



COMMISSION REPORT · TREATMENT WITHOUT DISASSEMBLING THE UNIT

VPZ 20/9 UKhLCh compressor: output up, while friction, heat and noise went down

Isker JSC · commission: chief power engineer A. V. Segodin (chairman), chief power engineer's department foreman N. I. Kupaltsev, compressor section team leader V. V. Panchenko · approved by the president of Isker JSC A. I. Dolotin
Almaty, Kazakhstan · contract No. 16 of 26.05.2002 · report of 29.05.2002

PRODUCT	TEST OBJECT	DOCUMENT TYPE
XADO revitalizants treatment by XADO technology without disassembling the unit	VPZ 20/9 UKhLCh compressor two compression stages · crankcase · drive motor	Commission report of Isker JSC with signatures and seal

EQUIPMENT	CONDITION AT THE START OF TESTING	WHAT WAS MEASURED
VPZ 20/9 UKhLCh compressor	In service since 1986 — 16 years of operation; knocking of the connecting rod bearing shell was audible	Time to reach working pressure, power consumption, oil pressure, rotor coast-down, oil consumption, temperature, noise, vibration

Treatment with XADO revitalizants was performed without disassembling the unit, under regular operating conditions; the before and after measurements were taken on the same compressor.

Key results

↓ **20 %**

K-19 oil consumption per shift, 250 → 200 g

↑ **28.6 %**

motor rotor coast-down, 3.5 → 4.5 s

↓ **5-7 °C**

stage and crankcase temperature,
45-85 → 40-78 °C

↓ **10 dB**

ultrasonic noise at the crankcase, 20
→ 10 dB

Compressor operating parameters

PARAMETER	BEFORE TREATMENT	AFTER TREATMENT	CHANGE
Time to reach working pressure 6 kgf/cm ²	6 min 45 s	5 min 50 s	↓ 55 s
Power consumption, no load (A × V)	120 × 400	118 × 395	97.1 % of the initial value
Oil pressure, kgf/cm ²	2.4-2.5	2.5-2.55	↑ increase
Motor rotor coast-down, s	3.5	4.5	↑ 1.0 s
K-19 oil consumption per shift, g	250	200	↓ 50 g

According to the commission's findings, the shorter time to reach working pressure corresponds to a 13.6 % increase in compressor output, while the reduction of friction forces was estimated at 23 %.

Temperature behaviour and noise

MEASUREMENT POINT	BEFORE TREATMENT	AFTER TREATMENT	CHANGE
Temperature, stage II	45 °C	40 °C	↓ 5 °C
Temperature, stage I	85 °C	78 °C	↓ 7 °C
Temperature, crankcase	48 °C	42 °C	↓ 6 °C
Ultrasonic noise, crankcase	20 dB	10 dB	↓ 10 dB

As estimated by the commission, compressor vibration decreased by 22 %, and ultrasonic noise was halved.

Commission's conclusion

The commission of Isker JSC recorded: a shorter time to reach working pressure, i.e. an increase in compressor output; a lower temperature behaviour and reduced friction forces, and consequently a higher surface finish class of the contact surfaces of the friction pairs; reduced noise and vibration. The data obtained make it possible to recommend treatment with XADO revitalizants and its further adoption both on compressors and on other industrial equipment. "Thus, the effectiveness of XADO technology for the repair and restoration of worn parts of the tested equipment without disassembling the units, under regular operating conditions, has been demonstrated." Before the treatment, knocking of the connecting rod bearing shell was clearly audible on the compressor: after the treatment, as the commission notes, the machine began to run more smoothly and the knocking disappeared.



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The results refer to the VPZ 20/9 UKhLCh reciprocating compressor under the operating conditions of Isker JSC; on other equipment and in other duty cycles the figures may differ. The original report with signatures and seal is published in full and available for download.