

The logo for Permanoid, featuring the word "permanoid" in a bold, lowercase, sans-serif font. The letters are white with a slight shadow effect, set against a dark, textured background that resembles a close-up of a cable or wire. The background of the entire page is a blue-tinted image of an industrial facility with large cylindrical tanks and pipes, and a large aircraft in flight in the upper portion. The overall aesthetic is technical and industrial.

permanoid

Wire & Cable Manufacturers

British Wire & Cable Manufacturers

Introduction

For over 70 years Permanoid has been producing high quality cables, and today the company's wealth of experience in cable design, manufacture and polymer technology, has enabled it to develop a large range of sophisticated cables used throughout the electrical, electronics and construction industries.

The company manufactures an extensive range of cables from equipment wires to complex multi-core cables. Flexible in-house production facilities enable it to offer a unique and comprehensive service to its expanding customer base, both in the UK and worldwide markets.

The head office and 7,500 square metres manufacturing plant is based in Manchester. Permanoid is large enough to provide a substantial manufacturing capability, yet small enough to give caring customer service.

Quality assurance plays a vital role in all aspects of Permanoid business. Our quality system is certified to the demanding requirements of ISO 9001. All cable is thoroughly inspected at every stage of manufacture.

Permanoid is a founder member of the British Cables Association.



CONTENTS

Page 4-9 :
PAS 5308 CABLES

Page 10-11 :
THERMOCOUPLE CABLES

Page 12 :
AUDIO CABLES

Page 13-15 :
**DEF STANDARD 61-12
PT 4 & PT 5 MULTICORES**

Page 16:
DATA CABLES

Page 17 :
**COAXIAL CABLES
AIRFIELD LIGHTING CABLES**

Page 18 :
FLEXIBLE CORDS

Page 19 :
TRI-RATED PANEL WIRES

Page 20-21 :
EQUIPMENT WIRES

Page 22 :
2491X / 2491B

Page 23 :
POLICIES



PAS 5308 CABLES

CONDUCTOR RANGE 0.5MM² TO 1.5MM²

PAS 5308 REPLACES BS 5308 WHICH WAS WITHDRAWN IN 2005.

These cables are designed to connect electrical instrumentation and communication systems in and around process plants and similar applications. These cables are not for direct connection to the public mains supply. Armoured cables are suitable for direct burial.

CONDUCTORS

Plain copper wire. Classes 1, 2 and 5 to IEC 60228.

COMPOUNDS

Polyethylene to BS6234 type O3C. PVC type T11 to BS EN 50363, RP PVC type TM2 to BS7655, LSHF type LTS3 to BS7655.

PART 1 TYPE 1 (UNARMoured)

These have polyethylene insulation and a reduced propagation PVC sheath. Sheath variants are polyethylene or LSHF.

PART 1 TYPE 2 (ARMoured)

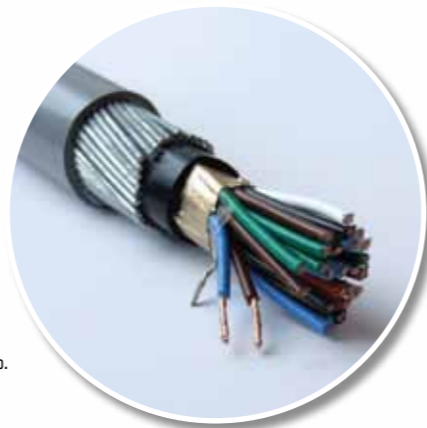
These have polyethylene insulation, polyethylene bedding and a reduced propagation PVC sheath
Bedding variants are PVC, reduced propagation PVC, or LSHF
Sheath variants are polyethylene, or LSHF
Armour: Galvanised mild steel to BS EN 10257-1
Polyethylene to BS6234 Type O3C. RP PVC type TM2 to BS EN 50363, LSHF type LTS3 to BS7655.

PART 2 TYPE 1 (UNARMoured)

These have PVC insulation and a reduced propagation PVC sheath
Sheath flame retardant to IEC 60332-3C (NMV 1.5) Minimum oxygen index 30%.
Maximum HCL emission @ 800°C: 15%
Sheath variants are polyethylene or LSHF.

PART 2 TYPE 2 (ARMoured)

These have PVC insulation, PVC bedding and a reduced propagation PVC sheath
Bedding variants are reduced propagation PVC, or LSHF
Sheath variants are polyethylene, or LSHF
Armour: Galvanised mild steel to BS EN 10257-1
Outer Sheath flame retardant to IEC 60332-3C (NMV 1.5) Minimum Oxygen index 30%.
Maximum HCL emission @ 800°C: 15%
Temperature Rating: 65°C (maximum conductor operating temperature).



CABLE IDENTIFICATION

Part 1 Cables

Cables are colour coded either in accordance with table 1, or as numbered black/white cores or black/blue cores subject to agreement.

TABLE 1

2 Pair cables without individual pair screens (quads) are colour coded in a clockwise order of rotation: Black, Blue, Green, Brown.

Pair number	A Wire	B Wire	Pair number	A Wire	B Wire
1	Black	Blue	16	Black	Orange
2	Black	Green	17	Blue	Orange
3	Blue	Green	18	Green	Orange
4	Black	Brown	19	Brown	Orange
5	Blue	Brown	20	White	Orange
6	Green	Brown	21	Red	Orange
7	Black	White	22	Black	Yellow
8	Blue	White	23	Blue	Yellow
9	Green	White	24	Green	Yellow
10	Brown	White	25	Brown	Yellow
11	Black	Red	26	White	Yellow
12	Blue	Red	27	Red	Yellow
13	Green	Red	28	Orange	Yellow
14	Brown	Red	29	Black	Grey
15	White	Red	30	Blue	Grey

TABLE 2

2 Pair cables without individual pair screens (quads) are colour coded in a clockwise order of rotation: Black, Blue, Green, Brown.

Pair number	A Wire	B Wire	Pair number	A Wire	B Wire
1	White	Blue	16	Yellow	Blue
2	White	Orange	17	Yellow	Orange
3	White	Green	18	Yellow	Green
4	White	Brown	19	Yellow	Brown
5	White	Grey	20	Yellow	Grey
6	Red	Blue	21	White/Blue	Blue
7	Red	Orange	22	White/Blue	Orange
8	Red	Green	23	White/Blue	Green
9	Red	Brown	24	White/Blue	Brown
10	Red	Grey	25	White/Blue	Grey
11	Black	Blue	26	Red/Blue	Blue
12	Black	Orange	27	Red/Blue	Orange
13	Black	Green	28	Red/Blue	Green
14	Black	Brown	29	Red/Blue	Brown
15	Black	Grey	30	Red/Blue	Grey

Electrical characteristics. (Part1)
Voltage rating 300/500V.

Maximum Mutual Capacitance for Adjacent Cores (pF/m @ 1kHz). Part 1

Area mm ²	Single pair and quad Collectively screened	Multipair - Collectively screened	Multipair - Individually & Collectively screened
0.5	115	75	115
0.75	115	75	115
1.0	115	75	115
1.5	120	85	120
2.5	140	105	140

Inductance/Resistance Ratio for Adjacent Cores. Parts 1 & 2

Area mm ²	L/R Ratio μH/Ω
0.5	115
0.75	115
1.0	115
1.5	120
2.5	140

FIRE RESISTANT CABLES

Permanoid also makes fire resistant types with mica-taped conductors, complying with IEC 60331 for circuits that need to maintain integrity during fire.





PAS 5308 CABLES

MULTICORE ARMoured INSTRUMENTATION CABLES (OVERALL SCREENED)

PAS 5308 Cables Part 1 is Polythene insulated and bedded. Part 2 is PVC insulated and bedded. Both types have RP PVC Sheath

Conductor	No of cores	PVC insulated	PE insulated	Diam under armour (mm)	Armour Size (mm)	Overall Diam (mm)	Cable weight (Kg/Km)		Max drum length (m)
		Catalogue no.	Catalogue no.				Pt1	Pt2	
1/0.8mm PCW (0.5mm.sq)	2	5-001	6-001	5.40	0.9	9.8	201	213	2000
	7	5-002	6-002	7.20	0.9	11.8	282	300	1000
	12	5-003	6-003	9.90	0.9	14.7	409	440	1000
	19	5-004	6-004	11.40	1.25	16.2	500	540	1000
	24	5-005	6-005	13.40	1.25	19.3	723	777	1000
16/0.2mm PCW (0.5mm.sq)	37	5-006	6-006	15.20	1.25	21.1	872	945	1000
	2	5-101	6-101	6.02	0.9	10.42	219	233	2000
	7	5-102	6-102	8.40	0.9	13.0	322	345	1000
	12	5-103	6-103	11.30	0.9	16.1	452	492	1000
	19	5-104	6-104	13.25	1.25	19.15	690	747	1000
24/0.2mm PCW (0.75mm.sq)	24	5-105	6-105	15.40	1.25	21.3	814	884	1000
	37	5-106	6-106	17.70	1.25	24.3	1143	1241	1000
	2	5-201	6-201	6.48	0.9	10.88	240	255	2000
	7	5-202	6-202	9.05	0.9	13.65	362	388	1000
	12	5-203	6-203	12.35	0.9	17.15	520	565	1000
1/1.13mm PCW (1.0mm.sq)	19	5-204	6-204	14.30	1.25	20.2	783	847	1000
	24	5-205	6-205	16.85	1.25	22.75	930	1010	1000
	37	5-206	6-206	19.20	1.6	23	1320	1431	1000
	2	5-301	6-301	6.46	0.9	10.86	245	260	2000
	7	5-302	6-302	9.00	0.9	13.6	380	405	1000
32/0.2mm PCW (1.0mm.sq)	12	5-303	6-303	12.30	0.9	17.1	550	575	1000
	19	5-304	6-304	14.25	1.25	20.15	830	895	1000
	24	5-305	6-305	16.80	1.25	22.7	990	1068	1000
	37	5-306	6-306	19.20	1.25	25.95	1413	1522	1000
	2	5-401	6-401	6.80	0.9	11.4	259	276	2000
7/0.53mm PCW (1.5mm.sq)	7	5-402	6-402	9.90	0.9	14.7	416	450	1000
	12	5-403	6-403	13.00	1.25	18.9	700	750	1000
	19	5-404	6-404	15.10	1.25	21.00	865	930	1000
	24	5-405	6-405	17.80	1.6	24.4	1175	1260	1000
	37	5-406	6-406	20.30	1.6	27.1	1460	1580	500
7/0.53mm PCW (1.5mm.sq)	2	5-501	6-501	7.58	0.9	12.18	298	318	2000
	7	5-502	6-502	10.80	0.9	15.6	485	520	1000
	12	5-503	6-503	14.20	1.25	20.1	820	875	1000
	19	5-504	6-504	16.75	1.25	22.65	1045	1125	1000
	24	5-505	6-505	19.60	1.6	28.4	1425	1520	1000
37	5-506	6-506	22.75	1.6	29.75	1835	1976	500	

PAS 5308 CABLES

MULTICORE UNARMoured INSTRUMENTATION CABLES (OVERALL SCREENED)

PAS 5308 Cables Part 1 is Polythene insulated. Part 2 is PVC insulated. Both types have RP PVC Sheath

Conductor	No of cores	PVC insulated	PE insulated	Overall Diameter (mm)	Pt 1	Cable weight (Kg/Km) Pt 2	Max drum length (m)
		Catalogue no.	Catalogue no.				
1/0.8mm PCW (0.5mm.sq)	2	7-001	8-001	5.40	47	49	2000
	7	7-002	8-002	7.20	80	88	1000
	12	7-003	8-003	9.90	137	151	1000
	19	7-004	8-004	11.40	192	215	1000
	24	7-005	8-005	13.40	243	271	1000
16/0.2mm PCW (0.5mm.sq)	37	7-006	8-006	15.20	341	385	1000
	2	7-101	8-101	6.02	52	56	2000
	7	7-102	8-102	8.40	93	105	1000
	12	7-103	8-103	11.30	153	173	1000
	19	7-104	8-104	13.25	221	253	1000
24/0.2mm PCW (0.75mm.sq)	24	7-105	8-105	15.40	272	312	1000
	37	7-106	8-106	17.70	389	451	1000
	2	7-201	8-201	6.48	60	64	2000
	7	7-202	8-202	9.05	115	128	1000
	12	7-203	8-203	12.35	196	219	1000
1/1.13mm PCW (1.0mm.sq)	19	7-204	8-204	14.30	278	314	1000
	24	7-205	8-205	16.85	351	396	1000
	37	7-206	8-206	19.20	496	566	1000
	2	7-301	8-301	6.46	65	69	2000
	7	7-302	8-302	9.00	132	145	1000
32/0.2mm PCW (1.0mm.sq)	12	7-303	8-303	12.30	226	248	1000
	19	7-304	8-304	14.25	325	361	1000
	24	7-305	8-305	16.80	411	456	1000
	37	7-306	8-306	19.20	589	658	1000
	2	7-401	8-401	6.80	67	72	2000
7/0.53mm PCW (1.5mm.sq)	7	7-402	8-402	9.90	144	159	1000
	12	7-403	8-403	13.00	230	255	1000
	19	7-404	8-404	15.10	331	370	1000
	24	7-405	8-405	17.80	418	468	1000
	37	7-406	8-406	20.30	597	673	1000
7/0.53mm PCW (1.5mm.sq)	2	7-501	8-501	7.58	89	94	2000
	7	7-502	8-502	10.80	193	210	1000
	12	7-503	8-503	14.20	313	342	1000
	19	7-504	8-504	16.75	467	513	1000
	24	7-505	8-505	19.60	580	637	1000
37	7-506	8-506	22.75	864	953	1000	



THERMOCOUPLE CABLES

- Permanoid manufacture thermocouple extension and compensating leads with a range of conductors. These are manufactured using either Polythene or high temperature PVC. The maximum operating temperature for these cables is 70°C for Polythene or 105°C for PVC.

Cables are constructed generally to PAS 5308, for multipair cables, with the additional ability to either braid or armour using galvanised steel wire.

These cables can be provided unscreened or screened with either aluminium mylar tape and tinned copper drain wire or copper braided.

The thermocouples produced are types K,J,T,E extension cables and types KCB and RCA/SCA compensating cables.

The conductors are either solid or stranded, as required, and are calibrated to BS4937 Pt 30.

Cables are colour coded to British or International standards. In the case of armoured cables, the sheath is coloured as the required standard.

Pair identification is by a numbered tape.

MULTICORE CABLES

Type	Thermocouple Types		Temp. range °C*	L/R μH/Ω	Conductor size			
	Positive (+)	Negative (-)			1/0.8	16/0.2	1/1.29	7/0.53
K	Nickel Chromium	Nickel Aluminium	To 1260		1.99	2.07	0.77	0.65
J	Iron	Constantan	To 760		1.19	1.24	0.5	0.39
T	Copper	Constantan	-184 to 370		1.02	1.06	0.46	0.33
E	Nickel Chromium	Constantan**	To 870		2.41	2.51	0.93	0.79
KCB***	Copper	Constantan**	To 100					
RCA/SCA***	Copper	Cupronic	100 to 200					

* Temperature range of the thermocouple not the cable
 ** Special constantan. Not the same as type T
 *** Compensating leads used to compensate for types R or S



THERMOCOUPLE CABLES

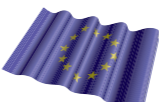

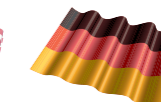
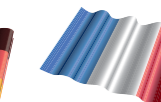
THERMOCOUPLE EXTENSION AND COMPENSATING LEADS

International colour codes for thermocouple cable insulation


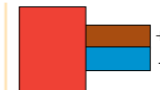



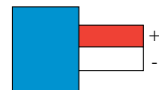



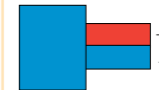


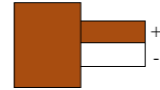
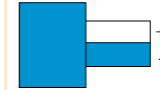
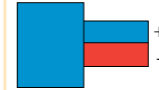
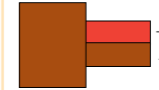
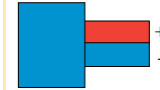
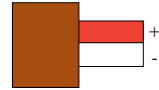
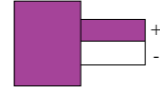
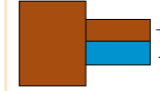
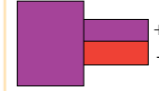

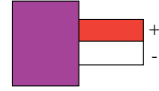
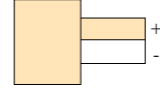


Cable is required to make the connection between the thermocouple and the measuring instrument. Permanoid can supply either extension or compensating type. Extension cables uses the same alloys as the thermocouple, whilst the compensating cable uses different alloys, which have a matched EMF output over the appropriate temperature range.

Cable selection should be made after consideration of the temperature, moisture, chemical and abrasive conditions to which it will be subjected.

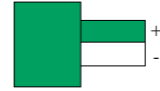

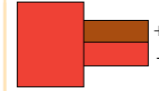
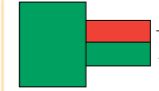
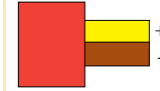
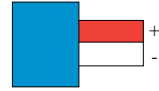
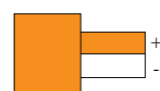


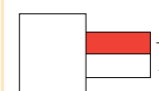


EXTENSION CABLES

Thermocouple Cable Type	EUROPEAN	BRITISH	AMERICAN	GERMAN	FRENCH	JAPANESE
						
	BS4937:Part 30 1993	BS1843	ANSI MC96.1	DIN 43710-4	NFE 18001	JISC

EXTENSION CABLES

KX Nicro/Nial						
JX Iron/Constantan						
TX Copper/Constantan						
EX Nicro/Constantan						
NX Nicrosil/Nisil						

COMPENSATION CABLES

Compensating for Type K KCB Copper/Constantan (was Vx)						
Compensating for Type R or S RCA/SCA Copper/Cupronic (was Rx/SX)						



AUDIO CABLES

Permanoid produce a range of microphone, relay, broadcast and speaker cables for high quality audio applications.

PVC insulated, lapped or braid screened microphone cables are used for hand-held or fixed microphones. The star-quad formation of relay cables minimise mutual interference between adjacent pair by use of opposite cores for each circuit pair.

Broadcast cables are equivalent to BBC PSF range of cables and are suitable for broadcast video installations for analogue video signals.

Loudspeaker cables are used as fixed or temporary leads to loudspeakers in mono, stereo, hi-fi and other types of private or public address audio systems and are available with plain or oxygen-free copper conductors.



SPEAKER CABLES

Number of conductors 2						
Conductor	Type	Area (sq.mm)	Insulation	R/t (mm)	Dimensions (mm)	DC res (Ω/Km Max)
28/0.25mm	SPOF	1.38	Polythene	0.49	2.80 x 6.10	14.25
40/0.2mm	PCOF	1.25	Polythene	0.4	2.24 x 4.98	15.50
42/0.15mm	PCW	0.75	PVC	0.9	2.98 x 6.46	26.38
76/0.2mm	SPOF	2.40	Polythene	0.74	3.50 x 7.00	5.40
76/0.2mm	PCOF	2.40	Polythene	0.8	4.67 x 9.40	5.25
79/0.2mm	PCOF	2.50	Polythene	0.72	3.50 x 7.00	7.90
79/0.2mm	PCW	2.50	PVC	1.0	4.01 x 8.20	7.90

SPOF : Silver plated oxygen free PCOF : Plain copper oxygen free PCW : Plain copper
 These cables are produced with either a coloured stripe or a polarity rib along one leg for polarity identification.

MICROPHONE CABLES

Single core										
Type	Conductor	Insulation	R/t (mm)	Colour	Screen	Sheath	R/t (mm)	Nom diam (mm)	Approx Weight (Kg/Km)	Capacitance (Core to Screen) pF/Metre
M231	16/0.2 TCW	PVC	0.45	Black	Braid	PVC	0.65	3.7	30	305
M233	7/0.2TCW	PVC	0.45	Blue	Lapped	PVC	0.65	3.2	21	265
M234	16/0.2TCW	PVC	0.45	Black	Lapped	PVC	0.65	3.4	22	320

Two core										
Type	Conductor	Insulation	R/t (mm)	Colour	Screen	Sheath	R/t (mm)	Nom diam (mm)	Approx Weight (Kg/Km)	Capacitance (Core to Core) pF/Metre
M248	7/0.2TCW	PVC	0.3	Red/Black	Braid	PVC	0.5	3.9	24	35
M250	7/0.2TCW	PVC	0.45	Red/Black	Lapped	PVC	0.65	4.7	35	29
M251	16/0.2TCW	PVC	0.45	Red/Black	Braid	PVC	0.65	5.6	49	19

SPOF : Silver plated oxygen free PCOF : Plain copper oxygen free PCW : Plain copper
 These cables are produced with either a coloured stripe or a polarity rib along one leg for polarity identification.

RELAY CABLES

Single Star Quad							
Conductor	Insulation	R/t (mm)	Sheath	R/t	Nom diam (mm)	Approx Weight (Kg/Km)	Core colours 2 Blue, 2 Grey
1/0.74PCW	Polythene	0.46	Polythene	0.55	5.1	35	

Double Star Quad*							
Conductor	Insulation	R/t (mm)	Sheath	R/t	Nom diam (mm)	Approx Weight (Kg/Km)	Core colours 2 Blue, 2 Grey 2 Yellow, 2 Green
1/0.74PCW	Polythene	0.46	Polythene	0.75	5.9 x 9.5	77	

* Two quads laid parallel.

BROADCASTING CABLES

Type	PSF 1/2M	PSF 1/3M	PSF 1/4M	PSF 1/6M
Conductor (No/mm)	1/0.8 PCW	1/0.6TCW	7/0.77PCW	7/0.32PCW
Insulation	Polythene	Polythene	Polythene	Polythene
Insulation Diam (mm)	4.8	3.64	7.25	2.96
Braid screen	TCW	TCW	PCW	PCW
Screen Diam (mm)	6.00	5.00	7.25	3.85
Sheath	PVC	PVC	PVC	PVC
Sheath Diam (mm)	7.40	6.30	10.25	5.05
Weight (Kg/Km)	97	75	157	45
Impedance (Ohms)	75	75	50	50
Capacitance (pF/M)	69	68	100	100

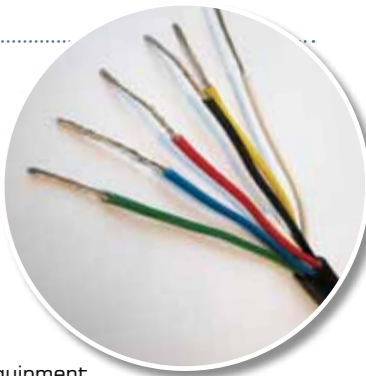
Frequency	Attenuation (dB/100M)		Frequency	Attenuation (dB/100M)	
	Attenuation			Attenuation	
0.1Mhz	0.26	0.35	200Mhz	5.5	18.00
0.3Mhz	0.44	0.60	300Mhz	9.5	24.00
0.7Mhz	0.68	0.91	600Mhz	16.5	35.00
1.0Mhz	0.81	1.09	1000Mhz	20.0	45.00
3.0Mhz	1.41	1.90			
4.4Mhz	1.71	2.30			
6.0Mhz	2.00	2.69			
10.0Mhz	2.59	3.48			

Note: These cables are also available with an LSHF sheath.

DEF STANDARD 61-12 Pt 4 & Pt 5 MULTICORES

DEF STANDARD 61-12 PT 4 & PT 5 MULTICORES

These are produced as sub-miniature with a conductor size of 7/0.2mm (Pt 4) and a maximum current of 1 amp, or small, with a conductor size of 16/0.2mm (Pt 5) and a maximum current of 2.5 amps. If a current greater than 2.5 amps is needed a conductor size of 37/0.315mm is used with up to 4 cores. In this case the current should not exceed 13 amps. The cables are produced unscreened and either individually or overall screened. The screening is with a tinned copper braid. The insulation is type 2 (BS7655) for 7/0.2mm conductors and type T11 (BS EN 50363) for the 16/0.2mm and 37/0.315mm conductors. The sheathing compounds are PVC type TM2 (BS EN 50363). These cables are also available in heat resisting PVC by quoting the reference number and duplicating the final letter.



eg heat resisting version of 7-2-2A is 7-2-2AA

The maximum voltage for these cables is 440 volts rms at frequencies up to 1.6Khz.

The cables are used for instrumentation purposes, data processing, computers and other electronic equipment.

DEF STAN 61-12 Pt 4 (Unscreened core) 7/0.2mm conductor

Type	No. of Cores	Diameter (mm)		Approx Weight (Kg/Km)	NATO Stock No. 6145-99-
		Minimum	Maximum		
7-2-2A	2	3.10	3.60	13	110-8621
7-2-3A	3	3.30	3.80	16	110-8624
7-2-4A	4	3.60	4.10	20	110-8627
7-2-6A	6	4.30	4.80	30	110-8630
7-2-8A	8	5.30	5.80	42	N/A
7-2-12A	12	5.80	6.40	53	110-8633
7-2-18A	18	7.10	7.70	80	110-8636
7-2-25A	25	8.40	9.00	100	110-8639
7-2-36A	36	9.50	10.10	140	110-8642

DEF STAN 61-12 Pt 4 (Collectively Screened cores) 7/0.2mm conductor

Type	No. of Cores	Diameter over braid screen (mm)		Approx Wt (Kg/Km)	NATO Stock No. 6145-99-		
		Minimum	Maximum				
7-2-2C	2	2.70	3.20	3.60	4.10	23	110-8622
7-2-3C	3	2.90	3.40	3.80	4.30	27	110-8625
7-2-4C	4	3.20	3.70	4.10	4.60	32	110-8628
7-2-6C	6	4.20	4.70	5.30	5.90	55	110-8631
7-2-8C	8	4.40	4.90	5.70	6.00	67	N/A
7-2-12C	12	5.60	6.10	6.60	7.20	83	110-8635
7-2-18C	18	6.50	7.10	7.90	8.50	110	110-8637
7-2-25C	25	7.80	8.40	9.20	9.80	150	110-8640
7-2-36C	36	8.80	9.50	10.40	11.20	200	110-8643

DEF STAN 61-12 Pt 4 (Individually Screened cores) 7/0.2mm conductor

Type	No of Cores	Diameter (mm)		Approx Weight Maximum (Kg/Km)	NATO Stock No. (Kg/Km)	6145-99-
		Minimum	Maximum			
7-2-2D	2	4.00	4.50	4.50	22	110-8623
7-2-3D	3	4.30	4.80	4.80	29	110-8626
7-2-4D	4	4.80	5.40	5.40	40	110-8629
7-2-6D	6	5.80	6.40	6.40	58	110-8632
7-2-8D	8	6.20	6.80	6.80	76	N/A
7-2-12D	12	7.90	8.50	8.50	110	110-8635
7-2-18D	18	9.30	9.90	9.90	150	110-8638
7-2-25D	25	11.30	12.10	12.10	210	110-8641
7-2-36D	36	12.70	13.50	13.50	290	110-8644



DEF STANDARD 61-12 Pt 4 & Pt 5 MULTICORES

DEF STAN 61-12 Pt 5 Pt 5 (Unscreened cores) 16/0.2mm conductor

Type	No. of Cores	Diameter (mm) Minimum	Approx Wt Maximum	NATO Stock No. (Kg/Km)	6145-99-
16-2-2A	2	5.10	5.90	34	111-6715
16-2-3A	3	5.40	6.20	42	111-6722
16-2-4A	4	5.90	6.70	52	111-6726
16-2-6A	6	6.90	7.70	75	111-6733
16-2-8A	8	7.80	8.20	95	N/A
16-2-12A	12	9.10	9.90	120	111-6743
16-2-18A	18	10.50	11.50	180	111-6749
16-2-25A	25	12.60	13.60	230	111-6727

DEF STAN 61-12 Pt 5 (Collectively Screened cores) 16/0.2mm conductor

Type	No. of Cores	Diameter over braid screen (mm)		Overall Diameter (mm)		Approx Wt (Kg/Km)	NATO Stock No. 6145-99-
		Minimum	Maximum	Minimum	Maximum		
16-2-2C	2	4.45	4.95	6.10	6.90	69	111-6717
16-2-3C	3	4.75	5.25	6.40	7.20	79	111-6724
16-2-4C	4	5.90	5.90	6.90	7.70	92	111-6728
16-2-6C	6	6.10	6.90	7.90	8.70	120	111-6735
16-2-8C	8	6.60	7.40	8.60	9.00	140	N/A
16-2-12C	12	8.30	9.10	10.00	11.00	190	111-6745
16-2-18C	18	9.80	10.60	11.50	12.50	250	111-6751
16-2-25C	25	11.80	12.80	13.60	14.60	320	1116758
16-2-36C	36	13.40	14.40	15.50	16.70	450	111-6760

DEF STAN 61-12 Pt 5 (Individually Screened cores) 16/0.2mm conductor

Type	No. of Cores	Diameter (mm) Minimum	Approx Wt Maximum	NATO Stock No. (Kg/Km)	6145-99-
16-2-2D	2	6.00	6.80	47	111-6718
16-2-3D	3	6.40	7.20	60	111-6725
16-2-4D	4	7.00	7.80	75	111-6729
16-2-6D	6	8.30	9.10	110	111-6736
16-2-8D	8	9.60	10.40	145	N/A
16-2-12D	12	10.80	11.80	190	111-6741
16-2-18D	18	12.80	13.80	270	111-6746
16-2-25D	25	15.30	16.50	360	111-6752

DEF STAN 61-12 Pt 5 (Collectively Screened cores) 37/0.315mm conductor

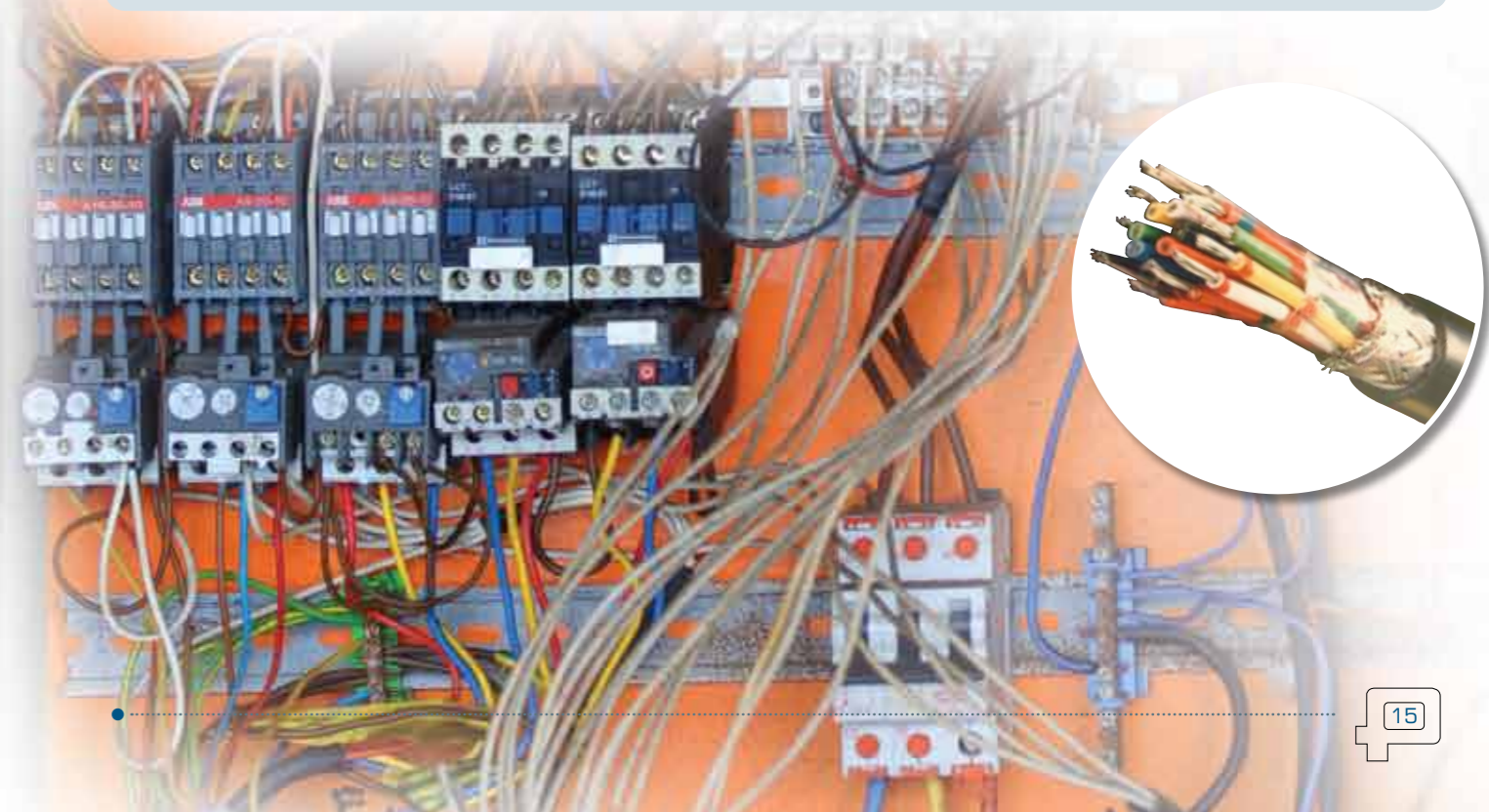
Type	No. of Cores	Diameter over braid screen (mm)		Overall Diameter (mm)		Approx Wt (Kg/Km)	NATO Stock No. 6145-99-
		Minimum	Maximum	Minimum	Maximum		
37-3-2R	2 (Flat)	4.2 x 7.7	5.0 x 8.5	9.50 x 6.0	10.3 x 6.80	150	111-6719
37-3-4R	4	9.10	9.90	10.80	11.80	253	111-6732

Note: Other types of DEF STAN cables are available on request. Please contact our sales department.

DEF STANDARD 61-12 Pt 4 & Pt 5 MULTICORES

CORE COLOUR TABLE FOR CABLES IN ACCORDANCE WITH DEF STAN 61-12 PTS 4 & 5

COLOURS	CORES								
	2	3	4	6	12	18	25	36	
Red	*	*	*	*	*	*	*	*	
Blue	*	*	*	*	*	*	*	*	
Green		*	*	*	*	*	*	*	
Yellow			*	*	*	*	*	*	
White				*	*	*	*	*	
Black				*	*	*	*	*	
Brown					*	*	*	*	
Violet					*	*	*	*	
Orange					*	*	*	*	
Pink					*	*	*	*	
Turquoise					*	*	*	*	
Grey					*	*	*	*	
Red/Blue						*	*	*	
Green/Red						*	*	*	
Yellow/Red						*	*	*	
White/Red						*	*	*	
Red/Black						*	*	*	
Red/Brown						*	*	*	
Yellow/Blue							*	*	
White/Blue							*	*	
Blue/Black							*	*	
Orange/Blue							*	*	
Green/Blue								*	
Grey/Blue								*	
Yellow/Green							*	*	
White/Green							*	*	
Green/Black								*	
Orange/Green							*	*	
Grey/Green								*	
Yellow/Brown								*	
White/Brown								*	
Brown/Black								*	
Grey/Brown								*	
Yellow/Violet								*	
Violet/Black								*	
White/Violet								*	





DATA CABLES

Permanoid produce a range of data cables incorporating a screen of Aluminium polyester tape and a tinned copper drain wire for easy earthing.

This provides 100% screening at audio and RF frequencies. They are interchangeable with certain Belden types of cable.

PD	Belden Equiv	Conductor	No of Pairs	Insulation	Screen	Overall Diam (mm)	Cap (Pf/m) Core to Core
1001	9501	7/0.2T (24AWG)	1P	PVC	COLL	3.95	235
1002	9502	7/0.2T (24AWG)	2P	PVC	COLL	5.55	165
1003	9503	7/0.2T (24AWG)	3P	PVC	COLL	5.85	165
1004	9504	7/0.2T (24AWG)	4P	PVC	COLL	6.5	165
1005	9505	7/0.2T (24AWG)	5P	PVC	COLL	7.0	165
1010	9510	7/0.2T (24AWG)	10P	PVC	COLL	9.65	165
1015	9515	7/0.2T (24AWG)	15P	PVC	COLL	11.0	165
2020	8760	16/0.25T (18AWG)	2 CORES	PE	COLL	5.75	79
2030	8770	16/0.25T (18AWG)	3 CORES	PE	COLL	6.15	65
2203	9533	7/0.2T (24AWG)	3 CORES	PVC	COLL	4.4	175
2205	9535	7/0.2T (24AWG)	5 CORES	PVC	COLL	4.95	175
2210	9540	7/0.2T (24AWG)	10 CORES	PVC	COLL	6.35	175
2215	9541	7/0.2T (24AWG)	15 CORES	PVC	COLL	7.7	175
2225	9543	7/0.2T (24AWG)	25 CORES	PVC	COLL	9.6	175
3001	8761	7/0.25T (22AWG)	1P	PE	IND	4.7	65
3002	8723	7/0.25T (22AWG)	2P	PP	IND	4.75	87
3003	8777	7/0.25T (22AWG)	3P	PP	IND	8.1	87
3006	8778	7/0.25T (22AWG)	6P	PP	IND	10.0	87
3011	8775	7/0.25T (22AWG)	11P	PP	IND	12.9	87
3015	8776	7/0.25T (22AWG)	15P	PP	IND	14.3	87



COAXIAL CABLES

Permanoid manufacture a range of coaxials to BS2316 and MIL-C-17. Originally designed for military equipment, their range has now been extended to many other applications requiring very high frequency cables of high specifications. Permanoid also produce bespoke cables to customers specific requirements (details on request). Uniradio (URM) type cables are produced to BS2316 and are manufactured generally in accordance with IEC 96. The polythene insulation compounds are to BS6234 (Polythene insulation and sheathing of electric cables) and the PVC compounds are to BS EN 50363 (Insulating and sheathing materials for electric cables).

URM TYPES

Type	URM43	URM67	URM76	URM54	URM57	URM70
Conductor (No/mm)	1/0.9PCW	7/0.77PCW	7/0.32PCW	7/0.19PCW	1/1.15PCW	7/0.19PCW
Insulation	Polythene	Polythene	Polythene	Polythene	Polythene	Polythene
Insulation Diam (mm)	2.95	7.25	2.95	3.25	7.25	3.25
Braid Screen	PCW	PCW	PCW	PCW	PCW	PCW
Screen Diam (mm)	3.63	7.25	3.63	6.05	8.15	3.93
Sheath	PVC	PVC	PVC	PVC	PVC	PVC
Sheath Diam (mm)	5.00	10.25	5.00	8.30	10.30	5.80
Weight (Kg/Km)	42	157	42	110	148	50
Impedance (Ohms)	50	50	50	75	75	75
Capacitance (pF/M)	100	100	100	67	67	67
Attenuation (dB/100M)						
100Mhz	12.0	5.5	12.0	10.5	6.0	10.5
200Mhz	18.0	8.0	18.0	15.0	7.0	15.0
600Mhz	30.0	16.5	30.0	30.0	15.0	30.0
1000Mhz	40.0	20.0	40.0	40.0	20.0	40.0
Velocity Ratio	0.66	0.66	0.66	0.66	0.66	0.66

RG TYPES

Type	RG58	RG174	RG213	RG11	RG59
Conductor (No/mm)	19/0.18TCW	7/0.16CCS	7/0.75PCW	7/0.4TCW	1/0.58CCS
Insulation	Polythene	Polythene	Polythene	Polythene	Polythene
Insulation Diam (mm)	2.95	1.52	7.25	7.25	3.7
Braid Screen	TCW	TCW	PCW	PCW	PCW
Screen Diam (mm)	3.5	1.95	8.06	7.65	4.46
Sheath	PVC	PVC	PVC	PVC	PVC
Sheath Diam (mm)	4.95	2.80	10.30	10.30	6.15
Weight (Kg/Km)	37	13	159	155	52
Impedance (Ohms)	50	50	50	75	75
Capacitance (pF/M)	100	100	100	67	67
Attenuation (dB/100M)					
100Mhz	15.6	29.0	6.9	6.0	14.3
200Mhz	22.4	41.4	10.0	7.0	20.5
600Mhz	40.0	72.8	18.5	15.0	36.7
1000Mhz	52.5	95.0	25.0	20.0	48.3
Velocity Ratio	0.66	0.66	0.66	0.66	0.66



AIRFIELD LIGHTING CABLES

Permanoid manufacture a range of Primary and Secondary airfield lighting cables for commercial and military applications at voltages up to 5Kv rms to earth and frequencies between 50 and 60 Hz. They are manufactured generally in accordance with such aviation authorities as FAA, ICAO, BAA and the Department Of The Environment standard M & E 42.

The conductor size for the Primary cable is generally 6mm² (7/1.04mm) plain copper wire and the insulation is either Polyethylene or Cross-linked Polyethylene. The sheathing compound is usually PVC, but alternatives are available.

M & E 42

Conductor	Insulation	R/t (mm)	Sheath	R/t	Overall diam (mm)	Voltage Rating
7/1.04mm PCW	Polyethylene	2.5	PVC	1.15 (mm)	10.45	2Kv



FLEXIBLE CORDS

- **Core Colours :**
 - Twin** **Blue and Brown**
 - 3-Core** **Blue, Brown, Green/Yellow**
 - 4-Core** **Brown, Black, Grey, Green/Yellow**
 - Alternative** **Blue, Brown, Black, Green/Yellow**

Permanoid manufacture a range of flexible cords, light duty (Style 218*Y) for external connection to portable appliances in office and domestic environments eg table or standard lamps, radio and TV, or office machines and medium duty (Style 318*Y) for use in domestic premises, kitchens, offices, including damp situations, eg washing machines, refrigerators, spin dryers.

These cords are manufactured to BS EN 50525 and are available with a 70°C or a 90°C maximum conductor operating temperature.

Note 1: BS6500 was withdrawn at the end of 2012 and replaced by BS EN 50525. The cable constructions and HAR codes are not affected.

Note 2: Similar cables are also available with either a -40°C to +70°C or a -15°C to 105°C temperature rating on request.

Style	No. and Area of conductors	Voltage rating	Harmonised Code (70°C)	Insulation R/t (mm)	Sheath R/t (mm)	Min Overall Diam (mm)	Max Overall Diam (mm)	Approx Wght (Kg/Km)	Current Rating (Amps)	BASEC Certified
2182Y	2 x 0.5mm ²	300/300V	H03VV-F	0.5	0.6	4.6	5.9	36	3	Y
2182Y	2 X 0.75mm ²	300/300V	H03VV-F	0.5	0.6	4.9	6.3	45	6	Y
2183Y	3 x 0.5mm ²	300/300V	H03VV-F	0.5	0.6	4.9	6.3	44	3	Y
2183Y	3 X 0.75mm ²	300/300V	H03VV-F	0.5	0.6	5.2	6.7	55	6	Y
2184Y	4 x 0.5mm ²	300/300V	H03VV-F	0.5	0.6	5.4	6.9	52	3	N
2184Y	4 X 0.75mm ²	300/300V	H03VV-F	0.5	0.6	5.7	7.3	65	6	N

Style	No. and Area of conductors	Voltage rating	Harmonised Code (90°C)	Insulation R/t (mm)	Sheath R/t (mm)	Min Overall Diam (mm)	Max Overall Diam (mm)	Approx Wght (Kg/Km)	Current Rating (Amps)	BASEC Certified
2092Y	2 x 0.5mm ²	300/300V	H03V2V2-F	0.5	0.6	4.6	5.9	36	3.3	N
2092Y	2 X 0.75mm ²	300/300V	H03V2V2-F	0.5	0.6	4.9	6.3	45	6.6	N
2093Y	3 x 0.5mm ²	300/300V	H03V2V2-F	0.5	0.6	4.9	6.3	44	3.3	N
2093Y	3 X 0.75mm ²	300/300V	H03V2V2-F	0.5	0.6	5.2	6.7	55	6.6	N
2094Y	4 x 0.5mm ²	300/300V	H03V2V2-F	0.5	0.6	5.4	6.9	52	3.3	N
2094Y	4 X 0.75mm ²	300/300V	H03V2V2-F	0.5	0.6	5.7	7.3	65	6.6	N

Style	No. and Area of conductors	Voltage rating	Harmonised Code (70°C)	Insulation R/t (mm)	Sheath R/t (mm)	Min Overall Diam (mm)	Max Overall Diam (mm)	Approx Wght (Kg/Km)	Current Rating (Amps)	BASEC Certified
3182Y	2 x 0.5mm ²	300/500V	H05VV-F	0.6	0.8	5.4	7	50	3	N
3182Y	2 X 0.75mm ²	300/500V	H05VV-F	0.6	0.8	5.7	7.2	55	6	Y
3182Y	2 x 1.0mm ²	300/500V	H05VV-F	0.6	0.8	5.9	7.5	67	10	Y
3182Y	2 x 1.25mm ²	300/500V	H05VV-F	0.7	0.8	6.3	8.0	85	13	N
3182Y	2 x 1.5mm ²	300/500V	H05VV-F	0.7	0.8	6.8	8.6	90	15	Y
3182Y	2 x 2.5mm ²	300/500V	H05VV-F	0.8	1.0	8.4	10.6	137	20	Y
3183Y	3 x 0.5mm ²	300/500V	H05VV-F	0.6	0.8	5.6	7.1	57	3	N
3183Y	3 X 0.75mm ²	300/500V	H05VV-F	0.6	0.8	6.0	7.6	70	6	Y
3183Y	3 x 1.0mm ²	300/500V	H05VV-F	0.6	0.8	6.3	8.0	80	10	Y
3183Y	3 x 1.25mm ²	300/500V	H05VV-F	0.7	0.9	6.9	8.7	105	13	N
3183Y	3 x 1.5mm ²	300/500V	H05VV-F	0.7	0.9	7.4	9.4	115	15	Y
3183Y	3 x 2.5mm ²	300/500V	H05VV-F	0.8	1.0	9.2	11.4	167	20	Y
3184Y	4 X 0.75mm ²	300/500V	H05VV-F	0.6	0.8	6.6	8.3	85	6	Y
3184Y	4 x 1.0mm ²	300/500V	H05VV-F	0.6	0.8	7.1	9.0	95	10	Y
3184Y	4 x 1.5mm ²	300/500V	H05VV-F	0.7	1.0	8.4	10.5	135	15	Y
3184Y	4 x 2.5mm ²	300/500V	H05VV-F	0.8	1.1	10.1	12.5	200	20	Y

Style	No. and Area of conductors	Voltage rating	Harmonised Code (90°C)	Insulation R/t (mm)	Sheath R/t (mm)	Min Overall Diam (mm)	Max Overall Diam (mm)	Approx Wght (Kg/Km)	Current Rating (Amps)	BASEC Certified
3092Y	2 x 0.5mm ²	300/500V	H05V2V2-F	0.6	0.8	5.4	7.0	43	3.3	N
3092Y	2 X 0.75mm ²	300/500V	H05V2V2-F	0.6	0.8	5.7	7.2	55	6.6	N
3092Y	2 x 1.0mm ²	300/500V	H05V2V2-F	0.6	0.8	5.9	7.5	61	11	N
3092Y	2 x 1.25mm ²	300/500V	H05V2V2-F	0.7	0.8	6.3	8.0	75	14.3	N
3092Y	2 x 1.5mm ²	300/500V	H05V2V2-F	0.7	0.8	6.8	8.6	83	16.5	N
3092Y	2 x 2.5mm ²	300/500V	H05V2V2-F	0.8	1.0	8.4	10.6	128	22	N
3093Y	3 x 0.5mm ²	300/500V	H05V2V2-F	0.6	0.8	5.6	7.1	52	3.3	N
3093Y	3 X 0.75mm ²	300/500V	H05V2V2-F	0.6	0.8	6.0	7.6	64	6.6	N
3093Y	3 x 1.0mm ²	300/500V	H05V2V2-F	0.6	0.8	6.3	8.0	75	11	N
3093Y	3 x 1.25mm ²	300/500V	H05V2V2-F	0.7	0.9	6.9	8.7	98	14.3	N
3093Y	3 x 1.5mm ²	300/500V	H05V2V2-F	0.7	0.9	7.4	9.4	105	16.5	N
3093Y	3 x 2.5mm ²	300/500V	H05V2V2-F	0.8	1.0	9.2	11.4	161	22	N
3094Y	4 X 0.75mm ²	300/500V	H05V2V2-F	0.6	0.8	6.6	8.3	78	6.6	N
3094Y	4 x 1.0mm ²	300/500V	H05V2V2-F	0.6	0.8	7.1	9.0	98	11	N
3094Y	4 x 1.5mm ²	300/500V	H05V2V2-F	0.7	1.0	8.4	10.5	137	16.5	N
3094Y	4 x 2.5mm ²	300/500V	H05V2V2-F	0.8	1.1	10.1	12.5	205	22	N

TRI-RATED PANEL WIRES

Certified to American UL Styles 1015,1028,1283 and 1284, and Canadian CSA C22.2 type TEW. Manufactured to UK BS6231 type CK.

These cables have Class 5 conductors and are suitable for use at alternating voltages not exceeding 600V to earth and direct voltages not exceeding 1000V to earth. The conductors are plain annealed copper.

Approx AWG	Area (sq.mm)	Nom r/t (mm)	Nom Diam (mm)	Max Temp °C	AWM Style No.	Max* Amps
22	0.5	0.8	2.6	105	1015	11
20	0.75	0.8	2.8	105	1015	14
18	1	0.8	3.0	105	1015	17
16	1.5	0.8	3.3	105	1015	21
14	2.5	0.8	3.7	105	1015	30
12	4	0.8	4.3	105	1015	41
10	6	0.8	5.1	105	1015	53
8	10	1.2	6.8	105	1028	75
6	16	1.6	9.2	105	1283	100
4	25	1.6	10.6	105	1283	136
2	35	1.6	11.6	105	1283	167
1	50	2.1	14.4	105	1284	204
2/0	70	2.1	16.5	105	1284	259
3/0	95	2.1	18.7	105	1284	321
4/0	120	2.1	20.0	105	1284	362

Manufactured using High temperature PVC.

* Single conductor in free air at an ambient of 35°C and allowing a conductor temperature rise of 35°C.



SUPER FLEXIBLE TRI-RATED PANEL WIRES

Tri-rated Panel Wires having increased flexibility, these are certified to American UL Styles 1015,1028,1283 and 1284, and Canadian CSA C22.2 type TEW. These cables are for use at alternating voltages not exceeding 600V to earth and direct voltages not exceeding 1000V to earth. The conductors are plain annealed copper.

Approx AWG	Area (sq.mm)	Nom r/t (mm)	Nom Diam (mm)	Max Temp °C	AWM Style No.	Max* Amps
8	10	1.2	6.8	105	1028	75
6	16	1.6	9.2	105	1283	100
4	25	1.6	10.6	105	1283	136
2	35	1.6	11.6	105	1283	167
1	50	2.1	14.4	105	1284	204
2/0	70	2.1	16.5	105	1284	259
3/0	95	2.1	18.7	105	1284	321
4/0	120	2.1	20.0	105	1284	362
250 MCM	150†	2.4	24.5	105	1284	418
350 MCM	185†	2.4	26.7	105	1284	480
450 MCM	240†	2.4	31.5	105	1284	593

Manufactured using High temperature PVC.

* Single conductor in free air at an ambient of 35°C and allowing a conductor temperature rise of 35°C.

† Cables above 120mm² in size are UL certified only.



EQUIPMENT WIRES

85°C PVC INSULATED EQUIPMENT WIRES TO DEF STAN 61-12 PT 6

These are single core unsheathed and sheathed cables used for internal wiring of switch, control, metering, relay and instrument panels of power switchgear and electronic equipment. They are also used for such purposes as internal connections in rectifier equipment and in motor starters and controllers.

Type	Conductor (TCW)	Insulation r/t (mm)		Diameter (mm)		Over Screen		Over PVC Sheath		Max working Voltage (ac)
		Nom	Min	Min	Max	Min	Max	Min	Max	
1	1/0.6	0.2	0.15	0.95	1.05	-	-	-	-	750
1	7/0.2	0.2	0.15	0.95	1.05	-	-	-	-	750
2	1/0.6	0.3	0.25	1.10	1.30	-	-	-	-	1000
2	1/0.9	0.3	0.25	1.40	1.60	-	-	-	-	1000
2,2SB,2SBM	7/0.2	0.3	0.25	1.10	1.30	1.55	1.85	2.50	3.05	1000
2,2SB,2SBM	16/0.2	0.3	0.25	1.45	1.65	1.90	2.20	2.85	3.40	1000
2, 2SB	24/0.2	0.45	0.4	1.95	2.15	2.40	2.70	-	-	1000
3	1/0.6	0.45	0.4	1.40	1.60	-	-	-	-	1500
3	1/1.13	0.45	0.4	1.95	2.15	-	-	-	-	1500
3,3SB,3SBM	16/0.2	0.6	0.5	2.00	2.25	2.45	2.80	3.40	4.00	1500
3,3SB,3SBM	24/0.2	0.6	0.5	2.20	2.45	2.65	3.00	3.60	4.20	1500
3, 3SB	32/0.2	0.6	0.5	2.40	2.65	2.85	3.20	-	-	1500
3	63/0.2	0.6	0.5	2.90	3.15	-	-	-	-	1500

Note: SB type wires have a braid over the insulation.

SBM type wires have a braid over the insulation and an overall PVC sheath.

Other types of DEF STAN equipment wires are also available on request. Please contact our sales department.

Note: The number of strands per conductor is nominal and may vary

PVC INSULATED CABLES FOR SWITCHGEAR AND CONTROL GEAR WIRING BS6231

These cables are for use at alternating voltages not exceeding 600V to earth and direct voltages not exceeding 1000V to earth.

The conductors are plain annealed copper.

Type	Area (sq.mm)	Conductor Class	Nom r/t (mm)	Max Diam (mm)	Max Temp °C	Type	Area (sq.mm)	Conductor Class	Nom r/t (mm)	Max Diam (mm)	Max Temp °C
BU	1	1	0.8	3.2	70	CU*	1	1/1.13	0.8	3.2	90
	1.5	1	0.8	3.5	70		1	1/1.38	0.8	3.5	90
	2.5	1	0.8	3.9	70		1	1/1.78	0.8	3.9	90
BR	1	2	0.8	3.3	70	CR*	2	7/0.44	0.8	3.3	90
	1.5	2	0.8	3.6	70		2	7/0.53	0.8	3.6	90
	2.5	2	0.8	4.2	70		2	7/0.67	0.8	4.2	90
	4	2	0.8	4.8	70		2	7/0.85	0.8	4.8	90
	6	2	0.8	5.4	70		2	7/1.04	0.8	5.4	90
	10	2	1.0	6.8	70		2	7/1.35	1.0	6.8	90
	16	2	1.0	8.0	70		2	7/1.70	1.0	8.0	90
	25	2	1.2	9.8	70		2	7/2.14	1.2	9.8	90
	35	2	1.2	11.0	70		2	19/1.35	1.2	11.0	90
	50	2	1.4	13.0	70		2	19/1.78	1.4	13.0	90
	70	2	1.4	15.0	70		2	19/2.14	1.4	15.0	90
	95	2	1.6	17.0	70		2	37/1.78	1.6	17.0	90
	120	2	1.6	19.0	70		2	37/2.03	1.6	19.0	90
	150	2	1.8	21.0	70		2	37/2.23	1.8	21.0	90
	185	2	2.0	23.5	70		2	37/2.52	2.0	23.5	90
	240	2	2.2	26.5	70		2	61/2.25	2.2	26.5	90

* Manufactured using Heat Resisting PVC.

EQUIPMENT WIRES

Type	Area (sq.mm)	Conductor Class	Nom r/t (mm)	Max Diam (mm)	Max Temp °C	Type	Area (sq.mm)	Conductor Class	Nom r/t (mm)	Max Diam (mm)	Max Temp °C
BK	0.5	5	0.8	3.0	70	CK*	0.5	5	0.8	3.0	90
	0.75	5	0.8	3.2	70		0.75	5	0.8	3.2	90
	1	5	0.8	3.4	70		1	5	0.8	3.4	90
	1.5	5	0.8	3.7	70		1.5	5	0.8	3.7	90
	2.5	5	0.8	4.2	70		2.5	5	0.8	4.2	90
	4	5	0.8	4.8	70		4	5	0.8	4.8	90
	6	5	0.8	6.3	70		6	5	0.8	6.3	90
	10	5	1.0	7.8	70		10	5	1.0	7.8	90
	16	5	1.0	9.0	70		16	5	1.0	9.0	90
	25	5	1.2	11.5	70		25	5	1.2	11.5	90
	35	5	1.2	13.0	70		35	5	1.2	13.0	90
	50	5	1.4	15.0	70		50	5	1.4	15.0	90
	70	5	1.4	17.5	70		70	5	1.4	17.5	90
	95	5	1.6	19.5	70		95	5	1.6	19.5	90
	120	5	1.6	21.5	70		120	5	1.6	21.5	90
	150	5	1.8	24.0	70		150	5	1.8	24.0	90
	185	5	2.0	26.5	70		185	5	2.0	26.5	90
	240	5	2.2	30.0	70		240	5	2.2	30.0	90

* Manufactured using Heat Resisting PVC.

TRANSFORMER WIRING

TRANSFORMER WIRING PERMANOID VX RANGE

This range of heat resisting wires is suitable for temperatures up to 105°C and is resistant to most insulating varnishes and lubricating and hydraulic oil.

They are ideal for use as tails in transformers and electric motors or wherever encapsulation and high temperatures are needed.

The conductors are tinned annealed copper.

Type	Conductor	Area (sq.mm)	Nom r/t (mm)	Min Diam (mm)	Max Diam (mm)	Max* Amps	Voltage Rating (ac rms)
VX050	7/0.12	0.08	0.30	0.90	1.10	3.5	300
VX150	14/0.12	0.16	0.30	1.00	1.20	4.9	300
VX250	7/0.2	0.22	0.45	1.40	1.60	5.9	600
VX350	16/0.2	0.50	0.45	1.70	1.90	8.9	600
VX355	16/0.2	0.50	0.60	2.10	2.30	8.9	1000
VX450	24/0.2	0.75	0.75	2.45	2.75	10.5	1000
VX500	32/0.2	1.00	0.75	2.75	3.05	12.5	1200
VX550	40/0.2	1.25	0.75	2.85	3.15	14.0	1200
VX650	63/0.2	2.00	0.75	3.15	3.45	18.0	1200
VX750	95/0.2	3.00	1.00	4.50	4.90	21.5	1500

Manufactured using High temperature PVC.

* Single conductor in free air at an ambient of 30°C and allowing a conductor temperature rise of 10°C.



2491X

These are PVC insulated, unsheathed cables for voltages up to and including 450/750V, used for electrical power, lighting and internal wiring. 2491X types have class 5 conductors, whilst 6491X types have either class 1 or class 2 conductors. These cables are to BS EN 50525 Conductors up to and including 1mm.sq. are rated at 300/500V. Above this the voltage rating is 450/750V. Sizes 0.5mm² to 2.5mm² inclusive are BASEC certified. The conductors are plain annealed copper.

NOTE : BS6004 was withdrawn at the end of 2012 and replaced by BS EN 50525. The cable constructions and HAR codes are not affected.

Area (mm ²)	Conductor Class	Insulation r/t (mm)	Nom overall Diam (mm)	Harmonised Code	Max Amps*
0.5	5	0.6	2.5	H05V-K	3
0.75	5	0.6	2.7	H05V-K	6
1	5	0.6	2.8	H05V-K	10
1.5	5	0.7	3.4	H07V-K	15
2.5	5	0.8	4.1	H07V-K	25
4	5	0.8	4.8	H07V-K	32
6	5	0.8	5.3	H07V-K	47
10	5	1.0	6.8	H07V-K	65
16	5	1.0	8.1	H07V-K	87
25	5	1.2	10.2	H07V-K	114
35	5	1.2	11.7	H07V-K	141
50	5	1.4	13.9	H07V-K	182
70	5	1.4	16.0	H07V-K	234
95	5	1.6	18.2	H07V-K	284
120	5	1.6	20.2	H07V-K	330
150	5	1.8	22.5	H07V-K	381
185	5	2.0	24.9	H07V-K	436
240	5	2.2	28.4	H07V-K	515

* 2 cables clipped direct

2491B

These are unsheathed cables insulated with cross-linked low smoke halogen free compound. They are manufactured to BS7211 and are suitable for electrical power, lighting and internal wiring in applications where smoke and toxic fumes arising in a fire situation may threaten life or equipment. 0.75mm² and 1.0mm² are rated at 300/500V (2491B) and larger sizes are rated at 450/750V (6701B). Sizes 0.75mm² to 10mm² inclusive are BASEC certified. The conductors are plain annealed copper.

NOTE : BS7211 was withdrawn at the end of 2012 and replaced by BS EN 50525. The cable constructions and HAR codes are not affected.

Area (mm ²)	Conductor Class	Insulation r/t (mm)	Nom overall Diam (mm)	Harmonised Code	Max Amps*
0.75	5	0.6	2.7	H05Z-K	6
1	5	0.6	2.8	H05Z-K	10
1.5	5	0.7	3.4	H07Z-K	15
2.5	5	0.8	4.1	H07Z-K	25
4	5	0.8	4.8	H07Z-K	32
6	5	0.8	5.3	H07Z-K	47
10	5	1.0	6.8	H07Z-K	65
16	5	1.0	8.1	H07Z-K	87
25	5	1.2	10.2	H07Z-K	114
35	5	1.2	11.7	H07Z-K	141
50	5	1.4	13.9	H07Z-K	182
70	5	1.4	16.0	H07Z-K	234
95	5	1.6	18.2	H07Z-K	284
120	5	1.6	20.2	H07Z-K	330
150	5	1.8	22.5	H07Z-K	381
185	5	2.0	24.9	H07Z-K	436
240	5	2.2	28.4	H07Z-K	515

* 2 cables clipped direct

PERMANOID FACILITIES

Insulating or Sheathing in

- PVC (various grades)
- Polyethylene (various grades)
- LSHF
- XLPE
- Polypropylene
- Semi-conductive Thermoplastics
- Armouring
- Braiding
- Lapping
- Tape Screening
- Cable Printing and Embossing
- Bi- or Tri-colouring
- Reeling
- Packing
- Testing
- Formulating to special requirements

QUALITY POLICY

- **The objective of Permanoid Ltd is to maintain a leading position in the cable industry through the continuous improvement of its service to its customers. In this respect our policy is to:**

- Continually** monitor and develop the quality management system (ISO9001/2008) and provide the resources necessary for its effective implementation.
- Ensure** that the requirements and expectations of our customers in respect of product specification, quality of manufacture and quality of service are complied with or exceeded whilst a competitive price is maintained.
- Communicate** the quality policy to all staff, customers, suppliers and contractors.
- Comply** with statutory and regulatory requirements related to our business.
- Manage,** evaluate and develop all processes based on objectives set, to add value to the business.
- Monitor** and develop all processes based on objectives set, to add value to the business.

ENVIRONMENTAL POLICY

- **As a manufacturer of electrical cables, Permanoid is committed throughout its business to respect the environment.**

In particular, it is the policy of Permanoid to comply with the appropriate environmental legalisation and regulations, monitor performance, and strive for continuous improvement. In this respect our policy is to:

- Quantify** and monitor all environmental legalisation and regulations that relate to our business and the health and safety of our employees and the community in which we operate.
- Minimise** waste by auditing manufacturing processes and seek alternative to landfill disposal wherever possible.
- Encourage** suppliers to adopt an environmental philosophy similar to our own.
- Communicate** environmental policy to all staff, customers, suppliers and contractors.
- Improve** energy efficiency by assessing manufacturing processes, factory and office management systems.

Both policies are available to the public via our website

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