

ESSGE-PLAST AB

Essge-Plast Non Contact insulation System

ESSGE NCS

One of the markets most effective solutions to minimize Corrosion Under Insulation, (CUI)

ESSGE NCS is a reliable, tested and fast mounted system with superior ability to reduce Corrosion Under Insulation on pipes and tanks.



The spacer-systems unique design makes it possible to maintain the distance between the pipe and insulation during assembly, without using tools.

The spacer-system consists of rings, bands and buttons. These are made of heat resistant polymers, that are mounted without the risk of damaging the coating, paint, or any heat-raising cables.

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The problem with corrosion under insulation

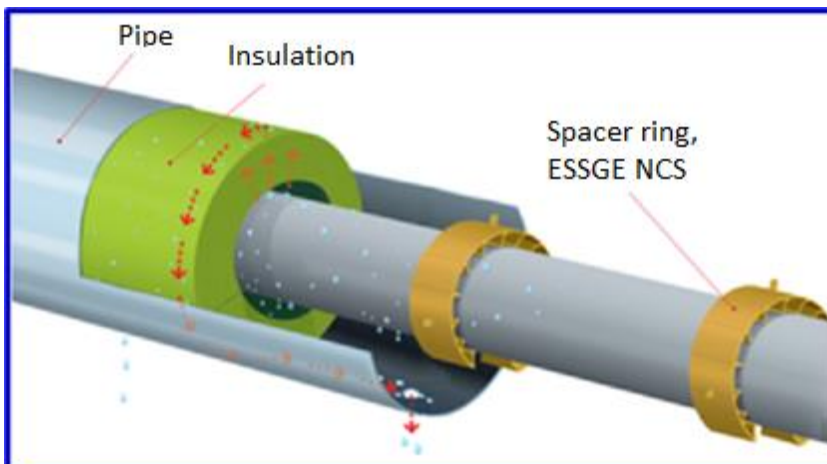
Pipes that are operating at high temperatures are usually insulated to prevent heat losses, as well as health and safety reasons. Water penetrating and saturating the thermal insulation can quickly lead to corrosion. This problem with corrosion under insulation can occur on both carbon-based steel, stainless steel and cast iron.

Within the industry, “corrosion under insulation”, commonly referred to as CUI, accounts for 10% of the total maintenance budget and is the most common cause of unplanned and costly downtime, that is stopping operation. Between 40% and 60% of pipeline maintenance costs are related to CUI. The effect of spaced insulation has been tested and recommended in the Norwegian gas and oil sector to extend the lifetime of pipe installation. [1][2]

”A cost effective solution is Essge NCS”

Advantages:

- Reduces the cost of maintenance and repairs.
- Increases the lifetime of the facilities.
- Saves a lot of time for installation.
- No tools are needed for mounting.
- Have a positive effect on thermal insulation.
- Improves sound insulation – less noise.
- Reduces risk of leakage, (cost & security).
- Low costs for assembly of the product.
- Manufactured with a low climate impact.



The space between the insulation and the pipe ensures a continuous airflow the keeps the surface dry from condensation. Available in low and high- temp material.

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Essge NCS-button for corners

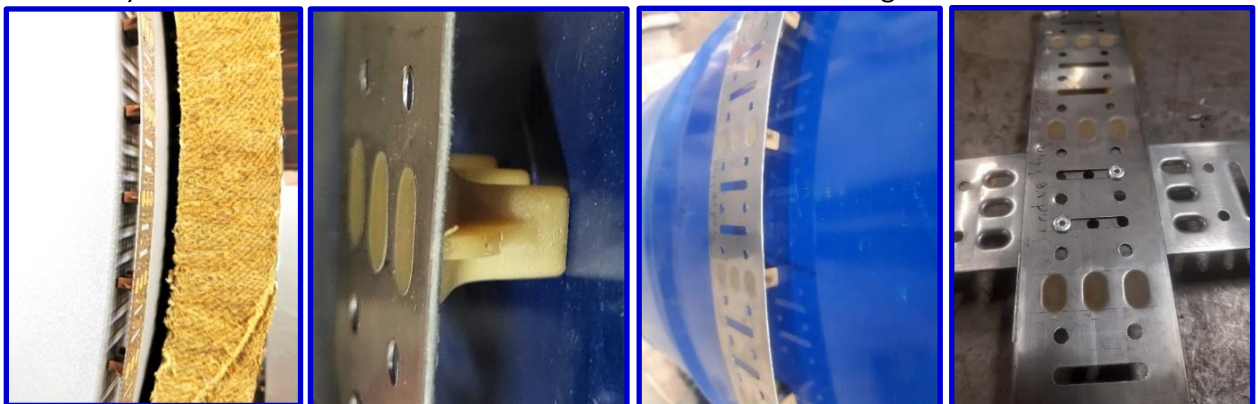
The spacer buttons serve as a compliment to the spacer rings for sharp bends on small pipes, where the rings are too wide to fit properly.

These buttons can be used on flat pipes as well, with the same corrosion preventive function, but takes longer to mount compared to the rings.



Essge NCS-bands for large pipes or tanks

Essge NCS Bands is the solution to CUI on large pipes and tanks and much like the ESSGE NCS rings and buttons, have a low risk of damaging coating, paint and cables. The bands are made of spacers, moulded into AISI 316L stainless steel bands, to prevent CUI. Assembly is made easy thanks to pre-made slots used with stainless steel rivets, for joints and fasteners. Essge NCS-band is normally delivered in 10 meter rolls but can be made in custom lengths.



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Technical specification

Property	Value	Comment
Maximum operating temperature	HT (High temperature) 160° C MT (Mid-range Temp.) 100° C	HT short-term temp 219° C
Flammability	5V according to UL 94	Lowest possible for polymerers
Toxicity and Smoke density	Class F1 acc. to NF F16-101	Polymer allowed to be used in passenger trains
Number of spacer rings required	3 pcs/meter pipe	CC distance 330 mm, spacer button in joints

Sizes

ESSGE NCS are named after the pipe sizes they cover + temperature range covered, (Ex. ESSGE NCS 18-25 HT, used for pipes with outer diameter 18 to 25 mm and withstands continuous temperature of 160 degrees C).

Sizes available	18-25	28-38	42-57	60-80	83-114	121-163	169-222	230-318	BAND
Siuted for pipe (diam. In mm)	18-25	28-38	42-57	60-80	83-114	121-163	169-222	230-318	>318
Airgap (dist between pipe and insulation in mm)	15	16	16	18	18	18	18	16	15
Minimum number of buttons recommended per row	4	4	4	5	5	5	Ring	Ring	Ring

Insulation dimensioning

Inner diameter of pipe insulation capsule shall be a minimum of pipe diameter + airgap * 2. (Ex. Pipe diameter 75 mm means that ESSGE NCS 60-80 is required with 18mm airgap. Inner diameter of insulation capsule will be minimum $75 + (18 * 2) = 111$ mm).

Spacer buttons are used in the bends on pipes up until 169-222, where the rings can be used normally. The Spacer button creates a 12,5mm airgap between the pipe and insulation.

[1] Haraldsen, K.: "Corrosion under insulation -testing of protective coating systems at high temperature", Paper no 10022, NACE Corrosion 2010.

[2] Kvilhaug F.A.: "How do different insulation solutions affect corrosion under isolation (CUI)?" Bergen, Norway, Overflate 2014