PLEASE NOTE THAT THIS IS AN ABSRACT OF THE SWEDISH TECHNICAL MANUAL.
FOR ANY INQUIRIES PLEASE CONTACT ELGOCELL.

1. COMPONENTS AND PREPARATIONS

1.1 EXPANDED POLYSTYRENE (EPS)

Please ensure that proper access is available for delivery as ELGOCELL will use articulated lorries. Further note that the quote excludes off loading of goods.

The EPS is delivered on pallets and proper mechanical assistance is required for off-loading.

Due to the light weight of the EPS material, please make sure that during storage the EPS should be properly tied and anchored.

Fig. 1.1 EPS delivery

The delivery includes mounting accessories such as aluminium fixing joints, plastic spikes, and foam. The foam is free of isocyanate.

Make sure that the material delivered corresponds to the material specification quoted.

The delivery also includes, where applicable, prefabricated bends, either vertical and/or horizontal.

Fig. 1.2 Aluminium fixing joints (110mm) and plastic spike (180mm)

HOT WIRE EQUIPMENT

The hot wire is used, where appropriate, to cut and adjust the lengths of the EPS blocks accordingly, e.g. bends, etc.

The hot wire cutting tool consist of a bracket with the wire and a 12V battery. This equipment is part of a loan during the established project time.

There is also a charger for the battery. To ensure functionality the battery should be charged every evening.

Fig. 1.3 Hot wire and battery

1.2 PE-X(A) PIPES

The PEX pipes are delivered with protective film. It is Important to minimise the exposure of the pipe of UV radiation.

When moving the pipes they must be lifted off the ground. Any form of dragging or hauling must be avoided.

If damages occurs please contact ELGOCELL for consultation.

Fig. 1.4 Pipe delivery

⚠ When undoing the bundled coil bindings, pipe ends can spring out! Do not stand in the danger zone.

FITTINGS

Before delivery the fittings have been check and packed according to positioning in the detailed route map plan provided by ELGOCELL. It is important not to mix-up positions.

Tools for installation will be provided by Elgocell.

Fig. 1.5 Inventory Fittings

PEX LABELS

Fittings and sleeves should have one of the following labels which corresponds to the label on the PEX pipes.

PEX125x11.4 PN6
PEX110x10.0 PN6
PEX90x8.2 PN6
PEX75x6.8 PN6
PEX25x2.3 PN6
PEX63x5.8 PN6
PEX50x4.6 PN6
PEX40x3.7 PN6
PEX32x2.9 PN6

Fig. 1.6 PEX Pipe

Tools

RAUTOOL G1

Electrohydraulic tool for dimensions 40 - 125.

- Expansion set 40 - 125
- Single compression jaw and expansion heads from 40 to 125
- Pipe shares 63 for flash-free cutting to length
- Pipe cutters 40 - 125
- 4 m hydraulic hose
- Burr remover
- Transportation case
- Operating instructions

Fig. 1.7 RAUTOOL G1

RAUTOOL A2

Battery-hydraulic tool for dimensions 20 - 40.

- Expansion set 20 - 40
- Single compression jaw and expansion heads from 20 to 40
- Compression sleeve tool with Lithium-ion battery
- Charging station
- Pipe shares 40 for flash-free cutting to length
- Pipe cutters 40
- Transportation case
- Operating instructions

Fig. 1.7 RAUTOOL A2

⚠ To avoid service on tool, and thereby loose valuable time, it is recommended that the tools are cleaned after use. Avoid expose the tool to gravel and soil.

2. WORK FLOW

2.1 ELGOTHERM®

Before mounting the system, please make sure the trench width and depth corresponds with recommended trench dimensions.

Width = Insulation width + 400mm

Depth = Insulation height + 600mm

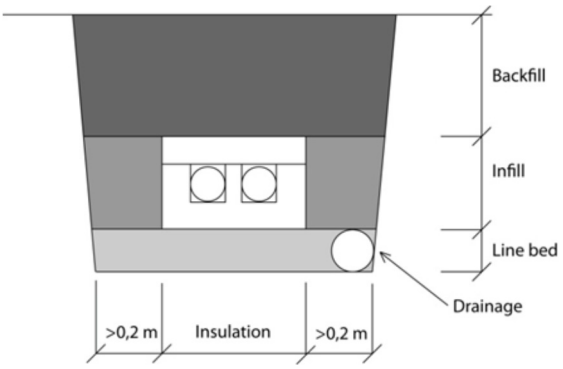

Fig. 2.1 Trench

Place the bottom half of the EPS insulation within the trench with close proximity. Prepare by placing the lids adjacent to the bottom (fig. 2.2).

The bottom is joined together using an aluminium fixing joint.

In order to preserve the functionality of the insulation, it is important that the EPS block are tightly connected. If there is space between the insulation blocks, use the provided foam to seal any excessive space.

Where appropriate, i.e. at bends or connection to tees, use the hot wire equipment to adjust the blocks´ length.

Fig. 2.2 EPS insulation

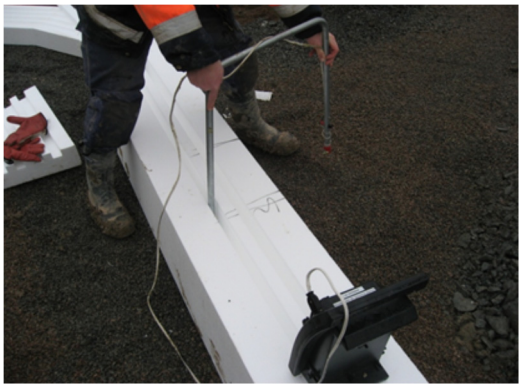

Fig. 2.4 Hot wire cutting

Fig. 2.3 Jointing EPS blocks

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Once the bottom half of the EPS blocks are placed in the trench, fixed with the aluminium fixing joints, place the pipes in the cavity. Press firmly to make sure the pipes are in place.

⚠ *It is imperative to place the correct dimension of the pipes in the corresponding EPS block. If uncertain, please advise the network route plan.*

Where necessary, e.g. laying temperatures below 10°C, the bundled coils should be warmed up in a heated hall or under a heated tarpaulin.

Fig. 2.5 Pipes in EPS blocks

⚠ *Make sure not to use fixing joints after pipes are placed in the blocks. The sharp edges of the joints may cause damage to the pipes.*

Place the top-half of the EPS insulation (fig. 2.6).

The top-half is fixed with a plastic spike in each diagonal end. When mounting bends more plastic spikes can be used (fig 2.7).

Fig. 2.6 Top half of EPS blocks

Excavated material can be used as refilling material. Please make sure that no stones larger than 40mm is mixed into the filling material.

Fig. 2.7 Plastic spikes

MOUNTING OF TEES

For connecting tees specially design EPS blocks are used.

⚠ *Please make sure the correct connection to flow and return respectively.*

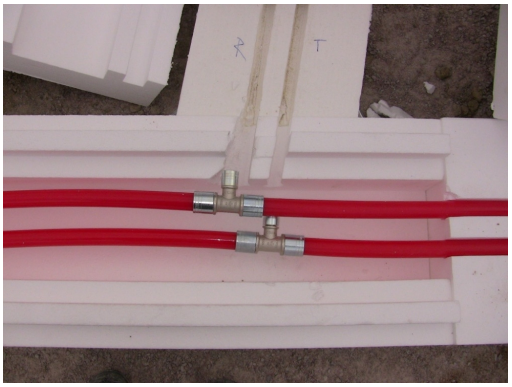

Fig. 2.8 Tees



- Cut the pipe in appropriate length.
- Mount the sleeve, make sure that the inner chamfer of the sleeve is facing towards the cut end of the pipe.
- Expand the end of the pipe with the REHAU expansion pliers.

⚠ *Please make sure to use the corresponding size of tool.*



- Place the coupler in the expanded pipe.
- Remove the expanders from the tool.
- Mount the compression jaws to the tool



- To complete the joint, slide the compression sleeve to the collar of the fitting using the jointing tool.
- Turn the tool 90 degrees and re-do the compression. Make sure the sleeve is closely tight to the coupler.
- The coupler is now ready for the next sleeve.

TECHNICAL DATA CARRIER PIPE

SPECIFICATION	STANDARDS	UNITS	PE-X(A)
Density	ISO 1183	g/m^3	0,94
Average thermal coefficient of linear expansion		/K	$1,5 \times 10^{-4}$
Thermal conductivity, Lamdba value (λ)	ASTM C 1113	W/mK	0,35
Modulus of elasticity E at 20°C	ISO 527	N/mm^2	600
Modulus of elasticity E at 80°C	ISO 527	N/mm^2	200
Surface resistance		Ω	10^{12}
Building material class	DIN 4102		B2
Surface friction coefficient k		mm	0,0007
Oxygen impermeability at 40°C	DIN 4726	$mg/(m^3*d)$	0,16
Oxygen impermeability at 80°C	DIN 4726	$mg/(m^3*d)$	1,8

TECHNICAL DATA INSULATION

SPECIFICATION	STANDARDS	UNITS	EPS S200
CE Approval code	NS/SS/EN 13163		F305433, F311433-1
Thermal conductivity, Lamdba value (λ)	NS/SS 12667 el. NS/	W/mK	0.034
Water absorption, by immersion	NS12087	vol.%	2-3%
Compressive stress, short-term load	NS826	kPa	≥ 200
Compressive stress, long-term load 3 % total deformation 50 yrs	SS/EN1606	kPa	≥ 70
Density		Kg/m^3	30
Euroclass			F
Block length		m	2.40
Max temperature		C	80
BRE Rating	BRE		A+

Less Carbon Footprint