

1. Technical Specification for Geberit Mepla

Product Definition

Geberit Mepla is a potable hot and cold water supply system with a triple-layered metal/plastic pipe complying to DIN 16893.

Structure of the Geberit Mepla / Pipe

1. Internal pipe made from interlaced PE-Xb pipe
2. Edge to edge laser welded aluminium pipe
3. Protective layer of HDPE

All layers are bonded with adhesive ensuring a strong flexible pipe.

Appearance

Mepla pipe - Black colour

MeplaFlex Pipe - Black colour with black corrugated protective tube and blue metre marks.

Properties

- No internal or external corrosion
- No oxygen diffusion
- Resistant to weather and ageing
- Lightweight and simple to use (can be bent easily)
- Ideal pipe joint (compression joint without nipples)
- No soldering
- No special protection required against UV radiation if stored outdoors
- Internal pipe protected by the protective tube (MeplaFlex)
- Inherently stable
- Waste materials can be separated and recycled (PE, aluminium)

Properties of the Mepla compression joint fitting

- Resistant to corrosion
- No dezincification due to the effect of moisture
- Press-in profile protected by a cap prior to installation

The Mepla compression joint

The Geberit Mepla joint is a permanent radial compression joint licensed for use in all types of concealed installation

Properties of the Mepla compression joint

- Clean, secure connection
- Clear positioning of the pressing jaws
- High durability under long-period stressing
- Insertion depth can be checked at any time

Structure of the compression joint

- Mepla fitting
- HDPE washer to prevent electrochemical reaction
- Tool guidance groove
- EPDM O-ring
- Geberit Mepla on Meplaflex pipe

Required space for compressing procedure

Flat Wall Installation			Corner Wall Installation			
Diameter mm	Wall to pipe centre mm	Between Pipe centres mm	Diameter	Wall to pipe centre mm	Between pipe centres mm	Wall corner to pipe centre mm
16	16	42	16	19	58	31
20	18	46	20	20	57	34
26	21	53	26	23	62	37
32	27	62	32	27	67	45
40	31	72	40	31	77	51
50	40	95	50	40	95	60
63	80	110	63	80	110	90

Bending

The following minimum requirements must be maintained when bending pipes in order to guarantee a constant level of quality throughout the entire Mepla installation:

- The pipes must not have any impressions on the surface
- There must not be any compression damage on the inside of the bend
- Minimum dimensions to be maintained

External diameter (mm)	Ovality smallest diameter (mm)	Minimal bended radius	Recommended bended radius
16	15	58	80
20	19	70	100
26	24	93	130
32	30	116	160
40	37	160	200
50	47	200	250
63	-	-	-

Thermal Movement

Comparison to other pipe materials:

Mepla	0.026
PVC-C	0.08
PB	0.13
PP	0.15
PPR	0.18
PE-X	0.20
Copper	0.017

Fixation Distances

The distance between brackets used with Mepla pipes depends on the diameter of the pipe. No additional support shells are needed under the ceiling.

Diameter	SB (m)	F (N)
16	1.0	2.39
20	1.0	3.62
26	1.5	9.21
32	2.0	18.92
40	2.0	29.00
50	2.0	44.50
63	2.5	85.00

SB = distance between pipe brackets

F = effective force per bracket when pipe full with water at 10°C

Properties of Mepla

- Behaviour in fire
Fire code 5
Smoke Rating 1
The Geberit Mepla pipe is flame retardant.
- Resistance to diffusion
The Mepla pipe is absolutely resistant to diffusion, i.e. no gases can diffuse through the walls of the pipe.
- Resistance to abrasion
The internal cross linked polyethylene layer is resistant to abrasion. No material abrasion takes place even at high flow speeds.
- Inherent stability
The pipe remains in the required position, which is a great advantage prefabrication. No support shells are required during installation provided the specified bracket distances are maintained.
- Stress corrosion/cracking

The use of Mepla fittings means stress corrosion/cracking cannot take place.

- **Dezincification**

The use of gun metal means the effect of moisture cannot lead to dezincification either. Restrictions apply when Mepla is used for salty sea water transport.

- **Thermal stability**

The maximum operating temperature range is between 0-95°C

Hot and cold water supply:

Operating temperature: 0 (liquid) -70°C

Pressure: 10 bar

Guaranteed Service: min. 50 years

Remark: 95°C intermittent peak temperature for 150 hrs per year.

Closed system (non-vented, e.g. heating):

Operating temperature: 0(liquid water)-85°C

Pressure: 10 bar

Guaranteed Service: 10 years

- **Resistance to pressure**

The permitted operating pressure is 10 bar at an operating temperature of 0° - 90°C, with shorts peaks of 95°C

- **Electrical conductivity**

The system is not electrically conductive because it does not have a continuous metallic connection. The Geberit Mepla system must not be used for equipotential bonding or integrated into the earthing system.

- **Effect of sunlight**

The material is UV-ray resistant

- **Soundproofing**

No flowing noises are generated within the pipelines provided the correct pipe dimension has been chosen. Noises from taps can be decoupled from the structure by applying suitable insulation to the pipework.

- **Hygienic**

The materials used for pipes and fittings are hygienic and consequently can be used for drinking water (foodstuffs).

- **Service Life**

The service life of the materials under the specified conditions is at least 50 years

- **Applications**

The Geberit Mepla supply system is perfectly suited to applications involving hot water (up to 95°C), cold water and water softened down to 0°F under the specified conditions. The range is designed for all water supply and heating system applications.

Identification of the pipes

Geberit Mepla pipes carry identification marks every metre (Inkjet printing) in accordance with DIN 16893.

- Manufacturer's identification
- System name

- Pipe width
- Material specification
- Certifying Authority
- Date of production
- Length marking

Identification of the fittings (PVDF, red brass and brass)

- Manufacturer's identification
- Pipe width
- Manufacturer's code (production)
- Year of production
- Recycling code (plastic only)

Materials of Geberit Mepla

- Protective sheath: PE
- Adhesion Layer: between PE/AL
- Aluminium: (Alloy)
- Adhesion Layer: between AL/PE-Xb coloured blue
- Internal Pipe: PE-Xb (interlaced)
- Protective Tube: PE

Adhesive

The adhesive is coloured blue in order to permit optimum optical checking during the production of the pipe. This colouring can be seen through the white PE-Xb internal pipe, lending it a bluish tinge. At the same time, this is also a Geberit feature.

Material/Material Name

The fitting parts which carry water are produced from the high-quality plastic PVDF, red brass / pressed brass and plastic.

Plastic	Fitting body	PVDF (polyvinyl idene fluoride)
	O-Ring	EPDM (ethylene-propylene rubber)
Red Brass	Castings	G-Cu Sn 5 Zn Pb (2.1096.01 to DIN 1705)
	O-Ring	EPDM (ethylene-propylene rubber)
	Insulation disc	PE-HD
Brass	Pressed Parts	Cu Zn 40 Pb 2 (2.0402 to DIN 17660)
	O-Ring	EPDM (ethylene-propylene rubber)
	Insulation disc	PE-HD

Mepla fittings are resistant to corrosion:

- No de-galvanisation
- No stress corrosion

Protective cap (recycled) is PE on each red brass and brass compression joint nipple.

Distribution system with lower circulation

For detail pipe attached to pipe circulation, heat-resistant materials must be used for fastening the pipe-attached-to-pipe circulation.

Only self-regulating heater bands are allowed to be used. Self-regulation heater bands must not exceed a temperature of 70°C. The heater band can be routed directly on the Mepla Pipe. No aluminium foil is needed to distribute the heat. This function is undertaken by the aluminium in the Mepla pipe. The self-regulating heater band must be attached using aluminium tape at ambient temperatures below 15°C.

Earthing on Mepla pipes

Earthing (equipotential bonding) of the domestic electrical installation is not possible on Geberit Mepla lined metal pipes.

Applications for Mepla

As well as its use for drinking water, the Mepla system can also be used for fluid media and air listed below. However, this table must not be used to infer that the medium itself will not be modified by the pipes and fittings. Consequently, suitability is both a matter of the resistance of the Mepla system and of the purpose to which the medium is put.

Medium	Additive/treatment/limitation	Temp °C	Pres Bar
Rain water	pH value > 6.0	0 – 40	10
Water	Osmosis Treatment	0 – 70	10
Water	Softened to O° fH	0 – 70	10
Solution of water and antifreeze	≤ 90% glycol by volume	≤ 40	10
Solution of water and antifreeze	≤ 90% antifrogen L by volume	≤ 40	10
Solution of water and antifreeze	≤ 90% antifrogen N by volume	≤ 40	10
Solution of water and antifreeze	≤ 90% ethyl alcohol by volume	≤ 40	10
Soap/water solution	≤ 90% soap solution	0 – 40	10
Water with disinfectant solution at a concentration appropriate for use (dilute)	<ul style="list-style-type: none"> ▪ Quaternary ammonium compounds ▪ Guanidine compounds ▪ Amino acetic acid 	0 – 40	10
Compressed air		0 – 70	10

Pressure Test & Flushing Geberit Mepla Pipes

The pipes should be pressure tested before the installation is embedded or covered over. The pipes should then be flushed through.

The test pressure must be 1½ times the operating pressure, however no less than 15 bar. The pressure drop must not exceed 0.1 bar/h. The compression of every connection must be checked visibly.

Pressure testing in case of a frost hazard

At present, no authorised antifreeze is available on the market, and so the pressure test cannot be performed with water when there is a risk of frost.

Standards/Environmental Aspect

Standards & Regulations for pipes and connectors

W534	Draft, connectors and connections for pipes in the drinking water installation, requirements and tests.
SVGW	Directives for setting up water installations
DVGW	Body of rules, water
DIN 1988	Technical rules for drinking water installations

External Monitoring of pipes and connections

The SKZ (Plastics Centre of South Germany) defines the conditions for testing the entire installation system:

95°C	45 bar	1 hr
95°C	35 bar	1000 hr

Operating conditions for Mepla:

Drinking water: 0°C (liquid) to 70°C – 10 bar – 50 years –
Safety factor 1.5

For closed systems (not vented systems e.g. heating):
0°C (liquid water) up to 85°C - 10 bar – 10 years

The Mepla installation system meets those requirements in all respects.

External monitoring:

Compression tool: VDE

Pipes: SKZ / Geberit Q

Fittings: SKZ / Geberit Q

Approvals for Pipes and Connections

The hygienic and toxicological zero-risk test forms part of the approvals in specific countries. No approval will be issued unless the absence of risk can be demonstrated.

Approvals are granted/applied for in the following countries	
DVGW	Germany
SVGW	Switzerland

OEVGW	Austria
CSTB	France
KIWA	Netherlands
ATG	Belgium
WRc	UK
D H 517	Portugal
C. INSTAL	Poland
ITC ZLIN	Czech Rep
GOSTR	Russia
ABS	International
GL	International
DNV	International

DVGW approval is the decisive factor in the remaining markets. The other markets grant their approvals on the basis of DVGW approval having been granted.

Approvals for Compression tool

SEV (test and certification to CENELEC – EG)

VDE

GS mark

ÖVE

Radio Interference Suppression

Accident Prevention Regulations VBG 4, TÜV and SUVA