1.0 SCOPE

This specification covers the (1.27) / .050 centerline, single beam QF50 connector series.
The full product covered in this specification consists of: Female (lower) housing containing single beam (selective gold plated) terminals which, with an upper housing is terminated to the appropriate ribbon cable using Insulation Displacement Technology. Optional strain relief is then fitted and the whole assembly mates with the header assembly.

2.0 PRODUCT DESCRIPTION

2.1 Product Descritption:

Part Name	Part Number
Female Assembly	90635-****
Header Assembly	90663-**** & 90571-**** & 90572-****
Strain Relief	90170

2.2 Materials, Platings, and Markings:
See the appropriate Sales drawings for information on materials, platings and markings.

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See the appropriate Sales Drawings and any other sections of this specification for the necessary referenced documents and specifications. See section 9.0 of this documents for test sequence.

4.0 RATINGS

4.1. Voltage: 250 Volts AC or DC

4.2 Current and Applicable Wires

AWG	Amps	Outside Insulation Diameter
26 stranded	1	(1.14mm)/ .45inch max.
28 stranded	1	(1.14mm)/ .45inch max.
28 solid	1	(1.14mm)/ .45inch max.

4.3 Operating Temperature: -25 °C to +85°C
Non Operating temperature: -25 °C to +85°C

5.0 PERFORMANCE SPECIFICATIONS

5.1 Electrical Performance

Item	Test Condition	Requirement
Contact Resistance (Low Level)	Mated Connectors with a maximum voltage of 20 mV and a current of 10 mA. (See section 7.2)	20 mOhms max.
Insulation Resistance	Mate connectors with 500 VDC between adjacent terminals and between terminals and ground	1000 MegOhms min.
Dielectric Strength	Apply a voltage of 500 VAC for 1 minute between adjacent terminals and between terminals & ground	No breakdown

5.2 Mechanical Performance

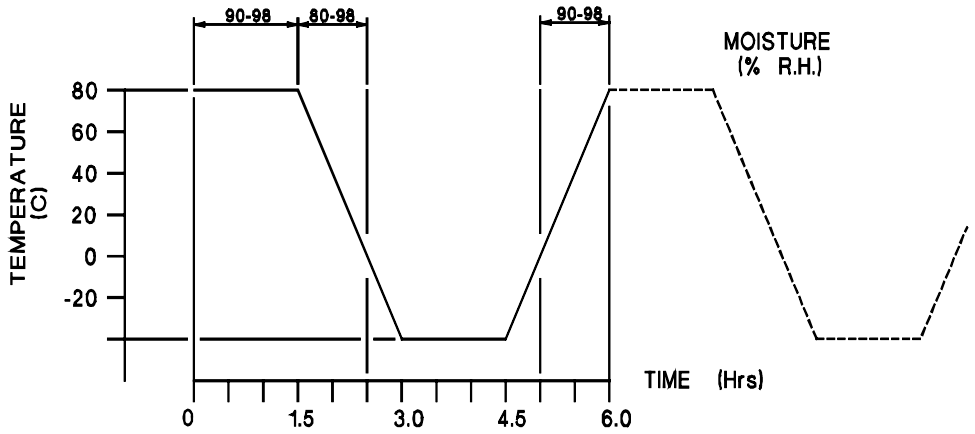
Gauge Extraction Force	Gauges attached to a weight (70g) inserted into contact (see section 7.1)	Contact must hold gauge when held aloft.
Connector Insertion Withdrawel	Insert and withdraw & mating connectors at a rate (25 6mm) /1 0.25" per minute	Max. Ins. 350 g x cct size Min. With. 160g x cct size
Durability	Mate connectors at 10 cycles/minute to 300 cycles...GS2 plating 100 cycles...GS3 plating 50 cycles.....GS1 plating	Contact Resistance Cycles Initial 20 mOhms max. Final 40 mOhms max.
Vibration	Amplitude: (1.5mm) / .060" peak to peak Sweep: 10-55-10 Hertz in 1minute Duration: 2 hours in each X-Y-Z axis (See section 7.3)	Appearance: No Damage Contact Resistance: 20 mOhms max change from initial. Discontinuity: 1 micro-sec. max

Item	Test Condition	Requirement
Mechanical Shock	50 G's with three shocks in each X-Y-Z axis	Appearance: No Damage Contact Resistance: 20 mOhms max change from initial Discontinuity: 1 micro-second max.
Upper Housing Retention Force	Upper housing removed from lower housing by a force applied to cable at (25 6mm)/1 0.25" per minute (See section 7.4)	5 kg min.
Pin retention force	Apply axial force to mating end of pin assembled in the header at (25 6mm) /1 0.25" per minute	1.5 kg min.

5.3 Environmental Performance:

Item	Test Condition	Requirement
Thermal shock	Mate connectors exposed for 5 cycles of: Temp. Duration -55 C 30 minutes +25 C 5 minutes max. +125 C 30 minutes +25 C 5 minutes max.	Appearance: No Damage Contact Resistance: 20 mOhms max change from initial
Thermal Aging	Mate connectors exposed for 1000 hours at 85 2 C	Appearance: No Damage Contact Resistance: 20 mOhms max change from initial
Cyclic Humidity	Mate connectors for 40 continuous cycles as shown in Fig. 5.3. Full test to last for 240 hours	Appearance: No Damage Contact Resistance: 20 mOhms max change from initial

Figure 5.3



Item	Test Condition	Requirement
Salt Spray	Mate connectors and expose to a 5% NaCl solution for 48 hours at 35 ± 3 °C	Appearance: No Damage Contact Resistance: 20 mOhms max change from initial.
Humidity Steady State	Mate connectors and expose to 40 ± 2 °C with relative humidity 90-95% for 96 hours Dielectric Strength: 500 VAC for 1 minute Insulation Resistance: 1000 megOhms min.	Appearance: No Damage Contact Resistance: 20 mOhms max change from initial.
Solderability	Solder time: 3 ± 0.5 sec. Solder temperature: 230 ± 5 °C	95% of immersed area must show no voids, pin holes, etc.
Resistance to Solder Heat	Solder time: 3 ± 0.5 sec. Solder temperature: 260 ± 5 °C	Appearance: No Damage

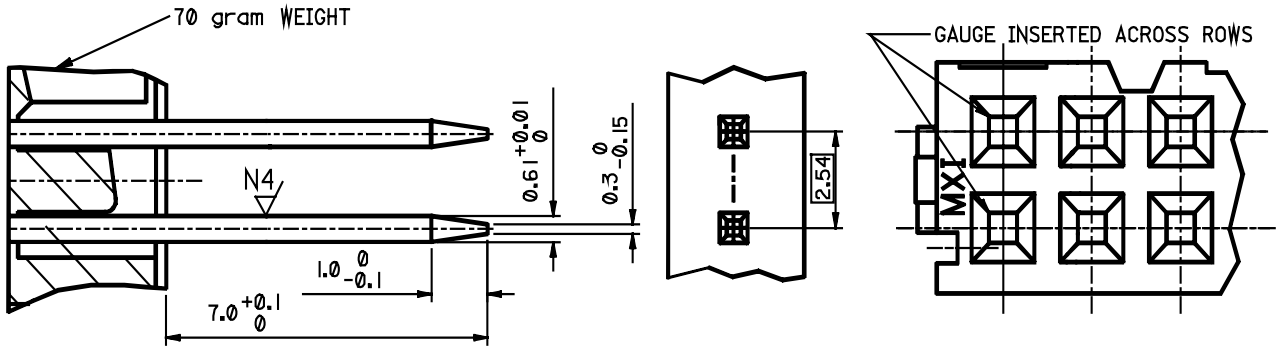
Corrosive Environment (SO2 Gas)	Mated connector exposed to 50 ppm SO2 gas at 40 ± 3 °C for 24 hours	Appearance: No Damage Contact Resistance: 20 mOhms max change from initial
Temperature Rise	Mate the connectors and measure the contact temperature at the rated current load	Maximum temperature of the terminal over ambient of 30 °C

6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage.
No styrofoam shall be used in any packaging that comes in direct contact with the connectors.

7.0 GAUGES AND FIXTURES

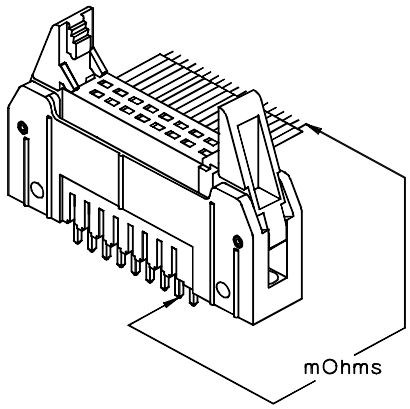
7.1 Extraction Force Gauge (Part No. : 99002-0190)



7.2 Contact Resistance

The positions to be measured are as shown in figure 7.2. The conductor resistance of the cable shall be subtracted from the measurement value.

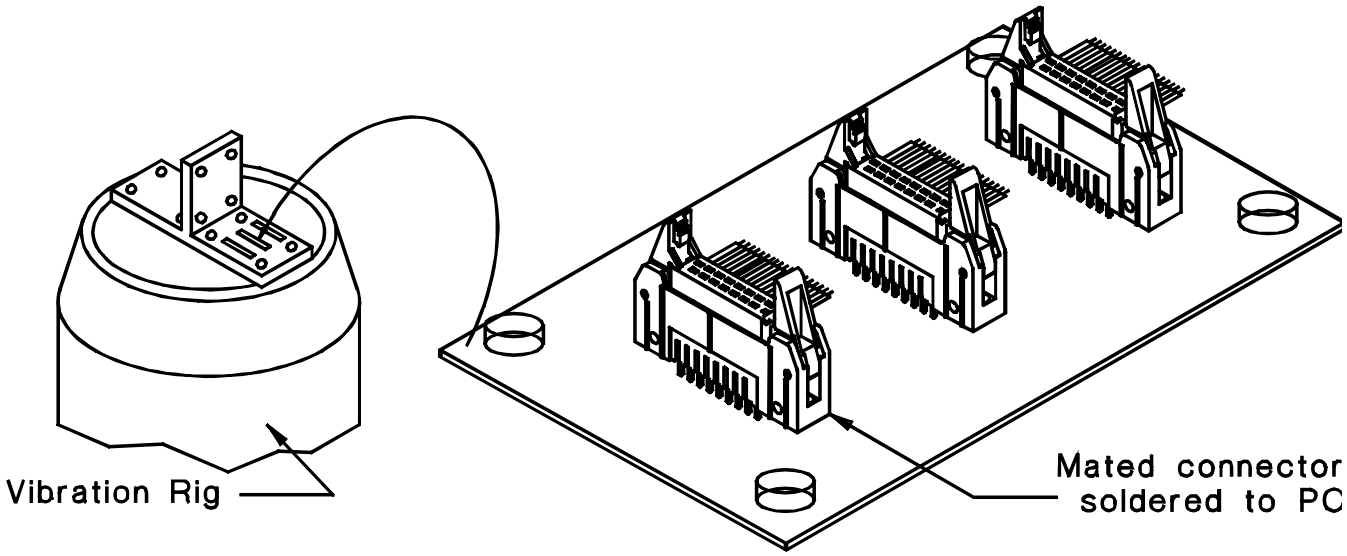
Figure 7.2



7.3 Vibration

Samples shall be mounted to assure that mounting is free from resonances over the test frequency range (see Fig 7.3).
Samples to be subjected to simple harmonic motion having an amplitude of 1.5mm max.
The frequency range from 10 to 55 Hz and return to 10Hz shall be traversed in 1 minute 5 seconds.
This motion to be applied for 2 hours in each of 3 mutually perpendicular directions (total of 6 hours).

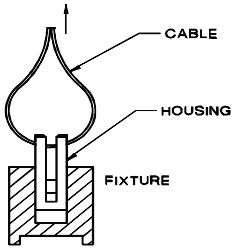
Figure 7.3



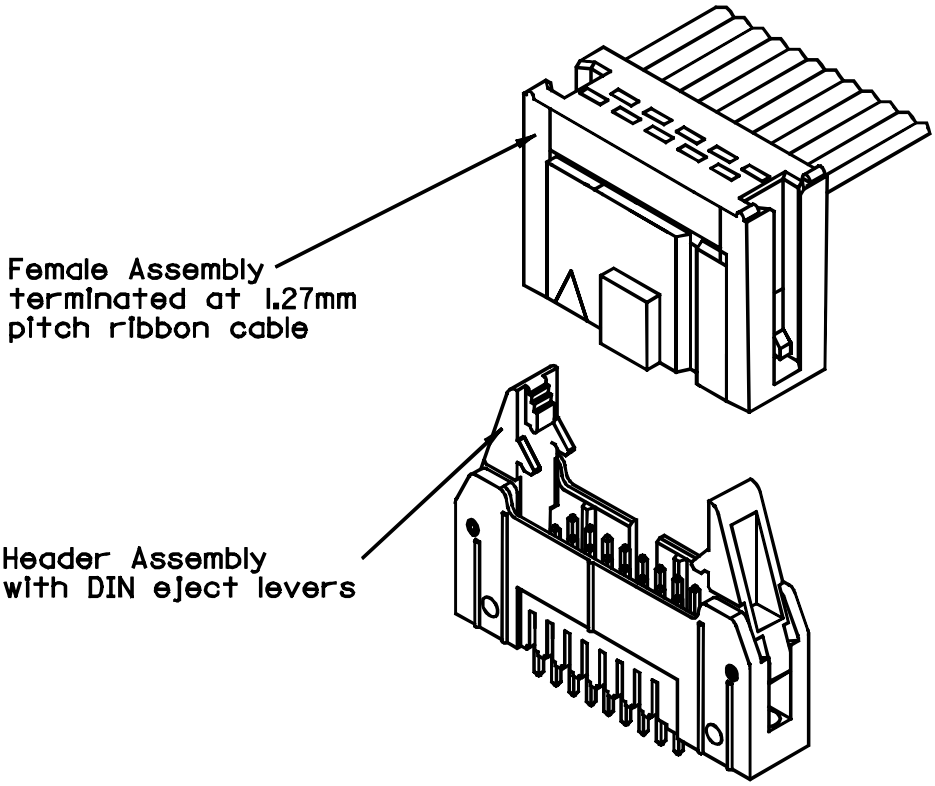
7.4 Upper Housing Retention

Assembled females are to be terminated with ribbon cable as shown in Figure 7.4.
A force shall be applied to the cable at a rate of (25 ± 3mm) / 1 ± 0.12" per minute.
The force required to remove the upper housing shall be measured. The strain relief clamp is not to be fitted. The fixture must not interfere with the movement of the upper housing.

Figure 7.4



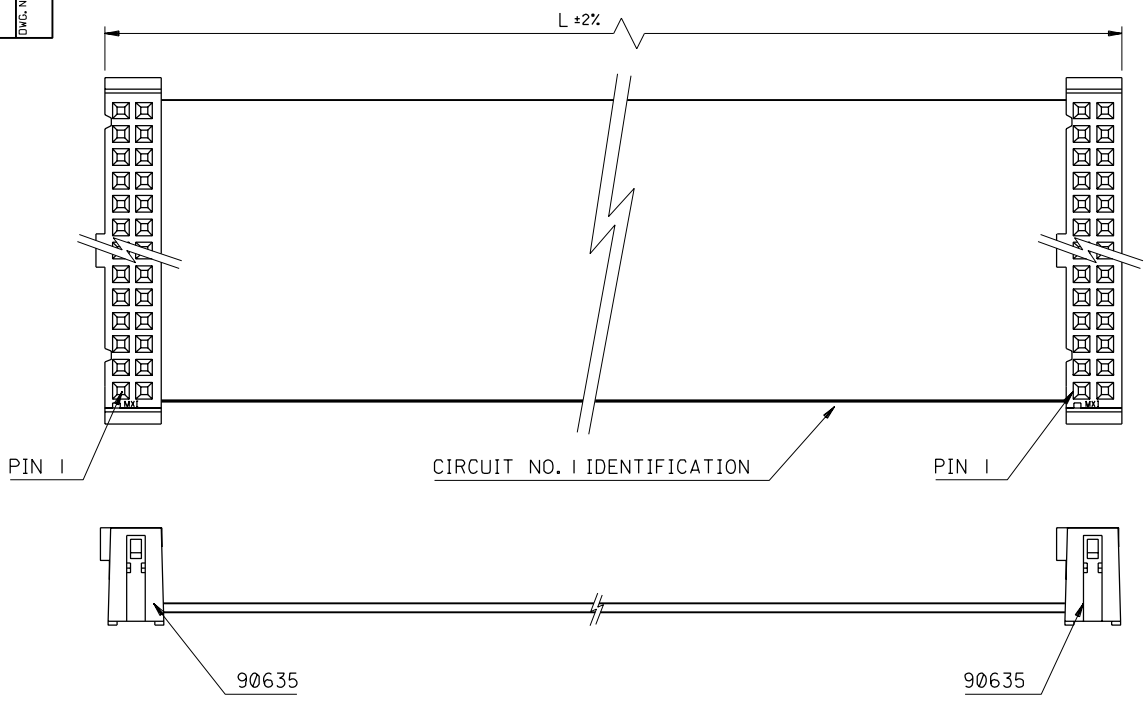
8.0 OTHER INFORMATION



9.0 TEST SEQUENCE

				TE	ST		GR	OU	P	
TEST ITEM	(i-a)	(i-b)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
VISUAL	6	4	14	6	6	2	2			
TOTAL RESISTANCE	135	1 ,3	1,5,9 11,13	1,3, 5						
INSULATION RESISTANCE			2 ,7							
WITHSTANDING VOLTAGE			3 ,8							
CYCLIC HUMIDITY	2									
MECHANICAL DURABILITY	4				3					
SALT SPRAY		2								
THERMAL SHOCK			4							
HUMIDITY			6							
VIBRATION			10							
MECHANICAL SHOCK			12							
TEMPERATURE LIFE				2						
SULFUROUS ACID GAS				4						
INSERTION/WITHDRAWEL FORCES					1, 4					
GAUGE EXTRACTION FORCE					2, 5					
SOLDERABILITY						1				
RESISTANCE TO SOLDER HEAT							1			
PIN RETENTION FORCE								1		
UPPER HOUSING RETENTION FORCE									1	
TEMPERATURE RISE										1

PART NO. SEE CHART
DWG. NO. SD-92321-001



90635 CONNECTOR
CIRCUIT SIZE
10
14
16
20
26
34
40
50

CABLE DETAILS:

28 AWG , 1.27 MM PITCH , 7 STRANDS WITH TINNED COPPER , GREY PVC INSULATION WITH A COLOURED POLARITY STRIPE INDICATING CIRCUIT NO. 1 , UL 2651.

PLATING DETAILS:

15u" GOLD FLASH PLATING.

NOTES:

1. SEE PRODUCT SPECIFICATIONS PS-99020-0015.
2. SEE CABLE SPECIFICATION ES-99027-0006.
3. HARNESSES WILL BE 100% ELECTRICALLY TESTED FOR SHORTS AND DISCONTINUITIES.

ORDERING INFORMATION

92321-****

CIRCUIT SIZE
LENGTH L IN CENTIMETRES

LENGTHS AVAILABLE FROM 5 CM TO 50 CM, IN STEPS OF 5.
05, 10, 15, 20, 25, 30, 35, 40, 45 & 50CM

e.g. 92321-1410 = 14 CIRCUIT
WITH LENGTH L OF 10 CM.

ORIGINAL RELEASE
EC NO. 20000-0896 00006/15
DRWN: D.RYAN / /
CH'K: / /
APPR: / /
DESCRIPTION
A1
REV

QUALITY SYMBOLS
MAJOR ▼ =
CRITICAL ⟨C⟩ =

GENERAL TOLERANCES: (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	±0.	±.
3 PLACES	±0.	±.
2 PLACES	±0.	±.
1 PLACE	±0.	±.
ANGULAR: ± 1/2 °		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

SCALE 2 : 1
DESIGN UNITS ☒mm ☐INCH
THIRD ANGLE PROJECTION
DIMENSIONS: ☐ mm/INCH ☐ INCH/mm ☒ mm ONLY
SHT REV
REVISE ON CAD ONLY

DRAWN BY & DATE D.RYAN 00/03/15
CHECKED BY & DATE BENRIGHT 00/03/15
APPROVED BY & DATE MWILHITE 00/03/15
CAD FILENAME

TITLE: QF50 TO QF50 STANDARD ASSEMBLIES

MOLEX INCORPORATED

MATERIAL NO.	DRAWING NO.	SHEET NO.
SEE CHART	SD-92321-001	1 OF 1

SIZE B

7132-1283

CONDUCTOR SPECIFICATIONS:

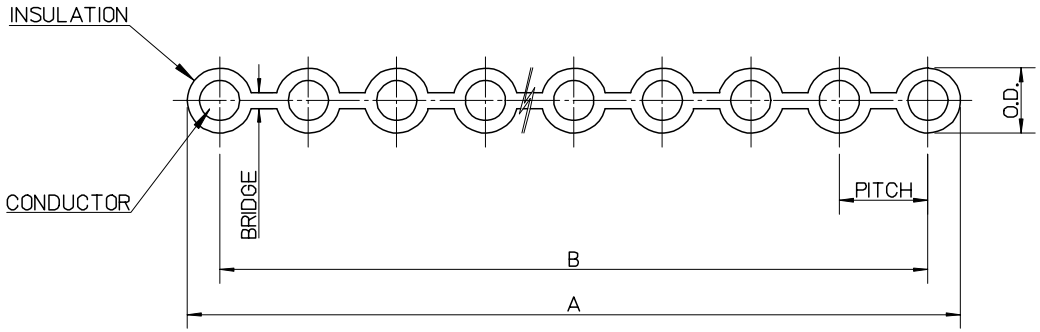
CONDUCTOR No.	n - NUMBER OF CIRCUITS
CONDUCTOR:	
MATERIAL	STRANDED TINNED COOPER
A.W.G.	28
STRANDING QTY/mm	7/0.127
TENSILE STRENGTH	N/A
INSULATION:	
MATERIAL	PVC
MIN. WALL THICKNESS	N/A
COLOR	N/A
POLARITY	N/A
OUTSIDE DIAMETER	0.92 ± 0.05
DIRECTION OF LAY	N/A
LENGTH OF LAY	N/A
U.L. RATING	2651
FLAME RATING	VDE 0472
TEMPERATURE RATING	-20°C to +105°C
MARKINGS	N/A
PITCH	1.27 ± 0.05
BRIDGE / WEB THICKNESS	0.18 (REF.)

CONDUCTOR SPECIFICATIONS:

VOLTAGE RATING	max. 300 V
CURRENT RATING	1.2 A
INSULATION RESISTANCE	20 M ohms x Km.min.
DIELECTRIC WITHSTAND	2000 V
CONDUCTOR RESISTANCE	230 ohms/Km
CAPACITANCE	45 pF/m

A = n x 1.27
B = [(n - 1) x 1.27] + O.D.

TOLERANCES: n = 20: +/-0.20
n = 40: +/-0.30
n = 64: +/-0.40



NOTE:

1. ALL MATERIALS COMPOUNDS TO BE LEAD FREE.
2. SEE PACKAGING SPECIFICATION ESTABLISHED BY LOCAL PURCHASING AND MANUFACTURING DEPARTMENTS.

REV	DESCRIPTION
B	CHANGED CURRENT EC NO: E2005-0541 2004/12/21 DRWN:DMIKOLAJOV 2004/12/21 CH'KD:I.DIDEK 2004/12/21 APPR:VPUCHY 2004/12/22

QUALITY SYMBOLS
▼=0
▽=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± ---	± ---
1 PLACE	± ---	± ---
ANGULAR ± .5 °		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE	MM ONLY
SCALE	10:1
DESIGN UNITS	METRIC
	THIRD ANGLE PROJECTION
DRAWN BY	DMIKOLAJ
DATE	2004/12/15
CHECKED BY	I.DIDEK
DATE	2004/12/15
APPROVED BY	V.PUCHY
DATE	2004/12/15
MATERIAL NO.	-
TITLE	WIRE SPECIFICATION
	MOLEX INCORPORATED
DOCUMENT NO.	ES-99027-0006
SHEET NO.	1 OF 1
SIZE	A4