aquatherm®

Sprinkler piping system

aquatherm **red**

Part of the Solution
www.aquatherm.de

Inhaltsverzeichnis

History

1973 aquatherm founded by Gerhard Rosenberg

1981 Development of the first pipe system made of polypropylene; the colour green becomes a characteristic feature of aquatherm

1991 Subsidiary Radeberg was founded

1996 First certification of the quality management system in accordance with ISO 9001

1997 Foundation of the sales company in Italy

1999 Development of fusiotherm® fibre composite pipe

2001 aquatherm operates in more than 50 export markets

2002 Market launch of the aquatherm blue pipe

2005 Market launch of the aquatherm red pipe and aquatherm black system

2010 System expansion of the pipe size to max. ø 630 mm

2010 Christof, Dirk and Maik Rosenberg assume company management

2012 First certification of the environment management system in accordance with ISO 14001

2012 Market launch of the material fusiolen® PP-RP

2013 First certification of the energy management system in accordance with ISO 50001

2015 Foundation of the sales company in North America

2017 Opening of the new pipe extrusion plant

2018 Opening of the new injection moulding facility

2018 Foundation of the sales company in England

2019 Expansion of the industrial prefabrication operation

2021 Participation in the distribution company aquatherm iberica s.l.

2022 Opening of the aquatherm Campus

2023 aquatherm celebrates it's 50th anniversary

2024 Jan Kriedel takes over the management with Maik Rosenberg

AQUATHERM RED

Plastic piping systems made of polypropylene

aquatherm is the world's leading manufacturer of plastic piping systems made from polypropylene for plant construction and building services. The areas of application include drinking water applications, heating systems, fire protection sprinkler systems, air-conditioning and refrigeration technology, as well as surface cooling systems. The product range comprises more than 17,000 articles in six product lines.

To guarantee the worldwide availability of the products and to offer local service, aquatherm works closely with long-standing partners in more than 70 countries. The company employs approx. 500 people in Germany, Italy, England, USA and Canada.

Production is carried out exclusively at the German sites in Attendorn (headquarters), Radeberg and Ennest. Customers all over the world can therefore rely on innovative and safe PP-R piping systems of the highest quality, „100% Made in Germany". The family business is now managed by Maik Rosenberg, son of aquatherm founder Gerhard Rosenberg, and Jan Kriedel.

AQUATHERM RED

Future-proof in all fields of application with individual solutions __

aquatherm has the solution for your challenge - benefit from the versatile application possibilities of aquatherm red systems. Here you get an exemplary overview of the fields of application where you can trust in aquatherm red. Yesterday. Today. Tomorrow.

Fire protection

Sprinkler systems

aquatherm red
Product types

AQUATHERM PRODUCT TYPES

Polypropylene **pipe systems** __

The history of the aquatherm pipe systems began in 1973 when Gerhard Rosenberg founded a company for hot water underfloor heating systems. Initially, the owner´s garage and basement served as the company´s headquarters and production facility. A lot has happened since then.

In the past 50 years, aquatherm has proven to be the world´s leading manufacturer of plastic pipe systems made of polypropylene for plant engineering and building services. The numerous product lines provide superior solutions in potable water applications, heating systems, fire sprinkler systems, air conditioning and refrigeration technology, as well as in surface heating and cooling systems. The product range comprises almost 17,000 articles in six product lines.

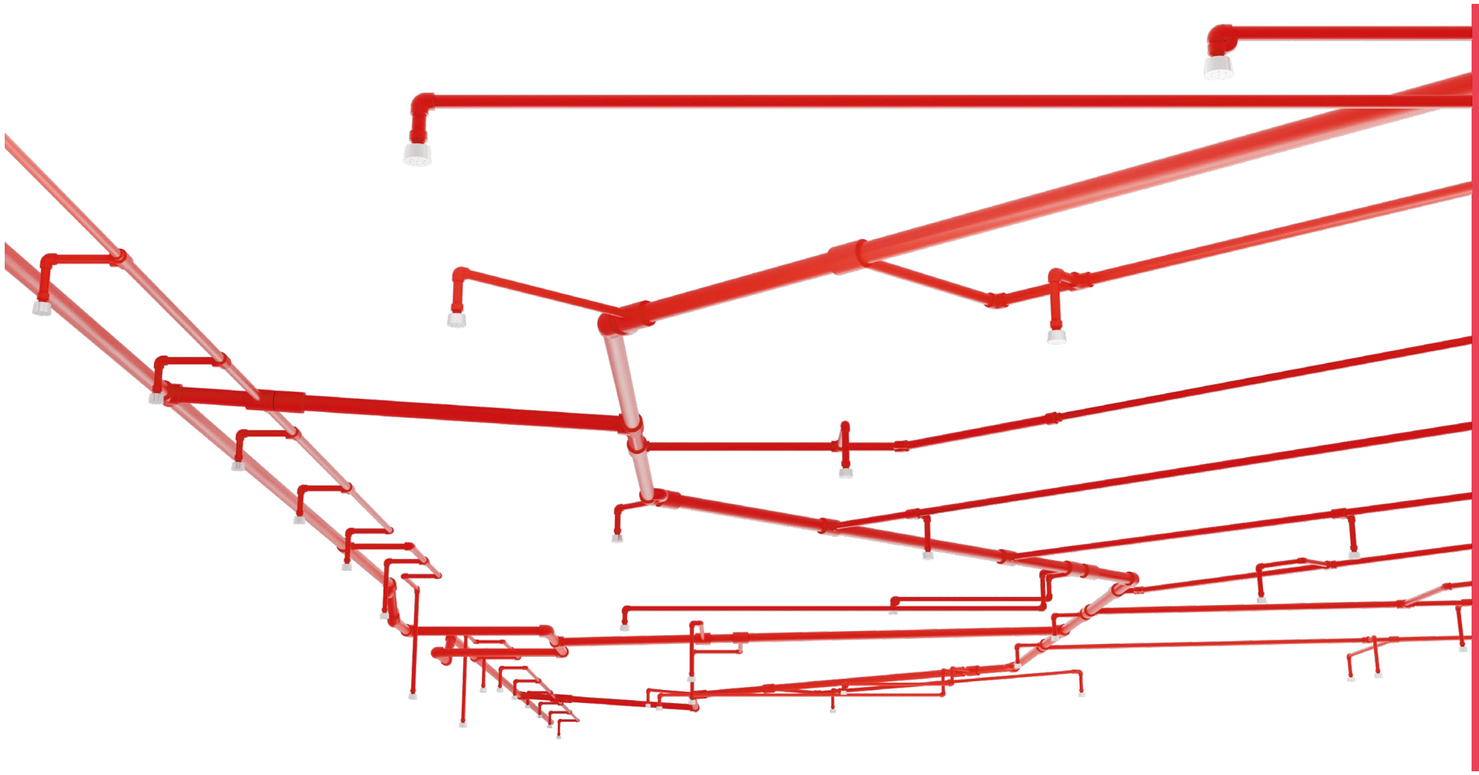
Due to their special material properties, the aquatherm pipe systems convince by their diverse application possibilities.

The aquatherm pipe systems can be used in all areas of new installation, repair and renovation.

Installation __

aquatherm offers unrivalled connection technology: Material unity through fusion. It convinces with shortest connection times:
e.g. Outer diameter 40 mm = 12 sec.

aquatherm connections can be pressurised or put into operation immediately after fusion, with no waiting time needed.



Quality __

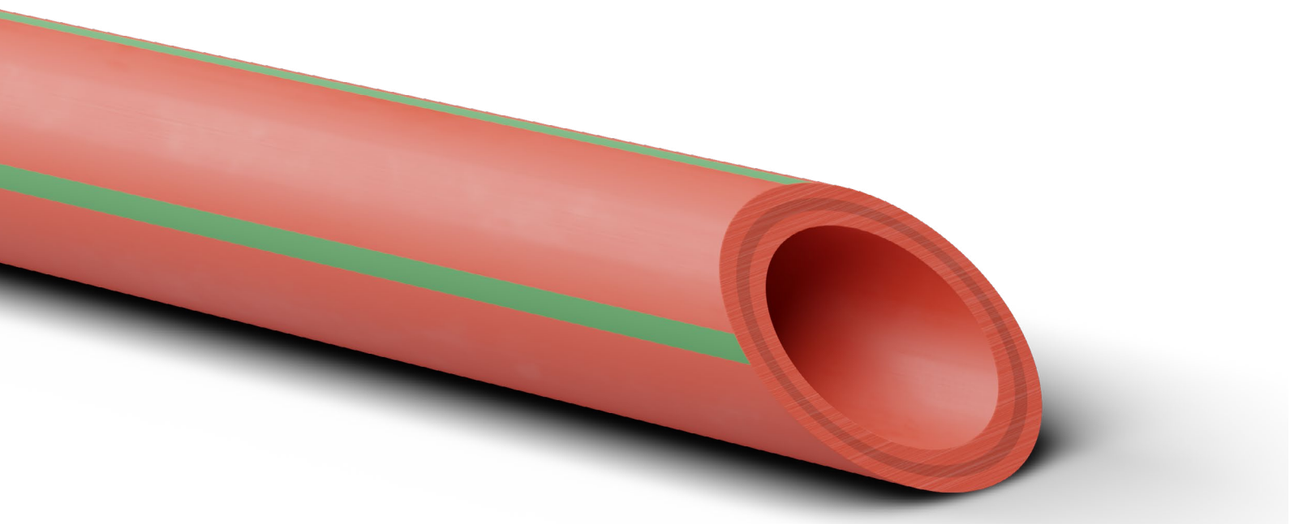
Quality is very important to aquatherm. This is not only reflected in the national and international certification marks, but also in the high satisfaction level of aquatherm customers, installers and engineers. You can find our international certificates here: Certificates

Warranty __

Due to the high product quality, aquatherm offers a 10-year warranty on all pipes and fittings instead of the 2 years applicable under German law. The extended warranty period is covered by a comprehensive insurance policy from a leading insurance company in our industry. For details, see the Warranty section of this catalogue.

Price advantage __

aquatherm offers you high quality, durable piping systems at an optimal price/performance ratio.



PRODUCT TYPES

AQUATHERM RED MF HI __

MF = Multi-layer and fibre-reinforced composite pipe
HI = Highly inflammable

Advantages at a glance:

- High corrosion resistance
- Short processing time
- Lighter than metallic materials
- Non-visible fire protection
- Sealing elements are not required
- High impact strength
- Processing even at temperatures below 0 °C

Fields of application __

- Fire protection
- Sprinkler systems

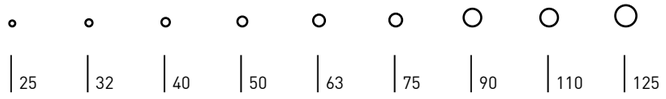
System components __

The system provides all components required for the piping installation of sprinkler systems.

- Pipes in straight lengths
- Fittings
- Flanged joints
- Welding devices and machines
- Weld-in and weld-on saddles
- Manifolds
- Shut-off devices

Diameter __

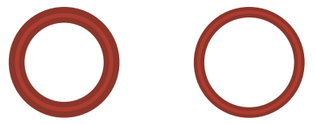
From the main line to the sprinkler/wall hydrant, aquatherm red pipes cover the complete piping system in the available diameters: 25, 32, 40, 50, 63, 75, 90, 110 and 125 mm (DN15 - 90).



Standard Dimension Ratio (SDR) __

The SDR (Standard Dimension Ratio) is a key figure indicating the pressure resistance. In order to guarantee a certain pressure resistance, a certain maximum SDR number is necessary, depending on the type of material. The following applies: The greater the wall thickness, the smaller the SDR number, the more pressure-resistant the plastic pipe is. The unit indicates the ratio between outer diameter and wall thickness of a pipe.

aquatherm red is available in the following SDR sizes:



SDR 7,4 SDR 11

Support intervals __

aquatherm red SDR 7.4								
Pipe diameter d [mm]								
25	32	40	50	63	75	90	110	125
Support intervals [cm]								
140	160	180	205	230	245	260	290	320

Table to determine support intervals in conjunction with outside diameter.

aquatherm red
Characteristics and special features

AQUATHERM CHARACTERISTICS AND SPECIAL FEATURES

International **Approvals** __

for the application as sprinkler lines

Fire protection requirements and standards for planning and construction of sprinkler systems vary locally.

Therefore, the application of aquatherm red in any case has to be agreed and coordinated with the local national fire protection authorities, the constructor, and the building insurers.

Additional certification, whether national or local, is currently in progress.

UK; LPCB:
The system of pipes and fittings must be installed in accordance with the „Technical Instruction aquatherm red pipe“ dated 01/12/2012 Issue 2.

The current valid version of the „Technical Instruction aquatherm red pipe“ is available from infoservice@aquatherm.de.

aquatherm red **Approvals** __

VdS
G4050042
Germany

CNBOP
Poland

FIRE SERVICES HONG KONG
Hong Kong

IBS
Austria

Brunamálastofnun
Iceland

AON
New Zealand

FEDERAL STATE ESTABLISHMENT THE ALL-RUSSIAN RESEARCH INSTITUTE FOR FIRE PROTECTION (FGU VNIIPO)
Russia

FM APPROVED

LOSS PREVENTION CERTIFICATION BOARD LPCB
LPS 1260
Cert.-no.: 684a
Great Britain

Certified Product
Australian Standard
AS 4118.2.1
Lic SMKP20464
Australia

VeriFire
New Zealand

N.º 526/09
Spain

UkrSEPRO
Ukraine

AQUATHERM CHARACTERISTICS AND SPECIAL FEATURES

Handling __

UV resistance:

Pipes from fusiolen® PP-R FS should not be installed (without protection) where subject to UV-radiation. All aquatherm red pipes and fittings are supplied in UV-protected packaging to bridge transport and assembly time. Ultraviolet rays have an influence on all high polymeric plastics. Therefore, pipes should not be stored unprotected outdoors for an extended period. The maximum outdoor storage time is 6 months.

Chemical resistance:

Due to their unique material properties, aquatherm red pipes and fittings offer extensive chemical resistance. However, aquatherm red pipe transition connections and elements with brass inserts are not suitable for all media. Compatibility should be confirmed with aquatherm for any media other than water. Please use the "Enquiry for Chemical Resistance"form for this purpose.

Chemical resistance

Procedures for additional repair:

Cut out the damaged or leaking section and replace it as you would in a new installation, or use a pipe repair stick (see page 49).

Pipe friction loss:

The pressure loss caused by friction is to be calculated hydraulically with the Hazen-Williams-formula. The value to be used for C is 150, applicable for calculations of sprinkler installations and water supply.

Equivalent lengths for the aquatherm red sprinkler pipe system __

The equivalent lengths of transition pieces, threaded connections, and tees (flow direction: straight) can be equated with the socket values.

Pipe dimension [mm]									
Nominal Diameter	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 90
Outer diameter aquatherm red [mm]	25.0	32.0	40.0	50.0	63.0	75.0	90.0	110.0	125.0
Article	Equivalent pipe length								
Socket	0.22	0.30	0.40	0.52	0.70	0.86	1.07	1.36	1.58
Reduction of 1 dimension	0.27	0.37	0.48	0.63	0.83	1.03	1.28	1.63	1.90
Reduction of 2 dimensions	0.36	0.49	0.64	0.84	1.11	1.37	1.71	2.17	2.53
Elbow < 90°–45°	0.67	0.91	1.20	1.57	2.09	2.57	3.20	4.07	4.74
Elbow < 45°	0.33	0.46	0.60	0.78	1.04	1.28	1.60	2.03	2.37
Standard tee or cross flow direction branch	0.98	1.34	1.76	2.30	3.06	3.76	4.70	5.96	6.96

Excerpt from the **Rockwool planning and installation aid** __

R 30- to R 90 pipe penetrations for the aquatherm installation systems with non-combustible media, such as drinking water, heating and cooling.

Product name/ Material:

aquatherm green
PP-R
SDR 6 S
SDR 7,4 S
SDR 7,4 MF
SDR 7,4 MF UV
SDR 11 S

aquatherm green
PP-RCT
SDR 9 MF RP
SDR 9 MF RP UV

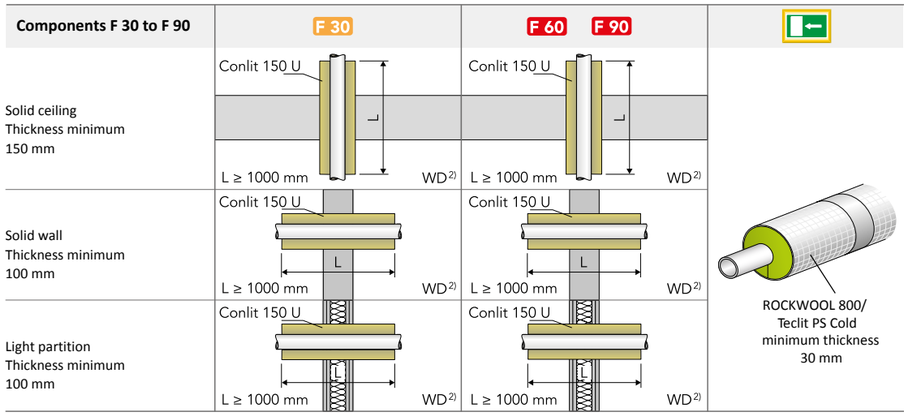
aquatherm blue
PP-R
SDR 7,4 MF
SDR 7,4 MF OT
SDR 7,4 MF UV
SDR 11 S

aquatherm blue
PP-RCT
SDR 9 MF RP
SDR 9 MF RP OT
SDR 9 MF RP UV
SDR 11 MF RP
SDR 11 MF RP OT
SDR 11 MF RP UV

aquatherm red
PP-R (B1)
SDR 7,4 MF HI

aquatherm black
grid connection
pipe

aquatherm orange
PE-RT



Variant according to ROCKWOOL abP P3726/4140MPA BS.

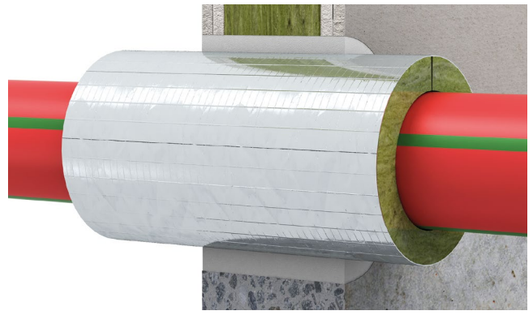
System	Pipe dimension	Conlit 150 U				ROCKWOOL 800 1), 2), 3) TECLIT PS Cold 1), 2), 3)		
	Outer diameter Da [mm]	GEG 50% 3) d_i/d [mm]	Core drilling DK [mm]	GEG 100% 3) d_i/d [mm]	Core drilling DK [mm]	BSU 4) d_i/d [mm]	GEG 50 % 1) d_i/d [mm]	GEG 100 % 1) d_i/d [mm]
Pipes without OT or UV layer	14,0	14/23	60	15/42,5	100	15/30	15/20	15/20
	16,0	16/22	60	16/42	100	18/30	18/20	18/20
	17,0	17/21,5	60	18/41	100	18/30	18/20	18/20
	20,0	20/20	60	20/40	100	22/30	22/20	22/20
aquatherm green	25,0	25/17,5	60	25/37,5	100	28/30	28/20	28/20
aquatherm blue	26,0	26/17	60	28/51	130	28/30	28/20	28/20
	32,0	32/24	80	32/49	130	35/30	35/20	35/30
aquatherm red	40,0	40/20	80	40/45	130	42/30	42/20	42/40
aquatherm grey	50,0	50/25	100	50/50	150	54/30	54/30	54/40
aquatherm black	63,0	63/33,5	130	63/58,5	180	64/30	64/30	64/50
aquatherm orange	75,0	75/52,5	180	75/62,5	200	76/70	76/40	76/70
	90,0	90/65	220			102/30	102/40	102/80
	110,0	110/70	250			114/30	114/50	114/100
	16,0	18/21	60	18/41	100	18/20	18/20	18/20
	20,0	22/19	60	22/39	100	22/30	22/20	22/20
Pipes without OT or UV layer	25,0	27/16,5	60	28/51	130	28/30	28/20	28/20
	32,0	34/23	80	35/47,5	130	35/30	35/20	35/30
aquatherm green UV	40,0	42/19	80	42/54	130	42/30	42/20	42/40
	50,0	53/23,5	100	54/53	160	54/30	54/30	54/40
aquatherm blue OT + UV	63,0	64/33	180	64/58	180	76/30	76/30	76/50
	75,0	71/51,5	180	76/62	200	89/30	89/40	89/70
	90,0	90/65	220			102/80	102/40	102/80
	110,0	113/53,5	220			114/30	114/50	114/100

Notes/special installation conditions

1) Minimum insulation thickness required in conjunction with pipe penetration seals in accordance with abP P-3726/4140-MPA BS; thermal insulation requirements in accordance with GEG are also met.
2) The insulation shell ROCKWOOL 800 or Teclit PS Cold can be used as additional insulation.
3) For correct dimensioning of the insulation thickness for pipework with cold media, please follow the instructions in our Teclit cold insulation pipe work installation instructions.
4) In the area of escape routes, fire load encapsulation with ROCKWOOL 800 or Teclit PS Cold (insulation thickness: 30 mm) can be used.

All boundary conditions of the specified general building inspectorate test certificates (abP) or general type approvals (aBG) must be taken into account.

Roku System AWM II



Rockwool Conlit 150 U

Fire load __

The values required for determining the fire load within a fire section are calculated from the total of all flammable materials located within this area. The calculation for establishing the combustion heat V [kWh/m] for a fire section in the event of an outbreak is dependent on dimensions and materials. The basis used for the calculation of pipe systems made of polypropylene is the lower calorific value Hu = 12.2 kWh/kg (as per DIN V 18230 T1) in conjunction with the mass of material mpipe [kg/m]. The integrated layers of fibres in the aquatherm fibre composite pipes are also considered.

Depending on the calculation procedure, the fire load is worked out with reference to the burn-up factor. This value is designated as mfactor and is taken as 0.8 for polypropylene.

Fire compartmentalisation __

All fire protection systems that have the appropriate approval are suitable for aquatherm red pipework.

Combustion values V [kWh/m] for aquatherm red SDR 7.4 __

Dimension	kWh/kg
25 mm	2.69
32 mm	4.32
40 mm	6.73
50 mm	10.48
63 mm	16.46
75 mm	23.42
90 mm	33.55
110 mm	50.19
125 mm	64.63

The following companies offer **suitable fire protection solutions:** __

Fire protection pipe shell Conlit 150 U:
DEUTSCHE ROCKWOOL
GmbH & Co. KG
Rockwool Straße 37-41
45966 Gladbeck
Tel: +49 2043 408 0
www.rockwool.de

Fire protection sleeve AWM II:
Flamro Brandschutz
Vertriebs GmbH
Am Sportplatz 2
56291 Leiningen
Tel. +49 6746 9410-0
Mail: info@flamro.com
www.flamro.de

Hilti Deutschland AG · Hiltistrasse 2 · 86916 Kaufering
Tel: +49 800 888 · www.hilti.de

AQUATHERM CHARACTERISTICS AND SPECIAL FEATURES

Material **fusiolen®** __

aquatherm red is made of corrosion-resistant material. This considerably extends the service life of the pipeline, for example for an air conditioning system. The material of aquatherm is characterised, among other things, by its exceptional high heat and extraction stability. Its exceptionally good welding properties allow pipes and fittings to fuse into a homogeneous, materially bonded unit, making the material fusiolen® renowned worldwide.

The **advantages** of **aquatherm pipes and fusiolen® polypropylene** __

- Corrosion resistant
- Resistant against many chemicals
- High environmental compatibility
- Less pipe roughness
- Heat and sound insulating characteristics
- High mechanical stability
- Very good welding properties
- High heat-stabilised
- Lighter in weight than steel and copper
- Easy processing

Our material **fusiolen® Polyproylene** __

Newly opened markets place ever increasing demands on the pipe material. Versatile applications require the greatest possible independence of the processed materials. Raw materials with novel properties that could not be achieved until then are required. For this reason, aquatherm has been developing and producing its own innovative polypropylene materials for several years, which meet the global challenges in sanitary and heating technology, airconditioning and refrigeration technology, industrial applications and agriculture, shipbuilding, and fire protection.

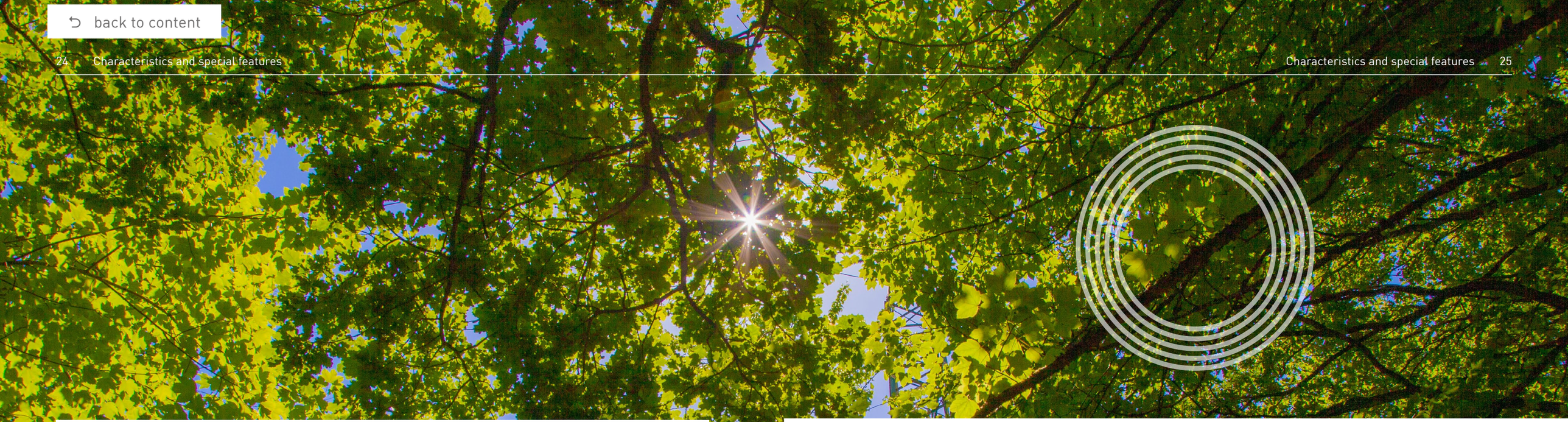
Successful results of this research are fusiolen® PP-R, fusiolen® PP-RCT and fusiolen® PP-R FS.

Environment __

The environmentally friendly material polypropylene fusiolen® PP-R/PP-RCT is recyclable and can be ground, melted, and reutilised for various applications such as motor-protections, wheel linings, laundry baskets, and other types of transport boxes. PP-R/PP-RCT does not contain any polluting substances during its processing or disposal.

Higher **long-term heat stabilisation** __

The long-term heat stabilisation has been increased to resist to the potential effects of peak temperatures within higher safety parameters.



AQUATHERM CHARACTERISTICS AND SPECIAL FEATURES

This is how aquatherm is **committed** __

17 goals to change the world: In 2015, the global community developed the „Agenda 2030“, a roadmap for the future.

This is intended to enable a dignified life worldwide and to preserve the natural foundations of life in the long term. We at aquatherm would like to contribute to the achievement of these goals with all our actions. Our sustainable products, our comprehensive service and our leading expert knowledge are part of the solution on the way to a climate-neutral life.

We are also a member of the German Sustainable Building Council (DGNB e.V.) and work with the non-profit organisation to find ways and solutions to build for tomorrow today.

Climate change __

Climate change poses one of the greatest challenges of our time. The primary culprit, CO_2 emissions, enters the atmosphere and amplifies the greenhouse effect, resulting in ongoing global warming.

We hold a strong conviction that humanity possesses the capability to devise solutions to tackle this challenge, leading to a significant reduction in CO_2 emissions across all sectors.

Construction industry __

The construction industry is responsible for 36% of global energy consumption and 39% of energy- and process-related CO_2 emissions.*

The construction industry has started to acknowledge its responsibility, yet the steps taken towards achieving the ultimate goal of a „net-zero building“ throughout its entire life cycle are still insufficient.

More courageous and visionary pioneers are needed to lead the way and set an example for the entire industry.

Exceptionally **environmentally friendly** __

The European Plastic Pipe Association TEPPFA analysed the environmental impact of plastic pipe systems as part of its EPD project. The result: plastic pipe systems have excellent environmental performance in various areas of application, leaving a smaller ecological footprint than pipe systems made of other materials.

A pipe system made of polypropylene (25 mm, SDR 7.4), for example, has approximately seven times lower CO_2 emissions than a comparable steel pipe.

Success through consistent **environmental protection** __

Environmental protection is not just a practice for us; it's a way of life, and we adhere to it consistently. All corporate processes are oriented towards conserving valuable resources, minimising energy consumption, and avoiding or recycling waste.

We developed the first fibre composite pipe as early as 1999. This required significantly less energy in the production process than the conventional aluminium composite pipe.

Technical data sheet __

Technical properties	fusiolen® PP-R	fusiolen® PP-R/ PP-RCT fibrepipe
Melt-flow index 190 °C/5 kg	0.5 g/10 min.	0.5 g/10 min.
Melt-flow index 230 °C/2.16 kg	0.3 g/10 min.	0.3 g/10 min.
Modulus of elasticity	800 N/mm²	1200 N/mm²
Yield stress	25 N/mm²	30 N/mm²
Density	0.9 g/cm³	1.0 g/cm³
Tensile strength	25 MPa	35 MPa
Inflammation temperature	430–450 °C	490–500 °C
Thermal expansion coefficient	1.5 *10⁻⁴ K⁻¹	0.35 *10⁻⁴ K⁻¹
Coefficient of thermal conduction	0.15 W/mK (measured at pipe)	0.15 W/mK (measured at pipe)
Coefficient of friction in pipes	0.007	0.007
Bending radius	6 x d	
Water absorption	< 0.02 %	< 0.02 %

Electrical properties	fusiolen® PP-R	fusiolen® PP-R/ PP-RCT fibrepipe
Relative permittivity	2.3 (in case of 1 MHz)	2.3 (in case of 1 MHz)
Puncture voltage	500 kV/cm	500 kV/cm
Specific resistance	> 10¹⁷ Ω cm	> 10¹⁷ Ω cm
Surface resistance	10¹⁴ Ω	10¹⁴ Ω
Dissipation coefficient	0.0002 (in case of 50 Hertz)	0.0002 (in case of 50 Hertz)

AQUATHERM CHARACTERISTICS AND SPECIAL FEATURES

aquatherm **Environmental Product Declaration** __

What is an **Environmental Product Declaration?** __

An Environmental Product Declaration (EPD) describes the environmental impact of a product or service on the environment. It records the consumption of resources and emissions over the entire life cycle of the product - from the extraction of raw materials to disposal - and quantifies and evaluates them. Therefore, an Environmental Product Declaration offers the possibility to compare different products with each other.

In the Environmental Product Declaration, the characteristics of a product are identified neutrally using internationally recognised standards. A precise methodology according to ISO 14025 and EN 15804 is followed, and all values are checked by independent third parties regarding their completeness, plausibility, and conformity with standards.

However, the EPD is not a certificate, i.e. there are requirements placed on the quality and format of the data, but not on the quality of the product. For the building sector, it forms an important basis for the ecological assessment of buildings.

What are **product category rules?** __

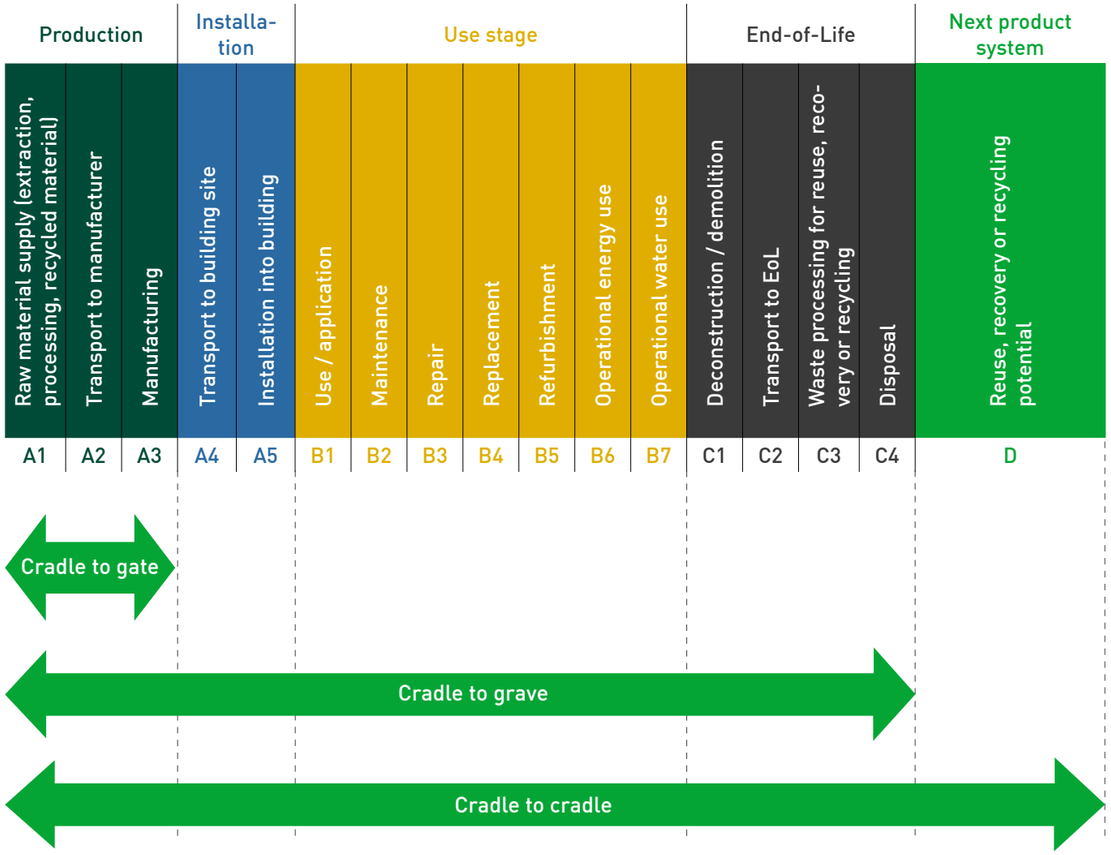
To be able to evaluate functionally similar products in the same way and in the context of an Environmental Product Declaration, Product Category Rules (PCRs) are used. These are a set of specific rules, requirements or guidelines according to which products are classified into groups. Product Category Rules exist, for example, for thermal insulation materials, windows and doors, or building piping systems.

What is a **Life Cycle Assessment?** __

The aim of a Life Cycle Assessment (LCA) is not only to provide environmentally relevant data on specific products, but also to estimate potential environmental issues which then can assist in making a decision for or against a particular product. The basis of the Life Cycle Assessment is the life cycle of a product. It consists of different phases: Raw material extraction, material production, use, waste treatment and final disposal. All environmental inputs and outputs are listed. In other words, everything that flows into and out of the product is measured. These can be raw materials or resources, different types of energy, water or emissions into the air, soil or water.

What does the **Product life cycle include?** __

A life cycle assessment considers either the entire life cycle of a product or parts of it. Therefore, there are three different approaches to assessing the product life cycle:



What are the **environmental impact indicators**?__

Life Cycle Assessments provide information on the potential impact of a product (or service) on the environment. EN 15804+A2 describes 13 core Environmental Impact Indicators to be reported for an Environmental Product Declaration and 6 additional optional Environmental Impact Indicators.

Core indicators according to EN 15804+A2:

Core indicator	Unit
GWP-total	kg CO_2-Äq.
GWP-fossil	kg CO_2-Äq.
GWP-biogenic	kg CO_2-Äq.
GWP-luluc	kg CO_2-Äq.
ODP	kg CFC11- Äq.
AP	mol H^+-Äq.
EP-freshwater	kg PO_4-Äq.
EP-marine	kg N-Äq.
EP-terrestrial	mol N-Äq.
POCP	kg NMVOC-Äq.
ADPE	kg Sb-Äq.
ADPF	MJ
WDP	m3 World-Äq. withdrawn

Legend
GWP = Global warming potential
ODP = Stratospheric ozone depletion potential
AP = Acidification potential of soil and water
EP = Eutrophication potential
POCP = Potential for formation of tropospheric ozone
ADPE = Potential for depletion of abiotic resources - non-fossil resources (ADP - substances)
ADPF = Potential for depletion of abiotic resources - fossil fuels (ADP - fossil fuels)
WDP = Water depletion potential (users)

Additional impact categories according to EN 15804+A2-optional:

Indicator	Unit
PM	Illness cases
IR	kBq U235-Äq.
ETP-fw	CTUe
HTP-c	CTUh
HTP-nc	CTUh
SQP	-

Legend
PM = Potential incidence of disease due to particulate matter emissions.
IR = Potential effect from human exposure to U235
ETP-fw = Potential toxicity comparison unit for ecosystems
HTP-c = Potential toxicity comparison unit for humans (carcinogenic effect)
HTP-nc = Potential toxicity comparison unit for humans (non-carcinogenic effect)
SQP = Potential soil quality index

How reliable is an **Environmental Product Declaration?** __

Neutral and in accordance with internationally recognised standards: This is how the characteristics of a product are recorded in an Environmental Product Declaration. The exact methodology follows ISO 14025 and EN 15804, and all values are verified by independent third parties. The Environmental Product Declaration is valid for a period of five years. If there are changes in the manufacture of the product during this period, leading to major deviations from the previous values, a review must be carried out.

What advantages does the **Environmental Product Declaration offer me?** __

Environmental Product Declarations enable companies, for example, to participate in public tenders or investors to have their building's sustainability systems, such as BREEAM, LEED or DGNB, in place. In addition, an Environmental Product Declaration forms the basis for the development and optimisation of sustainable products.

aquatherm **Environmental Product Declaration** __

Environmental Product Declarations are important - for the construction industry, for us, and our customers. That is why we have had our products evaluated according to the „cradle to gate" concept.

Our Environmental Product Declarations
Sustainability
are available for the following product group:

- aquatherm green/blue S/MF pipe
- aquatherm red pipe S/MF
- aquatherm black system
- aquatherm green/blue S/MF pipe (OT)
- aquatherm green/blue S/MF pipe (UV)
- aquatherm green/blue S/MF pipe (TI)

aquatherm red
Fusion

FUSION

Processing __

There are numerous options available for connecting aquatherm red piping systems. Utilising aquatherm's fusion techniques enables the rapid creation of a permanently tight connection.

Welding techniques __

Due to their exceptionally good welding properties, pipe and fitting fuse to form a homogeneous, materially bonded unit. To achieve this, the pipe and fitting are briefly heated using specialised tools and then simply joined together - it's that simple! The result is double material thickness at the joint, providing double the safety at what is typically a critical point in a piping system.

Socket welding
A safe and fast connection in the socket welding process is achievable with our manual welder for pipes with dimensions of 20 to 63 mm.

view video

Socket welding with welding machine
With pipe dimensions from 50 to 125 mm, our aquatherm welding machines ensure a safe and durable connection.

view video

Weld-in saddle
Branches in aquatherm red can be easily produced, even retrospectively, using weld-in saddles. The use of weld-in saddles also reduces the amount of material and time required.

view video

Electric welding jig
Electric socket welding (heating coil welding) is suitable in hard-to-reach areas for pipes with dimensions of 63 to 125 mm.

view video

FUSION

PART A: Mounting of the welding tools __

1. Important!
Only use original aquatherm welding devices and aquatherm welding tools.

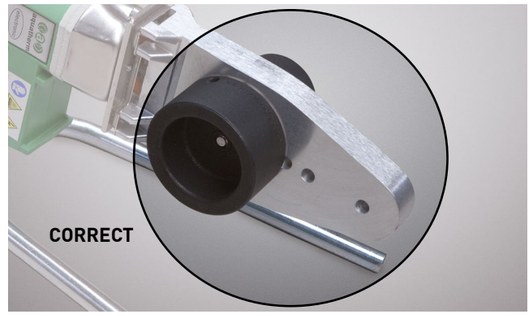
2. Assemble and tighten the cold welding tools manually.

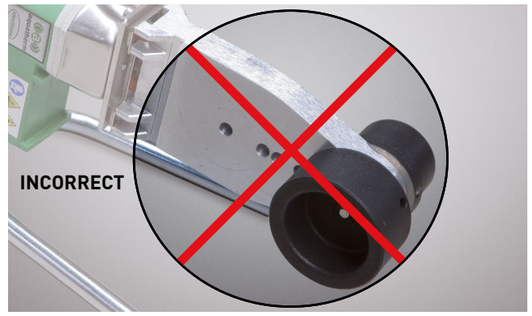
3. All welding tools must be free from impurities. Before assembling, check if they are clean. If necessary, clean the welding tools with a nonfibrous, coarse tissue and with spirit.

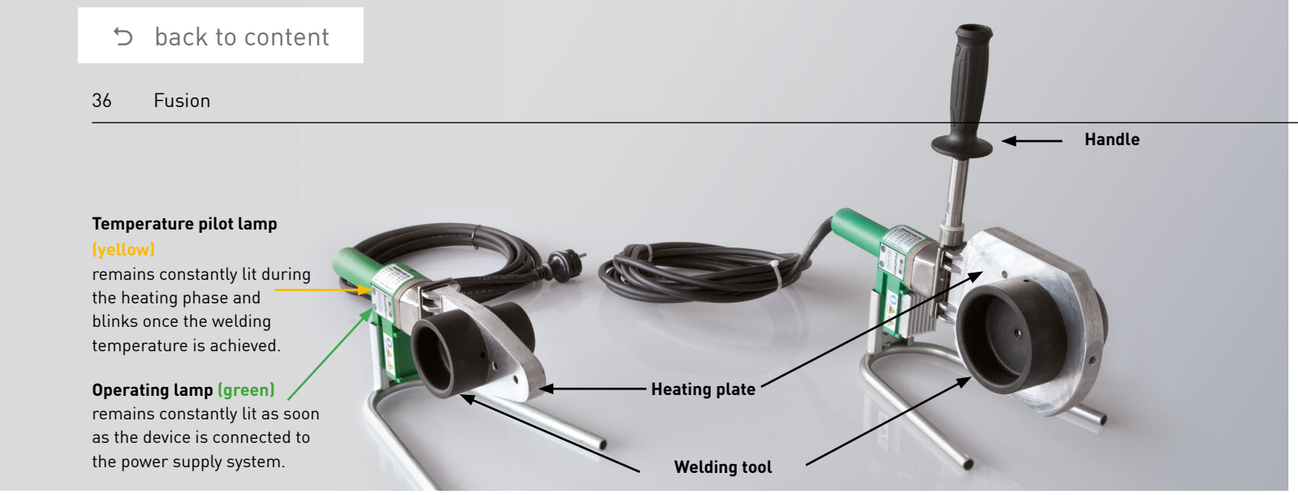
4. Position the welding tools so that there is full surface contact between the welding tool and the welding plate. Welding tools over Ø 40 mm must always be fitted to the rear position of the welding plate.

5. Plug in the welding device and check if the operating lamp is on. Depending on the ambient temperature, it takes 10–30 minutes to heat-up the welding plate.

The heat-up phase ends when the temperature pilot lamp blinks and a signal is audible.







Assembly of the welding tools __

6. During the heat-up phase, tighten the welding tools carefully with the Allen Key. Ensure that the tools make full contact with the welding plate. Never use pliers or any other unsuitable tools, as this will damage the coating of the welding tools.

7. The required temperature to weld the aquatherm red pipe system is 260 °C. According to the DVS-Welding Guidelines, the temperature of the welding device must be checked at its tool before starting the welding process. This can be done with a fast indicating thermometer or, alternatively, with an aquatherm thermocolour crayon. (See "Fusion part B, item 2")

Attention: The first welding should be conducted no earlier than 10 minutes after reaching the welding temperature, as per DVS 2207, Part 11.

8. Changing a tool on a heated device necessitates another check of the welding temperature at the new tool, following the heat-up phase.

9. If the device has been unplugged, such as during longer breaks, the heat-up process must be restarted (from item 5).

10. After use, remember to unplug the welding device and allow it to cool down. Avoid using water to cool the welding device, as this could damage the heating resistances.

Handling __

11. Ensure that aquatherm welding devices and tools are protected against impurities. Burnt particles can lead to an incorrect fusion.
The tools can be cleaned with aquatherm cleaning wipes, Art. no. 9800050193. Always keep the burnt-in welding tools dry. If needed, dry them with a clean, nonfibrous tissue.

12. To achieve perfect fusion, damaged or dirty welding tools must be replaced. Only undamaged tools can ensure a perfect fusion weld.

13. Never attempt to open or repair a defective device. Instead, return the defective device for repair.

14. Regularly check the operating temperature of the aquatherm green pipe welding devices using suitable measuring instruments.

Guidelines __

15. For the correct handling of welding machines, it's essential to observe the following: General Regulations for Protection of Labour and Prevention of as well as the regulations of the Regulations of the Employers' Liability Insurance Association of the Chemical Industry regarding Machines for the Processing of Plastics, particularly on the chapter on „Welding Machines and Welding Equipment".

16. For the handling of aquatherm welding machines, devices, and tools, please adhere to the General Regulations DVS 2208 Part 1 of the German Association for Welding Engineering, Registered Society (Deutscher Verband für Schweißtechnik e. V.).

View video

Checking of devices and tools __

1. Check if the aquatherm welding device and tool correspond to the guidelines "Fusion Part A".

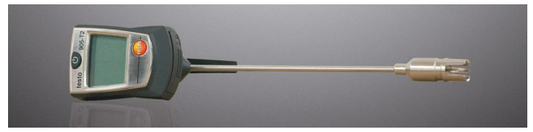
2. All devices and tools in use must reach the required operating temperature of 260°C. This needs a separate, mandatory test according to the DVS Welding Guideline. The operating temperature can be monitored using fast-indicating thermometers.

Note:
aquatherm recommends the original aquatherm temperature measuring device, Art. no. 9800050188.

Alternatively, it is also possible to check the welding temperature with the aquatherm thermocolour crayon. The application of the special thermocolour chalk in the aluminium crayon enables precise readings with a tolerance of +/- 5 K to heated surfaces.

Application:
After the temperature pilot lamp of the welding device indicates the end of the heat-up period, put a firm chalk line on the heated external surface of the welding tool. The colour should change within 1–2 seconds. If the temperature is too high, the colour will change immediately, and if it is too low (below 260 °C), it will change after 3 or more seconds.

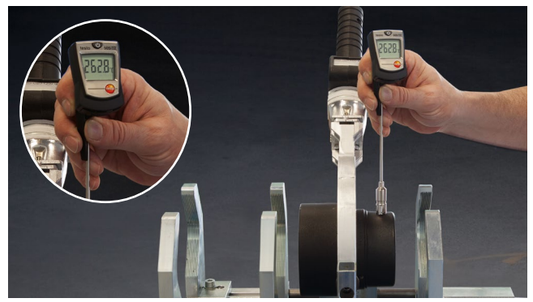
If the colour does not change within 1–2 seconds, another temperature test has to be carried out, respectively the control of the welding device is required.



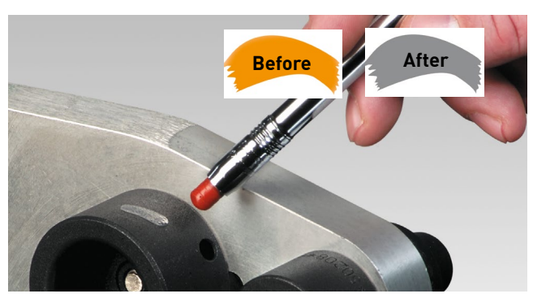
aquatherm temperature measuring device art. no. 9800050188

Measurement of temperature with the aquatherm manual welding device (800 W).

Temperature control aquatherm welding device (1400 W)



Temperature control aquatherm welding machine



Temperature control with the aquatherm thermocolour crayon

FUSION

PART B: Preparation for the fusion __

3. Cut the pipe right-angled to the pipe axis.

Only use aquatherm pipe cutters or other suitable cutting tools. Take care that the pipe is free from burrs or cutting chips, and remove if necessary.

4. Mark the welding depth at the end of the pipe with the enclosed pencil and template.

5. Mark the desired position of the fitting on the pipe and/or fitting.

The auxiliary markings on the fitting and the continued line on the pipe can be used as a guide.

Cutting of the pipe

Marking of the welding depth

The fusion is subject to the following data:

Pipe external-Ø	Welding depth	Heat-up time	Welding time	Cooling time
mm	mm	sec. DVS	sec	min
25	16.0	7	4	2
32	18.0	8	6	4
40	20.5	12	6	4
50	23.5	18	6	4
63	27.5	24	8	6
75	30.0	30	8	8
90	33.0	40	8	8
110	37.0	50	10	8
125	40.0	60	10	8

The General Guidelines for Heated Socket Welding acc. to DVS 2207 Part 11 apply.

Warming

Joining, fixing and ...

... aligning!

Heat-up of pipe and fittings __

6. Push the end of the pipe, without turning, up to the marked welding depth into the welding tool. Simultaneously, push the fitting, without turning, as far as it will go onto the tool. It is essential to observe the above mentioned heating times.

Pipes and fittings with dimensions ranging from Ø 75 to 125 mm should only be welded using welding device Art. no. 9800050341 (or with machine Art. no. 9800050148). When using the aquatherm green pipe welding machine Art. no. 9800050148, a separate set of operating instructions must be followed.

Attention:
The heating time begins when the pipe and fitting have been pushed with the correct welding depth onto and into the welding tool, and not before.

Setting and **alignment** __

7. After the stipulated heat-up time, promptly remove the pipe and fitting from the welding tools. Join them immediately, without turning, until the mark welding depth is covered by PP-bead of the fitting.

Attention:
Do not push the pipe too far into the fitting, as this could reduce the bore and, in extreme cases, may even close the pipe entirely.

8. During the specified processing time, the joint elements must be held firmly in place. Utilise this time to correct the connection, focusing on aligning the pipe and fitting. However, after the processing time has elapsed, refrain from turning the elements or adjusting the connection.

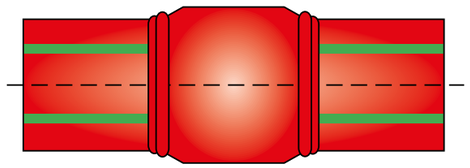
9. After the cooling period, the fused joint is ready for use.

The fusion of the pipe and fitting results in a permanent material joining of the system elements.

An unparalleled connection technique with lifetime security!

Visual inspection of fusion seam

During fusion, a bead generally forms around the entire edge of the socket, indicating proper welding.



Correct fusion welding

Incorrect shape of bead

1 **Different shape of bead** (b) **or non-existent bead** at one or at both ends (a) (partial or total extent), resulting from:

- Temperature of heating tool is too low (a)
- Insufficient heat-up time (a)
- Unacceptable tolerances (a and b)
- Excessive temperature of heating tool (b)
- Prolonged heat-up time (b)

2 **Single shape of bead** resulting from:

- Insufficient heat-up time
- Temperature of heating tool is too low
- Unacceptable tolerances
- Heat-up of only one welding part

3 **Excessive melting,** resulting from:

- Temperature of heating tool is too high
- Misaligned movement of welding-part, e.g. by inadequate fixing
- Unacceptable tolerances

4 **Elbow variance**
Partially or double-sided inclined welded pipe inserted into the socket without or with slight bracing, resulting from:

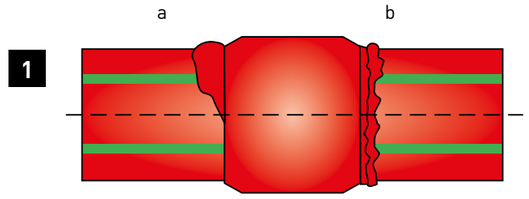
- Machinery defect
- False installation

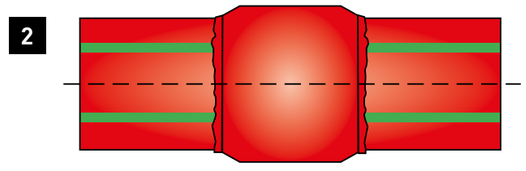
Acceptable, if e ≤ 2 mm

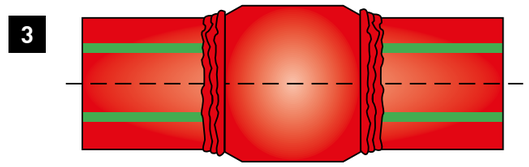
5 **Mistake of bonding** by improper pipe insertion, resulting from:

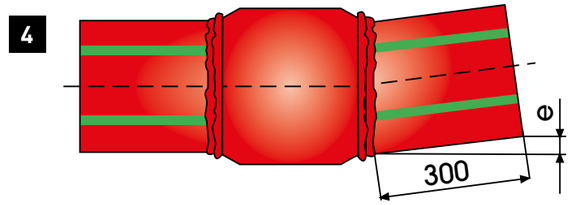
- Insufficient heat-up time
- Pipe ends not at 90° (right-angled)
- Heating temperature too low
- Axial movement during cooling time
- Change-over time too long

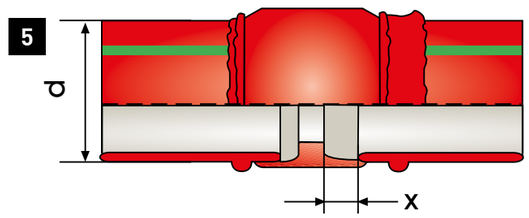
Acceptable up to 0.1 x d and 0.15 x socket depth











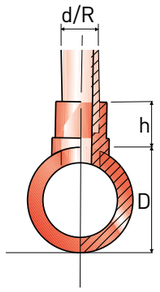
The visual inspection may be only a first indication of the welding seam quality. But it is not a replacement for the leak test, which has to be carried out after the completion of the installation.

Source: DVS 2202-1, to purchase at DVS-publisher, Düsseldorf Copyright Publisher for fusion and related procedures DVS-Verlag GmbH

FUSION

PART C: Weld-in saddles __

For pipe external diameters of 63, 75, 90, 110, 125 mm



Art. no.	D	d	R	h	Sensorwells	Drill	Welding Tool
	mm	mm	IG.	mm	ø mm	Art. no.	Art. no.
3030063001	63	32	IG.	30.0	-	9800050942	9800050620
3030075002	75	32	-	30.0	-	9800050942	9800050624
3030075003	75	40	-	34.0	-	9800050944	9800050625
3030090004	90	32	-	30.0	-	9800050942	9800050628
3030090005	90	40	-	34.0	-	9800050944	9800050629
3030110006	110	32	-	30.0	-	9800050942	9800050632
3030110007	110	40	-	34.0	-	9800050944	9800050634
3030110008	110	50	-	34.0	-	9800050946	9800050635
3030125009	125	32	-	30.0	-	9800050942	9800050638
3030125010	125	40	-	34.0	-	9800050944	9800050640
3030125011	125	50	-	34.0	-	9800050946	9800050642
3030125012	125	63	-	38.0	-	9800050948	9800050644
3030040021	40		-	39.0	14	9800050940	9800050614
3030050022	50		1/2"	39.0	14	9800050940	9800050616
3030063002	63		1/2"	39.0	14	9800050940	9800050619
3030075001	75		1/2"	39.0	14	9800050940	9800050623
3030075023	75		1/2"	43.0	20	9800050942	9800050624
3030090024	90		1"	43.0	20	9800050942	9800050628
3030110025	110		1"	43.0	20	9800050942	9800050632
3030125026	125		1"	43.0	20	9800050942	9800050638

Drilling, heating, **joining & fixing** __

1. Before starting the welding process, check if the aquatherm welding devices and tools meet the requirements of "Fusion Part A".

2. The first step is to drill through the wall of the pipe at the point intended for the outlet by using the aquatherm drill.
Branch 25 mm: Art. no. 9800050940
Branch 32 mm: Art. no. 9800050942
Branch 40 mm: Art. no. 9800050944
Branch 50 mm: Art. no. 9800050946
Branch 63 mm: Art. no. 9800050948
Branch 75 mm: Art. no. 9800050940
Branch 90 mm: Art. no. 9800050940

3. The welding device/saddle welding tool must have reached the required operating temperature of 260 °C (check with reference to "Fusion Part B, item 2").

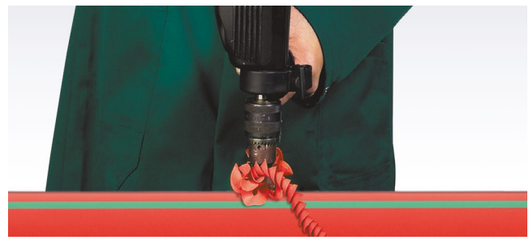
4. The welding surfaces have to be clean and dry.

5. Insert the heating tool into the hole drilled in the side wall of the pipe, positioning it on the concave side of the weld-in saddle tool, until the tool makes full contact with the outer wall of the pipe. Next the weld-in saddle spigot is inserted into the heating sleeve until the saddle surface is up against the convex side of the welding tool. The heating time of the elements is generally 30 seconds.

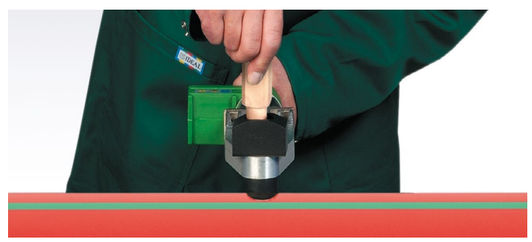
6. After the welding tool has been removed, the weld-in saddle spigot is immediately inserted into the heated, drilled hole. The weld-in saddle should then be pressed on the pipe for about 15 seconds. After a 10-minute cooling period, the connection can safely be subjected to full loading. The appropriate branch pipe is fitted into the sleeve on the aquatherm weld-in saddle using conventional fusion technology.

By fusing the weld-in saddle with the pipe outer surface and the pipe inner wall, the connection reaches highest stability.

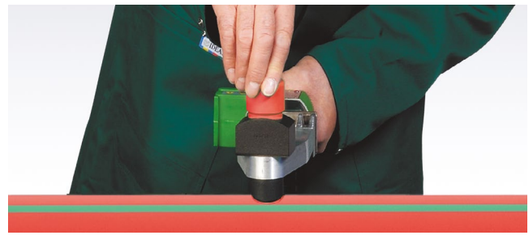
View video



Drilling through the pipe wall



Heat-up of pipe ...



... and fitting

Joining

FUSION

PART D: Welding jig (hitch) __

Note
The electric welding jig described here pertains to the model from the year 2013.

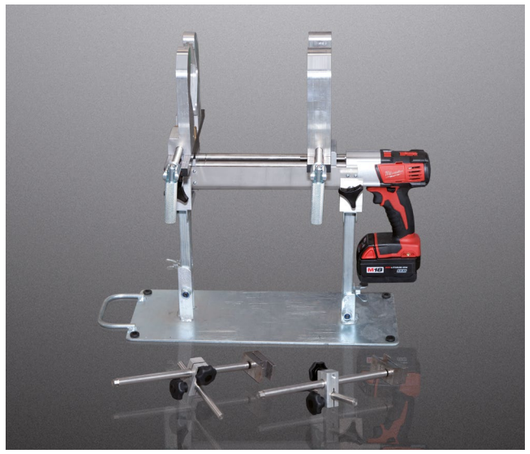
Operation and fusion
The electric welding jig facilitates the effortless welding of aquatherm polypropylene pipes and fittings ranging from 63 to 125 mm.

The welding jig simplifies the welding of pipes and fittings under ceilings, in narrow shafts and other hard-to-reach places.

For welding aquatherm red, a welding temperature of 260°C on the welding tool is required (see page 37).

Preparation for the fusion
Mark the welding depth with the included green marking template on the pipe end. (Fig. 1). In addition, the clamping depth is measured 2 cm from the welding depth marking and marked again. (Fig. 2)

View video



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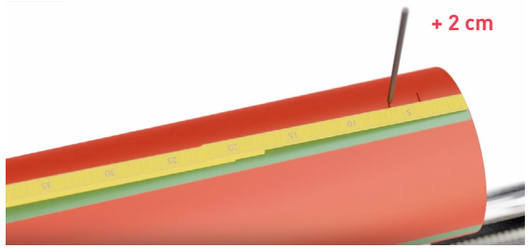


Preparation for fusion
The pulling device is now positioned on the moulded part or pipe to be moulded using the clamping jaws.

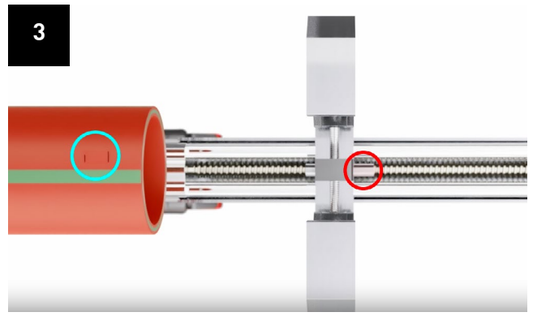
The arrows on the clamping jaws and the machine must be flush with each other. The clamping jaws are fixed in place using the clamping device (Fig. 3).

The pipe is aligned so that the rear marking is flush with the inside edge of the clamping jaw. The front mark indicates the welding depth (Fig. 4).

Clamp the pipe and moulded part with the front set screws (Fig. 5).

Do not tighten the clamps excessively to avoid deformation. The moulded part support can also be utilised to stabilise all moulded parts. It is mounted on the clamping jaw for moulded parts (Fig. 6).

3



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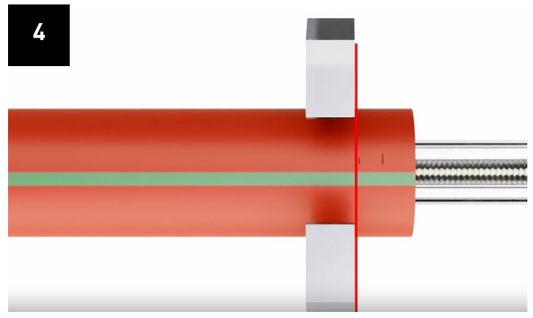

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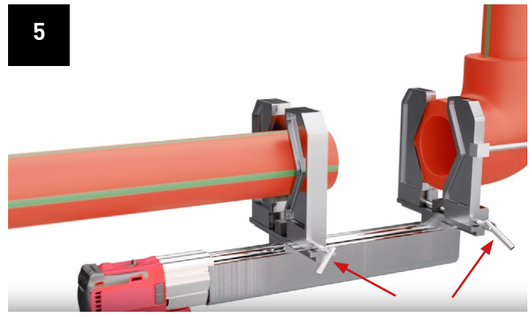

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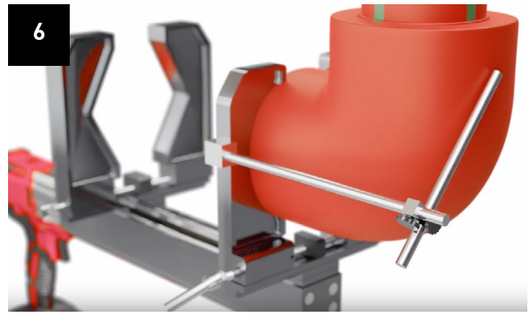


Fusion
Position the welding machine between the pipe and the molded part, and move the machine carriage together (Fig. 7 + 8). Pay attention to the welding depth.

In principle, the clamping jaws must be removed after positioning the pipe and moulded part in the welding tool. This can be done by briefly moving the machine back (3-7mm) to relieve the pressure. The clamping jaws must always be parallel to each other.

Once the heating time has passed, move the machine carriage and then remove the welding unit (Fig. 9).

Bring the clamping jaws together again (refer to Fig. 10), and then briefly move the machine back (3-7 mm) to release the pressure on the clamping jaws.

ATTENTION:
When operating the machine, ensure not to overload the clutch. The clamping jaws should only be released after the cooling period has ended.

The pipe and moulded part are now fused together into one material unit.

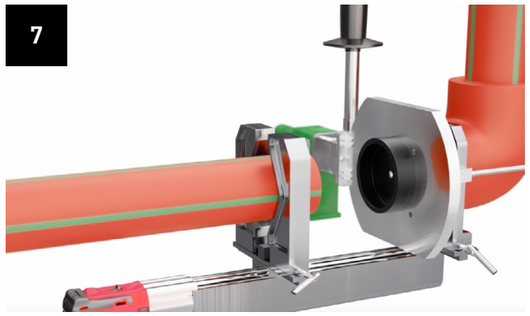
The fusion is subject to the following data:

Pipe external-Ø	Welding depth	Heat-up time	Welding time	Cooling time
mm	mm	sec. DVS	sec	min
63	27.5	24	8	6
75	30.0	30	8	8
90	33.0	40	8	8
110	37.0	50	10	8
125	40.0	60	10	8

The General Guidelines for Heated Socket Welding acc. to DVS 2207 Part 11 apply.

We also offer a manual pulling device (see page 67).

7



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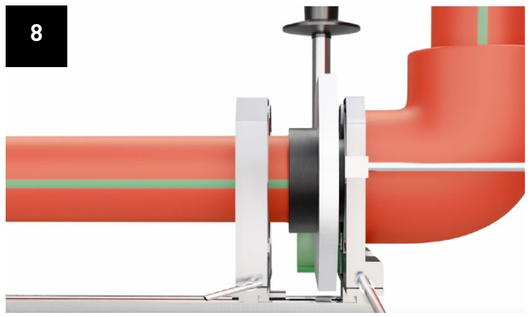

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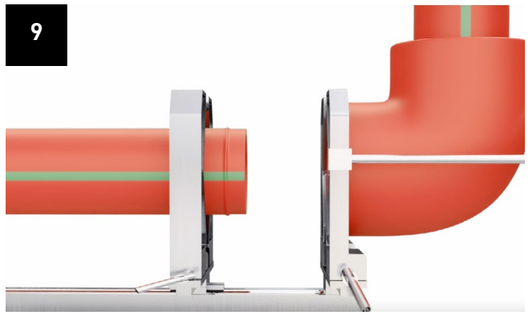


10

FUSION

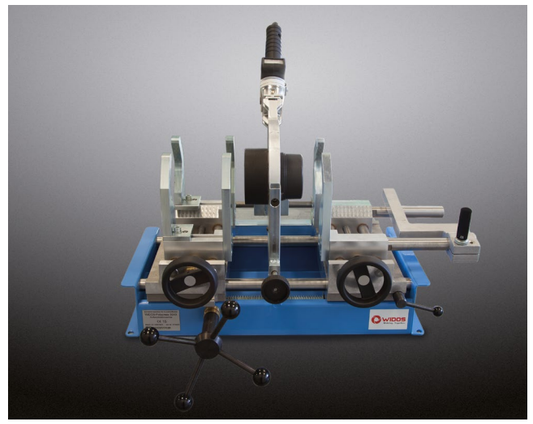
PART E: Welding machines __

Welding machine __

Scope of delivery:
- One wooden transport box for the welding machine
- aquatherm welding tools, diameter 50, 63, 75, 90, 110, 125 mm
- One allen key and tool change clamp
- One aquatherm thermocolour crayon
- One Installation manual
- One roll stand

The aquatherm welding machine was specifically designed for stationary welding of pipes and fittings with an external diameter ranging from 50 to 125 mm. It features a hand crank to assist in the precise pre-assembly of complex installation components.

View video



The fusion is subject to the following data:

Pipe external-Ø	Welding depth	Heating time	Welding time	Cooling time
mm	mm	sec. DVS	sec	min
50	23.5	18	6	4
63	27.5	24	8	6
75	30.0	30	8	8
90	33.0	40	8	8
110	37.0	50	10	8
125	40.0	60	10	8

The General Guidelines for Heated Tool Socket Welding acc. to DVS 2207 Part 11 apply.

Welding machine Prisma-light __

Using a heating plate without tools - a clamping fixture is used to secure the Prisma-light, for example, on the workbench.

1. Check the machine: The temperature lamp blinks once the welding temperature (260 °C) is reached. Adjust the clamping jaws between 63–125 mm approximately. Use the template to mark the welding depth on the pipe.

2. Fix the fitting against the clamping jaws.

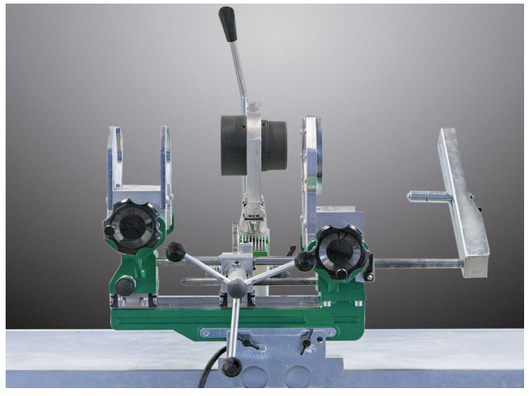
3. Place the pipe loose in the opposite clamping jaws.

4. Position the welding device centrally on the axis of the pipe fitting and remove it.

5. Lock the front calibration knob and drive up the slide as far as it will go.

6. In this position, push the pipe against the fitting and fix it with the clamping jaws.

7. Adjust the welding time according to the table on page 38. Position the welding device and slowly push the fitting and pipe until they reach the marking.



8. The heating time begins once the pipe and fitting are fully pushed onto the tool. After the heating time is complete, retract the slide, swiftly remove the heating device, and join the pipe and fitting together.

9. Take into account the cooling times specified in the table on page 38.

FUSION

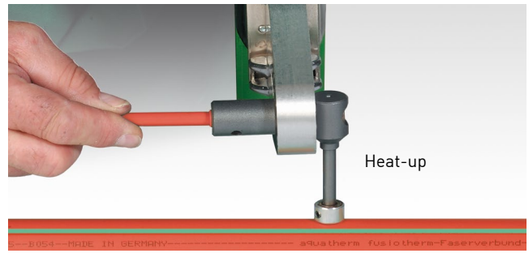
PART F: Repair __

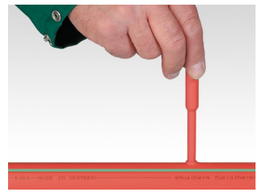
Damaged pipes can be repaired through fusion welding, as previously mentioned (refer to part B).

Additionally, the aquatherm red pipe system provides the option of repair using a repair stick.

The suitable welding tool (Art. no. 9800050307 / 9800050311) and the repair stick (Art. no. 3090000012) are detailed on page 69.

The installation information is provided with the welding tool but can also be ordered separately if needed.



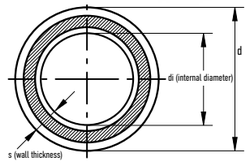


Pipe repair stick

Cutting

aquatherm red
Article list

Pipes, basic elements



aquatherm red SDR 7.4 MF HI

SDR 7.4

Material: fusiolen® PP-R FS
Pipe series: 7.4
Colour: red/4 green stripes
Packing Unit: straight length 5.8 m

Art. no.	d [mm]	s [mm]	di [mm]	l/m	kg/m	DN	PU [m]
socket welding							
3012025008	25	3.5	18.0	0.254	0.249	15	116
3012032010	32	4.4	23.2	0.423	0.400	20	58
3012040012	40	5.5	29.0	0.660	0.621	25	58
3012050014	50	6.9	36.2	1.029	0.968	32	29
3012063016	63	8.6	45.8	1.647	1.521	40	17.4
3012075018	75	10.3	54.4	2.323	2.165	50	17.4
3012090020	90	12.3	65.4	3.358	3.101	65	11.6
3012110022	110	15.1	79.8	4.999	4.642	80	5.8
3012125024	125	17.1	90.8	6.472	5.974	90	5.8

Approvals as line and distribution pipes:

in suspended ceilings: 25 mm to 75 mm (DN15 - DN50)

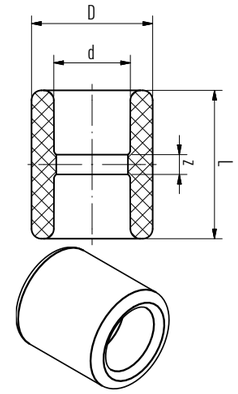
in concrete: 25 mm to 125 mm (DN15 - DN90)
as well as fittings in the corresponding dimensions.

Sockets

aquatherm red socket / B1

SDR 7.4

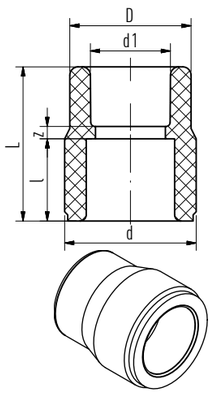
Art. no.	d	D	L	z	kg	PU
socket welding						
3040025020	25	34.0	35.0	3.0	0.014	10
3040032021	32	43.0	40.5	4.5	0.027	5
3040040022	40	52.0	47.5	6.5	0.044	5
3040050023	50	68.0	53.0	6.0	0.086	5
3040063024	63	84.0	60.5	5.5	0.145	1
3040075025	75	100.0	66.5	6.5	0.233	1
3040090026	90	120.0	72.5	6.5	0.353	1
3040110027	110	147.0	82.0	8.0	0.606	1
3040125028	125	167.0	92.0	12.0	0.819	1



aquatherm red reducer / B1

SDR 7.4

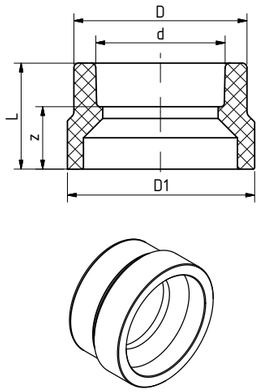
Art. no.	d	d1	l	D	L	z	kg	PU
socket welding								
3040032030	32	25.0	18	34.0	38.0	4.0	0.016	5
3040040031	40	32.0	20.5	43.0	50.0	11.5	0.033	5
3040050032	50	32.0	23.5	43.0	54.0	12.5	0.054	5
3040050033	50	40.0	23.5	52.0	53.0	9.0	0.059	5
3040063034	63	50.0	27.5	68.0	63.5	12.5	0.122	1
3040075035	75	50.0	30	68.0	63.0	9.5	0.143	1
3040075036	75	63.0	30	84.0	71.0	13.5	0.173	1
3040090037	90	63.0	33	84.0	78.0	17.5	0.232	1
3040090038	90	75.0	33	100.0	81.5	18.5	0.281	1
3040110039	110	63.0	37	84.0	86.0	21.5	0.363	1
3040110040	110	90.0	37	120.0	99.0	29.0	0.564	1
3040125041	125	90.0	40	120.0	99.0	26.0	0.831	1
3040125042	125	110.0	40	147.0	112.0	35.0	0.811	1



Legend table abbreviations (Units in mm unless otherwise specified)

d	diameter in mm	**l/m**	water content in litres/metre	**SDR**	standard dimension ratio (diameter/wall thickness ratio)
D	diameter in mm	**kg/m**	weight data in kg per metre		
s	wall thickness in mm	**DN**	diameter nominal		
di	internal diameter in mm	**PU**	packing unit in metre		

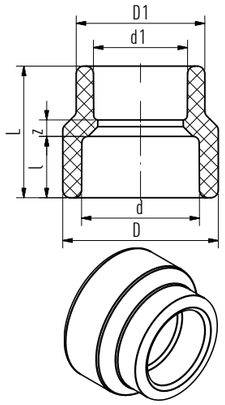
Sockets



aquatherm red reducer / B1

SDR 11

Art. no.	d	D	D1	L	z	kg	PU
butt welding							
3044160000	**110**	**147**	**160**	**90**	**53**	**0.681**	**1**
3044160001	**125**	**167**	**160**	**90**	**50**	**0.729**	**1**

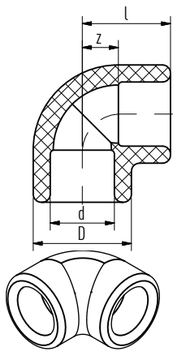


aquatherm red reducing socket / B1

SDR 7.4

Art. no.	d	d1	l	D	D1	L	z	kg	PU
socket welding									
3040063005	**63**	**50.0**	**27.5**	**84.0**	**68**	**56.0**	**5.0**	**0.126**	**1**
3040075006	**75**	**63.0**	**30**	**100.0**	**84**	**62.5**	**5.0**	**0.191**	**1**
3040090007	**90**	**75.0**	**33**	**120.0**	**100**	**69.0**	**6.0**	**0.297**	**1**

Elbow



aquatherm red elbow 90° / B1

SDR 7.4

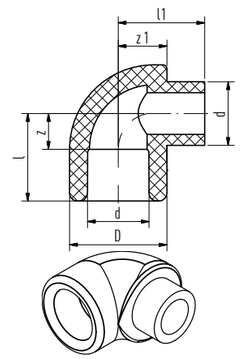
Art. no.	d	l	D	z	kg	PU
socket welding						
3080025001	**25**	**29.5**	**34.0**	**13.5**	**0.023**	**10**
3080032002	**32**	**35**	**43.0**	**17.0**	**0.043**	**5**
3080040003	**40**	**41.5**	**52.0**	**21.0**	**0.071**	**5**
3080050004	**50**	**49.5**	**68.0**	**26.0**	**0.158**	**5**
3080063005	**63**	**60**	**84.0**	**32.5**	**0.276**	**1**
3080075006	**75**	**68.5**	**100.0**	**38.5**	**0.446**	**1**
3080090007	**90**	**79**	**120.0**	**46.0**	**0.798**	**1**
3080110008	**110**	**93**	**147.0**	**56.0**	**1.323**	**1**
3080125009	**125**	**116.5**	**167.0**	**76.5**	**2.026**	**1**

Elbow

aquatherm red elbow 90° / B1 / female/male

SDR 7.4

Art. no.	d	l	l1	D	z	z1	kg	PU
socket welding								
3080032010	**32**	**35**	**39**	**43.0**	**17.0**	**21.5**	**0.049**	**5**
3080040011	**40**	**41.5**	**45.5**	**52.0**	**21.0**	**26**	**0.081**	**5**

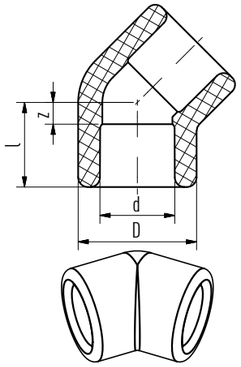


aquatherm red elbow 45° / B1

SDR 7.4

Art. no.	d	l	D	z	kg	PU
socket welding						
3080025020	**25**	**22**	**34.0**	**6.0**	**0.019**	**10**
3080032021	**32**	**25.5**	**43.0**	**7.5**	**0.035**	**5**
3080040022	**40**	**30**	**52.0**	**9.5**	**0.057**	**5**
3080050023	**50**	**35**	**68.0**	**11.5**	**0.112**	**5**
3080063024	**63**	**41.5**	**84.0**	**14.0**	**0.233**	**1**
3080075025	**75**	**46.5**	**100.0**	**16.5**	**0.353**	**1**
3080090026	**90**	**52.5**	**120.0**	**19.5**	**0.571**	**1**
3080110027	**110**	**60.5**	**147.0**	**23.5**	**0.993**	**1**
3080125028	**125**	**67**	**167.0**	**27.0**	**1.281**	**1**

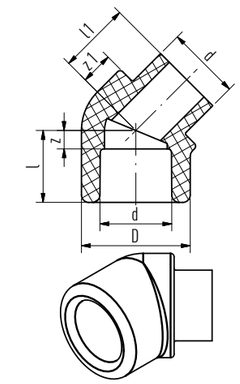
Note: Special bends in different degree dimensions on request



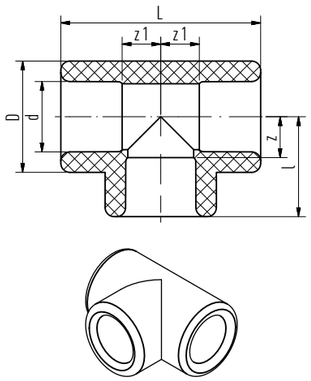
aquatherm red elbow 45° / B1 / female/male

SDR 7.4

Art. no.	d	l	l1	D	z	z1	kg	PU
socket welding								
3080032029	**32**	**25.5**	**28.5**	**43.0**	**7.5**	**11.5**	**0.036**	**5**
3080040030	**40**	**30**	**30.5**	**52.0**	**9.5**	**13.5**	**0.059**	**5**



T-piece



aquatherm red T-piece / B1

SDR 7.4

Art. no.	d	l	D	L	z	z1	kg	PU
socket welding								
3060025012	25	30.5	34.0	62.0	14.5	15	0.033	10
3060032013	32	33.5	43.0	70.0	15.5	17	0.053	5
3060040014	40	40.5	52.0	81.0	20.0	20	0.093	5
3060050004	50	49.5	68.0	99.0	26.0	26	0.200	5
3060063005	63	60	84.0	120.0	32.5	32.5	0.377	1
3060075006	75	68.5	100.0	137.0	38.5	38.5	0.537	1
3060090007	90	80	120.0	158.0	47.0	46	0.986	1
3060110008	110	93	147.0	186.0	56.0	56	1.632	1
3060125009	125	116.5	167.0	233.0	76.5	76.5	2.693	1

aquatherm red reducing T-piece / B1

SDR 7.4

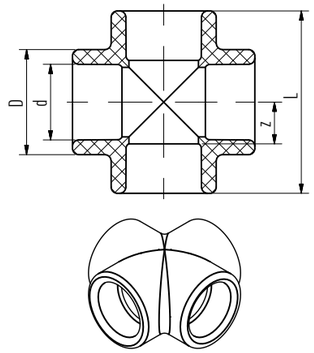
Art. no.	d	d1	d2	l1	D	D1	L	z	z1	z2	kg	PU
socket welding												
3060040010	40	32.0	40.0	40.5	52.0	52	84.0	21.5	22.5	21.5	0.106	5
3060050011	50	32.0	50.0	44.5	68.0	43	99.0	26.0	26.5	26.0	0.174	5
3060050012	50	40.0	50.0	49.5	68.0	68	99.0	26.0	29	26.0	0.221	5
3060063013	63	32.0	63.0	53.5	84.0	52	120.0	32.5	35.5	32.5	0.355	1
3060063014	63	40.0	63.0	53.5	84.0	52	120.0	32.5	33	32.5	0.341	1
3060063015	63	50.0	63.0	60	84.0	68	120.0	32.5	36.5	32.5	0.411	1
3060075016	75	40.0	75.0	59	100.0	52	137.0	38.5	38.5	38.5	0.494	1
3060075017	75	50.0	75.0	66	100.0	84	137.0	38.5	42.5	38.5	0.540	1
3060075018	75	63.0	75.0	66	100.0	84	137.0	38.5	38.5	38.5	0.507	1
3060090019	90	40.0	90.0	66.5	120.0	52	158.0	46.0	46	46.0	0.986	1
3060090020	90	50.0	90.0	69.5	120.0	68	158.0	46.0	46	46.0	0.976	1
3060090021	90	63.0	90.0	73.5	120.0	84	158.0	46.0	46	46.0	0.969	1
3060090022	90	75.0	90.0	76	120.0	100	158.0	46.0	46	46.0	0.997	1
3060110023	110	63.0	110.0	83.5	147.0	84	186.0	56.0	56	56.0	1.691	1
3060110024	110	75.0	110.0	86	147.0	100	186.0	56.0	56	56.0	1.634	1
3060110025	110	90.0	110.0	89	147.0	120	186.0	56.0	56	56.0	1.569	1
3060125026	125	75.0	125.0	106.5	167.0	100	233.0	76.5	76.5	76.5	2.475	1
3060125027	125	90.0	125.0	109.5	167.0	120	233.0	76.5	76.5	76.5	2.542	1
3060125028	125	110.0	125.0	113.5	167.0	147	233.0	76.5	76.5	76.5	2.606	1

Crosspiece

aquatherm red crosspiece / B1

SDR 7.4

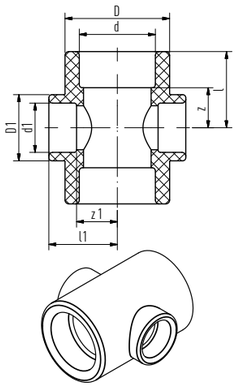
Art. no.	d	D	L	z	kg	PU
socket welding						
3040032000	32	43.0	70.0	17.0	0.064	5
3040040001	40	52.0	83.0	21.0	0.101	5



aquatherm red reducing crosspiece / B1

SDR 7.4

Art. no.	d	d1	l	l1	D	D1	z	z1	kg	PU
socket welding										
3040050010	50	32.0	49.5	44.5	68.0	43	26.0	26.5	0.180	1
3040063011	63	32.0	60	53.5	84.0	52	32.5	35.5	0.350	1
3040063012	63	40.0	60	53.5	84.0	52	32.5	33	0.328	1
3040075013	75	32.0	68.5	59	100.0	52	38.5	41	0.509	1
3040075014	75	40.0	68.5	59	100.0	52	38.5	38.5	0.499	1
3040075015	75	50.0	68.5	66	100.0	68	38.5	42.5	0.528	1
3040090016	90	50.0	68.5	75	120.0	68	35.5	51.5	0.762	1

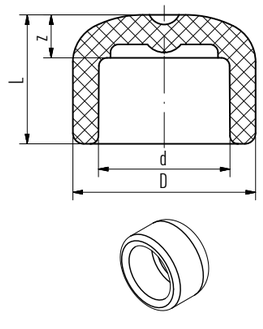


Endcaps

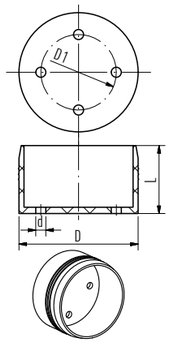
aquatherm red end cap / B1

SDR 7.4

Art. no.	d	D	L	z	kg	PU
socket welding						
3020025008	25	34.0	24.0	8.0	0.011	10
3020032010	32	43.0	29.0	11.0	0.044	5
3020040012	40	52.0	38.0	17.5	0.042	5
3020050014	50	68.0	44.5	21.0	0.082	5
3020063016	63	84.0	52.0	24.5	0.153	1
3020075018	75	100.0	58.5	28.5	0.245	1
3020090020	90	120.0	67.5	34.5	0.377	1
3020110022	110	147.0	65.0	28.0	0.648	1
3020125024	125	167.0	82.0	42.0	0.872	1



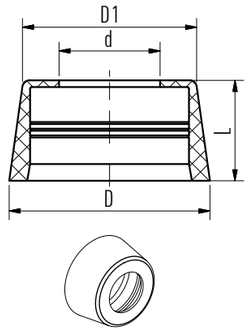
Sprinkler accessories __



aquatherm red base part for sprinkler outlet

for visible sprinkler

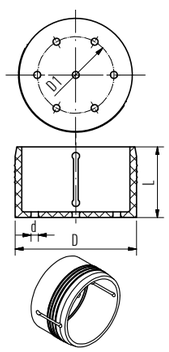
Art. no.	d	D	D1	L	kg	PU
3090000001	4	47.4	30	27.0	0.013	25



aquatherm red upper part for sprinkler outlet

for visible sprinkler

Art. no.	Dimension	d	D	D1	L	kg	PU
3090000002	1/2“	23.2	60.0	51.4	30.5	0.022	25
3090000003	3/4“	30.2	60.0	51.6	30.0	0.022	25
3090000004	1“	35.2	60.0	51.6	30.0	0.021	25



aquatherm red base part for sprinkler outlet

for covered sprinkler

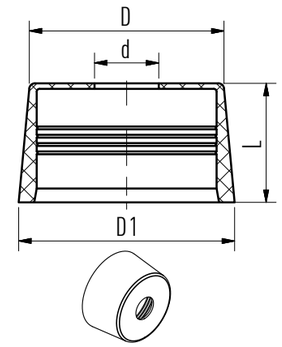
Art. no.	d	D	D1	L	kg	PU
3090000005	4	65.0	44	38,0	0.034	25

Sprinkler accessories __

aquatherm red upper part for sprinkler outlet

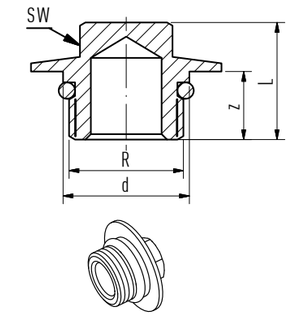
for covered sprinkler

Art. no.	Dimension	d	D	D1	L	kg	PU
3090000006	1/2“	23.2	70.0	78	43.0	0.057	25
3090000007	3/4“	30.2	70.0	78	43.0	0.057	25
3090000008	1“	35.2	70.0	78	43.0	0.056	25



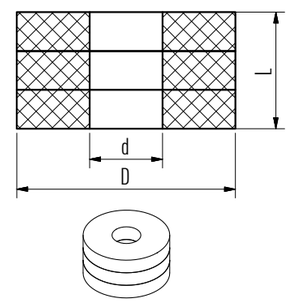
aquatherm red plug for sprinkler outlet

Art. no.	R	d	L	z	SW	kg	PU
3050000010	1/2“	23	21.5	12.5	15	0.043	25
3050000011	3/4“	30	23.0	12.5	17	0.058	25
3050000013	1“	35	24.0	13.0	17	0.076	25



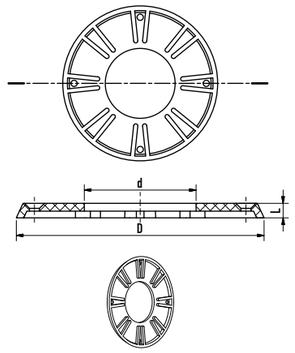
aquatherm red temporary plug for plaster works

Art. no.		d	D	L	kg	PU
9704114178	for Art. no. 3090000002, 03, 04	20	60.0	32.0	0.003	50
9704114179	for Art. no. 3090000006, 07, 08	20	75.5	42.0	0.005	50



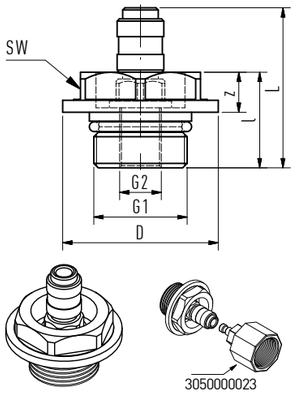
Sprinkler accessories __

aquatherm red sprinkler outlet



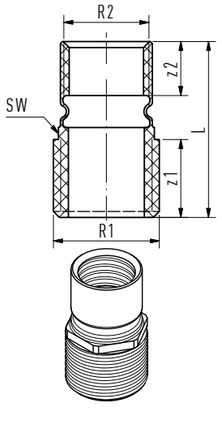
Art. no.	R	d	D	L	kg	PU
3090000009	**1 1/4“**	**44.1**	**100.1**	**6.5**	**0.028**	**10**
3090000010	**1 1/2“**	**50.1**	**111.1**	**6.5**	**0.034**	**10**
3090000011	**2“**	**61.1**	**126.1**	**6.5**	**0.043**	**10**

aquatherm red plug for pressure test



Art. no.	l	D	L	z	G1	G2	SW	kg	PU
3050000020	**21.5**	**35.0**	**36.0**	**9.0**	**1/2“**	**1/8“**	**27**	**0.072**	**10**
3050000021	**21.5**	**35.0**	**36.0**	**9.0**	**3/4“**	**1/8“**	**27**	**0.093**	**10**
3050000022	**21.5**	**40.0**	**36.0**	**8.5**	**1“**	**1/8“**	**27**	**0.126**	**10**
coupling plug 1/2“									
3050000023			**1/2“ for Art. no. 3050000020-3050000022**					**0.040**	**1**

aquatherm red compensating joint



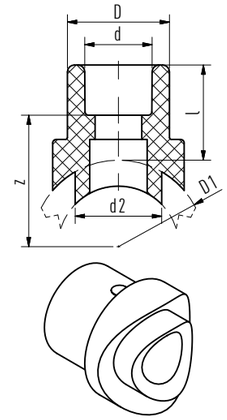
Without VdS-approval

Art. no.	L	z1	z2	R1	R2	SW	kg	PU
9604114231	**44.0**	**17.5**	**15.5**	**3/4“**	**3/8“**	**24**	**0.054**	**10**
9604114233	**44.0**	**19.5**	**13.5**	**3/4“**	**1/2“**	**24**	**0.043**	**10**
9604114235	**45.0**	**17**	**17.0**	**1“**	**1“**	**36**	**0.067**	**10**
9604114237	**44.0**	**19.5**	**13.5**	**1“**	**1/2“**	**30**	**0.052**	**10**

Weld-in saddle __

aquatherm red weld-in saddle / B1

SDR 7.4. With weld-on surface and weld-in socket to be fused with the inner wall of the pipe

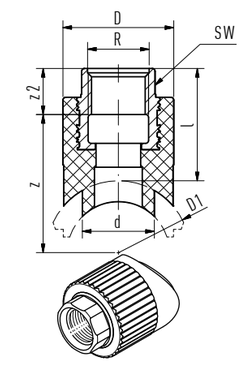


Art. no.	D1	d	d2	l	D	z	kg	PU
socket welding								
3030063001	**63**	**32**	**32.0**	**30**	**43.0**	**43.5**	**0.028**	**5**
3030075002	**75**	**32**	**32.0**	**30**	**43.0**	**49.5**	**0.028**	**5**
3030075003	**75**	**40**	**40.0**	**34**	**52.0**	**51.0**	**0.049**	**5**
3030090004	**90**	**32**	**32.0**	**30**	**43.0**	**57.0**	**0.029**	**5**
3030090005	**90**	**40**	**40.0**	**34**	**52.0**	**58.5**	**0.048**	**5**
3030110006	**110**	**32**	**32.0**	**30**	**43.0**	**67.0**	**0.030**	**5**
3030110007	**110**	**40**	**40.0**	**34**	**52.0**	**68.5**	**0.050**	**5**
3030110008	**110**	**50**	**50.0**	**34**	**68.0**	**65.5**	**0.030**	**5**
3030125009	**125**	**32**	**32.0**	**30**	**43.0**	**74.5**	**0.029**	**5**
3030125010	**125**	**40**	**40.0**	**34**	**52.0**	**76.0**	**0.050**	**5**
3030125011	**125**	**50**	**50.0**	**34**	**68.0**	**73.0**	**0.030**	**5**
3030125012	**125**	**63**	**63.0**	**38**	**84.0**	**73.0**	**0.154**	**5**

aquatherm red weld-in saddle tools Art. no. 9800050620. 9800050624. 9800050625. 9800050628. 9800050629. 9800050632. 9800050634. 9800050635. 9800050638. 9800050640. 9800050642. 9800050644 (see page 69)
aquatherm drill Art. no. 9800050940-9800050948 (see page 70)

aquatherm red weld-in saddle with female thread / B1

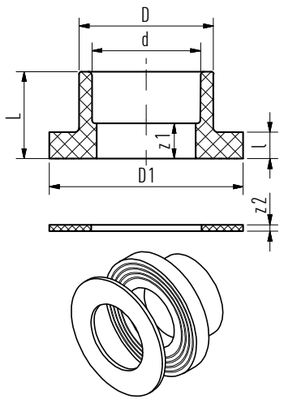
SDR 7.4. With female thread and hexagon socket, with weld-in weld-on surface and weld-in socket to be fused with the inner wall of the pipe



Art. no.	D1	d	l	D	z	z2	R	SW	kg	PU
one side socket welding										
3030040021	**40**	**25**	**39**	**38.5**	**43.0**	**16.0**	**1/2“**	**24**	**0.088**	**5**
3030050022	**50**	**25**	**39**	**38.5**	**48.0**	**16.0**	**1/2“**	**24**	**0.090**	**5**
3030063022	**63**	**25**	**39**	**38.5**	**54.4**	**16**	**1/2“**	**24**	**0.089**	**5**
3030075004	**75**	**25**	**39**	**38.5**	**60.5**	**16**	**1/2“**	**24**	**0.097**	**5**
3030075023 *	**75**	**32**	**43**	**60.0**	**58.5**	**22.0**	**1“**	**39**	**0.221**	**5**
3030090024 *	**90**	**32**	**43**	**60.0**	**66.0**	**22.0**	**1“**	**39**	**0.222**	**5**
3030110025 *	**110**	**32**	**43**	**60.0**	**76.0**	**22.0**	**1“**	**39**	**0.088**	**5**
3030125026 *	**125**	**32**	**43**	**60.0**	**93.5**	**22.0**	**1“**	**39**	**0.091**	**5**

aquatherm red tools for the fusion of Art. no. 9800050614. 9800050616. 9800050619. 9800050623. 9800050624. 9800050628. 9800050632. 9800050638 (see page 69)
aquatherm drill Art. no. 9800050940-9800050942 (see page 70)
*suitable for the connection to sprinkler outlets

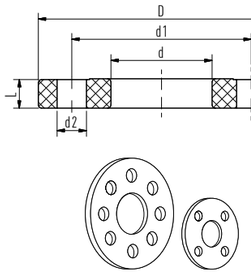
Flange adapter __



aquatherm red weldable flange adapter / B1

SDR 7.4. With joint ring

Art. no.	d	l	D	D1	L	z1	z2	kg	PU
one side socket welding									
3050032001	32	10	41.0	68	34.0	16	3.0	0.053	1
3050040002	40	11	50.0	78	35.5	15	3.0	0.071	1
3050050003	50	12	61.0	88	39.5	17	3.0	0.095	1
3050063004	63	14	76.0	102	43.5	16	3.0	0.130	1
3050075005	75	16	90.0	122	46.0	16	3.0	0.191	1
3050090006	90	17	108.0	138	50.0	17	3.0	0.258	1
3050110007	110	18.5	131.0	158	55.5	18.5	3.0	0.329	1
3050125008	125	20	165.0	188	63.0	23	3.0	0.724	1



aquatherm red steel flange

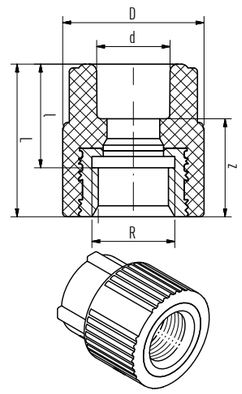
Art. no.	Dimension	d	d1	d2	D	L	n	kg	PU
9604114200	32	42	85.0	14.0	115.0	16.0	4	1.046	1
9604114201	40	51	100.0	18.0	140.0	16.0	4	1.589	1
9604114202	50	62	110.0	18.0	150.0	16.0	4	1.675	1
9604114206	63	78	125.0	18.0	165.0	16.0	4	2.016	1
9604114207	75	92	145.0	18.0	185.0	16.0	4	2.437	1
9604114208	90	110	160.0	18.0	200.0	18.0	8	2.699	1
9604114212	110	133	180.0	18.0	220.0	18.0	8	3.084	1
9604114213	125	167	210.0	18.0	250.0	18.0	8	3.654	1

Transition pieces __

aquatherm red transition piece / B1, round

With female thread. For the connection to sprinkler outlets

Art. no.	d	l	D	L	z	R	kg	PU
one side socket welding								
3070025020	25	29.5	38.5	42.5	26.5	1/2“	0.065	10
3070025021	25	27.5	43.5	40.5	24.5	3/4“	0.087	10
3070032022	32	30.5	43.5	43.5	25.5	3/4“	0.092	5
3070032023	32	30	37.5	43.0	25.0	1/2“	0.076	5
3070040024	40	32.5	37.5	45.5	25.0	1/2“	0.078	5
3070040025	40	33	50.0	46.0	25.5	3/4“	0.105	5

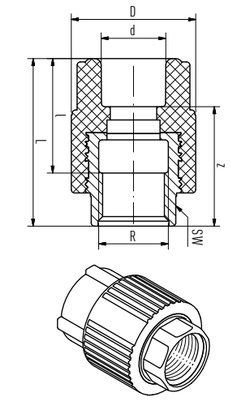


aquatherm red transition piece / B1, hexagon

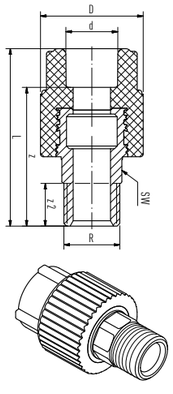
With female thread and hexagon

Art. no.	d	l	D	L	z	R	SW	kg	PU
one side socket welding									
3070032026	32	32	43.5	53.0	35.0	3/4“	31	0.104	5
3070032027 *	32	37.5	60.0	59.5	41.5	1“	39	0.239	5
3070040028 *	40	40	60.0	62.0	41.5	1“	39	0.227	5
3070040029	40	40	74.0	63.0	42.5	1 1/4“	50	0.385	5
3070050030	50	43	74.0	66.0	42.5	1 1/4“	50	0.404	5
3070050031	50	45	85.5	67.0	43.5	1 1/2“	55	0.445	5
3070063032	63	51.5	84.0	73.5	46.0	1 1/2“	55	0.479	1
3070063033	63	50	101.0	76.0	49.5	2“	67	0.662	1
3070075034	75	51	100.0	77.0	47.0	2“	67	0.671	1
3070032035	32	37	37.5	53.0	35.0	1/2“	24	0.091	5
3070040036	40	38	40.0	54.0	33.5	1/2“	24	0.094	5

* 1“ thread is suitable for the connection to sprinkler outlets



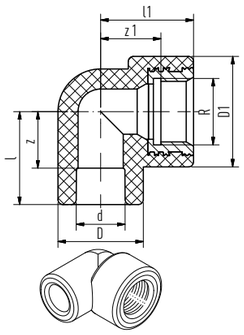
Transition pieces __



aquatherm red transition piece / B1, hexagon/octagon

with male thread and hexagonal spanner flat or *octagonal spanner flat

Art. no.	d	D	L	z	z2	R	SW	kg	PU
one side socket welding									
3070032037	32	38.5	69.5	51.5	17.0	3/4“	24	0.135	5
3070032038	32	53.0	78.5	60.5	20.0	1“	32	0.244	5
3070032039	32	68.0	81.0	63.0	21.0	1 1/4“	41	0.324	5
3070040040	40	52.0	81.0	60.5	20.0	1“	32	0.251	5
3070040041	40	68.0	84.5	64.0	21.0	1 1/4“	41	0.362	5
3070050042	50	68.0	85.5	62.0	21.0	1 1/4“	41	0.389	5
3070050043	50	74.0	88.5	65.0	22.0	1 1/2“	46	0.480	5
3070063044	63	72.5	94.5	67.0	22.0	1 1/2“	46	0.523	1
3070063045	63	84.0	102.5	75.0	23.5	2“	50	0.708	1
3070075046	75	84.0	102.0	72.0	23.5	2“	50	0.753	1
3070075047	75	100.0	105.0	75.0	26.7	2 1/2“	65	1.024	1
3070090048 *	90	120.0	121.0	88.0	30.0	3“	85	1.488	1
3070110049 *	110	147.0	148.0	111.0	39.0	4“	105	2.816	1



aquatherm red transition elbow 90° / B1

with female thread

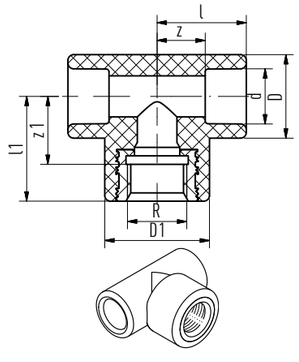
Art. no.	d	l	l1	D	D1	z	z1	R	kg	PU
one side socket welding										
3070032001	32	35	37	43.0	37	17.0	24	1/2“	0.088	10
3070032003	32	27.5	51	43.0	44	9.5	38	3/4“	0.112	5
3070032004	32	34	66.5	43.0	60.5	16.0	44.5	1“	0.265	5
3070040004	40	41.75	40	52.0	37	21.3	27	1/2“	0.116	5
3070040005	40	41.5	56	52.0	60	21.0	34	1“	0.265	5

Transition pieces __

aquatherm red threaded branch tee / B1

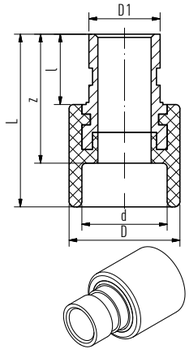
with female thread

Art. no.	d	l	l1	D	D1	z	z1	R	kg	PU
double sided socket welding										
3060025030	25	34.5	38	34.0	37	18.5	25	1/2“	0.088	10
3060032031	32	35	37	43.0	37	17.0	24	1/2“	0.113	5
3060032032	32	27.5	51	43.0	44	9.5	38	3/4“	0.118	5
3060032033	32	31.5	67	43.0	60	13.5	45	1“	0.274	5
3060040034	40	42	40	52.0	37	21.5	27	1/2“	0.113	5
3060040035	40	40.5	40.5	52.0	52	20.0	27.5	3/4“	0.157	5
3060040036	40	41.5	56	52.0	60	21.0	34	1“	0.279	5
3060050037	50	49.5	63.5	68.0	68.3	26.0	41.5	1“	0.387	5
3060050038	50	49.5	66.5	68.0	68	26.0	47.5	1 1/4“	0.478	5
3060050040	50	49.5	44.5	68.0	43	26.0	31.5	1/2“	0.237	5
3060050041	50	49.5	44.5	68.0	43	26.0	31.5	3/4“	0.243	5

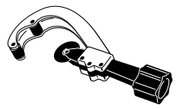


aquatherm red transition piece for groove connection / B1

Art. no.	d	l	D	D1	L	z	kg	PU
one side socket welding								
3070040010	40	33	52.0	33.5	81.0	60.5	0.239	1
3070050011	50	36	68.0	42.20	85.5	62.0	0.397	1
3070063012	63	39	84.0	48.25	97.5	70.0	0.568	1
3070075013	75	39	100.0	60.3	97.0	67.0	0.853	1
3070090014	90	39	120.0	88.9	110.0	77.0	1.285	1
3070110015	110	40.5	147.0	114.3	119.5	82.5	2.137	1
3070125016	125	75	167.0	140	170.0	130.0	5.046	1

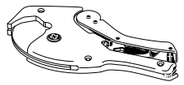


Tools



aquatherm pipe cutter

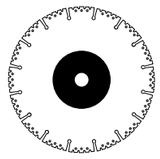
Art. no.	Dimension	PU
9800050102	**for pipes ø 16 - 40 mm**	**1**
9800050105	**for pipes ø 50 - 125 mm**	**1**
9800050106	**for pipes ø 110 - 200 mm**	**1**



aquatherm pipe cutter

Art. no.	Dimension	PU
9800050104	**for pipes ø 16 - 40 mm**	**1**

Important: Do not cut the aquatherm red pipes with customary hack saws.
aquatherm red pipes can be cut with customary saws equipped with saw blades suitable for plastic.



aquatherm cutting disc for plastic

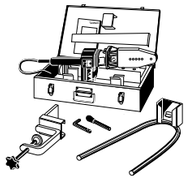
Art. no.	Dimension	Borehole	PU
9800050107	**ø 125 mm**	**22.2 mm**	**1**
9800050109	**ø 230 mm**	**22.2 mm**	**1**

Application: for each angle grinder
Design: diamond galvanised cutting disc

aquatherm manual welding device (500 W)

Art. no.	Dimension	PU
9800050336	**for pipes ø 16 - 32 mm**	**1**

With base and case for tools



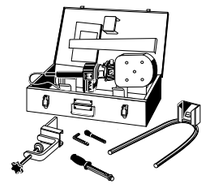
aquatherm manual welding device (800 W)

Art. no.	Dimension	PU
9800050336	**for pipes ø 16 - 63 mm**	**1**

With base and case for tools

Tools

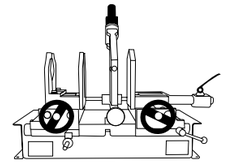
aquatherm manual welding device (1400 W)



Art. no.	Dimension	PU
9800050341	**for pipes ø 50 - 125 mm**	**1**

With base and case for tools

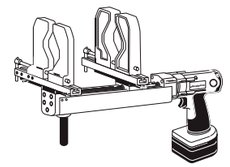
aquatherm welding machine (1400 W)



Art. no.	Dimension	PU
9800050148	**for pipes ø 50 - 125 mm - 230 V**	**1**

incl. welding tools 50–125 mm, roll stand and wooden transport case

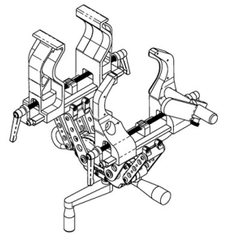
aquatherm electric welding jig



Art. no.	Dimension	PU
9800050161	**for pipes ø 63 - 125 mm**	**1**

incl. spare battery, charging station and metal case

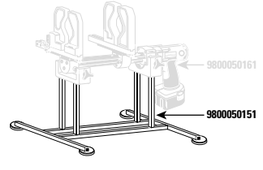
aquatherm manual welding jig 125 mm



Art. no.	Dimension	PU
9800000002	**for pipes ø 125 mm**	**1**

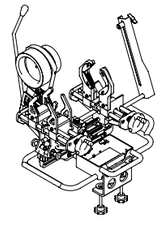
incl. case

aquatherm base for Art. no. 9800050161



Art. no.	Dimension	PU
9800050151		**1**

aquatherm welding machine (1400 W) Light



Art. no.	Dimension	PU
9800050145	**for pipes ø 63 - 125 mm**	**1**

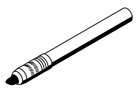
incl. aquatherm manual welding device (1400 W) and wooden transport case

Tools

aquatherm temperature measuring device

Art. no.	Dimension	PU
9800050188		**1**

to check the correct welding temperature



aquatherm thermocolour pencil

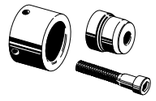
Art. no.	Dimension	PU
9800050190		**1**

to check the correct welding temperature

aquatherm cleaning wipes

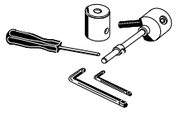
Art. no.	Dimension	PU
9800050193	**box/100 wipes**	**1**

for electrofusion sockets



aquatherm welding tool

Art. no.	Dimension [mm]	PU
9800050210	**25**	**1**
9800050212	**32**	**1**
9800050214	**40**	**1**
9800050216	**50**	**1**
9800050218	**63**	**1**
9800050220	**75**	**1**
9800050222	**90**	**1**
9800050224	**110**	**1**
9800050226	**125**	**1**



aquatherm repair kit

Art. no.	Dimension [mm]	PU
9800050307	**7 mm**	**1**
9800050311	**11 mm**	**1**

to close pipe holes up to 10 mm (pipe repair stick Art. no. 3090000012)

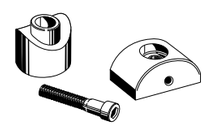
Tools

aquatherm repair stick

Art. no.	Dimension [mm]	PU
3090000012	**7/11**	**10**

Material: fusiolen® PP-R FS to close pipe holes up to 10 mm.
Tool: aquatherm repair kit (Art. no. 9800050307 + 9800050311).

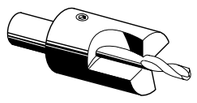
aquatherm saddle welding tool



for welding saddles of Art. no. 3030063001-3030125012 & 3030040021-3030125026

Art. no.	Dimension	PU
9800050614	**40x20/25mm**	**1**
9800050616	**50x20/25mm**	**1**
9800050619	**63x20/25mm**	**1**
9800050620	**63x32mm**	**1**
9800050623	**75x20/25mm**	**1**
9800050624	**75x32mm**	**1**
9800050625	**75x40mm**	**1**
9800050627	**90x20/25mm**	**1**
9800050628	**90x32mm**	**1**
9800050629	**90x40mm**	**1**
9800050631	**110x20/25mm**	**1**
9800050632	**110x32mm**	**1**
9800050634	**110x40mm**	**1**
9800050635	**110x50mm**	**1**
9800050636	**125x20/25mm**	**1**
9800050638	**125x32mm**	**1**
9800050640	**125x40mm**	**1**
9800050642	**125x50mm**	**1**
9800050644	**125x63mm**	**1**

Tools

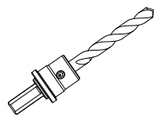


aquatherm drill

for installation of weld-in saddles

Art. no.	Dimension	PU
9800050940	**20 & 25 mm (for pipes 40 - 160 mm)**	**1**
9800050942	**32 mm**	**1**
9800050944	**40 mm**	**1**
9800050946*	**50 mm**	**1**
9800050948*	**63 mm**	**1**
9800050987*	**75 mm**	**1**
9800050988*	**90 mm**	**1**

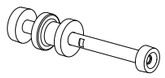
* may only be used in fixed drilling machines



aquatherm quick change adapter 75 - 90 mm

for sprinkler outlet Art. 3090000002-04

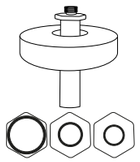
Art. no.	Dimension	PU
9800050973	**for Art. no. 9800050987 – 9800050988**	**1**



aquatherm extraction tool

for sprinkler outlet Art. no. 3090000002-04

Art. no.	PU
9800050290	**1**



aquatherm adjusting tool

for compensating joint with adapter 3/8" male, 1/2" male and 1" male

Art. no.	PU
9800050291	**1**

aquatherm red
Laying in the concrete

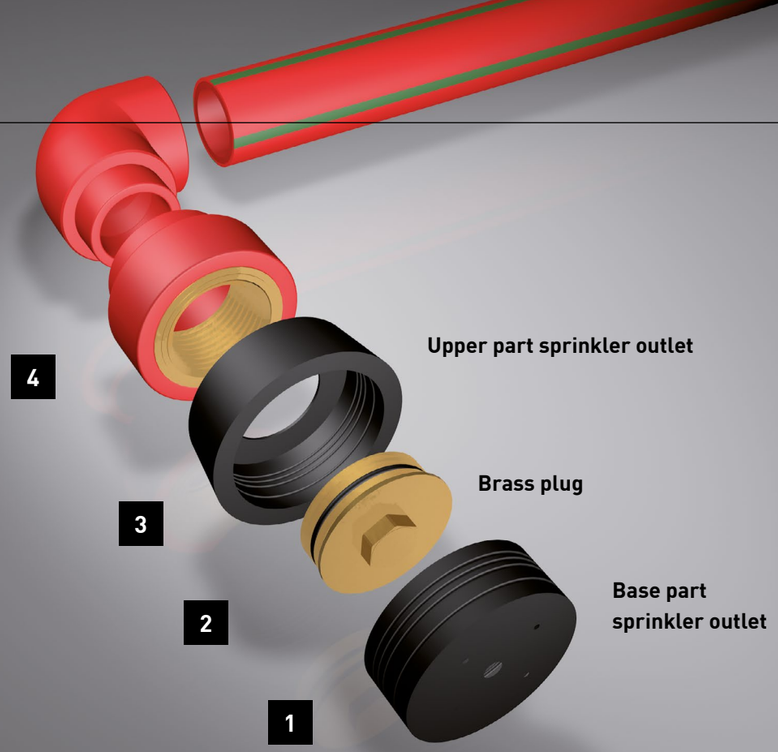


Illustration 1

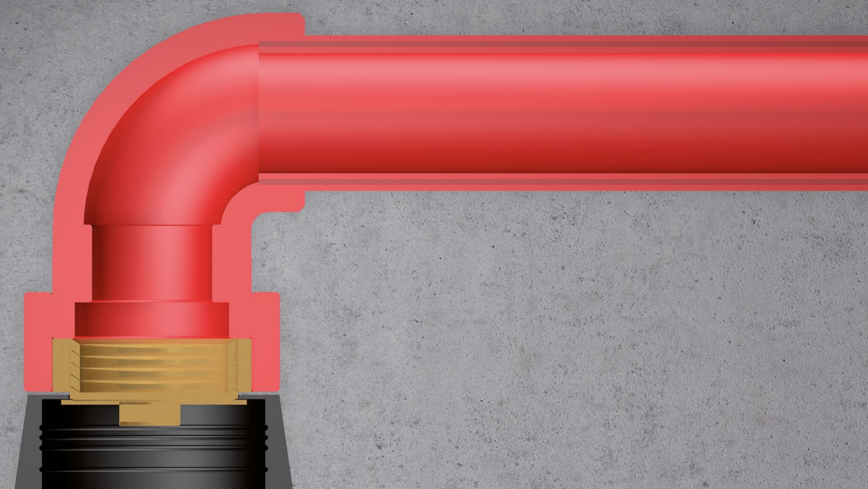


Illustration 2

LAYING IN THE CONCRETE

Laying of aquatherm red **in the concrete**

Description
The encasing of aquatherm red pipes and polypropylene fittings provides builders with a space-saving, invisible, and corrosion-resistant pipework system for sprinkler applications.

PART 1:

Connecting the pipework to the aquatherm red sprinkler outlet
The connection is described in illustration 1 as follows:

The base part of the sprinkler outlet (1) is screwed onto the shuttering with 5 screws.

Parts 2, 3, and 4 are bolted together and then plugged onto part 1, ensuring that part 3 is flush with the casing.

The O-ring on part 2 (plug) must always be clean and greased with mounting grease. After repeated use, the O-ring should be replaced.

This applies to the following item numbers:
- 3050000010
- 3050000011
- 3050000013
- 3050000015
- 3050000016
- 3050000017
- 3050000020
- 3050000021
- 3050000022

For detailed information regarding the different dimensions of the sprinkler outlet, please refer to the tables on page 58.

Colour of plastic sleeve may differ.

The aquatherm red sprinkler connection is now ready (illustration 2).

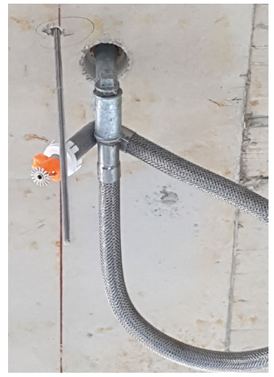
After removing the panelling (after pouring the concrete), pull the lower part (part 1) of the sprinkler connection box from the upper part (part 3) of the sprinkler connection box.

Remove the brass plug (part 2) from the aquatherm red connection piece (part 4). Use the combination extraction tool (available on request) to remove the upper part of the sprinkler connection box (part 3) from the concrete. We recommend the aquatherm ed combi extraction tool (art. no. 9800050290) for the sprinkler connection boxes (art. no. 3090000002–3090000008).

Effortless connection of the sprinkler (illustration 3) is now possible. The required distance according to CEA 4001 from the sprinkler disc to the finished ceiling can be measured from the sprinkler connection thread to the aquatherm red connection piece.

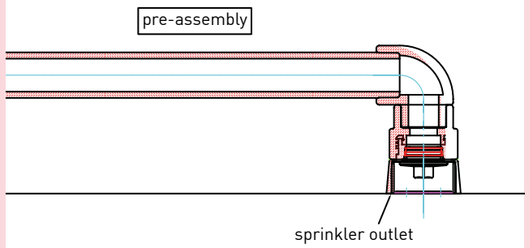
At the threaded connections ¾“, 1“, 1¼“, 1½“ and 2“ in a concrete ceiling (illustration 3), in addition to sprinklers, angled connections with a steel pipe or a flexible hose can be used.

Illustration 3
Finished sprinkler connection in the concrete ceiling



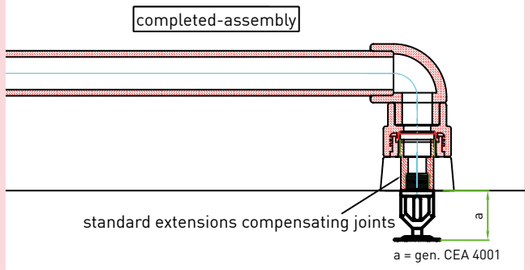
Laying of aquatherm red **in the concrete**

Sprinkler outlet consists of the base part, upper part, and plug.



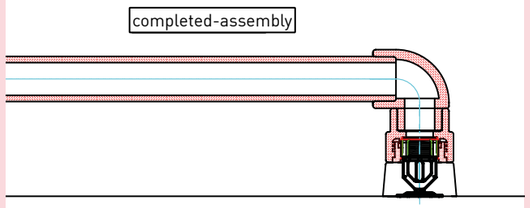
Visible sprinkler

For the distance from the deflector to the ceiling, refer to the CEA-4001.
You can find compensating joints on page 60.

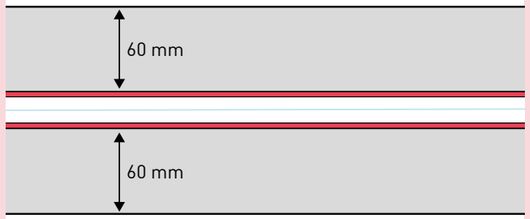


Covered sprinkler

For further information on the sprinkler outlets, please see the tables on page 58.



Ensure that the aquatherm red is covered above and below by a minimum 60 mm layer of concrete.



aquatherm red **compensating joint and adjusting tool**

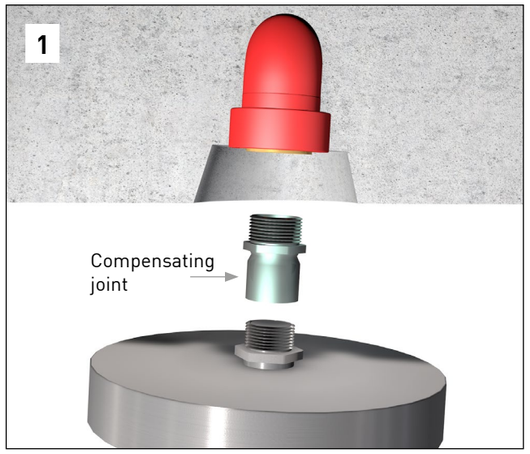
Pipe system made of polypropylene
for sprinklers

Compensation joints approved for use with the „aquatherm red“ plastic pipe system, VdS approval number G4050042.

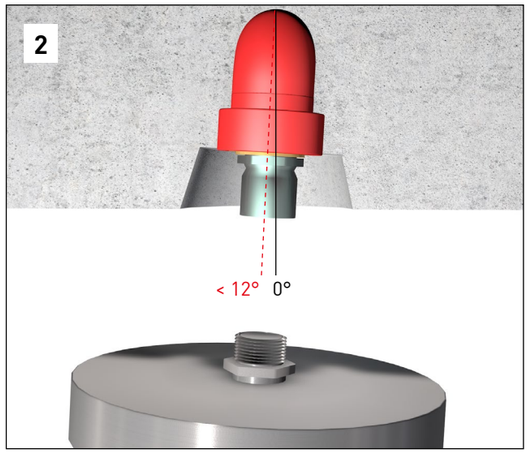
The specifications of the technical catalogue „aquatherm red“ and the VdS CEA 4001 (Guidelines for sprinkler systems – planning and installation) are valid.

Application:
For correcting non-aligned sprinkler connections in concrete ceilings, with a maximum correction angle of 12°, and for compensating the connection thread to the sprinkler thread (maximum 3 cm) in concrete ceilings. Suitable for a maximum operating pressure of 18 bar.

Important instructions:
- The compensating joint may only be bent once – multiple reverse bending is not permitted
- Maximum tightening torque for sprinkler = 29 Nm
- Only for the direct connection of the sprinkler

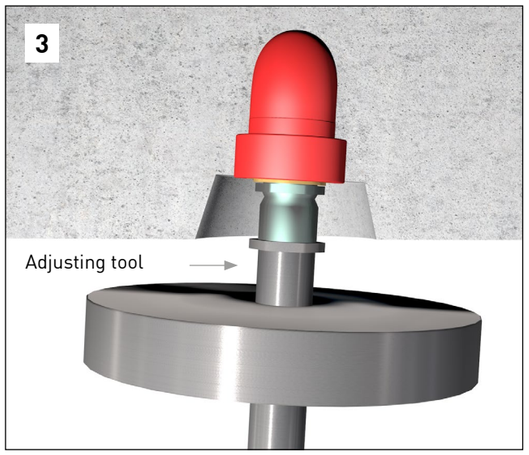


1) If the sprinkler connection protrudes obliquely from the concrete surface, it is possible to align this with the balancing connection. Use the provided hexagon tool to install the balancing connection into the sprinkler connection thread. Use a standard sealing method for waterproofing threaded connections during installation.

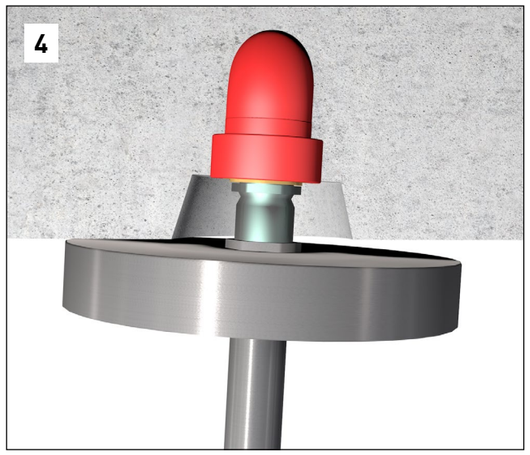


2) This process requires a special adjusting tool. It is crucial to ensure that the bending radius does not exceed 12°. The bearing surface of the female thread serves as the reference point on the surface.

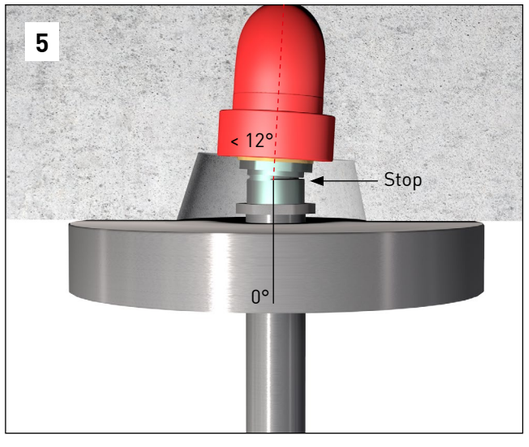
aquatherm red **compensating joint and adjusting tool __**



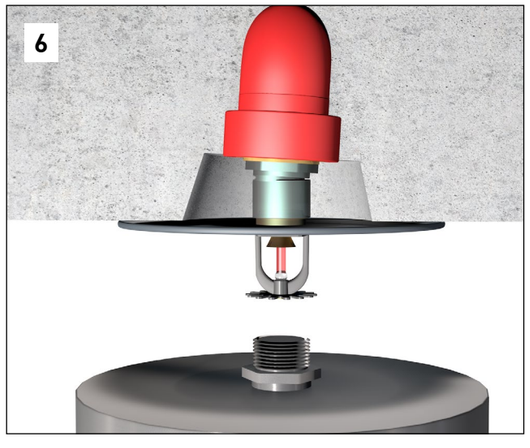
3) The adjusting tool is screwed into the balancing connection with the appropriate adapter.



4) With gentle pressure by hand, push the compensating joint into position until the plate of the adjusting tool fits properly against the concrete surface and locks into place. After this, bending back and forth is no longer possible.



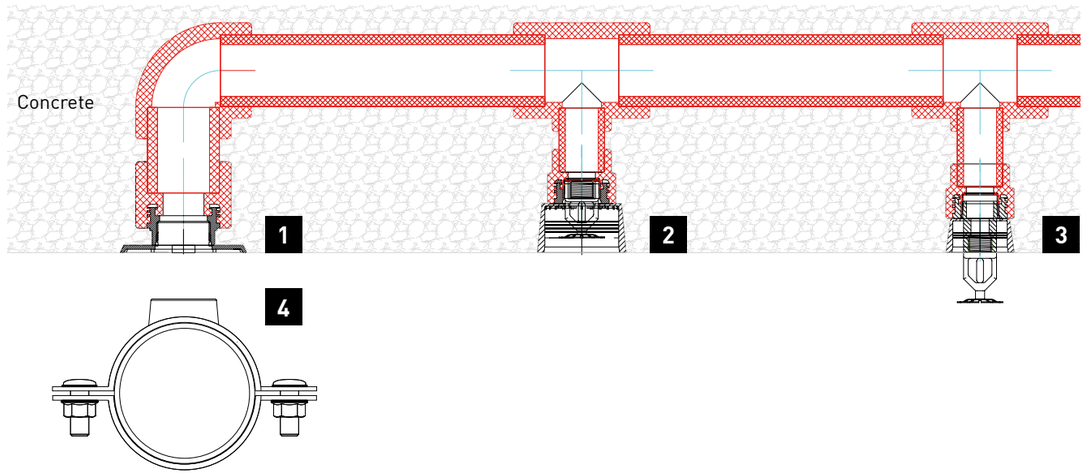
5) The stop limits the bending radius to 12°.



6) When the sprinkler is installed, the sprinkler connection is subject to the pressure test as usual and tested for leaks. The maximum operating pressure is 18 bar.

Adjusting tool for balancing connection	page 70	Art. no. 9800050291
Compensating joint	page 60	Art. no. 9604114231 Art. no. 9604114233 Art. no. 9604114235 Art. no. 9604114237

Laying of aquatherm red **in the concrete __**



1 aquatherm red outlet
1 1/4“, 1 1/2“ and 2“.

2 aquatherm red sprinkler outlet
for covered sprinkler 1/2“, 3/4“ and 1“.

3 aquatherm red sprinkler outlet
for visible sprinkler 1/2“, 3/4“ and 1“.

4 aquatherm red to steel pipe adapter

ATTENTION:
All upper parts of sprinkler outlet must be pulled out of the concrete with the aquatherm red extraction tool (Art. no. 9800050290).

We recommend using the aquatherm red combi extraction tool, Art. no. 9800050290, for the sprinkler junction boxes, Art. no. 3090000002 – 3090000008.

For more information on the sprinkler junction boxes and other junction boxes, please refer to the tables starting from page 58.

Description of the installation in **prefabricated concrete ceiling (filigree ceiling)** __

Introduction:

Because precast concrete products are directly shuttered and processed at the factory, only a few steps remain to be completed on-site. The use of slab formwork on-site is unnecessary, which speeds up installation and saves costs. The smooth surface created by steel formwork tables eliminates the need for plastering.

When an installation system is mounted on the steel formwork, it must operate precisely, safely, and efficiently.

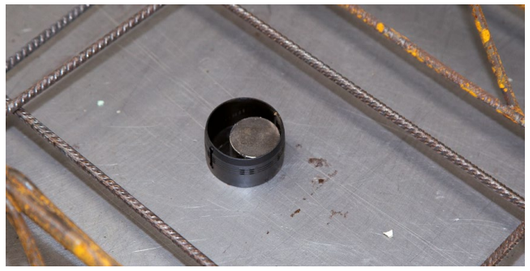
The sprinkler outlets of the aquatherm red sprinkler pipe system can be easily mounted on steel formwork. The entire assembly is completed beforehand by an installation company and delivered to the concrete plant.

At the concrete plant, the sprinkler outlets are measured and mounted onto the steel formwork.

Assembly:

The base part of the sprinkler outlet is secured to the steel formwork with reinforcement using either a magnet (minimum holding force 23 kg) or hot-melt adhesive (temperature 100 °C). This ensures that it remains in position even during vibrations.

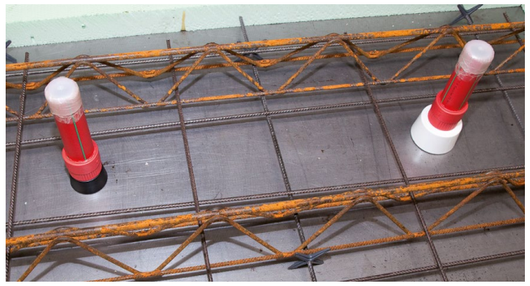
The length of the pipe connecting piece must be sized to ensure it is protected by the protruding reinforcement during transport to the site. It is safeguarded by a protective cap and adhesive tape, which prevents concrete from entering the interior of the pipe during mould filling.



Base part of sprinkler outlet Art. no. 3090000001 for visible sprinklers. Attachment by magnet.

Base part of sprinkler outlet art. no. 3090000005 for concealed sprinklers. Attachment with hot-melt adhesive.

The upper part of the sprinkler outlet with pipe connection is attached to the base part of the sprinkler outlet.



1.Type of connection: visible sprinkler

2. Type of connection: concealed sprinkler

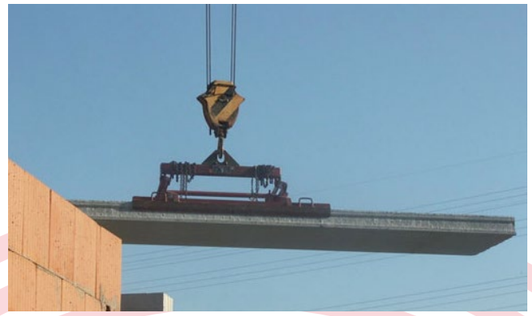
Description of the installation in **prefabricated concrete ceiling (filigree ceiling)** __

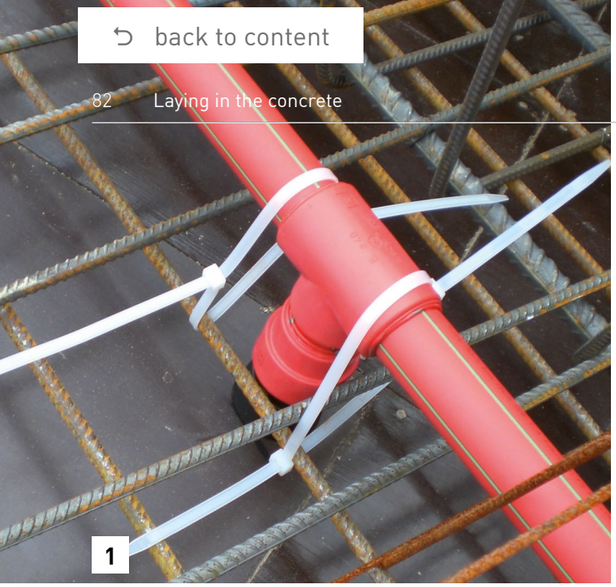
Assembly:

The mould is filled with concrete and simultaneously vibrated. After vibration, the concrete surface becomes roughened. The component is then dried in a drying chamber.

After drying, the ceiling component is transported to the site and assembled. An installation company can now interconnect the sprinkler connections and connect them to the supply pipe.

This method of prefabrication enables shorter construction periods and larger areas, resulting in cost reductions and increased flexibility overall, thereby enhancing economic efficiency.





1

2

PART 2:

Pressure testing of the pipe work installation ensures both strength and leak integrity:

Please refer to the information on the following pages.

PART 3:

What must be considered during the concreting process?

All sprinkler connections must be secured with cable clips (picture 1) and properly underpinned (picture 2).

Pipes and sprinkler connections must be fitted with suitable materials (see fig. 1) to prevent bending. The sprinkler connection (sprinkler outlet) must be in the correct position. If necessary, this should be aligned and refastened before concreting.

The pipe sections must be securely fixed every 1.5 to 2 metres using pipe hangers or lacing cord to prevent sagging or bowing during the concreting process. It is crucial to ensure that the pipe work is fully embedded without any hollow spaces or cavities.

During the concreting process, it is essential to prevent any disturbance or displacement of the pipes.

Concrete compaction in the pipe area should be done carefully using concrete vibrators.

Impacts, especially at low temperatures (below +5 °C) must be avoided.

Open pipes and connections must be closed before the concreting.

Damaged pipe work in concrete, e.g. by drilling work

Damaged pipe work can be repaired by fusion welding (see aquatherm red sprinkler system, Part B).

The aquatherm red system can also be repaired using the pipe repair stick (see aquatherm red sprinkler system, Part F).

PART 4:

Bridging of expansion joints

The expansion of aquatherm red pipes depends on the temperature of the pipe material. Cold water supplies cause minimal expansion during normal assembly and under normal outside temperatures. Therefore, expansion does not need to be considered when installing aquatherm red in concrete. Any rising pressures and tensile stresses are not critical, as they are absorbed by the material.

However, if it is necessary to bridge the expansion joints, the aquatherm red pipes must be fitted with an approx. 25 cm protection pipe at both ends of the joint.

A confirmation from the responsible architect or structural designer must certify that no longitudinal movements are expected in the expansion joints.

Bridging of building joints is not permitted.

The coefficient of expansion of aquatherm red pipes is 0.035 mm/mK.

The coefficient of expansion of concrete is 0.05–0.12 mm/mK.

PART 5:

Potential equalizing

According to VDE 0190 Part 410 and 540, potential equalization is required between all types of earth conductors and existing “conductive” potable and waste water supplies, as well as heating pipes. Since aquatherm red is not a conductive pipe system, it cannot be used for potential equalization and therefore does not require earthing wiring.

Potential equalization according to VDE standards is established from the building parts requiring earthing directly to the potential equalization rail at the designated location. The constructor or site manager must inform the client or their representative that an authorised electrician should verify that the installation of aquatherm red does not impact existing electrical protection and earthing measurements (VOB Part C, general technical conditions of contract ATV).

PART 6:

Pressurising in the aquatherm red supply during the concreting process

During the concreting process, the pipe must be pressurised to the allowable operating pressure so that any damage points are immediately visible.

After the pressure test, the allowable operating pressure is maintained by shutting off the respective pipe. The measuring devices used must accurately detect pressure changes of 0.1 bar.

The pressure measuring device should be installed at the lowest point of the pipe system

PART 7:

Influence of the concrete on the applied compounds

The aquatherm red pipe system contains all required compounds for a complete system installation. Mixed installation with non-system and/or non-material compounds are not required.

All material is resistant to corrosion. The threads of the aquatherm red sprinkler connection fittings are made from brass (CuZn36Pb2As).

Experiences with this material confirm that the alloy has an excellent resistance against concrete.

The general building regulations have to be complied with locally. If special chemical additives (retarder etc.) are applied, consult the manufacturer of the concrete for guidance and ensure compatibility with aquatherm products.

aquatherm red
Testing

TESTING

Leakage test & chemical resistance

LEAKAGE TEST

All sprinkler pipelines must undergo a hydraulic pressure test at a pressure of 10 bar.

Before the frost period begins, all aquatherm red lines must be drained to prevent frost damage. If there is a risk of freezing, suitable countermeasures must be taken, such as heating the building or using antifreeze.

The material properties of aquatherm red pipes cause them to expand during pressure tests, which can affect the test results. Additionally, the thermal expansion coefficients of aquatherm red pipes further influence the results. Temperature differences between the pipe and the test medium can lead to fluctuations in pressure. For example, a temperature change of 10 K corresponds to a pressure difference of 0.5 to 1 bar.

Therefore, pressure testing of the aquatherm red pipe systems should be made with a constant temperature of the test medium. The hydraulic pressure test requires a preliminary, principal and final test.

During the preliminary test, a pressure of 18 bar is applied for 3 cycles of 5 minutes each to allow for the expansion and release of the pipes. The pipe system must be depressurised between each cycle.

Immediately after the preliminary test, the principal test should be conducted with a test duration of 15 minutes. During this test, the test pressure (10 bar) must not drop by more than 0.5 bar.

After completing the preliminary and principal tests, the final test must be conducted. The test duration is 60 minutes. During this test, the test pressure, as measured after the principal test, must not drop by more than 0.5 bar.

Measuring of the test pressures
Measurements must be conducted using a manometer that can accurately detect pressure changes of 0.1 bar. The manometer should be positioned at the lowest point of the installation for precise readings.

Test record
A record of the hydraulic pressure test must be prepared and signed by both the client and contractor, confirming the test results and compliance with specifications.

Leakage test

CHEMICAL RESISTANCE ENQUIRY

aquatherm red pipes and fittings are known for their exceptional chemical resistance. However, it's important to note that aquatherm red connection elements with brass threaded inserts may not be suitable for all types of media.

In industrial applications of aquatherm red pipes, we recommend using aquatherm red flanges with weldable flange adapters and/or transition pieces for connections.

Chemical resistance

aquatherm red
Fields of application

Fields of application __

aquatherm has the solution for your challenge - Benefit from the versatile application possibilities of our products. Our products find wide-ranging applications across various fields. Discover where you can rely on our products. Yesterday. Today. Tomorrow.

AQUATHERM RED FIELDS OF APPLICATION

Fire protection and sprinkler systems

Invisible fire protection
with AQUATHERM RED __

Effective fire protection is crucial not only for industrial and commercial construction but also for ensuring safety in environments such as hotels, stadiums, and residential buildings, where a sprinkler system is often indispensable.

aquatherm red is a plastic sprinkler pipe system with very special material properties: It is flame retardant (building material class B1) and ensures maximum safety due to the welded joints between pipes and fittings.

Another significant benefit is evident when the pipe is laid directly in concrete: aquatherm red's highly corrosion-resistant material makes it particularly suitable for this purpose.

For comparison:
When using metal sprinkler systems, corrosion occurs as soon as the metal and the wet concrete meet. Corrosion can only be prevented with the aid of special protection, which makes the installation of metal pipe systems in concrete complex and expensive.

aquatherm red offers a considerable weight advantage compared to metallic pipes. Furthermore, it is certified by VdS and IBS.

aquatherm red
Quality assurance

Quality assurance 95

AQUATHERM QUALITY ASSURANCE

Quality **„100 % Made in Germany“** __

Producing safe and innovative piping systems is the core commitment of aquatherm. It all begins with the raw material: under the fusiolen® brand, we develop and refine our polypropylene granulate. This ensures we can perfectly tailor the properties of our products to meet the specific requirements of various applications.

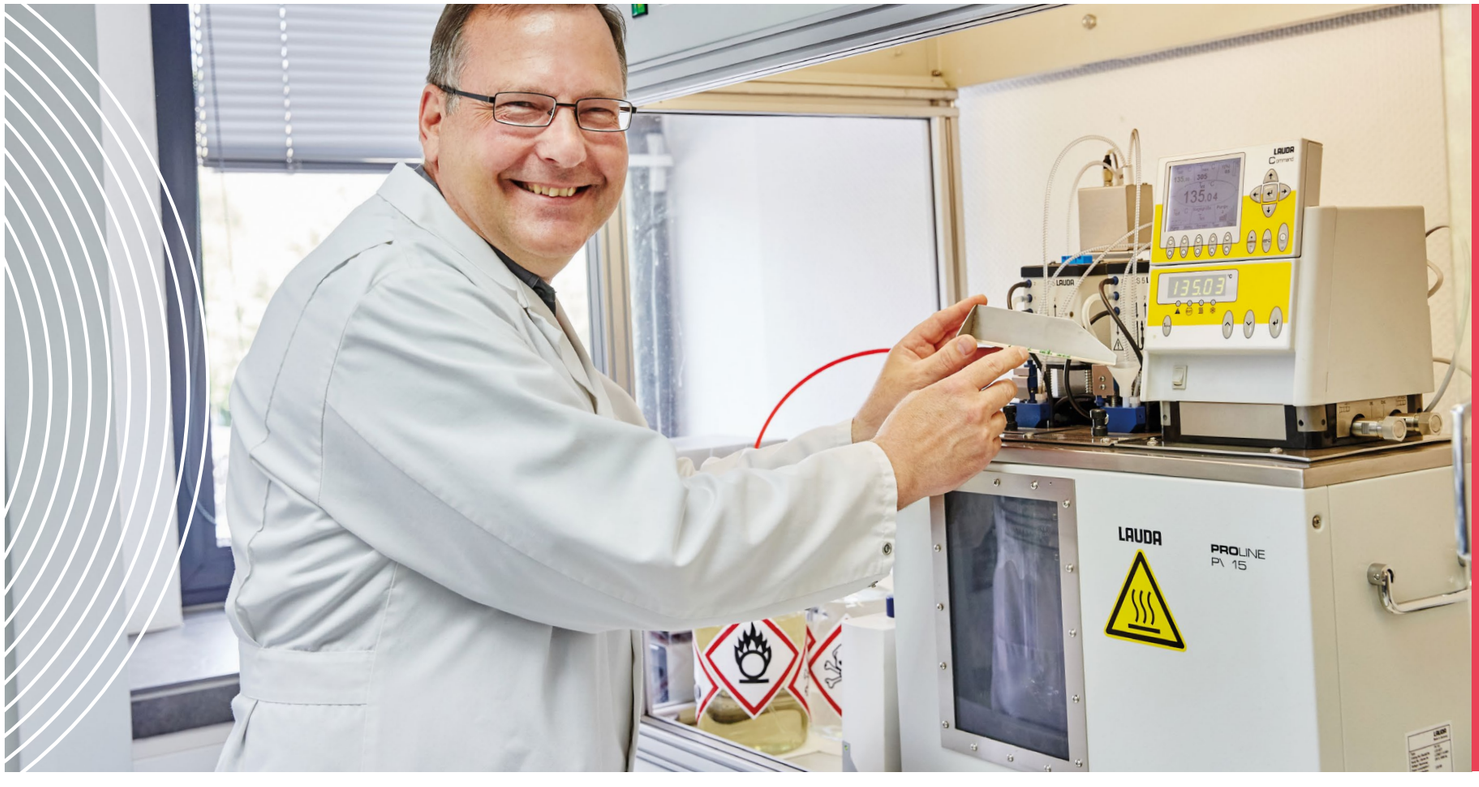
No matter whether its pipes or fittings: „100 % Made in Germany“ applies to all of them. We produce exclusively and with the latest manufacturing technology at our German sites in Attendorn (headquarters), and Ennest.

Only thoroughly tested products begin their journey to our customers worldwide. Alongside our continuous in-house quality assurance, which encompasses monitoring testing equipment, processes, production, and incoming goods inspections, as well as final inspections, external monitoring is conducted by various esteemed organisations. These include the Süddeutsche Kunststoffzentrum (SKZ), NSF (National Sanitation Foundation, USA), IIP (Instituto Italiano di Plastici, Italy), CSTB (Centre Scientifique et Technique du Bâtiment, France), TGM (Technologisches Gewerbemuseum, Austria), and the Hygieneinstitut des Ruhrgebiets. Numerous national and international independent authorities and institutions validate aquatherm's high-quality standards.

Numerous national and international quality seals, approval certificates, and our satisfied customers consistently affirm the high quality of our products. Since 1996, aquatherm has met the requirements of the quality management system according to DIN ISO 9001. This success further strengthens our competitive position and demonstrates our commitment to meeting the high standards and responsibilities toward our customers, partners, and the environment. See for yourself.

TÜVRheinland® ZERTIFIZIERT
Management System
ISO 9001:2015
ISO 14001:2015
ISO 50001:2018
www.tuv.com
ID 0091005348

Made in Germany



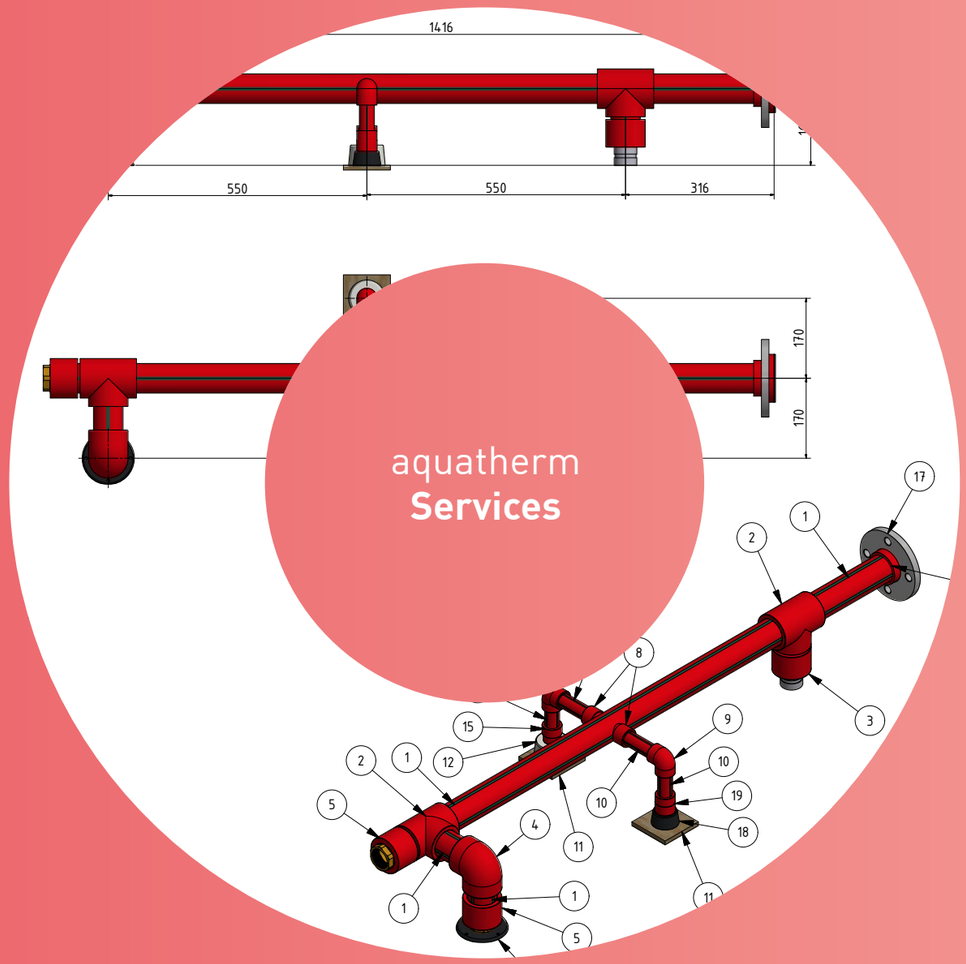
Compliance with the system standard __

Various national and international independent authorities and institutions validate aquatherm's high-quality standards.

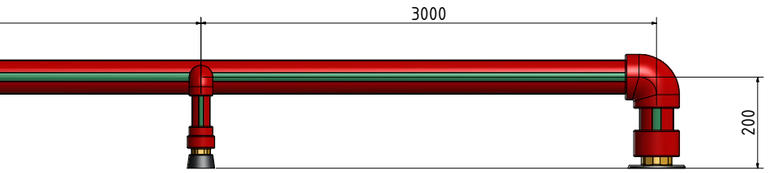
You can see our certificates on our website.

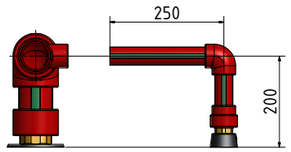
The product certificates are provided for reference purposes only. The certificates have been issued in accordance with the laws, regulations, and product standards applicable in the respective country. The certificates can therefore not be used outside the respective jurisdiction. They do not include any express or implied warranties from aquatherm GmbH or its affiliates.

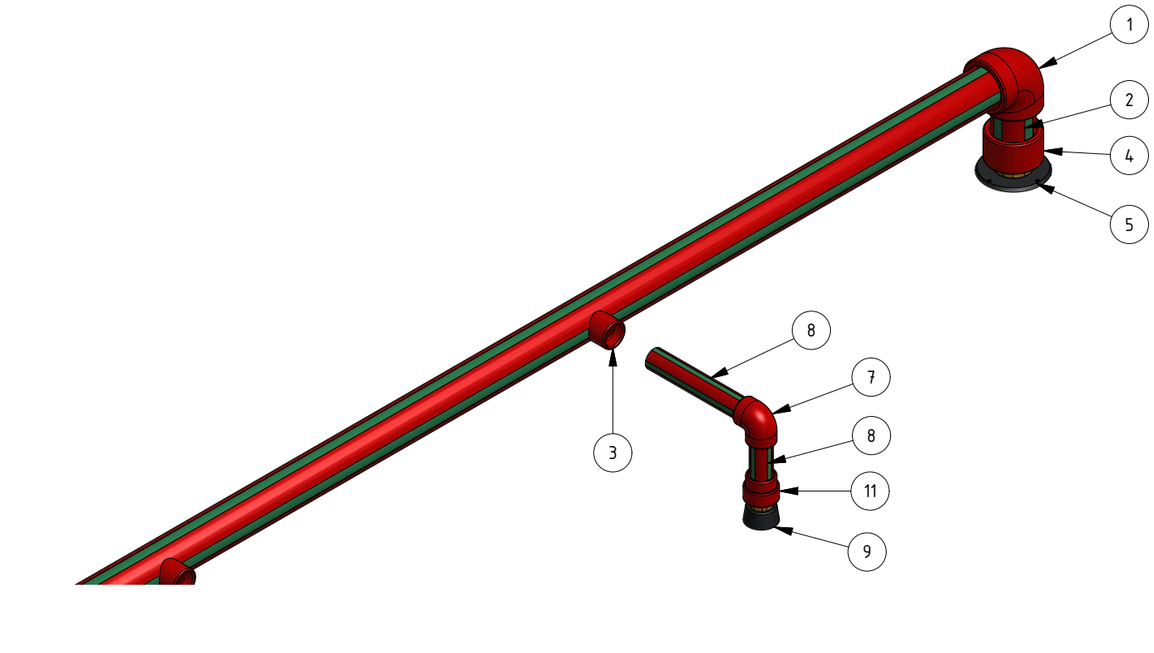
You can find the overview of our international certificates here: Certificates



aquatherm
Services







AQUATHERM SERVICES

Example of aquatherm **prefabrication** __

PARTS LIST

Object	Quantity	Component number	Description
1	1	4112120	Elbow 90° ∅
2	9.0 m	4170720	green 75 ∅ SDR 9 MF RP
3	2	4115175	Weld-in-saddle ∅ 75-40
4	1	4121122	Transition piece female ∅ 75 2"
5	1	4114202	Sprinkler outlet 2"
6	1	4114208	Plug for sprinkler outlet 2"
7	2	4112114	Elbow 90° ∅ 40
8	0.8 m	4170714	red ∅ 40 SDR 7.4 MF HI
9	2	4114183	Upper part for sprinkler outlet G 1"
10	2	4118187	Plug for sprinkler outlet G 1"
11	2	4121115	Transition piece female ∅ 40 1"

AQUATHERM SERVICES

Optimise the efficiency of your entire project workflow __

All the pipework and supply lines required for projects from aquatherm red can be prefabricated at the aquatherm facility. This eliminates the need for numerous welds on-site, saving both time and labour. Additionally, the leak test is conducted at the aquatherm factory, allowing the sprinkler pipes to be delivered to the construction site ready for installation.

aquatherm red
References

AQUATHERM RED REFERENCES

Fire protection and sprinkler systems__

Project
Kö-Bogen I and II

Location
Düsseldorf, Germany

Completion
2021

Application
Sprinkler

The challenge
For Kö-Bogen I and the food court of Kö-Bogen II, a sprinkler piping system was sought that was not only safe and made of sustainable material, but that could also be laid directly into the concrete of the floor slabs.

The solution
aquatherm red fulfilled these requirements and ensured among other things that the representative entrance area of the food court received a discreet sprinkler solution in a visually beautiful exposed concrete ceiling.

Further aquatherm red references can be found here: References

AQUATHERM RED REFERENCES

Fire protections and sprinkler systems __

Project
KTM Motohall

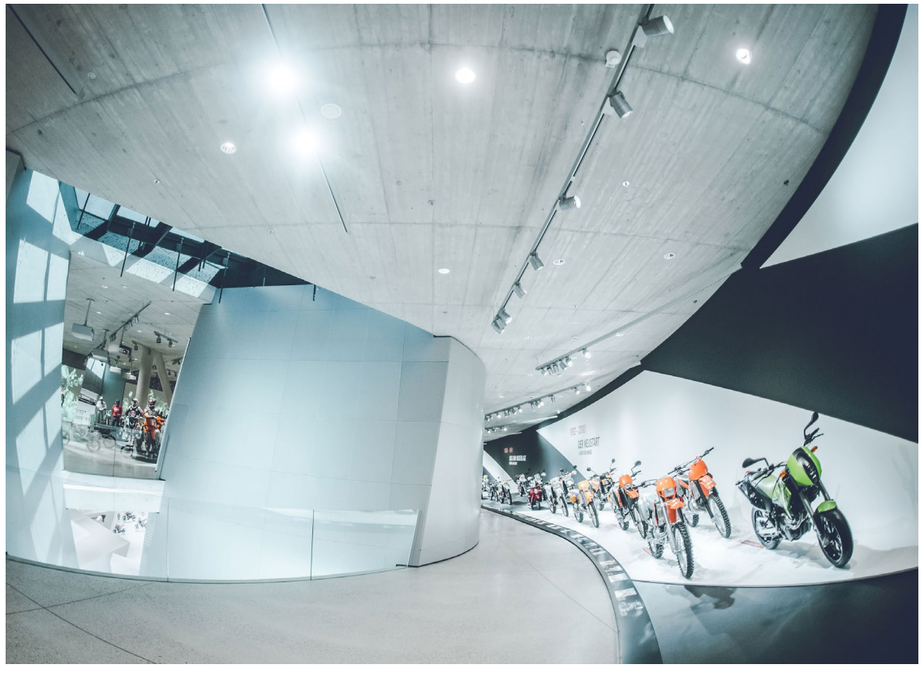
Location
Mattighofen, Austria

Completion
2019

Application
Sprinkler

The challenge
The sprinkler system of the KTM Motohall was to blend almost invisibly into the architecture.

The solution
aquatherm red was laid directly in the exposed concrete and therefore offers an invisible fire protection for the visitors of the racing exhibition.



Further aquatherm red references can be found here: References

AQUATHERM RED REFERENCES

Fire protection and sprinkler systems__

Project
UN Campus

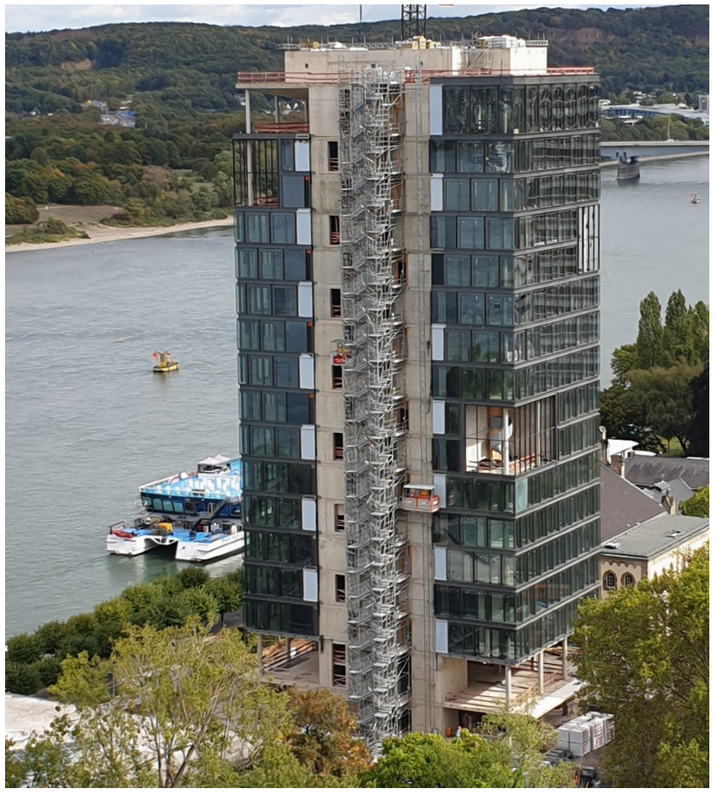
Location
Bonn, Germany

Completion
2021

Application
Sprinkler

The challenge
For the new building on the UN Campus, a sprinkler system was sought that could be laid directly into the concrete of the floor slabs in a hollow core ceiling.

The solution
Despite the air chambers used in this type of ceiling, aquatherm red could be easily integrated into the floor slabs due to its flexibility. In addition, the system ensured an improved construction process thanks to prefabricated elements.



Further aquatherm red references can be found here: References

aquatherm red
Warranty

Explanatory comments on the aquatherm GmbH **warranty** __

1. Foreword

Thank you very much for making the decision to use a product from aquatherm GmbH, Germany (herein referred to as "aquatherm"). With nearly 50 years of experience in the international plastic pipes market, and our trendsetting innovations, we have the expertise needed to offer you engineered piping solutions made in Germany.

The trust placed in the quality of our products has motivated us to offer all pipes and moulded, fabricated, machined, and/or assembled parts with a 10-year warranty instead of the standard 2-year warranty required by German law. This extended time covered by warranty is backed by a comprehensive insurance policy from a leading insurance company for our line of business. The warranty period will begin with the date of delivery by aquatherm GmbH, but only comes valid with the successful pressure test, which must be carried out and documented in accordance with the aquatherm specification.

2. Scope of warranty

The aquatherm warranty protects you from financial loss proven to be caused by material defects, manufacturing defects and/or aquatherm's consulting/engineering services. The warranty coverage shall apply for the following product groups:

- aquatherm green pipe (fusiotherm und aquatherm ISO)
- aquatherm blue pipe (climatherm und aquatherm ISO)
- aquatherm red pipe (firestop)
- aquatherm black system (climasystem)
- aquatherm lilac pipe (aquatherm lilac)
- aquatherm orange system (aquatherm heating systems)
- aquatherm grey pipe (aquatherm SHT-system)
- Assemblies fabricated by aquatherm from these product groups

2.1 What is covered by the aquatherm warranty?

The aquatherm warranty covers three aspects of damages: property damage, financial loss and personal injury.

2.1.1 **What is property damage?**
The damage to or destruction of a tangible item as a result of a defective product (e.g. classic water damages as a result of a leak). As a result of this, the suitability of the tangible item to fulfill its actual purpose is impaired. The term property damage is used if tangible items are damaged or destroyed. Considerable costs can be incurred as a result of property damage, such as renovation costs, repair costs or replacement costs.

2.1.2 **What is meant by financial loss?**
Financial loss may either be out-of-pocket loss or loss of business. Out-of-pocket financial loss is for example the costs of removing products and installing replacements after damage. Loss of business is the financial disadvantage suffered by an injured party as a result of a damaging event (e.g. lost income as a result of renovations following property damage).

2.1.3 **What is meant by personal injury?**
If a person suffers physical injury, this is known as personal injury. For the purposes of this document, the coverage of personal injury means the direct medical costs incurred as a result of the injury.

3. What is not covered?

Costs related to the damages incurred such as a result of:

- Non-compliance with the operating parameters defined and specified by aquatherm as found in aquatherm's technical documents. In cases of doubt, contact your local aquatherm manufacturer's rep. Exceptions must be provided for, in writing, by a member of aquatherm's engineering team.
- Non-compliance with the installation guidelines as set out in the aquatherm Catalogue, with emphasis to the required installation of aquatherm propriety clipping or other compatible with aquatherm piping.
- Non-compliance with respective National Plumbing Standards and Regulations.
- Joints which were not made in accordance with the aquatherm guidelines, including but not limited to: improper fusion technique, use of contaminated materials or tools, use of faulty or unsuitable tools, use of damaged materials or tools, or any connection made by an installer without sound knowlegde of the aquatherm connection techniques and their processes.
- Improperly assembled connections to other pipeline systems and/or components (threads, flanges, stubs, mechanical joints not intended for use with aquatherm PP piping etc.).
- All sealing elements used in the product lines manufactured by aquatherm.
- Tools and accessories sold by aquatherm GmbH are covered for the warranty period by law under the statutory warranty provisions.
- Systems with defective pipeline sections or fittings that were not subjected to the aquatherm pressure test or alternative testing approved by aquatherm prior to start-up.
- Damage to our products caused by incorrect handling after the material has left aquatherm's possession.
- Damage caused or exacerbated by copper in the water resulting from erosion/corrosion or other degradation of copper components in a domestic hot water recirculating system.
- Time delay, caused by incorrect planning, delivery problems and/or incorrect orders.
- Damage caused by entrained air, cavitation and pressure fluctuations.

Note: This list only includes the most prominent examples. Other circumstances, which compromise the integrity of the products, may also jeopardise the coverage.

4. How is the amount of compensation under the aquatherm warranty determined?

In the event of a material failure, samples of the damaged/faulty product are collected by the national aquatherm partner to forward them to aquatherm GmbH for examination and analysis. Working in collaboration with the injured party, aquatherm will identify the cause of the damage, and call in external bodies (test institutes, laboratories, assessors, etc.) as needed. If the damage has been caused by a material and/or manufacturing defect or by aquatherm's consulting/engineering services, the underwriter shall quantify the compensation claim for damages. All expenditures associated with the damages for this claim must be verified/recorded in detail and in a verifiable format as a required measure.

5. How much is the maximum coverage?

For the first 5 years of the warranty period, property damage, personal injury and financial loss is covered for the sum of €20 million per insurance claim. Total coverage for all claims made in a year is a maximum of €40 million. For years 6-10 of the warranty period, these coverage amounts are €8.5 and €17 million respectively. Sublimit for losses on designed projects (Professional Indemnity) €2 million and €6 million for all losses in the annual aggregate.

6. Why is the coverage stated in Euro?

The insured manufacturer, aquatherm, as well as the insurer, are both based in the EU, so that their agreements are issued in Euros (€). Since exchange rates fluctuate, the exchange rate current on the date of compensation shall apply.

7. What is the channel of communication for notifying claims under warranty and making enquiries about them?

Warranty claims have to be made to aquatherm via the national aquatherm GmbH partners. Information about the progress of the claim will only be released by the aquatherm partner or aquatherm GmbH.

8. Legal note

If a discrepancy or conflict arises between this document and the underlying insurance policy, the latter shall in all cases prevail.

9. Information about avoiding damage

I) **Manufacture under certified quality level**
As a trusted manufacturer, aquatherm works to a certified quality standard (ISO 9001); constant internal quality controls are part of the daily routine. In addition to this, all employees are integrated into a quality assurance program. As a result of this, products failing to comply with our high standards are quickly identified and removed from our product range.

II) **Preventing damage caused by incorrect handling**
Our products must be handled conscientiously and carefully when they are delivered from our production plants. Experience shows that most damage is caused in transit, storage and/or when working on site. At this point we would draw close attention to the fact that correct handling contributes to maintaining the product quality.

III) **Work is to be carried out by qualified installers**
Installation defects are easy to avoid. Our training courses teach the correct techniques in detail for working with our products. In doing so, particular importance is attached to work being carried out attentively and with care. The work of installers trained by us or our aquatherm partners is much more reliable and carried out much more efficiently.

For a safe connection, we recommend using only aquatherm PP products in a piping system. Mixing with other PP piping systems should be avoided.

February 2023
aquatherm GmbH, Biggen 5, 57439 Attendorn, Germany

aquatherm red

Transport and storage

AQUATHERM TRANSPORT AND STORAGE

Careful **storage**

aquatherm polypropylene pipes may be stored outside at any temperature. A solid base for the pipe is very important to avoid a deformation of the pipes while in transport and storage.

At temperatures below 0 °C, pipes can be damaged by strong impacts. The material has to be treated with caution at low temperatures. In spite of its high resistance, aquatherm pipes should be treated with care.

UV-radiation has effects on all high polymer plastics. Do not store permanently outdoors.

The maximum permissible storage time outdoors is 6 months.

aquatherm GmbH

Biggen 5 | 57439 Attendorn | Deutschland
Tel: +49 2722 950 0 | Mail: info@aquatherm.de

Status: 01.2024

Made in Germany

Management System
ISO 9001:2015
ISO 14001:2015
ISO 50001:2018
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