SINTEF Technical Approval

TG 20666

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Amended:
Valid until 01.10.2028
Provided listed on
www.sintefcertification.no

SINTEF confirms that

WC-Element Ineo SCAN built-in cistern

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

Sanitärtechnik Eisenberg GmbH
In der Wiesen 8
07607 Eisenberg
Germany
www.sanit.com

2. Product description

WC-Element Ineo SCAN built-in cistern (art. no. 90.736.00) consists of an installation frame with cistern and brackets for pipes and WC pan, see Fig. 1. The cistern consists of an inlet valve, outlet valve, shut-off valve, and flexible hose. The cistern has dual flush volumes, pre-set at 3 litres and 6 litres. The flush volumes are adjustable. The cistern is insulated to avoid condensation. Table 1 shows the main components of the system. WC pans are not part of the approval.

Table 1
Component specification for WC-Element Ineo SCAN

Component	Material	Test method
Installation frame	Powder coated steel	SS 820200
Cistern	PP	EN 14055
Cistern insulation	PS expanded	SS 820200
Cistern inlet valve	POM, PP and ABS	EN 14124
Cistern outlet valve	PP, ABS, PE and PC	EN 14055
Shut-off valve	Brass	EN 13828
Wastewater pipes and fittings	PE and PP	
Threaded bolt for WC fixation	Zinc plated steel	SS 820200

3. Fields of application

WC-Element Ineo SCAN built-in cistern can be used in bathrooms and toilet rooms when concealed installation of the cistern is desired. The system will fulfil the requirements regarding maintenance, exchangeability of the cistern, water leakage safety and detection of possible water leakages when installed as described in Chapter 6.

Fig. 1: *Sanitärtechnik Eisenberg GmbH*
WC-Element Ineo SCAN built-in cistern (art. no. 90.736.00)

4. Properties

Load-carrying capacity
It is documented that the installation frame including WC pan withstands a load of 400 kg.

Exchangeability and maintenance through the front cover opening
It is possible to exchange, regulate and maintain the cistern's inlet and outlet valves through the front cover opening. The shut-off valve for water supply inside the cistern is also accessible through the front cover opening.

Internal overflow
The cistern outlet valve has an internal overflow. Possible water leakages from the cistern inlet valve or shut-off valve will drain through the internal overflow and into the WC pan for visible detection.

Acoustic characteristics
The built-in cistern's acoustic characteristics depend on the structure of the surrounding walls, the drain opening, fixation of the installation frame and wastewater pipes. The noise levels from technical installations shall be in accordance with limit values given in TEK and NS 8175 *Acoustic conditions in buildings — Sound classification of various types of buildings*.

Table 2
Technical properties of WC-Element Ineo SCAN

Property	Value
Full flush volume	Min. 4,5 L Max. 6,0 L
Reduced flush volume	Min. 2,0 L Max. 4,0 L
Overflow – safety margin	≥ 20 mm
Distance between bolts for WC pan fixation	c/c 180 mm ± 1 mm c/c 230 mm ± 1 mm
Height adjustment for WC pan fixation bolts	Min. 320 mm Max. 520 mm
Distance between inlet and outlet for WC pan	135 ± 3 mm
Shut-off valve thread dimensions	1/2"
Condensation protection	The cistern has external insulation
Wastewater pipe connection	Ø 110 mm
Sideways adjustment range of installation frame, to compensate for floor slope	200 mm/m
Load-carrying capacity	≥ 400 kg

5. Environmental aspects

Substances hazardous to health and environment
WC-Element Ineo SCAN 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.

Effect on indoor environment
WC-Element Ineo SCAN is evaluated according to SINTEF Technical Approval – Health and Environmental Requirements version 09.05.2022. The product is not regarded as emitting any particles, gases or radiation that have a perceptible impact on the indoor climate, or to have any significant impact on health. The product meets the requirements in BREEAM-NOR v6.0, Emissions from building products according to Hea 02 Indoor air quality.

Waste treatment/recycling
WC-Element Ineo SCAN 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 made for the WC-Element Ineo SCAN.

6. Special conditions for use and installation

General design considerations
Regulations on technical requirements for building works (TEK) require built-in cisterns to be installed in such a way that leakages are easily discovered and do not damage other installations or building parts.

TEK requires that the built-in cistern be easily accessible after installation.

If the built-in cistern is installed in a toilet room or other dry room, TEK requires that a water leakage shall lead to an automatic shut-off of the water supply.

Design consideration for wet rooms
SINTEF recommends that the wet room membrane be located behind the cistern, in such a way that leakage water does not result in dampening of neighbouring constructions. See Fig. 2.

SINTEF recommend a drain opening in the lower part of the front wall construction (underneath the WC pan) in such a way that leakage water can run freely to the floor gully. See Fig. 2.

SINTEF recommends that the cistern, including the installation frame, must be easily accessible for replacement from inside the room it is installed in. This can be accomplished by installing a removeable moisture-resistant building board in front of the built-in cistern. The moisture-resistant building board shall be removable without damaging the membrane layer. See Fig. 2

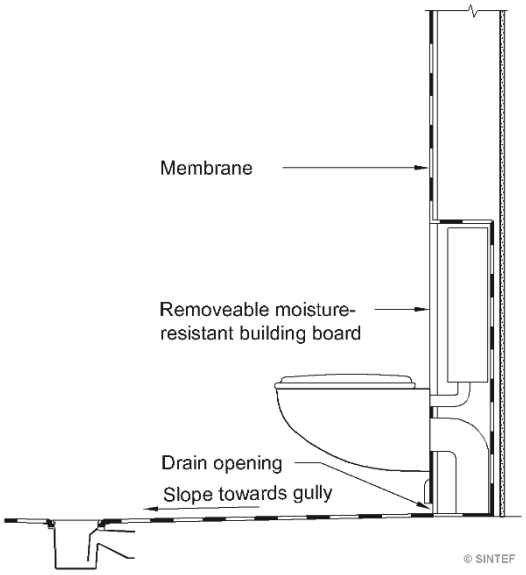

Fig. 2
Principle sketch – Installation in wet room

Design considerations for dry rooms
SINTEF recommends that built-in cisterns in dry rooms, for example toilet rooms without floor gully and watertight floor, are installed in a prefabricated watertight cassette or in a space with watertight membrane. See Fig. 3.

SINTEF recommends that the prefabricated cassette has a tray which can hold, at minimum, the same amount of water as the cistern; i.e., 6 litres.

TEK requires that leakage from the built-in cistern shall cause an automatic shut-off of the water supply. SINTEF recommends using a water leak detector unit with automatic shut-off valve for this purpose. The leakage detector unit's humidity sensing element must be installed inside the tray to obtain the best means of surveillance. See Fig. 3.

For ensuring accessibility of the built-in cistern in dry rooms, SINTEF recommends using the same solution as for wet rooms.

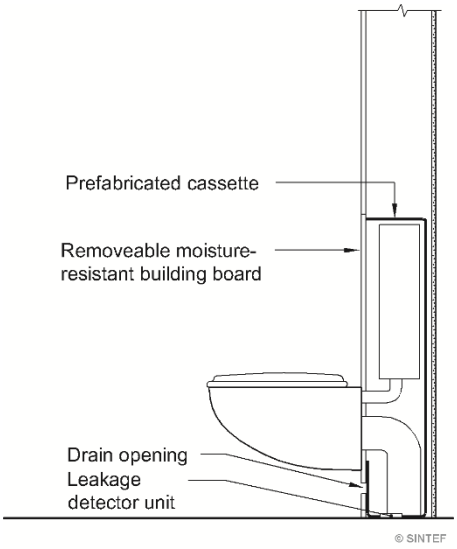

Fig. 3
Principle sketch – Installation in dry room

Installation
WC-Element Ineo SCAN built-in cistern shall be installed as described in the producer's installation instruction; ref. no. PM.191.59.0000.

Fixation of the installation frame
The installation frame can be fixed to the back wall, side wall or stud partitions. The installation frame should not penetrate the floor membrane. Any fixation points in floor or wall that penetrate the membrane shall be watertight.

Watertight penetrations in wet rooms
Penetrations through the wet room membrane must be watertight. Use products, such as pipe collars or similar, belonging to the wet room membrane system.

Connection of the WC pan
The WC pan used with WC-Element Ineo SCAN built-in cistern shall have connecting dimensions in accordance with EN 33 *WC pans and WC suites - Connecting dimensions*.

Flushing requirements for WC pan
The WC pan used with WC-Element Ineo SCAN built-in cistern shall comply with the requirement in EN 997. WC-Element Ineo SCAN may be used with shower toilets.

Cistern water supply
The water supply to the cistern shall be installed through the protection tube bushing delivered with the cistern. Protection tubes with 25 mm external diameter shall be used with the bushing.

Penetration of fire walls
Penetrations through building parts must not weaken the fire resistance of fire rated building constructions. Penetration of fire rated walls shall be carried out as described in SINTEF Building Research Design Guide 520.342.

7. Factory production control

WC-Element Ineo SCAN is produced by Sanitärtechnik Eisenberg GmbH, In der Wiesen 8, 07607 Eisenberg, Germany

The holder of the approval is responsible for the factory production control in order to ensure that WC-Element Ineo SCAN is produced in accordance with the preconditions applying to this approval.

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

The manufacturer has an internal quality system in accordance with ISO 9001 and an environmental management system in accordance with ISO 14001.

8. Basis for the approval

The evaluation of WC-Element Ineo SCAN 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

WC-Element Ineo SCAN shall be marked with the manufacturer's name or brand, product name and production date. The approval mark for SINTEF Technical Approval TG 20797 may also be used.

WC-Element Ineo SCAN is CE-marked in accordance with EN 14055:2018.

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

Susanne Skjervø

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Approval Manager