fusiotherm®

climatherm

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fusiotherm® / climatherm - Pipe Systems for Shipbuilding

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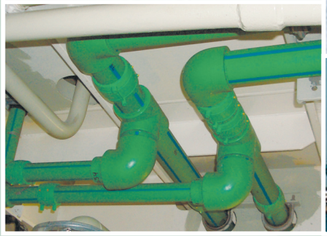

System range - Advantages - Certificates - Fusion technique - Examples of Installation - References

Corrosion-proof Pipe Systems for Shipbuilding

MADE IN GERMANY
PIPESYSTEMS

aquatherm

aquatherm - successful worldwide
in more than 70 countries!

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aquatherm - The company

aquatherm is a successful manufacturer of plastic pipe systems in the sanitary and heating sector worldwide certified according to DIN/ISO 9001.

In 1980 aquatherm developed the plastic pipe system fusiotherm® from fusiolen for sanitary, heating and air conditioning installations. Up to now this innovation is the foundation stone for a steady growth.

Presently aquatherm is located at 3 sites in Germany totally covering more than 68,000 square metres for offices, production and warehouses.

fusiotherm®-pipe system

The fusiotherm®-pipe system has proved its excellent technical suitability in international shipbuilding for more than 25 years by worldwide application. Among experts it is said to be one of the most complex and at the same time best and safest plastic pipe systems.

The fusiotherm® system includes the different pipes SDR 11, SDR 7.4 and SDR 6 (pressure pipes 10 - 20 bar) . Additionally there are specially reinforced products: the faser composite pipe SDR 7.4, the stabi-composite pipe SDR 7.4 and more than 400 joining and connecting elements as well as valves and ball cocks.

The products are available in dimension 16 - 250 mm.

Processing

By fusioning pipe and fitting, the plastic melts into a homogeneous unit. Pipe and fitting are heated up on special tools and subsequently just joint.

Double material thickness at the joint – that means double security at the otherwise critical point of a pipe system.

Branches can be made easily with weld-in saddles even later. Material and time can be reduced by using weld-in saddles. Working with the weld-in saddle is limited to the assembly of saddle and branch pipe whereas threaded branch tees require working on three junction points.

The electrofusion sockets in dimension 16 - 160 mm are welded with the fusiotherm electrofusion device. The electrofusion guarantees easy installation of even bigger dimensions at ceilings and places difficult to access.

fusiotherm®-pipe system

Advantages:

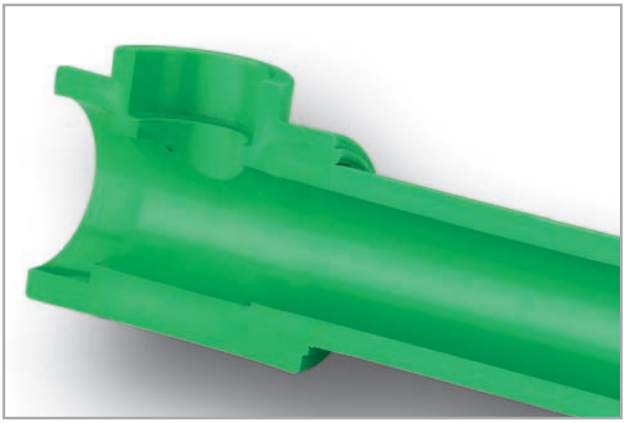
- fusiotherm® has less weight than metal pipes.
- Corrosion resistant to aggressive media and sea water with low ph-value.
- Safe connection technique.
- Simple and rapid processing as well as easy carrying out of repair work, even at sea. The system is salt water resistant.
- By fusion-welding of pipe and fitting the plastic melts to a stable homogeneous unit.
- fusiotherm®-connections can be pressurized or put into operation immediately after fusioning. All that is required is a waiting time of 10 minutes. This also applies for repair works or additionally installed branches.
- More than 400 connection elements provide a solution for practically any situation which might occur in the field of supply technology. The system offers detachable connections in form of union pieces, couplings and flanges.
- Compared to wood, cork, wool or other natural materials the fusiotherm®-system made from fusiolen® PP-R (80) has no increased toxicity. No danger of dioxin-output in case of burning.
- Low loss of heat of hot water pipes as well as high pressure- and heat stability.
- fusiotherm®-faser-composite-pipes with integrated faser layer can be installed - like copper and steel pipes - absolutely dimensionally stable. The linear expansion is almost identical with that of metal pipes.
- fusiotherm® is convincing by reduced noise flow rate in comparison with metallic pipe systems.
- The fused joint can be pressurized direct after the cooling period.
- Favourable price.

Table material in comparison
Metal pipes / **fusiotherm®**-faser-composite-pipe

material	external Ø/mm	weight
galvanized iron pipe	48.3 mm	3.610 Kg/m
copper pipe	42 mm	1.700 Kg/m
fusiotherm®-faser-composite-pipe	**50 mm**	**0.901 Kg/m**

Corroding metal pipe

fusiotherm® - the perfect corrosion-proof connection



fusiotherm®-pipe system

Fusion technique

1. Heating up of pipe and fitting 2.+3. Joining, fixing and aligning the fitting - Finished!

Weld-in saddle technique

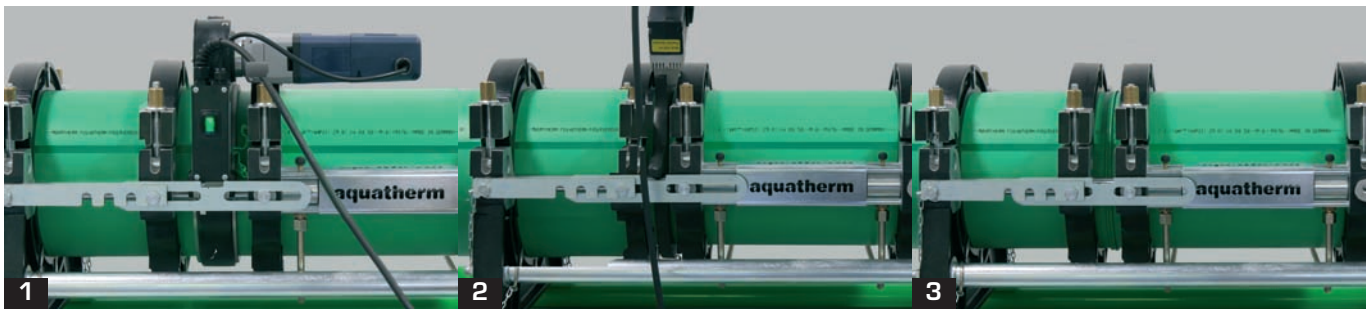
1. Drilling through the pipe wall 2. Heating up of the saddle, pipe wall and pipe curve 3. Join the elements. Ready!

Electrofusion - welding

1. Electrofusion-device 2. Push the electrofusion socket onto the pipe end.
3. Connect the electrofusion device to the socket. Adjust the socket diameter on the welding device. Start and control welding process. Keep the cooling time. Ready!

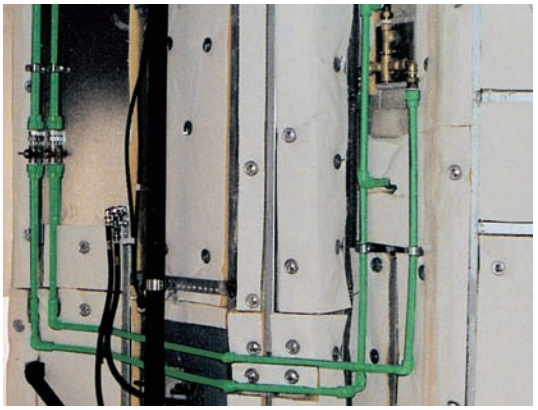
Butt-welding

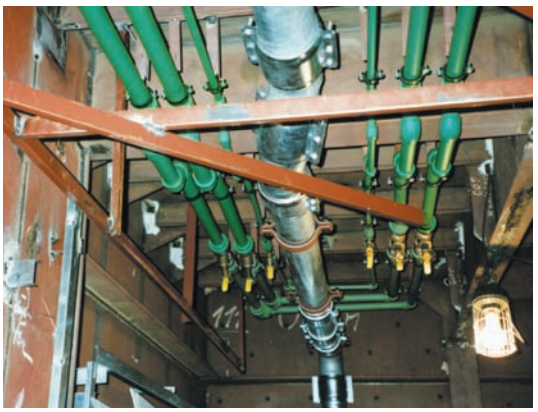
1: Mill the front coplanarly 2: Heat-up by heating elements 3: Join the pipes



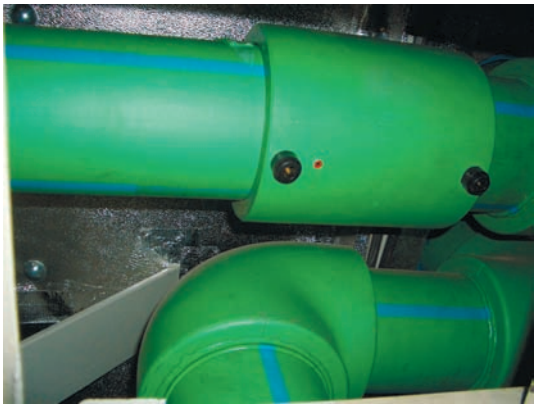
We offer trainings at site for further fusiotherm® installation advices.
For detailed information, please call +49 (0) 171 38895-11 .

Examples of Installation







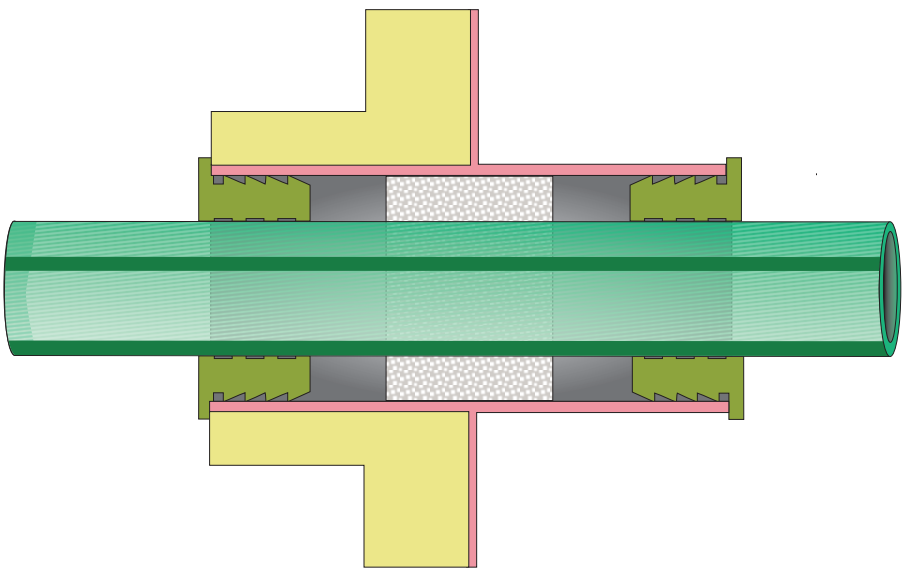
fusiotherm®- and climatherm-pipe systems are ideal for all applications in shipbuilding, e.g. plumbing and heating installations.

International Certificates

The fusiotherm®-Pipe-System has acquired the 12 most important certificates for the international shipbuilding industry.

Fire Protection

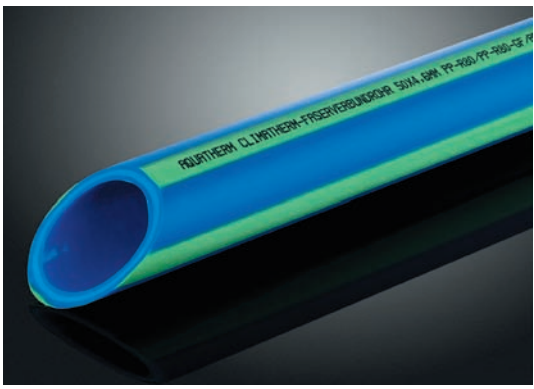
fusiotherm®-pipe system
as a single pipe in bulkhead



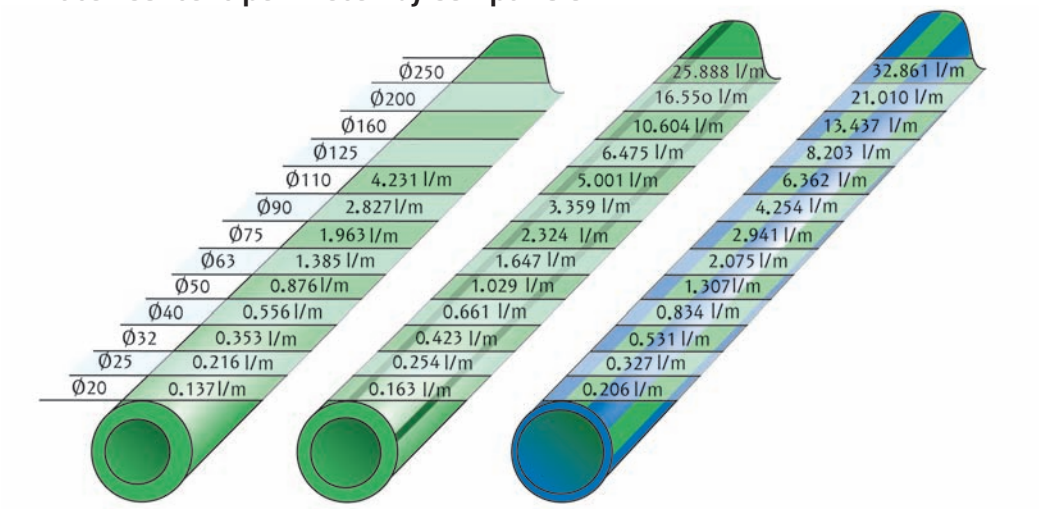
climatherm-pipe system

The **climatherm-pipe system** has been developed especially for applications beyond the potable water installation.

In addition to the general advantages of the PP-R-pipe system **climatherm** in comparison with the fusiotherm®-system offers higher volumetric current values due to smaller wall thickness. The dimensions range from 20 mm to 160 mm and also 200 and 250 mm external diameter. The system includes all elements for the pipe system installation for chilled, hot fluid and various industrial applications.



Water content per meter by comparision



fusiotherm®-pipe SDR 6

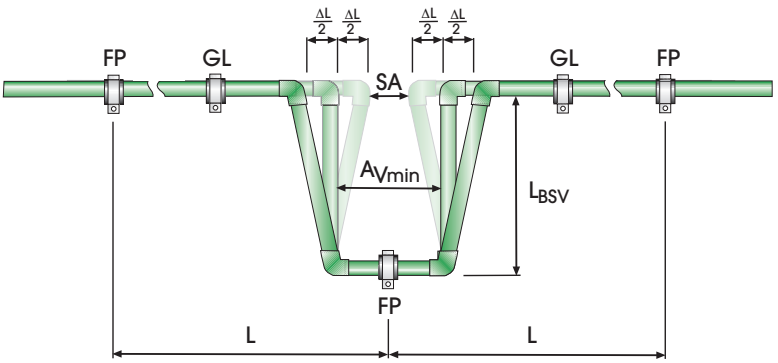
fusiotherm®-faser composite pipe SDR 7.4

climatherm-faser composite pipe SDR 11
climatherm-pipe SDR 11
fusiotherm®-pipe SDR 11

Expansion bends with pre-stress

Where space is limited, it is possible to shorten the total width A_{min} as well as the length of the bending side L_{BSV} verkürzt werden. Pre-stress installations, if planned and installed exactly, result in an optically perfect installation, as the linear expansion is hardly visible.

The complete **fusiotherm®**-pipe system should be installed both in the field of hot water and cold water application with expansion bends or bending sides.



A selection of aquatherm - references

Cruiser “COSTA VICTORIA”, Italy

Cruiser “STATENDAM”, Great Britain

Club Liner “AIDA AURA”, Germany

Cruiser “CARNIVAL VALOR”, Italy

“CARNIVAL CONQUEST”, at present one of the largest liners worldwide

A selection of aquatherm - references

Club liner “AIDA VISTA”, Germany

Royal Yacht “DANNEBORG”, Denmark

Ferry “LA SUPERBA”, Italy

Cruiser “NORWEGIAN SUN”, Norway

Cruiser “COSTA CLASSICA”, Italy

Ferry “SCANDLINES“, Germany

Ships like the pictured "L 16" of the Danish navy are refurbished with **fusiotherm®**.

New ships, like L 16, L 17, P 570 and A 544 are installed with **fusiotherm®** in the field of plumbing and partly for chilled applications.

A selection of aquatherm - references

Excursion ship “FÜRST BORWIN”, Germany

Excursion ship “RHEIN STAR”, Germany

Excursion ship “MS STARNBERG”, Germany

Excursion ship “HERRSCHING”, Germany

Excursion ship “RIVER DREAM”, Germany

NOTES

Our General Conditions of Sale and Delivery (Date: 02/2007)

These are printed completely on our homepage www.aquatherm.de

or we will send them to you on demand!

Subject to technical changes.