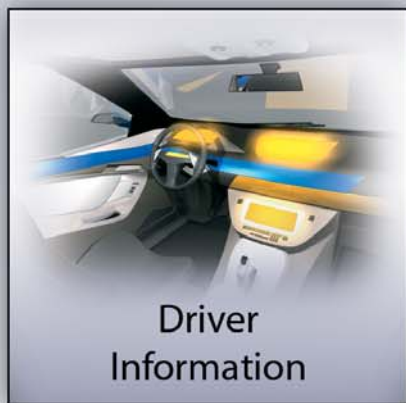


AMP SUPERSEAL Connectors  
1.0 mm System  
for the Automotive Market

**SUPERSEDED**  
NOT the LATEST  
REVISION



# THE 5 APPLICATION AREAS



Convenience



Safety & Security Systems



Body & Chassis Systems

## INNOVATIVE TECHNOLOGIES

*Tyco Electronics is the world's largest passive electronic components manufacturer and a world leader in cutting-edge wireless technologies. Tyco Electronics has facilities located in over 50 countries, serving customers in the aerospace, automotive, computer, communications, consumer electronics, industrial and power industries. The global automotive division follows the globalization goals of our customers, speeds up the integration of new technologies and enables our customers access to our vast product portfolio and services.*

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## TERMINALS & CONNECTORS



Tyco Electronics offers a broad range of high quality terminals and connectors. Our electrical/electronic interconnection products and solutions are used to electrically and mechanically join wires and cables, printed circuit boards, integrated circuit packages and batteries. Tyco Electronics expanding capabilities include new copper and fiber-optic connectors, wires, cables/cable management systems that are designed to meet automotive industry demands. The AMP brand encompasses the broadest range of connectors in the world, including high-density, high-speed designs for leading-edge communications equipment.

LITERATURE NO. 1308092-2

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## CABLE ASSEMBLY SYSTEMS



Tyco Electronics is your partner for special cable assemblies. Tyco Electronics offers research and development capabilities, prototyping, samples as well as manufacturing facilities for special cable assemblies. This includes overmold technology, semi/fully automatic manufacturing, testing equipment and appliances for handling of high volume production.

LITERATURE NO. 1654288-2

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## MECHATRONICS



A variety of technical products are designed today by integrating mechanical components and electronic hardware into one packaging unit thus creating true mechatronic solutions. Mechatronic applications offer amazing and versatile potentials related to functionality, cost, space requirements and quality. Tyco Electronics contributes to those applications with its wide range of innovative and cost-effective product and process technologies.

Advanced stamping, injection molding and assembly techniques are applied along with highly selective surface plating methods.

LITERATURE NO. 1308091-2

## SENSOR TECHNOLOGY



Contact-less measuring eliminates interference effects, wear and tear, and provides increased reliability. Tyco Electronics, one of the largest technology providers for the automobile industry, offers contact-less sensors for a variety of applications. As sensor manufacturer and processing partner, Tyco Electronics also provides project planning support for new sensor applications, assistance in the selection of the appropriate sensor technology for the respective application, and assistance with defining the corresponding mechanical, electrical

and magnetic interface. Tyco Electronics has a broad electromechanical portfolio that includes robust housing technologies, connector systems, and temperature stable designs based on foil and cable networks. This combination of technologies and experience ensures that reliable and cost effective sensor solutions are available for all application types.

LITERATURE NO. 1308086-2

## RELAYS AND SWITCHING MODULES



Automotive technology and integrated systems continue to develop rapidly with electric and electronic systems in today's vehicles playing an increasingly important role for traffic safety and travelling comfort. Automotive Relays and Switching Modules (AR & SM) of Tyco Electronics' Global Automotive Division offer a wide range of the most important components for such systems and is the world's number one participant in this industry sector. Tyco Electronics has competencies in development, production and related technologies

as well as application support, which ensures a competitive edge and mutual business growth on a worldwide scale.

LITERATURE NO. 1308085-2

## POWER DISTRIBUTION SYSTEMS



In automotive environments, the extensive net of electrical/electronic loads requires complex powernet structures. The next evolution of these structures include intelligent control and distribution systems.

Tyco Electronics is working on modules with intelligent technology combinations. Our capabilities include, power distribution units that incorporate integrated switching and protection functions along with flexibility and maximizing modularity to best suit our customer needs.



LITERATURE NO. 1308087-2

## INDUCTIVE SYSTEMS



The Global Automotive Division is your source for interconnection and wireless technologies for automotive, truck and off-highway OEMs and Tier 1 suppliers. With the design competency center in Oostkamp (Belgium), and strategic production centers in Evora (Portugal), Bangalore (India), Shenzhen (China), and Oostkamp (Belgium), Tyco Electronics Inductive Systems is ready to offer you any LF-application component required in the automotive industry.

The Inductive System group focuses on the customer requirement in order to design to the exact demand. This is achieved by highly- technical, intelligent and cost-efficient engineering. In order to be a leader in design, Tyco Electronics Inductive Systems has a vast product portfolio, which consists out of antennas, actuators and integrated modules. Next to that, several specific applications are designed.



LITERATURE NO. 1308089-2

## ALTERNATIVE POWER SYSTEMS COMPONENTS FOR HYBRID AND FUELCELL TECHNOLOGY



Tyco Electronics is a leader in next-generation transportation technologies and products for hybrid and electric vehicles. The Global Automotive Division is your source for high voltage power distribution, high current contacts, high voltage connectors and cables, high voltage relays, sensors and temperature protection devices for hybrid and other alternative powered vehicles.



LITERATURE NO. 1308093-2

## HIGH SPEED DATA NETWORKING



High speed data networking within the automobile is becoming more predominant. What was till now restricted to the high end of the market utilizing system such as the MOST® network, high speed data transmission based on optical fibers, now with the introduction of iPod's, display screens and cameras results in the need for high speed networking throughout all platforms.

MOST® IS A TRADEMARK

LITERATURE NO. 1308084-2

## WIRELESS TECHNOLOGIES RADAR SENSORS & ANTENNAS FOR TELEMATICS



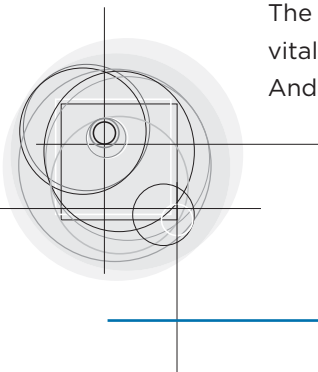
Tyco Electronics is a world leading supplier of radar technology for the automotive industries. In cooperation with system integrators and OEMs, Tyco Electronics developed 24 GHz high resolution short range radar sensors in Ultra Wide Band technology and 77 GHz Adaptive Cruise Control radar front ends suitable for driver assistance applications, which enable advanced active and passive safety systems.

Tyco Electronics develops, produces and supplies antennas for the automotive industries. Single to Quad band antennas are available in state of the art planar and dipole technologies. All telematic frequency bands for satellite radio, navigation, emergency positioning and cellular mobile communications are covered.

LITERATURE NO. 1308090-2

## TYCO ELECTRONICS. OUR COMMITMENT. YOUR ADVANTAGE.

Tyco Electronics' businesses operate in thousands of different areas of industry. The products and services we deliver all have one thing in common: They are vital to everyday living. Individuals and companies worldwide have critical needs. And every minute of every day, we satisfy them.









## Tyco Electronics Online

The Tyco Electronics website is an innovative and interactive source for application information, product updates and technical solutions.

Our step-by-step software makes our website intuitive and user-friendly to better serve you!

Please contact us at:

[www.tycoelectronics.com/automotive](http://www.tycoelectronics.com/automotive)

## Internet Homepage

[www.tycoelectronics.com](http://www.tycoelectronics.com)

[www.tycoelectronics.com/automotive](http://www.tycoelectronics.com/automotive)

## Electronic Internet Catalog

[www.catalog.tycoelectronics.com](http://www.catalog.tycoelectronics.com)

## Product Information Center (PIC)

You can rely on Tyco Electronics PIC Team to provide you support for answers to your general information or technical questions in an efficient and effective manner.

To reach our PIC staff, please contact your local Tyco Electronics organization.

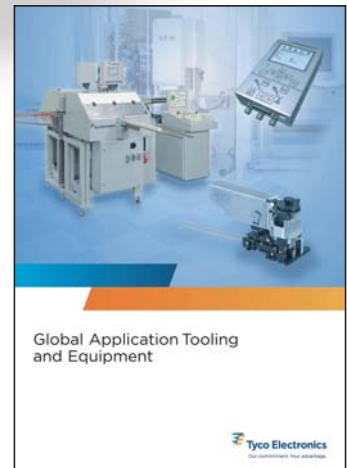


## Product and Machine Literature

Tyco Electronics offers a variety of product specific catalogs, brochures and high impact flyers to help better serve you!

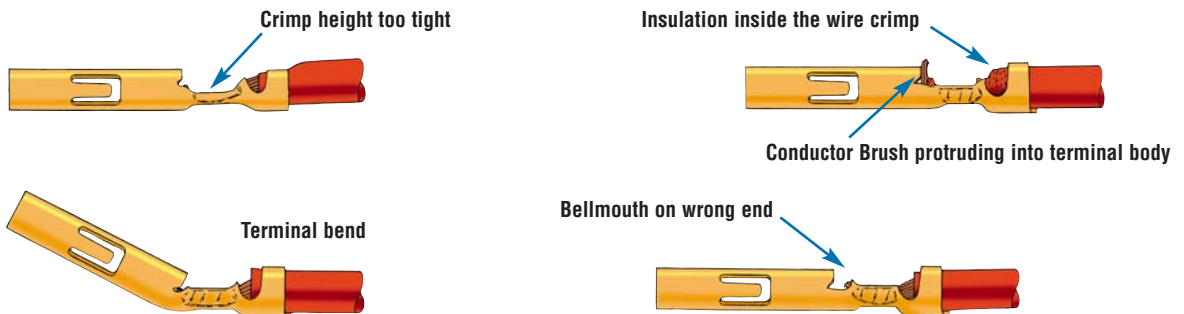
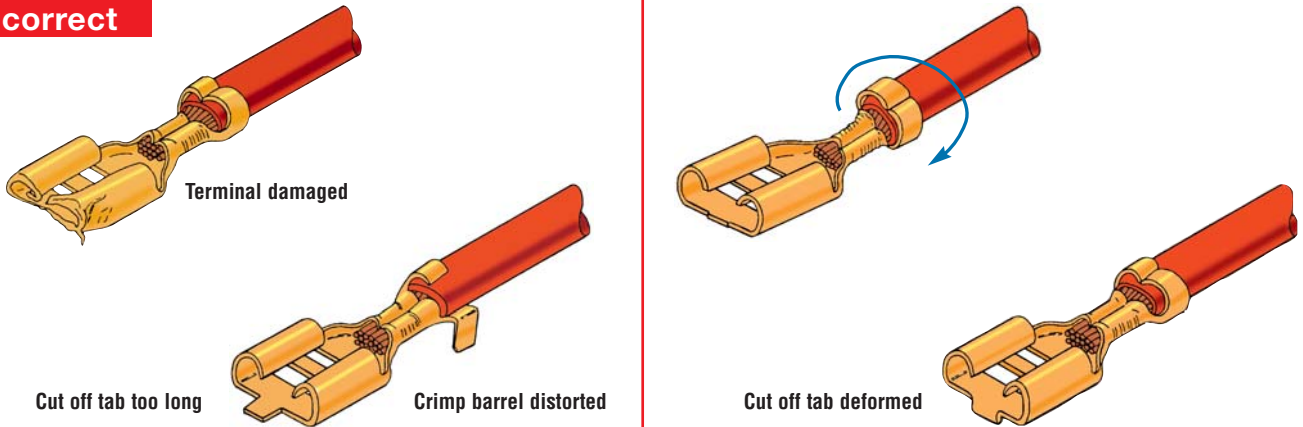
For more information on literature for Tyco Electronics'

Global Automotive Division, please contact your local Tyco Electronics Organization or go to [www.tycoelectronics.com/automotive](http://www.tycoelectronics.com/automotive)

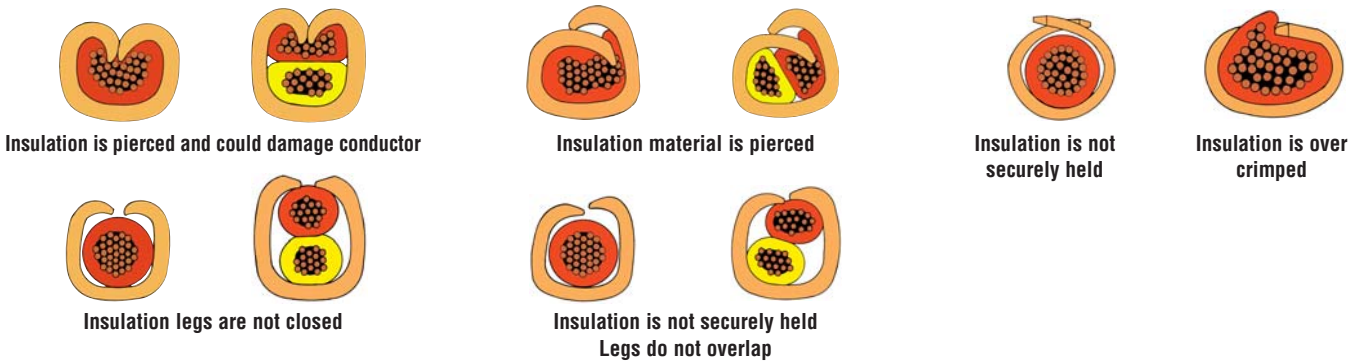


Quality Guidelines

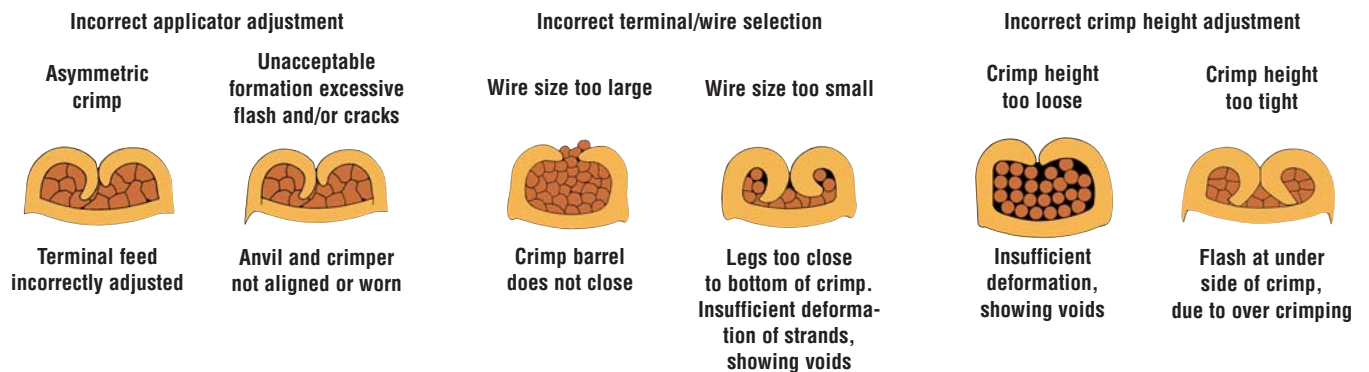
**Incorrect**



**INSULATION CRIMP**



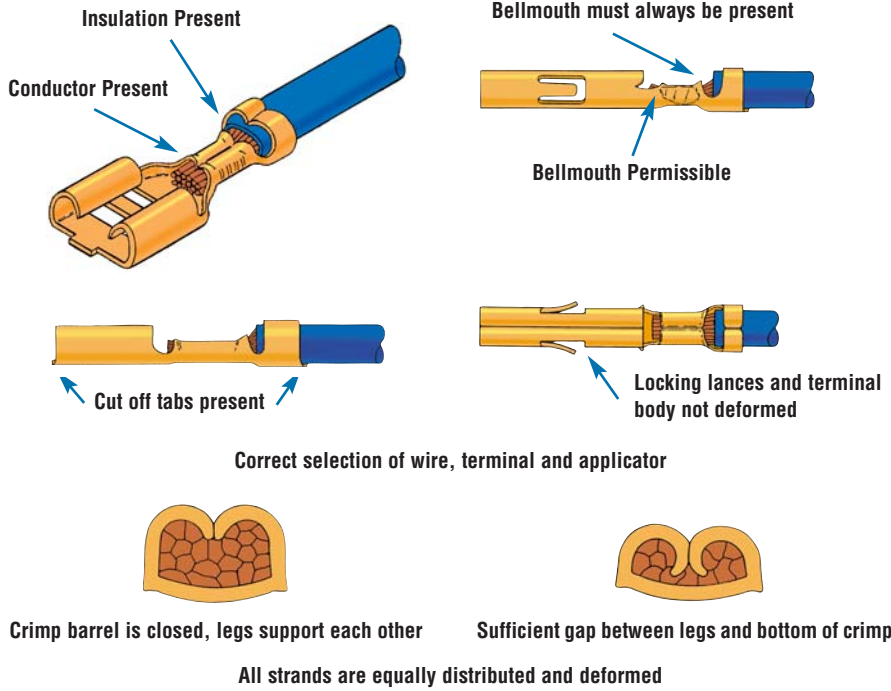
**WIRE CRIMP**



Quality Guidelines (continued)

**Correct**

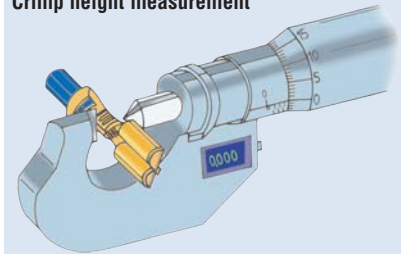
**WIRE CRIMP**



**Test**

**WIRE CRIMP**

Crimp height measurement



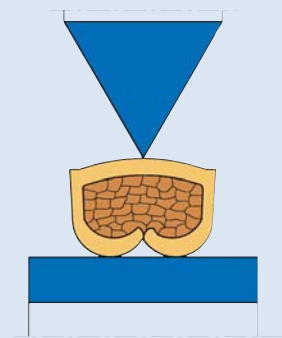
Crimp heights and tolerances

For crimp height tolerances for any given contact, please refer to the relevant application specification.

Examples:

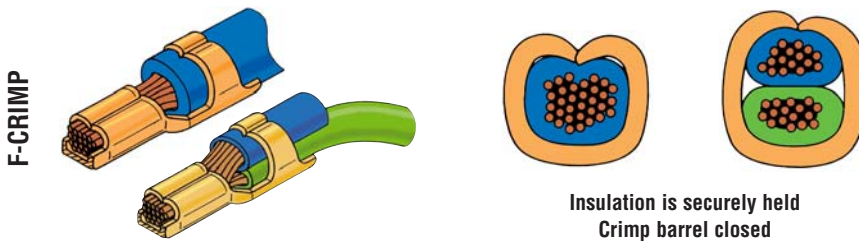
| Contact | Part No.         | Wire Range (mm <sup>2</sup> ) | Tolerance (mm) | Application Spec. |
|---------|------------------|-------------------------------|----------------|-------------------|
| MQS     | 962885<br>962886 | 0.2-0.5                       | ±0.03          | 114-18025         |
| JPT     | 927775           | 0.5-1.0                       | ±0.05          | 114-18050         |
| JPT     | 927773           | 1.5-2.5                       | ±0.05          | 114-18050         |

Digital Crimp Height Micrometer  
(0.001 mm increments) acc. to DIN ISO 9001  
Part No. 547203-1

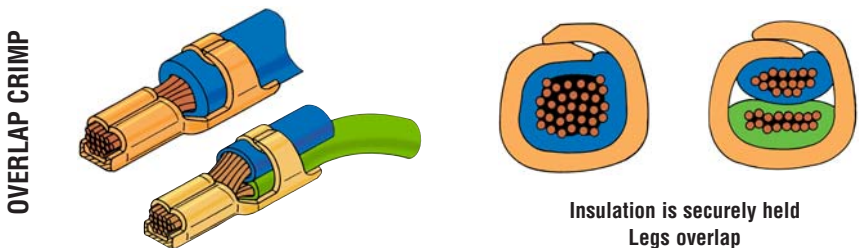


**INSULATION CRIMP**

Correct Insulation Diameter, Applicator and Terminal

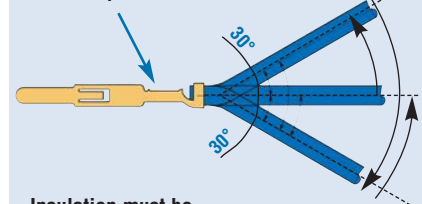


For double wire applications with different size wires always place wire with smallest outer diameter in the bottom



**INSULATION CRIMP**

Wire crimp without conductor



Insulation must be securely held after bend test

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## Restriction on the Use of Hazardous Substances (RoHS)

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### Restriction on the Use of Hazardous Substances (RoHS)

At Tyco Electronics, we're ready to support your RoHS requirements. We've assessed more than 1.5 million end items/components for RoHS compliance, and issued new part numbers where any change was required to eliminate the restricted materials. Part numbers in this catalog are identified as:

#### RoHS Compliant

Part numbers in this catalog are RoHS Compliant, unless marked otherwise.

These products comply with European Union Directive 2002/95/EC as amended 1 January 2006 that restricts the use of lead, mercury, cadmium, hexavalent chromium, PBB, and PBDE in certain electrical and electronic products sold into the EU as of 1 July 2006.

**Note:** For purposes of this Catalog, included within the definition of RoHS Compliant are products that are clearly "Out of Scope" of the RoHS Directive such as hand tools and other non-electrical accessories.

#### Non-RoHS Compliant

These part numbers are identified with a "◆" symbol. These products do not comply with the material restrictions of the European Union Directive 2002/95/EC.

#### 5 of 6 Compliant

A "●" symbol identifies these part numbers. These products do not fully comply with the European Union Directive 2002/95/EC because they contain lead in solderable interfaces (they do not contain any of the other five restricted substances above allowable limits). However, these products may be suitable for use in RoHS applications where there is an application-based exception for lead in solders, such as the server, storage, or networking infrastructure exemption.

**Note:** Information regarding RoHS compliance is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information provided by our suppliers. This information is subject to change. For latest compliance status, refer to our website referenced below.

#### Getting the Information You Need

Our comprehensive on-line RoHS Customer Support Center provides a forum to answer your questions and support your RoHS needs. A RoHS FAQ (Frequently Asked Questions) is available with links to more detailed information. You can also submit RoHS questions and receive a response within 24 hours during a normal work week. The Support Center also provides:

- Cross-Reference from Non-compliant to Compliant Products
- Ability to browse RoHS Compliant Products in our on-line catalog: <http://ecommas.tycoelectronics.com/commerce/alt/RohsAltHome.do>
- Downloadable Technical Data Customer Information Presentation
- More detailed information regarding the definitions used above

RoHS  
Customer  
Support  
Center 

So whatever your questions when it comes to RoHS, we've got the answers at [www.tycoelectronics.com/leadfree](http://www.tycoelectronics.com/leadfree)

AWG Conversion Table (Average Value)

**Conversion Tables**

Most of the wire size ranges are mentioned in mm<sup>2</sup>, as well as the insulation diameters which are in many cases only in mm's.

We therefore included the conversion tables on pages 12 and 13.

Please note that wire and insulation sizes are for guidance only.

Consult the customer drawing for precise detail.

| AWG Code | Diameter (Inch) | Diameter (mm) | F (mm <sup>2</sup> ) |
|----------|-----------------|---------------|----------------------|
| 000000   | 0.5800          | 14.733        | 170.0                |
| 00000    | 0.5165          | 13.13         | 135.0                |
| 0000     | 0.4600          | 11.684        | 103.8                |
| 000      | 0.4096          | 10.40         | 79.0                 |
| 00       | 0.3648          | 9.27          | 67.5                 |
| 0        | 0.3249          | 8.25          | 53.4                 |
| 1        | 0.2893          | 7.34          | 42.2                 |
| 2        | 0.2576          | 6.55          | 33.7                 |
| 3        | 0.2294          | 5.82          | 26.6                 |
| 4        | 0.2043          | 5.18          | 21.0                 |
| 5        | 0.1819          | 4.62          | 16.9                 |
| 6        | 0.1620          | 4.115         | 13.25                |
| 7        | 0.1443          | 3.66          | 10.25                |
| 8        | 0.1285          | 3.26          | 8.34                 |
| 9        | 0.1144          | 2.90          | 6.6                  |
| 10       | 0.1019          | 2.59          | 5.27                 |
| 11       | 0.0907          | 2.30          | 4.15                 |
| 12       | 0.0808          | 2.05          | 3.3                  |
| 13       | 0.0720          | 1.83          | 2.63                 |
| 14       | 0.0641          | 1.63          | 2.08                 |
| 15       | 0.0571          | 1.45          | 1.65                 |
| 16       | 0.0508          | 1.29          | 1.305                |
| 17       | 0.0453          | 1.14          | 1.01                 |
| 18       | 0.0403          | 1.02          | 0.79                 |
| 19       | 0.0359          | 0.91          | 0.65                 |
| 20       | 0.0320          | 0.81          | 0.51                 |
| 21       | 0.0285          | 0.72          | 0.407                |
| 22       | 0.0253          | 0.64          | 0.32                 |
| 23       | 0.0226          | 0.57          | 0.255                |
| 24       | 0.0201          | 0.51          | 0.205                |
| 25       | 0.0179          | 0.455         | 0.162                |
| 26       | 0.0159          | 0.40          | 0.125                |
| 27       | 0.0142          | 0.36          | 0.102                |
| 28       | 0.0126          | 0.320         | 0.08                 |
| 29       | 0.0113          | 0.287         | 0.0646               |
| 30       | 0.0100          | 0.254         | 0.0516               |
| 31       | 0.0089          | 0.226         | 0.04                 |
| 32       | 0.0080          | 0.203         | 0.0324               |
| 33       | 0.0071          | 0.180         | 0.0255               |
| 34       | 0.0063          | 0.160         | 0.02                 |
| 35       | 0.0056          | 0.142         | 0.0158               |
| 36       | 0.0050          | 0.127         | 0.0127               |
| 37       | 0.0045          | 0.114         | 0.01                 |
| 38       | 0.0040          | 0.101         | 0.008                |
| 39       | 0.0035          | 0.089         | 0.0062               |
| 40       | 0.0031          | 0.079         | 0.0049               |
| 41       | 0.0028          | 0.071         | 0.00395              |
| 42       | 0.0025          | 0.064         | 0.00321              |
| 43       | 0.0022          | 0.056         | 0.00246              |
| 44       | 0.00198         | 0.050         | 0.00196              |
| 45       | 0.00176         | 0.045         |                      |
| 46       | 0.00157         | 0.040         |                      |
| 47       | 0.00140         | 0.036         |                      |
| 48       | 0.00124         | 0.031         |                      |
| 49       | 0.00110         | 0.028         |                      |
| 50       | 0.00099         | 0.025         |                      |

**FLK/FLR Cable**

FLK and FLR stand for German DIN (72551) abbreviations.

**FLK means:**

In German:  
• Fahrzeug Leitung Kunststoff

In English:  
• Vehicle Cable Plastic

**FLR means:**

In German:  
• Fahrzeug Leitung Reduziert

In English:  
• Thin Walled Cable  
(reduced insulation thickness)

**Remark:** Starting from 0.03 mm<sup>2</sup> (AWG 32) a wire can be crimped.

Conversion Table – Inch/mm

| Inch  | 0       | 0.001   | 0.002   | 0.003   | 0.004   | 0.005   | 0.006   | 0.007   | 0.008   | 0.009   |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0     | 0       | 0.0254  | 0.0508  | 0.0762  | 0.1016  | 0.1270  | 0.1524  | 0.1778  | 0.2032  | 0.2286  |
| 0.010 | 0.2540  | 0.2794  | 0.3048  | 0.3302  | 0.3556  | 0.3810  | 0.4064  | 0.4318  | 0.4572  | 0.4826  |
| 0.020 | 0.5080  | 0.5334  | 0.5588  | 0.5842  | 0.6096  | 0.6350  | 0.6604  | 0.6858  | 0.7112  | 0.7366  |
| 0.030 | 0.7620  | 0.7874  | 0.8128  | 0.8382  | 0.8636  | 0.8890  | 0.9144  | 0.9398  | 0.9652  | 0.9906  |
| 0.040 | 1.0160  | 1.0414  | 1.0668  | 1.0922  | 1.1176  | 1.1430  | 1.1684  | 1.1938  | 1.2192  | 1.2446  |
| 0.050 | 1.2700  | 1.2954  | 1.3208  | 1.3462  | 1.3716  | 1.3970  | 1.4224  | 1.4478  | 1.4732  | 1.4986  |
| 0.060 | 1.5240  | 1.5494  | 1.5748  | 1.6002  | 1.6256  | 1.6510  | 1.6764  | 1.7018  | 1.7272  | 1.7526  |
| 0.070 | 1.7780  | 1.8034  | 1.8288  | 1.8542  | 1.8796  | 1.9050  | 1.9304  | 1.9558  | 1.9812  | 2.0066  |
| 0.080 | 2.0320  | 2.0574  | 2.0828  | 2.1082  | 2.1336  | 2.1590  | 2.1844  | 2.2098  | 2.2352  | 2.2606  |
| 0.090 | 2.2860  | 2.3114  | 2.3368  | 2.3622  | 2.3876  | 2.4130  | 2.4384  | 2.4638  | 2.4892  | 2.5146  |
| 0.100 | 2.5400  | 2.5654  | 2.5908  | 2.6162  | 2.6416  | 2.6670  | 2.6924  | 2.7178  | 2.7432  | 2.7686  |
| 0.110 | 2.7940  | 2.8194  | 2.8448  | 2.8702  | 2.8956  | 2.9210  | 2.9464  | 2.9718  | 2.9972  | 3.0226  |
| 0.120 | 3.0480  | 3.0734  | 3.0988  | 3.1242  | 3.1496  | 3.1750  | 3.2004  | 3.2258  | 3.2512  | 3.2766  |
| 0.130 | 3.3020  | 3.3274  | 3.3528  | 3.3782  | 3.4036  | 3.4290  | 3.4544  | 3.4798  | 3.5052  | 3.5306  |
| 0.140 | 3.5560  | 3.5814  | 3.6068  | 3.6322  | 3.6576  | 3.6830  | 3.7084  | 3.7338  | 3.7592  | 3.7846  |
| 0.150 | 3.8100  | 3.8354  | 3.8608  | 3.8862  | 3.9116  | 3.9370  | 3.9624  | 3.9878  | 4.0132  | 4.0386  |
| 0.160 | 4.0640  | 4.0894  | 4.1148  | 4.1402  | 4.1656  | 4.1910  | 4.2164  | 4.2418  | 4.2672  | 4.2926  |
| 0.170 | 4.3180  | 4.3434  | 4.3688  | 4.3942  | 4.4196  | 4.4450  | 4.4704  | 4.4958  | 4.5212  | 4.5466  |
| 0.180 | 4.5720  | 4.5974  | 4.6228  | 4.6482  | 4.6736  | 4.6990  | 4.7244  | 4.7498  | 4.7752  | 4.8006  |
| 0.190 | 4.8260  | 4.8514  | 4.8768  | 4.9022  | 4.9276  | 4.9530  | 4.9784  | 5.0038  | 5.0292  | 5.0546  |
| 0.200 | 5.0800  | 5.1054  | 5.1308  | 5.1562  | 5.1816  | 5.2070  | 5.2324  | 5.2578  | 5.2832  | 5.3086  |
| 0.210 | 5.3340  | 5.3594  | 5.3848  | 5.4102  | 5.4356  | 5.4610  | 5.4864  | 5.5118  | 5.5372  | 5.5626  |
| 0.220 | 5.5880  | 5.6134  | 5.6388  | 5.6642  | 5.6896  | 5.7150  | 5.7404  | 5.7658  | 5.7912  | 5.8166  |
| 0.230 | 5.8420  | 5.8674  | 5.8928  | 5.9182  | 5.9436  | 5.9690  | 5.9944  | 6.0198  | 6.0452  | 6.0706  |
| 0.240 | 6.0960  | 6.1214  | 6.1468  | 6.1722  | 6.1976  | 6.2230  | 6.2484  | 6.2738  | 6.2992  | 6.3246  |
| 0.250 | 6.3500  | 6.3754  | 6.4008  | 6.4262  | 6.4516  | 6.4770  | 6.5024  | 6.5278  | 6.5532  | 6.5786  |
| 0.260 | 6.6040  | 6.6294  | 6.6548  | 6.6802  | 6.7056  | 6.7310  | 6.7564  | 6.7818  | 6.8072  | 6.8326  |
| 0.270 | 6.8580  | 6.8834  | 6.9088  | 6.9342  | 6.9596  | 6.9850  | 7.0104  | 7.0358  | 7.0612  | 7.0866  |
| 0.280 | 7.1120  | 7.1374  | 7.1628  | 7.1882  | 7.2136  | 7.2390  | 7.2644  | 7.2898  | 7.3152  | 7.3406  |
| 0.290 | 7.3660  | 7.3914  | 7.4168  | 7.4422  | 7.4676  | 7.4930  | 7.5184  | 7.5438  | 7.5692  | 7.5946  |
| 0.300 | 7.6200  | 7.6454  | 7.6708  | 7.6962  | 7.7216  | 7.7470  | 7.7724  | 7.7978  | 7.8232  | 7.8486  |
| 0.310 | 7.8740  | 7.8994  | 7.9248  | 7.9502  | 7.9756  | 8.0010  | 8.0264  | 8.0518  | 8.0772  | 8.1026  |
| 0.320 | 8.1280  | 8.1534  | 8.1788  | 8.2042  | 8.2296  | 8.2550  | 8.2804  | 8.3058  | 8.3312  | 8.3566  |
| 0.330 | 8.3820  | 8.4074  | 8.4328  | 8.4582  | 8.4836  | 8.5090  | 8.5344  | 8.5598  | 8.5852  | 8.6106  |
| 0.340 | 8.6360  | 8.6614  | 8.6868  | 8.7122  | 8.7376  | 8.7630  | 8.7884  | 8.8138  | 8.8392  | 8.8646  |
| 0.350 | 8.8900  | 8.9154  | 8.9408  | 8.9662  | 8.9916  | 9.0170  | 9.0424  | 9.0678  | 9.0932  | 9.1186  |
| 0.360 | 9.1440  | 9.1694  | 9.1948  | 9.2202  | 9.2456  | 9.2710  | 9.2964  | 9.3218  | 9.3472  | 9.3726  |
| 0.370 | 9.3980  | 9.4234  | 9.4488  | 9.4742  | 9.4996  | 9.5250  | 9.5504  | 9.5758  | 9.6012  | 9.6266  |
| 0.380 | 9.6520  | 9.6774  | 9.7028  | 9.7282  | 9.7536  | 9.7790  | 9.8044  | 9.8298  | 9.8552  | 9.8806  |
| 0.390 | 9.9060  | 9.9314  | 9.9568  | 9.9822  | 10.0076 | 10.0330 | 10.0584 | 10.0838 | 10.1092 | 10.1346 |
| 0.400 | 10.1600 | 10.1854 | 10.2108 | 10.2362 | 10.2616 | 10.2870 | 10.3124 | 10.3378 | 10.3632 | 10.3886 |
| 0.410 | 10.4140 | 10.4394 | 10.4648 | 10.4902 | 10.5156 | 10.5410 | 10.5664 | 10.5918 | 10.6172 | 10.6426 |
| 0.420 | 10.6680 | 10.6934 | 10.7188 | 10.7442 | 10.7696 | 10.7950 | 10.8204 | 10.8458 | 10.8712 | 10.8966 |
| 0.430 | 10.9220 | 10.9474 | 10.9728 | 10.9982 | 11.0236 | 11.0490 | 11.0744 | 11.0998 | 11.1252 | 11.1506 |
| 0.440 | 11.1760 | 11.2014 | 11.2268 | 11.2522 | 11.2776 | 11.3030 | 11.3284 | 11.3538 | 11.3792 | 11.4046 |
| 0.450 | 11.4300 | 11.4554 | 11.4808 | 11.5062 | 11.5316 | 11.5510 | 11.5824 | 11.6078 | 11.6332 | 11.6586 |
| 0.460 | 11.6840 | 11.7094 | 11.7348 | 11.7602 | 11.7856 | 11.8110 | 11.8364 | 11.8618 | 11.8872 | 11.9126 |
| 0.470 | 11.9380 | 11.9634 | 11.9888 | 12.0142 | 12.0396 | 12.0650 | 12.0904 | 12.1158 | 12.1412 | 12.1666 |
| 0.480 | 12.1920 | 12.2174 | 12.2428 | 12.2682 | 12.2936 | 12.3190 | 12.3444 | 12.3698 | 12.3952 | 12.4206 |
| 0.490 | 12.4460 | 12.4714 | 12.4968 | 12.5222 | 12.5476 | 12.5730 | 12.5984 | 12.6238 | 12.6492 | 12.6746 |
| 0.500 | 12.7000 |         |         |         |         |         |         |         |         |         |
| Inch  | 0       | 0.001   | 0.002   | 0.003   | 0.004   | 0.005   | 0.006   | 0.007   | 0.008   | 0.009   |

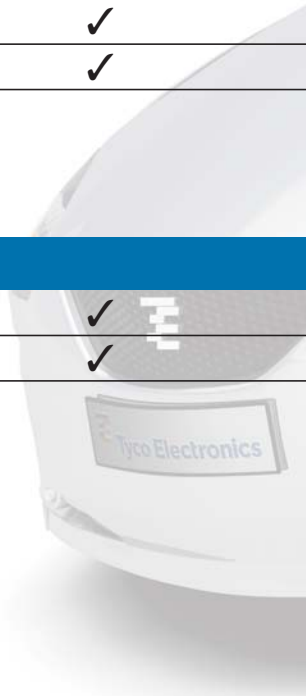
Conversion Table – Inch/mm (continued)

| Inch  | 0       | 0.001   | 0.002   | 0.003   | 0.004   | 0.005   | 0.006   | 0.007   | 0.008   | 0.009   |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0.500 | 12.7000 | 12.7254 | 12.7508 | 12.7762 | 12.8016 | 12.8270 | 12.8524 | 12.8778 | 12.9032 | 12.9286 |
| 0.510 | 12.9540 | 12.9794 | 13.0048 | 13.0302 | 13.0556 | 13.0810 | 13.1064 | 13.1318 | 13.1572 | 13.1826 |
| 0.520 | 13.2080 | 13.2334 | 13.2588 | 13.2842 | 13.3096 | 13.3350 | 13.3604 | 13.3858 | 13.4112 | 13.4366 |
| 0.530 | 13.4620 | 13.4874 | 13.5128 | 13.5382 | 13.5636 | 13.5890 | 13.6144 | 13.6398 | 13.6652 | 13.6906 |
| 0.540 | 13.7160 | 13.7414 | 13.7668 | 13.7922 | 13.8176 | 13.8430 | 13.8684 | 13.8938 | 13.9192 | 13.9446 |
| 0.550 | 13.9700 | 13.9954 | 14.0208 | 14.0462 | 14.0716 | 14.0970 | 14.1224 | 14.1478 | 14.1732 | 14.1986 |
| 0.560 | 14.2240 | 14.2494 | 14.2748 | 14.3002 | 14.3256 | 14.3510 | 14.3764 | 14.4018 | 14.4272 | 14.4526 |
| 0.570 | 14.4780 | 14.5034 | 14.5288 | 14.5542 | 14.5796 | 14.6050 | 14.6304 | 14.6558 | 14.6812 | 14.7066 |
| 0.580 | 14.7320 | 14.7574 | 14.7828 | 14.8082 | 14.8336 | 14.8590 | 14.8844 | 14.9098 | 14.9352 | 14.9606 |
| 0.590 | 14.9860 | 15.0114 | 15.0368 | 15.0622 | 15.0876 | 15.1130 | 15.1384 | 15.1638 | 15.1892 | 15.2146 |
| 0.600 | 15.2400 | 15.2654 | 15.2908 | 15.3162 | 15.3416 | 15.3670 | 15.3924 | 15.4178 | 15.4432 | 15.4686 |
| 0.610 | 15.4940 | 15.5194 | 15.5448 | 15.5702 | 15.5956 | 15.6210 | 15.6464 | 15.6718 | 15.6972 | 15.7226 |
| 0.620 | 15.7480 | 15.7734 | 15.7988 | 15.8242 | 15.8496 | 15.8750 | 15.9004 | 15.9258 | 15.9512 | 15.9766 |
| 0.630 | 16.0020 | 16.0274 | 16.0528 | 16.0782 | 16.1036 | 16.1290 | 16.1544 | 16.1798 | 16.2052 | 16.2306 |
| 0.640 | 16.2560 | 16.2814 | 16.3068 | 16.3322 | 16.3576 | 16.3830 | 16.4084 | 16.4338 | 16.4592 | 16.4846 |
| 0.650 | 16.5100 | 16.5354 | 16.5608 | 16.5862 | 16.6116 | 16.6370 | 16.6624 | 16.6878 | 16.7132 | 16.7386 |
| 0.660 | 16.7640 | 16.7894 | 16.8148 | 16.8402 | 16.8656 | 16.8910 | 16.9164 | 16.9418 | 16.9672 | 16.9926 |
| 0.670 | 17.0180 | 17.0434 | 17.0688 | 17.0942 | 17.1196 | 17.1450 | 17.1704 | 17.1958 | 17.2212 | 17.2466 |
| 0.680 | 17.2720 | 17.2974 | 17.3228 | 17.3482 | 17.3736 | 17.3990 | 17.4244 | 17.4498 | 17.4752 | 17.5006 |
| 0.690 | 17.5260 | 17.5514 | 17.5768 | 17.6022 | 17.6276 | 17.6530 | 17.6784 | 17.7038 | 17.7292 | 17.7546 |
| 0.700 | 17.7800 | 17.8054 | 17.8308 | 17.8562 | 17.8816 | 17.9070 | 17.9324 | 17.9578 | 17.9832 | 18.0086 |
| 0.710 | 18.0340 | 18.0594 | 18.0848 | 18.1102 | 18.1356 | 18.1610 | 18.1864 | 18.2118 | 18.2372 | 18.2626 |
| 0.720 | 18.2880 | 18.3134 | 18.3388 | 18.3642 | 18.3896 | 18.4150 | 18.4404 | 18.4658 | 18.4912 | 19.5166 |
| 0.730 | 18.5420 | 18.5674 | 18.5928 | 18.6182 | 18.6436 | 18.6690 | 18.6944 | 18.7198 | 18.7452 | 18.7706 |
| 0.740 | 18.7960 | 18.8214 | 18.8468 | 18.8722 | 18.8976 | 18.9230 | 18.9484 | 18.9738 | 18.9992 | 19.0246 |
| 0.750 | 19.0500 | 19.0754 | 19.1008 | 19.1262 | 19.1516 | 19.1170 | 19.2024 | 19.2278 | 19.2532 | 19.2786 |
| 0.760 | 19.3040 | 19.3294 | 19.3548 | 19.3802 | 19.4056 | 19.4310 | 19.4564 | 19.4818 | 19.5072 | 19.5326 |
| 0.770 | 19.5580 | 19.5834 | 19.6088 | 19.6342 | 19.6596 | 19.6850 | 19.7104 | 19.7358 | 19.7612 | 19.7866 |
| 0.780 | 19.8120 | 19.8374 | 19.8628 | 19.8882 | 19.9136 | 19.9390 | 19.9644 | 19.9898 | 20.0152 | 20.0406 |
| 0.790 | 20.0660 | 20.0914 | 20.1168 | 20.1422 | 20.1676 | 20.1930 | 20.2184 | 20.2438 | 20.2692 | 20.2946 |
| 0.800 | 20.3200 | 20.3454 | 20.3708 | 20.3962 | 20.4216 | 20.4470 | 20.4724 | 20.4978 | 20.5232 | 20.5486 |
| 0.810 | 20.5740 | 20.5994 | 20.6248 | 20.6502 | 20.6756 | 20.7010 | 20.7264 | 20.7518 | 20.7772 | 20.8026 |
| 0.820 | 20.8280 | 20.8534 | 20.8788 | 20.9042 | 20.9296 | 20.9550 | 20.9804 | 21.0058 | 21.0312 | 21.0566 |
| 0.830 | 21.0820 | 21.1074 | 21.1328 | 21.1582 | 21.1836 | 21.2090 | 21.2344 | 21.2598 | 21.2852 | 21.3106 |
| 0.840 | 21.3360 | 21.3614 | 21.3868 | 21.4122 | 21.4376 | 21.4630 | 21.4884 | 21.5138 | 21.5392 | 21.5646 |
| 0.850 | 21.5900 | 21.6154 | 21.6408 | 21.6662 | 21.6916 | 21.7170 | 21.7424 | 21.7678 | 21.7932 | 21.8186 |
| 0.860 | 21.8440 | 21.8694 | 21.8948 | 21.9202 | 21.9456 | 21.9710 | 21.9964 | 22.0218 | 22.0472 | 22.0726 |
| 0.870 | 22.0980 | 22.1234 | 22.1488 | 22.1742 | 22.1996 | 22.2250 | 22.2504 | 22.2758 | 22.3012 | 22.3266 |
| 0.880 | 22.3520 | 22.3774 | 22.4028 | 22.4282 | 22.4536 | 22.4790 | 22.5044 | 22.5298 | 22.5552 | 22.5806 |
| 0.890 | 22.6060 | 22.6314 | 22.6568 | 22.6822 | 22.7076 | 22.7330 | 22.7584 | 22.7838 | 22.8092 | 22.8346 |
| 0.900 | 22.8600 | 22.8854 | 22.9108 | 22.9362 | 22.9616 | 22.9870 | 23.0124 | 23.0378 | 23.0632 | 23.0886 |
| 0.910 | 23.1140 | 23.1394 | 23.1648 | 23.1902 | 23.2156 | 23.2410 | 23.2664 | 23.2918 | 23.3172 | 23.3426 |
| 0.920 | 23.3680 | 23.3934 | 23.4188 | 23.4442 | 23.4696 | 23.4950 | 23.5204 | 23.5458 | 23.5712 | 23.5966 |
| 0.930 | 23.6220 | 23.6474 | 23.6728 | 23.6982 | 23.7236 | 23.7490 | 23.7744 | 23.7998 | 23.8252 | 23.8506 |
| 0.940 | 23.8760 | 23.9014 | 23.9268 | 23.9522 | 23.9776 | 24.0030 | 24.0284 | 24.0538 | 24.0792 | 24.1046 |
| 0.950 | 24.1300 | 24.1554 | 24.1808 | 24.2062 | 24.2316 | 24.2570 | 24.2824 | 24.3078 | 24.3332 | 24.3586 |
| 0.960 | 24.3840 | 24.4094 | 24.4348 | 24.4602 | 24.4856 | 24.5110 | 24.5364 | 24.5618 | 24.5872 | 24.6126 |
| 0.970 | 24.6380 | 24.6634 | 24.6888 | 24.7142 | 24.7396 | 24.7650 | 24.7904 | 24.8158 | 24.8412 | 24.8666 |
| 0.980 | 24.8920 | 24.9174 | 24.9428 | 24.9682 | 24.9936 | 25.0190 | 25.0444 | 25.0698 | 25.0952 | 25.1206 |
| 0.990 | 25.1460 | 25.1714 | 25.1968 | 25.2222 | 25.2476 | 25.2730 | 25.2984 | 25.3228 | 25.3492 | 25.3746 |
| 1.000 | 25.4000 |         |         |         |         |         |         |         |         |         |
| Inch  | 0       | 0.001   | 0.002   | 0.003   | 0.004   | 0.005   | 0.006   | 0.007   | 0.008   | 0.009   |



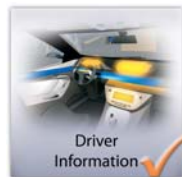
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# THE PRODUCTS



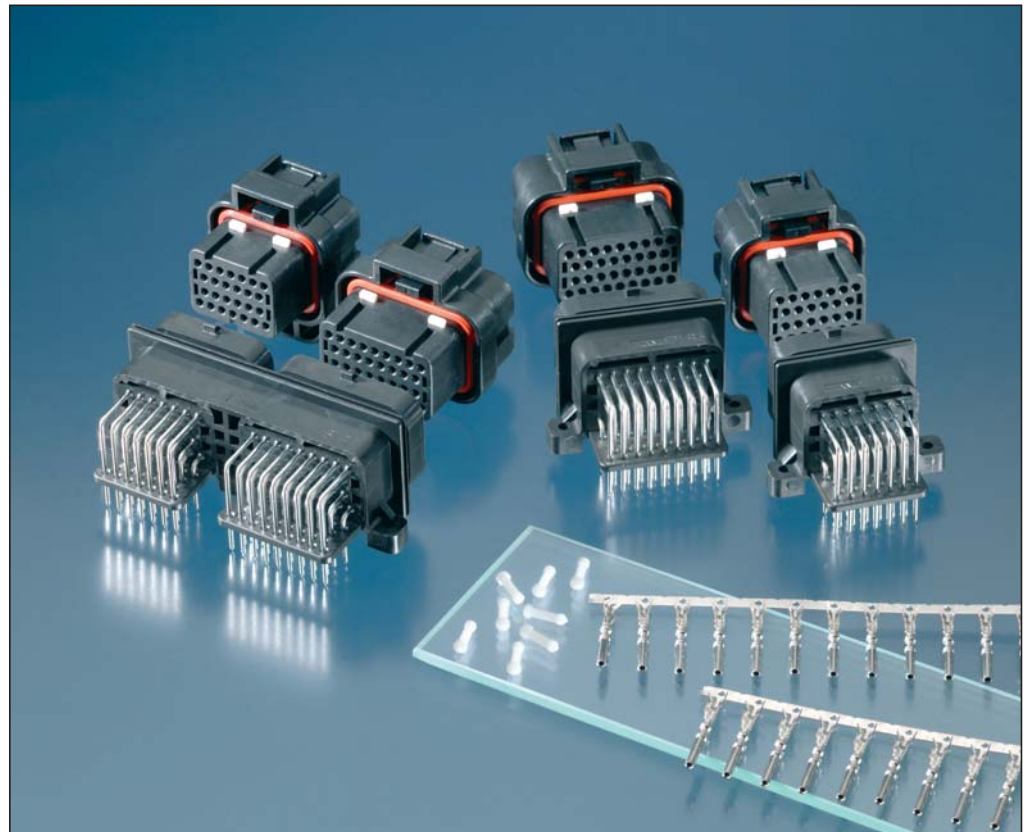
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Engineering Notes

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## Introduction



Designed for the automotive industry, AMP SUPERSEAL connectors meet the sealing requirements outlined in IEC 529 and DIN 40050 I.P 6.7 specifications.

The cap and plug connector housings incorporate pre-assembled secondary locks to help insure correct and complete contact insertion into the housing and helps prevent the contacts from backing out during mating. The secondary lock cannot be closed if the contacts are not correctly inserted into the connector housing.

Cavity plugs are available for sealing unused connector cavities.

The double spring contact design (main spring and auxiliary anti-overstress spring) insure low insertion and high contact forces.

### Advantages

- Compact system minimizes packaging requirements
- Sealing reliability proven under harsh conditions
- Designed for ease of manual harness assembly, engine mounting and under hood environments

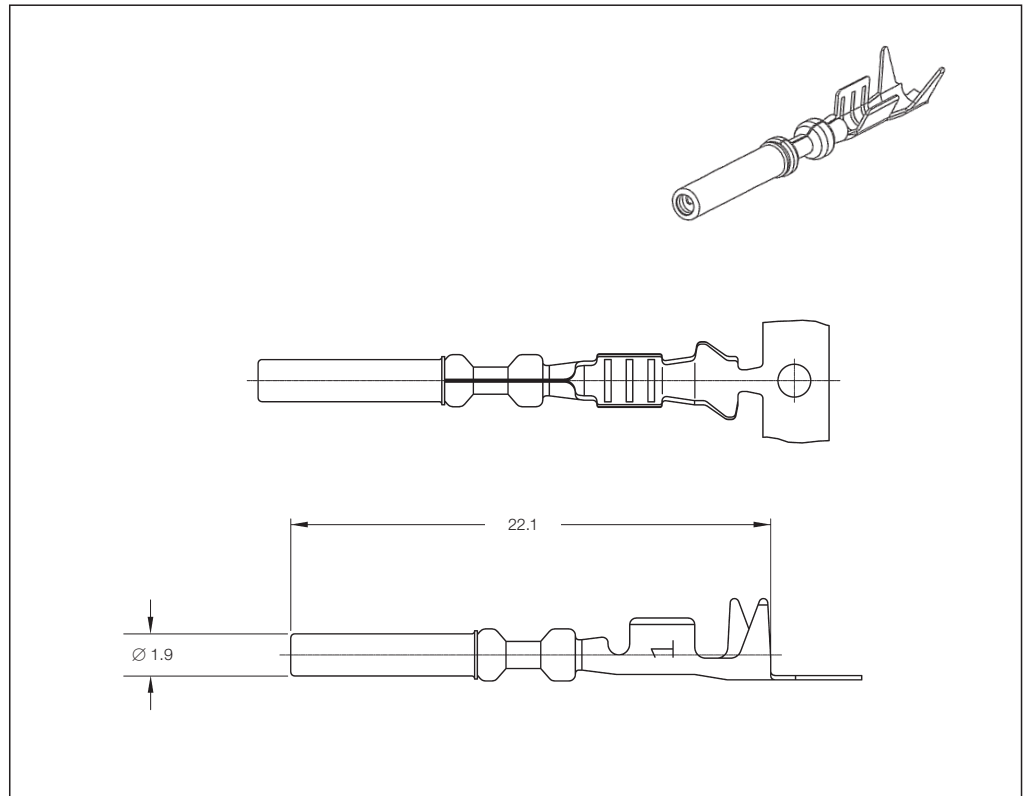
### Applications

- Wire-to-Board (1.0 mm) and ECU applications, under hood or any location where sealing is required
- Suitable for automotive, truck, bus, or off-road vehicles

Receptacle Contacts and Cavity Plug

**Technical Features**

- Wire Size Range:**  
0.5 up to 1.25 mm<sup>2</sup>
- Insulation Diameter:**  
1.6–2.2 mm  
(Larger allowed on limited basis,  
contact Product Engineering)
- Contact Material:**  
Copper Alloy
- Contact Finish:**  
Gold over Nickel (contact part)  
Tin over Nickel (crimp area)
- Housing Material:**  
PBT/PET
- Temperature Range:**  
–40 °C up to +125 °C
- Current Carrying Capacity:**  
See Product Specification
- Product Specification:**  
108-78140
- Application Specification:**  
114-78011, 114-78013



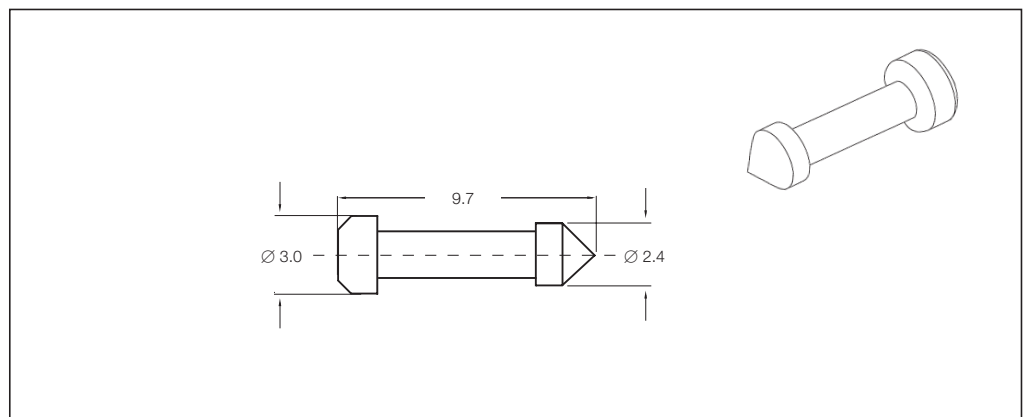
**1.0 mm Receptacle Contacts**

| Wire Size Range<br>(mm <sup>2</sup> ) | Insulation Diameter<br>(mm) | Material and Finish   | Part Numbers |                  |             |                  | Applicator | Hand Tool |
|---------------------------------------|-----------------------------|---|--------------|------------------|-------------|------------------|------------|-----------|
|                                       |                             |   | Strip Form   | Package Quantity | Loose-Piece | Package Quantity |            |           |
| 0.5                                   | 1.6–2.2                     | Copper Alloy<br>Gold over Nickel (Contact Part)<br>Tin over Nickel (Crimp Area) | 3-1447221-4  | –                | –           | –                | 1463174-2  | 1454509-2 |
| 0.75–0.85                             | 1.6–2.4                     | Copper Alloy<br>Gold over Nickel (Contact Part)<br>Tin over Nickel (Crimp Area) | 3-1447221-3  | –                | –           | –                | 1463173-2  | 1454509-1 |
| 1.25                                  | 1.9–2.2                     | Copper Alloy<br>Gold over Nickel (Contact Part)<br>Tin over Nickel (Crimp Area) | 3-1447221-3  | –                | –           | –                | –          | 1454509-1 |

**Note:** All part numbers are RoHS and ELV compliant.

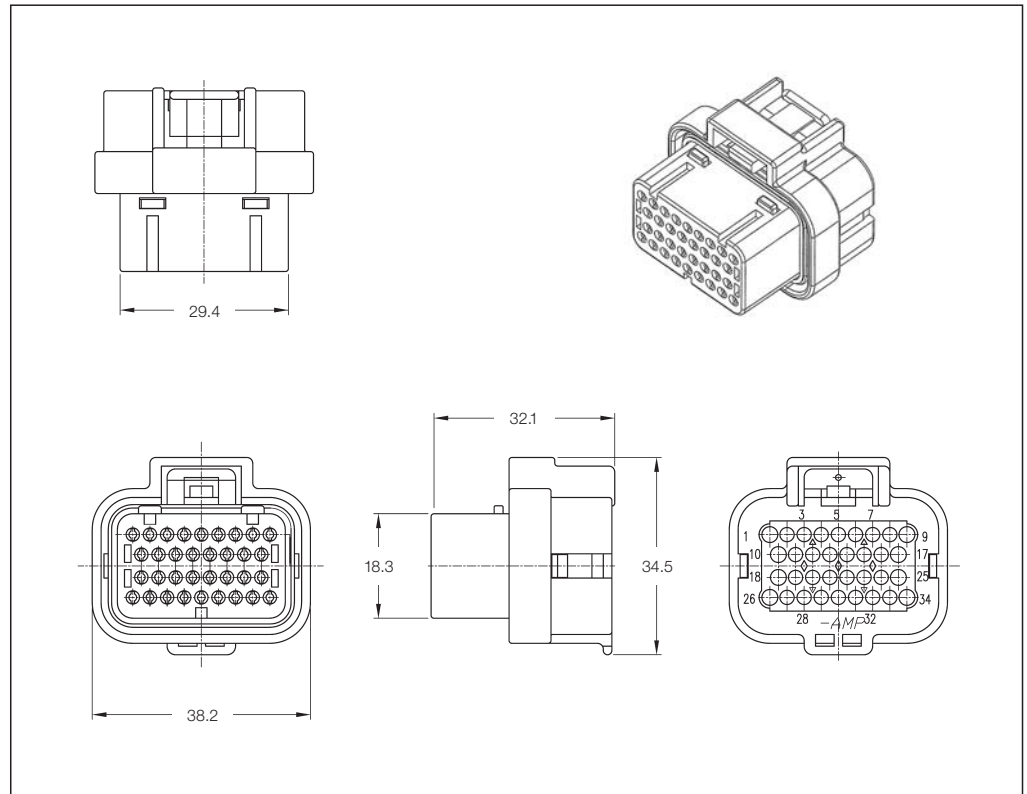
**Cavity Plug**

Part No. **4-1437284-3**



Plug Housing Assembly

**Plug Housing Assembly  
for 1.0 mm Receptacle  
Contacts**



**Plug Housing Assembly**

| No. of Positions | Part Number | Keying Type | Locking |
|------------------|-------------|-------------|---------|
| 26               | 3-1437290-7 | 1           | Single  |
|                  | 3-1437290-8 | 2           | Single  |
|                  | 1473416-1   | 3           | Single  |
|                  | 1473416-2   | 4           | Single  |
|                  | 2-1437285-2 | 1           | Double  |
|                  | 1-1447232-7 | 2           | Double  |
|                  | 1473712-1*  | 1 (2 Row)   | Single  |
|                  | 1473712-2** | 1 (2 Row)   | Single  |
|                  | 34          | 4-1437290-0 | 1       |
| 4-1437290-1      |             | 2           | Single  |
| 2-1437285-3      |             | 1           | Double  |
| 3-1437290-9      |             | 2           | Double  |

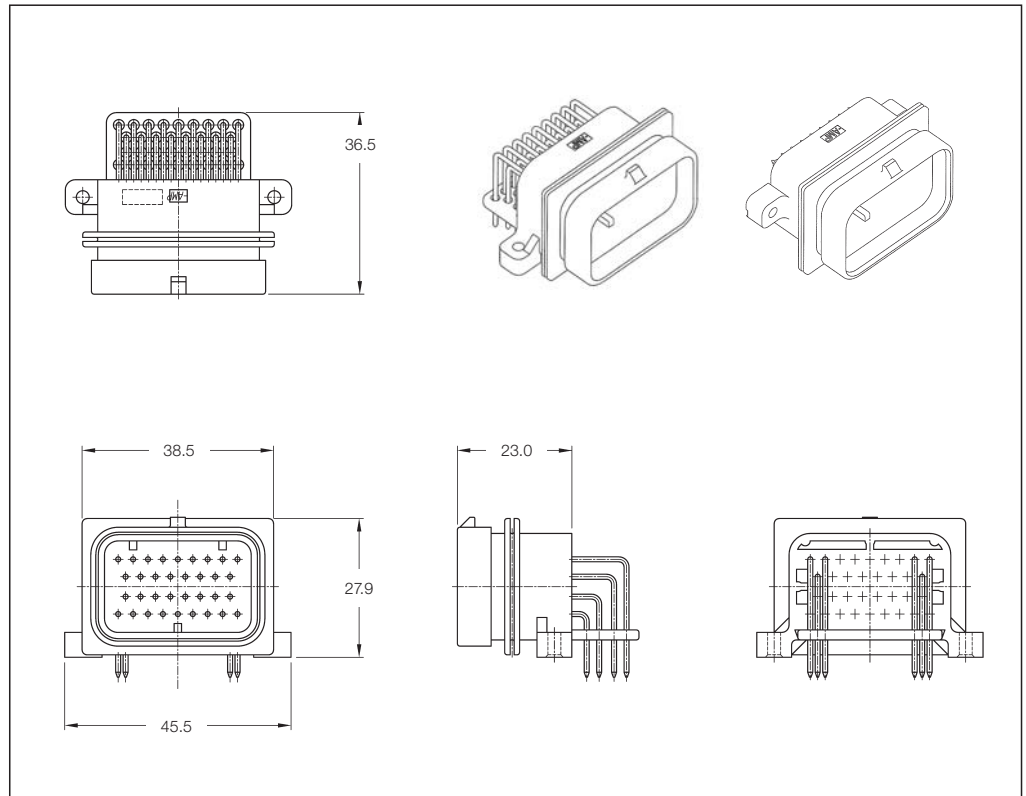
\*) for Insulation Diameter 1.6–2.2 mm

\*\*) for Insulation Diameter 2.0–2.4 mm

Pin Headers

**Technical Features**

- Contact Material:**  
Brass
- Contact Finish:**  
Gold over Ni (mating part)  
Tin-lead over Ni (soldering part)
- Housing Material:**  
PBT/PET
- Temperature Range:**  
-40 °C up to +125 °C
- Current Carrying Capacity:**  
See Product Specification
- Product Specification:**  
108-78140
- Application Specification:**  
114-78011



**Pin Header Assembly**

| No. of Positions | Part Number (NEW, Tin Plating)* | Part Number (OLD, Tin-Lead Plating)** | Keying Type         | Locking | Part Number Mateable Plug Housing         |
|------------------|---------------------------------|---------------------------------------|---------------------|---------|---|
| 26               | 9-6437287-8                     | 9-1437287-8                           | 1 (4 Row)           | Upper   | 3-1437290-7                               |
|                  | 9-6437287-9                     | 9-1437287-9                           | 2 (4 Row)           | Upper   | 3-1437290-8                               |
|                  | 6473423-1                       | 1473423-1                             | 3 (4 Row)           | Upper   | 1473416-1                                 |
|                  | 6473423-2                       | 1473423-2                             | 4 (4 Row)           | Upper   | 1473416-2                                 |
|                  | 5-6447223-0                     | 5-1447223-0                           | 1 (4 Row)           | Lower   | 3-1437290-7                               |
|                  | 6437288-4                       | 1437288-4                             | 2 (4 Row)           | Lower   | 3-1437290-8                               |
|                  | 2-6437285-8                     | 2-1437285-8                           | 1 (4 Row)           | Double  | 2-1437285-2                               |
|                  | 2-6437285-9                     | 2-1437285-9                           | 2 (4 Row)           | Double  | 1-1447232-7                               |
|                  | 6437288-6                       | 1437288-6                             | 1 (4 Row, Vertical) | Upper   | 3-1437290-7                               |
|                  | 6473418-1                       | 1473418-1                             | 2 (4 Row, Vertical) | Upper   | 3-1437290-8                               |
|                  | 6473418-2                       | 1473418-2                             | 3 (4 Row, Vertical) | Upper   | 1473416-1                                 |
|                  | 6473711-1                       | 1473711-1                             | 1 (2 Row)           | Upper   | 1473712-1      1473712-2                  |
| 6473711-2        | 1473711-2                       | 1 (2 Row)                             | Lower               |         |   |
| 34               | 6437288-1                       | 1437288-1                             | 1 (4 Row)           | Upper   | 4-1437290-0                               |
|                  | 6437288-2                       | 1437288-2                             | 2 (4 Row)           | Upper   | 4-1437290-1                               |
|                  | 2-6437285-5                     | 2-1437285-5                           | 1 (4 Row)           | Lower   | 4-1437290-0                               |
|                  | 2-6437285-6                     | 2-1437285-6                           | 2 (4 Row)           | Lower   | 4-1437290-1                               |
|                  | 3-6437285-0                     | 3-1437285-0                           | 1 (4 Row)           | Double  | 2-1437285-3                               |
|                  | 3-6437285-1                     | 3-1437285-1                           | 2 (4 Row)           | Double  | 3-1437290-9                               |
|                  | 2-6447232-3                     | 2-1447232-3                           | 1 (4 Row, Vertical) | Upper   | 4-1437290-0                               |
|                  | 2-6447232-4                     | 2-1447232-4                           | 2 (4 Row, Vertical) | Upper   | 4-1437290-1                               |
| 60               | 6437288-3                       | 1437288-3                             | 1 (4 Row)           | Upper   | 4-1437290-0 (34P),      3-1437290-7 (26P) |
|                  | 6473427-1                       | 1473427-1                             | 2 + 3 (4 Row)       | Upper   | 4-1437290-1 (34P),      1473416-1 (26P)   |
|                  | 6437288-5                       | 1437288-5                             | 1 (4 Row)           | Lower   | 4-1437290-0 (34P),      3-1437290-7 (26P) |
|                  | 3-6437285-2                     | 3-1437285-2                           | 1 (4 Row)           | Double  | 2-1437285-3 (34P),      2-1437285-2 (26P) |

**Note:** \*) All part numbers are used Tin Plating as Lead Free programs, shifting products to NEW is strongly recommended.  
\*\*) All part numbers are used Tin-Lead Plating (lead in solderable interface only).

Introduction



Application Tooling from Tyco Electronics is designed to perform perfect terminations, time after time. This results in productivity gains, yielding more terminations for less money at the time of application, and in service.

It is this combination of superior quality at a lower installed end cost that distinguishes the Tyco Electronics system solution.

Because production requirements vary, GATD – Global Application Tooling Division – can provide various levels of tooling to meet the full spectrum of output requirements. The continuous support by our field service completes the Tyco Electronics system. Our field service engineers ensure the application equipment fulfill all requirements at any given time.

Please use the tooling website and the online search to find the tooling that best suits your application.

Put your terminal part number either into the hand tool or applicator database and the appropriate tool will be shown.

If you can't find what you are looking for, it does not necessarily mean that there is nothing available for your application:

For cross-referencing information – contact one of our Product Information Centers (PIC), listed in the selection from the left-hand menu box.

For more complex equipment and technical help – find your country contact by selecting from the left-hand menu box or contact your Tyco Electronics representative.

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| 1437288-1   | 20     | 1473418-2   | 20     | 2-6447232-3 | 20   |
| 1437288-2   | 20     | 1473423-1   | 20     | 2-6447232-4 | 20   |
| 1437288-3   | 20     | 1473423-2   | 20     | 6473418-1   | 20   |
| 1437288-4   | 20     | 1473427-1   | 20     | 6473418-2   | 20   |
| 1437288-5   | 20     | 1473711-1   | 20     | 6473423-1   | 20   |
| 1437288-6   | 20     | 1473711-2   | 20     | 6473423-2   | 20   |
| 3-1437290-7 | 19, 20 | 1473712-1   | 19, 20 | 6473427-1   | 20   |
| 3-1437290-8 | 19, 20 | 1473712-2   | 19, 20 | 6473711-1   | 20   |
| 3-1437290-9 | 19, 20 | 2-6437285-5 | 20     | 6473711-2   | 20   |
| 4-1437290-0 | 19, 20 | 2-6437285-6 | 20     |             |      |
| 4-1437290-1 | 19, 20 | 2-6437285-8 | 20     |             |      |



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Engineering Notes

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Engineering Notes

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