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6 July, 2001

Mr. Bill Ward
Mechanical Engineer
United States Nuclear Regulatory Commission
Washington, D.C.

Dear Mr. Ward:

Enclosed is our response to the letter you sent us on 28 June, 2001. We have addressed the questions in the same order that you presented them. We hope that you find the inclusions satisfactory. Please accept our apologies for some confusion over the construction parameters and the use of German in some of the drawings. We wish to make your review of our requests as smooth as possible.

Please do not hesitate to contact me or our radiation consultant, Sue Engelhardt. Sue can be reached at 1-800-525-3078.

Sincerely,

John Buckman
General Manager, RSO

Cc Susan Engelhardt

Question One

ITEM 1.1
MANUFACTURER NAME: The correct manufacturer name is IMS Messysteme GmbH. This name, translated means IMS Measuring Systems, Germany. This name was adapted for customer information. The original name Isotope Measuring Systems indicated that the only gauges the company made were those containing radioactive materials. The company also makes x-ray gauges, so the name modification precludes confusion over what products are made.

ITEM 1.2
SOURCE REGISTRY CERTIFICATE: The current source certificate is IL-136-S-232-S as you indicated.

Question Two

ITEM 2.1
SOURCE MODEL: It is so noted that the model CDC.711M source is the only one currently available.

ITEM 2.2
ANSI CLASSIFICATION: We confirm that the ANSI classification for this source is indeed 77C66646.

ITEM 2.3
ALLOY USED: For this gauge, the alloy used was a G-18. Please note the enclosed data sheet. The G18 heavy metal was selected because of the binding elements. The S18 binders (as you can see) contained copper. The copper had a tendency to oxidize a little and create a blackened surface. The G18 uses an iron binder which eleinates the problem.

ITEM 2.4
TEMPERATURE RANGES: Because the unit is water cooled, the internal temperature never exceeds 65.5 C. Nominally, the internal temperature is less than 55C. There are fault sets that would indicate a temperature problem, should such a thing occur. Therefore, the pneumatic cylinder would not be compromised or affected in any way.

ITEM 2.5
AIR GAP VARIANCE: Please delete the section on page 7 of the application that covers air gap/measuring gap and replace it with the following text. The diameter of the air gap is determined when the customer selects the gauge. This diameter depends on the size of the tube the customer is manufacturing. Therefore, this is a pre-installed parameter for the gauge. The actual size of this gap never changes after this point. However, as there is variance in the size of the tube being made, it is important to assure that the tube remains in the center of the air gap during the manufacturing process. Therefore, the entire gauge will move up and down by screw jack mechanism to accommodate the

varying size of the tubes being made. NOTE: the air gap size never exceeds 800 mm. The enclosed drawing (100780-9 M1) will show this in more detail. There is no roller plate; it was a concept that was not included as a part of gauge production.

ITEM 2.6
CENTERLINE OF SOURCE: In drawing 5321-025-01, the hole is shown in the section view as being at a 45 degree angle. The dimension shown is 23.7 mm. On drawing 5321-025-02, the dimension is shown as 35.5mm. If the hole on this drawing were rotated clockwise 45 degrees, the dimensions would be the same (23.7mm). The drawings are correct; it is only a matter of they are viewed. Therefore, the overlap is the full 10 mm.

ITEM 2.7
CHAMBER CUT IN THE SOURCE HOUSING: The chamber is used during the manufacturing process. The manufacturer starts with a small drill hole, then progressively machines the large hole for the shutter assembly. Therefore, the chamber has nothing to do with the support for the shutter. The shutter assembly does not contact the non-bearing end of the housing. Nominal clearance at this point is 0.5 mm. The bearings are compressed and allow virtually no axial movement. Maximum thrust (axial movement) is 0.05mm.

ITEM 2.8
DIFFERENCE BETWEEN HOUSING DRAWING AND PICTURE: The NRC is correct (good observation). When the TIAS 212 assembly moved the detector geometry (see item 4.1), then the cylinder mounting bracket was re-designed. Due to the change, the old bolt hole pattern was difficult to access. Please see correct bracket drawing 5321-035-05

QUESTION THREE

ITEM 3.1
LABEL SOURCE HOUSING: The source housing label will be modified to include the words "Caution: Radioactive Materials."

ITEM 3.2: PAINTED SYMBOL: Please note that everything but the radiation symbol is engraved. This label is internal to the gauge and is not exposed to the harsh environment that the external surfaces of the gauge are subjected to. The internal components are not subjected to greater than 65.5C, so the painted symbol will not deteriorate. This label has been used for over 20 years and there has never been degradation of it.

QUESTION FOUR

ITEM 4.1
TIAS 211 vs. 212: There are some subtle differences between the TIAS 211 and 212. The TIAS 211 is used for smaller diameter tubes. The differences are in the geometric relationship between the source and the detector. For the TIAS 212, the detector is closer to the source. This geometric relationship allows IMS to measure at precisely the walls of the tube. This relationship between the detector and the source in no way

degrades the integrity of the heavy metal shielding. The gauge that is being delivered to Timken does indeed have the TIAS 212 source assembly due to the size of the product to be measured (please note drawing 5321-035 A1 located under the application tab "use and construction").

ITEM 4.2
RADIATION PROFILES: Please see the attached isodose curves that are actual measurements around the gauge. As noted on page five of the ANSI testing section of the application, measurements were taken with a Babyline 31 system. The absorber information is:

300 mg/sq cm	removable cap
7 mg/sq cm	tissue equivalent (without cap)

There is no external dose when the shutter is closed. The exposure in this configuration is confined to the "O" part of the frame.

QUESTION FIVE

ITEM 5.1
QA/QC PROGRAM: Please see the attached program.

QUESTION SIX

ITEM 6.1: ANSI TESTING: The internal part of the frame is kept at less than 65.5 C by use of the water jackets and cooling system. It was only tested to 85 C because of the cooling. It was felt that the difference between the 65.5 C and the 85 C was a very good safety margin.

QUESTION SEVEN

ITEM 7.1 FAULT CONDITIONS:
Frame temperature too high: warning 60C, faults 65C (shutter closes)
Cooling water temp. too high: warning 45C, faults 50C
Cooling water flow fault: less than 10 liters/minute
Cooling water pressure too low fault: less than 1.0 bar

ITEM 7.2 AIR AND WATER MINIMUM/MAXIMUM REQUIREMENTS:
Air:

Pressure:	Min: 5 bar
	Max. 10 bar
Quality:	Dry, filtered, clean

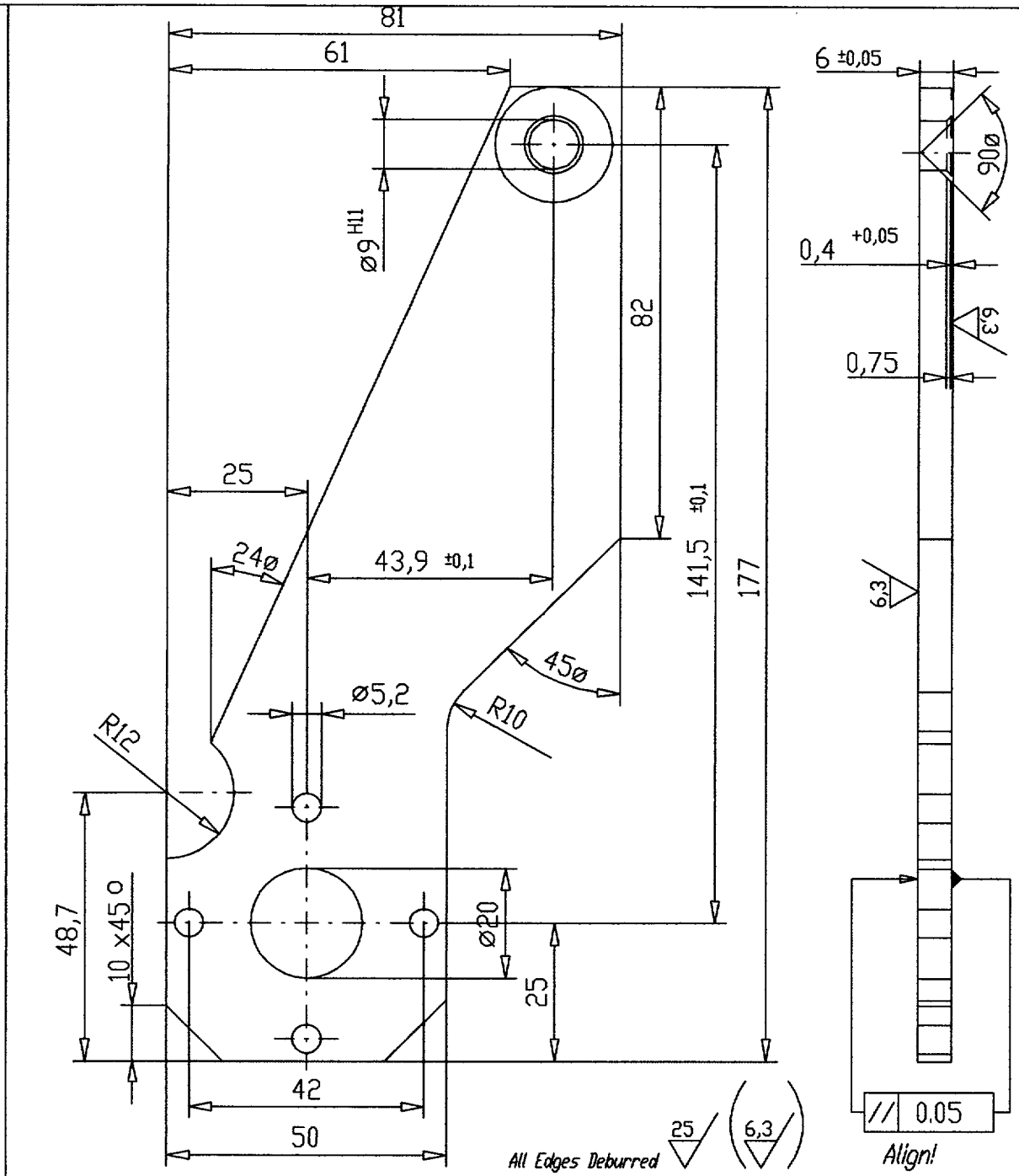
Water:

Pressure	Min > 3 bar
	Max 10 bar
Quantity	ca. 3 m/h (varies with temperature)
Temperature	max 30C
Hardness	<18 degrees dH
Solids	< 10 ppm

Characteristics: purified and filtered or drinking water

QUESTION EIGHT

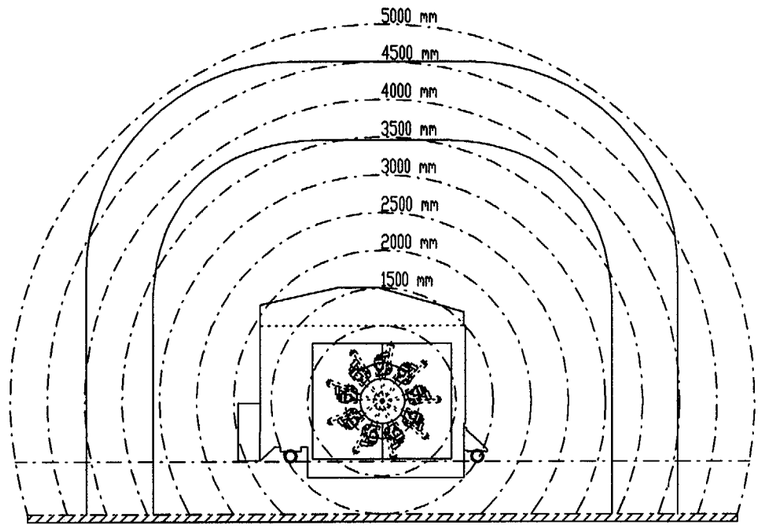
ITEM 8.1: We apologize for this oversite.

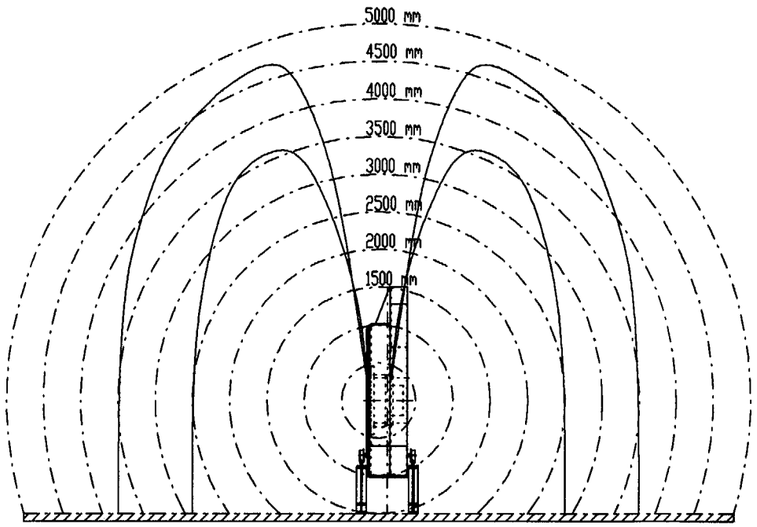


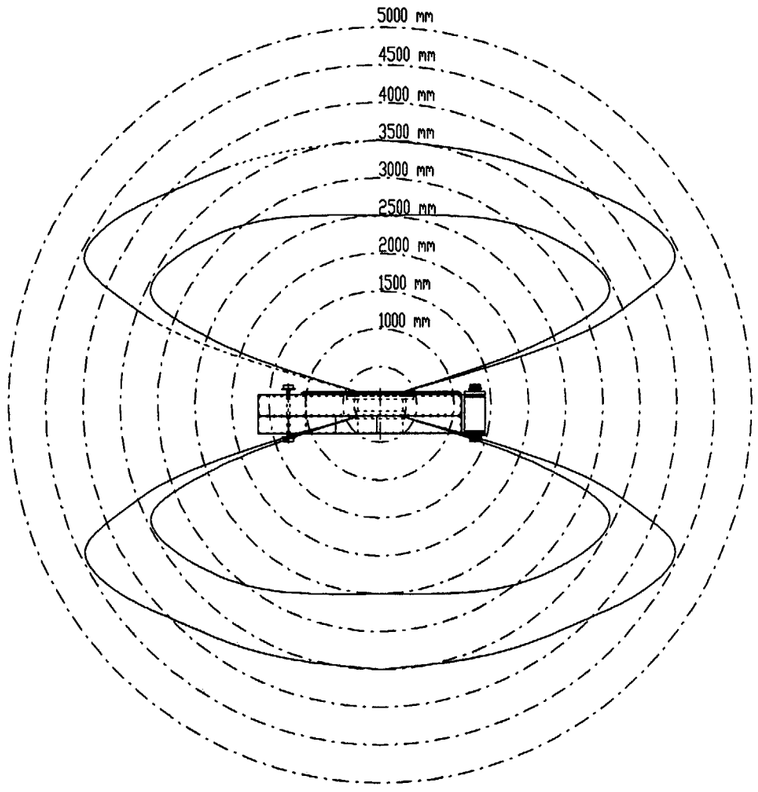
Schutzvermerk nach DIN 34 beachten

Kunde:				Kundenzeichnungsnummer:		Format: A4	Projektionsmethode ISO 128
Oberflächenbehandlung:				Allgemeintoleranzen ISO 2768-mK	Oberflächen DIN ISO 1302 Reihe 2	Maßstab: 1:1	Gew. ca.: 0.33 kg
						Werkstoff: Bl.8x177x81 - EN 10029 - 1.4301	
					Datum / Name	Benennung: PLATE	
				Bearb.	30.05.2000 kr		
				Gepr.	20.04.2001 kr		
				Norm			
D	Release 21/01	20.04.2001	en	C00016469			
C	Drilling 9H11 Moved	26.03.2001	kr				
B	Tolerances, Countersunk	18.08.00	kr				
A	Surface	30.05.00	kr				
Zust	Aenderung	Datum	Name	Urspr:		Ers. f:	Ers. d:
				IMS Messsysteme GmbH		Zeichnungsnummer: 5321-035-05	Blatt BL

Schutzvermerk nach DIN 34 beachten



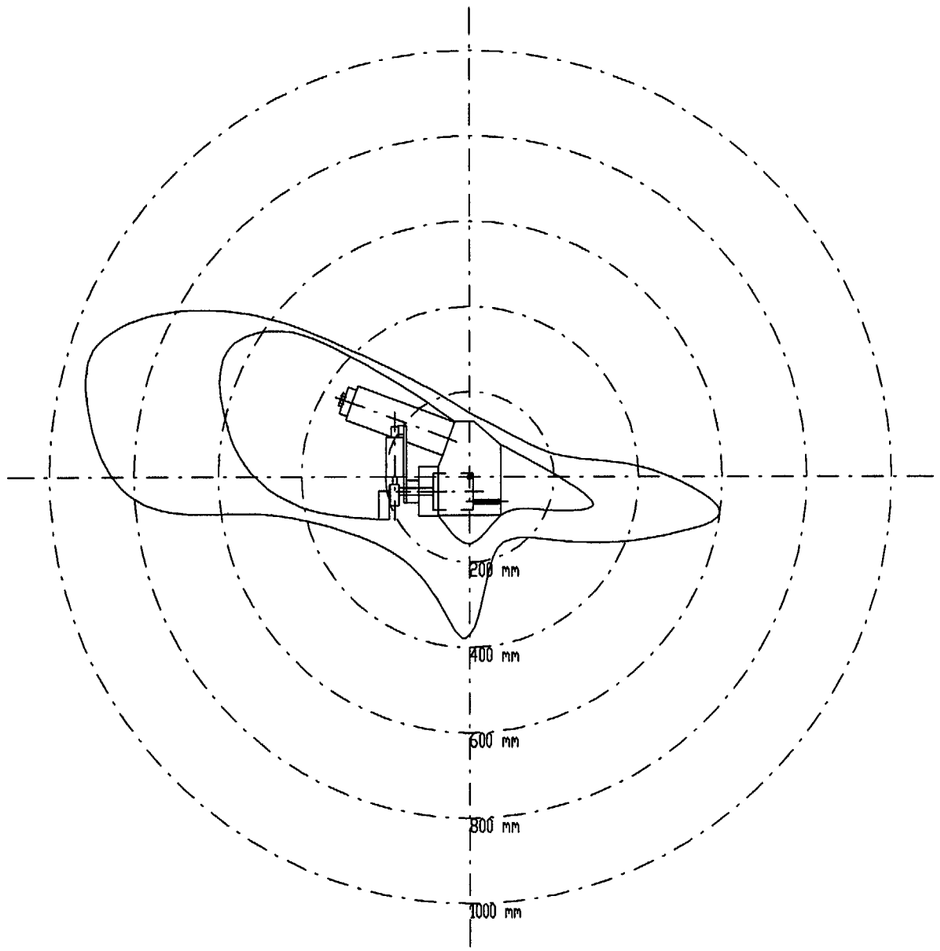


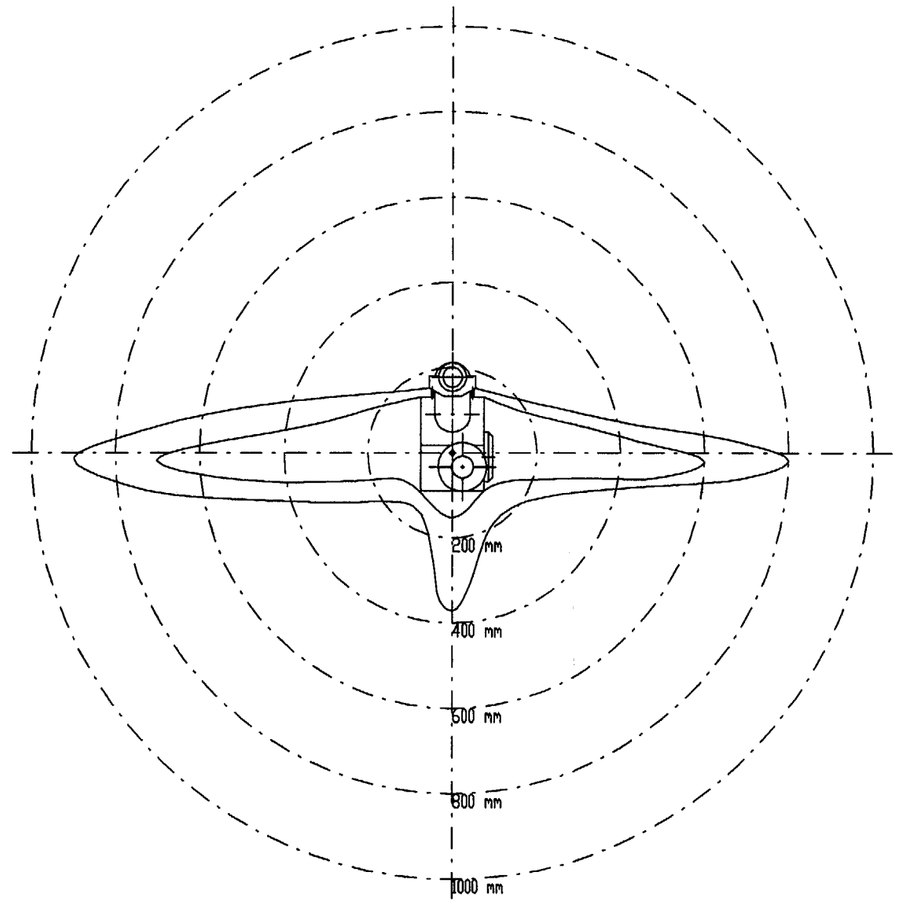


Strahlerblende auf / shutter open	
-7.5œSv/h (gemessen / measured)	: ———
-2.5œSv/h (gemessen / measured)	: ———
Strahlerblende zu / shutter closed	: innerhalb des Messb?gels / within the meas. gauge
Messstelle / meas. position	: Messb?gel-Typ / □-frame type 04
Strahler / source	: 9 x Cs 137
-Aktivit?t / activity	: 9 x 370 GBq
-Kapseltyp / capsule type	: X 38/4
Abschirmbeh?lter / shielding	: TIAS 212
-Zeichnungsnr. / drawing no.	: 5321-035 M1

Kunde:				Kundenzeichnungsnummer:		Format: A2	Projektionsmethode: ISO 128
Oberflächenbehandlung:				Allgemeintoleranzen ISO 2768-mK	Oberflächen DIN ISO 1302 Reihe 2	Maßstab: 1:50	Gew. ca. kg
						Werkstoff:	
				Datum	Name	Benennung: *Isodosenkurve* *ISODOSE CURVE*	
				Bearb. 15.01.1999	km		
				Gepr. 08.09.2000	kl		
				Norm			
				DIN 2330			
B	Messb?gel-Bez. 04	05.05.2001	kr	GMS Messsysteme GmbH		Zeichnungsnummer: *5321-00 11*	Blatt: 1.
A	Kurve neu gemessen	08.09.2000	en				
Zust.	Aenderung	Datum	Name	Urspr.:		Ers. f.:	Ers. d.:

Schutzvermerk nach DIN 34 beachten

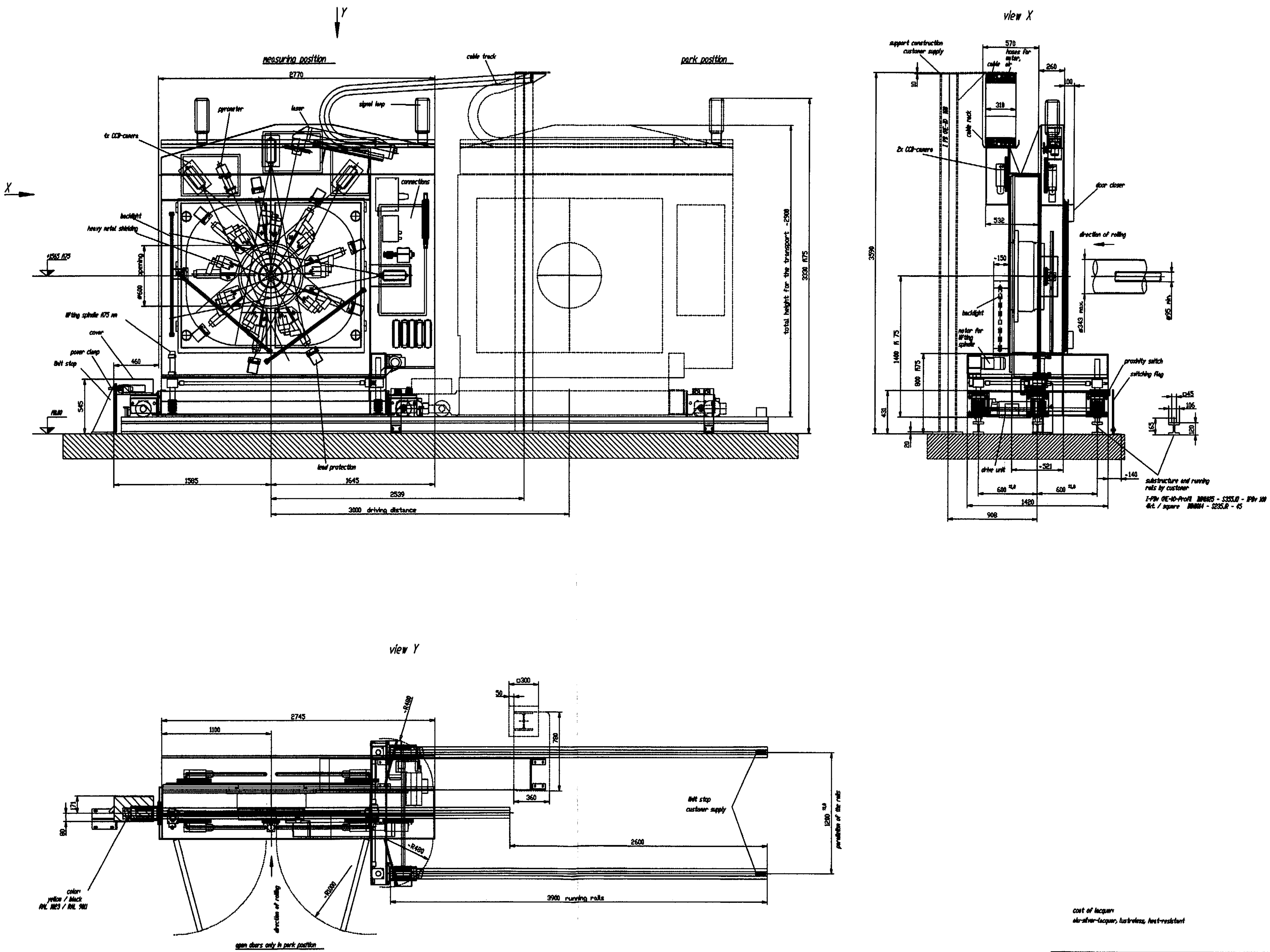




Strahlerblende zu/shutter closed	
-7.5µSv/h (gemessen / measured)	———
-2.5µSv/h (gemessen / measured)	———
Strahler/source	Cs 137
Aktivit?t/activity	370 GBq
Kapseltyp/capsule type	X38/4
Strahlerabschirmung/source shielding	5321-035-01, 5321-035-02
	5321-035-03, 5321-035-04

						Maße ohne Tol.- Ang. n. D 7168 m	Maßstab 1:2.5 (A3)
							Werkstoff
							TYP/TYPE TIAS 212
					Datum	Name	
				Bearb.	15.12.96	Kleegrife	Schwermetallabschirmung
				Gepr.	15.12.96	Klein	HEAVY METAL SHIELDING
				Norm			Isodosenkurve/isodose curve
							5321-035 I1
Zust	Aenderung	Datum	Name	ISOTOPEN-MESS-SYSTEME			00014039

Blatt
BL



cost of lacquer:
alu-silver-lacquer, lustreless, heat-resistant

TIMKEN		A0
tube wall thickness gauge		
IMS	100780-9 M	