipping quality and consistency, so important when carrying out high speed machining, Smiths SigmaChip B2 is second to none.

Sigmachip B2 is a CZ121 derivative alloy made by one of the highest quality and most respected UK manufacturers. The composition of SigmaChip B2 is optimised for machining performance for a wide variety of applications, and the process control in manufacturing is designed to ensure full dispersement of the free machining element giving consistent free machining characteristics. Smiths SigmaChip B2 has succeeded in marrying the conflicting requirements of machinability and consistency with the result that it achieves an unsurpassed CDA machinability rating of 150 for diameters of 6.35mm and above. This machinability rating of 150 is the highest attained by any brass currently manufactured.

Quality is a byword for all Smiths products and SigmaChip B2 is no exception. ISO 9002 verified data shows that SigmaChip B2 has an exceptionally low failure rate - one defect for every 300 miles of bar sold! We are confident that you will not find a higher quality free machining brass rod in the market.

NOMINAL COMPOSITION %	Diameter	Cu	Pb	Zn
	≥6.35mm	57.0	3.8	REM
	<6.35mm	58.0	3.0	REM

PHYSICAL CHARACTERISTICS

Elastic Modulus	kN/mm^2	98
Coefficient of Linear Thermal Expansion	1/K	$20.9x10^{-6}$
Thermal Conductivity	W/m.K	113
Annealing Temperature	°C	450-600
Stress Relieving Temperature	°C	250-350
Melting Range	°C	880-900
Electrical Conductivity	%IACS	26
Machinability rating	<6.35mm ≥6.35mm	100 150

TYPICAL MECHANICAL PROPERTIES

TENSILE STRENGTH Rm N/mm^2	0.2% PROOF STRESS Rp 0.2 N/mm^2	ELONGATION % ($5.65\sqrt{A}$)	Brinell/Vickers HARDNESS HB/HV
350-425	250-350	15-25	130-170

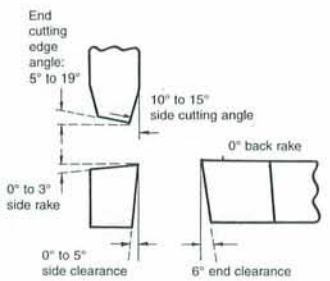
Chip B2

Typical applications

MACHINABILITY INFORMATION

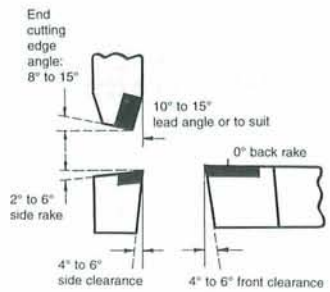
Turning

Tool:	HSS	
	ROUGHING	FINISHING
Cutting speed sm/m:	90-200	90-200
Feed mm/rev:	0.15-0.5	0.07-0.4
Cut mm:	1-3	0.4-0.75



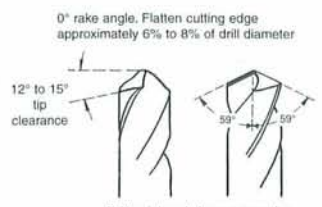
Turning

Tool:	CARBIDE	
	ROUGHING	FINISHING
Cutting speed sm/m:	120-300	150-450
Feed mm/rev:	0.4-0.65	0.15-0.4
Cut mm:	1.1-3	0.4-0.75



Drilling

Tool:	HSS
Cutting speed sm/m:	60-150
Feed mm/rev:	0.005-0.075



Drill point and clearance angles

Corrosion resistance of SigmaChip B2 is very good for many everyday applications and process fluids, and dipping, plating, polishing or lacquering will further enhance its aesthetic appeal. Mechanical properties are high with a tensile strength of over 350 N/mm^2 and a vickers hardness of over 130 VPN.

Smiths sells twice as much brass rod as any other stockist in the UK. This has allowed us to develop the widest ex-stock range of free machining bar in Europe. Use our range to your benefit by picking the size closest to your finished diameter:

- Expensive machine time is not wasted machining away the excess material
- Unit cost is reduced as you are not scrapping the expensive raw material by machining the excess diameter into scrap!

Our total service package does not stop there - we can accurately cut blanks to your requirements from one of our thirty power bandsaws and deliver immediately or JIT.

MACHINABILITY	STRENGTH	NATURAL CORROSION RESISTANCE	COLD FORMABILITY
SigmaChip B2	CZ114	CZ112	CZ131
CZ131	SigmaChip B2	CZ114	CZ112
CZ114	CZ112	CZ131	SigmaChip B2
CZ112	CZ131	SigmaChip B2	CZ114

The above comparator table has been drawn up from manufacturers specification sheets for alloys SigmaChip B2 free machining, CZ112 naval brass, CZ114 high tensile brass and CZ131 turning and rivetting brass.