

Edoburg®



CSA C22.2

# 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>

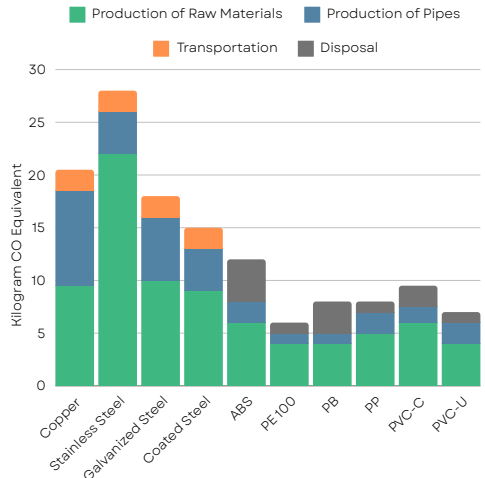
Thermoplastics in turn can be split into two main categories as partially-regulated (semi-crystalline) and irregular (amorphous) molecular structures.

- 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

The CSA C22.2 No. 211.1 standard conduit pipe represents the pinnacle of electrical conduit design, engineered to meet the stringent requirements of the Canadian Standards Association (CSA). This conduit pipe is an essential component for ensuring the safety, reliability, and efficiency of electrical systems in a wide range of environments, from residential homes to large-scale industrial complexes.

- **Versatile Applications:** Ideal for residential, commercial, and industrial installations, both indoor and outdoor.
- **Ease of Installation:** Smooth interior surfaces facilitate easy wire pulling; lightweight design aids in quick handling and mounting.
- **Enhanced Safety:** Protects wiring from physical damage, moisture, and environmental factors, reducing the risk of electrical failures.
- **Smooth Finish:** PVC feature a smooth exterior finish, enhancing the appearance and ease of cleaning.
- **Corrosion Resistance:** PVC is inherently resistant to corrosion and chemicals.
- **UV Resistant:** PVC conduits are treated to resist UV degradation, ensuring longevity in outdoor applications.
- **Flexible Configurations:** Can be cut and customized to fit specific installation requirements.
- **Fire Resistance:** Provides a level of fire resistance, adding an extra layer of safety to electrical installations.
- **Long Service Life:** Designed to provide long-term performance, reducing the need for frequent replacements or maintenance.

## Fields of Application

- Residential electrical wiring installations
- Commercial building electrical systems
- Industrial facility wiring and conduits
- Underground electrical installations
- Outdoor electrical pathways and wiring protection
- Data and communication cable management
- Renewable energy infrastructure projects
- Public infrastructure and utilities
- Transport and railway electrification projects
- Hazardous and corrosive environment installations

## Technical data

### Working Temperature

- -10°C to 60°C (14°F to 140°F)  
(Suitable for a wide range of diverse climatic conditions.)

### Pipe Standard

- CSA C22.2 No.211.1

### Certifications



# Rigid PVC Conduit



- Standard: CSA C22.2 No. 211.2 and UL651
- PVC material with great corrosion resistant.
- Weather resistant.
- Fire resistant.
- Chemical resistant.
- Nonconducting.
- Concrete tight.
- Rated for use with 75°C conductors.
- Suitable for exposed, concrete encased and direct burial applications.



Provided with nominal lengths in 10ft or 20ft. Available in grey and orange color.

Item No.	Inch Size Size	Metric Size Size	Average OD		Average ID		Min Thickness	
			Inches	mm	Inches	mm	Inches	mm
CSRCA	1/2	16	0.840	21.23	0.622	15.8	0.109	2.77
CSRCB	3/4	21	1.050	26.57	0.824	20.9	0.113	2.87
CSROC	1	27	1.315	33.27	1.049	26.6	0.133	3.38
CSROD	1-1/4	35	1.660	42.04	1.380	35.1	0.140	3.56
CSRCE	1-1/2	41	1.900	48.11	1.610	40.9	0.145	3.68
CSRCF	2	53	2.375	60.17	2.067	52.5	0.154	3.91
CSRCG	2-1/2	63	2.875	72.85	2.469	62.7	0.203	5.16
CSRCH	3	78	3.500	88.70	3.068	77.9	0.216	5.49
CSRCI	3-1/2	91	4.000	101.40	3.548	90.1	0.226	5.74
CSRCJ	4	103	4.500	114.07	4.026	102.3	0.237	6.02
CSRCK	5	129	5.563	141.05	5.047	128.2	0.258	6.55
CSRCL	6	155	6.625	168.00	6.065	154.1	0.280	7.11
CSRCM	8	200	8.620	219.00	7.980	202.6	0.322	8.18

Dimensions are nominal.



# DB2 Rigid PVC Conduit



- Standard: CSA C22.2 No. 211.1
- PVC material with great corrosion resistant.
- Weather resistant.
- Fire resistant.
- Chemical resistant.
- Nonconducting.
- Concrete tight.
- Rated for use with 75°C conductors.
- Intended for use in concrete encased or masonry and direct burial applications.



Provided with nominal lengths in 10ft or 20ft. Available in grey and orange color.

Item No.	Inch Size Size	Metric Size Size	Average OD		Average ID		Min Thickness	
			Inches	mm	Inches	mm	Inches	mm
DB2RCA	2	53	57.00	57.30	50.80	2.02	57.00	57.30
DB2RCB	3	78	82.35	82.75	76.20	2.40	82.35	82.75
DB2RCC	3-1/2	91	94.50	95.00	88.40	2.60	94.50	95.00
DB2RCD	4	103	106.85	107.30	100.10	3.06	106.85	107.30
DB2RCE	4-1/2	116	121.20	121.70	114.30	3.20	121.20	121.70
DB2RCF	5	129	134.35	134.85	126.35	4.00	134.35	134.85
DB2RCG	6	155	159.10	159.65	149.75	4.20	159.10	159.65

Dimensions are nominal.



# Electrical Nonmetallic Tubing



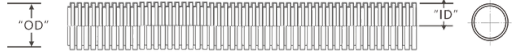
- Standard: CSA C22.2 NO. 227.1 & UL1653
- PVC material with great corrosion resistant.
- Fire resistant.
- Impact resistant.
- Deflection resistant.
- Nonconducting.
- Concrete tight.
- Intended for encased in concrete, concealed in walls or ceilings, or in direct burial applications.



Available in grey and blue color.

Item No.	Size	Average OD		Average ID		Pkg. (Roll)
		Inches	mm	Inches	mm	
ENTA	1/2	0.840	21.34	0.602	15.29	100 ft.
ENTB	3/4	1.050	26.67	0.804	20.42	100 ft.
ENTC	1	1.315	33.40	1.029	26.14	100 ft.
ENTD	1-1/4	1.660	42.17	1.360	34.55	100 ft.
ENTE	1-1/2	1.900	48.26	1.590	40.39	100 ft.
ENTF	2	2.375	60.36	2.047	51.99	100 ft.
ENTG	2-1/2	2.866	72.80	2.469	62.70	100 ft.

It is suggested that Electrical Nonmetallic Tubing (ENT) should not be stored outdoors where it is subjected to direct sunlight without protective covering, such as packing, etc.







# Technical Properties

The CSA C22.2 No. 211.1 standard conduit pipe represents the pinnacle of electrical conduit design, engineered to meet the stringent requirements of the Canadian Standards Association (CSA). This conduit pipe is an essential component for ensuring the safety, reliability, and efficiency of electrical systems in a wide range of environments, from residential homes to large-scale industrial complexes.

## Material Properties

Conduit pipes under the CSA C22.2 standard are typically made from nonmetallic materials such as:

- **PVC (Polyvinyl Chloride):** Known for its excellent electrical insulation properties, chemical resistance, and durability, PVC conduit pipes are suitable for a wide range of applications, including both indoor and outdoor installations.

## 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

Conduit pipes operate across a range of temperatures, so thermal stability is essential:

- **Operating Temperature Range:** Typically from -10°C to 60°C, ensuring performance in various climates.
- **Thermal Expansion:** Minimal expansion and contraction to maintain dimensional stability.

## Mechanical Properties

Conduit pipes must withstand mechanical stresses during installation and use:

- **Impact Strength:** Tested to ensure resistance to impacts without cracking or breaking.
- **Tensile Strength:** Minimum strength required to withstand pulling forces.
- **Compressive Strength:** Ability to withstand pressure without deformation.

These properties are crucial for protecting electrical wires and ensuring the longevity of the conduit system.

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.

- **Dielectric Strength:** High dielectric strength is essential to prevent electrical leakage and ensure safety.
- **Volume Resistivity:** High volume resistivity ensures effective insulation, preventing current from passing through the conduit material.

## Fire Resistance

Safety is paramount in electrical installations, so AS/NZS 2053 specifies fire resistance properties:

- **Flammability:** Conduits must meet flammability standards, ensuring they do not easily ignite and contribute to the spread of fire.
- **Smoke Emission:** Low smoke emission in case of fire to reduce visibility hazards and toxicity in evacuation routes.

## 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

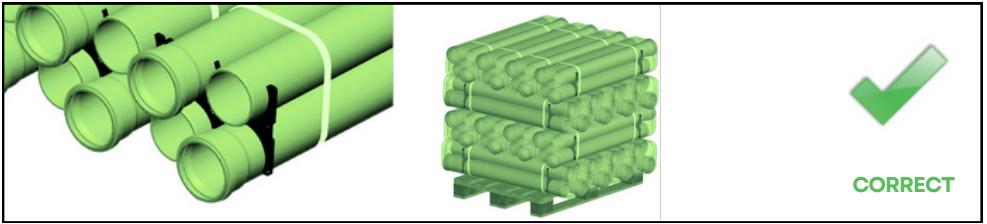
## Material Properties Table

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

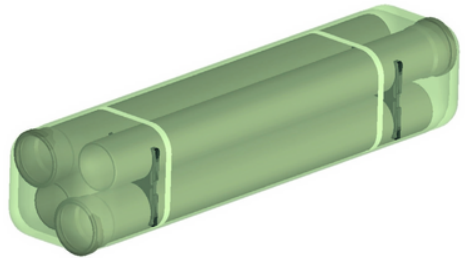
# Packaging, Storage and Transportation

## Packaging

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

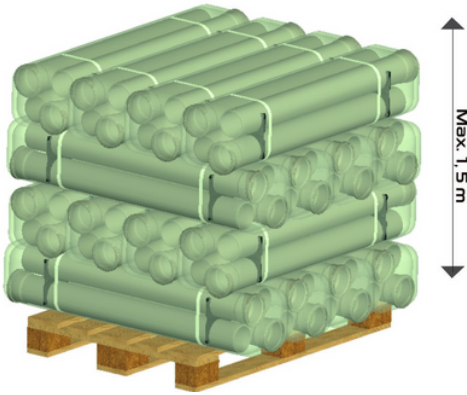


Short parts with the length of 150, 250 and 500 mm are packed in carton boxes like connection parts.



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

## Storage

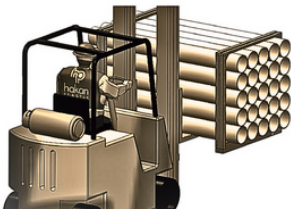
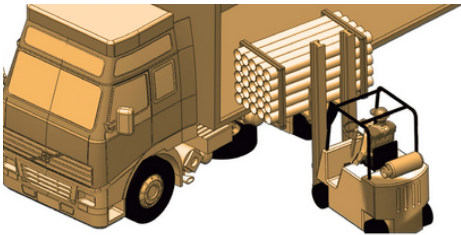


Method of storage should not cause any outflow and should not damage the pipes. As long as they are stored properly, no permanent deformations or damages will occur on the pipes and fittings. Pipes should not be stacked above 1,5 m. Pipes should be safe against sliding.



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.

# Notes

A series of horizontal dashed lines for taking notes.

Disclaimer: The information and technical data (altogether "Data") herein are not binding. The Data neither constitutes any expressed, implied or warranted characteristics, nor guaranteed properties or a guaranteed durability. All Data is subject to modification. The General Terms and Conditions of Sale of Edoburg Piping Systems apply.

# Edoburg®

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