

CASE STUDY

A modernization project increased the availability of compressors at a gas distribution station in Romania.

Reduced emissions through overhaul

Compressor manufacturer: RUMO			
Type	10GKNA	Gas	CH ₄ mix
Power	1100 kW (1496 hp)	Suction pressure	4.0 bar (58 psi)
Speed	330 rpm	Discharge pressure	40 bar (580 psi)
Lubrication	yes		



Integral compressor in new condition, with 5 compression and 10 power cylinders

Facts in Brief

- Modernization project to improve MTBF and compressor availability, and reduce lube oil consumption.
- Change of operating parameters for one compressor out of three.

Solution applied

- Detailed compressor examination
- Conversion from two-stage to single-stage operation for one compressor out of the three
- New compressor valves with non-metallic sealing elements
- Conversion to non-metallic piston rings and packings
- New packing boxes
- Improved oil wiper packing
- Modification and reconditioning of existing piston rods, pistons and cylinder liners
- New lubrication system and piping
- Pulsation evaluation to API 618
- On-site supervision and installation

Results

- Non-metallic sealing elements minimize wear on cylinder bores and piston rods
- Lube oil consumption cut from around 180 l/day to 62 l/day
- Increased compressor availability
- Runtime between maintenance intervals increased to 8,000 hours, from 1,100–2,000 hours previously



Old lubrication system



Modified pistons with shrink-fit rider rings