

B. CABLE CLEATS (CABLE HANGERS)

* IEC-CABLE CLEAT / UL-CABLE HANGER

- Trefoil Cable Cleat (Trefoil Cable Hanger)
- Single Cable Cleat (Single Cable Hanger)
- Aluminum Cable Cleat (Aluminum Cable Hanger)
- Plastic Cable Cleat



CABLE CLEATS (CABLE HANGERS)

Where use Dong-A Cable Cleats :

- For fixing, retaining, supporting & securing cables in trefoil or single formation.
- Protecting cables from short circuit faults(see detail information below).



Short Circuit Current Testing :

Short circuit current is an overcurrent resulting from an electrical fault of negligible impedance between live conductors or between a live conductor and an earth, having a difference in potential under normal operating conditions.

- RMS current is a calculated value for the initial cycles of the fault.
- peak(ip) short circuit current is a maximum possible instantaneous value of the short circuit current.
- Electromechanical Force(Ft) is included forces acting on current carrying conductors.
- Relevant Standard : BS EN 50368 & IEC 61914.

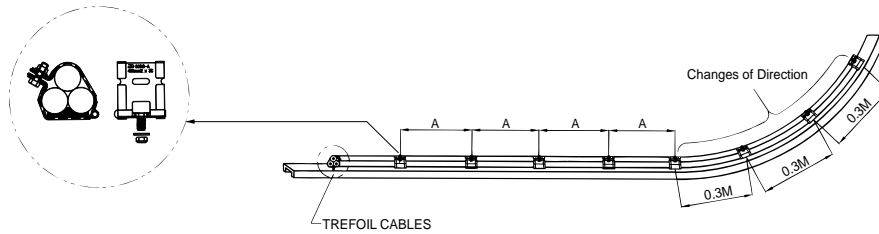
$F_t = 0.17 \times i_p^2 / S$		<p>DSCS-A Short Circuit Current Test ! (*) Calculation for electromagnetic force among conductors tied in trefoil formation under short circuit conditions can be provided upon request of customers.</p>
Where: Ft = maximum force on the cable conductor in trefoil formation for a three phase short-circuit (N/m) ip = the peak short-circuit current (kA) S = the cable diameter (m)		

Codes & Standards

- a. Cable Cleats and intermediate restraints shall comply with the performance requirements in Article 398.2(d) of NFPA-70-2005, The National Electrical Code Cable Cleats and intermediate restraints (where used) shall be classified, tested and certified according to the European Specification IEC 61914 : 2009, Cable Cleats for Electric Installations, as follows
 - i. Classified according to material as Metallic, or Composite (e.g. metallic Cable Cleat with an LSF liner)
 - ii. Classified according to resistance to impact as 'Very Heavy' (i.e. 20J impact energy @ 400mm height)
 - iii. Classified by an independent third-party testing laboratory in relation to resistance to electromechanical forces as follows:
 1. Category 1 (i.e. no failure that will affect the intended function of holding the cables in place), or
 2. Category 2 (i.e. cables and Cable Cleats and intermediate restraints shall be intact and re-usable after sustaining two successive short circuits and there shall be no cuts or damage to the outer cable sheath, and the cables shall meet the requirements of the voltage withstand test)

CABLE CLEATS (CABLE HANGERS)

● Spacing Recommendation for Installation



SHORT CIRCUIT WITHSTAND TABLE																			
Max. Cable Cleat Spacing		Spacing Between Conductor Centers(mm)																	
		27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61
mm	inch	peak (kA)																	
225	9	194	203	209	216	220	229	234	240	246	250	255	261	266	271	276	281	286	291
300	12	168	174	181	187	192	198	203	209	214	215	220	225	230	235	239	244	248	252
450	18	137	144	148	152	157	161	165	170	174	178	180	184	188	192	195	199	202	206
600	24	119	124	128	132	135	139	143	148	150	153	156	160	163	166	169	172	175	178
675	27	113	117	121	124	128	132	135	139	143	144	147	150	154	156	159	162	165	168
900	36	97	102	104	108	110	115	117	121	124	125	128	130	133	135	138	140	143	145

● Raw Material :

Stainless steel 316(L) base material provides excellent resistance to abrasion, weathering, corrosion and temperature. Liocyls Registe extremes and Halogen free LSF liner pad provides low smoke and low fume. (stainless Steel 304 is also available upon request)

● Testing Information

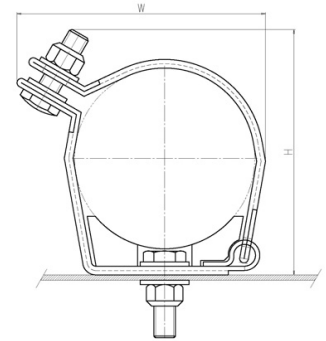
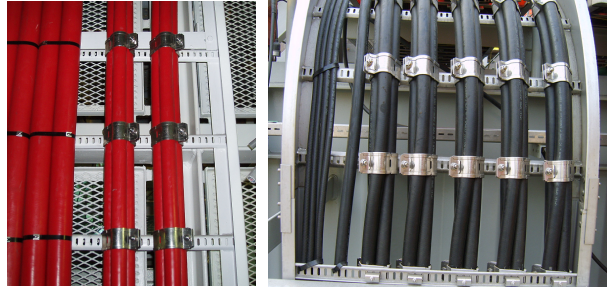
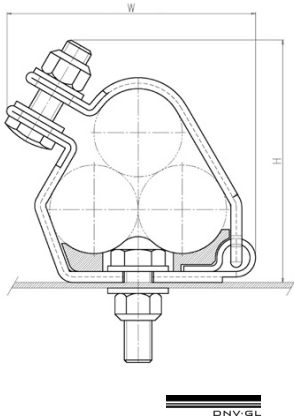
DONG-A CABLE CLEAT, DSCS-A & DSCS-S have been tested in line with the European Standard of IEC 61914 : 2009 : (Cable Cleats for Electrical Installations)

Properties	IEC61914 2009-01 Classification Clause	Units/Classification	DONG-A Cable Cleat Application Test Data
Cleat Type	6.1 & 6.1.3	Composite	-
Resistance to impact	6.2 & 9.2	Composite Very Heavy 5.0kg / 400mm Height	Min, Temperature -40°C
Resistant to Electromechanical Force	9.5	kA @ 300mm Centres	220kA (peak) 100kA (RMS)
Temperature for permanent Application	6.2	°C	-40°C to 105°C
Flame Propagation	10.1	30s exposure to needle flame	O.K.
Product Marking	7.1 & 7.2	Mfr's logo, name, trade mark	YES
Lateral Load Test	6.4, 7.3 & 9.3	at ambient temperature	O.K.
Axial Movement Test	6.4, 7.3 & 9.4	duration 5(+1/-0) min	O.K.
Construction	8	Free from burrs, flash & sharp edges	YES
Resistance to UV light	6.5.1 & 11.1	UV Test	YES
Resistance to corrosion	6.5.2 & 11.2	Salt Spray (if stainless steel not more than 13% Cr)	O.K.

CABLE CLEATS (CABLE HANGERS)

● DSCS-A TYPE for Trefoil Formation

● DSCS-S TYPE for Single Formation



Part No.	Suitable Cable Dia(mm)	Dimension(mm)	
		H	W
DSCS-A1323	Ø13-23	74	66
DSCS-A1925	Ø19-25	77	70
DSCS-A2329	Ø23-29	81	78
DSCS-A2531	Ø25-31	84	81
DSCS-A2733	Ø27-33	86	83
DSCS-A2935	Ø29-35	90	89
DSCS-A3238	Ø32-38	94	95
DSCS-A3541	Ø35-41.5	98	100
DSCS-A3844	Ø38-44.5	101	104
DSCS-A4248	Ø42-48	105	111
DSCS-A4551	Ø45-51	109	117
DSCS-A4753	Ø47-53	111	120
DSCS-A4955	Ø49-55	114	124
DSCS-A5157	Ø51-57	116	127
DSCS-A5359	Ø53-59	119	133
DSCS-A5561	Ø55-61	124	137
DSCS-A5763	Ø57-63	126	140
DSCS-A5965	Ø59-65	128	144
DSCS-A6167	Ø61-67	132	147
DSCS-A6369	Ø63-69	136	150
DSCS-A6571	Ø65-71	140	153
DSCS-A6773	Ø67-73	143	156
DSCS-A6975	Ø69-75	147	160
DSCS-A7177	Ø71-77	151	163
DSCS-A7379	Ø73-79	154	166
DSCS-A7581	Ø75-81	158	169
DSCS-A7783	Ø77-83	161	173
DSCS-A7985	Ø79-85	164	176
DSCS-A8187	Ø81-87	169	179
DSCS-A8389	Ø83-89	173	182
DSCS-A8692	Ø86-92	177	187
DSCS-A8896	Ø88-96	181	192
DSCS-A9199	Ø91-99	185	196
DSCS-A96103	Ø96-103	190	201
DSCS-A99107	Ø99-107	194	202
DSCS-A103111	Ø103-111	199	204
DSCS-A107115	Ø107-115	203	208
DSCS-A111119	Ø111-119	208	213
DSCS-A115123	Ø115-123	213	217
DSCS-A119128	Ø119-128	217	221

Special sizes are available on request.

Part No.	Suitable Cable Dia(mm)	Dimension(mm)	
		H	W
DSCS-S2832	Ø28-32	61	55
DSCS-S3034	Ø30-34	63	57
DSCS-S3236	Ø32-36	65	59
DSCS-S3438	Ø34-38	67	61
DSCS-S3640	Ø36-40	71	63
DSCS-S3842	Ø38-42	69	65
DSCS-S4044	Ø40-44	71	67
DSCS-S4246	Ø42-46	72	69
DSCS-S4448	Ø44-48	74	71
DSCS-S4650	Ø46-50	75	73
DSCS-S4852	Ø48-52	77	75
DSCS-S5054	Ø50-54	79	77
DSCS-S5256	Ø52-56	80	79
DSCS-S5458	Ø54-58	81	81
DSCS-S5660	Ø56-60	83	83
DSCS-S5862	Ø58-62	85	85
DSCS-S6064	Ø60-64	86	87
DSCS-S6266	Ø62-66	88	89
DSCS-S6468	Ø64-68	90	91
DSCS-S6670	Ø66-70	91	93
DSCS-S6872	Ø68-72	93	95
DSCS-S7074	Ø70-74	95	97
DSCS-S7276	Ø72-76	97	99
DSCS-S7478	Ø74-78	99	101
DSCS-S7680	Ø76-80	101	103
DSCS-S7882	Ø78-82	103	105
DSCS-S8084	Ø80-84	105	107
DSCS-S8286	Ø82-86	107	109
DSCS-S8488	Ø84-88	109	111
DSCS-S8690	Ø86-90	110	113
DSCS-S8892	Ø88-92	113	117
DSCS-S9094	Ø90-94	116	120
DSCS-S9296	Ø92-96	126	127
DSCS-S94106	Ø94-106	135	133
DSCS-S100112	Ø100-112	140	139
DSCS-S106118	Ø106-118	145	145
DSCS-S112124	Ø112-124	153	155
DSCS-S118130	Ø118-130	162	165
DSCS-S127139	Ø127-139	161	167
DSCS-S132144	Ø132-144	165	173
DSCS-S138150	Ø138-150	170	179

CABLE CLEATS

DSCS-A-HT : HIGH TENSION TYPE

DSCS-A-HT High Tension Type is for use where anticipating high level short circuit current rating more than 227.5kA peak.

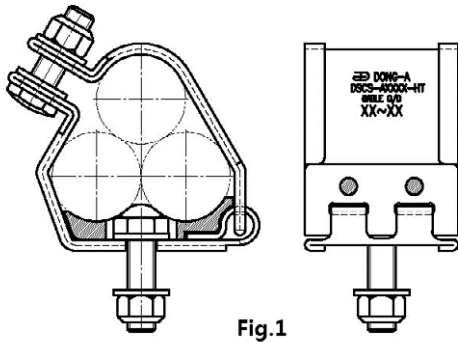


Fig.1

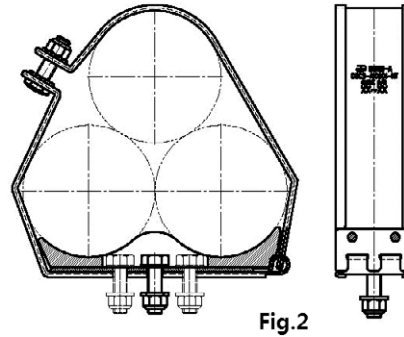


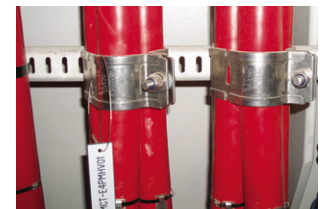
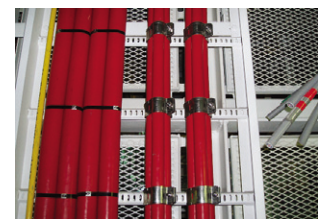
Fig.2

Part No.	Suitable Cable Dia(mm)	Fig #
DSCS-A1323-HT	Ø13~23	1
DSCS-A1925-HT	Ø19~25	1
DSCS-A2329-HT	Ø23~29	1
DSCS-A2531-HT	Ø25~31	1
DSCS-A2733-HT	Ø27~33	1
DSCS-A2935-HT	Ø29~35	1
DSCS-A3238-HT	Ø32~38	1
DSCS-A3541-HT	Ø35~41.5	1
DSCS-A3844-HT	Ø38~44.5	1
DSCS-A4248-HT	Ø42~48	1
DSCS-A4551-HT	Ø45~51	1
DSCS-A4753-HT	Ø47~53	1
DSCS-A4955-HT	Ø49~55	1
DSCS-A5157-HT	Ø51~57	1
DSCS-A5359-HT	Ø53~59	1
DSCS-A5561-HT	Ø55~61	1
DSCS-A5763-HT	Ø57~63	1
DSCS-A5965-HT	Ø59~65	1
DSCS-A6167-HT	Ø61~67	1
DSCS-A6369-HT	Ø63~69	1

Part No.	Suitable Cable Dia(mm)	Fig #
DSCS-A6571-HT	Ø65~71	1
DSCS-A6773-HT	Ø67~73	1
DSCS-A6975-HT	Ø69~75	1
DSCS-A7177-HT	Ø71~77	1
DSCS-A7379-HT	Ø73~79	1
DSCS-A7581-HT	Ø75~81	1
DSCS-A7783-HT	Ø77~83	1
DSCS-A7985-HT	Ø79~85	1
DSCS-A8187-HT	Ø81~87	1
DSCS-A8389-HT	Ø83~89	1
DSCS-A8692-HT	Ø86~92	1
DSCS-A8896-HT	Ø88~96	2
DSCS-A9199-HT	Ø91~99	2
DSCS-A96103-HT	Ø96~103	2
DSCS-A99107-HT	Ø99~107	2
DSCS-A103111-HT	Ø103~111	2
DSCS-A107115-HT	Ø107~115	2
DSCS-A111119-HT	Ø111~119	2
DSCS-A115123-HT	Ø115~123	2
DSCS-A119128-HT	Ø119~128	2

Used where DONG-A Cable Cleats

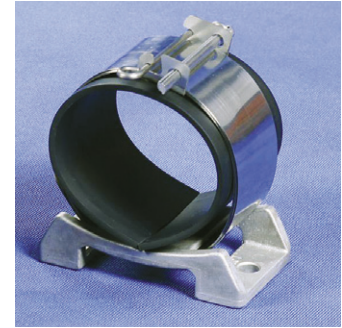
Offshore, Shipboards, Onshore, Oil, Gas, Chemical Plant, Refinery & Power Plants.



CABLE CLEATS

DSCC TYPE(CABLE CLEAT)

- The Strap Material : Stainless Steel 316 or 316L
- The fixture base material : Stainless Steel, Zinc(Nickel Plated), Aluminum
- Two fixing hole designed
- Exceptional overlapping ranges.
- Operating Temperature : -60°C to 100°C
- DSCC(Cable Cleat) maybe used to anchor three cables in trefoil formation,single cables or bundles of cables to support.



DSCS TYPE(CABLE STRAP)

Cable Strap is consists of tensioning clip, securing pin and winding key made out of highly corrosion resistant, non-magnetic stainless steel.

It maybe used to bind cables together in a group or act as an intermediate between Cable cleats.

Heavy duty designed to have 3 loops (RMS 51.6 kA) or 4 loops (RMS 75.0 kA) around the cables.



ORDER INFORMATION

1. Cable Cleat (included Fixture Base)

DSCC-0000

— Cable Strap Length

2. Cable Strap (without Fixture Base)

DSCS-0000

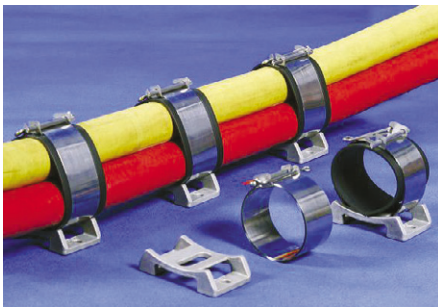
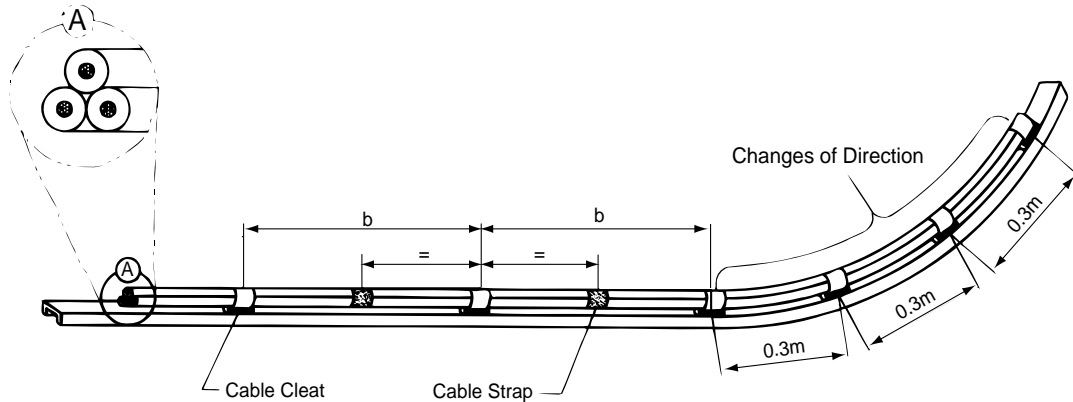
— Cable Strap Length

CABLE OVERALL DIAMETER

Trefoil Foam				Single Foam				Trefoil foam without fixture base		
Cable O.D a	Cable Strap Length			Cable O.D A	Cable Strap Length			Cable O.D a	Cable Strap Length	
	Standard duty	Heavy duty	B		Standard duty	Heavy duty	B		Standard duty	Heavy duty
24	810	985	75	36	610	755	65	24	690	835
30	960	1165	86	60	910	1135	90	30	840	1025
34	1050	1295	95	80	1180	1465	110	34	940	1145
37	1120	1385	100	85	1260	1565	115	37	1010	1235
41	1270	1555	108	90	1370	1695	120	41	1160	1415
43	1320	1615	112	105	1560	1925	135	43	1210	1475
47	1420	1745	120	110	1630	2000	140	47	1300	1595
50	1490	1835	126					50	1380	1685
56	1640	2015	138					56	1530	1875
60	1780	2185	145					60	1680	2045
63	1860	2275	152					63	1750	2135
67	1960	2405	161					67	1850	2255
69	2010	2465	165					69	1900	2325
73	2150	2635	173					73	2040	2495
80	2330	2845	187					80	2210	2705
110	3070	3775	245					110	2950	3635

CABLE CLEATS

● Spacing Recommendations for Cables in Trefoil



Short Circuit Test :

RMS	Peak	Duty	"b" Max
51.0kA	130kA	Heavy	1.2M
75.0kA	170kA	Heavy	0.6M

● Important Note :

To ensure adequate restraint, Cable Strap (DSCS type) must be used at the mid-point between cleats(DSCC type) on all horizontal and vertical straight runs.

● INSTALLATION SEQUENCE

<p>Fasten base to support with M10 fixings. Loop band through and around cables.</p>	<p>Pull Slack into outer loop. Insert split pin in clip from right hand side around outer layer of band 10mm from end of strap.</p>	<p>To tension strap rotate the pin clockwise. Swing Key over hand and engage in glote of the clip.</p>

● INSTALLATION TOOL

DAS-550



DAPN-500(pneumatic/air Tool)

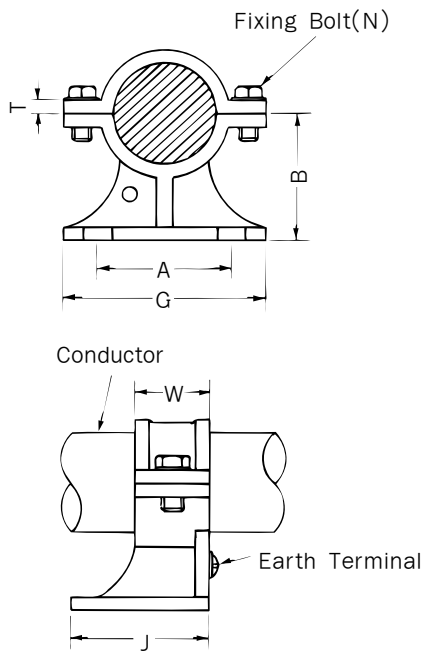


DABA-650(Automatic Battery)



CABLE CLEATS (CABLE HANGERS)

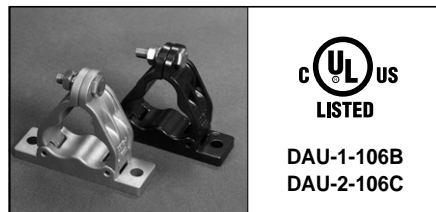
● CABLE BRACKET



Part No	Conductor Dia. mm	Dimension in mm						
		A	G	B	T	W	J	N
DCB-01	25	35	65	45	5	25	50	M 6
DCB-02	35	48	80	55	5	25	50	M 6
DCB-03	45	60	90	60	6	30	60	M 8
DCB-04	60	75	120	80	6	35	70	M 8
DCB-05	70	80	126	90	6	35	70	M10
DCB-06	90	110	156	110	7	45	80	M10
DCB-07	100	120	180	120	7	45	90	M10
DCB-08	120	150	210	140	8	50	100	M12
DCB-09	140	170	220	150	8	50	100	M12

• Material : Aluminum Alloy

● TREFOIL CABLE CLEAT (CABLE HANGER)



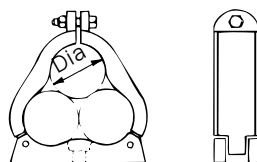
UL Approved (•)

DAR Type	Part No.		Cable Dia (mm)	
	DAU-1 Type	DAU-2 Type	Min.	Max
100A	100B	100C	21	23
101A	101B	101C	24	25
102A	102B	102C	25	27
103A	103B	103C	27	28
104A	104B	104C	28	30
105A	105B	105C	30	32
106A	106B(•)	106C(•)	32	34
107A	107B	107C	34	35
108A	108B	108C	35	36
109A	109B	109C	36	38
110A	110B	110C	38	40
111A	111B	111C	40	41
112A	112B	112C	41	43
113A	113B	113C	43	44
114A	114B	114C	44	46
115A	115B	115C	46	48
116A	116B	116C	48	49
117A	117B	117C	49	51
118A	118B	118C	51	53
119A	119B	119C	53	54
120A	120B	120C	54	55
121A	121B	121C	55	57
122A	122B	122C	57	59
123A	123B	123C	59	60
124A	124B	124C	60	62
125A	125B	125C	62	63
126A	126B	126C	63	65
127A	127B	127C	66	67
128A	128B	128C	68	70
129A	129B	129C	71	72
130A	130B	130C	73	75
131A	131B	131C	76	77
132A	132B	132C	78	80

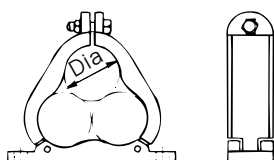
Type DAR



Type DAU-1



Type DAU-2



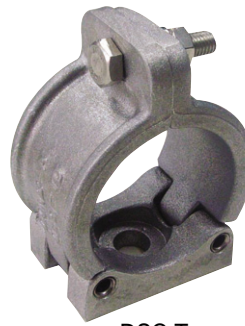
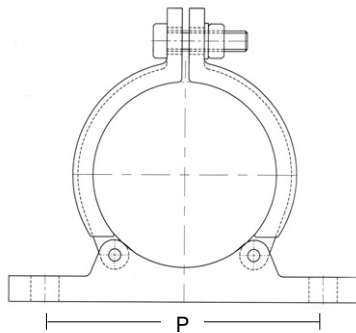
CABLE CLEATS

● SINGLE WAY CABLE CLEAT

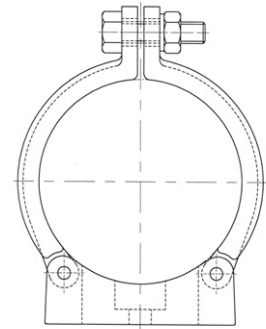
• Material : Aluminum Alloy



DST Type



DSC Type



Part No.	Cable Dia (mm)		P	
	Min.	Max		
DST-95	21	23	66	
DST-96	24	26		
DST-97	28	29		
DST-98	30	32		
DST-99	33	35		
DST-01	36	38		70
DST-02	38	40		
DST-03	40	41		
DST-04	41	43		
DST-05	43	44	80	
DST-06	44	46		
DST-07	46	48	84	
DST-08	48	49		
DST-09	49	51		
DST-10	51	53		
DST-11	53	54	90	
DST-12	54	56		
DST-13	56	57		
DST-14	57	58		
DST-15	59	60	95	
DST-16	60	62		
DST-17	62	64		
DST-18	64	65		
DST-19	65	67	110	
DST-20	67	68		
DST-21	68	70		
DST-22	70	71		
DST-23	71	73	130	
DST-24	73	75		
DST-25	75	76		

Part No.	Cable Dia (mm)		P	
	Min.	Max		
DST-26	77	78	130	
DST-27	79	81		
DST-28	82	83		
DST-29	84	86		138
DST-30	87	88		
DST-31	89	91		
DST-32	92	93		127.5
DST-33	94	96		144
DST-34	97	98		
DST-35	99	101	150	
DST-36	102	104		
DST-37	105	106		
DST-38	107	109		
DST-39	110	111		
DST-40	112	114		
DST-41	115	116		
DST-42	117	119		
DST-43	120	121		170
DST-44	122	124		
DST-45	125	126		
DST-46	127	129		
DST-47	130	131	180	
DST-48	132	134		
DST-49	135	136		
DST-50	137	139		
DST-51	139	140		
DST-52	141	142		
DST-53	143	144		
DST-54	144	145		
DST-55	146	148		

Part No.	Cable Dia (mm)	
	Min.	Max
DSC-95	21	23
DSC-96	24	26
DSC-97	28	29
DSC-98	30	32
DSC-99	33	35
DSC-01	36	38
DSC-02	38	40
DSC-03	40	41
DSC-04	41	43
DSC-05	43	44
DSC-06	44	46
DSC-07	46	48
DSC-08	48	49
DSC-09	49	51
DSC-10	51	53
DSC-11	53	54
DSC-12	54	56
DSC-13	56	57
DSC-14	57	59
DSC-15	59	60
DSC-16	60	62
DSC-17	62	64
DSC-18	64	65
DSC-19	65	67
DSC-20	67	68
DSC-21	68	70
DSC-22	70	71
DSC-23	71	73
DSC-24	73	75
DSC-25	75	76

Part No.	Cable Dia (mm)	
	Min.	Max
DSC-26	77	78
DSC-27	79	81
DSC-28	82	83
DSC-29	84	86
DSC-30	87	88
DSC-31	89	91
DSC-32	92	93
DSC-33	94	96
DSC-34	97	98
DSC-35	99	101
DSC-36	102	104
DSC-37	105	106
DSC-38	107	109
DSC-39	110	111
DSC-40	112	114
DSC-41	115	116
DSC-42	117	119
DSC-43	120	121
DSC-44	122	124
DSC-45	125	126
DSC-46	127	129
DSC-47	130	131
DSC-48	132	134
DSC-49	135	136
DSC-50	137	139
DSC-51	139	140
DSC-52	141	142
DSC-53	143	144
DSC-54	144	145
DSC-55	146	148

CABLE CLEATS (CABLE HANGERS)

● DSD TYPE for High Voltage Cables :

- Applications :

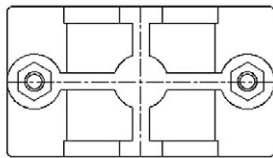
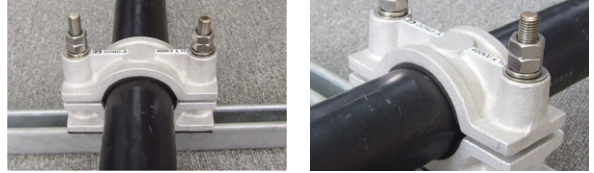
For fixing, fastening, retention and support in single-core and/or multi-core cables, and which if declared, provide resistance to electromechanical forces.

- Material :

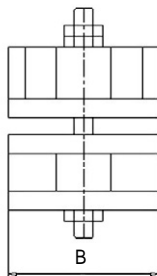
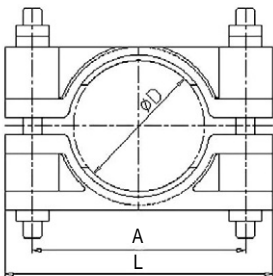
2-1, Upper & lower clamps : Aluminum Alloy

2-2, Fastenings : M12 Stainless Steel 316

2-3, Pad : LSF Liner



M12 Stainless Steel 316 fully threaded bolt, nut, spring washer & plain washers.



PART NO.	Suitable Cable Dia (∅D)	A	L	B
DSD-5060	50-60	102	136	55
DSD-6070	60-70	112	146	
DSD-7080	70-80	122	156	
DSD-8090	80-90	132	166	
DSD-100	90-100	142	176	
DSD-115	100-120	162	196	100
DSD-140	120-140	182	216	
DSD-160	140-160	202	236	
DSD-180	160-180	222	256	
DSD-200	180-200	242	276	

● Actual used DSD TYPE CABLE CLEATS :



● 2C CABLE CLEAT(CABLE HANGER)

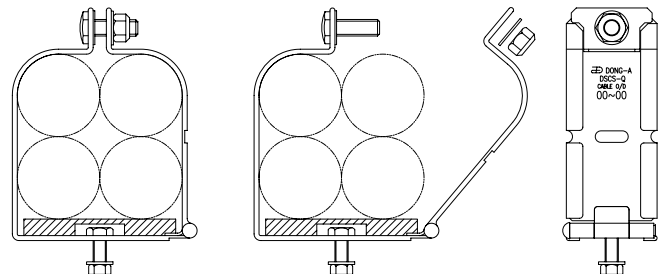
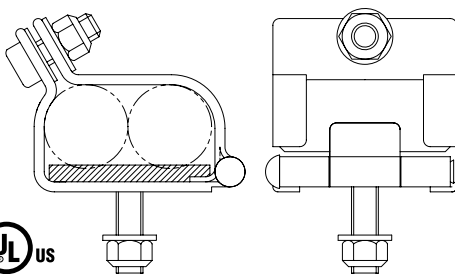
Material : Stainless Steel 316(L)

Part No : DSCS-A-1(for 2 core cables)

● 4 QUAD CABLE CLEAT

Material : Stainless Steel 316(L)

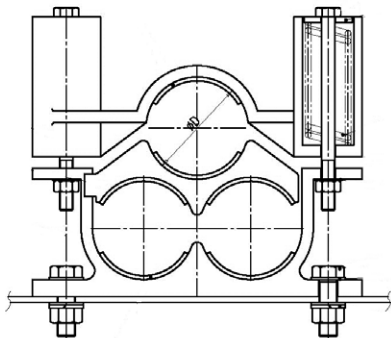
Part No : DSQS-QX (X= Cable O.D)



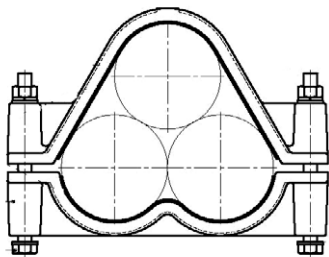
CABLE CLEATS

Trefoil and Single Formation Cable Cleat for High Voltage Cables.

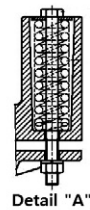
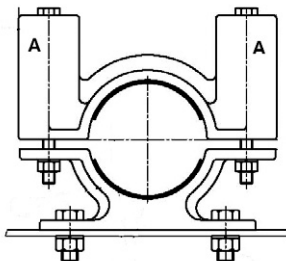
- DACST : Spring Tension Type



PART NO.	Suitable Cable Dia (∅ D)
DACST-3C-95	88-95
DACST-3C-103	94-103
DACST-3C-111	103-111
DACST-3C-120	110-120
DACST-3C-129	119-129
DACST-3C-130	128-138



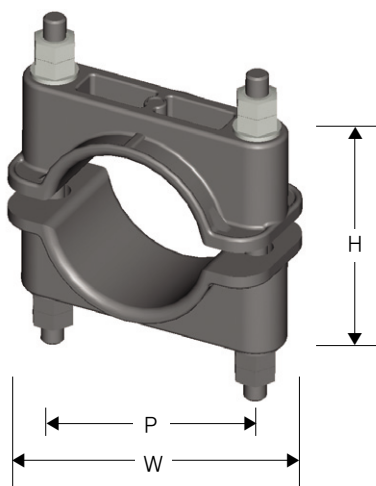
- DTD Type for Trefoil Formation



- DACSS Type for Single Formation(Spring Type)

PLASTIC TYPE for Single Formation Cables

Material : PP Black , Flame retardant V0 Halogen free Polyamide or PVC Black.



PART NO.	Suitable Cable Dia (mm)	P	W	H
DSP-1726	17-26	50	75	45
DSP-2635	26-35	60	85	50
DSP-3544	35-44	65	90	58
DSP-4454	44-54	75	100	70
DSP-5464	54-64	85	110	80
DSP-6473	64-73	100	125	92
DSP-7382	73-82	105	130	100
DSP-8292	82-92	115	140	108
DSP-92101	92-101	125	150	120
DSP-101110	101-110	133	160	130
DSP-110119	110-119	143	170	138
DSP-119128	119-128	153	180	148
DSP-128138	128-138	163	190	158

