



CERTA

ELECTRIK CORPORATION



CERTA ELECTRIK CORPORATION

**Manufacturer & Exporter of
Electrical Components and Accessories**

Sativali, Vasai (E), Maharashtra

MAKE CONNECTIONS SAFE & RELIABLE



STAINLESS STEEL CLEATS



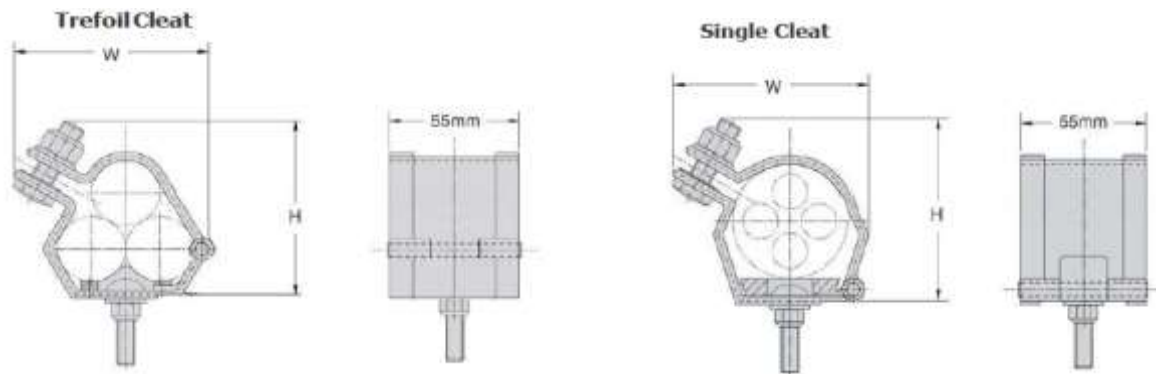
ALUMINIUM CLEATS



NONMETAL CLEATS



STAINLESS STEEL CLEATS



Our Cable Cleats are designed to support and retain your cables within cable tray system in everyday conditions. More importantly, they help prevent damage in short circuit conditions.

Unfortunately, short circuits do happen, correctly installed cable cleats can restrain the cables within the cable tray, helping avoid cable breaks that can cause damage to the tray systems and injury to your personnel.

V-Sword cable cleats are manufactured in 316L stainless steel materials which have high performance on abrasion, weathering, corrosion and temperature resistance. It is available in multiple sizes with range-taking capability, to suit trefoil or single type cables.

V-Sword cable cleats compact design means that it takes up a minimum amount of space on cable ladder rung or any suitable cable management system, it's quick and easy to install, which can lead

Also in order to protect and cushion the cables during short circuit conditions, the cleat is offered with an integral Halogen Free LSF (Low Smoke and Fume) polymeric liner and base pad.

V-Sword cable cleats strictly follow the IEC Standard 61914 (2009) and European Standard EN50368 (2003), passed the short circuit test in the independent lab

Short Circuits and Short Circuit Testing

Short circuit current is given either as a "peak" or an "rms" value. The peak current is the maximum current experienced by any of the phases and it occurs once within the first few milliseconds of the start of the fault. The rms current is a calculated value for the initial cycles of the fault. The relationship between peak current and rms current varies from installation to installation.

The forces experienced by a cleat during a short circuit are a function of short circuit current, cleat spacing and the distance between the cable centres (in the case of trefoil arrangements this is the cable diameter). The following formula taken from the current standard for cable cleats calculates the force experienced by a cleat with cables arranged in trefoil formation:

Where:

$$F_t = \frac{0.17 \times i_p^2}{S} \quad \text{Before Short Circuit Test}$$

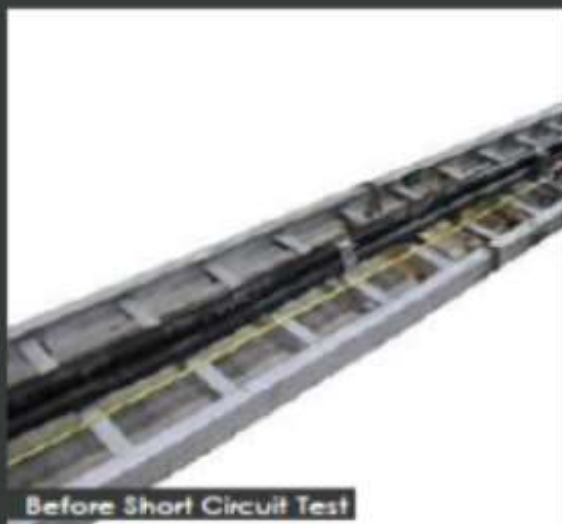
F_t = Maximum force on the cable connector in trefoil formation for a three phase short-circuit (N/m)

i_p = The peak short-circuit current (kA)

S = The cable diameter (m)

This formula gives the static load instantaneously created by the short circuit, however the phase changes of the alternating current mean that the forces on the cable and their direction are changing continuously. No simple formula and no static test can assess the effect of these dynamic forces. The ultimate proof of any product to withstand a short-circuit is to undertake a short-circuit test.

A Copy of the video footage of the "Short Circuit Test" on CD is available on request by sending your details including company, contact telephone and delivery address to JJW Electric
Customer Services: Market@jjwelectric.com



Before Short Circuit Test



After Short Circuit Test



Cable Cleat Selection and Specification



Step 1. Know Your Cables

- What type of cable is being used? Single or Multi-conductor?
- What is the outside diameter of the cable(s)?
- What is the cable arrangement (single conductor cables only)? Flat or Trefoil?
- If a ground wire will be installed within the cleat, you will need the ground wire outside diameter.

Step 2. Know Your System

- What is the available short circuit current (RMS or i_p (peak))?
- What type of cable tray is installed?

Step 3. Select Your Cable Cleats and Mounting Bracket

See Page Page 07 - Page 08

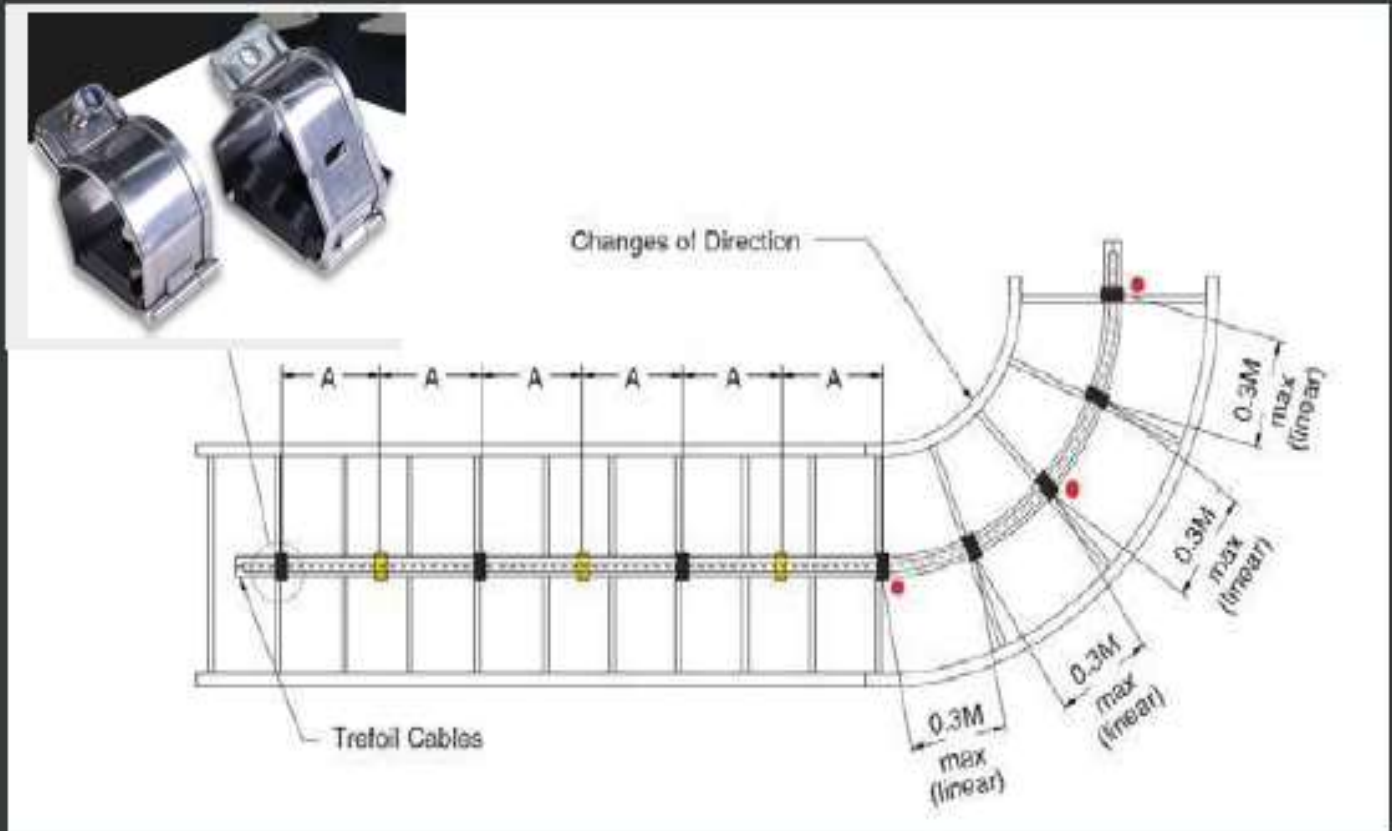
Step 4. Determine Cleat Spacing for Installation

- Your cable diameter is equal to the spacing between conductor centers shown below.
- Find your cable diameter at the top of the table and look down at the column below it.
- Find the value equal to or greater than the available short circuit for your system.

Single Conductor Short Circuit Withstand Table

Max. Cable Cleat Spacing (A)		Spacing Between Conductor Centers (mm)											
		23	25	27	29	31	33	35	37	39	41	43	45
mm	In.	i_p peak (KA)											
225	9	179	187	194	203	209	216	220	229	234	240	246	250
300	12	155	163	168	174	181	187	192	198	203	209	214	215
450	18	128	133	137	144	148	152	157	161	165	170	174	178
600	24	110	115	119	124	128	132	135	139	143	148	150	153
675	27	104	108	113	117	121	124	128	132	135	139	143	147
900	36	89	93	97	102	108	108	110	115	117	121	124	127

Recommended Installation Procedures:



It is important that the cleats are installed properly to secure your cables:

- It is not necessary for every cleat to be attached to the tray. Every other cleat () must be attached to the tray system to mount cable in tray. Unattached cleats () provide additional restraint to keep cables bundled.
- The bend radius should be 8 to 12 times the cable diameter.
- Cleats should always be installed at the beginning, middle and end of a bend (), and at no time should the distance between cleats on a bend be more than 0.3M center to center.





Performance on the Cable Cleats	
Resistance to Electromechanical Force	230KA Perk 300mm Spacing
Lateral Load Test	Average 25kgs
Axial Load Test	Pass
Max and Min Temperature	-40°C-120°C
Resistance to Impact	Very Heavy
Needle Flame Test	30 Seconds
Resistant to UV Light Test	1000 Hours

Construction Data of the Cable Cleats	
Cleat Material	Composite
Frame	54mm2*2.0mm, Marine Grade, Non-magnetic 316L
Closure Hardware	316SS M8 or M10 and Nylon Lock Nut
Integral Pad	Smoke, Low Fume, Halogen Free
Tools Required	Wrench
Mounting Bolt	Provided with the Cable Cleat

SINGLE CLEATS:

CODE	CABLE RANGE				DIMENSIONS			
	MIN. DIAMETER		MAX. DIAMETER		H		W	
	MM	INCH	MM	INCH	MM	INCH	MM	INCH
CES-S2832	28	1.10	32	1.26	60	2.36	57	2.24
CES-S3034	30	1.18	34	1.34	61	2.40	59	2.32
CES-S3236	32	1.26	36	1.42	63	2.48	61	2.40
CES-S3438	34	1.34	38	1.50	65	2.56	63	2.38
CES-S3640	36	1.42	40	1.57	67	2.64	64	2.52
CES-S3842	38	1.50	42	1.65	69	2.72	65	2.56
CES-S4044	40	1.57	44	1.73	70	2.76	68	2.68
CES-S4246	42	1.65	46	1.81	71	2.80	69	2.72
CES-S4448	44	1.73	48	1.89	73	2.87	72	2.83
CES-S4650	46	1.81	50	1.97	74	2.91	73	2.87
CES-S4852	48	1.89	52	2.05	75	2.95	77	3.03
CES-S5054	50	1.97	54	2.13	78	3.07	78	3.07
CES-S5256	52	2.05	56	2.20	79	3.11	80	3.15
CES-S5458	54	2.13	58	2.28	80	3.15	82	3.23
CES-S5660	56	2.20	60	2.36	81	3.19	85	3.35
CES-S5862	58	2.28	62	2.44	82	3.23	87	3.43
CES-S6064	60	2.36	64	2.52	85	3.35	88	3.46
CES-S6266	62	2.44	66	2.60	87	3.43	90	3.54
CES-S6488	64	2.52	68	2.68	89	3.50	91	3.58
CES-S6670	66	2.60	70	2.76	90	3.54	92	3.62
CES-S6872	68	2.68	72	2.83	92	3.62	94	3.70
CES-S7074	70	2.76	74	2.91	95	3.74	97	3.82
CES-S7276	72	2.83	76	2.99	97	3.82	99	3.90
CES-S7478	74	2.91	78	3.07	98	3.86	10	4.02



CODE	CABLE RANGE				DIMENSIONS			
	MIN. DIAMETER		MAX. DIAMETER		H		W	
	MM	INCH	MM	INCH	MM	INCH	MM	INCH
CES-S7680	76	2.99	80	3.15	100	3.94	104	4.09
CES-S7882	78	2.99	82	3.23	102	4.02	106	4.17
CES-S8048	80	3.15	84	3.31	105	4.13	107	4.21
CES-S8286	82	3.23	86	3.39	107	4.21	110	4.33
CES-S8489	84	3.31	88	3.46	109	4.29	111	4.37
CES-S8690	86	3.39	90	3.54	110	4.33	113	4.45
CES-S9094	90	3.54	94	3.70	115	4.53	121	4.76
CES-S94118	94	3.70	118	4.65	133	5.24	139	5.47
CES-S118130	118	4.65	130	5.12	140	5.51	144	5.67
CES-S127150	127	5.00	150	5.91	161	6.34	166	6.54

TREFOIL CLEATS:

CODE	CABLE RANGE				DIMENSIONS			
	MIN. DIAMETER		MAX. DIAMETER		H		W	
	MM	INCH	MM	INCH	MM	INCH	MM	INCH
CES-T1323	13	0.51	23	0.91	73	2.87	68	2.68
CES-T2125	21	0.83	25	0.98	75	2.95	72	2.83
CES-T2329	23	0.91	29	1.14	80	3.15	79	3.11
CES-T2531	25	0.98	31	1.22	83	3.27	82	3.23
CES-T2733	27	1.06	33	1.30	84	3.31	85	3.35
CES-T2935	29	1.14	35	1.38	89	3.50	90	3.54
CES-T3238	32	1.26	38	1.50	92	3.62	96	3.78
CES-T3541	35	1.38	41	1.61	98	3.86	100	3.94
CES-T3844	38	1.50	44	1.73	100	3.94	106	4.17
CES-T4248	42	1.65	48	1.89	104	4.09	113	4.45
CES-T4551	45	1.77	51	2.01	107	4.21	120	4.72
CES-T4753	47	1.85	53	2.09	110	4.33	122	4.80
CES-T4955	49	1.93	55	2.17	113	4.45	125	4.92
CES-T5157	51	2.01	57	2.24	115	4.53	127	5.00
CES-T5359	53	2.09	59	2.32	118	4.65	135	5.31
CES-T5561	55	2.17	61	2.40	122	4.80	138	5.43
CES-T5763	57	2.24	63	2.48	125	4.92	141	5.55
CES-T5965	59	2.32	65	2.56	126	4.96	145	5.71
CES-T6167	61	2.40	67	2.64	131	5.16	148	5.83
CES-T6369	63	2.48	69	2.72	134	5.28	153	6.02
CES-T6571	65	2.56	71	2.80	139	5.47	155	6.10
CES-T6773	67	2.64	73	2.87	143	5.63	156	6.14
CES-T6975	69	2.72	75	2.95	146	5.75	161	6.34
CES-T7177	71	2.80	77	3.03	150	5.91	164	6.46
CES-T7379	73	2.87	79	3.11	154	6.06	166	6.54
CES-T7581	75	2.95	81	3.19	157	6.18	170	6.69



CODE	CABLE RANGE				DIMENSIONS			
	MIN. DIAMETER		MAX. DIAMETER		H		W	
	MM	INCH	MM	INCH	MM	INCH	MM	INCH
CES-T7783	77	3.03	83	3.27	160	6.30	174	6.85
CES-T7985	79	3.11	85	3.35	162	6.38	178	7.01
CES-T8187	81	3.19	87	3.43	168	6.61	181	7.13
CES-T8389	83	3.27	89	3.50	172	6.77	185	7.28
CES-T8896	88	3.46	96	3.78	180	7.09	195	7.68
CES-T96103	96	3.78	103	4.06	189	7.44	203	7.99
CES-T103111	103	4.06	111	4.37	198	7.80	206	8.11
CES-T111119	111	4.37	119	4.69	207	8.15	215	8.46
CES-T119128	119	4.69	128	5.04	216	8.50	223	8.78



ALUMINIUM CLEATS

CERTA brand aluminium cable cleats are made of LM-6 cast alloy as per BS 1490 Which are designed according to IEC 61914-2009 and engineered for easy installation.

TECHNICAL SPECIFICATION

<u>Material</u>	: LM-6 Aluminium casting alloy conformd to BS1490			
<u>Chemical Composition%</u>	Copper	0.10Max.	Magnesium	0.10Max.
	Silicon	10.0 – 13.0	Iron	0.60Max.
	Manganese	0.50Max.	Nickel	0.10Max.
	Zinc	0.10Max.	Lead	0.10Max.
	Tin	0.05Max.	Titanium	0.20Max.
	Aluminium	Remaining.		

<u>Mechanical Properties:</u>	<u>Sand Cast:</u>	<u>Chill Cast:</u>
0.2% Proof stress (N/mm2)*	60 – 70	70 – 80
Tensile Stress (N/mm2)*	160 - 190	190 – 230
Elongation %*	5 – 10	7 – 15
Impact Resistance Izod (Nm)	6.0	9.0
Brinell Hardness Number	50 – 55	55 – 60
Endurance Limit (5x10 ⁷ cy N/mm ²)	51	68
Modulus of Elasticity (x10 ³ N/mm ²)	71	71
Shear Strength	120	

(* The value shown are typical ranges for sand and chill cast test bars produced to the requirements of BS1490 and for 6mm diameter die cast bars; those in heavier type are minimum specification values)

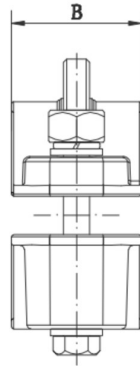
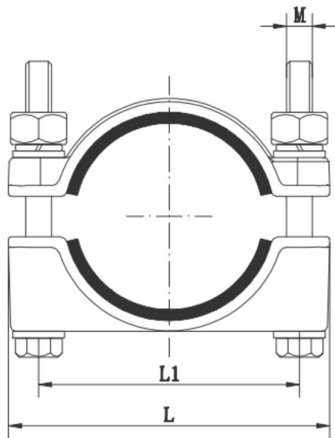
Strength at elevated temperatures:

Tensile strength and hardness decrease fairly regularly with increasing temperature and become relatively poor at temperatures of the order of 250 Degree C.

PHYSICAL PROPERTIES:

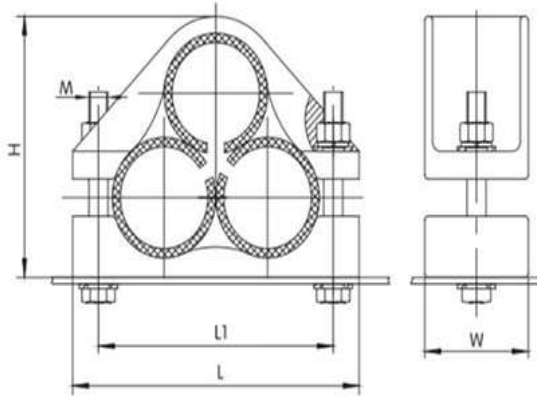
Coefficient of Thermal Expansion (per oC at 20-100oC) ..	0.000020
Thermal Conductivity (cal/cm ² /cm/oC/ at 25oC) *	0.34
Electrical Conductivity (% copper standard at 20oC *	37
(* Applies to sand castings; values are approximate and will vary with condition.)	
Solidification Shrinkage (approx. %)	3.7
Specific Gravity	2.65
Freezing Range (oC) approx.	575-565

ALUMINIUM CLEATS- DOUBLE BOLT



MODEL	CABLE -OD mm	L1	L2	L3	L4	M
JGW-01	28-45	75	105	50	65	12×80
JGW-0	45-65	95	125	50	85	12×100
JGW-1	65-85	120	155	55	105	12×110
JGW-2	80-100	130	165	55	120	12×130
JGW-3	90-110	140	175	55	130	12×130
JGW-4	100-120	155	192	62	140	12×130
JGW-5	120-140	185	222	75	170	12×150
JGW-6	140-166	195	226	80	195	12×180

ALUMINIUM CLEATS- TREFOIL



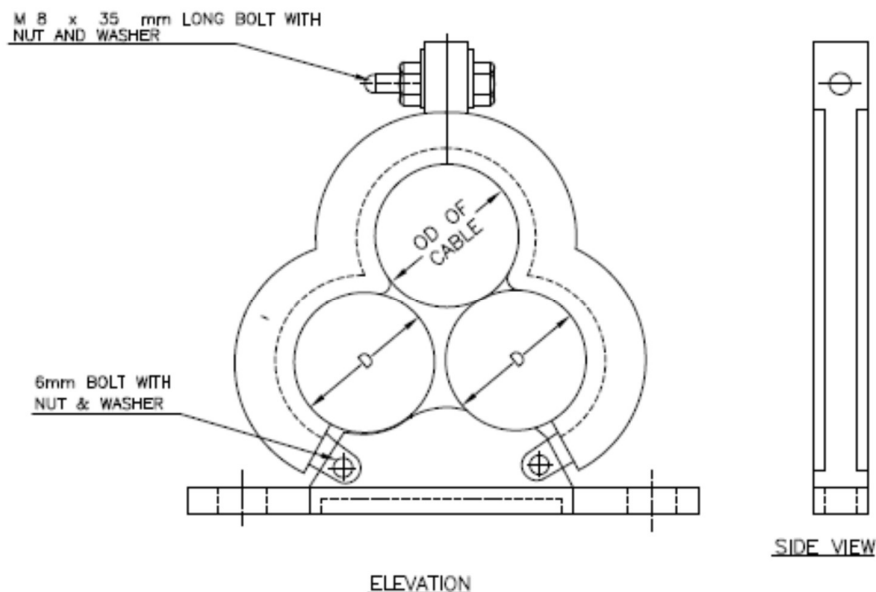
Catalog No.	Applicable outside diameter of cable	Main dimensions(mm)				
		L	W	H	L1	M
JGP-1	45~55	180	65	135	150	12
JGP-2	55~68	224	70	156	186	12
JGP-3	68~80	274	75	186	224	14
JGP-4	80~90	288	80	205	245	14
JGP-5	90~100	332	100	235	280	16
JGP-6	100~114	342	100	252	290	16
JGP-7	114~130	352	100	265	300	16

ALUMINIUM CLEATS- TREFOIL

Trefoil Clamps keep three single-core cables in a Trefoil arrangement, which helps maintain magnetic symmetry, thereby avoiding current loss and electromagnetic heating. Trefoil Clamps through a molding process using Virgin Glassfilled Nylon material. We mainly use Glass-filled nylon materials to increase the flexibility of the clamp & to avoid breaking the clamp from the hook during the tightening procedure of the three single-core cables.



VARIOUS SIZES DIMENSION BETWEEN 18MM TO 160MM AVAILABLE



Aluminium Multistrap Cable Cleat

For Multiple Cable Formation

- ✦ Suitable for 24mm to 130mm Dia Cables
- ✦ Non Magnetic Materials SS 304 Used Throught
- ✦ Can Be Used For All Types Of Cables toutes in Trefoll Group
- ✦ Suitable For Dissimillar Groups Cables
- ✦ Strap Complete With Tensioning Clip, Securing Pin and Winding Key
- ✦ Strap Length Varies Accroding To Cable Size Single
And Three Cable Formation
- ✦ Base Manufactured From Aluminium Alloy

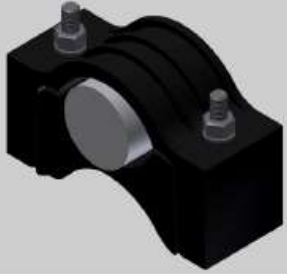


Part No.	Multi Cable Diameter		Single Cable Diameter		Fastener Size
	Min.in MM	Max.in MM	Min.in MM	Max.in MM	
CE MCT 03	35	50	75	90	M10
CE MCT 04	40	55	84	115	M10
CE MCT 05	45	65	115	125	M10
CE MCT 06	57	75			M10
CE MCT 07	65	75			M10
CE MCT 08	70	85			M10
CE MCT 09	75	110			M10
CE MCT 10	110	140			M10

****CONFIRMING TO IEC61914**



FIBREGLASS CLEATS-



CERTA manufactures Standard Range of SINGLE WAY & TREFOIL type Cable Clamps which are specially designed for short-circuit resistant fastening of cables. These clamps are used to mount single or multi core cable, conduits and hoses in indoor and outdoor applications.

Standard Range of Cable Clamps are unique in their kind. The surfaces wherein the cables come to lie ensure perfect pressure distribution and maximum grip on the cables without sharp edges. In this way, there is no point load on the cables and the cables are not damaged.

These Clamps are manufactured from the highest quality glass fibre reinforced polyamide and are therefore ideally suited for installations where high short circuit forces may occur.

SIZES

Our range of Standard Single Way and Trefoil Type Clamps starts from **18mm to 150mm**. Kindly contact us if specific dimensions are required.

APPLICATION

- Suitable for supporting Single Core PVC/ HRPVC, XLPE, XLPE Insulated Aluminum, Un-Armoured, Earth And Un Earth Power Cables from 1.1 Kv to 132 Kv Grade.
- Used in Tunnels, Bridges, Power Generation Stations, Sub-Stations, Thermal Power Stations, Switchgear Plants, Industrial Installation, Terminal Kits.
- These can be used for indoor or outdoor for vertical or horizontal running cables inside trenches or on racks /galleries.

ADVANTAGES

- Resistant to short-circuit currents/forces up to 50 KA (1m distance)
- Corrosion resistant
- Reduces breakages due to Glass filled nylon
- Resistant to oils, fats, aggressive chemicals, frost, heat, UV, ozone, salt, moisture, acids and nuclear radiation
- Temperature range from -40 °C to 125 °C
- No magnetism/conductivity

- Custom mounting available
- Fastening materials can be supplied to size
- No sharp angles
- No oxidation
- Recyclable
- Simple installation
- Supplied with MS zinc passivated hardware with optional hardware available in hot dip galvanized or SS 304/316

TEST

Certa Single Way and Trefoil cable clamps have been tested satisfactorily to withstand 50 KA short circuit fault current with 1000mm spacing between clamps.

GLASS FILLED NYLON SINGLE CORE CLAMP



GLASS FILLED NYLON TREFOIL CLAMP

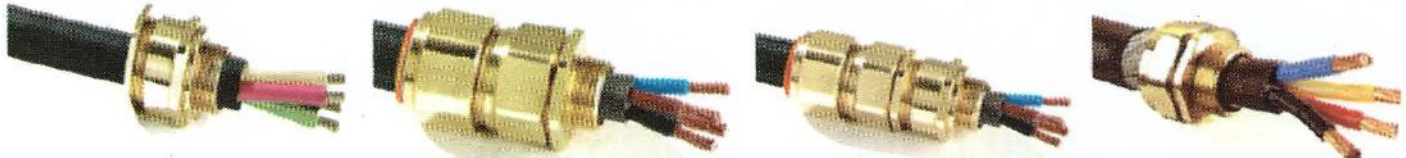


SINGLE CORE CLAMP:

GLASS FILLED NYLON SINGLE CORE CLAMP			
MODEL NO	DESCRIPTION	C/C of Mounting	Hole Diameter
AHSC 26-50	GLASS FILLED NYLON SINGLE CORE CLAMP Suitable for Outer Cable Dia. 26-50 mm	76	12.5
AHSC 50-80	GLASS FILLED NYLON SINGLE CORE CLAMP Suitable for Outer Cable Dia. 51-80 mm	100	12.5
AHSC 75-100	GLASS FILLED NYLON SINGLE CORE CLAMP Suitable for Outer Cable Dia. 75-100 mm	150	12.5
AHSC 100-135	GLASS FILLED NYLON SINGLE CORE CLAMP Suitable for Outer Cable Dia. 100-135 mm	175	12.5
AHSC 135-170	GLASS FILLED NYLON SINGLE CORE CLAMP Suitable for Outer Cable Dia. 135-170 mm	210	12.5

TREFOIL CLAMP:

GLASS FILLED NYLON TREFOIL CLAMP		
MODEL NO	DESCRIPTION	C/C of Mounting Holes
ATC 03	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 16.0-19.0mm	110
ATC 04	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 19.0-23.0mm	110
ATC 05	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 23.5-26.5mm	110
ATC 06	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 34.5-37.5mm	110
ATC 08	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 31.0-34.0mm	110
ATC 10	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 38.0-41.0mm	110
ATC 14	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 42.0-44.0mm	110
ATC 16	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 44.0-47.5mm	110
ATC 21	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 47.5-50.0mm	140
ATC 24	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 50.9-54.0mm	140
ATC 28	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 54.1-57.2mm	140
ATC 30	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 57.3-60.3mm	140
ATC 35	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 60.4-63.5mm	180
ATC 37	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 63.6-66.5mm	180
ATC 39	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 67.0-69.0mm	180
ATC 43	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 69.0-73.0mm	180
ATC 50	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 76.0-80.0mm	180
ATC 53	GLASS FILLED NYLON TREFOIL CLAMP Suitable for Outer Cable Dia. 98.0-101.0mm	180



CERTA

ELECTRIK CORPORATION



MAKE CONNECTIONS SAFE & RELIABLE



CERTA Elektrik Corporation

6, Roshan Apartment,
Khushbu Industrial Estate, Morya Naka,
Sativli, Vasai (E) - 401 208. Palghar, Maharashtra
Phone : 00919766504206
Email : info@certaelectrik.com
Web.: www.certaelectrik.com

DISTRIBUTOR