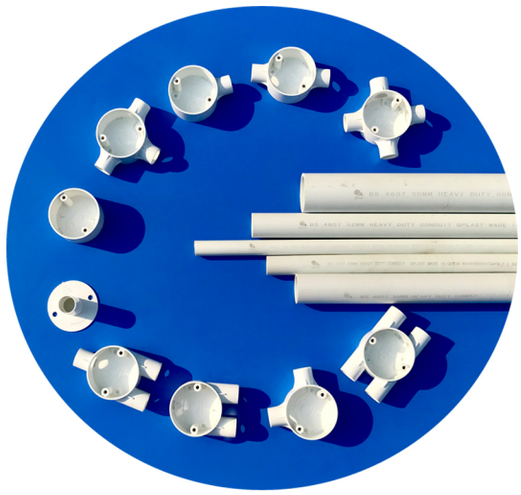
uPVC Electrical Conduit and Fittings — Specifications

u-PVC is the best material available for the manufacturing of Electrical Conduits because its superior insulation properties and low cost.

QNPF manufactures its u-PVC pipe twin extrusion German Technology with full automation to ensure the optimal productivity and quality. Our u-PVC Conduit Fittings are manufactured with Austrian Technology under a fully automated injection moulding process.

All our products are independently certified and production batches are subjected to routine internal testing in accordance with relevant manufacturing codes. Our Conduits and Fittings meet the requirements of BS 4607, BS EN 61386-1:2008, BS EN 61386-21: 2004+A11:2010 and BS EN 61386-25:2011 where applicable.

Features and Benefits of Qplast u-PVC Conduits and Fittings

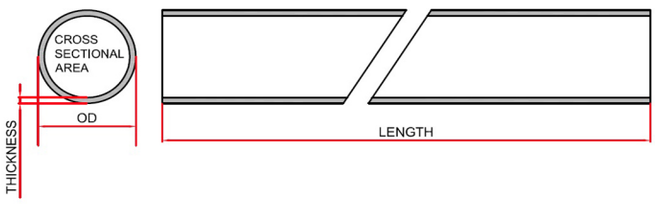


- Excellent Cold Bending Properties
- Good Tensile Strength
- Good Compression Strength
- Good Impact Strength
- Suspended Load Capacity
- Self-extinguishing
- Anti-corrosive
- Excellent Dielectric Strength and Insulation Resistance
- Light weight
- Life span more than 50 years

u-PVC Heavy Duty Conduits BS 4607 / Q.C.S.

Outside Diameter OD (mm)	Inside Diameter ID (mm)	Wall Thickness Minimum (mm)	Cross Section Area (mm^2)	Unit Length (L) (m)
20	16.4	1.8	211	2.9
25	21.2	1.9	353	2.9
32	27.4	2.3	589	2.9
38	33.0	2.5	855	2.9
50	43.8	3.1	1506	2.9

Colour: White RAL 9016 or Black RAL 9055



u-PVC Conduits BS 6099-1982

Outside Diameter OD (mm)	Light Duty ID (mm)	Light Duty Wall Thickness (Min) (mm)	Light Duty Cross Section Area (mm^2)	Medium Duty ID (mm)	Medium Duty Wall Thickness (Min) (mm)	Medium Duty Cross Section Area (mm^2)	Heavy Duty ID (mm)	Heavy Duty Wall Thickness (Min) (mm)	Heavy Duty Cross Section Area (mm^2)	Unit Length (L) (m)
20	17.4	1.3	238	16.9	1.55	224	15.8	2.1	196	2.9
25	22.1	1.45	383	21.4	1.8	359	20.6	2.2	333	2.9
32	28.6	1.7	642	27.8	2.1	607	26.6	2.7	555	2.9
50	45.1	2.45	1597	44.3	2.85	1541	43.2	3.4	1465	2.9

Colour: White RAL 9016 or Black RAL 9055

The length of Qplast conduits are 2.9m, however custom lengths may be ordered according to customer requirements.

Electric Wiring Regulations

Qplast conduit systems comply with all relevant requirements of the latest edition of the BS 7671 IEE Wiring Regulations.

Conduit Fittings

Material:	u-PVC
Light Fixing Centre:	50.8 mm
Junction Box Pillar Thread Sizes:	M4 Brass insert
Load Suspension:	3 kg at 60° C maximum
Colour:	White RAL 9016 or Black RAL 9055

Recyclability

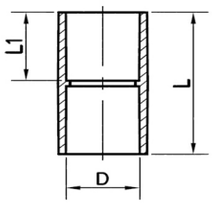
QNPF manufactured u-PVC pipes and fittings are 100% recyclable. Also, all our products are being manufactured using Lead (Pb) free compounds.

Qplast

uPVC Electrical Conduit and Fittings

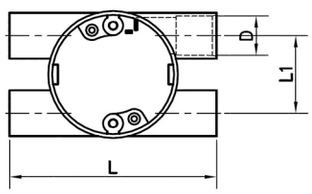
Specifications

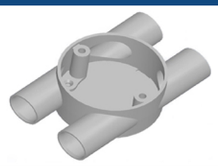
Coupler



Size	D	L	L1
20	20	41	19.7
25	25	52	25
32	32	66.2	32.2
50	50	103.5	50.2

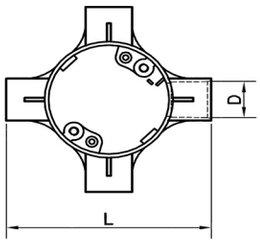
Junction Box H Way

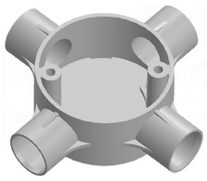




Size	D	L	L1
20	20	104.5	40
25	25	113.5	35

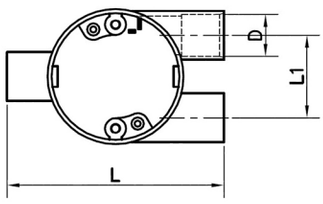
Junction Box 4 Way

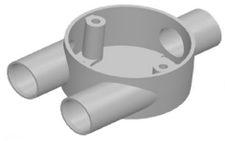




Size	D	L
20	20	104.5
25	25	113.5

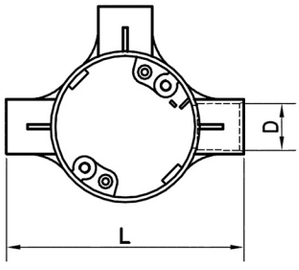
Junction Box Y Way

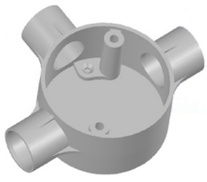




Size	D	L	L1
20	20	104.5	40
25	25	113.5	35

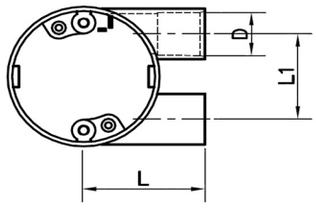
Junction Box 3 Way

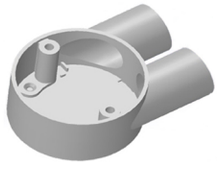




Size	D	L
20	20	104.5
25	25	113.5

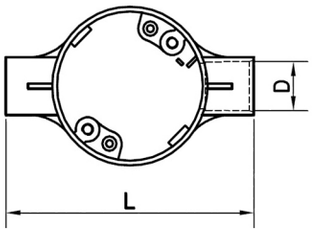
Junction Box U Way

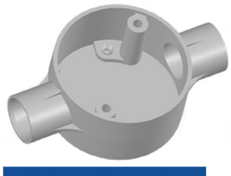




Size	D	L	L1
20	20	52.25	40
25	25	56.75	35

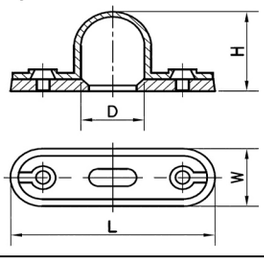
Junction Box 2 Way (Straight)





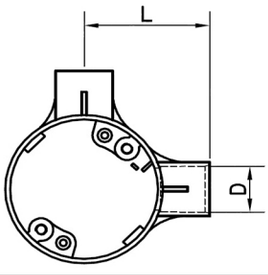
Size	D	L
20	20	104.5
25	25	113.5

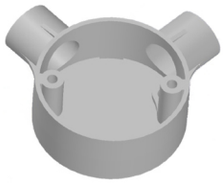
Space Bar Saddle



Size	D	H	L	W
20	20	27.6	64.5	20
25	25	32	64.5	20
32	32	38.6	69.5	19.5
50	50	57.9	85.5	19.5

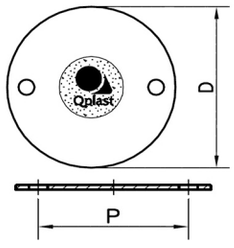
Junction Box 2 Way (Angle)

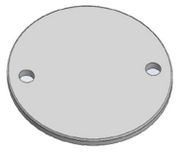




Size	D	L
20	20	52.25
25	25	56.75

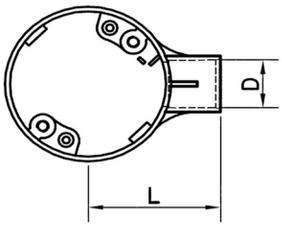
Circular Lid

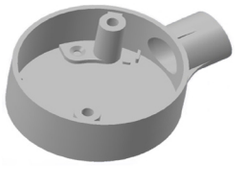




Size	D	P
20	65.6	50.8
25	65.6	50.8

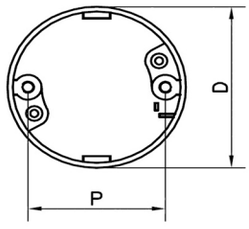
Junction Box 1 Way

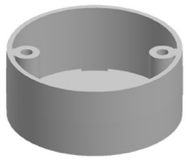




Size	D	L
20	20	52.25
25	25	56.75

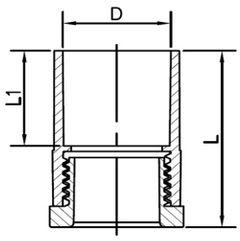
Loop in Box



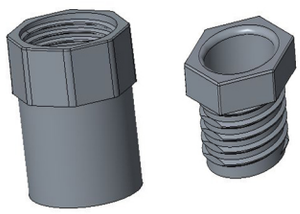


Size	D	P
20	65.6	50.8
25	65.6	50.8

Female Threaded Adaptor



Size	D	L	L1
20	20	38	20.5
25	25	42.5	25
32	32	49.5	32.2
50	50	69	50



Fire performance

Qplast u-PVC Conduits and Fittings are non-flame propagating in accordance with BS EN 50086, BS EN 61386 and BS 6099. Conduit pipes are tested in accordance with BS 467: part 7 resulting Class 1Y classification. Conduit fittings are tested in accordance with IEC 695-2-1 at a severity of 75°C.

Thermal Characteristics

Coefficient of Linear Expansion:	6 x 10-5 for every 10°C temperature rise (ambient temperature greater different expansion coupler must be used)
Thermal Conductivity:	0.19W/m/k
Operating Temperature:	-5°C to 60°C
Softening Temperature (V.T.S.):	79-83°C
Self-extinguishing	

Chemical Resistance

Qplast Conduits and Fittings display excellent resistance to mineral acids, alkalis and detergents, and good resistance to alcohols. These products are non-corrosive and are not affected by seawater or sea air conditions. PVC conduits show some susceptibility to attack from certain solvents such as keystones, aromatics and hydrocarbons. Please request QNPF if detailed chemical resistance chart required.

Electrical Properties

Dielectric strength:	17-20 KV/mm
Dielectric constant (permittivity):	2.9- 3.9 at 1Hz
Volume resistivity:	2 x 10^{14} Ω cm
Electric dissipation:	0.013 at 1Hz

Mechanical Performance

Conduit classification based on BS EN 61386

Conduit Type	Compression Force (N)	Tensile Force (N)	Suspended Load (N)	Impact (Kg)
Light	320	250	30	1
Medium	750	500	150	2
Heavy	1250	1000	450	2

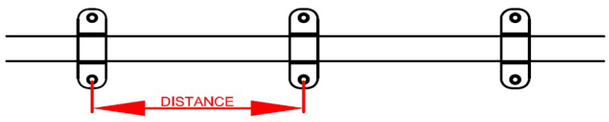
Cable Capacities of Conduit

Extract from Appendix A of the 16th Edition of the I.E.E. Wiring Regulations Selection and Erection of Equipment Guidance Note 1. This describes a method that can be used to determine the size of conduit or trunking necessary to accommodate cables of the same size, or different ring sizes, providing the means of compliance with Regulation 522-08.

Distance Between Saddles

The distance between saddles at 25°C should not exceed that stated in the following table; less in hot temperatures.

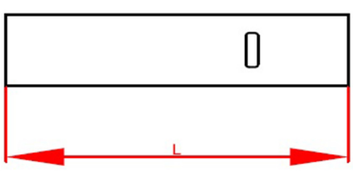
Conduit (OD) (mm)	Maximum Distance Between Supports	
	Horizontal (m)	Vertical (m)
16-25	1.50	1.75
25-40	1.75	2.00
40 and above	2.00	2.00

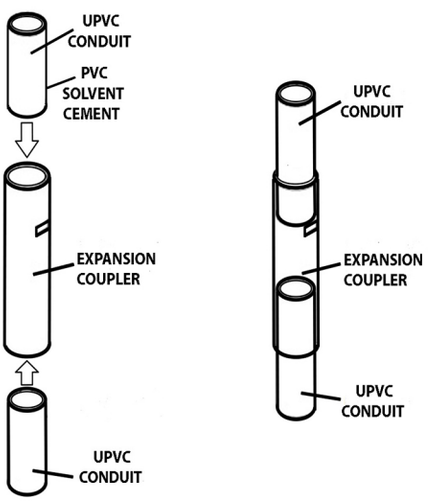


Expansion Couplers

- In order to accommodate thermal movement on non-concealed installations, it is recommended that expansion couplers be used at a maximum distance of 6m intervals.
- In areas of high ambient temperature or where rapid changes in temperature are likely, this distance should be reduced.

For Conduit (OD) (mm)	Length (L) (mm)
20	109
25	110
32	125
38	148
50	166





Expansion Coupler Assembly

Qplast

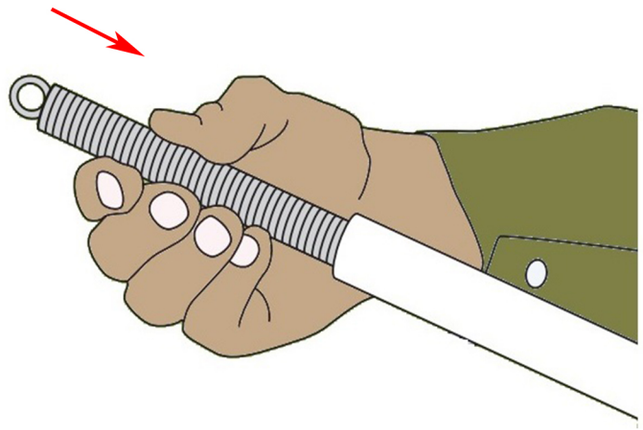
Bends

Care should be taken not to make bends too tight. Attention is drawn to BS 7671:2001 (Wiring Regulations) 522-08-03. The radius of every bend in a wiring system shall be such that conductors and cables shall not suffer damage.

Cold Bending 20-25mm u-PVC Conduit

Cold bending may be carried out on all conduit sizes up to 25mm in diameter using the correct size and gauge of bending spring.

- Heavy gauge springs carry a green colour-band at the tip.
- Make sure springs are not damaged in any way as this can fracture or kink the conduit making removal of the spring difficult.
- In cold weather, warm the conduit by rubbing with a rag before bending.

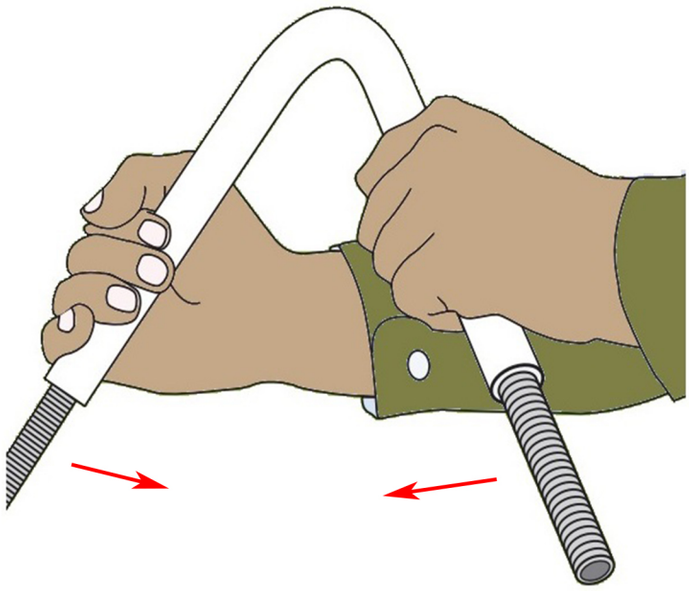


Procedure

- Insert the spring to the desired position, grip the conduit on either side of bend and bring slowly together to form the bend. For reference use QPlast approved springs.
- Cold bending of 20mm and 25mm conduit should be done with the correct / undamaged spring inserted and bent over knee to initiate the bend. Springs should remain inserted until the desired angle is achieved. (Under no circumstance should bends be increased or decreased without correct spring inserted). Failure to follow the above procedure could increase possibility of product failure.
- Do make the bend more acute than necessary to allow for uPVC to 'recover' after bending.
- To remove the spring, twist anti-clockwise (to reduce its diameter) whilst turning the conduit clockwise and gently pulling the conduit and the spring apart.
- If spring fails to release, do not pull too hard or damage to the spring may occur.
- Repeat the removal procedure until they come apart.
- The conduit should then be fastened into position as quickly as possible to prevent further 'recovery'.

Hot Bending

Hot bending should be carried out on all conduit sizes over 25mm in diameter using the correct size and gauge of bending spring.



Procedure

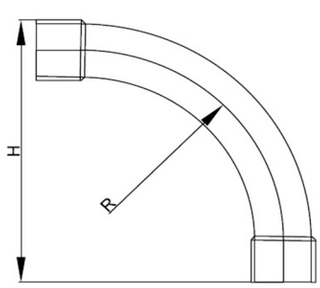
- Insert the spring to the desired position as described in 'cold bending' above and commence gently heating the conduit with a hot air torch (not too close and with movement), hot water or by other suitable indirect heating means.
- Avoid direct application of flame to the conduit.
- When the conduit is in a pliable state, slowly bend around a suitable form, holding in position until set.
- To remove the spring, twist anti-clockwise (to reduce its diameter) while turning the conduit clockwise and gently pulling the conduit and the spring apart.
- If the conduit is bent too fast or on an unstable place (the knee), there is a risk of damage to conduit and spring.
- Once the bend has been made, it should not be re-bent backwards, but allowed to 'recover' naturally.

Solvent Cement Joining

For installation in wet of high humidity areas it is mandatory to secure joints with PVC solvent cement. Qplast branded solvent cement is the ideal solution for making the bonds of the system. Please refer Qplast technical catalogue for joining methods with solvent cement.

Prefabricated Bends

Outside Diameter (OD) (mm)	Socket Inside (ID) (mm)	Height (H) (mm)	Radius (R) (mm)
20	20	110	52
25	25	160	82
32	32	225	112
38	38	260	142
50	50	325	170



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