

The SIMONA logo is positioned in the top right corner, featuring the brand name in white, bold, uppercase letters against a solid red rectangular background. The background of the entire advertisement is a dynamic, blurred image of a tunnel with light trails, suggesting speed and modern infrastructure.

SIMONA

SIMONA[®] cable conduit systems

For underground power and data cables

GLOBAL THERMOPLASTIC SOLUTIONS

SIMONA® cable conduit systems

In support of the reliable transmission of power and data, SIMONA offers an extensive system of pipes, fittings and protection sheets for the long-term protection of underground cables.

These cable ducts, or conduits, are used to protect underground cables against environmental influences, e.g. wet conditions/moisture, soil loads and live loads, and prevent subsequent damage caused by excavation work, for example.

In addition to mechanical loads in operation, the actual method of laying and the expected thermal stress on the conduit system are of particular significance to the technical design of the protective unit.

In this field of application SIMONA considers cables carrying medium voltages, high voltages and extra-high voltages.

Benefits at a glance:

- Extensive product range
(d = 10 – 1,200 mm)
- PE materials with long-term thermal resistance for permanent use subject to increased thermal stress
- Tested and externally monitored pipe quality with factory test certificates
- On request: pipes with additional low-friction inner layer for long cable insertion distances
- Corrosion-resistant
- Highly resistant to mechanical loads
- Quick and easy to lay
- After laying, pipelines underneath remain accessible
- Customising – individualised pipe and fitting configurations for special applications, e.g. electrofusion fittings, transition fittings, bends, end caps

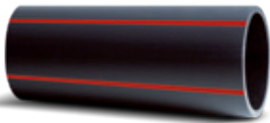

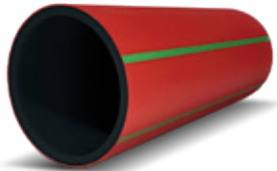
Standards

Standards and specifications	Description
DIN 8074 / 8075	Polyethylene (PE) pipes – PE 80, PE 100 – Dimensions
DIN 16833	Polyethylene pipes with raised temperature resistance (PE-RT) – PE-RT Type I and PE-RT Type II – General quality requirements, tests
DIN 16876 Only applicable up to OD 225 mm	Pipes and fittings of high-density polyethylene (PE-HD) for buried cable ducting – Dimensions and technical delivery conditions
PAS 1075	Pipes made from polyethylene for alternative installation techniques - Dimensions, technical requirements and testing
DIN EN ISO 24033	Polyethylene pipes with raised temperature resistance (PE-RT) - Influence of time and temperature on the expected strength
DIN EN ISO 22391 Only applicable up to OD 160 mm	Polyethylene pipes with raised temperature resistance (PE-RT) - PE-RT Type I and PE-RT Type II - Requirements, test procedures, properties
DIN EN ISO 9080	Determination of the long-term hydrostatic strength of thermoplastic materials
DIN EN 12201	Plastic piping systems for water supply and for drainage and sewerage under pressure – Polyethylene (PE)
DIN 8077/78	Polypropylene pipes - Dimensions, general quality requirements, tests

Overview of the product range of cable conduits

SIMONA® cable conduits are available in various designs and with different property profiles. They comprise single and multi-layer pipes with functional layers made of top-quality raw materials.

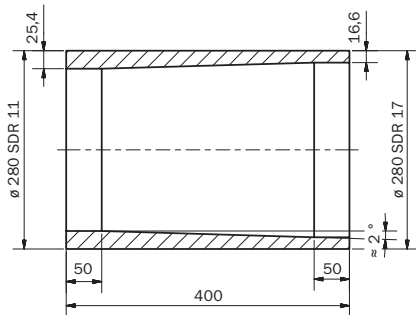
Cable conduits

Pipes	Material	Pipe design	
AD 10 – 1.200 mm	PE 100 PE 100 RC PE-RT 🔥 PP-H AP 🔥	Mono-extruded solid wall pipe (standard version: black; optional versions: black with red stripes or dyed red throughout) Mono-extruded solid wall pipe (standard version: SIMONA grey, optional version: dyed red throughout)	
AD 32 – 630 mm	PE 100 2S PE 100 RC 2S PE-RT 2S 🔥	Two-layer co-extruded solid wall pipe with integrated UV-stabilised outer skin (e.g. in red)	
AD 160 – 630 mm	PE 100 SPC RC 2S PE-RT SPC 2S 🔥	Solid wall pipe with added protective jacket made of modified PP, tested in accordance with the requirements of PAS 1075 Type 3	

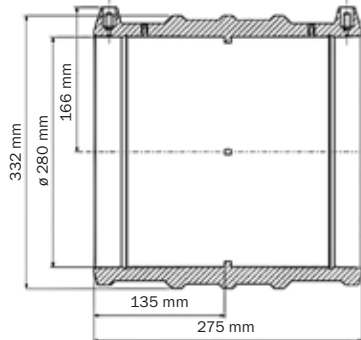
Alternatively, variants PE 100 and PE 100 RT can be provided with a low-friction inner layer (protect and glide).

Suitable laying methods

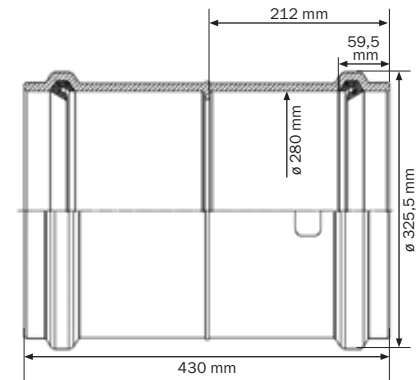
- Open laying with or without a bed of sand
- Trench ploughing and cutting
- Horizontal directional drilling (HDD)
- SIMONA® PE 100 pipes have approval from the German Federal Railway Authority (,EBA') for laying in the inner and outer pressure zones of railway traffic loads
- Pipe driving



Concentric reducer made of PE 100



Electrofusion sockets made of PE 100 (PE-RT as optional)



PP-HM double interconnecting socket, d 280 mm, with EPDM lip seal

Joining methods

- Double interconnecting socket made of polyethylene (PE)
- Double interconnecting socket made of polypropylene (PP-HM) conforming to DIN EN 1852-1, short type as standard, extended type available as optional with long insertion depth
- Heated-tool butt welding
- Electrofusion sockets
- SIMOFUSE® integral welding

Materials

PE 100

The standard quality PE 100 according to PE 100+ Association in compliance with DIN 8074/75 and DIN EN 12201 is an ideal material for piping systems. In this context the material name „100“ refers to internal pressure creep rupture strength (MRS = Minimum Required Strength) for 20°C, 50 years and the test medium water.

The underlying MRS figure for PE 100 is 10.0 N/mm². The application limit for permanent use subject to increased thermal stress for the PE 100 material is 40°C for 50 years. General construction supervision approval is documented at the German Institute of Building Technology (,DIBt') under the number Z-40.23-311.

PE 100 RC

On account of the continuous enhancement of pipelaying methods it became necessary to improve the standard quality PE 100 (as per DIN 8074/75 and DIN EN 12201) in such a way that any external mechanical damage occurring during pipelaying and operation should not lead to failure or fracture of the pipeline. Owing to the development of bimodal PE 100 materials with high resistance to slow and rapid crack propagation this goal was achieved.

Classification of these materials is set out in PAS 1075 – Pipes made from polyethylene for alternative installation techniques: Dimensions, technical requirements and testing. The application limit for permanent use subject to increased thermal stress for the PE 100 RC material is 40°C for 50 years. DIBt issues general construction supervision approval under the number Z-40.23-311.

PP-H AP (AlphaPlus®)

By offering specially nucleated PP-H AlphaPlus®, a material is available which, as a homopolymer polypropylene (PP-H), combines numerous product and processing benefits: apart from increased impact strength it also offers the user much enhanced rigidity, which at 100°C is more than twice as high as that of a beta-nucleated PP-H.

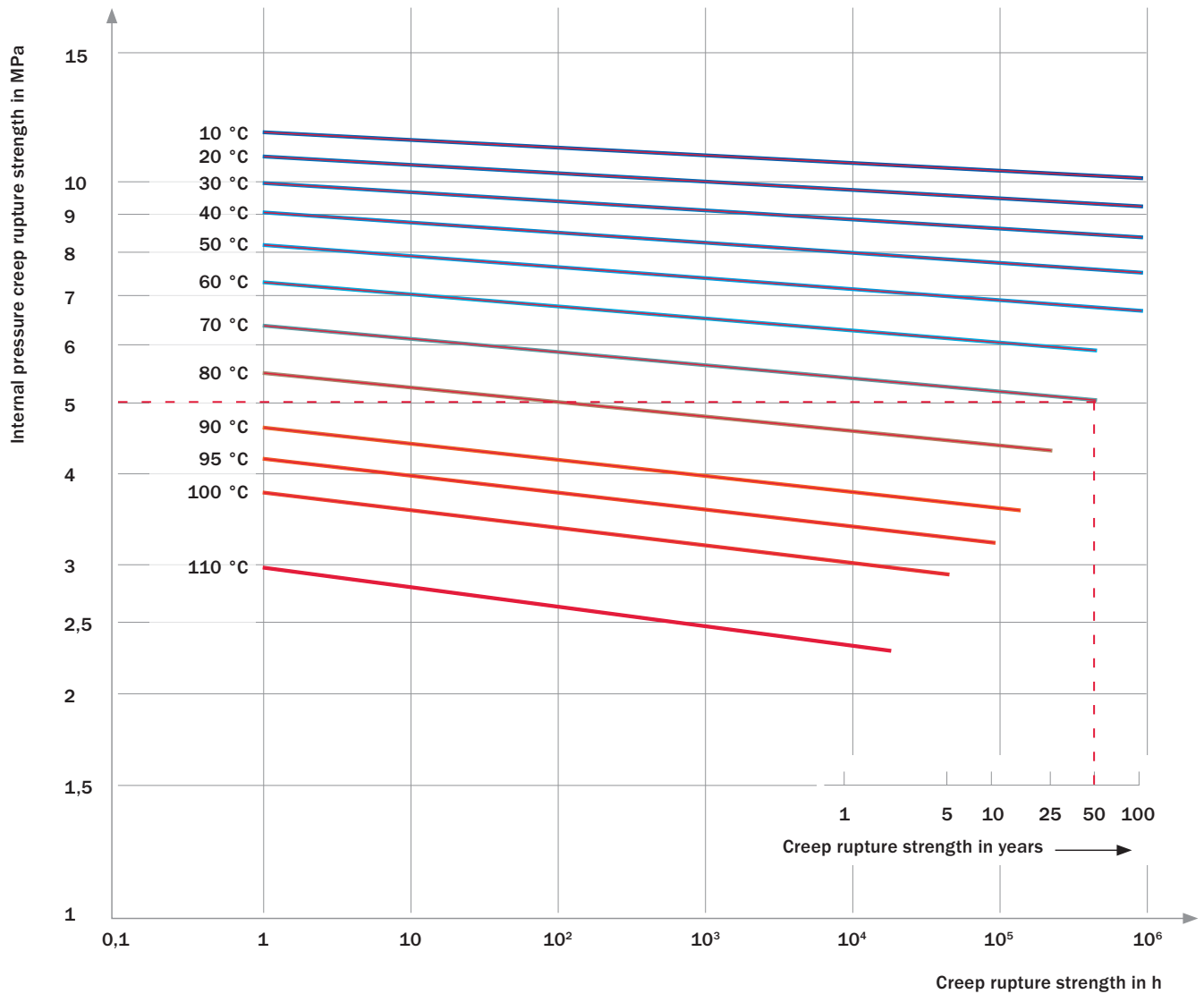
Owing to the enhanced impact strength, the laying and pipe assembly processes are reliable even at low temperatures down to 0°C. The very smooth inside surface is ideal for cable conduit applications.

PE-RT (Raised Temperature)

Since cable conduits are exposed to high thermal influences in the long term, special PE raw materials with raised thermal resistance can also be used. PE-RT with a proven internal pressure creep rupture strength of up to 70°C for 50 years in

accordance with DIN EN ISO 9080, DIN 8074/8075, DIN EN ISO 24033 and DIN 16833 is the optimal material for these higher specifications.

Creep curve PE-RT



Overview of the product range of protection sheets

SIMONA protection sheets for gas and cable routes are made of polyethylene (PE), with an anti-slip surface as optional. The cover sheets can also be provided with cut holes. The holes with a diameter of 30 mm drain soil moisture into the ground. A connection system self-developed and manufactured for joining the protection sheets is offered in addition.

Protection sheets

Variants	Material
3.000 x 500 x 10 + 15 mm	PE-AR sheet with cut holes
3.000 x 500 x 8 - 15 mm	PE-AR sheet
3.000 x 500 x 10 + 15 mm	PE sheet with cut holes
3.000 x 500 x 1 - 15 mm	PE sheet
20, 30 mm	PP rivet
22 mm	PP bolt

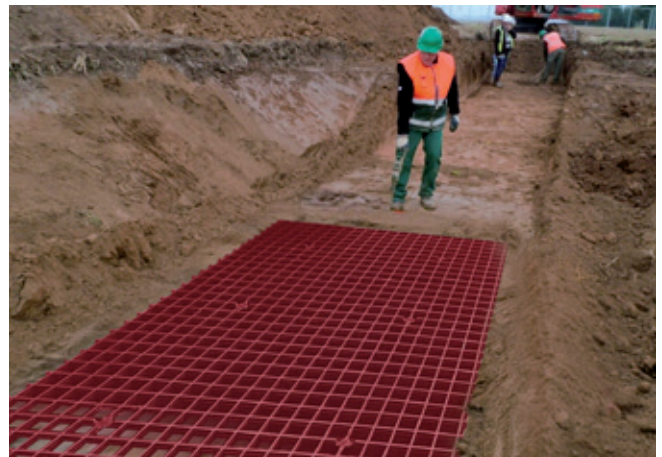


Overview of the product range of protective mesh matting

SIMONA protective mesh matting is made of PE. It is easy to assemble and can be laid along the cable routes without any problems.

Protective mesh matting

Variants	Material
2.000 x 1.000 x 32 mm	PE mesh matting
2.000 x 500 x 32 mm	PE mesh matting
2.000 x 1.000 x 23 mm	PE mesh matting
2.000 x 500 x 23 mm	PE mesh matting



Other sheet thicknesses, dimensions and colours are available on request.

Service


We take a particularly thorough approach when it comes to product application. And we are pleased to pass on our knowledge. At our Technical Sales Support unit and within our field sales organisation our staff will be pleased to advise you in the following areas:

- Project planning
- Support in preparing tender modules
- Assistance with material selection
- Applications technology support, e.g. in calculating tensile forces or preparing pipe analyses
- Hire of welding machines and accessories

Customised pipes and fittings

Alongside our standard range, we offer a premium-class package of custom products:

- Pipes in various lengths for various joining methods
- Special pipe sizes adapted to the standard nominal diameters of other materials
- Customised fittings as system components for your applications

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