Gamma sources

Sealed gamma sources are used in a range of activities (thickness gages, density testing, various industrial applications, etc.).

• Codification system

radionuclide — *Type of capsule*

AM241SGC01 400MBQ

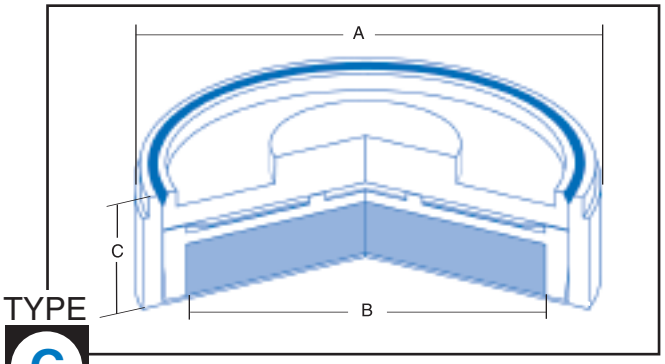
Gamma source — *Required activity (400 MBq)*

1) Am 241

Half-life : 432,1 years

Gamma ray : γ 59,5 keV (35,8%)

Americium-241 sources are used for industrial calibration (thickness measurement, fill level measurement, etc.).
Americium-241 is sintered to form ceramic pellets enclosed in a single capsule made from stainless steel welded using the TIG process (window thickness 0.3 mm max.).



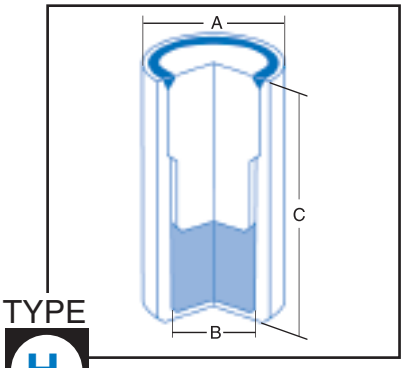
TYPE **G**

A: *Outside diameter*
B: *Active diameter*
C: *Overall height*

Product code	Maximum activity GBq	Dimensions (mm) A	B	C	Window thickness (mm)	Type	Encapsulation	Classification ISO 2919
AM241SGG01	3,7	10,8	7,5	6	0,2-0,25	G01	single	C64444
AM241SGG02	11,7	15	12	6	0,2-0,25	G02	single	C64444
AM241SGG03	18,5	22	18	6	0,2-0,25	G03	single	C64444
AM241SGG04	37	30	25	6	0,2-0,25	G04	single	C64444
AM241SGG05	111	36	31	8	0,25-0,3	G05	single	E64444
AM241SGG06	185	46	40	8	0,25-0,3	G06	single	E64444

Am 241

Half-life : 432,1 years
Gamma ray : γ 59,5 keV (35,8%)

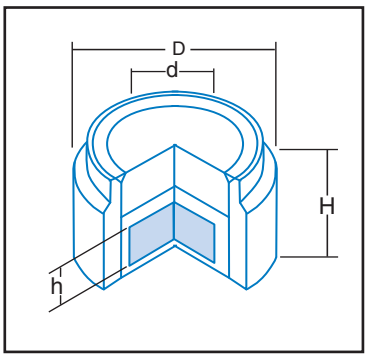


TYPE **H**

A : *Outside diameter*
B : *Active diameter*
C : *Overall height*

A homogeneous mixture of americium-241 oxide and beryllium metal is enclosed in a double capsule made from stainless steel welded using the TIG process.

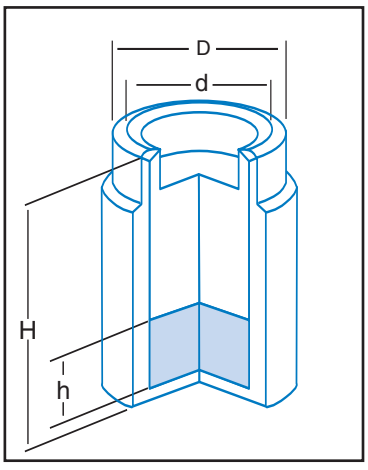
Product Code	Maximum activity GBq	Dimensions (mm) A	B	C	Window thickness (mm)	Type	Encapsulation
SGH1	5,5	4,4	3,3	10	0,3	H	single



^{241}Am is incorporated in a ceramic matrix and sealed in welded stainless steel capsule.

Product Code	Activity* MBq	mCi	Photons flux per second/ steradian	Over all dimensions (mm) D x H	Active part (mm) d x h
GAm1.2.06	37	1	0,5 x 10^6	8 x 5	4 x 1,5
	111	3	1,5 x 10^6		
	370	10	5 x 10^6		
	1110	30	1,5 x 10^7		
	3700	100	4 x 10^7		
GAm1.2.07	1110	30	2,4 x 10^7	10,8 x 5	7 x 1,5
	3700	100	5 x 10^7		
	7400	200	9 x 10^7		
GAm1.2.08	3700	100	5 x 10^7	15 x 5	12 x 1,5
	7400	200	9 x 10^7		
	11100	300	15 x 10^7		

* tolerance : -10%, +25%
ISO Classification 2919 : C64444

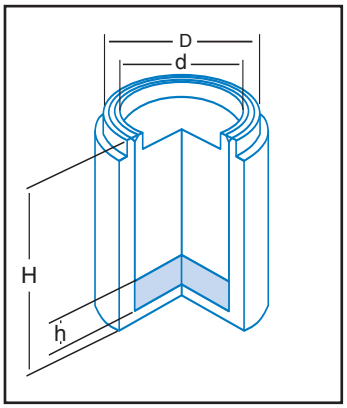


Product Code	Activity* MBq	mCi	Photons flux per second/ steradian	Over all dimensions (mm) D x H	Active part (mm) d x h
GAm1.11	74	2	1,0 x 10^6	2x10	1x1,5
GAm1.12	555	15	7,0 x 10^6	3x10	2x1,5
GAm1.13	555	15	9,0 x 10^6	4x10	3x2
	1665	45	1,7 x 10^7		
GAm1.14	2590	70	4,0 x 10^7	7x10	5x2
	7400	200	7,0 x 10^7		
GAm1.15	370	10	5,0 x 10^6	3x5,3	1,6x1,5
GAm1.16	740	20	1,0 x 10^7	4x5,3	2,5x1,5
GAm1.17	1850	50	2,5 x 10^7	6x5,3	4x1,5
GAm1.14	111	3	2,5 x 10^6	6x6	4x1,5
	370	10	8,0 x 10^6		
	1110	30	2,1 x 10^7		
	3700	100	3,6 x 10^7		

* tolerance : -10%, +25%
ISO Classification : C64444

2) Ba 133

Half-life : 10,57 years
Gamma rays :
E_1= 81,0 keV (122%)
E_2= 276,4 keV (36,73%)
E_3= 302,9 keV (18,32%)
E_4= 356,0 keV (62,0%)
E_5= 383,9 keV (8,93%)



Product Code	Activity at ± 10 % MBq	mCi	Photons flux per second/ steradian	Over all dimensions (mm) D x H	Active part (mm) d x h
GBa3.044	1	0,027	7 x 10^4	3 x 3	2 x 1
	3,7	0,1	2,6 x 10^5		
	37	1	2,6 x 10^6		
	111	3	7,8 x 10^6		
GBa3.12	370	10	2,6 x 10^7	4 x 10	3 x 1,5
	1110	30	7,7 x 10^7		
	1850	50	12,7 x 10^7		
GBa3.22	3700	100	2,6 x 10^7	7 x 10	5 x 2,5
	7400	200	5,2 x 10^7		

3) Co 57

Half-life : 271,1 days
Gamma rays :
E_1= 122,06 keV (85,5%)
E_2= 136,47 keV (10,7%)

Product Code	Activity* MBq	mCi	Photons flux per second/ steradian	Over all dimensions (mm) D x H	Active part (mm) d x h
GCo7.044	37	1	0,25 x 10^7	3 x 3	2 x 1
	111	3	0,75 x 10^7		
	370	10	2,5 x 10^7		
GCo7.12	370	10	2,5 x 10^7	4 x 10	3 x 1
	1850	50	12,5 x 10^7		
GCo7.13	1110	30	7,5 x 10^7	4 x 10	3 x 3
	3700	100	25 x 10^7		
	2400	200	50 x 10^7		
GCo7.21	370	10	2,5 x 10^7	12 x 3	10 x 1
	740	20	5 x 10^7		
	1850	50	12,5 x 10^7		
	3700	100	25 x 10^7		
GCo7.22	370	10	2,5 x 10^7	7 x 10	5 x 2,5
	3700	100	25 x 10^7		
	11100	300	75 x 10^7		

* tolerance : -10%, +25% - Classification ISO 2919 C66545

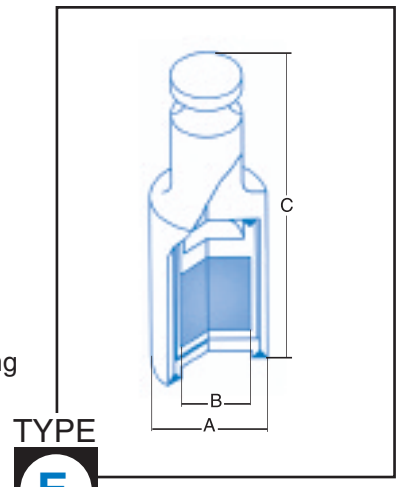
4) Co 60

Cobalt-60 sources are used for a range of industrial calibration applications.

A nickel-plated radioactive cobalt-60 cylinder is enclosed inside a double-walled capsule made from stainless steel and welded using the TIG process.

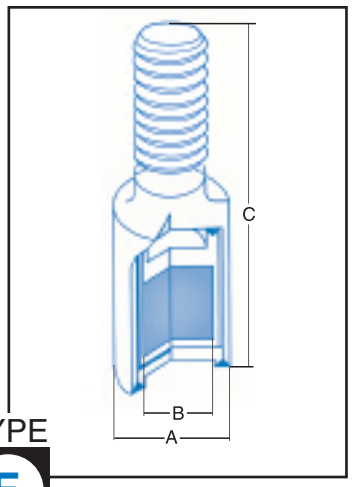
The source is sealed inside steel capsules (window thickness 0.8 mm).

The primary capsules are welded using the argonarc process, and enclosed inside a stainless steel capsule welded using the TIG process.



TYPE **E**

A: *Outside diameter*
B *Active diameter*
C *Overall height*



TYPE **F**

A: *Outside diameter*
B *Active diameter*
C *Overall height*

Product code	Maximum activity GBq	mCi	Dimensions (mm) A	B	C	Window thickness (mm)	Type	Encapsulation	Classification ISO 2919
CO60SGE01	1	13,5	6,4	3	16	0,8	E	double	C66646
CO60SGF01	1	13,5	6,4	3	16	0,8	F	double	C66646

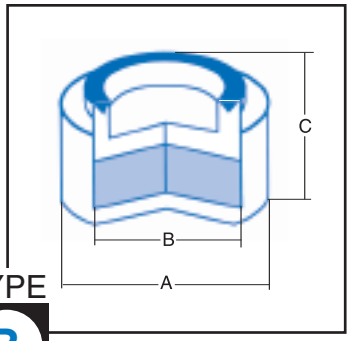
5) CS 137

Half-life : 30,18 years
Gamma ray : γ 661,66 keV (85,5%)

Cesium-137 sources are used for thickness, level and density measurement, as well as a range of other industrial calibration applications.

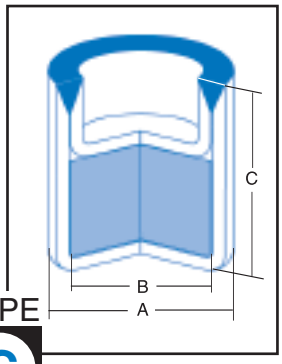
The ceramic sources are sealed inside stainless steel capsules (window thickness 0.4 mm to 0.8 mm).

The primary capsules are welded using the argonarc process, and enclosed inside a secondary capsule made from stainless steel and welded using the TIG process.



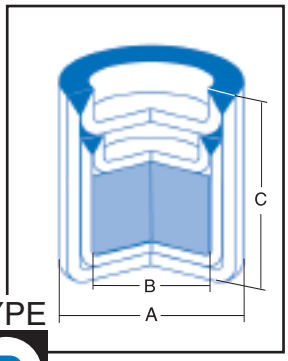
TYPE **B**

A: *Outside diameter*
B *Active diameter*
C *Overall height*



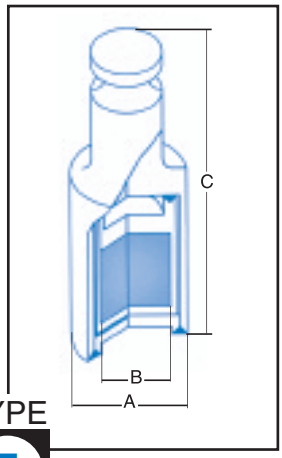
TYPE **C**

A: *Outside diameter*
B *Active diameter*
C *Overall height*



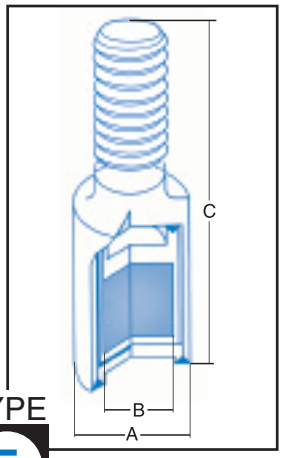
TYPE **D**

A: *Outside diameter*
B *Active diameter*
C *Overall height*



TYPE **E**

A: *Outside diameter*
B *Active diameter*
C *Overall height*

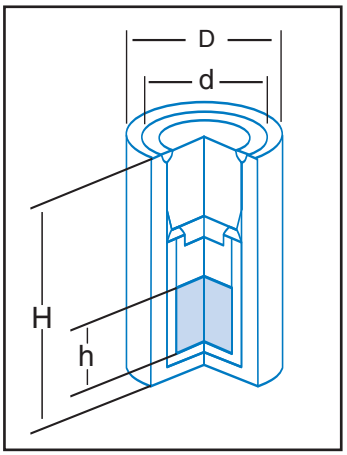


TYPE **F**

A: *Outside diameter*
B *Active diameter*
C *Overall height*

Product Code	Maximum activity GBq	mCi	Dimensions (mm) A	B	C	Window thickness (mm)	Type	Encapsulation	Classification ISO 2919
CS137SGB01	0,5	135	10	6	5,4	0,3	B	single	C64344
CS137SGC01	11,1	300	4	3	6	0,8	C	single	C64344
CS137SGD01	11,1	300	6	4	8	0,8	D	double	C65445
CS137SGE01	11,1	300	6	3	16	0,8	E	double	C66646
CS137SGF01	11,1	300	6	3	16	0,8	F	double	C66646

• Other CS 137 sources availables



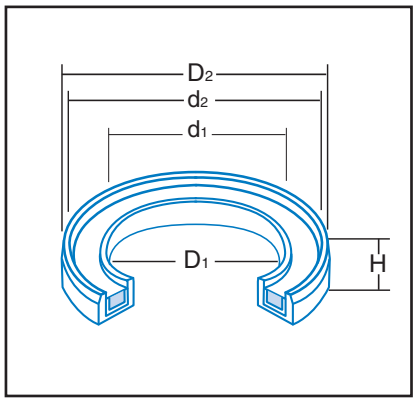
Product Code	Activity* MBq	mCi	Over all dimensions (mm) D x H	Active part (mm) d x h
GCs7.11	37	1	6 x 8	3 x 3
	74	2		
	111	3		
	185	5		
	370	10		
	1110	30		
	1850	50		
	3700	100		
GCs7.12	37	1	6 x 10	3 x 3
	74	2		
	111	3		
	185	5		
	370	10		
	1110	30		
	1850	50		
	3700	100		

Classification ISO 2919 C64445

** Tolerance = -10 +25%*

X Ray sources

1) Am 241



Ring source

Product Code	Activity* MBq	mCi	Photons flux per second/steradian 59,5 keV	17,8 keV**	Over all dimensions (mm) D_2 x D_1 x H	Active part (mm) d_2 x d_1 x h
XAm1.31	370	10	$0,9 \times 10^3$	$2,3 \times 10^6$		
	999	27	$2,6 \times 10^3$	$7,0 \times 10^6$	26 x 16 x 3	24 x 18 x 1
XAm1.32	370	10	$0,9 \times 10^3$	$2,3 \times 10^6$		
	999	27	$2,6 \times 10^3$	$7,0 \times 10^6$	30 x 20 x 3	28 x 22 x 1
XAm1.33	370	10	$0,9 \times 10^3$	$2,3 \times 10^6$		
	999	27	$2,6 \times 10^3$	$7,0 \times 10^6$	34 x 24 x 3	32 x 26 x 1

** X-rays energy flow of 17,8 keV is provided for information

2) Cd 109

Product Code	Activity* MBq	mCi	Photons flux per second/ steradian	Over all dimensions (mm) D x H	Active part (mm) d x h
XCd9.31	370	10	$2,5 \times 10^7$	26 x 16 x 3	23 x 19
	740	20	$5,0 \times 10^7$		
	1110	30	$7,5 \times 10^7$		
XCd9.32	370	10	$2,5 \times 10^7$	30 x 20 x 3	28 x 22
	740	20	$5,0 \times 10^7$		
	1110	30	$7,5 \times 10^7$		
	3700	100	25×10^7		
XCd9.33	370	10	$2,5 \times 10^7$	34 x 24 x 3	32 x 26
	740	20	$5,0 \times 10^7$		
	1110	30	$7,5 \times 10^7$		
	3700	100	25×10^7		

3) Fe 55

Product Code	Activity* MBq	mCi	Photons flux per second/ steradian	Over all dimensions (mm) D x H	Active part (mm) d x h
XFe5.31	740	20	$1,5 \times 10^7$	15 x 8,5 x 1,3	12 x 10
	1480	40	$2,5 \times 10^7$		
	1850	50	$2,7 \times 10^7$		
XFe5.32	740	20	$1,5 \times 10^7$	26 x 16 x 3	23 x 19
	1480	40	$2,5 \times 10^7$		
	2960	80	$4,5 \times 10^7$		
	3700	100	$5,5 \times 10^7$		
	7400	200	10×10^7		
XFe5.33	740	20	$1,5 \times 10^7$	30 x 20 x 3	28 x 22
	1480	40	$2,5 \times 10^7$		
	2960	80	$4,5 \times 10^7$		
	3700	100	$5,5 \times 10^7$		
	7400	200	10×10^7		
XFe5.34	740	20	$1,5 \times 10^7$	34 x 24 x 3	32 x 26
	1480	40	$2,5 \times 10^7$		
	2960	80	$4,5 \times 10^7$		
	3700	100	$5,5 \times 10^7$		
	7400	200	11×10^7		

Classification ISO 2919 C44342

*Manufacturing tolerance ± 10 %