SINTEF Technical Approval

TG 20913

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Provided listed on
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SINTEF confirms that

PrevPress stainless steel pressfitting system for Prevent Systems low pressure water mist system

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document.

1. Holder of the approval

Prevent Systems AS
Fåberggaten 126
2615 Lillehammer
www.prevent-systems.com

2. Product description

PrevPress pipe system in stainless steel with pressfittings is for distribution of cold water in buildings to Prevent Systems low-pressure water mist nozzles in wet, dry and deluge systems. Prevent Systems low-pressure water mist system is an automatic fire suppression system made up of the following main components: water mist nozzles, distribution pipework, and either a control valve set or pump set. This document is applicable for the PrevPress pipes when they are used as part of the water supply to given nozzles for the relevant area of use defined in corresponding test protocol and given in DIOM-manual.

Table 1 lists the components included in the SINTEF Technical Approval nr. 20913 PrevPress stainless steel pipe system.

Table 1
Components included in the approval

Component	Beskrivelse
Pipes	Straight pipes with dimensions: 18 x 1 mm, 22 x 1,2 mm, 28 x 1,2 mm, 35 x 1,5 mm, 42 x 1,5 mm, 54 x 1,5 mm, 76.1 x 2 mm
Pressfittings	Pressfittings with blue press-check sleeve and M-profile in dimensions 18 – 76,1 mm.
Water mist nozzles	Prev2exp, Prev2up, Prev3exp, Prev5exp

3. Fields of application

PrevPress pipe system can be used in Prevent Systems wet, dry and deluge low-pressure water mist systems designed and constructed according to NS-EN 14972-1 and the associated DIOM-manual.

4. Properties

PrevPress pressfitting system

Pipes of stainless steel type AISI 316L with the follow product characteristics, as specified by the supplier:

- Maximum allowed pressure 1,6 MPa (16 bar) for DE 18 - 76,1 mm
- Maximum temperature of water[1)]: 40° C

[1)] The water temperature shall not exceed 40 ° C according to EN 14972.

Pressfittings have an O-ring in EPDM. If the fittings are inadvertently not pressed, it is designed to leak. The pressfittings have a blue press-check sleeve and are used together with stainless steel pipes.

Fig. 1
PrevPress stainless steel pressfittings
Foto: Prevent Systems AS

Fig. 2
Prev3exp low pressure water mist nozzle
Foto: Prevent Systems AS

Water tightness
Pipes and pressfittings are certified according to relevant product standards and have passed pressure testing according to these.

Reaction to fire
Pipes and pressfittings of stainless steel have a reaction to fire classification of A1 in accordance with EN 13501-1.

Durability
The durability of the pipe system is considered satisfactory for the intended fields of application, based on the material properties for system components.

5. Environmental aspects

Substances hazardous to health and environment
PrevPress contains no hazardous substances with priority in quantities that pose any increased risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

Waste treatment/recycling
PrevPress shall be sorted as metal and residual waste. The product shall be delivered to an authorized waste treatment plant for material and energy recovery.

Environmental declaration
No environmental declaration (EPD) has been worked out for PrevPress.

6. Special conditions for use and installation

Design considerations
In areas not covered by an automatic suppression system, the pipesystem shall be protected against fire, for instance laid behind constructions with fire resistance corresponding with the required operation time of the water mist system. This does not apply to permitted exceptions of areas with little/no combustible materials according to the relevant standard.

When possible, the pipes should be installed in such a way that they are accessible for maintenance, repair, or small changes.

It is up to the designer in the individual building project to assess the need for an installation of PrevPress that is water damage safe, exchangeable, and where leakages could be easily discovered.

Pipe sizing
Hydraulic calculations shall be performed for every Prevent Systems low pressure water mist system to ensure that the pipe system delivers the required water flow and pressure. Only programs approved by accredited certification body must be used for the calculations.

Installation
PrevPress shall be installed in accordance with the manufacturer's installation instructions. The following considerations must be taken into account during installation:

- After cutting, the pipes must be carefully deburred on both the inside and outside. Any cutting residue and deburring dust must be removed.
- Check the o-ring for damage, foreign objects, and make sure it has the correct position in their seats.
- Determine the insertion depth before assembly. Use the insert mark template to mark the correct position.
- To create a pressed joint, use a pressing tool and jaw according to the manufacturer's instructions.
- Once pressed, remove the press-check sleeve from the pressfitting.

Only components listed in Table 1 shall be used when installing PrevPress stainless steel pipes system. PrevPress cannot be combined with other pipe systems without clear separations with threaded connections between the systems, in accordance with requirements in EN 14972-1. If any additional surface treatment(s) are applied to the pipes, the approval mark must still be visual, in accordance with requirements in EN 14972-1. Pipes shall not be embedded in walls or floors of masonry or concrete. All installation pipework shall be subject to pressure test before commissioning/ hand-over, se separate clause in this document.

Pipe support
The pipe support shall be designed, located, spaced, and installed according to Prevent Systems' DIOM-manual and EN 14972-1. Pipe support/brackets used for installation shall be of the same quality as the pipes and approved for intended area of use. Supports shall be fitted as close as possible to the water mist nozzles. Pipe support spacing shall consider the anchored/ suspended load together with pipe strength and stiffness to prevent leakages or other operational disturbances due to deflection, ensure no movement of water mist nozzles occur, and protect other components/ equipment that are exposed to stress.

Tools
Only special tools approved and provided by the producer shall be used for installation of the pipe system.

Pipe protection
The pipe system shall be installed in such a way that it is not exposed to mechanical damage. Where pipes are installed in walkways with low height, intermediate levels or similar areas, precautions against collisions must be taken.

It is not allowed to insert additives in the extinguishing water. Exceptions are anticorrosive agents according to manufacturer's recommendation and existing product certificates.

Fire safety
Penetrations of pipes through walls or floors with fire resistance must be secured in such a way that fire or smoke gases cannot spread to another fire compartment. Penetrations through fire rated constructions must be performed as described in SINTEF Building Research Design Sheet 520.342.

Protection against frost
When the pipe system is installed in constructions subject to frost, e.g. cold attics, pipes filled with water (wet pipes) must be placed on the warmest side of the insulated construction to avoid the pipes from freezing. Insulation alone is not sufficient to avoid the pipes from freezing, but it can postpone the freezing. Stagnant

water will be cooled down and freeze, even though the pipes are well insulated.

Marking of pipe runs
The pipe runs should be marked with exact length and where it delivers water at a suitable place.

Hand over – pressure test
The pipe system shall be pressure tested in accordance with the instructions in Prevent Systems' DIOM-Manual and NS-EN 14972 before handing it over to the owner. The o-ring seals are designed to leak if the fitting is inadvertently not pressed. Any leakages, ruptures, or permanent distortions shall be corrected before the test is repeated. The internal control form shall be completed before commissioning.

Wet systems:
– Pressure tested for 24 hours with air at 1,5 – maximum 2 bar. If the pressure loss $\Delta p \leq 0{,}15$ bar at the end of the test, the test is passed. Proceed with hydrostatic test below.
– Pressure test for no less than 2 hours with water at 1,5 x maximum operating pressure, and no less than 15 bar. If the test pressure remained constant during the test time ($\Delta p = 0$ and reading sensitivity of the test gauge of 0,1 bar), the test is passed.

Dry systems:
– Pressure tested for 24 hours with air at 1,5 – maximum 2 bar. If the pressure loss $\Delta p \leq 0{,}15$ bar at the end of the test, the test is passed.
– When climatic conditions allow; pressure test for no less than 2 hours with water at 1,5 x maximum operating pressure, and no less than 15 bar. If the test pressure remained constant during the test time ($\Delta p = 0$ and reading sensitivity of the test gauge of 0,1 bar), the test is passed.

The time for pressure testing and any necessary protective measures against corrosion must be seen in connection with system commissioning. Follow instructions in Prevent Systems DIOM-Manual.

Maintenance
Regular controls and necessary maintenance should be performed according to instructions from the holder of the approval.

7. Factory production control

Water mist nozzles are produced in Norway and Sweden for Prevent Systems AS. The producers have a quality and environmental management system certified according to ISO 9001 and ISO 14001. PrevPress stainless steel pressfitting system is produced in Italy for Prevent Systems AS. The producer have a quality and environmental management system certified according to ISO 9001 and ISO 14001.

The holder of the approval is responsible for the factory production control in order to ensure that PrevPress stainless steel pressfitting system is produced in accordance with the preconditions applying to this approval.

The manufacturing of the product(s) and the manufacturer's system for factory production control (FPC) is subject to continuous surveillance in accordance with the contract regarding SINTEF Technical Approval.

8. Basis for the approval

The evaluation of PrevPress stainless steel pressfitting system is based on reports owned by the holder of the approval.

The evaluation of design and technical solutions are based on recommendations given in SINTEF Building Research Design Guides.

9. Marking

Components in the system should be marked with the manufacturer's name or logo, product name and production date. The approval mark for SINTEF Technical Approval TG 20913 may also be used.

10. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF

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