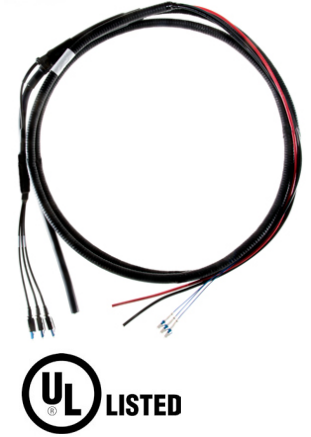## HBF058-13U1SS3-60FS

HYBRIFLEX® RRH Hybrid Jumper, 5/8", 1 pair 6AWG, 3 Single Strand, Single-Mode Fiber with LC to Elongated LC Clip, 60 ft

### PRODUCT DESCRIPTION

RFS Technologies' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments. It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It may eliminate the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS Technologies CELLFLEX® accessories can be used with HYBRIFLEX cable.

### FEATURES / BENEFITS

- Aluminum corrugated armor with outstanding bending characteristics - Minimizes installation time and enables mechanical protection and shielding
- Outer conductor grounding - Saves on installation costs
- Lightweight solution and compact design - Decreases tower loading
- Robust cabling - Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH - Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable - Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- UL-Listed, flame-retardant jacket, UV protected assembles - Allows both indoor and outdoor applications
- **100% Factory tested - Online test results available**

## TECHNICAL FEATURES

### STRUCTURE

| Cable Type | | HYBRIFLEX® |
|---|---|---|
| Fire Performance | | Flame Retardant |
| Size | | 5/8 |
| Length | m (ft) | 18.2 (60) |

### MECHANICAL SPECIFICATIONS

| Outer Diameter Nominal | mm (in) | 21.4 (0.84) |
|---|---|---|
| Cable Weight | kg/m (lb/ft) | 0.6 (0.4) |
| Minimum Bending Radius, Single Bend | mm (in) | 102 (4) |
| Minimum Bending Radius, Multiple Bends | mm (in) | 254 (10) |
| Recommended / Maximum Clamp Spacing | m (ft) | 1 / 1.2 (3.25 / 4) |

### CABLE JACKET

| UV-Protection Individual and External Jacket | | Yes |
|---|---|---|

**PRODUCT DATASHEET**

## HBF058-13U1SS3-60FS

HYBRIFLEX® RRH Hybrid Jumper, 5/8", 1 pair 6AWG, 3 Single Strand, Single-Mode Fiber with LC to Elongated LC Clip, 60 ft

### ARMOR SPECIFICATIONS

| Armor Type | | Corrugated Aluminum |
|---|---|---|
| Maximum DC-resistance of Armor | | 1.97 (0.6) |
| Diameter Corrugated Armor | | 18.5 (0.73) |

### DC POWER CABLE SPECIFICATIONS

| Number of DC Pairs | | 1 |
|---|---|---|
| Maximum DC-Resistance Power Cable | Ω/km (Ω/kft) | 1.4 (0.42) |
| Cross Section of Power Cable | mm² (AWG) | 13.3 (6) |
| DC Wire Jacket Material | | PVC/Nylon |
| DC Cable Single Bending Radius | mm (in) | 83 (3.3) |
| DC Cable Diameter | mm (in) | 6.45 (0.25) |
| DC Standards (Meets or Exceeds) | | For use in Type MC per UL 1569, PVC Nylon, RoHS/REACH Compliant |
| Break-out length (Top) | mm (in) | 650 (26) |
| Break-out length (Bottom) | mm (in) | 914 (36) |
| DC cable sealing method | | Semi-rigid, flame-retardant polyolefin, with hot melt adhesive |

### F/O CABLE SPECIFICATIONS

| Number of F/O Strands | | 3 |
|---|---|---|
| F/O Cable Type | | G657-A2 Single Mode, Bend Tolerant |
| Core/Clad | μm | 9/125 |
| Single Bending Radius | mm (in) | 55 (2.2) |
| F/O Standards (Meets or Exceeds) | | UL Listed Type OFNR (UL1666), RoHS Compliant |
| Optical Loss | dB/Km | 0.5 @ 1310 nm<br>0.5 @ 1550 nm |
| FO Break-out Length (Top) | mm (in) | 570 (22) |
| FO Break-out Length (Bottom) | mm (in) | 965 (38) |
| Cable Sealing Method | | Semi-rigid flame-retardant polyolefin, with hot melt adhesive |
| Fiber Termination End 1 | | LC Connector |
| Fiber Termination End 2 | | LC Connector with Elongated Clip |

### TESTING AND ENVIRONMENTAL

| Storage Temperature | °C (°F) | -40 to 70 (-40 to 158) |
|---|---|---|
| Operation Temperature | °C (°F) | -40 to 65 (-40 to 149) |
| Installation Temperature | °C (°F) | -20 to 65 (-4 to 149) |
| Jacket Specifications | | UL1569 Type MC, UL Listed |

### EXTERNAL DOCUMENT LINKS

QuickShip 2.0 Program Information: [Download](#)

On-line Factory Test Results: [View](#)

### NOTES

**Top Breakout - DC Power Cable Specifications**

Specifications per 1 pair:

Maximum DC-Resistance Power Cable Ω/km (Ω/kft) 1.4 (0.42)

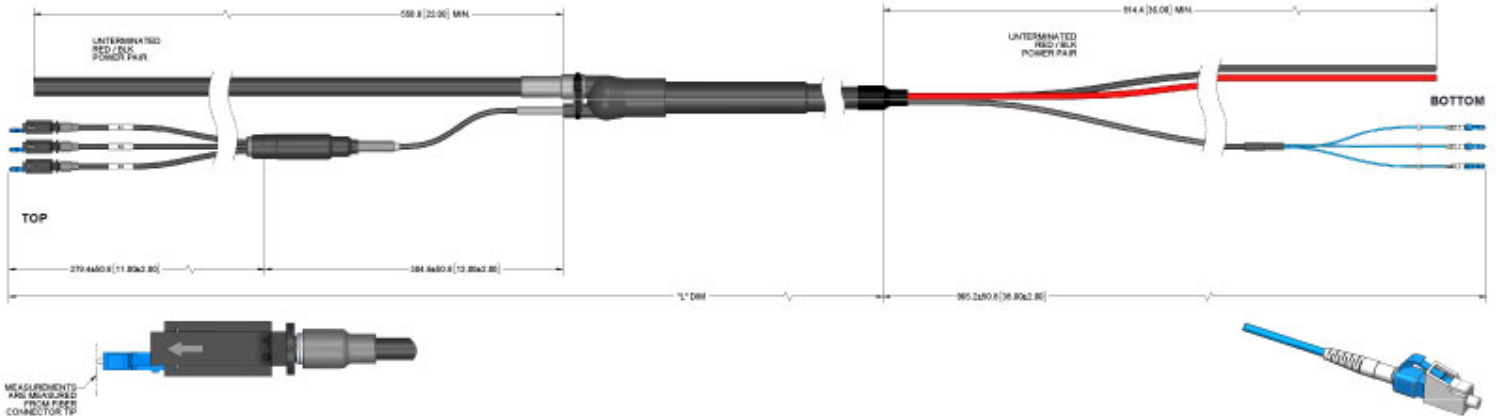Cross Section of Power Cable mm2 (AWG) 13.3 (6)

**HBF058-13U1SS3-60FS**

HYBRIFLEX® RRH Hybrid Jumper, 5/8", 1 pair 6AWG, 3 Single Strand, Single-Mode Fiber with LC to Elongated LC Clip, 60 ft

Overall Cable Diameter mm (in) 18.6 (0.733)
DC Cable Jacket Material PVC/Nylon
EMI Shield Tinned Copper Braid



### ADDITIONAL ASSEMBLIES - 1 STRAND SM FIBER

| Length, ft | Model Number |
|---|---|
| 15 | HBF058-13U1SS-15FS |
| 30 | HBF058-13U1SS-30FS |
| 40 | HBF058-13U1SS-40FS |

### ADDITIONAL ASSEMBLIES - 2 STRAND SM FIBER

| Length, ft | Model Number |
|---|---|
| 15 | HBF058-13U1SS2-15FS |
| 30 | HBF058-13U1SS2-30FS |
| 40 | HBF058-13U1SS2-40FS |

### ADDITIONAL ASSEMBLIES - 3 STRAND SM FIBER

| Length, ft | Model Number |
|---|---|
| 15 | HBF058-13U1SS3-15FS |
| 30 | HBF058-13U1SS3-30FS |
| 40 | HBF058-13U1SS3-40FS |
| 60 | HBF058-13U1SS3-60FS |

### PRE-PACKED HYBRIFLEX KITS FOR EASY INTEGRATION INTO RAYCAP JUNCTION BOXES

RFS Technologies now offers Kitting options for most hybrid risers and jumpers that include both the cable assembly and the Raycap inserts. For reference, kits have a "K" as the third digit in the model number. HB158 does not require an additional gland/insert for proper installation and sealing into the Distribution Boxes.

## HBF058-13U1SS3-60FS

HYBRIFLEX® RRH Hybrid Jumper, 5/8", 1 pair 6AWG, 3 Single Strand, Single-Mode Fiber with LC to Elongated LC Clip, 60 ft

| Kit Model Prefix | Assembly Prefix | Assembly Qty | Raycap Insert Kit | Insert Kit Contents | Raycap Insert Kit Qty |
|---|---|---|---|---|---|
| **HBK114** | HB114 | 1 | RFS Technologies-TRUNK-KIT | (2) 190  0620, Insert, M75, 1H, 40mm | 1 |
| **HBK058** | HBF058 | | RFS Technologies-JUMP-KIT | (1) 190  0621, Insert, M75, 3H, 22mm, Split w/ plugs | |
| **HBK012** | HBF012 | | RFS Technologies-JUMP-KIT-2 | (1) 190  0903, Insert, M75, 2H, 15mm, Split w/ plugs | |
| **FRK-N** | FR-N | | RFS Technologies-FIBER-KIT | (1) 190  0657, Insert, M75, 6H, 6.1mm, Split w/ plugs | |