

## the B<sup>3</sup> Contact Innovation . . .

The Amphenol® B<sup>3</sup> Contact is an engineered, innovative solution to problems caused by the high mating and unmating forces of conventional pin and socket contact pairs. B<sup>3</sup> stands for Bristle Brush Bunch, a descriptive name for the multiple strands of high tensile strength wire that are bundled together to form the brush-like contact. By intermeshing two multi-strand wire bundles, an electrical connection is made. The B<sup>3</sup> contact design results in low, normal contact site forces and significantly reduces mating and unmating forces.

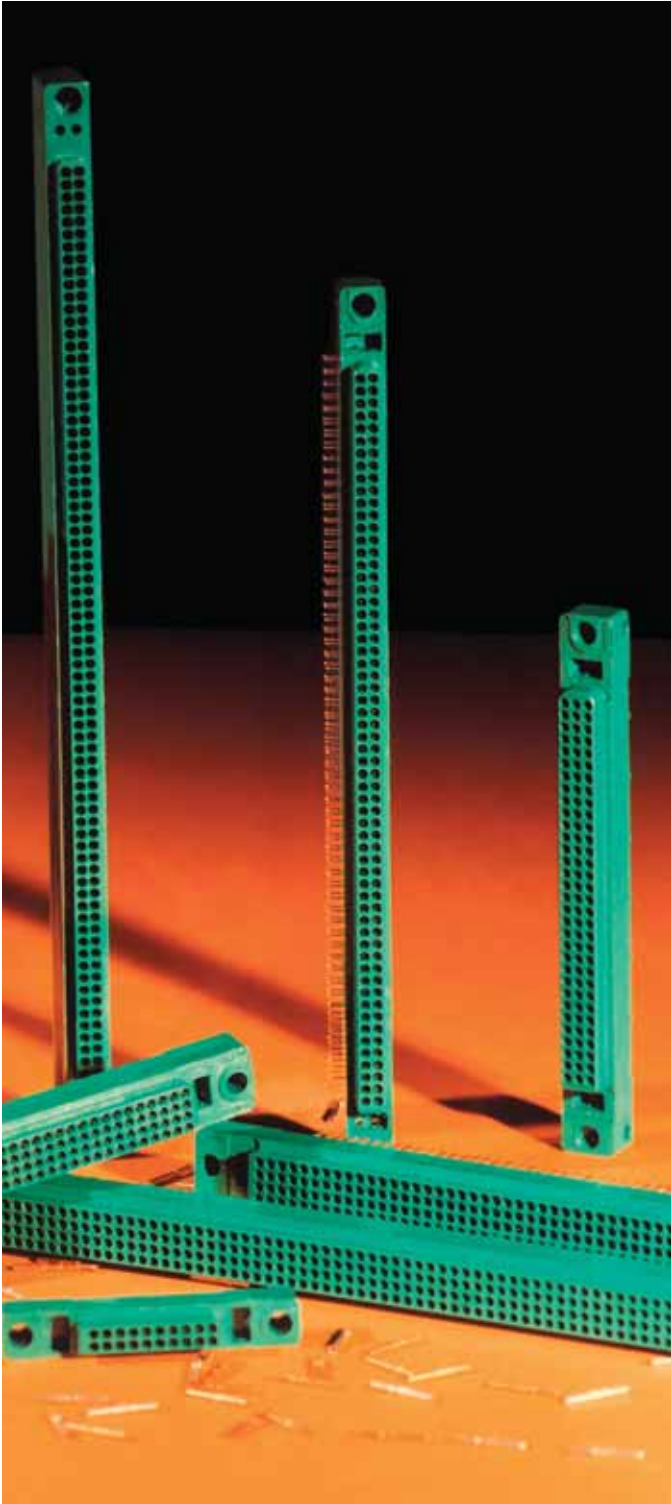
The B<sup>3</sup> Contact offers:

- low mating/unmating forces
- superior electrical characteristics
- proven durability and long contact life
- a new age of PC design

Applications for Amphenol Connectors with Brush B<sup>3</sup> contacts:

- Medical equipment
- IC chip testers
- Telecommunications
- Military and commercial aviation
- Military ground vehicles
- GPS systems
- Space
- Industrial

# Amphenol® Low Mating Force Rectangular Connectors MIL-C-55302 (M55302/166 thru /172)



## Featuring the Amphenol® B<sup>3</sup> Bristle® Brush® Contact

- **Low Mating and Unmating Forces**
  - Smooth, low friction interfaces
  - 70% to 90% reduction in mating/unmating forces from conventional pin-socket contacts
  - 1.5 oz. maximum forces per contact pair (one ounce typical)
  - Easy mating/unmating makes high circuit counts practical (25 lbs. typical for 400 contacts)
  - Mechanical mating aids not required
  - No need for external board support structures for connectors up to 7 inches in length. A center support is recommended for Mother Board Connectors over 7 inches
- **Proven durability and long contact life**
  - Over 20,000 cycles of mating and unmating without performance degradation
  - Documented intermittency-free performance – no 10 nano second discontinuities during 50m cycles of 0.010 displacement
  - Overall cost effectiveness (reduced life cycle costs)
- **Multiple points of contact = superior electrical capability**
  - 14-70 points of contact per mated contact
  - Stable, low resistance – 20 milliohms max.
  - Redundant current paths - lower total resistance
  - Proven electrical and gas tight contact sites
- **Key Connector Features**
  - 0.100 inch center to center, square grid contact spacing
  - Four body styles - Mother Board, Daughter Board, PC (also referred to as "right angle Motherboard"), and Input/Output - allows application flexibility (parallel boards, perpendicular boards, wire to board, end to end boards, card extenders)
  - 2, 3 and 4 row contact arrangements with 10 to 100 contacts per row in one contact per row increments
  - Termination versatility: straight & 90° PCB stud, wire wrap and crimp
  - Options on termination length and plating
  - Front release/front removable contacts in Mother Board, Daughter Board and PC versions; rear release/rear removable crimp contacts (size 22D) or printed circuit board pins provided with Input/Output Connector
  - Accessories available for latching and polarization
  - Up to 256 keyed, mating polarizations available
  - Hybrids available – mix signal with power, RF or fiber optics

- **Performance**

- voltage rating:  $\frac{SL}{1300} \frac{70,000 \text{ ft.}}{325}$
- one and one-half ounce max. average contact engaging/separating forces
- 7 milliohm average contact resistance for row A contacts (Resistance will vary depending on the point of measurement and the length of the contact.)
- 3 ampere – PCB contacts
- 5 ampere – wire wrap/crimp contacts
- –65° C to +125° C temperature rating
- 5 gigaohms minimum insulation resistance

- **Materials**

- Connector Body – Glass-filled thermoplastic molding material in accordance with MIL-M-24519 type GPT-15F and/or Grade B, Class 15 of MIL-P-46161 (UL94V-O).
- Polarization Keys – Glass-filled acetal plastic molding material in accordance with MIL-P-46137
- Locking Screw/Mounting Bushing – Corrosion resistant steel AISI 300 types passivated in accordance with QQ-P-35

- **Contacts**

- Holders – Copper alloy in accordance with Federal Specification QQ-B-626 or SAE J463
- Wire – Beryllium copper in accordance with Federal Specification ASTM B197
- Sleeves – If applicable, stainless steel in accordance with AMS-5514 passivated in accordance with ASTM A967

*Upper Right: An Input/Output and Mother Board Connector*

*Lower Left: Unmated Input/Output and PC Connector*

*Lower Right: Mated Mother Board and Daughter Board Connector*

