SINTERFLEX®
Raising the bar for sintering quality at Megamet Solid Metals, Inc.
SINTERFLEX® – A tailored solution for Megamet’s key challenge.

With the help of SINTERFLEX®, Megamet was able to significantly improve the carbon potential control of its furnace atmosphere, thus improving carbon content uniformity of sintered parts. As a result, the company significantly reduced rejection rates.

Helping Megamet to control its sintering atmosphere

In order to raise sintering quality and process efficiency, Megamet was searching for a partner that could help improving carbon content uniformity of their MIM parts after sintering. Thanks to its SINTERFLEX® sophisticated closed loop carbon control solution, Linde turned out to be the partner of choice.

Looking beyond SINTERFLEX, key success factors included the ability of Linde engineers to embed this solution into Megamet’s sintering process. Linde’s experts started out with a full review of Megamet’s process landscape and a diagnosis of existing problems.

The installation and commissioning process included careful process diagnostic and tailoring of gas compositions to ensure right furnace gas distribution and smooth operation.

In addition, Linde trained Megamet engineers on all aspects of SINTERFLEX so that they are now able to use the system independently and optimize it in response to product changes. All in all, Linde engineers worked with Megamet over a period of six months to tailor SINTERFLEX to Megamet’s precise needs. And this support doesn’t end with successful operations – Linde engineers are always at hand if Megamet requires further assistance.

Improved carbon content uniformity with SINTERFLEX

Megamet has significantly improved the carbon content uniformity of sintered parts with SINTERFLEX.

Figure 1 illustrates variations in part quality before SINTERFLEX and how this has now changed with SINTERFLEX.

Megamet has mandated that only parts with a carbon content between 0.4% and 0.6% are within specification and can be used in production without further processing.

Results:

→ Before SINTERFLEX, the carbon content of parts was repeatedly too low, requiring post-processing.
→ With SINTERFLEX, the quality of the sintering atmosphere increased considerably, remaining within specification. Variations were reduced and the standard deviation dropped from 0.15 to a mere 0.03%.

SINTERFLEX® is a registered trademark of The Linde Group.
Reduced sintering costs with SINTERFLEX

Megamet was also able to substantially decrease sintering costs with SINTERFLEX. The company almost doubled the volume of parts that were within specification and significantly reduced the number of parts that needed post-processing or had to be scrapped.

Figure 2 illustrates the rejection statistics before and after implementation of SINTERFLEX.

Classification of rejection statistics by Megamet:

- In spec.: part is within specification and needs no more post-processing.
- Workable: further processing is required.
- Unusable: part is rejected and officially scrapped.

Results:

- The volume of parts in spec. almost doubled from 31% to 61%.
- The volume of parts that needed post-processing decreased significantly from 51% to 36%.
- The volume of parts that were unusable decreased from 18% to a mere 3%.

"SINTERFLEX has greatly improved our ability to maintain carbon in our carbon steel materials. Linde works through the challenges with us to meet our continuing goals for process quality."

Philip McCalla, Operations Manager
Getting ahead through innovation.

With its innovative concepts, Linde is playing a pioneering role in the global market. As a technology leader, it is our task to constantly raise the bar. Traditionally driven by entrepreneurship, we are working steadily on new high-quality products and innovative processes.

Linde offers more. We create added value, clearly discernible competitive advantages, and greater profitability. Each concept is tailored specifically to meet our customers’ requirements — offering standardized as well as customized solutions. This applies to all industries and all companies regardless of their size.

If you want to keep pace with tomorrow’s competition, you need a leader in industry technology by your side for which top quality, process optimization, and enhanced productivity are part of daily business. Linde will not only be there for you but with you. After all, joint activities form the core of commercial success.

Linde – ideas become solutions.

Linde North America, Inc.
575 Mountain Ave., Murray Hill, NJ 07974 USA
Phone 1-800-755-9277, sales.lg.us@linde.com www.lindeus.com

Linde North America, Inc. is a member of The Linde Group. Linde is a trading name used by companies within The Linde Group.

“Linde” and the Linde logo are trademarks of The Linde Group. © The Linde Group 2014. All rights reserved.