

## SUPER DUCT (TYPE DB-2)

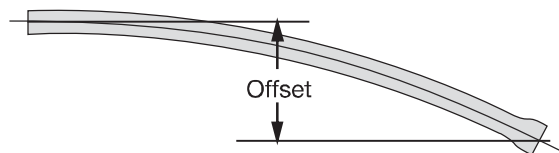
Description	CSA Requirements	Reference
Pipe Stiffness @ 5%	43.5 psi (300 kPa)	CSA C22.2 No. 211.1
Crush Resistance	198 lbs. @ 73°F (90 kg @ 23°C) 10% max. residual deflection	CSA C22.2 No. 211.1
Impact Resistance	45 ft. lbf @ 73°F (61J @ 23°C) 25 ft. lbf @ 0°F (34J @ -18°C)	CSA C22.2 No. 211.1
Residual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

### IDENTIFICATION

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;

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

**Where:** - = 3.14

L = centre line lay length

r = radius of bend

\\$ = angle of bend

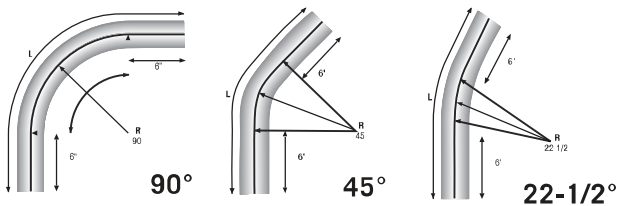
tangent = 6"

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

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

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

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



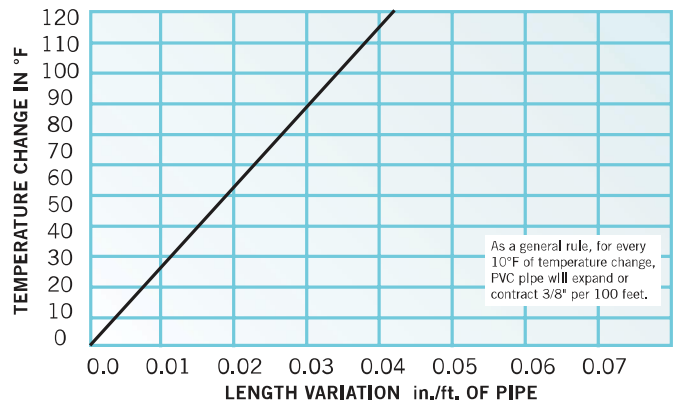
## EXPANSION AND CONTRACTION

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

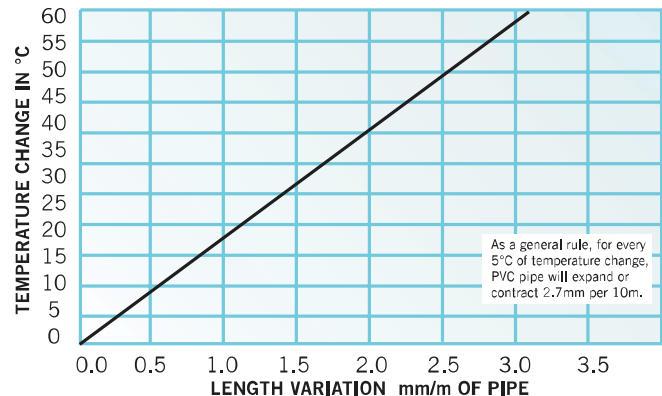
1. Allow extra duct footage at each tie-in for contraction when duct temperature is higher than soil temperature. Allow extra room for expansion if reverse condition exists.
2. Backfill from tie-in point toward end of duct run.

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

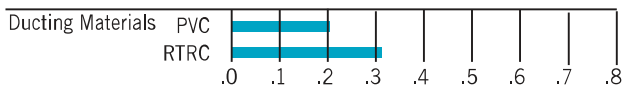
PVC Pipe Length Variation due to Temperature Change (°F)  
Coefficient =  $3.6 \times 10^{-4}$  in./ft./°F



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



### 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

## SUPER DUCT PRODUCT SELECTION

Dimension (in)	Product Code	Product Code B.C.	Ft/Crate	Weight/100' (lbs)
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### CSA Type II – 10' Length Belled

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

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.

Dimension (in)	Product Code	Ft/Crate	Weight/100' (lbs)
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### CSA Type II – Split Duct

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

Size inches	Part Number	Product Code
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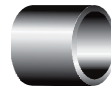
### PVC Coupling - Solvent Weld

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



### 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

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



### Expansion Joint

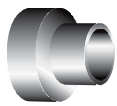
2	EXPJ20	029151
3	EXPJ30	029152
3-1/2	EXPJ35	029153
4	EXPJ40	029154



## SUPER DUCT FITTINGS

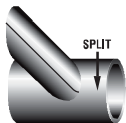
Size inches	Part Number	Product Code
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### Reducer Coupling – Solvent Weld



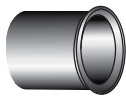
3 x 2	RC3020	029021
3-1/2 x 2	RC3520	029039
3-1/2 x 3	RC3530	029022
4 x 2	RC4020	029023
4 x 3	RC4030	029024
4 x 3-1/2	RC4035	029025
5 x 4	RC5040	029026
6 x 4	RC6040	029027

### Split Wye – Solvent Weld



2	SPLY20	029051
3	SPLY30	029052
3-1/2	SPLY35	029053
4	SPLY40	029054

### PVC Bell Ends



2	BELL20	029061
3	BELL30	029062
3-1/2	BELL35	029063
4	BELL40	029064
5	BELL50	029065
6	BELL60	029066

### Terminator with Knock-Out Plugs



3	TERM30	029826
3 1/2	TERM35	029523
4 (with holes)	TERM40H	029822
4 (no holes)	TERM40W	029827

### Cap – Solvent Weld



2	SWCA20	029071
3	SWCA30	029072
3-1/2	SWCA35	029073
4	SWCA40	029074
5	SWCA50	029075
6	SWCA60	029076

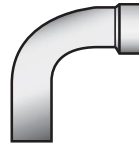
### Tapered Plug



2	PLUG20	029131
3	PLUG30	029132
3-1/2	PLUG35	029133
4	PLUG40	029078
5	PLUG50	029079
6	PLUG60	029136

Size inches	Part Number	Product Code	Product Code Prairies
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### 90° Long Sweep Bend



2 x 24 R	902024	029091	*129091
2 x 36 R	902036	029092	*129092
2 x 60 R	902060	029036	*129036
3 x 24 R	903024	029055	*129055
3 x 36 R	903036	029093	*129093
3 x 60 R	903060	029134	*129134
3-1/2 x 24 R	903524	029123	*129123
3-1/2 x 36 R	903536	029094	*129094
3-1/2 x 60 R	903560	029135	*129135
4 x 24 R	904024	029047	*129047
4 x 36 R	904036	029095	*129095
4 x 60 R	904060	029096	*129096
5 x 42 R	905042	029097	*129097
5 x 60 R	905060	029037	*129037
6 x 60 R	906060	029098	*129098

\*Product Codes are for the Prairie Provinces only.

### 45° Long Sweep Bend



2 x 24 R	452024	029111	*129111
2 x 36 R	452036	029112	*129112
3 x 24 R	453024	029082	*129082
3 x 36 R	453036	029113	*129113
3-1/2 x 36 R	453536	029114	*129114
4 x 24 R	454024	029128	*129128
4 x 36 R	454036	029115	*129115
4 x 60 R	454060	029116	*129116
5 x 42 R	455042	029117	*129117
6 x 60 R	456060	029118	*129118

\*Product Codes are for the Prairie Provinces only.

### 22 1/2° Long Sweep Bend



3 x 36 R	223036	029085	*129085
4 x 36 R	224036	029204	*129204
5 x 42 R	225042	029249	*129249

\*Product Codes are for the Prairie Provinces only.

Note: Special radius bends are available upon request.