Evolution & Carat.

The modular future.
Evolution and Carat – A step into the future. High productivity means improved competitiveness.

High productivity in the die casting industry means lower component production costs and improved competitiveness – a must in today’s competitive global environment.

In response to your need for cost-optimized productivity, we have developed the new Evolution and Carat machine series for you. Carefully thought-out production system designs, optimized casting processes, and value-adding services: Bühler – synonymous for cutting-edge technology, quality, and performance. You can rely on us!
Evolution and Carat – The modular future.
By combining die closing and shot units, we can meet your production requirements.

Customize your machines to suit your specific requirements. You can combine every die closing unit with three different shot units.

They give consideration to future needs and continue the outstanding concept of their predecessors.

Combine the die closing unit with:
- **“Lean” shot unit** for casting components with a low shot weight and large surface area, as structural parts.
- **“Compact” shot unit** for casting standard components,
- **“Extended” shot unit** for casting components with a high shot weight and small surface area.

The machines in the locking force range up to 9000 kN will continue to be supplied with the three-platen concept.

For locking forces from 10000 kN to 44000 kN, we now offer you the proven two-platen Carat machine series.
Evolution – The small machine for the future. High uptime and proven process technology.

**Machine series**
in seven sizes ranging from 2600 to 9000 kN locking force.

**Easy, low-cost installation**
Since the machine is supplied as a fully assembled unit, all that has to be done is to connect the energy and link the interfaces with the peripheral equipment.

**A large number of additional options**
that you can choose from to suit your individual production needs.

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1. **Pump assembly as variable-displacement pump set**
   Graduated pump sizes on one shaft control the requirement and minimize electrical power consumption.

2. **Guarded tie bar threads**
in all operating conditions and also during die changes. This prevents wear by spray residues or tinsel in the thread zones and increases the service life of the nuts and tie bars.
3 No operator retraining required because operation of the Datanet control system of the machine is based on the same philosophy as that of the predecessor machines and assists the user with integrated operating aids.

4 The shot unit can be selected in three versions – lean, compact, extended – to suit your specific needs. Consideration is given to future trends in terms of plunger stroke and shot weight.
Carat – The Bühler two-platen machine. High efficiency with cutting-edge technology.

**Machine series**
graduated in thirteen sizes with locking forces ranging from 10,500 to 44,000 kN.

**Lower space requirement thanks to shorter overall length**
An old machine can be replaced by a higher-tonnage machine in a given space.

**Few moving parts**
few lubrication points, low wear and therefore low maintenance costs.

**Compensation of non-parallel dies**
means higher dimensional accuracy of cast components and therefore reduced scrap rates.

**Less flash**
thanks to the higher rigidity of the die closing system and of the moving die mounting platen. This reduces downtimes caused by die maintenance, increases the die service life, cuts the cost of trimming components, and reduces the scrap rate.

**A large number of additional options**
that you can choose from to suit your specific production needs.

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1 **Pump assembly as gear pump set**
Three graduated pump sizes on one shaft control the requirement and minimize electrical power consumption.

2 **No operator retraining required**
because operation of the Datanet control system of the machine is based on the same philosophy as that of the predecessor machines and guides the user with integrated operating aids.

3 **Uniform locking force distribution**
The clamping cylinders reduce the creation of flash. This cuts downtimes caused by die maintenance and diminishes the cost of trimming components.

4 **Customized locking force selection**
adjusted to the component being cast and the die size increases the service life of the die and of the die closing system.

5 **Sliding tracks and solid sliding pads**
simplify maintenance and reduce the maintenance requirement.
6 Guarded tie bar threads and grooves
in all operating conditions, also during die changes. This prevents wear by spray residues or tinsel in the thread and groove zones and increases the service life of the nuts, locking mechanisms, and tie bars. This means higher uptime.

7 Shot unit
can be selected from among three versions – lean, compact, extended – to suit your specific production needs. Consideration is given to future trends in terms of plunger stroke and shot weight.
The Datanet control system with all the benefits of our real-time-controlled machines offers a total solution in terms of control and instrumentation, visualization, and logics.

**Top process flexibility**
thanks shot curve design as required.

**Process monitoring**
with trend graphics helps increase casting consistency. It shows changes at an early stage which require process parameter modification or maintenance.

**Data management**
allows retracing of production data. These data are saved and transferred via Ethernet links to a master process data system.

**Programming assistant**
simplifies shot curve and core programming.

**Diagnostics and remote maintenance**
via Internet by our customer service centers.

**Cycle time reductions**
through concurrent motions of peripheral equipment and process operations.

**The cycle time diagram**
shows the potential for fine tuning.

**Efficient use of energy**
by intelligent power management.
Casting cells – The integrated future.
With Bühler peripheral equipment.

High productivity requires casting cells with carefully matched die casting machines and peripheral equipment.

The heart is the die casting machine. An integrated cell with the control system as master facilitates production changes and increases capacity utilization. It simplifies the saving of die programs and component-specific data. This guarantees retracing of production data.

Convenient operation during production starts allows complete loading of all die programs and set-up data from the machine control system. The data can be read in directly or be retrieved from master systems.

Diagnostics programs and remote access by our customer service through the Internet simplify problem-solving and substantially reduce the related costs.
Bühler offers you the following integrated peripheral equipment

**BuhlLadle**
A ladling unit in two sizes with very high metal ladling accuracy for shot weights ranging from 5 to 23 kg.

**BuhlSpray linear**
Dual-axis unit in various sizes for the entire locking force range of the Evolution and Carat series with up to 8 spray and blow circuits.

**BuhlRob**
Partially integrated by bus link and based on the proven ABB Foundry plus robot systems.

**BuhlMark**
An integrated component marking unit for retracing cast components and their production data.

**SmartVac**
Fully integrated vacuum system for Carat die casting machines.

Many peripheral units from different manufacturers can be applied together with the die casting machine through digital interfaces. Please ask for detailed sales literature on our integrated peripheral equipment.

Centralized casting cell set-up and operation cuts the time requirement and increases the system uptime.
Aluminum or magnesium die casting is the most economic process for casting light alloys. In order to further raise the efficiency of the die casting process, we continuously develop new processes and services.

In addition to designing and constructing die casting machines and systems, we also concern ourselves with the fine-tuning of processes, die technology, and casting simulations. Our goals are to reduce cycle times, increase the service life of dies, raise the capacity utilization rate, and enhance the quality of cast components. This improves the efficiency of foundry operations.