

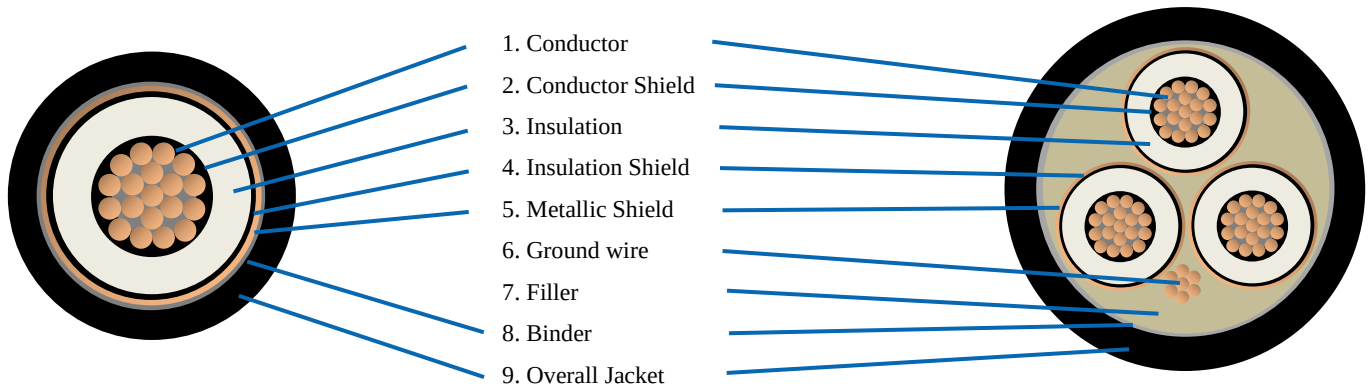
CABLE SPEC SHEET

15KV CU EPR 133% IL CTS PVC TYPE MV-105 – Silicone Free

Type MV-105 Copper Conductor, Ethylene Propylene Rubber (EPR) 15KV 133%

Insulation Level, Copper Tape Shield, Low-friction Polyvinyl Chloride(ez-Pull PVC) Jacket.

Drawing



CONSTRUCTION:

1. Conductor	Class B compressed or compact stranded bare copper per ASTM B3 and ASTM B8
2. Conductor Shield	Semi-conducting cross-linked copolymer
3. Insulation	No Lead Ethylene Propylene Rubber (NL-EPR) 133% Insulation Level [Minimum thickness : 210mils(5.334mm)]
4. Insulation Shield	Stripable semi-conducting cross-linked copolymer
5. Metallic Shield	Copper tape helically wrapped 5 mils copper tape with 25% overlap
6. Ground wire	Class B compressed or compact stranded bare copper per ASTM B3 and ASTM B8
7. Filler	Suitable filler
8. Binder	Glass tape
9. Overall Jacket	Low-friction Polyvinyl Chloride (ez-Pull PVC)

APPLICATIONS AND FEATURES:

Commodity's 15kV cables are suited for use in wet and dry areas, conduits, ducts, direct burial, trays and and where superior electrical properties are desired. These cables are capable of operating continuously at the conductor temperature not in excess of 105°C for normal operation, 140°C for emergency overload, and 250° C for short circuit conditions.

SPECIFICATIONS:

- ASTM B3 Soft or annealed copper
- ASTM B8 Concentric-lay-standard copper
- UL 1072 - Medium Voltage Power Cables
- ICEA S-93-639 –5-46 kV Shielded Power Cable for Use in the Transmission and Distribution of Electric Energy
- UL 1685 - CT Flame Exposure Test

CABLE INFORMATION: 1Core(133%) (Compress conductor) - Test voltage 44kV

Size	Conductor		Insulation		Jacket	Cable	Bending Radius (Min) [inches]	Cable Weight [lbs/1000ft]	Max. conductor resistance (20°C)Ω/km
	No	Diameter [inches]	Thickness (Nom) [mils]	Diameter (Approx) [inches]	Thickness (Nom) [mils]	Diameter (Approx) [inches]			
2 AWG	7	0.280	220	0.77	80	1.043	10.4	714	0.534
1 AWG	19	0.319	220	0.81	80	1.102	11.0	797	0.423
1/0 AWG	19	0.358	220	0.85	80	1.130	11.3	891	0.335
2/0 AWG	19	0.398	220	0.889	80	1.169	11.7	1008	0.266
3/0 AWG	19	0.449	220	0.941	80	1.220	12.2	1154	0.211
4/0 AWG	19	0.504	220	0.996	80	1.275	12.8	1329	0.167
250 MCM	37	0.551	220	1.05	80	1.330	13.4	1494	0.141
350 MCM	37	0.650	220	1.15	80	1.429	14.3	1876	0.101
500 MCM	37	0.776	220	1.275	80	1.555	15.6	2433	0.0708
750 MCM	61	0.953	220	1.46	110	1.803	18.1	3478	0.0472
1000 MCM	61	1.098	220	1.606	110	1.949	19.5	4371	0.0354
1250 MCM	61	1.252	220	1.767	110	2.106	21.1	5302	0.0283
1500 MCM	61	1.350	220	1.894	110	2.245	22.5	6119	0.0236

CABLE INFORMATION: 3Core(133%) (Compress conductor) - Test voltage 44kV

Size	Conductor		Insulation		Jacket	Ground	Cable	Bending Radius (Min) [inches]	Cable Weight [lbs/1000ft]	Max. conductor resistance (20°C)Ω/km
	No	Diameter [inches]	Thickness (Nom) [mils]	Diameter (Approx) [inches]	Thickness (Nom) [mils]		Diameter (Approx) [inches]			
2 AWG	7	0.280	220	0.77	110	6AWG	2.106	21.1	2473	0.534
1 AWG	19	0.319	220	0.81	110	4AWG	2.205	22.1	2833	0.423
1/0 AWG	19	0.358	220	0.85	110	4AWG	2.343	23.5	3070	0.335
2/0 AWG	19	0.398	220	0.889	110	4AWG	2.422	24.3	3446	0.266
3/0 AWG	19	0.449	220	0.941	110	3AWG	2.54	25.4	3947	0.211
4/0 AWG	19	0.504	220	0.996	110	3AWG	2.658	26.6	4504	0.167
4/0 AWG	19	0.504	220	0.996	110	3/0AWG	2.658	26.6	4706	0.167
250 MCM	37	0.551	220	1.05	140	2AWG	2.835	28.4	5243	0.141
350 MCM	37	0.650	220	1.15	140	2AWG	3.032	30.4	6474	0.101
500 MCM	37	0.776	220	1.275	140	1AWG	3.307	33.1	8312	0.0708
750 MCM	61	0.953	220	1.46	140	1/0AWG	3.741	37.4	11342	0.0472

CABLE INFORMATION: 1Core(133%) (Compress conductor) - Test voltage 44kV

Size	Conductor		Insulation		Jacket	Cable	Bending Radius (Min) [mm]	Cable Weight [lbs/1000ft]	Max. conductor resistance (20°C)Ω/km
	No	Diameter [mm]	Thickness (Nom) [mm]	Diameter (Approx) [mm]	Thickness (Nom) [mm]	Diameter (Approx) [mm]			
2 AWG	7	7.1	5.588	19.58	2.032	26.5	265	714	0.534
1 AWG	19	8.1	5.588	20.58	2.032	28	280	797	0.423
1/0 AWG	19	9.1	5.588	21.6	2.032	28.7	287	891	0.335
2/0 AWG	19	10.1	5.588	22.6	2.032	29.7	297	1008	0.266
3/0 AWG	19	11.4	5.588	23.9	2.032	31	310	1154	0.211
4/0 AWG	19	12.8	5.588	25.3	2.032	32.4	324	1329	0.167
250 MCM	37	14	5.588	26.7	2.032	33.8	338	1494	0.141
350 MCM	37	16.5	5.588	29.2	2.032	36.3	363	1876	0.101
500 MCM	37	19.7	5.588	32.4	2.032	39.5	395	2433	0.0708
750 MCM	61	24.2	5.588	37.1	2.794	45.8	458	3478	0.0472
1000 MCM	61	27.9	5.588	40.8	2.794	49.5	495	4371	0.0354
1250 MCM	61	31.8	5.588	44.9	2.794	53.5	535	5302	0.0283
1500 MCM	91	34.3	5.588	48.1	2.794	57.0	570	6119	0.0236

CABLE INFORMATION: 3Core(133%) (Compress conductor) - Test voltage 44kV

Size	Conductor		Insulation		Jacket	Ground	Cable	Bending Radius (Min) [mm]	Cable Weight [lbs/1000ft]	Max. conductor resistance (20°C)Ω/km
	No	Diameter [mm]	Thickness (Nom) [mm]	Diameter (Approx) [mm]	Thickness (Nom) [mm]		Diameter (Approx) [mm]			
2 AWG	7	7.1	5.588	19.58	2.794	6AWG	53.5	535	2473	0.534
1 AWG	19	8.1	5.588	20.58	2.794	4AWG	56.0	560	2833	0.423
1/0 AWG	19	9.1	5.588	21.6	2.794	4AWG	59.5	595	3070	0.335
2/0 AWG	19	10.1	5.588	22.6	2.794	4AWG	61.5	615	3446	0.266
3/0 AWG	19	11.4	5.588	23.9	2.794	3AWG	64.5	645	3947	0.211
4/0 AWG	19	12.8	5.588	25.3	2.794	3AWG	67.5	675	4504	0.167
4/0 AWG	19	12.8	5.588	25.3	2.794	3/0AWG	67.5	675	4706	0.167
250 MCM	37	14	5.588	26.7	3.556	2AWG	72	720	5243	0.141
350 MCM	37	16.5	5.588	29.2	3.556	2AWG	77	770	6474	0.101
500 MCM	37	19.7	5.588	32.4	3.556	1AWG	84	840	8312	0.0708
750 MCM	61	24.2	5.588	37.1	3.556	1/0AWG	95	950	11342	0.0472

CABLE INFORMATION: 1Core(133%) (Compact conductor) - Test voltage 44kV

Size	Conductor		Insulation		Jacket	Cable	Bending Radius (Min) [inches]	Cable Weight [lbs/1000ft]	Max. conductor resistance (20°C)Ω/km
	No	Diameter [inches]	Thickness (Nom) [mils]	Diameter (Approx) [inches]	Thickness (Nom) [mils]	Diameter (Approx) [inches]			
2 AWG	7	0.270	220	0.761	80	1.043	10.4	707	0.534
1 AWG	19	0.304	220	0.794	80	1.083	11	785	0.423
1/0 AWG	19	0.339	220	0.830	80	1.102	11.3	877	0.335
2/0 AWG	19	0.382	220	0.873	80	1.161	11.7	997	0.266
3/0 AWG	19	0.430	220	0.920	80	1.201	12.2	1140	0.211
4/0 AWG	19	0.481	220	0.972	80	1.26	12.8	1312	0.167
250 MCM	37	0.524	220	1.023	80	1.299	13.4	1473	0.141
350 MCM	37	0.619	220	1.117	80	1.398	14.3	1853	0.101
500 MCM	37	0.741	220	1.239	80	1.516	15.6	2407	0.0708
600 MCM	61	0.814	220	1.349	80	1.633	16.3	2819	0.05869
750 MCM	61	0.910	220	1.417	110	1.752	18.1	3443	0.0472
1000 MCM	61	1.044	220	1.550	110	1.89	19.5	4327	0.0354
1250 MCM	91	1.173	220	1.716	110	2.067	20.7	5208	0.0283
1500 MCM	91	1.299	220	1.842	110	2.186	21.9	6079	0.0236

CABLE INFORMATION: 3Core(133%) (Compact conductor) - Test voltage 44kV

Size	Conductor		Insulation		Jacket	Ground	Cable	Bending Radius (Min) [inches]	Cable Weight [lbs/1000ft]	Max. conductor resistance (20°C)Ω/km
	No	Diameter [inches]	Thickness (Nom) [mils]	Diameter (Approx) [inches]	Thickness (Nom) [mils]		Diameter (Approx) [inches]			
1/0 AWG	19	0.339	220	0.851	110	4AWG	2.245	22.5	2954	0.335
2/0 AWG	19	0.382	220	0.890	110	4AWG	2.323	23.3	3337	0.266
3/0 AWG	19	0.430	220	0.941	110	3AWG	2.441	24.5	3824	0.211
4/0 AWG	19	0.481	220	0.997	110	3AWG	2.540	25.4	4370	0.167
250 MCM	37	0.524	220	1.052	110	2AWG	2.658	26.6	4927	0.141
350 MCM	37	0.619	220	1.150	140	2AWG	2.914	29.2	6298	0.101
500 MCM	37	0.741	220	1.276	140	1AWG	3.170	31.7	8118	0.0708
750 MCM	61	0.910	220	1.461	140	1/0AWG	3.563	35.7	11109	0.0472

CABLE INFORMATION: 1Core(133%) (Compact conductor) - Test voltage 44kV

Size	Conductor		Insulation		Jacket	Cable	Bending Radius (Min) [mm]	Cable Weight [lbs/1000ft]	Max. conductor resistance (20°C)Ω/km
	No	Diameter [mm]	Thickness (Nom) [mm]	Diameter (Approx) [mm]	Thickness (Nom) [mm]	Diameter (Approx) [mm]			
2 AWG	7	6.85	5.588	19.33	2.032	26.5	265	707	0.534
1 AWG	19	7.7	5.588	20.18	2.032	27.5	275	785	0.423
1/0 AWG	19	8.6	5.588	21.08	2.032	28.0	280	877	0.335
2/0 AWG	19	9.7	5.588	22.18	2.032	29.5	295	997	0.266
3/0 AWG	19	10.9	5.588	23.38	2.032	30.5	305	1140	0.211
4/0 AWG	19	12.2	5.588	24.68	2.032	32.0	320	1312	0.167
250 MCM	37	13.3	5.588	25.98	2.032	33.0	330	1473	0.141
350 MCM	37	15.7	5.588	28.38	2.032	35.5	355	1853	0.101
500 MCM	37	18.8	5.588	31.48	2.032	38.5	385	2407	0.0708
600 MCM	61	20.7	5.588	34.28	2.032	41.5	415	2819	0.05869
750 MCM	61	23.1	5.588	35.98	2.794	44.5	445	3443	0.0472
1000 MCM	61	26.5	5.588	39.38	2.794	48.0	480	4327	0.0354
1250 MCM	91	29.8	5.588	43.58	2.794	52.5	525	5208	0.0283
1500 MCM	91	33.0	5.588	46.78	2.794	55.5	555	6079	0.0236

CABLE INFORMATION: 3Core(133%) (Compact conductor) - Test voltage 44kV

Size	Conductor		Insulation		Jacket	Ground	Cable	Bending Radius (Min) [mm]	Cable Weight [lbs/1000ft]	Max. conductor resistance (20°C)Ω/km
	No	Diameter [mm]	Thickness (Nom) [mm]	Diameter (Approx) [mm]	Thickness (Nom) [mm]		Diameter (Approx) [mm]			
1/0 AWG	19	8.6	5.588	21.6	2.794	4AWG	57.0	570	2954	0.335
2/0 AWG	19	9.7	5.588	22.6	2.794	4AWG	59.0	590	3337	0.266
3/0 AWG	19	10.9	5.588	23.9	2.794	3AWG	62.0	620	3824	0.211
4/0 AWG	19	12.2	5.588	25.3	2.794	3AWG	64.5	645	4370	0.167
250 MCM	37	13.3	5.588	26.7	2.794	2AWG	67.5	675	4927	0.141
350 MCM	37	15.7	5.588	29.2	3.556	2AWG	74.0	740	6298	0.101
500 MCM	37	18.8	5.588	32.4	3.556	1AWG	80.5	805	8118	0.0708
750 MCM	61	23.1	5.588	37.1	3.556	1/0AWG	90.5	905	11109	0.0472

Ampacities – According to NEC

Size	Isolated in Air [NEC TABLE 310.60(C)(69)]	Directly Buried [NEC TABLE 310.60(C)(81)]	Underground Electrical Ducts [NEC TABLE 310.60(C)(77)]
2 AWG	215	225	165
1 AWG	250	260	185
1/0 AWG	290	295	215
2/0 AWG	335	335	245
3/0 AWG	385	380	275
4/0 AWG	445	435	315
250 MCM	495	475	345
350 MCM	610	575	415
500 MCM	765	700	500
750 MCM	990	865	610
1000 MCM	1185	1005	690

* Cable Pulling Tension (Copper)

Wire gauge		2AWG	1AWG	1/0AWG	2/0AWG	3/0AWG	4/0AWG	250MCM
Pulling tension	lbs	531	670	845	1065	1342	1693	2000

Wire gauge		350MCM	500MCM	600MCM	750MCM	1000MCM	1250MCM	1500MCM
Pulling tension	lbs	2800	4000	4800	6000	8000	10000	10000

- Equations for Pulling Tension

$$[T_m = S \times n \times C_m]$$

T_m is the maximum tension in the conductors (lbs)

S is the maximum allowable conductor stress

(for copper 0.008 lb/cmil and for aluminum 0.006 lb/cmil)

n is the number of conductor

C_m is the circular mil area of each conductor

- Allowable Tension on Pulling Device

Do not exceed the allowable tension stated by the manufacturer of the pulling eye or 10,000 pounds, whichever is less. Traditional conservative practices limit the allowable tension of a basket grip to 1,000 pounds.

Electrical Data

Size	DC Resistance @ 25°C	AC Resistance @ 90°C	Capacitive Reactance @60Hz	Inductive Reactance @60Hz	Zero Sequence Impedance	Positive Sequence Impedance
	Ω/1000ft	Ω/1000ft	MΩ*1000ft	Ω/1000ft	Ω/1000ft	Ω/1000ft
2AWG	0.162	0.204	0.046	0.049	0.475 + j0.459	0.105 + j0.035
1AWG	0.128	0.162	0.043	0.048	0.473 + j0.444	0.102 + j0.040
1/0AWG	0.102	0.128	0.040	0.046	0.476 + j0.314	0.129 + j0.055
2/0AWG	0.081	0.102	0.036	0.044	0.476 + j0.314	0.129 + j0.055
3/0AWG	0.064	0.081	0.033	0.043	0.476 + j0.314	0.129 + j0.055
4/0AWG	0.051	0.065	0.031	0.041	0.476 + j0.314	0.129 + j0.055
250MCM	0.043	0.056	0.029	0.040	0.477 + j0.298	0.134 + j0.052
350MCM	0.031	0.041	0.025	0.038	0.473 + j0.444	0.102 + j0.040
500MCM	0.022	0.030	0.022	0.036	0.475 + j0.459	0.105 + j0.035
750MCM	0.014	0.023	0.019	0.034	0.477 + j0.298	0.134 + j0.052
1000MCM	0.011	0.019	0.016	0.033	0.478 + j0.297	0.133 + j0.049

Maximum side pressure

Size	Maximum side pressure [lbs/ft]
1/0 AWG	300
2/0 AWG	300
3/0 AWG	300
4/0 AWG	300
250 MCM	300
350 MCM	300
500 MCM	300
750 MCM	300
1000 MCM	300