

BÜHLER

Fusion140

Fusion.
**Next generation
die casting.**

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Superior control, speed and efficiency from a flexible, modular solution.

Based on over 90 years of experience, Fusion is the next generation, three-platen die-casting platform, designed to deliver exceptional OEE. Covering 3,500 kN to 14,000 kN locking force, Fusion's closed loop control, modular energy frame and Industry 4.0 automation capability help to make it the flexible solution for your quality aluminum and magnesium die-casting, now and long into the future.



7

SmartCMS – Your operator in total control.

- View, control and program your entire die-casting cell from one centralized user interface
- Paving the way for extensive improvements and advantages at the cell level
- Future connection of your cell with Industry 4.0 smart factory systems and our Digital Services

1

Injection unit controlled in real-time for higher quality.

Bühler's closed-loop and real-time controlled injection unit gives you best quality, repeatable part production, every shot.

2

Optimized closing unit – faster than ever before.

The optimized geometry of the three-platen system supports shorter cycle times, with an enlarged tie bar spacing for larger dies.

5

2

3

4

3

Safety first design with faster accessibility.

All of Fusion's electro-cabinets are housed in enclosures for safety first operation. This also makes set-up, production changes, maintenance and servicing quicker and easier.

4

Servo drive reduces cycle time and energy consumption.

Smoother servo driven hydraulics can cut cycle time and reduce energy consumption by up to 40 %.

6

DataView provides faster programming.

The intuitive and user-friendly DataView control system can cut your programming time by up to 25 % and makes it easier for operators to control and manage your machine.

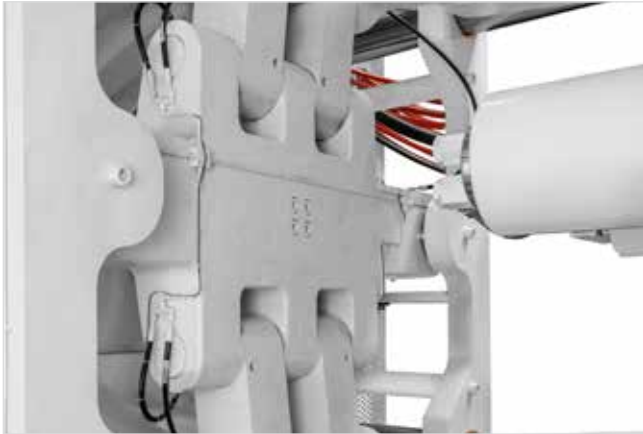
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Modular energy frame gives you the ultimate flexibility.

All the interfaces of the die connection are contained in a modular energy frame, which gives you full flexibility for machine configuration and production.



Advanced three-platen technology. **Designed with your productivity in mind.**



Reengineered closing unit reduces cycle times and accepts larger dies.

Based on experience from thousands of installations worldwide, Fusion takes the three-platen closing unit to a new level. New designed components offer improved rigidity with reduced weight, giving you faster, more precise closing, while using less energy. Combined with the new smoother servo drive, energy savings can be as high as 40 %. The reengineered movable and cylinder platen design allows more room for larger dies.

up to
40%

energy savings



DataView simplifies programming, control and analysis.

DataView makes it easy for your operators to control your die-casting machine from the ergonomic user interface. Simple graphical screens and recipe management make programming up to 25 % faster. You can manage real-time controls and adjustments directly from the touch screen. Prompts and alarms help with daily operation and provide practical assistance for targeted diagnostics and analyses. The user-friendly interface is available in a number of languages.

up to
25%

less programming time



Innovative injection unit focuses on repeatable quality and efficiency.

Using Bühler's unique new closed-loop shot control, Fusion measures the position and speed of the injection piston and the pressure on the injection cylinder. An algorithm assesses any deviation from optimum settings and provides real-time adjustments, using servo valves and high speed pilot valves. This real-time control – during the movement of the plunger, rather than between shots – can enhance your reproducible quality and preserve your die for longer.

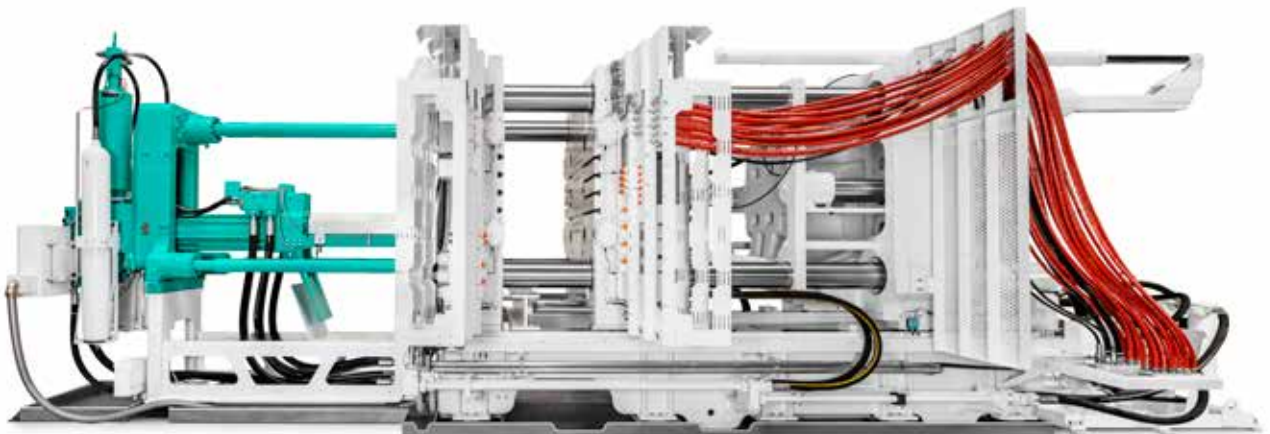


Safety first, ergonomic design.

You can see that Fusion has been designed with your foundry in mind. The new smoother lines safely keep electrical and mechanical parts away from your people. The injection unit splash guard, the well-arranged die-machine interfaces and a new safety PLC system complete a comprehensive safety first approach.

New modular energy frame. **Future-proofing your investment.**

New energy frame future-proofs your machine. The brand new and unique energy frame system contains all the interfaces for your die connections. The hydraulic core pull units, squeeze pin units, intelligent water cooling circuits, tempering lines, SmartVac, jet cooling, electrical connections, and many more functions are all housed in one place, making access and maintenance easier.

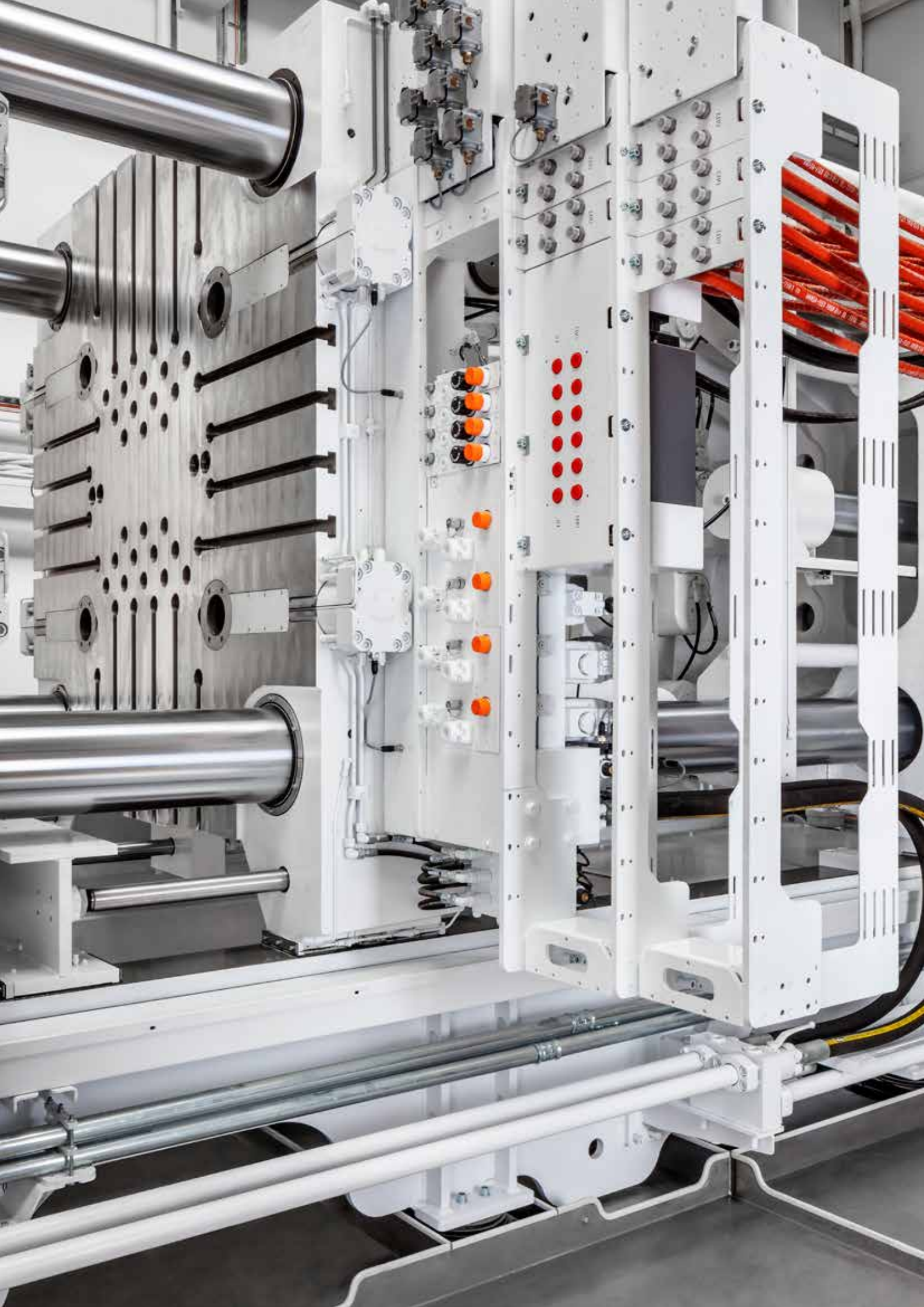


Modularity to suit your process.

This modular system allows you to choose from a wider range of options to match the precise needs of your process. Each side of the machine can be equipped with up to three energy frame rows, giving you total flexibility for each machine, and enabling different machines to be easily configured for different processes.

Ready for repurposing, upgrades and enhancements.

This innovative energy frame design protects your investment too. Repurposing a machine or introducing upgrades will now be straightforward. Connectivity from the energy frame is ready to support SmartCMS control.



SmartCMS - Smart Cell Management System. **The brain of the Digital Cell.**

By thinking of the cell as one system, rather than a machine equipped with a lot of peripherals, SmartCMS gives the operator the possibility to view, control and program the entire cell from one centralized user interface.

For a number of years now, Bühler die-casting machines have offered more and more digital control options to give your operators better visibility of the machine.

SmartCMS is now expanding the digital control to the entire die-casting cell. The Bühler FlexInterface with standardized protocol enables the basis for connectivity between the cell controller and the peripheral devices for extended information and data exchange.

Paving the way for extensive improvements and advantages, SmartCMS can increase productivity and traceability with improved product tracking through centralized data handling, monitoring and analysis. Faster set-up and

production changes, lower diagnostic time and effort can enhance efficiency and improve your cell OEE.

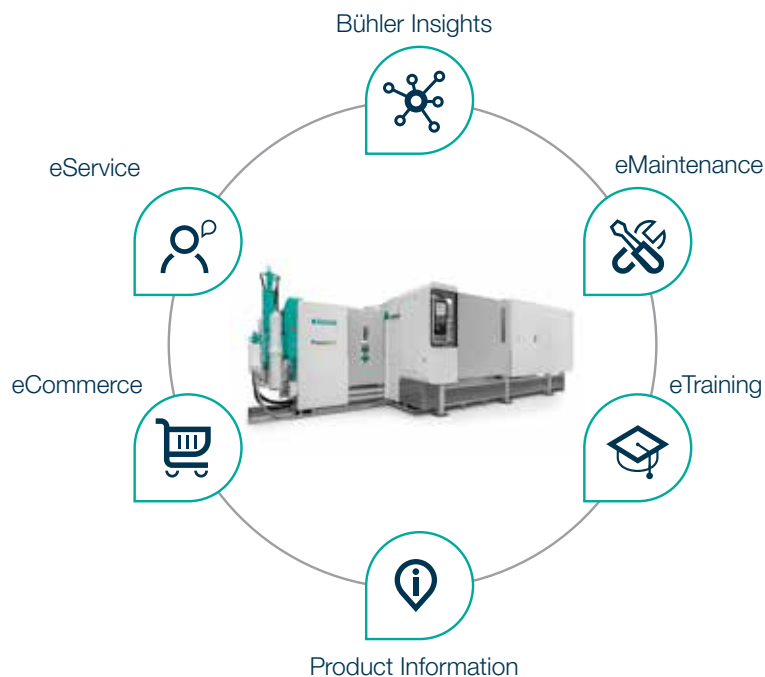
For future integration with Industry 4.0 smart factory systems and Bühler Digital Services, Fusion is ready for SmartCMS for centralized operation and new data management possibilities.



myBühler Customer Portal.

Your individual service experience.

The myBühler customer portal offers you easy access to all details of your Bühler equipment and helps you do easy business with us.



With a single sign on you will have access to the following services:

- Product information
- eCommerce
- eMaintenance
- eService
- eTraining
- Bühler Insights

The myBühler customer portal is also the entering point to all of our digital services.

Ready for digital services.

Developed with and based on Bühler Insights, our digital services provide a secure, globally available, fully supported data hub for a wide range of services that will work with your die-casting cell to help you improve efficiency, productivity and OEE.

Our digital services include

- Die Casting Dashboards – for a visual overview of your cell on a 24/7 basis.
- Predictive Analytics – helping to scheduled preventive maintenance for your machines.
- Downtime Analysis – providing a comprehensive performance analysis to help you reduce downtimes.

Expertise you can rely on. **Supporting your 24/7 foundry.**

Modern die-casting systems are exposed to permanent performance pressure and are often in service on a 24/7 basis. This places a very high demand on your people and machines.

Easy to operate and maintain.

Fusion is designed to make life easier for your operators and engineers. Large unimpeded service doors on both sides of the machine give access to the toggle area and the ejector system with plenty of room for production changes or maintenance work. A new crane system makes exchanging plunger rods and plunger tips faster and safer.

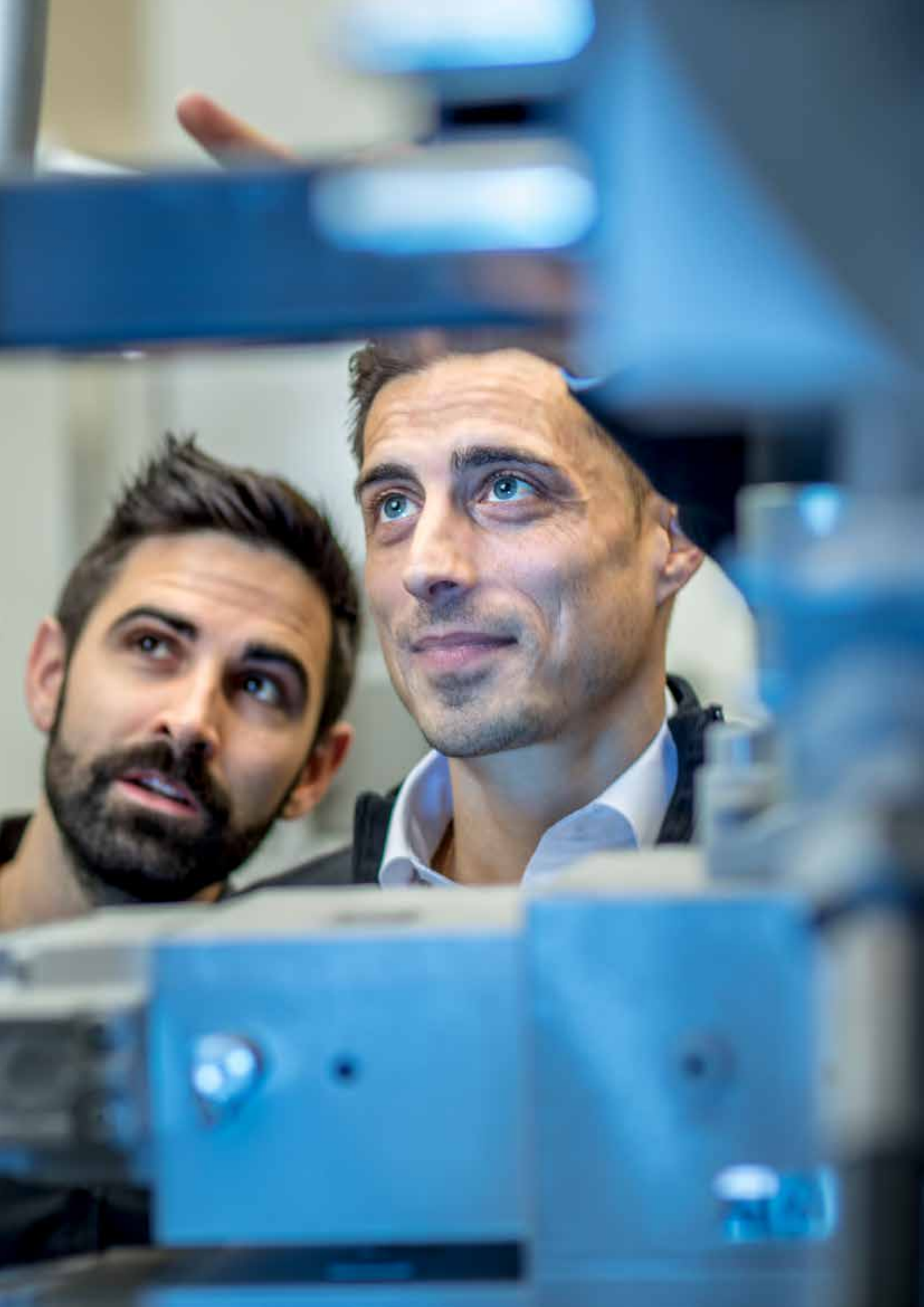
Die-machine interfaces are well arranged and accessible through the safety gate. There is no need for your people to step behind the energy frame, ensuring that they always work in a safe and convenient environment. Centralized components requiring service and maintenance are all accessible at the rear end of the machine.

Global machine build and support.

Fusion is being built at our factories in Europe, Asia and the US, providing regional hubs for consulting, configuring, installation and support.

Service and maintenance is available around the globe, with 24/7 service and maintenance contracts. You can access training and application support through three Die Casting Competence Centers, ready to help you to improve processes, operations and overall productivity.





Fusion.

Technical data / dimensions.

Machine type	Injection force, dynamic (90% injection stroke)	Injection force intensified	Plunger diameter (min./max.)	Shot position	Plunger stroke	Shot weight (Al) (min./max.) filling rate 60%	Projected area, plunger diameter (min./max.)
	kN	kN	mm	mm	mm	kg	cm ²
35°	137	373	50/85	0/-210	500	1.3/3.8	184/532
55°	192	537	60/100	0/-250	600	2.3/6.4	289/804
70°	288	760	70/120	0/-300	700	3.6/10.7	354/1042
90°	288	760	70/120	0/-300	700	3.6/10.7	456/1339
110°	409	1096	80/140	0/-350	850	5.8/17.7	504/1545
140	409	1096	80/140	0/-350	850	5.8/17.7	642/1966

* sizes will be available at a later stage



Projected area at 400 bar	Specific injection pressure (min./max.)	Maximum locking force	Platen size (height x width)	Distance between tie bars	Die height (min./max.)	Die opening stroke	Ejector force	Ejector stroke	Machine weight
cm ²	bar	kN	mm	mm	mm	mm	kN	mm	kg
875	657/1900	3500	965 x 965	650 x 650	280/680	510	100	120	13000
1375	684/1900	5500	1205 x 1205	800 x 800	330/810	640	150	145	23000
1750	672/1975	7000	1365 x 1365	900 x 900	360/900	800	225	175	34000
2250	672/1975	9000	1525 x 1525	1000 x 1000	400/1000	840	225	175	46000
2750	712/2180	11000	1700 x 1700	1100 x 1100	560/1150	950	400	220	62000
3500	712/2180	14000	1885 x 1885	1225 x 1225	640/1300	1000	400	220	77000

subject to change without notice



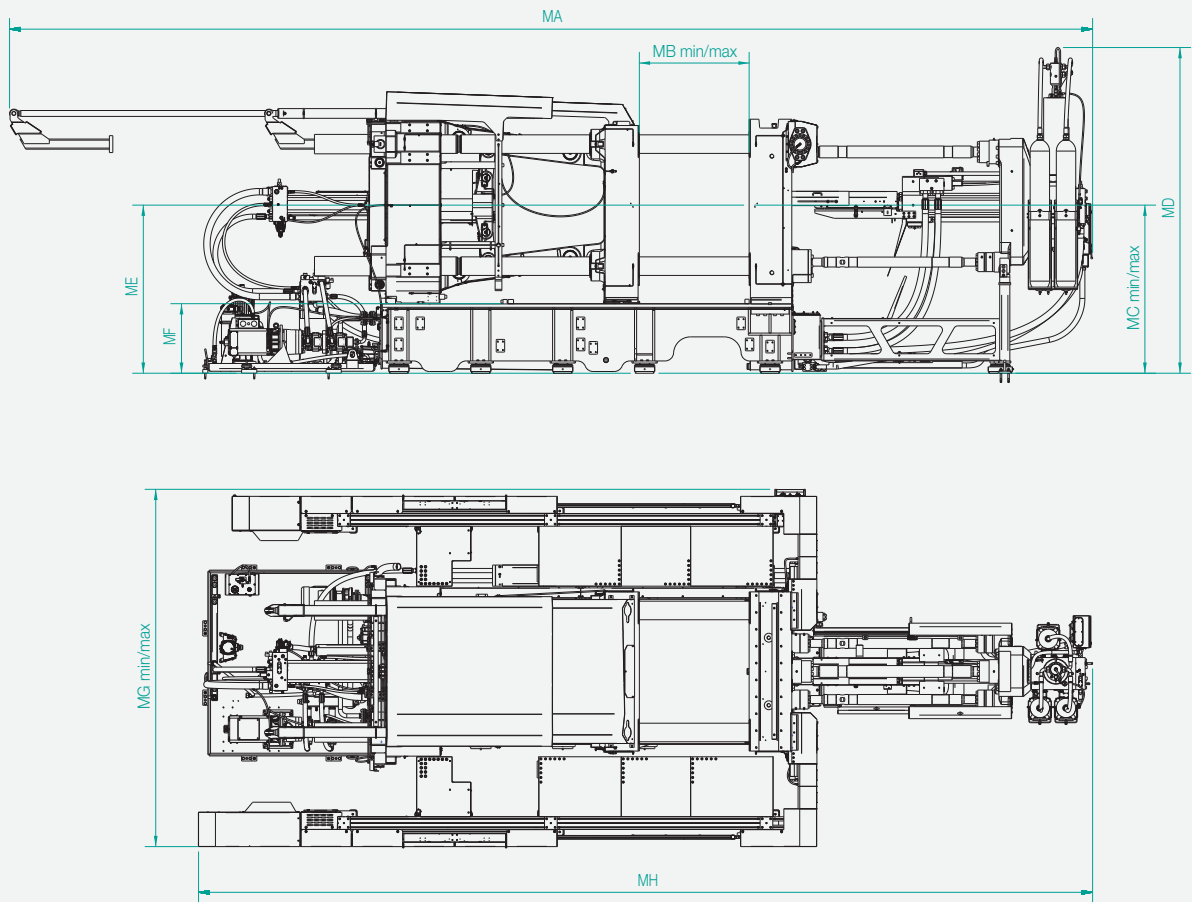
Fusion.

Technical data / dimensions.

Machine type	MA	MB min.	MB max.	MC min.	MC max.	MD	ME	MF	MG min.	MG max.	MH
35°	7300	280	680	1176	1386	2627	1386	824	2521	2791	6950
55°	8521	330	810	1236	1486	2978	1486	824	2761	3551	7200
70°	9680	360	900	1306	1606	3300	1606	824	2921	3711	8670
90°	10250	400	1000	1356	1656	3350	1656	824	3081	4411	8670
110°	12090	560	1150	1541	1891	3757	1891	824	3251	4571	10580
140	12870	640	1300	1641	1991	3857	1991	824	3441	4771	10580

* sizes will be available at a later stage

units in mm
subject to change without notice





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