

# Machine component **NETSleeve®**

The customer is one of the leading cast iron foundries in Turkey producing castings for the automotive, agricultural and construction industries with an annual capacity of 60,000 Mt with both machine and hand moulding. To optimise cleaning costs and improve efficiency the NETSleeve® technology was first trialled in 2017 and has been in serial production since 2018.



## NET-Technology®?

**The larger the feeder neck diameter, the more reliable the feeding of the casting. However, when the riser contact exceeds a certain size, the effort required to remove the remaining riser rest is significantly greater. With increasingly complex casting shapes and the requirement for feeding in harder-to-reach areas, removing the risers becomes even more time-consuming.**

A significant proportion of the cost incurred during the production of castings occurs in the cleaning department. This is due to the excessive cutting and grinding required to remove the risers sand gating systems. The NET-Technology® range of solutions, developed by GTP Schäfer, were specifically designed to optimize riser removal and reduce costs.

The standard NET-Technology® product range from GTP Schäfer makes it easy to remove risers with contact size up to 150 mm using regular tools within the normal process flow. This eliminates costly and time-consuming post-casting processing.

Within the NET-Technology® product range, NETCore® technology addresses the issues associated with the use of large risers and traditional breaker cores. With these applications, there is a high risk of the breaker core sintering to the casting and increased effort required to remove the riser.

With the NET-Technology® product range from GTP Schäfer, all risers and associated contacts can be removed easily to reduce costs and increase casting quality.



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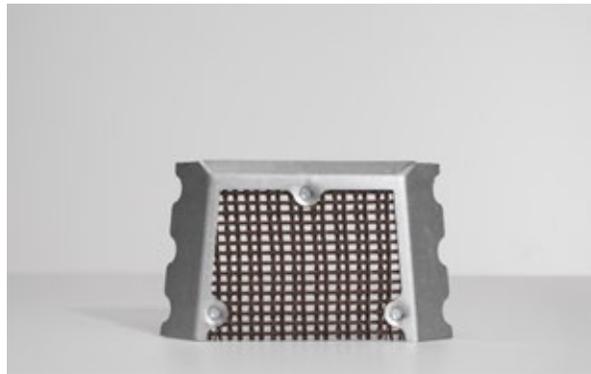
## Product range

### NETCore®



Breaker core technology that can be applied with highly exothermic THERMO-Riser®, cylindrical or cylindrical reduced EXO-ISO fiber sleeves, consisting of a highly temperature-resistant ceramic medium to prevent sintering combined with a refractory mesh placed directly at the casting surface. This creates the formation of a clean predetermined breaking point along the entire riser neck cross-section.

### NETFrame®



The NETFrame® has been specially designed for the removal of large side risers. It is positioned in the riser neck adjacent to the casting surface. The refractory mesh creates a defined and predetermined fracture point making the riser easy to remove.

### NETSleeve®



Specifically designed for use in hand molding. The elimination of the traditional breaker enables optimized and reliable feeding of the casting due to the increased contact of the riser. With the addition of the refractory mesh, easy riser removal is established with a predetermined fracture point within the riser neck.

# NETSleeve®

NETSleeve® technology is the successful combination of conventional riser technology with NET-Technology®. The refractory mesh is built into the riser during production, eliminating the necessity for traditional breaker cores. The inclusion of the mesh at the casting surface ensures a predetermined fracture point directly at the casting surface, allowing far larger riser/casting contacts to be employed, over and above that of traditional breaker core technology.

This NET-Technology® enables the entire cross-section of the riser to be employed improving process reliability and efficiency, whilst at the same time ensuring that the riser residue can be easily and efficiently removed at the post-casting stage.



Reduced  
cleaning costs



Less scrap



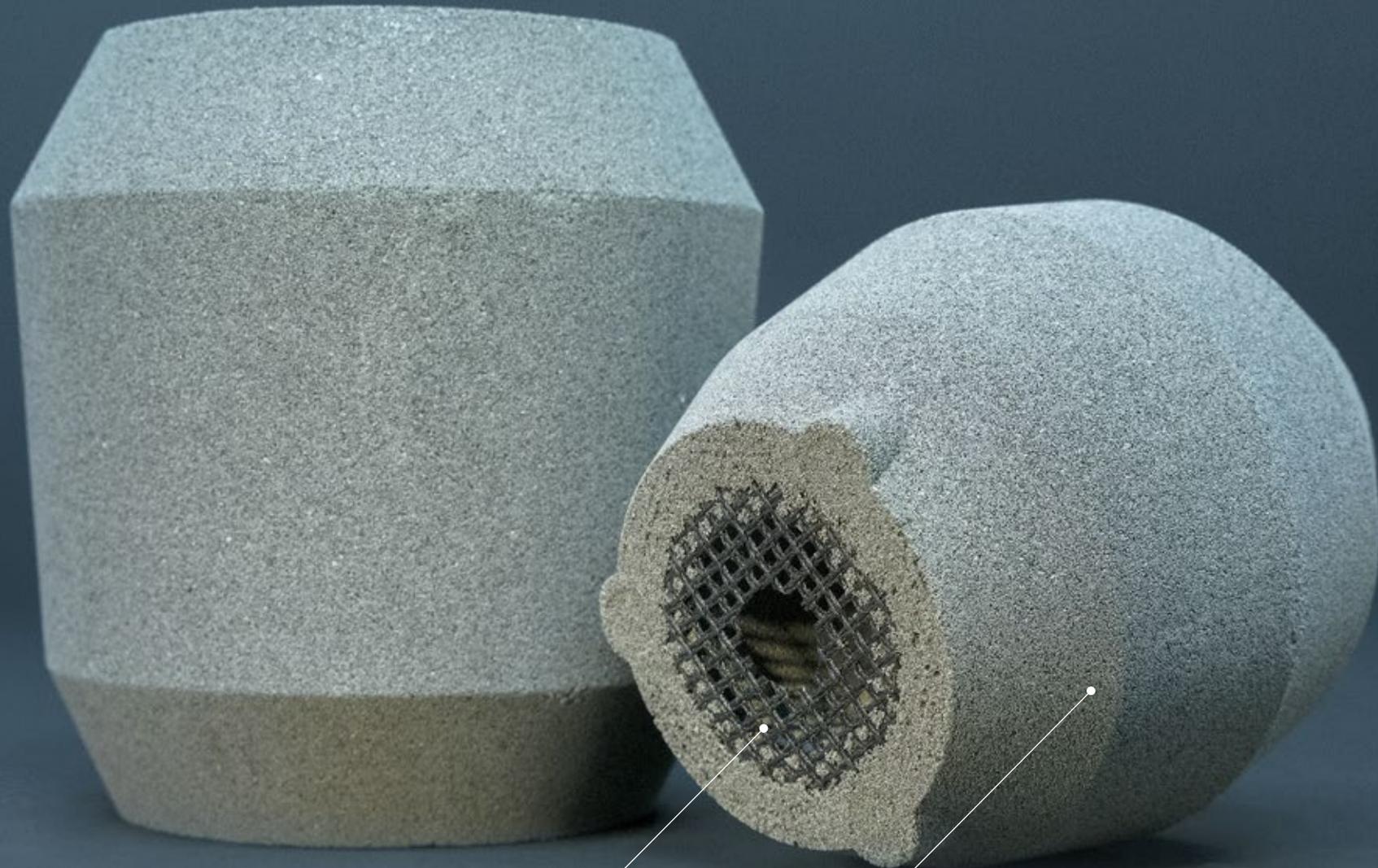
Knock off  
up to 450 mm



Significant  
time savings



Reduced  
risk of injury



**High temperature resistant tissue**

**Exo-Iso feed mass**

## Customer opinion

**Problem:** A variety of mini risers are used for in the production of castings with modulus ranging from 1.9 to 3.2 Cm without breaker cores with contacts from 40 to 65 mm. Due to the size of the contact it is not possible to remove the riser with traditional mechanical means forcing the foundry to adopt a lengthy cutting process.

**Challenge:** The efficient removal of the feeder residue by simple mechanical methods and eliminating the lengthy cutting process allowing the customer to increase the number of castings processed per shift.

<b>Customer</b>	Cast iron foundries
<b>Application</b>	Compressor cover casting
<b>Material</b>	EN-GJS- 400 LT18
<b>Casting temperature</b>	1.380°C
<b>Weight</b>	135 kg
<b>Feeding technology</b>	Thermo risers with modulus 1.9 (x4), 2.1 (x9) and 3.2 (x2) Cm
<b>Solution</b>	Replacement of traditional risers with NETSleeve® TGC 810o N15, TGC 990o N15 and TGC 2329o N20.



**Advantages with NETSleeve®**

*„Since the application of NETSleeve® technology into our hand moulding process the ease in which large castings pass through the cleaning department has improved, with time the time taken for riser removal considerably reduced, this has allowed us to increase the throughput of castings by 100%“*

**Production Manager**

## Process steps in comparison

The case study below details the time saved in the processing of castings and removal of risers through the cleaning department with and without NETSleeve® technology.

Process step	Without NETSleeve®	With NETSleeve®
Knock off of riser rest	Not possible	2 min
Cutting time	20 min	not applicable
Grinding riser rests	10 min	5 min
Total time	30 min	7 min

## Results

The riser was able to be removed by traditional mechanical methods (hammer) without the need for cutting in a very short time reducing the cutting and grinding times to a minimum. The foundry was able to increase the output per shift from 3 castings to 6 castings due to the optimisation of cleaning by the use of NETSleeve® technology.



*NETSleeve® on pattern*



*NETSleeve® after molding*



*Blasted component*



*Break off point with NETSleeve®*



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