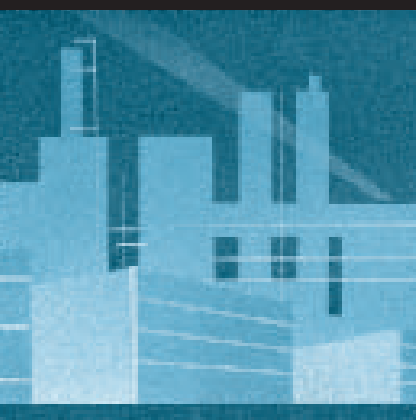


# CR Series of Shielding Containers

LB 7440, LB 7442, LB 7444



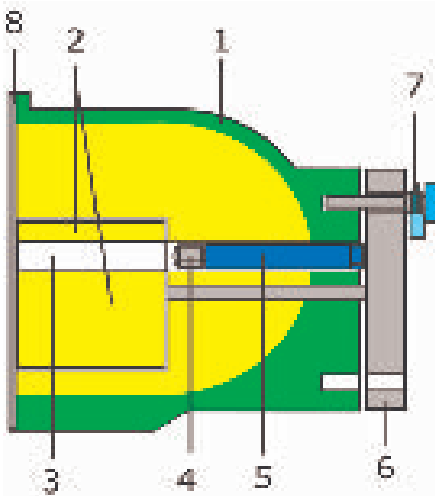
P R O C E S S C O N T R O L



# Shieldings for Point Sources

Encapsulated radioactive sources are used for industrial applications. The radioactive substance is contained in a tightly sealed stainless steel Source Capsule, sometimes with several walls. The Source Capsule is mounted in a shielding Housing using a Source Holder. This shielding must meet several criteria:

- The radiation must be shielded to a safe level for the operating personnel.
- The radiation outlet channel must be lockable for transport and during installation.
- The source capsule must be protected from both mechanical damage and from environmental influences.



1 Housing	5 Source Holder
2 Lockable Shutter	6 Handle
3 Radiation beam outlet	7 Padlock
4 Source Capsule	8 Cover plate

The shielding container consists of a cast-steel lead-filled Housing. A rotary Lockable Shutter is provided to close the radiation outlet channel. The shutter is rotated by a Handle which is secured in the open or closed position by a padlock.\* The Source Holder is protected against unauthorised access by the Handle.

The shielding container has a mounting flange. The models LB 7440 and LB 7442 also have a mounting pad with tapped holes for bracket mounting.

The models with suffix "F" are used for level measurements, having a larger radiation outlet diameter.

The models with suffix "D" are used for density measurements, having a smaller diameter for the radiation beam.

This range of products is designated "CR" and features improved resistance to corrosion:

- Sturdy cast steel housing
- Radiation outlet channel cover plate, made from stainless steel.
- Lockable Shutter, connecting shaft and Handle made of stainless steel.
- Tungsten source holder.
- Lockable by means of a padlock in a stainless steel locking device.

## Options

■ Pneumatic shutter mechanism which is fail safe if pressure drops. (Option I)\*\*

■ Indication of the shutter position using a limit switch or proximity initiators. (Option II).

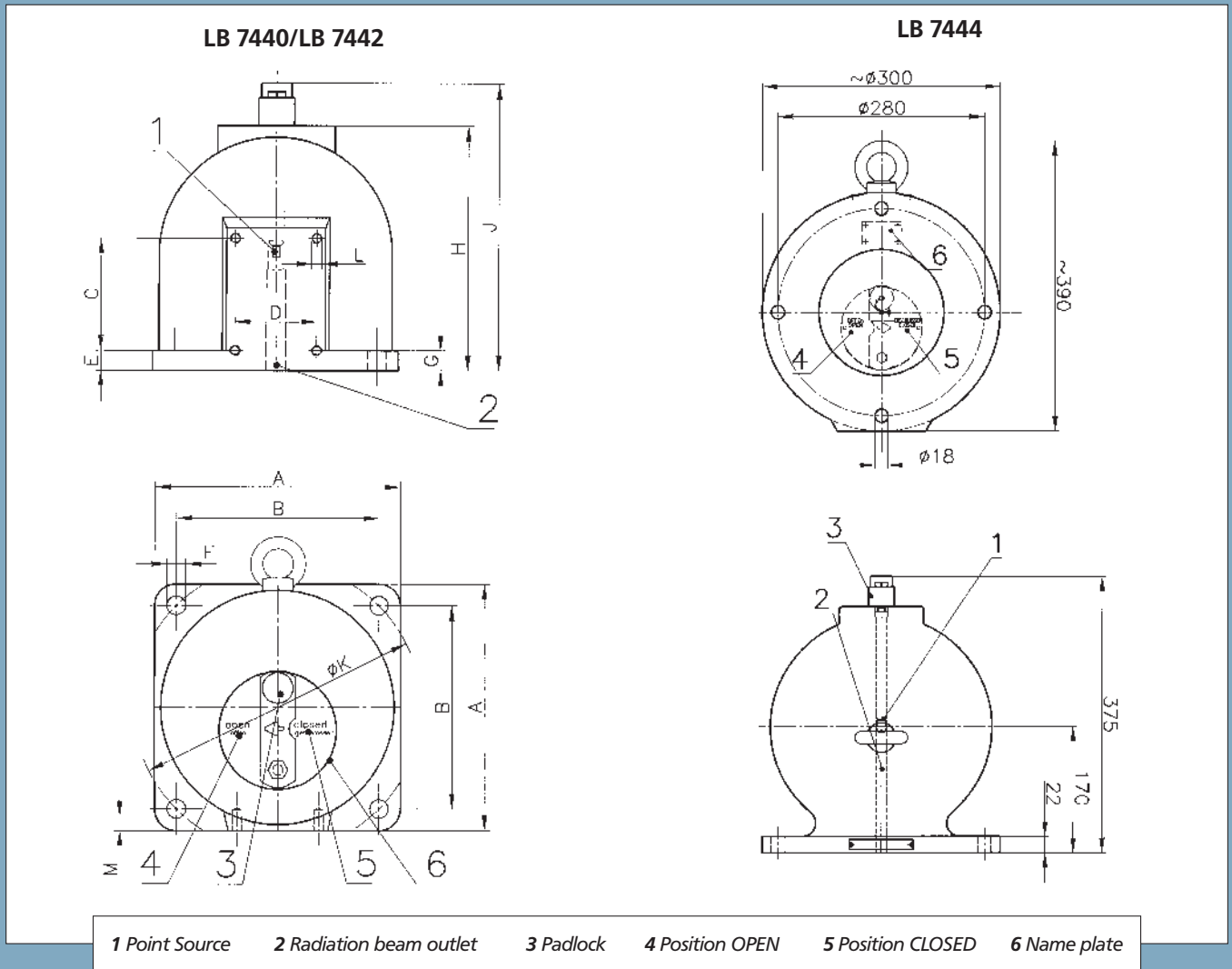
### ...for extreme conditions

A rubber cover with a Perspex window for viewing the locking mechanism for use in exceptionally dirty, polluted and corrosive environments. (Option III)

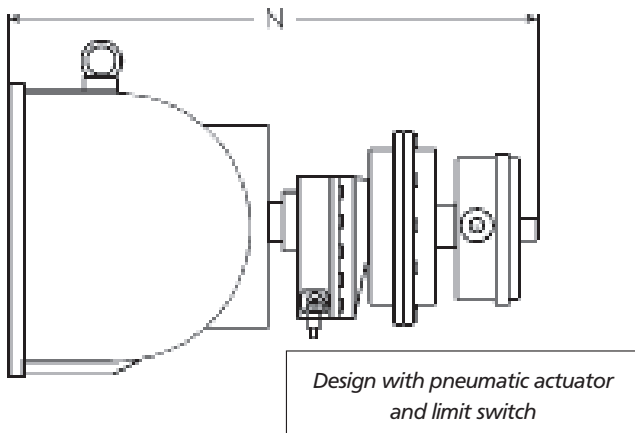
\* In some countries, the handle may not be locked in the open position.

\*\* Option I is not available in the USA.

# Dimensions




Model	A	B	C	D	E	F Ø	G	H	J	K Ø	L	M	N ca.	Flange DIN 2501 4 holes	Weight approx. kg
LB 7440	180	141.5	75	60	15	18	20	172	200	200	M8	12	390	ND 125, PN 6	31
LB 7442	240	198	130	80	20	18	20	240	270	280	M10	14	460	ND 200, PN 6	81
LB 7444													570	ND 200, PN 6	170



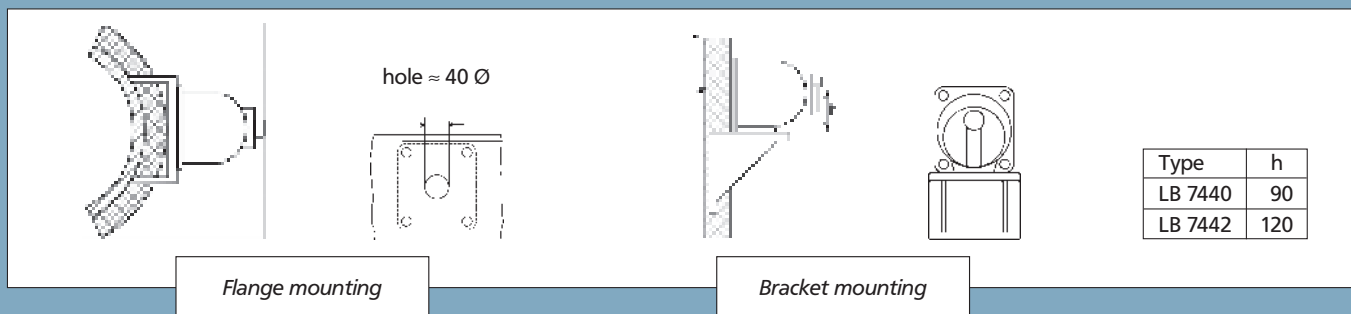
Data for Pneumatic Shutter Operation and Indicator Contacts	
<b>Compressed Air</b> min. $4 \times 10^5$ Pa (4 bar) max. $7 \times 10^5$ Pa (7 bar) Connection: G 1/8	<b>Indication OPEN/CLOSED</b>  <b>Option Ia:</b> IP 65 2 contacts (OPEN/CLOSED) max. 250 V AC, 1A, 48 V DC, 1A
<b>Air Quality</b> Clean (as used for pneumatic tools), Free of oil	<b>Option Ib:</b> 2 contacts (OPEN/CLOSED) max. 250 V AC, 1A, EEx e II T6
<b>Temperature range:</b> -20 °C to + 80 °C	<b>Option Ic:</b> 2 proximity switches. Intrinsically safe power supply required.

# Technical Data

Model	LB 7440 CR		LB 7442 CR		LB 7444 CR	
Shielding thickness (mm lead) approx.	67		97		132	
Angle of radiation beam approx.		Part Nr. LB 7440 F 16° 37625 LB 7440 D 11° 37624	Part Nr. LB 7442 F 11° 37627 LB 7442 D 7° 37626	Part Nr. LB 7444 13° 37628		
Shielding thickness approx.	67 mm lead		97 mm lead		117 mm lead, 15 mm tungsten	
Attenuation factor approx.						
For <sup>60</sup> Co	30		180		1 800	
For <sup>137</sup> Cs	700		16 000		650 000	
Dose rates D (μSv/h) at 1 m distance from the surface of the shielding						
With <sup>60</sup> Co	D = 1.1 x 10 <sup>-2</sup> x A (MBq)		D = 1.7 x 10 <sup>-3</sup> x A (MBq)		D = 1.5 x 10 <sup>-4</sup> x A (MBq)	
With <sup>137</sup> Cs	D = 1.4 x 10 <sup>-4</sup> x A (MBq)		D = 5.4 x 10 <sup>-6</sup> x A (MBq)		D = 1.1 x 10 <sup>-7</sup> x A (MBq)	
Dose rates D (μSv/h) at 30 cm distance from the surface of the shielding						
With <sup>60</sup> Co	Do = 7 x 10 <sup>-2</sup> x A (MBq)		Do = 1 x 10 <sup>-2</sup> x A (MBq)		Do = 9 x 10 <sup>-4</sup> x A (MBq)	
With <sup>137</sup> Cs	Do = 7 x 10 <sup>-4</sup> x A (MBq)		Do = 3.1 x 10 <sup>-5</sup> x A (MBq)		Do = 7.3 x 10 <sup>-7</sup> x A (MBq)	
Dose rate Do (μSv/h) at the surface of the shielding						
With <sup>60</sup> Co	Do = 1.6 x A (MBq)		Do = 0.14 x A (MBq)		Do = 8 x 10 <sup>-3</sup> x A (MBq)	
With <sup>137</sup> Cs	Do = 1.6 x 10 <sup>-2</sup> x A (MBq)		Do = 0.43 x 10 <sup>-3</sup> x A (MBq)		Do = 6.5 x 10 <sup>-6</sup> x A (MBq)	
Operating temperature	max. 200 °C		max. 200 °C		max. 200 °C	

Licence: NRC, for operation in USA, without pneumatic shutter mechanism

## Installation examples



Subject to changes without notice



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