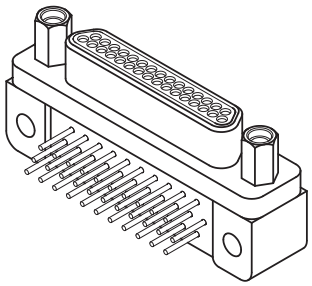
Right Angle Boardmount (Compressed Footprint)

.050"

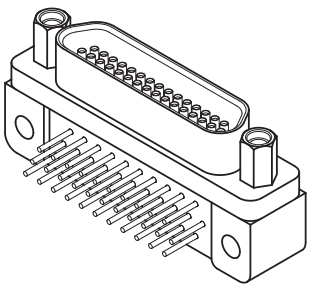
9 thru 100 Contacts

MK

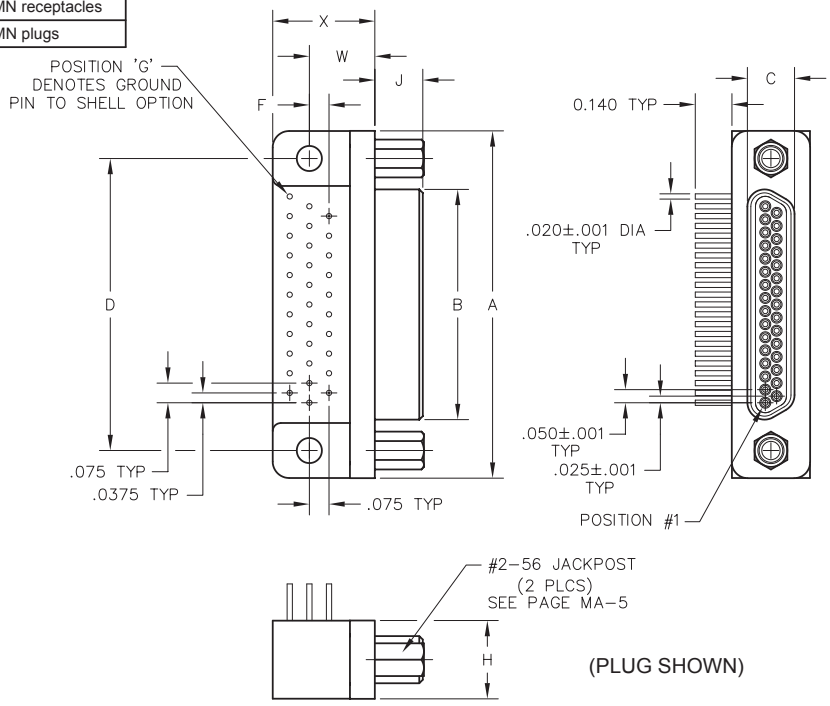
MK–2P2–031–A35–220S
(PLUG)



MK–2Q2–031–B45–220S
(RECEPTACLE)



MATING MATRIX	
CONNECTOR	MATES WITH
MK-2P...	MK, ML, MM, MN receptacles
MK-2Q..	MK, ML, MM, MN plugs



(PLUG SHOWN)

DIMENSIONS														
SIZE	CONTACT ROWS	A	B		C		D	F	H	J		W	X MAX	HARDWARE	MOUNTING HOLE
			PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX				PLUG	RCPT				
9	2	.775	.334	.400	.185	.251	.565	.0375	.298	.183	.195	.250	.400	#2–56 UNC THD (.092 DIA THRU)	.096 DIA OR #2–56 UNC THREADED INSERT
15		.925	.484	.550			.715	.075							
21		1.075	.634	.700			.865								
25		1.175	.734	.800			.965								
31		1.325	.884	.950			1.115								
37		1.475	1.034	1.100			1.265								
51	3	1.425	.984	1.050	.228	.294	1.215	.1125	.341			.300	.490		
69		1.725	1.284	1.350			1.515								
100	4	2.160	1.384	1.508	.271	.394	1.800	.1875	.384			.400	.660	#4–40 UNC THD (.147 DIA THRU)	.125 DIA OR #2–56 UNC THREADED INSERT

PLUG: MK–2P2–031–335–220S
RECEPTACLE: MK–2Q2–031–445–220S

XX–XXX–XXX–XXX–XXXX–XXX

SERIES | BODY | SIZE | CONTACTS | HARDWARE | OPTIONS

PLUG

SERIES

MK .050" Rugged Metal PC Board Mount Connector

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)
4 4-Row (Size 100)

BODY STYLE:
P Plug, right angle, compressed footprint

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator
5 Stainless steel shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
32 Pin, right angle, PCB leads, .109"
33 Pin, right angle, PCB leads, .140"
34 Pin, right angle, PCB leads, .172"
A2 Pin, right angle, PCB leads, .109", w/ ground pin option
A3 Pin, right angle, PCB leads, .140", w/ ground pin option
A4 Pin, right angle, PCB leads, .172", w/ ground pin option

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts: Sn/Pb alloy terminations ☒
7 50 µ" Au contacts: SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts (62*)
99 Keying hardware, see options below

POLARIZATION:
0S Standard body polarization

OPTIONS

0B7 Threaded inserts in mounting holes
KPXX Two fixed jacknuts (KN*)

NOTES

See page MA-6 for keying options

RECEPTACLE

SERIES

MK .050" Rugged Metal PC Board Mount Connector

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)
4 4-Row (Size 100)

BODY STYLE:
Q Receptacle, right angle, compressed footprint

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator
5 Stainless steel shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
43 Socket, right angle, PCB leads, .109"
44 Socket, right angle, PCB leads, .140"
45 Socket, right angle, PCB leads, .172"
B3 Socket, right angle, PCB leads, .109", w/ ground pin option
B4 Socket, right angle, PCB leads, .140", w/ ground pin option
B5 Socket, right angle, PCB leads, .172", w/ ground pin option

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts: Sn/Pb alloy terminations ☒
7 50 µ" Au contacts: SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts (62*)
99 Keying hardware, see options below

POLARIZATION:
0S Standard body polarization

OPTIONS

900 Interfacial sealing gasket
0B7 Threaded inserts in mounting holes and interfacial sealing gasket
KPXX Two fixed jacknuts (KN*) and interfacial sealing gasket

NOTES

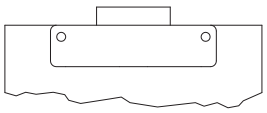
See page MA-6 for keying options

* = Use numbers in parenthesis when ordering size 100.
☒ = Option not RoHS compliant

Recommended PC Board Layout

Right Angle, Compressed Footprint
Standard Polarization

CONNECTOR MATING FACE

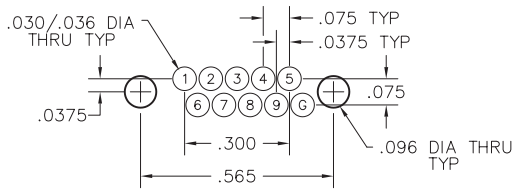


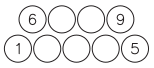
PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

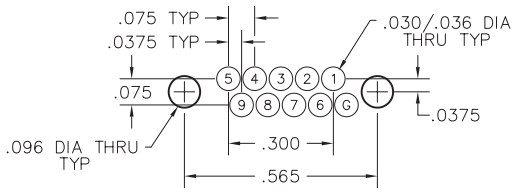
CONNECTOR MATING FACE* (RECEPTACLE)

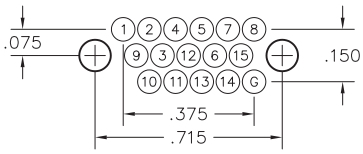
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

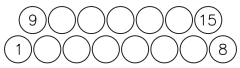




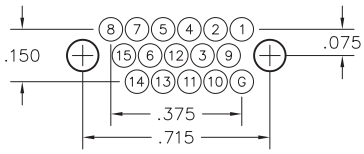
9 POSITION

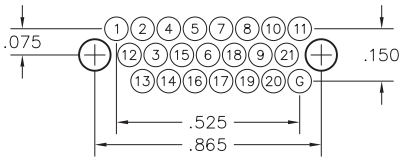




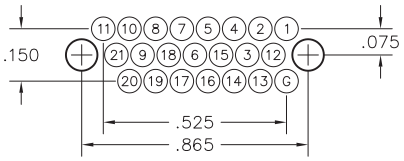


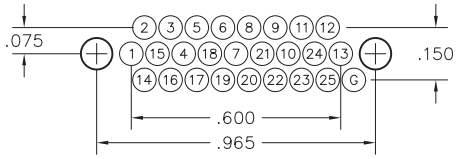
15 POSITION



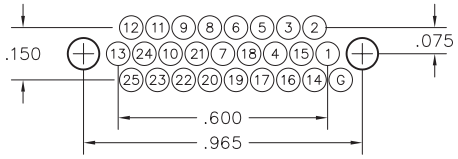


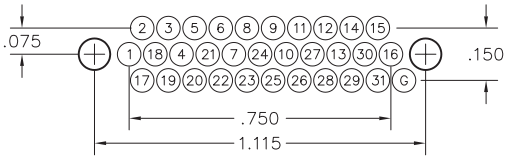
21 POSITION



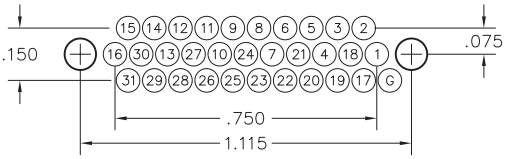


25 POSITION

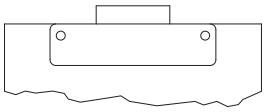




31 POSITION



CONNECTOR MATING FACE

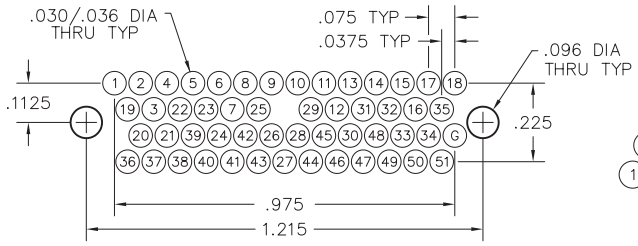


PC BOARD LAYOUT
COMPONENT SIDE

Recommended PC Board Layout

Right Angle, Compressed Footprint
Standard Polarization

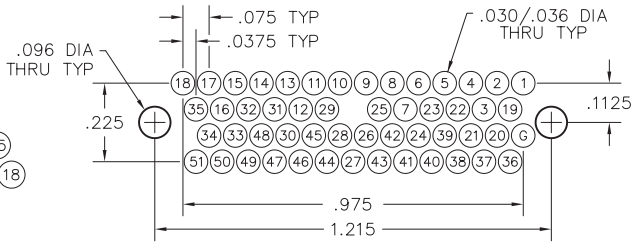
PLUG
PC BOARD LAYOUT
COMPONENT SIDE

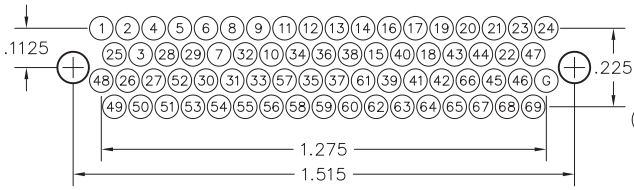


CONNECTOR MATING FACE* (RECEPTACLE)

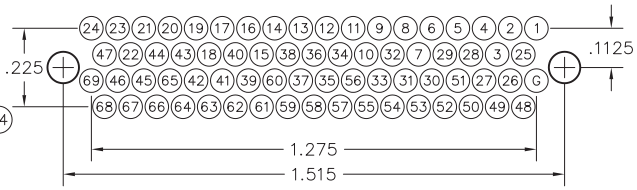
51 POSITION

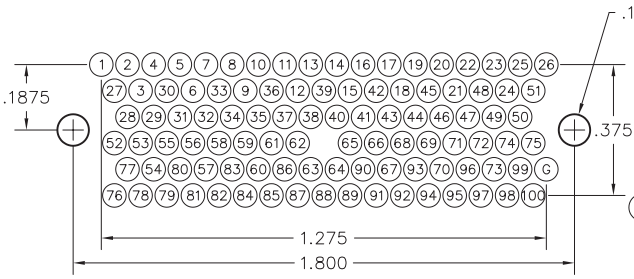
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

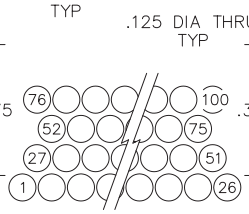




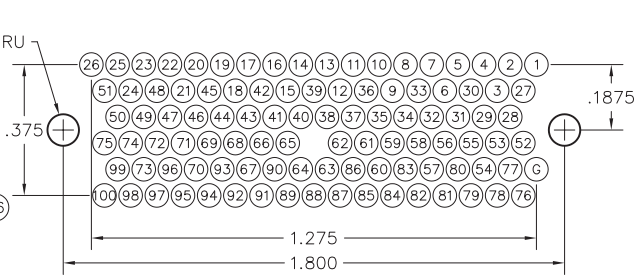
69 POSITION







100 POSITION



* For pin (plug) connectors, the contact numbers are reversed left to right.

Mating Matrix for AirBorn "M" Series Connectors

RECEPTACLES

PLUGS

	MA (Strip)	MC (Circular)	MM (Hybrid)	MK (Metal) PC Board	ML (Plastic) PC Board	MM (Metal) I/O	MN (Plastic) I/O	MP (Plastic) I/O	MQ (Metal) I/O	MR (Plastic) PC Board	MS (Metal) PC Board
MA (Strip)	XX										
MC (Circular)		XX									
MM (Hybrid)			XX								
MK (Metal) PC Board				BB	BB	BI	BI				
ML (Plastic) PC Board				BB	BB	BI	BI				
MM (Metal) I/O				IB	IB	II	II				
MN (Plastic) I/O				IB	IB	II	II				
MP (Plastic) I/O								II	II	IB	IB
MQ (Metal) I/O								II	II	IB	IB
MR (Plastic) PC Board								BI	BI	BB	BB
MS (Metal) PC Board								BI	BI	BB	BB

I/O Connectors	MM-MN-MP-MQ
PC Board Mounted Connectors	MK-ML-MR-MS
Inter-mateable Connectors	MK-ML-MM-MN MP-MQ-MR-MS

KEY:

BB = PC Board Mounted Plug with PC Board Mounted Receptacle

BI = PC Board Mounted Plug with I/O Receptacle

IB = I/O Plug with PC Board Mounted Receptacle

I I = I/O Plug with I/O Receptacle

For Military Configurations, See pages MIL-1 thru MIL-22

Specifications

Materials and Finishes *

Contacts:	Pins: BeCu alloy strip per ASTM B194 Sockets: Brass per ASTM B121 / B121M or ASTM B16 / B16M or ASTM B453
Contact Finish:**	Gold plate per ASTM B488
Shells:	Aluminum Alloy 6061-T6 per SAE AMS-QQ-A-250/11 or 6061-T6511 per SAE AMS-QQ-A-200/8 or Stainless Steel 300 series per ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Aluminum Shell Finishes:**	Electroless Nickel per SAE AMS2404 Electrodeposited Cadmium per SAE AMS-QQ-P-416 Black Anodized per MIL-A-8625 Gold per MIL-DTL-45204
Molded Insulators:	Glass filled polyphenylene sulfide per MIL-M-24519
Embedment:	Insulating compound per MIL-I-16923
Jackscrews, Jackposts and Nuts:	Corrosion resistant steel per ASTM A320 or ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Clips and Washers:	Corrosion resistant steel per ASME 18.24 or NASM35333 Passivated per ASME 18.24 or NASM35333
Guide Pins	Corrosion resistant steel per ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Latches	Beryllium copper in accordance with ASTM B194 Electroless Nickel plate per SAE AMS2404
Interfacial Seal Gaskets:	Fluorosilicone per SAE AMS-R-25988
Tolerances:**	Unless otherwise specified: Fractions = ±1/64" Decimals = ±.010" Angles = ±5° Wire lengths: insulated/stranded = +1.0"/-0.0" uninsulated/solid = +0.2"/-0.0"

Note: AirBorn can manufacture special configurations for your exact specifications.

* = Reference the above listed specifications or an equivalent industry standard when applicable

** = When ordering to Mil Spec P/N, Mil Spec requirements apply

Performance

Reference MIL-DTL-83513

AirBorn "M' Series meets or exceeds MIL-DTL-83513 Performance Specifications

Contact Rating:	3-amperes maximum
Solderability:	Terminals (except crimp) tested in accordance with MIL-STD-202, Method 208
Wire Size:	Stranded #26 AWG or solid #25 AWG standard (consult factory for other sizes and types)
Test Voltage:	600 V, RMS, 60 Hz
Operating Temperature:	-55° C to +125° C
Insulation Resistance:	5,000 megohms minimum @ 500 VDC
Durability:	500 connector mating cycles
Vibration:	Tested in accordance with MIL-STD-1344, Method 2005, Condition IV, according to MIL-83513
Shock:	Tested in accordance with MIL-STD-1344, Method 2004, Condition E, according to MIL-83513
Salt Spray:	Mated connectors tested in accordance with MIL-STD-1344, Method 1001, Test Condition B
Humidity:	Mated connectors tested in accordance with MIL-STD-1344, Method 1002, Type II (except steps 7a and 7b)
Thermal Shock:	Tested to the temperature extremes of MIL-STD-1344, Method 1003, Test Condition A (except step 3, temperature shall be 125° C)
Contact Resistance:	0.065 volt maximum drop @ 2.5 amps (.026 ohms)
Contact Engaging Force:	6.0 ounce maximum, with .0221 diameter test sleeve per contact
Contact Separating Force:	0.5 ounce minimum, with .0230 diameter test sleeve per contact
Crimp Strength:	5 pound minimum tensile strength
Mating & Unmating Force:	10 ounces maximum per contact