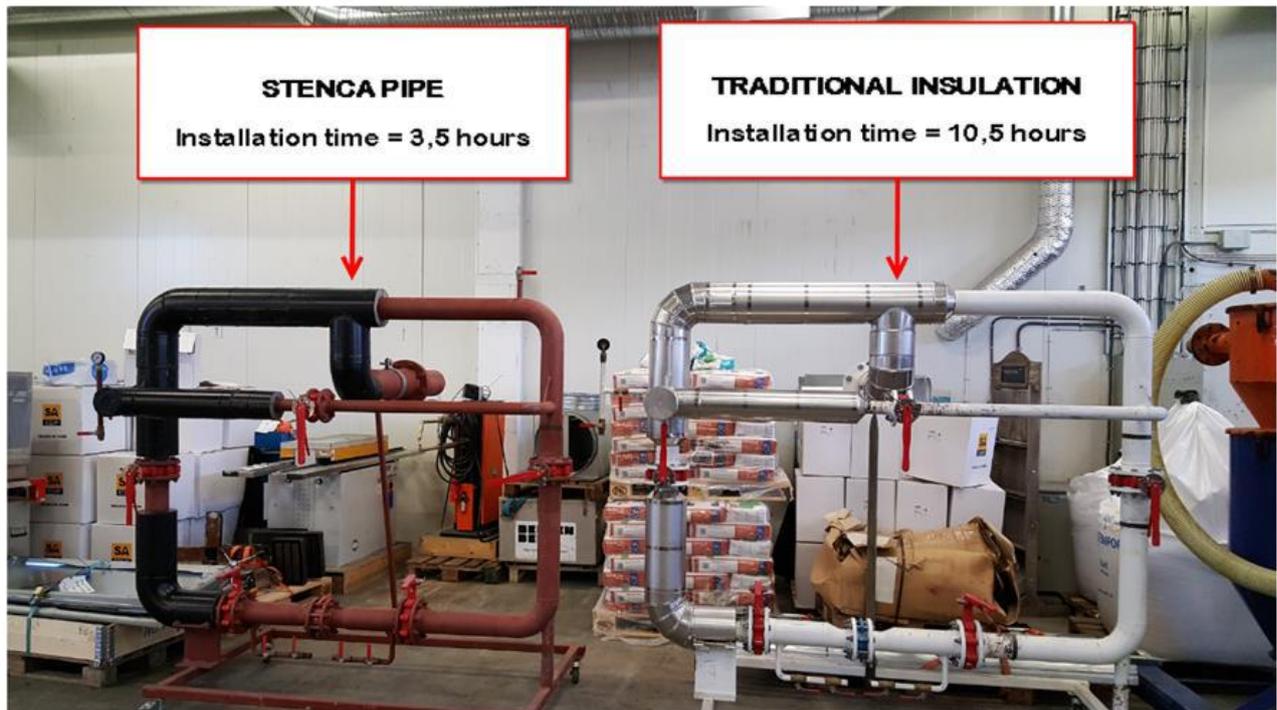


TIME AND COST SAVINGS WHEN USING STENCA PIPE COMPARED TO FOAM GLASS

Tests and real work show that you save 50-67% on time spent at SP.

Below is a picture that illustrates this.



Beerenberg did work on both products.

Below is the time estimation for the most common components.

This is a calculator indicating the expected time of mounting Stenca Pipe Insulation. The working hours within this calculator are based on experience.

Note:

The calculator for untrained personnel is based on that this personnel have had a minimum of training by supervisor or on a course, but for which the personelle are not used to insulate pipe or work with similar material. Within the category of trained personnel is personal for which have insulated with Stenca Pipe insulation and personnel which have been working with pipe insulation materials before, even though they have not installed Stenca Pipe insulation before.

These calculations are based on insulating pipe with heat tracers, if no heat tracing cables are used, the time estimates below can be calculated with a factor 0,8.

This calculator does not include extra time for isolating at places where access to pipes is difficult or where the Stenca Pipe Insulation must be cut out to fit the pipes.

Within this calculation time for collecting material or transportation of material to mounting place is not included.



If this should be within the calculation it is recommended to calculate with a factor 2.

It is recommended that the installment personnel work in team of two. This can also help to reduce the time of installment.

The calculation is based on installing insulation on 2"- 10" pipes. For smaller sizes the instalment time will be a little less, like for larger sizes it is advisable to calculate more time.

When estimating a project, we recommend calculating some extra time for unexpected situations.

Mounting Stenca Pipe straight incl. Seal & Strips

Trained Personal	15 minutes / unit
Untrained Personal	20-25 minutes / unit
Trained Personal	10-15 minutes / unit
Untrained Personal	15-20 minutes / unit

Mounting Stenca Pipe Elbow (Bendings) different from 90 Degrees

Trained Personal	15 minutes / unit
Untrained Personal	15-25 minutes / unit

Mounting Stenca Pipe 90 Degrees Angel from two straight Pipes

Trained Personal	15-20 minutes / unit
Untrained Personal	20-25 minutes / unit

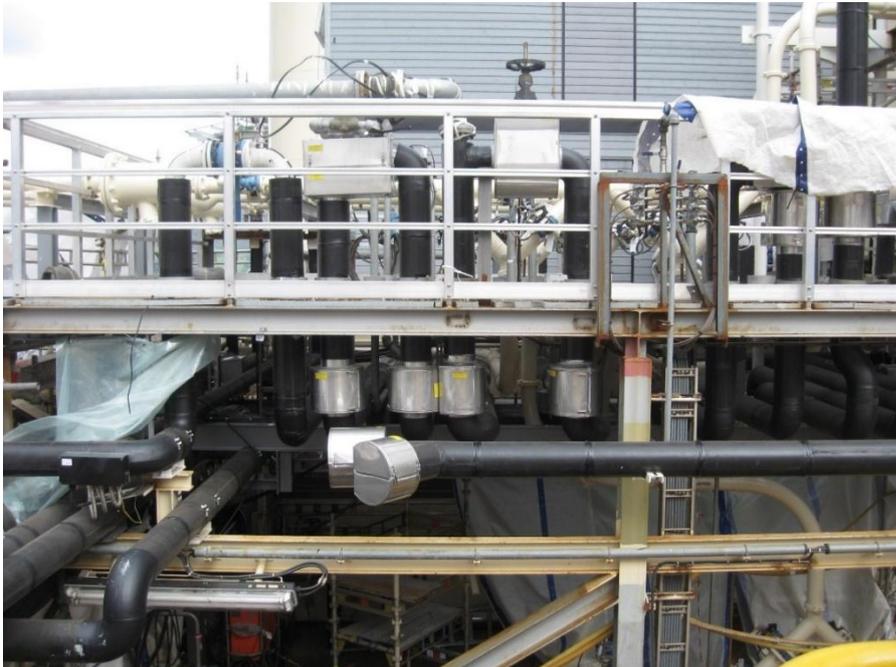
Mounting Stenca Pipe T-pcs. Pre-cut

Trained Personal	10-15 minutes / unit
Untrained Personal	15-20 minutes / unit

Advantage Stenca Pipe

- ✓ Stenca Pipe is 1 task/operation. Foam Glass is a minimum of 2 working processes, depending on the grade, it will take twice as long. I.e. SP is at least 50% faster.
- ✓ Steel enclosure is not as quick to install as FG, the 2 tasks will thus increase the time savings by installing Stenca Pipe.
- ✓ Beerenberg test with Stenca Pipe vs Foam Glass, resulted in a time saving of 67% with Stenca Pipe.
- ✓ Stenca's installation is without complexity factor, the same applies to Foam Glass, where both product and enclosure must be adjusted.
- ✓ Surfaces etc must be made on Foam Glass, as well as the steel enclosure must be made in prefab. Many hours are spent here at Foam Glass, which you would not use at Stenca Pipe.
- ✓ Foam Glass has some breakage factor on FG? During assembly, during transport, during action and not least stepping on finished lines.
- ✓ Once the SP is fitted, it can be stepped on without being damaged.

Boxes and Stenca Pipe



Dimensioning of heating cables Stenca Pipe vs Foam Glass

- ✓ SP has better properties than FG, if you want to reduce SP values – we can do it in this.
 - We can drill out SP a few mm to reduce thermal properties to meet the value of FG.
 - By reducing the SP thickness, the trace to the heat trace will disappear and one has a larger objection dimension.

Additional work in connection with adjustments

- ✓ SP is adapted with a saw/knife – finished work.
- ✓ FG customization is time- and cost-consuming.
- ✓ Can use spacer rings in heat trace



Scarabeo 8, photo taken 07.09.2022



Scarabeo 8, photo taken 07.09.2022



South Arne - HESS DK
 Tyra West- Total DK
 Tyra East - Total DK
 Gorm C - Total DK
 Halftan - Total DK
 Maersk Innovator - Maersk Drilling
 Borgland Dolphin - Dolphin Drilling
 Bredford Dolphin - Dolphin Drilling
 Bideford Dolphin - Dolphin Drilling
 Songa Trym - Transocean
 Songa Delta - Transocean
 Transocean Arctic - Transocean
 Transocean Spitsbergen - Transocean
 Transocean Winner - Transocean
 Transocean Searcher - Transocean
 Deepsea Atlantic - Oddfjell Drilling
 Deepsea Stavanger - Oddfjell Drilling
 Deepsea Yantal - Oddfjell Drilling
 Deepsea Aberdeen - Oddfjell Drilling
 Deepsea Bollstad - Oddfjell Drilling
 Deepsea Mira - Oddfjell Drilling
 Deepsea Nordkap - Oddfjell Drilling
 Scarabeo 8 - Saipem
 Scarabeo 5 - Saipem

Ocean great white - Dimond Offshore
 West Elara - Seadrill
 West Hercules - Seadrill
 West Linus - Seadrill
 Noble Lloyd Noble - Noble
 Herje Platform - DSME
 Oseberg Feltcenter - Equinor
 Oseberg Sør - Equinor
 Sleipner - Equinor
 Draupner - Equinor
 Gina Krog - Equinor
 Askeladden - Equinor
 Askepott - Equinor
 Gassnord Tankfarm - Gassnor
 Alexela Tankfarm - Alexela Sløvåg
 Nugijima Yin - Maersk FPSO's
 Nigaloo Vision - BW Offshore
 Petrojarl Knarr FPSO - Alterra Infrastructure
 Petrojarl Atlanta FPSO - Alterra Infrastructure
 Cidade de Saquarema FPSO - SBM Offshore
 Cidade de Marica FPSO - SBM Offshore
 Cidade de Ilha Bela FPSO - SBM Offshore
 Espirito Santo FPSO - SBM Offshore
 Aseng FPSO - SBM Offshore

Some of our projects with Stenca Pipe

Reference list SP, all with HT under Stenca Pipe.

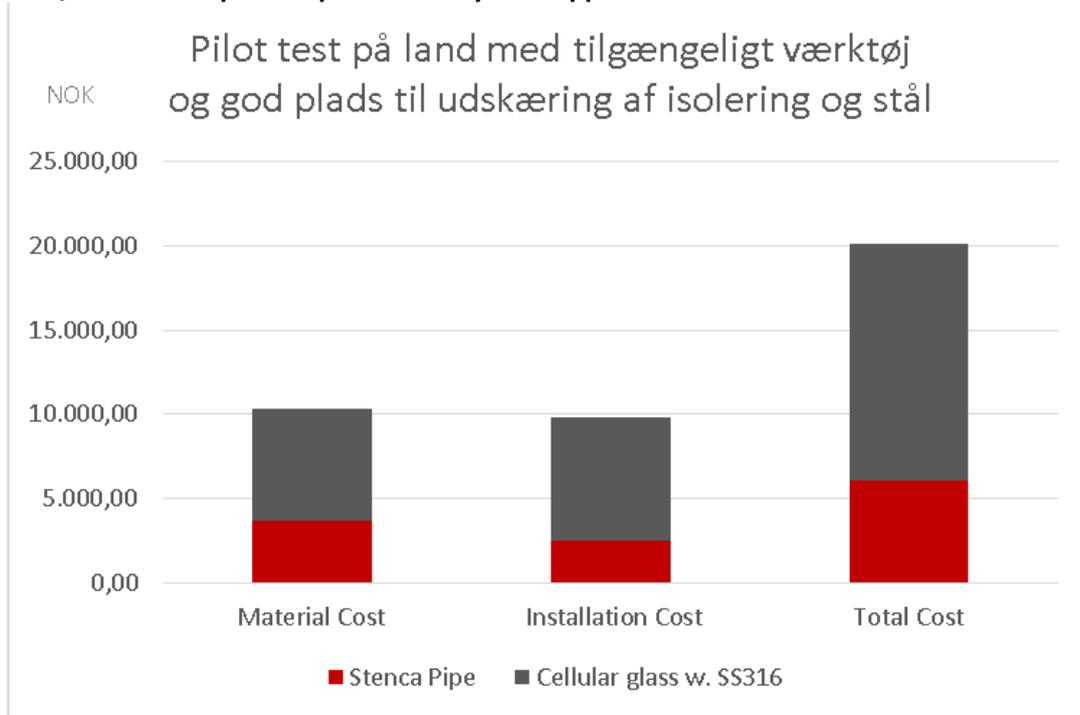
Cross reference scheme external insulation systems by temperatures between -50 dgr C to +140 dgr C

	Mineral Wool w. Galv. Steel Cladding	Mineral Wool w. SS 316 Cladding	Cellular Glass w. Galv. Steel Cladding	Cellular Glass w. SS 316 Cladding	STENCA TRADING ST PIPE PRO
No Corrosion Under Insulation	✗	✗	✗	(✓)	✓
Easy fitting	✗	✗	✗	✗	✓
Low weight (Below 100 Kg/m ²)	✗	✗	✗	✗	✓
Subzero Insulation capacity	✗	✗	✓	✓	✓
Insulation capacity up to + 140 degree C	✓	✓	✓	✓	✓
Sea water resistant	✗	✓	✗	✓	✓
UV resistant	✓	✓	✓	✓	✓
Silp resistant	✗	✗	✗	✗	✓
Acoustic properties	✓	✓	✓	✓	✓
Prepared for Heat-Tracing	✗	✗	✗	✗	✓
Can resist foot traffic	✗	✗	✗	✗	✓
Low Installation time (one working phase)	✗	✗	✗	✗	✓
Can be installed by only one person	✗	✗	✗	✗	✓
No release of dangerous or harmful particles	✗	✗	✗	✗	✓
No environmental hazards during installation	✗	✗	✗	✗	✓
No hot work permit by installation	✗	✗	✗	✗	✓
No internal water absorption	✗	✗	✗	✗	✓
Performance in the event of puncture of surface	✗	✗	✗	✗	✓
Easy inspection	✗	✗	✗	✗	✓
Installation in all weather conditions	✗	✗	✗	✗	✓
No environmental control to dump/dlspose	✗	✗	✗	✗	✓
Reuseable after inspection	✗	✗	✗	✗	✓
Long life durability +20 years	✗	(✓)	✗	(✓)	✓
Certified product	✓	✓	✓	✓	✓
Can be pre-installed onshore	✗	✗	✗	✗	✓

Summarized

- Better at CUI
- Better at heat preservation
- Better price, fully assembled
- Faster installation
- Does not need covering before enclosure, is SP mounted, is a finished
- No need for enclosure
- Easier to install
- Etc

Cost/benefit comparison performed by ISO supplier:



To illustrate this, we use meter by meter in calculations.
When comparing meter by meter, all costs must be included.

Total Cost of Goods + Labor = Price per Meter.

In the example below, we use 4" pipes as a starting point and numbers that FG uses in its presentation;

Stenca Pipe NOK 810 + 1 hour installation a NOK 500 = 1,310.00
Foamglass + SS NOK 566 + 3 hours installation a NOK 500 = NOK 2,066.00

Stenca Pipe is 37% cheaper pre-assembled 1 mtr 4" pipe, with product prices quoted by FG.

Depending on the pipe dimension and class, this will change to a greater advantage Stenca Pipe, see submitted presentations.

Stenca Pipe thermal insulation - Easy and Quick installation



Average hourly use per 1 meter

- | | |
|-----------------------|-------|
| ✓ Stenca Pipe | 1 hrs |
| ✓ Cellular glass + SS | 3 hrs |

Labor costs related to installation of 10,000 meters*, average pipe diameter 4.

Offshore rate NOK 600,00 hrs

Stenca Pipe NOK 6 000 000,00

Cellular glass + 0,5 mm SS NOK 18 000 000,00

Labor cost saving 67% by using Stenca Pipe!!
Products cost saving 48% by using Stenca Pipe!!

**Complexity factor has not been used*

Stenca pipe is faster to install, entails large savings on accommodation, transport of personnel offshore and more.

Here is the hourly rate NOK 600.00.

SP would have been 40% cheaper fully assembled (and easier) with the same product cost!

The most important thing; Insulation eventually comes and the time window is short and is often shorter than planned due to time overruns in other disciplines – great advantage Stenca Pipe.

Access to professionals can be a challenge, the simplicity of installing SP means a lower threshold for being able to carry out the job in a fast and good way.

ENVIRONMENTAL ACCOUNTS

One must/should submit an environmental account for one's products.

Reflow made SP's environmental accounts from cradle to grave and also included Cellular Glass.

Stenca Pipe Carbon Footprint 8.674 kg

Celluar Glass Carbon Footprint 19.443 kg

That is, SP has a 58% lower carbon footprint compared to CG, including steel enclosure for CG.

If the carbon footprint is better for a product and other factors are equal, one should choose a product with the lowest carbon footprint.

Stenca Pipe – Life cycle assessment and carbon footprint

The functional unit for this assessment is defined as:

"Provide thermal insulation corresponding to 1.0 m² K/W to 1 m² of substrate's flat surface for a lifetime of 30 years"

- The distribution stage, the main transportation scenario, was assumed to be from each of the manufacturing locations to an average distance to Bergen, Norway and Stavanger, Norway.
- The three other products, a metallic jacketing and metallic bands of stainless steel is used in this report.

The carbon footprint of the Stenca pipe was found to be 8.674 kg CO₂ eq.

Facing the challenging needs to reach sustainable development in the offshore and marine industry, the potential to lower these environmental impacts, hereby up to 89% reduction of carbon emissions, can be retrieved by the industry by using the Stenca Pipe!!

The report is prepared by Reflow, a Danish environmental consultancy company with a focus on measuring, documenting, and reducing the environmental footprint of products and processes.

Impact category	Unit	Objects of assessment			
		Stenca Pipe	Cellular glass	Stone wool	Pyrogel
Global warming	kg CO ₂ eq	8.674	19.842	49.139	89.090
Stratospheric ozone depletion	kg CFC11 eq	1.81E-06	1.58E-05	4.94E-05	4.08E-05
Acidic equivalent	kg CO ₂ eq	0.161	13.177	8.504	21.191
Ozone formation - Human health	kg MO ₃ eq	0.000	0.000	0.000	0.128
Fine particulate matter formation	kg PM _{2.5} eq	0.019	0.027	0.052	0.221
Ozone formation - Stratospheric systems	kg MO ₃ eq	0.001	0.007	0.006	0.101
Smog formation	kg SO ₂ eq	0.026	0.046	0.136	0.291
Photochemical smog formation	kg P eq	0.006	0.016	0.017	0.089
Marine acidification	kg N eq	0.001	0.001	0.001	0.008
Terrestrial acidivity	kg 1A-OCB	44.177	161.996	290.726	308.244
Photochemical smog	kg 1A-OCB	1.236	2.436	4.008	5.174
Marine acidivity	kg 1A-OCB	1.611	3.812	5.420	8.803
Human carcinogenic toxicity	kg 1A-OCB	0.167	0.287	0.897	11.402
Human non-carcinogenic toxicity	kg 1A-OCB	174.15	40.848	91.507	125.890
Land use	m ² crop eq	0.168	1.565	7.152	2.219
Mineral resource scarcity	kg Co eq	0.063	0.479	0.479	0.626
Fossil resource scarcity	kg oil eq	2.937	6.717	12.011	21.798
Water consumption	m ³	0.233	0.292	1.708	0.744

Characterized impact results for Stenca Pipe/tank, cellular glass, stone wool and pyrogel with the total impact contributions including the manufacturing, distribution and disposal stages.

SUMMARY

Hope this document sheds light on/highlights the time spent and cost.

There is a significant time saving by using Stenca Pipe. There is a significant cost saving by using Stenca Pipe.

There are fewer conditions to deal with, e.g. not steel by using SP – reduces risk.