har:bus® HM with 6 rows, 2.00 mm pitch

General information

In comparison to the standard 5-row *har-bus® HM* series, this new 6-row version offers a significantly higher contact density, thus permitting applications where very high contact density is important. Typically, for a signal transmission of 1.5 Gbps it is possible to obtain 7.5 differential pairs per cm of card edge (see figure 1). For a signal transmission of 2.5 Gbps at least 5 differential pairs per cm of card edge can be obtained (see figure 2).

Male and female connectors are both available with 72 or 144 contacts and can be supplied in reel or tube packaging.

A	+	-	G	G	+	-	G	G	+	-	G	G	+	-	G	G	+	-
B	G	G	+	-	G	G	+	-	G	G	+	-	G	G	+	-	G	G
C	+	-	G	G	+	-	G	G	+	-	G	G	+	-	G	G	+	-
D	G	G	+	-	G	G	+	-	G	G	+	-	G	G	+	-	G	G
E	+	-	G	G	+	-	G	G	+	-	G	G	+	-	G	G	+	-
F	G	G	+	-	G	G	+	-	G	G	+	-	G	G	+	-	G	G

Figure 1

A	+	-	G	+	-	G	+	-	G	+	-	G	+	-	G	+	-	G
B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
C	+	-	G	+	-	G	+	-	G	+	-	G	+	-	G	+	-	G
D	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
E	+	-	G	+	-	G	+	-	G	+	-	G	+	-	G	+	-	G
F	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

Figure 2

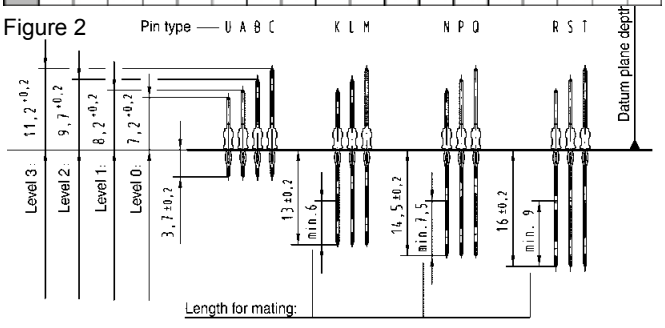
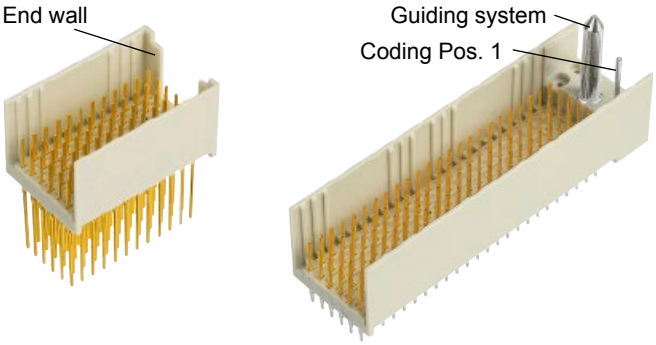


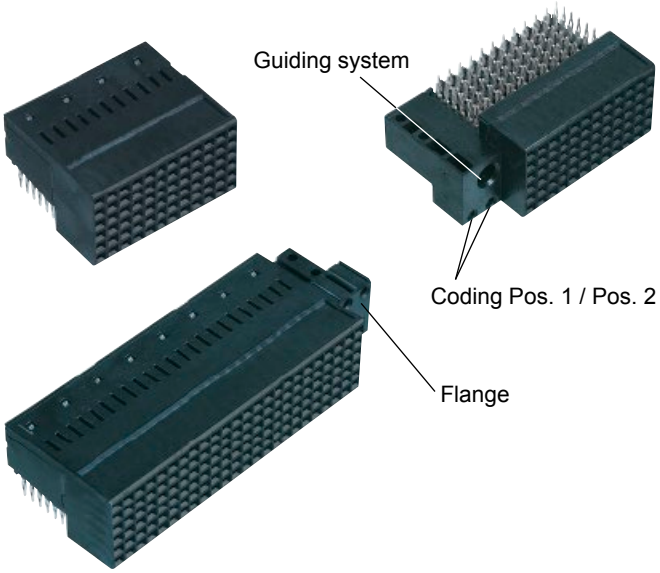
Figure 3

All male connectors can be supplied with end wall, coding pins and guiding system.



Female connectors with press-in termination

The 6-row female connector needs comparable space on the daughter card as the 5-row versions, as it has similar outer dimensions. Compared to the male connectors, coding pins and a guiding system are available upon request too.



Female connectors in SMC (Surface Mount Compatible) technology

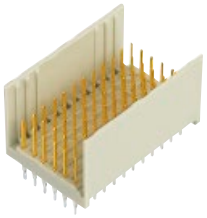
Using the reflow soldering process, these 6-row female connectors in SMC technology can be soldered to the PCB at the same time as other SMC components. So the handling cost can be reduced significantly and there is no need for a separate press-in process. These connectors are made from a high temperature plastic material that can withstand up to 260°C (lead free soldering). To hold the connector securely on the PCB before the solder process, kinked contacts are offered as standard on both connector sides. Further SMC information see chapter 01.

Design	:	complementary to IEC 61 076-4-101 (2 mm hard metric specification)
Number of contacts	:	72 or 144
Contact spacing	:	2.00 mm (1.50 mm between contact rows on the termination side of female connectors)
Working current	:	1.0 A (24 °C temp. raise) 1.5 A (52 °C temp. raise) 2.0 A (88 °C temp. raise)
Test voltage $U_{r.m.s.}$	:	min. 750 V
Contact resistance	:	< 20 mΩ
Impedance (differential)	:	100 Ω
Typical differential data rate	:	1.5 - 2.5 Gbps
Temperature range during reflow soldering	:	- 55 °C ... + 125 °C max. 260 °C (peak temperature)
Performance level*	:	performance level 2 = 250 mating cycles performance level 1 = 500 mating cycles
Termination technique	:	press-in for male and female connectors SMC for female connectors, compatible with lead-free solder process
Pcb characteristics	:	min. 1.4 mm for male and female connectors with press-in terminations 1.6 mm - 2.4 mm for female connectors with SMC terminations
Recommended configuration of plated through holes	:	

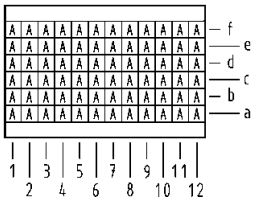
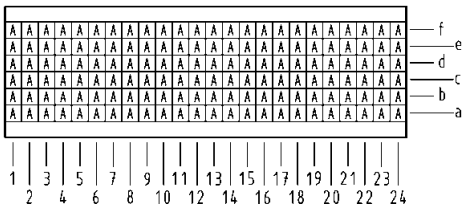
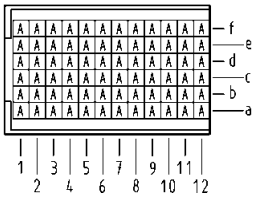
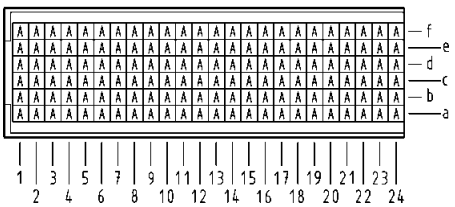
	press-in	SMC
Plated hole-Ø	0.6 $^{\pm 0.05}$ mm	0.7 $^{+0.07}_{-0.05}$ mm
Hole-Ø	0.7 $^{\pm 0.02}$ mm	0.8 $^{\pm 0.02}$ mm
Cu	30 - 50 µm	30 - 50 µm
Sn	5 - 15 µm	5 - 15 µm

Mating force	:	< 0.75 N/pin
Materials		
Mouldings	:	Thermoplastic resin, glass-fibre filled, UL 94-V0
Contacts	:	Copper alloy
Contact surface	:	Au/Ni
Packaging		
Tube	:	Male connectors and female connectors with press-in terminations
Tape & Reel	:	Female connectors with SMC terminations

* Other platings on request

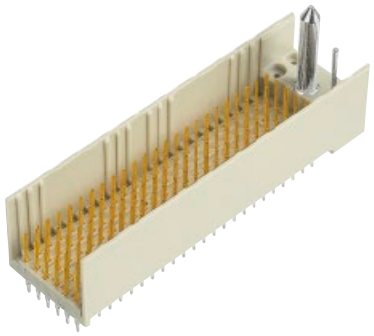


Male connectors straight, with press-in termination

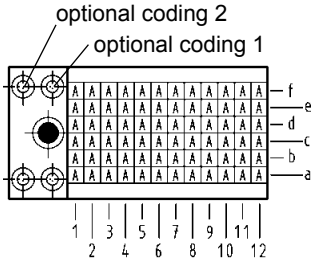
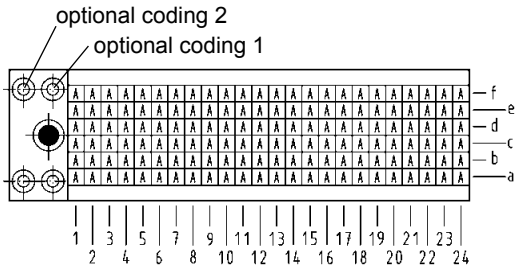
Identification	Number of contacts	Contact length [mm] mating side	Contact length [mm] termination side	Part number	Contact configuration
Connectors without flange without coding without endwall	72	8.2	3.7	17 41 072 1204 **17 41 072 2204**	
	144	8.2	3.7	17 44 144 1205 **17 44 144 2205**	
Connectors without flange without coding with endwall	72	8.2	3.7	17 42 072 1203 **17 42 072 2203**	
	144	8.2	3.7	17 45 144 1204 **17 45 144 2204**	

Connector dimensions see pages 02.06 and 02.07.
The pin types A, B, C … R, S, T can be mixed in any configuration.
Please request the part number.

Thin print part numbers: performance level 1
Bold print part numbers: performance level 2

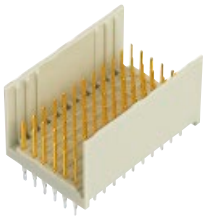


Male connectors straight, with press-in termination

Identification	Number of contacts	Contact length [mm] mating side	Contact length [mm] termination side	Part number	Contact configuration
Connectors with flange without coding without endwall	72	8.2	3.7	17 43 072 1209 **17 43 072 2209**	
	144	8.2	3.7	17 46 144 1207 **17 46 144 2207**	
Connectors with flange with coding 1 without endwall	72	8.2	3.7	17 43 072 1211 **17 43 072 2211**	
	144	8.2	3.7	17 46 144 1209 **17 46 144 2209**	
Connectors with flange with coding 2 without endwall	72	8.2	3.7	17 43 072 1210 **17 43 072 2210**	
	144	8.2	3.7	17 46 144 1208 **17 46 144 2208**	
Connectors with flange with coding 3 (= coding 1 + 2) without endwall	72	8.2	3.7	17 43 072 1212 **17 43 072 2212**	
	144	8.2	3.7	17 46 144 1210 **17 46 144 2210**	

Connector dimensions see pages 02.06 and 02.07.
The pin types A, B, C … R, S, T can be mixed in any configuration.
Please request the part number.

Thin print part numbers: performance level 1
Bold print part numbers: performance level 2

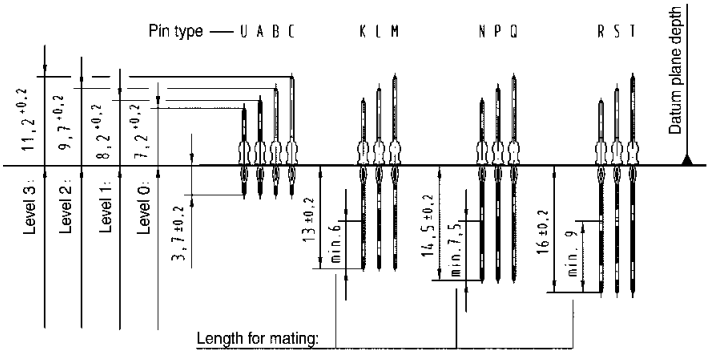


Male connectors straight, with press-in termination

Drawing

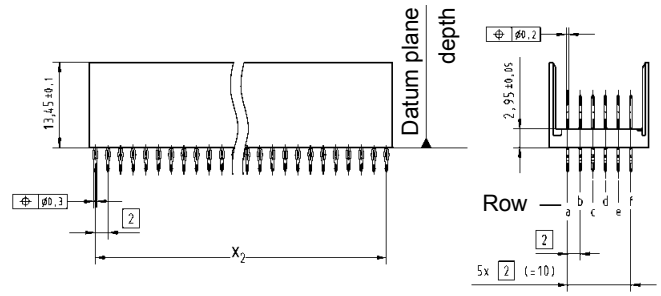
Dimensions in mm

Connector dimensions [mm]

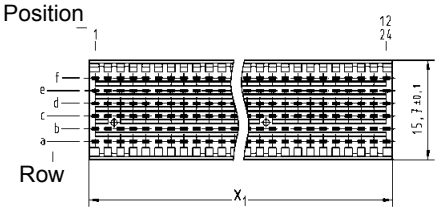


Contact positions	x_1	x_2	x_3
72	23.9	11 x 2 (= 22)	24.9
144	47.9	23 x 2 (= 46)	48.9

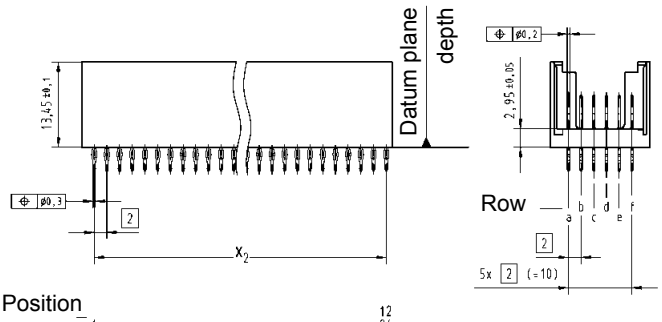
without flange
without coding
without endwall



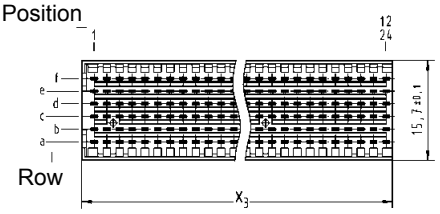
Position



without flange
without coding
with endwall

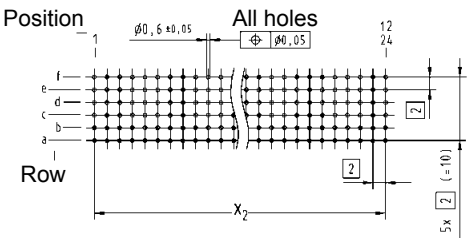


Position



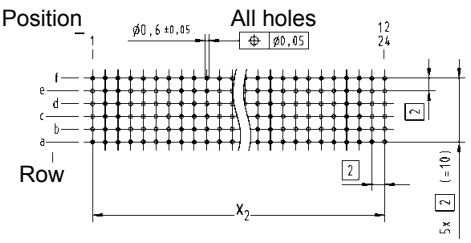
Board drillings

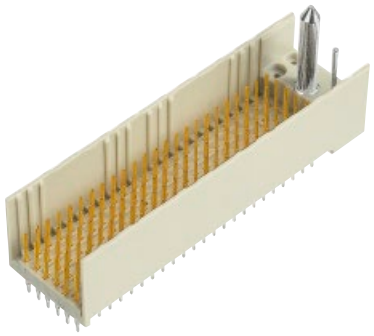
Position



Board drillings

Position



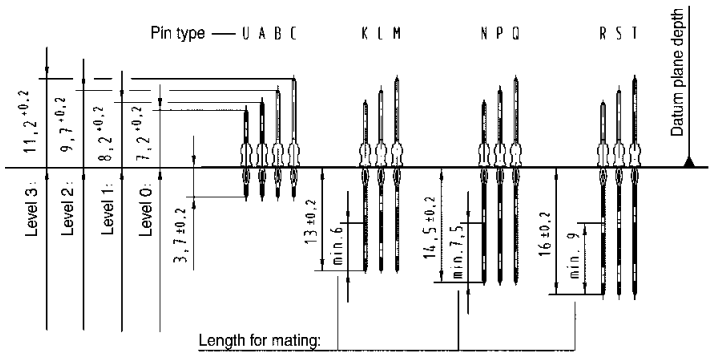


Male connectors straight, with press-in termination

Drawing

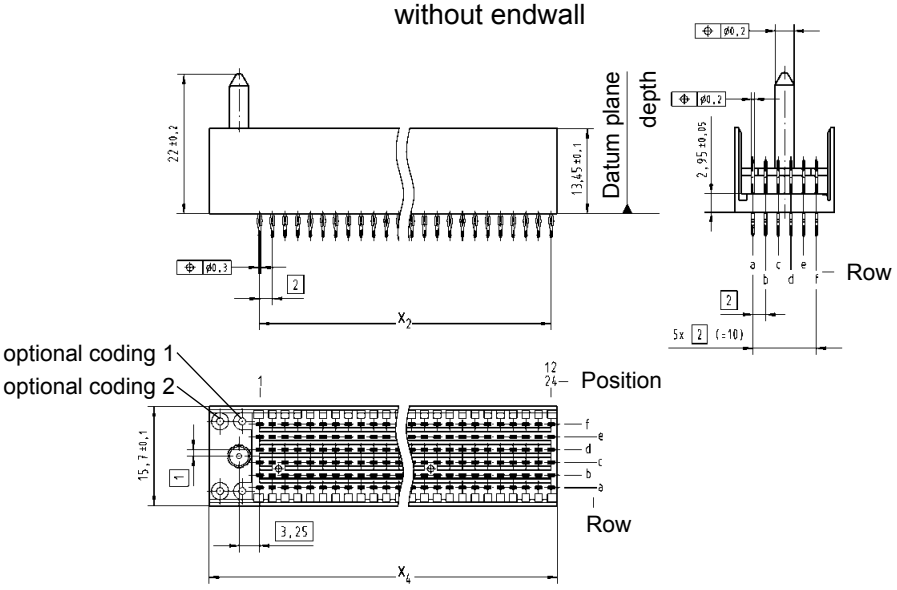
Dimensions in mm

Connector dimensions [mm]

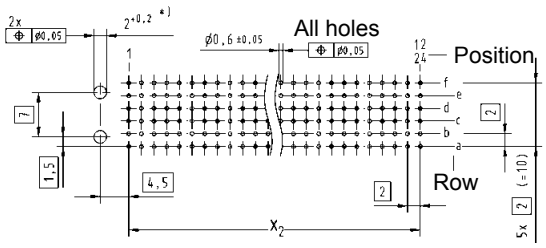


Contact positions	x_2	x_4
72	11 x 2 (= 22)	30.9
144	23 x 2 (= 46)	54.9

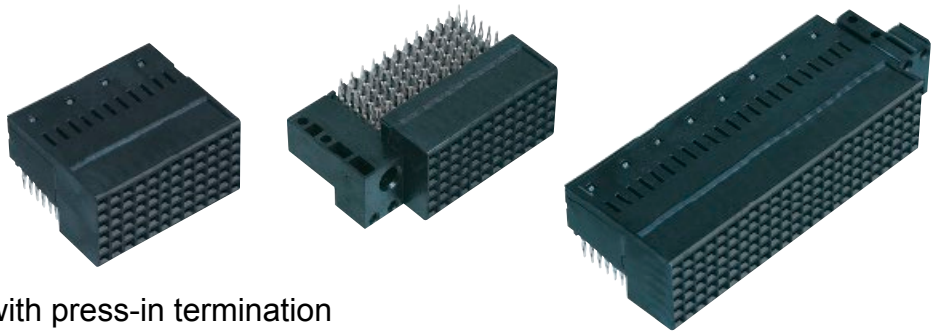
with flange
with coding
without endwall



Board drillings



* Non-metallized drillings

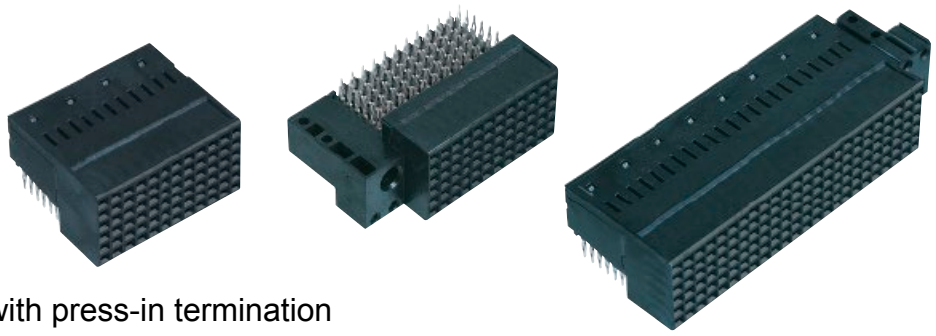


Female connectors angled, with press-in termination

Identification	Number of contacts	Contact length [mm] termination side	Part number
Connectors without flange without coding	72	3.35	17 51 072 1102 **17 51 072 2102**
	144	3.35	17 54 144 1102 **17 54 144 2102**
Connectors with flange without coding	72	3.35	17 52 072 1105 **17 52 072 2105**
	144	3.35	17 55 144 1105 **17 55 144 2105**
Connectors with flange with coding 1	72	3.35	17 52 072 1106 **17 52 072 2106**
	144	3.35	17 55 144 1106 **17 55 144 2106**
Connectors with flange with coding 2	72	3.35	17 52 072 1107 **17 52 072 2107**
	144	3.35	17 55 144 1107 **17 55 144 2107**
Connectors with flange with coding 3 (= coding 1 + 2)	72	3.35	17 52 072 1108 **17 52 072 2108**
	144	3.35	17 55 144 1108 **17 55 144 2108**

Connector dimensions see page 02.09.

Thin print part numbers: performance level 1
Bold print part numbers: performance level 2



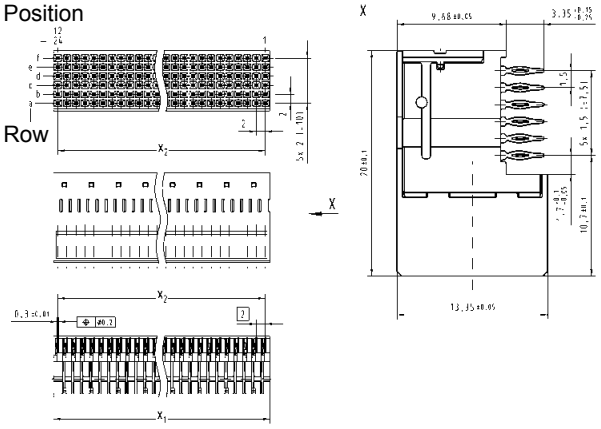
Female connectors angled, with press-in termination

Drawing

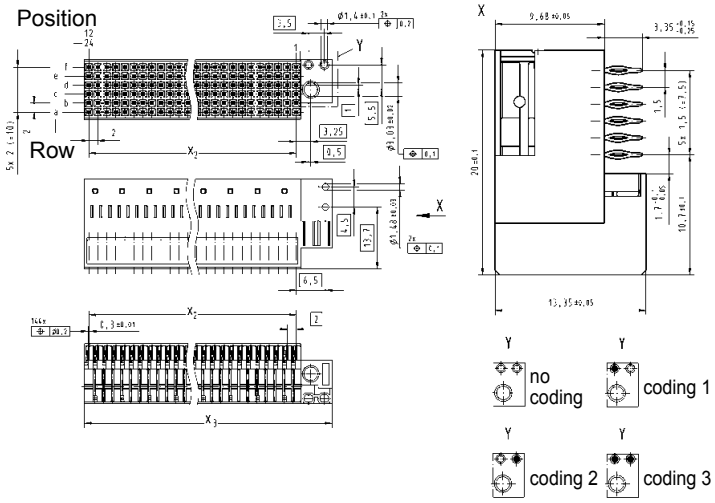
Dimensions in mm

Connector dimensions [mm]

without flange
without coding

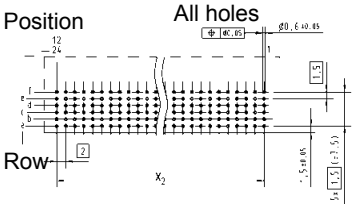


<u>with</u> flange
<u>with</u> coding

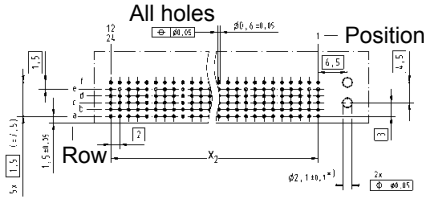


Contact positions	x_1	x_2	x_3
72	24.0	11 x 2 (= 22)	31.0
144	48.0	23 x 2 (= 46)	55.0

Board drillings



Board drillings



02.09

* Non-metallized drillings

Female connectors angled, with solder (SMC) termination

Identification	Number of contacts	Contact length [mm] termination side	Part number
Connectors without flange without coding	72	2.5	17 51 072 1802 **17 51 072 2802**
	144	2.5	17 54 144 1802 **17 54 144 2802**
Connectors with flange without coding	72	2.5	17 52 072 1805 **17 52 072 2805**
	144	2.5	17 55 144 1805 **17 55 144 2805**
Connectors with flange with coding 1	72	2.5	17 52 072 1806 **17 52 072 2806**
	144	2.5	17 55 144 1806 **17 55 144 2806**
Connectors with flange with coding 2	72	2.5	17 52 072 1807 **17 52 072 2807**
	144	2.5	17 55 144 1807 **17 55 144 2807**
Connectors with flange with coding 3 (= coding 1 + 2)	72	2.5	17 52 072 1808 **17 52 072 2808**
	144	2.5	17 55 144 1808 **17 55 144 2808**

Connector dimensions see page 02.11.

Thin print part numbers: performance level 1
Bold print part numbers: performance level 2

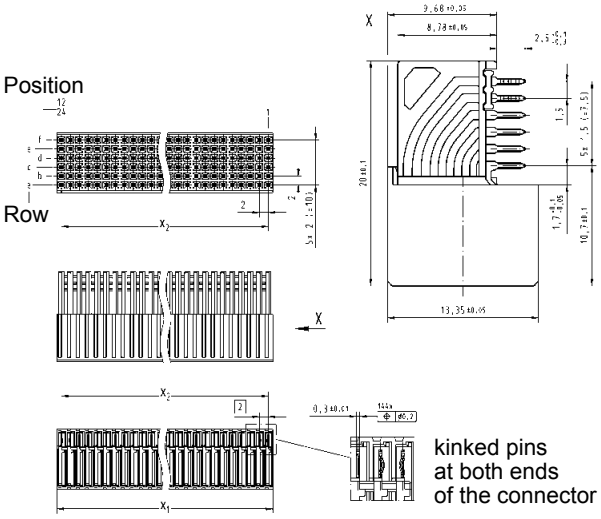
Female connectors angled, with solder (SMC) termination

Drawing

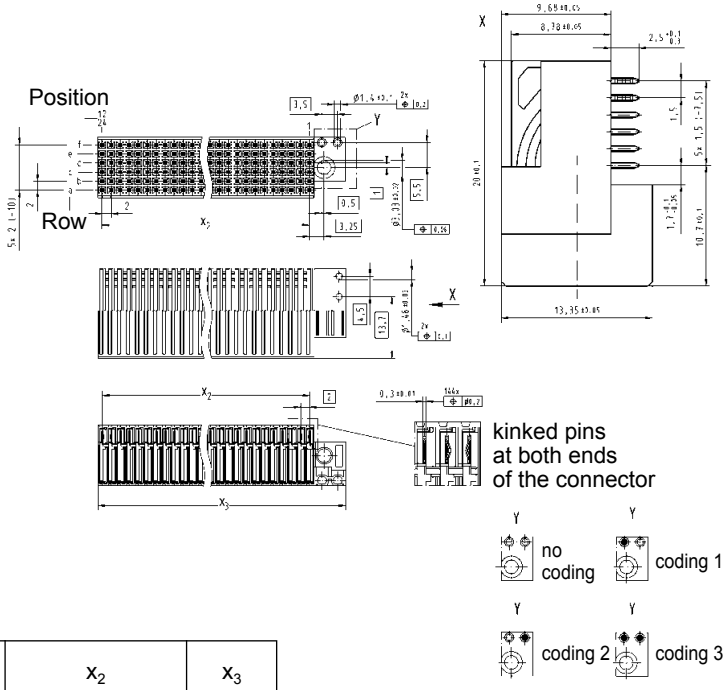
Dimensions in mm

Connector dimensions [mm]

without flange
without coding

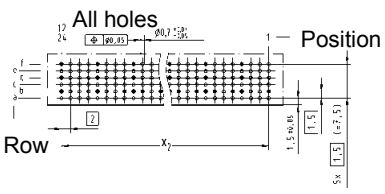


with flange
with coding

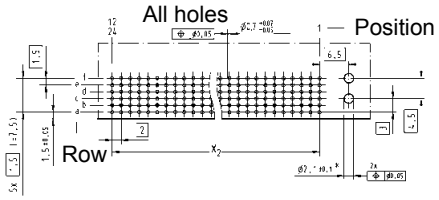


Contact positions	x_1	x_2	x_3
72	24.0	11 x 2 (= 22)	31.0
144	48.0	23 x 2 (= 46)	55.0

Board drillings



Board drillings



* Non-metallized drillings

Compatibility with OBSAI

HARTING is a supporter member of OBSAI since September 2003.

The Open Base Station Architecture Initiative (OBSAI) has developed a comprehensive set of open specifications for key module interfaces within the base station architecture. This development will enable an open market of base station modules.

The OBSAI architecture provides a clear split in functionality and detailed internal interface specifications. This allows companies to create modules that are truly compatible in all OBSAI compliant base stations. OBSAI provides the entry for a new, competitive market for functionally standardized modules.

HARTING's *har-bus® HM* Signal and *HM* Power connectors meet OBSAI specifications and provide a reliable and cost effective solution for connecting plug-in units to the backplane. The connector solution available from HARTING technology group will offer full compatibility and intermateability with base station modules.

HARTING's activities in the wireless market are in line with those of OBSAI.

The OBSAI specifications allow HARTING the opportunity to support a large group of wireless base station manufacturers and module manufacturers with unified, state of art interconnection solutions.