



System No. 25B FHIT.25B Electrical Circuit Integrity Systems

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Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

FHIT - Electrical Circuit Integrity Systems

[See General Information for Electrical Circuit Integrity Systems](#)

System No. 25B

July 22, 2016

Fire Rating — 1 or 2 Hr. (See Item 2)

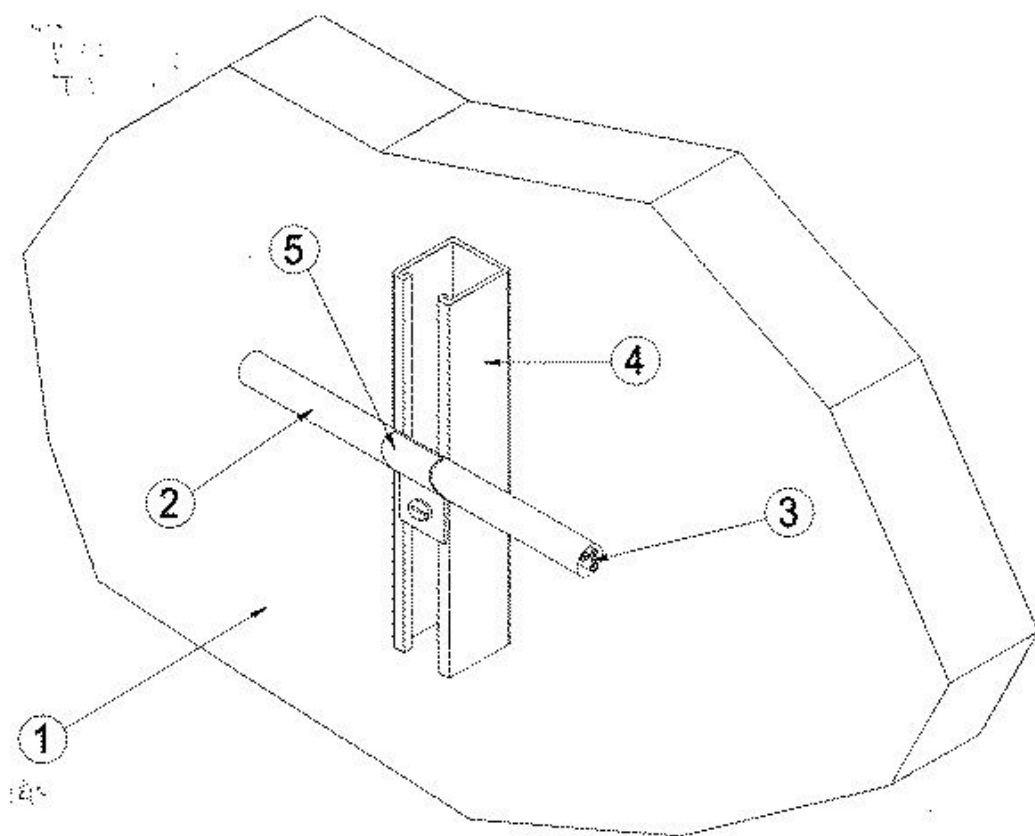


Fig. 1
Two-piece Single-bolt Pipe Clamp

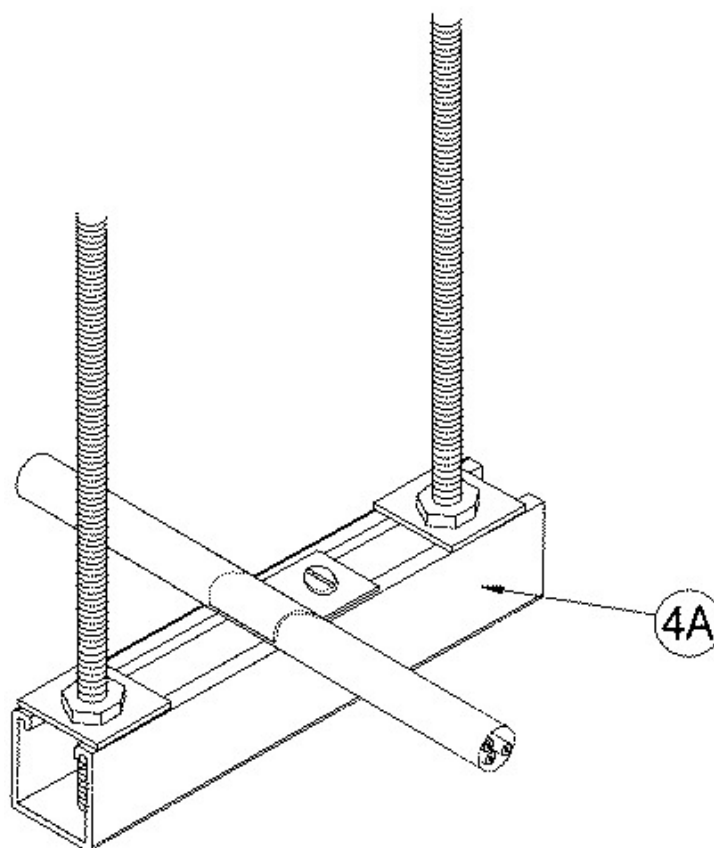


Fig. 2
Steel Strut Trapeze

1. **Wall or Floor Assembly*** — Minimum 2 hour fire rated concrete or masonry wall or concrete floor. Opening in wall or floor through which raceway passes is to be sized to closely follow the contour of the raceway. Through opening in wall or floor to be firestopped using a compatible firestop system.

See **Through-Penetration Firestop Systems** (XHEZ) category for presently Certified firestop systems.

2. **Raceway*** — Horizontal or Vertical installation. Vertical installations are limited to 1 Hr. rating.

ALLIED TUBE & CONDUIT CORP — Type EMT E-Z Pull Brand

WESTERN TUBE & CONDUIT CORP — Type EMT

Cable Size, AWG/ kcmil	Minimum Raceway Trade Size, in.							
	Horizontal Installation: No. of Cables				Vertical Installation: No. of Cables			
	1	2	3	4	1	2	3	4
8	1/2	3/4	1	1	3/4	1-1/4	1-1/4	1-1/2
6	1/2	1	1-1/4	1-1/4	1-1/4	1-1/2	2	2-1/2
4	3/4	1	1-1/4	1-1/2	1-1/4	2	2-1/2	2-1/2
3	3/4	1-1/4	1-1/4	1-1/2	1-1/4	2	2-1/2	2-1/2
2	3/4	1-1/4	1-1/2	1-1/2	1-1/4	2	2-1/2	2-1/2
1	1	1-1/2	2	2	2	2-1/2	3	3
1/0	1-1/4	1-1/2	2	2-1/2	2	2-1/2	3	3-1/2
2/0	1-1/4	2	2	2-1/2	2	2-1/2	3	3-1/2
3/0	1-1/4	2	2-1/2	2-1/2	2	2-1/2	3	3-1/2
4/0	1-1/4	2	2-1/2	2-1/2	2-1/2	3	3-1/2	4

250	1-1/2	2-1/2	2-1/2	3	2-1/2	3	3-1/2	4
300	1-1/2	2-1/2	3	3	2-1/2	3	4	—
350	2	2-1/2	3	3-1/2	2-1/2	3-1/2	4	—
400	2	2-1/2	3	3-1/2	2-1/2	3-1/2	—	—
500	2	2-1/2	3	3-1/2	2-1/2	3-1/2	—	—
600	2-1/2	3	3-1/2	4	3	4	—	—
750	2-1/2	3	4	—	3	4	—	—

2A. **Raceway Coupling*** — (Not Shown).

RACO — Steel (all components) EMT Compression Couplings. Trade size to correspond with the raceway size

3. **Fire Resistive Cables*** — The hourly fire rating applies to cable passing completely through a fire zone and terminating a minimum of 12 inches beyond the fire rated wall or floor bounding the fire zone.

DRAKA CABLETEQ USA INC — Type RHW-2 Lifeline Brand of the following part numbers: G300 followed by 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 77, 78; or QLIFLINE followed by 300 or 400 followed by KCMIL. To be installed as described herein and in accordance with the manufacturer's installation instructions dated November 13, 2014, File R19359

4. **Supports** — (Figure 1) — Min 12 gauge, by 1-1/2 in. wide or 1-5/8 in wide, painted or unpainted, slotted steel channels with hemmed flange edges. Channel bottom with or without holes. Lengths of slotted steel channels 5 ft and less shall be secured to the wall or floor with a min of two 1/4 in. diameter (or larger) by 2-1/4 in. min long concrete screws, or 1/4 in. diameter (or larger) by 1-3/4 in. long min steel masonry anchors. One screw or anchor to be located at each end of the slotted steel channel. Lengths of slotted steel channel in excess of 5 ft require a min of three screws or anchors, one at each end of the channel and one centrally located within the length of the channel. The supports shall be spaced a maximum of 5 ft. OC. When installing cable(s) in vertical runs, the maximum distance of cable within EMT shall be 37 ft. between terminating points.

4A. **Trapeze-type Supports** — (Figure 2) — The raceways shall be installed on/from trapeze-type supports. The trapeze-type supports shall be secured from the surface of the floor. The supports shall be spaced a maximum of 5 ft. OC.

5. **Clamps** — Two-piece single-bolt pipe clamps. Min 16 gauge steel, 1-1/4 in. wide. Trade size to correspond with the outside diameter of the raceway.

* Bearing the UL Certification Mark

Last Updated on 2016-07-22

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Lifeline® Power Cables: RHW-2 or RW90 Two-Hour Horizontal, One-Hour Vertical Fire Resistive Cables in EMT

UL 2196 Certified Fire Resistive Cable for Survivability in a Fire



Applications

Lifeline® fire resistive cables were designed to meet and have successfully passed the two hour fire rating certification test per UL 2196, *Standard for Tests for Fire Resistive Cables*.

Lifeline® Cables can be used in the following applications to provide survivability during a fire:

- Fire Pumps
- Emergency Feeder Cables
- Ventilating Fans
- Exit Lighting
- Elevators
- Tall Buildings
- Hospitals
- Transit
- Oil Refineries
- Drilling Platforms

Lifeline® Cables are preferred over Mineral Insulated (MI) cables, concrete encasement or the construction of fire rated assemblies based on the facts that Lifeline® Cables are less costly, easier to install, and readily available.

Fire resistive cables are required per NFPA 70, Articles 517, 695, 700, 708 and 760 as well as NFPA 72, NFPA 101, NFPA 130 and NFPA 502



UL File E2268 Thermoset-Insulated Wire

RoHS
COMPLIANT



Specifications and Ratings

- Listed to UL 44, *Thermoset Insulated Wires and Cables*, as the following type:
 - RHW-2, 600 Volt, Rated 90°C Dry/90°C Wet
 - RW90, 600 Volt, Rated 90°C Dry/90°C Wet
- Classified to UL 2196, *Standard for Tests for Fire Resistive Cables*, for two-hours in horizontal (H) installations and one-hour in vertical (V) installations
- Electrical Circuit Integrity System (FHIT) No. 25B of the UL Fire Resistance Directory
- Sunlight Resistant
- FT4 Rated
- ST1
- IEEE 1202
- NFPA 70, NFPA 101, NFPA 130, NFPA 502 compliant.

Design Parameters

CONDUCTORS: Bare stranded copper, 8 AWG through 750kcmil

INSULATION: High Temperature Mica Tapes layer, Ceramifiable silicone, Low Smoke Zero Halogen (LSZH)

JACKET: Cross-linked polyolefin (XLPO), Low Smoke Zero Halogen

IDENTIFICATION:

Lifeline® Power Cables are marked as follows:
DRAKA MA P/N G[#####] [X] [Y] LIFELINE c (UL) us
E2268 RHW-2 OR RW90 600V FT4 ST1 VW1 FT1 (UL) R19359
FIRE-RESISTIVE CABLE FOR USE IN ELECTRICAL CIRCUIT
INTEGRITY SYSTEM FHIT.#25B AND SYSTEM FHIT.#25C
(MONTH/YEAR) (SEQUENTIAL FOOTAGE)

Notes: [X] is the size of the cable in AWG or kcmil
[Y] is the size of the cable in mm²
[#] is cable part number

Prysmian Group

700 Industrial Drive | Lexington, SC 29072 | +1-800-845-8507 | website: na.prysmiangroup.com/lifeline

Sales and Distribution:

22 Joseph E. Warner Blvd. | North Dighton, MA 02764 | +1-508-822-5444

Lifeline® Power Cables: RHW-2 or RW90 Two-Hour Horizontal, One-Hour Vertical Fire Resistive Cables in EMT

UL 2196 Certified Fire Resistive Cable for Survivability in a Fire

Lifeline® Power Cable

LIFELINE® Part Number	Conductor Size AWG /MCM	Number of Strands	Insulation Thickness in (mm)	Overall Diameter in (mm)	Approximate Weight lbs./Mft (kg/km)	Ampacity ¹ 90°C Amps
G30064	8	7	0.060 (1.5)	0.31 (7.8)	84 (125)	55
G30065	6	7	0.075 (1.9)	0.37 (9.5)	129 (192)	75
G30066	4	7	0.075 (1.9)	0.42 (10.7)	185 (275)	95
G30067	3	7	0.075 (1.9)	0.45 (11.4)	224 (333)	115
G30068	2	7	0.075 (1.9)	0.48 (12.2)	269 (400)	130
G30069	1	19	0.100 (2.5)	0.57 (14.5)	364 (542)	145
G30070	1/0	19	0.100 (2.5)	0.61 (15.5)	441 (656)	170
G30071	2/0	19	0.100 (2.5)	0.65 (16.6)	535 (796)	195
G30072	3/0	19	0.100 (2.5)	0.70 (17.9)	656 (976)	225
G30073	4/0	19	0.100 (2.5)	0.76 (19.2)	803 (1195)	260
G30074	250	37	0.130 (3.3)	0.86 (21.9)	987 (1469)	290
G30075	350	37	0.130 (3.3)	0.97 (24.7)	1306 (1943)	350
G30076	500	37	0.130 (3.3)	1.10 (27.9)	1820 (2708)	430
G30077	600	61	0.145 (3.7)	1.21 (30.6)	2199 (3272)	475
G30078	750	61	0.145 (3.7)	1.31 (33.3)	2699 (4016)	535

¹ Ampacities are based on Table 310.15(B)(16) (formerly table 310.16) of the National Electrical Code (NFPA 70) for 3 current carrying conductors at 30°C ambient.

² Electrical Metallic Tubing (EMT) size is calculated without an equipment grounding conductor (EGC).

A larger size EMT may be required if an EGC is used.

The above dimensions are approximate and subject to normal manufacturing tolerances. Information subject to change without notice.

Lifeline® Power Cables: RHW-2 or RW90 Two-Hour Horizontal, One-Hour Vertical Fire Resistive Cables in EMT

UL 2196 Certified Fire Resistive Cable for Survivability in a Fire

Conductor Size	Minimum Allowable EMT Conduit Size							
	Horizontal Installation - Number of Conductors				Vertical Installation - Number of Conductors			
	1	2	3	4	1	2	3	4
8	1/2	3/4	1	1	3/4	1-1/4	1-1/4	1-1/2
6	1/2	1	1-1/4	1-1/4	1-1/4	1-1/2	2	2-1/2
4	3/4	1	1-1/4	1-1/2	1-1/4	2	2-1/2	2-1/2
3	3/4	1-1/4	1-1/4	1-1/2	1-1/4	2	2-1/2	2-1/2
2	3/4	1-1/4	1-1/2	1-1/2	1-1/4	2	2-1/2	2-1/2
1	1	1-1/2	2	2	2	2-1/2	3	3
1/0	1-1/4	1-1/2	2	2-1/2	2-1/2	2-1/2	3	3-1/2
2/0	1-1/4	2	2	2-1/2	2-1/2	2-1/2	3	3-1/2
3/0	1-1/4	2	2-1/2	2-1/2	2-1/2	2-1/2	3	3-1/2
4/0	1-1/4	2	2-1/2	2-1/2	2-1/2	2-1/2	3	3-1/2
250	1-1/2	2-1/2	2-1/2	3	2-1/2	3	3-1/2	4
300	1-1/2	2-1/2	3	3	2-1/2	3	4	-
350	2	2-1/2	3	3-1/2	2-1/2	3-1/2	4	-
400	2	2-1/2	3	3-1/2	2-1/2	3-1/2	-	-
500	2	2-1/2	3	3-1/2	2-1/2	3-1/2	-	-
600	2-1/2	3	3-1/2	4	3	4	-	-
750	2-1/2	3	4	-	3	4	-	-

¹ Ampacities are based on Table 310.15(B)(16) (formerly table 310.16) of the National Electrical Code (NFPA 70) for 3 current carrying conductors at 30°C ambient.

² Electrical Metallic Tubing (EMT) size is calculated without an equipment grounding conductor (EGC).

With AHJ approval, a larger size EMT may be required if an EGC is used.

The above dimensions are approximate and subject to normal manufacturing tolerances. Information subject to change without notice.

Manufacturer's Instructions for Lifeline® Power Cables Lifeline® RHW-2 Two-Hour Fire Resistive Cables

Technical Information Sheet #301F

This Technical Information Sheet (TIS) covers Lifeline® RHW-2 Cables: UL Certified and Listed Type RHW-2, Two-Hour Fire Resistive Power Cables.

Applications

Lifeline® Power Cables have been qualified and listed to the demanding requirements of UL 2196, Tests for Fire Resistive Cables, and are UL Listed Type RHW-2 according to UL 44, Thermoset-Insulated Wires and Cables.

Lifeline® Power Cables meet various industry code requirements (NFPA 70, NFPA 101, NFPA 130 and NFPA 502) for fire resistance according to UL Standard 2196 when selected and installed per applicable codes including federal, state, local and municipal rules, laws and regulations as well as Electrical Circuit Integrity System 25B (FHIT 25B) and TIS #301F - Manufacturer's Instructions. Note that Authorities Having Jurisdiction (AHJ) should be consulted for approval prior to cable purchase and installation.

Requirements

1) Codes / Laws / Regulations

Selection and installation compliance is dependent on the applicable issue of any codes or addendums which covers the use of Lifeline® RHW-2 Cables, Fire Resistant Cables.

2) UL Electrical Circuit Integrity System #25B (FHIT 25B)

The most current listing details and supporting information applicable to Lifeline® Cables' fire resistive rating classification can be obtained from UL's 'Online Certification Directory' website by searching for keyword: "FHIT 25B".

3) Manufacturer's Instructions - TIS #301F

All Lifeline® Cable products are covered by specific datasheets and supporting Technical Information Sheets that provide the user with information to properly select and install Lifeline® Cables in a reliable and trouble-free manner. Do not hesitate to contact your Lifeline® Cable representative should you have any questions.

Installation Parameters

1) Cable: Lifeline® RHW-2

Code compliant cable certified as fire resistive per testing according to UL 2196 and listed in FHIT 25B. Fire resistive rating is two-hours in horizontal installations and one-hour in vertical installations. Appropriate cable selection is required for systems requiring a fire resistive rating.

2) Conduit System

Code compliant conduit system which meets the following requirements:

- a. Must be all steel components or other fire rated components proven to meet the required fire resistance ratings (i.e. two hours). Noted exclusions: aluminum, die cast (zinc), plastics, etc.
- b. Conduit must be supported every five feet (60 inches) and secured to a fire rated structure with steel components or other fire rated components proven to meet the required fire resistance ratings (i.e. two hours). Noted exception: 5ft support spacing is in lieu of typical 10ft support spacing allowed in the National Electric Code.
- c. Conduit system shall not include zinc on the internal surface of conduit unless testing has proven the system meets the required fire resistance ratings.

3) Conduit Sizing

Lifeline® RHW-2 datasheets provide cable diameters to calculate conduit fill which in lieu of the typical National Electrical Code requirements cannot exceed a maximum fill percentage of 35% in horizontal installations and 18% in vertical installations.

Marking

Lifeline® Power Cables are marked as follows:

DRAKA MA [X] [Y] LIFELINE (UL) RHW-2 600V FT4 ST1 FIRE-RESISTIVE CABLE FOR USE IN ELECTRIC CIRCUIT INTEGRITY SYSTEM #25B SEE UL FIRE RESISTANCE DIRECTORY R19359 (MONTH/YEAR) (SEQUENTIAL FOOTAGE)

Notes: [X] is the size of the cable in AWG or kcmil
[Y] is the size of the cable in mm2





System No. 25C FHIT.25C Electrical Circuit Integrity Systems

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Design/System/Construction/Assembly Usage Disclaimer

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

FHIT - Electrical Circuit Integrity Systems

[See General Information for Electrical Circuit Integrity Systems](#)

System No. 25C

February 18, 2016

Fire Rating - 2 Hr.

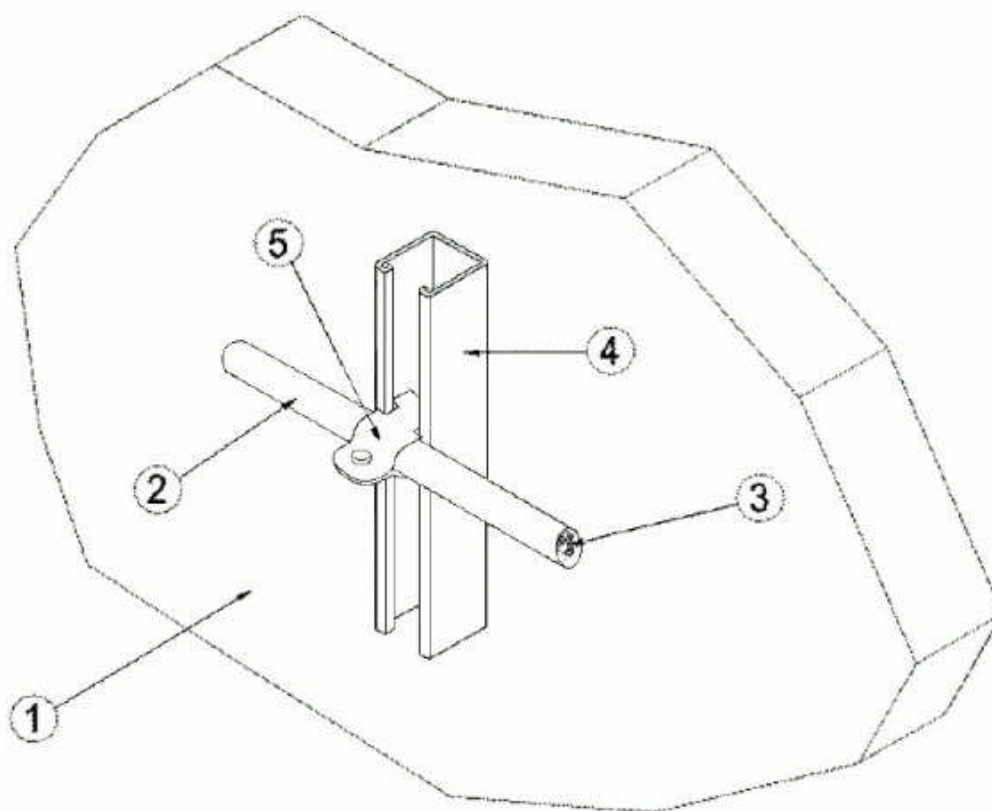


Fig. 1
Two-piece Single-bolt Pipe Clamp

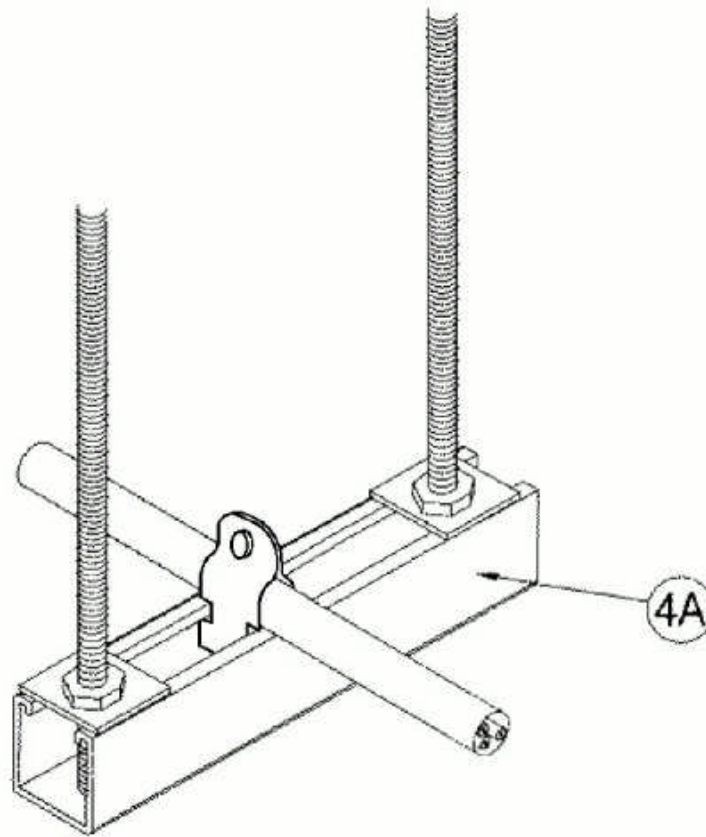


Fig. 2
Steel Strut Trapeze

1. **Wall or Floor Assembly*** — Minimum 2 hour fire rated concrete or masonry wall or concrete floor. Opening in wall or floor through which raceway passes is to be sized to closely follow the contour of the raceway. Through opening in wall or floor to be firestopped using a compatible firestop system. See **Through-penetration Firestop Systems (XHEZ)** category for presently Certified firestop systems.

2. **Raceway*** — Reinforced Thermosetting Resin Conduit. Horizontal or Vertical installation.

FRE COMPOSITES (2005) INC — BreathSaver Brand Type XW Conduit and Type XW elbows

Cable Size, AWG/ kcmil	Minimum Raceway Trade Size, in.							
	Horizontal Installation: No. of Cables				Vertical Installation: No. of Cables			
	1	2	3	4	1	2	3	4
8	3/4	3/4	1	1	3/4	1	1-1/4	1-1/4
6	3/4	1	1-1/4	1-1/4	1	1-1/2	2-1/2	2-1/2
4	3/4	1	1-1/4	1-1/2	1-1/4	2	2-1/2	3
3	3/4	1-1/4	1-1/4	1-1/2	1-1/4	2	2-1/2	3
2	3/4	1-1/4	1-1/2	1-1/2	1-1/4	2-1/2	3	3
1	1	1-1/2	2	2-1/2	1-1/2	2-1/2	3-1/2	3-1/2
1/0	1	1-1/2	2-1/2	2-1/2	2	3	3-1/2	4
2/0	1-1/4	2	2-1/2	3	2	3	3-1/2	4
3/0	1-1/4	2	2-1/2	3	2-1/2	3-1/2	4	5
4/0	1-1/4	2-1/2	3	3	2-1/2	3-1/2	4	5
250	1-1/4	2-1/2	3	3	2-1/2	3-1/2	4	5
300	2	3	3-1/2	4	2-1/2	3-1/2	5	5
350	2	3	3-1/2	4	3	3-1/2	5	6

400	2	3	3-1/2	4	3	4	5	6
500	2-1/2	3	4	5	2-1/2	3-1/2	5	5
600	2-1/2	3-1/2	5	5	3	4	5	6
750	2-1/2	3-1/2	5	5	3	4	5	6

2A. **Raceway Coupling*** — (Not shown).

FRE COMPOSITES (2005) INC — BreathSaver Brand Type XW coupling. Trade size to correspond with the raceway size

3. **Fire Resistive Cables*** — The hourly fire rating applies to cable passing completely through a fire zone and terminating a minimum of 12 inches beyond the fire rated wall or floor bounding the fire zone.

DRAKA CABLETEQ USA INC — Type RHW-2 Lifeline Brand of the following part numbers: G300 followed by 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 77, 78; or QLIFLINE followed by 300 or 400 followed by KCMIL. To be installed as described herein and in accordance with the manufacturer's installation instructions dated February 12, 2016, File R19359

4. **Supports** — (Figure 1) — Min 12 gauge, by 1-1/2 in. wide or 1-5/8 in wide, painted or unpainted, slotted steel channels with hemmed flange edges. Channel bottom with or without holes. Lengths of slotted steel channels 5 ft and less shall be secured to the wall or floor with a min of two 1/4 in. diameter (or larger) by 2-1/4 in. min long concrete screws, or 1/4 in. diameter (or larger) by 1-3/4 in. long min steel masonry anchors. One screw or anchor to be located at each end of the slotted steel channel. Lengths of slotted steel channel in excess of 5 ft require a min of three screws or anchors, one at each end of the channel and one centrally located within the length of the channel. The supports shall be spaced a maximum of 5 ft. OC. When installing cable(s) in vertical runs, the maximum distance of cable within raceway shall be 36 ft. between terminating points.

4A. **Trapeze-type Supports** — (Figure 2) — The raceways shall be installed on/from trapeze-type supports. The trapeze-type supports shall be secured from the surface of the floor. The supports shall be spaced a maximum of 5 ft. OC.

5. **Clamps** — Steel 1-1/4 in. wide two-piece single-bolt pipe clamps. Size to correspond with the outside diameter of the raceway and as follows: Trade size 3/4 - 2 in. conduit, 14-gauge / Trade size 2-1/2 in. conduit - 12-gauge / Trade size 3 in. and larger conduit - 11-gauge.

*Bearing the UL Classification Mark

Last Updated on 2016-02-18

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Lifeline® Power Cables: RHW-2 or RW90 Two-Hour Horizontal, Vertical Fire Resistive Cables in XW Breathsaver® Phenolic Conduit

UL 2196 Certified Fire Resistive Cable for Survivability in a Fire



Applications

Lifeline® fire resistive cables were designed to meet and have successfully passed the two hour fire rating certification test per UL 2196, *Standard for Tests for Fire Resistive Cables*.

Lifeline® Cables can be used in the following applications to provide survivability during a fire:

- Fire Pumps
- Emergency Feeder Cables
- Ventilating Fans
- Exit Lighting
- Elevators
- Tall Buildings
- Hospitals
- Transit
- Oil Refineries
- Drilling Platforms

Lifeline® Cables are preferred over Mineral Insulated (MI) cables, concrete encasement or the construction of fire rated assemblies based on the facts that Lifeline® Cables are less costly, easier to install, and readily available.

Fire resistive cables are required per NFPA 70, Articles 517, 695, 700, 708 and 760 as well as NFPA 72, NFPA 101, NFPA 130 and NFPA 502



UL File E2268 Thermoset-Insulated Wire

RoHS
COMPLIANT



Specifications and Ratings

- Listed to UL 44, *Thermoset Insulated Wires and Cables*, as the following type:
 - RHW-2, 600 Volt, Rated 90°C Dry/90°C Wet
 - RW90, 600 Volt, Rated 90°C Dry/ 90°C Wet
- Classified to UL 2196, *Standard for Tests for Fire Resistive Cables*, for two-hours in horizontal (H) and vertical (V) installations.
- Electrical Circuit Integrity System (FHIT) No. 25C of the UL Fire Resistance Directory
- Sunlight Resistant
- FT4 Rated
- ST1
- IEEE 1202
- NFPA 70, NFPA 101, NFPA 130, NFPA 502 (when approved by AHJ)

Design Parameters

CONDUCTORS: Bare stranded copper, 8 AWG through 750kcmil

INSULATION: High Temperature Mica Tapes layer. Ceramifiable silicone, Low Smoke Zero Halogen (LSZH)

JACKET: Cross-linked polyolefin (XLPO), Low Smoke Zero Halogen

IDENTIFICATION:

Lifeline® Power Cables are marked as follows:
DRAKA MA P/N G[#####] [X] [Y] LIFELINE c (UL) us E2268 RHW-2 OR RW 90 600V FT4 ST1 VW1 FT1 (UL) R19359 FIRE-RESISTIVE CABLE FOR USE IN ELECTRICAL CIRCUIT INTEGRITY SYSTEM FHIT.#25B AND SYSTEM FHIT.#25C (MONTH/YEAR) (SEQUENTIAL FOOTAGE)

Notes: [X] is the size of the cable in AWG or kcmil
[Y] is the size of the cable in mm²
[#] is cable part number

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Lifeline® Power Cables: RHW-2 or RW90 Two-Hour Fire Resistive Cables

UL 2196 Certified Fire Resistive Cable for Survivability in a Fire

Lifeline® Power Cable

LIFELINE® Part Number	Conductor Size AWG /MCM	Number of Strands	Insulation Thickness in (mm)	Overall Diameter in (mm)	Approximate Weight lbs./Mft (kg/km)	Ampacity¹ 90°C Amps
G30064	8	7	0.060 (1.5)	0.31 (7.8)	84 (125)	55
G30065	6	7	0.075 (1.9)	0.37 (9.5)	129 (192)	75
G30066	4	7	0.075 (1.9)	0.42 (10.7)	185 (275)	95
G30067	3	7	0.075 (1.9)	0.45 (11.4)	224 (333)	115
G30068	2	7	0.075 (1.9)	0.48 (12.2)	269 (400)	130
G30069	1	19	0.100 (2.5)	0.57 (14.5)	364 (542)	145
G30070	1/0	19	0.100 (2.5)	0.61 (15.5)	441 (656)	170
G30071	2/0	19	0.100 (2.5)	0.65 (16.6)	535 (796)	195
G30072	3/0	19	0.100 (2.5)	0.70 (17.9)	656 (976)	225
G30073	4/0	19	0.100 (2.5)	0.76 (19.2)	803 (1195)	260
G30074	250	37	0.130 (3.3)	0.86 (21.9)	987 (1469)	290
G30075	350	37	0.130 (3.3)	0.97 (24.7)	1306 (1943)	350
G30076	500	37	0.130 (3.3)	1.10 (27.9)	1820 (2708)	430
G30077	600	61	0.145 (3.7)	1.21 (30.6)	2199 (3272)	475
G30078	750	61	0.145 (3.7)	1.31 (33.3)	2699 (4016)	535

¹ Ampacities are based on Table 310.15(B)(16) (formerly table 310.16) of the National Electrical Code (NFPA 70) for 3 current carrying conductors at 30°C ambient.

² With AHJ approval, a larger size conduit may be required if an EGC is used.

The above dimensions are approximate and subject to normal manufacturing tolerances. Information subject to change without notice.

Lifeline® Power Cables: RHW-2 or RW90 Two-Hour Fire Resistive Cables

UL 2196 Certified Fire Resistive Cable for Survivability in a Fire

Conductor Size	Minimum Allowable XW BreathSaver® Conduit Size							
	Horizontal Installation - Number of Conductors				Vertical Installation - Number of Conductors			
	1	2	3	4	1	2	3	4
8	3/4	3/4	1	1	3/4	1	1-1/4	1-1/4
6	3/4	1	1-1/4	1-1/4	1	1-1/2	2-1/2	2-1/2
4	3/4	1	1-1/4	1-1/2	1-1/4	2	2-1/2	3
3	3/4	1-1/4	1-1/4	1-1/2	1-1/4	2	2-1/2	3
2	3/4	1-1/4	1-1/2	1-1/2	1-1/4	2-1/2	3	3
1	1	1-1/2	2	2-1/2	1-1/2	2-1/2	3-1/2	3-1/2
1/0	1	1-1/2	2-1/2	2-1/2	2	3	3-1/2	4
2/0	1-1/4	2	2-1/2	3	2	3	3-1/2	4
3/0	1-1/4	2	2-1/2	3	2-1/2	3-1/2	4	5
4/0	1-1/4	2-1/2	3	3	2-1/2	3-1/2	4	5
250	1-1/4	2-1/2	3	3	2-1/2	3-1/2	4	5
300	2	3	3-1/2	4	2-1/2	3-1/2	5	5
350	2	3	3-1/2	4	3	3-1/2	5	6
400	2	3	3-1/2	4	3	4	5	6
500	2-1/2	3	4	5	2-1/2	3-1/2	5	5
600	2-1/2	3-1/2	5	5	3	4	5	6
750	2-1/2	3-1/2	5	5	3	4	5	6

¹ Ampacities are based on Table 310.15(B)(16) (formerly table 310.16) of the National Electrical Code (NFPA 70) for 3 current carrying conductors at 30°C ambient.

² With AHJ approval, a larger size conduit may be required if an EGC is used.

The above dimensions are approximate and subject to normal manufacturing tolerances. Information subject to change without notice.

Manufacturer's Instructions for Lifeline® Power Cables

Lifeline® RHW-2 Two-Hour Fire Resistive Cables in XW BreathSaver® Phenolic Conduit

Technical Information Sheet #301H

BreathSaver is registered trademark of FRE composites

This Technical Information Sheet (TIS) covers Lifeline® RHW-2 or RW90 Cables: UL Certified and Listed Two Hour Fire Resistive Cable for use in BreathSaver® Phenolic Conduit

Applications

Lifeline® Power Cables have been qualified and listed to the demanding requirements of UL 2196, Tests for Fire Resistive Cables, and are UL Listed Type RHW-2 and RW90.

Lifeline® Power Cables meet various industry code requirements (NFPA 70, NFPA 101 and NFPA 130) for fire resistance according to UL Standard 2196 when selected and installed per applicable codes including federal, state, local and municipal rules, laws and regulations as well as Electrical Circuit Integrity System 25C (FHIT 25C) and TIS #301H - Manufacturer's Instructions. NFPA 502 can also be met when approved by an AHJ. Note that Authorities Having Jurisdiction (AHJ) should be consulted for approval prior to cable purchase and installation.

Requirements

1) Codes / Laws / Regulations

Selection and installation compliance is dependent on the applicable issue of any codes or addendums which covers the use of Lifeline® RHW-2 or RW90 Cables, Fire Resistive Cables.

2) UL Electrical Circuit Integrity System #25C (FHIT 25C)

The most current listing details and supporting information applicable to Lifeline® Cables' fire resistive rating classification can be obtained from UL's 'Online Certification Directory' website by searching for keyword: "FHIT 25C".

3) Manufacturer's Instructions - TIS #301H

All Lifeline® Cable products are covered by specific datasheets and supporting Technical Information Sheets that provide the user with information to properly select and install Lifeline® Cables in a reliable and trouble-free manner. Do not hesitate to contact your Lifeline® Cable representative should you have any questions.

Installation Parameters

1) Cable: Lifeline® RHW-2 or RW90

Code compliant cable certified as fire resistive per testing according to UL 2196 and listed in FHIT 25C. Fire resistive rating is two-hours in horizontal and vertical installations. Appropriate cable selection is required for systems requiring a fire resistive rating.

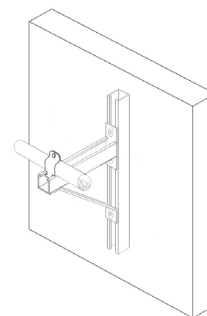
2) Conduit System

Code compliant conduit system which meets the following requirements:

a. Must be BreathSaver® Phenolic Conduit or other fire rated components (described in FHIT 25C) proven to meet the required fire resistance ratings (i.e two hours). No substitute components are allowed.

b. Conduit assemblies shall be secured to a fire rated structure comprised of steel or other fire rated components proven to meet the required fire resistance ratings (i.e. two hours).

Note: Installations where conduits run parallel to and extend away from the support structure require additional support. In such an installation, the horizontal support members shall be reinforced with a knee brace or equivalent. The drawing to the right shows an example installation with knee brace installed. The knee brace shall be secured to vertical and horizontal structural members using 3/8in. or larger steel bolts. Recommended bracing material is steel at least 1/4 inch thick with cross sectional area 0.3 in.² or greater.



c. Maximum support spacing shall be in accordance with National Electric Code article 355.30 with exception that spacing for conduit sizes 2 1/2 and larger shall not exceed 5ft.

3) Conduit Sizing

Lifeline® RHW-2 or RW90 FHIT.25C datasheets provide cable diameters to calculate conduit fill which in lieu of the typical National Electrical Code requirements cannot exceed maximum fill level listed in datasheet and FHIT 25C.



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