

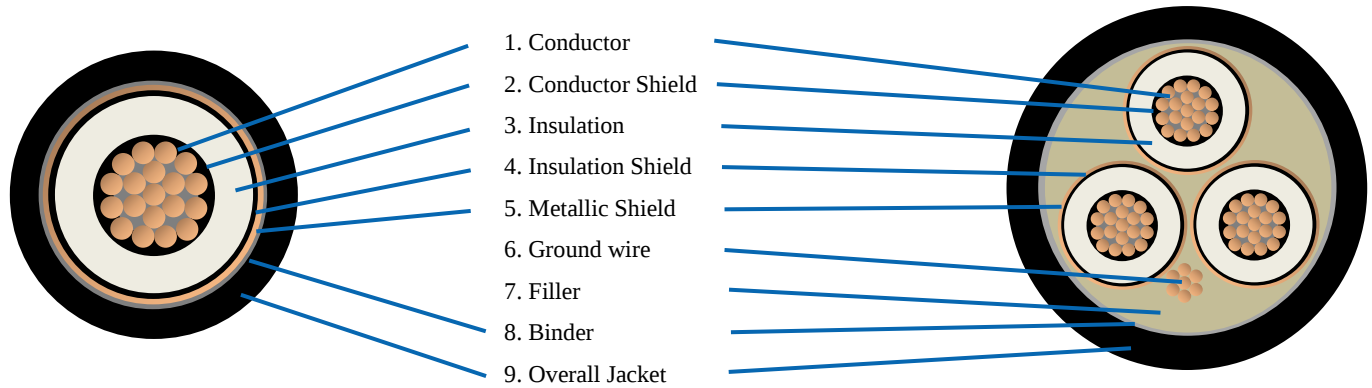
CABLE SPEC SHEET

35KV CU EPR 133% IL CTS PVC TYPE MV-105 – Silicone Free

Type MV-105 Copper Conductor, Ethylene Propylene Rubber (EPR) 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 : 400mils(10.16mm)]
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 35kV cables are suited for use in wet and dry areas, conduits, ducts, direct burial, trays 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 84kV

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]			
1/0 AWG	19	0.358	420	1.249	80	1.534	15.4	1330	0.335
2/0 AWG	19	0.398	420	1.288	80	1.578	15.8	1455	0.266
3/0 AWG	19	0.449	420	1.34	80	1.629	16.3	1620	0.211
4/0 AWG	19	0.504	420	1.395	80	1.685	16.9	1839	0.167
250 MCM	37	0.551	420	1.435	110	1.795	18.0	2126	0.141
350 MCM	37	0.650	420	1.541	110	1.894	19.0	2545	0.101
500 MCM	37	0.776	420	1.675	110	2.028	20.3	3121	0.0708
750 MCM	61	0.953	420	1.859	110	2.213	22.2	4112	0.0472
1000 MCM	61	1.098	420	2.005	110	2.358	23.6	5093	0.0354
1250 MCM	61	1.252	420	2.187	110	2.539	25.4	6090	0.0283
1500 MCM	91	1.35	420	2.285	110	2.638	26.4	6968	0.0236

CABLE INFORMATION: 3Core(133%) (Compress conductor) - Test voltage 84kV

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	0.358	420	1.249	140	4AWG	3.208	32.08	4771	0.335
2/0 AWG	19	0.398	420	1.288	140	4AWG	3.287	32.87	5183	0.266
3/0 AWG	19	0.449	420	1.34	140	3AWG	3.405	34.05	5738	0.211
4/0 AWG	19	0.504	420	1.395	140	3AWG	3.504	35.04	6269	0.167
250 MCM	37	0.551	420	1.435	140	2AWG	3.641	36.41	7008	0.141
350 MCM	37	0.650	420	1.541	140	2AWG	3.858	38.58	8335	0.101
500 MCM	37	0.776	420	1.675	140	1AWG	4.114	41.14	15918	0.0708

CABLE INFORMATION: 1Core(133%) (Compress conductor) - Test voltage 84kV

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]			
1/0 AWG	19	9.1	10.668	31.74	2.032	39.1	391	1330	0.335
2/0 AWG	19	10.1	10.668	32.74	2.032	40.1	401	1455	0.266
3/0 AWG	19	11.4	10.668	34.04	2.032	41.4	414	1620	0.211
4/0 AWG	19	12.8	10.668	35.44	2.032	42.8	428	1839	0.167
250 MCM	37	14.0	10.668	36.64	2.794	45.6	456	2126	0.141
350 MCM	37	16.5	10.668	39.14	2.794	48.1	481	2545	0.101
500 MCM	37	19.7	10.668	42.54	2.794	51.5	515	3121	0.0708
750 MCM	61	24.2	10.668	47.24	2.794	56.2	562	4112	0.0472
1000 MCM	61	27.9	10.668	50.94	2.794	59.9	599	5093	0.0354
1250 MCM	61	31.8	10.668	55.54	2.794	64.5	645	6090	0.0283
1500 MCM	91	34.3	10.668	58.04	2.794	67.0	670	6968	0.0236

CABLE INFORMATION: 3Core(133%) (Compress conductor) - Test voltage 84kV

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	9.1	10.668	31.74	3.556	4AWG	81.5	815	4771	0.335
2/0 AWG	19	10.1	10.668	32.74	3.556	4AWG	83.5	835	5183	0.266
3/0 AWG	19	11.4	10.668	34.04	3.556	3AWG	86.5	865	5738	0.211
4/0 AWG	19	12.8	10.668	35.44	3.556	3AWG	89	890	6269	0.167
250 MCM	37	14.0	10.668	36.64	3.556	2AWG	92.5	925	7008	0.141
350 MCM	37	16.5	10.668	39.14	3.556	2AWG	98.0	980	8335	0.101
500 MCM	37	19.7	10.668	42.54	3.556	1AWG	104.5	1050	15918	0.0708

CABLE INFORMATION: 1Core(133%) (Compact conductor) - Test voltage 84kV

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]			
1/0 AWG	19	0.339	420	1.229	80	1.515	15.15	1327	0.335
2/0 AWG	19	0.382	420	1.273	80	1.555	15.55	1459	0.266
3/0 AWG	19	0.43	420	1.320	80	1.614	16.14	1616	0.211
4/0 AWG	19	0.481	420	1.371	80	1.653	16.53	1794	0.167
250 MCM	37	0.524	420	1.422	110	1.771	17.71	2096	0.141
350 MCM	37	0.619	420	1.517	110	1.870	18.7	2512	0.101
500 MCM	37	0.741	420	1.639	110	1.988	19.88	3109	0.0708
750 MCM	61	0.91	420	1.816	110	2.165	21.65	4094	0.0472
1000 MCM	61	1.044	420	1.950	110	2.303	23.03	5018	0.0354
1250 MCM	91	1.173	420	2.107	110	2.460	24.6	5986	0.0283
1500 MCM	91	1.299	420	2.233	110	2.578	25.78	6894	0.0236

CABLE INFORMATION: 3Core(133%) (Compact conductor) - Test voltage 84kV

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	420	1.229	140	4AWG	3.169	31.69	4700	0.335
2/0 AWG	19	0.382	420	1.273	140	4AWG	3.248	32.48	5129	0.266
3/0 AWG	19	0.43	420	1.320	140	3AWG	3.366	33.66	5677	0.211
4/0 AWG	19	0.481	420	1.371	140	3AWG	3.464	34.64	6285	0.167
250 MCM	37	0.524	420	1.422	140	2AWG	3.582	35.82	6910	0.141
350 MCM	37	0.619	420	1.517	140	2AWG	3.779	37.79	8219	0.101
500 MCM	37	0.741	420	1.639	140	1AWG	4.055	40.55	10178	0.0708

CABLE INFORMATION: 1Core(133%) (Compact conductor) - Test voltage 84kV

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]			
1/0 AWG	19	8.6	10.668	31.24	2.032	38.5	385	1327	0.335
2/0 AWG	19	9.7	10.668	32.34	2.032	39.5	395	1459	0.266
3/0 AWG	19	10.9	10.668	33.54	2.032	41.0	410	1616	0.211
4/0 AWG	19	12.2	10.668	34.84	2.032	42.0	420	1794	0.167
250 MCM	37	13.3	10.668	36.14	2.794	45.0	450	2096	0.141
350 MCM	37	15.7	10.668	38.54	2.794	47.5	475	2512	0.101
500 MCM	37	18.8	10.668	41.64	2.794	50.5	505	3109	0.0708
750 MCM	61	23.1	10.668	46.14	2.794	55.0	550	4094	0.0472
1000 MCM	61	26.5	10.668	49.54	2.794	58.5	585	5018	0.0354
1250 MCM	91	29.8	10.668	53.54	2.794	62.5	625	5986	0.0283
1500 MCM	91	33.0	10.668	56.74	2.794	65.5	655	6894	0.0236

CABLE INFORMATION: 3Core(133%) (Compact conductor) - Test voltage 84kV

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	10.668	31.24	3.556	4AWG	80.5	805	4700	0.335
2/0 AWG	19	9.7	10.668	32.34	3.556	4AWG	82.5	825	5129	0.266
3/0 AWG	19	10.9	10.668	33.54	3.556	3AWG	85.5	855	5677	0.211
4/0 AWG	19	12.2	10.668	34.84	3.556	3AWG	88.0	880	6285	0.167
250 MCM	37	13.3	10.668	36.14	3.556	2AWG	91.0	910	6910	0.141
350 MCM	37	15.7	10.668	38.54	3.556	2AWG	96.0	960	8219	0.101
500 MCM	37	18.8	10.668	41.64	3.556	1AWG	103.0	1030	10178	0.0708

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)]
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.

Maximum side pressure, pull tensions

Size	Maximum side pressure [lbs/ft]	Pull tensions [lbs]
1/0 AWG	300	845
2/0 AWG	300	1065
3/0 AWG	300	1342
4/0 AWG	300	1693
250 MCM	300	2000
350 MCM	300	2800
500 MCM	300	4000
750 MCM	300	6000
1000 MCM	300	8000