

Title (en)
DRY VACUUM PUMP APPARATUS

Title (de)
TROCKENVAKUUMPUMPENVORRICHTUNG

Title (fr)
APPAREIL DE POMPE À VIDE SÈCHE

Publication
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Application
EP 18198549 A 20110418

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- JP 2010096544 A 20100419
- JP 2010096545 A 20100419
- EP 11003265 A 20110418

Abstract (en)
A dry vacuum pump apparatus includes a silencer, which can be reduced in size, for effectively reducing noise of a gas discharged from a final outlet port and an intermediate release outlet port of a dry vacuum pump, in a wide range of frequencies from low to high frequencies. The dry vacuum pump apparatus includes a dry vacuum pump 10 having a final outlet port 18 and an intermediate release outlet port 19, an exhaust section check valve 51 connected to the final outlet port 18 and having an outlet port, an intermediate section check valve 52 connected to the intermediate release outlet port 19 and having an outlet port, and an exhaust passage 56 connected to the outlet port of the exhaust section check valve 51 and the outlet port of the intermediate section check valve 52, a silencer 53 connected to the exhaust passage 56 and having an outlet port connected to a final exhaust passage 56a which is vented to the atmosphere.

IPC 8 full level
F04C 29/12 (2006.01)

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Citation (applicant)
JP 2001289167 A 20011019 - ORION MACHINERY CO LTD

Citation (search report)

- [XAY] EP 1536140 A1 20050601 - AISIN SEIKI [JP]
- [YA] JP 2008008302 A 20080117 - ULVAC CORP
- [A] US 2009246040 A1 20091001 - TANIGAWA SHIRO [JP]
- [A] US 7214036 B2 20070508 - YOSHIMURA MASASHI [JP]
- [A] US 2007048162 A1 20070301 - IMAI TOSHIO [JP], et al
- [A] WO 2005040614 A1 20050506 - BOC GROUP PLC [GB], et al
- [A] WO 2007015056 A1 20070208 - BOC GROUP PLC [GB], et al

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