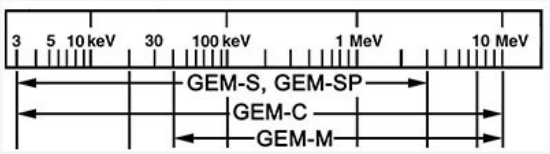
ORTEC

PROFILE GEM HPGe-detektorer

HPGe gamma detector

P-type coaxial and semi-planar HPGe detectors with crystal geometries selected to suit sample shape and measurement geometry.



Detector type

P-type HPGe; coaxial or semi-planar [1]

Relative efficiency

Model-dependent: nominal 7–175% (GEM-M, -S, -SP); minimum 10–175% (GEM-C) [2]

Specifications

DETECTOR

Detector type	P-type HPGe; coaxial or semi-planar	[1]
Crystal geometry	M/C: coaxial; S/SP: semi-planar	[2]
Sample geometry	S/SP for close-geometry samples; M/C for samples in front of the detector, including Marinelli beakers	[2]

PERFORMANCE

Relative efficiency	Model-dependent: nominal 7–175% (GEM-M, -S, -SP); minimum 10–175% (GEM-C)	[2]
Resolution measurement conditions	Total system resolution measured at the factory per ANSI/IEEE Std 325-1996, at optimal shaping time with an ORTEC DSPEC-50A; guaranteed r esolution may degrade with electromechanical or hybrid coolers	[2]

COOLING

Cooling	LN_2 or compatible mechanical configuration, model-dependent	[1]

MECHANICAL

Crystal dimensions	Specified and warranted per model	[1]

ORDERING & ACCESSORIES

Cryostat configurations	PopTop or Streamline	[1]
Bias control	ptional SMART-1	[1]
Cooling and accessories	Cryostat and dewar or other cooling device required for operation and not included with the detector; a cryostat must be ordered with a Streamline detector	[2]

GENERAL

Model series	GEM-M, GEM-C, GEM-S and GEM-SP	[2]

Entrance contact	Stable thin front contact on S, SP and C	[1]

Models

Model	Detector type	Crystal diameter	Crystal length	Relative efficiency
GEM-C10	P-type coaxial HPGe, PROFILE C [2]	50 mm ±2 mm [2]	25 mm (minimum) [2]	10 % (minimum) [2]
GEM-C15	P-type coaxial HPGe, PROFILE C [2]	50 mm ±2 mm [2]	44 mm (minimum) [2]	15 % (minimum) [2]
GEM-C20	P-type coaxial HPGe, PROFILE C [2]	50 mm ±2 mm [2]	60 mm (minimum) [2]	20 % (minimum) [2]
GEM-C25	P-type coaxial HPGe, PROFILE C [2]	57 mm ±2 mm [2]	50 mm (minimum) [2]	25 % (minimum) [2]
GEM-C30	P-type coaxial HPGe, PROFILE C [2]	57 mm ±2 mm [2]	62 mm (minimum) [2]	30 % (minimum) [2]
GEM-C40	P-type coaxial HPGe, PROFILE C [2]	64 mm ±2 mm [2]	58 mm (minimum) [2]	40 % (minimum) [2]
GEM-C50	P-type coaxial HPGe, PROFILE C [2]	68 mm ±2 mm [2]	62 mm (minimum) [2]	50 % (minimum) [2]
GEM-C60	P-type coaxial HPGe, PROFILE C [2]	68 mm ±2 mm [2]	77 mm (minimum) [2]	60 % (minimum) [2]
GEM-C70	P-type coaxial HPGe, PROFILE C [2]	70 mm ±2 mm [2]	85 mm (minimum) [2]	70 % (minimum) [2]
GEM-C80	P-type coaxial HPGe, PROFILE C [2]	80 mm ±2 mm [2]	61 mm (minimum) [2]	80 % (minimum) [2]
GEM-C90	P-type coaxial HPGe, PROFILE C [2]	80 mm ±2 mm [2]	70 mm (minimum) [2]	90 % (minimum) [2]
GEM-C100	P-type coaxial HPGe, PROFILE C [2]	80 mm ±2 mm [2]	82 mm (minimum) [2]	100 % (minimum) [2]
GEM-C110	P-type coaxial HPGe, PROFILE C [2]	80 mm ±2 mm [2]	91 mm (minimum) [2]	110 % (minimum) [2]
GEM-C120	P-type coaxial HPGe, PROFILE C [2]	82 mm ±2 mm [2]	98 mm (minimum) [2]	120 % (minimum) [2]
GEM-C130	P-type coaxial HPGe, PROFILE C [2]	92 mm ±2 mm [2]	67 mm (minimum) [2]	130 % (minimum) [2]
GEM-C140	P-type coaxial HPGe, PROFILE C [2]	92 mm ±2 mm [2]	74 mm (minimum) [2]	140 % (minimum) [2]
GEM-C150	P-type coaxial HPGe, PROFILE C [2]	92 mm ±2 mm [2]	81 mm (minimum) [2]	150 % (minimum) [2]
GEM-C175	P-type coaxial HPGe, PROFILE C [2]	94 mm ±2 mm [2]	100 mm (minimum) [2]	175 % (minimum) [2]
GEM-M5060	P-type coaxial HPGe, PROFILE M [1]	50 mm ±2 mm [2]	60 mm (minimum) [2]	20 % (nominal) [2]
GEM-M5970	P-type coaxial HPGe, PROFILE M [1]	59 mm ±2 mm [2]	70 mm (minimum) [2]	38 % (nominal) [2]
GEM-M7080	P-type coaxial HPGe, PROFILE M [1]	70 mm ±2 mm [2]	80 mm (minimum) [2]	66 % (nominal) [2]

GEM-M8295	P-type coaxial HPGe, PROFILE M [1]	82 mm ±2 mm [2]	95 mm (minimum) [2]	115 % (nominal) [2]
GEM-M94100	P-type coaxial HPGe, PROFILE M [1]	94 mm ±2 mm [2]	100 mm (minimum) [2]	175 % (nominal) [2]
GEM-S5020	P-type semi-planar HPGe, PROFILE S [1]	50 mm ±2 mm [2]	20 mm (minimum) [2]	7 % (nominal) [2]
GEM-S5825	P-type semi-planar HPGe, PROFILE S [1]	58 mm ±2 mm [2]	25 mm (minimum) [2]	15 % (nominal) [2]
GEM-S7025	P-type semi-planar HPGe, PROFILE S [1]	70 mm ±2 mm [2]	25 mm (minimum) [2]	20 % (nominal) [2]
GEM-S7030	P-type semi-planar HPGe, PROFILE S [1]	70 mm ±2 mm [2]	30 mm (minimum) [2]	28 % (nominal) [2]
GEM-S8530	P-type semi-planar HPGe, PROFILE S [1]	85 mm ±2 mm [2]	30 mm (minimum) [2]	50 % (nominal) [2]
GEM-S9430	P-type semi-planar HPGe, PROFILE S [1]	94 mm ±2 mm [2]	30 mm (minimum) [2]	65 % (nominal) [2]
GEM-SP5020	P-type semi-planar HPGe, PROFILE SP [1]	50 mm ±2 mm [2]	20 mm (minimum) [2]	7 % (nominal) [2]
GEM-SP5825	P-type semi-planar HPGe, PROFILE SP [1]	58 mm ±2 mm [2]	25 mm (minimum) [2]	15 % (nominal) [2]
GEM-SP7025	P-type semi-planar HPGe, PROFILE SP [1]	70 mm ±2 mm [2]	25 mm (minimum) [2]	20 % (nominal) [2]
GEM-SP8530	P-type semi-planar HPGe, PROFILE SP [1]	85 mm ±2 mm [2]	30 mm (minimum) [2]	50 % (nominal) [2]
GEM-SP9430	P-type semi-planar HPGe, PROFILE SP [1]	94 mm ±2 mm [2]	30 mm (minimum) [2]	65 % (nominal) [2]

Model	Energy resolution at 122 keV	Energy resolution at 1.33 M eV	Energy resolution at 5.9 keV	Peak-to-Compton ratio
GEM-C10	≤ 0.80 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.60 keV FWHM; with carbon-fibre window [2]	≥ 41:1 [2]
GEM-C15	≤ 0.82 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.64 keV FWHM; with carbon-fibre window [2]	≥ 46:1 [2]
GEM-C20	≤ 0.82 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.65 keV FWHM; with carbon-fibre window [2]	≥ 52:1 [2]
GEM-C25	≤ 0.85 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.69 keV FWHM; with carbon-fibre window [2]	≥ 56:1 [2]
GEM-C30	≤ 0.85 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.72 keV FWHM; with carbon-fibre window [2]	≥ 60:1 [2]
GEM-C40	≤ 0.87 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.76 keV FWHM; with carbon-fibre window [2]	≥ 64:1 [2]
GEM-C50	≤ 0.90 keV FWHM [2]	≤ 1.9 keV FWHM [2]	≤ 0.80 keV FWHM; with carbon-fibre window [2]	≥ 66:1 [2]
GEM-C60	≤ 1.00 keV FWHM [2]	≤ 1.9 keV FWHM [2]	–	≥ 70:1 [2]
GEM-C70	≤ 1.00 keV FWHM [2]	≤ 2.0 keV FWHM [2]	≤ 0.90 keV FWHM; with carbon-fibre window [2]	≥ 75:1 [2]
GEM-C80	≤ 1.00 keV FWHM [2]	≤ 2.0 keV FWHM [2]	≤ 0.95 keV FWHM; with carbon-fibre window [2]	≥ 73:1 [2]

GEM-C90	≤ 1.10 keV FWHM [2]	≤ 2.0 keV FWHM [2]	≤ 0.95 keV FWHM; with carbon-fibre window [2]	≥ 80:1 [2]
GEM-C100	≤ 1.10 keV FWHM [2]	≤ 2.1 keV FWHM [2]	≤ 1.00 keV FWHM; with carbon-fibre window [2]	≥ 83:1 [2]
GEM-C110	≤ 1.10 keV FWHM [2]	≤ 2.1 keV FWHM [2]	≤ 1.05 keV FWHM; with carbon-fibre window [2]	≥ 85:1 [2]
GEM-C120	≤ 1.10 keV FWHM [2]	≤ 2.1 keV FWHM [2]	≤ 1.05 keV FWHM; with carbon-fibre window [2]	≥ 86:1 [2]
GEM-C130	≤ 1.20 keV FWHM [2]	≤ 2.1 keV FWHM [2]	≤ 1.10 keV FWHM; with carbon-fibre window [2]	≥ 83:1 [2]
GEM-C140	≤ 1.20 keV FWHM [2]	≤ 2.2 keV FWHM [2]	≤ 1.10 keV FWHM; with carbon-fibre window [2]	≥ 83:1 [2]
GEM-C150	≤ 1.30 keV FWHM [2]	≤ 2.3 keV FWHM [2]	≤ 1.10 keV FWHM; with carbon-fibre window [2]	≥ 90:1 [2]
GEM-C175	≤ 1.30 keV FWHM [2]	≤ 2.3 keV FWHM [2]	≤ 1.10 keV FWHM; with carbon-fibre window [2]	≥ 90:1 [2]
GEM-M5060	≤ 0.88 keV FWHM [2]	≤ 1.8 keV FWHM [2]	–	≥ 60:1 [2]
GEM-M5970	≤ 0.90 keV FWHM [2]	≤ 1.8 keV FWHM [2]	–	≥ 62:1 [2]
GEM-M7080	≤ 0.95 keV FWHM [2]	≤ 1.9 keV FWHM [2]	–	≥ 75:1 [2]
GEM-M8295	≤ 1.30 keV FWHM [2]	≤ 2.1 keV FWHM [2]	–	≥ 85:1 [2]
GEM-M94100	≤ 1.30 keV FWHM [2]	≤ 2.3 keV FWHM [2]	–	≥ 90:1 [2]
GEM-S5020	≤ 0.65 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.40 keV FWHM; with carbon-fibre window [2]	≥ 35:1 [2]
GEM-S5825	≤ 0.65 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.43 keV FWHM; with carbon-fibre window [2]	≥ 35:1 [2]
GEM-S7025	≤ 0.65 keV FWHM [2]	≤ 1.9 keV FWHM [2]	≤ 0.45 keV FWHM; with carbon-fibre window [2]	≥ 40:1 [2]
GEM-S7030	≤ 0.70 keV FWHM [2]	≤ 1.9 keV FWHM [2]	≤ 0.45 keV FWHM; with carbon-fibre window [2]	≥ 40:1 [2]
GEM-S8530	≤ 0.70 keV FWHM [2]	≤ 1.9 keV FWHM [2]	≤ 0.50 keV FWHM; with carbon-fibre window [2]	≥ 55:1 [2]
GEM-S9430	≤ 0.70 keV FWHM [2]	≤ 1.9 keV FWHM [2]	≤ 0.50 keV FWHM; with carbon-fibre window [2]	≥ 65:1 [2]
GEM-SP5020	≤ 0.59 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.30 keV FWHM; with carbon-fibre window [2]	≥ 35:1 [2]
GEM-SP5825	≤ 0.59 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.34 keV FWHM; with carbon-fibre window [2]	≥ 35:1 [2]
GEM-SP7025	≤ 0.59 keV FWHM [2]	≤ 1.8 keV FWHM [2]	≤ 0.38 keV FWHM; with carbon-fibre window [2]	≥ 40:1 [2]
GEM-SP8530	≤ 0.63 keV FWHM [2]	≤ 1.9 keV FWHM [2]	≤ 0.40 keV FWHM; with carbon-fibre window [2]	≥ 55:1 [2]
GEM-SP9430	≤ 0.63 keV FWHM [2]	≤ 1.9 keV FWHM [2]	≤ 0.43 keV FWHM; with carbon-fibre window [2]	≥ 65:1 [2]

Model	Endcap diameter	Ordering configurations
GEM-C10	70 mm (nominal) [2]	GEM-C10P4 (PopTop) / GEM-C10 (Streamline) [2]
GEM-C15	70 mm (nominal) [2]	GEM-C15P4 (PopTop) / GEM-C15 (Streamline) [2]

GEM-C20	70 mm (nominal) [2]	GEM-C20P4 (PopTop) / GEM-C20 (Streamline) [2]
GEM-C25	70 mm (nominal) [2]	GEM-C25P4 (PopTop) / GEM-C25 (Streamline) [2]
GEM-C30	70 mm (nominal) [2]	GEM-C30P4 (PopTop) / GEM-C30 (Streamline) [2]
GEM-C40	76 mm (nominal) [2]	GEM-C40P4 (PopTop) / GEM-C40 (Streamline) [2]
GEM-C50	83 mm (nominal) [2]	GEM-C50P4 (PopTop) / GEM-C50 (Streamline) [2]
GEM-C60	83 mm (nominal) [2]	GEM-C60P4 (PopTop) / GEM-C60 (Streamline) [2]
GEM-C70	83 mm (nominal) [2]	GEM-C70P4 (PopTop) / GEM-C70 (Streamline) [2]
GEM-C80	95 mm (nominal) [2]	GEM-C80P4 (PopTop) / GEM-C80 (Streamline) [2]
GEM-C90	95 mm (nominal) [2]	GEM-C90P4 (PopTop) / GEM-C90 (Streamline) [2]
GEM-C100	95 mm (nominal) [2]	GEM-C100P4 (PopTop) / GEM-C100 (Streamline) [2]
GEM-C110	95 mm (nominal) [2]	GEM-C110P4 (PopTop) / GEM-C110 (Streamline) [2]
GEM-C120	95 mm (nominal) [2]	GEM-C120P4 (PopTop) / GEM-C120 (Streamline) [2]
GEM-C130	108 mm (nominal) [2]	GEM-C130P4 (PopTop) / GEM-C130 (Streamline) [2]
GEM-C140	108 mm (nominal) [2]	GEM-C140P4 (PopTop) / GEM-C140 (Streamline) [2]
GEM-C150	108 mm (nominal) [2]	GEM-C150P4 (PopTop) / GEM-C150 (Streamline) [2]
GEM-C175	108 mm (nominal) [2]	GEM-C175P4 (PopTop) / GEM-C175 (Streamline) [2]
GEM-M5060	70 mm (nominal) [2]	GEM-M5060P4 (PopTop) / GEM-M5060 (Streamline) [2]
GEM-M5970	70 mm (nominal) [2]	GEM-M5970P4 (PopTop) / GEM-M5970 (Streamline) [2]
GEM-M7080	83 mm (nominal) [2]	GEM-M7080P4 (PopTop) / GEM-M7080 (Streamline) [2]
GEM-M8295	95 mm (nominal) [2]	GEM-M8295P4 (PopTop) / GEM-M8295 (Streamline) [2]
GEM-M94100	108 mm (nominal) [2]	GEM-M94100P4 (PopTop) / GEM-M94100 (Streamline) [2]
GEM-S5020	70 mm (nominal) [2]	GEM-S5020P4 (PopTop) / GEM-S5020 (Streamline) [2]
GEM-S5825	70 mm (nominal) [2]	GEM-S5825P4 (PopTop) / GEM-S5825 (Streamline) [2]
GEM-S7025	83 mm (nominal) [2]	GEM-S7025P4 (PopTop) / GEM-S7025 (Streamline) [2]
GEM-S7030	83 mm (nominal) [2]	GEM-S7030P4 (PopTop) / GEM-S7030 (Streamline) [2]
GEM-S8530	108 mm (nominal) [2]	GEM-S8530P4 (PopTop) / GEM-S8530 (Streamline) [2]
GEM-S9430	108 mm (nominal) [2]	GEM-S9430P4 (PopTop) / GEM-S9430 (Streamline) [2]
GEM-SP5020	70 mm (nominal) [2]	GEM-SP5020P4 (PopTop) / GEM-SP5020 (Streamline) [2]
GEM-SP5825	70 mm (nominal) [2]	GEM-SP5825P4 (PopTop) / GEM-SP5825 (Streamline) [2]
GEM-SP7025	83 mm (nominal) [2]	GEM-SP7025P4 (PopTop) / GEM-SP7025 (Streamline) [2]
GEM-SP8530	108 mm (nominal) [2]	GEM-SP8530P4 (PopTop) / GEM-SP8530 (Streamline) [2]
GEM-SP9430	108 mm (nominal) [2]	GEM-SP9430P4 (PopTop) / GEM-SP9430 (Streamline) [2]

Sources

[1] PROFILE GEM P-type Coaxial and Semi-Planar HPGe Radiation Detectors
ORTEC (AMETEK) · product-page · Page heading; More Information; Feature list / More Information · checked 2026-10-16
https://web.archive.org/web/20261016000000/https://www.ortec-online.com/products/radiation-detectors/high-pu…

[2] PROFILE HPGe Photon Detector – Product Configuration Guide
ORTEC (AMETEK) · datasheet · p. 5; p. 1 text and Fig. 1; p. 22, Ordering Information notes · checked 2026-10-16
https://edge.sitecorecloud.io/ametekinc1236b-ametekb19a-productiondcfa-1d17/media/Project/Ametek/ortec-onlin…

Every value is taken from the manufacturer’s own document; the number after the value refers to the source list. Always check against the latest datasheet before ordering.

The data comes from the manufacturer’s published documents. Manufacturers may change specifications; the current configuration and performance are confirmed in the quotation.