

F01M

LUBRICATING OF MACHINES OR ENGINES IN GENERAL; LUBRICATING INTERNAL COMBUSTION ENGINES; CRANKCASE VENTILATING

Definition statement

This place covers:

Lubrication of machines or engines in general, where the lubrication system, or device for lubricating parts of the machine or engine, does not form part of the structure of the machine or engine.

Pressure lubrication, e.g. using pressure from pumps, crankcase pressure or the like to circulate the lubricant; including provision of lubricant passageways in crankshafts or connecting rods.

Lubrication specially adapted for engines with crankcase compression of fuel/air mixtures, or for engines in which lubricant is contained in fuel, combustion air or fuel/air mixture (e.g. two-stroke engines).

Heating, cooling or controlling temperature of lubricant.

Lubrication means facilitating engine starting, e.g. by conditioning or heating the lubricant.

Lubrication means specially adapted for facilitating the running-in or breaking-in of machines or engines.

Lubricating means having other significant or pertinent characteristics, e.g. introducing additives to lubricant, using fuel as lubricant, dip, splash or drip lubrication, non-pressurised lubrication.

Details, parts or accessories of lubricating, including controlling lubricant level or pressure, arrangement of lubricant conduits, purifying lubricant, filling or draining lubricant.

Indicating or safety features, e.g. to render machine or engine inoperative or idling on lubricant pressure failure.

Crankcase ventilating or breathing, e.g. breather valves or inlet air filters.

Relationships with other classification places

Lubricating in general is covered by [F16N](#). [F01M](#) is an application-oriented subclass in relation thereto, in respect of machines and engines as defined in the glossary below.

Lubricating subject-matter proper to [F01M](#) is classified there irrespective of its stated application, unless the classifiable features are peculiar to its stated application, in which case the subject-matter is classified only in the relevant classes [F01](#)- [F04](#).

References

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

| | |
|---|----------------------------|
| Lubrication of steam engines | F01B 31/10 |
| Lubrication of rotary-piston or oscillating-piston machines or engines | F01C 21/04 |
| Lubrication of non-positive displacement machines or engines, e.g. steam turbines | F01D 25/18 |
| Lubrication of gas-turbine plants | F02C 7/06 |
| Lubrication of cylinders of combustion engines | F02F 1/20 |

| | |
|---|----------------------------|
| Lubrication of pumps for elastic fluids | F04B 39/02 |
| Lubrication of rotary-piston or oscillating-piston pumps for elastic fluids | F04C 29/02 |
| Lubrication of non-positive displacement pumps | F04D 29/04 |

Informative references

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

| | |
|--|----------------------------|
| Arrangement of lubricant coolers in engine cooling systems | F01P 11/08 |
| Crankshafts, connecting rods per se | F16C |
| Fluid level indicators in general | G01F 23/00 |
| Measuring fluid-pressure in general | G01L |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

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|---------------------------|--|
| Engine | A device for continuously converting fluid energy into mechanical power. Thus, this term includes, for example, steam piston engines or steam turbines per se, or internal-combustion piston engines, but it excludes single-stroke devices. |
| Pump | A device for continuously raising, forcing, compressing or exhausting fluid by mechanical or other means. Thus, this term includes fans or blowers. This term also includes methods of operation, unless otherwise specifically provided for. |
| Machine | A device which could equally be an engine or a pump, but not a device which is restricted to an engine or one which is restricted to a pump. |
| Lubricant | Any fluid (e.g. water, oil), fluent material (e.g. particulate graphite), semi-fluid material (e.g. oil with thickener), or semisolid material (e.g. grease), or any mixture of such types of substance, which is used for the specific purpose of lubrication. |
| Lubrication | Apparatus, arrangements or methods for introducing or applying a thin layer of a discrete lubricant between two or more relatively-moving adjacent solid surfaces of a device or apparatus, for the specific purpose of reducing friction, heat or wear between the adjacent surfaces. |
| Working fluid | The driven fluid in a pump or the driving fluid in an engine. The working fluid may be in a gaseous state, i.e. compressible, or liquid. In the former case coexistence of two states is possible. |
| Positive displacement | The way the energy of a working fluid is transformed into mechanical energy, in which variations of volume created by the working fluid in a working chamber produce equivalent displacements of the mechanical member transmitting the energy, the dynamic effect of the fluid being of minor importance, and vice-versa. |
| Non-positive displacement | The way the energy of a working fluid is transformed into mechanical energy, by transformation of the energy of the working fluid into kinetic energy, and vice-versa. |

F01M 1/00

Pressure lubrication

Definition statement

This place covers:

Pressure lubrication

F01M 1/02

using lubricating pumps (pumps in general [F04](#); lubricating pumps per se [F16N](#))

References

Informative references

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

| | |
|--------------------------|----------------------|
| Pumps in general | F04 |
| Lubricating pumps per se | F16N |

F01M 1/06

Lubricating systems characterised by the provision therein of crankshafts or connecting rods with lubricant passageways, e.g. bores (crankshafts, connecting-rods, per se [F16C](#))

References

Informative references

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

| | |
|--------------------------------------|----------------------|
| Crankshafts, connecting-rods, per se | F16C |
|--------------------------------------|----------------------|

F01M 1/14

Timed lubrication ([F01M 1/08](#) takes precedence)

Special rules of classification

[F01M 1/08](#) takes precedence

F01M 1/18

Indicating or safety devices (concerning lubricant level [F01M 11/06](#), [F01M 11/12](#))

References

Informative references

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

| | |
|----------------------------|---|
| Concerning lubricant level | F01M 11/06 , F01M 11/12 |
|----------------------------|---|

F01M 3/00

Lubrication specially adapted for engines with crankcase compression of fuel-air mixture or for other engines in which lubricant is contained in fuel, combustion air, or fuel-air mixture (separating lubricant from air or fuel-air mixture before entry into cylinder [F01M 11/08](#))

Definition statement

This place covers:

Lubrication specially adapted for engines with crankcase compression of fuel-air mixture or for other engines in which lubricant is contained in fuel, combustion air, or fuel-air mixture

References

Informative references

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

| | |
|--|----------------------------|
| Separating lubricant from air or fuel-air mixture before entry into cylinder | F01M 11/08 |
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F01M 5/00

Heating, cooling, or controlling temperature of lubricant (arrangement of lubricant coolers in engine cooling system [F01P 11/08](#)); Lubrication means facilitating engine starting

Definition statement

This place covers:

Heating, cooling, or controlling temperature of lubricant; lubrication means facilitating engine starting

References

Informative references

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

| | |
|---|----------------------------|
| Arrangement of lubricant coolers in engine cooling system | F01P 11/08 |
|---|----------------------------|

F01M 7/00

Lubrication means specially adapted for machine or engine running-in

Definition statement

This place covers:

Lubrication means specially adapted for machine or engine running-in

Special rules of classification

[F01M 5/02](#) takes precedence

F01M 9/00

Lubrication means having pertinent characteristics not provided for in, or of interest apart from, groups [F01M 1/00](#) - [F01M 7/00](#)

Definition statement

This place covers:

Having means for introducing additives to lubricant;

Use of fuel as lubricant;

Dip or splash lubrication;

Drip lubrication;

Lubrication of valve gear or auxiliaries;

Non-pressurised lubrication, or non-closed-circuit lubrication, not otherwise provided for.

F01M 11/00

Component parts, details or accessories, not provided for in, or of interest apart from, groups [F01M 1/00](#) - [F01M 9/00](#)

Definition statement

This place covers:

Oilsumps;

Arrangements of lubricant conduits;

Mounting or connecting of lubricant purifying means relative to the machine or engine;

Details of lubricant purifying means;

Filling or draining lubricant of or from machines or engines;

Means for keeping lubricant level constant or for accommodating movement or position of machines or engines;

Separating lubricant from air or fuel-air mixture before entry into cylinder;

Indicating devices;

Other safety devices.

F01M 11/03

Mounting or connecting of lubricant purifying means relative to the machine or engine; Details of lubricant purifying means (filters [B01D](#))

References

Informative references

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

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|---------|----------------------|
| Filters | B01D |
|---------|----------------------|

F01M 11/08

**Separating lubricant from air or fuel-air mixture before entry into cylinder
(separating in general [B01D](#))**

References**Informative references**

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

| | |
|-----------------------|----------------------|
| Separating in general | B01D |
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F01M 13/00

Crankcase ventilating or breathing

Definition statement

This place covers:

Crankcase ventilating or breathing;

Blowby circuit layout;

Purification device details.

F01M 13/02

by means of additional source of positive or negative pressure

References**Informative references**

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

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|--|---|
| Blow-by features (e.g. positive crankcase ventilation [PCV]) using engine inlet suction of the admission | F02M 25/06 , F02M 35/10222 |
|--|---|

F01M 13/04

having means for purifying air before leaving crankcase, e.g. removing oil

References**Informative references**

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

| | |
|-----------------------|----------------------|
| Separating in general | B01D |
|-----------------------|----------------------|

F01M 2013/0455

{with a de-icing or defrosting system}

References

Informative references

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

| | |
|--|--------------------------------|
| Breather valves with a de-icing or defrosting system | F01M 2013/0027 |
|--|--------------------------------|