Technical Submittal

DUC&B

PROJECT

XXXXXXXXXXXXXXXXXX

CLIENT

CONSULTANT

MAIN CONTRACTOR

















LIGHTING/WIRES & ARMOURED CABLES/ELECTRICAL ACCESSORIES





SMART SENSE SUPPLIES ME FZE

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LIGHTING / WIRES & ARMOURED CABLES / ELECTRICAL ACCESSORIES

AMBER GEM TOWER,

BLOCK E1, OFFICE NO. 1902,

OPPOSITE TO DUBAI ISLAMIC BANK

AJMAN FREE ZONE, UAE

MOBILE: +971 05 65256961

LANDLINE: 04 3581336,

EMAIL: amit@smartsensesupplies.me

WEBSITE: www.smartsense.asia

S1, WAREHOUSE, 17TH STREET

UMM RAMOOL, RASHIDIYA,

LANDLINE: 04 2546843

MOBILE: +971 050 5439933,

EMAIL: online@smartsense.asia

WEBSITE: www.smartsense.asia

Smart Sense Supplies ME FZE with vast years of experiences, the SHRI LED brand of lighting, offering a "one stop shop" for trade and retail accessories. Smart Sense, supplying high efficiency, energy saving LED luminaires to the trade and projects market.

Our reputation is based on the reliability and functionality of our innovative products. By offering market leading warranties, technical support, dedicated customer service and marketing backup, we aim to make it easy for customers to specify and install sustainable lighting. Smart Sense believes that we have a responsibility to care for and protect the environmental performance across all our manufacturing and other business activities, continually looking for new methods and materials to provide environmentally friendly solutions



PRODUCTS IN OUR RANGE

LED LIGHTING

We provide commercial and domestic lighting solutions, using energy saving and environmentally friendly LED lighting. Established in 2013, to address the rapidly growing LED lighting market, smart sense has rapidly established itself as one of the leading brands for professional lighting in the UAE. It continues to innovate and regenerate its product the most efficient and comprehensive range of lighting solutions.

- Comprehensive product range, servicing all recognized channels and sectors.
- Dedicated distribution team supported by after sales and customer service functions.
- Experienced specification team with national coverage.
- Interior lighting, including panels, down lights, battens and high bay.
- Exterior lighting, including floodlights, bulkhead, road lanterns and bollards.
- Retrofit lamps and tubes, including replacements for existing light fixtures.

We represent the following brands:









ARMOURED CABLE/PANEL/HOUSING WIRES & CABLES

We represent renowned manufactures from around the world to offer the best match of customer's expectations based on their requirements.

We represent the following brands:

MADE IN UAE:







MADE IN INDIA:







FIRE RATED CABLE:

We represent the brands like,





E – MAIL:amit@smartsensesupplies.me Website: www.smartsense.asia

CAT6 CABLES:

We represent the brands like,







SWITCH GEAR & DISTRIBUTION BOARD:

We represent renowned manufacturers from around the world to offer the best match of customer's expectations based on their requirements.

We offer the products like:

MCB
 ELCB
 ISOLATORS
 MCCB
 ACB

We represent the brands like, but not limited to,







SWITCH & SOCKETS:

We represent the brands like,







CABLE TRAY / SLOTTED CHANNELS / CABLE TIE:

We represent the brands like,





LUGS & GLANDS:

We represent the brands like,







CONDUIT & CONDUIT FITTING:

We represent the brands like,







GI CONDUIT ACCESSORIES:

We represent the brand like,





PVC FLOOR BOX:

We represent the brands like,











FANS (CEILING/WALL/VENTILATION):

We represent the brands like,







RUBBER CABLE:

We represent the brands like,







EARTHLING:

We represent the brands like,



ELECTRICAL & TEFLONE TAPE:

We represent the brands like,





POWER SUPPLY/ STRIPS/ MODULES:

We represent the brands like,



PLUMBING/ SANITARY:

We represent the brands like,







CONCRETE SPACER / MANHOLE COVER:



We represent the brands like,

ALUMINIUM & FIBER GLASS LADDERS:

We represent the brands like,





WAVIN SITECH







Business License رخصة تجارية

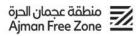
License Details			تفاصيل الرخصة	
License No.	15228	15228	رقم الرخصة	
Registration No.	15228	15228	رقم السجل	
Trade Name	Smart Sense Supplies Middle East	سمارت سينس سبلايز ميدل ايست	الدسم التجاري	
Trade Name	(F.Z.E)	(٩-٩-५)		
Legal Form	Free Zone Establishment - Limited	مؤسسة منطقة حرة – ذات مسؤولية	الشكل القانوني	
Legairoini	Liability	محدودة	السحن السنوني	
First Issue Date	July 26, 2015	July 26, 2015	تاريخ الإصدار الأول	
Current Issue Date	July 26, 2024	July 26, 2024	تاريخ الإصدار الحالي	
Expiry Date	July 25, 2025	July 25, 2025	تاريخ الإنتهاء	
Manager	Amit Mahendra Shrimankar	امیت ماهیندرا شریمانکار	المدير	
Address			العنوان	
Premises Number	B.C. 1303134	B.C. 1303134	رقم الموقع	
Building Name	Ajman Free Zone C1 Building	منطقة عجمان الحرة مبنىC1	اسم المبنى	
Business District	Ajman Free Zone	منطقة عجمان الحرة	منطقة الأعمال	
Makani No.	4442612247	4442612247	رقم مكاني	

Activities الأنشطة

1. General Trading Import & Export

1. تجارة عامة - استيراد و تصدير







مستند إلكتروني معتمد صادر بدون توقيع من هيئة المناطق الحرة في عجمان Approved electronic document issued without signature by Free Zones Authority of Ajman Toll Free 8002392 www.fza.ae









شهادة تسجيل لضريبة القيمة المضافة في الامارات العربية المتحدة Certificate of Registration for Value Added Tax in the United Arab Emirates

The Federal Tax Authority certifies that the entity below is a registered person for Value Added Tax in the UAE

تشـهد الهيئة الاتحادية للضرائب أن الجهة التالية مسجلة لضريبة القيمة المضافة في الامارات العربية المتحدة

 Full Arabic legal name
 عسمارت سينس سيلانز مبدل است م.م.ح
 سمارت سينس سيلانز مبدل است م.م.ح

 Full English legal name
 smart sense supplies middle EAST FZE

 Registered address
 AMBER GEN TOWERS SM OFFICE E1-1902F,

 AMBER GEN TOWERS SM OFFICE E1-1902F,

AJMAN, AJMAN FREEZONE, AJMAN, Ajman, United Arab Emirates, 51572, +971505439933

Tax Registration Number 100597503000003 يرقم التسجيل الضريبي 100597503000003 وقم التسجيل الفعلي 2 Effective Registration Date

فنرة أول إقرار لضريبة القيمة المضافة <u>01 Jan 2018 - 30 Apr 2018 and quarterly</u>

thereafter

تاريخ استحقاق إقرار ضريبة القيمة المضافة <u>28 May 2018</u>

Start and end dates of Tax periods: 1 Feb to 30 Apr, 1 May to 31 July, 1 Aug to 31 بداية ونهاية الفترات الضريبية

Oct, 1 Nov to 31 Jan

يرجى التأكد من صحة تفاصيل الشهادة. يجب إبلاغ الهيئة الاتحادية للضرائب في حال تغيير الاسس التي حصلت فيها على رقم التسجيل الضريبي الخاص بك.

Please check that the details on this certificate are correct. You must inform the Federal Tax Authority of any change on the basis of which you obtained your Tax Registration Number.









Certificate No: CS1-144/001

Certificate of Conformity

BASEC hereby certifies that:

Dubai Cable Company (Private) Limited

P.O. Box 11529, Old Abu Dhabi Road, Jebel Ali, Dubai, United Arab Emirates

Has implemented and maintains a Management System that fulfils the requirements of:

BS EN ISO 9001:2015

In respect of the location listed above and for the following scope of activities:

Scope of Certification:

The design, manufacture and supply of the following products: Electric Power Cables and Wires Rated up to 132 kV PVC Compounds

Issue no: 11

Date of initial certification: 28/05/1998

Issue date: 04/06/2020

Signed for and on behalf of the British Approvals Service for Cables

long Cioveri Date: 04/06/2020

If the conditions set out in the certification agreement are not fulfilled this Certificate may be rendered invalid. This certificate is issued subject to ongoing surveillance for continued compliance, and in accordance with BASEC's Regulations.

BASEC, Presley House, Presley Way, Milton Keynes, MK8 0ES, Registered in England No. 1150237, Tel: +44(0)1908267300 Email: mail@basec.org.uk, Web: www.basec.org.uk





Expiry date: 18/12/2020



E – MAIL:amit@smartsensesupplies.me Website: www.smartsense.asia





Certificate No: ECS-030/001

Certificate of Conformity

BASEC hereby certifies that:

Dubai Cable Company (Private) Limited

P.O. Box 11529, Old Abu Dhabi Road, Jebel Ali, Dubai, United Arab Emirates

Has implemented and maintains a Management System that fulfils the requirements of:

BS EN ISO 14001:2015

In respect of the location listed above and for the following scope of activities:

Scope of Certification:

Management and Control of an Environmental System in respect of the activities at the above site employed in the design, manufacture and supply of: Electric Power Cables and Wires up to 132 kV PVC Compounds

Issue no: 12

Date of initial certification: 28/05/1998

Issue date: 04/06/2020

Signed for and on behalf of the British Approvals Service for Cables

Jony Liveri Date: 04/06/2020

If the conditions set out in the certification agreement are not fulfilled this Certificate may be rendered invalid. This certificate is issued subject to ongoing surveillance for continued compliance, and in accordance with BASEC's Regulations.

BASEC, Presley House, Presley Way, Milton Keynes, MK8 0ES, Registered in England No. 1150237, Tel: +44(0)1908267300 Email: mail@basec.org.uk, Web: www.basec.org.uk





Expiry date: 18/12/2020







Certificate No: HS-106/001

Certificate of Conformity

BASEC hereby certifies that:

Dubai Cable Company (Private) Limited

P.O. Box 11529, Old Abu Dhabi Road, Jebel Ali, Dubai, United Arab Emirates

Has implemented and maintains a Management System that fulfils the requirements of:

BS OHSAS 18001

In respect of the location listed above and for the following scope of activities:

Scope of Certification:

Management and Control of an Occupational Health & Safety System in respect of the activities at the above site employed in the design, manufacture and supply of:
Electric Power Cables and Wires up to 132 kV
PVC Compounds

Issue no: 11

Date of initial certification: 18/04/2004

Issue date: 04/06/2020

Signed for and on behalf of the British Approvals Service for Cables

ony Cioveri Date: 04/06/2020

If the conditions set out in the certification agreement are not fulfilled this Certificate may be rendered invalid. This certificate is issued subject to ongoing surveillance for continued compliance, and in accordance with BASEC's Regulations.

BASEC, Presley House, Presley Way, Milton Keynes, MK8 0ES, Registered in England No. 1150237, Tel: +44(0)1908267300 Email: mail@basec.org.uk, Web: www.basec.org.uk



Expiry date: 18/12/2020





Date: 22.09.2019

CERTIFICATE OF ORIGIN

MANUFACTURER:

Dubal Cable Company (Private) Limited

PRODUCT RANGE:

Ducab RuBICC-H07RN-F Rubber Flexible Cables, THHN/THWN Cables, Medium Voltage Cables (PVC & LSZH), Low Voltage Cables (PVC & LSZH), Wiring Cables (PVC & XL-LSZH), Fire Performance Cables (Flam BICC 1,2,3,4 & 6), Flexible Cables (DUFLEX), Instrumentation Cables (PVC & LSZH)

We hereby confirm that the above mentioned cables are manufactured at Dubai Cable Company (Private) Limited, United Arab Emirates and does not include any materials manufactured in Israel.

for Dubai Cable Company (Private) Limited

Farah Iqbal

Senior Commercial Wiceru Order Execution

Dubai Cable Company (Private) Limited

PO Box 11529, Dubai

United Arab Emirates

Tel: (971-4) 815 8888 Fax: (971-4) 815 8111 BICC





A Joint venture investment between Government of Abu Dhabi and Government of Dubai website: www.ducb.com البريد الإلكتروني: Halli ducab@ducab@ducab.com البريد الإلكتروني: Tol Free: 800-Ducab

شركة دبي للكابلات (الخصوصية) المحدودة

ص.ب: ١١٥٢٩ ، دبي الإمارات العربية المتحدة

هاتف: ۸۸۸۸ ۸۱۵ (٤-۲۹)

فاکس: ۸۱۱۸ (۱۱۸ (۹۷۱–۹۷۱)





فيئة الإمبارات للمواصفات والمقاريس Emirates Authority For Standardization & Metrology



LICENSE FOR THE USE OF **EMIRATES QUALITY MARK (AL-ALAMA)**



License No:

18-08-11445/Q18-08-000384

26-August-2018

Issue Date: Valid Until:

Issued to:

25-August-2021

Dubai Cable Co. (Pvt.) Ltd

P.O. Box 11529, Dubai, United Arab Emirates

رقم الرخصة:

تاريخ الإصدار: تاريخ الإنتهاء:

أصدرت إلى:

Based on the Emirates Product Certification Scheme Agreement No. 18-08-11445/Q18-08-000384 for the following:

Product for which the License is granted:

Low Voltage Cables

Product Description:

See Attached Schedule of Certification

See Attached Schedule of Certification Standard:

جهة معييّنة من قبل هينة الامارات للمواصفات والمقاييس Notified body by Emirates Authority for Standardization & Metrology



Visit ESMA website www.esma.gov.ae to verify this certification. www. sma. gv .a

Any changes or modification on this certificate will affect its validity. SGS Gulf Limited (DAFZ Branch)

Office # 626, Building- 5WA, Al Quds Street, Dubai Airport Free Zone Dubai - United Arab Emirates

+971 4 2283990 www.me.sgs.com M.Sgs.Esma@sgs.com التأكد من صحة هذة الشهادة برحى زيارة موقع هيمة الإمارات للمواصفات والمقابيس على الإنتزنت:

ا س جيا س جلف ليمتد (فرع المنطقة الحرة بمطار دبي) مكتب رقم 626، مبنى 5WA ، شارع القدس، المنطقة الحرة في مطار دبي رديي- الإمارا تنا لعربية المتحدة



E - MAIL:amit@smartsensesupplies.me Website: www.smartsense.asia



هـــيئة الإمــــارات للمــواصــــفات والمــقــ Emirates Authority For Standardization & Metrology

علامة الجودة الإماراتية



CERTIFICATE OF CONFORMITY

EMIRATES QUALITY MARK

Certificate No.

18-08-11445/ Q18-08-000384

Issue Date:

26-August-2018

Valid Until: 25-August-2021

The Emirates Authority for Standardization & Metrology (ESMA)

Hereby certify that:

Dubai Cable Co. (Pvt.) Ltd

P.O. Box 11529, Dubai, United Arab Emirates

Has complied with the following published documents: ESMA General Rules for Emirates Product Certification Scheme

In respect of a certification scheme for the manufacture of

Low Voltage Cables

These rules have among other things necessitated the submission of samples of the scheduled products for examination and testing by ESMA to the Standards referred to in the schedule. Additionally, the scheme requires the firm:

To permit their facilities at:

- Dubai Cable Co. (Pvt.) Ltd , P.O. Box 11529, Dubai, United Arab Emirates

- Dubai Cable Co. (Pvt.) Ltd - Abu Dhabi Branch 1, P.O. Box 9171, Abu Dhabi, United Arab Emirates

- Dubai Cable Co. (Pvt.) Ltd Abu Dhabi Branch 2, P.O. Box 9171, Abu Dhabi, United Arab Emirates to be periodically inspected by
- (A) To allow samples of the schedule products to be selected from production, or from the market or independent testing and examination for assurance that continuity of conformity is being maintained.

The firm hereby agrees with ESMA to duly observe and comply with the requirements of the scheduled standards, the general and specific rules and with any regulations for the scheme that ESMA may establish.



جهة معييّنة من قبل هيئة الامارات للمواصفات والمقاييس Notified body by Emirates Authority for Standardization & Metrology



Emirates Quality Mark

Visit ESMA website www.esma.gov.ae to verify this certification. www.esma.gov.ae

Any changes or modification on this certificate will affect its validity. SGS Gulf Limited (DAFZ Branch)

Office # 626, Building- 5WA, Al Quds Street, Dubai Airport Free Zone Dubai - United Arab Emirates

www.me.sgs.com Me.Sgs.Esma@sgs.com التأكد من صحة هذة الشهادة يرجى زيارة موقع هيئة الإمارات للمواصفات والمقاييس على الإنترنت :

www.esma.gov.ae

أي كشط أو تغيير في هذه الشهادة يلغيها.

اس جي اس جلف ليمتد (فرع المنطقة الحرة بمطار دبي) مكتب رَقم 626، مبلى 5WA ، شارع القدس، المنطّقة الّحرة في مطار در بدي – الإمارات العربية المتحدة



TEST CERTIFICATES





Dubai Cable Company(Private)Limited PO Box 11529,Dubai,UAETel:(+971-4) 8158888 Fax:(+971-4) 8158433 www.ducab.com

ROUTINE TEST CERTIFICATE

Date Page 22.12.2016 1 / 1

Your Purchase Order / Item / Date

DPO-48643 / / 03.06.2015

Our Sales Order / Item / Date

4009075 / 000220 / 20.06.2015

Delivery Note / Item / Date 8053078 / 000220 / 22.08.2015

Country of Origin: UAE

Material Description

3500485 0.6/1 kV,4 Core X 50 mm², Class 2, Copper Conductor, XLPE Insulated, LSZH Bedded, Galvanised SteelWire Armoured, BLACK LSZH Outer Sheathed, Electric Cable conforming to BS 6724 specification.

Batch 0001311607 / Quantity 1,006 M

Test Description	Unit	Test Method	Observed Values	Lower Spec Limit	Upper Spec Limit
High Voltage Test	-	BS 6724 Annex K	Withstood 3.5 k	V AC for 5 Minutes	EX
Core Colour_1		Visual Examination	Red	-	
Conductor Resistance @ 20°C (DC)	ohm/km	BS EN/IEC 60228	0.3810	12 m	0.3870
Insulation Resistance @ Amb. Temp.	$M\Omega$.km		19376	1000	(2)
Core Colour_2	2	Visual Examination	Yellow	-	P28
Conductor Resistance @ 20°C (DC)	ohm/km	BS EN/IEC 60228	0.3780		0.3870
Insulation Resistance @ Amb. Temp.	$M\Omega$.km		16804	1000	(=)
Core Colour_3	100	Visual Examination	Blue	-	(- 0)
Conductor Resistance @ 20°C (DC)	ohm/km	BS EN/IEC 60228	0.3796	-	0.3870
Insulation Resistance @ Amb. Temp.	MΩ.km		18593	1000	1 = 1
Core Colour_4	140	Visual Examination	Black	-	(4)
Conductor Resistance @ 20°C (DC)	ohm/km	BS EN/IEC 60228	0.3820	(2)	0.3870
Insulation Resistance @ Amb. Temp.	MΩ.km		19095	1000	828
Marking	-	Visual Examination	OK	. 	.=
Spark Test Voltage on Insulation	kV AC	BS EN/IEC 62230&BS 5099	OK	8	(-)
Spark test on oversheath	kV AC	BS EN/IEC 62230&BS 5099		11	_

Declaration of Conformity

- 1. We certify that the above cables meets the requirements of BS 6724 specification and order requirements.
- 2. We certify that the instruments used for conducting the above test were calibrated and meets the requirements as per ISO 17025 latest version.

Note

- 1. The furnished tests & results are based on sampling as per Ducab's established Quality Assurance Plan.
- 2. This certificate is generated from validated test data from Quality Data Base, hence no signature is required.

END OF REPORT

For Suggestions/Clarification/Complaints, please write to our helpdesk in





Dubai Cable Company(Private)Limited PO Box 11529,Dubai,UAE Tel:(+971-4) 8158888 Fax:(+971-4) 8158433 www.ducab.com

ROUTINE TEST CERTIFICATE

Date Page 11.05.2017 1 / 1

Your Purchase Order / Item / Date

DPO-49033 / / 20.03.2016

Our Sales Order / Item

4011522 / 000600

Delivery Note / Item

8076422 / 000600

Country of Origin: UAE

Material Description

3500989

450/750 V,1 Core X 6 mm², Class 2, Copper Conductor, XL-LSZH-90° Insulated, Electric Cable conforming to BSEN 50525 - 3 - 41 Specification.

Batch 0001653785 / Quantity 176 ROL

Test Description	Unit	Test Method	Observed Values	Lower Spec Limit	Upper Spec Limit
Core Colour	-	Visual Examination	Red	₩	ue.
Conductor Resistance @ 20°C (DC)	ohm/km	BS EN/IEC 60228	3.0100		3.0800
Marking	-	Visual Examination	OK	Ξ.	2
Spark Test On Insulation	kV AC	BS EN/ IEC 62230&BS 5099	OK	8	0 7 0

Declaration of Conformity

- $1. \ \ We certify that the above cables meets the requirements of BSEN 50525 3 41 specification and order requirements.$
- 2. We certify that the instruments used for conducting the above test were calibrated and meets the requirements as per ISO 17025 latest version.

Note

- 1. The furnished tests & results are based on sampling as per Ducab's established Quality Assurance Plan.
- 2. This certificate is generated from validated test data from Quality Data Base, hence no signature is required.

END OF REPORT

For Suggestions/Clarification/Complaints, please write to our helpdesk in tcertificate@ducab.com



E – MAIL:amit@smartsensesupplies.me Website: www.smartsense.asia



Dubai Cable Company(Private)Limited PO Box 11529,Dubai,UAE Tel:(+971-4) 8158888 Fax:(+971-4) 8158433 www.ducab.com

ROUTINE TEST CERTIFICATE

Date Page 17.09.2019 1 / 1

Your Purchase Order / Item / Date

DPO-49903 / / 11.07.2018

Our Sales Order / Item

4019087 / 000040

Delivery Note / Item

8116181 / 000040

Country of Origin: UAE

Material Description 3501021

450/750 V,1 Core X 25 mm², Class 2, Copper Conductor, XL-LSZH-90° Insulated, Electric Cable conforming to BSEN 50525 - 3 - 41 specification.

Batch 0002960599/ Quantity 2,040 M

Test Description	Unit	Test Method	Observed Values	Lower Spec Limit	Upper Spec Limit
Core Colour	J=0	Visual Examination	Green/Yellow	=	=
Conductor Resistance @ 20°C (DC)	ohm/km	BS EN/IEC 60228	3.0100	<u>=</u>	3.0800
Marking	-	Visual Examination	OK	-	=
Spark Test on Insulation	kV AC	BS EN/ IEC 62230&BS 5099	OK	10	12

Declaration of Conformity

- $1. \ We certify that the above cables meets the requirements of BSEN 50525-3-41 specification and order requirements.$
- 2. We certify that the instruments used for conducting the above test were calibrated and meets the requirements as per ISO 17025 latest version.

Note

- 1. The furnished tests & results are based on sampling as per Ducab's established Quality Assurance Plan.
- $2. \ This \ certificate is \ generated \ from \ validated \ test \ data \ from \ Quality \ Data \ Base; \ hence \ no \ signature \ is \ required.$

END OF REPORT



DRAFT WARRANTY



E – MAIL:amit@smartsensesupplies.me Website: www.smartsense.asia

حوطاب Ducab

GUARANTEE CERTIFICATE

Materials **Ducab Cables**

We are pleased to confirm that the cables manufactured by Ducab have a general design life time of twenty five (25) years subject to proper handling, storage, installation and use of the materials.

for Dubai Cable Company (Private) Limited

Commercial Development Man

Dubai Cable Company (Private) Limited

PO Box 11529, Dubai

United Arab Emirates

Tel: (971-4) 8082500

Fax: (971-4) 8082511





البريد الإلكتروني: E-mail: ducab@ducab.com موقع الإنترنت: Website: www.ducab.com Toll Free: 800-Ducab







شركة دبي للكابلات (الخصوصية) المحدودة ص.ب: ١١٥٢٩ ، دبــي الإمارات العربية المتحدة ماتف: ۵۰۸۲۵۰۰ (۱۳۱۶) فاكس: ٨٠٨٢٥١١ (١-٩٧١)



حوكاب Ducab

WARRANTY CERTIFICATE

Materials : LV Cables and Wires

We are pleased to confirm that LV Cables & Wires supplied by DUCAB are guaranteed against manufacturing defects / bad workmanship for a period of 12 months from the date of commissioning or 18 months from the date of delivery, whichever is earlier, subject to proper handling, storage, installation and use of the materials.

Yours faithfully,

for Dubai Cable Company (Private) Limited

ULHAS MENON

Commercial Development Manager.

Dubai Cable Company (Private) Limited

PO Box 11529, Dubai

United Arab Emirates

Tel: (971-4) 8082500 Fax: (971-4) 8082511











استثمار مشترك بين حكومة دبي وحكومة أبوظبي A joint venture investment between Government of Abu Dhabi and Gove venture investment between Government of Abu Dhabi and Government of Dubal Website: www.ducab.com موقع الإنترنت. E-mail: ducab@ducab.com موقع الإنترنت. E-mail: ducab@ducab.com Toll Free: 800-Ducab

شركة دبي للكابلات (الخصوصية) المحدودة

ص.ب: ۱۱۵۲۹ ، دیسي

الإمارات العربية المتحدة

مانت ١٠٨٢٥٠٠ (١٠١٢)

فاكس: ٨٠٨٢٥١١ (١-٩٧١)



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CATALOGUES TECHNICAL DATA SHEETS



اب Ducab

Ducab Smokemaster Low Smoke Zero Halogen (LSZH)



حلول متقدمة للكابلات من خلال التقنية والابداع Advanced Cable Solutions Through Technology and Innovation

BICC



Introduction

Alongside the progress in fire safety engineering in building design, comes the requirement for electrical installations to provide increasingly greater fire protection for buildings and a safer environment for the people who use them. Ducab has made a major contribution to meeting these requirements, with the development of a range of **Ducab Smokemaster** Low Smoke Zero Halogen armoured power and wiring cables.



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For installation guidelines please refer to our Cable & Drum Handling Guideline handbook.

This brochure provides product information and technical data for the **Ducab Smokemaster** range of Cables

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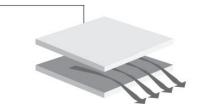


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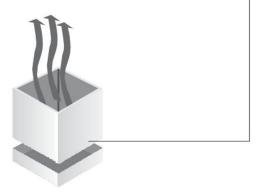
Low Smoke Zero Halogen Cables - Why?

All buildings and structures are at risk from fire and so are the people who use them.

The threat which a fire poses isn't confined to the flames and the heat. Smoke, fumes and acid gases produced from the many items within a building's structure, fabric and fittings can spread quickly during a fire.



The structural services of the building, including the underfloor voids and vertical riser ducts which accommodate cables, can aid the spread of fire and the spread of the smoke and fumes which the fire produces.



These essential structural features form natural draught corridors which spread the problem of smoke and fumes to areas of the building which may not be affected by the fire itself – putting people at risk.

Installing **Ducab Smokemaster** cables can reduce the threat to life by extending the escape and rescue time available.

Smoke diminishes the time available by reducing visibility, hindering mobility and causing bodily harm.

Corrosive acids are formed when the gases released by fire come into contact with moisture. The moisture could be in the air, or could be generated by automatic sprinkler systems. Acid gases are poisonous irritants to people inhaling them. They

also attack the electronic circuitry of sophisticated equipment used in modern offices causing costly



damage. **Ducab Smokemaster** does not produce acid gas.

Ducab Smokemaster cables provide improved fire protection and reduce the risk to building occupants. They are slow to ignite, burn slowly and most importantly, give out negligible amounts of smoke and fumes during a fire.

Much more time is available to enable the orderly evacuation of people from buildings when a fire is discovered. Besides the time needed for people to evacuate a building, extra time is essential to the emergency services personnel who have to enter the building to control and extinguish the fire and assist those needing help.





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Ducab Smokemaster cables resist ignition

- extending the time before cables start to burn in a fire, providing more time to escape.

Ducab Smokemaster cables reduce fire propagation

- by bing slow to burn, reducing the immediate threat and extending escape time.

Ducab Smokemaster cables reduce smoke to a minimum

- reducing disorientation, confusion and panic. With little smoke, people can see the EXIT routes clearly and have more time to follow them to safety. Emergency services have more time to operate effectively.

Ducab Smokemaster cables do not contain halogens

- hydrochloric acid is not formed during a fire. There is no threat of inhalation of this highly irritant chemical and no damage to sensitive or costly equipment.

Ducab Smokemaster cables

- · improve safety and human survival in a fire
- allow people to see and breathe safely for longer
- · increase time for people to escape
- · improve visibility and safety for emergency services
- reduce fire damage of buildings and electronic equipment
- · are designed to improve public and environmental safety

Specially conducted fire tests have confirmed the performance advantage of Ducab Smokemaster

Fire Test after 6 minutes

Exit and escape lights obscured by dense smoke, hindering escape.



PVC Cable



Ducab Smokemaster

Exit and escape lights allowing safer evacuation.

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Typical Applications

Places which are regularly densely populated

Hotels

Commercial Offices Multi-Storey Dwellings Public Buildings

Housing people with limited mobility

Hospitals

Clinics

Care Homes

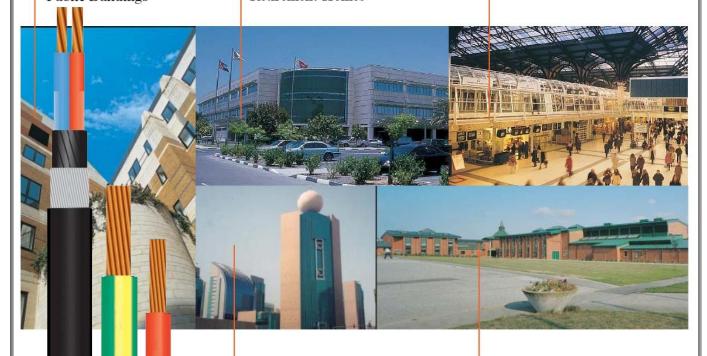
Retirement Homes

Where people are unfamiliar with a building's layout

Shopping Malls

Cinemas and Theatres

Airports



Involving valuable equipment

Computer Suites

Defence Installations

Research Laboratories

Telecommunications Centres

Involving high security

Defence installations

Prisons

Research Establishments

Computer Centres

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Performance Standards

All Ducab Smokemaster products are manufactured to comply with the following fire safety standards:

Flame Propagation

Ducab Smokemaster armoured cables are flame retardant and comply with BS EN 50266/IEC 60332-3.

Ducab Smokemaster wiring cables comply with BS EN 60332 and IEC 60332-1.

Acid Gas Emissions

IEC 60754 Part 1 & Part 2 define the tests for detecting hagen acid gas emissions from burning materials taken from cables.

Ducab Smokemaster cables comply with these halogen free emission standards when exposed to fire.

Smoke Emission

Ducab Smokemaster cables comply with the smoke emission requirements of IEC 61034.



Emirates Towers Dubai One of the safest buildings in Dubai thanks to Ducab Smokemaster

cables

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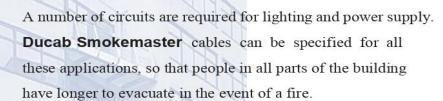
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Specification Guidelines

Design Considerations

A typical multi-storey public building will include many different rooms and facilities including bedrooms, kitchens, communal living and dining areas.

Some floors may be densely populated. There may be visitors who will not be familiar with a building's layout, and there may be people with limited mobility.





Multi-storey Buildings



Heavily populated with people



Frequent visitors to the building



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Armoured Cables to BS 6724

Wiring Cables to BS 7211

- Complies with acid gas emission requirements of IEC 60754 Part 1 & Part 2 and also complies with Category C of IEC 60332 - 3.
- Ducab Smokemaster insulation allows continuous conductor operating temperatures up to 90°C.
- **Ducab Smokemaster Armoured Cables are** suitable for a wide range of applications including where sections of the cable are underground.
- Maximum conductor temperature allowed under short circuit conditions is 250°C.
- Low Smoke Zero Halogen properties, no halogen acid gas emissions and reduced ignition and fire propagation properties.
- Higher operating and short circuit temperatures provide opportunity to reduce conductor sizes.
- The cable construction combines XLPE conductor in sulation with Ducab Smokemaster LSZH beding and outer sheath.
- · All cables have clear identification and marking
- 90°C conductor operating temperature provides the opportunity to reduce conductor sizes.
- Independent product testing to BS 7211 by Warrington Fire Research

- Approved by Lloyds Register (UK)
- BASEC Approved (1.5 to 630 sq mm sizes)

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Quality Management at Ducab

Ducab: Where Quality is a Way of Life

The definition of quality in Ducab goes far beyond the conformance of product to specified requirements. Ducab is committed to providing the customer with total quality excellence of product and service that fully meets expectations and is superior in value to that which can be obtained elsewhere.



Since its inception,
Ducab has an unrivaled
reputation for quality
in the region. For many
years the company has
worked to raise quality
awareness in Dubai and
throughout the Gulf. The

company's Quality Management System was certified to ISO 90001 in 1994 and upgraded in 2002 to the new, more stringent ISO 9001:2000 standard certified by BASEC, a reputed UKAS accredited certification body specializing in the cable industry. Ducab was the first cable company in the Middle East to achieve this distinction.

Ducab is also the first manufacturing company in the Middle East to obtain the ISO 14001 enviornmental certification, and certified by BASEC.

Ducab's excellence in quality was recognized when the company was awarded the Dubai Qulaity Award, in the



very first year of its inception, in 1994. Ducab has also won the DQA-Gold award again in 1998 and 2004.

TESTING FACILITIES

Ducab is the only cable manufacturer in the Middle East to have invested in fire testing facilities for fire performance cables and also uses external, independent test houses including Warrington Fire Research in the United Kingdom to test product, to ensure conformance to the relevant standards.

Ducab has invested in the state-of-the-art

technology for the testing of cables in fire and has a purpose-built testing facility which includes a 3 metre cube test of smoke density to IEC 61034 – 1



& 2, and a vertical ladder fire test chamber to IEC 60332 –3.









Technical Data Ducab Smokemaster Wiring Cables to BS 7211

Construction

Stranded plain annealed copper single core conductors insulated with crosslinked **Ducab Smokemaster** Compound. Voltage Grade: 450/750V.

Identification

Ducab Smokemaster Wiring Cables are identified with the legend – BICC **Ducab Smokemaster LSZH** BS 7211 Z – and are available as standard in Red, Black, Yellow, Blue and Green/Yellow colours. Other colours can be manufactured to order.

Installation

The cables are primarily intended for installation in conduit or trunking.

Current Ratings

The following ratings apply to cables bunched and enclosed in conduit on a wall, or enclosed in trunking, and are based on an ambient temperature of 30°C.

Table 1 Ducab Smokemaster Wiring Cables 450/750V Grade

						Enclosed in Co	nduit (method 3)	
Nominal Conductor Area	Radial Thickness of Insualtion	Mean Overall Diameter (Upper limit)	Approximate Cable Weight	Maximum conductor Resistance at 20°C	Two Cables, Single Phase a.c. Current Rating	Two Cables, Single Phase a.c. Volt Drop per amp per metre	Three or Four Cables, Three Phase a.c. Current Rating	Three or Four Cables, Three Phase a.c. Volt Drop per Amp per Metre
mm ²	mm	mm	kg/km	ohm/km	amp	mV/A/m	amp	mV/A/m
1.5	0.7	3.4	22	12.1	22	31	19	27
2.5	0.8	4.1	33	7.41	30	19	26	16
4	0.8	4.7	49	4.61	40	12	35	10
6	0.8	5.4	69	3.08	51	7.9	45	6.8
10	1.0	7.0	116	1.83	71	4.7	63	4.0
16	1.0	8.0	175	1.15	95	2.9	85	2.5
25	1.2	10.1	274	0.727	126	1.90	111	1.65
35	1.2	11.3	367	0.524	156	1.35	138	1.15
50	1.4	13.0	495	0.387	189	1.05	168	0.90
70	1.4	15.0	699	0.268	240	0.75	214	0.65
95	1.6	17.0	968	0.193	290	0.58	259	0.50
120	1.6	19.0	1164	0.153	336	0.48	299	0.42
150	1.8	21.0	1413	0.124	375	0.43	328	0.37
185	2.0	23.5	1828	0.0991	426	0.37	370	0.32
240	2.2	26.5	2320	0.0754	500	0.33	433	0.29
300	2.4	29.5	2988	0.0601	573	0.31	493	0.27
400	2.6	34.3	3700	0.0470	683	0.29	584	0.25
500	2.8	38.2	4750	0.0366	783	0.28	666	0.24
630	2.8	42.5	6000	0.0283	900	0.27	764	0.23

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Ducab Smokemaster Armoured Cables to BS 6724

Construction

Circular or shaped stranded plain annealed copper conductors, XLPE insulated, LSZH bedded,

galvanised steel wire armoured and LSZH sheathed.

Voltage grades 600/1000V and 1900/3300V.

¹ Aluminium conductors also available on some sizes.

Aluminium armour on single core cables.

Identification

Core Colours:

Single - Red or Black
Two - Red, Black
Three - Red, Yellow, Blue
Four - Red, Yellow, Blue, Black
Five - Red, Yellow, Blue, Black,
Green/Yellow

Six and Above - White, printed with

Black numerals

Sheath: Black as standard.

Power/Control cables up to five cores are embossed with the legend - BS 6724 ELECTRIC CABLE 600/1000V(or 3300V as appropriate) BICC **Ducab Smokemaster** LSZH.

Multicore auxiliary cables are marked with the legend - BS 6724 ELECTRIC CABLE 600/1000V AUX BICC **Ducab Smokemaster** LSZH.

Installation

Ducab Smokemaster armoured cables are primarily intended for installation in air. To avoid risk of damage during handling they should not be installed in temperatures lower than minus 10°C. Cables with copper conductors should not be bent during installation to radii less than 6 x overall diameter.

(Shaped conductors 8 x overall diameter).

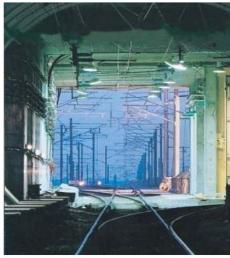
Ducab Smokemaster armoured cables combine the excellence of cross linked polyethylene (XLPE) insulation with Low Smoke Zero Halogen

materials as the bedding and outer sheath.

This material is notable for the absence of smokegenerating constituents, particularly halogens (fluorine, bromine, chlorine) thus avoiding the hazards of corrosive and noxious fumes emitted by standard materials such as PVC when exposed to flames.

These cables are developed and manufactured to pass large-scale vertical fire-propagation tests in British and International (IEC) standards. In the three-metre cube smoke emission test they perform to exacting standards.

They are free of added halogens so that acid gas emissions are not detectable when tested to IEC 60754 Part 1 & Part 2. The completed cables comply with Category C of IEC 60332-3.



Ducab Smokemaster

armoured cables can be used in place of standard PVC insulated armoured cables but can operate continuously at 90°C which means they have higher current and short circuit ratings than conventional PVC insulated armoured cables. As a result it may be possible to use a smaller conductor size.



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Table 2 Ducab Smokemaster Single Core Armoured cables 600/1000V Grade

Conductor Area	Appr	oximate Diar	neter	Approx- imate	Maxi- mum	Maximum conductor		Free air (M	lethod 12)	
	Under Armour	Armour wire Dia	Overall	cable Wt.	armour resistance at 20°C	resistance at 20°C		s vertical flat ed**a.c.		bles Trefoil sching
mm²	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Current rating Amp	Volt Drop Per Amp Per Metre mV	Current Rating mV	Volt Drop Per Amp Per Metre mV/A/m
V Copper	Power Cable	s 600/1000								
50	12.6	*1.6	18.4	800	1.30	0.387	266	1.00	222	0.87
70	14.5	1.6*	20.2	990	0.75	0.268	337	0.75	285	0.62
95	16.4	*1.6	22.3	1280	0.67	0.193	412	0.60	346	0.47
120	18.0	1.6*	24.2	1550	0.61	0.153	477	0.51	402	0.39
150	19.8	1.6	27.4	1900	0.42	0.124	539	0.45	463	0.33
185	22.0	1.6	30.0	2320	0.38	0.0991	614	0.40	529	0.28
240	24.6	1.6	32.8	2930	0.34	0.0754	714	0.35	625	0.24
300	27.3	1.6	36.6	3580	0.31	0.0601	805	0.32	720	0.21
400	31.2	2.0	40.5	4600	0.22	0.0470	889	0.30	815	0.195
500	36.0	2.0	44.2	5680	0.20	0.0366	989	0.29	918	0.180
630	40.0	2.0	48.8	7160	0.18	0.0283	1092	0.27	1027	0.170
800	45.8	2.5	55.4	9315	0.13	0.0221	1155	0.27	1119	0.165
1000	50.8	2.5	60.6	11490	0.12	0.0176	1238	0.25	1214	0.155

^{*}Wire diameters are larger than those specified in BS 6724

** Adjacent surfaces separated by one cable diameter.

Installation conditions for above rating Ambient Air Temperature 30°C Conductor operating temperature 90°C

Table 3 Ducab Smokemaster Two Core Armoured cables 600/1000V Grade

Conductor Area	Appre	oximate Dian	neter	Approximate cable Wt.	Maximum armour	Maximum conductor	Free air (1	Method 13)
	Under Armour	Armour wire Dia	Overall		resistance at 20°C	resistance at 20°C	Current Rating	Volt Dro Per Am per Metr
mm²	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Amp	mV/A/n
	V Co	opper Power	and Control	Cables 600/1000			Single pha	se a.c or d.
*1.5	7.8	0.9	12.0	285	10.2	12.1	29	31
2.5*	9.1	0.9	13.0	340	8.8	7.41	39	19
*4	9.7	0.9	14.0	410	7.9	4.61	52	12
*6	10.9	0.9	15.2	490	7.0	3.08	66	7.9
10*	13.0	0.9	17.5	640	6.0	1.83	90	4.7
*16	15.2	1.25	20.4	900	3.7	1.15	115	2.9
*25	18.5	1.25	24.1	1240	3.7	0.727	152	1.9
35*	21.5	1.6	27.7	1710	2.6	0.524	188	1.35
50	18.7	1.6	25.8	1800	2.3	0.387	228	1.00
70	21.5	1.6	29.0	2320	2.0	0.268	291	0.69
95	24.6	2.0	33.1	3150	1.4	0.193	354	0.52
120	26.8	2.0	36.1	3880	1.3	0.153	410	0.42
150	29.7	2.0	39.3	4820	1.2	0.124	472	0.35
185	33.3	2.5	44.7	5920	0.82	0.0991	539	0.29
240	38.1	2.5	49.0	7300	0.73	0.0754	636	0.24
300	42.3	2.5	53.5	8770	0.67	0.0601	732	0.21
400	47.6	2.5	58.2	10770	0.59	0.0470	847	0.19

 $*\ Circular\ conductor\ all\ others\ are\ Sector$

shaped Installation conditions for above rating Ambient Air Temperature 30°C Conductor operating temperature 90°C

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Table 4 Ducab Smokemaster Three Core Armoured Cables 600/1000V Grade

Conductor Area	Appro	ximate Dia	neter	Approximate cable Wt	Maximum armour	Maximum conductor	(Free air (1	Method 13
	Under Armour	Armour wire Dia	Overall		resistance at 20°C	resistance at 20°C	Current Rating	Volt Drop Per Amp per Metre
mm ²	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Amp	mV/A/m
	V Co	opper Power	and Contr	ol Cables 600/100	00		Three pl	nase a.c
1.5*	8.3	0.9	12.4	320	9.5	12.1	25	27
2.5*	9.6	0.9	13.5	390	8.2	7.41	33	16
4*	10.4	0.9	14.5	470	7.5	4.61	44	10
6*	11.6	0.9	16.0	565	6.7	3.08	56	6.8
10*	13.6	1.25	19.0	850	4.0	1.83	78	4.0
16*	16.0	1.25	21.6	1130	3.5	1.15	99	2.5
25*	20.0	1.6	26.7	1710	2.5	0.727	131	1.65
35*	22.7	1.6	29.4	2100	2.3	0.524	162	1.15
50	23.0	1.6	28.5	2450	2.0	0.387	197	0.87
70	26.0	1.6	32.2	3120	1.8	0.268	251	0.60
95	30.0	2.0	37.0	4310	1.3	0.193	304	0.45
120	32.8	2.0	40.4	5160	1.2	0.153	353	0.37
150	36.8	2.5	45.5	7160	0.78	0.124	406	0.30
185	41.5	2.5	49.8	8600	0.71	0.0991	463	0.26
240	46.0	2.5	55.1	10755	0.63	0.0754	546	0.21
300	51.5	2.5	60.2	13080	0.58	0.0601	628	0.185
400	56.4	2.5	66.6	15810	0.52	0.0470	728	0.165

Table 5 Ducab Smokemaster Four Core Armoured Cables 600/1000V Grade

Conductor Area	Appro	ximate Diar	neter	Approximate .cable Wt	Maximum armour	Maximum conductor	(Free air (Method 13
	Under Armour	Armour wire Dia	Overall		resistance at 20℃	resistance at 20°C	Current Rating	Volt Drop Per Amp per Metre
mm^2	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Amp	mV
	V Cop	per Power	and Conti	rol Cables 600/]	1000		Threep	hase a.c
*1.5	9.1	0.9	13.5	380	8.8	12.1	25	27
*2.5	10.6	0.9	14.5	445	7.7	7.41	33	16
*4	11.4	0.9	17.0	550	6.8	4.61	44	10
*6	13.0	1.25	18.5	770	4.3	3.08	56	6.8
*10	15.0	1.25	20.5	1020	3.7	1.83	78	4.0
*16	18.0	1.25	23.5	1320	3.1	1.15	99	2.5
25	20.0	1.6	26.1	1840	2.3	0.727	131	1.65
35	22.8	1.6	28.6	2310	2.0	0.524	162	1.15
50	25.5	1.6	32.0	2970	1.8	0.387	197	0.87
70	29.5	2.0	37.7	4240	1.2	0.268	251	0.60
95	33.5	2.0	41.7	5400	1.1	0.193	304	0.45
120	37.5	2.5	47.1	7000	0.76	0.153	353	0.37
150	41.5	2.5	51.4	8350	0.68	0.124	406	0.30
185	46.0	2.5	56.6	10130	0.61	0.0991	463	0.26
240	52.5	2.5	63.0	12840	0.54	0.0754	546	0.21
300	57.5	2.5	68.8	15530	0.49	0.0601	628	0.185
400	65.0	3.15	78.1	19950	0.35	0.0470	728	0.165

Circular conductor all others are Sector shaped

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Website: www.smartsense.asia

Installation conditions for rating Ambient Air Temperature 30°C Conductor operating temperature 90°C

DucabSmokemaster

Technical Data

Table 6 Ducab Smokemaster Multi Core Armoured Cables 600/1000V Grade

Number of	Nominal	App	roximate Diame	eter	Approximate	Approximate	Maximum	(Free air (1	Method 13
Cores	conductor	Under	Armour	Overall	.cable Wt	armour resistance at	conductor resistance at	Current	Volt Drop
	area	Armour	wire Dia			20°C	20°C	Rating	((3°AC
	mm ²	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Amp	mV/A/m
			V Copp	er Auxilliary	Control Cables	600/1000			
7	1.5	11.1	0.9	15.2	475	7.5	12.1	19	27
12	:	14.8	1.25	19.4	790	4.0	12.1	16	27
19		17.5	1.25	22.2	1030	3.5	12.1	14	27
27		21.6	1.6	26.7	1520	2.3	12.1	12	27
37		24.2	1.6	29.0	1840	2.0	12.1	11	27
48		25.9	1.6	32.7	2000	1.8	12.1	10	27
7	2.5	13.0	0.9	17.1	580	6.3	7.41	25	16
12		17.0	1.25	22.4	975	3.5	7.41	21	16
19		20.5	1.6	26.6	1470	2.3	7.41	18	16
27		24.5	1.6	30.7	1900	1.9	7.41	17	16
37		27.5	1.6	33.8	2330	1.7	7.41	15	16
48		31.3	2.0	39.3	3045	1.2	7.41	14	16
7	4	14.6	1.25	19.7	830	4.0	4.61	33	10
12		19.2	1.6	25.7	1340	2.3	4.61	28	10
19		23.1	1.6	29.3	1800	2.0	4.61	24	10
27	2	27.6	1.6	34.4	2350	1.7	4.61	22	10
37		31.0	2.0	39.2	3320	1.2	4.61	19	10
48		35.6	2.0	44.1	3910	1.0	4.61	17	10

Note: Data for multicore cables with conductor size higher than tabulated is available on request

Table 7 Ducab Smokemaster Single Core Armoured Cables 1900/3300V Grade

Conductor	Appr	oximate Diame	ter	Approximate cable	Maximum armour	Maximum conduc-	Free air (Method 12)
Area	Under Armour	Armour wire Dia	Overall	wt.	resistance at 20°C	tor resistance at 20°C	Current Rating
mm ²	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Amps
			V Copper Po	wer Cables 1900/3300			Three cable in Trefoil
50	15.0	1.6*	20.6	810	0.75	0.387	228
70	16.6	1.6*	22.4	1040	0.67	0.268	285
95	18.4	1.6*	24.3	1330	0.61	0.193	350
120	19.8	1.6	27.2	1680	0.42	0.153	407
150	21.2	1.6	28.8	1970	0.39	0.124	463
185	23.0	1.6	30.8	2370	0.37	0.0991	528
240	25.5	1.6	33.5	2960	0.34	0.0754	623
300	27.7	1.6	36.1	3610	0.31	0.0601	710
400	31.0	2.0	40.5	4600	0.22	0.0470	808
500	36.0	2.0	44.2	5680	0.20	0.0366	915
630	40.0	2.0	48.8	7160	0.18	0.0283	1030
800	45.8	2.5	55.4	9150	0.13	0.0221	1119
1000	50.8	2.5	60.6	11270	0.12	0.0176	1214

 $^{^{}st}$ Wire diameters are larger than those specified in BS6724

Installation conditions for above rating Ambient Air Temperature 30 $^{\circ}C$ Conductor operating temperature 90 $^{\circ}C$

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Table 8

Ducab Smokemaster Three Core Armoured Cables 1900/3300V Grade

Conductor Area	A	pproximate Diameter Approximate cable wt. Maximum armour resistance				Maximum conductor resistance at 20°C	Free air (Method 13)
	Under armour	Armour wire dia	Overall		at 20°C		Current Rating
mm	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Amps
		-	V Copper Powe	er Cables 1900/3300			Three phase AC
*16	21.5	1.6	29.3	1600	1.9	1.15	106
*25	24.5	1.6	32.2	2060	1.7	0.727	142
*35	26.5	1.6	34.8	2400	1.8	0.524	168
50	25.2	2.0	34.7	3200	1.3	0.387	202
70	28.4	2.0	38.0	3800	1.2	0.268	255
95	31.0	2.0	41.4	4730	1.1	0.193	312
120	36.6	2.5	45.7	6070	0.76	0.153	361
150	38.5	2.5	48.5	7010	0.71	0.124	410
185	42.5	2.5	51.9	8270	0.65	0.0991	471
240	47.8	2.5	56.9	10310	0.59	0.0754	554
300	52.5	2.5	61.2	12300	0.55	0.0601	634
400	56.4	2.5	66.6	14980	0.50	0.0470	734

Circular conductor *

Installation conditions for above rating Ambient Air Temperature 30°C Conductor operating temperature 90°C

Rating Correction Factors (Ca)

For ambient temperatures other than 30°C, the tabulated current ratings must be adjusted by temperature correction factors listed below:

Derating Factors for Cables with a 90°C Operating Temperature

Ambient Temperature °C	25	35	40	45	50	55
Fuse to BS 88 or BS 1361 or Circuit Breaker to BS 3871 or BS EN 60898	1.02	0.96	0.91	0.87	0.82	0.76
Semi-enclosed Fuse to BS 3036	1.02	0.98	0.95	0.93	0.91	0.89

NOTE: All operational data is circulated on the basis of cables installed in air. Where the conductor is to be protected by a semi-enclosed fuse to BS 3036, see item 6.2 of the preface to Appendix 4 of BS 7671.

Group Rating Correction Factors (Cg)

For groups of more than one circuit of single core cables, or more than one multicore cable (to be applied to the corresponding current-carrying capacity for a single circuit in the previous Current Ratings Tables).

Derating Factors for Cables with a 90°C Operating Temperature

Number of Cicuits or Multi-core Cables	2	3	4	5	6	8	10	12	14	16	18	20
Grouping Factors for Reference Methods 1 and 3 in Table 4A of BS 7671 IEE Wiring Regulations	0.8	0.7	0.65	0.6	0.57	0.52	0.48	0.45	0.43	0.41	0.39	0.38

Note: All operational data is circulated on the basis of cables installed in air



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Short Circuit Current Rating Formula

The formula given below is based on the cables being fully loaded at the start of a short circuit (conductor temperature 90°C) and a final conductor temperature of 250°C. It should be ensured that the accessories associated with the cables are also capable of operation at these values of fault current and temperature.

$$I = \underline{\underline{kS}}$$
 Amps

Where I = Short circuit current (Amps)

S = Copper area of conductor (mm2)

t = Duration of short circuit current (seconds) up to 5 seconds maximum

k = Constant to allow for an initial temperature of 90°C &

final conductor temperature of 250° C = 143

Special precautions for handling/installation LSZH (Low Smoke Zero Halogen) Sheathed Cables

Cable Sheath Application

Material	Key Properties	Recomended for
PE	High mechanical strength	Direct burial/Duct Installations
PVC	Flexibility & Flame Retardance	General purpose, Laying in trench
LSZH	Zero Halogen / Low Smoke	Mass Transit Systems, High rise buildings & confined locations

Cables like LSZH sheath need to be handled with care during installation. While special additives are used in the formulation of LSZH compound to give the typical flame retardant characteristics of Zero halogen polymers (e.g. high oxygen index, very low smoke density, no acid gas liberation and retardance to flame propagation) some mechanical properties deteriorate. The following basic installation methos are particularly applicable.

- a) Cables should not be exposed to sunlight for considerable period before installation i.e., the temp. of the cable sheath should be below 40 degree Celsius.
- b) Preferably the installation is done during morning hours when the ambient temp is low.
- c) Wire/Rope should not be used directly on cable sheath for pulling.
- d) When pulled on cable trays/or any uneven surface, special attention is needed to weldings/or unusually rough terrains.
- e) Rollers and bends should not have any sharpness which may damage sheath.
- f) Special LSZH compatible accessories and fixings are recommended for installations requiring enhanced fire performance.

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	Ducab Smokemaster LSZH Components Look Up Chart	Ducab Smokemaster 600/1000V Cables to BS 6724	COMPONENTS REFERENCE CHART
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Cartilla	Throad Sira
LSZHZOSSEIW	Sw maoor Gland LSZH Kit Reference
ISZHZOSEIW	LSZH20SBW
LSZHZOEIW 02	LSZHZ0SBW LSZH20SBW
Caracaeta	LSZH20BW
LSZHZEIW 04 03 LSZHZEIW 06 03 LSZHZEIW 06 03 LSZHZEIW 06 04 LSZHZOSEIW 02 01 LSZHZOSEIW 02 01 LSZHZOSIW 02 01 LSZHZEIW 03 01	LSZH25BW
LSZHZSEIW 00 04 0.0	25 LSZH25BW LSZH 22 LSZH22BW LSZH
LSZHZOSEIW	LSZH32BW
ISZHZOSEIW	LSZH20SBW
LSZHZOSEIW	LSZH20SBW
LSZHZOEIW 03	LSZH20SBW
LSZHZSEIW	LSZH20BW
LSZH20E1W	25 LSZH25BW LSZH25
LSZH20E1W	LSZHZZBW
LSZH20SEIW	LSZH40BW
LSZHZOSEIW	20 LSZHZ0SBW LSZHZ0
LSZHZOEIW 03 01 - ZHMP12 LSZHZOEIW 03 02 - ZHMP12 LSZHZOEIW 04 03 - ZHMP12 LSZHZOEIW 04 03 - ZHMP13 LSZHZOEIW 04 03 - ZHMP13 LSZHZOEIW 05 04 - ZHMP13 CHMP13 C	LSZH20SBW
LSZHZOSEIW O3 O2 CZHAPPIZ CZHAPPIZ	20 LSZH20BW LSZH20CW
LSZHZOEIW 03 02 CARAPIZ LSZHZOEIW 04 02 - ZHAPPIZ LSZHZOEIW 03 02 - ZHAPPIZ LSZHZOEIW 04 02 - ZHAPPIZ LSZHZSEIW 04 02 - ZHAPPIZ LSZHZSEIW 04 03 - ZHAPPIZ LSZHZSEIW 05 - ZHAPPIZ LSZHZSEIW 06 03 - ZHAPPIZ LSZHZSEIW 05 04 - ZHAPPIZ	LSZH20SBW
LSZHZOEIW	
LSZH20EIW 03 02 - ZHAIPI2 LSZH20EIW 04 02 - ZHAIPI2 LSZH2SEIW 04 02 - ZHAIPI2 LSZH2SEIW 04 03 - ZHAIPI3 LSZH2SEIW 04 03 - ZHAIPI3 LSZH2SEIW 05 04 - ZHAIPI3	LSZH20SBW
LSZH25EIW 04 02 - ZHAP12 LSZH25EIW 04 02 - ZHAP12 LSZH25EIW 04 03 - ZHAP12 LSZH25EIW 04 03 - ZHAP13 LSZH25EIW 05 04 - ZHAP13	LSZHZ0BW
LSZH25EIW 04 02 - ZHMP12 LSZH25EIW 04 03 - ZHMP12 LSZH25EIW 04 03 - ZHMP13 LSZH25EIW 05 04 - ZHMP13	20 LSZH20BW LSZH
LSZH2SEIW 04 03 - ZHMP12 LSZH2SEIW 04 03 - ZHMP13 LSZH2SEIW 05 04 - ZHMP13	LSZHZSBW
LSZH2SEIW 04 03 - ZHMP3 LSZH2SEIW 05 04 - ZHMP93	LSZHZSBW
LSZHZSEIW 05 04 - ZHNPJ3	25 LSZH25BW LSZH
	LSZHZ5BW

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Copper Con- nectors Lugs	BT25CS BT25CS BT25CS	BT35CS BT35CS BT35CS	BT50CS BT50CS BT50CS	BT70CS BT70CS BT70CS	BT95CS BT95CS BT95CS	BT120CS BT120CS BT120CS	BT150CS BT150CS BT150CS	BT185CS BT185CS BT185CS	BT240CS BT240CS BT240CS	BT300CS BT300CS BT300CS	BT400CS BT400CS BT400CS
LSZH Resin Joint	ZHMP72 ZHMP33 ZHMP34	ZHNP3 ZHNP34 ZHNP34	ZHMP3 ZHMP35 ZHMP35	ZHMP 14 ZHMP 15 ZHMP 15	ZHNP 14 ZHNP 15 ZHNP 15	ZHMPJ5 ZHMPJ6 ZHMPJ6	ZHMP35 ZHMP36 ZHMP36	ZHMP35 ZHMP36 ZHMP36	ZHMPJ6 ZHMPJ7 ZHMPJ7	ZHMPJ6 ZHMPJ7 ZHMPJ7	ZHMPJ8
2 Bolt Cleat Ref. 374 LSZH	3 1 3	4 1 4	D. (I D.	.1 1 1	1 1 1	3. 3. 3.	9 11 0	- 01	- 01 02	01 02 03	02 03 04
Ranger Cleat Ref 382LSZH	03 03 04	04 04 04	03 04 04	04 04 05	05 05	04 05 05	05 05 05	05 05 06	05 06 06	90 90	90 90
Telcleat Ref. 385LSZH	05 06 06	90 90	90	90	00 00 00 00 00 00 00 00 00 00 00 00 00	07 08	008	88 1	8 ' '	1) (I 1)	3 1 3
E1W Outdoor Gland LSZH Kit Reference	LSZH2E1W LSZH32E1W LSZH32E1W	LSZH32E1W LSZH32E1W LSZH32E1W	LSZH2SE1W LSZH32E1W LSZH32E1W	LSZH32E1W LSZH32E1W LSZH40E1W	LSZH32E1W LSZH40E1W LSZH50E1W	LSZH40E1W LSZH50E1W LSZH50E1W	LSZH40E1W LSZH50E1W LSZH50E1W	LSZHS0E1W LSZHS0E1W LSZH63E1W	LSZH50E1W LSZH63E1W LSZH63E1W	LSZH50E1W LSZH63E1W LSZH75E1W	LSZH63E1W LSZH75E1W LSZH75E1W
CW Outdoor Gland LSZH Kit Reference	LSZH25CW LSZH32CW LSZH32CW	LSZH32CW LSZH32CW LSZH32CW	LSZH25CW LSZH32CW LSZH32CW	LSZH32CW LSZH32CW LSZH40CW	LSZH32CW LSZH40CW LSZH50CW	LSZH40CW LSZH50CW LSZH50CW	LSZH40CW LSZH50CW LSZH50CW	LSZH50CW LSZH50CW LSZH63CW	LSZH50CW LSZH63CW LSZH63CW	LSZH50CW LSZH63CW LSZH75CW	LSZH63CW LSZH75CW LSZH75CW
BW Indoor Gland LSZH Kit Reference	LSZH25BW LSZH32BW LSZH32BW	LSZH32BW LSZH32BW LSZH32BW	LSZH25BW LSZH32BW LSZH32BW	LSZH32BW LSZH32BW LSZH40BW	LSZH32BW LSZH40BW LSZH50BW	LSZH40BW LSZH50BW LSZH50BW	LSZH40BW LSZH50BW LSZH50BW	LSZH50BW LSZH50BW LSZH63BW	LSZH50BW LSZH63BW LSZH63BW	LSZH50BW LSZH63BW LSZH75SBW	LSZH50BW LSZH75SBW LSZH75BW
Thread Size	25 32 32	32 32 32	25 32 32	32 32 40	32 40 50	40 50 50	40 50 50	50 50 63	50 63 63	50 63 75	63 75 75
No. of cores	2 % 4	2 % 4	2 8 4	2 % 4	21 K 4	2 % 4	0 w 4	2 & 4	2 % 4	2 % 4	21 K 4
Nominal Con. Area mm ²	25	35	20	70	95	120	150	185	240	300	400

All components available from Ducab Connect and authorised distributors

Important Note: The dimensions of cables vary with manufacturing tolerances. We advise the cable diameter is measured where possible before purchasing component. The recommendations here are given in good faith but Ducab Connect cannot be held liable for mistakes in selection however caused. Please Note: When ordering connectors specify stud hole size required, eg. BT10CS8 is a 10 mm² connector with a 8 mm stud hole.

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