

CIR® TYPE VFD POWER CABLE

UL LISTED AS TYPE TC-ER & TYPE TC-ER-HL*

Three Conductor • GEXOL® Insulated • 2kV • Rated 90°C • MSHA Approved

POWER CONDUCTORS (3)

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

INSULATION (2kV)

GEXOL® cross-linked flame retardant polyolefin, meeting the requirements for Type P of IEEE 1580 and Type X110 of UL 1309/CSA 245. Color: Gray with printed phase I.D. (Black-Red-Blue)

JACKET

A black, flame retardant, oil, abrasion, chemical and sunlight resistant thermoset CPE meeting UL 1309/CSA 245 and IEEE 1580.



GROUND CONDUCTORS (3)

Soft annealed flexible stranded tinned copper per IEEE 1580 Table 11. GEXOL® insulation sized per UL 1277. Color: Green

SHIELD

Overall tinned copper braid plus aluminum/polyester tape providing 100% coverage.

SAFER TO HANDLE

CIR® has no sharp metal armor edges that imperil worker's hands during splicing and installation of connectors

APPLICATION

A flexible braid and foil shielded 2kV power cable specifically engineered for use in variable frequency AC motor drive (VFD) applications where user requires crush and impact protection.

FEATURES

- Specially engineered cable design produces longer service life in VFD applications.
- Overall braid and foil shield provides 100% coverage containing VFD EMI emissions.
- 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.
- GEXOL's lower dielectric constant (standard XLPEs, EPRs and other Type P insulation materials have higher dielectric constants) reduces reflected wave peak voltage magnitudes. This allows for longer output cable distances and minimizes the effect of high frequency noise induced into the plant ground system.
- 2kV insulation thickness resists the repetitive 2x voltage spikes from 600V VFDs and reduces drive over current trip problems due to cable charging current.
- Passes the same stringent crush and impact testing required by UL 2225 for Type MC-HL
- Gas & vapor tight – impervious to water and air

CIR® VFD RATINGS & APPROVALS

- 90°C temperature rating
- MSHA approved
- UL Listed as TC-ER-HL (up to 1" OD) – suitable for Class 1, Div 1 and Zone 1 environments
- UL Listed as Type TC-ER (Greater than 1" OD) – suitable for use in Class I, Div 2 and Zone 2 environments
- Flame Retardant – IEEE 1202
- American Bureau of Shipping (ABS)
- UL Listed as Marine Shipboard Cable (E111461)

CIR vs. TYPE MC

- Smaller bend radius (up to 40% smaller)
- Reduced tray fill (up to 35% less)
- Considerably more flexible
- Reduced installation time and cost
- Glands cost up to 50% LESS

**MSHA
APPROVED***

TC-ER-HL

Size AWG/ kcmil	Part No. 37-102-	Nominal Diameter Inches*	Weight Per 1000 Ft.	DC Resist. @ 25°C (Ohms/1k ft)	AC Resist. @ 90°C, 60 Hz (Ohms/1k ft)	Inductive Reactance (Ohms/1k ft)	Voltage Drop @ 90°C (Volts/Amp/1k ft)	Green Insulated Grounding Size (AWG)	IEEE Ampacity 90°C	NEC Ampacity 90°C	IEEE Ampacity 75°C	NEC Ampacity 75°C
14	508CIRVFDA	0.742	283	2.907	3.635	0.040	5.073	18	24	15	20	15
12	516CIRVFDA	0.815	378	1.826	2.283	0.038	3.199	18	29	20	24	20
10	308CIRVFDA	0.871	473	1.153	1.441	0.036	2.032	14	38	30	32	30
8	309CIRVFDA	0.893	553	0.708	0.885	0.037	1.263	14	48	55	41	50
6	310CIRVFDA	1.093	797	0.445	0.556	0.033	0.804	12	65	75	54	65
4	312CIRVFDA	1.225	929	0.300	0.376	0.031	0.552	12	83	95	70	85
2	314CIRVFDA	1.341	1276	0.184	0.230	0.029	0.348	10	111	130	93	115
1	315CIRVFDA	1.447	1576	0.147	0.184	0.029	0.285	10	131	145	110	130
1/0	316CIRVFDA	1.566	2144	0.117	0.147	0.029	0.234	10	150	170	126	150
2/0	317CIRVFDA	1.733	2144	0.093	0.117	0.028	0.192	10	173	195	145	175
4/0	319CIRVFDA	1.874	3131	0.058	0.075	0.027	0.132	8	232	260	194	230
262	320CIRVFDA	2.031	3875	0.048	0.063	0.027	0.115	6	273	297	228	262
313	321CIRVFDA	2.130	4709	0.040	0.053	0.026	0.100	6	298	328	249	292
373	322CIRVFDA	2.257	5209	0.034	0.045	0.025	0.088	6	332	364	277	322
444	323CIRVFDA	2.400	6310	0.028	0.039	0.025	0.080	6	382	402	319	355
535	324CIRVFDA	2.705	7193	0.024	0.033	0.026	0.072	6	407	446	340	394
646	326CIRVFDA	2.898	9217	0.020	0.028	0.026	0.065	4	474	496	396	438
777	327CIRVFDA	3.102	10340	0.016	0.025	0.025	0.060	4	516	546	431	483

*Cable diameters are subject to a +/- 5% manufacturing tolerance

Ampacities are based on Table 310.15 (B) (16) of the National Electrical Code (NEC) for conductors rated 90°C, in a multi-conductor cable, at an ambient temperature of 30°C. The 75°C column is provided for additional information. The ampacities shown apply to open runs of cable, installation in any approved raceway. Derating for more than three current carrying conductors within the cable is in accordance with NEC Table 310.15 (B) (3) (a). The ampacities shown also apply to cables installed in cable tray in accordance with NEC Section 392.80.



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