

# ANALYSIS OF INFLUENCE OF PISTON MOTION LAW ON CHARACTERISTICS OF WORKING PROCESS OF SINGLE-STAGE CARBON DIOXIDE COMPRESSOR UNIT

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The results presented in the work shows that the implementation of the carbon dioxide compression process in an oil-free low-speed stage of a reciprocating compressor with intensive external cooling can increase the refrigeration coefficient and improve the weight and size characteristics of the heat exchange and compressor equipment of vapor compression refrigeration machines. Therefore, the use of low-speed long-stroke compressor units in refrigeration units is a very promising direction of their development. In addition, the study of the issues of ensuring the required energy characteristics of single-stage compressor units with a linear hydraulic drive due to the synthesis of the linear hydraulic drive law, the piston of which is rigidly connected to the compressor stage piston using an example of such a refrigerant as CO<sub>2</sub>, will improve the parameters of the refrigeration machine and further reduce the overall dimensions of the compressor unit.

**Keywords:** refrigerants, the law of motion, linear hydraulic drive, low-speed long-stroke compressor unit, the working process of piston low-speed long-stroke stages, weight and size parameters.

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