

## F16N

### LUBRICATING

#### Definition statement

*This place covers:*

- Constructional modifications of parts of machines or apparatus for the purposes of lubrication.
- Devices for supplying lubricant, e.g. oil or grease, from a stationary or movable reservoir to the machine or member to be lubricated, or for supplying lubricant by manual action or by a hand-positioned nozzle with lubricant under pressure.
- Lubricating-pumps.
- Lubrication using substances other than oil or grease.
- Lubrication characterised by the use of particular lubricants in particular apparatus or conditions.
- Lubrication of apparatus working in extreme conditions.
- Details of lubricators or lubrication systems, e.g. reservoirs, conduits, check valves, distributing equipment, collecting or draining lubricant, cleaning.
- Safety devices for indication or detection of undesired conditions, or use of devices responsive to conditions in lubricating arrangements or systems.
- Care of lubricants, e.g. storage, transfer.
- Conditioning lubricants, e.g. by heating, cooling, filtering, diluting.

(the scope covered the by title of the corresponding subclass is not limited by these examples).

#### Relationships with other classification places

**F16N** is the general or function-oriented subclass for lubrication subject-matter, but there are many application-oriented places in the Classification where subject-matter for specially-adapted forms of lubrication can be found ? see the references below. Lubrication specially adapted to machines or apparatus provided for in a single other class is covered by the relevant class for that machine or apparatus.

#### References

##### Limiting references

*This place does not cover:*

Processes for applying liquids or other fluent materials to a surface, to obtain an anti-friction surface	<a href="#">B05D 5/08</a>
Manufacture of articles or materials containing macromolecular substances and having reduced friction	<b>C08J5/16</b>
Lubricating compositions; Selection of particular substances as lubricants	<a href="#">C10M</a>

##### 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 harvesters or mowers	<a href="#">A01D 69/12</a>
Lubrication of mandrels for metal tube rolling mills	<a href="#">B21B 25/04</a>
Lubrication of rolls for metal rolling mills	<a href="#">B21B 27/06</a>
Lubrication of tools for machines for working metal without removing material	<a href="#">B21D 37/18</a>

## Application-oriented references

Lubricating during forging or pressing	<a href="#">B21J 3/00</a>
Lubrication of moulds for continuous casting of metals	<a href="#">B22D 11/07</a>
Lubrication of milling-cutters	<a href="#">B23C 5/28</a>
Lubrication of metal saws	<a href="#">B23D 59/02</a> , <a href="#">B23D 59/04</a>
Lubrication of machine-tools	<a href="#">B23Q 11/10</a> , <a href="#">B23Q 11/12</a>
Lubrication of portable power-driven percussive tools	<a href="#">B25D 17/26</a>
Lubrication of hair-clippers or dry-shavers	<a href="#">B26B 19/40</a>
Lubrication of band saw blades for wood or the like	<a href="#">B27B 13/12</a>
Arrangements or adaptations of lubricating systems or devices in vehicles	<a href="#">B60R 17/00</a>
Lubrication of cable systems for railways	<a href="#">B61B 12/08</a>
Lubrication systems for railway locomotives	<a href="#">B61C 17/08</a>
Axle-box lubrication for railway rolling- stock	<a href="#">B61F 17/00</a>
Lubrication of rail or wheel flanges of railways	<a href="#">B61K 3/00</a>
Vehicle endless-track units with lubrication means	<a href="#">B62D 55/092</a>
Lubrication of cycles	<a href="#">B62J 31/00</a>
Lubrication of conveyors	<a href="#">B65G 45/02</a>
Lubrication of ropes, cables or guides of elevators	<a href="#">B66B 7/12</a>
Lubrication of spindles of machines for spinning or twisting threads or fibres	<a href="#">D01H 7/20</a>
Lubrication of knitting-machines	<a href="#">D04B 35/28</a>
Lubrication of sewing-machines	<a href="#">D05B 71/00</a>
Lubrication of embroidering-machines	<a href="#">D05C 13/04</a>
Lubrication of switches for railways	<a href="#">E01B 7/26</a>
Lubricating devices for locks	<a href="#">E05B 17/08</a>
Lubricating arrangements for hinges	<a href="#">E05D 11/02</a>
Lubricating details of roller drill bits for earth drilling	<a href="#">E21B 10/22</a>
Lubrication of rotary-piston or oscillating-piston machines or engines asasdas	<a href="#">F01C 21/04</a>
Lubrication of non-positive displacement machines or engines, e.g. steam turbines, Windmill	<a href="#">F01D 25/18</a> , <a href="#">F03D 80/00</a>
Lubrication of machines or apparatus working under extreme conditions, at high temperature, of turbines	<a href="#">F02C</a>
Lubrication of gas-turbine plants	<a href="#">F02C 7/06</a>
Lubrication of cylinders of combustion engines	<a href="#">F02F 1/20</a>
Lubrication of evacuating pumps	<a href="#">F04</a>
Lubrication of pumps for elastic fluids	<a href="#">F04B 39/02</a>
Lubrication of rotary-piston or oscillating-piston pumps for elastic fluids	<a href="#">F04C 29/02</a>
Lubrication of non-positive displacement pumps	<a href="#">F04D 29/04</a>
Lubrication of flexible shafts	<a href="#">F16C 1/24</a>
Lubrication of sliding-contact bearings	<a href="#">F16C 33/10</a>
Lubrication of ball or roller bearings	<a href="#">F16C 33/66</a>

Lubrication of springs	<a href="#">F16F 1/24</a>
Lubrication of transmissions	<a href="#">F16H 57/04</a>
Oil separators for separating oil from exhaust steam	<a href="#">F22G</a>
Lubrication of refrigerating machines	<a href="#">F25B</a>
Lubrication of smallarms or ordnance	<a href="#">F41A 29/04</a>
Lubrication of clocks	<a href="#">G04B 31/08</a>
Lubrication of rotary anodes of X-ray tubes	<a href="#">H01J 35/10</a>
Lubrication of rotary current collectors, distributors or interrupters	<a href="#">H01R 39/56</a>

### **Informative references**

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

Storage containers; draining equipment for liquid containers	<a href="#">B65</a>
Lubrication of machines or engines in general, including internal-combustion engines	<a href="#">F01M</a>

### **Special rules of classification**

Horizontal schemes for technical features cover the following aspects related to the control of lubrication:

Condition of lubricant

Applications

Signal processing

Measuring

Controlling

Fail safe

Valves

### **Glossary of terms**

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

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.

## F16N 1/00

### Constructional modifications of parts of machines or apparatus for the purpose of lubrication

#### Definition statement

*This place covers:*

Modifying portions of a work device for the supply or transfer of lubricant, or altering the moving portions of a work device to facilitate reducing friction that could respectively not be covered by a specific application for lubrication (see list of references relevant to classification mentioned above such as. [B62J 31/00](#): Lubrication of cycles). This group is seldom used.

#### References

##### Informative references

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

Lubrication of sliding contact bearing	<a href="#">F16C 33/10</a>
Lubrication of sliding contact of ball bearing	<a href="#">F16C 33/66</a>

## F16N 3/00

### Devices for supplying lubricant by manual action (draining equipment for liquid containers [B65D](#))

#### Definition statement

*This place covers:*

Arrangements for supplying lubricant such as delivering oil (i.e. oil cans or oil syringes), as well delivering grease (i.e. grease guns)(the scope covered the by title of the corresponding group is not limited by these examples).

#### References

##### Informative references

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

Hand-actuated arrangements for supplying grease from a stationary reservoir or the equivalent in or on the machine or member to be lubricated	<a href="#">F16N 11/02</a>
Hand or foot actuated Lubricating-pumps with reciprocating piston	<a href="#">F16N 13/08</a>
Draining equipment for liquid containers	<a href="#">B65D</a>

## F16N 5/00

**Apparatus with hand-positioned nozzle supplied with lubricant under pressure (F16N 3/00 takes precedence)**

### Definition statement

*This place covers:*

Apparatus with hand-positioned nozzle supplied with lubricant under pressure, or Nozzles or nozzle-valve arrangements therefor (the scope covered the by title of the corresponding group is not limited by these examples).

### References

#### Limiting references

*This place does not cover:*

Devices for supplying lubricant by manual action (draining equipment for liquid containers	<a href="#">F16N 3/00</a>
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## F16N 7/00

**Arrangements for supplying oil or unspecified lubricant from a stationary reservoir or the equivalent in or on the machine or member to be lubricated (axle-box lubrication for railway rolling-stock [B61F 17/00](#))**

### Definition statement

*This place covers:*

Arrangements for supplying oil or unspecified lubricant from a stationary reservoir or the equivalent in or on the machine or member to be lubricated such as e.g. with gravity feed or drip lubrication, splash lubrication, dip lubrication, mist lubrication, with feed by pumping action of the member to be lubricated or of a shaft of the machine, centrifugal lubrication, with feed by pumping action of a vertical shaft of the machine, and central lubrication systems (the scope covered the by title of the corresponding group is not limited by these examples).

### References

#### Informative references

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

Axle-box lubrication for railway rolling-stock	<a href="#">B61F 17/00</a>
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## F16N 7/08

**controlled by means of the temperature of the member to be lubricated (thermostats [G05D](#))**

### References

#### Informative references

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

Thermostats	<a href="#">G05D</a>
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## F16N 7/14

the lubricant being conveyed from the reservoir by mechanical means (by pumping devices [F16N 7/36](#), [F16N 7/38](#); adaptations for lubrication of machines or engines in general, of internal-combustion engines [F01M](#))

### References

#### Informative references

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

By pumping devices	<a href="#">F16N 7/36</a> , <a href="#">F16N 7/38</a>
Adaptations for lubrication of machines or engines in general, of internal-combustion engines	<a href="#">F01M</a>

## F16N 7/16

the oil being carried up by a lifting device (scoop devices in general [F04D](#))

### Definition statement

*This place covers:*

Mechanisms to raise the elevation of lubrication such as scoops, the oil being carried up by a lifting device with one or more feed members fixed on a shaft, with one or more members moving around the shaft to be lubricated (i.e shaped as rings), or with discs, rollers, belts or the like contacting the shaft to be lubricated (the scope covered the by title of the corresponding group is not limited by these examples)

### References

#### Informative references

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

Scoop devices in general	<a href="#">F04D</a>
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## F16N 7/26

Splash lubrication (mist lubrication [F16N 7/32](#))

### Definition statement

*This place covers:*

Details of splash lubrication through projection of lubricant involving dipper, nozzle, sprinkling, spraying or diffusing device (the scope covered the by title of the corresponding group is not limited by these examples).

### References

#### Informative references

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

Mist lubrication	<a href="#">F16N 7/32</a>
Jetting means for lubricating of machines or engines in general	<a href="#">F01M 1/08</a>
Machines or engines in general with dip or splash lubrication	<a href="#">F01M 9/06</a>

Gearing with lubrication by injection; Injection nozzles or tubes therefor	<a href="#">F16H 57/0456</a>
Gearing with splash lubrication	<a href="#">F16H 57/0457</a>

## F16N 7/30

the oil being fed or carried along by another fluid (in internal- combustion engines [F02F](#))

### Definition statement

*This place covers:*

Lubrication means whereby, the oil being fed or carried along by another fluid (air, water etc...), whereby the other fluid being intentionally introduced. (For instance, an oil flow containing accidentally some air, either ahead of the oil or in the oil, i.e., bubbles, is not covered) (the scope covered the by title of the corresponding group is not limited by these examples).

### References

#### Informative references

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

In internal- combustion engines	<a href="#">F02F</a>
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## F16N 7/32

Mist lubrication (splash lubrication [F16N 7/26](#))

### References

#### Informative references

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

Splash lubrication	<a href="#">F16N 7/26</a>
Gearing with oil-mist or spray lubrication.	<a href="#">F16H 57/0458</a>

## F16N 7/34

Atomising devices for oil (atomising devices in general [B05B](#))

### References

#### Informative references

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

Atomising devices in general	<a href="#">B05B</a>
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## F16N 9/00

**Arrangements for supplying oil or unspecified lubricant from a moving reservoir or the equivalent (also usable with a stationary reservoir [F16N 7/00](#))**

### Definition statement

*This place covers:*

Arrangements for supplying oil or unspecified lubricant from a moving reservoir or the equivalent such as e.g. a reservoir on or in a rotary member and a reservoir on or in a reciprocating, rocking, or swinging member (the scope covered the by title of the corresponding group is not limited by these examples).

### References

#### Informative references

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

Also usable with a stationary reservoir	<a href="#">F16N 7/00</a>
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## F16N 11/00

**Arrangements for supplying grease from a stationary reservoir or the equivalent in or on the machine or member to be lubricated; Grease cups**

### Definition statement

*This place covers:*

Arrangements for supplying grease from a stationary reservoir or the equivalent in or on the machine or member to be lubricated such as e.g. grease cups, hand-actuated grease cups, stauffer cups, spring-loaded devices, weight-loaded devices, or by pressure of another fluid (the scope covered the by title of the corresponding group is not limited by these examples). This group cover some structure to facilitate the higher (for lubricating-pumps see [F16N 13/00](#))

## F16N 13/00

**Lubricating-pumps (oil cans with pump [F16N 3/08](#); pumps for liquids in general [F04](#))**

### Definition statement

*This place covers:*

Lubricating-pumps such as e.g. with a reciprocating piston, with an adjustable reciprocating pumps, an actuation of lubricating-pumps by hand or foot, a mechanical drive, or fluid drive, with relative movement of pump parts being produced by inertia of one of the parts or of a driving member, with a rotary pumps, or with distributing equipment (the scope covered the by title of the corresponding group is not limited by these examples).

### References

#### Informative references

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

Oil cans with pump	<a href="#">F16N 3/08</a>
Pumps for liquids in general	<a href="#">F04</a>



**F16N 13/02**

with reciprocating piston (pumps with distributing equipment [F16N 13/22](#))

**References****Informative references**

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

Pumps with distributing equipment	<a href="#">F16N 13/22</a>
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**F16N 13/20**

Rotary pumps (with distributing equipment [F16N 13/22](#))

**References****Informative references**

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

Rotary pumps with distributing equipment	<a href="#">F16N 13/22</a>
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**F16N 13/22**

with distributing equipment (separate distributing equipment [F16N 25/00](#))

**Definition statement**

*This place covers:*

Pump with distributing equipment, whereby the distributing equipment is seen as mean to split a lubricant flow into multiple flows for different users or channels or pipes (the scope covered the by title of the corresponding group is not limited by these examples).

**References****Informative references**

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

Lubricant containers for use in lubricators or lubrication systems	<a href="#">F16N 19/00</a>
Conduits; Junctions ; Fittings for lubrication apertures	<a href="#">F16N 21/00</a>
Separate distributing equipment	<a href="#">F16N 25/00</a>

## F16N 15/00

Lubrication with substances other than oil or grease; Lubrication characterised by the use of particular lubricants in particular apparatus or conditions ([F16N 17/00](#) takes precedence; lubricating compositions, selection of particular substances as lubricants in general [C10M](#))

### Definition statement

*This place covers:*

Lubrication with substances other than oil or grease such as e.g. with graphite or graphite-containing compositions or water (the scope covered the by title of the corresponding group is not limited by these examples).

### References

#### Limiting references

*This place does not cover:*

Lubrication of machines or apparatus working under extreme conditions	<a href="#">F16N 17/00</a>
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#### Informative references

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

Lubricating compositions, selection of particular substances as lubricants in general	<a href="#">C10M</a>
Bearings with surfaces incorporating lubricant	<a href="#">F16C 33/04</a>

## F16N 15/04

with water (bearings working in water [F16C](#))

### References

#### Informative references

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

Bearings working in water	<a href="#">F16C</a>
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## F16N 17/00

Lubrication of machines or apparatus working under extreme conditions (additives to lubricating oil or lubricating grease [C10M](#))

### Definition statement

*This place covers:*

Lubrication of machines or apparatus working under extreme conditions such as e.g. at high temperature, at low temperature, or in vacuum or under reduced pressure (the scope covered the by title of the corresponding group is not limited by these examples).

## References

### Informative references

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

Additives to lubricating oil or lubricating grease	<a href="#">C10M</a>
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## F16N 17/02

at high temperature (of turbines [F01D](#), [F02C](#); lubrication of machines or engines in general, of internal-combustion engines [F01M](#))

## References

### Informative references

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

Lubrication of turbines	<a href="#">F01D</a> , <a href="#">F02C</a>
Lubrication of machines or engines in general, of internal-combustion engines	<a href="#">F01M</a>

## F16N 17/04

at low temperature (lubrication of refrigerating machines [F25B](#))

## References

### Informative references

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

Lubrication of refrigerating machines	<a href="#">F25B</a>
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## F16N 17/06

in vacuum or under reduced pressure (lubrication of evacuating pumps [F04](#); of rotary anodes of X-ray tubes [H01J 35/10](#))

## References

### Informative references

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

Lubrication of evacuating pumps	<a href="#">F04</a>
Lubrication of rotary anodes of X-ray tubes	<a href="#">H01J 35/10</a>

## F16N 19/00

### Lubricant containers for use in lubricators or lubrication systems

#### Definition statement

*This place covers:*

Lubricant containers for use in lubricators or lubrication systems, such as e.g. indicating oil level or maintaining oil level (the scope covered the by title of the corresponding group is not limited by these examples).

## F16N 19/003

{Indicating oil level (measuring liquid level in general [G01F](#))}

#### References

##### Informative references

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

Measuring liquid level in general	<a href="#">G01F</a>
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## F16N 19/006

{Maintaining oil level (level control in general [G05D 9/00](#))}

#### Definition statement

*This place covers:*

Means for maintaining oil level such as float valve refill systems (The scope covered the by title of the corresponding group is not limited by these examples).

#### References

##### Informative references

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

Means for keeping lubricant level constant	<a href="#">F01M 11/06</a>
Level control in general	<a href="#">G05D 9/00</a>

## F16N 21/00

Conduits; Junctions (in general [F16L](#)); Fittings for lubrication apertures

#### Definition statement

*This place covers:*

Conduits; junctions; fittings for lubrication apertures such as e.g. lubricating nipples, nozzles for connection of lubricating equipment to nipples Covering members for nipples, conduits or apertures (The scope covered the by title of the corresponding group is not limited by these examples).

## References

### Informative references

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

Junctions in general	<a href="#">F16L</a>
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## F16N 23/00

### Special adaptations of check valves (check valves in general [F16K](#))

## References

### Informative references

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

Check valves in general	<a href="#">F16K</a>
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## F16N 25/00

### Distributing equipment {with or without proportioning devices}

## Definition statement

*This place covers:*

Distributing equipment, whereby the distributing equipment is seen as mean to split a lubricant flow into multiple flows for different users or channels or pipes such as e.g. with reciprocating distributing slide valve or with rotary distributing member (The scope covered the by title of the corresponding group is not limited by these examples).

## References

### Informative references

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

Distributing member combined with oil pump	<a href="#">F16N 13/22</a>
Lubricant containers for use in lubricators or lubrication systems	<a href="#">F16N 19/00</a>
Conduits; Junctions ; Fittings for lubrication apertures	<a href="#">F16N 21/00</a>

## F16N 27/00

### Proportioning devices (liquid meters [G01F](#))

## Definition statement

*This place covers:*

Proportioning devices such as e.g. using restrictions or gating equipment (The scope covered the by title of the corresponding group is not limited by these examples).

## References

### Informative references

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

Liquid meters	<a href="#">G01F</a>
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## F16N 27/02

Gating equipment (multiple-way valves [F16K](#); metering cocks [G01F](#))

## References

### Informative references

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

Multiple-way valves	<a href="#">F16K</a>
Metering cocks	<a href="#">G01F</a>

## F16N 29/00

**Special means in lubricating arrangements or systems providing for the indication or detection of undesired conditions; Use of devices responsive to conditions in lubricating arrangements or systems**

### Definition statement

*This place covers:*

Special means in lubricating arrangements or systems providing for the indication or detection of undesired conditions (i.e excessive temperature, lack of lubricant, lubricant composition out of limits, excessive pressure, clogging, etc...); Use of devices responsive to conditions in lubricating arrangements or systems such as e.g. for influencing the supply of lubricant or enabling a warning to be given (The scope covered the by title of the corresponding group is not limited by these examples).

## References

### Informative references

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

Use of devices responsive to conditions in lubricating arrangements or systems in bearings	<a href="#">F16C</a>
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## F16N 31/00

**Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus (oil separators for separating oil from exhaust steam [F22G](#))**

### Definition statement

*This place covers:*

Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus, such as e.g. drain pans, drip trays, oil catchers, oil wipers (The scope covered the by title of the corresponding group is not limited by these examples).

## References

### Limiting references

*This place does not cover:*

Oil separators for separating oil from exhaust steam	<a href="#">F22G</a>
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## F16N 31/02

**Oil catchers; Oil wipers (oil-scraping rings for pistons [F16J 9/20](#) {; cleaning means for indicating or measuring dip members, e.g. dipstick wipers [G01F 23/045](#)})**

## References

### Informative references

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

Oil-scraping rings for pistons	<a href="#">F16J 9/20</a>
Cleaning means for indicating or measuring dip members, e.g. dipstick wipers	<a href="#">G01F 23/045</a>

## F16N 33/00

**Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts**

### Definition statement

*This place covers:*

Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts such as flushing and steam cleaners (The scope covered the by title of the corresponding group is not limited by these examples).

## F16N 35/00

**Storage of lubricants in engine-rooms or the like (storage containers [B65](#))**

## References

### Informative references

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

Storage containers	<a href="#">B65</a>
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## F16N 39/00

Arrangements for conditioning of lubricants in the lubricating system (cleaning of lubricating oil, lubricating compositions [C10M](#))

### Definition statement

*This place covers:*

Arrangements for conditioning (i.e. altering the viscosity) of lubricants in the lubricating system such as e.g. by deaeration, by evaporating or purifying, by cooling, by heating, by filtration or by diluting, e.g. by addition of fuel (The scope covered the by title of the corresponding group is not limited by these examples).

### References

#### Informative references

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

Cleaning of lubricating oil, lubricating compositions	<a href="#">C10M</a>
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## F16N 39/002

{by deaeration (degasification of liquids [B01D 19/00](#))}

### References

#### Informative references

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

Degasification of liquids	<a href="#">B01D 19/00</a>
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## F16N 39/005

{by evaporating or purifying (for heating or cooling of filters [B01D 35/18](#), e.g. comprising a vaporising unit [B01D 35/185](#))}

### References

#### Informative references

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

For heating or cooling of filters	<a href="#">B01D 35/18</a>
For heating or cooling of filters, e.g. comprising a vaporising unit	<a href="#">B01D 35/185</a>

## F16N 39/02

by cooling (heat-exchangers in general [F28](#))

### References

#### Informative references

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

Heat-exchangers in general	<a href="#">F28</a>
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**F16N 39/04**

by heating (heat-exchangers in general [F28](#))

**References*****Informative references***

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

Heat-exchangers in general	<a href="#">F28</a>
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**F16N 39/06**

by filtration (filters in general [B01D](#); magnetic separators [B03C 1/00](#);  
{centrifugal separators or filters [B04B 5/005](#)})

**References*****Informative references***

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

Filters in general	<a href="#">B01D</a>
Magnetic separators	<a href="#">B03C 1/00</a>