

CERTIFICATE



Italia

[1] EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use
in potentially explosive atmospheres
Directive 2014/34/EU**

[3] EU-Type Examination Certificate number:

TÜV IT 15 ATEX 055 X Rev.4

[4] Equipment or Protective System: Mixers for powders A-MX.. series

[5] Manufacturer: MIX S.r.l. unipersonale

[6] Address: Via Volturmo 119A, I-41032 Cavezzo (MO) * ITALY

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] TÜV Italia, notified body no. 0948 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 products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. R 15 EX 040 Rev.4

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN ISO 80079-36 : 2016 ; EN ISO 80079-37 : 2016

[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 product shall include the following:



II 1/2G Ex h IIB T4 Ga/Gb
II 1/2D Ex h IIIB T135°C Da/Db
II 1/2D Ex h IIIC T135°C Da/Db
II 1/2D Ex h IIIB T140°C Da/Db
II 1/2D Ex h IIIC T140°C Da/Db

II 1/3G Ex h IIB T4 Ga/Gc
II 1/3D Ex h IIIB T135°C Da/Dc
II 1/3D Ex h IIIC T135°C Da/Dc
II 1/3D Ex h IIIB T140°C Da/Dc
II 1/3D Ex h IIIC T140°C Da/Dc

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Issue date: 20th January 2023



PRD N° 081B

Membro degli Accordi di Mutuo Riconoscimento
EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual
Recognition Agreements



TÜV Italia S.r.l.
Notified body N° 0948

Alberto Carelli
Alberto Carelli

**Industry Service - Real Estate & Infrastructure
Managing Director**

TÜV Italia has been authorized by Italian government to operate as notified body for the certification of equipment or protective system intended for use in potentially explosive atmospheres. This document is not valid without official signature and logo. The internal reference code is 722332674.

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EU-TYPE EXAMINATION CERTIFICATE
no. TÜV IT 15 ATEX 055 X Rev.4
Certificate History

Revision:	Description:	Report rev.:	Issue Date:
-	First issued	00	22/07/2015
1	Technical update: "removable rotor"	01	16/05/2018
2	Standards update; Marking update; Usage constraints update (dust energy ≥ 1 mJ)	02	10/07/2019
3	Update technical file (increased maximum process temperature to 130°C)	03	18/01/2021
4	Added new seal and new gearbox with temperature class of T140°C Marking update	04	20/12/2023

[15] Description of equipment

This certificate is related to mixers for powders mainly used in the food, chemical and pharmaceutical field, for continuous or discontinuous processes. They are essentially constituted by a fixed body that acts as a mixing chamber, a rotor provided with paddles welded or propeller and inlet and outlet connections. There are also various peripheral elements such as the gear motor unit and accessories for handling and the position control of the exhaust outlet; these peripheral elements are separately certified and they are not covered by this certificate, instead their interface with the mixing system is covered.

Below is the list and the main characteristics of covered variants.

Model	Task	Mixing shaft type
A-MXA	Mixer	Ploughshare, PalaMix and Belt
A-MXB	Granulator	Ploughshare, PalaMix and Belt
A-MXC	Mixer	Ploughshare, PalaMix and Belt
A-MXD	Granulator	Ploughshare, PalaMix and Belt
A-MXH	Mixer	Ploughshare, PalaMix and Belt
A-MXK	Mixer resting tank	Ploughshare, PalaMix and Belt
A-MXN	Mixer resting tank	Ploughshare, PalaMix and Belt

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Series	LABORATORY	INDUSTRIAL
Size	0002 ÷ 0075	0075 ÷ H130

The minimum clearance between the rotor and stator are defined according to the working conditions, at chapter RTM007_M01_01 of the listed technical file.

Removable rotor (Certificate Rev.1)

The function "removable rotor" (Rev.1) has been added at this certificate. The removable rotor makes cleaning inside the mixer easier by the completely opening the machine on the opposite side of the engine and extracting the rotor shaft. The handling is manual via flyer with rack, with linear speed of less than 1 m/s. The analysis of the bushings used to support rotor extraction has been integrated and evaluated. The mixer was built following the principles of constructive safety "c" protection and control of the sources of ignition "b", according to EN 80079-37.

Marking for gas ambient and dust (Certificate Rev.2 and Rev.4):

Marking combinations are shown in the following table. The configurations (variants) of the machine are described in the listing document DOC002_M01_01.

One marking: only Gas or Dust	Double marking: Gas and Dust
Ex II 1/2G Ex h IIB T4 Ga/Gb	Ex II 1/2G Ex h IIB T4 Ga/Gb Ex II 1/2D Ex h IIIB T135°C Da/Db
Ex II 1/3G Ex h IIB T4 Ga/Gc	Ex II 1/2G Ex h IIB T4 Ga/Gb Ex II 1/2D Ex h IIIC T135°C Da/Db
Ex II 1/2D Ex h IIIB T135°C Da/Db or Ex II 1/2D Ex h IIIB T140°C Da/Db	Ex II 1/3G Ex h IIB T4 Ga/Gc Ex II 1/3D Ex h IIIB T135°C Da/Dc
Ex II 1/2D Ex h IIIC T135°C Da/Db or Ex II 1/2D Ex h IIIC T140°C Da/Db	Ex II 1/3G Ex h IIB T4 Ga/Gc Ex II 1/3D Ex h IIIC T135°C Da/Dc
Ex II 1/3D Ex h IIIB T135°C Da/Dc or Ex II 1/3D Ex h IIIB T140°C Da/Dc	
Ex II 1/3D Ex h IIIC T135°C Da/Dc Ex II 1/3D Ex h IIIC T140°C Da/Dc	

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Rated characteristics

Ambient Temperature	-10 °C ÷ +40 °C
Process Temperature	+2 °C ÷ +130 °C
Pressure ambient / process	0,8 ÷ 1,1 bar (absolute)
Max. rotor peripheral speed	9 m/s
Max. homogenizer blade peripheral speed	15 m/s
Pneumatic system max. pressure	8 bar

Warning label

None.

[16] **Report no.** R 15 EX 040 Rev.4**Routine tests**

Checking tolerances between rotor and stator according to the design specifications (as defined in the doc.: RTM007).

Checking maximum surface temperature (EN 80079-36:2016 §8.2) and earth continuity test (EN 80079-36:2016§6.7.2).

The test shall be made on fully completed equipment, on each unit manufactured.

[17] **Special conditions for safe use**

The standard configuration mixer is suitable for the powder process with a minimum ignition energy (MIE) greater than or equal to 3 mJ.

The mixer can process the screened product with a maximum size of metal particles less than 1 mm.

The assessment of any potential ignition sources arising from the mixing / reaction process has to be made by the user.

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With regard to the rotating shaft seals temperature monitoring system, the requirements of EN 80079-37 §6 (control of the source of the ignition "b") must be observed. In particular it should be guaranteed the machine stop if temperature exceeded the set value of 80°C or 120°C based on instruction manual. The functionality of the ignition prevention system must be verified according to EN 80079-37 §9.2. The ignition prevention system must be of type "b1" in case of packed glands with fluxing, it must be of type "b2" in case of packed glands without fluxing.

Mixers for low-energy trigger powders (Certificate Rev.2):

The mixer is suitable for the powder process with a minimum ignition energy (MIE) greater than or equal to **1mJ** only if the size of the mixer (internal diameter) and the grain size of the powder respect specific dimensional constraints that are defined by manufacturer depending on the type and size of the machine.

Therefore, for the machine operation under special conditions with powders with ignition energy **1mJ ≤ MIE < 3mJ** must be made explicit request to the MIX manufacturer of the Model of A-MX mixer suitable for use with low-energy trigger powders, indicating in the request the maximum grain size of the powder you want to mix.

[18] **Essential Health and Safety Requirements**

Assured by compliance with the standards set out in the [9].

[19] **Drawings and Documents**

Listed documents (prot. 256858 + 722157095 + 722168218 + 722234162 + 722332674)

Title:	Description:	Pag.:	Rev.:	Data:
DOC014	Technical file Index	01	A	16/11/2020
5AM001	Document list (supporting documentation)	15	F	06/11/2023
DOC002_M01_01	Variants description	05	C	07/12/2023
2AM001	Technical file	33	F	16/11/2023
3AM001	Verifying compliance with construction technical standards	25	E	11/11/2020

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Title:	Description:	Pag.:	Rev.:	Data:
4AM001	Ignition sources evaluation	04	E	27/10/2023
6AM001	Design constraints list	02	01	17/11/2020
DFE002_ M01_01_c M01_02_c M01_03_c	Certificate components list Config. Gas Config. Dust Config. Gas+Dust	01 01 01	C C C	2023
NMB926b0 Gas	Template Instruction manual (use for Gas amb. cat.2G)	51	b0	2019
NMB122Ab0 Dust	Template Instruction manual (use for Dust amb. cat.2D)	55	b0	2023
NMB1035b1 Dust	Template Instruction manual (use for Dust amb. cat.3D)	50	b1	2020
1AM001	Model of declaration of conformity	01	F	21/12/2023
RTM007_M01_01 RTM007_M01_02	Defining minimum tolerances between rotor and state	20 21	B A	22/09/2020 22/09/2020
RTM018_M01_01 + RTM018_M01_02	Maximum cone discharge energy rating + Calculator W	5 1	-	10/12/2018
35138	Nameplate drawing	1	E	12/2023
35186	Mechanical drawing: Representation of mixer with extractable motor shaft	1	00	12/03/2018
35182	Mechanical drawing:	1	01	11/12/2018
35183	Trugol size and cone	1	00	11/12/2018
35185	discharge chamber	1	00	11/12/2018

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Title:	Description:	Pag.:	Rev.:	Data:
35108	Mechanical drawings: "Mixer group"	1	00	05/12/2005
35209		1	00	12/01/2018
35210		1	B	11/01/2019
35200		1	00	12/12/2018
35201		1	00	12/12/2018
35202		1	00	12/12/2018
35203		1	00	12/12/2018
35204		1	00	12/12/2018
35205		1	00	12/12/2018
35206		1	00	12/12/2018
35207		1	00	12/12/2018
35211		1	B	03/11/2020
35212		1	B	03/11/2020
35213		1	B	03/11/2020
35214		1	B	03/11/2020
35187		1	B	03/11/2020
35188		1	00	20/03/2018
35189	1	00	20/03/2018	
35145	Mechanical drawings: "Details of the parts that guarantee the level of protection"	1	C	03/11/2020
35146		1	C	03/11/2020
35109	Mechanical drawings: "Details of metal parts grounded"	1	00	05/12/2005
35118		1	C	03/11/2020
35110	Mechanical drawings: "Details of contacts between seals and metal part, details of the exhaust support"	1	B	09/11/2020
35120		1	C	03/11/2020
35290		1	00	06/12/2023

One copy of all documents is kept in TÜV Italia files.

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