

*Edoburg*<sup>®</sup>



UL 651

# Electrical Conduit System

BUILT TO PROTECT, DESIGNED TO LAST

PRODUCT CATALOGUE



**Edoburg**<sup>®</sup>  
PIPING SYSTEMS



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# About Edoburg

**Edoburg**, an ISO 9001 certified company, specialises in supplying high-quality piping systems that consistently meet stringent international standards, ensuring unparalleled performance of the piping systems. Our experienced team, equipped with extensive technical knowledge, coupled with our efficient operations and fast turnaround time, enables us to provide top-tier supply of piping products tailored to your needs.

## Our Mission

Edoburg's mission is to supply high-quality piping systems worldwide, offering a complete solution that meets international standards to ensure superior performance in every project.

## Product Range

Our stellar lineup of pipes, ready for every project:

- PEX Pipe: PEX-A, PEX-B, PEX-A EVOH, PEX-B EVOH
- PPR Pipe
- PERT Pipe
- HDPE Pipe
- MDPE Pipe
- PVC-C Pipe: Portable water, Reclaim water, Industrial
- PVC-U Pipe: Drainage, Portable water, Reclaim water, Industrial
- PVC-O
- Composite Pipe: PEX-AL-PEX, HDPE-AL-HDPE
- PVC Electrical Conduit
- PVC Hose

## Complete Solution Concept

Our wide range of products represent our complete solution concept.

With our products intended for diverse sectors, we offer individual and comprehensive system solutions. Focusing on the needs of projects and entire system.

We provide high standards of products in the market at all times. We always stand by our piping systems and reliable service network.

As a global pipe supplying company that stands out with successful operations ever since our incorporation, we act as a solution point to meet all your needs based on our technical knowledge, specialization and reliability.

## Quality Assurance

We are committed to excellence in every aspect of our operations. The products we supply comply with the international standards and certifications, ensuring reliability, durability, and safety in every application. With Edoburg, you can trust that you're receiving top-notch piping solutions that meet your specifications and exceed your expectations.

## Our Presence in the World

Our warehousing are strategically located in various places in **India**, **Vietnam** and **China**, to ensure efficient distribution of the products. We ensure fast deliveries with our modern logistics partners deployed at our local distribution hubs which are strategically located near the ports to ease the export of products. Edoburg Piping Systems exports its products all over the world.

## Our Market Segments

Based on our experience and high-quality standard of products in the sector, Edoburg Piping Systems supports its clients with a complete piping solutions for every project requirement.

- Chemical and Petrochemical
- Water and Wastewater
- Mining and Mineral Processing
- Power Generation
- Marine and Offshore
- Building and Construction
- Manufacturing Industries
- Agriculture
- Pharmaceuticals
- Infrastructure

# About Plastics

Plastics are polymers created by the chemical conversion of natural products or synthesized from organic materials. The primary components that make up the building blocks of plastics are long chains of carbon (C) and hydrogen (H) known as monomers.

The raw materials used for the production of plastics are natural compounds such as cellulose, coal, oil and natural gas. In the plastics industry, around 6 % of the petroleum products that come out from refineries is used.

Plastics fall into three main categories on the basis of their internal structure and the resulting mechanical characteristics: thermoplastics, thermosetting plastics and elastomers.

## Advantages of Plastics

Thermoplastics obviously demonstrate different characteristics than those of the metals traditionally used for piping.

Metal	Plastic
<b>High density</b> <ul style="list-style-type: none"> <li>Crane is needed for transport.</li> <li>Requires wide spacing for fixings.</li> <li>High anchoring forces, fixing required.</li> </ul>	<b>Low density</b> <ul style="list-style-type: none"> <li>Can be carried by hand up to d110.</li> <li>Requires minimal spacing for fixings.</li> <li>Simple and economical.</li> </ul>
<b>Thermal conductivity</b> <ul style="list-style-type: none"> <li>Insulation is needed to limit heat loss.</li> <li>Formation may result in corrosion.</li> </ul>	<b>Low thermal conductivity</b> <ul style="list-style-type: none"> <li>Limited heat loss.</li> <li>Low levels of condensation and resistance to corrosion.</li> </ul>
<b>Corrosion Behaviors</b> <ul style="list-style-type: none"> <li>Galvanic corrosion can occur.</li> <li>Corrosion reduces internal diameter.</li> <li>Reduced diameter causes pressure losses.</li> </ul>	<b>High Corrosion Resistance</b> <ul style="list-style-type: none"> <li>Galvanic Corrosion Free.</li> <li>Prevents corrosion and diameter reduction.</li> <li>No pressure losses.</li> </ul>
<b>Chemical resistance</b> <ul style="list-style-type: none"> <li>Low Resistance to Acids.</li> <li>Damage from Incrustation.</li> </ul>	<b>High chemical resistance</b> <ul style="list-style-type: none"> <li>A minimum of 25-years of life with correct jointing methods.</li> <li>Incrustation free.</li> </ul>

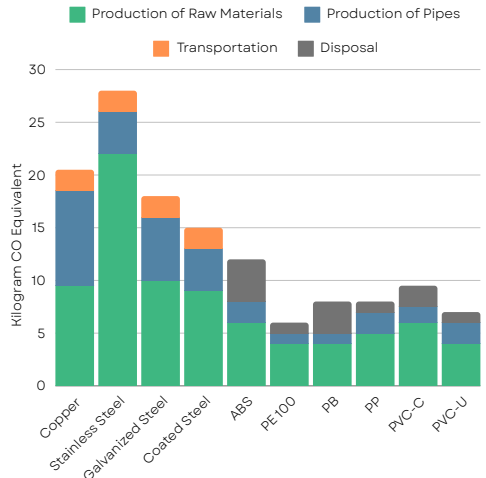
Thermoplastics in turn can be split into two main categories as partially-regulated (semi-crystalline) and irregular (amorphous) molecular structures.

- Semicrystalline thermoplastics, which have a partially ordered molecular structure: this category includes the polyolefins (polypropylene, polyethylene, polybutylene) and fluoropolymers (PP, PE, etc.)
- Amorphous thermoplastics, which have no crystalline regions and no packed molecular structure: this category includes the vinyl chlorides (PVC-U, PVC-C, etc.) and styrenes (ABS, polystyrene, etc.)

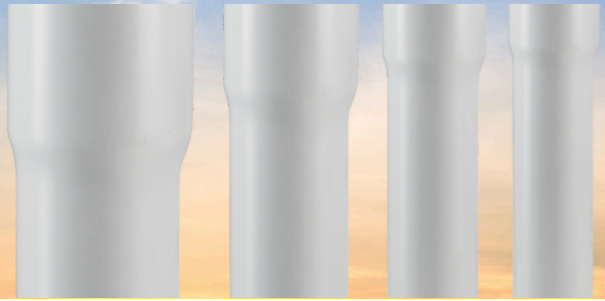
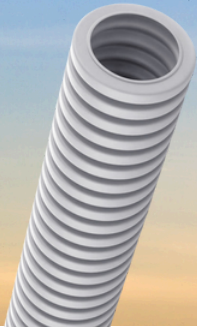
Semicrystalline materials are more suitable for hot welding, while amorphous thermoplastics are ideal for cementing or cold welding (solvent cementing).

## Carbon Footprint of Plastics Vs Metal

It is the total of all greenhouse gases emitted to the atmosphere during the entire lifetime including the processes for extracting a product having carbon footprint from under the ground, refining, producing, using and disposing of that product.







# Electrical Conduit System

Our UL651 Electrical Conduit is designed to provide robust and reliable protection for electrical wiring systems. Manufactured to meet UL651 standards, this conduit ensures top-notch performance and safety in various commercial and industrial applications.

- **High Durability:** Made from premium materials for long-lasting performance.
- **Corrosion Resistant:** Specialized coating ensures excellent resistance to corrosion.
- **Fire Retardant:** Meets stringent fire safety standards.
- **Easy Installation:** Lightweight and flexible for quick and easy handling.
- **Versatile Use:** Suitable for commercial, industrial, and residential applications.
- **UV Resistance:** Protected against UV degradation for outdoor use.
- **Impact Resistance:** Designed to withstand physical impacts, protecting internal wiring.
- **Temperature Tolerance:** Functions effectively in a wide range of temperatures.
- **Moisture Resistance:** Sealed to prevent moisture ingress, ideal for wet environments.
- **Chemical Resistance:** Resistant to chemicals and solvents, enhancing durability.

## Fields of Application

- **Commercial Buildings:** Ensures reliable protection for electrical wiring in offices, retail spaces, and public facilities.
- **Industrial Facilities:** Suitable for use in factories, warehouses, and manufacturing plants, providing robust safeguarding in challenging environments.
- **Residential Installations:** Offers secure wiring protection in homes and apartment buildings.
- **Outdoor Use:** Designed to withstand outdoor conditions, making it perfect for use in landscaping, parking lots, and outdoor lighting installations.
- **Infrastructure Projects:** Provides essential wiring protection in infrastructure projects such as bridges, tunnels, and transportation systems.

## Technical data

### Working Temperature

- -4°F to 140°F (-20°C to 60°C)  
(Suitable for a wide range of diverse climatic conditions.)

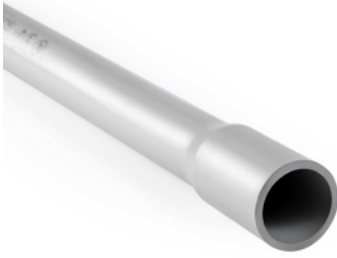
### Pipe Standard

- UL 651

### Certifications



# Schedule 40 Rigid PVC Conduit



**Properties:**

PVC material test: ASTM D1784-20, ASTM D635-18 ASTM D638-14,  
ASTM D256-10, ASTM E1 252-98(2013).

Comply with UL651 Standard.

PVC material with great corrosion resistant.

Impact resistant.

UV resistant.

Self extinguishing, fire retardant.

Smooth interior and outside.

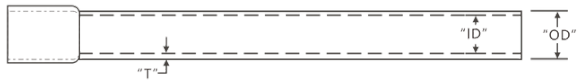
Suitable for underground or above ground applications.



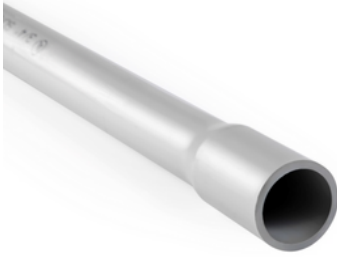
Available in standard lengths in 10ft or 20ft. Available in grey color.

Item No.	Size (inch)	Average OD		Average ID	
		Inches	mm	Inches	mm
SCH40A	1/2	0.840±0.004	21.34±0.10	0.578	14.68
SCH40B	3/4	1.050±0.004	26.67±0.10	0.780	19.81
SCH40C	1	1.315±0.005	33.40±0.13	1.004	25.50
SCH40D	1-1/4	1.660±0.005	42.16±0.13	1.335	33.90
SCH40E	1-1/2	1.900±0.006	48.26±0.15	1.564	39.72
SCH40F	2	2.375±0.006	60.32±0.15	2.021	51.33
SCH40G	2-1/2	2.875±0.007	73.02±0.18	2.414	61.31
SCH40H	3	3.500±0.008	88.90±0.20	3.008	76.40
SCH40I	3-1/2	4.000±0.008	101.60±0.20	3.486	88.54
SCH40J	4	4.500±0.009	114.30±0.23	3.961	100.60
SCH40K	5	5.563±0.010	141.30±0.25	4.975	126.36
SCH40L	6	6.625±0.011	168.28±0.28	5.986	152.04
SCH40M	8	8.625±0.011	219.07±0.28	7.853	199.47

Dimensions are nominal.



# Schedule 80 Rigid PVC Conduit



**Properties:**

PVC material test: ASTM D1784-20, ASTM D635-18 ASTM D638-14,  
ASTM D256-10, ASTM E1 252-98(2013).

Comply with UL651 Standard.

PVC material with great corrosion resistant.

Impact resistant.

UV resistant.

Self extinguishing, fire retardant.

Smooth interior and outside.

Suitable for underground or above ground applications.



Available in standard lengths in 10ft or 20ft. Available in grey color.

Item No.	Size (inch)	Average OD		Average ID	
		Inches	mm	Inches	mm
SCH80A	1/2	0.840±0.004	21.34±0.10	0.502	12.75
SCH80B	3/4	1.050±0.004	26.67±0.10	0.698	17.72
SCH80C	1	1.315±0.005	33.40±0.13	0.910	23.11
SCH80D	1-1/4	1.660±0.005	42.16±0.13	1.227	31.16
SCH80E	1-1/2	1.900±0.006	48.26±0.15	1.446	36.72
SCH80F	2	2.375±0.006	60.32±0.15	1.881	47.77
SCH80G	2-1/2	2.875±0.007	73.02±0.18	2.250	57.15
SCH80H	3	3.500±0.008	88.90±0.20	2.820	71.62
SCH80I	3-1/2	4.000±0.008	101.60±0.20	3.280	83.31
SCH80J	4	4.500±0.009	114.30±0.23	3.737	94.91
SCH80K	5	5.563±0.010	141.30±0.25	4.713	119.71
SCH80L	6	6.625±0.011	168.28±0.28	5.646	143.41
SCH80M	8	8.625±0.011	219.07±0.28	7.513	190.83

Dimensions are nominal.





# TYPE A Rigid PVC Conduit



**Properties:**

PVC material test: ASTM D1784-20, ASTM D635-18 ASTM D638-14, ASTM D256-10, ASTM E1 252-98(2013).

Comply with UL651 Standard.

PVC material with great corrosion resistant.

Impact resistant.

UV resistant.

Self extinguishing, fire retardant.

Smooth interior and outside.

Suitable for underground or above ground applications.

Available in standard lengths in 10ft or 20ft. Available in grey color.

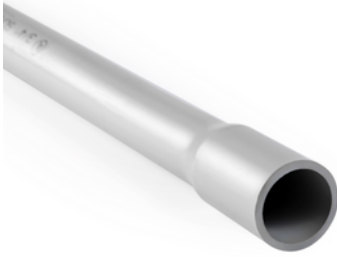


Item No.	Size (inch)	Average OD	
		Inches	mm
TYPEAA	1/2	0.840 ±0.004	21.34 ±0.10
TYPEAB	3/4	1.050 ±0.004	26.67 ±0.10
TYPEAC	1	1.315 ±0.005	33.40±0.13
TYPEAD	1-1/4	1.660 ±0.005	42.16 ±0.13
TYPEAE	1-1/2	1.900 ±0.006	48.26 ±0.15
TYPEAF	2	2.375 ±0.006	60.32 ±0.15
TYPEAG	2-1/2	2.875 ±0.007	73.02 ±0.18
TYPEAH	3	3.500 ±0.008	88.90 ±0.20
TYPEAI	3-1/2	4.000±0.008	101.60 ±0.20
TYPEAJ	4	4.500±0.009	114.30 ±0.23
TYPEAK	5	5.563±0.010	141.30 ±0.25
TYPEAL	6	6.625±0.011	168.28 ±0.28

Dimensions are nominal.



# TYPE EB Rigid PVC Conduit



**Properties:**

PVC material test: ASTM D1784-20, ASTM D635-18 ASTM D638-14, ASTM D256-10, ASTM E1 252-98(2013).

Comply with UL651 Standard.

PVC material with great corrosion resistant.

Impact resistant.

UV resistant.

Self extinguishing, fire retardant.

Smooth interior and outside.

Suitable for underground or above ground applications.



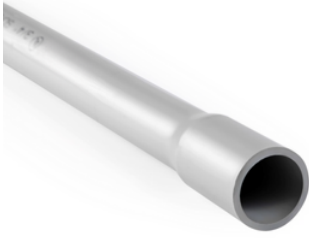
Available in standard lengths in 10ft or 20ft. Available in grey color.

Item No.	Size (inch)	Average OD	
		Inches	mm
TYPEEBA	2	2.375±0.006	60.32±0.15
TYPEEBB	3	3.500±0.008	88.90±0.20
TYPEEBC	3-1/2	4.000±0.008	101.60±0.20
TYPEEBD	4	4.500±0.009	114.30±0.23
TYPEEBE	5	5.563±0.010	141.30±0.25
TYPEEBF	6	6.625±0.011	168.28±0.28

Dimensions are nominal.



# DB120 PVC Utilites Duct



**Properties:**

- In accordance with NEMA TC 6&8, ASTM F-512 Standard.
- Comply with UL651 Standard.
- PVC material with great corrosion resistant.
- Impact resistant.
- UV resistant.
- Self extinguishing, fire retardant.
- Smooth interior and outside.
- Suitable for underground or above ground applications.



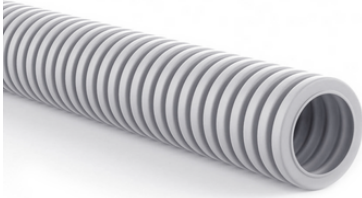
Available in standard lengths in 10ft or 20ft. Available in grey color.

Item No.	Size (inch)	Average OD Inches
DB12ORCA	1	1.315±0.005
DB12ORCB	1-1/2	1.900±0.006
DB12ORCC	2	2.375±0.006
DB12ORCD	3	3.500±0.008
DB12ORCE	3-1/2	4.000±0.008
DB12ORCF	4	4.500±0.009
DB12ORCG	5	5.563±0.010
DB12ORCH	6	6.625±0.011

Dimensions are nominal.



# Electrical Nonmetallic Tubing



**Properties:**

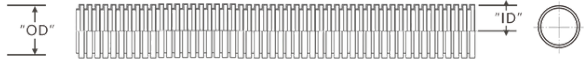
- Comply with UL651 Standard.
- PVC material which is corrosion resistant.
- Hand-bendable.
- Impact resistant.
- UV resistant.
- Self extinguishing, fire resistant.
- Suitable for underground or above ground applications.



Available in coil with the lengths of 100ft. Available in Blue, Red and Yellow color.

Item No.	Size (inch)	Average OD	
		Inches	mm
ENTA	1/2	0.840	21.34
ENTB	3/4	1.050	26.67
ENTC	1	1.315	33.40
ENTD	1-1/4	1.660	42.17
ENTE	1-1/2	1.900	48.26
ENTF	2	2.375	60.36
ENTG	2-1/2	2.866	72.80

Dimensions are nominal.



# Schedule 40 Rigid LSZH Conduit



**Properties:**

PVC material test: ASTM D1784-20, ASTM D635-18 ASTM D638-14, ASTM D256-10, ASTM E1 252-98(2013).

Comply with UL651 Standard.

No Halogens, safer to use in confined spaces and public buildings.

Very low smoke and low toxicity generation.

Fire resistant, self extinguishing, no burning drips.

Excellent temperature range, from -45°C to +120 °C.

UV resistant.

Self extinguishing, fire retardant.

Smooth interior and outside.

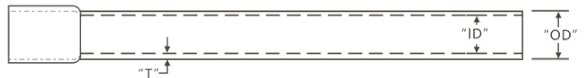
Suitable for underground or above ground applications.



Available in standard lengths in 10ft or 20ft. Available in grey color.

Item No.	Size (inch)	Average OD		Average ID	
		Inches	mm	Inches	mm
SCH4OALSZH	1/2	0.840±0.004	21.34±0.10	0.578	14.68
SCH4OBSLSZH	3/4	1.050±0.004	26.67±0.10	0.780	19.81
SCH4OCLSZH	1	1.315±0.005	33.40±0.13	1.004	25.50
SCH4OOLSZH	1-1/4	1.660±0.005	42.16±0.13	1.335	33.90
SCH4OELSLZH	1-1/2	1.900±0.006	48.26±0.15	1.564	39.72
SCH4OFLSLZH	2	2.375±0.006	60.32±0.15	2.021	51.33
SCH4OGLSLZH	2-1/2	2.875±0.007	73.02±0.18	2.414	61.31
SCH4OHLSLZH	3	3.500±0.008	88.90±0.20	3.008	76.40
SCH4OILSLZH	3-1/2	4.000±0.008	101.60±0.20	3.486	88.54
SCH4OJLSZH	4	4.500±0.009	114.30±0.23	3.961	100.60
SCH4OKLSZH	5	5.563±0.010	141.30±0.25	4.975	126.36
SCH4OLLSZH	6	6.625±0.011	168.28±0.28	5.986	152.04
SCH4OMLSZH	8	8.625±0.011	219.07±0.28	7.853	199.47

Dimensions are nominal.



# Schedule 80 Rigid LSZH Conduit



**Properties:**

PVC material test: ASTM D1784-20, ASTM D635-18 ASTM D638-14, ASTM D256-10, ASTM E1 252-98(2013).

Comply with UL651 Standard.

No Halogens, safer to use in confined spaces and public buildings.

Very low smoke and low toxicity generation.

Fire resistant, self extinguishing, no burning drips.

Excellent temperature range, from -45°C to +120 °C.

UV resistant.

Self extinguishing, fire retardant.

Smooth interior and outside.

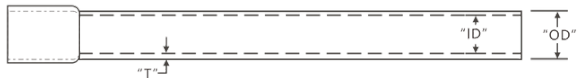
Suitable for underground or above ground applications.



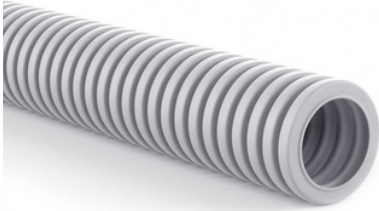
Available in standard lengths in 10ft or 20ft. Available in grey color.

Item No.	Size (inch)	Average OD		Average ID	
		Inches	mm	Inches	mm
SCH8OALSZH	1/2	0.840±0.004	21.34±0.10	0.502	12.75
SCH8OBSLZH	3/4	1.050±0.004	26.67±0.10	0.698	17.72
SCH8OCLSZH	1	1.315 ±0.005	33.40±0.13	0.910	23.11
SCH8OOLSZH	1-1/4	1.660±0.005	42.16±0.13	1.227	31.16
SCH8OELSZH	1-1/2	1.900±0.006	48.26±0.15	1.446	36.72
SCH8OFLSZH	2	2.375±0.006	60.32±0.15	1.881	47.77
SCH8OGLSZH	2-1/2	2.875±0.007	73.02±0.18	2.250	57.15
SCH8OHSZH	3	3.500±0.008	88.90±0.20	2.820	71.62
SCH8OISZH	3-1/2	4.000±0.008	101.60±0.20	3.280	83.31
SCH8OJSZH	4	4.500±0.009	114.30±0.23	3.737	94.91
SCH8OKLSZH	5	5.563±0.010	141.30±0.25	4.713	119.71
SCH8OLLSZH	6	6.625±0.011	168.28±0.28	5.646	143.41
SCH8OMLSZH	8	8.625±0.011	219.07±0.28	7.513	190.83

Dimensions are nominal.



# LSZH Electrical Nonmetallic Tubing



**Properties:**

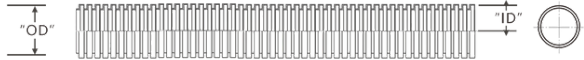
- Comply with UL651 Standard.
- No Halogens, safer to use in confined spaces and public buildings.
- Very low smoke and low toxicity generation.
- Fire resistant, self extinguishing, no burning drips.
- Excellent temperature range, from -45°C to +120°C.
- UV resistant.
- Self extinguishing, fire resistant.
- Suitable for underground or above ground applications.



Available in coil with the lengths of 100ft. Available in Blue, Red and Yellow color.

Item No.	Size (inch)	Average OD	
		Inches	mm
HFENTA	1/2	0.840	21.34
HFENTB	3/4	1.050	26.67
HFENTC	1	1.315	33.40
HFENTD	1-1/4	1.660	42.17
HFENTE	1-1/2	1.900	48.26
HFENTF	2	2.375	60.36
HFENTG	2-1/2	2.866	72.80

Dimensions are nominal.







# Technical Properties

## Material Properties

UL651 electrical conduit is primarily made from PVC (Polyvinyl Chloride). PVC is chosen for its excellent combination of properties suitable for electrical applications:

- **Material Type:** PVC is a thermoplastic polymer known for its durability, chemical resistance, and ease of processing.
- **Color:** Conduits are typically gray, although colors can vary based on manufacturer specifications or specific requirements.
- **Temperature Rating:** PVC conduits are generally rated for use between -10°C to 60°C (14°F to 140°F), making them suitable for a wide range of indoor and outdoor environments.
- **Flammability:** PVC is inherently a self-extinguishing material, meaning it does not support combustion once the ignition source is removed.

## Dimensions and Tolerances

Conduit pipes come in various nominal sizes, each with specific dimensional requirements to ensure compatibility with fittings and ease of installation. The standard defines:

Nominal Size (mm)	Outer Diameter (mm)	Wall Thickness (mm)
16	16.0 ± 0.3	1.5 ± 0.1
20	20.0 ± 0.3	1.5 ± 0.1
25	25.0 ± 0.3	1.9 ± 0.1
32	32.0 ± 0.3	2.0 ± 0.1
40	40.0 ± 0.4	2.3 ± 0.1
50	50.0 ± 0.4	2.6 ± 0.1

## Thermal Properties

1. **Temperature Rating:** Typically suitable for use in temperatures ranging from -10°C to 60°C (14°F to 140°F).
2. **Thermal Expansion:** PVC conduits have a coefficient of thermal expansion, which means they expand and contract with changes in temperature. This should be considered during installation to accommodate thermal movement.
3. **Heat Resistance:** PVC conduits provide good heat resistance within their rated temperature range, ensuring stable performance under normal operating conditions.
4. **Fire Resistance:** PVC is inherently a self-extinguishing material, meaning it does not support combustion once the ignition source is removed. This property enhances safety in case of fire incidents.

These properties make UL651 electrical conduit suitable for a wide range of environmental temperatures encountered in typical electrical installations. Proper installation practices should consider thermal expansion to avoid stresses on the conduit and ensure long-term reliability.

## Mechanical Properties

The mechanical properties of UL651 conduit depend on its schedule (40 or 80):

- **Outside Diameter and Wall Thickness:** These vary depending on the conduit size and schedule type, with Schedule 80 having thicker walls compared to Schedule 40.
- **Tensile Strength:** PVC conduits generally exhibit high tensile strength, ensuring they can withstand pulling forces during installation and use.
- **Flexibility:** Schedule 40 conduits are more flexible and easier to bend, making them suitable for applications requiring tight bends and turns. Schedule 80 conduits are less flexible and more rigid, providing better support and protection in demanding environments.
- **Impact Resistance:** Schedule 80 conduits offer higher impact resistance due to their thicker walls, making them suitable for installations where mechanical protection is critical.

Property	Minimum Requirement
Tensile Strength	≥ 45 MPa
Compressive Strength	≥ 70 MPa
Impact Resistance	Pass at -5°C and 23°C

## Electrical Properties

As electrical conduits, these pipes must provide excellent insulation to prevent electrical faults.

- **Insulation:** PVC is an excellent electrical insulator, helping to protect wiring from electrical faults and ensuring safe operation.
- **Dielectric Strength:** PVC conduits have high dielectric strength, meaning they can withstand high voltages without breaking down.
- **Resistance:** PVC is resistant to most acids, alkalis, and salts encountered in typical industrial and electrical environments, ensuring long-term reliability and durability.

## Chemical Resistance

Conduit pipes must resist degradation from exposure to various chemicals:

- Resistance to common chemicals such as acids, alkalis, and oils ensures the longevity and reliability of the conduit in industrial and harsh environments.

### Chemical Resistance Table

The table below summarizes the resistance of PVC and PE conduit pipes to various chemicals. The ratings are based on the materials' ability to withstand exposure without significant degradation.

Chemical	PVC Resistance
<b>Acids</b>	
Hydrochloric Acid (10%)	Excellent
Sulfuric Acid (10%)	Good
Nitric Acid (10%)	Fair
Acetic Acid (5%)	Excellent
<b>Alkalis</b>	
Sodium Hydroxide (10%)	Excellent
Potassium Hydroxide (10%)	Excellent
Ammonium Hydroxide (10%)	Excellent
<b>Solvents</b>	
Acetone	Poor
Ethanol	Good
Methanol	Good
Toluene	Poor
<b>Oils</b>	
Mineral Oil	Excellent
Motor Oil	Excellent
Hydraulic Oil	Excellent
<b>Other Chemicals</b>	
Sodium Chloride (Salt)	Excellent
Hydrogen Peroxide (3%)	Excellent
Bleach (5%)	Good
Sea Water	Excellent

## Material Properties Table

PVC at 20°C	Value
Specific Gravity	1.45
Coefficient of linear thermal expansion	70 x 10 <sup>-6</sup> / °C
Thermal conductivity	0.19 W/m.K
Ultimate tensile strength	52 MPa
Tensile modulus (Young's)	2750 MPa
Specific heat	1045 J / kg.K
Maximum practicable temperature	60°C
Flammability	Self extinguishing. Will not support combustion
Ignitability - AS 1530.3	7*
Smoke development - AS 1530.3	9*
Spread of flame - AS 1530.3	0*
Heat evolved - AS 1530.3	2*
AWTA Product Testing, test report number 7-558788-CV	
Volume resistivity	10 <sup>16</sup> Ohm.cm (60% RH)
Surface resistivity	10 <sup>13</sup> - 10 <sup>14</sup> Ohm

## Fire Resistance

The fire resistance properties of UL651 electrical conduit, which is typically made from PVC (Polyvinyl Chloride), can be summarized as follows:

**Self-Extinguishing:** PVC conduits are inherently self-extinguishing. This means that if a fire ignites nearby and the source of ignition is removed, PVC will stop burning on its own.

**Flame Spread Rating:** PVC conduits usually have a low flame spread rating. This indicates that in the event of a fire, PVC does not support the rapid spread of flames along its surface.

**Smoke Generation:** PVC emits relatively low levels of smoke when exposed to fire. This property is important as it contributes to maintaining visibility and facilitating safe evacuation during a fire incident.

**Toxic Gas Emission:** PVC conduits generally emit low levels of toxic gases when exposed to fire. This is crucial for occupant safety as it minimizes the potential health hazards associated with smoke inhalation.

**Fire Code Compliance:** PVC conduits used in electrical installations are typically designed and tested to meet relevant fire safety standards and codes, ensuring they contribute to overall building fire safety measures.

# UL651 LSZH Electrical Conduit: Technical Properties

UL651 LSZH (Low Smoke Zero Halogen) electrical conduit is designed to provide enhanced fire safety and reduced environmental impact compared to traditional PVC conduits. This article outlines the detailed technical properties, dimensions, performance standards, and installation guidelines for UL651 LSZH conduits.

## Material Composition

UL651 LSZH conduits are manufactured using a specialized LSZH compound that incorporates flame retardants, smoke suppressants, and zero halogen additives. These materials are chosen to minimize smoke emission and the release of toxic gases during combustion, making them suitable for environments where human safety is a priority.

## Physical Properties

- **Density:** Typically conforms to ASTM D792 standards, ensuring a balanced mix of durability and flexibility.
- **Flexibility:** Designed with a minimum bend radius compliant with UL651 standards, ensuring ease of installation around corners and obstacles without compromising structural integrity.

## Mechanical Properties

- **Tensile Strength:** Meets ASTM D638 requirements, ensuring the conduit can withstand the mechanical stresses encountered during installation and use.
- **Impact Resistance:** Tested per ASTM D256 at various temperatures to ensure durability and resilience against physical impacts.
- **Crush Resistance:** Conforms to ASTM D790 standards, providing protection against external pressures and impacts typical in construction environments.

## Electrical Properties

- **Dielectric Strength:** Designed to meet ASTM D149 specifications, ensuring adequate electrical insulation properties for safe electrical installations.
- **Surface Resistivity:** Typical values conform to ASTM D257, maintaining consistent electrical performance over the conduit's lifetime.

## Thermal Properties

- **Operating Temperature Range:** Suitable for use in temperatures ranging from -X°C to +Y°C, ensuring reliability in both indoor and outdoor environments.
- **Thermal Expansion:** Coefficient of thermal expansion per ASTM D696 is minimized to prevent distortion or damage due to temperature fluctuations.

## Fire Performance

- **Flame Retardant:** UL651 LSZH conduits are typically compliant with UL94 V-0 or V-2 standards, indicating high resistance to flame spread and self-extinguishing properties.
- **Smoke Emission:** Low smoke emission characteristics per IEC 61034 standards, reducing visibility impairment in case of fire.
- **Halogen Content:** Zero halogen content as per IEC 60754-1 and -2, minimizing the release of corrosive and toxic gases during combustion.

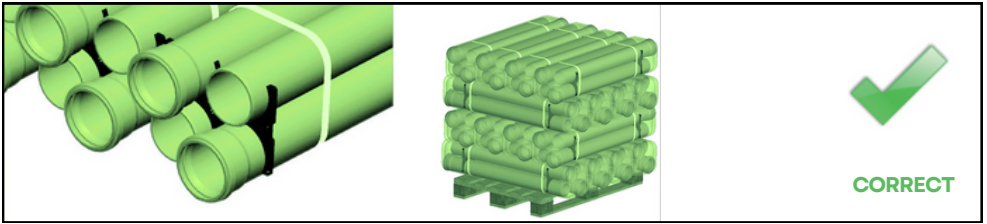
## Environmental Performance

- **UV Resistance:** Tested per ASTM G154, ensuring minimal UV degradation and maintaining color stability during prolonged exposure to sunlight.
- **Chemical Resistance:** Resistant to common industrial chemicals as per ASTM D543, suitable for installation in challenging environments where exposure to chemicals is a concern.

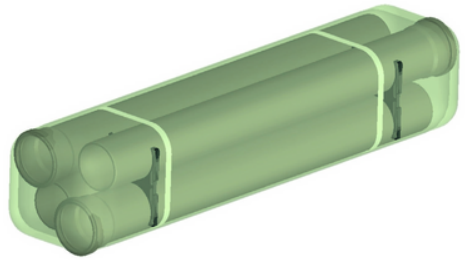
# Packaging, Storage and Transportation

## Packaging

Our pipes and fittings are packed as ready for transport in a customer-friendly way. Packing ensures safety, efficient storage and easy transport.

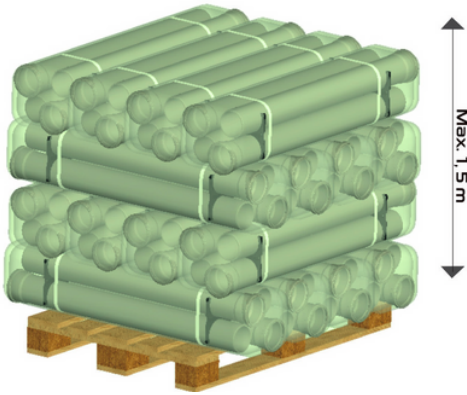


Short parts with the length of 150, 250 and 500 mm are packed in carton boxes like connection parts.



Pipes are packed by plastic clamps to hold them together. Stretch film is applied to protect pipes from pipes dust and stains.

## Storage

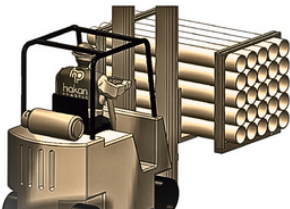
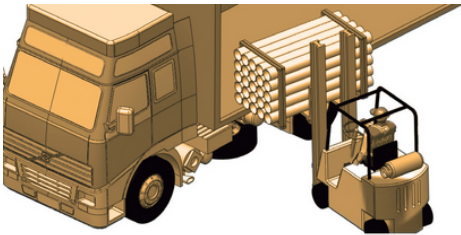


Method of storage should not cause any outflow and should not damage the pipes. As long as they are stored properly, no permanent deformations or damages will occur on the pipes and fittings. Pipes should not be stacked above 1,5 m. Pipes should be safe against sliding.



Pipes and fittings packed in carton boxes should be protected against moisture. Carton boxes should be sealed and stored in a dry area.

## Transportation



Pipes should be carefully transported to prevent any damages. Avoid sudden and hard pressures on pipes and fittings that might cause freezing in cold weather conditions. Ensure that pipes are not slided and dropped on the floor. Loading and unloading and packing of pipes in a block should be carried out by means of forklifts having flat threads and extensions.



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