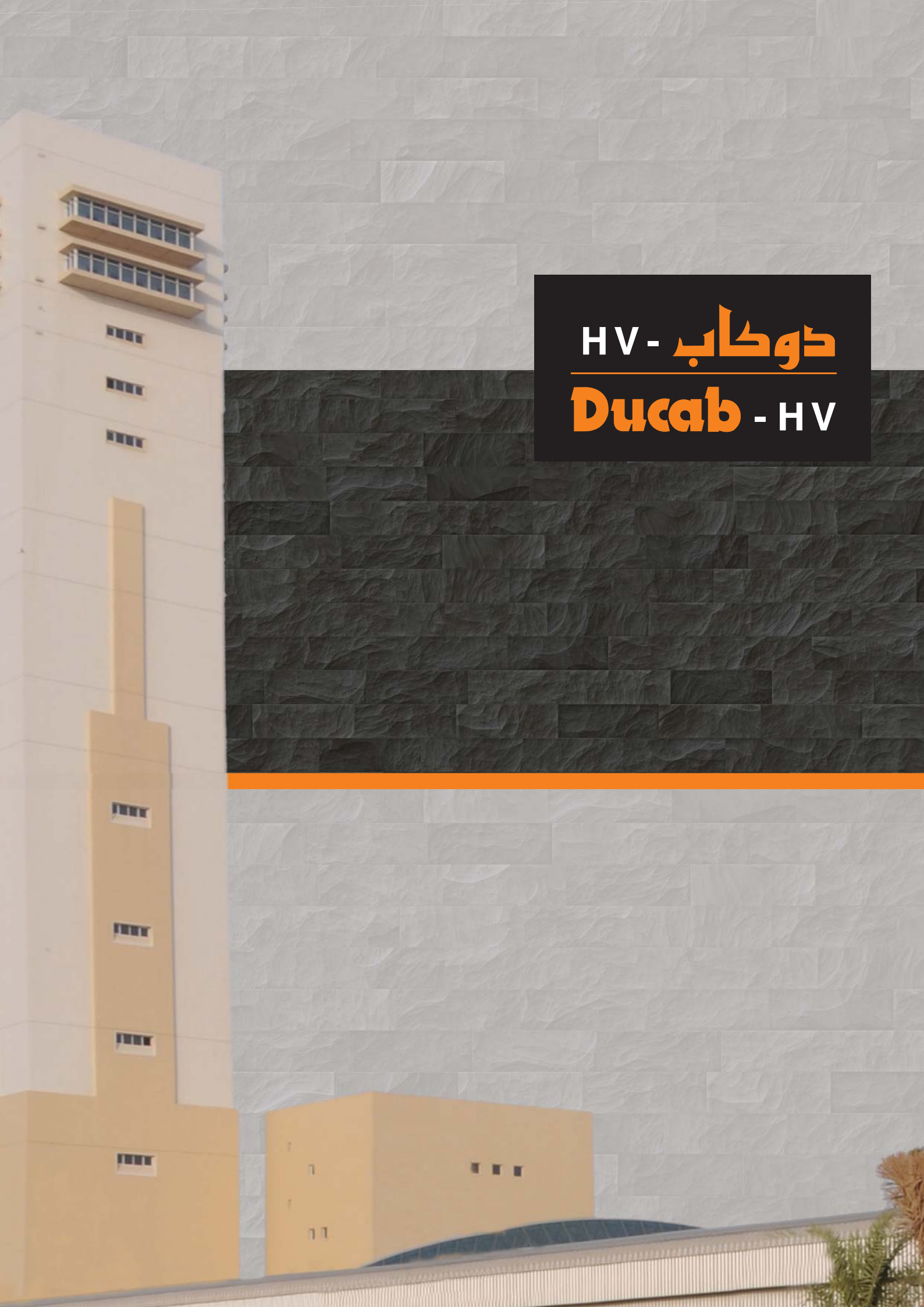


دوكاب - HV

Ducab - HV

HV - دوكاب

Ducab - HV

Introduction

Ducab HV (DHV) is the first dedicated high voltage (60kV – 150kV) and extra high voltage (220kV – 500kV) power cable manufacturing facility in the Middle East. The company is a joint venture between Ducab Group (50%); Abu Dhabi Water and Electricity Authority (ADWEA – 25%) and Dubai Electricity and Water Authority (DEWA – 25%).

This unique partnership draws on the collective strengths of its shareholders:

Ducab Group - proven local power cable manufacturing quality up to and including 132kV. The first of Ducab's factories was erected in Jebel Ali, Dubai in 1979, under the auspices of BICC, with its first HV cable supplied in 2004. Now generating turnover in excess of US$1 billion, the Group manufactures cables in four UAE based factories, including a copper rod manufacturing facility and the DHV plant, and one UK based factory. Ducab Group still bears the BICC brand.

ADWEA and DEWA - represent the two largest water and electricity authorities in the region and are experienced leaders in the electricity supply industry. Due to the rapid growth associated with both emirates, each owns, operates and installs extensive underground (LV, MV, HV and EHV) cable networks with Abu Dhabi controlling one of the world's largest 400kV XLPE underground cable networks.

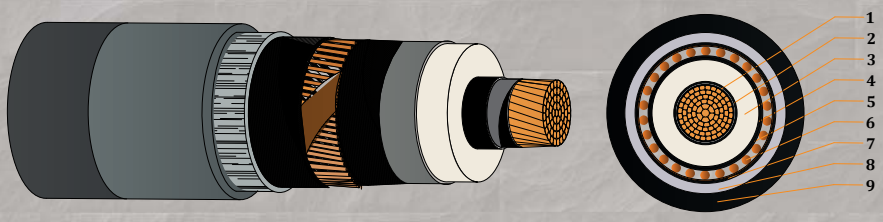
The DHV facility is a state of the art plant employing the latest machinery and technology available to produce HV and EHV cable. In order for the factory to maximise its resources and produce world's best practice within a reliable and repeatable process it was decided at the outset to also align with an experienced cable technology partner.

HV and EHV manufacturing technology has been in existence since the 1960's when Japanese cable makers were the first to produce XLPE insulated cables in these voltage ranges. A natural fit with a technology leader has therefore now also been cemented with the signing of a technology transfer agreement between DHV and J-Power Systems (a fully owned subsidiary company of Sumitomo Electric Industries Ltd - Japan).

The combined experience, technology and know how brought together by DHV's facilities, its shareholders and its engagement with its technology partner culminate in making it a formidable player in the power cable market. The company draws on the best available resources world wide and looks forward to bringing its customer base ***Energy at a Higher Level.***

The DHV plant was formally inaugurated by His Highness Sheikh Mohammed Bin Rashid Al Maktoum, UAE Vice-President, Prime Minister and Ruler of Dubai on 29 November 2011 and in the presence of His Highness Sheikh Hamed Bin Zayed Al Nahyan, Chairman of the Abu Dhabi Crown Prince's Court.

VOLTAGE 60 kV (U_m = 72.5 kV)



1. CONDUCTOR
2. CONDUCTOR SCREEN
3. INSULATION (12mm nominal)
4. INSULATION SCREEN
5. LONGITUDINAL WATER SEALING
6. METALLIC SCREEN (copper wires)*
7. LONGITUDINAL WATER SEALING
8. LEAD SHEATH*
9. OVERSHEATH

* Earth fault current for screen is 40 kA for 1s

Cross section of copper conductor	Diameter of conductor	Diameter over insulation	Cross section area of copper wires screen	Thickness of oversheath	Overall diameter	Mass of cable Approx.	Charging current per phase	Induced voltage (trefoil formation direct buried)
mm²	mm	mm	mm²	mm	mm	kg/m	A/km	V/km
240	18.3	46.4	235	4.0	70	13.1	2.1	28
300	20.4	48.5	235	4.0	72	14.0	2.2	32
400	23.0	51.1	233	4.0	75	15.1	2.4	34
500	26.2	54.2	230	4.0	78	16.6	2.6	39
630	30.4	58.4	230	4.0	82	18.5	2.9	44
800	34.5	62.5	225	4.0	86	20.8	3.1	48
1000	39.2	67.2	220	4.0	91	23.6	3.4	53
1200	45.0	73.7	216	4.5	99	26.9	3.8	60
1600	51.0	79.7	213	4.5	105	31.2	4.2	68
2000	56.0	84.7	207	4.5	110	35.4	4.6	75
2500	62.0	90.7	202	4.5	116	41.2	4.9	80

Cross section of copper conductor	Capaci-tance	Inductance		Conductor short circuit current for 1s	Current Carrying Capacity for single point and cross bonded			
		Flat (200 mm spacing)	Trefoil (touching)		Flat (200 mm spacing)		Trefoil (touching)	
					Direct buried	In Air	Direct buried	In Air
mm²	µF/km	mH/km	mH/km	kA	A	A	A	A
240	0.172	0.667	0.457	34.3	530	620	490	550
300	0.185	0.645	0.441	42.9	600	710	555	625
400	0.200	0.621	0.424	57.2	690	825	630	720
500	0.216	0.595	0.407	71.5	780	950	720	830
630	0.239	0.565	0.387	90.1	885	1120	810	960
800	0.260	0.540	0.371	114	985	1265	905	1090
1000	0.286	0.515	0.357	143	1090	1430	990	1210
1200	0.319	0.487	0.345	172	1245	1685	1150	1440
1600	0.354	0.462	0.333	229	1415	1975	1300	1670
2000	0.380	0.443	0.323	286	1550	2215	1410	1840
2500	0.412	0.432	0.313	358	1670	2460	1520	2025

Ducab - HV

High Voltage Cable Systems

RATING FACTORS

Standard laying conditions:

Ground temperature: 35 °C
Air temperature: 50 °C
Ground thermal resistivity : 1 K·m/W

Number of circuits: 1 circuit
Laying depth: 1 m
Distance between conductors (flat): 200 mm

Laying depth

Laying depth [m]	Factor
0.7	1.05
0.9	1.01
1.0	1.00
1.2	0.98
1.4	0.96
1.6	0.94
1.8	0.93
2.0	0.92
2.2	0.91
2.4	0.90
2.6	0.89

Ground temperature

Ground Temperature [°C]	Factor
5	1.25
10	1.21
15	1.17
20	1.13
25	1.09
30	1.05
35	1.00
40	0.95
45	0.90
50	0.85
55	0.79

Air temperature

Air Temperature [°C]	Factor
5	1.54
10	1.48
15	1.43
20	1.38
25	1.32
30	1.26
35	1.20
40	1.14
45	1.07
50	1.00
55	0.93

Soil thermal resistivity

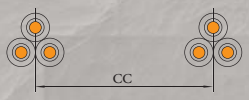
Soil thermal resistivity [K·m/W]	1.0	1.1	1.2	1.3	1.4	1.5	2	2.5
	1.00	0.96	0.93	0.89	0.87	0.84	0.74	0.66

Phase spacing (Single phase) Single circuit in flat formation in ground

Phase spacing PS [mm]	200	250	300	400	500	600
Factor	1.00	1.05	1.09	1.14	1.17	1.20

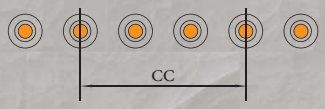
Group of circuits in ground in trefoil formation

Distance cc between groups [mm]	Number of groups				
	2	3	4	5	6
400	0.82	0.73	0.68	0.65	0.62
500	0.84	0.76	0.71	0.68	0.66
600	0.86	0.78	0.74	0.70	0.69
800	0.88	0.81	0.78	0.75	0.74
1000	0.90	0.84	0.81	0.79	0.77
1200	0.92	0.86	0.84	0.82	0.81
1500	0.94	0.89	0.87	0.86	0.85
2000	0.96	0.92	0.91	0.90	0.89

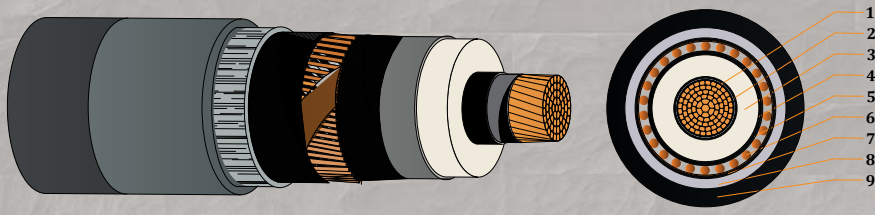


Group of circuits in ground in flat formation

Distance cc between groups [mm]	Number of groups		
	2	3	4
1000	0.90	0.85	0.79
1200	0.92	0.85	0.83
1400	0.93	0.87	0.85
1800	0.94	0.90	0.88
2000	0.95	0.91	0.90



VOLTAGE 132 kV (U_m = 145 kV)



1. CONDUCTOR
2. CONDUCTOR SCREEN
3. INSULATION (16mm nominal)
4. INSULATION SCREEN
5. LONGITUDINAL WATER SEALING
6. METALLIC SCREEN (copper wires)*
7. LONGITUDINAL WATER SEALING
8. LEAD SHEATH*
9. OVERSHEATH

* Earth fault current for screen is 40 kA for 1s

Cross section of copper conductor	Diameter of conductor	Diameter over insulation	Cross section area of copper wires screen	Thickness of oversheath	Overall diameter	Mass of cable Approx.	Charging current per phase	Induced voltage (trefoil formation direct buried)
mm²	mm	mm	mm²	mm	mm	kg/m	A/km	V/km
240	18.3	54.6	229	4.0	78	14.8	3.4	27
300	20.4	55.6	229	4.0	80	15.5	3.6	30
400	23.0	59.3	226	4.0	83	16.8	3.8	34
500	26.2	62.5	223	4.0	86	17.6	4.2	39
630	30.4	66.6	222	4.0	91	20.3	4.6	44
800	34.5	70.7	218	4.0	94	22.6	5.0	48
1000	39.2	75.6	212	4.0	99	25.3	5.4	53
1200	45.0	81.9	212	4.5	107	28.4	6.0	60
1600	51.0	87.9	204	4.5	113	33.0	6.6	68
2000	56.0	92.9	200	4.5	118	37.3	7.1	67
2500	62.0	99.9	195	4.5	124	43.3	7.7	71

Cross section of copper conductor	Capacitance	Inductance		Conductor short circuit current for 1s	Current Carrying Capacity for single point and cross bonded			
		Flat (200 mm spacing)	Trefoil (touching)		Flat (200 mm spacing)		Trefoil (touching)	
					Direct buried	In Air	Direct buried	In Air
mm²	µF/km	mH/km	mH/km	kA	A	A	A	A
240	0.141	0.666	0.478	34.3	525	610	490	545
300	0.151	0.645	0.461	42.9	590	700	555	620
400	0.160	0.621	0.445	57.2	675	810	630	715
500	0.176	0.595	0.428	71.5	770	940	715	825
630	0.193	0.565	0.407	90.1	870	1090	810	950
800	0.208	0.540	0.389	114	980	1250	905	1080
1000	0.226	0.514	0.373	143	1050	1420	1000	1210
1200	0.252	0.486	0.361	172	1235	1660	1155	1435
1600	0.277	0.462	0.347	229	1400	1940	1305	1645
2000	0.297	0.443	0.337	286	1535	2165	1425	1835
2500	0.321	0.422	0.327	358	1655	2405	1535	2020

Ducab - HV

High Voltage Cable Systems

RATING FACTORS

Standard laying conditions:

Ground temperature: 35 °C
Air temperature: 50 °C
Ground thermal resistivity : 1 K·m/W

Number of circuits: 1 circuit
Laying depth: 1 m
Distance between conductors (flat): 200 mm

Laying depth

Laying depth [m]	Factor
0.7	1.05
0.9	1.01
1.0	1.00
1.2	0.98
1.4	0.96
1.6	0.94
1.8	0.93
2.0	0.92
2.2	0.91
2.4	0.90
2.6	0.89

Ground temperature

Ground Temperature [°C]	Factor
5	1.25
10	1.21
15	1.17
20	1.13
25	1.09
30	1.05
35	1.00
40	0.95
45	0.90
50	0.85
55	0.79

Air temperature

Air Temperature [°C]	Factor
5	1.54
10	1.48
15	1.43
20	1.38
25	1.32
30	1.26
35	1.20
40	1.14
45	1.07
50	1.00
55	0.93

Soil thermal resistivity

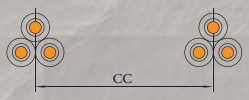
Soil thermal resistivity [K·m/W]	1.0	1.1	1.2	1.3	1.4	1.5	2	2.5
	1.00	0.96	0.93	0.89	0.87	0.84	0.74	0.66

Phase spacing (Single phase) Single circuit in flat formation in ground

Phase spacing PS [mm]	200	250	300	400	500	600
Factor	1.00	1.05	1.09	1.14	1.17	1.20

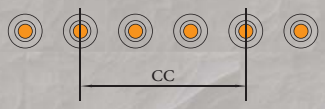
Group of circuits in ground in trefoil formation

Distance cc between groups [mm]	Number of groups				
	2	3	4	5	6
400	0.82	0.73	0.68	0.65	0.62
500	0.84	0.76	0.71	0.68	0.66
600	0.86	0.78	0.74	0.70	0.69
800	0.88	0.81	0.78	0.75	0.74
1000	0.90	0.84	0.81	0.79	0.77
1200	0.92	0.86	0.84	0.82	0.81
1500	0.94	0.89	0.87	0.86	0.85
2000	0.96	0.92	0.91	0.90	0.89

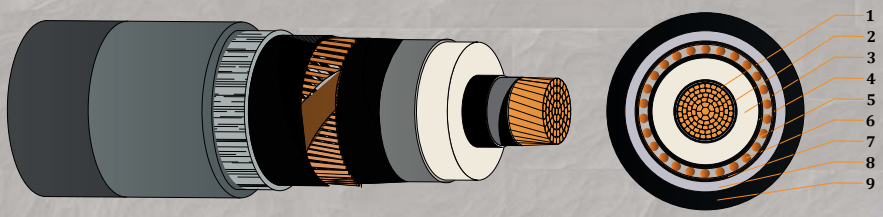


Group of circuits in ground in flat formation

Distance cc between groups [mm]	Number of groups		
	2	3	4
1000	0.90	0.85	0.79
1200	0.92	0.85	0.83
1400	0.93	0.87	0.85
1800	0.94	0.90	0.88
2000	0.95	0.91	0.90



VOLTAGE 220 kV (U_m = 245 kV)



1. CONDUCTOR
2. CONDUCTOR SCREEN
3.INSULATION (23mm nominal)
4. INSULATION SCREEN
5. LONGITUDINAL WATER SEALING
6. METALLIC SCREEN (copper wires)*
7. LONGITUDINAL WATER SEALING
8. LEAD SHEATH*
9. OVERSHEATH

* Earth fault current for screen is 40 kA for 1s

Cross section of copper conductor	Diameter of conductor	Diameter over insulation	Cross section area of copper wires screen	Thickness of oversheath	Overall diameter	Mass of cable Approx.	Charging current per phase	Induced voltage (trefoil formation direct buried)
mm²	mm	mm	mm²	mm	mm	kg/m	A/km	V/km
500**	26.2	78.6	213	4.5	103	22.6	5.4	37
630	30.4	80.8	207	4.5	106	24.3	6.0	42
800	34.5	84.9	202	4.5	110	26.7	6.5	47
1000	39.2	89.6	202	4.5	114	29.6	7.0	52
1200	45.0	95.4	196	5.0	122	33.0	7.7	59
1600	51.0	101.4	190	5.0	128	37.6	8.4	67
2000	56.0	106.9	185	5.0	133	42.2	9.0	72
2500	62.0	112.9	178	5.0	139	48.2	9.8	78

** 24mm insulation thickness

Cross section of copper conductor	Capaci-tance	Inductance		Conductor short cir-cuit current for 1s	Current Carrying Capacity for single point and cross bonded			
		Flat (200 mm spacing)	Trefoil (touching)		Flat (200 mm spacing)		Trefoil (touching)	
					Direct buried	In Air	Direct buried	In Air
mm²	µF/km	mH/km	mH/km	kA	A	A	A	A
500	0.135	0.595	0.462	71.5	750	900	710	810
630	0.151	0.565	0.438	90.1	855	1050	810	935
800	0.163	0.540	0.420	114	955	1200	905	1065
1000	0.176	0.514	0.403	143	1060	1360	1000	1200
1200	0.193	0.487	0.388	172	1205	1590	1150	1405
1600	0.210	0.462	0.373	229	1370	1860	1300	1625
2000	0.225	0.443	0.362	286	1490	2075	1420	1805
2500	0.245	0.423	0.350	358	1595	2290	1530	1981

Ducab - HV

High Voltage Cable Systems

RATING FACTORS

Standard laying conditions:

Ground temperature: 35 °C
Air temperature: 50 °C
Ground thermal resistivity : 1 K·m/W

Number of circuits: 1 circuit
Laying depth: 1 m
Distance between conductors (flat): 200 mm

Laying depth

Laying depth [m]	Factor
0.7	1.05
0.9	1.01
1.0	1.00
1.2	0.98
1.4	0.96
1.6	0.94
1.8	0.93
2.0	0.92
2.2	0.91
2.4	0.90
2.6	0.89

Ground temperature

Ground Temperature [°C]	Factor
5	1.25
10	1.21
15	1.17
20	1.13
25	1.09
30	1.05
35	1.00
40	0.95
45	0.90
50	0.85
55	0.79

Air temperature

Air Temperature [°C]	Factor
5	1.54
10	1.48
15	1.43
20	1.38
25	1.32
30	1.26
35	1.20
40	1.14
45	1.07
50	1.00
55	0.93

Soil thermal resistivity

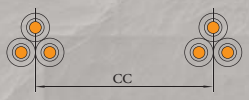
Soil thermal resistivity [K·m/W]	1.0	1.1	1.2	1.3	1.4	1.5	2	2.5
	1.00	0.96	0.93	0.89	0.87	0.84	0.74	0.66

Phase spacing (Single phase) Single circuit in flat formation in ground

Phase spacing PS [mm]	200	250	300	400	500	600
Factor	1.00	1.05	1.09	1.14	1.17	1.20

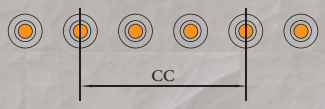
Group of circuits in ground in trefoil formation

Distance cc between groups [mm]	Number of groups				
	2	3	4	5	6
400	0.82	0.73	0.68	0.65	0.62
500	0.84	0.76	0.71	0.68	0.66
600	0.86	0.78	0.74	0.70	0.69
800	0.88	0.81	0.78	0.75	0.74
1000	0.90	0.84	0.81	0.79	0.77
1200	0.92	0.86	0.84	0.82	0.81
1500	0.94	0.89	0.87	0.86	0.85
2000	0.96	0.92	0.91	0.90	0.89

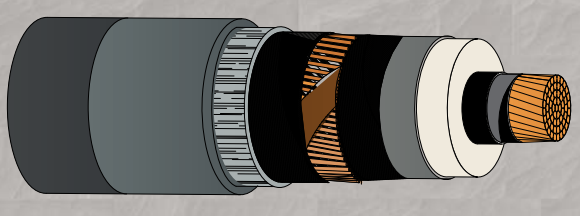


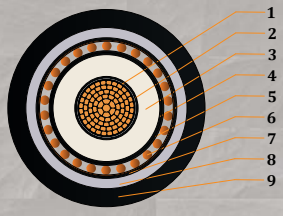
Group of circuits in ground in flat formation

Distance cc between groups [mm]	Number of groups		
	2	3	4
1000	0.90	0.85	0.79
1200	0.92	0.85	0.83
1400	0.93	0.87	0.85
1800	0.94	0.90	0.88
2000	0.95	0.91	0.90



VOLTAGE 400 kV (U_m = 420 kV)





1. CONDUCTOR
2. CONDUCTOR SCREEN
3. INSULATION (27mm nominal)
4. INSULATION SCREEN
5. LONGITUDINAL WATER SEALING
6. METALLIC SCREEN (copper wires)*
7. LONGITUDINAL WATER SEALING
8. LEAD SHEATH*
9. OVERSHEATH

* Earth fault current for screen is 63 kA for 1s

Cross section of copper conductor	Diameter of conductor	Diameter over insulation	Cross section area of copper wires screen	Thickness of oversheath	Overall diameter	Mass of cable Approx.	Charging current per phase	Induced voltage (trefoil formation direct buried)
mm²	mm	mm	mm²	mm	mm	kg/m	A/km	V/km
630**	30.4	99.8	352	6.0	129	30.9	9.2	43
800**	34.5	100.1	352	6.0	130	32.5	10.3	48
1000**	39.2	102.8	345	6.0	132	34.9	11.4	52
1200	45.0	105.9	345	6.0	136	37.7	13.9	60
1600	51.0	111.9	336	6.0	142	42.4	14.4	68
2000	56.0	116.9	336	6.0	147	46.9	15.3	74
2500	62.0	123.9	328	6.0	154	53.3	16.6	80

**32mm insulation thickness for 630mm², 30mm insulation thickness for 800mm², 29mm insulation thickness for 1000mm²

Cross section of copper conductor	Capaci-tance	Inductance		Conductor short cir-cuit current for 1s	Current Carrying Capacity for single point and cross bonded			
		Flat (200 mm spacing)	Trefoil (touching)		Flat (200 mm spacing)		Trefoil (touching)	
					Direct buried	In Air	Direct buried	In Air
mm²	µF/km	mH/km	mH/km	kA	A	A	A	A
630	0.135	0.565	0.477	90.1	830	1005	805	920
800	0.150	0.540	0.453	114	935	1160	900	1050
1000	0.166	0.514	0.430	143	1035	1315	990	1175
1200	0.202	0.487	0.409	172	1180	1545	1140	1385
1600	0.208	0.462	0.393	229	1330	1800	1295	1600
2000	0.221	0.443	0.380	286	1445	2005	1410	1780
2500	0.240	0.420	0.368	358	1550	2215	1520	1950

Ducab - HV

High Voltage Cable Systems

RATING FACTORS

Standard laying conditions:

Ground temperature: 35 °C
Air temperature: 50 °C
Ground thermal resistivity : 1 K·m/W

Number of circuits: 1 circuit
Laying depth: 1 m
Distance between conductors (flat): 200 mm

Laying depth

Laying depth [m]	Factor
0.7	1.05
0.9	1.01
1.0	1.00
1.2	0.98
1.4	0.96
1.6	0.94
1.8	0.93
2.0	0.92
2.2	0.91
2.4	0.90
2.6	0.89

Ground temperature

Ground Temperature [°C]	Factor
5	1.25
10	1.21
15	1.17
20	1.13
25	1.09
30	1.05
35	1.00
40	0.95
45	0.90
50	0.85
55	0.79

Air temperature

Air Temperature [°C]	Factor
5	1.54
10	1.48
15	1.43
20	1.38
25	1.32
30	1.26
35	1.20
40	1.14
45	1.07
50	1.00
55	0.93

Soil thermal resistivity

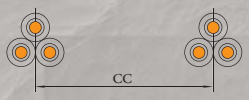
Soil thermal resistivity [K·m/W]	1.0	1.1	1.2	1.3	1.4	1.5	2	2.5
	1.00	0.96	0.93	0.89	0.87	0.84	0.74	0.66

Phase spacing (Single phase) Single circuit in flat formation in ground

Phase spacing PS [mm]	200	250	300	400	500	600
Factor	1.00	1.05	1.09	1.14	1.17	1.20

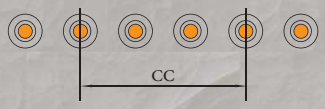
Group of circuits in ground in trefoil formation

Distance cc between groups [mm]	Number of groups				
	2	3	4	5	6
400	0.82	0.73	0.68	0.65	0.62
500	0.84	0.76	0.71	0.68	0.66
600	0.86	0.78	0.74	0.70	0.69
800	0.88	0.81	0.78	0.75	0.74
1000	0.90	0.84	0.81	0.79	0.77
1200	0.92	0.86	0.84	0.82	0.81
1500	0.94	0.89	0.87	0.86	0.85
2000	0.96	0.92	0.91	0.90	0.89



Group of circuits in ground in flat formation

Distance cc between groups [mm]	Number of groups		
	2	3	4
1000	0.90	0.85	0.79
1200	0.92	0.85	0.83
1400	0.93	0.87	0.85
1800	0.94	0.90	0.88
2000	0.95	0.91	0.90



Product and Service Range

Ducab HV offers turnkey cable system solutions:

Manufacture of XLPE insulated power cables from 60kV – 500kV

- Conductors in either copper or aluminium
- Conductor sizes from 150mm^2 – 2500mm^2
- Cables are currently finished with a combination of either a lead sheath and copper wire screen or a laminated sheath and copper wire screen
- Long length capability

Accessories

- Full range to suit cable, from pre-approved suppliers
- System type tested/pre-qualification tested
- Proven compatibility of components

Technical

- Theory and specifications
- System design and optimization
- Earthing and bonding design

Installation

- Site supervision services
- Civil work
- Cable installation
- Jointing and terminating

Training

- In-house and tailor made to customer's requirements

Testing

- Dedicated Type Test laboratory
- 600kV ac test capability
- 1900kVp impulse generator

BASEC
BRITISH APPROVALS SERVICE FOR CABLES

CERTIFICATE OF CONFORMITY

BASEC hereby certifies that:

Ducab High Voltage Cable Systems (PJSC)
P.O. Box Number 683
Jebel Ali
Old Abu Dhabi Road
Dubai
United Arab Emirates

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

BS EN ISO 9001: 2015
Permitted exclusions: none

in respect of the site (s) and scope (s) specified: herein.

SCOPE OF CERTIFICATION

The design, manufacture and supply of:

HV Cable Systems up to 400 kV and the management of the installation of HV Cable Systems up to 400kV using approved installation, jointing and testing subcontractors.

Certificate No: CS1-240 **Issue: 04** **Issue Date: 2nd January 2018**

Date of initial certification: 22nd May 2012 **Expiry Date: 18th June 2020**

Last certification cycle expiry date: 21st May 2018

Lack of fulfilment of conditions as set out in the certification agreement may render this Certificate invalid.
This certificate is issued subject to and in accordance with BASEC Regulations and continued compliance.

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

Date 2 Jan 2018

This Certificate and Schedule(s) remains the property of BASEC, and shall be returned when required.
BSF080.003/ A1733/Copy No: 1

BASEC ISO 9001 UKAS MANAGEMENT SYSTEMS 004

PRESLEY HOUSE, PRESLEY WAY, MILTON KEYNES, MK8 0ES, UK. REGISTERED IN ENGLAND NO 1150237 TEL: +44(0)1908 267300 FAX: +44(0)1908 267255 MAIL@BASEC.ORG.UK WWW.BASEC.ORG.UK

دوكاب - HV
Ducab - HV

دوكاب Ducab

P.O. Box: 683, Dubai, United Arab Emirates. Tel: +971 4 815 8600, Fax: +971 4 815 8666, Email: ducabhv@ducab.com
www.ducab.com

Our name is our seal.


Ducab

Empowering lives

Dubai Cable Company (Pvt) Ltd is a technologically advanced cable manufacturing company that was established in 1979 by the Government of Dubai as a joint venture with BICC Cables. Today, we are equally owned by the Governments of Abu Dhabi and Dubai supplying copper rod, drawn wires, power cables, and cables accessories to our customers across the world in 40 countries.

Presently, with three cable manufacturing factories, a Copper Rod Plant, and PVC compounding facility across the emirates of Abu Dhabi and Dubai, we have a manufacturing capability of over 110,000 metal tonnes of high, medium and low voltage cables and wires per annum.

The latest addition to the product range is the high quality copper rod produced from Ducab's state-of-the-art copper casting plant – the first of its kind in the UAE. The facility opened in 2008, and is satisfying the growing needs of Ducab as well as that of its customers around the region and the world.

As a regional leader, Ducab was one of the first Emirati organisations to achieve ISO 9001 and the first in the region to achieve ISO 14001 environmental certification. Ducab's product range is type-tested and approved by international agencies such as Lloyd's Register, LPCB, KEMA, BASEC and ESMA.

Technology that matters

The latest addition to Ducab's wide gamut of products is Copper Rod and Wires. Produced from Ducab's state-of-the-art copper casting plant, the first of its kind in the UAE, Copper Cathodes are converted into 8mm diameter Electrolytic Touch Pitch (ETP) Copper Rods as per BS EN 1977:1998 and ASTM-B49-08a standards. These Rods are highly recommended for use in Power Cables, Automobile Wire Harnesses, Communication Cables, House Wiring, Overhead Copper Conductors (SDBC) and Transformer Windings.

In addition to Copper Rod, we also manufacture and offers drawn wires and stranded conductors. Our Rod Mill uses "CONTIROD®" Technology, a process that involves - Melting, Casting and Rolling. This facility uses novel gas control systems to ensure that each of the 15 burners perform independently. The final result is a copper rod that is more efficient to produce and has the best metallurgical structure.

The plant is fully computerized and has the capacity of producing 110,000 tonnes per year and it can be increased to 160,000 tonnes per year.


B • A • S • E • C
BRITISH APPROVALS SERVICE FOR CABLES

CERTIFICATE OF CONFORMITY

This is to certify that the

Quality Management System

of

Dubai Cable Company (Private) Limited

conforms to the requirements of

ISO 9001: 2008

in respect of the wire, products and or services specified in the attached schedule(s).

Schedule nos:-

CS1-144/001
CS1-144/002
CS1-144/003

Certificate No: CS1-144 Issue date: 2nd April 2009

Date of original certification: 26th May 1998 Expiry Date: 9th July 2011

This certificate is issued subject to and in accordance with BASEC Regulations and continued compliance.


B • A • S • E • C
BRITISH APPROVALS SERVICE FOR CABLES

CERTIFICATION SCHEDULE

SITE:

Dubai Cable Company (Private) Limited
Ducab – M2
Industrial City Abu Dhabi
Mussafah
Abu Dhabi
United Arab Emirates

SCOPE OF CERTIFICATION

The design, manufacture and supply of the following cable types:

Electric Power Cables and
Wires Rated up to 132 kV

Schedule No: CS1-144/005 Issue No: 2 Issue date: 2nd April 2009


B • A • S • E • C
BRITISH APPROVALS SERVICE FOR CABLES

CERTIFICATION SCHEDULE

SITE:

Dubai Cable Company (Private) Limited
Ducab – M1
P.O. Box 9171
Industrial City Abu Dhabi
Mussafah
Abu Dhabi
United Arab Emirates

SCOPE OF CERTIFICATION

The design, manufacture and supply of the following products:

Electric Power Cables and Wires Rated up to 3.3 kV
Copper Rod

Schedule No: CS1-144/002 Issue No: 4 Issue date: 2nd April 2009


B • A • S • E • C
BRITISH APPROVALS SERVICE FOR CABLES

CERTIFICATION SCHEDULE

SITE:

Dubai Cable Company (Private) Limited
Ducab – M2
Industrial City Abu Dhabi
Mussafah
Abu Dhabi
United Arab Emirates

SCOPE OF CERTIFICATION

The design, manufacture and supply of the following cable types:

Electric Power Cables and
Wires Rated up to 132 kV

Schedule No: CS1-144/005 Issue No: 3 Issue date: 2nd April 2009

Our pride

Continuous Cast Copper Rods

Ducab continuous cast copper rods are produced using Contirod® technology. The rods are coiled in an orbital laying form to prevent entanglement while being uncoiled by the customers.

Applications

- Jelly Filled Telephone Cables
- Power Cables
- Automobile Wire Harness
- Communication Cables
- Conductors (Rounds and Sector)
- House Wiring
- Electrical Machineries-Transformers and Motors
- Magnet Wires

Physical Dimensions & Properties

Size (mm)	8
Outer Diameter of Coil (mm)	1650
Inner Diameter of Coil (mm)	900
Weight of each coil (Kgs)	Maximum 4500; Weld free
Coil Laying	Orbital
Standards/Specification	**ASTM B49-08 / BSEN 1977:1998**

Typical Parameters

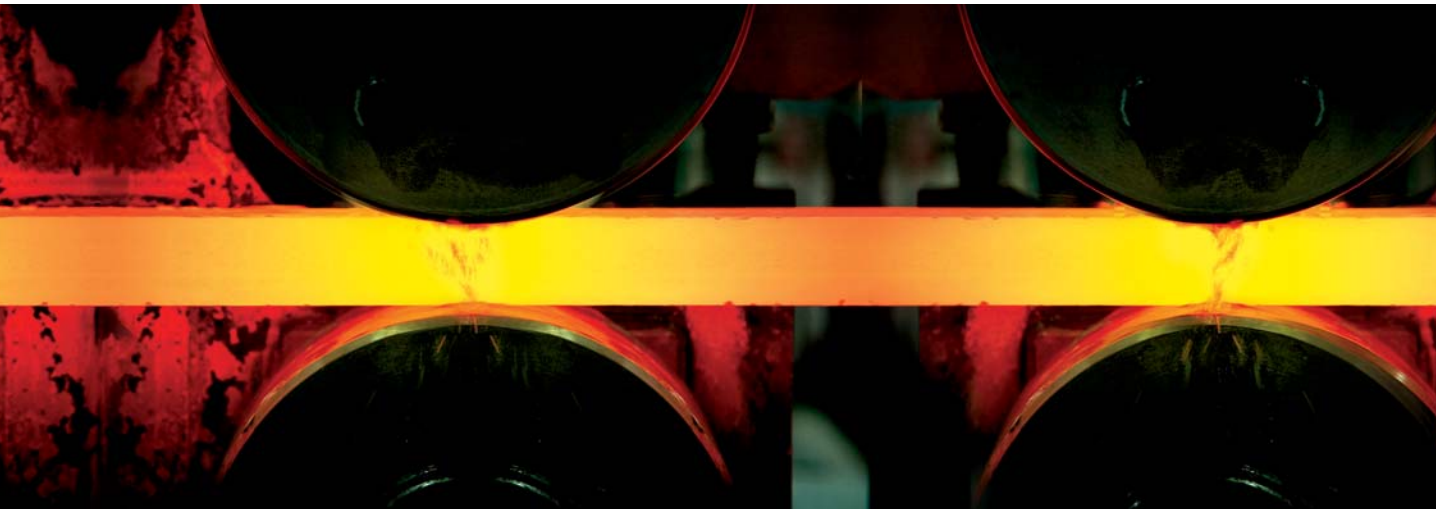
Sr. No	Parameters	Specification	
		ASTM B49-08	Ducab
1	Oxygen (ppm)	100-650	200-325
2	Surface Oxide (Angstrom)	Maximum 750 A	Maximum 300 A
5	Diameter Variance	±0.38	±0.38
6	Conductivity IACS%	Minimum 100	>101
7	Elongation (%)	Minimum 30	>40
9	Tensile Strength (N/mm^2)	-	>220-240N/mm^2
10	Visual Inspection	Smooth Surface	Smooth Surface

Typical Chemical Analysis (ppm)

Parameter	ASTM B49 - 08	BSEN 1977:1998
Selenium	2	2
Tellurium	2	2
Bismuth	1	2
Group Total (Se+Te+Bi)	**3**	**3**
Antimony	4	4
Arsenic	5	5
Tin	5	5
Lead	5	5
Iron	10	10
Nickel	10	10
Sulphur	15	15
Silver	25	25
Total Impurities (Max. in ppm.)	**65**	**65**

Packaging & Marking Details

The rod surface is protected and packed in coil form on wooden pallets. Each coil is compacted, strapped and stretch-wrapped to prevent exposure to dust and ensure a good arrival condition at the receiving end by the customers. Coils for shipment are packed as suitable for sea freight.



Drawn Wire

Ducab produces a variety of wire sizes from copper and aluminium. All wire manufacturing machines at Ducab are from best European machine manufacturers. These machines are equipped with sophisticated control systems and can deliver high levels of process accuracy. This guarantees high quality, productivity and incredible flexibility.

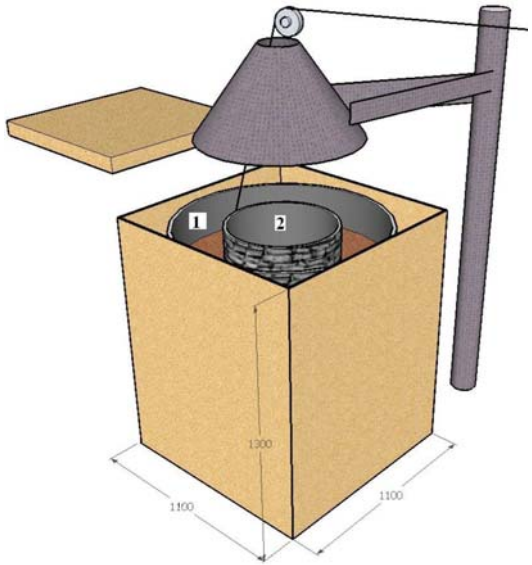
Our production is exclusively customer specific i.e. make to order

Applications

- Jelly Filled Telephone Cables
- Power Cables
- Automobile Wire Harness
- House Wiring
- Conductors (Rounds and Sector)
- Magnet Wires

Packaging & Marking Details

Ducab supplies drawn wire in non-returnable spools and cardboard baskets.
Spools and baskets for shipment are packed as suitable for sea freight.



Stranded and Bunched Conductors

Ducab produces a variety of conductors from copper and aluminium. All stranding machines and bunching machines at Ducab are from best European machine manufacturers. These machines are equipped with sophisticated control systems and can deliver high levels of process accuracy. This guarantees high quality, productivity and incredible flexibility.

Product Portfolio

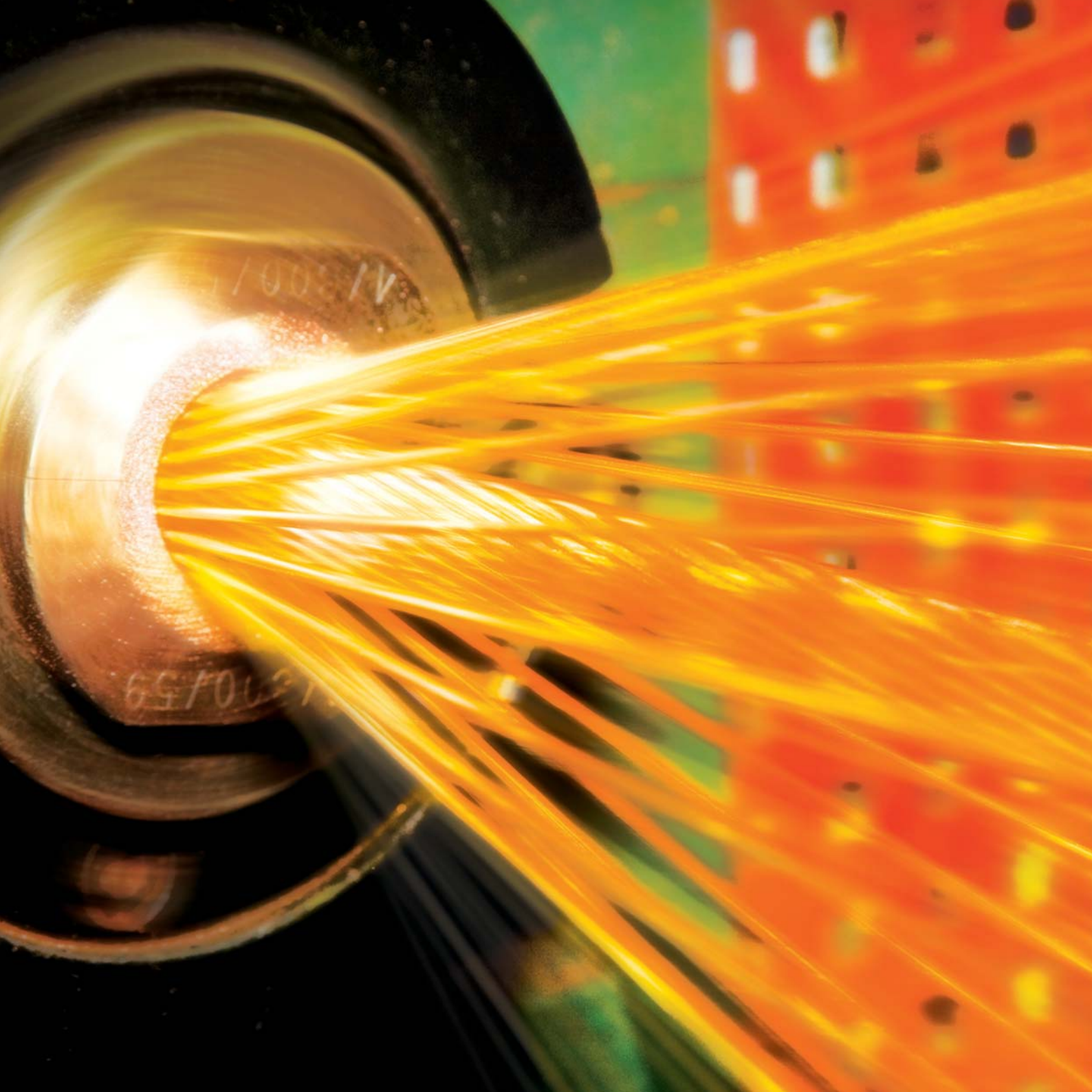
Sizes (mm^2)	0.5 mm^2 to 1000 mm^2
Material	Copper, Tinned Copper, Aluminium
Pattern of wire application	Unilay & Concentric Lay
Type	Compacted & Non Compacted Conductors
Shape of Conductor	Circular and Sector Conductors
Standards/Specification	BE EN 60228:2005 & IEC:60228

Applications

- Jelly Filled Telephone Cables
- Power Cables
- Automobile Wire Harness
- House Wiring

Packaging & Marking Details

Ducab supplies stranded/bunched conductor in non-returnable drums. Drums for shipment are packed as suitable for sea freight.



Quality that you can trust

Ducab facilities are equipped with the latest technology backed by thorough quality assurance systems. This is evident from the fact that Ducab is an ISO 14001, OHSAS 18001 and ISO 9001 certified organization. Being the first manufacturing company to be awarded Emirates Quality Mark by Emirates Authority for Standardization and Metrology (ESMA) in UAE, indicates Ducab's focus on quality.

Ducab uses high-quality inspection techniques to guarantee high quality of product. These are linked to our QMS software to ensure stringent control measures at each stage of the process via incoming raw material inspection, in-process inspection, and finished product tests.

The supporting test laboratory contains the latest technology equipment, which is certified by BASEC, a UKAS accredited third party certification body.

Following tests have been done:

- Surface defect monitoring by Dr Foster Defektomat
- Iron inclusion monitoring by Dr Foster Ferromat
- Chemical composition test by spectrum-analysis for raw materials and finished products
- Continuous monitoring of wire size and shape of the copper rod
- Conductivity and electrical resistance tests of all products
- Spiral and wrapping tests
- Tensile Strength
- Elongation testing
- Oxygen content determination
- Hydrogen content determination
- Testing of Surface Oxides

Technical Assistance

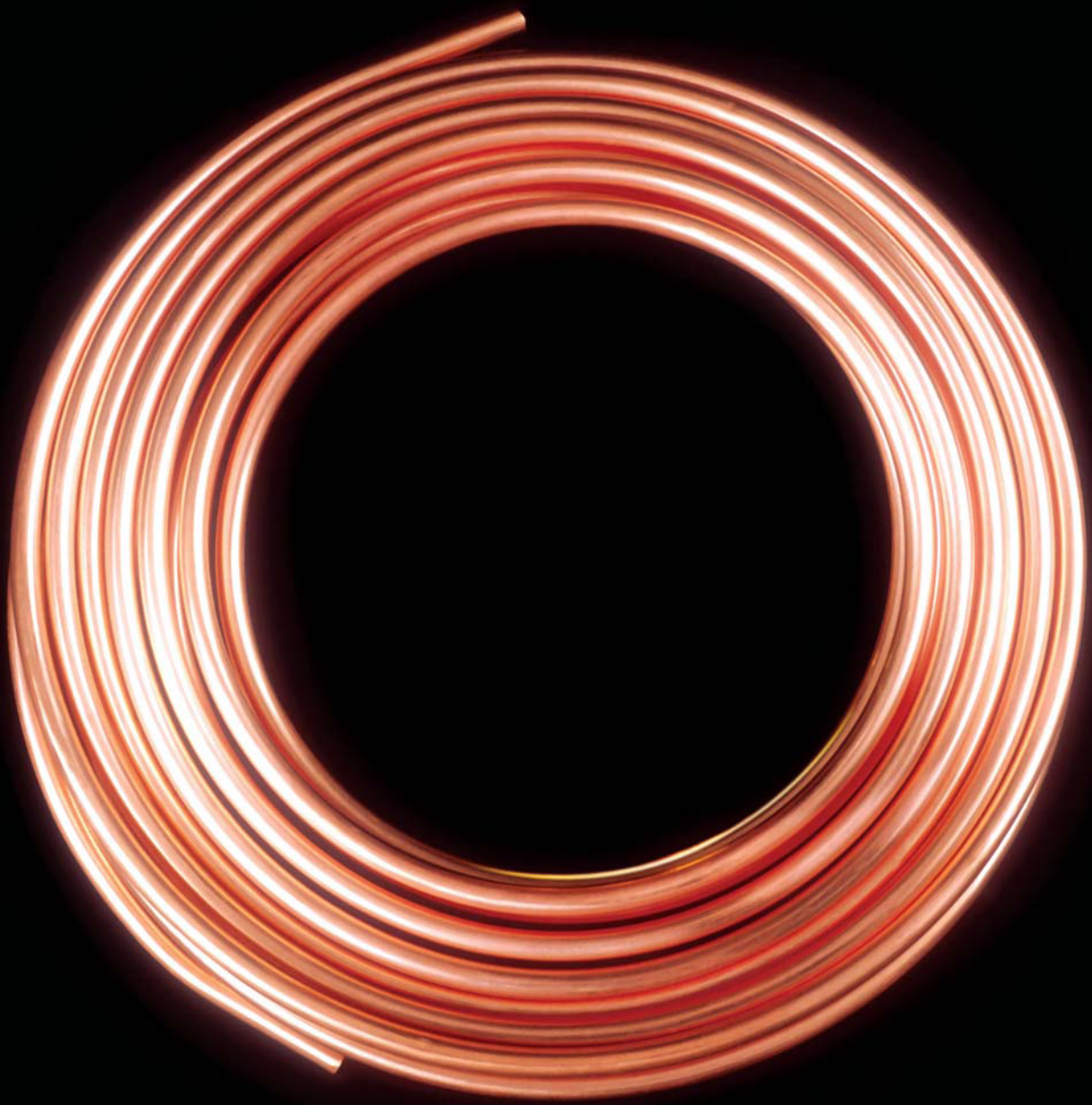
We provide technical assistance & product support to our customers in various matters related to wire drawing, troubleshooting, development & anything and everything of mutual interest. Several areas, where interaction, coordination & feedback sharing system with the users have been undertaken by Ducab are:

- Joint exercise & trial run at buyer's request so as to benchmark the drawing process, if required
- Evaluating quality of CC rod & it's effect on the wire drawing
- Conducting study & analysis of various wire drawing parameters & suggesting ways & means to improve productivity
- Sharing thoughts on different technical matters of mutual interest product support system on continuous basis
- Sharing information on the various developments taking place in the technology worldwide

Risk Management

Ducab insulates itself from the price fluctuation by adopting hedging practices through futures trading at the London Metal Exchange. Consequently we can offer various pricing options to protect our customers from London Metal Exchange price volatility based on merit of the individual deals.

Our patrons



Ducab Head Office - P.O. Box: 11529, Dubai, U.A.E. Tel: +971 4 815 8888, Fax: +971 4 815 8111
Email: ducab@ducab.com, www.ducab.com

Ref. No. Z0015/10 July 2010 (2000 Copies)

Ducab دوكاب

Ducab Ru BICC

الكابلات المطاطية المرنة

H07RN - F RUBBER FLEXIBLES

حلول متقدمة للكابلات من خلال التقنية والابداع

Advanced Cable Solutions Through Technology and Innovation

BICC

Ducab دوكاب

CONTENTS

INTRODUCTION

Established in 1979, Ducab is the leading cable manufacturing company in the region and is equally owned by the Governments of Dubai and Abu Dhabi. Ducab has three major manufacturing facilities that support it's continuous growth, one in Jebel Ali and two in Abu Dhabi Industrial City. Ducab-HV, inaugurated in November 2011, is a joint venture between Ducab, ADWEA and DEWA offering High Voltage cable systems up to 400 kV. Ducab-HV will sell cable systems in the voltage range 66kV (66,000 Volts) to 400kV (400,000 Volts) covering the highest voltage currently used in the GCC.

To meet the growing demand of customers around the region and the world, Ducab continues to expand its world-class facilities across the Middle East, North Africa, Europe and India. Ducab prides itself on setting and maintaining the highest quality standards of power cables. Experienced and highly skilled employees operate state-of-the-art equipment, and conduct extensive testing at every phase of production.

When it comes to advanced cable solutions, Ducab continues its status as the superbrand across the world in 40 countries. Ducab product range covers High Voltage cables up to 400kV, Ducab Powerplus Medium Voltage cables up to 33kV, Low Voltage power cables, Control & Auxiliary, Wiring and Lead-Sheathed cables, Ducab Smokemaster - Low Smoke Zero Halogen cables, and Ducab Flam BICC (Fire Resistance cables), DuFlex cables, THHN/THWN cables, Instrumentation and Pilot cables, cable components and cable accessories, Drum Handling & Installation of Cables, as well as copper rod manufactured in Ducab's own copper rod plant.

This catalogue provides working information on Ducab RuBICC - H07RN-F Rubber Flexibles. Separate catalogues are available for the remaining range of Ducab Cables.

ORDERING ADVICE

Due to the wide range of cables in the catalogue, it is advisable, when ordering, to provide as much information as possible. Please use the following table as a guide:

1. Cable standard / specification number.
2. Voltage designation.
3. Number of cores.
4. Conductor size and type/class.
5. Colour of outer sheath.
6. Length of cables required and individual drum lengths.*
7. Any other special requirement, e.g. drum weight limitation, etc.

* Cables are normally supplied in lengths of 100 metres, 500 metres and 1000 metres depending on conductor size. Other lengths can be supplied if required.

TECHNICAL ADVISORY SERVICE

For any specialist advice and assistance on the entire Ducab product range contact the Technical Department, Dubai Cable Company (Private) Limited, P. O. Box 11529, Dubai, U. A. E., Tel: 971-4-815 8888, Fax: 971-4-815 8111.

CUSTOMER SERVICE

Ducab is the premier cable manufacturer in the United Arab Emirates and, since 1979, has been meeting the requirements of customers throughout the GCC, Middle East and Asian markets. Ducab cables are preferred for the following reasons:

PRODUCT QUALITY

Ducab is committed to supplying its customers with the highest quality of product and of service. Ducab's cables have been type approved by recognized certifying bodies such as BASEC UK (British Approval Service for Cables), Lloyd's Register of the UK, KEMA Netherland, LPCB UK (Loss Prevention Certification Board), ESMA (Emirates Authority for standardization and Metrology). They fully conform to BS, IEC other international and national specifications.

In addition, Ducab was presented with the Dubai Quality Award 1994, for the best local industrial company of the year. Ducab won Dubai Quality Gold Category award twice, in 1998 and in 2004. The Gold Award rewards the most distinguished companies which are judged to be world class and Ducab is the only manufacturing company in the region to win such acclaim.

Ducab has won the Sheikh Mohammed Bin Rashid Al Maktoum (MRM) Business Excellence Award in manufacturing category in 2009. Recognizing quality products and services, Ducab has also won the Superbrand award for 4 years consecutively from 2009.

RELIABILITY

Specifying the right cable for a particular application is the first step. The key to reliability however, is in the manufacturing process. The cable must be free from material and manufacturing defects, and weaknesses that will be revealed in service.

Ducab constantly monitors its manufacturing processes and operates stringent quality assurance procedures to give long term reliability. This is of vital significance where cables are to be installed in locations where future access would be difficult and this is where Ducab's reputation and resources give peace of mind.

PERFORMANCE

Optimum cable performance can be provided only by a company such as Ducab, with access to the latest developments in materials technology. In addition, Ducab's knowledge of application requirements throughout the Middle and Far East is an assurance of high performance.

Our experienced Technical Staff can provide guidance on cable selection and installation and can ensure that you get the right cable for the job.

HEALTH & SAFETY MANAGEMENT SYSTEM CERTIFIED TO OHSAS 18001

Ducab is able to maintain a close watch on world developments in cable technology and regulations and therefore ensure that its products are designed and constructed to be hazard-free under the prescribed conditions of use.

Ducab uses only tried and tested materials and processes in full compliance with all relevant British and International Standards. Our cables are therefore manufactured for safe use without risk to health on the understanding that users will exercise the same degree of care in their selection and application.

Joint Winner
MANUFACTURING
INDUSTRY
Sector Award

Safety is an important issue for Ducab, and the strictest standards are adhered to throughout the company. Ducab is proud of its safety record and has been awarded RoSPA (Royal Society for the Prevention of Accidents) Gold Awards for safety from 1991 to 1999. From 2000 onward, Ducab was awarded the prestigious President's Award for Health and

Safety which is a recognition of Ducab winning 10 consecutive annual Gold awards and acknowledges Ducab's total commitment to health and safety. In 2002, Ducab was declared the joint winner of the Manufacturing Industry Sector Award from RoSPA.

Ducab is the first organisation in the Middle East to receive accreditation to OHSAS 18001 by BASEC (British Approvals Service for Cables). Certification to OHSAS 18001 provides a recognisable Occupational Health and Safety Management standard against which an organisation's management systems can be assessed and certified. Based on the structure of OHSAS 18001, the standard requires continual improvement in health and safety related activities.

QUALITY MANAGEMENT SYSTEM CERTIFIED TO ISO 9001

Ducab's Quality Management System conforms to the ISO 9001 International Quality System Standard and is certified by BASEC (British Approvals Service for Cables), a specialist certifying body for cables who are an internationally recognised quality authority accredited in the UK and throughout the world.

Certification to the ISO 9001 International standard demonstrates that Ducab has drawn up written procedures to ensure full compliance with all requirements of the standard and that these procedures are followed by every department in the company, thus ensuring that goods leaving Ducab's factory are of the highest quality and meet each customer's requirements in every respect.

Ducab is particularly proud to have achieved certification to the stringent ISO 9001 standard as it is an independent conformation that the company designs, manufactures and tests cables consistently to accepted standards. ISO 9001 is widely used throughout Europe, and is therefore a reassurance to Ducab's customers that the products and service supplied by the company are equal to the best in the world.

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFIED TO ISO 14001

Ducab's Environmental Management System conforms to the ISO 14001 International Environmental Management Standard and is certified by BASEC who are an internationally recognised certifying authority accredited in the UK and throughout Europe.

Certification to the ISO 14001 International standard shows that Ducab has a well defined structure and established working practices aimed at limiting its impact on the environment. Measurement and monitoring of effects, issuing work instructions, training of personnel and taking corrective actions are all essential elements to limiting the impact on the environment. Ducab has set improvement targets to reduce the significant environmental impacts associated with its activities.

Ducab is proud to be the first cable manufacturer in the region to achieve certification to ISO 14001 and this certification along with its quality, business success and safety record demonstrates that Ducab is a world class organisation and can hold its head up to any business community throughout the world.

BASEC CERTIFICATION

Ducab is also proud to hold a Process capability certification issued by BASEC (British Approvals Service for Cables) for several cables in its product range.

DUCAB SHAREEK

Ducab's customer satisfaction programme is designed to ensure that customers receive a consistently high level of service from Ducab's dedicated staff.

INTRODUCTION TO H07RN-F RUBBER FLEXIBLES

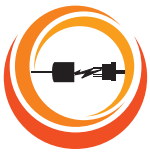
Ducab RuBICC - H07RN-F Rubber Flexibles are designed to provide excellent flexibility during usage. These cables can withstand weather, medium mechanical and thermal stress. They exhibit very good oil resistance property.

CABLE DETAILS

Conductor:	Annealed flexible stranded tin coated or bare copper class 5 to IEC/BS EN 60228
Separator:	A suitable tape separator between the conductor and insulation as and when required.
Insulation:	Ethylene Propylene Rubber (EPR) type EI 7 to BS standard
Core identification:	Colour coding of power conductors comply to HD 308, BSEN 50525 specification Two core - Blue, Brown Three core - Green/Yellow, Blue, Brown Four core - Green/Yellow, Brown, Black, Grey or Green/Yellow, Blue, Brown, Black Five core - Green/Yellow, Blue, Brown, Black, Grey
Outer Sheath:	A synthetic thermosetting compound to BSEN 50363-2-1
Colour of outer jacket:	Black (Other colours on request)
Operating temperature:	Temperature range of -25°C to +90°C. For fixed installation lowest temperature is -40°C
Short circuit temperature:	250°C
Voltage:	450/750 V
Cable standard:	BS EN 50525 - 2 - 21
Flame propagation:	IEC 60332-1-2:2004, EN 60332-1-2:2004

APPLICATION:

- To power electrical appliances and building
- Installation with moving equipment at work site
- Handling equipment and mobile power supplies
- For use in cold environment / refrigerating installations
- Oil resistant applications
- For use in submersible pumps.


Electrical appliances


Moving equipment


Mobile power supplies


Cold environment

Oil resistant

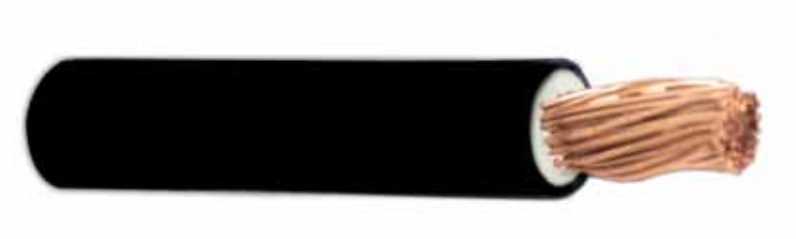
KEY FEATURES:

- UV, Sunlight and Ozone resistant
- Suitable for both indoor and outdoor use
- Useful in wide range of industrial applications

PACKING:

- 1000m on drums. Other forms of packing and delivery are available on request

TECHNICAL DATA



Size No. of cores X mm^2	Nominal thickness of insulation	Nominal thickness of jacket	Approx. O. D. of cable	Voltage Drop	Approx. weight of cable
	mm	mm	mm	V/A/km	kg/km
1x1.5	0.8	1.4	6.1	29.8	51
1x2.5	0.9	1.4	6.8	17.9	67
1x4	1	1.5	7.8	11.1	93
1x6	1	1.6	8.5	7.4	120
1x10	1.2	1.8	10.3	4.3	184
1x16	1.2	1.9	11.5	2.7	255
1x25	1.4	2	13.4	1.7	372
1x35	1.4	2.2	15	1.2	482
1x50	1.6	2.4	17.2	0.9	656
1x70	1.6	2.6	19.2	0.6	887
1x95	1.8	2.8	21.9	0.5	1178
1x120	1.8	3	23.8	0.4	1441
1x150	2	3.2	26.3	0.3	1758
1x185	2.2	3.4	28.7	0.2	2171
1x240	2.4	3.5	32	0.2	2800
1x300	2.6	3.6	34.8	0.1	3415
1x400	2.8	3.8	38.9	0.1	4303
1x500	3	4	43.2	0.1	5453
1x630	3	4.1	47.9	0.1	6946
2x1	0.8	1.3	8.6	50.5	96
2x1.5	0.8	1.5	9.5	34.4	119
2x2.5	0.9	1.7	11.2	20.7	172
2x4	1	1.8	13	12.8	240
2x6	1	2	14.6	8.5	316
2x10	1.2	3.1	19.4	4.9	552
2x16	1.2	3.3	21.9	3.1	752

TECHNICAL DATA

Size No. of cores X mm^2	Nominal thickness of insulation	Nominal thickness of jacket	Approx. O. D. of cable	Voltage Drop	Approx. weight of cable
	mm	mm	mm	V/A/km	kg/km
2x25	1.4	3.6	25.9	2	1093
2x35	1.4	3.8	28.6	1.4	1376
2x50	1.6	4.2	33	1	1870
2x70	1.6	4.6	37.2	0.7	2497
2x95	1.8	5	42.4	0.5	3298
3x1	0.8	1.4	9.3	43.7	116
3x1.5	0.8	1.6	10.2	29.8	143
3x2.5	0.9	1.8	12.1	17.9	211
3x4	1	1.9	14	11.1	294
3x6	1	2.1	15.6	7.4	387
3x10	1.2	3.3	20.8	4.3	681
3x16	1.2	3.5	23.5	2.7	938
3x25	1.4	3.8	27.8	1.7	1375
3x35	1.4	4.1	30.9	1.2	1757
3x50	1.6	4.5	35.6	0.9	2390
3x70	1.6	4.8	39.8	0.6	3188
3x95	1.8	5.3	45.6	0.5	4246
3x120	1.8	5.6	49.6	0.4	5163
3x150	2	6	54.8	0.3	6308
3x185	2.2	6.4	59.9	0.2	7759
3x240	2.4	7.1	68.1	0.2	10138
3x300	2.6	7.1	74.8	0.1	12433

TECHNICAL DATA

Size No. of cores X mm^2	Nominal thickness of insulation	Nominal thickness of jacket	Approx. O. D. of cable	Voltage Drop	Approx. weight of cable
	mm	mm	mm	V/A/km	kg/km
4x1	0.8	1.5	10.3	43.7	142
4x1.5	0.8	1.7	11.2	29.8	174
4x2.5	0.9	1.9	13.3	17.9	257
4x4	1	2	15.4	11.1	360
4x6	1	2.3	17.4	7.4	485
4x10	1.2	3.4	22.8	4.3	831
4x16	1.2	3.6	25.6	2.7	1150
4x25	1.4	4.1	30.8	1.7	1724
4x35	1.4	4.4	34.2	1.2	2204
4x50	1.6	4.8	39.4	0.9	2997
4x70	1.6	5.2	44.2	0.6	4030
4x95	1.8	5.9	51	0.5	5410
4x120	1.8	6	55	0.4	6528
4x150	2	6.5	60.9	0.3	7994
4x185	2.2	7	66.8	0.2	9870
4x240	2.4	7.7	75.8	0.2	12881
4x300	2.6	8.4	83.4	0.1	15830
5x1	0.8	1.6	11.3	43.7	175
5x1.5	0.8	1.8	12.3	29.8	215
5x2.5	0.9	2	14.5	17.9	318
5x4	1	2.2	17.1	11.1	455
5x6	1	2.5	19.2	7.4	608
5x10	1.2	3.6	25	4.3	1029
5x16	1.2	3.9	28.4	2.7	1441

TECHNICAL DATA

Size No. of cores X mm^2	Nominal thickness of insulation	Nominal thickness of jacket	Approx. O. D. of cable	Voltage Drop	Approx. weight of cable
	mm	mm	mm	V/A/km	kg/km
5x25	1.4	4.4	34	1.7	2154
5x35	1.4	4.6	37.6	1.2	2738
5x50	1.6	5.2	43.6	0.9	3762
5x70	1.6	5.7	49.1	0.6	5077
5x95	1.8	6.3	56.3	0.5	6773
6x1.5	0.8	2.5	14.7	30	287
7x1.5	0.8	2.6	14.9	30	303
12x1.5	0.8	2.9	19.2	30	482
18x1.5	0.8	3.2	22.5	30	678
24x1.5	0.8	3.5	26.2	30	889
36x1.5	0.8	3.8	30	30	1247
6x2.5	0.9	2.7	17.1	18	409
7x2.5	0.9	2.8	17.3	18	433
12x2.5	0.9	3.1	22.4	18	694
18x2.5	0.9	3.5	26.5	18	995
24x2.5	0.9	3.9	31.1	18	1321
36x2.5	0.9	4.3	35.8	18	1880
6x4	1	2.9	19.9	11.09	570
7x4	1	3.1	20.3	11.09	615
12x4	1	3.5	26.5	11.09	1001
18x4	1	3.9	31.2	11.09	1430

CURRENT CARRYING CAPACITY

Size mm^2	Single core (for three phase circuit) (A)	Two Cores (A)	Three Cores (A)	Four Cores (A)	Five Cores (A)
1	-	20	18	18	18
1.5	27	29	25	25	25
2.5	34	39	32	32	32
4	47	52	44	44	44
6	59	66	56	56	56
10	83	90	78	78	78
16	108	115	102	102	102
25	135	149	127	127	127
35	167	185	158	158	158
50	204	225	192	192	192
70	261	289	246	246	246
95	316	352	298	298	298
120	367	-	346	346	-
150	423	-	399	399	-
185	483	-	456	456	-
240	570	-	538	538	-
300	658	-	621	621	-
400	792	-	-	-	-
500	904	-	-	-	-
630	1033	-	-	-	-

NOTE: AMBIENT TEMPERATURE = 30° C
CABLE OPERATING TEMPERATURE = 90° C

TEMPERATURE CORRECTION FACTORS:

Temperature of air °C	25	30	35	40	45	50	55
Correction factors:	1.02	1.0	0.96	0.91	0.87	0.82	0.76

CLASS 5 FLEXIBLE COPPER CONDUCTOR DATA

Size mm^2	Maximum diameter of wires in conductor	Maximum conductor resistance at 20° C (Plain wires)	Maximum conductor resistance at 20° C (Tinned wires)
	mm	Ω/km	Ω/km
1	0.21	19.5	20
1.5	0.26	13.3	13.7
2.5	0.26	7.98	8.21
4	0.31	4.95	5.09
6	0.31	3.3	3.39
10	0.41	1.91	1.95
16	0.41	1.21	1.24
25	0.41	0.78	0.795
35	0.41	0.554	0.565
50	0.41	0.386	0.393
70	0.51	0.272	0.277
95	0.51	0.206	0.210
120	0.51	0.161	0.164
150	0.51	0.129	0.132
185	0.51	0.106	0.108
240	0.51	0.0801	0.0817
300	0.51	0.0641	0.0654
400	0.51	0.0486	0.0495
500	0.61	0.0384	0.0391
630	0.61	0.0287	0.0292

Ducab دوكاب

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RoSPA 2007 ORDER OF DISTINCTION
BASEC ISO 9001 UKAS MANAGEMENT SYSTEMS 004 CERTIFICATE NO: CS1-144
BASEC ISO 14001 UKAS MANAGEMENT SYSTEMS 004 CERTIFICATE NO: ECS-043
Lloyd's Register TYPE APPROVED
علامة الجودة الإماراتية UAE Quality Mark

دوكاب – ص.ب: ١١٥٢٩ دبي الإمارات العربية المتحدة، هاتف: ٨١١١ ٨١٥ (٤-٩٧١)، فاكس: ٨٨٨٨ ٨١٥ (٤-٩٧١)
Ducab, P.O.Box 11529, Dubai, United Arab Emirates, Tel: (971-4) 8158888, Fax: (971-4) 8158111
e-mail: ducab@ducab.com, website: www.ducab.com, Toll Free: 800-Ducab (800-38222)

Ref No: H07RN-F/02 1113 (500 cps)

Ducab دوكاب

كابلات FlamBICC
FlamBICC Cables

حلول متقدمة للكابلات من خلال التقنية والابداع

Advanced Cable Solutions Through Technology and Innovation

BICC

CONTENTS

Page

Ducab دوكاب

INTRODUCTION

Established in 1979, Ducab is the leading cable manufacturing company in the region and is equally owned by the Governments of Dubai and Abu Dhabi. Ducab has 3 manufacturing sites and 6 independent manufacturing facilities that support it's continuous growth, one in Jebel Ali and two in Abu Dhabi Industrial City. Ducab-HV, inaugurated in November 2011, is a joint venture between Ducab, ADWEA and DEWA offering High Voltage cable systems up to 400 kV. Ducab-HV will sell cable systems in the voltage range 66kV (66,000 Volts) to 400 kV (400,000 Volts) covering the highest voltage currently used in the GCC.

To meet the growing demand of customers around the region and the world, Ducab continues to expand its world-class facilities across the Middle East, North Africa, Europe, Australia and India. Ducab prides itself on setting and maintaining the highest quality standards of power cables. Experienced and highly skilled employees operate state-of-the-art equipment, and conduct extensive testing at every phase of production.

When it comes to advanced cable solutions, Ducab continues its status as the superbrand across the world in 40 countries. Ducab product range covers High Voltage cables up to 400 kV, Ducab Powerplus Medium Voltage cables up to 33 kV, Low Voltage power cables, Control & Auxiliary, Wiring and Lead-Sheathed cables, Ducab Smokemaster - Low Smoke Zero Halogen (LSZH) Cables, THHN/THWN cables, Instrumentation and Pilot cables, Cable components and cable accessories, Installation of cables, as well as Copper rod manufactured in Ducab's own Copper rod plant.

This catalogue provides working information on FlamBICC (Fire Resistant Cables) . Separate catalogues are available for the remaining range of Ducab Cables.

ORDERING ADVICE

Due to the wide range of cables in the catalogue, it is advisable, when ordering, to provide as much information as possible. Please use the following table as a guide:

1. Cable standard / specification number.
2. Voltage designation.
3. Number of cores.
4. Conductor size.
5. Fire test requirements
6. Colour of outer sheath/ Core colours.
7. Length of cables required and individual drum lengths.*
8. Any other special requirement, any additional requirement, drum weight limitation, etc.

* Cables are normally supplied in lengths of 100 metres, 500 metres and 1000 metres depending on conductor size. Other lengths can be supplied if required.

TECHNICAL ADVISORY SERVICE

For any specialist advice and assistance on the entire Ducab product range contact the Technical Department, Dubai Cable Company (Private) Limited, P. O. Box 11529, Dubai, U. A. E., Tel: 971 4 815 8888, Fax: 971 4 815 8111.

CUSTOMER SERVICE

Ducab is the premier cable manufacturer in the United Arab Emirates and, since 1979, has been meeting the requirements of customers throughout the GCC, Middle East and Asian markets. Ducab cables are preferred for the following reasons:

PRODUCT QUALITY

Ducab is committed to supplying its customers with the highest quality of product and of service. Ducab's cables have been type approved by recognized certifying bodies such as BASEC UK (British Approval Service for Cables), Lloyd's Register of the UK, KEMA Netherland, LPCB UK (Loss Prevention Certification Board), ESMA (Emirates Authority for standardization and Metrology). They fully conform to BS, IEC other international and national specifications.

In addition, Ducab was presented with the Dubai Quality Award 1994, for the best local industrial company of the year. Ducab won Dubai Quality Gold Category award twice, in 1998 and in 2004. The Gold Award rewards the most distinguished companies which are judged to be world class and Ducab is the only manufacturing company in the region to win such acclaim.

Ducab has won the Sheikh Mohammed Bin Rashid Al Maktoum (MRM) Business Excellence Award in manufacturing category in 2009. Recognizing quality products and services, Ducab has also won the Superbrand award for 4 years consecutively from 2009.

RELIABILITY

Specifying the right cable for a particular application is the first step. The key to reliability however, is in the manufacturing process. The cable must be free from material and manufacturing defects, and weaknesses that will be revealed in service.

Ducab constantly monitors its manufacturing processes and operates stringent quality assurance procedures to give long term reliability. This is of vital significance where cables are to be installed in locations where future access would be difficult and this is where Ducab's reputation and resources give peace of mind.

PERFORMANCE

Optimum cable performance can be provided only by a company such as Ducab, with access to the latest developments in materials technology. In addition, Ducab's knowledge of application requirements throughout the Middle and Far East is an assurance of high performance.

Our experienced Technical Staff can provide guidance on cable selection and installation and can ensure that you get the right cable for the job.

HEALTH & SAFETY MANAGEMENT SYSTEM CERTIFIED TO OHSAS 18001

Ducab is able to maintain a close watch on world developments in cable technology and regulations and therefore ensure that its products are designed and constructed to be hazard-free under the prescribed conditions of use.

Joint Winner
MANUFACTURING
INDUSTRY
Sector Award

Ducab uses only tried and tested materials and processes in full compliance with all relevant British and International Standards. Our cables are therefore manufactured for safe use without risk to health on the understanding that users will exercise the same degree of care in their selection and application.

Safety is an important issue for Ducab, and the strictest standards are adhered to throughout the company. Ducab is proud of its safety record and has been awarded RoSPA (Royal Society for the Prevention of Accidents) Gold Awards for safety from 1991 to 1999. From 2000 onward, Ducab was awarded the prestigious President's Award for Health and Safety which is a recognition of Ducab winning 10 consecutive annual Gold awards and acknowledges Ducab's total commitment to health and safety. In 2002, Ducab was declared the joint winner of the Manufacturing Industry Sector Award from RoSPA.

Ducab is the first organisation in the Middle East to receive accreditation to OHSAS 18001 by BASEC (British Approvals Service for Cables). Certification to OHSAS 18001 provides a recognisable Occupational Health and Safety Management standard against which an organisation's management systems can be assessed and certified. Based on the structure of OHSAS 18001, the standard requires continual improvement in health and safety related activities.

QUALITY MANAGEMENT SYSTEM CERTIFIED TO ISO 9001

Ducab's Quality Management System conforms to the ISO 9001 International Quality System Standard and is certified by BASEC (British Approvals Service for Cables), a specialist certifying body for cables who are an internationally recognised quality authority accredited in the UK and throughout the world.

Certification to the ISO 9001 International standard demonstrates that Ducab has drawn up written procedures to ensure full compliance with all requirements of the standard and that these procedures are followed by every department in the company, thus ensuring that goods leaving Ducab's factory are of the highest quality and meet each customer's requirements in every respect.

Ducab is particularly proud to have achieved certification to the stringent ISO 9001 standard as it is an independent conformation that the company designs, manufactures and tests cables consistently to accepted standards. ISO 9001 is widely used throughout Europe, and is therefore a reassurance to Ducab's customers that the products and service supplied by the company are equal to the best in the world.

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFIED TO ISO 14001

Ducab's Environmental Management System conforms to the ISO 14001 International Environmental Management Standard and is certified by BASEC who are an internationally recognised certifying authority accredited in the UK and throughout Europe.

Certification to the ISO 14001 International standard shows that Ducab has a well defined structure and established working practices aimed at limiting its impact on the environment. Measurement and monitoring of effects, issuing work instructions, training of personnel and taking corrective actions are all essential elements to limiting the impact on the environment. Ducab has set improvement targets to reduce the significant environmental impacts associated with its activities.

Ducab is proud to be the first cable manufacturer in the region to achieve certification to ISO 14001 and this certification along with its quality, business success and safety record demonstrates that Ducab is a world class organisation and can hold its head up to any business community throughout the world.

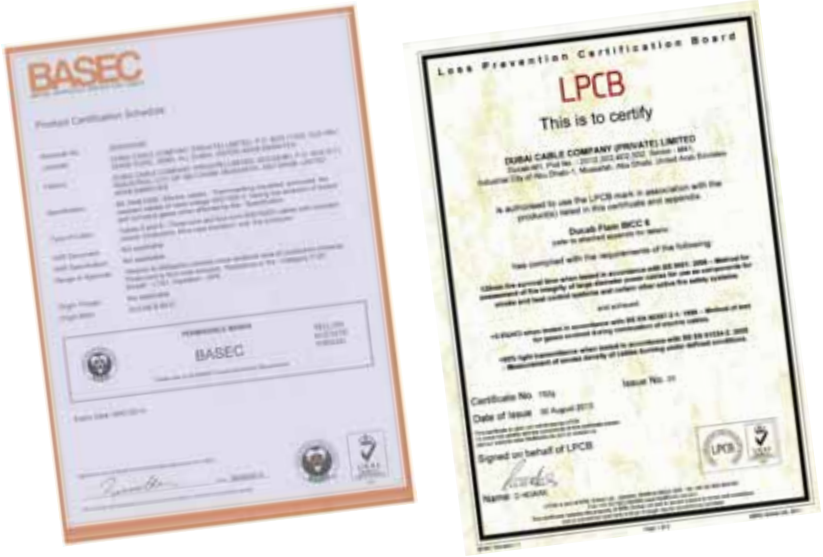
BASEC CERTIFICATION

Ducab is also proud to hold a Process capability certification issued by BASEC (British Approvals Service for Cables) for several cables in its product range.

DUCAB SHAREEK

Ducab's customer satisfaction programme is designed to ensure that customers receive a consistently high level of service from Ducab's dedicated staff.

APPROVAL CERTIFICATES



Complete Fire Safety Solutions

BS CODES OF PRACTICE BS 8519

BS 8519 provieds recommendations for the selection and installation of fire resistant power and control system cables for life safety and fire fighting applications.

BS 8519 is full revision of BS 7346-6, the code of practice for smoke and heat control systems (which is now withdrawn) and provides a more comprehensive coverage of fire engineering systems. It highlights various factors to be considered by engineers while designing systems and selecting cables to meet appropriate life safety and fire fighting objectives.

In the standard BS 8519, cables are classified suitable for LS (Life Safety) and FF (Fire Fighting) system. It separates cables in three categories.

Category 1: 30 minutes fire survival
Category 2: 60 minutes fire survival
Category 3: 120 minutes fire survival

In general Life Safety system cables are required to have fire survival time of 30 minutes for single stage evacuation and 60 minutes in case of phased evacuation. The cables for these systems would include fire protection systems, smoke ventilator system etc.

All Fire Fighting systems are required to function for 120 minutes. Cables for these systems would aid fire fighters in carrying their role and shall include SHEVS (Smoke & Heat Exhaust Ventilation System), smoke curtains, sprinkler system and fire-fighting lift.

BS 8519 covers information on:

- Fire survival times
- Power Supplies
- Dual circuits/diverse routes
- Fire protective enclosures
- Automatic change over devices
- Motor control panels
- Cable selection
- Fire protective enclosures for cables
- Effects of fire temperature on cable size
- Use of circuit protective conductors (CPCs)
- Cable Installation Practice
- Cable support systems
- Inverters
- Multizoned smoke ventilation systems
- Junction boxes
- Areas of special fire risk

As can be noted, BS 8519 contains mainly six different categories of cables, three each for power and control cables depending upon escape / survival times of 30, 60 or 120 minutes . The table below will simplify the task of cable selection from DUCAB range of products.

CATEGORIES OF CABLE AS SPECIFIED IN BS 8519

			Applicable fire test	Applicable product
Life Safety (LS)	LS 30 mins	Category 1 Power	BS 8491 30 min	FlamBICC 6
		Category 1 Control	BS EN 50200 PH30 & 30 mins annex E	FlamBICC 4, FlamBICC 2
	LS 60 mins	Category 2 Power	BS 8491 60 min	FlamBICC 6
		Category 2 Control	BS EN 50200 PH60 & 120 mins to BS 8434-2	FlamBICC 4
Fire Fighting (FF)	FF 120 mins	Category 3 Power	BS 8491 120 mins	FlamBICC 6
		Category 3 Control	BS EN 50200 Ph120 & BS 8591 annex B	FlamBICC 4

Fire Performance Cable Selection Guide

		FlamBICC 2	FlamBICC 1	FlamBICC 3	FlamBICC 4	FlamBICC 6
Codes of Practice						
Emergency Lighting	BS 5266 Emergency Lighting cable	√			√	√
	BS5266 Enhanced Emergency Lighting cable				√	√
	BS 5266 Emergency Lighting cable system	√	√	√	√	√
	BS 5266 Enhanced Emergency Lighting cable system	√	√	√	√	√
Fire Alarm	BS 5839 Standard Grade	√			√	√
	BS 5839 Enhanced Grade				√	√
Smoke, Heat & Exhaust Ventilation System (SHEVS)	BS 8519					√
Power and Control	BS 8519 Catagory 1 Control	√			√	√
	BS 8519 Catagory 2 Control				√	√
	BS 8519 Catagory 3 Control				√	√
	BS 8519 Catagory 1 Power					√
	BS 8519 Catagory 2 Power					√
	BS 8519 Catagory 3 Power					√
General	BS 9999					√
Manufacturing Standards						
	BS 7629	√				
	BS 7846				√	√
Fire Resistance Tests						
	BS 6387 C W & Z	√	√	√	√	√
	BS EN 50200 PH30	√			√	√
	BS EN 50200 PH60	√			√	√
	BS EN 50200 PH120	√			√	√
	BS 8434-2				√	√
	BS 7846 F2				√	√
	BS 7846 F30, F60, F120					√
	BS 8491					√
	IEC 60331	√	√	√	√	√
Fire Reaction Tests						
Low Smoke Zero Halogen (LSZH)	BS EN 50267, (IEC 60754) BS EN 50268, (IEC 61034)		√	√	√	√

INTRODUCTION

Ducab FlamBICC cables are special fire resistant cables designed to survive and operate during fire conditions. In order to suit different application requirements Ducab offers FlamBICC cables in the following range,

FlamBICC 1: These are single core Fire Resistant cables with XL-LSZH insulation to meet C-W-Z test as per BS 6387 for small sizes and IEC 60331 for large sizes.

FlamBICC 2: These are screened cables designed as per BS 7629 and are mainly used in fire detection, voice alarm, emergency lighting etc.

FlamBICC 3: These are single and multicore Fire Resistant cables with insulation and sheath to meet C-W-Z test as per BS 6387 for small sizes and IEC 60331 for large sizes.

FlamBICC 4: These are multi-core armoured cables designed as per BS 7846 with steel wire armour construction to meet category F2 fire test (C-W-Z test as per BS 6387)

FlamBICC 6: These are multi-core armoured cables designed as per BS 7846 with steel wire armour construction to meet category F120 fire test as per BS 8491. During F120 fire test direct mechanical impact and water jet is provided on the cable during fire test.

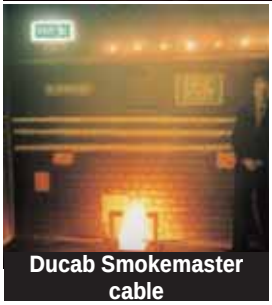
The selection of FlamBICC cables needs to be done in accordance with BS 5839 Part 1 and BS 8519 which lay down the selection and installation criterion for fire resistant cables.

For detailed product description and characteristics, reference can be made to the respective FlamBICC product data in this catalog. As a responsible organisation, all the FlamBICC range products from Ducab are designed with Low Smoke and Zero Halogen (LSZH / LSHF / LSOH) feature. Thus in the event of fire, the FlamBICC cable shall not emit heavy smoke or toxic halogen gases. The low smoke generation gives better visibility in a fire situation aiding the rescue operation and enabling the EXIT path to be seen clearly for escape. As there is no halogen or acidic gas emission during burning of the cable, the sensitive equipment in the surrounding areas are not affected adversely.

BS 6387 fire testing in progress at Ducab

IEC 60332-3 fire test

Fire Test after 6 minutes



Ducab Smokemaster cable

Ducab range of FlamBICC cable is a highly sophisticated product for use in special application. There are various areas of application for Fire Resistant cables, which include:

- Areas where people will remain in occupation for short time eg. schools, shopping malls, mass transit systems like metro stations etc.
- Services where circuit integrity is very important under fire conditions eg. special equipment in hospital
- Essential safety circuit eg. fire detection, fire alarm, voice alarm etc.
- Power supply to equipment used in fire-fighting eg. sprinkler pumps
- In large buildings where fire strategy involves evacuation of occupants in phased manner.

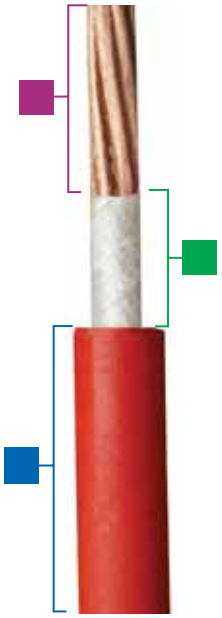
Ducab FlamBICC 1

FLAMBICC 1

These are single core fire resistant cables with approval from Loss Prevention Certification Board (LPCB), UK for use in emergency safety circuits to maintain circuit integrity under fire conditions.

CONSTRUCTION

- Copper conductor: Plain annealed stranded class 2 conductor to BS EN 60228
- Primary Insulation: Mica Glass tape
- Secondary Insulation: Extruded XL-LSZH compound



CHARACTERISTICS

General:	Ducab FlamBICC 1 cables are designed for laying in conduit or in cable trunking where fire resistance is of paramount importance.
Approvals:	LPCB approved
Voltage grade:	600 / 1000 V
Fire resistance:	C-W-Z test as per BS 6387 for small sizes and IEC 60331-21 for large sizes which cannot fit in a conduit. Cables comply IEC 60331-21 fire test at increased temperature of 950°C which is higher than that specified by the standard.
Acid gas emission:	Less than 0.5% when tested to IEC 60754 & BS EN 50267
Low smoke emission:	As per IEC 61034 & BS EN 50268
Cable Operating temperature:	Maximum 90°C
Short circuit temperature	Maximum 250°C
Bending radius:	6 x Cable diameter

CORE IDENTIFICATIONS

Greey/Yellow		Black	
Blue		Gray	
Red		White	
Brown			

TECHNICAL DATA

Technical data for Ducab Fire Resistant Single Core Cables with stranded copper conductors **600 / 1000 V**

Nominal conductor area	Approximate overall diameter	Approximate cable weight	Maximum conductor resistance at 20°C	Current rating (1ø AC)	Current rating (3ø AC)	Voltage drop (1ø AC)	Voltage drop (3ø AC)
mm^2	mm	kg/km	Ohm/km	Amp	Amp	mV/A/m	mV/A/m
1.5	5.5	45	12.1	23	20	31	27
2.5	5.9	60	7.41	31	28	19	16
4	6.4	75	4.61	42	37	12	10
6	7	95	3.08	54	48	7.86	6.81
10	7.9	140	1.83	75	66	4.67	4.05
16	8.8	200	1.15	100	88	2.94	2.55
25	10.7	300	0.727	133	117	1.86	1.61
35	11.8	395	0.524	164	144	1.35	1.17
50	13.1	520	0.387	198	175	1	0.87
70	15	725	0.268	253	222	0.70	0.61
95	16.7	975	0.193	306	269	0.52	0.45
120	18.4	1210	0.153	354	312	0.42	0.37
150	20.5	1485	0.124	393	342	0.36	0.31
185	22.6	1850	0.0991	449	384	0.30	0.26
240	25.2	2400	0.0754	528	450	0.25	0.22
300	28.1	2990	0.0601	603	514	0.22	0.19
400	31	3765	0.047	683	584	0.20	0.17
500	34.6	4900	0.0366	783	666	0.18	0.16
630	39.4	6180	0.0283	900	764	0.17	0.15

Current rating based on installation "enclosed in conduit on a wall or in trunking" in line with BS 7671 (IEE Wiring Regulations)

Laying condition: 30°C ambient temperature & 90°C operating temperature. For other ambient temperatures appropriate rating factors should be applied.

TEMPERATURE RATING FACTORS

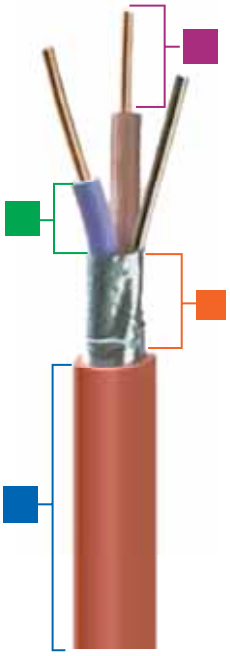
Ambient Temperature in °C	25	30	35	40	45	50	55	60
Rating factor	1.02	1	0.96	0.91	0.87	0.82	0.76	0.71

CORRECTION FACTORS FOR GROUPING

No of Tables in a group	2	3	4	5	6	7	8	9
Rating factor	0.8	0.7	0.65	0.6	0.57	0.54	0.52	0.5

FLAMBICC 2

These are pliable Fire Resistant screened cables having low emission of smoke and corrosive gases when affected by fire which are designed to meet fire resistance test of BSEN 50200 : 2000 Class PH30.



CONSTRUCTION

- **Conductor:** Plain annealed copper conductor complying with BS EN 60228, class 1 or class 2
- **Insulation:** Special insulation to meet fire resistance characteristics
- **Screen:** Laminated Aluminium tape screen in contact with full size tinned annealed copper circuit protective conductor
- **Sheath:** Robust LSZH (LSHF / LSOH) sheath

CHARACTERISTICS

General:	Ducab FlamBICC 2 are screened cables designed as per BS 7629 for applications requiring 'standard' fire resistance.
Approval:	LPCB Approval to BS 7629-1, BS 5839-1 and BS EN 50200 Class PH30
Voltage grade:	300 / 500 V
Fire resistance:	Class PH30 of BS EN 50200. Meets requirement of 'standard' fire resistant cable as per BS 5839-1.
Acid gas emission:	Less than 0.5% when tested to IEC 60754 & BS EN 50267
Low smoke emission:	As per IEC 61034 & BS EN 50268
Cable Operating temperature:	Maximum 90°C
Short circuit temperature	Maximum 250°C
Colours	White or Red sheath are standard, other colours available on request.
Packaging	100 meter reels: Other packaging and lengths available on re-quest
Key Applications	The use of cables with 'standard' fire resistance is recommended for general use for fire detection, voice alarm, addressable system and emergency lighting
Salient features	Highly durable, easy to terminate

We can offer the cables with new as well as old core colour code as mentioned in next page.

TECHNICAL DATA

300 / 500 V

No. of Cores	Conductor Area (mm²)	No. of Wires	Nom Diameter of Conductor / wire (mm)	Nom Insulation Thickness (mm)	Nom O.D. (mm)	Min Bending Radius (mm)	Approx Cable Weight (kg/km)	Max Conductor Resistance 20° C (ohm/km)	Max Conductor Resistance 70° C (ohm/km)	Approx Capacitance (Adjacent Cores) (pF/km)	Approx Capacitance (Core to Screen) (pF/km)
2	1	1	1.13	0.6	8.05	50	79.8	18.1	21.7	85	170
2	1.5	1	1.37	0.7	8.4	60	98.3	12.1	14.5	95	180
2	2.5	7	0.67	0.8	10.05	70	146.4	7.41	8.8	100	190
2	4	7	0.85	0.8	11.4	80	213.5	4.61	5.5	100	190
3	1	1	1.13	0.6	8.55	60	93.6	18.1	21.7	85	170
3	1.5	1	1.37	0.7	9.15	70	121	12.1	14.5	95	180
3	2.5	7	0.67	0.8	11.15	80	178.8	7.41	8.8	100	190
4	1	1	1.13	0.6	9.2	60	120.1	18.1	21.7	85	170
4	1.5	1	1.37	0.7	10.2	70	148.2	12.1	14.5	95	180
4	2.5	7	0.67	0.8	11.65	80	210.7	7.41	8.8	100	190

CORE IDENTIFICATIONS

CORE IDENTIFICATIONS NEW					CORE IDENTIFICATIONS OLD				
2 CORE	Brown	Blue			2 CORE	Red	Black		
3 CORE	Brown	Black	Grey		3 CORE	Red	Yellow	Blue	
4 CORE	Blue	Brown	Black	Grey	4 CORE	Red	Yellow	Blue	Black

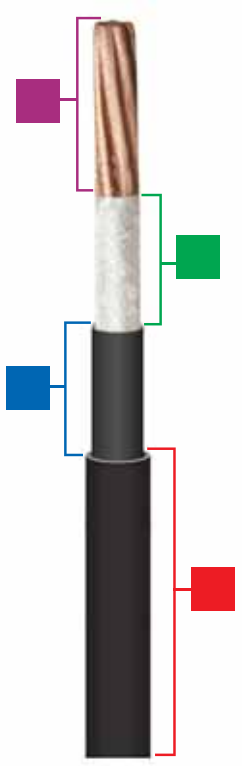
DUCAB FLAMBICC 3

Ducab FlamBICC 3 cables are single and multicore Fire Resistant cables with insulation and sheath to meet C-W-Z test as per BS 6387 for small sizes and IEC 60331 for large sizes

The single core cables are approved by Loss Prevention Certification Board (LPCB), UK for use in emergency safety circuits to maintain circuit integrity under fire conditions.

CONSTRUCTION

- **Copper Conductor:** Plain annealed stranded class 2 conductor to BS EN 60228
- **Primary Insulation**: Mica Glass tape
- **Secondary Insulation:** Extruded XLPE/XL-LSZH compound
- **Outer Sheath**: LSOH compound



CHARACTERISTICS

General:	Ducab FlamBICC 3 cables are designed for laying in conduit or on trays where fire resistance is of paramount importance.
Approvals:	LPCB approved for single core cables
Voltage grade:	600 / 1000 V
Fire resistance:	C-W-Z test as per BS 6387 for small sizes and IEC 60331-21 for large sizes which cannot fit in a conduit. Cables comply IEC 60331-21 fire test at increased temperature of 950°C which is higher than that specified by the standard.
Acid gas emission:	Less than 0.5% when tested to IEC 60754 & BS EN 50267
Low smoke emission:	As per IEC 61034 & BS EN 50268
Cable Operating temperature:	Maximum 90°C
Short circuit temperature	Maximum 250°C
Bending radius:	6 x Cable diameter

CORE IDENTIFICATIONS

STANDARD:	SHEATH COLOUR:
Black (Other colours as per request)	Black (Other colours as per request)

TECHNICAL DATA

Technical data for DUCAB fire resistant Single Core Sheathed Cables with stranded copper conductors **600/1000 V**

Nominal conductor area	Approximate overall diameter	Approximate cable weight	Maximum conductor resistance at 20°C	Current rating (1ø AC) Clipped direct	Current rating (3ø AC) In air	Voltage drop (1ø AC)	Voltage drop (3ø AC) In trefoil
mm^2	mm	kg/km	Ohm/km	Amp	Amp	mV/A/m	mV/A/m
1.5	5.5	45	12.1	25	--	31	27
2.5	5.9	60	7.41	34	--	19	16
4	6.4	75	4.61	46	--	12	10
6	7.0	95	3.08	59	--	7.9	6.8
10	7.9	140	1.83	81	--	4.7	4
16	8.8	200	1.15	109	--	2.9	2.5
25	10.7	300	0.727	143	135	1.85	1.6
35	11.8	395	0.524	176	169	1.35	1.15
50	13.1	520	0.387	228	207	1	0.87
70	15.0	725	0.268	293	268	0.71	0.61
95	16.7	975	0.193	355	328	0.52	0.45
120	18.4	1210	0.153	413	383	0.43	0.37
150	20.5	1485	0.124	476	444	0.36	0.31
185	22.6	1850	0.0991	545	510	0.3	0.26
240	25.2	2400	0.0754	644	607	0.25	0.22
300	28.1	2990	0.0601	743	703	0.22	0.195
400	31.0	3765	0.047	868	823	0.2	0.175
500	34.6	4900	0.0366	990	946	0.185	0.16
630	39.4	6180	0.0283	1130	1088	0.175	0.15

Current rating based on installation "enclosed in conduit on a wall or in trunking" in line with BS 7671 (IEE Wiring Regulations)

Laying condition:
30°C ambient temperature & 90°C operating temperature.
For other ambient temperatures appropriate rating factors should be applied.

TEMPERATURE RATING FACTORS

Ambient Temperature in °C	25	30	35	40	45	50	55	60
Rating factor	1.02	1.00	0.96	0.91	0.87	0.82	0.76	0.71

Ducab FlamBICC 4

DUCAB FLAMBICC 4

Ducab FlamBICC 4 cables are multi-core armoured cables designed as per BS 7846 with steel wire armour construction to meet category F2 fire test (C-W-Z test as per BS 6387).

CONSTRUCTION

- **Conductor:** Plain annealed Copper, stranded class 2 conductor to BS EN 60228
- **Dual Insulation:** Special grade of Mica Glass tape + XLPE
- **Bedding:** LSZH
- **Armour:** Galvanised steel wire armoured
- **Outer Sheath**: Robust LSZH sheath with Black colour as standard, other colours upon request

CHARACTERISTICS

General:	Ducab FlamBICC 4 are armoured cables designed as per BS 7846 to meet C-W-Z fire test as per BS 6387.
Approvals:	LPCB and BASEC approved for 2, 3 and 4 core cable designs
Voltage grade:	600 / 1000 V
Fire resistance:	C-W-Z test as per BS 6387
Flame propagation:	BS EN / IEC 60332-1 and BS EN / IEC 60332-3 Categories A, B & C
Acid gas emission:	Less than 0.5% when tested to IEC 60754 & BS EN 50267
Low smoke emission:	As per IEC 61034 & BS EN 50268
Cable operating temperature:	Maximum 90°C
Short circuit temperature	Maximum 250°C
Bending radius:	6 x Cable diameter for circular and 8 x Cable diameter for sector shaped cables

CORE IDENTIFICATIONS

STANDARD	ALTERNATIVE*
Red, Black	Brown, Blue
Red, Yellow, Blue	Brown, Black, Grey
Red, Yellow, Blue, Black	Blue, Brown, Black, Grey

2 Core Cables

Fire resistant cables. Two Core Armoured Cables 600/1000 V Grade with stranded copper conductors (BS 7846)

Nominal conductor area	Approximate Diameter			Approximate cable weight	Maximum conductor resistance at 20˚C	Maximum armour resistance at 20˚C	Current rating on perforated cable trays / free air	Voltage drop (1φ AC)
	Under armour	Over armour	Overall diameter					
mm^2	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Amp	mV/A/m
600/1000 V Copper power and control cables								
1.5*	8.7	10.5	12.4	315	12.1	10.2	29	31
2.5*	9.9	11.7	13.8	385	7.41	8.8	39	19
4*	11.1	12.9	15.0	460	4.61	7.9	52	12
6*	12.1	13.9	16.0	535	3.08	7.0	66	7.9
10*	13.9	15.7	18.0	690	1.83	6.0	90	4.7
16*	15.7	18.2	20.5	920	1.15	3.7	115	2.9
25*	19.7	22.2	24.7	1270	0.727	3.7	152	1.9
35*	21.9	25.1	27.8	1720	0.524	2.6	188	1.35
50	19.5	22.6	25.4	1810	0.387	2.3	228	1
70	22.1	25.2	28.2	2305	0.268	2.0	291	0.69
95	24.5	28.4	31.6	3105	0.193	1.4	354	0.52
120	29.1	33.0	36.4	3820	0.153	1.3	410	0.42
150	31.1	35.0	38.6	4475	0.124	1.2	472	0.35
185	33.4	38.3	42.2	5675	0.0991	0.82	539	0.29
240	38.0	42.9	47.0	7090	0.0754	0.73	636	0.24
300	43.0	47.8	52.2	8570	0.0601	0.67	732	0.21

* Circular conductors, all others are sector shaped
- Installation conditions for above rating:
- Ambient Air Temperature 30˚C
- Conductor operating temperature 90˚C

3 Core Cables

Fire resistant cables. Three Core Armoured Cables 600/1000 V Grade with stranded copper conductors (BS 7846)

Nominal conductor area	Approximate Diameter			Approximate cable weight	Maximum conductor resistance at 20˚C	Maximum armour resistance at 20˚C	Current rating on perforated cable trays / free air	Voltage drop (3φ AC)
	Under armour	Over armour	Overall diameter					
mm^2	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Amp	mV/A/m
600/1000 V Copper power and control cables								
1.5*	9.2	11.0	12.9	345	12.1	9.5	25	27
2.5*	10.5	12.3	14.4	425	7.41	8.2	33	16
4*	11.8	13.6	15.7	515	4.61	7.5	44	10
6*	12.9	14.7	16.8	610	3.08	6.7	56	6.8
10*	14.8	17.3	19.6	910	1.83	4.0	78	4.0
16*	16.8	19.3	21.8	1110	1.15	3.5	99	2.5
25*	21.1	24.3	27.0	1720	0.727	2.5	131	1.65
35*	23.5	26.7	29.6	2105	0.524	2.3	162	1.15
50	24.9	28.0	30.8	2480	0.387	2.0	197	0.87
70	26.9	30.0	33.0	3145	0.268	1.8	251	0.60
95	30.6	34.5	37.9	4310	0.193	1.3	304	0.45
120	33.9	37.8	41.4	5170	0.153	1.2	353	0.37
150	37.8	42.7	46.5	6555	0.124	0.78	406	0.30
185	42.2	47.1	51.0	7915	0.0991	0.71	463	0.26
240	46.4	51.3	55.6	9815	0.0754	0.63	546	0.21
300	52.8	57.6	62.1	12030	0.0601	0.58	628	0.185
400	58.0	62.8	67.7	14740	0.0470	0.52	728	0.165

* Circular conductors, all others are sector shaped
- Installation conditions for above rating:
- Ambient Air Temperature 30˚C
- Conductor operating temperature 90˚C

4 Core Cables

Fire resistant cables. Four Core Armoured Cables 600/1000 V Grade with stranded copper conductors (BS 7846)

Nominal conductor area	Approximate Diameter			Approximate cable weight	Maximum conductor resistance at 20°C	Maximum armour resistance at 20°C	Current rating on perforated cable trays / free air	Voltage drop (3ϕ AC)
	Under armour	Over armour	Overall diameter					
mm^2	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Amp	mV/A/m
600/1000 V Copper power and control cables								
1.5*	10.1	11.9	13.8	390	12.1	8.8	25	27
2.5*	11.5	13.3	15.4	480	7.41	7.7	33	16
4*	13.0	14.8	16.9	590	4.61	6.8	44	10
6*	14.2	16.7	19.0	825	3.08	4.3	56	6.8
10*	16.4	18.9	21.2	1065	1.83	3.7	78	4.0
16*	18.6	21.1	23.6	1335	1.15	3.1	99	2.5
25*	23.4	26.6	29.3	2070	0.727	2.3	131	1.65
35*	26.1	29.3	32.2	2550	0.524	2.0	162	1.15
50	26.5	29.6	32.6	3015	0.387	1.8	197	0.87
70	30.7	34.6	38.0	4240	0.268	1.2	251	0.60
95	34.5	38.4	42.0	5420	0.193	1.1	304	0.45
120	38.1	43.0	46.8	6935	0.153	0.76	353	0.37
150	42.8	47.7	51.6	8270	0.124	0.68	406	0.30
185	47.2	52.1	56.4	10000	0.0991	0.61	463	0.26
240	52.5	57.3	61.8	12485	0.0754	0.54	546	0.21
300	58.2	63.0	67.9	15175	0.0601	0.49	628	0.185
400	66.5	72.6	78.0	19800	0.0470	0.35	728	0.165

* Circular conductors, all others are sector shaped
- Installation conditions for above rating:
- Ambient Air Temperature 30°C
- Conductor operating temperature 90°C

Multicore Cables

Fire resistant cables. Armoured Auxiliary Cables 600/1000 V Grade with stranded copper conductors (BS 7846)

Number of cores	Nominal conductor area	Approximate Diameter			Approxi-mate cable weight	Maximum conductor resistance at 20˚C	Maximum armour resistance at 20˚C	Current rating on perforated cable trays / free air (Multi circuit operation)	Current rating on perforated cable trays / free air (Single circuit operation)	Voltage drop (3ϕ AC)
		Under armour	Over armour	Overall diam-eter						
	mm^2	mm	mm	mm	kg/km	Ohm/km	Ohm/km	Amp	Amp	mV/A/m
600/1000 V Copper power and control cables										
7	1.5	12.0	13.7	15.9	485	12.1	7.5	19	29	27
12		15.8	18.3	20.6	820	12.1	4.0	16	29	27
19		18.6	21.1	23.6	1060	12.1	3.5	14	29	27
27		22.4	25.6	28.3	1525	12.1	2.3	12	29	27
37		25.2	28.4	31.1	1840	12.1	2.0	11	29	27
48		29.0	32.2	35.1	2240	12.1	1.8	10	29	27
7	2.5	13.8	15.5	17.7	610	7.41	6.3	25	39	16
12		18.3	20.8	23.3	1040	7.41	3.5	21	39	16
19		21.6	24.8	27.5	1525	7.41	2.3	18	39	16
27		26.1	29.3	32.2	1980	7.41	1.9	17	39	16
37		29.4	32.6	35.5	2425	7.41	1.7	15	39	16
48		33.9	37.9	41.1	3260	7.41	1.2	14	39	16
7	4	15.6	18.0	20.3	885	4.61	4.0	33	52	10
12		20.8	24.0	26.5	1450	4.61	2.3	28	52	10
19		24.6	27.8	30.5	1940	4.61	2.0	24	52	10
27		29.8	33.0	36.0	2560	4.61	1.7	22	52	10
37		33.6	37.6	40.8	3445	4.61	1.2	19	52	10
48		38.8	42.8	46.2	4240	4.61	1.0	17	52	10

* Multi circuit means all conductors are loaded equally and operating in close vicinity
- Installation conditions for above rating:
- Ambient Air Temperature 30˚C
- Conductor operating temperature 90˚C

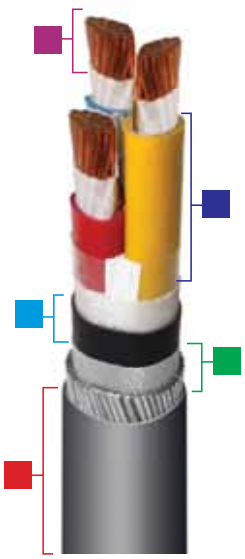
DUCAB FLAMBICC 6

Ducab FlamBICC 6 (BS8519 Category 3 Power Cables) are special fire resistant cables designed to survive and operate during highly onerous fire conditions. These are designed as per BS 7846 standard and are LPCB approved for F120 fire test as per BS 8491 standard. These cables have received the BASEC approval too.

As described in BS 8519, fire resistant cables are classified for Life Safety and Fire Fighting system with different fire survival time of 30 minutes, 60 minutes or 120 minutes. The FlamBICC 6 cables meet 120 minutes fire survival test. During the F120 fire survival test as per BS 8491 the same cable sample is subjected to fire + mechanical shock with direct impact on the cable + water jet hitting the cable which is applied through a nozzle. All Fire Fighting systems are required to function for 120 minutes.

CONSTRUCTION

- Conductor: Plain annealed Copper, stranded class 2 conductor to BS EN 60228
- Dual Insulation: Special grade of Mica Glass tape + extruded XLPE
- Bedding: LSZH along with glass fiber tape/s at appropriate layers
- Armour: Galvanised steel wire armoured
- Outer sheath: Robust LSZH sheath with Black colour as standard, other colours upon request



CHARACTERISTICS

General:	Ducab FlamBICC 6 are armoured cables designed as per BS 7846 to meet F120 fire test as per BS 8491.
Approvals:	LPCB and BASEC approved for 3 and 4 core cable designs
Voltage grade:	600 / 1000 V
Fire resistance:	F120 as per BS 8491
Flame propagation:	BS EN / IEC 60332-1 and BS EN / IEC 60332-3 Categories A, B & C
Acid gas emission:	Less than 0.5% when tested to IEC 60754 & BS EN 50267
Low smoke emission:	As per IEC 61034 & BS EN 50268
Cable Operating temperature:	Maximum 90°C
Short circuit temperature	Maximum 250°C
Bending radius:	6 x Cable diameter for circular and 8 x Cable diameter for sector shaped cables

CORE IDENTIFICATIONS

STANDARD	ALTERNATIVE*
Red, Yellow, Blue	Brown, Black, Grey
Red, Yellow, Blue, Black	Blue, Brown, Black, Grey

TECHNICAL - DATA of Three Cores Cable

Fire resistant cables. Three Core Armoured Cable 600/1000 V Grade with stranded copper conductors (BS 7846)

Nominal conductor area	Approximate Diameter			Approximate cable weight	Maximum conductor resistance at 20° C	Maximum armour resistance at 20° C	Current rating on perforated cable trays/free air	Voltage drop (3ϕ AC)
	Under armour	Over armour	Overall diameter					
mm^2	mm	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Amp	mV/A/m
600/1000 V Copper power and control cables								
6*	16	17.8	21.8	940	3.08	6.7	56	6.8
10*	16	18.5	21.5	1100	1.83	4	78	4
16*	18.6	21.5	23.6	1300	1.15	3.5	99	2.6
25*	22	25.2	27.9	1850	0.727	2.5	131	1.6
35*	24.4	27.6	30.5	2260	0.524	2.3	162	1.2
50	25.9	29	31.8	2680	0.387	2	197	0.87
70	27.8	30.9	33.9	3385	0.268	1.8	251	0.61
95	31.6	35.5	38.9	4560	0.193	1.3	304	0.45
120	34.8	38.7	42.3	5450	0.153	1.2	353	0.36
150	38.8	43.7	47.4	6910	0.124	0.78	406	0.3
185	43.1	48	51.9	8285	0.0991	0.71	463	0.25
240	47.4	52.3	56.6	10210	0.0754	0.63	546	0.21
300	53.9	58.8	63.3	12390	0.0601	0.58	628	0.19
400	59.2	64.1	68.9	15155	0.047	0.52	728	0.17

* Circular conductors, all others are sector shaped
installation condition for above rating:
Ambient Air Temperature 30°C
Conductor operating temperature 90°C

TECHNICAL - DATA of Four Cores Cable

Fire resistant cables. Three Core Armoured Cable 600/1000 V Grade with stranded copper conductors (BS 7846)

Nominal conductor area	Approximate Diameter			Approximate cable weight	Maximum conductor resistance at 20° C	Maximum armour resistance at 20° C	Current rating on perforated cable trays/free air	Voltage drop (3ϕ AC)
	Under armour	Over armour	Overall diameter					
mm^2	mm	mm	mm	Kg/Km	Ohm/Km	Ohm/Km	Amp	mV/A/m
600/1000 V Copper power and control cables								
6*	15.4	17.9	21.9	1000	3.08	7.7	56	6.8
10*	17.6	20.1	22.4	1230	1.83	6.8	78	3.7
16*	19.8	22.3	24.8	1580	1.15	4.3	99	2.6
25*	24.4	27.6	30.3	2385	0.727	3.7	131	1.6
35*	27	30.2	33.1	2930	0.524	3.1	162	1.2
50	27.5	30.6	33.6	3230	0.387	2.3	197	0.87
70	31.7	35.6	39	4520	0.268	2	251	0.61
95	35.4	39.3	42.9	5700	0.193	1.8	304	0.45
120	39	43.9	47.6	7260	0.153	1.2	353	0.36
150	43.7	48.6	52.5	8610	0.124	1.1	406	0.3
185	48.2	53.1	57.4	10370	0.0991	0.76	463	0.25
240	53.5	58.4	62.9	12960	0.0754	0.68	546	0.21
300	59.4	64.3	69.1	15690	0.0601	0.61	628	0.19
400	67.8	73.9	79.3	20300	0.047	0.54	728	0.17

* Circular conductors, all others are sector shaped
- installation condition for above rating:
- Ambient Air Temperature 30°C
- Conductor operating temperature 90°C

INSTALLATION GUIDELINE

FOR FLAMBICC 4 AND FLAMBICC 6 CABLES

Cables Installed in Air

It is anticipated that many of the “in air” installations will be in buildings, and the ratings are therefore given in accordance with IEE Wiring Regulations for Electrical Installations, BS 7671.

It should be noted that all ratings for cables run in free air have been based on the assumption that they are shielded from the direct rays of the sun without restriction of ventilation. The rating for cables subjected to direct sunlight should be reduced to take account of this factor and further guidance on this subject is available on request.

In order to maintain circuit integrity under fire conditions, it should be ensured that accessories used with FlamBICC cables are also fire rated.

Rating factor for ambient air temperatures

Air Temperature	25°C	30°C	35°C	40°C	45°C	50°C	55°C
Rating Factors	1.02	1.0	0.96	0.91	0.87	0.82	0.76

Areas of application for Fire Resistant Cables:

Hospitals

Hotels

High Rise Buildings

Malls

Metros & Underground Tunnels

Airports

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RoSPA 2007 ORDER OF DISTINCTION
BASEC ISO 9001 UKAS MANAGEMENT SYSTEMS 004 CERTIFICATE NO: CS1-144
BASEC ISO 14001 UKAS MANAGEMENT SYSTEMS 004 CERTIFICATE NO: EC5-043
Lloyd's Register TYPE APPROVED
علامة الجودة الإماراتية UAE Quality Mark

دوكاب – ص.ب: ١١٥٢٩ دبي الإمارات العربية المتحدة، هاتف: ٨١١١ ٨١٥ (٤-٩٧١)، فاكس: ٨٨٨٨ ٨١٥ (٤-٩٧١)
Ducab, P.O.Box 11529, Dubai, United Arab Emirates, Tel: (971-4) 8158888, Fax: (971-4) 8158111
e-mail: ducab@ducab.com, website: www.ducab.com, Toll Free: 800-Ducab (800-38222)

Ref No: Ducab FlamBICC 02/14 2000cps

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أسلاك التمديدات الكهربائية المعزولة بمادة عديد كلوريد الفينيل

PVC Insulated Wiring Cables

حلول متقدمة للكابلات من خلال التقنية والابداع

Advanced Cable Solutions Through Technology and Innovation

BICC

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CONTENTS

Ducab is listed in the following publication issued by the Department of Trade and Industry of the United Kingdom.

"THE DTI QA REGISTER - PRODUCTS AND SERVICES LIST"

Only those companies whose quality system is assessed and certified by U.K. accredited certification bodies appear in the above publication.

Ducab دوكاب

INTRODUCTION

Established in 1979, Ducab is the leading cable manufacturing company in the region and is equally owned by the Governments of Dubai and Abu Dhabi. Ducab has three major manufacturing facilities that support it's continuous growth, one in Jebel Ali and two in Abu Dhabi Industrial City. Ducab-HV, inaugurated in November 2011, is a joint venture between Ducab, ADWEA and DEWA offering High Voltage cable systems up to 400 kV. Ducab-HV will sell cable systems in the voltage range 66kV (66,000 Volts) to 400kV (400,000 Volts) covering the highest voltage currently used in the GCC.

To meet the growing demand of customers around the region and the world, Ducab continues to expand its world-class facilities across the Middle East, North Africa, Europe and India. Ducab prides itself on setting and maintaining the highest quality standards of power cables. Experienced and highly skilled employees operate state-of-the-art equipment, and conduct extensive testing at every phase of production.

When it comes to advanced cable solutions, Ducab continues its status as the superbrand across the world in 40 countries. Ducab product range covers High Voltage cables up to 400kV, Ducab Powerplus Medium Voltage cables up to 33kV, Low Voltage power cables, Control & Auxiliary, Lead-Sheathed cables, Ducab Smokemaster - Low Smoke Zero Halogen Cables, and Ducab Flam BICC (Fire Resistance cables), DuFlex Cables, Instrumentation and Pilot cables, Cable components and cable accessories, Installation of cables, as well as Copper rod manufactured in Ducab's own Copper rod plant.

This catalogue provides working information on PVC Insulated Wiring cables. Separate catalogues are available for the remaining range of Ducab Cables.

ORDERING ADVICE

Due to the wide range of cables in the catalogue, it is advisable, when ordering, to provide as much information as possible. Please use the following table as a guide:

1. Cable standard / specification number.
2. Voltage designation.
3. Number of cores.
4. Conductor size.
5. Colour of outer sheath.
6. Length of cables required and individual drum lengths.*
7. Any other special requirement, e.g. special PVC sheath material, drum weight limitation, etc.

* Cables are normally supplied in lengths of 100 metres, 500 metres and 1000 metres depending on conductor size. Other lengths can be supplied if required.

TECHNICAL ADVISORY SERVICE

For any specialist advice and assistance on the entire Ducab product range contact the Technical Department, Dubai Cable Company (Private) Limited, P. O. Box 11529, Dubai, U. A. E., Tel: 971 4 815 8888, Fax: 971 4 815 8111.

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CUSTOMER SERVICE

Ducab is the premier cable manufacturer in the United Arab Emirates and, since 1979, has been meeting the requirements of customers throughout the GCC, Middle East and Asian markets. Ducab cables are preferred for the following reasons:

PRODUCT QUALITY

Ducab is committed to supplying its customers with the highest quality of product and of service. Ducab's cables have been type approved by recognized certifying bodies such as BASEC UK (British Approval Service for Cables), Lloyd's Register of the UK, KEMA Netherland, LPCB UK (Loss Prevention Certification Board), ESMA (Emirates Authority for standardization and Metrology). They fully conform to BS, IEC other international and national specifications.

In addition, Ducab was presented with the Dubai Quality Award 1994, for the best local industrial company of the year. Ducab won Dubai Quality Gold Category award twice, in 1998 and in 2004. The Gold Award rewards the most distinguished companies which are judged to be world class and Ducab is the only manufacturing company in the region to win such acclaim.

Ducab has won the Sheikh Mohammed Bin Rashid Al Maktoum (MRM) Business Excellence Award in manufacturing category in 2009. Recognizing quality products and services, Ducab has also won the Superbrand award for 4 years consecutively from 2009.

RELIABILITY

Specifying the right cable for a particular application is the first step. The key to reliability however, is in the manufacturing process. The cable must be free from material and manufacturing defects, and weaknesses that will be revealed in service.

Ducab constantly monitors its manufacturing processes and operates stringent quality assurance procedures to give long term reliability. This is of vital significance where cables are to be installed in locations where future access would be difficult and this is where Ducab's reputation and resources give peace of mind.

PERFORMANCE

Optimum cable performance can be provided only by a company such as Ducab, with access to the latest developments in materials technology. In addition, Ducab's knowledge of application requirements throughout the Middle and Far East is an assurance of high performance.

Our experienced Technical Staff can provide guidance on cable selection and installation and can ensure that you get the right cable for the job.

HEALTH & SAFETY MANAGEMENT SYSTEM CERTIFIED TO OHSAS 18001

Ducab is able to maintain a close watch on world developments in cable technology and regulations and therefore ensure that its products are designed and constructed to be hazard-free under the prescribed conditions of use.

Ducab uses only tried and tested materials and processes in full compliance with all relevant British and International Standards. Our cables are therefore manufactured for safe use without risk to health on the understanding that users will exercise the same degree of care in their selection and application.

Joint Winner
MANUFACTURING
INDUSTRY
Sector Award

Safety is an important issue for Ducab, and the strictest standards are adhered to throughout the company. Ducab is proud of its safety record and has been awarded RoSPA (Royal Society for the Prevention of Accidents) Gold Awards for safety from 1991 to 1999. From 2000 onward, Ducab was awarded the prestigious President's Award for Health and

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Safety which is a recognition of Ducab winning 10 consecutive annual Gold awards and acknowledges Ducab's total commitment to health and safety. In 2002, Ducab was declared the joint winner of the Manufacturing Industry Sector Award from RoSPA.

Ducab is the first organisation in the Middle East to receive accreditation to OHSAS 18001 by BASEC (British Approvals Service for Cables). Certification to OHSAS 18001 provides a recognisable Occupational Health and Safety Management standard against which an organisation's management systems can be assessed and certified. Based on the structure of OHSAS 18001, the standard requires continual improvement in health and safety related activities.

QUALITY MANAGEMENT SYSTEM CERTIFIED TO ISO 9001

Ducab's Quality Management System conforms to the ISO 9001 International Quality System Standard and is certified by BASEC (British Approvals Service for Cables), a specialist certifying body for cables who are an internationally recognised quality authority accredited in the UK and throughout the world.

Certification to the ISO 9001 International standard demonstrates that Ducab has drawn up written procedures to ensure full compliance with all requirements of the standard and that these procedures are followed by every department in the company, thus ensuring that goods leaving Ducab's factory are of the highest quality and meet each customer's requirements in every respect.

Ducab is particularly proud to have achieved certification to the stringent ISO 9001 standard as it is an independent conformation that the company designs, manufactures and tests cables consistently to accepted standards. ISO 9001 is widely used throughout Europe, and is therefore a reassurance to Ducab's customers that the products and service supplied by the company are equal to the best in the world.

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFIED TO ISO 14001

Ducab's Environmental Management System conforms to the ISO 14001 International Environmental Management Standard and is certified by BASEC who are an internationally recognised certifying authority accredited in the UK and throughout Europe.

Certification to the ISO 14001 International standard shows that Ducab has a well defined structure and established working practices aimed at limiting its impact on the environment. Measurement and monitoring of effects, issuing work instructions, training of personnel and taking corrective actions are all essential elements to limiting the impact on the environment. Ducab has set improvement targets to reduce the significant environmental impacts associated with its activities.

Ducab is proud to be the first cable manufacturer in the region to achieve certification to ISO 14001 and this certification along with its quality, business success and safety record demonstrates that Ducab is a world class organisation and can hold its head up to any business community throughout the world.

BASEC CERTIFICATION

Ducab is also proud to hold a Process capability certification issued by BASEC (British Approvals Service for Cables) for several cables in its product range.

DUCAB SHAREEK

Ducab's customer satisfaction programme is designed to ensure that customers receive a consistently high level of service from Ducab's dedicated staff.

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PRODUCT RANGE

This publication provides details of the following types of wiring cables:

6491X - Single core, PVC insulated non-sheathed cables, available in size range 1.5mm^2 to 630mm^2 and rated 450/750V. These cables can be considered to have a voltage rating up to 1000V a.c. when installed in fixed protected installations eg. lighting fittings and inside appliances, switchgear and control gear.

The above wiring cables conform to BS 6004 specification for “PVC insulated cables (non-armoured) for electric power and lighting”. The cables also generally satisfy the International Specification IEC 60227 (6491 X only) and German standard VDE 0281 for “PVC insulated cables and cords with rated voltage not exceeding 750V”

CONSTRUCTION

CONDUCTORS

Wiring cable conductors are stranded, high conductivity plain annealed copper wires meeting the requirements of class 2 in BS 60228 and IEC 60228 specifications for “Conductors in insulated cables and cords”. Wiring cables with solid copper conductors are offered up to 2.5mm^2.

INSULATION

The insulation of standard wiring cables is PVC grade Type TI 1 of BS 7655 (formerly BS 6746) suitable for a maximum continuous conductor operating temperature of 70˚C.

Where specifically required, wiring cables can be offered with heat resistant PVC insulation, Type TI 3 (90˚C).

CORE IDENTIFICATION

Unless specifically agreed otherwise, insulation colours are in accordance with BS 6004 specifications as follows:
Single Core: Red, Black, Blue, Green/Yellow, Brown, Grey.

Note: Insulation colors other than the above may be manufactured on customer request.

FINISH

Wiring cables have a smooth finish and are continuously marked with DUCAB by printing or embossing on the external surface.

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RANGE, DIMENSIONS AND WEIGHTS

SINGLE CORE PVC INSULATED CABLES

Table 1

Nominal Conductor area mm²	PVC insulated, non-sheathed 6491X, 450/750V	
	** Maximum diameter mm	Approximate Weight kg/km
1.5*	3.2	21
1.5	3.3	23
2.5*	3.9	33
2.5	4.0	35
4	4.6	50
6	5.2	70
10	6.7	120
16	7.8	180
25	9.7	280
35	10.9	370
50	12.8	500
70	14.6	700
95	17.1	970
120	18.8	1190
150	20.9	1470
185	23.3	1840
240	26.6	2400
300	29.6	3010
400	33.2	3820
500	36.9	4900
630	41.1	6100

*Note: Conductors are solid, all others are stranded. Refer to Table 5 for details.

** These dimensions are Ducab's maximum and also apply to wiring insulated with Heat Resistant PVC, Type TI 3 (erstwhile Type 5). The weight (kg/km) of Heat Resistant PVC wiring cables will be slightly less than the standard 6491X cables shown above.

PERFORMANCE CHARACTERISTICS

VOLTAGE RATINGS

The non-sheathed general purpose type 6491X cables are rated 450/750V (450V to earth, 750V between conductors). These cables are considered suitable for fixed protected installations in lighting fittings and inside appliances, switchgear and control gear for voltages up to 1000V a.c. or up to 750V to earth d.c..

CURRENT CARRYING CAPACITIES AT AMBIENT TEMPERATURE 30˚C

The tabulated current carrying capacities relate to continuous loading and are also known as the "full thermal ratings" implying that the cables will operate at their maximum conductor continuous temperature of 70˚C. The data is extracted from IEE Wiring Regulations (BS 7671).

The tabulated current rating capacities also relate to installations where the overload protection is afforded by a fuse to BS 88 or BS 1361 or a miniature circuit breaker. Where the conductor is protected by a semi-enclosed fuse to BS 3036, the size of the conductor is to be such that its tabulated current carrying capacity is not less than the value of the fuse rating adjusted by multiplier 1.38 in addition to the correction factors for ambient temperature, thermal insulation and grouping. For details refer to IEE Wiring Regulations.

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VOLTAGE DROP DATA

For a given cable run, to calculate the voltage drop (in mV), the tabulated value (mV/A/m) has to be multiplied by the cable route length in metres and the design current. For three-phase circuits the tabulated mV/A/m values relate to the line voltage.

For cables of 16mm^2 or less cross sectional area, the inductance can be ignored and mV/A/m values are based on resistance (r) only. For cables of cross sectional area greater than 16mm^2, mV/A/m values based on resistance (r) and inductance (x) are significant. However for brevity, Table 2, for single core cables of sizes 25mm^2 & 35mm^2, list (mV/A/m) z values based on total impedance (z) only.

Where the power factor of the A.C. load is widely different from the cable power factor, use of (mV/A/m) z values for calculating the volt drop may give a pessimistically high value. For detailed information, reference should be made to Appendix 4 of the IEE Wiring Regulations.

SINGLE CORE PVC INSULATED NON-SHEATHED CABLES - CABLES IN CONDUIT ON A WALL OR CEILING OR IN TRUNKING (REFERENCE METHOD 3)

Table 2

Conductor Cross Sectional Area mm^2	Current carrying capacities (amperes)		Voltage Drop (mV/A/m)		Conductor Cross Sectional Area mm^2	Current carrying capacities (amperes)		Voltage Drop (mV/A/m)					
	2 cables single phase ac or dc	3 or 4 cables three phase ac	2 cables single phase ac	3 or 4 cables three phase ac		2 cables single phase ac or dc	3 or 4 cables three phase ac	2 cables single phase ac			3 or 4 cables three phase ac		
								r	x	z	r	x	z
1	13.5	12	44	38	50	151	134	0.95	0.30	1.00	0.81	0.26	0.85
1.5	17.5	15.5	29	25	70	192	171	0.65	0.29	0.72	0.56	0.25	0.61
2.5	24	21	18	15	95	232	207	0.49	0.28	0.56	0.42	0.24	0.48
4	32	28	11	9.5	120	269	239	0.39	0.27	0.47	0.33	0.23	0.41
6	41	36	7.3	6.4	150	300	262	0.31	0.27	0.41	0.27	0.23	0.36
-	-	-	-	-	185	341	296	0.25	0.27	0.37	0.22	0.23	0.32
10	57	50	4.4	3.8	240	400	346	0.195	0.26	0.33	0.17	0.23	0.29
16	76	68	2.8	2.4	300	458	394	0.160	0.26	0.31	0.14	0.23	0.27
*25	101	89	1.8	1.55	400	546	467	0.130	0.26	0.29	0.12	0.22	0.25
*35	125	110	1.3	1.10	500	626	533	0.110	0.26	0.28	0.10	0.22	0.25
					630	720	611	0.094	0.25	0.27	0.08	0.22	0.24

* Voltage drop for sizes 25mm^2 and 35mm^2 are based on total impedance 'z' only.
For 'r' and 'x' data, IEE Wiring Regulations should be referred to.

Note: Data in the above table is based on IEE Wiring Regulations. The current carrying capacities of Heat Resistant PVC insulated cables are higher, please refer to Technical Department if data is required.

THERMAL INSULATION

Current ratings pertaining to cables or cable conduits totally surrounded by thermally insulating material are not included in the above tables. For such situations, in the absence of precise information, a rating factor of 0.5 may be applied to the appropriate current ratings.

For multicore cables, current ratings of cables installed in thermally insulated ceilings but in contact with a thermally conductive surface on one side are stated. For similar information applicable to single core cables, reference should be made to the IEE Wiring Regulations.

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RATING FACTORS
FOR AMBIENT TEMPERATURE OTHER THAN 30˚C, THE TABULATED CURRENT RATINGS SHOULD BE ADJUSTED BY FACTORS AS FOLLOWS:

Table 3

Ambient temperature ˚C		25	30	35	40	45	50	55	60	65	70	75	80	85
Overload protection afforded by device other than semi-enclosed fuse to BS 3036	Heat resisting PVC (90˚C)*	1.03	1.0	0.97	0.94	0.91	0.87	0.84	0.80	0.76	0.71	0.61	0.5	0.35
	Ordinary PVC (70˚C)	1.03	1.0	0.94	0.87	0.79	0.71	0.61	0.50	0.35	-	-	-	-
Semi-enclosed fuse to BS 3036 (formerly coarse excess current protection)	Heat resisting PVC (90˚C)*	1.03	1.0	0.97	0.94	0.91	0.87	0.84	0.80	0.76	0.72	0.68	0.63	0.49
	Ordinary PVC (70˚C)	1.03	1.0	0.97	0.94	0.91	0.87	0.84	0.69	0.48	-	-	-	-

* These factors are applicable only to ratings in Table 2.

CORRECTION FACTORS FOR GROUPS OF CABLES (REF. IEE WIRING REGULATION)

Table 4

Method of Installation		Correction factor													
		Number of circuits or multicore cables													
		2	3	4	5	6	7	8	9	10	12	14	16	18	20
Enclosed in conductor trunking (Method 3 or 4) or bunched and clipped directly to non-metallic surface (Method 1)		0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48	0.45	0.43	0.41	0.39	0.38
Single layer clipped to a non-metallic surface (Method 1)	Touching	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70	-	-	-	-	-	-
	Spaced*	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Single layer multicore on a perforated metal cable tray, vertical or horizontal (Method 11)	Touching	0.86	0.81	0.77	0.75	0.74	0.73	0.73	0.72	0.71	0.70	-	-	-	-
	Spaced*	0.91	0.89	0.88	0.87	0.87	-	-	-	-	-	-	-	-	-
Single layer single core on a perforated metal cable tray, touching (Method 11)	Horizontal	0.90	0.85	-	-	-	-	-	-	-	-	-	-	-	-
	Vertical	0.85	-	-	-	-	-	-	-	-	-	-	-	-	-
Single layer multicore touching on ladder supports (Method 13)		0. 86	0.82	0.80	0.79	0.78	0.78	0.78	0.77	-	-	-	-	-	-

* 'Spaced' means a clearance between adjacent surfaces of at least one cable diameter (D). Where the horizontal clearances between adjacent cables exceeds 2D no correction factor need be applied.

Notes to Table 4:

1. The factors in the table are applicable to groups of cables all of one size. The value of current derived from application of the appropriate factors is the maximum continuous current to be carried by any of the cables in the group.

2. If, due to known operating conditions, a cable is expected to carry not more than 30% of its grouped rating, it may be ignored for the purpose of obtaining the rating factor for the rest of the group.

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CONDUCTOR RESISTANCE

Table 5

Nominal conductor area mm²	Maximum diameter of conductor mm	Maximum conductor resistance per km at 20°C ohm	Nominal conductor area mm²	Maximum diameter of conductor mm	Maximum conductor resistance per km at 20°C ohm
1.5*	1.38	12.1	50	8.30	0.387
1.5	1.59	12.1	70	10.00	0.268
2.5*	1.78	7.41	95	11.70	0.193
2.5	2.01	7.41	120	13.15	0.153
-	-	-	150	14.55	0.124
4	2.55	4.61	185	16.30	0.0991
6	3.12	3.08	240	18.75	0.0754
10	4.05	1.83	300	21.00	0.0601
16	4.85	1.15	400	23.90	0.0470
25	6.15	0.727	500	28.40	0.0366
35	7.25	0.524	630	31.70	0.0283

CONDUCTOR SHORT CIRCUIT RATINGS

Short circuit rating of copper conductor shall be calculated using following formula:
Short circuit current I = kA/$\sqrt{t}$
Where,

k = 0.115
A = Cross sectional Area of conductor
t = Duration in seconds

e.g. Short circuit rating of 300mm² Cu conductor for 1 second. I = 0.115 x 300/$\sqrt{1}$
= 34.5kA/sec.

The values of short circuit ratings derived from above formula based on the PVC insulated cable being fully loaded at the start of the short circuit conductor temperature of 70°C and final conductor temperature of 160°C.

WIRING CABLE INSTALLATION

Wiring cables should be installed in accordance with IEE Wiring Regulations, or local installation regulations.

Minimum internal radius at bends:

CABLE DIAMETER	Minimum internal radius
Up to 10mm	3 x cable diameter
Exceeding 10mm but less than 25mm	4 x cable diameter
Exceeding 25mm	6 x cable diameter

Ducab دوكاب

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RoSPA 2007 ORDER OF DISTINCTION
BASEC UKAS QUALITY MANAGEMENT
BASEC UKAS ENVIRONMENTAL MANAGEMENT
Lloyd's Register TYPE APPROVED
علامة الجودة الإماراتية UAE Quality Mark

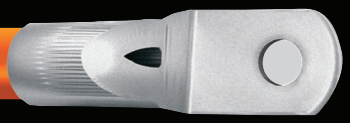
دوكاب – ص.ب: ١١٥٢٩ دبي الإمارات العربية المتحدة، هاتف: ٨١١١ ٨١٥ (٤-٩٧١)، فاكس: ٨٨٨٨ ٨١٥ (٤-٩٧١)
Ducab, P.O.Box 11529, Dubai, United Arab Emirates, Tel: (971-4) 8158888, Fax: (971-4) 8158111
e-mail: ducab@ducab.com, website: www.ducab.com, Toll Free: 800-Ducab (800-38222)

دوکاب کونکت

Ducab Connect

MAKING CONNECTIONS

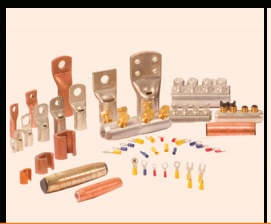
CONNECTING YOUR CABLES TO OUR WORLD



COMPRESSION TERMINALS

INDUSTRIAL CABLE GLANDS

CABLE CLEATING & FIXING SYSTEMS



The world's leading supplier of cable connecting solutions

Ducab connect offers a comprehensive range of cable connecting solutions for the Industrial, Utilities and OGP (onshore and offshore) market sectors, including control, instrumentation and LV & MV power cable applications.

The full technical support and a design service for complete cable systems remove the risk of independently purchasing cables and accessories from different manufacturers and the associated problems of non-compatibility with cable size and design.

All of these products can be dispatched in a speedy response time from our "Center of Logistics Excellence".

Ducab Connect

CONTENTS

The World's Leading Supplier of Cable Connecting Solutions

Ducab Connect offers a comprehensive range of cable connecting solutions for the Industrial, Utilities and OGP (onshore and offshore) market sectors, including control, instrumentation and LV & MV power cable applications. Ducab Connect range of Joints and Terminations are also available for the same applications upon request.

The full technical support and design service for complete cable systems removes the risk of independently purchasing cables and accessories from different manufacturers and the associated problems of non-compatibility with cable size and design.

INDUSTRIAL CABLE GLANDS

Ducab Connect offers cable glands for a wide range of requirements from simple industrial applications to hazardous areas, for both on and offshore application. These glands are designed to meet BS 6121, EN 50262 and IEC 60079. Ex. Hazardous area products are also available upon request.

COMPRESSION TERMINALS

Ducab Connect offers a comprehensive range of connectors for all types of industrial applications, both for LV & MV cables. The range includes non-insulated terminals, preinsulated terminals, low and medium voltage connectors and bi-metallic terminals. The Non-Insulated terminals, splices and undrilled palms have been tested to the latest stringent requirements of IEC 61238-1:2003 ensuring you receive the best product for your application at all times.

CABLE CLEATING & FIXING SYSTEMS

Ducab Connect offers a complete range of cleats and cable fixings to suit the majority of LV, MV and HV cables, enabling the user to match individual site requirements with the most appropriate product. The cleats have been tested to BS EN 50368:2003 & IEC 61914:2009 guaranteeing that our cleats with contain the short circuit forces - protecting people, power and plant without fail.

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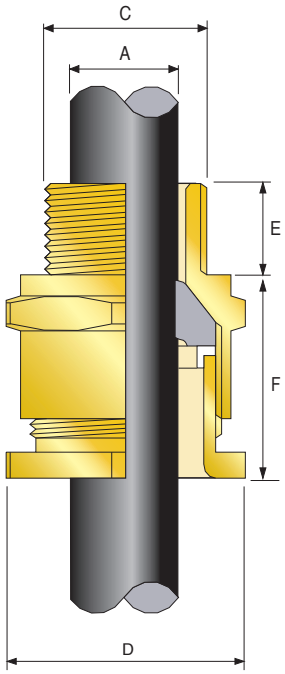
INDUSTRIAL CABLE GLANDS

A2 Industrial Cable Gland

Ducab A2 type brass indoor and outdoor cable gland for use with all types of Unarmoured cable, providing mechanical cable retention and an environmental seal on the cable outer sheath. The Ducab A2 range of industrial cable glands is designed and tested to BS 6121:Part 1:1989, meets or surpasses the requirements of EN 50262:1999, and is produced from Brass grade CuZn39Pb3 (CW614N) to EN 12168.

Note: Also available in LSZH kit form

Technical Data	
Type	A2
Design Specification	BS 6121:Part 1:1989, EN 50262:1999
EN 50262 Mechanical Classifications	Retention = Class B, Impact=Level 8,
SIRA Certificate Number	SIRA 10Y9149U - BS 6121
SIRA Certificate Number	SIRA 10Y9150U - EN 50262
RoK Permit for Use Number	08-067693
Lloyds Approval Number	01/00171
ABS Approval Number	01-LD234401-PDA
Continuous Operating Temperature	-60°C to +150°C
Ingress Protection Rating	IP66, IP67, IP68
Ingress Protection Document	5046C549D
Deluge Protection Compliance	DTS01:91
Deluge Protection Document	5046C549-D
Standard Gland Material	Brass
Alternative Gland Material	Electroless Nickel Plated Brass, Stainless Steel, Aluminium
Seal Material	Thermoplastic Elastomer
Cable Type	Unarmoured
Sealing Technique	Displacement Seal
Sealing Area(s)	Cable Outer Sheath
Optional Accessories	Adaptor/Reducer, Earth Tag, Entry Thread Seal, Locknut, Serrated Washer, Shroud

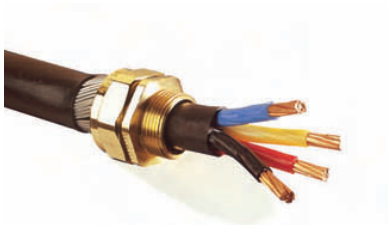


Cable Gland Selection Table

Cable Gland Size	Available Entry Threads 'C'			Minimum Thread Length 'E'	Cable Bedding Diameter 'A'		Across Flats 'D'	Across Corners 'D'	Nominal Protrusion Length 'F'	PVC Shroud Reference	Cable Gland Weight (Kgs)
	Standard		Option								
	Metric	NPT 1	NPT 2		Min	Max	Min	Max			
20S/16	M20	½"	¾"	10.0	3.1	8.7	24.0	26.6	21.0	PVC04	0.054
20S	M20	½"	¾"	10.0	6.1	11.7	24.0	26.6	21.0	PVC04	0.054
20	M20	½"	¾"	10.0	6.5	14.0	27.0	30.0	24.0	PVC05	0.059
25	M25	¾"	1"	10.0	11.1	20.0	36.0	39.9	26.0	PVC09	0.112
32	M32	1"	1¼"	10.0	17.0	26.3	41.0	45.5	27.0	PVC10	0.128
40	M40	1¼"	1½"	15.0	23.5	32.2	50.0	55.4	28.0	PVC13	0.168
50S	M50	1½"	2"	15.0	31.0	38.2	55.0	61.0	29.0	PVC14	0.224
50	M50	2"	2½"	15.0	35.6	44.1	60.0	66.5	30.0	PVC17	0.231
63S	M63	2"	2½"	15.0	41.5	50.0	70.0	77.6	30.0	PVC20	0.360
63	M63	2½"	3"	15.0	47.2	56.0	75.0	83.2	30.0	PVC22	0.344
75S	M75	2½"	3"	15.0	54.0	62.0	80.0	88.7	32.0	PVC24	0.466
75	M75	3"	3½"	15.0	61.1	68.0	85.0	94.2	32.0	PVC26	0.395
90	M90	3"	3½"	15.0	66.6	79.4	108.0	120.7	44.0	PVC31	1.346
100	M100	4"	-	15.0	76.0	91.0	123.0	137.8	48.0	150/50HST	1.575
115	M115	-	-	15.0	86.0	98.0	133.4	147.6	55.0	180/60HST	2.322
130	M130	-	-	15.0	97.0	115.0	152.4	164.9	62.0	180/60HST	3.400

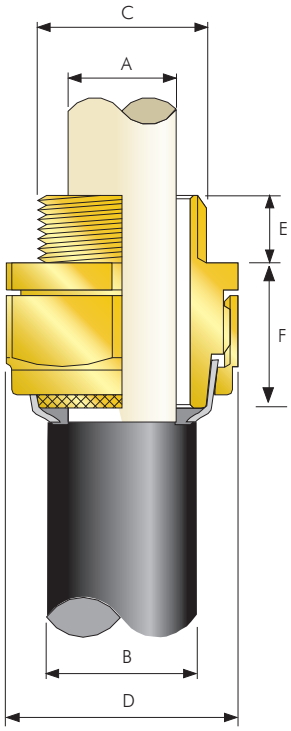
All dimensions in millimetres

BW Industrial Cable Gland



Ducab BW type brass indoor cable gland for use with all types of Single Wire Armour (SWA) cable providing mechanical cable retention and electrical continuity via armour wire termination. The Ducab BW range of industrial cable glands is designed and tested to BS 6121:2005, and is produced from Brass grade CuZn39Pb3 (CW614N) to EN 12168.

Note: Also available in LSp^ kit form



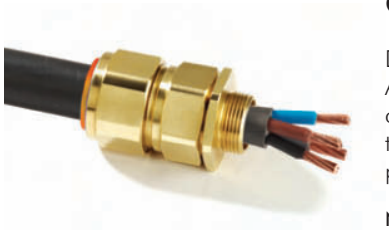
Technical Data	
Type	BW
Design Specification	BS 6121:Part1:2005
SIRA Certificate Number	10Y9149U - BS 6121
GOST K Certificate Number	KZ7500052.05.01.00063
RoK Permit for Use Number	08-067693
Lloyds Approval Number	01/00171
ABS Approval Number	01-LD234401-PDA
Standard Gland Material	Brass
Alternative Gland Material	Electroless Nickel Plated Brass, Stainless Steel
Cable Type	Single Wire Armour (SWA), Aluminium Wire Armour (AWA)
Armour Clamping	Two Part Armour Lock
Optional Accessories	Adaptor/Reducer, Earth Tag, Locknut, Serrated Washer, Shroud
Gland Kits Available	Cable Gland Kit for use with all types of SWA cable, including 2 Brass Glands, 2 Locknuts, 2 Brass Earth Tags and 2 PVC Shrouds for sizes up to and including 32mm. For sizes 40mm and above each kit includes 1 of each component.

Cable Gland Selection Table

Cable Gland Size	Entry Thread 'C'	Minimum Thread Length 'E'	Cable Bedding Diameter 'A'	Overall Cable Diameter 'B'	Armour Range		Across Flats 'D'	Across Corners 'D'	Nominal Protrusion Length 'F'	PVC Shroud Reference	Cable Gland Weight (Kgs)
			Max	Max	Min	Max	Max	Max			
20S	M20	10.0	11.7	16.1	0.9	1.25	22.0	24.0	18.0	PVC02	0.09
20	M20	10.0	14.0	21.1	0.9	1.25	28.0	30.0	22.0	PVC05	0.10
25	M25	10.0	20.0	27.4	1.25	1.60	33.6	36.0	26.0	PVC07	0.15
32	M32	10.0	26.3	34.4	1.6	2.00	41.0	44.5	28.0	PVC10	0.20
40	M40	10.0	32.2	42.4	1.6	2.00	50.0	56.3	30.0	PVC13	0.36
50S	M50	15.0	38.2	50.1	2.0	2.50	57.1	63.4	30.0	PVC16	0.48
50	M50	15.0	44.1	55.7	2.0	2.50	61.0	72.1	32.0	PVC19	0.42
63S	M63	15.0	50.0	62.4	2.5	2.50	75.0	83.0	38.0	PVC22	0.80
63	M63	15.0	56.0	68.2	2.5	2.50	80.0	88.7	38.0	PVC24	0.85
75S	M75	15.0	62.0	76.8	2.5	2.50	90.0	99.8	40.0	PVC27	1.30
75	M75	15.0	75.0	82.9	2.5	3.15	95.0	105.3	40.0	PVC29	1.60

All dimensions in millimetres

INDUSTRIAL CABLE GLANDS

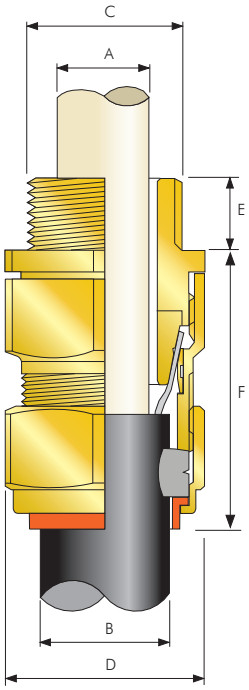


CW Industrial Cable Gland

Ducab CW type brass indoor and outdoor cable gland for use with all types of Single Wire Armour (SWA) cable providing mechanical cable retention and electrical continuity via armour wire termination. The Ducab CW range of industrial cable glands is designed and tested to BS 6121:1989, meets or surpasses the requirements of EN 50262:1999 and is produced from Brass grade CuZn39Pb3 (CW614N) to EN 12168.

Note: Also available in LSp^ kit form

Technical Data	
Type	CW
Design Specification	BS 6121:Part1:1989, EN 50262:1999
EN 50262 Mechanical Classifications	Retention = Class B, Impact = Level 8,
EN 50262 Electrical Classifications	Category A without use of an Earth Tag and Category B with an Earth Tag.
SIRA Certificate Number	10Y9149U - BS6121
SIRA Certificate Number	10Y9150U - EN 50262
RoK Permit for Use Number	08-067693
ABS Approval Number	01-LD 234401-PDA
Continuous Operating Temperature	-60°C to +150°C
Ingress Protection Rating	IP66
Standard Gland Material	Brass
Alternative Gland Material	Electroless Nickel Plated Brass, Stainless Steel, Aluminium
Seal Material	Thermoplastic Elastomer
Cable Type	Single Wire Armour (SWA), Aluminium Wire Armour (AWA)
Armour Clamping	Detachable Armour Cone & AnyWay Universal Clamping Ring
Sealing Technique	Unique "LRS"™ Outer Seal (Load Retention Seal)
Sealing Area(s)	Cable Outer Sheath
Optional Accessories	Locknut, Serrated Washer, Shroud, Adaptor/Reducer, Earth Tag, Entry Thread Seal
Cable Gland Kits Available	Cable Gland kit for use with all types of SWA cable including 2 brass glands, 2 locknuts, 2 brass earth tags and 2 PVC shrouds for sizes upto and including 32mm. For sizes 40 mm and above each kit includes 1 of each component.



Cable Gland Selection Table

Cable Gland Size	Entry Thread 'C'	Minimum Thread Length 'E'	Cable Bedding Diameter 'A'	Overall Cable Diameter 'B'		Armour Range		Across Flats 'D'	Across Corners 'D'	Nominal Protrusion Length 'F'	PVC Shroud Reference	Cable Gland Weight (Kgs)
						Stepped Cone						
			Max	Min	Max	Min	Max	Max	Max			
20S/16	M20	10.0	8.7	6.1	11.5	0.90	1.00	24.0	26.6	43.0	PVC04	0.118
20S	M20	10.0	11.7	9.5	15.9	0.90	1.25	24.0	26.0	43.0	PVC04	0.118
20	M20	10.0	14.0	12.5	20.9	0.90	1.25	30.5	33.3	50.0	PVC06	0.159
25S	M25	10.0	19.9	14.0	22.0	1.25	1.60	36.0	40.0	55.0	PVC09	0.228
25	M25	10.0	20.0	18.2	26.2	1.25	1.60	36.0	40.0	55.0	PVC09	0.228
32	M32	10.0	26.3	23.7	33.9	1.60	2.00	46.0	51.0	55.0	PVC11	0.362
40	M40	15.0	32.2	27.9	40.4	1.60	2.00	55.0	61.0	55.0	PVC15	0.520
50S	M50	15.0	38.2	35.2	46.7	2.00	2.50	60.0	66.5	56.0	PVC18	0.579
50	M50	15.0	44.1	40.4	53.1	2.00	2.50	70.1	78.6	70.0	PVC21	0.601
63S	M63	15.0	50.0	45.6	59.4	2.00	2.50	75.0	83.2	70.0	PVC23	1.054
63	M63	15.0	56.0	54.6	65.9	2.00	2.50	80.0	89.0	80.0	PVC25	1.200
75S	M75	15.0	62.0	59.0	72.1	2.00	2.50	90.0	101.6	81.0	PVC28	1.779
75	M75	15.0	68.0	66.7	78.5	2.00	2.50	100.0	111.1	96.0	PVC30	2.370
90	M90	15.0	80.0	76.2	90.4	3.15	3.15	114.0	128.6	120.0	PVC32	3.515
100	M100	15.0	91.0	89.1	101.5	3.15	4.00	123.0	136.0	140.0	150/50HST	4.100
115	M115	15.0	98.0	101.3	110.3	3.15	4.00	133.4	147.8	160.0	180/60HST	4.600
130	M130	15.0	115.0	114.0	123.3	3.15	4.00	146.1	152.4	169.0	180/60HST	5.200

All dimensions in millimetres

Ducab Connect
MAKING CONNECTIONS

CMP

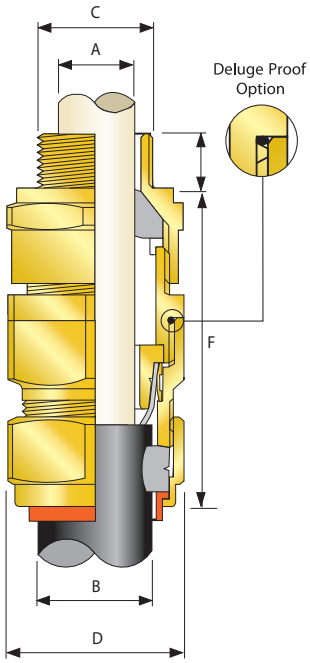
INDUSTRIAL CABLE GLANDS

E1W Industrial Cable Gland

Ducab E1W type brass indoor and outdoor cable gland for use with Single Wire Armour (SWA) cable providing an environmental seal on the inner and outer sheath of the cable. The cable gland provides mechanical cable retention and electrical continuity via armour wire termination. A detachable armour cone and AnyWay universal clamping ring arrangement allows the cable to be easily disconnected from the equipment, for maintenance and change out etc. This feature also facilitates remote make off procedures when the termination is to be conducted in confined spaces or in areas of restricted access. Separate tightening actions for the inner displacement seal and the armour termination affords maximum control over the pressure applied to the cable inner bedding.
The Ducab E1W range of industrial cable glands is designed and tested to BS 6121:Part 1:1989, meets or surpasses the requirements of EN 50262 :1999, and is produced from Brass grade CuZn39Pb3 (CW614N) to EN 12168.

Note: Also available in LSp^ kit form

Technical Data	
Type	E1W
Design Specification	BS 6121:Part1:1989, EN 50262:1999
EN50262 Mechanical Classifications	Retention=Class B, Impact = Level 8,
EN50262 Electrical Classifications	Category A without use of an Earth Tag and Category B with an Earth Tag.
SIRA Certificate Number	10Y9149U - BS 6121
SIRA Certificate Number	10Y9150U - EN 50262
RoK Permit for Use Number	08-067693
Lloyds Approval Number	01/00171
ABS Approval Number	01-LD234401-PDA
Continuous Operating Temperature	-60°C to +150°C
Ingress Protection Rating	IP66 (IP67/IP68 also available)
Standard Gland Material	Brass
Alternative Gland Material	Electroless Nickel Plated Brass, Stainless Steel, Aluminium
Seal Material	Thermoplastic Elastomer
Cable Type	Single Wire Armour (SWA), Aluminium Wire Armour (AWA)
Armour Clamping	Detachable Armour Cone & AnyWay Universal Clamping Ring
Sealing Technique	Inner Displacement Seal & Unique Ducab "LRS"™ Outer Seal (Load Retention Seal)
Sealing Area(s)	Cable Inner Bedding & Cable Outer Sheath
Optional Accessories	Adaptor/Reducer, Earth Tag, Entry Thread Seal, Locknut, Serrated Washer, Shroud



Note: Deluge proof version available

Cable Gland Selection Table

Cable Gland Size	Available Entry Threads 'C'			Minimum Thread Length 'E'	Cable Bedding Diameter 'A'		Overall Cable Diameter 'B'		Armour Range		Across Flats 'D'	Across Corners 'D'	Nominal Protrusion Length 'F'	PVC Shroud Reference	Cable Gland Weight (Kgs)
	Standard		Option												
	Metric	NPT 1	NPT 2		Min	Max	Min	Max	Min	Max	Min	Max			
20S/16	M20	½"	¾"	10.0	3.1	8.7	6.1	11.5	0.90	1.0	24.0	26.6	63.0	PVC04	0.163
20S	M20	½"	¾"	10.0	6.1	11.7	9.5	15.9	0.90	1.25	24.0	26.6	63.0	PVC04	0.163
20	M20	½"	¾"	10.0	6.5	14.0	12.5	20.9	0.90	1.25	30.5	33.3	67.0	PVC06	0.217
25S	M25	¾"	1"	10.0	11.1	20.0	14.0	22.0	1.25	1.6	37.5	40.5	78.0	PVC09	0.345
25	M25	¾"	1"	10.0	11.1	20.0	18.2	26.2	1.25	1.6	37.5	40.5	78.0	PVC09	0.345
32	M32	1"	1½"	15.0	17.0	26.3	23.7	33.9	1.60	2.0	46.0	51.0	78.0	PVC11	0.484
40	M40	1¼"	1½"	15.0	22.0	32.2	27.9	40.4	1.60	2.0	55.0	61.0	83.0	PVC15	0.700
50S	M50	1½"	2"	15.0	29.5	38.2	35.2	46.7	2.00	2.5	60.0	66.5	78.0	PVC18	0.800
50	M50	2"	2½"	15.0	35.6	44.1	40.4	53.1	2.00	2.5	70.0	78.6	81.0	PVC21	0.830
63S	M63	2"	2½"	15.0	40.1	50.0	45.6	59.4	2.00	2.5	75.0	83.2	93.0	PVC23	1.415
63	M63	2½"	3"	15.0	47.2	56.0	54.6	65.9	2.00	2.5	80.0	89.0	95.0	PVC25	1.514
75S	M75	2½"	3"	15.0	52.8	62.0	59.0	72.1	2.00	2.5	89.0	101.6	103.0	PVC28	2.199
75	M75	3"	3½"	15.0	59.1	68.0	66.7	78.5	2.00	2.5	99.0	111.1	110.0	PVC30	2.770
90	M90	3"	3½"	15.0	66.6	79.4	76.2	90.4	3.15	3.15	114.0	128.6	136.0	PVC32	4.478
100	M100	4"	-	15.0	76.0	91.0	89.1	101.5	3.15	4.0	123.0	138.0	145.0	150/50HST	4.700
115	M115	-	-	15.0	86.0	98.0	101.3	110.3	3.15	4.0	133.4	147.6	160.0	180/60HST	5.300
130	M130	-	-	15.0	97.0	115.0	114.0	123.3	3.15	4.0	146.1	161.9	185.0	180/60HST	5.900

All dimensions in millimetres

INDUSTRIAL CABLE GLANDS

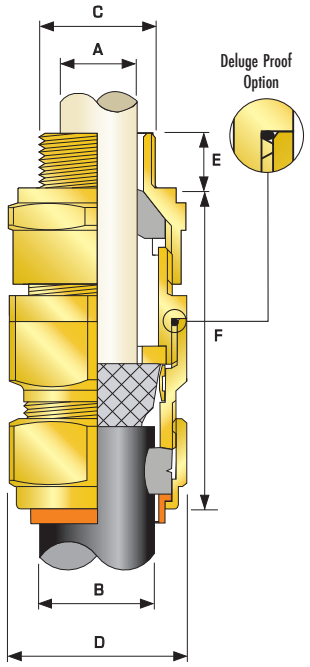
E1X Industrial Cable Gland

Ducab E1X type brass indoor and outdoor cable gland for use with all types of Wire Braid Armour, Strip Armour, Pliable Wire Armour & Steel Tape Armour (STA) cable providing an environmental seal on the inner and outer sheath of the cable. The cable gland provides mechanical cable retention and electrical continuity via armour termination. A detachable armour cone and AnyWay universal clamping ring arrangement allows the cable to be easily disconnected from the equipment, for maintenance and change out etc. This feature also facilitates remote make off procedures when the termination is to be conducted in confined spaces or in areas of restricted access. Separate tightening actions for the inner displacement seal and the armour termination affords maximum control over the pressure applied to the cable inner bedding.

The Ducab E1X range of industrial cable glands is designed and tested to BS 6121:Part 1:1989, meets or surpasses the requirements of EN 50262:1999, and is produced from Brass grade CuZn39Pb3 (CW614N) to EN12168.

Note: Also available in LSp^ kit form

Technical Data	
Type	E1X
Design Specification	BS 6121:Part1:1989, EN 50262:1999
EN50262 Mechanical Classifications	Retention=Class B, Impact = Level 8,
EN50262 Electrical Classifications	Category A without use of an Earth Tag and Category B with an Earth Tag.
SIRA Certificate Number	10Y9149U - BS 6121
SIRA Certificate Number	10Y9150U - EN 50262
RoK Permit for Use Number	08-067693
Continuous Operating Temperature	-60°C to +150°C
Ingress Protection Rating	IP66 (IP67/IP68 also available)
Standard Gland Material	Brass
Alternative Gland Material	Electroless Nickel Plated Brass, Stainless Steel, Aluminium
Seal Material	Thermoplastic Elastomer
Cable Type	Wire Braid Armour, Screened Flexible Wire Braid (e.g. CY / SY), Pliable Wire, Armour (PWA), Steel Tape Armour (STA)
Armour Clamping	Detachable Armour Cone & AnyWay Universal Clamping Ring
Sealing Technique	Inner Displacement Seal & Unique Ducab "LRS"™ Outer Seal (Load Retention Seal)
Sealing Area(s)	Cable Inner Bedding & Cable Outer Sheath
Optional Accessories	Adaptor/Reducer, Earth Tag, Entry Thread Seal, Locknut, Serrated Washer, Shroud



Note: Deluge proof version available

Cable Gland Selection Table

Cable Gland Size	Available Entry Threads 'C'			Minimum Thread Length 'E'	Cable Bedding Diameter 'A'		Overall Cable Diameter 'B'		Armour Range		Across Flats 'D'	Across Corners 'D'	Nominal Protrusion Length 'F'	PVC Shroud Reference	Cable Gland Weight (Kgs)
	Standard		Option												
	Metric	NPT 1	NPT 2		Min	Max	Min	Max	Min	Max	Min	Max			
20S/16	M20	½"	¾"	10.0	3.1	8.7	6.1	11.5	0.0	1.0	24.0	26.6	63.0	PVC04	0.163
20S	M20	½"	¾"	10.0	6.1	11.7	9.5	15.9	0.0	1.25	24.0	26.6	63.0	PVC04	0.163
20	M20	½"	¾"	10.0	6.5	14.0	12.5	20.9	0.0	1.25	30.5	33.3	67.0	PVC06	0.217
25S	M25	¾"	1"	10.0	11.1	20.0	14.0	22.0	0.0	1.6	37.5	40.5	78.0	PVC09	0.345
25	M25	¾"	1"	10.0	11.1	20.0	18.2	26.2	0.0	1.6	37.5	40.5	78.0	PVC09	0.345
32	M32	1"	1¼"	15.0	17.0	26.3	23.7	33.9	0.0	2.0	46.0	51.0	78.0	PVC11	0.484
40	M40	1¼"	1½"	15.0	22.0	32.2	27.9	40.4	0.0	2.0	55.0	61.0	83.0	PVC15	0.700
50S	M50	1½"	2"	15.0	29.5	38.2	35.2	46.7	0.0	2.5	60.0	66.5	78.0	PVC18	0.800
50	M50	2"	2½"	15.0	35.6	44.1	40.4	53.1	0.0	2.5	70.0	78.6	81.0	PVC21	0.830
63S	M63	2"	2½"	15.0	40.1	50.0	45.6	59.4	0.0	2.5	75.0	83.2	93.0	PVC23	1.415
63	M63	2½"	3"	15.0	47.2	56.0	54.6	65.9	0.0	2.5	80.0	89.0	95.0	PVC25	1.514
75S	M75	2½"	3"	15.0	52.8	62.0	59.0	72.1	0.0	2.5	89.0	101.6	103.0	PVC28	2.199
75	M75	3"	3½"	15.0	59.1	68.0	66.7	78.5	0.0	2.5	99.0	111.1	110.0	PVC30	2.770
90	M90	3"	3½"	15.0	66.6	79.4	76.2	90.4	0.0	3.2	114.0	128.6	136.0	PVC32	4.478
100	M100	4"	-	15.0	76.0	91.0	89.1	101.5	0.0	4.0	123.0	138.0	145.0	150/50HST	4.700
115	M115	-	-	15.0	86.0	98.0	101.3	110.3	0.0	4.0	133.4	147.6	160.0	180/60HST	5.300
130	M130	-	-	15.0	97.0	115.0	114.0	123.3	0.0	4.0	146.1	161.9	185.0	180/60HST	5.900

All dimensions in millimetres

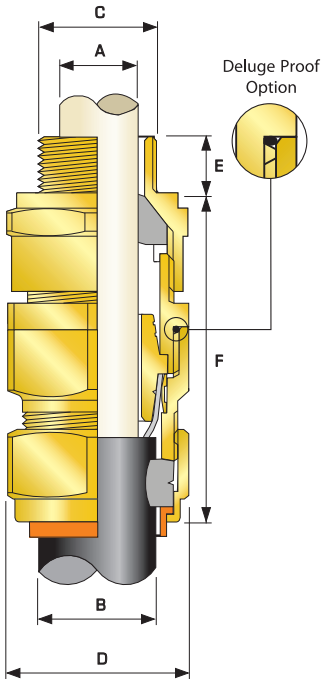
E1U Universal Industrial Cable Gland

Ducab E1U type brass indoor and outdoor cable gland for use with all types of armoured cables providing an environmental seal on the inner and outer sheath of the cable. The cable gland provides mechanical cable retention and electrical continuity via the armour termination. A reversible armour cone and AnyWay universal clamping ring arrangement allows the cable to be easily disconnected from the equipment, for maintenance and change out etc. This feature also facilitates remote make off procedures when the termination is to be conducted in confined spaces or in areas of restricted access. Separate tightening actions for the inner displacement seal and the armour termination affords maximum control over the pressure applied to the cable inner bedding.

The Ducab E1U range of industrial cable glands is designed and tested to BS 6121:Part 1:1989, meets or surpasses the requirements of EN 50262 :1999, and is produced from Brass grade CuZn39Pb3 (CW614N) to EN12168.

Note: Also available in LSp^ kit form

Technical Data	
Type	E1U
Design Specification	BS 6121:Part1:1989, EN 50262:1999
EN50262 Mechanical Classifications	Retention=Class B, Impact = Level 8,
EN50262 Electrical Classifications	Category A without use of an Earth Tag and Category B with an Earth Tag.
GOST R Certificate Number	POCC GB. 05.H00110
GOST K Certificate Number	KZ7500052.05.01.00063
RoK Permit for Use Number	08-067693
Lloyds Approval Number	01/00171
ABS Approval Number	01-LD 234401-PDA
Continuous Operating Temperature	-60°C to +150°C
Ingress Protection Rating	IP66 (IP67/IP68 also available)
Standard Gland Material	Brass
Alternative Gland Material	Electroless Nickel Plated Brass, Stainless Steel, Aluminium
Seal Material	Thermoplastic Elastomer
Cable Type	Single Wire Armour (SWA), Aluminium Wire Armour (AWA), Pliable Wire Armour (PWA), Steel Tape Armour (STA), Wire Braid Armour, Aluminium Strip Armour (ASA), Screened Flexible Wire Braid (e.g. CY / SY), Armored & Jacketed
Armour Clamping	Reversible Armour Cone & AnyWay Universal Clamping Ring
Sealing Technique	Inner Displacement Seal & Unique Ducab "LRS"™ Outer Seal (Load Retention Seal)
Sealing Area(s)	Cable Inner Bedding & Cable Outer Sheath
Optional Accessories	Adaptor/Reducer, Earth Tag, Entry Thread Seal, Locknut, Serrated Washer, Shroud



Note: Deluge proof version available

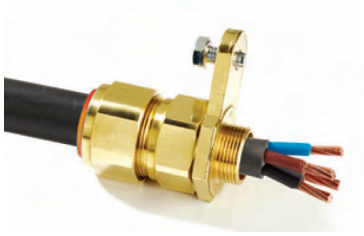
Cable Gland Selection Table

Cable Gland Size	Available Entry Threads 'C'			Minimum Thread Length 'E'	Cable Bedding Diameter 'A'		Overall Cable Diameter 'B'		Armour Range				Across Flats 'D'	Across Corners 'D'	Nominal Protrusion Length 'F'	PVC Shroud Reference	Cable Gland Weight (Kgs)
	Standard		Option						Grooved Cone		Stepped Cone						
	Metric	NPT 1	NPT 2		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max			
20S/16	M20	½"	¾"	10.0	3.1	8.7	6.1	11.5	0.0	1.0	0.9	1.0	24.0	26.6	63.0	PVC04	0.163
20S	M20	½"	¾"	10.0	6.1	11.7	9.5	15.9	0.0	1.0	0.9	1.25	24.0	26.6	63.0	PVC04	0.163
20	M20	½"	¾"	10.0	6.5	14.0	12.5	20.9	0.0	1.0	0.9	1.25	30.5	33.3	67.0	PVC06	0.217
25S	M25	¾"	1"	10.0	11.1	20.0	14.0	22.0	0.0	1.0	1.25	1.6	37.5	40.5	78.0	PVC09	0.345
25	M25	¾"	1"	10.0	11.1	20.0	18.2	26.2	0.0	1.0	1.25	1.6	37.5	40.5	78.0	PVC09	0.345
32	M32	1"	1¼"	15.0	17.0	26.3	23.7	33.9	0.0	1.0	1.6	2.0	46.0	51.0	78.0	PVC11	0.484
40	M40	1¼"	1½"	15.0	22.0	32.2	27.9	40.4	0.0	1.0	1.6	2.0	55.0	61.0	83.0	PVC15	0.700
50S	M50	1½"	2"	15.0	29.5	38.2	35.2	46.7	0.0	1.0	2.0	2.5	60.0	66.5	78.0	PVC18	0.800
50	M50	2"	2½"	15.0	35.6	44.1	40.4	53.1	0.0	1.0	2.0	2.5	70.0	78.6	81.0	PVC21	0.830
63S	M63	2"	2½"	15.0	40.1	50.0	45.6	59.4	0.0	1.0	2.0	2.5	75.0	83.2	93.0	PVC23	1.415
63	M63	2½"	3"	15.0	47.2	56.0	54.6	65.9	0.0	1.0	2.0	2.5	80.0	89.0	95.0	PVC25	1.514
75S	M75	2½"	3"	15.0	52.8	62.0	59.0	72.1	0.0	1.0	2.0	2.5	89.0	101.6	103.0	PVC28	2.199
75	M75	3"	3½"	15.0	59.1	68.0	66.7	78.5	0.0	1.0	2.0	2.5	99.0	111.1	110.0	PVC30	2.770
90	M90	3"	3½"	15.0	66.6	79.4	76.2	90.4	0.0	1.6	3.15	3.15	114.0	128.6	136.0	PVC32	4.478
100	M100	4"	-	15.0	76.0	91.0	89.1	101.5	0.0	1.6	3.15	4.0	123.0	138.0	145.0	150/50HST	4.700
115	M115	-	-	15.0	86.0	98.0	101.3	110.3	0.0	1.6	3.15	4.0	133.4	147.6	160.0	180/60HST	5.300
130	M130	-	-	15.0	97.0	115.0	114.0	123.3	0.0	1.6	3.15	4.0	146.1	161.9	185.0	180/60HST	5.900

All dimensions in millimetres

INDUSTRIAL CABLE GLANDS

CW-CIEL Industrial Cable Gland

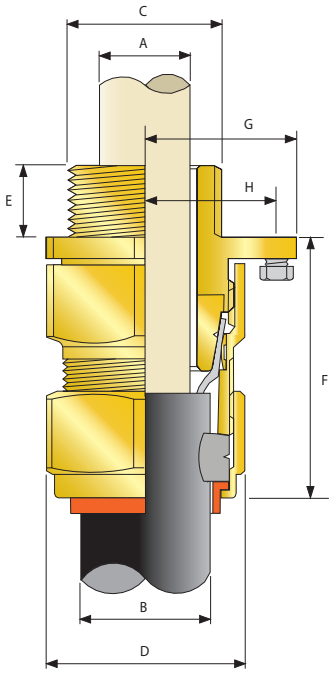


Cable gland for use with all types of SWA cable providing an IP66 environmental seal onto the cable outer sheath. The cable gland being suitable for armoured cables, provides mechanical retention and electrical continuity via armour wire termination. This is particularly suitable for HV systems where a high level of protection against fault currents is required.

Symmetrical Fault Current (kA) for 1 second
26.0 kA for cable gland sizes up to 40.
43.0 kA for cable gland sizes 50S and above.

Note: Also available in LSp^ kit form

Technical Data	
Type	CW CIEL
Design Specification	BS 6121:Part1:1989, EN 50262
EN50262 Mechanical Classifications	Retention = Class B, Impact = Level 8,
EN50262 Electrical Classifications	Category C
SIRA Certificate Number	10Y9149U - BS 6121
SIRA Certificate Number	10Y9150U - EN 50262
RoK Permit for Use Number	08-067693
Continuous Operating Temperature	-60°C to +150°C
Ingress Protection Rating	IP66
Standard Gland Material	Brass
Alternative Gland Material	Electroless Nickel Plated Brass, Aluminium
Seal Material	Thermoplastic Elastomer
Cable Type	Single Wire Armour (SWA), Aluminium Wire Armour (AWA)
Armour Clamping	Detachable Armour Cone & AnyWay Universal Clamping Ring
Sealing Technique	"LRS"™ Outer Seal (Load Retention Seal)
Sealing Area(s)	Cable Outer Sheath
Optional Accessories	Adaptor/Reducer, Entry Thread Seal, Locknut, Serrated Washer, Shroud



Cable Gland Selection Table

Cable Gland Size	Entry Thread 'C'	Minimum Thread Length 'E'	Cable Bedding Diameter 'A'	Overall Cable Diameter 'B'		Armour Range		Nominal Across Flats 'D'	Nominal Across Corners 'D'	Nominal Protrusion Length 'F'	Nominal Radius Dimensions		CIEL Earth Bolt Size	Earth Fault Current Rating (kA)	PVC Shroud Reference	Cable Gland Weight (Kgs)
			Max	Min	Max	Min	Max	Max	Max		'H'	'G'				
20S	M20S	10.0	11.7	9.5	15.9	0.9	1.25	24.0	26.6	58.5	48.0	38.6	M8	26.0	PVC04	0.140
20	M20	10.0	14.0	12.5	20.9	0.9	1.25	30.5	33.3	60.5	55.0	41.8	M8	26.0	PVC06	0.180
25S	M25S	10.0	20.0	14.0	22.0	1.25	1.6	37.5	40.5	67.5	60.0	-	M8	26.0	PVC09	0.257
25	M25	10.0	20.0	18.2	26.2	1.25	1.6	37.5	40.5	67.5	60.0	50.8	M8	26.0	PVC09	0.257
32	M32	10.0	26.3	23.7	33.9	1.6	2.0	46.0	51.0	69.5	60.0	54.0	M10	26.0	PVC11	0.376
40	M40	15.0	32.2	27.9	40.4	1.6	2.0	55.0	61.0	78.0	60.0	69.0	M12	26.0	PVC15	0.630
50S	M50S	15.0	38.2	35.2	46.7	2.0	2.5	60.0	66.5	75.5	62.0	75.0	M12	43.0	PVC18	0.757
50	M50	15.0	44.1	40.4	53.1	2.0	2.5	70.0	78.6	80.5	76.0	80.0	M12	43.0	PVC21	0.862
63S	M63S	15.0	50.0	45.6	59.4	2.0	2.5	75.0	83.2	91.5	76.0	90.0	M12	43.0	PVC23	1.390
63	M63	15.0	56.0	54.6	65.9	2.0	2.5	80.0	89.0	92.0	86.0	90.0	M12	43.0	PVC25	1.360
75S	M75S	15.0	62.0	59.0	72.1	2.0	2.5	89.0	101.6	99.0	88.0	97.0	M12	43.0	PVC28	2.307
75	M75	15.0	68.0	66.7	78.5	2.0	2.5	99.0	111.1	102.0	101.0	108.0	M12	43.0	PVC30	2.909
90	M90	15.0	80.0	76.2	90.4	3.15	3.15	114.0	128.6	120.0	126.0	112.0	M12	43.0	PVC32	3.858
100	M100	15.0	91.0	89.1	101.5	3.15	3.15	123.0	136.0	150.0	126.0	112.0	M12	43.0	150/50HST	4.958
115	M115	15.0	98.0	101.3	110.3	3.15	3.15	133.4	147.8	170.0	126.0	112.0	M12	43.0	180/60HST	5.058
130	M130	15.0	115.0	114.0	123.3	3.15	3.15	146.1	146.1	180.0	126.0	112.0	M12	43.0	180/60HST	6.158

All dimensions in millimetres

Ducab Connect MAKING CONNECTIONS | SBI Connectors

COMPRESSION TERMINALS

Non Insulated Terminals from 1.5mm² to 1000mm²

Description

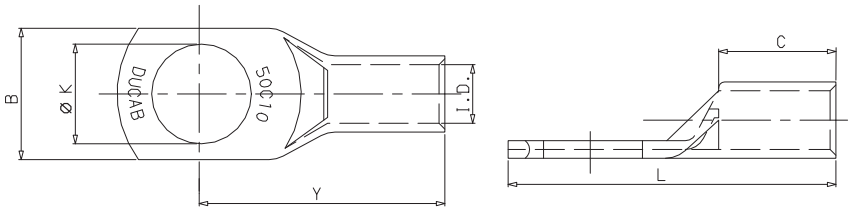
- Our non insulated crimping terminals are designed and manufactured to provide reliable and safe electrical connections utilizing high conductive copper.
- The current carrying capacity of these terminals is at least equal to or higher than that of the main conductor.
- The connectors withstand a wide range of electrical and environmental conditions, including current surges, high temperatures, corrosion resistance and vibrations.
- Connectors are tin plated to provide durable long-lasting corrosion resistance.
- Lugs upto 185mm² are round shape and 240mm² & above have flat edge.
- Conforms to IEC 61238-1:2003

Construction

- Made from 99.9% Electrolytic Copper Tube, Electro Tinned.
- Range of Copper Tube formed terminals taking wires from 1.5 – 1000 mm².

Working temperature

- Resistance up to +125 ° C.



Section (mm²)	Stud Hole	Dimensions (mm)						
		Part Number	Ø K	B	Ø I.D	C	Y	L
1.5 - 2.5	4	HBT2C4	4.3	7.5	2.4	8.0	17.9	22.3
	5	HBT2C5	5.2	9.0	2.4	8.0	19.7	25.9
	6	HBT2C6	6.4	9.0	2.4	8.0	19.7	25.9
	8	HBT2C8	8.5	13.0	2.4	6.0	19.8	27.6
4.0 - 6.0	5	HBT6C5	5.2	13.0	3.3	10.5	23.8	31.8
	6	HBT6C6	6.4	13.0	3.3	10.5	23.8	31.8
	8	HBT6C8	8.3	13.0	3.3	10.5	23.8	31.8
	10	HBT6C10	10.5	16.0	3.5	9.0	23.5	33.5
10	5	HBT10C5	5.3	10.3	4.6	12.0	20.9	26.4
	6	HBT10C6	6.4	11.1	4.6	12.0	21.9	27.9
	8	HBT10C8	8.4	14.3	4.6	12.0	23.9	31.9
	10	HBT10C10	10.5	14.3	4.6	12.0	25.9	35.9
	12	HBT10C12	13.2	18.5	4.6	12.0	28.9	40.9
16	5	HBT16C5	5.3	12.7	5.7	14.0	23.9	29.4
	6	HBT16C6	6.4	12.7	5.7	14.0	24.9	30.9
	8	HBT16C8	8.4	15.0	5.7	14.0	26.9	34.9
	10	HBT16C10	10.5	15.0	5.7	14.0	28.9	38.9
	12	HBT16C12	13.2	18.5	5.7	14.0	31.9	43.9
25	5	HBT25C5	5.3	13.9	7.2	15.0	24.7	30.7
	6	HBT25C6	6.4	13.9	7.2	15.0	25.7	32.2
	8	HBT25C8	8.4	15.9	7.2	15.0	27.7	35.7
	10	HBT25C10	10.5	15.9	7.2	15.0	29.7	39.7
	12	HBT25C12	13.2	18.5	7.2	15.0	32.7	44.7
35	6	HBT35C6	6.4	16.4	8.5	17.0	28.4	35.4
	8	HBT35C8	8.4	16.4	8.5	17.0	30.4	38.4
	10	HBT35C10	10.5	16.4	8.5	17.0	32.4	42.4
	12	HBT35C12	13.2	19.8	8.5	17.0	35.4	47.4

COMPRESSION TERMINALS

Non Insulated Terminals from 1.5mm² to 1000mm²

Section (mm²)	Stud Hole	Dimensions (mm)						
		Part Number	Ø K	B	Ø I.D	C	Y	L
50	6	HBT50C6	6.4	19.5	10.0	20.0	31.9	39.4
	8	HBT50C8	8.4	19.5	10.0	20.0	33.9	42.9
	10	HBT50C10	10.5	19.5	10.0	20.0	35.9	45.9
	12	HBT50C12	13.2	21.8	10.0	20.0	38.9	50.9
70	6	HBT70C6	6.4	23.8	12.8	25.0	38.4	45.9
	8	HBT70C8	8.4	23.8	12.8	25.0	40.4	49.4
	10	HBT70C10	10.5	23.8	12.8	25.0	42.4	53.4
	12	HBT70C12	13.2	23.8	12.8	25.0	45.4	57.4
	16	HBT70C16	17.0	23.8	12.8	25.0	48.4	62.4
95	8	HBT95C8	8.4	27.0	14.2	25.0	41.4	50.9
	10	HBT95C10	10.5	27.0	14.2	25.0	43.4	54.4
	12	HBT95C12	13.2	27.0	14.2	25.0	46.4	58.4
	16	HBT95C16	17.0	27.0	14.2	25.0	49.4	63.4
120	10	HBT120C10	10.5	29.0	15.9	27.0	46.4	57.4
	12	HBT120C12	13.2	29.0	15.9	27.0	49.4	61.4
	16	HBT120C16	17.0	29.0	15.9	27.0	52.4	66.4
	20	HBT120C20	21.0	31.7	15.9	27.0	58.4	74.4
150	10	HBT150C10	10.5	32.8	17.8	28.6	55.9	67.3
	12	HBT150C12	13.2	32.8	17.8	28.6	58.9	72.4
	16	HBT150C16	17.0	32.8	17.8	28.6	61.9	78.6
185	10	HBT185C10	10.5	35.7	19.4	30.2	61.8	73.2
	12	HBT185C12	13.2	35.7	19.4	30.2	64.8	79.2
	16	HBT185C16	17.0	35.7	19.4	30.2	67.8	84.5
	20	HBT185C20	21.0	35.7	19.4	30.2	73.8	94.2
240	10	HBT240C10	10.5	41.0	22.0	36.0	73.4	84.8
	12	HBT240C12	13.2	41.0	22.0	36.0	76.4	90.8
	16	HBT240C16	17.0	41.0	22.0	36.0	79.4	96.1
	20	HBT240C20	21.0	41.0	22.0	36.0	85.4	105.8
300	12	HBT300C12	13.2	45.0	24.2	43.0	81.4	95.8
	16	HBT300C16	17.0	45.0	24.2	43.0	84.4	101.8
	20	HBT300C20	21.0	45.0	24.2	43.0	90.4	112.8
400	16	HBT400C16	17.0	51.0	27.2	44.0	86.6	104.0
	20	HBT400C20	21.0	51.0	27.2	44.0	92.6	115.0
500	16	HBT500C16	17.0	55.1	29.8	47.7	88.8	104.2
	20	HBT500C20	21.0	55.1	29.8	47.7	96.8	119.2
	22	HBT500C22	23.8	55.1	29.8	47.7	100.2	127.2
630	16	HBT630C16	17.0	63.0	34.3	53.0	104.6	127.0
	20	HBT630C20	21.0	63.0	34.3	53.0	104.6	127.0
	22	HBT630C22	23.8	63.0	34.3	53.0	106.6	131.0
800	20	HBT800C20	21.0	67.5	38.2	53.0	113.6	138.0
1000	22	HBT1000C22	23.8	78.7	42.2	55.0	127.2	157.4

Note: Please also refer to BS 7609:1992+A2:2009 code of practice for installation and inspection of compression and mechanical connectors for power cables with copper or aluminium conductors

Non Insulated Splices from 1.5mm² to 1000mm²

Description

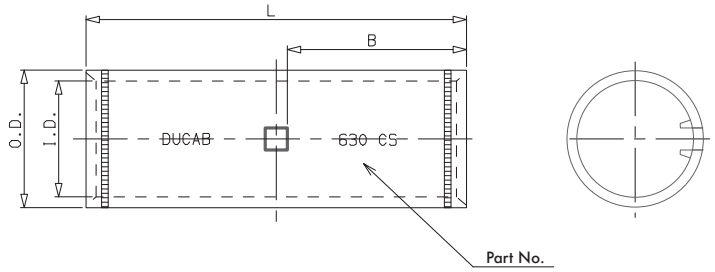
- Our non-insulated crimping Splices are designed and manufactured to provide reliable and safe electrical connections utilising high conductive copper.
- The current carrying capacity of these terminals is at least equal to or higher than that of the conductor.
- The Splices withstand a wide range of electrical and environmental conditions, including current surges, high temperature, corrosion resistance and vibrations.
- Connectors are tin plated to provide durable and long lasting corrosion resistance.
- Conforms to IEC 61238-1:2003

Construction

- Made from 99.9% electrolytic copper tube, electro tinned.

Working Temperature

- Resistance up to +125°C



Section (mm²)	Part Number	Dimensions (mm)			
		Ø I. D	Ø O. D	L	B
1.5	HBT1CSPAK	1.7	3.3	15.0	6.5
2.5	HBT2CSPAK	2.3	4.0	15.0	6.5
4.0 - 6.0	HBT6CSPAK	3.6	5.5	15.0	6.5
10	HBT10CS	4.6	6.9	26.0	11.7
16	HBT16CS	5.7	7.9	30.0	13.7
25	HBT25CS	7.2	9.5	32.0	14.7
35	HBT35CS	8.5	11.3	36.0	16.7
50	HBT50CS	10.0	13.0	42.0	19.7
70	HBT70CS	12.8	16.1	45.0	20.7
95	HBT95CS	14.2	17.7	53.0	24.7
120	HBT120CS	15.9	19.6	57.0	26.7
150	HBT150CS	17.8	22.2	60.0	27.5
185	HBT185CS	19.4	24.2	64.0	29.5
240	HBT240CS	22.0	28.5	73.0	34.0
300	HBT300CS	24.2	31.0	73.0	34.0
400	HBT400CS	27.2	35.0	98.0	46.5
500	HBT500CS	29.8	38.1	98.0	46.5
630	HBT630CS	34.4	44.0	104.0	49.5
800	HBT800CS	36.6	46.7	114.0	54.5
1000	HBT1000CS	42.2	54.0	117.0	56.0

COMPRESSION TERMINALS

Non Insulated Undrilled Palms from 150mm² to 1000mm²

Description

- Our non-insulated crimping Un-Drilled Palm terminals are designed and manufactured to provide reliable and safe electrical connections utilising high conductive copper.
- The current carrying capacity of these terminals is at least equal to or higher than that of the conductor.
- The lugs withstand a wide range of electrical and environmental conditions, including current surges, high temperature, corrosion resistance and vibrations.
- Connectors are tin plated to provide durable and long lasting corrosion resistance.
- Conforms to IEC 61238-1:2003

Construction

- Made from 99.9% electrolytic copper tube, electro tinned.

Working Temperature

- Resistance up to +125°C

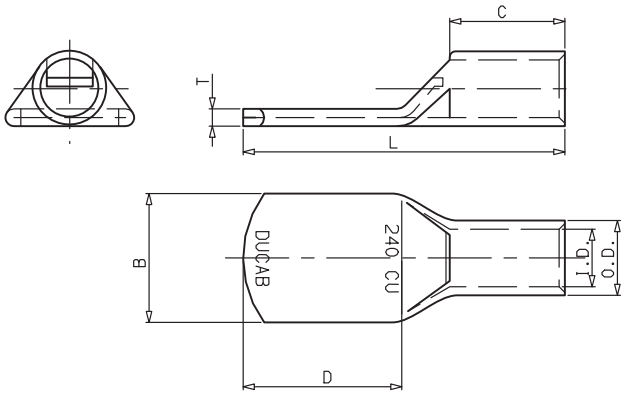


FIG.1

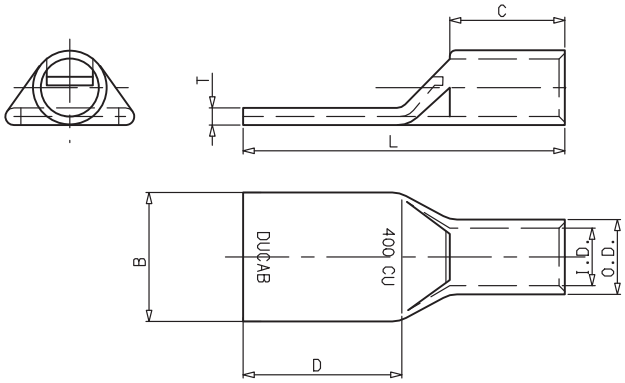


FIG.2

Section (mm²)	Part Number	Dimensions (mm)					
		Fig	B	Ø I. D	Ø O. D	C	L
150	HBT150CU	1	30.4	16.5	20.6	28.6	86.3
185	HBT185CU		35.7	19.4	24.2	30.2	94.2
240	HBT240CU		41.0	22.0	28.5	36.0	105.8
300	HBT300CU	2	45.0	24.2	31.0	43.0	112.8
400	HBT400CU		51.0	27.2	35.0	44.0	115.0
500	HBT500CU		55.1	29.8	38.1	47.7	119.2
630	HBT630CU		63.0	34.3	44.0	53.0	127.0
800	HBT800CU		67.5	38.2	46.7	52.0	138.0
1000	HBT1000CU		78.7	42.2	54.0	55.0	157.4

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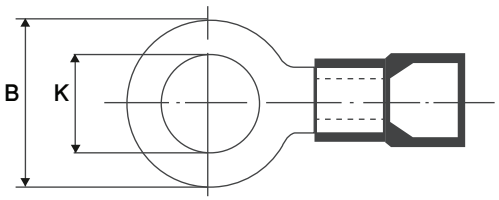
COMPRESSION TERMINALS

Preinsulated Ring Terminals – (Halogen Free)

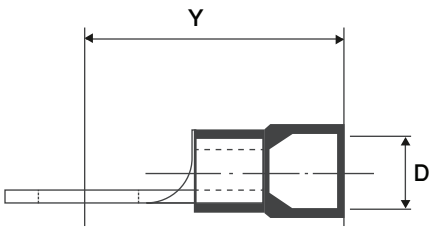


Description

- Insulation Ring terminals with easy entry and colour coded.

Construction

- Brazed seam, Electrolytic tinned Cu strip.
- Polyamide insulation of high resistance
- Part numbers ending with "D" are according to DIN 46237.



Working temperature

- Resistance up to +105°C for polyamide.

Section (mm²)	Part Number	Dimensions (mm)				
		Stud Size	Ø K	B	Ø D	Y
0.5 - 1.5	BE1M27D	2.5	2.7	6.0	4.2	17.0
	BE1M32D	3	3.2	6.0	4.2	17.0
	BE1M37D	3.5	3.7	6.6	4.2	17.0
	BE1M43	4	4.3	6.6	4.2	16.8
	BE1M43D		5.3	8.0	4.2	18.0
	BE1M53D	5	5.3	10.0	4.2	19.0
	BE1M65D	6	6.5	11.0	4.2	21.0
	BE1M84	8	8.4	11.6	4.2	21.6
	BE1M105	10	10.5	13.6	4.2	24.9
	BE1M132	12	13.0	19.2	4.2	26.5
1.5 - 2.5	BE25M32D	3	3.2	6.0	4.8	17.0
	BE25M37D	3.5	3.7	6.0	4.8	17.0
	BE25M43	4	4.3	6.6	4.8	17.3
	BE25M43D		4.3	8.0	4.8	18.0
	BE25M53	5	5.3	8.5	4.8	18.8
	BE25M53D		5.3	10.0	4.8	20.0
	BE25M65D	6	6.5	11.0	4.8	22.0
	BE25M84	8	8.4	12.0	4.8	22.0
	BE25M84D		8.4	14.0	4.8	23.0
	BE25M105	10	10.5	13.6	4.8	24.9
	BE25M105D		10.5	18.0	4.8	24.5
	BE25M132	12	13.0	19.2	4.8	27.0
4 - 6	BE6M37	3.5	3.7	9.5	6.8	22.3
	BE6M43D	4	4.3	8.0	6.8	21.0
	BE6M53D	5	4.3	10.0	6.8	22.0
	BE6M65D	6	6.5	11.0	6.8	23.0
	BE6M84D	8	8.4	14.0	6.8	26.0
	BE6M105	10	10.5	15.0	6.8	27.7
	BE6M105D		10.5	18.0	6.8	28.0
	BE6M132	12	13.0	19.2	6.8	30.0
6 - 10	BA510N	5	5.3	10.0	7.5	24.0
	BA610N	6	6.5	11.0	7.5	25.0
10 - 16	BA516N	5	5.3	11.0	8.0	30.0
	BA616N	6	6.5	11.0	8.0	30.0

COMPRESSION TERMINALS

Preinsulated Ring Terminals – (Halogen Free)

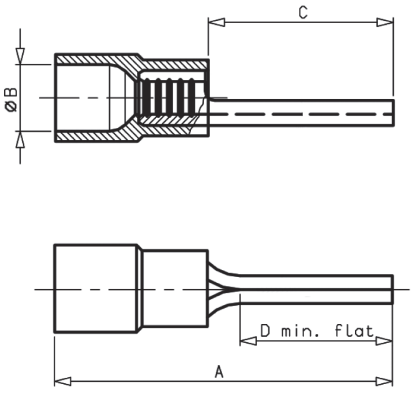
Section (mm²)	Part Number	Stud Size	Dimensions (mm)			
			Ø K	B	Ø D	Y
16 - 25	BA525N	5	5.3	12.0	10.0	30.0
	BA625N	6	6.5	12.0	10.0	30.0
	BA825N	8	8.4	7.5	16.0	36.0
25 - 35	BA635N	6	6.5	9.0	15.0	38.0
	BA835N	8	8.4	9.0	16.0	38.0
35 - 50	BA850N	8	8.4	11.0	18.0	50.0
	BA1050N	10	10.5	11.0	18.0	50.0
	BA1250N	12	13.0	11.0	22.0	52.0
50 - 70	BA870N	8	8.4	13.0	22.0	54.0
	BA1070N	10	10.5	13.0	22.0	54.0
	BA1270N	12	13.0	13.0	22.0	54.0
70 - 95	BA1095N	10	10.5	15.0	24.0	58.0
	BA1295N	12	13.0	15.0	24.0	58.0
	BA1695N	16	17.0	15.0	28.0	60.0
95 - 120	BA12120N	12	13.0	16.5	24.0	60.0
	BA16120N	16	17.0	16.5	28.0	64.0

Preinsulated Pin Terminals (Halogen Free)

Description
- Insulation pin terminals with easy entry and colour coded.

Construction
- Brazed seam, Electrolytic tinned Cu strip.
- Polyamide insulation of high resistance
- Part number ending with "D" are according to DIN 46231

Working temperature
- Resistance up to +105 ° C for polyamide.



Section (mm²)	Part Number	Dimensions (mm)			
		Ø B	C	Ø D	A
0.5 - 1.5	BE1W10	1.9	8.5	4.2	21.5
	BE1W13D	1.9	10.5	4.2	24.5
	BE1W17	1.9	16.5	4.2	29.5
1.5 - 2.5	BE25W10	1.9	8.5	4.8	22.0
	BE25W13D	1.9	10.5	4.8	24.0
	BE25W17	1.9	16.5	4.8	30.0
4 - 6	BE6W13D	2.7	10.5	6.8	25.5
	BE6W17	2.7	16.5	6.8	31.5
6 - 10	BA10W13D	4.3	12.0	7.8	34.0
10 - 16	BA16W17D	5.5	13.0	10.8	40.7
16 - 25	BA25W17D	6.8	15.0	12.4	44.0
25 - 35	BA35W23D	8.0	20.0	14.0	52.5
35 - 50	BA50W23D	9.5	20.0	15.5	59.0
50 - 70	BA70W26D	11.0	31.0	18.0	69.0
70 - 95	BA95W26D	12.5	31.0	20.7	71.0

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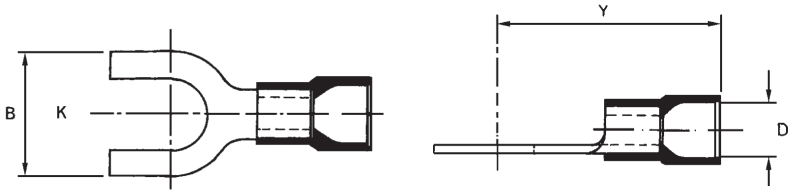
COMPRESSION TERMINALS

Preinsulated Fork Terminals – (Halogen Free)

Description
- Insulation Fork terminals with easy entry and colour coded.

Construction
- Brazed seam, Electrolytic tinned Cu strip.
- Polyamide insulation of high resistance
- Part number ending with "D" are according to DIN 46237/C

Working temperature
- Resistance up to +105°C for polyamide.



Section (mm²)	Part Number	Dimensions (mm)				
		Stud Size	Ø K	B	Ø D	Y
0.5 - 1.5	BE1FM27D	2.5	2.7	6.0	4.2	17.0
	BE1FM32D	3	3.2	6.0	4.2	17.0
	BE1FM37D	3.5	3.7	6.0	4.2	17.0
	BE1FM43	4	4.3	6.4	4.2	16.8
	BE1FM43D		4.3	8.0	4.2	18.0
	BE1FM53	5	5.3	8.0	4.2	17.5
	BE1FM53D		5.3	10.0	4.2	19.0
	BE1FM65D	6	6.5	11.0	4.2	21.0
1.5 - 2.5	BE25FM32D	3	3.2	6.0	4.8	17.0
	BE25FM37D	3.5	3.7	6.0	4.8	17.0
	BE25FM43	4	4.3	6.4	4.8	17.3
	BE25FM43D		4.3	8.0	4.8	18.0
	BE25FM53	5	5.3	8.5	4.8	18.3
	BE25FM53D		5.3	10.0	4.8	20.0
	BE25FM65D	6	6.5	11.0	4.8	22.0
	BE25FM84D	8	8.4	14.0	4.8	23.0
4 - 6	BE6FM37	3.5	3.7	7.2	6.8	21.5
	BE6FM43D	4	4.3	8.0	6.8	21.0
	BE6FM53D	5	5.3	10.0	6.8	22.0
	BE6FM65D	6	6.5	11.0	6.8	23.0
	BE6FM84D	8	8.4	14.0	6.8	26.0
6 - 10	BA510FN	5	5.3	10.5	7.5	17.0
	BA610FN	6	6.6	10.5	7.5	17.0
10 - 16	BA516FN	5	5.3	11.0	8.0	20.0
	BA616FN	6	6.5	11.0	8.0	20.0

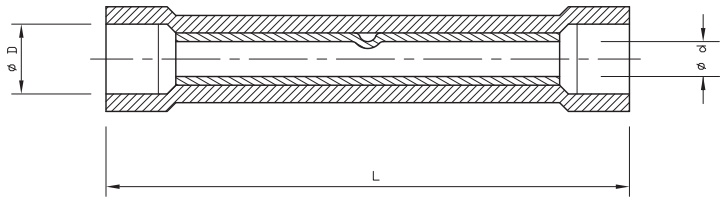
COMPRESSION TERMINALS

Preinsulated Splices – (Halogen Free)

Description
- Insulation Splices with easy entry and colour coded.

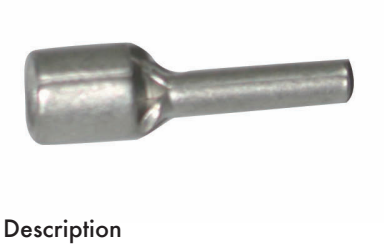
Construction
- Brazed seam, Electrolytic tinned Cu strip.
- Polyamide insulation of high resistance

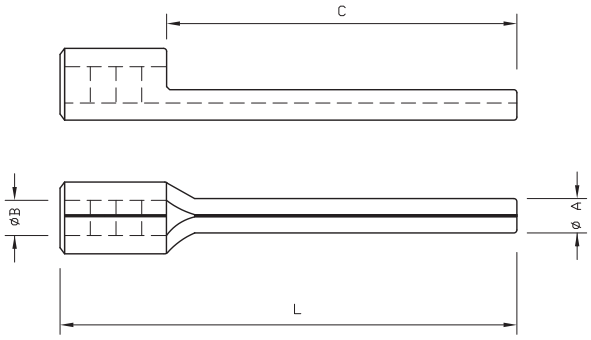
Working temperature
- Resistance up to +105°C for polyamide



Section (mm²)	Part Number	Dimensions (mm)		
		Ø D	Ø d	L
0.5 – 1.5	BSV1N	4.0	1.7	23.0
1.5 – 2.5	BSV25N	4.5	2.3	23.0
4 - 6	BSV6N	6.8	3.4	27.0

Uninsulated Pin Terminals





Description
- Brazed seam, Electrolytic tinned Cu strip.
- Pin terminals according to DIN 46230

Construction
- Heat resistance up to + 125°C

Section (mm²)	Part Number	Dimensions (mm)			
		Ø B	Ø A	C	L
0.1 - 1.5	BY1W13D	1.6	1.9	13.5	18.3
1.5 - 2.5	BY25W13D	2.3	1.9	13.5	18.3
4 - 6	BY6W13D	3.6	2.7	13.5	19.5
6 - 10	BY10W13D	4.7	4.3	12.0	22.0
10 - 16	BY16W17D	5.8	5.5	13.0	26.0
16 - 25	BY25W17D	7.0	6.8	15.0	33.5
25-35	BY35W23D	8.8	8.0	20.0	40.5
35-50	BY50W23D	10.0	9.5	20.0	45.0
50-70	BY70W26D	11.8	11.0	23.0	55.0
70-95	BY95W26D	13.9	12.5	23.0	55.0

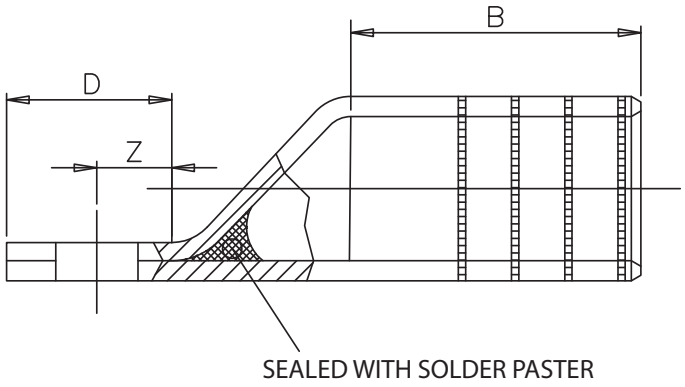
MV Compression Terminals - Water Blocked

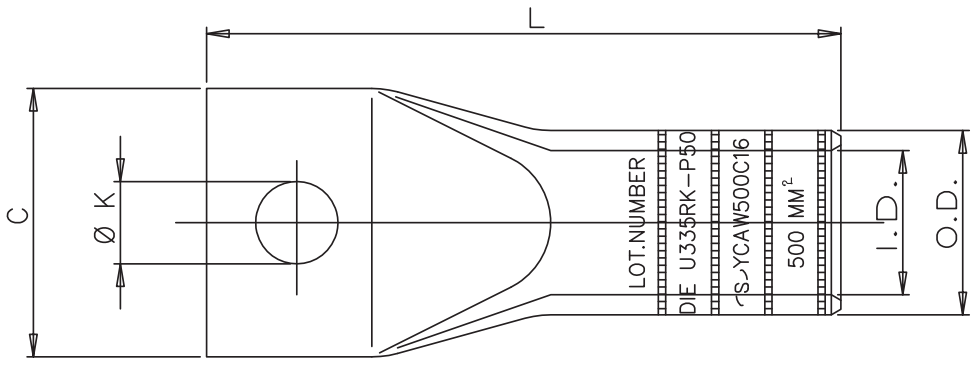
Description

- Our MV Water Blocked crimping terminals are designed and manufactured to provide reliable electrical connections utilizing high conductive copper.
- The Current carrying capacity of these lugs is at least equal to or higher than that of the main conductor.
- The connections withstand a wide range of electrical and environmental conditions, including surges, high temperatures, corrosion resistance and vibrations.
- The connector design has been matched to the cable size to provide the necessary physical strength requirements for safe and secure electrical performance.

Construction

- Made from 99.9% copper
- Thick walled copper tube with water proof seal.
- 11kV & 36kV applications for use in indoor and outdoor applications.
- Also available with Tin Plating (Add "TN" at the end of the part number for Tin plating)





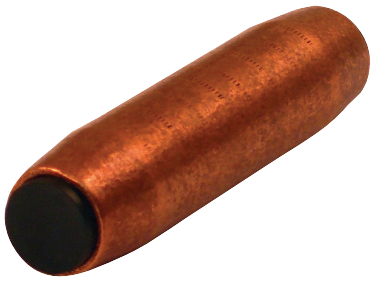
COMPRESSION TERMINALS

MV Compression Terminals - Water Blocked

Technical Characteristics

Area mm²	Stud size	Part Number	Dimensions (mm)						
			I.D.	O.D.	B	C	D	Z	L
16	10	YCAW016C10	5.2	10.0	30.0	18.1	22.7	12.4	60.7
	12	YCAW016C12					28.8	14.4	66.8
25	10	YCAW025C10	6.8	10.0	30.0	18.1	22.7	12.4	60.7
	12	YCAW025C12					28.8	14.4	66.8
35	10	YCAW035C10	8.1	13.3	30.0	20.5	22.7	12.4	64.7
	12	YCAW035C12					28.8	14.4	70.8
50	10	YCAW050C10	9.3	13.3	30.0	20.5	22.7	12.4	65.7
	12	YCAW050C12					28.8	14.4	71.8
70	10	YCAW070C10	11.0	20.0	35.0	27.6	22.7	12.4	66.7
	12	YCAW070C12					28.8	14.4	72.8
95	10	YCAW095C10	12.8	20.0	40.0	27.2	22.7	12.4	69.7
	12	YCAW095C12					28.8	14.4	75.8
	16	YCAW095C16					34.8	17.4	81.8
120	12	YCAW120C12	14.3	22.5	45.0	32.0	28.8	14.4	91.8
	16	YCAW120C16					34.8	17.4	97.8
150	12	YCAW150C12	16.1	22.5	50.0	32.0	28.8	14.4	96.8
	16	YCAW150C16					34.8	17.4	102.8
185	12	YCAW185C12	17.8	22.5	50.0	32.0	28.8	14.4	97.8
	16	YCAW185C16					34.8	17.4	103.8
240	12	YCAW240C12	20.3	29.7	60.0	41.5	28.8	14.4	112.8
	16	YCAW240C16					34.8	17.4	118.8
	20	YCAW240C20					34.8	17.4	118.8
300	12	YCAW300C12	23.0	29.7	60.0	45.0	28.8	14.4	113.8
	16	YCAW300C16					34.8	17.4	119.8
	20	YCAW300C20					34.8	17.4	120.8
400	12	YCAW400C12	26.7	34.3	60.0	50.0	34.8	17.4	120.8
	16	YCAW400C16					34.8	17.4	120.8
	20	YCAW400C20					34.8	17.4	120.8
500	12	YCAW500C12	29.8	38.1	60.0	55.4	50.0	25.0	147.0
	16	YCAW500C16					50.0	25.0	147.0
	20	YCAW500C20					50.0	25.0	147.0
630	16	YCAW630C16	34.3	44.0	67.0	66.0	55.0	27.0	173.0
	20	YCAW630C20					55.0	27.0	173.0
800	16	YCAW800C16	38.2	46.7	77.0	70.0	55.0	27.0	195.0
1000	16	YCAW1000C16	42.0	54.0	77.0	78.0	55.0	27.0	195.0

MV Copper Splices - Water Blocked

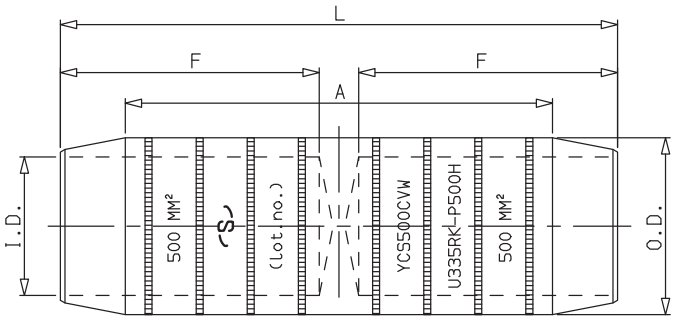


Description

- Our MV Water Blocked Splices for Medium Voltage cables are designed and manufactured to provide reliable electrical connections utilizing high conductive copper.
- The current carrying capacity of these splices is at least equal to or higher than of the main conductor.
- These splices have a solid central water block to provide moisture seal, with tapered ends.
- The connector design has been matched to the cable size to provide the necessary physical strength requirements for reliable electrical performance.

Construction

- Made from 99.9% copper
- Thick walled copper tube with water proof seal.
- Also available with Tin Plating (Add "TN" at the end of the part number for Tin plating)



Technical Characteristics

Section (mm^2)	Part Number	Dimensions (mm)				
		I.D.	O.D.	L	A	F
50	YCS050CVW	9.3	13.3	78.0	58.0	33.0
70	YCS070CVW	11.0	20.0	97.0	67.0	40.0
95	YCS095CVW	12.8				
120	YCS120CVW	14.3	22.5	120.0	88.0	54.0
150	YCS150CVW	16.1				
185	YCS185CVW	17.8				
240	YCS240CVW	20.3	29.7	146.0	106.0	64.0
300	YCS300CVW	23.0				
400	YCS400CVW	26.7	34.3			
500	YCS500CVW	29.8	38.1	142.0	114.0	60.0

COMPRESSION TERMINALS

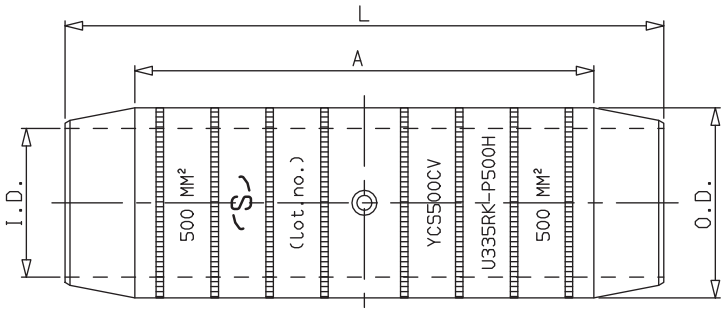
MV Copper Splices

Description

- Our MV Copper Splices for Medium Voltage cables are designed and manufactured to provide reliable electrical connections utilizing high conductive copper.
- The current carrying capacity of these splices is at least equal to or higher than of the main conductor.
- The splices have a through bore, tapered ends and a centre sight hole.
- The connector design has been matched to the cable size to provide the necessary physical strength requirements for reliable electrical performance.

Construction

- Made from 99.9% copper
- Thick walled copper tube.
- Range of copper splices taking wires from 16 – 630 mm².
- Also available with Tin Plating (Add "TN" at the end of the part number for Tin plating)



Technical Characteristics

Section (mm²)	Part Number	Dimensions (mm)			
		I.D.	O.D.	L	A
16	YCS016CV	5.2	10.0	60.0	40.0
25	YCS025CV	6.8			
35	YCS035CV	8.1	13.3		
50	YCS050CV	9.3			
70	YCS070CV	11.0	20.0	70.0	50.0
95	YCS095CV	12.8		80.0	
120	YCS120CV	14.3	22.5	90.0	68.0
150	YCS150CV	16.1		100.0	
185	YCS185CV	17.8			
240	YCS240CV	20.3	29.7	120.0	80.0
300	YCS300CV	23.0			
400	YCS400CV	26.7	34.3		
500	YCS500CV	29.8	38.1		92.0
630	YCS630CV	34.3	44.0	176.0	166.0

Bimetallic Terminals

Description

- The product ranges of bimetallic terminals are designed for reliable and controllable electrical bimetallic connections.
- The current carrying capacity of these splices is at least equal to or higher than of the main conductor.
- Terminals are made of Aluminium barrel and copper palm friction welded.
- The barrel is pre-filled with neutral grease and capped.
- The barrel design has been matched to the cable range size to provide the necessary physical strength requirements for reliable electrical performance.
- These terminals are designed for M.V. and L.V. underground distribution applications.
- The bimetallic terminals meet the NFC 33.090 standard.

Construction

- Made from
  - o Palm : Cu 99.9 % pure
  - o Barrel : Al 99.5 % pure

Figure 1

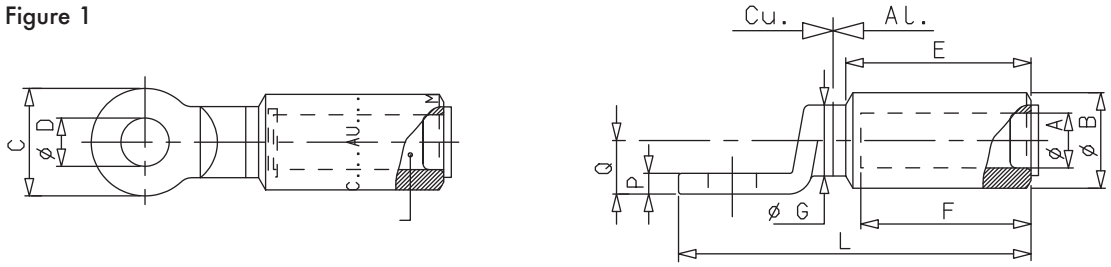
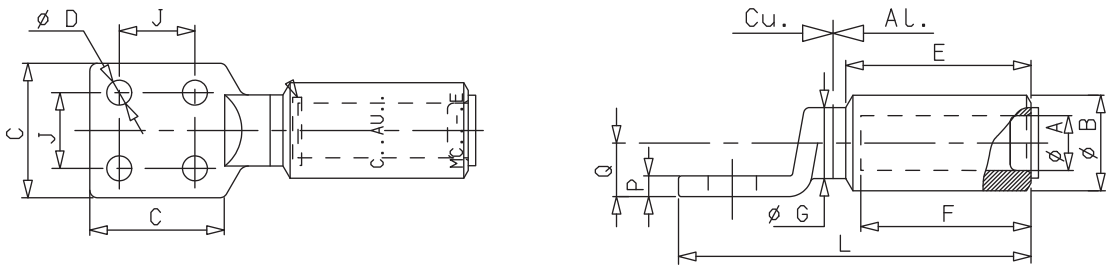


Figure 2

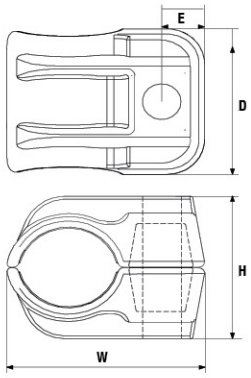


Technical Characteristics

Section (mm^2)	Part Number	Fig.	Dimensions (mm)							
			Ø A	Ø B	Ø C	Ø D	E	F	P	L
25	Y4A25A105C	1	6.5	16.0	20.0	10.5	48.0	41.5	4.5	83.0
35	Y4A35A128C		8.0	16.0	25.0	12.8	48.0	41.5	5.0	89.0
50	Y4A50A128C		9.0	20.0	25.0	12.8	47.0	41.5	5.0	89.0
70	Y4A70A128C		11.0	20.0	25.0	12.8	47.0	41.5	5.0	89.0
95	Y4A95A128C		12.5	20.0	25.0	12.8	47.0	41.5	5.0	89.0
120	Y4A120A128C		13.7	25.0	30.0	12.8	63.5	57.0	6.0	112.0
150	Y4A150A128C		15.5	25.0	30.0	12.8	63.5	57.0	6.0	112.0
185	Y4A185A128C		17.0	32.0	30.0	12.8	63.0	57.0	6.0	114.0
240	Y4A240A128C		19.5	32.0	30.0	12.8	63.0	57.0	6.0	114.0
300	Y4A300A165C		23.3	40.0	36.0	16.5	99.0	91.0	7.0	156.0
400	Y4A400A165C		26.0	40.0	36.0	16.5	99.0	91.0	7.0	156.0
500	Y4A500A490C	2	29.1	47.0	60x60	4x9	101.0	92.5	10.0	187.0
630	Y4A630A490C		32.5	47.0	60x60	4x9	101.0	92.5	10.0	187.0

One & Two Bolt Cable Clamps - Non-Metallic

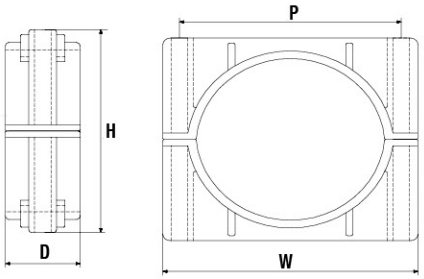
- Manufactured as Standard in Black Polypropylene (B) or Black Flame Retardant V0 Zero Halogen Phosphorus Free Nylon (LSZH) or to special order in a London Underground Approved Material (LUL).
- Used to fix power cables in Indoor and Outdoor applications.



Selection Table for Single Bolt Cable Clamps

Part No	Material Suffix	Cable Dia Range (mm)	Dimensions (mm)				Fixing Holes	Pack Qty	Weight (g)		
			W	H	D	E			B	LSZH	LUL
1F-10	B/LSZH/LUL	10-13	37.8	27.0	41.4	10.2	1 x M10	100	14.6	19.6	23.8
1F-11	B/LSZH/LUL	13-16	41.2	30.0	41.4	10.4	1 x M10	100	17.0	23.0	27.7
1F-12	B/LSZH/LUL	16-19	44.3	33.0	41.4	10.7	1 x M10	100	19.6	26.4	32.0
1F-13	B/LSZH/LUL	19-23	48.2	36.0	41.4	10.9	1 x M10	100	22.4	30.2	36.5
1F-14	B/LSZH/LUL	23-27	52.2	40.0	41.4	11.3	1 x M10	100	25.8	34.6	42.0
1F-15	B/LSZH/LUL	27-32	57.1	44.0	41.4	11.6	1 x M10	100	29.2	39.0	47.6
1F-16	B/LSZH/LUL	32-38	63.1	49.0	41.4	12.1	1 x M10	100	34.2	46.2	55.7
1F-17	B/LSZH/LUL	38-46	71.3	58.0	41.4	12.9	1 x M10	50	47.8	64.0	77.9
1F-18	B/LSZH/LUL	46-51	77.3	67.0	41.4	13.5	1 x M10	50	54.0	73.2	88.0
1F-19	B/LSZH/LUL	51-57	83.2	72.0	41.4	13.9	1 x M10	50	59.0	80.4	96.2

Max S/C Test Level (Multi - Core Cable)	Cleat Spacing
76kA	600 mm

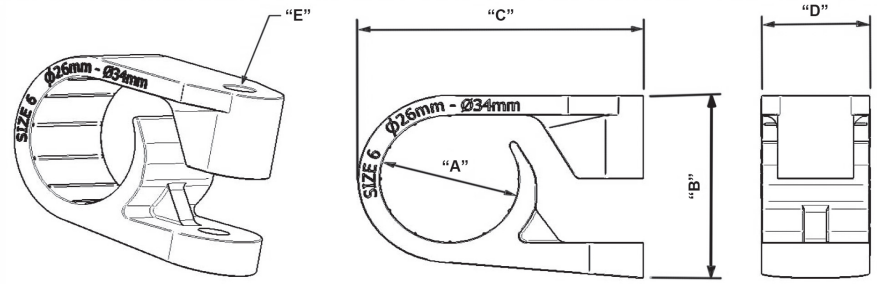


Selection Table for Two Bolt Cable Clamps

Part No	Material Suffix	Cable Dia Range (mm)	Dimensions (mm)				Fixing Holes	Pack Qty	Weight (g)		
			W	H	D	P			B	LSZH	LUL
2F-07	B/LSZH/LUL	38-46	92	60	54	68	2 x M10	25	73.0	91.0	119.0
2F-08	B/LSZH/LUL	46-51	103	71	54	79	2 x M10	25	80.9	109.9	132.0
2F-09	B/LSZH/LUL	51-57	103	76	54	79	2 x M10	25	95.0	119.0	155.0
2F-10	B/LSZH/LUL	57-64	103	82	54	79	2 x M10	25	89.1	122.5	156.5
2F-11	B/LSZH/LUL	64-70	130	89	54	106	2 x M10	15	116.0	157.3	189.0
2F-1200	B/LSZH/LUL	70-76	130	95	54	106	2 x M10	15	124.0	167.3	202.0
2F-1201	B/LSZH/LUL	76-83	130	100	54	106	2 x M10	10	126.0	170.0	205.0
2F-1202	B/LSZH/LUL	83-90	130	108	54	106	2 x M10	10	128.0	172.0	208.0
2F-131	B/LSZH/LUL	90-97	150	115	54	126	2 x M10	5	152.0	208.0	248.0
2F-132	B/LSZH/LUL	97-105	150	122	54	126	2 x M10	5	156.0	208.0	254.0
2F-141	B/LSZH/LUL	105-112	161	130	54	135	2 x M10	5	179.5	238.8	292.2
2F-142	B/LSZH/LUL	112-120	169	138	54	143	2 x M10	5	193.5	261.0	315.4
2F-151	B/LSZH/LUL	120-128	177	148	54	151	2 x M10	5	212.2	280.0	346.0
2F-152	B/LSZH/LUL	128-135	185	158	54	158	2 x M10	5	228.5	304.4	372.4

Industrial Cable Clamp

- Industrial Cable Clamp is available in Black LLDPE (B) or Black Polymeric (LUL) material.
- Used to fix power cables in Indoor and Outdoor applications.
- Material data sheets are available upon request.

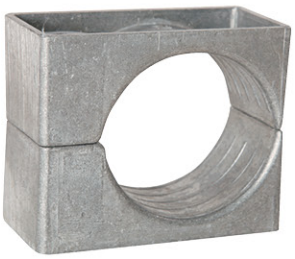


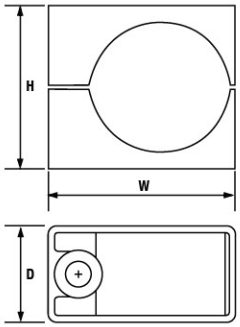
Part No		Cable Range (mm)		Dimensions (mm)			Fixing Holes	Pack Qty	SWL kgf	Weight (g)	
LLDPE	LUL	Min Dia	Max Dia	B	C	D				LLDPE	LUL
17-01B	17-01LUL	10	15	17.6	27.8	12	1 x M4	100	18	2.0	3.5
17-02B	17-02LUL	12	17	20.8	32.0	14	1 x M4	100	24	3.3	5.4
17-03B	17-03LUL	15	20	25.3	37.1	16	1 x M4	100	32	5.2	8.6
17-04B	17-04LUL	18	24	29.6	41.0	18	1 x M4	100	39	7.3	12.2
17-05B	17-05LUL	22	29	35.4	52.1	20	1 x M6	50	52	11.2	18.6
17-06B	17-06LUL	26	34	40.9	58.2	22	1 x M6	50	66	16.5	27.9
17-07B	17-07LUL	32	42	49.2	69.3	25	1 x M6	25	79	25.6	42.9
17-08B	17-08LUL	39	51	58.5	81.7	26	1 x M6	25	93	36.2	60.1

Note: Ducab Cable Ties also available upon request.

One & Two Bolt Cable Clamps - Aluminium

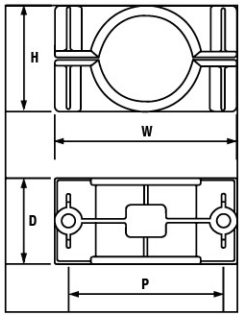
- Cast Aluminium alloy cable cleats are designed for higher specification projects which call for an all metal product, installed in operating temperature of -60°C to +100°C
- Manufactured as standard in plain LM6 aluminium to BS 1490. Used to fix power cables in dry industrial or outdoor unpolluted applications, the product can be epoxy coated for use in harsh environments, such as sea air conditions.





One Bolt Cable Clamp

Part No	Cable Range (mm)		Dimensions (mm)			Fixing Holes	Pack Qty	Weight (g)
	Min. Dia	Max. dia	W	H	D			
1G-11N	13	16	44	34	43	1 x M10	50	80
1G-12N	16	19	48	36	43	1 x M10	50	91
1G-13N	19	22	50	38	43	1 x M10	50	98
1G-14N	22	26	53	40	43	1 x M10	50	100
1G-15N	26	33	59	44	43	1 x M10	25	120
1G-16N	33	39	65	50	43	1 x M10	25	132
1G-17N	39	45	71	56	43	1 x M10	25	152
1G-18N	45	51	78	63	43	1 x M10	25	168
1G-19N	51	58	84	73	43	1 x M10	10	202
1G-20N	58	65	91	80	43	1 x M10	10	189
1G-21N	65	71	97	89	43	1 x M10	10	253



Two Bolt Cable Clamp

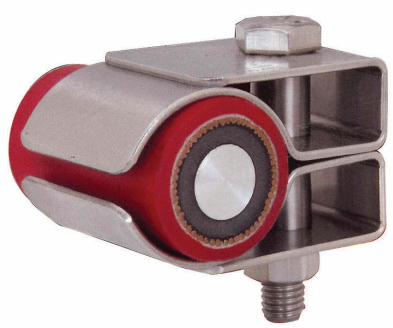
Part No	Cable Range (mm)		Dimensions (mm)				Fixing Holes	Pack Qty	Weight (g)
	Min. Dia	Max. dia	W	H	D	P			
2G-09N	51	57	96	68	49	76	2 x M10	25	208
2G-10N	57	64	96	75	49	76	2 x M10	25	220
2G-11N	64	70	134	84	64	114	2 x M10	10	376
2G-1200N	70	76	134	90	64	114	2 x M10	10	392
2G-1201N	76	83	142	96	64	114	2 x M10	10	451
2G-1202N	83	89	142	102	64	114	2 x M10	5	550
2G-131N	89	95	154	114	76	126	2 x M10	5	650
2G-132N	95	101	154	120	76	126	2 x M10	5	750
2G-141N	101	108	169	134	76	140	2 x M10	5	1100
2G-142N	108	114	169	140	76	140	2 x M10	5	1450

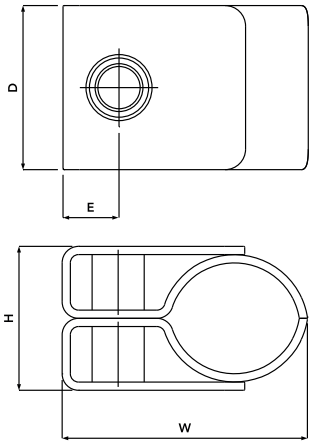
Specials: For cable diameters above 114mm please contact Ducab.

Phoenix - Ducab Flam BICC Fire Resistant Cable Cleat

Cable Clamps that are fire proof, corrosion resistant & easy to fit for Fire Resistant Cables.

- The Phoenix Cleat is specifically designed for installation of fire protection (FR) cables.
- The Cable clamps have been successfully tested for fire resistance in accordance with BS 5839-1: 2002, section 26.2d.
- Available in 11 sizes from 10mm to 65mm in diameters to suit single cables.
- Short Circuit testing in accordance with IEC 61914:2009 has also been completed successfully.
- Manufactured from 316L Stainless Steel.

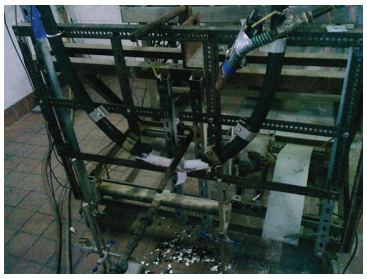
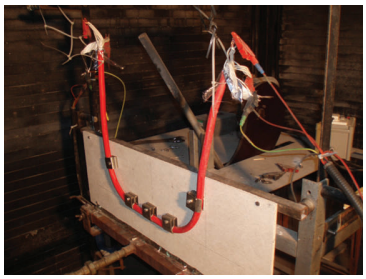
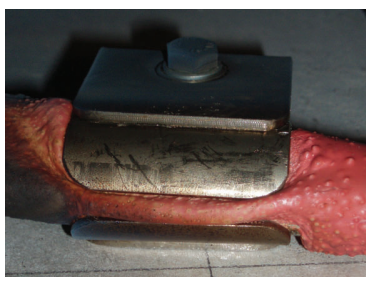




Max S/C Test Levels	Cleat Spacing
60kA	600mm

Part number	Cable Range Dia (mm)	Dimensions (mm)				Fixing Holes (mm)	Weight (g)
		W	H	D	E		
1FP-10SS	10-13	40	21	40	13.7	1 X M10	91
1FP-11SS	13-16	44	24	40	13.7	1 X M10	106
1FP-12SS	16-19	47	27	40	13.7	1 X M10	113
1FP-13SS	19-23	51	31	40	13.7	1 X M10	125
1FP-14SS	23-27	55	35	40	13.7	1 X M10	139
1FP-15SS	27-32	60	40	40	13.7	1 X M10	153
1FP-16SS	32-38	66	46	40	13.7	1 X M10	174
1FP-17SS	38-46	74	54	40	13.7	1 X M10	201
1FP-18SS	46-51	80	59	40	13.7	1 X M10	225
1FP-19SS	51-57	85	64	40	13.7	1 X M10	242
1FP-20SS	57-65	93	73	40	13.7	1 X M10	265




Alpha - Aluminium Trefoil Cable Cleat

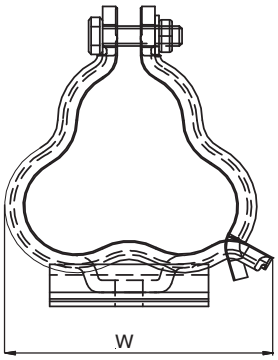
A new, stronger alternative to the traditional cast aluminium cleat.

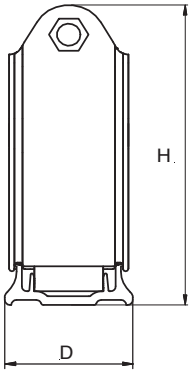
- More robust than the original trefoil cast cable cleats.
- Alpha Cleats come with easy one bolt fixing and zinc plated steel closing fastners.
- Alpha Cleats are available with two base options Aluminium or Polymer.
- The Polymeric base can be used to prevent galvanic corrosion.
- Manufactured in extruded aluminium (6000 series) to BS EN 755.

Special options available on request are:

- Single Cable format to specific cable diameters
- Polyester Coated
- Alternative Fastners

Max S/C Test Levels	Cleat Spacing
72kA	600mm
96kA	300mm





Selection Table for Trefoil Cable Application

Part No		Trefoil Cable dia Range (mm)		Dimensions (mm)			Fixing Holes (mm)	Weight (g)
Aluminium Base	LSp^ Zero Halogen Base	Min dia	Max dia	W	H	D		
ALP01-AN0	ALP01-AN1	23.2	25.1	76	93	48.5	1 x M10	168
ALP02-AN0	ALP02-AN1	25.1	27.1	79	96	48.5	1 x M10	178
ALP03-AN0	ALP03-AN1	27.1	29.3	82	101	48.5	1 x M10	185
ALP04-AN0	ALP04-AN1	29.3	31.7	86	105	48.5	1 x M10	195
ALP05-AN0	ALP05-AN1	31.7	34.2	91	110	48.5	1 x M10	205
ALP06-AN0	ALP06-AN1	34.2	37.0	96	116	48.5	1 x M10	217
ALP07-AN0	ALP07-AN1	37.0	40.0	101	121	48.5	1 x M10	229
ALP08-AN0	ALP08-AN1	40.0	43.2	106	127	48.5	1 x M10	241
ALP09-AN0	ALP09-AN1	43.2	46.7	113	134	48.5	1 x M10	255
ALP10-AN0	ALP10-AN1	46.7	50.5	119	141	48.5	1 x M10	272
ALP11-AN0	ALP11-AN1	50.5	54.6	127	148	48.5	1 x M10	288
ALP12-AN0	ALP12-AN1	54.6	59.0	135	156	48.5	1 x M10	307
ALP13-AN0	ALP13-AN1	59.0	63.8	144	165	48.5	1 x M10	327
ALP14-AN0	ALP14-AN1	63.8	69.0	153	175	48.5	1 x M10	348
ALP15-AN0	ALP15-AN1	69.0	74.6	163	186	48.5	1 x M10	372

'Vari-cleat' - Stainless Steel & Aluminium Cable Cleats

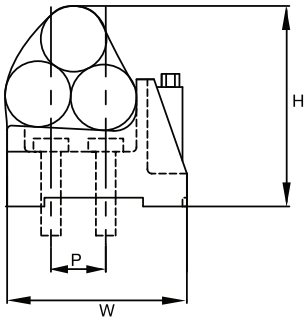
When you need compact cleats where the base can be fixed before the cables are in position.

- Vari-cleats withstand moderate levels of short-circuit and have a separate over strap that can be installed once the cables are in position.
- Available for trefoil, single or bundled cables.
- Available in over 30 sizes with range taking capability.

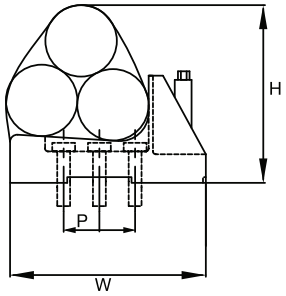
The design includes:

i. Base cast in aluminium (optional polyester or Kelvar available on request)
ii. Overstrap manufactured from type 316L stainless steel.
iii. Silicon Low Smoke & Fume liner is available on request.

Max S/C Test Level	Cleat Spacing
101kA	600mm



Base Sizes
AN, BN & CN



Base Sizes
DN, EN, FN GN & HN

'Vari-cleat' - Stainless Steel & Aluminium Cable Cleats

Selection Table for Single & Trefoil Applications

Part No. Suffix (see below)	Cable Range No Liner (mm)		Cable Range with Liner (mm)		Dimensions (mm)				Fixing Hole (mm)	Weight (g)
	Trefoil Dia	Single Dia	Trefoil Dia	Single Dia	W	H	D	P		
VC-AN1-	21-24	36-43	19-22	31-38	82	80	74	25	2 x M8	373
VC-AN2-	22-26	41-48	21-24	36-43	82	84	74	25	2 x M8	373
VC-AN3-	24-28	44-51	23-26	39-46	83	88	74	25	2 x M8	373
VC-AN4-	26-30	49-54	25-29	44-51	86	92	74	25	2 x M8	373
VC-BN1-	29-33	51-59	27-31	46-54	97	94	74	25	2 x M8	430
VC-BN2-	30-35	55-63	29-33	50-58	97	97	74	25	2 x M8	430
VC-BN3-	32-37	60-68	30-36	55-63	100	101	74	25	2 x M8	430
VC-BN4-	34-38	64-70	33-38	59-68	104	105	74	25	2 x M8	430
VC-CN1-	37-42	68-76	35-40	63-71	117	105	76	25	2 x M8	490
VC-CN2-	39-44	72-81	37-42	67-76	117	109	76	25	2 x M8	490
VC-CN3-	42-47	76-85	39-45	71-80	118	115	76	25	2 x M8	490
VC-CN4-	44-48	81-87	44-48	76-86	124	121	76	50	2 x M8	490
VC-DN1-	47-53	86-96	47-51	81-91	138	126	78	50	2 x M8+1 x M10	610
VC-DN2-	50-56	91-100	49-54	86-95	141	132	78	50	2 x M8+1 x M10	610
VC-DN3-	54-59	96-105	52-57	91-100	147	138	78	50	2 x M8+1 x M10	610
VC-DN4-	56-60	101-106	55-60	96-106	153	144	78	75	2 x M8+1 x M10	610
VC-EN1-	59-63	105-112	58-62	100-107	163	147	80	75	2 x M8+1 x M10	730
VC-EN2-	62-67	111-118	61-66	106-113	167	154	80	75	2 x M8+1 x M10	730
VC-EN3-	65-70	118-125	64-69	113-120	174	160	80	75	2 x M8+1 x M10	730
VC-EN4-	68-74	125-132	67-73	120-127	181	167	80	75	2 x M8+1 x M10	730
VC-FN1-	71-76	125-140	69-74	120-135	187	170	82	90	3 x M12	880
VC-FN2-	74-80	132-145	72-78	128-140	194	177	82	90	3 x M12	880
VC-FN3-	78-84	139-152	76-82	134-147	201	185	82	90	3 x M12	880
VC-FN4-	82-88	148-160	80-86	143-155	210	193	82	90	3 x M12	880
VC-GN1-	84-91	145-160	82-89	140-155	217	197	82	114	3 x M12	970
VC-GN2-	88-95	155-170	86-93	150-165	225	205	82	114	3 x M12	970
VC-GN3-	92-99	165-180	90-97	160-175	233	213	82	114	3 x M12	970
VC-GN4-	96-103	175-190	94-101	170-185	240	221	82	114	3 x M12	970
VC-HN1-	98-106	170-190	96-104	165-185	247	229	84	136	3 x M12	1170
VC-HN2-	102-110	180-200	100-108	175-195	255	237	84	136	3 x M12	1170
VC-HN3-	106-114	190-205	104-112	185-200	263	245	84	136	3 x M12	1170
VC-HN4-	110-118	200-215	108-116	195-210	271	252	84	136	3 x M12	1170

Suffix 1	
A	No liner
B	Linered
C	Heavy Duty No liner
D	Heavy Duty Linered

Suffix 2	
N	Natural
P	Polyester - Black
K	Kelvar
C	Kelvar & Flange Nut

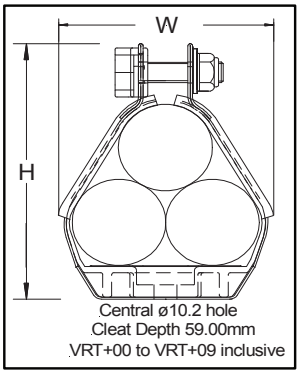
Suffix 3	
0	Standard Holes

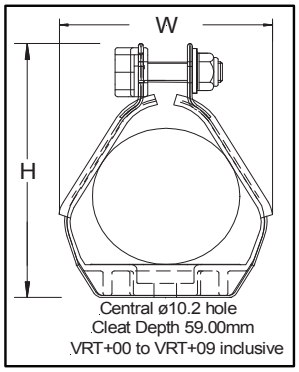
Vulcan+ Stainless Steel Cable Cleat

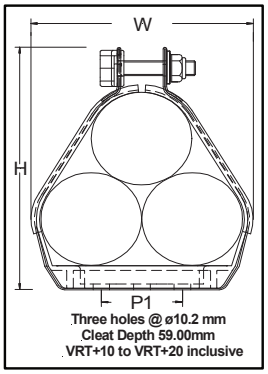
When you need cleats that withstand moderate levels of short-circuit.

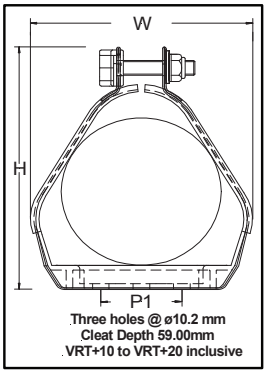
- Vulcan+ Cleats have a unique compact design so that they can be easily installed, even when space is limited.
- Available in multiple sizes with range-taking capability, to suit trefoil, single, quad or bundled cables.
- Manufactured in Type 316L stainless steel, Vulcan+ offers excellent protections against the harshest environmental conditions.
- The cleat comes with an integral Low smoke and Fume Zero Halogen Polymeric liner and base pad to protect and cushion the cables during short-circuit conditions.
- For a more economical installation, cleats can be spaced more widely, with a retention strap fitted in between. (See Page Flexi Strap 33)

Max S/C Test Level	Cleat Spacing
104kA	600mm
132kA	300mm









Vulcan+ Range Taking Cable Cleat

Selection Table for Trefoil & Single Cable Application

Part No	Trefoil Cable Range (mm)		Single Cable Range (mm)		Dimensions (mm)					Weight (g)
	Min Dia	Max Dia	Min Dia	Max Dia	W	H	D	P	Fixing Holes	
VRT+00	19	24	30	42	60	93	54	n/a	1 x M10	251
VRT+01	23	28	38	50	63	98	54	n/a	1 x M10	258
VRT+02	27	32	43	58	72	106	54	n/a	1 x M10	269
VRT+03	30	35	49	64	79	112	54	n/a	1 x M10	279
VRT+04	33	38	55	70	85	118	54	n/a	1 x M10	284
VRT+05	36	42	58	75	96	125	54	n/a	1 x M10	319
VRT+06	40	46	63	84	105	133	54	n/a	1 x M10	331
VRT+07	44	50	73	90	112	140	54	n/a	1 x M10	391
VRT+08	48	55	83	100	121	149	54	n/a	1 x M10	405
VRT+09	51	58	86	104	126	154	54	n/a	1 x M10	411
VRT+10	55	62	88	110	134	162	54	50	3 x M10	442
VRT+11	59	66	90	115	143	170	54	50	3 x M10	453
VRT+12	63	70	100	125	152	177	54	50	3 x M10	460
VRT+13	67	74	107	132	161	185	54	75	3 x M10	524
VRT+14	71	78	120	145	169	192	54	75	3 x M10	536
VRT+15	74	82	125	150	176	199	54	75	3 x M10	542
VRT+16	77	85	132	153	183	205	54	75	3 x M10	544
VRT+17	81	89	136	156	190	216	54	75	3 x M10	618
VRT+18	85	93	139	159	200	225	54	75	3 x M10	628
VRT+19	89	97	142	162	200	235	54	75	3 x M10	637
VRT+20	93	101	150	170	215	240	54	75	3 x M10	646

Selection Table for Quad Cable Application

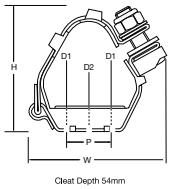
Part No	Quad Cable Range (mm)		Dimensions (mm)					
	Min Dia	Max Dia	W	H	D	P	Fixing Holes	Weight (g)
VRQ+01	23	25	68	110	54	n/a	1 x M10	284
VRQ+02	26	27	70	113	54	n/a	1 x M10	286
VRQ+03	28	32	80	128	54	n/a	1 x M10	318
VRQ+04	33	42	103	148	54	n/a	1 x M10	378
VRQ+05	43	47	120	165	54	n/a	1 x M10	452
VRQ+06	48	50	121	170	54	n/a	1 x M10	467
VRQ+07	51	57	140	190	54	50	3 x M10	486
VRQ+08	58	63	150	200	54	50	3 x M10	499
VRQ+09	64	70	170	218	54	75	3 x M10	581

Emperor - Stainless Steel Cable Cleat

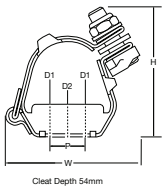
When you need cleats that withstand the highest level of short-circuit

- The Emperor range offers the ultimate protection against the harshest conditions. Its unique design helps in quick installation.
- Manufactured in Type 316L stainless steel.
- Available in multiple sizes with range taking capability, to suit trefoil or single cables.
- Supplied with integral Low Smoke and Fume Polymeric liner and base pad to protect and cushion cables during short circuit conditions.
- For a more economical installations, cleats can be spaced more widely, with a retention strap fitted in between (see Flexi Strap Page 33)

Trefoil



Single



Max S/C Test Level	Cleat Spacing
156kA	600mm
195kA	300mm
235kA	225mm

Selection Table for Trefoil Cable Application

Part No	Cable Range (mm)		Dimensions (mm)					Weight (g)
	Min dia	Max dia	W	H	D	P	Fixing Holes	
ER23-28	23	28	96	83	54	25	2 x M10 + 1 x M12	425
ER27-32	27	32	97	88	54	25	2 x M10 + 1 x M12	440
ER30-35	30	35	99	91	54	25	2 x M10 + 1 x M12	445
ER33-38	33	38	103	95	54	25	2 x M10 + 1 x M12	460
ER36-42	36	42	124	100	54	50	2 x M10 + 1 x M12	600
ER40-46	40	46	125	106	54	50	2 x M10 + 1 x M12	605
ER44-50	44	50	130	117	54	50	2 x M10 + 1 x M12	630
ER48-55	48	55	132	121	54	50	2 x M10 + 1 x M12	640
ER51-58	51	58	136	128	54	50	2 x M10 + 1 x M12	650
ER55-62	55	62	160	135	54	75	2 x M10 + 1 x M12	810
ER59-66	59	66	163	143	54	75	2 x M10 + 1 x M12	825
ER63-70	63	70	166	151	54	75	2 x M10 + 1 x M12	850
ER67-74	67	74	169	158	54	75	2 x M10 + 1 x M12	850
ER71-78	71	78	172	165	54	75	2 x M10 + 1 x M12	890
ER74-82	74	82	177	171	54	75	2 x M10 + 1 x M12	890
ER77-85	77	85	183	177	54	75	2 x M10 + 1 x M12	905
ER82-88	82	88	191	187	54	75	2 x M10 + 1 x M12	820
ER88-96	88	96	207	203	54	75	2 x M10 + 1 x M12	890
ER96-103	96	103	221	218	54	75	2 x M10 + 1 x M12	940
ER103-111	103	111	237	235	54	75	2 x M10 + 1 x M12	950
ER111-119	111	119	253	250	54	75	2 x M10 + 1 x M12	1010
ER119-128	119	128	265	275	54	75	2 x M10 + 1 x M12	1220

Selection Table for Single Cable Application

Part No	Cable Range (mm)		Dimensions (mm)					Weight (g)
	Min dia	Max dia	W	H	D	P	Fixing Holes	
ES32-39	32	39	91	89	54	25	2 x M10 + 1 x M12	450
ES37-45	37	45	96	93	54	25	2 x M10 + 1 x M12	470
ES44-52	44	52	99	98	54	25	2 x M10 + 1 x M12	480
ES51-59	51	59	103	102	54	25	2 x M10 + 1 x M12	490
ES58-66	58	66	109	101	54	25	2 x M10 + 1 x M12	500
ES65-73	65	73	111	103	54	25	2 x M10 + 1 x M12	510
ES73-85	73	85	135	112	54	50	2 x M10 + 1 x M12	640
ES84-94	84	94	135	135	54	50	2 x M10 + 1 x M12	660
ES94-118	94	118	160	150	54	75	2 x M10 + 1 x M12	710
ES118-130	118	130	175	160	54	75	2 x M10 + 1 x M12	900
ES127-150	127	150	180	180	54	75	2 x M10 + 1 x M12	940

Flexi Strap - Stainless Steel Intermediate Short Circuit Strap

Retains ultimate protection when your cleats are widely spaced.

- Immensely strong intermediate straps that can be used on trefoil cables with our Vulcan+ and Emperor cleats, for a more cost effective solution.
- Available in standard or heavy duty form, the FlexiStrap is manufactured in type 316L stainless steel, and can withstand the highest levels of short-circuit.
- The design is easy to use and can be rapidly installed.
- In its standard form (SD), FlexiStrap would typically be paired with Vulcan+ cleats and is installed by wrapping the strap twice around the cables. In its heavy duty form (HD), FlexiStrap would typically be paired with Emperor cleats and is installed by wrapping the strap three times around the cables.
- Short circuit tested in accordance with IEC 61914:2009.
- Supplied with or without a Low Smoke and Fume Zero Halogen Polymeric liner. However, if it needs to comply with the standard, it must have this liner.

Standard Duty (SD)

Part No	Trefoil Cable Formation (mm)		Weight (g)
	Min. Dia.	Max. Dia.	
FS24-34SD	24	34	131
FS30-41SD	30	41	144
FS37-47SD	37	47	155
FS43-54SD	43	54	168
FS50-60SD	50	60	180
FS56-67SD	56	67	193
FS63-73SD	63	73	204
FS69-80SD	69	80	217
FS72-85SD	72	85	226
FS82-95SD	82	95	245
FS92-105SD	92	105	264
FS102-115SD	102	115	282
FS112-125SD	112	125	301
FS122-135SD	122	135	319
FS132-145SD	132	145	338
FS-T001-4	Special Drive Socket		

Heavy Duty (HD)

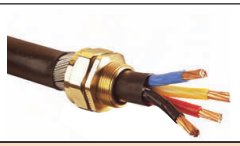
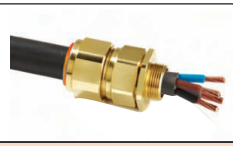
Part No	Trefoil Cable Formation (mm)		Weight (g)
	Min. Dia.	Max. Dia.	
FS24-34HD	24	34	165
FS30-41HD	30	41	185
FS37-47HD	37	47	202
FS43-54HD	43	54	221
FS50-60HD	50	60	238
FS56-67HD	56	67	258
FS63-73HD	63	73	275
FS69-80HD	69	80	294
FS72-85HD	72	85	308
FS82-95HD	82	95	336
FS92-105HD	92	105	364
FS102-115HD	102	115	392
FS112-125HD	112	125	420
FS122-135HD	122	135	448
FS132-145HD	132	145	476
FS-T001-4	Special Drive Socket		

FlexiStrap is available with or without Polymeric LSZH liner. If a liner is required add suffix L to the part number.

Sample Part number - Trefoil Strap 24 to 34mm Standard Duty with liner FS24-34SDL

- FlexiStrap can also be used to contain bundles of cable.
- All Straps are 50mm wide.

DUCAB XLPE Insulated 600/1000V Cables to BS 5467
CABLE ACCESSORIES REFERENCE CHART



Nom. Area	No. of Cores	BW Gland		CW Gland		E1W Gland		Tinned Copper Connector	Industrial Cleat HFIC00000	Two Bolt Cleat HFIC00000
		Size	HGIB00000	Size	HGIB00000	Size	HGIB00000			
1.5	2	20S	17	20S	29	20S	46	HBT2C-	49	-
	3	20S	17	20S	29	20S	46	HBT2C-	49	-
	4	20S	17	20S	29	20S	46	HBT2C-	49	-
	7	20	18	20	30	20	47	HBT2C-	50	-
	12	25	19	25S	31	25S	48	HBT2C-	51	-
	19	25	19	25	32	25	49	HBT2C-	52	-
	27	32	20	32	33	32	50	HBT2C-	53	-
	37	32	20	32	33	32	50	HBT2C-	54	-
	48	32	20	32	33	32	50	HBT2C-	54	-
2.5	2	20S	17	20S	29	20S	46	HBT2C-	49	-
	3	20S	17	20S	29	20S	46	HBT2C-	49	-
	4	20S	17	20S	29	20S	46	HBT2C-	49	-
	7	20	18	20	30	20	47	HBT2C-	51	-
	12	25	19	25	32	25	49	HBT2C-	52	-
	19	32	20	32	33	32	50	HBT2C-	53	-
	27	32	20	32	33	32	50	HBT2C-	54	-
	37	40	21	40	34	40	51	HBT2C-	55	-
4	2	20S	17	20S	29	20S	46	HBT6C-	50	-
	3	20S	17	20S	29	20S	46	HBT6C-	50	-
	4	20	18	20	30	20	47	HBT6C-	51	-
6	2	20	18	20	30	20	47	HBT6C-	50	-
	3	20	18	20	30	20	47	HBT6C-	51	-
	4	20	18	20	30	20	47	HBT6C-	51	-
10	2	25	19	25S	31	25S	48	HBT10C-	52	-
	3	25	19	25S	31	25S	48	HBT10C-	52	-
	4	25	19	25	32	25	49	HBT10C-	52	-
16	2	25	19	25S	31	25S	48	HBT16C-	52	-
	3	25	19	25S	31	25S	48	HBT16C-	52	-
	4	25	19	25	32	25	49	HBT16C-	52	-

< < Previous Page

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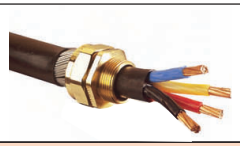
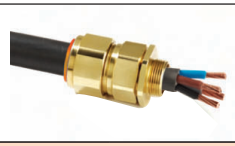
Nom. Area	No. of Cores	BW Gland		CW Gland		E1W Gland		Tinned Copper Connector	Industrial Cleat HFIC00000	Two Bolt Cleat HFIC00000
		Size	HGIB00000	Size	HGIB00000	Size	HGIB00000			
25	2	25	19	25	32	25	49	HBT25C-	53	-
	3	32	20	32	33	32	50	HBT25C-	53	-
	4	32	20	32	33	32	50	HBT25C-	53	-
35	2	32	20	32	33	32	50	HBT35C-	53	-
	3	32	20	32	33	32	50	HBT35C-	54	-
	4	32	20	32	33	32	50	HBT35C-	54	-
50	2	32	20	32	33	32	50	HBT50C-	53	-
	3	32	20	32	33	32	50	HBT50C-	54	-
	4	32	20	32	33	32	50	HBT50C-	54	-
70	2	32	20	32	33	32	50	HBT70C-	54	-
	3	32	20	32	33	32	50	HBT70C-	54	-
	4	40	21	40	34	40	51	HBT70C-	55	-
95	2	32	20	32	33	32	50	HBT95C-	54	-
	3	40	21	40	34	40	51	HBT95C-	55	-
	4	50S	22	50S	35	50S	52	HBT95C-	56	11
120	2	40	21	40	34	40	51	HBT120C-	55	11
	3	50S	22	50S	35	50S	52	HBT120C-	55	11
	4	50	23	50	36	50	53	HBT120C-	56	12
150	2	40	21	40	34	40	51	HBT150C-	55	11
	3	50S	22	50S	35	50S	52	HBT150C-	55	12
	4	50	23	50	36	50	53	HBT150C-	56	13
185	2	50S	22	50S	35	50S	52	HBT185C-	56	11
	3	50	23	50	36	50	53	HBT185C-	56	12
	4	63S	24	63S	37	63S	54	HBT185C-	-	13
240	2	50	23	50	36	50	53	HBT240C-	56	12
	3	63S	24	63S	37	63S	54	HBT240C-	-	13
	4	63	25	63	38	63	55	HBT240C-	-	14
300	2	63S	24	63S	37	63S	54	HBT300C-	-	13
	3	63	25	63	38	63	55	HBT300C-	-	14
	4	75S	26	75S	39	75S	56	HBT300C-	-	15
400	2	75S	26	75S	39	75S	56	HBT400C-	-	15
	3	75S	26	75S	39	75S	56	HBT400C-	-	15
	4	75	27	75	40	75	57	HBT400C-	-	17
500	4	75	27	90	41	90	58	HBT500C-	-	17
630	1	-	-	* 50	09	-	-	HBT630C-	56	12

Ordering Ref: When ordering connectors specify stud hole size required. Eg. HBT10C8 is a 10mm² connector with a 8mm stud hole.
Note: The dimensions of cable vary with manufacturing tolerances. We advise the cable diameter is measured where possible before purchasing components. The recommendations here are given in good faith but Ducab cannot be held liable for mistakes in selection however caused.
* CW Aluminium Cable Gland recommended

STANDARD SECTION CHART

DUCAB Smokemaster LSZH 600/1000V Cables to BS 6724
CABLE ACCESSORIES REFERENCE CHART



Nom. Area	No. of Cores	BW Gland		CW Gland		E1W Gland		Tinned Copper Connector	Industrial Cleat HFIC00000	Two Bolt Cleat HFIC00000
		Size	HGLB00000	Size	HGLB00000	Size	HGLB00000			
1.5	2	20S	17	20S	29	20S	46	HBT2C-	57	-
	3	20S	17	20S	29	20S	46	HBT2C-	57	-
	4	20S	17	20S	29	20S	46	HBT2C-	57	-
	7	20	18	20	30	20	47	HBT2C-	58	-
	12	25	19	25S	31	25S	48	HBT2C-	59	-
	19	25	19	25	32	25	49	HBT2C-	60	-
	27	32	20	32	33	32	50	HBT2C-	61	-
	37	32	20	32	33	32	50	HBT2C-	62	-
	48	32	20	32	33	32	50	HBT2C-	62	-
2.5	2	20S	17	20S	29	20S	46	HBT2C-	57	-
	3	20S	17	20S	29	20S	46	HBT2C-	57	-
	4	20S	17	20S	29	20S	46	HBT2C-	57	-
	7	20	18	20	30	20	47	HBT2C-	59	-
	12	25	19	25	32	25	49	HBT2C-	60	-
	19	32	20	32	33	32	50	HBT2C-	61	-
	27	32	20	32	33	32	50	HBT2C-	62	-
	37	40	21	40	34	40	51	HBT2C-	63	-
4	2	20S	17	20S	29	20S	46	HBT6C-	58	-
	3	20S	17	20S	29	20S	46	HBT6C-	58	-
	4	20	18	20	30	20	47	HBT6C-	59	-
6	2	20	18	20	30	20	47	HBT6C-	58	-
	3	20	18	20	30	20	47	HBT6C-	59	-
	4	20	18	20	30	20	47	HBT6C-	59	-
10	2	25	19	25S	31	25S	48	HBT10C-	60	-
	3	25	19	25S	31	25S	48	HBT10C-	60	-
	4	25	19	25	32	25	49	HBT10C-	60	-
16	2	25	19	25S	31	25S	48	HBT16C-	60	-
	3	25	19	25S	31	25S	48	HBT16C-	60	-
	4	25	19	25	32	25	49	HBT16C-	60	-

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Nom. Area	No. of Cores	BW Gland		CW Gland		E1W Gland		Tinned Copper Connector	Industrial Cleat HFIC00000	Two Bolt Cleat HFIC00000
		Size	HGLB00000	Size	HGLB00000	Size	HGLB00000			
25	2	25	19	25	32	25	49	HBT25C-	61	-
	3	32	20	32	33	32	50	HBT25C-	61	-
	4	32	20	32	33	32	50	HBT25C-	61	-
35	2	32	20	32	33	32	50	HBT35C-	61	-
	3	32	20	32	33	32	50	HBT35C-	62	-
	4	32	20	32	33	32	50	HBT35C-	62	-
50	2	32	20	32	33	32	50	HBT50C-	61	-
	3	32	20	32	33	32	50	HBT50C-	61	-
	4	32	20	32	33	32	50	HBT50C-	62	-
70	2	32	20	32	33	32	50	HBT70C-	62	-
	3	32	20	32	33	32	50	HBT70C-	62	-
	4	40	21	40	34	40	51	HBT70C-	63	35
95	2	32	20	32	33	32	50	HBT95C-	62	-
	3	40	21	40	34	40	51	HBT95C-	63	-
	4	50S	22	50S	35	50S	52	HBT95C-	64	35
120	2	40	21	40	34	40	51	HBT120C-	63	-
	3	50S	22	50S	35	50S	52	HBT120C-	63	35
	4	50	23	50	36	50	53	HBT120C-	64	36
150	2	40	21	40	34	40	51	HBT150C-	55	11
	3	50S	22	50S	35	50S	52	HBT150C-	64	35
	4	50	23	50	36	50	53	HBT150C-	-	37
185	2	50S	22	50S	35	50S	52	HBT185C-	64	35
	3	50	23	50	36	50	53	HBT185C-	64	36
	4	63S	24	63S	37	63S	54	HBT185C-	-	37
240	2	50	23	50	36	50	53	HBT240C-	56	12
	3	63S	24	63S	37	63S	54	HBT240C-	-	37
	4	63	25	63	38	63	55	HBT240C-	-	38
300	2	63S	24	63S	37	63S	54	HBT300C-		13
	3	63	25	63	38	63	55	HBT300C-	-	38
	4	75S	26	75S	39	75S	56	HBT300C-	-	39
400	2	75S	26	75S	39	75S	56	HBT400C-	-	39
	3	75S	26	75S	39	75S	56	HBT400C-	-	39
	4	75	27	75	40	75	57	HBT400C-	-	38
500	4	75	27	90	41	90	58	HBT500C-	-	38
630	1	-	-	* 50	09	-	-	HBT630C-	64	36

Ordering Ref: When ordering connectors specify stud hole size required. Eg. HBT10C8 is a 10mm² connector with a 8mm stud hole.
Note: The dimensions of cable vary with manufacturing tolerances. We advise the cable diameter is measured where possible before purchasing components. The recommendations here are given in good faith but Ducab cannot be held liable for mistakes in selection however caused.
*** CW Aluminium Cable Gland recommended**

STANDARD SECTION CHART

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دوكاب كونكت
Ducab Connect
MAKING CONNECTIONS

DuCat015/Version 1.2/0212 (2000 copies)

Bimetallic Terminals

Description

- The product ranges of bimetallic terminals are designed for reliable and controllable electrical bimetallic connections.
- The current carrying capacity of these splices is at least equal to or higher than of the main conductor.
- Terminals are made of Aluminium barrel and copper palm friction welded.
- The barrel is pre-filled with neutral grease and capped.
- The barrel design has been matched to the cable range size to provide the necessary physical strength requirements for reliable electrical performance.
- These terminals are designed for M.V. and L.V. underground distribution applications.
- The bimetallic terminals meet the NFC 33.090 standard.

Construction

- Made from
  - o Palm : Cu 99.9 % pure
  - o Barrel : Al 99.5 % pure

Figure 1

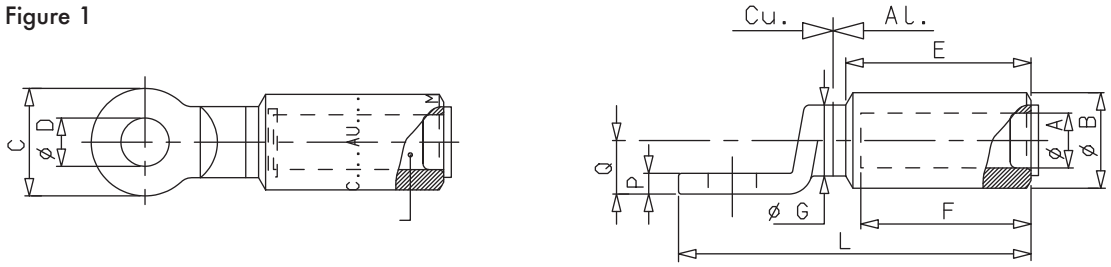
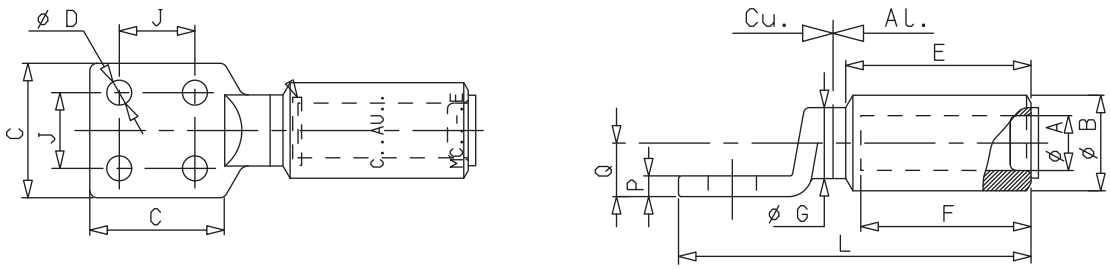


Figure 2



Technical Characteristics

Section (mm^2)	Part Number	Fig.	Dimensions (mm)							
			Ø A	Ø B	Ø C	Ø D	E	F	P	L
25	Y4A25A105C	1	6.5	16.0	20.0	10.5	48.0	41.5	4.5	83.0
35	Y4A35A128C		8.0	16.0	25.0	12.8	48.0	41.5	5.0	89.0
50	Y4A50A128C		9.0	20.0	25.0	12.8	47.0	41.5	5.0	89.0
70	Y4A70A128C		11.0	20.0	25.0	12.8	47.0	41.5	5.0	89.0
95	Y4A95A128C		12.5	20.0	25.0	12.8	47.0	41.5	5.0	89.0
120	Y4A120A128C		13.7	25.0	30.0	12.8	63.5	57.0	6.0	112.0
150	Y4A150A128C		15.5	25.0	30.0	12.8	63.5	57.0	6.0	112.0
185	Y4A185A128C		17.0	32.0	30.0	12.8	63.0	57.0	6.0	114.0
240	Y4A240A128C		19.5	32.0	30.0	12.8	63.0	57.0	6.0	114.0
300	Y4A300A165C		23.3	40.0	36.0	16.5	99.0	91.0	7.0	156.0
400	Y4A400A165C		26.0	40.0	36.0	16.5	99.0	91.0	7.0	156.0
500	Y4A500A490C	2	29.1	47.0	60x60	4x9	101.0	92.5	10.0	187.0
630	Y4A630A490C		32.5	47.0	60x60	4x9	101.0	92.5	10.0	187.0