



INTEGRATED MILITARY HARNESS SYSTEMS

HARNESSING SYSTEMS AND COMPONENTS FOR DEFENSE AND INDUSTRIAL SYSTEMS

Integrated Military Harness Systems



Harnessing systems and components for defense and industrial systems



Assembled Military Harness

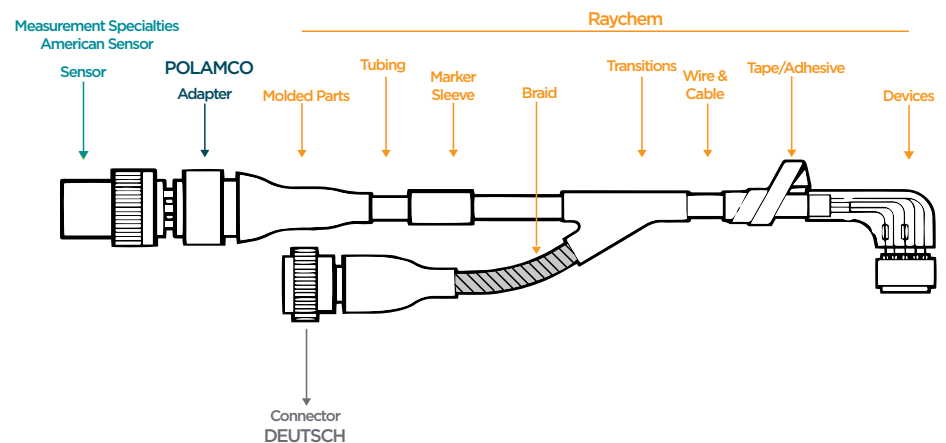
Description

TE Connectivity (TE) integrated harness systems have been developed for a wide range of defense and industrial applications. Each system consists of compatible components, including cable jackets, heat-shrinkable components, and adhesives. Performance of all parts is assured by testing each component separately as well as part of an assembled system in TE's Fremont, CA lab (see photo at left).

A typical designed harness consists of seven component parts (pictured below):



Military Harness System Components



VERSATILE

- A wide range of special devices, such as SolderSleeve devices for primary wire interconnection
- Multiconductor (multicore) cables

RUGGED

- A selection of electrical shielding (screening) options, including braids and termination assemblies

ADAPTABLE

- Specialty adhesives and sealants for complete environmental sealing.*

1. Primary Wire and Cable
2. Heat-Shrinkable Tubing
3. Backshell Adapter
4. Molded Part
5. Adhesive
6. Cable Jacket
7. Marker Sleeve**

Table 1 on the next page serves as both a summary of Raychem brand products for specific harnessing systems and a selection table for harnessing system components. An explanation of how to select components for a harness system follows.

*TE Sealant product information available at www.te.com

**TE Identification products information available at www.te.com

Integrated Military Harness Systems

TABLE 1. HARNESSING SYSTEMS AND THEIR COMPONENTS

Components	System 10	System 20	System 25	System 30	System 100	System 200	System 300	System 770	System 780	System 790	INSTALITE
Wire	44	44	44	55	99 100A 100G	55	55	44	55	55	44
Tubing	VERSAFIT	NT-FR	DR-25	VPB	ZHTM ZH-150	RW-200	RT555	RT-770	RT-780	RT-790	DR-25 ZH-150
Molded Part	-3 -4 -71	-51	-25	-50	-100	-12	-55 -125	-770	-780	-790	-25L
Rayaten Molded Part	—	—	-25C	—	-100C	—	—	—	—	—	—
Adhesive	S1017, S1030	S1124, S1048	S1048, S1125	S1125, S1255-04	S1030, S1125	S1125, S1255-04	S1255-04	S1264	S-1255-04	S-1255-04	S1125 S1030
Precoated Adhesive	/42 /180	/86 /164	/86 /225	—	/180	—	—	—	—	—	/86 /225
Conductive Adhesive	—	—	S1184	—	S1184	—	—	—	—	—	—
Cable Jacket	Thermorad	NT-FR	FDR-25	Thermorad VPB	Zerohal	RW-200	RT555	—	—	—	FDR-25
Marker Sleeve	TMS-SCE	TMS-SCE	TMS-SCE	TMS-SCE	HX-SCE	HT-SCE	HT-SCE	TMS-SCE	TMS-SCE	TMS-SCE	TMS-SCE

Selection Process

Selecting the components for a harnessing system is a four-step process:

Step 1: Select the material system appropriate for the operating conditions and environment to which the harness will be exposed.

Step 2: Select the adhesive system appropriate for the material system you select in Step 1.

Step 3: Determine the level of EMI shielding required.

Step 4: Select the components.

A description of each step follows. A selection table accompanies each step. You can also use HarnWare software to design your harness.

Step 1. Select the Material System




Detailed in Table 2 on the next page are the major material systems for use in a wide range of operating conditions and environments.

Choose a material system that:

- Has the physical characteristics your harness requires.
- Will accommodate the operating temperature and the fluids intense physical conditions to which the harness will be exposed.

Integrated Military Harness Systems

TABLE 2. MATERIAL SYSTEM SELECTION

	System 10	System 20	System 25
Operating Temperature	-20°C to +60°C [-4°F to +140°F]	-55°C to +121°C [-67°F to +250°F]	-75°C to +150°C* [-103°F to +302°F]
Physical Characteristics	Environmentally Sealable Lightweight Small Diameter Flexible	Environmentally Sealed Tough Flexible Low Profile	Environmentally Sealed Rugged Abrasion Resistant Very Flexible
Flammability	Flame Retardant Self Extinguishing	Flame Retardant Self Extinguishing	Flame Retardant Self Extinguishing
Fluid Resistance	Resists Common Industrial and Military Cleaning Solvents and Degreasers	Resists Most Commonly Used Military Fuels, Oils, and Greases	Resists Most Common Military Fuels, Oils, and Greases up to +70°C [+158°F]
Typical Applications	Used in High-Performance Industrial Applications, and in Military Communication and Test Equipment 	Specially Suited to Military Vehicles and Engine Compartments; Low Profile Shapes Save Space and Weight 	Specially Suited to Military Vehicles, Aerospace and Marine Applications, and Communication and Test Equipment 

HARNESSING SYSTEMS AND THEIR COMPONENTS — NBC SURVIVABLE SYSTEMS





Components	System 770	System 780	System 790
Wire	44	55	55
Tubing	RT-770	RT-780	RT-790
Molded Part	-770	-780	-790/-791
Adhesive	S-1264	S-1255-04	S-1255-04
Marker Sleeve Cover	RT-375	RT-375	RT-375
Marker Sleeve*	TMS-SCE	NBC-SCE	NBC-SCE


*TE Identification products information available at www.te.com.

ADHESIVE SELECTION

Material System	Adhesive Type	Component Adhesive	Precoated Adhesive Designation	Service Temperature
System 770	Two-Part Epoxy	S-1264	—	+150°C
System 780	Thermoset Tape	S-1255-04	—	+200°C
System 790	Thermoset Tape	S-1255-04	—	+200°C

Integrated Military Harness Systems

System 30	System 100	System 200	System 300
-55°C to +150°C [-67°F to +302°F]	-30°C to +105°C [-22°F to +221°F]	-55°C to +200°C [-67°F to +392°F]	-55°C to +200°C [-67°F to +392°F]
Environmentally Sealed Tough Flexible Low Profile	Environmentally Sealed Flexible	Environmentally Sealed Very Flexible	Environmentally Sealed Highly Abrasion Resistant Low Profile
Flame Retardant Self Extinguishing	Low Toxicity Index (as Defined by NES-13) Low Smoke Emission (as Defined by NES-711) Low Corrosive Gas Evolution	Highly Flame Retardant	Highly Flame Retardant
Resists Most Commonly Used Military Fuels, Oils, and Greases	Resistant to a Range of Military Fuels, Oils, and Greases	Resists Long-Term Immersion in Military Fuels, Oils, and Greases at Elevated Temperatures	Performs in Aggressive Fluids at Extremely High Temperatures
Specially Suited to Military Vehicles and Engine Compartments for Higher Temperature Applications; Low Profile Shapes Save Space and Weight 	Specially Suitable for Confined Habitat Areas in Military and Civil Applications; Extensively Used in Surface and Submarine Vessels and Underground Railways 	Used Where There is Prolonged Exposure to High Temperatures; Used Where a Harness may be Permanently Immersed in Difficult Fuels, such as in Fuel Tanks 	Permanent Immersion in Aggressive Fluids 

	System 770	System 780	System 790
Operating Temperature	-55°C to +125°C [-67°F to +257°F]	-65°C to +175°C [-85°F to +347°F]	-65°C to 200°C [-85°F to +392°F]
Physical Characteristics	Environmentally Sealed NBC Resistant Flexible	Environmentally Sealed NBC Resistant Flexible	Environmentally Sealed NBC Resistant Flexible
Flammability	Flame Retardant Self Extinguishing	Flame Retardant Self Extinguishing	Flame Retardant Self Extinguishing
Fluid Resistance	Resistant to NBC Uptake and Decontamination	Resistant to NBC Uptake and Decontamination	Resistant to NBC Uptake and Decontamination
Typical Applications	Base-Line System for NBC Resistant Applications 	High Temperature System for NBC Resistant Applications	Extreme High Temperature System for NBC Resistant Applications

Empower Engineers to Solve Problems, Moving the World Forward.

AMP | AGASTAT | CII | DEUTSCH | DRI | HARTMAN | KILOVAC
MICRODOT | NANONICS | POLAMCO | Raychem | Rochester | SEACON

CONNECT WITH US

We make it easy to connect with our experts and are ready to provide all the support you need. Visit te.com/support to chat with a Product Information Specialist.

QUALITY STARTS WITH THE RIGHT APPLICATION TOOLING

Creating a quality crimp connection is essential to delivering high performance and reliability in extreme environments. From low to high volume wire processing, TE has you covered with a full range of application tooling and a global field service team.

- [View all application tooling](#)
- [Connect with our experts to find the right tool for your application](#)

te.com/harness-systems

AMP, AMPLIMITE, AGASTAT, CII, DEUTSCH, DRI, HarnWare, HARTMAN, INSTALITE, KILOVAC, MICRODOT, NANONICS, POLAMCO, Raychem, Rochester, SEACON, Thermorad, VERSAFIT, Zerohal, TE, TE Connectivity, and TE connectivity (logo) are trademarks owned or licensed by TE Connectivity. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2021 TE Connectivity All Rights Reserved.

2395149-1 07/21 Original

INTEGRATED MILITARY HARNESS SYSTEMS

TE Connectivity
Aerospace, Defense & Marine
2900 Fulling Mill Road
Middletown, PA 17057