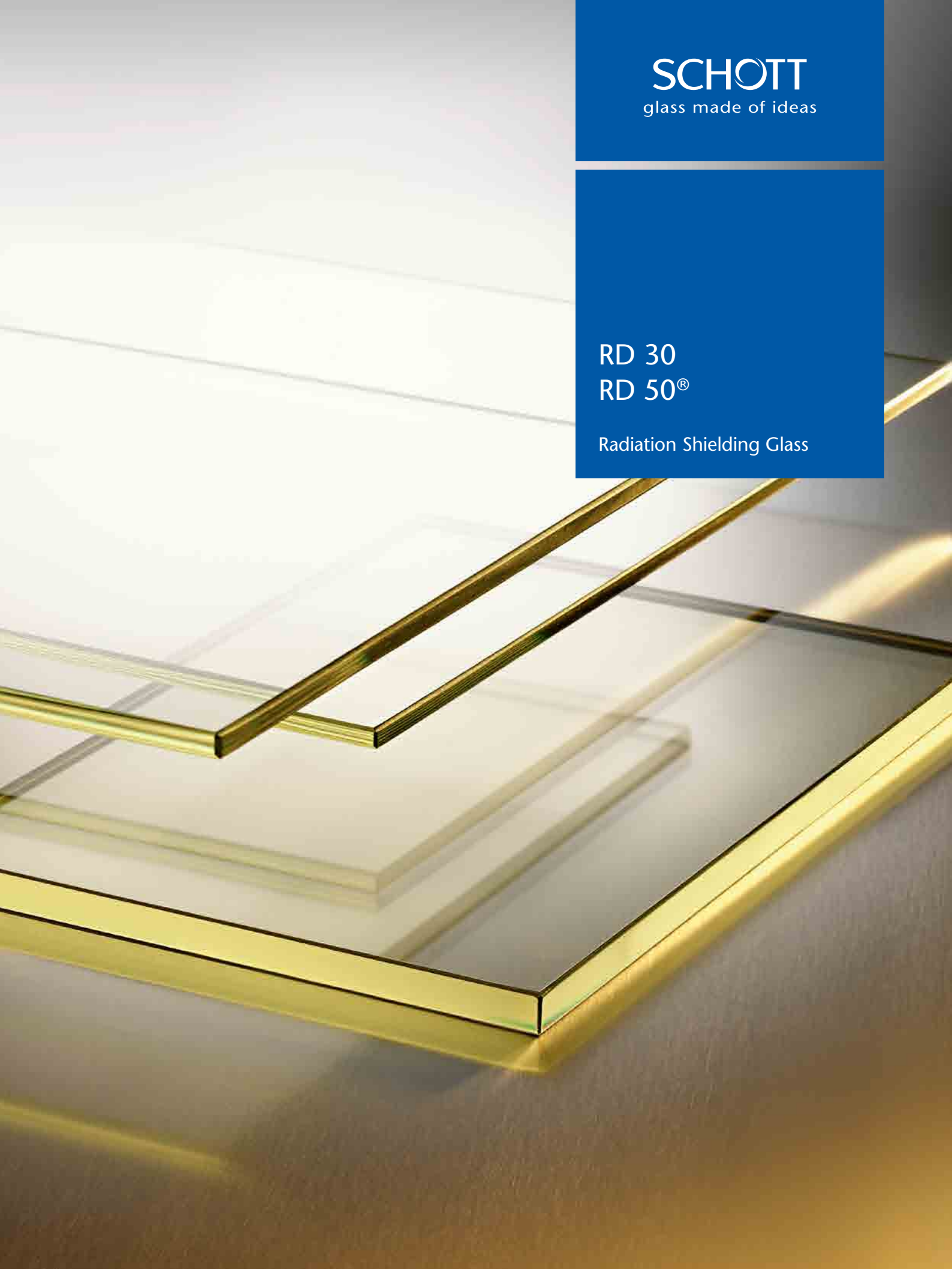
SCHOTT
glass made of ideas

RD 30
RD 50®

Radiation Shielding Glass



SCHOTT is an international technology group with 130 years of experience in the areas of specialty glasses and materials and advanced technologies. With our high-quality products and intelligent solutions, we contribute to our customers' success and make SCHOTT part of everyone's life.

SCHOTT works closely with architects and designers to extend the boundaries of design and create new opportunities for building culture – in terms of design and space, indoors and outdoors, aesthetics and functionality. That's what makes SCHOTT a qualified partner for architecture.

Cover: SCHOTT Radiation Shielding Glass offers various levels of protection.
Right: One of Europe's state-of-the-art health-care centers is located in Klagenfurt, on the shores of Lake Wörth (Austria).
Installed in 36 rooms as mobile x-ray protection walls, SCHOTT's radiation shielding glass guarantees the safety of patients and hospital staff.

Radiation shielding glass from SCHOTT provides a clear view while protecting against gamma and x-ray radiation. Whereas SCHOTT RD 30 is used for low x-ray tube voltage, SCHOTT RD 50® is designed to absorb high x-ray and gamma radiation. This makes both products an ideal choice in finding highly flexible solutions for hospitals, medical offices and research laboratories.

On the safe side
Reliable shielding and a clear view

The materials used in SCHOTT radiation shielding glasses offer outstanding protection against gamma and x-rays. Lead oxide accounts for 65 % of the weight of RD 50® and 22 % of the weight of RD 30. SCHOTT's radiation shielding glasses are thus ideal transparent alternatives to other shielding materials.

Effective protection that is as clear as glass

Thanks to its high density, RD 50® achieves high x-ray radiation absorption even when the glass is thin.
It meets the standards outlined by the German Institute for Standardization, European Standardization and the International Electrotechnical Commission. RD 50® meets the requirements defined in DIN EN 61331-2 and IEC 61331-2. Colorless RD 30 is used in electrical medical devices manufactured according to DIN EN 60601-2-45.

Perfectly clear viewing

Glass is more scratch-resistant than plastic, an important advantage during everyday use. Radiation shielding glasses from SCHOTT provide high UV stability and are designed to offer many years of service if properly cared of.

Versatile in use

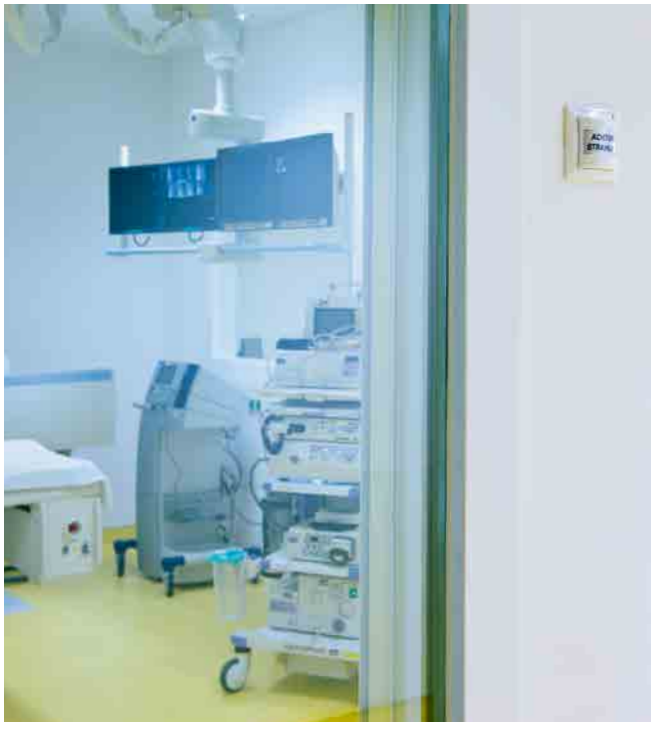
SCHOTT radiation shielding glasses are well-suited for use in viewing window, door and panorama glazing, radiation protection for doctors, nurses and healthcare personnel. RD 30 panes allow for closer proximity to patients during mammography screening. They are also ideal for use in apparatus engineering. RD 50® can be used in buildings, x-ray rooms, operating rooms, radiation stations, offices, material testing and research laboratories, in glove boxes, for example.

SCHOTT Radiation Shielding Glass

- Protection against gamma and x-ray radiation
- Complies with German and international standards
- Transparent
- Can be cut into various geometric shapes
- Can be processed in a variety of different ways
- Many processing options (such as laminated glass, as insulating glass for the integration of sound or thermal insulation, etc.)

Left: RD radiation shielding glass: available with drilled holes and other types of processing, depending on the customer's requirements.
Right: RD 50®: patients and hospital personnel are always able to maintain eye contact through large viewing panes, enabling communication from both sides. At the same time, these panes protect operating personnel from dangerous radiation exposure.


RADAUER



RD 50® – SCHOTT Radiation Shielding Glass

SCHOTT radiation shielding glass
Made-to-measure service

SCHOTT delivers RD 30 and RD 50® radiation shielding glasses up to the maximum dimensions in every conceivable geometric shape. Upon request, SCHOTT processes its radiation shielding glasses with a variety of different treatments: edge and beveled grinding or holes and openings are also possible as further processing into a glass laminate for even greater functionality. RD 30 and RD 50® can be processed into cast resin, film laminates and insulating glass, and the glasses can be screen printed. We are happy to provide you with contact information for accessories such as cleaning agents, insulation material, profiles, rolled lead or other related products.

Please contact us.

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SCHOTT Radiation Shielding Glass RD 30

Technical Data Sheet

RD 30: Lead equivalents in mm Pb and delivery sizes

Thickness d mm	Attenuation equivalent in mm Pb at a tube voltage of:						Maximum weight kg / m²	Maximum dimensions mm × mm
	50 kV	56 kV	76 kV	80 kV	110 kV	150 kV		
6.0 ± 0.25	≥ 0.5	≥ 0.5	≥ 0.5	≥ 0.5	≥ 0.5	≥ 0.5	20	2,350 × 1,650

Technical data for RD 30

Optical properties:

Refractive index n_e at 20 °C (annealed at 40 °C/h)	1.579
Luminous transmittance (d = 6.0 mm)	90.5 %

Chemical properties:

Hydrolytic resistance according to DIN ISO 719	HGB 3
Lead oxide content (PbO)	≥ 22 %
Heavy metal oxide content in total	≥ 23 %

Mechanical properties:

Density in g/cm³ (delivered condition)	≥ 3.13

Other properties:

Glass thickness	6.0 mm
Weighted sound reduction index R_w	
Spectrum adaptation values C and C_{tr}	
R_w (C; C_{tr}) = 34 (–2; –2) dB	

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SCHOTT Radiation Shielding Glass RD 50®

Technical Data Sheet

RD 50®: Lead equivalents in mm Pb for x-ray quality and maximum delivery sizes

Minimum thickness d mm	Maximum thickness d mm	Attenuation equivalent in mm Pb at a tube voltage of:					Maximum weight	Maximum dimensions
		80 kV	100 kV	110 kV*	150 kV	200 kV	kg/m²	mm × mm
4.0	5.5	1.2	1.2	1.2	1.2	1.1	28	2,100 × 1,000
5.0	7.0	1.5	1.5	1.5	1.5	1.4	35	2,400 × 1,100
7.0	9.0	2.1	2.1	2.1	2.1	2.0	45	2,400 × 1,100
8.5	10.5	2.6	2.6	2.5	2.5	2.4	53	2,400 × 1,100
10.0	12.0	3.1	3.1	3.0	3.0	2.9	61	2,000 × 1,000
11.5	14.0	3.5	3.6	3.5	3.5	3.3	71	2,000 × 1,000
16.0	19.0	–	5.0	4.9	4.9	4.6	96	1,500 × 800
20.0	23.0	–	6.3	6.1	6.1	5.8	116	1,500 × 800

* No tube voltage according to DIN EN 61331-1. Other tube voltages are available upon request.

RD 50®: Lead equivalents in mm Pb for radionuclides

Nuclide	Attenuation equivalent in mm Pb at a thickness d of:							
	4.0 mm	5.0 mm	7.0 mm	8.5 mm	10.0 mm	11.5 mm	16.0 mm	20.0 mm
C-11, N-13, O-15, F-18	1.4	1.8	2.6	3.1	3.7	4.2	5.9	7.4
Co-58	1.6	2.0	2.8	3.4	4.0	4.6	6.4	7.9
Co-60	1.7	2.2	3.1	3.7	4.4	5.1	7.1	8.9
Fe-59	1.7	2.2	3.1	3.7	4.4	5.1	7.0	8.8
Tc-99m	1.1	1.4	2.0	2.4	2.9	3.3	4.6	5.7

Additional radionuclides are available upon request or on our website. In certain cases, we present the lead equivalents on the basis of the Monte Carlo N-Particle Transport Code (MCNP) that has been experimentally validated.

Technical data for RD 50®

Optical properties:

Refractive index n_D at 20 °C	1.79
Luminous transmittance (d = 5.0 mm)	85 %

Chemical properties:

Hydrolytic resistance according to DIN ISO 719	HGB 1
Lead oxide content (PbO)	≥ 65 %
Total heavy metal oxide content	≥ 70 %

Mechanical properties:

Density in g/cm³ (delivered condition)	≥ 5.05

Other properties:

Glass thickness	8.1 mm*
Weighted sound reduction index R_w	
Spectrum adaptation terms C and C_{tr}	
R_w (C; C_{tr}) = 41 (–3; –3) dB	

* Sound insulation values for other thicknesses available upon request.

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