Metorex

March 5, 1999

Mr. Eric Compton
Materials Safety Branch
Division of Industrial and Medical Nuclear Safety
Office of Nuclear Materials Safety and Safeguards
Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Mr. Compton:

This letter is in response to your letter of February 10, 1999 regarding the amendment request for the Metorex (formerly Outokumpu Electronics) registration certificate NR-701-D-101-B. The following are responses to your points:

1. The description of the HEPS probe has been modified to give the source registration numbers instead of the manufacturers part number (see page 11).

2. The SSPS modifications are described on page 1. Several additional drawings have been added with information on the push rods and assembly.

3. The radiation measurements were labeled properly, if in a somewhat confusing manner. The measurements for the probe with shutter closed were made on the probe not mounted in the Cell Box. This is the radiation which might be experienced by a service engineer. The measurements made with the shutter opened were made with the probe inside the Cell Box. These measurements were made outside the Cell Box as this is the normal operating configuration.

   These levels are consistent with the requirements of 10% of the annual dose limit specified in 10 CFR 20.1201(a). In an extreme case, the user might have to open the cell box once a quarter. If we assume that the user spends 8 hours within 5 cm of the back of the cell (an extremely unlikely and difficult thing to do), this exposure would be 416 uSv/year (8 hours * 13 uSv/hr * 4). In addition, the same user spends 8 hours/day within 30 cm of the cell box while the shutter is open (again an unlikely situation), exposure would be 880 uSv/year (2200 hrs/year * 0.4 uSv/hr). Adding these exposures gives a total of 1296 uSv/year, well below the 5000 uSv/year allowed.

METOREX INC.
Princeton Crossroads Corporate Center • 250 Phillips Boulevard • Ewing, New Jersey 08618 • 1-609-406-9000 • Fax 1-609-530-9055

Metorex

4. The description of the Courier 8 and the HEPS 2412 have been modified and several photographs have been added to better describe the shutter and interlocking mechanism of the probe.

5. Metorex intends to distribute both the modified SSPS and HEPS to persons generally licensed pursuant to 10 CFR 31.5 in accordance with the requirements of 10 CFR 32.51.

All of the mechanical drawings which are attached to this submission have been reduced to adjust from the original A4 format of most drawings to standard 81/2"x11" paper. Thus, they are reduced to about 94% of their original size. If you have any questions, please feel free to call me at (609) 406-9000 x122.

Sincerely,

John I.H. Patterson, Ph.D.
President

JIHP/jlr

METOREX INC.

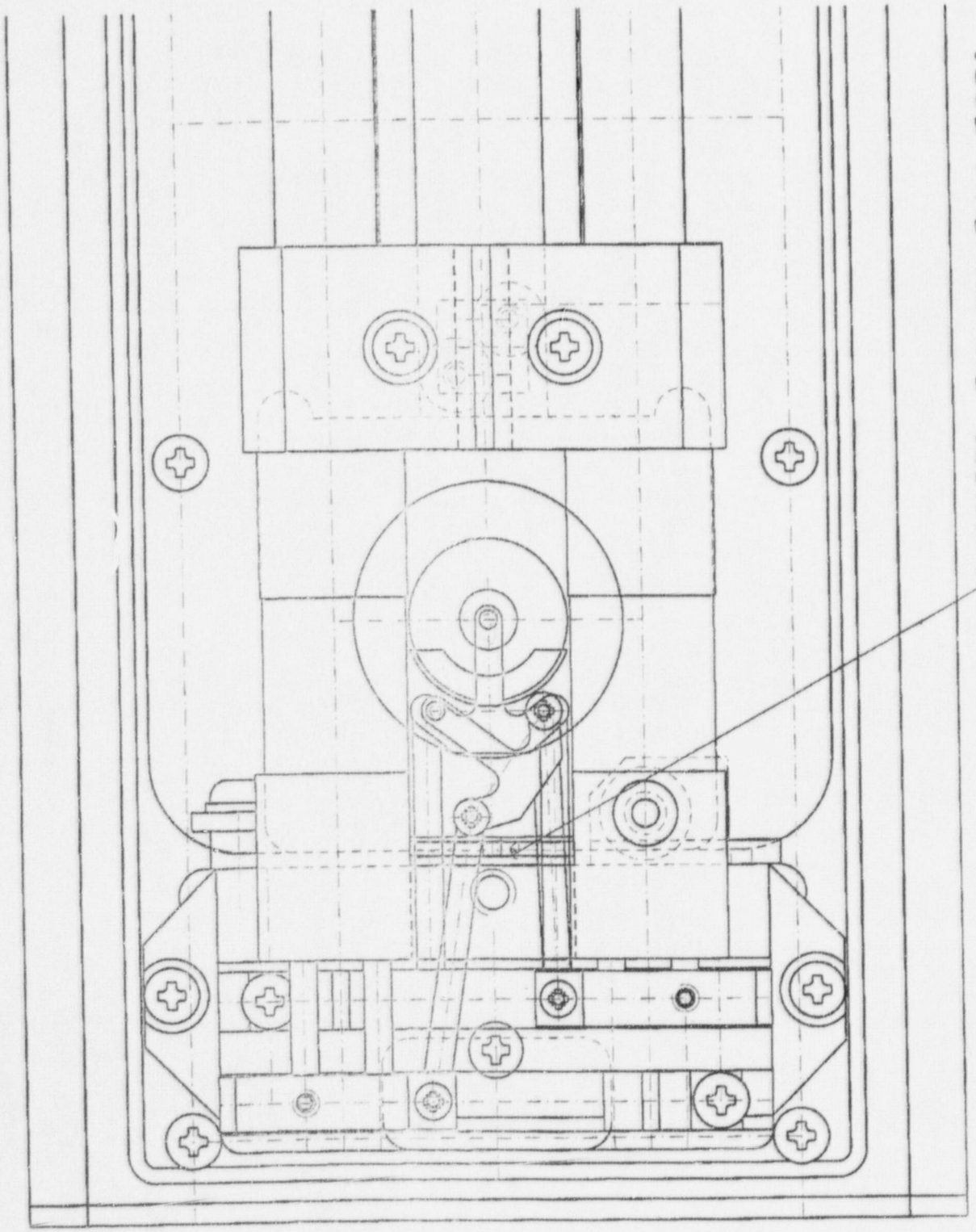
Princeton Crossroads Corporate Center • 250 Phillips Boulevard • Ewing, New Jersey 08618 • 1-609-406-9000 • Fax 1-609-530-9055

Description of Reference Source Holder for SSPS Probe

The design of the SSPS probe has been modified to add a 50kBq Cd-109 source to the unit to provide a reference spectrum when the probe is inactive. Figure 1 on page 2 illustrates the operation of the mechanism. When both sources are off, the reference source is positioned over the detector. When either source is active, the reference source is placed off the detector axis. The general construction of the reference source holder is shown in Figure 2 on page 3. The reference source is placed in the holder and then covered with a silver cover followed by an aluminum cover. These covers are glued into the holes and them secured by deforming the edge of the hole by hitting it with a conical shaped tool at four points as indicated in the drawing. The individual components of the mechanism are shown in Figures 4-7.

The Certificate of Radioactive Source Integrity is attached on page 9. This modification has no effect on the radiation profile of the probe.

FIGURE 12



SSPS FIGURE 1

FIGURE 1 - LABORATORY SAMPLE PROBE FOR THE MODEL 840 and THE MODEL 820

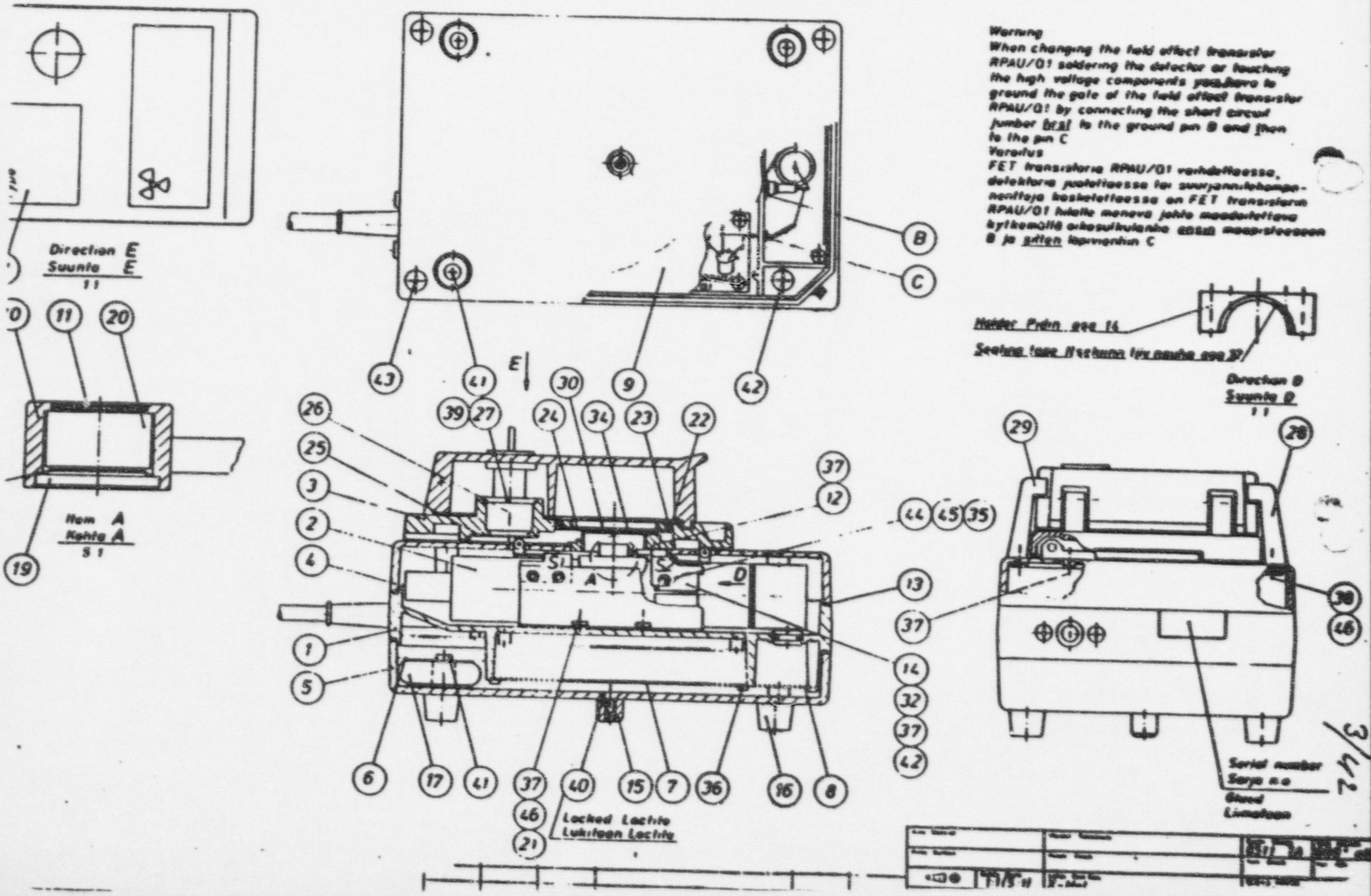


FIGURE 2

LABORATORY SAMPLE PROBE - IN THE SAMPLE CHANGING POSITION

(Uses Cm 244, Cd 109 or Am 241)

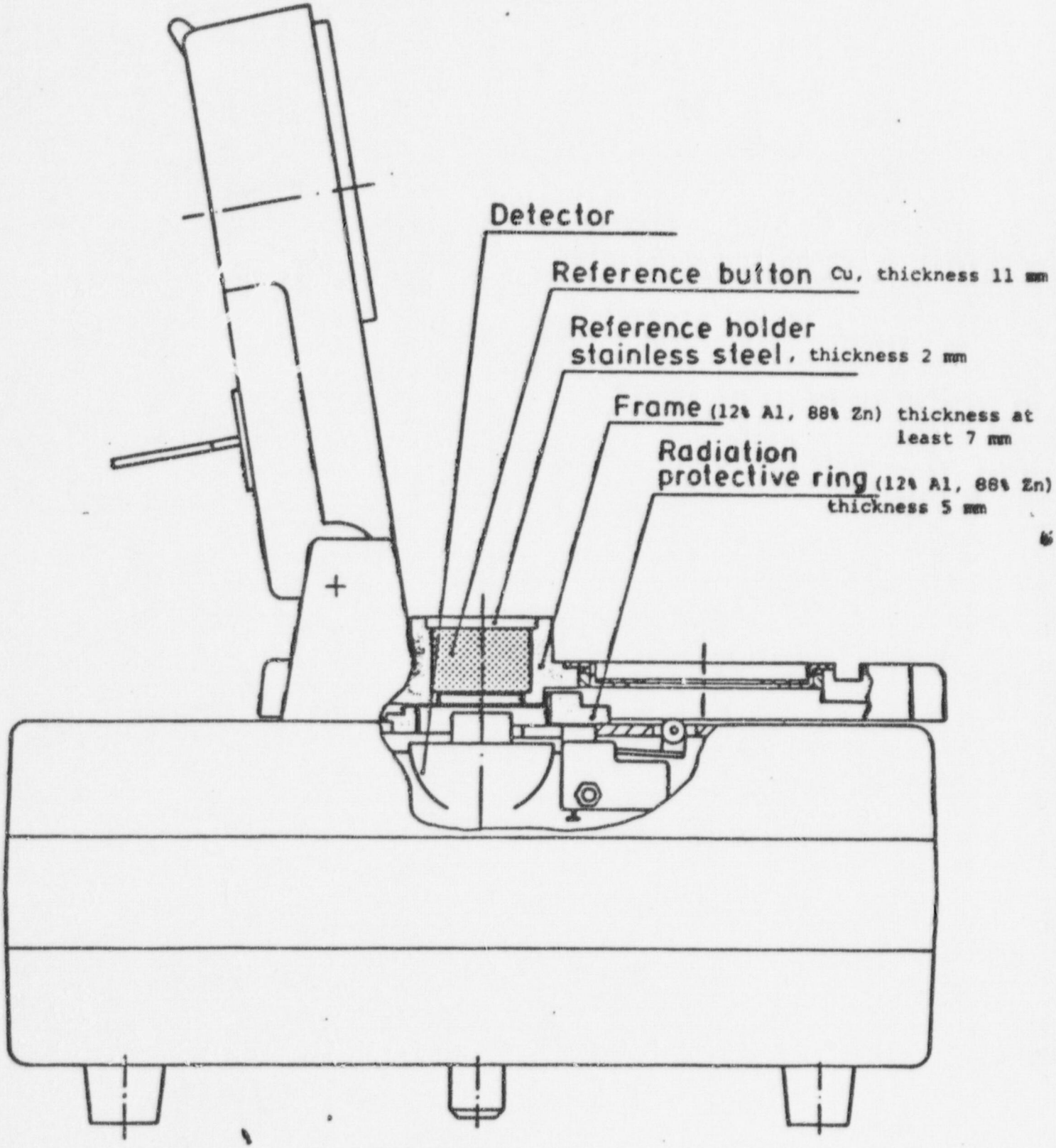


Figure 2 HEPS 2171
Sample change and reference measurement position
Scale 1:1

FIGURE 3

LABORATORY SAMPLE PROBE - IN THE MEASUREMENT POSITION

(Uses Cm 244, Cd 109 or Am 241)

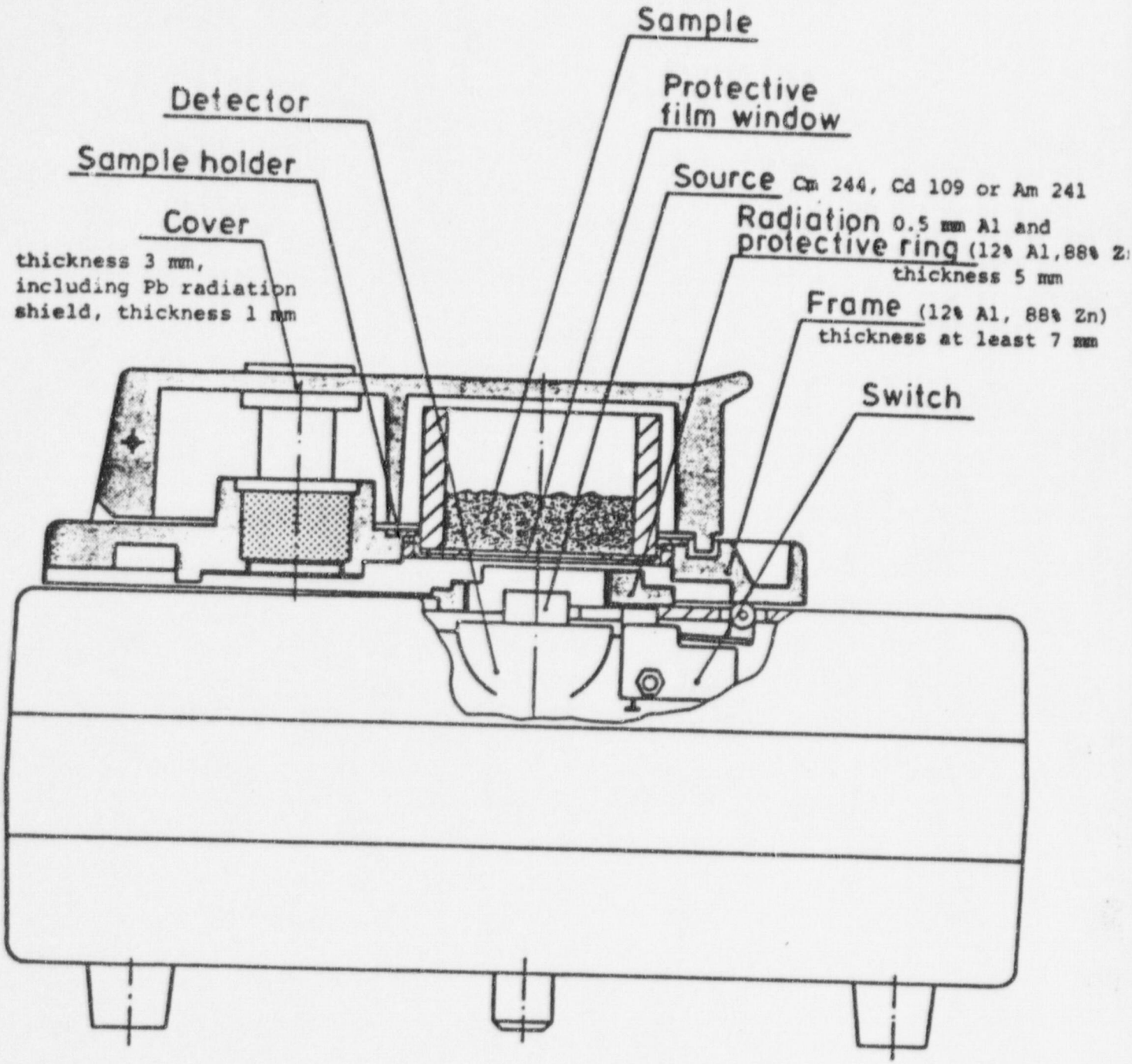
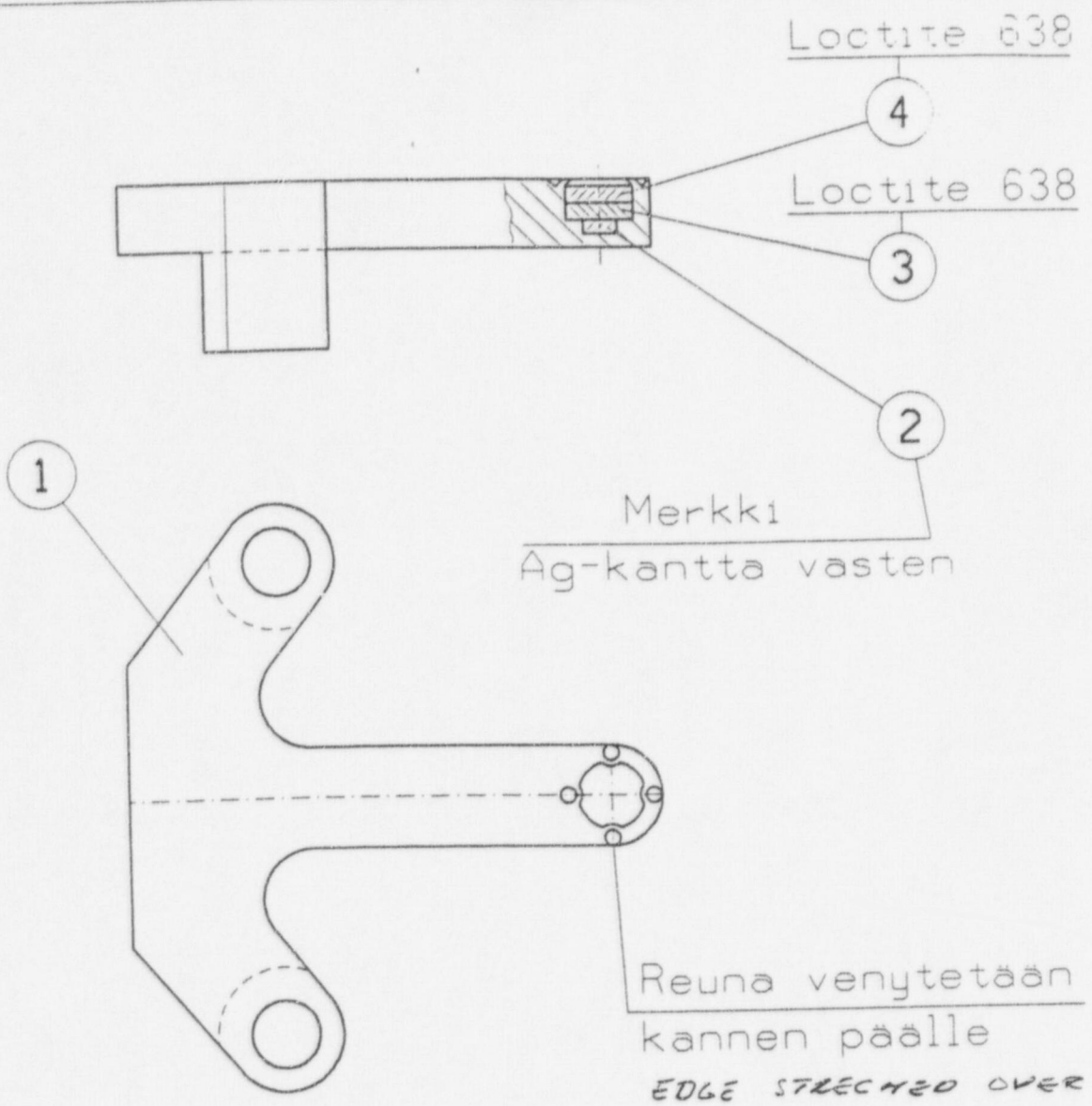


Figure 3. HEPS 2171
Measurement position
Scale 1:1

REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.



OSA ITEM	OSAN NIMI, MITAT, MITTASTD., AINE, HIINESTD. DESCRIPTION		PIIR.NRO TAKO CODE	KPL QTY
4	Al-kansi	ALUMINIUM COVER	4100 227-4M	1
3	Ag-kansi	SILVER COVER	4100 226-4M	1
2	Säteilynappi Cd109	RADIATION SOURCE	3060233	1
1	Referenssivipu	REFERENCE HOLDER	4100 047-4M	1

YLEISTOLERANSSI TOLERANCES
ISO 2768-f

SUHDE SCALE
5:1

LIITTYY NEXT ASSY
XSDS 2471

Metorex

REFERENCE SOURCE ASSEMBLY
Referenssisäteilijä

SUUNN. DESIGNED 9502 JP
PIIRT. DRAWN 9503 RM
TARK. CHECKED
HYV. APPROVED

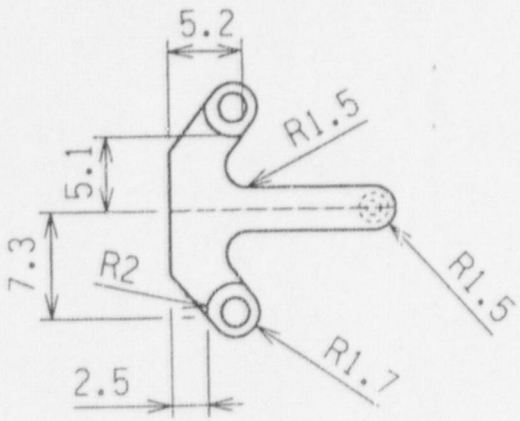
TUOTE PRODUCT
X-MET 920

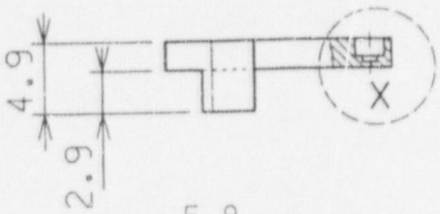
OSALUETTELO PART LIST 4100 228-40
PE. 01

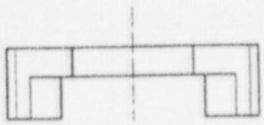
PIIRUSTUS CODE
5100 227-4K

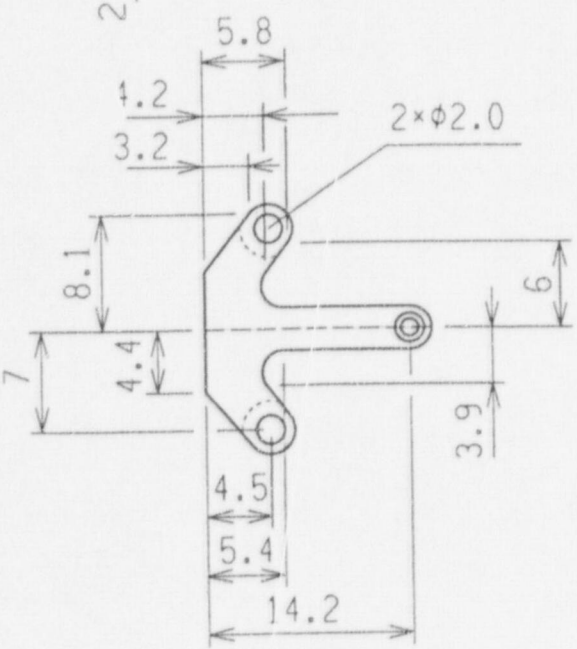
SSPS FIGURE 2

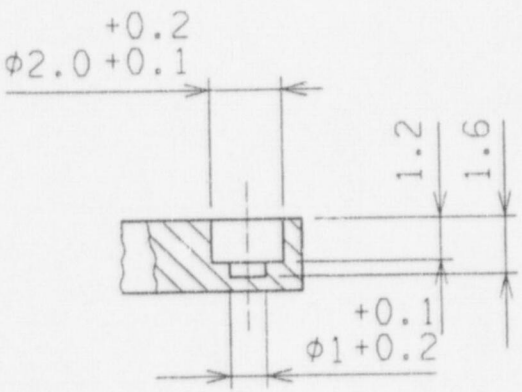
REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.











Kohta X 5:1

Koneistusohjelma: Maho/Metorex

Harmaa anodisointi

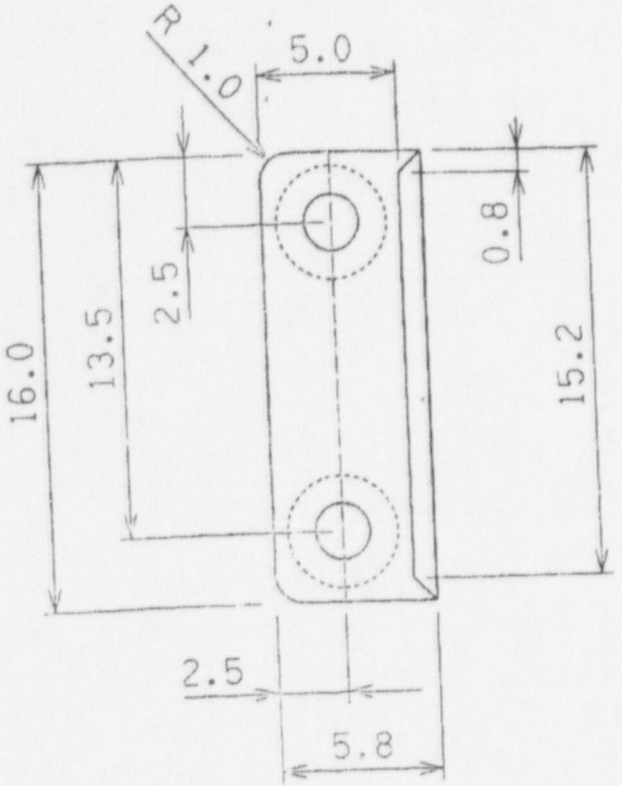
3.2

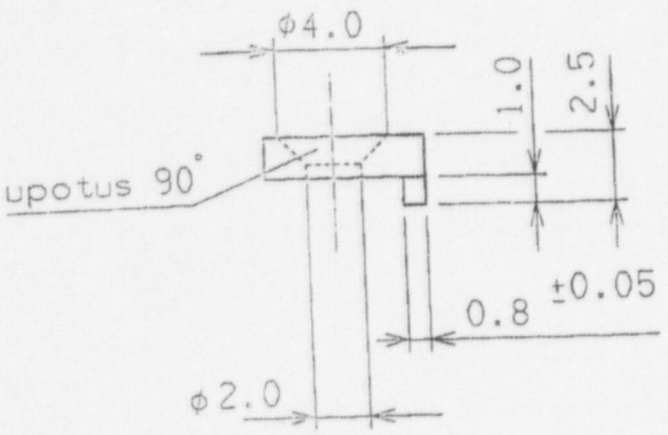
PART 1

	Al-lattatanko 10×20 mm ALUMINIUM	3159 431	
OSA ITEM	OSAN NIMI, MITAT, MITTASTO., AINE, AINESTO. DESCRIPTION	PIIR.NRO TAKO CODE	KPL QTY
YLEISTOLERANSSI TOLERANCES ISO 2768-f		SUUNN. DESIGNED 9410 JP	PIIRT. DRAWN 9503 RM
SUHDE SCALE (5:1) 2:1	LIITTYY NEXT ASSY XSDS 2471	TARK. CHECKED	HYV. APPROVED
Metorex	REFERENCE HOLDER Referenssivipu	TUOTE PRODUCT X-MET 920	
		OSAL.NRO PART LIST 4100 228-40	REV. 02
		PIIR.NRO CODE 4100 047-4M	

SSPS FIGURE 3

REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.





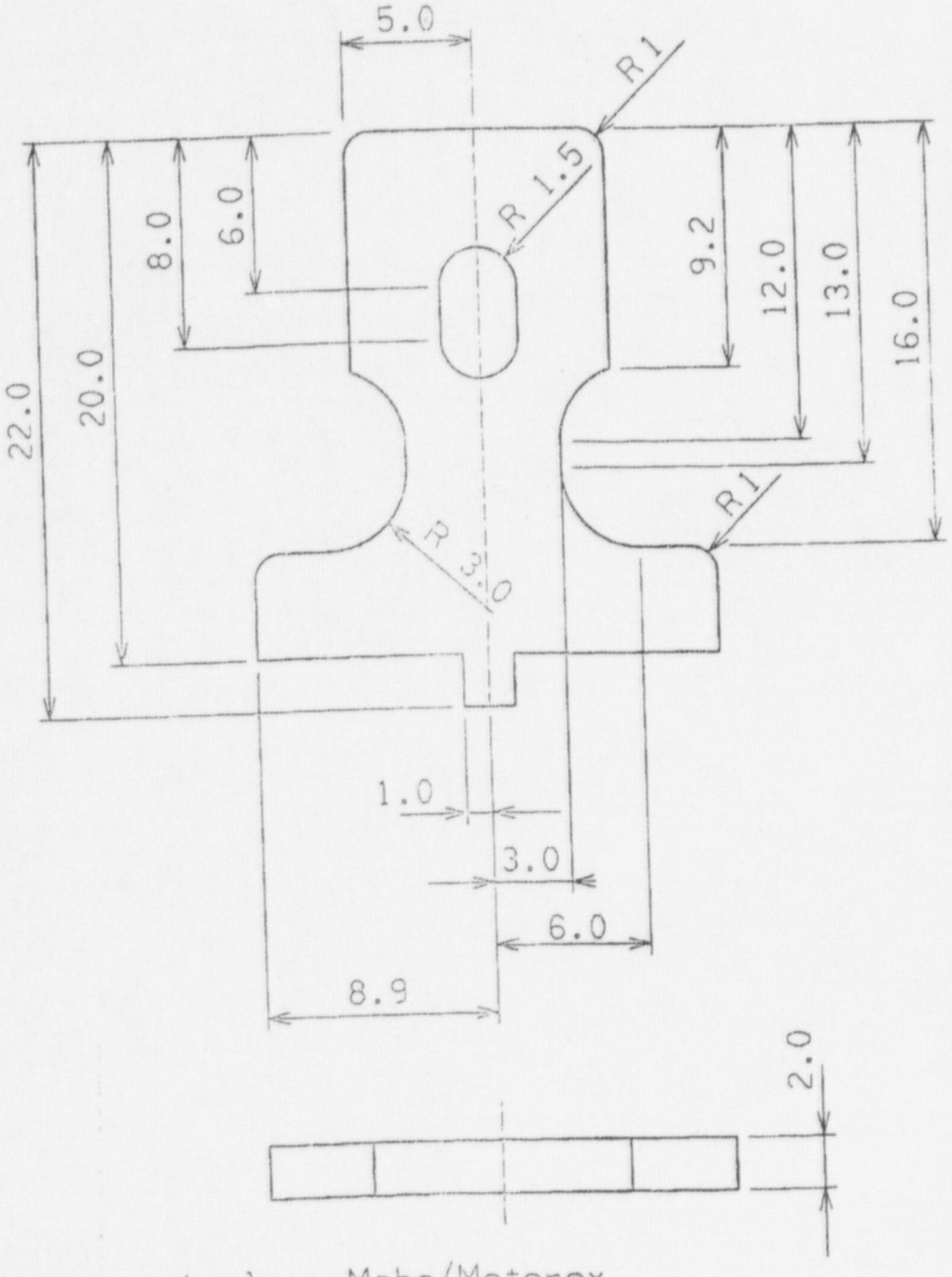
3.2

Koneistusohjelma: Maho/Metorex

OSA ITEM	OSAN NIMI, MITAT, MITTASTO., AINE, AINESTD. DESCRIPTION	PIIR.N:O TAKO CODE	KPL QTY
	POM-levy DELRIN		

YLEISTOLERANSSI TOLERANCES ISO 2768-m		SUUNN. DESIGNED 9411 JP	PIIRT. DRAWN 9411 RM
		TARK. CHECKED	HYV. APPROVED
SUHDE SCALE 5:1	LIITTYY NEXT ASSY XSDS 2471	TUOTE PRODUCT X-MET 920	
		OSAL.N:O PART LIST 4100 029-40	REV. 02
Metorex	LOWER SUPPORT Alatuki	PIIR.N:O CODE 4100 040-4M	

REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.



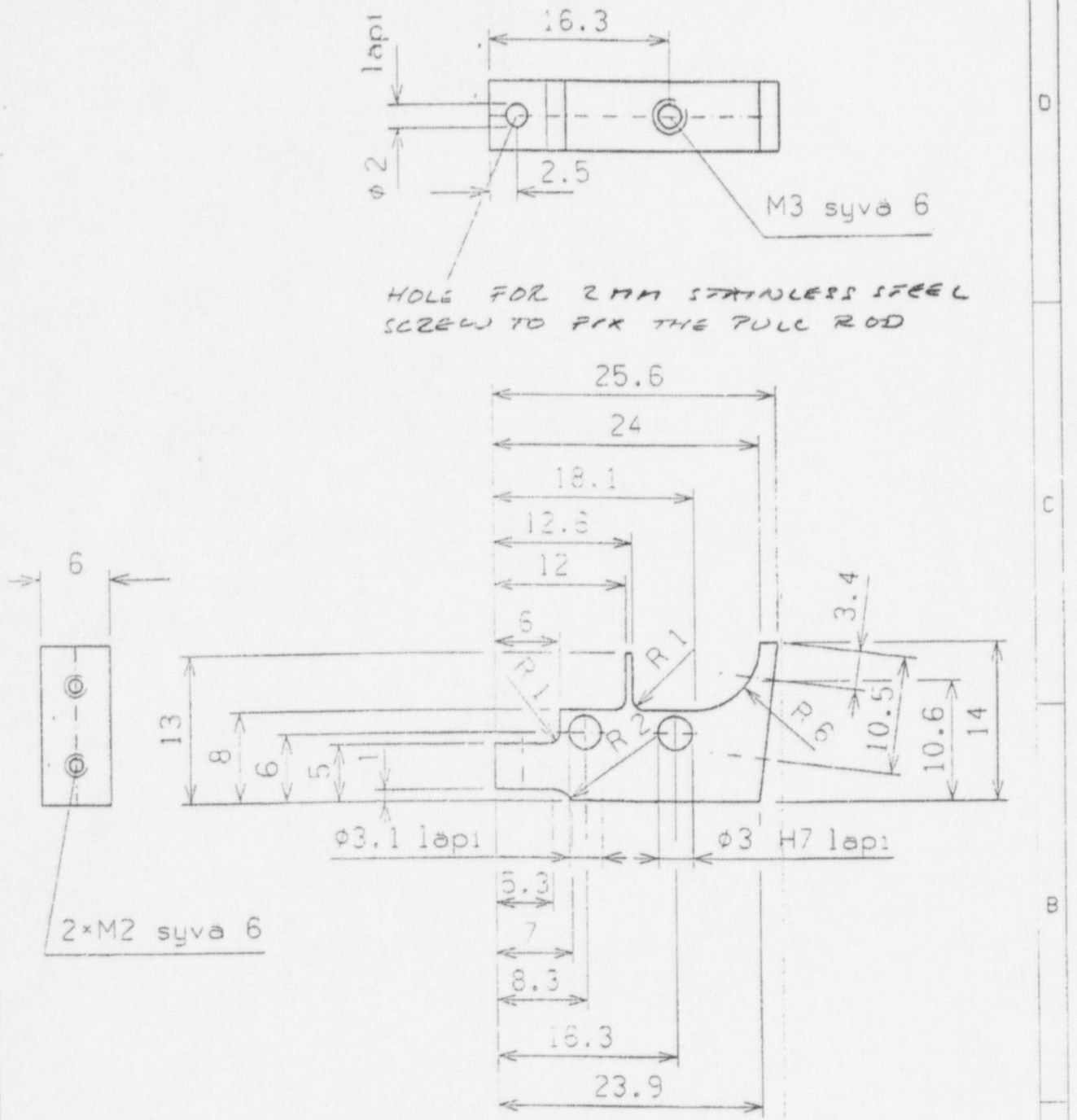
3.2

Koneistusohjelma: Maho/Metorex

OSA ITEM	OSAN NIMI, MITAT, MITTASTO., AINE, AINESTO. DESCRIPTION	PIIR.N:O TAKO CODE	KPL QTY
	POM-levy DELRIN PLATE		

YLEISTOLERANSSI TOLERANCES ISO 2768-m		SUUNN. DESIGNED 9411 JP	PIIRT. DRAWN 9411 RM
		TARK. CHECKED	HYV. APPROVED
SUHDE SCALE 5:1	LIITTYY NEXT ASSY XSDS 2471	TUOTE PRODUCT X-MET 920	
		OSAL.N:O PART LIST 4100 029-40	REV. 02
Metorex	UPPER SUPPORT Ylätuki	PIIR.N:O CODE 4100 039-4M	

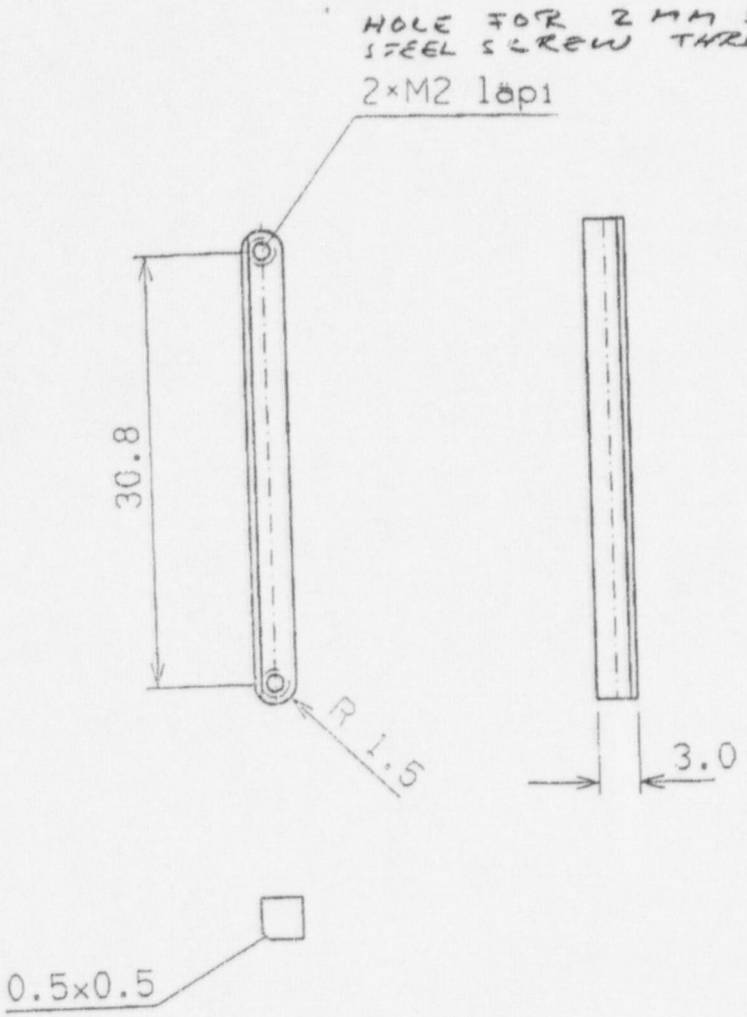
REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.



	Al-lattatanko 10×20mm ALUMINIUM ROD	3159 431	
OSA ITEM	OSAN NIMI, MITAT, MITTASTD., AINE, AINESTD. DESCRIPTION	PIIR.NRO TAKO CODE	KPL QTY

YLEISTOLERANSSI TOLERANCES ISO 2768-m		SUUNN. DESIGNED 9410 JP	PIIRT. DRAWN 9412 RM
SUHDE SCALE 2:1	LIITTYY NEXT ASSY XSDS 2471	TARK. CHECKED	HYV. APPROVED
Metorex	Verho	TUOTE PRODUCT X-MET	
		OSAL NRO PART LIST 4100 103-40	REV. 04
		PIIR.NRO CODE 4100 105-4M	

REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.



Harmaa anodisointi
GREY ANODIZATION

3.2

	Al-lattatanko 5×15 mm ALUMINIUM ROD	2129 666	
OSA ITEM	OSAN NIMI, MITAT, MITTASTD., AINE, AIHESTD. DESCRIPTION	PIIR.N:O TAKO CODE	KPL QTY
YLEISTOLERANSSI TOLERANCES ISO 2768-f		SUUNN. DESIGNED 9410 JP	PIIRT. DRAWN 9412 RM
		TARK. CHECKED	HYV. APPROVED
SUHDE SCALE 2:1	LIITTYY NEXT ASSY XSDS 2471	TUOTE PRODUCT X-MET	
Metorex	PULL ROD Vipu	OSA:N:O PART LIST 4100 103-40	REV. 03
		PIIR.N:O CODE 4100 108-4M	

SSPS FIGURE 7

MINISTRY FOR ATOMIC ENERGY OF RUSSIAN FEDERATION

V.G.KHLOPIN RADIUM INSTITUTE

20, 2nd Murinsky Ave., 194021 St.Petersburg, Russia
V.G.Khlopin Radium Institute, Isotope Department
Fax and Phone: (812)247 5014, (812)247 5812

Certificate

of radioactive source integrityi

No. 005-97

Title ....Low energy Photon Source

Codes of sources and activities....................Cd-109 -50 KBq (1.3 µCi)

Radionuclide.............Cadmium-109 (Cd-109)

Radiotoxicide group...B2

Type.............................Disk

Dimensions in mm........Outer diameter - 1 — 0.04

Height - 0.2 — 0.008

Description:

Cadmium-109 as metal is placed to silver backing. Active part of each source is protected by the electrodeposited silver foil. Non working side of the source is marked by the yellow colour.

The Container is sealed by "ЛТД-1"

Manager

ОТК 021

Producer

ISSUED: 13.10.97

HEPS 2412 & Courier 8 Description

1. GENERAL DESCRIPTIN OF THE COURIER 8 ANALYZER

The Courier 8 is a radioisotope excited XRF analyzer which is meant for the continuous measurement of industrial process liquid samples. The HEPS 2412 probe and sample cell are installed inside the cell box and the necessary control electronics are in the control box. Both boxes are protected against splash water and can be installed directly in the process environment without further shielding. A general view of the cell box is given in figure 1 (page 17). The sample is continuously flowing through the sample cell. Should the sample cell window break the guard ring (part 2 in fig 1) will give an alarm and the flow will be stopped.

The HEPS 2412 probe is mounted on the sample cell in such a way as to provide a positive interlock with the probe shutter mechanism. As shown in figure 1 (page 17) the HEPS 2412 probe (part 1) mounts on the cell assembly. The cell assembly is shown in photo 1 (page 14). When the probe is mounted, the lower support (shown in photo 1 and item 12 in figure 1) releases a catch in the probe that allows the shutter to be opened. In addition, opening the shutter prevents the removal of the probe from the cell. The shutter must be closed before the probe can be removed. Thus, when the probe is not mounted on the cell assembly, the shutter cannot be opened.

2. HEPS 2412 PROBE

2.1 Construction of the Probe

A general illustration of the probe is given in figure 11 (page 35). The parts list follows to facilitate interpretation. Figure 11.1 (page 38) and the following details describe the area of the probe where radiation may be present.

The radiation source (part 22 in fig 11.1) is located in the source holder (part 3 in fig 11.1 and photo 3 on page 16) so that the radiation is directed towards the sample. The shutter (part 13 in Item A on page 38 and in photo 3 on page 16) in the closed position is in a slot in the holder. Thus, the radiation is restricted to a very small space inside the source holder. A spring (part 14 in Item A) is used to insure that the shutter fits firmly in the slot.

The shutter is connected to the spring plate (part 9 in fig 11.1 and photo 2 on page 15) which is connected to the shutter conveyor (part 10 in fig 11.1 and photo 2) that moves along with the latch (part 11 in fig 11.1). When the probe is disconnected from the sample cell the spring loaded safety catch (part 12 in fig 11.1) prevents movement of the latch. When the probe is mounted onto the sample cell the lower part of the probe is pushed against the lower support (part 12 in figure 1 and photo 1) that lifts these fingers from the shoulder and releases the safety catch. This allows the shutter parts to be drawn down opening the

shutter and locking the probe to the cell. At the same time the radiation hazard label (part 12 in fig 11) becomes visible.

2.2 Radiation Sources

The Courier 8 with the HEPS probe uses Cm-244 radioactive sources manufactured by Amersham International plc, in the following configurations:

Activity	2.22 GBq	3.70 GBq ~100 mCi
Type	CLCL	CLCL
Capsule	X.130/7	X.130/7
Classification	C64344	C64344

2.3 Mounting and Changing Sources

To install the source in the probe, first remove the top cover on the probe and then the middle part (part 2 in figure 11 on page 35). Remove the cover (part 4 in figure 11.1 on page 38) of the source holder. If absorbers are needed in front of the source place them in the bottom of the source holder. Next take the source from the lead pig with tweezers and but it into the source holder with the front facing down (This operation should be done behind a leaded glass shield). Fix the source holder cover with two screws avoiding excessive tightening. Seal the screws with a lacquer seal to be able to detect unauthorized opening of the source holder. Reassemble the probe by reattaching the middle part and finally the top cover.

2.4 Warning Labels

A Gold Warning Label (attached Figure A in Exhibit 1 on page 13) is affixed to the top cover of the probe. A source label (attached Figure B in Exhibit 1) is affixed to the side of the probe indicating the probe serial number as well as the Isotope, activity and serial number of the source. In addition, the radioactive label (item 12 in figure 11) is attached to the shutter mechanism and becomes visible when the shutter is opened.

3. CONSTRUCTION OF THE CELL BOX AND SAMPLE CELL

The cell box is illustrated in figure 1 and the parts list follows to facilitate interpretation. The illustration on the right shows the cell box open and without the HEPS probe. In the middle of the cell box there is a plastic sample cell mounted in metal shielding, that in turn is fixed to the mounting plate on the back wall of the box. The connecting pipes are shielded in the vicinity of the sample cell by metal sleeves. The front of the sample cell is covered by metal parts which fix the thin window to sample cell leaving only the central part of the window free for the measurement. This area is surrounded on top of the window by a guard ring that has two concentric metal rings on a plastic backing. If

the window becomes leaky the solution will short-circuit the rings and an alarm will be generated which stops the flow. The alarm is also indicated in the control box where a light is illuminated to indicate the failure. There is a gap between the probe and the sample cell window so that pressure cannot build up and break the probe window.

When the cell window has to be cleaned or changed, the probe must be removed from the sample cell. Disconnecting the probe automatically closes the shutter so the probe can be handled safely without further actions. After replacing or cleaning the window, the probe is returned to the operating position and the shutter automatically opens.

4. Radiation Measurements

Table 1 gives the measurement of radiation around the probe with the shutter closed (note: for these measurements the probe is not mounted within the cell box, this is the condition which might occur during maintenance).

Table 1: Dose Rate (uSv/h) around the probe With 3.7 GBq Cm 244 Source

Location	At 5 cm	At 30 cm	At 100 cm
Top Side	2.0	0.4	-- (note 1
Right Side	6.0	0.6	--
Left Side	3.5	0.6	--
Bottom Side	2.0	0.6	--
Front Side	4.0	0.5	--
Back Side	13.0	0.9	--

Note 1: not different from background of 0.2 uSv/h

Table 2 gives the measurement of radiation outside the cell box when the probe shutter is opened and the cell box is closed.

Table 2: Dose Rate (uSv/h) around the Cell Box with 3.7 GBq Cm 244 Source

Location	At 5 cm	At 30 cm
Top Side	0.8	-- (note 1
Right Side	2.0	--
Left Side	1.1	--
Bottom Side	0.7	--
Front Side	1.7	--
Back Side	2.0	0.4

Note 1: not different from background of 0.2 uSv/h

These dose rate measurements were made using a MAB 604 meter.

REMOVAL OF THIS LABEL IS PROHIBITED

The receipt, possession, use and transfer of this device, Model _____, Serial No. _____, are subject to a general license or the equivalent and the regulations of the U.S. Nuclear Regulatory Commission or of a State with which the NRC has entered into an agreement for the exercise of regulatory authority. This label shall be maintained on the device in a legible condition.

Abandonment or disposal of this device is prohibited unless transferred to persons specifically licensed by the NRC or an Agreement State.

Operation of this device is prohibited if there is indication of failure of or damage to shielding, source containment or on-off mechanism.

Dismantling, maintenance, repair and testing involving the shielding or containment of the radioactive material shall be performed by persons specifically licensed by the NRC or an Agreement State, except that tests of the on-off mechanism and indicator, and collection of the leak test sample may also be performed by the general licensee in accordance with the procedures in the Instruction Manual. The sample shall be analyzed by persons specifically authorized by the by the NRC or an Agreement State.

Device shall be tested for radioactive leakage and proper functioning of on-off mechanism and indicator, at source installation and thereafter at no longer than 6 month intervals.

Loss, theft or transfer of this device and failure of or damage to the shielding, the source containment or the on-off mechanism must be reported to the NRC or Agreement State.

FIGURE A

FIGURE B

EXHIBIT I
WARNING LABELS

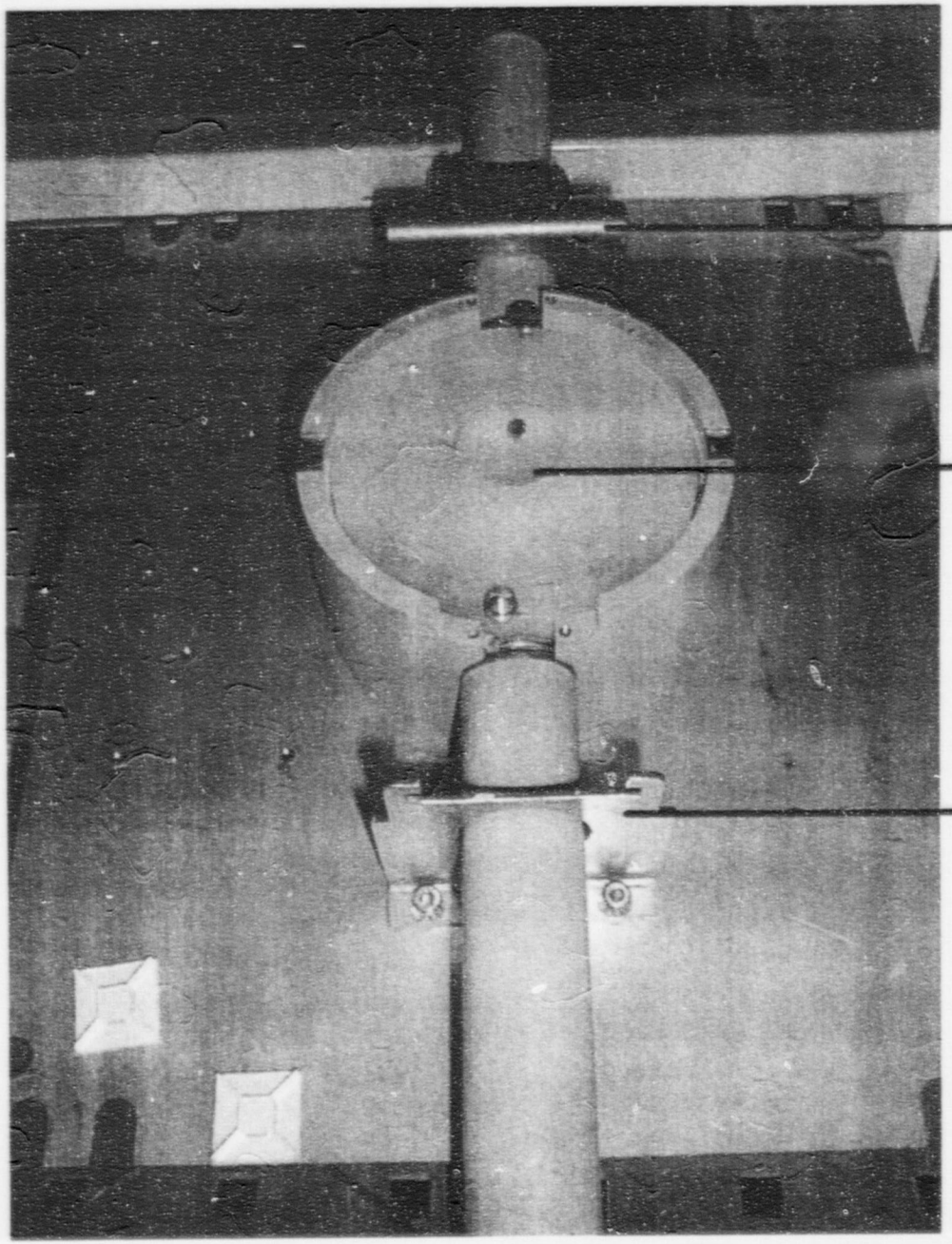


PHOTO 1

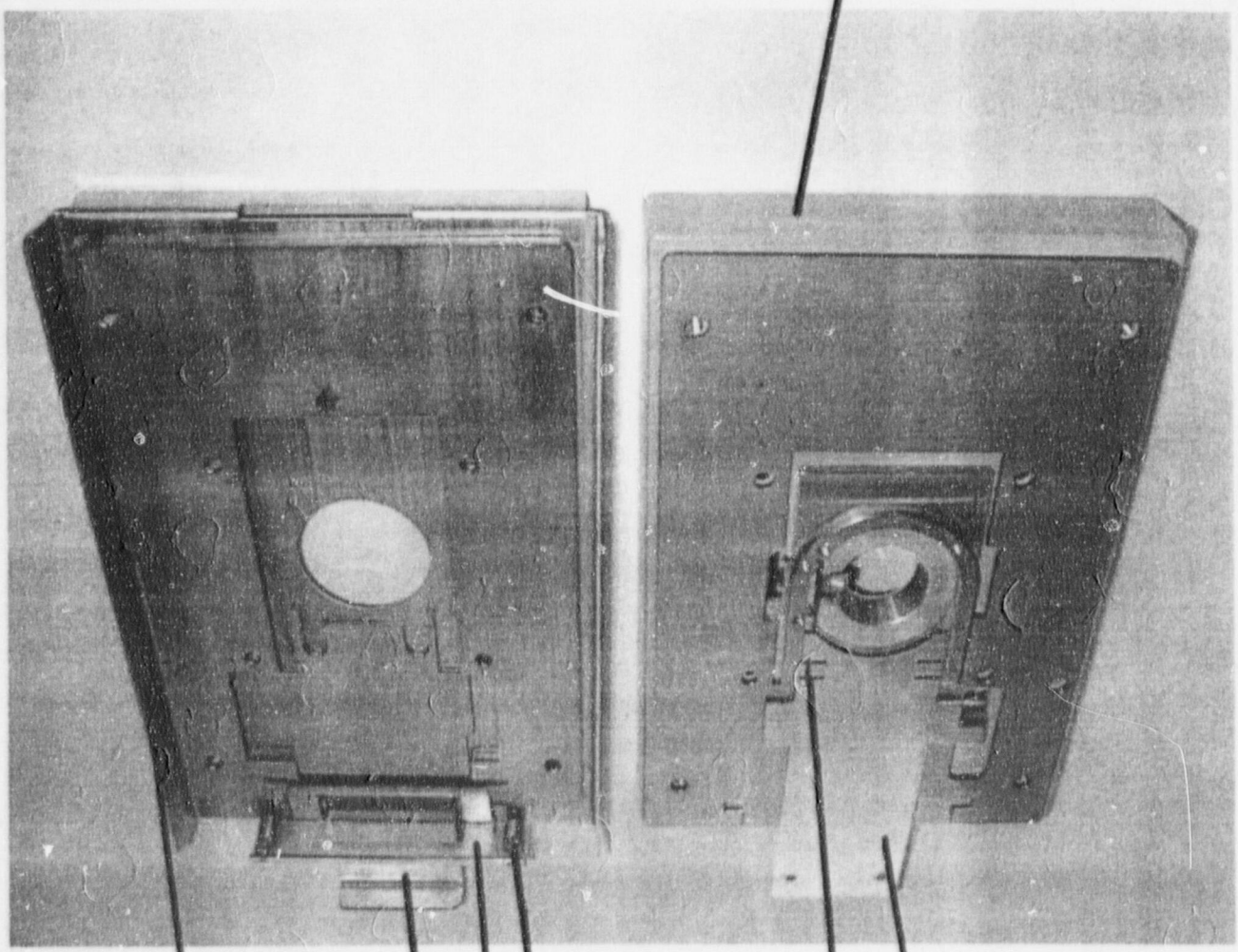

Cover (Fig. 11.5)
Spring
Locking Device
(Fig. 11.12)
Shutter Converor
(Fig. 11.10)
Cover Plate
(Fig. 11.6)
Spring Plate (Fig. 11.9)
Topmost Part of Shutter
(Fig. 11.13)

PHOTO 2

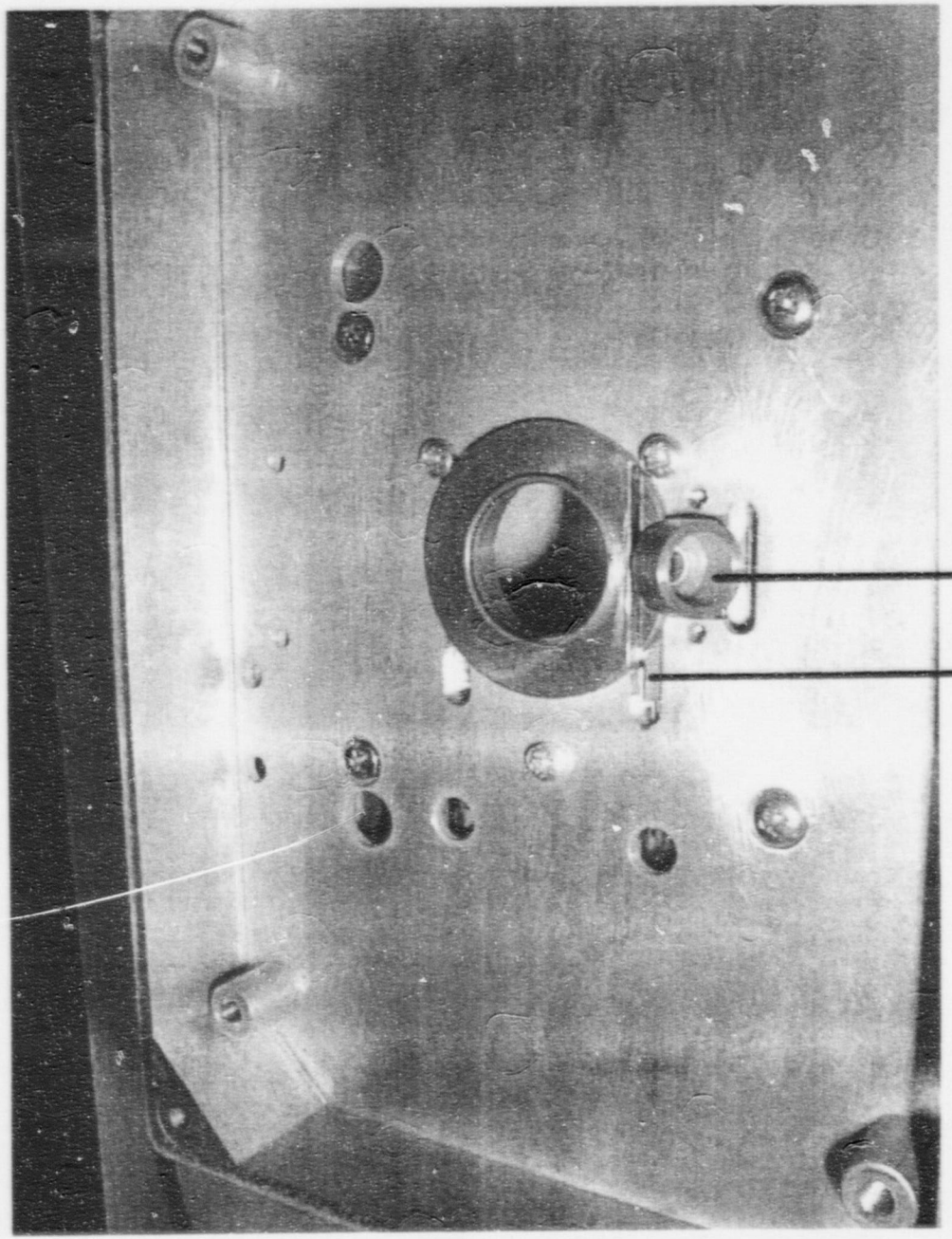


PHOTO 3

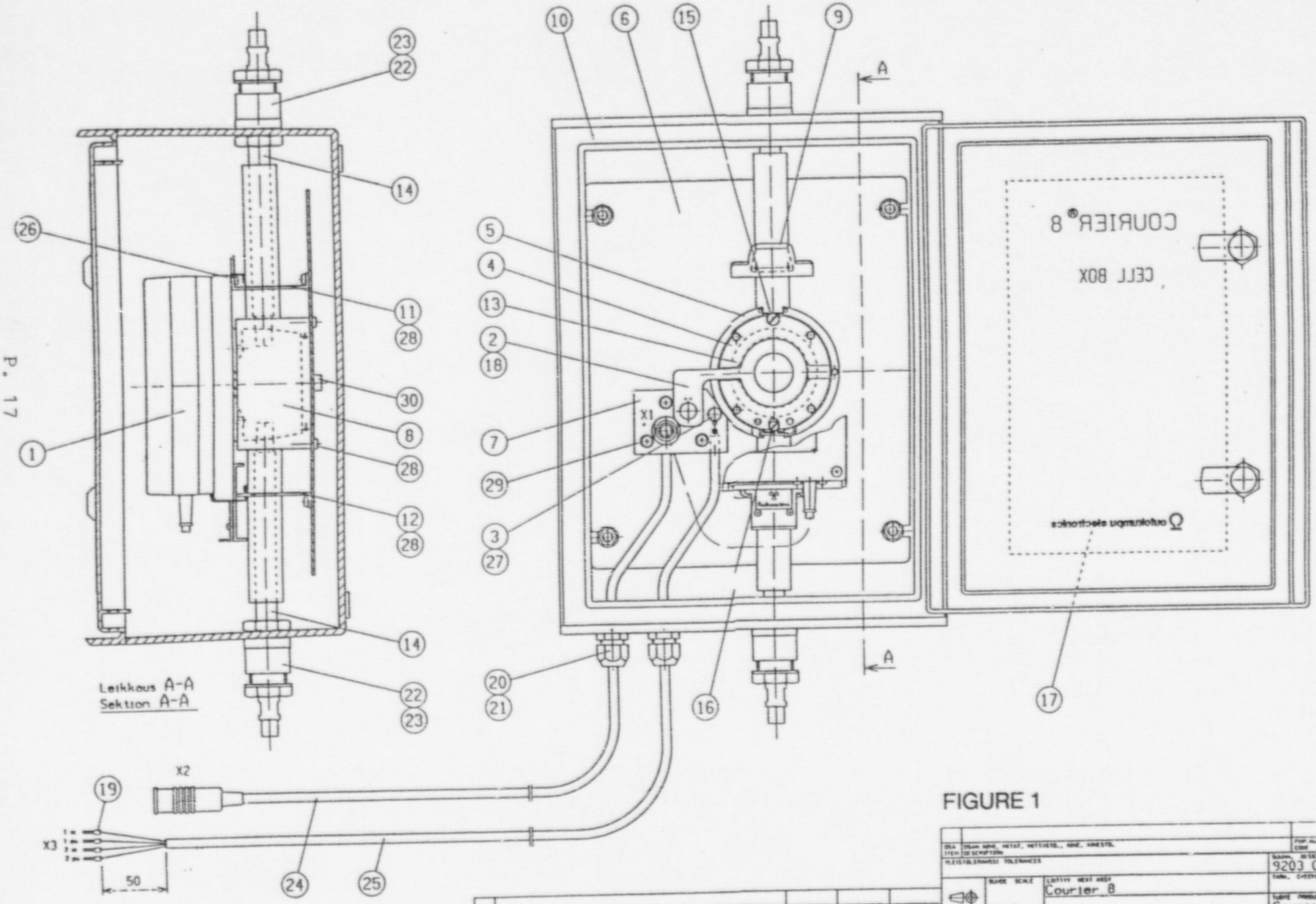

Leikkaus A-A
Sektion A-A
X1
X2
X3
50
COURIER® 8
CELL BOX
outokumpu electronics
OUTOKUMPU ELECTRONICS
1:2
Courier 8
9203 OK
9203 IJ
3084 061-40

FIGURE 1

3884061 LCES 2414 CELL BOX SET 40 RVC PC 1

POSITION/LINE LEVEL	ITEM ID	DESCRIPTION	DRAWING ITMGRP	ISA	QTY	UOM	GROSS QTY	ADDITIONAL START	EN
1 10	3884063	HEPS 2412 HEAVY ELEMENTS	40	RVC	1	PC	1,000		
11		*1							
1 15	3884771	ALARM RING	40	RVC	1	PC	1,000		
16		*2							
1 20	3819497	HALL-SWITCH	40	RVC	1	PC	1,000		
21		*3							
1 25	3884774	CLAMPING RING	40	RVC	1	PC	1,000		
26		*4							
1 30	3883672	RADIATION SHIELD	3MO	RAC	1	PC	1,000		
31		*5							
1 40	3883925	MOUNTING PLATE	3M	RAC	1	PC	1,000		
41		*6							
1 50	3883961	HALL-SWITCH HOLDER	3M	RAC	1	PC	1,000		
51		*7							
1 60	3882653	SAMPLE CELL FRAME	3M	RAC	1	PC	1,000		
61		*8							
1 70	3883962	SPRINGS	3M	RTC	0	PC	0,000		
71		*9							
1 75	3883966	BOX PERFORATION	4M	RTC	1	PC	1,000		
76		*10							
1 80	3883926	UPPER SUPPORT	4M	RAC	1	PC	1,000		
81		*11							
1 90	3883927	LOWER SUPPORT	4M	RAC	1	PC	1,000		
91		*12							
1 100	3827227	DIAPHRAGM RING MYLAR C 0,050	4M	RAC	1	PC	1,000		
101		*13							

CONTINUED

3884061 LCES 2414 CELL BOX SET 40 RVC PC 1

POSITION/LINE LEVEL	ITEM ID	DESCRIPTION	DRAWING ITMGRP	ISA	QTY	UOM	GROSS QTY	ADDITION/ START	EN
1	110 3883679	SAMPLE CELL PIPE	4M	RAC	2	PC	2,000		
	111	*14							
1	150 3817632	SCREW 1.	4M	RAC	1	PC	1,000		
	151	*15							
1	160 3817624	SCREW 2.	4M	RAC	1	PC	1,000		
	161	*16							
1	170 3884781	CELL BOX SHIELD LCES 2414	4P	RAC	1	PC	1,000		
	171	*17							
1	180 3059340	CONNECTOR MJ 188 6,3MM		ROC	1	PC	1,000		
	181	*18							
1	190 3051844	CONNECTOR DBEE 104A 056 FRAME		ROB	1	PC	1,000		
	191	*X1							
1	200 3053477	CONNECTOR SE 104 A056 6,4-7,5		ROC	1	PC	1,000		
	201	*X2							
1	210 3058738	JOINTING SLEEVE DZ5-CA0(7 BLUE		ROC	4	PC	4,000		
	211	*19							
1	230 3058960	SLEEVE SEAL SKINTOP-ST11 PA		ROC	2	PC	2,000		
	231	*20							
1	240 3058961	LOCK NUT SKINTOP GMK-11 PA		ROC	2	PC	2,000		
	241	*21							
1	250 3058746	SLEEVE SEAL EPHN 21 PLAST		ROC	2	PC	2,000		
	251	*22							
1	260 3058747	LOCK NUT EPVM 21 PLAST		ROC	2	PC	2,000		
	261	*23							
1	270 3053485	CABLE 12X0,22 MM2		ROC	5	M	5,000		
	271	*24							

CONTINUED

3884061 LCES 2414 CELL BOX SET 40 RVC PC 1

POSITION/LINE LEVEL	ITEM ID	DESCRIPTION	DRAWING ITMGRP	ISA	QTY	UOM	GROSS QTY	ADDITION START
1 280	3144847	CABLE JAMAK 2X(2+1)X0,5MM2		ROB	5	M	5,000	
281		*25						
1 290	3059185	SCREW KK M3X4 AISI 304		ROC	2	PC	2,000	
291		*26						
1 300	1329705	STOP SCREW M3X8 FE/BLACK		ROC	1	PC	1,000	
301		*27						
1 310	3055027	SCREW KK M4X8 AISI 304		ROC	8	PC	8,000	
311		*28						
1 320	3058968	SCREW KK M4X25 AISI 304		ROC	3	PC	3,000	
321		*29						
1 330	1531888	HEXAGON SOCKET HEAD SCREW LK		ROC	1	PC	1,000	
331		*30						
9000		INSTALLATION MATERIAL:						
1 9001	3059341	MOUNTING SET KS 1483		ROC	1	PC	1,000	
9010		RELEVANT DRAWINGS:						
1 9011	D3884776	CELL BOX SET	2KE	VVC	0	PC	0,000	

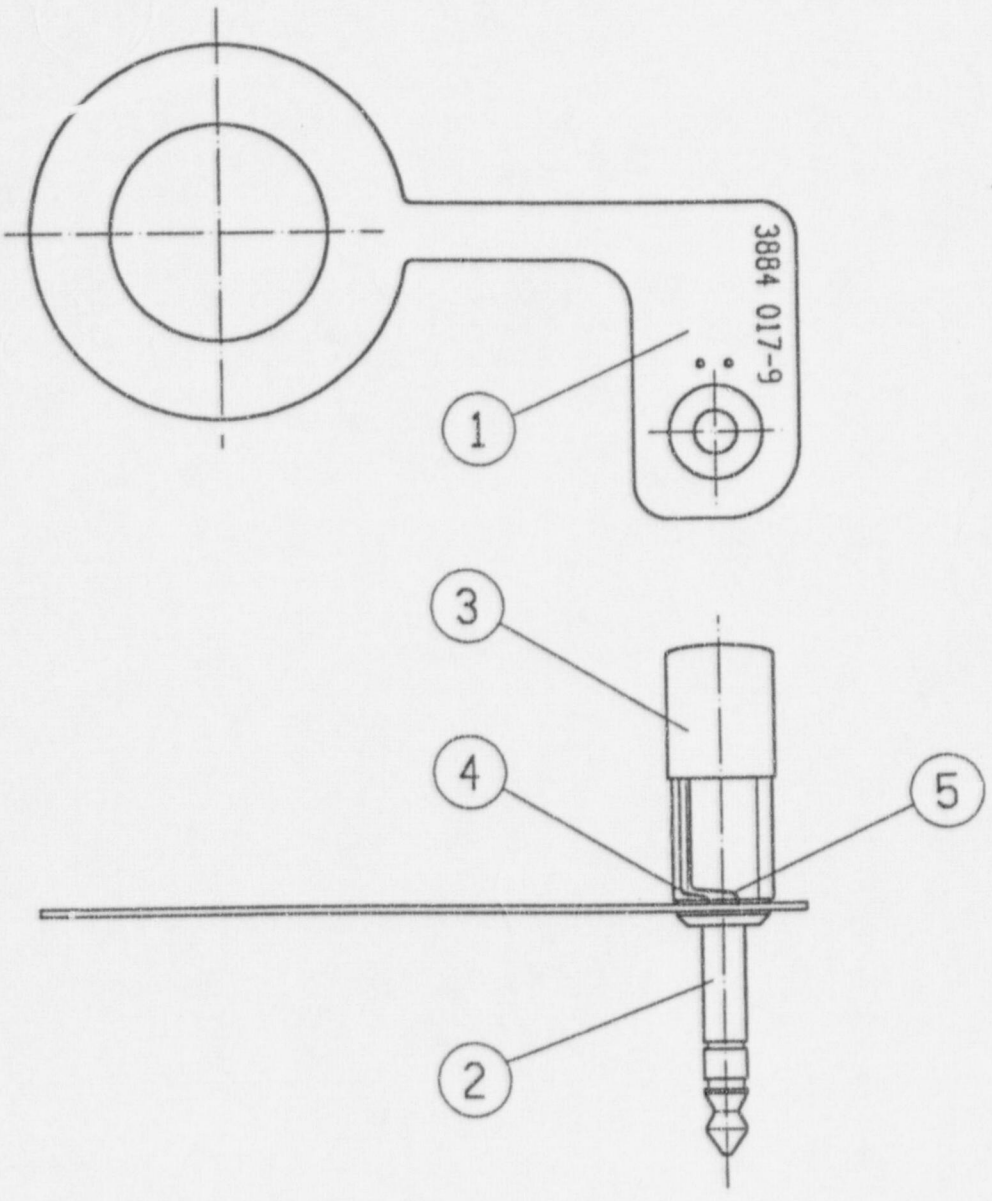
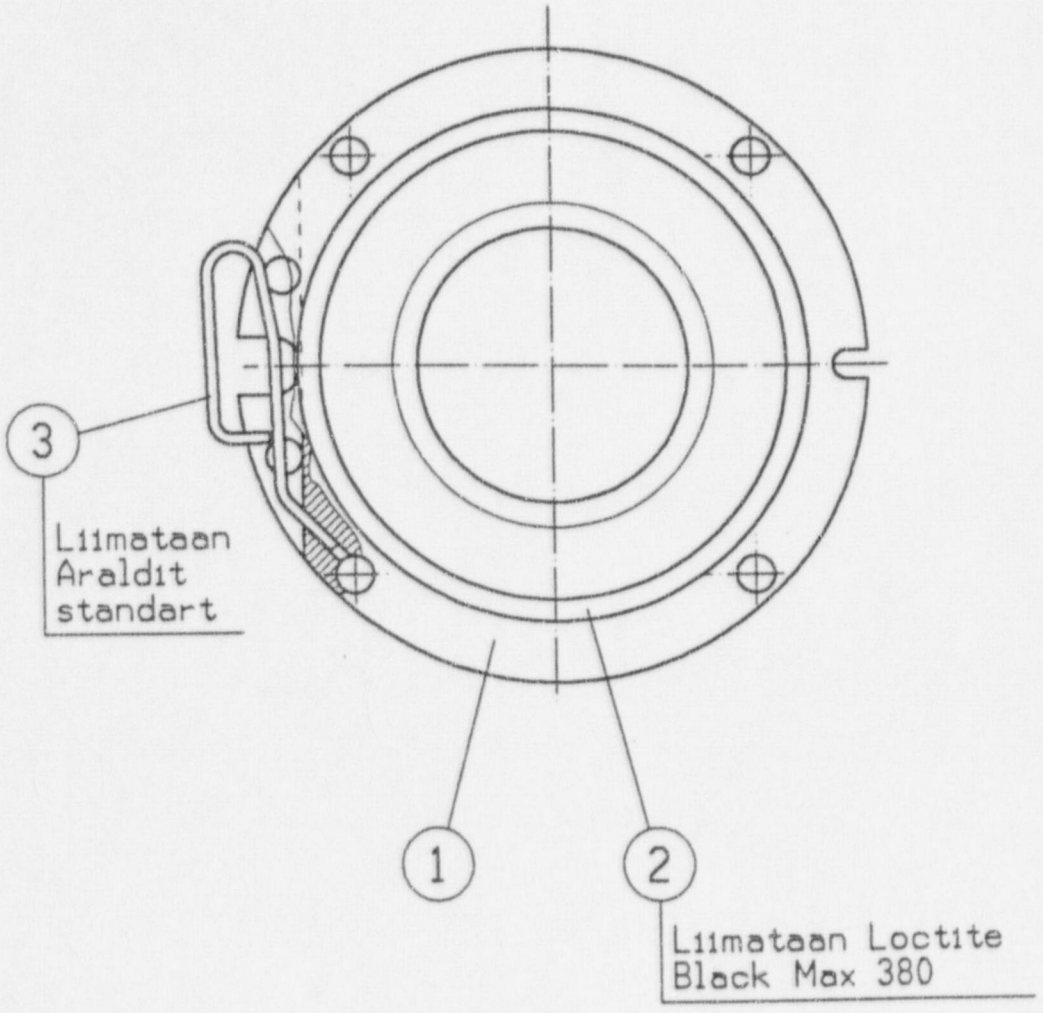


FIGURE 2 (part 2 in fig 1)

OSA ITEM	OSAN NIMI, MITAT, MITTASTD., AINE, AINESTD. DESCRIPTION	PIIR.N:O TAKO CODE	KPL QTY
YLEISTOLERANSSI TOLERANCES			

SUUNN. DESIGNED 9202 OK	PIIRT. DRAWN 9203 IJ		A
TARK. CHECKED	HYV. APPROVED		
SUHDE SCALE 1:1	LIITTYY NEXT ASSY LCES 2414	TUOTE PRODUCT Courier 8	
OUTOKUMPU ELECTRONICS	Alarm ring Hälytysrengas	OSAL.N:O PART LIST 3884 771-40	REV.
		PIIR.N:O CODE 3884 772-4KE	



3. Spring : 3817 863
2. Sealing ring : 3817 871
1. Clamping ring frame : 3881 514

FIGURE 3 (part 4 in fig 1)

OSA ITEM	OSAN NIMI, MITAT, MITTASTD., AINE, AINESTD.	PIIR.N:O TAKO CODE	KPL QTY
YLEISTOLERANSSI TOLERANCES		SUUNN. DESIGNED 9202 OK	PIIRT. DRAWN 9203 IJ
		TARK. CHECKED	HYV. APPROVED
SUHDE SCALE 1:1	LIITTYY NEXT ASSY LCES 2414	TUOTE PRODUCT Courier 8	
OUTOKUMPU ELECTRONICS	Clamping ring Kiristysrengas	OSAL.N:O PART LIST 3884 774-40	REV.
		PIIR.N:O CODE 3884 775-4K	

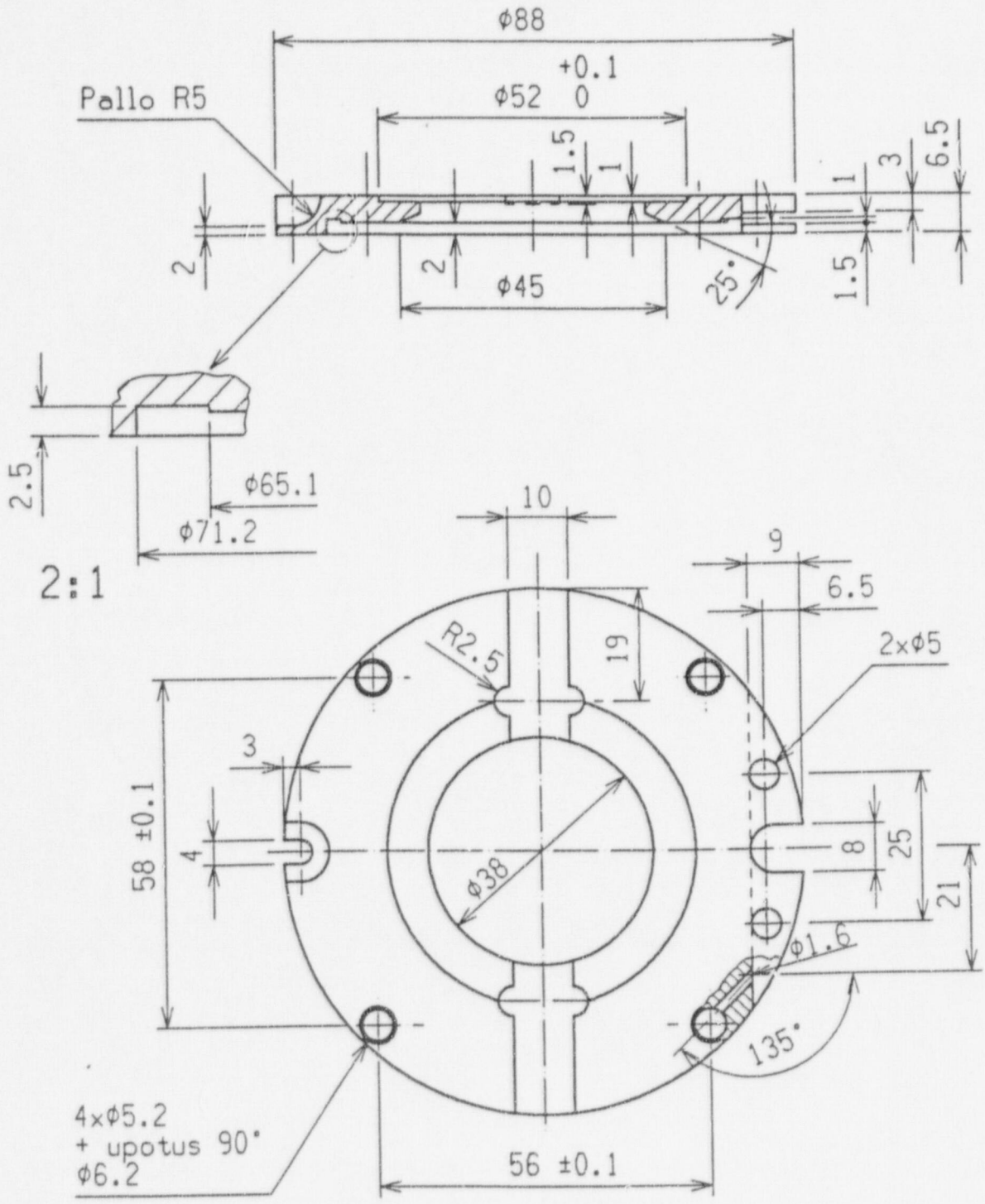


FIGURE 3.1 (part 1 in fig 3)

Tako: 1024 884

AINE MATERIAL: H-kest.pyörötanko 90mm SFS 2018 teräs 757 (A1s1 316)			
PINTAK. FINISH		SUUNN. DESIGNED: 9102 OK	PIIRT. DRAWN: 9102 alk
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-kesk1	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 1:1 (2:1)	LIITTYY NEXT ASSY: LCES 2414	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Clamping ring frame Kiristysrenkaan runko	OSAL.N:O PART LIST: 3884 774-40	REV.
		3881 514-4M	

Kuva piirretty uudestaan | 9108 | sf | aw

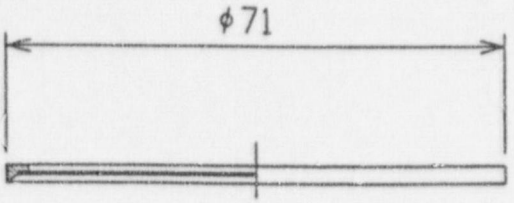


FIGURE 3.2 (part 2 in fig 3)

Muotin tako 3817715-4M

AINE MATERIAL: Nitriilikumi 60° shore			
PINTAK. FINISH		SUUNN. DESIGNED: 8107 TA	PIIRT. DRAWN: 8107VIK
PINTA SURFACE	YLEISTOL. TOLERANCES: -1.5%	TARK. CHECKED: FB/KÖ	HYV. APPROVED: TA
SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: SCA	TUOTE PRODUCT	
OUTOKUMPU ELECTRONICS	Sealing ring Tiivisterengas	OSAL.N:O PART LIST: 3817871-4M	REV.

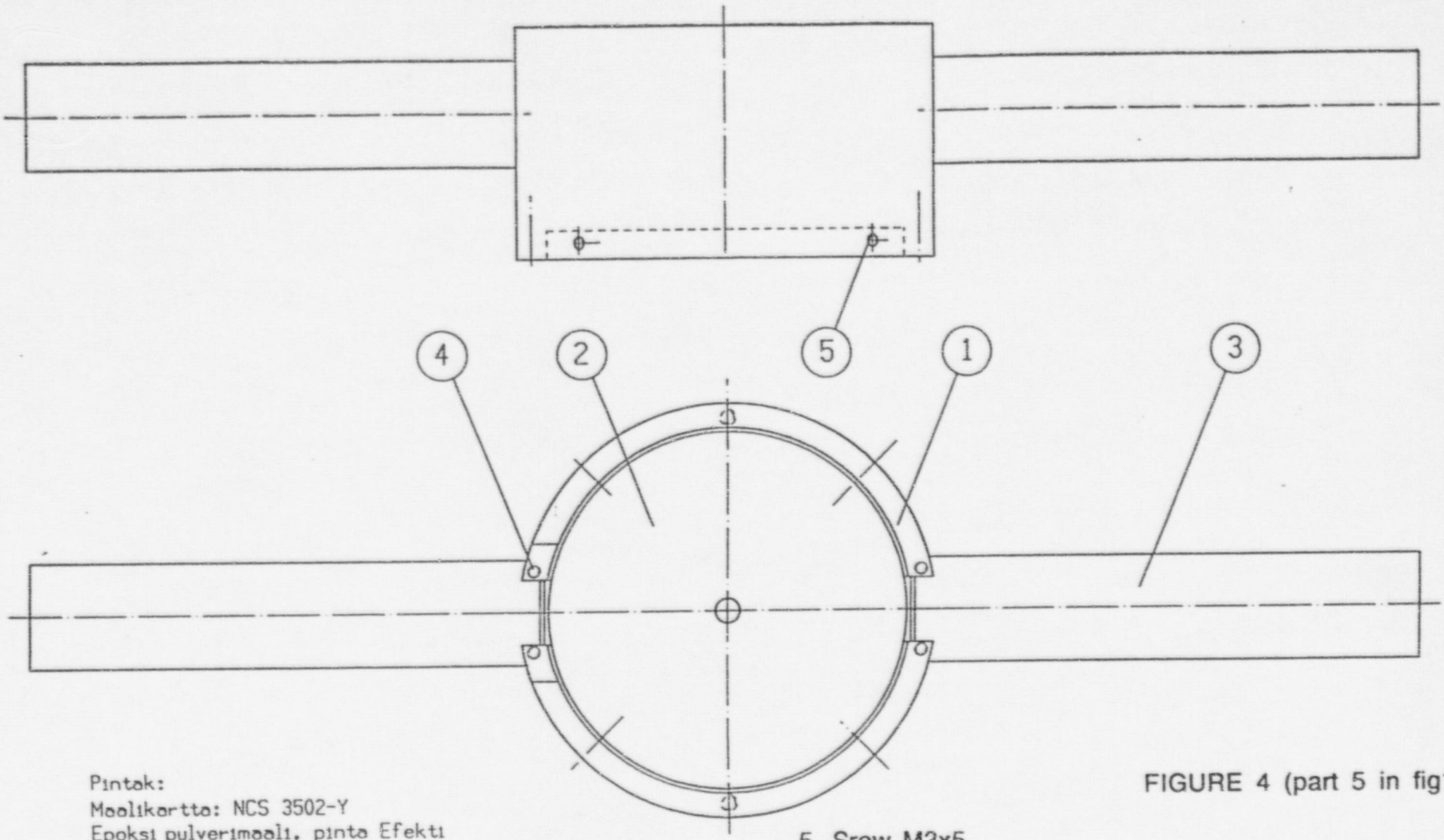


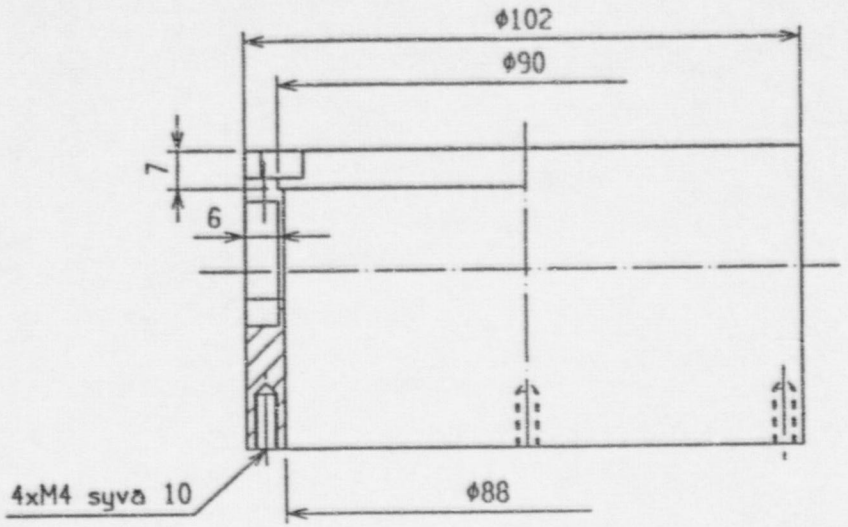
FIGURE 4 (part 5 in fig1)

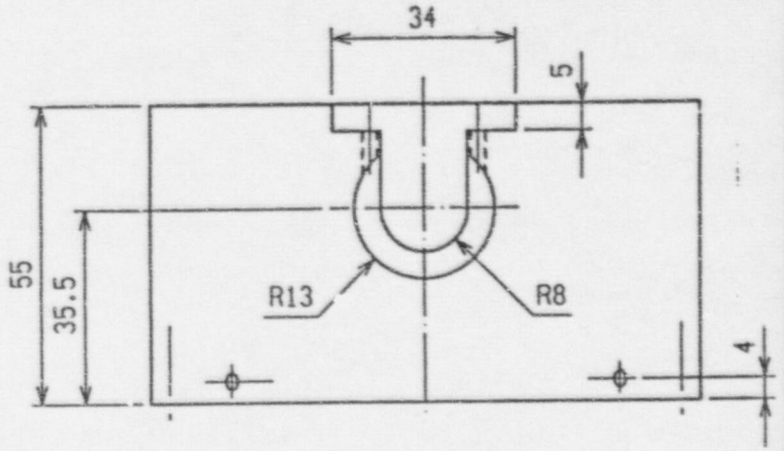
Pintak:
Maalikartta: NCS 3502-Y
Epoksi pulverimaali, pinta Efekti
Maali: Beckers KP-542-5411-0

Pohja maalataan erikseen
Suojaputket paikalleen asennettuna
Kierrereiät suojataan

5. Srew M3x5
4. Srew M3x8
3. Shielding tube : 3883 676-4M
2. Back plate : 3883 675-4M
1. Casing : 3883 674-4M

			SUUNN. DESIGNED 9102 OK	PIIRT. 910
PINTA SURFACE		YLEISTOL. TOLERANCES	TARK. CHECKED	HYV.
	SUHDE SCALE 1:1	LIITTYY NEXT ASSY LCES 2414	TUOTE PRODUCT Courier 8	
OUTOKUMPU ELECTRONICS		Radiation shield of sample cell	OSAL.NRO PART LIST 3884 061-40	
		Kuvatin säteilysuoja	3883 672-	





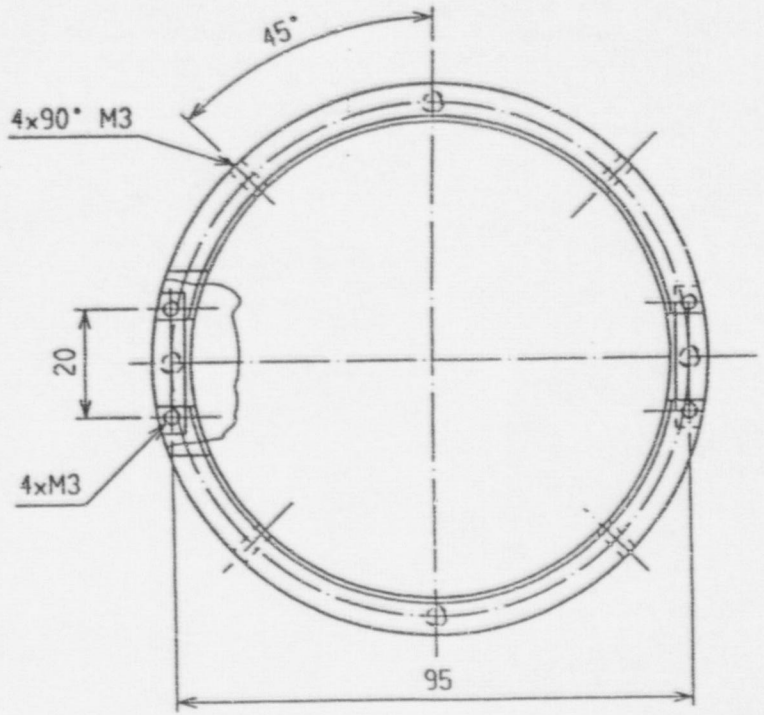


FIGURE 4.1 (part 1 in fig 4)

AINE MATERIAL: Brass	107/83 SFS 2241		
PINTAK. FINISH		SUUNN. DESIGNED: 9102 OK	PIIRT. 910
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV.
SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: LCES 2414	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Casing	OSAL.NRO PART LIST: 3883 672-3M0	
	Valppe	3883 674-3	

REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.

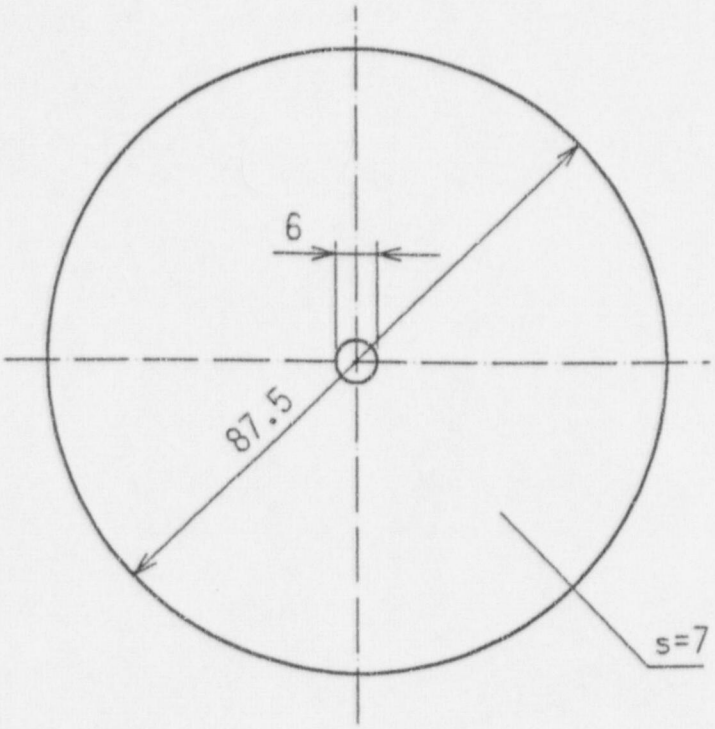


FIGURE 4.2 (part 2 in fig 4)

Tako: 1132 794

AINE MATERIAL Brass	100mm SFS 2242 CuZn39Pb3-04 SFS 2920		
PINTAK. FINISH		SUUNN. DESIGNED 9102 OK	PIIRT. DRAWN 9102 alk
PINTA SURFACE	YLEISTOL. TOLERANCES SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE 1:1	LIITTYY NEXT ASSY LCES 2414	TUOTE PRODUCT Courier 8	
OUTOKUMPU ELECTRONICS	Back plate Pohja	OSAL.NRO PART LIST 3883 672-3M0 3883 675-4M	REV.

REV.	MUUTOKSET REVISIONS	PVM DATE		

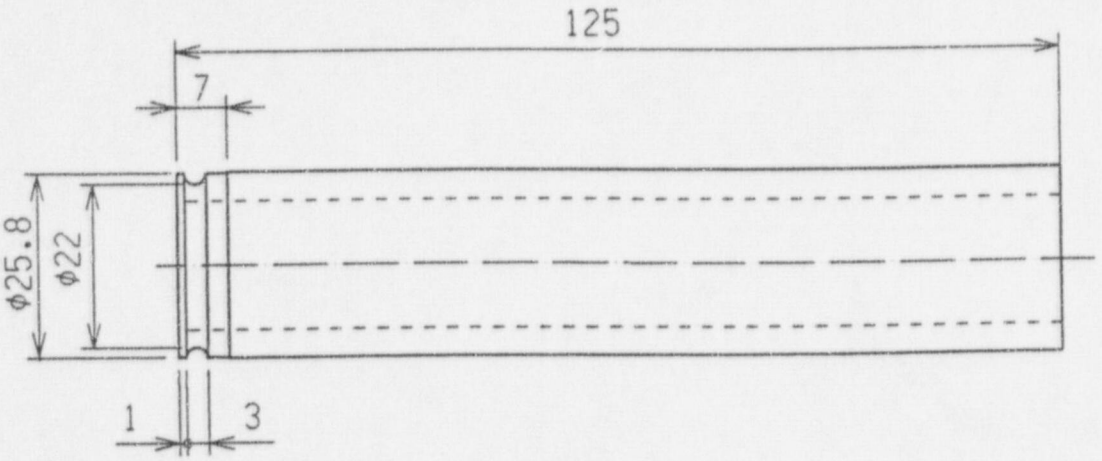


FIGURE 4.3 (part 3 in fig 4)

AINE MATERIAL: Brass 26/18 SFS 2241			
PINTAK. FINISH		SUUNN. DESIGNED: 9102 OK	PIIRT. DRAWN: 9102 alk
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	YARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: LCES 2414	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Shielding tube / Suojaputki	OSAL.N:O PART LIST: 3883 672-3MO	REV.
		3883 676-4M	

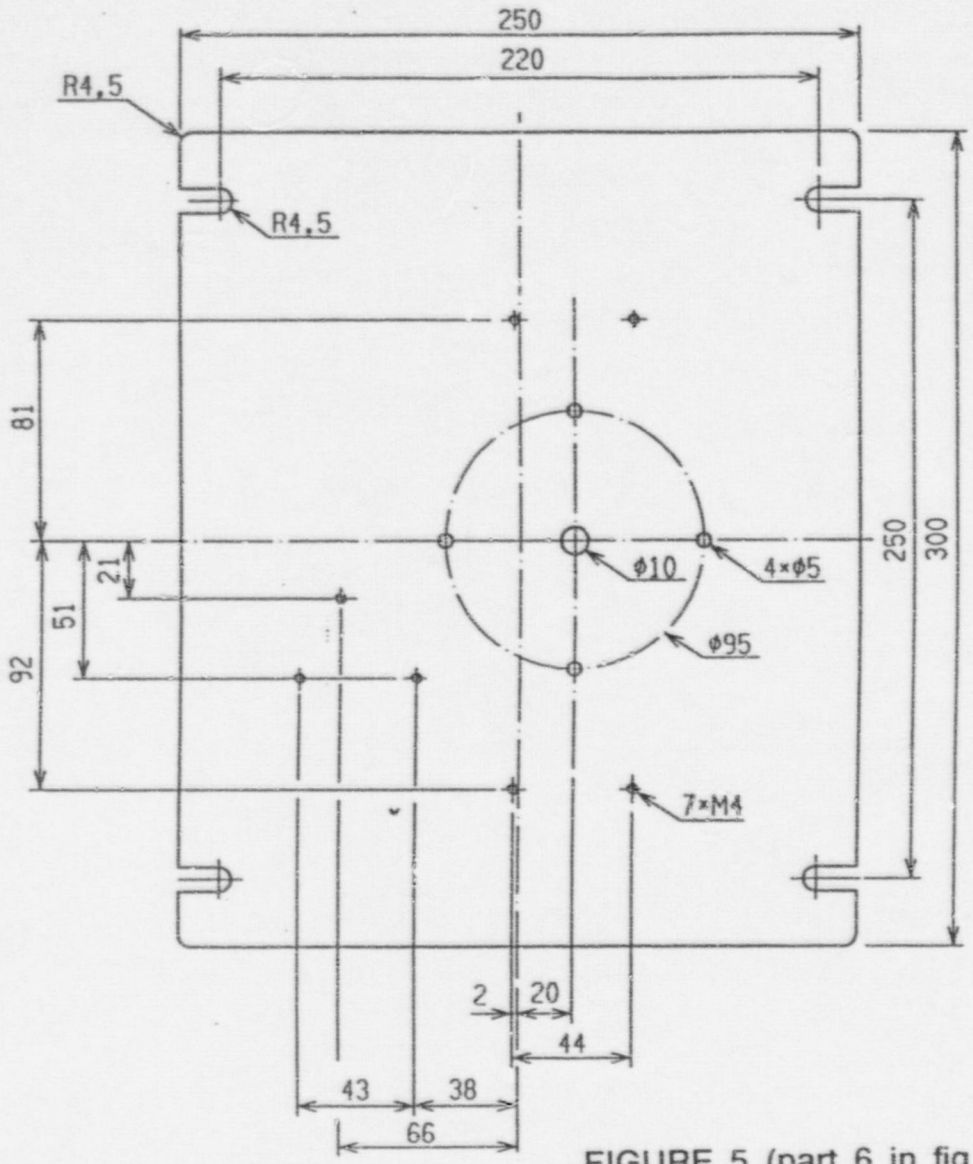


FIGURE 5 (part 6 in fig 1)

AINE MATERIAL: Stainless steel — 2mm SFS 4467 teräs 725-2D tako: 1394 287				
PINTAK. FINISH			SUUNN. DESIGNED: 9105 OK	PIIRT. DRAWN: 9106 IJ
PINTA SURFACE		YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
	SUHDE SCALE: 1:2	LIITTYY NEXT ASSY: LCES 2414	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS		Mounting plate / Asennuslevy	OSAL.NRO PART LIST: 3884 061-40	REV.
			3883 925-3M	

REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.

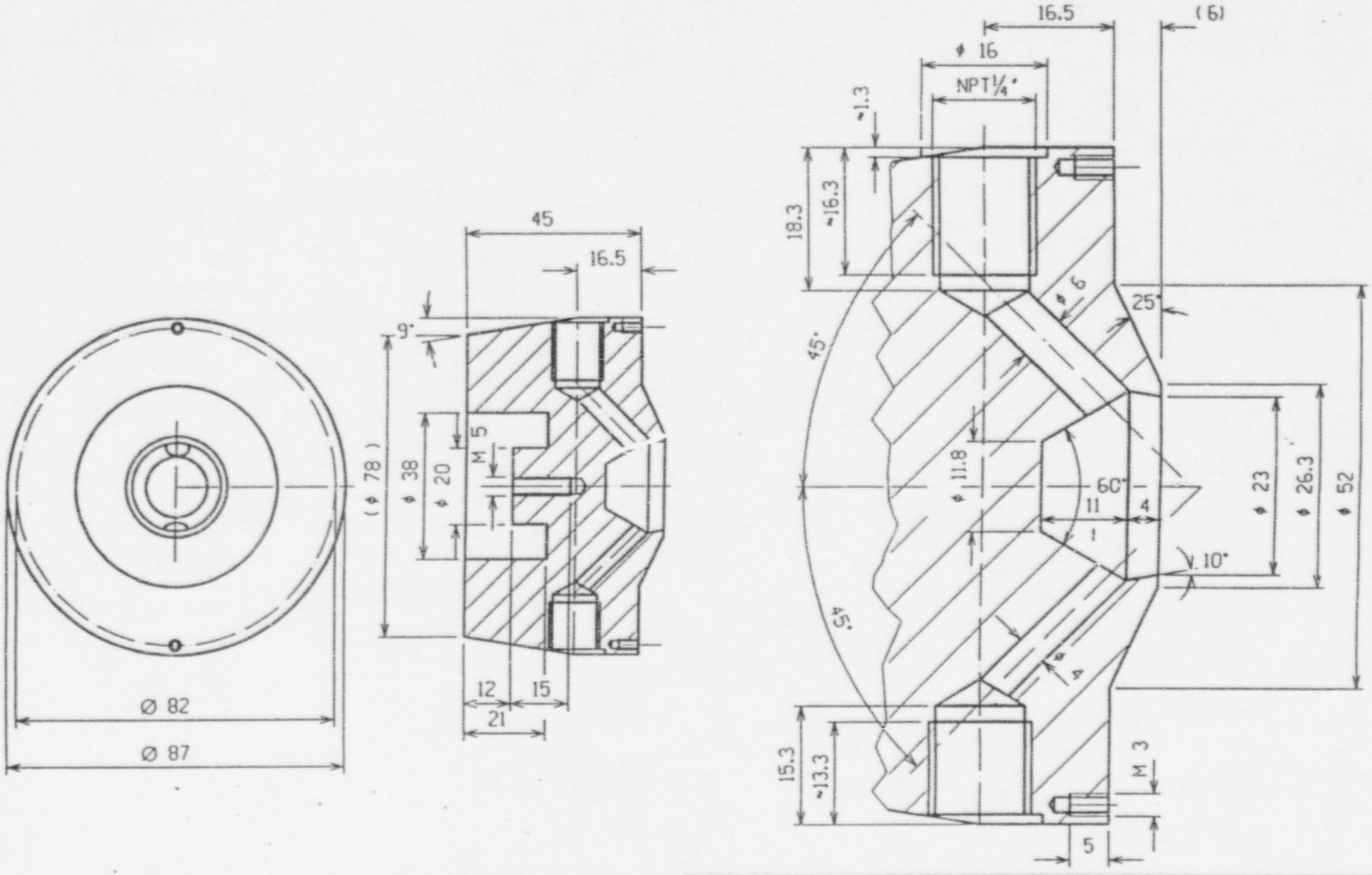


FIGURE 6 (part 8 in fig 1)

REV.NRO	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.

AINE MATERIAL: PVDF PYÖRÖTANKO 100 MM TAKO 3058 879

PINTAK. FINISH

PINTA SURFACE

YLEISTOL. TOLERANCES

SUHDE SCALE

LIITTYY NEXT ASSY: SCA 1562

Sample cell frame

MUOVIKYVETIN RUNKO

SUUNN. DESIGNED: AM 8908

PIIRT. DRAWN: AM 8908

TARK. CHECKED

HYV. APPROVED

TUOTE PRODUCT

OSA.NRO PART LIST: 3882 651-40

REV.NRO

3882 653-3M

outokumpu ELECTRONICS

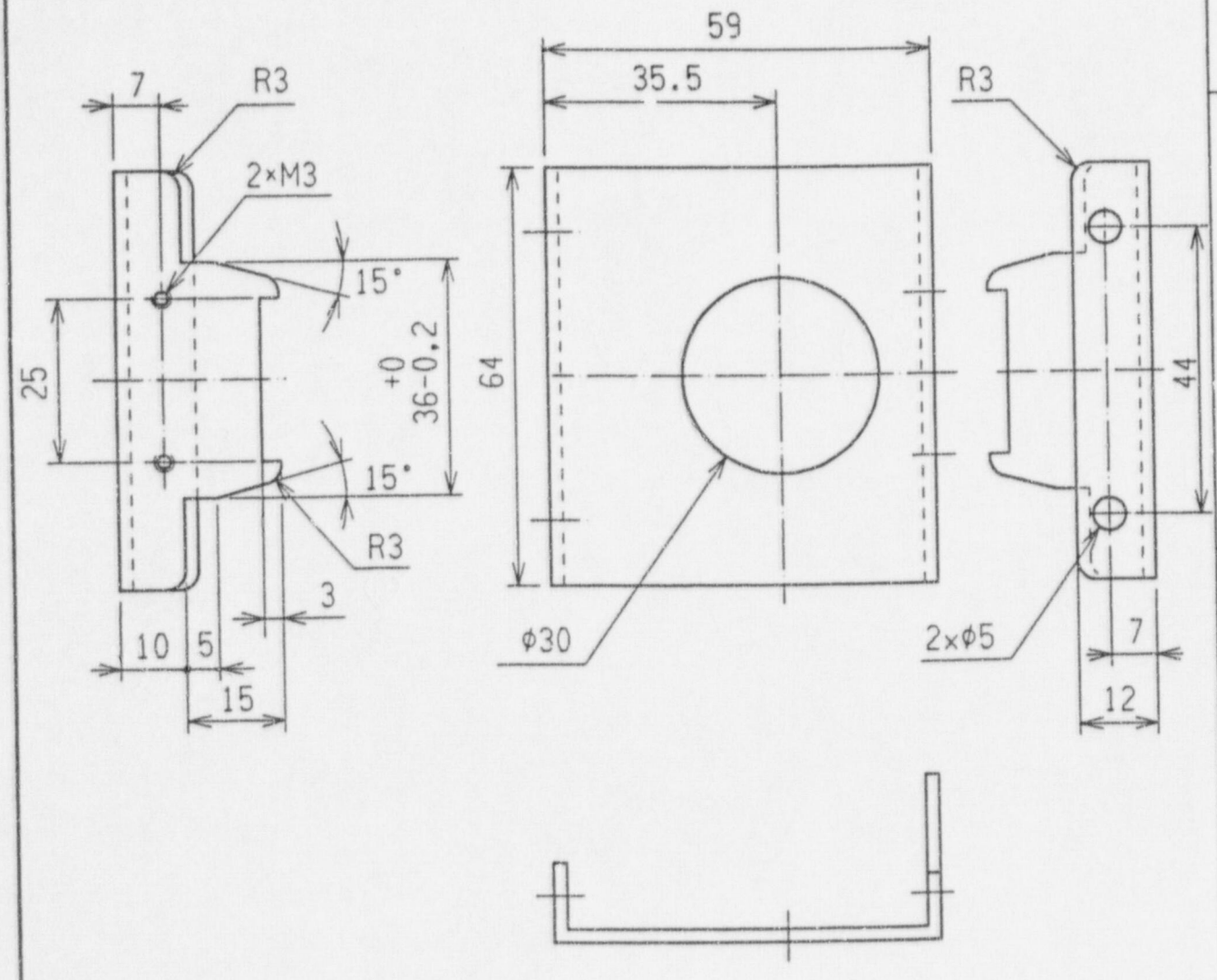


FIGURE 7 (part 11 in fig 1)

AINE MATERIAL: Stainless steel _ 2mm SFS 4467 teräs 725-2D tako: 1394 287			
PINTAK. FINISH		SUUNN. DESIGNED: 9105 OK	PIIRT. DRAWN: 9106 IJ
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: LCES 2414	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Upper support / Ylätuki	DSAL.N:O PART LIST: 3884 061-40	REV.
		3883 926-4M	

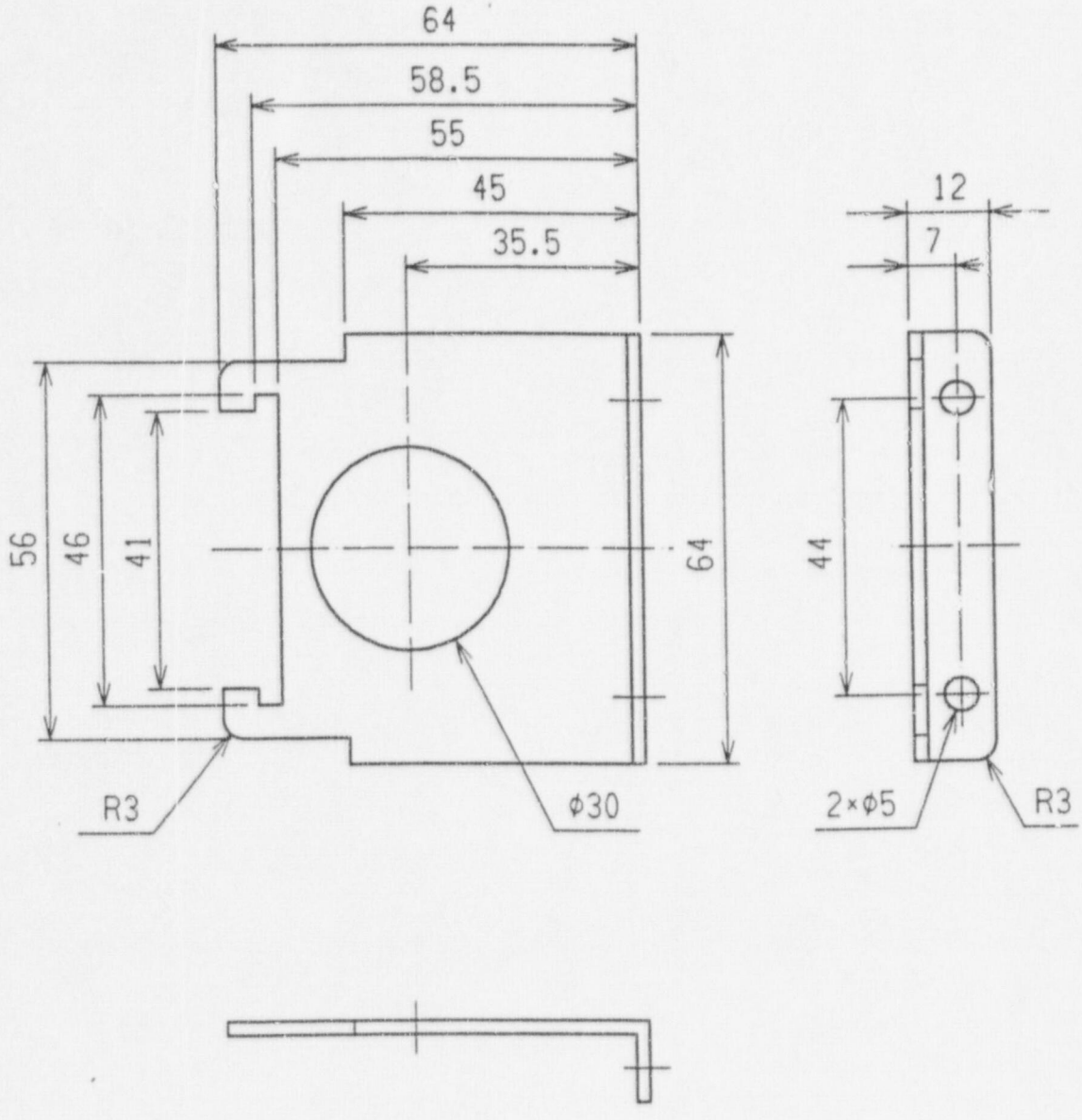


FIGURE 8 (part 12 in fig 1)

AINE MATERIAL: Stainless steel	2mm SFS 4467 teräs 725-2D tako: 1394 287		
PINTAK. FINISH		SUUNN. DESIGNED: 9105 OK	PIIRT. DRAWN: 9106 IJ
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: LCES 2414	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Lower support / Alatuki	OSAL.N:O PART LIST: 3884 061-40	REV.
		3883 927-4M	

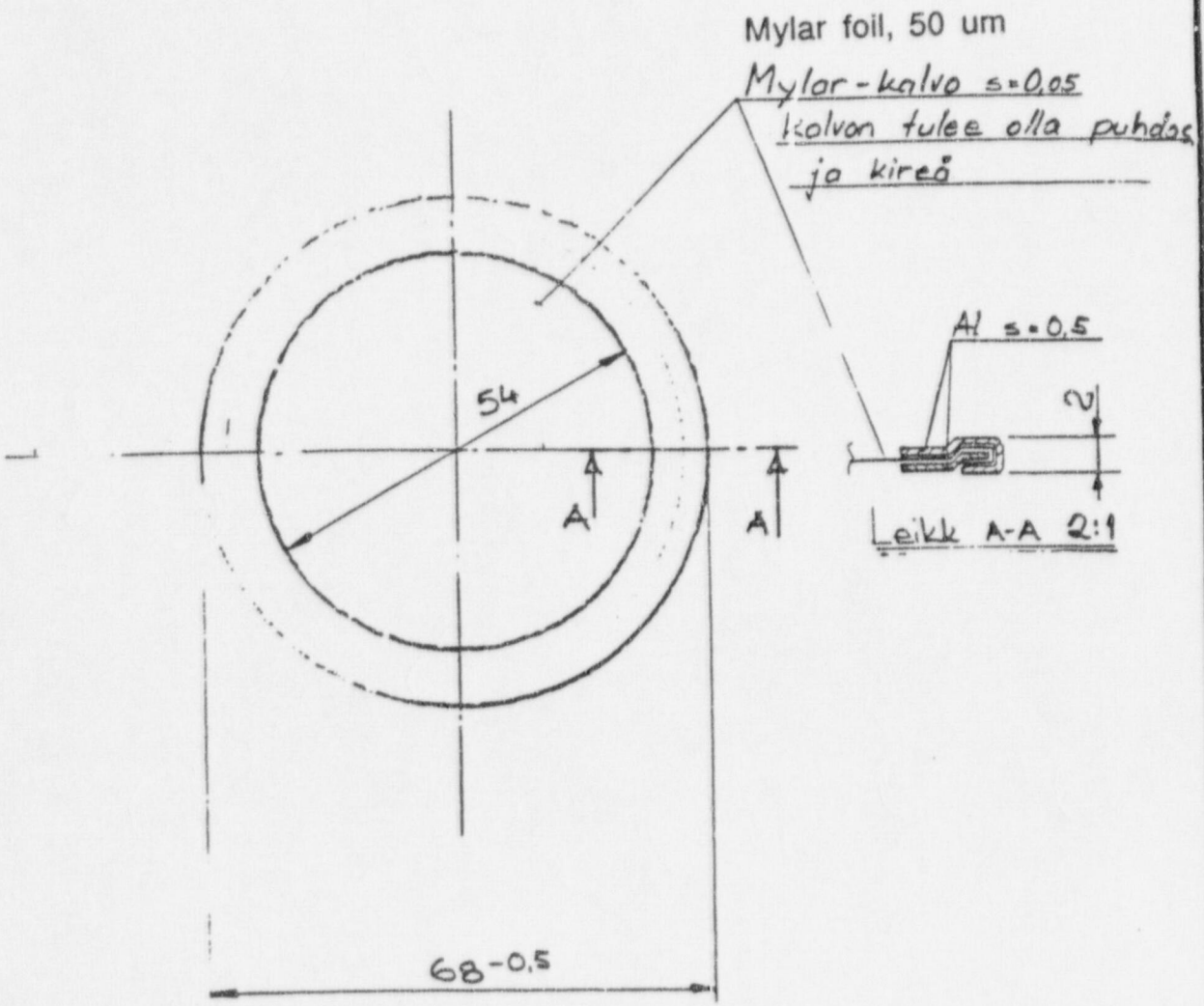


FIGURE 9 (part 13 in fig 1)

Aine Material	Yleistol. Tolerances	Suunn. Design. 0383 JHE	Piirt. Draftm. 0383 JHE
Pinta Surface	Pintak. Finish	Tark. Check.	Hyv. App.
Suhde Scale 1:1	Liittyy Next Assy	Osal.n:o Part list	
OUTOKUMPU OY TAPIOLA FINLAND	Sample cell window		
	Renkaallinen kalvo	3827 227 - 4M	

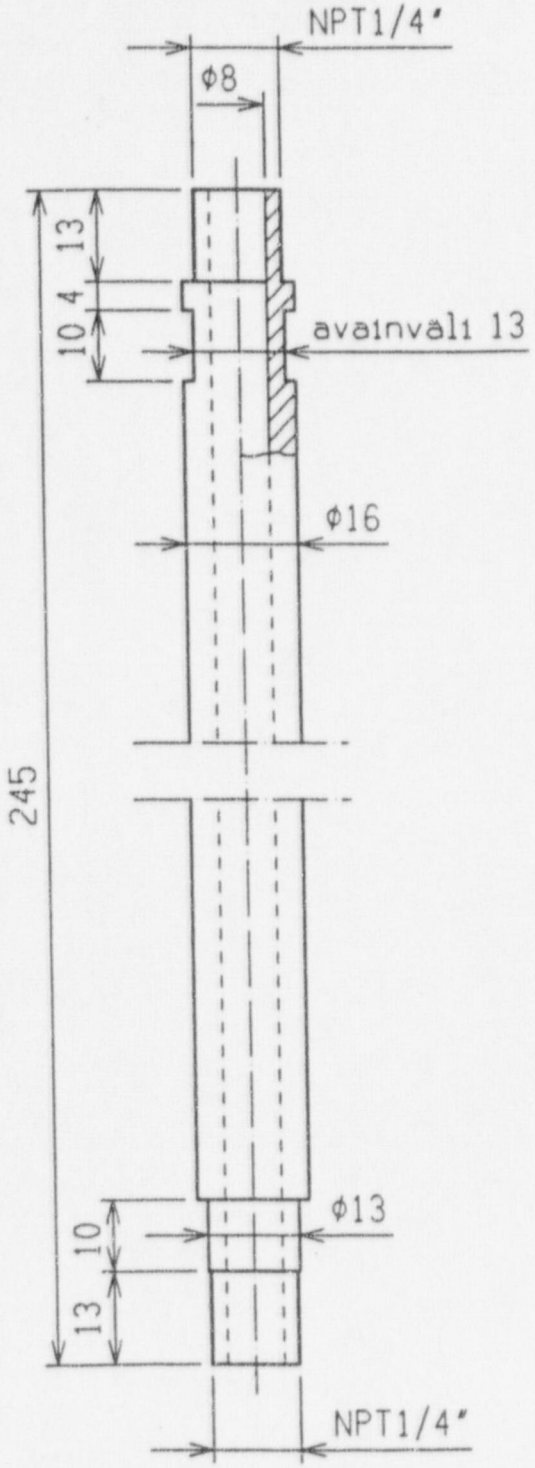
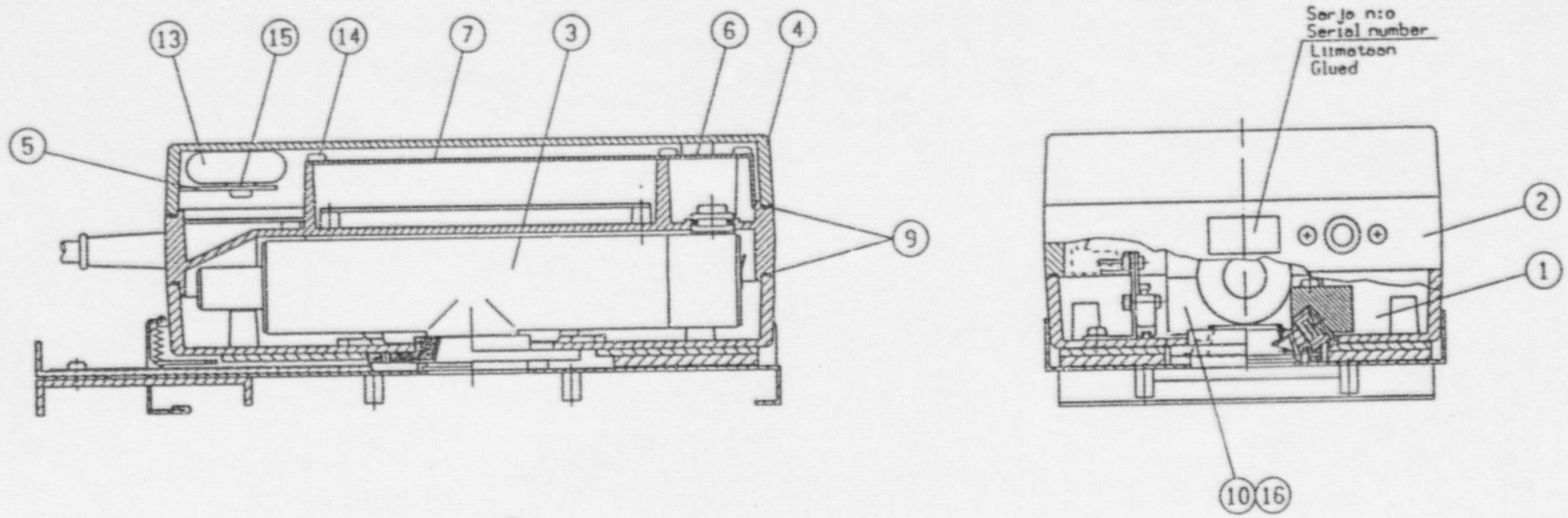
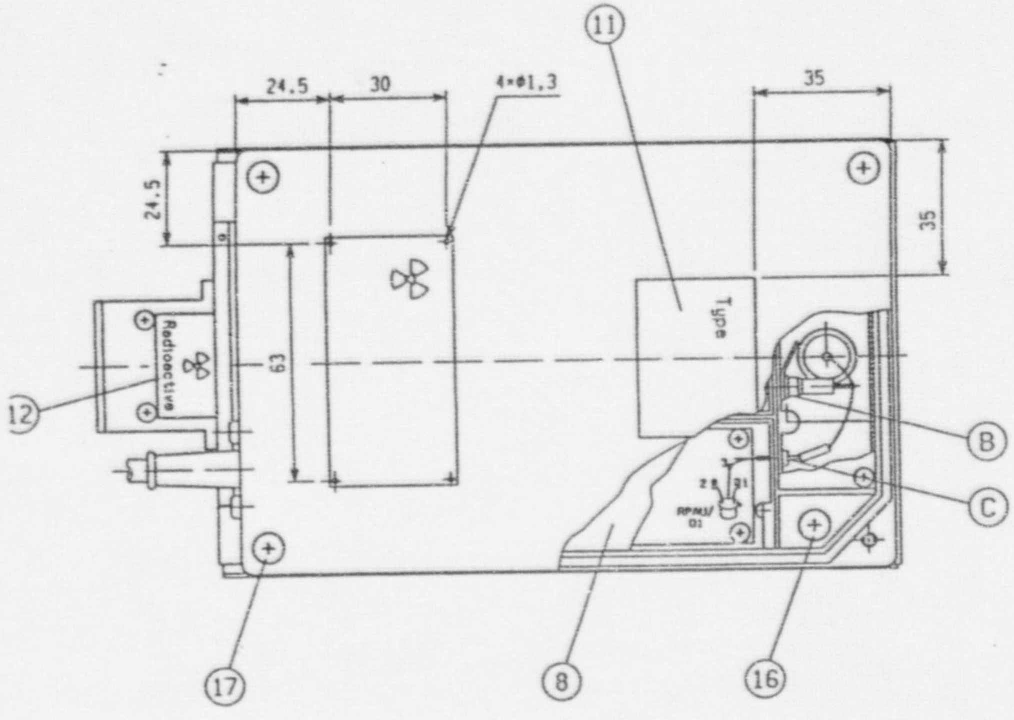


FIGURE 10 (part 14 in fig 1)

AINE MATERIAL: PVDF 1020-tanko 20 mm			
PINTAK. FINISH		SUUNN. DESIGNED: 9102 OK	PIIRT. DRAWN: 9103 alk
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: LCES 2414	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Sample cell pipe Kyvettiputki	OSAL.N:O PART LIST: 3884 061-40	REV.
		3883 679-4M	





Varoitus:
FET transistoria RPAU/01 vaihdettaessa, detektoria juotettaessa tai suurjännitekomponentteja kosketettaessa on FET transistorin RPAU/01 hilalle menevä johto maadoitettava kytkemällä oikosulkulanka <u>ensi</u> maapisteeseen B ja <u>sitten</u> läpivientiin C.

Warning:
When changing the field effect transistor RPAU/01 soldering the detector or touching the high voltage components you have to ground the gate of the field effect transistor RPAU/01 by connecting the short circuit jumper <u>first</u> to the ground pin B and <u>then</u> to the pin C.

FIGURE 11 (part 1 in fig 1)

1:1	Courier 8	9202 OK / 9203 IJ
OUTOKUMPU	HEPS 2412 Heavy elements	Courier 8 / 3884 063-40

3884063 HEPS 2412 HEAVY ELEMENTS 40 RVC PC 1

POSITION/LINE LEVEL	ITEM ID	DESCRIPTION	DRAWING ITMGRP	ISA	QTY	UOM	GROSS QTY	ADDITIONA START	EN
1 10	3884743	MEASUREMENT BASE	40	RVC	1	PC	1,000		
11		*1							
1 20	3880323	FRAME	40	VVC	1	PC	1,000		
21		*2							
1 30	3812286	DETECTOR 0460 XE	40	RVA	0	PC	0,000		
31		*3							
1 40	3882117	DETECTOR 0460.3 AR	40	RVB	1	PC	1,000		
41		*3							
1 50	3847837	COVER 2	2M /A	RTC	1	PC	1,000		
51		*4							
1 60	3811262	SHIELD	4M	RAC	1	PC	1,000		
61		*5							
1 70	3811270	COVER 1	4M	RAC	1	PC	1,000		
71		*6							
1 80	3811288	COVER 2	4M	RAC	1	PC	1,000		
81		*7							
1 90	3811296	COVER 3	4M	RAC	1	PC	1,000		
91		*8							
1 100	3811833	FRAME SEAL	4M	RAC	2	PC	2,000		
101		*9							
1 110	3811320	HOLDER	4M	RAC	1	PC	1,000		
111		*10							
1 120	3884198	TYPE ADHESIVE LABEL HEPS 2412	4P	RAC	1	PC	1,000		
121		*11							
1 130	3039823	RADIATION DANGER-SHIELD ENGLIS		RAC	1	PC	1,000		
131		*12							

CONTINUED

3884063 HEPS 2412 HEAVY ELEMENTS 40 RVC PC 1

POSITION/LINE LEVEL	ITEM ID	DESCRIPTION	DRAWING ITMGRP	ISA	QTY	UOM	GROSS QTY	ADDITIONA START	EN
1	200 2451599	SILICA GEL BAG 10 G		ROC	1	PC	1,000		
	201	*13							
1	210 3058523	SCREW KK M2,5X4 FE/ZNA1		ROC	6	PC	6,000		
	211	*14							
1	220 1520824	SCREW KK M4X8 FE/ZNA1		ROC	2	PC	2,000		
	221	*15							
1	230 1520857	SCREW KK M4X16 FE/ZNA1		ROC	6	PC	6,000		
	231	*16							
1	240 2647998	SCREW KUK M4X25 FE/ZNA1		ROC	4	PC	4,000		
	241	*17							
	9000	RELEVANT DRAWINGS:							
1	9001 D3884745	HEAVY ELEMENTS SAMPLE PROBE	2KE	VVC	0	PC	0,000		
1	9002 3810777	COVER 2	2Y	RAC	0	PC	0,000		
1	9003 D3880247	WIRING DIAGRAM HEPS, LEPS	4JE	VVC	0	PC	0,000		

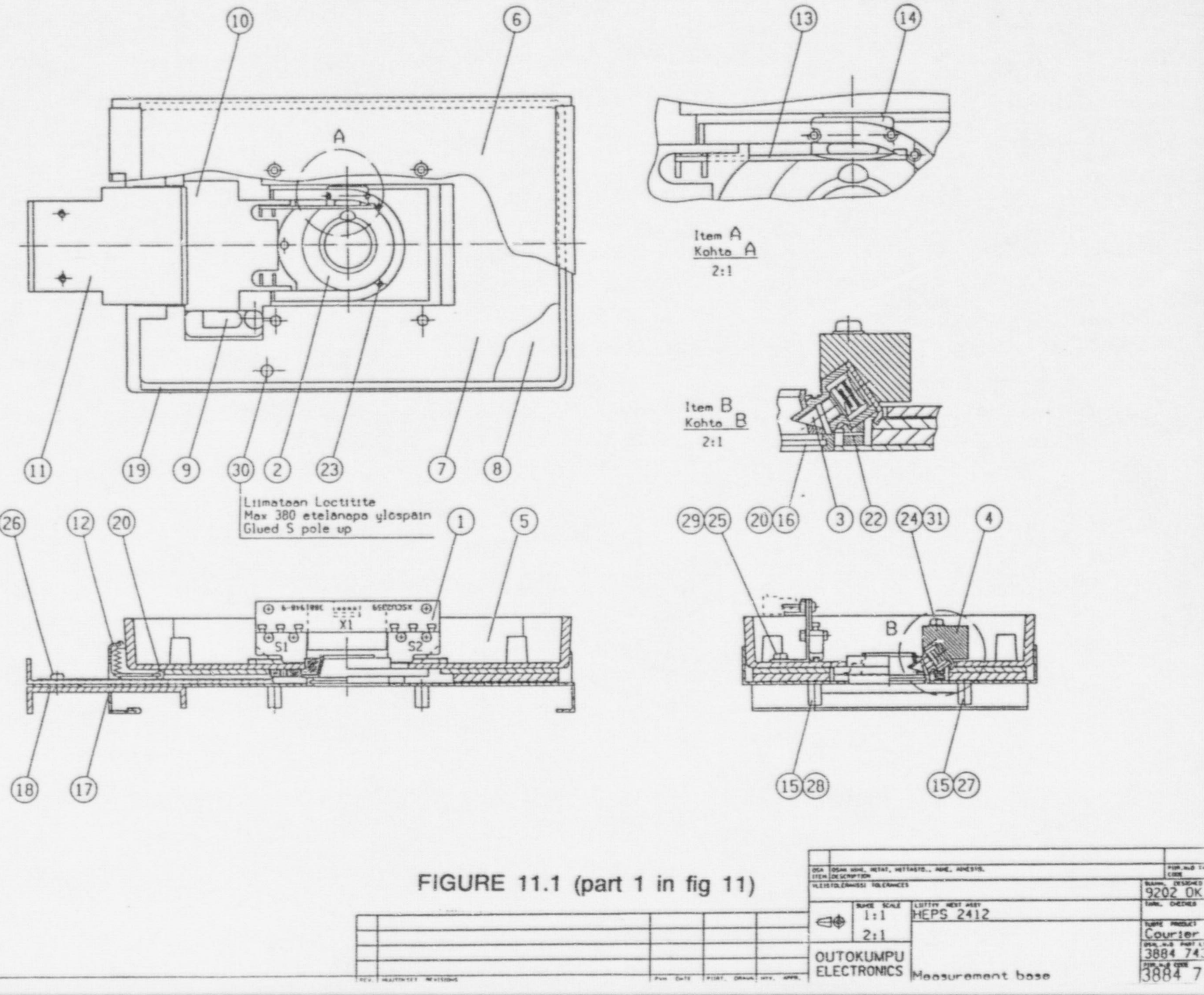


FIGURE 11.1 (part 1 in fig 11)

3884743 MEASUREMENT BASE 40 RVC PC 1

POSITION/LINE LEVEL	ITEM ID	DESCRIPTION	DRAWING ITMGRP	ISA	QTY	UOM	GROSS QTY	ADDITIONA START	EN
1 10	3884648	XSCU 2359 SWITCH CONNECTING	40	VVC	1	PC	1,000		
11		*1							
1 20	3883681	RADIATION SHIELD	2MO	RAC	1	PC	1,000		
21		*2							
1 30	3883968	SOURCE HOLDER	4MO	RAC	1	PC	1,000		
31		*3							
1 40	3884004	SOURCE HOLDER COVER	4MO	RAC	1	PC	1,000		
41		*4							
1 50	3884003	COVER	2M	RTC	1	PC	1,000		
51		*5							
1 60	3883921	COVER PLATE	3M	RAC	1	PC	1,000		
61		*6							
1 70	3883919	SHIM 1	3M	RAC	1	PC	1,000		
71		*7							
1 80	3883920	SHIM 2	3M	RAC	1	PC	1,000		
81		*8							
1 90	3883962	SPRINGS	3M	RTC	1	PC	1,000		
91		*9							
1 100	3883677	SHUTTER CONVEYOR	4M	RAC	1	PC	1,000		
101		*10							
1 110	3883928	LATCH	4M	RAC	1	PC	1,000		
111		*11							
1 120	3883929	LOCKING DEVICE	4M	RAC	1	PC	1,000		
121		*12							
1 130	3883671	SHUTTER	4M	RAC	1	PC	1,000		
131		*13							

CONTINUED

3884743 MEASUREMENT BASE 40 RVC PC 1

POSITION/LEVEL	LINE	ITEM ID	DESCRIPTION	DRAWING ITMGRP	ISA	QTY	UOM	GROSS QTY	ADD STA	TION/ T EN
1	140	3884407	GUIDE SPRING	4M	RTB	1	PC	1,000		
	141		*14							
1	150	3883678	GUIDE PIN	4M	RTC	4	PC	4,000		
	151		*15							
1	160	3883680	DIAPHRAGM RING	4M	RAC	1	PC	1,000		
	161		*16							
1	170	3881468	SPRING	4M	RAC	2	PC	2,000		
	171		*17							
1	180	3884773	SPACING PLATE	4M	RAC	1	PC	1,000		
	181		*18							
1	200	3157070	SEALING TAPE FLEXOPAD W 4X8		ROC	0,51	M	0,510		
	201		*19							
1	210	2689032	SILASTIC HOSE 3,18/1,98MM		ROC	0,01	M	0,010		
	211		*20							
1	220	3027000	POLYPROPYLENE FILM 0,006X45MM		ROC	0,3	G	0,300		
	221		*21							
1	250	2688224	CURIUM 244 10MCI CLC 13044		ROC	0	PC	0,000		
	251		*22							
1	260	2688232	CURIUM 244 20 MCI		ROC	0	PC	0,000		
	261		*22							
1	270	3160223	CURIUM 244 30 MCI CLC 13075		ROC	0	PC	0,000		
	271		*22							
1	280	3041456	CURIUM 244 60 MCI CLCK 3699		ROC	0	PC	0,000		
	281		*22							
1	290	3053600	CURIUM 244 100 MCI CLC 13076		ROC	0	PC	0,000		
	291		*22							

CONTINUED

3824743 MEASUREMENT BASE 40 RVC PC 1

POSITION/LINE LEVEL	ITEM ID	DESCRIPTION	DRAWING ITMGRP	ISA	QTY	UOM	GROSS QTY	ADDITION START
1	300 3160231	CADMIUM 109 3 MCI CUC 13053		ROC	0	PC	0,000	
	301	*22						
1	310 3058884	CADMIUM 109 5 MCI CUCQ 9199		ROC	0	PC	0,000	
	311	*22						
1	320 3046919	CADMIUM 109 10 MCI CUC 13055		ROC	0	PC	0,000	
	321	*22						
1	330 3021722	AMERICIUM-241 3MCI AMC.63		ROC	0	PC	0,000	
	331	*22						
1	340 3021730	AMERICIUM-241 10MCI AMC.64		ROC	0	PC	0,000	
	341	*22						
	351	*22						
1	360 3059023	AMERICIUM-241 30 MCI / 1,1GBQ		ROC	0	PC	0,000	
	361	*22						
1	365 3025046	SAMARIUMCOBOLT MAGNET		ROC	1	PC	1,000	
	366	*30						
1	370 3058523	SCREW KK M2,5X4 FE/ZNA1		ROC	3	PC	3,000	
	371	*23						
1	380 3058525	SCREW KK M2,5X20 FE/ZNA1		ROC	2	PC	2,000	
	381	*24						
1	390 3055225	SCREW KK M3X4 FE/ZNA1		ROC	2	PC	2,000	
	391	*25						
1	400 1520626	SCREW KK M3X6 FE/ZNA1		ROC	2	PC	2,000	
	401	*26						
1	410 1520683	SCREW KK M3X12 FE/ZNA1		ROC	2	PC	2,000	
	411	*27						
1	420 2669364	SCREW UK M3X16 FE/ZNA1		ROC	2	PC	2,000	
	421	*28						

CONTINUED

3884743 MEASUREMENT BASE 40 RVC PC 1

POSITION/LINE LEVEL	ITEM ID	DESCRIPTION		DRAWING ITMGRP	ISA	QTY	UOM	GROSS QTY	ADDITIONA START	EN
1 430	2686202	WASHER	A3,2	FE/ZNA1	ROC	2	PC	2,000		
431		*29								
1 440	2499739	WASHER	A2,7	FE/ZNA1	ROC	2	PC	2,000		
441		*31								
9000		RELEVANT DRAWINGS:								
1 9001	D3884744	MEASUREMENT BASE		2KE	VVC	0	PC	0,000		
1 9002	3807534	COVER 1		2Y	RAC	0	PC	0,000		

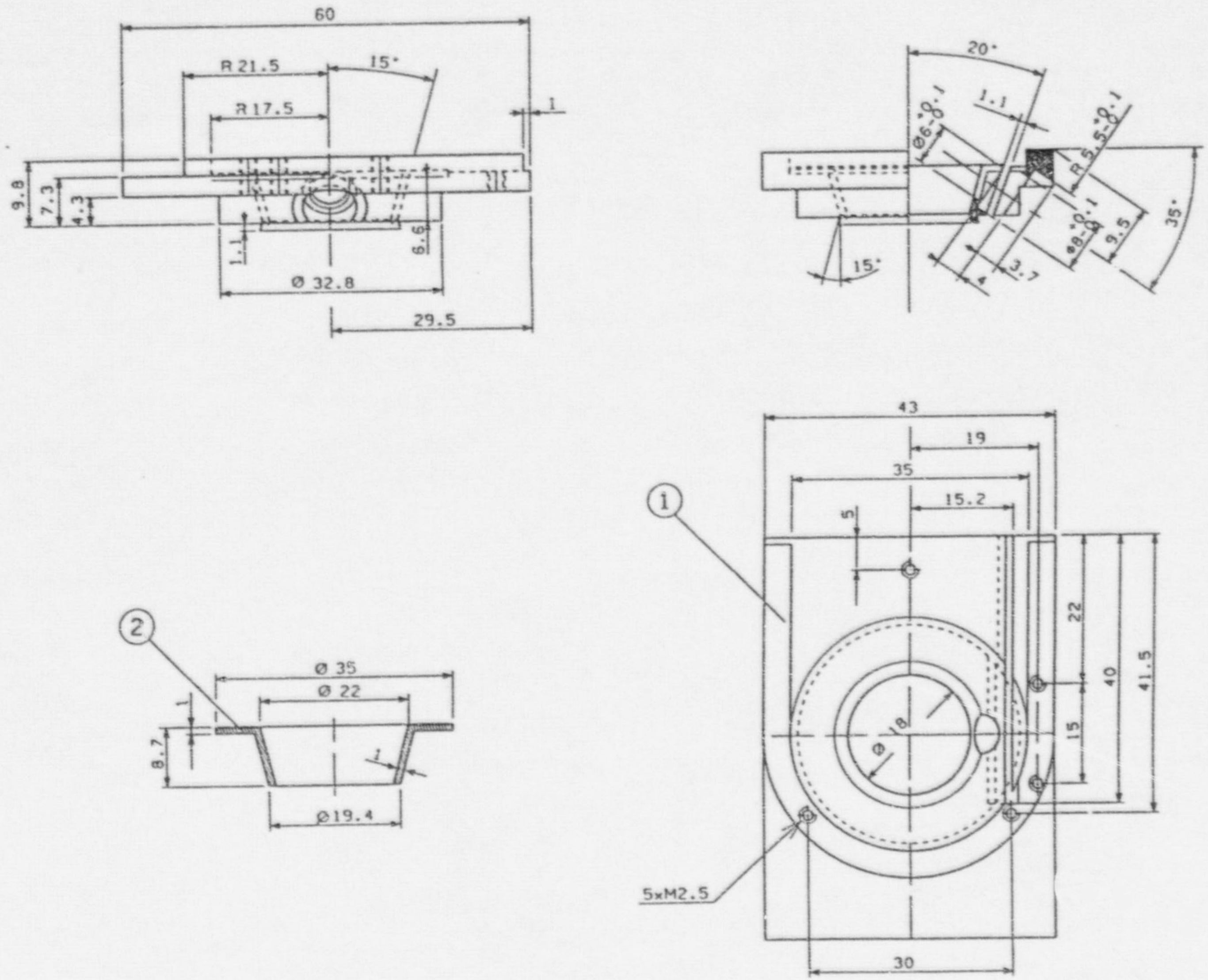
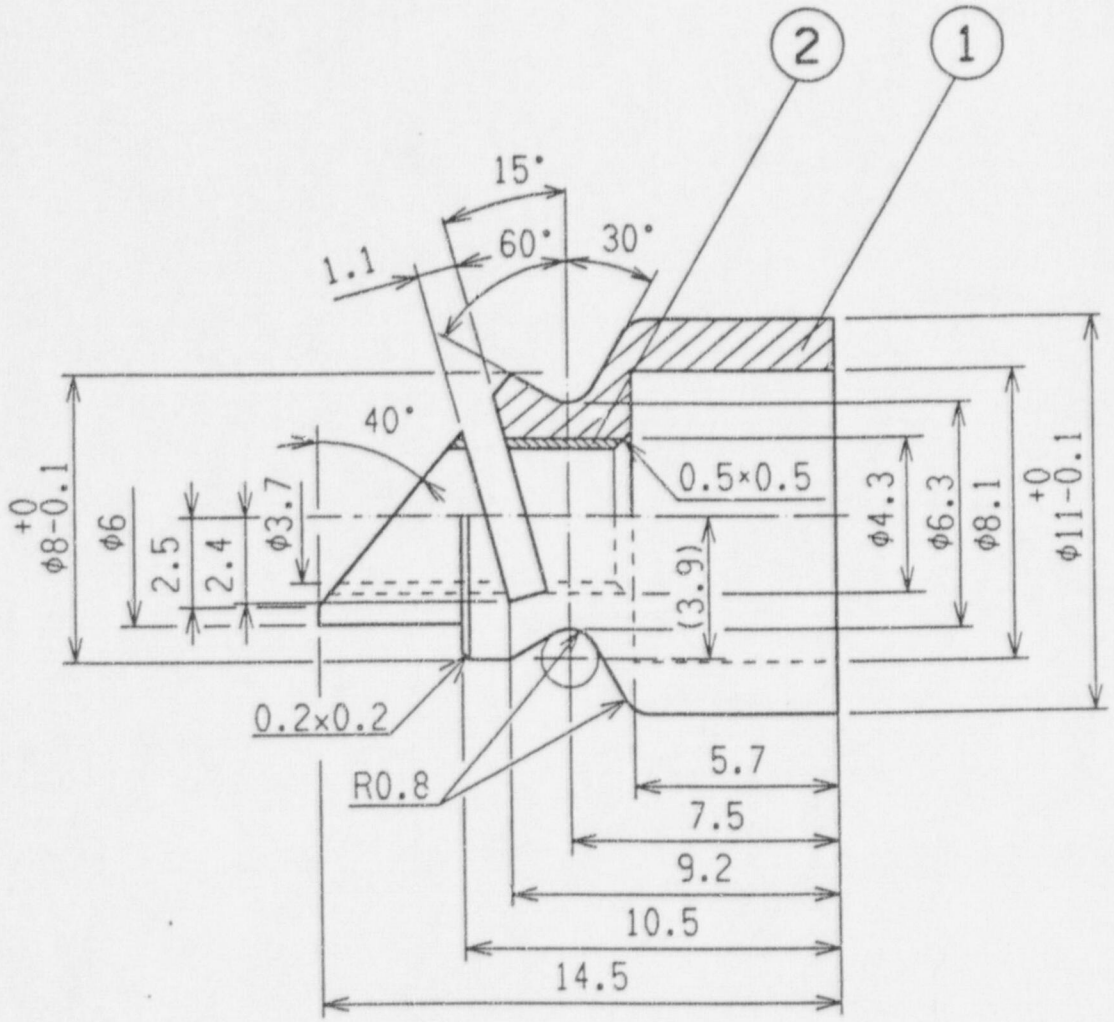


FIGURE 11.2 (part 2 in fig 11.1)

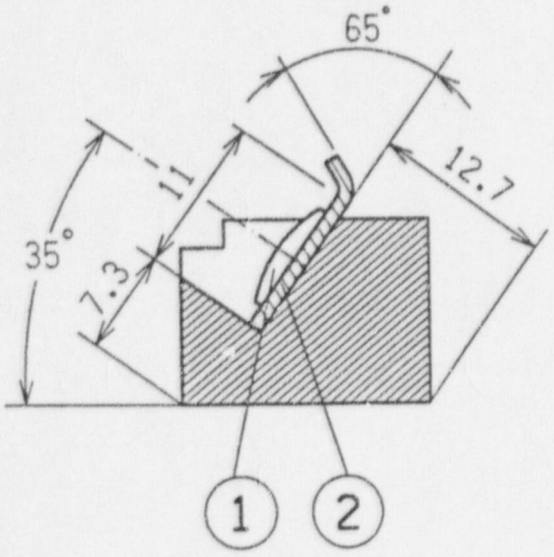
2. AlSiMg-T6 Ø40
1. Ms 162-04 50×10 Brass
SFS 4011-keski
2:1
HEPS 2412
OUTOKUMPU ELECTRONICS
Radiation shield
Säteilysuojapala
9108 0
Courier
3884 7
3883

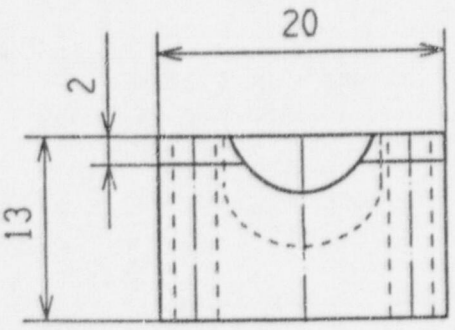


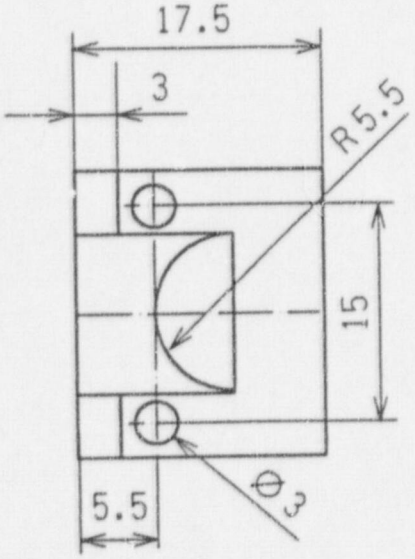
2. AlMgSi T6 φ6

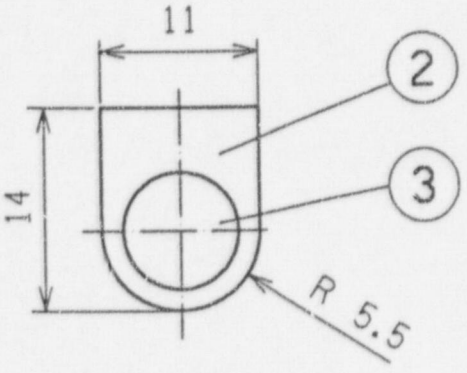
FIGURE 11.3 (part 3in fig 11.1)

AINE MATERIAL 1. Densimet φ12 95% W, 3.4% Ni, 1.6% Fe tako: 3059 345			
PINTAK. FINISH		SUUNN. DESIGNED 9106 OK	PIIRT. DRAWN 9106 IJ
PINTA SURFACE	YLEISTOL. TOLERANCES SFS 4011-hieno	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE 5:1	LIITTYY NEXT ASSY HEPS 2412	TUOTE PRODUCT Courier 8	
OUTOKUMPU ELECTRONICS	Source holder Lähteenpidin	OSAL.NRO PART LIST 3884 743-40	REV.
		3883 968-4M0	





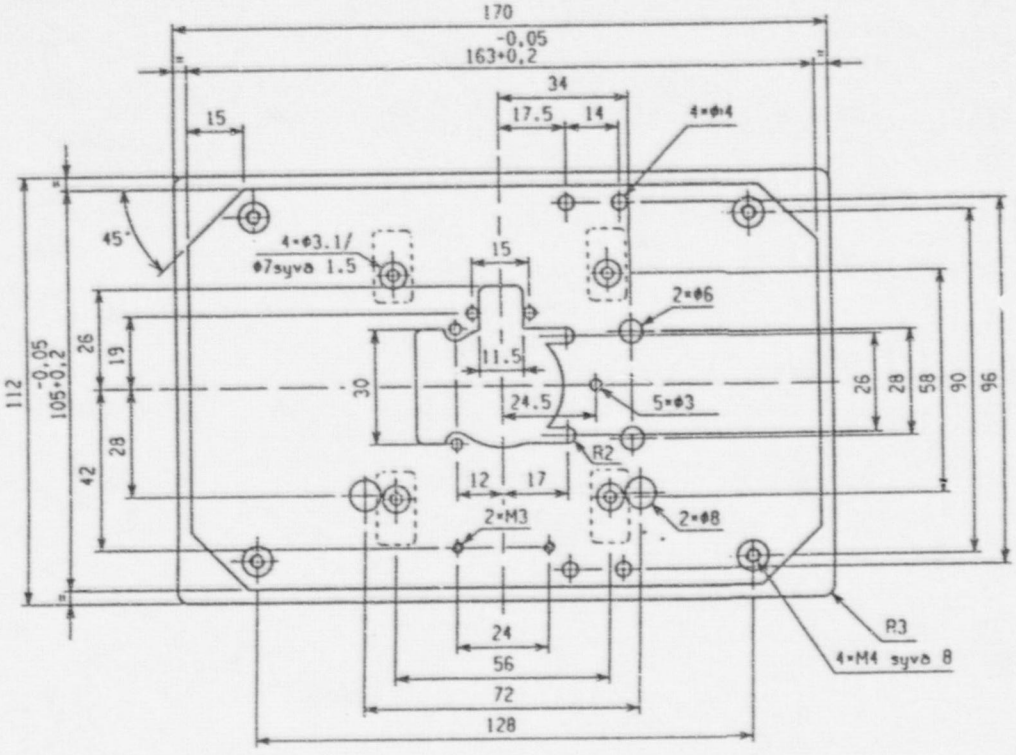


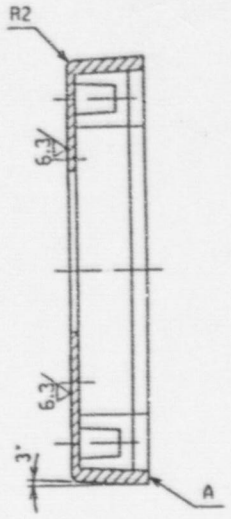


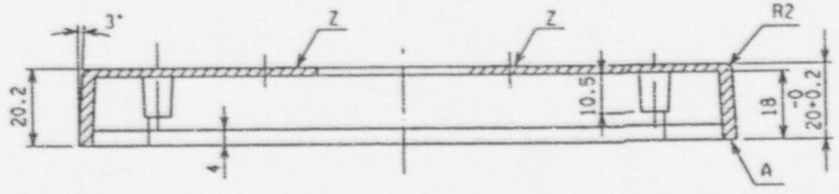
3. Adhesive plastic padding
2. Lead plate, 1mm

FIGURE 11.4 (part 4 in fig 11.1)

AINE MATERIAL 1. Brass	20mm CuZn39Pb 3-04 SFS 2245 tako: 1330 026		
PINTAK. FINISH		SUUNN. DESIGNED 9106 OK	PIIRT. DRAWN 9106 OK
PINTA SURFACE	YLEISTOL. TOLERANCES SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE 1:2	LIITTYY NEXT ASSY HEPS 2412, 2431	TUOTE PRODUCT C 8, X-MET	
OUTOKUMPU ELECTRONICS	Source holder cover Lähteenpitimen kansi	OSAL.NRO PART LIST 3884 004-4MO	REV.







Pintakäsittely: Sadolin Termolux 317/11452 (harmaa) puolihimmeä efekti

Huom! Ennen työstöä on tarkistettava että valu on suora, tarvittaessa oikaistava ja häiritsevät pursaet poistettava.

Huom! A-pintoja ja sisäpuolta ei maalata A-pinta tasoitetaan ennen Z-pintojen työstöä

FIGURE 11.5 (part 5 in fig 11.1)

ZA 12 — toko: 3807 534		9106 OK	9106 IJ
	SFS 4011-keski		
1:1	HEPS 2412	Courier 8	
OUTOKUMPU ELECTRONICS	Cover Kansi	3884 743-40	
		3884 003-2M	

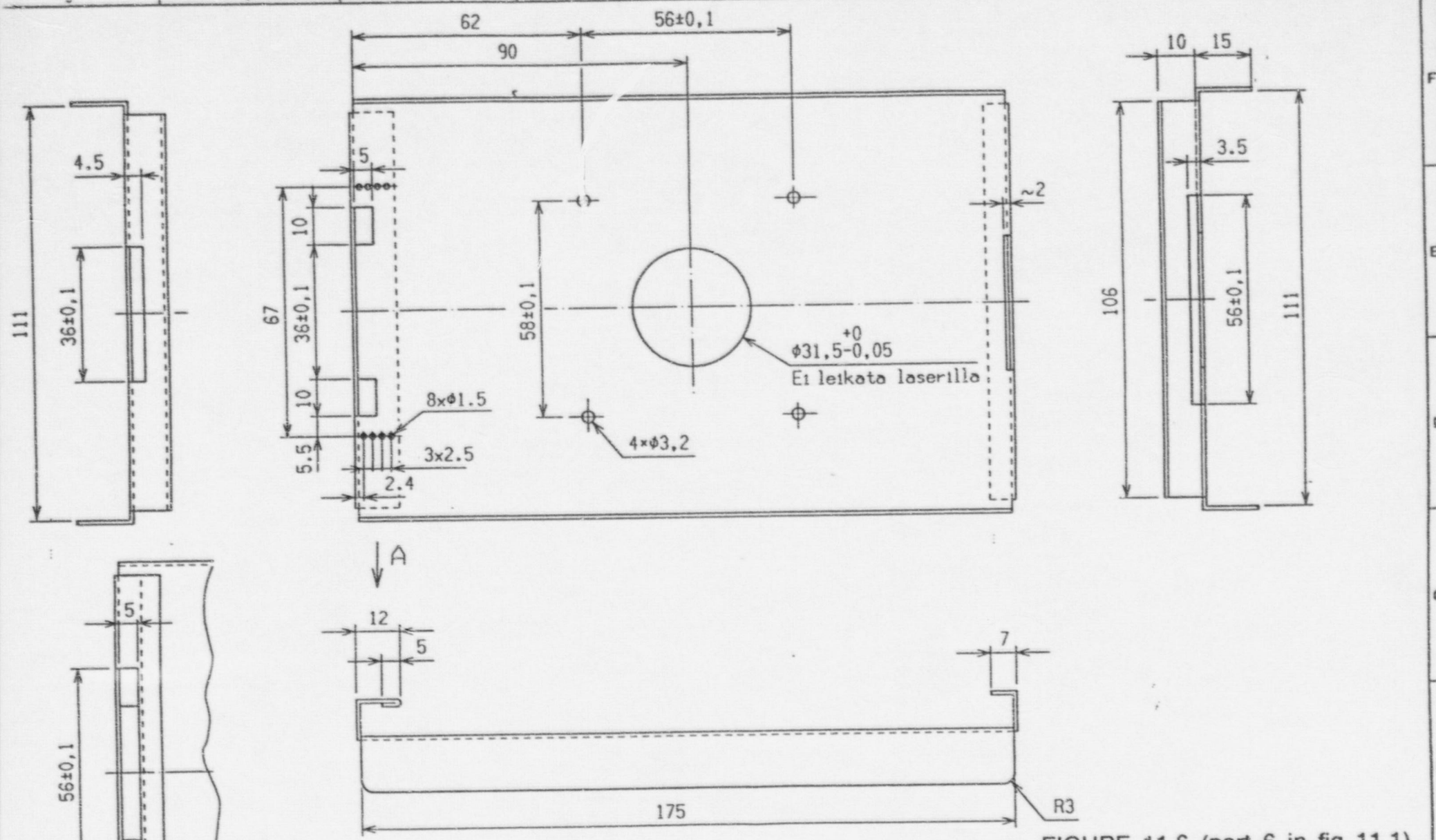


FIGURE 11.6 (part 6 in fig 11.1)

AINE MATERIAL: Stainless steel, 1 mm	SFS 4467 teräs 725-2D tako: 1023 852		
PINTAK. FINISH		SUUNN. DESIGNED: 9105 OK	PIIRT. DRAWN: 9105 IJ
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: HEPS 2412	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Cover plate Kansilevy	OSAL.NRO PART LIST: 3884 743-40	REV.
		3883 921-3M	

REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.

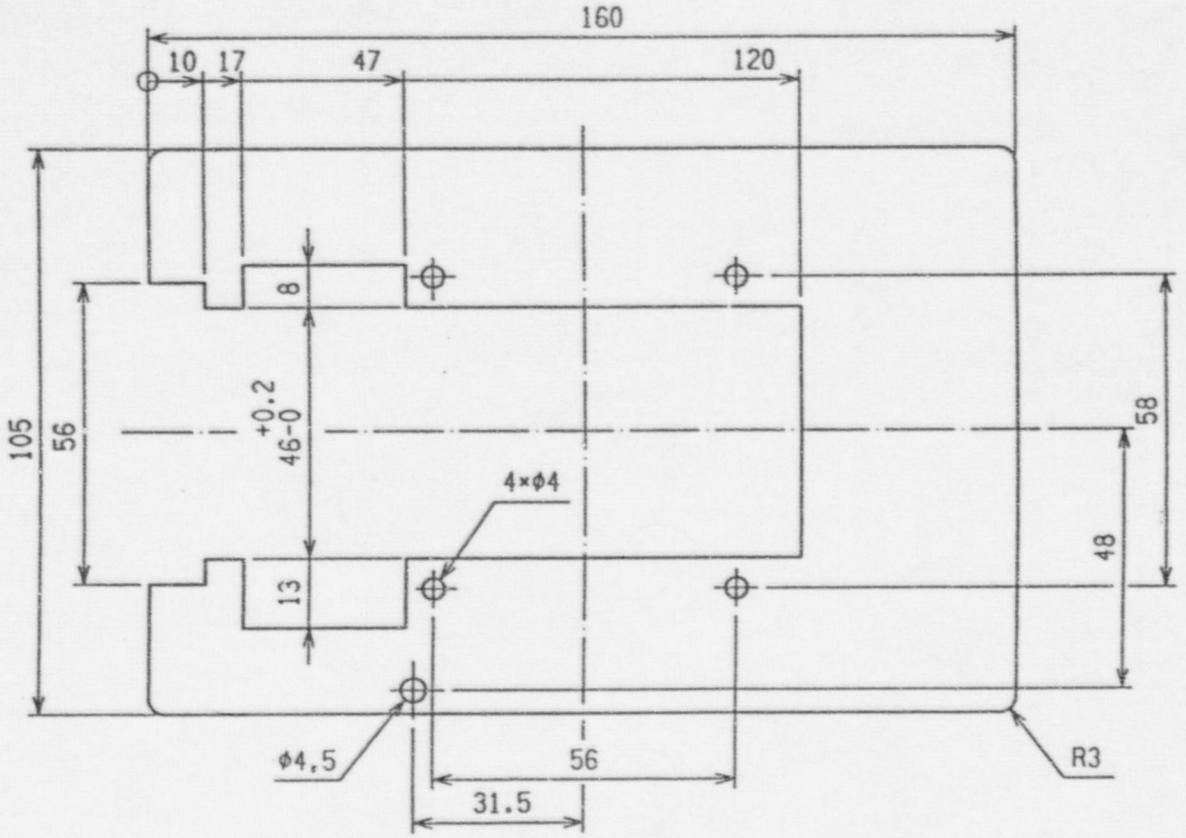


FIGURE 11.7 (part 7 in fig 11.1)

NIME MATERIAL: Stainless steel, 3 mm			SFS 4467 teräs 725-2D tako: 1556 505	
PINTAK. FINISH			SUUNN. DESIGNED: 9105 OK	PIIRT. DRAWN: 9105 IJ
PINTA SURFACE		YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
	SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: HEPS 2412	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Shim 1		OSAL.NRO PART LIST: 3884 743-40	REV.
	Tautelevy 1		3883 919-3M	

REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.

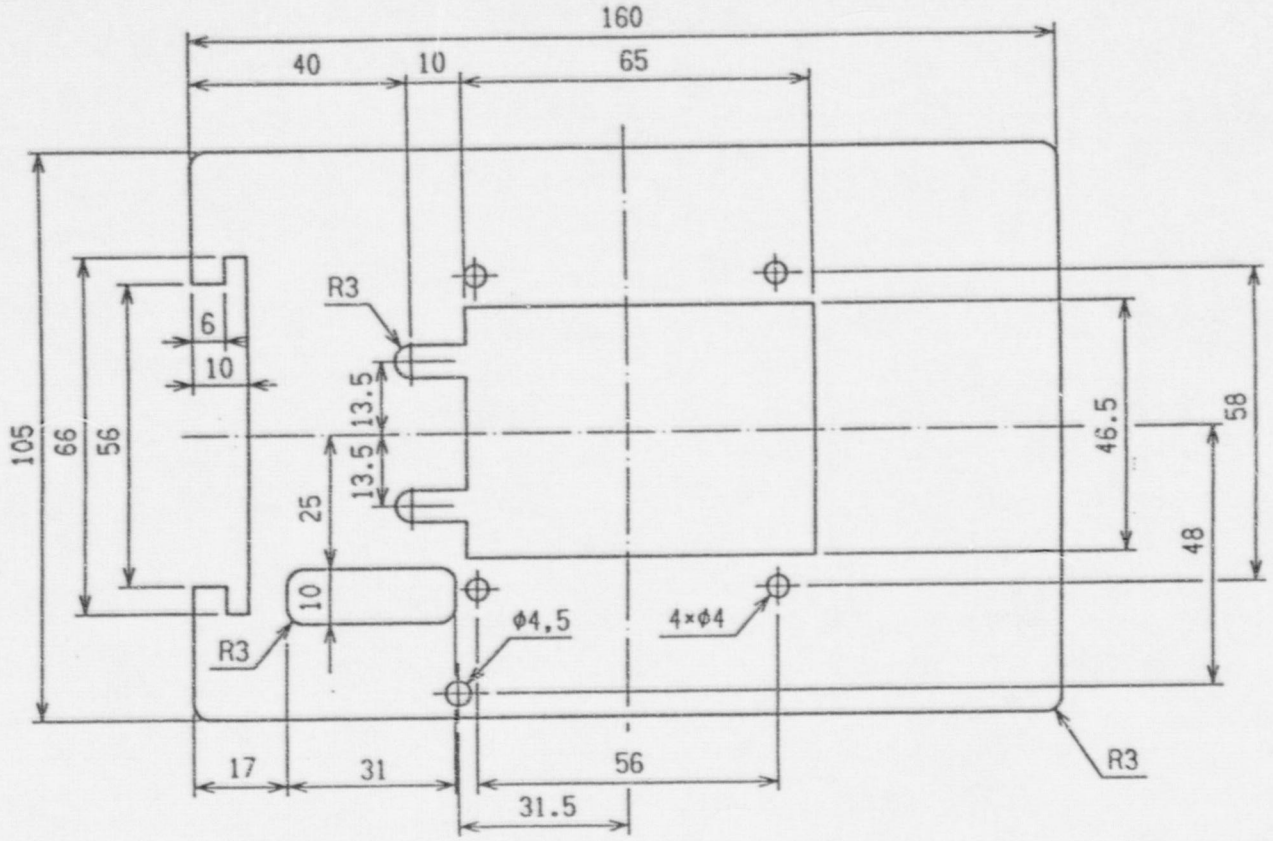


FIGURE 11.8 (part 8 in fig 11.1)

AINE MATERIAL: Stainless steel, 2 mm	SFS 4467 teräs 725-2D tako: 1394 287				
PINTAK. FINISH				SUUNN. DESIGNED: 9105 OK	PIIRT. DRAWN: 9105 IJ
PINTA SURFACE		YLEISTOL. TOLERANCES: SFS 4011-keski		TARK. CHECKED	HYV. APPROVED
	SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: HEPS 2412		TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS		Shim 2		OSAL.NRO PART LIST: 3884 743-40	REV.
		Täytelevy 2		3883 920-3M	
REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.	

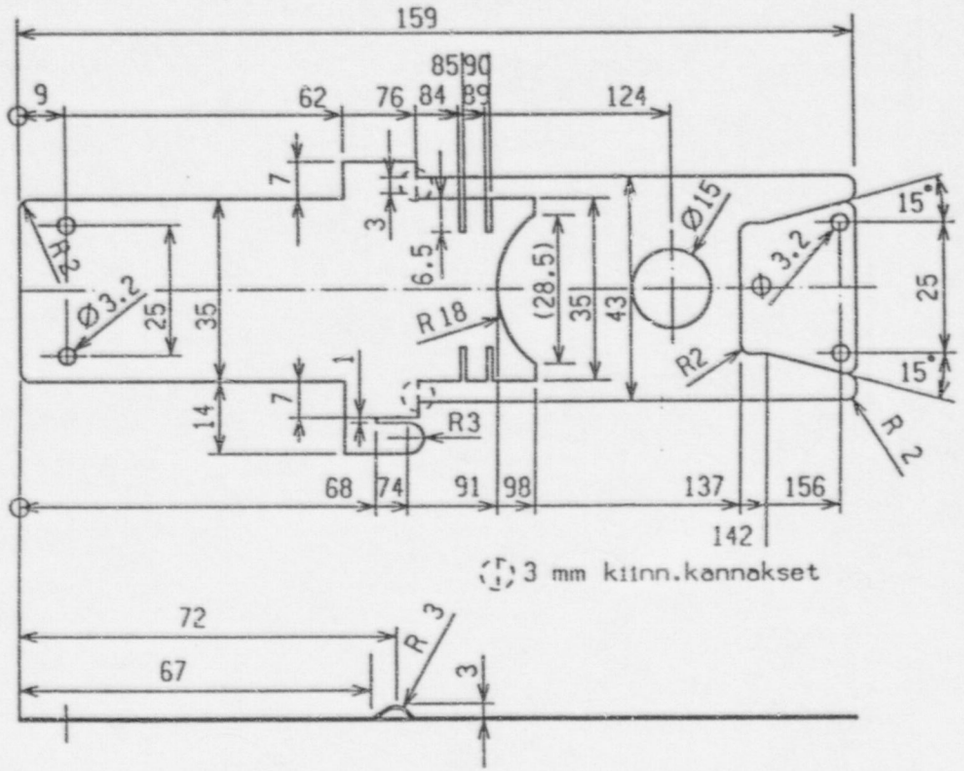


FIGURE 11.9 (part 9 in fig 11.1)

AINE MATERIAL: Stainless spring steel, 0.5 mm			SUUNN. DESIGNED: 9106 OK	PIIRT. DRAWN: 9106 OK
PINTAK. FINISH			TARK. CHECKED	HYV. APPROVED
PINTA SURFACE		YLEISTOL. TOLERANCES: SFS 4011-keski		
	SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: HEPS 2412	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS		Spring plates / Levy,louset	OSAL.NRO PART LIST: 3884 743-40	REV.
			3883 962-3M	

REV.	MUUTOKSET REVISIONS	PVM DATE	PIIRT. DRAWN	HYV. APPR.

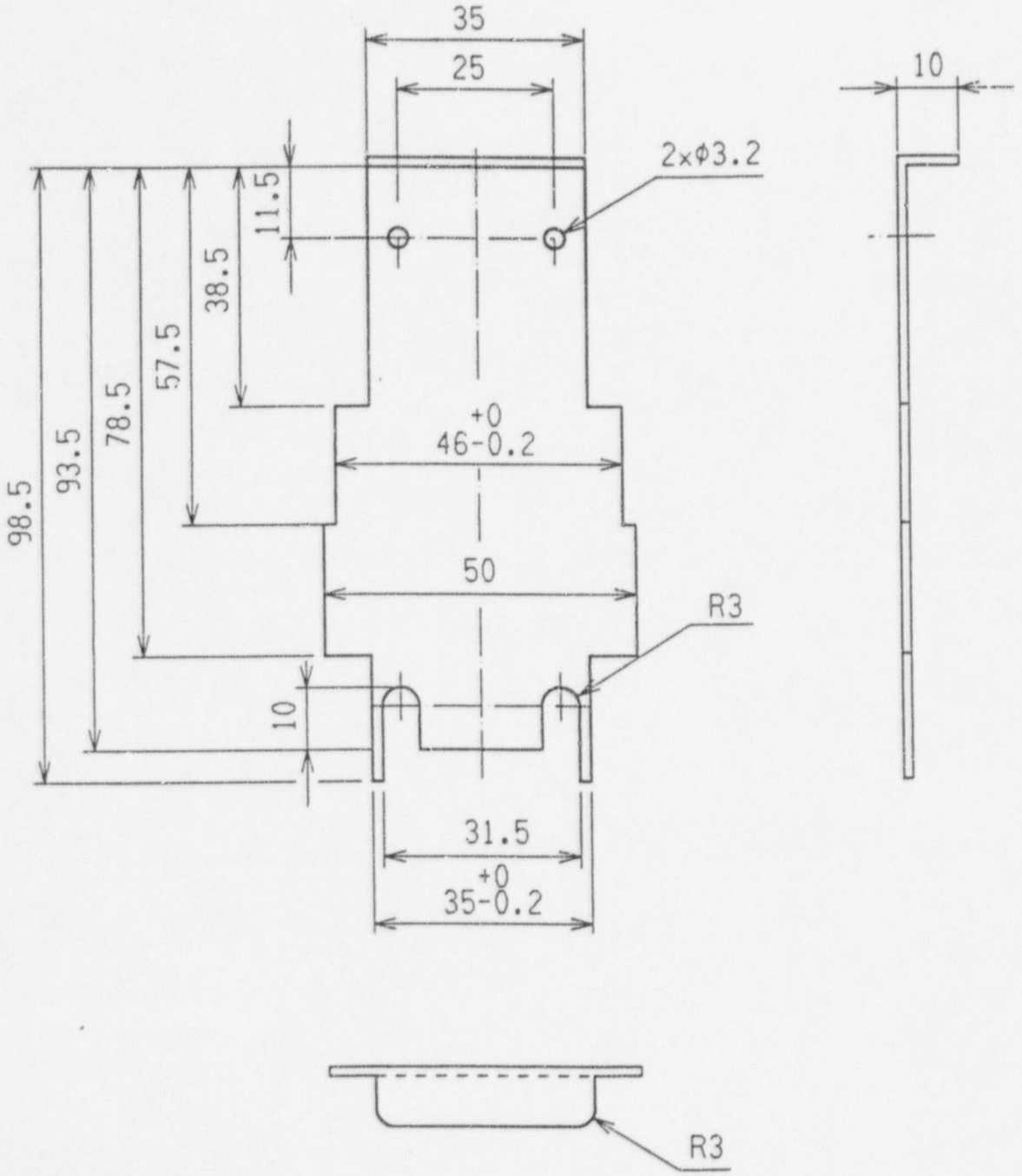


FIGURE 11.10 (part 10 in fig 11.1)

AINE MATERIAL: Stainless steel, 1.5 mm SFS 4467 teräs 725-2D (AISI304)			
PINTAK. FINISH		SUUNN. DESIGNED: 9102 OK	PIIRT. DRAWN: 9102 alk
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: HEPS 2412	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Shutter conveyor Sulkimen siirtäjä	OSAL.NRO PART LIST: 3884 743-40	REV.
		3883 677-4M	

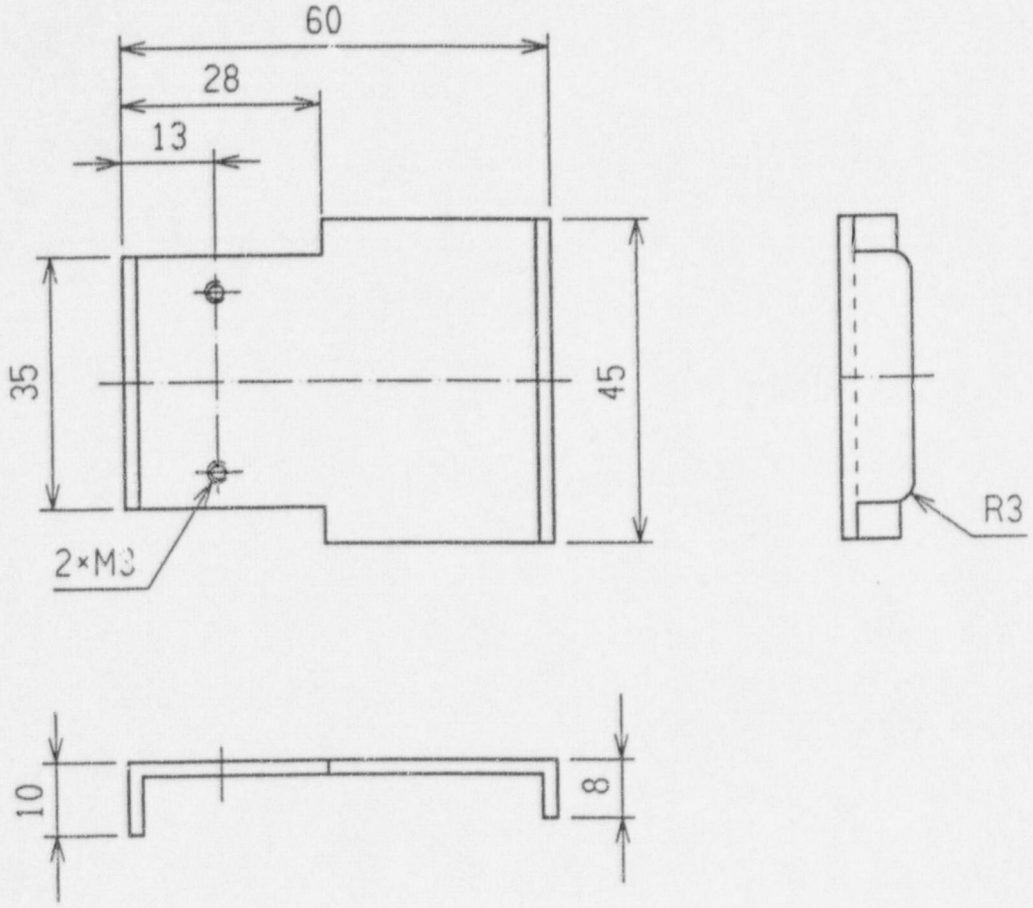


FIGURE 11.11 (part 11 in fig 11.1)

AINE MATERIAL: Stainless steel, 2 mm	SFS 4467 teräs 725-2D tako: 1394 287		
PINTAK. FINISH		SUUNN. DESIGNED: 9105 OK	PIIRT. DRAWN: 9106 IJ
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: HEPS 2412	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Latch Salpa	OSAL.N:O PART LIST: 3884 743-40	REV.
		3883 928-4M	

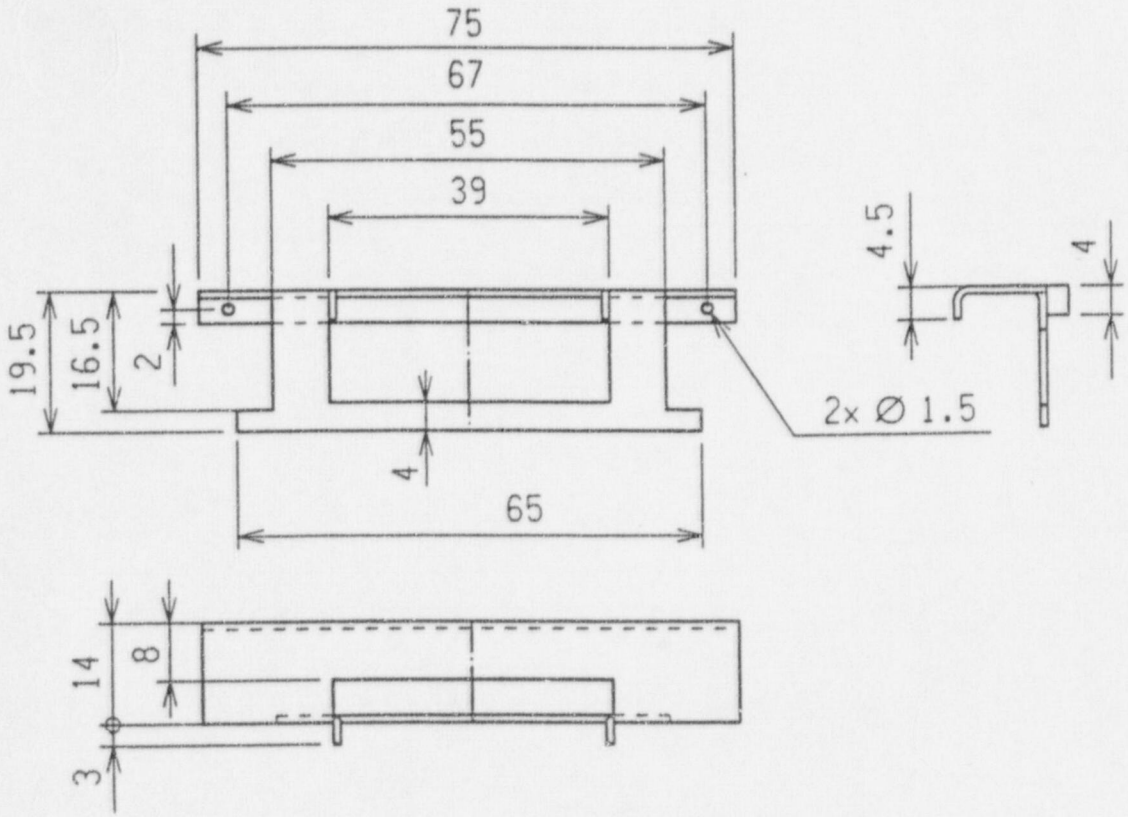


FIGURE 11.12 (part 12 in fig 11.1)

AINE MATERIAL: Stainless steel, 1 mm	SFS 4467 teräs 725-2D tako: 1023 852		
PINTAK. FINISH		SUUNN. DESIGNED: 9105 OK	PIIRT. DRAWN: 9106 IJ
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 1:1	LIITTYY NEXT ASSY: PEPS 2412	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Locking device Varmistin	OSAL.N:O PART LIST: 3884 743-40	REV.
		3883 929-4M	

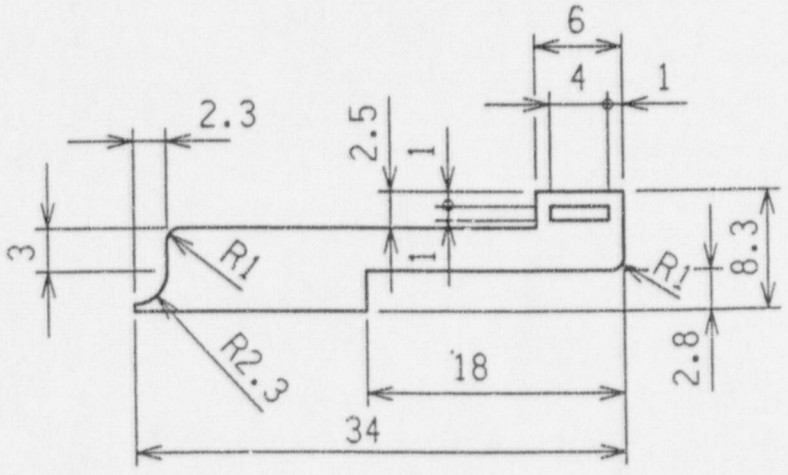


FIGURE 11.13 (part 13 in fig 11.1)

WINE MATERIAL: Tungsten, 1 mm — Tako: 3046 380			
PINTAK. FINISH		SUUNN. DESIGNED: 9102 OK	PIIRT. DRAWN: 9102 alk
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 2:1	LIITTYY NEXT ASSY: HEPS 2412	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Shutter Suljin	OSAL.N:O PART LIST: 3884 743-40	REV.
		3883 671-4M	

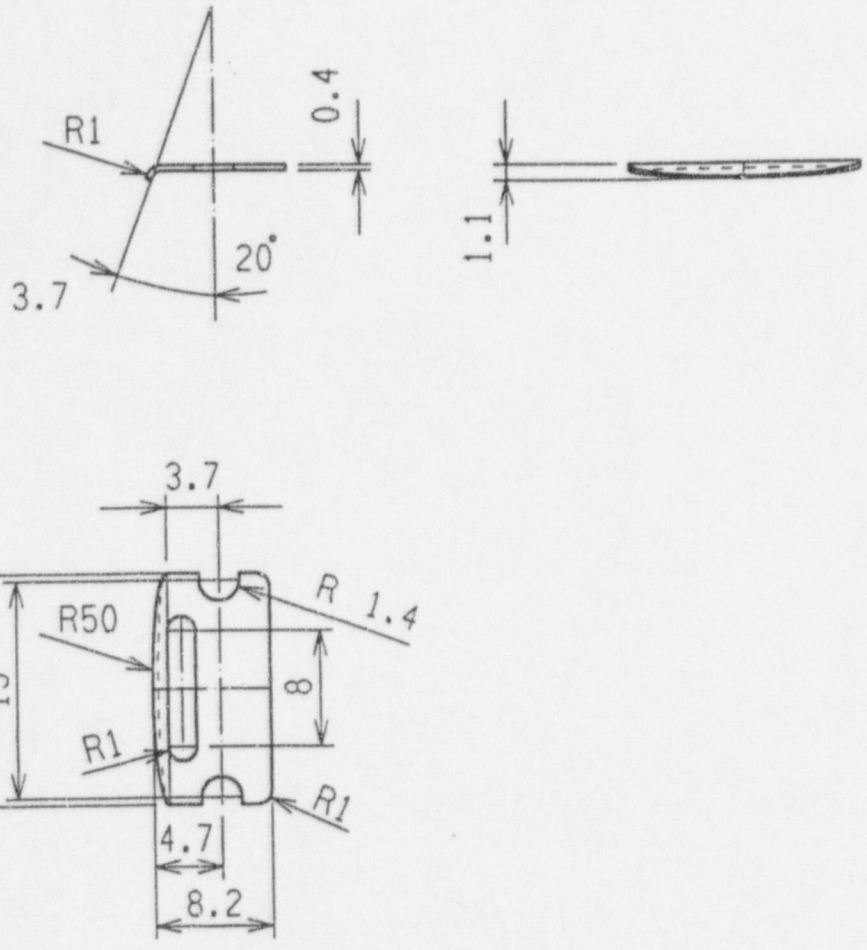
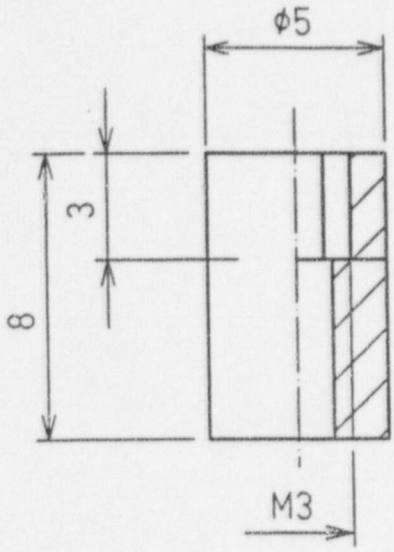


FIGURE 11.14 (part 14 in fig 11.1)

AINE MATERIAL: Stainless spring steel, 0,4 mm			
PINTAK. FINISH		SUUNN. DESIGNED: 9110 OK	PIIRT. DRAWN: 9110 RM
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 2:1	LIITTYY NEXT ASSY: HEPS 2412	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Guide spring Oh jous jous1	OSAL.N:O PART LIST: 3884 743-40	REV.
		3884 407-4M	



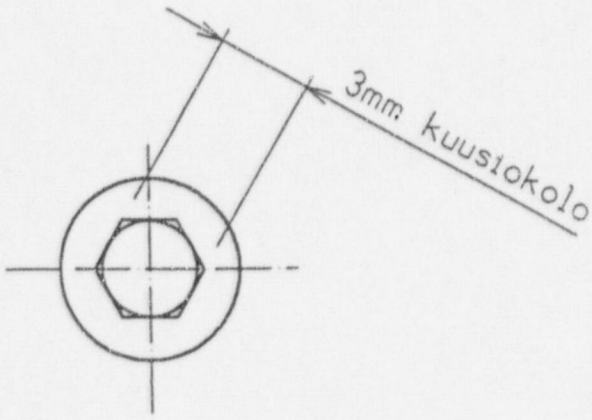


FIGURE 11.15 (part 15 in fig 11.1)

AINE MATERIAL: Stainless steel	Tako: 3043 338		
PINTAK. FINISH		SUUNN. DESIGNED: 9102 OK	PIIRT. DRAWN: 9102 alk
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-hieno	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 5:1	LIITTYY NEXT ASSY: HEPS 2412	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Guide pin Ohjausnasta	OSAL.N:O PART LIST: 3884 743-40	REV.
		3883 678-4M	

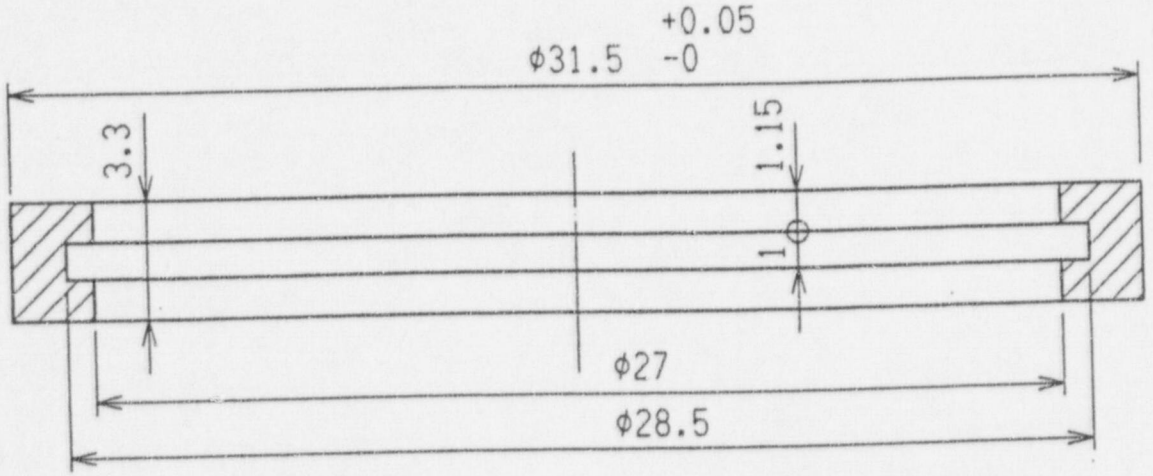


FIGURE 11.16 (part 16 in fig 11.1)

AINE MATERIAL: POM-tanko 36mm (Derlin) Tako: 3468 170			
PINTAK. FINISH		SUUNN. DESIGNED: 9102 OK	PIIRT. DRAWN: 9102 alk
PINTA SURFACE	YLEISTOL. TOLERANCES: SFS 4011-keski	TARK. CHECKED	HYV. APPROVED
SUHDE SCALE: 5:1	LIITTYY NEXT ASSY: HEPS 2412	TUOTE PRODUCT: Courier 8	
OUTOKUMPU ELECTRONICS	Diaphragm ring Kalvorengas	OSAL.N:O PART LIST: 3884 743-40	REV.
		3883 680-4M	