

## SECTION B — PERFORMING OPERATIONS; TRANSPORTING

### B04 CENTRIFUGAL APPARATUS OR MACHINES FOR CARRYING-OUT PHYSICAL OR CHEMICAL PROCESSES

**B04C** APPARATUS USING FREE VORTEX FLOW, e.g. CYCLONES (exhaust or silencing apparatus for machines or engines having means for removing solid constituents of exhaust, using inertial or centrifugal separators F01N 3/037; cyclonic type combustion apparatus F23)

#### Note(s)

This subclass covers apparatus for separating, mixing or like treating in which centrifugal effects are generated by free vortex flow, otherwise than by rotary bowls, rotors or curved passages.

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| <p><b>1/00</b> Apparatus in which the main direction of flow follows a flat spiral</p>   | 5/15         | <ul style="list-style-type: none"> <li>• • with swinging flaps or revolving sluices; Sluices; Check-valves</li> </ul>  |
| <p><b>3/00</b> Apparatus in which the axial direction of the vortex remains unchanged</p>  | 5/16         | <ul style="list-style-type: none"> <li>• • with variable-size outlets from the underflow ducting</li> </ul>  |
| <p>3/02 • with heating or cooling, e.g. quenching, means</p>   | 5/18         | <ul style="list-style-type: none"> <li>• • with auxiliary fluid assisting discharge</li> </ul>   |
| <p>3/04 • Multiple arrangement thereof</p>   | 5/181        | <ul style="list-style-type: none"> <li>• • Bulkheads or central bodies in the discharge opening</li> </ul>   |
| <p>3/06 • Construction of inlets or outlets to the vortex chamber</p>  | 5/185        | <ul style="list-style-type: none"> <li>• • Dust collectors</li> </ul>  |
| <p><b>5/00</b> Apparatus in which the axial direction of the vortex is reversed</p>  | 5/187        | <ul style="list-style-type: none"> <li>• • • forming an integral part of the vortex chamber</li> </ul>   |
| <p>5/02 • Construction of inlets by which the vortex flow is generated</p>   | 5/20         | <ul style="list-style-type: none"> <li>• with heating or cooling, e.g. quenching, means</li> </ul>   |
| <p>5/04 • • Tangential inlets</p>  | 5/22         | <ul style="list-style-type: none"> <li>• with cleaning means</li> </ul>  |
| <p>5/06 • • Axial inlets</p>   | 5/23         | <ul style="list-style-type: none"> <li>• • using liquids</li> </ul>  |
| <p>5/08 • Vortex chamber constructions</p>   | 5/24         | <ul style="list-style-type: none"> <li>• Multiple arrangement thereof</li> </ul>   |
| <p>5/081 • • Shapes or dimensions</p>  | 5/26         | <ul style="list-style-type: none"> <li>• • for series flow</li> </ul>  |
| <p>5/085 • • with wear-resisting arrangements</p>  | 5/28         | <ul style="list-style-type: none"> <li>• • for parallel flow</li> </ul>  |
| <p>5/087 • • with flexible gas-tight walls</p>   | 5/30         | <ul style="list-style-type: none"> <li>• • Recirculation constructions in or with cyclones which accomplish a partial recirculation of the medium, e.g. by means of conduits</li> </ul>  |
| <p>5/10 • • with perforated walls</p>  | <b>7/00</b>  | <p><b>Apparatus not provided for in group B04C 1/00, B04C 3/00 or B04C 5/00; Multiple arrangements not provided for in one of the groups B04C 1/00, B04C 3/00, or B04C 5/00; Combinations of apparatus covered by two or more of the groups B04C 1/00, B04C 3/00, or B04C 5/00</b></p> |
| <p>5/103 • • Bodies or members, e.g. bulkheads, guides, in the vortex chamber (cores B04C 5/107)</p>   | <b>9/00</b>  | <p><b>Combinations with other devices, e.g. fans</b> (with filters for separating particles from gases or vapour B01D 50/00; with dry electrostatic precipitation for separating particles from gases or vapour B03C 3/15)</p>   |
| <p>5/107 • • Cores; Devices for inducing an air-core in hydrocyclones (forming part of the outlet pipe B04C 5/13)</p>  | <b>11/00</b> | <p><b>Accessories, e.g. safety or control devices, not otherwise provided for</b></p>  |
| <p>5/12 • Construction of the overflow ducting, e.g. diffusing or spiral exits</p>   |              |  |
| <p>5/13 • • formed as a vortex finder and extending into the vortex chamber; Discharge from vortex finder otherwise than at the top of the cyclone; Devices for controlling the overflow</p> |              |  |
| <p>5/14 • Construction of the underflow ducting; Apex constructions; Discharge arrangements</p>  |              |  |