# **Detailed Specifications & Technical Data**



## 9963 Multi-Conductor - Communication and Instrumentation Cable



For more Information please call

1-800-Belden1



### **General Description:**

20 AWG stranded (19x32) tinned copper conductors, conductors cabled, nylon skin over insulation, PVC insulation, tinned copper braid shield (90% coverage), PVC jacket.

Conclusion       AV       Statistics Material       Conclusion       Statistics Material         Statistics Material       Statistics Material       Statistics Material       St	Physical Characteristics (Overall)			
Considering AWG StrategyConservation MethodsTotal Number Conductors:3Total Number Conductors:3Instruction Resistance:500 megohme/1000 ft. & 500 VDCOther Shield0.076Total Number Conductors:500 megohme/1000 ft. & 500 VDCOther Shield Number Conductors:500 megohme/1000 ft. & 500 VDCOther Jacket Number Conductors:500 megohme/1000 ft. & 500 VDCOther Jacket Number Conductors:500 megohme/1000 ft. & 500 VDCOther Jacket Number Conductors:5.03 megohme/1000 ft. & 500 VDCImmer Color	Conductor			
9         9				
Insulation Testalation Testala	-			
Layer J insuition Material:         With Thickness (mm)           1         PVC - Roywny Chicrice 0 279           Insuition Resistance:         500 megohms/1000 ft. @ 500 VDC           Outer Shield Material:           Tote of Shield Material:         Tote of Shield Material:           Type Outer Shield Material:         Tote of Shield Material:           Outer Jacket         Outer Jacket Material:           Outer Jacket Material:         Tote of Shield Material:           Duter Jacket Material:         Tote Jacket Material:           Outer Jacket Material:         Tote of Shield Material:           Duter Jacket Material:         Tote Jacket Material:           Overall Cable         Coverall Cable           Overall Cable         Solor Code Code:           Tote Jacket Material:         Solor Code Code:           Overall Rominal Diameter:         5.334 mm           Overall Rominal Diameter:         5.334 mm           Operating Temperature Range:         20°C To ±105°C           Multer Cable         Solor Code           UL Temperature Range:         20°C To ±108°C           Buik Cable Weight:         43.168 Kg/Km           Multer Cable Specifications and Agency Compliance Caster         Solor Specifications and Agency Compliance Caster           ED Directive 2000/65/EC	Total Number of Conductors:	3		
Image:         Weil Proc. Polywing Chindre I 0278           Image:         500 megohing/1000 ft. @ 500 VDC           Outer Shield Material:         Virgo Outer Shield Material:           Image:         Image:	Insulation			
1         PVC - Polyning Chinole [0 279           1         PVC - Polyning Chinole [0 285           1         PVC - Polyning Chinole [0 285           1         PVC - Polyning Chinole [0 285           1         Polyning Chi				
2         Nylon         0.076           Insulation Resistance:         500 megohms/1000 ft. @ 500 VDC           Outer Shield Material:           Vyer Outer Shield Material:         Sympo Outer Shield Material:           Vyer Outer Shield Material:         Sympo Outer Shield Material:           Outer Shield Material:         Sympo Outer Shield Material:           Outer Jacket Material:         Sympo Outer Shield Material:           Outer Shield Material:         Sympo Outer Shield Shield Sympo Outer Shield Material:           Overall Nominal Diameter:         S.334 mm           Overall Nominal Diameter:         S.334 mm           Material:         100°C           UL Temperature Range:         20°C To +108°C           UL Temperature Range:         20°C To +108°C           Applicable Specifications and Agency Compliance Overall         Agency           Appli				
Outer Shield Outer Shield Material:       View Gammed Cooper 90         Outer Jacket Outer Jacket Material:       Outer Jacket Material:         Outer Jacket Material:       Outer Jacket Material:         Outer Jacket Material:       Outer Jacket Material:         Overall Cable Overall Cable       0.835         Overall Cable Overall Cable Golor       5.334 mm         Overall Cable Golor       5.334 mm         Overall Cable Solor       -20°C To +105°C         UL Temporature Range:       -20°C To +105°C         UL Temporature Rating:       105°C         Bulk Cable Weight:       43.188 Kg/km         Min. Bodt Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)       Applicable Standards & Environmental Programs         EU Directive 2001/JSEEU (ROHS II):       Yes         EU Directive 2001/JSEEU (ROHS II)				
Outer Shield Outer Shield Material:       View Gammed Cooper 90         Outer Jacket Outer Jacket Material:       Outer Jacket Material:         Outer Jacket Material:       Outer Jacket Material:         Outer Jacket Material:       Outer Jacket Material:         Overall Cable Overall Cable       0.035         Overall Cable Overall Cable Golor       5.334 mm         Overall Cable Golor       5.334 mm         Overall Cable Solor       -20°C To +105°C         UL Temperature Range:       -20°C To +105°C         UL Temperature Range:       -20°C To +105°C         UL Temperature Rating:       105°C         Buik Cable Weight:       43.158 Kg/km         Min. Bed Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)       Applicable Standards & Environmental Programs         EU Directive 2001/85/EU (ROHS II):       Yes         EU Directive 2001/85/EU (ROHS II):       Yes         EU Directive 2002/85/EC (ROHS):       Yes         EU Directive 2002/85/EC (ROHS):       Yes         EU Directive 2002/85/EC (WEEE):		500 meaohms/1000 ft. @ 500 VDC		
Outer Jacket         Straid To - Tinned Cooper 90         Outer Jacket Matrial Inc. Waterial:         Outer Jacket Matrial Non. Wall Thickness (mm)         PVC - Polyvinyl Chloride 0.635         Overall Cable         Overall Cable Golor Code Chart:         Number Color         2       Black 3         3       Red         Overall Nominal Diameter:       5.334 mm         Voreall Cable Voerall Waterial:       6.05°         Voerall Rabing Color Code Chart:       5.334 mm         Material:       9.0°°C         Voerall Nominal Diameter:       5.334 mm         Vacall Rabing Color Code Chart:       9.0°°C         Material:       1.0°°C         U temperature Rating:       -20°C To +105°C         U L Temperature Rating:       1.0°°C         Buik Cable Weight:       4.3.158 Kg/m         Mas. Recommended Pulling Tension:       20.0160 N         Min. Bend Radlus/Minor Axis:       57.150 mm         EU Directive 2001/36EU (ROHS II):       Yes         EU Directive 2001/36EC (EUY):       Yes         EU Directive 2001/36EC (EUY):       Yes         EU Directive 2001/36EC (EUY):       Yes         EU Directive 2002/36EC (WEEE):       Yes				
Braid TC - Tinned Copper 90         Outer Jacket Material:         Outer Jacket Material:         Outer Jacket Material:         Verail Cable         Overail Cable         Overail Cable         Overail Cable         Overail Cable         Overail Nominal Diameter:         5.334 mm         Operating Temperature Range:         -20°C To +105°C         UL Temperature Range:         -20°C To +105°C         Buik Cable Weight:         40.560 kG         Mark Recommended Pulling Tension:         200.160 N         Min. Bend Radlus/Minor Axis:         57.150 mm				
Outer Jacket Material:       Outer Jacket Material:         Outer Jacket Material:       Nom. Wall Thickness (mm)         PVC - Polyviny Chiedde [0.635       Overall Cable         Overall Cabling Color Code Chart:       Number Color         1       White         2       Black         3       Red         Overall Nominal Diameter:       5.334 mm         Multer Color       1         1       White         2       Black         3       Red         Overall Nominal Diameter:       5.334 mm         Metchanical Characteristics (Overall)          Operating Temperature Range:       -20°C To +105°C         UL Temperature Rating:       105°C         Bulk Cable Weight:       43.158 Kg/Km         Max. Recommended Pulling Tension:       200.169 N         Min. Bend Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)         Applicable Standards & Environmental Programs         EU Directive 2001/53/EC (ELV):       Yes         EU Directive 2001/53/EC (ELV): <th></th> <th></th>				
Outer Jacket Material:         Voter Jacket Material       Nom. Wall Thickness (mm)         PVC - Polywing Choined 0.0535         Overall Cabling Color Code Chart:         Winther Color         1       White         2       Black         Overall Nominal Diameter:       5.334 mm         Voterall Characteristics (Overall)         Øperating Temperature Range:       -20°C To +105°C         UL Temperature Range:       -20°C To +105°C         Black Cable Weight:       43.158 Kg/Km         Max. Recommended Pulling Tension:       200.169 N         Min. Bend Radius/Minor Axis:       7.150 mm         Specifications and Agency Compliance (Overall)         Agence Control Specifications and Agency Compliance (Overall)         Divertive 201/16/EU (ROHS II):         Yes       EU Directive 201/16/SEU (ROHS II):       Yes         EU Directive 2010/SJEC (ELV):       Yes       EU Directive 202/29/SEC (ROHS):       Yes         EU Directive 202/29/SEC (WEEE):       Yes       Yes       Yes				
Outer Jacket Material Nom. Wall Thickness (mm)         VC - Polyvinyl Chloride 0.635         Overall Cabling Color Code Chart:         Number Color         2       Black         3       Red         Overall Nominal Diameter:       5.334 mm         Overall Characteristics (Overall)         Operating Temperature Range:       -20°C To +105°C         UL Temperature Rating:       105°C         Buik Cable Weight:       43.158 Kg/Km         Max. Recommended Pulling Tension:       20.169 N         Min. Bend Radius/Minor Axis:       7.150 mm         Applicable Specifications and Agency Compliance (Overall)       Yes         EU Directive 2011/8/EU (ROHS II):       Yes         EU Directive 2011/8/EU (ROHS II):       Yes         EU Directive 2011/8/EU (ROHS II):       Yes         EU Directive 2011/8/EU (ROHS):       Yes         EU Directive 2011/8/EU (ROHS):       Yes         EU Directive 2011/8/EU (ROHS):       Yes				
Overall Cable         Overall Cabling Color Code Chart:         Number Color         2       Black         3       Red         Overall Nominal Diameter:       5.334 mm         Mechanical Characteristics (Overall)         Operating Temperature Range:       -20°C To +108°C         UL Temperature Rating:       108°C         Bulk Cable Weight:       43.158 Kg/Km         Max. Recommended Pulling Tension:       200.169 N         Min. Bend Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)         Applicable Standards & Environmental Programs         EU Directive 2001/56/EU (ROHS II):       Yes         EU Directive 2002/96/EC (ELV):       Yes         EU Directive 2002/96/EC (RoHS):       Yes         EU Directive 2002/96/EC (WEEE):       Yes				
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Number Color         1       White       Side         Overall Nominal Diameter:       5.334 mm         Operating Temperature Range:       -20°C To +105°C         Utemperature Rating:       105°C         Bulk Cable Weight:       43.158 Kg/Km         Max. Recommended Pulling Tension:       200.169 N         Min. Bend Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)       Yes         EU Directive 2011/65/EU (ROHS II):       Yes         EU Directive 2001/53/EC (ELV):       Yes         EU Directive 2002/59/EC (RoHS):       Yes         EU Directive 2002/59/EC (KMEEE):       Yes	Overall Cable			
1       White         2       Black         3       Red         Overall Nominal Diameter:       5.334 mm         Mechanical Characteristics (Overall)       -20°C To +105°C         UL Temperature Rating:       105°C         Bulk Cable Weight:       43.158 Kg/Km         Max. Recommended Pulling Tension:       200.169 N         Min. Bend Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)         Applicable Standards & Environmental Programs         EU Directive 2011/65/EU (ROHS II):       Yes         EU Directive 2001/53/EC (ELV):       Yes         EU Directive 2002/55/EC (RoHS):       Yes				
2       Black         3       Red         Overall Nominal Diameter:       5.334 mm         Mechanical Characteristics (Overall)         Operating Temperature Range:       -20°C To +105°C         UL Temperature Rating:       105°C         Bulk Cable Weight:       43.158 Kg/Km         Max. Recommended Pulling Tension:       200.169 N         Min. Bend Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)         Applicable Standards & Environmental Programs         EU Directive 2011/65/EU (ROHS II):       Yes         EU Directive 2001/53/EC (ELV):       Yes         EU Directive 2002/95/EC (RoHS):       Yes				
Overall Nominal Diameter:       5.334 mm         Mechanical Characteristics (Overall)         Operating Temperature Range:       -20°C To +105°°C         UL Temperature Rating:       105°°C         Bulk Cable Weight:       43.158 Kg/Km         Max. Recommended Pulling Tension:       200.169 N         Min. Bend Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)         Applicable Standards & Environmental Programs         EU Directive 2011/65/EU (ROHS II):       Yes         EU Directive 2000/53/EC (ELV):       Yes         EU Directive 2000/53/EC (ROHS):       Yes         EU Directive 2002/95/EC (NOHS):       Yes         EU Directive 2002/95/EC (ROHS):       Yes				
Mechanical Characteristics (Overall)           Operating Temperature Range:         -20°C To +105°C           UL Temperature Rating:         105°C           Bulk Cable Weight:         43.158 Kg/Km           Max. Recommended Pulling Tension:         200.169 N           Min. Bend Radius/Minor Axis:         57.150 mm           Applicable Specifications and Agency Compliance (Overall)           Applicable Standards & Environmental Programs           EU Directive 2011/65/EU (ROHS II):         Yes           EU Directive 2001/35/EC (ELV):         Yes           EU Directive 2000/53/EC (RoHS):         Yes           EU Directive 2002/95/EC (RoHS):         Yes	3 Red			
Operating Temperature Range:-20°C To +105°CUL Temperature Rating:105°CBulk Cable Weight:43.158 Kg/KmMax. Recommended Pulling Tension:200.169 NMin. Bend Radius/Minor Axis:57.150 mmApplicable Specifications and Agency Compliance (Journal Programs)EU Directive 2011/65/EU (ROHS II):YesEU Directive 2011/65/EU (ROHS II):YesEU Directive 2000/53/EC (ELV):YesEU Directive 2000/53/EC (CoHS):YesEU Directive 2000/53/EC (ROHS):YesEU Directive 2002/96/EC (WEEE):10/01/2005	Overall Nominal Diameter:	5.334 mm		
Operating Temperature Range:-20°C To +105°CUL Temperature Rating:105°CBulk Cable Weight:43.158 Kg/KmMax. Recommended Pulling Tension:200.169 NMin. Bend Radius/Minor Axis:57.150 mmApplicable Specifications and Agency Compliance (Journal Programs)EU Directive 2011/65/EU (ROHS II):YesEU Directive 2011/65/EU (ROHS II):YesEU Directive 2000/53/EC (ELV):YesEU Directive 2000/53/EC (CoHS):YesEU Directive 2000/53/EC (ROHS):YesEU Directive 2002/96/EC (WEEE):10/01/2005	Mechanical Characteristics (Overall)			
Bulk Cable Weight:       43.158 Kg/Km         Max. Recommended Pulling Tension:       200.169 N         Min. Bend Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)         Applicable Standards & Environmental Programs         EU Directive 2011/65/EU (ROHS II):       Yes         EU CE Mark:       Yes         EU Directive 2000/53/EC (ELV):       Yes         EU Directive 2000/53/EC (ROHS):       Yes         EU Directive 2002/95/EC (ROHS):       Yes         EU Directive 2002/95/EC (WEEE):       10/01/2005		-20°C To +105°C		
Max. Recommended Pulling Tension:       200.169 N         Min. Bend Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)         Applicable Standards & Environmental Programs         EU Directive 2011/65/EU (ROHS II):       Yes         EU Directive 2000/53/EC (ELV):       Yes         EU Directive 2000/53/EC (ELV):       Yes         EU Directive 2000/53/EC (RoHS):       Yes         EU Directive 2002/95/EC (RoHS):       Yes         EU Directive 2002/95/EC (WEEE):       Yes	UL Temperature Rating:	105°C		
Min. Bend Radius/Minor Axis:       57.150 mm         Applicable Specifications and Agency Compliance (Overall)         Applicable Standards & Environmental Programs         EU Directive 2011/65/EU (ROHS II):       Yes         EU CE Mark:       Yes         EU Directive 2000/53/EC (ELV):       Yes         EU Directive 2002/95/EC (RoHS):       Yes         EU Directive 2002/95/EC (RoHS):       Yes         EU Directive 2002/95/EC (WEEE):       Yes	Bulk Cable Weight:	43.158 Kg/Km		
Applicable Specifications and Agency Compliance (Overall)         Applicable Standards & Environmental Programs         EU Directive 2011/65/EU (ROHS II):       Yes         EU CE Mark:       Yes         EU Directive 2000/53/EC (ELV):       Yes         EU Directive 2002/95/EC (ROHS):       Yes         EU Directive 2002/95/EC (WEEE):       Yes	Max. Recommended Pulling Tension:	200.169 N		
Applicable Standards & Environmental Programs       Yes         EU Directive 2011/65/EU (ROHS II):       Yes         EU CE Mark:       Yes         EU Directive 2000/53/EC (ELV):       Yes         EU Directive 2002/95/EC (ROHS):       Yes         EU Directive 2002/95/EC (WEEE):       Yes	Min. Bend Radius/Minor Axis:	57.150 mm		
Applicable Standards & Environmental Programs       Yes         EU Directive 2011/65/EU (ROHS II):       Yes         EU CE Mark:       Yes         EU Directive 2000/53/EC (ELV):       Yes         EU Directive 2002/95/EC (ROHS):       Yes         EU Directive 2002/95/EC (WEEE):       Yes	Applicable Specifications and Asenau Compliance			
EU Directive 2011/65/EU (ROHS II):YesEU CE Mark:YesEU Directive 2000/53/EC (ELV):YesEU Directive 2002/95/EC (RoHS):YesEU Directive 2002/95/EC (RoHS):10/01/2005EU Directive 2002/96/EC (WEEE):Yes		(Overall)		
EU Directive 2000/53/EC (ELV):       Yes         EU Directive 2002/95/EC (RoHS):       Yes         EU RoHS Compliance Date (mm/dd/yyyy):       10/01/2005         EU Directive 2002/96/EC (WEEE):       Yes		Yes		
EU Directive 2002/95/EC (RoHS):         Yes           EU RoHS Compliance Date (mm/dd/yyyy):         10/01/2005           EU Directive 2002/96/EC (WEEE):         Yes	EU CE Mark:	Yes		
EU RoHS Compliance Date (mm/dd/yyyy):         10/01/2005           EU Directive 2002/96/EC (WEEE):         Yes	EU Directive 2000/53/EC (ELV):	Yes		
EU Directive 2002/96/EC (WEEE): Yes	EU Directive 2002/95/EC (RoHS):	Yes		
	EU RoHS Compliance Date (mm/dd/yyyy):	10/01/2005		
	EU Directive 2002/96/EC (WEEE):	Yes		
EU Directive 2003/11/EC (BFR): Yes	EU Directive 2003/11/EC (BFR):	Yes		
CA Prop 65 (CJ for Wire & Cable): Yes	CA Prop 65 (CJ for Wire & Cable):	Yes		

## **Detailed Specifications & Technical Data**



### METRIC MEASUREMENT VERSION

### 9963 Multi-Conductor - Communication and Instrumentation Cable

MII Order #39 (China RoHS): Yes					
Military Specification:	MIL-W-16878E/17 (insulated conductor)				
Other Specification:	NEMA HP3				
Plenum/Non-Plenum					
Plenum (Y/N):	No				
Electrical Characteristics (Overall)					
Nom. Inductance:					
Inductance (µH/m)					
0.475745					
Nom. Capacitance Conductor to Conductor:					
Capacitance (pF/m)					
160.769					
Nom. Capacitance Cond. to Other Conductor & Shield:					
Capacitance (pF/m) 275.604					
Nom. Conductor DC Resistance:					
DCR @ 20°C (Ohm/km) 29.8571					
Nominal Outer Shield DC Resistance:					
DCR @ 20°C (Ohm/km) 19.0298					
Max. Operating Voltage - Non-UL:					
Voltage 600 V RMS					
Max. Recommended Current:					
Current 3.8 Amps per conductor @ 25°C					

#### Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
9963 009100	100 FT	3.600 LB	WHITE		3 #20 PVC/NY SHLD PVC
9963 0091000	1,000 FT	31.000 LB	WHITE	С	3 #20 PVC/NY SHLD PVC
9963 009500	500 FT	16.000 LB	WHITE	С	3 #20 PVC/NY SHLD PVC

Notes:

C = CRATE REEL PUT-UP.

Revision Number: 4 Revision Date: 09-10-2012

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product. Belden declares this product to be in compliance with EU LVD (Low Voltage Directive 73/23/EEC), as amended by directive 93/68/EEC.