Section A

Terminals

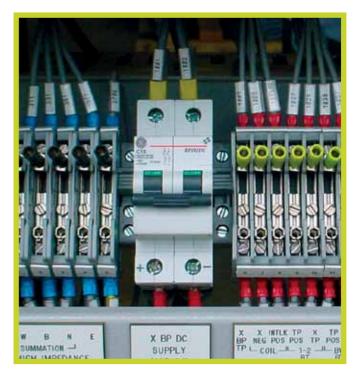
Pre-Insulated/Un-insulated Terminals	A2 - A5
Brass Terminals	A5
Terminal Kits	A6 - A7
Bootlace Pins (Ferrules)	A8 - A9
Special Terminals	A10 - A11
Large Conductor Pins, Forks & Rings	A12
Telecom Splices & Solder Splices	A13
Insulated Screw Connectors	A14
Terminal Block Connector Strip	A15
Pre-Insulated Terminals - Recommended Tooling	A16

Pre-Insulated Terminals

CABAC's range of pre-insulated terminals is comprehensive, and is being developed continually as switchgear, contactors, terminal blocks, etc. evolve. In more recent years terminals have been getting smaller, and we have developed our range of 0.5mm tab thickness quick connectors, increased our range of bootlace pins and introduced the 0.3mm² range of terminals to name a few developments. Our terminals are high quality 300V terminals having many advanced features for ease of use.

- High quality product meeting International Standards
- Long-term electrical integrity
- A unique funnel entry that speeds wire terminating and increases reliability
- Translucent nylon in fully insulated quick connectors reduces installation errors
- Full technical backup including QA
- Approved by government authorities
- Conforms to AS 3169 and AS 4437

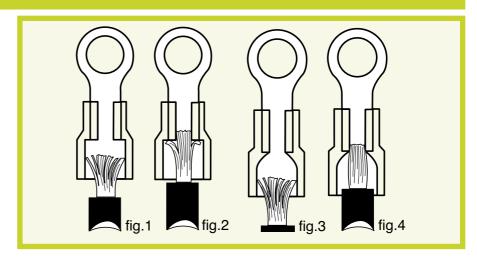
All terminals should be crimped onto the conductor using a CABAC crimper or any quality crimper that is designed to crimp the specific terminal type. If unsure of the terminal/conductor/crimper combination refer to the technical information following and test the nominal pull out force of the crimped connection. If the conductor does not pull out when the nominal pull out force is applied and held for one minute, this will give a good indication of the integrity of the joint. We offer a vast range of crimpers for various applications and terminal types that are shown in the tooling section at the back of this catalogue.



Funnel Entry

The funnel entry has been specifically developed to speed up wire terminating, while ensuring maximum reliability of the crimped connection. Only single grip terminals are funnel entry.

- Speeds insertion of the wire
- Avoids strands folding back and minimises short-circuit risks
- Reduces stripping tolerances
- Speeds and simplifies the operation, reducing errors and rejects
- Reduces installation time



Standard Entry

Fig. 1

Having stripped the insulation, the wire strands tend to 'spring', resulting in a difficult insertion.

Fig. 2

Not all strands are inserted into the terminal barrel, therefore the wire section is only partially crimped.

Funnel Entry

Fig. 3

All of the wire strands are properly funnelled into the terminal barrel.

Fig. 4

The wire section can be fully crimped and is both electrically and mechanically more reliable.

Pre-Insulated Terminals

Nominal Current Ratings

Terminal colour	Yellow	Red	Blue	Yellow
Conductor Range (mm²)	0.2-0.5	0.5-1.6	1.0-2.6	2.5-6.0
Ring Terminal	8A	24A	32A	48A
Forked Spade	6A	18A	24A	36A
Pin Connector	5A	12A	16A	24A
Lip/Flat Blade	_	24A	32A	48A
Bullet	-	12A	16A	
In Line Splice	_	24A	32A	48A
Quick Connector	-	24A	32A	48A
End Connector	-	24A	32A	48A

NOTE: These ratings are a notional suggestions and cover most situations. It assumes defect-free workmanship, natural ambient conditions, and accepted practices within AS 3000.

Stripping Lengths

Terminal Colour	Yellow	Red	Blue	Yellow
Conductor Range (mm ²)	0.2-0.5	0.5-1.6	1.0-2.6	2.5-6.0
Strip Length for Terminals	4-5mm	4-5mm	5-6mm	6-7mm
Strip Length for in Line Splice	-	7-8mm	7-8mm	7-8mm

In general, the wire should protrude 1mm out of the front of the terminal.

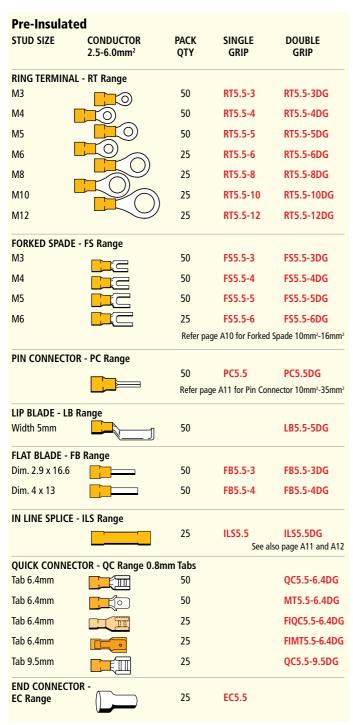
Technical Data

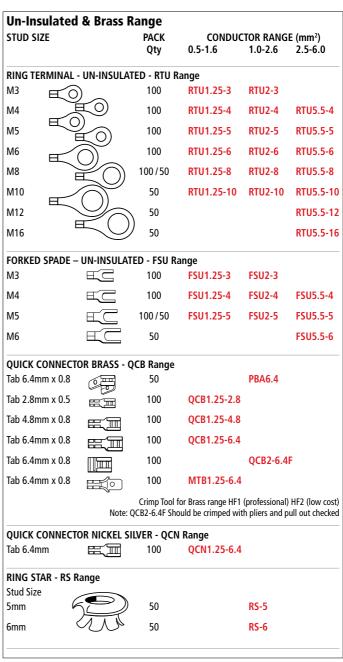
Conductive Material (except Quick Connect Range) Copper 99.9% pure		Insulation Material	PVC for all except nylon 6 or nylon 66 - for FIQC				
Tensile Strength	200 MPa	Breakdown voltage	1.5kV (min)	Thread dia (mm)	Torque (Nm)		
Ductile Rating	35%	Insulation resistance	Above 100 meg ohms	3	2		
Final Metal State	Fully annealed	Working voltage	Up to 300V AC/DC	4	3		
Oxygen Content	50ppm max			5	5		
		Working Temperature		6	9		
Conductive Material (Quick	- ·	Pre-Insulate	-40°C to +105°C	8	22		
Brass	30% Zinc	Brass	145°C	10	44		
	70% Copper	Tin plated	160°C	12	77		
Tensile Strength	580 MPa						
Ductile Rating	6% min	Conformant Standards		Nominal Pull O	ut Force		
Final Metal State	Annealed	AS4437, AS3169 Australi	a	Wire size (mm²)	Pull out force kg (N)		
		CSA Canada		0.25	4.6 (45)		
Electroplating		IEC Europe		0.50	6.0 (59)		
Material	Tin	UL Nema USA		0.75	8.6 (84)		
Tin Content	99.9%	Demko Denmark		1.00	10.1 (100)		
Other Metals	Lead + Antimony	DIN VDE Germany		1.50	13.2 (130)		
Plating Thickness	2.5 microns	Kema Holland		2.50	19.6 (192)		
-		JIS Japan; Nemko Norwa	V	4.00	26.5 (260)		
General Electrical Propertie	es	ASE Switzerland		6.00			
Total Conductivity	99.5% IACS	BS United Kingdom			35.2 (345)		
Total Resistivity	1.738 micro-ohm cm	J		Pull out should b tool/terminal con	e checked for each nbination.		

Pre-Insulated Terminals

Pre-Insulated STUD SIZE	CONDUCTOR 0.5-1.6mm ²	PACK QTY	SINGLE GRIP	DOUBLE GRIP	Pre-Insulated STUD SIZE	CONDUCTOR 1.0-2.6mm ²	PACK QTY	SINGLE GRIP	DOUBLE GRIP
RING TERMINAL	– RT Range	400	DT4 25 2	DT4 25 2D.C	RING TERMINAL -	- RT Range	400	DT0 0	
M3		100	RT1.25-3	RT1.25-3DG	M3 M4		100	RT2-3	RT2-3DG
M4 M5		100 100	RT1.25-4 RT1.25-5	RT1.25-4DG RT1.25-5DG	M5		100 100	RT2-4 RT2-5	RT2-4DG RT2-5DG
M6		50	RT1.25-6	RT1.25-5DG	M6		50	RT2-6	RT2-6DG
M8		50	RT1.25-8	RT1.25-8DG	M8		50	RT2-8	RT2-8DG
M10		25	RT1.25-10	RT1.25-10DG	M10		25	RT2-10	RT2-10DG
M12		25	111123 10	RT1.25-12DG	M12		25	RT2-12	RT2-12DG
						- 🍑			
FORKED SPADE – M3	- FS Range	100	FS1.25-3	FS1.25-3DG	FORKED SPADE - M3	FS Range	100	FS2-3	FS2-3DG
		100			M4		100		
M4			FS1.25-4	FS1.25-4DG				FS2-4	FS2-4DG
M5		50	FS1.25-5	FS1.25-5DG	M5		50	FS2-5	FS2-5DG
M6		50	FS1.25-6	FS1.25-6DG	M6		50	FS2-6	FS2-6DG
PIN CONNECTOR	- PC Range	100	PC1.25	PC1.25DG	PIN CONNECTOR	- PC Range	100	PC2	PC2DG
LIP BLADE - LB Ra	ange				LIP BLADE - LB Ra	ange			
Width 3mm		50	LB1.25-3	LB1.25-3DG	Width 3mm		50	LB2-3	LB2-3DG
Width 5mm	_ ()	50		LB1.25-5DG	Width 5mm	<u></u>)	50		LB2-5DG
FLAT BLADE - FB	Range				FLAT BLADE - FB	Range			
Dim. 1.9 x 11.7		100	FB1.25-2	FB1.25-2DG	Dim. 2.5 x 11.7		100	FB2-2.5	FB2-2.5DG
Dim. 2.3 x 17		100	FB1.25-2.3/17		Dim. 2.5 x 17		100	FB2-2.5/17	
Dim. 3 x 13		100	FB1.25-3	FB1.25-3DG	Dim. 3.5 x 13		100	FB2-3.5	FB2-3.5DG
BULLET CONNECT	TOR - BC Range				BULLET CONNECT	TOR - BC Range			
4mm Bullet		100		MBC1.25DG	5mm Bullet		50		MBC2DG
		25		FBC1.25DG			25		FBC2DG
IN LINE SPLICE -	II S Pango				IN LINE SPLICE - I	II S Pango			
IN LINE SPLICE	LIS Kalige	50	ILS1.25 See als	ILS1.25DG o page A11 and A12	IN LINE SPLICE - I	ills kange	50	ILS2 See also	ILS2DG page A11 and A12
QUICK CONNECTOR Tab 6.4 x 0.8mm	OR - QC Range	50		PB1.25-6.4DG	QUICK CONNECTO Tab 6.4 x 0.8mm	OR - QC Range	50		PB2-6.4DG
Tab 2.8 x 0.5mm		100		QC1.25-2.8/.5DG	Tab 2.8 x 0.8mm		100		QC2-2.8DG
Tab 2.8 x 0.8mm		100		QC1.25-2.8DG	Tab 4.8 x 0.5mm		100		QC2-4.8/.5DG
Tab 4.8 x 0.5mm		100		QC1.25-4.8/.5DG	Tab 4.8 x 0.8mm		100		QC2-4.8DG
Tab 4.8 x 0.8mm		100		QC1.25-4.8DG	Tab 6.4 x 0.8mm		50		QC2-6.4DG
Tab 6.4 x 0.8mm		100	F10.54.55	QC1.25-6.4DG	Tab 4.8 x 0.5mm		50	FIQC 2-4.8/.5	
Tab 4.8 x 0.5mm		50	FIQC1.25-4.8/.5		Tab 6.4 x 0.8mm		50		FIQC2-6.4DG
Tab 6.4 x 0.8mm		50		FIQC1.25-6.4DG	Tab 6.4 x 0.8mm		100		MT2-6.4DG
Tab 6.4 x 0.8mm		100		MT1.25-6.4DG	Tab 6.4 x 0.8mm		50		FIMT2-6.4DG
Tab 6.4 x 0.8mm		50		FIMT1.25-6.4DG	Tab 6.4 x 0.8mm		25	FIFQC2-6.4	
Tab 6.4 x 0.8mm Flag	Requires KFLAG	25 Tool	FIFQC1.25-6.4		Flag END CONNECTOR	Requires KFLAG	Tool 50	EC2	
END CONNECTOR EC Range	-	50	EC1.25		EC Range				

Pre/Un-insulated & Brass Terminals





Please refer to Section H for CABAC's full range of tools. Below are some common tools for this range.



KTC1, KTC2, KTC3
Pre-Insulated Crimper, General Purpose



HP3Pre-Insulated Crimper, Professional



HN2 Uninsulated Terminal Crimper



HF2Brass Roll Crimper

Terminal Kit Packs

PRE-INSULATED AND BRASS

CABAC Kit packs are useful to a smaller user, who only wants a few terminals to complete a job. They are supplied in handy merchandiser re-sealable bag. The terminals in these kits are the same high quality 300V terminals, with all the features of the CABAC standard range, such as funnel entry.

RT1.25-5/K 25 RT1.25-6/K 25 RT1.25-8/K 20 RT1.25-10/K 20 Forked Spades - Pre-Insulated FS1.25-3/K 15 FS1.25-4/K 15 FS1.25-5/K 15 Pin Connectors - Pre-Insulated PC1.25/K 20 Bullet Connectors - Pre-Insulated MBC1.25DG/K 15 In Line Splice - Pre-Insulated ILS1.25/K 20 Water Proof Splice - Pre-Insulated WPS1.25/K 20 Water Proof Splice - Pre-Insulated WPS1.25/K 20 Guick Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QUICK Connector - Brass QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 PBA6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass	Catalogue No.	Kit Pack Quantity
RT1.25-4/K 25 RT1.25-5/K 25 RT1.25-6/K 25 RT1.25-8/K 20 RT1.25-10/K 20 Forked Spades - Pre-Insulated FS1.25-3/K 15 FS1.25-3/K 15 FS1.25-5/K 15 Pin Connectors - Pre-Insulated PC1.25/K 20 Bullet Connectors - Pre-Insulated MBC1.25DG/K 15 In Line Splice - Pre-Insulated ILS1.25/K 20 Water Proof Splice - Pre-Insulated WPS1.25/K 6 Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K 20 FIQC1.25-6.4/K 15 MT1.25-6.4DG/K 20 GUICK Connectors - Brass QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 PBA6.4/K 20 Ring Star Range - Brass		
RT1.25-6/K RT1.25-8/K RT1.25-10/K Porked Spades - Pre-Insulated FS1.25-3/K FS1.25-3/K FS1.25-4/K FS1.25-5/K Pin Connectors - Pre-Insulated PC1.25/K Bullet Connectors - Pre-Insulated MBC1.25DG/K In Line Splice - Pre-Insulated ILS1.25/K Water Proof Splice - Pre-Insulated WPS1.25/K Quick Connector Range - Pre-Insulated WPS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K IS RUC1.25-6.4DG/K QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K QUICK Connector - Brass QCB1.25-6.4/K QUICK Connector - Brass QCB1.25-6.4/K QUICK Connector - Brass QCB1.25-6.4/K QUICK CONNECTOR - Pre-Insulated PBA6.4/K QUICK CONNECTOR - Pre-Insulated PC1.25-6.4/K QUIC		
RT1.25-8/K 20 RT1.25-10/K 20 Forked Spades - Pre-Insulated FS1.25-3/K 15 FS1.25-3/K 15 FS1.25-5/K 15 Pin Connectors - Pre-Insulated PC1.25/K 20 Bullet Connectors - Pre-Insulated MBC1.25DG/K 15 FBC1.25DG/K 15 In Line Splice - Pre-Insulated ILS1.25/K 20 Water Proof Splice - Pre-Insulated WPS1.25/K 6 Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QC1.25-6.4DG/K 15 MT1.25-6.4DG/K 20 FIQC1.25-6.4/K 15 MT1.25-6.4/K 20 Quick Connectors - Brass QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass	RT1.25-5/K	25
RT1.25-10/K Porked Spades - Pre-Insulated FS1.25-3/K FS1.25-4/K FS1.25-5/K Pin Connectors - Pre-Insulated PC1.25/K Bullet Connectors - Pre-Insulated MBC1.25DG/K In Line Splice - Pre-Insulated ILS1.25/K Water Proof Splice - Pre-Insulated WPS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QC1.25-6.4DG/K 15 QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K QUICK Connector - Brass QCB1.25-6.4/K QUICK Connector - Brass QCB1.25-6.4/K QUICK Connector - Brass QCB1.25-6.4/K QUICK Connector - Nickel Silver QCN1.25-6.4/K QUICK Connector - Nickel Silver	RT1.25-6/K	25
Forked Spades - Pre-Insulated FS1.25-3/K FS1.25-3/K FS1.25-4/K FS1.25-5/K Pin Connectors - Pre-Insulated PC1.25/K Bullet Connectors - Pre-Insulated MBC1.25DG/K In Line Splice - Pre-Insulated ILS1.25/K Water Proof Splice - Pre-Insulated WPS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K IS FIQC1.25-6.4/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K QUICK Connector - Brass QCB1.25-6.4/K QUICK Connector - Nickel Silver QCN1.25-6.4/K	RT1.25-8/K	20
FS1.25-3/K 15 FS1.25-4/K 15 FS1.25-5/K 15 Pin Connectors - Pre-Insulated PC1.25/K 20 Bullet Connectors - Pre-Insulated MBC1.25DG/K 15 FBC1.25DG/K 15 In Line Splice - Pre-Insulated ILS1.25/K 20 Water Proof Splice - Pre-Insulated WPS1.25/K 6 Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QC1.25-6.4DG/K 15 MT1.25-6.4/K 15 MT1.25-6.4/K 20 Quick Connectors - Brass QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass	RT1.25-10/K	20
FS1.25-4/K 15 FS1.25-5/K 15 Pin Connectors - Pre-Insulated PC1.25/K 20 Bullet Connectors - Pre-Insulated MBC1.25DG/K 15 FBC1.25DG/K 15 In Line Splice - Pre-Insulated ILS1.25/K 20 Water Proof Splice - Pre-Insulated WPS1.25/K 6 Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QC1.25-6.4DG/K 20 FIQC1.25-6.4/K 15 MT1.25-6.4/K 15 MT1.25-6.4/K 20 MTB1.25-6.4/K 20 PBA6.4/K 20 Quick Connectors - Brass QCB1.25-6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass		
FS1.25-5/K Pin Connectors - Pre-Insulated PC1.25/K Bullet Connectors - Pre-Insulated MBC1.25DG/K In Line Splice - Pre-Insulated ILS1.25/K Water Proof Splice - Pre-Insulated WPS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K In Line Splice - Pre-Insulated ILS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K QUICK Connector Range - Pre-Insulated PB1.25-6.4DG/K In Line Splice - Pre-Insulated ILS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K In Line Splice - Pre-Insulated ILS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K In Line Splice - Pre-Insulated ILS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4/K In Line Splice - Pre-Insulated ILS1.25/K Quick Connector Range - Pre-Insulated ILS1.25/K In Line Splice - Pre-Insulated ILS1.25/K August Range - Pre-Insulated ILS1.		
Pin Connectors - Pre-Insulated PC1.25/K Bullet Connectors - Pre-Insulated MBC1.25DG/K 15 FBC1.25DG/K In Line Splice - Pre-Insulated ILS1.25/K Water Proof Splice - Pre-Insulated WPS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QC1.25-6.4DG/K 15 MT1.25-6.4DG/K 15 Quick Connectors - Brass QCB1.25-6.4/K Quick Connectors - Brass QCB1.25-6.4/K QUick Connectors - Nickel Silver QCN1.25-6.4/K QUICK Connectors - Nickel Silver		
Bullet Connectors - Pre-Insulated MBC1.25DG/K In Line Splice - Pre-Insulated ILS1.25/K Water Proof Splice - Pre-Insulated WPS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K IS QC1.25-6.4DG/K QUICK Connectors - Brass QCB1.25-6.4/K QUICK Connectors - Brass QCB1.25-6.4/K QUICK Connectors - Brass QCB1.25-6.4/K QUICK Connectors - Nickel Silver QCN1.25-6.4/K QUICK Connectors - Nickel Silver	FS1.25-5/K	15
MBC1.25DG/K 15 FBC1.25DG/K 15 In Line Splice - Pre-Insulated ILS1.25/K 20 Water Proof Splice - Pre-Insulated WPS1.25/K 6 Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QC1.25-6.4DG/K 20 FIQC1.25-6.4/K 15 MT1.25-6.4DG/K 15 Quick Connectors - Brass QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 PBA6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass		
In Line Splice - Pre-Insulated ILS1.25/K Water Proof Splice - Pre-Insulated WPS1.25/K Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K QC1.25-6.4DG/K IS MT1.25-6.4DG/K Quick Connectors - Brass QCB1.25-6.4/K MTB1.25-6.4/K QUICK Connectors - Nickel Silver QCN1.25-6.4/K QUICK Connectors - Nickel Silver		
Water Proof Splice - Pre-Insulated WPS1.25/K		15
WPS1.25/K 6 Quick Connector Range - Pre-Insulated PB1.25-6.4DG/K 15 QC1.25-6.4DG/K 20 FIQC1.25-6.4JK 15 MT1.25-6.4DG/K 15 Quick Connectors - Brass QCB1.25-6.4JK 20 MTB1.25-6.4JK 20 PBA6.4JK 20 Quick Connectors - Nickel Silver QCN1.25-6.4JK 20 Ring Star Range - Brass		
PB1.25-6.4DG/K 15 QC1.25-6.4DG/K 20 FIQC1.25-6.4/K 15 MT1.25-6.4DG/K 15 Quick Connectors - Brass QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 PBA6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass		
QC1.25-6.4DG/K 20 FIQC1.25-6.4/K 15 MT1.25-6.4DG/K 15 Quick Connectors - Brass QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 PBA6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass		
FIQC1.25-6.4/K 15 MT1.25-6.4DG/K 15 Quick Connectors - Brass QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 PBA6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass		
MT1.25-6.4DG/K Quick Connectors - Brass QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 PBA6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass	•	
Quick Connectors - Brass QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 PBA6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass		
QCB1.25-6.4/K 20 MTB1.25-6.4/K 20 PBA6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass		.5
MTB1.25-6.4/K 20 PBA6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass		20
PBA6.4/K 20 Quick Connectors - Nickel Silver QCN1.25-6.4/K 20 Ring Star Range - Brass		
QCN1.25-6.4/K 20 Ring Star Range - Brass		
-		
K5-5/K 20		
RS-6/K 20		

Catalogue No.	Kit Pack Quantity
Ring Terminals - Pre-Insulated	20
RT2-4/K	20
RT2-5/K	20
RT2-6/K	20
RT2-8/K	15
Forked Spades - Pre-Insulated	
FS2-3/K	15
FS2-4/K	15
FS2-5/K	15
Pin Connectors - Pre-Insulated PC2/K	I 20
Bullet Connectors - Pre-Insula MBC2DG/K	ted 15
FBC2DG/K	15
In Line Splice - Pre-Insulated ILS2/K	20
Water Proof Splice - Pre-Insula WPS2/K	ated 6
Quick Connector Range - Pre-l PB2-6.4DG/K	Insulated 15
QC2-6.4DG/K	20
FIQC2-6.4/K	15
MT2-6.4DG/K	15

QCB2-6.4F/K

Yellow Pre-Insulated Kit Packs Conductor 2.5-6.0mm ²	Vit De ale
Catalogue No.	Kit Pack Quantity
Ring Terminals - Pre-Insulated	
PTE 5 5 W	20
RT5.5-5/K	20
RT5.5-6/K	20
RT5.5-8/K	15
Forked Spades - Pre-Insulated	
FS5.5-4/K	10
FS5.5-5/K	10
Pin Connectors - Pre-Insulated PC5.5/K	15
In Line Splice - Pre-Insulated ILS5.5/K	10
Water Proof Splice - Pre-Insulate WPS5.5/K	d 4
Quick Connector Range - Pre-Ins	ulated
QC5.5-6.4DG/K	10
FIQC5.5-6.4/K	10
MT5.5-6.4DG/K	10



20

Terminal Kits

Terminal and Tool Kits - Plastic Boxes

Terminal kits packed in KPB1 sturdy plastic box with 20 pieces of the below terminals, and two tool options, one economy range, and one with a quality ratchet crimp tool. Please refer to the tooling section in Section G for details of the crimp tool.

- FIQC1.25-6.4DG
- FS1.25-4
- PC1.25 • ILS1.25
- RT1.25-5

- FIQC2-6.4DG
- FS2-4
- ILS2
- QCN1.25-6.4
- RT2-5

KPBK3 Economy Kit with K10/2 tool

KPBK6

Professional Kit with KTC1 ratchet crimp tool



KPBK6

Bootlace Terminal and Tool Kits - Plastic Boxes

These kits contain the most common bootlace pins with two tool options, packed in a KPB1 sturdy plastic box. Please refer to the tooling section in Section G for details of the crimp tool. The kit contains 100 of:

- BLP050 • BLP075
- BLP250 • BLP400
- BLPT100
- BLPT150 • BLPT075 • BLPT250
- BLP100 • BLP150

BLPKIT1 Kit with HNKE6 plier style crimper

BLPKIT2 Kit with HNKE5 ratchet crimper



BLPKIT2

Lug Terminator Kit - Large

This kit has large quantities of copper lugs and links from 2.5 to 16mm² and a K26 tool for crimping, all packed in a sturdy KPB1 plastic box.

Kit contains:

CAL2.5-5	
• CAL2.5-6	

- CAL10-6 50 • CAL16-6 25
- CAS6 CAS16



50

50 • CAL16-8 25 • CAL4-6 • CAL6-6 50 • CAS2.5 100

100

100

KPBK1



KPBK1

Lug Terminator Kit - Small

This kit has handyman quantities of copper lugs and links from 2.5 to 16mm² and a K26 tool for crimping all packed in a sturdy KPB1 plastic box.

Kit contains:

• CAL6-6

KPBK2

Product	Qty
• CAL2.5-5	25

- CAL10-6 25 15 • CAL16-6
- CAS6 15 CAS16 15
- CAL2.5-6 25 • CAL16-8 15 • CAL4-6 25 • CAS2.5

25

- 25
- K26 Tool



KPBK2

Terminal and Tool Kits - Metal Box

CABAC offers a range of kits based around our KSB-BL Metal Box.

KTB - Basic Kit with no tool, having a range of terminals packed in a KSB-BL metal box. Contains 25 pieces of the following terminals:

- PC1.25
- ILS2
- PC2
- FIQC1.25-6.4DG • FIQC2-6.4DG
- RT1.25-4 • RT1.25-5
- FS1.25-4

- RT2-5

- FS2-4

- RT2-6
- FBC1.25DG
- RT5.5-5
- FBC2DG
- MBC1.25DG
- QC1.25-6.4DG
- MBC2DG
- QC2-6.4DG
- ILS1.25
- PBA6.4

Kit Options:

KTB-T1

Terminators Kit (KTB) with K10/3 tool.

Terminators Kit (KTB) with HP3 quality ratchet tool.

Terminators Kit (KTB) with KTC1 budget ratchet tool.



KTB

Bootlace Pins - Ferrules

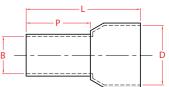
CABAC Bootlace Pins are used to terminate conductors, by containing the strands in a thin walled copper sleeve that is crimped onto the conductor. The sleeve ensures that no conductor strands stray, and also stops screws in the terminal from breaking strands. With the use of larger diameter flexible cables, the range is continually growing, so please contact our sales department if an item you need is not shown.

There are three basic types of BLP:

- Insulated single conductor style
- Twin conductor style
- Un-insulated cord end sleeves

The sleeves should be slipped over the stripped conductor, and crimped with one of our HNKE range of crimp tools. Crimp is only to hold sleeve on conductor until screw of terminal housing makes connection.





Catalogue	Nominal Conductor		Dimensio	one (mm)							
No.	(mm²)	L	P	B	D	Colour	Pack		То	oling	
BLP025	0.25	10	6	0.75	1.9	Violet	100				
BLP034	0.34	10	6	0.8	1.9	Pink	100				
BLP050 BLP050/500	0.5	14	8	1.3	3.4	White	100 500				
BLP075 BLP075/500	0.75	14	8	1.5	3.8	Blue	100 500				
BLP100 BLP100/500	1.0	14	8	1.7	4.1	Red	100 500		HNKE6		
BLP150 BLP150/500	1.5	14	8	2.0	4.6	Black	100 500	HNKE12	E6		
BLP150-18	1.5	24	18	2.0	4.6	Black	100	Œ12			
BLP250	2.5	14	8	2.6	4.9	Grey	100			HNKE5	
BLP250-18	2.5	24	18	2.6	4.9	Grey	100				
BLP400	4	18	10	3.2	5.8	Orange	100			, 10 & 11	
BLP400-18	4	26	18	3.2	4.8	Orange	100				
BLP600	6	20	12	3.9	6.9	Green	50				
BLP600-18	6	26	18	3.9	6.9	Green	50				
BLP1000	10	22	12	4.9	8.4	Brown	25				HNKE7
BLP1000-18	10	28	18	4.9	8.4	Brown	25				
BLP1600	16	24	12	6.2	9.6	lvory	25				HNKE8
BLP1600-18	16	28	18	6.2	9.6	lvory	25				
BLP2500	25	28	16	7.7	12.0	Black	10				
BLP3500	35	30	16	8.7	13.5	Red	10				
BLP5000	50	36	16	10.9	16.0	Blue	10				
BLP7000	70	37	21	14.3	17.2	Yellow	5				
BLP9500	95	44	25	15.5	19.2	Red	3				
BLP12000	120	48	27	17.6	21.4	Blue	3				

"Shaker Box" for Bootlace Pins

CABAC has two handy assortment boxes for bootlace pin connectors. These have a range of the most popular sizes, for day to day use.

BLPK1

Bootlace pin assortment 0.5-2.5mm².

 Contents
 Qty

 BLP050
 100

 BLP075
 100

 BLP100
 100

 BLP150
 100

 BLP250
 50

BLPK2

Bootlace pin assortment 4-16mm².

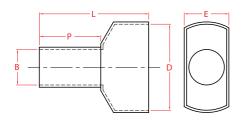
Contents BLP400 BLP600 BLP1000 BLP1600	Qty 50 20 20
BLP1600	10



Twin & Un-insulated Bootlace Pins

Twin Wire BLPT Bootlace Pins

The twin wire BLPT range is specifically designed to terminate two wires in the same terminal. With the development of smaller switches and devices become smaller. The twin wire BLPT solves these problems in a quick and easy way.





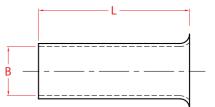
Catalogue	Nominal Conductor		Dimen	sions (mm)							
No.	(mm²)	L	P	В	D	E	Colour	Pack		Too	ling	J
BLPT075	2 x 0.75	15.0	8.0	1.8	5.0	2.8	Grey	100				
BLPT100	2 x 1.0	15.0	8.0	2.05	5.4	3.4	Red	100				
BLPT150	2 x 1.5	16.0	8.0	2.3	6.6	3.6	Black	100	풀	Ŧ	풀	玉
BLPT250	2 x 2.5	18.5	10.0	2.8	7.8	4.2	Blue	100	Ē	KE5	KE6	KE9
BLPT400	2 x 4.0	23.0	12.0	3.7	8.8	4.9	Grey	50				
BLPT600	2 x 6.0	26.0	14.0	4.8	10.0	6.9	Yellow	25				

Un-insulated Bootlace Pins - Cord End Connectors

CABAC un-insulated bootlace pins are used to terminate conductors, by containing the strands in a thin walled copper sleeve. Crimping of the sleeves is optional, since the screw in the terminal will "crimp" the connection.

	Catalogue No.	Nominal Conductor (mm²)	Dimens	ions (mm) B	Std Pack	Tooling
_	BLPU050	0.50	8	1.0	100	
	BLPU075	0.75	8	1.2	100	
	BLPU100	1.0	10	1.4	100	HNKE6
	BLPU150	1.5	10	1.7	100	톶
	BLPU250	2.5	10	2.2	100	HNKE9, 10
	BLPU400	4	12	2.8	100	
	BLPU600	6	12	3.5	100	
	BLPU1000	10	12	4.5	25	
	BLPU1600	16	12	5.8	25	
	BLPU2500	25	18	7.3	10	HNKE7
	BLPU3500	35	18	8.3	10	
	BLPU5000	50	20	10.3	10	HNKE8
	BLPU7000	70	25	13.5	5	
	BLPU9500	95	32	14.7	3	
	BLPU12000	120	32	16.7	3	





Special Terminals

0.3mm² Pre-Insulated Terminal Range

Cable terminations are getting smaller as time progresses. CABAC 0.3mm^2 range accommodate fine conductors in the 0.2 to 0.5mm^2 range.

Catalogue No.	Stud Size (mm)	Std Pack
Ring Terminals		
RT0.3-3DG	3	
RT0.3-4DG	4	100
RT0.3-5DG	5	
Forked Spades		
FS0.3-3DG	3	
FS0.3-4DG	4	100
FS0.3-5DG	5	
Pin Connector		
PC0.3DG		100



Forked Spade Flange Style - FSF Range

These terminals are designed to provide a positive location and restraint to the terminal palm, especially for captive screw and vibration applications. They should be crimped using the normal CABAC tool range.

Catalogue No.	Nominal Conductor (mm²)	Stud Size (mm)	Std Pack
FSF1.25-3DG		3	
FSF1.25-4DG	0.5 to 1.6	4	100
FSF1.25-5DG		5	
FSF2-3DG		3	
FSF2-4DG	1.0 to 2.6	4	100
FSF2-5DG		5	



Water Proof Splice - WPS Range

CABAC Water Proof Splices have a glue lined heatshrink insulation, which is shrunk onto the wire after crimping. This gives a completely waterproof connection. They are crimped using standard CABAC tooling.

Catalogue No.	Nominal Conductor (mm²)	Insulation Colour	Std Pack
WPS1.25	0.5 to 1.6	Red	
WPS2	1.0 to 2.6	Blue	25
WPS5.5	2.5 to 6.0	Yellow	



Window Splices - ILSWS Range

CABAC Window Splices have a "window" in the centre of the splice, that can be seen through translucent insulation, through which you can see if the conductors have bottomed, and as such a correct crimp achieved. They are used in high integrity installations, where conductor connectivity is critical. They are crimped with standard CABAC tooling.

Catalogue Nominal No. Conductor (mm²)		Insulation Colour	Std Pack	
ILS1.25WS	0.5 to 1.6	Red	50	
ILS2WS	1.0 to 2.6	Blue	50	
ILS5.5WS	2.5 to 6.0	Yellow	25	



Special Terminals

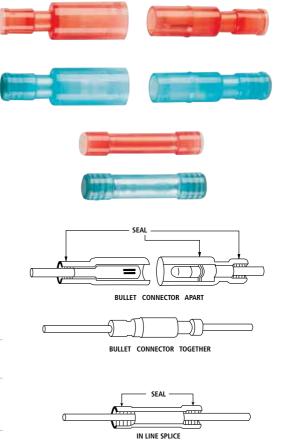
IP57 Bullets & Splices

These IP57 Bullets and Splices are designed for hostile environments, and can be immersed in water, without water getting into the joint. The bullets allow equipment to be disconnected and re-connected maintaining an IP57 integrity.

- Have an in-built sealing ring, which seals the terminal to wire insulation interface, stopping water ingress
- The bullets have in-built sealing ridges, which stops water penetration, and a positive seal at the base of the male bullet
- The bullets are ideal for connections of swap out equipment, and equipment that has to be temporarily connected
- Temperature range -40°C to 105°C
- Rated voltage 300V
- Flame retardant nylon insulation to UL94V-2
- IP57 to IEC529

For correct sealing, ensure the insulation of the wire is the correct diameter (see table below) and simply insert the wire and crimp with a quality CABAC pre-insulate crimper such as the HP3.

Catalogue No.	Description	Conductor Range (mm²)	Outside Wire Diameter (mm)	Std Pack
Bullet Connectors MBC1.25/IP57	Red Male Bullet	0.75-1.25	2.6-3.2	25
FBC1.25/IP57	Red Female Bullet	0.75-1.25	2.0-3.2	23
MBC2/IP57	Blue Male Bullet	1.0-2.6	3.0-3.6	25
FBC2/IP57	Blue Female Bullet	1.0-2.0	3.0-3.0	23
In Line Splices				
ILS1.25/IP57	Red In Line Splice	0.75-1.25	2.6-3.2	50
ILS2/IP57	Blue In Line Splice	1.0-2.6	3.0-3.6	50



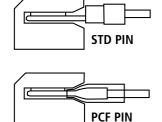
Terminal Block Pins

These pins have a long skinny pin, and most importantly the insulation tapers toward the pin.

- Because the insulation tapers the front of the pin and the insulation are in the terminal block cavity. This minimises chances of short outs, and things inadvertently touching
- The long pin is designed to go into most commercially available terminal blocks
- The insulation is translucent so the crimp can be inspected through the insulation

One of the largest uses for this product is the lighting industry and spring type terminal blocks. These terminals should be crimped with normal CABAC tooling.

Catalogue	Description	Conductor	Pin Length	Std
No.		Range (mm²)	(mm)	Pack
PCF1.25	Red Pin	0.3-1.56	11	100





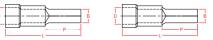
Large Conductor Pins, Forks & Rings

Pin Connectors Insulated 10mm² to 35mm²

Pin Connectors for larger conductors than conventional yellow range of terminals. Insulation is black nylon and funnel entry is provided for ease of wire insertion. Terminals accommodate fine-stranded wire.

Catalogue No.	Nominal Conductor		Dimensions (mm)			Crimp Tool	Pack
	(mm²)	L	В	P	D	•	Qty
PC10	10	35	4.2	14.5	8.0	K25 / HNN4	10
PC16	16	41	5.5	18.0	9.2	KZ3 / HIVIV4	10
PC25	25	45	6.8	20.3	11.1	K28	10
PC35	35	55	8.0	24.5	13.6	К9	5

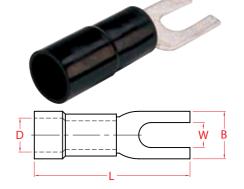




Forked Spade Insulated 10mm² and 16mm²

Forked Spades for larger conductors than conventional yellow range of terminals. Insulation is black nylon and funnel entry is provided for ease of wire insertion. Terminals accommodate fine-stranded wire. These forked spades are narrow so that they can be used on modern compact switchgear.

Catalogue No.	Nominal Conductor	Stud		Dimer (m	Crimp Tool	Pack		
	(mm^2)	Size	L	В	W	D		Qty
FS10-4	10	4	26	9.8	4.2	8.2	_	10
FS10-5	10	5	35.2	11.5	5.2	8.2	HNN4 / K25	10
FS16-4	16	4	31	9.8	4.2	9.0	_	10
FS16-5	16	5	31	11.5	5.2	9.0		10



Pin Connectors Uninsulated 10mm² to 50mm²

CABAC's Un-Insulated PCU range are larger size pins than the normal terminal style. They are useful to connect narrow tunnels in switchgear.

Catalogue No.	Nominal Conductor	Dimensions (mm)				Crimp Tool	Pack
	(mm²)	L	В	P	D		Qty
PCU10	10	23.5	4.3	14.5	4.8	K25 / K26	50
PCU16	16	28.0	5.5	18.0	5.9	K25 / K26	50
PCU25	25	32.0	7.0	20.3	7.0	K28 / K9	50
PCU35	35	39.0	8.0	24.5	8.9	К9	50
PCU50	50	45.0	9.5	26.0	10.0	К9	1



Large Diameter Rings on a Small Conductor

These Ring Terminals are designed to attach a small wire to a large diameter bolt, such as earth connections etc.

Catalogue No.	Nominal Conductor (mm²)	Stud (mm)	Crimp Tool	Pack Qty	Α	В	D	E
RTU10-12	10	12		100	34.00	11.00	6.50	8.50
RTU10-16	10	16	K26, K27, K28	100	50.00	16.00	8.50	8.50
RTU16-16	16	16		50	54.00	16.00	8.50	16.50
RTU20-12	20	12	K28, K9	50	54.00	16.00	13.00	16.50



Telecom Splices & Solder Splices

Telecom Splice Connectors

CABAC Telecom Splice Connectors are specifically designed to quickly connect two or three telecom conductors. Simply insert the un-stripped wires, and crimp the cap of the connector using a CABAC TELSP2 tool, and the wires are connected forever.

- Connectors are grease filled to ensure a moisture proof connection
- Bodies are made from polycarbonate plastic that resists splitting, rough handling and solvents
- The connection method is an IDC (Insulation Displacement Connection), which is proven to be stable in the long term. Two IDC elements are used in each connection for greater joint integrity Ensure any crimp tool used has a parallel action, like the CABAC TELSP2 tool. Many low cost tools have a plier action, which is not recommended for crimping these connectors.

Catalogue No.	Superseded Catalogue No.	Conductor No. of Conductors	Max Range Dia. (mm)	Insulation (mm)	Cap Colour	Std Pack
374CUY2-C	373MUY2-C	2	0.4-0.9	2.1	Yellow	100
374CUR2-C	373MUR2-C	3	0.4-0.9	2.1	Red	100



Body material: Polycarbonate Operating temperature: -40 to 140°C



Solder Splices

CABAC Solder Splices are an adhesive lined heatshrink tube containing a sleeve of low melt point fluxed solder. The conductors are inserted into the sleeve, and the strands intermingled. Using a hot heatgun, the sleeves are shrunk onto the conductor, at the same time melting the solder, which connects the wires. The advantages of solder splices are:

- A completely sealed soldered joint is created in one go
- The heatshrink has an internal glue liner, which melts and seals the joint
- A joint with good strain relief, and high vibration resistance is created
- A fast, time effective way of joining two conductors
- Ideal for connections in hostile or moist environments

To install solder sleeves, strip the conductors 9mm. Slide a sleeve over one of the wires. Push the conductors together and intermingle the wires. Slide the solder sleeve to the centre of the joint. Apply heat from the centre to the end of the sleeve, and focus heat on the solder until it flows. Shrink the ends of the heatshrink, ensuring the glue liner is melted and flows. Avoid overheating, and set temperature to approx 250°C. Do not use an open flame.

Catalogue No.	Conductor Range (mm²)	Colour	Pack Qty
SSCL-X	0.1 - 0.5	Clear	10
SSRD-X	0.5 - 1.0	Red	10
SSBL-X	1.0 - 2.0	Blue	10
SSYL-X	2.0 - 6.0	Yellow	10

Technical Data

Melting Temperature: 126 to 145°C
Temperature Rating: -55 to +95°C
Dielectric Strength: 15 kV/mm²
Insulation Resistance: 1014 Meg Ohms

Mil Spec of Tubing: MIL-I-23053/4, Class 1 AMS-3634

Mil Spec of Solder: QQ5571E, MIL-S-14256



Insulated Screw Connectors

CABAC heavy duty Insulated Screw Connectors accommodate a maximum of 2 x 6mm^2 cables, and are made in one and two screw formats, the two screw being for the earth.

- They have a clear plastic housing so that the termination can be visually checked
- Soft plastic housing with no sharp edges for user comfort
- Nominal 32A rating, dependant on conductor loading
- Rated for normal 240/415V applications
- Connectors are supplied in handy screw top jars

They are typically used by electricians, in junction boxes for general connections, to connect light fittings, and virtually anywhere in general purpose wiring. Supplied in handy screw top jars.

Catalogue No.	Description Conductor	Jar Qty	Jar Weight (g)	
C32A1	Single Screw Connector 32A	100	330	
C32A2	Double Screw Connector 32A	50	330	



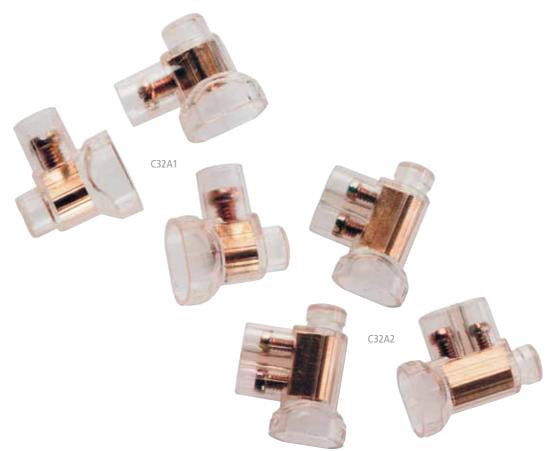
Technical Data

Material

Body: PVC Connections: Brass

Nominal Ratings

Voltage: 240/415V Amperage: 32A



Terminal Block Connector Strip

WIRE PROTECT STYLE

CABAC Terminal Block Connector Strips are high quality wire protect style blocks. This means a small metal "pressure" plate is located below each screw, which clamps on to the wire strands, protecting them from the screw which will damage strands during screwing down the connector.

Features include:

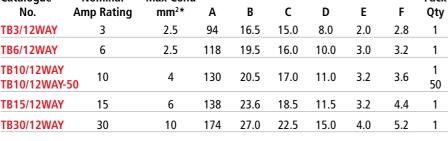
- Wire protect style to protect strands
- Manufactured from Polyamide 66
- Working temperature of 105°C
- Nickel plated brass terminals
- Plated steel screws

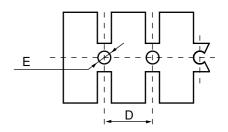
They are supplied in 12 way strips that can be cut down to your requirements.

These blocks are available from CABAC in two ways:

- 1. Single pack blister merchandisers which are ideal for hang cell merchandising
- 2. Blocks of 10 terminal strips (10 by 12 way strips) wrapped in cellophane, for the industrial user

Catalogue No.	Nominal Amp Rating	Max Cond mm ² *	Α	В	c	D	E	F	Pack Qty
TB3/12WAY	3	2.5	94	16.5	15.0	8.0	2.0	2.8	1
TB6/12WAY	6	2.5	118	19.5	16.0	10.0	3.0	3.2	1
TB10/12WAY TB10/12WAY-5	5 <mark>0</mark> 10	4	130	20.5	17.0	11.0	3.2	3.6	1 50
TB15/12WAY	15	6	138	23.6	18.5	11.5	3.2	4.4	1
TB30/12WAY	30	10	174	27.0	22.5	15.0	4.0	5.2	1





Technical Data

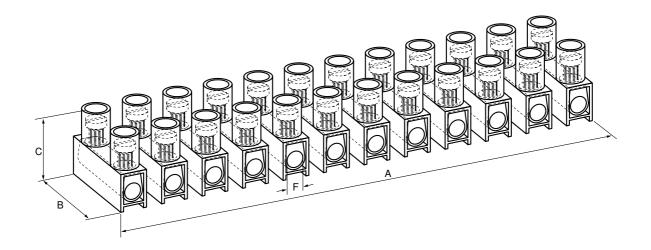
Material

Housing: Polyamide 66 Conductive: **Brass Nickel Plated** Screws: Steel Chrome Plated

Nominal ratings

415V Voltage: 105°C Max Operating Temp:

Flammability: Flame Retarded



^{*}Note maximum conductor size will depend on stranding.

Pre-Insulated Terminals -Recommended Tooling

All terminals should be crimped onto the conductor using a CABAC quality crimper or a crimper that is designed to crimp the specific terminal type. If unsure of the terminal/conductor/crimper combination refer to the technical information on page A2 & A3. CABAC has a large comprehensive range of application tooling refer to section (H) Tooling for a full range.

Pre-insulated Terminal Crimper, Red, Blue and Yellow

Low cost ratchet terminal crimper for red, blue and yellow pre-insulated terminals. Ratchet operation ensures correct crimp and reduced hand effort. When crimping flexible conductors in yellow terminals the maximum capacity of the tool is 6mm².

• Length: 230mm • Weight: 540g

KTC1





Pre-insulated Terminal Crimper - Light Weight

This tool is very useful for general electrical installation, in that it combines red and blue pre-insulated terminal jaws, with bootlace terminal jaws 0.25mm² - 2.5mm² (BLP025 to BLP250). It is also light weight made from a titanium alloy, with ultra soft cushioned handles. Ratchet operation ensures a correct crimp.

- Length: 210mm
- Weight: 200g

KTC2





Professional Crimping Tool - Super High Leverage Ergonomic Handles

- High precision ratchet style crimping tool for red, blue and yellow pre-insulated terminals
- Super high leverage ergonomic handles
- Jaws are hardened and polished to achieve optimum crimp
- Ratchet operation ensures correct crimp and reduced hand effort
- High quality tool will ensure years of precision crimping
- Ratchet release clip
- The tool features an adjustment dial to further enhance the quality of the tool

Crimping guide

0.5 - 1.65mm 22 - 16 AWG Red 1.0 - 2.6mm 16 - 14 AWG Blue 12 - 10 AWG Yellow 2.6 - 6.6mm







KTC3

Pre-insulated Terminal Crimper, Red, Blue and Yellow - Precision

High precision ratchet terminal crimper for red, blue and yellow pre-insulated terminals. Jaws are hardened and polished to achieve optimum crimp. Ratchet operation ensures correct crimp and reduced hand effort. This tool is ultra high quality and should give years of precision crimping. Guaranteed for a million crimps.

- Length: 235mm
- Weight: 480g

HP3







Pre-insulated Terminal Crimper, with Guard - Precision

This is the same as the HP3, but has a guard to locate terminals correctly in the tool prior to crimping. **HP3/1**



