THE 2-IN-1 SOLUTION

duotec® incl. steinwool® insulating shell

- Fire insulation and thermal insulation in one: more efficiency
- Fire insulation test certificates valid throughout Europe
- Compatible with all standard pipes

STEINBACHER

Dämmt besser. Denkt weiter.

PRODUCTS

duotec®

Product description: Mineral wool pipe shell with longitudinal slit on one side, for thermal insulation and fire sealing, coated with grid-reinforced aluminium foil and featuring a self-adhesive overlap

Area of application:
- Fire insulation and thermal insulation for pipes
- Test certificates valid throughout Europe[1)]

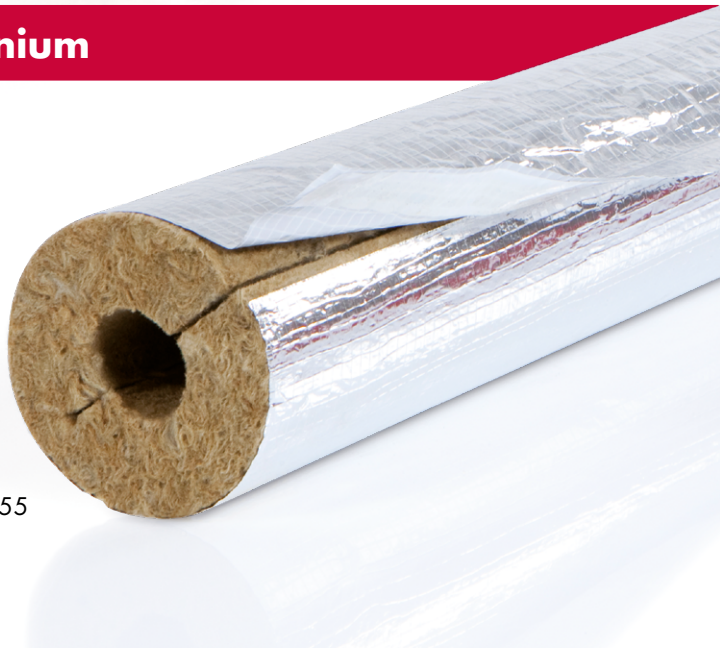
Product properties:
- Heat and sound insulating
- Insulation thicknesses in accordance with the relevant standards and the Building Energy Act (GEG)
- Flame spread can be prevented for up to 120 minutes
- Simple, maintenance-free and durable solution
- Zero clearance can be realized

steinwool® insulating shell aluminium

Product description: Mineral wool insulating shell with surface coating made of grid-reinforced aluminium foil and self-adhesive overlap, slit on one side

Area of application: Heat distribution and domestic hot water systems, piping and ventilation ducts, solar system pipes

Product properties:
- Heat and sound insulating
- Dimensionally stable
- Slit on one side
- Self-adhesive overlap
- Insulation thicknesses in accordance with GEG and ÖN H 5155



Comparison duotec® vs. mineral wool shell

Requirement	duotec®	Mineral wool
Fire behaviour acc. to EN 13501-1	$A2_L$-s1, d0	$A2_L$-s1, d0
Thermal insulation	✓	✓
Insulation thicknesses according to GEG	✓	✓
Fire insulation: abP and ETA available	✓	✗

duotec® + steinwool® insulating shell aluminium

Thermal conductivity acc. to EN ISO 8497		Length	1 metre
Mean temperature +10 °C, with insulation thickness ≤ 40 mm	0.034 W/(m.K)	Form of delivery	in cardboard boxes
Mean temperature +40 °C, with insulation thickness ≤ 40 mm	0.037 W/(m.K)	Temperature range	up to 250 °C
Thermal conductivity acc. to EN ISO 8497		Fire behaviour acc. to EN 13501-1	$A2_L$-s1, d0
Mean temperature +10 °C, with insulation thickness > 40 mm	0.035 W/(m.K)	CE marking	acc. to EN 14303
Mean temperature +40 °C, with insulation thickness > 40 mm	0.038 W/(m.K)	CE	Designation code: MW-EN 14303-T8-ST(+)250-MV1-CL10-pH9.5
Melting point of the wool	> 1000 °C		

[1)] General building authority test certificate (abP): P-MPA-E21-001& European Technical Assessment (ETA): ETA-23/0746

BUILDING CERTIFICATION SYSTEMS DGNB, ÖGNI, AND QNG

DGNB, ÖGNI, and QNG assess the sustainability of buildings holistically over their entire life cycle – based on life cycle data, performance criteria, and product information such as EPDs.

For mineral wool shell products

- Certificates as hard facts in green sustainability communication
- Products that meet these requirements are eligible for federal funding for efficient buildings (BEG)

duotec® fire protection / thermal insulation & steinwool® insulating shell aluminium

System	Materials		Requirements				Compliance
DGNB ÖGNI ENV1.2 "Risks to the local environment"	**43**	Flame retardant construction products (articles)	–	–	CPs < 0.1%*	CPs < 0.1%	✓
			–	–	PBB < 0.1%		
			–	–	PBDE < 0.1%		
			–	–	SVHC ≤ 0.1%, incl. SVHC candidate list		
	45	Biocidal and flame retardant building products (articles): wood preservation, wood-based materials, insulating materials	–	–	Drilled connections ≤ 0.1%		✓
QNG Annex document 313	**12.3**	Insulation materials made of man-made mineral fibres (MMMF)	1272/2008/EC / GefStoffV				✓

CPs: chlorinated paraffins · SCCPs: short-chain CPs · MCCPs: medium chain CPs
LCCPs: long-chain CPs · PBBs: polybrominated biphenyls · PBDEs: polybrominated diphenyl ethers · SVHC: substances of very high concern
* Long-chain chlorinated paraffins are tolerated for highly flame-retardant insulation materials (fire behaviour B and C acc. to EN 13501-1).

As at: 27 September 2024

FIRE INSULATION

YOUR duotec® BENEFITS:

- Fire insulation and thermal insulation in one
- No double storage for fire insulation and section insulation
- Compatible with all standard pipes* (combustible and non-combustible)
- Zero clearance can be realized
- Meets the strict requirements of DGNB, ÖGNI, etc.

Which pipe materials can be insulated?

Non-combustible	Combustible
Steel	PVC
Stainless steel	PP
Cast iron	PE
Copper	Multilayer composite pipes (MLCP)

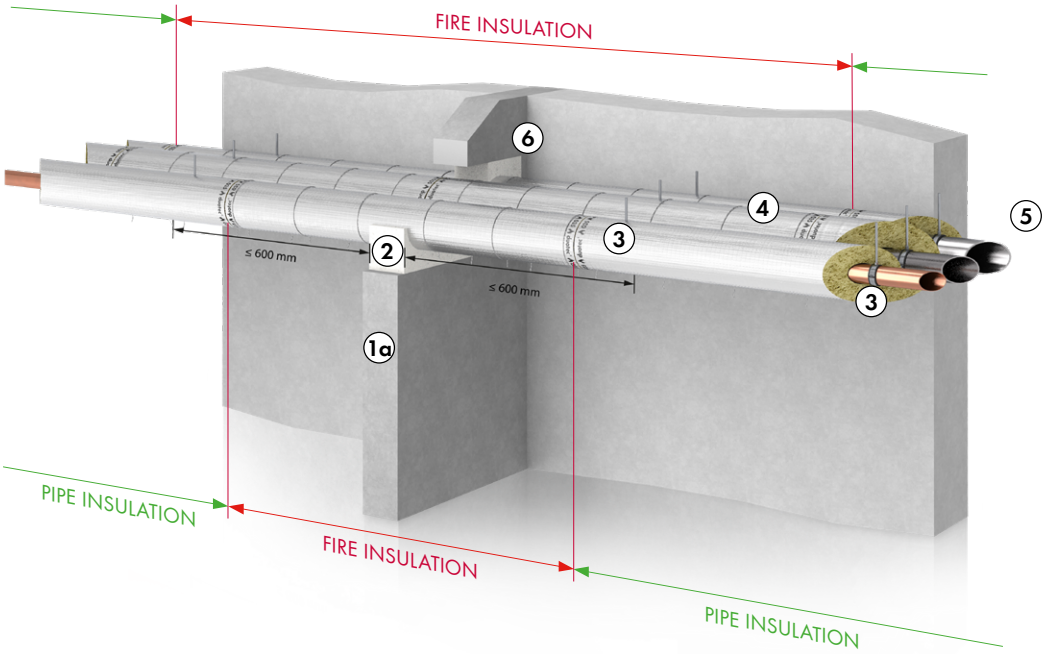
* For a precise definition of the pipe materials, see abP P-MPA-E21-001 and ETA-23/0746

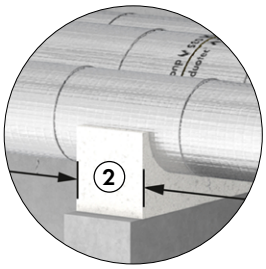
WHICH INSTALLATION SITUATIONS CAN BE REALIZED?

I. Wall

- Tested for installation in solid fire-rated partitions, so-called “hard bulkhead”
- Fire protection penetration up to R120 in solid walls and lightweight partition walls for combustible and non-combustible pipes
- Installation option in solid walls and lightweight partition walls with a minimum thickness of 100 mm and the required fire resistance class F30-F120

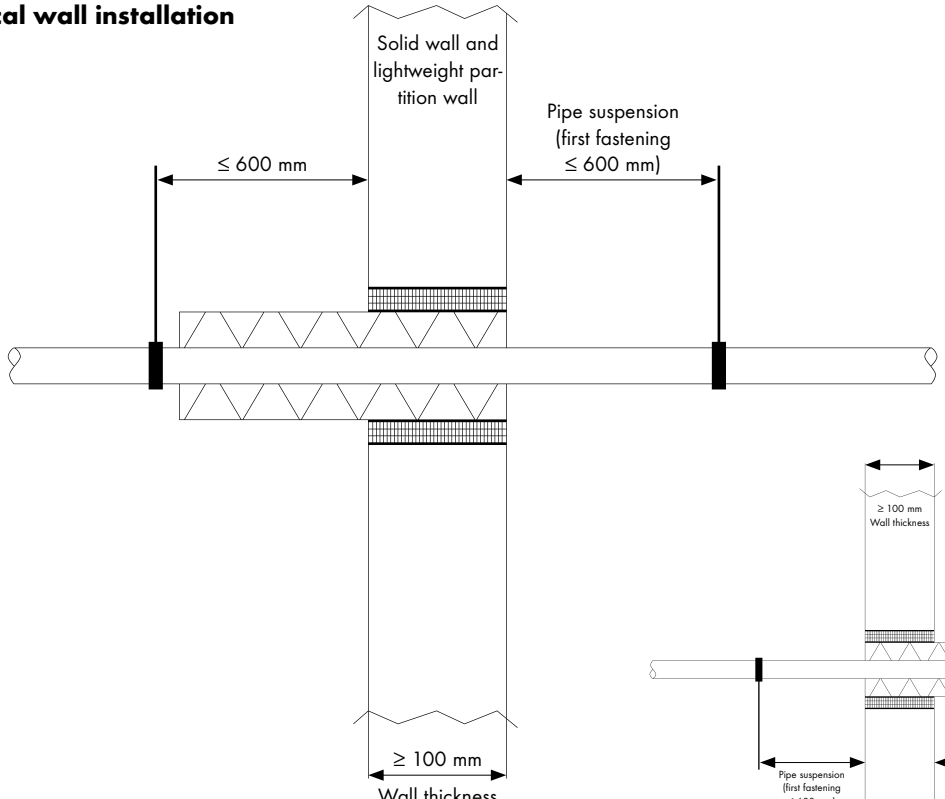
Symmetrical wall installation

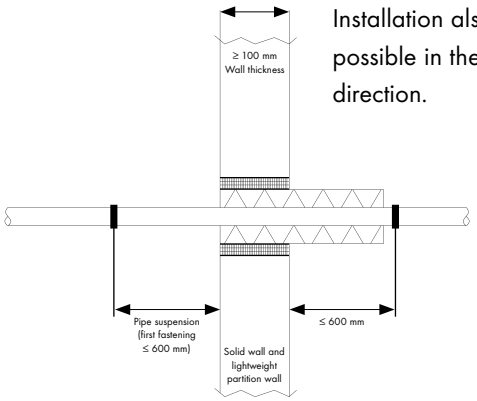




1a. Solid wall (also lightweight partition walls)
1b. Solid ceiling
2. Residual gap (fill) [1]
3. Pipe fastening (first fastening ≤ 600 mm)
4. **duotec®**
5. Pipe
6. Rectangular opening

Asymmetrical wall installation





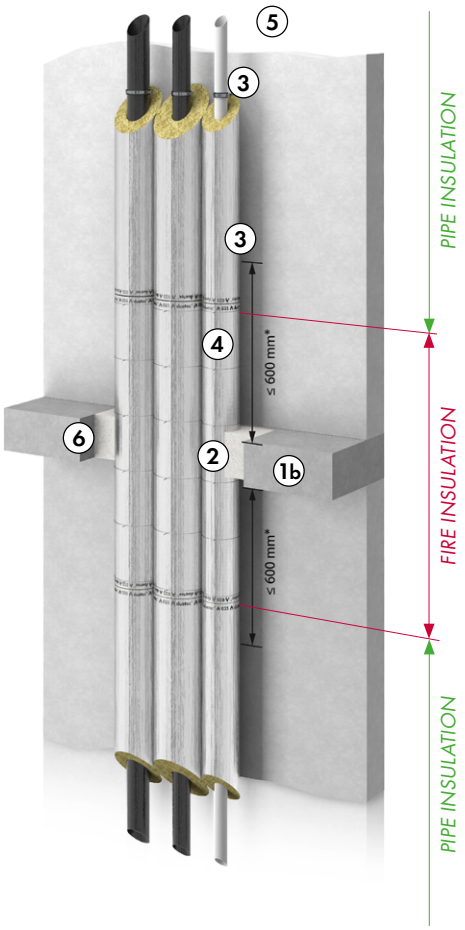
Installation also possible in the other direction.

STEINBACHER

II. Ceiling

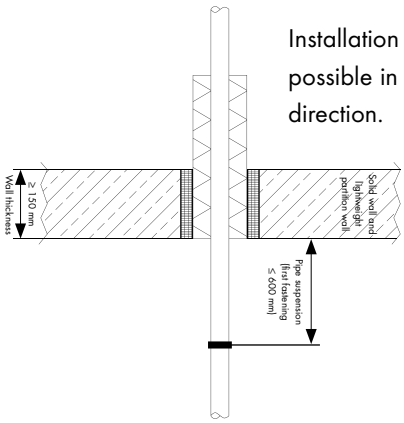
- Tested for installation in so-called “hard bulkhead”
- Fire protection penetration up to R120 in solid ceilings for combustible and non-combustible pipes
- Installation option in solid ceilings with a minimum thickness of 150 mm and the required fire resistance class F30-F120

Symmetrical ceiling installation

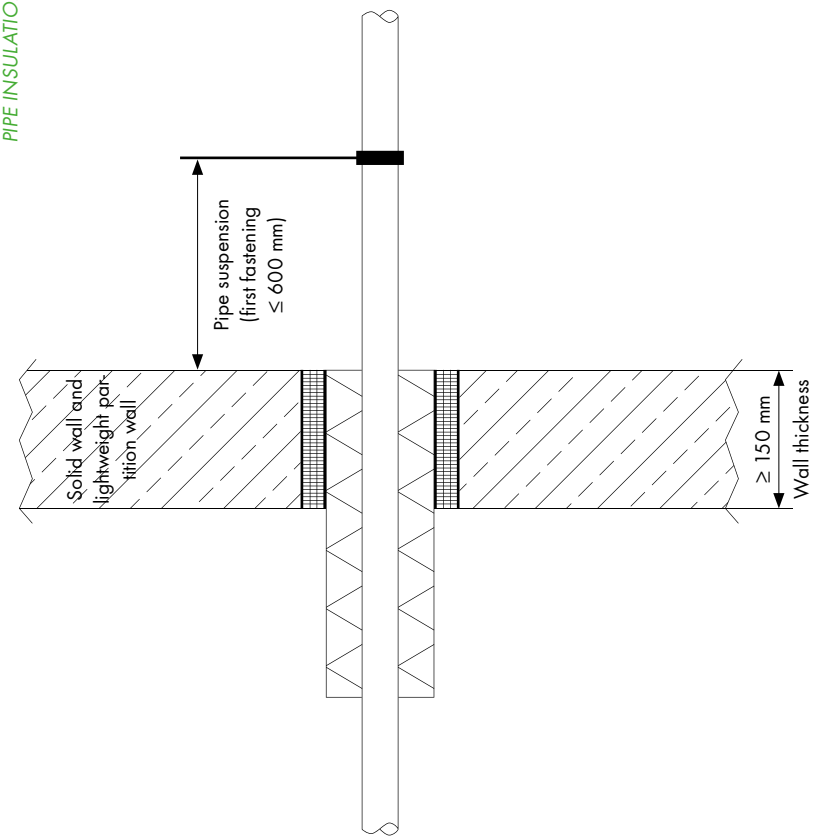


1a. Solid wall (also lightweight partition walls)
1b. Solid ceiling
2. Residual gap (to be filled with approved fire protection material) [1)]
3. Pipe fastening
(first fastening ≤ 600 mm)
4. **duotec®**
5. Pipe
6. Rectangular opening

Asymmetrical ceiling installation



Installation also possible in the other direction.



FIRE RESISTANCE CLASSES

Symmetrical wall installation

Material		Pipe diameter mm	Insulation thickness mm	Length mm	Fire resistance
Metal	Steel, stainless steel, cast iron, copper	≤42	20-100	1000	R 120
		>42-≤54	20-100	2000	R 120
		>54-≤76	20-100	2000	R 90
		>76-≤89	30	2000	R 60
		>76-≤89	40-<100	2000	R 90
		>76-≤89	100	2000	R 120
		>89-≤108	30-100	2000	R 90
		≤42	20-100	Pipe over its entire length	R 120
		≤108	30-100		
Plastic material	PVC	≤63	20	1000	R 90
			30-<100		R 60
			100		≥R 90
	PE		20-100		
	PP		20-70		
			>70-100		
	MLCP*		20-100		

Asymmetrical wall installation

Material		Pipe diameter mm	Insulation thickness mm	Length Insulation, mm	Fire resistance
Metal	Steel, stainless steel, cast iron, copper	≤28	20-100	500 asymmetrical	R 20
Plastic material	PVC[1]	≤32	20	500 asymmetrical	R 90
			>20-100		R 45
	PE[2]		20-100		R 30
	MLCP*	See abP for details for Germany: P-MPA-E-21-001 See ETA for details for the rest of the EU: ETA-23/0746			

* Pipe wall thickness in mm: ≥1.8-≤8.6 | Thickness of the aluminium layer in mm: ≤1.2
Substitute test according to abP, P-MPA-E-21-001, only valid in Germany

[1] Pipe wall thickness ≤3.6 mm

[2] Pipe wall thickness ≤4.4 mm

[3] Valid for Germany: R 30

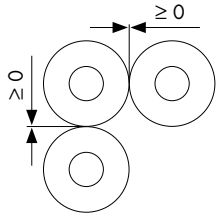
Symmetrical ceiling installation

Material		Pipe diameter mm	Insulation thickness mm	Length mm	Fire resistance
Metal	Steel, stainless steel, cast iron, copper	≤42	20-100	1000	R 120
		>42-≤54	20-100	2000	R 120
		>54-≤76	20		R 120
		>76-≤89	30-80		R 90
		>76-≤89	100		R 60
		>89-≤108	30-80		R 90
		>89-≤108	100		R 60
		≤42	20-100	Pipe over its entire length	R 120
		42-≤108	30-100		
Plastic material	PVC	≤63	20	1000	≥R 90
			30-100		
	PE		20-100		
	PP		20-70		
			>70-100		
	MLCP*		20-100		

Asymmetrical ceiling installation

Material		Pipe diameter mm	Insulation thickness mm	Length Insulation, mm	Fire resistance
Metal	Steel, stainless steel, cast iron, copper	≤15	20-100	500 above	R 120
		≤28	100		
		≤15	20-100	500 below	R 120
		≤28	100		R 30
Plastic material	PVC[1]	≤32	20	500 below	R 120
		≤32	>20-100		R 60
		≤32	20-100	500 above	R 120
	PE[2]	≤32	20	500 below	R 60
		≤32	>20-100		R 45[3]
		≤32	20	500 above	R 60
		≤32	>20-100		R 90
	MLCP*	See abP for details for Germany: P-MPA-E-21-001 See ETA for details for the rest of the EU: ETA-23/0746			

SPACING DURING INSTALLATION



Wall and ceiling

Zero clearance is only possible between identical penetration seals, i.e., two penetration seals made of duotec® mineral wool shells.

Fire resistance classification with zero clearance

Pipe material	Maximum achievable classification Fire resistance duration	
	Wall	Ceiling
Metal pipes	R 60	R 90
Plastic and composite pipes	R 60	R 120

Clearance to other penetration seals or other openings or installations acc. to abP P-MPA-E-21-001

Clearance of the pipe penetration seals to ...	Size of the adjacent openings	Clearance between the openings
Cable or pipe penetration seals of other types	One of the openings > 40 cm x 40 cm	≥ 20 cm
	Both openings ≤ 40 cm x 40 cm	≥ 10 cm
Other openings or fixtures	One of the openings > 20 cm x 20 cm	≥ 20 cm
	Both openings ≤ 20 cm x 20 cm	≥ 10 cm

INSULATION THICKNESSES IN ACC. WITH THE BUILDING ENERGY ACT GEG

Copper pipes		Steel pipes / stainless steel pipes			Minimum thickness of the insulation layer in acc. with the Building Energy Act GEG and use of duotec® and steinwool®	
Nominal diameter in DN	External pipe diameter in mm	Nominal diameter in DN	External pipe diameter in mm	External pipe diameter in inches	50% in mm	100% in mm
–	–	8	13.5	¼	23	23
10	15	–	–	–	23	23
–	–	10	17.2	⅜	22	22
15	18	–	–	–	22	22
–	–	15	21.3	½	22	22
20a	22				22	22
–	–	20	26.9	¾	22	22
25	28	–	–	–	22	34
–	–	25	33.7	1	20	33
32	35	–	–	–	20	33
–	–	32	42.2	1¼	21	40
40	42	–	–	–	21	50
–	–	40	48.3	1½	22	50
50	54	–	–	–	30	60
–	–	50	60.3	2	30	61
–	64	–	–	–	33	70
65	76	–	–	–	40	90
		65	76.1	2½	40	80
80	89	–	–	–	50	100
–	–	80	88.9	3	50	100
100	108	–	–	–	60	–

WHAT DIMENSIONS ARE POSSIBLE WITH DUOTEC®?

Inner diameter of carrier pipe:

For thermal insulation:

- From 15 mm to 114 mm outer diameter, other dimensions on request

For fire insulation:

- Non-combustible pipe materials: from 12 mm to 108 mm outer diameter
- Combustible pipe materials: from 16 mm to 63 mm

Insulation thicknesses:

- Can be realized from 20 mm to 100 mm

INSTALLATION

Regulations for the installation of duotec® and steinwool® pipe insulation shells

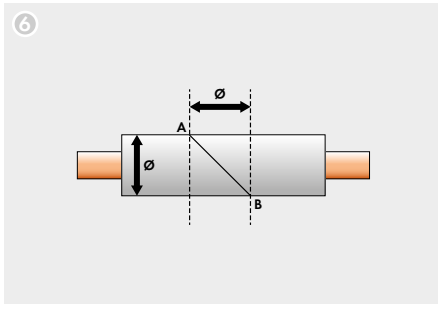
The **pipe shell** with aluminium facing is slit on one side and can be opened up to wrap around the pipe to be insulated.

Before closing, the . **pipe shell** must be pressed together to ensure a precise fit. **Ensure that all adhesive areas are free of dust, grease and dry before applying the adhesive tape!**

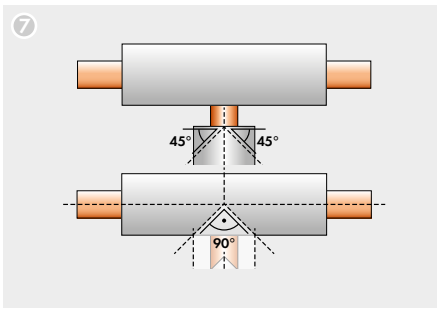
Remove the protective film from the factory-applied self-adhesive overlap and seal the longitudinal slit.

The bonding should be as crease-free as possible. The bonded overlap strip must be pressed on smoothly and firmly with an insulating spatula.

To minimize heat loss when installing horizontally, align the longitudinal seam so that it is at the bottom of the pipe! [1]
The duotec® shell must be adapted to the outer diameter of the carrier pipe so that the shell fits snugly against the pipe in the fire insulation area.

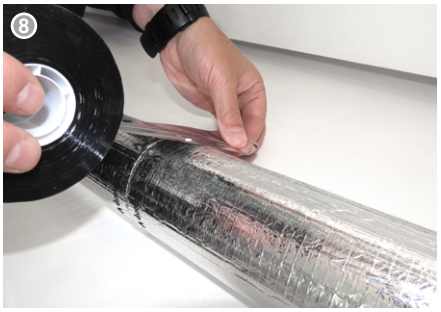


For **90° bends**, cut the shell at a 45° angle as described below – ensuring that the longitudinal seam is positioned at the top. Mark two parallel lines in the middle of the shell, spaced according to the outer diameter of the insulation. Then cut the pipe shell diagonally from point A to point B.

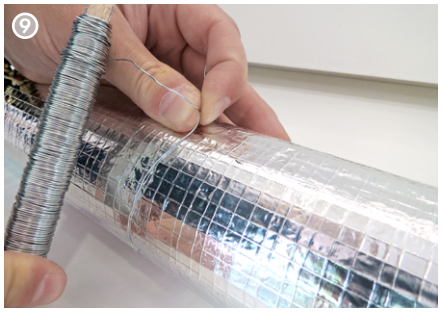


In the case of **90° T-joints**, the pipe insulation for the branch line should be cut to a point with two 45° angled cuts, starting from the centreline.

Then cut out a 90° wedge from the middle of the pipe shell of the main pipe.
The width of the cut-out section should correspond to the outer diameter of the pipe shell.



Cross joints of the shells must be laid without joints and additionally secured with suitable adhesive tape from the manufacturer. Adhesive tapes should generally be pressed on smoothly and firmly with an insulating spatula.



The pipe shell must additionally be secured with soft-galvanized binding wire. duotec: minimum 6 windings per metre; stone wool: 5 windings per metre.

[1] This prevents tensile stresses from the shell's own weight from acting on the adhesive joints. Tensile stresses on the overlap bonding must generally be prevented!

Expert tips:

- Prolonged exposure to sunlight must be strictly avoided for foil-coated shells.
- For pipes with low medium temperatures, the pipe shell must be additionally fitted with a completely vapour-tight outer jacket.
- All surfaces must be dry, dust-free, and free of grease.
- **During the cold season, store the shells in a warm place before installation (to prevent surface condensation).**
- Adhesive tapes must always be pressed on smoothly and firmly using an insulating spatula.
- Always begin installation with pipe elbows and T-joints.
- Always seal joints with colour-matching adhesive tape to ensure a tight fit.
- The processing temperature for the self-adhesive shells and the corresponding adhesive tapes is between +10 °C and +35 °C.
- **Always apply adhesive tapes with an overlap!**
- duotec® pipe shells are not suitable for outdoor use.

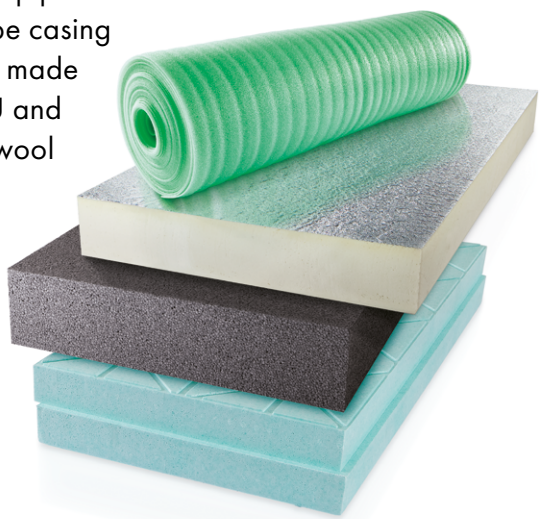
STEINBACHER

OUR COMPANY STEINBACHER DÄMMSTOFFE

International family-run business with **production facilities in Austria, Germany and Poland**, employing a total of 420 personnel.

EPS, PU and PE solutions for construction work

Technical pipework insulation using pipe casing products made of PE, PU and mineral wool



Our promise

"We offer high-quality products that protect the climate with the very best level of customer service." **To achieve this, we have invested €45 million over the last five years.**

Significant production output:

48 million metres of pipe insulation materials

HQ in Tyrol

360° insulation expertise since 1962

Construction, building systems and advice/services

Solar power

Our solar power unit produces 3.2 million kWh annually – equal to a saving of 736 tonnes of CO_2 equivalents.

Our philosophy

"The most sustainable energy is the one you never have to use."

PACKAGING AND ACCESSORIES

PACKAGING – duotec®*

- High-quality cardboard box
- Angle-cutting aid for easy trimming of standard bends
- Removal opening
- Instructions for use and installation

*steinwool® is supplied in a neutral cardboard box.

WE'RE HAPPY TO ADVISE YOU!

Accessories

steinonorm® Binding Wire

Soft-galvanized binding wire, wound on wooden sticks

Width	0.7 mm

steinonorm® Insulation Putty

Used for applying adhesive tapes, enabling firm and even pressing

steinonorm® Aluminium Adhesive Tape Type 930-SE

Pure aluminium adhesive tape

Width	50, 75, 100 mm
Length	100 linear metres per roll

steinonorm® Aluminium Adhesive Tape with Glass Mesh

Aluminium adhesive tape with LDPE coating and 5 × 5 mm glass fibre reinforcement

Width	50 mm
Length	50 linear metres per roll

Fire protection label available for download at: www.steinbacher.at/duotec

For more information, images, and contact persons, visit:
www.steinbacher.at/duotec

STEINBACHER
Dämmt besser. Denkt weiter.

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