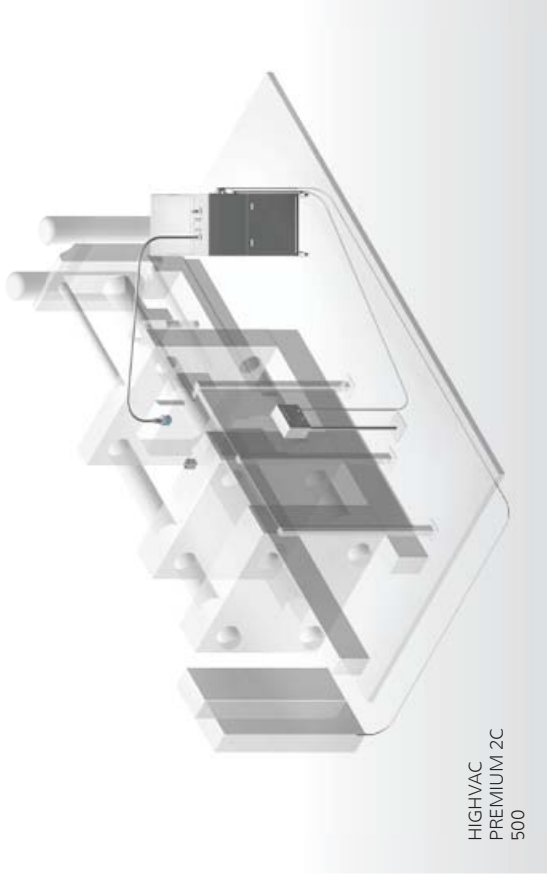


# VACUUM FOR HIGHER QUALITY

In pressure die casting





HIGHVAC  
PREMIUM 2C  
500

# VACUUM: THE EVACUATION GENIUS

## Our principle

In pressure die casting, since filling a cavity with an alloy takes a short time, vacuum technology is recognized as being the most efficient solution to evacuate air and gas. With this technology, superior quality parts can be produced. Today, vacuum technology plays a key role in the production of complex and high quality parts such as structural parts.

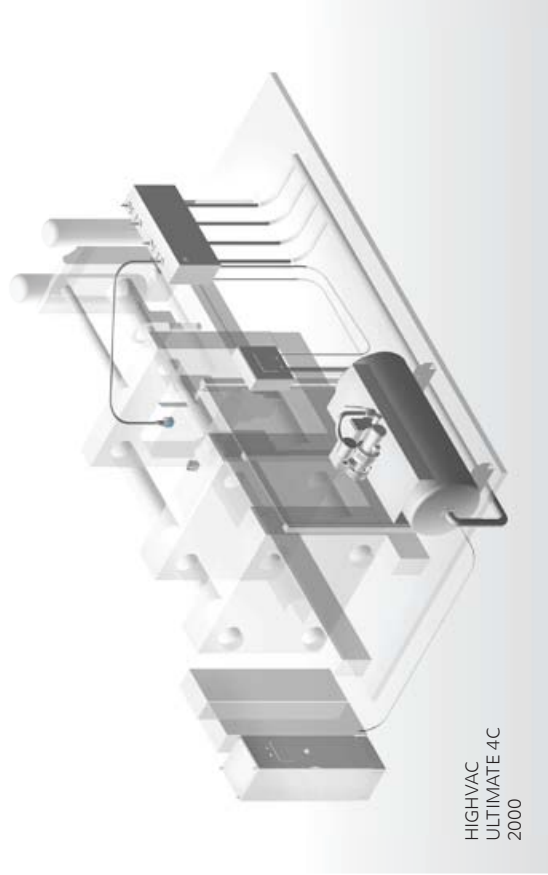
With the innovative vacuum technology, Fondarex uses two methods to guarantee optimum evacuation until the end of the filling phase: patented mechanical valves that close in 1 millisecond or chill-blocks with an ingenious aerodynamic profile.

The Fondarex vacuum system is suitable for all production cells and molds. It is the technology peripheral device for pressure die casting (Al, Mg, Zn) providing additional injection process control.

## Research & Development

Fondarex's research and development engineers continually strive to perfect the vacuum process in die casting and plastic injection molding.

They work in close collaboration with universities, technical centers and customer partners throughout the world. Today, Fondarex counts more than 1000 customers in over 50 countries. With this perfect synergy between market and research, Fondarex continues to develop its technology to meet its customers' increasing demands. Indeed, this is certainly one of the main reasons behind Fondarex's position as world market leader.

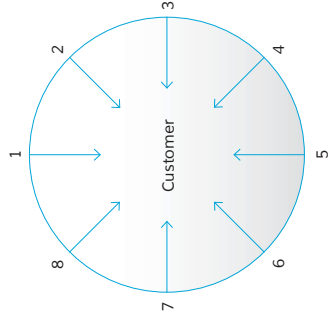


HIGHVAC  
ULTIMATE 4C  
2000

# MULTIFACETED PERFORMANCE

## Our performances

- 1 Consulting and expertise**
  - Integration of the vacuum system in your production cells
  - Overall view of the casting process (mold design, injection parameters, shot sleeve / plunger system and spraying / thermo regulation system)
- 2 Vacuum application studies**
  - Mold adaptation and design, in particular the gating system and vacuum channels
  - Injection parameter recommendations
- 3 Products**
  - HIGHVAC, a modular vacuum system that can be tailored to meet customers' needs, compatible with all die casting machines and all molds; multilingual control panel and user manual.
  - SUPERVAC vacuum valves and CHILL-BLOCK ventilation plates
  - Products, 100% made in Switzerland
- 4 Customization**
  - Fully customized vacuum system tailored to meet customer needs
  - Smart options to optimize the control of the injection / vacuum process
- 5 Training**
  - Regular vacuum technology training sessions at Fondarex or on-site: application studies, operation and maintenance of vacuum systems
- 6 Technical support**
  - Quick and efficient worldwide service
  - Installation of vacuum systems on the production site and user training
  - Production site troubleshooting and maintenance
- 7 Spare parts**
  - Spare parts are shipped within 24 hours
- 8 Research & Development**
  - Our team of engineers continually strives to perfect the vacuum process for pressure die casting.
  - Close collaboration with universities, technology centers as well as customer partners throughout the world



# VACUUM MAKES THE DIFFERENCE

## The specialist

Fondarex, the leading specialist in vacuum systems can help you achieve the most difficult projects, such as automobile structural parts, surface parts, heat treated parts, thin-walled parts and safety parts.

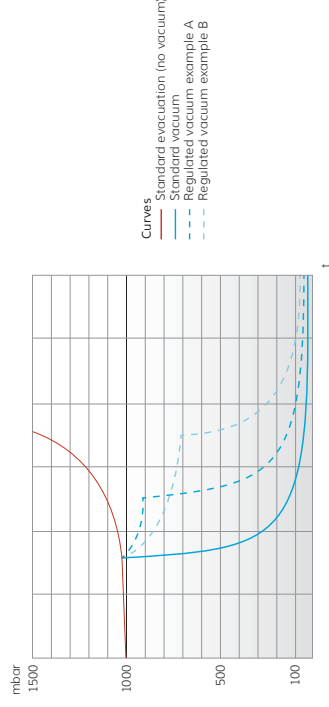
## Your advantages

- Increased density of die cast parts
- Improvement of surface quality (ideal for future surface treatments)
- Perfect filling of complex molds
- Significantly less porosity
- Allows temperature treatments (T4, T5, T6, T7)
- Required for welded parts
- More cost effective and sustainable production thanks to a reduced reject rate

Fondarex vacuum systems immediately guarantee stable, efficient and cost-effective production.

## Fondarex efficiency curves

Evolution of the air pressure in the mold cavity during the injection process.



# REINFORCEMENTS FOR PRESSURE DIE CASTING MACHINES



# HIGHVAC ECONOMY 1C



HIGHVAC  
ECONOMY 1C  
250

Fondarex's economic vacuum system.

One vacuum channel, ideal for basic applications.



HIGHVAC  
ECONOMY 1C  
CENTRAL

HIGHVAC  
ECONOMY 1C  
1000

# HIGHVAC PROGRESS 2C



HIGHVAC  
PROGRESS 2C  
500

The essential from Fondarex, in its most modular form.

Easy to use, ideal for all applications. Two independent vacuum channels for optimum flexibility.



HIGHVAC  
PROGRESS 2C  
CENTRAL

HIGHVAC  
PROGRESS 2C  
200

HIGHVAC  
PROGRESS 2C  
800

HIGHVAC  
PROGRESS 2C  
1000

HIGHVAC  
PROGRESS 2C  
2000

# HIGHVAC PREMIUM 2C



HIGHVAC  
PREMIUM 2C  
800

Fondarex perfection with a fully controlled vacuum process.

Optimum for complex applications such as structural parts that require the highest performance.

Two independent vacuum channels with vacuum regulation and an evacuated air volume measurement.

Total process control and easy data transfer with the Ethernet pack or the USB flash drive.



HIGHVAC  
PREMIUM 2C  
CENTRAL



HIGHVAC  
PREMIUM 2C  
200



HIGHVAC  
PREMIUM 2C  
500



HIGHVAC  
PREMIUM 2C  
1000



HIGHVAC  
PREMIUM 2C  
2000

# HIGHVAC ULTIMATE 4C



HIGHVAC  
ULTIMATE 4C  
2000

The ultimate solution from Fondarex:

The most powerful and ingenious vacuum system.

The best for structural parts.

Four independent vacuum channels for the most extreme applications requiring a near absolute vacuum.

Total process control and easy data transfer with the Ethernet pack or the USB flash drive.



HIGHVAC  
ULTIMATE 4C  
CENTRAL



HIGHVAC  
ULTIMATE 4C  
1000



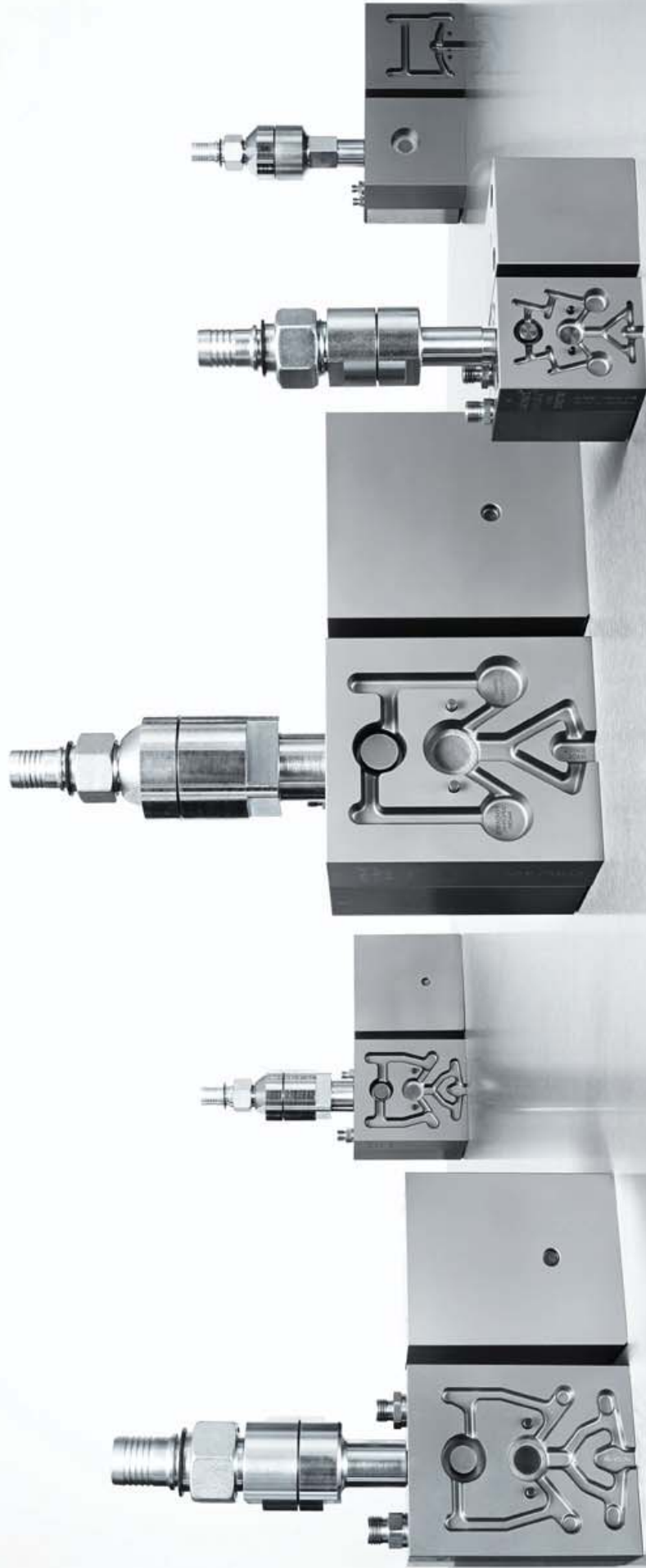
HIGHVAC  
ULTIMATE 4C  
2000

## HIGHVAC EXVAC

The accessory to evacuate air from the shot sleeve. Suitable for all machines thanks to its ultra-compact design. A single vacuum channel with vacuum regulation and pollution control.



THE ORIGINAL  
IS BEST





# VACUUM VALVES MONOVAC / SUPERVAC



MONOVAC



SUPERVAC MINI



SUPERVAC MEDIUM



SUPERVAC MAXI



SUPERVAC MEDIUM



SUPERVAC MACRO

Patented worldwide

## MONOVAC 1 piston valve

Evacuation during the first injection phase. Compression spring closure, controlled by a signal from the die casting machine.

## SUPERVAC Ingenuity from Fondarex: The most powerful valve in the world.

Maximum evacuation until the mold is completely filled. Ultra-fast valve closure in one millisecond, using the metal's kinetic energy.

## Technical data: MONOVAC / SUPERVAC vacuum valves

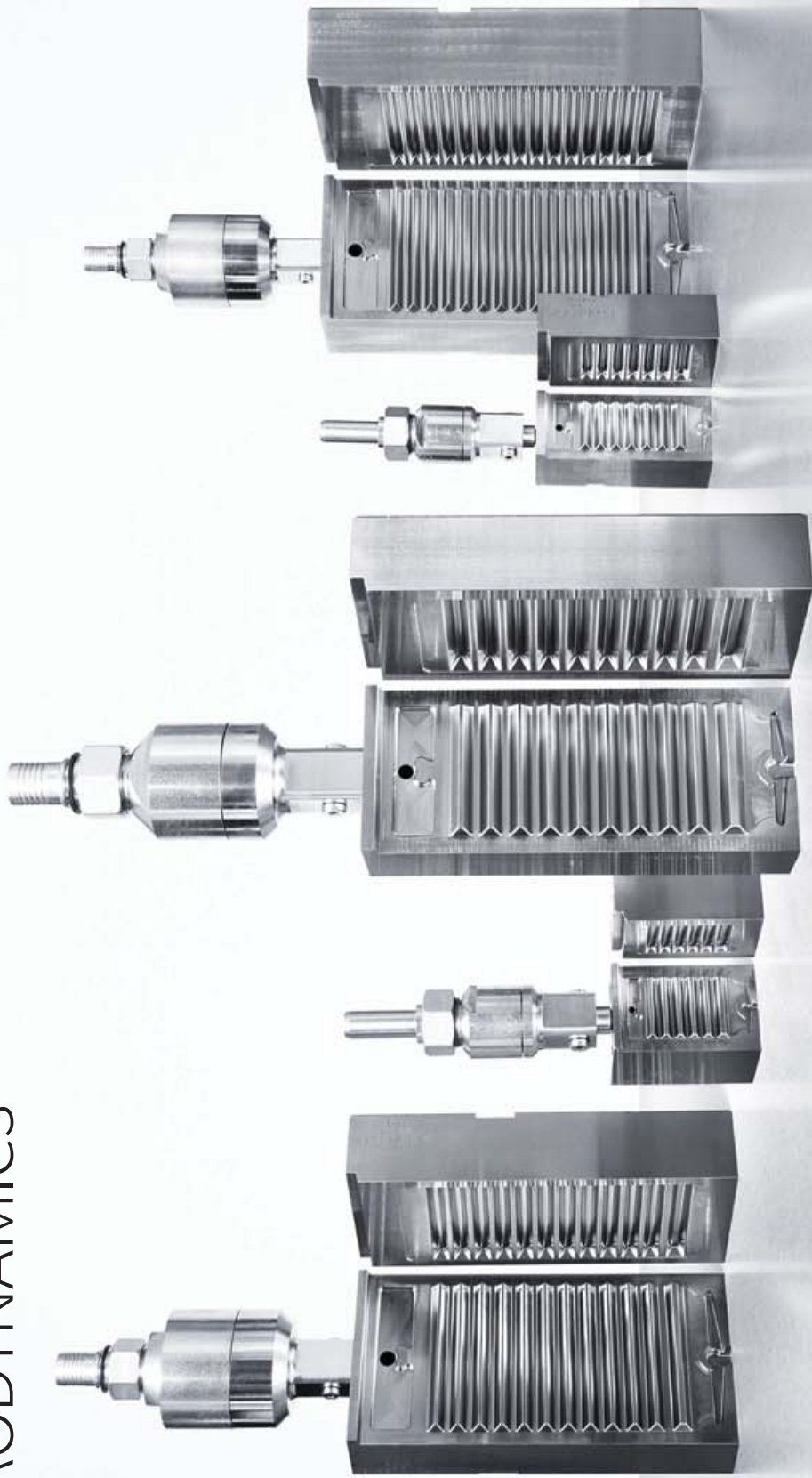
SWISS MADE

|                                 | MONOVAC                                    | SUPERVAC MINI                             | SUPERVAC MEDIUM                           | SUPERVAC MAXI                             | SUPERVAC MACRO                            |
|---------------------------------|--|---|---|---|---|
| Die casting machine tonnage (t) | 400 - 3000                                 | < 400 approx.                             | 200 - 1200                                | 800 - 2800                                | 1600 - 4500                               |
| <b>CHARACTERISTICS</b>          |  |   |   |   |   |
| Closing system                  | Controlled closure (by compression spring) | Closed by the kinetic energy of the metal | Closed by the kinetic energy of the metal | Closed by the kinetic energy of the metal | Closed by the kinetic energy of the metal |
| Closing time (ms)               | 100  | 1   | 1   | 1   | 1   |
| <b>SCOPE</b>                    |  |   |   |   |   |
| Al / Mg                         | •  | •   | •   | •   | •   |
| Zn                              | -  | -   | -   | -   | -   |
| Shot weight Al (kg)             | 4 - 25                                     | 0.3 - 1.5                                 | 1 - 12                                    | 6 - 25                                    | 12 - 45                                   |
| Shot weight Mg (kg)             | 3 - 17                                     | 0.07 - 1                                  | 0.7 - 8                                   | 4 - 16                                    | 8 - 30                                    |
| Shot weight Zn (kg)             | -  | 0.2 - 4                                   | 3 - 20                                    | -   | -   |
| <b>TECHNICAL DATA</b>           |  |   |   |   |   |
|                                 | Valve                                      | Compensator                               | Valve                                     | Compensator                               | Valve                                     |
| Width (mm)                      | 130  | 130                                       | 100                                       | 140                                       | 150                                       |
| Depth (mm)                      | 100  | 80  | 63.5                                      | 108                                       | 139.7                                     |
| Height (mm)                     | 134  | 134                                       | 76  | 127                                       | 151                                       |
| Weight (kg)                     | 13   | 10.8                                      | 3   | 2.3                                       | 8.4                                       |
|                                 | 19   | 16.4                                      | 28.4                                      | 25.4                                      |   |

(subject to change)



# THE TALENT OF AERODYNAMICS



# CHILL-BLOCKS SCCZ / SCS



SCCZ 12

SCS 30

SCS 60

SCS 100

SCS 140

## CHILL-BLOCKS

Efficient evacuation until the die is completely filled. Solidification of metal in the aerodynamic profile.

SCCZ (Steel Chill Compact Zinc)  
SCS (Steel Chill Standard)

## SCS 60 / 100 / 140

Also available with water cooling.

## Technical data: CHILL-BLOCKS SCCZ / SCS

SWISS MADE

|                                 | CHILL-BLOCK SCCZ 12                    | CHILL-BLOCK SCS 30 | CHILL-BLOCK SCS 60 | CHILL-BLOCK SCS 100 | CHILL-BLOCK SCS 140 |             |
|---------------------------------|--|--------------------|--------------------|---------------------|---------------------|-------------|
| Die casting machine tonnage (t) | < 200 approx.                          | < 400 approx.      | 200 – 1200         | 800 – 2800          | 1600 – 4500         |             |
| <b>CHARACTERISTICS</b>          |  |                    |                    |                     |                     |             |
| Closing system                  | Solidification of metal in the profile |                    |                    |                     |                     |             |
| <b>SCOPE</b>                    |  |                    |                    |                     |                     |             |
| Al / Mg                         | -                                      | •                  | •                  | •                   | •                   |             |
| Zn                              | -                                      | -                  | •                  | -                   | -                   |             |
| Shot weight Al (kg)             | -                                      | 0.1 – 1.5          | 0.7 – 10           | 5 – 22              | 10 – 40             |             |
| Shot weight Mg (kg)             | 0.05 – 0.8                             | 0.07 – 1           | 0.5 – 6            | 3 – 12              | 6 – 26              |             |
| Shot weight Zn (kg)             | 0.1 – 3                                | 0.2 – 4            | 1 – 20             | -                   | -                   |             |
| <b>TECHNICAL DATA</b>           |  |                    |                    |                     |                     |             |
|                                 | Fixed part                             | Mobile part        | Fixed part         | Mobile part         | Fixed part          | Mobile part |
| Width (mm)                      | 63                                     | 63                 | 100                | 100                 | 140                 | 150         |
| Depth (mm)                      | 63,4                                   | 63,5               | 50                 | 50                  | 60                  | 80          |
| Height (mm)                     | 100                                    | 99                 | 150                | 149                 | 250                 | 299         |
| Weight (kg)                     | 2,9                                    | 2,8                | 4,1                | 3,9                 | 8,5                 | 17,2        |
|                                 |  |                    | 9,4                | 8,5                 | 18,8                | 30,5        |

(subject to change)

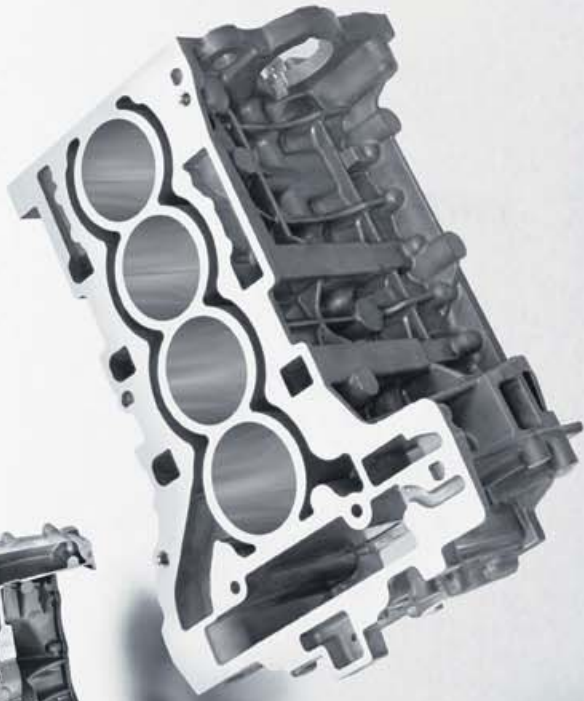
# HIGH-LEVEL PRESSURE DIE CASTING



1



2



3



4



5



6

1. Half cylinder block (Bover 2-cylinder motorcycle) / BMW AG  
2. Hydraulic control unit for gearbox / METALLWERK FRIEDRICH-DEUTSCH GmbH for MERCEDES-BENZ AG  
3. Cylinder block for MAN truck / MAN METALLWERK FRIEDRICH-DEUTSCH GmbH & Co. AG for BMW AG  
4. SchLUBER truck door handle / SCHLUBER G&M bH for VOLVO TRUCK CORPORATION  
5. Door handle locking element / DGS DRUCKGUSSSYSTEME AG for AUDI AG  
6. Car body element / DGS DRUCKGUSSSYSTEME AG for AUDI AG

# OUR EXPERTISE

## Consulting and expertise

With more than 60 years experience in vacuum technology, Fondarex has acquired extensive know-how that it is committed to sharing with its customers.

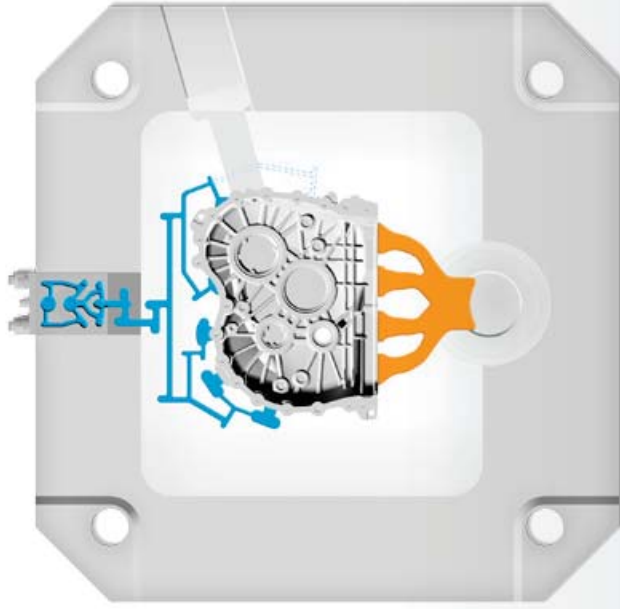
Through specific consulting services and responsive support, the technical team provides the expertise required to ensure our customers' success.

## Vacuum application studies

**Fondarex, specialist in vacuum application studies:**

- Determines the evacuation system
- Sizes and adapts the gating system
- Sizes and adapts vacuum channels
- Offers advice on injection parameters

A team of experts provides support to help you in the most challenging situations.



# AT YOUR SERVICE

# LESS AIR MORE KNOW-HOW

## Technical support

Our team of engineers provides a quick and efficient service on production sites throughout the world. Through its strong international presence, Fondarex maintains a close relationship with its customers.

Fondarex offers a full maintenance contract that includes the regular maintenance of vacuum systems on production sites, software upgrades, ongoing training for personnel and special conditions for spare parts. The full maintenance contract ensures you achieve maximum productivity from your vacuum system: A competitive advantage.

## Spare parts

Each day, the Fondarex vacuum system delivers optimum performance. Fondarex original spare parts are made in Switzerland to guarantee the smooth operation and longevity of our products. Fondarex ships spare parts within 24 hours.

## Training

Fondarex regularly organizes training sessions on vacuum technology, vacuum applications and how to use and maintain vacuum systems.

Training sessions can be tailored to meet the interests and needs of participants, whether they be operators, service staff, engineers or managers. Training can be given on site or at our premises.

## International Forum for Vacuum Die Casting

Fondarex is dedicated to bringing together the main players from the pressure die casting industry: Foundrymen and metallurgy engineers, machine and peripheral device manufacturers, die makers and scientists, as well as all other persons involved in the field.

Every three years, Fondarex organizes the International Forum for Vacuum Die Casting, in Montreux. Professionals from the industry present the latest innovations and debate on current topics and the future.

INTERNATIONAL  
FORUM

VACUUM  
DIE CASTING