SUPER DUCT POWER & COMMUNICATIONS DUCT

2" - 6" (50mm - 150mm)

SUPER® DUCT

Super Duct is recognized by major utilities, contractors and engineering firms as the premier ducting product available on the market.

Super Duct is manufactured with a specialized compound, and engineered for high impact and crush strength specifically required by utilities for underground duct. This compound also enhances the friction coefficient of Super Duct.

Super Duct (Type DB-2) is certified to CSA Standard C22.2 No. 211.1 both for encasement in concrete/masonry and for direct burial.

APPLICATIONS

- Utilities
- Communications
- Telecom
- Cable
- Hospitals / Medical Complexes
- Commercial Buildings

STANDARDS

CSA C22.2 No. 211.1

ADVANTAGES

1. **Light Weight**
   Super Duct is easy to carry and install, reducing labour requirements and costs.
2. **Long Lengths**
   Super Duct is available in 10' (3m) and 20' (6.1m) lengths, minimizing the number of connections needed.
3. **Bell Ends**
   Super Duct is bell-ended, allowing for easy assembly in the field.
4. **High Compressive Strength**
   Super Duct's specially formulated compound is designed to withstand high loads.
5. **Low Coefficient of Friction**
   The smooth bore of Super Duct facilitates cable pulling and eliminates costly cable damage.
6. **Quality Control**
   Stringent, continuous testing ensures that Super Duct is a consistently high quality product.
7. **Field Bending**
   The natural flexibility of IPEX Super Duct allows field bending, to accommodate minor changes in elevation or direction.

SUPER DUCT (TYPE DB-2)

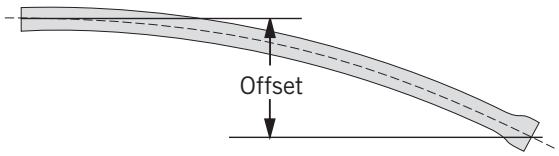
Description	CSA Requirements	Reference
Pipe Stiffness @ 5%	43.5 psi (300 kPa)	CSA C22.2 No. 211.1
Crush Resistance	198 lbs. @ 73°F (90 kg @ 23°C) 10% max. residual deflection	CSA C22.2 No. 211.1
Impact Resistance	45 ft. lbf @ 73°F (61J @ 23°C) 25 ft. lbf @ 0°F (34J @ -18°C)	CSA C22.2 No. 211.1
Residual Stress	149°F (65°C) for 4 hours. Allow to cool to 73°F (23°C). 0.5% shrinkage allowed.	CSA C22.2 No. 211.1
Joint Tightness	5 psi (35 kPa) internal water pressure applied for 24 hours.	CSA C22.2 No. 211.1

Note: Super Duct meets or exceeds all CSA requirements.

FIELD BENDING

Field bending can accommodate minor changes in elevation or direction without the use of special sweeps or fittings. the following table indicates typical maximum offset bends that can be achieved by cold bending.

ALLOWABLE OFFSET FOR SUPER DUCT



Size		Max Allowable Offset 10' Length		Max Allowable Offset 20' Length	
in.	mm	in.	mm	in.	mm
2	50	20	508	79	2 007
3	75	14	356	56	1 422
3-1/2	90	12	305	49	1 245
4	100	11	279	43	1 092
5	125	7	178	35	889
6	150	7	178	29	737

NOTES:
1. Axial deflection should not be attempted at the joints.
2. The above values were established for ambient temperatures above the freezing point. Increased radii may be desirable at below-freezing temperatures.

SHORT FORM SPECIFICATIONS

PRODUCT

Duct shall be IPEX Super Duct or approved equal. Duct, fittings, Monobloc spacers and solvent cement shall be provided by the same manufacturer to assure system integrity.

The duct is to be secured mechanically with IPEX Monobloc or vertical lock spacers to prevent disturbance to the alignment during installation.

INDENTIFICATION

Duct shall be identified for type and manufacturer and shall be traceable to plant location, date, shift and machine of manufacture. The markings shall be legible and permanent.

MATERIAL

Duct for use in underground, encased or direct burial applications shall be made from PVC compound that includes inert modifiers to give high modulus of elasticity, improved weatherability and deflection characteristics.

STANDARDS

Type DB-2 Super Duct and Solvent Cement Fittings as manufactured by IPEX Inc. shall be used for direct burial and/or concrete encased applications. The duct and fittings must be certified to CSA Standard C22.2 No. 211.1 and be installed in accordance with the Canadian Electrical Code Part 1, Rule 12-1150 through 12-1166. Polyethylene push-fit couplings are only to be used in concrete-encased application.

INSTALLATION

BENDS

Standard 90°, 45° and 22 1/2° bends are available from sizes 2" through to 6" in 24", 36", 42" and 60" radius. All bends are supplied with 6" (15.2cm) tangents. The centre line lay length (L) can be calculated using;

$$L = \left(\pi r \times \frac{\S}{180}\right) + 2 \text{ (tangent)}$$

Where: $\pi = 3.14$

L = centre line lay length

r = radius of bend

$\S$ = angle of bend

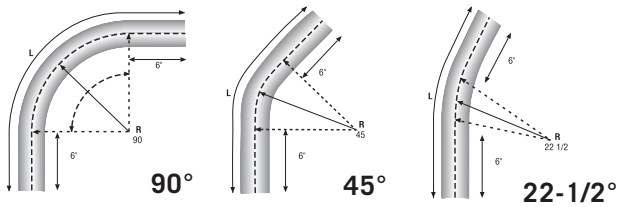
tangent = 6"

Example: for a 3" 90° bend with a 36" radius - calculate the lay length:

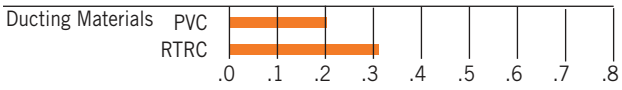
$$L = \left(3.14 \times 36 \times \frac{90°}{180°}\right) + 2\ (6)$$

$$L = 69 \text{ inches}$$

$$L \text{ (metres)} = \frac{L \text{ imperial}}{12 \times 3.281} = \frac{69"}{39.37} = 1.75\text{m}$$



STATIC FRICTION COEFFICIENT



SUPER DUCT DIMENSIONS

Dimension		Minimum ID		Nominal Wall		Average OD	
in	mm	in	mm	in	mm	in	mm
2	50	2.001	50.83	.082	2.08	2.250	57.15
3	75	3.000	76.20	.097	2.46	3.250	82.55
3-1/2	90	3.480	88.39	.109	2.77	3.730	94.74
4	100	3.941	100.10	.120	3.05	4.216	107.09
5	125	4.974	126.34	.153	3.89	5.299	134.60
6	150	5.896	149.76	.180	4.57	6.275	159.39

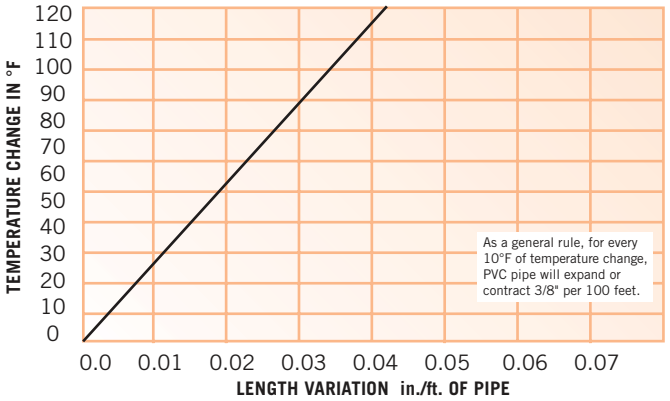
EXPANSION AND CONTRACTION

The following precautions should be exercised when extreme temperature variations are anticipated during the installation of IPEX Super Duct.

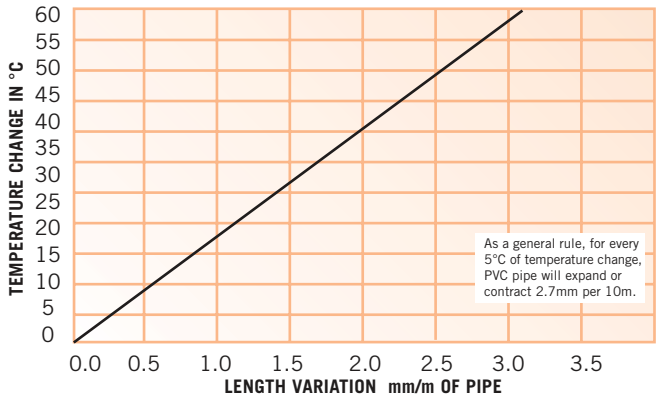
1. Allow extra duct footage at each tie-in for contraction when duct temperature is higher than soil temperature. Allow extra room for expansion if reverse condition exists.
2. Backfill from tie-in point toward end of duct run.

The coefficient of thermal expansion of IPEX Super Duct is 3 x 10^{-5} in./in./°F (5.4 x 10^{-5} mm/mm/°C). These charts show the expansion that can be expected at various temperature ranges for unburied (unrestrained) duct.

PVC Pipe Length Variation due to Temperature Change (°F)
Coefficient = 3.6 x 10^{-4} in./ft./°F



PVC Pipe Length Variation due to Temperature Change (°C)
Coefficient = .054 x 10^{-5} mm/m/°C



Universal Pipe Plug

Size inches	Part Number	Product Code
2 & 2-1/2	UPP35	029386
3 & 3-1/2	UPP45	029387
4	UPP55	029388
5	UPP60	029389
6	UPP65	029390

Female Adapter

Size inches	Part Number	Product Code
2	FEMA20	029141
3	FEMA30	029142
3-1/2	FEMA35	029143
4	FEMA40	029144
5	FEMA50	029145
6	FEMA60	029146

Reducing Adapter Coupling – Duct to PVC Conduit

Size inches	Part Number	Product Code
3 x 2	ARIG3020	029191
4 x 2	ARIG4020	029192
4 x 3	ARIG4030	029187

PVC Adapter Coupling – Asbestos Cement or Bituminous Fibre

3-1/2	ACFB35	029163
4	ACFB40	029164

Conduit to Duct Adapter

2	ARIG20	029181
2 (long)	ARIG20L	029188
3	ARIG30	029182
3-1/2	ARIG35	029183
4	ARIG40	029184
5	ARIG50	029185
6	ARIG60	029186

Note: Duct to RTRC Conduit Adapters are available on request.