



TEST REPORT

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Glenair GS22759-32 Commercial Equivalent Wire Test Summary (Ref. QTP-1347)

Revision	Description of Changes	Date	Author
1	Initial Release	12/20/2023	JCR



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1.0 Scope

This report summarizes the test results of Glenair's GS22759-32 commercial equivalent wire to AS22759/32. All tests were performed according to AS22759 and QTP-1347 except the ovens were not calibrated per ASTM Type II oven requirements, where applicable.

2.0 Reference Documents

AS22759 Revision D	Wire, Electrical, Fluoropolymer-Insulated, Copper or Copper Alloy
AS4373 Revision F	Test Methods for Insulated Electric Wire
ASTM D3032 Revision 21A	Standard Test Methods for Hookup Wire Insulation
AS29606 Revision B	General Specification for Wire, Electrical, Stranded, Uninsulated Copper, Copper Alloy, or Aluminum, or Thermocouple Extension
AS5768 Revision C	General Specification for Tool, Stripper, Electrical Insulation
GS22759-32 Revision 3	Wire, Electrical, Fluoropolymer-Insulated, Cross-linked Modified ETFE, Light Weight, Tin-Coated Copper, 150°C, 600-Volt, RoHS



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3.0 Test Specimens

The part number and description of the wire tested are listed in Table I.

Table I

Part Number	Description
GS22759-32-22-9	Glenair AS22759/32 22 AWG Wire Tin-Coated Copper Conductor Cross-Linked ETFE-Insulated

GS22759-32

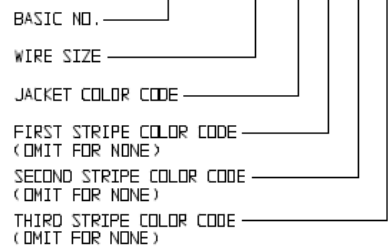
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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	PRELIMINARY	02/01/22	LKJ
2	PRELIMINARY: ADDED STRIPES TO PART NUMBER.	09/12/22	NHJ
3	PRELIMINARY: TEMP RATING, FROM COND. TO WIRE.	09/26/22	NHJ

PART NUMBER	WIRE SIZE	STRANDING (NUMBER OF STRANDS X SIZE GAGE OF STRANDS)	DIAMETER OF STRANDED CONDUCTOR (INCHES)		RESISTANCE AT 20°C (68°F) (OHMS/1000 FEET) (MAX)	FINISHED WIRE	
			(MIN)	(MAX)		DIAMETER (INCHES)	WEIGHT (LB/1000 FEET) (MAX)
GS22759-32-30→	30	7 X 38	.0105	.0134	108.4	.024 ± .002	.66
GS22759-32-28→	28	7 X 36	.0135	.0164	68.6	.027 ± .002	.91
GS22759-32-26→	26	19 X 38	.0175	.0204	41.3	.032 ± .002	1.4
GS22759-32-24→	24	19 X 36	.0225	.0254	26.2	.037 ± .002	2.0
GS22759-32-22→	22	19 X 34	.0285	.0314	16.2	.043 ± .002	2.8
GS22759-32-20→	20	19 X 32	.0365	.0394	9.88	.050 ± .002	4.3
GS22759-32-18→	18	19 X 30	.0455	.0494	6.23	.060 ± .002	6.5
GS22759-32-16→	16	19 X 29	.0515	.0554	4.81	.068 ± .002	8.3
GS22759-32-14→	14	19 X 27	.0645	.0694	3.06	.085 ± .003	13.0
GS22759-32-12→	12	37 X 28	.0835	.0894	2.02	.103 ± .003	19.7

PART NUMBER DEVELOPMENT:

EXAMPLE: GS22759-32 - 24 - 9 0 1 2



COLOR CODE	COLOR
0	BLACK
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	VIOLET
8	GRAY
9	WHITE

NOTES:

1. WIRE IS MADE IN ACCORDANCE WITH AS22759/32.
2. CONDUCTOR IS TIN COATED COPPER PER AS29606.
3. INSULATION IS CROSSLINKED MODIFIED ETFE (ETHYLENE-TETRAFLUOROETHYLENE).
4. WIRE MAXIMUM CONTINUOUS TEMPERATURE RATING IS 150°C (302°F).
5. VOLTAGE RATING IS 600 VOLTS (RMS) AT SEA LEVEL.
6. COLOR CODE PER MIL-STD-681. SEE MIL-STD-681 FOR ADDITIONAL WIRE COLOR CODES.
7. CONSULT FACTORY FOR CUSTOM STRIPE COLOR ORDER.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES:	DRAWN LKJ 02/01/22 CHECK SF 02/01/22 ENGR LKJ 02/01/22	GLENAIR, INC. CAD 1007 1211 AIR WAY - GLENDALE - CALIFORNIA 91201
FRACTIONS ± 1/16 DECIMALS .XX ± .030 .XXX ± .015 ANGLES ± 1°	<i>L. Brown</i>	AS22759/32 WIRE, TIN COATED COPPER CONDUCTOR CROSSLINKED MODIFIED ETFE INSULATED, 600-VOLT, 150°C
DO NOT SCALE THIS DRAWING	ISSUE DATE REVISE DATE	CODE IDENT. NO. SIZE 06324 C GS22759-32
B/F 21A343 P/C	NON REPAIRABLE COMMERCIAL ITEM	SCALE N/A WEIGHT N/A SHEET 1 OF 1

Figure 1 – Glenair AS22759/32 Wire Drawing GS22759-32



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4.0 Summary of Results

The test results are summarized in Table II.

Table II

Test	Specification	Test Requirements	Results	Results
Insulated Conductor Tin Solderability	AS4373 Method 105	95%, min.	Pass	Pass
Insulated Conductor Geometric Characteristics (Diameter)	AS29606 AS22759/32	22 AWG: 0.0285-0.0314"	0.02892"	Pass
Insulated Conductor Elongation	AS29606 AS4373 Method 402	22 AWG: 10%, min.	10.9%	Pass
Insulation Construction (Material Type)	AS22759/32	Cross-linked Modified ETFE	Pass	Pass
Insulation Tensile Strength and Elongation	AS4373 Method 705	5000 psi tensile strength, min. 75% elongation, min.	6620 psi 169%	Pass
Short-Term Thermal Stability	AS4373 Method 811	7 hours at 300°C ± 3°C DWV 2500 VDC, 60 seconds	Pass	Pass
Insulation Blocking	AS4373 Method 808	24 hours at 200°C ± 3°C	Pass	Pass
Insulation Shrinkage	AS4373 Method 104	6 hours at 200°C ± 3°C 0.125" max. shrinkage	Pass	Pass
Wire Conductor Electrical Resistance	AS4373 Method 403	22 AWG: 16.2 Ω/1000 ft., max.	13.6 Ω/1000 ft	Pass



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Wire Electrical Insulation Resistance	AS4373 Method 504	22 AWG: 5000 MΩ-1000 ft., min.	68,000 MΩ-1000	Pass
Wire Electrical Surface Resistance	AS4373 Method 506	22 AWG: 500 MΩ-inches, min. at 500 VDC	Pass	Pass
Electrical Dielectric Resistance – Wet Dielectric Voltage	AS4373 Method 510	2500 V (rms) at 60Hz, min.	Pass	Pass
Wire Diameter	AS4373 Method 901	22 AWG: 0.043 ± 0.002"	0.0421"	Pass
Wire Weight	AS4373 Method 902	22 AWG: 2.8 lbs./1000 ft., max.	2.8 lbs./1000 ft	Pass
Wire Insulation Stripping	AS5768/1 AS5768/2	Insulation readily removable without damage to the conductor	Pass	Pass
Wire Insulation Concentricity and Wall Thickness	AS4373 Method 101	70 %, min.	88.1%	Pass
Wire Identification Printed Marking and Location	AS22759	Marking intervals of 6 to 60 inches	N/A	N/A
Workmanship	AS22759	No cracks, splits, irregularities, or embedded foreign material	Pass	Pass
Wire Color Designators and Munsell Limits	EIA-359-A	Visual inspection against Munsell color chart	Pass	Pass

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Wire Identification Mark, Stripe, and Band Durability	AS4373 Method 710	125 cycles (250 strokes) with a 500-gram weight	N/A	N/A
Wrap Back Bend Mechanical Resistance for Extruded Insulation	AS4373 Method 708	2 hours at 200°C ± 3°C No cracking or splitting	Pass	Pass
Insulation Low Temperature Mechanical Resistance/Cold Bend	AS4373 Method 702	4 hours at -65°C ± 3°C DWV 2500 V (rms) at 60 Hz	Pass	Pass
Insulation Thermal Shock Mechanical Resistance	AS4373 Method 805	-55°C ± 3°C to 200°C ± 3°C 0.060" max. shrinkage	0.02"	Pass
Thermal Mechanical Resistance – Life Cycle	AS4373 Method 807	500 hours at 200°C ± 3°C DWV 2500 V (rms) at 60 Hz	Pass	Pass
Fluid Resistance – Immersion	AS4373 Method 601	Diameter increase 5% max. DWV 2500 V (rms) at 60 Hz	Pass	Pass
Humidity Resistance	AS4373 Method 603	22 AWG: 5000 MΩ-1000 ft., min.	Pass	Pass
Smoke Resistance	AS4373 Method 513	200°C ± 2°C No visible smoke	Pass	Pass
Flammability	AS4373 Method 801	Self-extinguishing flame within 3 seconds max. Flame travel 3" min.	Pass	Pass

5.0 Conclusion

Glenair's GS22759-32 wire meets all performance requirements of AS22759. In some instances, the oven calibration was performed in accordance with ISO instead of ASTM Type II.