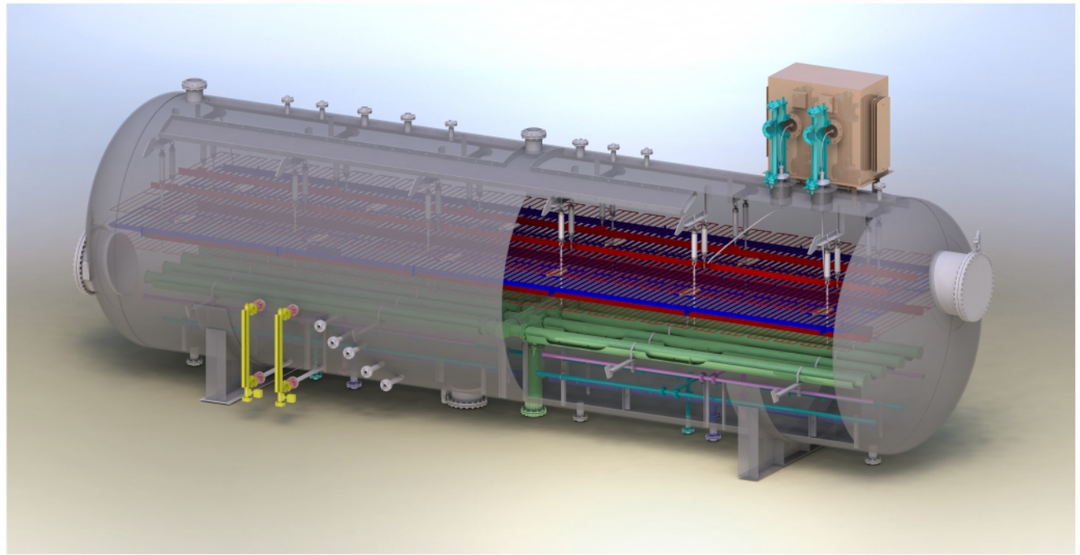
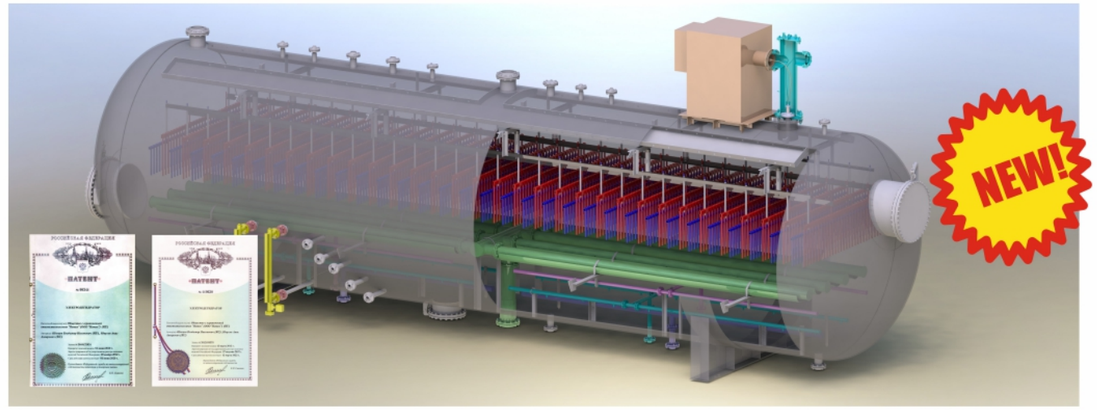
ELECTRIC DEHYDRATORS WITH THREE-ELECTRODE SYSTEM ED-V-NT



NEW GENERATION ELECTRIC DEHYDRATORS WITH RESISTIVE ELECTRODE SYSTEM ED-V-RE

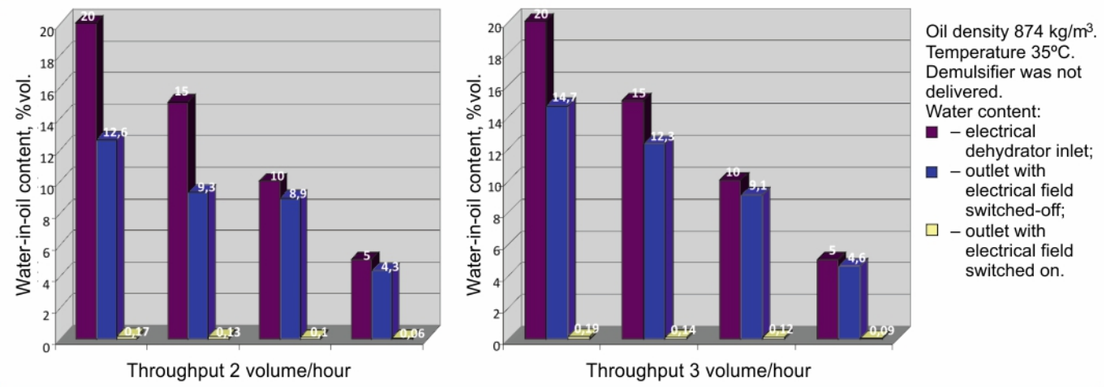


Benefits of innovative electric dehydrators

CJSC NEFTECH has developed an innovative technical solution for an electrode system of a new generation electric dehydrators. Vertical resistive electrodes are made of non-conventional material with special technical and electro-physical characteristics the combination of which makes this electrode system functionally unique. The usage of new resistive electrodes allows to:

1. Reduce the possibility of short-circuits and power supply shutdowns.
2. Ensure stable operation of the electric dehydrator in a wide range of oil emulsions and process conditions.
3. Effectively dehydrate oil with water cut of up to 30%.
4. Execute highly efficient mode of the electric dehydration in coordination with the dynamics of water drops coalescence and their gravitational settling.
5. Double electrical emulsion treating time in comparison to conventional electric dehydrators.
6. Reduce operating costs by lowering the power consumption and by completing the electric dehydrators with high-voltage power supplies of lower power rate and price.
7. Increase throughput of the electric dehydrators together with oil dehydration and desalting efficiency.
8. Existing electric dehydrators of old type can be re-equipped with new electrode systems.

RESULTS OF OIL DEHYDRATION IN ELECTRIC DEHYDRATORS WITH RESISTIVE ELECTRODES



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HIGH-VOLTAGE POWER UNITS FOR ELECTRIC DEHYDRATORS

ENTRANCE BUSHINGS AND INSULATORS

NEW!

EB-300

EH-01

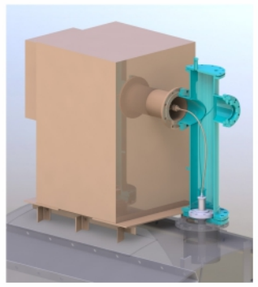
TS-75

Operating characteristics of PTFE bushings and insulators

Characteristics	Bushings
Electric strength, kV/mm	**80**
Maximum operating temperature, °C	**200**
Maximum operating voltage, kV	**35**
Allowable load at 150°C temperature, max kgf	**400**
Maximum pressure, kg/cm^2	**100**
Inspection and service frequency, years	**5**

HIGH-VOLTAGE BUSHING ASSEMBLIES

Explosion-proof flexible high-voltage bushing assembly of NWL OILPRC power unit



Oil-filled high-voltage bushing assembly model

Explosion-proof oil-filled high-voltage bushing assembly of NWL OILPRC power unit

Advantages of high-voltage power supplies

- depending on electric dehydrator volume, physical-chemical and electro-physical oil characteristics a wide range of power units is offered (25; 37,5; 50; 75; 100; 150; 200 and 250 kVA) which allows to use a single power unit per one electric dehydrator, to optimize its design and to reduce the price;
- 100% reactance, resistant to overloads at short circuits of electrodes;
- no additional control units for transformer are required;
- wide range of output voltage values (12; 16,5; 20; 23; 25 kV AC) by use of a tap-switch;
- optional design with high output DC voltage c/w 5 position tap setting that gives enhanced efficiency to electric desalting units for refinery applications where the quality of dehydration and desalting is critically important;
- reliable design with leak proof transformer housing ensuring stably high dielectric properties of transformer oil and its long service life;
- connection with entrance bushing of electric dehydrator via a regular cable in an oil-filled sealed off coupling that provides long service life, reliable explosion proofness and weather resistance;
- oil temperature, level and pressure control devices along with oil heating capability for maintaining oil dielectric properties at shutdowns in cold weather conditions.

CJSC Neftech is the official dealer and representative of the company NWL Transformers, Inc. in Russia and CIS. For more than 50 years NWL Transformers Inc. remains the main manufacturer and supplier of the high-voltage power supplies for many world-known producers of the electric dehydrators. CJSC NEFTECH supplies high-voltage power units to plants, oil-producing companies and refineries for completion and modernization of electric dehydrators thereby increasing their efficiency and reliability.

Furthermore, CJSC NEFTECH provides services in specifying optimum parameters and power supply type depending on operating conditions, implements necessary modifications in design, instrumentation and control system, manufactures new high-voltage bushing assemblies and executes supervision and commissioning activities.

Oil Processing 100% Reactance AC Power Supplies 25-150 KVA, 400-690 VAC

Certifications: ATEX Ex eo IIB T4 Gb (°-45°C≤Ta≤+50°C) per EN60079-0, -6, -7 TRAC12ATEX0044X
Ex eo IIB T4 (°-45°C≤Ta≤+50°C) per UL60079-0, -6, -7
AEx eo IIB T4 (°-45°C≤Ta≤+50°C) per CSA60079-0, -6, -7
This equipment meets Class I, Zones 1 & 2 per the above standards. *Minimum ambient temperature is limited to -40°C with these options if selected.

② Input Voltages: (Terminals L1, L2)
- ☐ 400VAC nominal (Designed for input line ranging from 380-420VAC +/-5% line swing, max input range 361-441VAC)
- ☐ 460VAC nominal (Designed for input line ranging from 440-480VAC +/-5% line swing, max input range 418-504VAC)
- ☐ 600VAC nominal (Designed for input line ranging from 575-625VAC +/-5% line swing, max input range 546-656VAC)
- ☐ 690VAC nominal (Designed for input line ranging from 655-725VAC +/-5% line swing, max input range 622-761VAC)

③ Input Frequency:
- ☐ 50Hz
- ☐ 60Hz

④ Nominal Output Voltage: (Select Voltage with a 5-position 'No-load' tap switch)

(Open circuit)	TAP 1	TAP 2	TAP 3	TAP 4	TAP 5
☐ (AC)	12KV	16.5KV	20KV	23KV	25KV

⑤ CT Secondary Feedback (X):
- ☐ X=5AAC
- ☐ X=1AAC

CT terminals labeled C1, C2
CT current is proportional to the primary current +/-5%

INPUT	400V	460V	600V	690V
25 kVA	75:X	75:X	50:X	50:X
37.5kVA	100:X	100:X	100:X	100:X
50 kVA	150:X	150:X	100:X	100:X
60 kVA	200:X	150:X	150:X	100:X
75 kVA	200:X	200:X	150:X	150:X
100 kVA	300:X	300:X	200:X	150:X
125 kVA	400:X	300:X	300:X	200:X
150 kVA	400:X	400:X	300:X	300:X

⑥ Tertiary Voltage: ☐ 100VAC ☐ 120VAC
Nominal voltage ±5%, 100VA, fused for 1.25A. Terminals labeled Y1,Y2.
(Actual tertiary voltage depends on input voltage variation from nominal).

Thermal Sensor: Rated 5-48VDC, 120VAC @ 1 amp Max.
Normally closed contact set to open at 87°C
Switch contacts labeled T1,T2.

⑦ Insulating Oil:
- ☐ Cross Grade 206 mineral oil.
- ☐ Dow Corning 561 Silicone fluid. *

Paint System: ⑧
- ☐ Standard ASA 61 grey enamel. (Lid Unfinished)
- ☐ Megatran 50 premium paint system ASA 61 grey. (Lid Unfinished)
- ☐ 316L stainless steel tank.

⑨ Optional Features
- ☐ Pressure Switch (Ex) Lid mounted, SPDT switch contacts. *
- ☐ Temperature Switch (Ex) Lid mounted, SPDT switch contacts. *
- ☐ Oil Level Switch: End user is required to install an Intrinsic Safety Barrier. Switch contacts to indicate low level (S1, S2)