

**DISA**

A Norican Technology

**DISA**  
A Norican Technology

# World-class moulding technology

DISA MATCH

Norican Group  
Shaping Industry



**DISA**

A Norican Technology

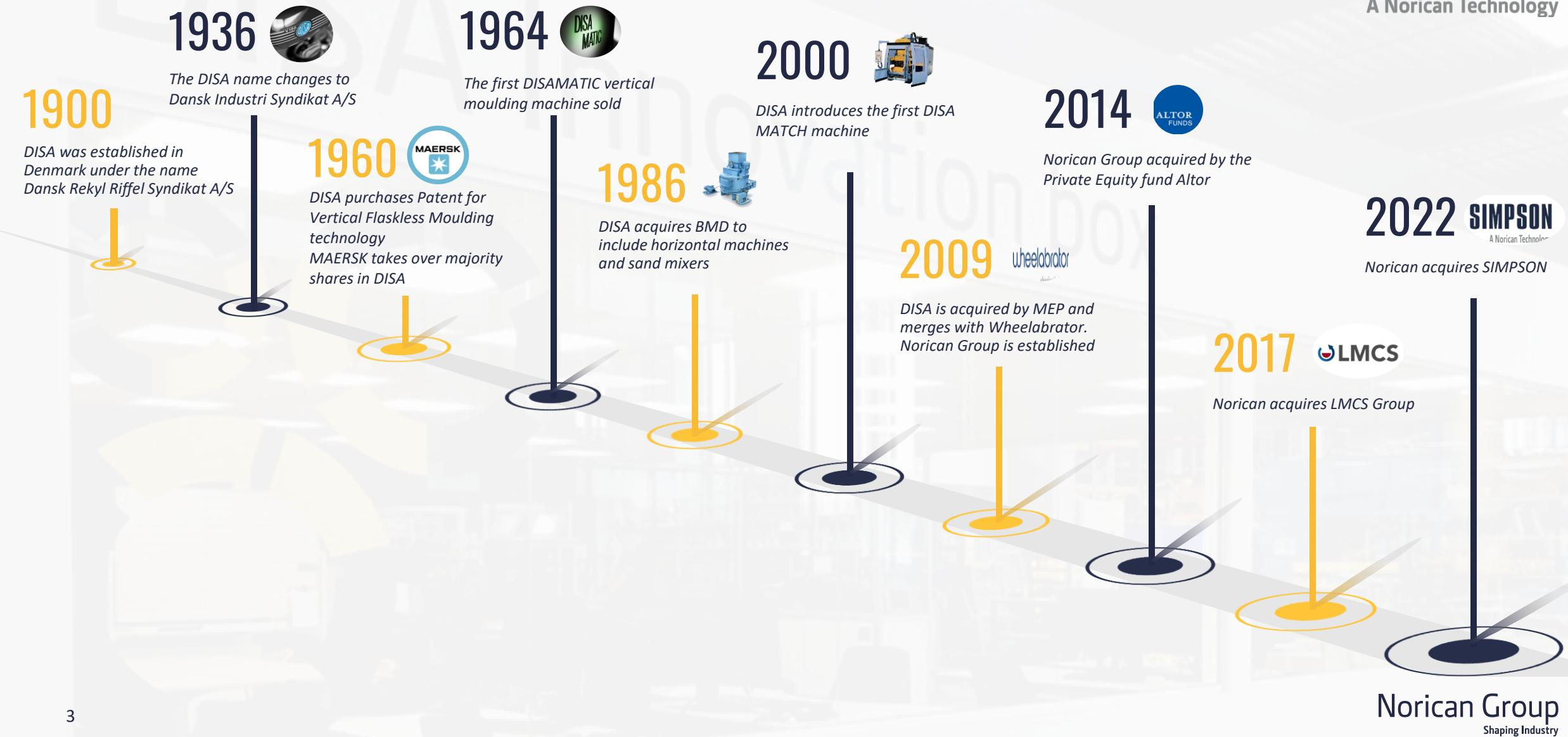
**DISA**  
A Norican Technology

**DISA delivers world-class moulding quality at high uptime with countless innovative features and continuous improvements while producing at the lowest cost per casting!**

**Norican Group**  
Shaping Industry

# DISA's History

**DISA**  
A Norican Technology



# About DISA



**60 years ago, DISA introduced vertical moulding technology.**

Today, we're reinventing the modern foundry: data-driven, sustainable, ever-improving.

As a complete foundry partner and the market leader in moulding equipment, we can turn an empty field or an existing building into a complete, future-proof foundry – anywhere in the world.

## Our customers

**1,258**

active customers

Americas: **180**  
Asia: **413**  
Eu: **356**  
IMEA: **309**

**3,584**

machines in operation

Americas: **307**  
Asia: **1,078**  
Eu: **710**  
IMEA: **1,489**

**No of countries our equipment is in operation**

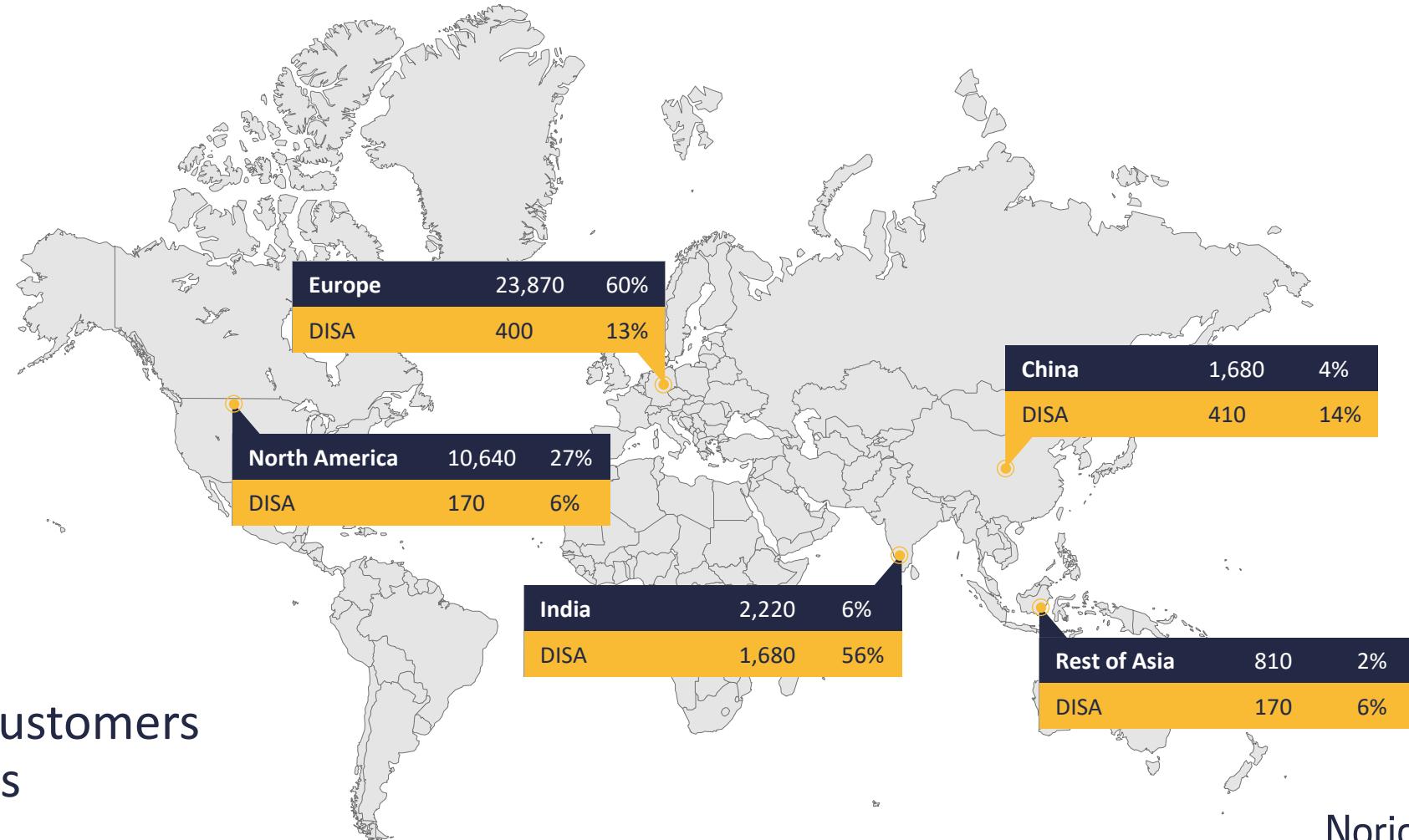
**65**

# Norican Group, DISA - The Customers We Serve



Largest installed base globally

Norican Group	40,000
DISA	3,000
Wheelabrator	29,510
Italpresse Gauss	1,490
StrikoWestofen	6,060
<b>Rest of the World</b>	<b>840</b>
DISA	170



# DISA green sand castings (examples)

**DISA**  
A Norican Technology



## Small castings

Example 1: 0,4 kg  
Example 2: 0,2 kg

## Big castings

Example 3: 72 kg  
Example 4: 60 kg

## High speed castings

Example 5: 4,5 kg  
Example 6: 1,5 kg

## Complex castings

Example 7: 22 kg  
Example 8: 30 kg

# DISA castings in various alloys (examples)



## Iron

Example 1: 13 kg  
Example 2: 9,0 kg

## Aluminium

Example 3: 5,0 kg  
Example 4: 2,4 kg

## Steel

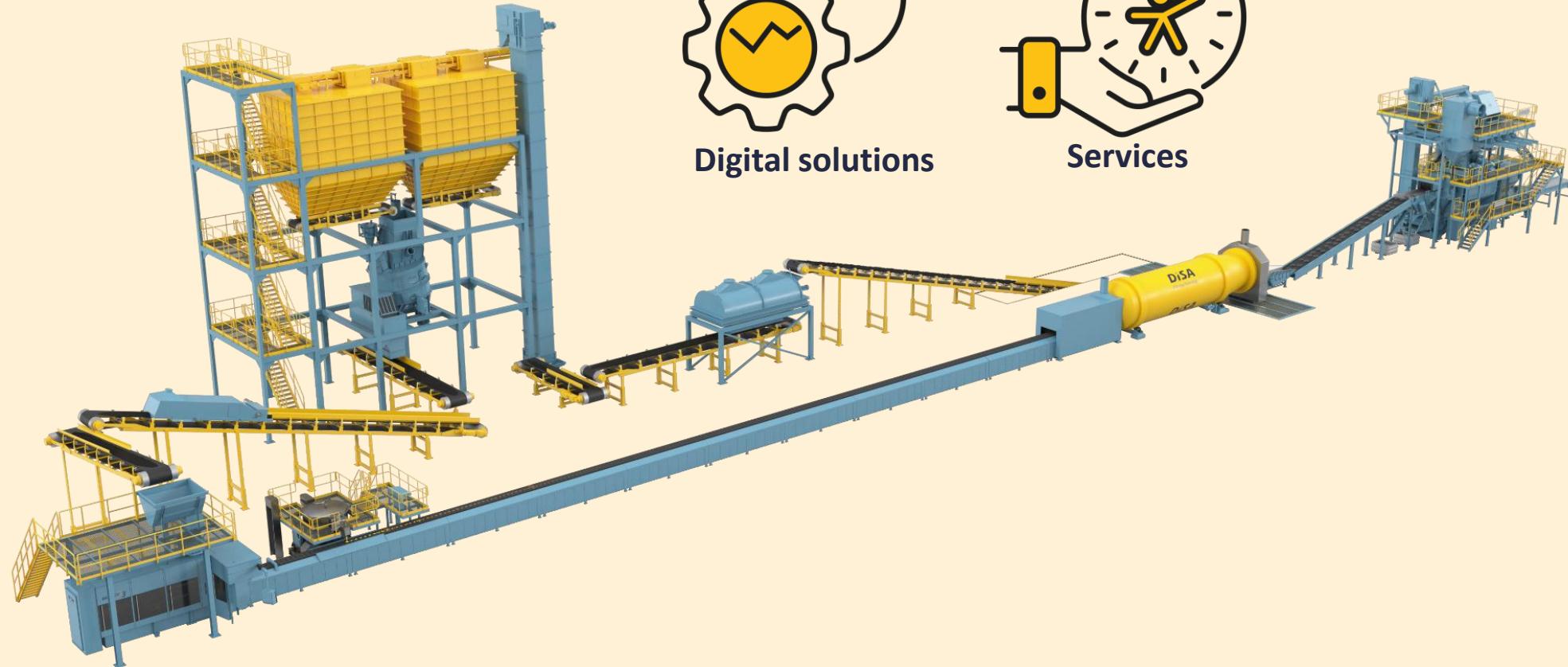
Example 5:  
Example 6:

## Bronze

Example 7: 2,6 kg  
Example 8: 1,2 kg

# DISA Complete Foundry Supplier

**DISA**  
A Norican Technology



- Moulding machine
- Cooling line
- Sand plant
- Sand mixer
- Cooling drum
- Shot blast
- Pouring Unit
- Aluminium
- Digital solutions
- Services



**DISAMATIC**  
(Vertical)

High-quality, high-speed production, low investment per kg of casting



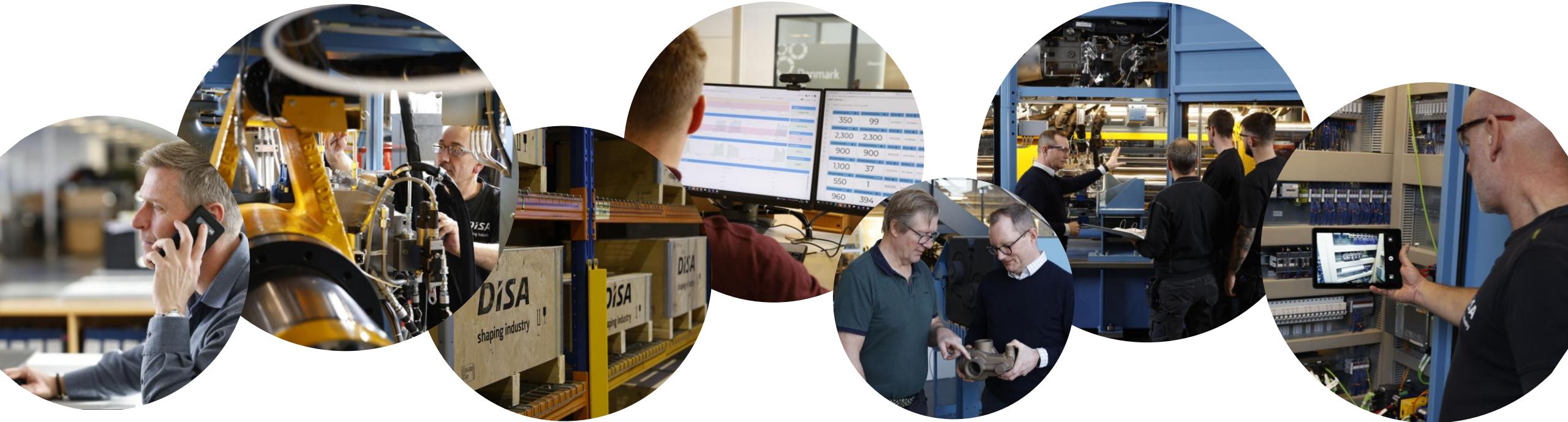
**DISA MATCH**  
(Horizontal Flaskless)

Medium speed of quality castings that require fast pattern changes for maximum uptime



**DISA FLEX**  
(Horizontal Flask)

Flexible solution for production of medium and heavy near net shape castings



**24/7 hotline support**



**Global onsite service**



**Regional warehouse**



**Equipment inspection (TOPS)**



**Process optimization (application)**



**Training (Operator and maintenance)**



**Remote services**



**Remote diagnostic service (RDS)**



**Remote virtual service (RSS)**

# DISA MATCH

Norican Group  
Shaping Industry

# DISA MATCH

**DISA**  
A Norican Technology



**DISA MATCH**  
**14/19, 16/20, 20/24**

**3 chamber size**  
14/19, 16/20, 20/24  
**3 moulding speeds**  
120, 150, 210 mph



**DISA MATCH**  
**24/28**

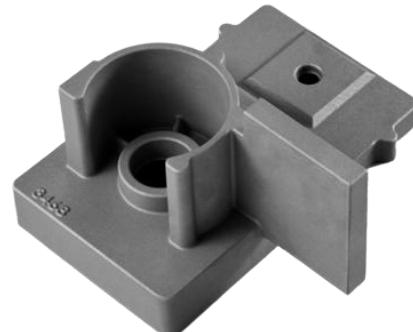
**1 chamber size**  
24/28  
**2 moulding speeds**  
120, 155 mph



**DISA MATCH**  
**28/32, 32/32**

**2 chamber size**  
28/32, 32/32  
**1 moulding speed**  
100 mph

# Example of castings produced on DISA MATCH



**MATCH 14/19**  
**MATCH 16/20**  
**MATCH 20/24**



**Casting weight:**  
Up to 36 kg (79 lb )  
**Casting dimension:**  
Up to 430 x 530 mm (17x21")  
**Capacity:**  
Up to 12.000 t/year (13,200 US t)



**Sizes:**

- 14x19 (355x482mm)
- 16x20 (406x508mm)
- 20/24 (508x609mm)

# Example of castings produced on DISA MATCH



**MATCH 24/28**



**Casting weight:**  
Up to 36-90 kg (198 lb)  
**Casting dimension:**  
Up to 550 x 650 mm (21.7x25.6")  
**Capacity:**  
Up to 15.000 t/year (16,500 US t/y)



**Sizes:**  
• 24x28 (711x609mm)

# Example of castings produced on DISA MATCH 32/32

**DISA**  
A Norican Technology



**MATCH 28/32**  
**MATCH 32/32**



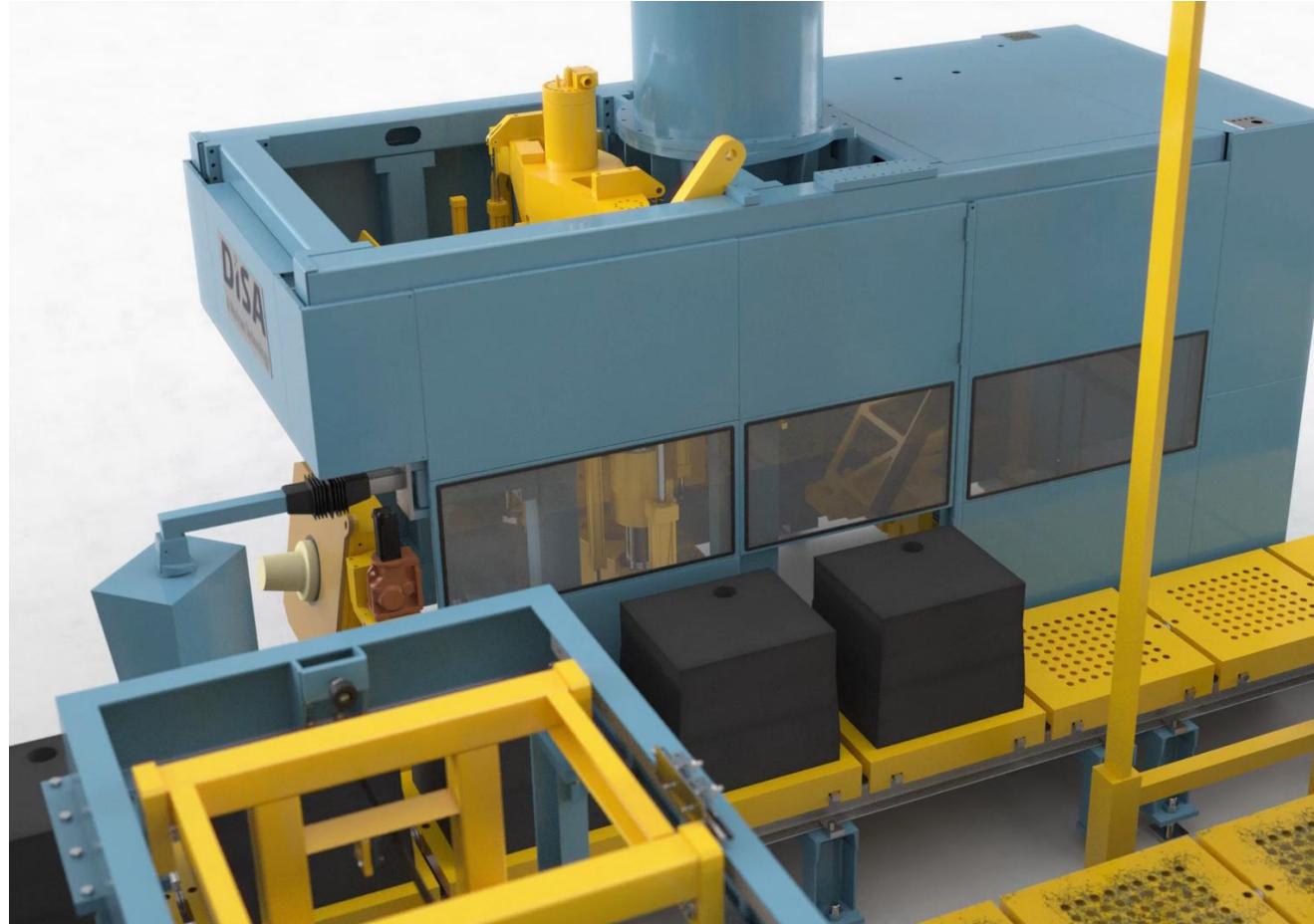
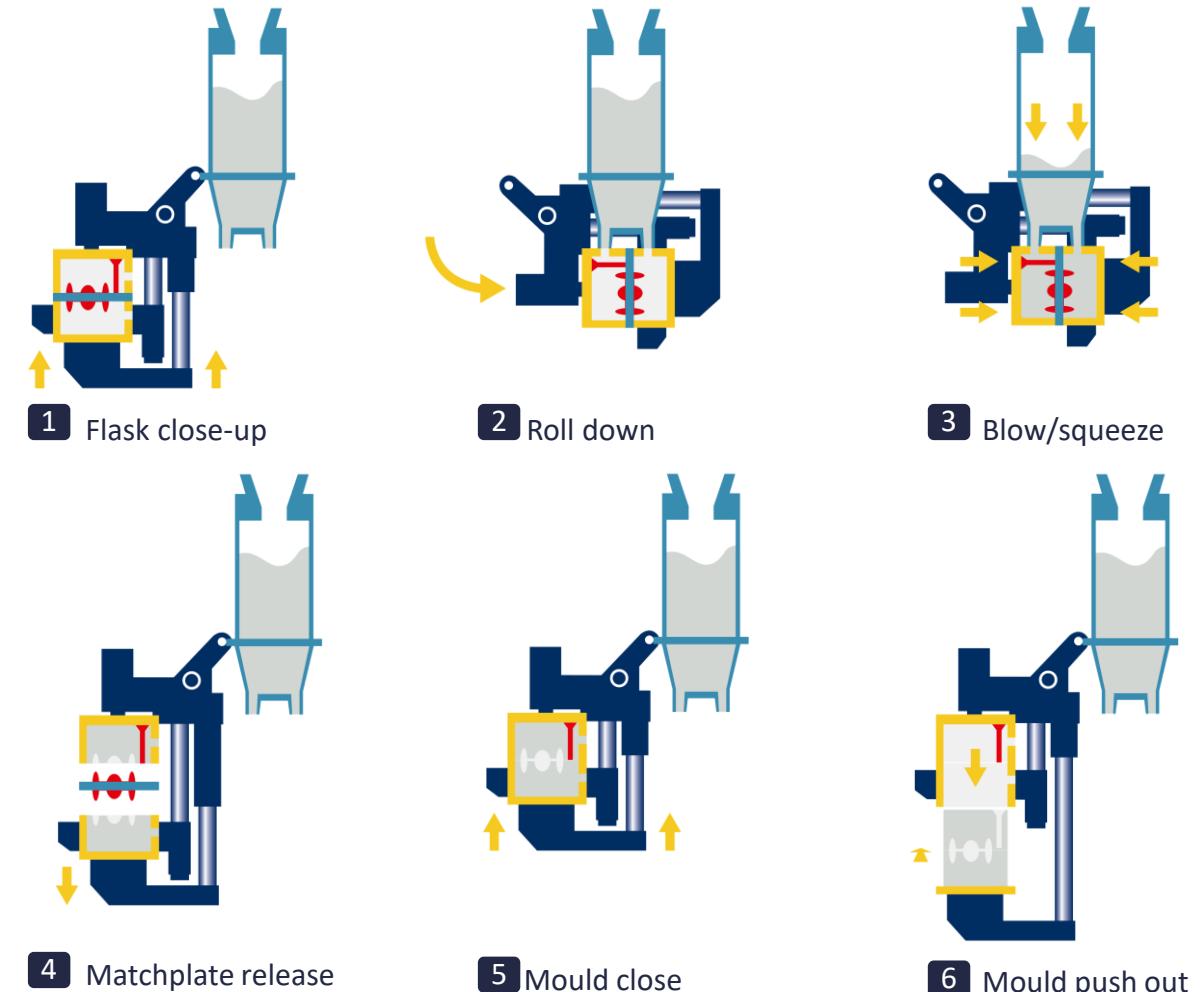
**Casting weight:**  
Up to 90-128 kg (282 lb )  
**Casting dimension:**  
Up to 766-756 mm  
**Capacity:**  
Up to 20.000 t/year



**Sizes:**  
• 32x32" (812x812mm)

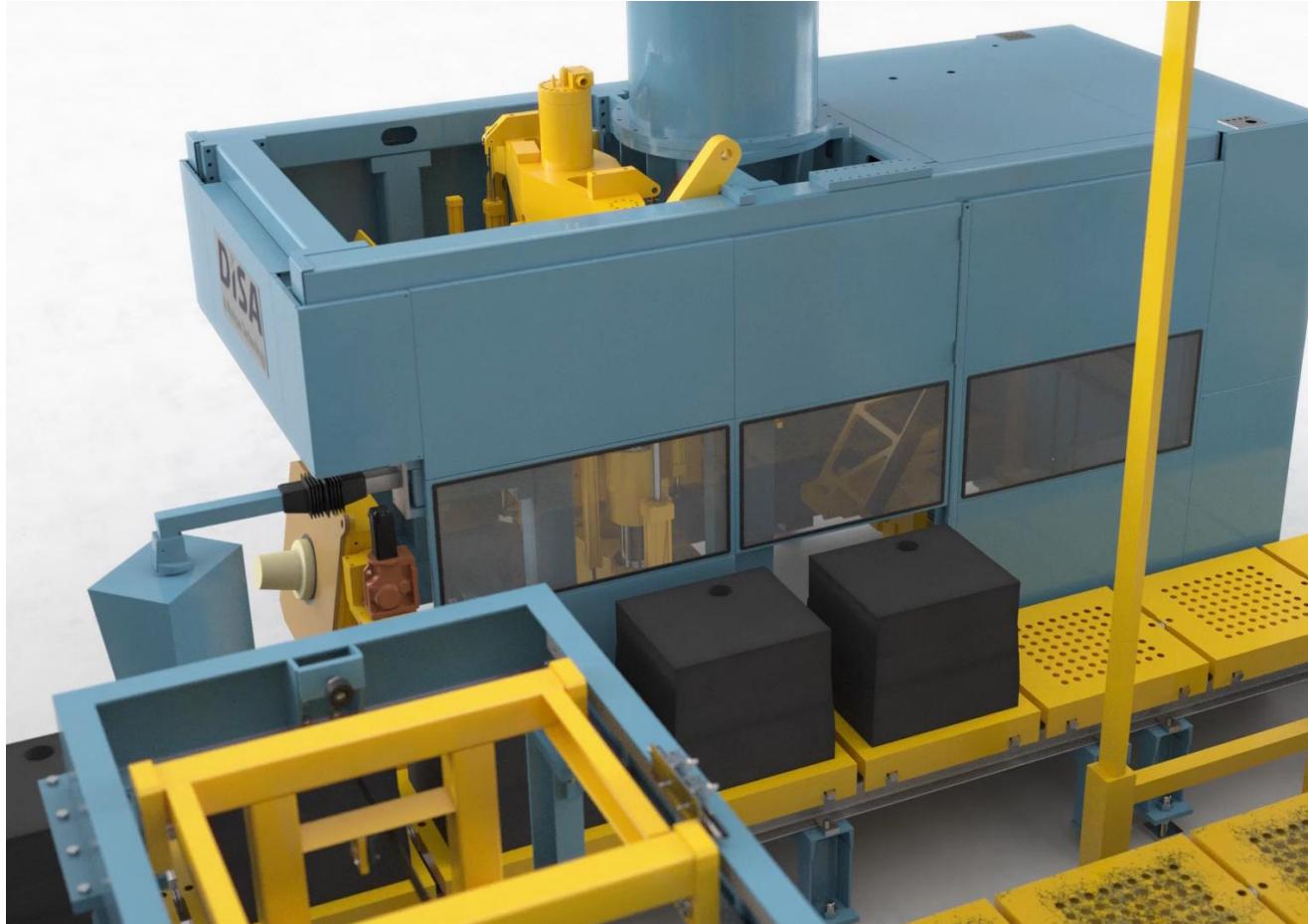
# The DISA MATCH technology (principle)

**DISA**  
A Norican Technology



# The DISA MATCH concept

- Unique DISAMATIC Blow/Squeeze
- Lowest machine related mismatch
- Unbeatable uptime due to extremely robust and simple design
- Easy operation and maintenance
- Adaptive mold height for sand-metal ratio
- Consistent casting quality with Minimal finishing costs



# Easy to operate



Quick and intuitive navigation in any language  
**Easy to use for your operators**



Machine status and guided alarm messages  
**Easy diagnostic and troubleshooting**



Recipe management for all patterns  
**Ensure correct parameters every time**



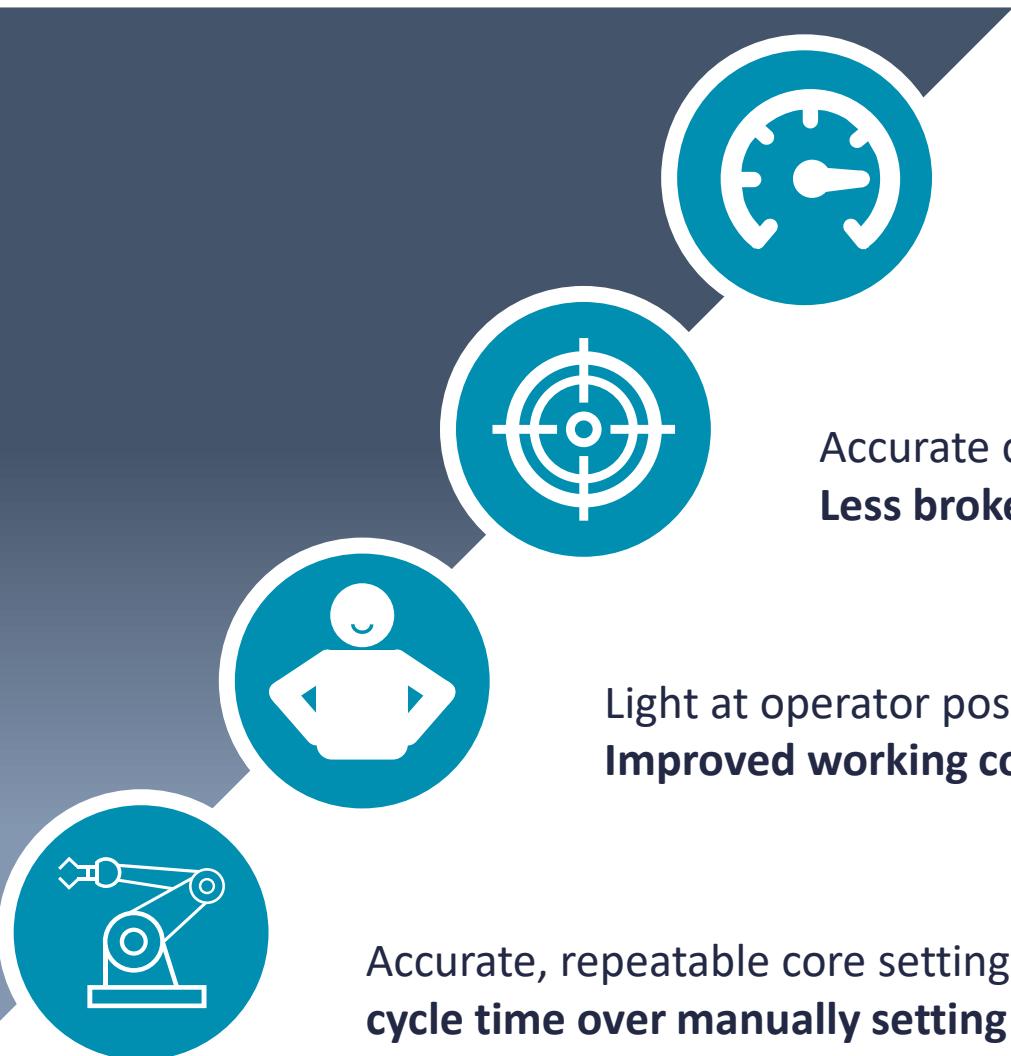
Remote online connection to DiSA  
**Quick expert support when needed**



**VDU – Visual Display Unit**

**Norican Group**  
Shaping Industry

# Cored jobs at high speed



# Easy maintenance



Service friendly design with wide door and large internal areas for **fast and easy maintenance**



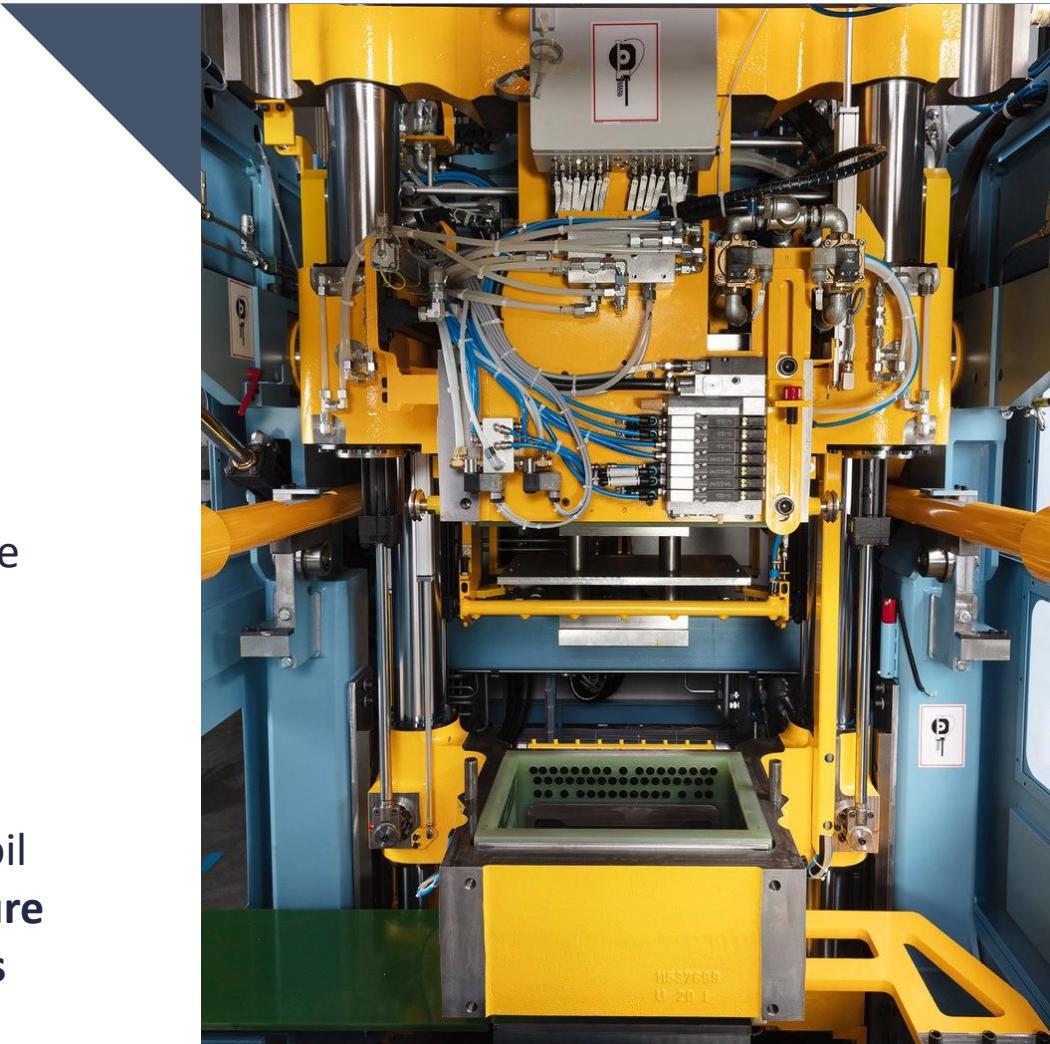
Cope and drag chamberwear plates design for **easily replaceable**



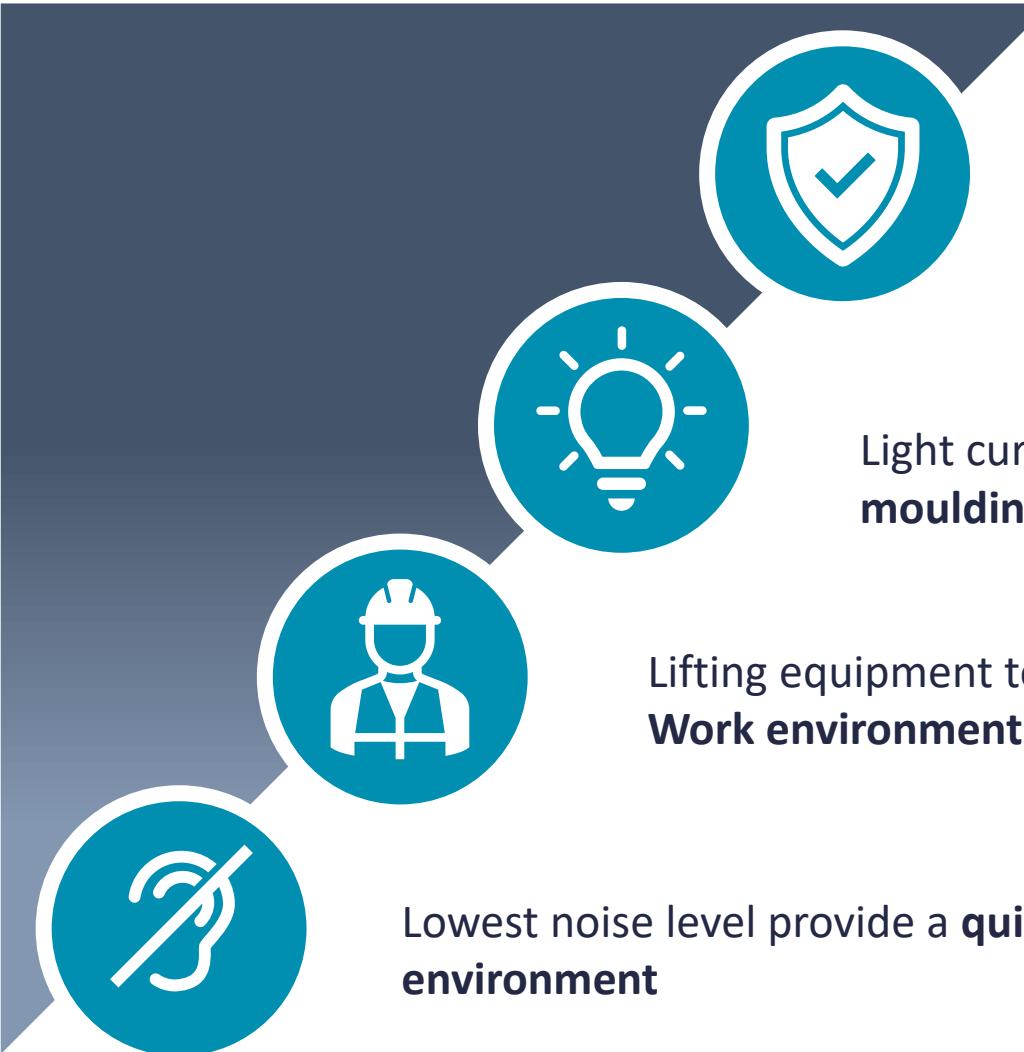
Hydraulic power unit placed outside the machine for **easy access**



Centralized automatic oil lubrication system **ensure correct lubricated parts**



# Safe working environment



CE marked and complies with ISO standard  
**Highest safety standard in the industry**

Light curtains eases **quick and safe access to moulding area**

Lifting equipment to avoid heavy operator lifts  
**Work environment supporting health and safety**

Lowest noise level provide a **quieter working environment**



# Excellent reliability and productivity

**DiSA**  
A Norican Technology

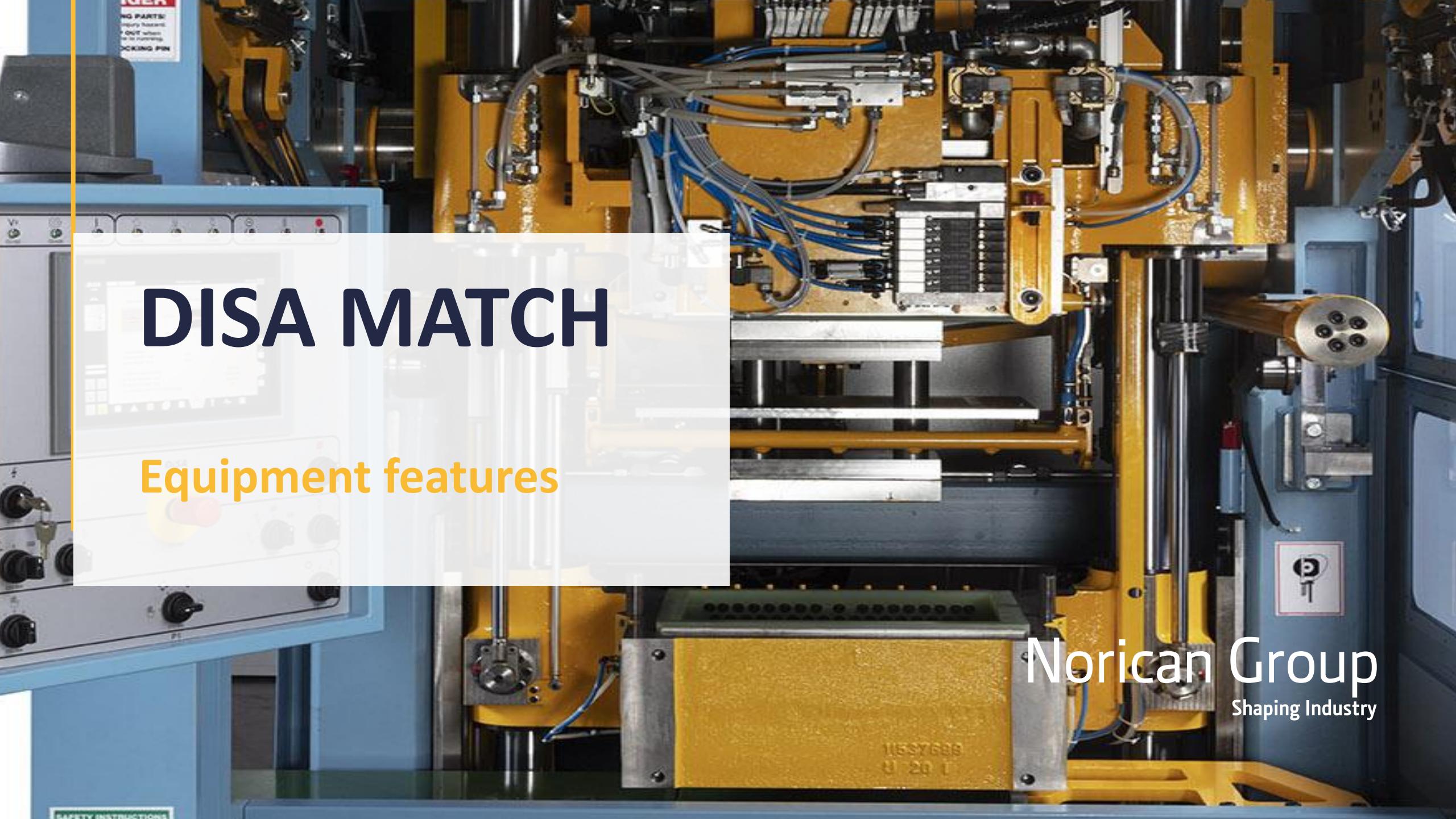


**Norican Group**  
Shaping Industry

# DISA MATCH

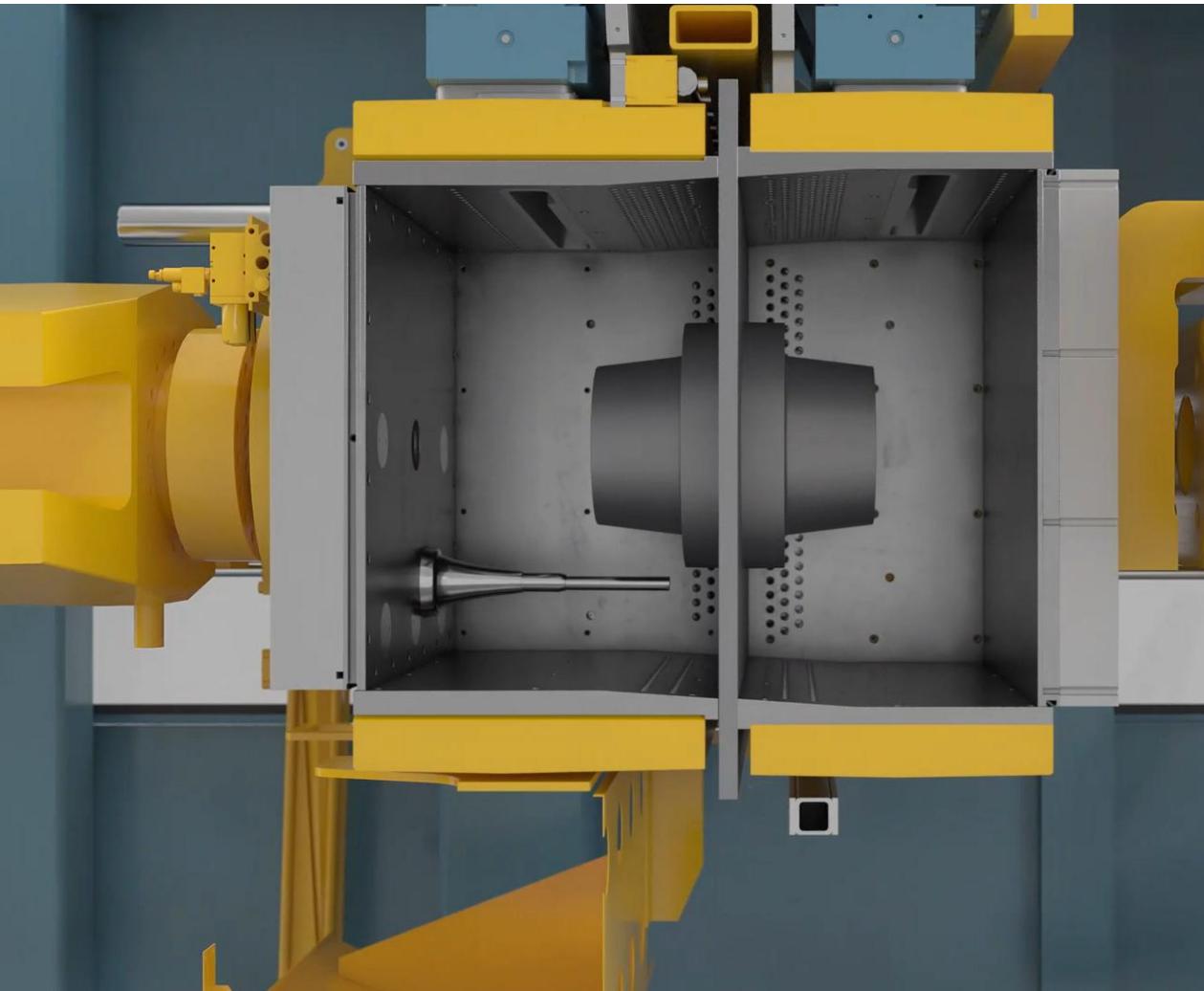
Equipment features

Norican Group  
Shaping Industry



# Unique DISAMATIC blow and squeeze mechanism

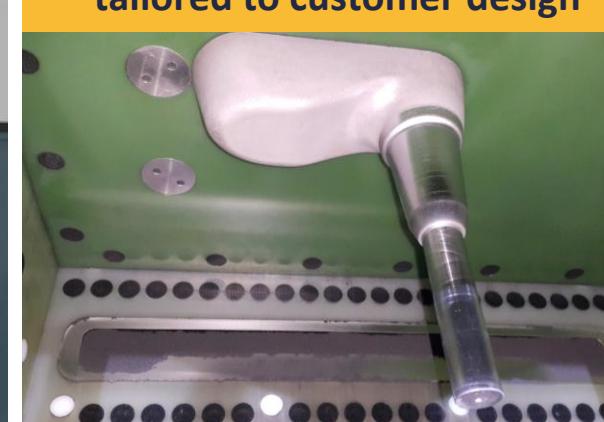
**DiSA**  
A Norican Technology



In-chamber spray avoids sand sticking and open air spray



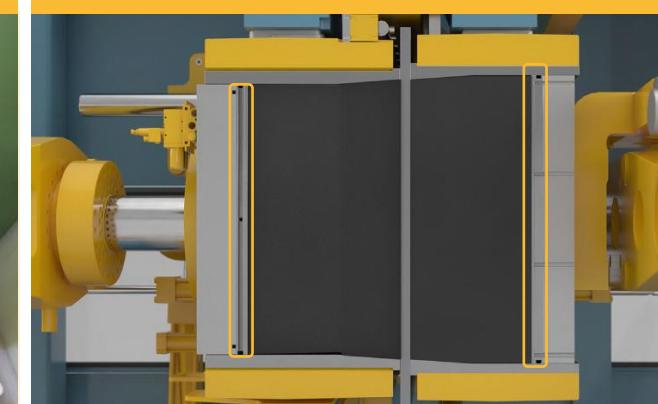
Flexible down Sprue locations tailored to customer design



Easily replaceable wear plates without removing the flask



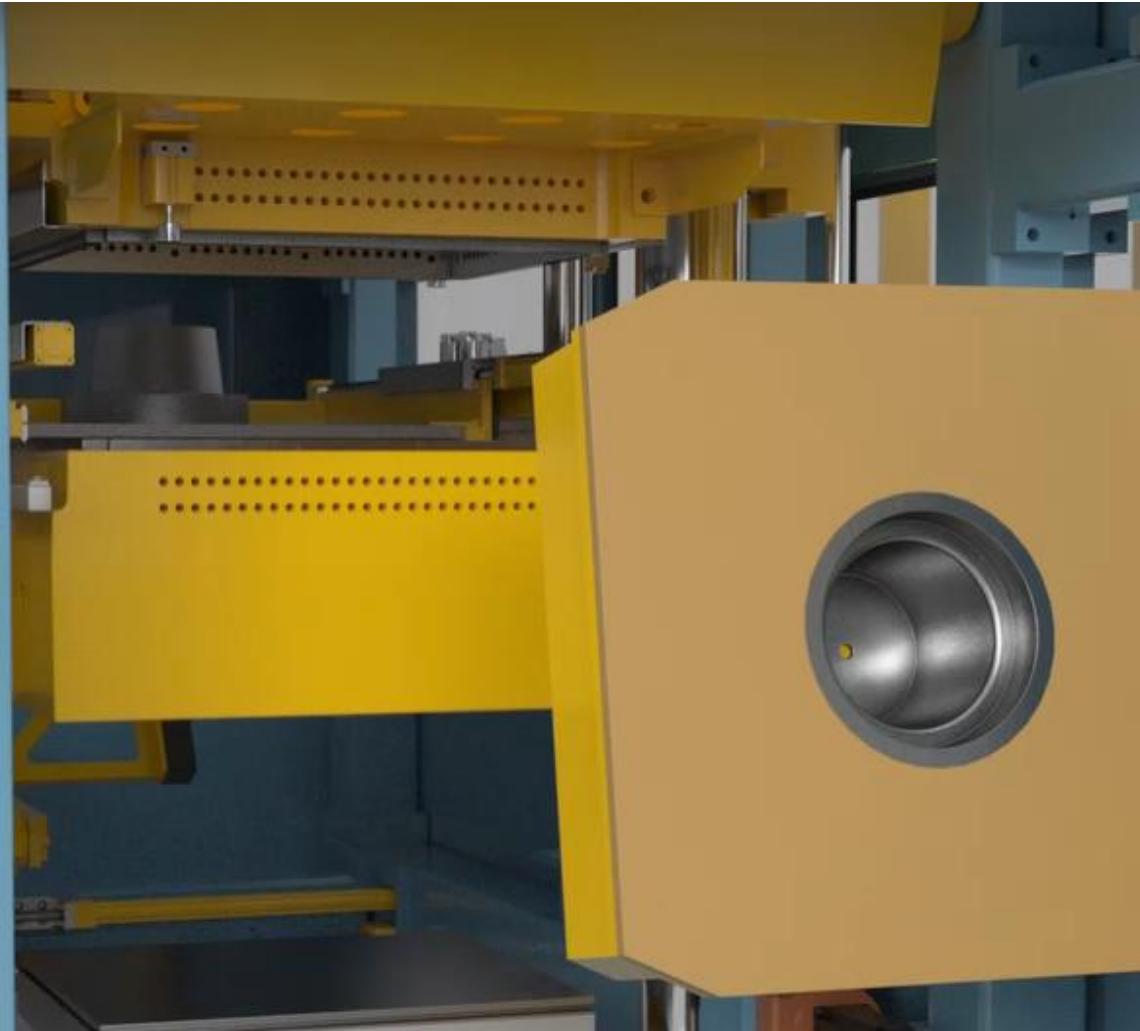
Inflatable seals prevent sand blow-by and reduces flask wear



**Norican Group**  
Shaping Industry

# Well proven and reliable mechanical design

**DiSA**  
A Norican Technology



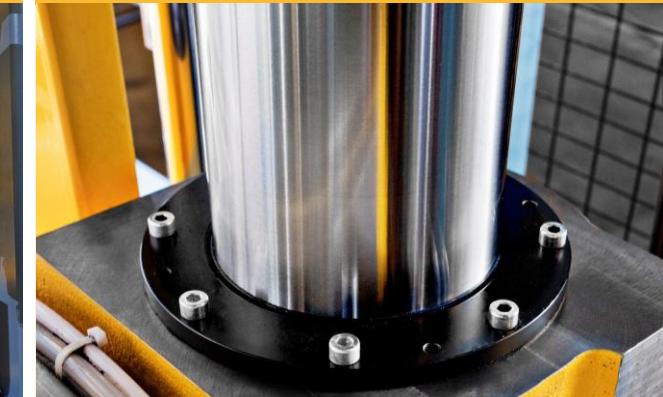
Movements on the same fixed axis for **extremely low mismatch**



Automatic lubrication system for **long lifetime and sustainable**



Well proven DISMATIC bushing design for **very low maintenance**

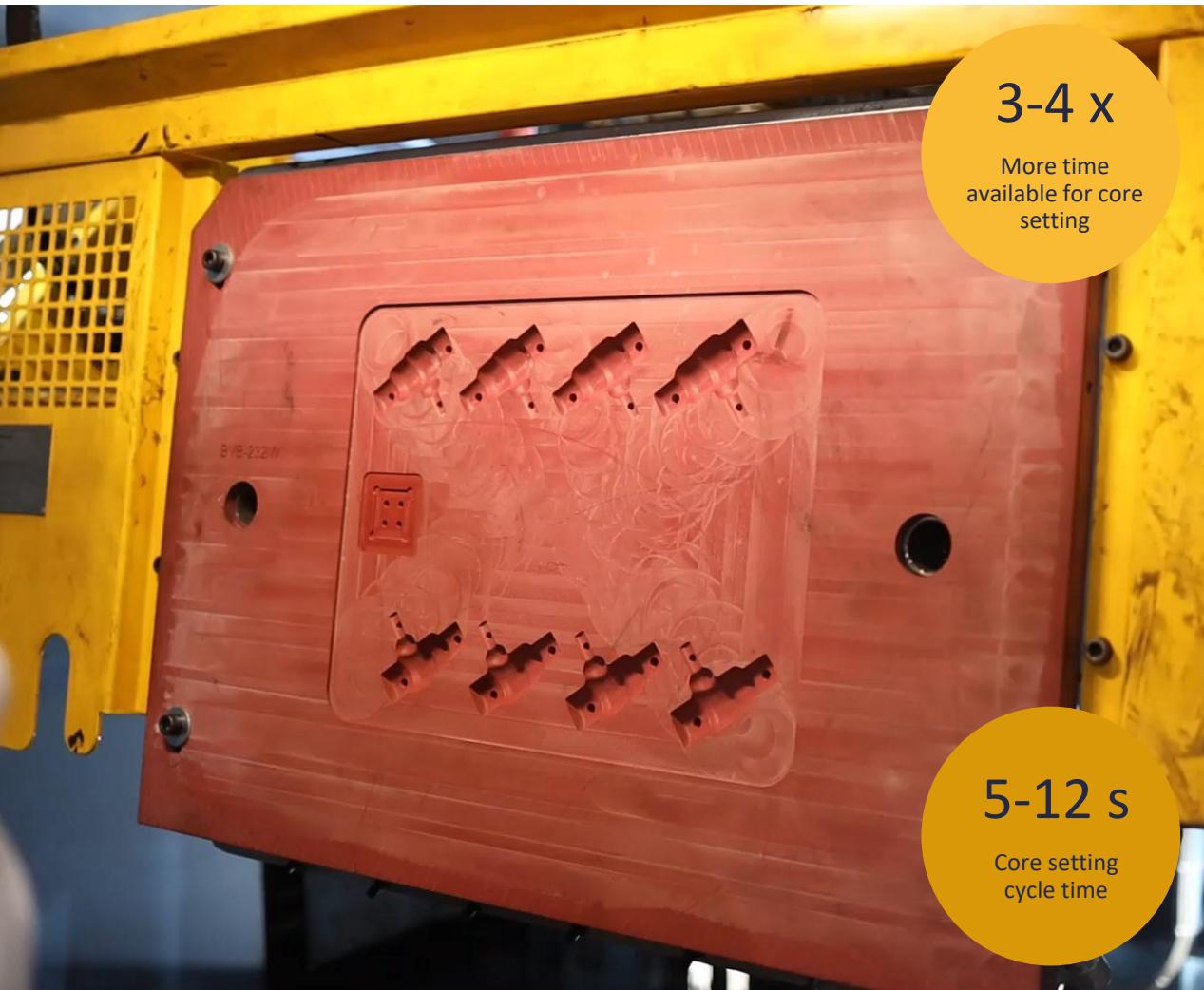


Robust mechanical design gives **high stability and repeatability**



**Norican Group**  
Shaping Industry

# High accuracy core setting (CSE)



Improved operators ergonomi  
with **ideal core setting position**



Core mask guide pins allow **fast  
change without adjustments**



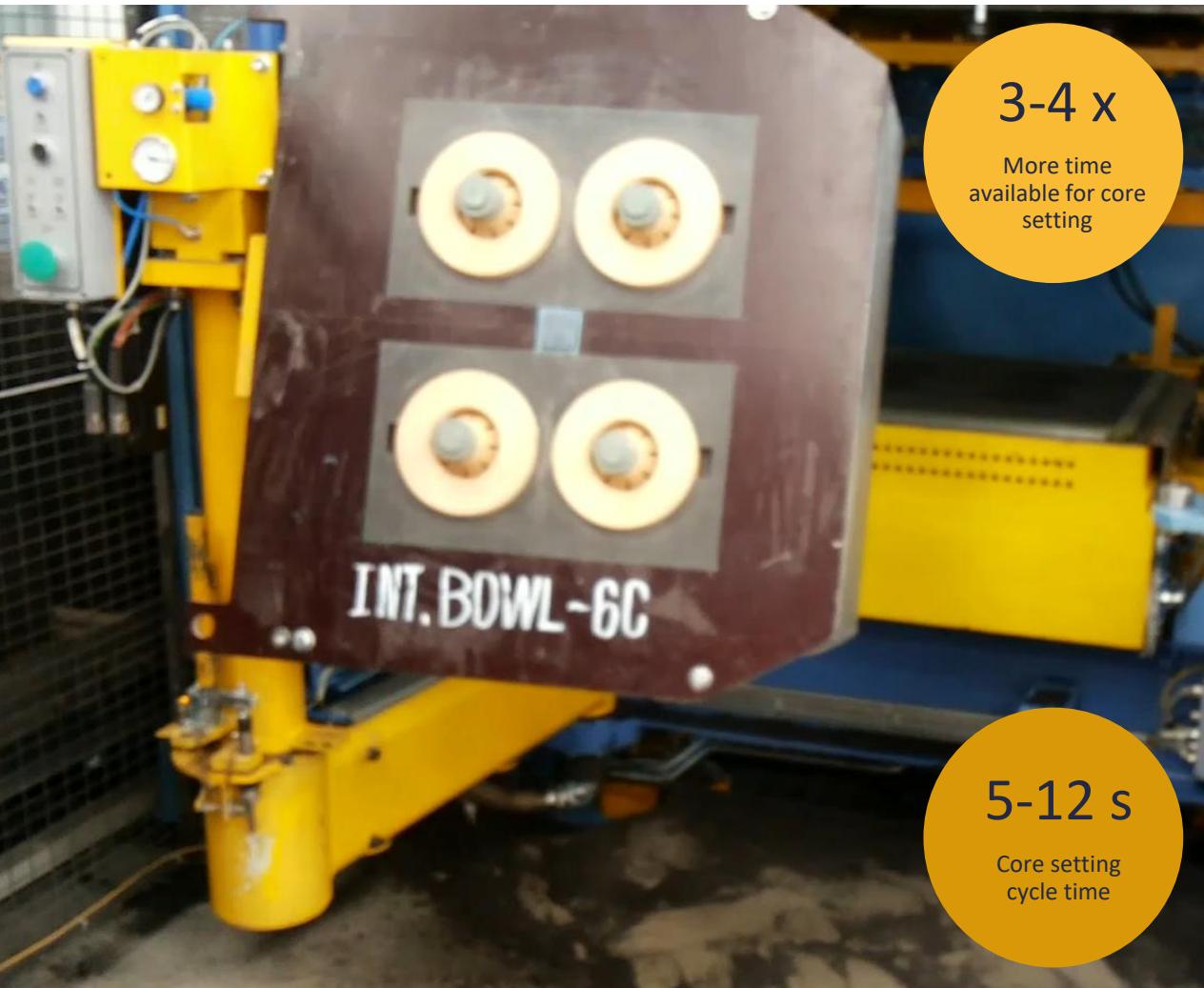
Fixed drag flask for **high precision  
core setting**



Operator light for **brighter  
working conditions**

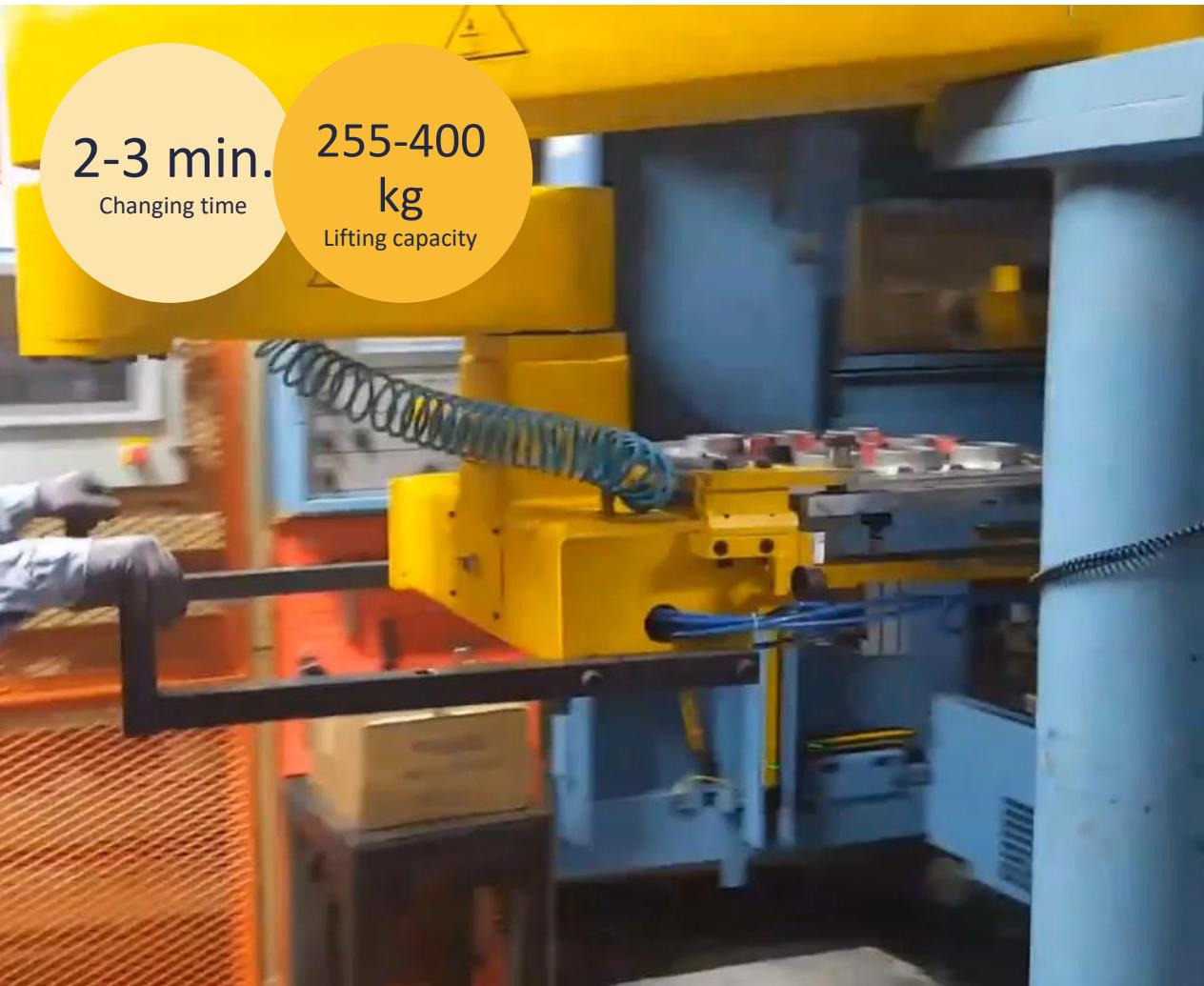


# High accuracy core setting (CSE)



# Easy and quick production changeover (QMC)

**DiSA**  
A Norican Technology



User-friendly change-unit can be operated by anyone



DISA QMC enables matchplate change in 2-3 minutes



Spacious area with light curtains for optimal working conditions



Enhance workplace by removing heavy pattern plate lifting



**Norican Group**  
Shaping Industry

# Easy and quick production changeover (Manual)

**DiSA**  
A Norican Technology

Manual



User-friendly change-unit can be operated by anyone



DISA QMC enables matchplate change in 2-3 minutes



Spacious area with light curtains for optimal working conditions



Enhance workplace by removing heavy pattern plate lifting



**Norican Group**  
Shaping Industry

# DISA MATCH technical data

## Metric

DISA MATCH		Metric		
DISA MATCH Type:		14/19	16/20	20/24
<b>Mould dimensions:</b>				
Lenght	mm	483	508	610
Width	mm	356	406	508
Height, min.-max. of drag	mm	150-200	150-200	150-200
Height, min.-max. of cope	mm	150-200	150-200	150-200
Mismatch, max.	mm	0,2	0,2	0,2
<b>DISA MATCH Capacity 150</b>				
Uncored	mould/hour*	150	150	150
Automatically cored	mould/hour*	120	120	120
Sand consumption max.	tonnes/h**	15	19	28
Average power consumption	kW	30	30	30
Connected load	kVA	38	38	38
Compressed air consumption	Nm3/min	5	5	5
<b>DISA MATCH Capacity 210</b>				
Uncored	mould/hour*	210	210	210
Automatically cored	mould/hour*	160	160	160
Sand consumption max.	tonnes/h**	22	26	39
Average power consumption	kW	30	30	30
Connected load	kVA	38	38	38
Compressed air consumption	Nm3/min	7	7	7
<b>Cooling water (DMM):</b>				
at 15 °C inlet temp.	litres/min	17	17	17
<b>Pressure:</b>				
Squeeze pressure	bar	3-10	3-10	3-10
Shot pressure	bar	0 - 4,5	0 - 4,5	0-4,5
<b>Compressed air requirements:</b>				
Air pressure min	bar	5,5	5,5	5,5
<b>Hydraulic fluid (DMM):</b>				
litres	370	370	370	
<b>Machine dimensions (please refer to DSQ and machine layout for drawings)</b>				
Length, DMM	mm	3965	3965	3965
Length, DMM + CSE	mm	4400	4400	4400
Width	mm	1850	1850	1850
Height, top of sand inlet	mm	3910	3910	3910
Height, top of machine frame	mm	2455	2455	2455
Height, mould bottom push out	mm	560	560	560
<b>Net weight:</b>	tonnes	10,5	10,5	10,5

\* At 200 mm mould thickness / \*\* At max. mould thickness

## US

DISA MATCH		US		
DISA MATCH Type:		14/19	16/20	20/24
<b>Mould dimensions:</b>				
Lenght	inches	19	20	24
Width	inches	14	16	20
Height, min.-max. of drag	inches	5,9 - 7,9	5,9 - 7,9	5,9 - 7,9
Height, min.-max. of cope	inches	5,9 - 7,9	5,9 - 7,9	5,9 - 7,9
Mismatch, max.	inches	0,008	0,008	0,008
<b>DISA MATCH Capacity 150</b>				
Uncored	mold/hour*	150	150	150
Automatically cored	mold/hour*	120	120	120
Sand consumption max.	tons/h**	17	20	31
Average power consumption	kW	30	30	30
Connected load	kVA	38	38	38
Compressed air consumption	cu ft/min	177	177	177
<b>DISA MATCH Capacity 210</b>				
Uncored	mold/hour*	210	210	210
Automatically cored	mold/hour*	160	160	160
Sand consumption max.	tons/h**	24	29	43
Average power consumption	kW	30	30	30
Connected load	kVA	38	38	38
Compressed air consumption	cu ft/min	247	247	247
<b>Cooling water (DMM):</b>				
at 59 °F inlet temp.	gallons/min	4	4	4
<b>Pressure:</b>				
Squeeze pressure	psi	44 - 148	44 - 148	44 - 148
Shot pressure	psi	0 - 67	0 - 67	0 - 67
<b>Compressed air requirements:</b>				
Air pressure min	psi	81	81	81
<b>Hydraulic fluid (DMS):</b>				
litres	98	98	98	98
<b>Machine dimensions (please refer to DSQ and machine layout for drawings)</b>				
Length, DMM	inches	156	156	156
Length, DMM + CSE	inches	173	173	173
Width	inches	73	73	73
Height, top of sand inlet	inches	154	154	154
Height, top of machine frame	inches	97	97	97
Height, mould bottom push out	inches	22	22	22
<b>Net weight:</b>	tons	12	12	12

\* At 5.9 inches for mould thickness / \*\* At max. mould thickness

# DISA AMH

Automatic Mould Handling

Norican Group  
Shaping Industry

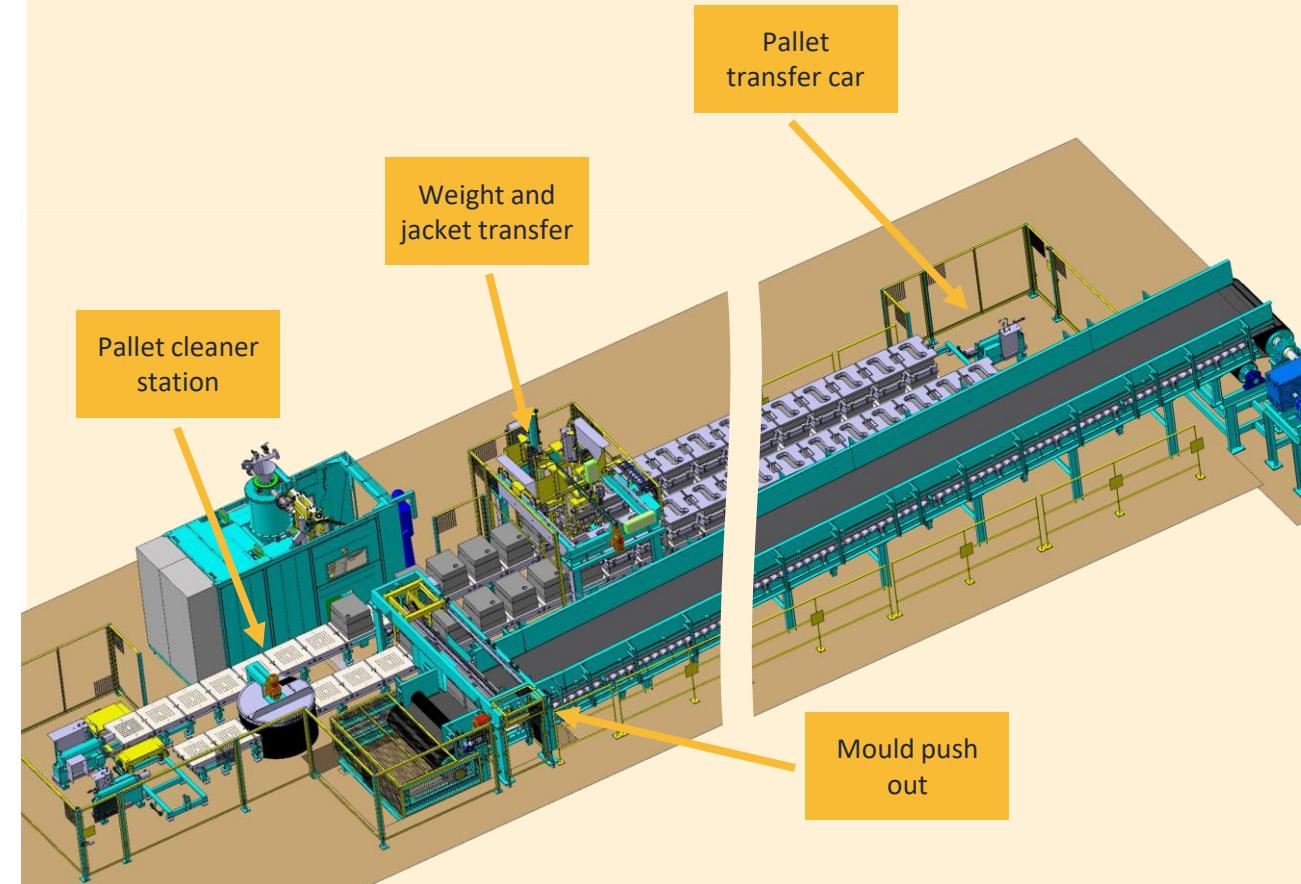


# Fully integrated and synchronized in-mould cooling solution

**DiSA**  
A Norican Technology

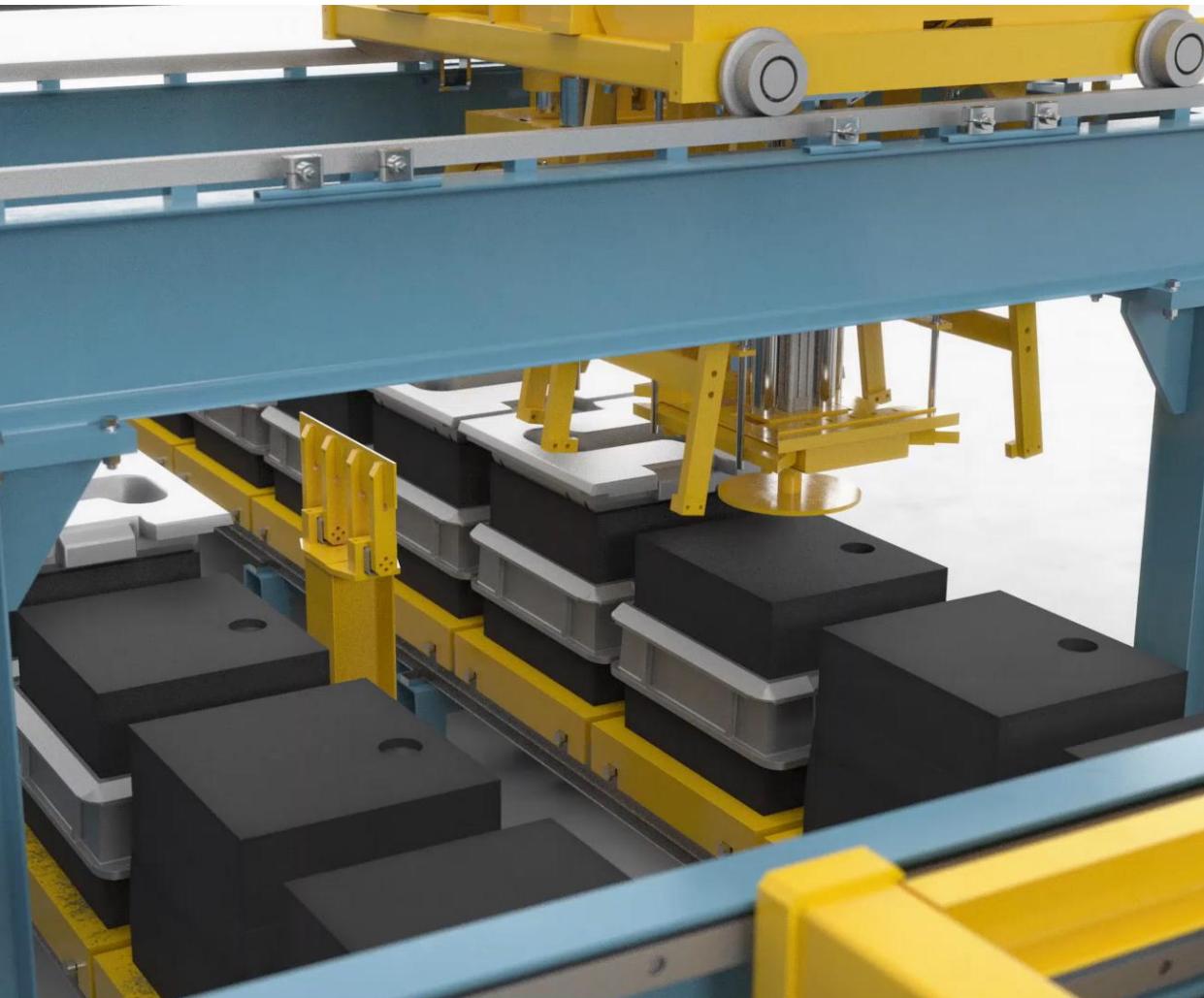


Modular customized layout to fit **available space and cooling needs**

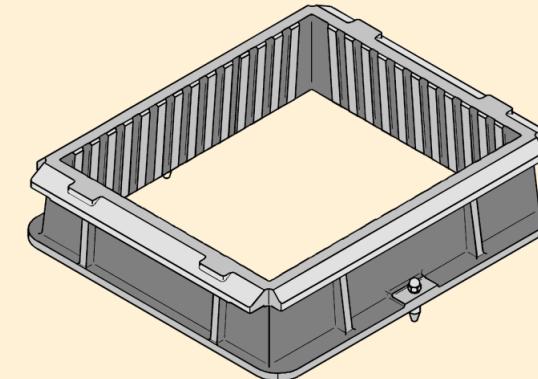


# Automatic weight and jacket transferring and cleaning

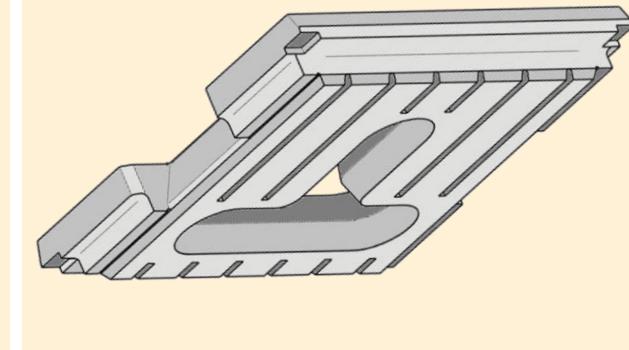
**DiSA**  
A Norican Technology



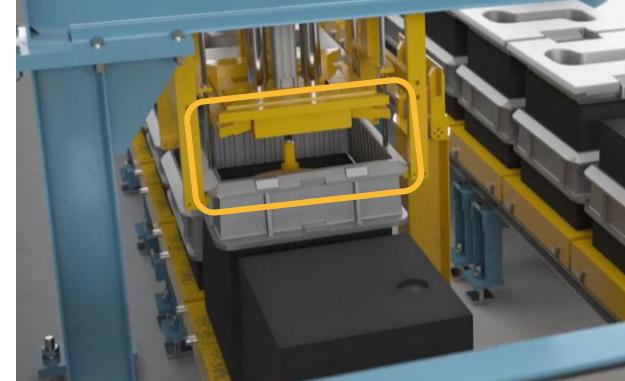
Aluminum jackets **reduces sand sticking**



Cast iron weight with enclosed pouring area **avoid melt over run**



Jacket cleaner removing sand and  
**risk of mismatch**



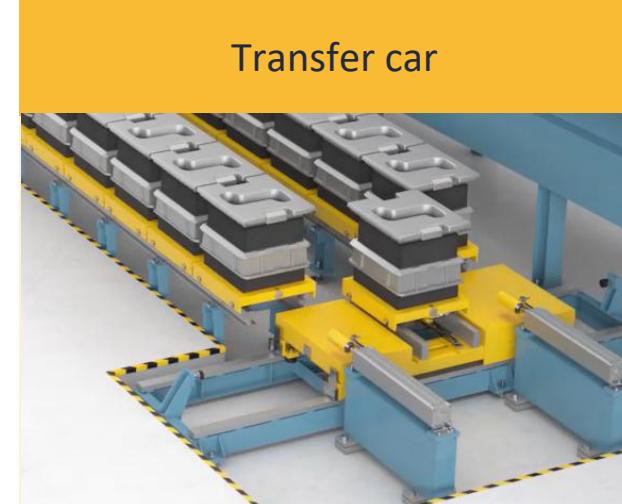
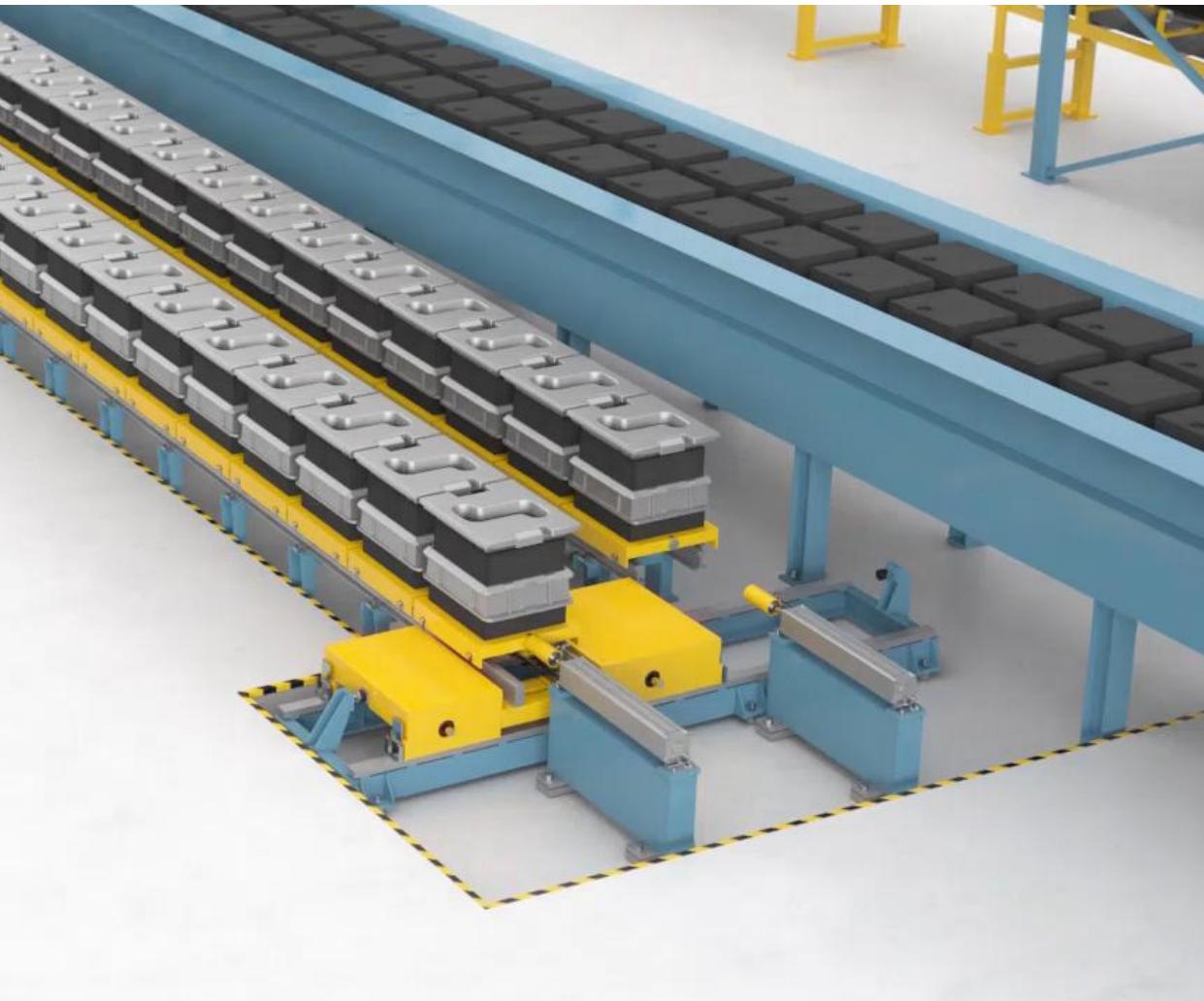
Clean weights ensures even  
**mould counter pressure**



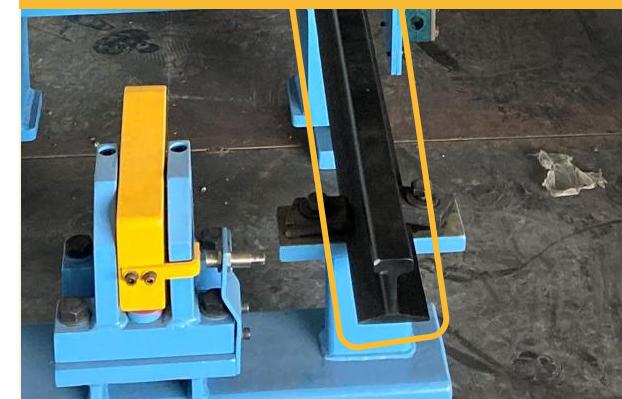
**Norican Group**  
Shaping Industry

# Robust design with a minimum of maintenance and long lifetime

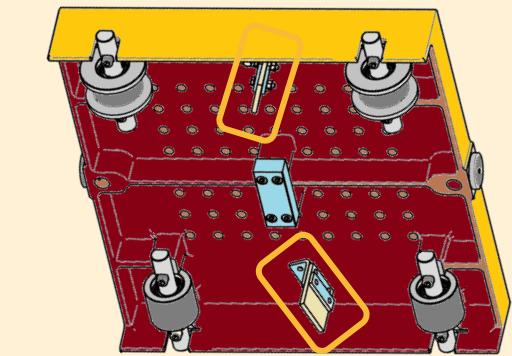
**DiSA**  
A Norican Technology



Proven long lifetime rail design  
promise **low maintenance cost**

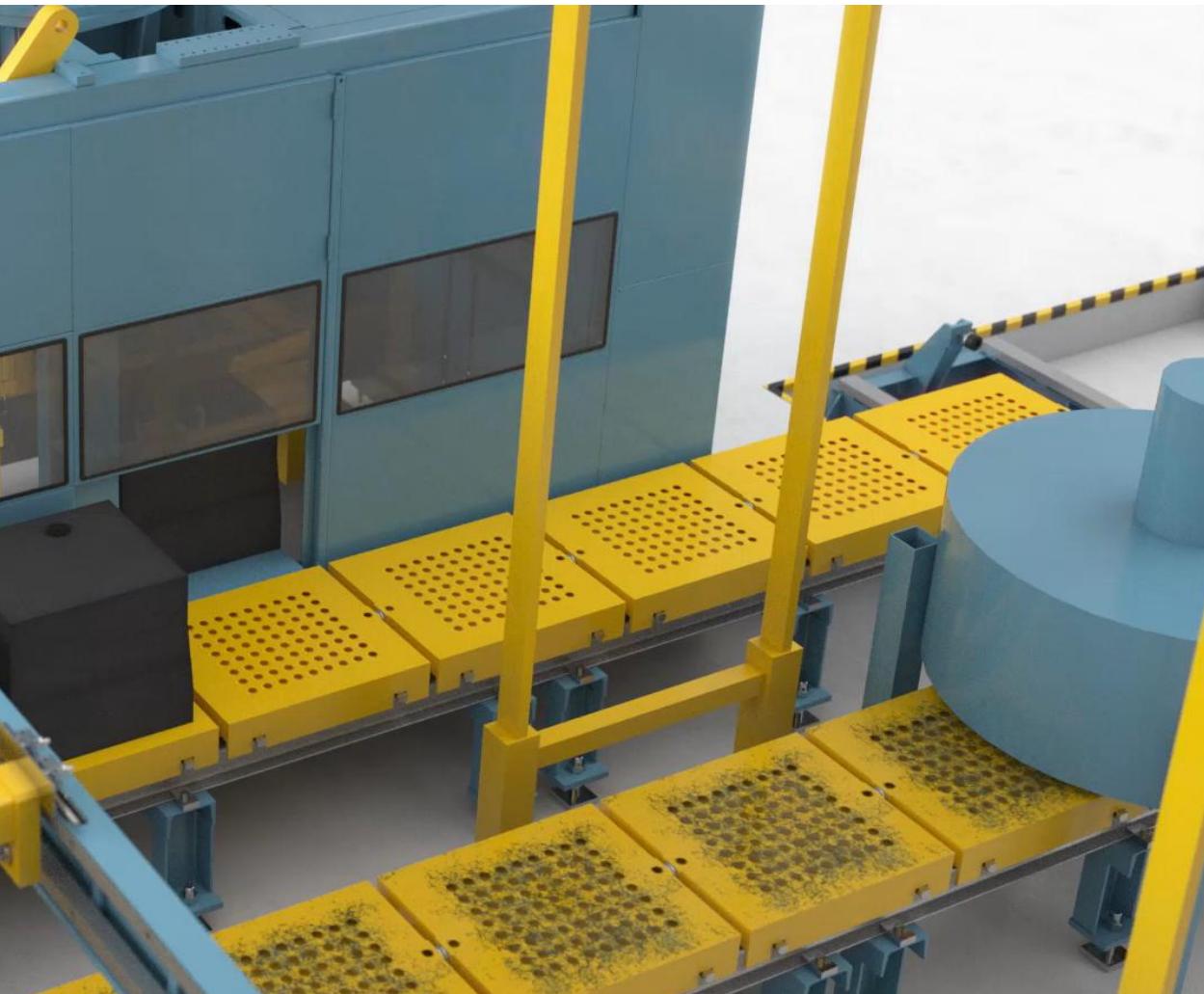


Scrapers cleans wheels and rails  
for **even mould transportation**



**Norican Group**  
Shaping Industry

# Pallet cars



Venting pallet holes for **easy moisture and gas evaporation**



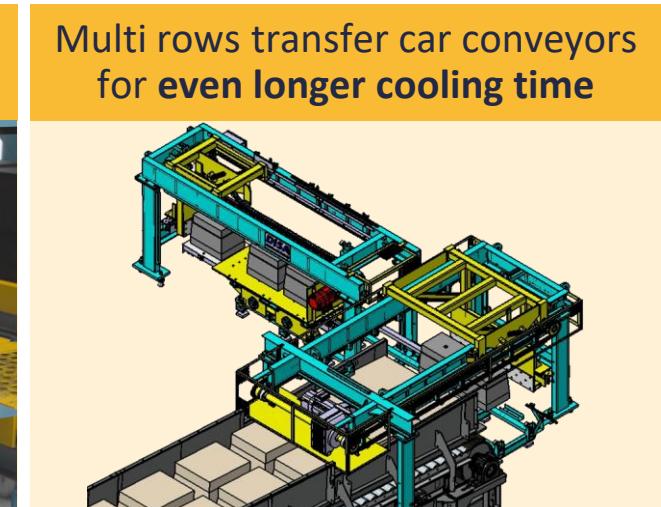
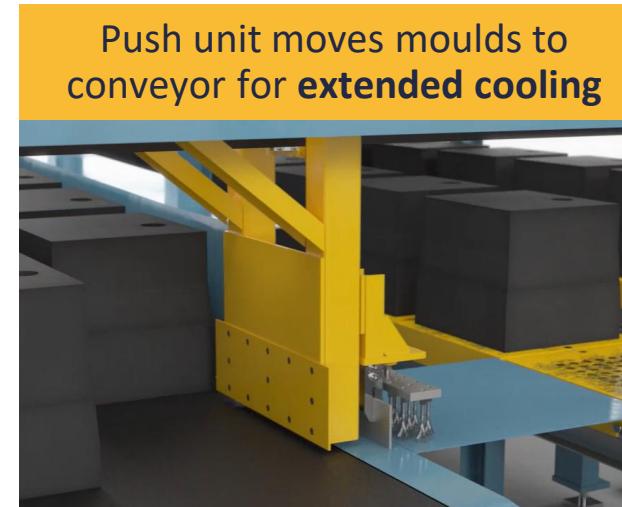
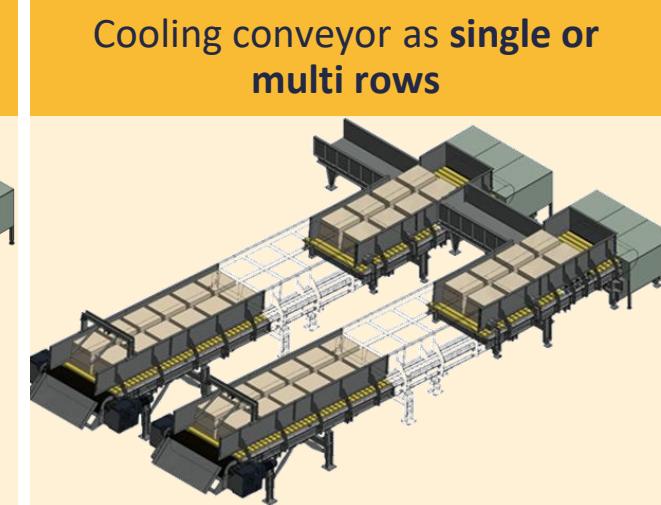
Wheel and bearing designd for high load and temperature



Pallet cleaning station ensures ???

# Custom cooling conveyor to match your required cooling time

**DiSA**  
A Norican Technology

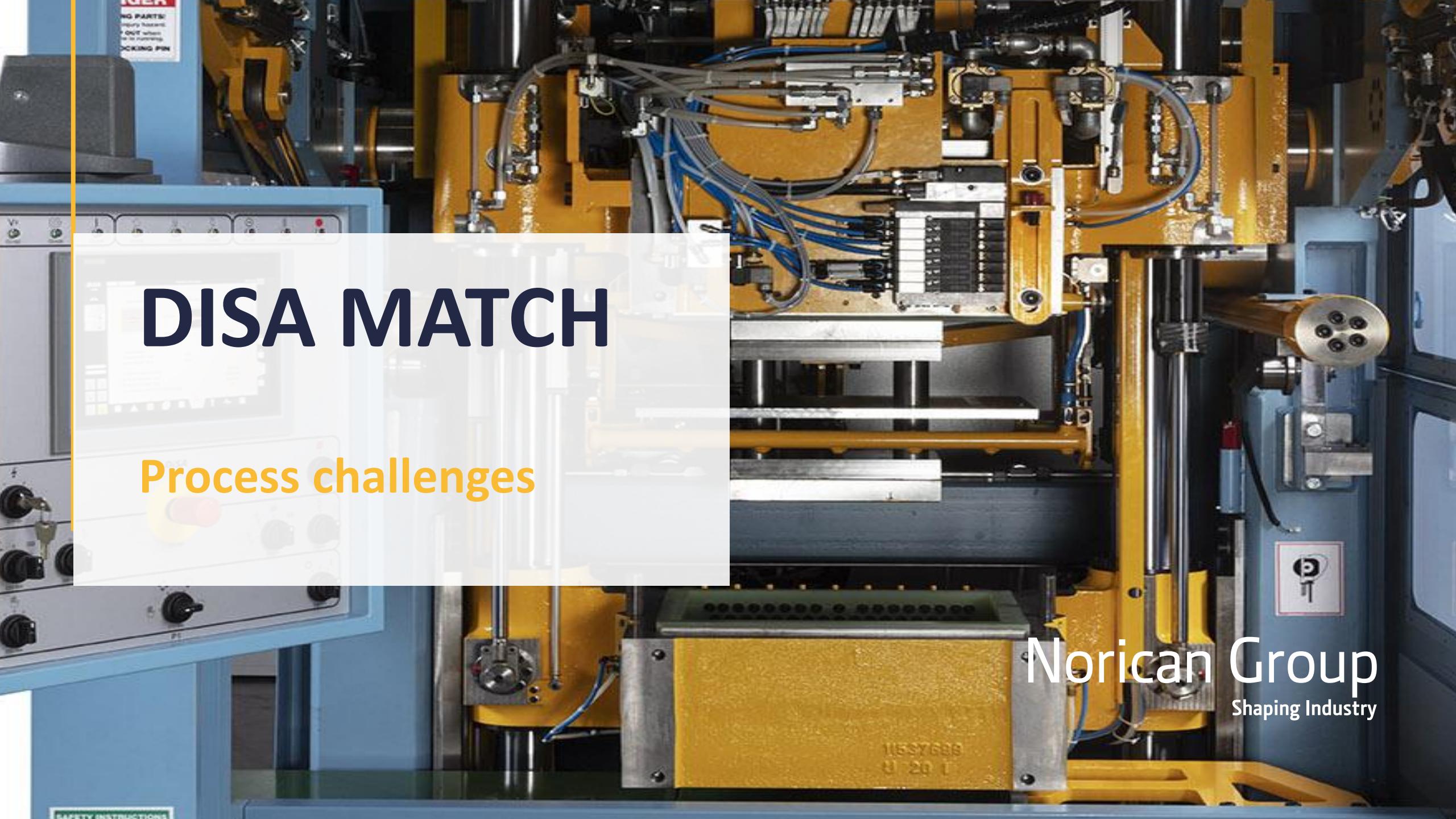


**Norican Group**  
Shaping Industry

# DISA MATCH

Process challenges

Norican Group  
Shaping Industry

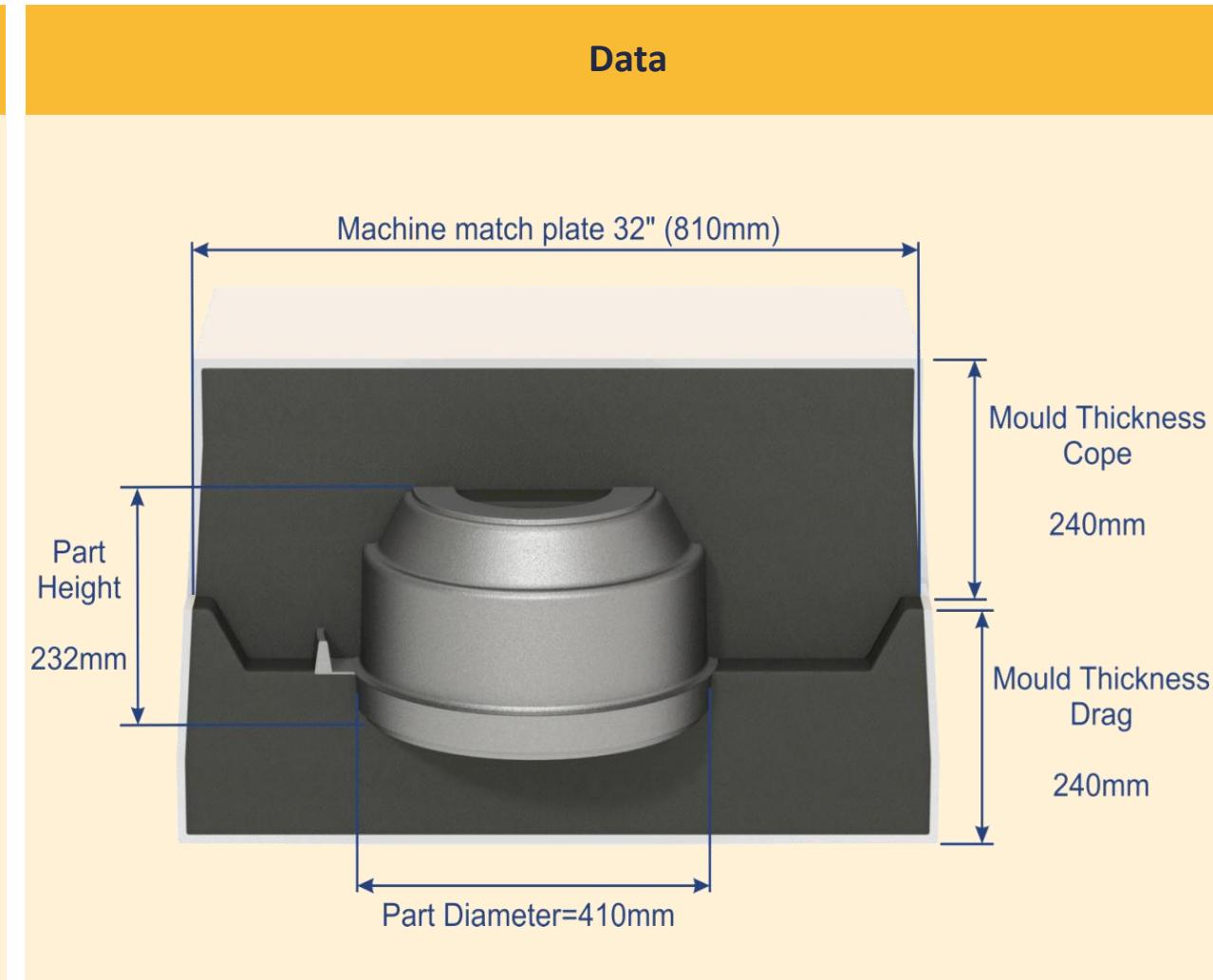


# Truck brake drum production - Specification

## Specifications

- Part weight: 34 kg (casting)
- Material: Grey Iron
- Machine: DiSA MATCH 32 x 32
- Part diameter: 410 mm
- Part height: 232 mm
- Part pouring time: 12 sec (2,83 kg/sec)
- Mould thickness drag: 240 mm
- Mould thickness cope: 240 mm

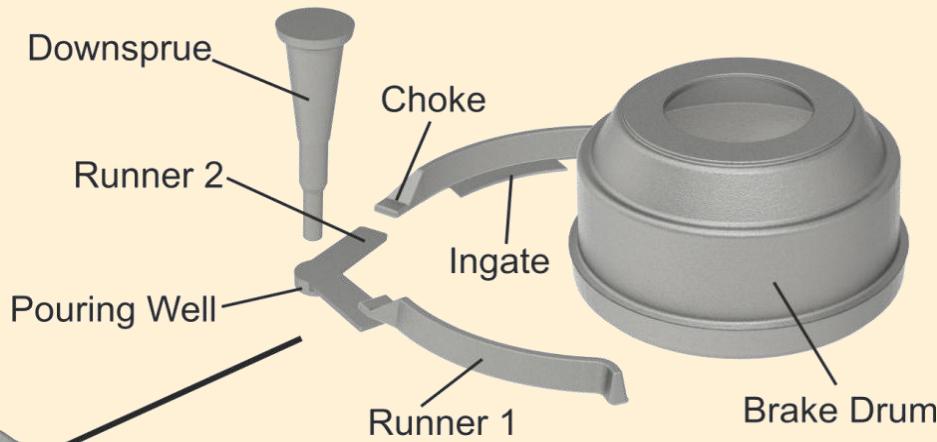
## Data



# Truck brake drum production - Gating system

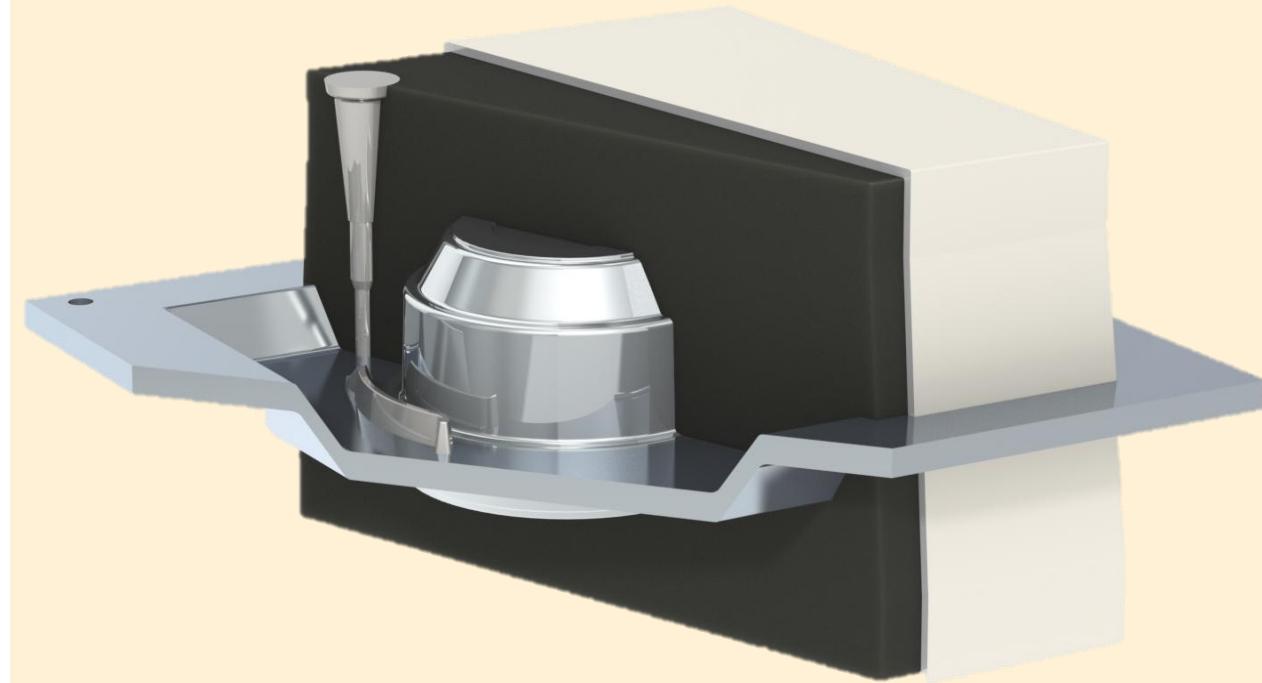
**DiSA**  
A Norican Technology

Drag mould impression



Casting

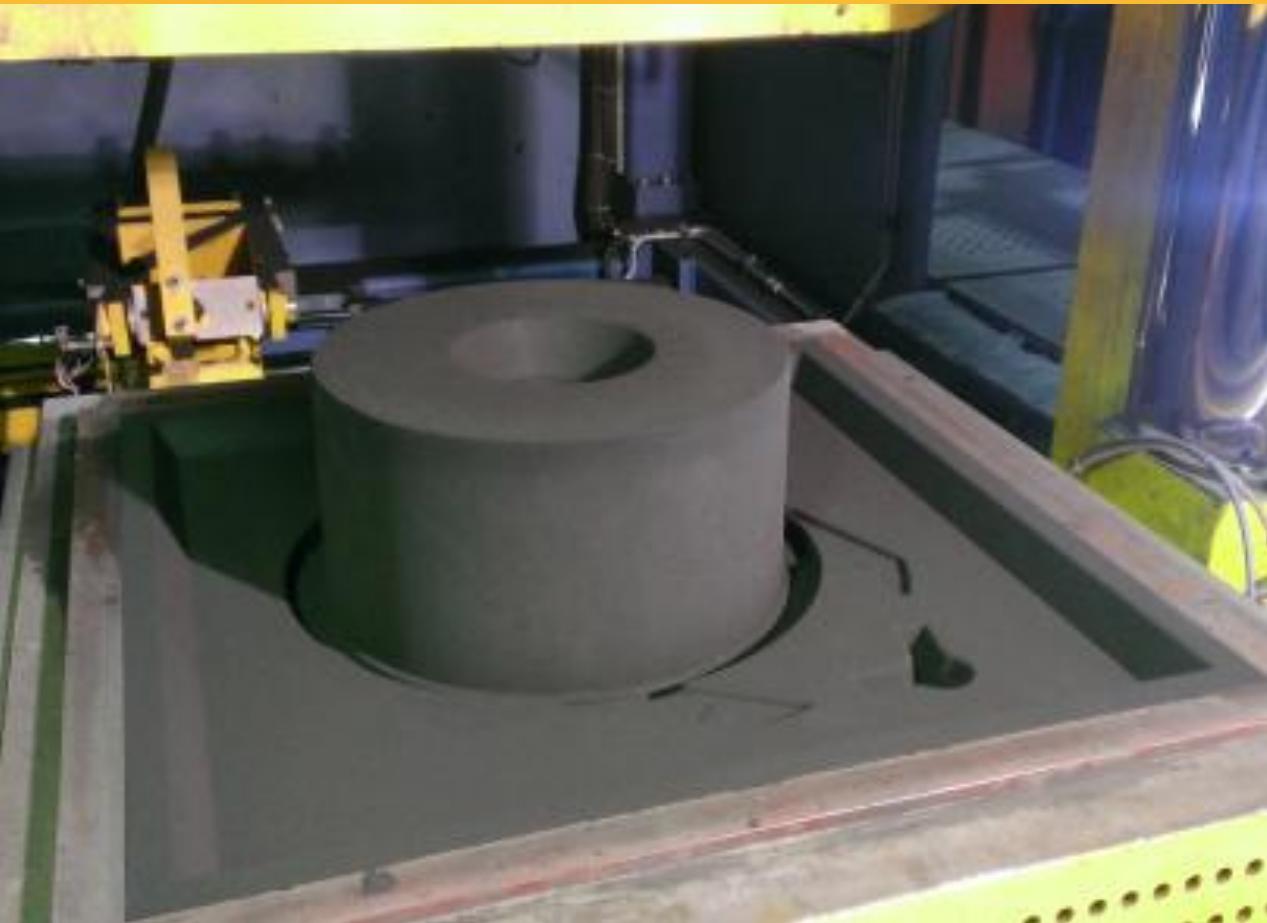
Cope mould impression



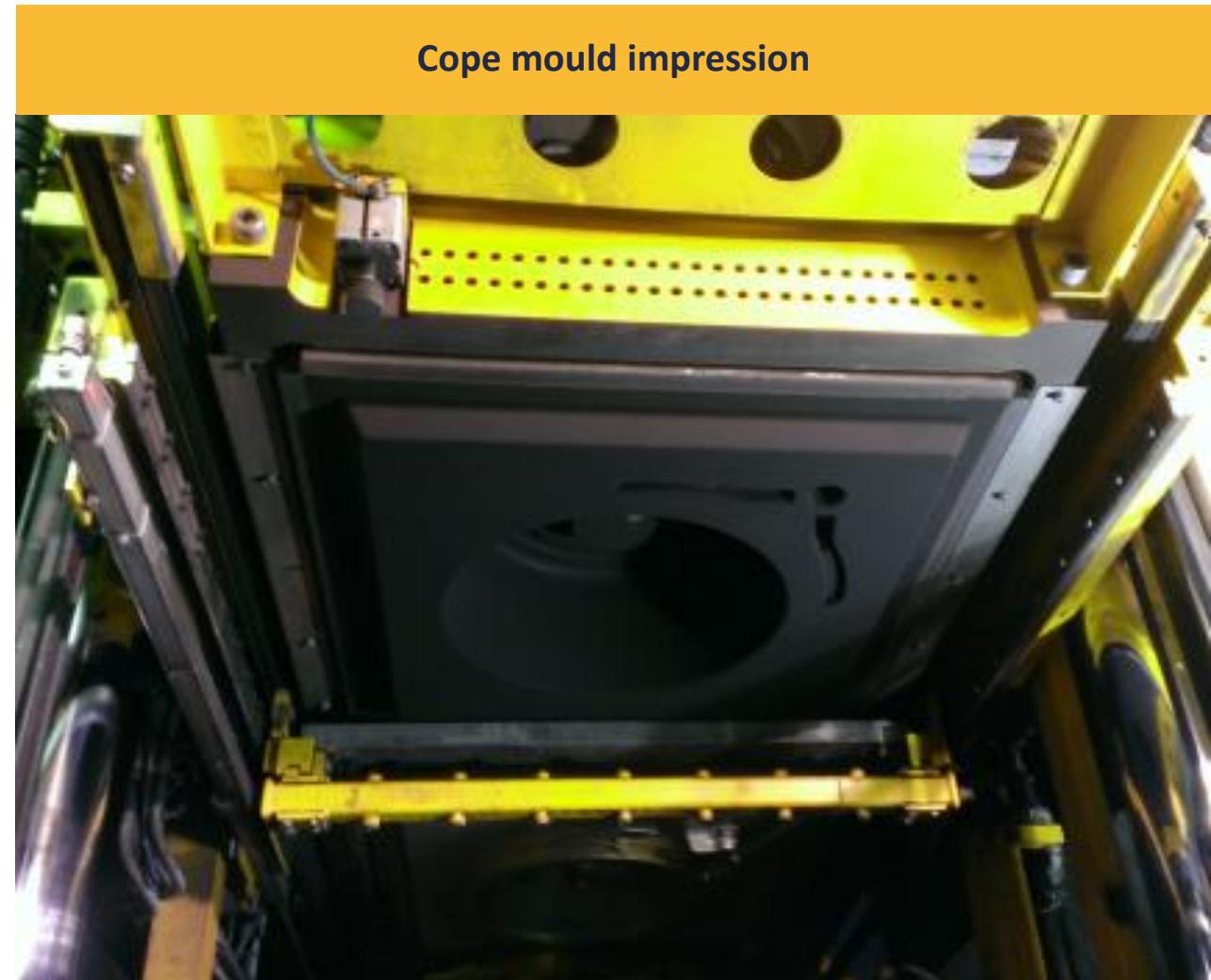
# Truck brake drum production

**DiSA**  
A Norican Technology

Drag mould impression

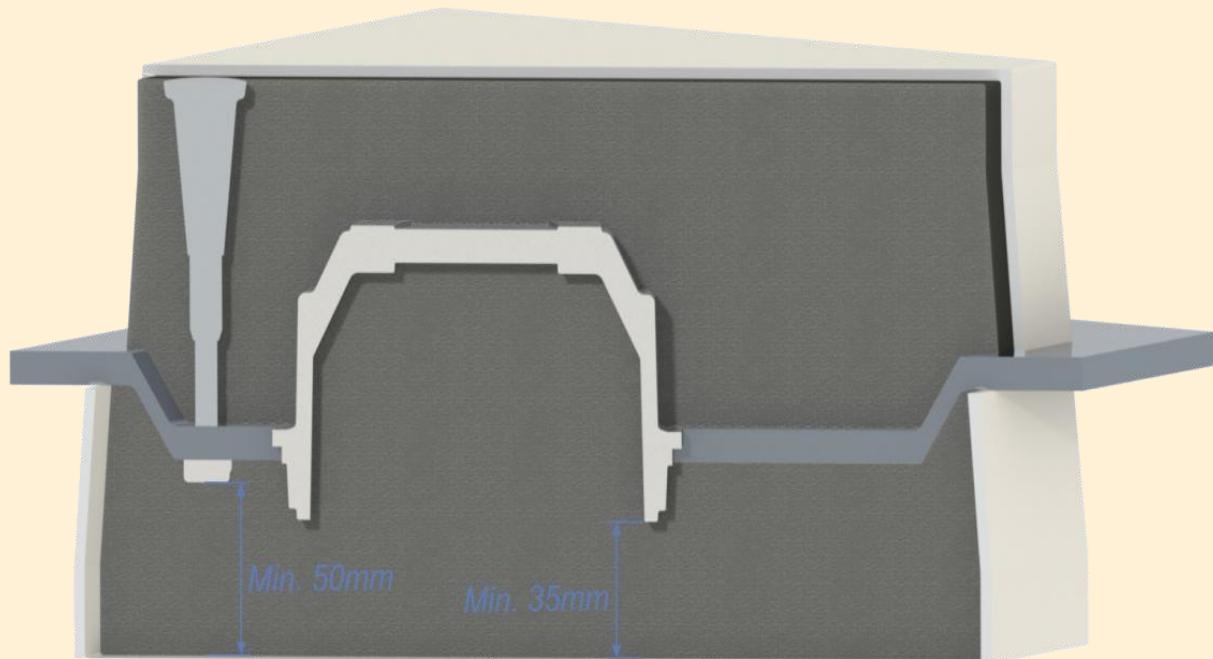


Cope mould impression



# Truck brake drum production

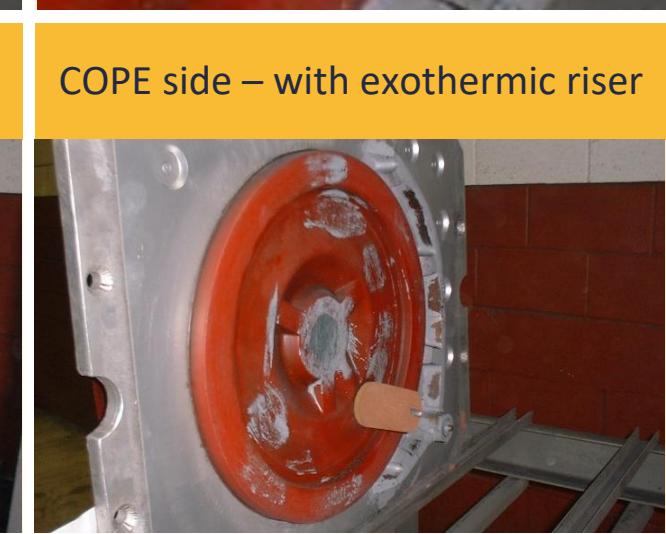
Sand thickness recommendations



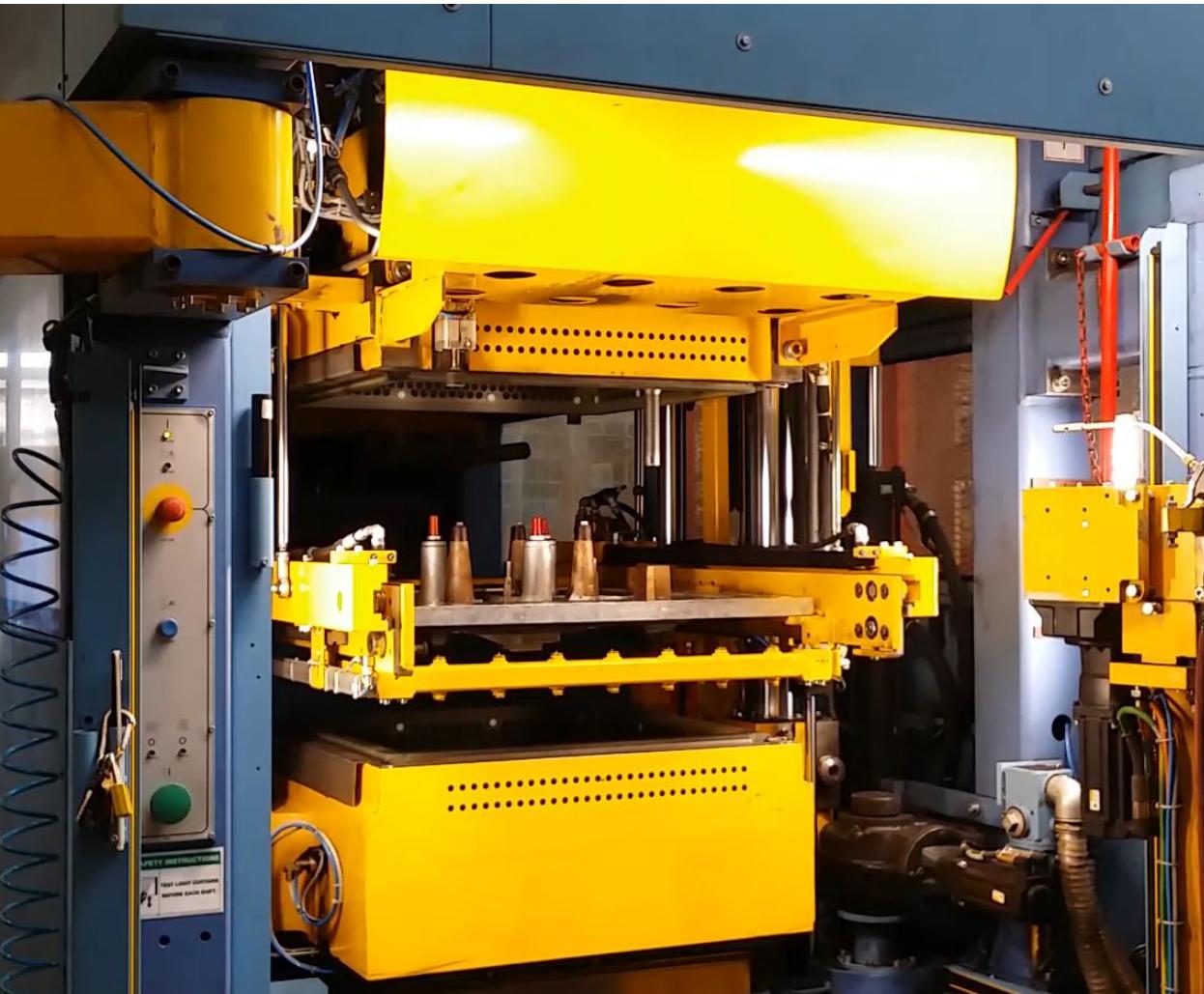
Result



# Exothermic setting



# Exothermic riser - Examples



COPE side – with exothermic riser



Exothermic riser on COPE side



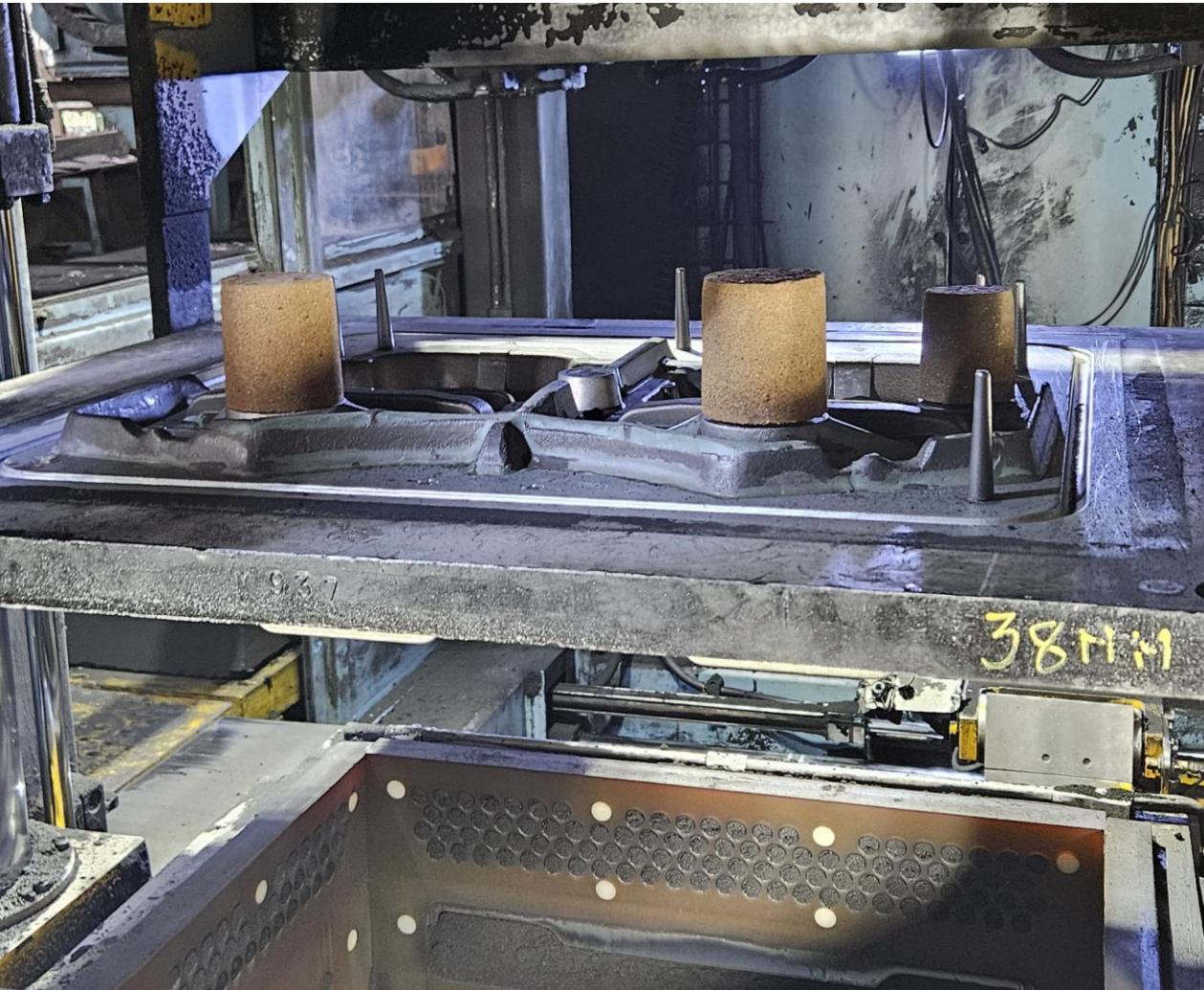
Setting of exothermic riser on  
COPE side



DRAG side



# Exothermic riser - Examples



COPE side – with exothermic riser



Exothermic riser on COPE side

Setting of exothermic riser on COPE side



DRAG side

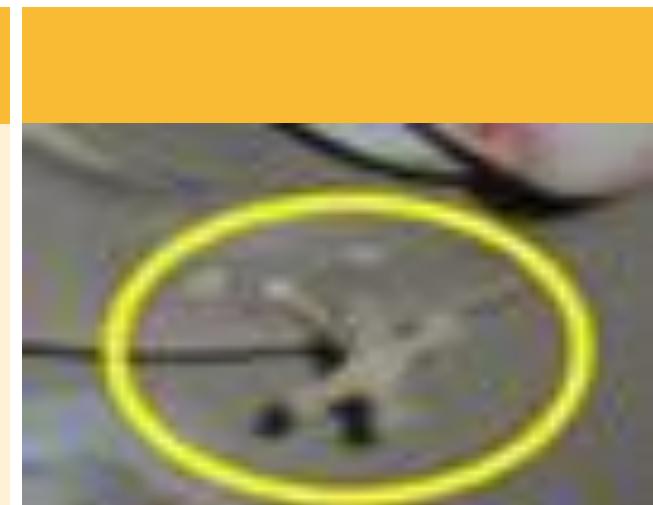


## Spot feeder - Examples

**DiSA**  
A Norican Technology



# Chaplet setting



# Chill setting



COPE side – with chills mounted



Chills mounted



# Chills - Examples



COPE side – without chills mounted



Magnet point for chill



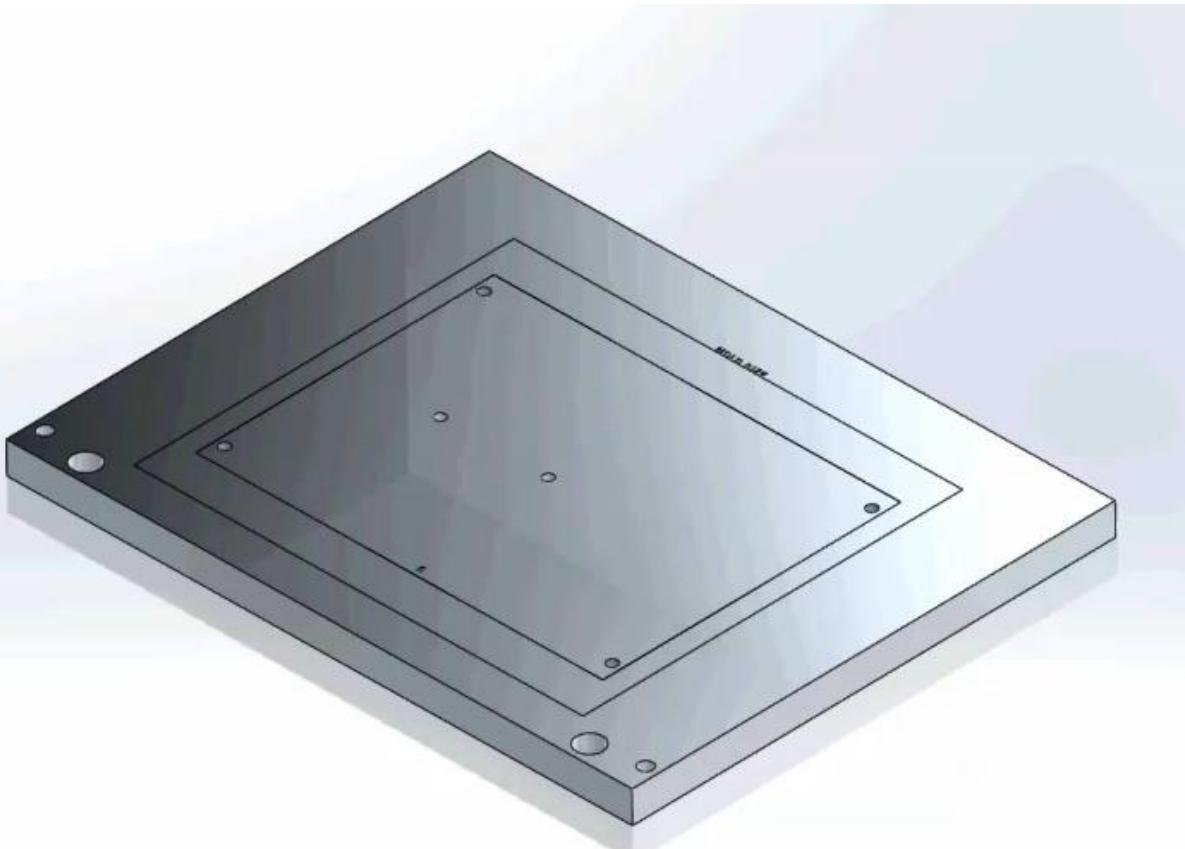
DRAG side



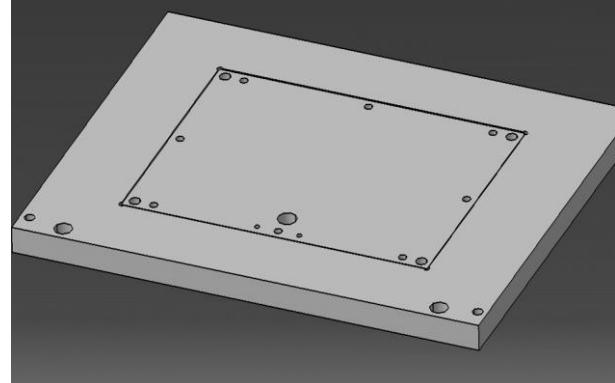
Magnet point for chill



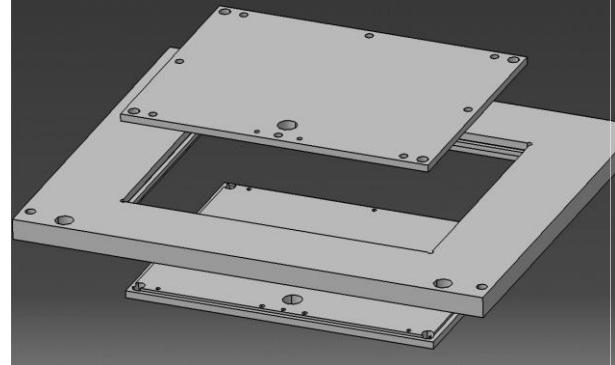
# Adapter plate



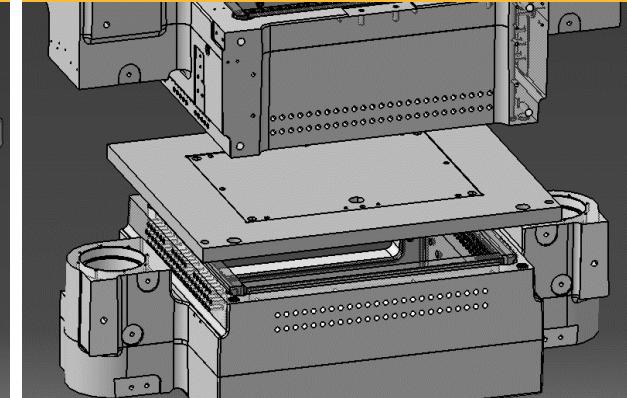
**Adapter plate with other pattern plate size**



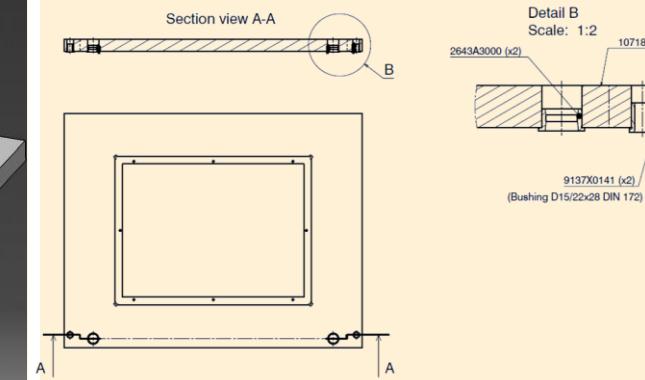
**Mounting of pattern plate in adapter plate**



**Adapter plate guide pin location in machine**



**Adapter plate**



# Venting - Examples



Parting line Gas Vent 0.2mm



Vent for gas Vent



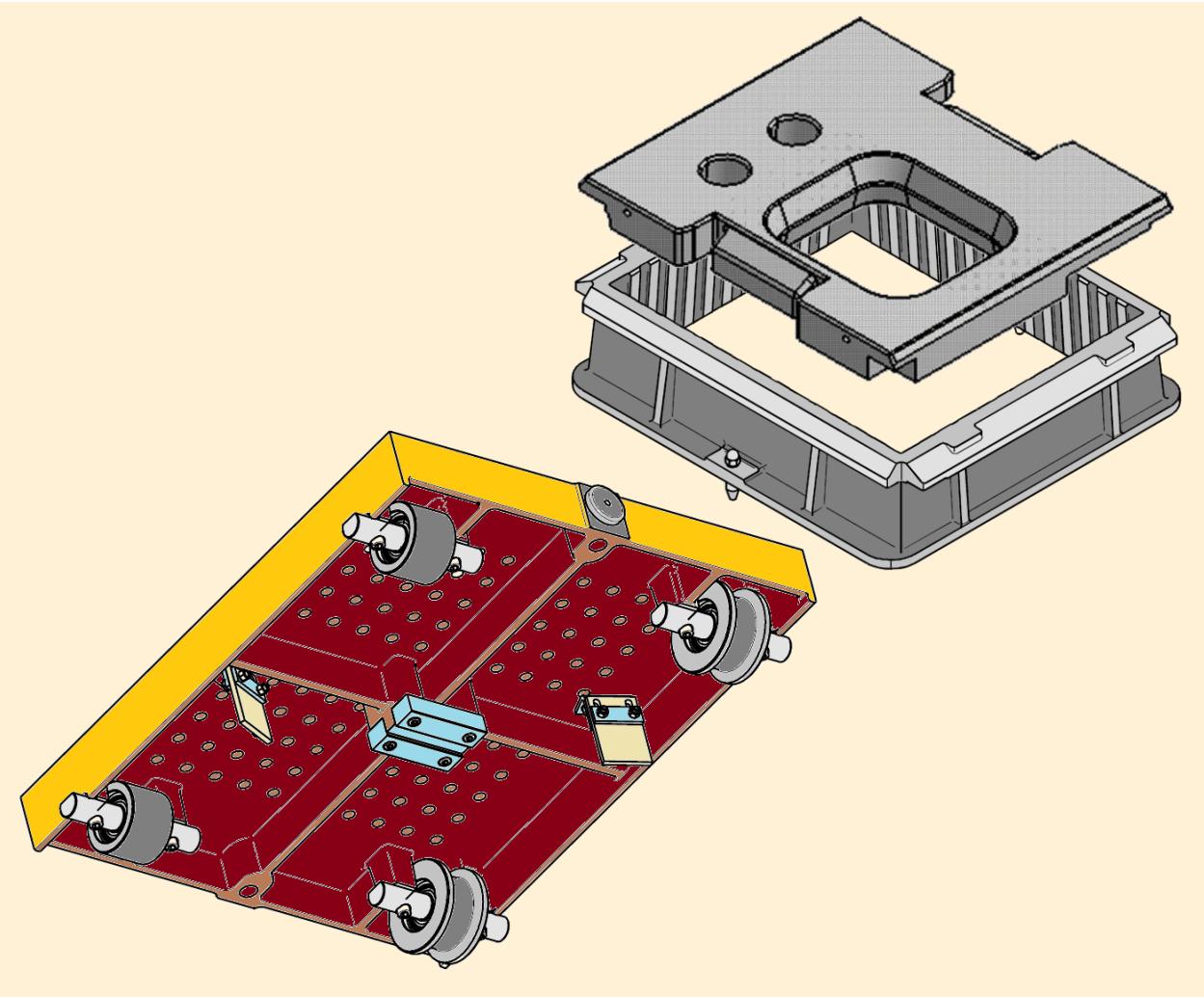
Extra Down Sprue for gas Vent



Direct vent at pattern



# Mould weights, jackets and pallet cars dimensions



## Dimensions

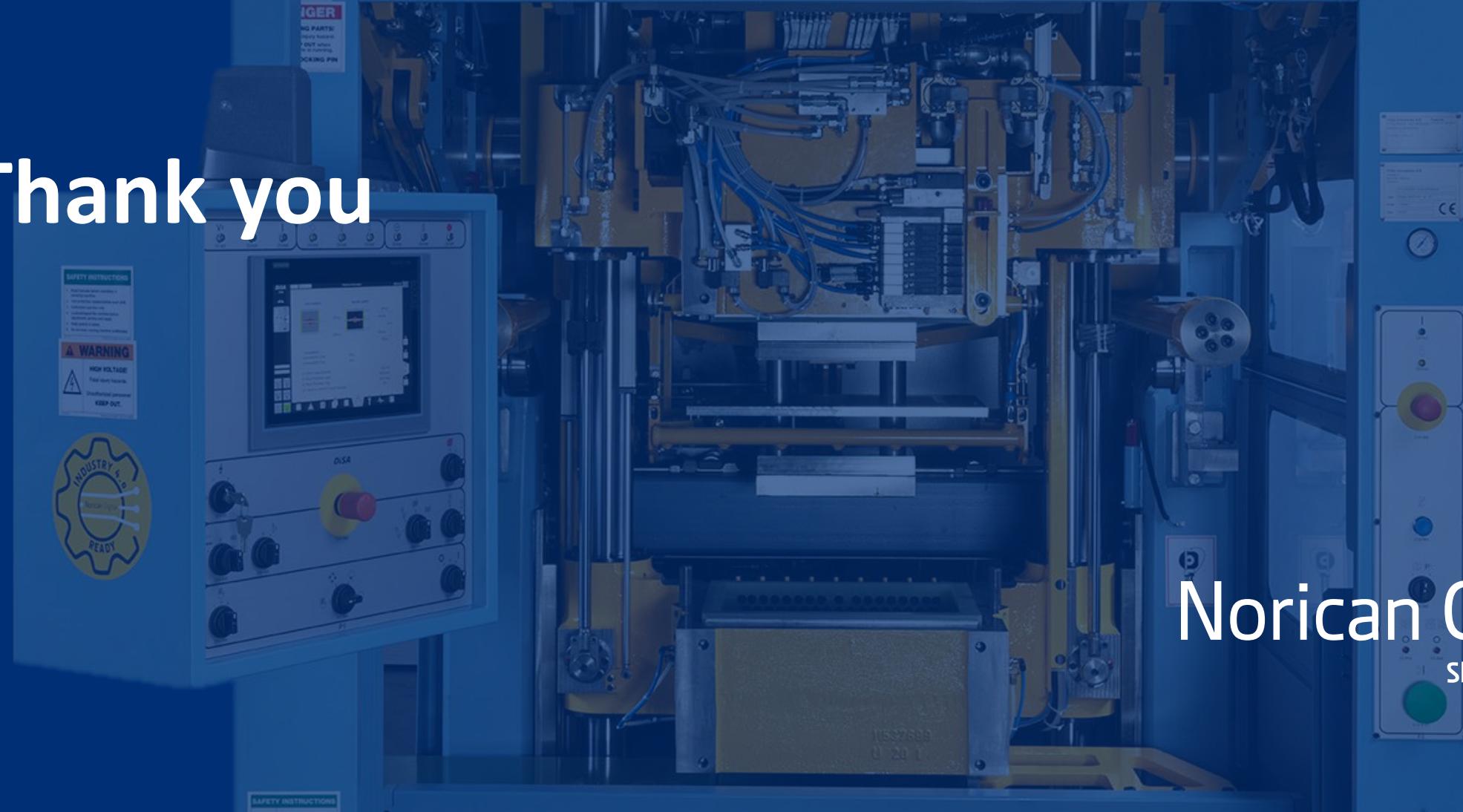
<b>14/19</b>	<b>Size in mm</b>	<b>Weight in kg</b>	<b>Material</b>
Mould weight	490 x 600 x 90	104	Grey iron casting
Jacket		19	Aluminium
Pallet car	600 x 570	71	
<b>16/20</b>			
Mould weight	540 x 625x 90	123	Grey iron casting
Jacket		21	Aluminium
Pallet car	600 x 570	71	
<b>20/24</b>			
Mould weight	640 x 725 x 90	175	Grey iron casting
Jacket		26	Aluminium
Pallet car	700 x 670	104	
<b>24/28</b>			
Mould weight	840 x 728 x 125	325	Grey iron casting
Jacket		38	Aluminium
Pallet car	710 x 880	138	
<b>28/32</b>			
Mould weight	940 x 830 x 153	480	Grey iron casting
Jacket		52	Aluminium
Pallet car	810 x 960	184	
<b>32/32</b>			
Mould weight	940 x 930 x 145	550	Grey iron casting
Jacket		63	Aluminium
Pallet car	910 x 980	230	

# DISA

A Norican Technology

DISA  
A Norican Technology

# Thank you



Norican Group  
Shaping Industry

# DISA the complete foundry supplier – We are with you all the way **DiSA**

A Norican Technology



Clarification of requirements via loading study

Overall project plan, layout and contract

Installation, acceptance test and production start-up

Casting production and aftermarket support and services

# Pick your Service Package



Services	Premium	Standard	Lite
<b>Supervised Installation</b> (Duration depends on amount of equipment)	X	X	X
<b>Lite Online Training</b> (4 modules – 3 hours each)	X	X	X
<b>Total Optimization Production Service - TOPS</b> (In warranty period)	X	X	X
<b>Onsite Training</b> (5 days – 35 hours in total)	X	X	
<b>Remote Smart Service - RSS</b> (10 hours)	X	X	
<b>Remote Smart Application - RSA</b> (10 hours)	X	X	
<b>Onsite Training Advanced</b> (5 days – 40 hours in total)	X		
<b>Application Onsite</b> (3 weeks – 120 hours)	X		

# Product overview - Vertical

Machine types	Typical production (tons/year)	Typical casting size (kg)	Mould size (mm)	Uncored speed (moulds/hour)	Cored speed (moulds/hour)
DISAMATIC C3-150 A, B	Vertical		480 X 600 / 535 X 650	150	120
DISAMATIC C3-250 A, B, X			480 X 600 / 535 X 650 / 535 X 750	250	220
DISAMATIC C3-350 A, B, X			480 X 600 / 535 X 650 / 535 X 750	350	300
DISAMATIC D1-205 A			400 X 500	205	185
DISAMATIC D1-315 A			400 X 500	315	285
DISAMATIC D3-365 A, B, C, X, Z			480 X 600 / 535 X 650 / 550 X 675 / 535 X 750 / 570 X 750	365	333
DISAMATIC D3-425 A, B, C, X, Z			480 X 600 / 535 X 650 / 550 X 675 / 535 X 750 / 570 X 750	425	380
DISAMATIC D3-555 A, B, C, X, Z			480 X 600 / 535 X 650 / 550 X 675 / 535 X 750 / 570 X 750	555	465 / 485
DISAMATIC D5-355 B, C, Z			600 X 775 / 600 x 800 / 650 X 850	355	330
DISAMATIC D5-415 B, C, Z			600 X 775 / 600 x 800 / 650 X 850	415	385
DISAMATIC D5-450 B, C, Z			600 X 775 / 600 x 800 / 650 X 850	450	415

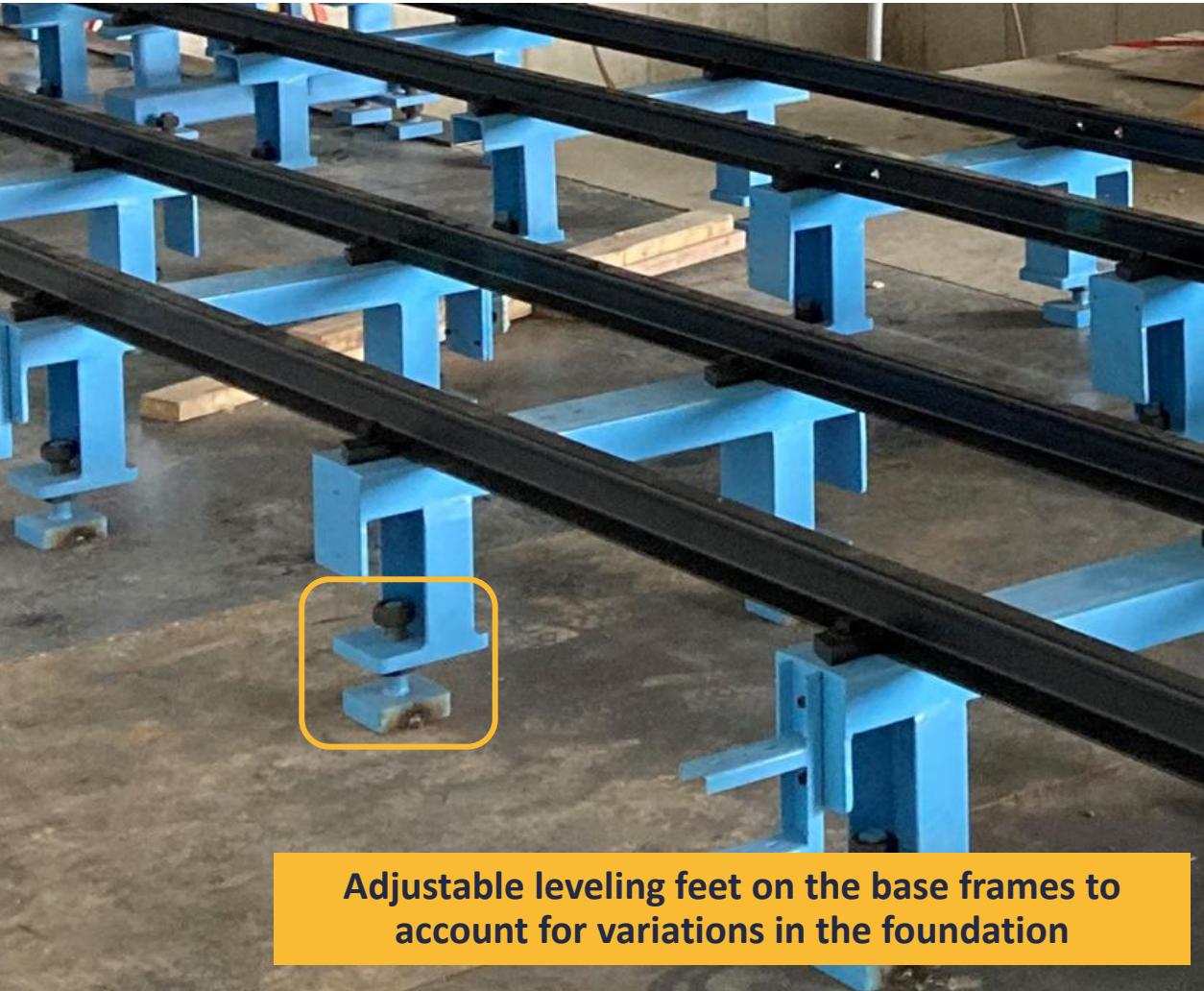
# Product overview - Horizontal



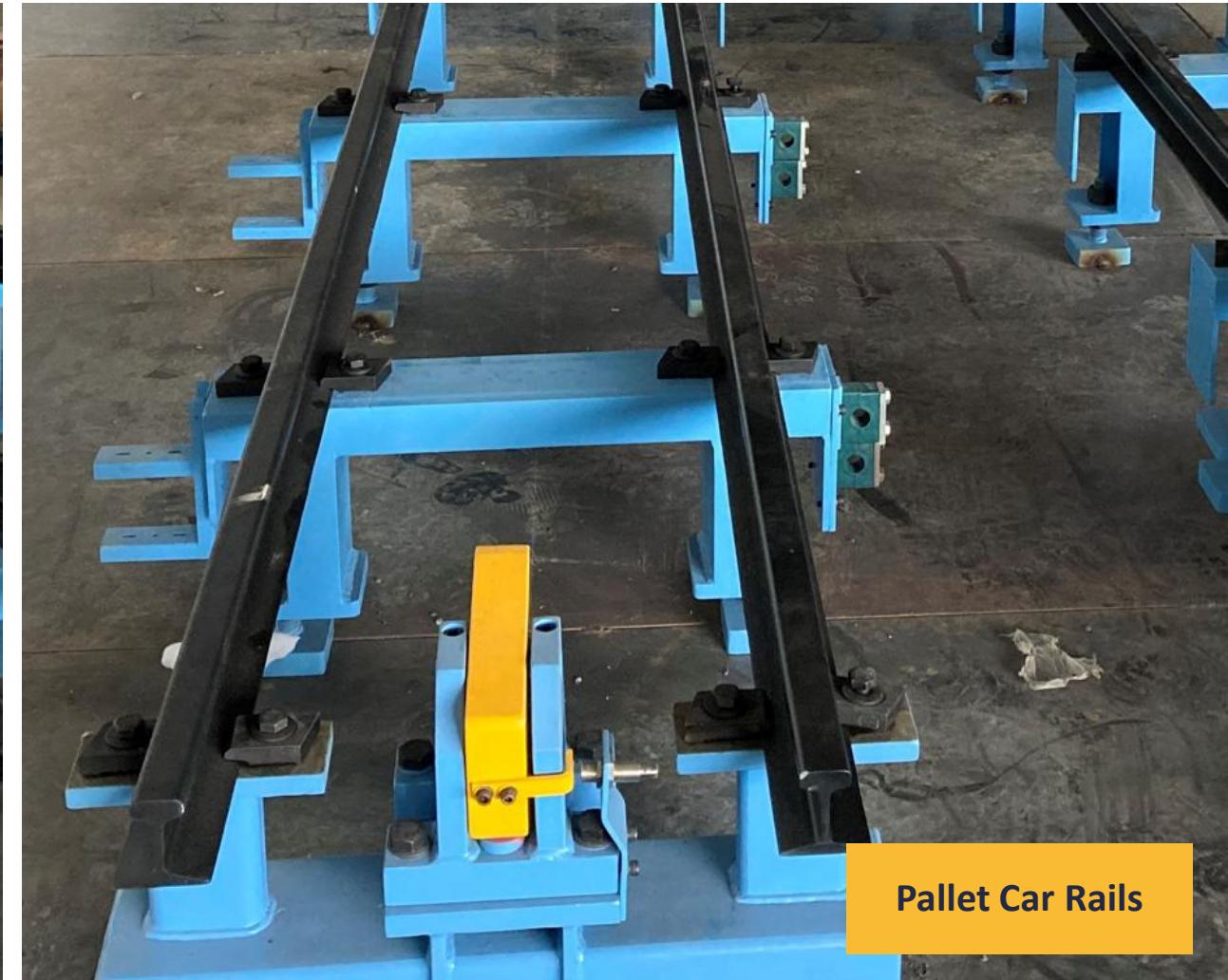
Machine types	Typical production (tons/year)	Typical casting size (kg)	Mould size (mm)	Uncored speed (moulds/hour)	Cored speed (moulds/hour)
Flaskless	MATCH 14/19		356 x 483	150/210	120/160
	MATCH 16/20		406 x 508	150/210	120/160
	MATCH 20/24		508 x 610	150/210	120/160
	MATCH 24/28		610 x 711	120/155	100/120
	MATCH 28/32		711 x 813	100	75
	MATCH 32/32		813 x 813	100	75
Flask	DISA FLEX 70 HS		200/250/300/325/350 x 700	120	-
	DISA FLEX 80		200/250/300/325/350 x 800	110	-
	DISA FLEX90		250/300/350/400/450 x 1000	100	-

# Pallet car base frames and rails

**DiSA**  
A Norican Technology



Adjustable leveling feet on the base frames to account for variations in the foundation



Pallet Car Rails

# Weight and jacket transfer

**DiSA**  
A Norican Technology



# Pallet car transfer stations, hydraulic push and brake units

**DiSA**  
A Norican Technology



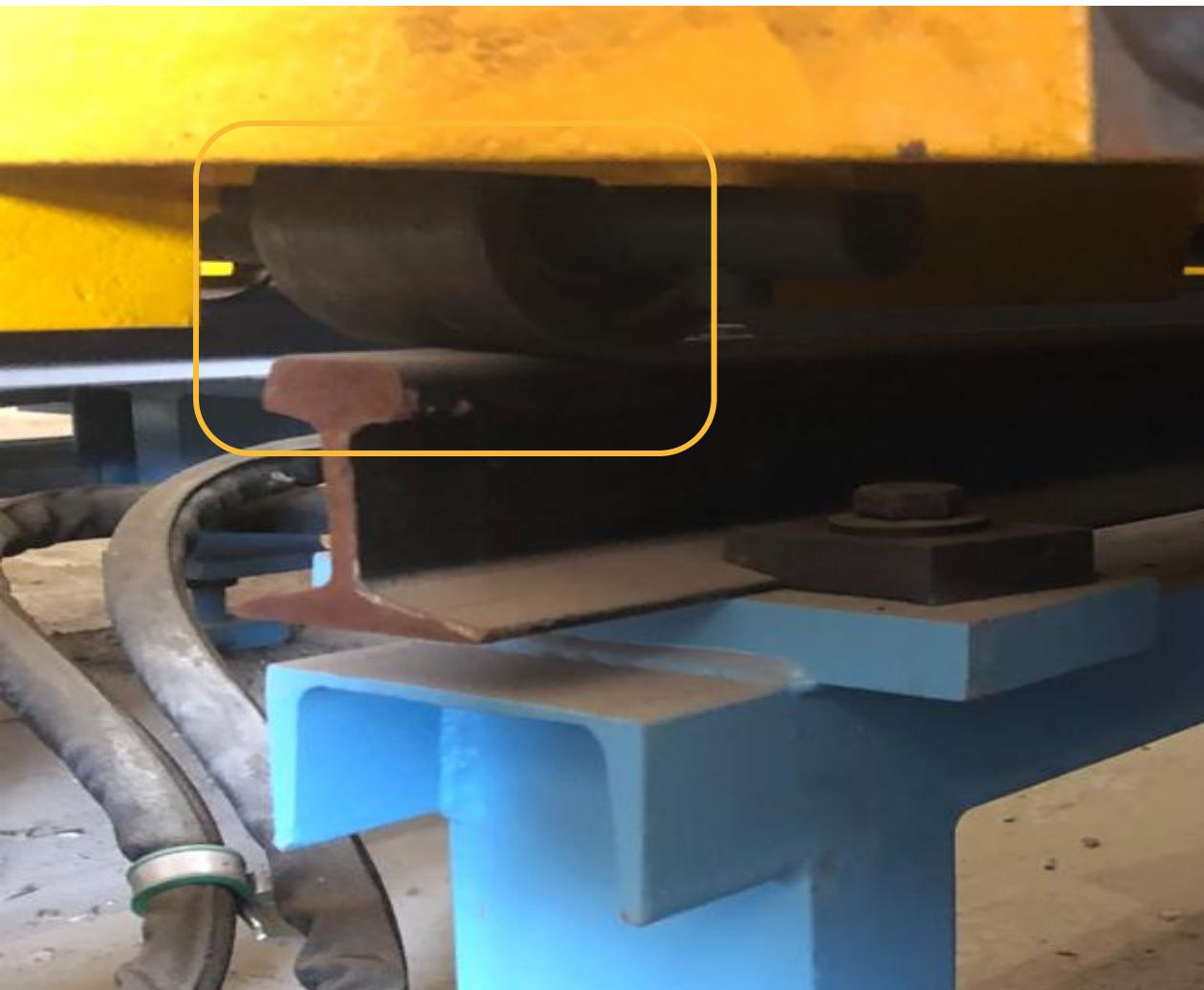
# Pallet cleaning station

**DiSA**  
A Norican Technology



# Pallet car load and guide wheels

**DiSA**  
A Norican Technology



# Weight and jacket change station

**DiSA**  
A Norican Technology



# Sand spillage guards

**DiSA**  
A Norican Technology

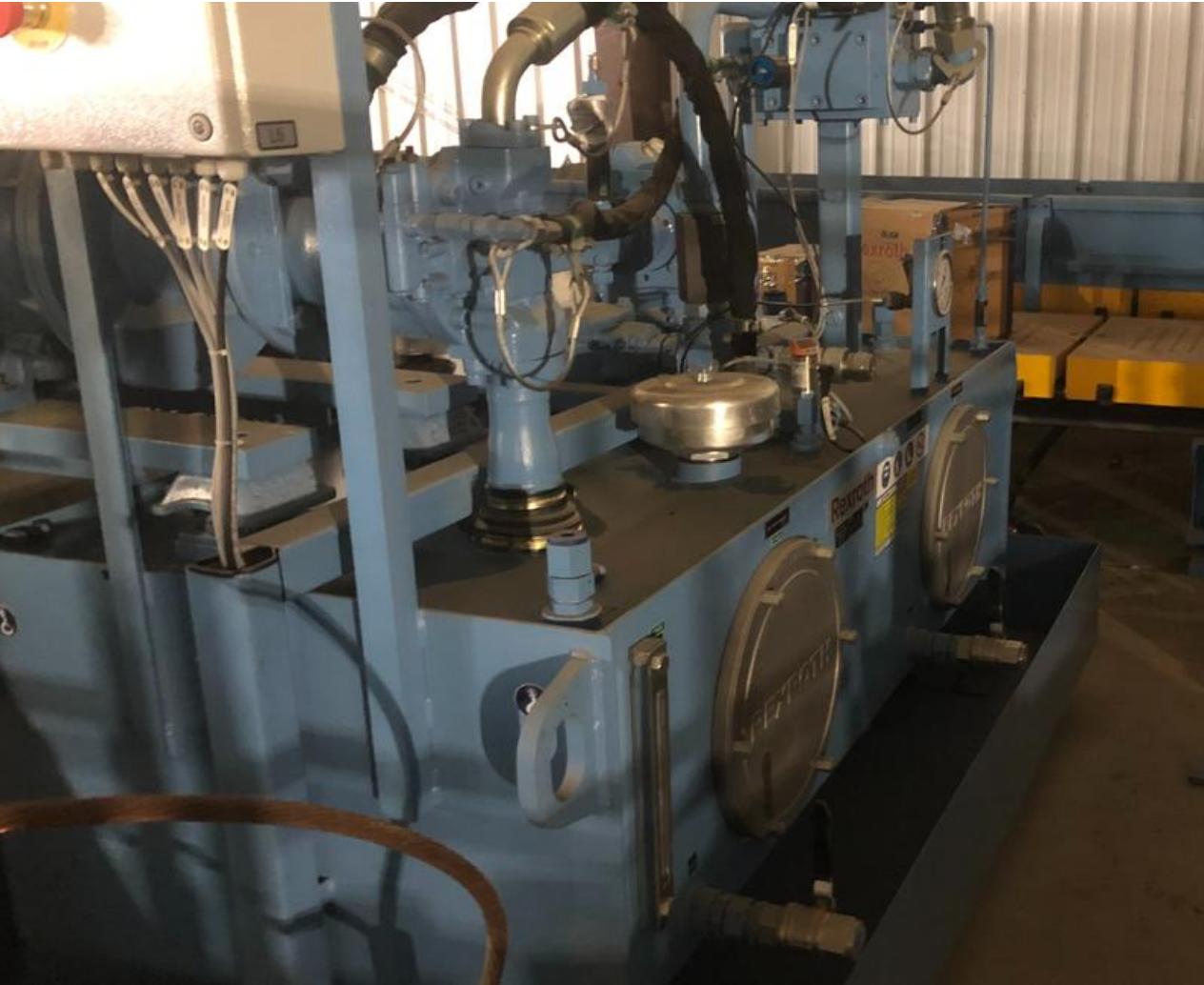


# Mould push-out



# Rexroth hydraulic pump station (Customer supplied containment p

**DISA**  
A Norican Technology



# Mould push-off

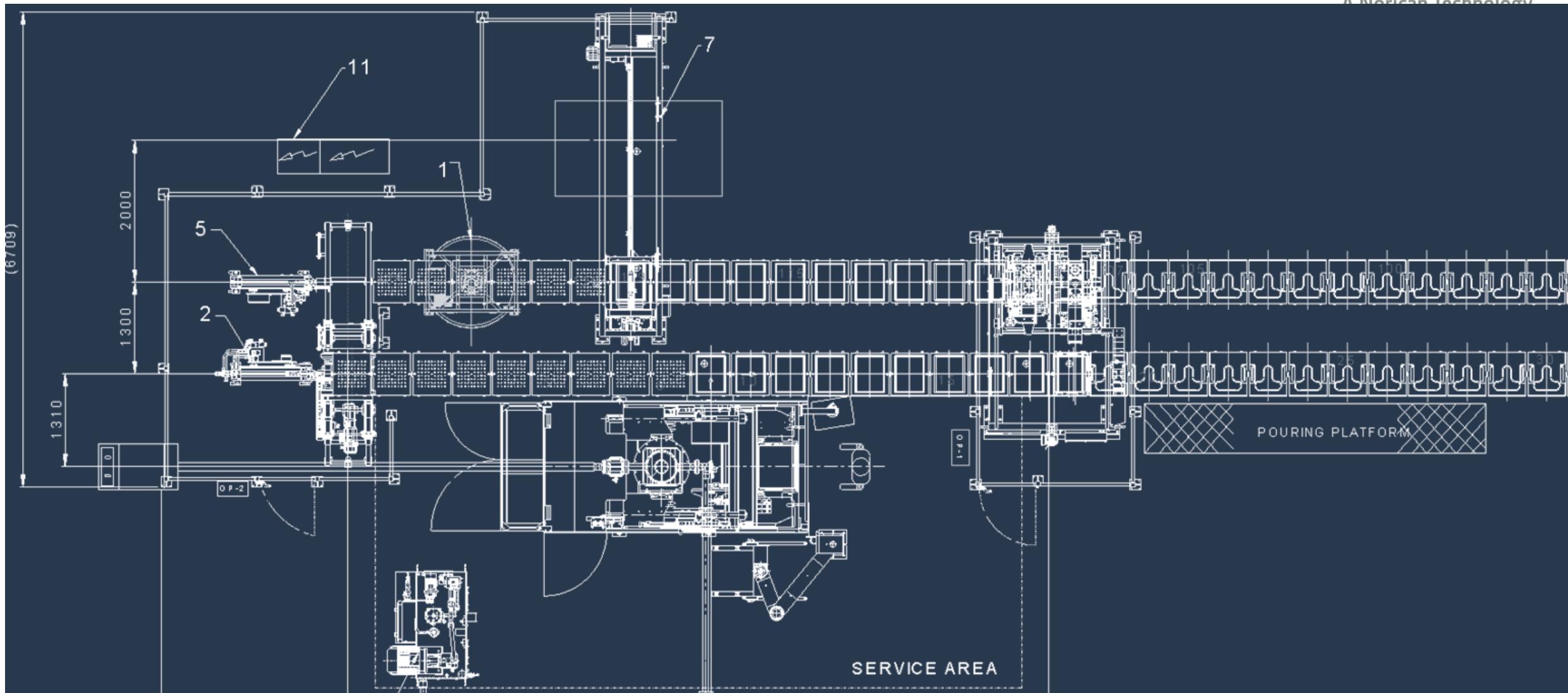
**DISA**  
A Norican Technology



**Norican Group**  
Shaping Industry

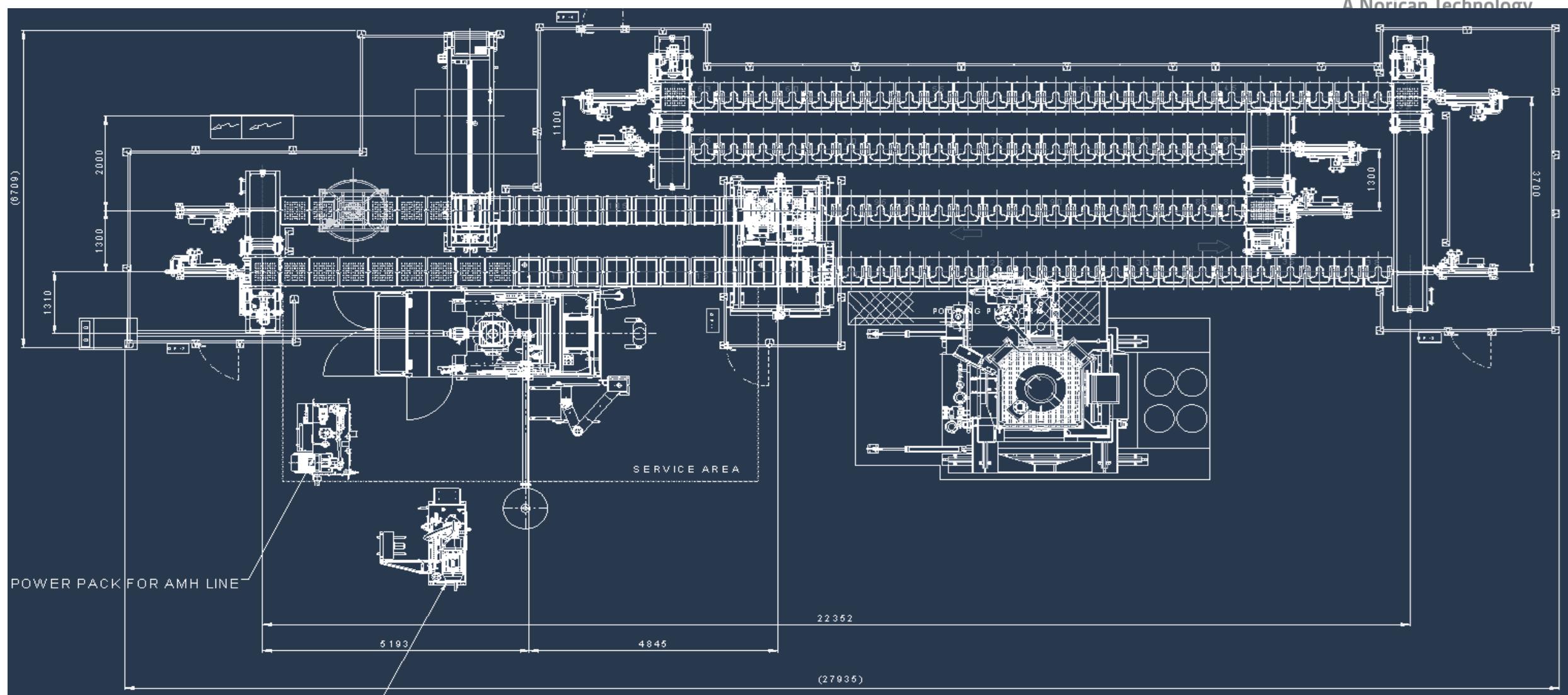
# Right-Hand DISA Match / Standard 30 Minutes Cooling AMH

**DISA**  
A Norican Technology



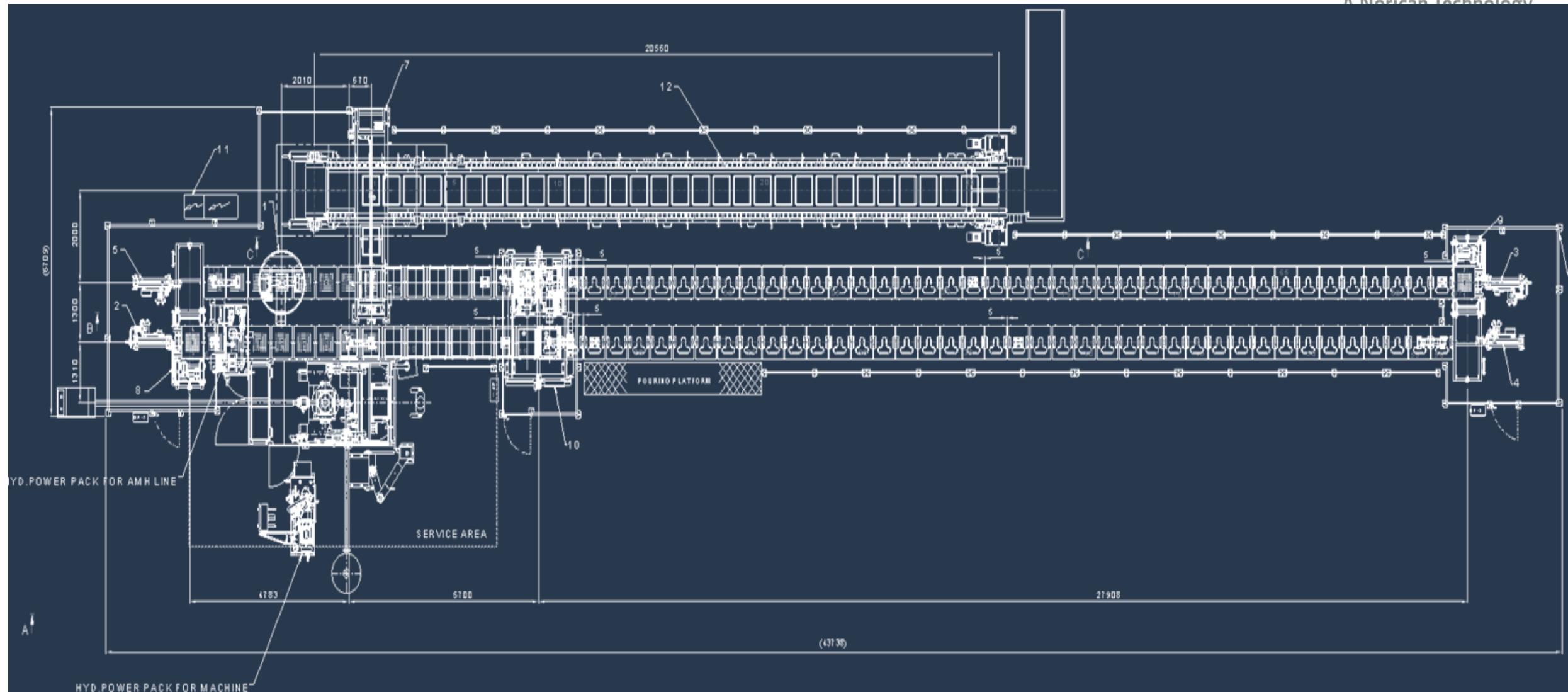
# Right-Hand DISA Match / Custom 30 Minute AMH With Pressure Pour

**DiSA**  
A Norican Technology



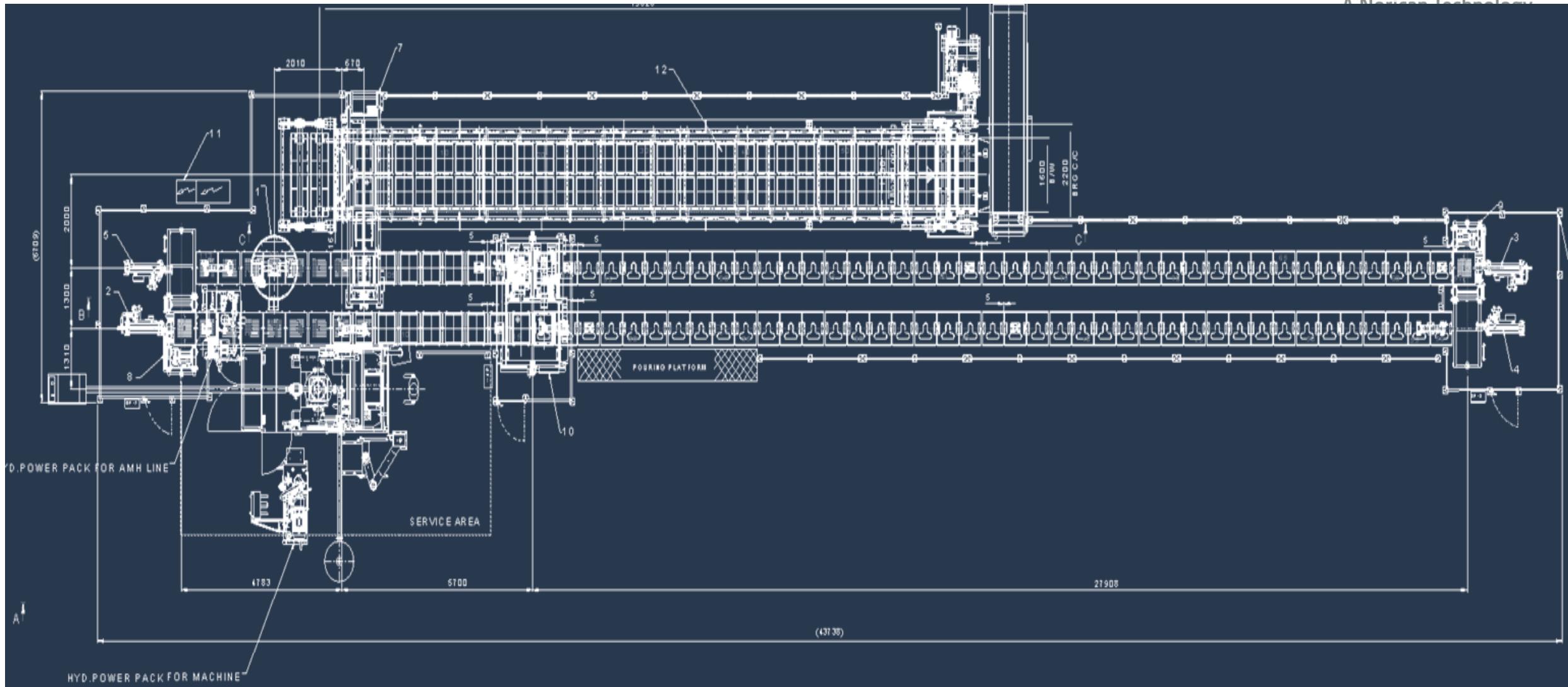
# Right-Hand DISA Match / Standard 40 Minutes Cooling AMH

**DISA**  
A Nerican Technology



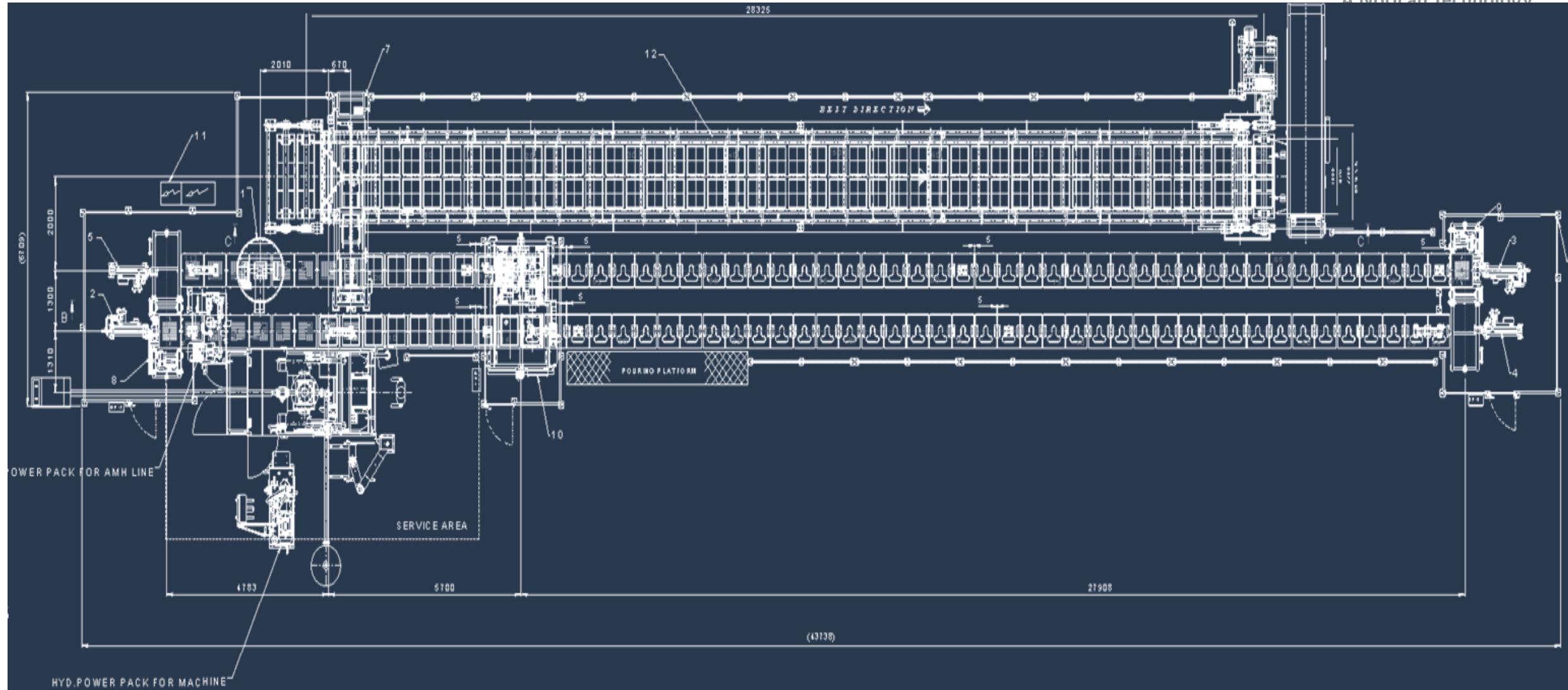
# Right-Hand DISA Match / Standard 50 Minutes Cooling AMH

**DISA**  
ANALYST



# Right-Hand DISA Match / Standard 60 Minutes Cooling AMH

**DISA**  
A Norican Technology



# Right-Hand DISA Match / Standard 90 Minutes Cooling AMH

**DiSA**  
A Norican Technology

