Amphenol Amphenol Sine Systems





A Series Amphenol Transportation



www.industrial-amphenol.com

© 2013 Amphenol Sine Systems Corporation. Every effort has been made to ensure that the information contained in this document is accurate at the time of publication. Specifications or information stated in this document are subject to change without notice.

Table of Contents

We Are Amphenol	1
Standard products. Custom solutions	2
Product Overviews	3-4
AT Series	
Overview	5
Features & Benefits	5
Part Numbering Sequence	6
Standard Product-Plugs & Wedgelocks	7-8
Standard Product-Receptacles & Wedgelocks	9-10
ATM Series	
Overview	11
Features & Benefits	
Part Numbering Sequence	12 12
Standard Product-Pilogs & Wedgelocks	13
	· ·
ATP Series	15
Overview	
Features & Benefits Part Numbering Sequence	
Standard Product-Plugs & Wedgelocks	10
Standard Product-Receptacles & Wedgelocks	
AHD Series Overview	19
Features & Benefits	
Standard Product-Plugs	
Standard Product-Receptacles	21
Receptacle Caps	22
Modifications	
AT-SR01, Strain Relief	23-24
End Cap/Rear Seals	25
J-1939	25-26
Flange Mount Receptacles	
Colors-Plugs & Receptacles	26
Custom Products	
Adapter, 6 Pin to RJ45	27
LED Option	
AHD Jam Nut Diagnostic Receptacle AHD Unsealed Diagnostic Receptacle	
Terminating Resistors	
Cable Assemblies	
Contact Options Standard & Specialty	29-30
	27-50
Accessories & Tooling	
Field Repair Kits	
Crimp Tools Contact & Wedge Removal Tool	32
Comuci & meage Nemonal Iool	32

We are Amphenol.

We are a global leader in providing you with interconnection options and solutions.

We fulfill the needs of Industrial, Factory Automation, Heavy Duty, Automotive, Diagnostic and Custom-design markets.

Our engineers design innovative combinations of industry standard connectors and application specific shielding components to create assembly systems that set the standards for performance, reliability, and cost effectiveness. Our engineering, materials, and manufacturing organizations meet the high standards imposed by ISO 9001 as well as many customer specific quality systems. Our performance has earned us ship to stock and world class performance awards from many major OEMs.

We are one of the largest interconnect solution suppliers in the world and supplies a wide range of product solutions worldwide. Amphenol, and all our subsidiaries, design, manufacture and market electrical, electronic and fiber-optic connectors, interconnect systems and coaxial and specialty cable. Amphenol has a diversified presence in high growth markets including: Information Technology and Data Communications Equipment, Mobile Devices, Mobile Networks, Broadband Communication, Military and Commercial Aerospace, Industrial and Automotive.



Standard products. Custom solutions.

Our A Series[™] product lines, which include AT, ATP, ATM and AHD Series[™], have key placement in all areas of Heavy Duty Equipment, Agriculture, Marine, Automotive, Military, Alternative Energy and other demanding interconnect applications. Based on our superior build quality, high-performance capabilities and having been developed to be compatible with all other existing standard products industry-wide, our A Series[™] products are perfect alternatives for you.

We can custom design, engineer and manufacture cable assemblies to your exact customer specifications and produce large or small quantities, all to the highest standards, delivered on-time and in-specification, all with a significant cost-savings over the competition.

By combining locally-based Program Management & Engineering, along with the associated cost advantages derived from manufacturing in our low-cost production centers in North America and Asia, our Team will work with you to design the most cost-efficient and reliable interconnect system available.



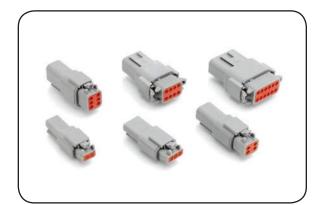
Product Overviews

Amphenol's A Series[™] connectors encompass a wide range of products serving a variety of industries. With applications in Heavy Duty, Transportation, Marine, Diagnostic, Military, Alternative Energy and Agricultural industries, as well as spanning the gap between controlled to harsh environmental conditions, our A Series[™] connectors keep you connected with confidence. While our mission is to always provide the best economic alternatives to today's existing standard connector markets, it is through our constant efforts to improve on those standard products that truly display our innovative product designs.



AT Series[™] See Pg. 5 2, 3, 4, 6, 8 and 12 positions available

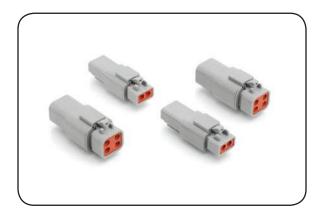
- 14-20AWG, 13A, Size 16
- High-performance, cost-effective
- Superior environmental seal retention
- RockSolid[™] Contact technology (optional)
- Compatible with existing standard products industry-wide



ATM Series[™] See Pg. 11

- 2, 3, 4, 6, 8 and 12 positions available
- 16-22AWG, 7.5A, Size 20
- High-performance, cost-effective
- Superior environmental seal retention
- Compatible with existing standard products industry-wide.

Product Overviews



ATP Series[™] See Pg. 15 2 and 4 position available

- 10-14AWG, 25A, Size 12
- High-performance, cost-effective
- Superior environmental seal retention capabilities
- Compatible with existing standard products industry-wide



AHD Series[™] See Pg. 19</sup> 6 and 9 positions available

- 6 position: 10-14AWG, 25A, Size 12
- 9 position: 14-20AWG, 13A, Size 16
- High-performance, cost-effective
- Ideal for controlled/uncontrolled environmental conditions
- Compatible with existing standard products industry-wide

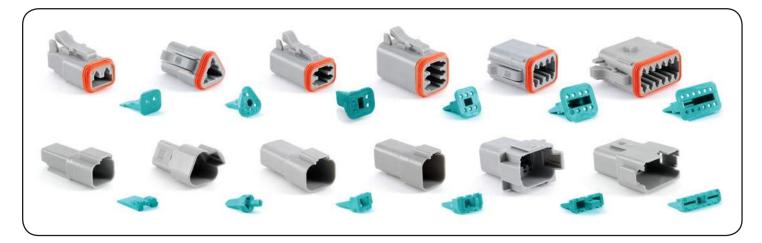
AT Series[™]

Overview

AT Series[™] connectors are a high-performance, cost-effective solution able to be used in a variety of interconnect applications: Heavy Duty, Transportation, Marine, Diagnostic, Military, Alternative Energy and Agricultural. They contain superior environmental seals, seal retention capabilities and feature RockSolid[™] Contact technology.

The connector design incorporates an integral latching system that ensures a definitive electrical and mechanical connection. Connector housings are manufactured with a thermoplastic material that is not only durable, but has excellent UV resistance, dielectric/mechanical properties and environmentally RoHS compliant. The sealing system is comprised of a front and rear silicone, multi-sealing perimeter against environmental ingress. Contacts are derived from quality copper alloy to ensure an electrically-reliable connection.

AT Series[™] connectors are compatible with other existing standard products industry-wide.



Features & Benefits

Current Capacity	Size 16, 13A (max)
Wire Range	Size 16 contacts will accept wire ranges of 14 thru 20AWG
Temperature	Operating temperature range: -55°C to +125°C at rated current
Dielectric Value	Meets or exceeds 1500 volts minimum
Drop Test	Shall not become detached or loosened when placed at 750mm and dropped to concrete eight times
Shock	No latch disengagement or discontinuity shall be the result when subjected to 50 g's in each of three axis (X, Y & Z)
Vibration	Continued continuity without degradation to mechanical or physical attributes following vibration. (max acceleration 20 g's at Sine sweep of 10-2000Hz)
Connector Terminal Retention	When subjected to a direct pull, contacts achieve a minimum pull-out force of 25 lbs.
Connector Retention	A mated connector subjected to a pulling force by the exiting wire bundle at 25 lbs. times the number of contacts to a maximum of 100 lbs. applying load for 30 seconds

AT Series[™]

Secondary Locks

Contacts

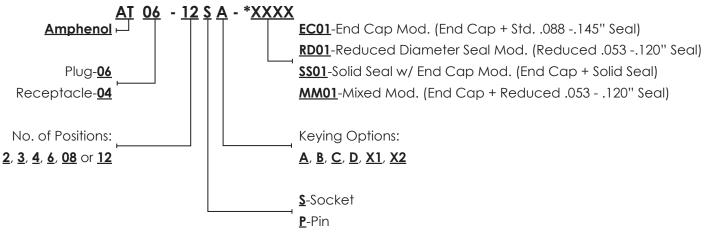
Features & Benefits, cont.

Thermal Shock	Subjected to 10 cycles at -55°C to +125°C with no cracking, chipping or other damage detrimental to the normal operation of the connector
Insulation Resistance	Insulation resistance at 25°C shall be greater than 20 megohms when 1000 VDC are applied
Mating Cycle Durability	Following 100 cycles of connection engagement and disengagement, degradation either mechanical or electrical is not evident
Contact Millivolt Drop	Size 16 contacts with 16AWG conductor - *100 millivolt drop max at 13A test current
Water Immersion	A mated connection, properly wired, placed in an oven at +125°C for 1 hour, then placed immediately in a depth of water of 1 meter for 4 hours without loss of electronic performance
Product Material	
Housings	Thermoplastic
Seals	Silicone Elastomer

Copper Alloy, Nickel Plated, Gold optional

Thermoplastic

AT Series[™] Part Numbering Sequence



NOTE: The above modifications (-XXXX) are only a sampling of the options available to our customers. For more information, please contact your Sales Representative.

Plugs & Wedgelocks - 2, 3, 4, 6, 8 and 12 positions

Plug	Face View	Part Number	Description	[Wedgelock	Part Number	Part Description
		AT06-2S	Plug, 2-Way		E. P.	AW2S	Wedgelock Plug, 2-Way
		AT06-3S	Plug, 3-Way			AW3S	Wedgelock Plug, 3-Way
A States		ATO6-4S	Plug, 4-Way			AW4S	Wedgelock Plug, 4-Way
		ATO6-6S	Plug, 6-Way		222	AW6S	Wedgelock Plug, 6-Way
		AT06-08SA	Plug, 8-Way A Position				
		AT06-08SB	Plug, 8-Way B Position			20/4/2	Wedgelock
		AT06-08SC	Plug, 8-Way C Position		0,00	AW8S	Plug, 8-Way
		AT06-08SD	Plug, 8-Way D Position				

NOTE: Wedgelocks are required for all plugs.

Plugs & Wedgelocks - 2, 3, 4, 6, 8 and 12 positions, cont.

Plug	Face View	Part Number	Description	Wedgelock Part Number Part Description
		AT06-12SA	Plug, 12-Way A Position	
		AT06-12SB	Plug, 12-Way B Position	
		AT06-12SC	Plug, 12-Way C Position	AW12S Wedgelock
STATE OF STATE		AT06-12SD	Plug, 12-Way D Position	AW123 Plug, 12-Way
		AT06-12SX1	Plug, 12-Way X1 Position	
		AT06-12SX2	Plug, 12-Way X2 Position	
		AT16-18SB-K004	Plug, 18-Way (Wedgelock/ Endcap Included)	NOTE: Wedgelocks are required for all plugs.

Receptacles & Wedgelocks - 2, 3, 4, 6, 8 and 12 positions

Receptacle	Face View	Part Number	Description	[Wedgelock	Part Number	Part Description
		AT04-2P	Receptacle, 2-Way			AW2P	Wedgelock Recep., 2-Way
		AT04-3P	Receptacle, 3-Way			AW3P	Wedgelock Recep., 3-Way
		AT04-4P	Receptacle, 4-Way			AW4P	Wedgelock Recep., 4-Way
		AT04-6P	Receptacle, 6-Way			AW6P	Wedgelock Recep., 6-Way
		AT04-08PA	Receptacle, 8-Way A Position				
		AT04-08PB	Receptacle, 8-Way B Position			AW8P	Wedgelock
		AT04-08PC	Receptacle, 8-Way C Position		a server	ΑΨΟΓ	Recep., 8-Way
		AT04-08PD	Receptacle, 8-Way D Position				

NOTE: Wedgelocks are required for all receptacles.

Receptacles & Wedgelocks - 2, 3, 4, 6, 8 and 12 positions, cont.

Receptacle	Face View	Part Number	Description	Wedgelock	Part Number	Part Description
		AT04-12PA	Receptacle, Extended Shroud, 12-Way, A Position			
		AT04-12PB	Receptacle, Extended Shroud, 12-Way, B Position			
		AT04-12PC	Receptacle, Extended Shroud, 12-Way, C Position		AW12P	Wedgelock Recep., 12-Way
		AT04-12PD	Receptacle, Extended Shroud, 12-Way, D Position			
1		AT04-12PA-NES	Receptacle, Non-Extended Shroud, 12-Way, A Position			

NOTE: Wedgelocks are required for all receptacles.

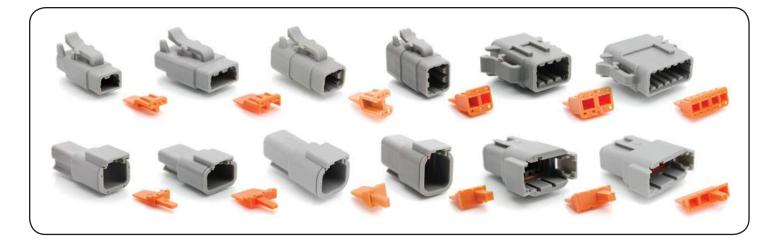
ATM Series[™]

Overview

ATM Series[™] connectors are a high-performance, cost-effective solution specifically designed for smaller AWG applications, while still maintaining the strengths of the AT Series[™] product line.

The connector design incorporates an integral latching system that ensures a definitive electrical and mechanical connection. Connector housings are manufactured with a thermoplastic material that is not only durable, but has excellent UV resistance, dielectric/mechanical properties and environmentally RoHS compliant. The sealing system is comprised of an internal and rear silicone, multi-sealing perimeter against environmental ingress. Contacts are derived from quality copper alloy to ensure an electrically-reliable connection.

ATM Series[™] connectors are compatible with other existing standard products industry-wide.



Features & Benefits

Current Capacity	Size 20, 7.5A (max)
Wire Range	Size 20 contacts will accept wire ranges of 16 thru 22AWG
Temperature	Operating temperature range: -55°C to +125°C at rated current
Dielectric Value	Meets or exceeds 1500 volts minimum
Drop Test	Shall not become detached or loosened when placed at 750mm and dropped to concrete eight times
Shock	No latch disengagement or discontinuity shall be the result when subjected to 50 g's in each of three axis (X, Y & Z)
Vibration	Continued continuity without degradation to mechanical or physical attributes following vibration. (max acceleration 20 g's at Sine sweep of 10-2000Hz)
Connector Terminal Retention	When subjected to a direct pull, contacts achieve a minimum pull-out force of 89 lbs.
Connector Retention	A mated connector subjected to a pulling force by the exiting wire bundle at 89 lbs. times the number of contacts to a maximum of 356 lbs. applying load for 30 seconds

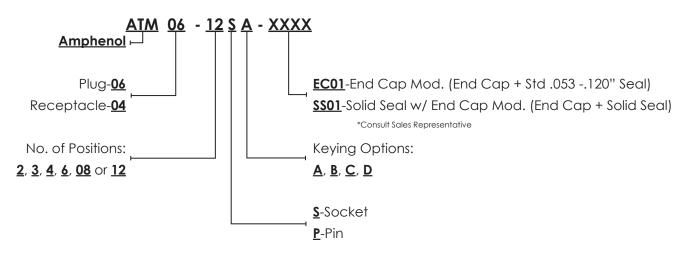
ATM Series[™]

Features & Benefits, cont.

Thermal Shock	Subjected to 10 cycles at -55°C to +125°C with no cracking, chipping or other damage detrimental to the normal operation of the connector
Insulation Resistance	Insulation resistance at 25°C shall be greater than 20 megohms when 1000 VDC are applied
Mating Cycle Durability	Following 100 cycles of connection engagement and disengagement, degradation either mechanical or electrical is not evident
Contact Millivolt Drop	Size 20 (stamped & formed) contacts with 20AWG conductor - 60 (solid contact) millivolt drop max; 100 (stamped & formed contact) millivolt drop max at 7.5A test current
Water Immersion	A mated connection, properly wired, placed in an oven at +125°C for 1 hour, then placed immediately in a depth of water of 1 meter for 4 hours without loss of electronic performance
Product Material	

Housings	Thermoplastic
Seals	Silicone Elastomer
Secondary Locks	Thermoplastic
Contacts	Copper Alloy, Nickel Plated, Gold optional

ATM Series[™] Part Numbering Sequence



NOTE: The above modifications (-XXXX) are only a sampling of the options available to our customers. For more information, please contact your Sales Representative.

Plugs & Wedgelocks - 2, 3, 4, 6, 8 and 12 positions

Plug	Face View	Part Number	Description] [Wedgelock	Part Number	Part Description
		ATM06-2S	Plug, 2-Way		A CONTRACT	AWM-2S	Wedgelock Plug, 2-Way
		ATM06-3S	Plug, 3-Way			AWM-3S	Wedgelock Plug, 3-Way
		ATM06-4S	Plug, 4-Way		and the second s	AWM-4S	Wedgelock Plug, 4-Way
		ATM06-6S	Plug, 6-Way			AWM-6S	Wedgelock Plug, 6-Way
		ATM06-08SA	Plug, 8-Way, A Position			AWM-8S	Wedgelock Plug, 8-Way
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ATM06-12SA	Plug, 12-Way, A Position			AWM-12S	Wedgelock Plug, 12-Way

NOTE: B, C, and D keying positions are available for all 8 and 12 positions plugs. For more information, please contact your Sales Representative.

NOTE: Wedgelocks are required for all plugs.

Receptacles & Wedgelocks - 2, 3, 4, 6, 8 and 12 positions

Receptacle	Face View	Part Number	Description]	Wedgelock	Part Number	Part Description
		ATM04-2P	Receptacle, 2-Way			AWM-2P	Wedgelock Receptacle, 2-Way
		ATM04-3P	Receptacle, 3-Way		VIKO	AWM-3P	Wedgelock Receptacle, 3-Way
		ATM04-4P	Receptacle, 4-Way	-	T	AWM-4P	Wedgelock Receptacle, 4-Way
		ATM04-6P	Receptacle, 6-Way	-		AWM-6P	Wedgelock Receptacle, 6-Way
		ATM04-08PA	Receptacle, 8-Way, A Position			AWM-8P	Wedgelock Receptacle, 8-Way
The second se		ATM04-12PA	Receptacle, 12-Way, A Position			AWM-12P	Wedgelock Receptacle, 12-Way

NOTE: B, C, and D keying positions are available for all 8 and 12 positions receptacles. For more information, please contact your Sales Representative.

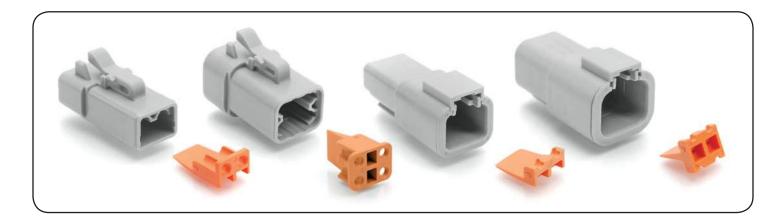
NOTE: Wedgelocks are required for all receptacles.

ATP Series[™]

Overview

ATP Series[™] connectors are designed as a high-performance, cost-effective, thermoplastic solution to be used within the Marine, Heavy Equipment, Agricultural, Automotive, Alternative Energy fields, as well as other demanding interconnect applications. Available in 2 and 4 position options, the ATP Series[™] Connectors contain superior environmental seals, seal retention capabilities and are designed for use with 10-14AWG with size 12 contacts handling up to 25A.

ATP Series[™] connectors are compatible with other existing standard products industry-wide.



Features & Benefits

Current Capacity	Size 12, 25A (max)
Wire Range	Size 12 contacts will accept wire ranges of 12 thru 14AWG
Temperature	Operative at temperatures from -55°C to +125°C. Continuous at rated current.
Dielectric Withstanding Voltage	Current leak less than 2 milliamps at 1500 VAC
Physical Shock	No unlocking, unmating or other unsatisfactory results during or after 50 G's in each of three usually perpendicular planes. No electrical discontinuities longer than 1 microsecond. MIL-STD 202. Method 213, Condition "C".
Vibration	Maintains continuity and exhibits no mechanical or physical damage after vibration levels of 20 G's at 10-2000 Hz.
Insulation Resistance	1000 megohms minimum 25°C
Corrosion Resistance	Connectors show no evidence of corrosion after exposure to 48 hours of salt spray per MIL - STD 1344, method 1001.
Submersion	IP67. Wired and mated connection will withstand immersion under three feet of water without loss of electronic qualities or leakage.
Fluid Resistance	Connectors show no damage when exposed to most fluids used in industrial application.
Contact Retention Contacts (minimum load)	70lbs. for Size 12 contacts.
Thermal Cycle	No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.
Durability	No electrical or mechanical defects after 100 cycles of engagement and disengagement.

ATP Series[™]

Features & Benefits, cont.

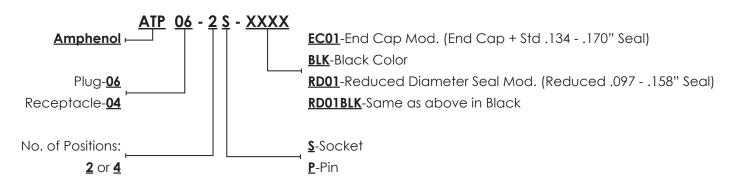
Contact Resistence

Wire Sealing Range

Contacts	Size 12	Contacts	Size 12
Wire Guage	12AWG	Recommended Wire Installation O.D.	Standard (S-Seal) .134170" Thin Wall (RD-Seal) .097158"
Test Current	25A		
Resistence (Solids)	60 µV		
Resistence (Stamped & Formed)	100 µV		
	'		
Product Material			

Shell	Thermoplastic
Seals	Silicone Elastomer
Wedge	Thermoplastic
Contacts	Pins: Copper alloy; Sockets: Copper alloy; Finish: Nickel-plated (optional Gold)

ATP Series[™] Part Numbering Sequence



NOTE: The above modifications (-XXXX) are only a sampling of the options available to our customers. For more information, please contact your Sales Representative.

Plugs & Wedgelocks - 2 and 4 positions

Plug	Face View	Part Number	Description	Wedgelock	Part Number	Part Description
and a state		ATP06-2S	Plug 2-Way			
a series		ATP06-2S-BLK	Plug 2-Way, Black	A See	AWP-2S	Wedgelock Plug, 2-Way
		ATP06-2S-EC01	Plug 2-Way			
		ATP06-4S	Plug 4-Way			
		ATP06-4S-BLK	Plug 4-Way, Black			
		ATP06-4S-EC01	Plug 4-Way	Non Contraction	AWP-4S	Wedgelock Plug, 4-Way
		ATP06-4S-RD01	Plug 4-Way			
		ATP06-4S-RD01BLK	Plug 4-Way, Black			

NOTE: Wedgelocks are required for all plugs.

Receptacles & Wedgelocks - 2 and 4 positions

Receptacle	Face View	Part Number	Description		Wedgelock	Part Number	Part Description
		ATP04-2P	Recep. 2-Way				
		ATP04-2P-BLK	Recep. 2-Way, Black		Carla Carla	AWP-2P	Wedgelock Receptacle, 2-Way
		ATP04-2P-EC01	Recep. 2-Way				
		ATP04-4P	Recep. 4-Way				
		ATP04-4P-BLK	Recep. 4-Way, Black			AWP-4P	Wedgelock Receptacle, 4-Way
		ATP04-4P-EC01	Recep. 4-Way				
		ATP04-4P-RD01	Recep. 4-Way				

NOTE: Wedgelocks are required for all receptacles.

AHD Series[™]

Overview

AHD Series[™] connectors were developed in response to the overwhelming need for an economic alternative to today's existing diagnostic product options. Designed specifically as a cost-conscious, reliable alternative, intermateable to industry standard 6 and 9 pin connectors, the AHD Series[™] is ideal for any situation where either controlled and/or uncontrolled environmental conditions exist.

AHD Series[™] Connectors offer both a smooth, non-sealing option for controlled applications, as well as an environmentally-sealed, threaded option for more demanding applications.

AHD Series[™] connectors are completely compatible with all other existing standard products industry-wide.



Features & Benefits

Current Capacity	6 position: Size 12, 25A (max) 9 position: Size 16, 13A (max)
Wire Range	Size 12 contacts will accept wire ranges of 10 thru 14AWG Size 16 contacts will accept wire ranges of 14 thru 20AWG
Temperature	DiagnosticGrade™ / Military Style: Operating temperature range: -55°C TO +125°C at rated current.
Dielectrical Strength	DiagnosticGrade™ / Military Style: 1500 volts minimum
Physical Shock	Military Style: No locking, unmating or other unsatisfactory result after 50 g's in each of three mutually perpendicular planes.
Vibration	Military Style: Maintains continuity and exhibits no mechanical or physical damage after vibration. (20 g's at 10-2000 Hz)
Insulation Resistance	DiagnosticGrade™ / Military Style: 1000 megohms minimum at 25°C.
Durability	DiagnosticGrade™ / Military Style: No electric or mechanical defects after 100 cycles of engagement and disengagement.

AHD Series[™]

Features & Benefits, cont.

Integrated Alignment Keys	Tactile verification for blind mating
Strong Thermoplastic Housing	Extended service life
Operating Temperature Range	-55°C TO +125°C - Wide range compatibility
Economically Sound	Low overall cost
Rohs Compliant	Environmentally friendly
UI Approval	Certified and compliant
Contact Current Rating	DiagnosticGrade™ / Military Style: At +125°C, continuous, less thru wire: #12 contact = 25A max. current; #16 contact = 13A max. current
Corrosion Resistance	DiagnosticGrade [™] / Military Style: Connectors show no evidence of corrosion after exposure to 48 hours of salt spray per MIL-STD 1344 method 1001.

Product Material

Thermoplastic
Silicone Elastomer
Copper alloy/Gold plated

Plugs - 6 and 9 positions

Plug	Face View	Part Number	Description
		AHD16-6-12S	6 Position, Plug, Smooth Shell Diagnostic Grade *Size 12 pin contacts only
		AHD16-6-12SB010	6 Position, Plug, Locking Ring *Size 12 pin contacts only
	000	AHD16-9-1939S	9 Position, Plug, Locking Ring *Size 16 pin contacts only
		AHD17-9-1939S	9 Position, Plug, Smooth Shell *Size 16 pin contacts only.
		AHD16-9-96S	9 Position, Plug, Locking Ring (non-J1939) SPECIAL ORDER *Size 16 pin contacts only.

Receptacles - 6 and 9 positions

Receptacle	Face View	Part Number	Description
		AHD10-6-12P-L	6 Position, Receptacle *Size 12 socket contacts only
		AHD10-9-1939P	9 Position, Receptacle, Flange *Size 12 socket contacts only
		AHD14-9-1939P	9 Position, Receptacle, In-Line Threaded Rear J1939 *Size 16 socket contacts only
		AHD10-9-96P	9 Position, Receptacle (Non J-1939) SPECIAL ORDER *Size 16 socket contacts only
		AHD14-9-96P	9 Position, Receptacle, In Line Threaded Rear SPECIAL ORDER *Size 16 socket contacts only

Receptacle Caps - 6 and 9 positions

Сар	Part Number	Description
	AHDC-16-6	6 Position, Receptacle, Cap, Grey
OBD	AHDC-16-9-OBDBK	9 Position, Receptacle, Cap, Black, OBD Label
OBD	AHDC169-T-OBDBK	9 Position, Receptacle, Cap w/ Tether, Black, OBD Label
OBD	AHDC169-TMOBDBK	9 Position, Receptacle, Cap w/ Wire Tether, Black, OBD Label
	AHDC-16-9	9 Position, Receptacle, Cap, Grey
	AHDC-16-9-BLK	9 Position, Receptacle, Cap, Black
Ø	AHDC169-T-BLK	9 Position, Receptacle, Cap w/ Tether, Grey
	AHDC169-T	9 Position, Receptacle, Cap w/ Tether, Black
	AHDC169-TMBLK	9 Position, Receptacle, Cap w/ Wire Tether, Black
	AHDC169-TM	9 Position, Receptacle, Cap w/ Wire Tether, Grey

AT-SR01 Series™, Strain Relief Modifications - Plugs and Wedgelocks

The AT Strain Relief Series' specifically designed wire cavities protect each individual wire seal, eliminating stress on the rear seal, maintaining IP67 sealing performance regardless of wire bundle direction or improper installation. It is a cost-effective and highly-reliable solution for wire routing, strain relief and sealing issues common in Heavy Duty applications. It ensures a complete environmental seal and necessary strain relief on the production line and in the field.

Plug	Face View	Part Number	Description	Wedgelock	Part Number	Part Description
		AT06-2S-SR01BLK	Plug 2-Way		AW2S	Wedgelock Plug, 2-Way
	0-00	AT06-3S-SR01BLK	Plug 3-Way		AW3S	Wedgelock Plug, 3-Way
		AT06-4S-SR01BLK	Plug 4-Way		AW4S	Wedgelock Plug, 4-Way
		AT06-6S-SR01BLK	Plug 6-Way	222	AW6S	Wedgelock Plug, 6-Way
		AT06-08SA-SRGRY	Plug 8-Way, Position A	20 23 20 23	AW8S	Wedgelock Plug, 8-Way
		AT06-12SA-SRGRY	Plug 12-Way, Position A		AW12S	Wedgelock Plug, 12-Way



NOTE: Wedgelocks are required for all plugs.

NOTE: Color options pertain to connector body only. (See page 26 for options.) AT-SR01 Strain Relief Modifications are always **BLACK**.

AT-SR01 Series™, Strain Relief Modifications - Receptacles & Wedgelocks

Receptacle	Face View	Part Number	Description	Wedgelock	Part Number	Part Description
		AT04-2P-SR01BLK	Receptacle 2-Way		AW2P	Wedgelock Receptacle, 2-Way
	A A	AT04-3P-SR01BLK	Receptacle 3-Way		AW3P	Wedgelock Receptacle, 3-Way
		AT04-4P-SR01BLK	Receptacle 4-Way		AW4P	Wedgelock Receptacle, 4-Way
		AT04-6P-SR01BLK	Receptacle 6-Way		AW6P	Wedgelock Receptacle, 6-Way
		AT04-08PA-SRGRY	Receptacle 8-Way, Position A		AW8P	Wedgelock Receptacle, 8-Way
		AT04-12PA-SRGRY	Receptacle 12-Way, Position A		AW12P	Wedgelock Receptacle, 12-Way



NOTE: Wedgelocks are required for all receptacles.

NOTE: Color options pertain to connector body only. (See page 26 for options.) AT-SR01 Strain Relief Modifications are always **BLACK**.

NOTE: These modifications are only a sampling of the options available to our customers. For more options, please contact your Sales Representative.

End Cap/Rear Seal Modifications

AT Series[™] connectors offer several modifications for increased design flexibility or special application requirements.

Plug	Mod. Number	Description
	XXXX-XXXX- EC01	AT Series: End Cap Mod. over Rear Seal (End Cap + Std088145" Seal) ATM Series: End Cap Mod. over Rear Seal (End Cap + Std053120" Seal) ATP Series: End Cap Mod. over Rear Seal (End Cap + Std134170" Seal)
	XXXX-XXXX-RD01	AT Series: Red. Diam. Seal Mod. for Smaller Wire Diam. (Red053120" Seal) ATP Series: Red. Diam. Seal Mod. for Smaller Wire Diam. (Red097158" Seal)
	XXXX-XXX- SS01	AT/ATP Series: Solid Rear Seal w/ End Cap Mod. for Maintaining an Environmental Seal with Unmated Connectors (End Cap + Solid Seal)
	XXXX-XXX- MM01*	AT Series: Mixed Mod. (End Cap + Reduced .053120" Seal) ATP Series: Mixed Mod. (End Cap + Reduced .097158" Seal) *Consult Sales Representative for availability

J-1939 Modifications - Plug, Receptacles & Wedgelocks

AT Series[™] J-1939/11, 3-Pin connectors offer a high performance, reliable and cost effective solution for the SAE 3 position CAN Network requirements. This series is designed to be completely compatible with existing industry standard J1939/11 connectors and provides a complete line of connectors including Y receptacles, network terminations with 120 ohm resistors, and keyed wedgelocks to prevent mis-mating. Additionally, the AT Series offers the –SR01 Strain Relief series in both 3 way receptacles and plugs for critical J1939 in-line connections requiring increased environmental protection and strain relief.

Receptacle	Face View	Part Number	Description	Wedgelock	Part Number	Part Description
		AT04-3P-RY01	"Y" Recep., 3-Way, Grey	-	AW3P-1939	Wedgelock, "Y" Receptacle, 3-Way, J-1939
	OOOOOOOOOOOOO	AT04-3P-RJ120BK	Recep., 3-Way, Strain Relief, Black	3-Way	Wedgelock (AW3)	P-1939) included
		AT04-3P-RJ120	Recep., 3-Way, Strain Relief, Grey	3-Way	Wedgelock (AW3)	P-1939) included
Plug	Face View	Part Number	Description	Wedgelock	Part Number	Part Description
	0- (0 -0)		Plug, 3-Way, Strain Relief,		AW3S-1939	Wedgelock, Plug, 3-Way, J-1939, Blue
		AT06-3S-SR01BLK			AW3S	Wedgelock, Plug, 3-Way, Blue

NOTE: These modifications are only a sampling of the options available to our customers. For more options, please contact your Sales Representative.

J-1939 Modifications, cont.

Plug	Part Number	Description
a contraction of the second se	AT06-3S-RJ120	Plug, 3-Way, J-1939, 120 Ohm Resistor, End Cap, Grey (Blue wedgelock included)
	AT06-3S-RJL120	Plug, 3-Way, J-1939, 120 Ohm Resistor, End Cap, Latch Guard, Grey (Blue wedgelock included)

Flange Mount Receptacle Modifications

AT Series™ connectors offer several flange mount options to increase design flexibility and simplify wire routing. Consult a Sales Representative for flange mount configurations and styles.

Receptacle	Mod. Number	Description
	AT04-12PA-PM01	12-Way, Flange Mount, Receptacle, A Position
	AT04-3P-PM05	3-Way, Flange Mount, Receptacle
	AT04-08PB-PM07G	8-Way, Flange Mount, Receptacle, Gasket
	AT1612-13PB-G	13-Way, Flange Mount, Receptacle, Gasket Two Size 12 contacts (A and B); Eleven Size 16 contacts

Plug & Receptacle Body Color Modification

A wide range of standard color options are available for all A Series[™] product lines. 8 and 12 position plugs and receptacles require special order. For more information, please contact a Sales Representative.

Color	Modification Number	Color	Modification Number	- 4M	- ATA	
Black	XXXX-XXXX-BLK	Yellow	XXXX-XXX- YEL		i 💼 🧰	
White	XXXX-XXX-WHT	Green	XXXX-XXXX-GRN		10 -	
Brown	XXXX-XXXX-BRN	Blue	XXXX-XXXX-BLU			
Grey	XXXX-XXXX-GRY	Red	XXXX-XXX- RED	CO-		

Custom Products

NOTE: These custom products are only a sampling of the options available to our customers. For more options, please contact your Sales Representative.

Adapter, 6 Pin to RJ45

AT Series[™] 6 Pin to RJ45 Adapters are developed to provide a direct connection between industry standard 6 position connectors and 8 position ethernet RJ45 connections.

Part		Part Number	Description
		P30307-XX	AT Series™ 6-Way Receptacle to RJ45 8-Way Receptacle
	NA	ATRJ8-FSSR	RJ Plug, Sealed Strain Relief, Field Installable/Serviceable Assembly, 13/16-28 Thread Receptacles (RJ plug not included)

LED Option

Designed for electromechanical applications where a visible LED light is integrated into a 2 position plug allowing the user to determine the device is receiving power. Environmentally sealed, field serviceable and cost effective while reducing costly trouble shooting time. 12V and 24V versions available.

Part	Part Number	Description
	AT06-2S-LED1201	AT Series™, 2-Way, Plug, LED, 12V, Clear Endcap, Grey Body (Requires Wedgelock P/N: AW2S-LED)
	AT06-2S-LED2401	AT Series™, 2-Way, Plug, LED, 24V, Clear Endcap, Black Body (Requires Wedgelock P/N: AW2S-LED)
	P23232	AHD Series™, 6 Position, Plug, LED

AHD[™] Jam Mount Diagnostic Receptacle

AHD Series[™] 9-way diagnostic receptacle with panel nut and extended shroud to allow for simplified mounting. Mates with all industry standard diagnostic plugs.

Receptacle		Mod. Number	Description
	AHD17-9-1939PES	AHD Series™, 9-Way, Jam Mount Extended Shroud, Receptacle	
AL SO		AHD17-PN01	AHD Series™ Panel Nut (for use with P/N: AHD17-9-1939PES)

Custom Products note: These custom products are only a sampling of the options available to our customers. For more options, please contact your Sales Representative.

AHD Series[™] Unsealed Diagnostic Receptacle

AHD Series™ unsealed diagnostic 9-way receptacle that is cost effective, yet rugged. Mates with industry standard diagnostic 9-way plugs.

Receptacle	Mod. Number	Description
	AHD10-9-1939PNR	AHD Series™, 9-Way, Receptacle, Unsealed

AT Series[™] Terminating Resistors

AT Series[™] connectors are available with custom resistor values to meet specific application requirements. Consult Sales Representative for resistor, diode and other electronic packaging solutions.

Part	Part Number	Description
a lie	AT06-3S-R680	AT Series™, Plug, 3-Way, 680 Ohm Resistor, End Cap, Grey (Standard wedgelock included) NOTE: Resistor is between A and B position.
	AT04-2P-R120YEL	AT Series™, Receptacle, 2-Way, 120 Ohm Resistor, Yellow (Standard wedgelock included)

Custom Cable Assemblies

Custom Cable Assemblies are available for any application, and carry with them the capabilities of being overmolded in any size or length necessary. For more information, please contact a Sales Representative.

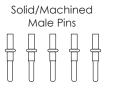


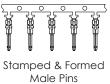
Contact Options

Contacts

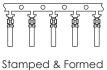
Amphenol offers two types of contacts for use in our products: Solid and Stamped & Formed. Both types of contacts utilize the simple crimp-style termination, requiring no solder usage.











Female Sockets

Standard Contacts - Solid Sockets & Pins

Series	Size	AWG	Туре	Part Number	Description
ATP/AHD-6	12	12-14	Solid	AT62-210-1231	Female Contact - Socket, Gold-plated
ATP/AHD-6	12	12-14	Solid	AT62-203-12141	Female Contact - Socket, Nickel-plated
AT/AHD-9	16	14	Solid	AT62-209-1631	Female Contact - Socket, Gold-plated
AT/AHD-9	16	14	Solid	AT62-209-16141	Female Contact - Socket, Nickel-plated
AT/AHD-9	16	16-20	Solid	AT62-201-1631	Female Contact - Socket, Gold-plated
AT/AHD-9	16	16-20	Solid	AT62-201-16141	Female Contact - Socket, Nickel-plated
ATM	20	20-22	Solid	AT62-201-2031	Female Contact - Socket, Gold-plated
ATM	20	20-22	Solid	AT62-201-20141	Female Contact - Socket, Nickel-plated
ATP/AHD-6	12	12-14	Solid	AT60-220-1231	Male Contact - Pin, Gold-plated
ATP/AHD-6	12	12-14	Solid	AT60-204-12141	Male Contact - Pin, Nickel-plated
AT/AHD-9	16	14	Solid	AT60-215-1631	Male Contact - Pin, Gold-plated
AT/AHD-9	16	14	Solid	AT60-215-16141	Male Contact - Pin, Nickel-plated
AT/AHD-9	16	16-20	Solid	AT60-202-1631	Male Contact - Pin, Gold-plated
AT/AHD-9	16	16-20	Solid	AT60-202-16141	Male Contact - Pin, Nickel-plated
ATM	20	20-22	Solid	AT60-202-2031	Male Contact - Pin, Gold-plated
ATM	20	20-22	Solid	AT60-202-20141	Male Contact - Pin, Nickel-plated

Contact Options

Series	Size	AWG	Туре	Part Number	Description
ATP/AHD-6	12	12-14	S & F	AT62-12-0166	Female Contact - Socket, Nickel-plated
ATP/AHD-6	12	12-14	S & F	AT62-12-0144	Female Contact - Socket, Gold-plated
AT/AHD-9	16	14-16	S & F	AT62-14-0122	Female Contact - Socket, Nickel-plated
AT/AHD-9	16	14-16	S & F	AT62-14-0144	Female Contact - Socket, Gold-plated
AT/AHD-9	16	16-18	S & F	AT62-16-0122	Female Contact - Socket, Nickel-plated
AT/AHD-9	16	16-18	S & F	AT62-16-0144	Female Contact - Socket, Gold-plated
AT/AHD-9	16	18-20	S & F	AT62-16-0622	Female Contact - Socket, Nickel-plated
AT/AHD-9	16	18-20	S & F	AT62-16-0644	Female Contact - Socket, Gold-plated
ATM	20	16-22	S & F	AT62-20-0122	Female Contact - Socket, Nickel-plated
ATM	20	16-22	S & F	AT62-20-0144	Female Contact - Socket, Gold-plated
	10	12-14	S & F	AT(0.10.01//	Male Contract. Die Michael alerte d
ATP/AHD-6	12			AT60-12-0166	Male Contact - Pin, Nickel-plated
ATP/AHD-6	12	12-14	S & F	AT60-12-0144	Male Contact - Pin, Gold-plated
AT/AHD-9	16	14-16	S & F	AT60-14-0122	Male Contact - Pin, Nickel-plated
AT/AHD-9	16	14-16	S & F	AT60-14-0144	Male Contact - Pin, Gold-plated
AT/AHD-9	16	16-18	S & F	AT60-16-0122	Male Contact - Pin, Nickel-plated
AT/AHD-9	16	16-18	S & F	AT60-16-0144	Male Contact - Pin, Gold-plated
AT/AHD-9	16	18-20	S & F	AT60-16-0622	Male Contact - Pin, Nickel-plated
AT/AHD-9	16	18-20	S & F	AT60-16-0644	Male Contact - Pin, Gold-plated
ATM	20	16-22	S & F	AT60-20-0122	Male Contact - Pin, Nickel-plated
ATM	20	16-22	S & F	AT60-20-0144	Male Contact - Pin, Gold-plated

Standard Contacts - Stamped & Formed Sockets & Pins

Specialty Contacts - DiagnosticGrade[™] Solid Sockets & Pins Smaller AWG for diagnostic applications; Gold-plated; increased mating cycles; cost-effective.

Series	Size	AWG	Туре	Part Number	Description
ATP/AHD-6	12	20	Solid	65-54748	Female Contact - Socket, DiagnosticGrade, Gold-plated
AT/AHD-9	16	20	Solid	65-54757	Female Contact - Socket, DiagnosticGrade, Gold-plated
ATP/AHD-6	12	20	Solid	65-54749	Male Contact - Pin, DiagnosticGrade, Gold-plated
AT/AHD-9	16	20	Solid	65-54756	Male Contact - Pin, DiagnosticGrade, Gold-plated

Specialty Contacts - RockSolidTM Solid Sockets (1997) (1

AT/AHD-9	16	14	Solid	65-54942-14	Female Contact - Socket, RockSolid
AT/AHD-9	16	16	Solid	65-54942-16	Female Contact - Socket, RockSolid
AT/AHD-9	16	20	Solid	65-54942-20	Female Contact - Socket, RockSolid

Seal Plugs 🔍 🔍 🛰

AT/ATP/AHD	16	12-16	-	A114017	Seal Plugs, White
AT-SR01	16	16	-	A114017-SR	Seal Plugs, Black
ATM	20	20	-	AT13-204-2005	Seal Plugs, White

Accessories & Tooling

Field Repair Kits

The AT Series[™] Field Repair Kits are the ideal companion for anyone performing on-site or in-the-field maintenance. They contains a full range of plugs, receptacles, wedges, contacts, seals and tools, as well as a cross-reference guide, all in a heavy duty plastic carrying case, easily labeled for quick identification.

Part	Part Number	Description
	AT-RK100	Large Field Repair Kit contents: AT04-2P: 2 Pos. Recep. (15 qty.) AT04-3P: 3 Pos. Recep. (10 qty.) AT04-4P: 4 Pos. Recep. (10 qty.) AT04-08PA: 8 Pos. Recep. (10 qty.) AT04-08PA: 8 Pos. Recep. (5 qty.) AT04-08PA: 8 Pos. Recep. (5 qty.) AT04-2S: 2 Pos. Plug (15 qty.) AT06-2S: 2 Pos. Plug (10 qty.) AT06-4S: 6 Pos. Plug (10 qty.) AT06-4S: 6 Pos. Plug (10 qty.) AT06-6S: 6 Pos. Plug (10 qty.) AT06-08SA: 8 Pos. Plug (5 qty.) AT06-12SA: 12 Pos. Plug (5 qty.) AW3P: 3 Pos. Recep. Wedge (15 qty.) AW3P: 3 Pos. Recep. Wedge (10 qty.) AW4P: 4 Pos. Recep. Wedge (10 qty.) AW4P: 4 Pos. Recep. Wedge (10 qty.) AW3P: 8 Pos. Recep. Wedge (10 qty.) AW3P: 3 Pos. Recep. Wedge (10 qty.) AW4P: 4 Pos. Recep. Wedge (10 qty.) AW4S: 8 Pos. Plug Wedge (10 qty.) AW3S: 3 Pos. Plug Wedge (10 qty.) AW3S: 8 Pos. Plug Wedge (10 qty.) AW4S: 4 Pos. Plug Wedge (10 qty.) AW4S: 4 Pos. Plug Wedge (10 qty.) AW4S: 4 Pos. Plug Wedge (5 qty.) AW12S: 12 Pos. Plug Wedge (5 qty.) AW12S: 12 Pos. Plug Wedge (5 qty.) AT62-201-1614: Female Contacts - Machined (150 qty.) AT62-201-1614: Remale Contact - Machined (150 qty.) ATRT-100: Removal Tool for Contact/Wedges (1 qty.) ATRT-100: Removal Tool for Contact/Wedges (1 qty.) AT-RCT100: Universal Repair Case Tool (1 qty.) AT-RCT100: Universal Repair Case Tool (1 qty.) AT-RCT100: Repair Manual (1 qty.) AT-RCT100: Repair Manual (1 qty.)
	AT-RK200	Miniature Field Repair Kit contents: AT04-2P: 2 Pos. Recep. (5 qty.) AT04-3P: 3 Pos. Recep. (5 qty.) AT04-4P: 4 Pos. Recep. (3 qty.) AT04-6P: 6 Pos. Recep. (1 qty.) AT04-08PA: 8 Pos. Recep. (1 qty.) AT04-12PA: 12 Pos. Recep. (1 qty.) AT04-23: 2 Pos. Plug (5 qty.) AT06-23: 2 Pos. Plug (5 qty.) AT06-35: 6 Pos. Plug (5 qty.) AT06-45: 6 Pos. Plug (1 qty.) AT06-45: 6 Pos. Plug (1 qty.) AT06-12SA: 12 Pos. Plug (1 qty.) AT06-12SA: 12 Pos. Plug (1 qty.) AT06-12SA: 12 Pos. Recep. Wedge (5 qty.) AW2P: 2 Pos. Recep. Wedge (5 qty.) AW4P: 4 Pos. Recep. Wedge (5 qty.) AW4P: 4 Pos. Recep. Wedge (1 qty.) AW12P: 12 Pos. Recep. Wedge (1 qty.) AW32: 2 Pos. Plug Wedge (5 qty.) AW32: 2 Pos. Plug Wedge (5 qty.) AW32: 2 Pos. Plug Wedge (5 qty.) AW32: 4 Pos. Plug Wedge (5 qty.) AW45: 4 Pos. Plug Wedge (1 qty.) AT62-201-1614: Female Contacts - Machined (50 qty.) AT62-201-1614: Female Contacts - Machined (50 qty.) AT62-201-1614: Female Contacts - Machined (50 qty.) AT62-201-1614: Female Contact - Machined (50 qty.) AT62-202-16141: Male Con

Accessories & Tooling

Crimp Tools

Amphenol offers two types of contacts for use in our products: Solid and Stamped & Formed. Both types of contacts utilize the simple crimp-style termination, requiring no solder usage. Below are the tools available to assist with your crimping needs to ensure a proper connection between contact and wire.

Part	Part Number	Description
	CA-5D12	Universal Hand Crimp Tool, Size 12/16/20 *Solid contacts only
Start F	CA-5E12	Pneumatic Crimp Tool, Size 12/16/20 *Solid contacts only
	MFX-3973	Crimp Die - Size 12 (Stamped & Formed Contacts)
	MFX-3950	Crimp Die - Size 16, 18-20AWG (Stamped & Formed Contacts)
	MFX-3953	Crimp Die - Size 16, 16-18AWG (Stamped & Formed Contacts)
A State	MFX-3975	Crimp Die - Size 16, 14-16AWG (Stamped & Formed Contacts)
a sec	MFX-3974	Crimp Die - Size 20 (Stamped & Formed Contacts)
	ATT-12-00	Size 12, 12AWG, Stamped & Formed Contact Tool
A REAL	ATT-16-00	Size 16, 14-16AWG, Stamped & Formed Contact Tool
	ATT-16-01	Size 16, 18-20AWG, Stamped & Formed Contact Tool
	ATT-20-00	Size 20, 20AWG, Stamped & Formed Contact Tool

AT Series[™] Contact & Wedge Removal Tool

Part	Part Number	Description		
Amphanal Attituda	ATRT-100	Used for removal of contacts and wedges for AT Series™ products		



Amphenol Sine Systems

44724 Morley Drive Clinton Township, MI 48036 Untited States +1 586 465 3131 websitemanager@sineco.com www.sineco.com

Amphenol Air LB France

29, voie d'yvois Blagny F-08110 France +33 3 24 22 78 49 accueil@amphenol-airlb.fr www.amphenol-airlb.fr

Amphenol Air LB GmbH

Am Kleinbahnhof 4 Saarlouis, D-66740 Germany +49 6831 981 00 info@amphenol-airlb.de www.amphenol-airlb.de

Amphenol Alden Products

117 Noth Main Street Brockton, MA 02301 United States +1 508 427-7000 info@aldenproducts.com www.Aldenproducts.com

Amphenol Australia Pty Ltd

2 Fiveways Blvd. Melbourne, Keysbourough, Victoria, 3173 Australia +613 8796 8888 www.amphenol.com.au

Amphenol DaeShin Elect and Precision Co, Ltd

558 SongNae-Dong SoSa-Gu Bucheon City, Kyunggi-Do, 420-130 Korea +81 32 610 3800 info@amphenol.co.kr www.amphenol.co.kr

Amphenol Fibersystem

1300 Central Expressway N. Suite 100 Allen, TX 75013 United States +1 214 547-2400 info@fibersystems.com www.fibersystems.com

Amphenol Mexico Sales Op.

Prolongacion Reforma 61-6B2 Mexico City DF 01330, Mexico +52 55 5258 99 84 info@amphenolmexico.com www.amphenolmexico.com

Amphenol Interconnec India

105 Bhosari Industrial Area Pune, 411 026 India +91 20 2712 0462 info@amphenol-in.com www.amphenol-incom

Amphenol LTW Technology Co.,Ltd

9F, No. 657-12, Zhongzheng Road Xinzhuang Dist, New Taipei City, 242 Taiwan +886-2-2908-5626 info@ltw-tech.com www.amphenolltw.com

Amphenol Limited

Thanet Way, Whistable Kent, CT53JF United Kingdom +44 (0) 1227 773 200 info@amphenol.co.uk www.amphenol.co.uk

Amphenol PCD Shenzen Co. LTD

Building 21, 1st Liao Keng Industrial Zone Shi yan street, bao an district, Shenzen 518108 China +86 755 8173 8000 www.amphenolpcd.com.cn

Amphenol PCD, Inc.

72 Cherry Hill Drive Beverly, MA 01915 United States +1 978 624-3400 accueil@amphenolpcd.com www.amphenolpcd.com

Amphenol Socapex S.A.S

948, Promenade de l'Arve, BP29 Thyez Cedex, 74311 France +33 4 5089 2800 contact@amphenol-socapex.fr www.amphenol-socapex.fr

Amphenol Terrier Technologies Systems

Unit 14, Northlake Industrial Park Malcolm Moodie Crescent Jet Park, South Africa +27 11 397 6069 clive@terriertech.co.za www.terriertech.co.za

Amphenol Tuchel Electronics - China

20 Tianshan Road-Changzhou Changzou, Jiangsu, 213022 China 85 519 511 0301 www.amphenol.info

Amphenol Tuchel Electronics GmbH

August-Haeusser-Strasse 10 Heilbronn, D-74080 Germany +49 (0) 7131 929 0 info@amphenol.de www.amphenol.de

Amphenol Sine Systems | 44724 Morley Drive | Clinton Township, MI | 48036 Telephone: +1 800 394 7732 | Fax: +1 586 465 1216 | www.sineco.com