[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in potentially explosive atmospheres - Directive 2014/34/EU**
Annex III - MODULE B: EU-TYPE EXAMINATION

[3] EU-type Examination Certificate number: **IMQ 17 ATEX 027 X**

[4] PRODUCT: **Cable glands for mineral insulated cables**
TYPE/SERIES: **RAD ISO NN nYm**
RAD GAS NN nYm

[5] MANUFACTURER: **KME Italy S.p.A**

[6] ADDRESS: **Via della Repubblica, 257 – 55051 Fornaci di Barga (LU) – Italy**

[7] This equipment and any acceptable variation thereto are specified in the annex to this certificate and the documents therein referred to.

[8] IMQ, notified body N° 0051, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in Report No.: **AT20-0053532-01**

[9] Compliance with Essential Health and Safety Requirements, except in respect of those listed at item 18 of the annex, has been assured by compliance with:

EN IEC 60079-0:2018; EN 60079-1:2014; EN IEC 60079-7:2015 + A1:2018; EN 60079-31:2014

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate

[11] This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the equipment or protective system shall include the following:

Ex	**II 2GD**	**Ex db IIC Gb** **Ex eb IIC Gb** **Ex tb IIIC Db**	**or**	**II 2G** **II 2G** **II 2D**	**Ex db IIC Gb** **Ex eb IIC Gb** **Ex tb IIIC Db**

This document is composed of 9 pages including 1 annex

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B.U. PRODUCT CONFORMITY ASSESSMENT

[13] # Annex

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CERTIFICATION SECTOR – MANAGER

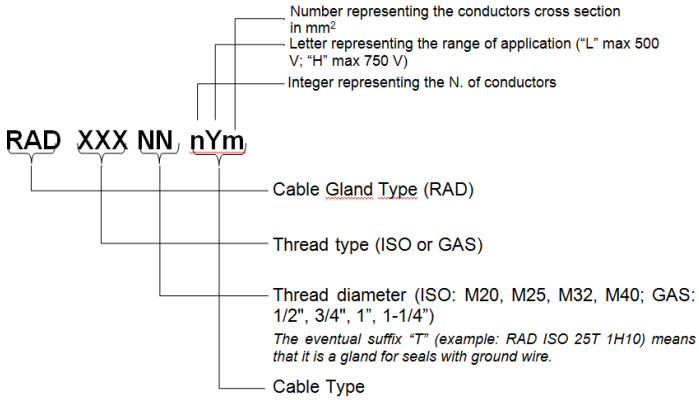
[15] **Description of product:**

The cable glands series RAD ISO and RAD GAS are made by a backnut, a compression ring (or double-cone) and a brass gland body. All the components are made with CW614N brass. Upon customer request, the cable glands can be supplied with galvanic coating of nickel with a thickness between 2 and 5 µm. These series of cable glands are suitable for use only with insulated mineral cables (MICO®) "L" type (500 V) and "H" type (750 V) of the same manufacturer. They are generally terminated with a seal (except for sizes 1H300 and 1H400), which consists of a brass pot, stub caps, a sealant and insulating sleeving for conductors.
Gland and cable type matching is shown in Tables below.
The cable glands series RAD ISO and RAD GAS are suitable for inserting insulated mineral cables into Ex db, Ex eb or Ex tb enclosures having only threaded entries (the use with enclosures with not-threaded holes and the use of counter-nuts is not guaranteed).
Protection degree IP65 is guaranteed without any gasket and by usage of suitable sealant put at least on one complete threads engaged of the threaded coupling, according to manufacturer's instructions.
Cable glands are provided, on the side attached to enclosure, with the following main mounting external threads type:

- gas tapered: thread shape and tolerance according to EN 10226-1 (ex ISO 7-1, admitted by IEC 60079-1:2014 Ed.7.0);
- isometric: thread shape according to ISO 262 or UNI 4535, with coupling tolerances in accordance with ISO 965-1 and ISO 965/3.

[15.1] **Models/Series Identification:**

Key code:



RAD ISO

Legend:

Metric thread pitch:
ISO 20: M20x1.5
ISO 25: M25x1.5
ISO 32: M32x1.5

Φ D: max. diameter of compression ring
Φ X: ext. diameter of cable
M: height of compression ring

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ISO 40: M40x1.5

Cable glands for Mineral Insulated Cables – "L" type 500 V

Gland type	N° Cond x section	Cable code	Nut marking	Φ D mm	Φ X mm	M mm	Minimum torque for Glands
ISO 20	2 x1	2L1	ISO 20 - 2L1	8	5.1	6.5	18 Nm
	2 x 1.5	2L1.5	ISO 20 – 2L1.5	8	5.7	6.5	
	2 x 2.5	2L2.5	ISO 20 – 2L2.5	9	6.6	6.5	
	2 x 4	2L4	ISO 20 – 2L4	11	7.7	6.5	
	3 x 1	3L1	ISO 20 – 3L1	8	5.8	6.5	
	3 x 1.5	3L1.5	ISO 20 – 3L1.5	9	6.4	6.5	
	3 x 2.5	3L2.5	ISO 20 – 3L2.5	10	7.3	6.5	
	4 x 1	4L1	ISO 20 – 4L1	9	6.3	6.5	
	4 x 1.5	4L1.5	ISO 20 – 4L1.5	10	7.0	6.5	
	4 x 2.5	4L2.5	ISO 20 – 4L2.5	11	8.1	6.5	
ISO 25	7 x 1	7L1	ISO 25 – 7L1	11	7.6	6.5	18 Nm
	7 x 1.5	7L1.5	ISO 25 – 7L1.5	11	8.4	6.5	
	7 x 2.5	7L2.5	ISO 25 – 7L2.5	12	9.7	6.5	

Cable glands for Mineral Insulated Cables – "H" type 750 V

Gland type	N° Cond x section	Cable code	Nut marking	Φ D mm	Φ X mm	M mm	Minimum torque for glands
ISO 20	1 x 1.5	1H1.5	ISO 20 – 1H1.5	8	4.9	6.5	18 Nm
	1 x 2.5	1H2.5	ISO 20 - 1H2.5	8.5	5.3	6.5	
	1 x 4	1H4	ISO 20 - 1H4	8.5	5.9	6.5	
	1 x 6	1H6	ISO 20 - 1H6	9	6.4	6.5	
	1 x 10	1H10	ISO 20 - 1H10	10	7.3	6.5	
	1 x 16-3 x 1.5	1H16-3H1.5	ISO 20 - 1H16/3H1.5	11	8.3	6.5	
	1 x 25	1H25	ISO 20 - 1H25	12	9.6	6.5	
	1 x 35	1H35	ISO 20 - 1H35	13	10.7	6.5	
	2 x 1.5	2H1.5	ISO 20 - 2H1.5	11	7.9	6.5	
	2 x 2.5	2H2.5	ISO 20 - 2H2.5	11	8.7	6.5	
	2 x 4	2H4	ISO 20 - 2H4	12	9.8	6.5	
	2 x 6	2H6	ISO 20 - 2H6	13.7	10.9	6.5	18 Nm
	3 x 2.5	3H2.5	ISO 20 - 3H2.5	12	9.3	6.5	
	3 x 4	3H4	ISO 20 - 3H4	13	10.4	6.5	

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	4 x 1.5	4H1.5	ISO 20 - 4H1.5	12	9.1	6.5	
	4 x 2.5	4H2.5	ISO 20 -4H2.5	13	10.1	6.5	
ISO 25	1 x 50-7 x 2.5	1H50-7H2.5	ISO 25 - 1H50/7H2.5	15	12.1	6.5	18 Nm
	1 x 70	1H70	ISO 25 - 1H70	16	13.7	6.5	
	1 x 95	1H95	ISO 25 – 1H95	18	15.4	6.5	
	2 x 10-4 x 6	2H10-4H6	ISO 25 - 2H10/4H6	15	12.7	6.5	
	2 x 16	2H16	ISO 25 - 2H16	17	14.7	6.5	
	3 x 6	3H6	ISO 25 - 3H6	14	11.5	6.5	
	3 x 10	3H10	ISO 25 - 3H10	16	13.6	6.5	
	3 x 16	3H16	ISO 25 - 3H16	18	15.6	6.5	
	4 x 4	4H4	ISO 25 - 3H16	14	11.4	6.5	
	4 x 10	4H10	ISO 25 - 4H10	17	14.8	6.5	
	7 x 1.5	7H1.5	ISO 25 - 7H1.5	13	10.8	6.5	
ISO 32	12 x 1.5	12H1.5	ISO32-12H1.5	17.1	14.1	6.5	40 Nm
	12 x 2.5	12H2.5	ISO32-12H2.5	18.6	15.6	6.5	
	1 x 120	1H120	ISO 32 – 1H120	19.8	16.8	6.5	45 Nm
	1 x 150	1H150	ISO 32 - 1H150	21.4	18.4	6.5	
	1 x 185	1H185	ISO 32 – 1H185	23.4	20.4	6.5	
	2 x 25	2H25	ISO 32 – 2H25	20.1	17.1	6.5	
	4 x 16	4H16	ISO 32 – 4H16	20.0	17.3	6.5	
ISO 40	1 x 240	1H240	ISO 40 - 1H240	26.3	23.3	6.5	110 Nm
	1 x 300	1H300	ISO 40 - 1H300	30.9	26	10	
	1 x 400	1H400	ISO 40 - 1H400	34.9	30	10	150 Nm
	3 x 25	3H25	ISO 40 - 3H25	21.2	18.2	6.5	110 Nm
	4 x 25	4H25	ISO 40 - 4H25	23.1	20.1	6.5	
	19 x 1.5	19H1.5	ISO 40 - 19H1.5	19.6	16.6	6.5	

Cable glands for Mineral Insulated Cables, either earth tail seal – "H" type 750 V

Gland type	N° Cond x section	Cable code	Nut marking	Φ D mm	Φ X mm	M mm	Minimum torque for glands
ISO 25	1 x 10	1H10	ISO 25T - 1H10	10	7.3	6.5	18 Nm
	1 x 16	1H16	ISO 25T - 1H16	11	8.3	6.5	
	2 x 4	2H4	ISO 25T - 2H4	12	9.8	6.5	
	2 x 6	2H6	ISO 25T - 2H6	13.7	10.9	6.5	

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	3 x 2.5	3H2.5	ISO 25T - 3H2.5	12	9.3	6.5	
	3 x 4	3H4	ISO 25T - 3H4	13	10.4	6.5	
	4 x 2.5	4H2.5	ISO 25T - 4H2.5	13	10.1	6.5	
ISO 32	1 x 25	1H25	ISO 32T - 1H25	12	9.6	6.5	40 nm
	1 x 35	1H35	ISO 32T - 1H35	13	10.7	6.5	
	2 x 10-4 x 6	2H10-4H6	ISO 32T - 2H10/4H6	15	12.7	6.5	
	3x10	3H10	ISO 32T - 3H10	16	13.6	6.5	
	4x10	4H10	ISO 32T - 4H10	17	14.8	6.5	
ISO 40	1 x 50	1H50	ISO 40T - 1H50	16	12.1	6.5	45 Nm
	2 x 16	2H16	ISO 40T - 2H16	17	14.7	6.5	
	2 x 25	2H25	ISO 40T - 2H25	20	17.1	6.5	
	3 x 16	3H16	ISO 40T - 3H16	18	15.6	6.5	
	4 x 16	4H16	ISO 40T - 4H16	20	17.3	6.5	

RAD GAS

Legend

Thread pitch:
RAD G1/2'': 1/2''
RAD G3/4'': 3/4''
RAD G1'': 1''
RAD G1-1/4'': 1-1/4''

Φ D: max. diameter of compression ring
Φ X: ext. diameter of cable
M: height of compression ring

Cable glands for Mineral Insulated Cables – "L" type 500 V

Gland type	N° Cond x section	Cable code	Nut marking	Φ D mm	Φ X mm	M mm	Minimum torque for glands
RAD G 1/2''	2 x1	2L1	RAD G 1/2'' - 2L1	8	5.1	6.5	18 Nm
	2 x 1.5	2L1.5	RAD G 1/2'' – 2L1.5	8	5.7	6.5	
	2 x 2.5	2L2.5	RAD G 1/2'' – 2L2.5	9	6.6	6.5	
	2 x 4	2L4	RAD G 1/2'' – 2L4	11	7.7	6.5	
	3 x 1	3L1	RAD G 1/2'' – 3L1	8	5.8	6.5	
	3 x 1.5	3L1.5	RAD G 1/2'' – 3L1.5	9	6.4	6.5	
	3 x 2.5	3L2.5	RAD G 1/2'' – 3L2.5	10	7.3	6.5	
	4 x 1	4L1	RAD G 1/2'' – 4L1	9	6.3	6.5	
	4 x 1.5	4L1.5	RAD G 1/2'' – 4L1.5	10	7.0	6.5	
	4 x 2.5	4L2.5	RAD G 1/2'' – 4L2.5	11	8.1	6.5	
RAD G 3/4''	7 x 1	7L1	RAD G 3/4'' – 7L1	11	7.6	6.5	18 Nm
	7 x 1.5	7L1.5	RAD G 3/4'' – 7L1.5	11	8.4	6.5	

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	7 x 2.5	7L2.5	RAD G 3/4" – 7L2.5	12	9.7	6.5	

Cable glands for Mineral Insulated Cables – "H" type 750 V

Gland type	N° Cond x section	Cable code	Nut marking	Φ D mm	Φ X mm	M mm	Minimum torque for glands
RAD G 1/2"	1 x 1.5	1H1.5	RAD G 1/2"– 1H1.5	8	4.9	6.5	18 Nm
	1 x 2.5	1H2.5	RAD G 1/2"- 1H2.5	8.5	5.3	6.5	
	1 x 4	1H4	RAD G 1/2"- 1H4	8.5	5.9	6.5	
	1 x 6	1H6	RAD G 1/2"- 1H6	9	6.4	6.5	
	1 x 10	1H10	RAD G 1/2"- 1H10	10	7.3	6.5	
	1 x 16-3 x 1.5	1H16-3H1.5	RAD G 1/2"- 1H16/3H1.5	11	8.3	6.5	
	1 x 25	1H25	RAD G 1/2"- 1H25	12	9.6	6.5	
	2 x 1.5	2H1.5	RAD G 1/2"- 2H1.5	11	7.9	6.5	
	2 x 2.5	2H2.5	RAD G 1/2"- 2H2.5	11	8.7	6.5	
	2 x 4	2H4	RAD G 1/2"- 2H4	12	9.8	6.5	
	3 x 2.5	3H2.5	RAD G 1/2"- 3H2.5	12	9.3	6.5	
	4 x 1.5	4H1.5	RAD G 1/2"- 4H1.5	12	9.1	6.5	
RAD G 3/4"	1 x 35	1H35	RAD G 3/4"- 1H35	13	10.7	6.5	18 Nm
	1 x 50-7 x 2.5	1H50-7H2.5	RAD G 3/4"- 1H50/7H2.5	15	12.1	6.5	
	1 x 70	1H70	RAD G 3/4"- 1H70	16	13.7	6.5	
	2 x 6	2H6	RAD G 3/4"- 2H6	14	10.9	6.5	
	2 x 10-4 x 6	2H10-4H6	RAD G 3/4"- 2H10/4H6	15	12.7	6.5	
	2 x 16	2H16	RAD G 3/4"- 2H16	17	14.7	6.5	
	3 x 4	3H4	RAD G 3/4"- 3H4	13	10.4	6.5	
	3 x 6	3H6	RAD G 3/4"- 3H6	14	11.5	6.5	
	3 x 10	3H10	RAD G 3/4"- 3H10	16	13.6	6.5	
	4 x 2.5	4H2.5	RAD G 3/4"-4H2.5	13	10.1	6.5	
	4 x 4	4H4	RAD G 3/4"- 3H16	14	11.4	6.5	
	7 x 1.5	7H1.5	RAD G 3/4"- 7H1.5	13	10.8	6.5	
	12 x 1.5	12H1.5	RAD G 3/4"-12H1.5	17	14.1	6.5	
RAD G 1"	1 x 95	1H95	RAD G 1"– 1H95	18	15.4	6.5	36 Nm
	1 x 120	1H120	RAD G 1"– 1H120	19	16.8	6.5	
	2 x 25	2H25	RAD G 1"– 2H25	20	17.1	6.5	
	3 x 16	3H16	RAD G 1"- 3H16	18	15.6	6.5	

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	4 x 10	4H10	RAD G 1”- 4H10	17	14.8	6.5	
	4 x 16	4H16	RAD G 1”- 4H16	20	17.3	6.5	
RAD G 1-1/4”	1 x 150	1H150	RAD G 1’-1/4”-1H150	21	18.4	6.5	
	1 x 185	1H185	RAD G 1’-1/4”-1H185	23	20.4	6.5	36 Nm
	1 x 240	1H240	RAD G 1’-1/4”-1H240	26	23.3	6.5	
	1 x 300	1H300	RAD G 1’-1/4”-1H300	32	26	10	
	1 x 400	1H400	RAD G 1’-1/4”-1H400	36.5	30	10	
	3 x 25	3H25	RAD G 1’-1/4”- 3H25	21	18.2	6.5	
	4 x 25	4H25	RAD G 1’-1/4”- 4H25	23	20.1	6.5	
	12 x 2.5	12H2.5	RAD G 1’-1/4”-12H2.5	18	15.6	6.5	
	19 x 1.5	19H1.5	RAD G 1’-1/4”-19H1.5	20	16.6	6.5	

Cable glands for Mineral Insulated Cables, either earth tail seal – “H” type 750 V

Gland type	N° Cond x section	Cable code	Nut marking	Φ D mm	Φ X mm	M mm	Minimum torque for glands
RAD G 3/4”	1 x 10	1H10	RAD G 3/4” T- 1H10	10	7.3	6.5	18 Nm
	1 x 16	1H16	RAD G 3/4” T- 1H16	11	8.3	6.5	
	2 x 4	2H4	RAD G 3/4” T- 2H4	12	9.8	6.5	
RAD G 1”	1 x 25	1H25	RAD G 1” T- 1H25	12	9.6	6.5	36 Nm
	1 x 35	1H35	RAD G 1” T- 1H35	13	10.7	6.5	
	2 x 10-4 x 6	2H10-4H6	RAD G 1” T - 2H10/4H6	15	12.7	6.5	
RAD G 1-1/4”	1 x 50	1H50	RAD G 1-1/4” T-1H50	16	12.1	6.5	
	2 x 16	2H16	RAD G 1-1/4” T-2H16	17	14.7	6.5	
	2 x 25	2H25	RAD G 1-1/4” T-2H25	20	17.1	6.5	
	3 x 16	3H16	RAD G 1-1/4” T-3H16	18	15.6	6.5	
	4 x 16	4H16	RAD G 1-1/4” T-4H16	20	17.3	6.5	

[15.2] **Ratings:** According to Tables above, for more details see drawings and instructions manual listed in DL- AT20-0053532-01

[15.3] **Safety Ratings:** N/A

[15.4] **Ambient temperature and temperature classes:** -20°C ÷ +70°C
Service temperature: -20°C÷ +250°C

[15.5] **Degree of protection (IP code):** IP65

[15.6] **Warnings:** None

[16] **Report**: AT20-0053532-01

[13] # Annex

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[16.1] **Routine (factory) tests:**
None

[16.2] **Conformity with the documentation:**
The manufacturer shall carry out the verifications or tests necessary to ensure that the product complies with the documentation.
Marking the equipment in accordance with Clause 29 of EN 60079-0, the manufacturer attests on his own responsibility that:

- the equipment has been constructed in accordance with the applicable requirements of the relevant standards in safety matters;
- the routine verifications and routine tests in 28.1 of EN 60079-0 have been successfully completed with positive results.

[16.3] **Installation conditions:**
Above referred equipment is foreseen to be installed in locations where there are environmental conditions, as clearly specified at clause 1, par. 2 of EN 60079-0.
Installation and use in atmospheric and environmental conditions that are out of above mentioned intervals request special considerations and additional measures by the side of installer or user.
These should be specified to the manufacturer by the user;
It is not a required by applicable standard listed in [9] that the certification body confirm suitability for the adverse conditions.

The coupling of the cable glands to the enclosure shall be made as indicated by the manufacturer in the documents annexed to this certificate in order to respect the type of protection of the electrical apparatus on which cable glands are mounted.

The cable gland installation shall be done according to safety manufacturer instructions to maintain degree of protection.

The cable gland installation shall be done in such a way that the temperature at the mounting point will remain within the service temperature ranges declared in this certificate.

[17] **Special Condition of use (X):**

The cable glands are only suitable for fixed installations.

These cable glands are approved for use at the following ambient temperature: -20°C ÷ 70 °C.

[18] **Essential Health and safety Requirements:**
This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed in [9].
This Certificate **does not** cover hazards coming from environmental conditions different from those clearly and precisely indicated and covered in clause 1 of EN 60079-0.

ESHR 1.2.7 According Annex VIII of the Directive
ESHR 1.4 Not verified.
ESHR 1.5 Not verified.
ESHR 3 Not applied.

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In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at [9], the following are considered relevant to this product, and conformity is demonstrated in the report:
N/A

[19] **Descriptive documents**:
DL-AT20-0053532-01, rev.0 dated 2020-08-03

[20] **Certification Validity Conditions:**
The use of this Certificate is subject to the Certification Scheme and to the Regulation applicable to holders of IMQ Certificates.
The validity of this certificate is subject to the condition that the manufacturer complies with the results of the document review and of the pertinent requirement if any included, recorded in the relevant copy of documentation as per 19.
One copy of the mentioned documentation is kept in IMQ file.

[21] Variations

AT16-0006578-01 - December, 2017:

First issue

AT17-0017379-01 - March, 2019:

- Introduction of new sizes for cable glands ISO 32 for Mineral Insulated Cables – "H" type 750 V.

Introduction of the code

AT20-0053532-01 - September, 2020:

- Introduction of cable glands with Galvanic Nickel Plated panting: 2 ÷ 5 µm thickness
- Standards updated