

reflex

Thinking solutions.

From the initial idea
to the solution



We are only satisfied when

Reflex has set itself the goal of supporting you with well thought-through solutions. Whatever job you need doing in water supply engineering, why not put your trust in our comprehensive range of products and accompanying tailored services? We will ensure that your decision to opt for Reflex is the right one in every respect – from advice and design to installation and ongoing operation.



Thinking solutions.

Reflex's mission is embodied in its company's slogan: "Thinking solutions". Reflex's strength is to think in terms of solutions. Reflex develops ideas that help you to move forward based on decades of experience, in-depth technical understanding and intimate knowledge of the industry!

you are.

We make sure that everything fits

Heating, cooling and hot water supply systems – the demands on supply equipment are varied and complex. You'll be well-advised for every eventuality with our coordinated product ranges. Reflex can offer you the right components for each specific task - and you can be sure that they can be integrated seamlessly into the interplay of a larger overall solution, resulting in well thought-out systems that simply perform better.



In this brochure you can discover the basic principles according to which Reflex products operate individually and jointly for key system types. If you have any further questions, we will, of course, help you with detailed information, advice and solid planning support. All further offers are summarized at the end of this brochure.

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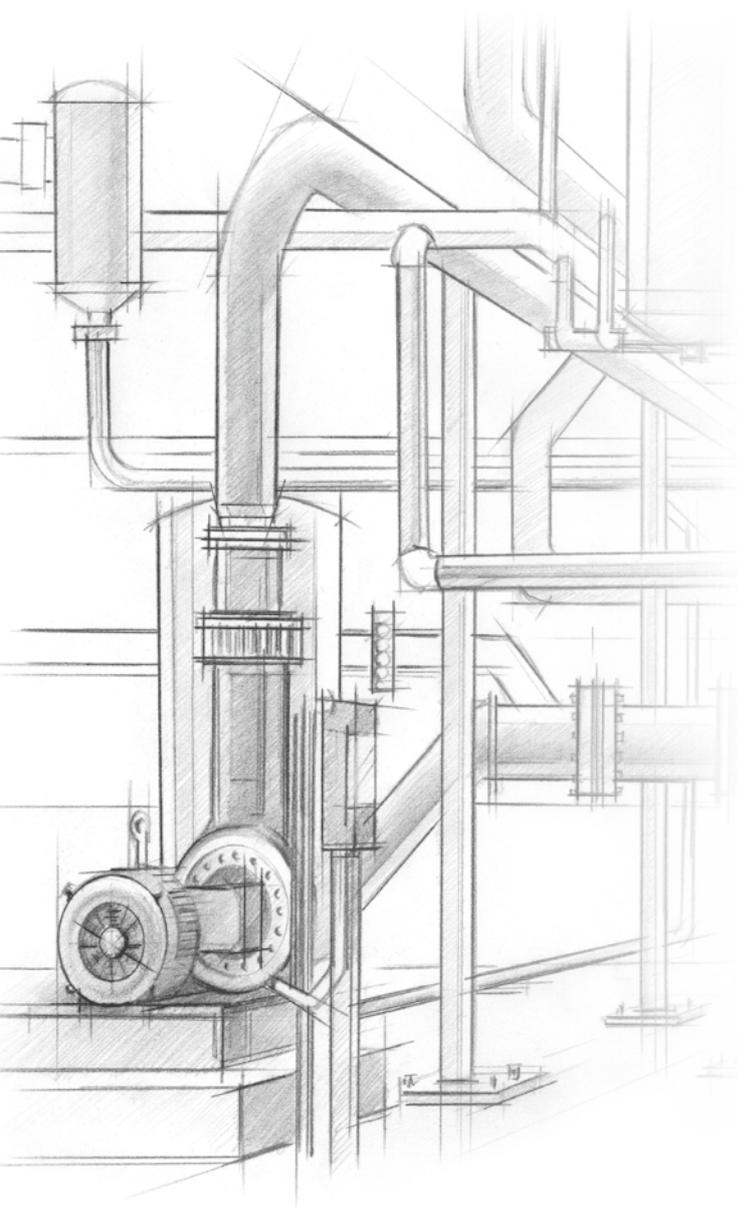
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Solutions for heating and cooling

Pressure maintenance, water make-up and degassing are key features when it comes to heating and cooling systems operating properly. A system can only work efficiently and free from faults when the pressure is set correctly, there is sufficient capacity and gases have been reliably removed.

We would like to present a number of selected preferred solutions in the following section that meet the needs of professionally installed heating and cooling systems. In doing so, we also hope to highlight the functional interaction of the components.

Specific projects always need precise design. More information on this can be found at the end of this brochure.



Task: Pressure maintenance

Solution: There is no definite answer to the question of how to best maintain pressure. A diaphragm expansion vessel is generally used in the range up to 100 kW, with the addition of make-up and degassing components depending on the application. Pressurization stations start to be used from around 100 kW. With these latter units, water make-up and degassing often form an integral part of the units themselves or are regulated by their controls.

It would be fair to say that there is no strict demarcation between the different applications of these units. They overlap seamlessly, offering enough latitude for specific design and individual customer requirements.

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g systems



Task: Removal of dirt and sludge from water

Solution: Exdirt separator

Using an ingenious mechanical separating system, floating particles of dirt and sludge can be reliably removed from the circuit. The efficiency of the heating fluid is thereby retained and the risk of corrosion and erosion significantly reduced.



Task: Heating of potable water

Solution: Storatherm Aqua hot water heater + Refix diaphragm expansion vessel

With its extra-large heating surface and extensive range of sizes, the Storatherm Aqua fits every heat generator - from gas boilers to heat pumps. An efficient and water-saving system can be achieved by the addition of a Refix diaphragm expansion vessel on the potable water side.



Task: Storage of hot water

Solution: Storatherm storage vessel

Specially designed systems with renewable energy sources, such as heat pumps, CHP or biomass CHP stations, can often only be operated efficiently with storage vessels. Reflex Storatherm storage units are available in all popular dimensions.



More information about the specific design of systems is available at the end of this brochure.

Simple solutions with diaphragm expansion vessels

Static solutions with diaphragm expansion vessels are preferred for the output range up to 100 kW due to their application-friendly, mechanical operation. Semi-detached and detached houses make up the largest proportion here. But even in the range above 1 MW, static pressure maintenance is called for if, for instance, a system is needed to operate at full load following a power outage when automated operation is not required.



Task: Pressure maintenance, compensating for the expansion volume

Solution: Reflex N and F diaphragm expansion vessels

Unbeatable value for money, fast installation and simple operation make Reflex the absolute favorite for pressure maintenance in the small to medium output range. There is even enough space for Reflex F flat vessels in wall-mounted heating units.



Task: Filling and make-up

Solution: Fillset for addition of make-up water + Fillsoft for water softening

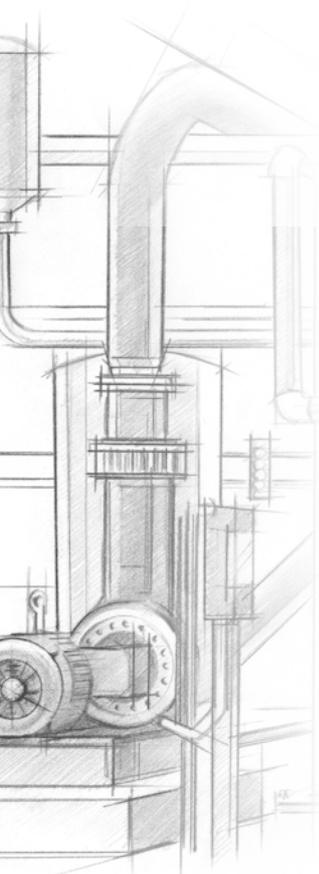
With smaller types of system, manual addition of water is generally all that is needed once a year. Manufacturers of compact heat generators in particular require filling and make-up water to be softened.



Task: Removal of gases from water

Solution: Exvoid separator

Exvoid separators collect micro-bubbles and separate them automatically on a purely mechanical basis. They work best of all at peak points in systems with high temperatures. If this cannot be guaranteed, degassing with Servitec is recommended (see p. 7).



Use Reflex with systems at risk of corrosion!

Reflex diaphragm expansion vessels have been designed for use with potable water. However, they are also corrosion resistant to water rich in oxygen. They are always preferred, for instance, when oxygen-permeable plastic

Networked solutions with diaphragm expansion vessels

Systems with automated operation and central monitoring are called for in industrial and commercial construction (recommended range between 100 kW and 1 MW). Diaphragm expansion vessels can only provide this if they are networked with intelligent degassing and water make-up systems that also monitor the expansion vessel. This produces convenient and efficient solutions that are not in any way inferior to pressurization stations.



**Task: Pressure maintenance,
compensating for the expansion volume**

Solution: Reflex G diaphragm expansion vessels

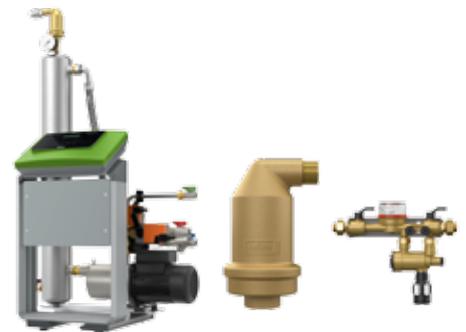
Admittedly diaphragm expansion vessels compete directly with pressurization stations in this output range, but they usually present the most cost-effective alternative when there is adequate installation space.



**Task: Addition of make-up water and
removal of gases from the water**

Solution: Servitec + Fillset + Exvoid T separator

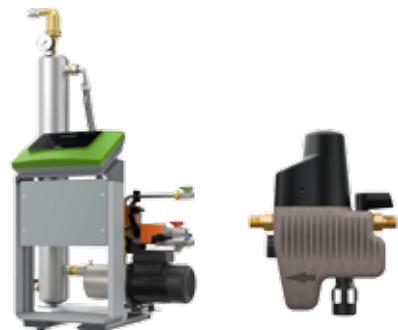
The Servitec vacuum spray-tube degassing unit also removes dissolved gases from the circuit, unlike pure separators. It works independently of the temperature of the circuit and its installation position, leaving systems free of air and gas. Water is added using a Fillset, and free gases during filling and in operation are removed by the Exvoid T separator.



Alternative for water/anti-freeze mixtures:

Fillcontrol Auto + Servitec versions suitable for use with anti-freeze

Both components are designed for use with mixtures containing anti-freeze, as are used in the most delicate chilled ceilings and chillers: the Fillcontrol Auto feeds mixtures from mixing vessels directly into the system, which are reliably degassed by the Servitec unit.



Networked solutions with pressurization stations used as combined units

Reflex pressurization stations are more than just compressor or pump-controlled systems to provide constant pressure in systems. They also combine functions for water make-up and degassing compactly in one unit with a higher-level control. When installed as combined units, they offer efficient solutions for confined spaces and are often more cost-effective than the sum total of networked individual units. The recommended output range of the following examples is between 100 kW and 8 MW with a water content of up to 100 m³.



Task: Pressure maintenance, compensation for expansion volume, water make-up and removal of gases from water

Solution: Variomat + Fillset + Exvoid T separator

Over and above maintaining precise pressure, the Variomat waterside pump control enables the combined use of the depressurized expansion vessel for atmospheric degassing and controlled water make-up using the Fillset. Exvoid T air vents are ideal for ventilation.



Reflex Control: Everything intelligently networked - with only one control

Whether you're using a Variomat, a Reflexomat or a Servitec - with Reflex, you can rely on the integrated Reflex Control concept. The control units have all the most popular standard interfaces, they provide for remote monitoring of the most important parameters and can be designed for tailored data exchange with building management systems with extension and communication modules. The integral network switch also permits the master-slave operation of hydraulically coupled heating and cooling systems.

The control unit is available as Basic and Touch versions, depending on the type of controller. Both guarantee a full range of functions and differ only in terms of convenience and equipment. The Reflex Control Touch, in particular, is setting new standards with its intuitive touch screen operation.



Networked solutions with pressurization stations used as stand-alone units

By networking individual units for pressure maintenance, degassing and water make-up, each unit can exercise its individual benefits, optimized by the systematic Reflex Control control concept. This then opens up an almost unlimited range of outputs and features for a wide range of complex requirements in the range above 100 kW.



Task: Pressure maintenance, compensating for the expansion volume

Solution: Reflexomat

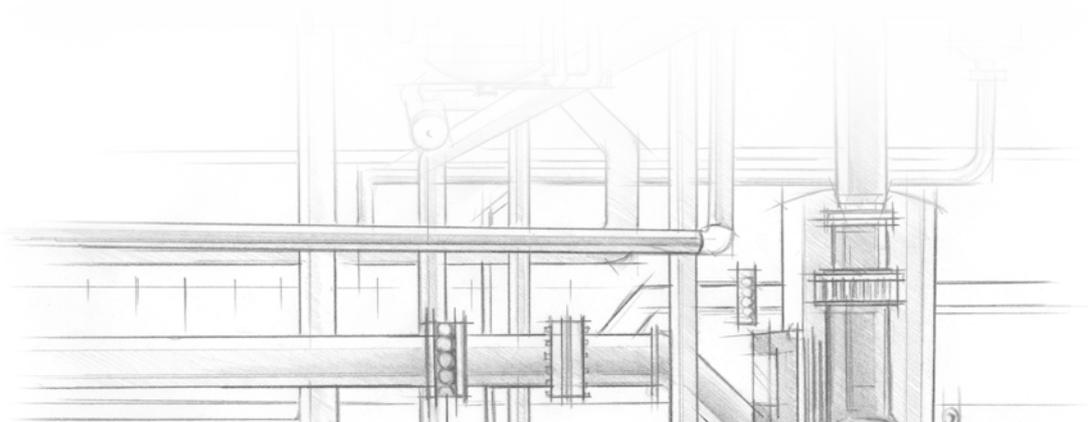
The air side compressor control of the Reflexomat permits ultra-accurate precision in pressure maintenance. Its gentle and versatile operation also makes the Reflexomat attractive as a solution for smaller systems.



Task: Addition of make-up water and removal of gases from the water

Solution: Reflexomat + Servitec + Fillset + Exvoid T separator

The Reflexomat and Servitec complement each other almost perfectly in networking: The Servitec's total degassing operation is well suited to the efficiency required, but the system must work more precisely to ensure pressurization. That is exactly what the Reflexomat does with its gentle, versatile method of operation. Water is added using a Fillset, and free gases during filling and in operation are removed by the Exvoid T separator.



Solutions for solar systems

The sun is a sustainable generator of heat, but regrettably solar energy can neither be planned nor controlled. On the one hand, the trend in heating installation is towards low-temperature systems that operate at temperatures below 70°C, while, on the other hand, the sun generates temperatures that can exceed 200 °C. When the sun stays hidden, only mixtures of water and anti-freeze can prevent heating systems from freezing in winter. Reflex offers systematic solutions specifically designed for these system conditions.



Task: Pressure maintenance, compensating for the expansion volume

Solution: Reflex S diaphragm expansion vessels + in-line vessel

Reflex S diaphragm expansion vessels have been specifically designed for continuous loading by the high temperatures that occur in solar systems. Depending on the system, an in-line vessel is recommended to prevent extreme high temperatures in the expansion vessel.

Diaphragm expansion vessels are the best solution for solar systems, as they guarantee that the system operates fully even in the event of a power outage, so avoiding critical operating conditions. Pressurization stations would need additional thermal protection in these circumstances and are therefore only recommended as an alternative with very large systems.



Filling and make-up

Solution: Fillcontrol Auto for use with anti-freeze

The use of the Fillcontrol Auto (version suitable for use with anti-freeze) is recommended for the filling and automatic make-up of water/anti-freeze mixtures in large systems.



Task: Removal of gases, dirt and sludge from water

Solution: Reflex Exvoid separators + Exvoid T for gases and Exdirt for dirt and sludge

Exvoid T for initial ventilation and Exvoid for operational ventilation are usually adequate for the majority of systems. The use of a Servitec unit (suitable for use with anti-freeze) is possible in large, branched systems for vacuum spray-tube degassing. In addition, the use of an Exdirt automatic dirt removal system makes sense in more complex systems.





Task: Heating of potable water

Solution: Storatherm Aqua Solar + Refix diaphragm expansion vessel

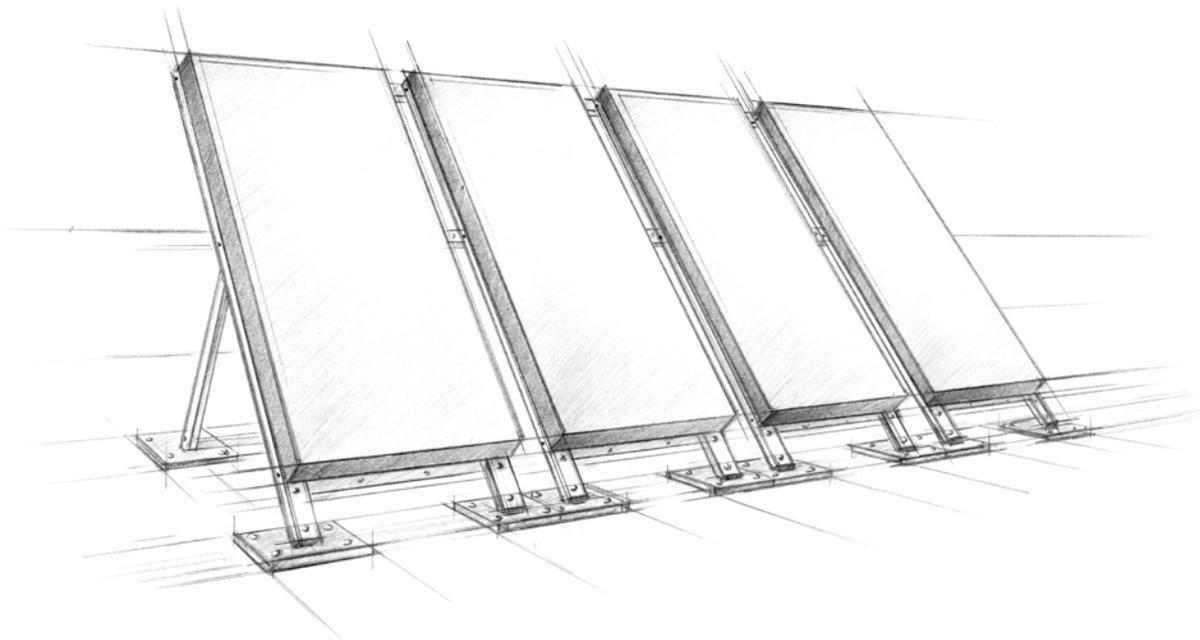
Storatherm Aqua Solar units are equipped as standard with two heat exchangers, meaning that heat can be fed into the system, both from the solar system as well as from the conventional heat generator. An efficient and water-saving solution can be achieved by the installation of a Refix diaphragm expansion vessel on the potable water side.



Task: Storage of hot water

Solution: Storatherm storage vessel

Storatherm storage vessels enable solar heat to be stored without loss at times when it is not needed. The unit can be integrated either directly or indirectly via an optional heat exchanger.



More information about the specific design of systems is available at the end of this brochure.

Solutions for large-scale system

Large heat generation systems on the primary side are typical for this sector. Heat is transported along a wide network of district heating pipes to a large number of small terminal stations, where it is transferred to the secondary side and supplied to customers. The equipment on the secondary side is comparable with the equipment in heating and cooling systems (see pages 4 - 9). Reflex offers an extensive range of professional solutions for the primary side and for transfer to the secondary side.

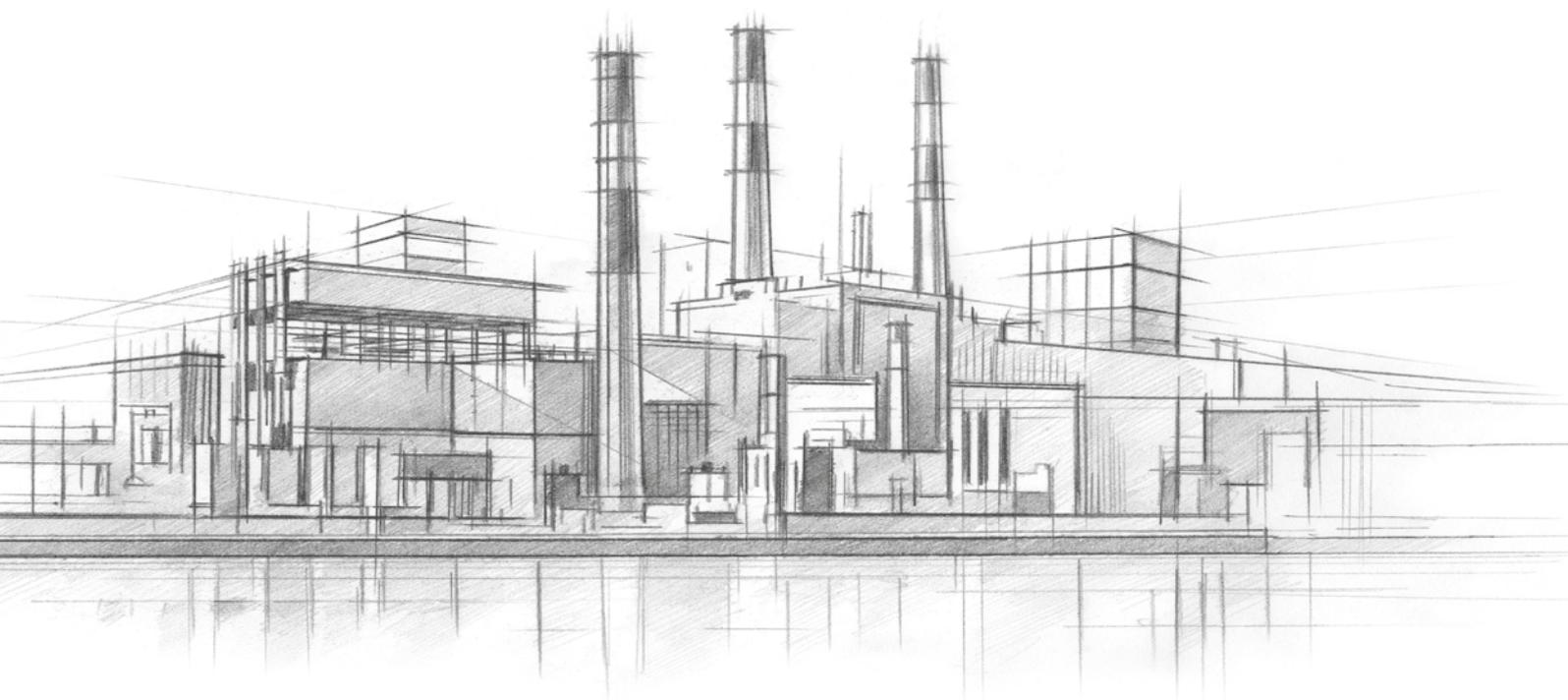


Task: Pressure maintenance and compensation for the expansion volume on the primary side

Solution: Variomat Giga + in-line vessel(s)

High outputs and high pressures are the specialty of the Variomat Giga. Standard solutions are offered up to 30 MW and beyond that Reflex additionally offers non-standard solutions. In-line units are fitted upstream of the Variomat Giga in hot water networks.

In all cases we would recommend planning and design in conjunction with Reflex.



s and district heating systems



Task: Water-make-up and removal of gases from water on the primary side

Solution: Servitec special systems

These systems operate in the same way as standard Servitec systems but their design underlines their extraordinary performance. Servitec special systems represent a genuine alternative to thermal degassing units and are also capable of degassing the make-up water directly. An installation like this essentially needs to be coordinated with professional experts on the operational side.



Task: Removal of dirt and sludge from water on the primary side

Solution: Exdirt separator

Reflex also offers the Exdirt separators in steel and with an inspection hatch for use on the primary side.



Task: Transfer of heat from the primary side to the secondary side and heating of potable water

Solution: Longtherm heat exchanger + Storatherm Aqua Combi charging cylinder + Refix diaphragm expansion vessel

Large capacities being immediately available are the best conditions for compact heat transfer units with integral storage/charging system for the heating of potable water. An exceptionally efficient and water-saving system can be achieved with Longtherm for heat transfer and Storatherm Aqua Combi as a storage tank and a Refix diaphragm expansion vessel on the potable water side.



More information about the specific design of systems is available at the end of this brochure.

Count on us - from the initial id

The examples outlined in this brochure are intended as general principles, on the basis of which professional, expert solutions can be developed from the Reflex product ranges. The following is essential when it comes to specific design: The design of each and every system must be viable and implemented precisely.

Reflex offers a range of services to assist you in finding the solution that meets your needs. Starting with extensive product information to comprehensive design assistance and advice in person. Take advantage of our combined expertise and experience and develop solutions jointly with us, down to the very last detail.



Made-to-measure design: With the Reflex Pro calculation program

Take the easiest route to correct design and sizing: Reflex Pro is the proven, continuously developed software solution you can use to quickly and simply achieve precise results. The software is available in three versions and we also provide you with a CAD library of our entire product range for integration into your construction programs.

Visit www.reflex.de/pro for further information and the option of downloading free of charge.



Smarter calls: Our central phone number

Do you have a question, need detailed information or want to order our latest brochures? Then simply call us on our central phone number. We will quickly deal with your inquiry and, in the event of technical queries, will be pleased to put you in direct contact with our field sales team.

You can reach us Mondays to Fridays
between the hours of 8.00 and 16:30
on +49 2382 7069-0

ea to the solution.



Our field sales team - always on the road for you

Information at your fingertips: Our website

Whatever your requirements, you've come to the right place. The Reflex website will continue to help you around the clock: Look up product information, obtain professional design support and quickly and easily find the right contact for your issue.

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