

CORFLEX[®]

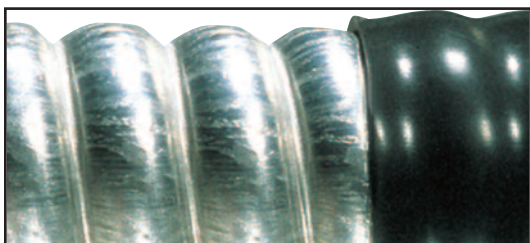
Type MC-HL & MV-105 or MC-HL Oil & Gas Cables

- Power
- Control
- Instrumentation
- VFD
- Medium Voltage



 **nexans**

 **AmerCable**



The Original MC-HL Technology

In 1958 Canada Wire and Cable, which is now part of Nexans, developed the first continuous corrugated and welded cable sheath. This product proved to be ideal for the oil and gas industry where liquid and gas ingress in hazardous operating conditions is a huge safety issue. The CORFLEX® trade mark was registered in 1960, and more than 50 years later continues to be recognized as a symbol of excellence for continuously corrugated cable in the MC-HL and MV-105 or MC-HL markets.



Armor

Continuous corrugated and welded, impervious aluminum sheath with no more than 0.2% trace copper provides complete protection against liquid and gas ingress.



Flame Retardant

All CORFLEX cables pass UL 1685 and IEEE 383 vertical tray fire tests at 70,000 BTU/hr, IEC 60332-3 category A fire test, IEEE 1202 and CSA FT4.

CORFLEX rated less than 5 kV also passes ICEA T-29-520 fire test at 210,000 BTU/hr.

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*600V/1000V Marine Shipboard Cable



Nexans AmerCable believes the information presented throughout this catalog to be reliable and current. All information is subject to change without notice. The information listed is approximate, and is presented only as a guide for product selection. We make no claims or warranties for the suitability of any product for any particular application.

Nexans CORFLEX® cables are designed for reliable performance in a variety of industrial, commercial and utility applications including oil and gas applications requiring an externally armored cable. Exceptional fire ratings, impact resistance, flexibility and an impervious metallic sheath are key features of this popular cable product.

CORFLEX installation may be in wet or dry locations, in trays, troughs, wireways, directly buried or embedded in concrete. It can also be used in plenums (with no outer coverings), ducts and other airways per NEC 2008 and NEC 2011 Article 300.22.

Nexans CORFLEX MC-HL and MV-105 or MC-HL cables can be installed in hazardous locations designated Class I, II & III, Divisions 1 & 2 as per NEC 2008 and NEC 2011 (HL Rated).

CORFLEX MC-HL cables are designed for use on power and control circuits with 600 volt rating. Cables are suitable for use as feeders and branch circuits for power, control, lighting and signaling as per NEC 2008 and NEC 2011 Articles 330, 725 & 727.

CORFLEX MV-105 or MC-HL cables in this catalog are designed for use on power circuits. Cables are suitable for use as per NEC 2008 and NEC 2011 Article 328 as feeders and branch circuits.

CORFLEX cables are UL Listed as Marine Shipboard Cable (File E86139) 600V/1000V.



Ampacity Ratings

Instrumentation Power & Control VFD	Based on NEC 2011 Table 310.15(B)(16) for not more than three current-carrying conductors (where the 4th conductor is the neutral of a 3-phase, 4 wire system) in raceway, cable, or earth (direct buried), based on an ambient temperature of 30°C (86°F). Refer to Table 310.15(B)(2) for the ampacity correction factors where the ambient temperature is other than 30°C (86°F).
Medium Voltage	See Notes on Pages 11 -13

CORFLEX® MC-HL Instrumentation

600V • Pairs & Triads

600V/1000V Marine Shipboard Cable

Rated 90°C • Single or Multiple Individually Shielded Pairs or Triads, Overall Cable Shield

Insulation

Flame-retardant PVC, 15 mils nominal thickness, nylon jacket, 4 mil nominal thickness. 90°C temperature rating, per UL Standard 66.

Insulation Shield

Aluminum foil/polyester shield helically wrapped to provide 100% coverage and tinned copper drain wire that is two gauge sizes smaller than the circuit conductors. These shields are electrically isolated from each other.

Armor

Continuous corrugated and welded, impervious aluminum sheath with no more than 0.2% trace copper providing complete protection against liquid and gas ingress. Provides excellent mechanical protection, additional electrostatic shielding, and serves as an easy means for grounding equipment.

Assembly

Pairs/triads are cabled in concentric layers with interstices filled with suitable non-hygroscopic fillers, as required. A binder tape of synthetic material assembles the core in an essentially round configuration.

Conductor

Bare, annealed copper conforming to ASTM B3 and Class B stranded in accordance with ASTM B8.

Overall Cable Shield

Aluminum foil/polyester shield helically wrapped to provide 100% coverage. Tinned copper drain wire that is the same size as the circuit conductors.

Inner Jacket

Polyvinyl chloride jacket, over cabled core as per UL1569, 90°C temperature rating, with additional resistance to flame spread. A rip cord is laid longitudinally under the jacket to facilitate stripping.

Jacket

Overall black polyvinyl chloride jacket per UL 1569, 90°C temperature rating; low acid gas emission; limited flame spread and excellent corrosion resistance.

Conductor ID

Pairs: black/white & number coded
Triads: black/red/white & number coded

Application

CORFLEX® instrumentation cables minimize noise and signal interference to enhance performance in instrumentation, data flow, computer & data logging applications – especially in areas where high voltages or high currents are present.

Features

- UL listed as Marine Shipboard Cable (File E86139) 600V/1000V
- UL listed as Type MC-HL, 600V (File E47409)
- UL listed insulated conductors
- Flame retardant: UL 1685 and IEEE 383 vertical tray fire tests at 70,000 BTU/hr, ICEA T-29-520 fire test at 210,000 BTU/hr, IEC 60332-3 category A fire test, IEEE 1202 and CSA FT4
- Cables are American Bureau of Shipping (ABS) listed as CWC MC Type MC
- Cables are marked “-40°C” and are suitable for handling and installation down to -10°C (based on -40°C impact and bend tests per UL 1569)
- Temperature rating of 90°C dry and wet
- 130°C emergency rating and 250°C short circuit rating
- Continuous, impervious aluminum armor corrugated for flexibility, prevents ingress of moisture, gases and liquids
- Aluminum armor resistance exceeds requirements of the NEC 2008 and NEC 2011 Article 250.178 for equipment grounding conductor
- Minimal noise and signal interference
- Excellent mechanical and physical properties
- Sunlight resistant jacket
- Suitable for direct burial, use in cable tray and embedment in concrete
- Suitable for Class I, II and III, Divisions 1 & 2 as per NEC 2008 and NEC 2011 (HL Rated)

Bend Radius

- Fixed position: 7 x cable overall diameter
- During pulling: 12 x cable overall diameter

Ratings & Approvals

- 90°C Temperature Rating
- Meets UL 1309 and IEEE 1580 requirements for Marine Shipboard Cable
- Meets UL 1569 requirements for Type MC, Metal Clad cables
- Meets UL 2225 for Hazardous Locations
- Designated Type MC as per NEC 2008 and NEC 2011 Article 330

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Pairs with Individual and Overall Shield • 600V – 18 AWG (7w) 600V/1000V Marine Shipboard Cable

Nexans Design No.	No. of Pairs	Insulation Thickness		Nominal Diameter Over Core (inches)	Inner Jacket Thickness (mils)	Nominal Diameter Over Inner Jacket (inches)	Nominal Diameter Over Armor (inches)	Outer Jacket Thickness (mils)	Nominal Diameter Over Outer Jacket (inches)	Approx. Net Cable Weight (lb/kft)
		PVC (mils)	Nylon (mils)							
654988	2	15	4	0.319	40	0.405	0.594	50	0.699	218
654921	4	15	4	0.380	40	0.465	0.633	50	0.735	257
654947	8	15	4	0.517	50	0.621	0.836	50	0.940	373
654962	12	15	4	0.647	50	0.753	0.976	50	1.080	621
665250	16	15	4	0.731	50	0.837	1.142	50	1.247	817
662116	24	15	4	1.016	50	1.124	1.420	50	1.525	1427

Pairs with Individual and Overall Shield • 600V – 16 AWG (7w) 600V/1000V Marine Shipboard Cable

Nexans Design No.	No. of Pairs	Insulation Thickness		Nominal Diameter Over Core (inches)	Inner Jacket Thickness (mils)	Nominal Diameter Over Inner Jacket (inches)	Nominal Diameter Over Armor (inches)	Outer Jacket Thickness (mils)	Nominal Diameter Over Outer Jacket (inches)	Approx. Net Cable Weight (lb/kft)
		PVC (mils)	Nylon (mils)							
645390	1	15	4	0.209	40	0.293	0.492	50	0.605	157
659052	2	15	4	0.424	40	0.477	0.639	50	0.744	216
645291	4	15	4	0.482	50	0.533	0.767	50	0.871	375
659078	8	15	4	0.635	50	0.676	0.926	50	1.030	604
650796	12	15	4	0.797	50	0.835	1.140	50	1.246	862
654889	16	15	4	0.882	50	0.983	1.320	50	1.431	1151
654905	24	15	4	1.124	50	1.126	1.422	50	1.526	1432
650788	36	15	4	1.312	50	1.370	1.746	60	1.879	2121

Triads with Individual and Overall Shield • 600V – 16 AWG (7w) 600V/1000V Marine Shipboard Cable

Nexans Design No.	No. of Triads	Insulation Thickness		Nominal Diameter Over Core (inches)	Inner Jacket Thickness (mils)	Nominal Diameter Over Inner Jacket (inches)	Nominal Diameter Over Armor (inches)	Outer Jacket Thickness (mils)	Nominal Diameter Over Outer Jacket (inches)	Approx. Net Cable Weight (lb/kft)
		PVC (mils)	Nylon (mils)							
654863	1	15	4	0.225	40	0.304	0.507	50	0.619	171
644344	4	15	4	0.484	50	0.587	0.798	50	0.900	300
670083	8	15	4	0.680	50	0.786	0.998	50	1.102	467
670067	12	15	4	0.820	50	0.925	1.212	50	1.317	1007

Electrical Properties – Pairs/Triads with Individual and Overall Cable Shield

Conductor Size (AWG)	DC Resistance (ohms/kft @ 20°C)	Capacitance			
		Pairs		Triads	
		Conductor–Conductor (pt/ft)	Conductor–Shield (pt/ft)	Conductor–Conductor (pt/ft)	Conductor–Shield (pt/ft)
18	6.64	74	148	63	156
16	4.18	86	172	87	180

CORFLEX® MC-HL Armored Power & Control

600V • Multi-conductor

600V/1000V Marine Shipboard Cable

Rated 90°C • Multi-Power Conductors with Bare Ground(s)

Conductor

Bare, annealed copper conforming to ASTM B3 and Class B stranded in accordance with ASTM B8.

Assembly

Conductors are cabled in concentric layers with grounding wire, interstices are filled with suitable non-hygroscopic fillers, as required. A binder tape of synthetic material assembles the core in an essentially round configuration.

Jacket

Overall black polyvinyl chloride jacket per UL 1569, 90°C temperature rating; low acid gas emission; limited flame spread and excellent corrosion resistance.

Conductor ID

Multi-conductor
14 AWG to 10 AWG:
Method #1-E2 per
ICEA S-73-532

Insulation

Cross-linked polyethylene type XHHW-2 per UL 44.

Grounding Conductor

Bare, annealed copper conforming to ASTM B3 and Class B stranded in accordance with ASTM B8. Meets or exceeds requirements of NEC Table 250.122.

Aarmor

Continuous corrugated and welded, impervious aluminum sheath with no more than 0.2% trace copper providing complete protection against liquid and gas ingress. Provides excellent mechanical protection, additional electrostatic shielding, and serves as an easy means for grounding equipment.



Application

Designed and constructed for the demanding environments of offshore drilling and petroleum facilities located throughout the world requiring a type MC-HL cable.

Features

- UL listed as Marine Shipboard Cable (File E86139) 600V/1000V
- UL listed as Type MC-HL, 600V (File E47409)
- UL listed insulated conductors
- Flame retardant: UL 1685 and IEEE 383 vertical tray fire tests at 70,000 BTU/hr, ICEA T-29-520 fire test at 210,000 BTU/hr, IEC 60332-3 category A fire test, IEEE 1202 and CSA FT4
- Cables are American Bureau of Shipping (ABS) listed as CWC MC Type MC
- Cables are marked “-40°C” and are suitable for handling and installation down to -10°C (based on -40°C impact and bend tests per UL 1569)
- Temperature rating of 90°C dry and wet
- 130°C emergency rating and 250°C short circuit rating
- Continuous, impervious aluminum armor corrugated for flexibility, prevents ingress of moisture, gases and liquids
- Aluminum armor resistance exceeds requirements of the NEC 2008 and NEC 2011 Article 250.178 for equipment grounding conductor
- Armor provides good EMI shielding so that CORFLEX can be used in certain instrumentation applications when adequately grounded
- Excellent mechanical and physical properties
- Sunlight resistant jacket
- Suitable for direct burial, use in cable tray and embedment in concrete
- Suitable for Class I, II and III, Divisions 1 & 2 as per NEC 2008 and NEC 2011 (HL Rated)

Bend Radius

- Fixed position: 7 x cable overall diameter
- During pulling: 12 x cable overall diameter

Ratings & Approvals

- 90°C Temperature Rating
- Meets UL 1309 and IEEE 1580 requirements for Marine Shipboard Cable
- Meets UL 44, XHHW-2 600V conductors
- Meets UL 1569 requirements for Type MC, Metal Clad cables
- Meets UL 2225 for Hazardous Locations (HL)
- Dual certified IEEE 1580 and UL 1309 Type CWC MC
- Designated Type MC as per NEC 2008 and NEC 2011 Article 330
- Meets CSA C22.2 No. 123 for Aluminum Sheathed Cables
- Meets CSA C22.2 No. 174 for Hazardous Locations

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Power & Control • 600V

600V/1000V Marine Shipboard Cable

Nexans Design No.	No. of Cond.	Conductor Size AWG/kcmil	Insulation Thickness (mils)	Ground Wire Size AWG	Nominal Diameter Over Core (inches)	Nominal Diameter Over Armor (inches)	Jacket Thickness (mils)	Nominal Diameter Over Jacket (inches)	Approx. Net Cable Weight (lb/ft)	DC Resistance 20°C Ω/kft	DC Resistance 25°C Ω/kft	AC Resistance 90°C Ω/kft	Inductive Reactance 90°C Ω/kft@60Hz	Voltage Drop Volts/Amps/kft	Ampacities (Note 1)	
															75°C	90°C
670155	2	14(7w)	30	14(7w)	0.273	0.469	50	0.581	155	2.5553	2.6064	3.2583	0.0376	2.9489	15	15
670142	3*	14(7w)	30	3x18(7w)	0.390	0.555	50	0.660	200	2.5553	2.6064	3.2583	0.0376	2.9489	15	15
317677	4	14(7w)	30	14(7w)	0.336	0.503	50	0.606	191	2.5553	2.6064	3.2583	0.0376	2.9489	15	15
318345	5	14(7w)	30	14(7w)	0.336	0.532	50	0.635	212	2.5553	2.6064	3.2583	0.0497	2.9542	15	15
318352	7	14(7w)	30	14(7w)	0.417	0.601	50	0.704	263	2.5553	2.6064	3.2583	0.0545	2.9566	14	15
318360	9	14(7w)	30	14(7w)	0.486	0.645	50	0.748	307	2.5553	2.6064	3.2583	0.0596	2.9585	14	15
318378	12	14(7w)	30	14(7w)	0.561	0.783	50	0.887	388	2.5553	2.6064	3.2583	0.0641	2.9604	10	13
318386	15	14(7w)	30	14(7w)	0.610	0.811	50	0.915	443	2.5553	2.6064	3.2583	0.0666	2.9615	10	13
318394	19	14(7w)	30	14(7w)	0.669	0.921	50	1.028	572	2.5553	2.6064	3.2583	0.0694	2.9627	10	13
318402	25	14(7w)	30	14(7w)	0.797	1.005	50	1.111	691	2.5553	2.6064	3.2583	0.0743	2.9649	9	11
318410	37	14(7w)	30	14(7w)	0.933	1.218	50	1.323	986	2.5553	2.6064	3.2583	0.0787	2.9668	8	10
670156	2	12(7w)	30	12(7w)	0.345	0.512	50	0.614	185	1.6082	1.6404	2.0507	0.0353	1.8610	20	20
670144	3*	12(7w)	30	3x16(7w)	0.340	0.555	50	0.660	226	1.6082	1.6404	2.0507	0.0353	1.8610	20	20
317693	4	12(7w)	30	12(7w)	0.385	0.550	50	0.653	239	1.6082	1.6404	2.0507	0.0353	1.8610	20	20
318436	5	12(7w)	30	12(7w)	0.414	0.599	50	0.702	280	1.6082	1.6404	2.0507	0.0475	1.8663	20	20
318444	7	12(7w)	30	12(7w)	0.478	0.640	50	0.744	338	1.6082	1.6404	2.0507	0.0526	1.8685	18	20
318451	9	12(7w)	30	12(7w)	0.551	0.777	50	0.881	437	1.6082	1.6404	2.0507	0.0574	1.8706	18	20
318469	12	12(7w)	30	12(7w)	0.639	0.828	50	0.932	502	1.6082	1.6404	2.0507	0.0620	1.8726	13	15
318447	15	12(7w)	30	12(7w)	0.691	0.936	50	1.039	635	1.6082	1.6404	2.0507	0.0644	1.8737	13	15
318485	19	12(7w)	30	12(7w)	0.760	0.981	50	1.085	743	1.6082	1.6404	2.0507	0.0672	1.8749	13	15
318493	25	12(7w)	30	12(7w)	0.897	1.190	50	1.295	987	1.6082	1.6404	2.0507	0.0719	1.8769	11	14
318501	37	12(7w)	30	12(7w)	1.059	1.374	50	1.478	1365	1.6082	1.6404	2.0507	0.0765	1.8789	10	12
670157	2	10(7w)	30	10(7w)	0.361	0.527	50	0.632	231	1.0118	1.0320	1.2902	0.0332	1.1756	30	30
670146	3*	10(7w)	30	3x14(7)	0.450	0.620	50	0.725	312	1.0118	1.0320	1.2902	0.0332	1.1756	30	30
317719	4	10(7w)	30	10(7w)	0.449	0.621	50	0.724	319	1.0118	1.0320	1.2902	0.0332	1.1756	28	30
318527	5	10(7w)	30	10(7w)	0.479	0.641	50	0.743	364	1.0118	1.0320	1.2902	0.0454	1.1809	28	30
318535	7	10(7w)	30	10(7w)	0.556	0.780	50	0.884	484	1.0118	1.0320	1.2902	0.0507	1.1832	25	28
318543	9	10(7w)	30	10(7w)	0.693	0.937	50	1.040	630	1.0118	1.0320	1.2902	0.0579	1.1864	25	28
318550	12	10(7w)	30	10(7w)	0.745	0.971	50	1.074	732	1.0118	1.0320	1.2902	0.0601	1.1874	18	20
665148	37	10(7w)	30	10(7w)	1.227	1.591	60	1.725	1984	1.0118	1.0320	1.2902	0.0744	1.1936	14	16

Notes:

- 1) Ampacities are in accordance with NEC 2008 Table 310.16 or NEC 2011 Table 310.15(B)(16) for conductors in raceway or direct buried at 30°C ambient temperature and 90°C conductor temperature. The overcurrent protection shall not exceed 15 amperes for 14 AWG, 20 amperes for 12 AWG, and 30 amperes for 10 AWG copper conductors after any correction factors for ambient temperature and number of conductors have been applied (NEC 2008 and NEC 2011 Article 240.4(D)). For correction factors for different ambient temperatures and ampacities at different conductor temperatures, see NEC 2008 Table 310.16 or NEC 2011 Table 310.15(B)(16). Ampacities for cables having more than three conductors have been derated per NEC 2008 Article 310.15(B)(2)(a) or NEC 2011 Article 310.15(B)(3)(a).

*Three conductor cables with 3 grounds are also suitable for VFD applications.

CORFLEX® MC-HL Armored Composite Power & Control

600V • Multi-conductor

600V/1000V Marine Shipboard Cable

Rated 90°C • 1 Bare Ground

Grounding Conductor

Bare, annealed copper conforming to ASTM B3 and Class B stranded in accordance with ASTM B8. Meets or exceeds requirements of NEC Table 250.122.

Assembly

Conductors are cabled in concentric layers with grounding wire, interstices are filled with suitable non-hygroscopic fillers, as required. A binder tape of synthetic material assembles the core in an essentially round configuration.

Conductor ID

Power Conductors
8 AWG and larger:
Method #4 per
ICEA S-73-532
Control Conductors
14, 12 & 10 AWG:
Method #1-E2 per
ICEA S-73-532

Conductor

Bare, annealed copper conforming to ASTM B3 and Class B stranded in accordance with ASTM B8.

Insulation

Cross-linked polyethylene type XHHW-2 per UL 44.

Aarmor

Continuous corrugated and welded, impervious aluminum sheath with no more than 0.2% trace copper providing complete protection against liquid and gas ingress. Provides excellent mechanical protection, additional electrostatic shielding, and serves as an easy means for grounding equipment.

Jacket

Overall black polyvinyl chloride jacket per UL 1569, 90°C temperature rating; low acid gas emission; limited flame spread and excellent corrosion resistance.

Application

Designed and constructed for the demanding environments of offshore drilling and petroleum facilities located throughout the world requiring a type MC-HL cable.

Features

- UL listed as Marine Shipboard Cable (File E86139) 600/1000V
- UL listed as Type MC-HL, 600V (File E47409)
- UL listed insulated conductors
- Flame retardant: UL 1685 and IEEE 383 vertical tray fire tests at 70,000 BTU/hr, ICEA T-29-520 fire test at 210,000 BTU/hr, IEC 60332-3 category A fire test, IEEE 1202 and CSA FT4
- Cables are American Bureau of Shipping (ABS) listed as CWC MC Type MC
- Cables are marked “-40°C” and are suitable for handling and installation down to -10°C (based on -40°C impact and bend tests per UL 1569)
- Temperature rating of 90°C dry and wet
- 130°C emergency rating and 250°C short circuit rating
- Continuous, impervious aluminum armor corrugated for flexibility, prevents ingress of moisture, gases and liquids
- Aluminum armor resistance exceeds requirements of the NEC 2008 and NEC 2011 Article 250.178 for equipment grounding conductor
- Armor provides good EMI shielding so that CORFLEX can be used in certain instrumentation applications when adequately grounded
- Excellent mechanical and physical properties
- Sunlight resistant jacket
- Suitable for direct burial, use in cable tray and embedment in concrete
- Suitable for Class I, II and III, Divisions 1 & 2 as per NEC 2008 and NEC 2011 (HL Rated)

Bend Radius

- Fixed position: 7 x cable overall diameter
- During pulling: 12 x cable overall diameter

Ratings & Approvals

- 90°C Temperature Rating
- Meets UL 1309 and IEEE 1580 requirements for Marine Shipboard Cable
- Meets UL 44, XHHW-2 600V conductors
- Meets UL 1569 requirements for Type MC, Metal Clad cables
- Meets UL 2225 for Hazardous Locations (HL)
- Dual certified IEEE 1580 and UL 1309 Type CWCMC
- Designated Type MC as per NEC 2008 and NEC 2011 Article 330
- Meets CSA C22.2 No. 123 for Aluminum Sheathed Cables
- Meets CSA C22.2 No. 174 for Hazardous Locations

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Composite Power & Control • 600V 600V/1000V Marine Shipboard Cable

Nexans Design No.	Power Conductors No. x Size AWG/ kcmil	Control Conductors No. x Size AWG/ kcmil	Ground Wire Size AWG	Power Insulation Thickness (mils)	Control Insulation Thickness (mils)	Nominal Diameter Over Core (in)	Nominal Diameter Over Armor (in)	Jacket Thickness (mils)	Nominal Diameter Over Jacket (in)	Approx. Net Cable Weight (lbs/kft)	DC Resist. 20°C Ω/kft	DC Resist. 25°C Ω/kft	AC Resist. 90°C, 60 Hz Ω/kft	Inductive Reactance 90°C, 60 Hz Ω/kft	Voltage Drop Volts/ Amps/kft	Ampacities (Note 1)	
																75°C	90°C
199760	3x10(7w)	4x12(7w)	10(7w)	30	30	0.540	0.772	50	0.876	425	1.0118	1.0320	1.2902	0.0332	1.1756	30	30
665024	3x10(7w)	3x12(7w)	10(7w)	30	30	0.495	0.750	50	0.854	396	1.0118	1.0320	1.2902	0.0332	1.1756	30	30
665036	3x10(7w)	4x14(7w)	10(7w)	30	30	0.510	0.754	50	0.860	387	1.0118	1.0320	1.2902	0.0332	1.1756	30	30
665041	3x10(7w)	3x14(7w)	10(7w)	30	30	0.470	0.635	50	0.738	340	1.0118	1.0320	1.2902	0.0332	1.1756	30	30
665019	4x10(7w)	4x12(7w)	10(7w)	30	30	0.560	0.782	50	0.887	463	1.0118	1.0320	1.2902	0.0332	1.1756	30	30
665047	4x10(7w)	4x14(7w)	10(7w)	30	30	0.550	0.777	50	0.881	428	1.0118	1.0320	1.2902	0.0332	1.1756	30	30
290783	3x8(7w)	4x12(7w)	10(7w)	45	30	0.664	0.917	50	1.026	565	0.6361	0.6488	0.8111	0.0348	0.7452	50	55
665025	3x8(7w)	3x12(7w)	10(7w)	45	30	0.590	0.800	50	0.904	473	0.6361	0.6488	0.8111	0.0348	0.7452	50	55
665037	3x8(7w)	4x14(7w)	10(7w)	45	30	0.610	0.811	50	0.915	478	0.6361	0.6488	0.8111	0.0348	0.7452	50	55
665042	3x8(7w)	3x14(7w)	10(7w)	45	30	0.591	0.800	50	0.904	457	0.6361	0.6488	0.8111	0.0348	0.7452	50	55
665020	4x8(7w)	4x12(7w)	10(7w)	45	30	0.659	0.914	50	1.024	630	0.6361	0.6488	0.8111	0.0348	0.7452	50	55
665048	4x8(7w)	4x14(7w)	10(7w)	45	30	0.645	0.831	50	0.935	535	0.6361	0.6488	0.8111	0.0348	0.7452	50	55
290791	3x6(7w)	4x12(7w)	8(7w)	45	30	0.750	0.975	50	1.077	685	0.4002	0.4082	0.5104	0.0329	0.4737	65	75
665027	3x6(7w)	3x12(7w)	8(7w)	45	30	0.695	0.937	50	1.041	665	0.4002	0.4082	0.5104	0.0329	0.4737	65	75
665038	3x6(7w)	4x14(7w)	8(7w)	45	30	0.700	0.941	50	1.045	640	0.4002	0.4082	0.5104	0.0329	0.4737	65	75
665044	3x6(7w)	3x14(7w)	8(7w)	45	30	0.670	0.921	50	1.028	641	0.4002	0.4082	0.5104	0.0329	0.4737	65	75
665021	4x6(7w)	4x12(7w)	8(7w)	45	30	0.725	0.958	50	1.062	778	0.4002	0.4082	0.5104	0.0329	0.4737	65	75
665049	4x6(7w)	4x14(7w)	8(7w)	45	30	0.695	0.938	50	1.042	749	0.4002	0.4082	0.5104	0.0329	0.4737	65	75
290809	3x4(7w)	4x12(7w)	8(7w)	45	30	0.845	1.149	50	1.254	926	0.2516	0.2566	0.3209	0.0312	0.3025	85	95
665028	3x4(7w)	3x12(7w)	8(7w)	45	30	0.735	0.964	50	1.068	807	0.2516	0.2566	0.3209	0.0312	0.3025	85	95
665039	3x4(7w)	4x14(7w)	8(7w)	45	30	0.730	0.961	50	1.065	799	0.2516	0.2566	0.3209	0.0312	0.3025	85	95
665045	3x4(7w)	3x14(7w)	8(7w)	45	30	0.770	0.987	50	1.091	788	0.2516	0.2566	0.3209	0.0312	0.3025	85	95
665022	4x4(7w)	4x12(7w)	8(7w)	45	30	0.807	1.012	50	1.117	993	0.2516	0.2566	0.3209	0.0312	0.3025	85	95
665050	4x4(7w)	4x14(7w)	8(7w)	45	30	0.787	0.999	50	1.103	953	0.2516	0.2566	0.3209	0.0312	0.3025	85	95
654277	3x2(7w)	4x12(7w)	6(7w)	45	30	0.870	1.168	50	1.273	1198	0.1574	0.1605	0.2009	0.0299	0.1938	115	130
665035	3x2(7w)	3x12(7w)	6(7w)	45	30	0.860	1.160	50	1.265	1170	0.1574	0.1605	0.2009	0.0299	0.1938	115	130
665040	3x2(7w)	4x14(7w)	6(7w)	45	30	0.820	1.128	50	1.240	1165	0.1574	0.1605	0.2009	0.0299	0.1938	115	130
665046	3x2(7w)	3x14(7w)	6(7w)	45	30	0.885	1.180	50	1.285	1146	0.1574	0.1605	0.2009	0.0299	0.1938	115	130
665023	4x2(7w)	4x12(7w)	6(7w)	45	30	0.927	1.214	50	1.319	1436	0.1574	0.1605	0.2009	0.0299	0.1938	115	130
665051	4x2(7w)	4x14(7w)	6(7w)	45	30	0.927	1.214	50	1.319	1401	0.1574	0.1605	0.2009	0.0299	0.1938	115	130

Notes:

- 1) Ampacities are based on NEC 2011 Table 310.15(B)(16) for not more than three current-carrying conductors (where the 4th conductor is the neutral of a 3-phase, 4 wire system) in raceway, cable, or earth (direct buried), based on an ambient temperature of 30°C (86°F). Refer to Table 310.15(B)(2) for the ampacity correction factors where the ambient temperature is other than 30°C (86°F).

CORFLEX® MC-HL Power Cable • 600V

600V/1000V Marine Shipboard Cable

Rated 90°C • 3 and 4 Power Conductors with Ground(s)

Insulation

Cross-linked polyethylene type XHHW-2 per UL 44.

Grounding Conductor(s)

Bare, annealed copper conforming to ASTM B3 and Class B stranded in accordance with ASTM B8. Meets or exceeds requirements of NEC Table 250.122.

Armor

Continuous corrugated and welded, impervious aluminum sheath with no more than 0.2% trace copper providing complete protection against liquid and gas ingress. Provides excellent mechanical protection, additional electrostatic shielding, and serves as an easy means for grounding equipment.

Conductors

Bare, annealed copper conforming to ASTM B3 and Class B stranded in accordance with ASTM B8.

Assembly

Conductors are cabled in concentric layers with grounding wire, interstices are filled with suitable non-hygroscopic fillers, as required. A binder tape of synthetic material assembles the core in an essentially round configuration.

Jacket

Overall black polyvinyl chloride jacket per UL 1569, 90°C temperature rating; low acid gas emission; limited flame spread and excellent corrosion resistance.

Conductor ID

Sizes 14 AWG to 2 AWG:

Method #1-E2 per
ICEA S-73-532

Sizes 1 AWG to 500 kcmil:

Method #4 per
ICEA S-73-532

Application

Designed and constructed for the demanding environments of offshore drilling and petroleum facilities located throughout the world requiring a type MC-HL cable.

Features

- UL listed as Marine Shipboard Cable (File E86139) 600V/1000V
- UL listed as Type MC-HL, 600V (File E47409)
- UL listed insulated conductors
- Flame retardant: UL 1685 and IEEE 383 vertical tray fire tests at 70,000 BTU/hr, ICEA T-29-520 fire test at 210,000 BTU/hr, IEC 60332-3 category A fire test, IEEE 1202 and CSA FT4
- Cables are American Bureau of Shipping (ABS) listed as CWC MC Type MC
- Cables are marked “-40°C” and are suitable for handling and installation down to -10°C (based on -40°C impact and bend tests per UL 1569)
- Temperature rating of 90°C dry and wet
- 130°C emergency rating and 250°C short circuit rating
- Continuous, impervious aluminum armor corrugated for flexibility, prevents ingress of moisture, gases and liquids
- Aluminum armor resistance exceeds requirements of the NEC 2008 and NEC 2011 Article 250.178 for equipment grounding conductor
- Excellent mechanical and physical properties
- Sunlight resistant jacket
- Suitable for direct burial, use in cable tray and embedment in concrete
- Three conductor cables have three symmetrical grounding conductors suitable for PWM/VFD and other modern AC drive/motor applications
- Suitable for Class I, II and III, Divisions 1 & 2 as per NEC 2008 and NEC 2011 (HL Rated)

Bend Radius

- Fixed position: 7X cable overall diameter
- During pulling: 12X cable overall diameter

Ratings & Approvals

- 90°C Temperature Rating
- Meets UL 1309 and IEEE 1580 requirements for Marine Shipboard Cable
- Meets UL 44, XHHW-2 600V conductors
- Meets UL 1569 requirements for Type MC, Metal Clad cables
- Meets UL 2225 for Hazardous Locations (HL)
- Dual certified IEEE 1580 and UL 1309 Type CWCMC
- Designated Type MC as per NEC 2008 and NEC 2011 Article 330
- Meets CSA C22.2 No. 123 for Aluminum Sheathed Cables
- Meets CSA C22.2 No. 174 for Hazardous Locations

CORFLEX® is a registered trademark of Nexans

Power Cable • 600V

600V/1000V Marine Shipboard Cable

Nexans Design No.	Cond. Size AWG/kcmil	No. of Cond.	Insulation Thickness (mils)	Ground Wire Size AWG	Nominal Diameter Over Core (in)	Nominal Diameter Over Armor (in)	Jacket Thickness (mils)	Nominal Diameter Over Jacket (in)	Approx. Net Cable Weight (lbs/Kft)	DC Resist. 20C Ω/kft	DC Resist. 25C Ω/kft	AC Resist. 90C, 60 Hz Ω/kft	Inductive Reactance 90C, 60 Hz Ω/kft	Voltage Drop Volts/Amps/kft	Ampacities (Note 1)	
															75°C	90°C
670142	14(7w)	3	30	3x18(7w)	0.390	0.555	50	0.660	200	2.5553	2.6064	3.2583	0.0376	2.9489	15	15
317677	14(7w)	4	30	1x14(7w)	0.336	0.503	50	0.606	191	2.5553	2.6064	3.2583	0.0375	2.9307	15	15
670144	12(7w)	3	30	3x16(7w)	0.340	0.555	50	0.660	226	1.6082	1.6404	2.0507	0.0353	1.8610	20	20
317693	12(7w)	4	30	1x12(7w)	0.396	0.549	50	0.652	245	1.6082	1.6404	2.0507	0.0353	1.8510	20	20
670146	10(7w)	3	30	3x14(7w)	0.450	0.620	50	0.725	312	1.0118	1.0320	1.2902	0.0332	1.1756	30	30
317719	10(7w)	4	30	1x10(7w)	0.450	0.620	50	0.730	320	1.0118	1.0320	1.2902	0.0332	1.1758	30	30
670148	8(7w)	3	45	3x14(7w)	0.520	0.750	50	0.838	413	0.6361	0.6488	0.8111	0.0348	0.7452	50	55
317735	8(7w)	4	45	1x10(7w)	0.585	0.795	50	0.900	465	0.6361	0.6488	0.8111	0.0348	0.7472	50	55
670149	6(7w)	3	45	3x12(7w)	0.600	0.802	50	0.905	542	0.4002	0.4082	0.5104	0.0329	0.4737	65	75
317750	6(7w)	4	45	1x8(7w)	0.680	0.930	50	1.027	675	0.4002	0.4082	0.5104	0.0329	0.4737	65	75
670150	4(7w)	3	45	3x12(7w)	0.700	0.937	50	1.039	735	0.2516	0.2566	0.3209	0.0312	0.3025	85	95
317776	4(7w)	4	45	1x8(7w)	0.782	0.995	50	1.095	892	0.2516	0.2566	0.3209	0.0312	0.3024	85	95
670151	2(7w)	3	45	3x10(7w)	0.830	1.127	50	1.232	1097	0.1574	0.1605	0.2009	0.0299	0.1938	115	130
317792	2(7w)	4	45	1x6(7w)	0.927	1.214	50	1.320	1332	0.1574	0.1605	0.2009	0.0299	0.1938	115	130
670152	1(19w)	3	55	3x10(7w)	0.950	1.230	50	1.320	1330	0.1255	0.1280	0.1603	0.0288	0.1568	130	145
698571	1(19w)	4	55	1x6(7w)	1.041	1.361	50	1.466	1628	0.1255	0.1280	0.1603	0.0288	0.1567	130	145
670153	1/0(19w)	3	55	3x10(7w)	1.040	1.350	50	1.473	1592	0.0999	0.1019	0.1278	0.0281	0.1272	150	170
317818	1/0(19w)	4	55	1x6(7w)	1.134	1.427	50	1.525	1922	0.0999	0.1019	0.1278	0.0283	0.1269	150	170
670118	2/0(19w)	3	55	3x10(7w)	1.126	1.422	50	1.510	1882	0.0797	0.0813	0.1021	0.0280	0.1041	175	195
317834	2/0(19w)	4	55	1x6(7w)	1.238	1.598	50	1.732	2393	0.0791	0.0806	0.1011	0.0281	0.1033	175	195
670119	3/0(19w)	3	55	3x8(7w)	1.250	1.606	60	1.739	2400	0.0629	0.0642	0.0808	0.0275	0.0847	200	225
660631	3/0(19w)	4	55	1x4(7w)	1.356	1.730	60	1.865	2975	0.0627	0.0640	0.0804	0.0276	0.0844	200	225
670120	4/0(19w)	3	55	3x8(7w)	1.360	1.734	60	1.867	2910	0.0497	0.0507	0.0641	0.0271	0.0695	230	260
317867	4/0(19w)	4	55	1x4(7w)	1.500	1.936	60	2.069	3605	0.0497	0.0507	0.0641	0.0271	0.0694	230	260
670121	250(37w)	3	65	3x8(7w)	1.477	1.925	60	2.058	3316	0.0424	0.0432	0.0584	0.0263	0.0608	255	290
670577	250(37w)	4	65	1x4(7w)	1.653	2.012	60	2.147	4110	0.0424	0.0432	0.0584	0.0264	0.0607	255	290
670122	350(37w)	3	65	3x6(7w)	1.685	2.028	60	2.162	4375	0.0301	0.0307	0.0395	0.0263	0.0470	310	350
317891	350(37w)	4	65	1x3(7w)	1.889	2.230	75	2.387	5617	0.0301	0.0307	0.0395	0.0263	0.0468	310	350
670123	500(37w)	3	65	3x6(7w)	1.954	2.340	75	2.504	6026	0.0212	0.0216	0.0290	0.0250	0.0367	380	430
317917	500(37w)	4	65	1x2(7w)	2.196	2.694	75	2.861	7892	0.0212	0.0216	0.0282	0.0251	0.0363	380	430

Notes:

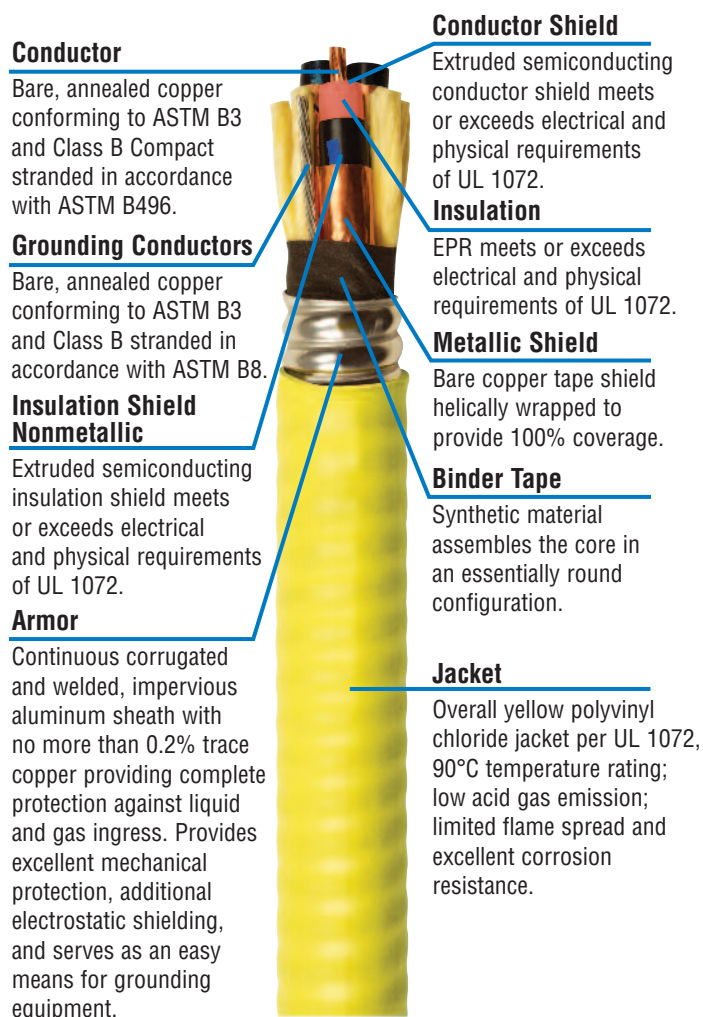
- 1) Ampacities are based on NEC 2011 Table 310.15(B)(16) for not more than three current-carrying conductors (where the 4th conductor is the neutral of a 3-phase, 4 wire system) in raceway, cable, or earth (direct buried), based on an ambient temperature of 30°C (86°F). Refer to Table 310.15(B)(2) for the ampacity correction factors where the ambient temperature is other than 30°C (86°F).
- 2) Three conductor cables with 3 ground wires are also suitable for VFD applications.

CORFLEX® MV-105 or MC-HL Medium Voltage

5kV 133% Insulation Level

8kV 100% Insulation Level

Rated 105°C • 3 Conductors with 3 Bare Grounds



Ratings & Approvals

- 105°C Temperature Rating
- Meets UL 1309 and IEEE 1580 requirements for Marine Shipboard Cable
- Meets UL 1072 requirements for medium voltage power cables
- Meets UL 1569 requirements for Type MC, Metal Clad cables
- Meets UL 2225 for Hazardous Locations (MC-HL)
- Designated Type MC as per NEC 2008 and NEC 2011 Article 330
- Insulation meets electrical and physical requirements of ICEA S-93-639/NEMA WC 74 and UL 1072
- Designated Type MV-105 as per NEC 2008 and NEC 2011 Article 328

Application

Designed and constructed for the demanding environments of offshore drilling and petroleum facilities located throughout the world requiring a type MV-105 or MC-HL Medium Voltage cable.

Features

- UL listed as Marine Shipboard Cable (File E86139)
- UL listed as Type MV-105 5kV and 8kV (File E66901)
- Flame retardant: UL 1685 and IEEE 383 vertical tray fire tests at 70,000 BTU/hr, IEC 60332-3 category A fire test, IEEE 1202 and CSA FT4
- Cables are American Bureau of Shipping (ABS) listed as CWC MC Type MV/MC (Metal Clad, Medium Voltage)
- Cables are marked “-40°C” and are suitable for handling and installation down to -10°C (based on -40°C impact and bend tests per UL 1569)
- Continuous, impervious aluminum armor corrugated for flexibility, prevents ingress of moisture, gases and liquids
- Aluminum armor resistance exceeds requirements of the NEC 2008 and NEC 2011 Article 250.178 for equipment grounding conductor
- Excellent mechanical and physical properties
- Minimal noise and signal interference
- Sunlight resistant jacket
- Suitable for direct burial, use in cable tray and embedment in concrete
- Suitable for Class I, II and III, Divisions 1 & 2 as per NEC 2008 and NEC 2011 (HL Rated)
- Three symmetrical grounding conductors for PWM/VFD and other modern AC drive/motor applications
- Phase identification: Color coded (black, red, blue) polyester ribbon laid longitudinally under the copper shield tape

Bend Radius

- Fixed position: 7 x cable overall diameter
- During pulling: 12 x cable overall diameter

CORFLEX® is a registered trademark of Nexans

5kV • 133% Insulation Level • EPR insulation: 90 mils

Nexans Part No.	Cond. Size AWG/kcmil	Ground Wire Size AWG	Nominal Diameter Over Insulation (in)	Nominal Diameter Over Core (in)	Nominal Diameter Over Armor (in)	Jacket Thickness (mils)	Nominal Diameter Over Jacket (in)	Approx. Net Cable Weight (lbs/ft)	Ampacities			DC Resist. 20C Ω/kft	DC Resist. 25C Ω/kft	AC Resist. 90C, 60 Hz Ω/kft	Inductive Reactance 90C, 60 Hz Ω/kft	Voltage Drop Volts/Amps/kft
									In Air Note 1	Cable Tray Note 2	Direct Burial Note 3					
603837	6(7w)	3 x 10	0.386	0.981	1.311	50	1.427	1058	88	77	115	0.4008	0.4088	0.5111	0.0447	0.4792
603838	4(7w)	3 x 10	0.430	1.076	1.379	50	1.484	1234	115	100	150	0.2520	0.2570	0.3213	0.0409	0.3071
603839	2(7w)	3 x 10	0.485	1.195	1.564	60	1.698	1623	154	135	190	0.1585	0.1616	0.2022	0.0308	0.1986
603840	1(18w)	3 x 8	0.517	1.262	1.608	60	1.741	1877	180	155	215	0.1260	0.1285	0.1608	0.0368	0.1908
603841	1/0(18w)	3 x 8	0.554	1.345	1.704	60	1.838	2163	205	185	245	0.0999	0.1019	0.1275	0.0356	0.1303
603842	2/0(18w)	3 x 8	0.594	1.432	1.806	60	1.939	2473	240	210	280	0.0792	0.0808	0.1013	0.0345	0.1062
603843	4/0(18w)	3 x 6	0.693	1.646	2.004	60	2.138	3435	320	285	360	0.0498	0.0508	0.0640	0.0324	0.0717
603844	250(36w)	3 x 6	0.747	1.706	2.115	60	2.249	3894	355	315	395	0.0422	0.0431	0.0544	0.0319	0.0629
603845	350(36w)	3 x 6	0.844	1.973	2.350	75	2.514	5081	440	390	475	0.0302	0.0308	0.0393	0.0306	0.0487
603846	500(36w)	3 x 4	0.965	2.233	2.694	75	2.860	7000	545	475	570	0.0211	0.0215	0.0282	0.0294	0.0382
603847	750(58w)	3 x 4	1.147	2.628	3.194	85	3.376	9837	685	585	700	0.0141	0.0144	0.0199	0.0275	0.0303
603848	1000(58w)	3 x 4	1.299	2.958	3.464	85	3.663	12951	790	660	785	0.0106	0.0108	0.0160	0.0283	0.0264

Notes:

- 1) Ampacities in air are based on NEC 2011 Table 310.60(C)(71), 2001-5000 Volts Ampacity column, for insulated three conductor copper cable isolated in air, maximum conductor temperature of 105°C, ambient air temperature of 40°C.
- 2) Ampacities in cable tray are based on NEC 2011 Table 310.60(C)(75), 2001-5000 Volts Ampacity column, for insulated three conductor copper cable in isolated conduit in air, maximum conductor temperature of 105°C, ambient air temperature of 40°C.
- 3) Ampacities for direct burial are based on NEC 2011 Table 310.60(C)(83), 2001-5000 Volts Ampacity column, for insulated three conductor copper cable, directly buried, maximum conductor temperature of 105°C, ambient earth temperature of 20°C, 100 percent load factor, earth thermal resistivity of 90°C cm / W.

* Three conductor cables with 3 ground wires are also suitable for VFD applications.

8kV • 100% Insulation Level • EPR insulation: 115 mils

Nexans Part No.	Cond. Size AWG/kcmil	Ground Wire Size AWG	Nominal Diameter Over Insulation (in)	Nominal Diameter Over Core (in)	Nominal Diameter Over Armor (in)	Jacket Thickness (mils)	Nominal Diameter Over Jacket (in)	Approx. Net Cable Weight (lbs/ft)	Ampacities			DC Resist. 20C Ω/kft	DC Resist. 25C Ω/kft	AC Resist. 90C, 60 Hz Ω/kft	Inductive Reactance 90C, 60 Hz Ω/kft	Voltage Drop Volts/Amps/kft
									In Air Note 1	Cable Tray Note 2	Direct Burial Note 3					
662776	6(7w)	3 x 10	0.426	1.066	1.372	50	1.477	1102	105	92	120	0.4008	0.4088	0.5111	0.0460	0.4801
665017	4(7w)	3 x 10	0.470	1.162	1.542	60	1.678	1402	135	120	155	0.2520	0.2570	0.3213	0.0427	0.3078
660072	2(7w)	3 x 10	0.525	1.298	1.631	60	1.765	1773	185	165	200	0.1585	0.1616	0.2022	0.0400	0.1994
660648	1(18w)	3 x 8	0.556	1.368	1.731	60	1.864	2092	210	185	225	0.1260	0.1285	0.1607	0.0387	0.1616
662186	1/0(18w)	3 x 8	0.593	1.448	1.905	60	2.047	2389	240	215	255	0.0999	0.1019	0.1275	0.0374	0.1311
670667	2/0(18w)	3 x 8	0.634	1.534	1.948	60	2.081	2680	275	245	290	0.0792	0.0808	0.1012	0.0361	0.1069
670669	4/0(18w)	3 x 6	0.733	1.749	2.103	60	2.240	3673	360	320	375	0.0498	0.0508	0.0639	0.0338	0.0723
665029	250(36w)	3 x 6	0.786	1.865	2.240	60	2.387	4181	400	350	410	0.0422	0.0431	0.0543	0.0332	0.0634
660075	350(36w)	3 x 6	0.884	2.076	2.459	75	2.623	5363	490	430	495	0.0302	0.0308	0.0392	0.0312	0.0492
660076	500(36w)	3 x 4	1.045	2.335	2.779	75	2.946	7323	600	525	590	0.0211	0.0215	0.0281	0.0304	0.0386
660349	750(58w)	3 x 4	1.186	2.731	3.366	85	3.565	10292	745	635	720	0.0141	0.0144	0.0196	0.0292	0.0306
665014	1000(58w)	3 x 4	1.339	3.063	3.505	85	3.687	12871	860	725	810	0.0106	0.0108	0.0159	0.0283	0.0266

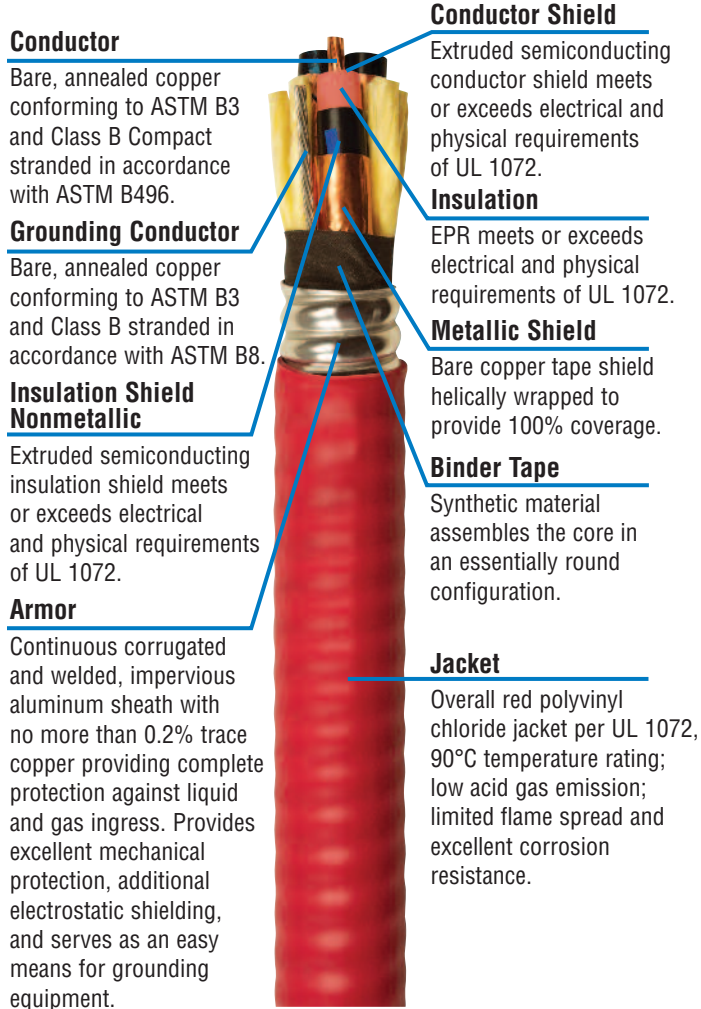
Notes:

- 1) Ampacities in air are based on NEC 2011 Table 310.60(C)(71), 5001-35,000 Volts Ampacity column, for insulated three conductor copper cable isolated in air, maximum conductor temperature of 105°C, ambient air temperature of 40°C.
- 2) Ampacities in cable tray are based on NEC 2011 Table 310.60(C)(75), 5001-35,000 Volts Ampacity column, for insulated three conductor copper cable in isolated conduit in air, maximum conductor temperature of 105°C, ambient air temperature of 40°C.
- 3) Ampacities for direct burial are based on NEC 2011 Table 310.60(C)(83), 5001-35,000 Volts Ampacity column, for insulated three conductor copper cable, directly buried, maximum conductor temperature of 105°C, ambient earth temperature of 20°C, 100 percent load factor, earth thermal resistivity of 90°C cm / W.

* Three conductor cables with 3 ground wires are also suitable for VFD applications.

CORFLEX® MV-105 or MC-HL Medium Voltage 15kV 100% Insulation Level & 133% Insulation Level

Rated 105°C • 3 Conductors with 1 Bare Ground



Ratings & Approvals

- 105°C Temperature Rating
- Meets UL 1309 and IEEE 1580 requirements for Marine Shipboard Cable
- Meets UL 1072 requirements for medium voltage power cables
- Meets UL 1569 requirements for Type MC, Metal Clad cables
- Meets UL 2225 for Hazardous Locations (MC-HL)
- Designated Type MC as per NEC 2008 and NEC 2011 Article 330
- Insulation meets electrical and physical requirements of ICEA S-93-639/NEMA WC 74 and UL 1072
- Designated Type MV-105 as per NEC 2008 and NEC 2011 Article 328

Application

Designed and constructed for the demanding environments of offshore drilling and petroleum facilities located throughout the world requiring a type MV-105 or MC-HL Medium Voltage cable.

Features

- UL listed as Marine Shipboard Cable (File E86139)
- UL listed as Type MV-105 15 kV (File E66901)
- Flame retardant: UL 1685 and IEEE 383 vertical tray fire tests at 70,000 BTU/hr, IEC 60332-3 category A fire test, IEEE 1202 and CSA FT4
- Cables are American Bureau of Shipping (ABS) listed as CWC MC Type MV/MC (Metal Clad, Medium Voltage)
- Cables are marked “-40°C” and are suitable for handling and installation down to -10°C (based on -40°C impact and bend tests per UL 1569)
- Continuous, impervious aluminum armor corrugated for flexibility, prevents ingress of moisture, gases and liquids
- Aluminum armor resistance exceeds requirements of the NEC 2008 and NEC 2011 Article 250.178 for equipment grounding conductor
- Excellent mechanical and physical properties
- Minimal noise and signal interference
- Sunlight resistant jacket
- Suitable for direct burial, use in cable tray and embedment in concrete
- Suitable for Class I, II and III, Divisions 1 & 2 as per NEC 2008 and NEC 2011 (HL Rated)
- Phase identification: Color coded (black, red, blue) polyester ribbon laid longitudinally under the copper shield tape

Bend Radius

- Fixed position: 7 x cable overall diameter
- During pulling: 12 x cable overall diameter

CORFLEX® is a registered trademark of Nexans

15kV • 100% Insulation Level

Nexans Design No.	Cond. Size AWG/kcmil	Ground Wire Size AWG	Nominal Diameter Over Insulation (in)	Nominal Diameter Over Core (in)	Nominal Diameter Over Armor (in)	Jacket Thickness (mils)	Nominal Diameter Over Jacket (in)	Approx. Net Cable Weight (lbs/Kft)	Ampacities			DC Resist. 20C Ω/kft	DC Resist. 25C Ω/kft	AC Resist. 90C, 60 Hz Ω/kft	Inductive Reactance 90C, 60 Hz Ω/kft	Voltage Drop Volts/Amps/kft
									In Air Note 1	Cable Tray Note 2	Direct Burial Note 3					
664931	2(7w)	6	0.655	1.586	1.974	60	2.107	2121	185	165	200	0.1585	0.1616	0.2022	0.0445	0.2013
664933	1(18w)	4	0.679	1.631	1.996	60	2.129	2360	210	185	225	0.1260	0.1285	0.1607	0.0428	0.1633
664934	1/0(18w)	4	0.716	1.711	2.036	60	2.171	2630	240	215	255	0.0999	0.1019	0.1275	0.0412	0.1327
664935	2/0(18w)	4	0.756	1.800	2.154	60	2.289	2987	275	245	290	0.0792	0.0808	0.1012	0.0398	0.1085
664936	4/0(18w)	3	0.856	2.014	2.426	75	2.589	4078	360	320	375	0.0498	0.0508	0.0639	0.0371	0.0737
664676	250(36w)	2	0.910	2.131	2.490	75	2.653	4599	400	350	410	0.0422	0.0431	0.0543	0.0363	0.0647
664677	350(36w)	2	1.007	2.342	2.784	75	2.969	5985	490	430	495	0.0302	0.0308	0.0392	0.0346	0.0503
664678	500(36w)	1	1.128	2.607	3.185	85	3.367	7789	600	525	590	0.0211	0.0215	0.0280	0.0330	0.0396
664679	750(58w)	1/0	1.310	2.999	3.480	85	3.671	10716	745	635	720	0.0141	0.0144	0.0196	0.0314	0.0313

Notes:

- 1) Ampacities in air are based on NEC 2011 Table 310.60(C)(71), 5001-35,000 Volts Ampacity column, for insulated three conductor copper cable isolated in air, maximum conductor temperature of 105°C, ambient air temperature of 40°C.
- 2) Ampacities in cable tray are based on NEC 2011 Table 310.60(C)(75), 5001-35,000 Volts Ampacity column, for insulated three conductor copper cable in isolated conduit in air, maximum conductor temperature of 105°C, ambient air temperature of 40°C.
- 3) Ampacities for direct burial applications are based on NEC 2011 Table 310.60(C)(83), 5001-35,000 Volts Ampacity column, for insulated three conductor copper cable, directly buried, maximum conductor temperature of 105°C, ambient earth temperature of 20°C, 100 percent load factor, earth thermal resistivity of 90°C cm / W.

15kV • 133% Insulation Level

Nexans Design No.	Cond. Size AWG/kcmil	Ground Wire Size AWG	Nominal Diameter Over Insulation (in)	Nominal Diameter Over Core (in)	Nominal Diameter Over Armor (in)	Jacket Thickness (mils)	Nominal Diameter Over Jacket (in)	Approx. Net Cable Weight (lbs/Kft)	Ampacities			DC Resist. 20C Ω/kft	DC Resist. 25C Ω/kft	AC Resist. 90C, 60 Hz Ω/kft	Inductive Reactance 90C, 60 Hz Ω/kft	Voltage Drop Volts/Amps/kft
									In Air Note 1	Cable Tray Note 2	Direct Burial Note 3					
665006	2(7w)	6	0.735	1.740	2.094	60	2.235	2251	185	165	200	0.1585	0.1616	0.2022	0.0468	0.2024
665007	1(18w)	4	0.766	1.822	2.177	60	2.311	2616	210	185	225	0.1260	0.1285	0.1607	0.0454	0.1644
665008	1/0(18w)	4	0.803	1.902	2.299	60	2.442	2956	240	215	255	0.0999	0.1019	0.1275	0.0437	0.1338
665005	2/0(18w)	4	0.844	1.989	2.362	60	2.496	3270	275	245	290	0.0792	0.0808	0.1012	0.0421	0.1095
665010	4/0(18w)	3	0.943	2.203	2.681	75	2.853	4546	360	320	375	0.0498	0.0508	0.0639	0.0391	0.0746
665011	250(36w)	2	0.996	2.318	2.768	75	2.940	5106	400	350	410	0.0422	0.0431	0.0543	0.0382	0.0655
665012	350(36w)	2	1.094	2.528	3.154	85	3.336	6396	490	430	495	0.0302	0.0308	0.0392	0.0363	0.0510
665013	500(36w)	1	1.215	2.792	3.387	85	3.575	8209	600	525	590	0.0211	0.0215	0.0280	0.0345	0.0402

Notes:

- 1) Ampacities in air are based on NEC 2011 Table 310.60(C)(71), 5001-35,000 Volts Ampacity column, for insulated three conductor copper cable isolated in air, maximum conductor temperature of 105°C, ambient air temperature of 40°C.
- 2) Ampacities in cable tray are based on NEC 2011 Table 310.60(C)(75), 5001-35,000 Volts Ampacity column, for insulated three conductor copper cable in isolated conduit in air, maximum conductor temperature of 105°C, ambient air temperature of 40°C.
- 3) Ampacities for direct burial applications are based on NEC 2011 Table 310.60(C)(83), 5001-35,000 Volts Ampacity column, for insulated three conductor copper cable, directly buried, maximum conductor temperature of 105°C, ambient earth temperature of 20°C, 100 percent load factor, earth thermal resistivity of 90°C cm / W.

CORFLEX® Pulling Instructions

Certain installations require the pulling of CORFLEX® into ducts or trays. These installations require careful planning and execution. The following provides information on how to calculate tensions developed during pulling and what precautions to take to prevent damage to the cable.

Pulling Tension

The maximum tension applied to a cable is limited to prevent damage or distortion of cable components which could reduce the life or reliability of the cable. The method of pulling is significant in that different methods will result in different stresses on critical cable components for the same overall tension. Nexans AmerCable recommends that CORFLEX MC-HL Instrumentation 600V cables are pulled by means of the aluminum sheath and jacket with a grip applied over the jacketed core, sheath and overall jacket. All other CORFLEX cable types described in this catalog should be pulled by means of the conductors, aided with a grip over the outer aluminum sheath. **The conductors and the sheath must be pulled together.** Maximum allowable pulling tensions for CORFLEX cables should never exceed the values shown in pulling tension table.

Calculating Pulling Tensions

The tension developed in any **Straight Section** of duct is calculated as:

$$T = L \times W \times f \text{ lbf where}$$

L = section length (feet)

W = cable weight per unit length (lb/foot)

f = coefficient of dynamic friction

The tension developed in any

Bend is calculated as:

$$T = T_1 \times e^{fa} \text{ lbf where}$$

T₁ = tension at bend entrance (lbf)
e = base of natural logarithms (2.71828)

f = coefficient of dynamic friction

a = angle of bend (radians)

or e^{fa} is given in the following table for common conditions:

Bend Angle	f=0.15	f=0.30	f=0.35	f=0.40
30°	1.08	1.17	1.20	1.23
45°	1.13	1.27	1.32	1.37
60°	1.17	1.37	1.44	1.52
90°	1.27	1.60	1.73	1.88

Coefficients of dynamic friction with lubricant are given in the following table for common duct and cable jacket materials. These coefficients can be used for calculation of tensions.

Duct Type	Cable Jacket	Coefficient of Friction
PVC	PVC	0.50
PE	PVC	0.30
Fiber	PVC	0.40
Asbestos Cement	PVC	0.70

Considerations must be given to **Side Wall Bearing Pressure (SWBP)** when pulling CORFLEX through a bend. The SWBP is calculated as follows:

$$SWBP = \frac{\text{Pulling Tension Cable at Bend Exit (lbf)}}{\text{Radius of Bend (feet)}}$$

For CORFLEX, Nexans AmerCable recommends a maximum SWBP of 500 pounds force/foot. During installation of the CORFLEX cable, it is recommended that the bend radii be as noted in the cable descriptions.

Pulling in Duct

It is extremely important for the success of any pull in duct to use approved lubricants. Lubricants must be compatible with the cable jacket and duct material. Lubricating the pulling rope will decrease the tension on the pulling equipment and more importantly will reduce the risk of damage to the inside of the duct which in turn can damage the cable. When designing the duct layout, it is suggested that the bends be concentrated near the end from which the cable is to be pulled. This practice will result in lower tensions. In some cases, the tensions resulting from alternative directions should be calculated.

Pulling in Trays & Trenches

For the installation of CORFLEX in trays, rollers are normally used. Using well lubricated rollers and long radius sheaves at bends will result in a lower coefficient of friction when compared to duct. A coefficient of friction of 0.15 can be used when calculating pulling tension using rollers. For long pulls with bends it may be necessary to install assist pullers before the bends to reduce the tension on the cable entering a bend and reducing the risk of damage from excessive SWBP.

The recommendations given above are intended to cover a wide variety of pulling conditions. It is possible, under ideal conditions, and with experienced supervision, to exceed these limits.

For further guidance, see IEEE Paper 84 T & D 365-3, or contact Nexans AmerCable.

Pulling Tension Tables



CORFLEX INST Size (AWG)	No. of Pairs/ Triads	Max. Pulling Tension (lbf)
18	2 pairs	187
	4 pairs	234
	8 pairs	260
	12 pairs	290
	16 pairs	332
	20 pairs	412
	24 pairs	412
	36 pairs	461
16	1 pair	159
	2 pairs	207
	4 pairs	234
	8 pairs	290
	12 pairs	332
	16 pairs	412
	20 pairs	412
	24 pairs	461
16	36 pairs	550
	1 triad	159
	4 triads	234
	8 triads	294
	12 triads	368
	16 triads	412

CORFLEX MC Size (AWG)	Number of Conductors	Max. Pulling Tension (lbf)
14	2	167
	3	167
	4	191
	5	191
	7	207
	9	234
	12	234
	15	260
	19	260
	25	295
	37	326
12	2	191
	3	191
	4	207
	5	207
	7	234
	9	234
	12	260
	15	260
	19	295
	25	295
	37	326
10	2	191
	3	207
	4	207
	5	234
	7	234
	9	260
	12	260
	15	295
	19	295
	25	326
	37	411
12/10	4/3	191
	4/3	264
	4/3	420
	4/3	668
	4/3	1062

CORFLEX MC Size (AWG/kcmil)	Max. Pulling Tension (lbf)	
	3 Cond.	4 Cond.
8	265	396
6	420	630
4	670	995
3	840	1263
2	1060	1593
1	1340	2009
1/0	1690	2534
2/0	2130	3194
3/0	2685	4027
4/0	3385	5078
250	4000	6000
350	5600	8400
500	8000	10000
750	10000	10000
1000	10000	10000

CORFLEX® is a registered trademark of Nexans

CORFLEX® Conductor ID

Method #1-E2 per ICEA S-73-532

Conductor	Insulation	Stripe	Conductor	Insulation	Stripe
1st	BLACK	—	19th	ORANGE	Blue
2nd	RED	—	20th	YELLOW	Blue
3rd	BLUE	—	21st	BROWN	Blue
4th	ORANGE	—	22nd	BLACK	Orange
5th	YELLOW	—	23rd	RED	Orange
6th	BROWN	—	24th	BLUE	Orange
7th	RED	Black	25th	YELLOW	Orange
8th	BLUE	Black	26th	BROWN	Orange
9th	ORANGE	Black	27th	BLACK	Yellow
10th	YELLOW	Black	28th	RED	Yellow
11th	BROWN	Black	29th	BLUE	Yellow
12th	BLACK	Red	30th	ORANGE	Yellow
13th	BLUE	Red	31st	BROWN	Yellow
14th	ORANGE	Red	32nd	BLACK	Brown
15th	YELLOW	Red	33rd	RED	Brown
16th	BROWN	Red	34th	BLUE	Brown
17th	BLACK	Blue	35th	ORANGE	Brown
18th	RED	Blue	36th	YELLOW	Brown

Method 4 of ICEA S-73-532

Conductor	Printing Details	Conductor	Printing Details
1st	“1-ONE-1”	5th	“5-FIVE-5”
2nd	“2-TWO-2”	6th	“6-SIX-6”
3rd	“3-THREE-3”	7th	“7-SEVEN-7”
4th	“4-FOUR-4”	8th	“8-EIGHT-8”





Nexans AmerCable is an ISO 9001 certified cable manufacturer that combines leading-edge manufacturing technology, innovative thinking, and high quality service to deliver the finest oil & gas cable and engineered cable assemblies available.



Nexans AmerCable serves the world from our Oil & Gas Group headquarters in Houston, Texas. Our professional field engineers and sales force work with you to create innovative, cost-effective project solutions.

What can you expect from Nexans AmerCable?

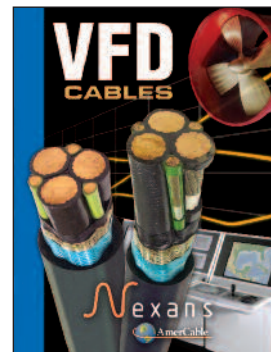
- Best at On-Time Delivery
- Outstanding Engineering Support and Customer Service
- Innovative Productivity Solutions
- Global Cable Management



The industry standard for flexible, high quality power, control and instrumentation Type P cables.



Low smoke halogen-free fire resistant or flame retardant Type P cables

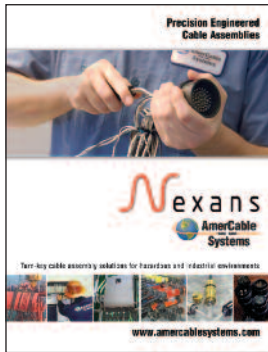


Foil shielded, power cables engineered for use in variable frequency AC drive applications.

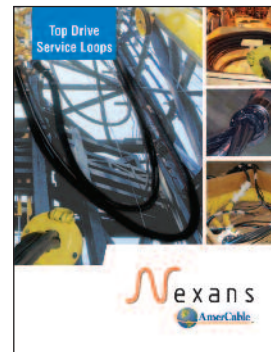
Available in several constructions



Crush and Impact Resistant Type P cables *without* external armoring



Precision engineered cable assemblies for hazardous and industrial applications



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www.nexansamercable.com