SBP
Self Laminating Wire and Cable Markers

Technical Datasheet

TTDS-211 Revision 10 - April 2018

SBP is a clear vinyl film with a white thermal transfer printable area. On application, the clear film over-laminates and protects the printed area.

SBP is supplied with a permanent acrylic based adhesive and on a white liner with reference holes for printer sensor detection. The “self laminating” feature protects the printed area from exposure to fluids, moisture and mechanical abrasion.

SBP is UL recognised to PGIS2 for indoor and outdoor use as wrap or flag (tag) in accordance with ANSI/UL 817, Cord Sets and Power-Supply Cords and UL 2238 Certification Requirement Decision (CRD) of the “Standard for Cable Assemblies and Fitting for Industrial Control and Distribution”. For conditions of use see UL file MH61871.

The SBP label solution comprises of a complete identification system with printers, software, ribbons and more than 18 standard label sizes. The label can be used in “WRAP self-laminating” mode and “FLAG self-laminating” mode down to a diameter of 2.0mm (0.08 inch).

SBP print performance and durability can only be guaranteed when:

- Printed using TE Connectivity printers and ribbons as defined in TE document 411-121005
- Applied on wire & cable using repeatable self-laminated labelling guide 411-121050

Features

- Thermal Transfer Printable
- Over lamination protects the printed area and enables a higher level of print durability
- Range of sizes and colors available (see page 4)
- Variety of label layouts and roll core diameters,
- Useable down to 2.0mm diameter, even on Fluoropolymer wire jackets.

Temperature Rating

- Operating Temperature Range

  -40 to 110°C (-40°F to 230°F)
- Minimum Application Temperature 10°C (50°F)

Specifications / Approvals

Industry PGIS2 - file MH61871

Applications

- Ideal for wire and cable identification in general.
- Excellent conformability to round, irregular or flexible surfaces including flat ribbon cables.
- Small diameter cables and wire (2.0mm / 0.08 inch or greater) in wrap mode or flag mode.
- Industrial, Automotive, Rail, Aerospace and Defense, Electrical

Design for Environment

- Does not contain any declarable or prohibited substances from the UNIFE Railway Industry Substances List
- Further information and a downloadable declaration covering RoHS and REACH compliance can be found at the TE Product Compliance Support Centre:

http://www.te.com/usa-en/utilities/product-compliance.html

Shelf Life

2 years when following good commercial storage practice detailed below.

Storage

Product should be stored in the original packaging, with any plastic covers which were included during shipping. Store out of direct sunlight in a clean, dry, dust free, environment.

Product should be stored at approximately 22°C and 50% relative humidity.

Typical Label Thickness

- Label (including adhesive): 0.085 mm / 0.0033 inch
- Liner: 0.060 mm / 0.0024 inch

Technical Performance

	Requirement	Results	
Print Permanence			
Marking of Electrical Insulating Materials, SAE AS 5942	Legible after 50 rubs 1kg weight with an eraser	Pass	
Resistance to Solvents, MIL STD 202 Method 215	Legible after 30 wipes	Pass	
Fluid Exposure		**Adhesive**	**Printed legend**
• Isopropyl alcohol	Labels to remain on wire and legible / SAE AS 5942 (TE doc 109-121012) Wrap and flagged installed samples, 24 hours immersion 23°C followed by 20 rubs	Pass*	Pass
• IRM 902		Pass	Pass
• MIL PRF 23699		Pass	Pass
• MIL-H-83282		Pass	Pass
• Diesel Fuel		Pass	Pass
• Kilfrost DF plus		Pass	Pass
• Tap water		Pass	Pass
• 5% Salt solution		Pass	Pass
• Detergent (1% solution)		Pass	Pass
• Brake fluid		Pass	Pass
• Jet A fuel		Pass	Pass
		*Some loosening of flag possible	
Adhesion to FTM1 (180°)		**Typical Peel force (N/25mm (oz/in.))**	
Test surface:	FTM1 (180°)	**20min Dwell**	**72hr Dwell**
• Stainless steel		20 (73)	22 (82)
• Glass		17 (62)	21 (75)
• Aluminium		9 (32)	18 (64)
• Polypropylene		9 (32)	9 (32)
• Tufnol		15 (53)	20 (73)
• To SBP Label Surface (wrap)		17 (64)	23 (83)
• Adhesive to Adhesive (flag)		20 (73)	20 (73)
Flammability			
Average burn time, ASTM D1000	Burn time less than 10 seconds.	Pass, typical burn time 7second	
Burn rate FMVSS 302	Maximum burn rate 120mm/min.	Pass, typical burn rate 35mm/min	
Weatherability			
Artificial weathering to ASTM G154	Labels to remain on wire and legible after 3000hr, UV-A and UV-B	Pass, samples remain legible and do not unwrap or unravel* * Note orange and red may fade under UV, print remains legible.	
Thermal performance			
Heat Aging	Labels to remain on wire and legible after 168hr at 90±2°C	Pass, samples remain legible and do not unwrap or unravel	
Thermal Cycling	Labels to remain in on wire and legible after 10 cycles of 1hr @ -50°C then 1hr @ 90°C	Pass, samples remain legible and do not unwrap or unravel	

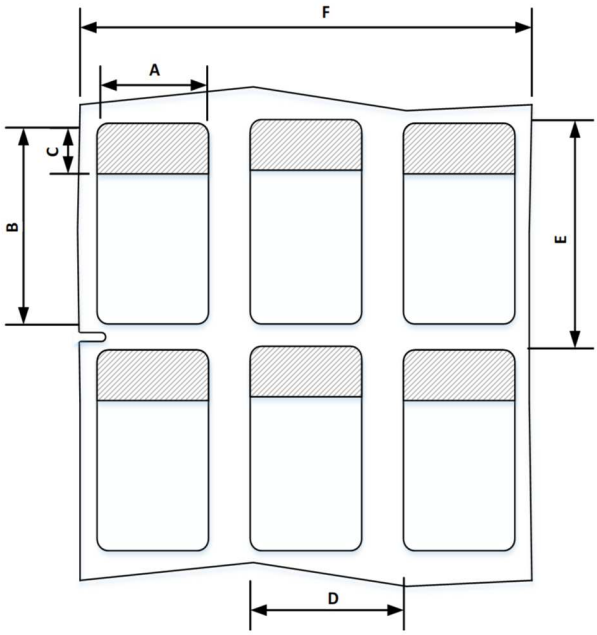
Where possible, TE have tested product as a finished item, including the print. Operational tests are followed by an assessment of mark adherence to validate fit form and function.

Ordering Information

Part Description

SBP 100 225 WE 5

- 5 → Pack Size in 1000's
- WE → Label Color
- 225 → Label Length
- 100 → Label Width
- SBP → Product Family



- **Above standard SBP*** layout.**
- **Supplied on 76mm diameter core.**

Color Code options for all formats

BE	Blue	RD	Red
GN	Green	WE	White
OE	Orange	YW	Yellow

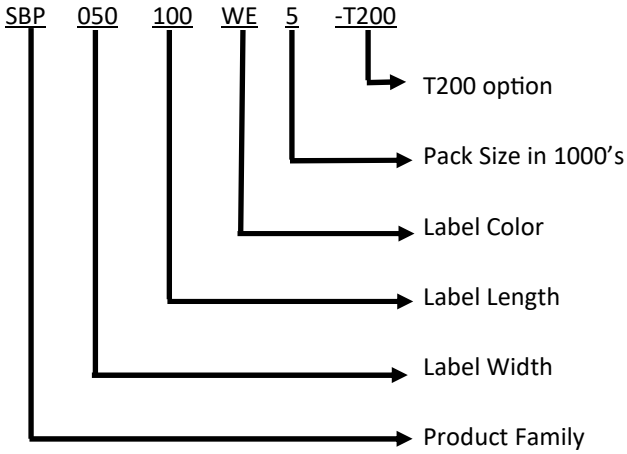
Available Standard Descriptions all with left edge sensor slot

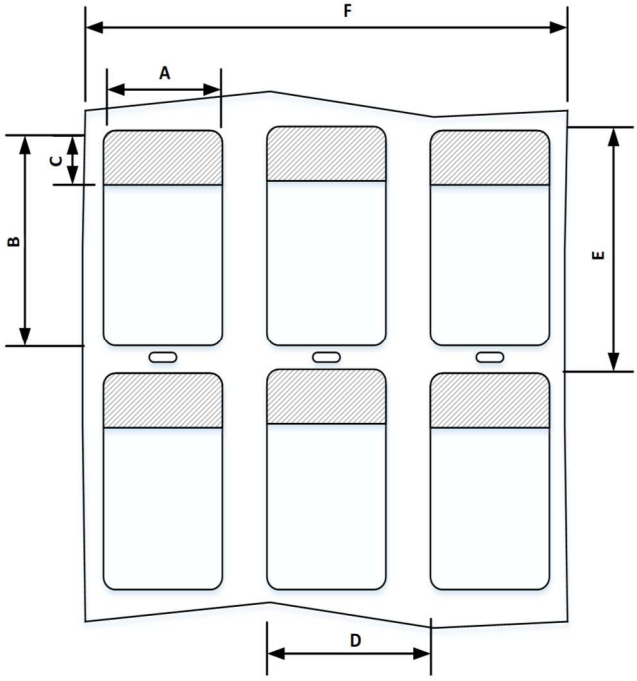
Product Description	Pack Qty	Labels across	Max. Cable O.D. (wrapped)[1]		(A) Label Width		(B) Label Height		(C) Printable Height		(D) Horizontal Repeat		(E) Vertical Repeat		(F) Web Width	
	Pieces		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	Inch
SBP050100WE10	10,000	5	5.4	.21	12.7	.500	25.4	1.00	8.50	.330	16.8	.662	31.0	1.222	86.0	3.384
SBP050143WE10	10,000	5	7.6	.30	12.7	.500	36.5	1.437	12.7	.500	16.8	.662	42.2	1.661	86.0	3.384
SBP075094WE10	10,000	4	4.6	.18	19.1	.750	23.9	.940	9.50	.375	20.3	.800	28.6	1.125	85.1	3.350
SBP080150WE10	10,000	4	8.1	.30	20.3	.800	38.1	1.500	12.7	.500	22.9	.900	44.5	1.750	94.9	3.736
SBP100075WE5	5,000	2	4.0	.16	25.4	1.00	19.1	.750	6.4	.250	27.9	1.100	25.4	1.000	59.3	2.336
SBP100143WE5	5,000	3	7.6	.30	25.4	1.00	36.5	1.437	12.7	.500	27.9	1.100	42.2	1.661	87.3	3.436
SBP100225WE5	5,000	3	12.1	.48	25.4	1.00	57.2	2.250	19.1	.750	27.9	1.100	66.7	2.625	87.3	3.436
SBP100375WE2.5	2,500	3	22.3	.88	25.4	1.00	95.3	3.750	25.4	1.000	27.9	1.100	101.6	4.000	87.3	3.436
SBP100594WE1	1000	3	35.6	1.4	25.4	1.00	151.0	5.940	38.1	1.500	27.9	1.100	158.8	6.250	87.3	3.436
SBP100743WE1	1000	3	48.0	1.9	25.4	1.00	188.9	7.437	38.1	1.500	27.9	1.100	195.3	7.688	87.3	3.436
SBP190319WE2.5	2,500	2	12.2	.48	48.3	1.90	81.0	3.190	19.1	.750	50.8	2.000	88.9	3.500	105.1	4.138
SBP190594WE1	1,000	2	35.6	1.4	48.3	1.90	151.0	5.940	38.1	1.500	50.8	2.000	158.8	6.250	105.1	4.138
SBP200143WE2.5	2,500	2	7.6	.30	50.8	2.00	6.50	1.437	12.7	.500	50.8	2.000	42.2	1.661	107.6	4.236
SBP200225WE2.5	2,500	2	12.2	.48	50.8	2.00	57.2	2.250	19.1	.750	50.8	2.000	66.7	2.625	107.6	4.236
SBP200375WE2.5	2,500	2	22.3	.88	50.8	2.00	95.3	3.750	25.4	1.000	53.3	2.100	101.6	4.000	110.1	4.336
SBP200400WE2.5	2,500	2	24.3	.97	50.8	2.00	101.6	4.000	25.4	1.000	53.3	2.100	108.0	4.250	110.1	4.336
SBP200743WE1	1,000	2	48.0	1.9	50.8	2.00	188.9	7.437	38.1	1.500	53.3	2.100	195.3	7.688	110.1	4.336

[1]see document 411-121050 for recommended wire diameter for flag self lamination application. Other Sizes and pack quantities available, contact TE for more details.

Ordering Information

Part Description





- **Above standard SBP***-T200 layout.**
- **Note: Supplied on 25.4mm diameter core.**

Color Code options for all formats

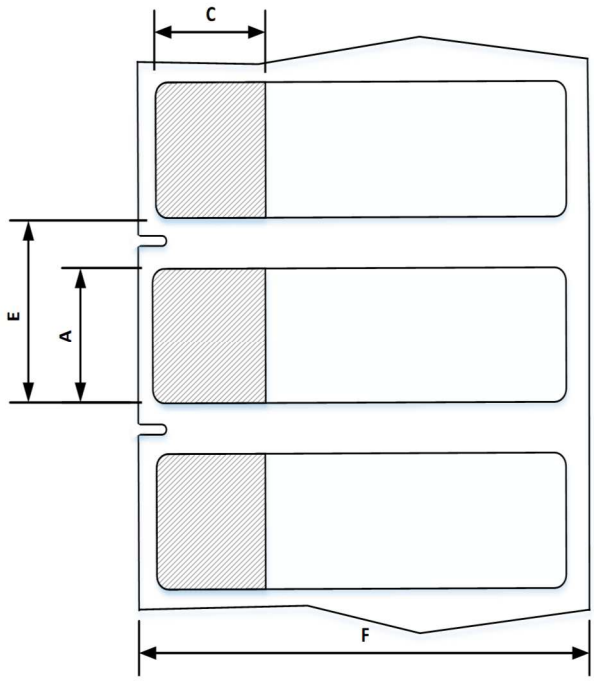
BE	Blue	RD	Red
GN	Green	WE	White
OE	Orange	YW	Yellow

Available T200 Descriptions all with center sensor slot

Product Description	Pack Qty	Labels across	Max. Cable O.D. (wrapped)[1]		(A) Label Width		(B) Label Height		(C) Printable Height		(D) Horizontal Repeat		(E) Vertical Repeat		(F) Web Width	
	Pieces		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	Inch
SBP050100WE5-T200	5,000	5	5.4	.21	12.7	.500	25.4	1.00	8.50	.330	16.8	.662	31.0	1.222	86.0	3.384
SBP050143WE5-T200	5,000	5	7.6	.30	12.7	.500	36.5	1.437	12.7	.500	16.8	.662	42.2	1.661	86.0	3.384
SBP080150WE5-T200	5,000	4	8.1	.30	20.3	.800	38.1	1.500	12.7	.500	22.9	.900	44.5	1.750	94.9	3.736
SBP100143WE2.5-T200	2,500	3	7.6	.30	25.4	1.00	36.5	1.437	12.7	.500	27.9	1.100	42.2	1.661	87.3	3.436
SBP100225WE2.5-T200	2,500	3	12.1	.48	25.4	1.00	57.2	2.250	19.1	.750	27.9	1.100	66.7	2.625	87.3	3.436
SBP100375WE1-T200	1,000	3	22.3	.88	25.4	1.00	95.3	3.750	25.4	1.000	27.9	1.100	101.6	4.000	87.3	3.436
SBP100594WE0.5-T200	500	3	35.6	1.4	25.4	1.00	151.0	5.940	38.1	1.500	27.9	1.100	158.8	6.250	87.3	3.436
SBP200143WE1-T200	1,000	2	7.6	.30	50.8	2.00	6.50	1.437	12.7	.500	50.8	2.000	42.2	1.661	107.6	4.236
SBP200225WE1-T200	1,000	2	12.2	.48	50.8	2.00	57.2	2.250	19.1	.750	50.8	2.000	66.7	2.625	107.6	4.236
SBP200375WE1-T200	1,000	2	22.3	.88	50.8	2.00	95.3	3.750	25.4	1.000	53.3	2.100	101.6	4.000	110.1	4.336
SBP200743WE0.5-T200	500	2	48.0	1.9	50.8	2.00	188.9	7.437	38.1	1.500	53.3	2.100	195.3	7.688	110.1	4.336

[1]see document 411-121050 for recommended wire diameter for flag self lamination application. Other Sizes and pack quantities available, contact TE for more details

SBPH—Horizontal Label Format



- **Above standard SBPH*** layout.**
- **Also available as –T200 with Center sensor holes.**

Available Horizontal Descriptions

Product Description	Pack Qty	Labels across	Max. Cable O.D. (wrapped)[1]		(A) Label Width		(B) Label Height		(C) Printable Height		(D) Horizontal Repeat		(E) Vertical Repeat		(F) Web Width	
	Pieces		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	Inch
SBPH100375WE2.5	2,500	1	22.3	.88	25.4	1.00	95.3	3.750	25.4	1.000	N/A	N/A	28.6	1.250	100.3	3.950
SBPH100375WE1-T200	1,000	1	22.3	.88	25.4	1.00	95.3	3.750	25.4	1.000	N/A	N/A	28.6	1.250	100.3	3.950

[1]see document 411-121050 for recommended wire diameter for flag self lamination application. Other Sizes and pack quantities available, contact TE for more details

Self-laminating in WRAP & FLAG modes

For full details see Installation Instruction 411-121050

FLAG self lamination mode

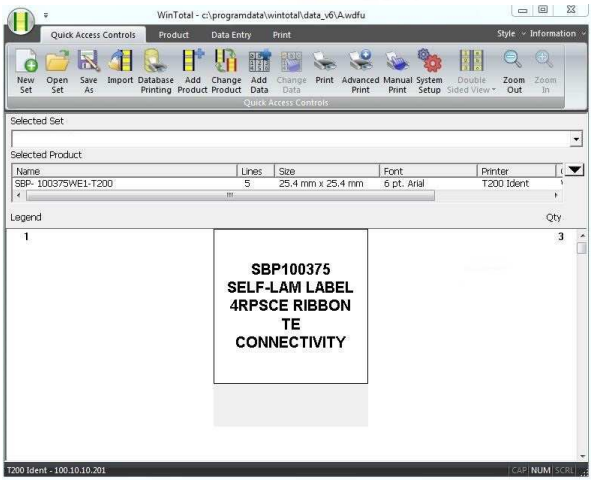
WRAP self lamination mode

Printer Information

Print quality and print performance can only be guaranteed when specific TE printer and ribbons are used.

The current list of printers and ribbons can be found in TE document 411-121005 ‘Identification Printer Product Ribbon Matrix’. This document can be found in ‘Access Our Tools’:

http://www.te.com/usa-en/utilities/access-product-tools-



Software

WINTOTAL software, available to download for a 14 day evaluation period from the Identification Printer Software page:

http://www.te.com/usa-en/products/identification-labeling/printers-software/printing-software.html?tab=pgp-story

Print Easy software also available

Contact a TE representative for further information

www.te.com/rail

CSL A4 Laser printable self-laminating labels

Tyco Electronics CSL is a laser printable, clear polyester film with a permanent acrylic adhesive, supplied with a white or yellow printable area, which is over-laminated upon application with the clear section of the label.

Using the over-lamination process protects the printed area against exposure to oil, solvents, water and abrasion.

Features and benefits

- Manufactured with a white or yellow coated area for writing on, and with a clear wrap to wind around a wire or cable to cover the written legend and to protect it against impurities that would cause the label to become illegible
- Protects printed information from chemicals and frequent handling
- Designed to withstand exposure to Solvents, salts, alkalis and water
- Can also be flagged around a wire rather than wrapped

Temperature rating

Operating temperature range	−30°C to +120°C	−22°F to +248°F

GP

Part numbering system

CSL- 034 23 P- 4

- Color
- Material (Polyester)
- Label width
- Label height
- Product family

Catalog 1654227
Revised 04-07

www.tycoelectronics.com

Dimensions not italicized are in millimeters while dimensions in inches are italicized.

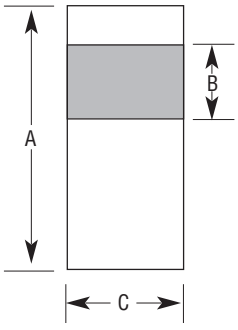
Dimensions are shown for reference purposes only. Specifications subject to change.

USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425

South America: 55-11-3611-1514
Hong Kong: 852-2735-1628
Japan: 81-44-844-8013
UK: 44-141-810-8967

CSL A4 Laser printable self-laminating labels

Ordering information



Available sizes and formats

Ordering description	Markers/ pack	A height		B height		C width		Max. cable diameter	
		mm	*inches*	mm	*inches*	mm	*inches*	mm	*inches*
CSL-02713P-<color>	160	26.70	*1.05*	6.00	*0.24*	12.50	*0.49*	3.00	*0.12*
CSL-03418P-<color>	88	33.90	*1.33*	8.50	*0.33*	18.18	*0.72*	5.00	*0.20*
CSL-03425P-<color>	64	33.90	*1.33*	12.70	*0.50*	25.00	*0.98*	5.00	*0.20*
CSL-05525P-<color>	40	55.00	*2.17*	12.70	*0.50*	25.00	*0.98*	11.00	*0.43*
CSL-06925P-<color>	32	69.00	*2.72*	17.00	*0.67*	25.00	*0.98*	14.00	*0.55*
CSL-06933P-<color>	24	69.00	*2.72*	22.00	*0.87*	33.33	*1.31*	13.00	*0.51*
CSL-09333P-<color>	18	93.00	*3.66*	25.40	*1.00*	33.33	*1.31*	19.00	*0.75*
CSL-14033P-<color>	12	140.00	*5.51*	25.40	*1.00*	33.33	*1.31*	34.00	*1.34*

Options

Colors	Yellow	White
Code	4	9

TP Tape

High-performance colour-coded cost saving system for tube and pipe identification

The system is designed for use as a thermal transfer printable, self-laminating identification for the various types of tubes in the aerospace, defense and marine industry. Made from polyester with a permanent acrylic adhesive, this cost saving system allows you to print on a unique range of pre colour-coded labels on demand and eliminates the use and maintenance of paints, stencils, hot-stamps and etching tools. The system even does the job in a fraction of the time compared to similar technologies.

Features and benefits

- Continuous operating temperature of −40°C to +163°C (−40°F to +325°F).
- Resists exposure to water, oil, conventional cleaning agents, oil-based solvents and other fluids commonly associated with commercial and military aircraft.
- Colour coded to meet MIL-STD-595B requirements.
- Meets MIL-STD-1247 standards for hydraulic lines, fuel lines, oxygen lines, inerting fluid lines, etc.
- Performance tested to RW 2068, a punishing standard for aggressive fluid and temperature resistance in military and commercial aircraft.
- Available in die-cut or continuous formats to cover all ranges of tube diameters.
- Die-cut version available in white or yellow printable area.
- Continuous version available in white* or clear printable area.

**To be used only with TP-CLEAR-CONT over-laminating product*

Temperature rating		
Operating temperature range	−40°C to +163°C	−40°F to +325°F

Specifications/approvals	
Tyco	RW 2068
Military	MIL-T-9906C (except initial peel)
	MIL-STD-595B
	MIL-STD-1247
	MIL-STD-101B

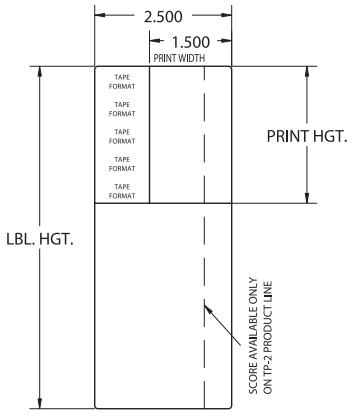
Printer information	
Tyco printer	T312M (thermal transfer)
Tyco ribbon	1330-0617-10 (thermal transfer)

Part numbering system

TP3 - PNEU - 1.250

- 1.250: Size (1.250: for tube with OD of 1.250")
- PNEU: Tube type (PNEU: for pneumatic lines)
- TP3: Product type (TP3: TP Tape type 3, 1.1 turns of printable legend around tube)

Ordering information



Available sizes and formats

Order description	Printer type	Label width mm	Label width *inches*	Fits tube diameter mm	Fits tube diameter *inches*	Labels per pack
TP<format>-(XXXX)-0.188	Thermal	63.50	*2.500*	4.77	*0.188*	2500
TP<format>-(XXXX)-0.250	Thermal	63.50	*2.500*	6.35	*0.250*	2000
TP<format>-(XXXX)-0.312	Thermal	63.50	*2.500*	7.92	*0.312*	2000
TP<format>-(XXXX)-0.375	Thermal	63.50	*2.500*	9.52	*0.375*	1500
TP<format>-(XXXX)-0.500	Thermal	63.50	*2.500*	12.70	*0.500*	1500
TP<format>-(XXXX)-0.625	Thermal	63.50	*2.500*	15.88	*0.625*	1000
TP<format>-(XXXX)-0.750	Thermal	63.50	*2.500*	19.05	*0.750*	1000
TP<format>-(XXXX)-0.875	Thermal	63.50	*2.500*	22.21	*0.875*	750
TP<format>-(XXXX)-1.000	Thermal	63.50	*2.500*	25.40	*1.000*	750
TP<format>-(XXXX)-1.125	Thermal	63.50	*2.500*	28.58	*1.125*	500
TP<format>-(XXXX)-1.250	Thermal	63.50	*2.500*	31.75	*1.250*	500
TP<format>-(XXXX)-1.375	Thermal	63.50	*2.500*	34.93	*1.375*	500
TP<format>-(XXXX)-1.500	Thermal	63.50	*2.500*	38.10	*1.500*	500
TP<format>-(XXXX)-1.625	Thermal	63.50	*2.500*	41.28	*1.625*	400
TP<format>-(XXXX)-1.750	Thermal	63.50	*2.500*	44.45	*1.750*	400
TP<format>-(XXXX)-CONT	Thermal	63.50	*2.500*	50.80+	*2.000+*	100 ft continuous

Options

Format	None	Standard TP Tape
	2	For a slit at 2 inches from the left edge (total width 2" *i*nstead of 2.5")
	3	For 1.1 turns of colour-coded label around the pipe instead of 1.5 turns
	4	For white printable area instead of yellow
	WE	For white/slit product for European markets, use order description: TP-WE(XXXX)ST-(size)

Identification code (XXXX)

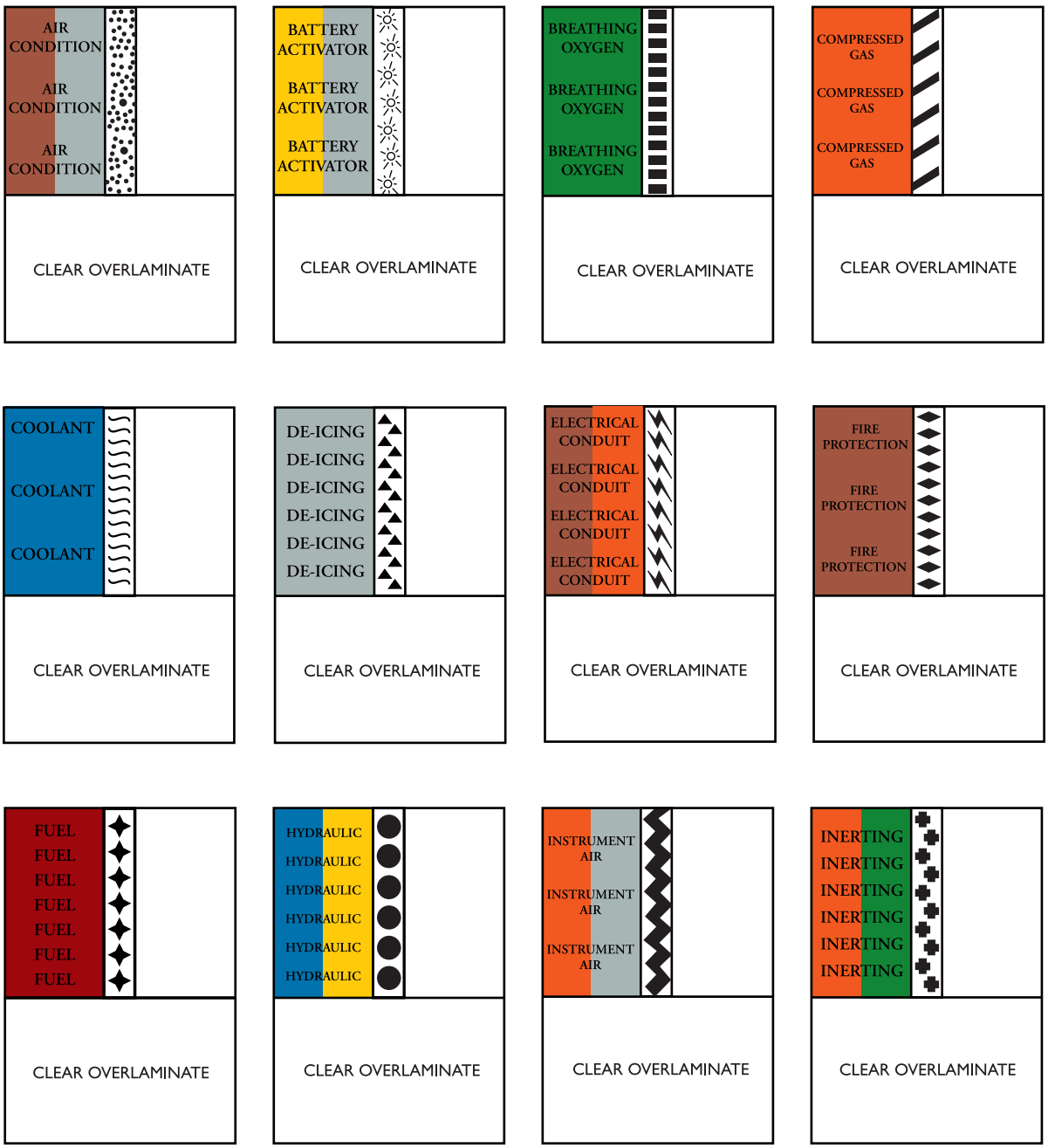
	AIRCON	Air conditioning	HYDRO	Hydraulic	PYRO	Pyrotechnic
	BATACT	Battery activator	INAIR	Instrument air	RAIN	Rain repellent
	COMGAS	Compressed gas	INERT	Inert fluid	RCAT	Rocket catalyst
	COOL	Coolant	LUBE	Lubrication	RFUEL	Rocket fuel
	DEICE	Deicing fluid	MC	Miscellaneous	ROXI	Rocket oxidizer
	ELECT	Electrical conduit	MONO	Mono propellant	SOLV	Solvent
	FIRE	Fire protection	OXYGEN	Breathing oxygen	VAC	Vacuum
	FUEL	Fuel	PNEU	Pneumatic	WATER	Water injection

TP Tape *(continued)*

Tube line self-laminating labels
for thermal transfer printing

Colours	Brown	Red	Orange	Yellow	Green
Code	10076	11136	12197	13655	14187

Colours conform to Federal Standard FED-STD-595B
Die cut format of TP Tape does not have respective legends printed. Continuous format does.



Colours	Blue	Grey	Black	White	Pink	Light Green
Code	15102	16473	17038	17925	21668	24664

Colours conform to Federal Standard FED-STD-595B
Die cut format of TP Tape does not have respective legends printed. Continuous format does.