

27 Blowers, air pumps, air compressors

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- 27a Bellows-type blowers**
- 27b Air pumps and air compressors with reciprocating pistons for general purposes, compression of gases by means of hydraulic pistons, treatment of pressure gas**
- 27c Blowers, air pumps and compressors with rotary motion**
- 27d Jet apparatus for conveying gases or vapours for general purposes, non-mechanically acting high-vacuum pumps**
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- 27a Bellows-type blowers (14a-9, 14a-11/00)**
- 27a (No subdivision)
- 27b Air pumps and air compressors with reciprocating pistons for general purposes, compression of gases by means of hydraulic pistons, treatment of pressure gas (air pumps for vehicle tyres 63e; valve structures 47g; pressure compensators 14g; control of electric drive motors 21c; piston compressors for refrigerating units 17a; condenser pumps for steam engines 14g; fans for room ventilation 36d-4)**
- 27b-1 Steam-driven air pumps or air compressors; locomotive air pumps
- 27b-2 Internal-combustion engine-driven air pumps or air compressors (compression pumps for internal combustion engines 46a9)
- 27b-3 Electrically driven air pumps or air compressors (17a-3)
- 27b-4 Air pumps or air compressors with other means of drive, including manual or foot drives
- 27b-5 Air pumps or air compressors with hydraulic piston, also with liquid mercury piston
- 27b-6 Air pumps or air compressors with cylinders situated on both sides of the drive (59a-26)
- 27b-7 Air pumps or air compressors with parallel or radial cylinders (59a-14; 59a-15)
- 27b-8 Control devices for single-stage air pumps or compressors, valve arrangements (59a-16)
- 27b-9 Control devices for multistage air pumps or compressors
- 27b-10 Regulating devices for single-stage air pumps or compressors
- 27b-11 Regulating devices for multistage air pumps or compressors
- 27b-11/10 Regulation of pressure independently of pressure in air and gas compressing plants
- 27b-12 Wet-air pumps, condensate pumps (14g-13)
- 27b-13 Diaphragm air pumps or air compressors
- 27b-14 Cooling devices for air pumps or air compressors
- 27b-15/01 Lubricating devices for air pumps or air compressors
- 27b-15/02 Air cleaners (36d; 46d-5/07)
- 27b-15/02 Storage and treatment of compressed gas (drying, oil removal, cooling, etc.) for general purposes, especially in connection with compressors (36d; 46d-5/06; 46d-5/07)
- 27b-16 Air pumps and air compressors with devices for eliminating or altering clearance
- 27b-17 Elements of air pumps and air compressors, mufflers (36d), stuffing boxes (14a-10; 14c-20; 14k; 47f-23 – 47f-26; 47f2-15/00), pistons, cylinders (14f-18/01; 47f2-1/00; 47f2-11/00)

27c Blowers, air pumps and compressors with rotary motion**Blowers, air pumps, compressors with rotary piston**

- 27c-1 Blowers, etc., with sliding abutments or with oscillating, e.g. vane-shaped abutments, or with unidirectionally or intermittently rotating abutments
- 27c-2 Blowers, etc. with sliding pistons, or with oscillating rotating elements as rotary pistons, e.g. vane-shaped, or unidirectionally, or intermittently rotating members
- 27c-3/01 Gear-type blowers, etc., or blowers with piston drums meshing as teeth, e.g. Roots blowers, general
- 27c-3/02 Gear-type blowers, etc., or blower with piston drums internally meshing as teeth
- 27c-4 Blowers, etc., with eccentric movement of piston or abutment
- 27c-5 Special constructions: ball-shaped housings, oscillating pistons, hose and band machines, etc.
- 27c-6/01 Lubrication, sealing, oil seals
- 27c-6/02 Cooling
- 27c-6/03 Miscellaneous

Screw blowers, fans, centrifugal blowers

- 27c-7/01 Blade shape of axial blowers and fans
- 27c-7/02 Structure of screw, worm and helical-type blowers
- 27c-7/03 Fans (ventilators) without housings, operating in a protective cage
- 27c-7/04 Fans (ventilators) with housings
- 27c-7/05 Apparatus for the control of the direction and intensity of the air stream
- 27c-7/06 Drive of screw blowers and fans
- 27c-7/07 Regulation, wiring and reversing of screw blowers and fans
- 27c-10/01 Drives for centrifugal blowers (36d-4/01)
- 27c-10/02 Gears and couplings for centrifugal blowers

Special accessories for centrifugal blowers

- 27c-11/01 Bearings, lubrication and packing of the shaft
 - 27c-11/02 Glands, shaft and housing seals
 - 27c-11/03 Means for dust separation
 - 27c-11/04 Means for silencing
 - 27c-11/05 Means for the compensation of heat expansion
 - 27c-11/06 Means against backflow
 - 27c-11/07 Wiring, air stream reversal
 - 27c-11/08 Separation of centrifugal blowers into stages
 - 27c-11/09 Mounting, design and housing of centrifugal blowers
 - 27c-11/10 Heating the air stream
 - 27c-11/11 Cooling the air
 - 27c-11/12 Moistening the air
 - 27c-11/13 Axial thrust relief
 - 27c-11/14 Overload safety devices for the drive motor
 - 27c-11/15 Other protecting devices, e.g. against cavitation
 - 27c-12/01 Blading of centrifugal blowers: blade shape, manufacture, material, attachment of blades
 - 27c-12/02 Guide vanes and guide-vane wheels in front of the impeller
- Impellers for centrifugal blowers**
- 27c-12/03 with axial admission and radial discharge
 - 27c-12/04 with axial admission and discharge
 - 27c-12/05 with tangential admission and discharge, e.g. impellers
 - 27c-12/06 with radial admission and discharge
 - 27c-12/07 Drum-shaped impellers
 - 27c-12/08 Impellers with built-in elements, e.g. tubular guides

- 27c-12/09 Nozzle impellers
- 27c-12/10 Intermediary blades
- 27c-12/11 Composite or subdivided blades, intake blades
- 27c-12/15 Housings for centrifugal compressors
- 27c-12/20 Diffusers
- 27c-12/21 Guide vanes and guide-vane wheels behind the rotating wheel
- 27c-12/22 Ring nozzles on the diffuser
- 27c-13/01 Regulating devices for centrifugal blowers
- 27c-13/02 Special devices to prevent surging
- 27c-14/01 Centrifugal compressors with auxiliary liquid, mixture pumps
- 27c-14/02 with indirect delivery, e.g. ejector effect
- 27c-15/01 Axial or centrifugal blowers and compressors of special design
- 27c-15/02 Combination of centrifugal and other blowers
- 27c-15/03 Cup and bucket blowers
- 27c-15/04 Friction blowers
- 27c-16/01 Blowers with sealing fluid, water-ring air pumps
- 27c-16/11 Blowers with drag delivery
- 27d** **Jet apparatus for conveying gases or vapours** (condensate pumps, insofar as they influence the operation of steam engines 14g-13; compressors for refrigeration machines 17a-1, 17a-3, 17a-6; jet apparatus for conveying liquids 59c; for regulating the intake of combustion air 24i-4)
- 27d-1 Jet apparatus with gaseous or liquid motive fluids
- 27d-2/01 General
- 27d-2/02 using differences in liquid level
- 27d-3/01 Mercury vapour high-vacuum pumps (evacuation of discharge tubes 21g-13/30)
- 27d-3/02 High-vacuum pumps without mercury
- 27d** **Jet apparatus for conveying gases or vapours for general purposes** (condensate pumps, insofar as they influence the operation of steam engines 14g-13; compressors for refrigeration machines 17a-1, 17a-3, 17a-6; jet apparatus for conveying liquids 59c; for regulating the intake of combustion air 24i-4), **non-mechanically acting high-vacuum pumps**
- 27d-1 Jet apparatus with gaseous motive fluids
- Jet apparatus with liquid motive fluids
- 27d-2/01 General
- 27d-2/02 using differences in liquid level
- 27d-3/00** **Jet apparatus with vaporised motive fluids**
- 27d-3/02 . with mercury as motive fluid
- 27d-3/04 . with oil vapour as motive fluid
- 27d-3/06 . Details; accessories
- 27d-3/08 . Use of particular motive fluids in jet apparatus (such motive fluids per se 23b, 23c)
- 27d-4/00** **Evacuation by physical and/or chemical binding [adsorption, absorption] of the gas to be evacuated to a gettering substance**
- 27d-4/02 . Pumping devices
- 27d-4/04 . Use of particular gettering substances
- 27d-5/00** **Evacuation by means of electrical discharges**
- 27d-5/02 . Pumping devices, e.g. ion pumps
- 27d-5/04 . in combination with use of gettering substances, e.g. ion getter pumps

27d-6/00 **Evacuation by means of thermally acting pumps**
27d-6/02 . Achieving vacuum by condensation and/or freezing