FONDAREX®
SWISS VACUUM TECHNOLOGY

VACUUM FOR HIGHER QUALITY

In plastic injection molding

CONTENT

COMPANY

PIONEERING SPIRIT / HISTORY	3

TECHNOLOGY

OUR PRINCIPLE / RESEARCH & DEVELOPMENT	6-7
OUR PERFORMANCES / YOUR ADVANTAGES	8-9

PRODUCTS

VACUUM SYSTEMS	12-15

SERVICES

VACUUM APPLICATION STUDIES	18-19
PRACTICAL EXAMPLES	20
TECHNICAL SUPPORT / SPARE PARTS / TRAINING	21
CONTACT	22-23

A FASCINATION FOR VACUUM

Pioneering spirit

Founded in 1946 in Switzerland, Fondarex is the inventor of the vacuum technology for pressure die casting and plastic injection molding. As international market leader in these two fields, Fondarex continues to invest in research and development and is committed to meeting the demands of current technology and market requirements.

The Fondarex team works to ensure its customers' success, by guaranteeing the production of cost-effective, high quality parts with its vacuum systems. Offering customized consulting, training for users and technical support, Fondarex is your partner for the future.

History – A rise to the top

1946 Fondarex is set up as a pressure die casting foundry by Mr. Fritz Hodler, in Montreux

1952 Invention of the first vacuum system for the pressure die casting industry

1989 Fondarex is taken over by Mr. Konrad Baumgartner

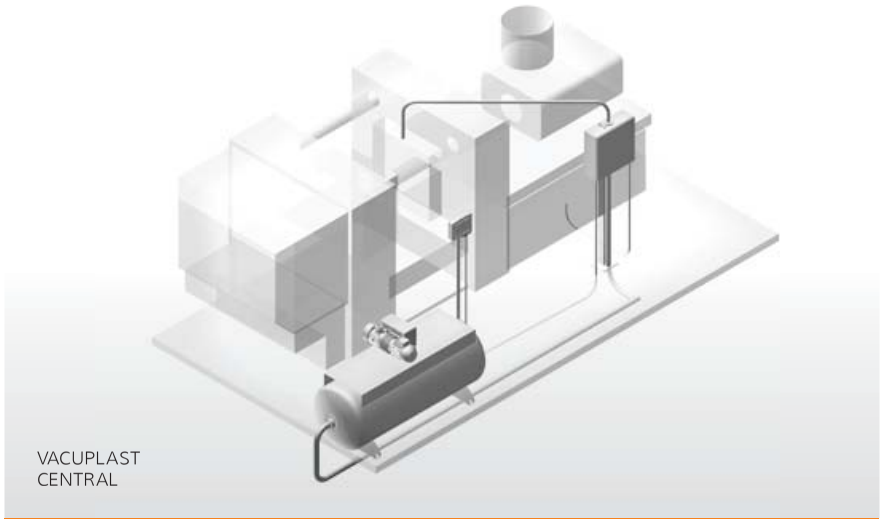
2002 Launch of the first vacuum system for the plastic injection molding industry

2010 Launch of the HIGHVAC ECONOMY 1C, PROGRESS 2C and PREMIUM 2C vacuum systems

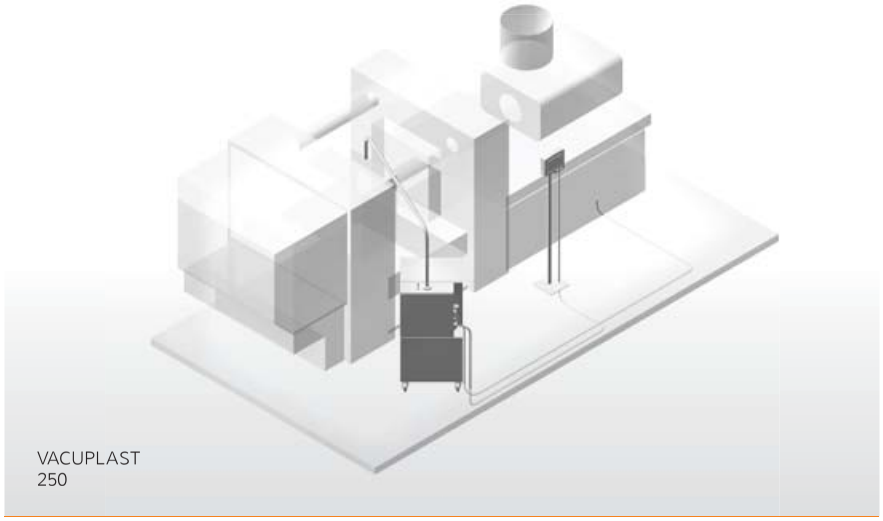
2012 Launch of the HIGHVAC ULTIMATE 4C vacuum system

2013 Development of the VACUPLAST vacuum system


FONDAREX



VACUPLAST
CENTRAL



VACUPLAST
250

VACUUM:
THE EVACUATION GENIUS

Our principle

In the plastic injection molding industry, vacuum technology is recognized as being the most efficient solution to evacuate air and gas from the mold. With this technology, superior quality parts can be produced.

Fondarex's innovative vacuum technology guarantees optimum evacuation until the end of the filling phase, through specific application studies for each mold developed at Fondarex.

The Fondarex vacuum system is suitable for all production cells and molds. It is the technology-peripheral device for plastic injection molding 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.

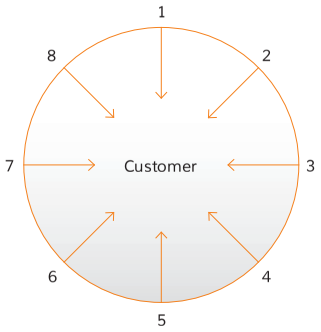
They work in close collaboration with universities, technical centers and customer partners throughout the world. Today, Fondarex counts more than 1000 customers in over 50 countries. With this perfect synergy between market and research, Fondarex continues to develop its technology to meet its customers'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

MULTIFACETED PERFORMANCE

Our performances

1 Consulting and expertise
- Integration of the vacuum system in your production cells
- Overall view of the injection molding process (mold design, injection parameters and thermo regulation system)

2 Vacuum application studies
- Adaptation of the vacuum application to the mold
- Adaptation and design of air evacuation channels
- Injection parameter recommendations



3 Products
- VACUPLAST, a modular vacuum system that can be tailored to meet customers' needs, compatible with all plastic injection molding machines and all molds; multilingual control panel and user manual
- 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 the plastic injection molding industry
- 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 surface parts, thin-walled parts and complex geometry parts.

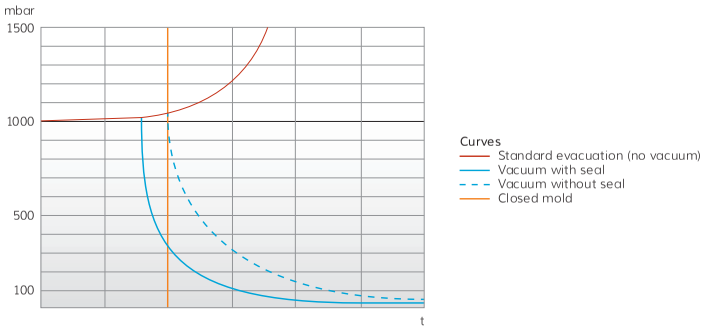
Your advantages

- Better surface quality
- No burn marks
- Less welding lines
- No air entrapment
- Less mold pollution
- Lower injection pressure
- 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.

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REINFORCEMENTS FOR INJECTION MOLDING MACHINES

Technical data: VACUPLAST vacuum systems

SWISS MADE

	VACUPLAST 50	VACUPLAST 250	VACUPLAST CENTRAL
Plastic injection molding machine tonnage (t)	< 400 approx.	< 3000 approx.	all
VACUUM SYSTEM FRAME			
Mobile unit (on wheels)	▪	▪	-
Frame and tank material	Steel	Stainless steel	Stainless steel
Vacuum tank capacity (l)	50	250	-
Vacuum value in the tank (mbar)	20	1	-
External dimensions (mm) Width Depth Height	 800 400 1100	 700 700 1350	 600 210 600
Weight (kg)	120	260	50
VACUUM SYSTEM COMPONENTS			
Vacuum pump BUSCH (m^3/h)	1 x 16 Series KB	1 x 25 Series RA	-
Automation SIEMENS HMI PLC	 TP 700 – 7" S7-1214	 TP 700 – 7" S7-1214	 TP 700– 7" S7-1214
Pneumatic system FESTO	▪	▪	▪
Number of vacuum channels	1	1	1
Evacuation section of the vacuum channels (mm^2)	1 x 500	1 x 500	1 x 500
Language pack (English, German, French, Italian, Spanish, Portuguese, Swedish, Turkish, Polish, Czech, Romanian, Russian, Chinese, Japanese, Korean)	▪	▪	▪
VACUUM SYSTEM MONITORING AND MEASUREMENTS			
Vacuum monitoring and measurements	▪	▪	▪
Illustration of the vacuum curve	▪	▪	▪
Determination of vacuum limit values (min / max)	▪	▪	▪
Pollution control	▪	▪	▪
Storage of mold configurations (different)	50	50	50
Internal backup of production data (shots)	200	200	200
Production data stored on USB drive	▪	▪	▪
Standby mode	▪	▪	▪
Error diagnostics	▪	▪	▪
Interface	Potential free contacts	Potential free contacts	Potential free contacts
VACUUM SYSTEM OPTIONS			
Pump upgrade (m^3/h)	-	1 x 40	-
Ethernet Pack	▪	▪	▪

(subject to change)

VACUPLAST 50

Mobile vacuum system, compact and easy to use.

VACUPLAST 250

Mobile vacuum system, easy to use. Ideal for all productions requiring optimum performance.

VACUPLAST CENTRAL

Control unit for the central vacuum system.

HIGH-LEVEL PLASTIC INJECTION MOLDING

1

2

4

3

1 Pump cover / ROBERT BOSCH s.r.o
2 Glasses case made as part of a project study / KUNSTSTOFF INSTITUT LUEDENSCHEID GmbH
3 Microneedle for the medical industry made as part of the IMPRESS project / PEP Centre Technique de la Plasturgie et des Composites
4 Architectural structure element / PLA-MEK-AS

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
- Adapts the vacuum application in the mold
- Sizes and adapts vacuum channels
- Offers advice on injection parameters

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

VACUUM MISSION

Practical examples

KUNSTSTOFF INSTITUT LÜDENSCHEID GmbH, Germany
Surface condition studies, with and without the vacuum system on a case for glasses (part n° 2 p. 16).
Results:
- Surface roughness reduced by 26%
- Pressure in the mold reduced by 10%

PEP CENTRE TECHNIQUE DE LA PLASTURGIE ET DES COMPOSITES, France
Filling studies, with and without the integration of a vacuum system on a part with grooves of 0.1 x 0.1mm.
Results:
- Much smoother filling

PEP CENTRE TECHNIQUE DE LA PLASTURGIE ET DES COMPOSITES, France
Studies to produce microneedles of 1.5mm x 17µm for the medical field (part n° 3 p. 16).
Results:
- Much smoother filling

ROBERT BOSCH s.r.o, Czech Republic
Integration of the vacuum system on a pump cover with the following characteristics (part n° 1 p. 16):
Material: PPA GF 35
Part Weight: Approx. 130gr
Filling time: 1.8sec
Results:
- Mold maintenance intervals reduced by a factor of 2 to 3

BARLOG PLASTICS GmbH, Germany
Material tests with and without integration of the vacuum system on a test piece with the following characteristics:
Material: GRIVORY HTV – 5H1
Results:
- 20% higher tensile strength
- 15% higher modulus of elasticity
- 10% higher elastic limit before failure

AT YOUR SERVICE

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.

Our worldwide representations:

EUROPE	AMERICA	ASIA
GERMANY	BRAZIL	CHINA
ITALY		INDIA
SWEDEN		
SWITZERLAND		

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