



Tough. Resilient.



P.V.C. Wiring Pipes, Channels and Fittings
with *double* life.



konseal®

P.V.C. Wiring Pipes, Channels and Fittings

From an ISO Certified Company

www.konseal.com

Tough. Resilient.


konseal[®] range of high quality PVC products are brought to you by TUBES & TUBINGS, an ISO Certified unit and one of South India's top manufacturing houses. **konseal**[®] specializes in PVC wiring pipes, Fittings, PVC Channels and PVC Tiling Trims. **konseal**[®] has become the product of choice for responsible engineers and quality conscious end-users alike. With its highly organised network of dealers and capacity of over 1000 metric tons per annum, it is not surprising that **konseal**[®] rules for wide spread availability, reliability and affordability. Like the material that **konseal**[®] dedicates itself to PVC, the company has proven itself to be tough enough to withstand market pressures - and resilient enough to adapt to all kinds of market conditions.



Only virgin PVC goes into the making of **konseal**[®] - offering better quality, better fire resistance, and better shock resistance and 100% recyclable, thus making it environment friendly.









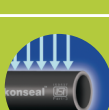



konseal[®] PVC Conduits. Shock-proof your life.

konseal[®] PVC Conduits are perfect for electrical applications, because of PVC's resistance to breakdown under high electrical voltage. It is also a poor conductor of electricity. **konseal**[®] range of conduits are resistant to weathering, chemical rotting, corrosion, shock and abrasion. Manufactured on fully automated machines, **konseal**[®] PVC Conduits are made of impact modifying, insulating compounds, mixed at 140° C in high speed mixers. With stringent quality control measures in place, it is no wonder that the product meets BIS Standards and is  certified.

konseal[®] PVC Conduit Specifications:

Size	Outside Diameter	Tolerance on outer Diameter	Inside Diameter			Wall Thickness			Standard Length (Meters)
			Light	Medium	Heavy	Light	Medium	Heavy	
16	16mm	-0.3mm	13.7 mm	13mm	12.2mm	1.0mm	1.35mm	1.75mm	3
20	20mm	-0.3mm	17.4mm	16.9mm	15.8mm	1.15mm	1.4mm	1.95mm	3
25	25mm	-0.4mm	22.1mm	21.4mm	20.6mm	1.25mm	1.6mm	2.0mm	3
32	32mm	-0.4mm	28.6mm	27.8mm	26.6mm	1.5mm	1.9mm	2.5mm	3
40	40mm	-0.4mm	35.8mm	35.4mm	34.4mm	1.9mm	2.1mm	2.6mm	3
50	50mm	-0.5mm	45.1mm	44.3mm	43.2mm	2.2mm	2.6mm	3.15mm	3
63	63mm	-0.6mm	57.0mm	-	-	2.7mm	-	-	3

Periodical Quality Tests

	Name of test	Nature of test
	Test of marking	The marking shall be indelible by petroleum sprit.
	Test of inner diameter	The inner diameter shall be verified by means of a GO gauge
	Test of minimum outer diameter	The minimum outer diameter shall be measured by means of a NO GO gauge.
	Test of maximum outer diameter	The maximum OD shall be measured by means of a GO gauge.
	Resistance to burning	When subject to a high intensity flame for 30 seconds, the conduit shall not burn by itself, after removing the flame.
	Resistance to heat	The Conduit is subjected to 60°C in a hot air oven and the resistance to heat is measured by means of the testing apparatus.
	Compression test	Force in the range of 125 N to 1250 N is applied depending on the class of conduit by means of the compression test apparatus. The dimensions should comply with the standards after release of compression pressure.
	Bending test	Bending test is conducted, by bending with the aid of spring and test apparatus, to 180 degrees. No cracks should appear after the test. Samples, which are cooled up to -5°C are also subject to the same test
	Insulation test	The conduits are tested for insulation at minimum 500 mega ohms.
	High voltage test	The conduits are subject to 2000 V AC by means of the Test apparatus. No break down shall occur during the test.

Approvals

konseal[®] has won approvals from Government departments like
| PWD (Govt. of Kerala) | CPWD (Govt. of India) | Directorate General of
Supplies & Disposal (Govt of India) | Indian Railways | BSNL | Military
Engineering Service | Cochin Port Trust | Cochin International Airport
Ltd. (CIAL).

Various associations like | Kerala Electric Traders Association (KETA)
| Kerala Electric Wiremen and Supervisors Association (KEWSA)
| AKLSWA and ESLWA too have recommended **konseal**[®].

ISO Certification

Tubes & Tubings has become an ISO Certified unit in October 2004.
Certification was done by Intertek Certifications Limited, UK under UKAS
accreditation, which is one of the prestigious accreditation boards
worldwide.

Conduit Installation - Methods

Surface Installation

In surface installation, the conduit is fixed using saddles or spacer bar
saddles. The maximum recommended spacing between the saddles is 1.0
m for the horizontal conduit runs and 1.25 m for vertical conduit runs.
Saddles should be fixed 20 cm on either side of bends or boxes. As PVC
conduit expands, with increasing temperatures, for expansion/contraction
movements in long straight runs, the use of an expansion coupling is
recommended every 6 m to absorb expansion and avoid conduit buckling.



Conduit Cable Capacities

Single-core PVC - insulated cables in straight runs of conduit not exceeding 3m in length.

For each cable, it is intended to use, obtain the appropriate factor from Table A.

Add all the cable factors so obtained and compare with the conduit factors given in Table B.

The conduit size, which will satisfactorily accommodate the cables, is that size having a factor equal to or exceeding the sum of the cable factors.

Single-core PVC - insulated cables in straight runs of conduit exceeding 3m in length or in runs of any length incorporating bends or sets.

For each cable, it is intended to use, obtain the appropriate factor from Table C.

Add all the cable factors so obtained and compare with the conduit factors given in Table D, taking into account the length of run it is intended to use and the number of bends and sets in that run.

The conduit size, which will satisfactorily accommodate the cables, is that size having a factor equal to or exceeding the sum of the cable factors.

A. Cable factors for short straight runs			B. Conduit factors for short straight runs		C. Cable factors for long straight runs, or runs incorporating bends			
Type of conductor	Conductor cross sectional area mm ²	Factor	Conduit dia mm	Factor	Type of conductor	Conductor cross sectional area mm ²	Factor	
Solid	1.0	22	16	290	Solid or Stranded	1.0	16	
	1.5	27				1.5	22	
	2.5	39				2.5	30	
Stranded	1.5	31	20	460		4.0	43	
	2.5	43				6.0	58	
	4.0	58	25	800		10.0	105	
	6.0	88						
	10.0	146	32	1400				

D. Conduit factors for runs incorporating bends																				
	16	20	25	32	16	20	25	32	16	20	25	32	16	20	25	32	16	20	25	32
Length of run (in m)	Straight				One bend				Two bends				Three bends				Four bends			
1.0	Covered by Tables A and B				188	303	543	947	177	286	514	900	158	256	463	818	130	213	388	692
1.5					182	294	528	923	167	270	487	857	143	233	422	750	111	182	333	600
2.0					177	286	514	900	158	256	463	818	130	213	388	692	97	159	292	529
2.5					171	278	500	878	150	244	442	783	120	196	358	643	86	141	260	474
3.0					167	270	487	857	143	233	422	750	111	182	333	600				
3.5	179	290	521	911	162	263	475	837	136	222	404	720	103	169	311	563				
4.0	177	286	514	900	158	256	463	818	130	213	388	692	97	159	292	529				
4.5	174	282	507	889	154	250	452	800	125	204	373	667	91	149	275	500				
5.0	171	278	500	878	150	244	442	783	120	196	358	643	86	141	260	474				
6.0	167	270	487	857	143	233	422	750	111	182	333	600								
7.0	162	263	475	837	136	222	404	720	103	169	311	563								
8.0	158	256	463	818	130	213	388	692	97	159	292	529								
9.0	154	250	452	800	125	204	373	667	91	149	275	500								
10.0	150	244	442	783	120	196	358	643	86	141	260	474								

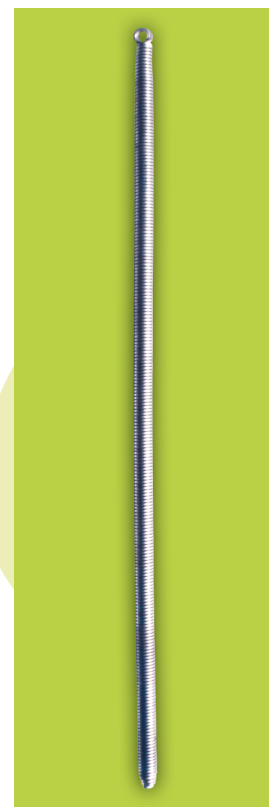


Conduit bending with the aid of spring and test apparatus.

Bending

Bending of conduit up to 25 mm diameter can be carried out cold, using the correct bending spring size, according to the diameter and the gauge of the conduit. After inserting, the bend can be made by hand or across the knee, by bending slightly beyond the required angle, and allow the conduit to recover back to the required position. The bending should not be done too fast and once made a bend should not be forced backwards, as this action can lead to conduit or spring damage. According to IEE regulations, the bend inner radius should not be less than 2.5 times the conduit's outside diameter.

For conduit sizes over 25 mm diameter, hot bending is required with the same procedure as cold bending, but with the application of gentle heat just before bending. No open flame should be used for heating, rather a hot air torch or hot water. Once the conduit is warm, it can be bent around a suitable former and held there until it cools down and sets in position.



Bending Spring

Our client list

ASTEN REALTORS, COCHIN

BEELINE BUILDERS, CALICUT

COCHIN PORT TRUST

COCHIN SHIPYARD

CPWD. GOVT. OF INDIA

HIRISE BUILDERS, THALASSERY

JOY ALUKKAS DEVELOPERS

KANNUR INTERNATIONAL AIRPORT LTD.

KITCO

MALABAR CANCER CENTRE, THALASSERY

MATHA AMRITANANDAMAYI MATH

MIR REALTORS

NAVAL BASE, COCHIN

PWD. GOVT. OF KERALA

RAMADA HOTEL, TRIVANDRUM

SALIM ASSOCIATES, CALICUT


SHWAS HOMES, COCHIN

SKYLINE BUILDERS

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SREEROSH PROPERTIES, CALICUT

This list is not comprehensive.



Excelling in all arenas - Our sister concerns include:

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Chloroplast

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www.shakthimansuper.com

Millennium Rubber Technologies (P) Ltd.

Manufacturers of Rubber Rice Rollers &
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www.mrtpl.in

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Marketing Office: 3rd Floor, Khadi & Village Ind. Federation Building, Padivattom,
Edapally P.O., Cochin - 682024 Tele fax: 0484 - 2808308 / 2808708 / 2808908

Factory: Akanad, Mudakuzha P.O, Ernakulam - 683 546, Tel 0484 - 2649708, 2649808, 2641608

Email: tubesandtubings@gmail.com

Web: www.konseal.com

For more details call **Customer Care: 93886 19940**