EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 1788

DATE: AUGUST 1, 2025

PROJECT RP12311

The following classification changes will be effected by this Notice of Changes:

Action	**Subclass**	**Group(s)**
SCHEME:		
Symbols New:	F01N	2340/08
Titles Changed:	F01N	SUBCLASS
	F01N	1/00, 1/003, 1/081, 1/082, 1/083, 1/084, 1/085, 1/086, 1/088, 1/166
	F01N	3/00, 3/023, 3/035, 3/038, 3/05, 3/0821, 3/0871, 3/0892, 3/10, 3/20, 3/206, 3/2066, 3/2073, 3/208
	F01N	9/002
	F01N	11/00
	F01N	13/00, 13/001, 13/007, 13/087, 13/145
	F01N	2340/00, 2340/02, 2340/04, 2340/06
	F01N	2470/00, 2470/08
Indents Changed:	F01N	3/2066, 3/2073
Notes New:	F01N	1/00
	F01N	3/022, 3/0222, 3/031, 3/035, 3/0878, 3/2053, 3/2066, 3/2839, 3/36
	F01N	9/00
	F01N	11/00
Notes Modified:	F01N	SUBCLASS
Guidance Headings New:	F01N	2210/00
DEFINITIONS:		
Definitions New:	F01N	1/003, 1/02, 1/081, 1/082, 1/083, 1/084, 1/085, 1/086, 1/087, 1/088, 1/089, 1/16, 1/165, 1/166
	F01N	3/01, 3/0211, 3/022, 3/0222, 3/023, 3/031, 3/032, 3/035, 3/04, 3/05, 3/08, 3/0807, 3/0814, 3/0821, 3/0871, 3/0878, 3/0885, 3/0892, 3/10, 3/106, 3/2053, 3/206, 3/2066, 3/2073, 3/208, 3/26, 3/28, 3/2839, 3/2853, 3/2892, 3/2896, 3/36
	F01N	5/04
	F01N	13/1855
	F01N	2340/04, 2340/08
	F01N	2450/24
Definitions Modified:	F01N	SUBCLASS
	F01N	1/00
	F01N	3/00
	F01N	5/00

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DATE: AUGUST 1, 2025

PROJECT RP12311

Action	**Subclass**	**Group(s)**
	F01N	9/00
	F01N	11/00
	F01N	13/00

No other subclasses/groups are impacted by this Notice of Changes.

This Notice of Changes includes the following*:*

1. CLASSIFICATION SCHEME CHANGES
    - ☒ A. New, Modified or Deleted Group(s)
    - ☐ B. New, Modified or Deleted Warning(s)
    - ☒ C. New, Modified or Deleted Note(s)
    - ☒ D. New, Modified or Deleted Guidance Heading(s)
2. DEFINITIONS
    - ☒ A. New or Modified Definitions (Full definition template)
    - ☐ B. Modified or Deleted Definitions (Definitions Quick Fix)
3. ☐ REVISION CONCORDANCE LIST (RCL)
4. ☒ CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)
5. ☐ CHANGES TO THE CROSS-REFERENCE LIST (CRL)

CPC NOTICE OF CHANGES 1788

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PROJECT RP12311

1. CLASSIFICATION SCHEME CHANGES

A. New, Modified or Deleted Group(s)

SUBCLASS F01N - GAS-FLOW SILENCERS OR EXHAUST APPARATUS FOR MACHINES OR ENGINES IN GENERAL; GAS-FLOW SILENCERS OR EXHAUST APPARATUS FOR INTERNAL COMBUSTION ENGINES

Type*	**Symbol**	**Indent Level Number of dots (e.g. 0, 1, 2)**	**Title "CPC only" text should normally be enclosed in {curly brackets}****	**Transferred to#**
M	F01N	Subclass	GAS-FLOW SILENCERS OR EXHAUST APPARATUS FOR MACHINES OR ENGINES IN GENERAL; GAS-FLOW SILENCERS OR EXHAUST APPARATUS FOR INTERNAL-COMBUSTION ENGINES (arrangements in connection with gas exhaust of propulsion units in vehicles B60K13/00; combustion-air intake silencers specially adapted for, or arranged on, internal-combustion engines F02M35/00; protecting against, or damping, noise in general G10K11/16)	
M	F01N1/00	0	Silencing apparatus characterised by method of silencing	
M	F01N1/003	1	{by using dead chambers communicating with exhaust gas flow passages}	
M	F01N1/081	2	{by passing the exhaust gases through a mass of particles}	
M	F01N1/082	2	{by passing the exhaust gases through porous members}	
M	F01N1/083	2	{using transversal baffles defining a tortuous path for the exhaust gases or successively throttling exhaust gas flow}	
M	F01N1/084	2	{the exhaust gases flowing through the silencer two or more times longitudinally in opposite directions, e.g. using parallel or concentric tubes}	
M	F01N1/085	2	{throttling exhaust gas flow using a central core in a flow passage}	
M	F01N1/086	2	{having means to impart a whirling motion to the exhaust gases (with helically or spirally shaped channels F01N1/12)}	
M	F01N1/088	3	{using vanes arranged on the flow path or flow tubes with tangentially directed apertures}	

M	F01N1/166	2	{for changing the flow path through the silencer or for adjusting the dimensions of a chamber or a pipe (F01N1/165 takes precedence)}	
M	F01N3/00	0	Exhaust or silencing apparatus having means for purifying, rendering innocuous, or otherwise treating exhaust (electric control F01N9/00; monitoring or diagnostic devices for exhaust-gas treatment apparatus F01N11/00)	
M	F01N3/023	3	using means for regenerating the filters, e.g. by burning trapped particles	
M	F01N3/035	4	with catalytic reactors	
M	F01N3/038	2	by means of perforated plates defining expansion chambers associated with condensation and collection chambers	
M	F01N3/05	2	by means of air, e.g. by mixing exhaust with air (silencers working by addition of air to exhaust F01N1/14; arrangements for the supply of additional air for the thermal or catalytic conversion of noxious components of exhaust F01N3/30)	
M	F01N3/0821	3	{combined with particulate filter}	
M	F01N3/0871	3	{using means for controlling, e.g. purging, the absorbents or adsorbents}	
M	F01N3/0892	2	{Electric or magnetic treatment, e.g. dissociation of noxious components}	
M	F01N3/10	2	by thermal or catalytic conversion of noxious components of exhaust	
M	F01N3/20	4	specially adapted for catalytic conversion (F01N3/22 takes precedence)	
M	F01N3/206	5	{Adding periodically or continuously substances to exhaust gases for promoting purification, e.g. catalytic material in liquid form, NOx reducing agents}	
M	F01N3/2066	6	{Selective catalytic reduction [SCR]}	
M	F01N3/2073	7	{Means for generating a reducing substance from the exhaust gases}	
M	F01N3/208	6	{Control of selective catalytic reduction [SCR], e.g. by adjusting the dosing of reducing agent}	
M	F01N9/002	1	{of filter regeneration}	
M	F01N11/00	0	Monitoring or diagnostic devices for exhaust-gas treatment apparatus	
M	F01N13/00	0	Exhaust or silencing apparatus characterised by constructional features	
M	F01N13/001	1	{Exhaust gas flow channels or chambers being at least partly formed in the structural parts of the engine or machine (using structural parts of the vehicle B60K13/06)}	

M	F01N13/007	1	{Apparatus used as intake or exhaust silencer}	
M	F01N13/087	2	{having valves upstream of silencing apparatus for by-passing at least part of exhaust directly to atmosphere (valves for changing flow path through the silencer F01N1/166)}	
M	F01N13/145	3	{with a gas other than air filling the space between both walls}	
M	F01N2340/00	0	Dimensional characteristics of the exhaust system, e.g. length, diameter or volume of the exhaust apparatus; Spatial arrangements of exhaust apparatuses	
M	F01N2340/02	1	Distance of the exhaust apparatus to the engine or between two exhaust apparatuses	
M	F01N2340/04	1	Arrangement of the exhaust system relative to a vehicle or parts thereof	
M	F01N2340/06	1	Arrangement of the exhaust apparatus relative to the turbine of a turbocharger	
N	F01N2340/08	1	Series-connected exhaust apparatuses mounted in a side-by-side spatial arrangement, e.g. U- or S-shaped	
M	F01N2470/00	0	Structure or shape of exhaust gas passages, pipes or tubes	
M	F01N2470/08	1	Exhaust gas passages being formed between the walls of an outer shell and an inner chamber	

*N = new entries where reclassification into entries is involved; C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; T = existing entries with enlarged file scope, which receive documents from C or D entries, e.g. when a limiting reference is removed from the entry title; M = entries with no change to the file scope (no reclassification); D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed; U = entries that are unchanged.

NOTES:

- **No {curly brackets} are used for titles in CPC only subclasses, e.g. C12Y, A23Y; 2000 series symbol titles of groups found at the end of schemes (orthogonal codes); or the Y section titles. The {curly brackets} are used for 2000 series symbol titles found interspersed throughout the main trunk schemes (breakdown codes).
- U groups: it is obligatory to display the required “anchor” symbol (U group), i.e. the entry immediately preceding a new group or an array of new groups to be created (in case new groups are not clearly subgroups of C-type groups). Always include the symbol, indent level and title of the U group in the table above.
- All entry types should be included in the scheme changes table above for better understanding of the overall scheme change picture. Symbol, indent level, and title are required for all types.
- “Transferred to” column must be completed for all C, D, F, and Q type entries. F groups will be deleted once reclassification is completed.
- When multiple symbols are included in the “Transferred to” column, avoid using ranges of symbols in order to be as precise as possible.
- For administrative transfer of documents, the following text should be used: “<administrative transfer to XX>”, “<administrative transfer to XX and YY simultaneously>”, or “<administrative transfer to XX, YY, ...and ZZ simultaneously>” when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.

- Administrative transfer to 2000/Y series groups is assumed to be “additional information”.
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations “ADD” or “INV”: <administrative transfer to XX ADD> , <administrative transfer to XX INV>, or <administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.
- In certain situations, the “D” entries of 2000-series or Y-series groups may not require a destination (“Transferred to”) symbol, however it is required to specify “<no transfer>” in the “Transferred to” column for such cases.
- For finalization projects, the deleted “F” symbols should have <no transfer> in the “Transferred to” column.
- For more details about the types of scheme change, see CPC Guide.

C. New, Modified or Deleted Note(s)

SUBCLASS F01N - GAS-FLOW SILENCERS OR EXHAUST APPARATUS FOR MACHINES OR ENGINES IN GENERAL; GAS-FLOW SILENCERS OR EXHAUST APPARATUS FOR INTERNAL COMBUSTION ENGINES

Type*	Location	Old Note	New/Modified Note
M	F01N	Attention is drawn to the notes preceding Class F01, especially as regards Note 2(b).	Attention is drawn to the notes preceding Class F01, especially as regards Note 3.
N	F01N1/00		{In this main group, it is desirable to add the indexing codes of F01N2210/00, F01N2230/00, F01N2290/00, F01N2310/00, F01N2450/06, F01N2470/00, F01N2490/00 and F01N2590/00.}
N	F01N3/022		{In this subgroup, it is desirable to add the indexing codes of F01N2330/00.}
N	F01N3/0222		{In this subgroup, it is desirable to add the indexing codes of F01N2330/30.}
N	F01N3/031		{In this subgroup, it is desirable to add the indexing codes of F01N2410/00.}
N	F01N3/035		{In this subgroup, it is desirable to add the indexing codes of F01N2510/06.}
N	F01N3/0878		{In this subgroup, it is desirable to add the indexing codes of F01N2410/00.}
N	F01N3/2053		{In this subgroup, it is desirable to add the indexing codes of F01N2410/00.}
N	F01N3/2066		{In this subgroup, it is desirable to add the indexing codes of F01N2610/00.}
N	F01N3/2839		{In this subgroup, it is desirable to add the indexing codes of F01N2350/02.}
N	F01N3/36		{In this subgroup, it is desirable to add the indexing codes of F01N2610/14.}
N	F01N9/00		{In this subgroup, it is desirable to add the indexing codes of F01N2900/00.}
N	F01N11/00		{In this subgroup, it is desirable to add the indexing codes of F01N2550/00 and F01N2900/00.}

*N = new note, M = modified note, D = deleted note

NOTE: The "Location" column only requires the symbol PRIOR to the location of the note. No further directions such as "before" or "after" are required.

D. New, Modified or Deleted Guidance Heading(s)

SUBCLASS F01N - GAS-FLOW SILENCERS OR EXHAUST APPARATUS FOR MACHINES OR ENGINES IN GENERAL; GAS-FLOW SILENCERS OR EXHAUST APPARATUS FOR INTERNAL COMBUSTION ENGINES

Type*	Location	Old Guidance Heading	New/Modified Guidance Heading
N	F01N2210/00 - F01N2900/00		Indexing scheme related to gas-flow silencers or exhaust apparatus

*N = new guidance heading, M =modified guidance heading, D = deleted guidance heading

NOTES:

- The "Location" column requires the symbol AFTER the guidance heading location. No further directions such as "before" or "after" are required.
- In cases where there may be confusion as to whether a new group falls within the scope of a guidance heading, indicate the guidance heading and whether the group does or does not go with the guidance heading. This can be included in the "Location" column. For example, the guidance heading "Compounds containing carbon together with sulfur, selenium or tellurium with or without hydrogen, halogens, oxygen or nitrogen" encompasses groups C07C 301/00-395/00 only. If a new group C07C 398/00 is proposed and is included in the guidance heading scope, indicate this in the "Location" column as follows: 398/00 to be included under the guidance heading: "Compounds containing carbon together with sulfur, selenium or tellurium with or without hydrogen, halogens, oxygen or nitrogen."

2. A. DEFINITIONS (new)

F01N1/003

References

Informative references

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

Silencing by using resonance	F01N1/02
Silencing by using sound-absorbing materials	F01N1/24

F01N1/02

Definition statement

This place covers:

Exhaust gas silencers with physical dimensions intended to alter, reduce or cancel sound at particular frequencies, often with little or no impedance to the passage of exhaust gas.

Resonance is achieved by placing a chamber or a channel in communication with the exhaust flow without the exhaust flow passing therethrough.

F01N1/081

Definition statement

This place covers:

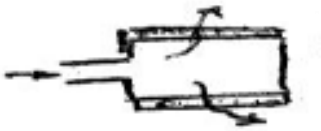
Illustrative example of the subject matter classified in this place:

F01N1/082

Definition statement

This place covers:

Illustrative example of the subject matter classified in this place:



The Figure illustrates a porous member surrounding the chamber, constructed from, e.g. bronze or ceramics.

F01N1/083

Definition statement

This place covers:

Illustrative examples of the subject matter classified in this place:

1.

2.

3.

F01N1/084

Definition statement

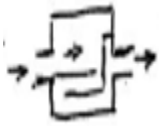
This place covers:

Illustrative examples of the subject matter classified in this place:

1.

2.

3.



F01N1/085

Definition statement

This place covers:

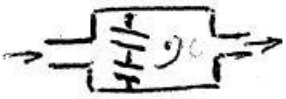
Illustrative example of the subject matter classified in this place:

F01N1/086

Definition statement

This place covers:

Illustrative example of the subject matter classified in this place:



References

Limiting references

This place does not cover:

Silencing by reducing exhaust energy by throttling or whirling using spirally or helically shaped channels	F01N1/12

F01N1/087

Definition statement

This place covers:

Illustrative example of the subject matter classified in this place:

F01N1/088

Definition statement

This place covers:

Illustrative example of the subject matter classified in this place:

1a.

1b.

F01N1/089

Definition statement

This place covers:

Illustrative examples of the subject matter classified in this place:

1.

2.

3.

References

Limiting references

This place does not cover:

Silencing by reducing exhaust energy by throttling or whirling using transversal baffles defining a tortuous path for the gases or successively throttling gas flow	F01N1/083
Silencing by reducing exhaust energy by throttling or whirling, the gases flowing through the silencer two or more times longitudinally in opposite directions, e.g. using parallel or concentric tubes	F01N1/084
Silencing by reducing exhaust energy by throttling or whirling, with means to impart whirling motion to the gases	F01N1/086

F01N1/16

Definition statement

This place covers:

Exhaust gas silencing using movable elements that modify the exhaust flow and its acoustic properties. These mechanisms may function by altering the flow path, varying the flow area, modulating pressure fluctuations, disrupting sound wave propagation or dynamically adjusting flow resistance.

References

Informative references

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

Controlling engines by throttling air or fuel-and-air induction conduits or exhaust conduits	F02D9/00

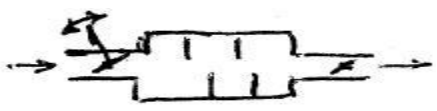
F01N1/165

Definition statement

This place covers:

Silencing by using movable parts for adjusting flow area, e.g. by means of a valve.

Illustrative example of the subject matter classified in this place:



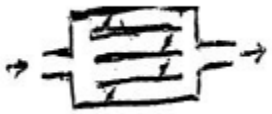
F01N1/166

Definition statement

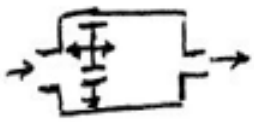
This place covers:

Illustrative examples of the subject matter classified in this place:

1.



2.



References

Limiting references

This place does not cover:

Silencing by using movable parts for adjusting flow area	F01N1/165

F01N3/01

Definition statement

This place covers:

Physically separating particles from the exhaust with electric or electrostatic separators.

References

Informative references

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

Rendering the exhaust gas innocuous with electric or magnetic treatment, e.g. dissociation of noxious components	F01N3/0892
Separating dispersed particles from gases or vapour, e.g. air, by electrostatic effect	B03C3/00

F01N3/0211

Special rules of classification

Mats that can be used as either a filter or a catalyst between a monolithic body and a housing should be classified in F01N3/2853, and not in F01N3/0211.

F01N3/022

Special rules of classification

Structural details of catalyst supports or particle filters may be classified further in F01N2330/00.

F01N3/0222

References

Informative references

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

Particle separators, e.g. dust precipitators, using rigid hollow filter bodies characterised by the physical shape or structure of the filtering element	B01D46/2403
Shaped ceramic products characterised by their composition; Ceramics compositions; Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products	C04B35/00
Ceramic honeycomb structures	C04B38/0006

Special rules of classification

Structural details of honeycomb supports may be classified further in F01N2330/30.

F01N3/023

Relationships with other classification places

Regeneration of a particulate filter by introducing corrections to engine control signals, e.g. by modifying the injection time delay or the exhaust/intake valve timing, are covered by F02D41/029.

References

Informative references

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

Electrical control of filter regeneration, e.g. detection of clogging	F01N9/002
Electrical control of supply of combustible mixture or its constituent with circuit arrangements for generating control signals to introduce corrections in relation with the state of the exhaust gas treating apparatus	F02D41/0235

Special rules of classification

Catalytic coatings applied on filters to lower soot ignition temperature or otherwise promote soot ignition may be further classified in F01N2510/065.

F01N3/031

Special rules of classification

Details of bypassing exhaust may be further classified in F01N2410/00.

F01N3/032

References

Informative references

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

Electrical control of filter regeneration, e.g. detection of clogging	F01N9/002

F01N3/035

Definition statement

This place covers:

Cooling, or removing solid constituents of, exhaust by means of filters in combination with catalytic reactors, e.g. catalysed diesel particulate filters.

References

Informative references

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

Regenerating filters, e.g. by burning trapped particles	F01N3/023
Regenerating filters using special exhaust apparatus upstream of the filter for producing nitrogen dioxide, e.g. for continuous filter regeneration systems [CRT]	F01N3/0231

Special rules of classification

Catalytic coatings applied on filters may be further classified in F01N2510/06.

F01N3/04

Definition statement

This place covers:

Cooling, or removing solid constituents of, exhaust using liquids, e.g. water, and without chemical reactions directly involved.

References

Informative references

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

Cooling an exhaust treating device using a liquid	F01N2260/024

F01N3/05

References

Limiting references

This place does not cover:

Silencers working by addition of air to exhaust gases	F01N1/14
Arrangements for supply of additional air to thermal or catalytic conversion of noxious components of exhaust	F01N3/30

Informative references

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

Control of additional air supply only to thermal or catalytic conversion of noxious components of exhaust, e.g. using by-passes or variable air pump drives	F01N3/22
Other arrangements or adaptations of tailpipes, e.g. with means for mixing air with exhaust for exhaust cooling, dilution or evacuation	F01N13/082
Cooling exhaust treating devices using air	F01N2260/022

F01N3/08

References

Limiting references

This place does not cover:

Exhaust or silencing apparatus having means for purifying, rendering innocuous or otherwise treating exhaust by means of electric or electrostatic separators	F01N3/01
Chemical or biological purification of engine exhaust gases	B01D53/92

Informative references

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

Catalysts, in general, characterised by their form or physical properties	B01J35/00

F01N3/0807

Special rules of classification

Arrangements for adding fuel to an absorbent should also receive classification in F01N3/36 and F01N2610/00.

F01N3/0814

References

Informative references

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

Exhaust or silencing apparatus having means for purifying, rendering innocuous or otherwise treating exhaust by using absorbents or adsorbents, characterised by the absorbed or adsorbed substances	F01N3/0828
Exhaust treating apparatus eliminating, absorbing or adsorbing specific elements or compounds	F01N2570/00

F01N3/0821

References

Informative references

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

Filters in combination with catalytic reactors	F01N3/035

F01N3/0871

Definition statement

This place covers:

Control of the regeneration of the absorbent.

References

Informative references

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

Introducing corrections to engine control signals to purge or regenerate exhaust gas treating apparatus	F02D41/027
Introducing corrections to engine control signals to purge or regenerate NOx traps or adsorbents	F02D41/0275
Introducing corrections to engine control signals for desulphurisation of NOx traps or adsorbents	F02D41/028
Introducing corrections to engine control signals to purge or regenerate SOx traps or adsorbents	F02D41/0285

Special rules of classification

Control of the regeneration of the absorbent for releasing stored NOx is classified in F01N3/0871.

Desulphurisation of NOx traps is classified in F01N3/0885.

F01N3/0878

Special rules of classification

Details of bypassing exhaust may be further classified in F01N2410/00.

F01N3/0885

References

Informative references

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

Introducing corrections to engine control signals for desulphurisation of NOx traps or adsorbents	F02D41/028

F01N3/0892

Definition statement

This place covers:

Electric or magnetic treatment changing the gas structure at a molecular level, e.g. dissociation of noxious components, including by corona discharge.

References

Informative references

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

Exhaust or silencing apparatus having electric or electrostatic separators for purifying, rendering innocuous or otherwise treating exhaust	F01N3/01

Using electric or magnetic heating means for regenerating filters used for cooling, or for removing solid constituents of, exhaust	F01N3/027
Using electric or magnetic heating means for periodically heating or cooling catalytic reactors	F01N3/2013

F01N3/10

References

Informative references

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

Chemical or biological purification of waste gases	B01D53/34

F01N3/106

References

Informative references

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

Exhaust treating apparatus eliminating, absorbing or adsorbing specific elements or compounds	F01N2570/00

F01N3/2053

Special rules of classification

Details of bypassing exhaust may be further classified in F01N2410/00.

F01N3/206

References

Informative references

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

Using a fuel burner or introducing fuel into exhaust duct for periodically heating or cooling catalytic reactors, e.g. at cold starting or overheating	F01N3/2033

F01N3/2066

Definition statement

This place covers:

Structural components of a selective catalytic reduction [SCR] system, and their arrangement within the system.

References

Informative references

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

Combination or association of two or more different exhaust treating devices, or of at least one such device with an auxiliary device, not covered by indexing codes F01N2230/00 or F01N2250/00, one of the devices being an ammonia generator	F01N2240/25
Sprayers or atomisers used to supply substances to exhaust gases; Arrangement thereof in the exhaust apparatus	F01N2610/1453

Special rules of classification

Further details of arrangements for supplying substances other than fuel, e.g. ammonia or urea, may be classified in F01N2610/00. This includes items like pumps, valves, conduits, nozzles and injectors.

F01N3/2073

Definition statement

This place covers:

Selective catalytic reduction [SCR] with means for generating a reducing substance from the exhaust gases, e.g. a NOx absorbent/reducing catalyst.

F01N3/208

Definition statement

This place covers:

Electronic control of the SCR system.

References

Informative references

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

Sprayers or atomisers used to supply substances to exhaust gases; Arrangement thereof in the exhaust apparatus	F01N2610/1453

F01N3/26

Definition statement

This place covers:

- Construction of thermal reactors with afterburning of exhaust gases, often without using a catalyst.
- Supply of fuel to thermal reactors.

F01N3/28

Definition statement

This place covers:

Construction of catalytic reactors, e.g. radial flow or a tapered catalyst carrier.

References

Informative references

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

Structure of catalyst support or particle filter	F01N2330/00
Arrangements for fitting catalyst support or particle filter element in the housing	F01N2350/00
Selection of materials for exhaust purification	F01N2370/00
Methods or apparatus for fitting, inserting or repairing different elements	F01N2450/00
Surface coverings	F01N2510/00

F01N3/2839

Special rules of classification

Simple methods of fitting the honeycomb in the housing may be further classified in F01N2350/02.

F01N3/2853

Definition statement

This place covers:

Mats having a special shape or arrangement in the honeycomb housing.

References

Informative references

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

Working or processing of sheet metal or metal tubes, rods or profiles without essentially removing material; Punching metal	B21D
Shaped ceramic products characterised by their composition; Ceramics compositions; Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products	C04B35/00
Non-woven fabrics formed wholly or mainly of staple fibres or like relatively short fibres	D04H1/00

F01N3/2892

Special rules of classification

F01N2240/20 may be given along with F01N3/2892 if the flow directors or deflectors are further combined with other exhaust treating devices or auxiliary devices.

F01N3/2896

References

Informative references

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

Adding substances to exhaust gases	F01N2610/00

F01N3/36

Special rules of classification

Further details of the arrangements for supply of additional fuel may be classified in F01N2610/14.

F01N5/04

Definition statement

This place covers:

Exhaust or silencing apparatus combined or associated with devices converting the exhaust energy into kinetic energy, e.g. exhaust-driven turbines coupled to electrical generators.

F01N13/1855

References

Informative references

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

Methods or apparatus for fitting, inserting or repairing different elements of gas-flow silencers or exhausts apparatus by bolts, screws, rivets or the like	F01N2450/24

F01N2340/04

Definition statement

This place covers:

Arrangement of the exhaust system, e.g. of the exhaust pipe, exhaust manifold or exhaust apparatus, relative to the vehicle or parts thereof, e.g. relative to the vehicle frame or to the vehicle body.

F01N2340/08

Definition statement

This place covers:

Series-connected exhaust apparatuses, e.g. series-connected purifying devices or series-connected silencers, mounted in a side-by-side spatial arrangement, e.g. U- or S-shaped.

Illustrative examples of subject matter classified in this place:

1.

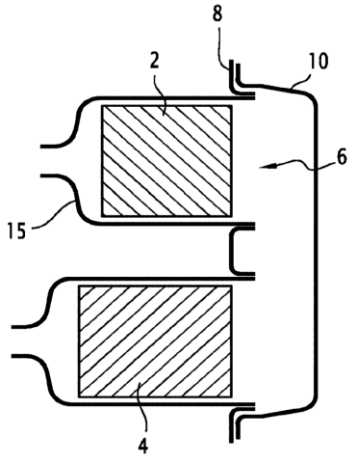


Figure 1 illustrates first and second substrates (2 and 4) mounted in a U-shaped, side-by-side spatial arrangement. The output of the first purification member of the U-shaped purification device is connected to the input of the second purification member.

2.

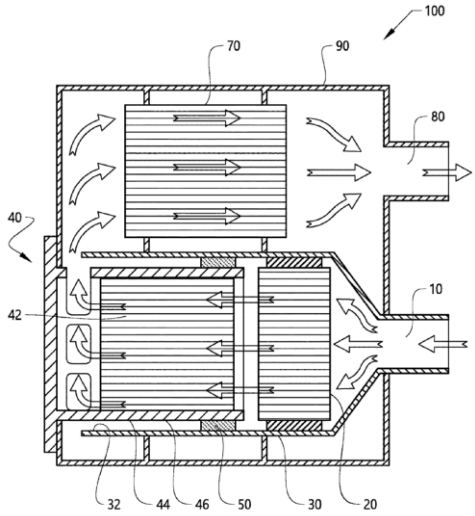


Figure 2 shows the second additional exhaust aftertreatment unit (70) arranged downstream the first exhaust aftertreatment unit (40). Both exhaust aftertreatment units (40 and 70) are mounted in a U-shaped, side-by-side spatial arrangement.

3.

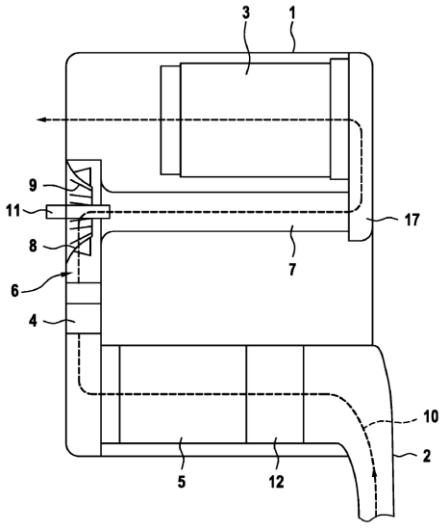


Figure 3 shows series-connected particle filter (5) and SCR catalyst (3) mounted in an S-shaped, side-by-side spatial arrangement.

4.

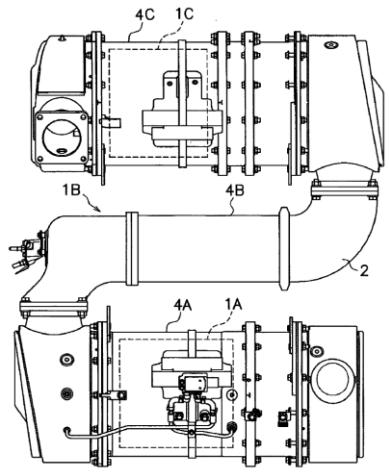


Figure 4 shows series-connected particle filter (1A) and SCR catalyst (1C) mounted in an S-shaped, side-by-side spatial arrangement.

References

Informative references

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

Exhaust or silencing apparatus having two or more separate purifying devices arranged in series	F01N13/009
Exhaust or silencing apparatus having two or more separate silencers in series	F01N13/02

F01N2450/24

References

Informative references

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

Connection being realised by using bolts, screws, rivets or the like between parts of exhaust or silencing apparatus, e.g. between housing and tubes, between tubes and baffles	F01N13/1855

2. A. DEFINITIONS (modified)

F01N

Definition statement

Replace: The existing Definition statement with the following updated statement.

Silencing apparatus in exhaust systems for reducing the noise emitted by machines or engines in general, but more particularly internal combustion engines.

Exhaust or silencing apparatus having means for purifying, rendering innocuous or otherwise treating exhaust. The main apparatus includes particulate filters, absorbents and other catalytic reactors. The means can also be an electric discharge or the addition of air or liquids.

Exhaust or silencing apparatus combined or associated with devices profiting by exhaust energy, mainly the devices using exhaust heat.

Electrical control, monitoring or diagnostic of exhaust gas treating apparatus.

Other constructional features common to the above apparatus or the exhaust conduits including manufacture, assembly, disassembly or material selection.

Relationships with other classification places

Replace: The existing Relationships text with the following updated text.

The treatment of recirculated exhaust gases [EGR] should be classified only in the F02M26/00, unless the exhaust purifier also treats exhaust which is not recirculated.

References

Delete: The entire Limiting references section.

Insert: The following new Informative references section.

Informative references

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

Filters or filtering processes specially modified for separating dispersed particles from gases or vapours	B01D46/00
Chemical or biological purification of waste gases, e.g. engine exhaust gases, smoke, fumes, flue gases or aerosols	B01D53/00
Flow mixers; Mixers for falling materials, e.g. solid particles	B01F25/00
Catalysts, in general, characterised by their form or physical properties	B01J35/00
Separating dispersed particles from gases or vapour, e.g. air, by electrostatic effect	B03C3/00
Application of procedures in order to alter the diameter of metal tube ends	B21D41/00
Making hollow metal objects characterised by the use of the objects	B21D51/16
Arrangement in connection with combustion air intake or gas exhaust of propulsion units	B60K13/00
Arrangement in connection with gas exhaust of propulsion units	B60K13/04
Insulating elements for body-finishing, identifying or decorating, e.g. for sound insulation	B60R13/08
Arrangements, apparatus and methods for handling exhaust gas in outboard drives, e.g. exhaust gas outlets	B63H20/24
Shaped ceramic products characterised by their composition; Ceramics compositions	C04B35/00
Porous mortars, concrete, artificial stone or ceramic ware; Preparation thereof	C04B38/00
Crankcase ventilating or breathing having means for purifying air before leaving crankcase, e.g. removing oil	F01M13/04
Electrical control of supply of combustible mixture or its constituents with safety or indicating devices for abnormal conditions	F02D41/22

Engine-pertinent apparatus for adding exhaust gases to combustion-air, main fuel or fuel-air mixture, e.g. by exhaust gas recirculation [EGR] systems	F02M26/00
Combustion-air cleaners, air intakes, intake silencers or induction systems specially adapted for, or arranged on, internal-combustion engines	F02M35/00
Combustion-air cleaners using filters	F02M35/024
Pipes; Joints or fittings for pipes; Supports for pipes; Means for thermal insulation in general	F16L
Burners using a direct spraying action of liquid droplets or vaporised liquid into the combustion space	F23D11/00
Arrangements of devices for treating smoke or fumes, e.g. catalytic treatment of flue gases from furnaces burning coal, gas or oil	F23J15/00
Continuous combustion chambers using liquid or gaseous fuel characterised by the use of catalytic means, e.g. catalytic treatment of gases from exhaust from gas turbines	F23R3/40
Heat-exchange apparatus having stationary conduit assemblies for one heat-exchange medium only, the media being in contact with different sides of the conduit wall, in which the other heat-exchange medium is a large body of fluid, e.g. domestic or motor car radiators	F28D1/00
Measuring pressure in inlet or exhaust ducts of internal-combustion engines	G01L23/24
Sampling; Preparing specimens for investigation	G01N1/00
Sampling from a flowing stream of gas in a vehicle exhaust	G01N1/2252
Investigating or analysing materials by investigating resistance	G01N27/04
Methods or devices for protecting against, or for damping, noise or other acoustic waves in general	G10K11/16
Generating plasma	H05H1/24

Special rules of classification

Replace: The existing Special rules text with the following updated text.

References B60K13/00, F02M35/00 and G10K11/16 are non-limiting in the subclass F01N. CPC will be corrected once this inconsistency is resolved in IPC.

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

Delete: The semicolon and word “Speicher” at the end of the following row in the existing Synonyms and Keywords section, so that the updated row appears as follows.

Absorbent	Trap, adsorber, absorber, occlusion element

F01N1/00

Definition statement

Replace: The existing Definition statement with the following updated statement.

Silencing apparatus for reducing or controlling the noise in exhaust emitted by internal combustion engines.

References

Delete: The entire Limiting references section.

Insert: The following new Application-oriented references section.

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:

Filters for removing solid constituents of exhaust, in combination with exhaust silencers in a single housing	F01N3/0335

Informative references

Replace: The existing Informative references table with the following updated table.

Catalytic reactors combined or associated with exhaust silencers in a single housing	F01N3/2885
Means for exhaust-air diffusion or for sound or vibration damping in suction cleaners	A47L9/0081
Arrangements of noise-damping means of exhaust silencers of portable power-driven percussive tools	B25D17/12
Arrangements in connection with gas exhaust of propulsion units in vehicles	B60K13/00
Arrangement or adaptation of acoustic signal devices, e.g. amplifying noise for the vehicle's passengers	B60Q5/00
Insulating elements for mounting around noise sources, e.g. air blowers	B60R13/0884
Silencer devices of power brake systems	B60T17/008
Arrangement of marine propulsion power-unit exhaust uptakes	B63H21/32
Arrangement of aircraft exhaust outlets or jet pipes	B64D33/04
Ground installations for reducing aircraft engine or jet noise	B64F1/26
Silencers specially adapted for steam engines	F01B31/16

Use of kinetic or wave energy of charge in induction systems, or of combustion residues in exhaust systems, for improving quantity of charge or for increasing removal of combustion residues, in exhaust systems only, e.g. for sucking-off combustion gases	F02B27/04
Acoustic insulation of combustion engines	F02B77/13
Air-intakes for gas-turbine plants or jet-propulsion plants having provisions for noise suppression	F02C7/045
Throttle valves specially adapted for controlling engines by throttling air or fuel-and-air induction conduits or exhaust conduits; Arrangements of such valves in conduits	F02D9/08
Combustion-air intake silencers specially adapted for, or arranged on, internal-combustion engines	F02M35/00
Pulsation or noise damping means of positive-displacement machines for liquids or pumps	F04B39/0027
Silencing of rotary-piston, or oscillating-piston, positive-displacement machines for liquids or positive displacement pumps	F04C29/06
Combating cavitation, whirls, noise, vibration or the like in non-positive-displacement pumps	F04D29/66
Means in valves for preventing water-hammer or noise	F16K47/02
Noise absorbers for use in, or in connection with, pipes or pipe systems	F16L55/02
Means for preventing or suppressing noise in air-conditioning or ventilation	F24F13/24
Silencers for smallarms or ordnance	F41A21/30
Methods or devices for transmitting, conducting or directing sound in general; Methods or devices for protecting against, or for damping, noise or other acoustic waves in general	G10K11/00

Special rules of classification

Replace: The existing Special rules text with the following updated text.

Remaining details of the silencers must be classified in the following codes:

- F01N2210/00 for the combination of silencing methods;

- F01N2230/00 for the combination of silencers and other devices;
- F01N2290/00 for movable parts or members in exhaust systems for other than for control purposes;
- F01N2470/00 for the structure or shape of gas passages, pipes or tubes;
- F01N2490/00 for the structure, disposition or shape of gas-chambers;
- F01N2310/00 or F01N2450/06 for the filling of chambers with sound absorbing material;
- F01N2590/00 for the particular use, i.e. the type of vehicle or machine.

F01N 3/00

Delete: The entire Definition statement.

References

Delete: The entire Limiting references section.

Informative references

Replace: The existing Informative references table with the following updated table.

Electrical control of exhaust gas treating apparatus	F01N9/00
Monitoring or diagnostic devices for exhaust-gas treatment apparatus	F01N11/00
Boiling apparatus for physical or chemical purposes	B01B1/00
Filtration; Filtering material, regeneration thereof	B01D24/00, B01D25/00, B01D27/00, B01D29/00, B01D33/00, B01D35/00, B01D36/00, B01D37/00, B01D39/00, B01D41/00, B01D43/00

Separating dispersed particles from gases or vapours	B01D45/00, B01D46/00, B01D47/00, B01D49/00, B01D50/00, B01D51/00, B01D53/00, B01D57/00, B01D59/00
Catalysts, in general, characterised by their form or physical properties	B01J35/00
Magnetic or electrostatic separation of solid material from solid materials or fluids; Separation by high-voltage electric fields	B03C
Layered products	B32B
Arrangement in connection with combustion air intake or gas exhaust of propulsion units	B60K13/00
Arrangement in connection with gas exhaust of propulsion units	B60K13/04
Arrangement in connection with fuel supply of combustion engines; Mounting or construction of fuel tanks	B60K15/00
Production of hydrogen or of gaseous mixtures containing hydrogen	C01B3/02
Preparation of ammonia from nitrogenous organic substances	C01C1/08
Shaped ceramic products characterised by their composition; Ceramics compositions	C04B35/00
Non-woven fabrics formed wholly or mainly of staple fibres or like relatively short fibres	D04H1/00
Pulp or paper, comprising synthetic cellulose or non-cellulose fibres or web-forming material	D21H13/00
Cooling of machines or engines in general; Cooling of internal-combustion engines	F01P
Engine-pertinent apparatus for adding exhaust gases to combustion-air, main fuel or fuel-air mixture, e.g. by exhaust gas recirculation [EGR] systems	F02M26/00

Combustion-air cleaners, air intakes, intake silencers or induction systems specially adapted for, or arranged on, internal-combustion engines	F02M35/00
Heating of pipes or pipe systems	F16L53/30
Burners using a direct spraying action of liquid droplets or vaporised liquid into the combustion space	F23D11/00
Arrangements of devices for treating smoke or fumes, e.g. catalytic treatment of flue gases from furnaces burning coal, gas or oil	F23J15/00
Continuous combustion chambers using liquid or gaseous fuel characterised by the use of catalytic means, e.g. catalytic treatment of gases from exhaust from gas turbines	F23R3/40
Water heaters, e.g. boilers, continuous-flow heaters or water-storage heaters	F24H1/00
Indicating or measuring liquid level or level of fluent solid material, e.g. indicating in terms of volume or indicating by means of an alarm	G01F23/00
Investigating or analysing materials by the use of refractometers	G01N21/4133
Coupling devices	H01R
Ohmic-resistance heating	H05B3/00

Special rules of classification

Replace: The existing Special rules text with the following updated text.

Details of electrical control or of the monitoring of the exhaust gas treating apparatus may also receive classification in F01N2900/00.

References to F01N9/00 and F01N11/00 are non-limiting in main group F01N3/00. CPC will be corrected once this inconsistency is resolved in IPC.

F01N5/00

Delete: The entire Definition statement.

References

Informative references

Replace: The existing Informative references table with the following updated table.

Exhaust or silencing apparatus having means for cooling, or for removing solid constituents of, exhaust using heat exchangers	F01N3/0205
Construction of catalytic reactors combined or associated with heat exchangers in a single housing	F01N3/2889
Combination or association of two or more different exhaust treating devices, or of at least one such device with an auxiliary device, not covered by indexing codes F01N2230/00 or F01N2250/00, one of the devices being a heat exchanger	F01N2240/02
Movable parts or members in exhaust systems for other than for control purposes	F01N2290/00
Devices using kinetic or wave energy for charging the engine in exhaust systems only	F02B27/04
Use of exhaust turbines for charging engines, i.e. turbocharging	F02B37/00
Engines with prolonged expansion in exhaust turbines	F02B41/10
Profiting from waste heat of exhaust gases	F02G5/02
Thermoelectric devices in general	H10N10/00, H10N15/00, H10N19/00

Insert: The following new Special rules section.

Special rules of classification

Reference F02B is non-limiting in the main group F01N5/00. CPC will be updated/corrected once this inconsistency is resolved in IPC.

F01N9/00

Definition statement

Replace: The existing Definition statement with the following updated statement.

Methods of electrically controlling exhaust gas treating apparatus and of exhaust devices not provided elsewhere.

References

Insert: The following new Application-oriented references section.

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:

Control of selective catalytic reduction [SCR], e.g. by adjusting the dosing of reducing agent	F01N3/208
Electric control of additional air supply	F01N3/225

Informative references

Replace: The existing Informative references table with the following updated table.

By-passing absorbents or adsorbents	F01N3/0878
Exhaust or silencing apparatus having means for rendering innocuous by thermal or catalytic conversion of noxious components of exhaust characterised by methods of operation or control thereof	F01N3/18
By-passing catalytic reactors, e.g. to prevent overheating	F01N3/2053
Monitoring or diagnostic devices for exhaust-gas treatment apparatus	F01N11/00
Electrical control of supply of combustible mixture or its constituents in relation with the state of the exhaust gas treating apparatus	F02D41/0235
Conjoint electrical control of two or more combustion engine functions	F02D43/00

Insert: The following new Special rules section.

Special rules of classification

Details of electrical control or of the monitoring of the exhaust gas treating apparatus may also receive classification in F01N2900/00.

References F01N11/00 and F02D43/00 are non-limiting in the subgroup F01N9/00. CPC will be updated/corrected once this inconsistency is resolved in IPC.

F01N11/00

Definition statement

Replace: The existing Definition statement with the following updated statement.

Devices like engine control units [ECUs] or sensors used to monitor or diagnose the function of exhaust-gas treatment apparatuses, e.g. for catalytic activity.

References

Delete: The entire Limiting references section.

Informative references

Replace: The existing Informative references table with the following updated table.

Safety, indicating or supervising devices for internal combustion engines	F02B77/08
Electrical control of supply of combustible mixture or its constituents with safety or indicating devices for abnormal conditions	F02D41/22
Testing of machine parts	G01M13/00

Special rules of classification

Replace: The existing Special rules text with the following updated text.

Classification may occur in both F01N9/00 and F01N11/00 when an apparatus or an exhaust gas property is monitored and the results are used to introduce complex changes in the electrical control routine of the exhaust apparatus or to the exhaust flow.

When classifying in the F01N11/00 group, when appropriate, the codes F01N2550/00 should be given, to classify the type of apparatus or device being diagnosed.

When classifying in group F01N11/00, it is desirable to add the indexing codes of group F01N2900/00, relating to details of electrical monitoring or diagnosing of the exhaust gas treating apparatus.

F01N13/00

References

Delete: The entire Limiting references section.

Informative references

Replace: The existing Informative references table with the following updated table.

Handling exhaust gas in outboard drives	B63H20/24
Sealings in general	F16J15/00
Pipes; Joints or fittings for pipes; Supports for pipes, cables or protective tubing; Means for thermal insulation in general	F16L

Special rules of classification

Replace: The existing Special rules text with the following updated text.

Further details of subgroups

Regarding F01N13/001, passages inside the cylinder head should be classified in F02F1/00 and not in this subclass.

Regarding F01N13/008, the construction details of a sensor itself are in G01N. Sensor arrangements in the exhaust of combustion engines, e.g. for temperature, misfire, air/fuel ratio or oxygen sensors: F02B77/086.

Regarding F01N13/007, the intake silencers are in F02M35/12 and silencing methods are to be classified also using F01N1/00.

Regarding F01N13/14, other thermal insulation: mats or gaskets between catalyst or filter and housing, F01N3/2839 or F01N3/0211; thermal or acoustic insulation of combustion engines: F02B77/11; insulating elements, e.g. for sound or heat insulation, for vehicles B60R13/08; for mounting around heat sources, e.g. exhaust pipes: B60R13/0876; heat shields for motor vehicles: B62D25/2072;

thermal insulation in general: F16L59/00; means for preventing radiation, e.g. with metal foil: F16L59/08; arrangements for the insulation of pipes or pipe systems: F16L59/14.

Regarding F01N13/002, here are mostly uses not covered by the more detailed F01N2590/00, with the exception of some portable devices, e.g. chainsaws.

Regarding F01N13/004, this subgroup is used in parallel with F01N13/12 (submerged exhausting). Treating exhaust by using liquids: F01N3/04.

Regarding F01N13/008, to describe the type of sensor use F01N2560/00, and when fitting exhaust sensors use F01N2450/10.

Regarding F01N13/02 and F01N13/04, these subgroups are for silencers only. Other apparatus, like filters, absorbents and catalysts, are in F01N3/02 - F01N3/04.

Regarding F01N13/08, this subgroup covers pipe details, curvature, deformation, and special position of pipe in relation to a vehicle part, and further details should be also classified in F01N2470/00.

Regarding F01N13/082, this subgroup can be used also with the subgroup F01N13/20. However, F01N13/20 should be used only for the bell-shaped or flared outlet shape. The remaining should be classified in F01N13/082.

Regarding F01N13/12, see above reference to F01N13/004.

Regarding F01N13/16, more specific material should be classified in F01N2530/00.

Regarding F01N13/1805, this subgroup covers connections of exhaust manifolds, exhaust pipes or pipe sections outside of the housing of a silencer of purifier, in contrast with F01N13/1838.

Regarding F01N13/1838, here are the connections regarding the inside of the housing of a silencer or purifier. That is the connection between housing and tubes or tubes and baffles, in contrast with F01N13/1805.

Regarding F01N13/20, see above references to F01N13/082.

4. CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

CPC	**IPC**	**Action***
F01N2340/08	CPCONLY	NEW

*Action column:

- For an (N) or (Q) entry, provide an IPC symbol and complete the Action column with “NEW.”
- For an existing CPC main trunk entry or indexing entry where the existing IPC symbol needs to be changed, provide an updated IPC symbol and complete the Action column with “UPDATED.”
- For a (D) CPC entry or indexing entry complete the Action column with “DELETE.” IPC symbol does not need to be included in the IPC column.
- For an (N) 2000 series CPC entry which is positioned within the main trunk scheme (breakdown code) provide an IPC symbol and complete the action column with “NEW”.
- For an (N) 2000 series CPC entry positioned at the end of the CPC scheme (orthogonal code), with no IPC equivalent, complete the IPC column with “CPCONLY” and complete the action column with “NEW”.

NOTES:

- F symbols are not included in the CICL table above.
- T and M symbols are not included in the CICL table above unless a change to the existing IPC is desired.