

TYPE MMV

MARINE MEDIUM VOLTAGE
STANDARD & VFD POWER CABLES



TYPE MMV – MARINE MEDIUM VOLTAGE POWER CABLES

Single Conductor: 5kV – 15kV, 100% & 133% Insulation Levels. Rated 90°C

Multi-Conductor: 5kV – 15kV, 100% & 133% Insulation Levels. Rated 90°C

Conductors

Soft annealed flexible stranded tinned copper per IEEE 1580 Table 11.

Insulation

Extruded thermosetting 90°C Ethylene Propylene Rubber (EPR), meeting UL 1309 (Type E), IEEE 1580 (Type E) and UL 1072.

Metallic Shield

Shield consisting of 0.0126" tinned copper braided with nylon providing 60% copper Shielded coverage meeting UL 1309, IEEE Std. 1580 and UL 1072. The nylon is colored for easy phase identification (three conductor = black, blue, red) without the need to remove the shield to find an underlying colored tape.

Conductor Shield

A combination of semi-conducting tape and extruded thermosetting semi-conducting material meeting UL 1309, IEEE 1580 and UL1072.

Insulation Shield

Semi-conducting tape, with overlap, for fast and easy termination meeting UL 1309, IEEE 1580 and UL 1072.

Grounding Conductor (optional)

One uninsulated soft annealed flexible stranded tinned copper conductor per ASTM B 33 and sized according to Table 21.1 of UL 1072.

Jacket

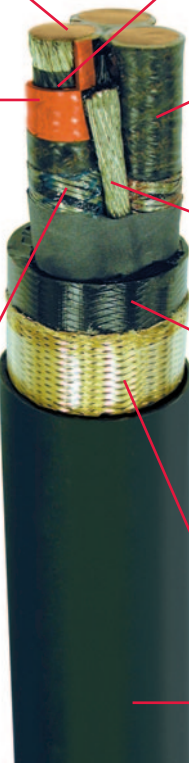
A black, arctic grade, flame retardant, oil, abrasion, chemical and sunlight resistant thermosetting compound meeting UL 1309, IEEE 1580 and UL 1072. Colored jackets for signifying different voltage levels are also available on special request (ie. yellow = 5kV, orange = 8kV and red = 15kV).

Armor (optional)

(Optional) 0.0126" bronze braid providing 88% minimum coverage meeting UL 1309 and IEEE Std. 45-1998.

Sheath (optional)

A black, arctic grade, flame retardant, oil, abrasion, chemical, and sunlight resistant thermosetting compound meeting UL 1309, IEEE 1580 and UL 1072. Colored jackets for signifying different voltage levels is also available on special request (ie. yellow = 5kV, orange = 8kV and red = 15kV).



APPLICATIONS

AmerCable's Type MMV marine medium voltage cables are for use aboard commercial ships, mobile offshore drilling units (MODUs), and fixed or floating offshore facilities.

FEATURES

- These cables utilize flexible stranded conductors, braided shields and a braided armor (when armored) which make them very suitable for applications involving repeated flexing and high vibration.
- These cables have a small minimum bending radius (6xOD for unarmored cables and 8xOD for armored cables) for easy installation.
- Optional uninsulated grounding conductors sized per UL 1072.
- The increased flexibility of this cable allows for termination of one end and coiling on multiple module offshore platforms. Then coiling and terminating other end when modules are mated at sea thereby reducing installation time.
- Passes IEC 332-3 Category A and IEEE 1202 flame tests.

Ratings & Approvals

- UL Listed as Marine Shipboard Cable (E111461)
- American Bureau of Shipping (ABS)
- Det Norske Veritas (DNV)
- Lloyd's Register of Shipping (LRS)
- 90°C Temperature Rating
- Voltage Rating – 5kV to 15kV (25kV available on request)

Hawke Gland Types	Unarmored	Armored & Sheathed
Industrial & Safe Area (IP68)	121	153-X
Increased Safety "EExe"	501/421	501/453/U
Explosion Proof	710 Class I, Div. 2 Class I, Zone 2	753 Class I, Div. 1 Class I, Zone 1 & 2
Flameproof "EExd"	501/421 Zone 1 & 2	501/453/U (2 liter or < enclosures) ICG 653/U (2 liter or > enclosures) Zone 1 & 2

SINGLE CONDUCTOR TYPE MMV MARINE MEDIUM VOLTAGE – 5KV, 100% INSULATION LEVEL

			Unarmored				Armored & Sheathed (BS)				Ampacity			DC Resistance at 25°C (ohms/1000 ft.)	AC Resistance at 90°C, 60 Hz (ohms/1000 ft.)
Size AWG/kcmil	mm2	Part No. 37-105	Nominal Diameter (inches)	Weight (Lbs./1000 ft.)	Inductive Reactance (ohms/1000 ft.)	Voltage Drop (Volts/amp/1000 ft.)	Nominal Diameter (inches)	Weight (Lbs./1000 ft.)	Inductive Reactance (ohms/1000 ft.)	Voltage Drop (Volts/amp/1000 ft.)	In Free Air (amps)	Triangular Configuration (amps)	Single Banked in Tray (amps)		
6	12.5	-102	0.655	268	0.050	0.822	0.920	520	0.058	0.830	107	92	91	0.436	0.556
4	21	-103	0.723	349	0.044	0.566	0.980	619	0.051	0.573	141	121	120	0.286	0.376
2	34	-104	0.725	459	0.041	0.361	1.055	759	0.047	0.367	186	159	158	0.175	0.230
1	43	-105	0.835	531	0.040	0.296	1.105	851	0.047	0.303	214	184	182	0.140	0.184
1/0	54	-106	0.915	645	0.039	0.245	1.180	986	0.045	0.250	247	212	210	0.111	0.147
2/0	70	-107	1.015	799	0.038	0.202	1.280	1174	0.043	0.207	285	244	242	0.089	0.117
3/0	86	-108	1.040	902	0.037	0.278	1.295	1274	0.042	0.173	328	281	279	0.070	0.094
4/0	109	-109	1.090	1060	0.035	0.141	1.340	1450	0.040	0.146	381	325	324	0.056	0.075
262	132	-110	1.170	1266	0.034	0.122	1.435	1690	0.038	0.127	435	371	370	0.046	0.063
313	159	-111	1.225	1310	0.033	0.108	1.490	1757	0.037	0.112	486	413	413	0.038	0.053
373	189	-112	1.320	1686	0.032	0.095	1.545	2123	0.036	0.099	544	460	462	0.032	0.045
444	227	-113	1.3801	1951	0.032	0.086	1.635	2432	0.035	0.090	606	510	515	0.027	0.039
535	273	-114	1.440	2241	0.031	0.077	1.765	2851	0.035	0.082	682	570	580	0.022	0.033
646	326	-115	1.535	2598	0.030	0.070	1.850	3240	0.034	0.075	767	635	652	0.019	0.028
777	394	-116	1.640	3079	0.030	0.065	1.960	3771	0.033	0.069	865	709	735	0.015	0.025

SINGLE CONDUCTOR TYPE MMV MARINE MEDIUM VOLTAGE 5KV, 133% / 8KV, 100% INSULATION LEVEL

			Unarmored				Armored & Sheathed (BS)				Ampacity			DC Resistance at 25°C (ohms/1000 ft.)	AC Resistance at 90°C, 60 Hz (ohms/1000 ft.)
Size AWG/kcmil	mm2	Part No. 37-105	Nominal Diameter (inches)	Weight (Lbs./1000 ft.)	Inductive Reactance (ohms/1000 ft.)	Voltage Drop (Volts/amp/1000 ft.)	Nominal Diameter (inches)	Weight (Lbs./1000 ft.)	Inductive Reactance (ohms/1000 ft.)	Voltage Drop (Volts/amp/1000 ft.)	In Free Air (amps)	Triangular Configuration (amps)	Single Banked in Tray (amps)		
6	12.5	-118	0.690	290	0.052	0.824	0.960	557	0.059	0.831	107	92	91	0.436	0.556
4	21	-119	0.785	391	0.046	0.567	1.055	686	0.052	0.574	141	121	120	0.286	0.376
2	34	-120	0.880	523	0.043	0.362	1.130	840	0.048	0.368	186	159	158	0.175	0.230
1	43	-121	0.935	608	0.042	0.298	1.195	948	0.047	0.304	214	184	182	0.140	0.184
1/0	54	-122	0.975	693	0.041	0.246	1.235	1054	0.046	0.251	247	212	210	0.111	0.147
2/0	70	-123	1.030	819	0.039	0.203	1.290	1194	0.044	0.208	285	244	242	0.089	0.117
3/0	86	-124	1.080	939	0.038	0.169	1.350	1332	0.043	0.174	328	281	279	0.070	0.094
4/0	109	-125	1.170	1128	0.036	0.142	1.400	1518	0.041	0.147	381	325	324	0.056	0.075
262	132	-126	1.225	1296	0.035	0.123	1.500	1747	0.039	0.128	435	371	370	0.046	0.063
313	159	-127	1.300	1515	0.034	0.109	1.565	1988	0.038	0.113	486	413	413	0.038	0.053
373	189	-128	1.350	1720	0.033	0.096	1.615	2210	0.037	0.100	544	460	462	0.032	0.045
444	227	-129	1.425	1998	0.033	0.087	1.680	2495	0.036	0.091	606	510	515	0.027	0.039
535	273	-130	1.505	2317	0.032	0.078	1.835	2955	0.036	0.082	682	570	580	0.022	0.033
646	326	-131	1.600	2715	0.031	0.071	1.920	3381	0.035	0.075	767	635	652	0.019	0.028
777	394	-132	1.760	3266	0.030	0.066	2.090	4016	0.034	0.070	865	709	735	0.015	0.025

TYPE MMV – MARINE MEDIUM VOLTAGE POWER CABLES



Single Conductor: 5kV – 15kV, 100% & 133% Insulation Levels. Rated 90°C

Multi-Conductor: 5kV – 15kV, 100% & 133% Insulation Levels. Rated 90°C

SINGLE CONDUCTOR TYPE MMV MARINE MEDIUM VOLTAGE – 8KV, 133% INSULATION LEVEL

			Unarmored				Armored & Sheathed (BS)				Ampacity			DC Resistance at 25°C (ohms/1000 ft.)	AC Resistance at 90°C, 60 Hz (ohms/1000 ft.)
Size AWG/kcmil	mm2	Part No. 37-105	Nominal Diameter (inches)	Weight (Lbs./1000 ft.)	Inductive Reactance (ohms/1000 ft.)	Voltage Drop (Volts/amp/1000 ft.)	Nominal Diameter (inches)	Weight (Lbs./1000 ft.)	Inductive Reactance (ohms/1000 ft.)	Voltage Drop (Volts/amp/1000 ft.)	In Free Air (amps)	Triangular Configuration (amps)	Single Banked in Tray (amps)		
6	12.5	-134	0.750	329	0.054	0.826	1.025	616	0.060	0.832	107	92	91	0.436	0.556
4	21	-135	0.880	463	0.047	0.569	1.145	791	0.053	0.575	141	121	120	0.286	0.376
2	34	-136	0.935	573	0.045	0.365	1.190	914	0.050	0.370	186	159	158	0.175	0.230
1	43	-137	0.985	649	0.044	0.300	1.250	1018	0.049	0.305	214	184	182	0.140	0.184
1/0	54	-138	1.017	729	0.042	0.247	1.265	1093	0.047	0.252	247	212	210	0.111	0.147
2/0	70	-139	1.090	872	0.040	0.204	1.360	1271	0.045	0.209	285	244	242	0.089	0.117
3/0	86	-140	1.125	979	0.039	0.171	1.390	1393	0.044	0.175	328	281	279	0.070	0.094
4/0	109	-141	1.190	1152	0.038	0.143	1.450	1579	0.042	0.148	381	325	324	0.056	0.075
262	132	-142	1.275	1349	0.036	0.124	1.525	1798	0.040	0.129	435	371	370	0.046	0.063
313	159	-143	1.335	1554	0.035	0.110	1.595	2034	0.039	0.114	486	413	413	0.038	0.053
373	189	-144	1.390	1768	0.034	0.097	1.650	2266	0.038	0.101	544	460	462	0.032	0.045
444	227	-145	1.470	2051	0.033	0.088	1.795	2931	0.038	0.093	606	510	515	0.027	0.039
535	273	-146	1.595	2435	0.032	0.078	1.905	3096	0.036	0.083	682	570	580	0.022	0.033
646	326	-147	1.660	2700	0.032	0.072	1.980	3385	0.036	0.076	767	635	652	0.019	0.028
777	394	-148	1.800	3326	0.032	0.067	2.120	4058	0.036	0.071	865	709	735	0.015	0.025

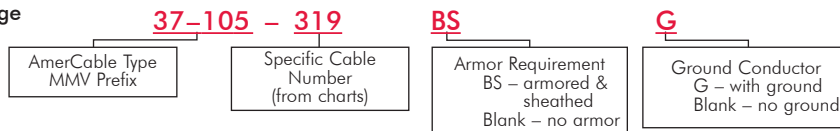
SINGLE CONDUCTOR TYPE MMV MARINE MEDIUM VOLTAGE – 15KV, 100% INSULATION LEVEL

			Unarmored				Armored & Sheathed (BS)				Ampacity			DC Resistance at 25°C (ohms/1000 ft.)	AC Resistance at 90°C, 60 Hz (ohms/1000 ft.)
Size AWG/kcmil	mm2	Part No. 37-105	Nominal Diameter (inches)	Weight (Lbs./1000 ft.)	Inductive Reactance (ohms/1000 ft.)	Voltage Drop (Volts/amp/1000 ft.)	Nominal Diameter (inches)	Weight (Lbs./1000 ft.)	Inductive Reactance (ohms/1000 ft.)	Voltage Drop (Volts/amp/1000 ft.)	In Free Air (amps)	Triangular Configuration (amps)	Single Banked in Tray (amps)		
2	34	-150	1.015	638	0.049	0.369	1.280	1007	0.053	0.373	186	164	158	0.175	0.230
1	43	-151	1.060	718	0.047	0.303	1.325	1104	0.051	0.308	214	189	182	0.140	0.184
1/0	54	-152	1.090	802	0.045	0.251	1.345	1198	0.049	0.255	247	217	210	0.111	0.147
2/0	70	-153	1.145	929	0.044	0.208	1.400	1345	0.047	0.212	284	250	241	0.089	0.117
3/0	86	-154	1.195	1052	0.042	0.174	1.450	1482	0.046	0.178	327	288	278	0.070	0.094
4/0	109	-155	1.260	1241	0.040	0.146	1.520	1701	0.044	0.150	378	332	321	0.056	0.075
262	132	-156	1.365	1458	0.039	0.128	1.630	1944	0.042	0.131	431	377	366	0.046	0.063
313	159	-157	1.410	1642	0.038	0.113	1.670	2133	0.042	0.117	481	418	409	0.038	0.053
373	189	-158	1.465	1880	0.037	0.100	1.790	2493	0.041	0.104	536	464	456	0.032	0.045
444	227	-159	1.545	2170	0.036	0.091	1.865	2804	0.040	0.095	598	514	508	0.027	0.039
535	273	-160	1.595	2490	0.036	0.082	1.920	3165	0.039	0.086	672	574	571	0.022	0.033
646	326	-161	1.755	2849	0.035	0.075	2.080	3574	0.038	0.079	754	638	641	0.019	0.028
777	394	-162	1.895	3501	0.034	0.070	2.230	4316	0.037	0.073	848	709	721	0.015	0.025

Ordering Type MMV Medium Voltage Cables

Example:

- 3 conductor power cable
- 8kV 100%
- #2 AWG
- ground
- bronze armored & sheathed



SINGLE CONDUCTOR TYPE MMV MARINE MEDIUM VOLTAGE – 15KV, 133% INSULATION LEVEL

			Unarmored				Armored & Sheathed (BS)				Ampacity			DC	AC
Size AWG/ kcmil	mm2	Part No. 37-105	Nominal Diameter (inches)	Weight (Lbs./ 1000 ft.)	Inductive Reactance (ohms/ 1000 ft.)	Voltage Drop (Volts/amp/ 1000 ft.)	Nominal Diameter (inches)	Weight (Lbs./ 1000 ft.)	Inductive Reactance (ohms/ 1000 ft.)	Voltage Drop (Volts/amp/ 1000 ft.)	In Free Air (amps)	Triangular Configuration (amps)	Single Banked in Tray (amps)	Resistance at 25°C (ohms/1000 ft.)	Resistance at 90°C, 60 Hz (ohms/1000 ft.)
2	34	-164	1.100	717	0.050	0.370	1.360	1108	0.055	0.375	186	164	158	0.175	0.230
1	43	-165	1.135	789	0.049	0.305	1.395	1191	0.053	0.309	214	189	182	0.140	0.184
1/0	54	-166	1.190	900	0.047	0.252	1.435	1315	0.051	0.256	247	217	210	0.111	0.147
2/0	70	-167	1.240	1024	0.045	0.209	1.485	1466	0.049	0.213	284	250	241	0.089	0.117
3/0	86	-168	1.300	1173	0.044	0.176	1.555	1633	0.047	0.179	327	288	278	0.070	0.094
4/0	109	-169	1.365	1350	0.042	0.148	1.610	1817	0.046	0.151	378	332	321	0.056	0.075
262	132	-170	1.450	1555	0.040	0.129	1.765	2145	0.044	0.133	431	377	366	0.046	0.063
313	159	-171	1.505	1763	0.039	0.114	1.830	2398	0.043	0.118	481	418	409	0.038	0.053
373	189	-172	1.555	1983	0.038	0.101	1.880	2647	0.042	0.105	536	464	456	0.032	0.045
444	227	-173	1.630	2272	0.038	0.093	1.945	2957	0.041	0.096	598	514	508	0.027	0.039
535	273	-174	1.770	2698	0.037	0.084	2.090	3428	0.040	0.087	672	574	571	0.022	0.033
646	326	-175	1.865	3098	0.036	0.077	2.190	3865	0.039	0.080	754	638	641	0.019	0.028
777	394	-176	1.980	3627	0.035	0.071	2.310	4464	0.038	0.074	848	709	721	0.015	0.025

THREE CONDUCTOR TYPE MMV MARINE MEDIUM VOLTAGE – 5KV, 100% INSULATION LEVEL

			Unarmored		Armored & Sheathed (BS)		Ampacity						
Size AWG/ kcmil	mm2	Part No. 37-105	Nominal Diameter (inches)	Weight (Lbs./ 1000 ft.)	Nominal Diameter (inches)	Weight (Lbs./ 1000 ft.)	In Free Air (amps)	Single Banked in Trays (amps)	DC Resistance at 25°C (ohms/1000 ft.)	AC Resistance at 90°C, 60Hz (ohms/1000 ft.)	Inductive Reactance (ohms/ 1000 ft.)	Voltage Drop (Volts per amp per 1000 ft.)	Optional Grounding Conductor
6	12.5	-302	1.295	908	1.545	1369	88	75	0.445	0.556	0.044	0.815	6
4	21	-303	1.470	1315	1.775	1728	116	99	0.300	0.376	0.039	0.560	6
2	34	-304	1.620	1481	1.935	2212	152	129	0.184	0.230	0.036	0.356	6
1	43	-305	1.750	1788	2.075	1749	175	149	0.147	0.184	0.035	0.291	4
1/0	54	-306	1.845	2055	2.160	2829	201	171	0.117	0.147	0.034	0.239	4
2/0	70	-307	2.010	2496	2.300	3333	232	197	0.093	0.117	0.033	0.196	4
3/0	86	-308	2.095	2874	2.410	3740	266	226	0.074	0.094	0.032	0.163	3
4/0	109	-309	2.235	3426	2.560	4354	306	260	0.058	0.075	0.031	0.136	3
262	132	-310	2.405	4085	2.720	5039	348	296	0.048	0.063	0.030	0.118	3
313	159	-311	2.500	4205	2.885	5371	386	328	0.040	0.053	0.029	0.104	2
373	189	-312	2.675	5372	3.055	6612	429	365	0.034	0.045	0.029	0.092	2
444	227	-313	2.920	6442	3.320	7861	455	387	0.028	0.039	0.028	0.083	1
535	273	-314	3.045	7372	3.415	8755	528	449	0.024	0.033	0.028	0.074	1
646	326	-315	3.260	8553	3.640	10056	584	496	0.020	0.028	0.027	0.067	1
777	394	-316	3.475	10101	3.855	11689	647	550	0.016	0.025	0.027	0.062	1/0

TYPE MMV – MARINE MEDIUM VOLTAGE POWER CABLES



Single Conductor: 5kV – 15kV, 100% & 133% Insulation Levels. Rated 90°C

Multi-Conductor: 5kV – 15kV, 100% & 133% Insulation Levels. Rated 90°C

THREE CONDUCTOR TYPE MMV MARINE MEDIUM VOLTAGE – 5KV, 133% / 8KV, 100% INSULATION LEVEL

			Unarmored		Armored & Sheathed (BS)		Ampacity						
Size AWG/ kcmil	mm ²	Part No. 37-105	Nominal Diameter (inches)	Weight (lbs./ 1000 ft.)	Nominal Diameter (inches)	Weight (lbs./ 1000 ft.)	In Free Air (amps)	Single Banked in Trays (amps)	DC Resistance at 25°C (ohms/1000 ft.)	AC Resistance at 90°C, 60Hz (ohms/1000 ft.)	Inductive Reactance (ohms/ 1000 ft.)	Voltage Drop (Volts per amp per 1000 ft.)	Optional Grounding Conductor
6	12.5	-317	1.405	940	1.670	1534	88	75	0.445	0.556	0.046	0.818	6
4	21	-318	1.585	1259	1.905	2035	116	99	0.300	0.376	0.041	0.562	6
2	34	-319	1.775	1697	2.095	2563	152	129	0.184	0.230	0.038	0.357	6
1	43	-320	1.870	1926	2.195	2883	175	149	0.147	0.184	0.037	0.293	4
1/0	54	-321	1.970	2231	2.295	3242	201	171	0.117	0.147	0.036	0.241	4
2/0	70	-322	2.090	2634	2.415	3729	232	197	0.093	0.117	0.034	0.198	4
3/0	86	-323	2.200	3043	2.525	4192	266	226	0.074	0.094	0.033	0.165	3
4/0	109	-324	2.340	3605	2.660	4889	306	260	0.058	0.075	0.032	0.138	3
262	132	-325	2.505	4171	2.885	5731	348	296	0.048	0.063	0.031	0.119	3
313	159	-326	2.655	4874	3.035	6525	386	328	0.040	0.053	0.030	0.105	2
373	189	-327	2.840	5709	3.225	7510	429	365	0.034	0.045	0.030	0.093	2
444	227	-328	2.995	6567	3.380	8527	455	387	0.028	0.039	0.029	0.084	1
535	273	-329	3.170	7616	3.550	9715	528	449	0.024	0.033	0.029	0.075	1
646	326	-330	3.365	8875	3.750	11206	584	496	0.020	0.028	0.028	0.068	1
777	394	-331	3.595	10401	3.980	12971	647	550	0.016	0.025	0.028	0.063	1/0

THREE CONDUCTOR TYPE MMV MARINE MEDIUM VOLTAGE – 8KV, 133% INSULATION LEVEL

			Unarmored		Armored & Sheathed (BS)		Ampacity						
Size AWG/ kcmil	mm ²	Part No. 37-105	Nominal Diameter (inches)	Weight (lbs./ 1000 ft.)	Nominal Diameter (inches)	Weight (lbs./ 1000 ft.)	In Free Air (amps)	Single Banked in Trays (amps)	DC Resistance at 25°C (ohms/1000 ft.)	AC Resistance at 90°C, 60Hz (ohms/1000 ft.)	Inductive Reactance (ohms/ 1000 ft.)	Voltage Drop (Volts per amp per 1000 ft.)	Optional Grounding Conductor
6	12.5	-332	1.520	1081	1.845	1796	88	75	0.445	0.556	0.048	0.820	6
4	21	-333	1.750	1486	2.075	2347	116	99	0.300	0.376	0.043	0.564	6
2	34	-334	1.900	1887	2.225	2854	152	129	0.184	0.230	0.040	0.359	6
1	43	-335	1.980	2081	2.300	3110	175	149	0.147	0.184	0.038	0.294	4
1/0	54	-336	2.080	2399	2.400	3464	201	171	0.117	0.147	0.037	0.242	4
2/0	70	-337	2.205	2819	2.525	3982	232	197	0.093	0.117	0.036	0.199	4
3/0	86	-338	2.315	3219	2.635	4442	266	226	0.074	0.094	0.035	0.166	3
4/0	109	-339	2.460	3805	2.845	5295	306	260	0.058	0.075	0.033	0.139	3
262	132	-340	2.635	4402	3.020	6055	348	296	0.048	0.063	0.032	0.121	3
313	159	-341	2.835	5253	3.220	7012	386	328	0.040	0.053	0.032	0.106	2
373	189	-342	2.955	5949	3.315	7804	429	365	0.034	0.045	0.031	0.094	2
444	227	-343	3.100	6786	3.480	8863	455	387	0.028	0.039	0.030	0.085	1
535	273	-344	3.375	8070	3.755	10418	528	449	0.024	0.033	0.030	0.076	1
646	326	-345	3.500	8916	3.885	11361	584	496	0.020	0.028	0.029	0.069	1

Ordering Type MMV Medium Voltage Cables

Example:

- 3 conductor power cable
- 8kV 100%
- #2 AWG
- ground
- bronze armored & sheathed

37-105 - 319

AmerCable Type
MMV Prefix

Specific Cable
Number
(from charts)

BS

Armor Requirement
BS – armored &
sheathed
Blank – no armor

G

Ground Conductor
G – with ground
Blank – no ground

THREE CONDUCTOR TYPE MMV MARINE MEDIUM VOLTAGE – 15KV, 100% INSULATION LEVEL

			Unarmored		Armored & Sheathed (BS)		Ampacity						
Size AWG/ kcmil	mm2	Part No. 37-105	Nominal Diameter (inches)	Weight (Lbs./ 1000 ft.)	Nominal Diameter (inches)	Weight (Lbs./ 1000 ft.)	In Free Air (amps)	Single Banked in Trays (amps)	DC Resistance at 25°C (ohms/1000 ft.)	AC Resistance at 90°C, 60Hz (ohms/1000 ft.)	Inductive Reactance (ohms/ 1000 ft.)	Voltage Drop (Volts per amp per 1000 ft.)	Optional Grounding Conductor
2	34	-346	2.050	2097	2.365	3147	156	133	0.184	0.230	0.042	0.361	6
1	43	-347	2.140	2319	2.460	3469	178	151	0.147	0.184	0.040	0.296	4
1/0	54	-348	2.235	2639	2.555	3904	205	174	0.117	0.147	0.039	0.244	4
2/0	70	-349	2.355	3059	2.675	4339	234	199	0.093	0.117	0.037	0.201	4
3/0	86	-350	2.460	3467	2.840	4988	269	229	0.074	0.094	0.036	0.168	3
4/0	109	-351	2.600	4085	2.980	5708	309	263	0.058	0.075	0.035	0.141	3
262	132	-352	2.870	4890	3.250	6765	352	299	0.048	0.063	0.034	0.122	3
313	159	-353	2.965	5494	3.350	7448	389	331	0.040	0.053	0.033	0.107	2
373	189	-354	3.100	6283	3.485	8314	432	367	0.034	0.045	0.032	0.095	2
444	227	-355	3.255	7330	3.640	9442	456	388	0.028	0.039	0.031	0.086	1
535	273	-356	3.500	8390	3.885	10858	528	449	0.024	0.033	0.031	0.077	1

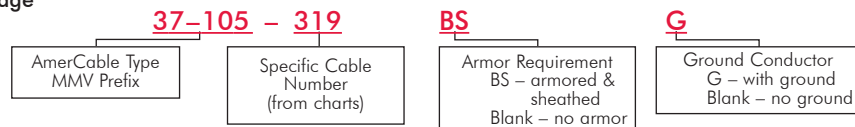
THREE CONDUCTOR TYPE MMV MARINE MEDIUM VOLTAGE – 15KV, 133% INSULATION LEVEL

			Unarmored		Armored & Sheathed (BS)		Ampacity						
Size AWG/ kcmil	mm2	Part No. 37-105	Nominal Diameter (inches)	Weight (Lbs./ 1000 ft.)	Nominal Diameter (inches)	Weight (Lbs./ 1000 ft.)	In Free Air (amps)	Single Banked in Trays (amps)	DC Resistance at 25°C (ohms/1000 ft.)	AC Resistance at 90°C, 60Hz (ohms/1000 ft.)	Inductive Reactance (ohms/ 1000 ft.)	Voltage Drop (Volts per amp per 1000 ft.)	Optional Grounding Conductor
2	34	-357	2.235	2359	2.560	3556	156	133	0.184	0.230	0.044	0.364	6
1	43	-358	2.315	2616	2.640	3866	178	151	0.147	0.184	0.043	0.299	4
1/0	54	-359	2.425	2963	2.800	4454	205	174	0.117	0.147	0.041	0.246	4
2/0	70	-360	2.550	3406	2.925	4995	234	199	0.093	0.117	0.039	0.203	4
3/0	86	-361	2.675	3939	3.060	5566	269	229	0.074	0.094	0.038	0.170	3
4/0	109	-362	2.875	4594	3.260	6458	309	263	0.058	0.075	0.037	0.142	3
262	132	-363	3.045	5265	3.430	7273	352	299	0.048	0.063	0.035	0.124	3
313	159	-364	3.165	5933	3.550	8067	389	331	0.040	0.053	0.034	0.109	2
373	189	-365	3.280	6634	3.665	8888	432	367	0.034	0.045	0.034	0.097	2
444	227	-366	3.435	7585	3.820	9991	456	388	0.028	0.039	0.033	0.088	1
535	273	-367	3.610	8849	3.990	11262	528	449	0.024	0.033	0.033	0.079	1

Ordering Type MMV Medium Voltage Cables

Example:

- 3 conductor power cable
- 8kV 100%
- #2 AWG
- ground
- bronze armored & sheathed



37-105VFD

TYPE MMV-VFD MARINE MEDIUM VOLTAGE VFD POWER CABLE

Three Conductor: 8kV – 15kV • 133% Insulation Level • Rated 90°C



Conductors (3)

Soft annealed flexible stranded tinned copper per IEEE 1580 Table 11.

Insulation

Extruded thermosetting 90°C Ethylene Propylene Rubber (EPR), meeting UL 1309 (Type E), IEEE 1580 (Type E) and UL 1072.

Metallic Shield

Shield consisting of 0.0126" tinned copper braided with nylon providing 60% copper Shielded coverage meeting UL 1309, IEEE Std. 1580, and UL 1072. The nylon is colored for easy phase identification (three conductor = black, blue, red) without the need to remove the shield to find an underlying colored tape.

Conductor Shield

A combination of semi-conducting tape and extruded thermosetting semi-conducting material meeting UL 1309, IEEE 1580 and UL 1072.

Insulation Shield

Semi-conducting layer meeting UL 1309, IEEE 1580 and UL 1072.

Symmetrical Insulated Grounding Conductors (3)

Soft annealed flexible stranded tinned copper conductor per IEEE 1580 Table 11. Gexol Insulation sized per Table 23.2 of UL1072. Color: Green

Jacket

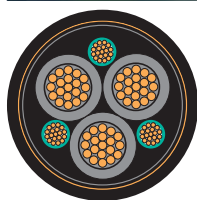
A black, arctic grade, flame retardant, oil, abrasion, chemical and sunlight resistant thermosetting compound meeting UL 1309/CSA 245, IEEE 1580, and UL 1072. This jacket allows for isolation between the insulation shields and overall shield. Shields can then be terminated on opposite ends to minimize circulating currents.

Armor/EMI Shield

Overall tinned copper braid plus aluminum/polyester tape provides 100% coverage. This braid serves as both an armor and EMI shield meeting both IEEE 1580 and UL 1307/CSA 245.

Sheath (optional)

A black, arctic grade, flame retardant, oil, abrasion, chemical and sunlight resistant thermosetting compound meeting UL 1309/CSA 245, IEEE 1580, and UL 1072. Colored jackets for signifying different voltage levels are also available on special request (orange = 8kV and red = 15kV).



Low smoke
halogen-free
jacket
available
on request.

Ratings & Approvals

- UL Listed as Marine Shipboard Cable (E111461)
- American Bureau of Shipping (ABS)
- Det Norske Veritas (DNV)
- Lloyd's Register of Shipping (LRS)
- 90°C Temperature Rating
- Voltage Rating – 8kV to 15kV (25kV available on request)

APPLICATIONS

A flexible, braid and foil shielded, power cable specifically engineered for use in medium voltage variable frequency AC drive (VFD) applications.

FEATURES

- Flexible stranded conductors and braided shields. Suitable for applications involving repeated flexing and high vibration.
- Small minimum bending radius (8x OD) for easy installation.
- Insulation has a very low dielectric constant. This allows for longer output cable distances and minimizes common mode current.
- Overall braid plus foil shield is engineered with 100% coverage and a surface transfer impedance <50 milliohms at 10MHz to contain EMI.
- Symmetrical insulated ground conductors reduce induced voltage imbalances and carry common mode noise back to the drive.
- High strand count conductors and braid shield design is much more flexible, easier to install and more resistant to vibration than Type MC cable.
- Severe cold durability: exceeds CSA cold bend/cold impact (-40°C/-35°C).
- Flame retardant: IEC 332-3 Category A and IEEE 1202.
- Suitable for use in Class I, Division 1, and Zone 1 environments.

THREE CONDUCTOR TYPE MMV-VFD MARINE MEDIUM VOLTAGE 8KV • 133% INSULATION LEVEL

					Ampacity							
Size AWG/ kcmil		Part No. 37-105	Nominal Diameter (Inches)	Weight (Lbs./ 1000 Ft.)	In Free Air (Amps)	Single Banked in Trays (Amps)	DC Resistance at 25°C Ohms/1000 Ft.)	AC Resistance at 90°C, 60Hz (Ohms/1000 Ft.)	Inductive Reactance (Ohms/ 1000 Ft.)	Voltage Drop (Volts/Amp/ 1000 Ft.)	Green Insulated Grounding Conductor (3x) Size (AWG)	
6	12.5	-332TSVFD	1.825	1756	88	75	0.445	0.556	0.048	0.820	10	
4	21	-333TSVFD	2.070	2265	116	99	0.300	0.376	0.043	0.564	10	
2	34	-334TSVFD	2.205	2712	152	129	0.184	0.230	0.040	0.359	10	
1	43	-335TSVFD	2.295	3023	175	149	0.147	0.184	0.038	0.294	8	
1/0	54	-336TSVFD	2.395	3372	201	171	0.117	0.147	0.037	0.242	8	
2/0	70	-337TSVFD	2.505	3781	232	197	0.093	0.117	0.036	0.199	8	
3/0	86	-338TSVFD	2.630	4354	266	226	0.074	0.094	0.035	0.166	6	
4/0	109	-339TSVFD	2.835	5125	306	260	0.058	0.075	0.033	0.139	6	
262	132	-340TSVFD	3.000	5999	348	296	0.048	0.063	0.032	0.121	6	
313	159	-341TSVFD	3.195	6835	386	328	0.040	0.053	0.032	0.106	6	
373	189	-342TSVFD	3.320	8176	429	365	0.034	0.045	0.031	0.094	4	
444	227	-343TSVFD	3.465	8531	455	387	0.028	0.039	0.030	0.085	4	
535	273	-344TSVFD	3.760	10283	528	449	0.024	0.033	0.030	0.076	4	

THREE CONDUCTOR TYPE MMV-VFD MARINE MEDIUM VOLTAGE 15KV • 133% INSULATION LEVEL

					Ampacity							
Size AWG/ kcmil		Part No. 37-105	Nominal Diameter (Inches)	Weight (Lbs./ 1000 Ft.)	In Free Air (Amps)	Single Banked in Trays (Amps)	DC Resistance at 25°C (Ohms/1000 Ft.)	AC Resistance at 90°C, 60Hz (Ohms/1000 Ft.)	Inductive Reactance (Ohms/ 1000 Ft.)	Voltage Drop (Volts/Amp/ 1000 Ft.)	Green Insulated Grounding Conductor (3x) Size (AWG)	
2	34	-357TSVFD	2.555	3421	156	133	0.184	0.230	0.044	0.364	10	
1	43	-358TSVFD	2.620	3653	178	151	0.147	0.184	0.043	0.299	8	
1/0	54	-359TSVFD	2.815	4319	205	174	0.117	0.147	0.041	0.246	8	
2/0	70	-360TSVFD	2.920	5009	234	199	0.093	0.117	0.039	0.203	8	
3/0	86	-361TSVFD	3.020	5224	269	229	0.074	0.094	0.038	0.170	6	
4/0	109	-362TSVFD	3.235	6119	309	263	0.058	0.075	0.037	0.142	6	
262	132	-363TSVFD	3.425	6993	352	299	0.048	0.063	0.035	0.124	6	
313	159	-364TSVFD	3.525	7547	389	331	0.040	0.053	0.034	0.109	6	
373	189	-365TSVFD	3.645	8686	432	367	0.034	0.045	0.034	0.097	4	
444	227	-366TSVFD	3.825	9505	456	388	0.028	0.039	0.033	0.080	4	

Ordering Type MMV-VFD Medium Voltage Cables

Example:

- 3 conductor MMV-VFD power cable
- 15kV
- #2 AWG

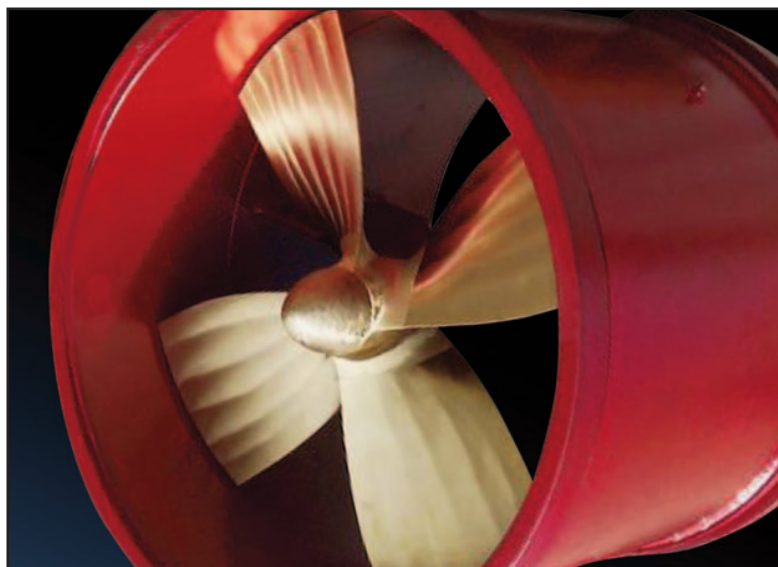
37-105 - 357TSVFD

AmerCable Type
MMV-VFD Prefix

Specific Cable
Number (from charts)

TYPE MMV STRANDING PROFILE

Size AWG/kcmil	Closest IEEE 45 Std. Size	Equivalent Metric Size (mm ²)	Uninsulated Conductor Dia. (inches)
8	16	7.57	0.134
6	26	12.49	0.173
4	41	21.11	0.257
2	66	33.51	0.324
1	83	42.79	0.363
1/0	106	54.45	0.401
2/0	133	70.01	0.451
3/0	168	85.57	0.505
4/0	212	108.91	0.567
262	262	132.25	0.615
313	313	159.06	0.704
373	373	189.36	0.735
444	444	227.23	0.780
535	535	272.68	0.871
646	646	325.70	0.965
777	777	393.87	1.050
1111	1111	561.94	1.375



MMV AMPACITIES & ELECTRICAL DATA

Ampacities are based on API RP 14F (June 1999) Table 4 or 5 for single conductor cables and Table 3 for multi-conductor cables. The notes to these tables are also applicable. Ampacities are also based on a 90°C conductor temperature and a 45°C ambient temperature.

Inductive reactance and voltage drop values are based on a 90°C conductor temperature and 60 Hz operation. Values for single conductor cables are based on a symmetrical triangular configuration.

Please consult AmerCable on values for other configurations.

MMV Bend Radius			
	Unarmored	Armored	Armored & Sheathed
IEEE 45	6X Diameter	8X Diameter	8X Diameter
IEC 92	< 1" (25mm) 4 x Diameter > 1" (25mm) 6X Diameter	6X Diameter	8X Diameter
Transport Canada	< 1" (25mm) 4X Diameter > 1" (25mm) 6X Diameter	6X Diameter	6X Diameter



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