Degassing

SiC Degassing Rotor



Introduction

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

Morgan has developed a one piece silicon carbide rotor and shaft for use in this process. Morgan 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.

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

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



All dimensions are subject to normal manufacturing tolerances. Morgan reserves the right to change specifications at any time



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

Product Dimensions:

Reference	A [mm]	Comments
DGRU150-A-S02T	up to 1200	MMS THREADED COUPLING
DGRU 150-A-S01 30	up to 1200	30mm CAMLOCK FITTING



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Performance Benchmarking

Discovering Superior Degassing Performance

Morgan switched to a silicon carbide degassing rotor after the performance of its machined pure graphite degassing rotor proved less than satisfactory.

Customer Investigations

Voice of customer A:

"Graphite rotors were found to wear quickly and their degassing performance deteriorated as head geometry became distorted. Consequently, nitrogen gas dispersal suffered. Graphite rotors had to be replaced after about 300 cycles, even when flux additions were withheld. That equated to just 2-3 days of production. The Morgan rotor, however, were normally changed after 800 cycles, cycles that included 100 grams of flux additions. We noted that the flux treatments did not negatively affect the performance of the silicon carbide rotor". Overall they pointed to financial advantage accruing from less frequent rotor replacement and the higher level of production that could be achieved through less downtime"

Voice of customer B:

"The gas content in our alloy $[AlSi_9Cu_3]$ is on a low level by using Morgan rotors. Till the end of the life (five to ten times more than conventional graphite rotors) the gas content is very stabil because of high erosion resistance of silicon carbide rotor.

Voice of customer C:

"We were surprised about Morgan degassing rotor performance in case of the degassing result. The density of our alloy [AS7G] reached 2.69-2.70g/cm³ which is an excellent value."

Voice of customer D:

"Due to high resistance to wear, service lifetime increased from 40 cycles (graphite rotors) up to more than 100 cycles by using Morgan rotors[copper alloys]. Also we reduced our stock of degassing rotors because of the high performance of Morgan we are using also \emptyset 150mm head for 850kg melt instead of \emptyset 210 mm with the same degassing result."









This degassing rotor has been used 20 cycles at 1250°C and shows no erosion at shaft and head



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Morgan Thread Adapter

Morgan coupling-set is used to connect Morgan's Silicon Carbide Degassing Rotor to all common degassing machines. Morgan Thread Adapter will be delivered as a set which includes:

- 。 I coupling
- 。 2 combination wrench, SW 13
- I hook spanner with nose, 80-90mm
- 2 graphite gaskets, Ø100x71x1
- Nuts, bolts, washers and lock washers



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Installation of coupling

- Clean flange of degassing machine and be sure, there are no unevenness and/or residues.
- 2. Put both graphite gaskets onto connection flange of coupling
- Install the coupling onto machine flange. Be sure the gaskets will be on right position.

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4. Tighten all screws by hand.



- 1. For coupling adjustment a dial gauge needs to be positioned at the end of the thread.
- 2. Tighten the bolts according the peak of dial gauge.
- The maximum peak after adjustment shouldn't be more than 0.1mm



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Installation Guide

- 1. Remove dust from sealing surface.
- Positioning of both delivered yellow gaskets at sealing surface of degassing rotor



- Screw the degassing rotor clockwise onto the coupling by hand
- Hold the coupling tight by using hook spanner and tighten the Degassing Rotor by hand







Anti Vortex Plate

To complement our degassing rotor, Morgan MMS 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.

Reference Number	Length
1580388	420
1580395	450
1580400	500
1580510	650



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