

TEST REPORT DATED 4 NOVEMBER 2000

# Industrial compressor: bore wear offset, no overhaul needed

Prywatna Huta «ALMET», Częstochowa · signed by: plant director mgr inż. Lech Pustuł, independent expert dr inż. Janusz Kuliś, XADO representative Yuriy Bosiy

Częstochowa, Poland · report dated 04.11.2000 · test on in-service equipment, 121 h of operation

**PRODUCT**

XADO revitalizant  
formulation for petrol engines ·  
3 tubes, three additions into the  
oil system

**TEST OBJECT**

Three-cylinder compressor  
working pressure up to 7 atm ·  
cylinder bores, piston group

**DOCUMENT TYPE**

Test report  
with signatures and seal  
measurements outsourced to  
an external workshop, an  
independent expert engaged  
for assessment

**MACHINERY AND  
COMPONENTS****CONDITION AT START OF TESTING****WHAT WAS MEASURED**

Three-cylinder compressor,  
working pressure up to **7  
atm**

Unfit for service: heavy oil consumption, low  
compression

Oil consumption, receiver  
filling time

Cylinder No. 2 bore

Destroyed over a significant area of the upper  
section, score depth about **0.05 mm**

Score depth

Cylinder No. 1 bore

Three scores, perceptible to the finger

Surface condition

Shop pneumatic hammers

Frequent seizures, erratic operation in a dusty  
and aggressive environment

Tool operation, assessment

The product was added three times through the oil system: about {{200 g}} of oil with a tube of the product was heated to {{80 °C}} and returned to the sump; running time {{7 + 7 + 107 h}}.

# Key result

↓ **2.5×**

score depth on the cylinder No. 2 bore, 0.05 → 0.02 mm

## Cylinder bores — condition before and after the test

| COMPONENT                                 | BEFORE TREATMENT                                                         | AFTER 121 H OF OPERATION                                    |
|-------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------|
| Cylinder No. 2, upper section of the bore | Bore destroyed over a significant area, score depth about <b>0.05 mm</b> | Greatest score depth <b>0.02 mm</b> , bore largely restored |
| Cylinder No. 1, bore                      | Three scores, perceptible to the finger                                  | The former scores can no longer be felt                     |

Score depth measurements were carried out by an external organisation — Zakład Mechaniki Pojazdowej «AUTO-SZLIF-SPRAWKA», Częstochowa.

## Compressor operating parameters

| PARAMETER                               | BEFORE TREATMENT                                      | AFTER TREATMENT                                        |
|-----------------------------------------|-------------------------------------------------------|--------------------------------------------------------|
| Engine oil consumption                  | <b>100 cm<sup>3</sup></b> per <b>8 h</b> of operation | <b>100 cm<sup>3</sup></b> per <b>24 h</b> of operation |
| Receiver filling time to <b>4.5 atm</b> | <b>3 min</b>                                          | <b>1 min 30 s</b>                                      |

Before the test the piston rings of all pistons were replaced; ring replacement has no effect on the geometry of the cylinder bores.

## Conclusion of the report

The report of Prywatna Huta «ALMET» states: «After this test, repair of the compressor proved unnecessary owing to the significant improvement in operating parameters». Before treatment the unit was unfit for service: the bore of the first cylinder had three scores perceptible to the finger, the bore of the second was destroyed over a significant area of its upper section, with a score depth of about **0.05 mm**. After **121 h** of operation the greatest score depth in the second cylinder was **0.02 mm**, the bore was largely restored, and the former scores in the first cylinder could no longer be felt — the coating had built up where the wear had been. Separately, the XADO repair kit for metal surfaces was applied to the shop pneumatic hammers: the seizures stopped and the tools ran smoothly. The authenticity of the facts described is certified by the plant director, the independent expert and the XADO representative.



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The results relate to a three-cylinder industrial compressor with a working pressure of up to 7 atm at the Prywatna Huta «ALMET» plant (Częstochowa, Poland); on other units and duty cycles the figures may differ. The report was signed, among others, by a XADO representative; the score depth measurements were performed by an external workshop, and an independent expert was engaged for the assessment. The original report with signatures and seal is published in full and available for download.