

ATI ELECTRONIQUE

CONNECTORS 2MM SERIES

ATI
ATI ELECTRONIQUE



EDITION 2011 CONTENTS

GENERAL PRESENTATION

ATI presentation
General overview of 2mm series
Associated Services
Technical characteristics (Technical data)

PAGES 04, 06, 07, 08

TECHNICAL INDEX

Guides for 220 series
Guides for 320 series
Hoods for 220 series
Seals for 220 series
Wires
Tooling

PAGES 96, 101, 104, 106, 108, 109

OVERVIEW DIAGRAM OF THE RANGE

PAGE 10

210 SERIES

Architecture
Product sheets

PAGE 12

220 SERIES

Architecture
Product sheets

PAGE 28

320 SERIES

Architecture
Product sheets

PAGE 56

HIGH FREQUENCY AND HIGH POWER CONTACTS

Product sheets

PAGE 76



ATI ELECTRONIQUE GENERAL PRESENTATION



CONNECTORS & INTERCONNECT SOLUTIONS FOR HARSH ENVIRONMENT

ATI électronique & Interconnexions offer a wide range of reliable, ergonomic and innovative connecting solutions for harsh environment electronic systems (vibrations, extreme temperatures, aggressive fluids, etc).

It specifically covers the military and civil aeronautics sectors, the aerospace and the defense industries (missile, marine, ground equipment and communications), railroad transport and signalization, as well as all industries requiring harsh environment connections.

Important customers include the SAFRAN group, Thales group, EURO-COPTER, MBDA, ASTRIUM, DASSAULT Aviation, ZODIAC group, AGUSTA, BAE Systems, ELBIT, DIEHL, LITEF, NEXTER, DCNS, KONGSBERG, ALSTOM, SNCF, among others, and the large integrators.

You can find ATI électronique and Interconnexions products worldwide thanks to our distributor network whose contact details appear on our website:

www.ati-interco.fr





Products

The product range is quite extensive and includes standard and customized connectors (catalogue), and the most complex interconnection systems with harnesses, integrating special features such as electromagnetic filtering, shielding and ergonomic functions in the mechanical integration of the systems.



Our different ranges of solutions:

- Connectors for printed circuit boards and harnesses: signal, coax and power contacts modularity
- Circular connectors
- Coaxial connectors
- Shielded and filtered connectors
- Cabling components for electric harness
- Circular backshells
- Rectangular covers
- Feedthrough and splitting boxes
- Diverse components and protective caps
- Complex and custom connecting solutions, complete sub systems with integrated functions.

Services

We accompany our customers in a reactive way since the initial phase of the design and the development of their systems with dedicated and relevant solutions. Our conceptions are based on experienced and proven technologies and are adapted to our customer needs and requirements.



Constantly looking for new technological answers, we research and develop numerous applications regarding molded composite, the use of new technical thermoplastics, miniaturization, contact technologies for high frequencies or for low insertion force functions, the increase of carried voltage and power, hermetic feature, resistance to high temperature and strong vibrations, and others.



Means

ATI électronique & Interconnexions share 3500 square meters of facilities integrating R&D offices, a machining workshop, a plastic injection workshop (thermoplastic and thermoset), an assembly workshop, and a test and measurement laboratory.



Our equipment and technologies are constantly revised and updated and innovative actions are part of the daily life of both companies. Both are certified ISO 9001 and EN 9100, have received aeronautic quality certifications and respect environmental regulations.

Finally, ATI and Interconnexions are members of the Competitiveness Pole ASTECH and participate in collaborative programs including a reflection around the "More Electric Aircraft".





ATI ELECTRONIQUE GENERAL OVERVIEW OF 2MM SERIES

GENERAL OVERVIEW OF 2MM SERIES

Products

The 2mm pitch miniature connectors offer reduced dimension interconnection solutions for the harshest environments.

Equipped with proven reliability contact and manufactured with high performance materials, they are widely used in military, aeronautical and aerospace applications. Their reduced size and weight make them very attractive for numerous industrial applications.



For smaller equipment, a new range, called 1mm pitch connectors, has been developed.



Please consult our new catalog for more details.

Use

The 2mm series connectors propose solutions to connect PCB to PCB, PCB to cable or cable to cable. Various types of contacts are available: soldering through hole for PCB, SMT for PCB, press fit for PCB, crimping for cable.



SMT



Press-Fit



Crimp



PCB

Range width

The range includes 3 series:

- 210 : 1 & 2 row connectors for signal (LF)
- 220 : 2 row connectors with locking system for mixed signals (LF, HF and power)
- 320 : 3 row connectors with locking system for mixed signals.

The 211 and 212 series have signal contacts only with latches maintaining the two connectors together.

The series 220 and 320 allow the integration of high frequency (HF) and high intensity (HI) contacts. Furthermore they offer a wide range of guiding and locking hardware.

Accessories such as protection hoods, interfacial seals complete the range.

Finally, custom versions with specific modifications are available upon request: dimensions, hardware, additional functions (filtering, shielding, etc).

Modularity

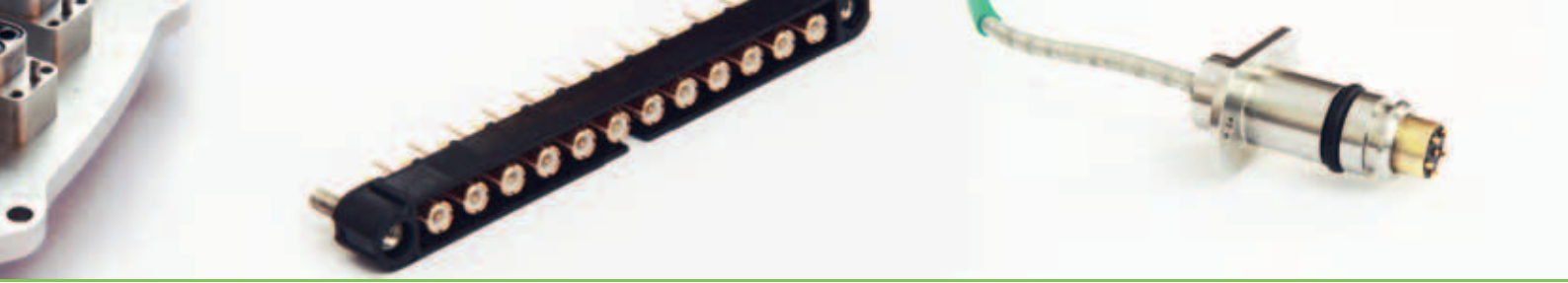
They present the advantage of mixing low frequencies, high frequencies (up to 6 Ghz) and power (up to 20 Amps) configurations.

Techno

The chosen technology for the design of the contact is the tulip one: it is a 4 finger spring contact (clip) stamped in a copper beryllium alloy material and inserted in a machined barrel.

This technology ensures excellent mechanical and electrical properties and offers the best compromise between electrical conductivity and connector force insertion.





ATI ELECTRONIQUE CUSTOM SOLUTIONS

ASSOCIATED SERVICES

Personnalization

The 2mm pitch connectors can be adapted upon your needs for specific applications. In particular, it is possible to propose geometric modifications, fixing hardware custom developments, or custom contact developments.

Additional functions

The 2mm pitch connectors can be offered in other complementary versions depending on the identified needs of your applications: waterproof, hermetic, filtered, shielded, etc.

For instance the 250 series is the metallic version of the 220 series.

Custom design

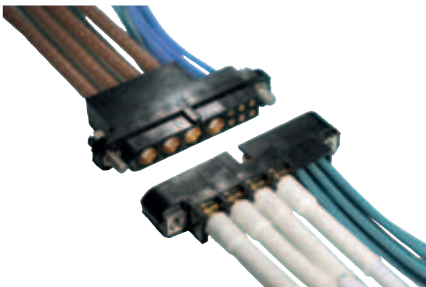
The key components of the 2mm series connectors (LF, HF and power contacts, guiding and locking hardware) are technological elements which can be integrated in custom development offering complete sub-systems.

Harness manufacturing

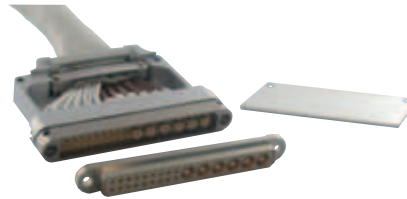
These connectors have been developed to offer a reliable and economical solution to cable connection issues inside equipments



The contacts for cable connection can be removed from the connector and the wiring can be performed by the customer. Nevertheless we can propose solution already wired in our factory.



For more complex realization, we can also propose the full study, design and manufacturing of the harness.



The active components of the connector (contacts) are identical, but are integrated in a metallic body made of aluminum with Nickel surface treatment, or any other if necessary.



TECHNICAL CHARACTERISTICS



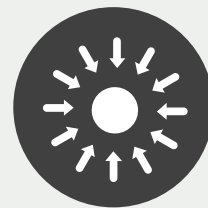
Materials



Electrical



Mechanical



Environmental

Materials

Mouldings :	Glass-filled thermoplastic UL94V-0
Female Contacts :	Brass shrank shell, with beryllium copper inner contact
Male Contacts :	Phosphor bronze
Finish :	Depending on terminations : - gold plated - Tin/lead plated (No RoHS) - Pure tin plated (RoHS)
Spatial use :	TML 0,42 % max - CVCM 0,01 % max

Mechanical

Durability :	500 operations
Engaging and separating force (per contact pair) :	210 series : 2.8 N max, 0.2 N min 220 & 320 series : 1.2 N max, 0.2 N min
Contact retention in moulding :	10 N min
Contact holding force :	0.2 N min
Crimp barrel accommodation :	AWG 22 to AWG 28 for LF contacts AWG 12 to AWG 18 for power contacts

Standards

210 series :	BS 9525 - F0033
220-320 series :	From BS 9525 - F0033 following prescriptions of MIL-DTL-55302

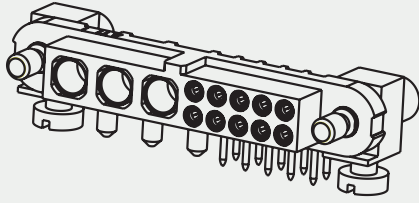
Electrical

Current (individual contacts in isolation) :	At 25° C 3.3 A max At 85° C 2.6 A max
All contacts simultaneously :	At 25° C 3.0 A max At 85° C 2.2 A max
Working Voltage (at sea level 1013 mbar) :	240 V d.c. or a.c. peak
Proof voltage (at sea level 1013 mbar) :	360 V d.c. or a.c. peak (standard) 1000 V d.c. or a.c. peak (tested)
Contact resistance (initial) :	10 mΩ max
Contact resistance (after conditioning) :	13 mΩ max
Insulation resistance (initial) :	1000 MΩ min at 500 V d.c.
Insulation resistance (after conditioning) :	100 MΩ min at 500 V d.c.
Clearance :	1 mm

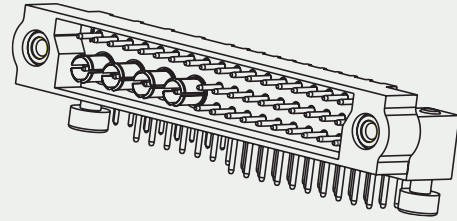
Environmental

Environmental classification :	55/125/56 days at 95% RH
Operating temperature :	- 55° C to 125° C
Salt spray test :	96 hrs
Vibration sensitivity :	0 Hz to 2000 Hz, 0.75 mm, 98 mm/s ² (10 G), duration 6h - Detection 2ns
Bump severity :	390 m/s ² (40 G), 4000 ±10 bumps
Shock severity :	981 m/s ² (100 G) for 6 ms
Acceleration severity :	490 m/s ² (50 G)
Soldering temperature :	Compliant with RoHS + 260° C for PCB and SMT
Terminations :	LF solder pin Ø 0.50 mm for PCB holes Ø 0.65 mm

DERATING CURVES ANALYSIS

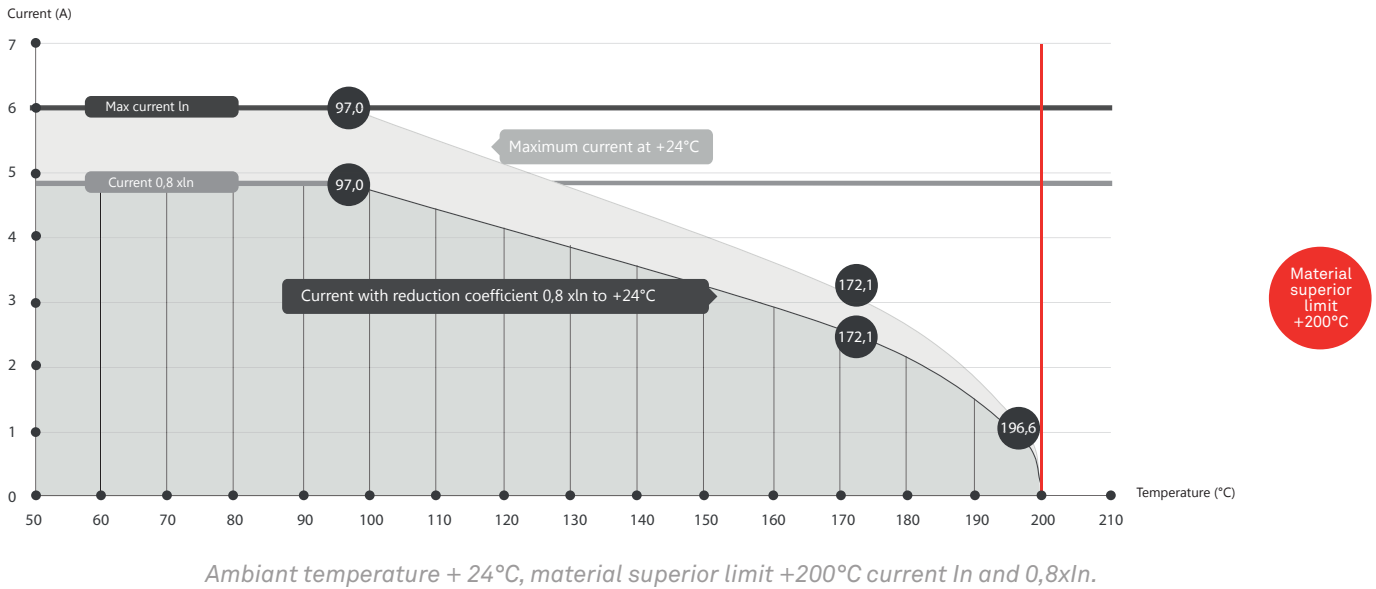


220 Series

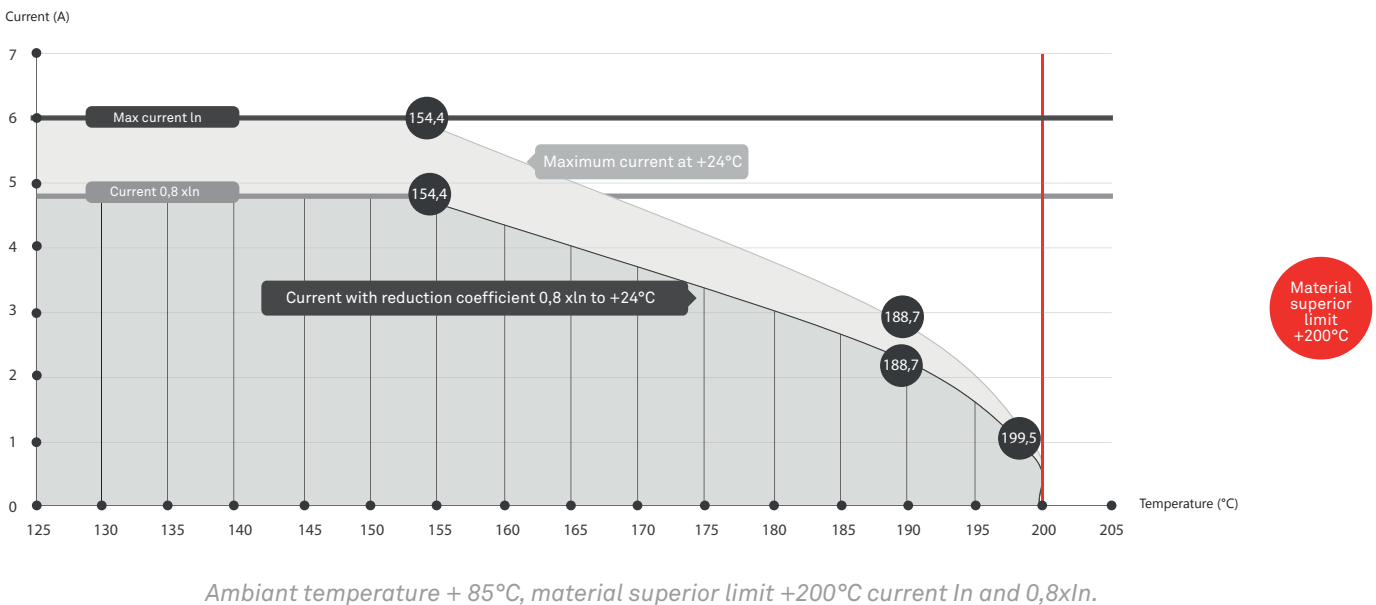


320 Series

Curve of maximum current and curve with reduction coefficient at +24°C



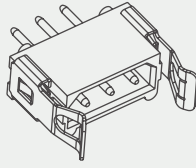
Curve of maximum current and curve with reduction coefficient at +85°C



OVERVIEW DIAGRAM OF THE RANGE

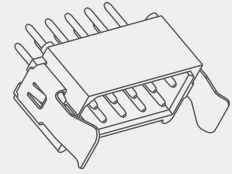


SERIES



211

SERIES



212

SERIES



NUMBERS OF ROWS

1

ROWS

2

ROWS



NUMBER OF LF CONTACTS

2 to 17

LF CONTACTS

4 to 34

LF CONTACTS



NUMBER OF RF/POWER CONTACTS

0

RF/POWER CONTACTS

0

RF/POWER CONTACTS



MIXED LAYOUT

NO

MIXED LAYOUT

NO

MIXED LAYOUT



FIXING HARDWARE

LATCHES

LATCHES



LENGTH

7 to 38

MM

7 to 38

MM



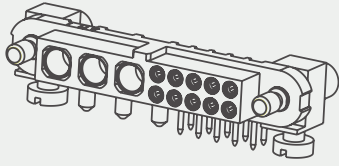
TERMINAISONS

Through hole PCB
SMT
Wire crimp

Through hole PCB
SMT
Wire crimp

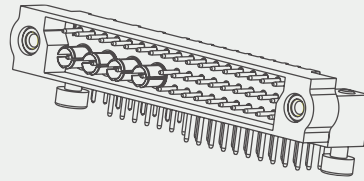
PAGES 12

PAGES 12



220

SERIES



320

SERIES

2
ROWS

3
ROWS

4 to 50
LF CONTACTS

6 to 120
LF CONTACTS

2 to 12
RF/POWER CONTACTS

4 to 20
RF/POWER CONTACTS

YES
MIXED LAYOUT

YES
MIXED LAYOUT

GUIDES OR JACKSCREWS

GUIDES OR JACKSCREWS

14 to 60
MM

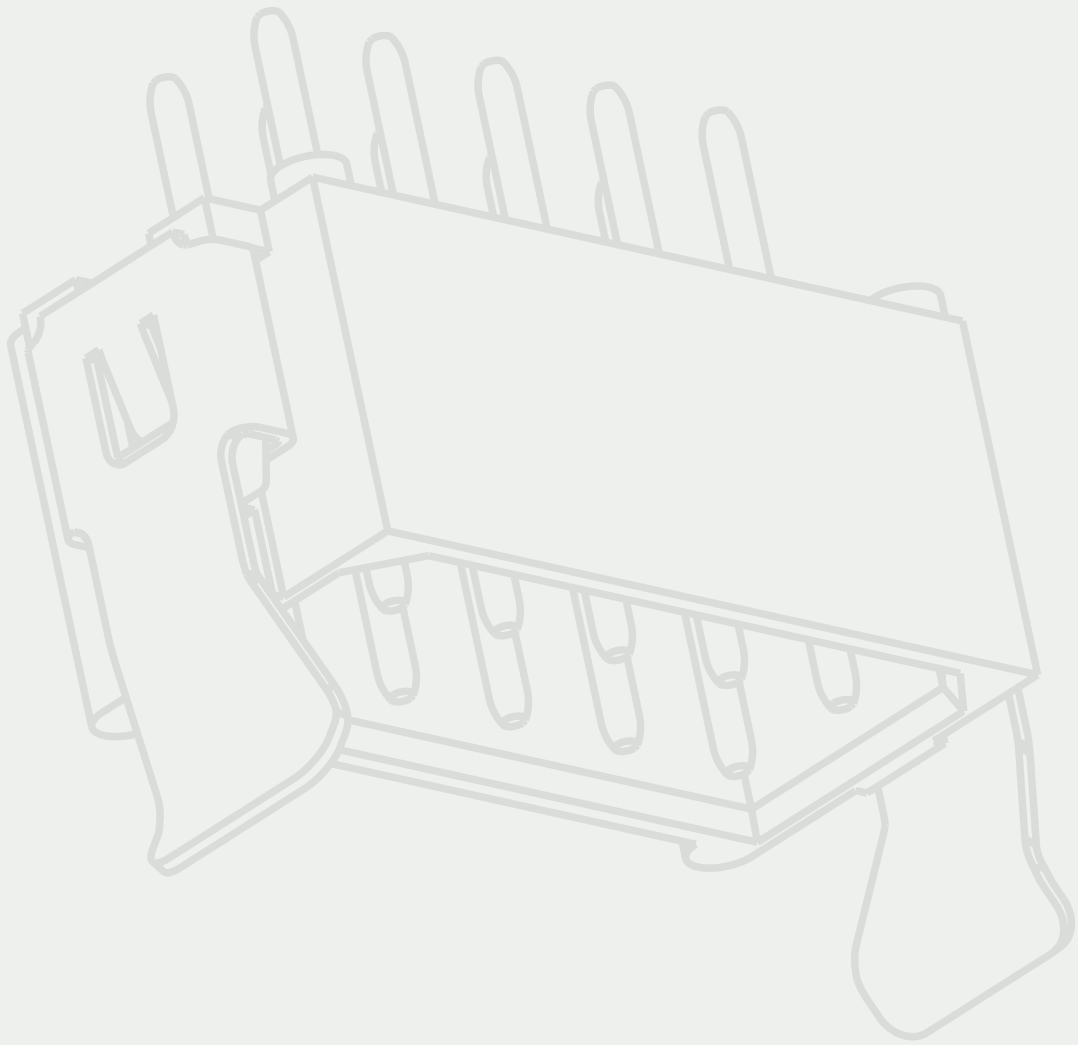
17 to 93
MM

Through hole PCB
Press-fit
SMT
Wire crimp

Through hole PCB
Press-fit
SMT
Wire crimp

PAGES 28

PAGES 56



210 **SERIES**

INTRODUCTION

210 series is a range of 2 mm pitch connectors for printed-circuit, created for low intensity applications.

Its small mass allows a self-using in severe environment. Its low profile allows a miniaturized layout.

211 series is available in 1 row from 2 to 17 ways in 7 sizes and 212 series is available in 2 rows from 4 to 34 ways in 11 sizes.

male

female

LF

LF contacts /

212 series

211 series

4 LF contacts min.



6 LF contacts



8 LF contacts



10 LF contacts



12 LF contacts



14 LF contacts



16 LF contacts



18 LF contacts



20 LF contacts



26 LF contacts



34 LF contacts max.



2 LF contacts min.



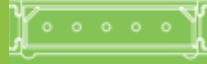
3 LF contacts



4 LF contacts



5 LF contacts



6 LF contacts



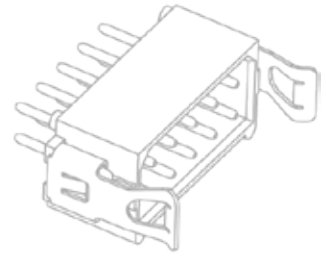
7 LF contacts



17 LF contacts max.



210 SERIES

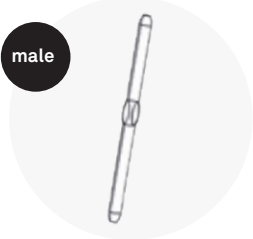


An Introduction to the 210 SERIES

This series of connectors have a large range termination styles :

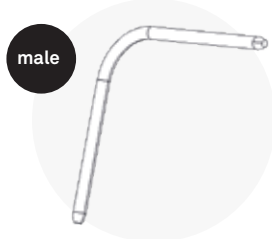
- PCB mounting (straight and right angle)
- SMT
- Crimp contacts

Terminations



male

*Straight
PCB contacts
T - X - Y*



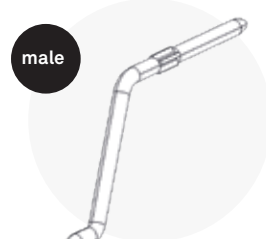
male

*Right angle
PCB contacts
L*



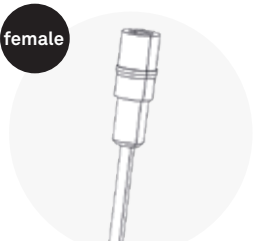
male

*Straight
SMT contacts
R*



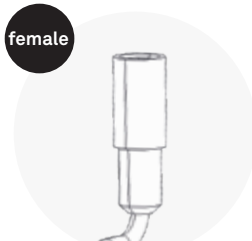
male

*Right angle
SMT contacts
S*



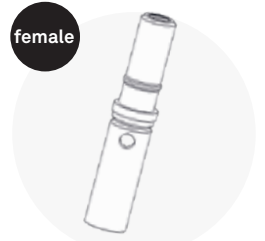
female

*Straight
PCB contacts
T - N*



female

*Straight
SMT contacts
R (212 series only)*



female

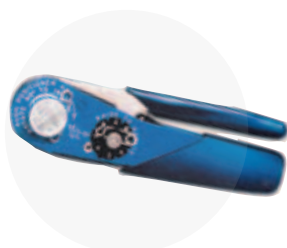
*Crimp
contacts
C/D*

Accessories and tooling



Latches and straps

P. 19-21-23-25



Tooling

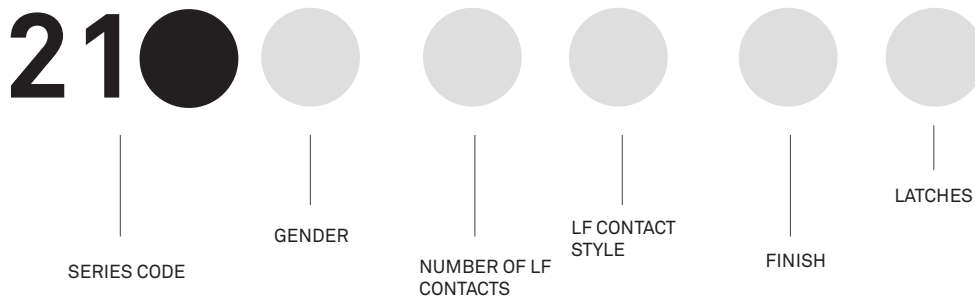
P. 109 to 110

SPACING CONNECTOR / MALE & FEMALE

F M	STRAIGHT T/N	STRAIGHT SMT R	CRIMP C/D
PCB STRAIGHT T/X/Y	 7.23	 7.85	 10.2 max
PCB RIGHT ANGLE L	 7.98	 10.60	 15.1 max.
STRAIGHT SMT R	 7.85	 8.45	 10.50
RIGHT ANGLE SMT S	 11.85	 12.45	 14.50
CRIMP C/D	 10.94 Max	 11.28	 13.60 max.

HOW TO ORDER / ASSEMBLED

FOR 211 SERIES please contact us



GLOSSARY / HOW TO ORDER

SERIES CODE

211/One row
212/Two rows

GENDER

F/Female
M/Male

NUMBER OF LF CONTACTS

02 - 03 - 04 - 05 - 06 - 07 - 17/One row
04 - 06 - 08 - 10 - 12 - 14 - 16 - 18 - 20 - 26 - 34/Two rows

LF CONTACT STYLES

T/Straight on PCB male or female
X-Y/Straight on PCB male
N/Straight on PCB short female
L/Right angle on PCB male
R/Straight SMT male or female
S/Right angle SMT male
C/Crimp 24-28 AWG female
D/Crimp 22 AWG female

FINISH

- 01/Gold (crimp contacts)
- 03/Gold + Tin/Lead
- 04/Gold + Tin

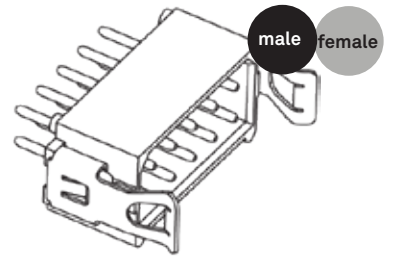
RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

LATCHES

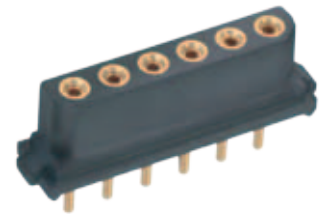
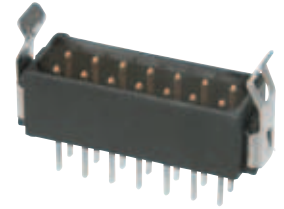
U/Unlatched (male or female)
L/Latched (male only)
LC/Latches for straight SMT (male only)
LR/Latches for right angle SMT (male only)

210 SERIES

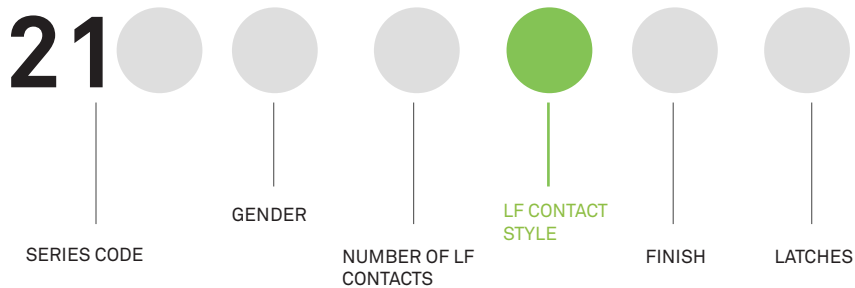


PCB Connectors with straight LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded male contacts
- 3 3 tail lengths
- 4 Retaining strap in option for male connector



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

SERIES CODE
211/One row
212/Two rows

NUMBER OF LF CONTACTS
02 - 03 - 04 - 05 - 06 - 07 - 17/One row
04 - 06 - 08 - 10 - 12 - 14 - 16 - 18 - 20 - 26 - 34/Two rows

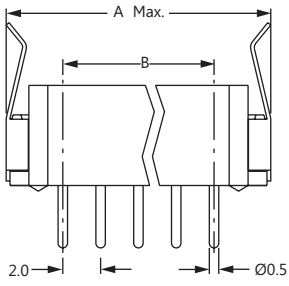
LF CONTACT STYLE
N/1.1mm Tail, female only
T/3mm Tail, male or female
X/9.3mm Tail, male only
Y/5.3mm Tail, male only

LATCHES
U/Unlatched (male or female)
L/Latched (male only)

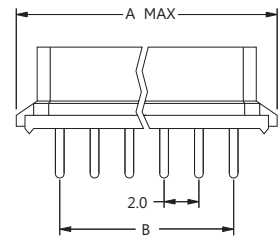
FINISH
● 03/Gold + Tin/Lead
● 04/Gold + Tin

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

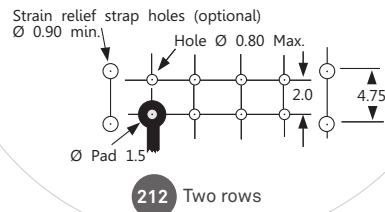
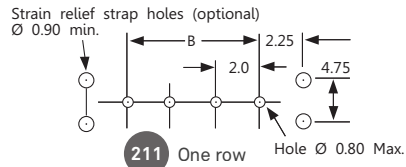
DIMENSIONS / MALE



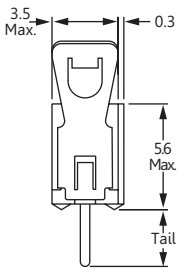
DIMENSIONS / FEMALE



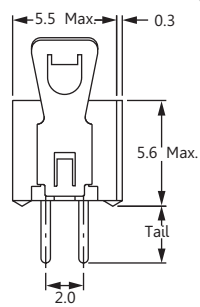
PCB LAYOUT



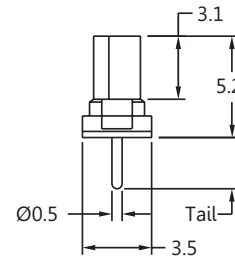
211 One row



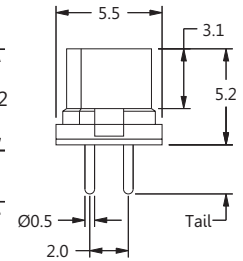
212 Two rows



211 One row



212 Two rows

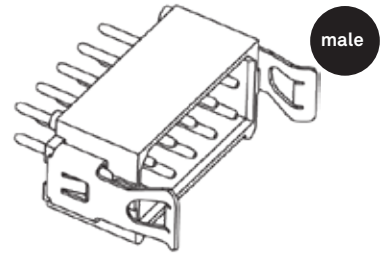


RETAINING STRAP / MALE



Strap MP 6759 can be supplied with male connector.

210 SERIES

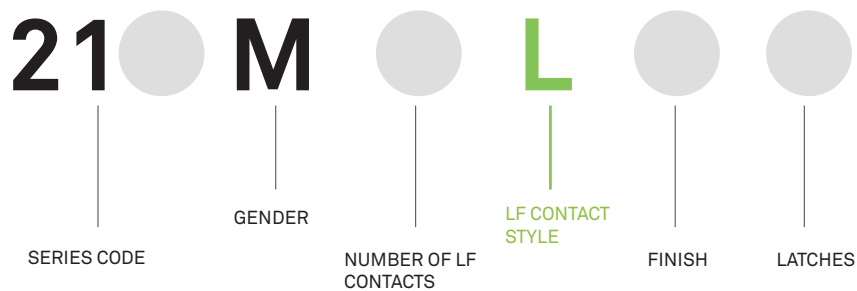


PCB Male Connectors with right angle LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded male contacts
- 3 Retaining strap in option for male connector



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
M/Male

SERIES CODE
211/One row
212/Two rows

NUMBER OF LF CONTACTS
02 - 03 - 04 - 05 - 06 - 07 - 17/One row
04 - 06 - 08 - 10 - 12 - 14 - 16 - 18 - 20 - 26 - 34/Two rows

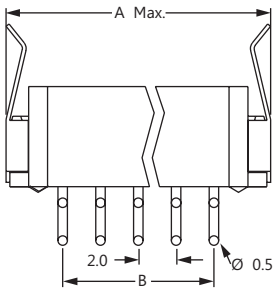
LF CONTACT STYLE
L/Right angle male

LATCHES
U/Unlatched (male or female)
L/Latched (male only)

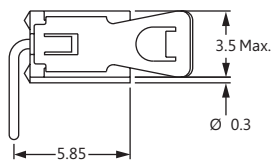
FINISH
● 03/Gold + Tin/Lead
● 04/Gold + Tin

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

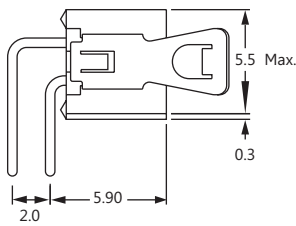
DIMENSIONS / MALE



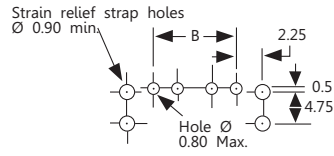
211 One row



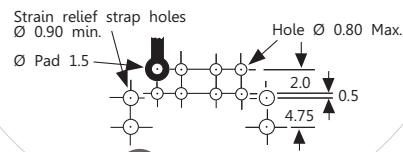
212 Two rows



PCB LAYOUT



211 One row



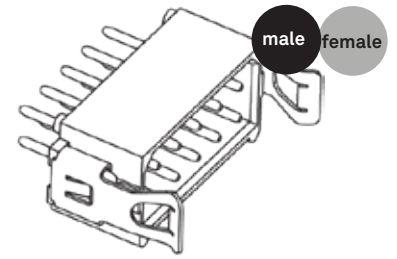
212 Two rows

RETAINING STRAP / MALE



Strap MP 6759 can be supplied with male connector.

210 SERIES

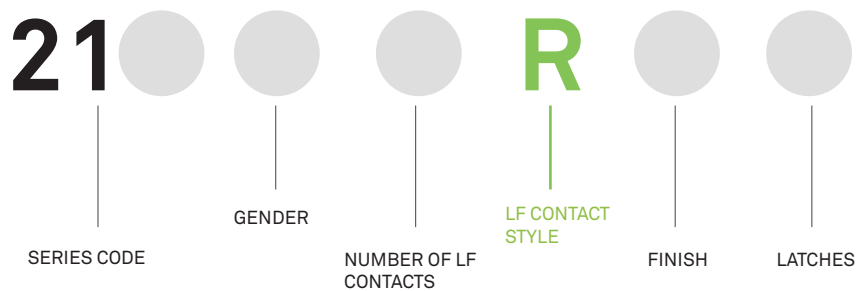


PCB Connectors with straight SMT LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded male contacts
- 3 SMT latches



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

SERIES CODE
211/One row
212/Two rows

NUMBER OF LF CONTACTS
03 - 04 - 05 - 06 - 07 - 17/One row
04 - 06 - 08 - 10 - 12 - 14 - 16 - 18 - 20 - 26 - 34/Two rows

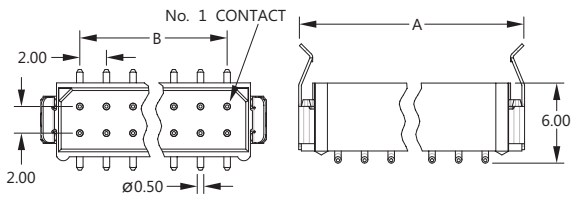
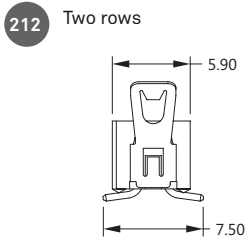
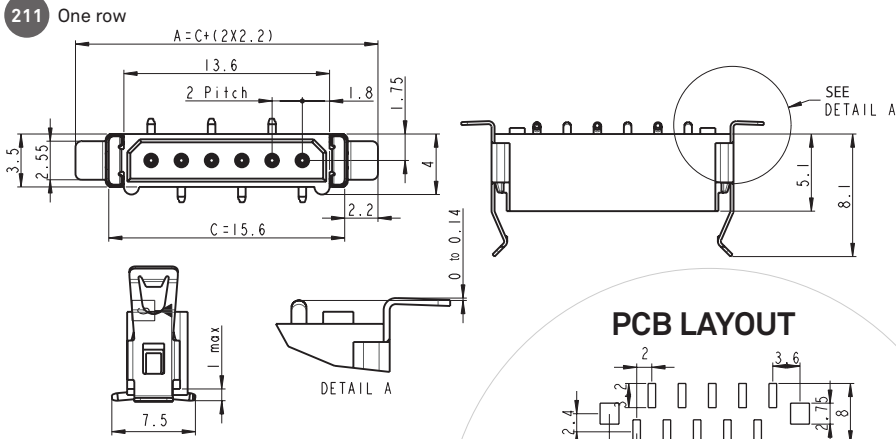
LF CONTACT STYLE
R/Straight SMT

LATCHES
U/Unlatched (male or female)
L/Latched (male only)
LC/Straight SMT Latches (male only)

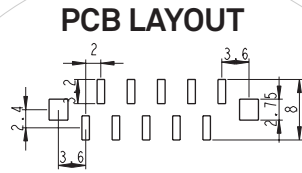
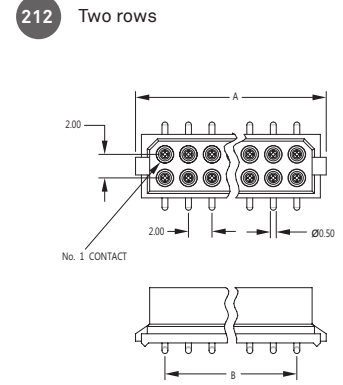
FINISH
● 03/Gold + Tin/Lead
● 04/Gold + Tin

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

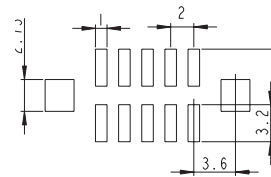
DIMENSIONS / MALE



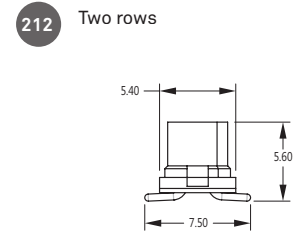
DIMENSIONS / FEMALE



211 One row



212 Two rows



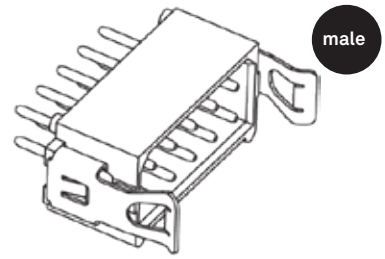
SMT LATCHES / MALE



SMT latches are recommended but you can order the connector with traditional latches (code L instead of LC). In this case, strain relief strap can be ordered separately (code MP 6759).

Pick and place option : consult us.

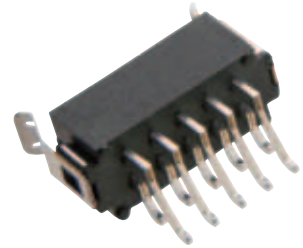
210 SERIES



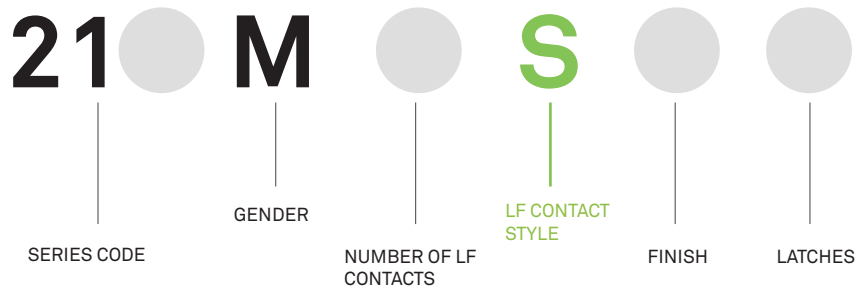
PCB Connectors with right angle SMT LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded male contacts
- 3 SMT latches

male



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
M/Male

SERIES CODE
211/One row
212/Two rows

NUMBER OF LF CONTACTS
02 - 03 - 04 - 05 - 06 - 07 - 17/One row
04 - 06 - 08 - 10 - 12 - 14 - 16 - 18 - 20 - 26 - 34/Two rows

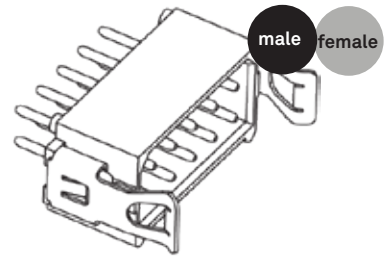
LF CONTACT STYLE
S/Right angle SMT male

LATCHES
U/Unlatched (male or female)
L/Latched (male only)
LR/Right angle SMT Latches (male only)

FINISH
● 03/Gold + Tin/Lead
● 04/Gold + Tin

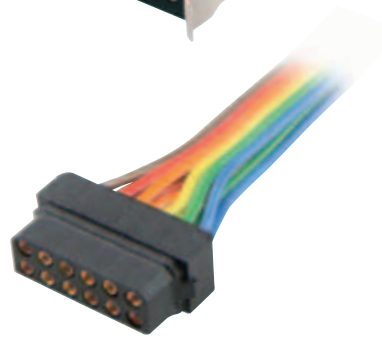
RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

210 SERIES

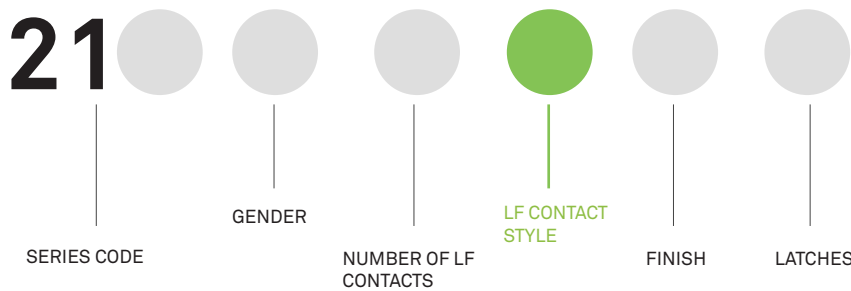


Wire connectors with crimp LF contacts

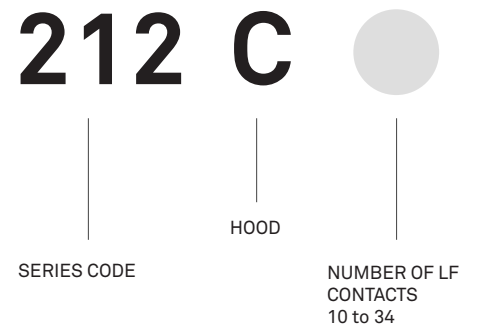
- 1 Contacts are rear insertable
- 2 Spare contacts available
- 3 Available hoods for 2 row connectors



HOW TO ORDER / ASSEMBLED



HOW TO ORDER / HOOD



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

SERIES CODE
211/One row
212/Two rows

NUMBER OF LF CONTACTS

Female :
02 - 03 - 04 - 05 - 06 - 07 - 17/One row
04 - 06 - 08 - 10 - 12 - 14 - 16 - 18 - 20 - 26 - 34/Two rows

Male :
02 - 03/One row
04 - 06 - 08 - 10 - 12/Two rows

LF CONTACT STYLE

Spare female contacts are available : see part number below.
C/Crimp 24-28 AWG
D/Crimp 22 AWG

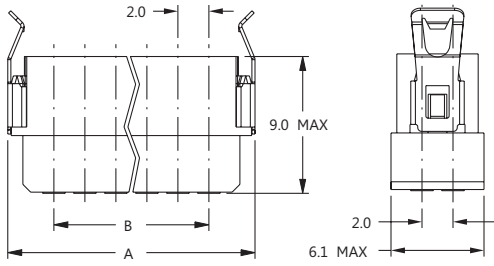
LATCHES

U/Unlatched (male or female)
L/Latched (male only)

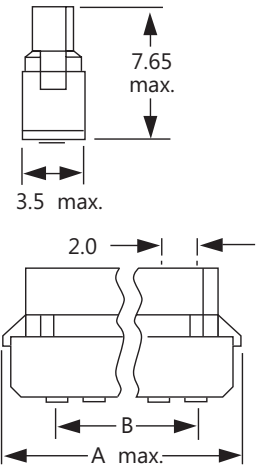
FINISH
● 01/Gold

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

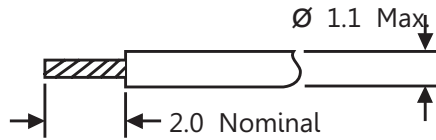
DIMENSIONS / MALE



DIMENSIONS / FEMALE



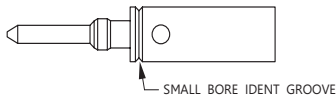
WIRE STRIPPING DETAILS



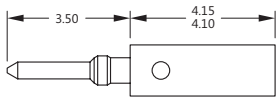
Crimp tool **M22520/2-01**
 Positioner **MP6818**
 Contact insertion/removal tool **220S03**

CONTACT / MALE

C - Small Bore (24-28 AWG) : Code B741 C21

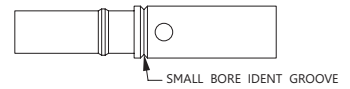


D - Large Bore (22 AWG) : Code B741 C22

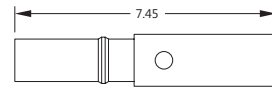


CONTACT / FEMALE

C - Small Bore (24-28 AWG) : Code B741 C01



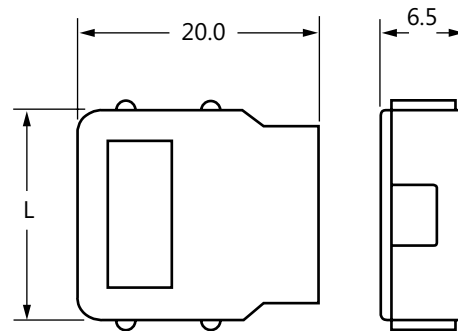
D - Large Bore (22 AWG) : Code B741 C03



HOODS / (for 212 connector only)

Available from 10 to 34 contacts.

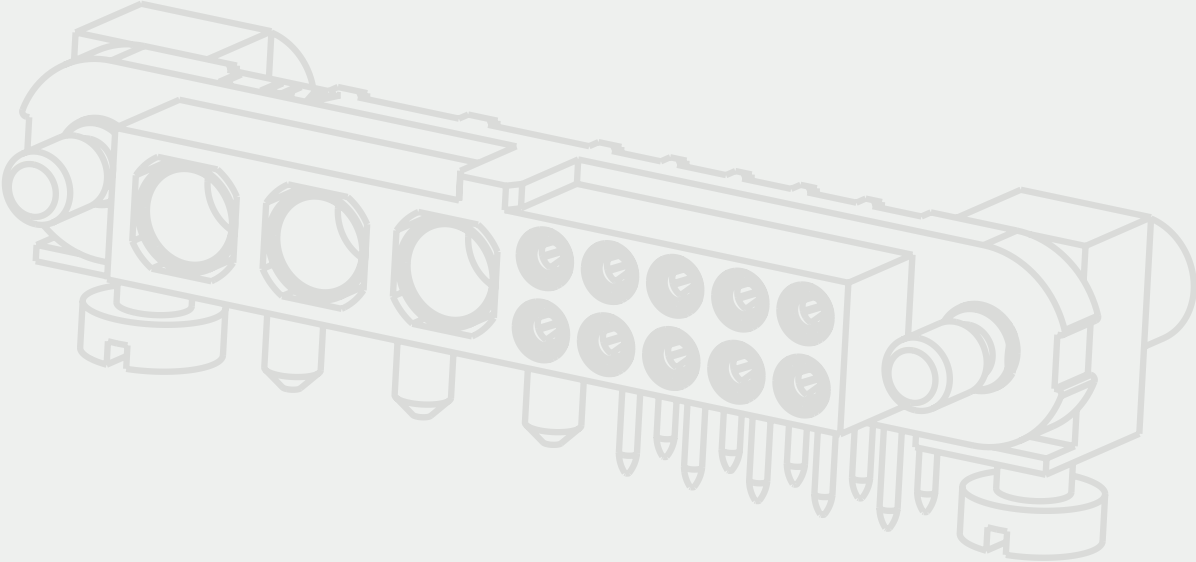
For use with female crimp connectors and unlatched crimp male connectors.



L = Number of LF contacts + 7



FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)



220 SERIES

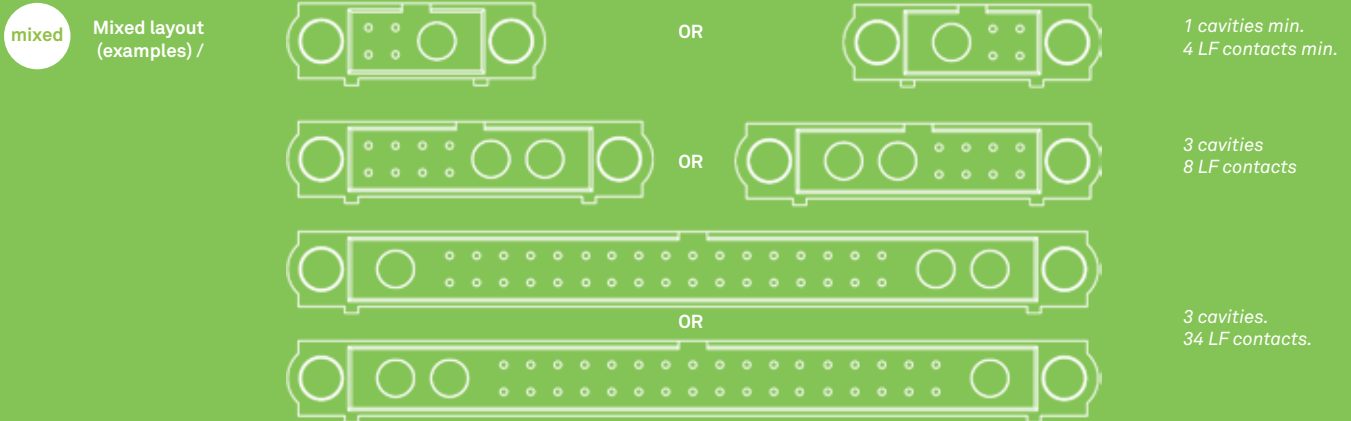
INTRODUCTION

220 series extend the range of 210 series.

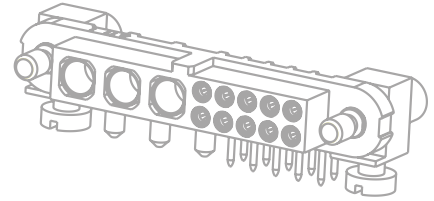
Designed with high performance materials, the connectors allow to mix different types of signals (LF, HF and power) and can be locked with jackscrews and used in severe mechanical and climatic environment.

male

female



220 SERIES



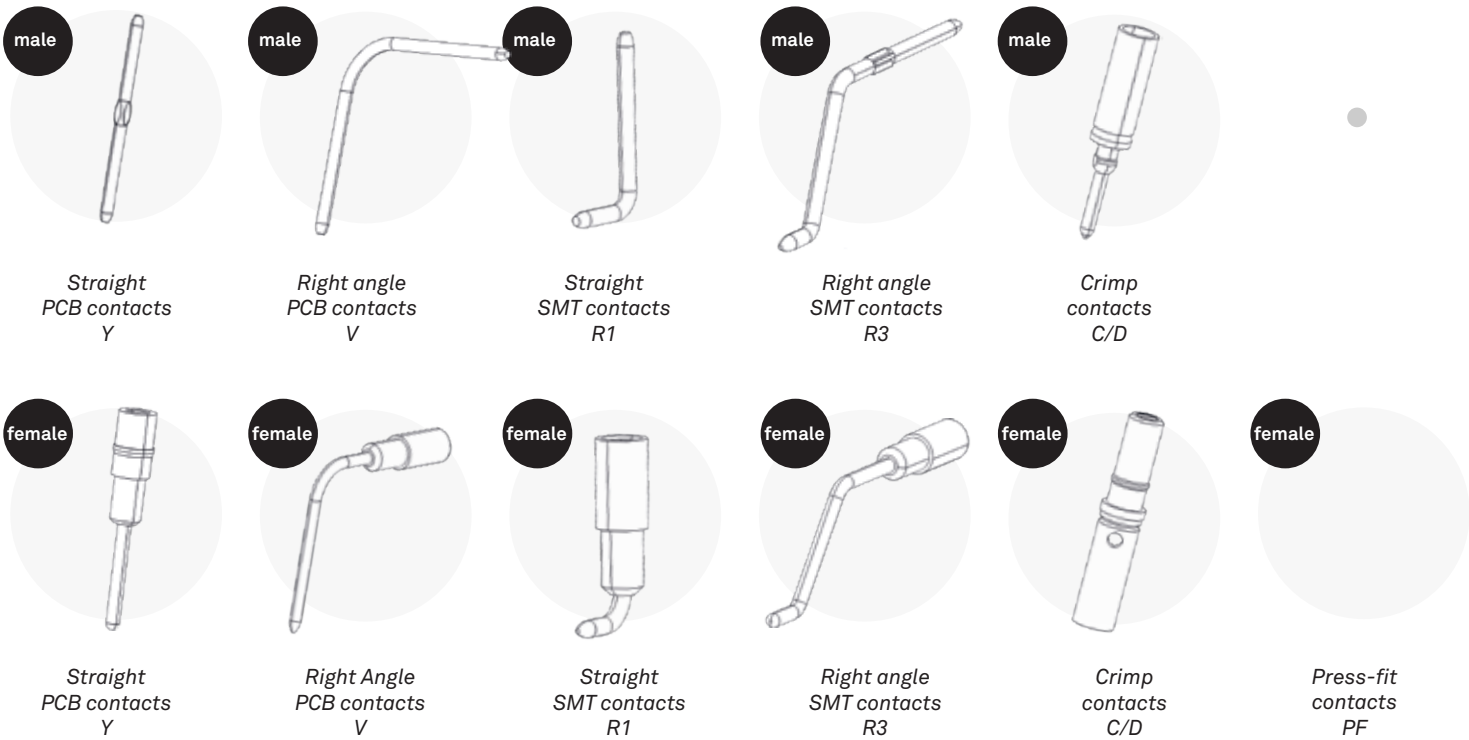
An Introduction to the 220 SERIES

This series of connectors has a large range of termination styles :

- PCB mounting (straight and right angle)
- Press-fit
- SMT
- Crimp contacts

Minimum stacking height is 8 mm between boards.

Terminations



Accessories and tooling



SPACING CONNECTOR / MALE & FEMALE

F M	STRAIGHT Y	RIGHT ANGLE V	STRAIGHT SMT R3/R9	RIGHT ANGLE SMT R1/R7	CRIMP C1/D1
STRAIGHT Y					
RIGHT ANGLE V					
STRAIGHT SMT R3/R9					
RIGHT ANGLE SMT R1/R7					
CRIMP C1/D1					

HOW TO ORDER / ASSEMBLED

220

SERIES CODE



GENDER



NUMBER OF LF CONTACT



LF CONTACT STYLE



GUIDE



NUMBER OF RF OR HIGH POWER CONTACTS



RF OR HP CONTACT 1



RF OR HP CONTACT 2 (AVAILABLE IF 2 DIFFERENT TYPES OF CONTACT ARE USED)

GLOSSARY / HOW TO ORDER

GENDER

F/Female
M/Male

NUMBER OF LF CONTACTS

04 to 50

GUIDES

- Complete list, see technical index (page 96).

LF CONTACT STYLE

- Y1-Y3/Straight on PCB
- V1-V3/Right angle on PCB
- Y5 to Y9/Straight on PCB
- V5 to V9/Right angle on PCB
- PF1/Press-fit
- PF2/Press-fit
- R1-R7 and R3-R9/SMT
- C1-D1/Crimp for wire

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS

For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :

- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

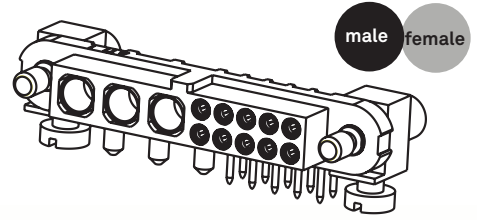
RF/HP CONTACT 1

Type of high frequency or high power contact

RF/HP CONTACT 2

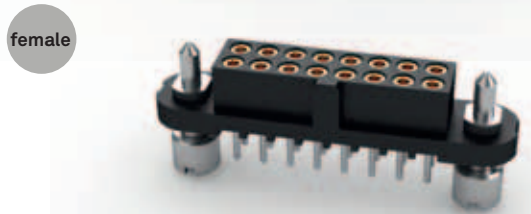
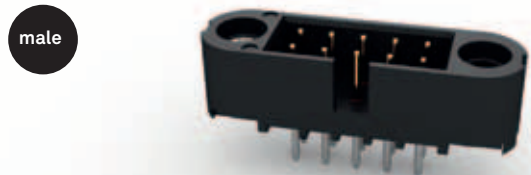
Available if a second type of contact is used

220 SERIES

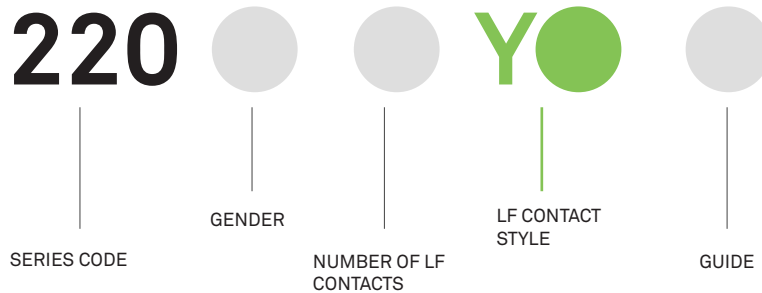


PCB Connectors with straight LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Choice of PC Tail length
- 4 3 types of plating



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

LF CONTACT STYLE

- Y1/3.1mm Tails Gold + Tin/Lead
- Y3/4.6mm Tails Gold + Tin/Lead
- Y5/3.1mm Tails Gold
- Y6/4.6mm Tails Gold
- Y7/3.1mm Tails Gold + Tin
- Y8/5.5mm Tails Gold
- Y9/4.6mm Tails Gold + Tin

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

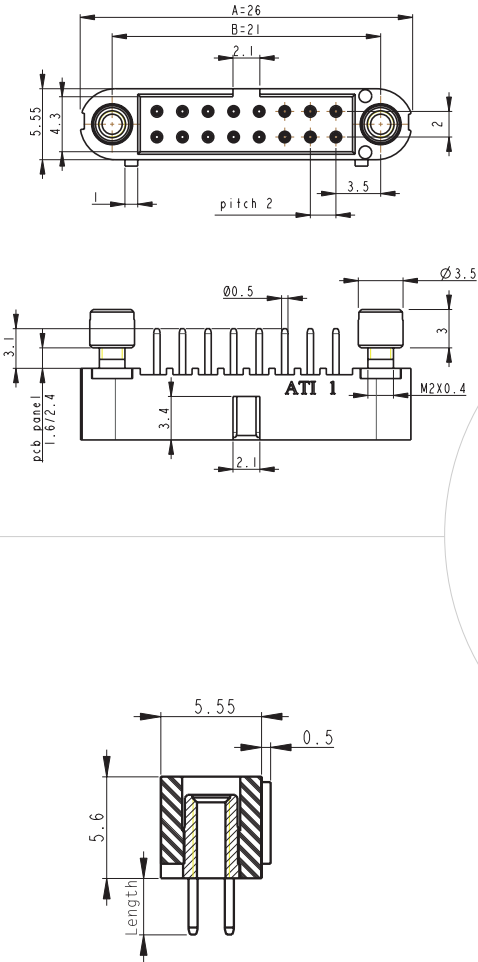
USUAL GUIDES FOR FEMALE CONTACTS

- B/3.3mm Jackscrew
- C/5.1mm Jackscrew
- H/With Hex. socket Jackscrew
- J/ AP/With Hex. slotted Jackscrew
- 0/Without Jackscrews

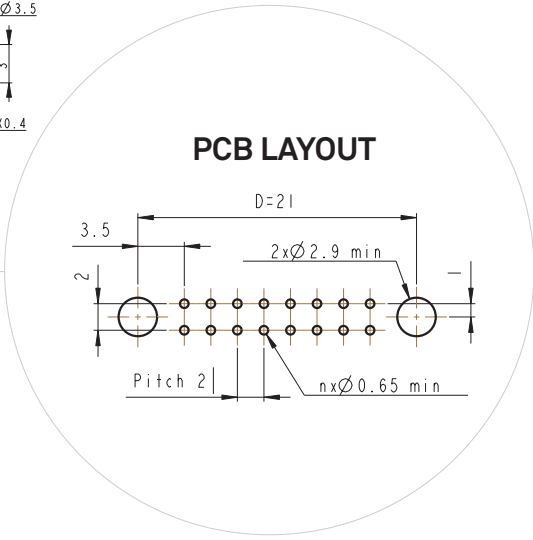
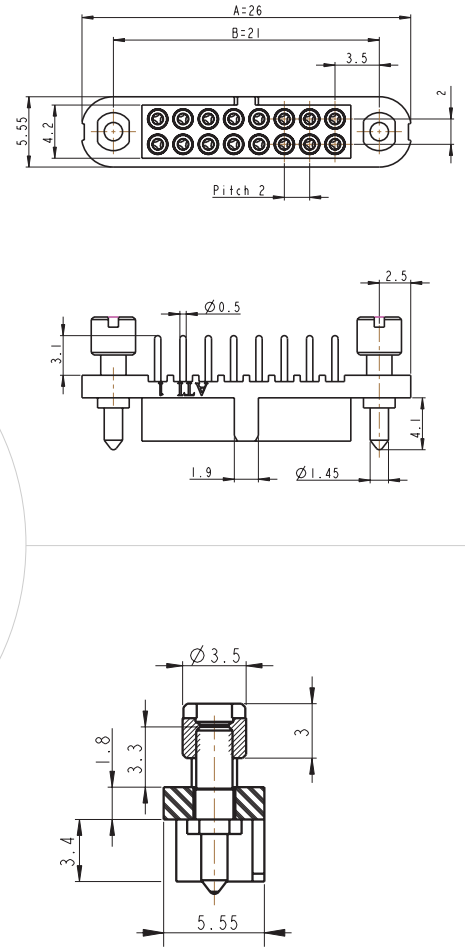
USUAL GUIDES FOR MALE CONTACTS

- P/3.5mm Jackscrew
- Q/5mm Jackscrew
- Y/Only lockable
- Z/ PZ/ QZ/ 0/Without Jackscrews

DIMENSIONS / MALE

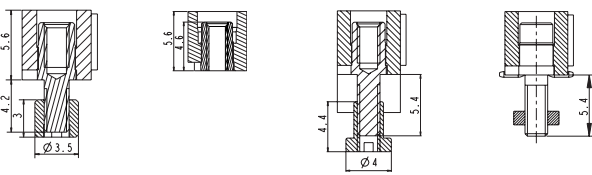


DIMENSIONS / FEMALE

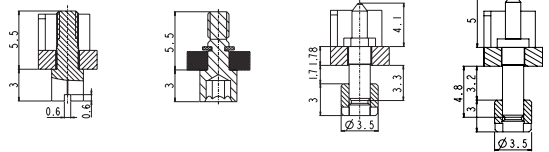


USUAL GUIDES / For male connectors

USUAL GUIDES / For female connectors



Locking torque for P/Q/Y: 0.17 to 0.20 Nm



Locking torque for AP/H: 0.20 Nm
AP/H: Holes in PCB = $\varnothing 3.5 \text{ mm}$

Locking torque for B/C/J: 0.17 to 0.20 Nm

P/Q

Y

Z

PZ
QZ

AP

H

B/C

J

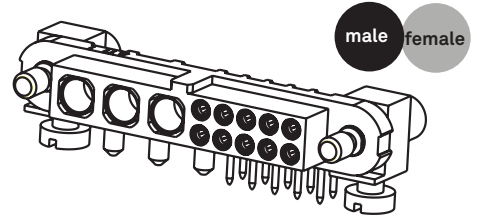


FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



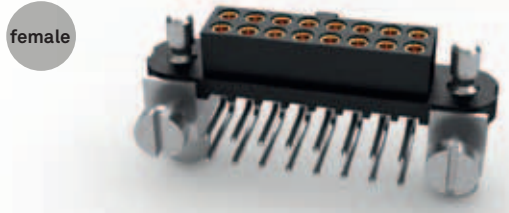
FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)

220 SERIES

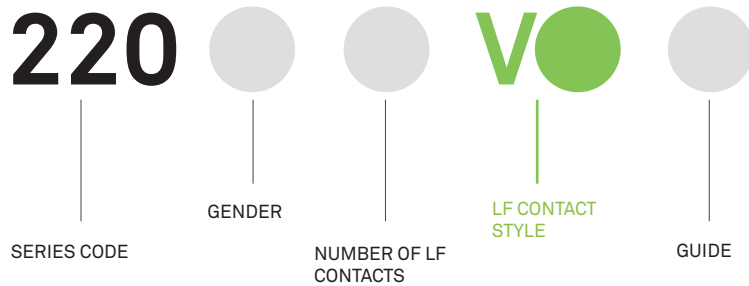


PCB Connectors with right angle LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Choice of PC Tail length
- 4 3 types of plating



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

LF CONTACT STYLE

- V1/3.1mm Tails Gold + Tin/Lead
- V3/4.6mm Tails Gold + Tin/Lead
- V5/3.1mm Tails Gold
- V6/4.6mm Tails Gold
- V7/3.1mm Tails Gold + Tin
- V9/4.6mm Tails Gold + Tin

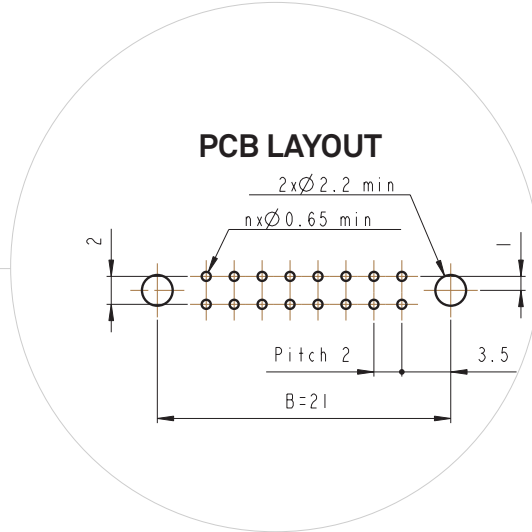
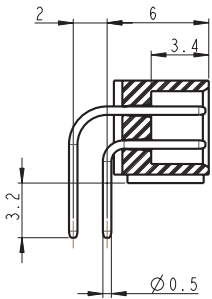
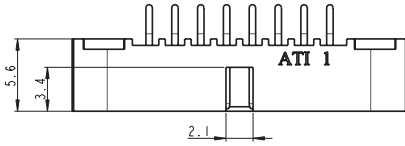
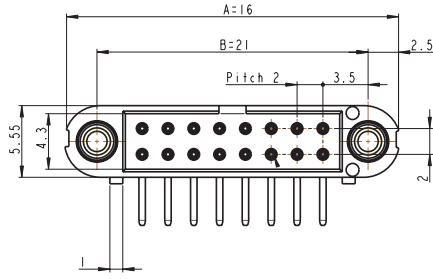
RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

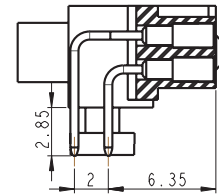
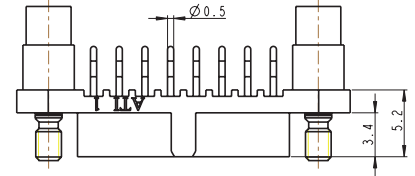
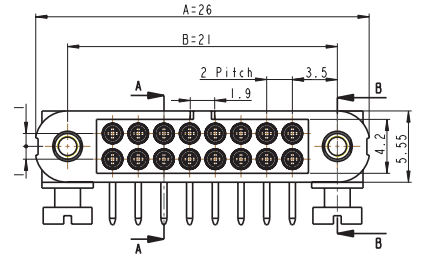
USUAL GUIDES FOR FEMALE CONTACTS
F/
GM/
GN/
0/Without Jackscrews

USUAL GUIDES FOR MALE CONTACTS
R/4mm Jackscrew
S/6mm Jackscrew
U/
W/
FM/
0/Without Jackscrews

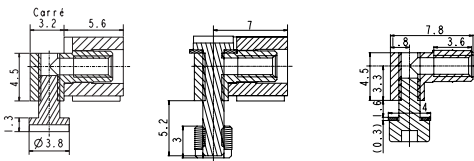
DIMENSIONS / MALE



DIMENSIONS / FEMALE



USUAL GUIDES / For male connectors



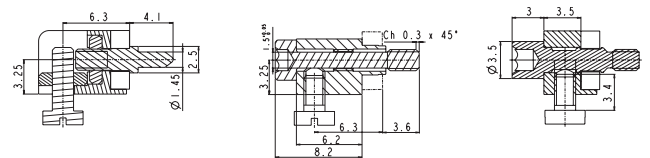
Locking torque for
R/S/U/W : 0.17 to 0.20 Nm

R/S

U

W

USUAL GUIDES / For female connectors



Locking torque for
F/FM/GM/GN : 0.17 to 0.20 Nm

F
FM

GM

GN

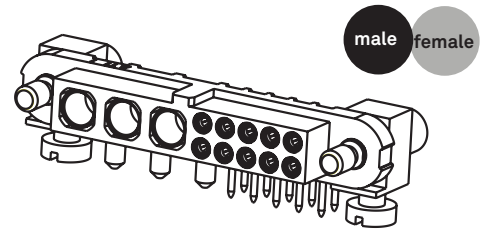


FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)

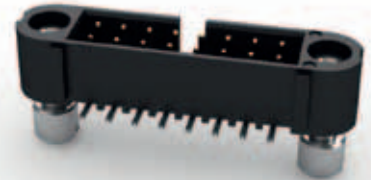
220 SERIES



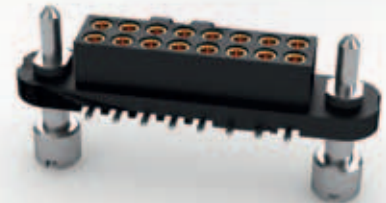
PCB Connectors with straight SMT LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 RoHS compliant

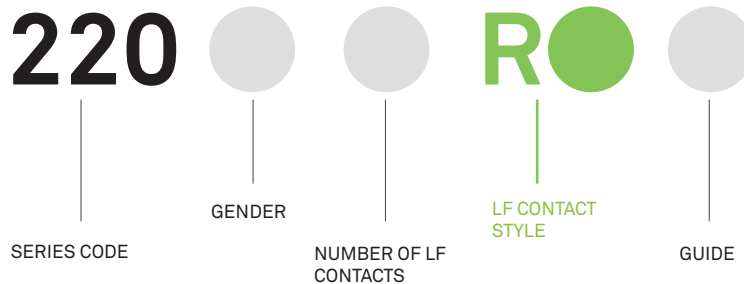
male



female



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

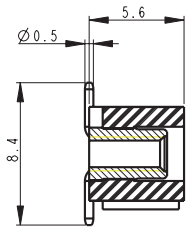
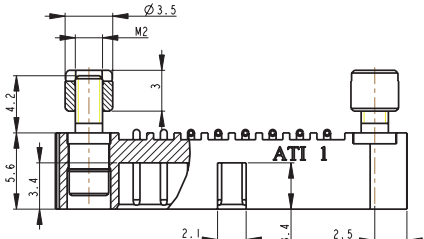
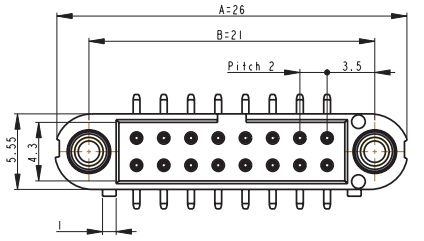
LF CONTACT STYLE
● R3/Gold + Tin/Lead
● R9/Gold + Tin

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

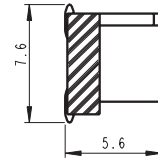
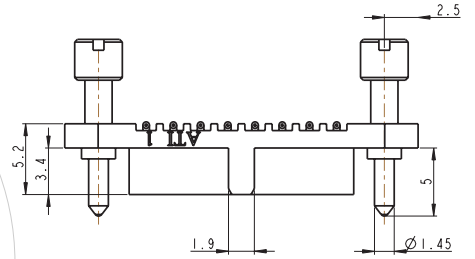
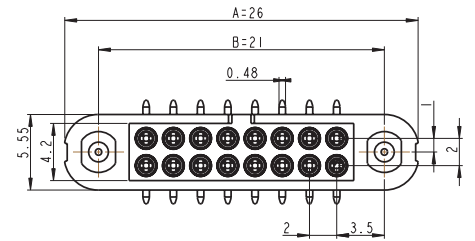
USUAL GUIDES FOR FEMALE CONTACTS
B/3.3mm Jackscrew
C/5.1mm Jackscrew
H/With Hex. socket Jackscrew
J/
AP/With Hex. slotted Jackscrew
0/Without Jackscrews

USUAL GUIDES FOR MALE CONTACTS
P/3.5mm Jackscrew
Q/5mm Jackscrew
Y/Only lockable
Z/
PZ/
QZ/
0/Without Jackscrews

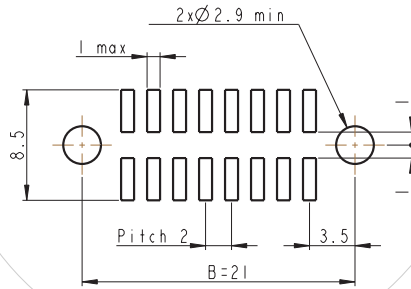
DIMENSIONS / MALE



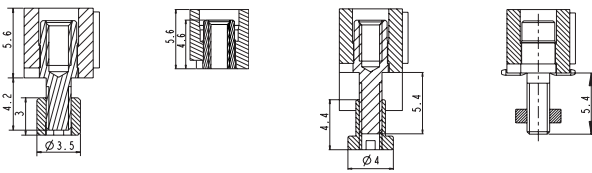
DIMENSIONS / FEMALE



PCB LAYOUT



USUAL GUIDES / For male connectors



Locking torque for P/Q/Y: 0.17 to 0.20 Nm

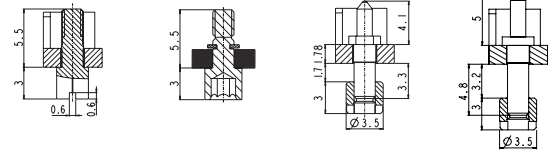
P/Q

Y

Z

PZ
QZ

USUAL GUIDES / For female connectors



Locking torque for AP/H: 0.20 Nm
AP/H: Holes in PCB = Ø 3,5mm

Locking torque for B/C/J: 0.17 to 0.20 Nm

AP

H

B/C

J

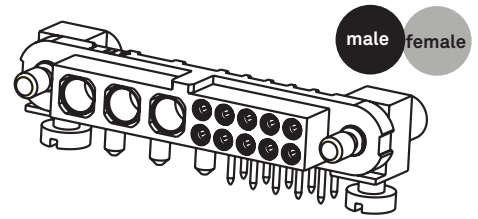


FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)

220 SERIES



PCB Connectors with right angle SMT LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 RoHS compliant

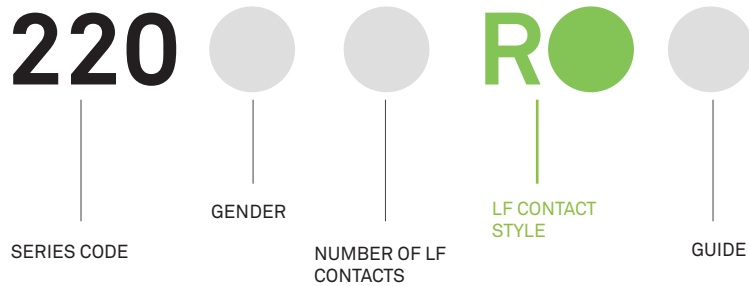
male



female



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

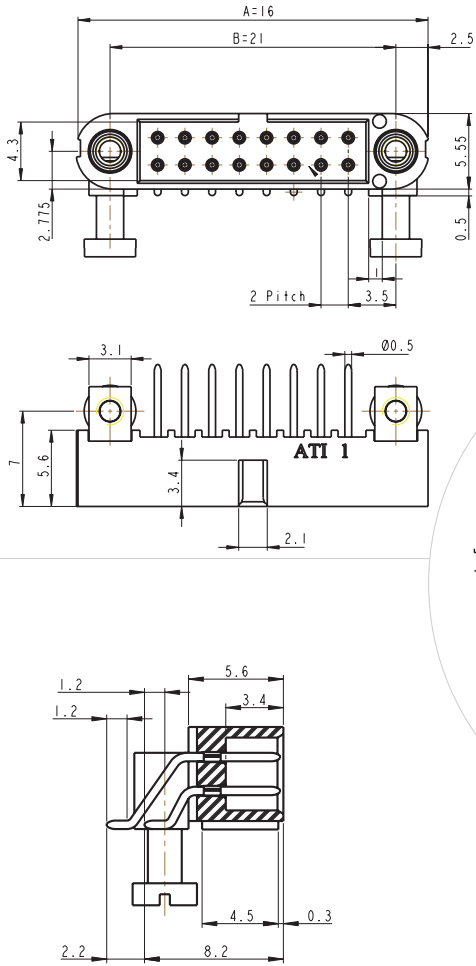
LF CONTACTS STYLE
● R1/Gold + Tin/Lead
● R7/Gold + Tin

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

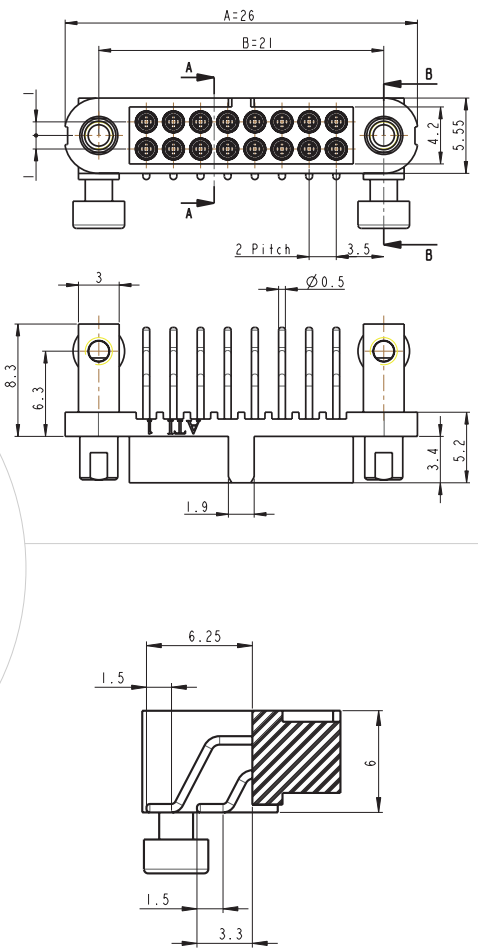
USUAL GUIDES FOR FEMALE CONTACTS
F/
GM/
GN/
0/Without Jackscrews

USUAL GUIDES FOR MALE CONTACTS
R/4mm Jackscrew
S/6mm Jackscrew
U/
W/
FM/
0/Without Jackscrews

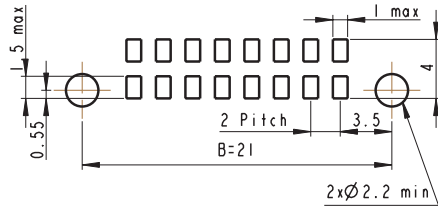
DIMENSIONS / MALE



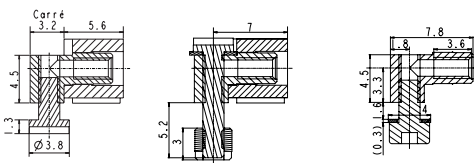
DIMENSIONS / FEMALE



PCB LAYOUT



USUAL GUIDES / For male connectors



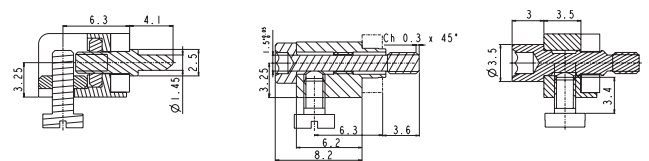
Locking torque for
R/S/U/W : 0.17 to 0.20 Nm

R/S

U

W

USUAL GUIDES / For female connectors



Locking torque for
F/FM/GM/GN : 0.17 to 0.20 Nm

F
FM

GM

GN

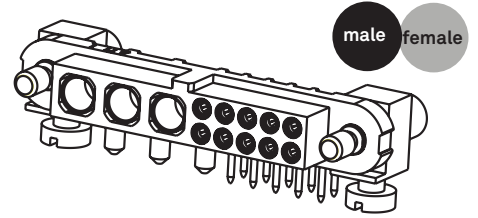


FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



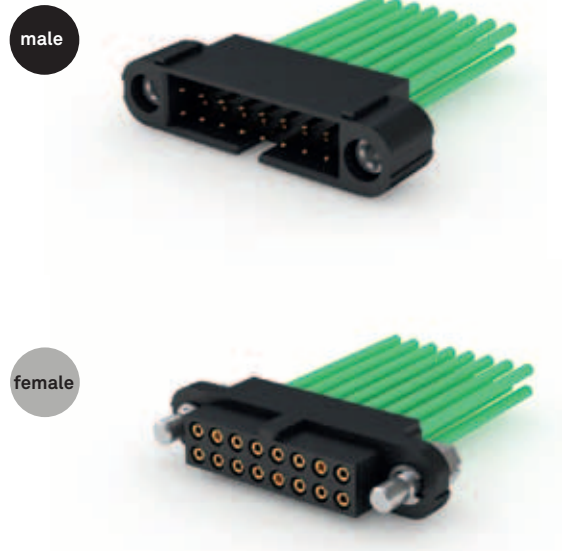
FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)

220 SERIES

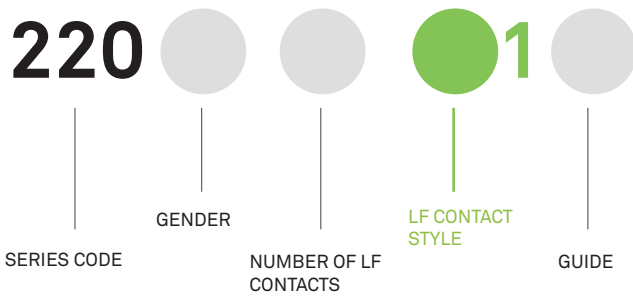


Wire connectors with crimp LF contacts

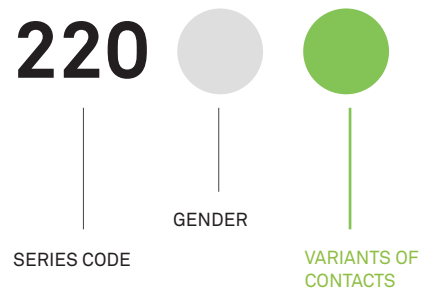
- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Crimp contacts supplied loose
- 4 Crimp contacts are rear insertable and replaceable
- 5 Large bore 22 AWG and small bore 24-28 AWG
- 6 Backpotting is possible thanks to the body shape



HOW TO ORDER / ASSEMBLED



HOW TO ORDER / CONTACT ONLY



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

LF CONTACT STYLE
● C1/Small bore/Gold
● D1/Large bore/Gold

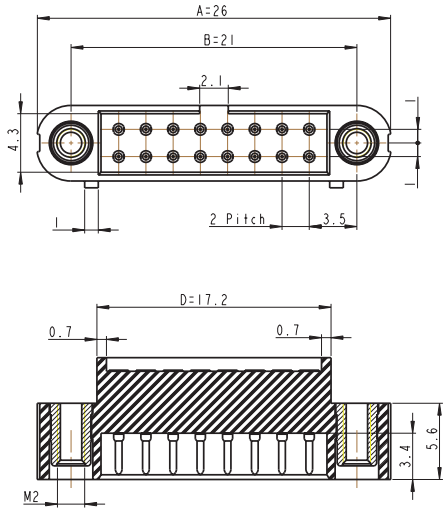
RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

CONTACT ONLY
02/Small bore (C1)
01/Large bore (D1)

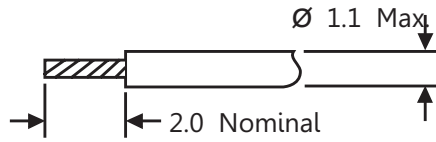
USUAL GUIDES FOR FEMALE CONTACTS
B/3.3mm Jackscrew
C/5.1mm Jackscrew
H/With Hex. socket Jackscrew
J/
AP/With Hex. slotted Jackscrew
0/Without Jackscrews

USUAL GUIDES FOR MALE CONTACTS
P/3.5mm Jackscrew
Q/5mm Jackscrew
Y/Only lockable
Z/
PZ/
QZ/
0/Without Jackscrews

DIMENSIONS / MALE

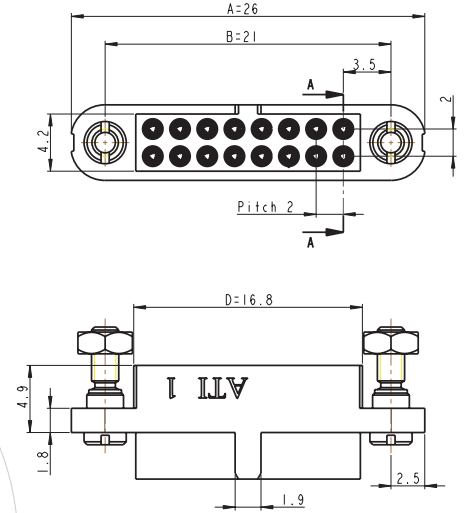


WIRE STRIPPING DETAILS



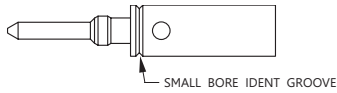
Crimp tool **M22520/2-01**
 Positioner **MP6818**
 Contact insertion/removal tool **220S03**

DIMENSIONS / FEMALE

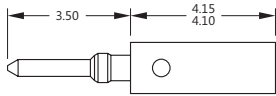


CONTACTS / MALE

C1 - Small Bore (24-28 AWG) : 220 M 02

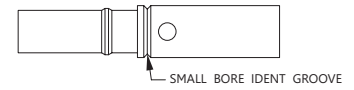


D1 - Large Bore (22 AWG) : 220 M 01

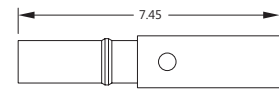


CONTACTS / FEMALE

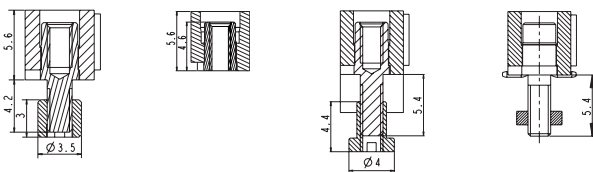
C1 - Small Bore (24-28 AWG) : 220 F 02



D1 - Large Bore (22 AWG) : 220 F 01



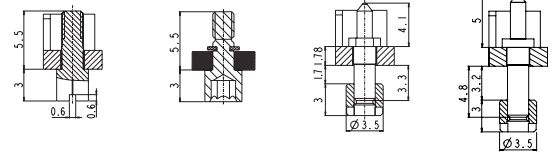
USUAL GUIDES / For MALE connectors



Locking torque for P/Q/Y : 0.17 to 0.20 Nm



USUAL GUIDES / For FEMALE connectors



Locking torque for AP/H : 0.20 Nm
 AP/H : Holes in PCB = Ø 3,5mm

Locking torque for B/C/J : 0.17 to 0.20 Nm



FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)

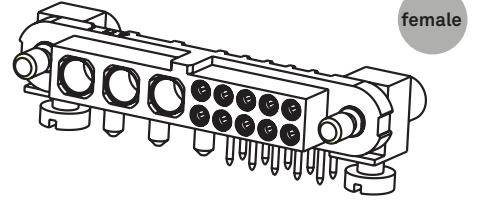


FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)



FOR CRIMPING SEE TECHNICAL INDEX (PAGE 108)

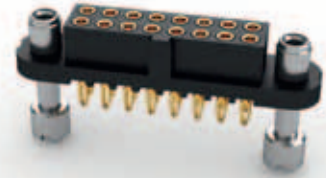
220 SERIES



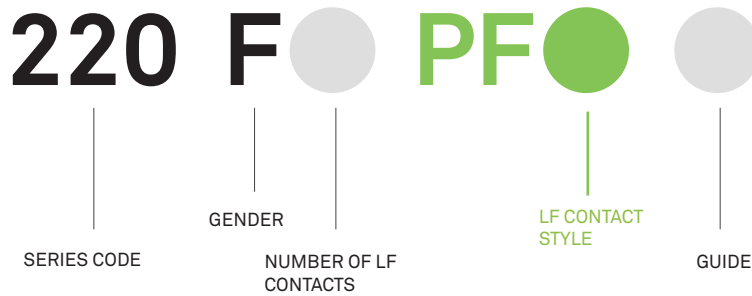
PCB Connectors with straight press-fit LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 2 types of plating

female



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female

NUMBER OF LF CONTACTS
04 to 50

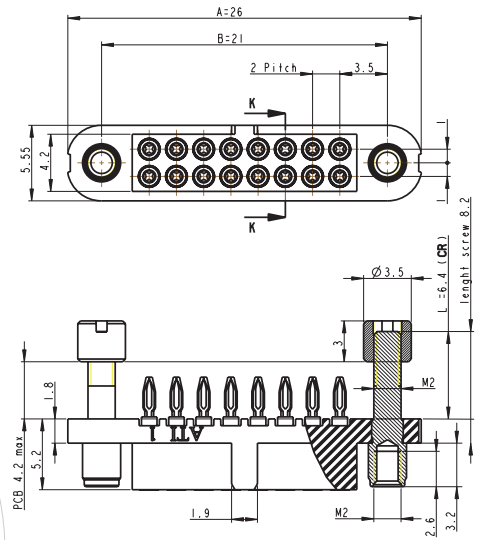
GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

LF CONTACT STYLE
● PF1/Tin+Lead
● PF2/Gold

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

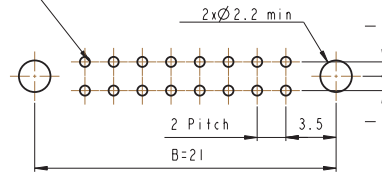
USUAL GUIDES FOR FEMALE CONTACTS
BR/PCB Thickness 1.2/2.4
DR/PCB Thickness 3.6
CR/PCB Thickness 4.2
ER/
0/Without Jackscrews

DIMENSIONS / FEMALE

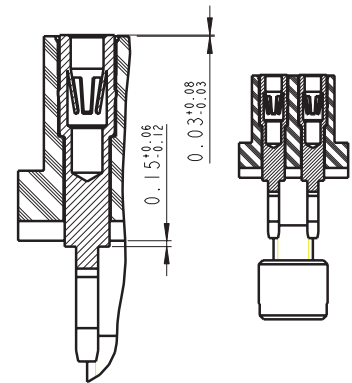


PCB LAYOUT

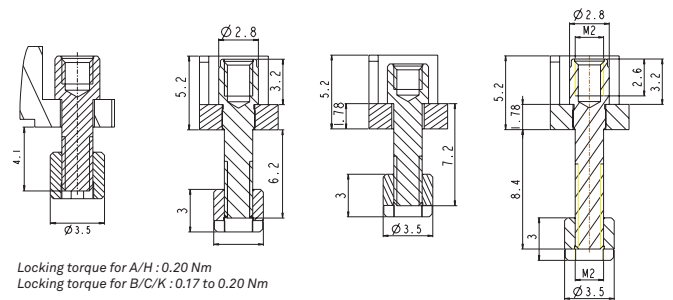
n holes after plating $\varnothing 0.70 +0.07/-0.05$
 diameter drilled hole $0.8 +0.03/-0.02$



PCB holes specifications : plating
 PCB surface finish : tin, copper, gold over nickel
 Thickness copper : tin 25 μ min, copper 25 μ min, gold over nickel 25 μ min
 Thickness tin : tin 5 - 15 μ
 Thickness nickel : gold over nickel 2,5 - 5 μ
 Thickness gold : gold over nickel 0,05 - 0,2 μ



USUAL GUIDES / For FEMALE connectors



Locking torque for A/H : 0.20 Nm
 Locking torque for B/C/K : 0.17 to 0.20 Nm

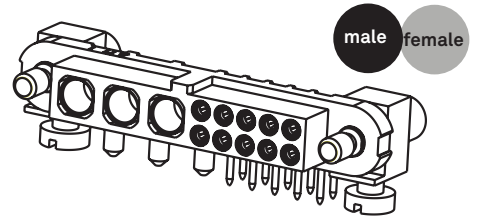


FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



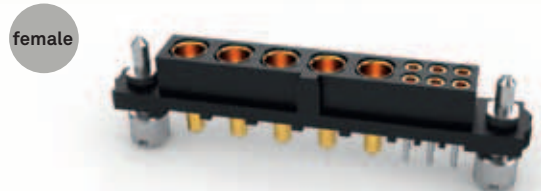
FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)

220 SERIES

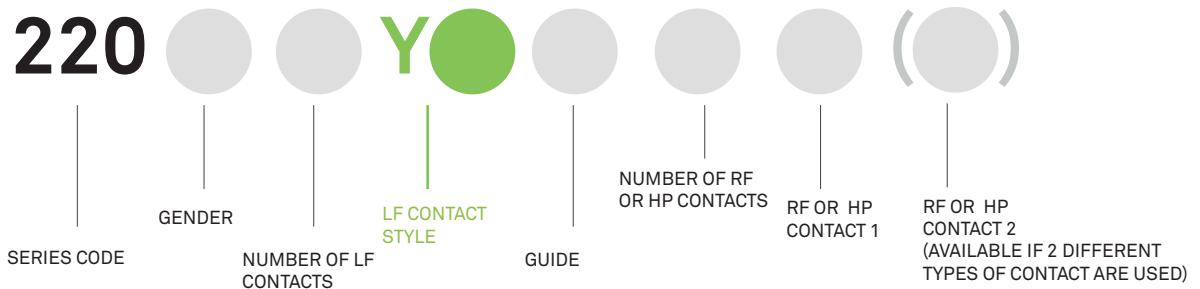


PCB Connectors with straight LF contacts & straight RF/High Power (HP) contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Choice of PC Tail length
- 4 Assembled with RF or high power contacts



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
00/no LF contacts
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

LF CONTACT STYLE

- Y1/3.1mm Tails Gold + Tin/Lead
- Y3/4.6mm Tails Gold + Tin/Lead
- Y5/3.1mm Tails Gold
- Y6/4.6mm Tails Gold
- Y7/3.1mm Tails Gold + Tin
- Y8/5.5mm Tails Gold
- Y9/4.6mm Tails Gold + Tin
- 00/no LF contacts

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS
For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

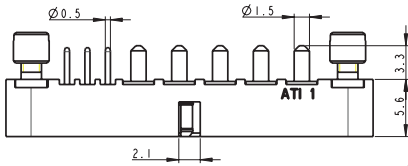
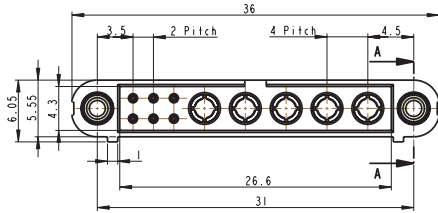
For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :

- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

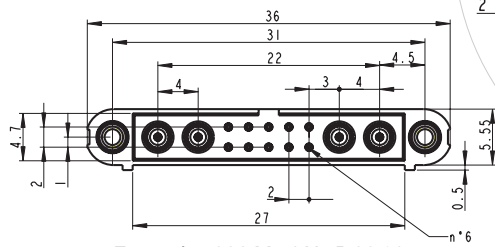
RF/HP CONTACT 1
Type of high frequency or high power contact defined on pages 84-85 (RF) and 88-89 (HP)

RF/HP CONTACT 2
Available if a second type of contact is used Pages 84-85 (RF) and 88-89 (HP)

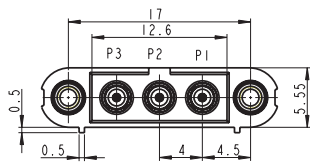
DIMENSIONS / MALE



Example : 220 M 06 Y1 P 50 70

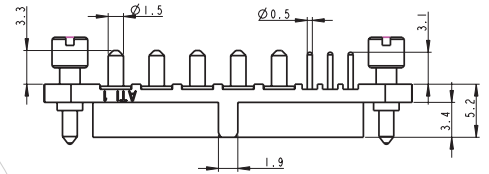
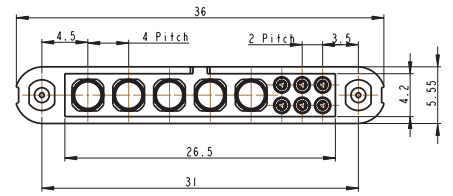


Example : 220 M 10 Y1 P 22 30

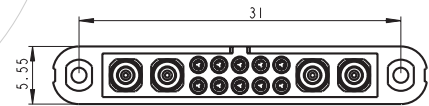


Example : 220 M 00 00 P 03 30

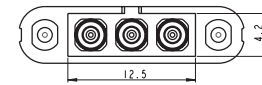
DIMENSIONS / FEMALE



Example : 220 F 06 Y1 B 50 75



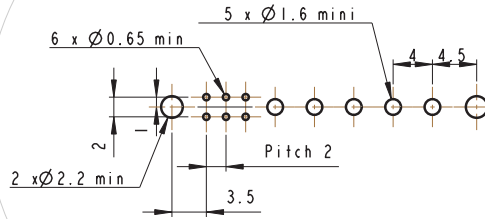
Example : 220 F 10 Y1 B 22 35



Example : 220 F 00 00 B 03 35

PCB LAYOUT

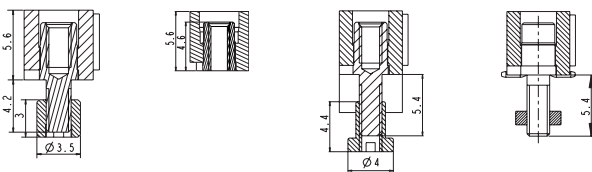
Side of coding key



Example for :
220 M 06 Y1 P 50 70
220 F 06 Y1 B 50 75

WITH RF/HP CONTACTS ONLY

USUAL GUIDES / For male connectors



Locking torque for P/Q/Y : 0.17 to 0.20 Nm

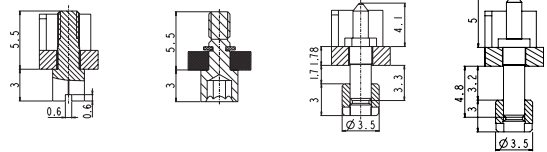
P/Q

Y

Z

PZ
QZ

USUAL GUIDES / For female connectors



Locking torque for AP/H : 0.20 Nm
AP/H : Holes in PCB = Ø 3,5mm

Locking torque for B/C/J : 0.17 to 0.20 Nm

AP

H

B/C

J



FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



FOR RF OR HIGH POWER CONTACTS SEE CONTACTS SECTION (PAGE 76)

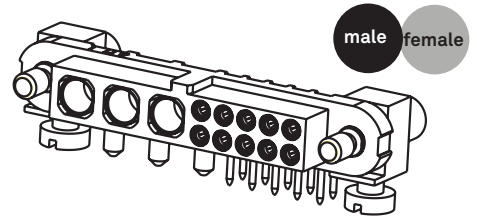


FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)



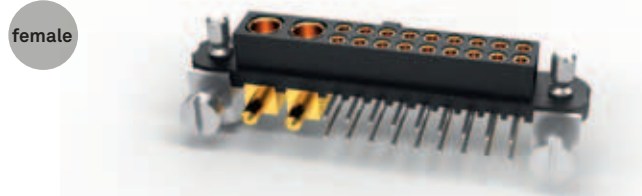
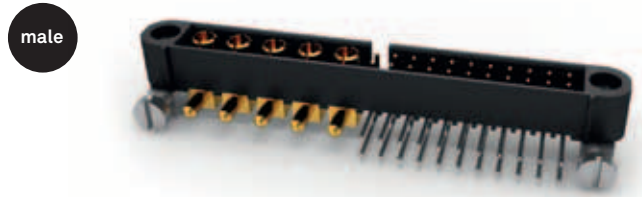
FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

220 SERIES

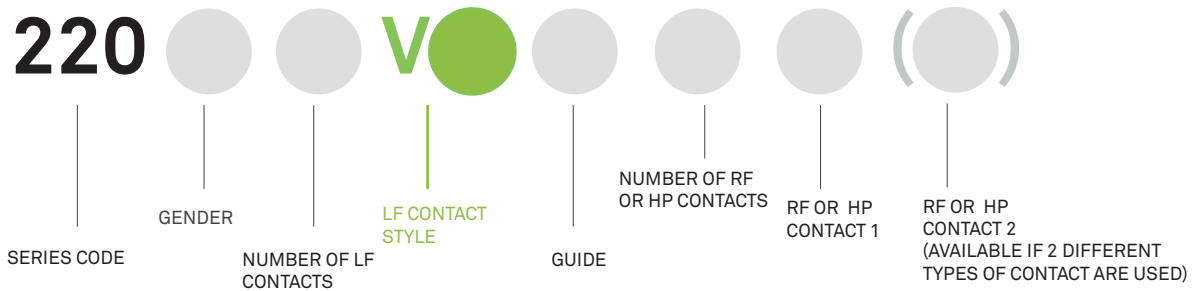


PCB Connectors with right angle LF contacts & right angle RF/High Power (HP) contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Choice of PC Tail length
- 4 Assembled with RF or high power contacts



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
00/no LF contacts
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

LF CONTACT STYLE

- V1/3.1mm Tails Gold + Tin/Lead
- V3/4.6mm Tails Gold + Tin/Lead
- V5/3.1mm Tails Gold
- V6/4.6mm Tails Gold
- V7/3.1mm Tails Gold + Tin
- V9/4.6mm Tails Gold + Tin
- 00/no LF contacts

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS
For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

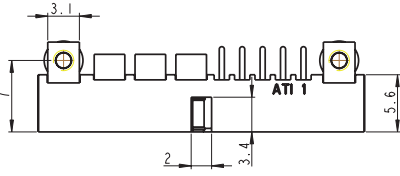
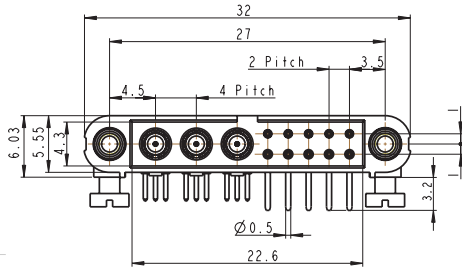
For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :

- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

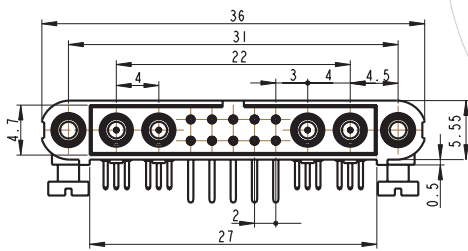
RF/HP CONTACT 1
Type of high frequency or high power contact defined on pages 84-85 (RF) and 88-89 (HP)

RF/HP CONTACT 2
Available if a second type of contact is used Pages 84-85 (RF) and 88-89 (HP)

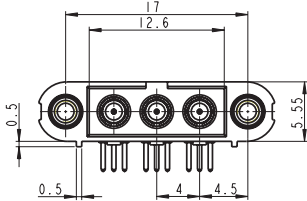
DIMENSIONS / MALE



Example : 220 M 10 V1 R 03 40

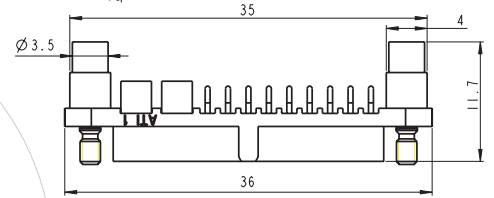
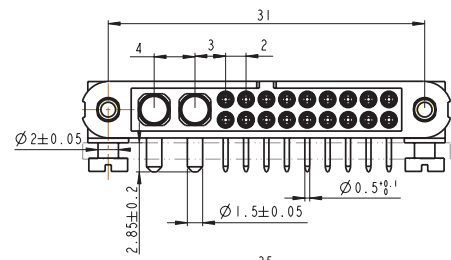


Example : 220 M 10 V1 R 22 40

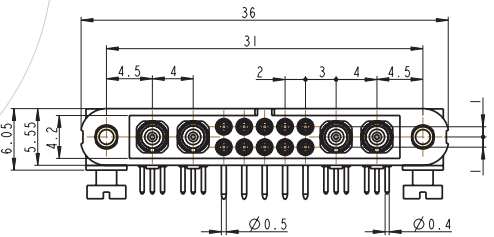


Example : 220 M 00 00 P 03 40

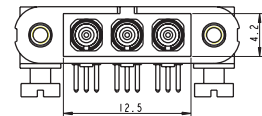
DIMENSIONS / FEMALE



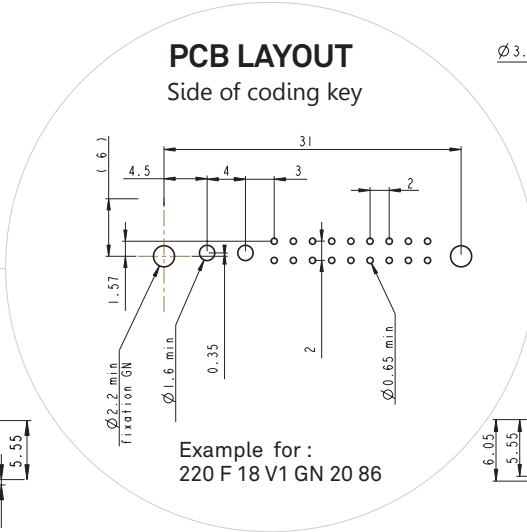
Example : 220 F 18 V1 GN 20 86



Example : 220 F 10 V1 GN 22 50

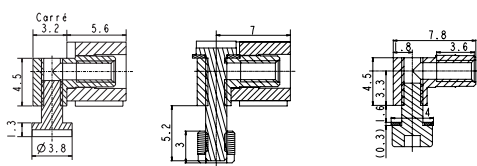


Example : 220 F 00 00 GN 03 50



WITH RF/HIGH POWER CONTACTS ONLY

USUAL GUIDES / For male connectors



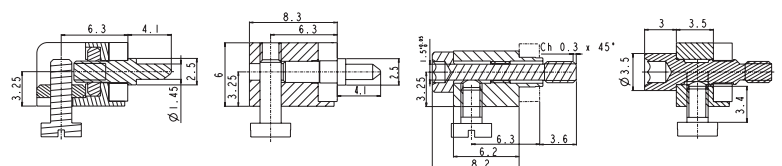
Locking torque for
R/S/U/W : 0.17 to 0.20 Nm

R/S

U

W

USUAL GUIDES / For female connectors



Locking torque for
F/FM/GM/GN : 0.17 to 0.20 Nm

F

FM

GM

GN



FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



FOR RF OR HIGH POWER CONTACTS SEE CONTACTS SECTION (PAGE 76)

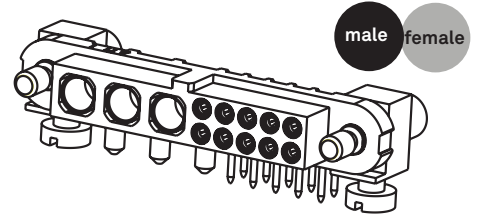


FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)



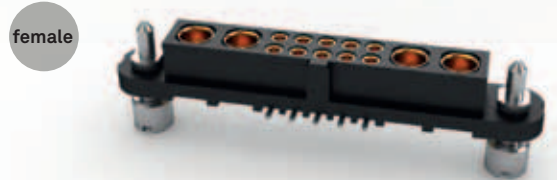
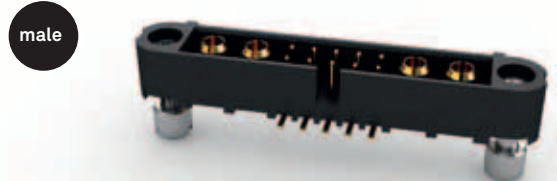
FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

220 SERIES

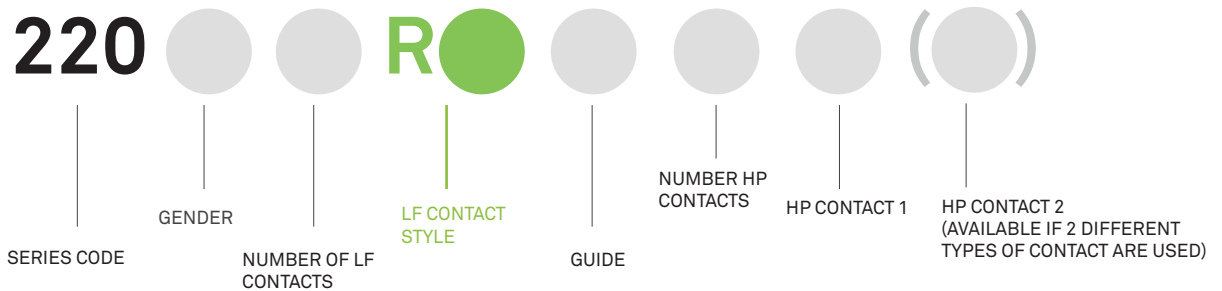


PCB Connectors with straight SMT LF contacts & straight SMT High Power (HP) contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Choice of PC Tail length
- 4 Assembled with high power contacts



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
00/no LF contacts
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

LF CONTACT STYLE
● R3/Gold + Tin/Lead
● R9/Gold + Tin
● 00/no LF contacts

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

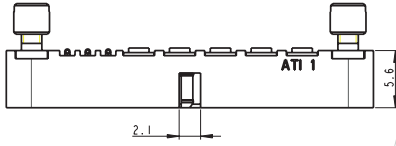
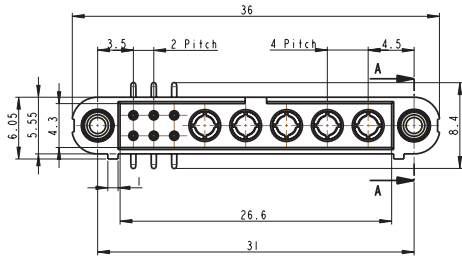
NUMBER OF HIGH POWER CONTACTS
For HP contacts only : 2 digits = number of cavities from 02 to 12

For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :
- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

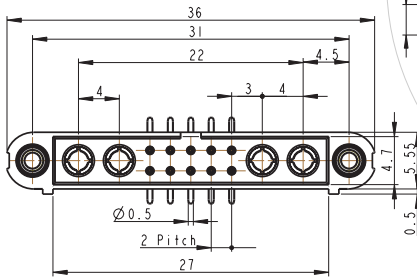
HP CONTACT 1
Type of high frequency or high power contact defined on pages 90-91 (HP)

HP CONTACT 2
Available if a second type of contact is used
Pages 90-91(HP)

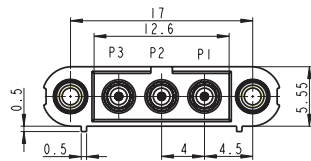
DIMENSIONS / MALE



Example : 220 M 06 R3 P 50 140

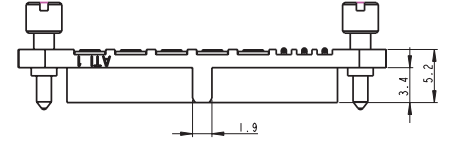
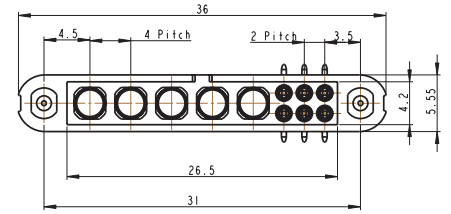


Example : 220 M 10 R3 P 22 140

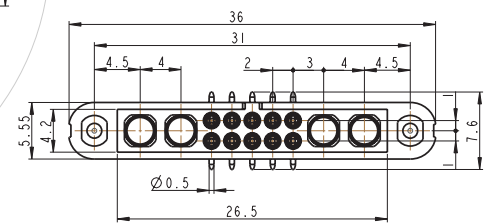


Example : 220 M 00 00 P 03 140

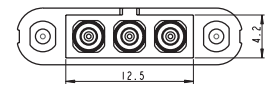
DIMENSIONS / FEMALE



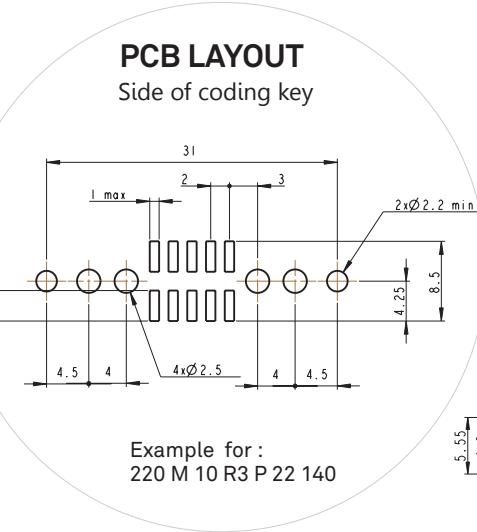
Example : 220 F 06 R3 B 50 85



Example : 220 F 10 R3 B 22 85



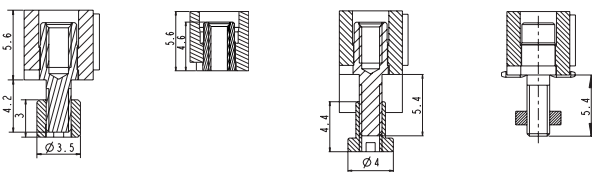
Example : 220 F 00 00 B 03 85



Example for :
220 M 10 R3 P 22 140

WITH HIGH POWER CONTACTS ONLY

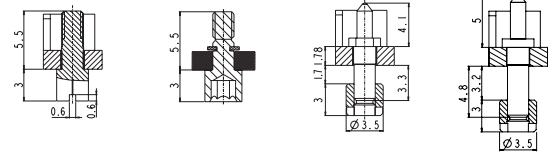
USUAL GUIDES / For male connectors



Locking torque for P/Q/Y : 0.17 to 0.20 Nm



USUAL GUIDES / For female connectors



Locking torque for AP/H : 0.20 Nm
AP/H : Holes in PCB = Ø 3,5mm

Locking torque for B/C/J : 0.17 to 0.20 Nm



FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



FOR HIGH POWER CONTACTS SEE CONTACTS SECTION (PAGE 76)

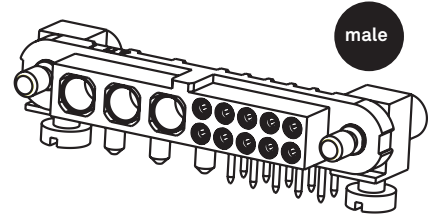


FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)



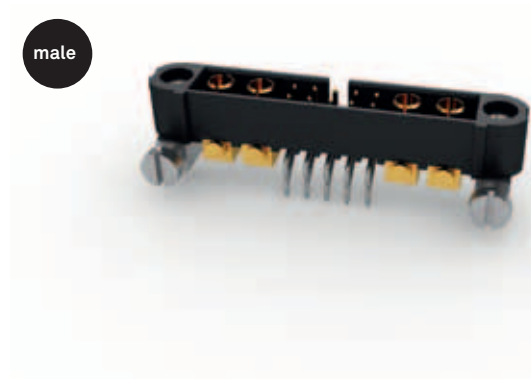
FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

220 SERIES

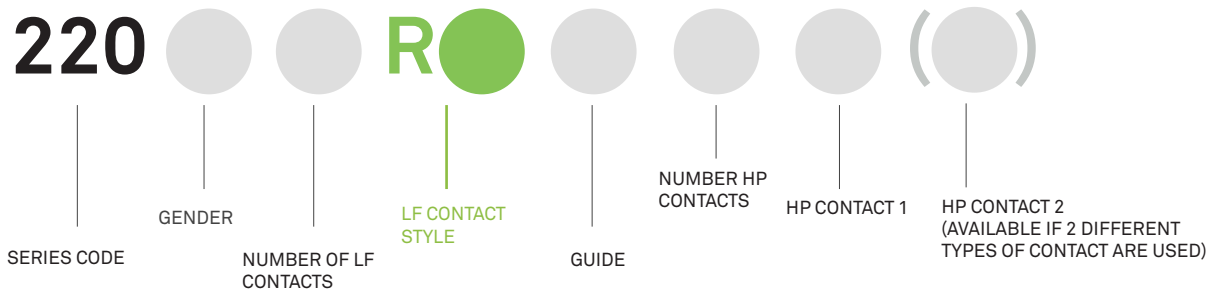


PCB Connectors with right angle SMT LF contacts & right angle SMT High Power (HP) contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Choice of PC Tail length
- 4 Assembled with high power contacts



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
00/no LF contacts
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

LF CONTACT STYLE
● R1/Gold + Tin/Lead
● R7/Gold + Tin
00/no LF contacts

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

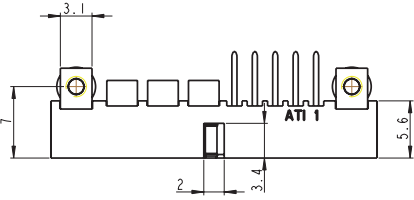
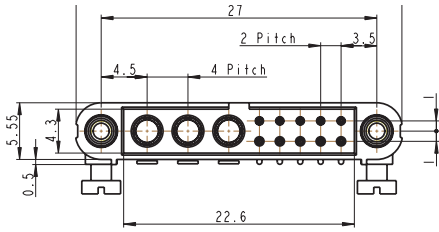
NUMBER OF HIGH POWER CONTACTS
For HP contacts only : 2 digits = number of cavities from 02 to 12

For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :
- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

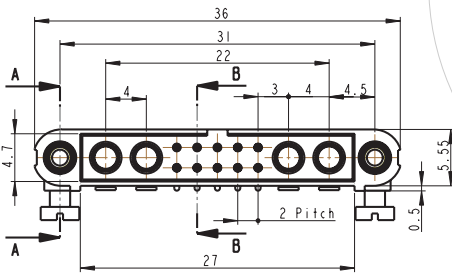
HP CONTACT 1
Type of high frequency or high power contact defined on pages 90-91 (HP)

HP CONTACT 2
Available if a second type of contact is used
Pages 90-91 (HP)

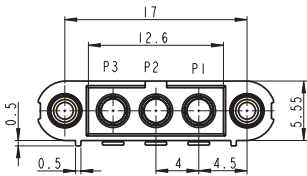
DIMENSIONS / MALE



Example : 220 M 10 R1 R 03 95

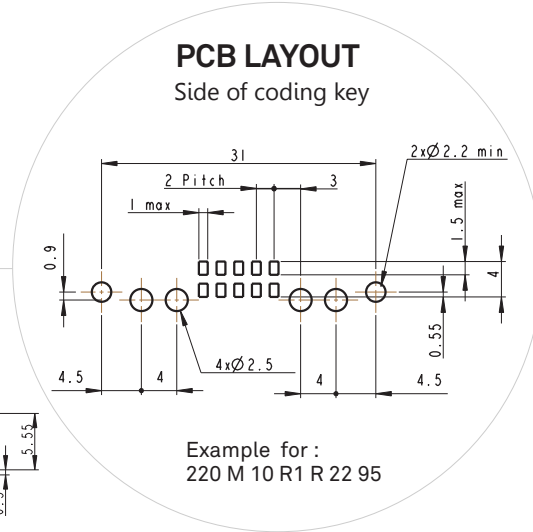


Example : 220 M 10 R1 R 22 95



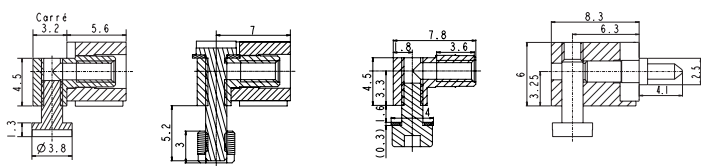
Example : 220 M 00 00 P 03 95

DIMENSIONS / FEMALE



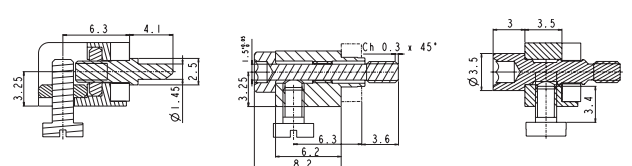
WITH HIGH POWER CONTACTS ONLY

USUAL GUIDES / For male connectors



Locking torque for
R/S/U/W : 0.17 to 0.20 Nm

USUAL GUIDES / For female connectors



Locking torque for
F/GM/GN : 0.17 to 0.20 Nm



FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



FOR HIGH POWER CONTACTS SEE CONTACTS SECTION (PAGE 76)

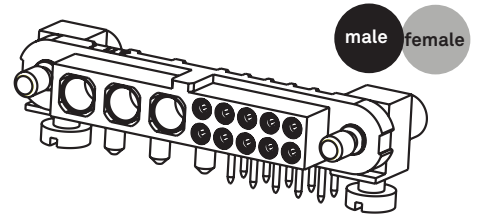


FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)



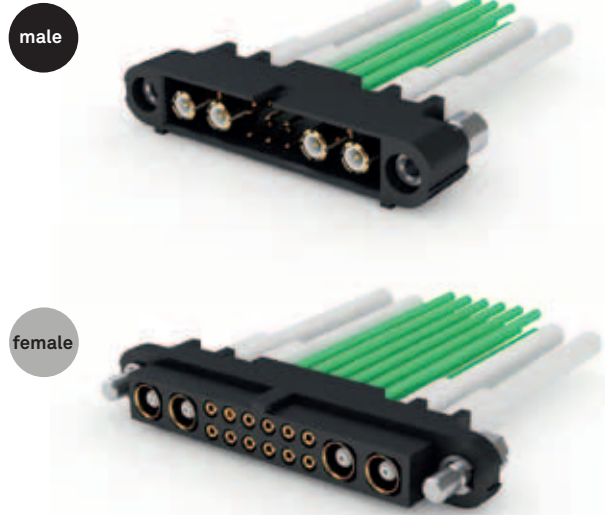
FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

220 SERIES

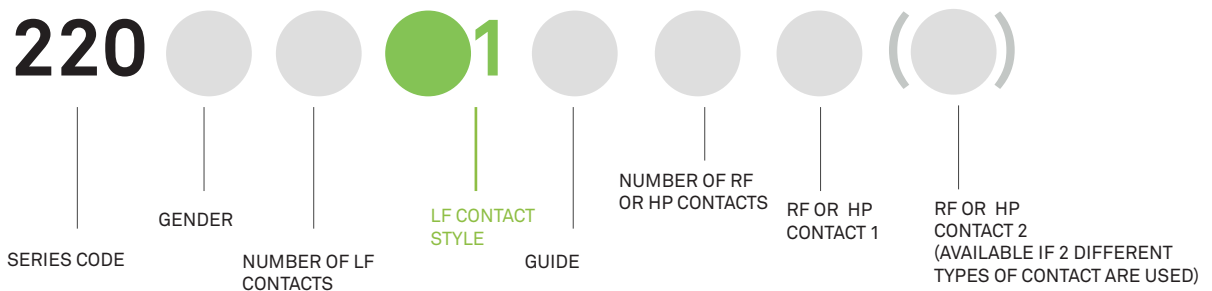


Wire connectors with crimp LF contacts & crimp RF/High Power (HP) contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Crimp contacts supplied loose
- 4 Crimp contacts are rear insertable and replaceable
- 5 Large bore 22 AWG and small bore 24-28 AWG
- 6 RF and high power contacts can be ordered separately



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
00/no LF contacts
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (page 96).

LF CONTACT STYLE

- C1/Small bore/Gold
- D1/Large bore/Gold
- 00/no LF contacts

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS
For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

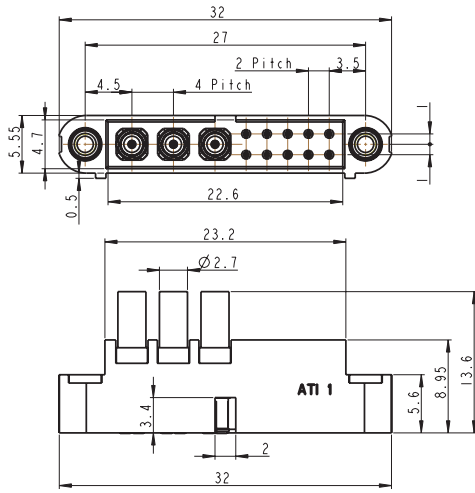
For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :

- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

RF/HP CONTACT 1
Type of high frequency or high power contact defined on pages 82-83 (RF) and 92-93 (HP)

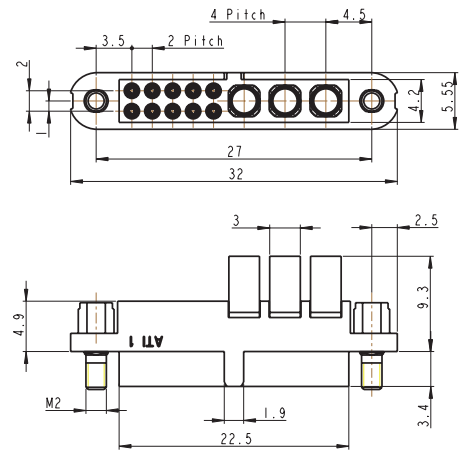
RF/HP CONTACT 2
Available if a second type of contact is used
Pages 82-83 (RF) and 92-93 (HP)

DIMENSIONS / MALE

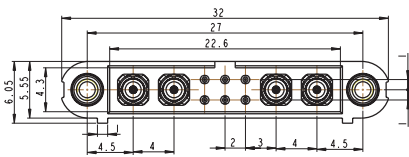


Example : 220 M 10 D1 Y 03 10

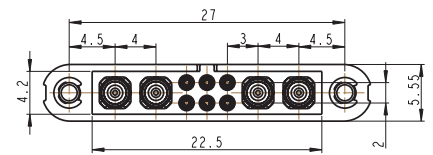
DIMENSIONS / FEMALE



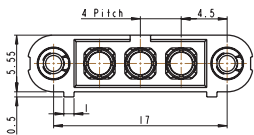
Example : 220 F 10 D1 AP 03 15



Example : 220 M 06 D1 P 22 10

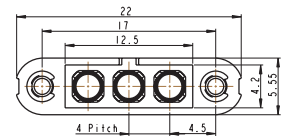


Example : 220 F 06 D1 A 22 15



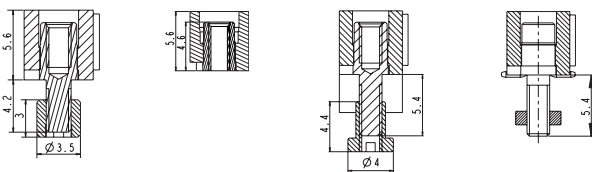
Example : 220 M 00 00 YN 03 90
To order only the insulator without any RF/HP contacts, PN is 220 M 00 D1 YN 03 00

WITH RF/HP CONTACTS ONLY



Example : 220 F 00 00 H 03 55
To order only the insulator without any RF/HP contacts, PN is 220 F 00 D1 H 03 00

USUAL GUIDES / For male connectors



Locking torque for P/Q/Y : 0.17 to 0.20 Nm

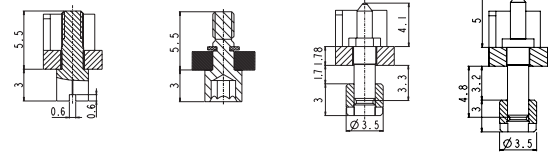
P/Q

Y

Z

PZ
QZ

USUAL GUIDES / For female connectors



Locking torque for AP/H : 0.20 Nm
AP/H : Holes in PCB = Ø 3,5mm

Locking torque for B/C/J : 0.17 to 0.20 Nm

AP

H

B/C

J



FOR ACCESSORIES SEE TECHNICAL INDEX (PAGE 94)



FOR RF OR HIGH POWER CONTACTS SEE CONTACTS SECTION (PAGE 76)



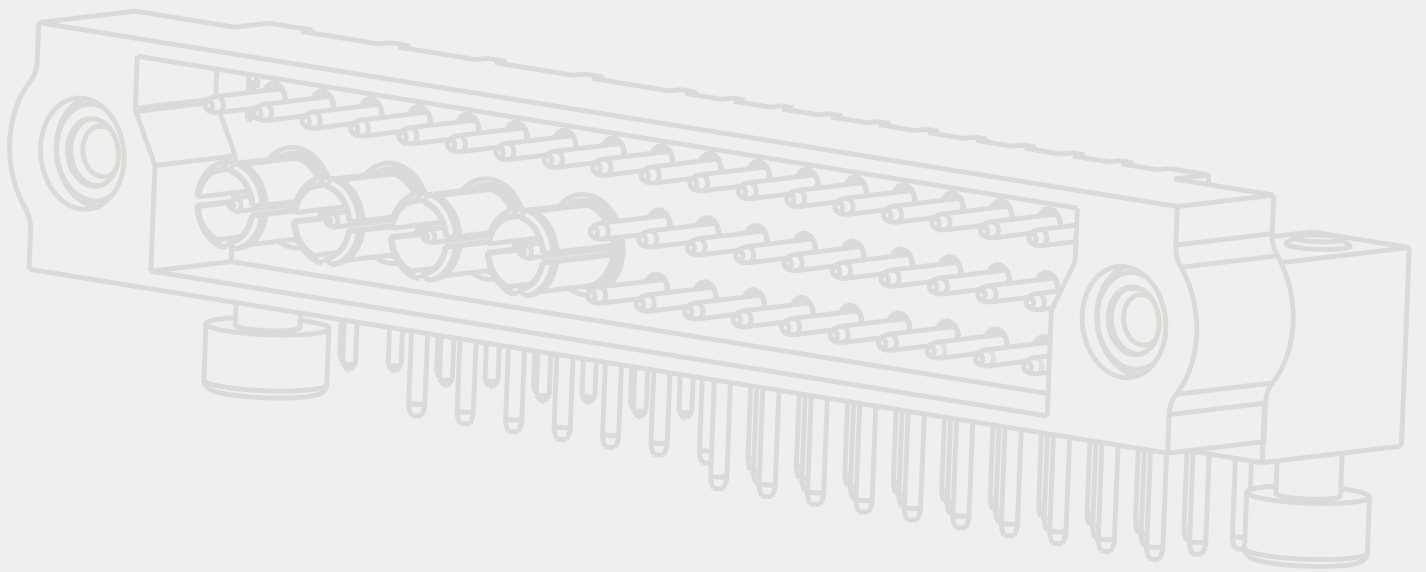
FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)



FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)



FOR CRIMPING SEE TECHNICAL INDEX (PAGE 108)



320 **SERIES**

INTRODUCTION

320 series extend the range of 220 series. Designed with high performance materials, the connectors can be locked with jackscrews and used in severe mechanical and climatic environment.



LF LF contacts /



6 LF contacts min.



120 LF contacts max.

mixed Mixed layout (examples) /



One row with 8 LF contacts & One row with 4 cavities min.



One row with 40 LF contacts & One row with 20 cavities max.



1 cavities + 12 LF contacts



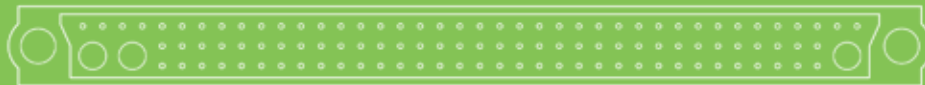
4 cavities + 20 LF contacts



4 cavities + 26 LF contacts

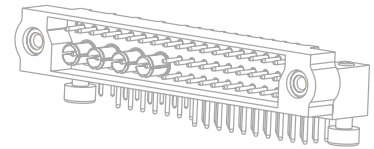


3 cavities. 34 LF contacts.



OR

320 SERIES

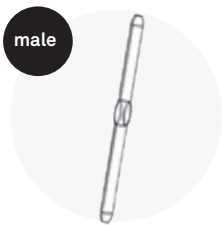


An Introduction to the 320 SERIES

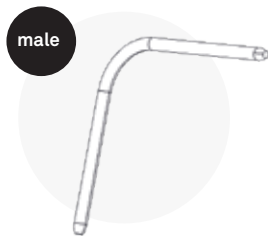
This series of connectors has a large range of termination styles :

- PCB mounting (straight and right angle)
- Press-fit
- Crimp contacts

Terminations



*Straight
PCB contacts
Y*



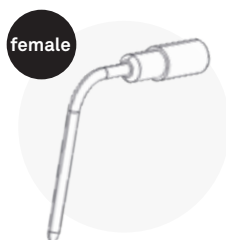
*Right angle
PCB contacts
V*



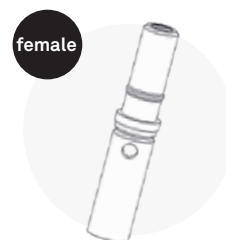
*Crimp
contacts
C/D*



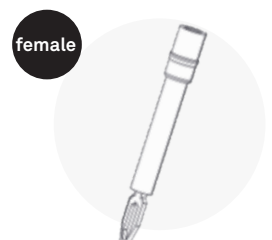
*Straight
PCB contacts
Y*



*Right Angle
PCB contacts
V*



*Crimp
contacts
C/D*



*Press-fit
contacts
PF*



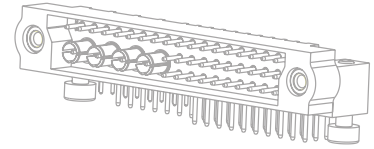
*High frequency and
High power contacts
P. 76 to 93*



Crimping & Tooling

P. 108 to 109

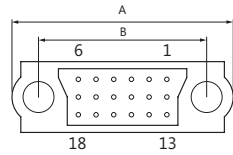
320 SERIES



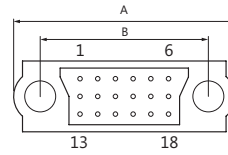
POLARISING AND SIZING FEATURES / SHOWN LOOKING ON MATING FACE

SIZES

Insulator body with LF contacts



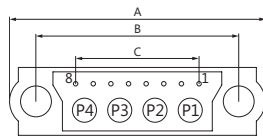
male



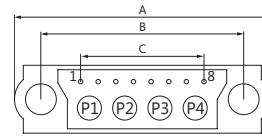
female

- A** No of contacts x 2/3 + 13 or (C + 15)
- B** No of contacts x 2/3 + 7 or (C + 9)
- C** No of contacts x 2/3 - 2

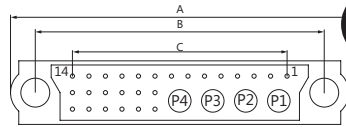
Insulator body with mixed layout contacts



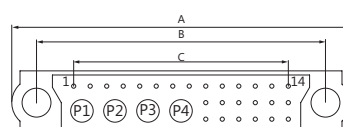
male



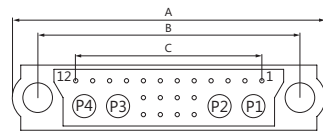
female



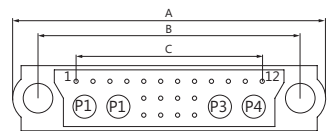
male



female



male



female

- A** C + 15
- B** C + 9
- C** (No of LF contacts + No of RF/HP contacts x 4) x 2/3 - 2

320 with LF contacts

No of contacts • 6 9 12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 • • •

Length in mm [No contacts x 2/3 + 13] or [C + 15] **A** 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 • • •

Distance between axis [No contacts x 2/3 + 7] or [C + 9] **B** 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 • • •

Distance between axis [No contacts x 2/3 - 2] **C** 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 • • •

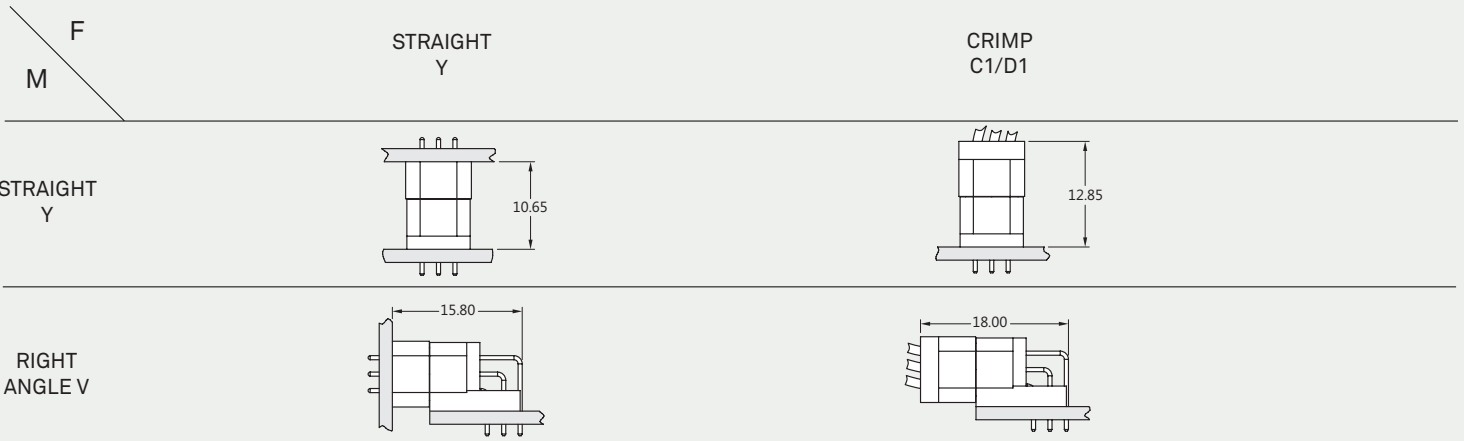
No of contacts • 66 69 72 75 78 81 84 87 90 93 96 99 102 105 108 111 114 117 120 • • •

Length in mm [No contacts x 2/3 + 13] or [C + 15] **A** 57 59 61 63 65 67 69 71 73 75 77 79 81 83 85 87 89 91 93 • • •

Distance between axis [No contacts x 2/3 + 7] or [C + 9] **B** 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83 85 87 • • •

Distance between axis [No contacts x 2/3 - 2] **C** 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 • • •

SPACING CONNECTOR / MALE & FEMALE



HOW TO ORDER / ASSEMBLED

320

SERIES CODE



GENDER



NUMBER OF LF CONTACTS



LF CONTACT STYLE



GUIDE



NUMBER OF RF OR HIGH POWER CONTACTS FROM LF CONTACTS No 1 SIDE



NUMBER OF RF OR HIGH POWER CONTACTS ON OPPOSITE SIDE



RF OR HP CONTACT 1



RF OR HP CONTACT 2 (AVAILABLE IF 2 DIFFERENT TYPES OF CONTACT ARE USED)

GLOSSARY / HOW TO ORDER

GENDER

F/Female
M/Male

NUMBER OF LF CONTACTS

006 to 120

GUIDES

Short list on following pages

LF CONTACT STYLE

- Y1-Y3/Straight on PCB
- V1-V3/Right angle on PCB
- Y5 to Y9/Straight on PCB
- V5 to V9/Right angle on PCB
- PF1/Press-fit
- PF2/Press-fit
- C1-D1/Crimp for wire

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS

For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :

- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

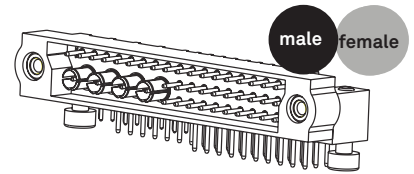
RF/HP CONTACT 1

Type of high frequency or high power contact

RF/HP CONTACT 2

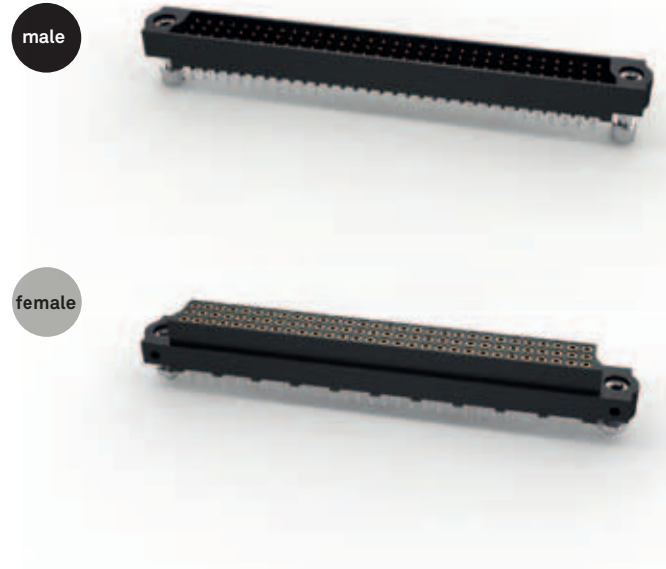
Available if a second type of contact is used

320 SERIES

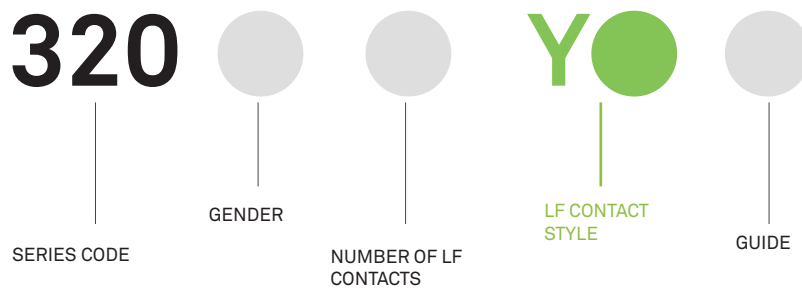


PCB Connectors with straight LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Choice of PC Tail length
- 4 3 types of plating



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER

F/Female
M/Male

NUMBER OF LF CONTACTS

006 to 120

GUIDES

Short list on the opposite page
Complete list, see technical index (page 101).

LF CONTACT STYLE

- Y1/3.1mm Tails Gold + Tin/Lead
- Y3/4.6mm Tails Gold + Tin/Lead
- Y5/3.1mm Tails Gold
- Y6/4.6mm Tails Gold
- Y7/3.1mm Tails Gold + Tin
- Y8/5.5mm Tails Gold
- Y9/4.6mm Tails Gold + Tin

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

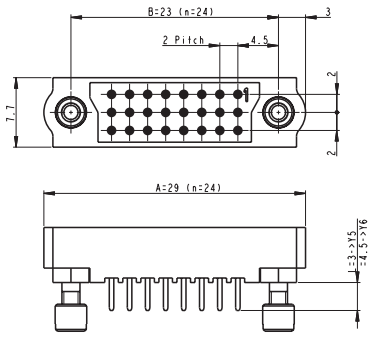
USUAL GUIDES FOR FEMALE CONTACTS

C/Guide for panel mount L=5
H/With Hex. socket Jackscrew
A/With Hex. slotted Jackscrew
0/Without Jackscrews

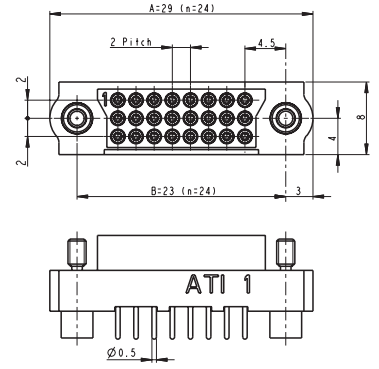
USUAL GUIDES FOR MALE CONTACTS

P/3.5mm Jackscrew
Q/5mm Jackscrew
Y/Only lockable
0/Without Jackscrews

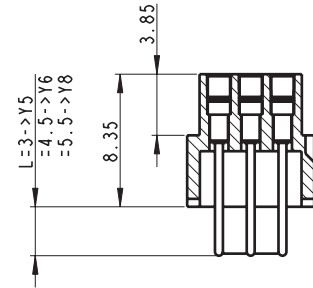
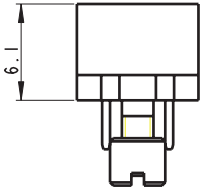
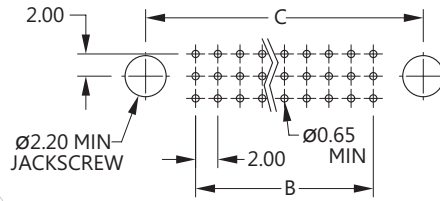
DIMENSIONS / MALE



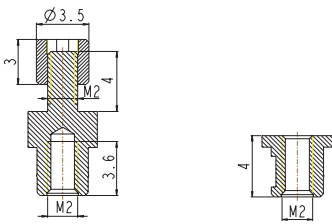
DIMENSIONS / FEMALE



P.C.B LAYOUT



USUAL GUIDES / For male connectors

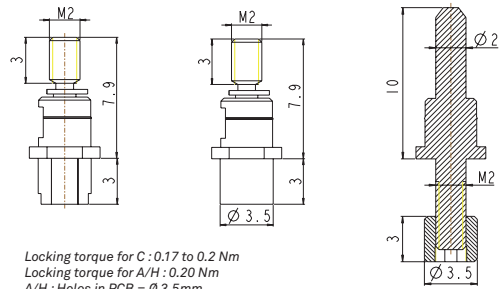


Locking torque for P/Q/Y: 0.17 to 0.20 Nm

P/Q

Y

USUAL GUIDES / For female connectors



Locking torque for C: 0.17 to 0.2 Nm
Locking torque for A/H: 0.20 Nm
A/H: Holes in PCB = Ø 3,5mm

A

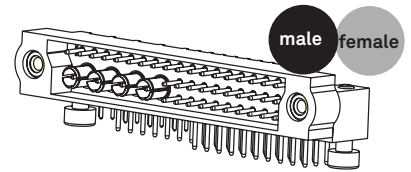
H

C



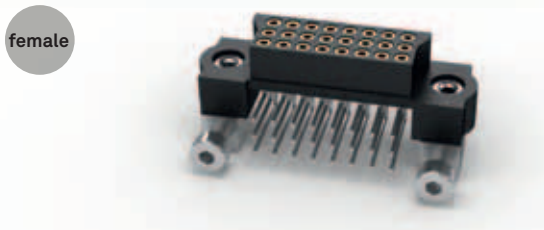
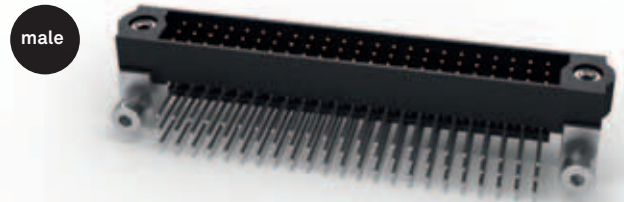
FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 101)

320 SERIES

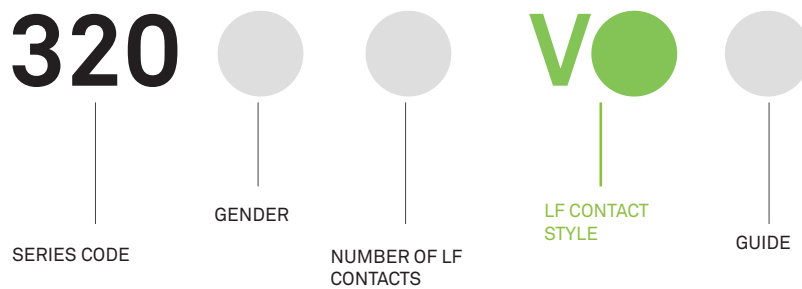


PCB Connectors with right angle LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Choice of PC Tail length
- 4 3 types of plating



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
006 to 120

GUIDES
Short list on the opposite page
Complete list, see technical index (page 101).

- LF CONTACTS STYLE**
- V1/3.1mm Tails Gold + Tin/Lead
 - V3/4.6mm Tails Gold + Tin/Lead
 - V5/3.1mm Tails Gold
 - V6/4.6mm Tails Gold
 - V7/3.1mm Tails Gold + Tin
 - V9/4.6mm Tails Gold + Tin

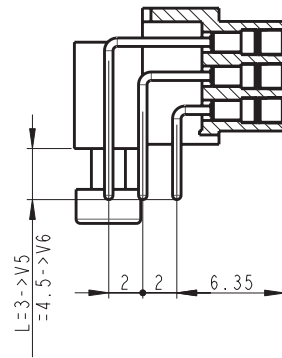
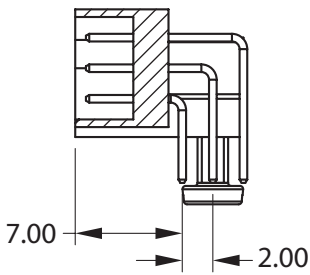
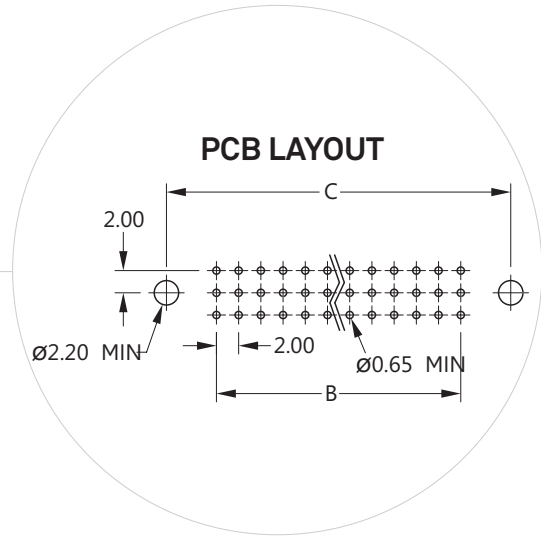
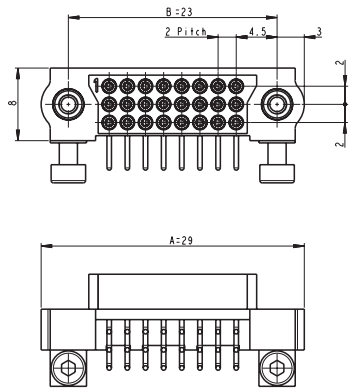
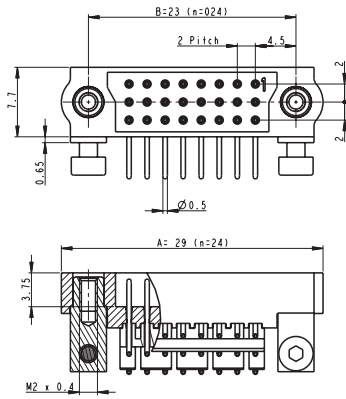
- RoHS RULES (w/ lead) :**
- No RoHS (with lead)
 - RoHS (without lead)

USUAL GUIDES FOR FEMALE CONTACTS
SNF/

USUAL GUIDES FOR MALE CONTACTS
S/5mm Jackscrew
SN/
N/

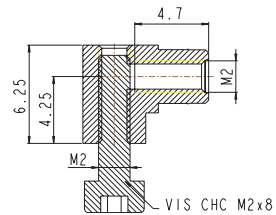
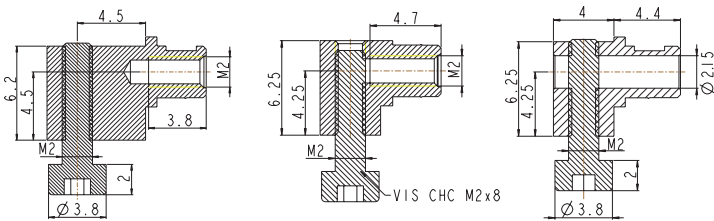
DIMENSIONS / MALE

DIMENSIONS / FEMALE



USUAL GUIDES / For male connectors

USUAL GUIDES / For female connectors



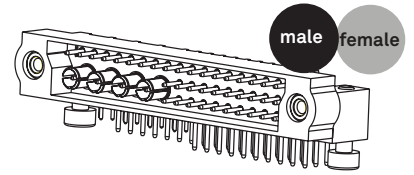
Locking torque for S : 0.17 to 0.20 Nm

Locking torque for F : 0.17 to 0.20 Nm



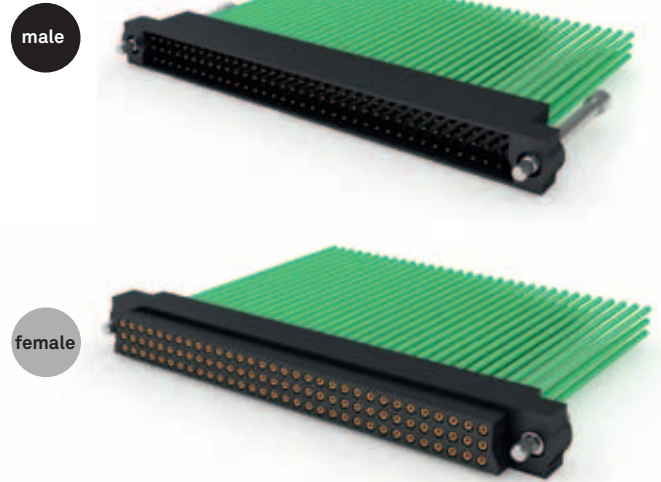
FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 96)

320 SERIES

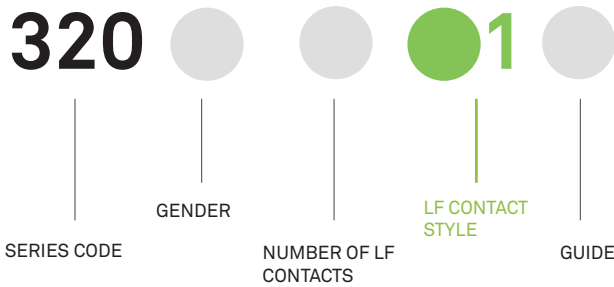


Wire connectors with crimp LF contacts

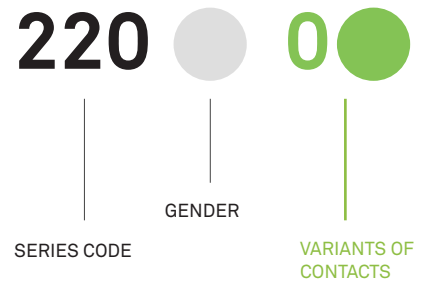
- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Crimp contacts supplied loose
- 4 Crimp contacts are rear insertable and replaceable
- 5 Large bore 22 AWG and small bore 24-28 AWG
- 6 Backpotting is possible thanks to the body shape



HOW TO ORDER / ASSEMBLED



HOW TO ORDER / CONTACT ONLY



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
006 to 120

GUIDES
Short list on the opposite page
Complete list, see technical index (page 101).

LF CONTACT STYLE

- C1/Small bore/Gold
- D1/Large bore/Gold

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

USUAL GUIDES FOR FEMALE CONTACTS

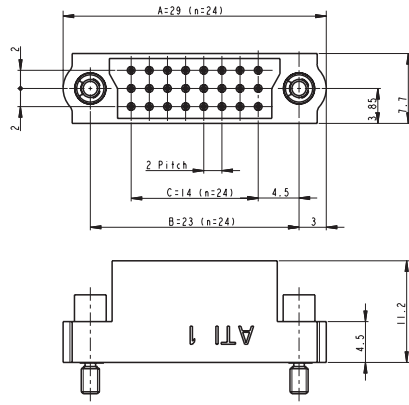
C/Guide for panel mount L=5
H/With Hex. socket Jackscrew
A/With Hex. slotted Jackscrew
0/Without Jackscrews

USUAL GUIDES FOR FEMALE CONTACTS

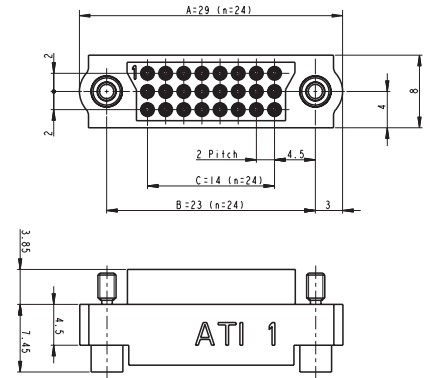
P/3.5mm Jackscrew
Q/5mm Jackscrew
Y/Only locable
YR/
0/Without Jackscrews

CONTACT ONLY
02/Small bore (C1)
01/Large bore (D1)

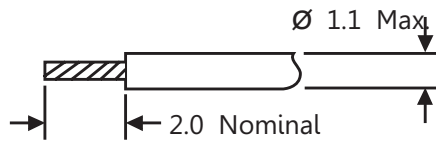
DIMENSIONS / MALE



DIMENSIONS / FEMALE



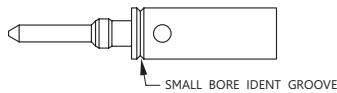
WIRE STRIPPING DETAILS



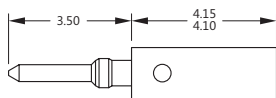
Crimp tool **M22520/2-01**
Positioner **MP6818**
Contact insertion/removal tool **220S03**

CONTACTS / MALE

C1 - Small Bore (24-28 AWG) : 220 M 02

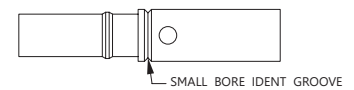


D1 - Large Bore (22 AWG) : 220 M 01

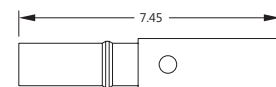


CONTACTS / FEMALE

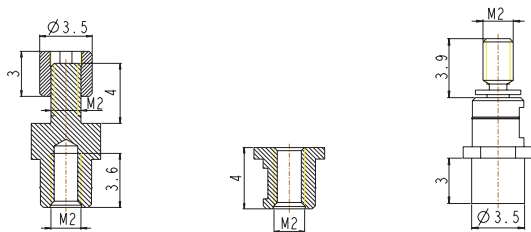
C1 - Small Bore (24-28 AWG) : 220 F 02



D1 - Large Bore (22 AWG) : 220 F 01



USUAL GUIDES / For MALE connectors



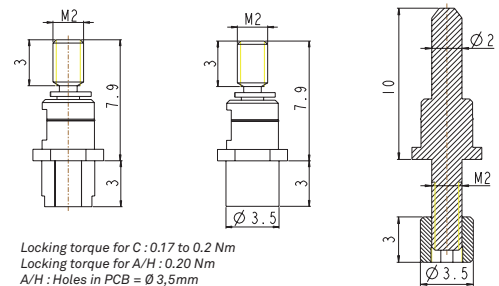
Locking torque for P/Q/Y : 0.17 to 0.20 Nm

P/Q

Y

YR

USUAL GUIDES / For FEMALE connectors



Locking torque for C : 0.17 to 0.2 Nm
Locking torque for A/H : 0.20 Nm
A/H : Holes in PCB = Ø 3,5mm

A

H

C



FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 101)

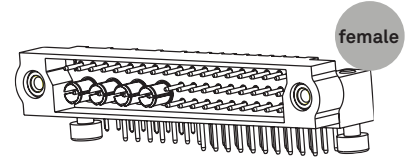


FOR CRIMPING SEE TECHNICAL INDEX (PAGE 108)



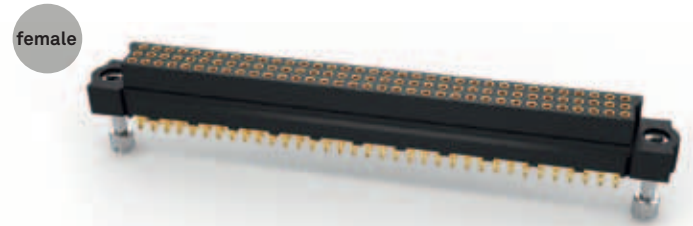
FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

320 SERIES

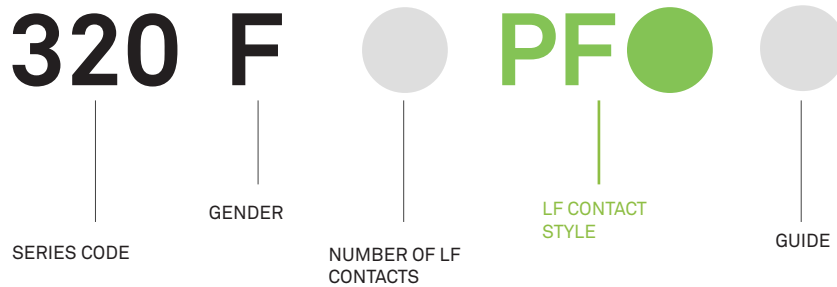


PCB Connectors with straight press-fit LF contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 2 types of plating



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female

NUMBER OF LF CONTACTS
006 to 120

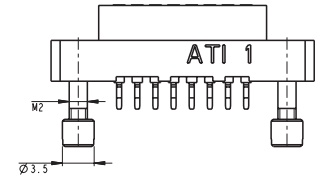
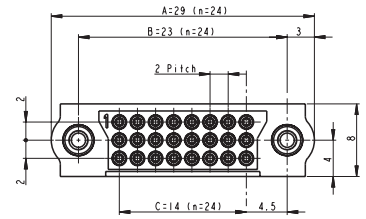
GUIDES
Short list on the opposite page
Complete list, see technical index (page 101).

LF CONTACT STYLE
● PF1/Tin+Lead
● PF2/Gold

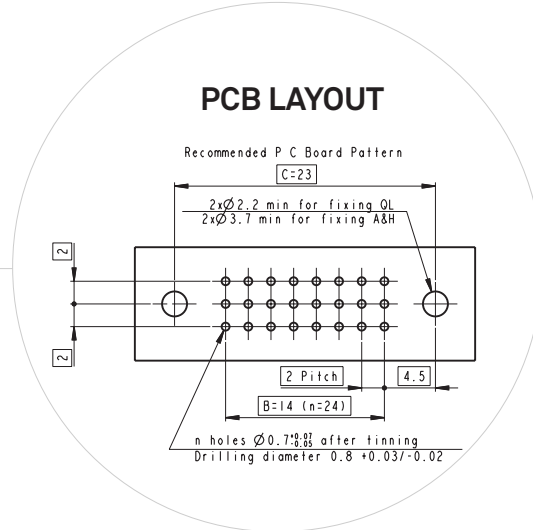
RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

USUAL GUIDES FOR FEMALE CONTACTS
A/With Hex. slotted Jackscrew
H/With Hex. socket Jackscrew
QL/
QR/
0/Without Jackscrews

DIMENSIONS / FEMALE

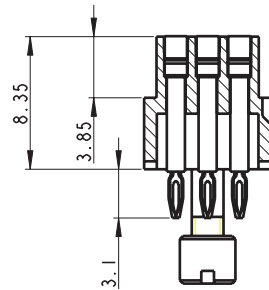


PCB LAYOUT

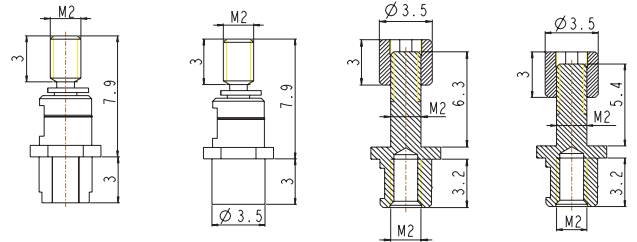


PCB holes specifications : plating
 PCB surface finish : tin, copper, gold over nickel
 Thickness copper : tin 25µ min, copper 25µ min, gold over nickel 25µ min
 Thickness nickel : 2,5 - 5µ
 Thickness gold : 0,05 - 0,2 µ

CONTACT / FEMALE



USUAL GUIDES / For female connectors



Locking torque for A/H : 0.20 Nm
 A/H : Holes in PCB = Ø 3,5mm

A

H

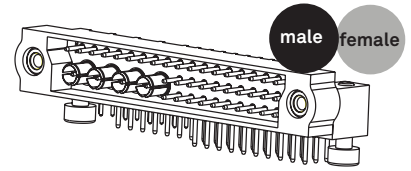
QL

QR



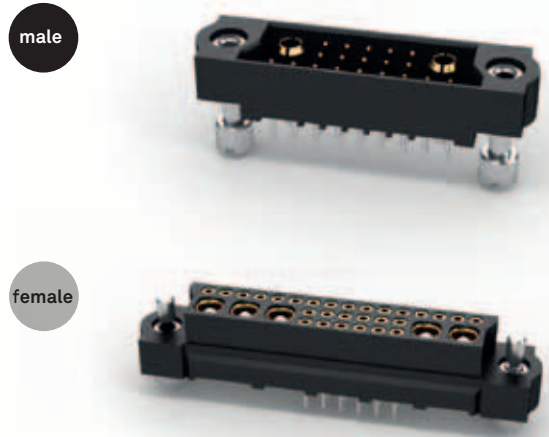
FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 101)

320 SERIES

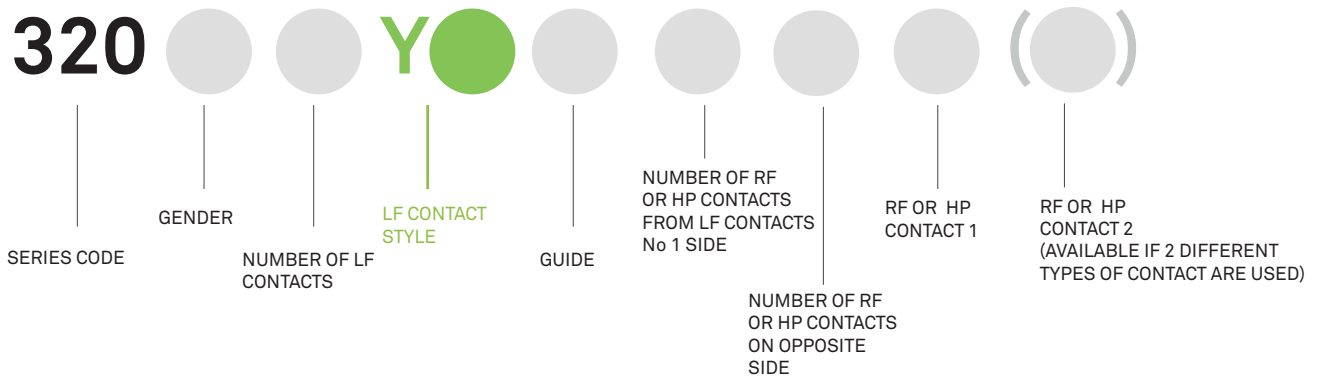


PCB Connectors with straight LF contacts & straight RF/High Power (HP) contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Choice of PC Tail length
- 4 Assembled with RF or high power contacts



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LFCONTACTS
000/no LF contacts
006 to 120

GUIDES
Short list on the opposite page
Complete list, see technical index (page 101).

LF CONTACT STYLE

- Y1/3.1mm Tails Gold + Tin/Lead
- Y3/4.6mm Tails Gold + Tin/Lead
- Y5/3.1mm Tails Gold
- Y6/4.6mm Tails Gold
- Y7/3.1mm Tails Gold + Tin
- Y8/5.5mm Tails Gold
- Y9/4.6mm Tails Gold + Tin
- 00/no LF contacts

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS
For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

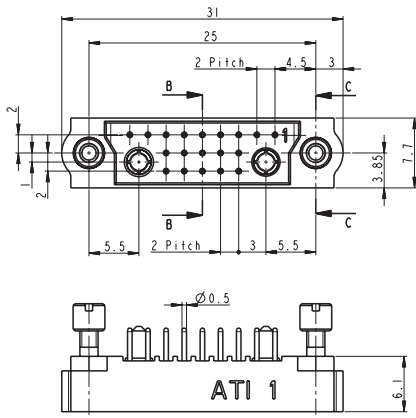
For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :

- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

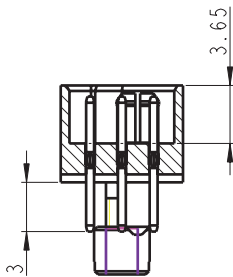
RF/HP CONTACT 1
Type of high frequency or high power contact defined on pages 84-85 (RF) and 88-89 (HP)

RF/HP CONTACT 2
Available if a second type of contact is used Pages 84-85(RF) and 88-89 (HP)

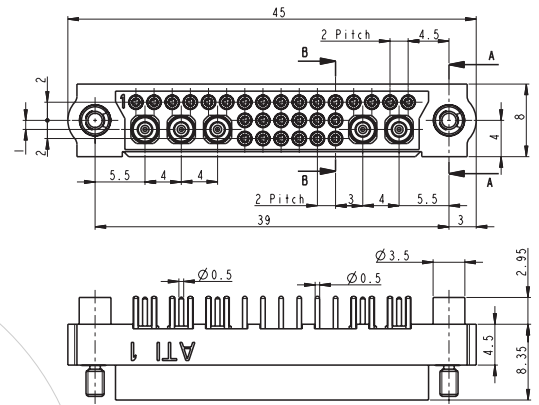
DIMENSIONS / MALE



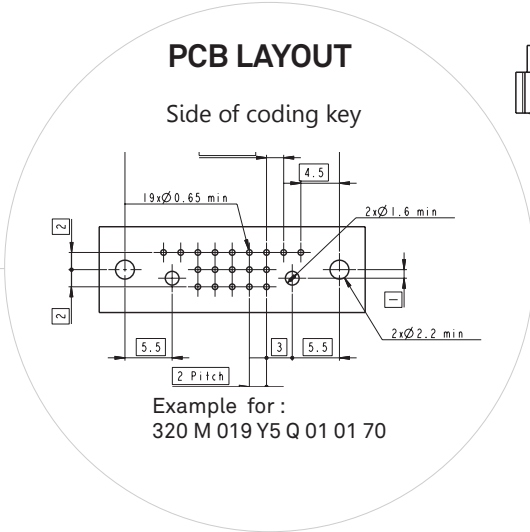
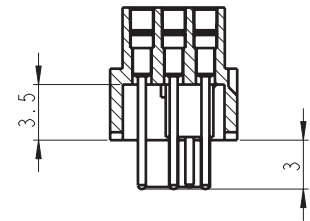
Example : 320 M 019 Y5 Q 01 01 70



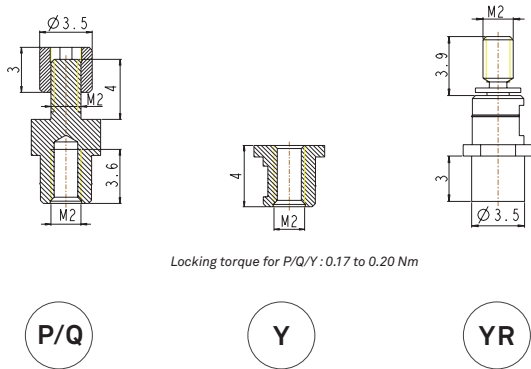
DIMENSIONS / FEMALE



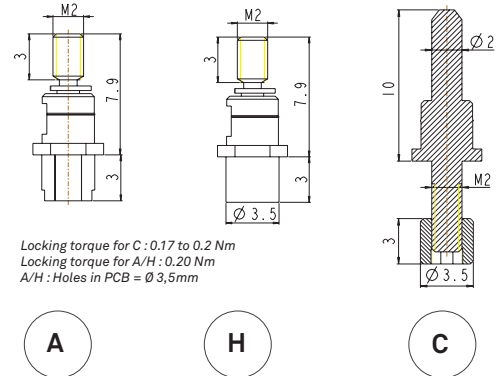
Example : 320 F 028 Y5 H 03 02 35



USUAL GUIDES / For male connectors



USUAL GUIDES / For female connectors

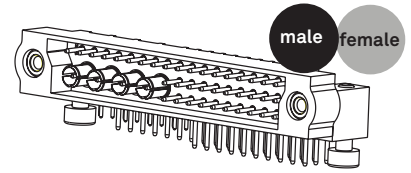


FOR RF OR HIGH POWER CONTACTS SEE CONTACTS SECTION (PAGE 76)



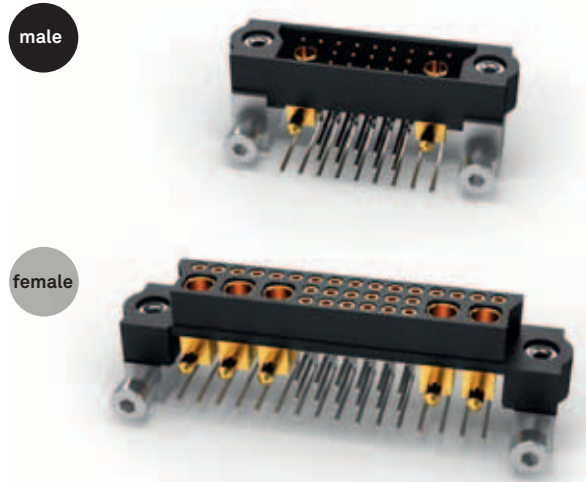
FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 101)

320 SERIES

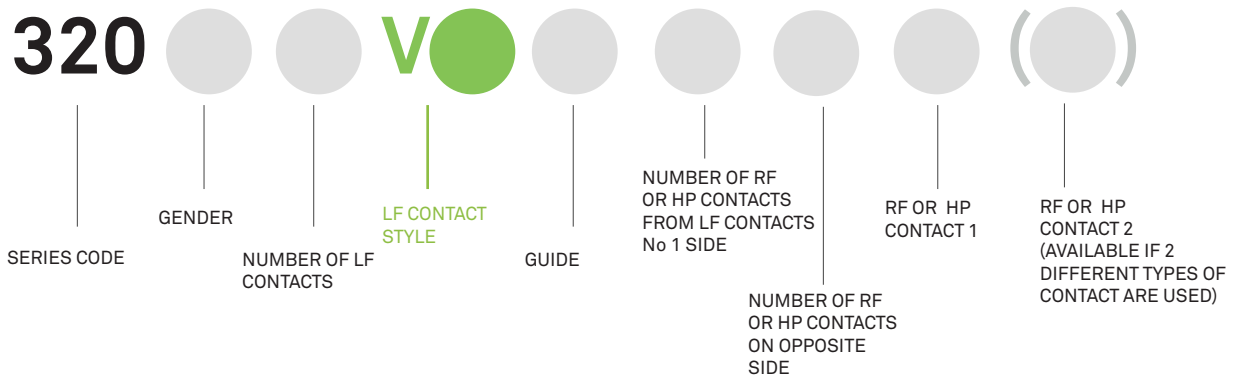


PCB Connectors with right angle LF contacts & right angle RF/High Power (HP) contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Choice of PC Tail length
- 4 Assembled with RF or high power contacts



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
000/no LF contacts
006 to 120

GUIDES
Short list on the opposite page
Complete list, see technical index (page 101).

LF CONTACT STYLE

- V1/3.1mm Tails Gold + Tin/Lead
- V3/4.6mm Tails Gold + Tin/Lead
- V5/3.1mm Tails Gold
- V6/4.6mm Tails Gold
- V7/3.1mm Tails Gold + Tin
- V9/4.6mm Tails Gold + Tin
- 00/no LF contacts

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS
For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

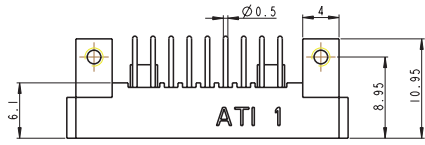
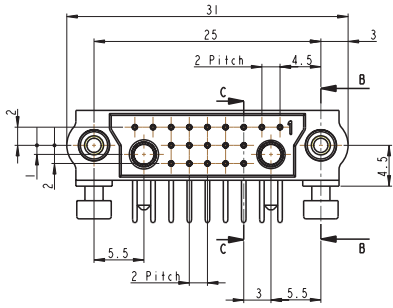
For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :

- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

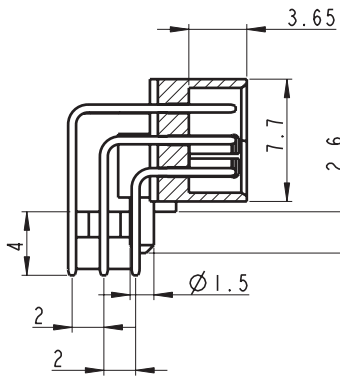
RF/HP CONTACT 1
Type of high frequency or high power contact defined on pages 84-85 (RF) and 88-89 (HP)

RF/HP CONTACT 2
Available if a second type of contact is used Pages 84-85(RF) and 88-89 (HP)

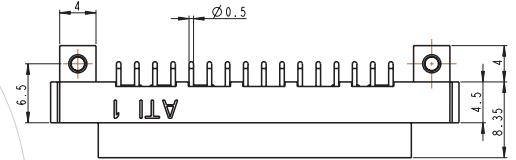
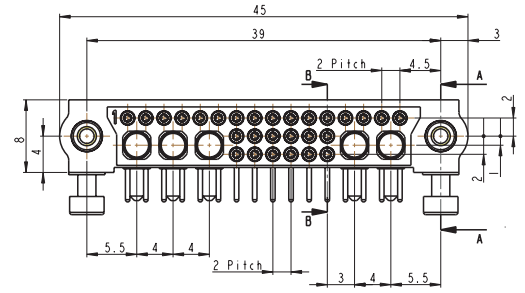
DIMENSIONS / MALE



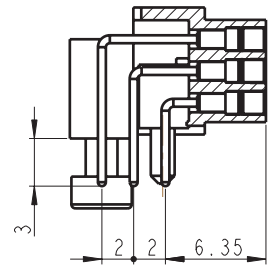
Example : 320 M 019 V5 S 01 01 80



DIMENSIONS / FEMALE

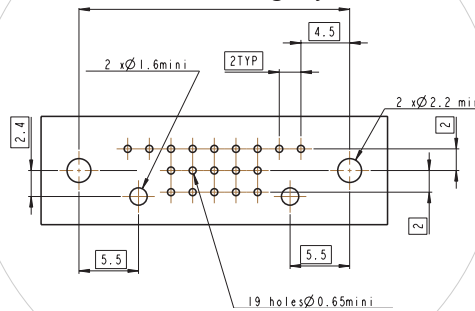


Example : 320 F 028 V5 F 03 02 86



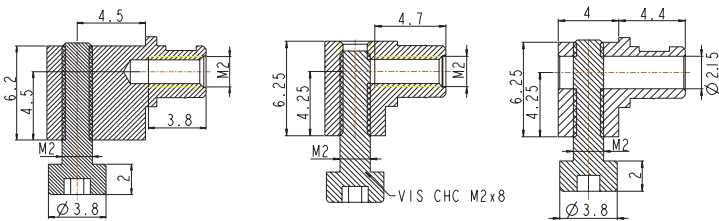
PCB LAYOUT

Side of coding key



Example for :
320 M 019 V5 S 01 01 80

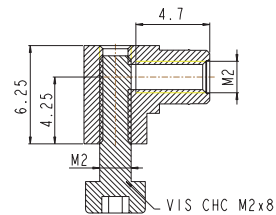
USUAL GUIDES / For male connectors



Locking torque for S : 0.17 to 0.20 Nm



USUAL GUIDES / For female connectors



Locking torque for F : 0.17 to 0.20 Nm

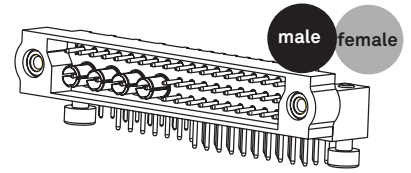


FOR RF OR HIGH POWER CONTACTS SEE CONTACTS SECTION (PAGE 76)



FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 101)

320 SERIES



Wire connectors with crimp LF contacts & crimp RF/High Power (HP) contacts

- 1 Polarised mouldings
- 2 Fully shrouded contacts
- 3 Crimp contacts supplied loose
- 4 Crimp contacts are rear insertable and replaceable
- 5 Large bore 22 AWG and small bore 24-28 AWG
- 6 RF and high power contacts can be ordered separately

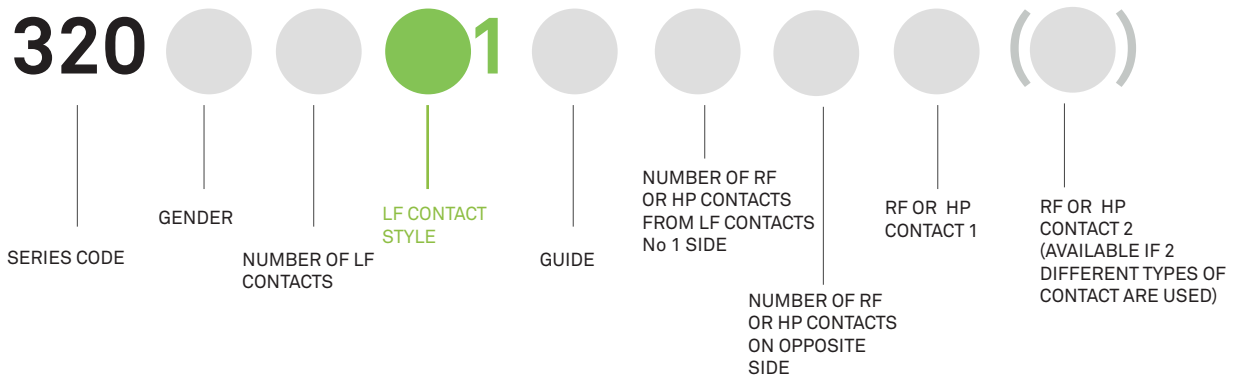
male



female



HOW TO ORDER / ASSEMBLED



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
000/no LF contacts
006 to 120

GUIDES
Short list on the opposite page
Complete list, see technical index (page 101).

LF CONTACT STYLE
● C1/Small bore/Gold
● D1/Large bore/Gold
00/no LF contacts

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS

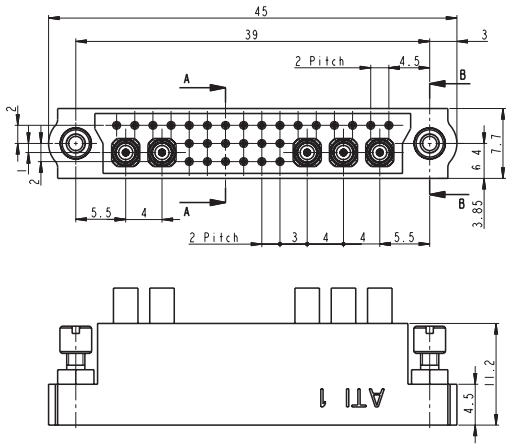
For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :
- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

RF/HP CONTACT 1
Type of high frequency or high power contact defined on pages 82-83 (RF) and 92-93 (HP)

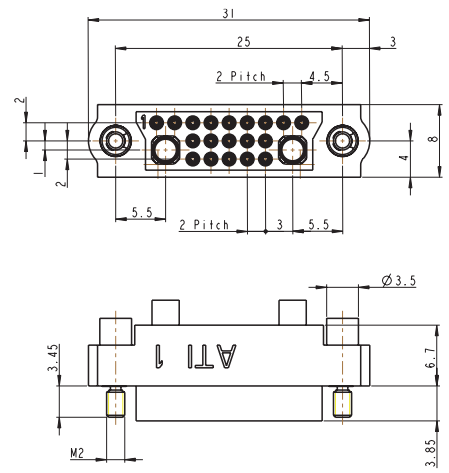
RF/HP CONTACT 2
Available if a second type of contact is used
Pages 82-83 (RF) and 92-93 (HP)

DIMENSIONS / MALE

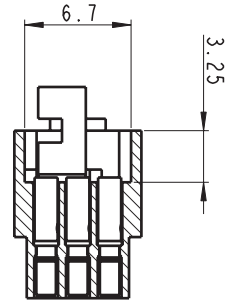
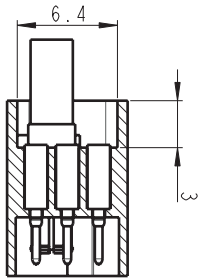


Example : 320 M 028 D1 P 03 02 10

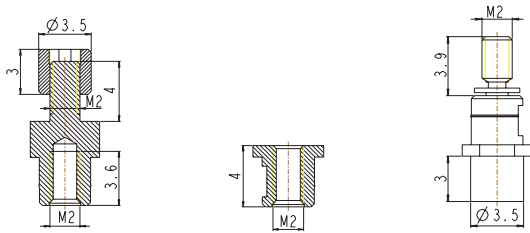
DIMENSIONS / FEMALE



Example : 320 F 019 D1 H 01 01 67



USUAL GUIDES / For male connectors



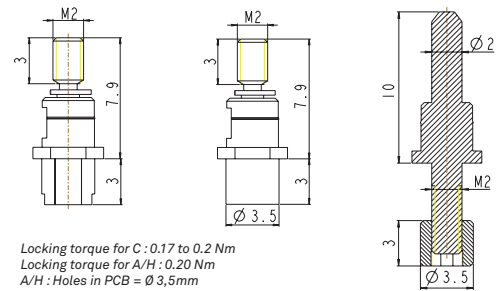
Locking torque for P/Q/Y: 0.17 to 0.20 Nm

P/Q

Y

YR

USUAL GUIDES / For female connectors



Locking torque for C: 0.17 to 0.2 Nm
Locking torque for A/H: 0.20 Nm
A/H: Holes in PCB = \varnothing 3,5mm

A

H

C



FOR RF OR HIGH POWER CONTACTS SEE CONTACTS SECTION (PAGE 76)



FOR OTHER GUIDES SEE TECHNICAL INDEX (PAGE 101)



HIGH FREQUENCY & HIGH POWER CONTACTS

INTRODUCTION

High frequency contacts :

- 6 GHz coaxial performance
- 50 Ω impedance

High power contacts :

- Current rating up to 45 Amps



STRAIGHT

RIGHT ANGLE

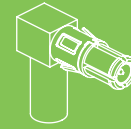
RF Crimping



Male : 10, 11, 12



Female : 15, 16, 17



Male : 20, 21, 22



Female : 25, 26, 27

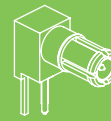
RF PCB soldering



Male : 30, 31



Female : 35, 36



Male : 40, 41



Female : 50, 51

Power Crimping



Male : 90, 110



Female : 55, 115

Power Wire soldering



Male : 60, 61, 62, 63, 150

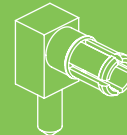


Female : 65, 66, 67, 68, 155

Power PCB soldering



Female : 75, 76, 165, 167



Male : 80, 81, 170, 171



Female : 86, 87, 175, 176

Power SMT PCB soldering



Male : 140



Female : 85, 135



Male : 95, 145

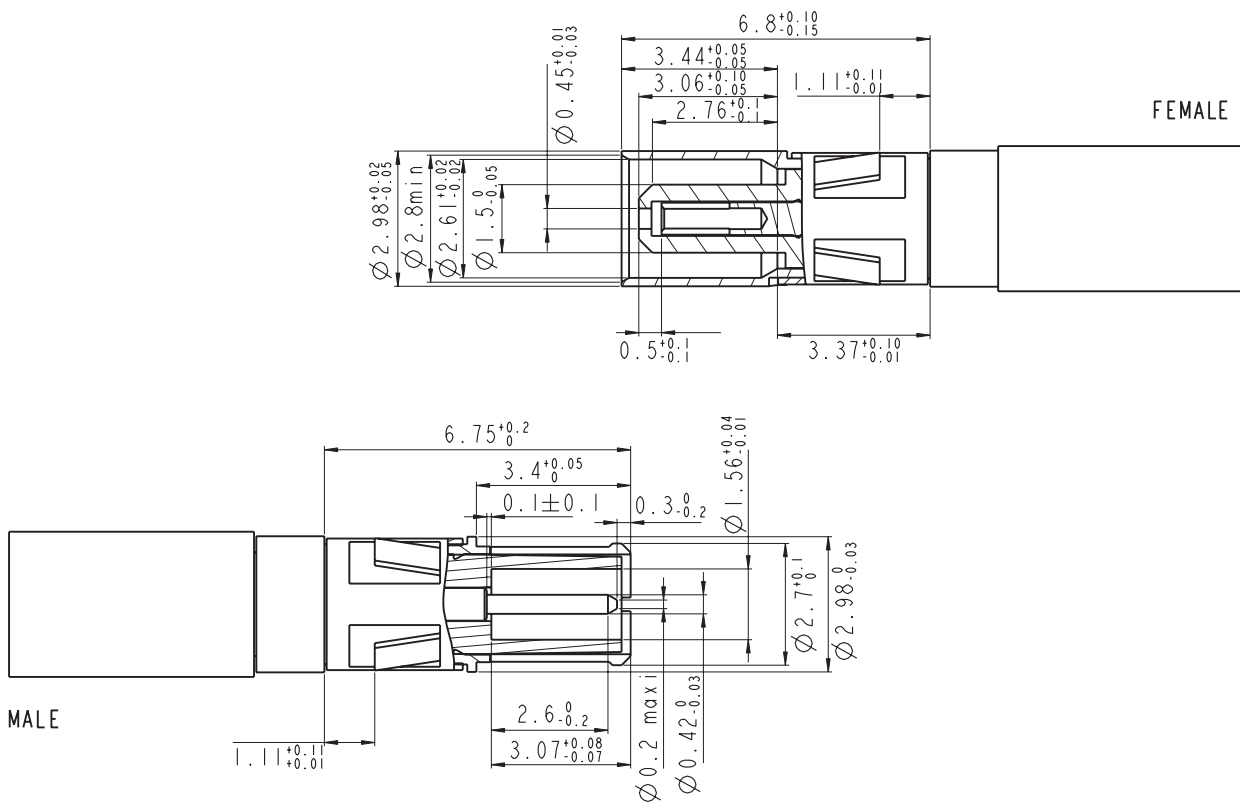
CONTACTS

An Introduction to the High Frequency and High Power Contacts

Special contacts RF and power have been designed to be inserted in mixed-layout connectors from 220 and 320 series.

They are available in wire or PCB terminations (through hole or SMT).

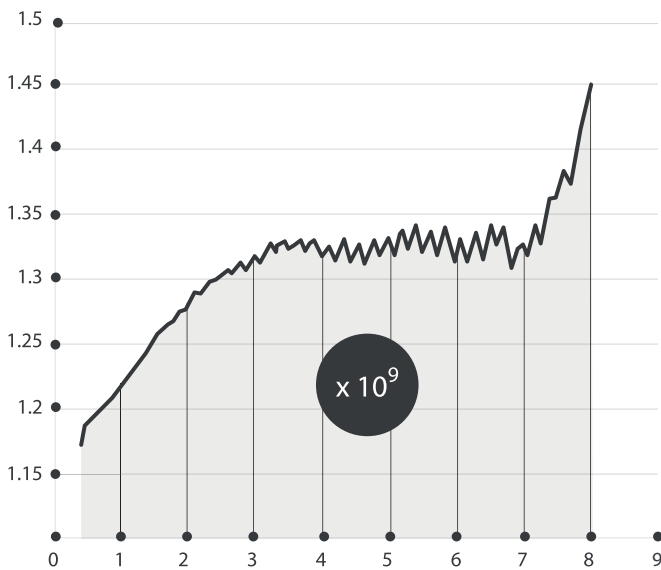
Interchangeability of high frequency contacts



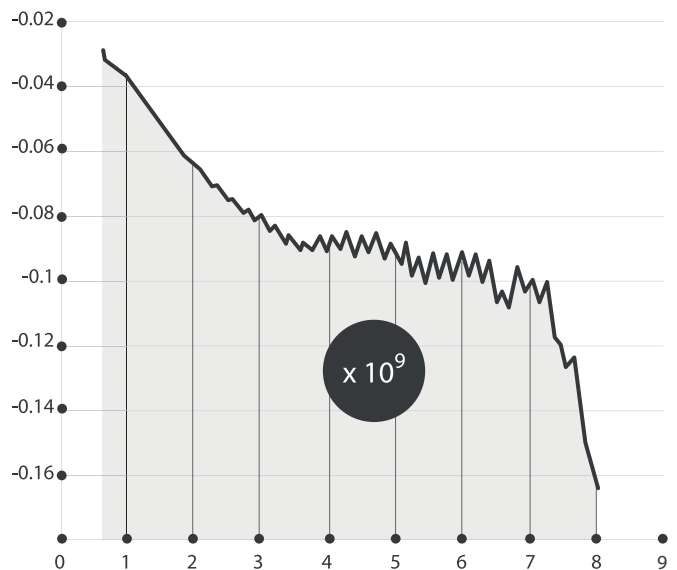
CONTACTS

High Frequency's Technical characteristics

V.S.W.R. (Voltage Stationary Ware Rate)



Insertion loss (dB)



Materials

Spring loaded parts :	Gold plated beryllium copper
Other metallic parts :	Copper alloy, Gold plated
Insulator :	PTFE
Retaining clip :	Nickel plated beryllium copper

Electrical

Frequency range :	6 GHz (depending on cable)
Impedance :	50 Ω
V.S.W.R. :	< 1.25
Operating voltage (sea level) :	180 V a.c. at 500 mA
Maximum voltage (sea level) :	1000 Vrms
Contact resistance :	< 6 mΩ max
Insulation resistance :	106 MΩ at 250 Vrms

Mechanical

Endurance :	500 cycles
Insertion force :	5 N max 0.6 N min
Withdrawal force :	2 N max 0.5 N min
Overlapping :	1.30 nm min
Contact replacement in connector :	5 times
Mating :	Slider

Environmental

Operating temperature :	-55° C to +125° C
Salt spray test :	96 hrs
Humidity test :	56 days
Terminations :	Coaxial solder pins Ø or □ for PCB holes Ø 0.6 mm min (vertical) and Ø 0,5 mm min (horizontal)

CONTACTS

High Power's Technical characteristics

Materials

Spring loaded parts :	Gold plated beryllium copper
Other metallic parts :	Copper alloy, Gold plated
Retaining clip :	Nickel plated beryllium copper

Mechanical

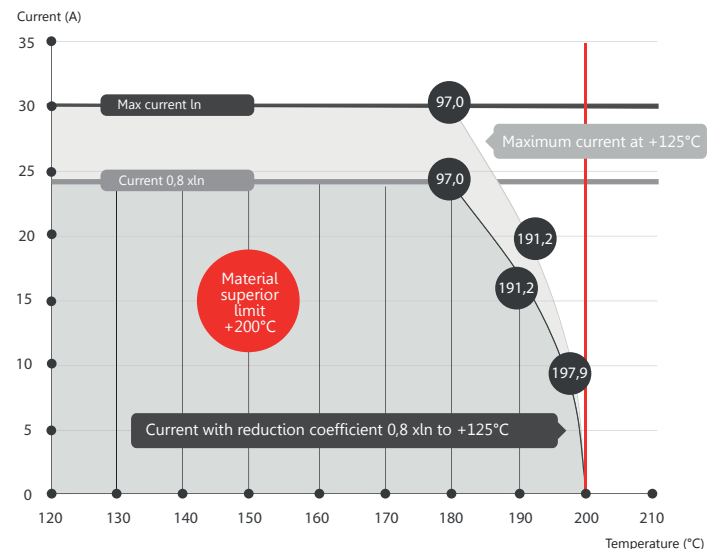
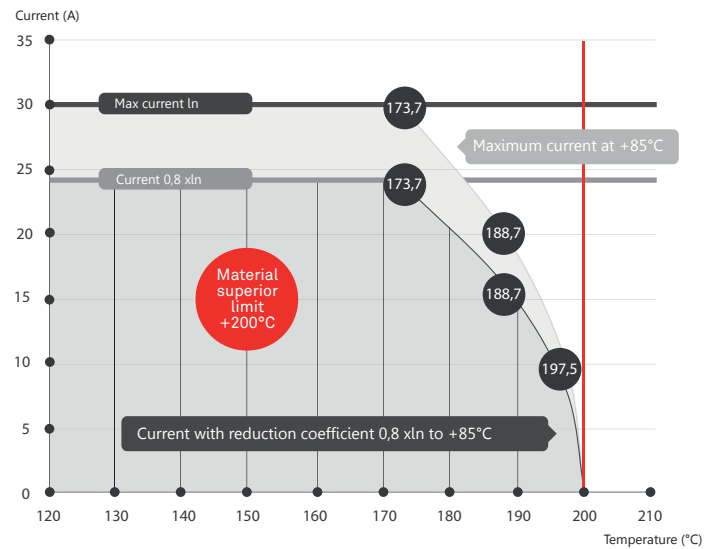
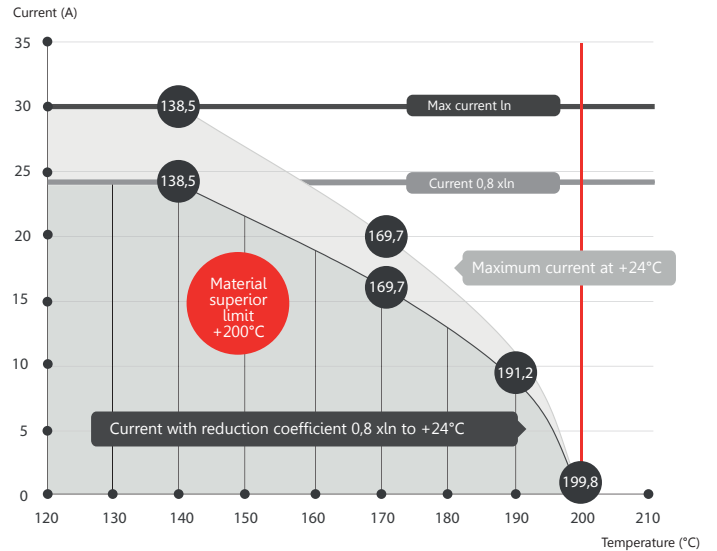
Endurance :	500 cycles
Insertion force :	5 N max 0.6 N min
Withdrawal force :	2N max 0.5 N min
Overlapping :	1.30 nm min
Contact replacement in connector :	5 times
Mating :	Slider

Electrical

Operating voltage (sea level) :	180 V a.c. at 500 mA
Maximum voltage (sea level) :	1000 Vrms
Contact resistance :	< 6 mΩ max
Insulation resistance :	106 MΩ at 250 Vrms

Environmental

Operating temperature :	-55° C to +125° C
Salt spray test :	96 hrs
Humidity test :	56 days
Terminations :	Power solder pins Ø 1.5mm for PCB holes Ø 1.6 mm min



CONTACTS

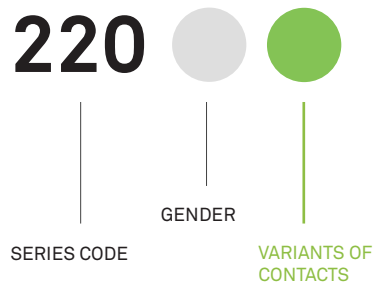
Crimping RF contacts



- 1 6 GHz coaxial performance
- 2 50 Ω impedance
- 3 Available for 220 or 320 series
- 4 Removable contact with CuBe clip



HOW TO ORDER / CONTACT ONLY



(Can be inserted in 220 or 320 series connectors)

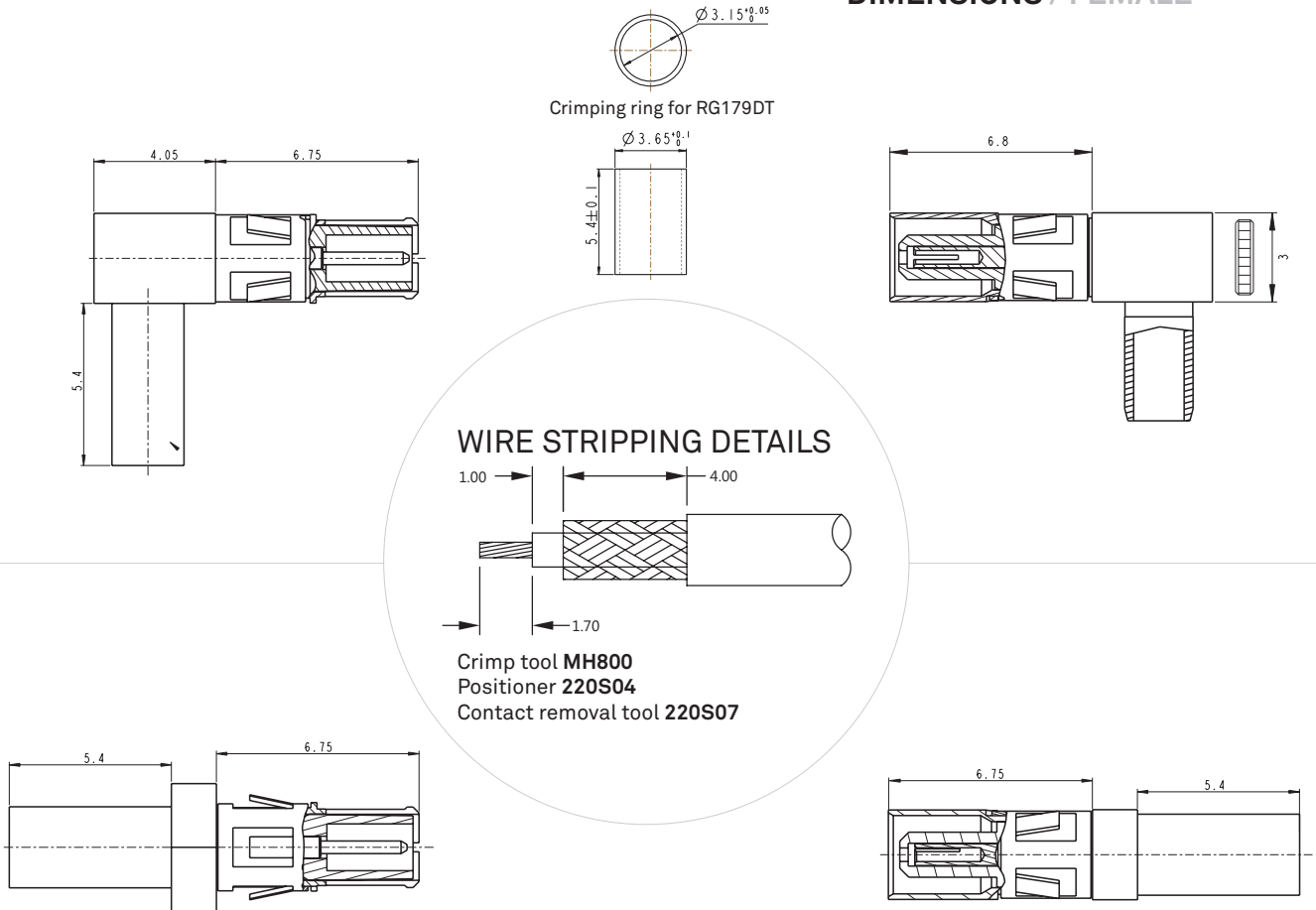
GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

VARIANT OF RF CONTACTS
Straight male/10, 11, 12
Right angle male/20, 21, 22
Straight female/15, 16, 17
Right angle female/25, 26, 27

DIMENSIONS / MALE

DIMENSIONS / FEMALE



Part code / male & female sizes

WIRE Ø	MALE		FEMALE	
	STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE
2 max.	10	20	15	25
2,4 max	11	21	16	26
2,7 max	12	22	17	27



FOR CRIMPING SPECIFICATION (PAGE 108)



FOR MIXED CONNECTORS EXAMPLES SEE (PAGES 54-55 & 74-75)



FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

CONTACTS

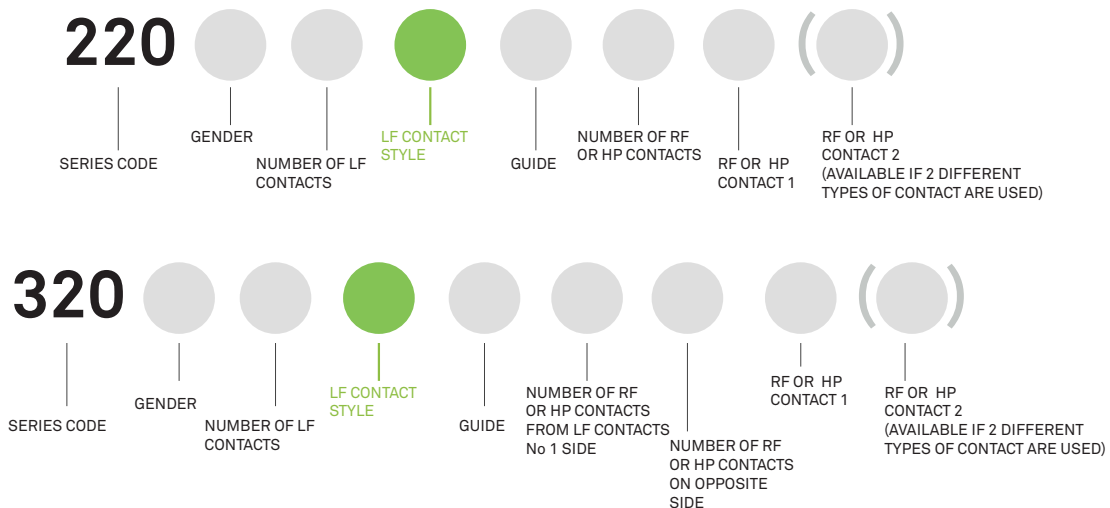
PCB RF contacts



- 1 6 GHz coaxial performance
- 2 50 Ω impedance
- 3 Available for 220 or 320 series



HOW TO ORDER / ASSEMBLED / CONTACT NOT AVAILABLE SEPARATELY



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
00/no LF contacts
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (pages 96 to 103).

ATI ELECTRONIQUE

VARIANT OF RF CONTACTS
Straight male/30, 31
Right angle male/40, 41
Straight female/35, 36
Right angle female/50, 51

LF CONTACT STYLE
00/no LF contacts

- Y1, Y3, V1, V3
- Y5, Y6, Y7, Y8, Y9
- V5, V6, V7, V8, V9

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS
For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

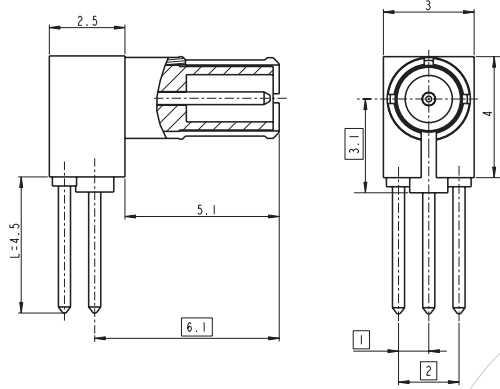
For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :

- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

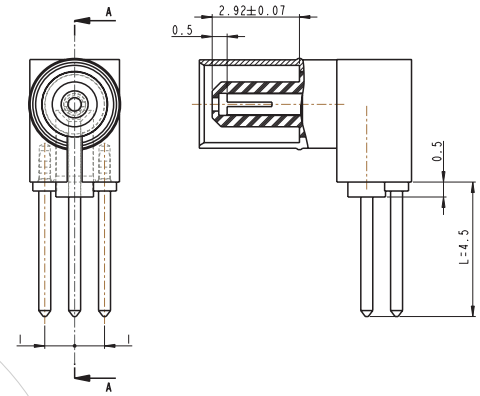
RF/HP CONTACT 1
Type of high frequency or high power contact

RF/HP CONTACT 2
Available if a second type of contact is used

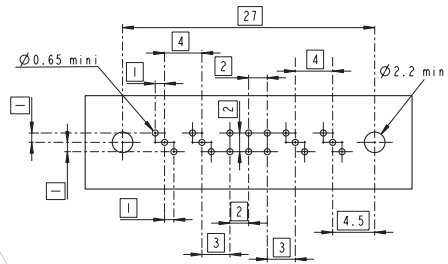
DIMENSIONS / MALE



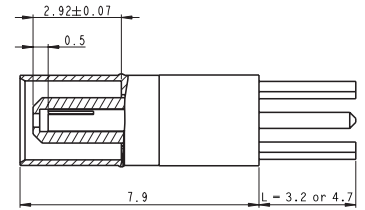
DIMENSIONS / FEMALE



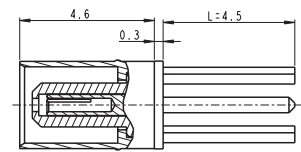
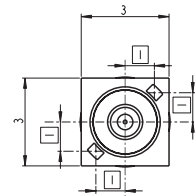
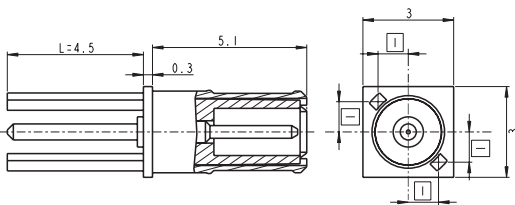
PCB LAYOUT



Side of coding key



320 series



220 series

Part code / male & female sizes

Can be inserted in 220 or 320 series connectors

LENGTH	MALE		FEMALE	
	STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE
3.0 mm	30	40	35	50
4.5 mm	31	41	36	51



FOR CRIMPING SPECIFICATION (PAGE 108)



FOR MIXED CONNECTORS EXAMPLES SEE (PAGES 46 to 49 & 70 to 73)



FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

CONTACTS

High power wire soldering contacts



- 1 Current rating up to 30A
- 2 Wire AWG12 to AWG18
- 3 Removable contact with CuBe clip
- 4 Available for 220 or 320 series



HOW TO ORDER / CONTACT ONLY



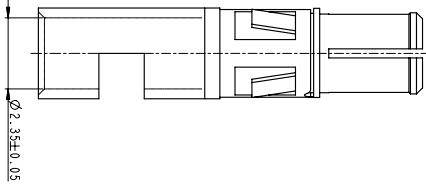
(Can be inserted in 220 or 320 series connectors)

GLOSSARY / HOW TO ORDER

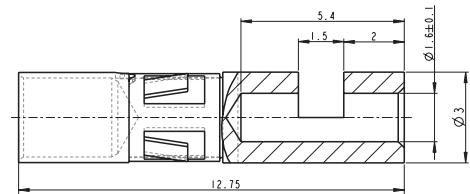
GENDER
F/Female
M/Male

VARIANT OF HIGH POWER CONTACTS
Straight male/60, 61, 62, 63, 150
Straight female/65, 66, 67, 68, 155

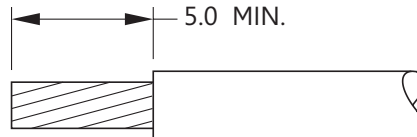
DIMENSIONS / MALE



DIMENSIONS / FEMALE



WIRE STRIPPING DETAILS



Contact removal tool **220S07**

Part code / male & female sizes

WIRE Ø	MALE		FEMALE	
	STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE
Wire AWG 12 Ø 2,3 - 20A	60	-	65	-
Wire AWG 14 Ø 2 - 15A	61	-	66	-
Wire AWG 16 Ø 1,5 - 10A	62	-	67	-
Wire AWG 18 Ø 1,3 - 5A	63	-	68	-
Wire AWG 12 Ø 2,3 - 30A	150	-	155	-



FOR CRIMPING SPECIFICATION (PAGE 108)



FOR MIXED CONNECTORS EXAMPLES SEE (PAGES 54-55 & 74-75)



FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

CONTACTS

High power PCB soldering contacts



- 1 Current rating up to 30A
- 2 Available for 220 or 320 series

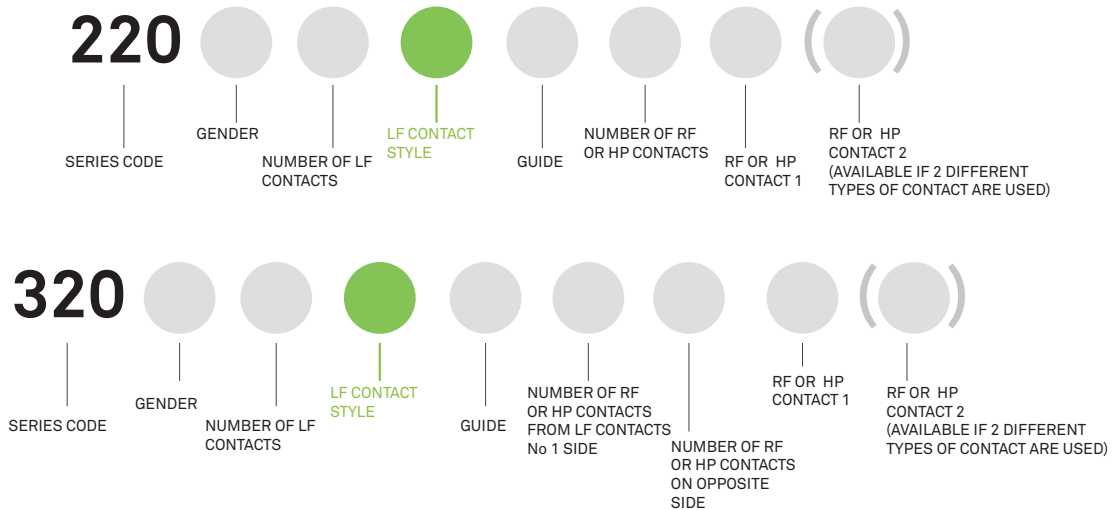
male



female



HOW TO ORDER / ASSEMBLED / CONTACT NOT AVAILABLE SEPARATELY



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
00/no LF contacts
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (pages 96 to 103).

VARIANT OF HP CONTACTS
Straight male/70, 71
Right angle male/80, 81, 170, 171
Straight female/75, 76, 165, 166
Right angle male/85, 86, 175, 176

- LF CONTACT STYLE**
00/no LF contacts
- Y1, Y3, V1, V3
 - Y5, Y6, Y7, Y8, Y9
 - V5, V6, V7, V8, V9

RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS
For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

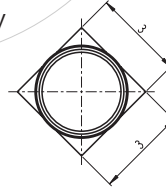
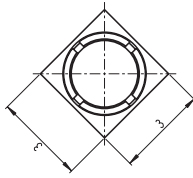
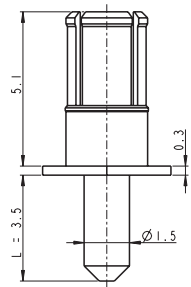
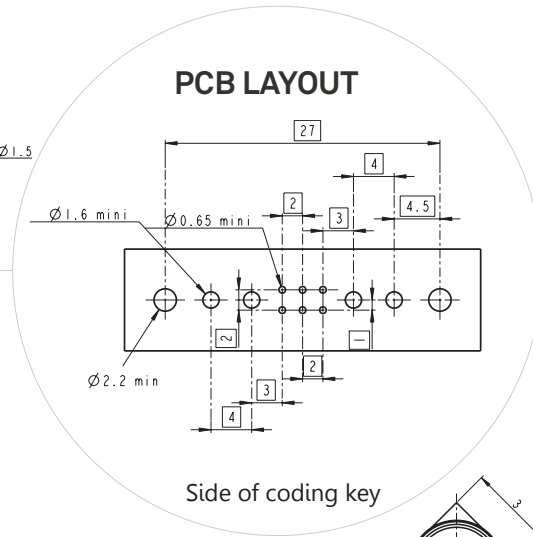
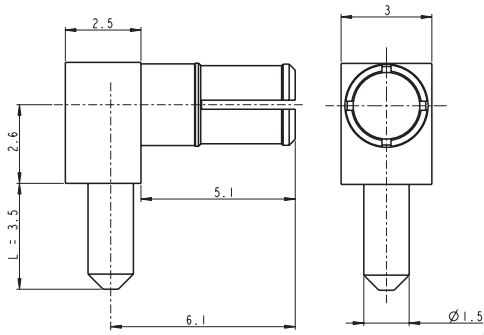
For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :

- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

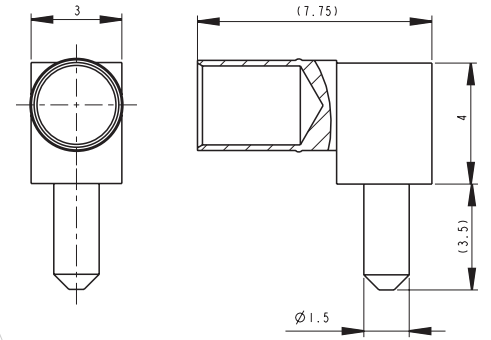
RF/HP CONTACT 1
Type of high frequency or high power contact

RF/HP CONTACT 2
Available if a second type of contact is used

DIMENSIONS / MALE

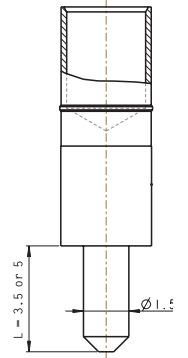
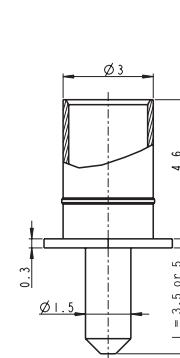


DIMENSIONS / FEMALE



220 series

320 series



Part code / male & female sizes

Can be inserted in 220 or 320 series connectors

LENGTH	MALE		FEMALE	
	STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE
3.5 mm 20A	70	80	75	86
5.0 mm 20A	71	81	76	87
3.5 mm 30A	-	170	-	-
5.0 mm 30A	-	171	-	-
3.5 mm 45A	-	-	165	175
5.0 mm 45A	-	-	166	176



FOR CRIMPING SPECIFICATION (PAGE 108)



FOR MIXED CONNECTORS EXAMPLES SEE (PAGES 46 to 49 & 70 to 73)



FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

CONTACTS

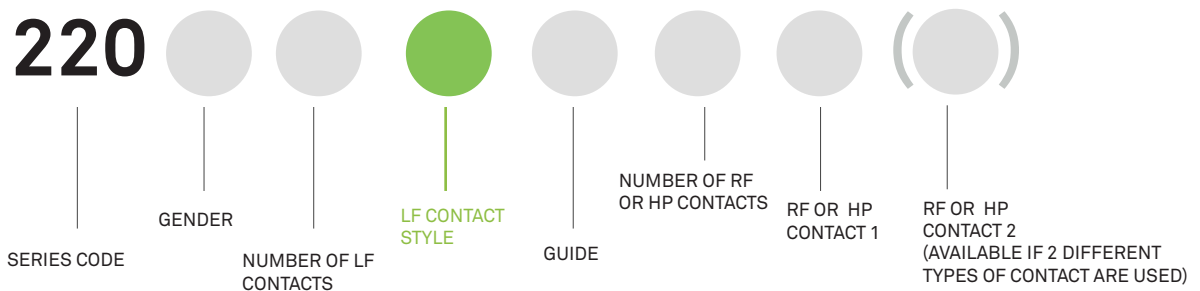
High power SMT contacts



1 25A max. current rating



HOW TO ORDER / ASSEMBLED / CONTACT NOT AVAILABLE SEPARATELY



GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

NUMBER OF LF CONTACTS
00/no LF contacts
04 to 50

GUIDES
Short list on the opposite page
Complete list, see technical index (pages 96 to 103).

VARIANT OF HP CONTACTS
Straight male/140
Right angle male/95, 145
Straight female/85, 135

LF CONTACT STYLE
00/no LF contacts
● R1, R3
● R7, R9

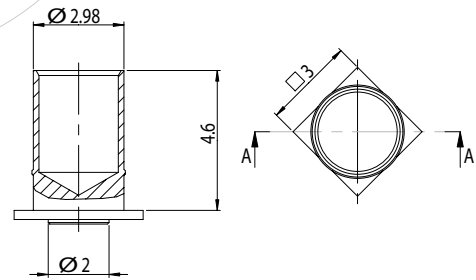
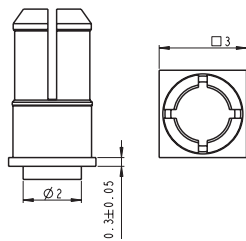
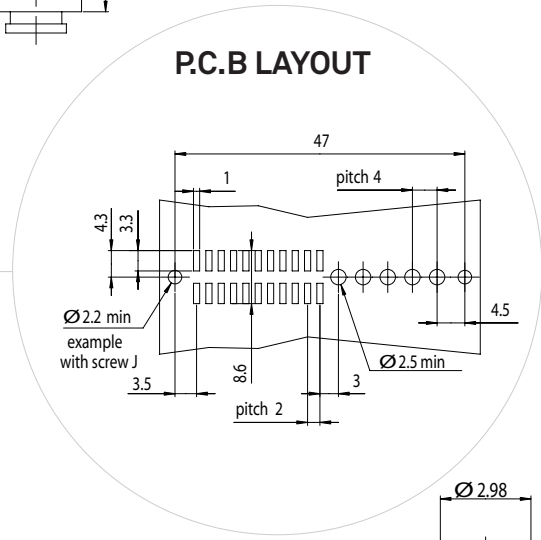
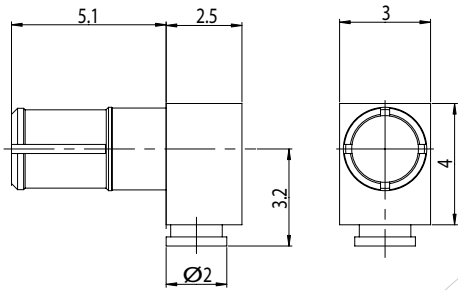
RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS
For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :
- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

RF/HP CONTACT 1
Type of high frequency or high power contact

RF/HP CONTACT 2
Available if a second type of contact is used



Part code / male & female sizes

Only for 220 series

	MALE		FEMALE	
	STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE
15A	140	95	85	-
25A	-	145	135	-



FOR CRIMPING SPECIFICATION (PAGE 108)



FOR MIXED CONNECTORS EXAMPLES SEE (PAGES 50 to 53)



FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

CONTACTS

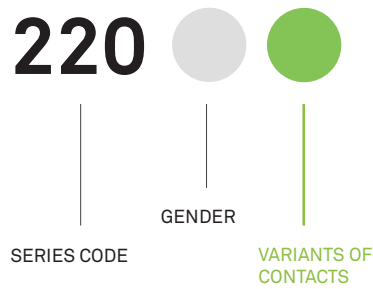
High power crimping contacts



- 1 Current rating up to 45A
- 2 Wire AWG10 to AWG20
- 3 Available for 220 or 320 series



HOW TO ORDER / CONTACT ONLY



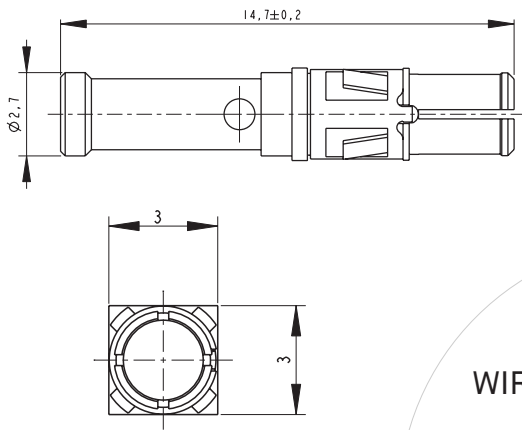
(Can be inserted in 220 or 320 series connectors)

GLOSSARY / HOW TO ORDER

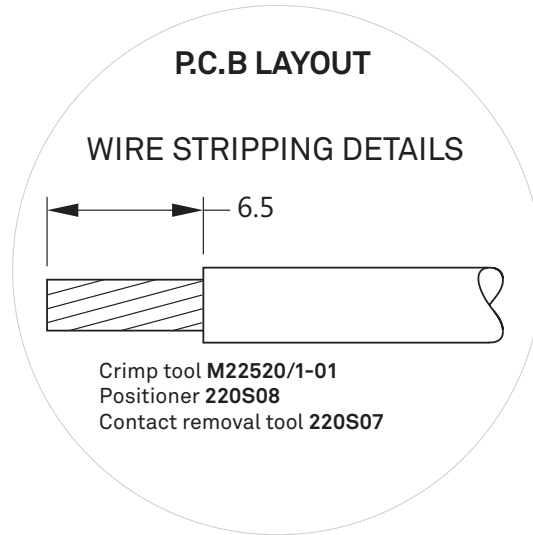
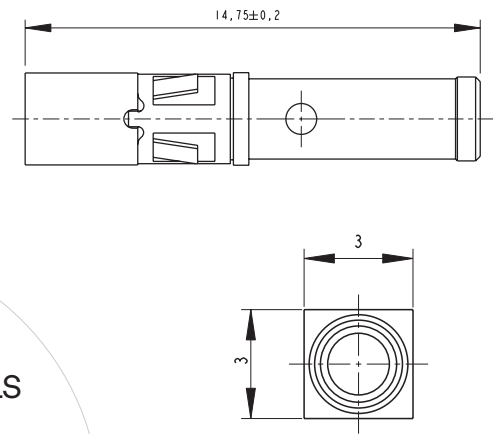
GENDER
F/Female
M/Male

VARIANT OF HP CONTACTS
Straight male/90, 110, 120, 121
Straight female/55, 115, 125

DIMENSIONS / MALE



DIMENSIONS / FEMALE



Part code / male & female sizes

WIRE	MALE		FEMALE	
	STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE
Wire AWG 16 to 20 15A	90	-	55	-
Wire AWG 12 20A	110	-	115	-
Wire AWG 10 * 45A	120	-	-	-
Wire AWG 12 30A	121	-	125	-

* AWG 10 contacts cannot be placed next to one another, an empty cavity will have to be kept on each side of this type of contact.



FOR CRIMPING SPECIFICATION (PAGE 108)



FOR MIXED CONNECTORS EXAMPLES SEE (PAGES 54-55 & 74-75)



FOR TOOLS SEE TECHNICAL INDEX (PAGE 109)

TECHNICAL INDEX CONTENTS

GUIDES FOR 220 SERIES

Straight mounting / Male connectors
Right angle mounting / Male connectors
Inverted guides styles
straight mounting / Male connectors

Straight mounting / Female connectors
Right angle mounting / Female connectors
Hood mounting / Female connectors
Inverted guide styles
straight mounting / Female connectors

PAGES 96 to 100

GUIDES FOR 320 SERIES

Straight mounting / Male connectors
Right angle mounting / Male connectors

Right angle mounting / Female connectors
Straight mounting / Female connectors

PAGES 101 to 103

HOODS FOR 220 SERIES

Feature & benefits
References (examples) & Dimensions
How to order

PAGES 104, 105

SEALS FOR 220 SERIES

Feature & benefits
References (examples) & Dimensions
How to order

PAGES 106, 107

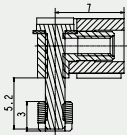
WIRES

PAGE 108

TOOLING

Tooling for LF contacts
Tooling for RF contacts : central contact
Tooling for RF contacts : shielding
Tooling for power contacts

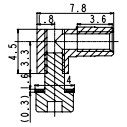
PAGES 109, 110



U

3.2

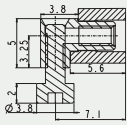
R1,R7
V3,V9



W

0.4 to 1.6

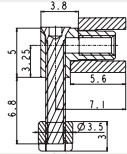
R1,R7
V1,V5,V7



UM

1.6 to 3.2

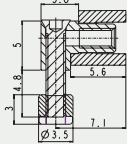
R1,R7
V1,V5,V7



UN

4.8 max

R1,R7
V3,V9



UP

2.5

R1,R7
V3,V9

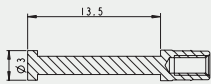
FOR 220 SERIES MALE CONNECTORS

INVERTED GUIDE STYLES
STRAIGHT MOUNTING

REFERENCE

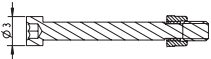
PCB THICKNESS

TERMINAISONS



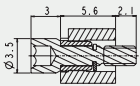
M

C1,D1



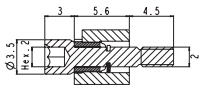
MR

C1,D1



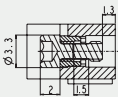
YN

C1,D1
R3,R9
Y1,Y5,Y7,Y3,Y9
PF1,PF2



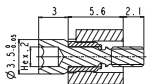
YP

C1,D1
R3,R9
Y1,Y5,Y7,Y3,Y9



YR

C1,D1
R3,R9
Y1,Y5,Y7,Y3,Y9



YS

C1,D1
R3,R9
Y1,Y5,Y7,Y3,Y9

FOR 220 SERIES FEMALE CONNECTORS

STRAIGHT MOUNTING

REFERENCE

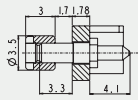
PCB THICKNESS

TERMINAISONS



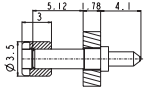
A

C1,D1
R3,R9
Y1,Y5,Y7,Y3,Y9
PF1,PF2



B

R3, R9
Y1, Y5, Y7, Y3, Y9



C

R3, R9
Y1, Y5, Y7, Y3, Y9



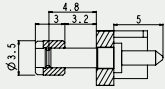
E

C1, D1
R3, R9
Y1, Y5, Y7, Y3, Y9
PF1, PF2



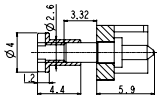
H

C1, D1
R3, R9
Y1, Y5, Y7, Y3, Y9
PF1, PF2



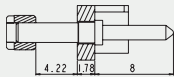
J

R3, R9
Y3, Y9
PF1, PF2



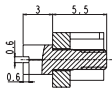
K

R3, R9
Y3, Y9
PF1, PF2



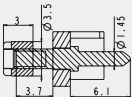
X

R3, R9
Y3, Y9
PF1, PF2



AP

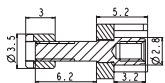
C1, D1
R3, R9
Y1, Y5, Y7, Y3, Y9
PF1, PF2



BX

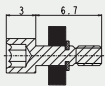
1.6 to 2.4

R3, R9
Y1, Y5, Y7,
PF1, PF2



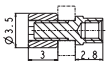
CR

R3, R9
Y3, Y9
PF1, PF2



HE

C1, D1
R3, R9
Y1, Y5, Y7, Y3, Y9
PF1, PF2



HR

R3, R9
Y1, Y5, Y7
PF1, PF2

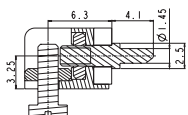
FOR 220 SERIES FEMALE CONNECTORS

RIGT ANGLE MOUNTING

REFERENCE

PCB THICKNESS

TERMINAISONS



F

1.6 to 2.4

R1, R7
V1, V5, V7

Guides for female connectors 220 series

Guides for male connectors 220 series

	M	N	P	Q	R	S	U	W	Y	Z	MR	PL	PX	QL	UN	UM	UP	YN	YP	YR	YS	
A	◆		◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆					
B	●		●	●	●	●	●	●	●	●		●	●	●	●	●	●					
C	●		●	●	●	●	●	●	●	●		●	●	●	●	●	●					
E	◆		◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆					
F	●		●	●	●	●	●	●	●	●		●	●	●	●	●	●					
G	◆		◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆					
H	◆		◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆					
J	●		●	●	●	●	●	●	●	●		●	●	●	●	●	●					
K	●		●	●	●	●	●	●	●	●		●	●	●	●	●	●					
L	◆		◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆					
X		●							●													
AP	◆		◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆		◆					
BN																		◆				◆
BR											◆										◆	
BX		●							●				●									
CC																		◆				◆
CN																		◆				◆
CR											◆											
DR											◆											
DN																		◆	◆			
FM	●		●	●	●	●	●	●	●	●			●	●	●		●					
FR											◆										◆	
GM	◆		◆	◆	◆	◆	◆	◆	◆	◆			◆	◆	◆		◆					
GN	◆		◆	◆	◆	◆	◆	◆	◆	◆			◆	◆	◆		◆					
GP																			◆			
GR											◆										◆	
GS	◆		◆	◆	◆	◆	◆	◆	◆	◆			◆	◆	◆		◆					
HE	◆		◆	◆	◆	◆	◆	◆	◆	◆			◆	◆	◆		◆					
HR											◆										◆	

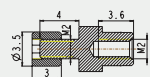
- ◆ Lockable hardware
- Unlockable hardware

GUIDES

FOR 320 SERIES

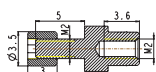
FOR 320 SERIES MALE CONNECTORS

STRAIGHT MOUNTING REFERENCE PCB THICKNESS TERMINAISONS



P

C1,D1
Y1,Y5,Y7,Y3,Y9



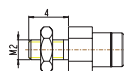
Q

C1,D1
Y1,Y5,Y7,Y3,Y9



Y

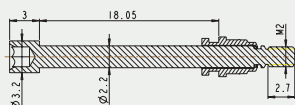
C1,D1
Y1,Y5,Y7,Y3,Y9



PZ

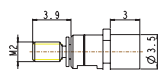
4 to 5.6

C1,D1
Y1,Y5,Y7,Y3,Y9



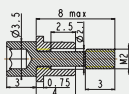
MR

C1,D1



YR

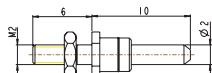
C1,D1



YA

1.2

C1,D1

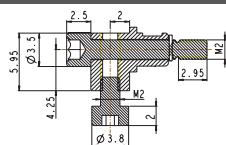


CMZ

C1,D1
Y1,Y5,Y7,Y3,Y9

FOR 320 SERIES MALE CONNECTORS

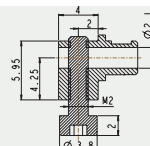
RIGHT ANGLE MOUNTING REFERENCE PCB THICKNESS TERMINAISONS



GN

1.6

V1,V5,V7,V3,V9



R

V1,V5,V7,V3,V9

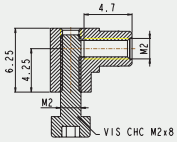
FOR 320 SERIES FEMALE CONNECTORS

RIGHT ANGLE MOUNTING

REFERENCE

PCB THICKNESS

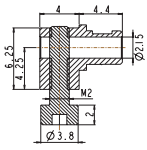
TERMINAISONS



SNF

1.6

V1,V5,V7,V3,V9



NF

1.6

V1,V5,V7,V3,V9

Guides for male connectors 320 series

Guides for female connectors 320 series

	P	Q	Y	PZ	MR	YR	YA	CMZ	GN	R	S	SN	N
A	◆	◆	◆	◆						●	◆	◆	●
H	◆	◆	◆	◆						●	◆	◆	●
C													●
QF					◆	◆	◆	●	◆				
QL					◆	◆	◆	●	◆				
QR					◆	◆	◆	●	◆				
HA	◆	◆	◆	◆							◆		◆
HR					◆	◆	◆	●	◆				
PFZ					◆	◆	◆	●	◆				
CZ													●
SNF					◆	◆	◆	●	◆				
NF						●	●	●	●				

- ◆ Lockable hardware
- Unlockable hardware

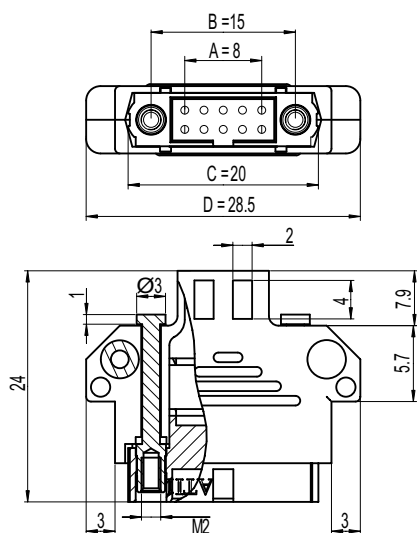
HOODS FOR 220 SERIES

Features & Benefits

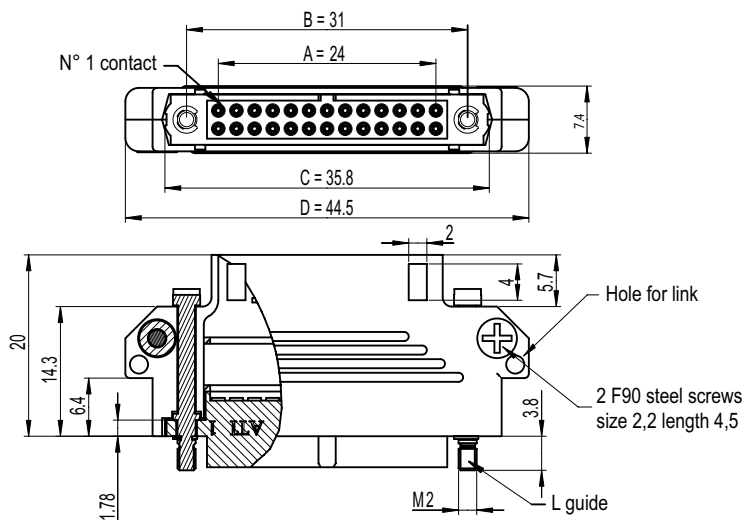
- 1 Thermoplastic UL V0
- 2 Unique hood for male and female connectors
- 3 A cable tie can be inserted to reduce pull strain
- 4 9 sizes available
- 5 Hole to attach the cover
- 6 Supplied as a complete kit, including hood, screws












References (examples) & Dimensions



ref. 220 M 10 C1 M



ref. 220 F 26 C1 L

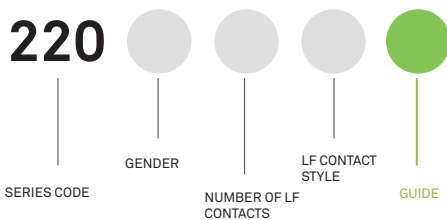
	HOOD REFERENCE	NUMBER OF CONTACTS	LENGTH A	LENGTH B	LENGTH C (0/±0.3)	LENGTH D (0/±0.3)
	220 K 06	6	4	11	15.5	24.5
	220 K 10	10	8	15	19.8	28.5
	220 K 12	12	10	17	21.8	30.5
	220 K 14	14	12	19	23.8	32.5
	220 K 20	20	18	25	29.8	38.5
	220 K 26	26	24	31	35.8	44.5
	220 K 34	34	32	39	43.8	52.6
	220 K 42	42	40	47	51.8	60.8
	220 K 50	50	48	55	59.8	68.6

HOW TO ORDER (Male or Female Hood)

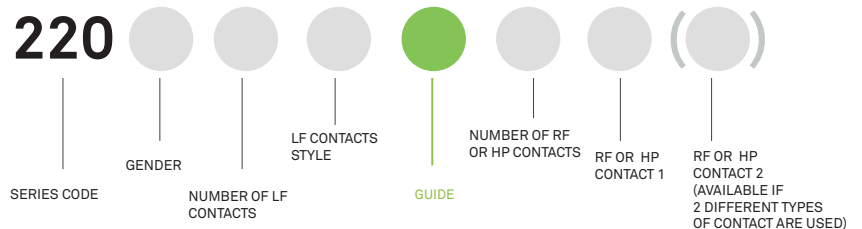
Hoods are also available for mixed-layout version : please check the length B on page 32.



ONLY HOOD - Guides not included



Connector with LF contacts, see pages 40-41



Connector with LF and/or RF/HP contacts, see pages 48-50

GLOSSARY / HOW TO ORDER

GENDER
F/Female
M/Male

LF CONTACT STYLE
● C1/Small bore/Gold
● D1/Large bore/Gold

NUMBER OF LF CONTACTS
04 to 50

GUIDES
M/for male connector
L/for female connector

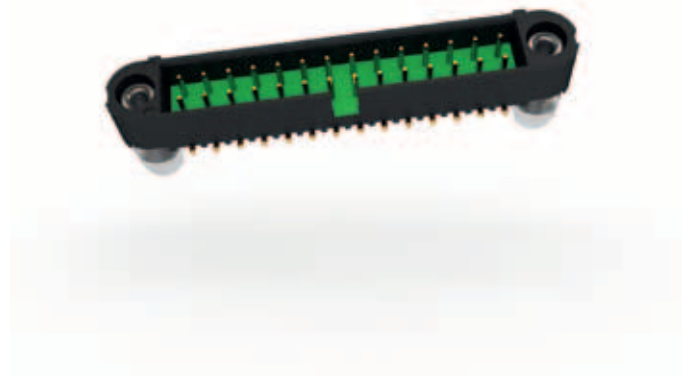
RoHS RULES (w/ lead) :
● No RoHS (with lead)
● RoHS (without lead)

SEALS

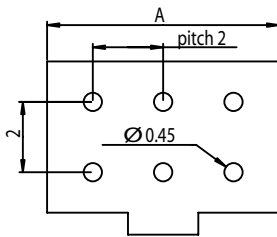
FOR 220 SERIES

Features & Benefits

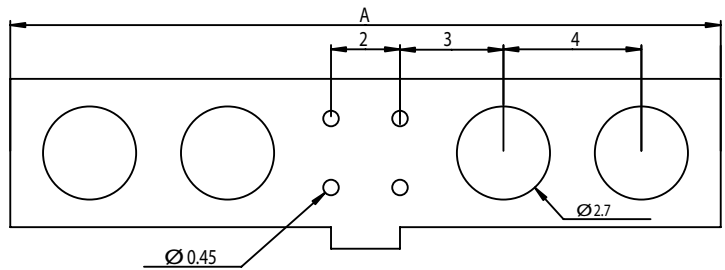
- 1 Material : Viton 70 (Copolymer of hexa-fluorpropylene and Vinylidene fluoride with 66 % fluor)
- 2 Seal level : IP 68
- 3 Test according to CEI 529/
NF EN 60529
- 4 Temperature range : -20° C/+125° C
- 5 Reflow temperature : 250° C during 30 s



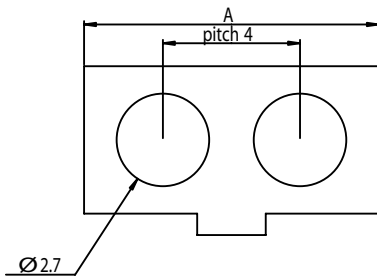
References



ref. 220 J 06 00



ref. 220 J 04 02

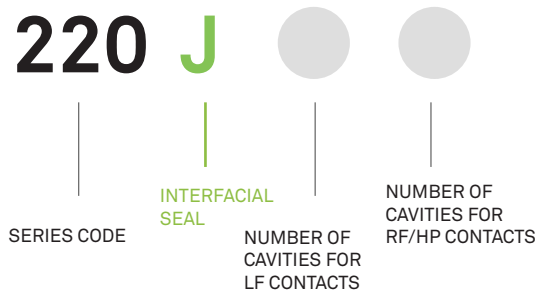


ref. 220 J 00 02

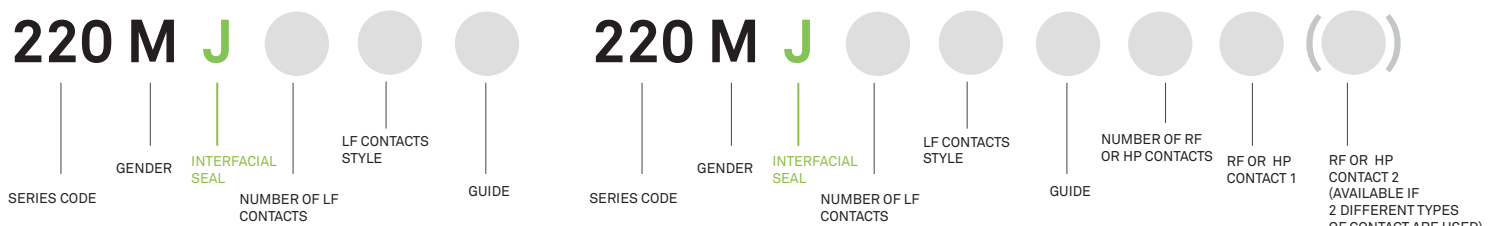
LF SEAL REFERENCE	NB OF CAVITIES FOR LF CONTACTS	RF/HP CONTACT SEAL REFERENCE	NB OF CAVITIES FOR RF/HP CONTACTS
220 J 06 00	6	220 J 00 02	2
220 J 10 00	10	220 J 00 03	3
220 J 20 00	20	220 J 00 04	4
220 J 26 00	26	220 J 00 05	5
220 J 34 00	34	220 J 00 06	6
220 J 42 00	42	220 J 00 07	7
220 J 50 00	50	220 J 00 08	8
		220 J 00 09	9
		220 J 00 10	10
		220 J 00 11	11
		220 J 00 12	12

HOW TO ORDER (male interface sealing)

Seal part number for male connector with LF and HP/RF contacts



Interfacial seals can be ordered separately but it is recommended to order the connector already equipped with the seal



Male connector with only LF contacts - Interfacial sealing included

Male connector with LF and/or special contacts - Interfacial sealing included

GLOSSARY / HOW TO ORDER

GENDER
M/Male

NUMBER OF LF CONTACTS
04 to 50

GUIDES
Complete list, see technical index (page 96).

LF CONTACT STYLE

- Y1-Y3/Straight on PCB
- V1-V3/Right angle on PCB
- Y7-Y9/Straight on PCB
- V7-V9/Right angle on PCB
- R1-R7 and R3-R9/SMT
- C1-D1/Crimp for wire

RoHS RULES (w/ lead) :

- No RoHS (with lead)
- RoHS (without lead)

NUMBER OF RF OR HIGH POWER CONTACTS
For RF/HP contacts only : 2 digits = number of cavities from 02 to 12

For mixed-layout : each digit = number of cavities on each side of the LF contacts (shown looking on mating face) :

- 1st digit (0 to 9) = right side for male, left side for female
- 2nd digit (0 to 9) = left side for male, right side for female

RF/HP CONTACT STYLE
RF/10 to 41
HP/60 to 115

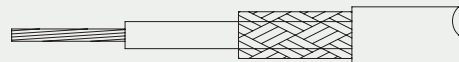
RF/HP CONTACT 1
Type of high frequency or high power contact

RF/HP CONTACT 2
Available if a second type of contact is used

WIRES

References

Ohm



MIL C 17 E	NF C93-550	Others
RG 178 B/U	KX 21 A	•
RG 316 U	KX 22 A	•
RG 174 A/U	KX 3	•
RG 179	•	•
•	•	•
•	•	•
•	•	•

Ω
50
50
50
75
PTFE cellulary
GORE CSS 1022 K
Alcatel 96 452

∅ mm	∅ mm	∅ mm	∅ mm
0.30	0.90	1.40	1.80
0.30	1.50	2	2.50/2.80
0.50	1.50	2.10	2.50/2.80
•	•	•	2.60
•	•	•	•
•	•	•	2.40
•	•	•	•

Crimping

Crimp RF contacts (p. 80-81)	A	B	C
220 M 10 or 20 - 220 F 15 or 25	0.35	1.1	2.75
220 M 11 or 21 - 220 F 16 or 26	0.35	1.1	2.75
220 M 12 or 22 - 220 F 17 or 27	0.55	1.7	2.75

A = Contact ∅ for the cable core
 B = Body ∅ for the cable dielectric
 C = Ferrule inside ∅

Crimping of conductor : adjusting position on crimping tool

- Position 1 : For wire ∅ ext. 2
- Position 2 : For wire ∅ ext. 2.4 or 2.7

TOOLING

Tooling for LF contacts



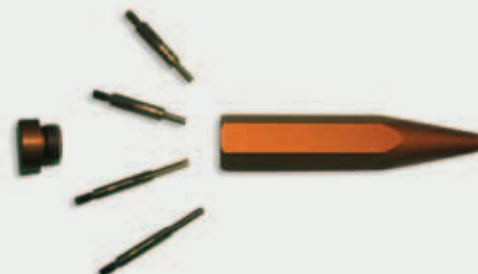
TYPE / HAND CRIMP TOOL
ORDER CODE / M22520/2-01
DESCRIPTION /

Standard circular crimp tool BS5210-3A-300 and MIL specification M22520/2-1.
 Position tool with ratchet mechanism and 8-indent form.
 Must be used with positioner MP6818.



TYPE / LOCATOR
ORDER CODE / MP6818
DESCRIPTION /

Used with hand crimp tool shown M22520/2-01.



TYPE / CONTACTS INSERTION/EXTRACTION TOOLS
ORDER CODE / 220S03
DESCRIPTION /

For inserting crimped contacts into the rear of mouldings.
 Suitable for all signal contacts.

Tooling for RF contacts : central contact



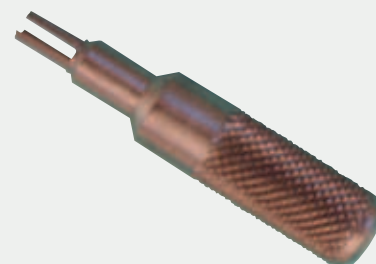
TYPE / HAND CRIMP TOOL
ORDER CODE / MH800
DESCRIPTION /

For central contact.
 Precision tool with ratchet mechanism and 8-indent form.
 Must be used with positioner 220S04.



TYPE / LOCATOR
ORDER CODE / 220S04
DESCRIPTION /

Used with hand crimp tool shown MH800.



TYPE / CONTACTS REMOVAL TOOL
ORDER CODE / 220S07
DESCRIPTION /

To aid removal of special cable contacts from connectors.

Tooling for RF contacts : shielding



TYPE / HAND CRIMP TOOL
ORDER CODE / 220S12
DESCRIPTION /

Hand crimptool with jaw rail slots 220S14.



TYPE / JAW RAIL SLOTS
ORDER CODE / 220S14
DESCRIPTION /

Jaw rail slots for hand crimp tool 220S12.

TOOLING

Tooling for power contacts



TYPE / HAND CRIMP TOOL

ORDER CODE / M22520/1-01

DESCRIPTION /

Precision tool with ratchet mechanism and 8-indent form.

Must be used with positioner 220S08.

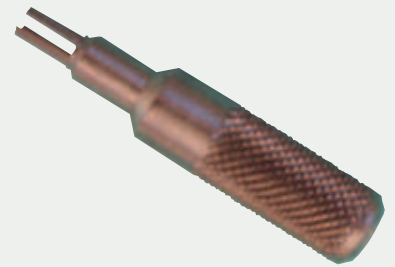


TYPE / LOCATOR

ORDER CODE / 220S08

DESCRIPTION /

Used with hand crimp tool M22520/1-01.



TYPE / CONTACTS REMOVAL TOOL

ORDER CODE / 220S07

DESCRIPTION /

To aid removal of special cable contacts from connectors.

ATI reserves the right to discontinue the manufacture or change specifications without prior notice, or any parts illustrated in this data sheet.

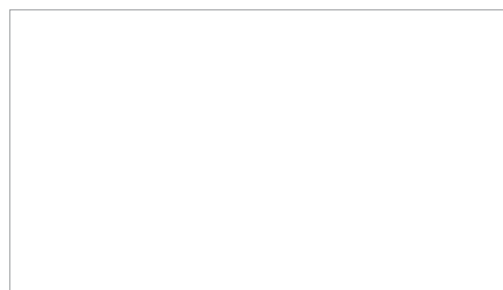
For more information, please take advice.

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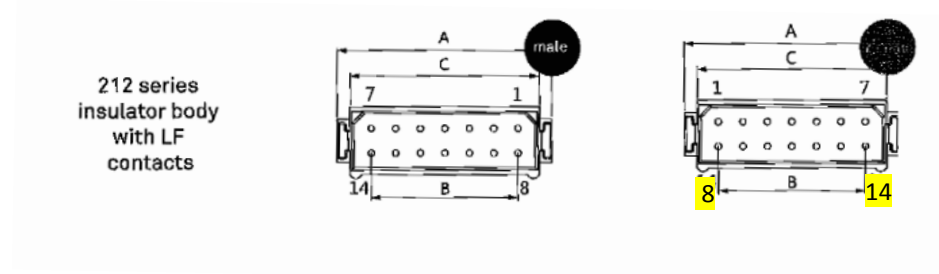




ERRATUM
« CONNECTORS 2MM SERIES » CATALOG

P. 16

Part “POLARISING AND SIZING FEATURES/SHOWN LOOKING ON MATING FACE” :



P. 27

Part “CONTACT/MALE” :

Read Code **B741 C06** (20 AWG) instead of B741 C21

Read Code **B741 C05** (22 AWG) instead of B741 C22

P. 30

Part “Mixed layout (examples)” :

At the end of 2nd row of connectors, read :

2 cavities

8 LF contacts

P. 31

Part “Terminations” :

Read **R3/R9** instead of R1

Read **R1/R7** instead of R3

p. 33

Part “GLOSSARY/HOW TO ORDER” :

“LF CONTACT STYLE”

● **R1-R3/SMT** (No RoHS)

● **R7-R9/SMT** (RoHS)

instead of ● R1-R7 and R3-R9/SMT

P. 37

Part “DIMENSIONS/FEMALE” :

Read **5.1** instead of 6.35

P. 38

The 3D drawing of the female connector is erroneous (2 polarization keys instead of 1)

P. 58

Part “Mixed layout (examples)” :

At the end of 3rd row of connectors, read : 1 cavity/**14** LF

At last row, read : 3 cavities/**108** contacts

P. 66

Part "GLOSSARY/HOW TO ORDER" :

Read USUAL GUIDES FOR **MALE** CONTACTS instead of USUAL GUIDES FOR FEMALE CONTACTS for following guides :

P/

Q/

Y/

P. 80-81

Part "Electrical" :

Insulation resistance = **$10^6 \Omega$** instead of 106 Ω

P. 97

Deletion of guide M :

The guide **M** is not an inverted straight guide for male connector. It is a male guide for male connector with hoods .

(See below p. 99)

P. 98

The guides **B** and **C** are valid also for contacts **C1/D1**

P. 99

Addition of :

"FOR 220 SERIES MALE CONNECTORS"

"Hood mounting"

Guide **M** (see p. 97)

P. 110

Addition of tooling **MP6816** :

Tooling for 210 series : LF contacts



TYPE/REMOVAL TOOL

ORDER CODE/MP6816

DESCRIPTION/

To aid removal of all size males connectors with latches.