"MINPROEKT" EAD

CERTIFICATE

[1] **EU-TYPE EXAMINATION CERTIFICATE**

[2] Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres – **Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **MP 19 ATEX 0243 X** **Issue 1**

[4] Product (Equipment or protective system): **Centrifugal sealless flameproof electric pump unit, type CMP**

[5] Manufacturer: „CRIS" S.R.L. „SUDOCOR VMV" S.R.L

[6] Address: MD-2005, 68/2-69, Albisoara st., Chisinau, Republic of Moldova; 500200, 1 Negoui st., Fagaras, jud. Brasov, Romania

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

[8] Minproekt EAD, notified body No.1877 in accordance with Article 17 of the 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. 14/11.10.2019**

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

EN IEC 60079-0:2018 **EN 60079-1:2014** **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 product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

[11] This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance with the Directive 2014/34/EU. 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 2G Ex db h IIC T4...T1 Gb

Note: **the temperature class depends on the temperature of the liquid at which the pump operates**

Sofia, 2024-10-29

Executive Director:
/dipl. eng. K. Hristov/

This Certificate is valid until: 29.10.2029

This certificate may only be reproduced in its entirety and without any change, schedule included.

"Minproekt" EAD, Sofia 1766, Bulgaria
14 "St. Kliment Ohridski" blvd.
tel.:+3592/975-82-20, fax:+3592/975-33-48
e-mail: office@minproekt.com
www.minproekt.com

Division "Scientific and Research Activity"
Dragichevo

[13] Schedule

[14] EU-Type Examination Certificate №: MP 19 ATEX 0243 X Issue 1

[15] Description of product

15.1. Technical description

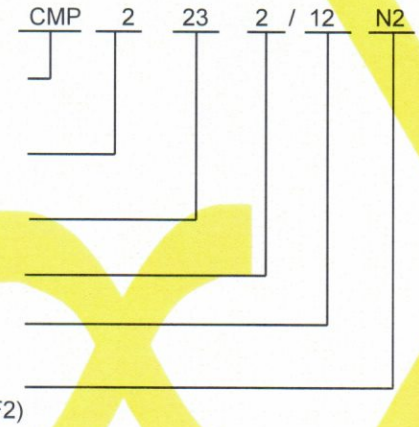
„Centrifugal sealless monoblock flameproof electric pump units, type CMP" " is a monoblock consisting of a pump part (single-sided, with one or more (up to four) working wheels, or double-sided (from four to eight working wheels)) and a built-in three-phase asynchronous electric motor with a squirrel-cage rotor and protective sleeves. The pump part consists of a spiral (or blade) outlet, impellers, an inner cover, intermediate disks, a pump body attached to the bearing shields, to which the bearing housings are also attached.

Sealing of the joint «the pump body-stator» is provided with a fluoroplastic or paronite gasket.

Hermetic asynchronous electric motor consists of a stator, rotor, two radial plain bearings and a rear cover installed on bearing shields. The stator of the electric motor includes a package of electrical steel with a winding, pressed into the frame and two bearing shields. The sealing of the stator and rotor windings is ensured by thin-walled (0.5 mm) non-magnetic screens, welded to the stator shields and rotor rings, respectively.

„Centrifugal sealless monoblock flameproof electric pump units, type CH" operate under a special scheme for automation, ensuring the safe operation including control elements, monitoring the current, the fluid pressure, the temperature and more. The peculiarity of the electric pump unit is the complete absence of leaks of the pumped liquid into the environment due to the absence of any gaskets, i.e. the monoblock design, in which the rotor shaft of the electric motor is simultaneously the shaft of the working elements of the pump part.

15.2. Type designation.



15.3. Routine tests

Each flameproof enclosure of Centrifugal sealless monoblock flameproof electric pump units, type CMP shall be subjected to a static pressure test with pressure of 1,08 MPa (10,8 bar) for at least 10 seconds. Additionally, each explosion-proof centrifugal sealless monoblock electric pump unit of the CMP type must be subjected to a static pressure test of 1.25 times the pressure in the pump circuit for at least 5 minutes.

Sofia, 2024-10-29

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e-mail: office@minproekt.com – Sofia
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[15] Description of product

15.4. Technical data of the product.

Specifications

Parameter name	Value
Nominal flow rate, m^3/h	from 0,63 to 1000
Pressure head at nominal flow, m	from 4 to 2000
Rated power of the electric pump, kW	from 0,55 to 400
Acceptable cavitation reserve, m	from 0,4 to 12
Working environment temperature (the liquid, ^0C)	from -100 to +450
Ambient temperature, ^0C	from -60 to +50
Efficiency, %	to 70
Rated pump circuit pressure, bar	from 16 to 120
Adjusted sound power level, dB	from 60 to 111
Maximum level of logarithmic vibration, $mm.s^{-1}$	4,5
Type of the current	alternating, three-phase
Voltage, V	400, 500, 690
Frequency of current, Hz	50/60
IP code, IP	IP66
Frequency of rotation, rpm	1500; 3000
Stator winding heat resistance class,	H
Duty type	S1
Length, mm	from 556 to 2850
Width, mm	from 335 to 1160
Height, mm	from 300 to 845
Mass, kg	from 80 to 1900

[16] Test reports: 14/11.10.2019

[17] Specific condition(s) of use:

17.1. "Centrifugal sealless flameproof electric pump units, type CMP" are intended for an ambient temperature range of -60 °C ≤ Ta ≤ +50 °C, different from the standard.

17.2. Electric pump shall not be started without first filling it with the liquid to be pumped.

17.3. Electric pump unit shall not be started with the suction valve closed.

[18] Essential health and safety requirements:

Met by compliance with the requirements mentioned in item [9].

Sofia, 2024-10-29

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/dipl. eng. K. Hristov/

ЕАД "МИНПРОЕКТ" * СОФИЯ *

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[19] **List of the technical record parts:**

19.1. Description and operation of centrifugal sealless electric pump units, type CMP"

19.2. Guide for ensuring the explosion protection of pump units

19.3. Test reports: Test report № 7907/02/19/14.01.2019.

19.4. List of harmonized standards: List of standards used

19.5. Conceptual design and manufacturing drawings and schemes, consisting of:

Drawings №№ 3AE.909.328 СБ; 5IA.670.156-12 СБ; 5IA.018.109 СБ; 5AE.034.880 СБ; 5CR.680.837 СБ; 5IA.674.254 СБ; 8AE.575.816; 8AC.575.817; 5IA.354.01.01 СБ; specification 5IA.354.001 – 5 sheets; Drawings №№ 5IA.001.068 СБ; specification 5IA.001.068 – 2 sheets; Drawings №№ 8IA.173.203; 8IA.050.007; 5BT.559.524-1 СБ; 8BT.210.667-1; 8BT.931.550-1; specification 5BT.559.524-1; 5IA.227.195 СБ; 8IA.227.195; 8IA.320.084; 5IA.024.003 СБ; 8IA.180.542; 8IA.173.204; specification 5IA.024.003 – 2 sheets; general scheme of the automation; principle electrical circuit for control and protection.

19.6 Additional information:

19.6.1. Assesment of the risk of ignition of centrifugal sealless pump units CMP

19.6.2. DIN 3771

19.6.3. GOST 9833-73

19.6.4. GOST18829-2017

19.6.5. Conclusion of industrial safety expertise

19.6.6. Chemical analysis of the materials used

19.6.7. A guide to ensuring the explosion protection of electric pump units

19.6.8. Physico-mechanical properties of PREMIX DMS-20-PM insulation material

Sofia, 2024-10-29

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