

# Hard Tubing



## SCROLL

SCROLL tubing, also called "Hard Tube", is a straight plastic tube designed in a scroll shape. It is suited to protect cable bundles and wiring harnesses.

Its stiffness is suited for any straight sections of the wire harness, while its scroll shape makes it easy to assemble without the hassle of a non-slit rigid tube.

SCROLL tubing is smooth and provides protection from slight shocks, aspersion, abrasion and chafing.

SCROLL tubing resists to high temperature and to chemicals, it is then well suited for the automotive industry.

## Material

SCROLL tubing is made of rigid PVC, as a standard material grade. A polypropylene based material can be also proposed upon request only.

## Characteristics

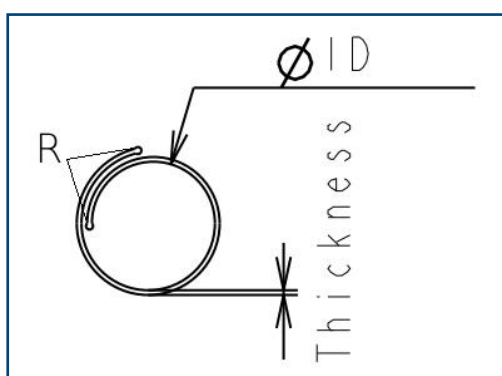
**Colors:** standard color is black.

Physical properties	Specification	Unit	Rigid PVC
<b>Thermal properties</b>			
Continuous temp. of use - min/max (3000h)	-	°C (°F)	-30/85 (-22/185)
Peak temperature (500h)	-	°C (°F)	100 (212)
<b>Mechanical properties</b>			
Tensile strength at yield	ASTM D638	MPa	>50
Elongation at yield	ASTM D638	%	>130
Hardness	ASTM D2240	shore D	76
<b>Other properties</b>			
Density	ASTM D792	g/cm <sup>3</sup>	1.32
Flammability	ISO 3795	-	self-extinguishing
Chemical resistance	Resists the majority of chemicals and automotive fluids (oils, coolant, battery fluid, brake fluid, fuels, windshield washer...)		

## Dimensions

The following dimensions on the table are standard sizes, proposed in a rigid PVC material. Standard overlap (R) is minimum 8%. Overlap may vary depending on the specification. Other dimensions upon request only.

SCROLL tubing can be also proposed in a high heat polypropylene grade upon request only. Dimensions will then vary from standard sizes.



Designation	Minimum ID		Thickness (mm)
	(mm)	(inches)	
SCROLL 06	6	1/4	0.5
SCROLL 09	8	3/8	0.5
SCROLL 11	9	7/16	0.5
SCROLL 13	12	1/2	0.5
SCROLL 16	15	5/8	0.5
SCROLL 19	18	3/4	0.5
SCROLL 25	25	1	0.5
SCROLL 30	30	1 1/4	0.5
SCROLL 38	38	1 1/2	0.5

## Approvals

- Direct: Ford, Peugeot-Citroën, Renault.
- Via Tier-1: Honda, Jaguar/Land Rover, Mazda, Nissan, Toyota, Volvo Cars Corp.

## Packaging

SCROLL tubing is delivered in cut lengths from 15 to 2,000 mm (other lengths upon request only).

Data and photos for information only. Delfingen makes no warranties as to the accuracy or completeness of this information. Delfingen reserves the right to make changes in materials or processing without notification.

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