



DISA Aluminium

The power of green sand for aluminium

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DISA
A Norican Technology

Introducing green sand for aluminium



A better option for aluminium casting

Green sand iron casting is proven and trusted to deliver outstanding quality – efficiently and at minimum cost. Now foundries and manufacturers worldwide are recognising the power of green sand for aluminium components.

Aluminium gravity and low-pressure green sand casting is perfect for:

- foundries that want to start producing aluminium
- automotive castings, especially for chassis and powertrain
- other thin walled cored castings

Why choose green sand for aluminium?

The aluminium green sand casting process delivers the highest production speeds and breathtaking cost efficiency. A single DISAMATIC line replaces up to 30 aluminium die casting machines.

The low pressure pouring process for DISAMATIC handles the most demanding applications, maintaining or improving current component quality and physical properties.

In the right applications, the ultra-flexible green-sand-based process has lower costs than other processes.

Updating component designs becomes quick and easy, and there's no need for energy-hungry tooling temperature control either.

A green sand aluminium process can manufacture:

- in low volume, medium volume or high volume
- uncomplicated parts or safety-critical components with low porosity and excellent mechanical properties

The logical choice



Grow profit margins

For the right aluminium applications, vertically or horizontally parted green sand moulding is the perfect financial solution.

Very high production speed helps deliver a low overall cost per component.

Other advantages include:

- minimal maintenance costs
- operating with an extremely small workforce
- low tooling costs compared to other processes; only pattern plates are required

Deliver better designs...

The low pressure pouring process for DISAMATIC offers lower porosity, excellent mechanical properties and better weldability.

Aluminium components can have intricate geometries with closed cross sections and very thin walls, saving weight – and material costs too.

- Produce a wide range of alloys, wall thicknesses and casting sizes to tight tolerances
- Easily incorporate heavy complex cores in designs
- Extremely long tooling lifetime (half a million cycles or more)

...with a flexible process

With green sand moulding, updating pattern plates and core masks when designs change is quick, easy and inexpensive. You can efficiently manage short, medium and long runs on the same line too.

- Set complex cores quickly and automatically
- Fast pattern changes (60 seconds)
- Flexible feeding solution with ram-up sleeves

“High production speed helps deliver a low overall cost per component.”

Helping you switch to aluminium



Total support for green sand aluminium applications

As the world's foremost green sand moulding expert, DISA is the perfect partner for aluminium sand casting production. Our global team of Application consultants can help you build and enhance all aspects of your foundry's green sand aluminium casting process.

The DISA Application team can:

- carry out feasibility studies
- specify the process and correct machines for your castings
- design runners and feeders
- convert patterns
- provide ongoing consultancy
- arrange training

Just starting out or looking to improve? We support:

- iron foundries adding aluminium production
- existing green sand aluminum foundries
- aluminium foundries wanting to move to a green sand process
- companies with no foundry experience at all

Learn from DISA's academic and commercial partners

DISA has longstanding aluminium casting R&D relationships with leading universities and foundry suppliers.

- A proven opportunity to test new aluminium applications
- Work with the leading minds in foundry technology from multiple universities

Access Norican Group's aluminium expertise

Tap into decades of aluminium casting experience through DISA's sister companies Italtipresse Gauss, StrikoWestofen and Wheelabrator, part of Norican Group.

- Access a huge range of aluminium-specific products, from melting to blasting
- Premium support through the global Norican network: a single point of contact for every foundry need

Gravity aluminium pouring



The right process for the right parts

Gravity pouring can be the perfect solution for many aluminium components. Gravity sand casting for aluminium parts is:

- low cost
- proven over many years
- fast (20 to 500 moulds per hour)
- flexible, with quick pattern changes

Flexible, economical and incredibly fast

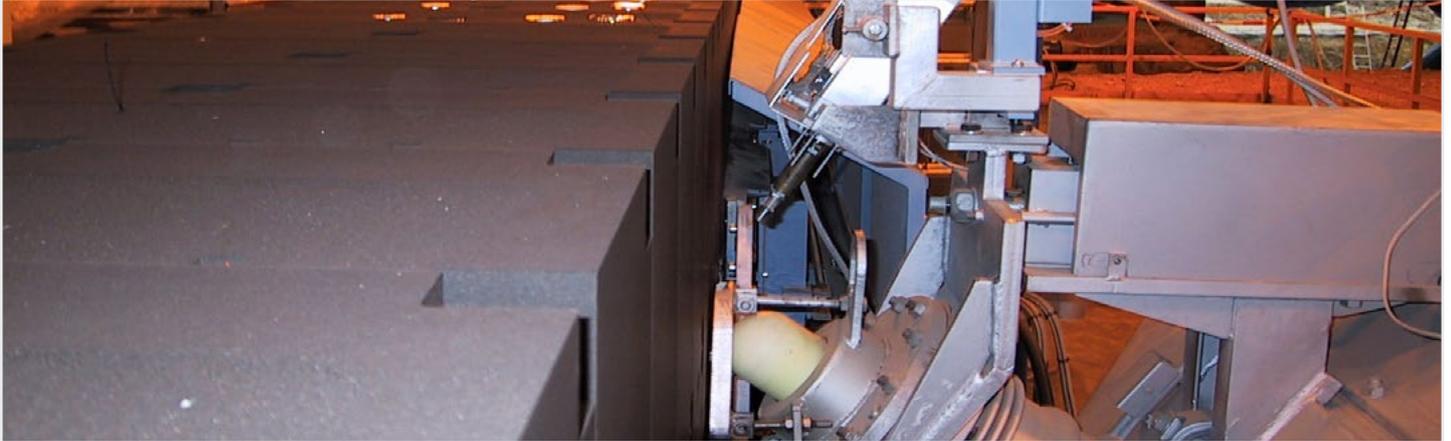
Gravity pouring is suitable for any production volume and all but the most mechanically demanding applications. DISA can deliver a complete moulding line, with options like automatic or manual pouring from the top of the mould.

For short to medium-run jobbing applications, DISA MATCH and DISAMATIC moulding machines are perfect. The DISAMATIC D₃ and DISA 240-250 take care of longer runs.

They all offer:

- high-efficiency production of quality castings
- quick pattern changes for maximum uptime and flexibility
- re-use of existing pattern plates

Low pressure aluminium pouring



Safety-critical aluminium parts? No problem

The innovative low pressure pouring process for DISAMATIC paves the way for low cost, high performance aluminium component manufacturing. The laminar bottom-filling technology using a pressurised furnace is well proven and reliable, producing parts with low porosity and outstanding mechanical properties.

With a tightly controlled pouring rate and correctly designed runner system, low pressure pouring reduces turbulence during mould filling and so decreases oxide formation and hydrogen pick-up – reducing aluminium casting porosity and significantly improving mechanical properties.

This delivers:

- improved weldability compared to gravity casting
- increased available mould surface
- higher yields – up to 20%
- a cleaner, safer working environment

A potent process

Suspension arms, gearbox housings, intake manifolds: low pressure pouring can handle many of the most demanding aluminium applications. But it retains all the classic green sand moulding advantages like speed, flexibility, complex coring and low cost tooling.

Moulding production is almost identical to iron applications, with state-of-the-art automatic casting handling and de-coring that reinforces its speed advantage. Existing component designs typically only require minor adjustments to take full advantage of low pressure pouring.

Accelerate your aluminium casting

With global demand for aluminium components growing quickly, low pressure pouring combines high volumes and superb mechanical performance with green sand's fantastic speed, economy and flexibility.

The DISAMATIC D3 and, for larger castings, the DISA 240-250 deliver the horsepower required for rapid, precise production.

Whatever your production volume and velocity, we have the equipment to support you.

“With the low-pressure pouring process on the DISAMATIC line, we can produce high volumes of aluminium parts with complex geometry and good mechanical properties. Low casting porosity means it is not necessary to waterproof most components. This process has allowed us optimize the geometry of some existing component designs to save weight, and offers an economic solution”

*Julio Juarez,
Plant manager, Saint Jean Industries Valladolid.*

Trust Norican with your process



Depend on DISA – and Norican too

DISA developed vertical green sand moulding and has decades of aluminium casting expertise to share. But as an integral part of Norican Group, we offer global corporate backing for aluminium production too.

Norican Group's brands have all the skills, experience and equipment to build a complete green sand aluminium foundry, help you operate it perfectly – and keep it running that way.

- StrikoWestofen: melting and pouring equipment
- DISA: sand plant and moulding line
- Wheelabrator: surface preparation
- Norican Digital: data collection and IIoT technology

Drawing from a vast toolbox of technologies, machines and processes, Norican builds sophisticated, integrated solutions that match your production needs perfectly.

The complete aluminium solution

Norican is your strong global partner, with joint know-how that extends across technologies, sectors and geographies. Norican's international service and support network gives you one point of contact – whatever you need, whenever you need it.

That means total support throughout the lifetime of your aluminium solution, with easy access to service and aftermarket upgrades. From initial feasibility study through installation to ongoing operations, we have the knowledge and the network.

Norican Group: *greater than the sum of its parts.*

For more information on green sand aluminium production, contact your local sales representative.

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