F02F

CYLINDERS, PISTONS OR CASINGS, FOR COMBUSTION ENGINES; ARRANGEMENTS OF SEALINGS IN COMBUSTION ENGINES (specially adapted for rotary-piston or oscillating-piston internal-combustion engines F02B; specially adapted for gas-turbine plants F02C; specially adapted for jet-propulsion plants F02K)

F02F 1/00

Cylinders; Cylinder heads (in general F16J)

Definition statement

This place covers:

Cylinders and cylinder heads for combustion engines

References

Limiting references

This place does not cover:

| Cylinders and cylinder heads in general | F16J |
**F02F 1/002**

{Integrally formed cylinders and cylinder heads}

**Definition statement**

*This place covers:*

All applications of a single piece forming the cylinder and the cylinder head.

**F02F 1/02**

having cooling means (cylinder heads **F02F 1/26**)

**References**

*Informative references*

Attention is drawn to the following places, which may be of interest for search:

Cooling of cylinders or cylinder heads in general  **F01P 1/02**  and  **F01P 3/02**
F02F 1/04
for air cooling

Definition statement
This place covers:
Means for air cooling of cylinder heads

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

| Air cooling of cylinders and cylinder heads | F01P 1/02 |
F02F 1/08

running-liner and cooling-part of cylinder being different parts or of different material

Definition statement

This place covers:

Running-liner and cooling-part of cylinder being different parts or of different material:

Only for air cooled engines, e.g. different materials used for the liners and the cooling fins.

F02F 1/10

for liquid cooling

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Liquid cooling of cylinders and cylinder heads</th>
<th>F01P 3/02</th>
</tr>
</thead>
</table>

**F02F 1/102**

{Attachment of cylinders to crankcase}

**Definition statement**

*This place covers:*

![Diagram of attachment of cylinders to crankcase]

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**F02F 1/108**

{Siamese-type cylinders, i.e. cylinders cast together}

**Definition statement**

*This place covers:*

Siamese-type cylinders, i.e. cylinders cast together:

![Diagram of Siamese-type cylinders]

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References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Arrangement for cooling cylinders or cylinder heads | F01P 3/02 |

F02F 1/12

Preventing corrosion of liquid-swept surfaces

Definition statement

This place covers:

All measures taken for combating corrosion in water cooled engines.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Engines with means for preventing corrosions of gas swept spaces | F02B 75/08 |
**F02F 1/425**

{with a separate deviation element inside the channel}

**Definition statement**

*This place covers:*

Separate deviation element inside the intake channel. E.g. a butterfly valve or an insert placed just before the valve seat.

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**F02F 1/4292**

{with liners (*F02F 1/4257*, *F02F 1/4271* take precedence)}

**Definition statement**

*This place covers:*

Liners in both intake and exhaust channel.

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**References**

**Limiting references**

*This place does not cover:*

| Liners in intake channels only | F02F 1/4257 |
Liners in exhaust channels only

F02F 3/00

Pistons (in general F16J)

Definition statement

This place covers:
Pistons for combustion engines:

References

Informative references

Attention is drawn to the following places, which may be of interest for search:
Pistons in general

F02F 3/16

having cooling means

Definition statement

This place covers:
Structural features, e.g. fins, apertures and arrangements for dissipating heat
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air cooling arrangements for pistons</td>
<td>F01P 1/04</td>
</tr>
<tr>
<td>Liquid cooling arrangements for pistons</td>
<td>F01P 3/06</td>
</tr>
</tbody>
</table>

F02F 3/22

the fluid being liquid

Definition statement

This place covers:

Liquid cooling means:

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "cooling channel cover" and "ring carrier"

F02F 5/00

Piston rings, e.g. associated with piston crown {not used see F16J 9/00}

References

Limiting references

This place does not cover:

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piston rings</td>
<td>F16J 9/00</td>
</tr>
</tbody>
</table>
Special rules of classification
Not used

F02F 7/00
Casings, e.g. crankcases (engine casings in general F16M) (or frames)

Definition statement
This place covers:
Combustion engine casings, e.g. crankcases or frames, e.g. rigid supports for cylinders or crankcases.

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

| Engine casings in general | F16M |

F02F 11/00
Arrangements of sealings in combustion engines (piston rings F02F 5/00 (not used, see F16J 9/00) ; sealings per se F16J)

Definition statement
This place covers:
Arrangement of sealings in combustion engines

References
Limiting references
This place does not cover:

| Sealings per se | F16J |
| Piston rings for combustion engines | F16J 9/00 |