



Ericsson Antenna Technology Germany GmbH • Klepperstraße 26 • 83026 Rosenheim • Germany

Kathrein Mobile Communication — now part of Ericsson

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Company Responsible:
Markus Feld

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Tax ID No.: 103/5725/3930

BNP Paribas
IBAN: NL05 BNPA 0227 7141 56
BIC: BNPANL2AXXX

Zum 1. Oktober 2019 ist die Kathrein Mobile Communication die Ericsson Antenna Technology Germany GmbH (im Folgenden auch „EAG“), eine mit Gesellschaftsvertrag vom 16. Januar 2019 neu gegründete Gesellschaft mit beschränkter Haftung (GmbH) nach deutschem Recht mit Sitz in Rosenheim (Geschäftsanschrift: Prinzenallee 21, 40549 Düsseldorf). EAG ist im Handelsregister B des Amtsgerichts Traunstein unter der Nr. HRB 27988 eingetragen und hat ein Stammkapital von derzeit EUR 2.000.000,00. EAG wird vertreten durch den Geschäftsführer Markus Feld. Alleinige Gesellschafterin von EAG ist die Telefonaktiebolaget LM Ericsson (publ), eine börsennotierte Aktiengesellschaft nach schwedischem Recht.

Die neuen Firmendaten lauten seither wie folgt:
Ericsson Antenna Technology Germany GmbH
Klepperstraße 26
83026 Rosenheim, Germany
UST-Ident-Nr: DE 324 954 029
Steuer-Nr.: 103/5725/3930

As of 1 October 2019, Kathrein Mobile Communication is Ericsson Antenna Technology Germany GmbH (hereinafter also referred to as "EAG"), a limited liability company under German law, newly established by articles of association dated 16 January 2019, with its head office in Rosenheim (business address: Prinzenallee 21, 40549 Düsseldorf, Germany). EAG is registered in the commercial register, section B, of Amtsgericht Traunstein (district court Traunstein) under the number HRB 27988 and has a share capital of currently EUR 2,000,000. EAG is represented by managing director Markus Feld. The sole shareholder of EAG is Telefonaktiebolaget LM Ericsson (publ), a listed stock corporation under Swedish law.

The new company data are as follows:
Ericsson Antenna Technology Germany GmbH
Klepperstraße 26
83026 Rosenheim, Germany
VAT Reg. No.: DE 324 954 029
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Read more at: ericsson.com/en/networks/kathrein

A flexible, integrated solution for adjusting the electrical downtilt of Kathrein FlexRET antennas.

- Compliant to 3GPP/AISG 2.0
- Single RETs or Multi RET displayed
- Two way antenna sharing feasibility
- Daisy Chain feasibility
- Pre-configured



Type No.		86010153v01
Protocols		compliant to 3GPP/AISG 2.0
Logical interface ex factory		3GPP/AISG 2.0
Operates as		Single RETs or Multi RET
Ex factory		Single RETs
Input voltage range	V	10 ... 30 (pin 6)
Power consumption	W	Typically < 1; < 10 (motor activated)
Connectors		2 x 8 pin connector according to IEC 60130-9; according to AISG-C 485 Daisy chain in: male; Daisy chain out: female
Hardware interfaces		RS 485A/B (pin 5, pin 3); power supply (pin 6); DC return (pin 7); according to AISG / 3GPP
Adjustment time (full range)	sec	40 (typically, depending on antenna type)
Adjustment cycles		> 50,000
Temperature range	°C	-40 ... +60
Protection class		IP 24 (installed)
Lightning protection		AISG interface (each pin) 2.5 kA (10/350 µs) 8 kA (8/20 µs) according to IEC 61000-4-5
Housing material		Profile: Aluminum anodized; cover: Aluminum die cast coated
Weight	g lb	350 0.77
Packing size (H x W x D)	mm inches	245 x 93 x 102 9.6 x 3.6 x 4
Dimensions (H x W x D)	mm inches	142 x 71 x 51 5.6 x 2.8 x 2



Please note:

If the Primary which controls the FlexRET system does not support the default ex-factory interface setting, then the FlexRET must be switched to the appropriate standard of the Primary before installation. Please contact Kathrein for further information.

If the FlexRET of an antenna has to be replaced, the FlexRET gets the information stored in the antenna after power on automatically. It is not necessary to configure the FlexRET manually.

Standards: EN 60950-1 (Safety)
EN 60950-22 (Safety – Equipment installed outdoor)
EN 55022 (Emission)
EN 55024 (Immunity)
ETS 300019-1-4 (Environmental)
UL 60950-1; 1st edition

EU-RED: Hereby, KATHREIN SE declares that the radio equipment type 86010153v01 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <http://www.kathrein.com>

Certification: CE, FCC

Scope of supply: FlexRET

Optional: **Site Sharing Adapter** (86010154 or 86010155) to create independent logical interfaces at one antenna or site. Makes it possible to operate with more than one independent Node B.

Gender Adapter (86010162) to convert the AISG out (female) to an AISG in (male) port in order to operate one FlexRET with exactly 2 BTS.
Detailed information is given in the data sheet of the Gender Adapter.

Port Extender (86010163) to convert the existing AISG input and output in order to operate FlexRET with exactly 2 BTS while maintaining the daisy chain capability.
Detailed information is given in the data sheet of the Port Extender.

Please note:

In general, the addressing of the FlexRET is automatically performed. Only in case the FlexRET is manually addressed, the serial number has to be extended by the corresponding colour coding extension (e.g. CSG351234-R1). The respective information can be found on the site documentation which is included in the scope of supply.

Startup of FlexRET

The FlexRET module included in the antenna is preconfigured with the following information: Antenna model no., Antenna Serial no., Antenna configuration data. After connecting a control cable and scanning the antenna line devices (ALD) the used primary (e.g. NodeB, ALC, etc.) will find the FlexRET. You only need to insert your additional data.

Connecting the control cables:



Connect a control cable to the daisy chain input of the FlexRET. The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand or by a special torque screw driver (order no. 85010080). See also data sheet for Kathrein AISG-cable (86010007, ...).

Please note: To ensure the tightness of the RET System, Kathrein recommend the use of Kathrein components only.

Please note: If the daisy chain output is not used, do not remove the protection cap.



For daisy chain operation, remove the protection cap and attach a control cable to interconnect with the daisy chain input of the subsequent FlexRET or external RCU.

Please note: Do not remove the protection cap on the daisy chain output of the last FlexRET or RCU device.

FCC – Statements**FCC § 15.19**

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC § 15.105

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Canada CNR-Gen Section 7.1.3

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

ICES-003

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

FCC § 15.21 (Warning Statement)

[Any] changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Compliance Information Statement (Declaration of Conformity Procedure)

Responsible Party: Kathrein USA

Address: Greenway Plaza II, 2400 Lakesite Blvd. Suite 650, 75082 Richardson, Texas

Telephone: (+01)214 238 8800

Type of Equipment:



Model Name: FlexRET
FCC ID SP3-86010153

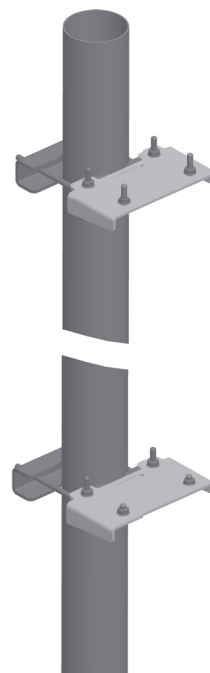
Mounting Hardware Offset for Panel Antennas

KATHREIN

Type No.		85010104
Wind load category		"XH"
Quantity needed per antenna		1x spacer kit
Material: – spacer – nuts		Hot-dip galvanized steel Hot-dip galvanized steel
Weight	kg	2.88
	lb	6.35
Scope of supply		2 x spacer, Fitting accessories

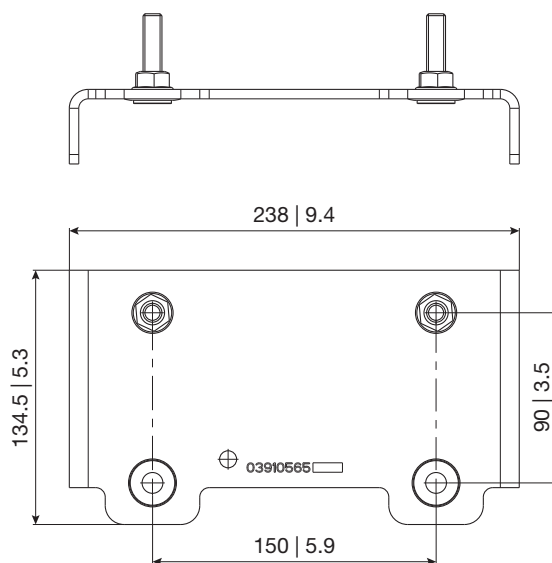
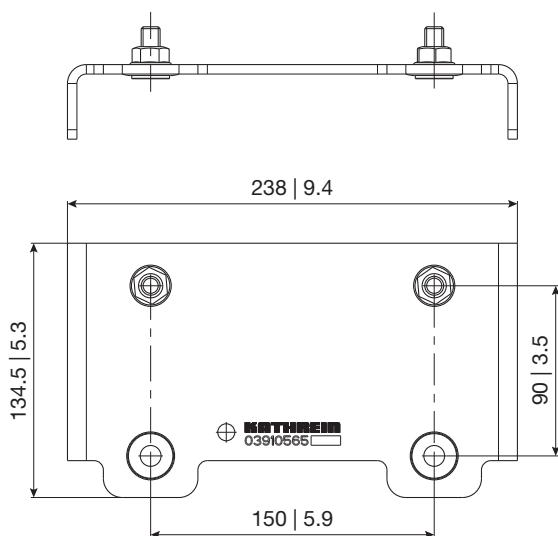
Recommended torque for M10 bolted connections: 40 Nm

Please use the offset in combination with clamps corresponding to the pole diameter.



lower spacer

upper spacer



All dimensions in mm | inches

Mounting accessories (order separately)

Type No.	Description	Remarks mm inches	Weight approx. kg lb	Units per antenna
85010096	2 clamps	Mast diameter: 55 – 115 2.2 – 4.5	5.0 11.0	1 kit
85010097	2 clamps	Mast diameter: 110 – 220 4.3 – 8.7	9.4 20.7	1 kit
85010101	2 clamps	Mast diameter: 280 – 380 11.0 – 15.0	14.6 32.2	1 kit
85010102	2 x 3 sector clamp	Mast diameter: 114.3 4.5	14.5 31.9	1 kit

If a downtilt kit is used, please choose the fitting one from the antenna data sheet.

936.5420 Subject to alteration.

4-Port Antenna	R1	R2
Frequency Range	617-746	617-746
Dual Polarization	X	X
HPBW	65°	65°
Gain	13dBi	13dBi
Adjust. Electr. DT set by <i>FlexRET</i>	4°-20°	4°-20°



4-Port Antenna 2LB 4ft 65° | 2x617-746 13dBi

Type No.		80040000			
Lowbands		R1, connector 1-2		R2, connector 3-4	
		617-746		617-746	
Frequency Range	MHz	617 – 698	698 – 746	617 – 698	698 – 746
Gain at mid Tilt	dBi	12.4	12.9	12.3	12.9
Gain over all Tilts	dBi	12.4 ± 0.3	12.8 ± 0.3	12.3 ± 0.3	12.8 ± 0.4
Horizontal Pattern:					
Azimuth Beamwidth	°	65 ± 4.8	66 ± 5.8	63 ± 5.0	64 ± 6.9
Front-to-Back Ratio, Total Power, ± 30°	dB	> 22	> 20	> 18	> 19
Cross Polar Discrimination at Boresight	dB	25	24	23	23
Cross Polar Discrimination over Sector	dB	13.0	11.5	10.0	13.0
Vertical Pattern:					
Elevation Beamwidth	°	21.7 ± 1.7	19.7 ± 1.2	21.7 ± 2.1	19.7 ± 1.3
Electrical Downtilt continuously adjustable	°	4.0 – 20.0		4.0 – 20.0	
Tilt Accuracy	°	< 1.9	< 0.9	< 1.8	< 1.6
First Upper Side Lobe Suppression	dB	> 11	> 12	> 13	> 14
Upper Side Lobe Suppression, 20° Sector above Main Beam	dB	> 20	> 20	> 17	> 22
Cross Polar Isolation	dB	> 25		> 25	
Port to Port Isolation	dB	typ. >25 dB (R1 // R2)		typ. >25 dB (R2 // R1)	
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)		200 (at 50 °C ambient temperature)	

Values based on NGMN-P-BASTA (version 10.0) requirements.



Electrical specifications, all ports		
Impedance	Ω	50
VSWR		< 1.5
Return Loss	dB	> 14
Interband Isolation	dB	> 25
Passive Intermodulation	dBc	< -153 (2 x 43 dBm carrier)
Polarization	°	+45, -45
Max. Effective Power for the Antenna	W	500 (at 50 °C ambient temperature)

Values based on NGMN-P-BASTA (version 10.0) requirements.

Mechanical specifications		
Input	4 x 4.3-10 female	
Connector Position	bottom	
Adjustment Mechanism	Non-Removable FlexRET, continuously adjustable	
Wind load (at Rated Wind Speed: 150 km/h)	N lbf	Frontal: 760 171 Maximal: 835 188
Max. Wind Velocity	km/h mph	241 150
Height / Width / Depth	mm inches	1205 / 576 / 166 47.4 / 22.7 / 6.5
Category of Mounting Hardware	XH (X-Heavy)	
Weight	kg lb	23.0 / 28.0 (clamps incl.) 50.7 / 61.7 (clamps incl.)
Packing Size	mm inches	1395 / 595 / 220 54.9 / 23.4 / 8.7
Scope of Supply	Panel, FlexRET, Offset and 2 units of clamps for 55-115 mm 2.2-4.5 inches diameter	

Accessories (order separately if required)

Type No.	Description	Remarks mm inches	Weight approx. kg lb	Units per antenna
85010097	2 clamps	Mast diameter: 110-220 4.3-8.7	9.4 20.7	1
85010099	1 downtilt kit	Downtilt angle: 0 -19°	10.6 23.4	1
86010154	Site Sharing Adapter	3-way (see figure below)	0.7 1.5	
86010155	Site Sharing Adapter	6-way (see figure below)	1.4 3.1	
86010162	Gender Adapter	Solely to be used in combination with the FlexRET module 86010153v01	0.045 0.099	1
86010163	Port Extender		0.16 0.35	1

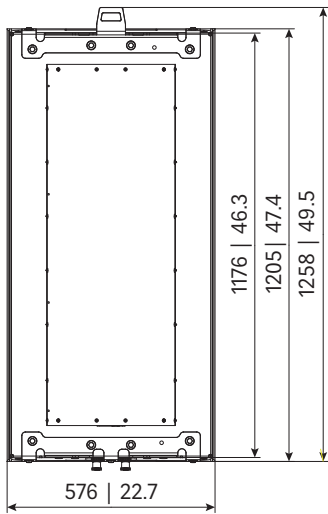
Accessories (included in the scope of supply)

85010096	2 clamps	Mast diameter: 55-115 2.2-4.5	5.0 11.0	1
85010104	Offset		2.88 6.35	1
86010153v01	FlexRET			1

For downtilt mounting use the clamps for an appropriate mast diameter together with the downtilt kit.
Wall mounting: No additional mounting kit needed.

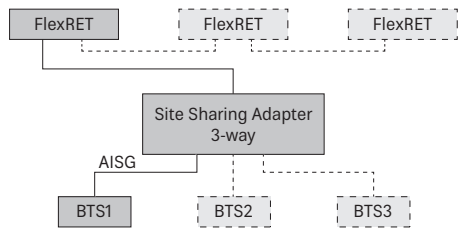
Material: **Reflector screen:** Aluminum.
Fiberglass housing: It covers totally the internal antenna components. The special design reduces the sealing areas to a minimum and guarantees the best weather protection. Fiberglass material guarantees optimum performance with regards to stability, stiffness, UV resistance and painting. The color of the radome is light grey.
All nuts and bolts: Stainless steel or hot-dip galvanized steel.

Grounding: The metal parts of the antenna including the mounting kit and the inner conductors are DC grounded.

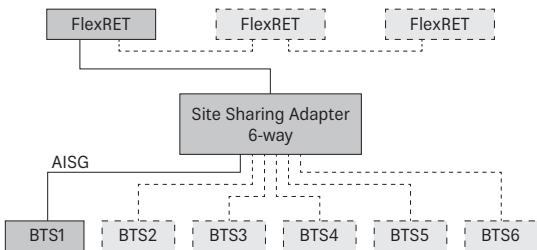


All dimensions in mm | inches

Configuration example with Site Sharing Adapter 86010154

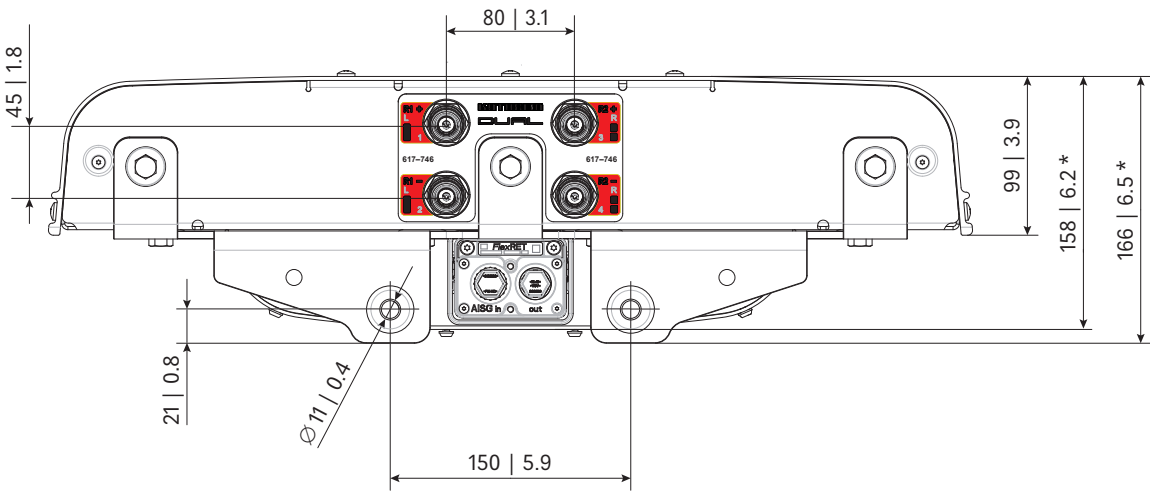


Configuration example with Site Sharing Adapter 86010155



For more information please refer to the respective data sheets.

Layout of interface:



Bottom view
* Dimensions refer to radome
All dimensions in mm | inches

Correlation Table

Frequency range	Array	Connector / Ports
617-746 MHz	R1	1-2
617-746 MHz	R2	3-4



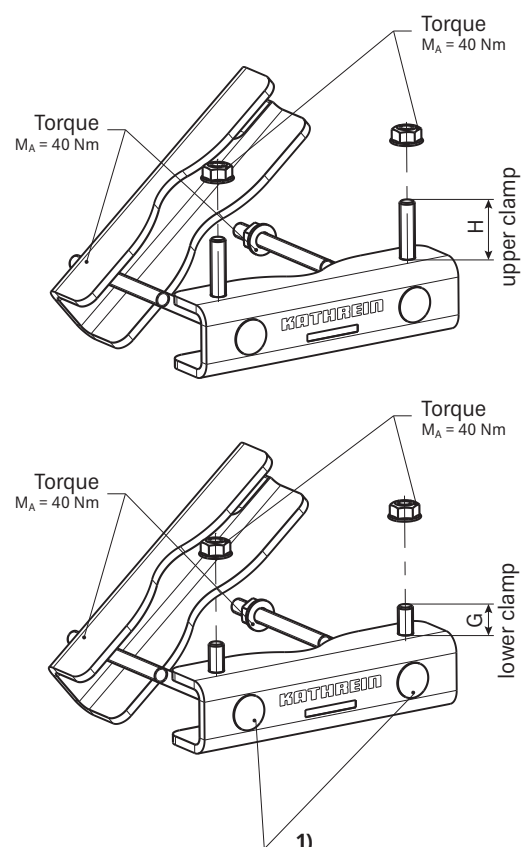
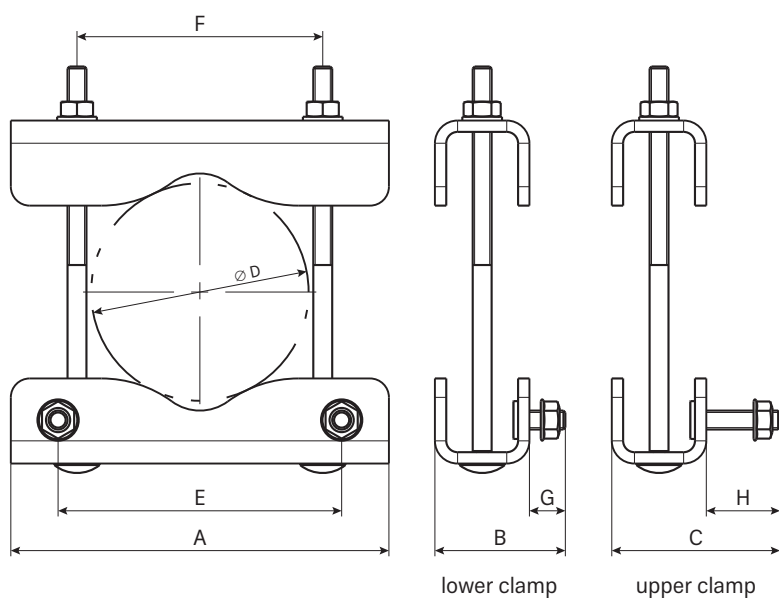
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Mounting Hardware Clamp (Wind Load Category “XH”)

KATHREIN

Clamp

Type No.		85010096
Suitable for mast diameter	mm inches	55 – 115 2.2 – 4.5
Scope of supply		1 x lower clamp 1 x upper clamp
Material – Clamp – Screws – Nuts		Hot-dip galvanized steel Hot-dip galvanized steel Stainless steel
Weight	kg	5.0
	lb	11.0



- 1) Attention!**
Square of the screw must be positioned in the square hole before tightening the nut.
- 2)**
All nuts have the same wrench size 17.

	A	B	C	D	E	F	G	H
mm	200	69	89	55 – 115	150	130	(19)	(39)
inches	7.9	2.7	3.5	2.2 – 4.5	5.9	5.1	(0.7)	(1.5)

Please note: Kathrein does not recommend to use counter nuts.

936.5063a | Subject to alteration.