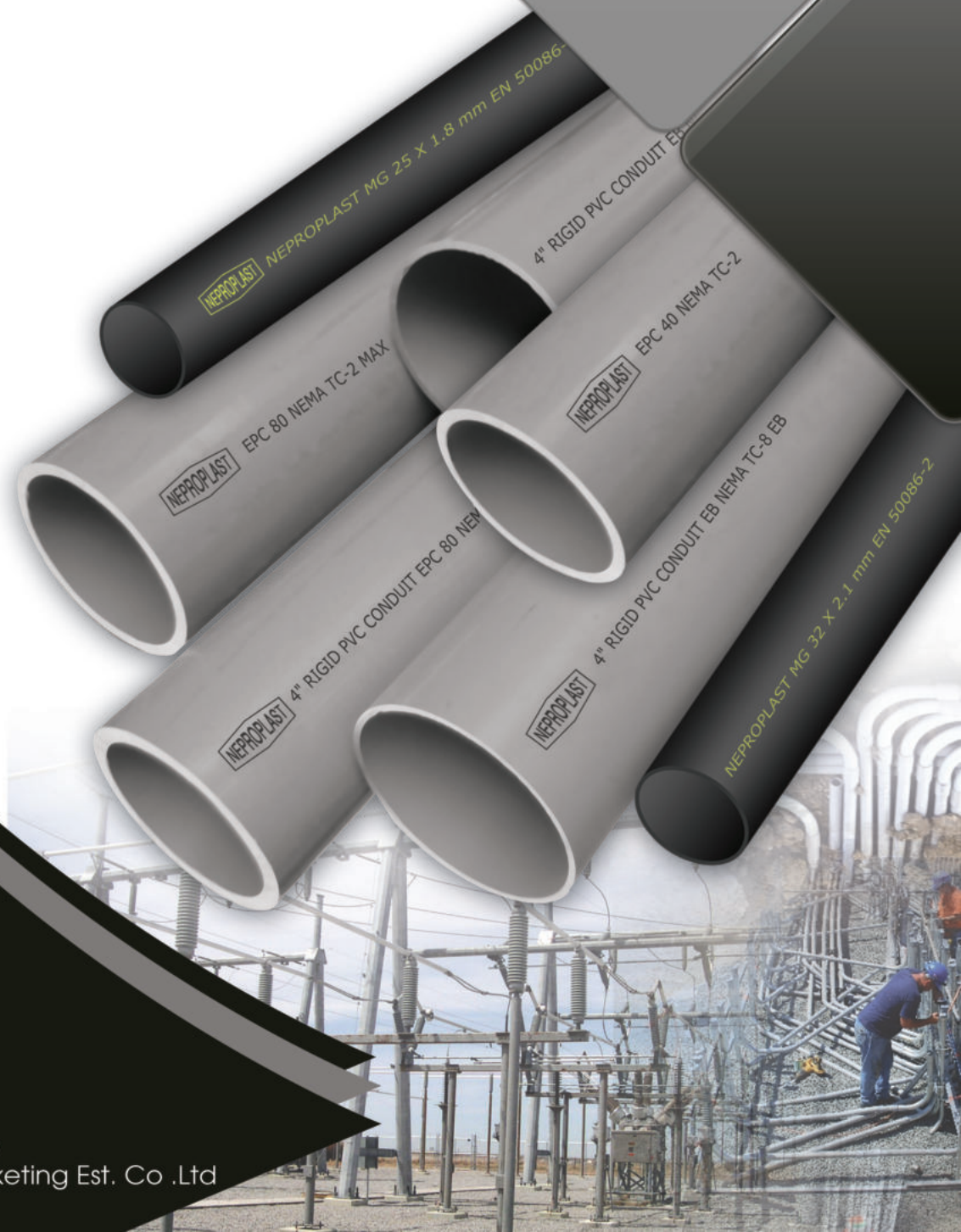




NEW PRODUCTS INDUSTRIES CO. LTD

NEPROPLAST RIGID PVC CONDUIT PIPES & FITTINGS

For Electrical and Telecommunication Networks



Distributed by
National Marketing Est. Co. Ltd

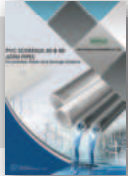
CATALOGUES



NEPROPLAST uPVC PIPES CATALOGUE
DIN, BS STANDARDS



NEPROPLAST uPVC ORANGE COLOR DRAINAGE FITTINGS CATALOGUE
For Drainage System



NEPROPLAST RIGID PVC PIPES ASTM STANDARD CATALOGUE
For potable Water and Sewage Systems
SCHEDULE 40 AND 80



NEPROPLAST FLOWGUARD™ (CPVC) PIPES CATALOGUE
Quality Pipe with Stripe For Potable Water Network
SCHEDULE 80



NEPROPLAST PVC AND CPVC ASTM FITTINGS CATALOGUE
For potable Water and Sewage Systems
SCHEDULE 40 AND 80



NEPROPLAST PVC DRAIN-WASTE-VENT (DWV) ASTM FITTINGS CATALOGUE
For Drainage Systems



NEPROPLAST RIGID PVC CONDUIT PIPES AND FABRICATED FITTINGS CATALOGUE
For Electrical and Telecommunication Networks



NEPROPLAST CASING AND SCREEN PIPES CATALOGUE



NEPROPLAST HDPE WATER, GAS AND SEWAGE SYSTEMS CATALOGUE



NEPROPLAST POLYETHYLENE CORRUGATED OPTICAL DUCT (COD) & SUB DUCT



FOREWARD

NEPROPLAST (New Products Industries) was established in the 1969 as the first manufacturing facility to introduce the uPVC piping systems to the market in Saudi Arabia. Since its establishment, NEPROPLAST has followed a strict policy in producing high quality pipes. Using state of the art equipment and tools in its production facilities, hiring a highly trained professional staff, and working with a very experienced team of consultants in the industry. The initial production of NEPROPLAST uPVC pipes were manufactured according to British Standard Specifications BS 3505/3506. At a later stage, NEPROPLAST started to manufacture pipes and fittings according to International Specifications ISO. NEPROPLAST actively participated with Saudi Arabia Standard Organization SASO to set the Saudi Arabian Standard SAS 14/15/1396. In the mid 80s, NEPROPLAST started the production of PVC pipes and fittings according to ASTM standards for schedule 40, schedule 80, and CPVC pipes for sch80. By producing a wide range of pipes and fittings according to different standards, NEPROPLAST has established for itself a strong position in the market to serve the construction industry in the fields of water network pressure lines, sewerage and drainage non-pressure lines, and electrical & telecommunication conduits . NEPROPLAST made its pipes and fittings available in both options of Rubber Ring or Solvent Cement jointing systems.

In 2009, NEPROPLAST made a significant move into modern, heavy metal free stabilizers for all its uPVC & cPVC products. A move which ensured total elimination of toxicological content throughout the entire NEPROPLAST product range. Organic stabilizers pipes and fittings ensure a safe drinking water supply, free of any possible toxic traces which can develop through the use of heavy metal uPVC stabilizers.

All NEPROPLAST drinking water products are now accredited through NSF, proof of its excellent health safety factor.

NEPROPLAST added to its products portfolio the production of Polyethylene pipes (HDPE) in 2009. NEPROPLAST HDPE products range covers pipes and ducts to serve the water, gas, electrical, and telecommunication applications. NEPROPLAST recently introduced to the market the Polyethylene Corrugated-Optic-Ducts (COD) as a unique product for fiber optic and electrical cabling installations.

All NEPROPLAST products are marketed and sold through National Marketing Est. Co LTD. which has more than 25 branches covering all cities and urban areas across the Kingdom of Saudi Arabia. National Marketing has an export department responsible for exporting NEPROPLAST products to Middle East and North African (MENA) markets. In addition to NEPROPLAST products, National Marketing Est. Co. imports a wide range of fittings, valves, solvent cements, and other accessory components. Nowadays, National Marketing Est. Co LTD. is considered the largest trading company in Saudi Arabia that has all kinds of plastic pipes, fittings, valves, and cements available in its stocks for all traders and contractors in the Saudi market.

Both NEPROPLAST and NATIONAL MARKETING strive to be the largest quality leader in the supply of plastic piping systems to serve the water, gas, electrical & telecommunication sectors across the Middle East.

Isam K.Kabbani
Chairman
IKK Group of Companies



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1. Introduction

Standards

NEPROPLAST Ducts & Conduits meet the requirements prescribed by the following standards organizations:

- 1) National Electrical Manufacturer's Association (NEMA - USA)
- 2) American Society for Testing & Material, (ASTM)
- 3) Saudi Arabian Standard Organization (SASO)
- 4) British Standards Conduits for Electrical Installation .

Approval

NEPROPLAST Ducts & Conduits are Subjected to strict quality control to ensure that only products which meet the standard are delivered to Customers. NEPROPLAST has a well equipped laboratory capable of carrying out the required tests. It also maintains contact with local and overseas independent laboratories for conducting third party product testing and analysis. NEPROPLAST quality activities start from selections and purchase of raw materials and equipment, through the manufacturing process, and finally to loading and delivery. NEPROPLAST is currently adopting ISO 9001 Quality System as the basic foundation for its quality management, certified & assessed by the SASO Registered Firm.

Product Range

NEPROPLAST Ducts & Conduits are available in 3 and 6 meter lengths, These can be supplied in plain or with belled ends for solvent cement joints. A special operational department to Fabricate electrical items to meet with project specification and special requests are available. Other accessories which relate to wiring and ducting are available upon request.

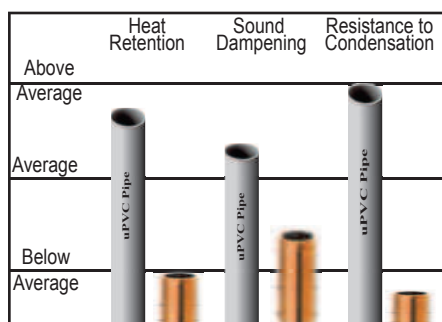
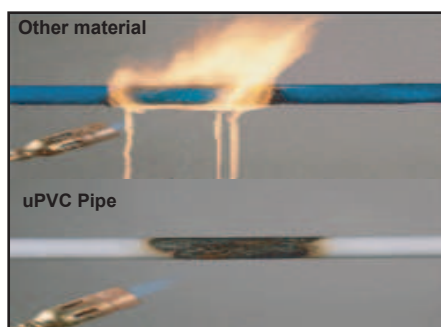
Installation

NEPROPLAST Ducts & Conduits are quick, easy to install using commercially available solvent cements and cleaners.

NEPROPLAST Ducts & Conduits are widely Approved with various Organizations :

such as Saudi Aramco, Saudi Electrical Company(SCECO), Royal Commission, Marafiq, Saudi Telecom Company and a wide range of consulting Offices as well as various Government Ministries, etc .

2. ADVANTAGES OF PVC DUCT & CONDUIT PIPES & FITTINGS



1. Fire Proof:

NEPROPLAST conduit pipes & Fittings do not support combustion and are self extinguishing, it will not burn unless an external flame source is applied.

4. Safety

NEPROPLAST conduit pipes & Fittings is non conductive & non-Sparking.

6. Non - Corrosive

NEPROPLAST conduit pipes & Fittings will not corrode and is not affected by concrete additives, electrolysis, corrosive atmospheres, soils salts or excessive humidity.

2. Thermal Conductivity:

NEPROPLAST conduit pipes & Fittings have lower thermal conductivity than for metals. This prevents "sweating" formation of condensation on the pipe walls.

5. Non - Magnetic

NEPROPLAST conduit pipes & Fittings is non magnetic, thus reduces voltage drop and minimize power loss

3. Ease of Handling & Installation :

NEPROPLAST conduit pipes & Fittings are easy to install and maintain with complete range of solvent cement fabricated electrical fittings saving time, effort and money as it is light in weight having a specific weight which is about one fifth of steel pipes. This will cut down on transportation costs and facilitate pipes installation.



3. PROPERTIES OF NEPROPLAST ASTM PVC CONDUIT PIPES & FITTINGS

Table - 1

All values are registered at 23°C 73°F.

Properties	Test Method as per ASTM	Unit	Values
Mechanical Properties			
Tensile Strength	D - 638 / type1	PSI	7,000
		MPA	> 50
Modulus of Elasticity in Tension	D - 639 / type1	PSI	500,000
		MPA	> 2700
Flexural Strength	D - 790 proc.B	PSI	14,500
		MPA	100
Izod Impact	D - 256	Ft-Lbs / In of notch	4.0
Hardness (Rockwell)	D - 785	Rockwell "R"	119
Thermal Properties			
Coefficient of Thermal Linear Expansion	D - 696	in/in/°F	3.0x10 ⁻⁵
	D - 696	cm/(cm°C)	6.0 x 10 ⁻⁵
Vicat Softening Point	D - 1525(Rate A)	°C	> 80
Heat Deflection	D - 648(264 psi)	°C(°F)	>70 (158)
Electrical Properties			
Dielectric Strength	D - 150	Volts/Mil	1413
Dielectric Constant	D - 150	60cps at 30°F	3.7
Volume Resistivity	D - 257	Ohm/cm at 95°C	1.2 x10 ¹²
Flammability Properties			
Flammability rating	UL-94/0.062"	Rating	V - 0
Flame Spread	ASTM E84		10
Smoke Developed	ASTM E84		250
Limiting Oxygen Index	UL 94		43%
Burning Rate			Self - Extinguishing



4. NEMA TC-2 PIPES

NEPROPLAST PVC Electrical Plastic Tubing (EPT) & Conduit (EPC - 40 & EPC - 80)

Table No.4.a Dimensions of Electrical Plastic Tubing

Nominal pipe size Inch.	Outside Diameter		EPT-A-PVC			EPC - 40 -PVC			EPC 80 - PVC		
			Wall Thickness		N. Weight Kgs / m	Wall Thickness		N. Weight Kgs / m	Wall Thickness		N. Weight Kgs / m
	Inch	mm	Inch	mm		Inch	mm		Inch	mm	
1/2"	0.840	21.34	0.060	1.52	0.155	0.109	2.77	0.248	0.147	3.73	0.309
3/4"	1.050	26.67	0.060	1.52	0.197	0.113	2.87	0.329	0.154	3.91	0.418
1"	1.345	33.40	0.060	1.52	0.250	0.133	3.38	0.483	0.179	4.55	0.614
1 1/4"	1.660	42.15	0.070	1.78	0.365	0.140	3.56	0.652	0.191	4.85	0.850
1 1/2"	1.900	48.26	0.080	2.03	0.468	0.145	3.68	0.779	0.200	5.08	1.030
2"	2.375	60.32	0.100	2.54	0.717	0.154	3.91	1.04	0.218	5.54	1.430
2 1/2"	2.875	73.02	0.110	2.79	0.952	0.203	5.16	1.65	0.276	7.01	2.180
3"	3.500	88.90	0.125	3.18	1.310	0.216	5.49	2.160	0.300	7.62	2.900
4"	4.500	114.30	0.150	3.81	2.000	0.237	6.02	3.070	0.377	8.56	4.260
5"	5.563	141.30	----	----	----	0.258	6.55	4.17	0.375	9.52	5.910
6"	6.625	168.28	----	----	----	0.280	7.11	5.410	0.432	10.97	8.130
8"	8.625	219.07	----	----	----	0.321	8.18	8.143	0.499	12.70	12.400

EPT-A-PVC Electrical Plastic Tubing for encasement in concrete, EPC 40 Electrical Plastic Conduit for normal duty application & EPC 80 Electrical Plastic Conduit for heavy-duty application



3/4" RIGID PVC CONDUIT EPC 40
NEMA TC-2
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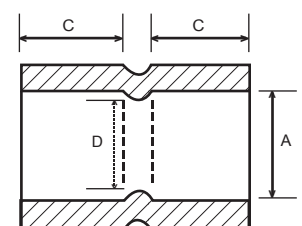
5. NEMA TC-3 FITTINGS using NEMA TC-2 PIPES

NEPROPLAST PVC FITTINGS FOR USE WITH RIGID PVC CONDUIT AND TUBING

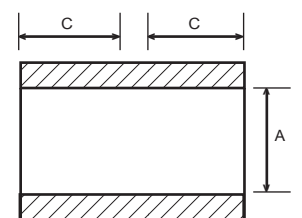
Table - 5.a Coupling and Bell End

Nominal Size	Inches			Millimeters		
	Socket Entrance Average Dia A	Socket Length C	Inside Diameter D	Socket Entrance Average Dia A	Socket Length C	Inside Diameter D
1/2	0.852	0.652	0.630	21.64	16.56	16.00
3/4	1.064	0.719	0.834	27.03	18.26	21.18
1	1.330	0.875	1.059	33.78	22.22	26.90
1 1/4	1.677	0.938	1.392	42.60	23.83	35.36
1 1/2	1.918	1.062	1.622	48.72	26.97	41.20
2	2.393	1.125	2.079	60.78	28.58	52.81
2 1/2	2.890	1.469	2.484	70.41	37.31	63.09
3	3.515	1.594	3.083	89.28	40.49	78.31
3 1/2	4.015	1.687	3.598	101.98	42.85	91.39
4	4.515	1.750	4.076	114.68	44.45	103.53
5	5.593	1.937	5.097	142.06	49.20	129.46
6	6.658	2.125	6.115	169.11	53.98	159.32

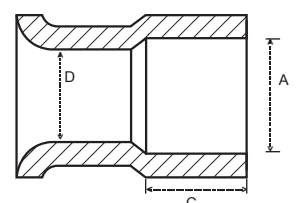
REGISTER COUPLING:



REPAIR COUPLING:



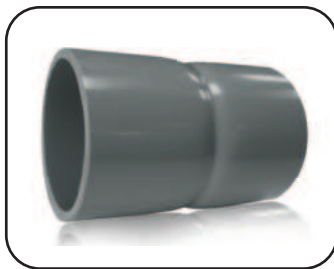
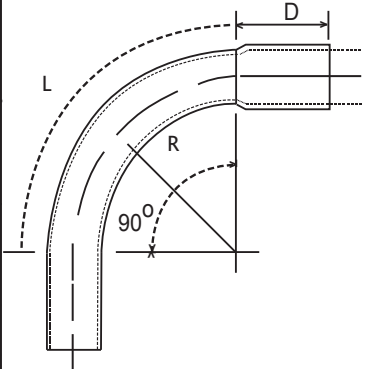
BELL END COUPLING:



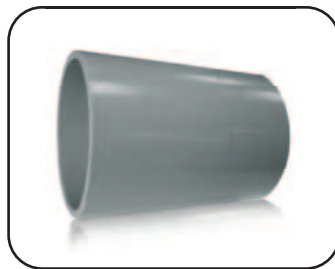
5. NEMA TC-3 FITTINGS using NEMA TC-2 PIPES

Table - 5.b Long Radius Bend

Nominal Size	Inches				Millimeters			
	Radius R	Socket Depth D	Max	Min	Radius R	Socket Depth D	Max	Min
1/2"	4.00	1.500	0.652	6.28	101.60	38.10	16.56	159.51
3/4"	4.50	1.500	0.719	7.06	114.30	38.10	18.26	179.45
1"	5.75	1.875	0.875	9.02	146.05	47.63	22.23	229.29
1 1/2"	8.25	2.000	1.062	12.95	209.55	50.80	26.97	328.99
2"	9.50	2.000	1.125	14.91	241.30	50.80	28.58	378.84
2 1/2"	10.50	3.000	1.469	16.48	266.70	76.20	37.31	418.71
3"	13.00	3.125	1.594	20.41	330.20	79.38	40.49	518.41
4"	16.00	3.375	1.750	25.12	406.40	85.73	44.45	638.04
6"	30.00	3.750	2.125	47.10	762.00	95.25	53.98	1196.34



TC 3 - Register coupling



TC 3 - Repair coupling



TC 3 - Long Radius Bend



TC 3 - Bell End

6. NEMA TC-8 & TC-6 PIPES

NEPROPLAST PVC PLASTIC UTILITIES DUCT FOR UNDERGROUND INSTALLATIONS

Table No.6.a Dimensions of Underground Utilities Duct

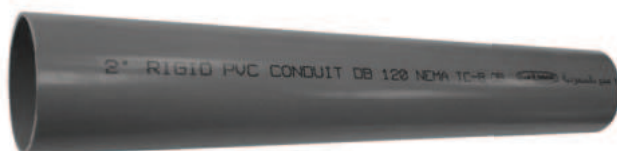
Nominal pipe size Inch.	Outside Diameter		TYPE EB - 20		TYPE EB - 35		TYPE DB - 60		TYPE DB - 100		TYPE DB - 120	
	Inch	mm	Wall Thickness		Wall Thickness		Wall Thickness		Wall Thickness		Wall Thickness	
			Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
1"	1.315	33.40	-	-	-	-	-	-	-	-	0.060	1.52
1 1/2"	1.900	48.26	-	-	-	-	-	-	-	-	0.060	1.52
2"	2.375	60.32	-	-	0.060	1.52	0.060	1.52	0.060	1.52	0.077	1.96
3"	3.500	88.90	0.067	1.70	0.076	1.93	0.076	2.84	0.076	2.84	0.118	3.00
4"	4.500	114.30	0.089	2.26	0.100	2.54	0.100	3.68	0.100	3.68	0.154	3.91
5"	5.563	141.30	0.112	2.84	0.126	3.20	0.126	4.55	0.126	4.55	0.191	4.85
6"	6.625	168.28	0.135	3.42	0.152	3.86	0.152	5.41	0.152	5.41	0.227	5.77

Note: Table 6.a Confirm to SCECO Specification 23 - TMSS 01 Rev .0.

"Type EB for Encased Burial in Concrete & Type DB for Direct Burial without Concrete"

Pipe Length: Standard 6 meters (6m)

Figures 20,35, 60 100 & 120 pipe stiffness (minimum)



RIGID PVC CONDUIT DB 120
NEMA TC8 DB
صنعت بالاسعودية
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7. NEMA TC-9 FITTINGS using NEMA TC-6 & TC-8 PIPES

NEPROPLAST FITTINGS FOR PVC PLASTIC UTILITIES DUCT FOR UNDERGROUND INSTALLATIONS

Table - 7.a. Repair Coupling

Nominal Size	Inches		Millimeters	
	Socket Entrance Inside Diameter	Minimum Socket Depth	Socket Entrance Inside Diameter	Minimum Socket Depth
	A	C	A	C
2"	2.400	1.794	60.96	45.65
3"	3.538	2.925	89.87	74.42
4"	4.544	3.424	115.42	87.12
6"	6.687	5.062	169.85	128.80

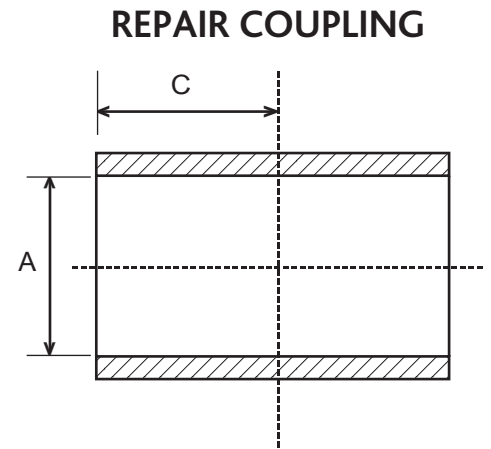


Table - 7.b Register Coupling

Nominal Size	Inches			Millimeters		
	Maximum A	Minimum N	Minimum C	Maximum A	Minimum N	Minimum C
2"	2.400	3/32	1.750	60.96	2.4	44.45
3"	3.538	7/64	2.875	89.87	2.8	73.02
4"	4.544	7/64	3.375	115.42	2.8	85.72
6"	6.687	9/64	5.000	169.85	3.6	127.00

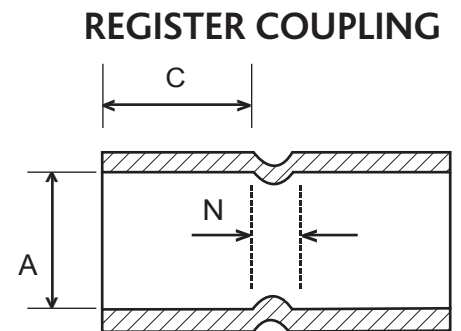
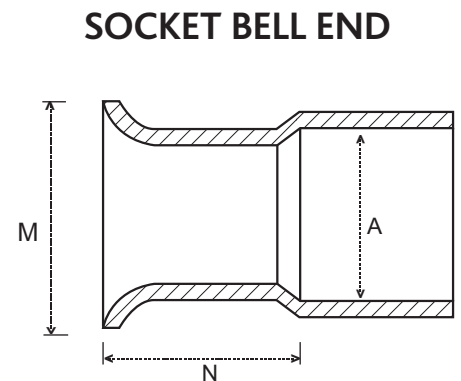
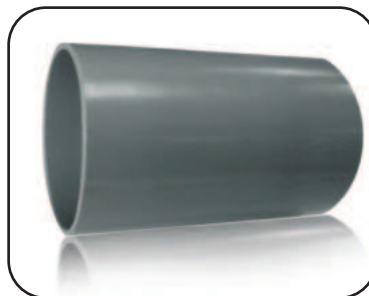


Table - 7.c Socket Bell End

Nominal Size	Inches			Millimeters		
	Maximum M	Minimum N	Minimum A	Maximum M	Minimum N	Minimum A
2"	4 9/32	2 25/32	2.400	108.7	70.6	60.96
3"	5 9/32	2 15/16	3.538	134.1	74.6	89.87
4"	4 3/4	3	4.544	120.6	76.2	115.42
6"	6 1/2	4 1/4	6.687	165.1	108.0	169.85



TC 9 - Bell End



TC 9 - Repair Coupling



TC 9 - Register Coupling



8. SAUDI ARABIA STANDARDS (SSA 255/ 1981) PIPES

8.a NEPROPLAST PLASTIC CONDUITS AND FITTINGS FOR ELECTRICAL INSTALLATION

Table No. 8.a Dimensions of Rigid PVC Conduit

Nominal Size	Outside Diameter (d1)		Minimum Inside Diameter (d2)
	Dimension	Tolerance	
16	16	+0.0	13.0
20	20	-0.3	16.9
25	25	+0.0	21.4
32	32	-0.4	27.8

Dimensions in millimeters



9. SAUDI ARABIA STANDARDS (SSA 255/ 1981) FITTINGS

Table No. 9.a Long Radius Bend

Nominal Size	Outside Diameter of Bend (d1)		Minimum Inside Diameter of Bend (d2)	Inside Diameter of Collar (d3)	R	Y	I ₁	I ₂
	Dimension	Tolerance						
16	16	+0.0	13.0	13.0	55	100	45	35
20	20	-0.3	16.9	16.9	65	115	50	35
25	25	+0.0	21.4	21.4	90	160	70	35
32	32	-0.4	27.8	27.8	125	215	90	45

Dimensions in millimeters

LONG RADIUS BEND

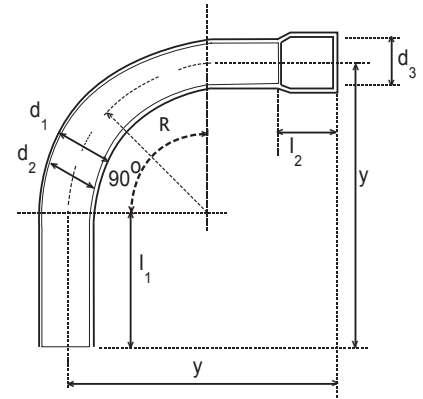


Table No. 9.b Repair Coupling

Nominal Size	Inside Diameter of Collar (d3)	Minimum Wall Thickness S	Minimum Socket length L
16	16.1 } +0.2 -0.0	1.1	40
20	20.1 } +0.2 -0.0	1.2	40
25	25.1 } +0.3 -0.0	1.4	40
32	32.1 } +0.3 -0.0	1.5	50

Dimensions in millimeters

REPAIR COUPLING

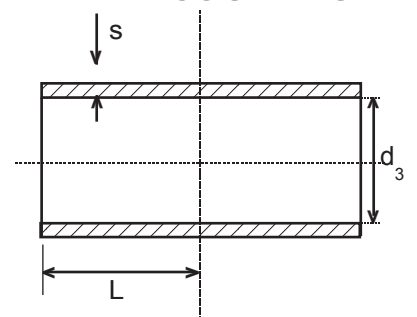
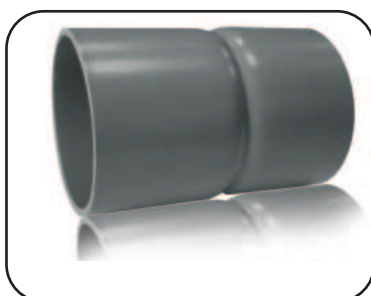
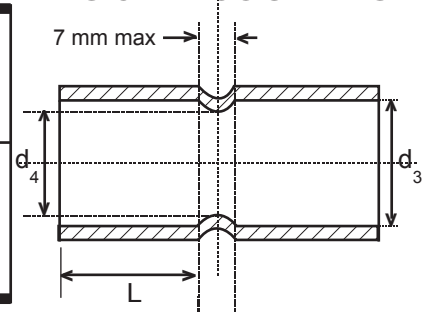


Table No. 9.c Register Coupling

Nominal Size	Inside Diameter of Collar (d3)	Inside Diameter of Collar (d4)	Minimum Socket length L
16	16.1 } +0.2 -0.0	13.5 } +0.4 -0.0	36.5
20	20.1 } +0.2 -0.0	17.5 } +0.4 -0.0	36.5
25	25.1 } +0.3 -0.0	22.0 } +0.5 -0.0	36.5
32	32.1 } +0.3 -0.0	29.0 } +0.5 -0.0	46.5

Dimensions in millimeters

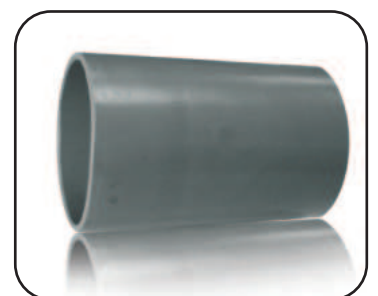
REGISTER COUPLING



Register coupling



Long Radius Bend



Repair Coupling



10. BRITISH STANDARD (BS-EN-61386) PIPES

10.a NEPROPLAST CONDUITS SYSTEM FOR CABLE MANAGEMENT

As per British Standards BS-EN-6099 and BS-EN-50086-2 replaced by BS-EN-61386-21-2004

Table No. 10.a Dimensions of Pipes

Nominal Size	Light Gauge		Medium Gauge		Heavy Gauge	
	Wall Thickness	Minimum Inside Diameter	Wall Thickness	Minimum Inside Diameter	Wall Thickness	Minimum Inside Diameter
	mm	mm	mm	mm	mm	mm
20	1.30	17.4	1.55	16.9	2.10	15.8
25	1.45	22.1	1.80	21.4	2.20	20.6
32	1.70	28.6	2.10	27.8	2.70	26.6
38	2.00	34.0	2.25	33.5	2.75	32.5
40	2.10	35.8	2.30	35.4	2.80	34.4
50	2.45	45.1	2.85	44.3	3.40	43.2

Neproplast Conduits are offered in 3 or 2.9 meters long and black color



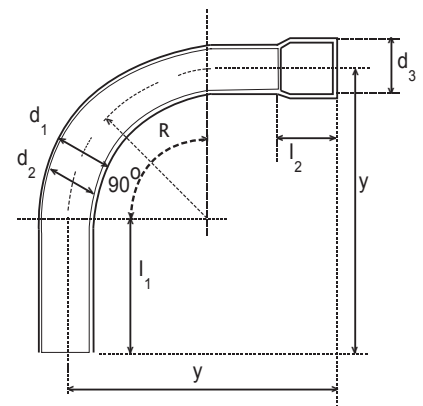
NEPROPLAST MG 25 x 1.8 mm
EN 50086-2
صنع بالسعودية
NEPROPLAST JEDDAH KSA
06.12.12 S2 16:24 L11A

11. BRITISH STANDARD (BS-EN-61386) FITTINGS

Table No. 11.a Long Radius Bend

Nominal Size	Outside Diameter of Bend (d1)		Minimum Inside Diameter of Bend (d2)	Inside Diameter of Collar (d3)	R
	Dimension	Tolerance			
20	20	±0.022	16.9	16.9	65
25	25	±0.022	21.4	21.4	90
32	32	±0.025	27.8	27.8	125
38	38	±0.028	33.5	33.5	159
40	40	±0.030	36.4	36.4	180
50	50	±0.030	44.3	44.3	240

Dimensions in millimeters



12. SPLIT DUCT

Split Duct is the fast and easy way to repair broken duct work without the costly. Cutting and replacing of your conductors.

Our male - female groove design leads The industry in providing a strong, rigid solution for duct repair situations. The interlocking design allows the split duct sections to be staggered and butted together. Joints may be sealed with tape and reinforced With plastic or metallic straps to produce a rigid, stable unit.

Available in 2" through 6" diameters, this product line also contain couplings and sweeps necessary to complete the system.

The fast and easy method of installing duct around existing cable for repair and temporary installations as Sch. 40 and 80.

Split Sleeve Coupling For Joining Split Duct to existing duct for Sch. 40 and 80



Table - 12.a

Segment	Nominal Size
45°	2 - 6 "
22 1/2 °	2 - 6 "
11 1/4 °	2 - 6 "



Two 45° Elbow May be Segmented for 90°

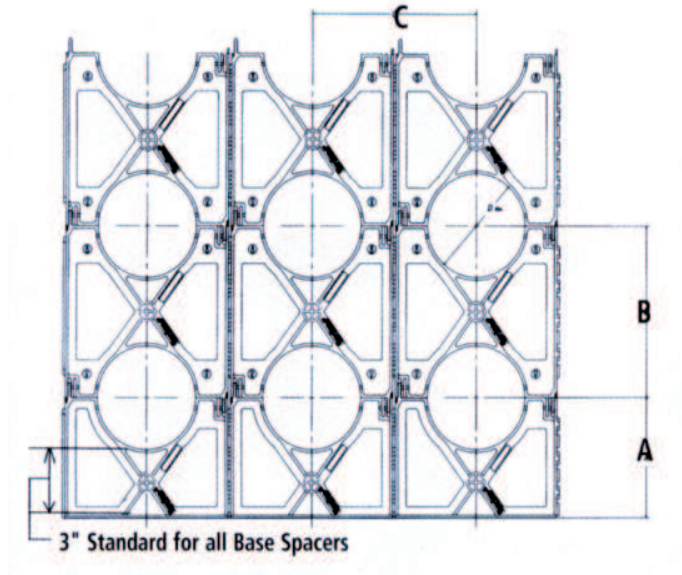


13. ACCESSORIES

13.a SPACERS

Suggested Specification (Duct) (Conduit) bank shall be encased in concrete with at least three inches of concrete at the top and bottom and two inches on each side. A horizontal and vertical separation between the ducts of---* inches shall be maintained by installing high impact spacers with horizontal and vertical locking intervals of-----** feet. Standard *Separations of 1 1/2 ", 2 ", and 3 " are available.

**The preferred interval between spacer assemblies is 8 to 10 feet.



Snap-Loc Spaceers

Table - 13.a.1 Dimensions - Base Spacers

Part No.	Size*	A	C	D(Diameter)	Std Ctn Quantity
S288JHN	2X1 1/2	4.25	4.12	2.50	100
S288JJN	2X2	4.25	4.62	2.50	100
S288JLN	2X3	4.25	4.62	2.50	100
S288LHN	3X1 1/2	4.81	5.25	3.63	90
S288LJN	3X2	4.81	5.75	3.63	80
S288LLN	3X3	4.81	6.75	3.63	60
S288NFN	4X1	5.31	5.75	4.63	70
S288NHN	4X1 1/2	5.31	6.25	4.63	50
S288NJN	4X2	5.31	6.75	4.63	50
S288NLN	4X3	5.31	7.75	4.63	60
S288PHN	5X1 1/2	5.84	7.31	5.69	50
S288PJN	5X2	5.84	7.81	5.69	60
S288PLN	5X3	5.84	8.81	5.69	50
S288RHN	6X1 1/2	6.38	8.38	6.75	50
S288RJN	6X2	6.38	8.88	6.75	50
S288RLN	6X3	6.38	9.88	6.75	40
S288SHN	8X1 1/2	7.38	10.30	8.75	30
S288SJN	8X2	7.38	10.76	8.75	30

Table - 13.a.2 Intermediate Spacers

Part No.	Size*	B	C	D(Diameter)	Std Ctn Quantity
S289JHN	2X1 1/2	3.88	4.12	2.50	120
S289JJN	2X2	4.38	4.62	2.50	100
S289JLN	2X3	5.38	5.62	2.50	80
S289LHN	3X1 1/2	5.01	5.25	3.63	100
S289LJN	3X2	5.51	5.75	3.63	80
S289LLN	3X3	6.51	6.75	3.63	60
S289NFN	4X1	5.51	5.73	4.63	70
S289NHN	4X1 1/2	6.01	6.25	4.63	60
S289NJN	4X2	6.51	6.75	4.63	60
S289NLN	4X3	7.51	7.75	4.63	50
S289PHN	5X1 1/2	7.07	7.31	5.69	50
S289PJN	5X2	7.57	7.81	5.69	50
S289PLN	5X3	8.58	8.81	5.69	30
S289RHN	6X1 1/2	8.14	8.38	6.75	50
S289RJN	6X2	8.64	8.88	6.75	40
S289RLN	6X3	9.64	9.88	6.75	30
S289SHN	8X1 1/2	10.14	10.30	8.75	30
S289SJN	8X2	10.64	10.76	8.75	30



13. ACCESSORIES

13.b INTRA GUARD

Table - 13.b.1

Part No	Nominal Size
I4ISG	1 1/4"
I4ISG15	1 1/2"
I4ISH	2"

Table - 14.b.2 Hybrid

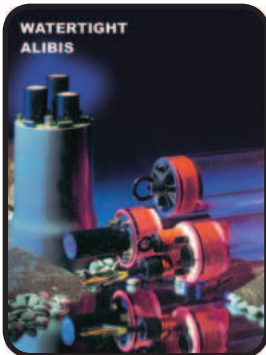
Part No	Nominal Size
I4HISG	1 1/4"

Way Intra - Gaurd



13.c DUCT PLUGS

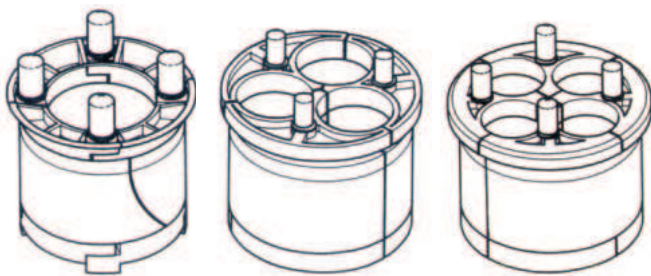
13.c.1 Blank Duct Plugs



With rope ties for sealing vacant Conduit and innerduct

- All Plastic Construction – Corrosion Proof
- Water and airtight to 30psi
- Simple installation
- Ideal for manholes and building entrances
- Removable and reusable

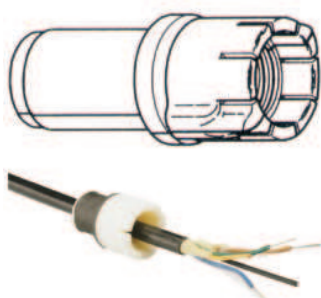
13.c.2 Simplex, Triplex and Quadplex Duct Plugs



Split-around plugs for sealing around and supporting cables or conduits in Circular openings.

- 22 psi minimum sealing capacity
- Simple installation around in-place cables
- Supports minimum 400 lbs of cable
- Stainless steel fasteners
- Ideal for manholes, buildings and cabinets

13.c.3 Fiber Optic Simplex



Duct Plugs

Split plug with bushing assembly for sealing around cable in duct installations.

- 22 psi minimum sealing capacity
- Simple installation around in-place cables
- Seals all types of innerduct
- Ideal for manholes, buildings and cabinets



13. ACCESSORIES

13.c.4 Duct Terminators



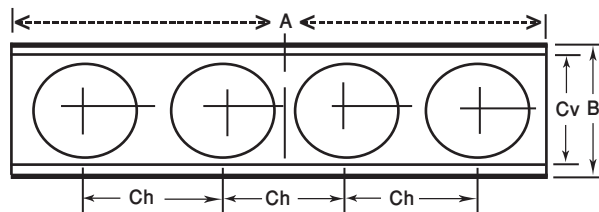
Construction:

Formex duct terminators are made of high impact, high strength ABS Plastic. Their structural strength is unimpaired by normal concrete curing temperatures, Duct Terminators can be manufactured with water tight membranes located at the shoulders. This feature eliminates the added cost of plugs to block openings until the duct is brought to the manhole and/or vault. After all ducts have been terminated, membranes may be removed with a knife, or with a hammer and chisel. Duct Lines may be individually sealed using reusable Formex twist locking caps in conjunction with a non-setting sealing compound. For gas traps and similar applications, duct terminators can be manufactured without shoulders.

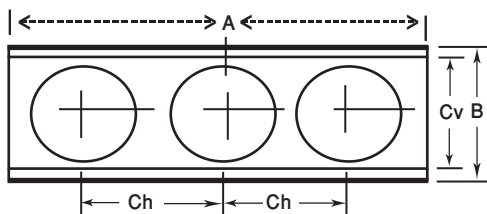
Application:

Duct terminators and terminator panels are designed for easy, time-saving installation and termination of all types and sizes of duct. Formex can manufacture duct terminators as either modular or complete panels, as single hole Form-A-Duct terminators, and as square to round terminators for situations where utility Standards require the interfacing of square and round conduit. Duct terminators can be supplied with different size nominal openings in the same unit, with a maximum of four ducts abreast. If more than four ducts abreast are required, use combinations of terminators with two, three, or four ducts. These may be Placed on the outer form jacket butted side by side to achieve any number of openings per tier.

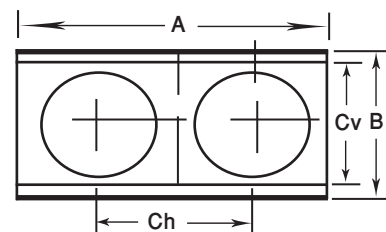
FOUR WAY TERMINATOR



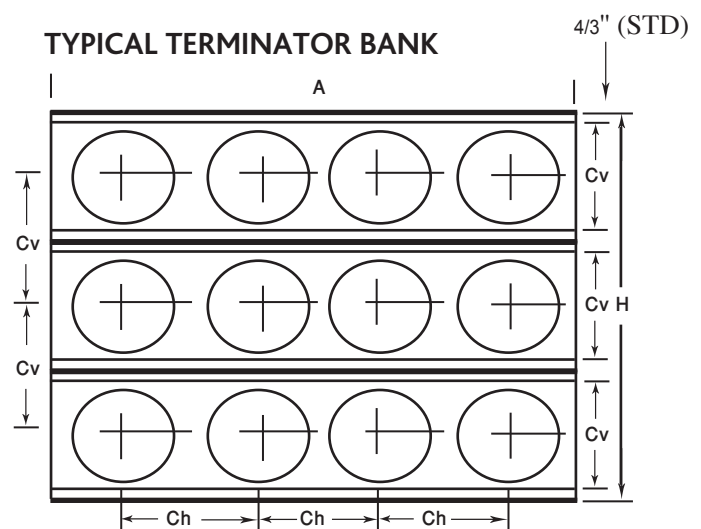
THREE WAY TERMINATOR



TWO WAY TERMINATOR



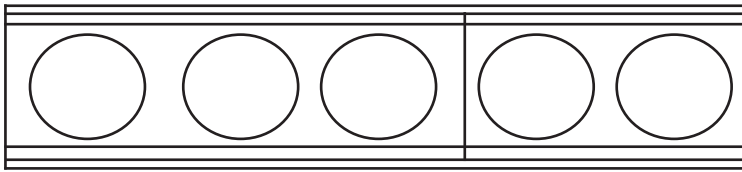
TYPICAL TERMINATOR BANK



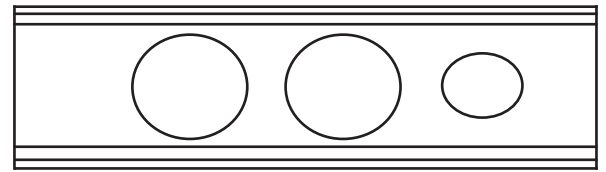
$$\text{Overall Haight } H'' = (\text{Modules High} \times (v) + 3/4'')$$



13. ACCESSORIES



If more than four openings abreast is required, use combinations of terminators with two, three, or four openings. These may be placed on the outer form jacket butted side by side to achieve any number of openings per tier.



Duct terminators can be supplied with different nominal size openings in the same unit. Here is a terminator designed to accept two 5" ducts and one 2" duct.

14. NEPROPLAST Conduit weight Comparison Chart

Table - 14.a; NEPROPLAST Conduit Weight Comparison Chart

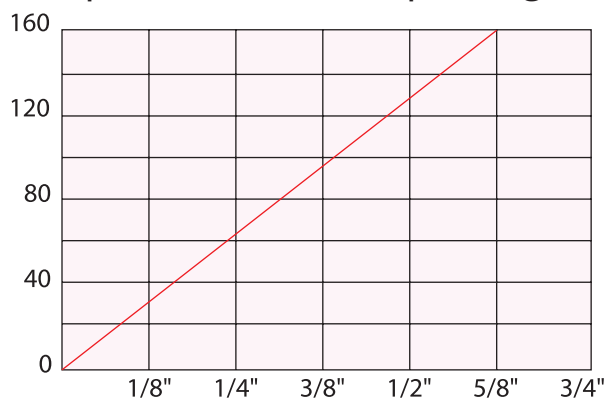
Size	Rigid PVC EPC - 40	Rigid PVC EPC - 80	Alum.	Elec. Metallic Tubing (EMT)	(IMC) Intermediate Metallic Conduit	(GALV) Rigid Steel Conduit
1/2"	17	21	27	30	57	79
3/4"	22	28	36	46	78	105
1"	33	41	53	66	112	153
1 1/4"	44	56	70	96	144	201
1 1/2"	53	68	86	112	176	249
2"	69	95	116	142	235	334
3"	143	193	239	270	483	690
4"	204	280	340	400	625	982
6"	358	----	612	----	----	1770

(Pounds Per Hundred Feet)

15. NEPROPLAST PVC Conduit Installation Under Changing Temperature Conditions

A Constantly Changing Temperature at the installation site with long runs involved requires precautions against expansion. The chart below indicates the expansion that can be expected at various temperature ranges. The coefficient of linear expansion of NEPROPLAST Conduit 3.38×10^{-5} in/in/F° Deg.

Temperature Rise or drop in Degree F°



Change in Length of a 10 foot length shown in inches

When NEPROPLAST PVC Conduit is encased in concrete it will only expand in direct proportion to the expansion rate of the concrete, thus no expansion coupling are necessary in the application

Note : PVC Conduit must be supported (not strapped tight) to allow movement of the conduit.



16. TEMPERATURE CONSIDERATION FOR LINEAR EXPANSION

Table - 15.a; Expansion Characteristic of PVC Rigid Conduit (Table 1)
Coefficient of Thermal Expansion = 3.38×10^{-5} in/in/F° Deg

Temperature Changes In Deg. F	Length Changes in Inches per 100 ft of PVC Conduit	Temperature Changes In Deg. F	Length Changes in Inches per 100 ft of PVC Conduit
5	0.2"	100	4.1"
10	0.4"	105	4.2"
15	0.6"	110	4.5"
20	0.8"	115	4.7"
25	1.0"	120	4.9"
30	1.2"	125	5.1"
35	1.4"	130	5.3"
40	1.6"	135	5.5"
45	1.8"	140	5.7"
50	2.0"	145	5.9"
55	2.2"	150	6.1"
60	2.4"	155	6.3"
65	2.6"	160	6.5"
70	2.8"	165	6.7"
75	3.0"	170	6.9"
80	3.2"	175	7.1"
85	3.4"	180	7.3"
90	3.6"	185	7.5"
95	3.8"	195	7.9"
100	4.1"	200	8.1"

17. PVC CEMENT

Below Chart lists the average number of joints that can be made per pint of solvent cement IPS weld on 705 is recommended

Table - 16.a;

Nominal Conduit Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	3"	4"	6"
Joint Per Pint of Cement	350	200	150	110	80	45	35	25	15





[illegible]

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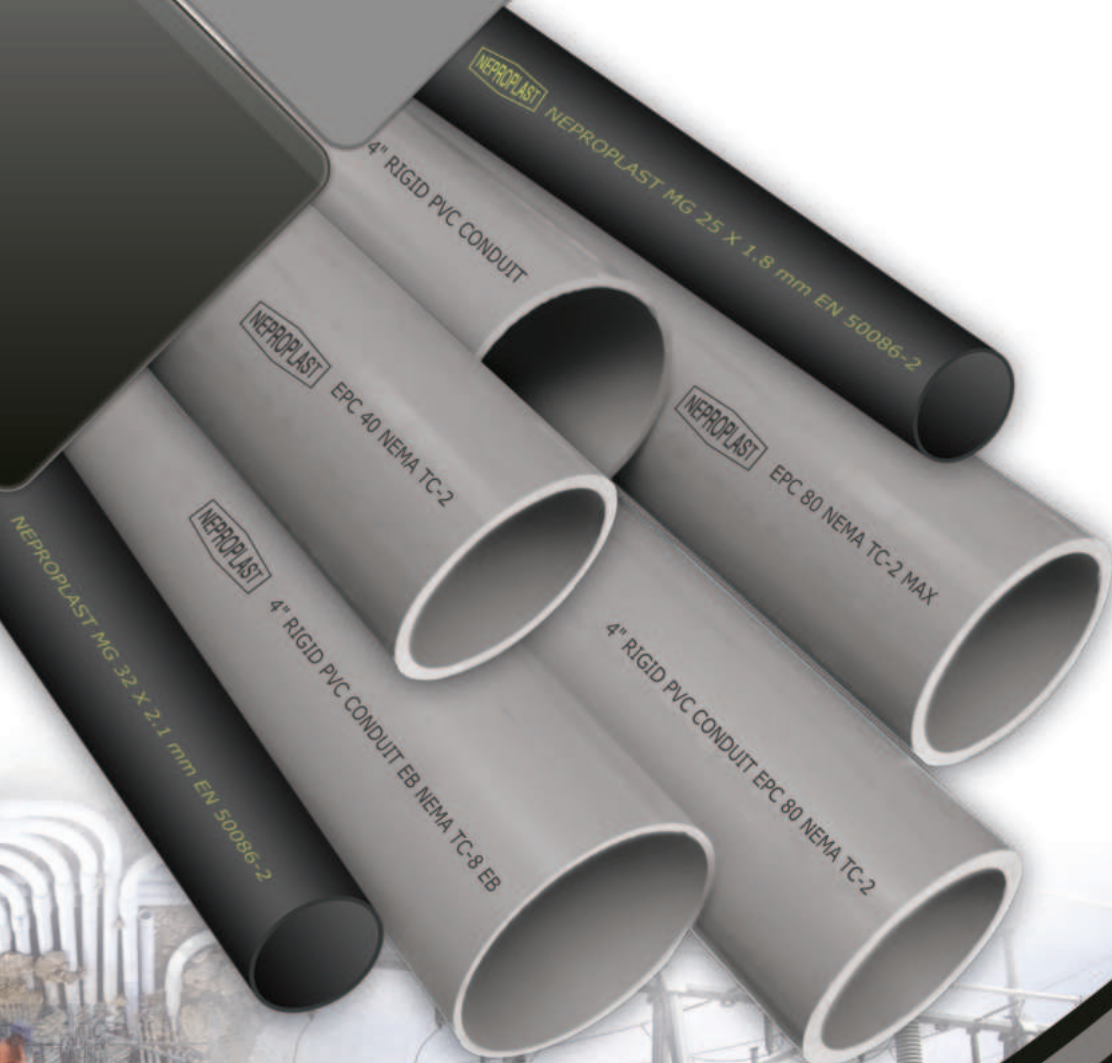
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