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Aluminium Trefoil Cleats-Single/Two Bolt

» Applications

Cable cleats are used for fixing, supporting & securing cables and protecting cables from short circuit faults. Trefoil cable cleats are suitable for installing three single core cables in trefoil formation, with single/two bolt fixing arrangement.

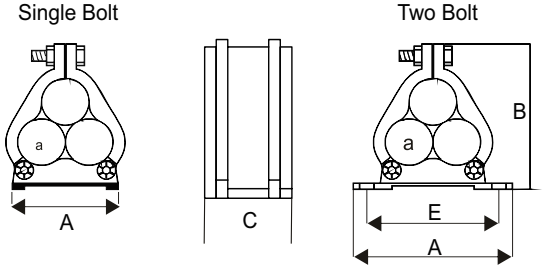
» Standard

BS EN 50368
IEC 61914

» Features

- » Manufactured from Aluminium alloy
- » Suitable for cables in trefoil groups
- » Can be used with all types of cable routes
- » Single or two fixing design are both available

» Ordering Information



ADDIMAX Cable Cleats

Aluminium Cable Cleats

Single Bolt

Ordering Code	Cable Diameter		Dimensions		
	Minimum	Maximum	B	C	A
	mm	mm	mm	mm	mm
ATS01	24	25	94	38	75
ATS02	25	27	97	38	75
ATS03	27	28	100	38	75
ATS04	28	30	103	38	76
ATS05	30	32	105	38	79
ATS06	32	34	106	38	83
ATS07	34	35	109	38	86
ATS08	35	36	113	38	89
ATS09	36	38	116	38	92
ATS10	38	40	119	38	95
ATS11	40	41	122	38	99
ATS12	41	43	124	38	105
ATS13	43	44	127	38	108
ATS14	44	46	130	38	112
ATS15	46	48	133	38	114
ATS16	48	49	137	38	118
ATS17	49	51	140	38	121
ATS18	51	53	143	38	124
ATS19	53	54	146	38	127
ATS20	54	55.5	155	44	133
ATS21	55.5	57	158	44	137
ATS22	57	59	160	44	141
ATS23	59	60	163	44	145
ATS24	60	62	165	44	148
ATS25	62	63.5	168	44	152
ATS26	63.5	65	172	44	156
ATS27	65	66.5	176	44	160
ATS28	66.5	68	178	44	164
ATS29	68	70	181	44	168
ATS30	70	71.5	187	44	171
ATS31	71.5	73	190	44	175
ATS32	73	74.5	193	44	179
ATS33	74.5	76	197	44	183

Two Bolt

Ordering Code	Cable Diameter		Dimensions			
	Minimum	Maximum	B	C	A	E
	mm	mm	mm	mm	mm	mm
ATT01	24	25	94	38	128	102
ATT02	25	27	97	38	128	102
ATT03	27	28	100	38	128	102
ATT04	28	30	103	38	130	104
ATT05	30	32	105	38	133	107

Aluminium Cable Cleats

Ordering Code	Cable Diameter		Dimensions			
	Minimum	Maximum	B	C	A	E
	mm	mm	mm	mm	mm	mm
ATT06	32	34	106	38	135	109
ATT07	34	35	109	38	137	110
ATT08	35	36	113	38	138	113
ATT09	36	38	116	38	140	114
ATT10	38	40	119	38	145	118
ATT11	40	41	122	38	147	121
ATT12	41	43	124	38	149	123
ATT13	43	44	127	38	150	124
ATT14	44	46	130	38	154	128
ATT15	46	48	133	38	156	129
ATT16	48	49	137	38	159	133
ATT17	49	51	140	38	165	135
ATT18	51	53	143	38	165	137
ATT19	53	54	146	38	172	141
ATT20	54	55.5	155	44	183	152
ATT21	55.5	57	158	44	187	155
ATT22	57	59	160	44	189	157
ATT23	59	60	163	44	191	160
ATT24	60	62	165	44	194	162
ATT25	62	63.5	168	44	196	165
ATT26	63.5	65	172	44	199	168
ATT27	65	66.5	176	44	202	170
ATT28	66.5	68	178	44	205	173
ATT29	68	70	181	44	208	176
ATT30	70	71.5	187	44	215	183
ATT31	71.5	73	190	44	217	186
ATT32	73	74.5	193	44	220	188
ATT33	74.5	76	197	44	222	191

» Technical Data

LM6 Aluminium Casting Alloy (AL-Si12) to BS 1490:1988

Chemical Composition		
		Euro Alloy EN 1706 AC-44100
Copper	0.1 Max	0.15 (0.10)
Magnesium	0.1 Max	0.10
Silicone	10.0-13.0	10.5-13.5
Iron	0.6 Max	0.65 (0.55)
Manganese	0.5 Max	0.55
Nickel	0.1 Max	0.10
Zinc	0.1 Max	0.15

Aluminium Cable Cleats

Lead	0.1 Max	0.10
Tin	0.05 Max	-
Titanium	0.2 Max	0.20 (0.15)
Aluminium	Remainder	Remainder

Mechanical Properties			
	Sand Cast	Chill Cast	Die Cast
0.2% Proof Stress (N/mm²)*	60-70	70-80	120
Tensile Stress (N/mm²)*	160-190	190-230	280
Elongation (%)*	5-10	7-15	2-5
Impact Resistance. Izod (Nm)	6.0	9.0	-
Brinell Hardness Number	50-55	55-60	55-60
Endurance Limit ($5x10^7$ cycles+/-N/mm²)	51	68	-
Modulus of Elasticity ($x10^3$N/mm²)	71	71	71

*: The values shown are typical for sand and chill cast bars produced to the requirments of BS1490 or diecast 6mm diameter test bars.

Strength at Elevated Temperatures
Tensile strength and hardness decrease fairly regularly with increasing temperature and become relatively poor at temperatures of the order of 150℃

Physical Properties	
Coefficient of Thermal Expansion (per ℃ at 20 - 30℃)	0.0000020
Thermal Conductivity (cal/cm²/cm/℃/sec at 20℃)	0.34
Electrical Conductivity (% copper standard at 20℃)	37
Solidification Shrinkage (approx. %)	3.7
Specific Gravity	2.65
Freezing Range (approx. ℃)	565-575

Aluminium Single Way Cable Cleats-Single/Two Bolt

» Applications

Cable cleats are used for fixing, supporting & securing cables and protecting cables from short circuit faults. Single way cable cleat are designed for ease for stacking, the cleat can be directly fixed onto channel or ladder support structures, no additional adaptor plates or packing pieces being required.

» Standard

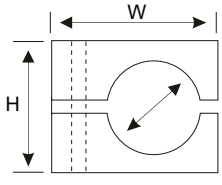
BS EN 50368
IEC 61914

» Features

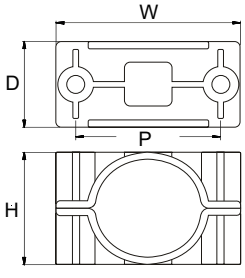
- Suitable for LV & HV Cables
- Can be used for all types of cable routes
- Manufactured from Aluminium alloy
- Two-piece, two fixing design and one-piece, one fixing design are both available
- Can be stacked on common fixings

» Ordering Information

Single Bolt



Two Bolt



Single Bolt Aluminium Cable Cleats

Ordering Code	Cable Diameter		Dimensions		Stud Size
	Minimum	Maximum	H	W	
	mm	mm	mm	mm	
ASS01	10	13	21	38	M10
ASS02	13	16	21	38	M10
ASS03	16	19	24	41	M10
ASS04	19	22	27	44	M10
ASS05	22	25	30	48	M10
ASS06	25	32	37	54	M10
ASS07	32	38	43	60	M10
ASS08	38	44	49	67	M10
ASS09	44	51	56	73	M10

Two Bolt Aluminium Cable Cleats

Ordering Code	Cable Diameter		Dimensions				Stud Size
	Minimum	Maximum	W	H	D	P	
	mm	mm	mm	mm	mm	mm	
AST01	51	57	96	68	59	76	M10
AST02	57	64	96	75	49	76	M10
AST03	64	70	96	84	64	118	M10
AST04	70	76	134	90	64	114	M12
AST05	76	83	142	96	64	114	M12
AST06	83	89	142	102	64	114	M12
AST07	89	95	154	114	64	114	M12
AST08	95	101	154	120	76	126	M12
AST09	101	108	169	134	76	140	M12
AST10	108	114	169	140	76	140	M12

» Technical Data

Single Bolt

Properties	BS EN 50368:2003 Classification Clause	Unit Classification
Cleat Type	6.1 & 6.1.1	Metallic
Impact Resistance	6.2, 6.2.5 & 9.3	>6.5kg @ 300mm
Temperature Range	6.4	-40 to +150
Needle Flame Test	6.5 & 10.0	>120 seconds
Lateral Load Test	9.2	4670N
Axial Movement Test	9.5	1170N

Two Bolt

Properties	BS EN 50368:2003 Classification Clause	Unit Classification
Cleat Type	6.1 & 6.1.3	Metallic
Impact Resistance	6.2, 6.2.5 & 9.3	>6.5kg @ 300mm
Temperature Range	6.4	-40 to +150
Needle Flame Test	6.5 & 10.0	>120 seconds
Lateral Load Test	9.2	28000N
Axial Movement Test	9.5	2000N

Aluminium Cable Cleat-Multi Cleat Type

» Applications

Cable cleats are used for fixing, supporting & securing cables and protecting cables from short circuit faults. Multi type cable cleats are suitable for installing single core cables in trefoil formation, single multi-core cables and bundles of cables.

» Standard

BS EN 50368
IEC 61914

» Features

» Complete with aluminium alloy base and stainless steel strap
» Exceptional overlapping ranges
» Can be used for all types of cables routes
» Non-magnetic materials used throughout, except for cast iron bases
» Bases available as either single or two fixing designs
» Bases available in a variety of materials and finishes
» Strap complete with a tensioning clip, securing pin and winding key all made from high corrosion resistant non-magnetic stainless steel

» Ordering Information

Ordering Code	Trefoil Cable Diameter		Single Cable Diameter	
	Minimum	Maximum	Minimum	Maximum
	mm	mm	mm	mm
AMS01	24	34	36	65
AMS02	30	41	60	85
AMS03	37	47	80	90
AMS04	43	54	85	110
AMS05	50	60	-	-
AMS06	56	67	-	-
AMS07	63	73	-	-
AMS08	69	80	-	-
AMS09	-	-	105	120
AMS10	78	112	-	-

Polyethylene Single Way Cable Cleats-One Piece, Single Fixing

» Applications

Cable cleats are used for fixing, supporting & securing cables and protecting cables from short circuit faults.

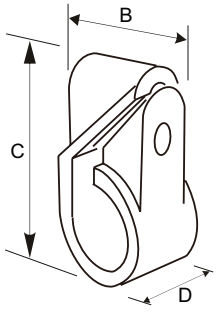
» Standard

BS EN 50368
IEC 61914

» Features

» Overlapping self adjusting ranges
» Sunlight (UV) and weather resistant
» One piece, single fixing design
» Can be double stacked on one fixing
» Black low-density polyethylene - unaffected by corrosive environments, oils and many chemicals

» Ordering Information



Polyethylene Cable Cleats

Ordering Code	Cable Diameter		Dimensions				Stud Size
	Minimum	Maximum	B (Minimum)	B (Maximum)	C (Maximum)	D	
	mm	mm	mm	mm	mm	mm	
PSO01	10.5	14.5	15	18	32	12	M4
PSO02	12.2	16.7	17	22	36	14	M4
PSO03	14.6	19.8	21	26	43	16	M4
PSO04	17.7	24	25	31	51	18	M4
PSO05	21.7	28.5	30	37	57	20	M6
PSO06	26.2	34.2	35	43	65	22	M6
PSO07	31.9	41.6	42	52	78	25	M6
PSO08	39.3	51.1	50	62	91	26	M7

Selection Guide

» Cable Cleats Selection Guide for Single Core LV Cables

mm²	O.D.	Trefoil Cleat	Single Way Cleat -Single Bolt
70	20.0	-	ASS04
95	21.6	-	ASS04
120	23.2	ATS01/ATT01	ASS05
150	25.8	ATS02/ATT02	ASS06
185	28.0	ATS03/ATT03	ASS06
240	30.5	ATS05/ATT05	ASS06
300	33.5	ATS06/ATT06	ASS07
400	37.4	ATS09/ATT09	ASS07
500	40.7	ATS11/ATT11	ASS08
630	44.9	ATS14/ATT14	ASS09
800	54.8	ATS20/ATT20	-
1000	58.4	ATS22/ATT22	-

» Cable Cleats Selection Guide for Multi-Core LV Cables

mm²	No. fo Cores	O.D.	Single Way Cleat -Single Bolt	Single Way Cleat -Two Bolt
1.5	3	13.3	ASS02	-
	4	14.0	ASS02	-
	5	14.9	ASS02	-
2.5	2	14.1	ASS02	-
	3	14.6	ASS02	-
	4	15.5	ASS02	-
	5	16.5	ASS03	-
4.0	2	15.1	ASS02	-
	3	15.8	ASS02	-
	4	16.9	ASS03	-
	5	18.9	ASS03	-
6.0	2	16.3	ASS03	-
	3	17.0	ASS03	-
	4	19.1	ASS04	-
	5	20.4	ASS04	-
10	2	18.4	ASS03	-
	3	19.9	ASS04	-
	4	21.4	ASS04	-
	5	23.2	ASS05	-

Selection Guide

mm²	No. fo Cores	O.D.	Single Way Cleat -Single Bolt	Single Way Cleat -Two Bolt
16	2	21.2	ASS04	-
	3	22.4	ASS05	-
	4	24.1	ASS05	-
	5	27.3	ASS06	-
25	2	20.9	ASS04	-
	3	25.6	ASS06	-
	4	27.6	ASS06	-
	5	30.0	ASS06	-
35	2	23.0	ASS05	-
	3	28.0	ASS06	-
	4	30.2	ASS06	-
	5	32.9	ASS07	-
50	2	25.3	ASS06	-
	3	30.0	ASS06	-
	4	32.2	ASS07	-
	5	37.9	ASS07	-
70	2	28.5	ASS06	-
	3	33.6	ASS07	-
	4	37.6	ASS07	-
	5	44.1	ASS09	-
95	2	32.3	ASS07	-
	3	37.7	ASS07	-
	4	41.3	ASS08	-
120	2	34.8	ASS07	-
	3	41.0	ASS08	-
	4	46.4	ASS09	-
150	2	37.9	ASS07	-
	3	45.7	ASS09	-
	4	50.6	-	AST01
185	2	42.5	ASS08	-
	3	49.8	ASS09	-
	4	55.3	-	AST01
240	2	46.5	ASS09	-
	3	54.8	-	AST01
	4	61.1	-	AST02
300	2	50.3	ASS09	-
	3	59.4	-	AST02
	4	66.7	-	AST03
400	2	54.7	-	AST01
	3	65.4	-	AST03
	4	75.3	-	AST04

ADDIMAX Cable Cleats Selection Guide

» Cable Cleats Selection Guide for Three Core MV Cables

mm²	O.D.	Single Way Cleat -Two Bolt
50	53.1	AST01
70	57.1	AST02
95	61.2	AST02
120	65.0	AST03
150	68.0	AST03
185	72.3	AST04
240	79.0	AST05
300	84.5	AST06
400	90.9	AST07

» Cable Cleats Selection Guide for Three Core MV Cables

mm²	O.D.	Trefoil Cleat
50	27.7	ATS03/ATT03
70	29.7	ATS04/ATT04
95	31.4	ATS05/ATT05
120	33.1	ATS06/ATT06
150	35.4	ATS08/ATT08
185	37.2	ATS09/ATT09
240	39.8	ATS10/ATT10
300	42.3	ATS12/ATT12
400	45.2	ATS14/ATT14
500	49.5	ATS17/ATT17
630	53.3	ATS19/ATT19

Installation Instructions

1) Remove the closing nut and washer.

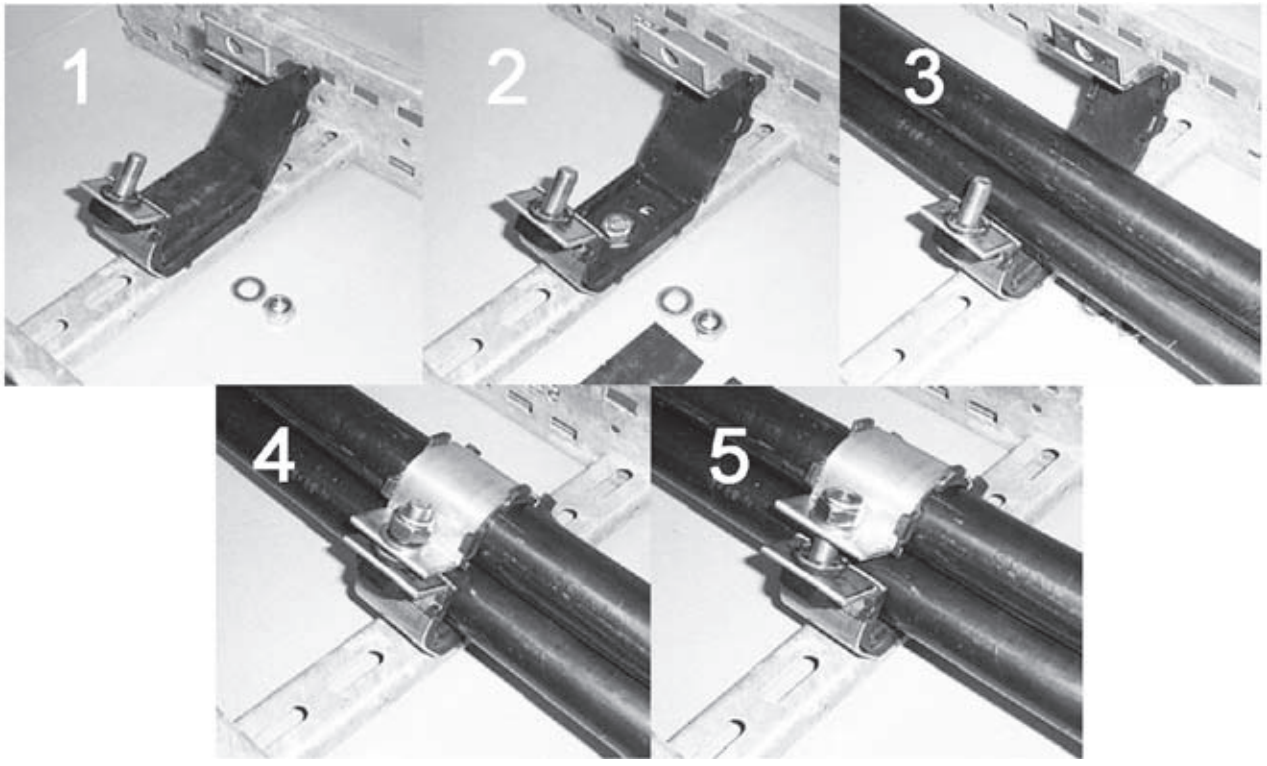
2) Remove the base pad and bolt the cleat to support structure using either the single central or two outer fixing positions.

3) Replace the appropriate pad and install the cables.

4) Close the hinged arm and refit the washer and nyloc nut (19mm socket required). The head of the screw is held in position so that only a single power tool is required to tighten the nut from one side.

5) Important. Do not over tighten the cleat. The liner should be in contact with the cable but does not need to be so tight that the cable bulges at either side of the liner.

Note: Thread galling is a known phenomenon which can occur when using stainless steel fasteners. A breakdown in the material's protective oxide layer results in the set screw and nut becoming welded together. To reduce the incidence of thread galling excessive pressure and speed should be avoided during installation. Thread lubricants can also be used at the point of application if problems are experienced - please contact Ellis Patents for further information.



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