DNV·GL

Certificate No:
TAP000019W

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pipe System with Couplings

with type designation(s)
Mapress Carbon Steel and Stainless Steel

Issued to
Geberit International AG
Jona, SG, Switzerland

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0185 – Type approval – Mechanical joints

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature range:	**- 30°C up to 180°C. Refer to certificate.**
Max. pressure:	**16bar. Refer to certificate.**
Design:	**Compressed coupling - press type**

Issued at **Hamburg** on **2018-08-29**
This Certificate is valid until **2023-08-28**.
DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Hagen Markus**

Olaf Drews
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

Materials, Size range

Piping System	Material designation		Fitting sizes	Soft seal
Mapress Carbon steel	EN 10305-3	E 220 1.0215, AISI 1009 Inside and outside zinc-plated	12, 15, 18, 22, 28, 35, 42, 54, 76.1, 88.9, 108	FKM CIIR (Butyl)
		E 195 1.0034, AISI 1009 Outside zinc-plated		
Mapress Stainless steel	EN 10217-7 1.4401			

The following fittings are not included in this type approval certificate:

- Carbon and stainless steel axial expansion fitting with pressing sockets
- Adapter union with clamping ring for corrugated pipes
- Mepla adapter
- Carbon steel pipe cross, reduced, offset
- T-piece with female thread and plain ends

The following fittings are limited in the application:

- Stainless steel bulkhead and deck passing with two plain ends

This fitting is not approved for penetration of fire divisions.
May be used for penetration of watertight decks and bulkheads for pipe sizes 15, 18, 35, 42, 76,1 and 88.9.

Production places

Geberit Mapress GmbH, 40764 Langenfeld, Germany
Geberit Ozorkow Sp. Z o.o. , Poland

Responsibility

The company Geberit International AG takes the responsibility that both the design and the production is in compliance with the Rules, Standards and/or Regulations listed on page 1 of this certificate.

Nominal pressures and Pressing equipment

			Pressing equipment[1]	
O.D. mm	**DN**	**PN**	**Machine**	**Tool**
15	12	16	Compatibility [2], [2 XL], [3]	Geberit Jaws
22	20			
28	25			
35	32			Geberit Collars
42	40			
54	50			
76.1	65		Compatibility [4] and HCPS[2]	
88.9	80			
108	100			

Notes
[1] according to the Geberit "Technical Information Compatible Pressing Tools", valid at the date of installation.
[2] O.D. 108: 12 bar

Temperature range[1]

The applicable temperature range depends on the selected material combination of piping and sealing material.

Piping material	**Temperature range[2]**	
	Minimum	Maximum[3]
Carbon steel	- 10°C	Max. temperature of sealing material
Stainless steel	Min. temperature of sealing material	
Sealing Material		
FKM	-25°C up to +180°C	
CIIR (Butyl)	-30°C up to +120°C	

Notes
[1] Temperature limits acc. to pipe class III are to be observed
[2] Refer to Geberit Mapress "Application Technique – Supply System", valid from 1st November 2013
[3] Pressure reduction factors for elevated service temperatures to be observed. Refer to DNVGL CP-0185.

Example

Carbon steel piping with FKM seal: -10°C up to +180°C

Application/Limitation

The tube fittings of type Mapress Carbon Steel and Stainless Steel are type approved for application in piping systems of pipe class III.

Type of mechanical joint: Compression coupling – press type - fire resistant.
Refer to DNV GL Rules Pt.4, Ch.6, Section 9 – Table 10

Application overview

The Mapress Carbon Steel and Stainless Steel press fitting system is type approved for the following applications:

Type of system	Piping systems	Remarks
Mapress Carbon steel and Stainless steel	Non-essential systems	
	Compressed air, Service air	Not related to main function, i.e. ensuring propulsion.
	Water filled fire extinguishing systems	e.g. sprinkler systems.
	Non water filled fire extinguishing systems	e.g. foam, drencher systems
	Fire main	Wet and not permanently filled.
	Cooling water for air conditioning of accommodation spaces	None.
	Technical water systems	None.
	Drainage piping systems	Not related to main function, i.e. ensuring stability.
Mapress Stainless steel	Urea solution based treatment fluid systems as part of exhaust gas cleaning systems for the reduction of NOx.	Refer to Pt.4, Ch.6, Section 8.
	Exhaust gas cleaning systems for the reduction of SOx	Technical water and Inert gas application.
	Sanitary piping systems	e.g. potable water supply (hot and cold water).
	Main and auxiliary machinery fresh water cooling	Sizes 15, 18, 35, 42, 76,1 and 88.9.

Minimum pipe wall thickness

For application in piping systems subject to main class, main function respectively, the minimum wall thickness of the pipes shall be in compliance with the applicable Rules. Refer to Rule Pt.1, Ch.1, Sec.1.

Example
For application in piping systems as listed in Pt.4, Ch.6 Piping Systems, Section 1 - Table 2, the minimum wall thicknesses of pipes shall be acc. to Section 9 – Table 2 and 4.
In addition Rule requirements according to additional class notation or specific ship type are to be observed.

Undersized pipe wall thickness may be accepted for:
- Sanitary piping systems such as potable water supply (hot and cold), grey and black water
- Drainage piping systems (not related to main function, i.e. ensuring stability)
- Technical water systems, service air (not related to main function, i.e. ensuring propulsion)
- Cooling water for air conditioning of accommodation spaces
- Non-essential systems

With respect to installation and application limitation for press-fittings refer to
DNV GL Rules Pt.4, Ch. 6, Section 9, 5.2 Pipe couplings other than flanges.

Limitations

Press fitting systems are not approved for:
- installation in ballast tanks or fuel oil tanks
- air overflow and sounding pipes of structural tanks
- penetrating enclosed spaces below the freeboard deck (e.g. watertight - or fire bulkheads)

Selection of materials

It shall be noted that the selection of the materials considers the intended service condition and installation area of the piping system. In particular, the resistance to corrosion, erosion, oxidation and other deterioration during intended service life.
Reference is made to DNVGL Rules Pt.4, Ch.6 – Section 2 – Materials.

Penetration of fire divisions and water tight bulkheads and decks

For penetration of pipes through fire divisions and watertight bulkhead and decks type approved penetrations are to be used.
Penetration of pipes with undersized wall thickness shall be approved in each separate case.

Type Approval documentation

Tests carried out

Marking of product

For traceability to this type approval the products are to be marked with:

Fittings	The pressing indicator indicates unpressed connections.	Blue pressing indicator (stainless steel) and red (carbon steel)
	Approval mark	DVGW
	Geberit Mapress Logo	
	Outer diameter O.D.(mm)	28
	Production code	F
Sealing	**Material**	**Colour**
	FKM	Blue / Red
	CIIR	Black

Periodical assessment

For retention of the type approval certificate periodical assessments shall be carried out at production places by DNV GL surveyor.
The objective of the periodical assessment is to verify that the design and production conditions for the type approval have not been altered.

Main scope of the assessment:
- verification of the production and quality control system
- review of quality control documentation of recent deliveries
- review of drawings in production to verify any design changes which may have an impact on data specified in the type approval certificate, performance and range of application
- verification of the product marking

In addition to the above at renewal assessment burst pressure tests on selected sizes are to be carried out.
Periodical assessment is to be performed after 2 years and after 3.5 years. Prior to renewal of the certificate a renewal assessment will be performed.

End of certificate