DATASHEET

HATTELAND TECHNOLOGY
an EMBRON Company

Manufacturer:	**Hatteland Technology AS**
Product:	**Compact Computer (Standard Models)**
Type:	**HT C03xx xxx-xxx-xxxx** where x=CPU type, y=OS, w=Power Input, z=configuration

Last Revised:	**09 Jun 2020**
Revision#:	**00_14**

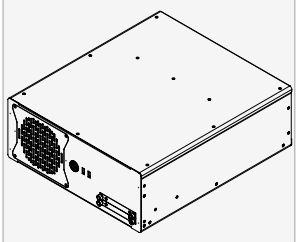
Compact Computer (Standard Models)

Features:

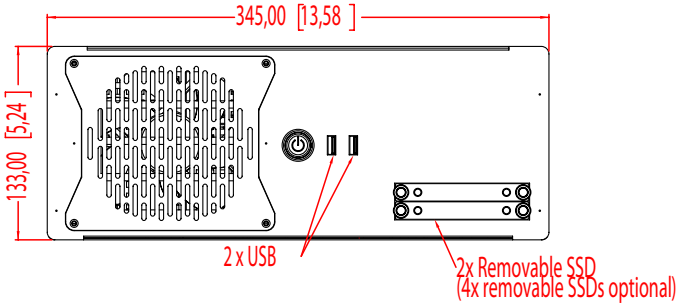
The HT C03xx model is the successor to the best in class and highly successful HT C02 computer. The new model incorporates latest processor technologies and enhanced feature sets, thus providing greater versatility for high-end maritime system applications.

The HT C03xx models are high-end platforms with an enhanced chassis that includes 4 external disc bays at the front. The i3, i5 or i7 processor options ensure state of the art computing performance is delivered; while the extensive feature options allows for the HT C03 to be built up to a quasi-Server capability.

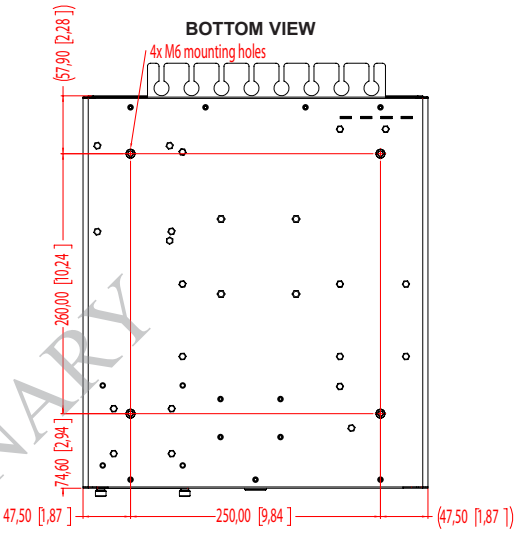
By default equipped with 2 front side bays for 2 SSDs with the option of 4 removable front side disc bays, onboard raid, M.2, 4 PCI-e slots, memory up to atleast 64GB RAM, 6 USB, 4 LAN ports, 3 Display ports (2 DP+ 1 USB-C) and more, making the HT C03xx the most versatile rugged PC solution for the professional maritime segment.



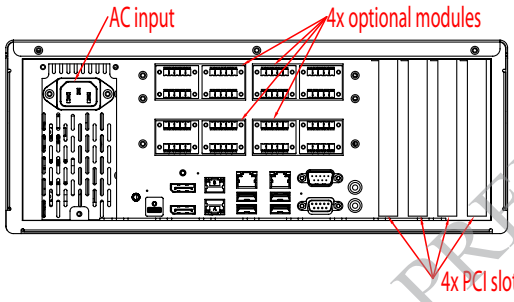
FRONT VIEW



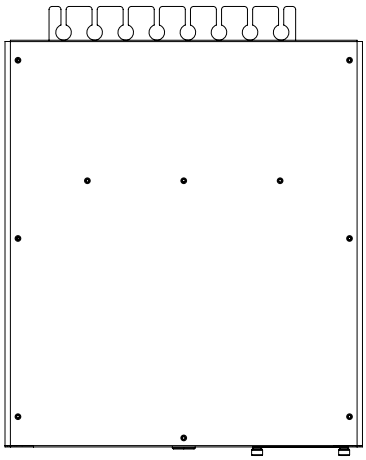
BOTTOM VIEW



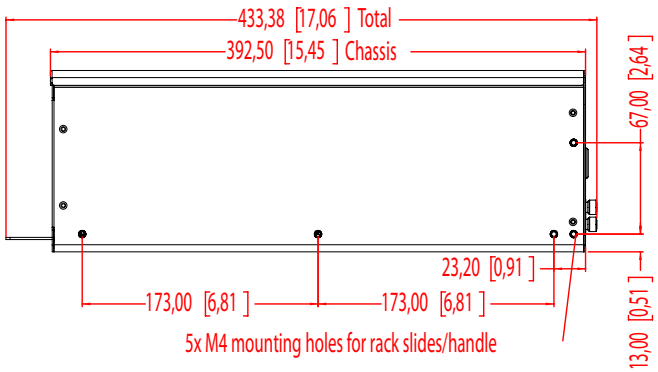
BACK VIEW



TOP VIEW



SIDE VIEW



Dimensions might be shown with or without decimals and indicated as mm [inches]. Tolerance on drawings is +/- 1mm. For accurate measurements, check relevant DWG file.

SPECIFICATIONS

Note: All specifications are subject to change without prior notice!
Please visit www.hattelandtechnology.com for the latest electronic version.

HATTELAND TECHNOLOGY
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TECHNICAL DESCRIPTION

Computer Specifications: (Standard model)

		External Connector Type:
• Operating System Support	: See OS selection below	
• Storage Devices	: 2 x SATA 3.0 (6GB/s) - See table below for options	
• Processor	: 1 x Intel® Core™ i5-9500E, 6-Core 4.20Ghz, 9MB Cache	
• Memory/RAM	: 1 x 8GB (single channel DDR4) - Max 64GB possible - see table below	
• Graphics	: 1 x Intel® UHD 630	1 x USB-C + 2 x DisplayPort 1.2
• Graphics Capabilities	: DirectX Support 12.0, Shader Model 6.4, OpenCL 2.1, OpenGL Support 4.5/linux), Vulkan 1.1.97	
• Max Graphics Resolution	: Max 3840 x 2160 (4K UHD) @ 60Hz for DP (DisplayPort)	
• System Chipset	: Intel® Q370 or later	
• BIOS	: ACPI support	
• PCIe Slots	: 1 x PCIe 3.0 x16 (reserved for additional Graphics Card - See Factory Mounted options below) 1 x PCIe 3.0 x4 (x8 socket) 1 x PCIe 3.0 x4 1 x PCIe 3.0 x1	
• M.2	: 1 x M.2 2280 M-key (one SATA + NVMEx4) 1 x M.2 2230 E-Key (PCIe + USB for WiFi)	
• Ethernet #1	: 2 x LAN 10/100/1000Mbs, Intel, Support for Intel® Teaming	2 x RJ45 Teaming
• Ethernet #2	: 2 x LAN 10/100/1000Mbs (non intel)	2 x RJ45
• USB Ports #1-2	: 2 x USB 3.1 (<3m) ports in front	2 x USB Type A
• USB Ports #3	: 1 x USB-C (DisplayPort - Power Distrubution enabled, 60W) in rear	1 x USB-C
• USB Ports #4-7	: 4 x USB 3.1 (<3m) ports in rear	4 x USB Type A
• Serial Port	: 1 x RS-232/RS-422/RS-485 Baud Rate: Max 256kbps	1 x DB9M
• Audio Onboard	: Realtek HD Audio supports x.x channel, Mic. in, Line out	2 x 3.5mm Audio Jack
• Audio Amplified	: 2W, Stereo/Mono supported	1 x DB9F
• Power Manager	: ACPI	
• Watchdog Timer	: Reset: 1 sec.~255 min. and 1 sec. or 1 min./step	
• H/W Status Monitor	: Temperatures, voltages & cooling fan status. Auto throttling control if CPU overheats	
• Other Features	: LAN Wakeup, USB Boot, Wakeup, Trusted platform module 2.0, Intel® Management Engine. True power on after power fail.	

Power Supply	: Power Consumption - Operating: 70W typical	**External Connector Type:**
• 100-240V AC - 50/60Hz	: PSU MAX AC 200W	STD IEC

Available Computer Configurations:

Type	Description	Size/Specification
CPU	1 x Intel® Core™ i3-9100E 1 x Intel® Core™ i5-9500E 1 x Intel® Core™ i7-9700E	4-Core 3.70GHz, 6MB Cache 6-Core 4.20Ghz, 9MB Cache 8-Core 4.60GHz, 12MB Cache
Memory	DDR4 SO-DIMM 260-pin	- Uses 2 slots, available sizes are: 1x8GB (2400MHz), 2x8GB (2400MHz), 2x16GB (2400MHz), 2x32GB (2666MHz)
Storage	2.5/M.2" SSD SATA	- 240Gb (0.9PBW),480Gb (1.2PBW),960Gb (3.4PBW), 1.92Tb (7.1PWB)
OS Option	Microsoft® Windows® Server 2016/2019 64bit, Windows® 10 IoT Enterprise 2019 LTSC (64bit). Linux: Kernel 4.1x or later version	

Factory Mounted Options:

- PNY NVIDIA Quadro P2200: PCIe 3.0 x16, 4 x DP 1.4, 5GB GDDR5
- PNY NVIDIA Quadro P620: PCIe 3.0 x16, 4 x mDP 1.4, 2 GB GDDR5**
- CP114EL-I: 4 Ports COM Card, PCIe x1, 1xDB44F to 4xDB9M isolated, RS-232/422/485)
- Intel® Network Adapter x710-T2L (10GbE), 2 x RJ45
- Intel® Fiber Network Adapter x722-DA2 (10GbE), 2 x SFP+
- Intel® Fiber Network Adapter i350-F2V2 (1GbE), 2 x RJ45
- Intel® Network Adapter i350-T2V2 (100Mb), 2 x LC Fiber Optic
- PCA100298-1 (LAN 10/100Mbps, 2 ports (RJ45) module
- SX-118A: 1xParallel Port LPT, DB25F, Bi-Dir. ECP/EPP, PCIe x1 card
- PCA100297-1: Digital IO Isolated, 4 IN + 4 OUT*
- PCA100293-1: COM RS-422/485 isolated NMEA 4 channel*
- VSDxxxxxx-x: Additional USB ports.
- PCA100309-1: Dual Isolated RS-232, 2xDB9 module
- Variations of Storage, RAM Memory and Operating System
- ZIA0001310-B: CAN isolated, 2 channel*
- ZIA0001310-SLCAN: Socket CAN isolated, 2 channel*

* For all Factory Mounted Options, review User Manual for possible HW combinations.

** miniDP to DP adapter not included. See accessories below.

Available Accessories:

- HT 00225 OPT-A1: 2 x 26" ball bearing sliding rail & mounting kit for 19" Rack
- HT 00224 OPT-A1: 2 x 20" ball bearing sliding rail & mounting kit for 19" Rack
- HT 00223 OPT-A1: 1 x 4U 19" Rack Case Kit(compatible with HT00224/00225)
- HT 00226 OPT-A1: 2 x Mounting Bracket, 4mm SECC+Zinc Plating, RAL9011
- JH C01MF A-A: 1 x USB Cable 1m, Type A-Chassis mount receptacle
- HT 00300 MSOS: OS options -> http://www.hatteland-display.com/os
- H733S30Q20-SP000-0: 1 x Replacement Front Air Filter w/4 screws
- HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
- HD 000TR SX1-A1: 1 x Removable Front Tray 2.5" Empty
- HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
- HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
- HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
- HT 00275 OPT-A1: 1 x PCI Mount Kit EN60945, Low Profile (LP, any len.)
- HT 00229 OPT-A1: 1 x PCI Mount Kit,Half Height to Full Height (any len.)
- RC3473 REV.03: DP to DVI adapter
- VSDDPVGA340: DP to VGA adapter
- HT RET STD-A3: Cable/Retainer Kit
- HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5" w/Storage Device*

*Where xxx=Size of device. yy=GB,TB. z=S (SSD), z=H (HDD) - Choose Storage Device from table above.

MECHANICAL DESCRIPTION

Physical Specifications:

- W:345.00 [13.58"] x H:133.00 [5.24"] x D:390.00 [15.35"] mm [inch]
- Weight: Approx 9.0 kg / 19.8lbs
- 2 x Removable SSD/HDD tray in front (2.5" size)
- Power/Reset/Power LED Combined Function
- Easy Removable Front Air Filter (spare part accessory available)
- Includes Mounting Brackets (HT 00226 OPT-A1)
- 1 x Internal Cooling fan in front (120x120mm)

Compass Safe Distance: Standard: TBDcm - Steering: TBDcm - PENDING

Environmental Considerations:

- Operating : Temperature -15 to +55°C - Humidity up to 95%
- Storage : Temperature -20 to +0°C - Humidity up to 95%

Lifetime Considerations:

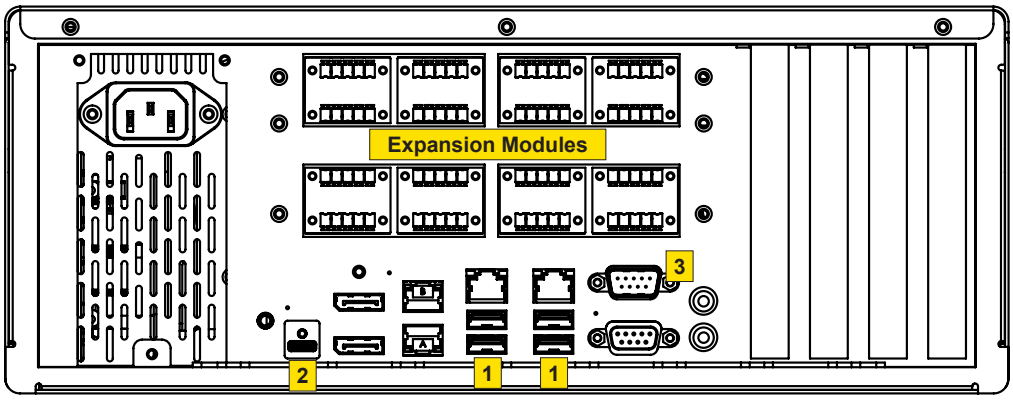
Even though the test conditions for bridge units provide for a maximum operating temperature of 55°C, continuous operation of all electronic components should, if possible, take place at ambient temperatures of only 25°C. This is a necessary prerequisite for long life and low service costs.

APPROVALS & CERTIFICATES

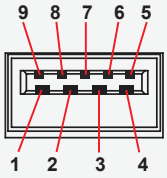
These products have been tested / type approved by the following classification societies: (*= Pending)

IEC 60945 4th (EN 60945:2002)* **IACS E10*** **EN61162*** **EU RO MR** - Mutual Recognition (covers DNV, BV, ABS, GL, NK and LRS certificates)*

PINOUT ASSIGNMENTS COMMON CONNECTORS

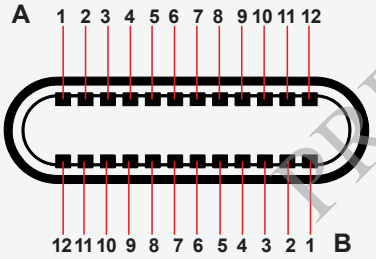


1 9-pin USB3.0 TYPE A



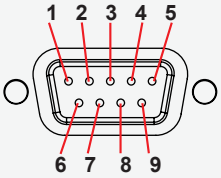
PIN 01	VCC +5V	VBUS / Power
PIN 02	D-	Negative Data
PIN 03	D+	Positive Data
PIN 04	GND	Ground
PIN 05	StdA_SSRX-	SuperSpeed Receive Negative Data
PIN 06	StdA_SSRX+	SuperSpeed Receive Positive Data
PIN 07	GND DRAIN	Ground for signal return
PIN 08	StdA_SSTX-	SuperSpeed Transmit Negative Data
PIN 09	StdA_SSTX+	SuperSpeed Transmit Positive Data

2 24-pin USB-C TYPE A



Pin A1	GND	Ground return
Pin A2	SSTXp1	SuperSpeed differential pair #1, TX, positive
Pin A3	SSTXn1	SuperSpeed differential pair #1, TX, negative
Pin A4	VBUS	Bus power
Pin A5	CC1	Configuration channel
Pin A6	Dp1	USB 2.0 differential pair, position 1, positive
Pin A7	Dn1	USB 2.0 differential pair, position 1, negative
Pin A8	SBU1	Sideband use (SBU)
Pin A9	VBUS	Bus power
Pin A10	SSRXn2	SuperSpeed differential pair #4, RX, negative
Pin A11	SSRXp2	SuperSpeed differential pair #4, RX, positive
Pin A12	GND	Ground return
Pin B12	GND	Ground return
Pin B11	SSRXp1	SuperSpeed differential pair #2, RX, positive
Pin B10	SSRXn1	SuperSpeed differential pair #2, RX, negative
Pin B9	VBUS	Bus power
Pin B8	SBU2	Sideband use (SBU)
Pin B7	Dn2	USB 2.0 differential pair, position 2, negative
Pin B6	Dp2	USB 2.0 differential pair, position 2, positive
Pin B5	CC2	Configuration channel
Pin B4	VBUS	Bus power
Pin B3	SSTXn2	SuperSpeed differential pair #3, TX, negative
Pin B2	SSTXp2	SuperSpeed differential pair #3, TX, positive
Pin B1	GND	Ground return

3 Serial COM RS-485/RS-422, 9-pin DSUB Male "Full Duplex Mode*

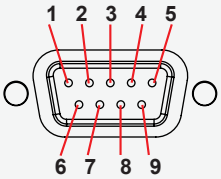


PIN 01	TxD-	Transmit Data Negative
PIN 02	TxD+	Transmit Data Positive
PIN 03	RxD+	Receive Data Positive
PIN 04	RxD-	Receive Data Negative
PIN 05	GND	Signal Ground
PIN 06	N/C	No internal connection
PIN 07	N/C	No internal connection
PIN 08	N/C	No internal connection
PIN 09	N/C	No internal connection

*Master only. ECHO not supported.

Note: Configuration performed in computer BIOS

3 Serial COM RS-485/RS-422, 9-pin DSUB Male "Half Duplex Mode*

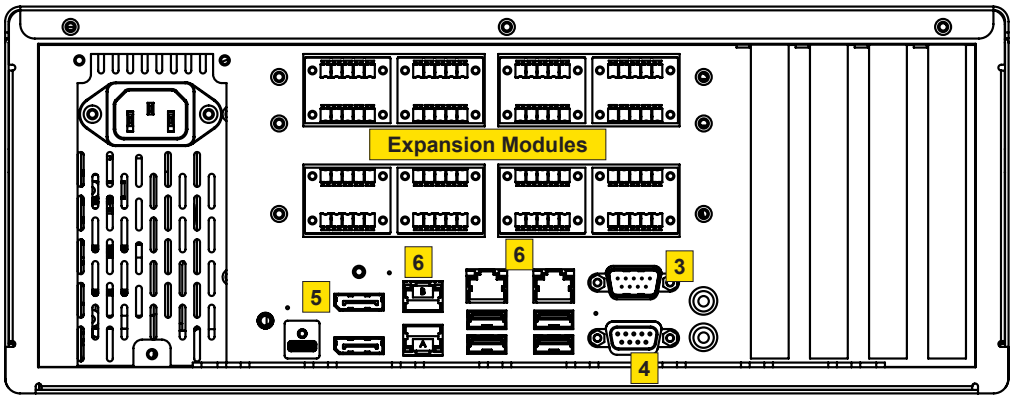


PIN 01	Res.	Reserved, do not connect
PIN 02	Res.	Reserved, do not connect
PIN 03	Data+	Data Positive
PIN 04	Data-	Data Negative
PIN 05	GND	Signal Ground
PIN 06	N/C	No internal connection
PIN 07	N/C	No internal connection
PIN 08	N/C	No internal connection
PIN 09	N/C	No internal connection

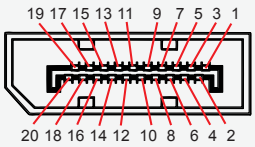
*ECHO not supported.
Flow control: Via RTS signal (controlled by user application).

Note: Configuration performed in computer BIOS

PINOUT ASSIGNMENTS COMMON CONNECTORS



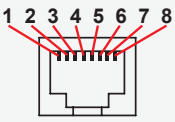
5 20-pin DisplayPort (DP) Female



PIN 01	ML_Lane 0 (p) - Lane 0 (positive)
PIN 02	GND - Ground
PIN 03	ML_Lane 0 (n) - Lane 0 (negative)
PIN 04	ML_Lane 1 (p) - Lane 1 (positive)
PIN 05	GND - Ground
PIN 06	ML_Lane 1 (n) - Lane 1 (negative)
PIN 07	ML_Lane 2 (p) - Lane 2 (positive)
PIN 08	GND - Ground
PIN 09	ML_Lane 2 (n) - Lane 2 (negative)
PIN 10	ML_Lane 3 (p) - Lane 3 (positive)
PIN 11	GND - Ground
PIN 12	ML_Lane 3 (n) - Lane 3 (negative)
PIN 13*	CONFIG1 - connected to Ground*
PIN 14*	CONFIG2 - connected to Ground*
PIN 15	AUX CH (p) - Auxiliary Channel (positive)
PIN 16	GND - Ground
PIN 17	AUX CH (n) - Auxiliary Channel (negative)
PIN 18	Hot Plug - Hot Plug Detect
PIN 19	Return - Return for Power
PIN 20	DP_PWR - Power for connector (3.3 V 500 mA)

*Pins 13 and 14 may either be directly connected to ground or connected to ground through a pulldown device. This is the pinout for source-side connector, the sink-side connector pinout will have lanes 0–3 reversed in order; i.e., lane 3 will be on pin 1(n) and 3(p) while lane 0 will be on pin 10(n) and 12(p).

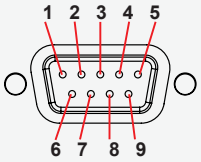
6 8-pin RJ45 10/100/1000Mbps LAN/Ethernet



PIN 01	D0P+	Differential Pair 0 (Positive)
PIN 02	D0N-	Differential Pair 0 (Negative)
PIN 03	D1P+	Differential Pair 1 (Positive)
PIN 04	D2P+	Differential Pair 2 (Positive)
PIN 05	D2N-	Differential Pair 2 (Negative)
PIN 06	D1N-	Differential Pair 1 (Negative)
PIN 07	D3P+	Differential Pair 3 (Positive)
PIN 08	D3N-	Differential Pair 3 (Negative)

Serial COM RS-232 non-isolated, 9-pin DSUB Male

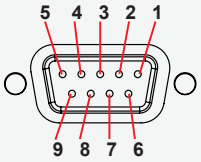
3



PIN 01	DCD	Data Carrier Detect
PIN 02	RxD	Receive Data
PIN 03	TxD	Transmit Data
PIN 04	DTR	Data Terminal Ready
PIN 05	GND	Signal Ground
PIN 06	DSR	Data Set Ready
PIN 07	RTS	Request To Send
PIN 08	CTS	Clear To Send
PIN 09	RI	Ring Indicator

9-pin Amplified Mono/Stereo Audio Out, DSUB Female

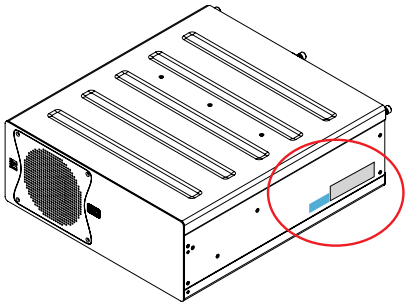
4



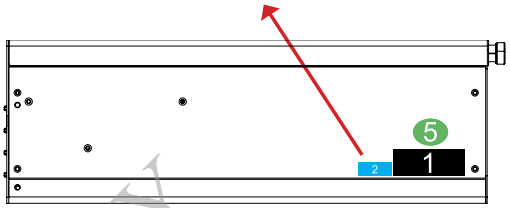
PIN 01	LAUDR	Left Audio Return*
PIN 02	LAUD	Left Audio*
PIN 03	RAUDR	Right Audio Return
PIN 04	RAUD	Right Audio
PIN 05	N/C	No internal connection
PIN 06	N/C	No internal connection
PIN 07	N/C	No internal connection
PIN 08	N/C	No internal connection
PIN 09	N/C	No internal connection

*For Mono: connect pin 01 and 02 only

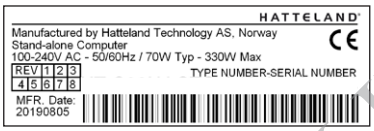
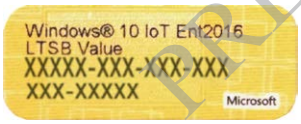
Details: Product Labels (Product/License) - Side



Only present if the unit was delivered with factory installed Operating System (OS) such as Microsoft® Windows® Embedded Enterprise. The same Product Key is also printed on the "Product Declaration" sheet that follows the unit, check contents of package. Note: For certain OS, there is no physical Product Key Label required or a Product Key Number that must be entered during installation / usage of the unit.



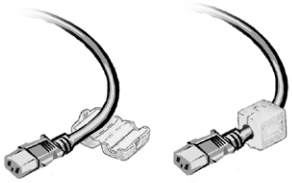
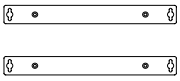
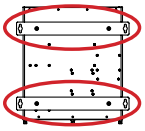
Label Size and Types

ID	Label Layout	Description	Specification
1		**Type : Serial Number Label** **Name** : Label B **Size** : 60mm wide x 22mm high (rectangle size) Note: Text content of label will match specifications derived from Data Sheet.	Silver with glue on back, non-tearable and made for thermal transfer printing.
		Barcode type: CODE128 (used extensively world wide in shipping and packaging industries. The symbology was formerly defined as ISO/IEC 15417:2007.)	
2		**Type : Operating System (OS) label.** **Size** : 22mm wide x 9mm high (rectangle size) Note: Label only present if OS was part of factory option order. Linux OS does not have any label.	As per delivered from supplier. Label applies for: Windows® 10 IoT Enterprise
5		**Type : Quality Control (QC) Label** **Size** : 30mm wide x 23mm high (oval size) This label indicates that the unit is produced, tested and packed according to the manufacture's QA specifications. It will include a Personal ID and signature by the personnell responsible for approving the unit in production, test and warehouse departments.	Ordinary sticker with glue on back.

Serial Number Label Layout Example

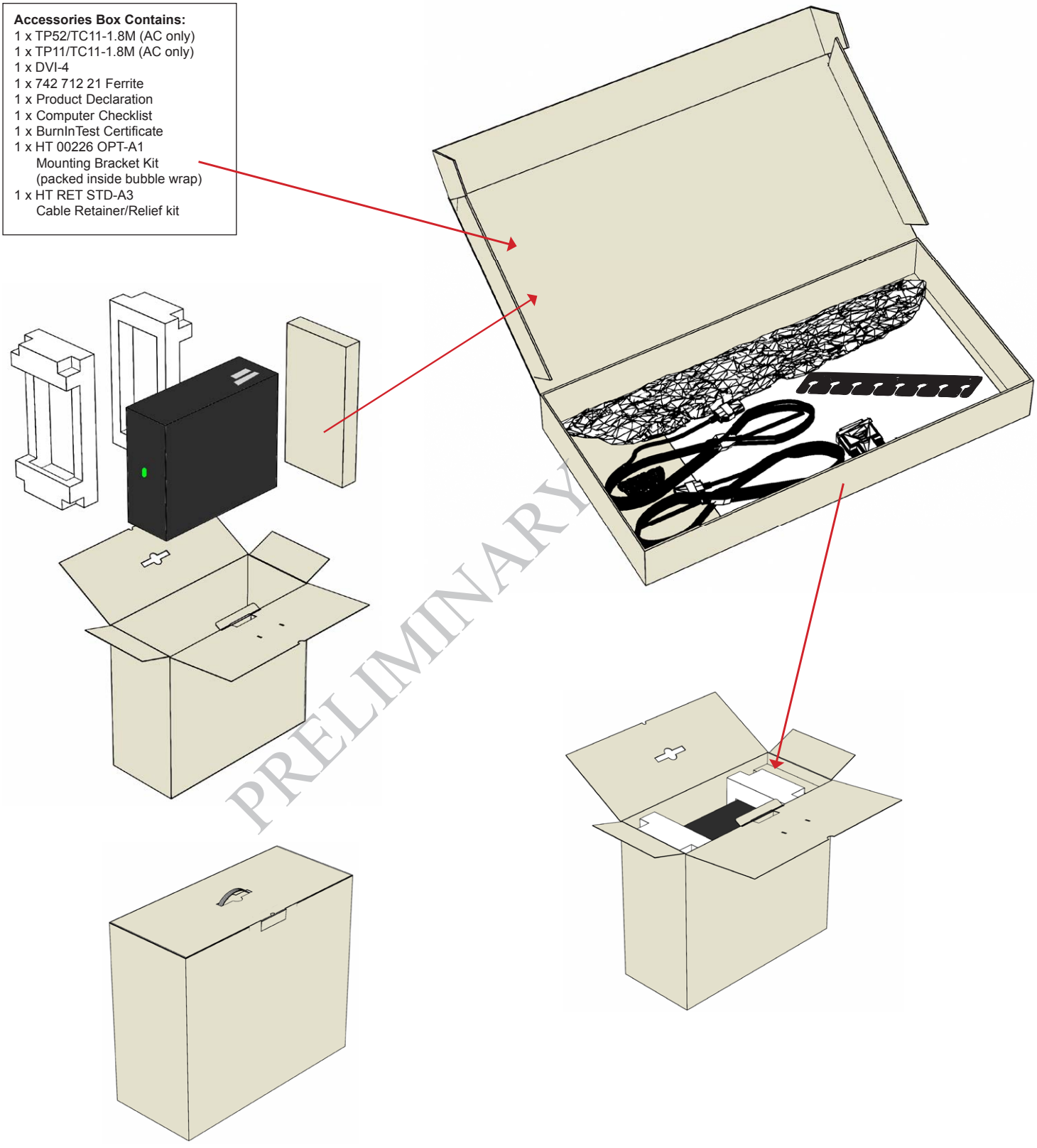
TBD

Contents of Package

Item	Description	Illustration
 TP52/TC11-1.8M	1 pcs of power cable European Type F “Schuko” to IEC. Length 1.8m Note: Only applicable for factory delivered units with AC Power Input	
 TP11/TC11-1.8M	1 pcs of power cable US Type B plug to IEC. Length 1.8m Note: Only applicable for factory delivered units with AC Power Input	
 Würth 742 712 21 (split, 10.5mm)	1 pcs - Würth 742 712 21 This ferrite is required when using 100/110/115V AC voltage on the power supply (not required for 230V AC) to be fully compliant with type approvals. Review installation chapter for more information.	
 HT 00226 OPT-A1	Mounting brackets incl. screws (for console mounting)	
 HT RET STD-A3	Cable Retainer/Relief kit consists of: 1 pcs for all general cables Screws: 3 pcs M3x4 DIN 965-10.9 Torx BLANK	
	Test Reports papers: 1 pcs of Product Declaration TBD 1 pcs of Computer Checklist TBD 1 pcs of BurnInTest Certificate TBD	

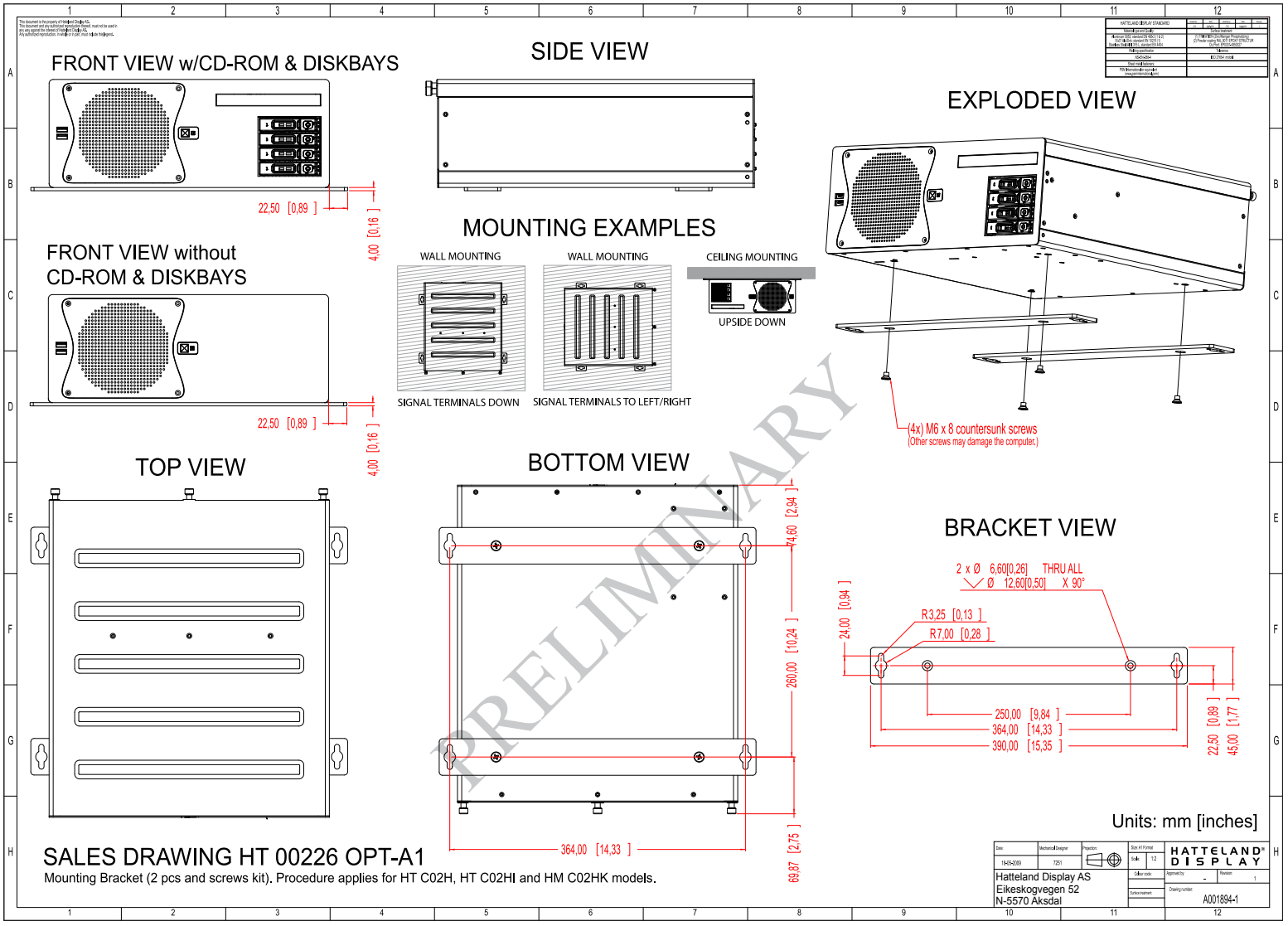
Details: Product Packaging

Accessories Box Contains:
1 x TP52/TC11-1.8M (AC only)
1 x TP11/TC11-1.8M (AC only)
1 x DVI-4
1 x 742 712 21 Ferrite
1 x Product Declaration
1 x Computer Checklist
1 x BurnInTest Certificate
1 x HT 00226 OPT-A1
Mounting Bracket Kit
(packed inside bubble wrap)
1 x HT RET STD-A3
Cable Retainer/Relief kit



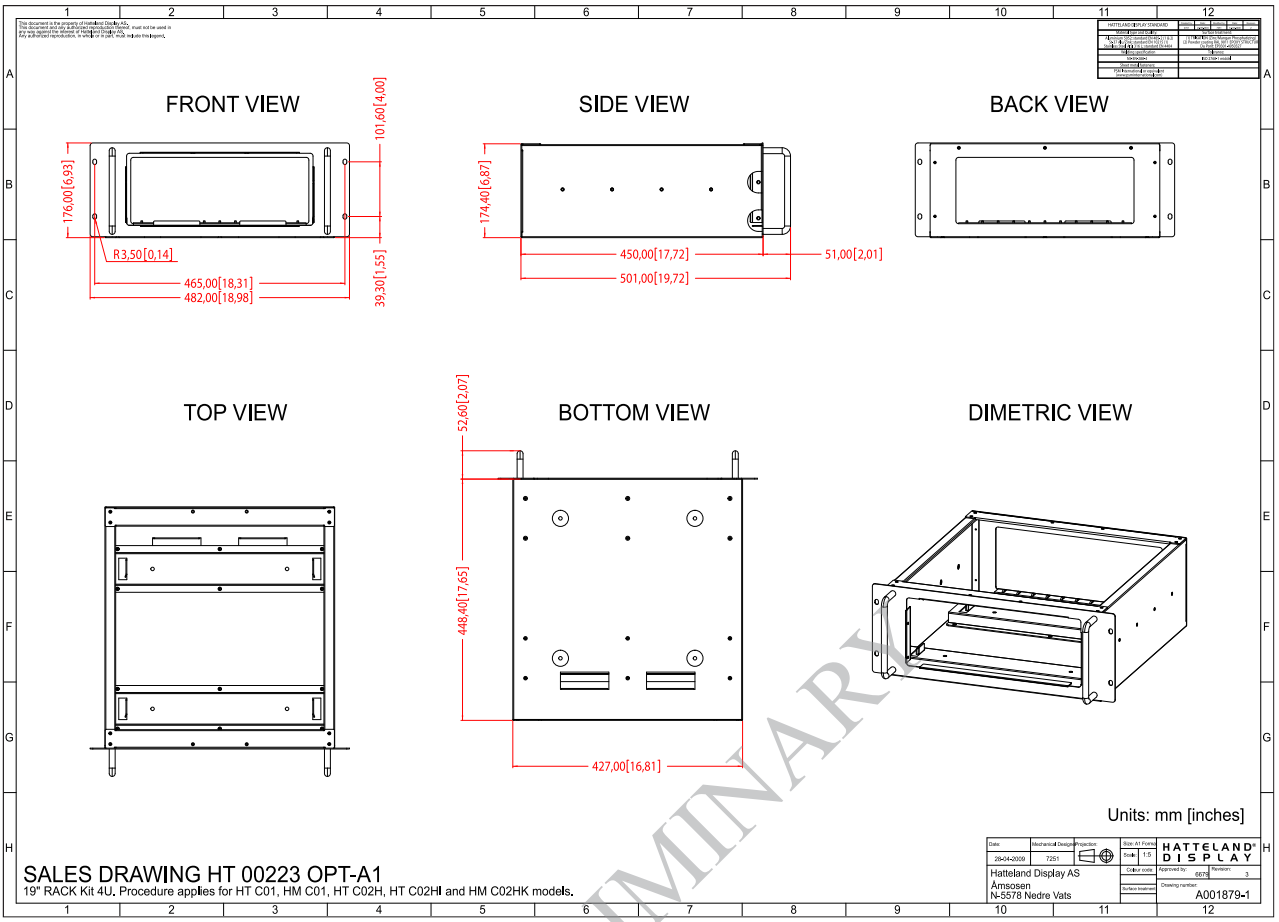
Details: HT 00226 OPT-A1 - Mounting Brackets Kit (included with delivery)

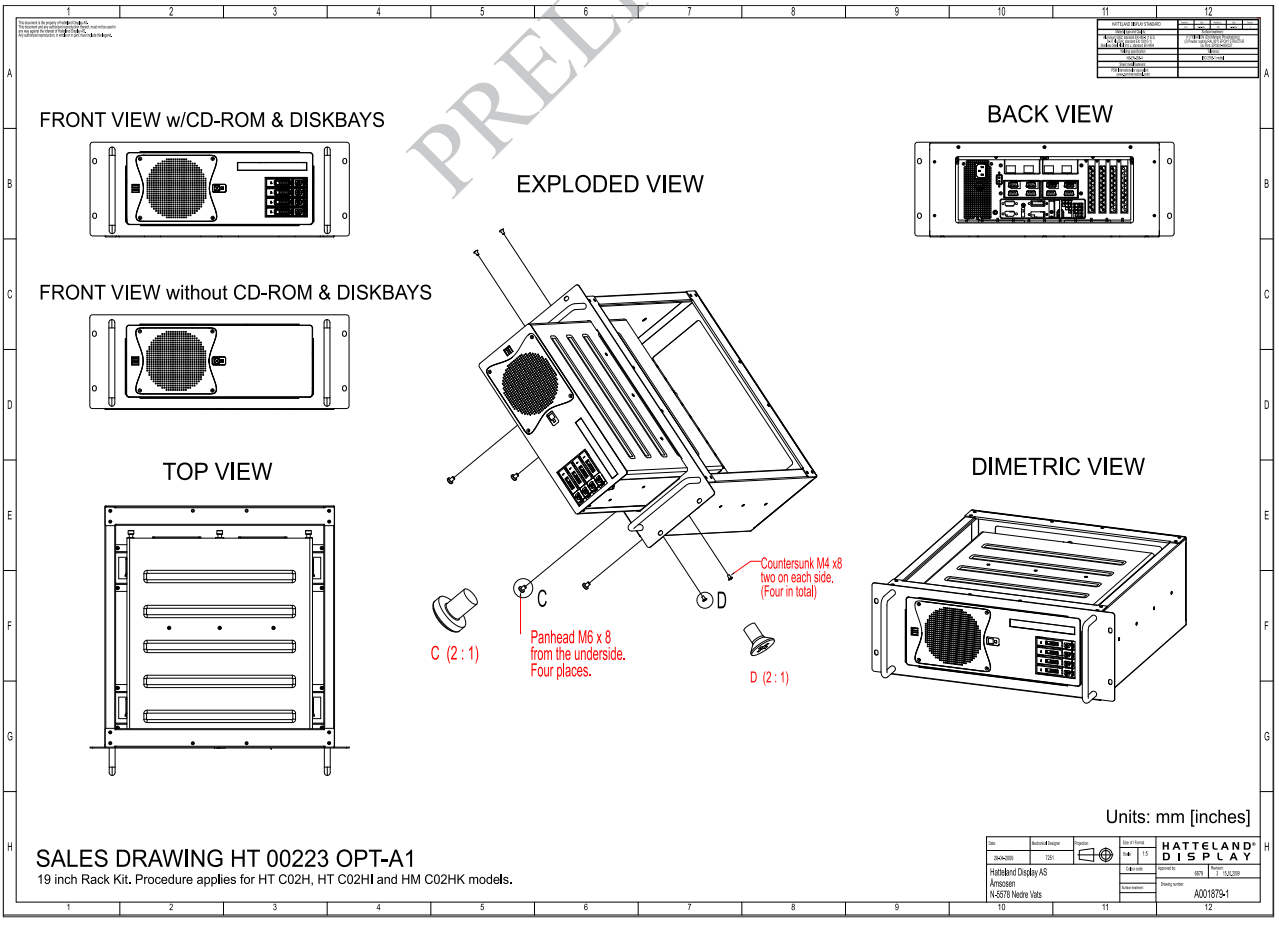
Note: Technical drawing is depicted with HT C02 Computer installed on the Mounting Brackets



Details of OPTIONAL Accessory: HT 00223 OPT-A1 - 19" Rack Kit 4U (Not included in standard delivery)

Note: Technical drawing is depicted with HT C02 Computer installed in the Rack Kit





Details of OPTIONAL Accessory: L-Bracket (Not included in standard delivery)

For dimensions not shown, see DWG or 3D model.

Creation date / by:	/	Projection		A2	HATTELAND TECHNOLOGY an EMBRON Company
Last rev. date / by:	/			Scale: 1:5	
Hatteland Technology AS Eikeskogvegen 52 N-5570 Aksdal		Sheet 1 / 1		Colour code:	Approved by: / Revision:
		Tolerance: ISO 2768-mK	Welding specification: NS-EN-288-4	Surface treatment:	Drawing number: