"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 0242 X** **Issue 1**

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

[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. 13/16.09.2019**

[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:

Ex **II 2G Ex db h IIB T4…T1 Gb**

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

Sofia, 2024-10-29

ЕАД "МИНПРОЕКТ" * СОФИЯ *

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

This Certificate is valid until: 29.10.2029

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Division "Scientific and Research Activity"
Dragichevo

[13] Schedule
[14] EU-Type Examination Certificate №: MP 19 ATEX 0242 X Issue 1
[15] Description of product

15.1. Technical description

„Centrifugal sealless monoblock flameproof electric pump units, type CH" is a monoblock consisting of a pump part 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.

CH 100 / 80 a K - 37 - 5 - N2

- CH – Centrifugal sealless monoblock electric pump unit, Centrifugal Hermetic;
- 100 – Nominal flow rate m^3/h;
- 80 – Pressure head at nominal flow, m;
- a – Impeller pouring option;
- K – Symbol of the material used;
- 37 – Rated power of the built-in motor, kW;
- 5 – Design of the electric pump according to the temperature and the pressure of the liquid used, (1, 2, 3, 4, 5, 6);
- N2 – Type of climate implementation and category of the electric pump location (N1, N2, NF1, NF2)

15.3. Routine tests

Each flameproof enclosure of Centrifugal sealless monoblock flameproof electric pump units, type CH shall be subjected to a static pressure test with pressure of 1 MPa (10 bar) for at least 10 seconds.

Sofia, 2024-10-29

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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 3,2 to 200
Pressure head at nominal flow, m	from 12,5 to 200
Rated power of the electric pump, kW	from 1,1 to 132
Acceptable cavitation reserve, m	from 0,6 to 8
Working (process) temperature (the liquid temperature, °C)	from -100 to 360
Ambient temperature, °C	from -45 to +50
Efficiency, %	to 70
Rated pump circuit pressure, bar	from 16 to 40
Adjusted sound power level, dB	from 60 to 95
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 500 to 1500
Width, mm	from 400 to 800
Height, mm	from 400 to 800
Mass, kg	from 70 to 1000

[16] Test reports: 13/16.09.2019

[17] Specific condition(s) of use:

17.1. "Centrifugal sealless flameproof electric pump units, type CH" are intended for an ambient temperature range of -45 °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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[19] **List of the technical record parts:**

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

19.2. Guide for ensuring the explosion protection of pump units

19.3. Test reports: Test report № 6893/02/18.

19.4. List of harmonized standards: List of standards used

19.5. Conceptual design and manufacturing drawings and schemes, consisting of:
Drawings №№ 3AE.909.118 СБ; 5AE.670.882 СБ; 5AE.017.385 СБ; 5AE.039.092 СБ; 5IA.354.001 СБ; Specification 5IA.354.001 – 10 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; Drawings №№ 5IA.227.195 SB; 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 and CH
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. Technical characteristics of the insulating material of the bushings

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