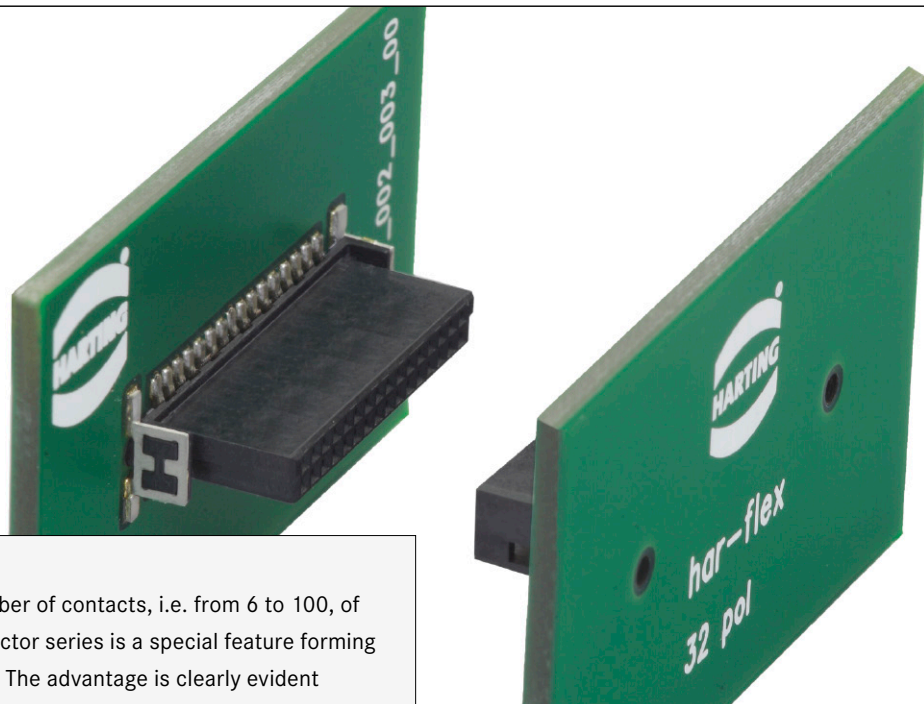


# 14. har-flex® Connectors



The continuous scalability by an even number of contacts, i.e. from 6 to 100, of the HARTING's har-flex® mezzanine connector series is a special feature forming an ideal basis for customized applications. The advantage is clearly evident considering that the connector is always optimized to suit specific applications on the device PCB, while also covering the medium- and small-scale volume range that is typical for the production of industrial devices.

### Application profile:

| CONNECTION TYPE   |                     | ENVIRONMENT |                 | APPLICATION         |                    |                                     |                          |  |  |  |
|-------------------|---------------------|-------------|-----------------|---------------------|--------------------|-------------------------------------|--------------------------|--|--|--|
| Board to Board    | Cable/Wire to Board | IP20        | IP65 / IP67     | Data                | Signal             | Power                               | high performance         |  |  |  |
|                   |                     |             |                 | Data transfer rate  | Shielding          | Number of contacts, contact density | Voltage, working current |  |  |  |
| Cable termination |                     |             | PCB termination |                     |                    | Application standard                |                          |  |  |  |
| Han-Quick Lock®   | IDC                 | Crimp       | THT             | THR (SMC)           | SMT                | SCSI                                |                          |  |  |  |
|                   |                     |             |                 |                     |                    |                                     |                          |  |  |  |
| Screw             | Cage clamp          | Axial screw | Press-in        | Housing integration |                    |                                     |                          |  |  |  |
|                   |                     |             |                 | Separate housing    | Integrated housing |                                     |                          |  |  |  |
|                   |                     |             |                 |                     |                    |                                     |                          |  |  |  |

## Contents

|   | Page         |
|---|--------------|
| <i>har-flex</i> ® connector system – introduction ..... | <b>14.02</b> |
| Technical characteristics .....                         | <b>14.06</b> |
| Male connectors, straight .....                         | <b>14.12</b> |
| Female connectors, straight .....                       | <b>14.16</b> |
| Male connectors, angled .....                           | <b>14.20</b> |
| Female connectors, angled .....                         | <b>14.24</b> |
| Female connectors with IDC termination .....            | <b>14.26</b> |
| Cable assemblies .....                                  | <b>14.30</b> |

## *har-flex*® CONNECTORS

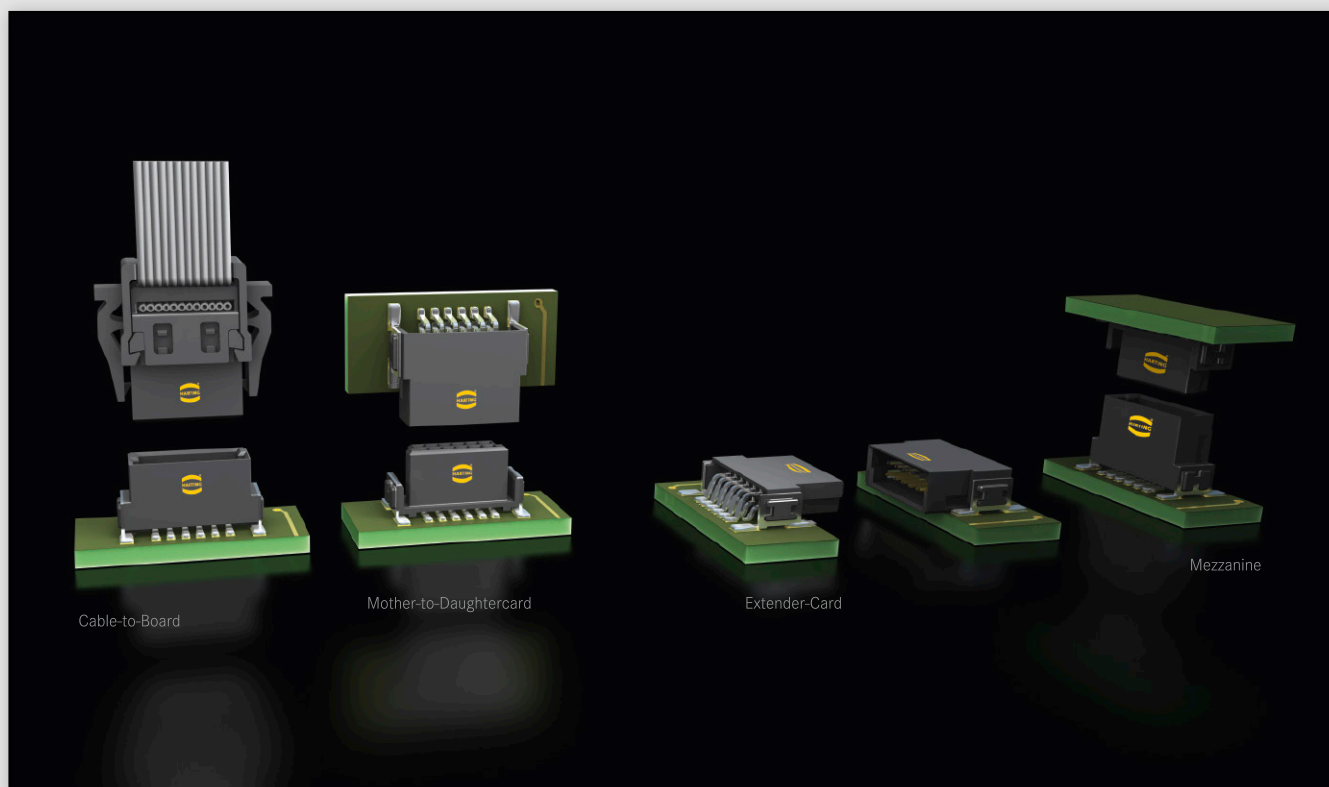
With *har-flex*®, HARTING has developed a general-purpose PCB connector series for internal and external Device Connectivity. The continuous scalability by an even number of contacts from 6 to 100 is a special feature forming an ideal basis for customized applications. The advantage is clearly evident considering that the connector is always optimized to suit specific applications on the device PCB, while also covering the medium and small scale volume range that is typical for the production of industrial devices.

This flexibility is new – HARTING turns an individual design into a standard component. No special tooling changes are needed for customer-specific solutions, thus HARTING can realize a short delivery time.

## PRODUCT DIVERSITY

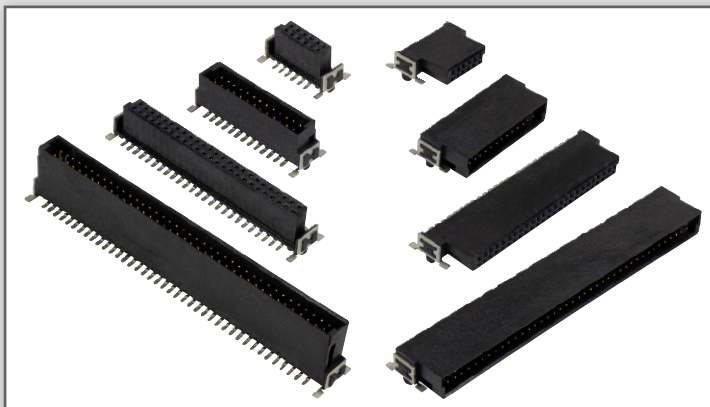
The *har-flex*® product range is based on a 1.27 mm grid. With its diverse variants, HARTING provides connectivity solutions for many different board-to-board and cable-to-board applications. For example, two straight connectors are used for mezzanine applications, two angled connectors for extender cards on one level, and a combination of straight and angled connectors allows the well-known pairing of mother and daughtercards. By using individually tailored IDC flat cables, it is possible to bridge long PCB distances.

Smaller, more powerful and more robust at the same time is the credo in all areas on the way to I4.0. Due to the miniaturized design and the high variability of the *har-flex*® connectors, device manufacturers have a freely scalable connection technology that meets the requirements of miniaturization.



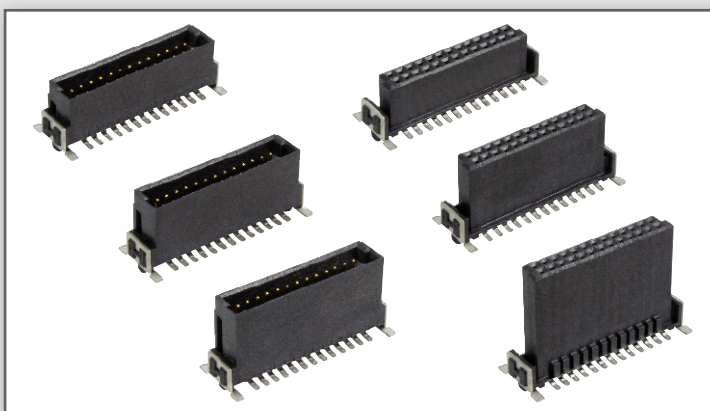
## Variable pole counts for highest flexibility

- Male and female connectors with even pole counts from 6 to 100 contacts available
- This flexibility in the choice of number of contacts combined with high density contact spacing allows for an optimal use of PCB space, thereby achieving overall space savings and cost efficiencies



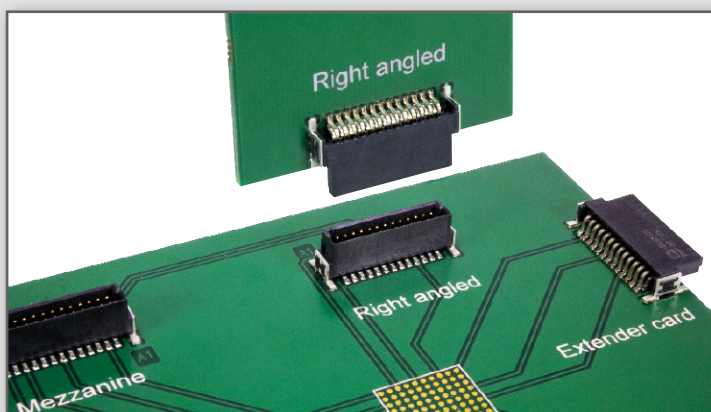
## Flexible board-to-board distances

- Different stacking heights and a wiping length of 1.5 mm allow for (mezzanine) board-to-board distances from 8 to 20 mm



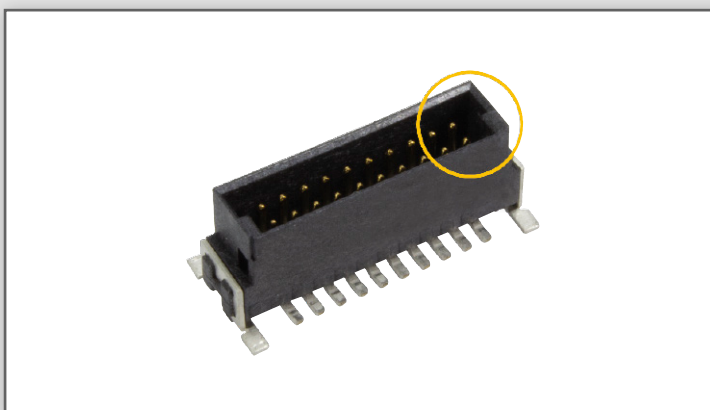
## High-quality contacts for a high number of mating cycles

- Polished Performance Level 1 (PL1) contacts ensure reliable connections for up to 500 mating cycles
- A gas test after the initial 250 of 500 mating cycles ensures high quality and long-term reliability



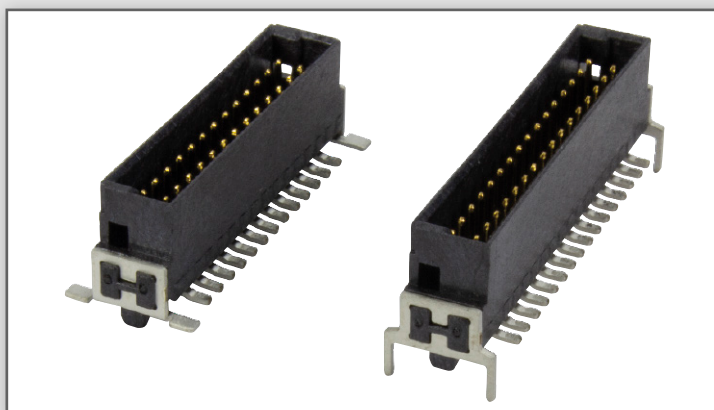
## Accurate mating process

- Mating profiles prevent mating in the opposite direction
- Slanted guidances compensate angle and center offsets and ensure a secure mating process



## Robust fixation on the PCB

- SMT and THR hold-downs allow for a robust mechanical fixation
- SMT hold-downs reduce the mechanical strain on the signal pins
- THR hold-downs are optionally available for strong protection against particularly high mechanical transverse forces



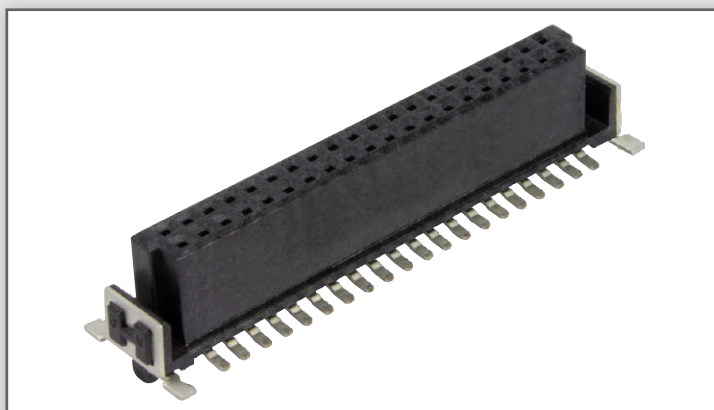
## Secure handling of cable connectors

- Vibration-proof catch mechanism on both sides prevents accidental loosening
- Optional strain relief protects the IDC contacts against pulling forces
- Customized cable assemblies provide perfectly fitting solutions



## Reliable soldering process

- A reliable soldering process is ensured by a contact coplanarity of  $\leq 0.1$  mm
- An optimal position on the PCB is achieved by guiding pegs



## Automated processing features

- Tape & reel packaging provides protection during shipping and handling
- SMT and THR versions are suitable for automatic pick & place assembly and reflow soldering



## Different types of cable

- Number of contacts: 6 - 100
- AWG 30/7
- Pitch: 0.635 mm
- Flame retardant acc. UL 758: VW-1
- **Standard (PVC)**      Operating temperature: -20 °C ... +105 °C
- **Halogen free (TPE)**      Operating temperature: -40 °C ... +125 °C



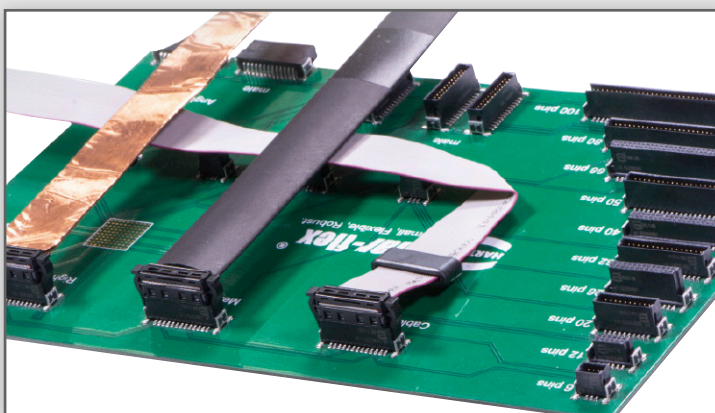
## Customised

We can add value with:

- Ferrit cores
- Shrinking tube
- Customised folding, customised labels

Your cable is not mentioned?

Don't be afraid. We will handle it. Please tell us your requirements.



Number of contacts 6, 8, 10 ... 96, 98, 100

Connector pitch 1.27 mm x 1.27 mm [0.050" x 0.050"]

Clearance and creepage distance  
 Board connectors (SMT) min. 0.4 mm  
 Cable connectors (IDC)  
 AWG 30/1 (solid) min. 0.35 mm  
 AWG 30/7 (stranded) min. 0.4 mm

Test voltage  $U_{r.m.s.}$  500 V  
 Contact resistance < 25 mΩ  
 Insulation resistance > 10 GΩ

Insertion and withdrawal force approx. 0.5 N / contact

Working temperature range  
 for connectors: - 55 °C ... + 125 °C  
 for flat cable assembly: depends on cable type  
 The higher temperature limit includes the local ambient and heating effects of the contacts under load  
 Temperature during reflow soldering (acc. to ECA/IPC/JEDEC J-STD-075 Level PSL R0) min. 150 s > 217 °C  
 min. 30 s > 240 °C

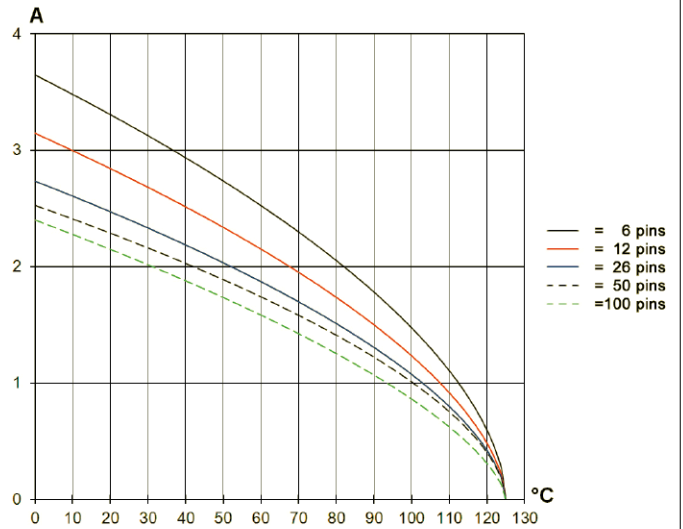
Electrical termination  
 Board connectors SMT (Surface Mount Technology) THR  
 Cable connectors IDC (Insulation Displacement Connection)

Materials  
 Moulding material LCP  
 UL approval UL 94-V0  
 CTI value (Comparative Tracking Index) 175  
 Contacts base material Copper alloy  
 Contact surface  
 Mating side  
 Board connectors Au over PdNi (acc. performance level)  
 Cable connectors Au over PdNi (acc. performance level)  
 Termination side  
 Board connectors (SMT / THR) Sn  
 Cable connectors (IDC) Sn

**Current carrying capacity acc. to IEC 60512-5-2**

The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

Control and test procedures according to DIN IEC 60512-5-2.



Derating curve @  $I_{max} * 0.8$  (IEC 60512-5-2)

**Durability**

**Performance level 1** (recommended for majority of applications)

Initial 250 mating cycles, 10 days gas test (25 °C/75 % r.h.) using H<sub>2</sub>S 10 ppb, NO<sub>2</sub> 200 ppb, CL<sub>2</sub> 10 ppb, SO<sub>2</sub> 200 ppb. Measurement of contact resistance. The remaining 250 mating cycles are subject to measurement of contact resistance and visual inspection. No abrasion of the contact finish through to the base material. No functional impairment.

Part number definition:

**Performance level 2** (available on request)

Initial 125 mating cycles, 4 days gas test (25 °C/75% r.h.) using H<sub>2</sub>S 10 ppb, NO<sub>2</sub> 200 ppb, CL<sub>2</sub> 10 ppb, SO<sub>2</sub> 200 ppb. Measurement of contact resistance. The remaining 125 mating cycles are subject to measurement of contact resistance and visual inspection. No abrasion of the contact finish through to the base material. No functional impairment.

Part number definition:

**Performance level S4** (available on request)

Defined contact surface of min. 0.06 μm Au over 0.7+0.2 μm PdNi.

Part number definition:

har-flex

Working voltage acc. to IEC 60664-1

The working voltage depends on user specific operational conditions. Depending on the installation category, the degree of pollution and the entire electrical environment, the working voltage is different. The standard IEC 60664-1 specifies, in general, the minimum insulation distances for equipment. But it can also be used to determine the maximum working voltage with given requirements.

The following table shows the most common conditions applicable for the har-flex® connectors and exemplary calculations for the working voltage. For installation category, degree of pollution and other requirements which are not shown in the table we refer to the IEC 60664-1.

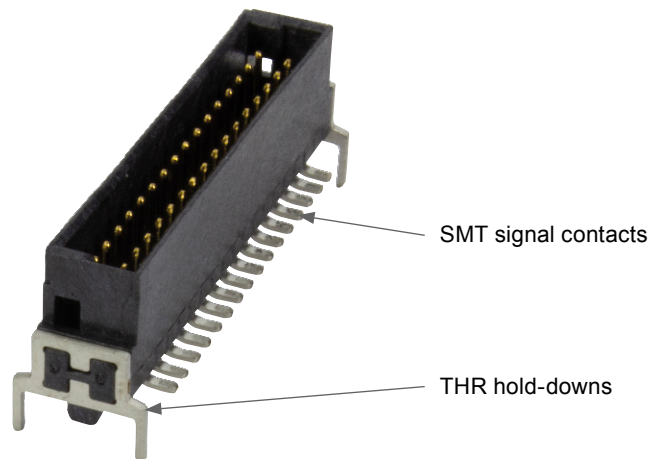
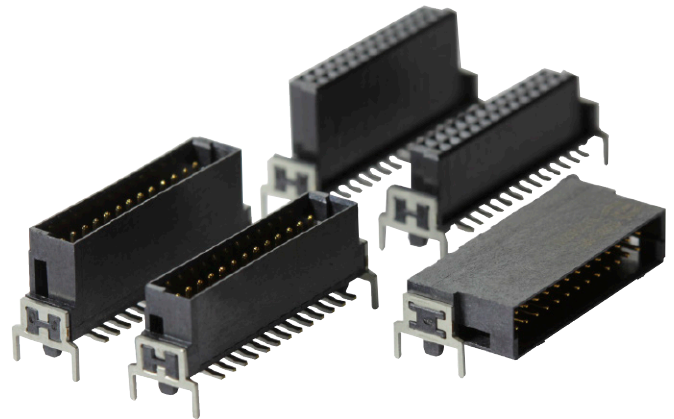
|                               |                                 |              |                               |              |
|-------------------------------|---------------------------------|--------------|-------------------------------|--------------|
| Clearance / Creepage distance | 0.4 mm                          |              |                               |              |
| CTI-Value                     | < 400                           |              |                               |              |
| Isolation group               | III a/b                         |              |                               |              |
| Electrical field type         | Case A<br>(Inhomogeneous field) |              | Case B<br>(Homogeneous field) |              |
| Installation category         | I                               | II           | I                             | II           |
| Degree of pollution           | 1                               | 1            | 1                             | 1            |
| <b>Working voltage max.</b>   | <b>150 V</b>                    | <b>100 V</b> | <b>150 V</b>                  | <b>150 V</b> |

Explanations:

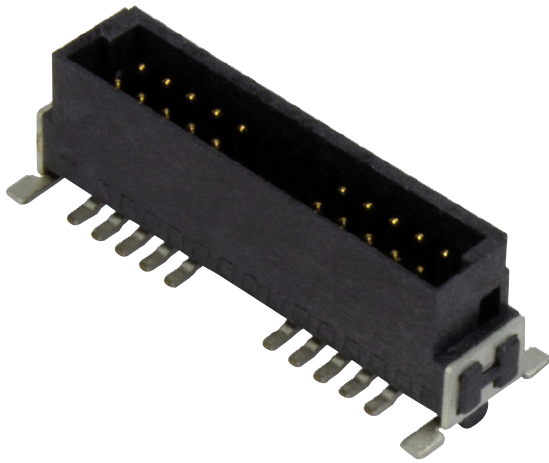
- CTI value and isolation group are fixed values by the har-flex® connector characteristics.
- Installation category I: Equipment is intended for use only in appliances or installation parts, in which no overvoltages can occur. Equipment in this installation category in normally operated at extra low voltage.
- Installation category II: Equipment is intended for use in installations or parts of installations, in which lightning overvoltages need not be considered. Overvoltages caused by switching must be taken into account.
- Pollution degree 1: No pollution or only dry, non-conductive pollution occurs. The pollution has no influence.
- Pollution degree 2: Only non-conductive pollution occurs. A temporary conductive caused by condensation must be expected occasionally.

har-flex® with THR hold-downs

THR stands for "Through Hole Reflow", which appropriately describes the underlying technology. While SMT (i.e. "Surface Mount Technology") connections are created by soldering the connector on the PCB surface during the reflow soldering process, THR means that the hold-down pins are inserted and soldered into designated holes on the PCB. This combines the fully automatic reflow soldering process with the advantages of traditional wave soldering: the inserted hold-down pins make the har-flex® more stable mechanically and more resilient to shear forces. This is especially relevant for PCB connectors and particularly for applications that require blind mating - meaning that the connectors are hidden from view during the mating process, which increases the chance of high mechanical stresses on the contacts. The resulting risk is mitigated by using hold-downs (additional mechanical fixing features). The optionally available THR hold-downs increase the robustness and reliability and protect the SMT signal contacts, which is particularly useful for angled connectors mounted on daughtercards, for example.

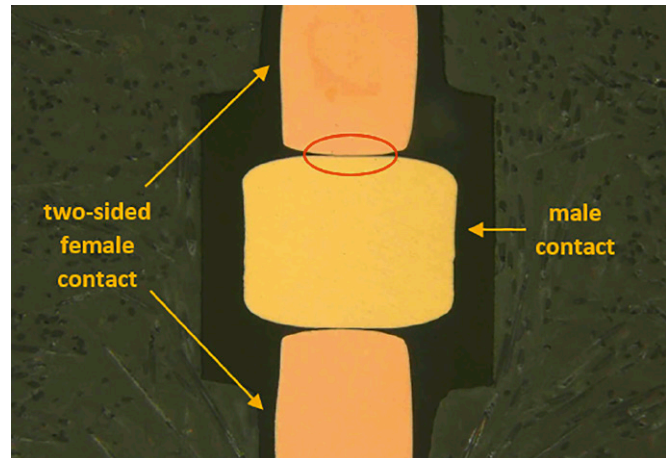


Partial loading



In specific cases it is possible that special requirements are not covered by the available standard variants. For example, it might be necessary to have a higher working voltage or allow for PCB traces under the connector. In such cases, it is possible to load the connector partially, i.e. leave out certain contact pins. By this means it is possible to increase the creepage and clearance distances and create free space for additional PCB tracks under the connector. HARTING offers the possibility to leave out one or several contacts in any position, which ensures a high degree of flexibility.

Reliable contacting



The production of stamped contacts has been one of HARTING's core competencies for a long time. HARTING leveraged this experience to create reliable contacts for *har:flex*®. To achieve this goal, both a high-quality contacting area and a suitable plating are crucial in order to maintain the contacting functionality of the contact over the course of its lifetime. The female contact is made with high precision, and a special polishing process ensures a defined contacting area, so that the contact point features a particularly high quality. In conjunction with the standard plating for performance level 1 this method guarantees a reliable electric connection for at least 500 mating cycles.

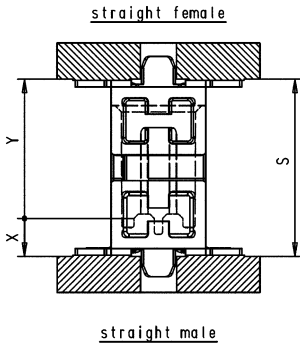
Stacking heights for mezzanine applications

Straight male and female har-flex® variants are available in three different stacking heights each. In conjunction with a wiping length of 1.5 mm these har-flex® variants can cover PCB distances from 8 to 20 mm in mezzanine applications.

|     |                  |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|-----|------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|---------------------------------|
| S   | 20 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 19 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 18 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 17 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 16 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 15 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 14 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 13 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 12 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 11 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 10 mm            |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 9 mm             |                                |                                |                                |                                |                                |                                 |                                 |                                 |
|     | 8 mm             |                                |                                |                                |                                |                                |                                 |                                 |                                 |
| X&Y | stacking heights | male 1.75 mm<br>female 6.25 mm | male 3.25 mm<br>female 6.25 mm | male 1.75 mm<br>female 9.05 mm | male 3.25 mm<br>female 9.05 mm | male 4.85 mm<br>female 9.05 mm | male 1.75 mm<br>female 13.65 mm | male 3.25 mm<br>female 13.65 mm | male 4.85 mm<br>female 13.65 mm |
| S   | PCB distance     | 8 mm - 9.5 mm                  | 9.5 mm - 11 mm                 | 10.8 mm - 12.3 mm              | 12.3 mm - 13.8 mm              | 13.9 mm - 15.4 mm              | 15.4 mm - 16.9 mm               | 16.9 mm - 18.4 mm               | 18.5 mm - 20 mm                 |
|     | part numbers     | 1511...<br>1521...             | 1512...<br>1521...             | 1511...<br>1522...             | 1512...<br>1522...             | 1513...<br>1522...             | 1511...<br>1523...              | 1512...<br>1523...              | 1513...<br>1523...              |

Mating options

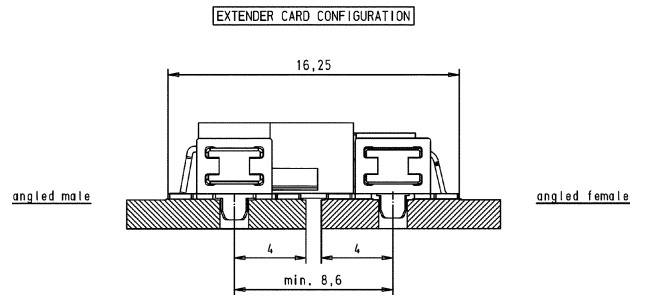
Mezzanine connection



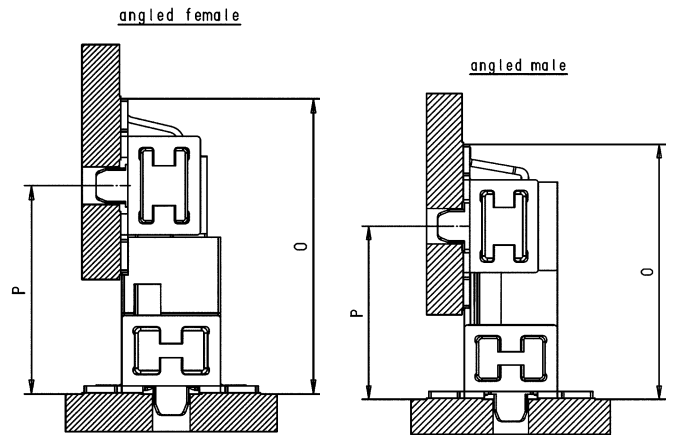
|      |       |                  |                   |
|------|-------|------------------|-------------------|
| 4.85 | 13.65 | 18.50            | 20.00             |
| 3.25 | 13.65 | 16.90            | 18.40             |
| 1.75 | 13.65 | 15.40            | 16.90             |
| 4.85 | 9.05  | 13.90            | 15.40             |
| 3.25 | 9.05  | 12.30            | 13.80             |
| 1.75 | 9.05  | 10.80            | 12.30             |
| 4.85 | 6.25  | 11.10            | 12.60             |
| 3.25 | 6.25  | 9.50             | 11.00             |
| 1.75 | 6.25  | 8.00             | 9.50              |
| X    | Y     | S <sub>min</sub> | *S <sub>max</sub> |

\*S<sub>max</sub> = S<sub>min</sub> + 1.5 mm wiping length with additional contact overlap security

Extender Card connection



Mother-to-Daughtercard connection

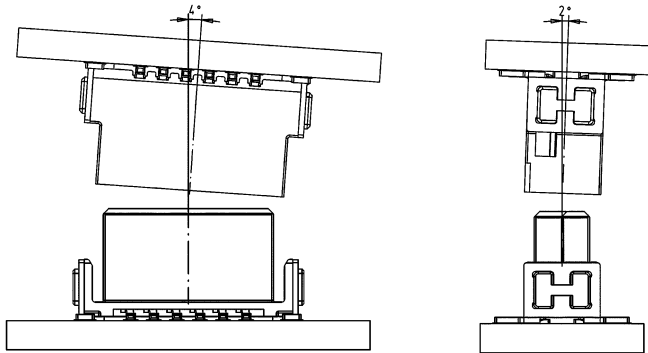


|      |                  |       |
|------|------------------|-------|
| 4.85 | 11.85            | 15.68 |
| 3.25 | 10.25            | 14.08 |
| 1.75 | 8.75             | 12.58 |
| X    | P <sub>min</sub> | O     |

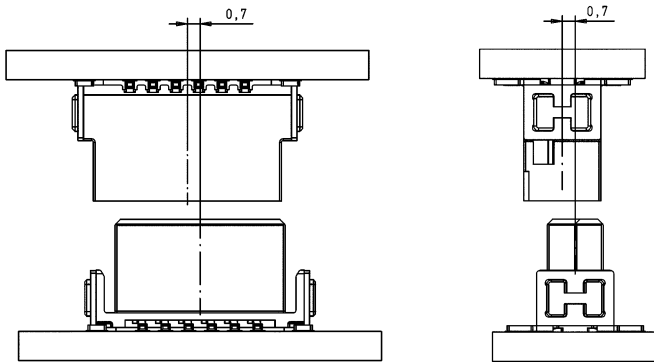
|       |                  |       |
|-------|------------------|-------|
| 13.65 | 15.10            | 18.93 |
| 9.05  | 10.50            | 14.33 |
| 6.25  | 7.70             | 11.53 |
| Y     | P <sub>min</sub> | O     |

Mating conditions

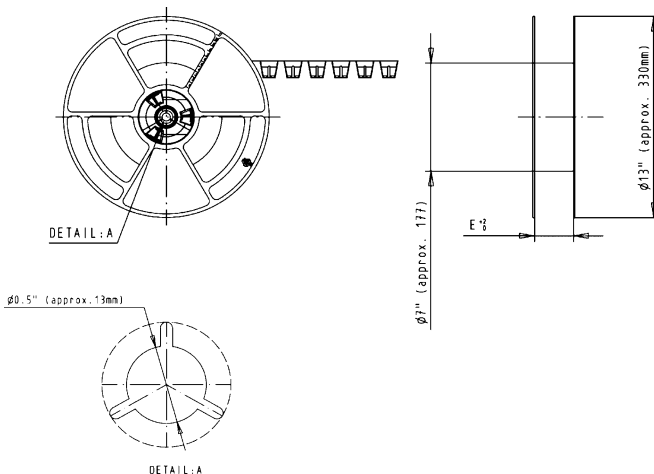
Inclination



Mismatching



Tape acc. to IEC 60286-3



| Tape dimensions: | E    |
|------------------|------|
| poles 6 to 12    | 24.4 |
| poles 14 to 20   | 32.4 |
| poles 22 to 40   | 44.4 |
| poles 42 to 56   | 56.4 |
| poles 58 to 80   | 72.4 |
| poles 82 to 100  | 88.4 |

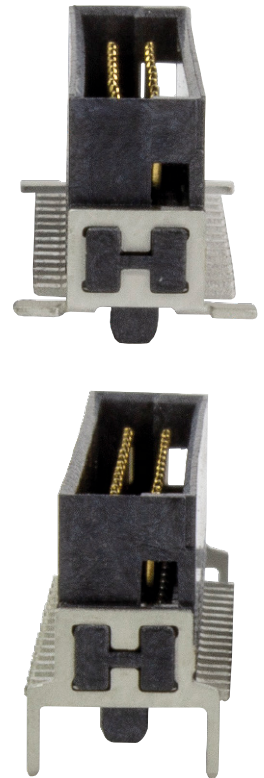
Processing notes

The har-flex® SMT/THR connectors meet the highest demands in terms of their processing capabilities.

The connectors are delivered in a tape and reel packaging optimized for automatic assembly machines. A vacuum cover enables the automatic assembly with a vacuum nozzle.

The insulation body material is high temperature resistant, and due to the black colour a secure camera recognition is ensured.

To ensure a reliable reflow soldering process, the signal pins are 100 % checked for coplanarity.



Process / Moisture Sensitivity

During the reflow solder process, the connector has to resist extreme variations in temperature. Connectors consist in general of both plastic and metal parts, which have a different behaviour during the solder process. The Process Sensivity and also the Moisture Sensivity are tested according the ECA/IPC/JEDEC J-STD-075 specification.

Process Sensivity:

**PSL** means Process Sensivity Level. PSL is a rating used to identify a component that is solder process sensitive. Damages of the connector after three times soldering are not permitted (e.g. melted edges).

Moisture Sensivity:

**MSL** means Moisture Sensivity Level. MSL is a rating indicating a component's susceptibility to damage due to absorbed moisture during storage. Damages of the connector after storage in damp heat and three times soldering are not permitted (e.g. blisters).

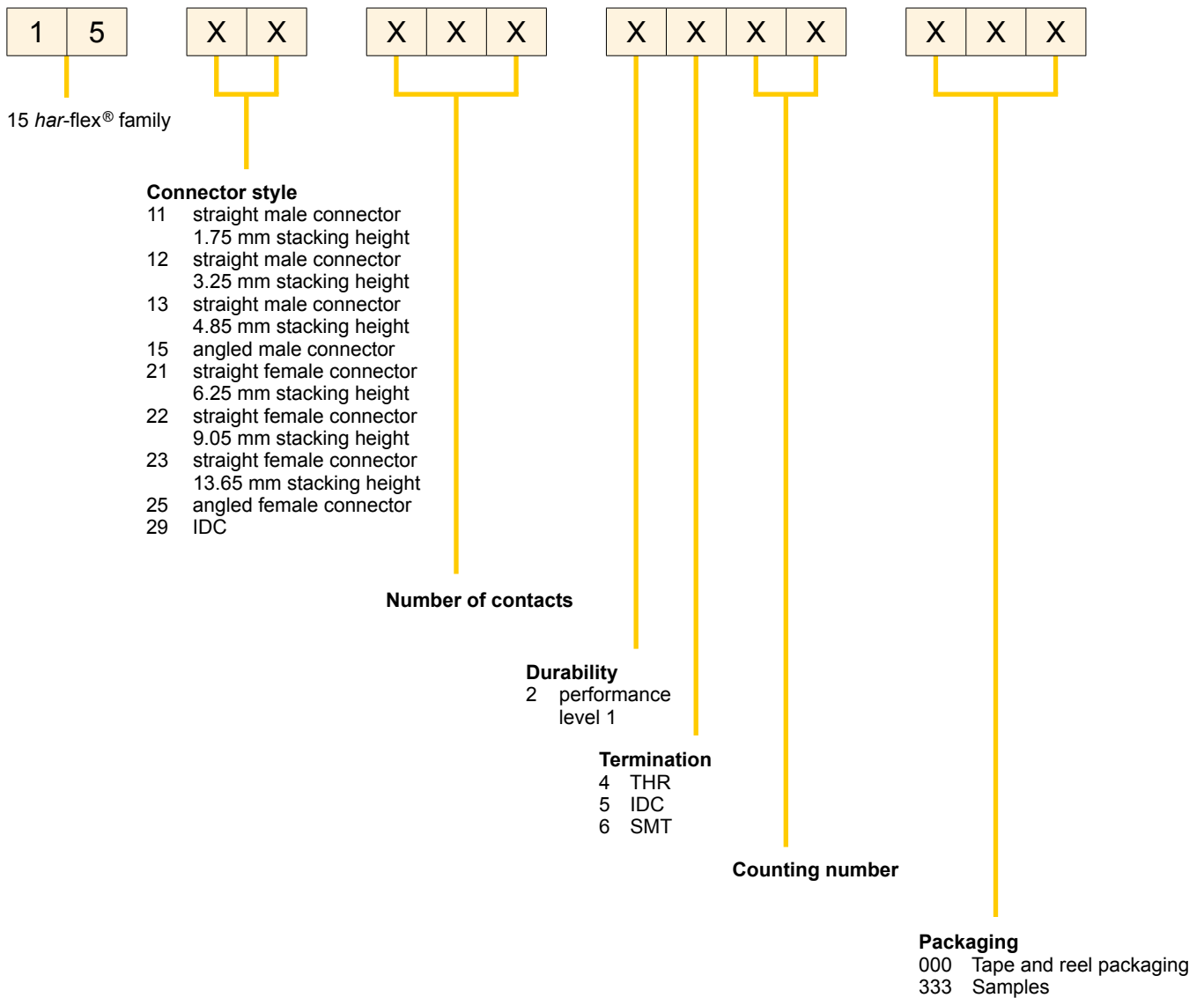
The har-flex® connectors are rated with **PSL R0** and **MSL 1**. This is the maximum possible rating in both categories. The har-flex® connector resists three times soldering at the following conditions without damages:

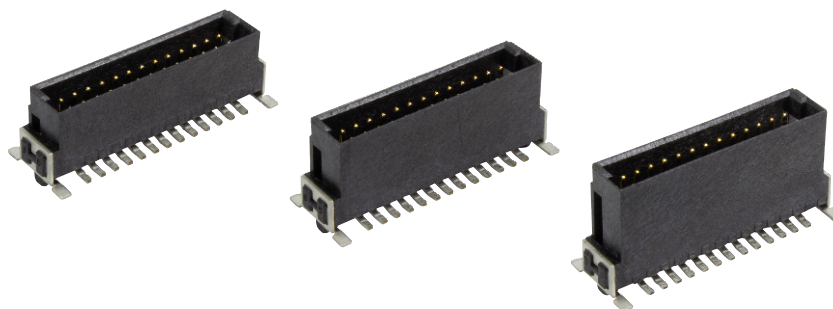
- min. 150 s beyond 217 °C (liquidus temperature, the melting point of the solder paste)
- min. 30 s beyond classification temperature (240 °C / 245 °C for har-flex®)
- Temperature solder profile according to ECA/IPC/JEDEC J-STD-075
- For MSL test, a storage of 168 hours at 85 °C and 85 % rel. humidity was carried out

As the result, the har-flex® connectors are not process sensitive and not moisture sensitive according to ECA/IPC/JEDEC J-STD-075.

Part number definition

The har-flex® part numbers have 14 digits and are based on the following scheme:



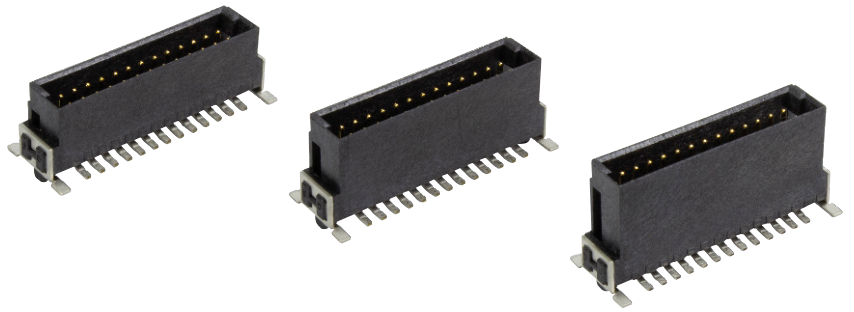


Male connectors, straight, SMT

| Identification  | No. of contacts     | Part number         | Dimensions in mm |       |       |       |       |       |       |
|---|---------------------|---------------------|------------------|-------|-------|-------|-------|-------|-------|
|   |                     |                     | A                | B     | C     | D     | E     | F     | G     |
| Male connector, straight, SMT<br>stacking heights<br>1.75 mm / 3.25 mm /<br>4.85 mm | 6                   | 15 1 . 006 2601 ... | 2.54             | 6.96  | 8.89  | 5.76  | 4.76  | 6.56  | 1.05  |
|   | 8                   | 15 1 . 008 2601 ... | 3.81             | 8.23  | 10.16 | 7.03  | 6.03  | 7.83  | 1.69  |
|   | 10                  | 15 1 . 010 2601 ... | 5.08             | 9.50  | 11.43 | 8.30  | 7.30  | 9.10  | 2.32  |
|   | 12                  | 15 1 . 012 2601 ... | 6.35             | 10.77 | 12.70 | 9.57  | 8.57  | 10.37 | 2.96  |
|   | 14                  | 15 1 . 014 2601 ... | 7.62             | 12.04 | 13.97 | 10.84 | 9.84  | 11.64 | 3.59  |
|   | 16                  | 15 1 . 016 2601 ... | 8.89             | 13.31 | 15.24 | 12.11 | 11.11 | 12.91 | 4.23  |
|   | 18                  | 15 1 . 018 2601 ... | 10.16            | 14.58 | 16.51 | 13.38 | 12.38 | 14.18 | 4.88  |
|   | 20                  | 15 1 . 020 2601 ... | 11.43            | 15.85 | 17.78 | 14.65 | 13.65 | 15.45 | 5.50  |
|   | 22                  | 15 1 . 022 2601 ... | 12.70            | 17.12 | 19.05 | 15.92 | 14.92 | 16.72 | 6.13  |
|   | 24                  | 15 1 . 024 2601 ... | 13.97            | 18.39 | 20.32 | 17.19 | 16.19 | 17.99 | 6.77  |
|   | 26                  | 15 1 . 026 2601 ... | 15.24            | 19.66 | 21.59 | 18.46 | 17.46 | 19.26 | 7.40  |
|   | 28                  | 15 1 . 028 2601 ... | 16.51            | 20.93 | 22.86 | 19.73 | 18.73 | 20.53 | 8.04  |
|   | 30                  | 15 1 . 030 2601 ... | 17.78            | 22.20 | 24.13 | 21.00 | 20.00 | 21.80 | 8.67  |
|   | 32                  | 15 1 . 032 2601 ... | 19.05            | 23.47 | 25.40 | 22.27 | 21.27 | 23.07 | 9.31  |
|   | 34                  | 15 1 . 034 2601 ... | 20.32            | 24.74 | 26.67 | 23.54 | 22.54 | 24.34 | 9.94  |
|   | 36                  | 15 1 . 036 2601 ... | 21.59            | 26.01 | 27.94 | 24.81 | 23.81 | 25.61 | 10.58 |
|   | 38                  | 15 1 . 038 2601 ... | 22.86            | 27.28 | 29.21 | 26.08 | 25.08 | 26.88 | 11.21 |
|   | 40                  | 15 1 . 040 2601 ... | 24.13            | 28.55 | 30.48 | 27.35 | 26.35 | 28.15 | 11.85 |
|   | 42                  | 15 1 . 042 2601 ... | 25.40            | 29.82 | 31.75 | 28.62 | 27.62 | 29.42 | 12.48 |
|   | 44                  | 15 1 . 044 2601 ... | 26.67            | 31.09 | 33.02 | 29.89 | 28.89 | 30.69 | 13.12 |
|   | 46                  | 15 1 . 046 2601 ... | 27.94            | 32.36 | 34.29 | 31.16 | 30.16 | 31.96 | 13.75 |
|   | 48                  | 15 1 . 048 2601 ... | 29.21            | 33.63 | 35.56 | 32.43 | 31.43 | 33.23 | 14.39 |
|   | 50                  | 15 1 . 050 2601 ... | 30.48            | 34.90 | 36.83 | 33.70 | 32.70 | 34.50 | 15.02 |
|   | 52                  | 15 1 . 052 2601 ... | 31.75            | 36.17 | 38.10 | 34.97 | 33.97 | 35.77 | 15.66 |
|   | 54                  | 15 1 . 054 2601 ... | 33.02            | 37.44 | 39.37 | 36.24 | 35.24 | 37.04 | 16.29 |
|   | 56                  | 15 1 . 056 2601 ... | 34.29            | 38.71 | 40.64 | 37.51 | 36.51 | 38.31 | 16.93 |
|   | 58                  | 15 1 . 058 2601 ... | 35.56            | 39.98 | 41.91 | 38.78 | 37.78 | 39.58 | 17.56 |
|   | 60                  | 15 1 . 060 2601 ... | 36.83            | 41.25 | 43.18 | 40.05 | 39.05 | 40.85 | 18.20 |
|   | 62                  | 15 1 . 062 2601 ... | 38.10            | 42.52 | 44.45 | 41.32 | 40.32 | 42.12 | 18.83 |
|   | 64                  | 15 1 . 064 2601 ... | 39.37            | 43.79 | 45.72 | 42.59 | 41.59 | 43.39 | 19.47 |
|   | 66                  | 15 1 . 066 2601 ... | 40.64            | 45.06 | 46.99 | 43.86 | 42.86 | 44.66 | 20.10 |
|   | 68                  | 15 1 . 068 2601 ... | 41.91            | 46.33 | 48.26 | 45.13 | 44.13 | 45.93 | 20.74 |
|   | 70                  | 15 1 . 070 2601 ... | 43.18            | 47.60 | 49.53 | 46.40 | 45.40 | 47.20 | 21.37 |
|   | 72                  | 15 1 . 072 2601 ... | 44.45            | 48.87 | 50.80 | 47.67 | 46.67 | 48.47 | 22.01 |
|   | 74                  | 15 1 . 074 2601 ... | 45.72            | 50.14 | 52.07 | 48.94 | 47.94 | 49.74 | 22.64 |
|   | 76                  | 15 1 . 076 2601 ... | 46.99            | 51.41 | 53.34 | 50.21 | 49.21 | 51.01 | 23.28 |
|   | 78                  | 15 1 . 078 2601 ... | 48.26            | 52.68 | 54.61 | 51.48 | 50.48 | 52.28 | 23.91 |
|   | 80                  | 15 1 . 080 2601 ... | 49.53            | 53.95 | 55.88 | 52.75 | 51.75 | 53.55 | 24.55 |
|   | 82                  | 15 1 . 082 2601 ... | 50.80            | 55.22 | 57.15 | 54.02 | 53.02 | 54.82 | 25.18 |
| 84  | 15 1 . 084 2601 ... | 52.07               | 56.49            | 58.42 | 55.29 | 54.29 | 56.09 | 25.82 |       |
| 86  | 15 1 . 086 2601 ... | 53.34               | 57.76            | 59.69 | 56.56 | 55.56 | 57.36 | 26.45 |       |
| 88  | 15 1 . 088 2601 ... | 54.61               | 59.03            | 60.96 | 57.83 | 56.83 | 58.63 | 27.09 |       |
| 90  | 15 1 . 090 2601 ... | 55.88               | 60.30            | 62.23 | 59.10 | 58.10 | 59.90 | 27.72 |       |
| 92  | 15 1 . 092 2601 ... | 57.15               | 61.57            | 63.50 | 60.37 | 59.37 | 61.17 | 28.36 |       |
| 94  | 15 1 . 094 2601 ... | 58.42               | 62.84            | 64.77 | 61.64 | 60.64 | 62.44 | 28.99 |       |
| 96  | 15 1 . 096 2601 ... | 59.69               | 64.11            | 66.04 | 62.91 | 61.91 | 63.71 | 29.63 |       |
| 98  | 15 1 . 098 2601 ... | 60.96               | 65.38            | 67.31 | 64.18 | 63.18 | 64.98 | 30.26 |       |
| 100   | 15 1 . 100 2601 ... | 62.23               | 66.65            | 68.58 | 65.45 | 64.45 | 66.25 | 30.90 |       |

Please insert digit for stacking height

- 1.75 mm ► 1
- 3.25 mm ► 2
- 4.85 mm ► 3



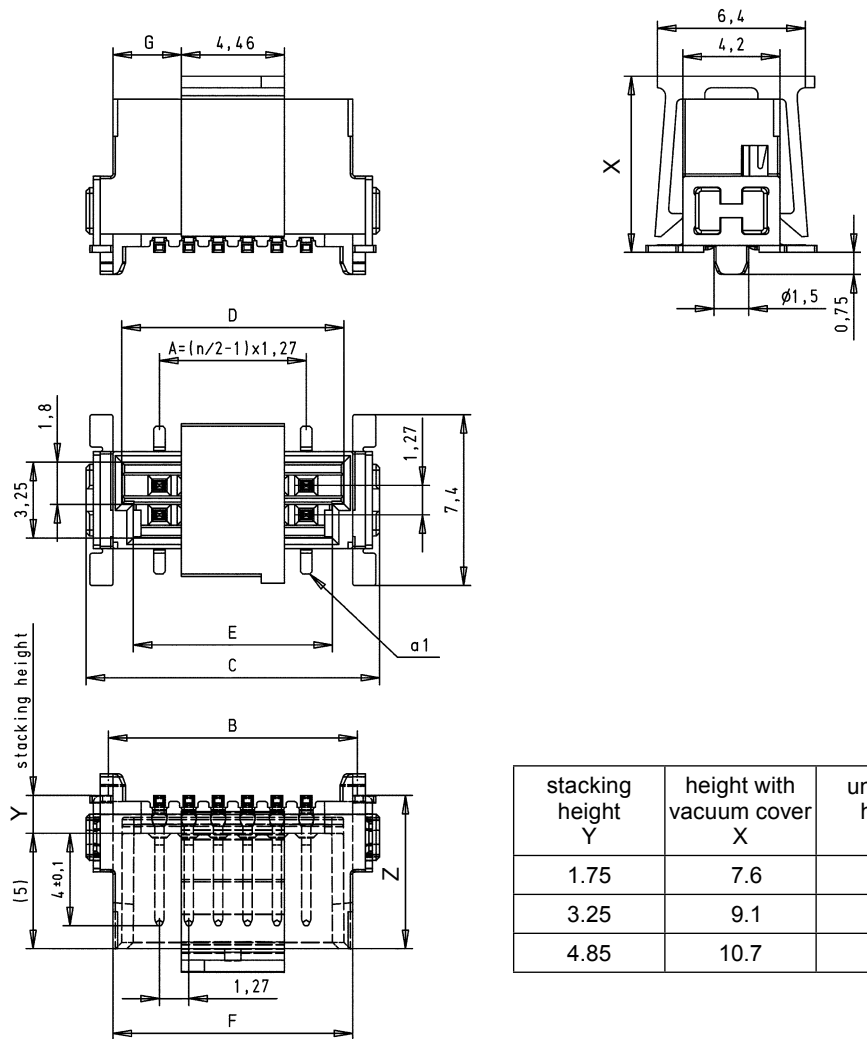
Male connectors, straight, SMT

Identification

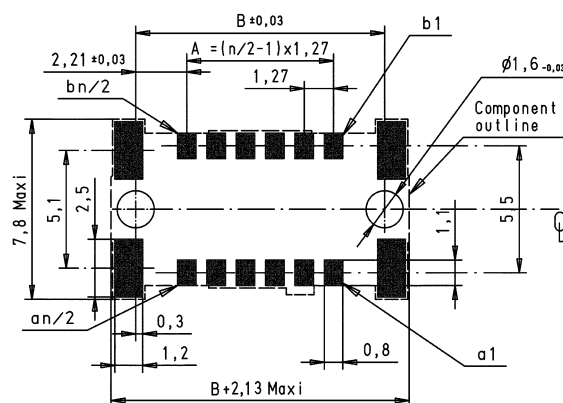
Drawing

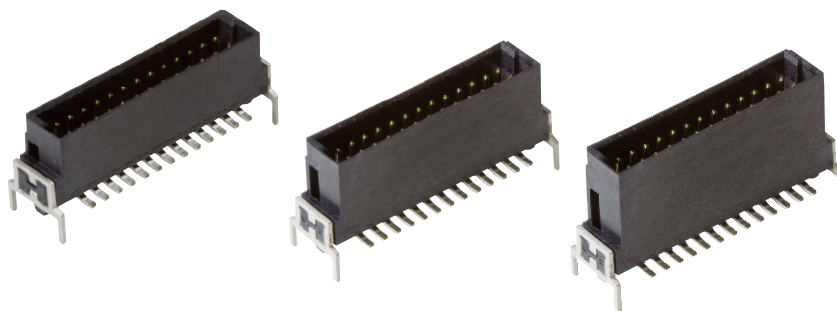
Dimensions in mm

Dimensions



PCB layout



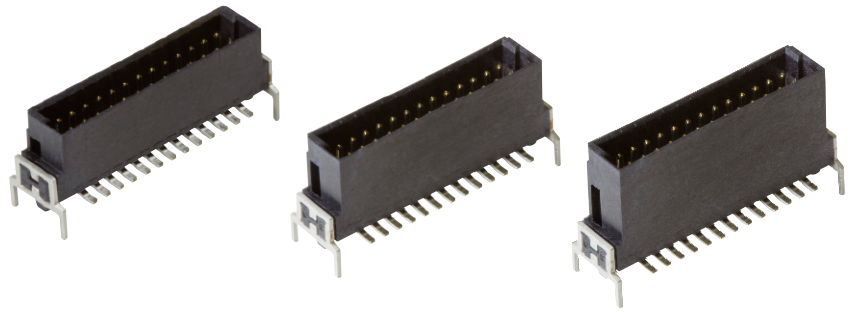


Male connectors, straight, THR

| Identification  | No. of contacts     | Part number         | Dimensions in mm |       |       |       |       |       |       |
|---|---------------------|---------------------|------------------|-------|-------|-------|-------|-------|-------|
|   |                     |                     | A                | B     | C     | D     | E     | F     | G     |
| Male connector, straight, THR<br>stacking heights<br>1.75 mm / 3.25 mm /<br>4.85 mm | 6                   | 15 1 . 006 2401 ... | 2.54             | 6.96  | 8.89  | 5.76  | 4.76  | 6.56  | 1.05  |
|   | 8                   | 15 1 . 008 2401 ... | 3.81             | 8.23  | 10.16 | 7.03  | 6.03  | 7.83  | 1.69  |
|   | 10                  | 15 1 . 010 2401 ... | 5.08             | 9.50  | 11.43 | 8.30  | 7.30  | 9.10  | 2.32  |
|   | 12                  | 15 1 . 012 2401 ... | 6.35             | 10.77 | 12.70 | 9.57  | 8.57  | 10.37 | 2.96  |
|   | 14                  | 15 1 . 014 2401 ... | 7.62             | 12.04 | 13.97 | 10.84 | 9.84  | 11.64 | 3.59  |
|   | 16                  | 15 1 . 016 2401 ... | 8.89             | 13.31 | 15.24 | 12.11 | 11.11 | 12.91 | 4.23  |
|   | 18                  | 15 1 . 018 2401 ... | 10.16            | 14.58 | 16.51 | 13.38 | 12.38 | 14.18 | 4.88  |
|   | 20                  | 15 1 . 020 2401 ... | 11.43            | 15.85 | 17.78 | 14.65 | 13.65 | 15.45 | 5.50  |
|   | 22                  | 15 1 . 022 2401 ... | 12.70            | 17.12 | 19.05 | 15.92 | 14.92 | 16.72 | 6.13  |
|   | 24                  | 15 1 . 024 2401 ... | 13.97            | 18.39 | 20.32 | 17.19 | 16.19 | 17.99 | 6.77  |
|   | 26                  | 15 1 . 026 2401 ... | 15.24            | 19.66 | 21.59 | 18.46 | 17.46 | 19.26 | 7.40  |
|   | 28                  | 15 1 . 028 2401 ... | 16.51            | 20.93 | 22.86 | 19.73 | 18.73 | 20.53 | 8.04  |
|   | 30                  | 15 1 . 030 2401 ... | 17.78            | 22.20 | 24.13 | 21.00 | 20.00 | 21.80 | 8.67  |
|   | 32                  | 15 1 . 032 2401 ... | 19.05            | 23.47 | 25.40 | 22.27 | 21.27 | 23.07 | 9.31  |
|   | 34                  | 15 1 . 034 2401 ... | 20.32            | 24.74 | 26.67 | 23.54 | 22.54 | 24.34 | 9.94  |
|   | 36                  | 15 1 . 036 2401 ... | 21.59            | 26.01 | 27.94 | 24.81 | 23.81 | 25.61 | 10.58 |
|   | 38                  | 15 1 . 038 2401 ... | 22.86            | 27.28 | 29.21 | 26.08 | 25.08 | 26.88 | 11.21 |
|   | 40                  | 15 1 . 040 2401 ... | 24.13            | 28.55 | 30.48 | 27.35 | 26.35 | 28.15 | 11.85 |
|   | 42                  | 15 1 . 042 2401 ... | 25.40            | 29.82 | 31.75 | 28.62 | 27.62 | 29.42 | 12.48 |
|   | 44                  | 15 1 . 044 2401 ... | 26.67            | 31.09 | 33.02 | 29.89 | 28.89 | 30.69 | 13.12 |
|   | 46                  | 15 1 . 046 2401 ... | 27.94            | 32.36 | 34.29 | 31.16 | 30.16 | 31.96 | 13.75 |
|   | 48                  | 15 1 . 048 2401 ... | 29.21            | 33.63 | 35.56 | 32.43 | 31.43 | 33.23 | 14.39 |
|   | 50                  | 15 1 . 050 2401 ... | 30.48            | 34.90 | 36.83 | 33.70 | 32.70 | 34.50 | 15.02 |
|   | 52                  | 15 1 . 052 2401 ... | 31.75            | 36.17 | 38.10 | 34.97 | 33.97 | 35.77 | 15.66 |
|   | 54                  | 15 1 . 054 2401 ... | 33.02            | 37.44 | 39.37 | 36.24 | 35.24 | 37.04 | 16.29 |
|   | 56                  | 15 1 . 056 2401 ... | 34.29            | 38.71 | 40.64 | 37.51 | 36.51 | 38.31 | 16.93 |
|   | 58                  | 15 1 . 058 2401 ... | 35.56            | 39.98 | 41.91 | 38.78 | 37.78 | 39.58 | 17.56 |
|   | 60                  | 15 1 . 060 2401 ... | 36.83            | 41.25 | 43.18 | 40.05 | 39.05 | 40.85 | 18.20 |
|   | 62                  | 15 1 . 062 2401 ... | 38.10            | 42.52 | 44.45 | 41.32 | 40.32 | 42.12 | 18.83 |
|   | 64                  | 15 1 . 064 2401 ... | 39.37            | 43.79 | 45.72 | 42.59 | 41.59 | 43.39 | 19.47 |
|   | 66                  | 15 1 . 066 2401 ... | 40.64            | 45.06 | 46.99 | 43.86 | 42.86 | 44.66 | 20.10 |
|   | 68                  | 15 1 . 068 2401 ... | 41.91            | 46.33 | 48.26 | 45.13 | 44.13 | 45.93 | 20.74 |
|   | 70                  | 15 1 . 070 2401 ... | 43.18            | 47.60 | 49.53 | 46.40 | 45.40 | 47.20 | 21.37 |
| 72  | 15 1 . 072 2401 ... | 44.45               | 48.87            | 50.80 | 47.67 | 46.67 | 48.47 | 22.01 |       |
| 74  | 15 1 . 074 2401 ... | 45.72               | 50.14            | 52.07 | 48.94 | 47.94 | 49.74 | 22.64 |       |
| 76  | 15 1 . 076 2401 ... | 46.99               | 51.41            | 53.34 | 50.21 | 49.21 | 51.01 | 23.28 |       |
| 78  | 15 1 . 078 2401 ... | 48.26               | 52.68            | 54.61 | 51.48 | 50.48 | 52.28 | 23.91 |       |
| 80  | 15 1 . 080 2401 ... | 49.53               | 53.95            | 55.88 | 52.75 | 51.75 | 53.55 | 24.55 |       |
| 82  | 15 1 . 082 2401 ... | 50.80               | 55.22            | 57.15 | 54.02 | 53.02 | 54.82 | 25.18 |       |
| 84  | 15 1 . 084 2401 ... | 52.07               | 56.49            | 58.42 | 55.29 | 54.29 | 56.09 | 25.82 |       |
| 86  | 15 1 . 086 2401 ... | 53.34               | 57.76            | 59.69 | 56.56 | 55.56 | 57.36 | 26.45 |       |
| 88  | 15 1 . 088 2401 ... | 54.61               | 59.03            | 60.96 | 57.83 | 56.83 | 58.63 | 27.09 |       |
| 90  | 15 1 . 090 2401 ... | 55.88               | 60.30            | 62.23 | 59.10 | 58.10 | 59.90 | 27.72 |       |
| 92  | 15 1 . 092 2401 ... | 57.15               | 61.57            | 63.50 | 60.37 | 59.37 | 61.17 | 28.36 |       |
| 94  | 15 1 . 094 2401 ... | 58.42               | 62.84            | 64.77 | 61.64 | 60.64 | 62.44 | 28.99 |       |
| 96  | 15 1 . 096 2401 ... | 59.69               | 64.11            | 66.04 | 62.91 | 61.91 | 63.71 | 29.63 |       |
| 98  | 15 1 . 098 2401 ... | 60.96               | 65.38            | 67.31 | 64.18 | 63.18 | 64.98 | 30.26 |       |
| 100   | 15 1 . 100 2401 ... | 62.23               | 66.65            | 68.58 | 65.45 | 64.45 | 66.25 | 30.90 |       |

Please insert digit for stacking height

- 1.75 mm ► 1
- 3.25 mm ► 2
- 4.85 mm ► 3



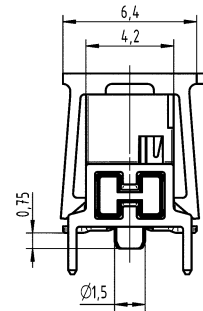
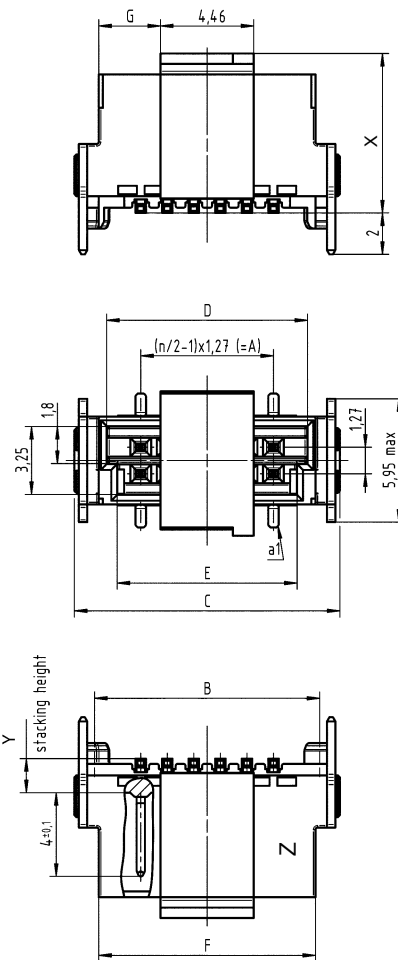
Male connectors, straight, THR

Identification

Drawing

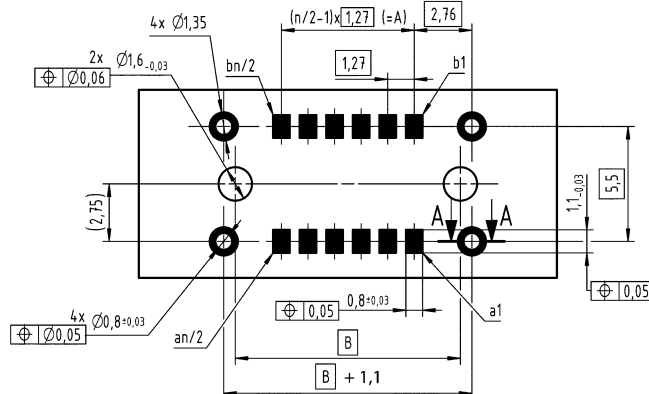
Dimensions in mm

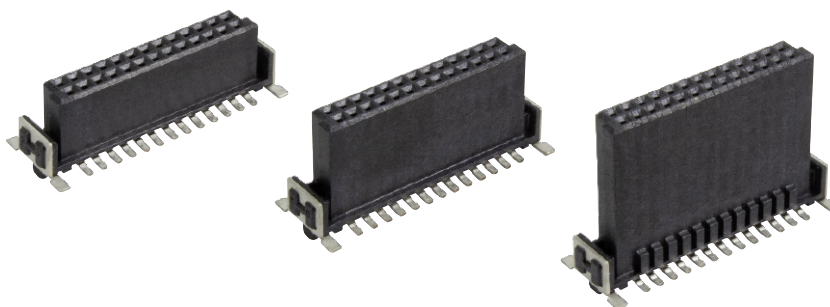
Dimensions



| stacking height<br>Y | height with vacuum cover<br>X |
|----------------------|-------------------------------|
| 1.75                 | 7.6                           |
| 3.25                 | 9.1                           |
| 4.85                 | 10.7                          |

PCB layout



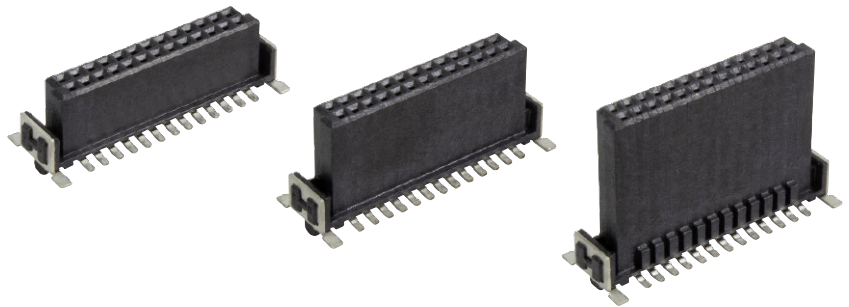


Female connectors, straight, SMT

| Identification   | No. of contacts | Part number         | Dimensions in mm |       |       |       |       |       |
|--|-----------------|---------------------|------------------|-------|-------|-------|-------|-------|
|  |                 |                     | A                | B     | C     | D     | E     | G     |
| Female connector,<br>straight, SMT<br>stacking heights<br>6.25 / 9.05 / 13.65 mm | 6               | 15 2 . 006 2601 ... | 2.54             | 6.96  | 8.89  | 5.56  | 4.56  | 1.19  |
|  | 8               | 15 2 . 008 2601 ... | 3.81             | 8.23  | 10.16 | 6.83  | 5.83  | 1.19  |
|  | 10              | 15 2 . 010 2601 ... | 5.08             | 9.50  | 11.43 | 8.10  | 7.10  | 2.46  |
|  | 12              | 15 2 . 012 2601 ... | 6.35             | 10.77 | 12.70 | 9.37  | 8.37  | 2.46  |
|  | 14              | 15 2 . 014 2601 ... | 7.62             | 12.04 | 13.97 | 10.64 | 9.64  | 3.73  |
|  | 16              | 15 2 . 016 2601 ... | 8.89             | 13.31 | 15.24 | 11.91 | 10.91 | 3.73  |
|  | 18              | 15 2 . 018 2601 ... | 10.16            | 14.58 | 16.51 | 13.18 | 12.18 | 5.00  |
|  | 20              | 15 2 . 020 2601 ... | 11.43            | 15.85 | 17.78 | 14.45 | 13.45 | 5.00  |
|  | 22              | 15 2 . 022 2601 ... | 12.70            | 17.12 | 19.05 | 15.72 | 14.72 | 6.27  |
|  | 24              | 15 2 . 024 2601 ... | 13.97            | 18.39 | 20.32 | 16.99 | 15.99 | 6.27  |
|  | 26              | 15 2 . 026 2601 ... | 15.24            | 19.66 | 21.59 | 18.26 | 17.26 | 7.54  |
|  | 28              | 15 2 . 028 2601 ... | 16.51            | 20.93 | 22.86 | 19.53 | 18.53 | 7.54  |
|  | 30              | 15 2 . 030 2601 ... | 17.78            | 22.20 | 24.13 | 20.80 | 19.80 | 8.81  |
|  | 32              | 15 2 . 032 2601 ... | 19.05            | 23.47 | 25.40 | 22.07 | 21.07 | 8.81  |
|  | 34              | 15 2 . 034 2601 ... | 20.32            | 24.74 | 26.67 | 23.34 | 22.34 | 10.08 |
|  | 36              | 15 2 . 036 2601 ... | 21.59            | 26.01 | 27.94 | 24.61 | 23.61 | 10.08 |
|  | 38              | 15 2 . 038 2601 ... | 22.86            | 27.28 | 29.21 | 25.88 | 24.88 | 11.35 |
|  | 40              | 15 2 . 040 2601 ... | 24.13            | 28.55 | 30.48 | 27.15 | 26.15 | 11.35 |
|  | 42              | 15 2 . 042 2601 ... | 25.40            | 29.82 | 31.75 | 28.42 | 27.42 | 12.62 |
|  | 44              | 15 2 . 044 2601 ... | 26.67            | 31.09 | 33.02 | 29.69 | 28.69 | 12.62 |
|  | 46              | 15 2 . 046 2601 ... | 27.94            | 32.36 | 34.29 | 30.96 | 29.96 | 13.89 |
|  | 48              | 15 2 . 048 2601 ... | 29.21            | 33.63 | 35.56 | 32.23 | 31.23 | 13.89 |
|  | 50              | 15 2 . 050 2601 ... | 30.48            | 34.90 | 36.83 | 33.50 | 32.50 | 15.16 |
|  | 52              | 15 2 . 052 2601 ... | 31.75            | 36.17 | 38.10 | 34.77 | 33.77 | 15.16 |
|  | 54              | 15 2 . 054 2601 ... | 33.02            | 37.44 | 39.37 | 36.04 | 35.04 | 16.43 |
|  | 56              | 15 2 . 056 2601 ... | 34.29            | 38.71 | 40.64 | 37.31 | 36.31 | 16.43 |
|  | 58              | 15 2 . 058 2601 ... | 35.56            | 39.98 | 41.91 | 38.58 | 37.58 | 17.70 |
|  | 60              | 15 2 . 060 2601 ... | 36.83            | 41.25 | 43.18 | 39.85 | 38.85 | 17.70 |
|  | 62              | 15 2 . 062 2601 ... | 38.10            | 42.52 | 44.45 | 41.12 | 40.12 | 18.97 |
|  | 64              | 15 2 . 064 2601 ... | 39.37            | 43.79 | 45.72 | 42.39 | 41.39 | 18.97 |
|  | 66              | 15 2 . 066 2601 ... | 40.64            | 45.06 | 46.99 | 43.66 | 42.66 | 20.24 |
|  | 68              | 15 2 . 068 2601 ... | 41.91            | 46.33 | 48.26 | 44.93 | 43.93 | 20.24 |
|  | 70              | 15 2 . 070 2601 ... | 43.18            | 47.60 | 49.53 | 46.20 | 45.20 | 21.51 |
|  | 72              | 15 2 . 072 2601 ... | 44.45            | 48.87 | 50.80 | 47.47 | 46.47 | 21.51 |
|  | 74              | 15 2 . 074 2601 ... | 45.72            | 50.14 | 52.07 | 48.74 | 47.74 | 22.78 |
|  | 76              | 15 2 . 076 2601 ... | 46.99            | 51.41 | 53.34 | 50.01 | 49.01 | 22.78 |
|  | 78              | 15 2 . 078 2601 ... | 48.26            | 52.68 | 54.61 | 51.28 | 50.28 | 24.05 |
|  | 80              | 15 2 . 080 2601 ... | 49.53            | 53.95 | 55.88 | 52.55 | 51.55 | 24.05 |
|  | 82              | 15 2 . 082 2601 ... | 50.80            | 55.22 | 57.15 | 53.82 | 52.82 | 25.32 |
|  | 84              | 15 2 . 084 2601 ... | 52.07            | 56.49 | 58.42 | 55.09 | 54.09 | 25.32 |
|  | 86              | 15 2 . 086 2601 ... | 53.34            | 57.76 | 59.69 | 56.36 | 55.36 | 26.59 |
|  | 88              | 15 2 . 088 2601 ... | 54.61            | 59.03 | 60.96 | 57.63 | 56.63 | 26.59 |
|  | 90              | 15 2 . 090 2601 ... | 55.88            | 60.30 | 62.23 | 58.90 | 57.90 | 27.86 |
|  | 92              | 15 2 . 092 2601 ... | 57.15            | 61.57 | 63.50 | 60.17 | 59.17 | 27.86 |
|  | 94              | 15 2 . 094 2601 ... | 58.42            | 62.84 | 64.77 | 61.44 | 60.44 | 29.13 |
|  | 96              | 15 2 . 096 2601 ... | 59.69            | 64.11 | 66.04 | 62.71 | 61.71 | 29.13 |
|  | 98              | 15 2 . 098 2601 ... | 60.96            | 65.38 | 67.31 | 63.98 | 62.98 | 30.40 |
|  | 100             | 15 2 . 100 2601 ... | 62.23            | 66.65 | 68.58 | 65.25 | 64.25 | 30.40 |

Please insert digit for stacking height

- 6.25 mm ► 1
- 9.05 mm ► 2
- 13.65 mm ► 3



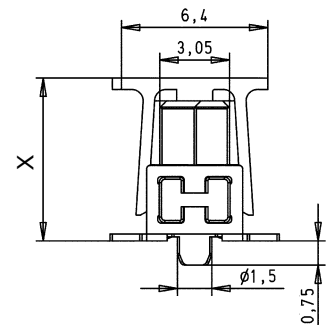
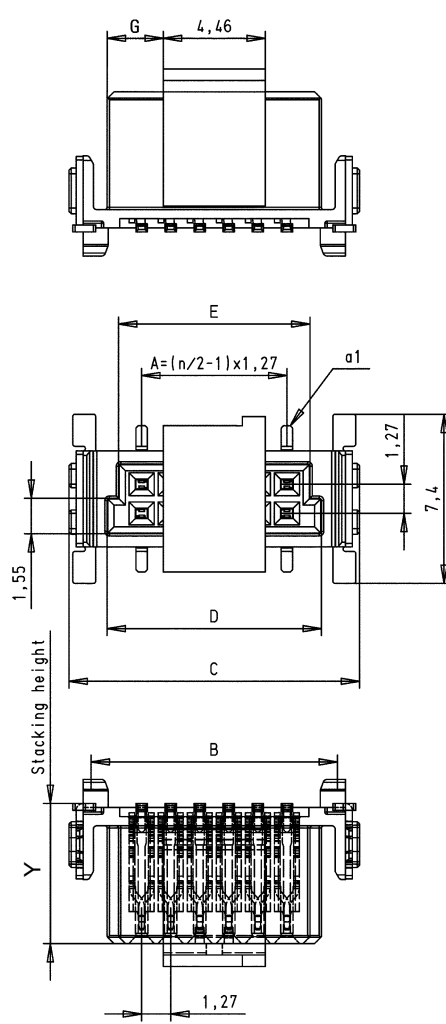
Female connectors, straight, SMT

Identification

Drawing

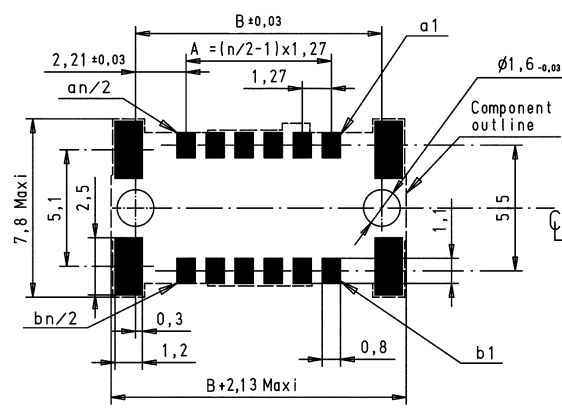
Dimensions in mm

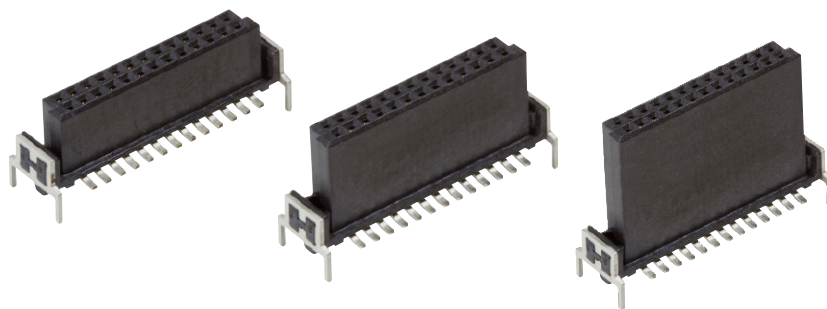
Dimensions



| stacking height<br>Y | height with vacuum cover<br>X |
|----------------------|-------------------------------|
| 6.25                 | 7.1                           |
| 9.05                 | 9.9                           |
| 13.65                | 14.5                          |

PCB layout



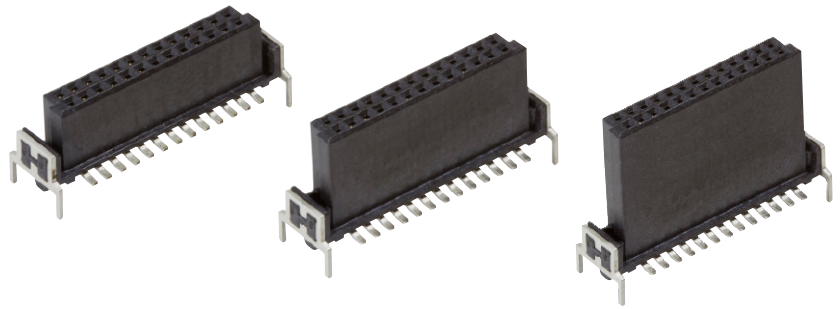


Female connectors, straight, THR

| Identification  | No. of contacts | Part number         | Dimensions in mm |       |       |       |       |       |
|---|-----------------|---------------------|------------------|-------|-------|-------|-------|-------|
|   |                 |                     | A                | B     | C     | D     | E     | G     |
| Female connector, straight, THR stacking heights 6.25 / 9.05 / 13.65 mm | 6               | 15 2 . 006 2401 ... | 2.54             | 6.96  | 8.89  | 5.56  | 4.56  | 1.19  |
|   | 8               | 15 2 . 008 2401 ... | 3.81             | 8.23  | 10.16 | 6.83  | 5.83  | 1.19  |
|   | 10              | 15 2 . 010 2401 ... | 5.08             | 9.50  | 11.43 | 8.10  | 7.10  | 2.46  |
|   | 12              | 15 2 . 012 2401 ... | 6.35             | 10.77 | 12.70 | 9.37  | 8.37  | 2.46  |
|   | 14              | 15 2 . 014 2401 ... | 7.62             | 12.04 | 13.97 | 10.64 | 9.64  | 3.73  |
|   | 16              | 15 2 . 016 2401 ... | 8.89             | 13.31 | 15.24 | 11.91 | 10.91 | 3.73  |
|   | 18              | 15 2 . 018 2401 ... | 10.16            | 14.58 | 16.51 | 13.18 | 12.18 | 5.00  |
|   | 20              | 15 2 . 020 2401 ... | 11.43            | 15.85 | 17.78 | 14.45 | 13.45 | 5.00  |
|   | 22              | 15 2 . 022 2401 ... | 12.70            | 17.12 | 19.05 | 15.72 | 14.72 | 6.27  |
|   | 24              | 15 2 . 024 2401 ... | 13.97            | 18.39 | 20.32 | 16.99 | 15.99 | 6.27  |
|   | 26              | 15 2 . 026 2401 ... | 15.24            | 19.66 | 21.59 | 18.26 | 17.26 | 7.54  |
|   | 28              | 15 2 . 028 2401 ... | 16.51            | 20.93 | 22.86 | 19.53 | 18.53 | 7.54  |
|   | 30              | 15 2 . 030 2401 ... | 17.78            | 22.20 | 24.13 | 20.80 | 19.80 | 8.81  |
|   | 32              | 15 2 . 032 2401 ... | 19.05            | 23.47 | 25.40 | 22.07 | 21.07 | 8.81  |
|   | 34              | 15 2 . 034 2401 ... | 20.32            | 24.74 | 26.67 | 23.34 | 22.34 | 10.08 |
|   | 36              | 15 2 . 036 2401 ... | 21.59            | 26.01 | 27.94 | 24.61 | 23.61 | 10.08 |
|   | 38              | 15 2 . 038 2401 ... | 22.86            | 27.28 | 29.21 | 25.88 | 24.88 | 11.35 |
|   | 40              | 15 2 . 040 2401 ... | 24.13            | 28.55 | 30.48 | 27.15 | 26.15 | 11.35 |
|   | 42              | 15 2 . 042 2401 ... | 25.40            | 29.82 | 31.75 | 28.42 | 27.42 | 12.62 |
|   | 44              | 15 2 . 044 2401 ... | 26.67            | 31.09 | 33.02 | 29.69 | 28.69 | 12.62 |
|   | 46              | 15 2 . 046 2401 ... | 27.94            | 32.36 | 34.29 | 30.96 | 29.96 | 13.89 |
|   | 48              | 15 2 . 048 2401 ... | 29.21            | 33.63 | 35.56 | 32.23 | 31.23 | 13.89 |
|   | 50              | 15 2 . 050 2401 ... | 30.48            | 34.90 | 36.83 | 33.50 | 32.50 | 15.16 |
|   | 52              | 15 2 . 052 2401 ... | 31.75            | 36.17 | 38.10 | 34.77 | 33.77 | 15.16 |
|   | 54              | 15 2 . 054 2401 ... | 33.02            | 37.44 | 39.37 | 36.04 | 35.04 | 16.43 |
|   | 56              | 15 2 . 056 2401 ... | 34.29            | 38.71 | 40.64 | 37.31 | 36.31 | 16.43 |
|   | 58              | 15 2 . 058 2401 ... | 35.56            | 39.98 | 41.91 | 38.58 | 37.58 | 17.70 |
|   | 60              | 15 2 . 060 2401 ... | 36.83            | 41.25 | 43.18 | 39.85 | 38.85 | 17.70 |
|   | 62              | 15 2 . 062 2401 ... | 38.10            | 42.52 | 44.45 | 41.12 | 40.12 | 18.97 |
|   | 64              | 15 2 . 064 2401 ... | 39.37            | 43.79 | 45.72 | 42.39 | 41.39 | 18.97 |
|   | 66              | 15 2 . 066 2401 ... | 40.64            | 45.06 | 46.99 | 43.66 | 42.66 | 20.24 |
|   | 68              | 15 2 . 068 2401 ... | 41.91            | 46.33 | 48.26 | 44.93 | 43.93 | 20.24 |
|   | 70              | 15 2 . 070 2401 ... | 43.18            | 47.60 | 49.53 | 46.20 | 45.20 | 21.51 |
|   | 72              | 15 2 . 072 2401 ... | 44.45            | 48.87 | 50.80 | 47.47 | 46.47 | 21.51 |
|   | 74              | 15 2 . 074 2401 ... | 45.72            | 50.14 | 52.07 | 48.74 | 47.74 | 22.78 |
|   | 76              | 15 2 . 076 2401 ... | 46.99            | 51.41 | 53.34 | 50.01 | 49.01 | 22.78 |
|   | 78              | 15 2 . 078 2401 ... | 48.26            | 52.68 | 54.61 | 51.28 | 50.28 | 24.05 |
|   | 80              | 15 2 . 080 2401 ... | 49.53            | 53.95 | 55.88 | 52.55 | 51.55 | 24.05 |
|   | 82              | 15 2 . 082 2401 ... | 50.80            | 55.22 | 57.15 | 53.82 | 52.82 | 25.32 |
|   | 84              | 15 2 . 084 2401 ... | 52.07            | 56.49 | 58.42 | 55.09 | 54.09 | 25.32 |
|   | 86              | 15 2 . 086 2401 ... | 53.34            | 57.76 | 59.69 | 56.36 | 55.36 | 26.59 |
|   | 88              | 15 2 . 088 2401 ... | 54.61            | 59.03 | 60.96 | 57.63 | 56.63 | 26.59 |
|   | 90              | 15 2 . 090 2401 ... | 55.88            | 60.30 | 62.23 | 58.90 | 57.90 | 27.86 |
|   | 92              | 15 2 . 092 2401 ... | 57.15            | 61.57 | 63.50 | 60.17 | 59.17 | 27.86 |
|   | 94              | 15 2 . 094 2401 ... | 58.42            | 62.84 | 64.77 | 61.44 | 60.44 | 29.13 |
|   | 96              | 15 2 . 096 2401 ... | 59.69            | 64.11 | 66.04 | 62.71 | 61.71 | 29.13 |
|   | 98              | 15 2 . 098 2401 ... | 60.96            | 65.38 | 67.31 | 63.98 | 62.98 | 30.40 |
|   | 100             | 15 2 . 100 2401 ... | 62.23            | 66.65 | 68.58 | 65.25 | 64.25 | 30.40 |

Please insert digit for stacking height

- 6.25 mm ► 1
- 9.05 mm ► 2
- 13.65 mm ► 3



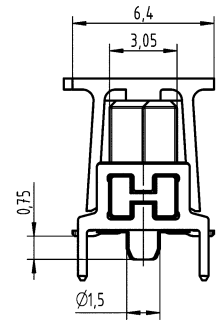
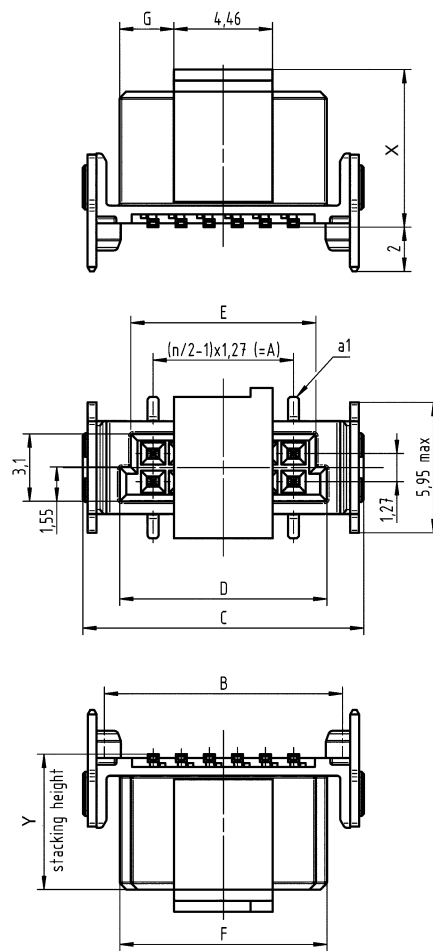
Female connectors, straight, THR

Identification

Drawing

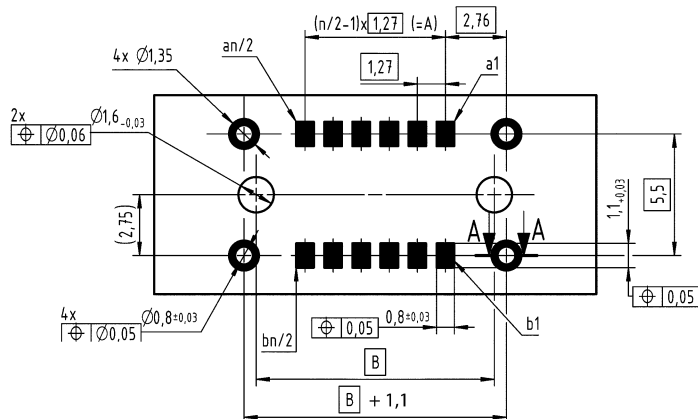
Dimensions in mm

Dimensions



| stacking height<br>Y | height with vacuum cover<br>X |
|----------------------|-------------------------------|
| 6.25                 | 7.1                           |
| 9.05                 | 9.9                           |
| 13.65                | 14.5                          |

PCB layout





Male connectors, angled, SMT

| Identification              | No. of contacts    | Part number        | Dimensions in mm |       |       |       |       |
|-----------------------------|--------------------|--------------------|------------------|-------|-------|-------|-------|
|                             |                    |                    | A                | B     | C     | D     | E     |
| Male connector, angled, SMT | 6                  | 15 15 006 2601 ... | 2.54             | 6.96  | 8.89  | 5.76  | 4.76  |
|                             | 8                  | 15 15 008 2601 ... | 3.81             | 8.23  | 10.16 | 7.03  | 6.03  |
|                             | 10                 | 15 15 010 2601 ... | 5.08             | 9.50  | 11.43 | 8.30  | 7.30  |
|                             | 12                 | 15 15 012 2601 ... | 6.35             | 10.77 | 12.70 | 9.57  | 8.57  |
|                             | 14                 | 15 15 014 2601 ... | 7.62             | 12.04 | 13.97 | 10.84 | 9.84  |
|                             | 16                 | 15 15 016 2601 ... | 8.89             | 13.31 | 15.24 | 12.11 | 11.11 |
|                             | 18                 | 15 15 018 2601 ... | 10.16            | 14.58 | 16.51 | 13.38 | 12.38 |
|                             | 20                 | 15 15 020 2601 ... | 11.43            | 15.85 | 17.78 | 14.65 | 13.65 |
|                             | 22                 | 15 15 022 2601 ... | 12.70            | 17.12 | 19.05 | 15.92 | 14.92 |
|                             | 24                 | 15 15 024 2601 ... | 13.97            | 18.39 | 20.32 | 17.19 | 16.19 |
|                             | 26                 | 15 15 026 2601 ... | 15.24            | 19.66 | 21.59 | 18.46 | 17.46 |
|                             | 28                 | 15 15 028 2601 ... | 16.51            | 20.93 | 22.86 | 19.73 | 18.73 |
|                             | 30                 | 15 15 030 2601 ... | 17.78            | 22.20 | 24.13 | 21.00 | 20.00 |
|                             | 32                 | 15 15 032 2601 ... | 19.05            | 23.47 | 25.40 | 22.27 | 21.27 |
|                             | 34                 | 15 15 034 2601 ... | 20.32            | 24.74 | 26.67 | 23.54 | 22.54 |
|                             | 36                 | 15 15 036 2601 ... | 21.59            | 26.01 | 27.94 | 24.81 | 23.81 |
|                             | 38                 | 15 15 038 2601 ... | 22.86            | 27.28 | 29.21 | 26.08 | 25.08 |
|                             | 40                 | 15 15 040 2601 ... | 24.13            | 28.55 | 30.48 | 27.35 | 26.35 |
|                             | 42                 | 15 15 042 2601 ... | 25.40            | 29.82 | 31.75 | 28.62 | 27.62 |
|                             | 44                 | 15 15 044 2601 ... | 26.67            | 31.09 | 33.02 | 29.89 | 28.89 |
|                             | 46                 | 15 15 046 2601 ... | 27.94            | 32.36 | 34.29 | 31.16 | 30.16 |
|                             | 48                 | 15 15 048 2601 ... | 29.21            | 33.63 | 35.56 | 32.43 | 31.43 |
|                             | 50                 | 15 15 050 2601 ... | 30.48            | 34.90 | 36.83 | 33.70 | 32.70 |
|                             | 52                 | 15 15 052 2601 ... | 31.75            | 36.17 | 38.10 | 34.97 | 33.97 |
|                             | 54                 | 15 15 054 2601 ... | 33.02            | 37.44 | 39.37 | 36.24 | 35.24 |
|                             | 56                 | 15 15 056 2601 ... | 34.29            | 38.71 | 40.64 | 37.51 | 36.51 |
|                             | 58                 | 15 15 058 2601 ... | 35.56            | 39.98 | 41.91 | 38.78 | 37.78 |
|                             | 60                 | 15 15 060 2601 ... | 36.83            | 41.25 | 43.18 | 40.05 | 39.05 |
| 62                          | 15 15 062 2601 ... | 38.10              | 42.52            | 44.45 | 41.32 | 40.32 |       |
| 64                          | 15 15 064 2601 ... | 39.37              | 43.79            | 45.72 | 42.59 | 41.59 |       |
| 66                          | 15 15 066 2601 ... | 40.64              | 45.06            | 46.99 | 43.86 | 42.86 |       |
| 68                          | 15 15 068 2601 ... | 41.91              | 46.33            | 48.26 | 45.13 | 44.13 |       |
| 70                          | 15 15 070 2601 ... | 43.18              | 47.60            | 49.53 | 46.40 | 45.40 |       |
| 72                          | 15 15 072 2601 ... | 44.45              | 48.87            | 50.80 | 47.67 | 46.67 |       |
| 74                          | 15 15 074 2601 ... | 45.72              | 50.14            | 52.07 | 48.94 | 47.94 |       |
| 76                          | 15 15 076 2601 ... | 46.99              | 51.41            | 53.34 | 50.21 | 49.21 |       |
| 78                          | 15 15 078 2601 ... | 48.26              | 52.68            | 54.61 | 51.48 | 50.48 |       |
| 80                          | 15 15 080 2601 ... | 49.53              | 53.95            | 55.88 | 52.75 | 51.75 |       |
| 82                          | 15 15 082 2601 ... | 50.80              | 55.22            | 57.15 | 54.02 | 53.02 |       |
| 84                          | 15 15 084 2601 ... | 52.07              | 56.49            | 58.42 | 55.29 | 54.29 |       |
| 86                          | 15 15 086 2601 ... | 53.34              | 57.76            | 59.69 | 56.56 | 55.56 |       |
| 88                          | 15 15 088 2601 ... | 54.61              | 59.03            | 60.96 | 57.83 | 56.83 |       |
| 90                          | 15 15 090 2601 ... | 55.88              | 60.30            | 62.23 | 59.10 | 58.10 |       |
| 92                          | 15 15 092 2601 ... | 57.15              | 61.57            | 63.50 | 60.37 | 59.37 |       |
| 94                          | 15 15 094 2601 ... | 58.42              | 62.84            | 64.77 | 61.64 | 60.64 |       |
| 96                          | 15 15 096 2601 ... | 59.69              | 64.11            | 66.04 | 62.91 | 61.91 |       |
| 98                          | 15 15 098 2601 ... | 60.96              | 65.38            | 67.31 | 64.18 | 63.18 |       |
| 100                         | 15 15 100 2601 ... | 62.23              | 66.65            | 68.58 | 65.45 | 64.45 |       |

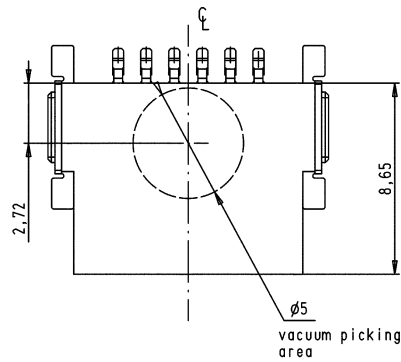
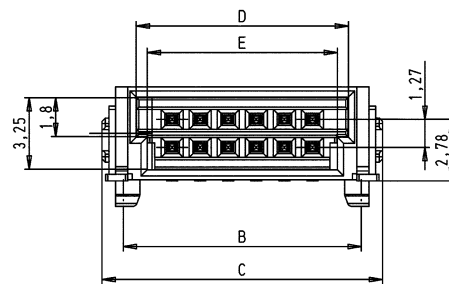
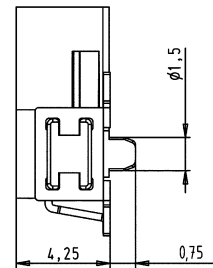
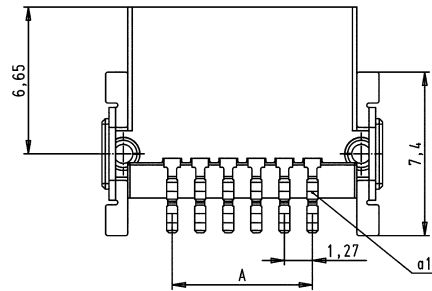
har-flex



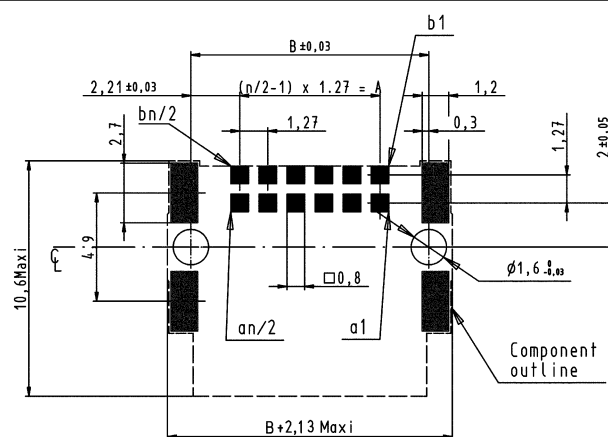
Male connectors, angled, SMT

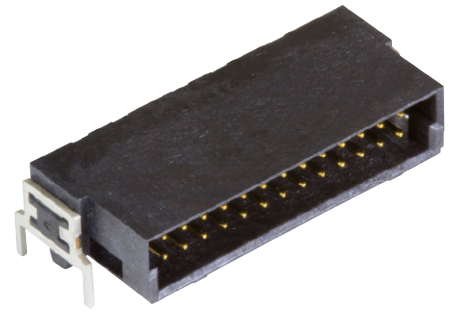
Identification Drawing Dimensions in mm

Dimensions



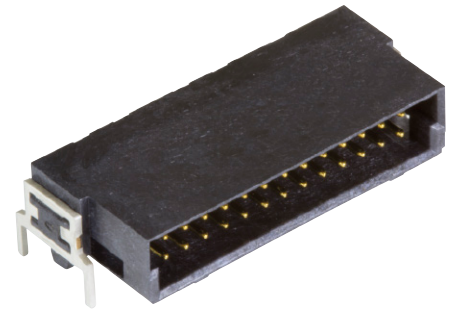
PCB layout





Male connectors, angled, THR

| Identification              | No. of contacts | Part number        | Dimensions in mm |       |       |       |       |
|-----------------------------|-----------------|--------------------|------------------|-------|-------|-------|-------|
|                             |                 |                    | A                | B     | C     | D     | E     |
| Male connector, angled, THR | 6               | 15 15 006 2401 ... | 2.54             | 6.96  | 8.89  | 5.76  | 4.76  |
|                             | 8               | 15 15 008 2401 ... | 3.81             | 8.23  | 10.16 | 7.03  | 6.03  |
|                             | 10              | 15 15 010 2401 ... | 5.08             | 9.50  | 11.43 | 8.30  | 7.30  |
|                             | 12              | 15 15 012 2401 ... | 6.35             | 10.77 | 12.70 | 9.57  | 8.57  |
|                             | 14              | 15 15 014 2401 ... | 7.62             | 12.04 | 13.97 | 10.84 | 9.84  |
|                             | 16              | 15 15 016 2401 ... | 8.89             | 13.31 | 15.24 | 12.11 | 11.11 |
|                             | 18              | 15 15 018 2401 ... | 10.16            | 14.58 | 16.51 | 13.38 | 12.38 |
|                             | 20              | 15 15 020 2401 ... | 11.43            | 15.85 | 17.78 | 14.65 | 13.65 |
|                             | 22              | 15 15 022 2401 ... | 12.70            | 17.12 | 19.05 | 15.92 | 14.92 |
|                             | 24              | 15 15 024 2401 ... | 13.97            | 18.39 | 20.32 | 17.19 | 16.19 |
|                             | 26              | 15 15 026 2401 ... | 15.24            | 19.66 | 21.59 | 18.46 | 17.46 |
|                             | 28              | 15 15 028 2401 ... | 16.51            | 20.93 | 22.86 | 19.73 | 18.73 |
|                             | 30              | 15 15 030 2401 ... | 17.78            | 22.20 | 24.13 | 21.00 | 20.00 |
|                             | 32              | 15 15 032 2401 ... | 19.05            | 23.47 | 25.40 | 22.27 | 21.27 |
|                             | 34              | 15 15 034 2401 ... | 20.32            | 24.74 | 26.67 | 23.54 | 22.54 |
|                             | 36              | 15 15 036 2401 ... | 21.59            | 26.01 | 27.94 | 24.81 | 23.81 |
|                             | 38              | 15 15 038 2401 ... | 22.86            | 27.28 | 29.21 | 26.08 | 25.08 |
|                             | 40              | 15 15 040 2401 ... | 24.13            | 28.55 | 30.48 | 27.35 | 26.35 |
|                             | 42              | 15 15 042 2401 ... | 25.40            | 29.82 | 31.75 | 28.62 | 27.62 |
|                             | 44              | 15 15 044 2401 ... | 26.67            | 31.09 | 33.02 | 29.89 | 28.89 |
|                             | 46              | 15 15 046 2401 ... | 27.94            | 32.36 | 34.29 | 31.16 | 30.16 |
|                             | 48              | 15 15 048 2401 ... | 29.21            | 33.63 | 35.56 | 32.43 | 31.43 |
|                             | 50              | 15 15 050 2401 ... | 30.48            | 34.90 | 36.83 | 33.70 | 32.70 |
|                             | 52              | 15 15 052 2401 ... | 31.75            | 36.17 | 38.10 | 34.97 | 33.97 |
|                             | 54              | 15 15 054 2401 ... | 33.02            | 37.44 | 39.37 | 36.24 | 35.24 |
|                             | 56              | 15 15 056 2401 ... | 34.29            | 38.71 | 40.64 | 37.51 | 36.51 |
|                             | 58              | 15 15 058 2401 ... | 35.56            | 39.98 | 41.91 | 38.78 | 37.78 |
|                             | 60              | 15 15 060 2401 ... | 36.83            | 41.25 | 43.18 | 40.05 | 39.05 |
|                             | 62              | 15 15 062 2401 ... | 38.10            | 42.52 | 44.45 | 41.32 | 40.32 |
|                             | 64              | 15 15 064 2401 ... | 39.37            | 43.79 | 45.72 | 42.59 | 41.59 |
|                             | 66              | 15 15 066 2401 ... | 40.64            | 45.06 | 46.99 | 43.86 | 42.86 |
|                             | 68              | 15 15 068 2401 ... | 41.91            | 46.33 | 48.26 | 45.13 | 44.13 |
|                             | 70              | 15 15 070 2401 ... | 43.18            | 47.60 | 49.53 | 46.40 | 45.40 |
|                             | 72              | 15 15 072 2401 ... | 44.45            | 48.87 | 50.80 | 47.67 | 46.67 |
|                             | 74              | 15 15 074 2401 ... | 45.72            | 50.14 | 52.07 | 48.94 | 47.94 |
|                             | 76              | 15 15 076 2401 ... | 46.99            | 51.41 | 53.34 | 50.21 | 49.21 |
|                             | 78              | 15 15 078 2401 ... | 48.26            | 52.68 | 54.61 | 51.48 | 50.48 |
|                             | 80              | 15 15 080 2401 ... | 49.53            | 53.95 | 55.88 | 52.75 | 51.75 |
|                             | 82              | 15 15 082 2401 ... | 50.80            | 55.22 | 57.15 | 54.02 | 53.02 |
|                             | 84              | 15 15 084 2401 ... | 52.07            | 56.49 | 58.42 | 55.29 | 54.29 |
|                             | 86              | 15 15 086 2401 ... | 53.34            | 57.76 | 59.69 | 56.56 | 55.56 |
|                             | 88              | 15 15 088 2401 ... | 54.61            | 59.03 | 60.96 | 57.83 | 56.83 |
|                             | 90              | 15 15 090 2401 ... | 55.88            | 60.30 | 62.23 | 59.10 | 58.10 |
|                             | 92              | 15 15 092 2401 ... | 57.15            | 61.57 | 63.50 | 60.37 | 59.37 |
|                             | 94              | 15 15 094 2401 ... | 58.42            | 62.84 | 64.77 | 61.64 | 60.64 |
|                             | 96              | 15 15 096 2401 ... | 59.69            | 64.11 | 66.04 | 62.91 | 61.91 |
|                             | 98              | 15 15 098 2401 ... | 60.96            | 65.38 | 67.31 | 64.18 | 63.18 |
|                             | 100             | 15 15 100 2401 ... | 62.23            | 66.65 | 68.58 | 65.45 | 64.45 |



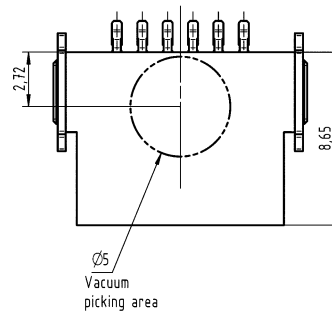
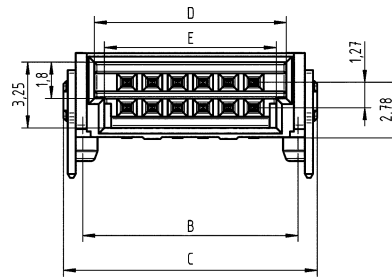
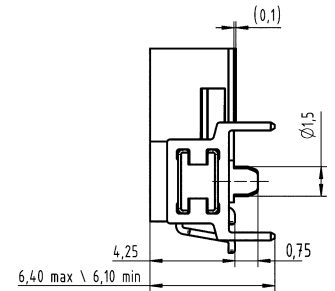
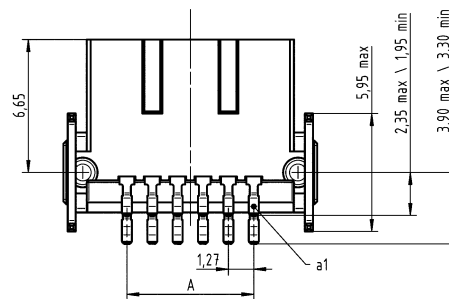
Male connectors, angled, THR

Identification

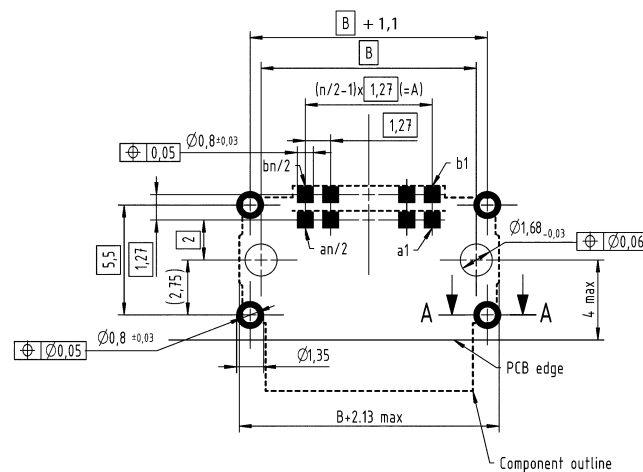
Drawing

Dimensions in mm

Dimensions



PCB layout





Female connectors, angled, SMT

| Identification                | No. of contacts    | Part number        | Dimensions in mm |       |       |       |       |
|-------------------------------|--------------------|--------------------|------------------|-------|-------|-------|-------|
|                               |                    |                    | A                | B     | C     | D     | E     |
| Female connector, angled, SMT | 6                  | 15 25 006 2601 ... | 2.54             | 6.96  | 8.89  | 5.56  | 4.56  |
|                               | 8                  | 15 25 008 2601 ... | 3.81             | 8.23  | 10.16 | 6.83  | 5.83  |
|                               | 10                 | 15 25 010 2601 ... | 5.08             | 9.50  | 11.43 | 8.10  | 7.10  |
|                               | 12                 | 15 25 012 2601 ... | 6.35             | 10.77 | 12.70 | 9.37  | 8.37  |
|                               | 14                 | 15 25 014 2601 ... | 7.62             | 12.04 | 13.97 | 10.64 | 9.64  |
|                               | 16                 | 15 25 016 2601 ... | 8.89             | 13.31 | 15.24 | 11.91 | 10.91 |
|                               | 18                 | 15 25 018 2601 ... | 10.16            | 14.58 | 16.51 | 13.18 | 12.18 |
|                               | 20                 | 15 25 020 2601 ... | 11.43            | 15.85 | 17.78 | 14.45 | 13.45 |
|                               | 22                 | 15 25 022 2601 ... | 12.70            | 17.12 | 19.05 | 15.72 | 14.72 |
|                               | 24                 | 15 25 024 2601 ... | 13.97            | 18.39 | 20.32 | 16.99 | 15.99 |
|                               | 26                 | 15 25 026 2601 ... | 15.24            | 19.66 | 21.59 | 18.26 | 17.26 |
|                               | 28                 | 15 25 028 2601 ... | 16.51            | 20.93 | 22.86 | 19.53 | 18.53 |
|                               | 30                 | 15 25 030 2601 ... | 17.78            | 22.20 | 24.13 | 20.80 | 19.80 |
|                               | 32                 | 15 25 032 2601 ... | 19.05            | 23.47 | 25.40 | 22.07 | 21.07 |
|                               | 34                 | 15 25 034 2601 ... | 20.32            | 24.74 | 26.67 | 23.34 | 22.34 |
|                               | 36                 | 15 25 036 2601 ... | 21.59            | 26.01 | 27.94 | 24.61 | 23.61 |
|                               | 38                 | 15 25 038 2601 ... | 22.86            | 27.28 | 29.21 | 25.88 | 24.88 |
|                               | 40                 | 15 25 040 2601 ... | 24.13            | 28.55 | 30.48 | 27.15 | 26.15 |
|                               | 42                 | 15 25 042 2601 ... | 25.40            | 29.82 | 31.75 | 28.42 | 27.42 |
|                               | 44                 | 15 25 044 2601 ... | 26.67            | 31.09 | 33.02 | 29.69 | 28.69 |
|                               | 46                 | 15 25 046 2601 ... | 27.94            | 32.36 | 34.29 | 30.96 | 29.96 |
|                               | 48                 | 15 25 048 2601 ... | 29.21            | 33.63 | 35.56 | 32.23 | 31.23 |
|                               | 50                 | 15 25 050 2601 ... | 30.48            | 34.90 | 36.83 | 33.50 | 32.50 |
|                               | 52                 | 15 25 052 2601 ... | 31.75            | 36.17 | 38.10 | 34.77 | 33.77 |
|                               | 54                 | 15 25 054 2601 ... | 33.02            | 37.44 | 39.37 | 36.04 | 35.04 |
|                               | 56                 | 15 25 056 2601 ... | 34.29            | 38.71 | 40.64 | 37.31 | 36.31 |
|                               | 58                 | 15 25 058 2601 ... | 35.56            | 39.98 | 41.91 | 38.58 | 37.58 |
|                               | 60                 | 15 25 060 2601 ... | 36.83            | 41.25 | 43.18 | 39.85 | 38.85 |
|                               | 62                 | 15 25 062 2601 ... | 38.10            | 42.52 | 44.45 | 41.12 | 40.12 |
|                               | 64                 | 15 25 064 2601 ... | 39.37            | 43.79 | 45.72 | 42.39 | 41.39 |
|                               | 66                 | 15 25 066 2601 ... | 40.64            | 45.06 | 46.99 | 43.66 | 42.66 |
|                               | 68                 | 15 25 068 2601 ... | 41.91            | 46.33 | 48.26 | 44.93 | 43.93 |
|                               | 70                 | 15 25 070 2601 ... | 43.18            | 47.60 | 49.53 | 46.20 | 45.20 |
| 72                            | 15 25 072 2601 ... | 44.45              | 48.87            | 50.80 | 47.47 | 46.47 |       |
| 74                            | 15 25 074 2601 ... | 45.72              | 50.14            | 52.07 | 48.74 | 47.74 |       |
| 76                            | 15 25 076 2601 ... | 46.99              | 51.41            | 53.34 | 50.01 | 49.01 |       |
| 78                            | 15 25 078 2601 ... | 48.26              | 52.68            | 54.61 | 51.28 | 50.28 |       |
| 80                            | 15 25 080 2601 ... | 49.53              | 53.95            | 55.88 | 52.55 | 51.55 |       |
| 82                            | 15 25 082 2601 ... | 50.80              | 55.22            | 57.15 | 53.82 | 52.82 |       |
| 84                            | 15 25 084 2601 ... | 52.07              | 56.49            | 58.42 | 55.09 | 54.09 |       |
| 86                            | 15 25 086 2601 ... | 53.34              | 57.76            | 59.69 | 56.36 | 55.36 |       |
| 88                            | 15 25 088 2601 ... | 54.61              | 59.03            | 60.96 | 57.63 | 56.63 |       |
| 90                            | 15 25 090 2601 ... | 55.88              | 60.30            | 62.23 | 58.90 | 57.90 |       |
| 92                            | 15 25 092 2601 ... | 57.15              | 61.57            | 63.50 | 60.17 | 59.17 |       |
| 94                            | 15 25 094 2601 ... | 58.42              | 62.84            | 64.77 | 61.44 | 60.44 |       |
| 96                            | 15 25 096 2601 ... | 59.69              | 64.11            | 66.04 | 62.71 | 61.71 |       |
| 98                            | 15 25 098 2601 ... | 60.96              | 65.38            | 67.31 | 63.98 | 62.98 |       |
| 100                           | 15 25 100 2601 ... | 62.23              | 66.65            | 68.58 | 65.25 | 64.25 |       |

har-flex



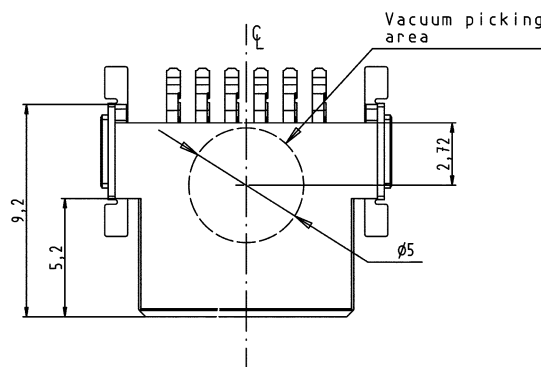
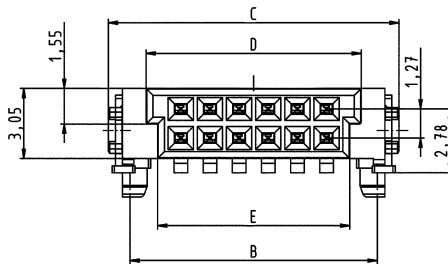
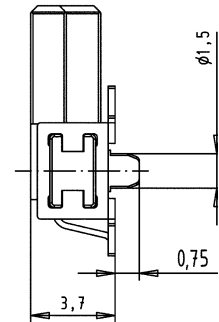
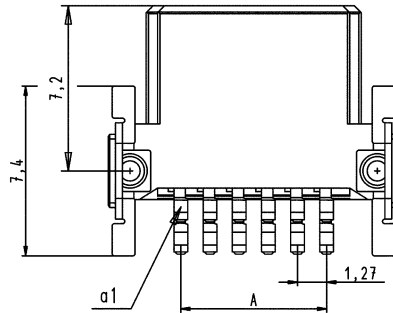
Female connectors, angled, SMT

Identification

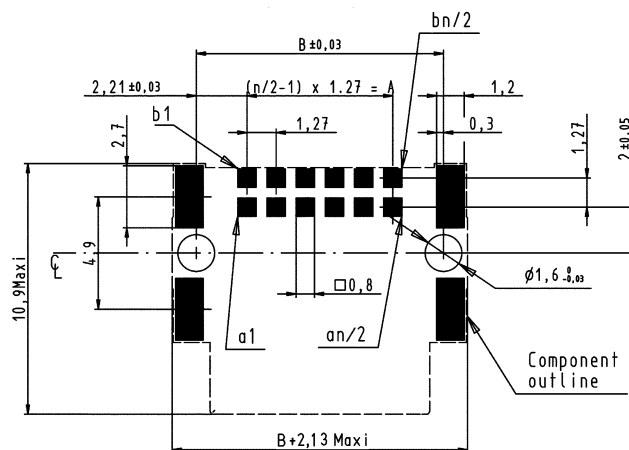
Drawing

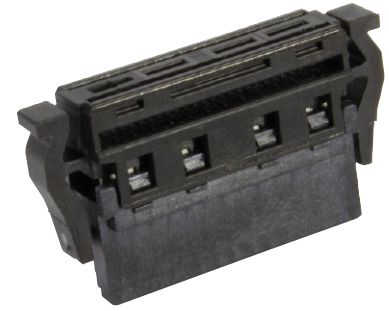
Dimensions in mm

Dimensions



PCB layout

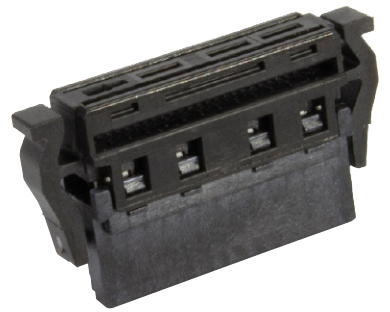




Female connectors, IDC

| Identification                            | Number of contacts  | Part No.            | Dimensions in mm |       |       |       |       |
|---|---------------------|---------------------|------------------|-------|-------|-------|-------|
|   |                     |                     | A                | B     | C     | D     | E     |
| Female connector, IDC in a tray packaging | 6                   | 15 29 006 250 . 000 | 2.54             | 11.59 | 5.56  | 4.56  | 15.00 |
|   | 8                   | 15 29 008 250 . 000 | 3.81             | 12.86 | 6.83  | 5.83  | 15.00 |
|   | 10                  | 15 29 010 250 . 000 | 5.08             | 14.13 | 8.10  | 7.10  | 15.00 |
|   | 12                  | 15 29 012 250 . 000 | 6.35             | 15.40 | 9.37  | 8.37  | 15.00 |
|   | 14                  | 15 29 014 250 . 000 | 7.62             | 16.67 | 10.64 | 9.64  | 15.00 |
|   | 16                  | 15 29 016 250 . 000 | 8.89             | 17.94 | 11.91 | 10.91 | 15.00 |
|   | 18                  | 15 29 018 250 . 000 | 10.16            | 19.21 | 13.18 | 12.18 | 15.00 |
|   | 20                  | 15 29 020 250 . 000 | 11.43            | 20.48 | 14.45 | 13.45 | 15.00 |
|   | 22                  | 15 29 022 250 . 000 | 12.70            | 21.75 | 15.72 | 14.72 | 15.00 |
|   | 24                  | 15 29 024 250 . 000 | 13.97            | 23.02 | 16.99 | 15.99 | 15.00 |
|   | 26                  | 15 29 026 250 . 000 | 15.24            | 24.29 | 18.26 | 17.26 | 15.00 |
|   | 28                  | 15 29 028 250 . 000 | 16.51            | 25.56 | 19.53 | 18.53 | 15.00 |
|   | 30                  | 15 29 030 250 . 000 | 17.78            | 26.83 | 20.80 | 19.80 | 15.00 |
|   | 32                  | 15 29 032 250 . 000 | 19.05            | 28.10 | 22.07 | 21.07 | 15.00 |
|   | 34                  | 15 29 034 250 . 000 | 20.32            | 29.37 | 23.34 | 22.34 | 15.00 |
|   | 36                  | 15 29 036 250 . 000 | 21.59            | 30.64 | 24.61 | 23.61 | 15.00 |
|   | 38                  | 15 29 038 250 . 000 | 22.86            | 31.91 | 25.88 | 24.88 | 15.00 |
|   | 40                  | 15 29 040 250 . 000 | 24.13            | 33.18 | 27.15 | 26.15 | 15.00 |
|   | 42                  | 15 29 042 250 . 000 | 25.40            | 34.45 | 28.42 | 27.42 | 15.00 |
|   | 44                  | 15 29 044 250 . 000 | 26.67            | 35.72 | 29.69 | 28.69 | 15.00 |
|   | 46                  | 15 29 046 250 . 000 | 27.94            | 36.99 | 30.96 | 29.96 | 15.00 |
|   | 48                  | 15 29 048 250 . 000 | 29.21            | 38.26 | 32.23 | 31.23 | 15.00 |
|   | 50                  | 15 29 050 250 . 000 | 30.48            | 39.53 | 33.50 | 32.50 | 15.00 |
|   | 52                  | 15 29 052 250 . 000 | 31.75            | 40.80 | 34.77 | 33.77 | 15.00 |
|   | 54                  | 15 29 054 250 . 000 | 33.02            | 42.07 | 36.04 | 35.04 | 15.00 |
|   | 56                  | 15 29 056 250 . 000 | 34.29            | 43.34 | 37.31 | 36.31 | 15.00 |
|   | 58                  | 15 29 058 250 . 000 | 35.56            | 44.61 | 38.58 | 37.58 | 15.00 |
|   | 60                  | 15 29 060 250 . 000 | 36.83            | 45.88 | 39.85 | 38.85 | 16.20 |
|   | 62                  | 15 29 062 250 . 000 | 38.10            | 47.15 | 41.12 | 40.12 | 16.20 |
|   | 64                  | 15 29 064 250 . 000 | 39.37            | 48.42 | 42.39 | 41.39 | 16.20 |
|   | 66                  | 15 29 066 250 . 000 | 40.64            | 49.69 | 43.66 | 42.66 | 16.20 |
|   | 68                  | 15 29 068 250 . 000 | 41.91            | 50.96 | 44.93 | 43.93 | 16.20 |
|   | 70                  | 15 29 070 250 . 000 | 43.18            | 52.23 | 46.20 | 45.20 | 16.20 |
|   | 72                  | 15 29 072 250 . 000 | 44.45            | 53.50 | 47.47 | 46.47 | 16.20 |
|   | 74                  | 15 29 074 250 . 000 | 45.72            | 54.77 | 48.74 | 47.74 | 16.20 |
|   | 76                  | 15 29 076 250 . 000 | 46.99            | 56.04 | 50.01 | 49.01 | 16.20 |
|   | 78                  | 15 29 078 250 . 000 | 48.26            | 57.31 | 51.28 | 50.28 | 16.20 |
| 80  | 15 29 080 250 . 000 | 49.53               | 58.58            | 52.55 | 51.55 | 16.20 |       |
| 82  | 15 29 082 250 . 000 | 50.80               | 59.85            | 53.82 | 52.82 | 16.20 |       |
| 84  | 15 29 084 250 . 000 | 52.07               | 61.12            | 55.09 | 54.09 | 16.20 |       |
| 86  | 15 29 086 250 . 000 | 53.34               | 62.39            | 56.36 | 55.36 | 16.20 |       |
| 88  | 15 29 088 250 . 000 | 54.61               | 63.66            | 57.63 | 56.63 | 16.20 |       |
| 90  | 15 29 090 250 . 000 | 55.88               | 64.93            | 58.90 | 57.90 | 16.20 |       |
| 92  | 15 29 092 250 . 000 | 57.15               | 66.20            | 60.17 | 59.17 | 16.20 |       |
| 94  | 15 29 094 250 . 000 | 58.42               | 67.47            | 61.44 | 60.44 | 16.20 |       |
| 96  | 15 29 096 250 . 000 | 59.69               | 68.74            | 62.71 | 61.71 | 16.20 |       |
| 98  | 15 29 098 250 . 000 | 60.96               | 70.01            | 63.98 | 62.98 | 16.20 |       |
| 100                                       | 15 29 100 250 . 000 | 62.23               | 71.28            | 65.25 | 64.25 | 16.20 |       |

har:lex



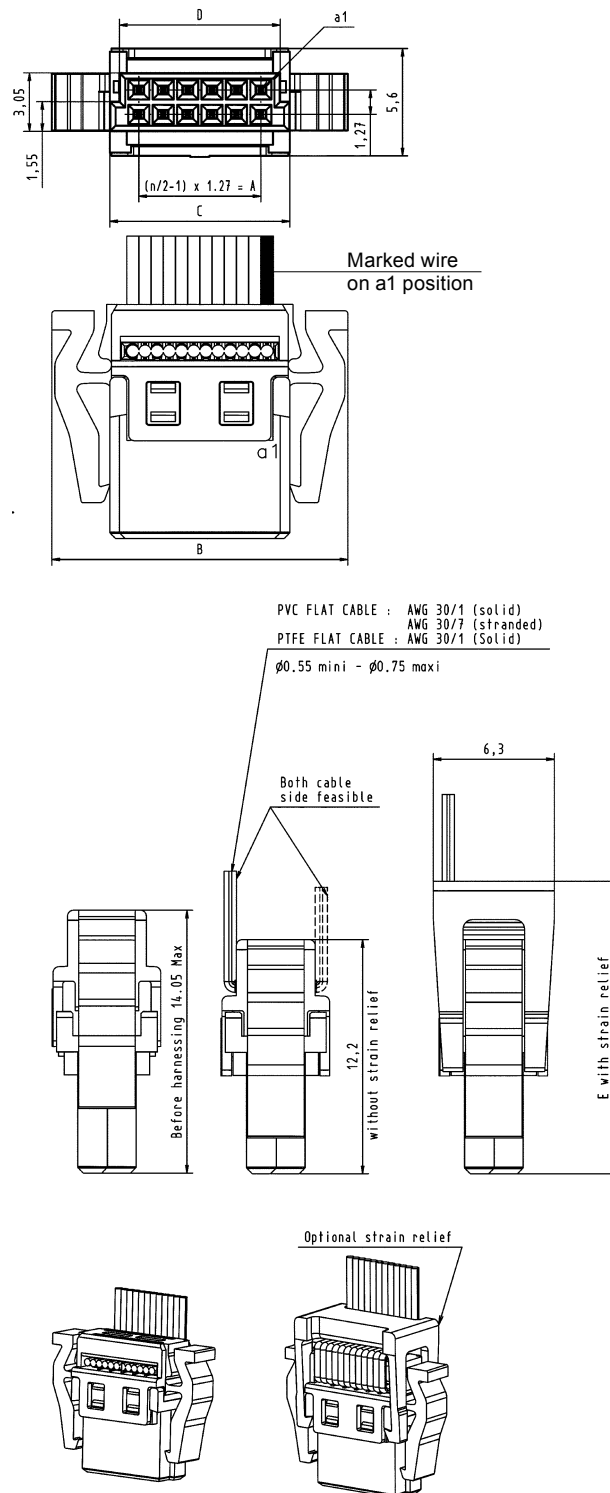
Female connectors, IDC

Identification

Drawing

Dimensions in mm

Dimensions





Strain reliefs for female connectors,  
IDC

| Identification                            | Number of contacts | Part No.           | Dimensions in mm |
|---|--------------------|--------------------|------------------|
| Strain reliefs for female connectors, IDC | 6                  | 15 29 006 0503 000 | A                |
|   | 8                  | 15 29 008 0503 000 | 7.31             |
|   | 10                 | 15 29 010 0503 000 | 8.58             |
|   | 12                 | 15 29 012 0503 000 | 9.85             |
|   | 14                 | 15 29 014 0503 000 | 11.12            |
|   | 16                 | 15 29 016 0503 000 | 12.39            |
|   | 18                 | 15 29 018 0503 000 | 13.66            |
|   | 20                 | 15 29 020 0503 000 | 14.93            |
|   | 22                 | 15 29 022 0503 000 | 16.20            |
|   | 24                 | 15 29 024 0503 000 | 17.47            |
|   | 26                 | 15 29 026 0503 000 | 18.74            |
|   | 28                 | 15 29 028 0503 000 | 20.01            |
|   | 30                 | 15 29 030 0503 000 | 21.28            |
|   | 32                 | 15 29 032 0503 000 | 22.55            |
|   | 34                 | 15 29 034 0503 000 | 23.82            |
|   | 36                 | 15 29 036 0503 000 | 25.09            |
|   | 38                 | 15 29 038 0503 000 | 26.36            |
|   | 40                 | 15 29 040 0503 000 | 27.63            |
|   | 42                 | 15 29 042 0503 000 | 28.90            |
|   | 44                 | 15 29 044 0503 000 | 30.17            |
|   | 46                 | 15 29 046 0503 000 | 31.44            |
|   | 48                 | 15 29 048 0503 000 | 32.71            |
|   | 50                 | 15 29 050 0503 000 | 33.98            |
|   | 52                 | 15 29 052 0503 000 | 35.25            |
|   | 54                 | 15 29 054 0503 000 | 36.52            |
|   | 56                 | 15 29 056 0503 000 | 37.79            |
|   | 58                 | 15 29 058 0503 000 | 39.06            |
|   | 60                 | 15 29 060 0503 000 | 40.33            |
|   | 62                 | 15 29 062 0503 000 | 41.60            |
|   | 64                 | 15 29 064 0503 000 | 42.87            |
|   | 66                 | 15 29 066 0503 000 | 44.14            |
|   | 68                 | 15 29 068 0503 000 | 45.41            |
|   | 70                 | 15 29 070 0503 000 | 46.68            |
|   | 72                 | 15 29 072 0503 000 | 47.95            |
|   | 74                 | 15 29 074 0503 000 | 49.22            |
|   | 76                 | 15 29 076 0503 000 | 50.49            |
|   | 78                 | 15 29 078 0503 000 | 51.76            |
|   | 80                 | 15 29 080 0503 000 | 53.03            |
|   | 82                 | 15 29 082 0503 000 | 54.30            |
|   | 84                 | 15 29 084 0503 000 | 55.57            |
|   | 86                 | 15 29 086 0503 000 | 56.84            |
| 88  | 15 29 088 0503 000 | 58.11              |                  |
| 90  | 15 29 090 0503 000 | 59.38              |                  |
| 92  | 15 29 092 0503 000 | 60.65              |                  |
| 94  | 15 29 094 0503 000 | 61.92              |                  |
| 96  | 15 29 096 0503 000 | 63.19              |                  |
| 98  | 15 29 098 0503 000 | 64.46              |                  |
| 100                                       | 15 29 100 0503 000 | 65.73              |                  |
|   |                    |                    | 67.00            |



Strain reliefs for female connectors, IDC

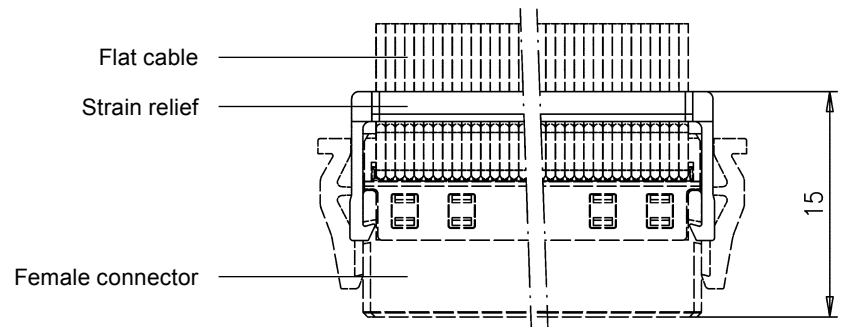
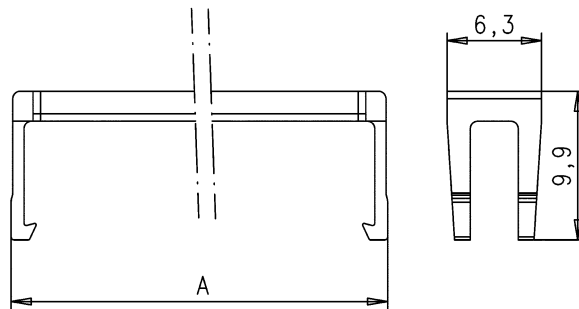
Identification

Drawing

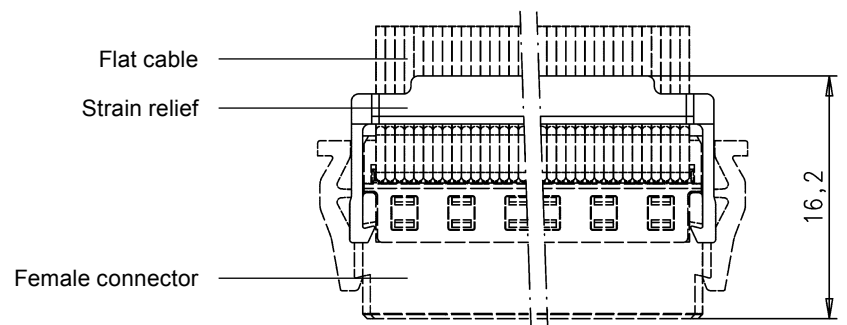
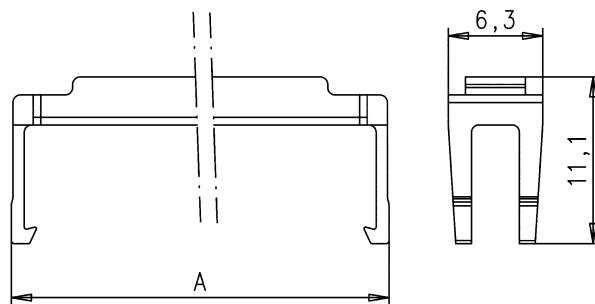
Dimensions in mm

Dimensions

6 – 58 contacts



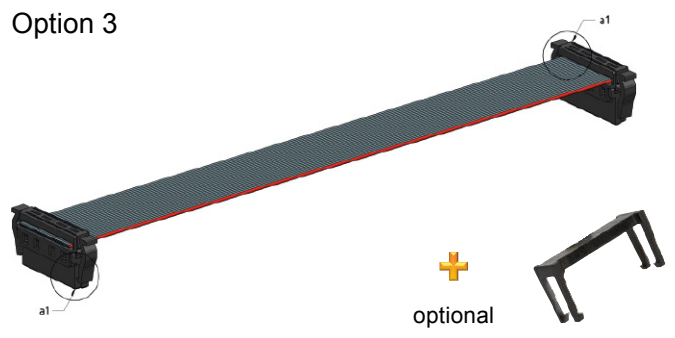
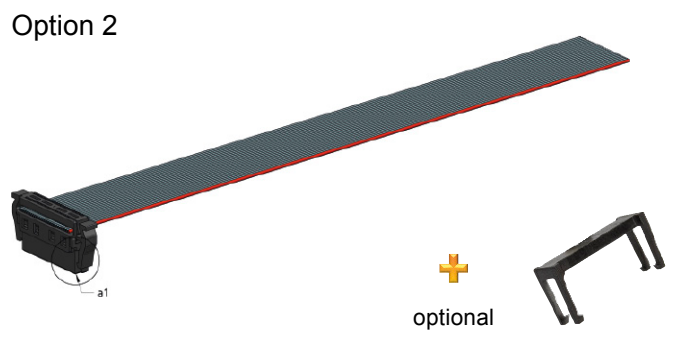
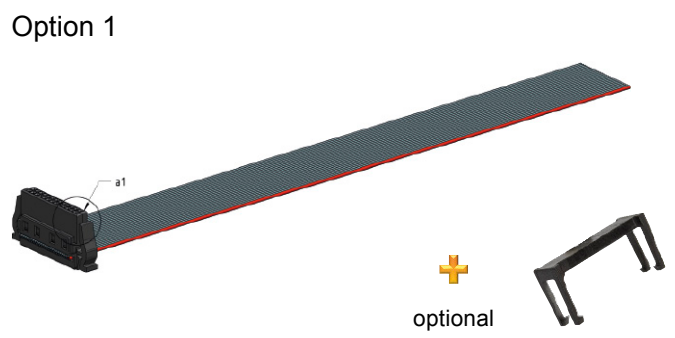
60 – 100 contacts



|                     |                          |
|---------------------|--------------------------|
| Number of contacts  | 6, 8, 10 ... 96, 98, 100 |
| Rated voltage       | 150 V                    |
| Core structure      | AWG 30/7                 |
| Strain relief       | with / without           |
| Connector direction | same / different         |
| Wiring              | 1 : 1 / crossed          |

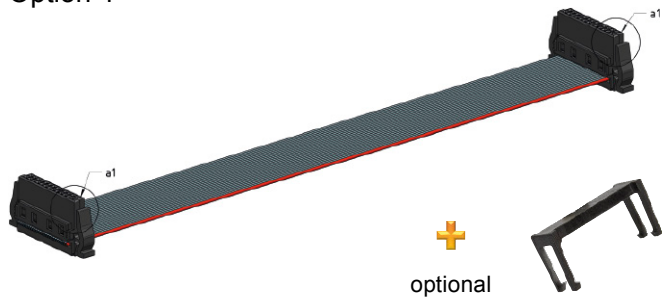
|                        |                    |
|------------------------|--------------------|
| <b>Cable types</b>     |                    |
| <b>PVC</b>             |                    |
| Operating temperatures | -20 °C ... +105 °C |
| <b>Halogen free</b>    |                    |
| Operating temperatures | -40 °C ... +125 °C |

Options



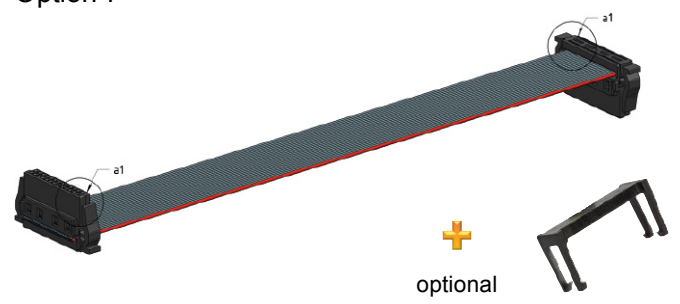
Options

Option 4

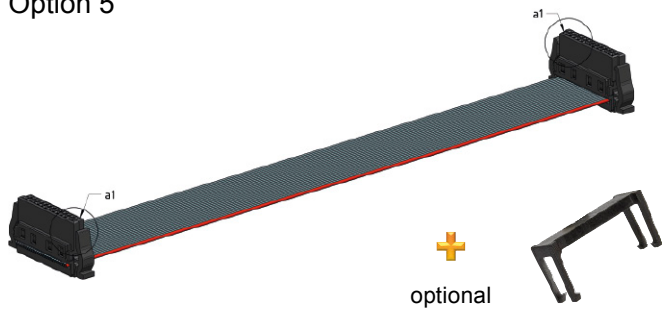


Options

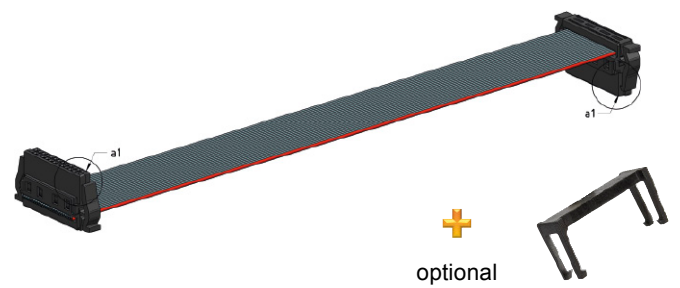
Option 7



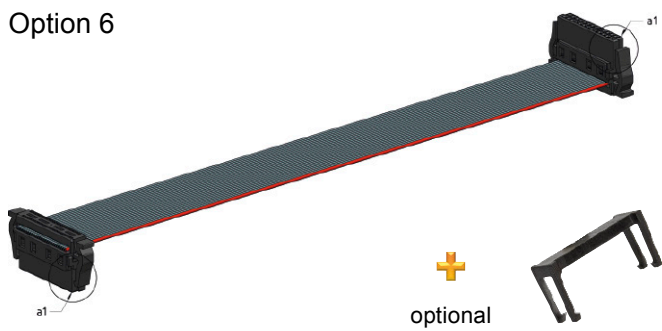
Option 5



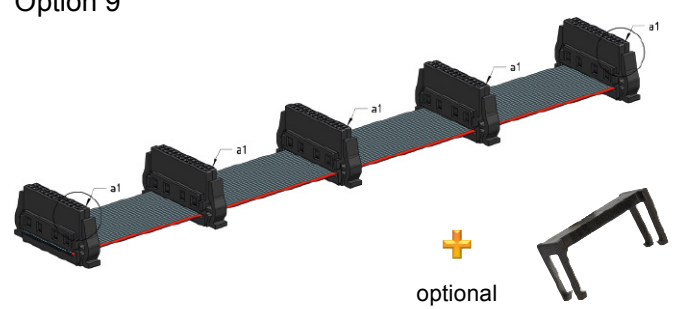
Option 8

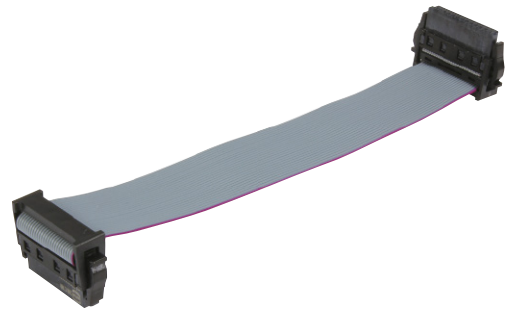


Option 6



Option 9



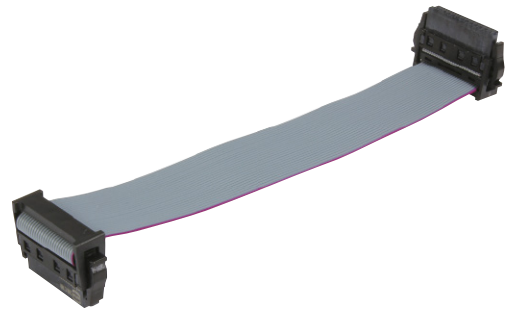


Cable assemblies

| Identification   | Part number | Drawing | Dimensions in mm |
|--|-------------|---------|------------------|
| <p>Cable assembly <i>har-flex</i>® and different connector direction</p> <p>Cable: Flat cable PVC, AWG 30/7, 0.635 mm pitch</p> <p>Wiring: 1:1</p> |             |         |                  |
| <p>Connectors with strain relief</p>   |             |         |                  |
| <p><b>6 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>  |             |         |                  |
| <p>Connectors without strain relief</p>  |             |         |                  |
| <p><b>6 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>  |             |         |                  |
| <p>Connectors with strain relief</p>   |             |         |                  |
| <p><b>12 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |             |         |                  |
| <p>Connectors without strain relief</p>  |             |         |                  |
| <p><b>12 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |             |         |                  |

har-flex





Cable assemblies

| Identification   | Part number | Drawing | Dimensions in mm |
|--|-------------|---------|------------------|
| <p>Cable assembly <i>har:flex</i>® and different connector direction</p> <p>Cable: Flat cable PVC, AWG 30/7, 0.635 mm pitch</p> <p>Wiring: 1:1</p> |             |         |                  |
| <p>Connectors with strain relief</p>   |             |         |                  |
| <p><b>50 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |             |         |                  |
| <p>Connectors without strain relief</p>  |             |         |                  |
| <p><b>50 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |             |         |                  |
| <p>Connectors with strain relief</p>   |             |         |                  |
| <p><b>68 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |             |         |                  |
| <p>Connectors without strain relief</p>  |             |         |                  |
| <p><b>68 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |             |         |                  |

har-flex





Cable assemblies

| Identification  | Part number   | Drawing | Dimensions in mm |   |  |  |   |
|---|---|---------|------------------|---|--|--|---|
| <p>Cable assembly <i>har:flex</i>® and similar<br/>connector direction<br/>Cable: Flat cable PVC,<br/>AWG 30/7, 0.635 mm pitch<br/>Wiring: 1:1</p> <p>Connectors<br/>with strain relief</p> <p><b>6 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p> | <p>33 15 243 0100 382<br/>33 15 243 0200 382<br/>33 15 243 0500 382</p> |         |                  |   |  |  |   |
| <p>Connectors<br/>without strain relief</p> <p><b>6 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |   |         |                  | <p>33 15 243 0100 380<br/>33 15 243 0200 380<br/>33 15 243 0500 380</p> |  |  |   |
| <p>Connectors<br/>with strain relief</p> <p><b>12 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |   |         |                  | <p>33 15 243 0100 102<br/>33 15 243 0200 102<br/>33 15 243 0500 102</p> |  |  |   |
| <p>Connectors<br/>without strain relief</p> <p><b>12 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>  |   |         |                  |   |  |  | <p>33 15 243 0100 145<br/>33 15 243 0200 145<br/>33 15 243 0500 145</p> |

har:flex





Cable assemblies

| Identification   | Part number   | Drawing | Dimensions in mm |
|--|---|---------|------------------|
| <p>Cable assembly <i>har-flex</i>® and similar<br/>connector direction<br/>Cable: Flat cable PVC,<br/>AWG 30/7, 0.635 mm pitch<br/>Wiring: 1:1</p> |   |         |                  |
| <p>Connectors with strain relief</p>   |   |         |                  |
| <p><b>50 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |   |         |                  |
| <p>Connectors without strain relief</p>  |   |         |                  |
| <p><b>50 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   | <p>33 15 243 0100 384<br/>33 15 243 0200 384<br/>33 15 243 0500 384</p> |         |                  |
| <p>Connectors with strain relief</p>   |   |         |                  |
| <p><b>68 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |   |         |                  |
| <p>Connectors without strain relief</p>  |   |         |                  |
| <p><b>68 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   |   |         |                  |
| <p><b>68 poles</b> Length: L = 0.1 m<br/>L = 0.2 m<br/>L = 0.5 m</p>   | <p>33 15 243 0100 148<br/>33 15 243 0200 148<br/>33 15 243 0500 148</p> |         |                  |

har-flex

