

Industeel



ArcelorMittal

Steel Solutions for Plastic Moulding with Superplast®



Our corporate values

The ArcelorMittal group is committed to «transforming tomorrow». At Industeel, we uphold four fundamental values that will help us meet this far-reaching challenge.



ArcelorMittal

Boldness

We are there to help you succeed in your boldest projects. Let our innovation materialise your boundless imagination.

Sustainability

Our solutions are built to last, optimizing the reliability and life cycle costs of your critical applications and structures. We can deliver steel plates with optimised resistance to challenging service conditions to make your projects even more reliable. At the same time, we are developing cleaner processes and greener products for a more sustainable environment.

Quality

Industeel has a longstanding reputation for quality. We supply plates for a wide range of critical applications in which the quality of the steel is crucial to the safety of equipment. For this reason, the performance levels of Industeel products often go beyond the requirements of applicable standards.

Leadership

Industeel is a leader in the field of special steel plates. Much more than a mere material supplier, we work hand in hand with customers, experts and international organizations to drive progress and deliver innovative solutions to the challenges faced by industry.

Industeel

Special steel plates and blocks producer

Steel making ▼



Hot rolling ▼



Rolled product ▼



Industeel is a subsidiary of ArcelorMittal producing special steel hot rolled plates, forged blocks, ingots and formed pieces in **the world's widest dimensional range**.



Specializing in carbon, low alloys, and stainless steels, Industeel offers a complete range of **high quality steel grades** designed to meet the most stringent specifications.

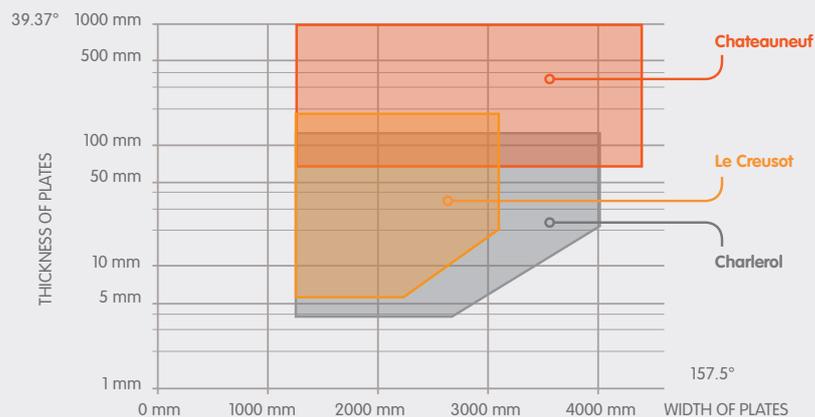


Thanks to its **3 integrated mills** located in Belgium and France, Industeel meets all customer requirements providing the widest dimensional range.



Tailor-made solutions adapted to your projects thanks to a rich metallurgical know-how.

The widest dimensional range of plates and blocks worldwide



Our expertise

First class producer of high quality mould steels

Careful selection of raw materials to produce **high purity steel** melted by electric arc furnace

Fine tuned secondary metallurgy, vacuum and special degassing processes **for high cleanliness steels** (AOD, VOD).

Bottom poured ingots forged, based on monitored forging program and **lasted know-how techniques**

Automatic quenching devices and high precision tempering furnaces create a **homogeneous hardness and microstructure** through the cross section

100% inspection of internal soundness by UT examination and hardness control

Electric arc furnace ▼



Forging press for thick blocks ▼



Rolling mill ▼



Hardness control ▼



Our added value

A world-class research centre for innovative tool steels

Our research centre carries out full characterization of end-user properties of our mould steel solutions, and provides our customers with a high-level technical support.

Providing **on-field technical assistance** to help our customers in the use of our steel solutions

An integrated welding workshop with an expertise in welding metallurgy and welding processes

Cooperation with research institutes and organizations on processing operations (machining, texturing, surface treatment)

One R&D department is fully dedicated to the development and optimization of forging and heat treatment processes

Edition of a **Superplast® userguide** with all technical informations and advices

Microscopy device ▼



Welding workshop ▼



Compression test specimen ▼



High level technical support ▼



Our high performance steel solutions for your plastic moulding applications

MOULD CORES AND CAVITIES

- **Mould components used to produce plastic parts that vary in size, complexity and applications.**
- **For all plastic moulding processes**
 - Injection moulding
 - Compression moulding
 - Blow moulding
 - Rubber moulding
- **Mould steel requirements**
 - Consistent cross section hardness
 - Polishability
 - Texturing
 - Repair weldability
 - Thermal efficiency

Steel Solutions

- > Superplast® 2738mod.
- > Superplast® 2738mod. HH

- > DIN 40 CrMnNiMo 8-6-4 (W 1.2738)
- > DIN 40 CrMnMo 7 (W 1.2311)

LARGE SIZE MOULDS

- **Mould components used to produce plastic parts that vary in size, complexity and applications.**
- **For all plastic moulding processes**
 - Injection moulding
 - Compression moulding
 - Blow moulding
 - Rubber moulding
- **Mould steel requirements**
 - Consistent cross section hardness
 - Polishability
 - Texturing
 - Repair weldability
 - Thermal efficiency
- **Hardness homogeneity through the whole block**
- **Improved texturing ability**

Steel Solutions

- > Superplast® 2738mod. Premium
- > Superplast® 2738mod. HH Premium

Our high performance steel solutions for your plastic moulding applications

WEAR-RESISTANT MOULDS

- **Mould components for abrasive melts or for high volume parts.**
- **For most plastic moulding processes**
 - Injection moulding
 - Compression moulding
 - Extrusion
- **Mould steel requirements**
 - Hardness
 - Strength
 - Texturing
 - Polishability
 - Repair weldability

Steel Solutions

- > Superplast® 400
- > DIN X 38 CrMoV 5-1 (W 1.2343)
- > DIN 55 NiCrMoV 7 (W 1.2714)

STAINLESS STEELS

- **Mould base parts for chemically aggressive plastics or for corrosive working conditions.**
- **For most plastic moulding processes**
 - Injection moulding
 - Blow moulding
 - Compression moulding
 - Extrusion
- **Mould steel requirements**
 - Corrosion resistance
 - Machinability
 - Hardness
 - Dimensional stability

Steel Solutions

- Holders :**
 - > Superplast® Stainless
 - > DIN X 33 CrS 16 (W 1.2085)
- Cores and cavities :**
 - > DIN X 36 CrMo 17 (W 1.2316)
 - > DIN X 42 Cr 13 (W 1.2083)

Steel solutions for Mould cores and cavities

BRANDED SOLUTION

Superplast® 2738mod. (HH)

Superplast® 2738mod. (HH) has been designed by Industeel R&D centre to provide mould makers and moulders with an optimal solution for high quality moulds.

Thanks to its original chemistry and advanced manufacturing process, Superplast® 2738mod. is specified for moulds that require excellent through-hardness, uniform structure for etch-graining, and high surface finish.

- Delivery condition: hardened and tempered
- Delivery hardness: 290-330 HB or 330-360 HB
- Dimensional range: up to 1300 mm thick

Front bumper cavity in Superplast® 2738 mod. ▼



BASIC SOLUTION

Industeel 1.2311

(DIN 40 CrMnMo 7)

Industeel 1.2311 is the economical choice for small-size dimensions moulds with medium surface finish requirements.

- Delivery condition: hardened and tempered
- Delivery hardness: 285-325 HB (or on request)
- Dimensional range: up to 600 mm thick

USUAL SOLUTION

Industeel 1.2738

(DIN 40 CrMnNiMo 8-6-4)

Industeel 1.2738 is a prehardened steel grade particularly suitable for large-size moulds. Its good through-hardenability provides uniform hardness through thickness, hence its use for large-size or complex moulds such as those needed for automotive bumpers.

- Delivery condition: hardened and tempered
- Delivery hardness: 280-325 HB (or on request)
- Dimensional range: up to 600 mm thick

	DIN EN ISO 4957	TYPICAL CHEMICAL ANALYSIS (MASS WEIGHT PERCENT)							
		C	S	Si	Mn	Ni	Cr	Mo	Other
Superplast® 2738mod.	26 CrMnMoB 6-6-4	0.26	0.002	0.10	1.45	0.30	1.50	0.55	B
Superplast® 2738mod. HH		0.26	0.002	0.10	1.50	0.30	1.60	0.65	B
Industeel 1.2311	40 CrMnMo 7	0.40	0.002	0.30	1.50		1.90	0.20	
Industeel 1.2738	40 CrMnNiMo 8-6-4	0.40	0.002	0.30	1.50	1	1.90	0.20	

Steel solutions for Mould cores and cavities

SUCCESS STORY

Superplast® 2738mod. for improved texturing ability

Superplast® 2738mod. is the optimal time and cost effective mould steel solution. Based on an original chemistry and an optimised process, Superplast® 2738mod. provides added value to the whole customer chain of plastic moulding :

In the following example, our customer needed a large-size mould (550mm-thick) for a dashboard cavity with a special texturing requirement.



Cavity made of standard W 1.2738 was rejected due to segregation streaks



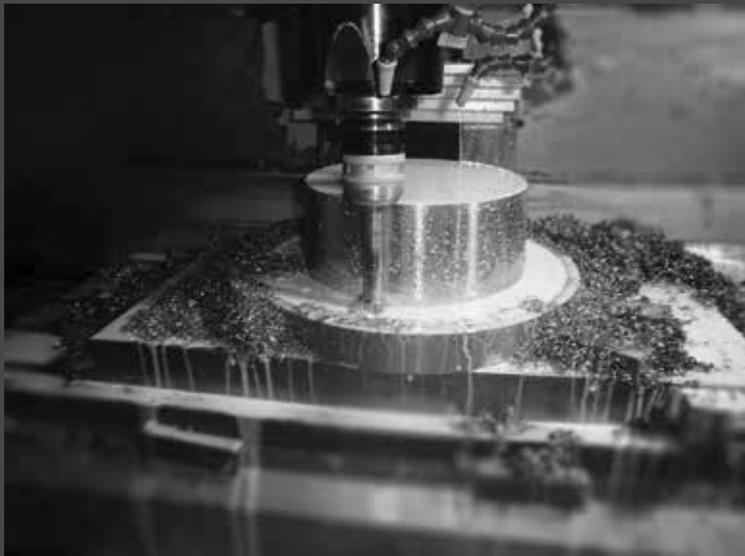
Cavity made of Superplast® 2738mod. was approved by end user

SUCCESS STORY

Superplast® 2738mod. for Rubber moulding

Thanks to its metallurgy based on lower carbon content and optimised addition of alloying elements, Superplast® 2738mod. provides a comprehensive solution associating good machinability, high mechanical characteristics and ability to meet surface finish requirements.

In the following example, Superplast® 2738mod. was used to manufacture a rubber mould dedicated to produce metal reinforced rubber seals. "Superplast® 2738mod. is really a quality material with excellent machining conditions and homogeneous hardness", concluded the customer.



Rough machining of Superplast® 2738mod. plate ▲



Rubber mould component after machining ▲

Steel solutions for Wear-resistant moulds

BRANDED SOLUTION

Superplast® 400

Moulding of high abrasive melts and long production runs require high hardness to withstand wear. Superplast® 400 is a ready-for-use prehardened steel grade providing high hardness and robust mechanical strength, while maintaining good moldmaking properties (machinability, ability to nitriding or hard chrome plating).

Thanks to its original chemistry and optimized heat treatment, Superplast® 400 is specified for moulds that require high wear resistance, excellent dimensional stability and reliable processing.

- Delivery condition: hardened and tempered
- Delivery hardness: 350-380 HB or 360-400 HB
- Dimensional range: up to 610 mm thick

Front grid mould in Superplast® 400 ▼



BASIC SOLUTION

Industeel 1.2714

(DIN 55 NiCrMoV 7)

Industeel 1.2714 is a prehardened grade characterized by high hardness, good toughness and high wear toughness.

- Delivery condition: hardened and tempered
- Delivery hardness: 360-400 HB (or on request)
- Dimensional range: up to 320 mm thick

USUAL SOLUTION

Industeel 1.2343

(DIN X 38 CrMoV 5-1)

Industeel 1.2343 is a hot work tool steel with improved toughness and homogeneous structure. Thanks to its high wear resistance and mechanical strength, 1.2343 is suitable for abrasive melts or high pressure moulding conditions.

- Delivery condition: annealed
- Delivery hardness: max 229 HB
- Dimensional range: up to 350 mm thick

	DIN EN ISO 4957	TYPICAL CHEMICAL ANALYSIS (MASS WEIGHT PERCENT)							
		C	Si	Mn	Ni	Cr	Mo	V	Other
Superplast® 400	25 CrMnNiMoB 8-5-3	0.25	0.10	1.15	0.75	2.0	0.60	0.07	B
Industeel 1.2714	55 NiCrMoV 7	0.55	0.30	0.90	1.70	1.10	0.50	0.1	
Industeel 1.2343	X 37 CrMoV 5-1	0.39	0.30	0.40		5.15	1.25	0.35	

Steel solutions for Corrosion-resistant holders

BRANDED SOLUTION

Superplast® Stainless

Superplast® Stainless is a low carbon free machining stainless holder steel. Thanks to its original chemistry and optimized heat treatment, Superplast® Stainless provides much higher machinability than standard 1.2085 with the same corrosion resistance. It is delivered ready-for-use for mould frames and mould cavities with standard surface finish requirements.

- Delivery condition: hardened and tempered
- Delivery hardness: 290–330 HB
- Dimensional range: up to 350 mm thick

Stainless mould ▼



USUAL SOLUTION

[FOR HOLDERS]

Industeel 1.2085

(DIN X 33 CrS 16)

Industeel 1.2085 is a mould steel with good corrosion resistance and improved machinability thanks to sulphur addition. It is mainly used for mould frames and holders with low surface finish requirements.

- Delivery condition: hardened and tempered
- Delivery hardness: 280–325 HB (or on request)
- Dimensional range: up to 350 mm thick

		TYPICAL CHEMICAL ANALYSIS (MASS WEIGHT PERCENT)					
	DIN EN ISO 4957	C	S	Si	Mn	Cr	Mo
Superplast® Stainless	X 7 CrS 12-12	0.07	0.12	0.15	1.40	12.0	
Industeel 1.2085	X 33 CrS 16	0.33	0.06	0.30	1.1	16.0	

Steel solutions for Stainless cores and cavities

IMPROVED SOLUTION

Industeel 1.2316

(DIN X 36 CrMo 17)

Thanks to its high chromium and molybdenum content combined with high cleanliness, Industeel 1.2316 is recommended for mould cores and cavities that require both excellent corrosion resistance and high surface finish (mirror polishing).

- Delivery condition: hardened and tempered
- Delivery hardness: 280–325 HB (or on request)
- Dimensional range: up to 150 mm thick

Stainless mould ▼



USUAL SOLUTION

Industeel 1.2083

(DIN X 42 Cr 13)

Industeel 1.2083 exhibits good corrosion resistance and high cleanliness. This grade is recommended for mould cores and cavities that require good corrosion resistance and good polishability.

- Delivery condition: hardened and tempered
- Delivery hardness: 280–325 HB (or on request)
- Dimensional range: up to 300 mm thick

		TYPICAL CHEMICAL ANALYSIS (MASS WEIGHT PERCENT)					
DIN EN ISO 4957		C	S (max)	Si	Mn	Cr	Mo
Industeel 1.2316	X 36 CrMo 17	0.40	0.002	0.35	0.90	16.0	1.03
Industeel 1.2083	X 42 Cr 13	0.40	0.002	0.35	0.60	13.0	-

Efficient and reliable steels for plastic moulding

Mould cores and cavities

BRAND	HARDNESS CONSISTENCY	MACHINABILITY	TEXTURING	REPAIR WELDABILITY	THERMAL CONDUCTIVITY
Superplast® 2738mod.	★★★	★★★	★★★	★★★	★★★
Superplast® 2738mod. HH	★★★	★★	★★★	★★★	★★
Superplast® Premium	★★★★	★★	★★★★	★★★	★★
W 1.2738	★★	★★	★★	★	★★
W 1.2311	★	★★	★★	★	★★

Wear-resistant moulds

BRAND	HARDNESS CONSISTENCY	MACHINABILITY	TEXTURING	REPAIR WELDABILITY	THERMAL CONDUCTIVITY
Superplast® 400	★★★	★★★	★★★	★★★	★★★
W 1.2343	★★	★	★★	★	★
W 1.2714	★★	★★	★★	★★	★★

Stainless solutions

BRAND	HARDNESS CONSISTENCY	MACHINABILITY	TEXTURING	REPAIR WELDABILITY	THERMAL CONDUCTIVITY
Superplast® Stainless	★★★	★★★	★	★★	★★★
W 1.2085	★★	★★	★	★★	★★
W 1.2083	★★	★	★★	★★	★★
W 1.2316	★★	★	★★★★	★★	★★

Industeel Distributors world presence





ArcelorMittal

For any information

Industeel France

Le Creusot Plant

56 rue Clemenceau
F-71201 Le Creusot Cedex
Tel + 33 3 85 80 52 56
Fax + 33 3 85 80 55 00

Châteauneuf Plant

118 rue des Etaings - BP 368
F- 42803 Rive de Giers Cedex
Tel + 33 4 77 75 21 29
Fax + 33 4 77 75 21 67

<http://industeel.arcelormittal.com>
www.arcelormittal.com

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