


Plastic tubing, standard O.D., NPT

**FESTO**



Product range overview

Version	Type	O.D. [inch]	Colour									Operating medium		
			Silver	Blue	Black	Yellow	Green	Red	Brown	White	Natural	Com-pressed air	Vacuum	Water
	<b>PEN</b> Polyethylene	(5/32) <sup>1)</sup> , 3/16, 1/4, 5/16, 3/8, 1/2, 5/8	(■) <sup>1)</sup>	■	■	(■) <sup>1)</sup>	(■) <sup>1)</sup>	(■) <sup>1)</sup>	(■) <sup>1)</sup>	(■) <sup>1)</sup>	(■) <sup>1)</sup>	■	■	■
	<b>PLN</b> Polyethylene	(5/32) <sup>1)</sup> , 3/16, 1/4, 5/16, 3/8, (1/2) <sup>1)</sup> , 5/8	(■) <sup>1)</sup>	■	■	(■) <sup>1)</sup>	(■) <sup>1)</sup>	(■) <sup>1)</sup>	(■) <sup>1)</sup>	(■) <sup>1)</sup>	■	■	■	-
	<b>PUN-H</b> Polyurethane	1/8, 5/32, 3/16, 1/4, 5/16, 3/8, 1/2, 5/8	■	■	■	■	■	■	■	■	■	■	■	■

1) Please note the information below.



**Note**

Product options in brackets can only be ordered using the modular product system.

Please note the minimum order quantity of 10000 ft.

There is a modular product system for plastic tubing:

- PEN → 8
- PLN → 11
- PUN → 16

## Product range overview

Type	Food-safe	Halogen-free	Contact with electrical cables	PWS-free to FN 942 010	Suitable for use with energy chains	Resistance				Flexible	Shore hardness <sup>3)</sup>	→ Page
						Chemicals	Microbes	UV radiation	Hydrolysis			
PEN	-	■	■	■	+++	++	++	++ <sup>2)</sup>	+++	++	D 52 ±3	6
PLN	■	■	■	■	-	++	++	++ <sup>2)</sup>	+++	+	D 52 ±3	10
PUN-H	■	■	■	■	++	+	++	++ <sup>2)</sup>	++	+++	D 52 ±3	13

+++ Extremely suitable

++ Very suitable

+ Limited suitability (on request)

- Not suitable

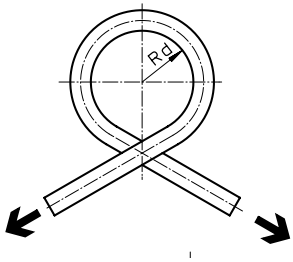
2) Applies to the colour black

3) Values are determined using test panels. Values determined using tubing may vary.

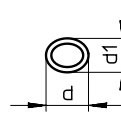
## Technical data

### Measurement method

#### Flow-relevant bending radius $R_d$



The tube is bent in the direction of its own curve until the tubing outside diameter is flattened by 5%.  $R_d$  is then calculated mathematically. The flow rate is not reduced until  $R_d$  is reached.

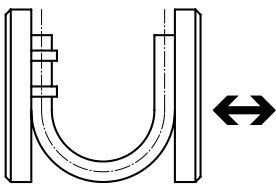


Cross-section flattened by bending the tube.

$d$  = non-deformed tubing O.D.

$d_1$  = deformed tubing O.D.

#### Minimum bending radius $R_{min}$



The tube fixed to the base plate is bent until the deformation results in a kink. The measured value is the minimum bending radius  $R_{min}$ . This  $R_{min}$  results in significant reductions in the flow rate.

## Type codes

001	Series
<b>PEN</b>	Plastic tubing

002	Tubing outside diameter
<b>3/16</b>	3/16"
<b>1/4</b>	1/4"
<b>5/16</b>	5/16"
<b>3/8</b>	3/8"
<b>1/2</b>	1/2"
<b>5/8</b>	5/8"

003	Colour
<b>SW</b>	Black
<b>BL</b>	Blue

004	Packaging unit [m]
<b>150</b>	150 m

005	Packaging
<b>CB</b>	Cardboard box

## Datasheet

### Plastic tubing PEN

Polyethylene tubing is characterised by good resistance to chemicals and hydrolysis. It is resistant to most cleaning agents and lubricants.

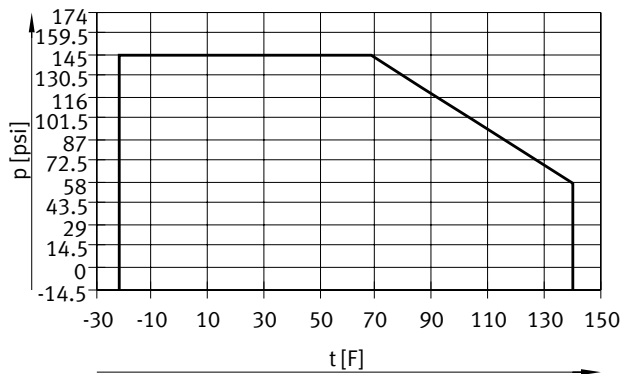


#### Operating and environmental conditions

Temperature-dependent operating pressure [psi]	-14.4 ... +145 → graph
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]
	Water as per manufacturer's declaration <sup>1)</sup>
Ambient temperature [°F]	-22 ... +140
Tubing characteristics	Suitable for energy chains in applications with high cycle rates
Tubing test conditions	Suitable for energy chains: > 5 million cycles to Festo standard 942021

1) More information: [www.festo.com/catalogue/pen](http://www.festo.com/catalogue/pen) → Support/Downloads.

#### Operating pressure p as a function of temperature t



#### Possible fittings



Push-in fitting QS-U  
Quick Star  
→ Internet: qs\*-u



Push-in fitting QB-U,  
Quick Basic  
→ Internet: qb\*-u

#### Materials

Shore hardness	D 52 ±3
Tubing	PE
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

## Datasheet

Dimensions and ordering data							
O.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Part no.	Type	PU <sup>1)</sup>
[inch]	[ft]	[ft]	[oz/ft]				[ft]
3/16	0.039	0.075	0.100	Black	569882	PEN-3/16-SW-150-CB	150
1/4	0.041	0.085	0.186	Black	569883	PEN-1/4-SW-150-CB	150
				Blue	569891	PEN-1/4-BL-150-CB	150
5/16	0.073	0.114	0.250	Black	569884	PEN-5/16-SW-150-CB	150
				Blue	569892	PEN-5/16-BL-150-CB	150
3/8	0.088	0.131	0.376	Black	569885	PEN-3/8-SW-150-CB	150
				Blue	569893	PEN-3/8-BL-150-CB	150
1/2	0.108	0.196	0.848	Black	569886	PEN-1/2-SW-150-CB	150
				Blue	569894	PEN-1/2-BL-150-CB	150
5/8	0.196	0.410	1.158	Black	569887	PEN-5/8-SW-150-CB	150
				Blue	569895	PEN-5/8-BL-150-CB	150

1) Packaging unit

## Ordering data – Modular product system

Ordering table (minimum order quantity 10000 ft, rounded value 50 ft)											
Size	5/32	3/16	1/4	5/16	3/8	1/2	5/8	Conditions	Code	Enter code	
Module no.	<b>567448</b>										
Function	Polyethylene tubing, standard O.D., economical								PEN	PEN	
Tubing O.D. [inch]	5/32	–	–	–	–	–	–		-5/32		
	–	3/16	–	–	–	–	–		-3/16		
	–	–	1/4	–	–	–	–		-1/4		
	–	–	–	5/16	–	–	–		-5/16		
	–	–	–	–	3/8	–	–		-3/8		
	–	–	–	–	–	1/2	–		-1/2		
	–	–	–	–	–	–	5/8		-5/8		
Colour	Silver								-SI		
	Blue								-BL		
	Black								-SW		
	Yellow								-GE		
	Green								-GN		
	Red								-RT		
	Brown								-BR		
	White								-WS		
	Natural								-NT		
Labelling text (on request)	Standard										
	Customer-specific tubing inscription								[1]	-TXT	
Packaging unit [ft]	150									-150	
	500									-500	
	1000						–	–		-1000	
	1500				–	–	–	–		-1500	
Packaging	Cardboard box								[2]	-CB	
	Reel								[3]	-HA	

[1] TXT Only on request

[2] CB Only with packaging unit 150

[3] HA Not with packaging unit 150



## Type codes

001	Series
PLN	Plastic tubing, polyethylene, standard O.D.

002	Tubing outside diameter
3/16	3/16"
1/4	1/4"
5/16	5/16"
3/8	3/8"
5/8	5/8"

003	Colour
NT	Natural
SW	Black
BL	Blue

004	Packaging unit [m]
150	150 m

005	Packaging
CB	Cardboard box

## Datasheet

### Plastic tubing PLN

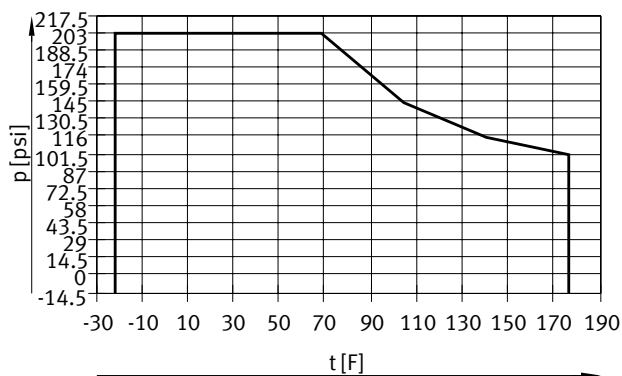
Polyethylene tubing is characterised by good resistance to chemicals and hydrolysis. It is resistant to most cleaning agents and lubricants.



Operating and environmental conditions	
Temperature-dependent operating pressure [psi]	-14.4 ... +203 → graph
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-] Water as per manufacturer's declaration <sup>1)</sup>
Ambient temperature [°F]	-22 ... +176
Food-safe <sup>1)</sup>	See supplementary material information

1) More information: [www.festo.com/catalogue/pln](http://www.festo.com/catalogue/pln) → Support/Downloads.

#### Operating pressure p as a function of temperature t



#### Possible fittings



Push-in fitting QS-U  
Quick Star  
→ Internet: qs\*-u



Push-in fitting QB-U,  
Quick Basic  
→ Internet: qb\*-u

Materials	
Shore hardness	D 52 ±3
Tubing	PE
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

Dimensions and ordering data							
O.D. [inch]	Min. bending radius [ft]	Flow-relevant bending radius [ft]	Weight [oz/ft]	Colour	Part no.	Type	PJ <sup>1)</sup> [ft]
3/16	0.036	0.095	0.107	Natural	569898	PLN-3/16-NT-150-CB	150
				Blue	569914	PLN-3/16-BL-150-CB	150
1/4	0.039	0.105	0.18	Natural	569899	PLN-1/4-NT-150-CB	150
				Natural	575897	PLN-1/4-NT-500-HA	500
				Black	569907	PLN-1/4-SW-150-CB	150
				Blue	569915	PLN-1/4-BL-150-CB	150
5/16	0.082	0.164	0.231	Natural	569900	PLN-5/16-NT-150-CB	150
3/8	0.115	0.187	0.403	Natural	569901	PLN-3/8-NT-150-CB	150
				Black	569909	PLN-3/8-SW-150-CB	150
				Blue	569917	PLN-3/8-BL-150-CB	150
5/8	0.197	0.311	0.881	Natural	569903	PLN-5/8-NT-150-CB	150
				Black	569911	PLN-5/8-SW-150-CB	150

1) Packaging unit

## Ordering data – Modular product system

Ordering table (minimum order quantity 10000 ft, rounded value 50 ft)										
Size	5/32	3/16	1/4	5/16	3/8	1/2	5/8	Conditions	Code	Enter code
Module no.	<b>567449</b>									
Function	Polyethylene tubing, standard O.D., resistant to cleaning agents								PLN	PLN
Tubing O.D. [inch]	5/32	–	–	–	–	–	–	–	-5/32	
	–	3/16	–	–	–	–	–	–	-3/16	
	–	–	1/4	–	–	–	–	–	-1/4	
	–	–	–	5/16	–	–	–	–	-5/16	
	–	–	–	–	3/8	–	–	–	-3/8	
	–	–	–	–	–	1/2	–	–	-1/2	
	–	–	–	–	–	–	5/8	–	-5/8	
Colour	Silver								-SI	
	Blue								-BL	
	Black								-SW	
	Yellow								-GE	
	Green								-GN	
	Red								-RT	
	Brown								-BR	
	White								-WS	
Natural								-NT		
Labelling text (on request)	Standard									
	Customer-specific tubing inscription								[1]	-TXT
Packaging unit [ft]	150									-150
	500									-500
	1000						–	–		-1000
	1500				–	–	–	–		-1500
Packaging	Cardboard box								[2]	-CB
	Reel								[3]	-HA

[1] TXT Only on request

[2] CB Only with packaging unit 150

[3] HA Not with packaging unit 150

## Type codes

001	Series
PUN	Plastic tubing, polyurethane

002	Alternative material characteristic
H	Hydrolysis-resistant

003	Tubing outside diameter
1/8	1/8"
5/32	5/32"
3/16	3/16"
1/4	1/4"
5/16	5/16"
3/8	3/8"
1/2	1/2"
5/8	5/8"

004	Colour
NT	Natural
SW	Black
BL	Blue
SI	Silver
RT	Red
GN	Green
GE	Yellow
BR	Brown
WS	White
TBL	translucent blue
TSW	translucent black
TRT	translucent red
TGN	translucent green
TGE	translucent yellow

005	Packaging unit [m]
150	150 m
500	500 m
1000	1000 m

006	Packaging
CB	Cardboard box
HA	Reel

# Datasheet

## Plastic tubing PUN-H

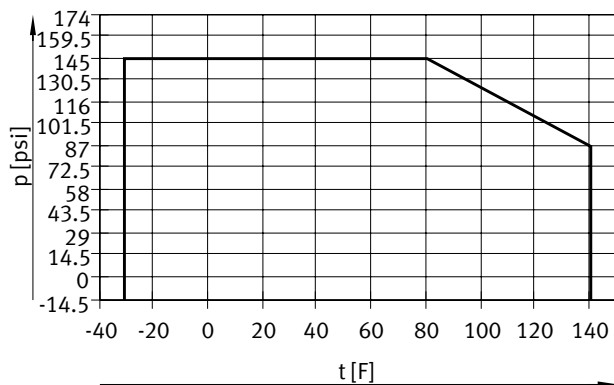


### Operating and environmental conditions

Temperature-dependent operating pressure [psi]	-14.4 ... +145 → graph
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)
Ambient temperature [°F]	-31 ... +145
Food-safe <sup>1)</sup>	See supplementary material information
Fire tested	UL94 HB
Tubing characteristics	Suitable for use with energy chains

1) More information: [www.festo.com/catalogue/pun-h](http://www.festo.com/catalogue/pun-h) → Support/Downloads.

### Operating pressure p as a function of temperature t



### Possible fittings



Push-in fitting QS-U  
Quick Star  
→ Internet: [qs\\*-u](http://qs*-u)



Push-in fitting QB-U,  
Quick Basic  
→ Internet: [qb\\*-u](http://qb*-u)

### Materials

Shore hardness	D 52 ±3
Tubing	TPE-U(PU)
Note on materials	RoHS-compliant
Application note	TPE-U, ether-based
LABS (PWIS) conformity	VDMA24364-B2-L
Suitable for the production of lithium-ion batteries	Metals with more than 1% by mass of copper, zinc or nickel are excluded from use. Exceptions are nickel in steel, chemically nickel-plated surfaces, printed circuit boards, cables, electrical plug connectors and coils.
Cleanroom class	Element installed statically, no meaningful evaluation possible according to ISO 14644-1

Datasheet

Dimensions and ordering data								
O.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Labelling colour (EN)	Part no.	Type	PU <sup>1)</sup>
[inch]	[ft]	[ft]	[oz/ft]					[ft]
Á	0.02	0.039	0.06	Silver	Silver	567937	PUN-H-1/8-SI-150-CB	150
				Blue	Blue	567945	PUN-H-1/8-BL-150-CB	150
				Black	Black	567953	PUN-H-1/8-SW-150-CB	150
				Natural	Natural	567961	PUN-H-1/8-NT-150-CB	150
				Green	Green	567977	PUN-H-1/8-GN-150-CB	150
				Brown	Brown	567993	PUN-H-1/8-BR-150-CB	150
5/32	0.02	0.052	0.09	Blue	Blue	567946	PUN-H-5/32-BL-150-CB	150
				Black	Black	567954	PUN-H-5/32-SW-150-CB	150
				Black	Black	568017	PUN-H-5/32-SW-500-HA	500
				Natural	Natural	567962	PUN-H-5/32-NT-150-CB	150
				Brown	Brown	567994	PUN-H-5/32-BR-150-CB	150
3/16	0.025	0.069	0.13	Blue	Blue	567947	PUN-H-3/16-BL-150-CB	150
				Black	Black	567955	PUN-H-3/16-SW-150-CB	150
				Natural	Natural	567963	PUN-H-3/16-NT-150-CB	150
				Yellow	Yellow	567971	PUN-H-3/16-GE-150-CB	150
				Green	Green	567979	PUN-H-3/16-GN-150-CB	150
				Brown	Brown	567995	PUN-H-3/16-BR-150-CB	150
1/4	0.032	0.085	0.23	Silver	Silver	567940	PUN-H-1/4-SI-150-CB	150
				Silver	Silver	568010	PUN-H-1/4-SI-500-HA	500
				Blue	Blue	567948	PUN-H-1/4-BL-150-CB	150
				Blue	Blue	568014	PUN-H-1/4-BL-500-HA	500
				Blue	Blue	568021	PUN-H-1/4-BL-1000-HA	1000
				Black	Black	567956	PUN-H-1/4-SW-150-CB	150
				Black	Black	568018	PUN-H-1/4-SW-500-HA	500
				Black	Black	568023	PUN-H-1/4-SW-1000-HA	1000
				Natural	Natural	567964	PUN-H-1/4-NT-150-CB	150
				Natural	Natural	8003126	PUN-H-1/4-NT-500-HA	500
				Yellow	Yellow	567972	PUN-H-1/4-GE-150-CB	150
				Green	Green	567980	PUN-H-1/4-GN-150-CB	150
				Red	Red	567988	PUN-H-1/4-RT-150-CB	150
				White	White	568004	PUN-H-1/4-WS-150-CB	150
				Translucent blue	Translucent blue	8203970	PUN-H-1/4-TBL-150-CB	150
				Translucent black	Translucent black	8203971	PUN-H-1/4-TSW-150-CB	150
				Translucent red	Translucent red	8203972	PUN-H-1/4-TRT-150-CB	150
				Translucent green	Translucent green	8203973	PUN-H-1/4-TGN-150-CB	150
				Translucent yellow	Translucent yellow	8203974	PUN-H-1/4-TGE-150-CB	150
				5/16	0.065	0.121	0.31	Silver
Blue	Blue	567949	PUN-H-5/16-BL-150-CB					150
Blue	Blue	568022	PUN-H-5/16-BL-1000-HA					1000
Black	Black	567957	PUN-H-5/16-SW-150-CB					150
Black	Black	568024	PUN-H-5/16-SW-1000-HA					1000
Natural	Natural	567965	PUN-H-5/16-NT-150-CB					150
Natural	Natural	8003127	PUN-H-5/16-NT-500-HA					500
Brown	Brown	567997	PUN-H-5/16-BR-150-CB					150
3/8	0.081	0.171	0.48	Silver	Silver	567942	PUN-H-3/8-SI-150-CB	150
				Blue	Blue	567950	PUN-H-3/8-BL-150-CB	150
				Blue	Blue	568016	PUN-H-3/8-BL-500-HA	500
				Black	Black	567958	PUN-H-3/8-SW-150-CB	150
				Black	Black	568020	PUN-H-3/8-SW-500-HA	500
				Natural	Natural	567966	PUN-H-3/8-NT-150-CB	150
				Natural	Natural	8003128	PUN-H-3/8-NT-500-HA	500
				Yellow	Yellow	567974	PUN-H-3/8-GE-150-CB	150
				Green	Green	567982	PUN-H-3/8-GN-150-CB	150
				Red	Red	567990	PUN-H-3/8-RT-150-CB	150
				Brown	Brown	567998	PUN-H-3/8-BR-150-CB	150
				White	White	568006	PUN-H-3/8-WS-150-CB	150

1) Packaging unit

## Datasheet

Dimensions and ordering data								
O.D.	Min. bending radius	Flow-relevant bending radius	Weight	Colour	Labelling colour (EN)	Part no.	Type	PJ <sup>1)</sup>
[inch]	[ft]	[ft]	[oz/ft]					[ft]
3/8	0.081	0.171	0.48	Silver	Silver	567942	PUN-H-3/8-SI-150-CB	150
				Blue	Blue	567950	PUN-H-3/8-BL-150-CB	150
				Blue	Blue	568016	PUN-H-3/8-BL-500-HA	500
				Black	Black	567958	PUN-H-3/8-SW-150-CB	150
				Black	Black	568020	PUN-H-3/8-SW-500-HA	500
				Natural	Natural	567966	PUN-H-3/8-NT-150-CB	150
				Natural	Natural	8003128	PUN-H-3/8-NT-500-HA	500
				Yellow	Yellow	567974	PUN-H-3/8-GE-150-CB	150
				Green	Green	567982	PUN-H-3/8-GN-150-CB	150
				Red	Red	567990	PUN-H-3/8-RT-150-CB	150
				Brown	Brown	567998	PUN-H-3/8-BR-150-CB	150
				White	White	568006	PUN-H-3/8-WS-150-CB	150
				Translucent blue	Translucent blue	8203975	PUN-H-3/8-TBL-150-CB	150
				Translucent black	Translucent black	8203976	PUN-H-3/8-TSW-150-CB	150
				Translucent red	Translucent red	8203977	PUN-H-3/8-TRT-150-CB	150
				Translucent green	Translucent green	8203978	PUN-H-3/8-TGN-150-CB	150
Translucent yellow	Translucent yellow	8203979	PUN-H-3/8-TGE-150-CB	150				
1/2	0.075	0.204	0.88	Silver	Silver	567943	PUN-H-1/2-SI-150-CB	150
				Blue	Blue	567951	PUN-H-1/2-BL-150-CB	150
				Black	Black	567959	PUN-H-1/2-SW-150-CB	150
				Natural	Natural	567967	PUN-H-1/2-NT-150-CB	150
				Yellow	Yellow	567975	PUN-H-1/2-GE-150-CB	150
				Green	Green	567983	PUN-H-1/2-GN-150-CB	150
				Red	Red	567991	PUN-H-1/2-RT-150-CB	150
				Brown	Brown	567999	PUN-H-1/2-BR-150-CB	150
				White	White	568007	PUN-H-1/2-WS-150-CB	150
				Translucent blue	Translucent blue	8203980	PUN-H-1/2-TBL-150-CB	150
				Translucent black	Translucent black	8203981	PUN-H-1/2-TSW-150-CB	150
				Translucent red	Translucent red	8203982	PUN-H-1/2-TRT-150-CB	150
Translucent green	Translucent green	8203983	PUN-H-1/2-TGN-150-CB	150				
Translucent yellow	Translucent yellow	8203984	PUN-H-1/2-TGE-150-CB	150				
5/8	0.125	0.288	1.38	Blue	Blue	567952	PUN-H-5/8-BL-150-CB	150
				Yellow	Yellow	567976	PUN-H-5/8-GE-150-CB	150
				Green	Green	567984	PUN-H-5/8-GN-150-CB	150
				Red	Red	567992	PUN-H-5/8-RT-150-CB	150
				Brown	Brown	568000	PUN-H-5/8-BR-150-CB	150
				White	White	568008	PUN-H-5/8-WS-150-CB	150

1) Packaging unit

### Ordering data – Modular product system

Ordering table (minimum order quantity 10000 ft, rounded value 50 ft)												
Size	1/8	5/32	3/16	1/4	5/16	3/8	1/2	5/8	Conditions	Code	Enter code	
Module no.	567446											
Function	Polyurethane tubing, standard O.D.									PUN	PUN	
Alternative material characteristic	Hydrolysis-resistant									-H		
Tubing O.D. [inch]	1/8	–	–	–	–	–	–	–		-1/8		
	–	5/32	–	–	–	–	–	–		-5/32		
	–	–	3/16	–	–	–	–	–		-3/16		
	–	–	–	1/4	–	–	–	–		-1/4		
	–	–	–	–	5/16	–	–	–		-5/16		
	–	–	–	–	–	3/8	–	–		-3/8		
	–	–	–	–	–	–	1/2	–		-1/2		
	–	–	–	–	–	–	–	5/8		-5/8		
Colour	Silver									-SI		
	Blue									-BL		
	Black									-SW		
	Yellow									-GE		
	Green									-GN		
	Red									-RT		
	Brown									-BR		
	White									-WS		
	Natural									[4]	-NT	
	Translucent blue										-TBL	
	Translucent black										-TSW	
	Translucent red										-TRT	
	Translucent green										-TGN	
Translucent yellow										-TGE		
Labelling text (on request)	Standard											
	Customer-specific tubing inscription									[1]	-TXT	
Packaging unit [ft]	150										-150	
	500										-500	
	1000							–	–		-1000	
	1500					–	–	–			-1500	
Packaging	Cardboard box									[2]	-CB	
	Reel									[3]	-HA	

[1] TXT Only on request  
 [2] CB Only with packaging unit 150

[3] HA Not with packaging unit 150  
 [4] NT Only with alternative material characteristic H