CALEFFI
Hydronic Solutions

National Workshop on Heat Pumping Technologies

17 November 2026 – Pisa Italy

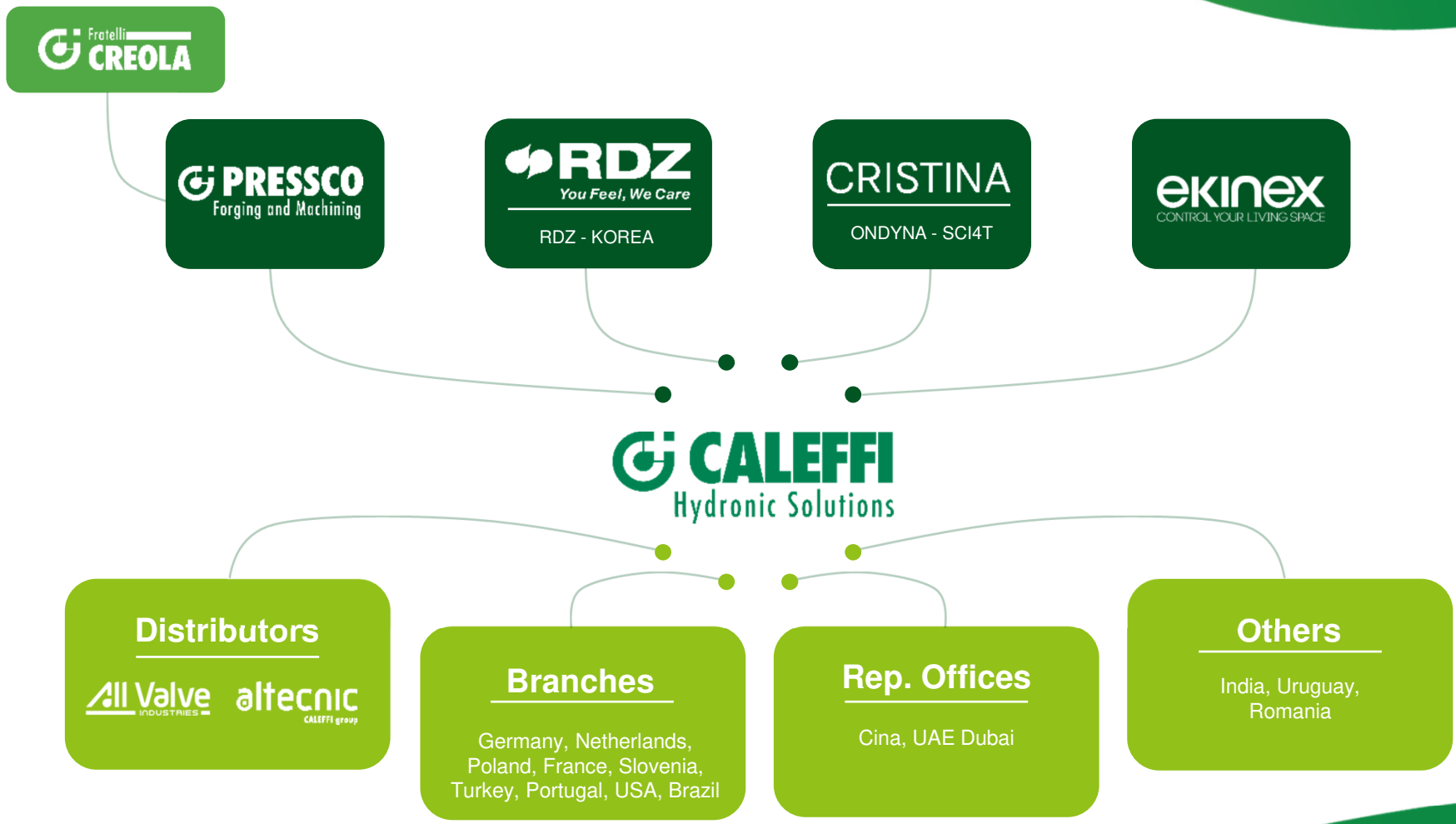


Corporate presentation

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Pisa - November 17th 2026

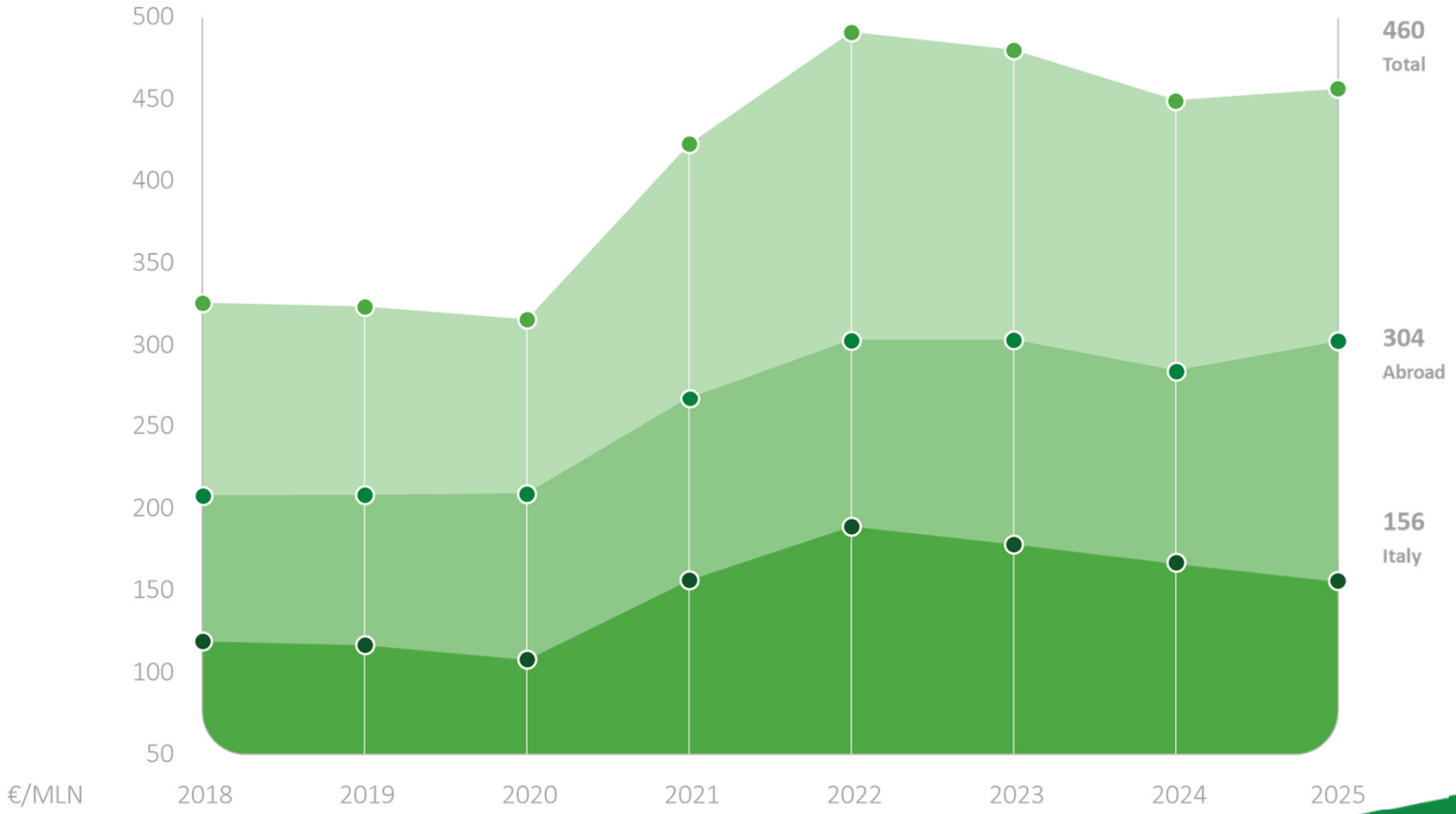
Caleffi Group facts and figures



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National Italian Workshop on Heat Pumping Technologies

CONSOLIDATED SALES



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CALEFFI GROUP FIGURES



+1600 employees



+90
supplied countries



13
plants
set up in Italy

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Our history

FROM 1961 ON

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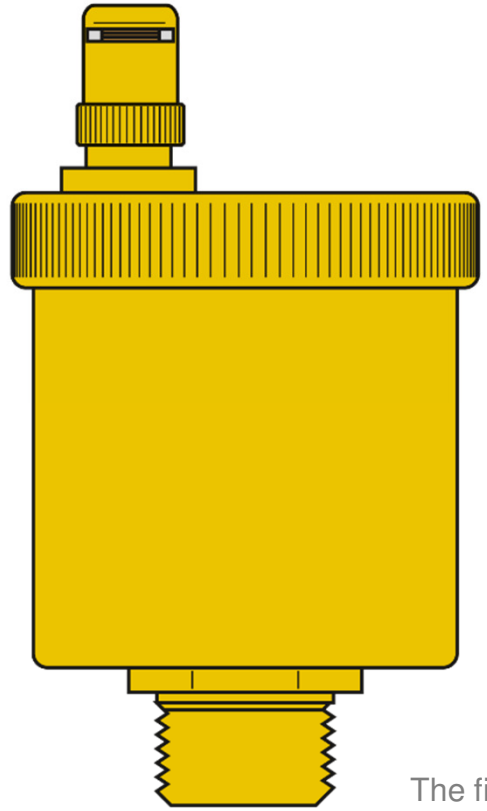
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Pisa - November 17th 2026

1961: THE BEGINNING

The industrial dream of Franco Caleffi takes shape.

After manufacturing fittings and accessories
in brass and steel, on behalf of third parties,
he chooses to make finished products **branded Caleffi**
to sell through **wholesalers.**

THIS IS THE BEGINNING OF THE STORY WE ARE PROUD OF.



The first Caleffi valve

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1975 - 2024
A PERIOD OF GROWTH AND EXPANSION



PRESSCO Forging and Machining

OEM Original Equipment Manufacturer

1975

Rapid development and relocation of headquarters in **Fontaneto D'Agogna**

The 1980s

Opening **of the first branch in Germany** and former acquisitions: **Pressco is now part of the Caleffi Group.**

Complete control of each production step

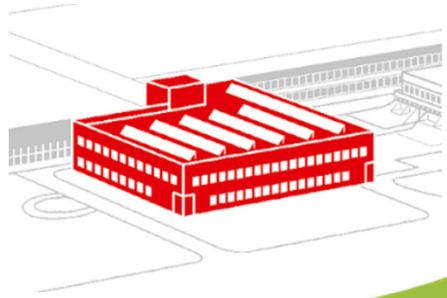
Caleffi enters the **OEM market and gets great competitive advantage** by investing in processes, automation, quality and PR

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1975 - 2024
A PERIOD OF GROWTH AND EXPANSION





1996

New plant in **Gattico - Veruno**

2004

A new generation

2008

CUBOROSSO opening

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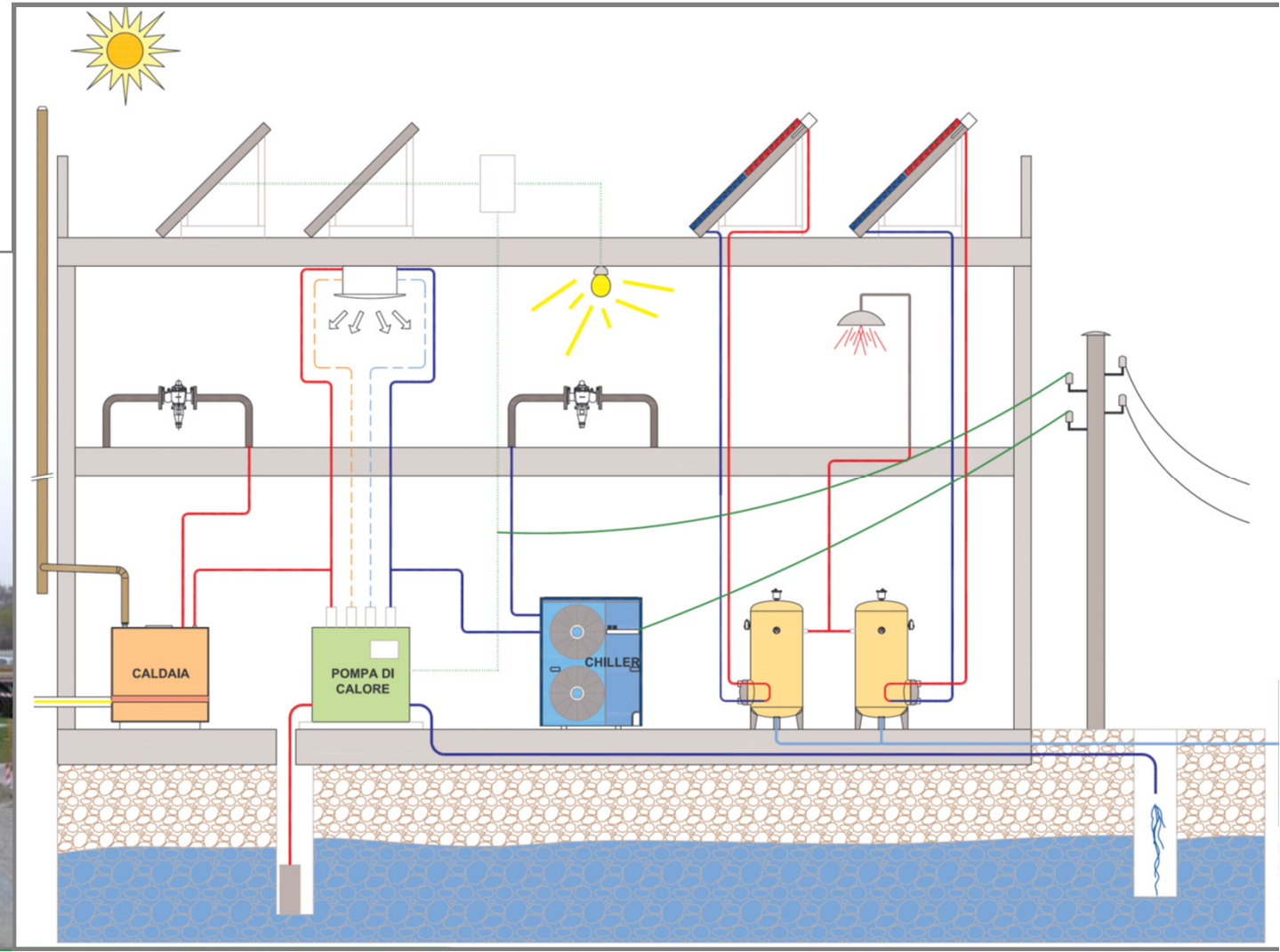
Our history

2008 - CUBOROSSO

Open loop geothermal heat pump: **75kW**







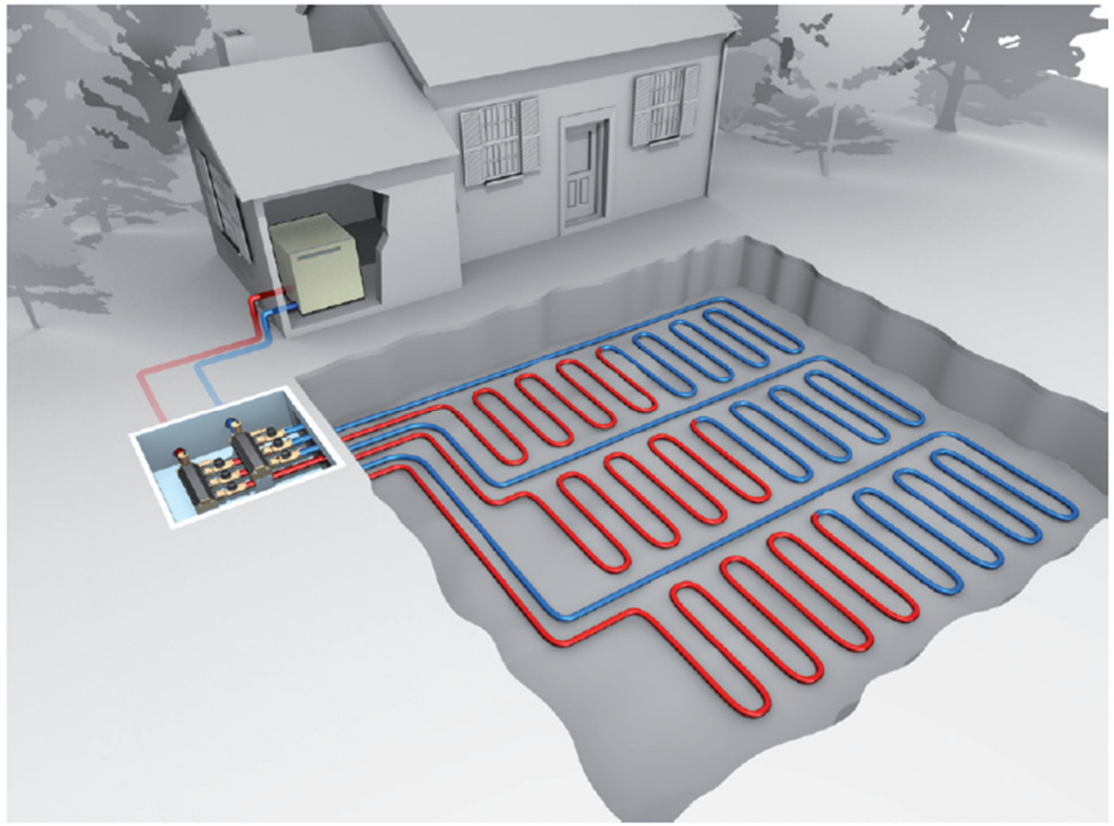
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Our history

2008 - CUBOROSSO

Orizontal close loop geothermal heat pump
10 kW test system







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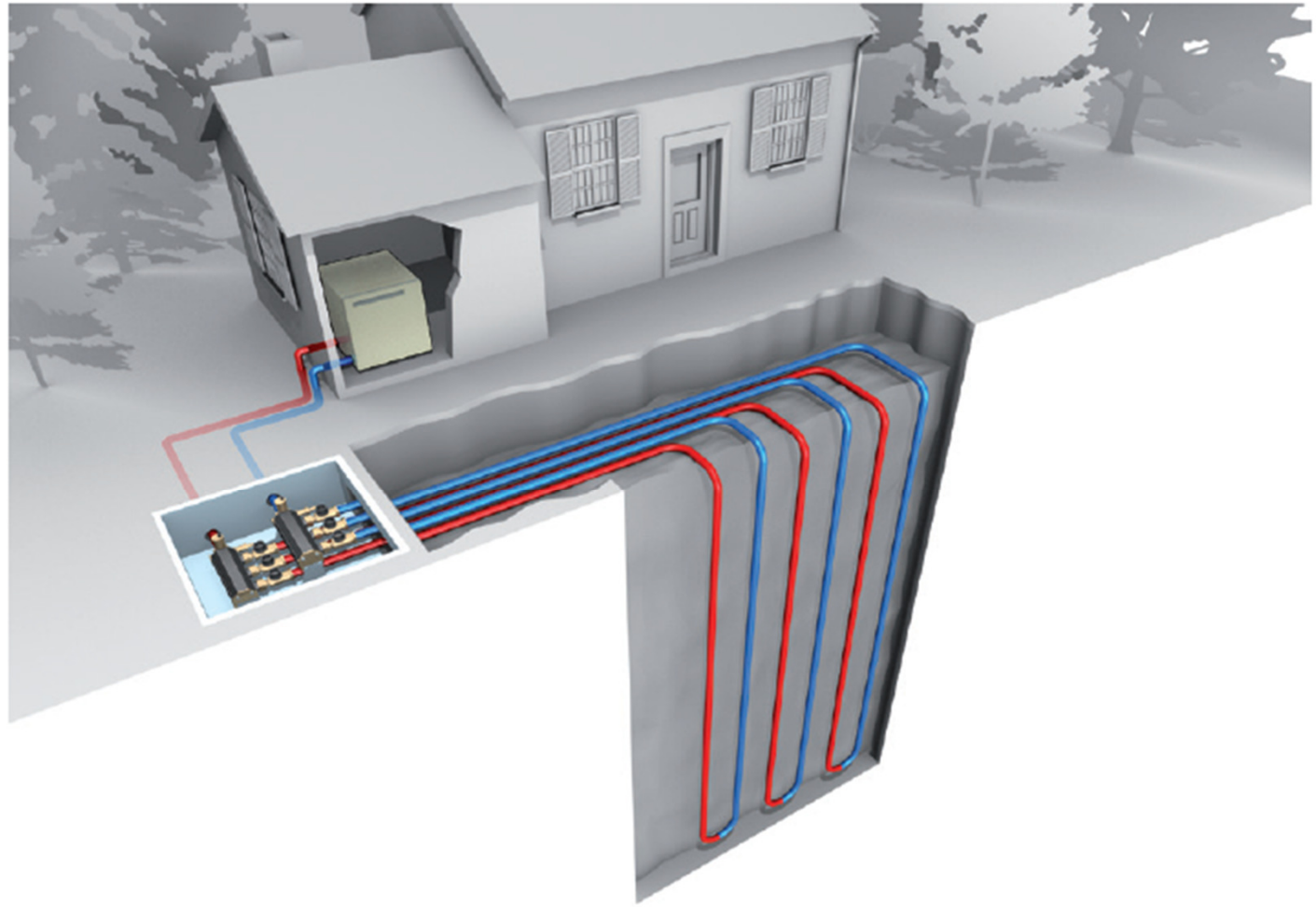
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Our history

2008 - CUBOROSSO

Vertical close loop geothermal heat pump
10 kW test system





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2008 - CUBOROSSO

Applied Research: Politecnico di Torino & Caleffi S.p.A.

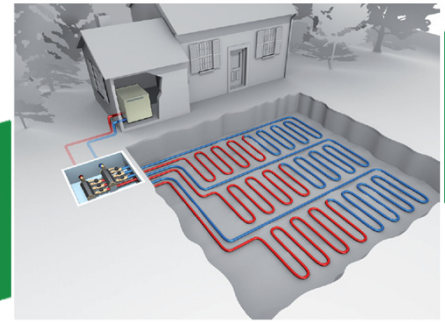
Experimental Testing on Low-Enthalpy Geothermal Systems and Heat Pumps (2009–2011)

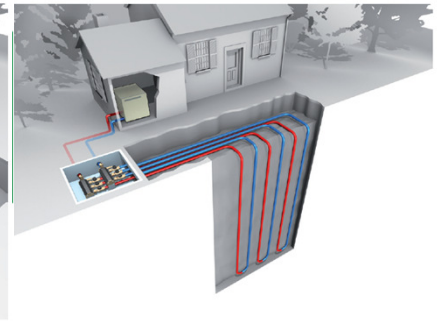
- **Partners & Governance**: Collaboration between the DIATI Department of Politecnico di Torino (Scientific Lead: Prof. Stefano Lo Russo) and the Caleffi Research Center (Fontaneto d'Agogna, Italy).

- **Environmental Sustainability**: Monitoring of subsurface and groundwater thermal impacts (Thermally Affected Zone) to ensure long-term thermal balance.

- **Energy Efficiency**: Optimization of heat pump performance (COP) through flow analysis and hydronic balancing.

- **Field Validation**: Real-world data collection on Caleffi pilot plants to refine geothermal manifolds, flow meters, and hydronic components.

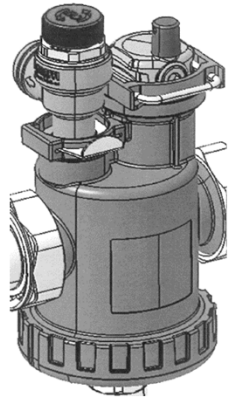




HP Products







2010

Geothermal Manifold
110 Series

2011

Antifreeze valve
108 Series

2017

OEM Solutions for dirt and air separation

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Challenges in the Heat Pump Sector

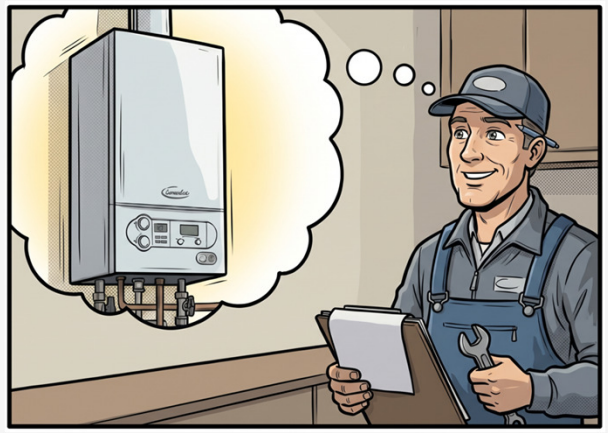
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CHALLENGE 01: THE INSTALLERS

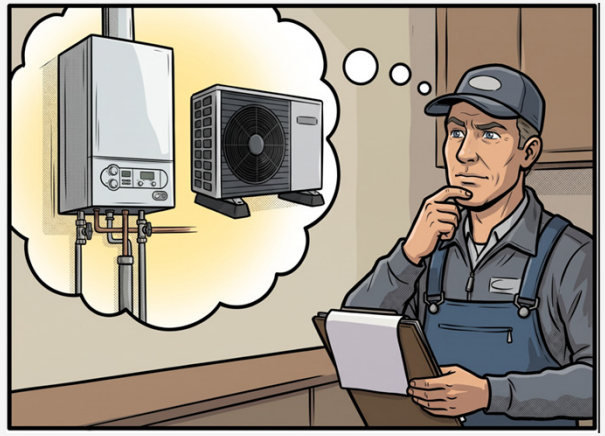
Gas Boiler Mindset

Leaving Behind 30 Years of Habits



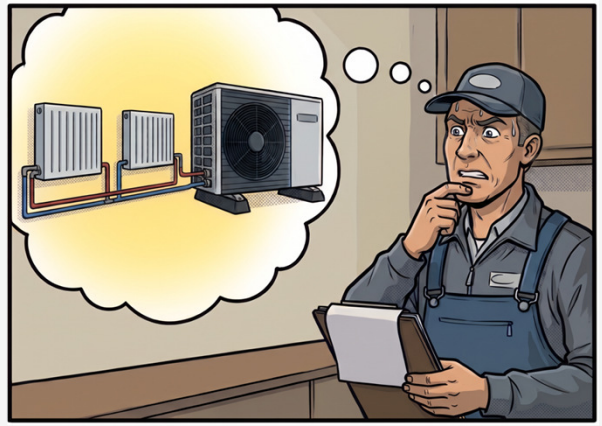
False Perception

Considered a simple "generator swap".



Unknown System

The "Plug & Play" Illusion: Why a Heat Pump is Not a Boiler



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CHALLENGE 02: DESIGNERS

Technical Background

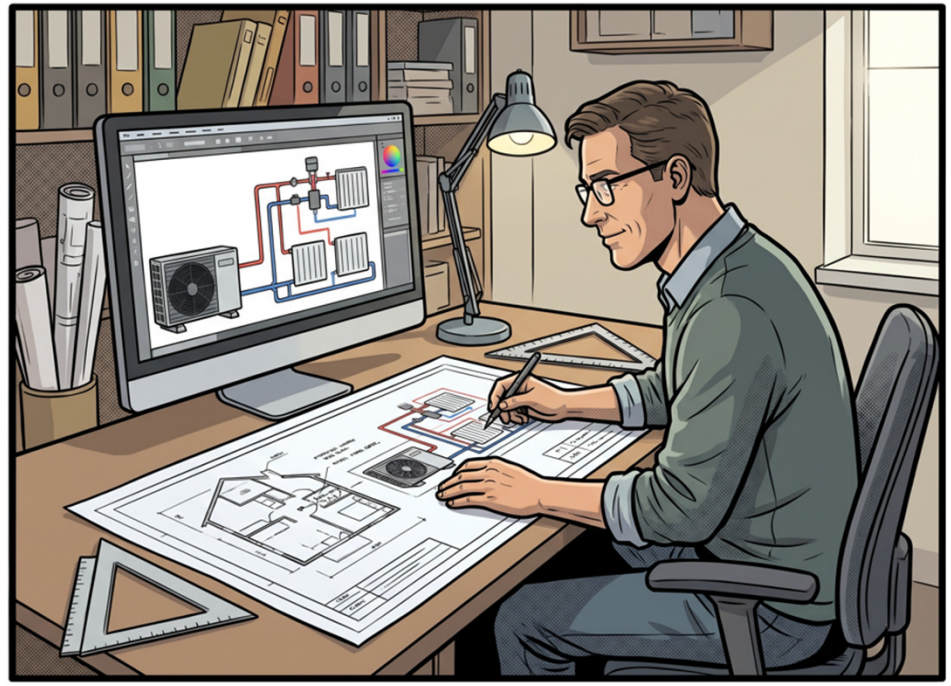
Solid foundation in low-temperature systems.

Curiosity & Openness

Strong receptiveness to new HP technologies.

Systemic Approach

Comprehensive view of the system behind the generator.



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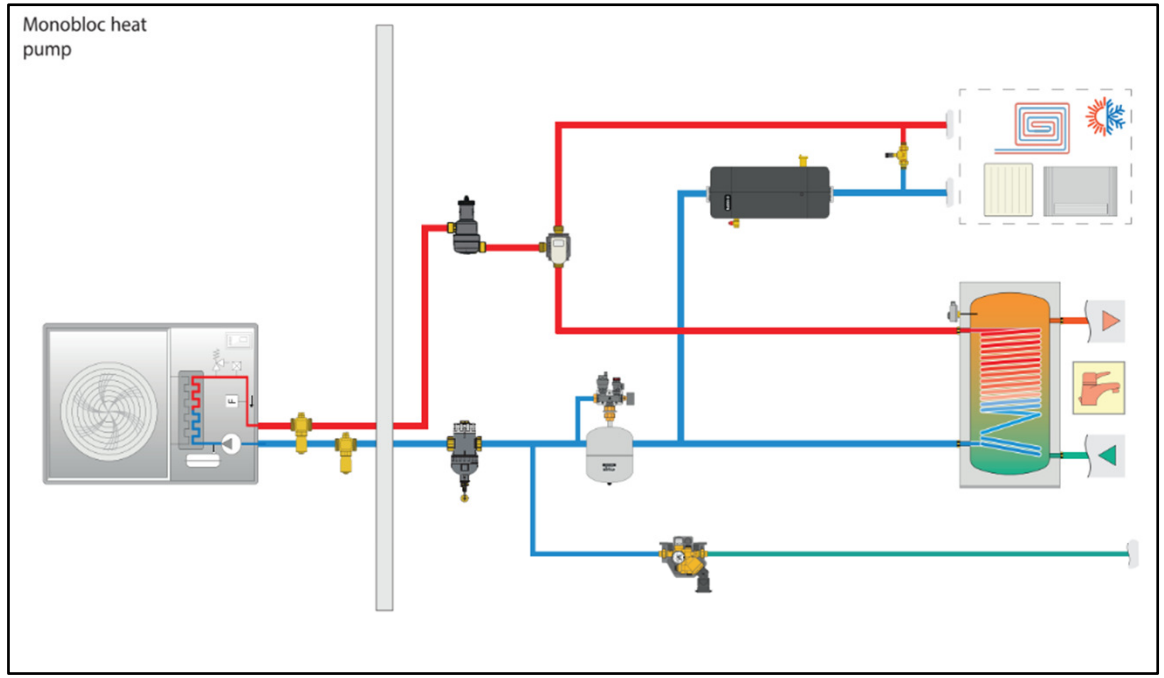
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ANSWER N.1
Spreading Know-How

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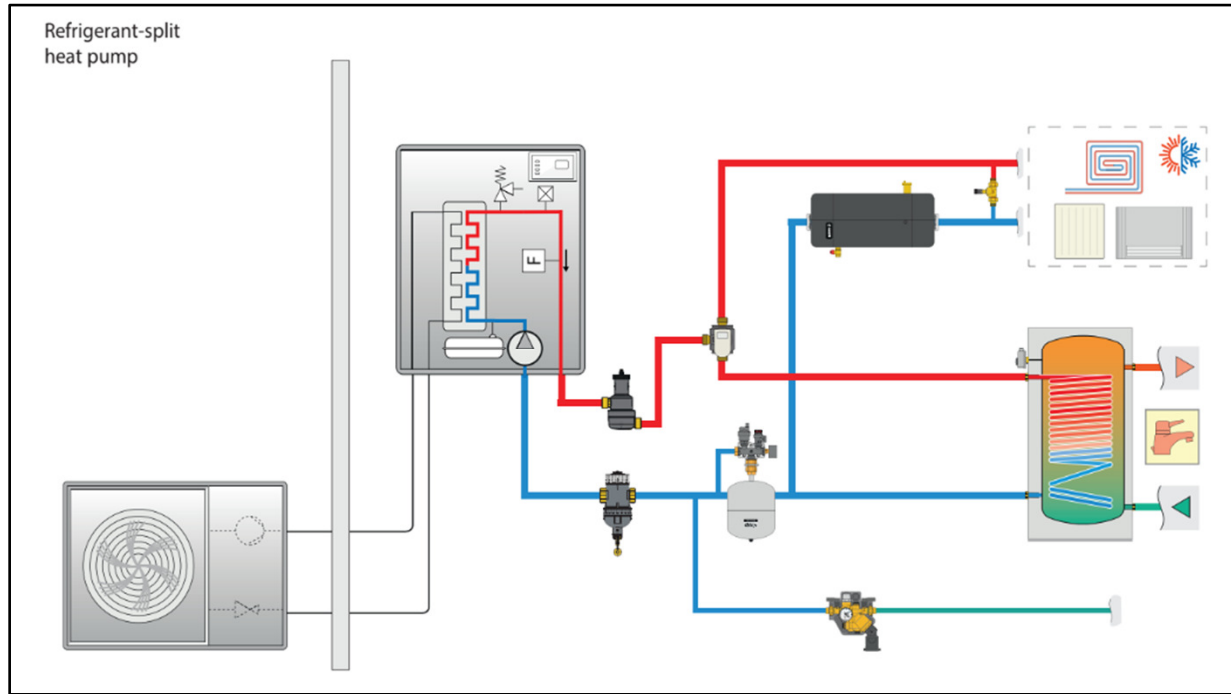
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Schemes



System Schematics

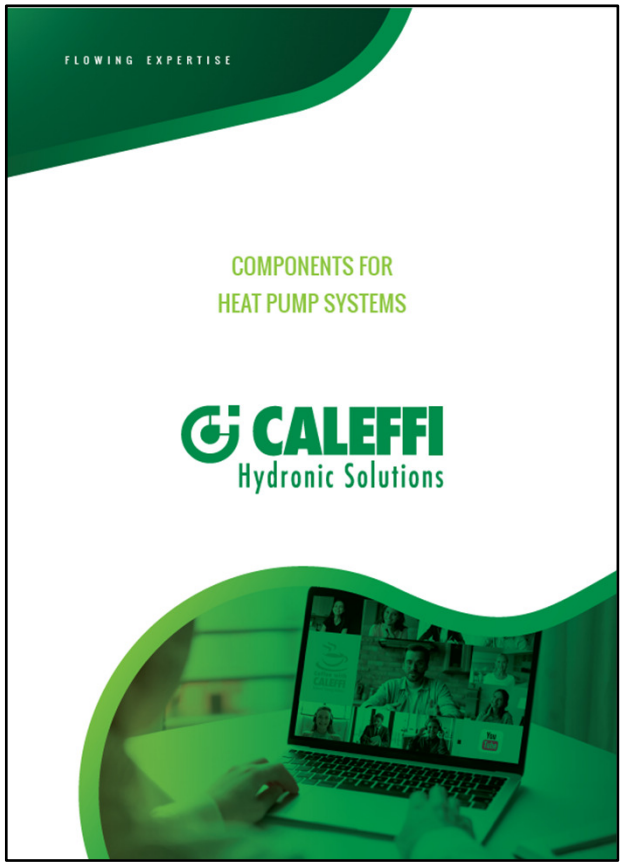
Clear visual plant layouts.



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Literature



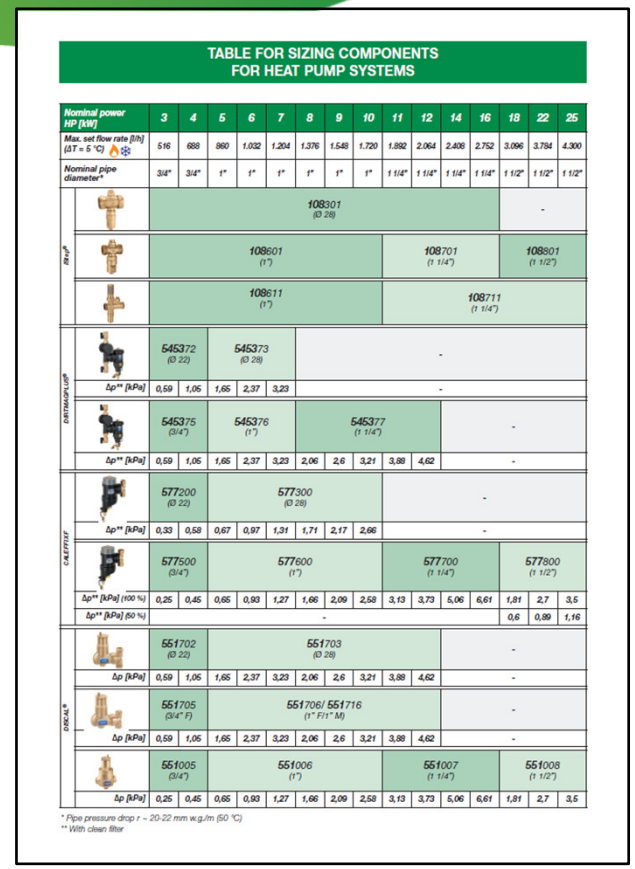


TABLE FOR SIZING COMPONENTS
FOR HEAT PUMP SYSTEMS

Nominal power HP [kW]	3	4	5	6	7	8	9	10	11	12	14	16	18	22	25
Max. set flow rate [l/h] (ΔT = 5 °C)	516	688	860	1.032	1.204	1.376	1.548	1.720	1.892	2.064	2.408	2.752	3.096	3.784	4.300
Nominal pipe diameter*	3/4"	3/4"	1"	1"	1"	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"
	108301 (Ø 28)												-		
	108601 (1")												108701 (1 1/4")		108801 (1 1/2")
	108611 (1")												108711 (1 1/4")		
ENERGYPLUS®	545372 (Ø 22)		545373 (Ø 28)										-		
Δp** [kPa]	0,59	1,05	1,65	2,37	3,23	-									
	545375 (3/4")		545376 (1")			545377 (1 1/4")							-		
Δp** [kPa]	0,59	1,05	1,65	2,37	3,23	2,06	2,6	3,21	3,88	4,62			-		
CALEFFI®	577200 (Ø 22)		577300 (Ø 28)										-		
Δp** [kPa]	0,33	0,58	0,67	0,97	1,31	1,71	2,17	2,66					-		
	577500 (3/4")		577600 (1")						577700 (1 1/4")				577800 (1 1/2")		
Δp** [kPa] (100 %)	0,25	0,45	0,65	0,93	1,27	1,66	2,09	2,58	3,13	3,73	5,06	6,61	1,81	2,7	3,5
Δp** [kPa] (50 %)	-												0,6	0,89	1,16
	551702 (Ø 22)		551703 (Ø 28)										-		
Δp [kPa]	0,59	1,05	1,65	2,37	3,23	2,06	2,6	3,21	3,88	4,62			-		
	551705 (3/4" F)		551706/ 551716 (1" F/1" M)										-		
Δp [kPa]	0,59	1,05	1,65	2,37	3,23	2,06	2,6	3,21	3,88	4,62			-		
	551005 (3/4")		551006 (1")						551007 (1 1/4")				551008 (1 1/2")		
Δp [kPa]	0,25	0,45	0,65	0,93	1,27	1,66	2,09	2,58	3,13	3,73	5,06	6,61	1,81	2,7	3,5

* Pipe pressure drop r ~ 20-22 mm w.g./m (50 °C)
** With clean filter

Technical Brochures

Practical design manuals.

Literature



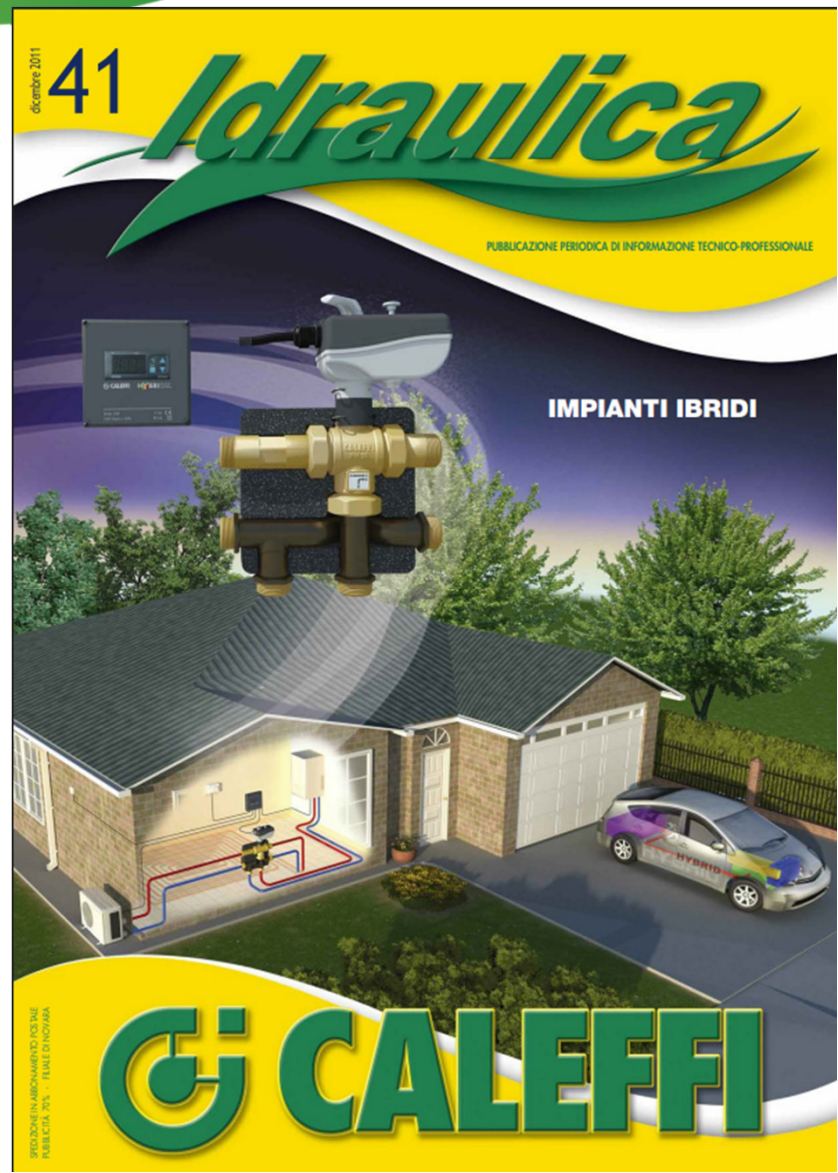
Trade Magazines

Specialized hydraulic deep-dives.

IDRAULICA N.38
JUNE 2010
GEOTHERMAL HEAT PUMPS



IDRAULICA N.41
DECEMBER 2011
HYBRID SYSTEMS



LITERATURE

IDRAULICA N.61
DECEMBER 2021
AIR TO WATER HEAT PUMPS



IDRAULICA N.64
JULY 2023
RETROFIT WITH HEAT PUMP



IDRAULICA N.65
JANNUARY 2024
HYBRID SYSTEMS



MEETINGS-CONFERENCES-WEBINARS

Local Meetings

Direct training on construction sites.



Dedicated Webinars

Continuous digital capacity building.



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ANSWER N.2
Heat Pump Component Evolution

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Heat Pump Component Evolution

The Anti-Freeze Imperative

- **Gas boilers faced zero outdoor freezing risks.**
- **Monoblock HPs demand fundamental outdoor protection.**
- **Dedicated passive mechanical valves are now mandatory.**



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Heat Pump Component Evolution

Exchanger Sensitivity

- HP heat exchangers are highly sensitive to debris.
- Necessitates ultra-efficient fine-mesh filtration.
- Guarantees long-term thermal exchange efficiency.



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Heat Pump Component Evolution

Material Shift

Complex & Delicate Systems

Modern HP installations represent high-value, sensitive investments.

The Stainless Steel Shift

Transitioning to noble materials to match system value.

Maximum Durability

Absolute reliability for expensive hydronic networks.





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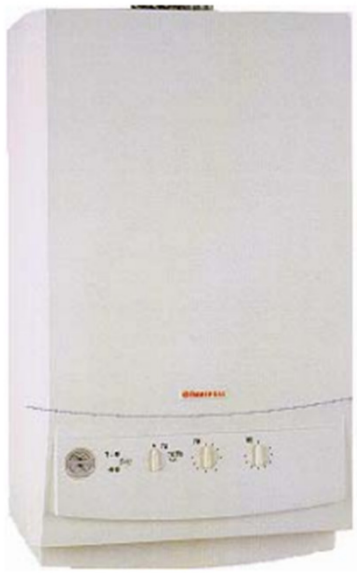
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ANSWER N.3
OEM Built-in Solution

OEM department

OEM
Original Equipment Manufacturer

Born in the ‘80





Gas wall-hung boiler





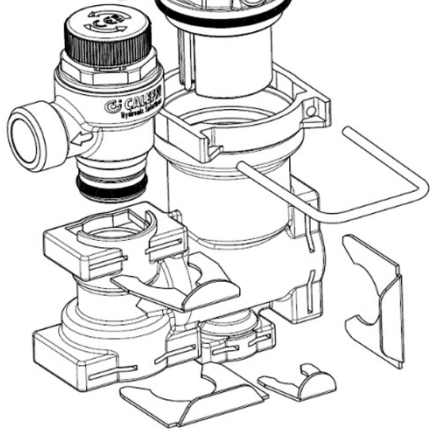
Commodities

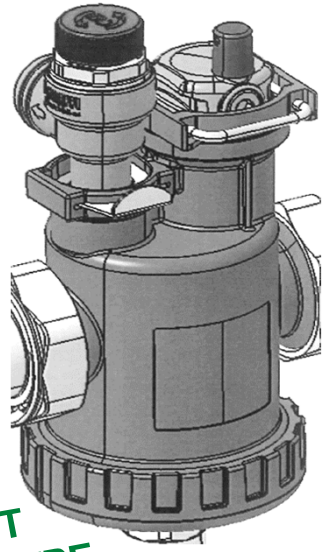
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Customized solutions for HP

DRAFT IDEA





FIRST PROTOTYPE

MULTI FUNCTION GROUP Caleffi



BEST TRADE-OFF BTW DIRT SEPARATION PERFORMANCE & HEAD LOSSES

- Functionality integration and HP layout optimization
- Reliability and quality (100% tested)
- Cost effective

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Partnership with OEM Customer

Listen to the market

Anticipation of trends and regulations

Right products at the right time

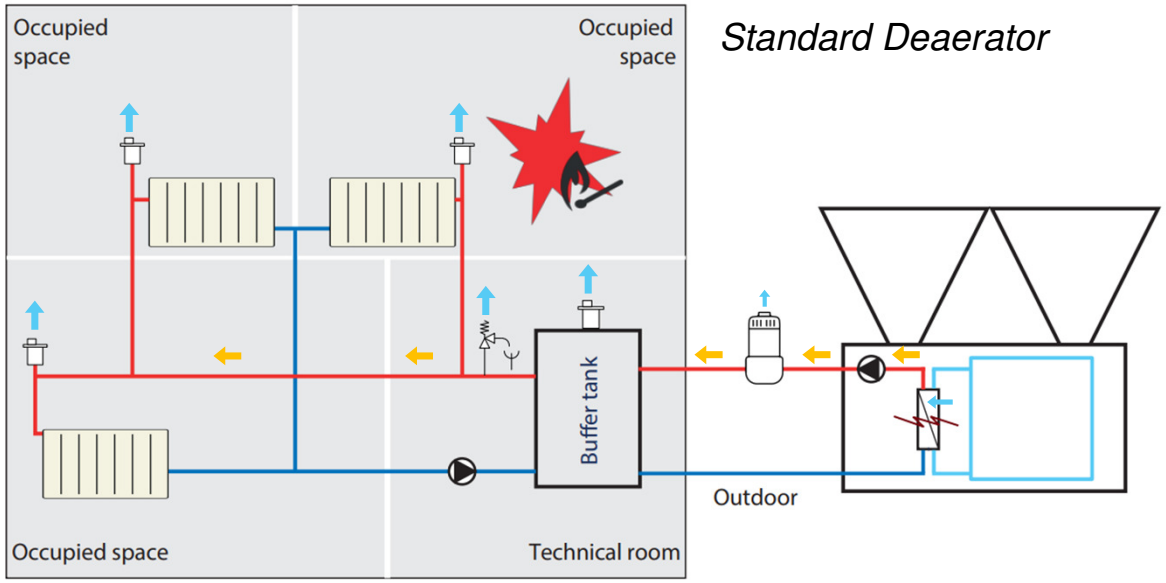
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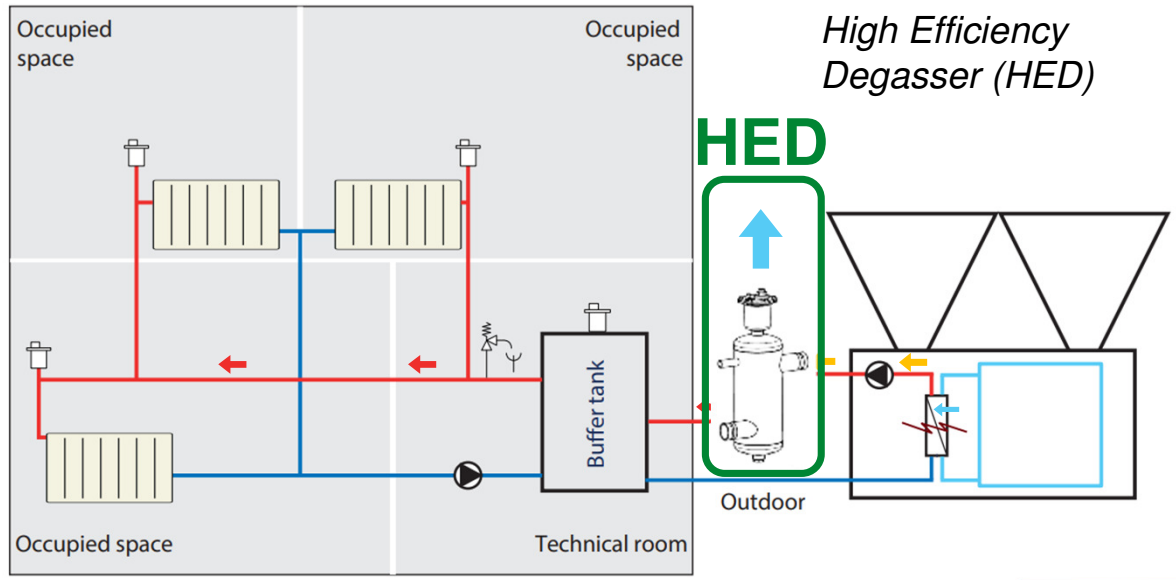
OEM Products – HED (High Efficiency Degasser)

IEC 60335-2-40 → Annex GG.6: Automatic air/refrigerant separator and pressure relief valve

Mitigate the risk of R290 leakage into the heating system



Standard Deaerator



High Efficiency Degasser (HED)

Maximize the gas separation efficiency at the <u>FIRST PASSAGE</u>

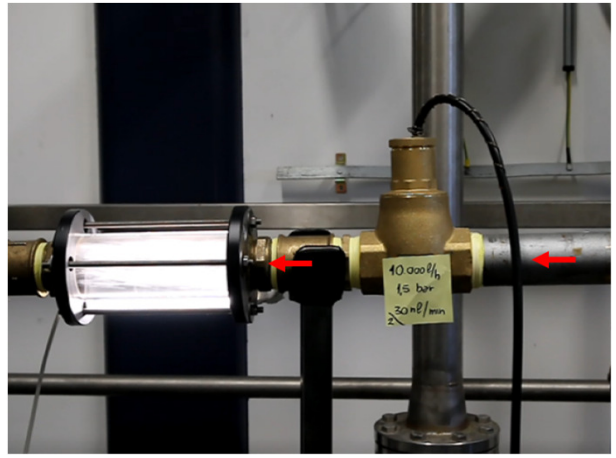
OEM Products – HED (High Efficiency Degasser)

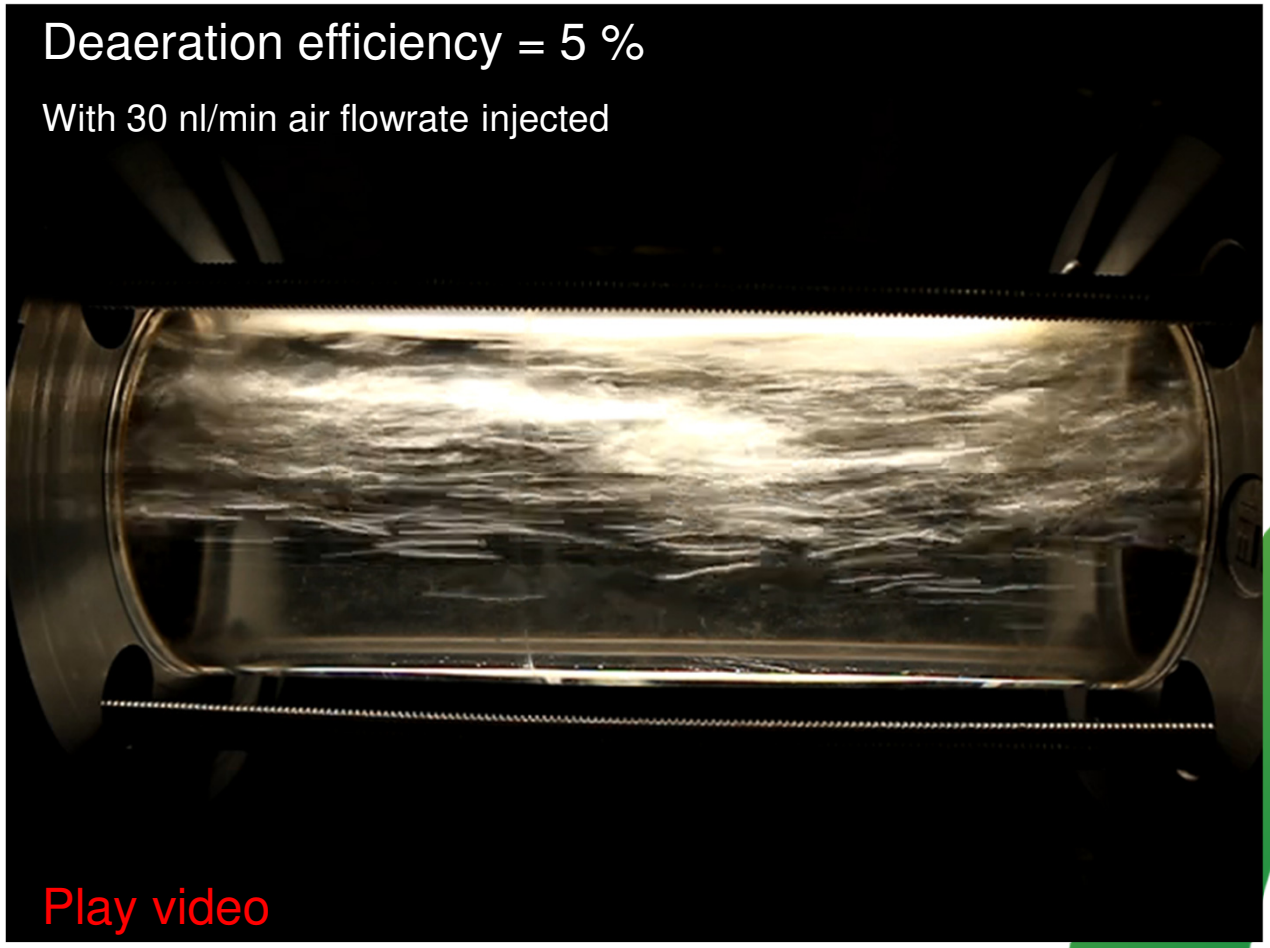


Caleffi DISCAL

Deaerator 2"

Air flowrate [nl/min]	551009 η [%]
	Water flowrate Q [l/h]
	10.000
30	5
90	11





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Different layouts and/or working conditions may affect the results

OEM Products – HED (High Efficiency Degasser)

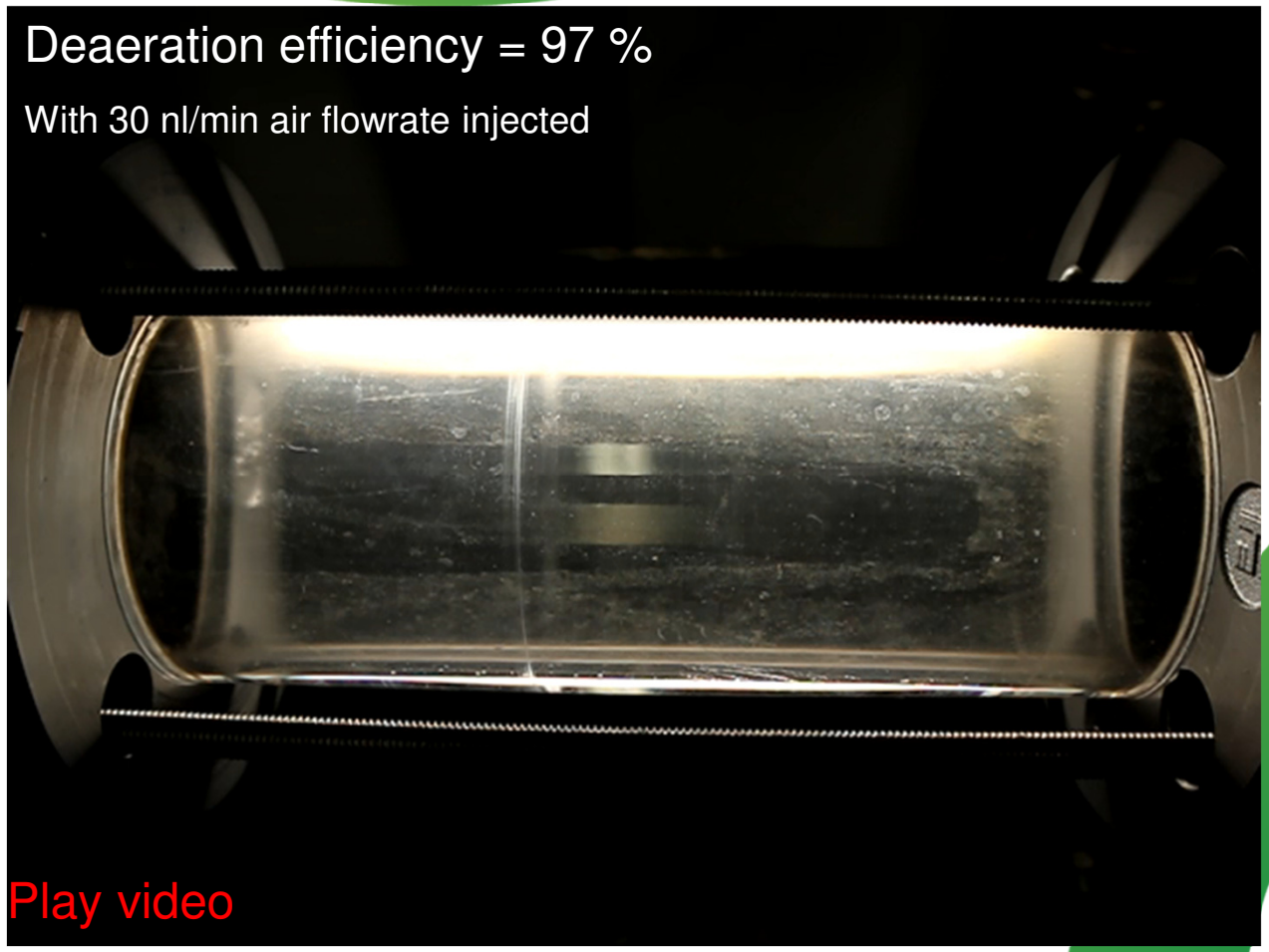


Caleffi HED Degasser

DN50 Victaulic 2"

Air flowrate [nl/min]	551590 η [%] Water flowrate Q [l/h] 10.000
30	97
90	82





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Different layouts and/or working conditions may affect the results

OEM Products – iSTOP Antifreeze Valve

Frost protection in case of electricity breakdown

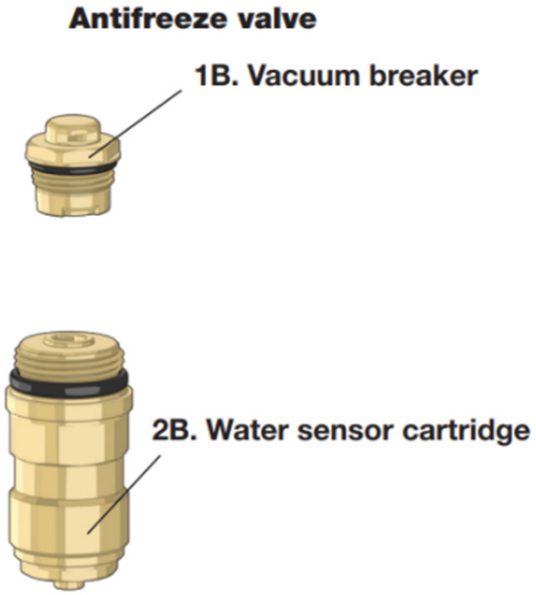
Glycol **highly affect** the separation efficiency of degassers

Recommended usage of **pure water** as heating medium

Mechanical antifreeze protection is a must

Built-in antifreeze function into the HP

Functionality integration and layout optimization



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Challenges in the OEM Market

Evolution of regulations → AMD:2026 to IEC 60335-2-40

High pressure on competitivness → Innovation

Material change related to DWD and RoHS-3

Global market vs. Caleffi local footprint

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THANK YOU!

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