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)

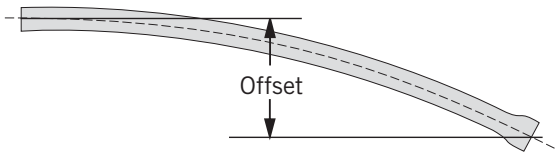
Description	CSA Requirements	Reference
Pipe Stiffness @ 5%	43.5 psi (300 kPa)	CSA C22.2 No. 211.1
Crush Resistance	198 lbs. @ 73°F (90 kg @ 23°C) 10% max. residual deflection	CSA C22.2 No. 211.1
Impact Resistance	45 ft. lbf @ 73°F (61J @ 23°C) 25 ft. lbf @ 0°F (34J @ -18°C)	CSA C22.2 No. 211.1
Residual 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

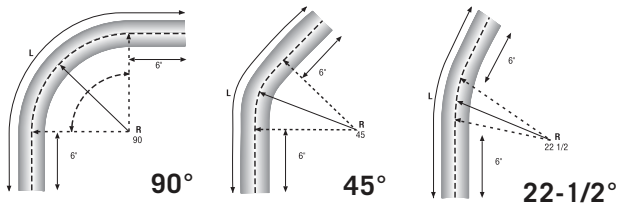
tangent = 6"

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

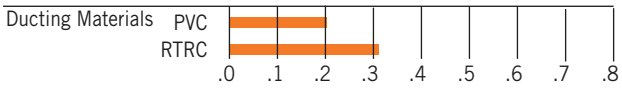
$$L = \left(3.14 \times 36 \times \frac{90°}{180°}\right) + 2\ (6)$$

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

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



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

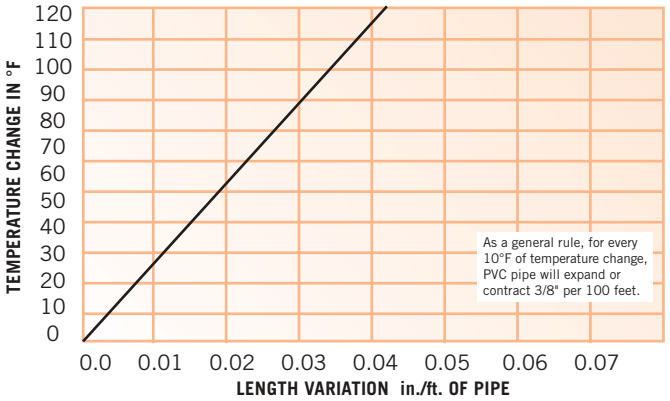
EXPANSION AND CONTRACTION

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

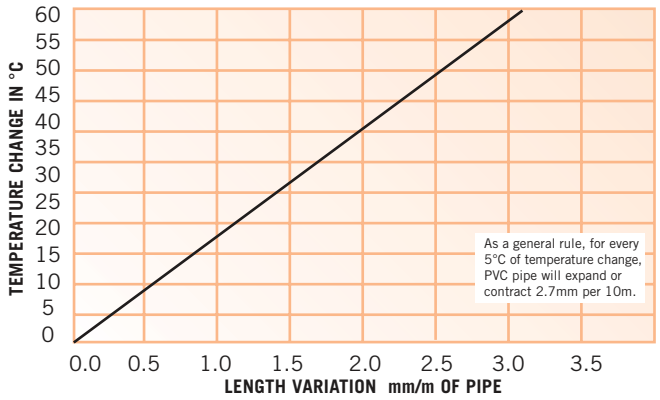
1. Allow extra duct footage at each tie-in for contraction when duct temperature is higher than soil temperature. Allow extra room for expansion if reverse condition exists.
2. Backfill from tie-in point toward end of duct run.

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.

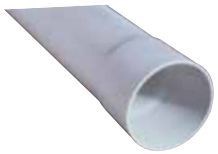
PVC Pipe Length Variation due to Temperature Change (°F)
Coefficient = 3.6 x 10^{-4} in./ft./°F



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



SUPER DUCT PRODUCT SELECTION



CSA Type II – 10' Length Belled

Dimension (in)	Product Code	Product Code B.C.	Ft/Crate	Weight/ 100' (lbs)
2	008220	*008225	2,460	33.7
3	008230	*008233	1,120	61.2
3-1/2	008235	*008235	810	77.3
4	008240	*008244	630	99.2
5	008250	*008253	430	159.6
6	008260	*008263	280	226.6

*Product Codes are for B.C. only.

CSA Type II – 20' Length Belled

Dimension (in)	Product Code	Product Code B.C.	Ft/Crate	Weight/ 100' (lbs)
2	008221	*008226	4,920	33.7
3	008231	*008234	2,240	61.2
3-1/2	008236	*008236	1,620	77.3
4	008241	*008245	1,260	99.2
5	008251	*008254	860	159.6
6	008261	*008264	560	226.6

*Product Codes are for B.C. only.

CSA Type II – Split Duct

Dimension (in)	Product Code	Ft/Crate	Weight/100' (lbs)
2	008222	2,460	33.7
3	008232	1,120	61.2
3-1/2	008237	810	77.3
4	008242	630	99.2
5	008252	430	159.6
6	008262	280	226.6

SUPER DUCT FITTINGS

PVC Coupling - Solvent Weld

Size inches	Part Number	Product Code
2	SWC020	029001
2 (long)	SWC020L	029009
3	SWC030	029002
3-1/2	SWC035	029003
4	SWC040	029004
5	SWC050	029005
6	SWC060	029006

Polyethylene Coupling – Push Fit*

2	PFC020	029011
3	PFC030	029012
3-1/2	PFC035	029013
4	PFC040	029014
5	PFC050	029015
6	PFC060	029016

* Suitable for concrete-encased applications only

PVC 5° Coupling – Solvent Weld

2	5ACS20	029041
3	5ACS30	029042
3-1/2	5ACS35	029043
4	5ACS40	029044
5	5ACS50	029045
6	5ACS60	029046

Polyethylene 5° Coupling – Push Fit*

2	5APF20	029620
3	5APF30	029030
3-1/2	5APF35	029502
4	5APF40	029998
5	5APF50	029050

* Suitable for concrete-encased applications only

Expansion Joint

2	EXPJ20	029151
3	EXPJ30	029152
3-1/2	EXPJ35	029153
4	EXPJ40	029154