



## Heavy Duty Sealed Connector Series (HDSCS) for Industrial & Commercial Vehicles

# Industrial & Commercial Transportation

When every connection counts, TE Connectivity delivers reliable connectivity products designed to withstand harsh environmental conditions for on and off-highway vehicles and recreational transportation. As a world leader in rough and rugged connectivity, you can depend on TE Connectivity to provide innovative solutions for field applications where failure is not an option.

## *We go to extremes to make every connection count*

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The Industrial & Commercial Transportation business unit of TE Connectivity is a world leader in connectors and interconnect systems for use in the toughest and harshest environments. From trucks to tractors, from motorcycles to recreational vehicles, we offer products that work just as hard as the vehicles in which they are installed.

Our intelligent yet robust solutions and technologies function reliably in applications with high vibration and extreme temperature characteristics. The new business unit combines the service portfolios of DEUTSCH and TE Connectivity under one roof. The DEUTSCH brand is a global leader in interconnect solutions for use in heavy equipment and harsh industrial environments.

TE Connectivity has been among the world leaders in interconnect systems for automotive and system manufacturers for over 50 years. We offer you one of the world's most comprehensive connector product portfolios.

Thanks to the breadth of our product range, our global presence and our innovative strength, we are able to develop targeted solutions for the most demanding requirements of a rapidly changing market.

We engineer tough products for your application needs. We know that dependability is a must in the field or at the site. That's why our engineers designed rugged, high vibration resistant connector solutions to meet your application requirements.

## *Support*

We provide options to meet your needs. TE Connectivity offers sales options to service all Industrial & Commercial Transportation customers, including factory direct, LADD Distribution and third party distribution. Contact your local sales representative for more information.

Please note our global contacts on page 57.



## ***Industrial & Commercial Transportation Markets***

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### ***On-Highway Vehicles***

These include trucks (class 6 – 8, and utility), buses (city buses, coaches, school buses) and emergency vehicles.



### ***Off-Highway Vehicles***

In this segment, we equip construction vehicles such as front-loaders, dump trucks, excavators and bulldozers. In agriculture vehicles, our products are widely used in tractors and combine harvesters, for example. This segment also includes special vehicles like industrial lifts or material handling vehicles.



### ***Recreational Transportation***

From boats (including personal watercraft) to motorcycles, scooters, snowmobiles, ATVs and recreational vehicles, the range of recreational vehicles is broad.

Whatever the application, we have a connector to match.



# Industrial & Commercial Transportation

Industrial & Commercial Transportation has the ideal product series for every harsh environment. Our time-tested, high vibration resistant products and technologies provide the right solution for your applications and requirements.

## ***We go to extremes to make every connection count***

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### ***Interconnection Systems***

TE Connectivity's electrical and electronic interconnection products and solutions are used to electrically and mechanically join wires and cables, printed circuit boards, integrated circuit packages and batteries.



### ***Cable Assemblies***

TE Connectivity is your partner for vehicle-specific cable assemblies. We offer research and development capabilities, prototypes and samples, as well as manufacturing facilities for special cable assemblies.



### ***Hybrid & Electric Mobility Solutions***

Electric mobility is changing the way engineers think about vehicles. The way they're designed and engineered. The way they're fueled. Even the way the fuel is delivered. And we're right there with you helping complete the connections for current and nextgeneration hybrid and electric mobility and the charging infrastructure. TE Connectivity's complete portfolio of connection and protection systems includes battery connectivity systems, connectors, cable assemblies, high-voltage relays and contactors, power distribution units and customer-specific designs.



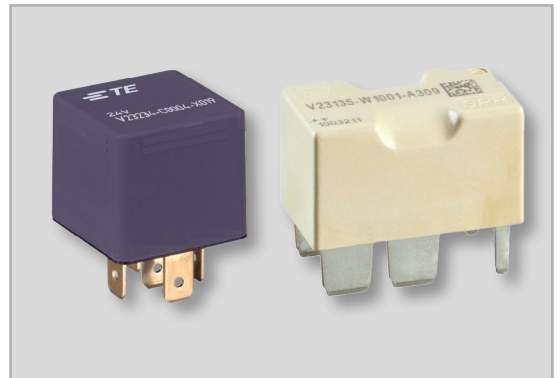
## Sensors

TE Connectivity provides contactless and electromechanical sensor products with robust housing technologies, connection systems and temperature-resistant design for use in a variety of industrial and commercial transportation applications.



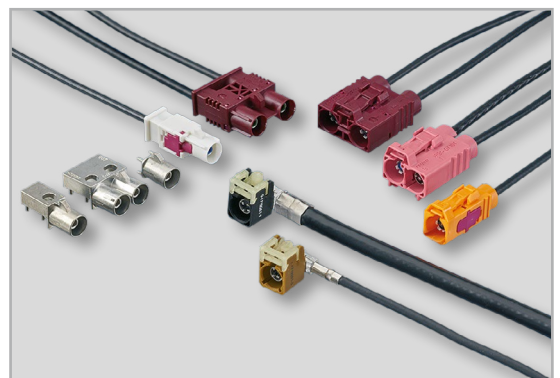
## Relays

TE Connectivity's 24 V relay product line includes a broad range of robust and versatile relays for many diverse applications within trucks, buses, agricultural tractors, construction equipment and other heavy duty commercial vehicles. With increased contact gaps and other key design features, these relays are designed for use in challenging environments where they may regularly encounter extended periods of shock and vibration.



## Infotainment

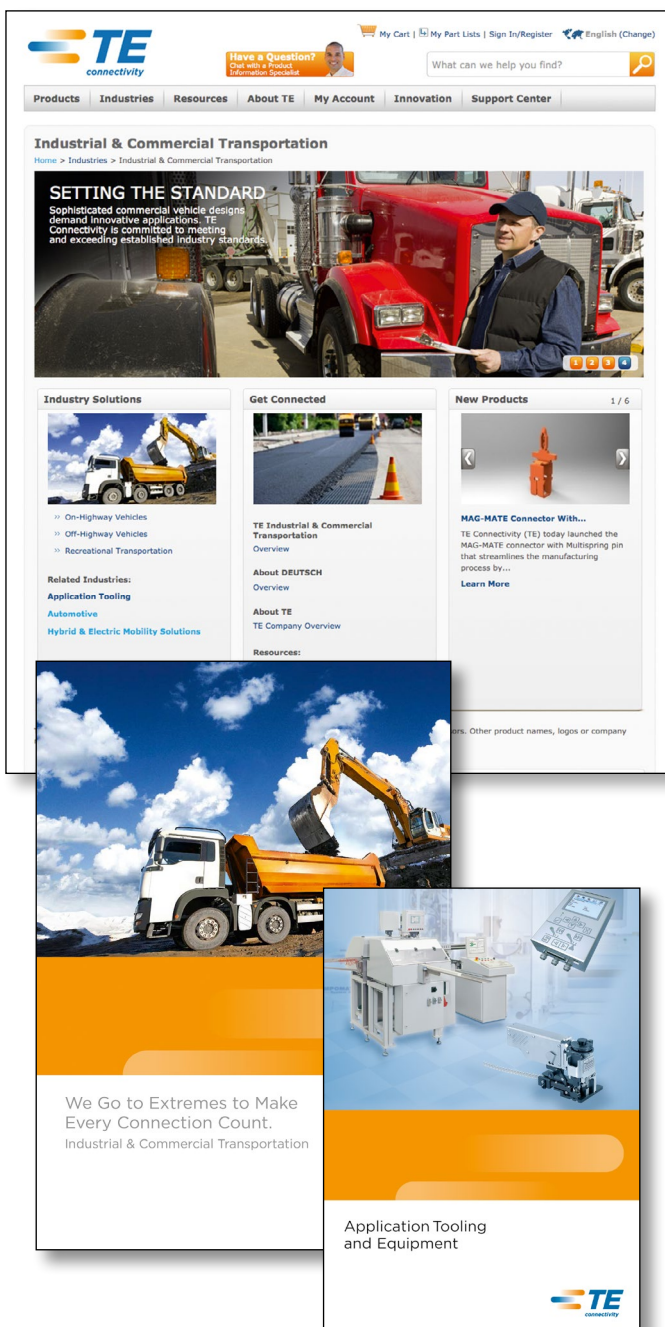
TE Connectivity offers a wide variety of infotainment solutions for consumer port connections, high data rate applications, next-generation harness architecture, board-to-board connections and vehicle-to-vehicle communication.



# Industrial & Commercial Transportation

The TE Connectivity Industrial & Commercial Transportation website is an innovative and interactive source for application information, product updates and technical solutions.

## Industrial & Commercial Transportation online



### Product and Machine Literature

TE Connectivity Industrial & Commercial Transportation offers a variety of product specific catalogs, brochures and high impact flyers to help better serve you!

For more information on literature for TE Connectivity Industrial & Commercial Transportation, please contact your local organization or go to [www.te.com/en/industries/industrial-commercial-transportation.html](http://www.te.com/en/industries/industrial-commercial-transportation.html)

### TE Products

[www.te.com/en/products/product-landing.html](http://www.te.com/en/products/product-landing.html)

### Product Information Center (PIC)

You can rely on TE Connectivity's 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 organization or see our Global Contacts page. Please contact us at [www.te.com/support-center](http://www.te.com/support-center)

## ***Every connection counts***

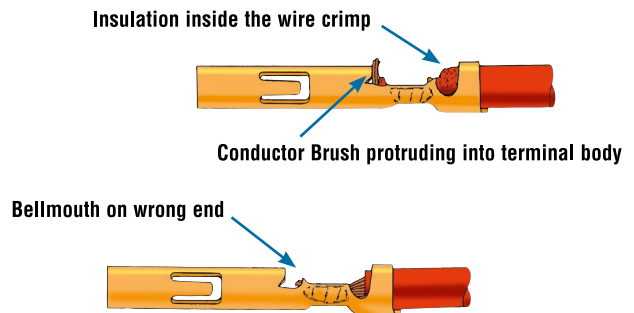
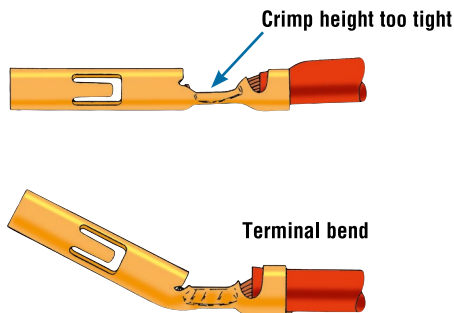
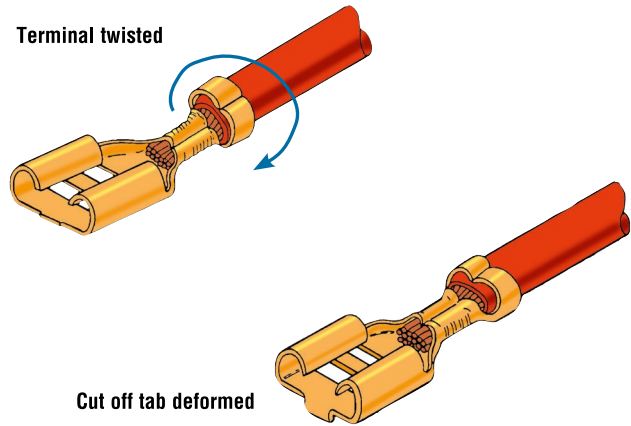
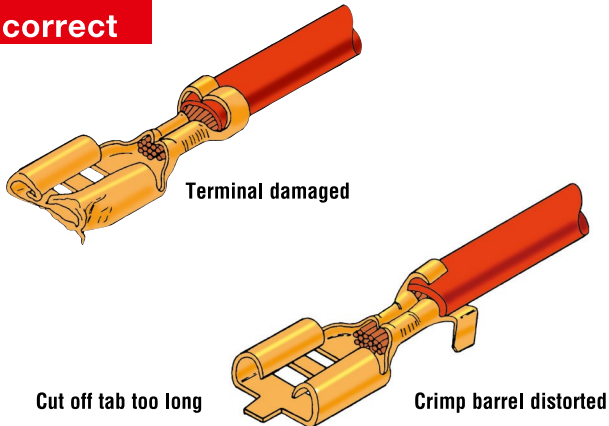
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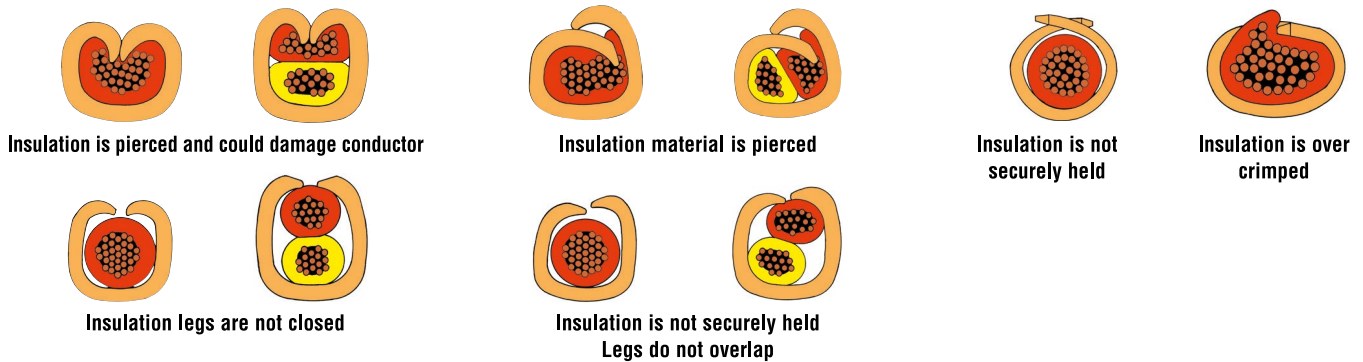
***We are worldwide the right connection  
for the toughest jobs***

## Quality Guidelines

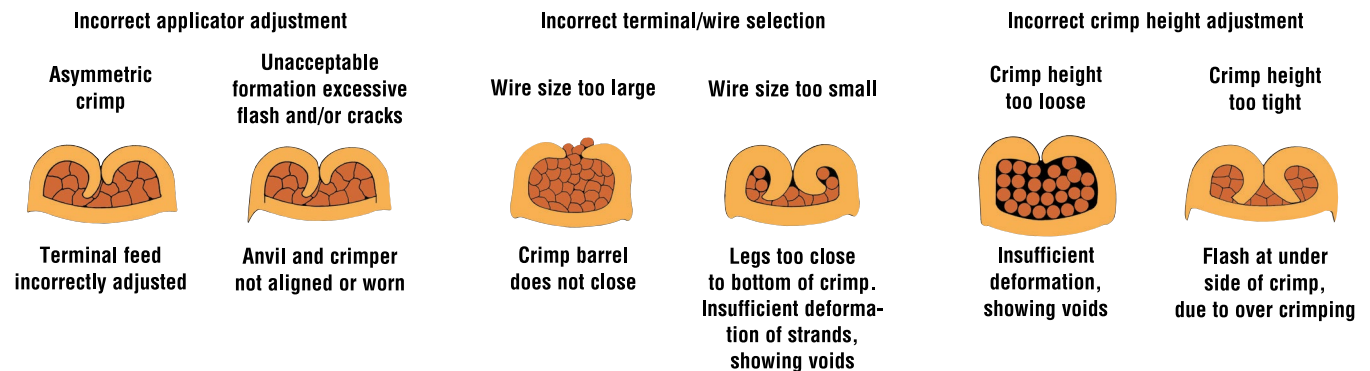
### Incorrect



## INSULATION CRIMP



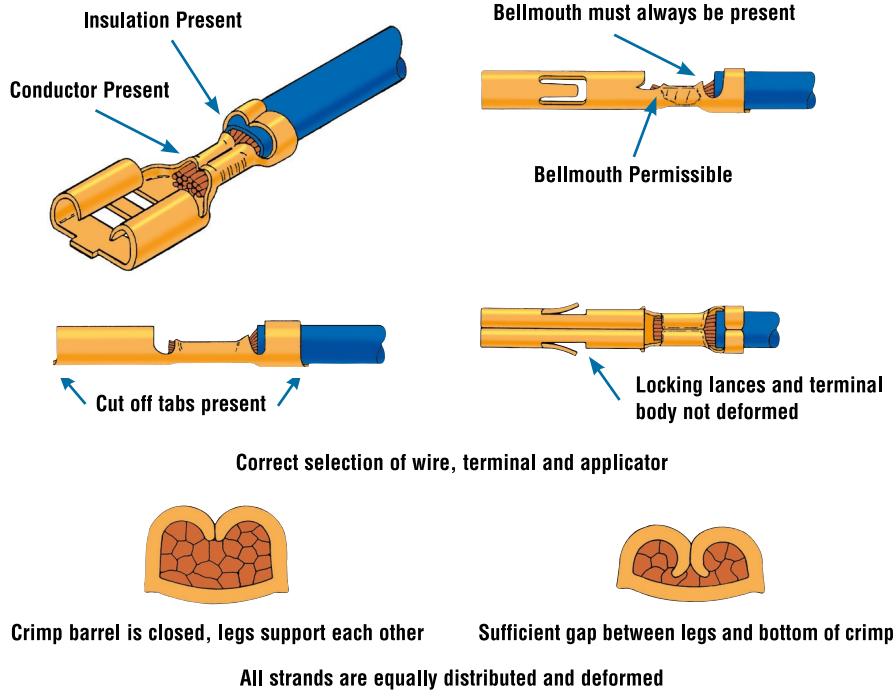
## WIRE CRIMP



## Quality Guidelines

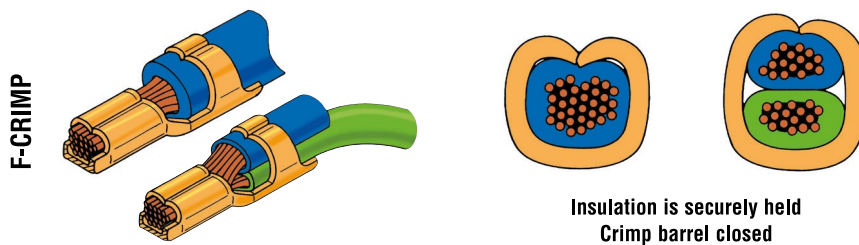
### Correct

### WIRE CRIMP

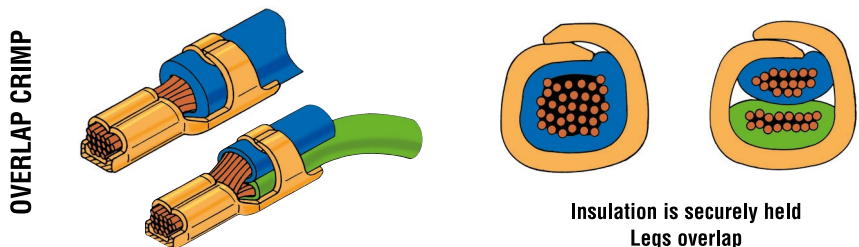


### INSULATION CRIMP

Correct Insulation Diameter, Applicator and Terminal



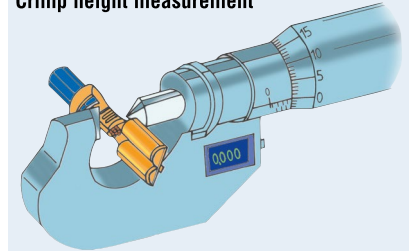
For double wire applications with different size wires always place wire with smallest outer diameter in the bottom



### Test

### WIRE CRIMP

Crimp height measurement



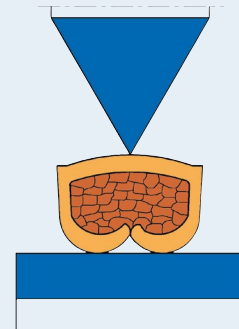
Crimp heights and tolerances

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

Examples:

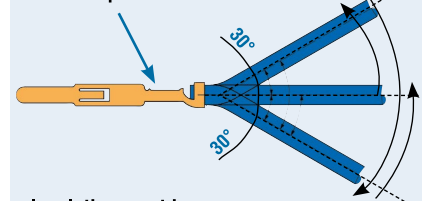
| Con-<br>tact | Part<br>No.      | Wire<br>Range<br>(mm <sup>2</sup> ) | Toler-<br>ance<br>(mm) | Appli-<br>cation<br>Spec. |
|--------------|------------------|-------------------------------------|------------------------|---------------------------|
| MQS          | 962885<br>962886 | 0.2-0.5                             | ±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



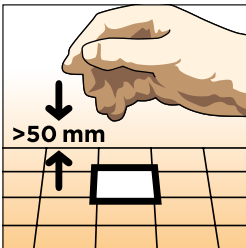
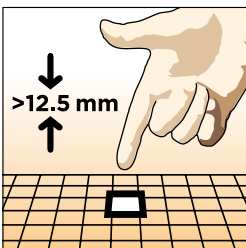
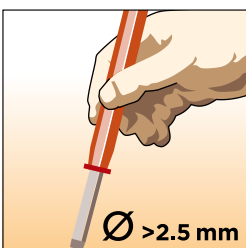
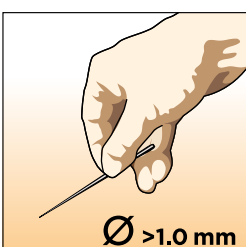
### INSULATION CRIMP

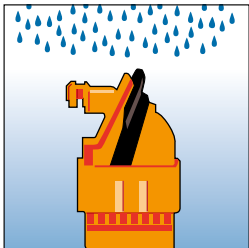
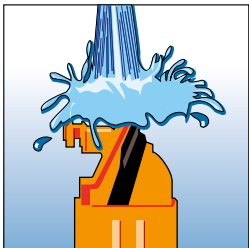
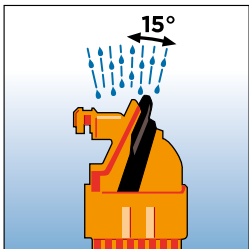
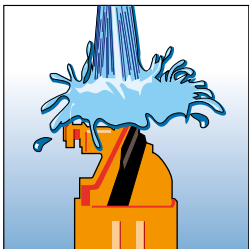
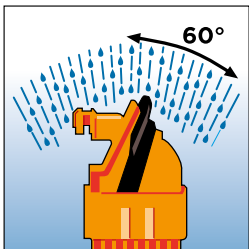
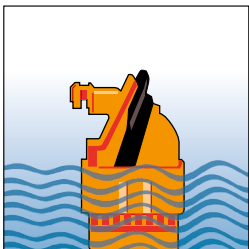
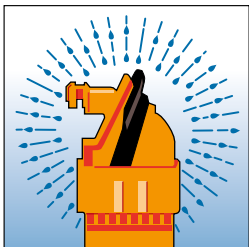
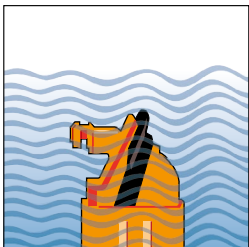
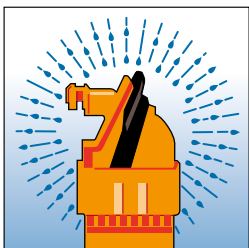
Wire crimp without conductor



Insulation must be  
securely held  
after bend test

## IP Code (Elements and Significance acc. to IEC 60529 and DIN 40050)

| 1st Digit | Against Foreign Objects (incl. Dust)                                                                                                                                                                        | 1st Digit | Against Foreign Objects (incl. Dust)                                                                      |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------|
| 0         |  <p>Not protected.</p>                                                                                                     | 5K        |  <p>Dust protected.</p> |
| 1         |  <p>Protected against solid objects greater than 50 mm (ex. back of hand).</p>                                             | 6K        |  <p>Dust tight.</p>     |
| 2         |  <p>Protected against solid objects greater than 12.5 mm (ex. finger).</p>                                                |           |                                                                                                           |
| 3         |  <p>Protected against solid objects greater than 2.5 mm (ex. tool).<br/><math>\varnothing &gt; 2.5 \text{ mm}</math></p> |           |                                                                                                           |
| 4         |  <p>Protected against solid objects greater than 1.0 mm (ex. wire).<br/><math>\varnothing &gt; 1.0 \text{ mm}</math></p> |           |                                                                                                           |

| 2nd Digit | Against Water                                                                       |                                                            | 2nd Digit | Against Water                                                                        |                                                                                            |
|-----------|-------------------------------------------------------------------------------------|------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| 0         |    | Not protected.                                             | 5         |    | Protected against jetting water.                                                           |
| 1         |    | Protected against vertically dripping water.               | 6         |    | Protected against powerfully jetting water.                                                |
| 2         |   | Protected against dripping water when tilted up to 15°.    | 6K        |   | Protected against powerfully jetting water with increased pressure (Automotive).           |
| 3         |  | Protected against spraying water (up to 60° inclination).  | 7         |  | Protected against the temporary effects of immersion up to 1 meter.                        |
| 4         |  | Protected against splashing water.                         | 8         |  | Protected against continuous submersion agreed with customer, but more severe than code 7. |
| 4K        |  | Protected against splashing water with increased pressure. | 9K        |  | Protected against high-pressure/steam-jet cleaning (Automotive).                           |

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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 TE Connectivity, 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://www.te.com/commerce/alt/RohsAltHome.do>
- Downloadable Technical Data Customer Information Presentation
- More detailed information regarding the definitions used above

So whatever your questions when it comes to RoHS, we've got the answers at <http://www.te.com/customersupport/rohssupportcenter/>

RoHS  
Customer  
Support  
Center 

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 page X and page XI.

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  | 2.1062  | 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 | 15.5382 | 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 | 17.9528 | 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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## Heavy Duty Sealed Connector Series (HDSCS)

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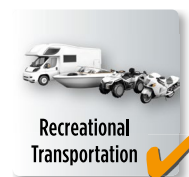
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### Engineering Notes

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## Introduction



## Heavy Duty Sealed Connector Series (HDSCS) for industrial & commercial vehicles.



The Heavy Duty Sealed Connector Series, so called HDSCS, is targeted for the commercial vehicle industry and off-road applications. This wire-to-wire and wire-to-device connector program was designed to meet the rigorous demands of an industry that requires the highest standards in performance.

The HDSCS program consists of five groups of connectors in different sizes, starting from 2 up to 18 way connectors. In addition, mixed combinations with signal and power lines are available.

This HDSCS program will feature the AMP MCP 1.5K, AMP MCP 2.8 and AMP MCP 6.3/4.8K receptacles and tabs as a contact system.

### Technical Features

- High reliability status supported for long term use
- High vibration level supported
- Perfect design to avoid quality problems, reduce manufacturing and service cost
- Integrated secondary locking device delivered in pre-locked position
- Polarization, several keyings
- Clear handling, low mating force with a reliable slide locking mechanism delivered in pre-locked position

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### Engineering Notes

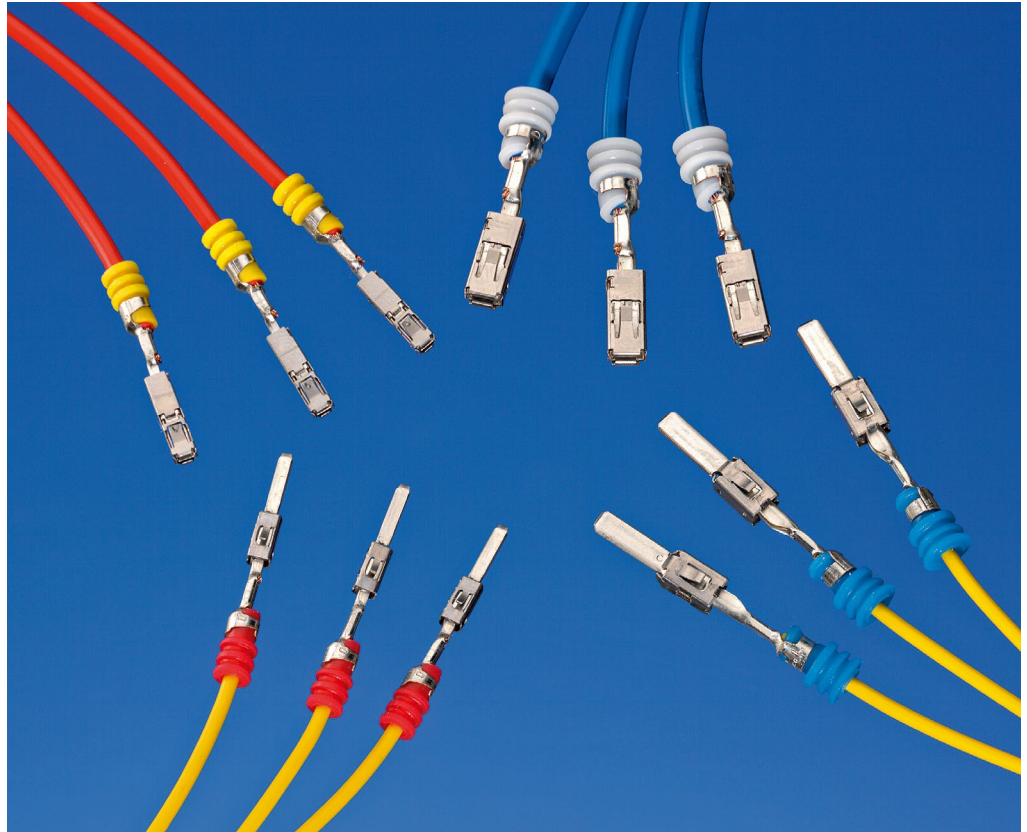
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## Introduction



The AMP MCP contact system offers high functionality for application in commercial vehicles.



The AMP MCP contact system is mainly used in the automotive industry. Each contact consists of a flat receptacle, which mates with a flat tab. Every contact has got a steel spring and a copper alloy body.

The two-piece contact design means that the electrical and mechanical properties are separated. One end of the contact body is crimped to wire and the other end mates with the matching tab. The closed spring has got several functions and also different advantages for the complete contact system.

- Protection of the contact springs
- No over elongation of the contact springs possible under normal circumstances
- No possibility to connect from the rear side
- Protection against mechanical damage
- Good guiding in the cavity
- Secondary locking possible (from 4 directions)
- Assembly into housing fully-automatically

In addition there are usually two lances on the steel to spring. These serve to lock the contact securely in the housing.

The main advantages of the body are:

- Several contact points
- Large range of wire sizes (from 0.2mm<sup>2</sup> at AMP MCP 1.5K up to 6.0 mm<sup>2</sup> at AMP MCP 6.3/4.8K)
- Base material with very high current capability
- High vibrational load

Tabs and receptacles can be applied in both sealed and unsealed connectors.

AMP MCP contacts can be fast and economically arranged to the lead using TE Connectivity application tooling.

### Sealed Receptacle Contacts

#### Technical Features

##### Contact Material:

CuNiSi  
Top Spring: Stainless Steel

##### Contact Finish:

Tin plated, selective silver plated,  
selective gold plated

##### Wire Size Range:

0.20–0.35 mm<sup>2</sup>, 0.5–1.0 mm<sup>2</sup>,  
>1.0–1.5 mm<sup>2</sup> (FLR Cable)

##### Current Carrying Capacity:

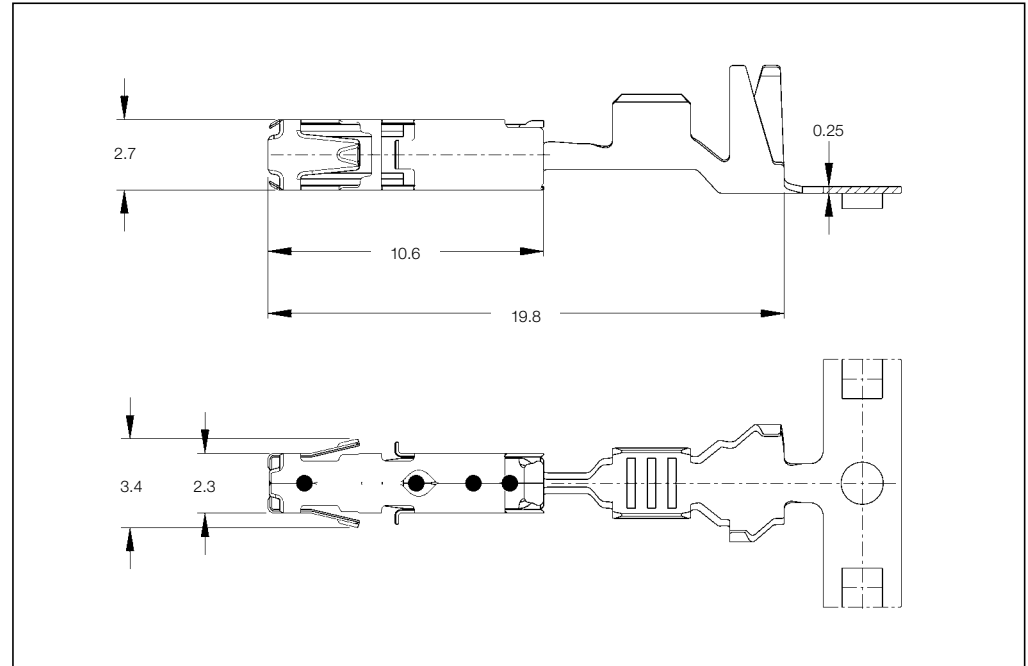
up to 20 Ampere  
(at 20 °C ambient temperature)

##### Temperature Range:

–40 °C ... +130 °C (tin plated)  
–40 °C ... +140 °C (silver plated)  
–40 °C ... +150 °C (gold plated)

##### Mating Cycles:•

up to 10 cycles (tin plated)  
up to 50 cycles (silver plated)  
up to 100 cycles (gold plated)



##### Contact Resistance:

New State ≤ 2 mΩ

##### Mating Force:

Max. 6 N

##### Unmating Force:

Max. 6 N

##### Dimension of Male Contacts:

1.5<sup>+0.2</sup><sub>–0.1</sub> x 0.6<sup>+0.07</sup><sub>–0.03</sub> mm

##### Extraction Tool:

Part No. 1-1579007-1

##### Product Group Drawing:

1241436

##### Product Specification:

108-18716

##### Application Specification:

114-18386

•) Mating Cycles are depending on various technical influences and must be clarified in each individual case.

### Receptacle Contacts Single Wire Sealing System (SWS)

| Wire Size Range (mm <sup>2</sup> ) | Insulation Diameter (mm) |         | Material and Finish *  | Part Numbers |                  |             |                  |              | Hand Tool Complete |
|------------------------------------|--------------------------|---------|------------------------|--------------|------------------|-------------|------------------|--------------|--------------------|
|                                    | FLK                      | FLR     |                        | Strip Form   | Package Quantity | Loose-Piece | Package Quantity | Applicator ♦ |                    |
| 0.20–0.35                          | –                        | 1.1–1.4 | -1 / -2 / -3           | 1241378      | 4,500            | 1241379     | 500              | x-1528122-x  | 2063524-1          |
| 0.5–1.0                            | –                        | 1.4–2.1 | -1 / -2 / -3 / 1-xxx-2 | 1241380      | 4,500            | 1241381     | 500              | x-1528324-x  |                    |
| >1.0–1.5                           | –                        | 2.2–2.4 | -1 / -3                | 1418884      | 4,500            | 1418885     | 500              | x-1530008-x  | –                  |

##### \* Material and Finish:

xxx-1 = CuNiSi, pre-tin plated  
xxx-2 = CuNiSi, selective gold plated  
xxx-3 = CuNiSi, selective silver plated  
1-xxx-2 = CuNiSi, min. 1.27 µm selective gold plated

♦) The pre- and suffix for the applicators depends on the applied termination equipment.

**Note:** All Part Numbers are RoHS and ELV compliant.

## Sealed Tab Contacts

**Tabs 1.6 x 0.6mm with modified steel top spring, mates with AMP MCP 1.5K contact system.**

**Extraction Tool:**

Part No. **539960-1**
**Product Group Drawing:**

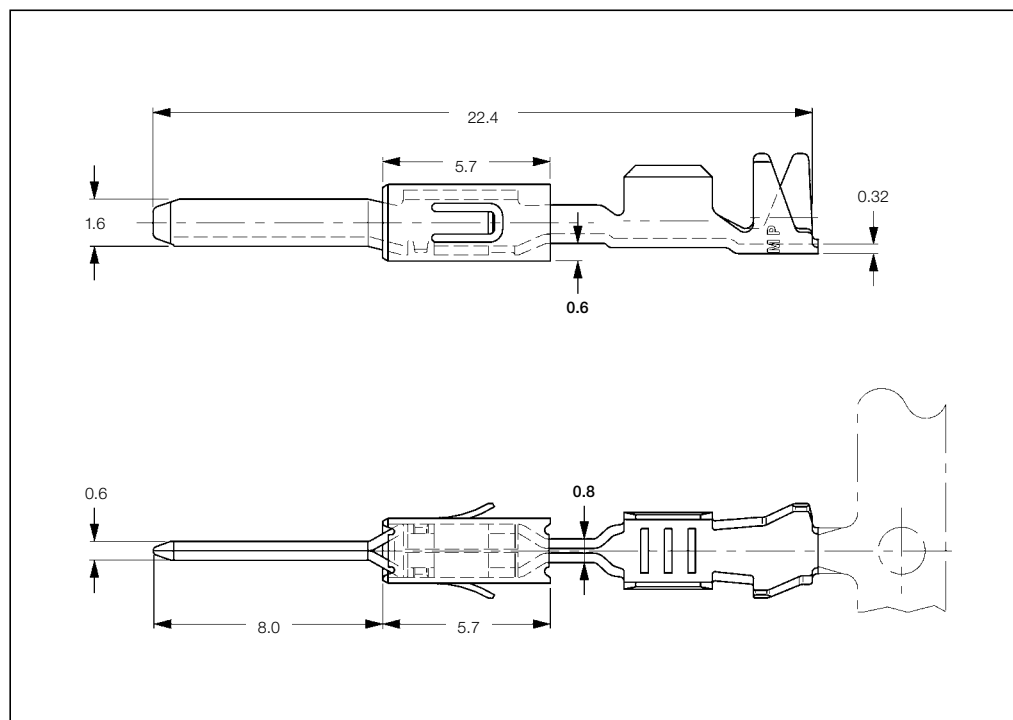
1355055

**Product Specification:**

108-18331

**Application Specification:**

114-18082


**Tab Contacts Single Wire Sealing System with Modified Spring (SWS)**

| Wire Size Range (mm <sup>2</sup> ) | Insulation Diameter (mm) |         | Material and Finish * | Part Numbers |                  |             |                  |              | Hand Tool Complete |
|------------------------------------|--------------------------|---------|-----------------------|--------------|------------------|-------------|------------------|--------------|--------------------|
|                                    | FLK                      | FLR     |                       | Strip Form   | Package Quantity | Loose-Piece | Package Quantity | Applicator ♦ |                    |
| 0.2-0.5                            | –                        | 1.2-1.6 | -2 / -3               | 969028       | 4,000            | 969029      | 500              | x-1528068-x  | 2063409-1          |
| 0.5-1.0                            | –                        | 1.4-2.1 | -2 / -3 / -5          | 964269       | 4,000            | 964270      | 500              | x-1528261-x  |                    |
| 1.5                                | –                        | 1.9-2.4 | -2 / -5               | 1703278      | 4,000            | 1703279     | 500              | x-1528579-x  | –                  |

**\*) Material and Finish:**

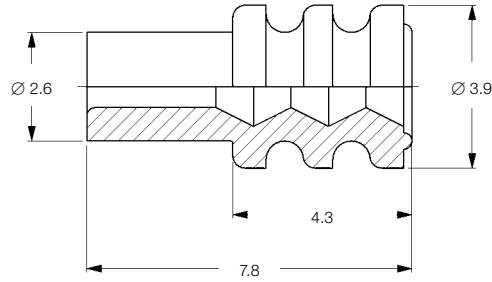
xxx-2 = CuFe2, pre-tin plated  
xxx-3 = CuSn4, gold plated  
xxx-5 = CuSn4, selective silver plated

♦) The pre- and suffix for the applicators depends on the applied termination equipment.

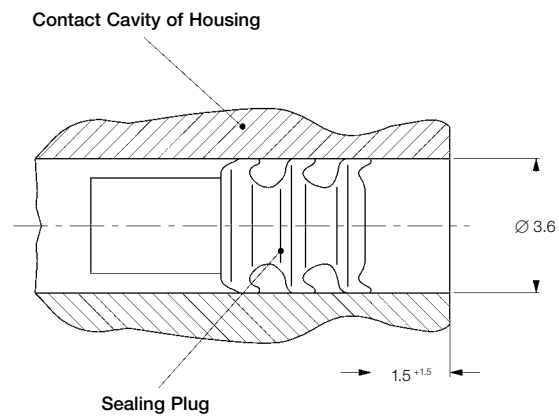
**Note:** All Part Numbers are RoHS and ELV compliant.

### Single Wire Seals and Sealing Plugs

Single wire seals and sealing plugs for AMP MCP 1.5K contact system (cavity diameter 3.6mm).



| Insulation Diameter (mm) | Color   | Part Number | Package Quantity |
|--------------------------|---------|-------------|------------------|
| 0.9–1.2                  | Green   | 1718705-1   | 10,000           |
| 1.2–1.6                  | Red     | 964971-1    | 10,000           |
|                          | Blue    | 1394133-1   | 10,000           |
| 1.4–1.9                  | Gray    | 963530-1    | 10,000           |
| 1.9–2.1                  | Yellow  | 964972-1    | 10,000           |
| 1.9–2.4                  | Orange  | 2112323-1   | 10,000           |
| Sealing Plug             | White   | 963531-1    | 10,000           |
|                          | Natural | 1394132-1   | 10,000           |



### Sealed Receptacle Contacts

#### Technical Features

##### Material:

Contact: CuNiSi  
Tabs: CuSn4, CuFe2  
Top Spring: Stainless Steel

##### Contact Finish:

Tin plated, selective silver plated,  
selective gold plated

##### Wire Size Range:

0.2–0.5 mm<sup>2</sup>, 0.5–1.0 mm<sup>2</sup>,  
1.0–2.5 mm<sup>2</sup>, Single Wires (FLR),  
AWG 12 TXL

##### Current Carrying Capacity:

up to 40 Ampere  
(at 20 °C ambient temperature)

##### Mating Force\*:

Max. 6 N

##### Unmating Force\*:

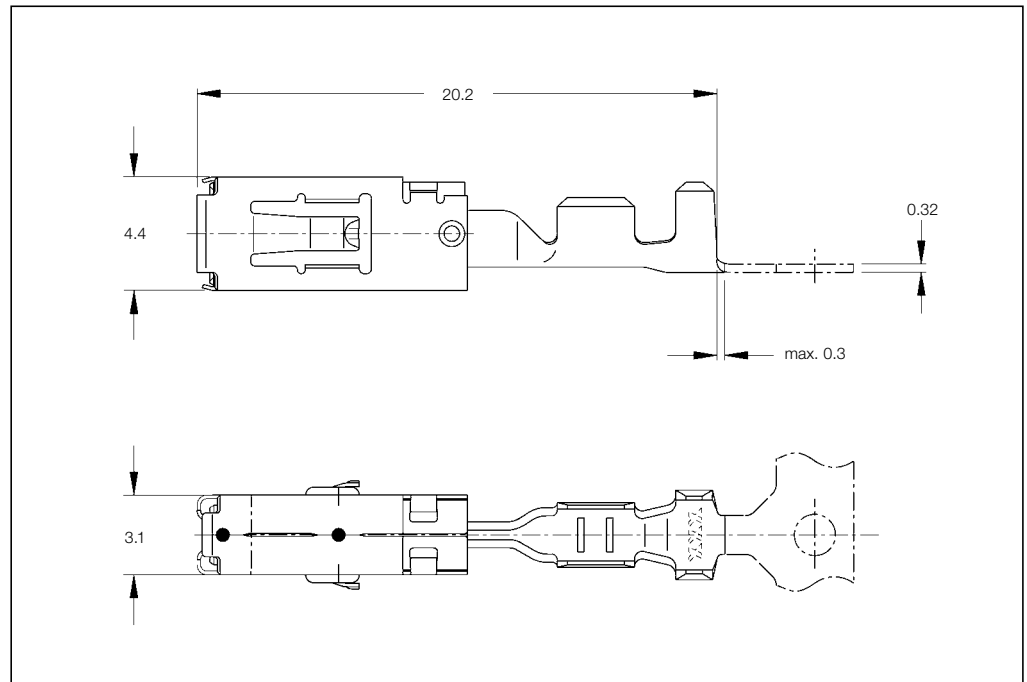
Max. 5 N

##### Mating Cycles:•

up to 10 cycles (tin plated)  
up to 50 cycles (silver plated)  
up to 100 cycles (gold plated)

\*) Steel Tab, see Specifications

•) Mating Cycles are depending  
on various technical influences  
and must be clarified in each  
individual case.



##### Temperature Range:

–40 °C ... +130 °C (tin plated)  
–40 °C ... +140 °C (silver plated)  
–40 °C ... +150 °C (gold plated)

##### Dimension of Male Contacts:

2.8<sup>+0.1</sup> x 0.8<sup>+0.03</sup> mm  
3.0<sup>+0.1</sup> x 0.8<sup>+0.03</sup> mm

##### Contact Resistance:

New State ≤ 2 mΩ

##### Extraction Tool:

Part No. 1579007-1

##### Product Specification:

108-18513

##### Application Specification:

114-18148

##### Product Group Drawing:

1355036

### Receptacle Contacts Single Wire Sealing System (SWS)

| Wire Size<br>Range<br>(mm <sup>2</sup> ) | Insulation Diameter<br>(mm) |          | Material<br>and Finish*     | Part Numbers  |                     |                 |                     |              | Hand<br>Tool<br>Complete |
|------------------------------------------|-----------------------------|----------|-----------------------------|---------------|---------------------|-----------------|---------------------|--------------|--------------------------|
|                                          | FLK                         | FLR      |                             | Strip<br>Form | Package<br>Quantity | Loose-<br>Piece | Package<br>Quantity | Applicator ♦ |                          |
| 0.35                                     | –                           | 1.2–1.4  | 1-xxx-1 / 1-xxx-3           | 968882        | 4,500               | 968896          | 500                 | x-1426162-x  | 2063623-1                |
| 0.5–1.0                                  | –                           | 1.4–2.1  | 1-xxx-1 / 1-xxx-2 / 1-xxx-3 | 968855        | 3,500               | 968875          | 500                 | x-1528017-x  | 2063624-1                |
| 1.0–2.5                                  | –                           | 2.2–3.0  | 1-xxx-1 / 1-xxx-3           | 968857        | 4,000               | 968876          | 500                 | x-1528066-x  | 2063523-1                |
| AWG 12 TXL                               | –                           | max. 3.2 | 1-xxx-1 / 1-xxx-3           | 1719506       | 2,500               | –               | –                   | x-1852290-x  | –                        |

##### \* Material and Finish:

1-xxx-1 = CuNiSi, pre-tin plated  
1-xxx-2 = CuNiSi, selective gold plated  
1-xxx-3 = CuNiSi, selective silver plated

♦) The pre- and suffix for the  
applicators depends on the  
applied termination equipment.

**Note:** All Part Numbers are RoHS and ELV compliant.

## Single Wire Seals and Sealing Plugs

**Tabs 2.8 x 0.8mm  
with steel top spring,  
mates with AMP MCP  
2.8 contact system.**

**Extraction Tool:**

Part No. **1-1579007-6**
**Product Group Drawing:**

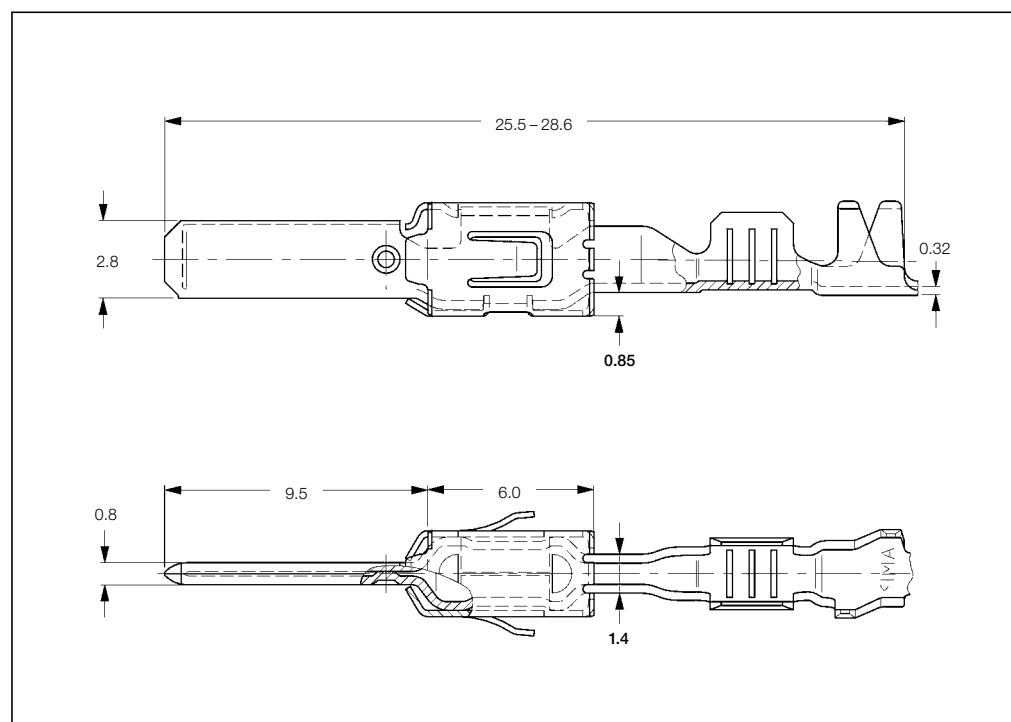
1355052

**Product Specification:**

108-18063

**Application Specification:**

114-18051


**Tab Contacts with Single Wire Sealing System (SWS)**

| Wire Size<br>Range<br>(mm <sup>2</sup> ) | Insulation Diameter<br>(mm) |          | Material<br>and Finish *                                     | Part Numbers  |                     |                 |                     |              |                          |
|------------------------------------------|-----------------------------|----------|--------------------------------------------------------------|---------------|---------------------|-----------------|---------------------|--------------|--------------------------|
|                                          | FLK                         | FLR      |                                                              | Strip<br>Form | Package<br>Quantity | Loose-<br>Piece | Package<br>Quantity | Applicator * | Hand<br>Tool<br>Complete |
| 0.2-0.5                                  | -                           | max. 2.1 | 1-xxx-1 / 1-xxx-3                                            | 965982        | 3,500               | 965983          | 500                 | x-1528406-x  | 734538-1                 |
| 0.5-1.0                                  | -                           | max. 2.1 | 1-xxx-1 / 1-xxx-2 / 1-xxx-3 /<br>2-xxx-1 / 2-xxx-2 / 2-xxx-3 | 962915        | 3,500               | 963748          | 500                 | x-1528452-x  | 2063490-1                |
| 1.5-2.5                                  | -                           | max. 3.0 | 1-xxx-1 / 1-xxx-2 / 1-xxx-3 /<br>2-xxx-1 / 2-xxx-2 / 2-xxx-3 | 962916        | 3,300               | 963749          | 500                 | x-1528316-x  | 2063490-1                |
| AWG 12 TXL                               | -                           | max. 3.2 | 1-xxx-1 / 1-xxx-2                                            | 1719504       | 3,200               | 1719503         | 500                 | x-1852291-x  | -                        |

**\*) Material and Finish:**

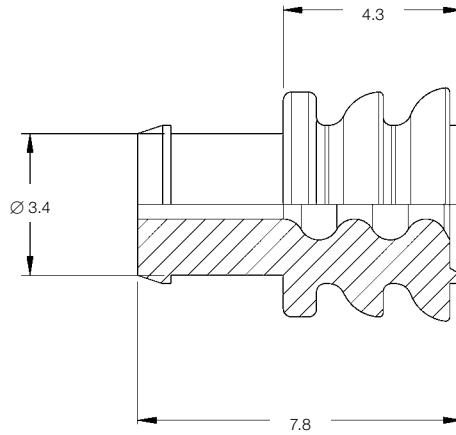
- 1-xxx-1 = CuSn, pre-tin plated
- 1-xxx-2 = CuSn, selective silver plated
- 1-xxx-3 = CuSn, selective gold plated
- 2-xxx-1 = CuFe, pre-tin plated
- 2-xxx-2 = CuFe, selective silver plated
- 2-xxx-3 = CuFe, selective gold plated
- 3-xxx-1 = CuSn, pre-tin plated

\*) The pre- and suffix for the applicators depends on the applied termination equipment.

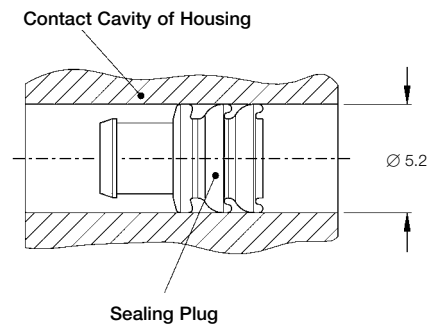
**Note:** All Part Numbers are RoHS and ELV compliant.

### Single Wire Seals and Sealing Plugs

**Single wire seals and sealing plugs for AMP MCP 2.8 contact system (two cavity diameters).**



| Function Relevant Insulation Diameter (mm) | (Example for Wire Size, FLR Insulation according ISO 6722 (mm²)) | Color   | Diameter A (mm) | Part Number | Package Quantity |
|--------------------------------------------|------------------------------------------------------------------|---------|-----------------|-------------|------------------|
| 1.2–2.1                                    | (0.35–1.00)                                                      | Blue    | 5.6             | 828904-1    | 1,000            |
|                                            |                                                                  |         |                 | 828904-2    | 10,000           |
| (2.2–3.0, 3.2)                             | (1.5–2.5), AWG 12 TXL                                            | White   | 5.6             | 828905-1    | 10,000           |
| Sealing Plug                               | –                                                                | Natural | 5.6             | 828922-1    | 10,000           |
|                                            |                                                                  | Green   | 5.6             | 828922-2    | 10,000           |



**Sealed Receptacle Contacts**
**Technical Features**
**Contact Material:**

CuNiSi  
Top Spring: Stainless Steel

**Contact Finish:**

Tin plated, selective silver plated

**Wire Size Range:**

0.2–0.5 mm<sup>2</sup>, 0.5–1.0 mm<sup>2</sup>,  
>1.0–2.5 mm<sup>2</sup>, >2.5–4.0 mm<sup>2</sup>,  
>4.0–6.0 mm<sup>2</sup>

**Current Carrying Capacity:**

up to 40 Ampere  
(at 20 °C ambient temperature)

**Temperature Range:**

–40 °C ... +130 °C (tin plated)  
–40 °C ... +140 °C (silver plated)  
–40 °C ... +140 °C (tin-silver)

**Dimension of Male Contacts:**

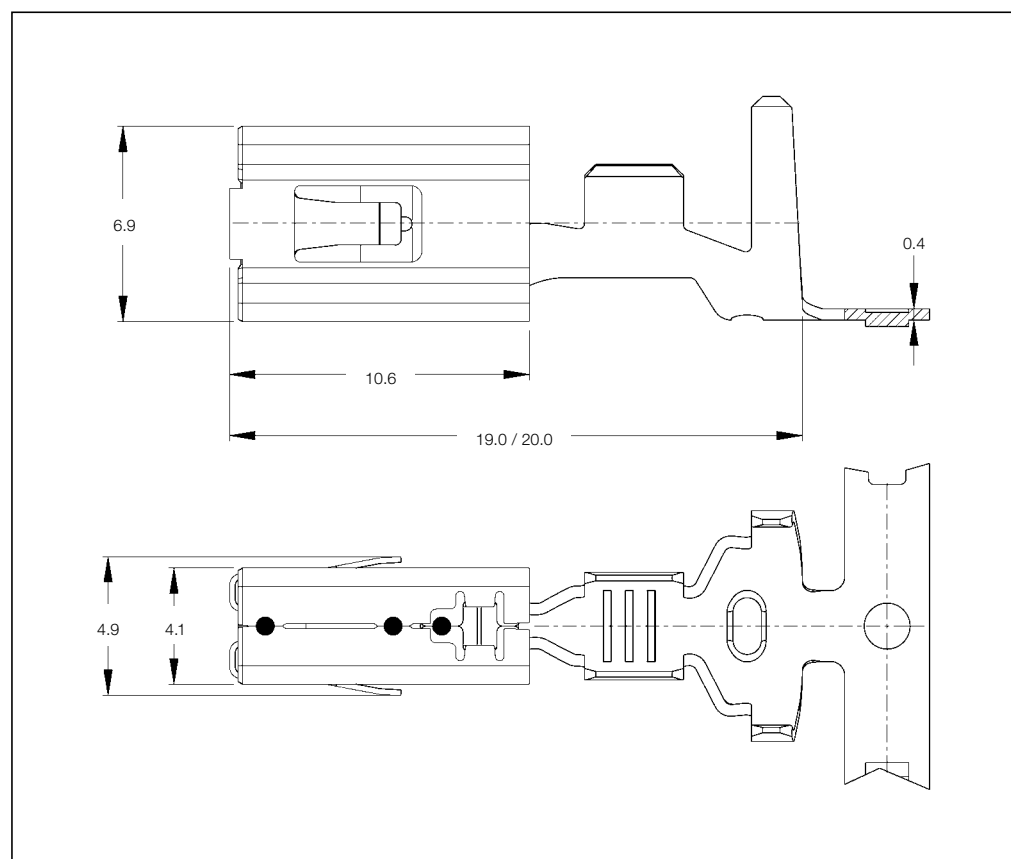
4.8 ±0.1 x 0.8 ±0.03 mm  
5.8 ±0.1 x 0.8 ±0.03 mm  
6.3 ±0.1 x 0.8 ±0.03 mm

**Contact Resistance:**

New State ≤ 2 mΩ

**Mating Cycles:•**

up to 10 cycles (tin plated)  
up to 10 cycles (silver plated)



- ) Mating Cycles are depending on various technical influences and must be clarified in each individual case.

**Mating Force:**

max. 16 N

**Unmating Force:**

max. 11 N

**Extraction Tool:**

Part No. **1-1579007-3**

**Product Group Drawing:**

1241438

**Product Specification:**

108-18718

**Application Specification:**

114-18388

**Receptacle Contacts Single Wire Sealing System (SWS)**

| Wire Size Range (mm <sup>2</sup> ) | Insulation Diameter (mm) |         | Material and Finish * | Part Numbers |                  |             |                  |              | Hand Tool Complete |
|------------------------------------|--------------------------|---------|-----------------------|--------------|------------------|-------------|------------------|--------------|--------------------|
|                                    | FLK                      | FLR     |                       | Strip Form   | Package Quantity | Loose-Piece | Package Quantity | Applicator ♦ |                    |
| 0.2–0.5                            | 1.3–2.3                  | 1.1–1.6 | -1                    | 1241410      | 1,500            | 1241411     | 500              | x-1528513-x  | 2063625-1          |
| 0.5–1.0                            | 2.0–2.7                  | 1.4–2.1 | -1 / -3               | 1241412      | 1,500            | 1241413     | 500              | x-1528342-x  |                    |
| >1.0–2.5                           | 2.7–3.7                  | 2.2–3.0 | -1 / -3               | 1241414      | 1,500            | 1241415     | 500              | x-1528231-x  | 2063626-1          |
| >2.5–4.0                           | 4.1–4.5                  | 3.4–3.7 | -1 / -3               | 1241416      | 1,500            | 1241417     | 500              | x-1530003-x  |                    |
| >4.0–6.0                           | –                        | 4.0–4.5 | -4                    | 1241418      | 1,500            | 1241419     | 500              | x-1528947-x  | 2063627-1 **       |

**\*) Material and Finish:**

xxx-1 = CuNiSi, pre-tin plated  
xxx-3 = CuNiSi, selective silver plated  
xxx-4 = CuNiSi, tin-silver pre-plated

**Note:**

\*\*) This hand tool only covers 6.0 mm<sup>2</sup> wire.

- ♦) The pre- and suffix for the applicators depends on the applied termination equipment.

**Note:** All Part Numbers are RoHS and ELV compliant.

## Sealed Tab Contacts

**Tabs 5.8 x 0.8 mm  
with steel top spring,  
mates with  
AMP MCP 6.3/4.8K  
contact system.**

**Extraction Tool:**

Part No. 1-1579007-6

**Product Group Drawing:**

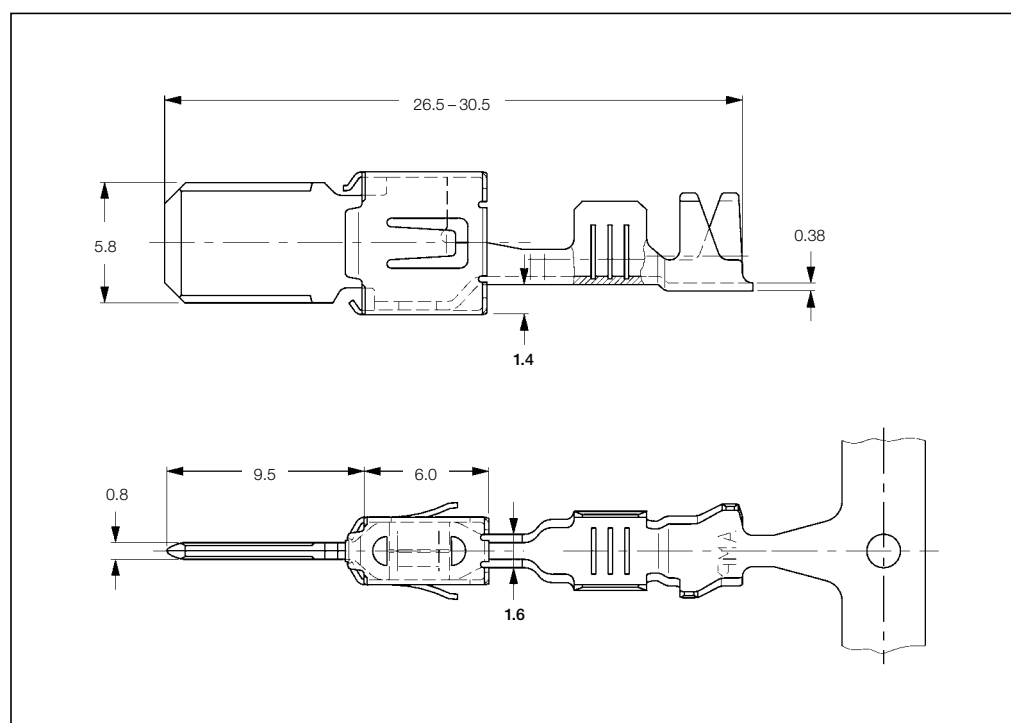
1241895

**Product Specification:**

108-18064

**Application Specification:**

114-18052


**Tab Contacts Single Wire Sealing System (SWS)**

| Wire Size<br>Range<br>(mm <sup>2</sup> ) | Insulation Diameter<br>(mm) |         | Material<br>and Finish*                  | Part Numbers  |                     |                 |                     |              | Hand<br>Tool<br>Complete |
|------------------------------------------|-----------------------------|---------|------------------------------------------|---------------|---------------------|-----------------|---------------------|--------------|--------------------------|
|                                          | FLK                         | FLR     |                                          | Strip<br>Form | Package<br>Quantity | Loose-<br>Piece | Package<br>Quantity | Applicator ♦ |                          |
| 0.5-1.0                                  | –                           | 1.4-2.1 | 1-xxx-1 / 1-xxx-2 /<br>2-xxx-1 / 2-xxx-2 | 962917        | 1,500               | 963742          | 500                 | x-878565-x   |                          |
| 1.5-2.5                                  | –                           | 2.2-3.0 | 1-xxx-1 / 1-xxx-2 /<br>2-xxx-1 / 2-xxx-2 | 962918        | 1,500               | 963743          | 500                 | x-878566-x   | 2063628-1                |
| > 2.5-4.0                                | –                           | 2.7-3.7 | 1-xxx-1 / 1-xxx-2 /<br>2-xxx-1 / 2-xxx-2 | 962919        | 1,500               | 963744          | 500                 | x-878567-x   |                          |
| > 4.0-6.0                                | –                           | –       | 2-xxx-2                                  | 2112966       | –                   | –               | –                   | 1855636      |                          |

**\*) Material and Finish:**

1-xxx-1 = CuSn, pre-tin plated

1-xxx-2 = CuSn, selective silver plated

2-xxx-1 = CuFe, pre-tin plated

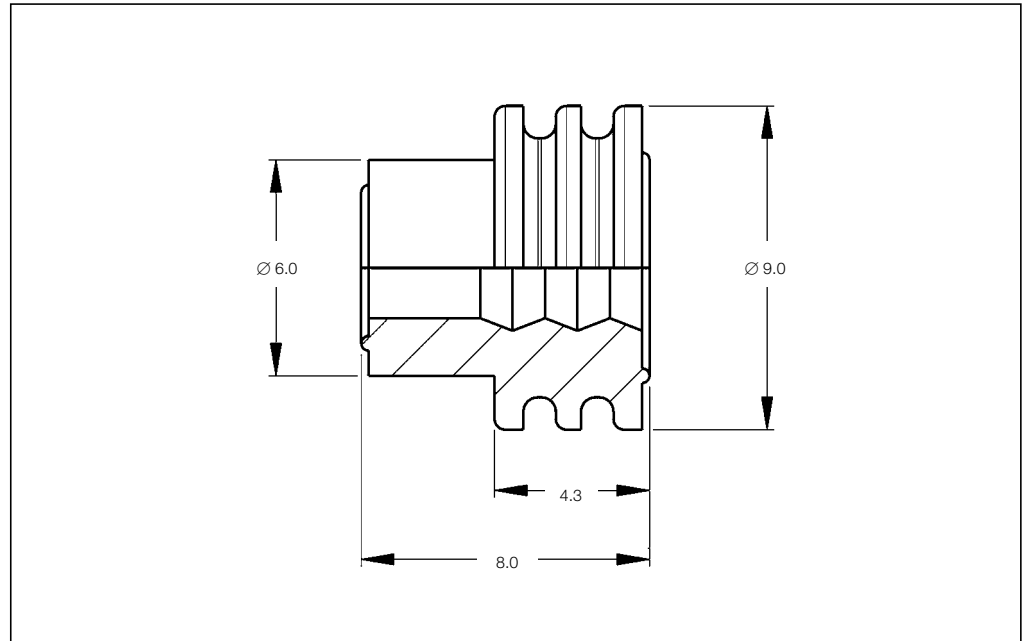
2-xxx-2 = CuFe, selective silver plated

♦) The pre- and suffix for the applicators depends on the applied termination equipment.

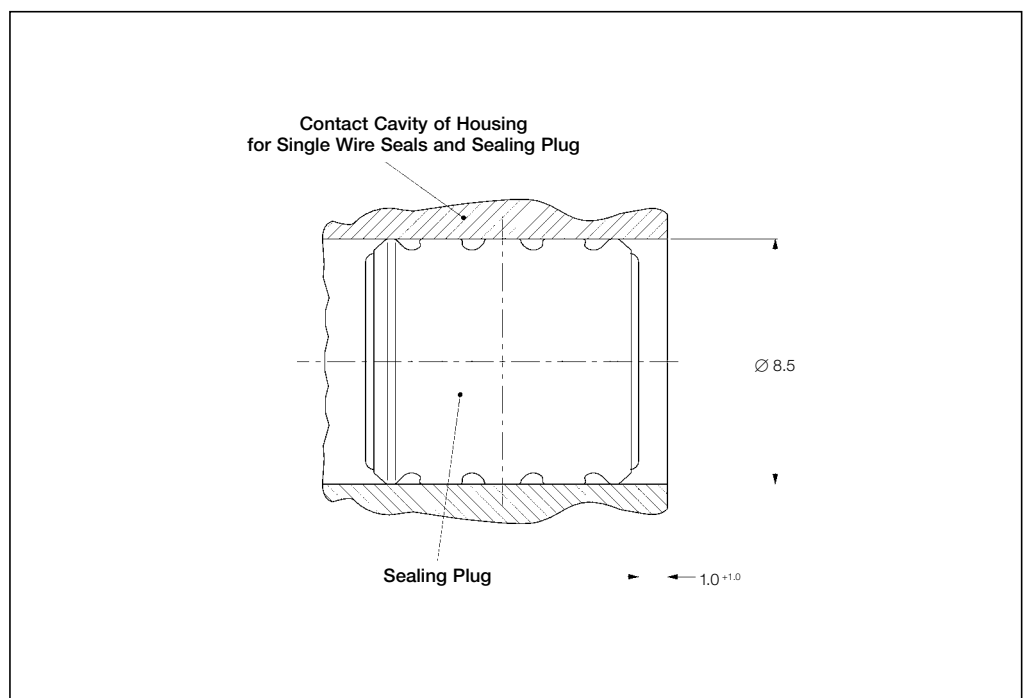
**Note:** All Part Numbers are RoHS and ELV compliant.

### Single Wire Seals and Sealing Plugs

Single wire seals and sealing plugs for AMP MCP 6.3/4.8K contact system (cavity diameter 8.5mm).



| Insulation Diameter (mm) | Color       | Part Number | Package Quantity |
|--------------------------|-------------|-------------|------------------|
| 2.0-2.7                  | White       | 1394511-1   | 10,000           |
| 3.4-3.7                  | Blue        | 1394512-1   | 10,000           |
| 4.0-4.5                  | Green       | 1719043-1   | 10,000           |
| Sealing Plug             | Transparent | 967652-1    | 20,000           |



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Introduction

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The AMP MCP housings and connectors combine the features of robust construction and high functional requirements.



The Heavy Duty Sealed Connector Series (HDSCS) offers receptacle and tab housings with capability for water-proofing and resistance to conditions of extreme vibration.

The system is designed for electronic and electrical applications in motor vehicles, where vibrations and mechanical stress, in the long term, can affect the quality on the contact system.

**Technical Features**

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- High reliability status supported for long term use
- High vibration level supported
- Perfect design to avoid quality problems, reduce manufacturing and service cost
- Integrated secondary locking device delivered in pre-locked position
- Wire-to-Wire sealed and unsealed connectors (SWS)
- Wire-to-Board sealed connectors (SWS)
- Polarization, several keyings
- Dust and water protected
- Clear handling, low mating force with a reliable slide locking mechanism
- Mixed configuration with signal and power line connections

### Group A: Sealed AMP MCP 2.8 Receptacle Housings

#### Technical Features

##### No. of Positions:

2 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

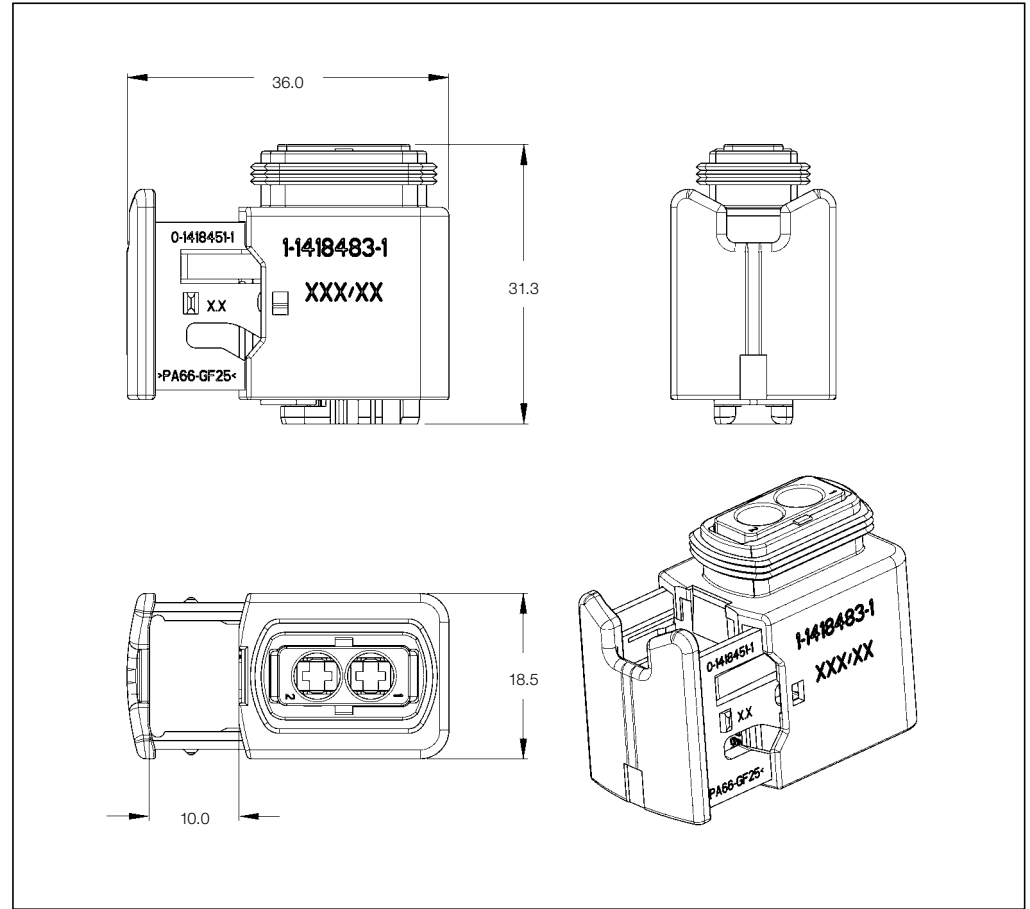
2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 2                | Black / Black | 1-1418483-1        | 1-1703841-1        |
|                  | Black / Gray  | 2-1418483-1        | 2-1703841-1        |
|                  | Black / Green | 3-1418483-1        | 3-1703841-1        |
|                  | Black / Blue  | 4-1418483-1        | 4-1703841-1        |

### Group A: Sealed 2.8 Tab Housings

#### Technical Features

##### No. of Positions:

2 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

2.5 mm<sup>2</sup> FLR max.

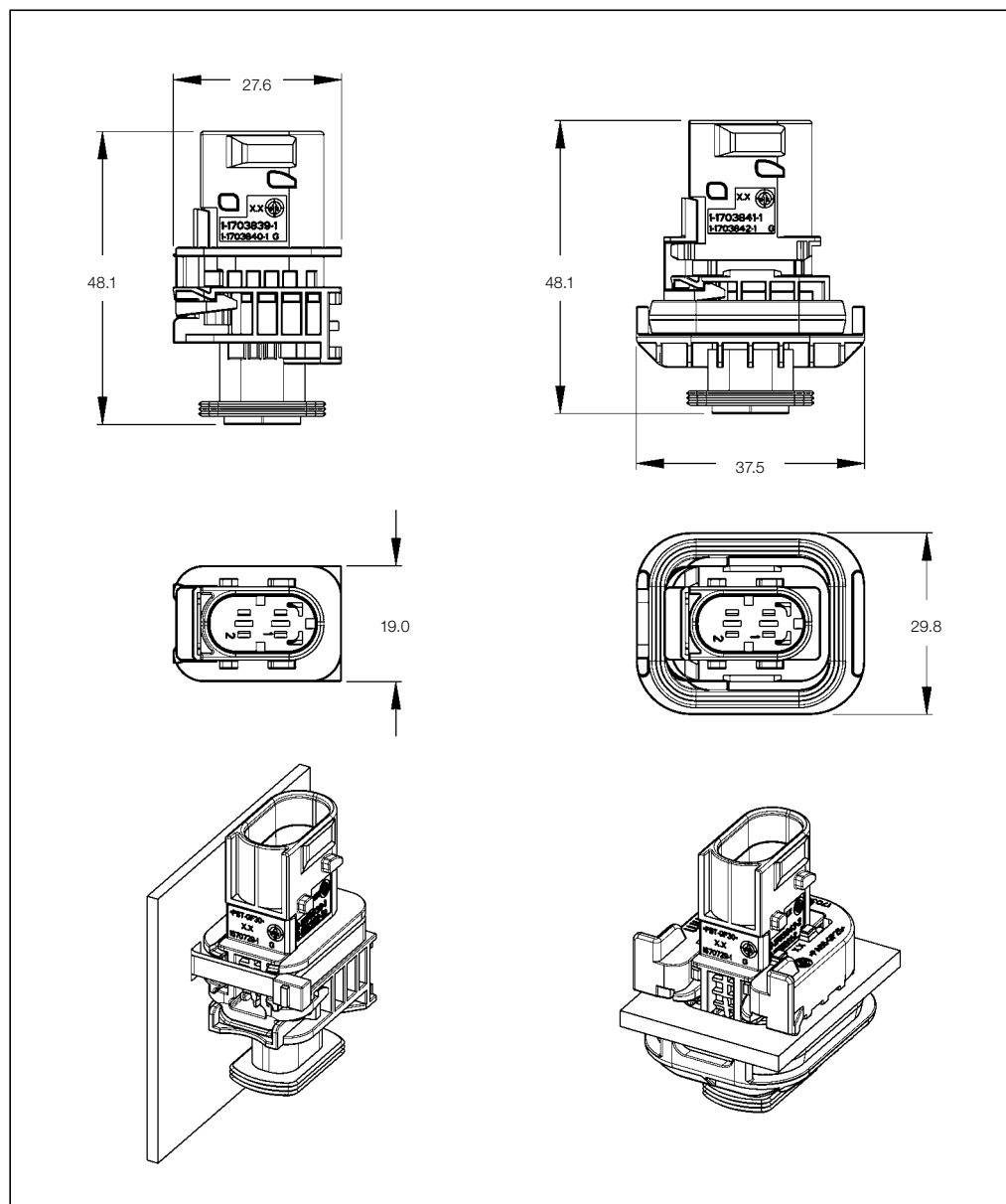
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed 2.8 mm Tab Housings

| No. of Positions | Housing Color | Part Numbers              |                            |                           |
|------------------|---------------|---------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange * | Tab Housing without Flange | Mating Receptacle Housing |
| 2                | Black         | 1-1703841-1               | *                          | 1-1418483-1               |
|                  | Gray          | 2-1703841-1               | *                          | 2-1418483-1               |
|                  | Green         | 3-1703841-1               | *                          | 3-1418483-1               |
|                  | Blue          | 4-1703841-1               | *                          | 4-1418483-1               |

\*) Available on request.

\*\*) Suitable fixing slide see accessories.

### Group A: Sealed AMP MCP 1.5K Receptacle Housings

#### Technical Features

##### No. of Positions:

2 and 3 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

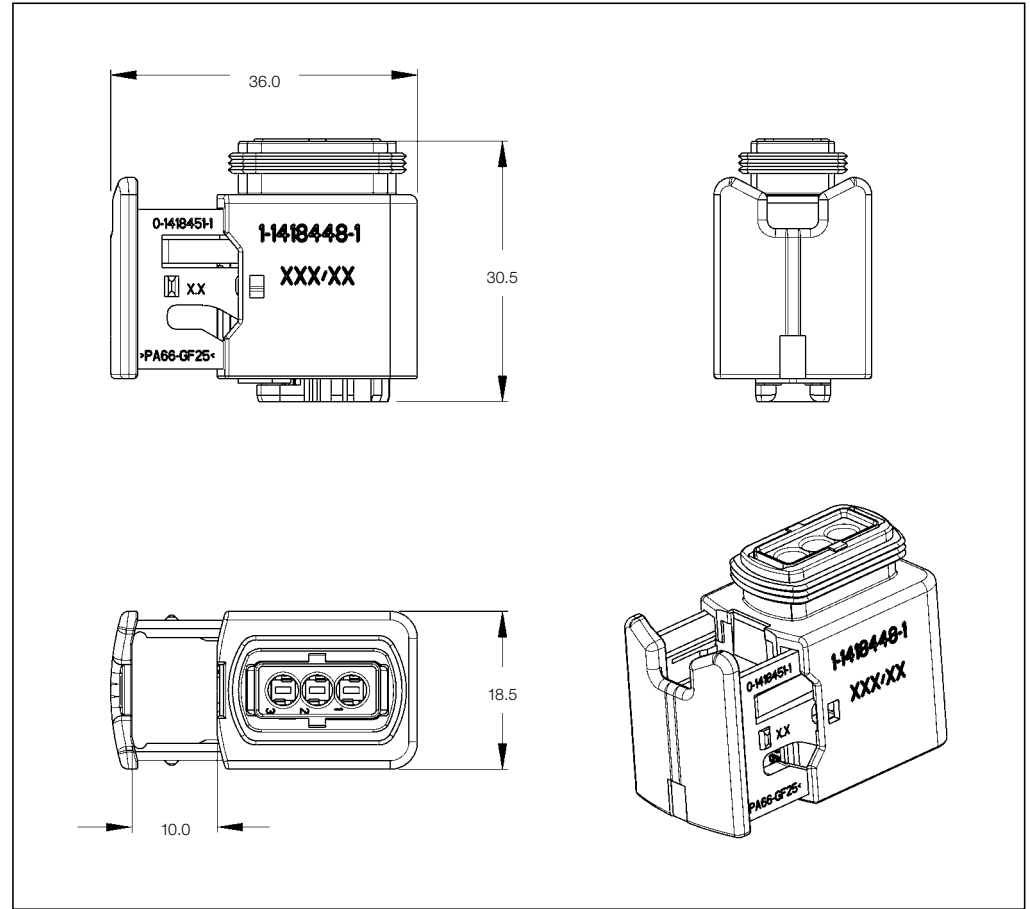
1.5 mm<sup>2</sup> FLR max.  
AWG 16 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 3                | Black / Black | 1-1418448-2        | *                  |
|                  | Black / Gray  | 2-1418448-2        | *                  |
|                  | Black / Green | 3-1418448-2        | *                  |
|                  | Black / Blue  | 4-1418448-2        | *                  |
|                  | Black / Black | 1-1418448-1        | 1-1670730-1        |
|                  |               |                    | 1-1703843-1        |
|                  | Black / Gray  | 2-1418448-1        | 2-1670730-1        |
|                  |               |                    | 2-1703843-1        |
|                  | Black / Green | 3-1418448-1        | 3-1670730-1        |
|                  |               |                    | 3-1703843-1        |
|                  | Black / Blue  | 4-1418448-1        | 4-1670730-1        |
|                  |               |                    | 4-1703843-1        |

\*) Available on request.

### Group A: Sealed 1.5mm Tab Housings

#### Technical Features

##### No. of Positions:

2 and 3 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

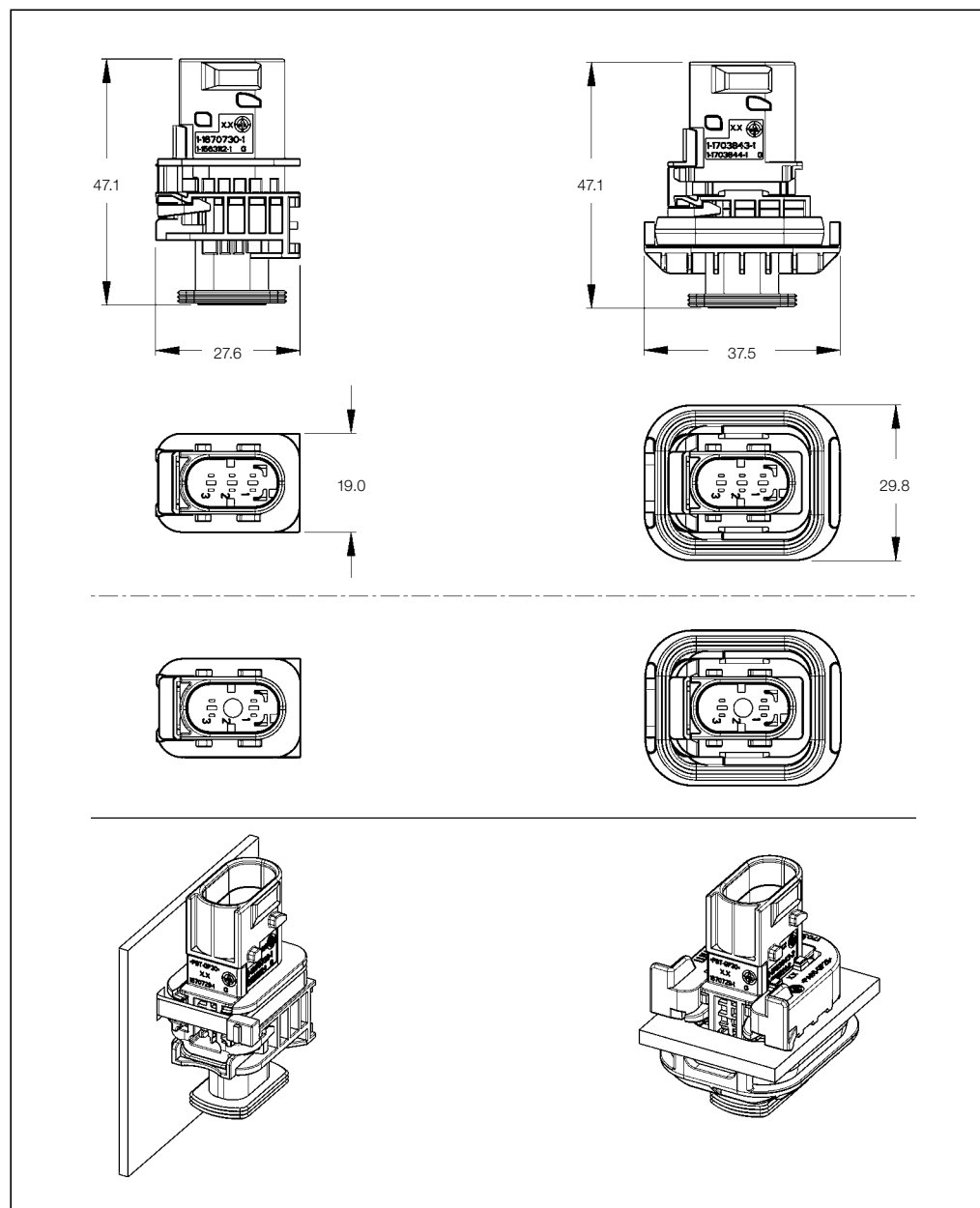
1.0 mm<sup>2</sup> FLR max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed 1.5 mm Tab Housings

| No. of Positions | Housing Color | Part Numbers              |                            |                           |
|------------------|---------------|---------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange** | Tab Housing without Flange | Mating Receptacle Housing |
| 2                | Black         | *                         | *                          | 1-1418448-2               |
|                  | Gray          | *                         | *                          | 2-1418448-2               |
|                  | Green         | *                         | *                          | 3-1418448-2               |
|                  | Blue          | *                         | *                          | 4-1418448-2               |
| 3                | Black         | 1-1703843-1               | 1-1670730-1                | 1-1418448-1               |
|                  | Gray          | 2-1703843-1               | 2-1670730-1                | 2-1418448-1               |
|                  | Green         | 3-1703843-1               | 3-1670730-1                | 3-1418448-1               |
|                  | Blue          | 4-1703843-1               | 4-1670730-1                | 4-1418448-1               |

\*) Available on request.

\*\*) Suitable fixing slide see accessories.

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### Engineering Notes

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A large rectangular area filled with a fine grid of small squares, intended for handwritten engineering notes or calculations.

Group A: Accessories

**Accessories**



| Description                                                 | Color  | Part Number |
|-------------------------------------------------------------|--------|-------------|
| Fixing slide (panel thickness 3.5mm)                        | Gray   | 1703838-6   |
| Fixing slide (panel thickness 3.0mm)                        | Yellow | 1703838-1   |
| Fixing slide (panel thickness 2.5mm)                        | Red    | 1703838-2   |
| Vertical adapter for NW 8.5mm diameter corrugated tubing    | Black  | 1670365-1   |
| Right-angle adapter for NW 8.5mm diameter corrugated tubing | Black  | 1670150-1   |

### Group B: Sealed AMP MCP 2.8 Receptacle Housing

#### Technical Features

##### No. of Positions:

4 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

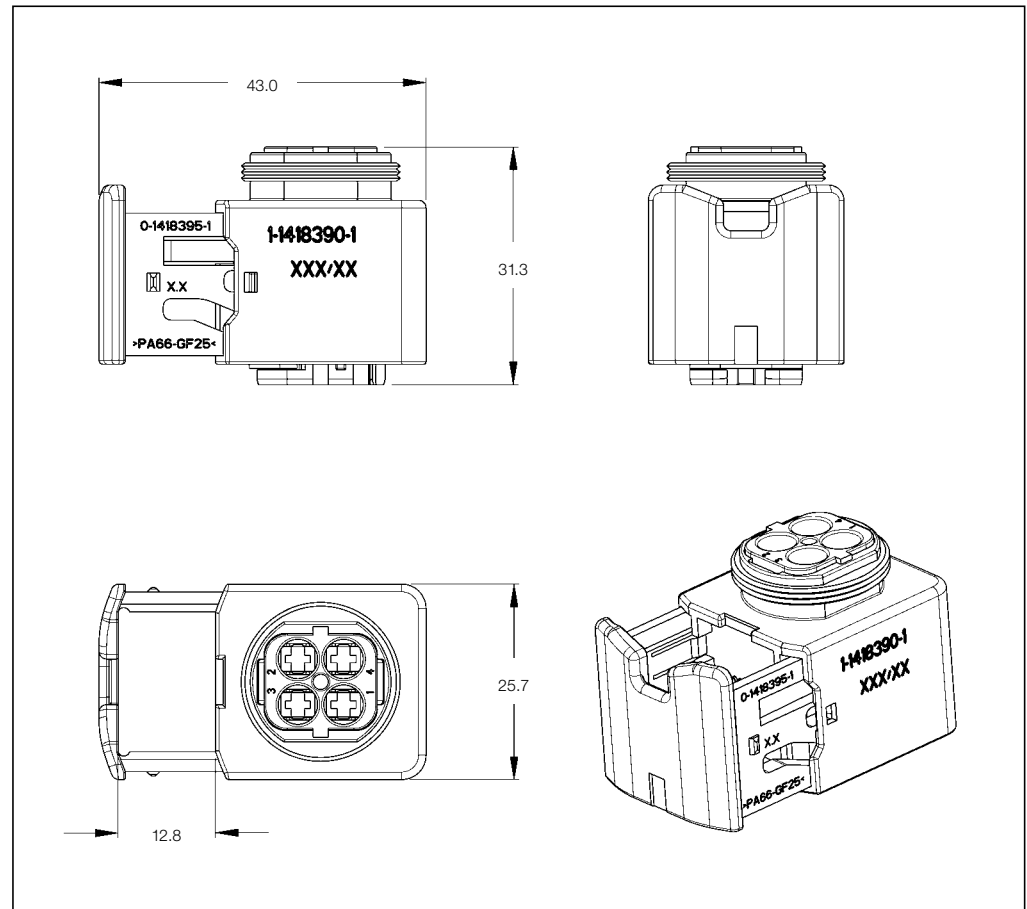
2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 4                | Black / Black | 1-1418390-1        | 1-1703818-1        |
|                  |               |                    | 1-1703808-1        |
|                  | Black / Gray  | 2-1418390-1        | 2-1703818-1        |
|                  |               |                    | 2-1703808-1        |
|                  | Black / Green | 3-1418390-1        | 3-1703818-1        |
|                  |               |                    | 3-1703808-1        |
|                  | Black / Blue  | 4-1418390-1        | 4-1703818-1        |
|                  |               |                    | 4-1703808-1        |

Will also be available as 2 and 3 positions on request.

### Group B: Sealed 2.8mm Tab Housing

#### Technical Features

##### No. of Positions:

4 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

2.5 mm<sup>2</sup> FLR max.

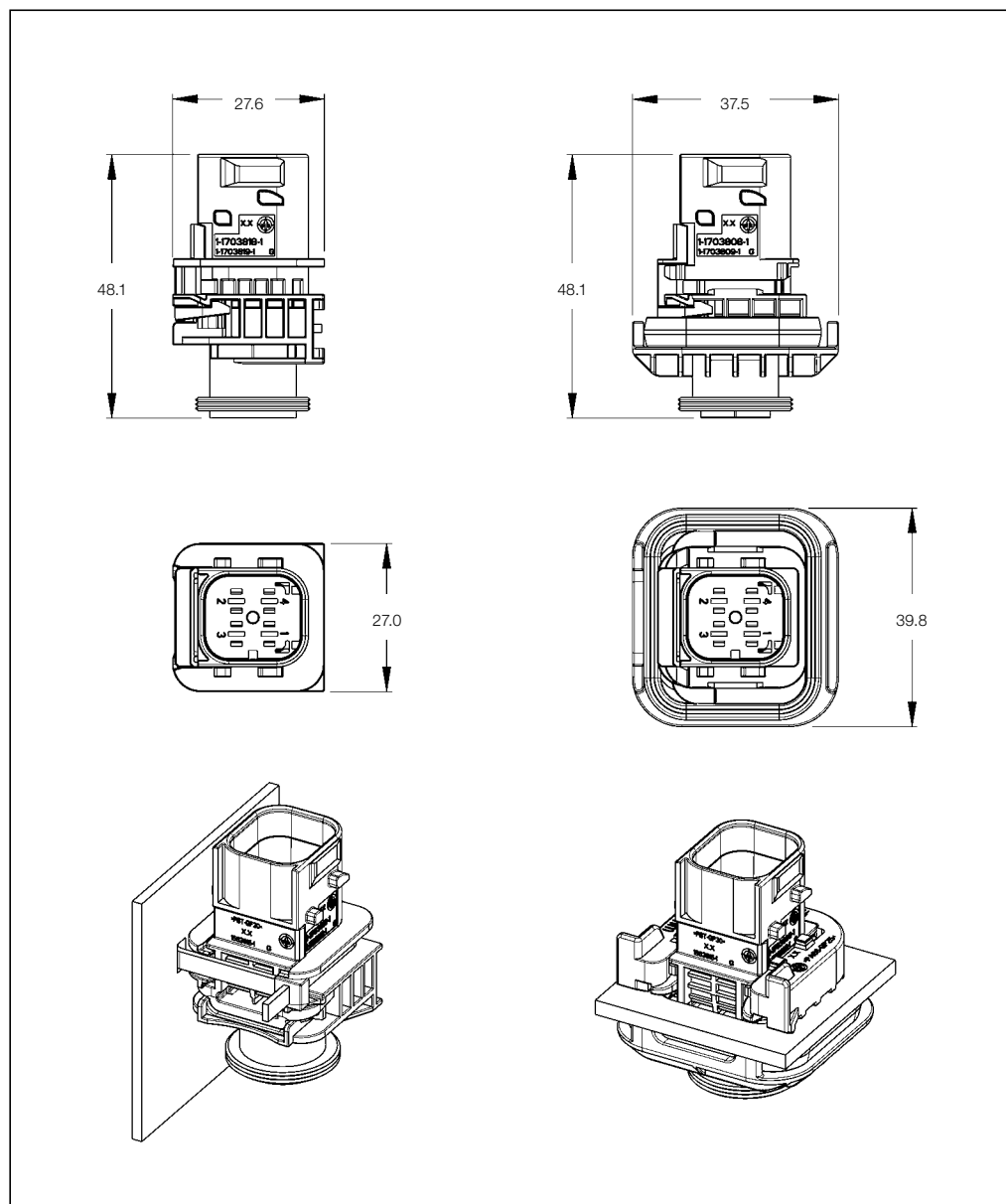
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed 2.8 mm Tab Housings

| No. of Positions | Housing Color | Part Numbers              |                            |                           |
|------------------|---------------|---------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange * | Tab Housing without Flange | Mating Receptacle Housing |
| 4                | Black         | 1-1703808-1               | 1-1703818-1                | 1-1418390-1               |
|                  | Gray          | 2-1703808-1               | 2-1703818-1                | 2-1418390-1               |
|                  | Green         | 3-1703808-1               | 3-1703818-1                | 3-1418390-1               |
|                  | Blue          | 4-1703808-1               | 4-1703818-1                | 4-1418390-1               |

Will also be available as 2 and 3 positions on request.

\*) Suitable fixing slide see accessories.

### Group B: Sealed AMP MCP 1.5K Receptacle Housing

#### Technical Features

##### No. of Positions:

6 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

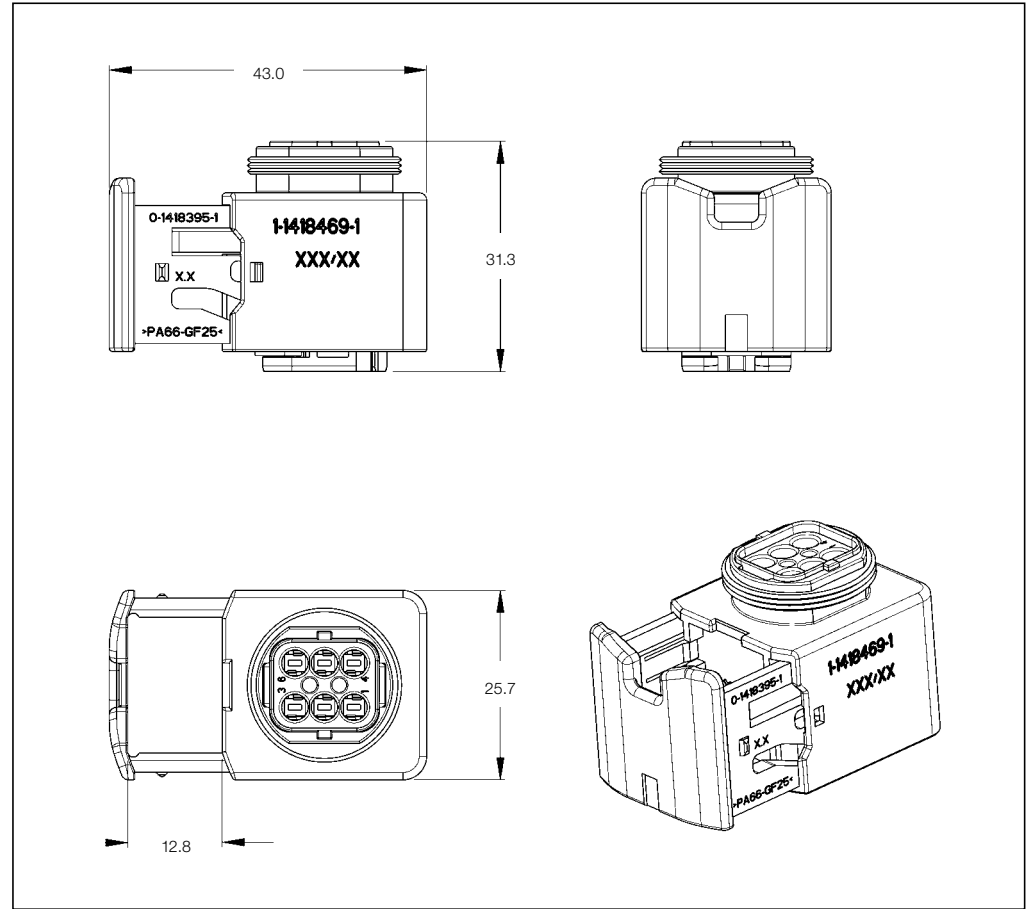
1.5 mm<sup>2</sup> FLR max.  
AWG 16 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 6                | Black / Black | 1-1418469-1        | 1-1703773-1        |
|                  |               |                    | 1-1703820-1        |
|                  | Black / Gray  | 2-1418469-1        | 2-1703773-1        |
|                  |               |                    | 2-1703820-1        |
|                  | Black / Green | 3-1418469-1        | 3-1703773-1        |
|                  |               |                    | 3-1703820-1        |
|                  | Black / Blue  | 4-1418469-1        | 4-1703773-1        |
|                  |               |                    | 1-1703820-1        |

Other variants are available on request.

### Group B: Sealed 1.5mm Tab Housing

#### Technical Features

##### No. of Positions:

6 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

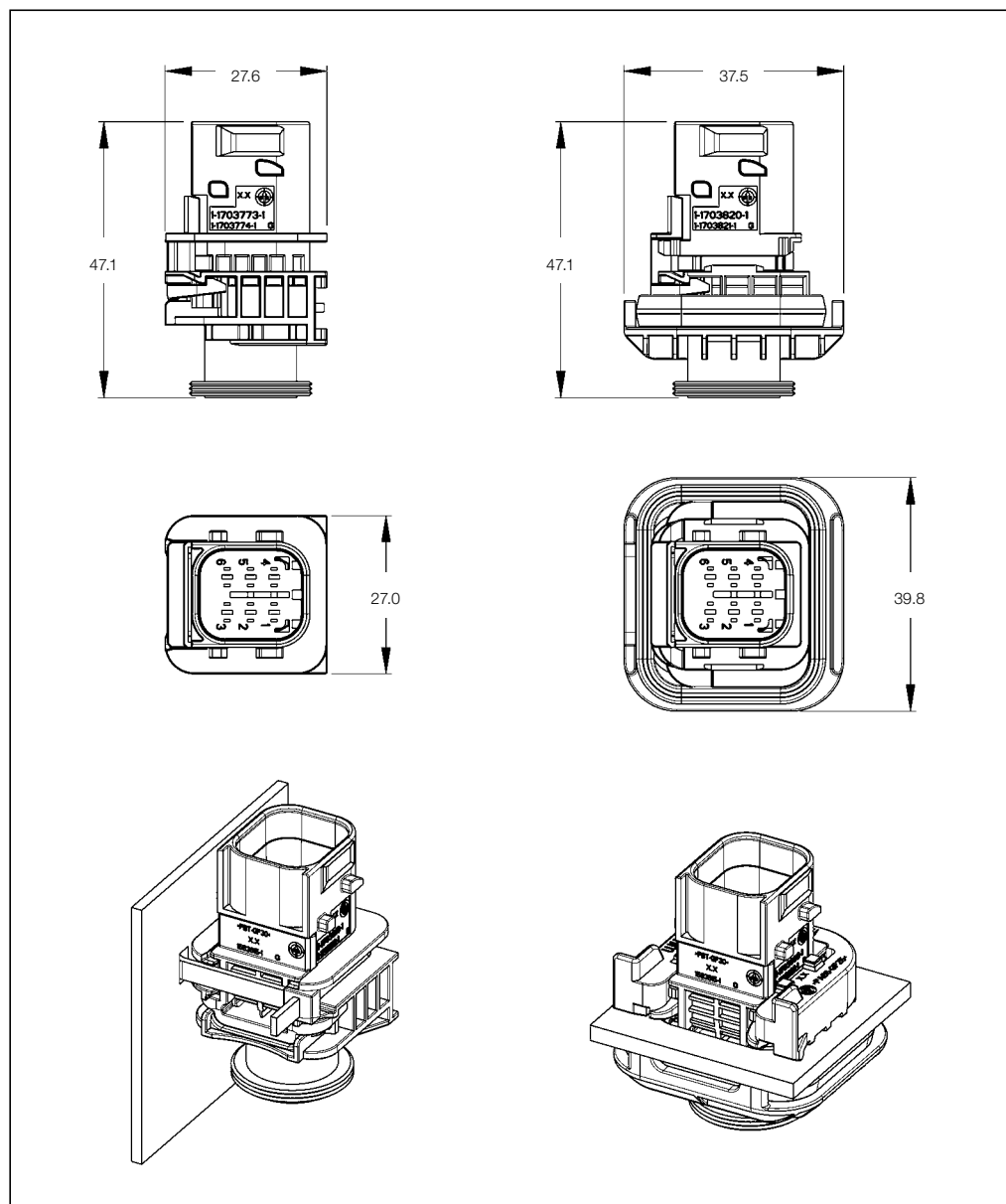
1.0 mm<sup>2</sup> FLR max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed 1.5 mm Tab Housings

| No. of Positions | Housing Color | Part Numbers              |                            |                           |
|------------------|---------------|---------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange * | Tab Housing without Flange | Mating Receptacle Housing |
| 6                | Black         | 1-1703820-1               | 1-1703773-1                | 1-1418469-1               |
|                  | Gray          | 2-1703820-1               | 2-1703773-1                | 2-1418469-1               |
|                  | Green         | 3-1703820-1               | 3-1703773-1                | 3-1418469-1               |
|                  | Blue          | 4-1703820-1               | 4-1703773-1                | 4-1418469-1               |

\*) Suitable fixing slide see accessories.

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### Engineering Notes

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A large rectangular area filled with a fine grid of small squares, intended for handwritten engineering notes.

### Group B: Accessories

### Accessories



| Description                                                   | Color  | Part Number |
|---------------------------------------------------------------|--------|-------------|
| Fixing slide (panel thickness 3.5mm)                          | Gray   | 1703810-6   |
| Fixing slide (panel thickness 3.0mm)                          | Yellow | 1703810-1   |
| Fixing slide (panel thickness 2.5mm)                          | Red    | 1703810-2   |
| Right-angle adapter with universal clamp                      | Black  | 965576-1    |
| Vertical adapter with universal clamp                         | Black  | 965784-1    |
| Right-angle adapter for NW 7.5mm diameter corrugated tubing   | Black  | 185793-1    |
| Right-angle adapter for NW 8.5mm diameter corrugated tubing   | Black  | 965577-1    |
| Right-angle adapter for NW 10mm diameter corrugated tubing    | Black  | 965783-1    |
| Vertical adapter for NW 7.5mm diameter corrugated tubing      | Black  | 185792-1    |
| Vertical adapter for NW 8.5mm diameter corrugated tubing      | Black  | 965785-1    |
| Vertical adapter for NW 10mm diameter corrugated tubing       | Black  | 965786-1    |
| Right-angle adapter 4/7 position for hose                     | Black  | 1534789-1   |
| Vertical adapter 4/7 position for hose                        | Black  | 1534791-1   |
| Vertical adapter 4/7 position for jacketed cable 5.2–6.5mm    | Black  | 1418916-1   |
| Vertical adapter 4/7 position for jacketed cable 6.0–9.5mm    | Black  | 1418917-1   |
| Right-angle adapter 4/7 position for jacketed cable 5.2–6.5mm | Black  | 1418918-1   |
| Right-angle adapter 4/7 position for jacketed cable 6.0–9.5mm | Black  | 1418919-1   |

### Group C: Sealed AMP MCP 2.8 Receptacle Housings

#### Technical Features

##### No. of Positions:

6 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

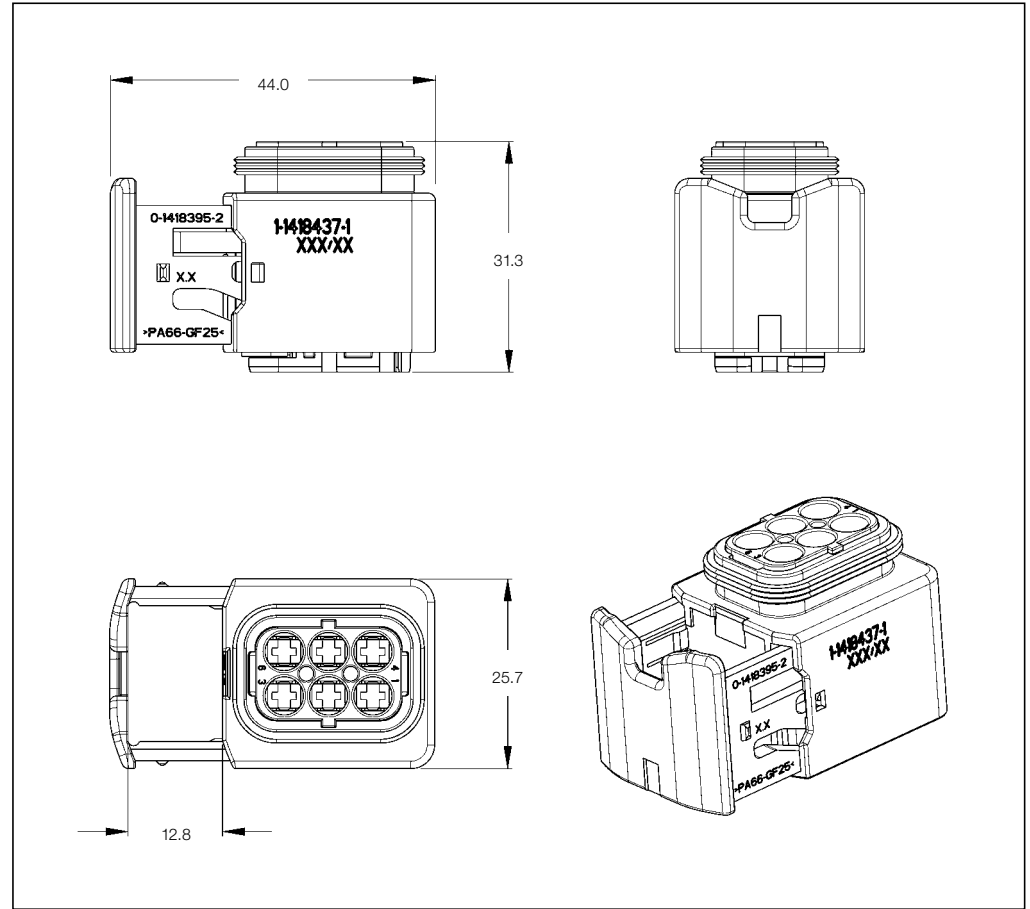
2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 6                | Black / Black | 1-1418437-1        | *                  |
|                  |               |                    | *                  |
|                  | Black / Gray  | 2-1418437-1        | *                  |
|                  |               |                    | *                  |
|                  | Black / Green | 3-1418437-1        | *                  |
|                  |               |                    | *                  |
|                  | Black / Blue  | 4-1418437-1        | *                  |
|                  |               |                    | *                  |

Other variants are available on request.

\* ) Available on request.

### Group C: Sealed AMP MCP 1.5K/2.8 Receptacle Housings

#### Technical Features

##### No. of Positions:

7 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

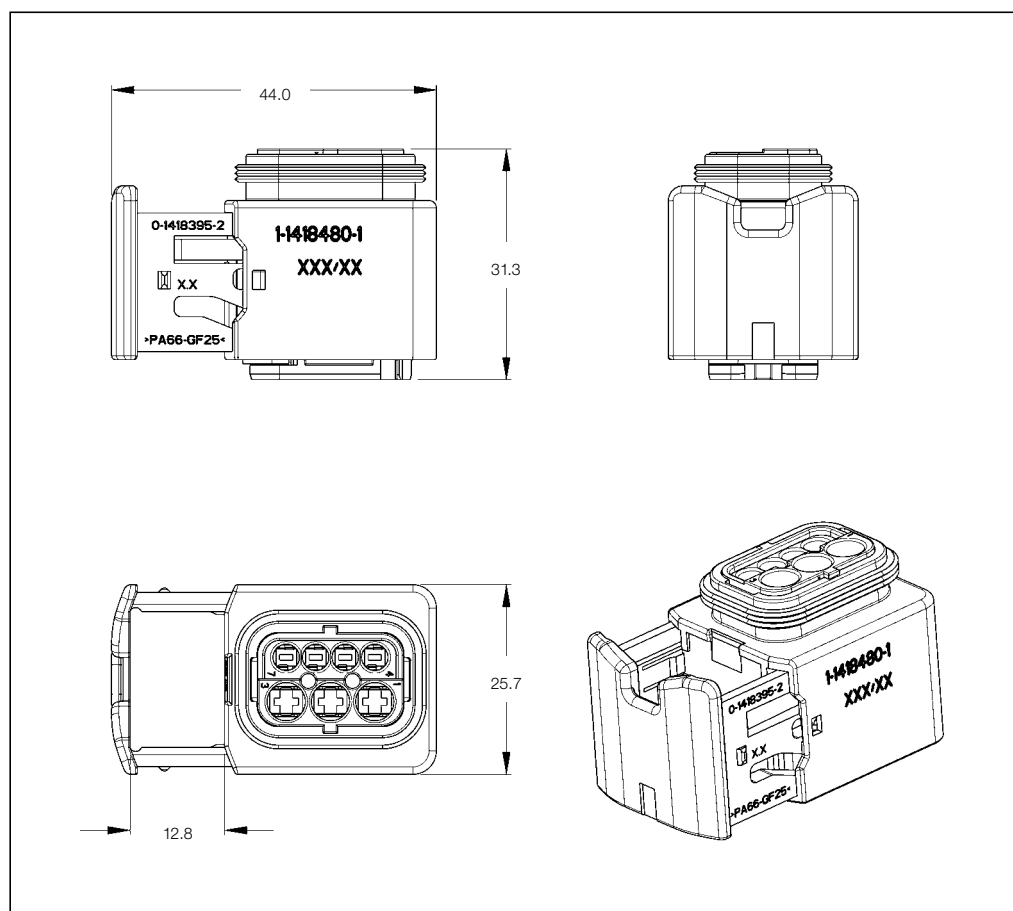
- 1.5 mm<sup>2</sup> FLR max.  
AWG 16 TXL max.
- 2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Mixed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 7                | Black / Black | 1-1418480-1        | 1-1703648-1        |
|                  |               |                    | 1-1670214-1        |
|                  | Black / Gray  | 2-1418480-1        | 2-1703648-1        |
|                  |               |                    | 2-1670214-1        |
|                  | Black / Green | 3-1418480-1        | 3-1703648-1        |
|                  |               |                    | 3-1670214-1        |
|                  | Black / Blue  | 4-1418480-1        | 4-1703648-1        |
|                  |               |                    | 4-1670214-1        |

Other variants are available on request.

### Group C: Sealed 1.5mm/2.8mm Tab Housings

#### Technical Features

##### No. of Positions:

7 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

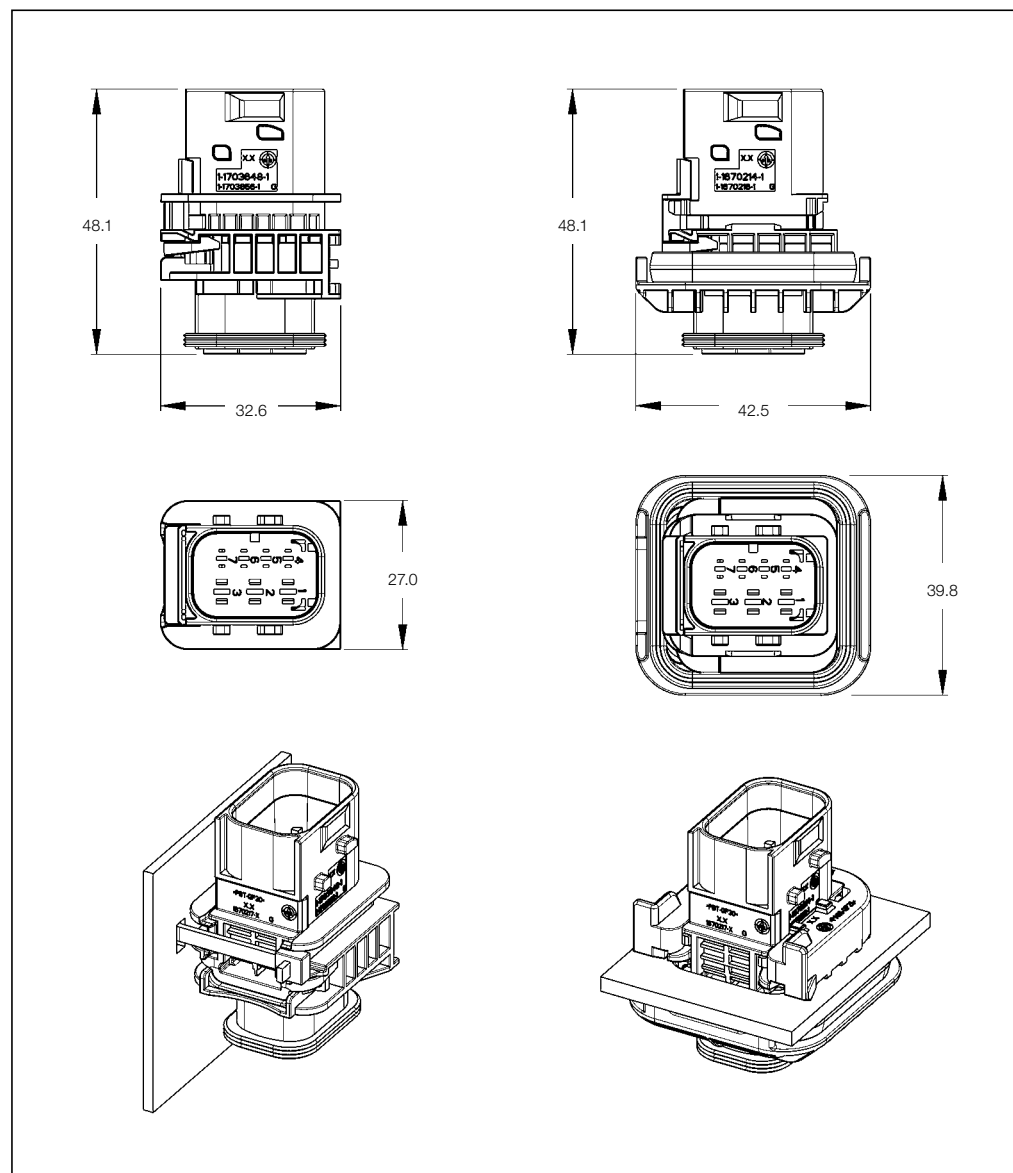
- 1.0 mm<sup>2</sup> FLR max.
- 2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Mixed Tab Housings

| No. of Positions | Housing Color | Part Numbers             |                            |                           |
|------------------|---------------|--------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange* | Tab Housing without Flange | Mating Receptacle Housing |
| 7                | Black         | 1-1670214-1              | 1-1703648-1                | 1-1418480-1               |
|                  | Gray          | 2-1670214-1              | 2-1703648-1                | 2-1418480-1               |
|                  | Green         | 3-1670214-1              | 3-1703648-1                | 3-1418480-1               |
|                  | Blue          | 4-1670214-1              | 4-1703648-1                | 4-1418480-1               |

\*) Suitable fixing slide see accessories.

### Group C: Sealed AMP MCP 1.5K Receptacle Housing

#### Technical Features

##### No. of Positions:

8 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

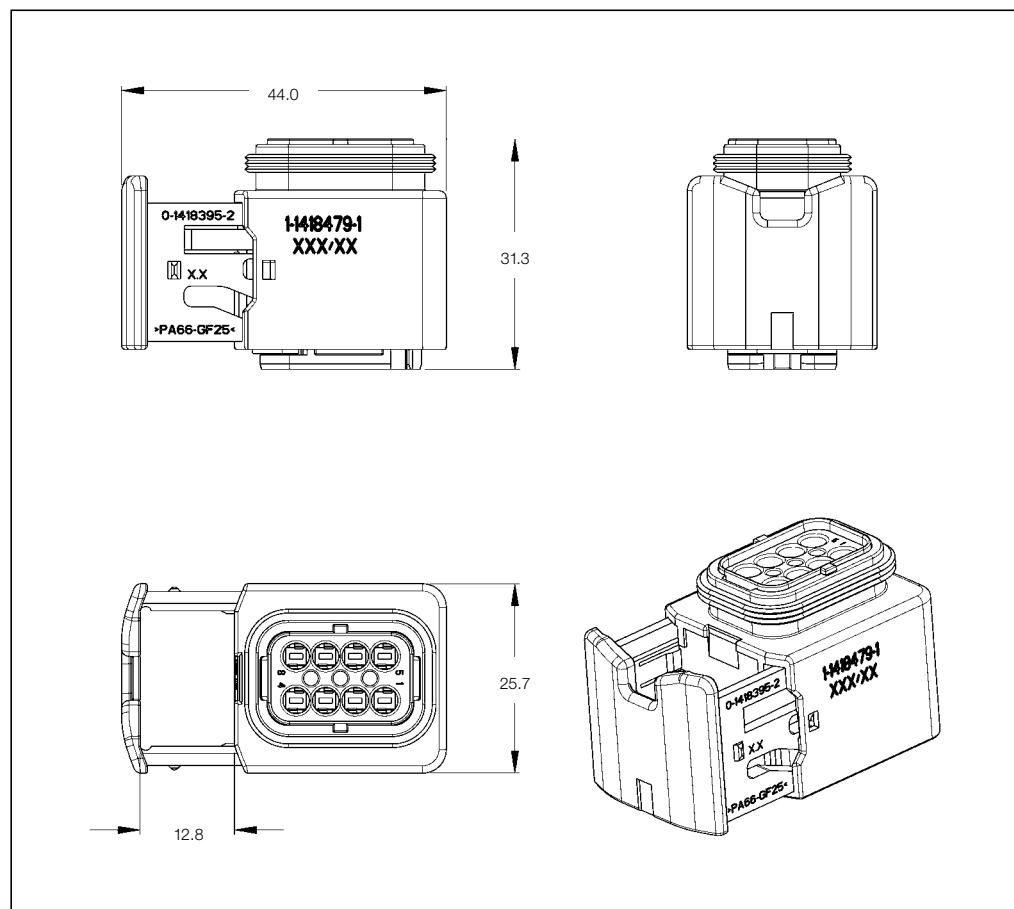
1.5 mm<sup>2</sup> FLR max.  
AWG 16 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 8                | Black / Black | 1-1418479-1        | 1-1564416-1        |
|                  |               |                    | 1-1564512-1        |
|                  | Black / Gray  | 2-1418479-1        | 2-1564416-1        |
|                  |               |                    | 2-1564512-1        |
|                  | Black / Green | 3-1418479-1        | 3-1564416-1        |
|                  |               |                    | 3-1564512-1        |
|                  | Black / Blue  | 4-1418479-1        | 4-1564416-1        |
|                  |               |                    | 4-1564512-1        |

Other variants are available on request.

### Group C: Sealed 1.5mm Tab Housing

#### Technical Features

##### No. of Positions:

8 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

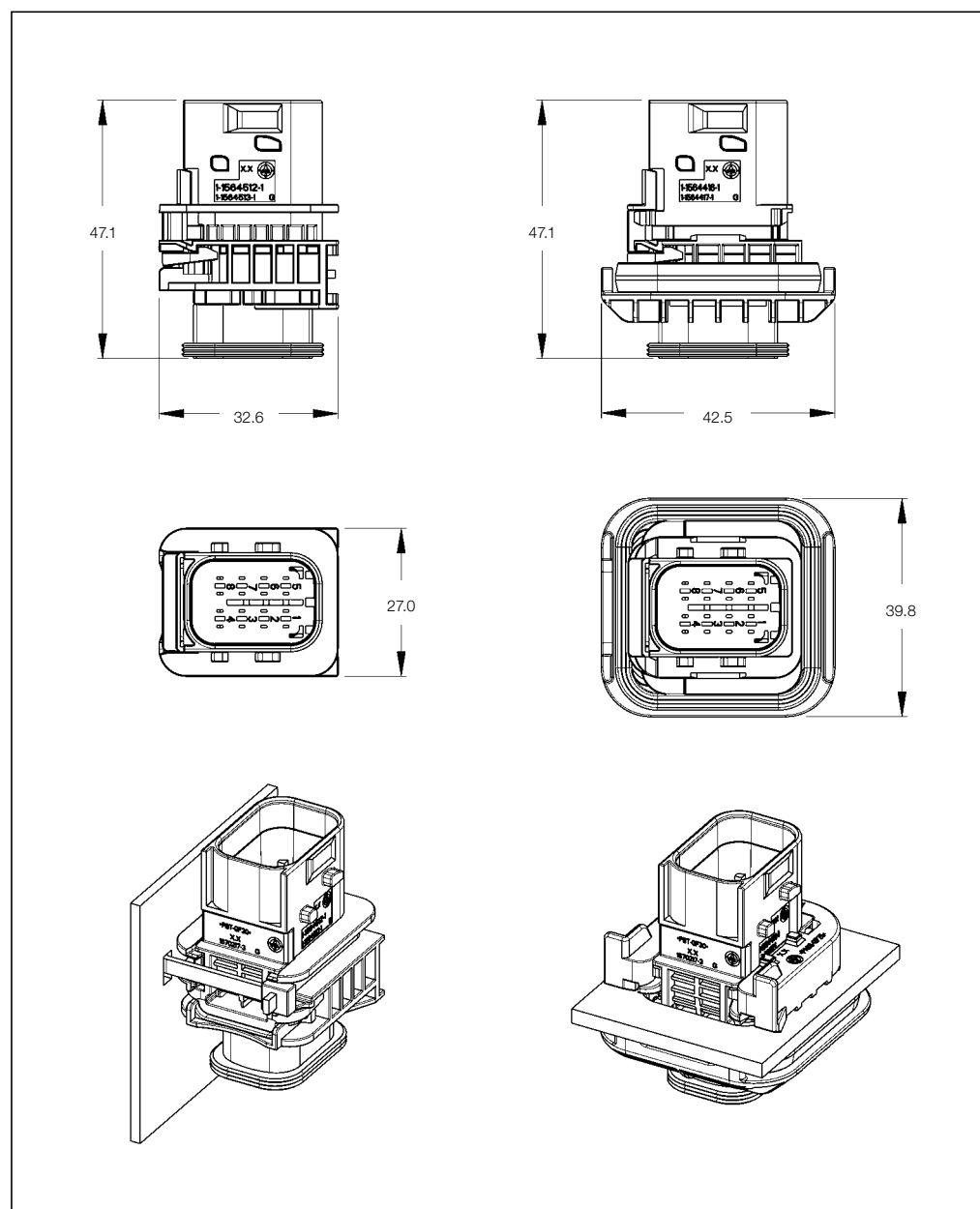
1.0 mm<sup>2</sup> FLR max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed 1.5 mm Tab Housings

| No. of Positions | Housing Color | Part Numbers             |                            |                           |
|------------------|---------------|--------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange* | Tab Housing without Flange | Mating Receptacle Housing |
| 8                | Black         | 1-1564416-1              | 1-1564512-1                | 1-1418479-1               |
|                  | Gray          | 2-1564416-1              | 2-1564512-1                | 2-1418479-1               |
|                  | Green         | 3-1564416-1              | 3-1564512-1                | 3-1418479-1               |
|                  | Blue          | 4-1564416-1              | 4-1564512-1                | 4-1418479-1               |

\*) Suitable fixing slide see accessories.

### Group C: Sealed AMP MCP 6.3 Receptacle Housing

#### Technical Features

##### No. of Positions:

2 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

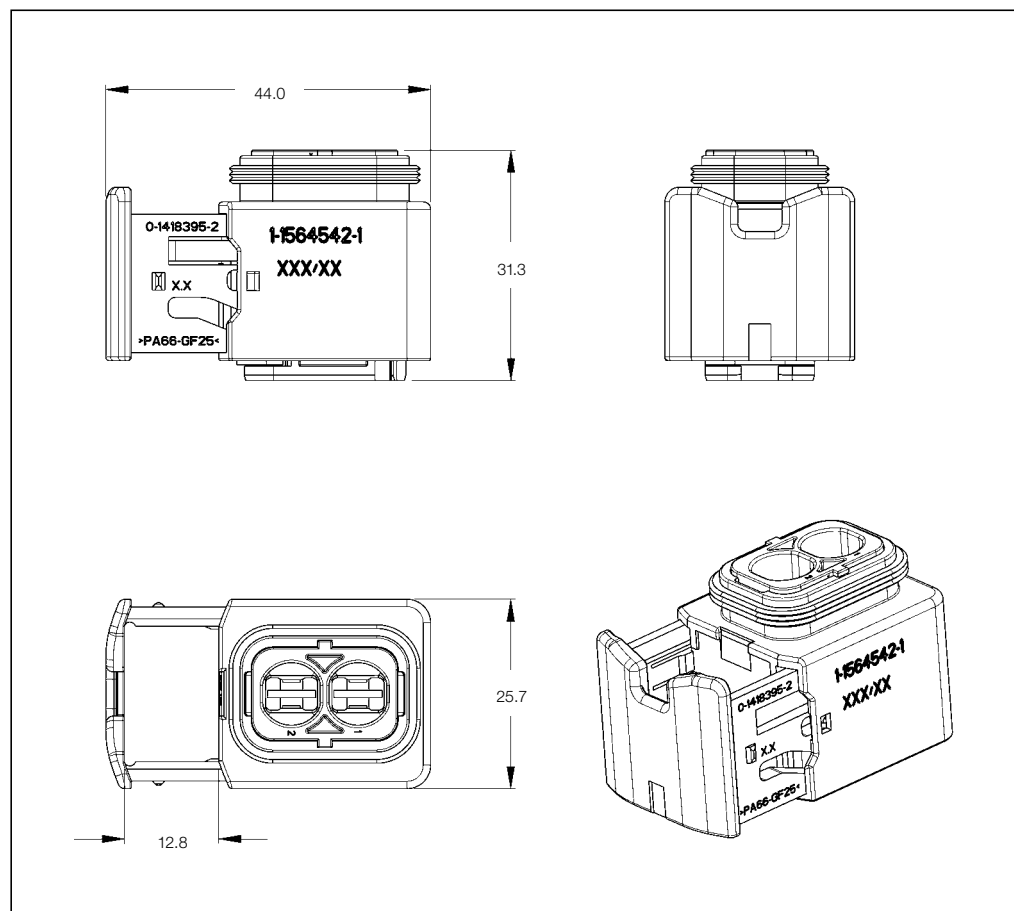
6.0 mm<sup>2</sup> FLR max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 2                | Black / Black | 1-1564542-1        | 1-1564544-1        |
|                  |               |                    | 1-1564546-1        |
|                  | Black / Gray  | 2-1564542-1        | 2-1564544-1        |
|                  |               |                    | 2-1564546-1        |
|                  | Black / Green | 3-1564542-1        | 3-1564544-1        |
|                  |               |                    | 3-1564546-1        |
|                  | Black / Blue  | 4-1564542-1        | 4-1564544-1        |
|                  |               |                    | 4-1564546-1        |

### Group C: Sealed 6.3mm Tab Housing

#### Technical Features

##### No. of Positions:

2 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

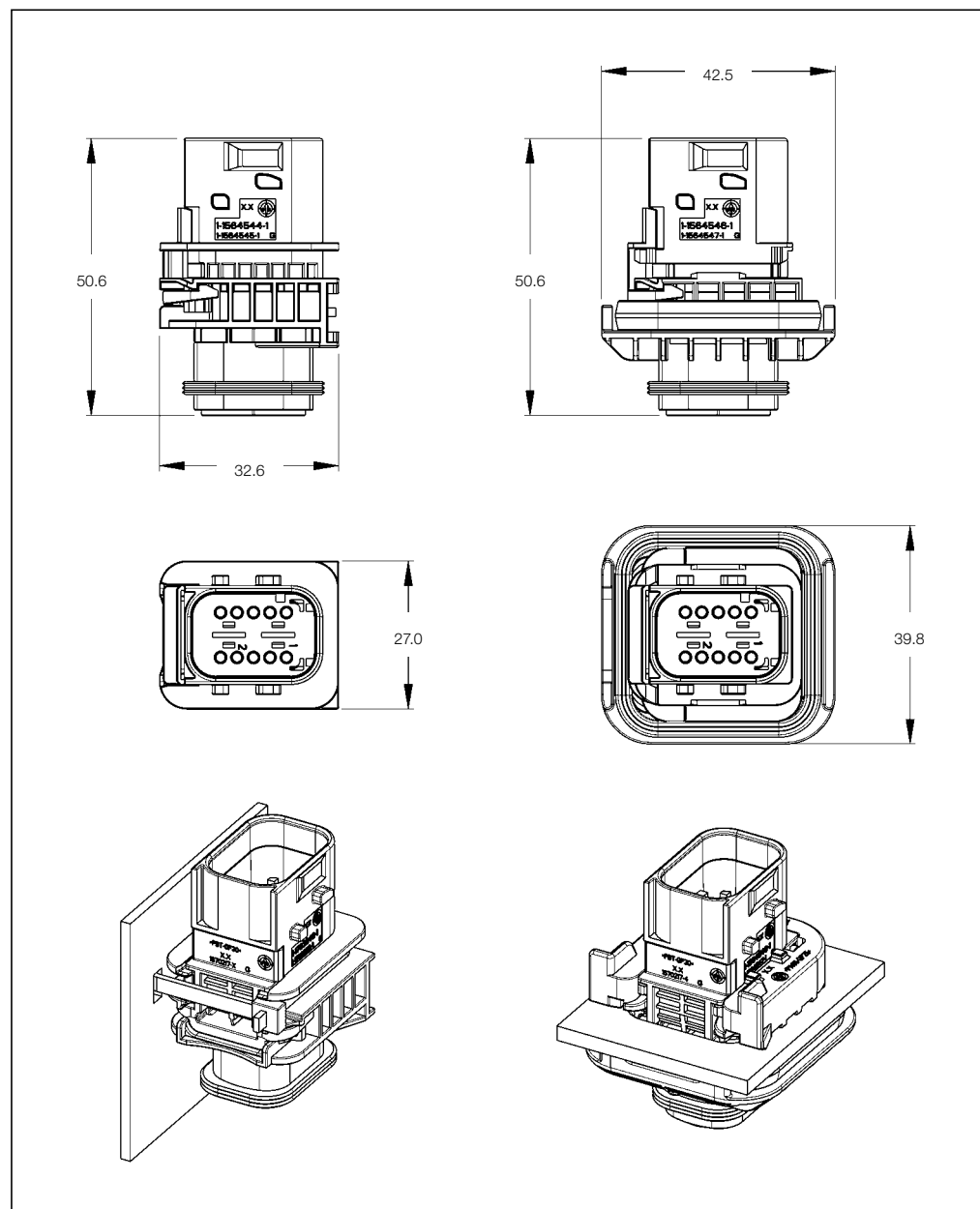
6.0 mm<sup>2</sup> FLR max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed 6.3 mm Tab Housings

| No. of Positions | Housing Color | Part Numbers              |                            |                           |
|------------------|---------------|---------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange * | Tab Housing without Flange | Mating Receptacle Housing |
| 2                | Black / Black | 1-1564546-1               | 1-1564544-1                | 1-1564542-1               |
|                  | Black / Gray  | 2-1564546-1               | 2-1564544-1                | 2-1564542-1               |
|                  | Black / Green | 3-1564546-1               | 3-1564544-1                | 3-1564542-1               |
|                  | Black / Blue  | 4-1564546-1               | 4-1564544-1                | 4-1564542-1               |

\*) Suitable fixing slide see accessories.

#### Group C: Accessories

#### Accessories



| Description                                                | Color  | Part Number |
|------------------------------------------------------------|--------|-------------|
| Fixing slide (panel thickness 3.5mm)                       | Gray   | 1670720-6   |
| Fixing slide (panel thickness 3.0mm)                       | Yellow | 1670720-1   |
| Fixing slide (panel thickness 2.5mm)                       | Red    | 1670720-2   |
| Vertical adapter for NW 13mm diameter corrugated tubing    | Black  | 1670364-1   |
| Right-angle adapter for NW 13mm diameter corrugated tubing | Black  | 1670057-1   |

### Group D: Sealed AMP MCP 1.5K Receptacle Housing

#### Technical Features

##### No. of Positions:

12 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

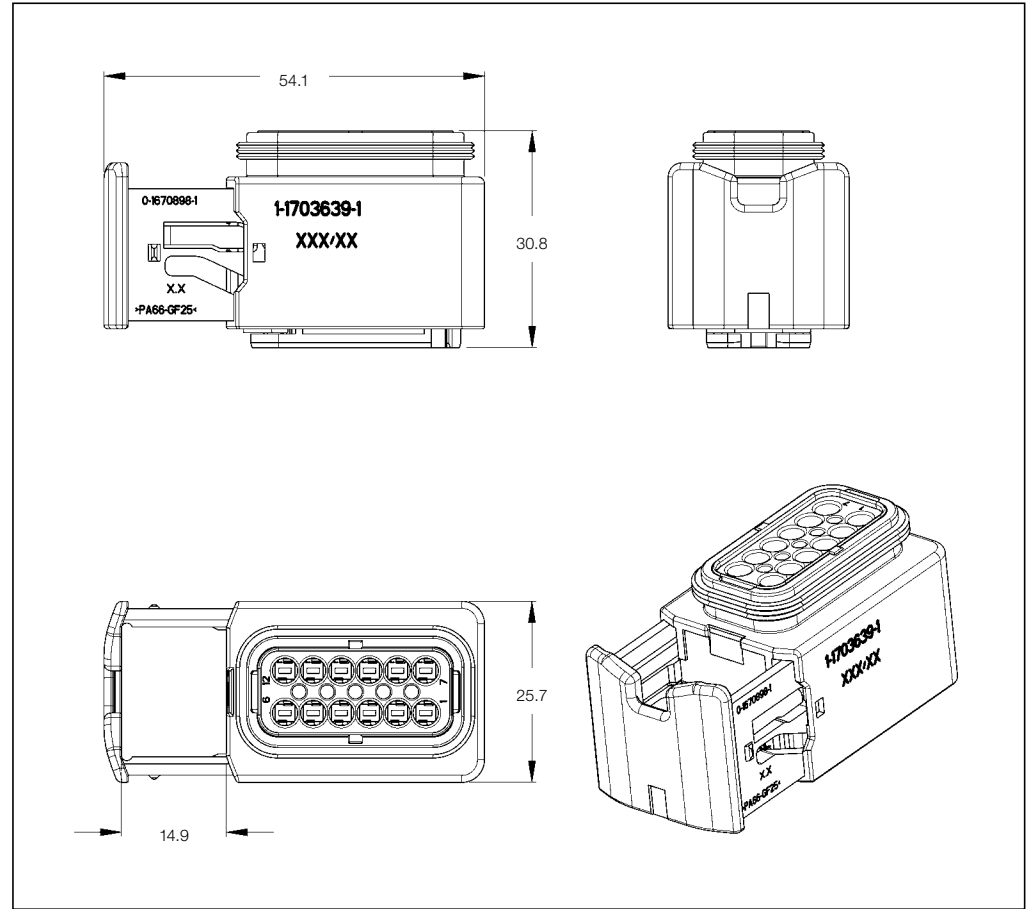
1.5 mm<sup>2</sup> FLR max.  
AWG 16 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 12               | Black / Black | 1-1703639-1        | 1-1564414-1        |
|                  |               |                    | 1-1564520-1        |
|                  | Black / Gray  | 2-1703639-1        | 2-1564414-1        |
|                  |               |                    | 2-1564520-1        |
|                  | Black / Green | 3-1703639-1        | 3-1564414-1        |
|                  |               |                    | 3-1564520-1        |
|                  | Black / Blue  | 4-1703639-1        | 4-1564414-1        |
|                  |               |                    | 4-1564520-1        |

Other variants are available on request.

### Group D: Sealed 1.5mm Tab Housing

#### Technical Features

##### No. of Positions:

12 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

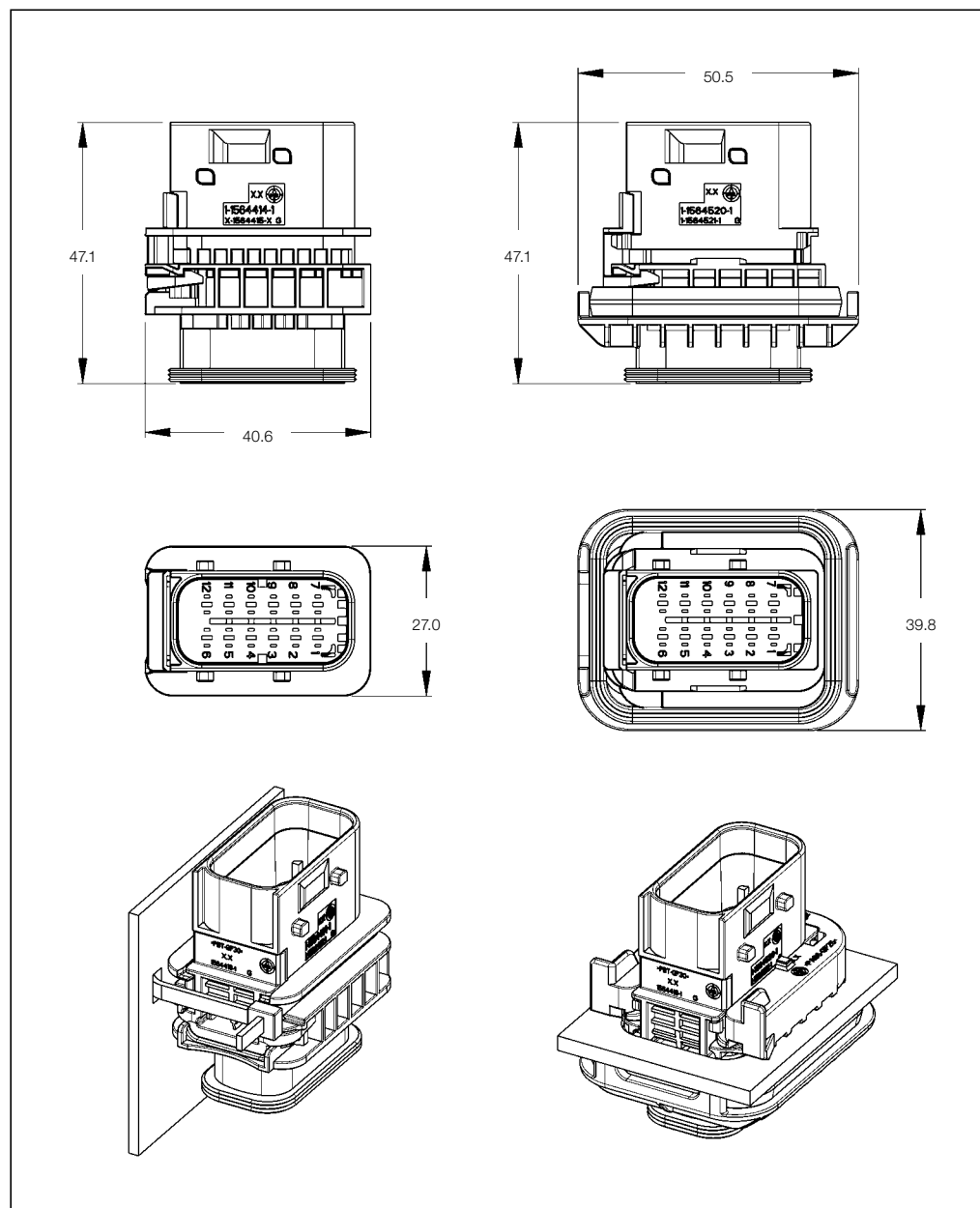
1.0 mm<sup>2</sup> FLR max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed 1.5 mm Tab Housings

| No. of Positions | Housing Color | Part Numbers              |                            |                           |
|------------------|---------------|---------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange * | Tab Housing without Flange | Mating Receptacle Housing |
| 12               | Black         | 1-1564520-1               | 1-1564414-1                | 1-1703639-1               |
|                  | Gray          | 2-1564520-1               | 2-1564414-1                | 2-1703639-1               |
|                  | Green         | 3-1564520-1               | 3-1564414-1                | 3-1703639-1               |
|                  | Blue          | 4-1564520-1               | 4-1564414-1                | 4-1703639-1               |

\*) Suitable fixing slide see accessories.

### Group D: Sealed AMP MCP 2.8 Receptacle Housing

#### Technical Features

##### No. of Positions:

8 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

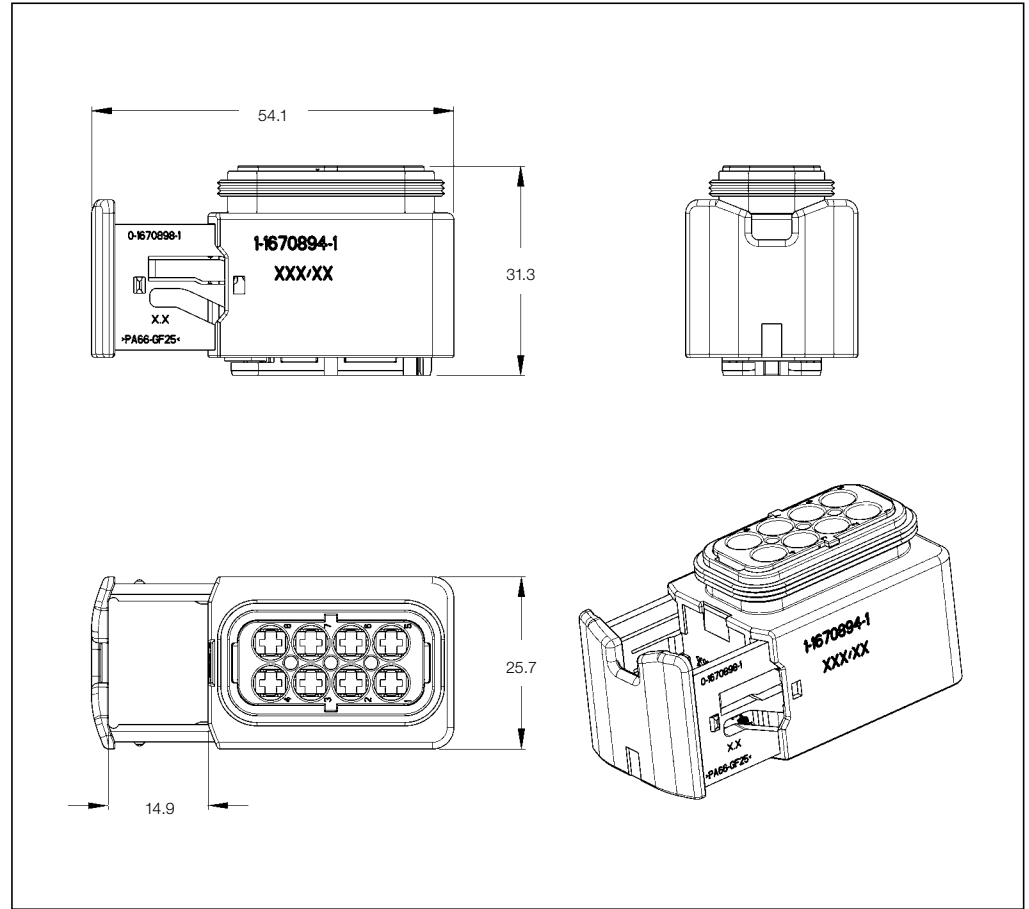
2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 8                | Black / Black | 1-1670894-1        | 1-1564522-1        |
|                  | Black / Gray  | 2-1670894-1        | 2-1564522-1        |
|                  | Black / Green | 3-1670894-1        | 3-1564522-1        |
|                  | Black / Blue  | 4-1670894-1        | 4-1564522-1        |

Other variants are available on request.

### Group D: Sealed 2.8mm Tab Housing

#### Technical Features

##### No. of Positions:

8 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

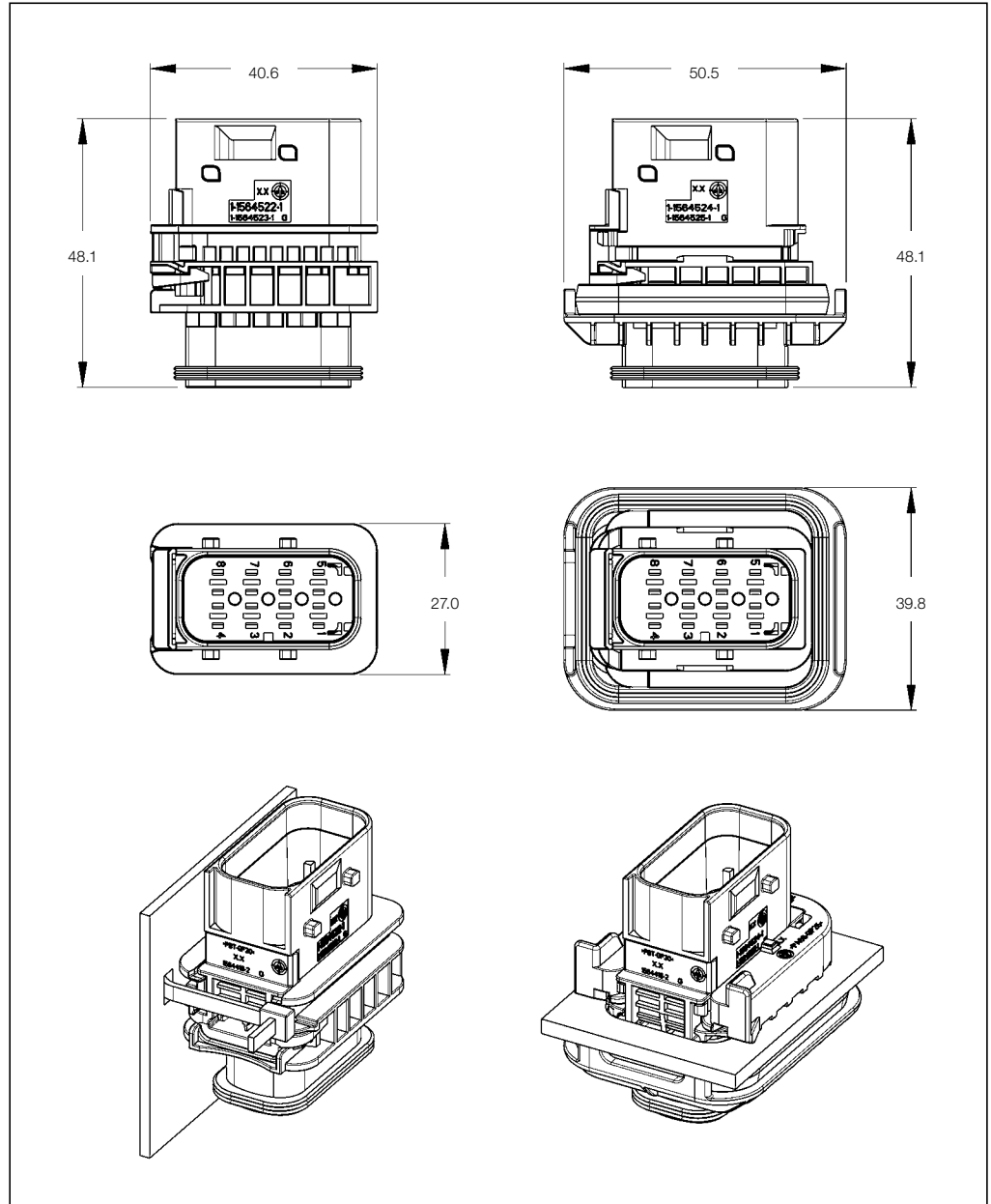
2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed 2.8 mm Tab Housings

| No. of Positions | Housing Color | Part Numbers              |                            |                           |
|------------------|---------------|---------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange** | Tab Housing without Flange | Mating Receptacle Housing |
| 8                | Black         | *                         | 1-1564522-1                | 1-1670894-1               |
|                  | Gray          | *                         | 2-1564522-1                | 2-1670894-1               |
|                  | Green         | *                         | 3-1564522-1                | 3-1670894-1               |
|                  | Blue          | *                         | 4-1564522-1                | 4-1670894-1               |

\*) Available on request.

\*\*) Suitable fixing slide see accessories.

### Group D: Sealed AMP MCP 1.5/2.8 Receptacle Housing

#### Technical Features

##### No. of Positions:

10 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

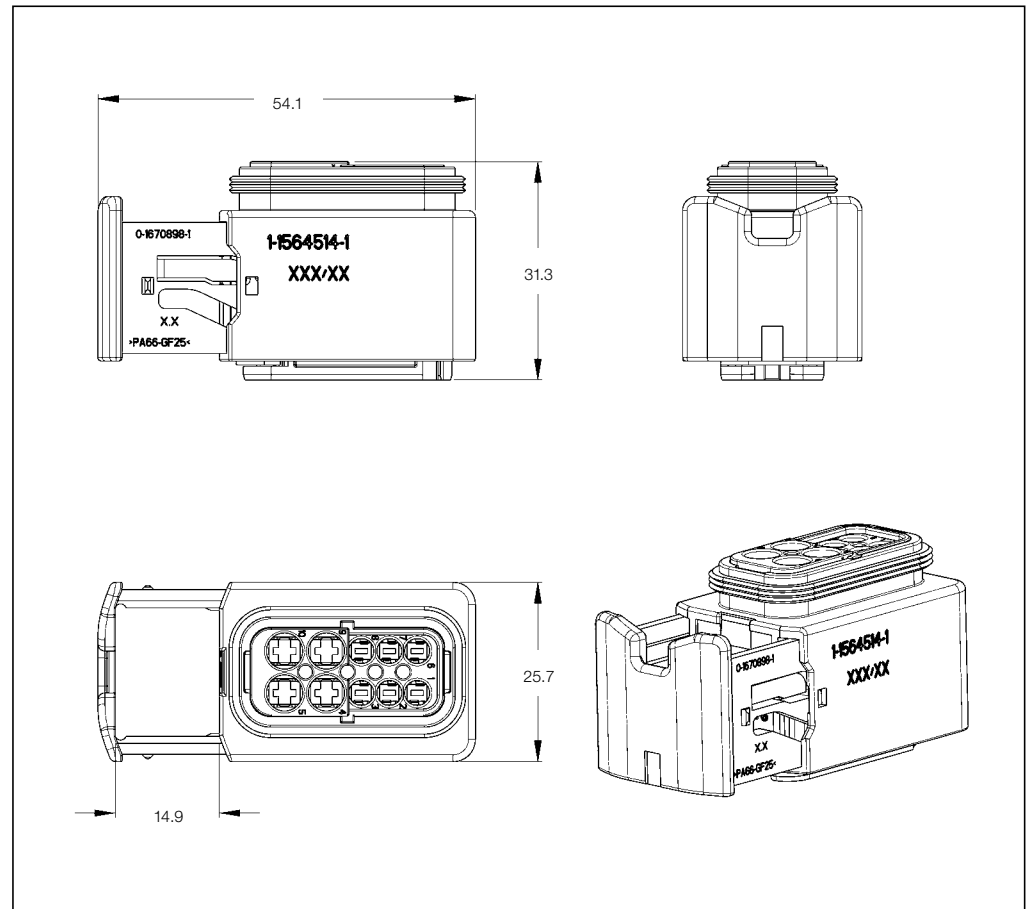
- 1.5 mm<sup>2</sup> FLR max.  
AWG 16 TXL max.
- 2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Mixed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 10               | Black / Black | 1-1564514-1        | 1-1564518-1        |
|                  |               |                    | 1-1564516-1        |
|                  | Black / Gray  | 2-1564514-1        | 2-1564518-1        |
|                  |               |                    | 2-1564516-1        |
|                  | Black / Green | 3-1564514-1        | 3-1564518-1        |
|                  |               |                    | 3-1564516-1        |
|                  | Black / Blue  | 4-1564514-1        | 4-1564518-1        |
|                  |               |                    | 4-1564516-1        |

Other variants are available on request.

### Group D: Sealed 1.5mm/2.8mm Tab Housing

#### Technical Features

##### No. of Positions:

10 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

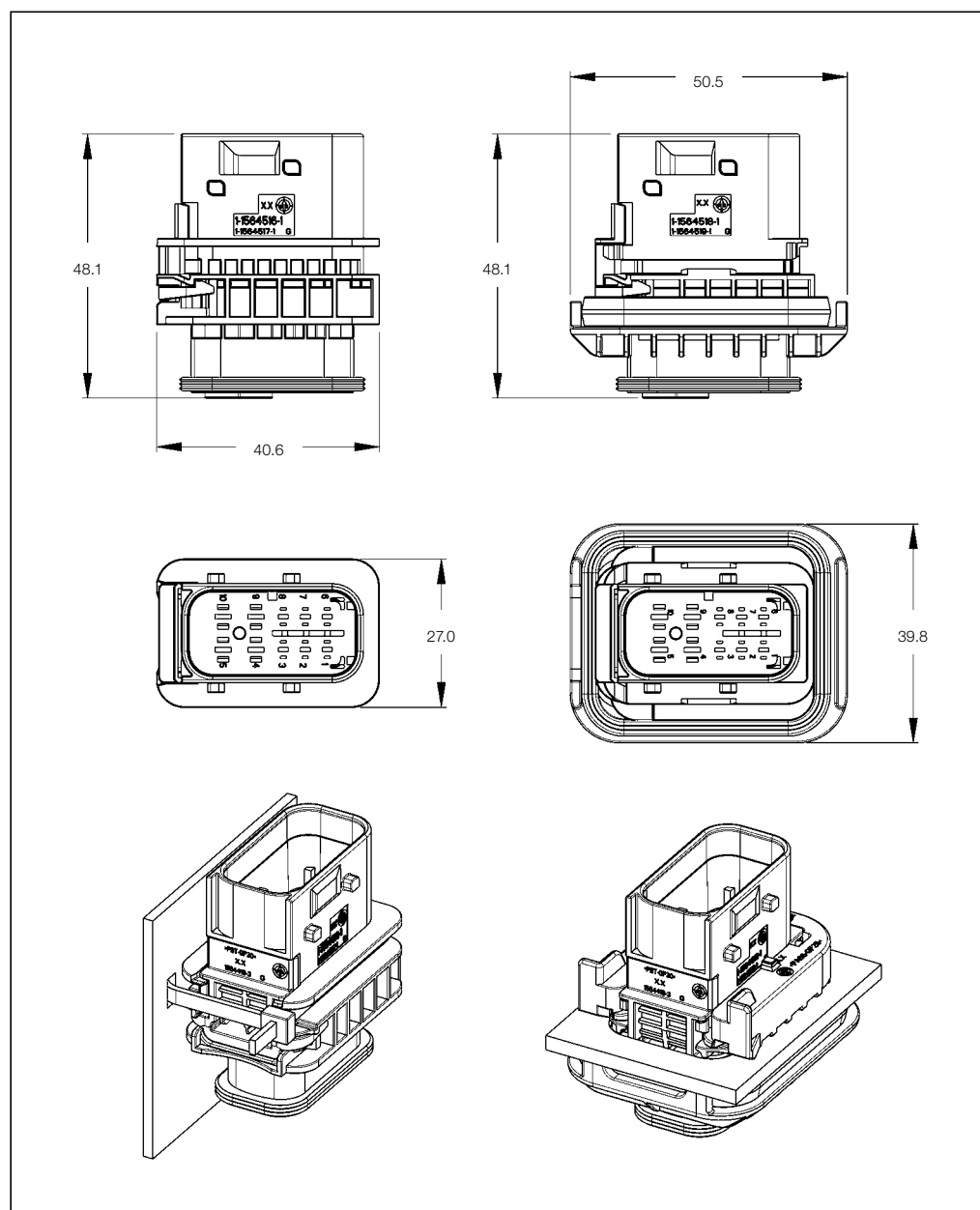
- 1.0 mm<sup>2</sup> FLR max.
- 2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Mixed Tab Housings

| No. of Positions | Housing Color | Part Numbers             |                            |                           |
|------------------|---------------|--------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange* | Tab Housing without Flange | Mating Receptacle Housing |
| 10               | Black         | 1-1564518-1              | 1-1564516-1                | 1-1564514-1               |
|                  | Gray          | 2-1564518-1              | 2-1564516-1                | 2-1564514-1               |
|                  | Green         | 3-1564518-1              | 3-1564516-1                | 3-1564514-1               |
|                  | Blue          | 4-1564518-1              | 4-1564516-1                | 4-1564514-1               |

\*) Suitable fixing slide see accessories.

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### Engineering Notes

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A large rectangular area filled with a fine grid of small squares, intended for handwritten engineering notes.

Group D: Accessories

Accessories



| Description                                               | Color   | Part Number |
|-----------------------------------------------------------|---------|-------------|
| Vertical adapter for NW13mm diameter corrugated tubing    | Black   | 1563111-1   |
| Right-angle adapter for NW13mm diameter corrugated tubing | Black   | 1563110-1   |
| Fixing slide (panel thickness 3.0mm)                      | Yellow  | 1564562-1   |
| Fixing slide (panel thickness 2.5mm)                      | Red     | 1564562-2   |
| Fixing slide (panel thickness 1.5mm)                      | Gray    | 1564562-5   |
| Fixing slide (panel thickness 1.0mm)                      | Natural | 1564562-4   |

### Group E: Sealed AMP MCP 2.8 Receptacle Housing

#### Technical Features

##### No. of Positions:

12 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

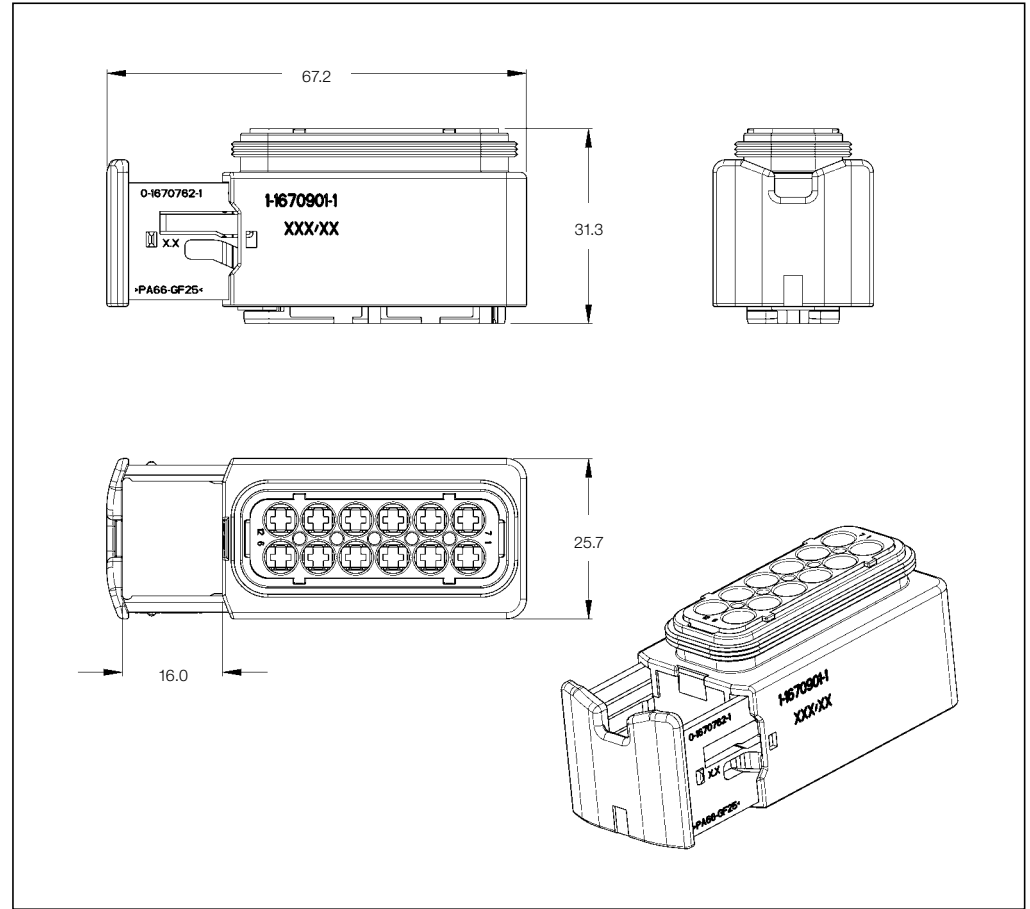
2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 12               | Black / Black | 1-1670901-1        | *                  |
|                  | Black / Gray  | 2-1670901-1        | *                  |
|                  | Black / Green | 3-1670901-1        | *                  |
|                  | Black / Blue  | 4-1670901-1        | *                  |

\*) Available on request.

Other variants are available on request.

### Group E: Sealed AMP MCP 1.5/2.8 Receptacle Housing

#### Technical Features

##### No. of Positions:

15 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

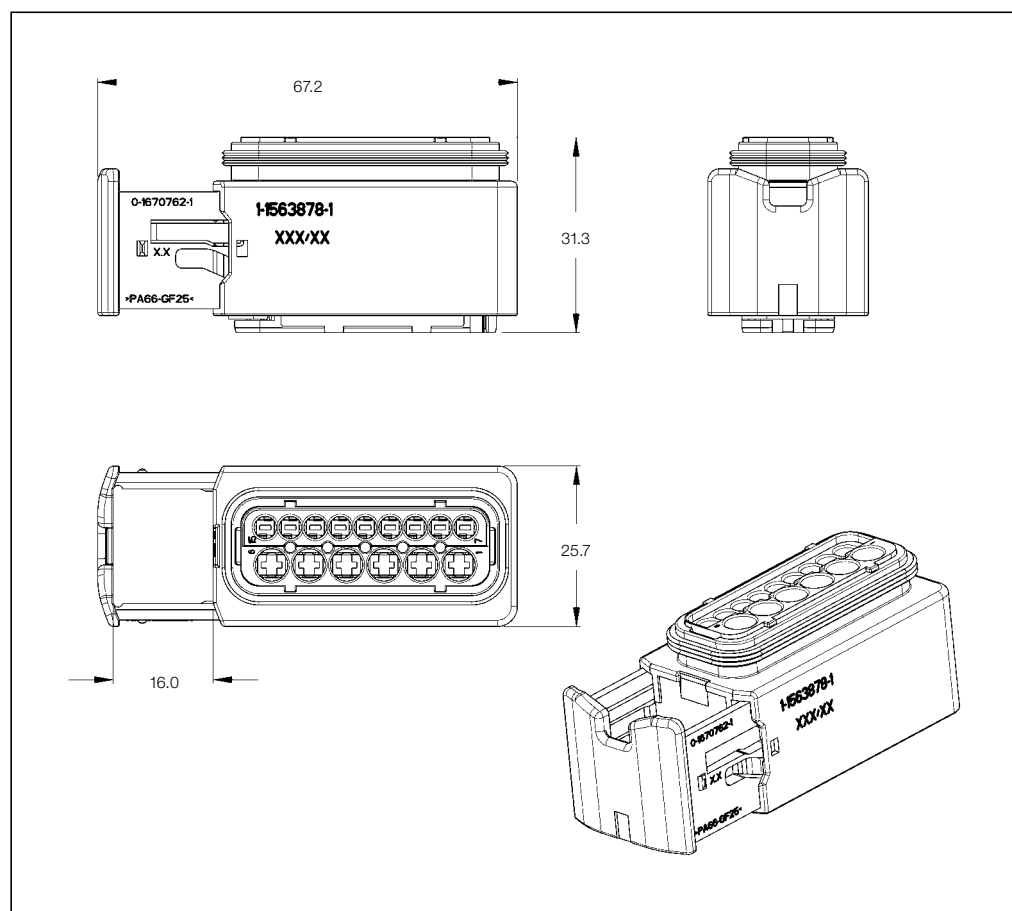
- 1.5 mm<sup>2</sup> FLR max.  
AWG 16 TXL max.
- 2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Mixed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 15               | Black / Black | 1-1563878-1        | 1-1564530-1        |
|                  |               |                    | 1-1564532-1        |
|                  | Black / Gray  | 2-1563878-1        | 2-1564530-1        |
|                  |               |                    | 2-1564532-1        |
|                  | Black / Green | 3-1563878-1        | 3-1564530-1        |
|                  |               |                    | 3-1564532-1        |
|                  | Black / Blue  | 4-1563878-1        | 4-1564530-1        |
|                  |               |                    | 4-1564532-1        |

Other variants are available on request.

### Group E: Sealed 1.5mm/2.8mm Tab Housing

#### Technical Features

##### No. of Positions:

15 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

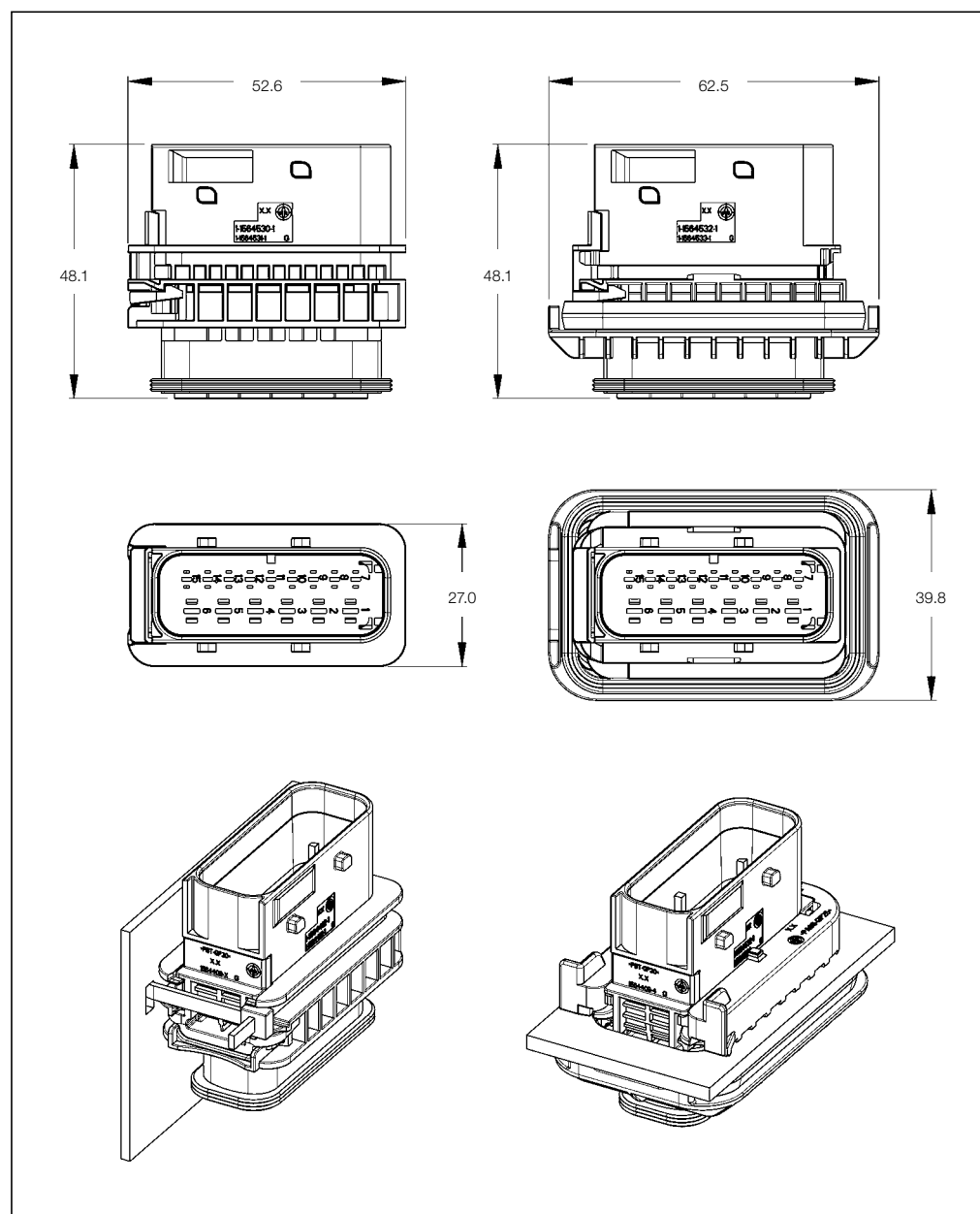
- 1.0 mm<sup>2</sup> FLR max.
- 2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Mixed Tab Housings

| No. of Positions | Housing Color | Part Numbers             |                            |                           |
|------------------|---------------|--------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange* | Tab Housing without Flange | Mating Receptacle Housing |
| 15               | Black         | 1-1564532-1              | 1-1564530-1                | 1-1563878-1               |
|                  | Gray          | 2-1564532-1              | 2-1564530-1                | 2-1563878-1               |
|                  | Green         | 3-1564532-1              | 3-1564530-1                | 3-1563878-1               |
|                  | Blue          | 4-1564532-1              | 4-1564530-1                | 4-1563878-1               |

\*) Suitable fixing slide see accessories.

### Group E: Sealed AMP MCP 1.5/2.8 Receptacle Housing

#### Technical Features

##### No. of Positions:

16 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

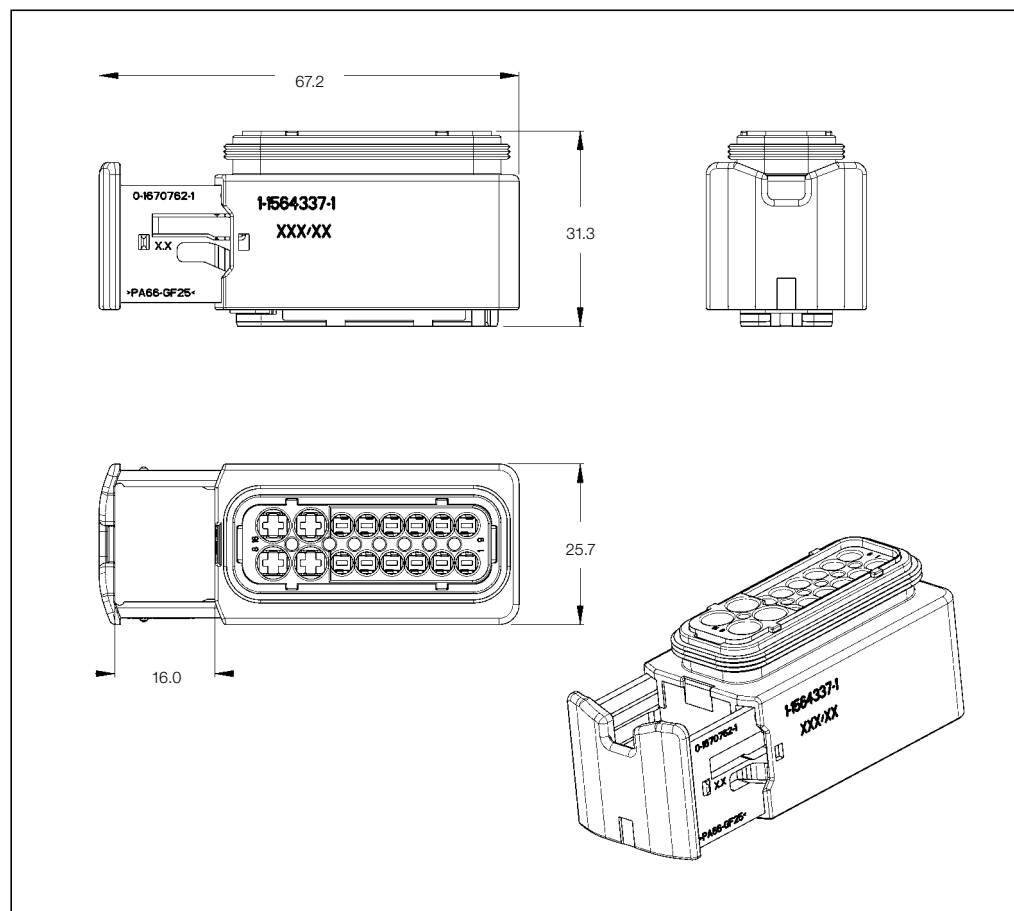
- 1.5 mm<sup>2</sup> FLR max.  
AWG 16 TXL max.
- 2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 16               | Black / Black | 1-1564337-1        | 1-1564407-1        |
|                  |               |                    | 1-1564528-1        |
|                  | Black / Gray  | 2-1564337-1        | 2-1564407-1        |
|                  |               |                    | 2-1564528-1        |
|                  | Black / Green | 3-1564337-1        | 3-1564407-1        |
|                  |               |                    | 3-1564528-1        |
|                  | Black / Blue  | 4-1564337-1        | 4-1564407-1        |
|                  |               |                    | 4-1564528-1        |

Other variants are available on request.

### Group E: Sealed 1.5mm/2.8mm Tab Housing

#### Technical Features

##### No. of Positions:

16 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

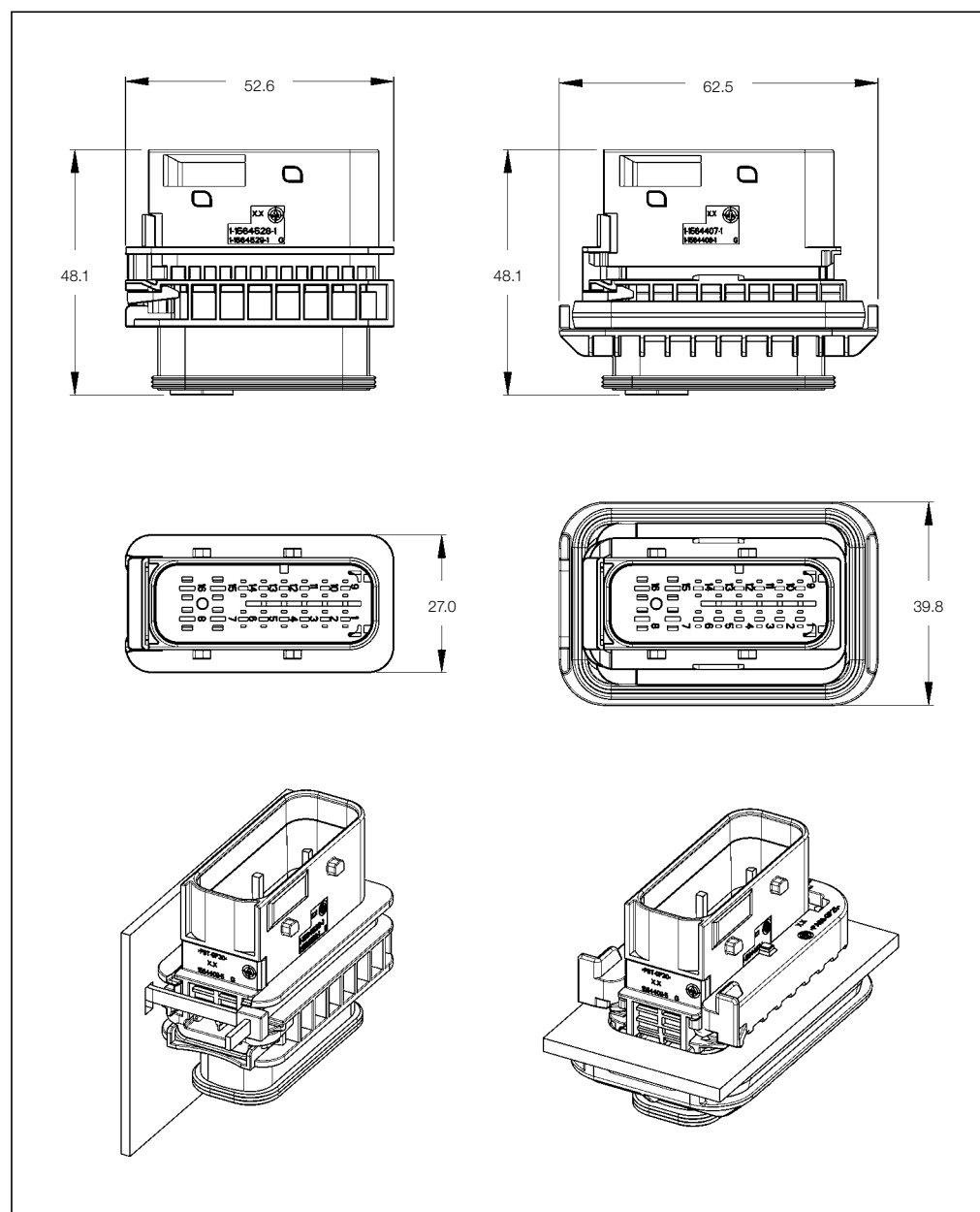
- 1.0 mm<sup>2</sup> FLR max.
- 2.5 mm<sup>2</sup> FLR max.  
AWG 12 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Mixed Tab Housings

| No. of Positions | Housing Color | Part Numbers             |                            |                           |
|------------------|---------------|--------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange* | Tab Housing without Flange | Mating Receptacle Housing |
| 16               | Black         | 1-1564407-1              | 1-1564528-1                | 1-1564337-1               |
|                  | Gray          | 2-1564407-1              | 2-1564528-1                | 2-1564337-1               |
|                  | Green         | 3-1564407-1              | 3-1564528-1                | 3-1564337-1               |
|                  | Blue          | 4-1564407-1              | 4-1564528-1                | 4-1564337-1               |

\*) Suitable fixing slide see accessories.

### Group E: Sealed AMP MCP 1.5K Receptacle Housing

#### Technical Features

##### No. of Positions:

18 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

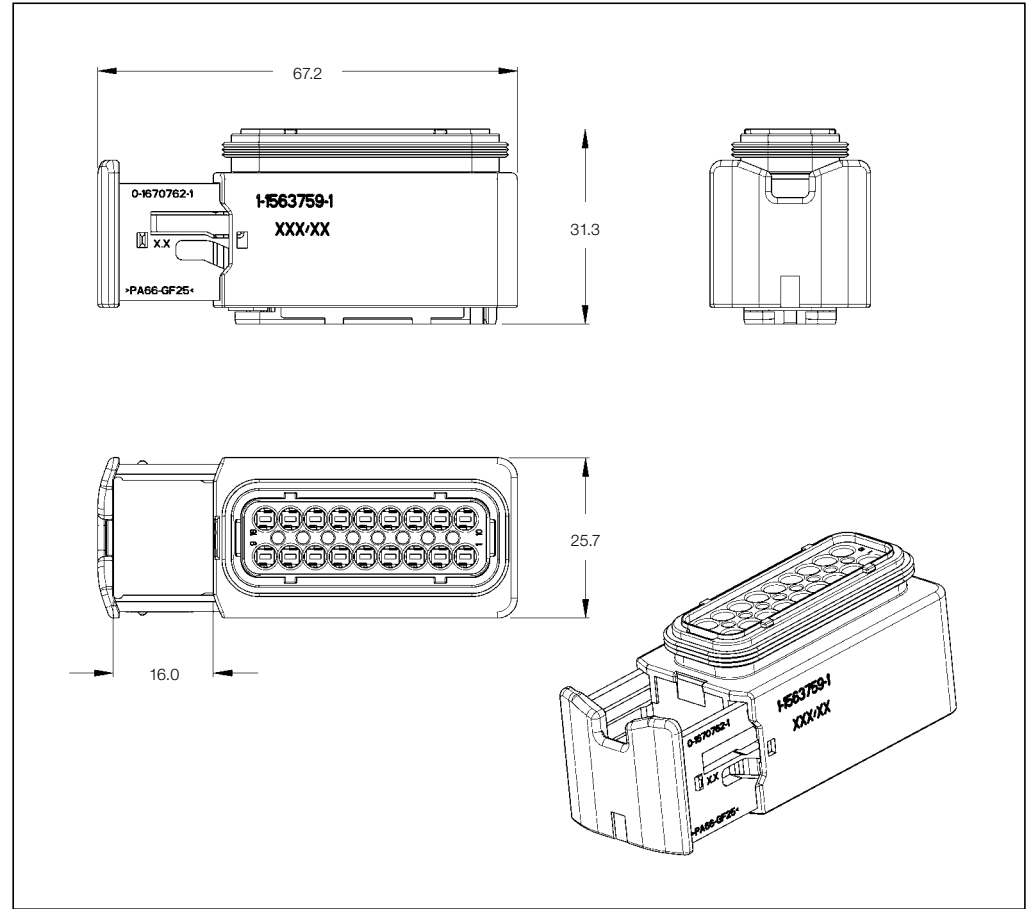
1.5 mm<sup>2</sup> FLR max.  
AWG 16 TXL max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 18               | Black / Black | 1-1563759-1        | 1-1564412-1        |
|                  |               |                    | 1-1564526-1        |
|                  | Black / Gray  | 2-1563759-1        | 2-1564412-1        |
|                  |               |                    | 2-1564526-1        |
|                  | Black / Green | 3-1563759-1        | 3-1564412-1        |
|                  |               |                    | 3-1564526-1        |
|                  | Black / Blue  | 4-1563759-1        | 4-1564412-1        |
|                  |               |                    | 4-1564526-1        |

Other variants are available on request.

### Group E: Sealed 1.5mm Tab Housing

#### Technical Features

##### No. of Positions:

18 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

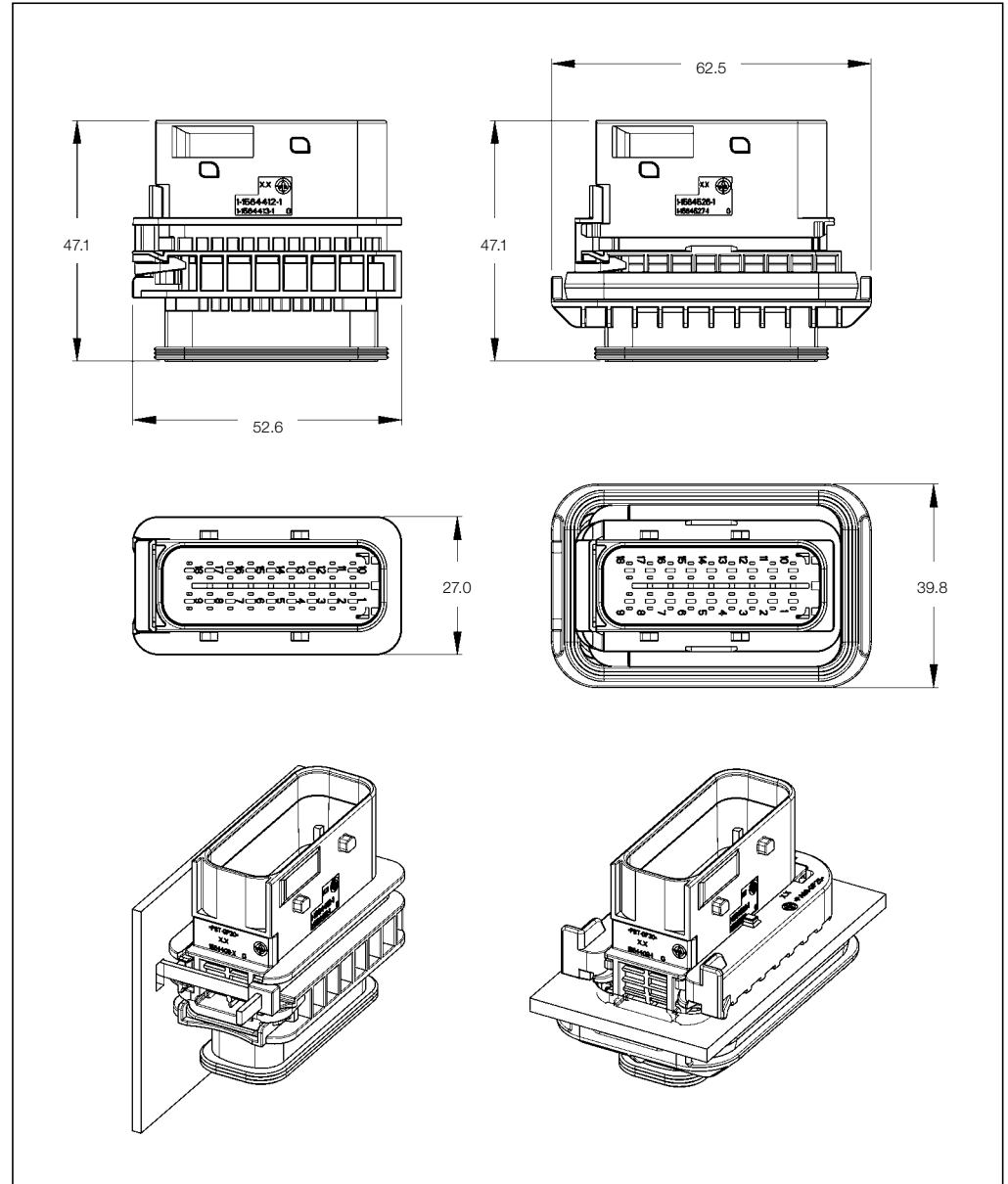
1.0 mm<sup>2</sup> FLR max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed 1.5 mm Tab Housings

| No. of Positions | Housing Color | Part Numbers             |                            |                           |
|------------------|---------------|--------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange* | Tab Housing without Flange | Mating Receptacle Housing |
| 18               | Black         | 1-1564526-1              | 1-1564412-1                | 1-1563759-1               |
|                  | Gray          | 2-1564526-1              | 2-1564412-1                | 2-1563759-1               |
|                  | Green         | 3-1564526-1              | 3-1564412-1                | 3-1563759-1               |
|                  | Blue          | 4-1564526-1              | 4-1564412-1                | 4-1563759-1               |

\*) Suitable fixing slide see accessories.

## Group E: Sealed AMP MCP 6.3 Receptacle Housing

## Technical Features

## No. of Positions:

4 Positions

## Housing Material:

Glass Reinforced PBT

## Wire Size Range:

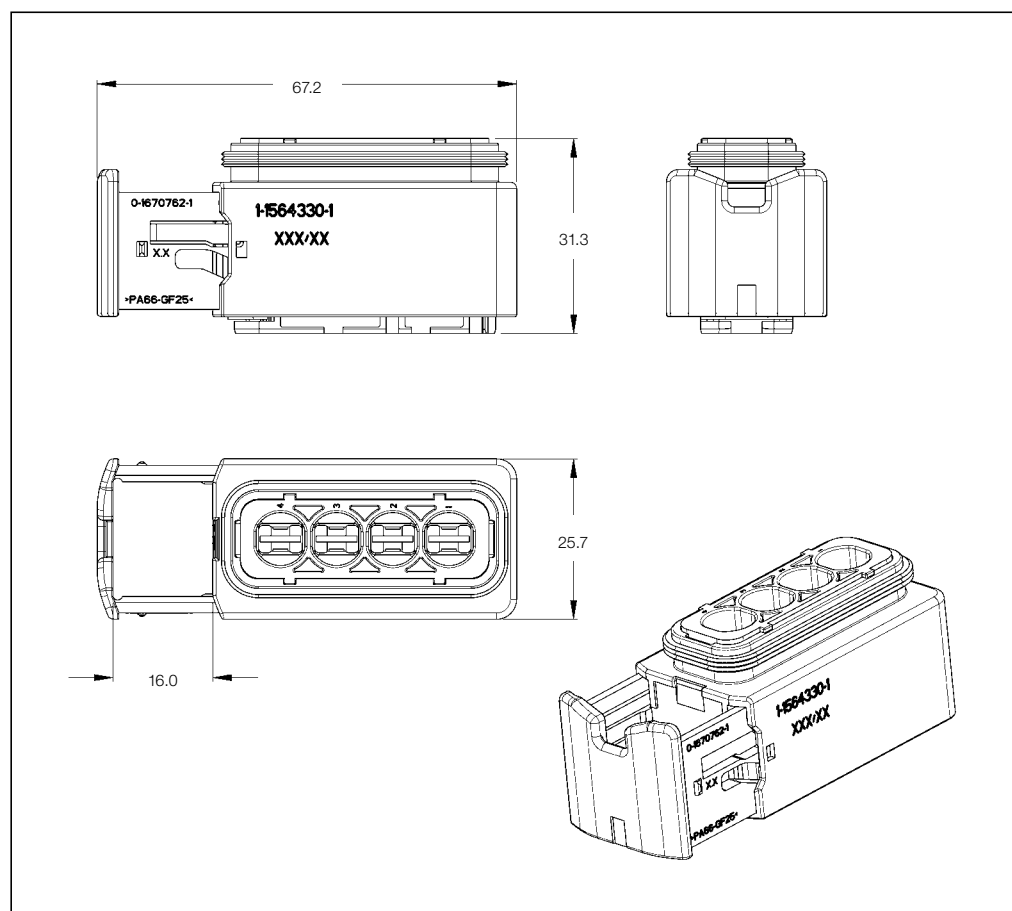
6.0 mm<sup>2</sup> FLR max.

## Product Specification:

108-94020

## Application Specification:

114-18756



## Sealed Receptacle Housings

| No. of Positions | Housing Color | Part Numbers       |                    |
|------------------|---------------|--------------------|--------------------|
|                  |               | Receptacle Housing | Mating Tab Housing |
| 4                | Black / Black | 1-1564330-1        | 1-1564534-1        |
|                  | Black / Gray  | 2-1564330-1        | 2-1564534-1        |
|                  | Black / Green | 3-1564330-1        | 3-1564534-1        |
|                  | Black / Blue  | 4-1564330-1        | 4-1564534-1        |

Other variants are available on request.

### Group E: Sealed 6.3mm Tab Housing

#### Technical Features

##### No. of Positions:

4 Positions

##### Housing Material:

Glass Reinforced PBT

##### Wire Size Range:

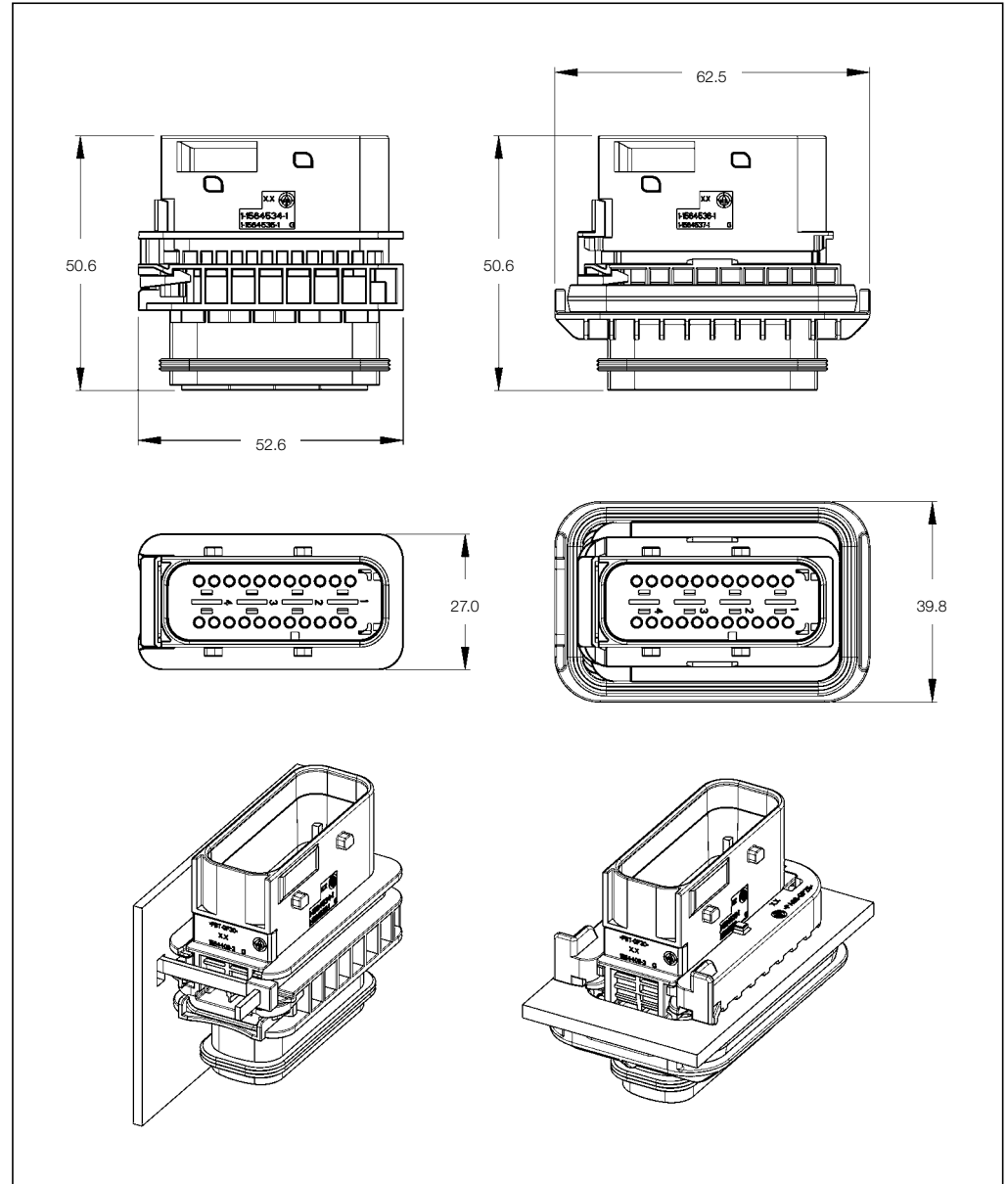
6.0 mm<sup>2</sup> FLR max.

##### Product Specification:

108-94020

##### Application Specification:

114-18756



#### Sealed 6.3 mm Tab Housings

| No. of Positions | Housing Color | Part Numbers               |                            |                           |
|------------------|---------------|----------------------------|----------------------------|---------------------------|
|                  |               | Tab Housing with Flange ** | Tab Housing without Flange | Mating Receptacle Housing |
| 4                | Black         | *                          | 1-1564534-1                | 1-1564330-1               |
|                  | Gray          | *                          | 2-1564534-1                | 2-1564330-1               |
|                  | Green         | *                          | 3-1564534-1                | 3-1564330-1               |
|                  | Blue          | *                          | 4-1564534-1                | 4-1564330-1               |

\*) Available on request.

\*\*) Suitable fixing slide see accessories.

### Group E: Accessories

### Accessories



| Description                                                        | Color  | Part Number |
|--------------------------------------------------------------------|--------|-------------|
| Vertical adapter for NW17mm diameter corrugated tubing and hose    | Black  | 1670866-1   |
| Right-angle adapter for NW17mm diameter corrugated tubing and hose | Black  | 1670865-1   |
| Fixing slide (panel thickness 3.5mm)                               | Gray   | 1564411-6   |
| Fixing slide (panel thickness 3.0mm)                               | Yellow | 1564411-1   |
| Fixing slide (panel thickness 2.5mm)                               | Red    | 1564411-2   |
| Fixing slide (panel thickness 1.5mm)                               | Gray   | 1564411-5   |

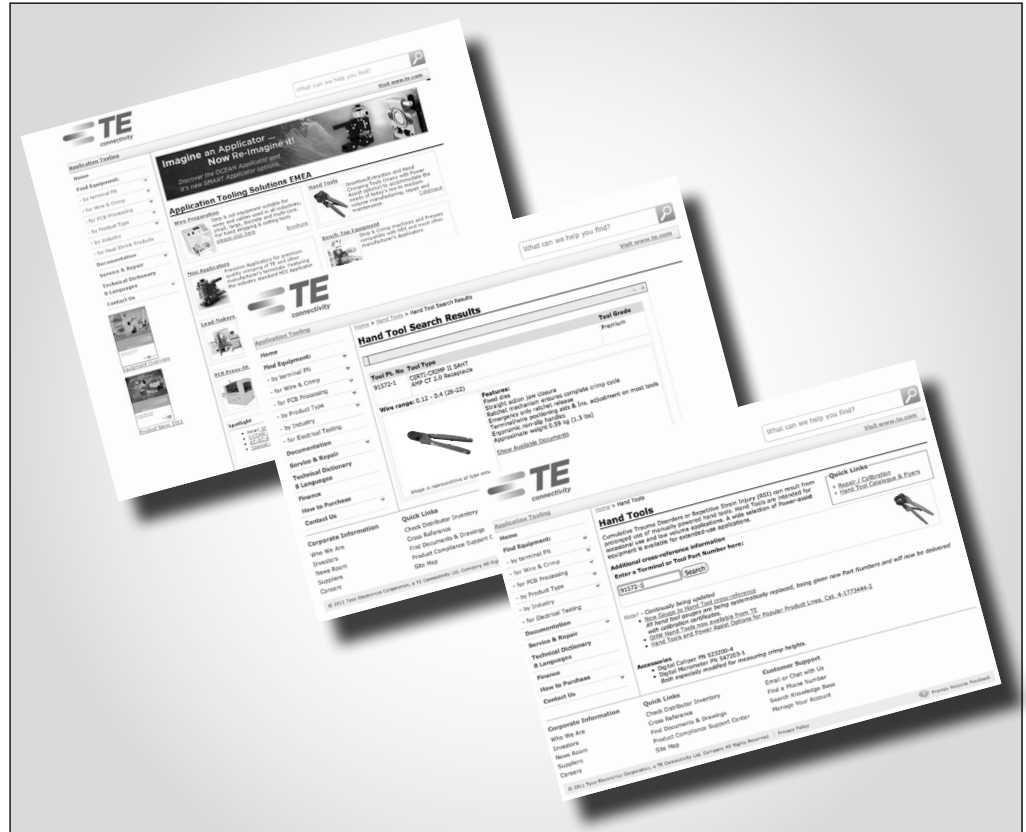
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### Engineering Notes

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A large rectangular area filled with a fine grid of small squares, intended for handwritten engineering notes or calculations.

### Introduction



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