

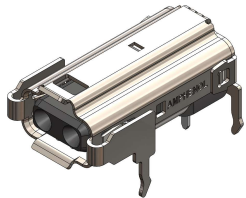
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About Amphenol Commercial Products

Amphenol's commercial connector products are used in a variety of end user applications including networking, telecom, server & computer, storage & HDD, consumer electronics and entertainment, professional audio & Industrial & Military/Aerospace.

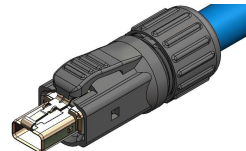
Related Products

MSPE Series for Single Pair Ethernet



MSPE-J2L0-B00

Jack, IP20, Latch-Locking, R/A PCB Termination



MSPE-P2L0-XX0

Plug, IP20, Latch-Locking, Termination Options



MSPE-J6P2-M02

Jack, IP67, Push/Pull, Solder Cup Termination



MSPE-P6P2-XX0

Plug, IP67, Push/Pull, Termination Options

<p>Hand-Crimp Tool for Terminating Plug Connectors</p> 	<p>Right Angle Receptacle, Horizontal-Style, Type-A Key Shown</p> 	<p>Vertical Receptacle, Type-B Key Shown</p> 	
<p>Plug, Type-A Key Shown, Supplied in Plug Kits, Termination Options Available</p> 	<p>Plug on One End, Various Lengths, Colours, & Configurations Available</p> 	<p>Bulkhead Assembly</p> 	

Overview

This product specification defines the general use and performance parameters for Amphenol's NDH Series of ix Industrial Ethernet Connectors.

Availability:

- Type-A (CAT6A Ethernet) & *Type-B (signal & bus communication) keying for both plugs & receptacles
- Right angle & vertical SMT / PIP termination for receptacle connectors enables reflow soldering
- Field terminable kits for plug connectors with IDC terminations for various wire gauges
- Plug on one end cable assemblies of various lengths & colours
- Gold flash, 0.20µm (8µ") Gold, 0.76µm (30µ") Gold, 1.27µm (50µ") Gold, or 0.76µm (30µ") Palladium Nickel with Gold flash plating options for the mating area

Please contact an Amphenol representative with any questions about availability.

*CAT6A Ethernet Capable

Usage

NDH Series, ix industrial connectors are future proof offering CAT6A performance for up to 10 Gb/s Ethernet communication, Support for PoE++ up to 100W as defined by IEEE 802.3bt and 360° shielding for excellent EMC immunity. NDH Series connectors are compatible with 100BaseT, 1000BaseT, & 10GBaseT. The Rectangular Push Pull IO system for Indoor and Outdoor applications is rated for IP67 degree of protection and is a versatile, robust and compact I/O system. It is easy to mate and unmate with a push-pull motion, and is positively latched in the mated position, making it ideal for industrial applications as well as harsh environment.

Application

Intended for use in a broad range of applications such as:

- | | |
|---|---|
| <ul style="list-style-type: none"> ■ Internet of Things (IoT) ■ Machine to Machine (M2M) ■ Building Automation ■ Robotics ■ Transportation | <ul style="list-style-type: none"> ■ Healthcare / Medical Equipment ■ Sensors, Actuators, & Network Nodes ■ Test Equipment ■ Mobile Communication Systems ■ Traffic Control & Monitoring Systems |
|---|---|

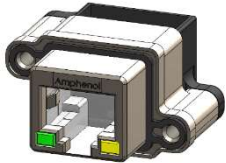
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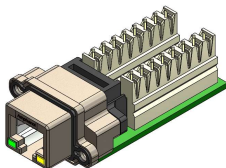
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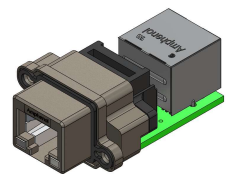
MRJR Series



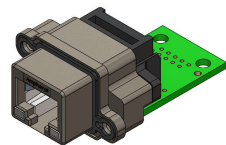
MRJR-9381-0C
CAT6A RJ45, Right Angle PCB Tail, 8 Position, LED's



MRJR-8F81-01
CAT5e RJ45 on PCB with Krone-Style IDC Contacts



MRJR-8780-01
CAT5e RJ45 on PCB with Matching RJ45



MRJR-5C80-01
Standard RJ45 on PCB For Discrete Wiring

Connector Electrical Characteristics

Current Rating:	1.5A (all pins) (1.25A if terminated to 28 AWG wire)
Voltage Rating:	50VAC max, 60VDC max
Contact Resistance:	80mΩ max, per IEC 60512-2-1, Test 2a
Shielding Resistance:	100mΩ max, per IEC 60512-2-1, Test 2a
Insulation Resistance:	500MΩ min @ 500VDC test voltage, per IEC 60512-3-1, Test 3a
Dielectric Withstanding Voltage:	1000VDC, per IEC 60512-4-1, Test 4a, Method A

Connector Mechanical Characteristics

Insertion / Withdrawal Force:	25N max, per EIA 364-13B
Thermal Shock:	10 cycles between -55° and +85°C, per IEC 60512-11-4, Test 11d
Humidity:	10 cycles, 24hrs / cycle @ 93% humidity, low temperature +25°C, high temperature +65°C, cold sub-cycle -10°C, per IEC 60068-2-38, Test Z/AD
Mechanical Shock:	half-sine shock pulses, 11ms, per EIA-36427/6c 50G
Vibration, Random:	11.95 g's, PSD 0.1g ² /Hz, per EIA-36428/6d, Condition V, Letter D
Mating Cycles ¹ :	100 cycles, per EIA 364-099a (100cycle)
Operating Temperature ² :	-55°C to +105°C

¹The number of mating cycles is influenced by the plating option. Please consult Amphenol with any questions.

²The maximum operating temperature for cable assemblies is +85°C, operating temperatures can vary. Please consult Amphenol with any questions.

Signal Characteristics

Transmission Rate:	Up to 10 Gb/s
Bandwidth:	Up to 500 MHz

Material Characteristics

NDH Series connectors and cables are RoHS compliant per EU directive 2011/65/EU and amendments. Unless otherwise specified, the materials for each component shall be:

- Contacts: Copper alloy plated with Gold or Palladium Nickel with Gold Flash over 1.27μm (50μ") min Nickel on the mating area
- Housings / Inserts: High temperature resistant thermoplastic, UL94V-0 flammability rating
- EMI Shields: Stainless steel, Matte Tin or Nickel plated
- Wire: 24, 26 and 28 AWG copper, metal braid / shield, PVC insulation
- Ix Industrial NDH covers, hood body, slide & end cap: high temperature resistant thermoplastic, UL94V-0 flammability rating
- Gasket & Grommet: Silicone, rubber
- Lock: High temperature resistant thermoplastic, UL94V-0 flammability rating

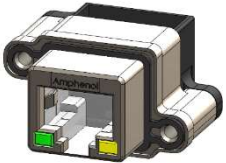
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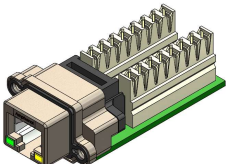
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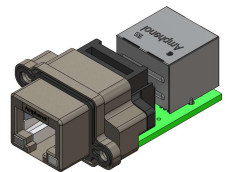
MRJR Series



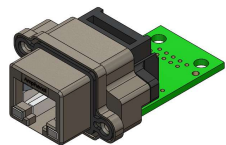
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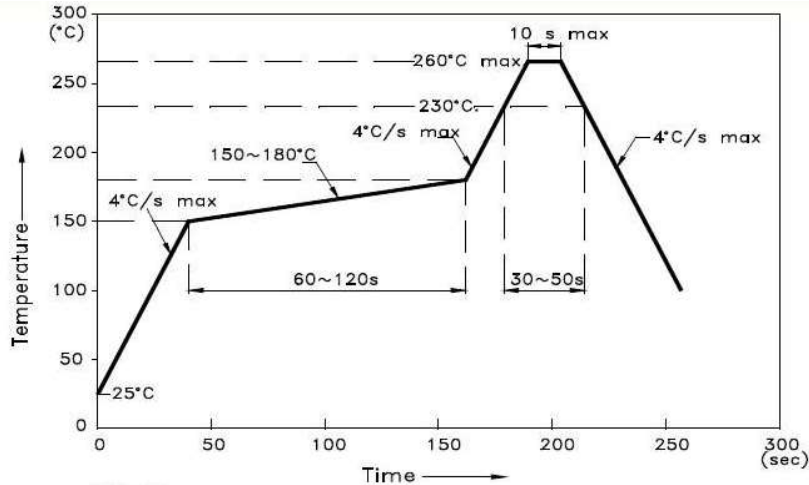
MRJR-8780-01
CAT5e RJ45 on PCB with Matching RJ45



MRJR-5C80-01
Standard RJ45 on PCB For Discrete Wiring

Process Characteristics

Recommended soldering process: Pin-in-paste IR reflow soldering up to 260C for 10 seconds.
Recommended reflow profile below.



Quality Test Reports

- QTP9300760, QTR9300760
- QTR9300790, QTR9300790
- QTP9300827

Agency & Regulatory

- UL Certification: E64911
- RoHS Compliance: Per EU Directive 2011/65/EU and Amendments.

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Related Products

MRD Series



MRD-BN03-M17-000
Male Plug, 3-Socket



MRD-BG03-M17-000
Female Plug, 3-Pin



MRD-BG03-L13-000
Female Receptacle, 3-Pin

Available Documents

Receptacle Connectors

- **P-ND9-AS2X-00:** IX INDUSTRIAL RECEPTACLE, TYPE-A VERTICAL
- **P-ND9-AS3X-00:** IX INDUSTRIAL RECEPTACLE, TYPE-A RIGHT ANGLE HORIZONTAL-STYLE
- **P-ND9-BS2X-00:** IX INDUSTRIAL RECEPTACLE, TYPE-B VERTICAL
- **P-ND9-BS3X-00:** IX INDUSTRIAL RECEPTACLE, TYPE-B RIGHT ANGLE HORIZONTAL-STYLE

Plug Connectors

- **P-NDH-N3AX:** IX INDUSTRIAL ETHERNET, HOOD AND PLUG KIT, TYPE-A, 22-28 AWG SOLDER PAD TERMINATION
- **P-NDH-N3DX:** IX INDUSTRIAL ETHERNET, HOOD AND PLUG KIT, TYPE-A, 24-25 AWG IDC TERMINATION
- **P-NDH-N3GX:** IX INDUSTRIAL ETHERNET, HOOD AND PLUG KIT, TYPE-A, 26-28 AWG IDC TERMINATION
- **P-NDH-N3BX:** IX INDUSTRIAL ETHERNET, HOOD AND PLUG KIT, TYPE-B, 22-28 AWG SOLDER PAD TERMINATION
- **P-NDH-N3EX:** IX INDUSTRIAL ETHERNET, HOOD AND PLUG KIT, TYPE-B, 24-25 AWG IDC TERMINATION
- **P-NDH-N3HX:** IX INDUSTRIAL ETHERNET, HOOD AND PLUG KIT, TYPE-B, 26-28 AWG IDC TERMINATION
- **P-NDH-N6AX:** IX INDUSTRIAL ETHERNET, BULKHEAD, HOOD AND PLUG KIT, TYPE-A, 22-28 AWG SOLDER PAD TERMINATION
- **P-NDH-N6DX:** IX INDUSTRIAL ETHERNET, BULKHEAD, HOOD AND PLUG KIT, TYPE-A, 24-25 AWG IDC TERMINATION
- **P-NDH-N6GX:** IX INDUSTRIAL ETHERNET, BULKHEAD, HOOD AND PLUG KIT, TYPE-A, 26-28 AWG IDC TERMINATION
- **P-NDH-N6BX:** IX INDUSTRIAL ETHERNET, BULKHEAD, HOOD AND PLUG KIT, TYPE-B, 22-28 AWG SOLDER PAD TERMINATION
- **P-NDH-N6EX:** IX INDUSTRIAL ETHERNET, BULKHEAD, HOOD AND PLUG KIT, TYPE-B, 24-25 AWG IDC TERMINATION
- **P-NDH-N6HX:** IX INDUSTRIAL ETHERNET, BULKHEAD, HOOD AND PLUG KIT, TYPE-B, 26-28 AWG IDC TERMINATION

Cable Assemblies

- **P-NDH-N4AX-AXXX:** IX INDUSTRIAL ETHERNET, HOOD AND CABLE ASSEMBLY, TYPE-A, PLUG ON ONE END, VARIOUS LENGTHS
- **P-NDH-N4BX-AXXX:** IX INDUSTRIAL ETHERNET, HOOD AND CABLE ASSEMBLY, TYPE-B, PLUG ON ONE END, VARIOUS LENGTHS
- **P-NDH-N5AX-AXXX:** IX INDUSTRIAL ETHERNET, BULKHEAD, HOOD AND CABLE ASSEMBLY, TYPE-A, PLUG ON ONE END, VARIOUS LENGTHS
- **P-NDH-N5BX-AXXX:** IX INDUSTRIAL PLUG CABLE, BULKHEAD, HOOD AND CABLE ASSEMBLY, TYPE-B, PLUG ON ONE END, VARIOUS LENGTHS

Bulkhead

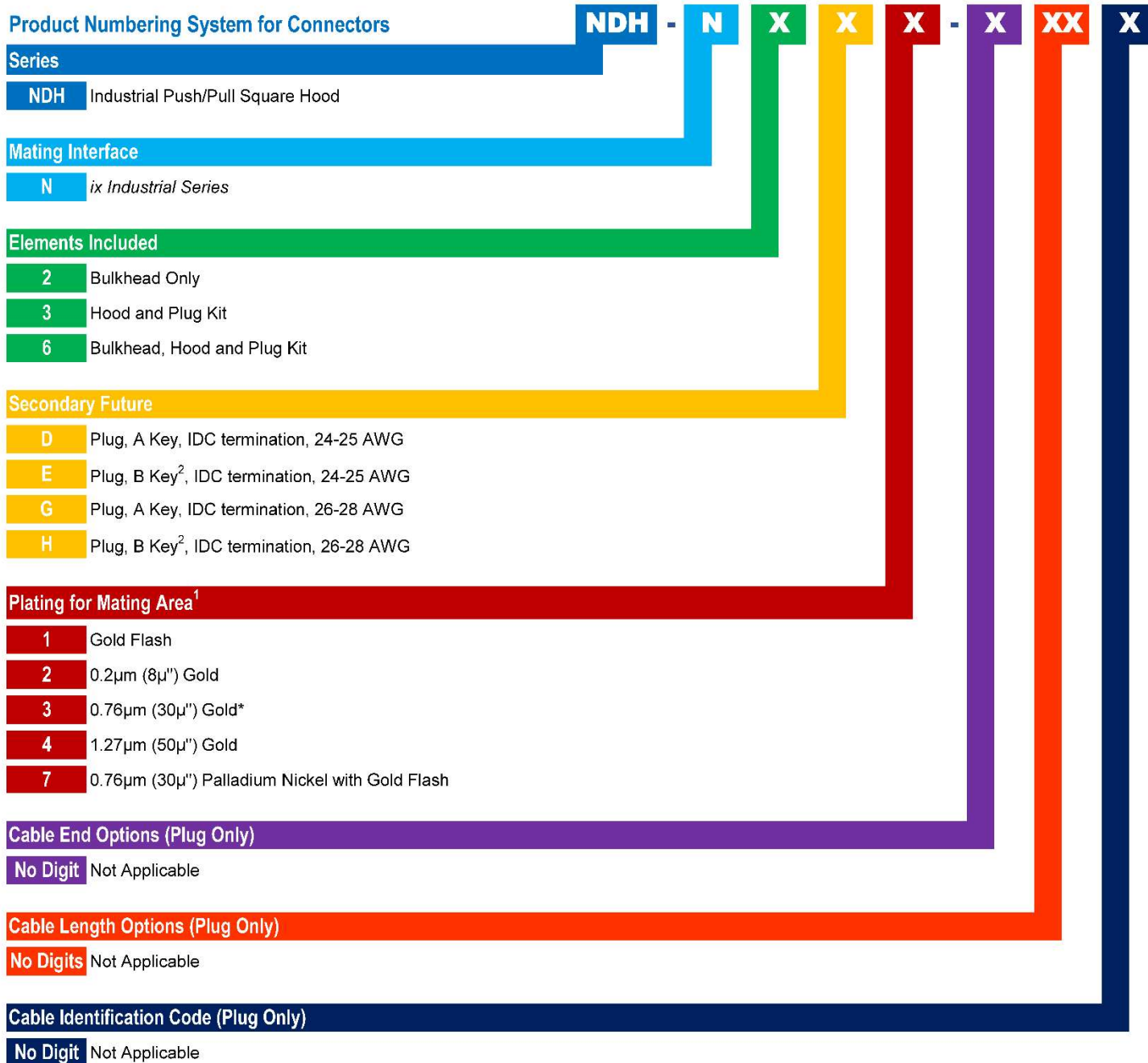
- **P-NDH-N200:** NDH SERIES BULKHEAD, IP67 RATING

Tools

- **P-ND9-AHT1-01:** IX INDUSTRIAL HAND CRIMP TOOL FOR PLUG CONNECTORS

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Product Numbering System for Connectors



¹All contact terminations are matte Tin. Not every plating option is available for every connector type / configuration. Please consult Amphenol with any questions about availability.

²Can be used for Ethernet

*Not Available For Horizontal Configuration

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Product Numbering System for Cable Assemblies

NDH - N X X X - X XX X

Series

NDH Industrial Push/Pull Square Hood

Mating Interface

N *ix Industrial Series*

Elements Included

4 Hood and Cable Assembly

5 Bulkhead, Hood and Cable Assembly

Secondary Feature

A Type-A Key for Ethernet

B Type-B Key²

Plating for Mating Area¹

1 Gold Flash

2 0.2µm (8µ") Gold

3 0.76µm (30µ") Gold*

4 1.27µm (50µ") Gold

7 0.76µm (30µ") Palladium Nickel with Gold Flash

Cable End Options (Cable Assembly Only)

A Opposite End Wire Pigtail

B Opposite End Matching (With Matching Hood)

C Opposite End Matching (Without Hood)

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Product Numbering System for Cable Assemblies

NDH - **N** **X** **X** **X** - **X** **XX** **X**

Cable Length Options (Cable Assembly Only)

20 to 99 Cable Length in Centimeters	G0 to G9 7 Meters + 0 to 9 Decimete Ordering Code Examples:
A0 to A9 1 Meter + 0 to 9 Decimeters	H0 to H9 8 Meters + 0 to 9 Decimete 75 = 75cm
B0 to B9 2 Meters + 0 to 9 Decimeters	J0 to J9 9 Meters + 0 to 9 Decimete F3 = 6.3m
C0 to C9 3 Meters + 0 to 9 Decimeters	K0 to K9 10 Meters + 0 to 9 Meters L5 = 25m
D0 to D9 4 Meters + 0 to 9 Decimeters	L0 to L9 20 Meters + 0 to 9 Meters M5 = 80m
E0 to E9 5 Meters + 0 to 9 Decimeters	M0 to M9 30 Meters + 0 to 9 Decameters
F0 to F9 6 Meters + 0 to 9 Decimeters	

Cable Identification Code (Cable Assembly Only)

A 8 Wire Ethernet Cable **B** 10 Wire Cable

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*Not Available For Horizontal Configuration