ECO-FRIENDLY
LEAD FREE CABLES

PVC Insulated Industrial Cable Catalogue 2014

Life Line S3 Complete Safety life guard Life Shield

QRG GROUP

HAVELLS

NABL

NABL Testing Laboratory

Havells India Ltd has emphasised on product quality by demonstrating quality evaluation for wires & cables at international level by obtaining NABL National accreditation board for calibration & testing laborites) for testing & DSIR recognised technology center at cable division. NABL is an autonomous body which is working under the Department of Science & Research Industry (Govt. of India).

National accreditation board for testing and calibration to boast of, it is the first-of-its-kind private facility in india.The lab fully equipped as per international standard to test XLPE cables upto 66 kV grade, PVC cables, Flexible cables, aerial bunched cables, photovoltaic cables, instrumentation cables, fire survival cables.

The lab cover indian standards, British standard, International electrotechnical commission (IEC) standards, TUV-Germany standards, American society for testing and material (ASTM) standards and institute of electrical & electronics engineers (IEEE) standards along with eight type of different fire test to demonstrate fire-retardant behavior in cable.

HAVELLS

The Cable Division (PVC Insulated Industrial Flexible Cables)

Located in midst of tranquil hills of Aravali, is one of India's largest Cables plant by Havells India Limited. Set up in 1996, the plant today manufactures all types of cables on some of the most modern, laser controlled automated machines, using best raw material from primary manufacturers ensuring best quality.

Innovation is one of the core values and way of life at Havells. Moving with this philosophy, the company has invested in extensive R&D to develop best-in-class products and address the ever changing requirements of our discerning customers. Knowing well about critical application of our products, safety of our customers is of paramount importance to us. Our R&D team continuously strives to develop most innovative and safe products. Our engineers have developed special insulating compounds that have halogen free content and high on oxygen index. With many such innovations, Havells today offers a wide range of products that are highly insulated, anti-termite & anti rodent proof, fire retardant and eco-friendly.

QUALITY SYSTEM CERTIFICATION ISO 9001:2008 DNV

ENVIRONMENTAL SYSTEM CERTIFICATION ISO 14001 DNV

SAFETY SYSTEM CERTIFICATION OHSAS 18001 DNV

NABL

BASEC ISO 9001 004 CERTIFICATE NO: CS1-207

BUREAU VERITAS 1828 BUREAU VERITAS

FIA TAC FIRE INSURANCE / TARIFF ADVISORY COMMITTEE APPROVED

IS:694 CM/L-8158075

CE

ABOUT S^3

With the advanced S^3 technology, Havells wires ensure triple safety for you and your loved ones. This advanced S^3 technology not only saves you and the environment from harmful substances such as **lead, mercury, cadmium and chromium**, but also reduces leakage current which can cause serious damage to you and to the installations in the house. It also comes with termite and rodent repulsion properties that ensure there is no short circuit that may lead to damage of property and human life.

HIGH INSULATION RESISTANCE

In all cables, there is generally leakage of current from the live conductor through the insulation. In case of inferior quality of insulation, the current leakage increases. This is unsafe and can cause damage to installations as well as become a threat to life.

Low Leakage Current – Havells wires have an allowable current-leakage limit that is 50 times lower than the prescribed international safety norms.

International safety standards specifies that current leakage limit in hand held equipment is considered to be safe if the value is not more than 0.75 mA. Havells cables, with S^3 technology, incorporate insulation of high quality which ensures that current leakage level is as low as 0.01 mA, which is much below the prescribed limit. Havells cables have been certified by the Central Power and Research Institute (CPRI) - a premier laboratory recognised by the Government of India.

Nominal area of conductor	Leakage current (m Amps)
0.50	0.008
0.75	0.009
1.00	0.009
1.50	0.010
2.50	0.011
4.00	0.013
6.00	0.015

HIR
HIGH INSULATION RESISTANCE

Safety from electrical shocks – Electric shock occurs when a body-part comes in contact with a bare conductor of poor insulated wire. Higher insulation resistance protects against electric shock.

RoHS
compliant

RoHS COMPLIANT

Release of certain harmful substances such as lead, mercury, cadmium and chromium etc. in the plastics/equipment are dangerous to the environment and health. European Union has adopted a directive on the restriction of the use of certain hazardous substances in electrical and electronics equipment commonly referred to as Restriction of Hazardous Substances directive or RoHS.

Havells cables with S^3 technology are certified by Bureau Veritas for RoHS compliance as per directive 2006/95/EC. This ensures that release of hazardous substances are eliminated to provide safety for human health and to give us green environment.

An initiative for eco friendly environment by Havells.

ANTI TERMITE AND ANTI RODENT

Termites and rodents cause extensive damage to paper, wood, plastic etc. In case of electrical installation, damaged caused by above pests may lead to short circuit which can become a cause for a major disaster, loss of property and human life. Havells cables with S^3 technology provide insulation with termite and rodent repulsion properties. Certification regarding the above has been obtained from the Central Power and Research Institute (CPRI).

ANTI TERMITE AND ANTI RODENT

Life Line S3 Complete Safety

FR PVC Insulated Industrial Cables 1100 Volts

Single Core FR/FRLS PVC/HFFR Insulated Copper Conductor (Unsheathed) Industrial Cables, 1100 Voltage Grade

Basic Code			Nominal Cross Sectional area of conductor	Number/ Nom. Dia of cond. strands*	Thickness of Insulation (Nom)	Approx. overall Diameter	Current Carrying Capacity 2 Cables Single Phase		Max. Conductor Resistance per KM at 20°C
							Conduit/ Trunking	Unenclosed clipped directly to a surface or on cable trays	
Life Line (FR)	Life Guard (FR-LSH)	Life Shield (HFFR)	sq. mm.	mm	mm	mm	Amps	Amps	Ohms
WHFFDN...A1X50			0.5	16/0.2	0.6	2.1	4	4	39.00
WHFFDN...A1X75			0.75	24/0.2	0.6	2.3	7	7	26.00
WHFFDN...A11X0	WHFFFN...A11X0	WHFFZN...A11X0	1.0**	14/0.3	0.7	2.7	11	12	18.10
WHFFDN...A11X5	WHFFFN...A11X5	WHFFZN...A11X5	1.5**	22/0.3	0.7	3.0	13	16	12.10
WHFFDN...A12X5	WHFFFN...A12X5	WHFFZN...A12X5	2.5**	36/0.3	0.8	3.6	18	22	7.41
WHFFDN...A14X0	WHFFFN...A14X0	WHFFZN...A14X0	4.0	56/0.3	0.8	4.1	24	29	4.95
WHFFDN...A16X0	WHFFFN...A16X0	WHFFZN...A16X0	6.0	84/0.3	0.8	4.6	31	37	3.30

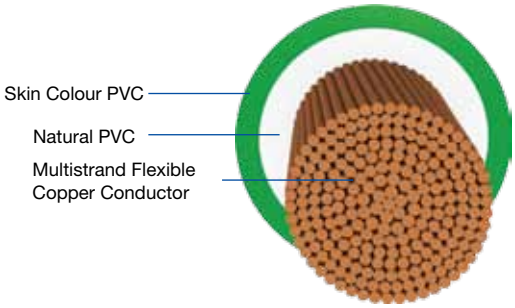
...Fill the colour code i.e. B = Blue B.

Note: Available in 90 metres length in carton packaging & 180 metres project lengths in polywrap packaging.
**Conductor Shall be class-II for 1.0, 1.5 & 2.5 Sqmm & for other size shall be of class V as per IS:8130.
*The number and diameter of conductor strands are for reference only. Conductor resistance as per IS:8130 is the governing criteria.

Construction :-

Conductor : Plain annealed copper conductor as per IS:8130
Insulation : Primary - Natural PVC with FR property
Secondary - Skin colour coated PVC with FR property
Insulation : Unicolour FRLSH PVC with two longitudinal line"
Insulation : Unicolour polymaric compound with HFFR property

Colour : Red/Yellow/Blue/Black/Green
Any other colour on specific request can also be supplied.



Single Core PVC Insulated Copper Conductor (Unsheathed) Flexible Industrial Cables, 1100 Voltage Grade

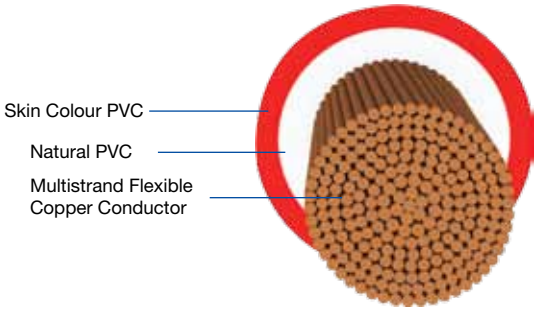
Basic Code	Nominal Cross Sectional area of conductor	Number/ Nom. Dia of cond. strands*	Thickness of Insulation (Nom)	Approx. Overall Diameter	Current Carrying Capacity 2 Cables Single Phase	Max. Conductor Resistance per KM at 20°C
					Unenclosed Clipped directly to a surface or on cable trays	
	sq. mm.	mm	mm	mm	Amps	Ohms
WHFFDN...B1010	10	80/0.4	1.0	6.1	46	1.91
WHFFDN...B1016	16	126/0.4	1.0	7.0	62	1.21
WHFFDN...B1025	25	196/0.4	1.2	8.6	80	0.780
WHFFDN...B1035	35	276/0.4	1.2	9.7	102	0.554
WHFFDN...B1050	50	396/0.4	1.4	11.5	138	0.386

...Fill the colour code i.e. B = Blue B.

Note: Conductor as per class V of IS : 8130 confirming to IS : 694. 100 Mtr in polywrap packing & in bigger packing on request"
*The number and diameter of conductor strands are for reference only. Conductor resistance as per IS:8130 is the governing criteria.

Construction :-

Conductor : Plain annealed copper conductor as per IS:8130
Insulation : Primary - Natural PVC with FR property
Secondary - Skin colour coated PVC with FR property
Colour : Red/Yellow/Blue/Black/Green
Any other colour on specific request can also be supplied. Subject to economical run.

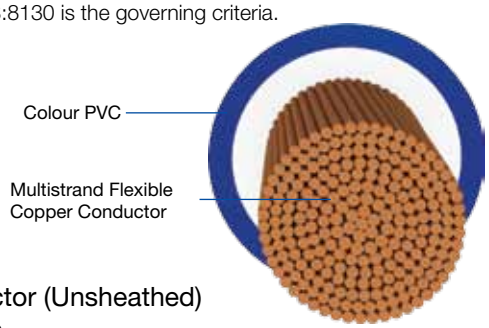


Single Core PVC Insulated Copper Conductor (Unsheathed) Flexible Industrial Cables, 1100 Voltage Grade

Basic Code	Nominal Cross Sectionl area of conductor	Number/ Nom Dia of cond. strands*	Thickness of Insulation (Nom)	Approx. Overall Diameter	Current Carrying Max Capacity	Max. Conductor Resistance per K.M. at 20°C
	sq. mm.	mm	mm	mm	Amps	Amps
WHFFDN...B1070	70	360/0.5	1.4	13.0	214	0.272
WHFFDN...B1095	95	475/0.5	1.6	15.1	260	0.206
WHFFDN...B1120	120	608/0.5	1.6	16.6	305	0.161
WHFFDN...B1150	150	750/0.5	1.8	18.5	355	0.129
WHFFDN...B1185	185	925/0.5	2.0	20.4	415	0.106
WHFFDN...B1240	240	1221/0.5	2.2	23.2	500	0.0801

...Fill the colour code i.e. B = Blue B

Conductor as per class V of IS : 8130 confirming to IS : 694. Supplied in 100 metres length & in bigger packing on request with ± 5% tolerance.
*The number and diameter of conductor strands are for reference only. Conductor resistance as per IS:8130 is the governing criteria.



Single Core PVC Insulated, Stranded Copper Conductor (Unsheathed) Industrial Cable, 1100 Voltage Grade

Basic Code	Nominal Cross Sectional area of conductor	No. of Strand /Nom. Dia of cond. Stands*	Thickness of Insulation (Nom)	Approx. Overall Diameter	Current Carrying Capacity 2 Cables Single Phase Unenclosed Clipped directly to a surface or on cable trays	Max. Conductor Resistance per K.M. at 20°C
	sq. mm.	mm	mm	mm	Amps	Ohms
WHFMDN...A11X0	1.0	7/0.43	0.7	2.9	12	18.10
WHFMDN...A11X5	1.5	7/0.53	0.7	3.2	16	12.10
WHFMDN...A12X5	2.5	7/0.67	0.8	3.8	22	7.41
WHFMDN...A14X0	4.0	7/0.85	0.8	4.4	29	4.61
WHFMDN...A16X0	6.0	7/1.04	0.8	4.9	37	3.08
WHFMDN...A1010	10	7/1.35	1.0	6.3	51	1.83
WHFMDN...A1016	16	7/1.70	1.0	7.4	68	1.15
WHFMDN...A1025	25	7/2.14	1.2	9.1	86	0.727
WHFMDN...A1035	35	7/2.50	1.2	10.3	110	0.524
WHFMDN...A1050	50	19/1.78	1.4	12.2	145	0.387

...Fill the colour code i.e. B = Blue B

Note: 1-6 sq.mm in 90 metres and 10-50 sq.mm. in 100 metres & in bigger packing on request Manufactured against customer's orders only for economical runs.

*The number and diameter of conductor strands are for reference only. Conductor resistance as per IS:8130 is the governing criteria.

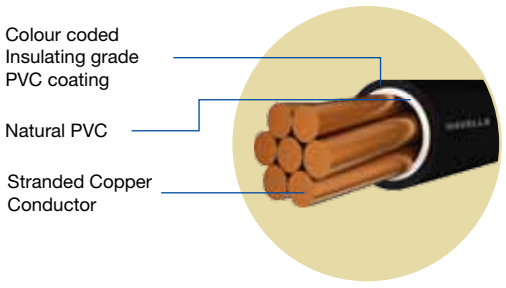
Construction :-

Conductor : Plain annealed copper conductor as per IS:8130

Insulation : **Primary** - Natural PVC Type A
Secondary - Skin colour coated PVC
(25 sq. mm & above are provided with unicolour Insulation only)

Colour : Red/Yellow/Blue/Black/Green

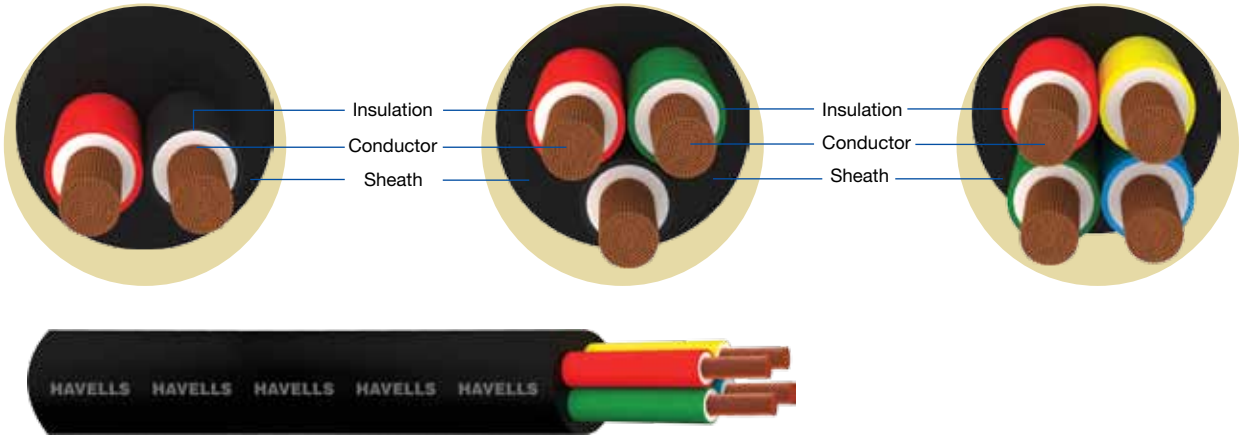
Any other colour on specific request can also be supplied.



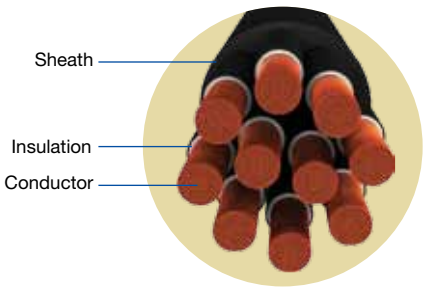
"HAVELLS" manufacturing and supply premium quality multi core flexible cables with copper conductor for various industrial and domestic applications where portable, movable equipment or flexibility make installation easier, Special formulated "Polyvinyl Chloride" (PVC) used for insulation and sheath tends to flexibility of cables.
The sheathing material provides resistance to oil, and moisture and superior mechanical strength without losing its flexibility. These cables can also be made available with FR or FR-LSH & HFFR compound on request.

Multicore Round PVC Insulated Copper Conductor and PVC Sheathed Flexible Industrial Cables, 1100 Voltage Grade

Basic Code	Nominal Cross Sectional area of conductor	Number Nom. Dia of cond. strands*	Thickness of Insulation (Nom)	Nominal Thickness of Sheath			Appx. Overall Diameter			Current Rating AC	Voltage Drop/ Amp/Meter		Max. Conductor Resistance per KM at 20°C
				2 Core	3 Core	4 Core	2 Core	3 Core	4 Core		DC or Single Phase AC	3 Phase AC	
	sq. mm.	mm	mm	mm	mm	mm	mm	mm	mm	Amps	mV	mV	Ohms
WHMFDSKB_X50	0.5	16/0.20	0.6	0.9	0.9	0.9	6.2	6.5	7.0	4	83	72	39.0
WHMFDSKB_X75	0.75	24/0.20	0.6	0.9	0.9	0.9	6.6	6.9	7.5	7	56	48	26.0
WHMFDSKB_1X0	1.0	32/0.20	0.6	0.9	0.9	0.9	6.9	7.3	7.9	11	43	37	19.5
WHMFDSKB_1X5	1.5	30/0.25	0.6	0.9	0.9	1.0	7.4	7.8	8.7	13	31	26	13.3
WHMFDSKB_2X5	2.5	50/0.25	0.7	1.0	1.0	1.0	8.8	9.4	10.2	18	18	16	7.98
WHMFDSKB_4X0	4.0	56/0.30	0.8	1.0	1.0	1.0	10.2	10.9	11.9	24	11	9.6	4.95
WHMFDSKB_6X0	6.0	84/0.30	0.80	1.1	1.1	1.2	11.5	12.2	13.6	31	8	7	3.30



Basic Code	Nominal Cross Sectional area of conductor	Number Nom. Dia of cond. strands*	Thickness of Insulation (Nom)	Nominal Thickness of Sheath					Appx. Overall Diameter					Max. Conductor Resistance per KM at 20°C
				5 Core	6 Core	7 Core	8 Core	10 Core	5 Core	6 Core	7 Core	8 Core	10 Core	
	sq. mm.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Ohms
WHMFDSKB_X50	0.5	16/0.20	0.6	0.9	0.9	0.9	1.0	1.0	7.8	8.2	8.2	9.4	11.0	39.0
WHMFDSKB_X75	0.75	24/0.20	0.6	0.9	1.0	1.0	1.0	1.1	8.3	9.4	9.4	10.4	11.8	26.0
WHMFDSKB_1X0	1.0	32/0.20	0.6	1.0	1.0	1.0	1.0	1.1	9.0	9.8	9.8	10.9	12.5	19.50
WHMFDSKB_1X5	1.5	30/0.25	0.6	1.0	1.0	1.0	1.1	1.1	9.8	10.7	10.7	12.0	13.7	13.30
WHMFDSKB_2X5	2.5	50/0.25	0.7	1.0	1.1	1.1	1.2	1.3	11.8	12.8	12.8	14.0	16.8	7.98
WHMFDSKB_4X0	4.0	56/0.30	0.8	1.1	1.2	1.2	1.3	1.4	13.8	15.8	15.8	16.8	20.4	4.95

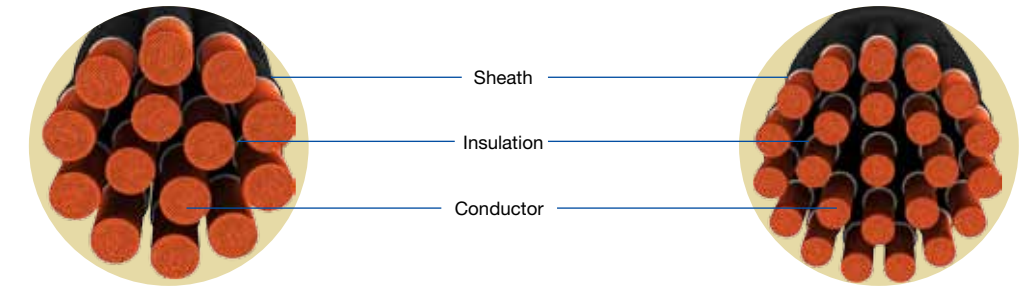


Basic Code	Nominal Cross Sectional area of conductor	Number Nom. Dia of cond. strands*	Thickness of Insulation (Nom)	Nominal Thickness of Sheath					Appx. Overall Diameter					Max. Conductor Resistance per KM at 20°C
				12 Core	14 Core	16 Core	19 Core	24 Core	12 Core	14 Core	16 Core	19 Core	24 Core	
	sq. mm.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Ohms
WHMFDSKB_X50	0.5	16/0.20	0.6	1.0	1.1	1.1	1.1	1.2	11.6	12.0	12.7	13.2	15.4	39.0
WHMFDSKB_X75	0.75	24/0.20	0.6	1.1	1.1	1.2	1.2	1.3	12.4	12.8	13.8	14.3	16.8	26.0
WHMFDSKB_1X0	1.0	32/0.20	0.6	1.1	1.1	1.2	1.3	1.4	12.9	13.7	14.4	15.1	18.0	19.50
WHMFDSKB_1X5	1.5	30/0.25	0.6	1.1	1.2	1.2	1.3	1.4	14.2	14.8	15.8	16.6	19.4	13.30
WHMFDSKB_2X5	2.5	50/0.25	0.7	1.3	1.3	1.4	1.4	1.5	17.3	18.0	19.5	20.4	23.8	7.98
WHMFDSKB_4X0	4.0	56/0.30	0.8	1.4	1.4	1.5	1.5	1.6	20.6	22.0	23.8	25.2	28.5	4.95

Note: Available in 100 metres length with black outer sheath & in bigger packing on request. Any colour on specific request can be supplied, in economical run.
*The number and diameter of conductor strands are for reference only. Conductor resistance as per IS:8130 is the governing criteria.
Conductor shall be of Class-V as per IS:8130

Core Identification:

2 CORE : Red & Black
3 CORE : Red, Black & Green
4 CORE : Red, Yellow, Blue & Green
5 CORE : Red, Yellow, Blue, Black & Grey
6 CORE : Red, Yellow, Blue, Green, White & Black
7 CORE & Above : Number printing on each core

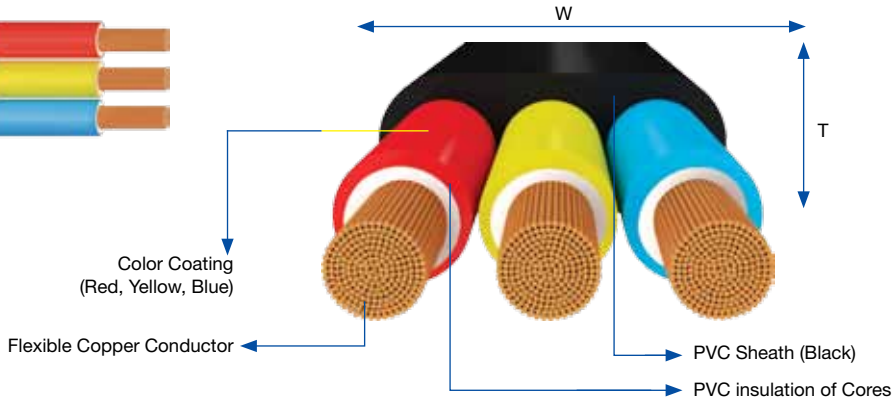


Three Core Flat PVC Insulated Flexible Industrial Cable for Submersible use, 1100 Voltage Grade

Basic Code	Nominal area of conductor	*Number/ Size of Wire for each Core	INSULATION		SHEATH Approx Overall Dimension		Max Conductor Resistance at 20°C (Max.)	Current Carrying Capacity at 40°C
			Thickness (Nom.)	Core dia. (Nom.)	Width	Height		
	sq. mm.	mm	mm	mm	(Nom.) mm	(Nom.) mm	Ohm/Km	Amps.
WHPNDSKB 31X5	1.50	30/0.25	0.6	2.8	10.1	4.7	13.3	13
WHPNDSKB 32X5	2.50	50/0.25	0.7	3.5	12.2	5.5	7.98	18
WHPNDSKB 34X0	4.00	56/0.30	0.8	4.2	14.6	6.5	4.95	24
WHPNDSKB 36X5	6.00	84/0.30	0.8	4.7	16.2	7.0	3.30	31
WHPNDSKB 3010	10.00	80/0.40	1.0	6.0	20.2	8.5	1.91	42
WHPNDSKB 3016	16.00	126/0.40	1.0	7.0	23.4	9.7	1.21	57
WHPNDSKB 3025	25.00	196/0.40	1.2	8.6	28.5	11.7	0.780	72
WHPNDSKB 3035	35.00	276/0.40	1.2	9.7	32.1	13.0	0.554	90

Note: Available in 500 ± 5% metres packing in drums. Also available in 100 metres packing on request.

*The number and diameter of conductor strands are for reference only. Conductor resistance as per IS:8130 is the governing criteria. Conductor shall be of Class-V as per IS:8130



Havells Presents – Energy-Efficient Cables

Havells cables provide some of the highest levels of electrical conductivity in the world at 101% copper conductivity, exceeding the parameter indicated by the International Annealed Copper Standards (IACS). This ensures minimum loss throughout the length of the cable which translates to savings of 2% -3% in the electricity bill during application. It also provides additional protection against voltage fluctuations.

Low Voltage Drop

Drop in voltage from point of supply to the end-terminal is called voltage-drop. High voltage drop across conductors is undesirable as it reduces the supplied energy. Havells wires and cables have adequate conductor diameter to ensure low voltage drop and higher efficiency in using electrical equipment.

Short-Circuit Protection

Fire caused due to short-circuit is the most common electrical mishap. Short-circuit can be caused by a host of reasons such as faulty wiring, broken insulation due to inferior quality of insulation, circuit-overload, and defective plugs, switches, cords, receptacles, etc. Havells wires ensure superior insulation and conductor characteristics to prevent short-circuit due to wiring.

Higher Di-Electric Strength

Di-electric strength represents the magnitude of voltage endured by a test-piece of wire when a specified voltage is passed through it for a specified duration of time. Higher di-electric strength means better electrical characteristics. Havells has an in-house PVC compound manufacturing unit where PVC is blended to offer high di-electric strength to prevent electric breakdown in PVC.

Higher Convection Of Heat

Convection is the flow of heat from hot to cool region. Lubricants like wax are required to prevent PVC-melt from sticking to hot extruder surface, which ensures a good heat transfer within the melt. Higher convective heat dissipation capability of Havells S3 technology compound enables Havells cables to carry more current in overload conditions.

FIRE-RETARDANT CABLES

Your personal Fire Fighter at home – Havells cables use superior PVC compound for insulation which is flame retardant under normal atmospheric conditions. In a fire, the oxygen percentage in the vicinity increases because of formation of air-drafts. This makes general purpose PVC cables catch fire. Commonly available FR & FR-LSH PVC Insulated Flexible Industrial cables have an oxygen index > 30 and offer some protection against propagation of the flame. Havells HFFR cables offer much superior protection against fire with oxygen index > 35.

Havells FR-LSH Insulated Cables (Flame Retardant-Low Smoke & Halogen) Life Guard – FR-LSH Flexible cables are recommended for places with high human concentration like high-rises, offices, shopping malls, hospitals and other commercial complexes. Havells FR-LSH insulated cables are made from specially formulated PVC Polymers that restrict the toxic gases and smoke as they are self-extinguishing and do not allow the fire to spread.

Havells HFFR Insulated Cables (Halogen Free Flame Retardant) Life Shield – A breakthrough from R&D efforts of Havells engineers at the Havells cables plant at Alwar, the special compound is practically halogen-free content and has a very high oxygen index.

NON-TOXIC : An oxygen mask in case of fire – Research shows that maximum causalities in Fire happen due to chocking caused by formation of hazardous gases. PVC Flame Retardant Low Smoke and Halogen cables release lesser toxic gases compared to ordinary PVC cables. Smoke generation in case of FR-LSH cables is < 60% and release of halogen content is < 20%. Our HFFR (Halogen-free Flame Retardant) cables are practically halogen-free and are 10 times superior to FR-LSH cables as in case of fire release of Hazardous gases is < 0.5%. This ensures that people trapped in fire can breathe easy facilitating better chances of their rescue.

Environment-Friendly – Every day thousands of tonnes of Hazardous Halogen gases are released in the environment resulting in depletion of the earth's ozone layer which protects us from cancer causing UV radiations of the Sun - a phenomenon popularly known as Greenhouse Effect. Havells HFFR insulated industrial cables are practically halogen-free and are, therefore, environment friendly, protecting not only you and your family, but also the future generations against the Green House Effect.

Water-Proof, Uv-Resistant And Chemical Resistant – In many buildings, construction concrete may itself not be water-tight. Contact with water causes deterioration of the cable's electrical and mechanical properties. Exposure of cable-polymer to UV radiation induces chemical processes that cause polymer damage like chalking, loss of impact or tensile strength, and a host of other chemical changes. All of this can greatly reduce the service life of the cables and expose people to electrical shocks.

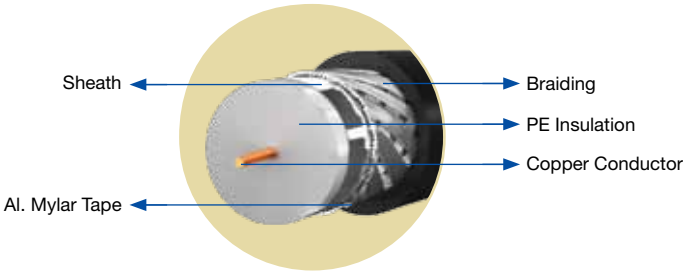
Havells has developed a high-quality thermoplastic insulation compound made of single carbon-bond polymer chain. This makes Havells cables impermeable to water, ultra-violet (UV) radiation and chemicals, thereby significantly enhancing the life and safety features of Havells cables.

Save the environment

Every day thousands of tonnes of Hazardous Halogen gases are released in the environment resulting in depletion of the earth's ozone layer (which protects us from cancer causing UV radiations of the Sun) a phenomenon popularly known as green house effect. Havells HFFR PVC insulated industrial cables are practically halogen free and therefore are environment friendly. So when you sell/buy these cables you not only protect your near & dear ones but also your future generations against the Green House Effect.

Some comparative technical features are given in the details below.

S. No.	Feature	Standard Range Flame Retardent FR	Special Range	
			Flame Retardent Low Smoke & Halogen FR-LSH	Low Smoke HFFR
1	Insulation Material	Spl. PVC	Spl. PVC	Spl. Polymer
2	Insulation Property	Good	Good	Very Good
3	Temperature Rating	70°C	70°C	70°C
4	Thermal Stability	Good	Good	Very Good
5	Flame Retardancy	Very Good	Very Good	Excellent
6	Safety during Burning	Good	Good	Excellent
7	Requirement of critical oxygen index as per ASTMD-2863 to catch fire (%)	>30	>30	>35
8	Temperature Index	>250°C	>250°C	>280°C
9	Light Transmission (Visibility) during Cable as per ASTMD-2843 Burning (%)	NA —	>40 Good	>80 Excellent
10	Release of Halogen Gas During Burning (%)	NA —	< 20% Good	< 0.5% Excellent
11	Abrasion Resistance During Installation	Good	Good	Good



Application

Used in cable TV operations, Computer net-working etc.

Construction

Solid annealed bare copper conductor polythelene insulated shielded with polyester backed aluminium tape and additional shielding with fine aluminium braid protected with polyester tape wrapping and sheathed with PVC.

Technical Data

S. No.	Type	
1	Size	RG-59, RG-6, RG-11
2	Inner Conductor	Solid Copper
3	Insulation	Gas Injected Physical Foamed Polyethylene
4	Outer Conductor	Bonded polyaluminium Tape, Braided with Aluminium Alloy Wire
5	Outer Jacket	UV Resistant Black PVC Jacket
6	Marking	Progressive Sequential Length Marketing on Every Metre

Electrical Parameters

S. No.	Type	RG-11 Foam	RG-6 Foam	RG-59 Foam
1	Inner Conductor			
	Max. Resistance (Ohm/Km) @ 20°C	0.84	2.13	3.55
2	Inner Conductor			
	Loop Resistance (Ohm/Km) @ 20°C	1.66	2.78	4.64
3	Nom. Capacitance (pF/mttr.)	53	53	53
4	Nom. Impedance (phm)	75	75	75
5	Nom. Velocity Ratio (%)	85	85	85
6	Nom. Attenuation @ 25° (dB/100m)			
	@55 Mhz	2.82	1.95	6.73
	@83 Mhz	3.87	6.20	8.04
	@187 Mhz	5.74	9.15	11.81
	@211 Mhz	6.23	9.50	12.47
	@250 Mhz	6.72	10.50	13.45
	@300 Mhz	7.38	11.50	14.60
	@350 Mhz	7.94	12.45	15.71
	@400 Mhz	8.53	13.30	16.73
	@450 Mhz	9.02	14.35	17.72
	@500 Mhz	9.51	14.95	18.70
	@550 Mhz	9.92	15.70	19.52
7	Structural Return Loss (db/100m)			
	From 30 to 300 Mhz	>26	>28	>30
	From 300 to 550 Mhz	>24	>22	>24
	Bending Radius, min (mm)	75	65	65

Construction Parameters

S. No.	Type Foam	RG-11 Foam	RG-6 Foam	RG-59 Foam
1	Inner Conductor	Solid Bare Copper	Solid Bare Copper	Solid Bare Copper
2	Nom. Diameter (mm)	1.63	1.02	0.80
3	Dielectric	Foam PE	Foam PE	Foam PE
4	Nom. Diameter (mm)	7.11	4.57	3.55
5	Outer Conductor - First	Bonded AL Tape	Bonded AL Tape	Bonded AL Tape
6	Outer Conductor - Second	AL Braid	AL Braid	AL Braid
7	Nom. Coverage (%)	60	60	60
8	Jacket	PVC (Black)	PVC (Black)	PVC (Black)
9	Nom. Diameter (mm)	10.00	7.00	6.20

Note: Supplied in 90 metres & 305 metres project packaging.

Application

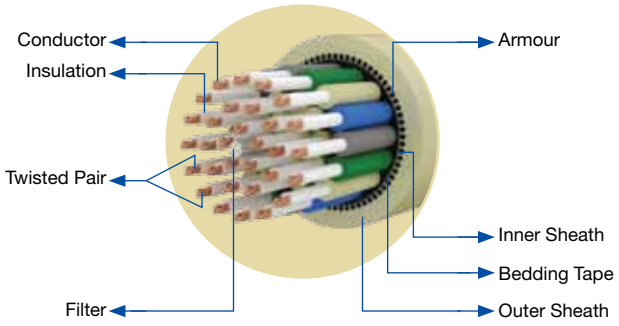
Cables used for Indoor Telephones, Telephone Exchanges, Satellite Telecommunication Systems, Industrial Plant Communication Systems, EPBAX Systems, Closed Circuit Security Systems, In-House Telephone wiring and various other equipments involving telephones.

Standard

Cables are generally made as per TEC Specification No. G/WIR-06/02 or as per customer specification.

Construction

Solid annealed tinned/bare copper conductor, PVC insulated cores suitably colour coded for distinct identification, twisted to form pairs, pairs laid up, PVC sheathed. Armoured Cables are provided with Galvanised steel wire/strip armouring and then sheathed again with PVC.



Design / Material Options

Conductor	:	Tinned copper/Bare copper
Insulation	:	PVC / Polythelene
Shielding	:	Over all shielded / Individual pair shielded and over all shielded with polyester backed aluminium tape or fine copper wire braid (Manufactured against customer's orders only for economical runs.)
Sheathing	:	FRPVC/FRLSH/ Polythelene
Conductor size Cable	:	0.4 / 0.5 / 0.6 / 0.7 / 0.8 / 0.9 mm
Configuration	:	1p, 2p, 3p, 4p, 5p, 10p, 20p

Note: Available in 90 metres length in carton packaging & 180 metres project lengths in polywrap packaging.

Buyers

BSNL, C.DOT, Switching equipment manufacturers, contractors of BSNL and C.DOT, every industrial and commercial establishment, construction industry and many more beside the general dealer market.

Salient Features for Telephone Cable

- Hard grade PVC insulation is used for long life and stable properties of cables.
- Staggered lays of twisted pairs are used to ensure minimum cross talk.
- Sizing and processing of conductor and insulated cores is done in precisely controlled manner on automatic modern machines to have optimum values of capacitance, capacitance unbalance, image and cross talk attenuation and characteristic impendence.
- Shielding is done to protect from outside / inter pair interference as per specific needs.

Notes

Regional & Branch Offices:

NORTH - REGIONAL OFFICE: QRG Towers, 2D, Sector-126, Expressway, Noida-201304, Tel: 0120-3331000

Delhi: Tel: 011-47676700, 23888200

Chandigarh: Tel: 0172-4232400-401

Dehradun: 0135-6670202 **Noida / Haryana:** Tel: 0120-3331000

Ludhiana: Tel: 0161-4676001 / 6024

Jammu: Tel: 0191-2490424 **Sri Nagar:** Tel : 0194-2490431

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Lucknow: Tel: 0522-2201032, 2200938,

Kanpur: Tel: 0512-6710400, 9935533753

EAST - REGIONAL OFFICE: **Kolkata:** ICC Tower, 5th Floor, 4 India Exchange Place, Kolkata-700001,
Tel: 033-40129851 / 52

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Guwahati: Tel: 0361-2134521, 2458923, **Siliguri:** Tel: 0353-2525907

Jamshedpur: Tel: 0657-6542492, 09234369436

Patna: Tel: 0612-2207221, 2207222, 2207223, 2655518

WEST - REGIONAL OFFICE: **Mumbai:** 301, Everest House, 3rd Floor, 6, Suren Road, Chakala, Andheri (E).
Mumbai - 400 093, Tel: 022-67298600-602

Ahmedabad: Tel: 079-40061111, 40060738-740, **Indore:** Tel: 00731-2572340-41, 4009998 (Airtel)

Rajkot: Tel: 0281-2481112, 2921212, **Nagpur:** Tel: 0712-2240932, 2242692, 2242699,
Pune: Tel: 020-64016413 / 14, **Raipur:** Tel: 0771-4243400 / 01

Surat: Tel: 0261-2350137, 9979890137, **Jabalpur:** Tel: 0761-4064491

SOUTH - REGIONAL OFFICE: Chennai: Sigapi Achi Building, No. 18 / 3, 6th Floor, Rukmani Lakshmipathy Road,
Egmore, Chennai-600008, Tel: 044-42280600, 605

Bangalore: Tel: 080-49075000, 9844085913, **Coimbatore:** Tel: 422-2305767, 2306199, 2305199

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Representative Offices:

• Goa • Solapur • Gwalior • Kathmandu • Bhopal

Alwar Plant

WIR/ZHWRC00001/FEB14/JUL14

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