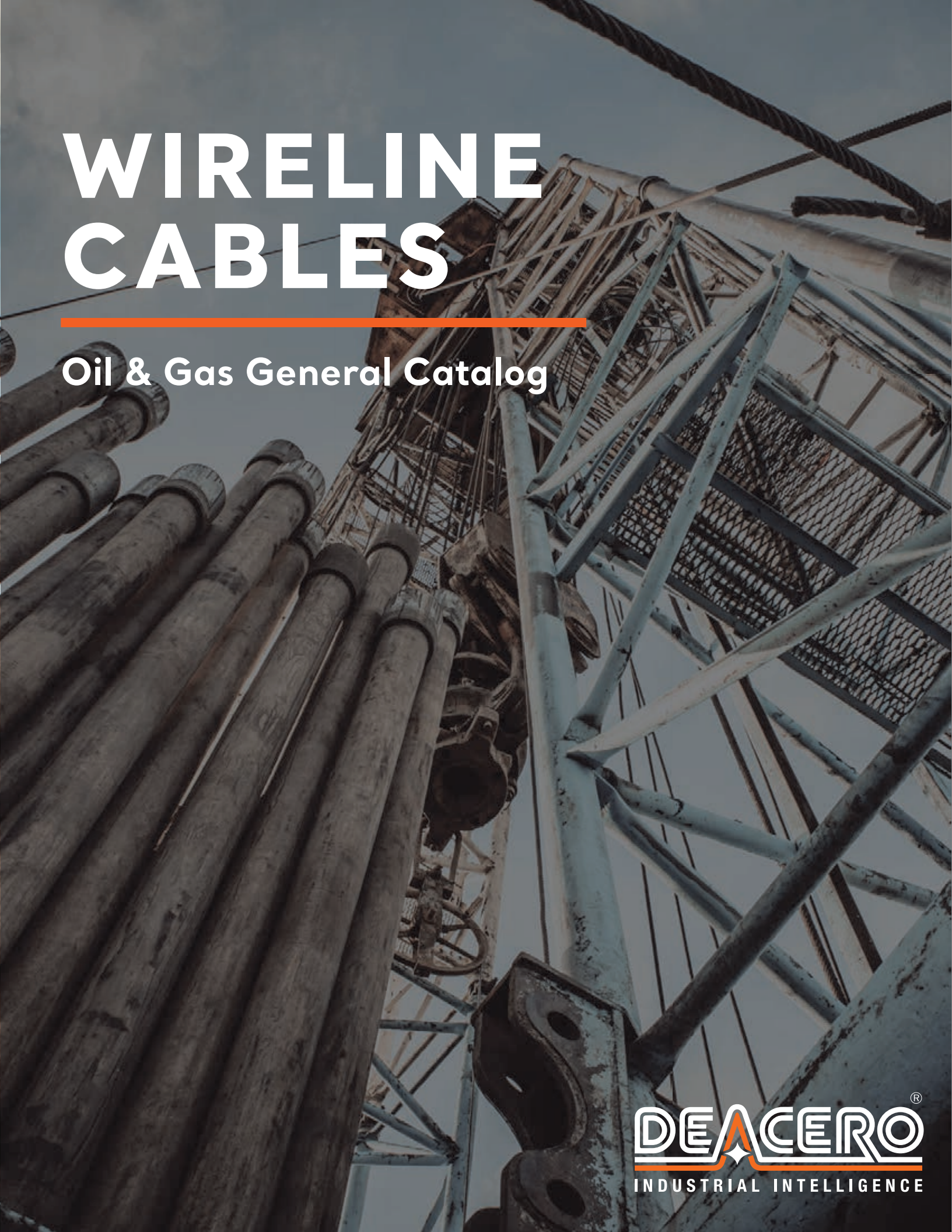


WIRELINE CABLES

Oil & Gas General Catalog

DEACERO®

INDUSTRIAL INTELLIGENCE

Content

About **DEACERO**

Deacero, one of the largest steel wire manufacturers in North America, presents this electromechanical cable product catalog for the petroleum exploration and production industry. DEACERO is a company with deep resources and a strong commitment to serve you with products and solutions that meet your electromechanical cable needs.

DEACERO is a proprietary developer of advanced, eco-friendly metal recycling and manufacturing

QUALITY

All employees of DEACERO are dedicated to provide the highest quality products in compliance with the electromechanical industry and with ISO-9001, and API 9A Q1.

DEACERO is a vertically integrated company with quality control standards throughout its entire supply chain; from steel scrap to finished goods.

KNOWLEDGE

DEACERO is a customer-oriented company with a knowledgeable technical sales staff and attentive customer service to give you product solutions on any need you have.

SERVICE

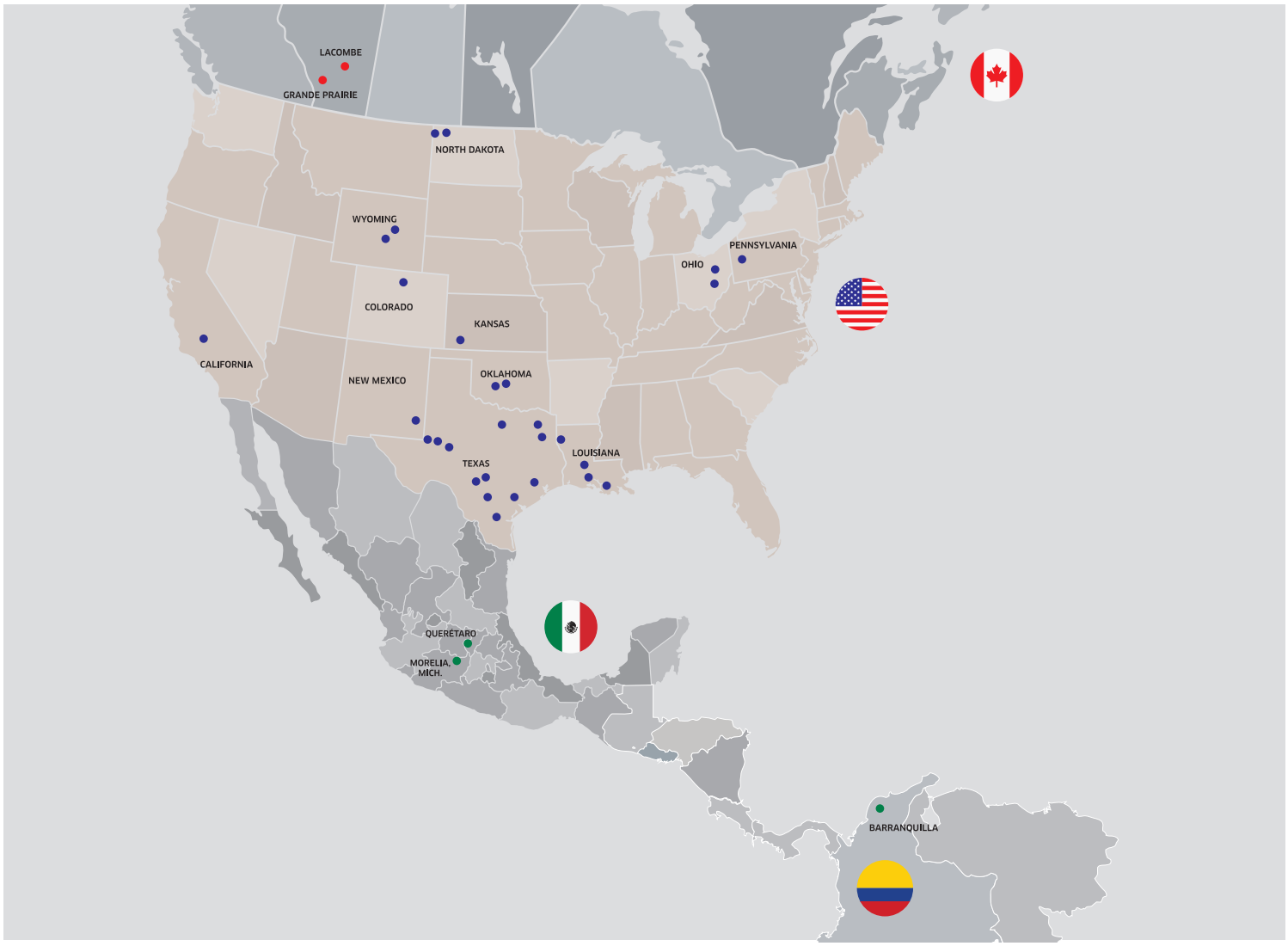
With distribution centers strategically located around the U.S., DEACERO is ready to supply promptly and efficiently to US and international customers.

TECHNOLOGY

DEACERO serves the industry with cables to cover the unique demands of corrosive environments and high temperatures by using special copper alloys, high temperature insulations and special anti-corrosive alloy armoring materials.

DEACERO® INDUSTRIAL INTELLIGENCE

Service Center **Locations**



CANADA

- **Central Conductor Cable**
  Lacombe
  Grande Prairie

USA

CALIFORNIA

- **Certex USA**
  Bakersfield

COLORADO

- **Axis Service**
  Berthoud

KANSAS

- **Horizon Cable Service. Inc.**
  Liberal

LOUSIANA

- **Bishop Lifting Wireline**
  Shreveport
- **Dura-Splice, Inc.**
  New Iberia
- **Maddens Cable Service**
  Houma
- **Wireline Repair Service Inc.**
  Lafayette

NEW MEXICO

- **Horizon Cable Service. Inc.**
  Hobbs

NORTH DAKOTA

- **Axis Service**
  Alexander
- **Horizon Cable Service, Inc.**
  Williston

OHIO

- **Cambridge Cable Service Co., Inc.**
  Byesville
- **Wayne's Wire Rope, LLC**
  Cambridge

OKLAHOMA

- **Horizon Cable Service, Inc.**
  Oklahoma City
- **The Line Shop Inc.**
  Oklahoma City

PENNSYLVANIA

- **Axis Service**
  Perryopolis

TEXAS

- **American Truck Fab, LLC**
  Godley
- **Bishop Lifting Wireline**
  Hurst
- **Bishop Lifting Wireline**
  Kilgore
- **Bishop Lifting Wireline**
  Midland
- **Bishop Lifting Wireline**
  Pleasanton
- **C.S.R., Inc.**
  Rosenberg
- **C.S.R., Inc.**
  Seguin
- **Gotcher's Wireline Service, Inc.**
  Odessa
- **Horizon Cable Service, Inc.**
  Corpus Christi
- **Horizon Cable Service, Inc.**
  Houston
- **Horizon Cable Service, Inc.**
  Longview
- **Horizon Cable Service, Inc.**
  Odessa
- **Horizon Cable Service, Inc.**
  Pleasanton

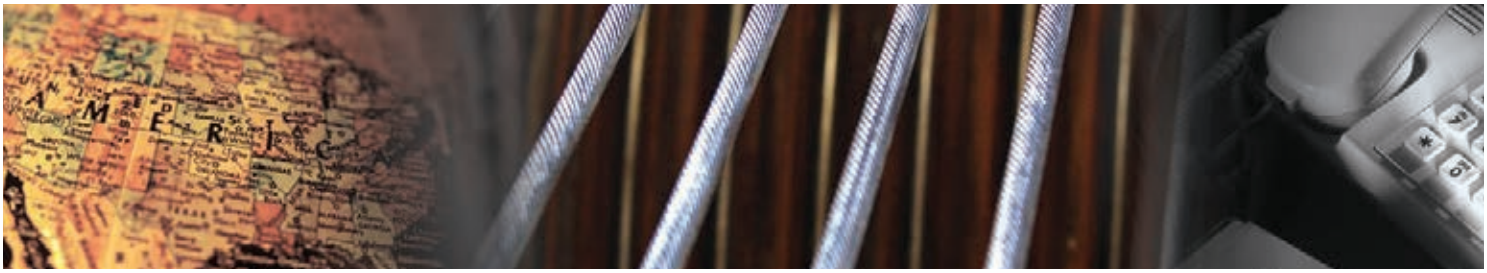
WYOMING

- **Horizon Cable Service, Inc.**
  Casper
- **Wizer Cable Service, LLC**
  Evansville

COLOMBIA

- **Zona Franca de Barranquilla**
  Barranquilla

Authorized **Distributors**



CANADA

- **Central Conductor Cable**
  721072 Range Road 53
  Grande Prairie, AB. T8X 0N5
  Phone: (403) 782-2238
  Contact: Bryce Edwards
  E-mail: bryce@centralconductorcable.com

- **Central Conductor Cable**
  3705 52nd Ave.
  Wolf Creek Industrial Park
  Lacombe, Alberta, Canada T4L 0B9
  Phone: (403) 782-2238
  Contact: Bryce Edwards
  E-mail: bryce@centralconductorcable.com

USA

CALIFORNIA

- **Certex**
  3506 Gilmore Ave.
  Bakersfield, CA 93308
  Phone: (661) 327-3016
  Contact: Mike Vasquez
  Email: mvasquez@certex.com

COLORADO

- **Axis Service**
  5186 Longs Peak Rd., Units A-D
  Berthoud, CO 80513
  Phone: (724) 763-2001
  Contact: Brent McManaway
  Email: brent.mcmanaway@axis-service.com

KANSAS

- **Horizon Cable Service. Inc.**
  623 Industrial Ave.
  Liberal, KS 67901
  Phone: (620) 309-8091
  Contact: Dean Savage
  Email: dsavage@horizoncableinc.com

LOUSIANA

- **Bishop Lifting Wireline**
  467 Montgomery St.
  Shreveport, LA 71107
  Phone: (903) 984-9691
  Contact: Elmer De Leon
  Email: Elmer.DeLeon@lifting.com

- **Dura-Splice, Inc.**
  3912 3rd St.
  New Iberia, LA 70560
  Phone: (337) 367-8840
  Contact: James Naquin
  Email: DuraSplice@aol.com

- **Maddens Cable Service**
  146 Clendenning Rd.
  Houma, LA 70363
  Phone: (985) 637-9418
  Contact: Jerry Madden
  Email: jerrymadden55@gmail.com

- **Wireline Repair Service Inc.**
  102 Exposition Drive
  Lafayette, LA 70508
  Phone: (337) 837-9330
  Contact: Brian Doiron
  Email: wirelinerepair@aol.com

NEW MEXICO

- **Horizon Cable Service. Inc.**
  2120 W. Marland
  Hobbs, NM 88240
  Phone: (575) 391-8257
  Contact: Robert Young
  Email: roberty@horizoncableinc.com

NORTH DAKOTA

- **Axis Service**
  14414 41st J Street NW
  Alexander, ND 58831
  Phone: (724) 717-4394
  Contact: Bob Singer
  Email: bob.singer@axis-service.com

- **Horizon Cable Service, Inc.**
  6115 16th Avenue West
  Williston, ND 58801
  Phone: (701) 774-1091
  Contact: Jeff Wendt
  Email: Jeff.horizoncable@coxinet.net

OHIO

- **Cambridge Cable Service Co., Inc.**
  58945 Country Club Rd.
  Byesville, OH 43723
  Phone: (740) 680-8532
  Contact: Kevin or Kory Deason
  Email: kgd57@cs.com

- **Wayne's Wire Rope, LLC**
  428 South 11 Street
  Cambridge, OH 43725
  Phone: (740) 255-5850
  Contact: Wayne Stevens
  Email: Wayne@Wayneswirerope.com

OKLAHOMA

- **Horizon Cable Service, Inc.**
  45 N. Cooley Dr.
  Oklahoma City, OK 73127
  Phone: (405) 789-7125
  Contact: Robert Sample
  Email: rsample@horizoncableinc.com

- **The Line Shop Inc.**
  5700 Southwest 11th St.
  Oklahoma City, OK 73128
  Phone: (405) 942-8828
  Contact: Cullen Falgout
  Email: cullen@thelineshop.net

PENNSYLVANIA

- **Axis Service**
  2973 Pittsburgh Road
  Perryopolis, PA 15473
  Phone: (724) 763-2001
  Contact: Brent McManaway
  Email: brent.mcmanaway@axis-service.com

TEXAS

- **American Truck Fab, LLC**
  8609 River Hills Rd.
  Godley, TX 76044
  Phone: (682) 244-2497
  Contact: Garret Bentley (817)602-6853
  Gary Harbin (817) 648-5790
  Email: americantruckfab@gmail.com

- **Bishop Lifting Wireline**
  1149 W Hurst Blvd.
  Hurst, TX 76053
  Phone: (903) 984-9691
  Contact: John Mauldin
  Email: john.mauldin@lifting.com

- **Bishop Lifting Wireline**
  853 Marvin A. Smith Rd
  Kilgore, TX 75662
  Phone: (903) 984-9691
  Contact: John Mauldin
  Email: john.mauldin@lifting.com

- **Bishop Lifting Wireline**
  7611 West Industrial Ave
  Midland, Tx 79706
  Phone: (432) 223-WIRE (9473)
  Contact: Randy Greenhill
  Email: randy.greenhill@lifting.com

- **Bishop Lifting Wireline**
  2282 US Highway 281 S
  Pleasanton, TX 78064
  Phone: (361) 701-8091
  Contact: Randy Greenhill
  Email: randy.greenhill@lifting.com

- **C.S.R., Inc.**
  1131 Blume Road
  Rosenberg, TX 77471
  Phone: (281) 342-4492
  Contact: Keith Nutt or Kent Nutt
  Email: keithnutt@csrusa.net
  Email: kentnutt@csrusa.net

- **C.S.R., Inc.**
  2200 Ilka Switch
  Seguin, TX 78155
  Phone: (281) 342-4492
  Contact: Keith Nutt or Kent Nutt
  Email: keithnutt@csrusa.net
  Email: kentnutt@csrusa.net

- **Gotcher's Wireline Service, Inc.**
  12115 County Road 128 West
  Odessa, TX 79760
  Phone: (432) 563-3512
  Contact: Robert Gotcher
  E-mail: gwsi@att.net

- **Horizon Cable Service, Inc.**
  1922 Suntide Road
  Corpus Christi, TX 78409
  Phone: (903) 234-1558
  Contact: Kurt Willoughby
  Email: kwilloughby@horizoncableinc.com

- **Horizon Cable Service, Inc.**
  1355 Sheffield Blvd.
  Houston, TX 77015
  Phone: (713) 325-2282
  Contact: Mike Peters
  Email: mpeters@horizoncableinc.com

- **Horizon Cable Service, Inc.**
  715 S. Eastman Rd.
  Longview, TX 75604
  Phone: (903) 234-1558
  Contact: Kyle Young
  Email: kyoung@horizoncableinc.com

- **Horizon Cable Service, Inc.**
  12215 WCR 129
  Odessa, TX 79765
  Phone: (432) 563-3331
  Contact: Ryan Young
  Email: ryany@horizoncableinc.com

- **Horizon Cable Service, Inc.**
  10599 E. SH-97
  Pleasanton, TX 78064
  Phone: (830) 399-7171
  Contact: Darrel Whalin
  Email: dwhalin@horizoncableinc.com

WYOMING

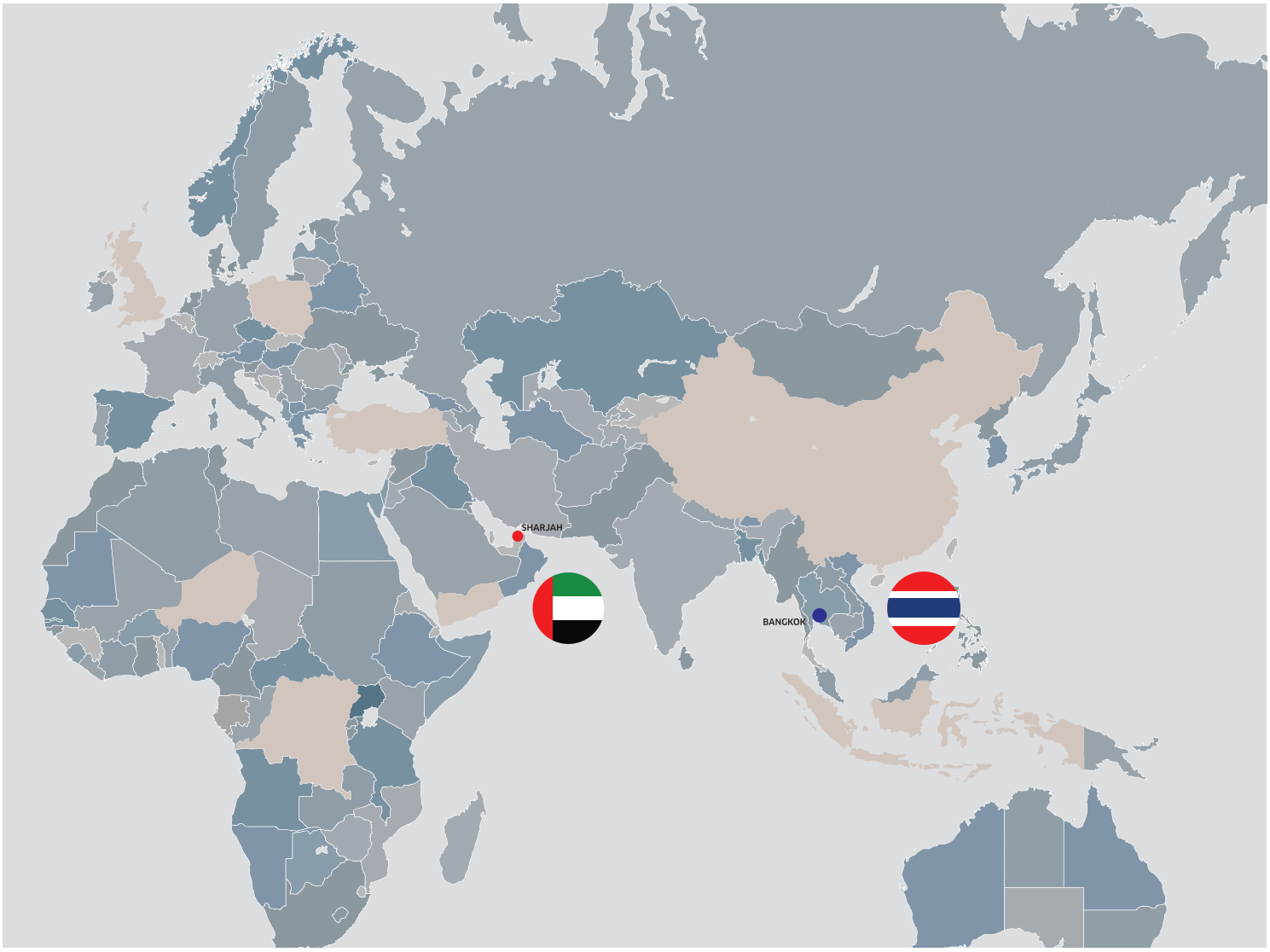
- **Horizon Cable Service, Inc.**
  3070 North 6 Mile Rd.
  Casper, WY 82609
  Phone: (307) 472-9100
  Contact: Stephanie Miller
  Email: smiller@horizoncableinc.com

- **Wizer Cable Services, LLC**
  13667 East Highway 2026
  Evansville, WY 82604
  Phone: (307) 472-3318
  Contact: Adam McLaughlin
  E-mail: wizercable@hotmail.com

COLOMBIA

- **Zona Franca de Barranquilla**
  Carrera 30 Avenida Hamburgo
  Barranquilla, Atlántico – Colombia
  CP 080004

Eastern Hemisphere Distributors & Sales Agents **Locations**



MIDDLE EAST

- **Petroleum Equipment International Middle East FZC**
  ELOB E-11F-29, Hamriyah Free Zone,
  Sharjah, United Arab Emirates
  Contact: Walid Ahmad
  Telephone: +1 971 50 9608014
  Tom Utz: +1 281 468 0155
  Dan Hayes: +1 832 623 4258
  Gonzalo Llaguno: +1 847 848 5201
  Emails: enquiries@pei-me.com
  sales @emcable.com
  Website: www.pei-me.com

FAR EAST

- **Thailine Resources Ltd.**
  444 Olympia Thai Plaza, 2nd Floor,
  Ratchadapisek Rd. Samsennok,
  Huay Kwang, Bangkok, Thailand 10310
  Contact: Mr. Big Poolprasert
  Telephone: +66-(0)2-513-2959
  Email: Inquiry@thailine.co.th
  Website: www.thailine.co.th

Cable Manufacturing **Information**

More than 20 years of oil and gas industry experience back up DEACERO's manufacturing processes on electromechanical cables.

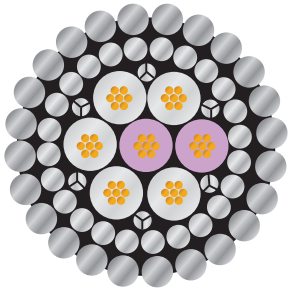
- All of our raw materials are rigorously inspected in our laboratory.
- Our standard cables use galvanized extra improved plow steel wire, with a tensile strength between 270 and 305 KSI.
- No conductor splices on any Deacero Wireline Cable.
- We do not allow any butt welds in the final drawing process or in the cable's outer armor.
- ISO 9001 plant certified, API Spec 9A certified Q1.
- All armor wires are preformed to make a better quality cable.
- A special material is used to block the migration of water or gas to the conductor.
- All our multiconductors are sealed with a semi-conductive cable tape to prevent gas or water infiltration.
- All armors are protected with a corrosion inhibitor.
- The diameter of all cables is measured with normal spooling tension for better accuracy of measurement.
- All of our wireline cables are tested electrically and mechanically to achieve and exceed published specifications.
- The electrical values are corrected to 20° C (68°F).
- The maximum working load recommended by Deacero is 55% of the catalog breaking strength.

Cable Specifications
Summary Table

Cable Type	Code	Size	Diameter	Breaking Strength	Weight	Armor Wires In/Out	Wire Strength In/Out	Stretch Coefficient	Conductor Resistance	Cap	Max. Temp.	Min. Sheave Diameter	Max. Volt.
		(")	(")	(lbf)	(lbs)		(lbs)	(ft/kft/klb)	(Ohms/Kft)	(pf/ft)	(°F)	(")	
MONOCONDUCTOR													
3/16" 185 HS (12/15)	1DTK	3/16	0.185	4,300	66	12/15	137/207	3.1	9.2	55	500	12	1000
7/32" 224 HS (15/15)	1XPL	7/32	0.224	5,900	96	15/15	137/294	2.2	3.9	62	300	14	1200
7/32" 224 HS (15/15)	1XTL	7/32	0.224	5,900	96	15/15	137/294	2.2	3.9	69	500	14	1200
7/32" 224 HS (12/18)	1ZPL	7/32	0.224	6,100	95	12/18	221/221	2.2	3.9	62	300	13	1200
7/32" 224 HS (12/18)	1ZTL	7/32	0.224	6,100	95	12/18	221/221	2.2	3.9	69	500	13	1200
7/32" 224 HS (12/18)	1ZETL	7/32	0.224	6,100	95	12/18	221/221	2.2	3.9	62	600	13	1200
7/32" 224 HS (12/18)	1ZFTL	7/32	0.224	6,100	95	12/18	221/221	2.2	3.9	62	500	13	1200
7/32" 224 S75 (12/18)	1ZATK	7/32	0.224	5,000	96	12/18	190/190	2.2	6.2	45	500	13	1200
7/32" 224 S77 (12/18)	1ZATK	7/32	0.224	5,200	96	12/18	195/195	2.2	6.2	45	500	13	1200
7/32" 224 MP35 (12/18)	1ZATK	7/32	0.224	5,400	100	12/18	210/210	2.1	6.2	45	500	13	1200
1/4" 258 HS (12/18)	1ZPL	1/4	0.258	8,200	125	12/18	294/294	1.6	3.9	52	300	14	1200
1/4" 258 HS (12/18)	1ZFTL	1/4	0.258	8,200	125	12/18	294/294	1.6	3.9	53	500	14	1200
9/32" 288 HS (12/18)	1ZPL	9/32	0.288	10,400	160	12/18	375/375	1.2	2.7	58	300	16	1500
9/32" 288 HS (12/18)	1ZTL	9/32	0.288	10,400	160	12/18	375/375	1.2	2.7	64	500	16	1500
9/32" 288 HS (12/18)	1ZETL	9/32	0.288	10,400	160	12/18	375/375	1.2	2.7	58	600	16	1500
9/32" 288 HS (12/18)	1ZFTL	9/32	0.288	10,400	160	12/18	375/375	1.2	2.7	58	500	16	1500
9/32" 288 HS (12/18)	1ZAL	9/32	0.288	10,400	160	12/18	375/375	1.2	2.7	54	500	16	1500
9/32" 288 HS (12/18)	1ZATL	9/32	0.288	10,400	160	12/18	375/375	1.2	2.7	58	550	16	1500
9/32" 288 S75 (12/18)	1ZATL	9/32	0.288	8,600	167	12/18	315/315	1.3	2.8	58	500	16	1500
9/32" 288 S77 (12/18)	1ZATL	9/32	0.288	8,900	167	12/18	320/320	1.3	2.8	58	500	16	1500
9/32" 288 MP35 (12/18)	1ZATL	9/32	0.288	9,400	173	12/18	347/347	1.2	2.8	58	500	16	1500
5/16" 322 HS (12/18)	1ZPL	5/16	0.322	12,400	195	12/18	451/451	1.0	2.7	49	300	18	1500
5/16" 322 HS (12/18)	1ZETL	5/16	0.322	12,400	195	12/18	451/451	1.0	2.7	48	600	18	1500
5/16" 322 HS (12/18)	1ZFTL	5/16	0.322	12,400	195	12/18	451/451	1.0	2.7	48	500	18	1500
5/16" 322 HS (12/18)	1ZATL	5/16	0.322	12,400	195	12/18	451/451	1.0	2.7	45	500	18	1500
5/16" 322 EHS (12/18)	1ZFTL	5/16	0.322	14,500	195	12/18	520/520	1.0	2.7	48	500	18	1500
5/16" 322 S75 (12/18)	1ZATL	5/16	0.322	10,700	206	12/18	380/380	1.1	2.8	48	500	18	1500
5/16" 322 S77 (12/18)	1ZATL	5/16	0.322	10,600	206	12/18	387/387	1.1	2.8	48	500	18	1500
5/16" 322 MP35 (12/18)	1ZATL	5/16	0.322	11,200	206	12/18	395/395	1.1	2.8	48	500	18	1500
3/8" 380 HS (12/18)	1ZPL	3/8	0.380	17,500	269	12/18	625/625	0.7	2.7	40	500	21	1500
3/8" 380 HS (12/18)	1ZFTL	3/8	0.380	17,500	269	12/18	625/625	0.7	2.7	40	500	21	1500
3/8" 380 HSLR (12/18)	1ZFTL	3/8	0.380	17,500	269	12/18	625/625	0.7	2.2	46	500	21	1500
7/16" 425 HS (12/18)	1ZPL	7/16	0.425	22,000	325	12/18	773/773	0.6	2.7	36	300	24	1500
7/16" 425 HSLR (12/18)	1ZFTL	7/16	0.425	22,000	335	12/18	773/773	0.6	1.8	44	500	24	1500
MULTICONDUCTOR													
3/16" 185 HS (18/18)	3STK	3/16	0.185	3,800	65	18/18	80/150	3.5	20.9	52	500	12	1000
3/8" 380 HS (18/18)	7SPK	3/8	0.380	15,500	261	18/18	322/625	0.8	9.2	72	300	21	1000
3/8" 380 HS (18/18)	7STK	3/8	0.380	15,500	261	18/18	322/625	0.8	9.2	79	500	21	1000
0.384" 384 HS (16/20)	3DPK	0.384	0.384	16,500	267	16/20	431/534	0.8	5.9	54	300	20	1200
0.384" 384 HS (16/20)	3DTK	0.384	0.384	16,500	267	16/20	431/534	0.8	5.9	60	500	20	1200
7/16" 426 HS (18/18)	7SPK	7/16	0.426	20,000	322	18/18	412/786	0.6	9.2	58	500	24	1000
7/16" 426 HS (18/18)	7SFTK	7/16	0.426	20,000	322	18/18	412/786	0.6	9.2	58	500	24	1000
15/32" 464 HS (24/24)	7RPK	15/32	0.464	20,000	341	24/24	329/526	0.6	9.2	41	300	20	1200
15/32" 464 HS (24/24)	7RFTK	15/32	0.464	20,000	341	24/24	329/526	0.6	9.2	42	500	20	1200
0.474" 474 HS (18/18)	7SPK	0.474	0.474	24,500	392	18/18	502/936	0.5	9.2	48	500	27	1000
0.474" 474 HS (18/18)	7SFTK	0.474	0.474	24,500	392	18/18	502/936	0.5	9.2	48	500	27	1000
0.490" 490 HS (20/20)	7DFTK	0.490	0.490	26,000	405	20/20	481/866	0.5	9.2	48	500	25	1200

How to Read a **Product Code**

464 • 7RPK • HS • S75



A Cable Diameter in Thousands of Inch.

B Number of Conductors.

C Armor Type.

Z. 12/18
Y. 12/12
X. 15/15
T. 11/15
S. 18/18
R. 24/24
D. Others

D Type of Electrical Insulation.

A. Teflon - PFA
P. Polypropylene
F. Teflon - FEP
T. Tefzel - ETFE
E. Teflon - 600° F

E Type of Copper Construction.

K. 7 wires
L. 19 wires
M. Others

F Strength Wire.

HS
EHS

G Type of Stainless Steel.

∅ Drawn Galvanized
S75
S77
MP35

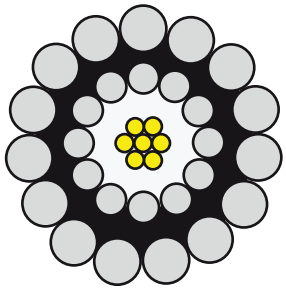
DEACERO® INDUSTRIAL INTELLIGENCE

3/16" 185 MONOCONDUCTOR HS (12/15)

4.70 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: ETFE.
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.



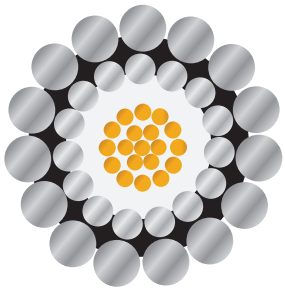
Construction Characteristics		English	Metric
Conductor – # 20 AWG, 7 x 0.0128"	dia.	0.038"	0.975 mm
Wall Thickness:		0.011"	0.287 mm
Insulation Conductors - OD:	dia.	0.061"	1.549 mm
Armor – Inner: 12 wires 0.0243"	dia.	0.125"	3.175 mm
Armor – Outer: 15 wires 0.0300"	dia.	0.185"	4.699 mm

Mechanical Characteristics		English	Metric
Weight in Air		66 lb/kft	98 kg/km
Weight in Water		56 lb/kft	83 kg/km
Minimum Breaking Strength, Ends Fixed		4,300 lbf	19.13 kN
Minimum Wire Break Strength (In/Out)		137/207 lbf	609/921 N
Maximum Working Load		2,365 lbf	10.52 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	12"	305 mm
Stretch Coefficient (Nominal)		3.1 ft/kft/klb	3.48 m/km/5kN
Outside Diameter	0.185"	+0.005" -0.002" / 4.70 mm	+0.127 mm -0.051 mm

Electrical Characteristics	English	Metric
1DTK		
Temperature Rating	1 hr 500° / 8 hr 450° / Cont. 400°	1 hr 260° / 8 hr 232° / Cont. 204°
Voltage Rating	1000 VDC	1000 VDC
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	9.2 Ω/kft	30.2 Ω/km
D.C. Armor Resistance at 68° F (20° C) (Maximum)	6.2 Ω/kft	20.3 Ω/km
Capacitance Conductor to Armor (Maximum)	55 pf/ft	180 pf/m
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft	5000 MΩ/km

7/32" 224 MONOCONDUCTOR HS (15/15)

5.69 mm



CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene (1XPL)
ETFE (1XTL)
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.

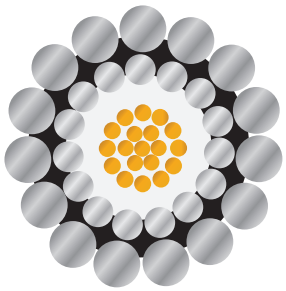
Construction Characteristics		English	Metric
Conductor – # 16 AWG, 19 x 0.0119"	dia.	0.060"	1.511 mm
Wall Thickness:		0.024"	0.616 mm
Insulation - OD:	dia.	0.108"	2.743 mm
Armor – Inner: 15 wires 0.0243"	dia.	0.152"	3.871 mm
Armor – Outer: 15 wires 0.0358"	dia.	0.224"	5.690 mm

Mechanical Characteristics		English	Metric
Weight in Air		96 lb/kft	143 kg/km
Weight in Water		82 lb/kft	122 kg/km
Minimum Breaking Strength, Ends Fixed		5,900 lbf	26.24 kN
Minimum Wire Break Strength (In/Out)		137/294 lbf	609/1308 N
Maximum Working Load		3,245 lbf	14.43 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	14"	356 mm
Stretch Coefficient (Nominal)		2 ft/kft/klb	2 m/km/5kN
Outside Diameter	0.224"	+0.005" -0.002"	5.69 mm +0.127 mm -0.051 mm

Electrical Characteristics	Temperature Rating 1 hr	8 hr	Cont.	Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
1XPL	300°	275°	250°	1200 VDC	3.9 Ω/kft	4.4 Ω/kft	62 pf/ft	1500 MΩ/kft
1XTL	500°	450°	400°	1200 VDC	3,9 Ω/kft	4.4 Ω/kft	69 pf/ft	1500 MΩ/kft
Metric System								
1XPL	149°	135°	121°	1200 VDC	12.8 Ω/km	14.4 Ω/km	203 pf/m	5000 MΩ/km
1XTL	260°	232°	204°	1200 VDC	12.8 Ω/km	14.4 Ω/km	226 pf/m	5000 MΩ/km

7/32" 224 MONOCONDUCTOR HS (12/18)

5.69 mm



CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene (1ZPL)
ETFE (1ZTL)
FEP/ETFE (1ZFTL)
ECCTREME (1ZETL)
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.

Construction Characteristics		English	Metric
Conductor – # 16 AWG, 19 x 0.0119"	dia.	0.060"	1.511 mm
Wall Thickness:		0.024"	0.616 mm
Insulation - OD:	dia.	0.108"	2.743 mm
Armor – Inner: 12 wires 0.031"	dia.	0.162"	4.115 mm
Armor – Outer: 18 wires 0.031"	dia.	0.224"	5.690 mm

Mechanical Characteristics		English	Metric
Weight in Air		95 lb/kft	142 kg/km
Weight in Water		81 lb/kft	121 kg/km
Minimum Breaking Strength, Ends Fixed		6,100 lbf	27.13 kN
Minimum Wire Break Strength (In/Out)		221/221 lbf	983/983 N
Maximum Working Load		3,355 lbf	14.92 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	13"	330 mm
Stretch Coefficient (Nominal)		2.2 ft/kft/klb	2.47 m/km/5kN
Outside Diameter	0.224"	+0.005" -0.002" / 5.69 mm	+0.127 mm -0.051 mm

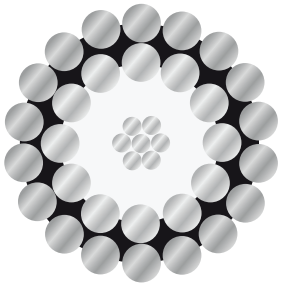
Electrical Characteristics	Temperature Rating 1 hr	8 hr	Cont.	Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
1ZPL	300°	275°	250°	1200 VDC	3.9 Ω/kft	4.3 Ω/kft	62 pf/ft	1500 MΩ/kft
1ZTL	500°	450°	400°	1200 VDC	3.9 Ω/kft	4.3 Ω/kft	69 pf/ft	1500 MΩ/kft
1ZFTL	500°	450°	400°	1200 VDC	3.9 Ω/kft	4.3 Ω/kft	62 pf/ft	1500 MΩ/kft
1ZETL	600°	550°	500°	1200 VDC	3.9 Ω/kft	4.3 Ω/kft	62 pf/ft	1500 MΩ/kft
Metric System								
1ZPL	149°	135°	121°	1200 VDC	12.8 Ω/km	14.1 Ω/km	203 pf/m	5000 MΩ/km
1ZTL	260°	232°	204°	1200 VDC	12.8 Ω/km	14.1 Ω/km	226 pf/m	5000 MΩ/km
1ZFTL	260°	232°	204°	1200 VDC	12.8 Ω/km	14.1 Ω/km	203 pf/m	5000 MΩ/km
1ZETL	315°	288°	260°	1200 VDC	12.8 Ω/km	14.1 Ω/km	203 pf/m	5000 MΩ/km

7/32" 224 MONOCONDUCTOR S75 (12/18)

5.69 mm

CONDUCTOR: Copper, Nickel Plated, Water Blocked.
INSULATION: PFA/ETFE.
ARMOR: SUPA 75 (UNS N08926)

Special Seal is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 18 AWG, 7 x 0.0159"	dia.	0.048"	1.212 mm
Wall Thickness:		0.030"	0.766 mm
Insulation - OD:	dia.	0.108"	2.743 mm
Armor – Inner: 12 wires 0.031"	dia.	0.162"	4.115 mm
Armor – Outer: 18 wires 0.031"	dia.	0.224"	5.690 mm

Mechanical Characteristics		English	Metric
Weight in Air		96 lb/kft	143 kg/km
Weight in Water		81 lb/kft	121 kg/km
Minimum Breaking Strength, Ends Fixed		5,000 lbf	22.24 kN
Minimum Wire Break Strength (In/Out)		190/190 lbf	845/845 N
Maximum Working Load		2,750 lbf	12.23 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	13"	330 mm
Stretch Coefficient (Nominal)		2.2 ft/kft/klb	2.47 m/km/5kN
Outside Diameter	0.224"	+0.005" -0.002"	5.69 mm +0.127 mm -0.051 mm

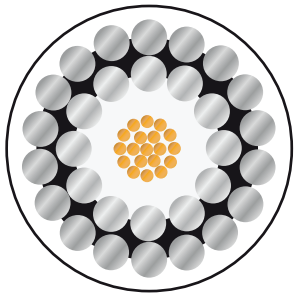
Electrical Characteristics	English	Metric
1ZATK		
Temperature Rating	1 hr 550° / 8 hr 500° / Cont. 450°	1 hr 260° / 8 hr 232° / Cont. 204°
Voltage Rating	1200 VDC	1200 VDC
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	6.2 Ω/kft	20.3 Ω/km
D.C. Armor Resistance at 68° F (20° C) (Maximum)	17.0 Ω/kft	55.8 Ω/km
Capacitance Conductor to Armor (Maximum)	45 pf/ft	148 pf/m
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft	5000 MΩ/km

7/32" 224 MONOCONDUCTOR S77 (12/18)

5.69 mm

CONDUCTOR: Copper, Nickel Plated, Water Blocked.
INSULATION: PFA/ETFE.
ARMOR: SUPA 77 (UNS R31277)

Special Seal is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 18 AWG, 7 x 0.0159"	dia.	0.048"	1.212 mm
Wall Thickness:		0.030"	0.766 mm
Insulation - OD:	dia.	0.108"	2.743 mm
Armor – Inner: 12 wires 0.031"	dia.	0.162"	4.115 mm
Armor – Outer: 18 wires 0.031"	dia.	0.224"	5.690 mm

Mechanical Characteristics		English	Metric
Weight in Air		96 lb/kft	143 kg/km
Weight in Water		81 lb/kft	121 kg/km
Minimum Breaking Strength, Ends Fixed		5,200 lbf	23.13 kN
Minimum Wire Break Strength (In/Out)		195/195 lbf	867/867 N
Maximum Working Load		2,860 lbf	12.72 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	13"	330 mm
Stretch Coefficient (Nominal)		2.2 ft/kft/klb	2.47 m/km/5kN
Outside Diameter	0.224"	+0.005" -0.002"	5.69 mm +0.127 mm -0.051 mm

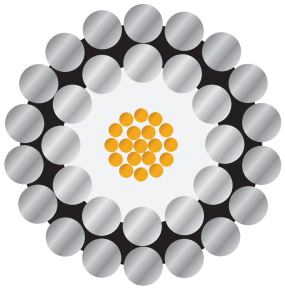
Electrical Characteristics	English			Metric		
1ZATK						
Temperature Rating	1 hr 550°	8 hr 500°	Cont. 450°	1 hr 260°	8 hr 232°	Cont. 204°
Voltage Rating	1200 VDC			1200 VDC		
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	6.2 Ω/kft			20.3 Ω/km		
D.C. Armor Resistance at 68° F (20° C) (Maximum)	22.0 Ω/kft			72.2 Ω/km		
Capacitance Conductor to Armor (Maximum)	45 pf/ft			148 pf/m		
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft			5000 MΩ/km		

7/32" 224 MONOCONDUCTOR MP35 (12/18)

5.69 mm

CONDUCTOR: Copper, Nickel Plated, Water Blocked.
INSULATION: PFA/ETFE.
ARMOR: MP35 (UNS R30035)

Special Seal is applied between armor layers.



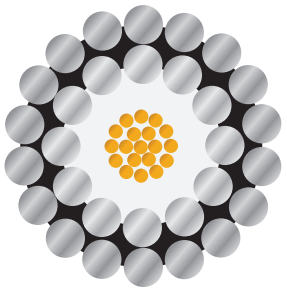
Construction Characteristics		English	Metric
Conductor – # 18 AWG, 7 x 0.0159"	dia.	0.048"	1.212 mm
Wall Thickness:		0.030"	0.766 mm
Insulation - OD:	dia.	0.108"	2.743 mm
Armor – Inner: 12 wires 0.031"	dia.	0.162"	4.115 mm
Armor – Outer: 18 wires 0.031"	dia.	0.224"	5.690 mm

Mechanical Characteristics		English	Metric
Weight in Air		100 lb/kft	149 kg/km
Weight in Water		86 lb/kft	128 kg/km
Minimum Breaking Strength, Ends Fixed		5,400 lbf	24.02 kN
Minimum Wire Break Strength (In/Out)		210/210 lbf	934/934 N
Maximum Working Load		2,970 lbf	13.21 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	13"	330 mm
Stretch Coefficient (Nominal)		2.1 ft/kft/klb	2.36 m/km/5kN
Outside Diameter	0.224"	+0.005" / -0.002"	5.69 mm +0.127 mm / -0.051 mm

Electrical Characteristics	English	Metric
1ZATK		
Temperature Rating	1 hr 550° / 8 hr 500° / Cont. 450°	1 hr 260° / 8 hr 232° / Cont. 204°
Voltage Rating	1200 VDC	1200 VDC
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	6.2 Ω/kft	20.3 Ω/km
D.C. Armor Resistance at 68° F (20° C) (Maximum)	22.0 Ω/kft	72.2 Ω/km
Capacitance Conductor to Armor (Maximum)	45 pf/ft	148 pf/m
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft	5000 MΩ/km

1/4" 258 MONOCONDUCTOR HS (12/18)

6.55 mm



CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene (1ZPL)
ETFE (1ZFTL)
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.

Construction Characteristics		English	Metric
Conductor – # 16 AWG, 19 x 0.0119"	dia.	0.060"	1.511 mm
Wall Thickness:		0.032"	0.806 mm
Insulation - OD:	dia.	0.123"	3.124 mm
Armor – Inner: 12 wires 0.0358"	dia.	0.186"	4.735 mm
Armor – Outer: 18 wires 0.0358"	dia.	0.258"	6.553 mm

Mechanical Characteristics		English	Metric
Weight in Air		125 lb/kft	186 kg/km
Weight in Water		102 lb/kft	152 kg/km
Minimum Breaking Strength, Ends Fixed		8,200 lbf	36.47 kN
Minimum Wire Break Strength (In/Out)		294/294 lbf	1308/1308 N
Maximum Working Load		4,510 lbf	20.06 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	14"	363 mm
Stretch Coefficient (Nominal)		1.6 ft/kft/klb	1.80 m/km/5kN
Outside Diameter	0.258"	+0.005" -0.002" / 6.55 mm	+0.127 mm -0.051 mm

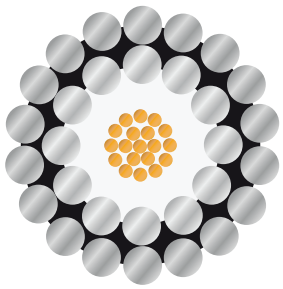
Electrical Characteristics	Temperature Rating			Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
	1 hr	8 hr	Cont.					
1ZPL	300°	275°	250°	1200 VDC	3.9 Ω/kft	3.3 Ω/kft	52 pf/ft	1500 MΩ/kft
1ZFTL	500°	450°	400°	1200 VDC	3.9 Ω/kft	3.3 Ω/kft	53 pf/ft	1500 MΩ/kft
Metric System								
1ZPL	149°	135°	121°	1200 VDC	12.8 Ω/km	10.8 Ω/km	171 pf/m	5000 MΩ/km
1ZFTL	260°	232°	204°	1200 VDC	12.8 Ω/km	10.8 Ω/km	174 pf/m	5000 MΩ/km

9/32" 288 MONOCONDUCTOR HS (12/18)

7.32 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene (1ZPL)
ETFE (1ZTL)
ECCTREME (1ZETL)
FEP/ETFE (1ZFTL)
PFA/ETFE (1ZATL)
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.033"	0.826 mm
Insulation - OD:	dia.	0.136"	3.454 mm
Armor – Inner: 12 wires 0.0405"	dia.	0.207"	5.258 mm
Armor – Outer: 18 wires 0.0405"	dia.	0.288"	7.315 mm

Mechanical Characteristics		English	Metric
Weight in Air		160 lb/kft	238 kg/km
Weight in Water		138 lb/kft	205 kg/km
Minimum Breaking Strength, Ends Fixed		10,400 lbf	46.26 kN
Minimum Wire Break Strength (In/Out)		375/375 lbf	1668/1668 N
Maximum Working Load		5,720 lbf	25.44 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	16"	406 mm
Stretch Coefficient (Nominal)		1.2 ft/kft/klb	1.35 m/km/5kN
Outside Diameter	0.288"	+0.005" -0.002"	7.32 mm +0.127 mm -0.051 mm

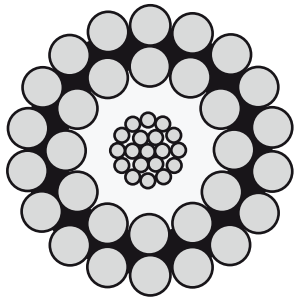
Electrical Characteristics	Temperature Rating			Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
	1 hr	8 hr	Cont.					
1ZPL	300°	275°	250°	1500 VDC	2.7 Ω/kft	2.7 Ω/kft	58 pf/ft	1500 MΩ/kft
1ZTL	500°	450°	400°	1500 VDC	2.7 Ω/kft	2.7 Ω/kft	64 pf/ft	1500 MΩ/kft
1ZETL	600°	550°	500°	1500 VDC	2.7 Ω/kft	2.7 Ω/kft	58 pf/ft	1500 MΩ/kft
1ZFTL	500°	450°	400°	1500 VDC	2.7 Ω/kft	2.7 Ω/kft	58 pf/ft	1500 MΩ/kft
1ZAL	500°	450°	400°	1500 VDC	2.7 Ω/kft	2.7 Ω/kft	54 pf/ft	1500 MΩ/kft
1ZATL	500°	450°	400°	1500 VDC	2.7 Ω/kft	2.7 Ω/kft	58 pf/ft	1500 MΩ/kft
Metric System								
1ZPL	149°	135°	121°	1500 VDC	8.9 Ω/km	8.9 Ω/km	190 pf/m	5000 MΩ/km
1ZTL	260°	232°	204°	1500 VDC	8.9 Ω/km	8.9 Ω/km	210 pf/m	5000 MΩ/km
1ZETL	315°	288°	260°	1500 VDC	8.9 Ω/km	8.9 Ω/km	190 pf/m	5000 MΩ/km
1ZFTL	260°	232°	204°	1500 VDC	8.9 Ω/km	8.9 Ω/km	190 pf/m	5000 MΩ/km
1ZAL	260°	232°	204°	1500 VDC	8.9 Ω/km	8.9 Ω/km	177 pf/m	5000 MΩ/km
1ZATL	260°	232°	204°	1500 VDC	8.9 Ω/km	8.9 Ω/km	190 pf/m	5000 MΩ/km

9/32" 288 MONOCONDUCTOR S75 (12/18)

7.32 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: PFA/ETFE.
ARMOR: SUPA 75 (UNS N08926)

Special Seal is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.033"	0.826 mm
Insulation - OD:	dia.	0.136"	3.454 mm
Armor – Inner: 12 wires 0.0405"	dia.	0.207"	5.258 mm
Armor – Outer: 18 wires 0.0405"	dia.	0.288"	7.315 mm

Mechanical Characteristics		English		Metric
Weight in Air		167 lb/kft		248 kg/km
Weight in Water		142 lb/kft		211 kg/km
Minimum Breaking Strength, Ends Fixed		8,600 lbf		38.25 kN
Minimum Wire Break Strength (In/Out)		315/315 lbf		1401/1401 N
Maximum Working Load		4,730 lbf		21.04 kN
Temperature Rating (Maximum)		500°F		260°C
Suggested Minimum Sheave	dia.	16"		406 mm
Stretch Coefficient (Nominal)		1.3 ft/kft/klb		1.46 m/km/5kN
Outside Diameter	0.288"	+0.005" -0.002"	7.32 mm	+0.127 mm -0.051 mm

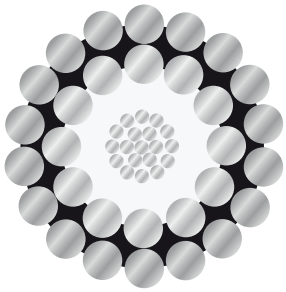
Electrical Characteristics	English			Metric		
1ZATL						
Temperature Rating	1 hr 550°	8 hr 500°	Cont. 450°	1 hr 260°	8 hr 232°	Cont. 204°
Voltage Rating	1500 VDC			1500 VDC		
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	2.8 Ω/kft			9.2 Ω/km		
D.C. Armor Resistance at 68° F (20° C) (Maximum)	10.0 Ω/kft			32.8 Ω/km		
Capacitance Conductor to Armor (Maximum)	58 pf/ft			190 pf/m		
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft			5000 MΩ/km		

9/32" 288 MONOCONDUCTOR S77 (12/18)

7.32 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: PFA/ETFE.
ARMOR: SUPA 75 (UNS N08926)

Special Seal is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.033"	0.826 mm
Insulation - OD:	dia.	0.136"	3.454 mm
Armor – Inner: 12 wires 0.0405"	dia.	0.207"	5.258 mm
Armor – Outer: 18 wires 0.0405"	dia.	0.288"	7.315 mm

Mechanical Characteristics		English		Metric
Weight in Air		167 lb/kft		248 kg/km
Weight in Water		142 lb/kft		211 kg/km
Minimum Breaking Strength, Ends Fixed		8,900 lbf		39.59 kN
Minimum Wire Break Strength (In/Out)		320/320 lbf		1423/1423 N
Maximum Working Load		4,895 lbf		21.77 kN
Temperature Rating (Maximum)		500°F		260°C
Suggested Minimum Sheave	dia.	16"		406 mm
Stretch Coefficient (Nominal)		1.3 ft/kft/klb		1.46 m/km/5kN
Outside Diameter	0.288"	+0.005" -0.002"	7.32 mm	+0.127 mm -0.051 mm

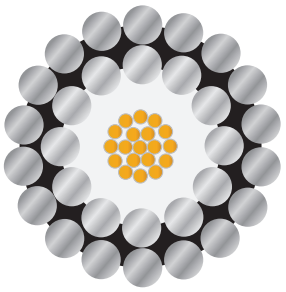
Electrical Characteristics	English			Metric		
1ZATL						
Temperature Rating	1 hr 550°	8 hr 500°	Cont. 450°	1 hr 260°	8 hr 232°	Cont. 204°
Voltage Rating	1500 VDC			1500 VDC		
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	2.8 Ω/kft			9.2 Ω/km		
D.C. Armor Resistance at 68° F (20° C) (Maximum)	12.8 Ω/kft			42.0 Ω/km		
Capacitance Conductor to Armor (Maximum)	58 pf/ft			190 pf/m		
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft			5000 MΩ/km		

9/32" 288 MONOCONDUCTOR MP35 (12/18)

7.32 mm

CONDUCTOR: Copper, Nickel Plated, Water Blocked.
INSULATION: PFA/ETFE.
ARMOR: MP35 (UNS R30035)

Special Seal is applied between armor layers.



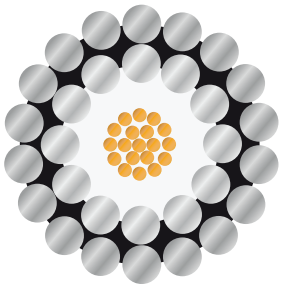
Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.033"	0.826 mm
Insulation - OD:	dia.	0.136"	3.454 mm
Armor – Inner: 12 wires 0.0405"	dia.	0.207"	5.258 mm
Armor – Outer: 18 wires 0.0405"	dia.	0.288"	7.315 mm

Mechanical Characteristics		English	Metric
Weight in Air		173 lb/kft	258 kg/km
Weight in Water		148 lb/kft	220 kg/km
Minimum Breaking Strength, Ends Fixed		9,400 lbf	41.81 kN
Minimum Wire Break Strength (In/Out)		347/347 lbf	1544/1544 N
Maximum Working Load		5,170 lbf	23.00 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	16"	406 mm
Stretch Coefficient (Nominal)		1.2 ft/kft/klb	1.35 m/km/5kN
Outside Diameter	0.288"	+0.005" -0.002" 7.32 mm	+0.127 mm -0.051 mm

Electrical Characteristics	English	Metric
1ZATL		
Temperature Rating	1 hr 550° 8 hr 500° Cont. 450°	1 hr 260° 8 hr 232° Cont. 204°
Voltage Rating	1500 VDC	1500 VDC
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	2.8 Ω/kft	9.2 Ω/km
D.C. Armor Resistance at 68° F (20° C) (Maximum)	13.0 Ω/kft	42.6 Ω/km
Capacitance Conductor to Armor (Maximum)	58 pf/ft	190 pf/m
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft	5000 MΩ/km

5/16" 322 MONOCONDUCTOR HS (12/18)

7.32 mm



CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene (1ZPL)
ECCTREME (1ZETL)
FEP/ETFE (1ZFTL)
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.

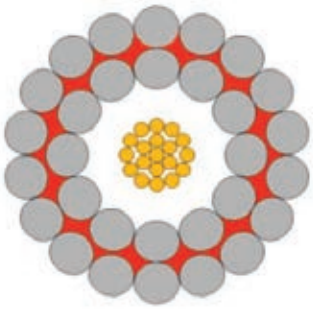
Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.042"	1.067 mm
Insulation - OD:	dia.	0.155"	3.937 mm
Armor – Inner: 12 wires 0.0445"	dia.	0.233"	5.918 mm
Armor – Outer: 18 wires 0.0445"	dia.	0.322"	8.179 mm

Mechanical Characteristics		English	Metric
Weight in Air		195 lb/kft	290 kg/km
Weight in Water		165 lb/kft	246 kg/km
Minimum Breaking Strength, Ends Fixed		12,400 lbf	55.16 kN
Minimum Wire Break Strength (In/Out)		451/451 lbf	2006/2006 N
Maximum Working Load		6,820 lbf	30.34 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	18"	457 mm
Stretch Coefficient (Nominal)		1 ft/kft/klb	1.12 m/km/5kN
Outside Diameter	0.322"	+0.005" / -0.002"	8.18 mm +0.127 / -0.051 mm

Electrical Characteristics	Temperature Rating			Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
	1 hr	8 hr	Cont.					
1ZPL	300°	275°	250°	1500 VDC	2.7 Ω/kft	2.1 Ω/kft	49 pf/ft	1500 MΩ/kft
1ZETL	600°	550°	500°	1500 VDC	2.7 Ω/kft	2.1 Ω/kft	48 pf/ft	1500 MΩ/kft
1ZFTL	500°	450°	400°	1500 VDC	2.7 Ω/kft	2.1 Ω/kft	48 pf/ft	1500 MΩ/kft
1ZATL	500°	450°	400°	1500 VDC	2.7 Ω/kft	2.1 Ω/kft	45 pf/ft	1500 MΩ/kft
Metric System								
1ZPL	149°	135°	121°	1500 VDC	8.9 Ω/km	6.9 Ω/km	161 pf/m	5000 MΩ/km
1ZETL	315°	288°	260°	1500 VDC	8.9 Ω/km	6.9 Ω/km	157 pf/m	5000 MΩ/km
1ZFTL	260°	232°	204°	1500 VDC	8.9 Ω/km	6.9 Ω/km	157 pf/m	5000 MΩ/km
1ZATL	260°	232°	204°	1500 VDC	8.9 Ω/km	6.9 Ω/km	148 pf/m	5000 MΩ/km

5/16" 322 MONOCONDUCTOR EHS (12/18)

8.18 mm



CONDUCTOR: Copper, Water Blocked.
INSULATION: FEP/ETFE.
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.

Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.042"	1.067 mm
Insulation - OD:	dia.	0.155"	3.937 mm
Armor – Inner: 12 wires 0.0445"	dia.	0.233"	5.918 mm
Armor – Outer: 18 wires 0.0445"	dia.	0.322"	8.179 mm

Mechanical Characteristics		English		Metric
Weight in Air		195 lb/kft		290 kg/km
Weight in Water		165 lb/kft		245 kg/km
Minimum Breaking Strength, Ends Fixed		14,500 lbf		64.50 kN
Minimum Wire Break Strength (In/Out)		520/520 lbf		2313/2313 N
Maximum Working Load		7,975 lbf		35.47 kN
Temperature Rating (Maximum)		500°F		260°C
Suggested Minimum Sheave	dia.	18"		457 mm
Stretch Coefficient (Nominal)		1 ft/kft/klb		1.12 m/km/5kN
Outside Diameter	0.322"	+0.005" -0.002"	8.18 mm	+0.127 mm -0.051 mm

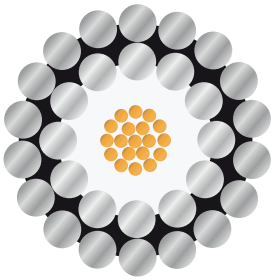
Electrical Characteristics	English			Metric		
1ZFTL						
Temperature Rating	1 hr 500°	8 hr 450°	Cont. 400°	1 hr 260°	8 hr 232°	Cont. 204°
Voltage Rating	1500 VDC			1500 VDC		
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	2.7 Ω/kft			8.9 Ω/km		
D.C. Armor Resistance at 68° F (20° C) (Maximum)	2.1 Ω/kft			6.9 Ω/km		
Capacitance Conductor to Armor (Maximum)	48 pf/ft			157 pf/m		
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft			5000 MΩ/km		

5/16" 322 MONOCONDUCTOR S75 (12/18)

8.18 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: PFA/ETFE.
ARMOR: SUPA 75 (UNS N08926)

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.042"	1.067 mm
Insulation - OD:	dia.	0.155"	3.937 mm
Armor – Inner: 12 wires 0.0445"	dia.	0.233"	5.918 mm
Armor – Outer: 18 wires 0.0445"	dia.	0.322"	8.179 mm

Mechanical Characteristics		English	Metric
Weight in Air		206 lb/kft	307 kg/km
Weight in Water		176 lb/kft	262 kg/km
Minimum Breaking Strength, Ends Fixed		10,700 lbf	47.59 kN
Minimum Wire Break Strength (In/Out)		380/380 lbf	1690/1690 N
Maximum Working Load		5,885 lbf	26.18 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	18"	457 mm
Stretch Coefficient (Nominal)		1.1 ft/kft/klb	1.24 m/km/5kN
Outside Diameter	0.322"	+0.005" -0.002"	8.18 mm +0.127 mm -0.051 mm

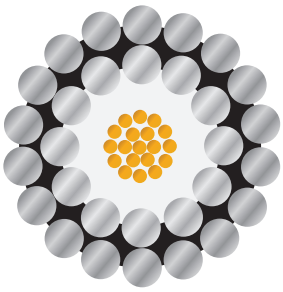
Electrical Characteristics	English	Metric
1ZATL		
Temperature Rating	1 hr 500° 8 hr 450° Cont. 400°	1 hr 260° 8 hr 232° Cont. 204°
Voltage Rating	1500 VDC	1500 VDC
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	2.8 Ω/kft	9.2 Ω/km
D.C. Armor Resistance at 68° F (20° C) (Maximum)	8.0 Ω/kft	26.2 Ω/km
Capacitance Conductor to Armor (Maximum)	48 pf/ft	157 pf/m
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft	5000 MΩ/km

5/16" 322 MONOCONDUCTOR S77 (12/18)

8.18 mm

CONDUCTOR: Copper, Nickel Plated, Water Blocked.
INSULATION: PFA/ETFE.
ARMOR: SUPA 75 (UNS S31277)

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.042"	1.067 mm
Insulation - OD:	dia.	0.155"	3.937 mm
Armor – Inner: 12 wires 0.0445"	dia.	0.233"	5.918 mm
Armor – Outer: 18 wires 0.0445"	dia.	0.322"	8.179 mm

Mechanical Characteristics		English	Metric
Weight in Air		206 lb/kft	307 kg/km
Weight in Water		176 lb/kft	262 kg/km
Minimum Breaking Strength, Ends Fixed		10,600 lbf	47.15 kN
Minimum Wire Break Strength (In/Out)		387/387 lbf	1721/1721 N
Maximum Working Load		5,830 lbf	25.93 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	18"	457 mm
Stretch Coefficient (Nominal)		1.1 ft/kft/klb	1.24 m/km/5kN
Outside Diameter	0.322"	+0.005" -0.002" / 8.18 mm	+0.127 mm -0.051 mm

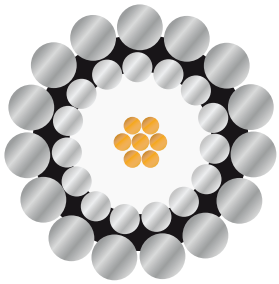
Electrical Characteristics	English	Metric
1ZATL		
Temperature Rating	1 hr 550° / 8 hr 500° / Cont. 450°	1 hr 260° / 8 hr 232° / Cont. 204°
Voltage Rating	1500 VDC	1500 VDC
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	2.8 Ω/kft	9.2 Ω/km
D.C. Armor Resistance at 68° F (20° C) (Maximum)	10.4 Ω/kft	34.1 Ω/km
Capacitance Conductor to Armor (Maximum)	48 pf/ft	157 pf/m
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft	5000 MΩ/km

5/16" 322 MONOCONDUCTOR MP35 (12/18)

8.18 mm

CONDUCTOR: Copper, Nickel Plated, Water Blocked.
INSULATION: PFA/ETFE.
ARMOR: MP35 (UNS R30035)

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.042"	1.067 mm
Insulation - OD:	dia.	0.155"	3.937 mm
Armor – Inner: 12 wires 0.0445"	dia.	0.233"	5.918 mm
Armor – Outer: 18 wires 0.0445"	dia.	0.322"	8.179 mm

Mechanical Characteristics		English	Metric
Weight in Air		206 lb/kft	307 kg/km
Weight in Water		176 lb/kft	262 kg/km
Minimum Breaking Strength, Ends Fixed		11,200 lbf	49.82 kN
Minimum Wire Break Strength (In/Out)		395/395 lbf	1757/1757 N
Maximum Working Load		6,160 lbf	27.40 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	18"	457 mm
Stretch Coefficient (Nominal)		1 ft/kft/klb	1.12 m/km/5kN
Outside Diameter	0.322"	+0.005" / -0.002"	8.18 mm +0.127 mm / -0.051 mm

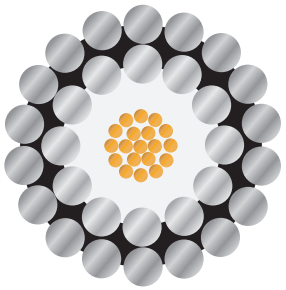
Electrical Characteristics	English	Metric
1ZATL		
Temperature Rating	1 hr 550° / 8 hr 500° / Cont. 450°	1 hr 260° / 8 hr 232° / Cont. 204°
Voltage Rating	1500 VDC	1500 VDC
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	2.8 Ω/kft	9.2 Ω/km
D.C. Armor Resistance at 68° F (20° C) (Maximum)	11.0 Ω/kft	36.1 Ω/km
Capacitance Conductor to Armor (Maximum)	48 pf/ft	157 pf/m
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft	5000 MΩ/km

3/8" 380 MONOCONDUCTOR HS (12/18)

9.65 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene (1ZPL)
ARMOR: FEP/ETFE (1ZFTL)
Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.056"	1.422 mm
Insulation - OD:	dia.	0.183"	4.648 mm
Armor – Inner: 12 wires 0.0525"	dia.	0.275"	6.985 mm
Armor – Outer: 18 wires 0.0525"	dia.	0.380"	9.652 mm

Mechanical Characteristics		English	Metric
Weight in Air		269 lb/kft	400 kg/km
Weight in Water		227 lb/kft	338 kg/km
Minimum Breaking Strength, Ends Fixed		17,500 lbf	77.84 kN
Minimum Wire Break Strength (In/Out)		625/625 lbf	2780/2780 N
Maximum Working Load		9,625 lbf	42.81 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	21"	533 mm
Stretch Coefficient (Nominal)		0.7 ft/kft/klb	0.79 m/km/5kN
Outside Diameter	0.380"	+0.005" -0.002" / 9.65 mm	+0.127 mm -0.051 mm

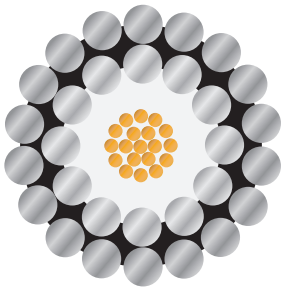
Electrical Characteristics	Temperature Rating 1 hr	8 hr	Cont.	Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
1ZPL	300°	275°	250°	1500 VDC	2.7 Ω/kft	1.5 Ω/kft	40 pf/ft	1500 MΩ/kft
1ZFTL	500°	450°	400°	1500 VDC	2.7 Ω/kft	1.5 Ω/kft	40 pf/ft	1500 MΩ/kft
Metric System								
1ZPL	149°	135°	121°	1500 VDC	8.9 Ω/km	4.9 Ω/km	131 pf/m	5000 MΩ/km
1ZFTL	260°	232°	204°	1500 VDC	8.9 Ω/km	4.9 Ω/km	131 pf/m	5000 MΩ/km

3/8" 380 MONOCONDUCTOR HSLR (12/18)

9.65

CONDUCTOR: Copper, Water Blocked.
INSULATION: FEP/ETFE
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 13 AWG, 19 x 0.0159"	dia.	0.080"	2.019 mm
Wall Thickness:		0.052"	1.314 mm
Insulation - OD:	dia.	0.183"	4.648 mm
Armor – Inner: 12 wires 0.0525"	dia.	0.275"	6.985 mm
Armor – Outer: 18 wires 0.0525"	dia.	0.380"	9.652 mm

Mechanical Characteristics		English		Metric
Weight in Air		269 lb/kft		400 kg/km
Weight in Water		227 lb/kft		338 kg/km
Minimum Breaking Strength, Ends Fixed		17,500 lbf		77.84 kN
Minimum Wire Break Strength (In/Out)		625/625 lbf		2780/2780 N
Maximum Working Load		9,625 lbf		42.81 kN
Temperature Rating (Maximum)		500°F		260°C
Suggested Minimum Sheave	dia.	21"		533 mm
Stretch Coefficient (Nominal)		0.7 ft/kft/klb		0.79 m/km/5kN
Outside Diameter	0.380"	+0.005" -0.002"	9.65 mm	+0.127 mm -0.051 mm

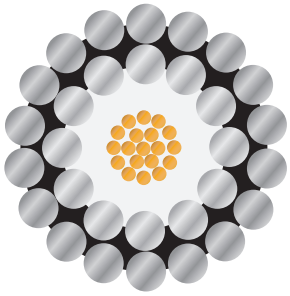
Electrical Characteristics	English			Metric		
1ZFTL						
Temperature Rating	1 hr 500°	8 hr 450°	Cont. 400°	1 hr 260°	8 hr 232°	Cont. 204°
Voltage Rating	1500 VDC			1500 VDC		
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	2.2 Ω/kft			7.2 Ω/kft		
D.C. Armor Resistance at 68° F (20° C) (Maximum)	1.5 Ω/kft			4.9 Ω/kft		
Capacitance Conductor to Armor (Maximum)	46 pf/ft			151 pf/ft		
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft			1500 MΩ/km		

7/16" 425 MONOCONDUCTOR HS (12/18)

10.80 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 15 AWG, 19 x 0.0142"	dia.	0.071"	1.803 mm
Wall Thickness:		0.067"	1.702 mm
Insulation - OD:	dia.	0.205"	5.207 mm
Armor – Inner: 12 wires 0.0585"	dia.	0.308"	7.823 mm
Armor – Outer: 18 wires 0.0585"	dia.	0.425"	10.795 mm

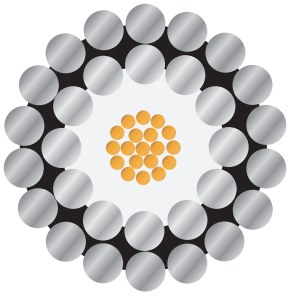
Mechanical Characteristics		English	Metric
Weight in Air		325 lb/kft	484 kg/km
Weight in Water		273 lb/kft	406 kg/km
Minimum Breaking Strength, Ends Fixed		22,000 lbf	97.86 kN
Minimum Wire Break Strength (In/Out)		773/773 lbf	3438/3438 N
Maximum Working Load		12,100 lbf	53.82 kN
Temperature Rating (Maximum)		300°F	149°C
Suggested Minimum Sheave	dia.	24"	610 mm
Stretch Coefficient (Nominal)		0.6 ft/kft/klb	0.67 m/km/5kN
Outside Diameter	0.425"	+0.005" / -0.002"	10.80 mm +0.127 / -0.051 mm

Electrical Characteristics	English	Metric
1ZPL		
Temperature Rating	1 hr 300° / 8 hr 275° / Cont. 250°	1 hr 149° / 8 hr 135° / Cont. 121°
Voltage Rating	1500 VDC	1500 VDC
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	2.7 Ω/kft	8.9 Ω/km
D.C. Armor Resistance at 68° F (20° C) (Maximum)	1.2 Ω/kft	3.9 Ω/km
Capacitance Conductor to Armor (Maximum)	36 pf/ft	118 pf/m
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft	5000 MΩ/km

7/16" 425 MONOCONDUCTOR HSLR (12/18)

10.80 mm

CONDUCTOR: Copper, Nickel Plated, Water Blocked.
INSULATION: PFA/ETFE .
ARMOR: MP35 (UNS R30035)



Special Sealant is applied between armor layers.

Construction Characteristics		English	Metric
Conductor – # 13 AWG, 19 x 0.0172"	dia.	0.086"	2.184 mm
Wall Thickness:		0.060"	1.511 mm
Insulation - OD:	dia.	0.205"	5.207 mm
Armor – Inner: 12 wires 0.0585"	dia.	0.308"	7.823 mm
Armor – Outer: 18 wires 0.0585"	dia.	0.425"	10.795 mm

Mechanical Characteristics		English	Metric
Weight in Air		335 lb/kft	499 kg/km
Weight in Water		282 lb/kft	420 kg/km
Minimum Breaking Strength, Ends Fixed		22,000 lbf	97.86 kN
Minimum Wire Break Strength (In/Out)		773/773 lbf	3438/3438 N
Maximum Working Load		12,100 lbf	53.82 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	24"	610 mm
Stretch Coefficient (Nominal)		0.6 ft/kft/klb	0.67 m/km/5kN
Outside Diameter	0.425"	+0.005" / -0.002"	10.80 mm +0.127 / -0.051 mm

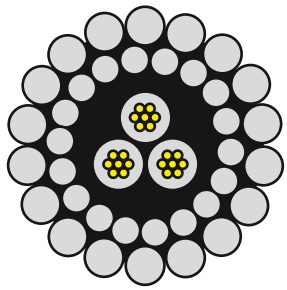
Electrical Characteristics	English	Metric
1ZFTL		
Temperature Rating	1 hr 500° / 8 hr 450° / Cont. 400°	1 hr 260° / 8 hr 232° / Cont. 204°
Voltage Rating	1500 VDC	1500 VDC
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	1.8 Ω/kft	5.9 Ω/km
D.C. Armor Resistance at 68° F (20° C) (Maximum)	1.2 Ω/kft	3.9 Ω/km
Capacitance Conductor to Armor (Maximum)	44 pf/ft	144 pf/m
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft	5000 MΩ/km

3/16" 185 3-CONDUCTOR HS (18/18)

4.70 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: ETFE
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 23 AWG, 7 x 0.0085"	dia.	0.026"	0.648 mm
Wall Thickness:		0.009"	0.222 mm
Insulation conductors:	dia.	0.043"	1.092 mm
Insulation jacket:	dia.	0.107"	2.718 mm
Armor – Inner: 18 wires 0.0185"	dia.	0.134"	3.404 mm
Armor – Outer: 18 wires 0.0255"		0.185"	4.699 mm

Mechanical Characteristics		English	Metric
Weight in Air		65 lb/kft	96 kg/km
Weight in Water		54 lb/kft	81 kg/km
Minimum Breaking Strength, Ends Fixed		3,800 lbf	16.90 kN
Minimum Wire Break Strength (In/Out)		80/150 lbf	356/667 N
Maximum Working Load		2,090 lbf	9.30 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	12"	305 mm
Stretch Coefficient (Nominal)		3.5 ft/kft/klb	3.93 m/km/5kN
Outside Diameter	0.186"	+0.006" / -0.002"	4.72 mm +0.152 mm / -0.051 mm

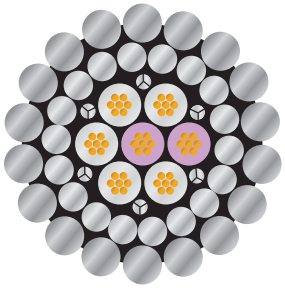
Electrical Characteristics	English	Metric
3STK		
Temperature Rating	1 hr 500° / 8 hr 450° / Cont. 400°	1 hr 260° / 8 hr 232° / Cont. 204°
Voltage Rating	1000 VDC	1000 VDC
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	20.9 Ω/kft	68.6 Ω/km
D.C. Armor Resistance at 68° F (20° C) (Maximum)	7.0 Ω/kft	23.0 Ω/km
Capacitance Conductor to Armor (Maximum)	52 pf/ft	171 pf/m
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft	5000 MΩ/km

3/8" 380 7- CONDUCTOR HS (18/18)

9.60 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene (7SPK)
ARMOR: ETFE (7STK)
Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – #20 AWG, 7 x 0.0128"	dia.	0.038"	0.975 mm
Wall Thickness:		0.013"	0.338 mm
Insulation - OD:	dia.	0.065"	1.651 mm
Armor – Inner: 12 wires 0.0445"	dia.	0.275"	6.985 mm
Armor – Outer: 18 wires 0.0445"	dia.	0.380"	9.652 mm

Mechanical Characteristics		English	Metric
Weight in Air		261 lb/kft	388 kg/km
Weight in Water		219 lb/kft	326 kg/km
Minimum Breaking Strength, Ends Fixed		15,500 lbf	68.94 kN
Minimum Wire Break Strength (In/Out)		322/625 lbf	1432/2780 N
Maximum Working Load		8,525 lbf	37.92 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	21"	533 mm
Stretch Coefficient (Nominal)		0.8 ft/kft/klb	0.90 m/km/5kN
Outside Diameter	0.378"	+0.006" / -0.002"	9.60 mm +0.152 mm / -0.051 mm

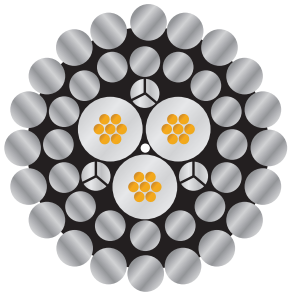
Electrical Characteristics	Temperature Rating			Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
	1 hr	8 hr	Cont.					
7SPK	300°	275°	250°	1000 VDC	9.2 Ω/kft	1.8 Ω/kft	72 pf/ft	1500 MΩ/kft
7STK	500°	450°	400°	1000 VDC	9.2 Ω/kft	1.8 Ω/kft	79 pf/ft	1500 MΩ/kft
Metric System								
7SPK	149°	135°	121°	1000 VDC	30.2 Ω/km	5.9 Ω/km	236 pf/m	5000 MΩ/km
7STK	260°	232°	204°	1000 VDC	30.2 Ω/km	5.9 Ω/km	259 pf/m	5000 MΩ/km

0.384" 384 3-CONDUCTOR HS (16/20)

9.76 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 18 AWG, 7 x 0.0160"	dia.	0.048"	1.219 mm
Wall Thickness:		0.025"	0.635 mm
Insulation - OD:	dia.	0.098"	2.489 mm
Armor – Inner: 16 wires 0.0435"	dia.	0.287"	7.29 mm
Armor – Outer: 20 wires 0.0485"	dia.	0.384"	9.754 mm

Mechanical Characteristics		English	Metric
Weight in Air		267 lb/kft	397 kg/km
Weight in Water		221 lb/kft	329 kg/km
Minimum Breaking Strength, Ends Fixed		16,500 lbf	73.39 kN
Minimum Wire Break Strength (In/Out)		431/534 lbf	1917/2375 N
Maximum Working Load		9,075 lbf	40.37 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	20"	508 mm
Stretch Coefficient (Nominal)		0.8 ft/kft/klb	0.90 m/km/5kN
Outside Diameter	0.384"	+0.006" 9.75 mm -0.002"	+0.152 mm -0.051 mm

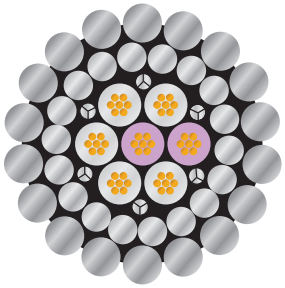
Electrical Characteristics	Temperature Rating			Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
	1 hr	8 hr	Cont.					
7SPK	300°	275°	250°	1200 VDC	5.9 Ω/kft	1.6 Ω/kft	54 pf/ft	1500 MΩ/kft
7STK	500°	450°	400°	1200 VDC	5.9 Ω/kft	1.6 Ω/kft	60 pf/ft	1500 MΩ/kft
Metric System								
7SPK	149°	135°	121°	1200 VDC	19.4 Ω/km	5.2 Ω/km	177 pf/m	5000 MΩ/km
7STK	260°	232°	204°	1200 VDC	19.4 Ω/km	5.2 Ω/km	197 pf/m	5000 MΩ/km

7/16" 426 7-CONDUCTOR HS (18/18)

10.82 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene (7SPK)
ARMOR: FEP/ETFE (7SFTK)
Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.



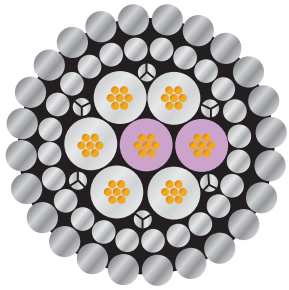
Construction Characteristics		English	Metric
Conductor – # 20 AWG, 7 x 0.0128"	dia.	0.038"	0.975 mm
Wall Thickness:		0.018"	0.452 mm
Insulation - OD:	dia.	0.074"	1.880 mm
Armor – Inner: 18 wires 0.0425"	dia.	0.308"	7.823 mm
Armor – Outer: 18 wires 0.059"	dia.	0.426"	10.82 mm

Mechanical Characteristics		English	Metric
Weight in Air		322 lb/kft	479 kg/km
Weight in Water		266 lb/kft	396 kg/km
Minimum Breaking Strength, Ends Fixed		20,000 lbf	88.96 kN
Minimum Wire Break Strength (In/Out)		412/786 lbf	1833/3496 N
Maximum Working Load		11,000 lbf	48.93 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	24"	610 mm
Stretch Coefficient (Nominal)		0.6 ft/kft/klb	0.67 m/km/5kN
Outside Diameter	0.426"	+0.006" -0.002"	10.82 mm +0.152 mm -0.051 mm

Electrical Characteristics	Temperature Rating			Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
	1 hr	8 hr	Cont.					
7SPK	300°	275°	250°	1000 VDC	9.2 Ω/kft	1.3 Ω/kft	58 pf/ft	1500 MΩ/kft
7SFTK	500°	450°	400°	1000 VDC	9.2 Ω/kft	1.3 Ω/kft	58 pf/ft	1500 MΩ/kft
Metric System								
7SPK	149°	135°	121°	1000 VDC	30.2 Ω/km	4.3 Ω/km	190 pf/m	5000 MΩ/km
7SFTK	260°	232°	204°	1000 VDC	30.2 Ω/km	4.3 Ω/km	190 pf/m	5000 MΩ/km

15/32" 464 7-CONDUCTOR HS (24/24)

11.79 mm



CONDUCTOR: Copper, Water Blocked.
INSULATION: Polypropylene (7RPK)
FEP/ETFE (7RFTK)
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.

Construction Characteristics		English	Metric
Conductor – # 20 AWG, 7 x 0.0128"	dia.	0.038"	0.975 mm
Wall Thickness:		0.029"	0.732 mm
Insulation - OD:	dia.	0.096"	2.438 mm
Armor – Inner: 24 wires 0.0390"	dia.	0.365"	9.271 mm
Armor – Outer: 24 wires 0.0495"	dia.	0.464"	11.786 mm

Mechanical Characteristics		English	Metric
Weight in Air		341 lb/kft	507 kg/km
Weight in Water		274 lb/kft	408 kg/km
Minimum Breaking Strength, Ends Fixed		20,000 lbf	88.96 kN
Minimum Wire Break Strength (In/Out)		329/526 lbf	1463/2340 N
Maximum Working Load		11,000 lbf	48.93 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	20"	508 mm
Stretch Coefficient (Nominal)		0.6 ft/kft/klb	0.67 m/km/5kN
Outside Diameter	0.464"	+0.006" -0.002" / 11.79 mm	+0.152 mm -0.051 mm

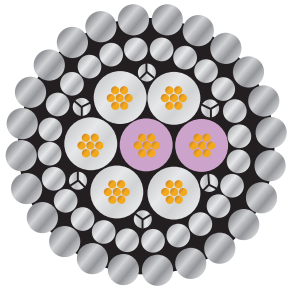
Electrical Characteristics	Temperature Rating			Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
	1 hr	8 hr	Cont.					
7RPK	300°	275°	250°	1200 VDC	9.2 Ω/kft	1.3 Ω/kft	41 pf/ft	1500 MΩ/kft
7RFTK	500°	450°	400°	1200 VDC	9.2 Ω/kft	1.3 Ω/kft	42 pf/ft	1500 MΩ/kft
Metric System								
7RPK	149°	135°	121°	1200 VDC	30.2 Ω/km	4.3 Ω/km	134 pf/m	5000 MΩ/km
7RFTK	260°	232°	204°	1200 VDC	30.2 Ω/km	4.3 Ω/km	138 pf/m	5000 MΩ/km

0.474" 474 7-CONDUCTOR HS (18/18)

12.04 mm

CONDUCTOR: Copper, Nickel Plated, Water Blocked.
INSULATION: PFA/ETFE .
ARMOR: MP35 (UNS R30035)

Special Sealant is applied between armor layers.



Construction Characteristics		English	Metric
Conductor – # 20 AWG, 7 x 0.0128"	dia.	0.038"	0.975 mm
Wall Thickness:		0.023"	0.579 mm
Insulation - OD:	dia.	0.084"	2.134 mm
Armor – Inner: 18 wires 0.0470"	dia.	0.343"	8.712 mm
Armor – Outer: 18 wires 0.0655"	dia.	0.474"	12.04 mm

Mechanical Characteristics		English	Metric
Weight in Air		392 lb/kft	583 kg/km
Weight in Water		326 lb/kft	485 kg/km
Minimum Breaking Strength, Ends Fixed		24,500 lbf	108.98 kN
Minimum Wire Break Strength (In/Out)		502/936 lbf	2233/4164 N
Maximum Working Load		13,475 lbf	59.94 kN
Temperature Rating (Maximum)		500°F	260°C
Suggested Minimum Sheave	dia.	27"	686 mm
Stretch Coefficient (Nominal)		0.5 ft/kft/klb	0.56 m/km/5kN
Outside Diameter	0.474"	+0.006" -0.002" / 12.04 mm	+0.152 mm -0.051 mm

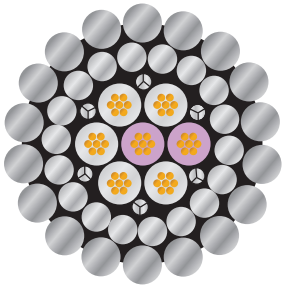
Electrical Characteristics	Temperature Rating			Voltage Rating	D.C. Conductor Resistance at 68° F (20° C) (Maximum)	D.C. Armor Resistance at 68° F (20° C) (Maximum)	Capacitance Conductor to Armor (Maximum)	Insulation Resistance (Minimum) @ 500 VDC
English System								
	1 hr	8 hr	Cont.					
7SPK	300°	275°	250°	1000 VDC	9.2 Ω/kft	1 Ω/kft	48 pf/ft	1500 MΩ/kft
7SFTK	500°	450°	400°	1000 VDC	9.2 Ω/kft	1 Ω/kft	48 pf/ft	1500 MΩ/kft
Metric System								
7SPK	149°	135°	121°	1000 VDC	30.2 Ω/km	3.3 Ω/km	157 pf/m	5000 MΩ/km
7SFTK	260°	232°	204°	1000 VDC	30.2 Ω/km	3.3 Ω/km	157 pf/m	5000 MΩ/km

0.490" 490 7-CONDUCTOR HS (20/20)

12.45 mm

CONDUCTOR: Copper, Water Blocked.
INSULATION: FEP/ETFE
ARMOR: Galvanized high strength steel (GEIPS) preformed and coated with a corrosion preventative lubricant compound.

Special Sealant is applied between armor layers.

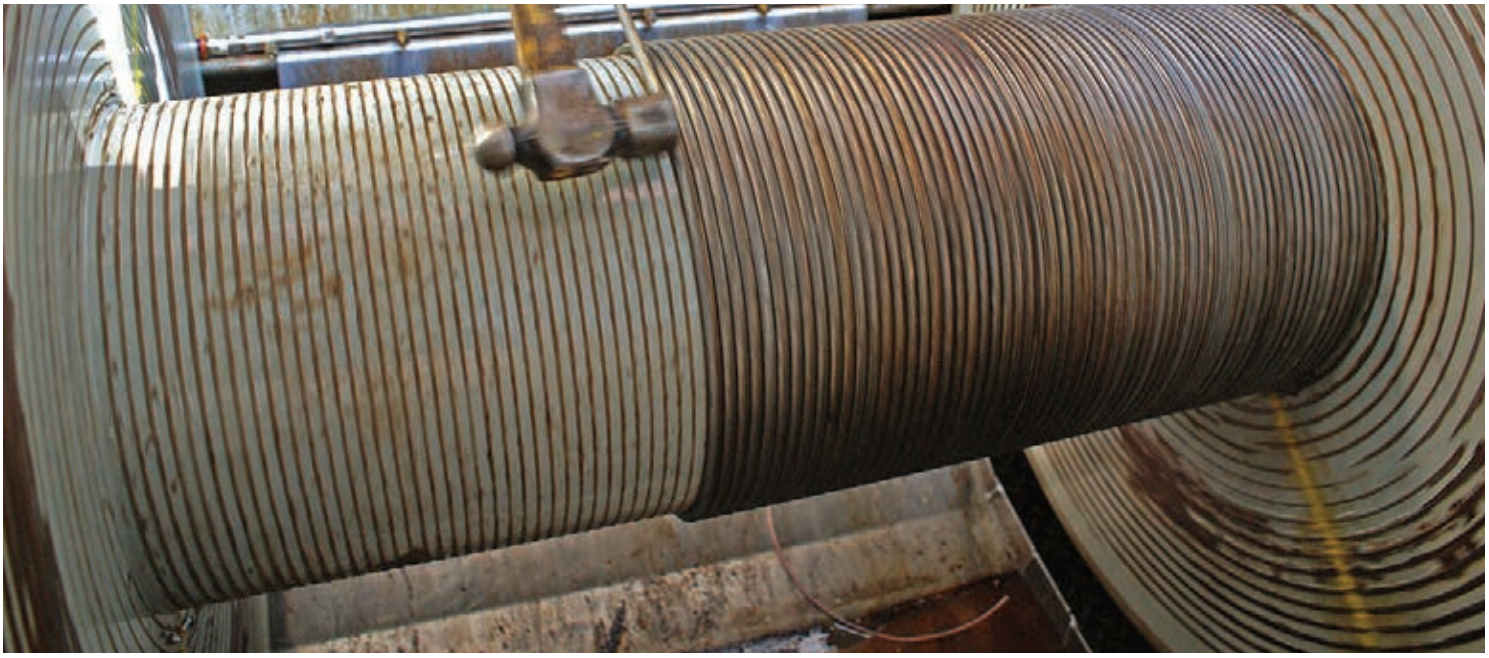


Construction Characteristics		English	Metric
Conductor – # 20 AWG, 7 x 0.0128"	dia.	0.038"	0.975 mm
Wall Thickness:		0.023"	0.579 mm
Insulation conductors: FEP/ETFE	dia.	0.084"	2.134 mm
Insulation jacket: ETFE	dia.	0.295"	7.493 mm
Armor – Inner: 20 wires 0.046"	dia.	0.366"	9.296 mm
Armor – Outer: 20 wires 0.062"		0.490"	12.446 mm

Mechanical Characteristics		English		Metric
Weight in Air		405 lb/kft		602 kg/km
Weight in Water		325 lb/kft		483 kg/km
Minimum Breaking Strength, Ends Fixed		26,000 lbf		115.65 kN
Minimum Wire Break Strength (In/Out)		481/866 lbf		2140/3852 N
Maximum Working Load		14,300 lbf		63.61 kN
Temperature Rating (Maximum)		500°F		260°C
Suggested Minimum Sheave	dia.	25"		635 mm
Stretch Coefficient (Nominal)		0.5 ft/kft/klb		0.56 m/km/5kN
Outside Diameter	0.490"	+0.006" -0.002"	12.45 mm	+0.152 mm -0.051 mm

Electrical Characteristics	English			Metric		
7DFTK						
Temperature Rating	1 hr 500°	8 hr 450°	Cont. 400°	1 hr 260°	8 hr 232°	Cont. 204°
Voltage Rating	1200 VDC			1200 VDC		
D.C. Conductor Resistance at 68° F (20° C) (Maximum)	9.2 Ω/kft			30.2 Ω/km		
D.C. Armor Resistance at 68° F (20° C) (Maximum)	1.0 Ω/kft			3.3 Ω/km		
Capacitance Conductor to Armor (Maximum)	48 pf/ft			157 pf/m		
Insulation Resistance (Minimum) @ 500 VDC	1500 MΩ/kft			5000 MΩ/km		

Cable Treatment and Care **for Longer Duration**

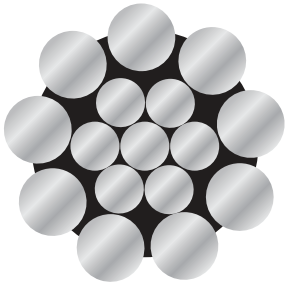


1. Season the cables on vertical wells letting the cable rotate freely.
2. Inspect your cable every run coming out of the wellbore.
3. Always keep your wireline lubricated with the appropriate lubricate for your area.
4. Maintain 200' per minute or less going in and out of the wellbore.
5. If you start to notice loose armors, have your authorized service center service the cable.
6. When reheading always check for irregular shape armors, cut back the armors until armors are round.
7. **80/120 Rule.** The tension going into the well should be never less than 80% of total weight. The tension coming out of the well should never exceed more than 120% of total weight.
8. Keep accurate log book to keep track of the cable jobs and services.
9. Use recommended sheave sizes.

Swabline

WELL SERVICE LINES

PRODUCED PER API 9A SPECIFICATIONS



CABLE SPECIFICATIONS

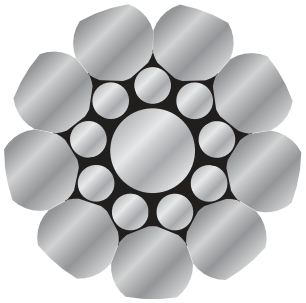
CONSTRUCTION 1X16 SEALE

Nominal Diameter	3/16"	7/32"	1/4"	5/16"
Construction	1x16 (9/6/1)	1x16 (9/6/1)	1x16 (9/6/1)	1x16 (9/6/1)
INNER ARMOR CHARACTERISTICS				
Inner Lay Direction	Left	Left	Left	Left
Outer Lay Direction	Right	Right	Right	Right
Final Diameter	0.188" - 0 + 2%	0.219" - 0 + 2%	0.250" - 0 + 2%	0.316" - 0 + 2%
Inner Diameter	0.100"	0.118"	0.130"	0.160"
Lay Length	1.080"	1.274"	1.040"	1.28"
Central Wire Diameter	0.036" Drawn Galv. IPS	0.042" Drawn Galv. IPS	0.046" Drawn Galv. IPS	0.056" Drawn Galv. IPS
Internal Wires Diameter	0.032" Drawn Galv. IPS	0.038" Drawn Galv. IPS	0.042" Drawn Galv. IPS	0.052" Drawn Galv. IPS
External Wires Diameter	0.047" Drawn Galv. IPS	0.054" Drawn Galv. IPS	0.062" Drawn Galv. IPS	0.078" Drawn Galv. IPS
MECHANICAL CHARACTERISTICS				
Breaking Strength (Klbs)	4.50	6.00	7.30	11.34
Max Suggested Working Tension (Klbs)	2.25	3.00	3.65	5.67
Weight (Kg/Mt)	0.112	0.146	0.198	0.311
Weight (Lb/Ft)	0.075	0.098	0.133	0.209
Stretch Coefficient ft/kft/klb	2.85	1.80	1.70	1.10

Swabline

WELL SERVICE LINES

PRODUCED PER API 9A SPECIFICATIONS



COMPACTED CABLE SPECIFICATIONS

CONSTRUCTION 1X19 C SEALE

Nominal Diameter	3/16"	7/32"	1/4"	5/16"	3/8"	7/16"
Construction	1x19 (9/9/1)	1x19 (9/9/1)	1x19 (9/9/1)	1x19 (9/9/1)	1x19 (9/9/1)	1x19 (9/9/1)
TECHNICAL CHARACTERISTICS						
Inner Lay Direction	Right	Right	Right	Right	Right	Right
Outer Lay Direction	Right Compacted	Right Compacted	Right Compacted	Right Compacted	Right Compacted	Right Compacted
Final Diameter	0.188" - 0 + 2%	0.219" - 0 + 2%	0.250" - 0 + 2%	0.312" - 0 + 2%	0.375" - 0 + 2%	0.437" - 0 + 2%
Diameter Before Compacted	0.209"	0.243"	0.275"	0.342"	0.408"	0.469"
Lay Length	1.982"	2.310"	2.614"	3.247"	3.878"	4.340"
Central Wire Diameter	0.060" Drawn Galv. IPS	0.068" Drawn Galv. IPS	0.078" Drawn Galv. IPS	0.096" Drawn Galv. IPS	0.116" Drawn Galv. IPS	0.132" Drawn Galv. IPS
Internal Wires Diameter	0.029" Drawn Galv. IPS	0.034" Drawn Galv. IPS	0.038" Drawn Galv. IPS	0.048" Drawn Galv. IPS	0.056" Drawn Galv. IPS	0.065" Drawn Galv. IPS
External Wires Diameter	0.051" Drawn Galv. IPS	0.060" Drawn Galv. IPS	0.068" Drawn Galv. IPS	0.084" Drawn Galv. IPS	0.101" Drawn Galv. IPS	0.116" Drawn Galv. IPS
MECHANICAL CHARACTERISTICS						
Breaking Strength (Klbs)	6.40	8.60	11.40	16.20	23.50	31.80
Max Suggested Working Tension (Klbs)	3.80	4.30	6.70	8.10	11.75	15.90
Weight (Kg/Mt)	0.141	0.193	0.247	0.380	0.543	0.718
Weight (Lb/Ft)	0.095	0.130	0.166	0.255	0.365	0.482
Stretch Coefficient ft/kft/klb	2.17	1.28	0.87	0.43	0.22	0.19

Slickline
WELL MEASURING LINES

PRODUCED PER API 9A SPECIFICATIONS

CARBON STEEL **WELL MEASURING WIRE**

GRADE IPS

Diameter	Approximate Mass	Suggested Sheave Diameter	Diameter Tolerance	Torsions (min)	Elong. (min)	Breaking Force min.
(")	(lb/kft)	(")	(")		%	(lb)
0.072	13.9	13	+/- 0.001	29	1.5	961
0.082	18.0	16	+/- 0.001	26	1.5	1239
0.092	22.6	18	+/- 0.001	23	1.5	1547
0.108	31.2	20	+/- 0.001	19	1.5	2109
0.125	41.8	23	+/- 0.001	17	1.5	2794

GRADE EIPS

Diameter	Approximate Mass	Suggested Sheave Diameter	Diameter Tolerance	Torsions (min)	Elong. (min)	Breaking Force min.
(")	(lb/kft)	(")	(")		%	(lb)
0.072	13.9	13	+/- 0.001	26	1.5	1150
0.082	18.0	16	+/- 0.001	23	1.5	1460
0.092	22.6	18	+/- 0.001	22	1.5	1830
0.108	31.2	21	+/- 0.001	19	1.5	2490
0.125	41.8	25	+/- 0.001	16	1.5	3300
0.140	52.4	29	+/- 0.001	14	1.5	4400
0.160	68.4	32	+/- 0.001	12	1.5	5120

GRADE EEIPS

Diameter	Approximate Mass	Suggested Sheave Diameter	Diameter Tolerance	Torsions (min)	Elong. (min)	Breaking Force min.
(")	(lb/kft)	(")	(")		%	(lb)
0.125	41.8	26	+/- 0.001	14	1.5	3418

Suggested sheave diameter values are recommended to extend the life of the wire however, a larger sheave decreases bending stress and will increase the Slickline's useful life.

Certificate of **Assessment**

Wiremax by DEACERO meets and exceeds the international manufacturing standards in all its processes. All wireline products are certified under API Spec 9A and NMX-CC-9001-IMNC-2008.

Certificate of Authority to use the Official API Monogram

License Number: 9A-0006

ORIGINAL

The American Petroleum Institute hereby grants to

DEACERO SAPI DE C.V.
Avenida Felipe Carrillo Puerto No. 301
Fraccionamiento Industrial Benito Juarez
Santiago De Queretaro, Queretaro
Mexico

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1® and API-9A and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: 9A-0006

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: Well-Measuring Strand, Bright or Drawn - Galvanized Wire Rope

QMS Exclusions: Servicing; Customer Property

Effective Date: JANUARY 24, 2025
Expiration Date: JANUARY 24, 2028

To verify the authenticity of this license, go to www.api.org/compositelist.

American Petroleum Institute

Certificate: American Petroleum Institute
Meets the requirements of: API Spec 9A

QMS REGISTERED

Certificate of Registration

APIQR® REGISTRATION NUMBER
4681

This certifies that the quality management system of

DEACERO SAPI DE C.V.
Avenida Felipe Carrillo Puerto No. 301
Fraccionamiento Industrial Benito Juarez
Santiago De Queretaro, Queretaro
Mexico

has been assessed by the American Petroleum Institute Quality Registrar (APIQR®) and found it to be in conformance with the following standard:

ISO 9001:2015

The scope of this registration and the approved quality management system applies to the

Design and Manufacture of Bright Wire Rope, Drawn-Galvanized Wire Rope, Well-Measuring Strand, Electromechanical Cable and Guy Strands

APIQR® approves the organization's justification for excluding:

8.5.3 Property Belonging to Customers or External Providers

Effective Date: OCTOBER 14, 2024
Expiration Date: JANUARY 24, 2028
Registered Since: APRIL 13, 2022

Senior Vice President of Global Industry Services

QUALITY REGISTRAR

Certificate: CIM
Meets the requirements of: ISO 9001:2008

DEACERO® INDUSTRIAL INTELLIGENCE

Warranty

DEACERO warrants that all of its electromechanical cable purchased from an authorized dealer or contractor will be free from defects in materials or workmanship. DEACERO also guarantees that all of its electromechanical cable will meet published breaking strengths and electrical characteristics.

The Purchaser has the obligation to indicate the environmental conditions under which the cable will be used so the authorized dealer or contractor can supply the correspondent electromechanical cable. Failure to do so will cancel this warranty.

This warranty is given by DEACERO subject to the following conditions:

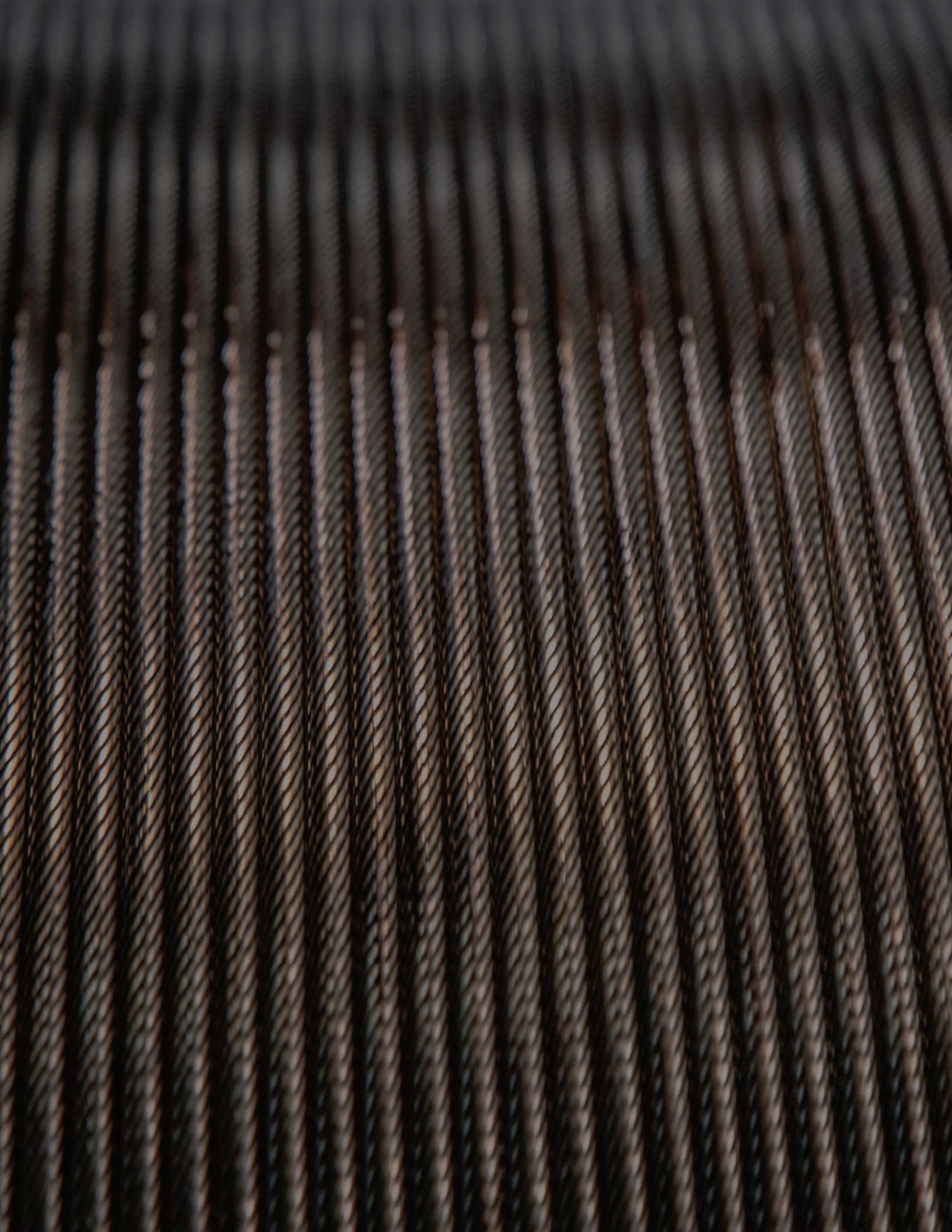
1. Published breaking strength or electrical characteristics apply only to new, unused electromechanical cable, and when the mechanical equipment on which such products are used is properly designed and maintained.

2. The electromechanical cables must be stored, handled, used and maintained, and properly inspected from time to time during the period of use.

3. The products must be installed by a qualified company.

DEACERO may at its own option within a reasonable time either repair or replace the Products, or issue a Credit for any such Products in the amount of the original invoice price. Seller's obligation shall be limited solely to repair or replacement of the Products and does not include freight, removal, and installation charges. This warranty is strictly limited to the value of the product supplied.

The foregoing warranty is exclusive and in lieu of all other warranties, expressed or implied, including but not limited to, implied warranties of merchantability or fitness for particular purpose. In no event will DEACERO be liable for any lost profits or for any direct, indirect, incidental, consequential, punitive or other special damages arising out of or related to its products regardless of whether such damages are sought based on causes of action sounding in tort, contract, negligence, strict liability or breach of warranty.



DEACERO®

INDUSTRIAL INTELLIGENCE

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