

# Identification Solutions for Harsh Environments

*Minimize downtime, installation time, and waste while reducing Mean Time To Repair (MTTR).*



Properly identifying products, premises, and infrastructure can significantly reduce the time to troubleshoot and repair. Without identifying components, wires/cables, etc., troubleshooting becomes a lengthy process of tracing and identifying the specific source of a problem. Conversely, by having components and wires/cables clearly identified, technicians can quickly go to the source of the problem. In certain cases, a properly identified infrastructure can save hours of troubleshooting time – which can translate into millions of dollars for critical applications. This guide provides an overview of Panduit identification solutions and how these products enhance performance and productivity in harsh environments.

- Industrial**
- Oil Rigs**
- Refineries**
- Chemical Plants**
- Natural Gas Processing Plants**
- LNG Plants**
- Water Treatment Facilities**
- Wind Farms**
- Solar**
- Nuclear**
- Mining**
- Ships**
- Submarines**
- Cell Towers**
- Telecommunications**
- Transportation**
- OEM**

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# Introduction

## Using this Guide

### Applications

This section includes product recommendations for typical applications; always verify product suitability based on specific requirements and key selection criteria

### Key Selection Criteria

Utilize material and attribute charts to help select the Panduit products required to deliver superior performance in specific applications

Select the appropriate printers and tools to reduce time required and to take advantage of our lowest installed cost solutions

Consider Panduit permanent identification solutions to help provide legibility in harsh environments; the complete solution includes marker plates, tags, and ties and is available for use with on-site custom marking tools or through our factory custom marking service

### Selection Guides

Organized by part number, use each chart to assist with your product selection

### Identification Systems

**Reliable material/adhesive systems:**

Appropriate for specific applications and environments at lowest installed cost

**Less waste:**

Panduit printers are designed to lower label material waste by as much as 65%

**Ease of use to minimize printing time:**

With Panduit identification solutions, the time required for labeling can be reduced by up to 75%

**Compatibility with CAD:**

Allows an optimized printing experience

**Minimized installation time:**

Delivers pre-cut labels, partial cut labels and ease of wire insertion to speed installation time



## Heat Shrink Labels

Panduit heat shrink labels, available in multiple colors, grades, and sizes, for single or double-sided printing, offer a durable wire and cable identification solution for harsh environments with patented, time-saving features.

## Raised Panel Labels

Panduit raised panel labels, which are designed for 20 years of outdoor exposure, tested for use in solar applications, and compliant with print-performance requirements of UL969 and MIL-STD-202G, provide a rugged and professional appearance similar to engraved plates, but without the lengthy lead times or expensive engraving equipment.

## Solar Labels

Pre-printed and print-on-demand solar labels are made using high-performance UV stable materials and adhesives. All labels are designed to meet NEC and IFC standards for photovoltaic installation labeling.

## Safety Identification

Panduit safety identification products are available in a wide selection of printing methods and materials. They are also available in a broad selection of colors, sizes, and legends to effectively communicate safety messages.

## Permanent Identification

Panduit offers one of the widest ranges of permanent identification solutions in the industry. This solution includes stainless steel cable ties, marker plates, tags, and onsite marketing tools for quick and easy identification in the field. Factory-custom service delivers embossed or laser-etched plates, tags, and ties to your site, ready to install.

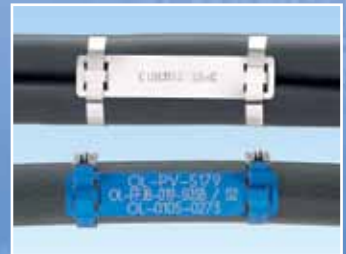
## Hand-Held and Desktop Printers

The LS8E and LS8EQ hand-held printers, for remote and mobile labeling in harsh environments, create up to 65% less wasted label material than conventional hand-held tape label printers. The versatile TDP43ME, TDP43HE, and TDP46HE thermal transfer desktop printers allow printing up to eight inches per second with professional 300 dpi or 600 dpi resolution of labels and tapes up to four inches wide. The compact design provides mobility and is easily deployable, with minimum setup or calibration time and minimum label waste.

## Identification Software

Easy-Mark™ Labeling Software helps create industry-compliant labels for harsh environments and saves up to 75% of the time required to generate labels for the energy infrastructure. CAD-Connect™ Labeling Software saves up to 75% of the time required to generate labels for the industrial applications by utilizing identifiers previously created in CAD files to eliminate manual entry of data into labeling software.

The information contained herein is intended as a guide for use by persons having technical skill. Suitability of the Panduit product for intended use should be determined. User assumes all risk and liability whatsoever in connection with such use.



## Applications

Panduit offers a wide variety of identification systems to meet your specific application requirements. Common applications include:

### *Wire and Cable Labeling*

**Description:** Products encounter some of the harshest environments such as high temperature, frigid cold, salt water, sand, radiation, and chemical corrosion. Selection of the right material of construction is a key design criterion.

#### **Oil & Gas, Power Generation, Industrial:**

**Selection Criteria:** Low-smoke emissions; resistance to chemical corrosion, high temperatures, ultra-violet light, flame, and high radiation

**Product Recommendations:**

- Marker Plates
- Self-Laminating Labels (PVDF)
- Heat Shrink Labels
- Marker Plates



#### **Rail Car Undercarriage, Industrial:**

**Selection Criteria:** Resistance to extreme solvents, oils, and chemicals

**Product Recommendations:**

- Fluid-Resistant Heat Shrink Labels
- Stainless Steel Marker Plates (embossed)



#### **Shipbuilding, Rail Car Controls:**

**Selection Criteria:** Excellent fire safety properties, minimal smoke emissions

**Product Recommendations:**

- Halogen-Free Heat Shrink Labels
- Halogen-Free Marker Plates
- 316 Stainless Steel Marker Plates (embossed)



#### **Harsh Environments:**

**Selection Criteria:** Flame retardant, extreme temperatures; rated for harsh environments

**Product Recommendations:**

- Heat Shrink Labels
- High-Temperature, Flame-Retardant Marker Plates



## Cable Tray Identification

**Description:** The design requirements for this application are very similar to cable and wire identification applications. In addition, the products are often in remote locations.

### Oil Rigs, Shipbuilding, Industrial:

**Selection Criteria:** Ultra-aggressive adhesive, resistance to extreme temperatures and tears

**Product Recommendations:**

- Super-Tack Continuous Tapes
- Raised Panel Labels



## Pipe Identification

**Description:** This application is critical for ensuring personnel and equipment safety. During emergencies or plant turn-arounds, it becomes necessary to isolate sections of pipelines to prevent hazardous or explosive materials from becoming exposed.

### Refineries, Chemical Plants, Waste Water Treatment:

**Selection Criteria:** Flexible material; wide variety of color-coding options; resistance to chemical corrosion, ultra-violet light

**Product Recommendations:**

- Continuous Tapes (Vinyl)
- Stainless Steel Marker Plates and Tags
- Rigid Strap on Pipe Markers
- Semi-Rigid, Snap-On Pipe Markers



## Control Panel Identification

**Description:** Control systems are critical to almost all industrial segments, and control panels are an essential component of these systems. Increasingly, control panels are network-enabled and play a lead role in maximizing network uptime. In order to reduce MTTR, the design of the panel should enable quick fault finding.

### Indoor – Terminal Blocks, Ratings Plates, Relays, PLCs:

**Selection Criteria:** Extreme temperatures, tear resistance, ultra-aggressive adhesive

**Product Recommendations:**

- Super-Tack Continuous Tapes
- Super-Tack Labels



## Outdoor – Natural Gas Hydraulic Fracturing, Pumping Stations:

**Selection Criteria:** Extreme UV resistance; strong holding power for rough, textured, and powder-coated surfaces

**Product Recommendations:**

- Raised Panel Labels and Over-laminates
- Stainless Steel Marker Plates and Tags



## Solar Photovoltaic System Labeling

**Description:** This labeling system is designed to meet required safety standards for PV installation labeling. All labels are designed to have extreme UV resistance for outdoor application and strong holding power for rough, textured, and powder-coated surfaces.

### Enclosures, Disconnects, Junction Boxes:

**Selection Criteria:** Extreme UV resistance; strong holding power for rough, textured, and powder-coated surfaces

**Product Recommendations:**

- Polyester Labels and Over-laminates
- Raised Panel Labels and Over-laminates



## Safety Identification

**Description:** Panduit safety identification solutions are reliable for the protection of personnel from potential hazards. This includes creating a visual workplace to ensure that hazards are properly recognized and identified. It is also important to identify energy in a workplace (electrical, chemical, pneumatic, mechanical, hydraulic, kinetic, and others) with Lockout/Tagout devices, as well as facility signage and equipment labeling.

### Offshore Platforms, Refineries, Petrochemical, Wind & Solar Farms:

**Selection Criteria:** Labels and signs suitable for industrial environments with OSHA and ANSI compliant layouts and colors to communicate safety messages.

**Product Recommendations:**

- Adhesive Polyester Signs and Labels
- Aluminum Signs
- Rigid Polyethylene Signs
- 316 Stainless Steel Marker Plates



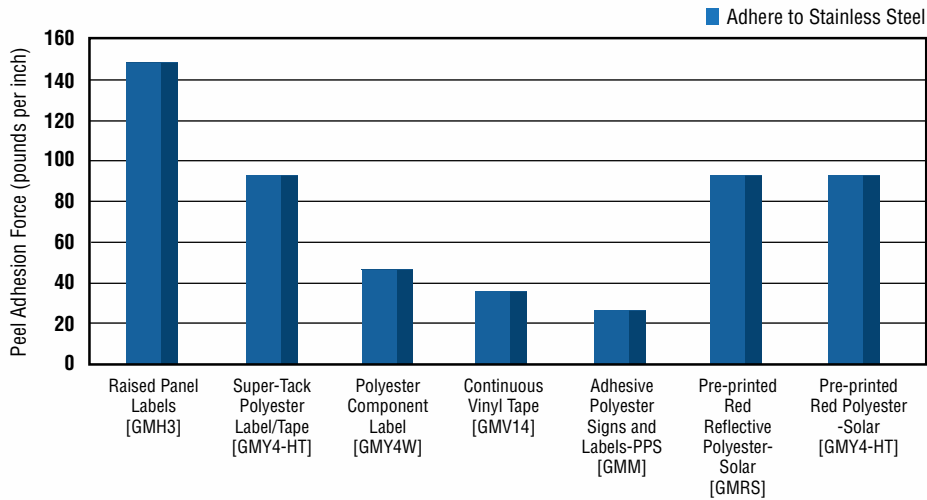
# Key Selection Criteria

## Legibility

Identification is permanent immediately after printing and remains legible even when exposed to weather, chemicals, and abrasion. Contrasting text and background colors enhance the readability of legends in all lighting conditions.

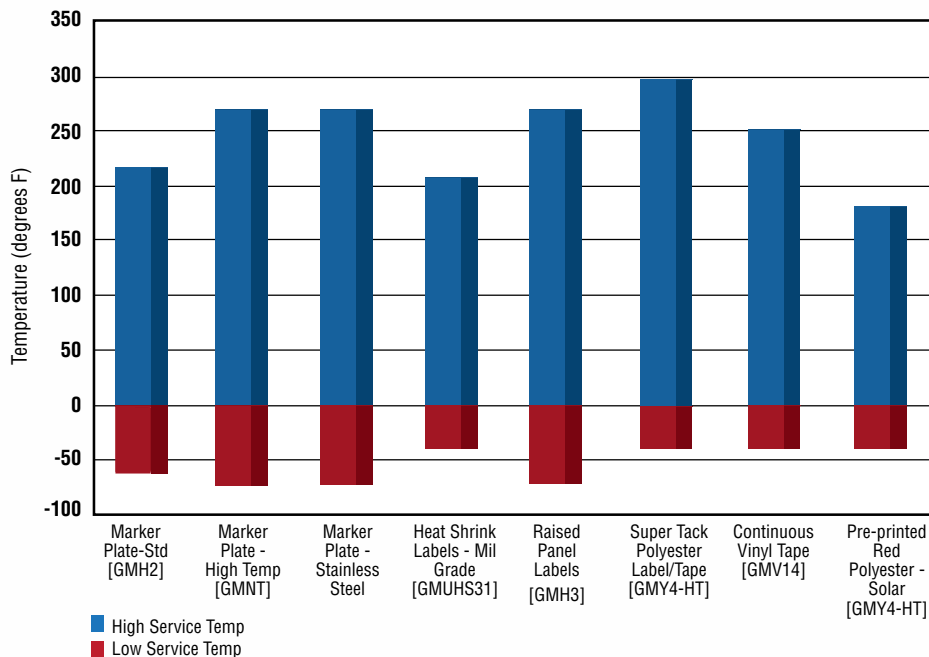
## Adhesive Holding Power

Strong, permanent adhesives ensure that vital identification stays affixed to industrial surfaces. Special adhesive formulations provide strong grip and long-lasting performance in harsh applications.



## Temperature Resistance

Identification products are engineered to perform in a wide range of temperature extremes. Materials and adhesives meet demanding conditions from freezing Arctic temperatures to intense desert heat.



# Chemical Resistance

The harshest environments often expose critical identification labels and markers to chemical, fluids, and oils. Panduit materials, such as fluid-resistant heat shrink, are tested to the highest industry standards against some of the most extreme chemicals. Through this exhaustive research, Panduit products are the preferred solutions to meet AMS-DTL-23053/6 Class 1 and NF F00-608 Class A & H, SAE-AS5942, MIL-STD-883F Method 2015.13, Solutions A and D, and MIL-STD-202G Method 215K, Solutions A, and D. These standards are particularly important for certain industries such as rail transit, aerospace, and industrial construction.



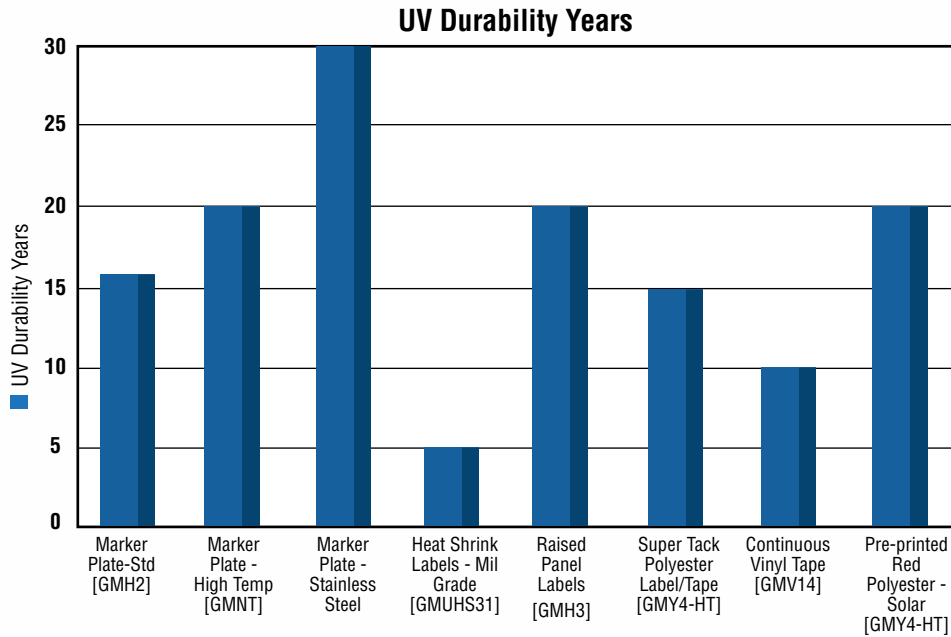
Group	Marker Plate-Std [GMH2]	Marker Plate - Hal-Free [GMPU]	Marker Plate - High-Temp [GMNT]	Marker Plate - Stainless Steel	Heat Shrink Labels - Mil Grade [GMUHS31]	Heat Shrink Labels - Hal- Free [GMHSHF]	Heat Shrink Labels - Fluid Resist [GMUFR31]	Raised Panel Labels [GMH3]	Self-Lam - Vinyl [GMV16]	Self-Lam - Vinyl [GMV17]	Self-Lam - PVDF [GMTD1]	Super-Tack Polyester Label/Tape [GMY4-HT]	Polyester Component Label [GMY4-W]	Continuous Vinyl Tape [GMV14]	Pipe Markers - Rigid Strap-on	Pipe Markers - Semi-Rigid Snap-on	Adhesive Polyester Signs and Labels - PPS [GMM]	Rigid Polyethylene Signs - PRS [GMPE1]	Rigid Polyethylene Signs - Solar [GMRS]	Pre-printed Red Reflective Polyester - Solar [GMY4-HT]	Flag Labels - AJT [GMY4-F]	Custom Engraved Marker Plates [GMH7]
ACIDS	○	●	●	○	○	○	○	○	○	○	○	○	○	○					●			○
ALCOHOLS		○	○	○	○	○	○	○	○	○	○	○	○	○					○			○
BASES	●	○	○	○	○	○	○	○	○	○	○								○			○
CLEANER/DEGREASER	●				○	○		○	○	○	○	○	○	○								○
DETERGENTS	●	○	○	○	○	○		○	○	○	○	○	○	○					○			○
FUELS	○	○	○	○	○	○	○	○	○	○	○	○	○	○					○	○	○	○
HYDRAULIC FLUID					○	○	○	○	○	○	○	○	○	○					○	○	○	○
OILS		○	○	○	○	○	○	○	○	○	○	○	○	○					○	○	○	○
ORGANIC SOLVENTS		○	○	○	○	○	○	○	○	○	○	○	○	○					○	○	○	○
SALT SOLUTION		○	○	○	○	○	○	○	○	○	○	○	○	○					○	○	○	○
WATER		○	○	○	○	○	○	○	○	○	○	○	○	○					○	○	○	○

● = Lowest recommendation   ○ = Acceptable with some chemicals   ○ = Highest recommendation  
 OK = Good  
 LP = Loss of Print  
 MD = Material Disintegrates  
 SF = Slight Fading



# Outdoor Durability

A reliable labeling solution for outdoor use is vital to customers in industries such as solar energy and utilities. Standard label materials are not designed to withstand the extreme exposure to UV light, moisture, and temperature fluctuations of an outdoor application. Panduit has many years of experience in designing, testing, and manufacturing labels and markers with special properties specifically for outdoor use. For example, Panduit raised panel labels are designed to last through 20 years of outdoor exposure and are verified and tested for weather resistance and for use in demanding solar applications. Panduit also provides over-laminate materials to extend the life of printed labels outdoors.



## Fire Safety Properties

In some applications, fire safety is a critical concern. For these environments, identification labels and markers with low-smoke emissions and no halogens are required. Panduit Halogen-Free, Heat Shrink Labels meet the strict requirements of BS6853; 1999 Vehicle Category 1a for burning behavior and toxic gas emissions. Additionally, Panduit flame-retardant, halogen-free marker plates meet UL Standard 224 with a VW-1 rating for flammability and AMS-DTL-23053/5C (Class 1 and Class 3). These properties are particularly important to industries such as rail transit, shipbuilding, and industrial construction.

## Product Selection Guides

### Military Grade Heat Shrink Labels



Part Number	Width		Height		Min. Cable O.D.		Max. Cable O.D.		Labels Per Roll
	In.	mm	In.	mm	In.	mm	In.	mm	
H100X025H1T	1.00	25.4	0.25	6.4	0.04	1.0	0.13	3.3	1000
H200X025H1T	2.00	50.8	0.25	6.4					500
H100X034H1T	1.00	25.4	0.34	8.6	0.06	1.5	0.19	4.8	1000
H200X034H1T	2.00	50.8	0.34	8.6					500
H100X044H1T	1.00	25.4	0.44	11.2	0.08	2.0	0.25	6.4	1000
H200X044H1T	2.00	50.8	0.44	11.2					500
H100X064H1T	1.00	25.4	0.64	16.3	0.13	3.3	0.38	9.7	1000
H200X064H1T	2.00	50.8	0.64	16.3					500
H100X084H1T	1.00	25.4	0.84	21.3	0.17	4.3	0.50	12.7	1000
H200X084H1T	2.00	50.8	0.84	21.3					500
H100X165H1T	1.00	25.4	1.65	41.9	0.33	8.4	1.00	25.4	500
H200X165H1T	2.00	50.8	1.65	41.9					250

Additional sizes and colors available on [www.panduit.com](http://www.panduit.com).

### Two-Sided Military Grade Heat Shrink Labels



Part Number	Width		Height		Min. Cable O.D.		Max. Cable O.D.		Labels Per Roll
	In.	mm	In.	mm	In.	mm	In.	mm	
H100X025H1T-2	1.00	25.4	0.25	6.4	0.04	1.0	0.13	3.3	1000
H200X025H1T-2	2.00	50.8							500
H100X034H1T-2	1.00	25.4	0.34	8.6	0.06	1.5	0.19	4.8	1000
H200X034H1T-2	2.00	50.8							500
H100X044H1T-2	1.00	25.4	0.44	11.2	0.08	2.0	0.25	6.4	1000
H200X044H1T-2	2.00	50.8							500
H100X064H1T-2	1.00	25.4	0.64	16.3	0.13	3.3	0.38	9.7	1000
H200X064H1T-2	2.00	50.8							500
H100X084H1T-2	1.00	25.4	0.84	21.3	0.17	4.3	0.50	12.7	1000
H200X084H1T-2	2.00	50.8							500
H100X122H1T-2	1.00	25.4	1.22	31.0	0.25	6.3	0.75	19.0	500
H200X122H1T-2	2.00	50.8							250
H100X165H1T-2	1.00	25.4	1.65	41.9	0.33	8.4	1.00	25.4	500
H200X165H1T-2	2.00	50.8							250

Additional sizes and colors available on [www.panduit.com](http://www.panduit.com).

## Halogen-Free Two-Sided Heat Shrink Labels

Part Number	Width		Height		Min. Cable O.D.		Max. Cable O.D.		Labels Per Roll
	In.	mm	In.	mm	In.	mm	In.	mm	
H100X025HFT-2	1.00	25.4	0.25	6.4	0.06	1.5	0.13	3.3	1000
H200X025HFT-2	2.00	50.8	0.25	6.4					500
H100X034HFT-2	1.00	25.4	0.34	8.6	0.09	2.3	0.19	4.8	1000
H200X034HFT-2	2.00	50.8	0.34	8.6					500
H100X044HFT-2	1.00	25.4	0.44	11.1	0.13	3.3	0.25	6.4	1000
H200X044HFT-2	2.00	50.8	0.44	11.1					500
H100X064HFT-2	1.00	25.4	0.64	16.2	0.19	4.8	0.38	9.7	1000
H200X064HFT-2	2.00	50.8	0.64	16.2					500
H100X084HFT-2	1.00	25.4	0.84	21.3	0.25	6.4	0.50	12.7	1000
H200X084HFT-2	2.00	50.8	0.84	21.3					500
H100X165HFT-2	1.00	25.4	1.65	41.9	0.50	12.7	1.00	25.4	500
H200X165HFT-2	2.00	50.8	1.65	41.9					250

Additional sizes and colors available on [www.panduit.com](http://www.panduit.com).

## Fluid-Resistant Two-Sided Heat Shrink Labels

Part Number	Width		Height		Min. Cable O.D.		Max. Cable O.D.		Labels Per Roll
	In.	mm	In.	mm	In.	mm	In.	mm	
H100X034HST-2	1.00	25.4	0.34	8.6	0.06	1.5	0.19	4.8	1000
H200X034HST-2	2.00	50.8							500
H100X044HST-2	1.00	25.4	0.44	11.1	0.08	2.0	0.25	6.4	1000
H200X044HST-2	2.00	50.8							500
H100X064HST-2	1.00	25.4	0.64	16.2	0.13	3.3	0.38	9.7	1000
H200X064HST-2	2.00	50.8							500
H100X084HST-2	1.00	25.4	0.84	21.3	0.17	4.3	0.50	12.7	1000
H200X084HST-2	2.00	50.8							500
H100X165HST-2	1.00	25.4	1.65	41.9	0.33	8.4	1.00	25.4	500
H200X165HST-2	2.00	50.8							250



## PVDF Self-Laminating Labels

Part Number	Width		Height		Print-On-Area Height		Min. Cable O.D.		Max. Cable O.D.		Std. Pkg. Qty. (Labels)
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	
S050X150T1T	0.50	12.7	1.50	38.1	0.50	12.7	0.16	4.0	0.32	8.1	5000
S075X125T1T	0.75	19.1	1.25	31.8	0.38	9.7	0.12	3.1	0.28	7.0	5000
S100X075T1T	0.75	19.1	0.75	19.1	0.25	6.4	0.08	2.0	0.16	4.0	2500
S100X125T1T	1.00	25.4	1.25	31.8	0.38	9.7	0.12	3.1	0.28	7.0	2500
S100X150T1T	1.00	25.4	1.50	38.1	0.50	12.7	0.16	4.0	0.28	7.1	2500
S100X225T1T	1.00	25.4	2.25	57.2	0.75	19.1	0.24	6.1	0.48	12.1	1500
S100X400T1T	1.00	25.4	4.00	101.6	1.00	25.4	0.32	8.1	0.95	24.3	2500
S200X400T1T	2.00	50.8	4.00	101.6	1.00	25.4	0.32	8.1	0.95	24.3	500



## Standard Marker Plates



Part Number	Color	Width		Length		Area Width		Std. Pkg. Qty. (Roll)
		In.	mm	In.	mm	In.	mm	
M200X050Y7T	White	2.00	50.8	0.50	12.7	1.07	27.3	1
M200X100Y7T	White	2.00	50.8	1.00	25.4	0.80	20.3	1
M300X050Y7T	White	3.00	76.2	0.50	12.7	2.07	52.6	1
M300X100Y7T	White	3.00	76.2	1.00	25.4	1.80	45.7	1

Additional colors at [www.panduit.com](http://www.panduit.com).

## Halogen-Free Marker Plates



Part Number	Width		Height		Print-On Area				Std. Pkg. Qty. (Roll)
					Width		Height		
	In.	mm	In.	mm	In.	mm	In.	mm	
M200X042UPT	2.00	50.8	0.42	10.7	0.42	10.7	1.30	33.0	1
M200X042UPT-B	2.00	50.8	0.42	10.7	0.42	10.7	1.30	33.0	1
M200X080UPT	2.00	50.8	0.80	20.3	0.80	20.3	1.30	33.0	1
M200X080UPT-B	2.00	50.8	0.80	20.3	0.80	20.3	1.30	33.0	1

## High-Temp Marker Plates



Part Number	Width		Height		Print-On Area				Std. Pkg. Qty. (Roll)
					Width		Height		
	In.	mm	In.	mm	In.	mm	In.	mm	
M200X042FQT	2.00	50.8	0.42	10.7	0.42	10.7	1.22	31.0	1
M200X042FQT-B	2.00	50.8	0.42	10.7	0.42	10.7	1.22	31.0	1
M200X080FQT	2.00	50.8	0.80	20.3	0.80	20.3	1.22	31.0	1
M200X080FQT-B	2.00	50.8	0.80	20.3	0.80	20.3	1.22	31.0	1

## Raised Panel Labels



Part Number	Color Options	Width		Height		Print-On Area Height		Std. Pkg. Qty.
		In.	mm	In.	mm	In.	mm	

### Raised Panel Push Button Labels

C120X150APT-22	APT, A8T, AST, AWT, A0T	1.20	30.5	1.50	38.1	0.45	11.4	500
C120X190APT-22	APT, A8T, AST, AWT, A0T	1.20	30.5	1.90	48.3	0.85	21.6	500
C180X180APT-30	APT, A8T, AST, AWT, A0T	1.80	45.7	1.80	45.7	0.36	9.1	500
C240X240APT-30	APT, A8T, AST, AWT, A0T	2.40	60.9	2.40	60.9	0.90	22.9	500

### Raised Panel Component Labels

C100X050APT	APT, A8T, AST, AUT, AWT, A0T, AMT	1.00	25.4	0.50	12.7	0.50	12.7	500
C125X030APT	APT, A0T	1.25	31.8	0.30	7.6	0.30	7.6	500
C200X100APT	APT, A8T, AST, AUT, AWT, A0T, AMT	2.00	50.8	1.00	25.4	1.00	25.4	500
C252X030APT	APT, A0T	2.52	64.0	0.30	7.6	0.30	7.6	500
C300X100APT	APT, A8T, AUT, AWT, A0T,	3.00	76.2	1.00	25.4	1.00	25.4	500
C300X250APT	APT, A8T, AST, AUT, AWT, A0T, AMT	3.00	76.2	2.50	63.5	2.50	63.5	500
C350X300APT	APT, A8T, AUT, A0T	3.50	88.9	3.00	76.2	3.00	76.2	500
C379X030APT	APT, A0T	3.79	96.3	0.30	7.6	0.30	7.6	500
C400X100APT	APT, A8T, AST, AUT, AWT, A0T, AMT	4.00	101.6	1.00	25.4	1.00	25.4	500

For other colors, replace APT: A8T = Yellow, AST = Green, AUT = Orange, AWT = Red, A0T = Black, AMT = Silver  
22 = 22mm hole diameter (0.87"); 30 = 30mm hole diameter (1.18").

# Polyester and Reflective Labels for Solar Applications

Part Number	Color	Application	Width		Height		Std. Pkg. Qty.
			In.	mm	In.	mm	
PPS0103WSL1-W09	Black / Orange / White	Inverter	1.50	38.1	3.00	76.2	50
PPS0103WSL1-W10	Black / Orange / White	Load Controller	1.50	38.1	3.00	76.2	50
PPS0204CSL1-C01	Black / Yellow	Wiring or Enclosures	2.00	50.8	4.00	101.6	50
PPS0204CSL1-C02	Black / Yellow	Breaker Panels, Pull Boxes	2.00	50.8	4.00	101.6	50
PPS0204CSL1-C03	Black / Yellow	Cal Fire Standards	2.00	50.8	4.00	101.6	50
PPS0204WSL1-W02	Black / Orange / White	Service Disconnects	2.00	50.8	4.00	101.6	50
PPS0204WSL1-W03	Black / Orange / White	Service Disconnects, Combiner Boxes, Junction Boxes, Enclosures	2.00	50.8	4.00	101.6	50
PPS0204WSL1-W04	Black / Orange / White	Combiner Boxes, Enclosures	2.00	50.8	4.00	101.6	50
PPS0204WSL1-W05	Black / Orange / White	Enclosures, Breaker Panels	2.00	50.8	4.00	101.6	50
PPS0204WSL1-W06	Black / Orange / White	Inverters, Breaker Panels, Pull Boxes	2.00	50.8	4.00	101.6	50
PPS0204WSL1-W07	Black / Orange / White	Inverters	2.00	50.8	4.00	101.6	50
PPS0204WSL1-W08	Black / Orange / White	Any Enclosure connected to the Inverter	2.00	50.8	4.00	101.6	50
PPS0206BSR1-RS	Red / White	Main Service Disconnect	6.00	152.4	1.75	44.5	50
PPS0404WSL1-W01	Black / Orange / White	DC Disconnects	4.00	101.6	4.00	101.6	50



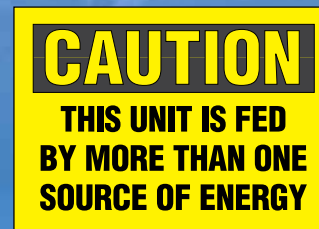
## Safety Identification

Part Number	Header	Legend	Color	Width		Height		Std. Pkg. Qty.
				In.	mm	In.	mm	
<b>Pre-Printed Aluminum Labels</b>								
PAS0710D72	DANGER	High Voltage	Red and Black/White	10.00	254.0	7.00	177.8	1
PAS1014D73	DANGER	High Voltage Keep Out	Red and Black/White	14.00	355.6	10.00	254.0	1
PAS1014D79	DANGER	High Voltage Keep Away	Red and Black/White	14.00	355.6	10.00	254.0	1
PAS1420D75	DANGER	High Voltage Unauthorized Personnel Keep Out	Red and Black/White	20.00	508.0	14.00	355.6	1
PAS1824D72	DANGER	High Voltage	Red and Black/White	24.00	609.6	18.00	457.2	1



### Pre-Printed Adhesive Polyester Labels

PPS0204W2100	WARNING	Potential Arc Flash Hazard	Black/Orange	4.50	114.3	2.25	57.2	5
PPS0507W2100	WARNING	Potential Arc Flash Hazard	Black/Orange	7.00	177.8	5.00	127.0	5
PPS0204WS001	WARNING	SOLAR	Black and Orange/White	4.50	114.3	2.25	57.2	5
PPS0305W2200	WARNING	RISK OF FIRE OR ELECTRIC SHOCK...	Black and Orange/White	5.00	127.0	3.50	88.9	5
PPS0305C174	CAUTION	THIS UNIT IS FED BY MORE THAN ONE SOURCE OF ENERGY	Black/Yellow	5.00	127.0	3.50	88.9	5
PPS0710C141	CAUTION	AREA IN FRONT OF THIS ELECTRIC PANEL ...	Black/Yellow	10.00	254.0	7.00	177.8	1
PPS0305D73	DANGER	HIGH VOLTAGE KEEP OUT	Red and Black/White	5.00	127.0	3.50	88.9	5
PPS0305D75	DANGER	HIGH VOLTAGE UNAUTHORIZED PERSONNEL KEEP OUT	Red and Black/White	5.00	127.0	3.50	88.9	5
PPS0305D79	DANGER	HIGH VOLTAGE KEEP AWAY	Red and Black/White	5.00	127.0	3.50	88.9	5
PPS0710D66	DANGER	AREA IN FRONT OF THIS ELECTRIC PANEL ...	Red and Black/White	10.00	254.0	7.00	177.8	1
PPS0710D70	DANGER	ELECTRICAL EQUIPMENT AUTHORIZED PERSONNEL ONLY	Red and Black/White	10.00	254.0	7.00	177.8	1
PPS0710D72	DANGER	HIGH VOLTAGE	Red and Black/White	10.00	254.0	7.00	177.8	1





## Safety Identification (continued)

Part Number	Header	Legend	Color	Width		Height		Std. Pkg. Qty.
				In.	mm	In.	mm	
PPS0710D75	DANGER	HIGH VOLTAGE UNAUTHORIZED PERSONNEL KEEP OUT	Red and Black/White	10.00	254.0	7.00	177.8	1

### Pre-Printed Rigid Polyethylene



PRS0310F319	N/A	FIRE EXTINGUISHER	White/Red	3.50	88.9	10.00	254.0	1
PRS0710B364	N/A	DANGER HIGH VOLTAGE	Red/White	10.00	254.0	7.00	177.8	1
PRS0710D68	DANGER	CABLE BURIED HERE	Red and Black/White	10.00	254.0	7.00	177.8	1
PRS0710D72	DANGER	HIGH VOLTAGE	Red and Black/White	10.00	254.0	7.00	177.8	1
PRS0910D453	DANGER/ PELIGRO	KEEP AWAY/ALTA TENSION	Red and Black/White	9.00	228.6	10.00	254.0	1
PRS1014B364	N/A	DANGER HIGH VOLTAGE	Red/White	14.00	355.6	10.00	254.0	1
PRS1014D116	DANGER	DO NOT ENTER	Red and Black/White	14.00	355.6	10.00	254.0	1
PRS1014D120	DANGER	AUTHORIZED PERSONNEL ONLY	Red and Black/White	14.00	355.6	10.00	254.0	1
PRS1014D70	DANGER	ELECTRICAL EQUIPMENT AUTHORIZED PERSONNEL ONLY	Red and Black/White	14.00	355.6	10.00	254.0	1
PRS1014D72	DANGER	HIGH VOLTAGE	Red and Black/White	14.00	355.6	10.00	254.0	1
PRS1014D73	DANGER	HIGH VOLTAGE KEEP OUT	Red and Black/White	14.00	355.6	10.00	254.0	1
PRS1014D79	DANGER	HIGH VOLTAGE KEEP AWAY	Red and Black/White	14.00	355.6	10.00	254.0	1
PRS1420D440	DANGER	Blank (No Legend)	Red and Black/White	20.00	508.0	14.00	355.6	1
PRS1420C442	CAUTION	Blank (No Legend)	Black/Yellow	20.00	508.0	14.00	355.6	1

### Print On-Demand Labels

C200X400A51	WARNING	Blank (No Legend)	Black and Orange/ White	4.00	101.6	2.00	50.8	1
C200X400YZ1	DANGER	Blank (No Legend)	Red and White	4.00	101.6	2.00	50.8	1
C400X400A11	N/A	Blank (No Legend)	Orange/White/Green	4.00	101.6	4.00	101.6	1
C400X400A21	N/A	Blank (No Legend)	Orange/White/Yellow	4.00	101.6	4.00	101.6	1
C400X400A31	N/A	Blank (No Legend)	Orange/White/Red	4.00	101.6	4.00	101.6	1
C400X400A51	WARNING	Blank (No Legend)	Black and Orange/ White	4.00	101.6	4.00	101.6	1
C400X400YZ1	DANGER	Blank (No Legend)	Red and White	4.00	101.6	4.00	101.6	1
C400X600A41	DANGER	High Voltage	Red and Black/White	10.00	254.0	7.00	177.8	1
C400X600A51	DANGER	High Voltage Keep Out	Red and Black/White	14.00	355.6	10.00	254.0	1
C400X600AX1	DANGER	High Voltage Keep Away	Red and Black/White	14.00	355.6	10.00	254.0	1
C400X600AZ1	DANGER	High Voltage Unauthorized Personnel Keep Out	Red and Black/White	20.00	508.0	14.00	355.6	1
C400X600Y81	DANGER	High Voltage	Red and Black/White	24.00	609.6	18.00	457.2	1
C400X600YX1	N/A	Blank (No Legend)	Orange and White	6.00	152.4	4.00	101.6	1
C400X600YZ1	DANGER	Blank (No Legend)	Red and White	6.00	152.4	4.00	101.6	1



# Permanent Identification

Part Number	Material	Color	Length		Width		Max. 3/16" (4.77mm) Characters per Line	Max. Lines	Recommended Tie Cross Section	
			In.	mm	In.	mm			Standard	Heavy

## Metal Marker Plates – Dual Cable Tie Installation Stainless Steel Marker Plates

MMP350-C	304SS	Natural	3.50	89.0	0.75	19.0	23	3	X	
MMP350-C316	316SS	Natural	3.50	89.0	0.75	19.0	23	3	X	
MMP350H-C	304SS	Natural	3.50	89.0	0.75	19.0	20	3		X
MMP350H-C316	316SS	Natural	3.50	89.0	0.75	19.0	20	3		X
MMP350W38-C	304SS	Natural	3.50	89.0	0.38	10.0	20	1	X	
MMP350W38-C316	316SS	Natural	3.50	89.0	0.38	10.0	20	1	X	
MMP172-C	304SS	Natural	1.72	44.0	0.75	19.0	8	3	X	
MMP172-C316	316SS	Natural	1.72	44.0	0.75	19.0	8	3	X	
MMP172W38-C	304SS	Natural	1.72	44.0	0.38	10.0	8	1	X	
MMP172W38-C316	316SS	Natural	1.72	44.0	0.38	10.0	8	1	X	

## Metal Tags – Single Cable Tie Installation Stainless Steel Tags

MT350-C	304SS	Natural	3.50	89.0	0.75	19.0	26	3	X	
MT350-C316	316SS	Natural	3.50	89.0	0.75	19.0	26	3	X	
MT172-C	304SS	Natural	1.72	44.0	0.75	19.0	10	3	X	
MT172-C316	316SS	Natural	1.72	44.0	0.75	19.0	10	3	X	
MT1D-Q	304SS	Natural	1.00*	25.0**	N/A	N/A	5	1	X	
MT150D-Q	304SS	Natural	1.50*	38.0**	N/A	N/A	5, 6, 5	3	X	
MT213D-Q	304SS	Natural	2.13*	54.0**	N/A	N/A	6, 12, 8	3	X	

## Brass Tags

MTB1D-Q	Brass	Brass	1.00*	25.0**	N/A	N/A	5	1	X	
MTB150D-Q	Brass	Brass	1.50*	38.0*	N/A	N/A	5, 6, 5	3	X	
MTB213D-Q	Brass	Brass	2.13*	54.0**	N/A	N/A	6, 12, 8	3	X	

\*Diameter (In.) \*\*Diameter (mm).

Representative offering only, consult [www.panduit.com](http://www.panduit.com) for complete listing of product.

# Metal Embossing Tools

Part Number	Description	Std. Pkg. Qty.
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## Portable Embossing Systems

PES197	Portable embossing system 3/16" (4.77mm) character, 11.5" (292mm) x 21.0" (534mm) x 19.0" (483mm), 95 lbs. (43 kg), 115 volt, 60 Hz with Easy-Mark™ Software	1
PES197/E	Portable embossing system 3/16" (4.77mm) character, 11.5" (292mm) x 21.0" (534mm) x 19.0" (483mm), 95 lbs. (43 kg), 230 volt, 50 Hz with Easy-Mark™ Software	1

## Metal Indenting Machine

MIM187	Indenting machine with 3/16" (4.77mm) character wheel, 11.25" (286mm) x 16.25" (413mm) x 11.75" (298mm), 41 lbs. (18.6 kg).	1
MIM125	Indenting machine with 1/8" (3.18mm) character wheel, 11.25" (286mm) x 16.25" (413mm) x 11.75" (298mm), 41 lbs. (18.6 kg).	1
MIM094	Indenting machine with 3/32" (2.38mm) character wheel, 11.25" (286mm) x 16.25" (413mm) x 11.75" (298mm), 41 lbs. (18.6 kg).	1

## Metal Embossing Hand Tool Kit

MEHT187	Includes tool, additional marking wheel, carrying case, one roll each META (aluminum) and METS (stainless steel) tape. Characters included: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 1 2 3 4 5 6 7 8 9 / ( ).	1
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Note: See our online custom order form: [www.panduit.com/permanentid](http://www.panduit.com/permanentid)





## Thermal Transfer Hand-Held Printers

Part Number	Description	Std. Pkg. Qty.
LS8E	Includes LS8E printer, one cassette of S100X150VAC self-laminating labels, six AA alkaline batteries, and quick reference card	1
LS8EQ	Includes LS8EQ printer with QWERTY keypad, one cassette of S100X150VAC self-laminating labels, six AA alkaline batteries, and quick reference card	1
LS8E-KIT	Includes LS8E printer, one cassette of S100X150VAC self-laminating labels, six AA alkaline batteries, LS8-CASE, LS8-PCKIT, LS8-IB, LS8-WS, quick reference card, and operator's manual	1
LS8EQ-KIT	Includes LS8E printer with QWERTY keypad, one cassette of S100X150VAC self-laminating labels, six AA alkaline batteries, LS8-CASE, LS8-PCKIT, LS8-IB, LS8-WS, quick reference card, and operator's manual	1
LS8E-KIT-ACS	Includes LS8E printer, one cassette of S100X150VAC self-laminating labels, six AA alkaline batteries, LS8E-ACS (120 VAC power adapter for North America), LS8-CASE, LS8-PCKIT, LS8-IB, LS8-WS, quick reference card, and operator's manual	1
LS8EQ-KIT-ACS	Includes LS8E printer with QWERTY keypad, one cassette of S100X150VAC self-laminating labels, six AA alkaline batteries, LS8E-ACS (120 VAC power adapter for North America), LS8-CASE, LS8-PCKIT, LS8-IB, LS8-WS, quick reference card, and operator's manual	1

## Thermal Transfer Desktop Printers



Part Number	Description	Std. Pkg. Qty.
TDP43ME	300 dpi printer (up to 4.00" per second); includes moderate-use printer, Easy-Mark™ Labeling Software, RMEH4BL black hybrid ribbon, user manual, quick start card, driver disk, USB cable, AC power adapter with U.S. power cord; for use in North America	1
TDP43ME-KIT	TDP43ME printer, Easy-Mark™ Labeling Software, RMEH4BL black hybrid ribbon, user manual, quick start card, TDP43ME-CASE carrying case, one roll S100X150VATY labels, roll stand, driver disk, USB cable, AC power adapter with U.S. power cord; for use in North America	1
TDP43HE	300 dpi printer (up to 8.00" per second); includes high-volume printer, Easy-Mark™ Labeling Software, RMEH4BL black hybrid ribbon, user manual, quick start card, driver disk, USB cable, AC power adapter with U.S. power cord; for use in North America	1
TDP46HE	600 dpi printer (up to 4.00" per second); includes high-volume printer, Easy-Mark™ Labeling Software, RMEH4BL black hybrid ribbon, user manual, quick start card, driver disk, USB cable, AC power adapter with U.S. power cord; for use in North America	1

## Identification Software



Desktop Printers	Description	Std. Pkg. Qty.
PROG-EMCD3	Easy-Mark™ Labeling Software, CD-ROM	1
PROG-EM2GO	Easy-Mark™ Portable Application, USB Flash Drive	1
PROG-CCCD	CAD-Connect™ Labeling Software, including Easy-Mark™ Labeling Software CD-ROM	1

## Industry Compliance

Spec/Approval	Requirement	Products
UL -224 with VW-1 flame rating	Flame-resistant material. The tubing must not continue to burn longer than 1 minute.	Military Grade Heat Shrink Label
UL 969	Material must not lose legibility, defacement and adhesion properties when exposed to 48 hrs. water immersion, 10 days oven exposure at maximum temperature and 7 hrs. at minimum temperature, and 750 hrs. UV radiation exposure.	Raised Panel Label, Self-Laminating PVDF Super-Tack Polyester Label/ Tape, Continuous Vinyl Tape, Pre-printed Reflective Polyester Label
C22.2 No. 0.15-01	Material must not lose legibility, defacement, and adhesion properties when exposed to same conditions as UL969. In addition, the material is also exposed to heat and cold humidity cycling, solvent immersion, abrasion and solvent abrasion.	Raised Panel Label, Self-Laminating PVDF Super-Tack Polyester Label/ Tape, Continuous Vinyl Tape, Pre-printed Reflective Polyester Label

## Industry Compliance (continued)

Spec/Approval	Requirement	Products
AMS-DTL-23053/5 (Class 1 and 3)	Flame-resistant material. Continuous operating temperature range is -55C(-67F) to 135C(275F).	Military Grade Heat Shrink Label
AMS-DTL-23053/6 (Class 1)	Flame-resistant material. Continuous operating temperature range is -55C(-67F) to 135C(275F).	Fluid-Resistant Heat Shrink Label
SAE-AS81531 (Rub Test)	Print shall remain legible after 20 rubs with hard hand pressure.	High-Temperature Marker Plate
SAE-AS5942 (Rub Test)	Print shall remain legible after 20 rubs with hard hand pressure.	Military Grade Heat Shrink Label, Halogen-Free Heat Shrink Label, Fluid-Resistant Heat Shrink Label
MIL-STD-883F (Test Standard) - Chemical Information below	The markings on the component parts shall remain legible when subjected to the following solvents; these solvents will not cause deleterious, mechanical or electrical damage, or deterioration of the material.	See below product for each chemical test
Chemical Used - METHOD 2015.13 SOLUTION A	At 20C-30C a mixture consisting of the following: (1) one part by volume of isopropyl alcohol; and (2) three parts by volume of mineral spirits.	Military Grade Heat Shrink Label, Halogen-Free Heat Shrink Label, Fluid-Resistant Heat Shrink Label
Chemical Used - METHOD 2015.13 SOLUTION B	A semi-aqueous or non-aqueous based organic solvent like a terpene or heterocyclic compound.	Military Grade Heat Shrink Label, Halogen-Free Heat Shrink Label
Chemical Used - METHOD 2015.13 SOLUTION D	At 63C-70C, a mixture consisting of the following: (1) 42 parts by volume of deionized water; (2) 1 part by volume of propylene glycol monomethyl ether; and (3) 1 part by volume of monoethanolamine.	Military Grade Heat Shrink Label, Halogen-Free Heat Shrink Label, Fluid-Resistant Heat Shrink Label
MIL-STD202G (Test Standard) - Chemical Information below	The markings on the component parts shall remain legible when subjected to the following solvent; these solvents will not cause deleterious, mechanical or electrical damage, or deterioration of the material.	See below product for each chemical test
Chemical Used - METHOD 215K SOLUTIONS A	A mixture consisting of the following: (1) one part by volume of isopropyl alcohol; and (2) three parts by volume of mineral spirits.	Marker Plate Halogen-Free Heat Shrink Label, Raised Panel Label, Fluid-Resistant Heat Shrink Label
Chemical Used - METHOD 215K SOLUTIONS C	A terpene defluxer consisting of a minimum of 90% d-limonene and 10 % surfactant.	Marker Plate Halogen-Free Heat Shrink Label, Raised Panel Label
Chemical Used - METHOD 215K SOLUTIONS D	A mixture consisting of the following: (1) 42 parts by volume water; (2) 1 part by volume of propylene glycol monomethyl ether; and (3) 1 part by volume of monoethanolamine.	Marker Plate Halogen-Free Heat Shrink Label, Raised Panel Label, Fluid-Resistant Heat Shrink Label
BS6853	1999 Vehicle Category 1A for burning behavior and toxic gas emissions. Smoke Density Class II	Halogen-Free Heat Shrink Label
NF F00-608 Class A and H	Print shall remain legible after 10 rubs after being immersed for 168 hrs. in HCL acid, diesel, NaOH base and 70 hrs. in mineral spirit. Tensile strength shall be equal to or greater than 14MPa and elongation shall be 400% or higher.	Fluid-Resistant Heat Shrink Label
LOCA/MSLB (IEEE 323-2003)	The qualification requirements in this standard, when met, demonstrate and document the ability of equipment to perform safety function(s) under applicable service conditions, including design basis events, reducing the risk of common-cause equipment failure.	High-Temperature Marker Plate, Military Grade Heat Shrink Label (AMS-DTL-23053/5 [Class 1 and 3] only)

Please refer to the Technical Data Sheet for each product for complete information.





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## Compliance with Industry Standards

Panduit identification solutions are engineered to meet the highest standards. Our products meet or exceed the most stringent industry standards including RoHS, UL, CSA, MIL, ASTM, NF, and many others. They also assist in compliance with OSHA, NEC, NFPA, TIA, and other requirements.



Panduit offers one of the widest ranges of permanent identification solutions in the industry to enable reliable, comprehensive, identification throughout the physical infrastructure. Ideal in harsh and industrial environments, the Panduit permanent identification system delivers long-term durability and legibility for optimum identification of pipes, conduit, cables and equipment. Safe, quick, and easy to install, the system includes stainless steel, and aluminum marker plates, tags, marking tools and ties engineered for maximum reliability, improved productivity and workplace safety to mitigate risk in the physical infrastructure.

## Panduit Difference

Panduit is committed to delivering a consistently high level of quality and service the world over. With a presence in more than 100 countries, local Panduit sales representatives and technical specialists offer guidance and support that bring value to your business. Our global supply chain, which includes manufacturing, customer service, logistics, and distribution partners, provides prompt response to your inquiries and streamlines delivery to any worldwide destination.

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Panduit harsh environment solutions include the Pan-Steel™ System, power and grounding connectors, identification and safety, abrasion protection, heat shrink, wiring duct, industrial ethernet, and cable tie solutions. These solutions feature Panduit world-class quality, rigorously tested to deliver the highest performance, and lowest total cost of ownership.



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