

Title (en)
DRY SCREW PUMP HAVING INNER COMPRESSION

Title (de)
TROCKENE SCHRAUBENPUMPE MIT INNERER VERDICHTUNG

Title (fr)
POMPE À VIS SÈCHE À COMPRESSION INTERNE

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Application
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Abstract (en)
[origin: WO2011023513A2] The invention relates to dry-compressing 2-shaft rotary displacement machines as threaded spindle pumps for delivering and compressing gases, wherein the spindle rotors (1) have an already known rotor inner cooling (2). In order to improve the compressor efficiency and allow greater operating pressures using only one machine, the threaded spindle rotor pair (1) is implemented in multiple stages, having a mutually engaging main delivery thread (5) and additionally having a mutually engaging secondary delivery thread (7) and having a gas outlet collector chamber (9) between said two delivery threads. The head circle diameter (28) of the main delivery thread (5) decreases in the gas outlet direction, while the foot circle diameter (27) thereof increases correspondingly for an application-specific matching inner "integral" compression ratio, and that the nominal delivery direction (23) of the secondary delivery thread is in the opposite direction to the nominal delivery direction (21) of the main delivery thread (5), wherein the secondary delivery thread (7) is implemented such that the gas flow (24) actually arising is directed along the secondary delivery thread (7) opposite to the nominal delivery direction (23) thereof, and thus is always directed away from the gas outlet plenum (9), having a gas permeation (10) under ambient pressure just as the space in the gearbox (11), wherein a control gas delivery stage (39) is additionally provided for very high operating pressures, the control pressure thereof being adjusted in the plenum (37) by means of a control device (36) from the cooled delivery medium, wherein the control gas delivery stage (39) and/or the secondary delivery thread (7) are operated in a motorized manner.

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