

Oil & Gas Downstream

FIRE-RATED CABLE

DEKORON® UNITHERM™ PRE-INSULATED & TRACED TUBING

Foil Tape Shields

Marmon Electrical

Marmon Electrical is part of Marmon Holdings, a Berkshire Hathaway company. Marmon Engineered Wire & Cable reorganized in 2019 and was rebranded as Marmon Electrical with five different platforms, each consisting of market-centric, customer-facing and product-oriented vertical segments. As such, several companies are now part of the Oil & Gas segment serving the Upstream, Midstream and Downstream Markets.

The Midstream and Downstream group consists of **Dekoron® Wire & Cable, Dekoron® Unitherm™** and the **Vitalink® & Dekaflame™** firerated products. Our breadth of products provides the customer with a one-stop shop to satisfy their wiring & tubing needs. From fire-rated cable to operate an emergency shut down valve in case of a fire, to an electric trace tubing to provide freeze protection or temperature maintenance of instrument lines, to instrumentation cable to monitor process conditions, we can meet all customer needs with quality products.









Fire-Rated Cable

VitaLink® and Dekaflame™ fire-rated circuit-integrity cables offer superior fire endurance capabilities with a tiered-approach, along with the well-established benefits and features associated with NEC Type TC or MC-HL cable designs. These cables are suitable for use in circuits where the safeguarding of critical applications is an absolute necessity to allow the operation of systems or equipment vital to life or safety under emergency conditions. Applications in the petroleum industry include MOV's, fire pumps and other critical functions where fire survivability is essential.

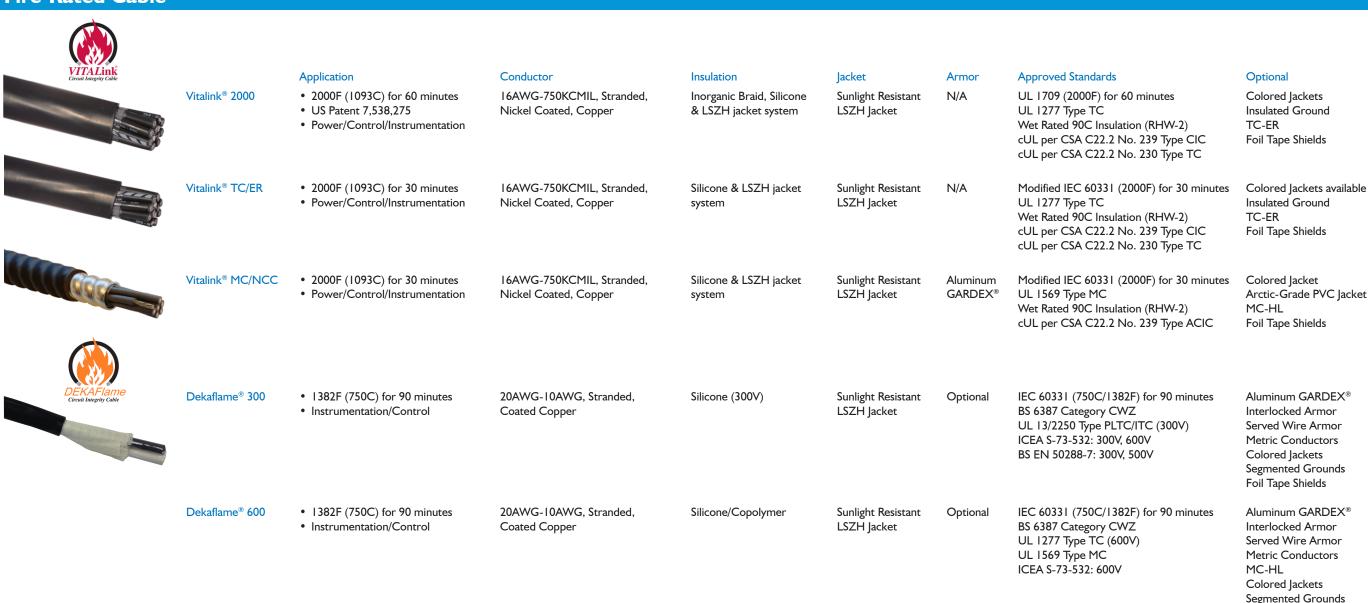
Pre-Insulated & Traced Tubing

Dekoron® Unitherm™ is the inventor of pre-insulated and heat traced tubing for heavy industry. We have been producing pre-insulated and heat traced tubing bundle since 1962. With over 50 years experience and in excess of 100 million feet of product installed, Dekoron® Unitherm™ is a world leader in the design and manufacture of pre-insulated and heat traced tubing and small bore pipe. Our products have been installed on every continent and in some of the harshest environments known to man.

Wire & Cable

Dekoron® Wire & Cable is one of the most recognized industrial cable manufacturers in the world. Manufactured in the United States of America with rigorous attention to detail and quality standards, Dekoron's products are specified by many industry leaders for some of the most challenging projects. Our core strengths include the ability to design cables to meet the stringent requirements of our customers, fast delivery to meet on-site needs, and the capability to meet various regulatory standards.

Fire-Rated Cable







TOOLS

Bndl-Bndr[™] bending tool Strip-Kwik[™] tool for preinsulated tubing

ACCESSORIES

Temperature Controllers

End Seal Boots Power Connection and Termination Kits Seal Patch Kits **End Sealant** Thermostats

SERVICES

Site Audits Installation Training Trim-Back Services Field Repair

THERMAL INSULATION

Fibrous Glass with leachable chloride content less than 30 ppm High Efficiency Aerogel Felted Fiberglass composite**** Felted Flexible polyester****

OUTER JACKET

Low Temperature DSJM (Flame Retardant Vinyl Compound) Halogen-Free FR Urethane

High Temperature FRTPE Polyester Braid**** Stainless Steel Braid**** Silicone Coated Firesleeve®

			Sensor Installation Kits				
Steam		Application	Tubing sizes	Common Tube Materials	Number of Tubes	Maximum Operating Temperature	Options
	Instrument Tube	Corrosion protection (near shore / off shore sites)Pneumatic or Hydraulic Control Lines	1/4", 3/8", 1/2", 3/4", 1"*6mm, 10mm, 12mm	316/316L, Seamless#122DHP Copper	I-7**	• 140°F / 60°C	316 Welded Tubing317 Seamless Tubing
	Pre-Insulated	 Transport Steam from manifold to process or vessel Return spent steam (condensate) to boiler Reduce temperature drop in fluid transfer lines Protect Personnel from hot tubing 	• 1/4", 3/8", 1/2", 3/4", 1"*, 1-1/2"* 2"* • 6mm, 10mm, 12mm, 20mm*, 25mm*	316/316L, Seamless or welded#122DHP CopperPFA Fluoropolymer	I	• 400°F / 204°C • 1100°F / 593°C	 Stack, Grab & Go® 100 ft boxes High temperature designs to 1000°F Heavy, or Xtra Heavy walled tubing
	Steam Trace	 Protect freezing in Instrument Lines Prevent degradation of process fluid Maintain Temperature of Heated fluids but prevent boil-off 	1/4", 3/8", 1/2"6mm, 10mm, 12mm,	316/316L, Seamless or welded#122DHP CopperPFA Fluoropolymer	2-4	• 400°F / 204° • 1100°F / 593°C	 Monel®, Incoloy®, Hastelloy® SilcoNert® coatings, Electropolished tubing
	Heavy Steam Trace	Temperature MaintenanceViscosity MaintenanceTransfer of Heavy Waxes or Oils	• 1/4", 3/8", 1/2", 3/4" • 6mm, 10mm, 12mm	316/316L, Seamless or welded#122DHP Copper	2-7**		
Electric Trace	Tubing						
	Self Regulating	 Freeze Protection of Instrument Lines Low to Medium Temperature Maintenance Viscosity Maintenance of oils/grease Maintain proper fluid properties in automated equipment Hazardous Location Approvals 	 1/4", 3/8", 1/2", 3/4", 1"*, 1-1/2"* 2"* 6mm, 10mm, 12mm, 20mm*, 25mm* 	 316/316L, Seamless or welded 304L, Seamless or welded #122DHP Copper 	• 1-4**	 Low Temp SR 85°C/185°F High Temp SR 150°C/302°F 	 Carrier Tube replaceable heater design Channel Trace large diameter tubing Multiple heating zones Buffered Heater Cables for high temperature applications to 1100°F / 593°C
	Power Limiting	 Freeze Protection to Medium Temperature Maintenance Hazardous Location Approvals 		PFA FluoropolymerPTFE FluoropolymerFEP Fluoropolymer		Power Limiting 204°C/400°F	 Solar-Powered Freeze Protection Bundles Monel®, Incoloy®, Hastelloy® SilcoNert® coatings, Electropolished tubing
	Series Resistance	High Temperarure MaintenanceWhere increased heater output is required				Series Resistance 204°C/400°F	
CEMS (Contir	nuous Emissi	ions Monitoring System)					
	High Temp SR	• NOx / SOx				• High Temp SR I50°C/302°F	 Special conditioning of Fluoropolymer tubing for low THC applications Electropolished stainless steel tubing
	Power Limiting	• Ammonia • CO, CO2, O2	• 1/4", 3/8", 1/2", 3/4", 1"*, 1-1/2"* 2"* • 6mm, 10mm, 12mm, 20mm*, 25mm*	PFA Fluoropolymer PTFE Fluoropolymer	I-8***	Power Limiting 204°C/400°F	SilcoNert® coatings Multiple heat zones
	Series Resistance	 HCI Total Hydrocarbons Scrubber Monitoring Monitoring Scrubber Scrubber Monitoring Scrubber Scrubber		• 316/316L , Seamless or welded	2-4	• 400°F / 204° • 1100°F / 593°C	 Monel®, Incoloy®, Hastelloy® SilcoNert® coatings, Electropolished tubing
	Probe Support	Temperature MaintenanceViscosity MaintenanceTransfer of Heavy Waxes or Oils	• 1/16", 1/8", 1/4", 3/8", 1/2" • 4mm, 6mm, 10mm, 12mm	PFA FluoropolymerPTFE Fluoropolymer316/316L, Seamless or weldedHDPENylon	I-12** (Includes wires and cables)	• 60°C / I40°F	 Calibration Gas Blowback Air Vacuum Lines Sensor Cables Probe Power Fiberoptic cables Cat6 cables
Heated Hose							
		 Portable Emissions Monitoring Diesel Engine Testing Adhesive Application Urethane Coating Application Plastics Extrusion / Coextrusion Off-loading / Drum filling Automated / Robotic Assembly Equipment / Manufacturing Lines FreeFlow™ Freeze Protected Fluid Transfer Lines 	 Hose Sizes -4, -6, -8, -10, -12, -16, -20, -24, -32, -48 Tubing Sizes 1/8" - 3/4" in coils 1", 1-1/2", 2" straight lengths Metric equivalents 	 PFA Fluoropolymer PTFE Fluoropolymer 316/316L, Seamless or welded Corrugated Stainless Steel Corrugated Fluoropolymer Reinforced Thermoplasitc Hose Air/Water Hose Hydraulic Hose 	I-4**	 Fluoropolymer Tubes 230°C/450°F Metal Tubes 329°C/625°F Hose Materials based on core 	 Special conditioning of Fluoropolymer tubing for low THC applications Electropolished stainless steel tubing SilcoNert® coatings Multiple heat zones Thermocouple or RTD temperature sensors Custom tube/wire breakouts Flange / Sanitary / NPT fittings Electrically and Hydraulically Complete



Power Limiting Designs

The Instrumentation Cable Experts

CONDUCTORS

Bare, tinned, or nickel-plated annealed copper and most thermocouple alloys, in solid, 7-strand, or 19-strand configurations from 10AWG to 22 AWG are common in Dekoron's products. Metric conductors and alternate stranding options are available upon request.

INSULATIONS

Dekoron offers both thermoset and thermoplastic insulation compounds including PVC, PVC/Nylon, XLPE, XLPE-VWI, HD-XLPE, HDPE, Silicone, and Silicone/Copolymer. Specialty compounds are available upon request.

• Jackets:

PVC

CPE

TPU

NYLON

HDPF

LDPE

• lackets:

PVC

CPE

NYLON

HDPE

Dekoron offers several armor options with various benefits to provide additional protection suited for different applications.

IACKETS

lackets, sometimes known as sheaths, are provided in similar compounds as the insulation. These compounds include PVC, CPE, TPN (LSZH), LDPE, HDPE, Nylon, and TPU, some of which are available in low-temperature capable versions. Specialty compounds may also be available upon

SHIELDING*

Optional

Dekoron, the innovator of EMI shielding, provides a variety of options in shielding to prevent noise and interference and helps to maintain signal quality. Typical shields are an aluminum tape with polyester backing. Drain wires are combined with the shield and are in contact with the conductive side of the tape, allowing for easy termination and grounding.

Instrumentation

Instrumentation cables monitor process parameters such as pressure, flow rate, and temperature by transmitting high-quality, low voltage signals to the instrumentation and process control room. These cables are typically multiple twisted-pair configurations with each pair gathering one set of process data.

• Conductor: 22-12 AWG Bare and Plated Copper, Solid and Stranded

Jackets: • Armors**: PVC SWA CPE ILA TPN (LSZH) DEKABON®

GARDEX® TPU DUAL ARMOR (SWA/DEKABON®) Nylon HDPE LDPE

 Approval Standards***: 300V UL Type PLTC/ITC 450/750V AS/NZS 5000.3 300V UL Type ITC-HL 450/750V IEC 60227 600V UL Type TC 300/500V BS 5308 600V UL Type MC or MC-HL ICEA S-73-532: 300V, 600V 600/1000V AS/NZS 5000.1 BS EN 50288-7: 300V, 500V Optional -40°C Arctic Grade PVC or TPN (LSZH) Jackets Direct Burial Sun Res IEEE1202/FT4 Oil Res I & II Jackets 110/150V AS/NZS Type PLTC/ITC-ER, Type TC-ER, Type TC-LS

Thermocouple Extension



Thermocouple Extension cables allow for the remote monitoring of thermocouples from a central location. These cables are available in several common thermocouple types.

Type KX, JX, EX, TX, NX, BX, VX and SX 20-16 AWG. Solid and Stranded

Conductor:

Conductor:

22-10 AWG

PVC PVC/Nylon XLPE XLPE-VW1 HD-XLPE HDPE

• Insulation:

• Insulation:

PVC/Nylon

XLPE-VWI

HD-XLPE

PVC

XLPE

HDPE

• Armors**: SWA ILA TPN (LSZH) **DEKABON® GARDEX®** DUAL ARMOR (SWA/DEKABON®)

 Approval Standards***: 300V UL Type PLTC/ITC 450/750V AS/NZS 5000.3 300V UL Type ITC-HL 450/750V IEC 60227 600V UL Type TC 300/500V BS 5308 600/I000V AS/NZS 5000.I ICEA S-73-532: 300V, 600V BS EN 50288-7: 300V, 500V

-40°C Arctic Grade PVC or TPN (LSZH) Jackets Direct Burial Sun Res IEEE1202/FT4 Oil Res I & II Jackets 110/150V AS/NZS Type PLTC/ITC-ER, Type TC-LS

Control



Control cables carry power to change process parameters from the control room to the remote equipment. Control cables are typically comprised of 14 AWG and larger conductors, with additional grounding conductors and shielding included as needed.

• Insulation: PVC Bare and Plated Copper, PVC/Nylon Solid and Stranded XLPE XLPE-VWI

lackets: PVC CPE TPN (LSZH) TPU Nylon HDPE LDPE

• Armors**: **SWA** ILA DEKABON® **GARDEX®** DUAL ARMOR (SWA/DEKABON®)

 Approval Standards***: 300V UL Type PLTC/ITC 300V UL Type ITC-HL 600V UL Type TC 600V UL Type MC or MC-HL 600/1000V IEC 60502 600/1000V BS 5467

600/1000V BS 6346 600/1000V AS/NZS 5000.1 450/750V AS/NZS 5000.3 450/750V IEC 60227 ICEA S-73-532: 300V, 600V, BS EN 50288-7: 300V, 500V Type PLTC/ITC-ER, Type TC-ER, Type TC-LS

 Optional -40°C Arctic Grade PVC or TPN (LSZH) Jackets Direct Burial Sun Res IEEE1202/FT4 Oil Res I & II Jackets 110/150V AS/NZS

Specialty



Fieldbus Industrial Network Cable Conductor: 16-18 AWG

Stranded

Bare and Plated Copper,

• Insulation: XLPE HD-XLPE

HD-XLPE

HDPE

• Armors**: SWA ILA **DEKABON®** TPN (LSZH) GARDEX® DUAL ARMOR (SWA/

DEKABON®)

• Approval Standards***:

300V UL Type PLTC/ITC 300V UL Type ITC-HL 600V UL Type TC 600V UL Type MC or MC-HL Optional

IEC 61158-2 ICEA S-73-532: 300V, 600V BS EN 50288-7: 300V, 500V

-40°C Arctic Grade PVC or TPN (LSZH) Jackets Direct Burial Sun Res IEEE1202/FT4 Oil Res I & II Jackets Type PLTC/ITC-ER, Type TC-ER, Type TC-LS

Types of Armor

DEKABON®

Dekoron's innovative Dekabon® chemical and moisture barrier provides a gas and liquid-tight metallic seal around a cable, making it ideal for use in-ground and near gasses and liquids.



GARDEX®

This continuously-corrugated, welded aluminum armor is the most common method used to provide additional protection to cables used in hazardous locations. It offers great strength and a hermetic seal, eliminating the need for conduit.



SERVED WIRE ARMOR (SWA)

Consisting of numerous strands of galvanized steel wire which are wrapped (served) around the cable. SWA provides a low-cost method to greatly increase the cable's cut-through resistance without sacrificing flexibility.



INTERLOCK ARMOR

FF-844 H I

Metallic interlocked armor provides mechanical protection and crush resistance to the cable core. Armor is available in aluminum or galvanized steel.





*Shield Options:

Individual and Overall Aluminum/Polyester Tapes Metal Braid Overall Copper/Polyester Tape

**Armor Designations:

SWA - Served Wire Armor (Galvanized Steel) ILA - Interlocked Armor (Galvanized Steel or Aluminum)

DEKABON® - Moisture/Chemical Barrier GARDEX® - Continuous Corrugated Welded

***Approval Standards:

Not all approval standards are available for all conductor sizes and combinations of insulation, jacket, and armor types.

Applications for Marmon Electrical Products in Oil Refineries



Fire Rated Cable

- MOV's
- Fire Pumps
- Fire Alarms
- PA Systems

DEKORON® UNITHERM™

- Steam Transport & Condensate Lines
- Flare Gas Sampling Lines
- Heated Sample Lines
- CEMs

Dekoron Wire & Cable

- Process Measurement
- Process Control
- Hazardous Locations
- Communications



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Phone: 800-327-7625

www.r-scc.com/vitalink-fire-safety



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