

Plastic tubing PUN-H, PUN-H-DUO

FESTO



Characteristics

At a glance

Flexible and hydrolysis-resistant tubing with standard O.D. in various colours in single or double tubing design

- Polyurethane
- Highly resistant to microbes and hydrolysis
- Food grade see www.festo.com/certificates/PUN_H
- Suitable for energy chains
- Also available as DUO plastic tubing
- Operating medium: compressed air, vacuum, water
- Very easy installation thanks to “one-click” principle

Recommended tubing/fitting combinations (further information at www.festo.com/catalogue/pun-h → Support/Downloads):

- PUN-H/PUN-H-DUO with QS fitting (for tube size 2 to 12; 16 and 22)
- PUN-H/PUN-H-DUO with NPQH fitting (for tube size 4 to 14)
- PUN-H with NPKA fitting (for tube size 6) → cleanroom-compatible combination

Additional documents

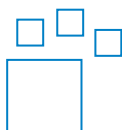
Link [pun-h](#)



The additional document OD-TUBING-ADD contains further information on tubing/fitting combinations, assembly instructions and measuring procedures.

Ordering data - modular system

Link [pun-h](#)



Configurable product

This product and all its product options can be ordered online via the configurator.

Engineering tools

Link [engineering tools](#)



Save time with engineering tools: Smart engineering for the optimal solution. Our goal is to increase your productivity. Our engineering tools play an integral part in achieving this goal. They help you size your system correctly, tap into unimagined productivity reserves and generate additional productivity along the entire value chain. In every phase of your project, from the initial contact to the modernisation of your machine, you will come across a number of different tools that will be of use to you.

- Flow rate calculation: Determine the nominal flow rate by entering parameters such as input pressure, output pressure, tube length and inside diameter.
- Media resistance: Evaluate the resistance of different material types and tubing from Festo to different chemicals and media.

Diagrams

Link [pun-h](#)



The diagrams shown in this document are also available online. These can be used to display precise values.

Alternative material characteristic

[H] Hydrolysis-resistant

Hydrolysis-resistant and suitable for water applications.

Pipe/tubing O.D. x wall thickness

For standard O.D. tubing, the outside diameter of the tube and the wall thickness are given as the tube size.

Characteristics

Tubing type

[] Standard

Consists of a single tube

[DUO] DUO pneumatic tubing

Two pieces of tubing are welded together to form a pair. During installation, the tubing pair is cut to the required length at both ends.

Packaging unit [m]

- Standard: 50 m
- In some cases, available in longer lengths on a reel.

Type code

001	Series	
PUN	Plastic tubing, polyurethane	

002	Alternative material characteristic	
H	Hydrolysis-resistant	

003	Pipe/tubing O.D. x wall thickness	
2x0,4	2x0.4 mm	
3x0,5	3x0.5 mm	
4x0,75	4x0.75 mm	
6x1	6x1 mm	
8x1,25	8x1.25 mm	
10x1,5	10x1.5 mm	
12x2	12x2 mm	
14x2	14x2 mm	
16x2,5	16x2.5 mm	

004	Tubing type	
	Standard	
DUO	DUO pneumatic tubing	

005	Colour	
BL	Blue	
BS	Blue/black	
GE	Yellow	
GN	Green	
NT	Natural	
RT	Red	
SI	Silver	
SW	Black	
TBL	Translucent blue	
TGE	Translucent yellow	
TGN	Translucent green	
TRT	Translucent red	
TSW	Translucent black	

006	Packaging unit [m]	
	Standard	
25	25 m	
100	100 m	
200	200 m	
300	300 m	
400	400 m	
500	500 m	

Datasheet

Operating and environmental conditions PUN-H with O.D. 2 mm

Outside diameter	2 mm
Inside diameter	1.2 mm
Pneumatic connection	For push-in connector O.D. 2 mm
Flow-relevant bending radius	8 mm
Min. bending radius	5 mm
Temperature-dependent operating pressure	-0.095 ... 1 MPa
Temperature-dependent operating pressure	-0.95 ... 10 bar
Temperature-dependent operating pressure	-13.775 ... 145 psi
Operating pressure complete temperature range	-0.095 ... 0.6 MPa
Operating pressure complete temperature range	-0.95 ... 6 bar
Operating pressure complete temperature range	-13.775 ... 87 psi
Operating medium	Compressed air to ISO 8573-1:2010 [7:-]
Ambient temperature	-35 ... 60°C
Tubing characteristics	Suitable for energy chains

Operating and environmental conditions PUN-H with O.D. 3 ... 16 mm

Outside diameter	3 mm	4 mm	6 mm	8 mm	10 mm	12 mm	14 mm	16 mm
Inside diameter	2.1 mm	2.6 mm	4 mm	5.7 mm	7 mm	8 mm	9.8 mm	11 mm
Pneumatic connection	For push-in connector outside diameter of 3 mm	For push-in connector O.D. 4 mm For push-in connector outside diameter of 5/32" For barbed fitting I.D. 3 mm with union nut	For push-in connector O.D. 6 mm For barbed fitting I.D. 4 mm with union nut	For push-in connector O.D. 8 mm For push-in connector outside diameter of 5/16" For barbed fitting inside diameter of 6 mm with union nut	For push-in connector O.D. 10 mm	For push-in connector outside diameter of 12 mm	For push-in connector outer diameter of 14 mm	For push-in connector O.D. 16 mm
Flow-relevant bending radius	12 mm	16 mm	26 mm	37 mm	52 mm	62 mm	78 mm	88 mm
Min. bending radius	6 mm	8 mm	10 mm	21 mm	28 mm	33 mm	38 mm	
Temperature-dependent operating pressure	-0.095 ... 1 MPa							
Temperature-dependent operating pressure	-0.95 ... 10 bar							
Temperature-dependent operating pressure	-13.775 ... 145 psi							
Operating pressure complete temperature range	-0.095 ... 0.6 MPa							
Operating pressure complete temperature range	-0.95 ... 6 bar							
Operating pressure complete temperature range	-13.775 ... 87 psi							
Note on operating pressure	Water: temperature-dependent operating pressure, see diagram, max. 0.3 MPa at 0 - 60°C							
Operating medium	Compressed air to ISO 8573-1:2010 [7:-] Water (liquid, ice-free)							
Suitable for use with food ¹⁾	See supplementary material information							
Ambient temperature	-35 ... 60°C							
Fire test material	UL94 HB							
Approval	German Technical Control Board (TÜV)							
Certificate issuing authority	B 013277 0527 00							
Tubing characteristics	Suitable for energy chains							

1) More information www.festo.com/catalogue/pun-h → Support/Downloads.

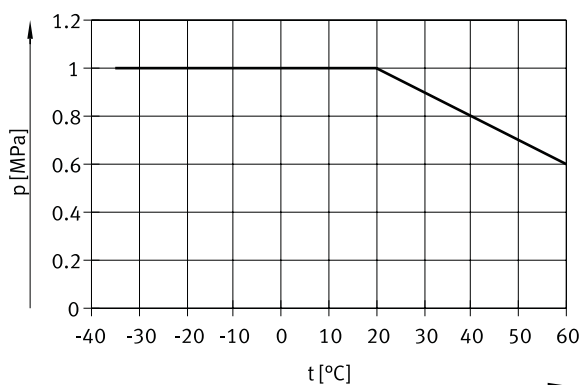
Datasheet

Operating and environmental conditions – PUN-H-DUO

Outside diameter	4 mm	6 mm	8 mm	10 mm
Inside diameter	2.6 mm	4 mm	5.7 mm	7 mm
Pneumatic connection	For push-in connector O.D. 4 mm For push-in connector outside diameter of 5/32" For barbed fitting I.D. 3 mm with union nut	For push-in connector O.D. 6 mm For barbed fitting I.D. 4 mm with union nut	For push-in connector O.D. 8 mm For push-in connector outside diameter of 5/16" For barbed fitting inside diameter of 6 mm with union nut	For push-in connector O.D. 10 mm
Flow-relevant bending radius	16 mm	26 mm	37 mm	52 mm
Min. bending radius	8 mm	10 mm	21 mm	28 mm
Temperature-dependent operating pressure	-0.095 ... 1 MPa			
Temperature-dependent operating pressure	-0.95 ... 10 bar			
Temperature-dependent operating pressure	-13.775 ... 145 psi			
Operating pressure complete temperature range	-0.095 ... 0.6 MPa			
Operating pressure complete temperature range	-0.95 ... 6 bar			
Operating pressure complete temperature range	-13.775 ... 87 psi			
Note on operating pressure	Water: temperature-dependent operating pressure, see diagram, max. 0.3 MPa at 0 - 60°C			
Operating medium	Compressed air to ISO 8573-1:2010 [7:::] Water (liquid, ice-free)			
Suitable for use with food ¹⁾	See supplementary material information			
Ambient temperature	-35 ... 60°C			
Fire test material	UL94 HB			
Approval	German Technical Control Board (TÜV)			
Certificate issuing authority	B 013277 0527 00			
Tubing characteristics	Suitable for energy chains			

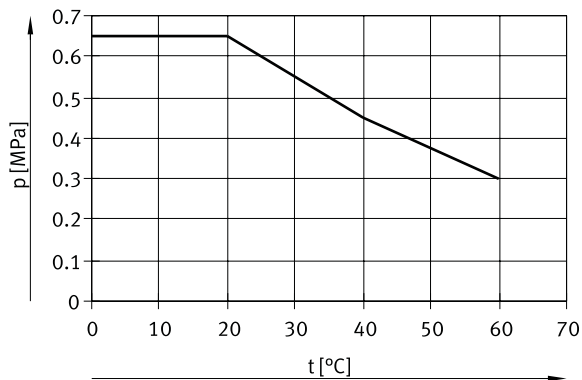
1) More information www.festo.com/catalogue/pun-h → Support/Downloads.

Operating pressure p as a function of temperature t



Datasheet

Operating pressure p as a function of temperature t (medium: water)



Deviating maximum operating pressures apply to the medium water, with a safety factor of $s=4$.

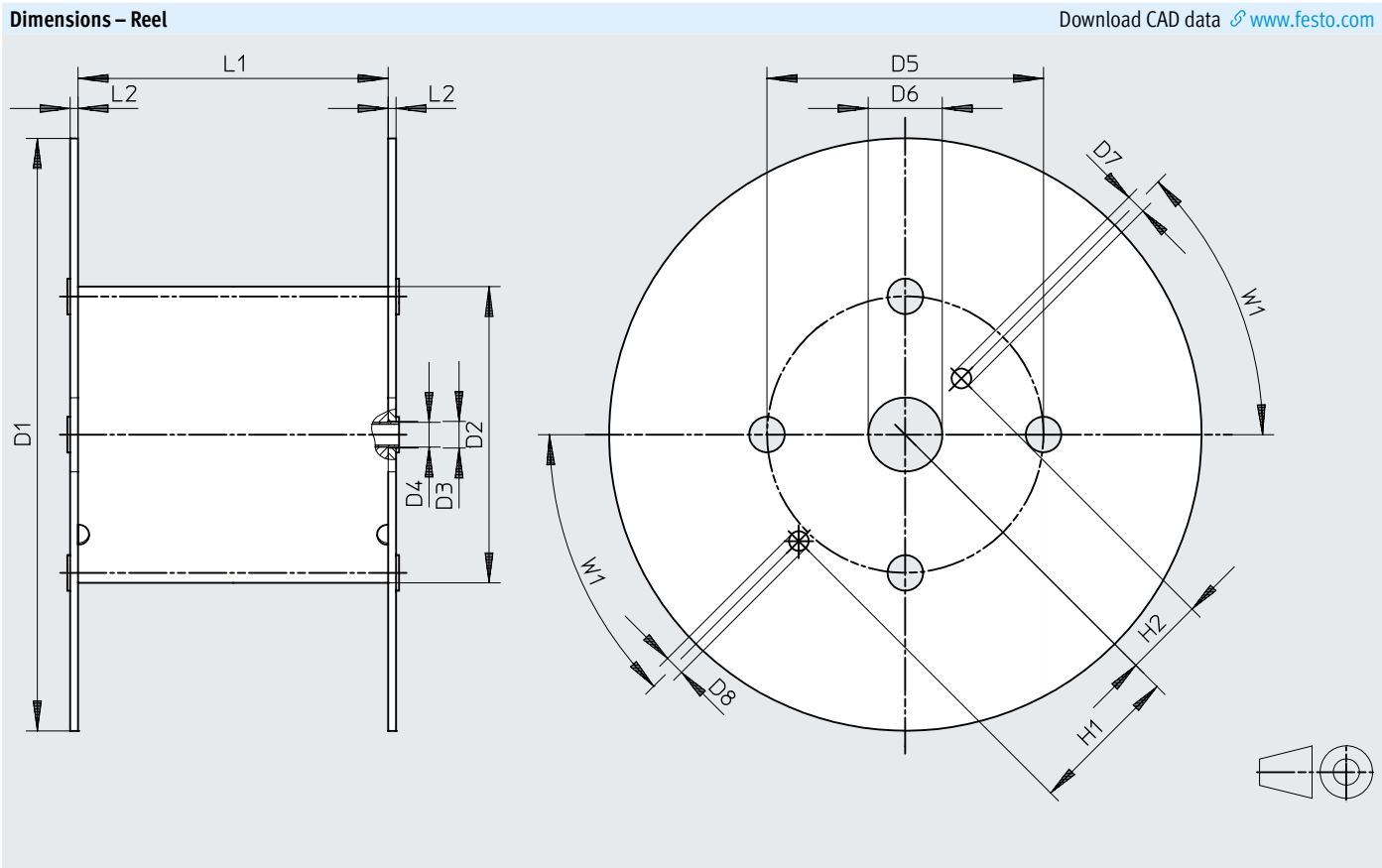
Materials

Shore hardness	D 52 +/- 3
Material tubing	TPE-U(PU)
Note on materials	RoHS-compliant
LABS (PWIS) conformity ¹⁾	VDMA24364-B2-L
Suitability for the production of Li-ion batteries ²⁾	Suitable for battery production with reduced Cu/Zn/Ni values (F1a)
Instructions on use	TPE-U Ether based

1) Applies to PUN-H with O.D. 3 ... 16 mm and PUN-H-DUO

2) Applies to PUN-H with O.D. 3 ... 16 mm and PUN-H-DUO

Dimensions



	D1 Ø	D2 Ø	D3 Ø	D4 Ø	D5 Ø	D6 Ø	D7 Ø	D8 Ø	H1	H2	L1	L2	W1
PUN-H-3x0,5-...-500	545	246	21	20	216	75	20	20	152,5	80,5	128	8	45°
PUN-H-4x0,75-...-500	545	246	21	20	216	75	20	20	152,5	80,5	128	8	45°
PUN-H-6x1-...-500	545	246	21	20	216	75	20	20	152,5	80,5	128	8	45°
PUN-H-8x1,25-...-400	545	310	21	20	280	75	20	20	152,5	80,5	254	8	45°
PUN-H-10x1,5-...-300	600	310	21	20	280	75	20	20	152,5	80,5	254	8	45°
PUN-H-12x2-...-200	600	310	21	20	280	75	20	20	152,5	80,5	254	8	45°
PUN-H-16x2,5-...-100	545	310	21	20	280	75	20	20	152,5	80,5	254	8	45°

Ordering data

Ordering data PUN-H							
	Outside diameter	Packaging unit [m] ¹⁾	Product weight according to length	Colour	Part no.	Type	
	2 mm	Standard	0.002 kg/m	Natural	133038	PUN-H-2X0,4-NT	
				Red	133040	PUN-H-2X0,4-RT	
				Black	133039	PUN-H-2X0,4-SW	
	3 mm		0.004 kg/m	Blue	197382	PUN-H-3X0,5-BL	
				Yellow	558298	PUN-H-3X0,5-GE	
				Green	558291	PUN-H-3X0,5-GN	
				Natural	197375	PUN-H-3X0,5-NT	
				Red	558284	PUN-H-3X0,5-RT	
				Black	197389	PUN-H-3X0,5-SW	
				Silver	558277	PUN-H-3X0,5-SI	
		Blue		558256	PUN-H-3X0,5-BL-500		
		Natural		558263	PUN-H-3X0,5-NT-500		
		Black		558249	PUN-H-3X0,5-SW-500		
		Silver	558270	PUN-H-3X0,5-SI-500			
		500 m	Blue	558256	PUN-H-3X0,5-BL-500		
			Natural	558263	PUN-H-3X0,5-NT-500		
			Black	558249	PUN-H-3X0,5-SW-500		
	Silver		558270	PUN-H-3X0,5-SI-500			
	4 mm		Standard	0.009 kg/m	Blue	197383	PUN-H-4X0,75-BL
					Yellow	558299	PUN-H-4X0,75-GE
					Green	558292	PUN-H-4X0,75-GN
					Natural	197376	PUN-H-4X0,75-NT
					Red	558285	PUN-H-4X0,75-RT
					Black	197390	PUN-H-4X0,75-SW
					Silver	558278	PUN-H-4X0,75-SI
					Translucent blue	8048671	PUN-H-4X0,75-TBL
					Translucent yellow	8048679	PUN-H-4X0,75-TGE
					Translucent green	8048677	PUN-H-4X0,75-TGN
		Translucent red	8048675		PUN-H-4X0,75-TRT		
		Translucent black	8048673		PUN-H-4X0,75-TSW		
		25 m	Blue		8205512	PUN-H-4X0,75-BL-25	
			Red		8204445	PUN-H-4X0,75-RT-25	
			Black		8205515	PUN-H-4X0,75-SW-25	
			Translucent blue		8205518	PUN-H-4X0,75-TBL-25	
			500 m		Blue	558257	PUN-H-4X0,75-BL-500
		Natural			558264	PUN-H-4X0,75-NT-500	
		Black			558250	PUN-H-4X0,75-SW-500	
		Silver			558271	PUN-H-4X0,75-SI-500	
		Translucent blue			8048672	PUN-H-4X0,75-TBL-500	
		Translucent yellow			8048680	PUN-H-4X0,75-TGE-500	
		Translucent green			8048678	PUN-H-4X0,75-TGN-500	
		Translucent red			8048676	PUN-H-4X0,75-TRT-500	
		Translucent black			8048674	PUN-H-4X0,75-TSW-500	
		6 mm		Standard	0.018 kg/m	Blue	197384
			Yellow			558300	PUN-H-6X1-GE
			Green			558293	PUN-H-6X1-GN
			Natural			197377	PUN-H-6X1-NT
			Red			558286	PUN-H-6X1-RT
Black	197391		PUN-H-6X1-SW				
Silver	558279		PUN-H-6X1-SI				
Translucent blue	8048681		PUN-H-6X1-TBL				
Translucent yellow	8048689		PUN-H-6X1-TGE				

Ordering data

Ordering data PUN-H									
	Outside diameter	Packaging unit [m] ¹⁾	Product weight according to length	Colour	Part no.	Type			
	6 mm	Standard	0.018 kg/m	Translucent green	8048687	PUN-H-6X1-TGN			
				Translucent red	8048685	PUN-H-6X1-TRT			
				Translucent black	8048683	PUN-H-6X1-TSW			
		25 m		Blue	8205513	PUN-H-6X1-BL-25			
				Red	8204446	PUN-H-6X1-RT-25			
				Black	8205516	PUN-H-6X1-SW-25			
				Translucent blue	8205519	PUN-H-6X1-TBL-25			
		500 m		Blue	558258	PUN-H-6X1-BL-500			
				Natural	558265	PUN-H-6X1-NT-500			
				Black	558251	PUN-H-6X1-SW-500			
				Silver	558272	PUN-H-6X1-SI-500			
				Translucent blue	8048682	PUN-H-6X1-TBL-500			
				Translucent yellow	8048690	PUN-H-6X1-TGE-500			
				Translucent green	8048688	PUN-H-6X1-TGN-500			
				Translucent red	8048686	PUN-H-6X1-TRT-500			
				Translucent black	8048684	PUN-H-6X1-TSW-500			
	8 mm	Standard	0.029 kg/m	Blue	197385	PUN-H-8X1,25-BL			
				Yellow	558301	PUN-H-8X1,25-GE			
				Green	558294	PUN-H-8X1,25-GN			
				Natural	197378	PUN-H-8X1,25-NT			
				Red	558287	PUN-H-8X1,25-RT			
				Black	197392	PUN-H-8X1,25-SW			
				Silver	558280	PUN-H-8X1,25-SI			
				Translucent blue	8048691	PUN-H-8X1,25-TBL			
				Translucent yellow	8048699	PUN-H-8X1,25-TGE			
				Translucent green	8048697	PUN-H-8X1,25-TGN			
				Translucent red	8048695	PUN-H-8X1,25-TRT			
				Translucent black	8048693	PUN-H-8X1,25-TSW			
		25 m		Blue	8205514	PUN-H-8X1,25-BL-25			
				Red	8204447	PUN-H-8X1,25-RT-25			
				Black	8205517	PUN-H-8X1,25-SW-25			
				Translucent blue	8205520	PUN-H-8X1,25-TBL-25			
		400 m		Blue	558259	PUN-H-8X1,25-BL-400			
				Natural	558266	PUN-H-8X1,25-NT-400			
				Black	558252	PUN-H-8X1,25-SW-400			
				Silver	558273	PUN-H-8X1,25-SI-400			
				Translucent blue	8048692	PUN-H-8X1,25-TBL-400			
				Translucent yellow	8048700	PUN-H-8X1,25-TGE-400			
				Translucent green	8048698	PUN-H-8X1,25-TGN-400			
				Translucent red	8048696	PUN-H-8X1,25-TRT-400			
				Translucent black	8048694	PUN-H-8X1,25-TSW-400			
				10 mm	Standard	0.046 kg/m	Blue	197386	PUN-H-10X1,5-BL
							Yellow	558302	PUN-H-10X1,5-GE
							Green	558295	PUN-H-10X1,5-GN
							Natural	197379	PUN-H-10X1,5-NT
							Red	558288	PUN-H-10X1,5-RT

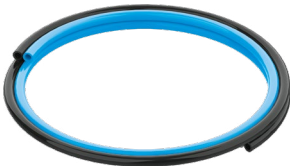
Ordering data

Ordering data PUN-H								
	Outside diameter	Packaging unit [m] ¹⁾	Product weight according to length	Colour	Part no.	Type		
	10 mm	Standard	0.046 kg/m	Black	197393	PUN-H-10X1,5-SW		
				Silver	558281	PUN-H-10X1,5-SI		
				Translucent blue	8048701	PUN-H-10X1,5-TBL		
				Translucent yellow	8048709	PUN-H-10X1,5-TGE		
				Translucent green	8048707	PUN-H-10X1,5-TGN		
				Translucent red	8048705	PUN-H-10X1,5-TRT		
				Translucent black	8048703	PUN-H-10X1,5-TSW		
		25 m		Blue	8204441	PUN-H-10X1,5-BL-25		
				Red	8204448	PUN-H-10X1,5-RT-25		
				Black	8204443	PUN-H-10X1,5-SW-25		
				Translucent blue	8205521	PUN-H-10X1,5-TBL-25		
				Blue	558260	PUN-H-10X1,5-BL-300		
				Natural	558267	PUN-H-10X1,5-NT-300		
				Black	558253	PUN-H-10X1,5-SW-300		
		Silver		558274	PUN-H-10X1,5-SI-300			
		Translucent blue		8048702	PUN-H-10X1,5-TBL-300			
		Translucent yellow		8048710	PUN-H-10X1,5-TGE-300			
		Translucent green		8048708	PUN-H-10X1,5-TGN-300			
		Translucent red		8048706	PUN-H-10X1,5-TRT-300			
		Translucent black		8048704	PUN-H-10X1,5-TSW-300			
		12 mm		Standard	0.073 kg/m	Blue	197387	PUN-H-12X2-BL
						Yellow	558303	PUN-H-12X2-GE
						Green	558296	PUN-H-12X2-GN
						Natural	197380	PUN-H-12X2-NT
	Red		558289			PUN-H-12X2-RT		
	Black		197394			PUN-H-12X2-SW		
	Silver		558282			PUN-H-12X2-SI		
	Translucent blue		8048711			PUN-H-12X2-TBL		
	Translucent yellow		8048719			PUN-H-12X2-TGE		
	Translucent green		8048717			PUN-H-12X2-TGN		
	Translucent red		8048715			PUN-H-12X2-TRT		
	Translucent black		8048713			PUN-H-12X2-TSW		
	25 m		Blue	8204442	PUN-H-12X2-BL-25			
			Red	8204449	PUN-H-12X2-RT-25			
			Black	8204444	PUN-H-12X2-SW-25			
			Translucent blue	8205522	PUN-H-12X2-TBL-25			
200 m		Blue	558261	PUN-H-12X2-BL-200				
		Natural	558268	PUN-H-12X2-NT-200				
		Black	558254	PUN-H-12X2-SW-200				
		Silver	558275	PUN-H-12X2-SI-200				
		Translucent blue	8048712	PUN-H-12X2-TBL-200				
		Translucent yellow	8048720	PUN-H-12X2-TGE-200				
		Translucent green	8048718	PUN-H-12X2-TGN-200				
		Translucent red	8048716	PUN-H-12X2-TRT-200				
Translucent black	8048714	PUN-H-12X2-TSW-200						

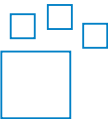
Ordering data

Ordering data PUN-H						
	Outside diameter	Packaging unit [m] ¹⁾	Product weight according to length	Colour	Part no.	Type
	14 mm	Standard	0.091 kg/m	Blue	570386	PUN-H-14X2-BL
				Natural	570388	PUN-H-14X2-NT
				Black	570387	PUN-H-14X2-SW
	16 mm		0.123 kg/m	Blue	197388	PUN-H-16X2,5-BL
				Yellow	558304	PUN-H-16X2,5-GE
				Green	558297	PUN-H-16X2,5-GN
				Natural	197381	PUN-H-16X2,5-NT
				Red	558290	PUN-H-16X2,5-RT
				Black	197395	PUN-H-16X2,5-SW
		Silver		558283	PUN-H-16X2,5-SI	
		100 m		Blue	558262	PUN-H-16X2,5-BL-100
			Natural	558269	PUN-H-16X2,5-NT-100	
			Black	558255	PUN-H-16X2,5-SW-100	
			Silver	558276	PUN-H-16X2,5-SI-100	

1) Standard: 50 m

Ordering data PUN-H-DUO						
	Outside diameter	Packaging unit [m] ¹⁾	Product weight according to length	Colour	Part no.	Type
	4 mm	Standard	0.017 kg/m	Blue/black	197396	PUN-H-4X0,75-DUO
	6 mm		0.037 kg/m		197397	PUN-H-6X1-DUO
	8 mm		0.057 kg/m		197398	PUN-H-8X1,25-DUO
	10 mm		0.093 kg/m		197399	PUN-H-10X1,5-DUO

1) Standard: 50 m

Ordering data – Modular product system			
	Short type code	Part no.	Type
	PUN, PUN-CM, PUN-H, PUN-V0, PUN-V0-C	553573	PUN