

TEST PROTOCOL · ROGAN BREWERY JSC

Ammonia compressor VKh-350: same cooling output at lower power draw

Rogan Brewery JSC, compressor station · approved by chief engineer E. A. Gavrilenko; signed by the head of the electrical shop and the head of the planning department

Kharkiv, Ukraine · testing 10–25 August 1998

PRODUCT

XADO RVS
in the protocol — “treatment by
RVS technology”

TEST OBJECT

Ammonia compressor
VKh-350
inv. No. 13 — treated · inv. No.
15 — control, untreated

DOCUMENT TYPE

Test protocol,
approved by the chief
engineer

UNIT	CONDITION AT START OF TESTING	WHAT WAS MEASURED
Compressor VKh-350, inv. No. 13	Treated with XADO RVS; 200 kW electric drive, $\cos \varphi = 0.9$	Metered consumption before and after treatment; drive current and power
Compressor VKh-350, inv. No. 15	Control, untreated; same shop, same model	Drive current and power at the same hours, at the same valve setting

The duty for the test period was fixed by an order of the shop manager: the output of compressor inv. No. 13 was not adjusted.

Key results

↓ **12.7 %**

drive power draw, untreated 156.0 → treated 136.2 kW

↓ **10.2 %**

average hourly consumption, before treatment 140.2 → after 125.9 kW

Electricity metering: the same compressor before and after treatment

PERIOD	METERING DURATION	AVERAGE HOURLY CONSUMPTION
Before treatment, 10–11 August	23 h	140.2 kW
After treatment, 12–13 August	24 h	125.9 kW
Change	—	10.2 % lower

Three-phase meter via a 400/5 A current transformer; readings were taken every 2 hours at the same setting of the capacity valve.

Comparison with an untreated compressor of the same model, 17–25 August

PARAMETER	INV. No. 15 — UNTREATED	INV. No. 13 — TREATED
Average current across three phases	245–275 A	220–240 A
Drive power draw	145.8–163.6 kW	130.6–142.5 kW
Mean power over 18 readings	156.0 kW	136.2 kW

Measurements taken with clamp meters at a fully open valve on both units. The plant's planning department estimated the saving at 427 kWh per day.

Protocol conclusion

The commission of Rogan Brewery JSC recorded two conclusions obtained by different methods. From three-phase metering on the treated unit itself: "as a result of applying RVS technology, the saving in electricity consumption by compressor VKh-350 inv. No. 13 amounts to **10.2 %**". Compared with the neighbouring compressor of the same model, running in the same shop and in the same duty mode without treatment: "as a result of treating compressor VKh-350 inv. No. 13 by RVS technology, electricity consumption decreased by **12.7 %**". The output for the test period was fixed by an order of the shop manager — the unit consumed less energy while producing the same amount of cold. The plant's planning department estimated the saving at **427 kWh** per day and **12,830 kWh** per month on a single compressor.



© XADO. All rights reserved.

The results apply to VKh-350 ammonia compressors with a 200 kW electric drive under the conditions of a food plant compressor station; on other equipment and in other duty modes the figures may differ. RVS is an obsolete XADO designation, the zero-generation compounds; the current product generation is revitalizants. The original protocol with signatures and stamp is published in full and available for download.