



FOUNDRY PRODUCTS CATALOGUE

 **MorganMMS**
Innovating tomorrow's solutions . . . today



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Morgan Molten Metal Systems' foundry consumables are manufactured from premium quality materials. They are used in all areas of the modern foundry industry for temperature measurement, cleaning molten metal, control of chemical composition, degassing, and molten metal management.

Modern manufacturing technology, allied to the rigorous application of Quality Assurance procedures approved to ISO 9001, results in a wide range of foundry products suitable for all foundry applications.

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MORCEM 2 is a two part, thermally conductive, high performance cement, specially developed by Morgan Molten Metal Systems (MorganMMS) for use in applications that have contact with liquid metals and slags. When mixed, a chemical hardening takes place, which does not need any additional drying or heating. There is a slight expansion and the hardened cement reaches a very high mechanical strength. It is suitable for use in applications where the temperature does not exceed 1650°C.

MORCEM 2 cement is supplied in two parts, MCM2 a dry powder and MCM3 a liquid component.

ADVANTAGES:

- Quick preparation of only a few minutes.
- Cold setting without drying and heating.
- Slight expansion of 1 %.
- Very strong crushing strength.
- Very high refractory.
- Very high thermal conductivity.
- Is not wetted by molten metals.
- Is not wetted by liquid slags.
- Very high resistance to erosion by molten metals.
- Very high resistance to erosion by liquid slags.
- Very high resistance to corrosive atmospheres.
- Is compatible with all standard refractory coatings.



Preparation of MORCEM 2 cement:

1. Ensure that the surfaces where MORCEM 2 cement will be applied are dry and free from any dust or solid particles.
2. Place the MORCEM MCM3 in a suitable plastic container.
3. Brush a coating of MCM3 onto the surfaces to be joined. This will accelerate the chemical setting of MORCEM 2 cement.
4. Mix the MCM2 powder with the liquid MCM3 left. The use of an electric mixer fitted with a centrifugal turbine wheel is recommended. (Rotation speed of 1000 rev/minute, to obtain a good mixture of MCM2 and MCM3).
5. The MORCEM 2 cement is now ready to use. Use the cement immediately.
6. Cold setting of the MORCEM 2 cement begins as soon as the mixture is ready. Use within 10 minutes of mixing for best results.
7. Keep the cement dry and vibration free for 24 hours to ensure maximum strength and properties.
8. MORCEM 2 cement can be used without drying or preheating.

Use of MORCEM 2 cement:

MORCEM 2 cement can be used in many applications, especially in the iron and steel industry, non-ferrous and ceramic. MORCEM 2 cement can be used in specific applications such as:

Joining refractory / refractory

Refractory / metal

Metal / metal in some situations

Coating for old refractories.

To protect refractory pieces against molten metals and fluxes attack

To protect refractory pieces against oxidation (graphite pieces)

Sticking of refractories to metal. (Sealing of thermocouple sheaths to steel tubes)

Refractories to refractories

Refractories to ceramics

Fibres to metal

Coating by brushing or spraying on refractories, iron and steel

MCM3 can be used alone, for this application; (gas firing is necessary to obtain a superficial hardening)

Composition of MORCEM 2 cement before cold setting

Composition Before Cold Setting		
	Dry Powder	Wet Mix
SiC	43-45%	30%
Si	19-20%	13%
Al ₂ O ₂	14-15%	10-15%
SiO ₂	11-12%	8%
Alkali	2%	1.5%
P ₂ O ₅	-	20-30%
	+ferrous and titanium oxides	+ferrous and titanium oxides

Packing

MORCEM MCM2 cement is supplied in watertight plastic bags and the MORCEM MCM3 liquid hardener in plastic drums.

Packing		
	Packing No 1	Packing No 2
Morcem MCM2 Cement	15 KGs	5 KGs
Morcem MCM3 Liquid	4.5 Litre	1.5 Litre

Typical conductivity values: 0.020 – 0.023 cal/cm/co/sec

Morcem 900 is a high quality carbonaceous refractory cement which is supplied dry and merely requires mixing with water to be ready for use. It is extensively used in foundries and steelworks for many applications associated with jointing carbon or graphite based materials, and can also be used for providing a protective coating for refractories in contact with molten metal.

WORKING INSTRUCTIONS FOR MORCEM 900

Mixing

The material readily lends itself to mixing manually in any convenient container. Water should always be added to the powder, the amount being dependent upon the intended application. As a general guide when the material is to be used as cement, water should be added to the material in the ratio of 1:4 by volume. Where it is essential to obtain a strong air set joint prior to firing, the material must be mixed with boiling water but where green strength is not important cold water may be used.

Jointing

The surfaces to be joined should be brushed or blown free of dust and then 'wetted' but not soaked. This is particularly important where porous and unglazed surfaces are to be cemented. A thin layer of cement is then applied to both surfaces and the pieces squeezed together. Excess material which has exuded from the joint should be removed and the cement allowed to set. Care should be exercised in preventing the jointed parts from moving during the air setting period. This will vary from 1/2 hour, for material mixed with hot water, to several hours for material mixed with cold water.

Drying

It is dangerous to permit molten metal to come into contact with any refractory material which has not been thoroughly dried, therefore cemented articles must be subject to a drying procedure. Ideally, where time and facilities are available, the cemented assemblies should be left to air dry overnight and then moderate heat applied in an oven or with a gas torch until quite dry. Less effective alternatives are to dry the joint with a gas torch immediately or stand the pieces in a warm place for a prolonged period. Whichever method is adopted, the first heating of the joint to 'red heat' should be done as slowly as possible.

Firing

The joint only attains its maximum strength after firing to temperatures of approximately 1200°C. Therefore, care should be taken not to stress the joint until this temperature has been reached.

Cold Crushing Strength Measured on 25mm Cube				
Dried to	100°C	600°C	1000°C	1200°C
kg/cm ²	123	125	179	506
P.S.I	1750	1820	2540	7251

Nominal Chemical Analysis			
	%		%
SiO ₂	15	FE ₂ O ₃	6
SiC	30	B ₂ O ₃	1.5
C	29	Na ₂ O	0.4
Si	13	K ₂ O	0.3
Al ₂ O ₃	4	MgO	0.2
		CaO	0.6

Properties

Morcem 900 is a plumbago based material with added silicon carbide, providing a high strength refractory cement with excellent resistance to oxidation, metal penetration and slag attack. To achieve optimum results the material must be mixed and applied according to the 'Working Instructions'.

The following figures are based on average data obtained from current production quality control tests on the material.

Storage

It is recommended that the material is stored in a cool, dry place and that part used sacks are resealed to prevent moisture pick up.

Morcem 900 is a stock item and is supplied in 25kg paper sacks (Morcem 900D) and 7kg plastic buckets (Morcem 900E).

HIGH THERMAL CONDUCTIVITY RAMMING FOR ELECTRIC ARC FURNACE APPLICATIONS

INTRODUCTION

Morram 8301 (MRM8301A) is a high conductivity ramming material manufactured from carefully controlled blends of natural flake graphite (for thermal conductivity), and clays (for rammability and refractoriness). It has an excellent shelf life (18 months recommended) provided the bags remain sealed and protected from extremes of temperature. Morram 8301 must not be allowed to freeze and should be stored above 5°C.

INSTALLATION

Morram 8301 is supplied ready for use with a moisture content of 12-14%, requires no mixing or heating prior to use and can be installed easily using hand or pneumatic rammers. As a guide, Morram 8301 should be rammed until thumb pressure produces no more than slight indentation. To ensure even compaction throughout, it is recommended that the depth of loose material to be rammed at any one time should not exceed 150mm.

As far as possible, the ramming tool should move in a direction at right angles to the required direction of heat flow thus ensuring maximum cooling effect.

APPLICATIONS

The wear of refractory linings, in electric arc furnaces, increases as operating temperatures rise. In recognition of this, many furnaces are fitted with a cooling system, the efficiency of which is inhibited by the use of conventional low thermal conductivity refractories. Morram 8301 has been designed to improve the heat exchange between brickwork and the furnace cooling system and thereby extend the lining life and furnace campaign. Morram 8301 is recommended for use in the furnace bottom and the furnace side walls.

ADVANTAGES

- The thermal conductivity of Morram 8301 is at least twice that of conventional high conductivity ramming material.
- The thermal conductivity is maintained even at low rammed densities.
- High thermal conductivity is maintained at working temperatures.
- Easy to install – Morram 8301 is poured straight from the bag and is easily consolidated by hand ramming.
- No heating or other preparation is needed prior to installation.
- Ramming produces marked directional heat flow properties.
- Heat flow may be directed to the cooling system.
- Morram 8301 may be used as a compressible ramming to take up brickwork expansion.
- Good shelf life – (18 months providing the bags remain sealed and undamaged and protected from extremes of temperature). Morram 8301 must not be allowed to freeze and should be stored above 5°C.

HIGH THERMAL CONDUCTIVITY RAMMING FOR ELECTRIC ARC FURNACE APPLICATIONS

EFFECT OF TEMPERATURE

The thermal conductivity of Morram 8301 increases as the rammed density rises but for a given density, it is substantially constant.

PHYSICAL PROPERTIES

The thermal conductivity of Morram 8301 is higher than other conventional rammings over a wide range of rammed densities.

Thermal Conductivity			
Density (g/cc)	Thermal Conductivity (W/mK)		
	50°C	150°C	250°C
1.85	-	31.0	-
1.75	27	27.9	27
1.45	12.7	14.89	15.82

Chemical Analysis % by Weight			
Carbon	60-70	Al ₂ O ₃	9-13
SiO ₂	15-20	Fe ₂ O ₃	2 max

Warning: This material must be completely dry before molten metal is allowed to contact. To do otherwise is dangerous. This material should only be used for the purposes described or recommended.

PD Coating is a high purity, high alumina coating which is sintered onto the internal surface of the crucible during the manufacturing process. As a result of this process a dense physical barrier is formed which can enhance performance and extend crucible life when used in a range of applications.

FEATURES

- Flux Absorption
- Prevention of dross adhesion
- Prevention of contamination of the melt by crucible body material
- Wear resistance

TYPICAL APPLICATIONS

- Aluminium alloys (particularly effective at preventing attack on crucible body by aggressive modifying agents such as sodium, sodium salts, strontium).
- Zinc distillation and zinc oxide production
- Precious metals

Note:

PD Coating can be supplied on any of the carbon bonded silicon carbide or clay graphite crucibles manufactured by Morgan Molten Metal Systems.

PRO Coating is a thin covering that can be used on crucibles to significantly reduce impurities when melting and holding pure alloys. It also stops dross build up and makes clean up easy.

PREHEATING/FIRST USE

PRO Coating does not impact or change in any way the installation or startup / heating procedures for the crucible in which it has been applied.

APPLICATION

PRO Coating can be mixed with water and applied to the crucible with a brush.

It can also be used as a mortar to repair areas that may have been damaged or chipped.

TECHNICAL DATA

Primary material: Sintered Alumina

The coating is chemically bonded.

Shelf life: 6 months

Maximum temperature: 1600° C

HOW TO USE

To ensure the highest purity of the metal to be melted and to prohibit the build up of dross, a thin layer of PRO Coating should be applied after every charge.

Internal Crucible Lifter

Crucible Lifter

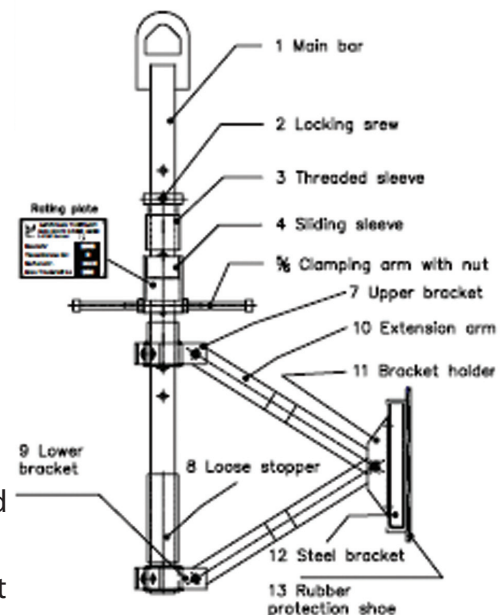


ADVANTAGES

- Easy handling - Allows for quick and easy movement of crucibles without removing the furnace top cover.
- Economical
- Crucible can be lifted through top opening without removing the furnace top cover, reducing down-time and saving valuable man hours
- Prevents damage to heater panels and eliminates costly repairs, as furnace top can be left in place.
- Carries CE mark for safety

	Minimum In-side Diameter (mm)	Maximum In-side Diameter (mm)	Maximum Lifting Capacity (kg)
Size 1	350	600	175
Size 2	580	740	300
Size 3	720	840	500
Size 4	820	1000	700
Size 5	940	1070	1000

1. Assemble the lifter to the crucible in such a way, that all 3 clamps have the same distance from the crucible top.
2. Move the sliding sleeve pos. 4 until the next free drilling and secure it there with the locking screw pos. 2.
3. Turn the sliding sleeve pos. 4 manually until all 3 clamps suit at the crucible.
4. The sliding sleeve can be manually tighten close over the clamping arm.
5. Avoid for safety reasons any jerky lifting movements.
6. Turn the sliding sleeve pos. 4 to the top after use, in order to protect the thread from getting dirty.
7. The thread should be controlled regularly to be easy movable and should the situation arise dope it with graphite powder.



ATTENTION STRICTLY FORBIDDEN: DO NOT STAND UNDER OR NEAR A SUSPENDED LOAD! WHEN LIFTING USED CRUCIBLES OUT OF THE FURNACE, GREAT CARE MUST BE TAKEN TO AVOID ANY BURST OUT OF THE CRUCIBLE. USE THE CRUCIBLE LIFTER FOR TRANSPORTING THE CRUCIBLE ONLY IN THE IMMEDIATE FRONT AREA OF THE FURNACE TO ELIMINATE ANY SAFETY HAZARDS (INSTALLATION AND DEMOUNTING).

SiC Degassing Rotors

Degassing

One of the major concerns in the modern aluminum casting industry is aluminum alloy cleanliness. With the ever increasing demands for improved casting properties, the requirements for molten metal cleanliness has become extremely stringent. The removal of dissolved hydrogen and unwanted particles from the melt using rotary degassing has become a widely used foundry practice.

MorganMMS has developed a one piece silicon carbide rotor and shaft for use in this process. The MorganMMS rotary degassing rotor has a high resistance to wear in service and has excellent anti oxidation properties providing a cost effective consumable for use in foundries' degassing processes. MorganMMS' degassing rotor can be supplied in a range of sizes to suit customer's applications.

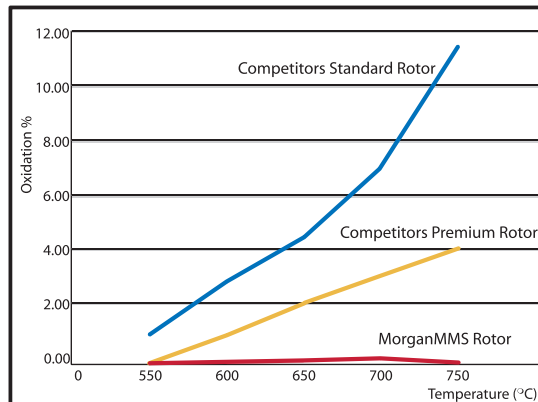
FEATURES

- One piece shaft and rotor
- Wear resistant silicon carbide material
- Excellent oxidation resistance
- Rotor designed for good gas dispersal
- Six vane rotor to reduce bubble size for better hydrogen removal

ADVANTAGES

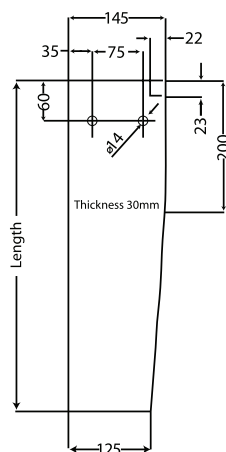
- Efficient removal of hydrogen and unwanted particles
- Quick changeover of rotor
- One piece construction
- Long life
- Cost effective

Tests show significantly lower oxidation levels at operating temperatures for the MorganMMS silicon carbide rotor than for leading competitive products in other materials.



The MorganMMS degassing rotor is currently available with a rotor diameter of 150mm in lengths up to 1200mm to suit customer requirements.

Reference Number	Length
1580388	420
1580395	450
1580400	500
1580510	650



ANTI VORTEX PLATE

To complement our degassing rotor, MorganMMS also produces a clay graphite anti vortex plate. This plate is manufactured in a proven wear and oxidation resistant material. It will help stop the reintroduction of hydrogen and aluminium oxide particles into the treated molten aluminium by reducing the circular metal flow caused by the rotation of the degassing rotor.

Degassing Tubes

Degassing

A simple and convenient tool specifically designed to meet the requirements of refiners and foundrymen for nitrogen degassing.

Flushing the molten metal with nitrogen is a simple and inexpensive way to ensure that the melt is gas-free and helps ensure against gas porosity.

PATTERN	PART DESCRIPTION	OUTSIDE DIAMETER (mm)	INSIDE DIAMETER (mm)	LENGTH (mm)	COMMENTS	APP METAL	ATTACHMENT THREAD	TUBE TYPE	APP TEMP. Degrees °C
VGI50450RI	Porous plug Degassing Tube	50	13	450		Al,Cu	1/4 BSP Steel tube	Porous plug	< 1600°
VGT394	Degassing Tube	38	13	457	Available unthreaded	Al,Cu	1.0" BSP	Open end	< 1600°
VGT449	Degassing Tube	38	13	610	Available unthreaded	Al,Cu	1.0" BSP	Open end	< 1600°
VGT392	Degassing Tube	51	13	700	Available unthreaded	Al,Cu	1.5" BSP	Open end	< 1600°
VGI750RI	Porous plug Degassing Tube	65	10	730		Al,Cu	3/8 BSP Steel tube	Porous plug	< 1600°
VGT55750	Degassing Tube	55	23	750	Available unthreaded	Al,Cu	French thread	Closed end	< 1600°
VGT800	Degassing Tube	48	13	800	Available unthreaded	Al,Cu	1.5" BSP	Closed end	< 1600°
VGT461	Degassing Tube	51	13	914	Available unthreaded	Al,Cu	1.5" BSP	Open end	< 1600°
VGT914	Degassing Tube	48	13	914	Available unthreaded	Al,Cu	1.5" BSP	125MM Bell	< 1600°
VGT950	Degassing Tube	51	13	950	Available unthreaded	Al,Cu	1.5" BSP	Closed end	< 1600°
VGT51950	Degassing Tube	51	13	950	Available unthreaded	Al,Cu	1.5" BSP	Closed end	< 1600°
VGT1000RI	Porous plug Degassing Tube	51	13	1000	Available unthreaded	Al,Cu	1.5" BSP	Porous plug	< 1600°
VGT1200RI	Porous plug Degassing Tube	51	13	1200	Available unthreaded	Al,Cu	1.5" BSP	Porous plug	< 1600°
VGT1200	Degassing Tube	51	13	1200	Available unthreaded	Al,Cu	1.5" BSP	Closed end	< 1600°
VGT511200	Degassing Tube	51	20	1200	Available unthreaded	Al,Cu	1.5" BSP	Threaded end	< 1600°
VGT462	Degassing Tube	51	13	1220	Available unthreaded	Al,Cu	1.5" BSP	Open end	< 1600°
VGT1400RI	Porous plug Degassing Tube	51	13	1400	Available unthreaded	Al,Cu	1.5" BSP	Porous plug	< 1600°
VGT1400	Degassing Tube	51	13	1400	Available unthreaded	Al,Cu	1.5" BSP	Open end	< 1600°

PATTERN	OUTSIDE DIAMETER (mm)	INSIDE DIAMETER (mm)	LENGTH (mm)	COMMENTS	APP METAL	TUBE TYPE	APP TEMP. Degrees °C
VG394	38	13	457	Available threaded	Al,Cu	Open end	< 1600°
VG449	38	13	610	Available threaded	Al,Cu	Open end	< 1600°
VG461	51	13	914	Available threaded	Al,Cu	Open end	< 1600°
VG462	51	13	1,220	Available threaded	Al,Cu	Open end	< 1600°
VG392	51	13	700	Available threaded	Al,Cu	Open end	< 1600°
VG800	48	13	800	Available threaded	Al,Cu	Closed end	< 1600°
VG914	48	13	914	Available threaded	Al,Cu	125MM Bell	< 1600°
VG950	51	13	950	Available threaded	Al,Cu	Closed end	< 1600°

PATTERN	OUTSIDE DIAMETER (mm)	INSIDE DIAMETER (mm)	LENGTH (mm)	APPLICATION METAL	ATTACHMENT THREAD	TUBE TYPE	APPLICATION TEMP. Degrees °C
168300400	60	14	750	Al,Cu	1/2" steel tube	Closed end, 100 x 1 mm holes	< 1600°
168325000	60	14	800	Al,Cu	1/2" steel tube	Open end	< 1600°
168298400	60	14	800	Al,Cu	1/2" steel tube	Closed end, 100 x 1 mm holes	< 1600°
168301400	60	14	850	Al,Cu	1/2" steel tube	Closed end, 100 x 1 mm holes	< 1600°
168326000	60	14	998	Al,Cu	1/2" steel tube	Open end	< 1600°
168302500	60	14	998	Al,Cu	1/2" steel tube	Closed end, 100 x 1 mm holes	< 1600°
168326400	60	14	1200	Al,Cu	1/2" steel tube	Open end	< 1600°
168310400	60	14	1200	Al,Cu	1/2" steel tube	Closed end, 100 x 1 mm holes	< 1600°

Dipping Samplers / Dipping Spoons

Metal Sampling and Casting



Sample spoons with an integral handle for taking small samples of molten metal for analysis or for removing dirt and dross from small crucibles.

PATTERN	DIAMETER (mm)	LENGTH (mm)	CAPACITY (cc)	COMMENTS	APPLICATION METAL	CAPACITY (kg) Al	APPLICATION TEMP. Degrees °C
VB56	44	241	10	Al,Au,Ag sampling	Al,Cu,Ag,Au	0.023	< 1600°
VB35	60	335	10	Al,Au,Ag sampling	Al,Cu,Ag,Au	0.023	< 1600°
VB66	51	356	30	Al,Au,Ag sampling	Al,Cu,Ag,Au	0.075	< 1600°
VB394	30	394	5	Al,Au,Ag sampling	Al,Cu,Ag,Au	0.012	< 1600°
VB316	44	457	10	Al,Au,Ag sampling	Al,Cu,Ag,Au	0.023	< 1600°
VB590	30	590	5	Al,Au,Ag sampling	Al,Cu,Ag,Au	0.012	< 1600°

Ladle Bowls

Metal Sampling and Casting

The best method of taking molten metal samples and for skimming slag from induction furnaces and ladles. The products are supplied in a range of sizes from 275 cm³ to 2000 cm³ capacity. Designed for obtaining samples for spectrographic analysis, test bars and thermal analysis samples. Molten metal samples can be retrieved in a cost efficient way, free from contamination of dirt, which is close to temperature of the bulk metal being sampled (important for thermal analysis).



TYPE	DRAIN HOLES	CAPACITY		USES
NB10 *	0	275cc	1.8kg iron	Taking molten metal samples for analysis
NB20 *	0	1100cc	7.5kg iron	Casting test bars and small castings
NB30 *	0	2000cc	14.0kg iron	Molten metal transfer and small castings
NB31 *	1	2000cc	N/A	Removing slag from ladles and Induction Furnaces
VB6A <	0	90cc	0.6kg iron	Taking molten metal samples for analysis
VB18A <	0	260cc	1.8kg iron	Taking molten metal samples for analysis
VB18/3A <	3	260cc	N/A	Removing dross and slag from small casting ladles
VB4A <	0	295cc	2.0kg iron	Taking molten metal samples for analysis
VB5A <	0	510cc	3.6kg iron	Casting test bars and small castings
VB8/2A <	6	1800cc	N/A	Removing slag from ladles and Induction Furnaces
VB8A <	0	1800cc	13.75kg iron	Metal transfer and small castings
VB8/4A *	1	1800cc	N/A	Removing slag from ladles and Induction Furnaces
VB8/5A <	1	1800cc	N/A	Removing slag from ladles and Induction Furnaces
VB25 <	0	3170cc	22.0kg iron	Molten metal transfer
VB271 <	0	4000cc	28.0kg iron	Molten metal transfer
NB28/5 *	5	N/A	N/A	Removing slag and dross from ladles and autopours
NB32/1 *	1	N/A	N/A	Removing slag from ladles and Induction Furnaces
NB32/4 <	4	N/A	N/A	Removing slag from ladles and Induction Furnaces

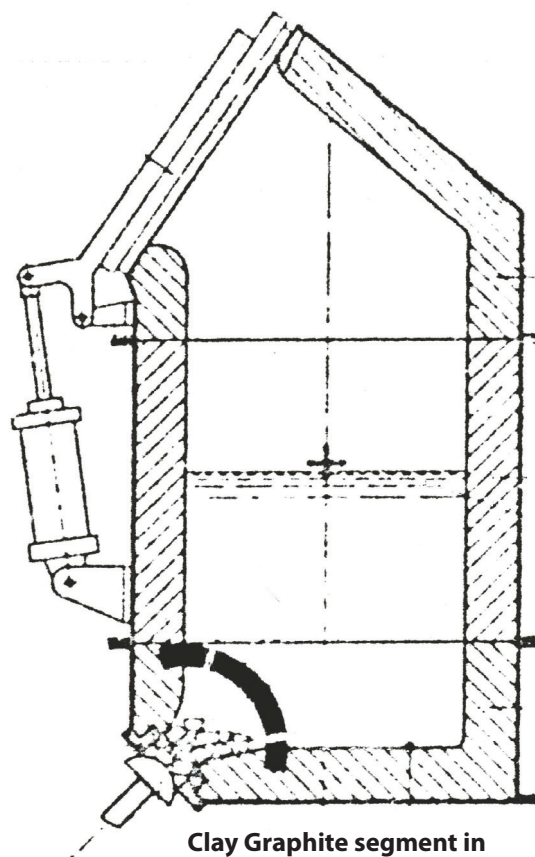
+GF+ Converter Segments

Metal Sampling and Casting

MorganMMS' +GF+ converter segments offer an economic alternative consumable for foundries converting cast iron to ductile iron using the George Fischer process. Produced in clay graphite under quality controlled conditions, MorganMMS' converter segments can be manufactured in a range of sizes to suit customers' requirements.

APPLICATION

The segments are placed in the bottom of the George Fischer converter vessel to form a chamber into which the magnesium is introduced from outside the vessel. When the vessel is rotated, the molten iron is introduced into the chamber in a controlled manner through the holes in the clay graphite segment. The magnesium is then vaporised by the iron and desulphurises and nodularises the cast iron, producing ductile cast iron.



Clay Graphite segment in position in converter

+GF+ CONVERTER SEGMENT SIZES

DRG NO	LENGTH mm	HEIGHT mm	WALL THICKNESS mm	APPROXIMATE METAL CAPACITY
SEGMENT 393	658	840	65	3T
SEGMENT 366	599	760	70	2T
SEGMENT 328	587	640	50	2T
SEGMENT 327	564	560	50	1.1T
SEGMENT 420	850	760	70	3T
SEGMENT 421	658	840	65	3T
SEGMENT 422	720	830	50	2.2T
SEGMENT 428	841	760	70	2T
SEGMENT 432	901	1020	70	4T

All dimensions are subject to normal manufacturing tolerances

MorganMMS reserve the right to change specifications at any time.

Downspouts

Metal Transfer

Clay graphite down spouts are used to regulate the flow of the molten metal in the continuous casting of copper bar. These can be supplied to customers own design to suit the application.



PATTERN	OUTSIDE DIAMETER (mm)	INSIDE DIAMETER (mm)	LENGTH (mm)	FLANGE DIAMETER (mm)	COMMENTS	APPLICATION METAL	OUTLET HOLES	APPLICATION TEMP. Degrees °C
WX90	65	36	90	75		Cu	1	< 1600°
WX3	62	38	102	70		Cu	1	< 1600°
WX122A	95	55	103	122		Cu	1	< 1600°
WX120	44	25	120	51		Cu	1	< 1600°
WX48	48	35	120	60		Cu	1	< 1600°
WX128	70	30	128	85		Cu	1	< 1600°
WX130	35	15	130	52		Cu	1	< 1600°
WX115	90	70	140	115		Cu	8	< 1600°
WX145	60	30	145	90		Cu	8	< 1600°
WX122	95	55	147	122		Cu	1	< 1600°
WX140	79	25	156	140		Cu	1	< 1600°
WX654	43	18	181	88	Od Tapers to 37mm	Cu	1	< 1600°
WX38186	38	22	186	46		Cu	1	< 1600°
WX187	76	35	187	108		Cu	2	< 1600°
WX278	50	22	190	75		Cu	2	< 1600°
WX68200	68	45	200	68		Cu	4	< 1600°
WX77200	77	44	200	87		Cu	1	< 1600°
WX210	45	25	210	80		Cu	2	< 1600°
WX684	44	19	216	83		Cu	1	< 1600°
WX6841	44	19	216	83		Cu	1	< 1600°
WX6842	44	15	216	83	Od Tapers to 26mm	Cu	1	< 1600°
WX685	44	13	216	83		Cu	1	< 1600°
WX220	45	25	220	80		Cu	2	< 1600°
WX655	43	25	254	88	Od Tapers to 37mm	Cu	1	< 1600°
WX687	44	17	260	88		Cu	1	< 1600°
WX300	70	20	300	100		Cu	2	< 1600°
WX310	63	23	310	75		Cu	2	< 1600°

Filling Funnels

Metal Transfer

Filling funnels are used in aluminium dosing furnaces to allow the furnace to be filled with molten metal without interrupting production.

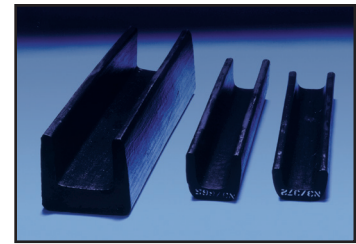


PATTERN	PART DESCRIPTION	TOP DIAMETER (mm)	BTM. DIAMETER (mm)	HEIGHT (mm)	HOLE DIA. (mm)	COMMENTS	APPLICATION METAL	APPLICATION TEMP. Degrees °C
NR1	Filling Funnel	265	90	510	0.98	available with 40mm hole	Al	< 1000°
NR2	Filling Funnel	300	90	605	0.98	available with 40mm hole	Al	< 1000°
NR3	Filling Funnel	300	90	620	0.98	available with 40mm hole	Al	< 1000°
NR4	Filling Funnel	300	87	725	0.98	available with 40mm hole	Al	< 1000°
NR5	Filling Funnel	300	87	838	0.98	available with 40mm hole	Al	< 1000°

Launders

Metal Transfer

Pre-fired shapes for the transfer of ferrous and non-ferrous metals from furnace to furnace or from furnace to ladle. Launders provide a metal transfer system that has a high resistance to erosion and is virtually maintenance-free when installed properly. Available in many sizes to suit most runner systems. Also suitable for use as spouts in "teapot" spout casting ladles.



PATTERN	WIDTH (mm)	DEPTH (mm)	LENGTH (mm)	COMMENTS	APPLICATION METAL	CHANNEL (mm)	APP. TEMP Degrees °C
N3/580	160	80	1040		Al,Cu,Fe	98 X 45	< 1600
N3/350	162	102	350		Al,Cu,Fe	102 X 67	< 1600
N3/375	162	102	405		Al,Cu,Fe	102 X 67	< 1600
N3/50A	162	102	540		Al,Cu,Fe	102 X 67	< 1600
N3/377	162	102	560		Al,Cu,Fe	102 X 67	< 1600
N3/376	162	102	570		Al,Cu,Fe	102 X 67	< 1600
N3/379	162	102	700		Al,Cu,Fe	102 X 67	< 1600
N3/372	162	102	840		Al,Cu,Fe	102 X 67	< 1600
N3/50	162	102	1000		Al,Cu,Fe	102 X 67	< 1600
N3/371	162	102	1100		Al,Cu,Fe	102 X 67	< 1600
N3/374	162	102	1220		Al,Cu,Fe	102 X 67	< 1600
N3/667	162	152	610		Al,Cu,Fe	108 X 117	< 1600
N3/665	162	152	840		Al,Cu,Fe	108 X 117	< 1600
N3/666	162	152	1145		Al,Cu,Fe	108 X 117	< 1600
N3/6	274	255	1219		Al,Cu,Fe	178 X 178	< 1600
N3/6H	274	255	1219		Al,Cu,Fe	178 X 111	< 1600
SRG 170/200	150	85	200	170mm flange	Al,Cu,Fe	90 X 50	< 1600
SRG 170/215	150	85	215	170mm flange	Al,Cu,Fe	90 X 50	< 1600
SRG 170/275	150	85	275	170mm flange	Al,Cu,Fe	90 X 50	< 1600
SRG 170/325	150	85	325	170mm flange	Al,Cu,Fe	90 X 50	< 1600
SRG 170/360	150	85	360	170mm flange	Al,Cu,Fe	90 X 50	< 1600
SRG 170/500	150	85	500	170mm flange	Al,Cu,Fe	90 X 50	< 1600
SRG 140/280	120	115	280	140mm flange	Al,Cu,Fe	70 X 70	< 1600
SRG 220/275	200	120	275	220mm flange	Al,Cu,Fe	130 X 70	< 1600
SRG 220/375	200	120	375	220mm flange	Al,Cu,Fe	130 X 70	< 1600

Needle Valves

Metal Transfer

Clay graphite needle valves provide accurate control over the flow of molten metal in continuous casting applications.



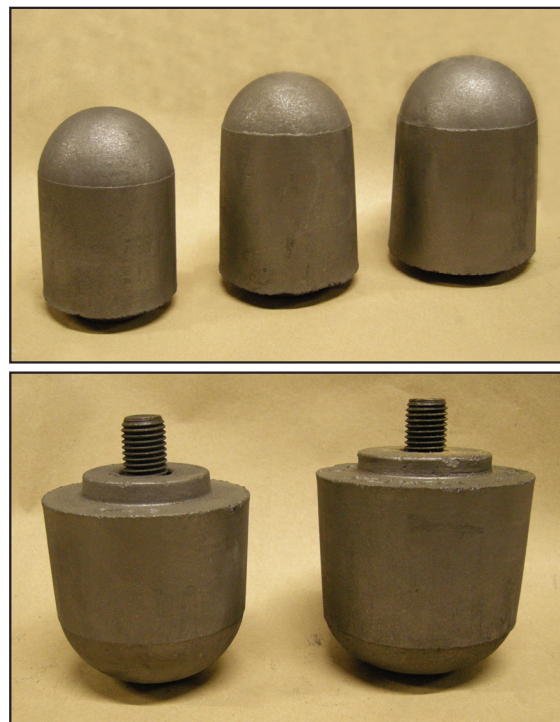
PATTERN	OUTSIDE DIAMETER (mm)	LENGTH (mm)	NOSE (mm)	APPLICATION METAL	APPLICATION TEMP. Degrees °C
VJ1001	45	80	Round	Al,Cu,Fe	< 1600°
RV682	51	203	60	Al,Cu,Fe	< 1600°
RV220	42	220	45	Al,Cu,Fe	< 1600°
RV676	51	241	60	Al,Cu,Fe	< 1600°
RV6762	49	241	20	Al,Cu,Fe	< 1600°
RV250	42	250	45	Al,Cu,Fe	< 1600°
RV265	50	265	45	Al,Cu,Fe	< 1600°
RV267	51	267	60	Al,Cu,Fe	< 1600°
RV340	50	340	60	Al,Cu,Fe	< 1600°
RV394	32	394	15	Al,Cu,Fe	< 1600°
RV50480	50	480	60	Al,Cu,Fe	< 1600°
RV584	50	584	60	Al,Cu,Fe	< 1600°
RV584G	50	584	60	Al,Cu,Fe	< 1600°
RV20600	20	600	Round	Al,Cu,Fe	< 1600°
RV815	60	615	60	Al,Cu,Fe	< 1600°
RV686	46	686	75	Al,Cu,Fe	< 1600°
RV686G	46	686	75	Al,Cu,Fe	< 1600°
RV380	70	800	60	Al,Cu,Fe	< 1600°
RV80845	80	845	60	Al,Cu,Fe	< 1600°
RV80900G	80	900	60	Al,Cu,Fe	< 1600°

Stoppers

Metal Transfer

A complete range of Salamander Plumbago™ stoppers for bottom pour ladles is available in a range of sizes and designs. MorganMMS stopper rod ends are used by attaching to a steel rod, which is sheathed with refractory tubes for protection from the molten metal.

Our stoppers do not stick to the ladle nozzle when lifted and consistently reseal without leaks when closed off.



PATTERN	PART DESCRIPTION	TOP DIAMETER (mm)	BTM. DIAMETER (mm)	LENGTH (mm)	APPLICATION METAL	THREAD DIA. (mm)	NOSE RADIUS (mm)	MAXIMUM TEMP. Degrees °C
RS.2	Standard Stopper	92	88	87	Steel	N/A	35	1600°
RS.52	Morlok Stopper	92	88	87	Steel	M20	35	1600°
RS.53	Morlok Stopper	102	96	88	Steel	M20	29	1600°
RS.21	Internal thread stopper	59	58	108	Steel	25	29	1600°
RS.22	Internal thread stopper	89	86	114	Steel	28	43	1600°
RS.23	Internal thread stopper	100	88	130	Steel	38	44	1600°
RS.26	Internal thread stopper	130	110	130	Steel	37	55	1600°
RS.24	Internal thread stopper	113	102	142	Steel	37	51	1600°

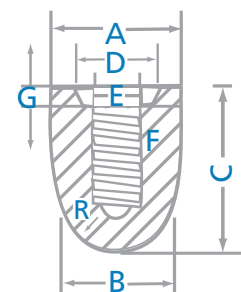
Stoppers

Metal Transfer

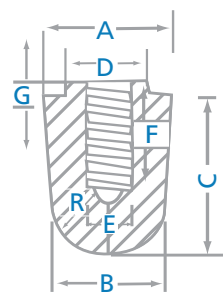
A complete range of Salamander stoppers for bottom pour ladles is available in a range of sizes and designs.

Due to the properties of Salamander these stoppers provide an efficient, cost effective seal on the ladle nozzle.

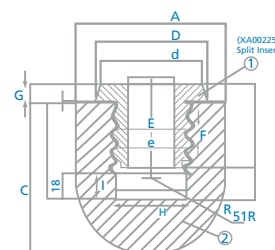
NOMINAL DIA	PATTERN NO.	A	B	C	D	E	F	G	R	P		
90	S.0	90	80	120	68	62	33.5	23.5	13	12	40	6
105	S.1	105	90	130	78	72	38.5	28.5	13	12	45	6
120	S.2	120	110	125	86	72	38.5	28.5	13	12	55	6
140	S.3	140	120	145	86	72	38.5	28.5	13	12	60	6
155	S.4/2	155	130	155	97	82	38.5	28.5	13	12	65	6
170	S.5	170	130	170	115	97	38.5	28.5	13	12	65	6



NOMINAL DIA	PATTERN NO.	A	B	C	D	E	F	G	R	P		
90	RS.22	89	86	114	57	56	28	21	13	10	43	6
100	RS.23	100	88	130	64	62	38	28	13	10	44	6
115	RS.24	115	102	142	70	68	38	28	12	10	51	6
130	RS.26	130	110	130	72	70	37	28	12	10	55	6



NOMINAL DIA	PATTERN NO.	A	B	C	D	E	F	G	R	P	BORE DIA
90	RS 395	90	84	100	64/63	58/50	12	10	44	4	28
100	RS 431	102	102	103	76/68	57/47.5	12	12	51	4	32
100	RS 439	102	102	103	76/68	57/47.5	12	12	51	4	34
100	RS 442	102	102	102	64/63	57/47.5	12	9.5	51	4	28
115	RS 415	114.5	111	108	79.5/76	57/47.5	12	24	55.5	5	32
115	RS 441	114.5	111	108	79.5/76	57/47.5	12	12	55.5	4	32
120	RS 438	120	104	125	82/69	69/59.5	12	9.5	52	4	43
120	RS 414	152.5	150	149	89/90	101.5/92	12	17	101.5	5	54



RED DIAMOND STOPPER HEAD PHYSICAL PROPERTIES

APPARENT POROSITY:	20 - 28%
BULK DENSITY:	2.1 - 2.3 gm/cc.
C.C.S.:	200 - 300 KG/CM ²
P.C.E.:	35 - 37 Orton Cone

RED DIAMOND STOPPER HEAD CHEMICAL COMPOSITION

CARBON:	12 - 14%
AL ₂ O ₃ :	52 - 54%
SIO ₂ :	25 - 27%
OTHER:	5 - 10%



A limited range of shapes and sizes can be cut from prefired blocks of clay graphite to form bricks and tiles. Clay Graphite bricks are used for tap hole surrounds and linings in Blast furnaces.

Tiles are used to stop erosion and slag attack in ladles and furnaces.

Tiles can also be used for removing slag from furnaces and ladles.

PATTERN	PART DESCRIPTION	THICKNESS (mm)	LENGTH (mm)	WIDTH (mm)	COMMENTS	APPLICATION METAL	APPLICATION TEMP. Degrees °C
N27/1	TAP HOLE BLOCK	76	114	114		Al,Cu,Fe	< 1600°
N27/1A	TAP HOLE BLOCK 25mm	76	114	114		Al,Cu,Fe	< 1600°
N27/30	TAP HOLE BLOCK 30mm	76	114	114		Al,Cu,Fe	< 1600°
N25/178A	TILE	25	130	95		Al,Cu,Fe	< 1600°
N25/152	SKIMMER BLOCK	35	152	102		Al,Cu,Fe	< 1600°
N25/73	TILE	25	152	152		Al,Cu,Fe	< 1600°
N25/178	SKIMMER BLOCK	25	178	95		Al,Cu,Fe	< 1600°
N27/2	TAP HOLE BLOCK	76	228	114		Al,Cu,Fe	< 1600°
N25/305	SKIMMER BLOCK	51	254	127	Taper to 38mm	Al,Cu,Fe	< 1600°
N25/290	TILE	25	290	260		Al,Cu,Fe	< 1600°
N25/94	TILE	25	685	228		Al,Cu,Fe	< 1600°

Tubes

Metal Transfer

For “teapot” pour ladles, cupola receiver entries and spouts, cupola slagging box syphons, or for any metal transfer operation.

Clay graphite tubes are available in a range of sizes from 25 to 250mm diameter and lengths up to 1400mm (large diameter tubes, over 200mm od, can be manufactured up to 1900mm long).



PATTERN	PART DESCRIPTION	OUTSIDE DIA (mm)	INSIDE DIA (mm)	LENGTH (mm)	WALL (mm)	APPLICATION METAL	APPLICATION TEMP. Degrees °C
N12/56	TUBE	143	108	200	17.5	Al,Cu,Fe	< 1600
VG255	TUBE	34	19	255	7.5	Al,Cu,Fe	< 1600
VG267	TUBE	178	127	267	25.5	Al,Cu,Fe	< 1600
VG269	TUBE	180	122	267	29	Al,Cu,Fe	< 1600
N12/79	TUBE	100	38	300	31	Al,Cu,Fe	< 1600
VG350	TUBE	68	45	350	11.5	Al,Cu,Fe	< 1600
VG1547	TUBE	170	133	368	18.5	Al,Cu,Fe	< 1600
N12/68	TUBE	100	51	400	24.5	Al,Cu,Fe	< 1600
VG1590	TUBE	125	85	406	20	Al,Cu,Fe	< 1600
N12/64	TAPHOLE TUBE	89	60	425	14.5	Al,Cu,Fe	< 1600
N12/38	TUBE	100	51	457	24.5	Al,Cu,Fe	< 1600
N12/34	TUBE	200	150	500	25	Al,Cu,Fe	< 1600
N12/70	TUBE	58	38	500	10	Al,Cu,Fe	< 1600
N12/31	TUBE	143	108	508	17.5	Al,Cu,Fe	< 1600
N12/51	TUBE	89	60	508	14.5	Al,Cu,Fe	< 1600
N12/75	TUBE + 45 END	146	89	508	28.5	Al,Cu,Fe	< 1600
N12/71	TUBE	77	45	600	16	Al,Cu,Fe	< 1600
N12/66	TUBE	114	89	610	12.5	Al,Cu,Fe	< 1600
N12/30	TUBE	100	51	632	24.5	Al,Cu,Fe	< 1600
N12/63	TAPHOLE TUBE	175	110	650	32.5	Al,Cu,Fe	< 1600
N12/29	TUBE	89	60	762	14.5	Al,Cu,Fe	< 1600
N12/32C	TUBE	143	108	762	17.5	Al,Cu,Fe	< 1600
N12/90	TUBE + CURVE	123	80	900	21.5	Al,Cu,Fe	< 1600
N12/950	TUBE	100	12	950	44	Al,Cu,Fe	< 1600
VG950	Tube	51	13	950	19	Al,Cu,Fe	< 1600
N12/67	TUBE	143	108	1000	17.5	Al,Cu,Fe	< 1600
N12/69	TUBE	100	51	1020	24.5	Al,Cu,Fe	< 1600
N12/32E	TUBE	143	108	1070	17.5	Al,Cu,Fe	< 1600
N12/32	TUBE	143	108	1219	17.5	Al,Cu,Fe	< 1600
N12/65	TUBE	241	190	1219	25.5	Al,Cu,Fe	< 1600
N12/72	TUBE + 45 ENDS	125	83	1397	21	Al,Cu,Fe	< 1600
VG1830	TUBE	241	190	1830	25.5	Al,Cu,Fe	< 1600
N12/33	TUBE	146	86	1930	30	Al,Cu,Fe	< 1600

ISO Stat - SC Pyrometer Protection Sheaths

Pyrometry

Consistent temperature control is a pre-requisite for today's light alloy foundry if correct metallurgical conditions are to be maintained.

MorganMMS' ISO Stat-SC Isostatically pressed Silicon Carbide pyrometer protection sheaths, with built in body glaze, provide a durable and cost effective solution for every aluminum casting process.



REFERENCE	DIAMETER (MM)	LENGTH (MM)	CONNECTION
PSI-210	52	255	½" BSP
PSI-216	52	400	½" BSP
PSI-218	52	457	½" BSP
PSI-224	52	610	½" BSP
PSI-230	52	762	½" BSP
PSI-236	52	915	½" BSP

Pyrometer Sheaths

Pyrometry



MorganMMS pyrometer sheaths offer an economic system for the measurement of liquid metal temperature. They provide accuracy and good response and are available for both floating and fixed installations in a range of sizes to suit most applications.

PATTERN	STEEL INSERT YES / NO	LENGTH (mm)	OUTSIDE DIA (mm)	INSIDE DIA (mm)	COMMENTS	APP. METAL	FIXING GROOVE	APPLICATION TEMP. Degrees °C
PR760/25/10A	No	760	25	10	lengths up to 760 max	Al	N	< 1600
PR760/25/10B	No	760	25	10	lengths up to 760 max	Al	Y	< 1600
PR760/25/10C	No	760	25	10	lengths up to 760 max	Al	N	< 1600
PR850/60/25A	No	850	60	25	lengths up to 850 max	Al	N	< 1600
PR850/60/25B	No	850	60	25	lengths up to 850 max	Al	Y	< 1600
PR850/60/25C	No	850	60	25	lengths up to 850 max	Al	N	< 1600
PR1320/40/18A	No	1320	40	18	lengths up to 1320 max	Al	N	< 1600
PR1320/40/18B	No	1320	40	18	lengths up to 1320 max	Al	Y	< 1600
PR1320/40/18C	No	1320	40	18	lengths up to 1320 max	Al	N	< 1600
PR1525/50/25A	No	1525	50	25	lengths up to 1525 max	Al	N	< 1600
PR1525/50/25B	No	1525	50	25	lengths up to 1525 max	Al	Y	< 1600
PR1525/50/25C	No	1525	50	25	lengths up to 1525 max	Al	N	< 1600

Pyrometer Sheaths

Pyrometry

PATTERN	STEEL INSERT	LENGTH (mm)	OUTSIDE DIA (mm)	INSIDE DIA (mm)	COMMENTS	APPLICATION METAL	FIXING GROOVE	APPLICATION TEMP.
	YES / NO							Degrees °C
TCS106	Yes	150	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS206	Yes	150	52	13	1/2" Steel tube	Al	N	< 1000
TCS306	Yes	150	60	19	3/4" Steel tube	Al	N	< 1000
TCS110	Yes	255	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS210	Yes	255	52	13	1/2" Steel tube	Al	N	< 1000
TCS310	Yes	255	60	19	3/4" Steel tube	Al	N	< 1000
TCS112	Yes	305	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS212	Yes	305	52	13	1/2" Steel tube	Al	N	< 1000
TCS312	Yes	305	60	19	3/4" Steel tube	Al	N	< 1000
TCS116	Yes	405	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS216	Yes	405	52	13	1/2" Steel tube	Al	N	< 1000
TCS316	Yes	405	60	19	3/4" Steel tube	Al	N	< 1000
TCS118	Yes	460	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS218	Yes	460	52	13	1/2" Steel tube	Al	N	< 1000
TCS318	Yes	460	60	19	3/4" Steel tube	Al	N	< 1000
TCS120	Yes	510	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS220	Yes	510	52	13	1/2" Steel tube	Al	N	< 1000
TCS320	Yes	510	60	19	3/4" Steel tube	Al	N	< 1000
TCS122	Yes	560	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS222	Yes	560	52	13	1/2" Steel tube	Al	N	< 1000
TCS322	Yes	560	60	19	3/4" Steel tube	Al	N	< 1000
TCS124	Yes	610	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS224	Yes	610	52	13	1/2" Steel tube	Al	N	< 1000
TCS324	Yes	610	60	19	3/4" Steel tube	Al	N	< 1000
TCS128	Yes	710	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS228	Yes	710	52	13	1/2" Steel tube	Al	N	< 1000
TCS328	Yes	710	60	19	3/4" Steel tube	Al	N	< 1000
TCS130	Yes	760	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS230	Yes	760	52	13	1/2" Steel tube	Al	N	< 1000
TCS330	Yes	760	60	19	3/4" Steel tube	Al	N	< 1000
TCS136	Yes	915	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS236	Yes	915	52	13	1/2" Steel tube	Al	N	< 1000
TCS336	Yes	915	60	19	3/4" Steel tube	Al	N	< 1000
TCS142	Yes	1065	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS242	Yes	1065	52	13	1/2" Steel tube	Al	N	< 1000
TCS342	Yes	1065	60	19	3/4" Steel tube	Al	N	< 1000
TCS148	Yes	1220	52	9.5	3/8" Steel tube	Al	N	< 1000
TCS248	Yes	1220	52	13	1/2" Steel tube	Al	N	< 1000
TCS348	Yes	1220	60	19	3/4" Steel tube	Al	N	< 1000

Pyrometer Sheaths

Pyrometry

PATTERN	PART DESCRIPTION	STEEL INSERT YES / NO	LENGTH (mm)	OUTSIDE DIA (mm)	INSIDE DIA (mm)	COMMENTS	APPLICATION METAL	FIXING GROOVE	APPLICATION TEMP. Degrees °C
VGI50155	HotRod	Yes	155	44	16	R1/2 steel tube	Al	N	< 1000
VGI50203	HotRod	Yes	203	44	16	R1/2 steel tube	Al	N	< 1000
VGI50255	HotRod	Yes	255	44	16	R1/2 steel tube	Al	N	< 1000
VGI50300	HotRod	Yes	300	44	16	R1/2 steel tube	Al	N	< 1000
VGI50400	HotRod	Yes	400	44	16	R1/2 steel tube	Al	N	< 1000
VGI50457	HotRod	Yes	457	44	16	R1/2 steel tube	Al	N	< 1000
VGI50610	HotRod	Yes	610	44	16	R1/2 steel tube	Al	N	< 1000
VGI50650	HotRod	Yes	650	44	16	R1/2 steel tube	Al	N	< 1000
VGI50762	HotRod	Yes	762	44	16	R1/2 steel tube	Al	N	< 1000
VGI50850	HotRod	Yes	850	44	16	R1/2 steel tube	Al	N	< 1000
VGI50914	HotRod	Yes	914	44	16	R1/2 steel tube	Al	N	< 1000
VGI501000	HotRod	Yes	1000	44	16	R1/2 steel tube	Al	N	< 1000
VGI501067	HotRod	Yes	1067	44	16	R1/2 steel tube	Al	N	< 1000
VG664	Pyrometer Sheaths with groove	No	152	55	13		Al,Cu	Y	< 1600
VG618	Pyrometer Sheaths with groove	No	267	55	13		Al,Cu	Y	< 1600
VG277	Pyrometer Sheath	No	305	44	25		Al,Cu	N	< 1600
VG570	Pyrometer Sheath	No	320	25	10		Al,Cu	N	< 1600
VG450	Pyrometer Sheath	No	450	51	13		Al,Cu	N	< 1600
VG572	Pyrometer Sheath	No	450	25	10		Al,Cu	N	< 1600
VG278	Pyrometer Sheath	No	457	44	25		Al,Cu	N	< 1600
VG639	Pyrometer Sheaths with groove	No	478	55	13		Al,Cu	Y	< 1600
VG575	Pyrometer Sheath	No	550	25	10		Al,Cu	N	< 1600
VG290	Pyrometer Sheath	No	585	44	25		Al,Cu	N	< 1600
VG622	Pyrometer Sheath	No	622	51	13		Al,Cu	N	< 1600
VG44700	Pyrometer Sheath	No	700	44	25		Al,Cu	N	< 1600
VG755	Pyrometer Sheath	No	750	51	25		Al,Cu	N	< 1600
VG750	Pyrometer Sheath	No	750	51	13		Al,Cu	N	< 1600
VG1593	Pyrometer Sheaths with groove	No	762	55	13		Al,Cu	Y	< 1600
VG565	Pyrometer Sheath	No	762	25	13		Al,Cu	N	< 1600
VG571	Pyrometer Sheath	No	762	25	10		Al,Cu	N	< 1600
VG800	Pyrometer Sheath	No	800	51	13		Al,Cu	N	< 1600
VG44800	Pyrometer Sheath	No	800	44	25		Al,Cu	N	< 1600
VG50850	Pyrometer Sheath	No	850	51	25		Al,Cu	N	< 1600
VG44850	Pyrometer Sheath	No	850	44	25		Al,Cu	N	< 1600
VG864	Pyrometer Sheath	No	864	25	10		Al,Cu	N	< 1600
VG901	Pyrometer Sheath	No	900	70	30		Al,Cu	N	< 1600
VG279	Pyrometer Sheath	No	914	44	25		Al,Cu	N	< 1600
VG718	Pyrometer Sheaths with groove	No	950	55	13		Al,Cu	Y	< 1600
VG950	Pyrometer Sheath	No	950	51	13		Al,Cu	N	< 1600
VG291	Pyrometer Sheath	No	1000	44	25		Al,Cu	N	< 1600
VG501060	Pyrometer Sheath	No	1060	44	25		Al,Cu	N	< 1600
VG551100	Pyrometer Sheath	No	1100	55	20		Al,Cu	N	< 1600
VG1100	Pyrometer Sheath	No	1100	51	13		Al,Cu	N	< 1600
VG1200	Pyrometer Sheath	No	1220	51	13		Al,Cu	N	< 1600
VG551270	Pyrometer Sheath	No	1270	55	20		Al,Cu	N	< 1600

Plunger Mixers

Skimming and Additions

For the plunging of degassing or treatment tablets into aluminum or for stirring ferro alloy additions into cast iron. Plunger mixers are available with or without a steel reinforcing rod for additional strength.



PATTERN	PART DESCRIPTION	LENGTH (mm)	HANDLE DIA. (mm)	HEAD O.D. (mm)	HEAD I.D. (mm)	COMMENTS	APPLICATION METAL	CRUCIBLE CAPACITY	HOLES	APPLICATION TEMP. Degrees °C
VM86	Plunger mixer	318	32	64	38	Solid Handle	Al,Cu,Fe	up to 45kg	3	< 1600
VM244	Plunger mixer	432	32	102	38	Solid Handle	Al,Cu,Fe	45 - 160Kg	3	< 1600
VM286	Plunger mixer	610	51	120	69		Al,Cu,Fe	188kg	3	< 1600
VM286A	Plunger mixer	610	51	120	69	16mm dia steel reinforcing rod	Al,Cu,Fe	180kg	3	< 1600
VM293	Plunger mixer	762	51	120	69		Al,Cu,Fe	270kg	3	< 1600
VM293A	Plunger mixer	762	51	120	69	16mm dia steel reinforcing rod	Al,Cu,Fe	270kg	3	< 1600
VM915	Plunger mixer	870	51	115	65		Al,Cu,Fe	450kg	3	< 1600
VM915A	Plunger mixer	870	51	115	65	16mm dia steel reinforcing rod	Al,Cu,Fe	450kg	3	< 1600
VM305	Plunger mixer	915	51	120	69		Al,Cu,Fe	450kg	3	< 1600
VM305A	Plunger mixer	915	51	120	69	16mm dia steel reinforcing rod	Al,Cu,Fe	450kg	3	< 1600
1601085	Plunging Bell	730	50	95	65	12mm dia. steel reinforcing rod	Al,Cu,Fe		8 x 12mm	< 1600
1651400	Plunging Bell	820	60	120	90	16mm dia. Steel reinforcing rod	Al,Cu,Fe		8 x 35mm	< 1600
1651480	Plunging Bell	1020	60	120	90	16mm dia. Steel reinforcing rod	Al,Cu,Fe		9 x 35mm	< 1600
1651500	Plunging Bell	1220	60	120	90	16mm dia. Steel reinforcing rod	Al,Cu,Fe		10 x 35mm	< 1600
VM1350A	Plunging Bell	1350	50	130	105	5/8" BSW steel reinforcing rod	Al,Cu,Fe		3	< 1600
1651520	Plunging Bell	1420	60	120	90	16mm dia. Steel reinforcing rod	Al,Cu,Fe		11 x 35mm	< 1600
VM1700A	Plunging Bell	1735	140	327	265	60mm dia steel reinforcing rod.	Al,Cu,Fe		4 - 150 x 45	< 1600

Rods

Skimming and Additions



Clay Graphite rods can be used for stirring additions into all types of molten metal ensuring good distribution of the additions in the melt.

PATTERN	OUTSIDE DIAMETER (mm)	LENGTH (mm)	APPLICATION METAL	APPLICATION TEMP. Degrees °C
VR80175	80	175	Al,Cu,Au,Ag,Fe	< 1600
RS505	50	305	Al,Cu,Au,Ag,Fe	< 1600
VR83	51	305	Al,Cu,Au,Ag,Fe	< 1600
VR42	38	355	Al,Cu,Au,Ag,Fe	< 1600
VR50375G	50	375	Al,Cu,Au,Ag,Fe	< 1600
VR400	38	400	Al,Cu,Au,Ag,Fe	< 1600
VR38460	38	460	Al,Cu,Au,Ag,Fe	< 1600
VR84	25	508	Al,Cu,Au,Ag,Fe	< 1600
VR50533G	50	533	Al,Cu,Au,Ag,Fe	< 1600
VR20610	20	610	Al,Cu,Au,Ag,Fe	< 1600
VR32	32	610	Al,Cu,Au,Ag,Fe	< 1600
VR610	50	610	Al,Cu,Au,Ag,Fe	< 1600
VR610G	50	610	Al,Cu,Au,Ag,Fe	< 1600
VR700G	70	700	Al,Cu,Au,Ag,Fe	< 1600
VR920	70	920	Al,Cu,Au,Ag,Fe	< 1600
VR920G	70	920	Al,Cu,Au,Ag,Fe	< 1600
VR950	51	950	Al,Cu,Au,Ag,Fe	< 1600
VR451100	45	1100	Al,Cu,Au,Ag,Fe	< 1600
VR451200	45	1200	Al,Cu,Au,Ag,Fe	< 1600
VR511200	51	1200	Al,Cu,Au,Ag,Fe	< 1600
VR1270G	64	1270	Al,Cu,Au,Ag,Fe	< 1600
VR451400	45	1400	Al,Cu,Au,Ag,Fe	< 1600

Skimmers

Skimming and Additions

Clay Graphite skimmers are designed for the easy and efficient removal of dross and dirt from all types of molten metal. They are supplied with a threaded bolt for easy attachment to a handle and have holes for the draining of molten metal back into the furnace, reducing waste.



PATTERN	PART DESCRIPTION	DIAMETER (mm)	LENGTH (mm)	CAPACITY (cc)	COMMENTS	APP METAL	BOLT THREAD	DRAIN HOLES	APPLICATION TEMP. Degrees °C
VK85	Flat Skimmer	64	305	0	Skimming Aluminium dross	Al,Cu	N/A	19 x 64 mm flat Skimmer	< 1600
VK18	Flat Skimmer	75	460	0	Skimming Aluminium dross	Al,Cu	N/A	75 x 25 mm Flat Skimmer	< 1600
N25/305	Flat Skimmer	127	254	0	Slagging Lge Induction Fnces	Fe	10mm	127 x 51 mm Flat Skimmer	< 1600
VB18/1A	Skimmer Bowl	130	160	260	Slagging small ladles	Cu,Fe	10mm	1 x 40mm Hole	< 1600
VB18/2A	Skimmer Bowl	130	160	260	Slagging small ladles	Cu,Fe	10mm	1 x 20mm Hole	< 1600
VB18/3A	Skimmer Bowl	130	160	260	Slagging small ladles	Cu,Fe	10mm	3 x 12mm Hole	< 1600
NB28/5	Skimmer Spoon	150	209	0	Removing dross and slag	Al,Cu,Fe	10mm	5 Holes	< 1600
NB28/5A	Skimmer Spoon	150	209	0	As NB28/5 with scraper	Al,Cu,Fe	10mm	5 holes + Scraper	< 1600
NB31	Skimmer Bowl	207	279	2000	Removing dross and slag	Al,Cu,Fe	16mm	1 Hole	< 1600
VB8/2A	Skimmer Bowl	220	260	1800	Slagging large ladles	Cu,Fe	16mm	6 Holes	< 1600
VB8/4A	Skimmer Bowl	220	260	1800	Slagging Induction Fnces.	Fe	16mm	1 Hole	< 1600
VB8/6A	Skimmer Bowl	220	260	1800	Slagging Induction Fnces.	Fe	16mm	1 Hole	< 1600
VB8/8A	Skimmer Bowl	220	260	1800	Slagging Induction Fnces.	Fe	16mm	1 Hole	< 1600
VB8/5A	Skimmer Bowl	230	260	1800	Slagging Induction Fnces.	Fe	16mm	1 Hole	< 1600
NB32/1	Skimmer Spoon	250	320	0	Slagging Induction Fnces.	Cu,Fe	16mm	1 Hole	< 1600
NB32/4	Skimmer Spoon	250	320	0	Slagging Induction Fnces.	Cu,Fe	16mm	4 Holes	< 1600

Stirrers

Skimming and Additions

Clay Graphite stirrers can be used for mixing additions into all types of molten metal, ensuring good distribution of the additions in the melt. They can also be used to remove any dirt or oxides from the surface of the molten metal.



PATTERN	OUTSIDE DIAMETER (mm)	LENGTH (mm)	NOSE (mm)	APPLICATION METAL	APPLICATION TEMP. Degrees °C
VS6	22	152	44	Al,Cu,Au,Ag,Fe	< 1600
VS8	22	203	44	Al,Cu,Au,Ag,Fe	< 1600
VS12	29	305	57	Al,Cu,Au,Ag,Fe	< 1600
VS18	38	457	83	Al,Cu,Au,Ag,Fe	< 1600
VS24	51	610	102	Al,Cu,Au,Ag,Fe	< 1600
VS26	51	750	150	Al,Cu,Au,Ag,Fe	< 1600
VS30	51	750	102	Al,Cu,Au,Ag,Fe	< 1600



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