SEEN JOO
YOUR CABLE ACCESSORIES SPECIALIST

Shipboard and Marine Cables

Shipboard and Marine Cables

Cable Type:
Power Distribution Cables
- Medium Voltage: 6KV, 8KV and 15KV
- Low Voltage: 0.6/1KV, 3.3KV)

Control Cables: 0.6/1KV (Non-Shield, Overall Shield & Overall Braid Shield)
Signal Cables: 0.6/1KV (Overall Shield, Overall Braid Shield, Individual Shield, Individual & Overall Shield)

Application:
Designed and Constructed for applications in Ship Building and Marine Off-shore industries. It is designed to provide reliance and easiness during installation and operation in harmful environment of offshore and marine industry.

Construct:
Special features such as superior flexibility, flame retardant, cold resistant, drilling mud resistant, impact resistant, halogen-free, low smoke, UV resistant, etc are built into the products for optimal operation. The cables are constructed as per various international classification society specifications and standards for the marine and off-shore industry: IEC, IEEE, UL, BS, NEK, etc The products meet several, the requirements and certified by several international bodies such as: DNV, ABS, UL, Lloyds classification certificate to obtain marine insurance on the ship,

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Power and Control Cables Oil Gas
P1 or P1/P8 RFOU/TFOU 0.6/1KV
Applications:
This cable is flame retardant, low smoke, halogen free and mud resistant, used for control, power, and lighting systems.
Standards:

IEC 60092-353	IEC 60092-351
IEC 60092-359	IEC 60332-1
IEC 60332-3-22	IEC 60754-1,2
IEC 61034-1,2	NEK 606:2004

P18 RU 0.6/1Kv
Applications:
These cables are flame retardant, low smoke, halogen free and mud resistant, used for control, power, and lighting systems

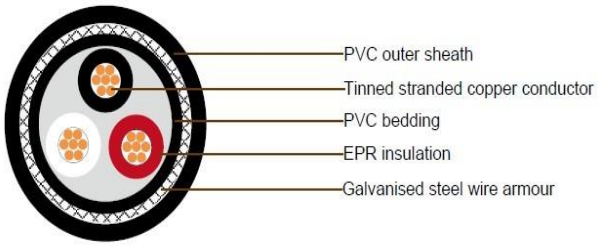
- Conductors: Tinned annealed stranded copper to IEC 60228 class 2.
- Insulation: Halogen-free EPR.
- Outer Sheath: Halogen free thermosetting compound, SHF2, coloured black.

P15 UX 0.6/1kV
Applications:

- These cables are flame retardant, low smoke, and halogen free, used for earthing and bonding services.

P5 or P5/P12 BFOU 0.6/1KV
Applications:
These cables are fire resistant, flame retardant, low smoke, halogen free and mud resistant, used for control, power, and lighting systems.
Conductors: Tinned annealed stranded compacted copper to IEC 60228 class 2.
Insulation: Mica tape + Halogen free EPR.
Bedding: Halogen free compound.
Armour: Tinned copper wire braid.
Outer Sheath: Halogen free thermosetting compound, SHF2 (for TYPE P5). Halogen free, mud resistant thermosetting compound, SHF MUD (for TYPE P5/P12), coloured black.

Shipboard Power Cable (JIS)
SPYC. DPYCY, TPYCY, FPYCY, 5PYCY, 6PYCY
Power circuit up to 0.6/1kV, Power & Lighting circuit



Construct:

STANDARDS

JISC 3410-1999
IEC 60332-1
IEC 60332-3 Cat. A (for FA-type)

CABLE CONSTRUCTION

Conductor	D (T, F,5,6,10)	Tinned annealed stranded copper, class 2 according to IEC 60228
Insulation	P	85°C EPR as per JIS C 3401
Cabling		Insulated conductors shall be cabled. Flame retardant & non-hygroscopic fillers may be used
Bedding	Y	PVC as per JIS C 3401
Armor	C	Galvanized steel wire braid
Sheath	Y	PVC as per JIS C 3401
Core identification		2C Black, White - 3C / 2C+E Black, White, Red/ Black, White, G/Y 4C / 3C+E Black, White, Red, Green /Black, White, Red, G/Y 5C and over Black No. on white insulation /Black No. on white insulation, G/Y
Outer sheath colour		Black
Cable Parameter		0.6/1KV (FA-) DPY

Marine Power Cables TYPE: XLFMKK
Cu-screened (250Volt)
Construct:

acc. to VG 88778/66
Operating temperature at conductor max. +85°C
Min. installation temperature -10°C
Nominal voltage 250 V
Minimum bending radius
5x cable Ø
Bare copper conductor, to
DIN VDE 0295 cl.2, multi-wire,
BS 6360 cl.2, IEC 60228 cl.2
longitudinally watertight
PVC core insulation with polyamide coating
Cores laid up in pairs
Pairs copper screened
Foil wrapping
PVC inner sheath
Bare copper braided screen,
waterproofed
PVC outer sheath colour: green

N2XSY 6/10 kV, 12/20 kV, 18/30 kV

Construct:

Bare copper conductor, multi wire
acc. to DIN VDE 0295 cl.2 /
BS 6360 cl.2 / IEC 60228 cl.2
Inner semi-conducting coating
Core insulation of cross-linked polyethylene
(XLPE), compound type DIX8 to HD 620 S2
Outer conductive layer extruded and
permanently welded with the core insulation
Conductive wrapping
Screen: Braiding of copper wires with one or two tapes applied helically
Wrapping
Outer sheath of PVC compound type DMV6 to HD 620 S2
Sheath colour: red

XCTSP, CU / XLPE / CTS / PVC / SWA / PVC – 3 Core
CU/XLPE/CTS/PVC/SWA/PVC
Al/XLPE/CTS/PVC/SWA/PVC
3.8/6.6 kV; 6.35/11 kV; 8.7/15 kV;12.7/22 kV; 19/33 kV

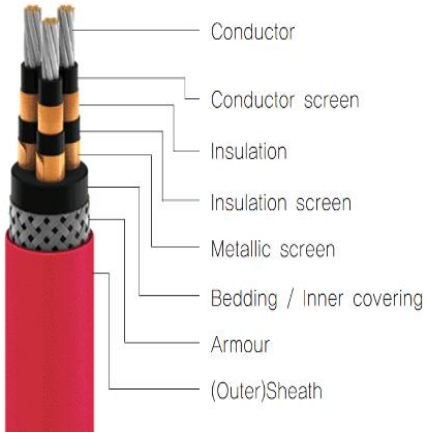
Construct:

Construction
According to BS 6622
Conductor Cu or Al stranded compacted, according to BS 6360 (IEC 60228) class 2
Inner semi-conductive layer: semi-conductive XLPE compound
Insulation XLPE compound
Outer semi-conductive layer: semi-conductive XLPE compound
Metal screen over each phase
-I option- Cu tapes laid with overlap over each phase –
-II option - Cu wires laid concentrically
Cable assembly: Three insulated and screened phases are twisted with fillings and tape support
Separating layer
PVC compound - type 9
Armour Galvanized steel wires, laid concentrically
Sheath: PVC compound - type 9 to BS 6755-4.2
Colour black

XLPE/OSCR/PVC/SWA/PVC-FRRT Instrumentation Cables

Construct:

Class 2 stranded plain annealed copper conductor, XLPE insulation,
aluminium/polyester tape over tinned copper drain wire, galvanized steel wire armoured,
polyvinyl chloride (PVC) compound-FR outer sheathed
Voltage:300/500V
Usage: for transmission of analogue and digital signals in measurement and process control



High Voltage Power Cable 12-20kV RFOU / NEK 606
Construct:
Conductor: Tinned annealed copper wire according to IEC 60228 Class 2 or Class 5
Conductor screen: Semi-conducting tape and/or semi-conducting compound
Insulation: HF EPR as per IEC 60092-360(351), thickness as per IEC 60092-354
Insulation screen: Semi-conducting compound and metallic material (tinned copper-wire braid, -tape, -wire)
Inner covering / Bedding: Halogen free thermoset compound, thickness according to IEC 60092-354
Braid armour: Tinned copper wire braid (O), Galvanized steel wire braid (C)
Outer sheath: Halogen free thermoset compound SHF2 or halogen-free MUD resistant thermoset compound SHF MUD complying with IEC 60092-360(359) and / or NEK

RFOU(I) Voltage: 250V (NEK 606 S1/S5)
NEK 606 S1/S5, IEC 60092-376, IEC 60092-350/351/359
BS EN/IEC 60332-1, BS EN/IEC 60332-3 Cat A, BS EN/IEC 60754-1 and 2, BS EN/IEC 61034-1 and 2, DIN EN 50268-1 and 2, BS EN 60288

Construct:
Conductor: Class 2 stranded tinned copper conductor
Insulation: Halogen free EPR (Ethylene Propylene Rubber)
Drain Wire: Stranded tinned copper
Individual Screen: Copper polyester tape Bedding Halogen free compound
Overall Screen: Tinned copper wire braid
Sheath: SHF, MUD (halogen free, mud resistant)

Shipboard Switchboard wire
0.6/1kV flame retardant XLPE /PVC insulated flexible switchboard wire
0.6/1kV SCP, SYP

Construct
Conductor: S Bunched tinned annealed stranded copper, class 5 according to IEC 60228
Insulation: CP-85°C XLPE YP-75°C PVC as per JIS C 3410 JISC 3410-1999 ► IEC 60332-1

RFOU(i) 150/250V Cable STANDARDS
NEK 606, IEC 60092-353, BS EN 60228, BS EN 61034-2,
BS EN/IEC 60754-1/2
Flame Retardant according to BS EN/IEC 60331,
BS EN 60332-3-22, BS EN/IEC 60332-1-2

Construct:
Conductor: Class 2 stranded tinned copper conductor
Tape Mica glass tape
Insulation Halogen free EPR (Ethylene Propylene Rubber
Drain Wire: Stranded tinned copper
Individual Screen: Copper polyester tape Bedding Halogen free compound
Screen: TCWB (Tinned Copper Wire Braid)
Sheath: SHF, MUD (halogen free, mud resistant)

Shipboard 250V Flame retardant,
Collective screened Instrument Cables
250V (FA)-TTYC, TTYCY, TTYCS, TTYCYS
International Designation
IEC 60092-375/376

Construct:
Conductor: Plain annealed copper wire, stranded
Insulation: PVC insulation identified Pair/Triple/Quad twisting
Individual Copper wire shield braid: End of '-S' type Cabling with filler
Common Copper wire shield braid: End of 'S' type PVC sheath
Metal wire armour: Galvanized steel wire braiding
Paint: In case of protective covered cable, paint is dispensable.
PVC protective covering
Design guideline: JIS C 3410 (1999)
Material properties:
JIS C 3410 Insulation, PVC
JIS C 3410 Sheath, PVC
Flame retardant:
IEC 60332-1
IEC 60332-3, Cat. A, 'FA--' type only
Cable marking of cold properties:

Control Cable- Type P Marine and Offshore Cable
BOSTRIG™ TYPE P CONTROL CABLE 600V or 0.6/1kV
Construct

CONDUCTOR: Soft annealed stranded tinned copper as per ASTM B 33.
A polyester tape separator is used over the conductor.
INSULATION: Type P chemically cross-linked polyolefin (XLPO), meeting IEEE 1580.
JACKET: Flame-Retardant thermosetting CPE (Chlorinated Polyethylene)
in accordance with the requirements of IEEE-1580-2010. Arctic Neoprene (Type N)
also available as an option
.

Instrumentation Cable: XLPE/ISCR/OSCR/PVC-FRRT

Construct:
Class 2 stranded plain annealed copper conductor, XLPE insulation,
Individual/overall screen- aluminium/polyester tape.
over tinned copper drain wire (OSCR),
polyvinyl chloride (PVC) compound-FR outer sheathed
Voltage: 300/500V
Usage: for transmission of analogue and digital signals in measurement and process control.

CU/XLPE/PVC/AWA/PVC

STANDARD: BS 5467

DESCRIPTION:
Cu conductors • XLPE insulation• PVC sheath• Armour Al wires • PVC sheath

APPLICATION:
The single-core power cables with insulation of cross-linked polyethylene (XLPE) type LSOH are flame retardant, with low halogen free smoke emission and corrosion at fire conditions
and are suitable for use in electrical installations for nominal voltage Uo/U 0.6/1 Kv
Cables are designed with sheath, which does not contain halogen materials, flame retardant, free smoke emission and corrosion, and non-magnetic armour of Al wires.
They are suitable for use in distribution networks, electrical power stations and substations.
These cables are for fixed assembly in lines with unlimited difference levels, for laying in industrial sites, indoor installations, in cable ducts, conduits and shafts, over shelves and grills directly underground in ditch and outdoor shelter.

2XYRAY / A2XYRAY
STANDARD: IEC 60502-1
DESCRIPTION:
Cu/ Al conductors • XLPE insulation • PVC sheath • Armour Al. Wires • PVC sheath

APPLICATION:
The power and control cables with cross-linked polyethylene (XLPE) armoured with galvanized iron wires are used in electrical installations with nominal voltage Uo/U 0.6/1 kV.
These cables are used in industrial installations and urban networks.
These cables are for fixed assembly in lines with unlimited difference levels, for laying in industrial installations, in cable ducts, tunnels and conduits, over shelves and grilles outdoor under shelters.

H07RN-F BS EN 50525-2-21 Flexible Rubber Cable
Flame Retardant according to BS EN/IEC 60332-1-2
APPLICATION
These cables are designed to provide high flexibility and have the capacity to withstand weather, oil/grease, mechanical and thermal stresses. Applications include handling equipment, mobile power supplies, worksites, stage, and audio visual equipment, port areas and dams. Also, for use in drainage and water treatment, cold environments and severe industrial environments.

CHARACTERISTICS
Voltage Rating U/Uo450/750V
Temperature Rating
Fixed: -30°C to +60°C
Fixed protected installations: +85°C
Flexed: -15°C to +60°C
Minimum Bending Radius
Fixed: 4 x overall diameter
Flexed: 6 x overall diameter

CONSTRUCTION Conductor Class 5 flexible copper conductor Insulation EPR (Ethylene Propylene Rubber) Sheath PCP (Polychloroprene) Core Identification 1 core: Black 2 core: Blue Brown 3 core: Green/Yellow Blue Brown 4 core: Green/Yellow Brown Black Grey 5 core: Green/Yellow Blue Brown Black Grey 6 core and above: Black with White numbers Green/Yellow Sheath Colour Black

BS 5308/PAS 5308 Part 1
Type 2 Instrumentation Cable Individual
& Collective Screen Armoured PVC.

Voltage Rating: 300V
Temperature Rating: +65°C (minimum 0°C for installation)
Conductor Stranding: IEC 60228 Class 1, 2 or 5 plain copper conductors
L/R Ratio:
0.5mm² & 0.75mm²: 25 µH/Ohm
1.5mm²: 40 µH/Ohm
Flame Retardant: IEC 60332-1-2
Increased flame-retardant versions to IEC 60332-3-24 Cat C and fire-resistant versions to I
available on request
T**ype: ICAT –** Individual & Collective Aluminium Tape Screen
Plain annealed copper wire conductors to IEC 60228, class 1, 2 or 5, PE insulation, cores t
triples, each pair aluminium/polyester foil screen and 0.5mm² tinned copper
drain wire, units laid up, collective aluminium/polyester foil screen and 0.5mm² tinned copp
PE bedding, GSWA armour, RP-PVC sheath – black or blue.

X AT Armoured Instrumentation Cable Individual Screen to IEC 60092-376
XAT armoured instrumentation marine cables are manufactured
in accordance with IEC 60092.
Originally designed for ship wiring, they have become popular
throughout the petrochemical and process control industries due to their low smoke,
low gas generation and increased flame-retardant properties.
XAT-U offers a combined braid screen copper armour
whilst XAT-I includes an additional foil screen around each pair to prevent crosstalk.
Manufacturers alternative reference: Nexans TCX (i), Helkama RFE-HF (i),
Prysmian HFX-ISA
Voltage Rating: 150/250V (300V)
Conductor Stranding 60228 Class 2 or Class 5, plain copper, or tinned copper
Temperature Rating: -40°C to +85°C or +90°C
Bending Radius Static:6 x overall diameter
Flame Retardant: IEC 60332-1-2, IEC 60332-3-22 Cat A
Smoke Emission: IEC 61034-1 & 2
Halogen Emission: IEC 60754-1 & 2
Manufactured To: IEC 60092 series
3rd Party Approvals: Lloyds, DNV, ABS, BV, and Rina.

XAT-331 Fire Resistant Armoured Power Cable IEC 60092-353
XAT-331 Fire resistant marine power cables offer a lightweight method of wiring in
applications where mechanical protection is required and
circuit integrity is critical whilst remaining sufficiently flexible for installation
in confined spaces or through difficult routes.
Manufactured in accordance with European standards IEC 60092-353 and
fire resistant to IEC 60331-21.
Manufacturers alternative reference: Nexans MPRX 331, Helkama LKSM-FRHF,
Prysmian HFX-A/Fr, image representative of product style, product supplied may vary.
Voltage Rating: 0.6/1kV
Conductor Stranding:
IEC 60228 Class 2 or Class 5, plain copper, or tinned copper
Temperature Rating: -40°C to +85°C or +90°C
Bending Radius Static: 6 x overall diameter
Flame Retardant: IEC 60332-1-2, IEC 60332-3-22 Cat A
Fire Resistant: IEC 60331-21
Smoke Emission: IEC 61034-1 & 2
Halogen Emission: IEC 60754-1 & 2
Manufactured To: IEC 60092 series
3rd Party Approvals:
Lloyds, DNV, ABS, BV, and Rina.

Marine Approved Bus Cables:
CAN Bus is being used more and more in the offshore industry replacing traditional multi-pair analogue wiring. To meet the offshore ship industries needs DNV- GL & ABS approved marine grade CAN Bus cables.
Manufactured using low smoke halogen free sheath compounds in accordance with IEC 60092-359 the cables provide increased levels of fire safety and are flame retardant to IEC 60332-1-2 and IEC 60332-3-24. All options have a SHF1 sheath as standard and the unarmoured versions are DNV-GL & ABS approved.
An armour can be applied for additional mechanical protection if required.

Construction

Conductor	Flexible Plain Cu 0.75mm² (24 x 0.20 mm)
Insulation	Foam skin PE 2.4 [mm]
No. of pairs	2, laid up as a quad
Colour code	1. green-blue, 2. red brown
Sheath	LSZH thermoplastic compound
Screen	Al-polyester-Al-tape
Screen 2	Tinned Cu braid 85 [% optical coverage]
Fire resistant barrier	Flame barrier tape
Jacket	Black or purple SHF2
O.D.	10.5 [mm]
Weight	170 [kg/km]
Jacket marking	NEK CANBUS MARIN 2 x 2 x 0.75 mm² SHF2 M/Y, metric marking

Specifications

Operating temperature	-40 – +90 [°C]
Operating voltage	100 [V]
Test Voltage	1.5 [kV AC]
Capacitance between. Conductors	MHz: 13.2 dB/km (pF/100m)
Characteristic Impedance @ 1MHz	120 ± 18 [Ω]
Conductor resistance	<26 [Ω/km]
Insulation resistance	1 [GΩ x km]
Test voltage	1.5 [kV-AC]
Capacitance	40 [pF/m]
Min. bending radius flexible	20 [x outer diam]
Min. bending radius installed	10 [x outer diam]

Can bus Marin is available with MUD resistant jacket.
Sheath options include:
SHF1 sheath: Halogen free compound provides minimal smoke in the event of a fire. Flame retardant to IEC 60332-1-2. Cable in accordance NEK 606.
SHF2 sheath: Ideal for environments with increase oil and hydrocarbon contamination. Flame retardant to IEC 60332-3-24. Cable in accordance IEC 60092-359.
MUD resistant sheath: resistant to drilling MUD, cutting fluids and chemicals in accordance with NEK 606 and flame retardant to IEC 60332-3-24. Cable in accordance IEC 60092-359.

Profibus DP Offshore Marine Approved Bus Cables DNV-GL & ABS
Bi-directional single pair is becoming more common in the offshore industry on ships and boats replacing traditional multi-pair analogue wiring.
To meet the offshore ship industries needs FSC now stock DNV- GL & ABS approved marine grade Profibus DP cables.
Manufactured with an SHF2 low smoke halogen free sheath the cables meet the requirements of IEC 60092 and are flame retardant to IEC 60332-3-24.
NEK 606 MUD resistant versions are also available for use on Oil Rigs & Drilling Ships to provide resistance to drilling MUD and chemicals.

1 x 2 x 0.35mm² Profibus Fieldbus Marine LSZH SHF1
1 x 2 x 0.35mm² Profibus Fieldbus Marine LSZH SHF2
1 x 2 x 0.35mm² Profibus Fieldbus Marine LSZH MUD Resistant DNV- GL & ABS

RG11 Offshore Marine Approved Coax Cables DNV-GL & ABS

The range of DNV-GL & ABS offshore marine approved RG coax cables have been designed with the rugged offshore shipping environments in mind. These ships approved coaxial cables are manufactured generally to MIL-C-17 & IEC60092-3 standards.
Available unarmoured or with a galvanised steel braid (GSWB) armour for mechanical protection, all options have a SHF1 sheath as standard and are suitable for use on yachts, boats and larger commercial ships.
Heavy duty SHF2 sheathed versions are available for installations where the risk of oil and chemical exposure is high.
Both types are Low Smoke Halogen Free and flame retardant to IEC60332-3.
NEK 606 MUD resistant versions are also available for use on Oil Rigs & Drilling Ships to provide resistance to drilling MUD and chemicals.

RG6 Offshore Marine Approved Coax Cables DNV-GL & ABS

he ranges of DNV-GL & ABS offshore marine approved RG coax cables have been designed with the rugged offshore shipping environments in mind. These ships approved coaxial cables are manufactured generally, to MIL-C-17 & IEC60092-3 standards.
Available unarmoured or with a galvanised steel braid (GSWB) armour for mechanical protection, all options have a SHF1 sheath as standard and are suitable for use on yachts, boats, and larger commercial ships.
Heavy duty SHF2 sheathed versions are available for installations where the risk of oil and chemical exposure is high.
Both types are Low Smoke Halogen Free and flame retardant to IEC60332-3.
NEK 606 MUD resistant versions are also available for use on Oil Rigs & Drilling Ships to provide resistance to drilling MUD and chemicals.
Applications:
These 75Ω coaxial cables are suitable for installation on board of ships and other indoor marine environments.

Standards:

IEC 60092-350 IEC 60332-3-22

IEC 60754-1,2 IEC 61034-1,2

NEK 606:2004

Electrical Characteristics:

AWG	18		
Nominal Conductor Diameter		mm	1.0
Impedance	Ω	75+/-5	
Nominal Attenuation@100MHz		dB/100m	6.9
Nominal Attenuation@200MHz		dB/100m	9.0
Nominal Attenuation@300MHz		dB/100m	11.8
Nominal Attenuation@400MHz		dB/100m	13.1
Nominal Attenuation@500MHz		dB/100m	15.4
Nominal Attenuation@900MHz		dB/100m	21.5
Nominal Attenuation@1700MHz		dB/100m	29.4
Capacitance	pF/m	53.5	
Velocity of Propagation	%	83	
Conductor DCR	Ω/km	21.4	
Shield DCR	Ω/km	7.5	
Inductance	μH/m	0.32	
Time Delay	ns/m	4	

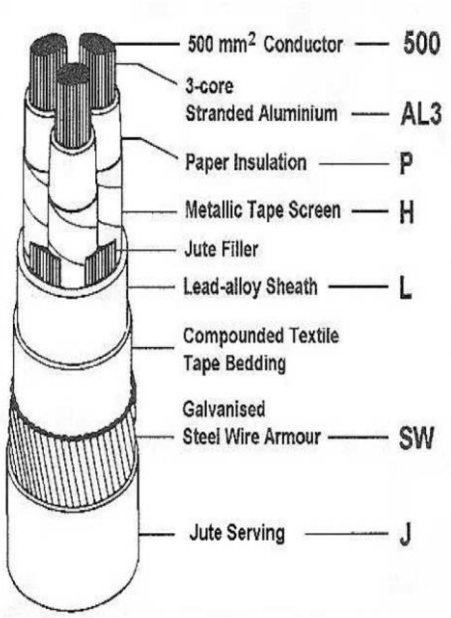
Mechanical and Thermal Properties:
Bending Radius: 15×OD.
Temperature Range: -30℃ ~ +75℃.

ANNEXURE

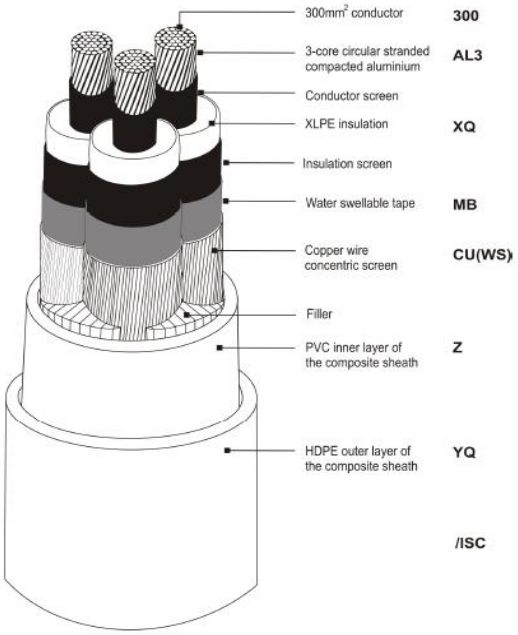
PVC Compound for ST2 **Power Cable**. PVC Compound for ST2 **Power Cable** by 3H Vinacom is an odourless, non-toxic, plasticized **polyvinyl chloride (PVC**) grade filled with **calcium carbonate**. It is insoluble in water and can be processed using injection moulding and extrusion.
Outer Sheath. PVC sheath, special **ST2** grade is used for XLPE **cable** & **ST1** grade is used for PVC **cable**.
This is what the code letter means:

415 V Voltage rating	240 Conductor (Size (mm²)	AL3 Conductor	XQ Insulation	CU (NW I Neutral or Screen Wires (if applicable	Z Sheath	/SAC Other information (if applicable).

11kV 500 AL3 P H L SW J
11 kV phase-to-phase, 500mm2
3-core stranded aluminium conductors, paper insulated, screened, lead alloy sheathed, single wire armoured jute sheathed (cable code 351 – see Annexure D).
SW- Galvanised Steel Wire Armour.



11kV 300 AL3 XQ MB CU(WS) Z YQ /ISC
11 kV phase-to-phase, 300mm2
3-core circular stranded compacted aluminium conductors, XLPE insulated, water swellable tape, (stranded copper wire concentric screen (individually screened cores), PVC / HDPE composite sheath (cable code 12056 – see Annexure D).
PVC inner layer of the composite sheath -Z



Cable Enquiry Form

to

SEEN JOO COMPANY PTE LTD

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SINGAPORE 408934
email:sales@seenjoo.com.sg

Ph. +65 62982424
Fax +65 68448496

www.seenjoo.com.sg

Sender

Contact _____

Phone _____ Fax _____

Enquiry No. _____

Date _____

Requirement _____ m ☐ once ☐ continuous

yearly requirement approx. _____ m

Make-up ☐ Coil _____ m
☐ Drum

Delivery required _____

Size _____

Type of Cable _____

Application

a.) ☐ indoor ☐ outdoor

b.) ☐ stationary ☐ for flexing ☐ with reversed bending / torsion
☐ Drag chain: speed _____ m/s Acceleration _____ m/s² Tracing range _____ m
load ☐ cyclic ☐ non-cyclic

c.) Temperatures ambient _____ °C continuous _____ °C intermitted _____ °C for _____ Min/Std

Construction

1. Conductor
☐ Copper ☐ St-Cu ☐ solid ☐ Stranded wire (_____ Ø mm)
☐ bare ☐ tinned ☐ silvered ☐ nickel-plated ☐ _____
No. of cores x cross section _____ x _____ mm² No. of wires x diam. _____ x _____ mm
No. of cores x cross section _____ x _____ mm² No. of wires x diam. _____ x _____ mm
No. of cores x cross section _____ x _____ mm² No. of wires x diam. _____ x _____ mm

2. Insulation
☐ PVC ☐ PE ☐ Zell-PE ☐ PUR ☐ PETP ☐ Rubber ☐ Thermopl. rubber ☐ Silicone
☐ ETFE ☐ FEP ☐ PTFE ☐ _____

3. Colour-code
☐ black with white numbers ☐ with protected conductor green-yellow ☐ colours to DIN 47100 ☐ colours to VDE
☐ _____

4. Screening
☐ Single core ☐ Pairs which core/pair _____
☐ Cu-bare ☐ Cu-tinned ☐ Cu-silvered
as ☐ Braiding ☐ Serving ☐ Alu-Foile (St) Covering approx. _____ %
Drain wire bare/tinned _____ mm Ø Stranded drain wire bare/tinned _____ mm Ø
with/without protection against elec. shock, hazard under screen, with/without foil/insulation over screen

5. Support Element
☐ Hemp ☐ Polypropylen ☐ galv. Steel ☐ Kevlar ☐ _____
Tensile load _____ N

6. Centre _____ mm Ø ☐ PVC ☐ Polypropylen ☐ _____

7. Stranding ☐ Cores in layer stranding ☐ twisted in pair ☐ all ☐ _____

8. Inner sheath ☐ **yes:** ☐ PVC ☐ Rubber ☐ Silicone ☐ Fleece ☐ Foil ☐ _____

9. Overall Screen ☐ **yes:** ☐ Cu-bare ☐ Cu-tinned ☐ Cu-silvered
☐ braiding ☐ Serving ☐ Alu-Foil Covering _____ %
with/without drain wire/stranded drain wire _____ mm Ø/mm² bare/tinned

10. Armouring ☐ Steel wire galv.

11. Outer sheath ☐ PVC ☐ PUR ☐ PETP ☐ PE ☐ Rubber ☐ Thermopl. Rubber ☐ Neoprene
☐ Silicon ☐ ETFE ☐ FEP ☐ PTFE ☐ _____
Outer Ø _____ mm Colour _____
☐ Outerprinting /text) _____

Electrical Characters
Operating voltage _____ V Capacity Cond./Cond. _____ pF/m
Test Voltage _____ V Capacity Cond./shield. _____ pF/m

Additional details & Preferred Brands _____