

Title (en)
VARIABLE INNER VOLUME RATIO-TYPE SCREW COMPRESSOR CONTROLLED BY A FREQUENCY CONVERTER

Title (de)
SCHRAUBENVERDICHTER MIT VARIABLEM INNENVOLUMENVERHÄLTNIS MIT STEUERUNG DURCH EINEN FREQUENZUMRICHTER

Title (fr)
COMPRESSEUR À VIS À RAPPORT VOLUMIQUE INTERNE VARIABLE CONTRÔLÉ PAR UN VARIATEUR DE FRÉQUENCE

Publication
EP 1553300 B1 20140910 (EN)

Application
EP 03751474 A 20031014

Priority
• JP 0313117 W 20031014
• JP 2002301870 A 20021016

Abstract (en)
[origin: EP1553300A1] Regulating compression capability to a load is performed by an inverter (15) that regulates revolution number of an electric motor (11). This makes unload control in capability regulation unnecessary, preventing operational efficiency from lowering. Further, a capacity control valve for capacity control is eliminated for a simplified valve control mechanism. Regulating a variable inner volume ratio achieves the highest compressor efficiency corresponding to operating condition (capability). When a low inner volume ratio command is issued, a slide valve (19) is moved by a compression section controller (27) in an axial direction toward the electric motor (11). This advances completion time of a compression step to advance discharge of a compressed gas. When a high inner volume ratio command is issued, the slide valve (19) is moved in an axial direction toward a piston (25), which delays time of completion of compression step to delay discharge of a compressed gas. <IMAGE>

IPC 8 full level
F04C 18/16 (2006.01); **F04B 49/06** (2006.01); **F04C 28/00** (2006.01); **F04C 28/08** (2006.01); **F04C 28/12** (2006.01); **F04C 28/26** (2006.01); **F04C 29/00** (2006.01); **F25B 1/047** (2006.01)

CPC (source: EP US)
F04C 28/08 (2013.01 - EP US); **F04C 28/12** (2013.01 - EP US); **F04C 18/16** (2013.01 - EP US); **F04C 2240/403** (2013.01 - EP US)

Cited by
CN107525319A; EP2287444A1; CN112325502A; EP3910197A4; US8459963B2; US11953006B2; EP3080457B1

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)
EP 1553300 A1 20050713; EP 1553300 A4 20090902; EP 1553300 B1 20140910; AU 2003271184 A1 20040504; CN 100406738 C 20080730; CN 1705826 A 20051207; ES 2503716 T3 20141007; JP 2004137934 A 20040513; JP 4147891 B2 20080910; TW 200412397 A 20040716; TW I230761 B 20050411; US 2006039805 A1 20060223; WO 2004036045 A1 20040429

DOCDB simple family (application)
EP 03751474 A 20031014; AU 2003271184 A 20031014; CN 200380101612 A 20031014; ES 03751474 T 20031014; JP 0313117 W 20031014; JP 2002301870 A 20021016; TW 92128699 A 20031016; US 53129405 A 20050414