Rush Industrial Sales

Biggin House, 126 Station Road, Tempsford, Sandy, Beds, SG19 2AY

Tel: 01767 640779 Fax: 01767 640617 email: sales@rushind.com www.rushind.com

RIS

Motor Start Capacitors: 120-150V/220-275V

Internal Style

Internal Style
(for Brook Motors)

External Style

PF -Style

120-150V Motor Start

Internal Style

metal can with plastic sleeve and push-on tags

Cap. [µF]	Type	Size LxØ[mm]	Code
100-130	int	68x37	101-010
100-130	int	82x38	101-020
120-150	int	68x37	101-030
120-150	int	82x38	101-040
130-165	int	91x40	101-050
160-200	int	68x37	101-060
160-200	int	91x40	101-070
190-240	int	68x37	101-080
200-250	int	76x36	101-090
240-320	int	68x37	101-100
320-400	int	120x40	101-110
400-500	int	82x38	101-140
For Newman Motors:			
340-408	int	76x45	101-120
450-550	int	91x47	101-150
540-660	int	91x47	101-160
690-850	int	91x47	101-180
For Baldor Motors:			
650-780	int	120x47	101-170
860-950	int	120x47	101-190

External Style

sealed metal can with side-entry twin-core flex

100-130	ext	105x40	111-010
120-150	ext	105x40	111-020
130-165	ext	105x40	111-030
160-200	ext	105x40	111-040
190-240	ext	105x40	111-050
240-320	ext	105x40	111-060
320-400	ext	129x40	111-070
400-500	ext	105x40	111-080
600-750	ext	129x50	111-090

PF Style

plastic can with flying leads

160-200	PF	80x30	121-030

220-275V Motor Start

Internal Style

metal can with plastic sleeve and push-on tags

Cap. [µF]	Type	Size LxØ[mm]	Code
20-30	int	91x40	102-010
30-40	int	60x25	102-020
30-40	int	68x37	102-022
30-40	int	91x40	102-030
40-70	int	68x37	102-040
60-80	int	68x37	102-070
80-110	int	82x38	102-080
108-140	int	91x40	102-100
120-150	int	91x40	102-110
138-182	int	91x40	102-120
160-200	int	120x47	102-140
180-225	int	120x47	102-150
200-250	int	120x47	102-170
250-312	int	120x47	102-180
For Brook Motors:			
50-65	int	76x36	102-060
90-115	int	91x40	102-090
160	int	100x45	102-130
200	int	100x45	102-160

External Style

sealed metal can with side-entry twin-core flex

20-30	ext	105x40	112-010
30-40	ext	105x40	112-020
40-70	ext	105x40	112-030
60-80	ext	105x40	112-040
80-110	ext	105x40	112-050
90-120	ext	105x40	112-060
108-140	ext	105x40	112-070
120-150	ext	105x40	112-080
138-182	ext	105x40	112-090
160-200	ext	129x50	112-100
180-225	ext	129x50	112-110
200-250	ext	129x50	112-120
250-312	ext	129x50	112-130

PF Style

plastic can with flying leads

For Tuscan Motors:			
40-70	PF	63x38	122-010
108-140	PF	63x38	122-040

Motor Start Capacitors: 280-350V
(Internal, External and Extra Heavy Duty PF2-Style)

Internal Style

External Style

Extra Heavy Duty Style

280-350V Motor Start

Internal Style

metal can with plastic sleeve and push-on tags

Cap. [µF]	Type	Size LxØ [mm]	Code
25-40	int	68x37	103-010
40-50	int	82x38	103-020
40-50	int	91x40	103-030
51-68	int	82x38	103-040
68-90	int	91x40	103-041
90-115	int	91x40	103-050
105-130	int	120x40	103-070
130-165	int	120x47	103-080
160-200	int	120x47	103-090
200-250	int	120x47	103-100
For Brook Motors:			
100	int	100x45	103-060

External Style

sealed metal can with side-entry twin-core flex (with stud for ABB motors)

25-40	ext	105x40	113-010
37-51	ext	105x40	113-020
40-50	ext	105x40	113-030
51-68	ext	105x40	113-040
68-90	ext	105x40	113-050
90-115	ext	114x40	113-060
105-130	ext	114x40	113-070
130-165	ext	129x50	113-080
160-200	ext	129x50	113-090
200-250	ext	129x50	113-100

Extra Heavy Duty PF2 Style

metal can with plastic sleeve, top cover and two side-entry flying leads

70-90	PF2	123x64	123-010
90-115	PF2	123x64	123-020
120-150	PF2	123x64	123-030
160-200	PF2	123x64	123-040
200-250	PF2	123x64	123-050

Motor Run Capacitors

PC1S - Style

PT2S - Style

PFS - Style

MT2S - Style

MM8S - Style

440V Motor Run

Cap. [µF]	Style	Size LxØ[mm]	Code
0.5	PFS	31x17	150–010
1	PFS	45x18	150–040
1	PT2S	53x30	150–060
1	PC1S	53x30	150–030
1.5	PFS	53x30	150–070
1.5	PT2S	53x30	150–075
1.5	PC1S	53x30	150–065
2	PFS	53x30	150–130
2	PT2S	53x30	150–135
2	PC1S	53x30	150–120
2.5	PFS	53x30	150–180
2.5	PT1S	51x30	150–200
2.5	PC1S	53x30	150–165
3	PFS	53x30	150–230
3	PT2S	53x30	150–260
3	PC1S	53x30	150–220
3.5	PFS	53x30	150–280
3.5	PT2S	53x30	150–290
3.5	PC1S	76x30	150–270
4	PFS	53x30	150–310
4	PT2S	53x30	150–320
4	PC1S	53x30	150–300
5	PFS	76x30	151–020
5	PT2S	76x30	151–030
5	PC1S	76x30	151–010
6	PFS	76x35	151–060
6	PT2S	76x35	151–070
6	PC1S	76x35	151–050
7	PC1S	76x35	151–099
8	PFS	76x35	151–140
8	PT2S	76x35	151–160
8	PC1S	76x35	151–110
9	MT2S	72x38	151–180
9	PC1S	76x35	151-185
10	MT1S	78x35	152–062
10	PC1S	98x35	152–030
11	PT1S	70x40	152–090
12	PT2S	98x35	152–150
12	PC1S	98x35	152–100
14	PT2S	76x35	152–189
14	PC1S	98x40	152–170
15	PT2S	98x40	152–260
15	PC1S	98x40	152–220
16	MT2S	98x35	152–309
16	PC1S	98x40	152–290
18	PC1S	98x35	152–340
20	PT2S	98x45	153–040
20	PC1S	98x45	153–010
25	PT2S	98x45	153–110
25	PC1S	98x45	153–080

440V Motor Run (cont.)

Cap. [µF]	Style	Size LxØ[mm]	Code
30	PT2S	98x50	153–200
30	PC1S	98x50	153–150
35	MT2S	100x50	154–028
35	PC1S	98x50	154–008
40	PT2S	100x50	154–090
40	MC1S	124x50	154–050
40	PC1S	98x50	154–060
45	PC1S	120x50	154–110
50	PT2S	100x50	155–050
50	MC1S	123x50	155–008
55	PT2S	100x50	155–080
55	PC1S	100x50	155–070
60	PT2S	120x50	155–110
60	MC1S	123x50	155–095
65	PC1S	120x50	155-130
65	PT2S	120x50	155-135
70	PT2S	120x50	155–170
70	PC1S	120x50	155–160
80	PT2S	120x50	155–220
80	PC1S	120x50	155–210
100	PC1S	120x60	155-250
120	MFS	130x65	155-290

440V Power Electrics

high current, heavy duty motor runs

Cap. [µF]	Style	Size LxØ[mm]	Code
20	MC1S	98x45	160–030
25	MFS	98x45	160–040
30	MT2S	130x45	160–060
40	MT2S	130x45	160–080
50	MM5SR	123x64	160–090
60	MM5SR	123x64	160–100
80	MM8SR	123x76	160–110
100	MM8SR	123x76	160–130
100	PFSR	123x76	160–140

Style Key:

P	Heat-resistant plastic can
M	Metal can
T1	1/4" push-on tags (single)
T2	1/4" push-on tags (double)
F	Two flying leads (top entry)
F2	Two flying leads (side entry)
C1	Twin-core cable (top entry)
C2	Twin-core cable (side entry)
S	Mounting stud on base
R	Discharge resistor fitted

Sheet Insulation (Class F)

2/5/2 NMN is now replacing 3/3/3 NMN as the preferred slot insulation for general use. It is also cheaper than the equivalent DMD while giving much increased performance.

These materials are all highest quality West European manufacture. The sheet insulation is laminated in Italy by Polifibra using Du Pont film and paper.

NMN
Polimex (Nomex-Mylar-Nomex)

Lamination Thickness [thou]	Roll Width [mm]
3.1.3	914
3.2.3	914
3.3.3	914
3.5.3	914
3.7.3	914
3.10.3	914
3.14.3	914
2.1.2	914
2.2.2	914
2.3.2	914
2.5.2	914
2.7.2	914
2.10.2	914
2.14.2	914

DMD
ThermF (Dacron-Mylar-Dacron)

Lamination Thickness [thou]	Roll Width [mm]
2.3.2	1000
2.5.2	1000
2.7.2	1000
2.10.2	1000
2.14.2	1000

Translucent White Polyester (PET)

Thickness [thou/µm]	Roll Width [mm]
7½/190	914
10/250	914

50m full-width, half-width, and some third-width rolls available.

Betatherm-155 Cable

Betatherm cable is manufactured by Studer AG in Switzerland to the same specification as Radox-155.

Note that it's a lot less bulky than Zyrad cable with far superior stripping characteristics at more or less the same price.

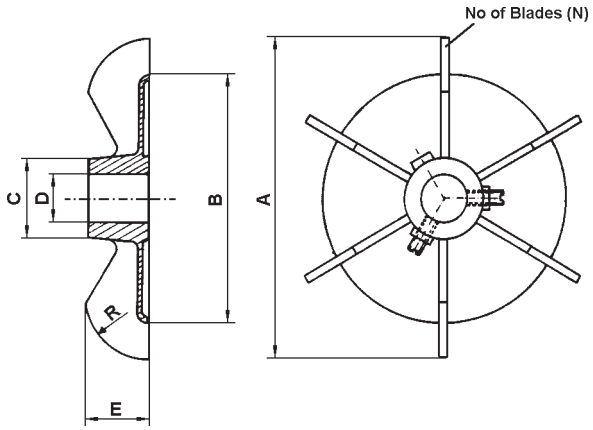
Betatherm-155 Cable (Class F)

CSA [mm²]	Length per Spool [m]
0.25	200
0.50	200
0.75	200
1.00	100
1.50	100
2.50	100
4.00	100
6.00	100
10.00	50
16.00	50
25.00	25
35.00	25
50.00	25
70.00	25
95.00	25
120.00	25

Colours:
- black (all sizes)
- red, yellow, blue, yellow/green (6mm and below)

Polypropylene Grub-Screw Fans (PG-Style)

These fans have two grub-screws for secure fixing directly onto the shaft.
They have a flat profile and are **available with pilot bores.**

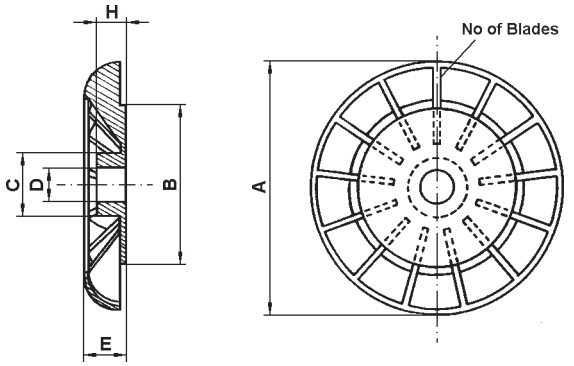


PG-Style

Pilot Type (Frame.Style.Bore)	**Normal Type** (Frame.Style.Bore)	**A** [mm]	**B** [mm]	**C** [mm]	**D** [mm]	**E** [mm]	**N** (Blades)	**R** [mm]	**Code** Pilot Type	**Code** Normal Type
56.PG.7	56.PG.12	86	63	16	7/12	18	6	18	214–010	214–020
63.PG.7	63.PG.15	97	74	20	7/15	20	6	20	214–030	214–040
71.PG.11	71.PG.17	114	88	22	11/17	22	6	22	214–050	214–060
80.PG.11	80.PG.20	130	102	26	11/20	25	6	25	214–070	214–080
90.PG.14	90.PG.25	150	118	30	14/25	28	6	28	214–090	214–100
100.PG.14	100.PG.30	164	128	36	14/30	28	6	28	214–110	214–120
112.PG.14	112.PG.30	186	148	36	14/30	32	6	32	214–130	214–140

Polypropylene Flat Fans (PF-Style)

These fans have a flat and quite thin profile, with
large hubs that can be bored to fit bigger shafts.

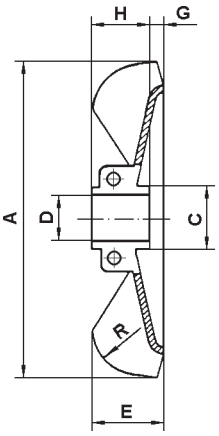


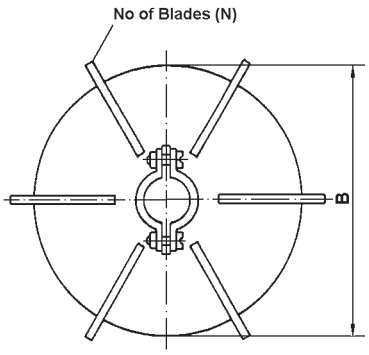
PF-Style

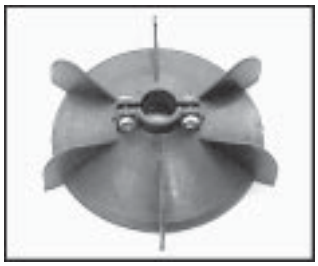
Type (Frame.Style.Bore)	**A** [mm]	**B** [mm]	**C** [mm]	**D** [mm]	**E** [mm]	**H** [mm]	**N** (Blades)	**Code**
56.PF.12	86	58	20	12	14	10	13	213–010
63.PF.15	100	71	23	15	16	13	13	213–020
71.PF.17	120	80	28	17	20	17	13	213–030
80.PF.20	130	92	31	20	25	20	13	213–040
90.PF.20	150	110	27	20	26	20	13	213–050
100.PF.30	174	123	45	30	33	28	10	213–060

Polypropylene Screw-Clamp Fans (PS-Style)

These fans are clamped to the shaft by tightening two screws on the split boss. This allows for slight variation in shaft diameter.





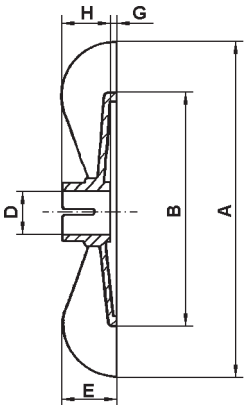


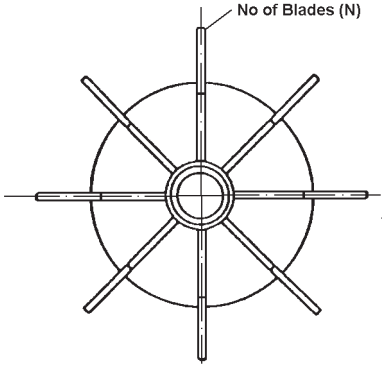
PS-Style

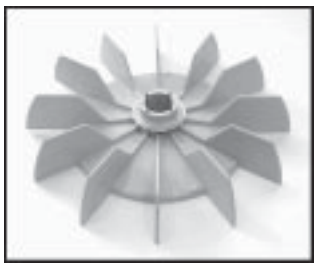
Type (Frame.Style.Bore)	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	H [mm]	N (Blades)	R [mm]	Code
63.PS.15	105	90	19	15	24	5	18	6	14	211–010
71.PS.17	125	105	22	17	30	8	20	6	15	211–030
80.PS.20	135	115	25	20	32	7	25	6	20	211–040
90.PS.25	160	135	31	25	37	12	25	6	32	211–050
100.PS.30	180	153	36	30	42	12	28	6	30	211–060
112.PS.30	194	150	36	30	43	12	31	6	27	211–070
132.PS.40	229	160	45	40	44	12	32	6	40	211–080
160.PS.45	290	220	53	45	52	12	32	8	50	211–090

Polypropylene Ring-Clamp Fans (PR-Style)

These are one-piece fans with a **particularly flat profile,** clamped to the shaft by a separate metal ring around the split boss.





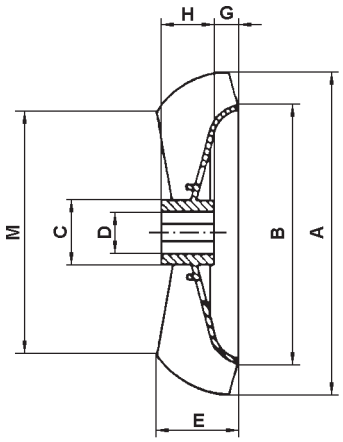


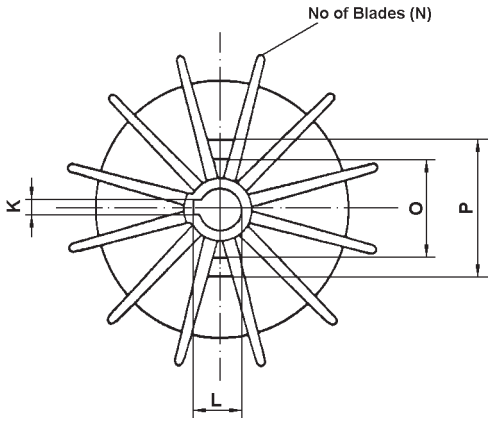
PR-Style

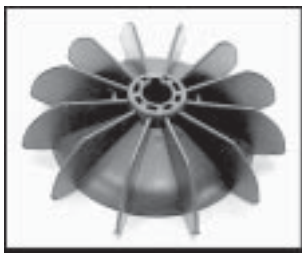
Type (Frame.Style.Bore)	A [mm]	B [mm]	D [mm]	E [mm]	G [mm]	H [mm]	N (Blades)	Code
56.PR.11	99	63	11	19	3	16	8	212–010
63.PR.12	110	84	12	23	0	23	12	212-018
63.PR.14	116	77	14	22	3	19	8	212–020
71.PR.14	131	88	14	28	6	22	12	212–030
80.PR.19	144	99	19	28	2	26	12	212–040
90.PR.24	158	106	24	30	4	26	12	212–050

One-piece Polypropylene Plastic Fans (PK/P-Style)

These fans are fitted to many motors as original equipment.





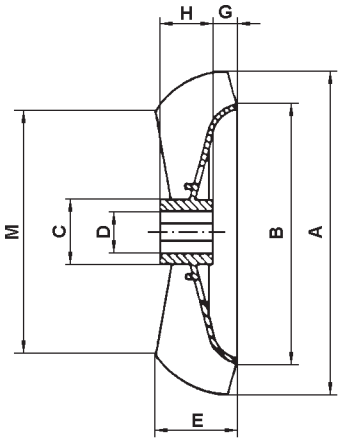


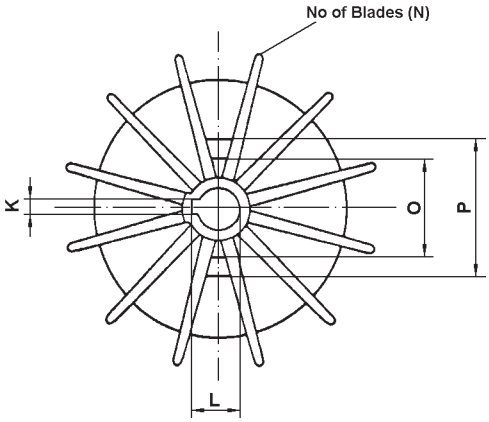
PK-Style

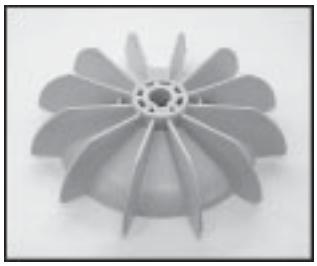
Type (Frame.Style.Bore)	**A** [mm]	**B** [mm]	**C** [mm]	**D** [mm]	**E** [mm]	**G** [mm]	**H** [mm]	**K** [mm]	**L** [mm]	**M** [mm]	**N** (Blades)	**O** [mm]	**P** [mm]	**Code**
56.PK.11	99	80	22	11	25	7	16	4	12.8	71	12	36	50	210–010
63.PK.11	115	90	18	11	29	7.5	18.5	4	12.8	80	12	40	54	210–020
63.PK.14	115	90	18	14	29	7.5	18.5	5	16.3	80	12	40	54	210–030
71.PK.11	130	102	28	11	32	8	20	4	12.8	90	12	42	60	210–040
71.PK.14	130	102	28	14	32	8	20	5	16.3	90	12	42	60	210–050
80.PK.11	146	116	25	11	35	8	22	4	12.8	105	12	40	60	210–060
80.PK.14	146	116	25	14	35	8	22	5	16.3	105	12	40	60	210–070
80.PK.15	146	116	25	15	35	8	22	5	17.3	105	12	40	60	210–080
80.PK.19	146	116	25	19	35	8	22	6	21.7	105	12	40	60	210–090
90.PK.14	167	135	30	14	43	13	24	5	16.3	122	12	50	70	210–110
90.PK.19	167	135	30	19	43	13	24	6	21.7	122	12	50	70	210–120
90.PK.24	167	135	30	24	43	13	24	6	26.7	122	12	50	70	210–130
100.PK.14	185	152	30	14	48	16	24	5	16.3	127	12	60	80	210–140
100.PK.24	185	152	30	24	48	16	24	6	26.7	127	12	60	80	210–150
100.PK.25	185	152	30	25	48	16	24	6	27.7	127	12	60	80	210–160
100.PK.30	185	152	37	30	48	16	24	6	32.7	127	12	60	80	210–170
112.P.14	209	170	38	14	52	16	28	-	-	140	12	70	90	210–180
112.PK.20	209	170	38	20	52	16	28	6	22.7	140	12	70	90	210–190
112.PK.24	209	170	38	24	52	16	28	6	26.7	140	12	70	90	210–200
112.PK.28	209	170	38	28	52	16	28	6	30.7	140	12	70	90	210–210
112.PK.30	209	170	38	30	52	16	28	6	32.7	140	12	70	90	210–220
132.PK.20	245	200	44	20	55	15	32	6	22.7	173	14	85	109	210–230
132.PK.30	245	200	44	30	55	15	32	6	32.7	173	14	85	109	210–240
132.PK.35	245	200	44	35	55	15	32	6	37.7	173	14	85	109	210–250
132.PK.40	245	200	44	40	55	15	32	8	43.1	173	14	85	109	210–260
160.PK.45	295	240	54	45	58	17.5	34	10	48.4	204	16	90	120	210–270
180.PK.50	335	282	60	50	65	20	36	10	53.4	218	16	106	140	210–280
200.PK.60	376	313	74	60	78	17	45	10	68.5	245	16	97	135	210–290

One-piece Glass Reinforced Plastic Fans
High Temperature (GK-Style)

These are exactly the same design as the one-piece polypropylene fans (PK-Style) but made of a much higher grade reinforced plastic.







GK-Style

Type (Frame.Style.Bore)	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	H [mm]	K [mm]	L [mm]	M [mm]	N (Blades)	O [mm]	P [mm]	Code
56.GK.11	99	80	22	11	25	7	16	4	12.8	71	12	36	50	220–010
63.GK.14	115	90	18	14	29	7.5	18.5	5	16.3	80	12	40	54	220–020
71.GK.11	130	102	28	11	32	8	20	4	12.8	90	12	42	60	220–030
71.GK.14	130	102	28	14	32	8	20	5	16.3	90	12	42	60	220–040
80.GK.19	146	116	25	19	35	8	22	6	21.7	105	12	40	60	220–050
90.GK.19	167	135	30	19	43	13	24	6	21.7	122	12	50	70	220–060
90.GK.24	167	135	30	24	43	13	24	6	26.7	122	12	50	70	220–070
100.GK.24	185	152	30	24	48	16	24	6	26.7	127	12	60	80	220–080
100.GK.25	185	152	30	25	48	16	24	6	27.7	127	12	60	80	220–090
100.GK.30	185	152	37	30	48	16	24	6	32.7	127	12	60	80	220–100
112.GK.20	209	170	38	20	52	16	28	6	22.7	140	12	70	90	220–110
112.GK.25	209	170	38	25	52	16	28	6	30.7	140	12	70	90	220–120
112.GK.30	209	170	38	30	52	16	28	6	32.7	140	12	70	90	220–130
132.GK.20	245	200	44	20	55	15	32	6	22.7	173	14	85	109	220–140
132.GK.40	245	200	44	40	55	15	32	8	43.1	173	14	85	109	220–150
180.GK.50	335	282	60	50	65	20	36	10	53.4	218	16	106	140	220–160

Big Polypropylene Fans (PKB/PSB-Style)

These are polypropylene fans for frame sizes 200 and above.

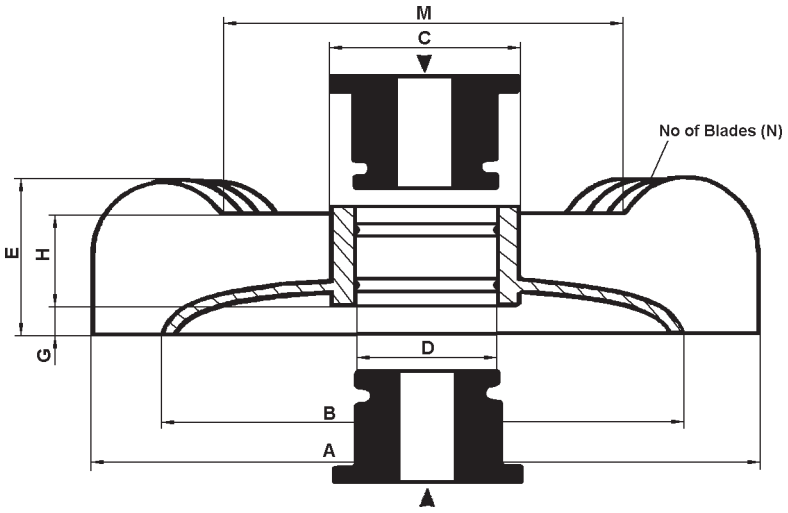
PKB-Style

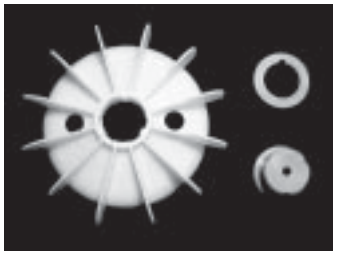
Type (Frame.Style.Bore)	o/d [mm]	N (Blades)	No of Poles	Code
200-225.PKB.62	300	9	4-poles	215-010
250-280.PKB.70	400	9	4/6/8-poles	215-020
280.PSB.75	515	9	4/6-poles	215-030
315.PSB.85	509	9	4/6-poles	215-040

PSB-Style

Yellow Fans with Interchangeable Red Bushes (Cs-Style)

These fans can be convenient for fitting awkward shafts. A red bush of the correct bore size is pressed into the centre of the yellow blade section to give a complete fan. Any of the red bushes can be held easily in a lathe and bored out as required. All bushes are keyed except for the pilot bored bushes.
In use each fan must be fitted with a bush.




Cs-Style with Bushes

Yellow Fans

Type (Style.Frame)	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	H [mm]	M [mm]	N (Blades)	Code
Cs.71	123	99	33	27	26	10	15	75	12	230–010
Cs.80	132	104	33	27	25	10	15	79	12	230–020
Cs.90	165	131	50	42	32	13	18	95	12	230–030
Cs.100	171	147	50	42	36	10	18	99	12	230–040
Cs.112	212	174	63	56	46	15	24	124	12	230–050
Cs.132	247	203	63	56	56	17	24	134	12	230–060
Cs.160	296	244	76	69	56	17	29	172	12	230–070
Cs.180	335	276	76	69	55	17	29	214	12	230–080

Red Bushes

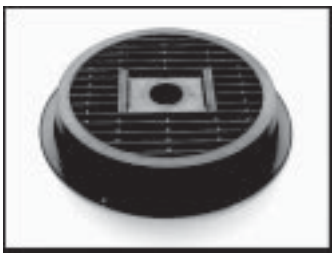
Yellow Fan Size (Style.Frame)	Red Bush Size (bore in mm or inches)		Code
Cs.71 Cs.80	14 16 19 20 22 pilot(5mm) $^1/_2$" $^5/_8$"		231–005/010/015/020/025/030 035/040
Cs.90 Cs.100	24 25 30 pilot(17.5mm) $^1/_2$" $^5/_8$" $^3/_4$" $^7/_8$"		231–045/050/055/060 065/070/075/080
Cs.112 Cs.132	28 30 32 38 40 45 pilot(19.5mm) $^3/_4$" $^7/_8$" $1^1/_8$" $1^3/_8$"		231–085/090/095/100/105/110/115 120/125/130/135
Cs.160 Cs.180	42 45 50 pilot(29mm) $1^3/_8$" $1^5/_8$" $1^7/_8$"		231–140/145/150/155 160/165/170

ABB Fans

Type	o/d [mm]	Bore [mm]	N (Blades)	Code
MT63, 2-8 pole	88	13	10	900-010
MT71, 2-8 pole	108	13	10	900-020
MT80, 2 pole	112	16	10	900-030
MT80, 4-8 pole MT90, 2 pole	128	16	10	900-040
MT90, 4-8 pole	146	16	10	900-050
MT100, 2 pole	146	23	10	900-060
MT100, 4-8 pole	162	23	10	900-070
MBT/M2AA112, 2 pole	140	23	7	900-080
M2AA112, 4-8 pole	195	23	7	900-090
MBT112, 4-8 pole	173	23	7	900-100
MBT/M2AA132, 2 pole	171	27	7	900-110
M2AA132, 4-8 pole	220	27	7	900-120
MBT132, 4-8 pole	200	27	7	900-130
MBT/M2AA/BA160, 2 pole	165	40	7	900-140
MBT/M2AA/BA180, 2 pole	180	40	7	900-145
MBT/M2AA/BA160/180, 4 pole	224	40	7	900-150
MBT/M2AA/BA160, 6-8 pole	260	40	7	900-159
MBT/M2AA/BA180, 6-8 pole	280	40	7	900-160
M2AA/BA200, 2 pole	250	49	7	900-170
M2AA/BA200, 4-8 pole	250	49	7	900-180
M2AA/BA225/250, 2 pole	280	60	7	900-200
M2AA/BA225/250, 4-8 pole	280	60	7	900-210

MT-Style Fan

M2AA-Style Fan



MT-Style Fan Cover

M2AA-Style Fan Cover

MBT-Style Fan Cover

ABB Fan Covers

Type	Dimension [mm]	Code
MT63	117 (o/d)	910-010
MT71	135 (o/d)	910-020
MT80	154 (o/d)	910-030
MT90	173 (o/d)	910-040
MT100	194 (o/d)	910-050
M2AA112	218 (square)	910-060
M2AA132	259 (square)	910-070
MBT112	228 (pcd fixing holes)	910-080
MBT132	254 (pcd fixing holes)	910-090

ABB Terminal Blocks

Type	Code
MT63/71/80/90/100	920-020
MBT/M2AA112/132	920-030

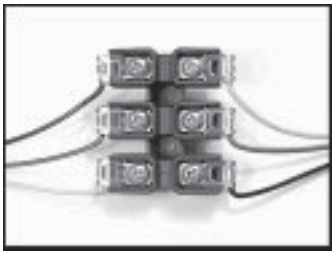
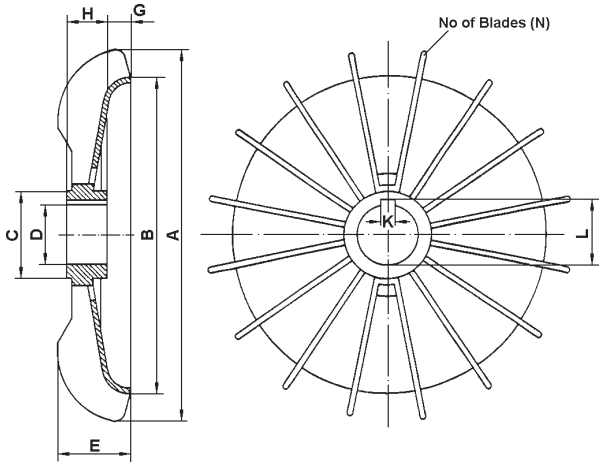


ABB-Terminal Block

One-piece Aluminium Fans (A-Style)

These are one-piece fans, die-cast and cleaned but otherwise unworked.
The bores should be machined. (280 and 315 frames are sand-cast)

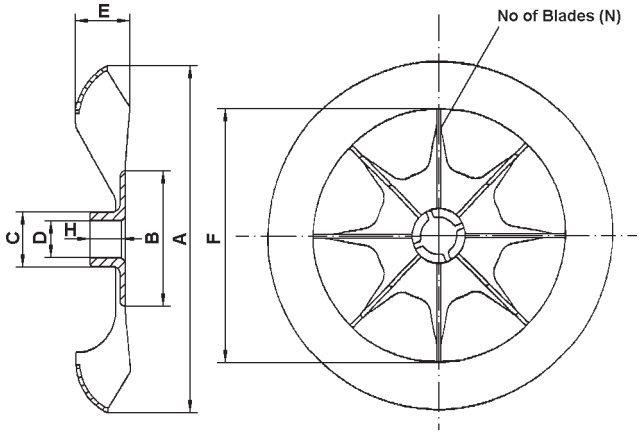


AK-Style

Blank Bore (Frame.Style.Bore)	**A** [mm]	**B** [mm]	**C** [mm]	**D** [mm]	**E** [mm]	**G** [mm]	**H** [mm]	**N** (Blades)	**Code**
160.A.00	296	240	60	-	58	18	34	16	201-015
180.A.00	332	282	70	-	66	19	40	15	201-025
200.A.00	360	310	89	-	77	21	48	15	201-045
225.A.00	410	350	89	-	80	30	48	15	201-065
250.A.00	460	392	94	-	84	26	52	15	201-085
280.A.00	510	430	120	-	101	22	57	16	201-105
315.A.00	591	510	113	-	115	51	60	16	201-125

Aluminium Ring-Clamp Fans (AR-Style)

These are one-piece fans with a particularly flat profile. They are clamped tight to the shaft by a separate metal ring around the split boss.

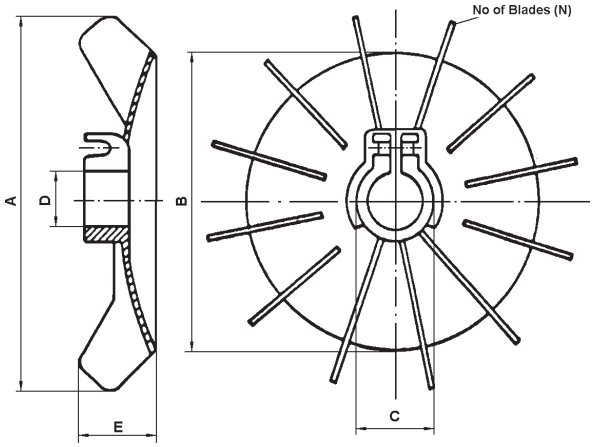


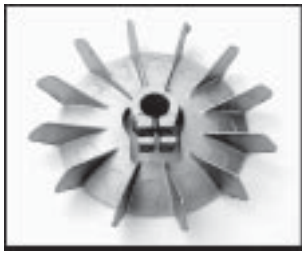
AR-Style

Type (Frame.Style.Bore)	**A** [mm]	**B** [mm]	**C** [mm]	**D** [mm]	**E** [mm]	**F** [mm]	**H** [mm]	**N** (Blades)	**Code**
63.AR.14	115	48	20	14	20	82	14	8	203-010
71.AR.14	132	50	20	14	22	96	14	8	203-020
80.AR.19	147	55	24	19	24	112	16	8	203-030
90.AR.24	166	60	28	24	27	126	19	8	203-040
100.AR.28	184	70	35	28	30	145	21	8	203-050
112.AR.28	202	76	35	28	30	158	23	8	203-060
132.AR.38	236	90	46	38	35	180	23	8	203-070

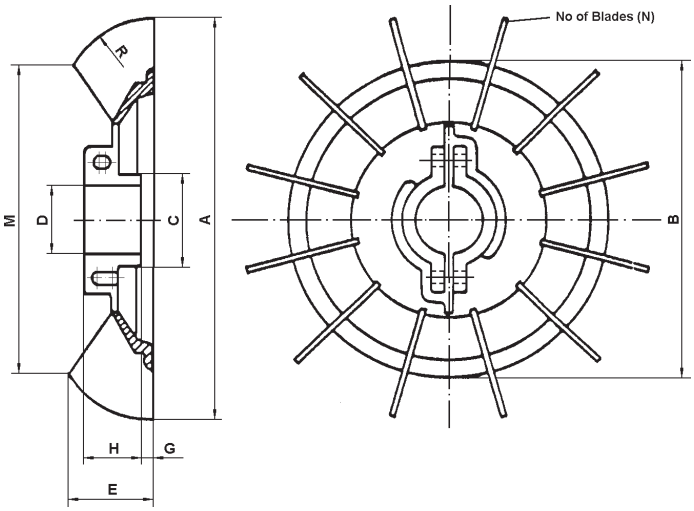
Aluminium Screw-Clamp Fans (AS-Style)

A split boss allows these fans to be nipped up tight. The fans must however be a neat fit on the shaft to avoid breaking the aluminium lugs.





AS-Style (Frames 63 to 112)



AS-Style (Frames 132/160)

Type (Frame.Style.Bore)	**A** [mm]	**B** [mm]	**C** [mm]	**D** [mm]	**E** [mm]	**G** [mm]	**H** [mm]	**M** [mm]	**N** (Blades)	**R** [mm]	**Code**
63.AS.10	102	74	18	10	20	-	-	-	12	-	202–010
71.AS.14	117	91	22	14	23	-	-	-	12	-	202–020
80.AS.19	137	116	28	19	29	-	-	-	12	-	202–030
90.AS.24	158	125	33	24	32	-	-	-	12	-	202–040
100.AS.28	173	135	37	28	35	-	-	-	12	-	202–050
112.AS.28	180	142	37	28	36	-	-	-	12	-	202–060
132.AS.37	215	160	50	37	42	6	30	167	12	45	202–070
160.AS.44	264	210	55	44	52	12	35	200	12	55	202–080

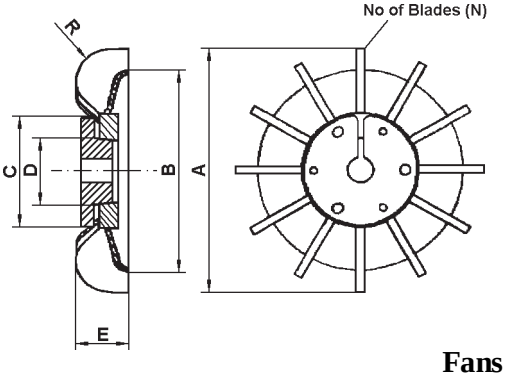
Aluminium Eze-Fans with Interchangeable Bushes

(AE-Style)

These fans can be convenient for fitting awkward shafts. A taper-lock bush with the correct bore is screwed to the centre of the Eze-Fan blade section to give a complete fan. Any of the bushes can be held easily in a lathe and bored out as required.

In use each fan must be fitted with a bush.

****Flatback metal, and dished and flatback plastic fans are now available.****



AE-Style

Fans

Type (Style.Frame)	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	N (Blades)	R [mm]	Code
AE.71	124	97	55	34	25	12	12	240-010
AE.80	132	97	55	34	25	12	12	240-020
AE.90 (small)	149	97	55	34	29	12	12	240-030
AE.90	166	132	68	46	32	12	19	240-040
AE.100/112	170	140	68	46	37	12	19	240-050
AE.132 (small)	216	167	95	70	45	12	27	240-060
AE.132	246	194	95	70	55	12	33	240-070
AE.160	298	236	108	77	55	12	33	240-080
AE.180	333	263	108	77	55	12	33	240-090
AE.200	355	283	146	114	60	12	43	240-100
AE.225 (small)	381	283	146	114	60	12	43	240-110
AE.225	406	283	146	114	60	12	43	240-120
AE.250	431	283	146	114	60	12	43	240-130

Bushes

Eze-Fan Type (Style.Frame)	Eze-Hub Bush Size (bore in mm or inch)		max shaft size [mm]	Code
AE.71 AE.80 AE.90 (small)	unbored 14, 15, 16, 19, 20, 22 1/2", 5/8"		28	241-005 010/015/020/025/030/035 040/045
AE.90 AE.100/112	unbored, 24, 25, 30 1/2", 5/8", 3/4", 7/8"		39	241-050/055/060/065 070/075/080/085
AE.132 (small) AE.132	unbored, 28, 30, 32, 40, 45 7/8", 1 1/8", 1 3/8"		61	241-090/095/100/105/110/115 120/125/130
AE.160 AE.180	unbored, 42, 45, 50 1 3/8",1 5/8", 1 7/8"		66	241-135/140/145/150 155/160/165
AE.200 AE.225 (small) AE.225 AE.250	unbored 2", 2 1/8", 2 3/8" 2 7/8", 3 3/8"		104	241-170 175/180/185 190/195

Black Plastic Air Cowls

Type (Frame)	o/d [mm]	depth [mm]	Code
56	108	53	310-010
63	121	61	310-020
71	136	70	310-030
80	154	75	310-040
90	174	86	310-050

Plastic Cowl

Regular Steel Air Cowls

Type (Frame)	o/d [mm]	depth [mm]	Code
56	108	53	300–010
63	121	61	300–020
71	136	70	300–030
80	154	75	300–040
90	174	86	300–050
100	192	95	300–060
112	216	99	300–070
132	255	117	300–080
160	307	136	300–090
180	345	155	300–100
200	382	178	300–110
225	430	192	300–120
250	477	220	300–130
280	533	237	300–140
315	597	237	300–150

Regular Style

Extra-Deep Steel Air Cowls

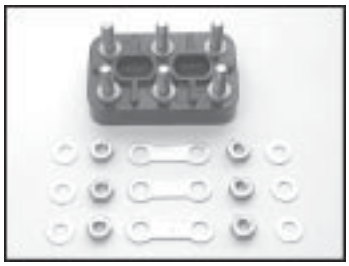
brake motors / forced ventilation

Type (Frame)	o/d [mm]	depth [mm]	Code
56	108	100	301–056
63	121	110	301–063
71	136	126	301–071
80	154	140	301–080
90	174	140	301–090
100	192	155	301–100
112	216	170	301–112
132	255	170	301–132
160	307	170	301–160
180	345	170	301–180
200	382	203	301–200
225	430	230	301–225
250	477	255	301–250
280	533	265	301–280

Extra-Deep Style

Terminal Blocks (6-pin) in Steel or Brass

complete with nuts, washers, and jumpers

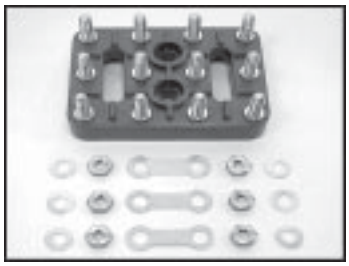


6-pin Terminal Block

Type (Length.Width.Thread)	Locating Hole Spacing [mm]	Code Steel	Code Brass
40.25.M3	14 to 16	400-010	400-015
40.25.M4	14 to 16	400-020	400-030
50.32.M4	15 to 20	400-040	400-050
56.36.M5	17 to 23	400-060	400-070
70.45.M6	20 to 30	400-080	400-090
94.58.M8	30 to 40	400-100	400-110
115.70.M10	38 to 50	400-120	400-130
126.81.M12	40 to 50	-	400-140
146.92.M14	45 to 62	-	400-150
165.103.M16	54 to 74	-	400-160
240.150.M20	80 to 100	-	400-170

Terminal Blocks (12-pin) in Brass

complete with nuts, washers, and jumpers



12-pin Terminal Block

Type (Length.Width.Thread)	Locating Hole Spacing [mm]	Code
63.46.M4	14 to 22	400-180
72.52.M5	17 to 23	400-190
90.65.M6	20 to 30	400-200

Heater Bands

220V Heater Bands Class F (155ºC)

Type	Length [mm]	Length [in]	Watts	Code
00b	203	8	8	603-005
0b	305	12	25	603-010
1b	432	17	26	603-015
2b	686	27	21	603-020
3b	686	27	40	603-025
4b	762	30	26	603-030
5b	1016	40	42	603-035
6b	1067	42	54	603-040
7b	1473	58	65	603-045
8b	1702	67	99	603-050

110V Heater Bands Class F (155ºC)

Type	Length [mm]	Length [in]	Watts	Code
00a	203	8	8	601-005
0a	305	12	22	601-010
1a	432	17	27	601-015
2a	686	27	21	601-020
3a	686	27	40	601-025
4a	762	30	25	601-030
5a	1016	40	39	601-035
6a	1067	42	50	601-040
7a	1473	58	67	601-045
8a	1702	67	103	601-050

240V Heater Bands BASEEFA Ex(N) T3, Zone 2

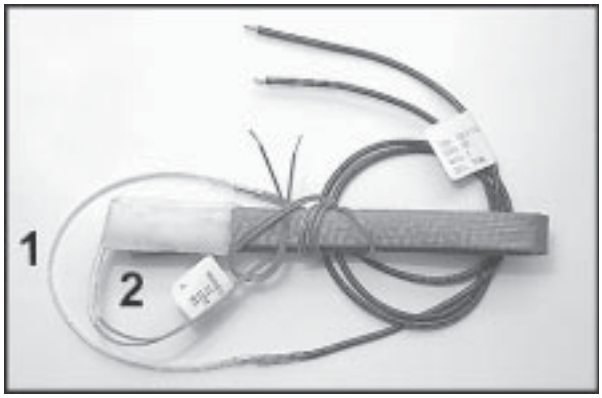
Type	Length [mm]	Length [in]	Watts	Code
0b	305	12	9	604-005
1b	432	17	12	604-010
2b	686	27	20	604-015
5b	1016	40	29	604-025
7b	1473	58	42	604-030
8b	1702	67	48	604-035

110V Heater Bands BASEEFA Ex(N) T3, Zone 2

Type	Length [mm]	Length [in]	Watts	Code
0a	305	12	9	602-005
1a	432	17	12	602-010
2a	686	27	20	602-015
5a	1016	40	29	602-025
7a	1473	58	42	602-030
8a	1702	67	48	602-035

50V Heater Bands Class F (155ºC)

Type	Length [mm]	Length [in]	Watts	Code
0/50V	305	12	24	600-005
1/50V	432	17	25	600-010
2/50V	686	27	20	600-015
5/50V	1016	40	39	600-030
7/50V	1473	58	63	600-040
8/50V	1702	67	87	600-045



Heater Bands: 1) Type 00
2) Type 0 to 8

Relays

Klixon Relays: **Code**

2CR4-120 Klixon start relay 2.0A max pick-up current / 1.7A min drop-out current 510-120
2CR4-130 Klixon start relay 3.0A/2.5A 510-130
2CR4-155 Klixon start relay 5.6A/4.6A 510-155
2CR4-175 Klixon start relay 7.6A/6.3A 510-175
2CR4-182 Klixon start relay 8.3A/6.8A 510-182
2CR4-199 Klixon start relay 10.0A/8.3A 510-199
2CR4-210 Klixon start relay 12.2A/10.1A 510-210
2CR4-222 Klixon start relay 14.6A/12.1A 510-222
2CR4-234 Klixon start relay 17.0A/14.0A 510-234
2CR4-258 Klixon start relay 21.9A/18.1A 510-258
2CR4-266 Klixon start relay 23.6A/19.5A 510-266
2CR4-285 Klixon start relay 31.5A/26.0A 510-285

Lafert Relays:

LM/M 90 L2 Lafert relay 240V/50Hz 510-360
LM 100 S4 Lafert relay 230V/50Hz 510-365
LM 100 C2 Lafert relay 240V/50Hz 510-370
SE02 LR107745 12A 95-254V electronic relay 510-380

LCR Relays:

SRE/240/2.5 510-400
(This relay is a 240V universal electronic start relay designed for external mounting.)

ABB Relays:

ABB Electronic Relay 240V (black) 940-010
ABB Electronic Relay 110V (white) 940-020

ABB Brake Rectifiers (AC 4854 5001) 940-030

LCR Relay

Klixon/Lafert Relay

ABB Relay

ABB Brake Rectifier

Thermistors, Cut-Outs and Cut-Ins

Thermistors:

singles: 60°C to 180°C (500mm leads) .....
triples: 120°C to 180°C (500-150-500mm leads) .....

Thermal Cut-Outs - normally closed (bi-metallic switches for insertion into windings):

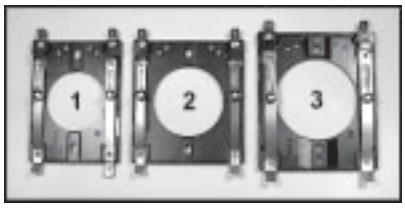
105°C, 120°C, 135°C, 150°C (4Amp Klixon 9700 series) .....
130°C, 140°C, 160°C (4Amp) .....
120°C, 140°C, 160°C (1.6Amp) .....

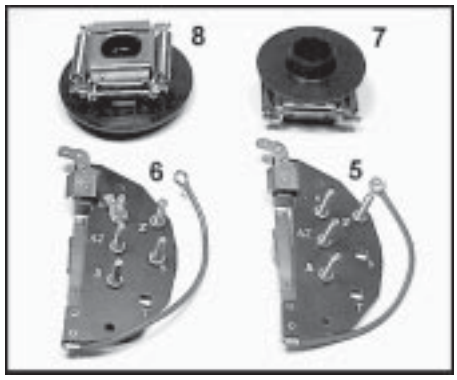
Thermal Cut-Ins - normally open:

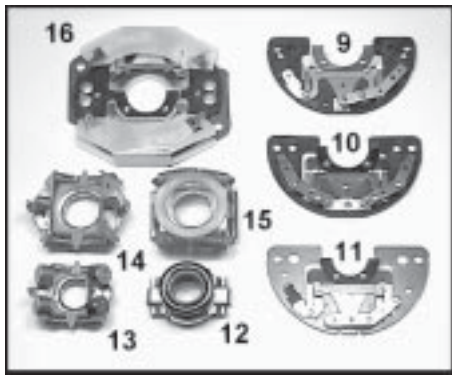
70°C, 130°C, 140°C, 150°C, 160°C (1.6Amp)

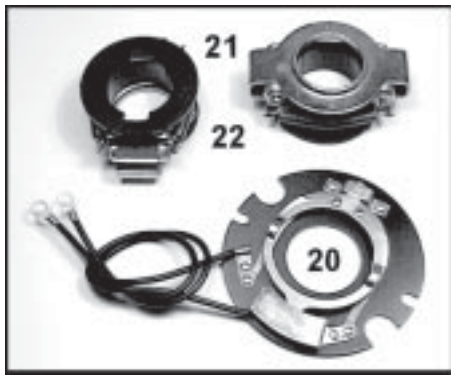
Centrifugal Switches

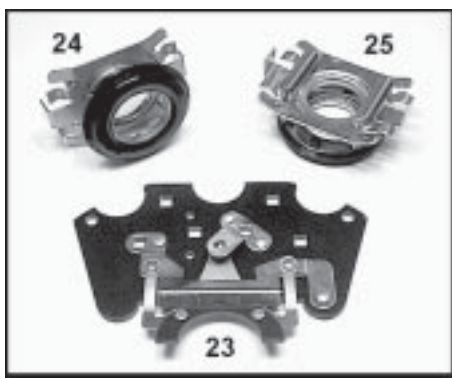
Picture	Description	Code
Pic. 1	**S-7001 Torq** static switch (6203 bearings) 2 x single throw contacts	500-010
	S-7025 Torq static switch (6203 bearings) 1 x single throw, 1 x double throw contact	500-020
Pic. 2	**S-7501 Torq** static switch (6204 bearings) 2 x single throw contacts	500-030
	S-7502 Torq static switch (6204 bearings) 1 x single throw, 1 x double throw contact	500-040
Pic. 3	**S-8001 Torq** static switch (6205 bearings) 2 x single throw contacts	500-050
	S-8007 Torq static switch (6205 bearings) 1 x single throw, 1 x double throw contact	500-060
Pic. 4	**D-9001 Torq** large dustite switch	500-070
Pic. 5	**KK7361** single throw for **Doncaster motors** (note: **KA7581** is new long, thin switch)	500-080
Pic. 6	**KK7365** double throw for **Doncaster motors** (note: **KA7594** is new long, thin switch)	500-090
Pic. 7	**KK6618 2-pole flyer** for **Doncaster** motors (3/4" shaft; 53mm o/d)	500-100
Pic. 8	**KK6619 4-pole flyer** for **Doncaster** motors (3/4" shaft; 68.6mm o/d)	500-115
Pic. 9	**Brook type 1** single contact switch for **Tuscan/Brook** (23mm i/d horseshoe)	500-119
Pic. 9	**Brook type 2** single contact switch with grease plate extensions (23mm i/d horseshoe)	500-120
Pic. 10	**Brook type 3** twin contact switch (23mm i/d horseshoe)	500-130
Pic. 12	**Brook 15mm 2 pole**/50Hz **flyer**	500-150
Pic. 13	**Brook 15mm 4 pole**/50Hz **flyer**	500-160
Pic. 14	**Brook 20mm 2 pole**/50Hz **flyer**	500-170
Pic. 15	**Brook 20mm 4 pole**/50Hz **flyer**	500-180
(Note for these 20mm flyers, 4 pressing diameters are available to suit shaft sizes: A 19.83mm; B 19.05mm; C 20.34mm; D 20.83mm)		
Pic. 16	**BCP ED112/132 stator switch**	500-190
Pic. 17	**BCC25 single contact single throw switch** (GEC fractional 1½ hp and below)	500-200
Pic. 18	**BCC25 double contact single throw switch** (GEC fractional 1½ hp and below)	500-210
Pic. 19	**BCC25 2-pole flyer** (change springs for 4-pole; 23mm i/d)	500-220
Pic. 20	**GEC D90/100 stator switch** (GEC 2 & 3 hp)	500-230
Pic. 21	**GEC D90/100 2-pole flyer** (GEC 2 & 3 hp)	500-240
Pic. 22	**GEC D90/100 4-pole flyer** (GEC 2 & 3 hp)	500-250
Pic. 23	**Newman** Elf Y2 **stator switch**	500-270
Pic. 24	**Newman** Elf **2 pole**/50Hz **flyer** (0.740" bore)	500-280
Pic. 25	**Newman** Elf **4 pole**/50Hz **flyer** (0.740" bore)	500-290







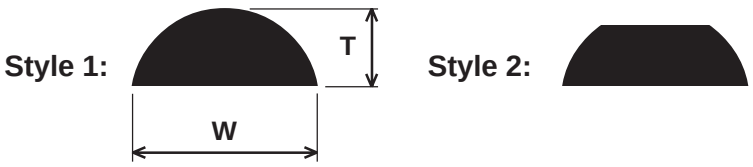




Hard Maple Wood Wedges

We now have wood wedges in stock, imported directly from the U.S.A. - all are hard maple, tumbled, and waxed. They are sold in 500' bundles (200 x 30" lengths/bundle).

code	width (W) [in]	thickness (T) [in]	style	
550-121	5/32"	5/64"	1	
550-133	7/32"	3/32"	1	
550-134	1/4"	3/32"	1	
550-251	5/32"	1/8"	2	
550-254	1/4"	1/8"	2	
550-256	5/16"	1/8"	2	
550-258	3/8"	1/8"	2	



Other sizes and shapes available to special order.

Recent Product Introductions

Capacitance meter .....

PT100 2-wire sensor (blue/blue) .....
PT100 3-wire sensor (2-black/1-red) .....

Thermistors and PT100 sensors are now available encased in bespoke housings eg. threaded, tube, glass-fibre wedge, etc

Oil Seals, Gamma Seals and V-Rings

Oil Seals

Large stocks held in different i/d, o/d, and widths. Seals are priced by o/d only, for any i/d or width.

Outside dia. up to and including	
metric	imperial
up to 38 mm	up to 1.5"
up to 50 mm	up to 2"
up to 64 mm	up to 2.5"
up to 75 mm	up to 3"
up to 90 mm	up to 3.5"
up to 100 mm	up to 4"
up to 115 mm	up to 4.5"
up to 130 mm	up to 5"
up to 140 mm	up to 5.5"
up to 150 mm	up to 6"
up to 165 mm	up to 6.5"
up to 180 mm	up to 7"
up to 190 mm	up to 7.5"
up to 200 mm	up to 8"

Gamma Seals

These are metal-backed v-rings also called RB or Stefa seals

Size (mm)			Code
i/d	o/d	width	
12	26	3.5	699-010
15	30	4	699-020
17	32	4	699-030
20	35	4	699-040
25	40	4	699-050
30	47	4.5	699-060
35	52	4.5	699-070
40	57	4.5	699-080
45	62	4.5	699-090
50	70	5.5	699-100
55	75	5.5	699-110
60	80	5.5	699-120
65	85	5.5	699-130
70	90	5.5	699-140
75	95	5.5	699-150
80	100	5.5	699-160

V-Ring seals to 100mm dia.
Bearings - ball and roller to 200mm o/d in C3 clearance
Waved Washers to 170mm o/d

Some Other Items

Capacitor plastic terminal cover . . . . . .
Capacitor spring clip ($^5/_8$", $^3/_4$", 1", $1^1/_8$", $1^1/_4$", $1^1/_2$", 2") . . . . . .
6amp terminal strip, nylon-6, 110°C rated . . . . . .
10amp terminal strip, nylon-6, 110°C rated . . . . . .
16amp terminal strip, nylon-6, 110°C rated . . . . . .
tying twine - 5 x 1mm strands (1000m)

Useful Information

Carrying current of open wire at 30°C/80°C

wire [mm²]	current (30°C) [A]	current (80°C) [A]
0.25	13	9
0.34	15	10
0.50	19	13
0.75	25	18
1.00	30	21
1.50	38	27
2.50	52	37
4.00	70	50
6.00	92	66
10.00	132	95
16.00	176	126
25.00	235	169
35.00	296	213
50.00	370	266

Thermistor colour codes

60°C	grey/white
70°C	brown/white
80°C	white/white
90°C	green/green
100°C	red/red
110°C	brown/brown
120°C	grey/grey
130°C	blue/blue
140°C	blue/white
145°C	black/white
150°C	black/black
155°C	black/blue
160°C	blue/red
170°C	green/white
180°C	red/white

Thermal classifications

Y	90°C max
A	105°C max
E	120°C max
B	130°C max
F	155°C max
H	180°C max
N	200°C max
R	220°C max
S	240°C max

Thermistor tip

Reckon on a 15°C lag between the thermistor or embedded cut-out temperature and the winding temperature, e.g. to protect windings to class F (155°C) use a 140°C thermistor/cut-out.

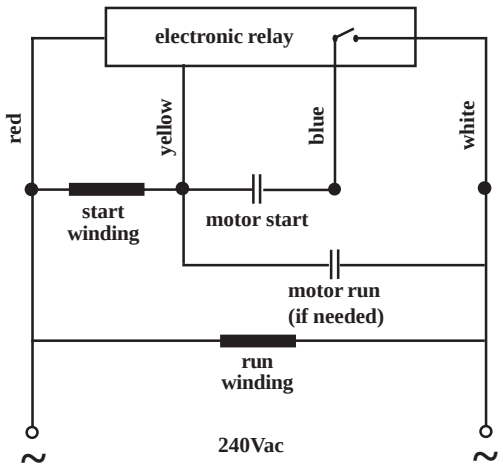
Capacitor tip

Early failure of start capacitors may be due to too short a time between successive starts, excessively long run-up time, or too high an ambient temperature. Either replace each start capacitor with two start capacitors each of half the original capacitance connected in parallel, use higher voltage rating capacitors, or both.

LCR Electronic Start Relay

Type: SRE/240/2.5

This relay will start any single phase motor with a 240V start winding up to and including 2.5kW provided it is fitted with a start capacitor. The relay monitors voltage across the start capacitor and switches the start winding out of circuit when a preset voltage (280V) is reached.



Klixon Electro-Mechanical Relay

1) Switch closes when the surge current through the run winding - and hence the relay coil - rises to the value $I_{pick\text{-}up}$. This connects the motor start capacitor.

2) Switch re-opens when this surge current falls to $I_{drop\text{-}out}$ as the motor picks up speed. The start capacitor is now disconnected and the motor will continue to run normally.

Start capacitors used with this relay should **always** be fitted with a discharge resistor to remove residual voltage.