

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5180035

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	CONFIRMATORY GRANT OF SECURITY INTERESTS IN UNITED STATES PATENTS

**CONVEYING PARTY DATA**

Name	Execution Date
TENNECO INC.	10/01/2018
TENNECO AUTOMOTIVE OPERATING COMPANY INC.	10/01/2018
TENNECO INTERNATIONAL HOLDING CORP.	10/01/2018
THE PULLMAN COMPANY	10/01/2018
TENNECO GLOBAL HOLDINGS INC.	10/01/2018
CLEVITE INDUSTRIES INC.	10/01/2018
TMC TEXAS INC.	10/01/2018
CARTER AUTOMOTIVE COMPANY LLC	10/01/2018
FEDERAL-MOGUL WORLD WIDE LLC	10/01/2018
FELT PRODUCTS MFG. CO. LLC	10/01/2018
MUZZY-LYON AUTO PARTS LLC	10/01/2018
FEDERAL-MOGUL POWERTRAIN LLC	10/01/2018
FEDERAL-MOGUL POWERTRAIN IP LLC	10/01/2018
FEDERAL-MOGUL PISTON RINGS, LLC	10/01/2018
FEDERAL-MOGUL IGNITION LLC	10/01/2018
FEDERAL-MOGUL MOTORPARTS LLC	10/01/2018
FEDERAL-MOGUL CHASSIS LLC	10/01/2018
F-M MOTORPARTS TSC LLC	10/01/2018
F-M TSC REAL ESTATE HOLDINGS LLC	10/01/2018
FEDERAL-MOGUL VALVETRAIN INTERNATIONAL LLC	10/01/2018
FEDERAL-MOGUL SEVIERVILLE, LLC	10/01/2018
BECK ARNLEY HOLDINGS LLC	10/01/2018
FEDERAL-MOGUL FILTRATION LLC	10/01/2018
FEDERAL-MOGUL FINANCING CORPORATION	10/01/2018
FEDERAL-MOGUL PRODUCTS US LLC	10/01/2018

**RECEIVING PARTY DATA**

<b>Name:</b>	WILMINGTON TRUST, NATIONAL ASSOCIATION, AS COLLATERAL TRUSTEE
<b>Street Address:</b>	50 SOUTH SIXTH STREET
<b>Internal Address:</b>	SUITE 1290

**PATENT**

City:	MINNEAPOLIS
State/Country:	MINNESOTA
Postal Code:	55402

**PROPERTY NUMBERS Total: 1668**

Property Type	Number
Patent Number:	6231264
Patent Number:	6267526
Patent Number:	6430774
Patent Number:	6270282
Patent Number:	6755403
Patent Number:	7114712
Patent Number:	6588778
Patent Number:	6843472
Patent Number:	6854917
Patent Number:	6698731
Patent Number:	6758300
Patent Number:	6513801
Patent Number:	7584944
Patent Number:	7922156
Patent Number:	7451967
Patent Number:	8038132
Patent Number:	7644911
Patent Number:	7510043
Patent Number:	7637486
Patent Number:	8177201
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Patent Number:	8066266
Patent Number:	8646761
Patent Number:	8376331
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Patent Number:	7883097
Patent Number:	8347702
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Patent Number:	8608117
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Patent Number:	9283993
Patent Number:	9097310

<b>Property Type</b>	<b>Number</b>
Patent Number:	9850977
Patent Number:	9441704
Patent Number:	8777245
Patent Number:	9133903
Patent Number:	9068620
Patent Number:	9297435
Patent Number:	9650939
Patent Number:	10030569
Patent Number:	9976620
Patent Number:	9845720
PCT Number:	US2016036876
Application Number:	15615174
Application Number:	15181764
Application Number:	15666948
Application Number:	15480873
Application Number:	15667941
Application Number:	15896648
PCT Number:	US2018043813
Application Number:	16103154
Application Number:	15848390
Application Number:	15893313
Patent Number:	9849746
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Patent Number:	8226100
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Property Type	Number
Patent Number:	9683472
Application Number:	16106891
Patent Number:	6321888
Patent Number:	6352145
Patent Number:	6290035
Patent Number:	7438164
Patent Number:	6464053
Patent Number:	6220409
Patent Number:	6371264
Patent Number:	6148969
Patent Number:	6382373
Patent Number:	6364075
Patent Number:	6354614
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Patent Number:	7252181
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Patent Number:	7751959
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Patent Number:	7926632
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Patent Number:	8997953
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Patent Number:	8590678
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Patent Number:	8511446
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Patent Number:	8739948
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Patent Number:	9784288
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Patent Number:	8696004
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<b>Patent Number:</b>	8820064
<b>Patent Number:</b>	9074651
<b>Patent Number:</b>	9004470
<b>Patent Number:</b>	9217483
<b>Application Number:</b>	15872451
<b>Patent Number:</b>	9925842
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<b>Patent Number:</b>	9272598
<b>Patent Number:</b>	9108484
<b>Patent Number:</b>	9586456
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<b>Patent Number:</b>	9500255
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<b>Patent Number:</b>	9739330
<b>Patent Number:</b>	9579944
<b>Patent Number:</b>	9587703
<b>Application Number:</b>	15402813
<b>Patent Number:</b>	9845839
<b>Application Number:</b>	15434435
<b>Application Number:</b>	15440059
<b>PCT Number:</b>	US2017019330
<b>Patent Number:</b>	9873303
<b>Application Number:</b>	15189574

<b>Property Type</b>	<b>Number</b>
Application Number:	16109992
Application Number:	15716671
PCT Number:	US2017054704
Patent Number:	10054182
PCT Number:	US2017062211
PCT Number:	US2017062841
Application Number:	15464735
Application Number:	15613398
PCT Number:	US2018035866
Application Number:	16009592
PCT Number:	US2018039708
Application Number:	15615053
Application Number:	15843369
Application Number:	15843395
Application Number:	15903571
Application Number:	15933951
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Application Number:	15843340
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<b>Patent Number:</b>	9095827
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Patent Number:	9222388
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Patent Number:	9359928
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Patent Number:	9334775
Application Number:	14782874
Patent Number:	9289724
Patent Number:	9314750
Patent Number:	9291081
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Patent Number:	9046021
Patent Number:	9371767
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Patent Number:	9689301
Patent Number:	9221014

<b>Property Type</b>	<b>Number</b>
Patent Number:	9482131
Application Number:	14445686
Patent Number:	9903250
Application Number:	15868132
PCT Number:	CN2014079662
Patent Number:	9702284
Patent Number:	9546621
Patent Number:	9784163
Patent Number:	10047657
Application Number:	16014106
Patent Number:	10036291
Patent Number:	9687784
Patent Number:	9702291
PCT Number:	US2016047700
Application Number:	15753494
Patent Number:	9534525
PCT Number:	US2016034150
Patent Number:	9790830
Application Number:	15050504
Patent Number:	9551257
Application Number:	14818361
Patent Number:	10054022
Application Number:	15238838
Application Number:	15797140
PCT Number:	US2017045907
Patent Number:	9956509
Application Number:	15928710
Application Number:	15172357
Application Number:	15494592
Application Number:	15182697
Application Number:	15238872
PCT Number:	US2017045923
Patent Number:	9982793
Patent Number:	9982794
Application Number:	15386126
Application Number:	15874358
PCT Number:	US2018014410
Application Number:	15480776

<b>Property Type</b>	<b>Number</b>
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<b>Application Number:</b>	15634402
<b>Application Number:</b>	15712253
<b>Application Number:</b>	15944891
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<b>Application Number:</b>	15797101
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<b>Application Number:</b>	15972604
<b>Application Number:</b>	16103068
<b>Application Number:</b>	16044922
<b>Application Number:</b>	16045271
<b>Application Number:</b>	15648748
<b>Application Number:</b>	15723635
<b>Patent Number:</b>	7386378
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<b>Patent Number:</b>	7913489
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Property Type	Number
Patent Number:	8272210
Patent Number:	8667681
Patent Number:	8327829
Patent Number:	8277548
Patent Number:	8375709
Patent Number:	8752290
Patent Number:	8661673
Patent Number:	8505203
Patent Number:	8100315
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Patent Number:	8747510
Patent Number:	D600125
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Patent Number:	6609830
Patent Number:	6376062
Patent Number:	6376061
Patent Number:	6492039
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Patent Number:	7993758
Patent Number:	8360647
Patent Number:	8241758
Patent Number:	8053087
Patent Number:	9181976
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<b>Property Type</b>	<b>Number</b>
Patent Number:	8679641
Patent Number:	8376618
Patent Number:	9476454
Application Number:	15262469
Patent Number:	8646977
Patent Number:	8783954
Patent Number:	8511900
Patent Number:	8748006
Patent Number:	8608385
Patent Number:	8689457
Patent Number:	9468974
Patent Number:	9482275
Patent Number:	9341211
Patent Number:	9222513
Patent Number:	8783956
PCT Number:	EP2014079008
Patent Number:	9027249
PCT Number:	EP2015071328
Patent Number:	8821023
Patent Number:	9193017
Application Number:	13822158
Patent Number:	9080604
Application Number:	14651017
Patent Number:	9492868
Patent Number:	9937564
Patent Number:	9108275
Patent Number:	9844836
Application Number:	14363477
Patent Number:	9611889
Application Number:	15106917
Patent Number:	9366290
Application Number:	15153541
Patent Number:	9279454
Application Number:	14896502
Patent Number:	9869349
Application Number:	14890002
Patent Number:	9970483
PCT Number:	EP2015058235

<b>Property Type</b>	<b>Number</b>
Application Number:	15508239
Application Number:	14710918
Application Number:	15744406
Application Number:	15927461
PCT Number:	EP2017061306
Patent Number:	6413003
Patent Number:	6676325
Patent Number:	6439794
Patent Number:	6454484
Patent Number:	6202280
Patent Number:	6125541
Patent Number:	6439795
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Patent Number:	7837407
Patent Number:	7644500
Application Number:	15331254
Patent Number:	9476447
Patent Number:	8747012
Patent Number:	7600940
Patent Number:	8342769
Patent Number:	9446644
Application Number:	15238923
Patent Number:	9316250
Patent Number:	8925944
Application Number:	14339282

<b>Property Type</b>	<b>Number</b>
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Application Number:	15706912
Patent Number:	9925838
Patent Number:	9227661
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Patent Number:	9291195
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Patent Number:	9790983
Application Number:	15784749
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Application Number:	16028997
Application Number:	15178779
Application Number:	15077444
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Application Number:	15170600
Patent Number:	10001163
PCT Number:	US2015489422
PCT Number:	US2015629209
Application Number:	15446105
Application Number:	15455302
Application Number:	15458164
Application Number:	15673127
PCT Number:	US2015629844
PCT Number:	US2015629875
Application Number:	15649042
Application Number:	15649069

<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15912715
<b>Application Number:</b>	15912777
<b>Application Number:</b>	15933684
<b>Application Number:</b>	62592297
<b>Application Number:</b>	62577900
<b>Application Number:</b>	62578103
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<b>Application Number:</b>	62673616
<b>Application Number:</b>	62697467
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<b>Application Number:</b>	13606286
<b>Patent Number:</b>	8919318
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<b>Patent Number:</b>	9316173
<b>Application Number:</b>	14922657
<b>Patent Number:</b>	9803583



<b>Property Type</b>	<b>Number</b>
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<b>Patent Number:</b>	6494459
<b>Patent Number:</b>	6976681
<b>Patent Number:</b>	8317942
<b>Patent Number:</b>	9845887
<b>Patent Number:</b>	9302378
<b>Patent Number:</b>	9404583
<b>Patent Number:</b>	9574665
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Patent Number:	D602827
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Patent Number:	D603769
Patent Number:	D603770
Patent Number:	D604215
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Patent Number:	D660206
Patent Number:	D626043
Patent Number:	D669828
Patent Number:	8863917
Patent Number:	8172051
Patent Number:	8974725
Patent Number:	8739947
Patent Number:	9657797
Application Number:	15030915
Application Number:	15030921
Application Number:	15579679
Application Number:	15580102

<b>Property Type</b>	<b>Number</b>
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<b>Patent Number:</b>	D784875
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<b>Patent Number:</b>	D787393
<b>Patent Number:</b>	D787392
<b>Application Number:</b>	16017975
<b>Application Number:</b>	62653679
<b>Application Number:</b>	62672323
<b>Patent Number:</b>	6182630
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Patent Number:	8807109
Patent Number:	9970384
Application Number:	14459929
Patent Number:	9909526
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Patent Number:	9127619
Patent Number:	8955486
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Application Number:	13370645
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Application Number:	14817385
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Patent Number:	9127616
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Application Number:	14159729
Patent Number:	9739234
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Application Number:	15585907

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Patent Number:	9041274
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Patent Number:	9130357
Patent Number:	8937427
Application Number:	15490061
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Application Number:	13768284
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PCT Number:	EP2017060200
PCT Number:	EP2017054747
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Application Number:	62580792
Patent Number:	7748361
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Property Type	Number
Patent Number:	D545752

**CORRESPONDENCE DATA**

**Fax Number:** (212)455-2502  
*Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.*  
**Phone:** (212) 455-2582  
**Email:** ksolomon@stblaw.com  
**Correspondent Name:** LAWRENCE HUANG, ESQ.  
**Address Line 1:** SIMPSON THACHER & BARTLETT LLP  
**Address Line 2:** 425 LEXINGTON AVENUE  
**Address Line 4:** NEW YORK, NEW YORK 10017

<b>ATTORNEY DOCKET NUMBER:</b>	509265/2122
<b>NAME OF SUBMITTER:</b>	LAWRENCE HUANG
<b>SIGNATURE:</b>	/LH/
<b>DATE SIGNED:</b>	10/09/2018

**Total Attachments: 171**

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CONFIRMATORY GRANT OF SECURITY INTERESTS  
IN UNITED STATES PATENTS

THIS CONFIRMATORY GRANT OF SECURITY INTERESTS IN UNITED STATES PATENTS (the “**Confirmatory Grant**”) is made effective as of October 1, 2018 by and from each of the undersigned entities (collectively the “**Grantors**”), to and in favor of Wilmington Trust, National Association, a national banking association organized under the laws of the United States, with an address at 50 South Sixth Street, Suite 1290, Minneapolis, Minnesota 55402, solely in its capacity as collateral trustee under the Collateral Trust Agreement referred to in the Collateral Agreement (defined below) (the “**Collateral Trustee**”), for the benefit of the Credit Facility Secured Parties (such term, and each other capitalized term used herein, having the meaning assigned in the Collateral Agreement referenced below).

W I T N E S S E T H:

WHEREAS, reference is made to that certain Credit Agreement dated as of October 1, 2018 (as amended, restated, supplemented or otherwise modified from time to time, the “**Credit Agreement**”) among Tenneco Inc., a Delaware corporation (the “**Company**”), Tenneco Automotive Operating Company Inc., a Delaware corporation and a Subsidiary of the Company, any other Subsidiary Borrowers (as defined in the Credit Agreement) from time to time parties thereto, the Lenders (as defined in the Credit Agreement), and JPMorgan Chase Bank, N.A., as administrative agent (the “**Administrative Agent**”);

WHEREAS, Grantors are party to that certain Collateral Agreement dated as of October 1, 2018 (as amended, restated, supplemented or otherwise modified from time to time, the “**Collateral Agreement**”), among Grantors and the Collateral Trustee pursuant to which Grantors granted a security interest to the Collateral Trustee in the Patents (as defined below) and are required to execute and deliver this Confirmatory Grant; and

WHEREAS, the Grantors own the patents listed on Exhibit A attached hereto, which Patents are pending or issued with the United States Patent and Trademark Office (the “**Patents**”);

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, it is hereby agreed that:

- 1) Definitions. All capitalized terms not defined herein shall have the respective meaning given to them in the Collateral Agreement.
- 2) Grant of Security Interests. Each Grantor hereby grants to the Collateral Trustee for the benefit of the Credit Facility Secured Parties, as security for such Grantor’s Credit Facility Secured Obligations, a security interest in all right, title and interest of such Grantor in the Patents.
- 3) Acknowledgement. The security interest granted pursuant to this Confirmatory Grant is granted in conjunction with the security interest granted to the Collateral Trustee for the Credit Facility Secured Parties pursuant to the Collateral Agreement, and each Grantor hereby acknowledges and affirms that the rights and remedies of the Collateral Trustee with respect to the security interest in the Patents made and granted hereby are more fully set forth in the Collateral Agreement, the terms and provisions of which are incorporated by reference herein as if fully set forth herein. In the event that any provision of this Confirmatory Grant is deemed to conflict with the Collateral Agreement, the provisions of the Collateral Agreement shall control.
- 4) Governing Law. This Confirmatory Grant and any claim, controversy, dispute or cause of action (whether in contract or tort or otherwise) based upon, arising out of or relating to this Confirmatory

Grant shall be governed by, and construed and interpreted in accordance with, the law of the state of New York.

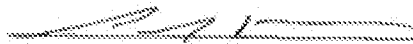
5) Counterparts. This Confirmatory Grant may be executed in one or more counterparts and by different parties hereto in separate counterparts, each of which when so executed and delivered shall be deemed an original, but all such counterparts together shall constitute but one and the same instrument.

6) Concerning the Collateral Trustee. Wilmington Trust, National Association is entering this Confirmatory Grant solely in its capacity as Collateral Trustee under the Collateral Trust Agreement, and in acting hereunder shall be entitled to all of the rights, privileges, immunities and indemnities granted to the Collateral Trustee under the Collateral Trust Agreement and the Collateral Agreement, as if such rights, privileges, immunities and indemnities were set forth herein.

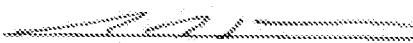
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IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed and delivered as of the date first above written.


TENNECO INC.

By:   
Name: Paul D. Novas  
Title: Vice President, Finance

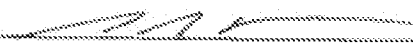
TENNECO AUTOMOTIVE OPERATING  
COMPANY INC.

By:   
Name: Paul D. Novas  
Title: Vice President, Finance

TENNECO INTERNATIONAL HOLDING CORP.

By:   
Name: Paul D. Novas  
Title: Vice President, Finance

THE PULLMAN COMPANY

By:   
Name: Paul D. Novas  
Title: Vice President, Finance

[Patent Security Grant]

**PATENT**  
**REEL: 047223 FRAME: 0052**



TENNECO GLOBAL HOLDINGS INC.

By: \_\_\_\_\_  
Name: Paul D. Novas  
Title: Vice President, Finance

CLEVITE INDUSTRIES INC.

By: \_\_\_\_\_  
Name: Paul D. Novas  
Title: Vice President, Finance

TMC TEXAS INC.

By: \_\_\_\_\_  
Name: Paul D. Novas  
Title: Vice President, Finance

CARTER AUTOMOTIVE COMPANY LLC


By:  \_\_\_\_\_  
Name: James Zabriskie  
Title: President

FEDERAL-MOGUL WORLD WIDE LLC

By:  \_\_\_\_\_  
Name: James Zabriskie  
Title: President

[Patent Security Grant]

FELT PRODUCTS MFG. CO. LLC

By:   
Name: David Jachcik  
Title: President

MUZZY-LYON AUTO PARTS LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: President

FEDERAL-MOGUL POWERTRAIN LLC

By:   
Name: David Jachcik  
Title: President

FEDERAL-MOGUL POWERTRAIN IP LLC

By:   
Name: David Jachcik  
Title: President

FEDERAL-MOGUL PISTON RINGS, LLC

By:   
Name: David Jachcik  
Title: President

[Patent Security Grant]

FELT PRODUCTS MFG. CO. LLC

By: \_\_\_\_\_  
Name: David Jachcik  
Title: President

MUZZY-LYON AUTO PARTS LLC

By:  \_\_\_\_\_  
Name: James Zabriskie  
Title: President

FEDERAL-MOGUL POWERTRAIN LLC

By: \_\_\_\_\_  
Name: David Jachcik  
Title: President

FEDERAL-MOGUL POWERTRAIN IP LLC

By: \_\_\_\_\_  
Name: David Jachcik  
Title: President


FEDERAL-MOGUL POSTON RINGS, LLC

By: \_\_\_\_\_  
Name: David Jachcik  
Title: President

[Patent Security Grant]



FEDERAL-MOGUL IGNITION LLC

By:   
Name: David Michcik  
Title: President

FEDERAL-MOGUL MOTORPARTS LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: Vice President Treasury

FEDERAL-MOGUL CHASSIS LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: President

F-M MOTORPARTS TSC LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: President

F-M TSC REAL ESTATE HOLDINGS LLC

By: \_\_\_\_\_  
Name: Michael Proud  
Title: President

[Patent Security Grant]

FEDERAL-MOGUL IGNITION LLC

By: \_\_\_\_\_  
Name: David Jachcik  
Title: President

FEDERAL-MOGUL MOTORPARTS LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: Vice President Treasury

FEDERAL-MOGUL CHASSIS LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: President

F-M MOTORPARTS TSC LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: President

F-M TSC REAL ESTATE HOLDINGS LLC

By: \_\_\_\_\_  
Name: Michael Proud  
Title: President

[Patent Security Grant]

FEDERAL-MOGUL IGNITION LLC

By: \_\_\_\_\_  
Name: David Jachcik  
Title: President

FEDERAL-MOGUL MOTORPARTS LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: Vice President Treasury

FEDERAL-MOGUL CHASSIS LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: President

F-M MOTORPARTS TSC LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: President

F-M TSC REAL ESTATE HOLDINGS LLC


By: Michael Rybnd  
Name: Michael Rybnd  
Title: President

[Patent Security Grant]

FEDERAL-MOGUL VALVE TRAIN  
INTERNATIONAL LLC

By:   
Name: David Jachcik  
Title: President

FEDERAL-MOGUL SEVIERVILLE, LLC

By:   
Name: David Jachcik  
Title: President

BECK ARNLEY HOLDINGS LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: President

FEDERAL-MOGUL FILTRATION LLC

By: \_\_\_\_\_  
Name: James Zabriskie  
Title: President

FEDERAL-MOGUL FINANCING  
CORPORATION

By:   
Name: David Jachcik  
Title: Assistant Treasurer

[Patent Security Grant]

FEDERAL-MOGUL VALVE TRAIN  
INTERNATIONAL LLC

By: \_\_\_\_\_  
Name: David Jachcik  
Title: President

FEDERAL-MOGUL SEVIERVILLE, LLC

By: \_\_\_\_\_  
Name: David Jachcik  
Title: President

BECK ARNLEY HOLDINGS LLC

By: \_\_\_\_\_   
Name: James Zabriskie  
Title: President

FEDERAL-MOGUL FILTRATION LLC


By: \_\_\_\_\_   
Name: James Zabriskie  
Title: President

FEDERAL-MOGUL FINANCING  
CORPORATION

By: \_\_\_\_\_  
Name: David Jachcik  
Title: Assistant Treasurer

[Patent Security Grant]

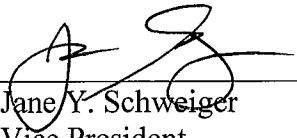
FEDERAL-MOGUL PRODUCTS US LLC

By:  \_\_\_\_\_  
Name: David Jachcik  
Title: President

{Patent Security Grant}

Acknowledged:

WILMINGTON TRUST, NATIONAL  
ASSOCIATION,  
as Collateral Trustee

By:   
Name: Jane Y. Schweiger  
Title: Vice President

[Patent Grant]

**PATENT**  
**REEL: 047223 FRAME: 0063**

CONFIRMATORY GRANT OF SECURITY INTERESTS  
IN UNITED STATES PATENTS  
Exhibit A - SCHEDULE OF PATENTS

[Attached.]

Exhibit A

**PATENT**  
**REEL: 047223 FRAME: 0064**



**Patent Status Report**

Grantor	DocketID	Technology /Invention Title	Country	Status	Type	Application Number	Application Date	Grant Number	Grant Date	Expiration Date
Pullman	1316C-000066/US	TORQUE ROD BEARING ASSEMBLY	United States	Granted	Patent	09/190477	Nov-12-1998	6231264	May-15-2001	Nov-12-2018
Pullman	1316C-000069/US	HEADED SOLID ROD FOR TORQUE ROD SPACER	United States	Granted	Patent	09/340370	Jun-28-1999	6267526	Jul-31-2001	Jun-28-2019
Pullman	1316C-100069/DE	HEADED SOLID ROD FOR TORQUE ROD SPACER	Germany	Granted	Patent	100314546	Jun-28-2000	DE10031454B4	May-31-2012	Jun-28-2020
Pullman	1316C-000070/US	CRIMPED BUSHING	United States	Granted	Patent	09/346636	Jul-02-1999	6430774	Aug-13-2002	Jul-02-2019
Pullman	1316C-000071/US	Torque Rod Apex Mount	United States	Granted	Patent	09/348152	Jul-06-1999	6270282	Aug-07-2001	Jul-06-2019
Pullman	1316C-000073/US/CPA	NON-SLIP STA-BAR BUSHING	United States	Granted	Patent	10/075062	Feb-13-2002	6755403	Jun-29-2004	Feb-13-2022
Pullman	1316C-000073/US/CPB	NON-SLIP STA-BAR BUSHING	United States	Granted	Patent	10/878622	Jun-28-2004	7114712	Oct-03-2006	Jun-28-2024
Pullman	1316C-100073/MX/01	NON-SLIP STA-BAR BUSHING	Mexico	Granted	Patent	PA/a/2003/001214	Feb-10-2003	236778	May-11-2006	Feb-10-2023
Pullman	1316C-000074/US	ONE PIECE TRAILING ARM FOR TORSIONAL SPRINGS	United States	Granted	Patent	09/549796	Apr-14-2000	6588778	Jul-08-2003	Apr-14-2020
Pullman	1316C-100074/MX	ONE PIECE TRAILING ARM FOR TORSIONAL SPRINGS	Mexico	Granted	Patent	PAa2001002761	Mar-16-2001	223569	Oct-19-2004	Mar-16-2021
Pullman	1316C-000075/US	UPPER SHOCK MOUNT ISOLATOR WITH INTEGRAL AIR SPRING HOUSING PIVOT BEARING	United States	Granted	Patent	10/348125	Jan-21-2003	6843472	Jan-18-2005	Jan-21-2023
Pullman	1316C-100075/DE	UPPER SHOCK MOUNT ISOLATOR WITH INTEGRAL AIR SPRING HOUSING PIVOT BEARING	Germany	Granted	Patent	10 2004 002 432.4	Jan-09-2004	102004002432	Nov-06-2008	Jan-09-2024
Pullman	1316C-000077/US	LOW TORQUE PIVOT BUSHING	United States	Granted	Patent	10/074944	Feb-12-2002	6854917	Feb-15-2005	Feb-12-2022
Pullman	1316C-000078/US	HIGH COMPLIANCE MULTIPLE CHAMBER PISTON FOR FLUID DAMPED ELASTOMER DEVICES	United States	Granted	Patent	10/128902	Apr-24-2002	6698731	Mar-02-2004	Apr-24-2022
Pullman	1316C-000080/US	EXHAUST ISOLATOR SYSTEM	United States	Granted	Patent	10/079037	Feb-20-2002	6758300	Jul-06-2004	Feb-20-2022
Pullman	1316C-100080/BR	EXHAUST ISOLATOR SYSTEM	Brazil	Granted	Patent	P10300383-3	Feb-18-2003	P103003833	Jun-24-2014	Jun-24-2024
Pullman	1316C-100080/DE	EXHAUST ISOLATOR SYSTEM	Germany	Granted	Patent	10307506-2	Feb-21-2003	DE10307506B4	May-31-2012	Feb-21-2023
Pullman	1316C-100080/MX	EXHAUST ISOLATOR SYSTEM	Mexico	Granted	Patent	PAa20003001369	Feb-14-2003	237812	Jun-15-2006	Feb-14-2023
Pullman	1316C-000081/US	HINGED /SPLIT REINFORCED CLAM SHELL BUSHING	United States	Granted	Patent	10/202287	Jul-24-2002	6513801	Feb-04-2003	Jul-24-2022
Pullman	1316C-000088/US	HYDRAULICALLY DAMPED BODY MOUNT WITH BOLT-THROUGH CONSTRUCTION	United States	Granted	Patent	11/340208	Jan-26-2006	7584944	Sep-08-2009	Jan-26-2026
Pullman	1316C-000088/US/DVA	HYDRAULICALLY DAMPED BODY MOUNT WITH BOLT-THROUGH CONSTRUCTION	United States	Granted	Patent	12/501618	Jul-13-2009	7922156	Apr-12-2011	Jul-13-2029
Pullman	1316C-100088/BR	HYDRAULICALLY DAMPED BODY MOUNT WITH BOLT-THROUGH CONSTRUCTION	Brazil	Pending	Patent	P10600179.3	Jan-26-2006			Jan-26-2026
Pullman	1316C-100088/DE	HYDRAULICALLY DAMPED BODY MOUNT WITH BOLT-THROUGH CONSTRUCTION	Germany	Granted	Patent	102006003938.6	Jan-26-2006	102006003938	Jun-01-2017	Jan-26-2026
Pullman	1316C-100088/MX	HYDRAULICALLY DAMPED BODY MOUNT WITH BOLT-THROUGH CONSTRUCTION	Mexico	Granted	Patent	PA/a/2006/001001	Jan-25-2006	266928	May-22-2009	Jan-25-2026
Pullman	1316C-000091/US/01	SPLIT OUTER TUBE ANTI-WALKOUT BUSHING	United States	Granted	Patent	11/342928	Jan-30-2006	7451967	Nov-18-2008	Jan-30-2026
Pullman	1316C-100091/MX/01	SPLIT OUTER TUBE ANTI-WALKOUT BUSHING	Mexico	Granted	Patent	PA/a/2006/001924	Feb-17-2006	266927	May-22-2009	Feb-17-2026
Pullman	1316C-000092/US/RCE	Two Ring Intermediate Tube With Interlock	United States	Granted	Patent	11/507313	Aug-21-2006	8038132	Oct-18-2011	Aug-21-2026
Pullman	1316C-100092/BR/01	Two Ring Intermediate Tube With Interlock	Brazil	Pending	Patent	P10616117.0	Aug-29-2006			Aug-29-2026
Pullman	1316C-100092/CN/01	Two Ring Intermediate Tube With Interlock	China	Granted	Patent	200680031680.7	Aug-29-2006	ZL2006800316807	Dec-15-2010	Aug-29-2026
Pullman	1316C-100092/DE/01	Two Ring Intermediate Tube With Interlock	Germany	Granted	Patent	11 2006 002 321.7	Aug-29-2006	112006002321.7	May-28-2015	Aug-29-2026
Pullman	1316C-000093/US	ISOLATOR	United States	Granted	Patent	11/233283	Sep-22-2005	7644911	Jan-12-2010	Sep-22-2025

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Pullman	1316C-100093/BR/01	Shear Hub Void Design	Brazil	Pending	Patent	PI0616334.3	Sep-06-2006			Sep-06-2026
Pullman	1316C-100093/CN/01	Shear Hub Void Design	China	Granted	Patent	200680033454.2	Sep-06-2006	ZL200680033454.2	Jun-06-2012	Sep-06-2026
Pullman	1316C-100093/DE/01	Shear Hub Void Design	Germany	Granted	Patent	112006002536.8	Sep-06-2006	1120060025368	Feb-22-2018	Sep-06-2026
Pullman	1316C-100093/JP/01	Shear Hub Void Design	Japan	Granted	Patent	2008-532250	Sep-06-2006	4874338	Dec-02-2011	Sep-06-2026
Pullman	1316C-100093/KR/01	Shear Hub Void Design	South Korea	Granted	Patent	10-2008-7004539	Sep-06-2006	101315694	Oct-01-2013	Sep-06-2026
Pullman	1316C-000094/US	Exhaust Isolator With Improved Method Of Mounting	United States	Granted	Patent	11/511664	Aug-29-2006	7510043	Mar-31-2009	Aug-29-2026
Pullman	1316C-100094/BR/01	Exhaust Isolator With Improved Method Of Mounting	Brazil	Pending	Patent	PI0716217.0	Jun-28-2007			Jun-28-2027
Pullman	1316C-100094/CN/01	Exhaust Isolator With Improved Method Of Mounting	China	Granted	Patent	PCT/US2007/015121	Jun-28-2007	ZL200780032240.8	Jun-05-2013	Jun-28-2027
Pullman	1316C-100094/DE/01	Exhaust Isolator With Improved Method Of Mounting	Germany	Pending	Patent	PCT/US2007/015121	Jun-28-2007			Jun-28-2027
Pullman	1316C-100094/JP/01	Exhaust Isolator With Improved Method Of Mounting	Japan	Granted	Patent	PCT/US2007/015121	Jun-28-2007	4872000	Nov-25-2011	Jun-28-2027
Pullman	1316C-100094/KR/01	Exhaust Isolator With Improved Method Of Mounting	South Korea	Pending	Patent	PCT/US2007/015121	Jun-28-2007	101624731	May-20-2016	Jun-28-2027
Pullman	1316C-100094/KR/02	Exhaust Isolator With Improved Method Of Mounting	South Korea	Granted	Patent	10-2016-7013489	May-20-2016	101698733	Jan-16-2017	May-20-2036
Pullman	1316C-000095/US/01	Very High Damping Body Mount	United States	Granted	Patent	11/827075	Jul-19-2006	7637486	Dec-29-2009	Jul-19-2026
Pullman	1316C-000095/US/01	Very High Damping Body Mount, Subframe Mount Or Engine Mount With Bolt-Through Construction	United States	Granted	Patent	12/393052	Jul-19-2006	8177201	May-15-2012	Jul-19-2026
Pullman	1316C-000095/US/CPC	Very High Damping Body Mount	United States	Granted	Patent	12/380793	Jul-19-2006	8231115	Jul-31-2012	Jul-19-2026
Pullman	1316C-100095/BR/01	Very High Damping Body Mount, Subframe Mount Or Engine Mount With Bolt-Through Construction	Brazil	Pending	Patent	PI0714830.5	Jul-12-2007			Jul-12-2027
Pullman	1316C-100095/CN/01	Very High Damping Body Mount, Subframe Mount Or Engine Mount With Bolt-Through Construction	China	Granted	Patent	200780026967.5	Jul-12-2007	ZL200780026967.5	Nov-27-2013	Jul-12-2027
Pullman	1316C-100095/DE/01	Very High Damping Body Mount, Subframe Mount Or Engine Mount With Bolt-Through Construction	Germany	Granted	Patent	602007035680.6	Jul-12-2007	2047137	Mar-19-2014	Jul-12-2027
Pullman	1316C-100095/EP/01	Very High Damping Body Mount, Subframe Mount Or Engine Mount With Bolt-Through Construction	European Patent	Granted	Patent	07810369.4	Jul-12-2007	2047137	Mar-19-2014	Jul-12-2027
Pullman	1316C-100095/TH	Very High Damping Body Mount	Thailand	Pending	Patent	0701003546	Jul-16-2007			Jul-16-2027
Pullman	1316C-000100/US	End plated shear hub ISOLATOR	United States	Granted	Patent	12/043498	Mar-06-2008	8066266	Nov-29-2011	Mar-06-2028
Pullman	000101/US/COC	External Shear Hub Isolator	United States	Granted	Patent	13/682799	Nov-21-2012	8646761	Feb-11-2014	Mar-10-2028
Pullman	1316C-000101/US/CPA	External Shear Hub Isolator	United States	Granted	Patent	12/369024	Feb-11-2009	8376331	Feb-19-2013	Mar-10-2028
Pullman	1316C-100101/BR/02	External Shear Hub Isolator	Brazil	Pending	Patent	PI0909309.5	Mar-10-2009			Mar-10-2029
Pullman	1316C-100101/CN/02	External Shear Hub Isolator	China	Granted	Patent	200980108381.2	Mar-10-2009	200980108381-2	Dec-12-2012	Mar-10-2029
Pullman	1316C-100101/DE/02	External Shear Hub Isolator	Germany	Granted	Patent	112009000528.4	Mar-10-2009	1120090005284	Feb-23-2017	Mar-10-2029

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Pullman	1316C-100101/JP/02	External Shear Hub Isolator	Japan	Granted	Patent	2010-550812	Mar-10-2009	5417348	Nov-22-2013	Mar-10-2029
Pullman	1316C-100101/KR/02	External Shear Hub Isolator	South Korea	Granted	Patent	2010-7020847	Mar-10-2009	2010-7020847	Jun-17-2016	Mar-10-2029
Pullman	1316C-100101/KR/03	External Shear Hub Isolator	South Korea	Pending	Patent	10-2015-7016762	Sep-17-2010			Mar-10-2029
Pullman	1316C-000103/US	Curled Bushing with Torsional Slip Feature	United States	Granted	Patent	12/061798	Apr-03-2008	8037573	Oct-18-2011	Apr-03-2028
Pullman	1316C-100103/BR/01	Curled Bushing with Torsional Slip Feature	Brazil	Pending	Patent	PI0911275.8	Apr-01-2009			Apr-01-2029
Pullman	1316C-100103/CN/01	Curled Bushing with Torsional Slip Feature	China	Granted	Patent	200980112301.0	Apr-01-2009	ZL200980112301.0	Apr-30-2014	Apr-01-2029
Pullman	1316C-100103/EP/01	Curled Bushing with Torsional Slip Feature	European Patent	Pending	Patent	09727207.4	Apr-01-2009			Apr-01-2029
Pullman	1316C-100103/KR/01	Curled Bushing with Torsional Slip Feature	South Korea	Granted	Patent	10-2010-7024624	Apr-01-2009	101538422	Jul-15-2015	Apr-01-2029
Pullman	1316C-000105/US	Vehicle Stabilizer Assembly with Elastomer Articulation (Heavy Truck/Swey-bar)	United States	Granted	Patent	12/619792	Nov-17-2009	7883097	Feb-08-2011	Nov-17-2029
Pullman	1316C-000108/US	2816 Tracked Vehicle backer Pad & Test method	United States	Granted	Patent	12/849915	Aug-04-2010	8347702	Jan-08-2013	Aug-04-2030
Pullman	1316C-000110/US	COMPACT COULOMB DAMPER	United States	Granted	Patent	13/050032	Mar-17-2011	8794585	Aug-05-2014	Mar-17-2031
Pullman	1316C-000110/US/C/PB	COMPACT COULOMB DAMPER	United States	Granted	Patent	13/209613	Aug-15-2011	8794586	Aug-05-2014	Mar-17-2031
Pullman	1316C-100110/BR/01	COMPACT COULOMB DAMPER	Brazil	Pending	Patent	112013005050.0	Jul-11-2011			Jul-11-2031
Pullman	1316C-100110/CN/01	COMPACT COULOMB DAMPER	China	Granted	Patent	201180032879.2	Jul-11-2011	ZL201180032879.2	Aug-19-2015	Jul-11-2031
Pullman	1316C-100110/TH/01	COMPACT COULOMB DAMPER	Thailand	Pending	Patent	1301000954	Jul-11-2011			Jul-11-2031
Pullman	1316C-100110-DE-01	COMPACT COULOMB DAMPER	Germany	Pending	Patent	1120111029983.7	Jul-11-2011			Jul-11-2031
Pullman	1316C-000114/US	Isolator having Push & Turn Mounting	United States	Granted	Patent	13/008978	Jan-19-2011	8608117	Dec-17-2013	Jan-19-2031
Pullman	1316C-100114/BR/01	Push & Turn Mounting	Brazil	Pending	Patent	112013016463.8	Dec-15-2011			Dec-15-2031
Pullman	1316C-100114/CN/01	Push & Turn Mounting	China	Granted	Patent	201180059618X	Dec-15-2011	ZL201180059618X	Sep-16-2015	Dec-15-2031
Pullman	1316C-100114/DE/01	Push & Turn Mounting	Germany	Granted	Patent	112011104740.1	Dec-15-2011	1120117047401	Oct-06-2016	Dec-15-2031
Pullman	1316C-100114/JP/01	Push & Turn Mounting	Japan	Granted	Patent	2013-550470	Dec-15-2011	6012631	Sep-30-2016	Dec-15-2031
Pullman	1316C-100114/MX/01	Push & Turn Mounting	Mexico	Granted	Patent	MX/a/2013/005558	Dec-15-2011			Dec-15-2031
Pullman	1316C-100114/TH/01	Push & Turn Mounting	Thailand	Pending	Patent	1301003940	Dec-15-2011			Dec-15-2031
Pullman	1316C-000115/US	Isolator Having Socket Mounting	United States	Granted	Patent	13/008998	Jan-19-2011	8366069	Feb-05-2013	Jan-19-2031
Pullman	1316C-100115/BR/01	Isolator Having Socket Mounting	Brazil	Pending	Patent	112013016521.9	Dec-15-2011			Dec-15-2031
Pullman	1316C-100115/CN/01	Isolator Having Socket Mounting	China	Granted	Patent	PCT/US2011/065103	Dec-15-2011	ZL2011800596550	Sep-30-2015	Dec-15-2031
Pullman	1316C-100115/DE/01	Isolator Having Socket Mounting	Germany	Granted	Patent	PCT/US2011/065103	Dec-15-2011	112011047428	Nov-03-2016	Dec-15-2031
Pullman	1316C-100115/TH/01	Isolator Having Socket Mounting	Thailand	Pending	Patent	PCT/US2011/065103	Dec-15-2011			Dec-15-2031
Pullman	1316C-000116/US	Cab Suspension with Stabilizer Bar	United States	Granted	Patent	13/899900	May-22-2013	9283993	Mar-15-2016	May-22-2033
Pullman	1316C-000117/US	Axially damped mount with bolt through construction and de-coupler	United States	Granted	Patent	14/028806	Sep-17-2013	9097310	Aug-04-2015	Sep-17-2033

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Pullman	1316C-000117/US/COG	Axially damped mount with bolt through construction and de-coupler	United States	Granted	Patent	15/239,415	Aug-17-2016	9,850,977	Dec-26-2017	Sep-17-2033
Pullman	1316C-000117/US/DVB	Bolt Through Hydraulic Mount with and without a Decoupler	United States	Granted	Patent	14/754740	Jun-30-2015	9441704	Sep-13-2016	Sep-17-2033
Pullman	1316C-100117/BR/01	Axially damped mount with bolt through construction and de-coupler	Brazil	Pending	Patent	112015005012.3	Sep-18-2013			Sep-18-2033
Pullman	1316C-100117/CN/01	Bolt Through Hydraulic Mount with and without a Decoupler	China	Granted	Patent	201380046735.1	Sep-18-2013	ZL201380046735.1	Jul-14-2017	Sep-18-2033
Pullman	1316C-100117/DE/01	Bolt Through Hydraulic Mount with and without a Decoupler	Germany	Pending	Patent	112013004566.4	Sep-18-2013			Sep-18-2033
Pullman	1316C-100117/JP/01	Bolt Through Hydraulic Mount With And Without A Decoupler	Japan	Pending	Patent	2015532161	Sep-18-2013			Sep-18-2033
Pullman	1316C-100117/KR/01	Axially damped mount with bolt through construction and de-coupler	South Korea	Pending	Patent	1020157005705	Sep-18-2013			Sep-18-2033
Pullman	1316C-100117/TH/01	Axially damped mount with bolt through construction and de-coupler	Thailand	Pending	Patent	1501001479	Sep-18-2013			Sep-18-2033
Pullman	1316C-000118/US	2829 Thin Wall Mixed Material Torque Rod	United States	Granted	Patent	13/678933	Nov-16-2012	8777245	Jul-15-2014	Nov-16-2032
Pullman	1316C-100119/CN/01	Elastomeric Bushing Assembly With Interchangeable Bar Pin	China	Pending	Patent	201480015662.4	Feb-28-2014			Feb-28-2034
Pullman	1316C-000120/US	Improved Hydroelastic Fluids	United States	Granted	Patent	14/021164	Sep-09-2013	9133903	Sep-15-2015	Sep-09-2033
Pullman	1316C-000121/US	Suspended Ring Bumper	United States	Granted	Patent	14/190547	Feb-26-2014	9068620	Jun-30-2015	Feb-26-2034
Pullman	1316C-000123/US	Tuned Vibration Absorber	United States	Granted	Patent	14/282519	May-20-2014	9297435	Mar-29-2016	May-20-2034
Pullman	1316C-000125/US	Socket Isolator Mounting Apparatus	United States	Granted	Patent	14/678377	Apr-03-2015	9650939	May-16-2017	Apr-03-2035
Pullman	1316C-000125/US/COB	Socket Isolator Mounting	United States	Granted	Patent	15/481765	Apr-07-2017	10030569	Jul-24-2018	Apr-09-2035
Pullman	1316C-100125/CN/01	Clamp-on Isolator Bracket	China	Pending	Patent	PCT/IB2016/053287	Jun-03-2016			Jun-03-2036
Pullman	1316C-100125/DE/01	Clamp-on Isolator Bracket	Germany	Pending	Patent	PCT/IB2016/053287	Jun-03-2016			Jun-03-2036
Pullman	1316C-000126/US	Rubber Lockout Stopper	United States	Granted	Patent	15/261185	Sep-09-2016	9976620	May-22-2018	Nov-22-2036
Pullman	1316C-100126/CN	Rubber Lockout Stopper	China	Pending	Patent	201610874011.1	Sep-30-2016			Sep-30-2036
Pullman	1316C-100126/DE	Rubber Lockout Stopper	Germany	Pending	Patent	102016118625.2	Sep-30-2016			Sep-30-2036
Pullman	1316C-100126-CN	Rubber Lockout Stopper	China	Pending	Patent	201610874011.1	Sep-30-2016			Sep-30-2036
Pullman	1316C-000127/US	Micro Shear-hub Isolator	United States	Granted	Patent	15/091210	Apr-05-2016	9845720	Dec-19-2017	Apr-05-2036
Pullman	1316C-000127/WO/POA	Micro Shear-hub Isolator	WO	Pending	Patent	PCT/US2016/036876	Jun-10-2016			Feb-11-2019
Pullman	1316C-100127/DE-01	Micro Shear-hub Isolator	Germany	Pending	Patent	PCT/US2016/036876	Jun-10-2016			Jun-10-2036
Pullman	1316C-100127/IN/01	Micro Shear-hub Isolator	India	Pending	Patent		Jun-10-2016			Jun-10-2036
Pullman	1316C-100127/KR/01	Micro Shear-hub Isolator	South Korea	Pending	Patent	1020187002540	Jan-25-2018			Jan-25-2038
Pullman	1316C-100127-CN-01	Micro Shear-hub Isolator	China	Pending	Patent	PCT/US2016/036876	Jun-10-2016			Jun-10-2036
Pullman	1316C-000128/US	Top Mount Integral Anti-Vibration	United States	Pending	Patent	15/615174	Jun-06-2017			Jun-06-2037
Pullman	1316C-100128/CN	Top Mount Assembly with Bushing Having Integral Anti-Vibration Feature	China	Pending	Patent	201710545862.6	Jul-06-2017			Jul-06-2037
Pullman	1316C-100128/DE	Top Mount Assembly with Bushing Having Integral Anti-Vibration Feature	Germany	Pending	Patent	102017114527.3	Jun-29-2017			Jun-29-2037
Pullman	1316C-000129-US	Vertical Hanger Isolator Assembly	United States	Pending	Patent	15/181764	Jun-14-2016			Jun-14-2036
Pullman	1316C-100129/DE	Vertical Hanger Isolator Assembly	Germany	Pending	Patent	102016110978.9	Jun-15-2016			Jun-15-2036
Pullman	1316C-000130/US	Elastomer Formulation Using a Combination of Polymers to Create Ozone Resistance without Addition of Wax	United States	Pending	Patent	15/666948	Aug-02-2017			Aug-02-2037
Pullman	1316C-100130/CN	A Method of Making a Rubber Composition and a Shaped Article Formed	China	Pending	Patent	201710770310.5	Aug-31-2017			Aug-31-2037

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Pullman	1316C-100130/DE	Elastomer Formulation Using a Combination of Polymers to Create Ozone Resistance without Addition of Wax	Germany	Pending	Patent	102017119673.0	Aug-28-2017			Aug-28-2037
Pullman	1316C-000131-US	Vehicle Suspension Bushing Assembly and Method of Assembling The Same	United States	Pending	Patent	15/480873	Apr-06-2017			Apr-06-2037
Pullman	1316C-000132/US	Hydraulic Body Mount	United States	Pending	Patent	15/667941	Aug-03-2017			Aug-03-2037
Pullman	1316C-000132-US/CPA	Hydraulic Body Mount With Compressible Bumper	United States	Pending	Patent	15/896648	Feb-14-2018			Aug-03-2037
Pullman	1316C-000132-WO-POB	Hydraulic Body Mount	WO	Pending	Patent	PCT/US2018/043813	Jul-26-2018			Feb-03-2021
Pullman	1316C-000133-US	EXHAUST SYSTEM ISOLATOR MOUNT WITH ANTI-ROTATION FEATURE	United States	Pending	Patent	16/103154	Aug-14-2018			Aug-14-2038
Pullman	2001P-101697/CN/01	Leaf Spring Bracket	China	Granted	Patent	201280027885.3	May-10-2012	ZL2012800278853	Aug-24-2016	May-10-2032
Pullman	2001P-101697/CN/02	A System for Mounting A Catalytic Converter of an Exhaust System	China	Pending	Patent	201610585608.4	May-10-2012			May-10-2032
Pullman	2001P-101697/DE/01	Leaf Spring Bracket	Germany	Pending	Patent	11 2012 002 385.4	May-10-2012			May-10-2032
Pullman	2001P-101697/IN/01	Leaf Spring Bracket	India	Pending	Patent	6/D/ELNP/2014	May-10-2012			May-10-2032
Pullman	2001P-101697/JP/01	Leaf Spring Bracket	Japan	Pending	Patent	2014-514464	May-10-2012			May-10-2032
Pullman	2001P-101697/KR/01	Leaf Spring Bracket	South Korea	Pending	Patent	10-2014-7000244	May-10-2012			May-10-2032
Pullman	2001P-101697/TH/01	Leaf Spring Bracket	Thailand	Pending	Patent	1301006904	May-10-2012			May-10-2032
TAOC	01259-0004/US	Passive NOx Adsorber	United States	Pending	Patent	15/848390	Dec-20-2017			Dec-20-2037
TAOC	01259-0006/US	SYSTEM FOR REMOVING WATER AND PARTICULATES FROM ENGINE EXHAUST	United States	Pending	Patent	15/893313	Feb-09-2018			Feb-09-2038
TAOC	065730-00012/US	Impact Reinforced Composite Spring Seat for a Shock Absorber	United States	Granted	Patent	15/006363	Jan-26-2016	9849746	Dec-26-2017	Jan-26-2036
TAOC	065730-00013-CN	Impact Reinforced Composite Spring Seat for a Shock Absorber	China	Pending	Patent	PCT/US2016/014851	Jan-26-2016			Jan-26-2036
TAOC	065730-00013-DE	Impact Reinforced Composite Spring Seat for a Shock Absorber	Germany	Pending	Patent	PCT/US2016/014851	Jan-26-2016			Jan-26-2036
TAOC	065730-00009/US	SHOCK ABSORBERS HAVING A COMPOSITE BASE ASSEMBLY WITH AXIAL FLEXIBILITY	United States	Granted	Patent	14/952047	Nov-25-2015	10,006516	Jun-26-2018	Dec-25-2035
TAOC	065730-00020-CN	SHOCK ABSORBERS HAVING A COMPOSITE BASE ASSEMBLY WITH AXIAL FLEXIBILITY	China	Pending	Patent	14/952047	Nov-25-2015			Nov-25-2035
TAOC	065730-00021	SHOCK ABSORBERS HAVING A COMPOSITE BASE ASSEMBLY WITH AXIAL FLEXIBILITY	Germany	Pending	Patent	112015005306.9	Nov-25-2015			Nov-25-2035
TAOC	065730-00008/US	Shock Absorbers having a Composite Base Assembly with an Over-Molded Closure Insert	United States	Granted	Patent	14/952058	Nov-25-2015	9718322	Aug-01-2017	Nov-25-2035
TAOC	065730-00018	Shock Absorbers having a Composite Base Assembly with an Over-Molded Closure Insert	China	Pending	Patent	201580064386.5	Nov-25-2015			Nov-25-2035
TAOC	065730-00019	Shock Absorbers having a Composite Base Assembly with an Over-Molded Closure Insert	Germany	Pending	Patent	112015005299.2	Nov-25-2015			Nov-25-2035
TAOC	065730-00014/US	Secondary Dampening Assembly for Shock Absorber	United States	Granted	Patent	15/014625	Feb-03-2016	9605726	Mar-28-2017	Feb-03-2036
TAOC	065730-00022	Secondary Dampening Assembly for Shock Absorber	Germany	Pending	Patent	112016000579.2	Feb-03-2016			Feb-03-2036
TAOC	065730-00023	Secondary Dampening Assembly for Shock Absorber	China	Pending	Patent	201680007419.7	Feb-03-2016			Feb-03-2036

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TAOC	065730-00016/US	Secondary Dampening Assembly for Shock Absorber	United States	Granted	Patent	15/017056	Feb-05-2016	9822837	Nov-21-2017	Feb-05-2036
TAOC	065730-00024	Secondary Dampening Assembly for Shock Absorber	China	Pending	Patent	201680012973.4	Feb-05-2016			Feb-05-2036
TAOC	065730-00025	Secondary Dampening Assembly for Shock Absorber	Germany	Pending	Patent	112016000630.6	Feb-05-2016			Feb-05-2036
TAOC	1316G-000101/US	External Shear Hub Isolator	United States	Granted	Patent	12/045139	Mar-10-2008	8152146	Apr-10-2012	Mar-10-2028
TAOC	1316G-100110/JP/02	COMPACT COULOMB DAMPER	Japan	Pending	Patent	2014166832	Jul-11-2011			Jul-11-2031
TAOC	1316G-100110/KR/01	COMPACT COULOMB DAMPER	South Korea	Pending	Patent	10-2013-7008494	Jul-11-2011			Jul-11-2031
TAOC	1316G-100110-DE-02	COMPACT COULOMB DAMPER	Germany	Pending	Patent	11-2011-106-143.9	Nov-03-2017			Jul-11-2031
TAOC	1316G-000111/US	Through Hole Apex WITH Mold integrated seal & cushion	United States	Granted	Patent	13/021797	Feb-07-2011	8453787	Jun-04-2013	Feb-07-2031
TAOC	1316G-100111/BR/01	Through Hole Apex WITH Mold integrated seal & cushion	Brazil	Pending	Patent	112013020043.0	Jan-18-2012			Jan-18-2032
TAOC	1316G-100111/CN/01	Through Hole Apex WITH Mold integrated seal & cushion	China	Granted	Patent	201280007929.6	Jan-18-2012	Z1201280007929.6	Sep-16-2015	Jan-18-2032
TAOC	1316G-100111/DE/01	Through Hole Apex WITH Mold integrated seal & cushion	Germany	Pending	Patent	11 2012 000 705.0	Jan-18-2012			Jan-18-2032
TAOC	1316G-100111/IN/01	Through Hole Apex WITH Mold integrated seal & cushion	India	Pending	Patent	6348/DELNP/2013	Jan-18-2012			Jan-18-2032
TAOC	1316G-100111/JP/01	Through Hole Apex WITH Mold integrated seal & cushion	Japan	Granted	Patent	2013-553447	Jan-18-2012	5972289	Jul-22-2016	Jan-18-2032
TAOC	1316G-100111/KR/01	Through Hole Apex WITH Mold integrated seal & cushion	South Korea	Pending	Patent	10-2013-7019986	Jan-18-2012			Jan-18-2032
TAOC	1316G-100111/TH/01	Through Hole Apex WITH Mold integrated seal & cushion	Thailand	Pending	Patent	1301004349	Jan-18-2012			Jan-18-2032
TAOC	1316G-000112/US	Elastomeric Bushing with Multi-Piece Bar Pin	United States	Granted	Patent	12/911812	Oct-26-2010	8226100	Jul-24-2012	Oct-26-2030
TAOC	1316G-100112/MX/01	Elastomeric Bushing with Multi-Piece Bar Pin	Mexico	Granted	Patent	MX/a/2013/002284	Aug-22-2011	331767	Jul-21-2015	Aug-22-2031
TAOC	1316G-100112/TH/01	Elastomeric Bushing with Multi-Piece Bar Pin	Thailand	Pending	Patent	1301002157	Aug-22-2011			Aug-22-2031
TAOC	1316G-000113/US	Hybrid Cross Axis Ball Joint Bushing (contact Jim Lewis before spending further prosecution funds)	United States	Granted	Patent	13/114149	May-24-2011	8616773	Dec-31-2013	May-24-2031
TAOC	1316G-100113/JP/01	Hybrid Cross Axis Ball Joint Bushing	Japan	Granted	Patent	2013-534905	Aug-22-2011	5693739	Feb-13-2015	Aug-22-2031
TAOC	1316G-100113/KR/01	Hybrid Cross Axis Ball Joint Bushing	South Korea	Pending	Patent	10-2013-7006980	Aug-22-2011			Aug-22-2031
TAOC	1316G-100113/MX/01	Hybrid Cross Axis Ball Joint Bushing	Mexico	Granted	Patent	MX/a/2013/002285	Aug-22-2011	331574	Jul-14-2015	Aug-22-2031
TAOC	1316G-100131-CN	Controlled torque bushing with pre-load washer	China	Pending	Patent	201810284816X	Apr-02-2018			Apr-02-2038
TAOC	1316G-100131-DE	Controlled torque bushing with pre-load washer	Germany	Pending	Patent	102018105175.1	Mar-07-2018			Mar-07-2038
TAOC	1316E-000002/US	SYSTEM & METHOD FOR REDUCING NOX IN COMBUSTION EXHAUST STREAMS	United States	Granted	Patent	10/298981	Nov-18-2002	6865881	Mar-15-2005	Nov-18-2022
TAOC	1316E-000003/US	METHODS & APPARATUS FOR INJECTING ATOMIZED FLUID	United States	Granted	Patent	11/112039	Apr-22-2005	746749	Dec-23-2008	Apr-22-2025
TAOC	1316E-000003/US/CPD	METHODS & APPARATUS FOR INJECTING ATOMIZED FLUID	United States	Granted	Patent	12/275539	Nov-21-2008	8047452	Nov-01-2011	Nov-21-2028
TAOC	1316E-100003/EP/01/DE	METHODS & APPARATUS FOR INJECTING ATOMIZED FLUID	Germany	Granted	Patent	05 741 327.0	Apr-25-2005	1751407	Jan-04-2012	Apr-25-2025

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TAOC	1316E-100003/JP/05	METHODS & APPARATUS FOR INJECTING ATOMIZED FLUID	Japan	Granted	Patent	2011-537448	Sep-30-2009	5728387	Apr-10-2015	Sep-30-2029
TAOC	1316E-000004/US/01	Methods And Apparatus For Injecting Atomized Fluid at a Low Flow Rate	United States	Granted	Patent	11/754872	May-29-2007	7861520	Jan-04-2011	May-29-2027
TAOC	1316E-100004/CN/01	Methods And Apparatus For Injecting Atomized Fluid at a Low Flow Rate	China	Granted	Patent	200780019816.7	May-29-2007	ZL2007800198167	May-04-2011	May-29-2027
TAOC	1316E-100004/EP/01	Methods And Apparatus For Injecting Atomized Fluid at a Low Flow Rate	European Patent	Granted	Patent	07777292.9	May-29-2007	2032809	Aug-21-2013	May-29-2027
TAOC	1316E-100004/EP/03	Methods And Apparatus For Injecting Atomized Fluid at a Low Flow Rate	European Patent	Granted	Patent	13004119.7	May-29-2007	2700792	Nov-16-2016	May-29-2027
TAOC	1316E-100004/EP/03-DE	Methods And Apparatus For Injecting Atomized Fluid at a Low Flow Rate	Germany	Granted	Patent	13004119.7	May-29-2007	2700792	Nov-16-2016	May-29-2027
TAOC	1316E-100004/IN/01	Methods And Apparatus For Injecting Atomized Fluid at a Low Flow Rate	India	Granted	Patent	6308/CHENP/2008	May-29-2007	273696	Jun-23-2016	May-29-2027
TAOC	1316E-100004/JP/01	Methods And Apparatus For Injecting Atomized Fluid at a Low Flow Rate	Japan	Granted	Patent	2009-513217	May-29-2007	5161207	Dec-21-2012	May-29-2027
TAOC	1316E-100004/KR/01	Methods And Apparatus For Injecting Atomized Fluid at a Low Flow Rate	South Korea	Granted	Patent	10-2008-028862	May-29-2007	101460967	Nov-06-2014	May-29-2027
TAOC	1316E-000005/US/01	Dual Injector System For Diesel Emissions Control	United States	Granted	Patent	11/870012	Oct-10-2007	8109077	Feb-07-2012	Oct-10-2027
TAOC	1316E-100005/CN/01	Dual Injector System For Diesel Emissions Control	China	Granted	Patent	200780038145.9	Oct-11-2007	2007800381459	Mar-06-2013	Oct-11-2027
TAOC	1316E-100005/IN/01	Dual Injector System For Diesel Emissions Control	India	Pending	Patent	1944/CHENP/2009	Oct-11-2007			Oct-11-2027
TAOC	1316E-100005/KR/01	Dual Injector System For Diesel Emissions Control	South Korea	Granted	Patent	10-2009-7007509	Oct-11-2007	101399049	May-19-2014	Oct-11-2027
TAOC	1316E-100005/TH/01	Dual Injector System For Diesel Emissions Control	Thailand	Pending	Patent	0701005136	Oct-10-2007			Oct-10-2027
TAOC	1316E-000007/US/01	Pressure Swirl Flow Injector With Reduced Flow Variability And Return Flow	United States	Granted	Patent	13/023870	Feb-09-2011	8998114	Apr-07-2015	Feb-09-2031
TAOC	1316E-000007/US/CPPB	Gen 3 Injector	United States	Granted	Patent	13/164976	Jun-21-2011	8740113	Jun-03-2014	Feb-09-2031
TAOC	1316E-000007/US/CPPC	Gen 3 Injector (Flux Bridge)	United States	Granted	Patent	13/220980	Aug-30-2011	8973895	Mar-10-2015	Feb-09-2031
TAOC	1316E-000007/US/CPPF	Gen 3 Injector	United States	Granted	Patent	14/641820	Mar-09-2015	9683472	Jun-20-2017	Feb-09-2031
TAOC	1316E-100007/CN/01	Gen 3 Injector	China	Granted	Patent	PCT/US2011/024208	Feb-09-2011	ZL201180018411.8	Mar-18-2015	Feb-09-2031
TAOC	1316E-100007/CN/02	Gen 3 Injector	China	Pending	Patent	201510076022.0	Feb-09-2011			Feb-09-2031
TAOC	1316E-100007/CN/04	Gen 3 Injector	China	Granted	Patent	201280022018.0	Jun-05-2012	201280022018-0	Feb-15-2017	Jun-05-2032
TAOC	1316E-100007/CN/05	Gen 3 Injector	China	Granted	Patent	201280042283.5	Aug-28-2012	201280042283-5	Aug-17-2016	Aug-28-2032
TAOC	1316E-100007/DE/01	Gen 3 Injector	Germany	Pending	Patent	PCT/US2011/024208	Feb-09-2011			Feb-09-2031
TAOC	1316E-100007/DE/04	Gen 3 Injector	Germany	Pending	Patent	11 2012 002 573.3	Jun-05-2012			Jun-05-2032
TAOC	1316E-100007/DE/05	Gen 3 Injector	Germany	Pending	Patent	11 2012 003 626.3	Aug-28-2012			Aug-28-2032
TAOC	1316E-100007/IN/01	Gen 3 Injector	India	Pending	Patent	PCT/US2011/024208	Feb-09-2011			Feb-09-2031
TAOC	1316E-100007/IN/04	Gen 3 Injector	India	Pending	Patent	8373/DEINP/2013	Jun-05-2012			Jun-05-2032

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TAOC	1316E-100007/IN/05	Gen 3 Injector	India	Pending	Patent	963/DEL/NP/2014	Aug-28-2012			Aug-28-2032
TAOC	1316E-100007/JP/01	Gen 3 Injector	Japan	Granted	Patent	PCT/US2011/024208	Feb-09-2011	5748781	May-22-2015	Feb-09-2031
TAOC	1316E-100007/JP/04	Gen 3 Injector	Japan	Granted	Patent	2014-516985	Jun-05-2012	6097746	Feb-24-2017	Jun-05-2032
TAOC	1316E-100007/JP/05	Gen 3 Injector	Japan	Pending	Patent	2014-528507	Aug-28-2012			Aug-28-2032
TAOC	1316E-100007/KR/01	Gen 3 Injector	South Korea	Granted	Patent	1020127023283	Feb-09-2011	101767284	Aug-04-2017	Feb-09-2031
TAOC	1316E-100007/KR/04	Gen 3 Injector	South Korea	Pending	Patent	10-2013-7033892	Jun-05-2012			Jun-05-2032
TAOC	1316E-100007/KR/05	Gen 3 Injector	South Korea	Pending	Patent	10-2014-7008019	Aug-28-2012			Aug-28-2032
TAOC	1316E-100007/TH/01	Gen 3 Injector	Thailand	Pending	Patent	PCT/US2011/024208	Feb-09-2011			Feb-09-2031
TAOC	1316E-100007/TH/04	Gen 3 Injector	Thailand	Pending	Patent	1301007148	Jun-05-2012			Jun-05-2032
TAOC	1316E-100007/TH/05	Gen 3 Injector	Thailand	Pending	Patent	1401000999	Aug-28-2012			Aug-28-2032
TAOC	1316E-000008-US	Reagent Injector With Flux Bridge	United States	Pending	Patent	16/106891	Aug-21-2018			Aug-21-2038
TAOC	1316N-001606/US	DAMPER WITH EXTERNALLY MOUNTED SEMI-ACTIVE SYSTEM	United States	Granted	Patent	09/318301	May-25-1999	6321888	Nov-27-2001	May-25-2019
TAOC	1316N-001631/US	STROKE DEPENDENT DAMPING	United States	Granted	Patent	09/168034	Oct-07-1998	6352145	Mar-05-2002	Oct-07-2018
TAOC	1316N-001632/US/CPA	ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	United States	Granted	Patent	09/443236	Nov-18-1999	6290035	Sep-18-2001	Nov-18-2019
TAOC	1316I-101633/BR/01	SOLENOID ACTUATED CONTINUOUSLY VARIABLE SERVO VALVE FOR ADJUSTING DAMPING IN SHOCK ABSORBERS AND STRUTS	Brazil	Granted	Patent	P104174003	Oct-07-2004	P104174003	May-10-2016	May-10-2026
TAOC	1316I-101633/CN/01	SOLENOID ACTUATED CONTINUOUSLY VARIABLE SERVO VALVE FOR ADJUSTING DAMPING IN SHOCK ABSORBERS AND STRUTS	China	Granted	Patent	2004-80036379.6	Oct-07-2004	Z1200480036379.6	Apr-08-2009	Oct-07-2024
TAOC	1316I-101633/DE/01	SOLENOID ACTUATED CONTINUOUSLY VARIABLE SERVO VALVE FOR ADJUSTING DAMPING IN SHOCK ABSORBERS AND STRUTS	Germany	Granted	Patent	11 2004 002 411.0	Oct-07-2004	1120040024110	Jan-21-2016	Oct-07-2024
TAOC	1316I-101633/IN/01	SOLENOID ACTUATED CONTINUOUSLY VARIABLE SERVO VALVE FOR ADJUSTING DAMPING IN SHOCK ABSORBERS AND STRUTS	India	Granted	Patent	3189/DEL/NP/2006	Oct-07-2004	254148	Sep-24-2012	Oct-07-2024
TAOC	1316N-001633/US	SOLENOID ACTUATED CONTINUOUSLY VARIABLE SERVO VALVE FOR ADJUSTING DAMPING IN SHOCK ABSORBERS AND STRUTS	United States	Granted	Patent	10/730560	Dec-08-2003	7438164	Oct-21-2008	Dec-08-2023
TAOC	1316I-101634/DE	Single Piece Piston	Germany	Granted	Patent	10035640.0	Jul-21-2000	10035640	Nov-16-2006	Jul-21-2020
TAOC	1316I-101634/JP	Single Piece Piston	Japan	Pending	Patent	2000-224707	Jul-26-2000			Jul-26-2020
TAOC	1316N-001634/US	Single Piece Piston	United States	Granted	Patent	09/360570	Jul-26-1999	6464053	Oct-15-2002	Jul-26-2019
TAOC	1316N-001636/US	Stroke Dependent Bypass	United States	Granted	Patent	09/306343	May-06-1999	6220409	Apr-24-2001	May-06-2019
TAOC	1316I-101637/JP	FULCRUM BLOW OFF VALVE FOR USE IN A SHOCK ABSORBER	Japan	Granted	Patent	2000163954	Jun-01-2000	3660857	Mar-25-2005	Jun-01-2020
TAOC	1316N-001637/US	FULCRUM BLOW OFF VALVE FOR USE IN A SHOCK ABSORBER	United States	Granted	Patent	09/328576	Jun-09-1999	6371264	Apr-16-2002	Jun-09-2019
TAOC	1316N-001639/US	FREQUENCY DEPENDANT DAMPER	United States	Granted	Patent	09/159722	Sep-24-1998	6148969	Nov-21-2000	Sep-24-2018
TAOC	1316N-001639/US/CPA	FREQUENCY DEPENDANT DAMPER	United States	Granted	Patent	09/399537	Sep-20-1999	6382373	May-07-2002	Sep-24-2018
TAOC	1316N-001639/US/CPB	FREQUENCY DEPENDANT DAMPER	United States	Granted	Patent	09/703012	Oct-31-2000	6364075	Apr-02-2002	Sep-24-2018
TAOC	1316N-001640/US	LINK ASSEMBLY FOR MOTOR VEHICLE SUSPENSION	United States	Granted	Patent	09/414115	Oct-08-1999	6354614	Mar-12-2002	Oct-08-2019



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TAOC	1316N-001641/US	AXLE SHAFT SPACER MEMBR	United States	Granted	Patent	09/415406	Oct-08-1999	6267197	Jul-31-2001	Oct-08-2019
TAOC	1316I-101643/DE/02	Air Pressure Proportional Damper	Germany	Granted	Patent	11 2004 002412.9	Sep-27-2004	1120040024129	Jul-10-2014	Sep-27-2024
TAOC	1316I-101643/IN/02	Air Pressure Proportional Damper	India	Granted	Patent	3257/DELINP/2006	Sep-27-2004	261646	Jul-04-2014	Sep-27-2024
TAOC	1316N-001643/US	Air Pressure Proportional Damper	United States	Granted	Patent	10/738841	Dec-17-2003	7252181	Aug-07-2007	Dec-17-2023
TAOC	1316N-001647/US	VARIABLE BLEED ORIFICE VALVING	United States	Granted	Patent	09/552125	Apr-19-2000	6672436	Jan-06-2004	Apr-19-2020
TAOC	1316N-001648/US	INDEPENDENTLY TUNABLE VARIABLE BLEED ORIFICE	United States	Granted	Patent	09/575900	May-22-2000	6460664	Oct-08-2002	May-22-2020
TAOC	1316N-001651/US	FLOATING PORT BLOCKER	United States	Granted	Patent	09/992316	Nov-19-2001	6644445	Nov-11-2003	Nov-19-2021
TAOC	1316I-101653/CN/01	Thermal Expansion Compensation Shock Absorber	China	Granted	Patent	2004/80028025.7	Sep-21-2004	Z1200480028025.7	Apr-08-2009	Sep-21-2024
TAOC	1316I-101653/EP/01	Thermal Expansion Compensation Shock Absorber	European Patent	Granted	Patent	04784599.5	Sep-21-2004	1664584	Jan-03-2018	Sep-21-2024
TAOC	1316I-101653/IN/01	Thermal Expansion Compensation Shock Absorber	India	Granted	Patent	1591/DELINP/2006	Sep-21-2004	261738	Jul-11-2014	Sep-21-2024
TAOC	1316N-001653/US	Thermal Expansion Compensation Shock Absorber	United States	Granted	Patent	10/671354	Sep-25-2003	7004293	Feb-28-2006	Sep-25-2023
TAOC	1316N-001654/US	Frequency Dependent Damper	United States	Granted	Patent	09/778855	Feb-07-2001	7070028	Jul-04-2006	Feb-07-2021
TAOC	1316I-101655/EP/DE	Air Spring Assembly On Shock Absorber with Combined Seal	Germany	Granted	Patent	02011389-0	May-24-2002	60241436-9	Nov-02-2011	May-24-2022
TAOC	1316N-001655/US	Air Spring Assembly On Shock Absorber with Combined Seal	United States	Granted	Patent	09/867297	May-29-2001	6443436	Sep-03-2002	May-29-2021
TAOC	1316N-001656/US/DVB	Electronically Controlled Frequency Dependent Damping	United States	Granted	Patent	11/900606	Feb-10-2004	8210330	Jul-03-2012	Feb-10-2024
TAOC	1316I-101659/BR	ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	Brazil	Granted	Patent	PI0206325.5	Nov-19-2002	PI0206325.5	Dec-17-2013	Dec-17-2023
TAOC	1316I-101659/DE	ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	Germany	Granted	Patent	602 08 619.1-08	Nov-19-2002	1312828	Jan-11-2006	Nov-19-2022
TAOC	1316I-101659/EP	ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	European Patent	Granted	Patent	02025876-0	Nov-19-2002	1312828	Jan-11-2006	Nov-19-2022
TAOC	1316I-101659/EP/FR	ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	France	Granted	Patent	02025876-0	Nov-19-2002	1312828	Jan-11-2006	Nov-19-2022
TAOC	1316N-001659/US	ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	United States	Granted	Patent	09/992309	Nov-19-2001	6581733	Jun-24-2003	Nov-19-2021
TAOC	1316N-001659/US/DVA	ACCELERATION SENSITIVE DAMPING FOR AUTOMOTIVE DAMPERS	United States	Granted	Patent	10/425127	Apr-28-2003	6793049	Sep-21-2004	Nov-19-2021
TAOC	1316I-101662/CN/01	Adjustable Damper with Valve Mounted In-Line	China	Granted	Patent	200480031042.6	Sep-10-2004	Z1200480031042.6	Feb-04-2009	Sep-10-2024
TAOC	1316N-001662/US	Adjustable Damper with Valve Mounted In-Line	United States	Granted	Patent	10/667555	Sep-22-2003	6959796	Nov-01-2005	Sep-22-2023
TAOC	1316I-101663/CN/01	AIR PRESSURE PROPORTIONAL DAMPER FOR SHOCK ABSORBER	China	Granted	Patent	2005 8000 4600.4	Jan-18-2005	Z1200580004600.4	Dec-10-2008	Jan-18-2025
TAOC	1316I-101669/EP/01	Stroke Dependent Bypass	European Patent	Granted	Patent	04782103.8	Aug-25-2004	1664578	Apr-27-2016	Aug-25-2024
TAOC	1316I-101669/EP/01-DE	Stroke Dependent Bypass	Germany	Granted	Patent	04782103.8	Aug-25-2004	6020040492035	Apr-27-2016	Aug-25-2024
TAOC	1316N-001669/US	Stroke Dependent Bypass	United States	Granted	Patent	10/666051	Sep-17-2003	6918473	Jul-19-2005	Sep-17-2023
TAOC	1316I-101675/DE	TWIN PISTON SHOCK ABSORBER	Germany	Granted	Patent	102004013881.8	Mar-20-2004	102004013881.8	Aug-26-2010	Mar-20-2024
TAOC	1316N-001675/US	TWIN PISTON SHOCK ABSORBER	United States	Granted	Patent	10/464192	Jan-18-2003	6776269	Aug-17-2004	Jan-18-2023
TAOC	1316I-101677/CN/01	Integrated Tagging System for an Electronic Shock Absorber	China	Granted	Patent	PCT/US2004/023403	Jul-20-2004	Z1200480030073.X	Oct-22-2008	Jul-20-2024
TAOC	1316I-101677/EP/01	Integrated Tagging System for an Electronic Shock Absorber	European Patent	Granted	Patent	04778756.9	Jul-20-2004	EP1664583 B1	Feb-16-2011	Jul-20-2024
TAOC	1316I-101677/EP/01/DE	Integrated Tagging System for an Electronic Shock Absorber	Germany	Granted	Patent	04778756.9	Jul-20-2004	602004031437.4	Feb-16-2011	Jul-20-2024

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TAOC	1316N-001677/US	Integrated Tagging System for an Electronic Shock Absorber	United States	Granted	Patent	10/662546	Sep-15-2003	6964325	Nov-15-2005	Sep-15-2023
TAOC	1316I-101680/IN/01	Extra Support Area for Valve Disc on Piston	India	Pending	Patent	1640/DELNP/2006	Sep-15-2004			Sep-15-2024
TAOC	1316I-101682/CN/01	Adjustable Damper with Control Valve, Mounted in an External Collar	China	Granted	Patent	200480030695.2	Jul-19-2004	ZL200480030695.2	Aug-05-2009	Jul-19-2024
TAOC	1316I-101682/EP/01	Adjustable Damper with Control Valve, Mounted in an External Collar	European Patent	Pending	Patent	04757120.3	Jul-19-2004			Jul-19-2024
TAOC	1316N-001682/US	Adjustable Damper with Control Valve, Mounted in an External Collar	United States	Granted	Patent	10/666196	Sep-17-2003	6978871	Dec-27-2005	Sep-17-2023
TAOC	1316I-101684/IN/01	BOOSTER TO ADAPT AIR SPRING PRESSURE FOR FDD SHOCK ABSORBER	India	Pending	Patent	1459/DELNP/2006	Sep-08-2004			Sep-08-2024
TAOC	1316I-101690/BR/01	Monotube Piston Valving System with Selective Bleed	Brazil	Granted	Patent	PI0414400.7	Aug-25-2004	PI04144007	Nov-21-2017	Nov-21-2027
TAOC	1316I-101690/CN/01	Monotube Piston Valving System with Selective Bleed	China	Granted	Patent	200480029842.4	Aug-25-2004	ZL200480029842.4	May-12-2010	Aug-25-2024
TAOC	1316I-101690/CN/02	Monotube Piston Valving System with Selective Bleed	China	Granted	Patent	200810186691.3	Aug-25-2004	ZL200810186691.3	Feb-09-2011	Aug-25-2024
TAOC	1316I-101690/DE/02	Monotube Piston Valving System with Selective Bleed	Germany	Granted	Patent	11161224.8	Aug-25-2004	2333373	Oct-28-2015	Aug-25-2024
TAOC	1316I-101690/DE/03	Monotube Piston Valving System with Selective Bleed	Germany	Granted	Patent	11161226.3	Aug-25-2004	602004046052.4	Oct-22-2014	Aug-25-2024
TAOC	1316I-101690/DE/04	Monotube Piston Valving System with Selective Bleed	Germany	Granted	Patent	11161229.7	Aug-25-2004	2360390	Aug-03-2016	Aug-25-2024
TAOC	1316I-101690/EP/01	Monotube Piston Valving System with Selective Bleed	European Patent	Granted	Patent	04782227.5	Aug-25-2004	1664579	Oct-03-2012	Aug-25-2024
TAOC	1316I-101690/EP/02	Monotube Piston Valving System with Selective Bleed	European Patent	Granted	Patent	11161224.8	Aug-25-2004	2333373	Oct-28-2015	Aug-25-2024
TAOC	1316I-101690/EP/03	Monotube Piston Valving System with Selective Bleed	European Patent	Granted	Patent	11161226.3	Aug-25-2004	2362114	Oct-22-2014	Aug-25-2024
TAOC	1316I-101690/EP/04	Monotube Piston Valving System with Selective Bleed	European Patent	Granted	Patent	11161229.7	Aug-25-2004	2360390	Aug-03-2016	Aug-25-2024
TAOC	1316I-101690/EP/DE	Monotube Piston Valving System with Selective Bleed	Germany	Granted	Patent	04782227.5	Aug-25-2004	602004039569.2	Oct-03-2012	Aug-25-2024
TAOC	1316I-101690/IN/01	Monotube Piston Valving System with Selective Bleed	India	Granted	Patent	878/KOLNP/06	Aug-25-2004	258950	Feb-21-2014	Aug-25-2024
TAOC	1316I-101690/IN/02	Monotube Piston Valving System with Selective Bleed	India	Pending	Patent	3283/KOLNP/2011	Aug-25-2004			Aug-25-2024
TAOC	1316N-001690/US	Monotube Piston Valving System with Selective Bleed	United States	Granted	Patent	10/662544	Sep-15-2003	7070029	Jul-04-2006	Sep-15-2023
TAOC	1316I-101691/TH	NEW TOP CAP CRIMPING FOR AIR SPRING SUSPENSION	Thailand	Pending	Patent	0701006272	Dec-12-2007			Dec-12-2027
TAOC	1316I-101695/CN/01	Rod Guide and Seal System for Gas Filled Shock Absorbers	China	Granted	Patent	200580004808.6	Jan-26-2005	ZL200580004808.6	Dec-07-2011	Jan-26-2025
TAOC	1316I-101695/DE/01	Rod Guide and Seal System for Gas Filled Shock Absorbers	Germany	Granted	Patent	112005000363.9	Jan-26-2005	112005000363.9	Oct-22-2015	Jan-26-2025
TAOC	1316I-101695/JP/01	Rod Guide and Seal System for Gas Filled Shock Absorbers	Japan	Granted	Patent	2006-553141	Jan-26-2005	4890272	Dec-22-2011	Jan-26-2025
TAOC	1316N-001695/US	Rod Guide and Seal System for Gas Filled Shock Absorbers	United States	Granted	Patent	10/779592	Feb-13-2004	7011193	Mar-14-2006	Feb-13-2024
TAOC	1316I-101697/BR	SHOCK ABSORBER HAVING A HYDRAULIC STOP	Brazil	Pending	Patent	PI0503647.0	Sep-08-2005			Sep-08-2025
TAOC	1316I-101697/DE	SHOCK ABSORBER HAVING A HYDRAULIC STOP	Germany	Pending	Patent	102005040584.3	Aug-22-2005			Aug-22-2025

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TAOC	1316N-001697/US	SHOCK ABSORBER HAVING A HYDRAULIC STOP	United States	Granted	Patent	10/937838	Sep-09-2004	7032727	Apr-25-2006	Sep-09-2024
TAOC	1316N-001697/US/DVA	SHOCK ABSORBER HAVING A HYDRAULIC STOP	United States	Granted	Patent	11/330277	Jan-11-2006	7156213	Jan-02-2007	Jan-11-2026
TAOC	1316I-101698/IN/01	STROKE DEPENDENT DAMPING	India	Pending	Patent	2478/DELNP/2007	Sep-23-2005			Sep-23-2025
TAOC	1316I-101698/KR/01	STROKE DEPENDENT DAMPING	South Korea	Granted	Patent	20077012019	Sep-23-2005	101204432	Nov-19-2012	Sep-23-2025
TAOC	1316I-101699/BR	AUTOMATIC ORIENTATION OF THE TOP MOUNT	Brazil	Pending	Patent	P10504591.6	Sep-09-2005			Sep-09-2025
TAOC	1316I-101699/DE	AUTOMATIC ORIENTATION OF THE TOP MOUNT	Germany	Pending	Patent	102005043191.7	Sep-09-2005			Sep-09-2025
TAOC	1316N-001699/US	AUTOMATIC ORIENTATION OF THE TOP MOUNT	United States	Granted	Patent	11/222343	Sep-08-2005	7314224	Jan-01-2008	Sep-08-2025
TAOC	1316I-101702/CN/01	AMPLITUDE CONTROLLED ORIFICE VALVING	China	Granted	Patent	200580035366.1	Oct-13-2005	Z12005800353661	Jan-30-2013	Oct-13-2025
TAOC	1316I-101702/DE/01	AMPLITUDE CONTROLLED ORIFICE VALVING	Germany	Granted	Patent	11-2005002549.7	Oct-13-2005	112005002549.7	Mar-26-2015	Oct-13-2025
TAOC	1316I-101702/IN/01	AMPLITUDE CONTROLLED ORIFICE VALVING	India	Pending	Patent	2659/DELNP/2007	Oct-13-2005			Oct-13-2025
TAOC	1316N-001702/US	AMPLITUDE CONTROLLED ORIFICE VALVING (MAD)	United States	Granted	Patent	11/248102	Oct-14-2004	7216747	May-15-2007	Oct-14-2024
TAOC	1316I-101708/CN	FOUR PIECE PISTON FOR MTBO	China	Granted	Patent	200610138978X	Jun-21-2006	200610138978X	Apr-18-2012	Jun-21-2026
TAOC	1316I-101708/DE	FOUR PIECE PISTON FOR MTBO	Germany	Pending	Patent	102006028745.2	Jun-20-2006			Jun-20-2026
TAOC	1316I-101708/IN	FOUR PIECE PISTON FOR MTBO	India	Pending	Patent	1464/Del/2006	Jun-21-2006			Jun-21-2026
TAOC	1316N-001708/US	FOUR PIECE PISTON FOR MTBO	United States	Granted	Patent	11/472261	Jun-21-2006	7703586	Apr-27-2010	Jun-21-2026
TAOC	1316I-101709/CN	SEMI-ACTIVE ANTI-ROLL SYSTEM	China	Granted	Patent	200610086446.6	Jun-21-2006	Z12006100864466	Dec-15-2010	Jun-21-2026
TAOC	1316I-101709/DE	SEMI-ACTIVE ANTI-ROLL SYSTEM	Germany	Pending	Patent	102006028511.5	Jun-21-2006			Jun-21-2026
TAOC	1316I-101709/IN	SEMI-ACTIVE ANTI-ROLL SYSTEM	India	Granted	Patent	1460/Del/2006	Jun-20-2006	295070	Mar-27-2018	Jun-20-2026
TAOC	1316I-101709/JP/01	SEMI-ACTIVE ANTI-ROLL SYSTEM	Japan	Granted	Patent	2006-171060	Jun-21-2006	5106797	Oct-12-2012	Jun-21-2026
TAOC	1316N-001709/US	SEMI-ACTIVE ANTI-ROLL SYSTEM	United States	Granted	Patent	11/471311	Jun-20-2006	7751959	Jul-06-2010	Jun-20-2026
TAOC	1316I-101715/BR/01	Continuously Variable Semi Active Valve For Shock Absorbers	Brazil	Pending	Patent	P10719780.2	Oct-10-2007			Oct-10-2027
TAOC	1316I-101715/CN/01	Continuously Variable Semi Active Valve For Shock Absorbers	China	Granted	Patent	2007800380884.4	Oct-10-2007	Z12007800380884	May-30-2012	Oct-10-2027
TAOC	1316I-101715/CN/02	Continuously Variable Semi Active Valve For Shock Absorbers	China	Granted	Patent	201110201479.1	Oct-10-2007	2011102014791	Apr-09-2014	Oct-10-2027
TAOC	1316I-101715/DE/01	Continuously Variable Semi Active Valve For Shock Absorbers	Germany	Pending	Patent	112007002377.5	Oct-10-2007			Oct-10-2027
TAOC	1316I-101715/IN/01	Continuously Variable Semi Active Valve For Shock Absorbers	India	Pending	Patent	01961/CHENP/2009	Oct-10-2007			Oct-10-2027
TAOC	1316I-101715/JP/01	Continuously Variable Semi Active Valve For Shock Absorbers	Japan	Pending	Patent	2009-532392	Oct-10-2007			Oct-10-2027
TAOC	1316I-101715/TH	Continuously Variable Semi Active Valve For Shock Absorbers	Thailand	Granted	Patent	0701005113	Oct-10-2007	46027	Sep-22-2015	Oct-10-2027
TAOC	1316N-001715/US	Continuously Variable Semi Active Valve For Shock Absorbers	United States	Granted	Patent	11/546501	Oct-11-2006	7743896	Jun-29-2010	Oct-11-2026
TAOC	1316I-101716/CN/01	SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	China	Granted	Patent	200880011856.1	Apr-15-2008	Z1200880011856.1	Jan-09-2013	Apr-15-2028
TAOC	1316I-101716/CN/02	SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	China	Granted	Patent	2012105130498	Apr-15-2008	Z12012105130498	Jul-01-2015	Apr-15-2028
TAOC	1316I-101716/DE/01	SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	Germany	Pending	Patent	1120080006660	Apr-15-2008			Apr-15-2028
TAOC	1316I-101716/IN/01	SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	India	Pending	Patent	1697/MUMP/2009	Apr-15-2008			Apr-15-2028

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TAOC	13161-101716//JP/03	SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	Japan	Pending	Patent	2014243996	Apr-15-2008			Apr-15-2028
TAOC	13161-101716//JP/04	SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	Japan	Granted	Patent	2014244002	Apr-15-2008	6174000	Jul-14-2017	Apr-15-2028
TAOC	1316N-001716/US	SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	United States	Granted	Patent	11/787452	Apr-16-2007	7926632	Apr-19-2011	Apr-16-2027
TAOC	1316N-001716/US/COB	SHOCK ABSORBER HAVING A CONTINUOUSLY VARIABLE VALVE WITH SOFT VALVING	United States	Granted	Patent	13/034050	Feb-24-2011	8256586	Sep-04-2012	Apr-16-2027
TAOC	001716/US/COC	VARIABLE VALVE WITH SOFT VALVING	United States	Granted	Patent	13/477142	May-22-2012	8511444	Aug-20-2013	Apr-16-2027
TAOC	13161-101717//CN/01	USE OF SHOCK ABSORBER DIRT SHIELD AS DYNAMIC VIBRATION DAMPER	China	Granted	Patent	2007800528843	Oct-30-2007	Z12007800528843	May-22-2013	Oct-30-2027
TAOC	13161-101717//DE/01	USE OF SHOCK ABSORBER DIRT SHIELD AS DYNAMIC VIBRATION DAMPER	Germany	Granted	Patent	07839850.0	Oct-30-2007	6020070445906	Jan-13-2016	Oct-30-2027
TAOC	13161-101717//EP/01	USE OF SHOCK ABSORBER DIRT SHIELD AS DYNAMIC VIBRATION DAMPER	European Patent	Granted	Patent	07839850.0	Oct-30-2007	2122193	Jan-13-2016	Oct-30-2027
TAOC	13161-101717//IN/01	USE OF SHOCK ABSORBER DIRT SHIELD AS DYNAMIC VIBRATION DAMPER	India	Pending	Patent	5396/CHENP/2009	Oct-30-2007			Oct-30-2027
TAOC	13161-101717//MX/01	USE OF SHOCK ABSORBER DIRT SHIELD AS DYNAMIC VIBRATION DAMPER	Mexico	Pending	Patent	MX/a/2009/009836	Oct-30-2007			Oct-30-2027
TAOC	1316N-001717//US	USE OF SHOCK ABSORBER DIRT SHIELD AS DYNAMIC VIBRATION DAMPER	United States	Granted	Patent	11/724640	Mar-15-2007	7896142	Mar-01-2011	Dec-24-2027
TAOC	13161-101718//CN/01	Semi Third Tube Design	China	Granted	Patent	200880101547.3	Jul-17-2008	Z12008801015473	Nov-14-2012	Jul-17-2028
TAOC	13161-101718//DE/01	Semi Third Tube Design	Germany	Granted	Patent	112008001980.0	Jul-17-2008	1120080019800	Feb-04-2016	Jul-17-2028
TAOC	13161-101718//IN/01	Semi Third Tube Design	India	Pending	Patent	189/MUMNP/2010	Jul-17-2008			Jul-17-2028
TAOC	1316N-001718//US	Semi Third Tube Design	United States	Granted	Patent	11/888079	Jul-31-2007	7950506	May-31-2011	Jul-31-2027
TAOC	13161-101719//BR/01	Disc Spring Intake	Brazil	Pending	Patent	PI0816091.0	Aug-12-2008			Aug-12-2028
TAOC	13161-101719//CN/01	Disc Spring Intake	China	Granted	Patent	200880107319.7	Aug-12-2008	200880107319.7	Aug-22-2012	Aug-12-2028
TAOC	13161-101719//DE/01	Disc Spring Intake	Germany	Granted	Patent	112008002335.2	Aug-12-2008	112008002335.2	Feb-04-2016	Aug-12-2028
TAOC	13161-101719//IN/01	Disc Spring Intake	India	Pending	Patent	345/MUMNP/2010	Aug-12-2008			Aug-12-2028
TAOC	13161-101719//JP/01	Disc Spring Intake	Japan	Granted	Patent	2010-522897	Aug-12-2008	5211166	Mar-01-2013	Aug-12-2028
TAOC	13161-101719//TH	Disc Spring Intake	Thailand	Pending	Patent	0801004429	Aug-27-2008			Aug-27-2028
TAOC	1316N-001719//US	Disc Spring Intake	United States	Granted	Patent	11/897201	Aug-29-2007	8083039	Dec-27-2011	Aug-29-2027
TAOC	13161-101720//BR/01	Improved Rod Assembly Weld	Brazil	Pending	Patent	PI0810529.4	Apr-15-2008			Apr-15-2028
TAOC	13161-101720//CN/01	Improved Rod Assembly Weld	China	Granted	Patent	200880012441.6	Apr-15-2008	Z1200880012441-6	May-30-2012	Apr-15-2028
TAOC	13161-101720//EP/01	Improved Rod Assembly Weld	European Patent	Pending	Patent	08742910.6	Apr-15-2008			Apr-15-2028
TAOC	13161-101720//IN/01	Improved Rod Assembly Weld	India	Pending	Patent	6346/DELNP/2009	Apr-15-2008			Apr-15-2028
TAOC	1316N-001720//US	Improved Rod Assembly Weld	United States	Granted	Patent	11/787447	Apr-16-2007	7743897	Jun-29-2010	Apr-16-2027
TAOC	13161-101721//BR/01	Velocity Progressive Valving	Brazil	Pending	Patent	112012011811.0	Nov-16-2010			Nov-16-2030
TAOC	13161-101721//CN/01	Velocity Progressive Valving	China	Granted	Patent	201080052234.0	Nov-16-2010	Z12010800522340	Dec-31-2014	Nov-16-2030
TAOC	13161-101721//CN/02	Velocity Progressive Valving	China	Granted	Patent	201410221704.1	Nov-16-2010	Z12014102217041	Dec-07-2016	Nov-16-2030

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TAOC	13161-101721/DE/01	Velocity Progressive Valving	Germany	Pending	Patent	11 2010 004474.0	Nov-16-2010			Nov-16-2030
TAOC	13161-101721/IN/01	Velocity Progressive Valving	India	Pending	Patent	3767/DELNP/2012	Nov-16-2010			Nov-16-2030
TAOC	13161-101721/TH/01	Velocity Progressive Valving	Thailand	Pending	Patent	1201002321	Nov-16-2010			Nov-16-2030
TAOC	1316N-001721/US	Velocity Progressive Valving	United States	Granted	Patent	12/620618	Nov-18-2009	8794407	Aug-05-2014	Nov-18-2029
TAOC	13161-101722/CN/01	Positioning Feature and Method for Precise Vehicle Heights	China	Granted	Patent	200880005436.2	Feb-19-2008	ZL200880005436.2	Dec-21-2011	Feb-19-2028
TAOC	13161-101722/CN/02	Positioning Feature and Method for Precise Vehicle Heights	China	Pending	Patent	2011 103191717	Feb-19-2008			Feb-19-2028
TAOC	13161-101722/CN/03	Positioning Feature and Method for Precise Vehicle Heights	China	Granted	Patent	2011 103188502	Feb-19-2008	ZL2011103188502	Jul-01-2015	Feb-19-2028
TAOC	13161-101722/DE/01	Positioning Feature and Method for Precise Vehicle Heights	Germany	Pending	Patent	11 2008 0003351	Feb-19-2008			Feb-19-2028
TAOC	13161-101722/IN/01	Positioning Feature and Method for Precise Vehicle Heights	India	Pending	Patent	1452/MVMPN/2009	Feb-19-2008			Feb-19-2028
TAOC	13161-101722/JP/01	Positioning Feature and Method for Precise Vehicle Heights	Japan	Granted	Patent	2009-550898	Feb-19-2008	5797377	Aug-28-2015	Feb-19-2028
TAOC	13161-101722/TH	Positioning Feature and Method for Precise Vehicle Heights	Thailand	Pending	Patent	0801000855	Feb-22-2008			Feb-22-2028
TAOC	1316N-001722/US/01	Positioning Feature and Method for Precise Vehicle Heights	United States	Granted	Patent	12/070536	Feb-19-2008	7988166	Aug-02-2011	Feb-19-2028
TAOC	1316N-001722/US/DVB	Positioning Feature and Method for Precise Vehicle Heights	United States	Granted	Patent	13/164890	Jun-21-2011	8196942	Jun-12-2012	Feb-19-2028
TAOC	13161-101723/BR/01	JUNCTION BLEED as feature for closed bleed valve design	Brazil	Pending	Patent	P10813425.1	Jul-17-2008			Jul-17-2028
TAOC	13161-101723/CN/01	JUNCTION BLEED as feature for closed bleed valve design	China	Granted	Patent	200880102145.5	Jul-17-2008	200880102145.5	May-21-2014	Jul-17-2028
TAOC	13161-101723/EP/01	JUNCTION BLEED as feature for closed bleed valve design	European Patent	Granted	Patent	08788897.0	Jul-17-2008	2158416	May-30-2018	Jul-17-2028
TAOC	13161-101723/EP/01-DE	JUNCTION BLEED as feature for closed bleed valve design	Germany	Granted	Patent	08788897.0	Jul-17-2008	2158416	May-30-2018	Jul-17-2028
TAOC	13161-101723/IN/01	JUNCTION BLEED as feature for closed bleed valve design	India	Granted	Patent	7419/CHEPNP/2009	Jul-17-2008	272771	Apr-26-2016	Jul-17-2028
TAOC	13161-101723/JP/01	JUNCTION BLEED as feature for closed bleed valve design	Japan	Granted	Patent	2010-512806	Jul-17-2008	5350372	Aug-30-2013	Jul-17-2028
TAOC	1316N-001723/US	JUNCTION BLEED as feature for closed bleed valve design	United States	Granted	Patent	11/821121	Jun-21-2007	8069964	Dec-06-2011	Jun-21-2027
TAOC	13161-101724/CN/01	Global Valve 2: disc spring blow-off valve	China	Granted	Patent	200880104744.0	Aug-29-2008	ZL200880104744.0	Apr-20-2016	Aug-29-2028
TAOC	13161-101724/DE/01	Global Valve 2: disc spring blow-off valve	Germany	Pending	Patent	11 2008 002332.8	Aug-29-2008			Aug-29-2028
TAOC	13161-101724/IN/01	Global Valve 2: disc spring blow-off valve	India	Pending	Patent	344/MUMNP/2010	Aug-29-2008			Aug-29-2028
TAOC	13161-101724/JP/01	Global Valve 2: disc spring blow-off valve	Japan	Pending	Patent	2010-522966	Aug-29-2008			Aug-29-2028
TAOC	1316N-001724/US	Shock Absorber having a full displacement valve assembly (Global Valve)	United States	Granted	Patent	11/897351	Aug-30-2007	8997953	Apr-07-2015	Aug-30-2027
TAOC	13161-101725/CN/01	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	China	Granted	Patent	200980120860.6	Jun-05-2009	200980120860.6	Jan-29-2014	Jun-05-2029
TAOC	13161-101725/CN/02	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	China	Granted	Patent	201310196623.6	Jun-05-2009	ZL201310196623.6	Aug-19-2015	Jun-05-2029

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Grantor	DocketID	Technology /Invention Title	Country	Status	Type	Application Number	Application Date	Grant Number	Grant Date	Expiration Date
TAOC	13161-101725/CN/03	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	China	Granted	Patent	201310197019.5	Jun-05-2009	Z12013101970195	Jul-08-2015	Jun-05-2029
TAOC	13161-101725/CN/04	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	China	Granted	Patent	201310197161.X	Jun-05-2009	Z1201310197161.X	May-13-2015	Jun-05-2029
TAOC	13161-101725/CN/05	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	China	Granted	Patent	201310196527.1	Jun-05-2009	201310196527-1	May-13-2015	Jun-05-2029
TAOC	13161-101725/DE/01	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	Germany	Pending	Patent	112009001375.9	Jun-05-2009			Jun-05-2029
TAOC	13161-101725/IN/01	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	India	Pending	Patent	8194/DELNP/2010	Jun-05-2009			Jun-05-2029
TAOC	13161-101725/JP/01	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	Japan	Granted	Patent	2011-512678	Jun-05-2009	5420646	Nov-29-2013	Jun-05-2029
TAOC	13161-101725/JP/02	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	Japan	Granted	Patent	2013-175213	Jun-05-2009	5797242	Aug-28-2015	Jun-05-2029
TAOC	13161-101725/KR/01	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	South Korea	Granted	Patent	102010702945.0	Jun-05-2009	1629307	Jun-03-2016	Jun-05-2029
TAOC	13161-101725/KR/02	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	South Korea	Granted	Patent	1020157021044	Jan-05-2009	101622685	May-13-2016	Jun-05-2029
TAOC	1316N-001725/US/DVB	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	United States	Granted	Patent	13/564944	Aug-02-2012	8714320	May-06-2014	Jun-05-2028
TAOC	1316N-001725/US/DVC	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	United States	Granted	Patent	13/564954	Aug-02-2012	8590678	Nov-26-2013	Jun-05-2028
TAOC	1316N-001725/US/DVD	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	United States	Granted	Patent	13/564964	Aug-02-2012	8668061	Mar-11-2014	Jun-05-2028
TAOC	1316N-001725/US/DVE	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	United States	Granted	Patent	13/564973	Aug-02-2012	8511446	Aug-20-2013	Aug-02-2032
TAOC	1316N-001725/US/RCE	Nested Check High Speed Valve / Flow sensitive support washer /Bellville port blocker / 2nd piston high speed restriction	United States	Granted	Patent	12/133448	Jun-05-2008	8297418	Oct-30-2012	Jun-05-2028
TAOC	1316N-001727/US	Inverted strut comprising an air damper combined with a hydraulic stop	United States	Granted	Patent	12/547582	Aug-26-2009	8701846	Apr-22-2014	Aug-26-2029
TAOC	13161-101728/CN/01	A Triple tube shock absorber having a shortened intermediate tube	China	Granted	Patent	201080006848.5	Jan-26-2010	Z12010800068485	Jun-18-2014	Jan-26-2030
TAOC	13161-101728/DE/01	A Triple tube shock absorber having a shortened intermediate tube	Germany	Pending	Patent	112010000707.1	Jan-26-2010			Jan-26-2030
TAOC	13161-101728/IN/01	A Triple tube shock absorber having a shortened intermediate tube	India	Pending	Patent	6654/DELNP/2011	Jan-26-2010			Jan-26-2030
TAOC	13161-101728/KR/01	A Triple tube shock absorber having a shortened intermediate tube	South Korea	Granted	Patent	10-2011-7019576	Jan-26-2010	10-1633651	Jun-21-2016	Jan-26-2030
TAOC	1316N-001728/US	A Triple tube shock absorber having a shortened intermediate tube	United States	Granted	Patent	12/366106	Feb-05-2009	8511447	Aug-20-2013	Feb-05-2029
TAOC	13161-101730/CN/01	HIGH VELOCITY DAMPING VALVE	China	Granted	Patent	200980137909.9	Sep-09-2009	Z12009801379099	Nov-03-2014	Sep-09-2029

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TAOC	13161-101730/DE/01	HIGH VELOCITY DAMPING VALVE	Germany	Pending	Patent	112009002270.7	Sep-09-2009			Sep-09-2029
TAOC	13161-101730/KR/01	HIGH VELOCITY DAMPING VALVE	South Korea	Granted	Patent	10-2011-7009436	Sep-09-2009	101649930	Aug-16-2016	Sep-09-2029
TAOC	1316N-001730/US	HIGH VELOCITY DAMPING VALVE	United States	Granted	Patent	12/496664	Jul-02-2009	9033121	May-19-2015	Jul-02-2029
TAOC	1316N-001730/US/CPPB	HIGH Velocity Compression DAMPING VALVE	United States	Granted	Patent	14/326490	Jul-09-2014	9285011	Mar-15-2016	Jul-02-2029
TAOC	13161-101731/BR/01	Damper with Digital Valve	Brazil	Pending	Patent	112012008013.0	Sep-22-2010			Sep-22-2030
TAOC	13161-101731/CN/01	Damper with Digital Valve	China	Granted	Patent	PCT/US2010/049813	Sep-22-2010	CN102574440B	Jan-07-2015	Sep-22-2030
TAOC	13161-101731/CN/02	Damper with Digital Valve	China	Pending	Patent	2014102086168	Sep-22-2010			Sep-22-2030
TAOC	13161-101731/DE/01	Damper with Digital Valve	Germany	Pending	Patent	PCT/US2010/049813	Sep-22-2010			Sep-22-2030
TAOC	13161-101731/DE/02	Damper with Digital Valve	Germany	Pending	Patent	PCT/US2010/049813	Sep-22-2010			Sep-22-2030
TAOC	13161-101731/IN/01	Damper with Digital Valve	India	Pending	Patent	PCT/US2010/049813	Sep-22-2010			Sep-22-2030
TAOC	13161-101731/P/01	Damper with Digital Valve	Japan	Granted	Patent	PCT/US2010/049813	Sep-22-2010	5616455	Sep-19-2014	Sep-22-2030
TAOC	13161-101731/P/02	Damper with Digital Valve	Japan	Granted	Patent	2014095719	Sep-22-2010	5710048	Mar-13-2015	Sep-22-2030
TAOC	13161-101731/KR/01	Damper with Digital Valve	South Korea	Granted	Patent	PCT/US2010/049813	Sep-22-2010	101336917	Nov-28-2013	Sep-22-2030
TAOC	13161-101731/TH/01	Damper with Digital Valve	Thailand	Pending	Patent	PCT/US2010/049813	Sep-22-2010			Sep-22-2030
TAOC	1316N-001731/US	Damper with Digital Valve	United States	Granted	Patent	12/573911	Oct-06-2009	8616351	Dec-31-2013	Oct-06-2029
TAOC	1316N-001731/US/COC	Damper with Digital Valve	United States	Granted	Patent	14/849092	Sep-09-2015	9695900	Jul-04-2017	Oct-06-2029
TAOC	1316N-001731/US/COD	Damper with Digital Valve	United States	Granted	Patent	15/450885	Mar-06-2017	9810282	Oct-10-2017	Oct-06-2029
TAOC	1316N-001731/US/DVB	Damper with Digital Valve	United States	Granted	Patent	14/134390	Dec-19-2013	9150077	Oct-06-2015	Oct-06-2029
TAOC	13161-101732/CN/01	Front cab damper with double path mount	China	Granted	Patent	PCT/US2011/032830	Apr-18-2011	Z12011800196721	Sep-23-2015	Apr-18-2031
TAOC	13161-101732/DE/01	Front cab damper with double path mount	Germany	Pending	Patent	PCT/US2011/032830	Apr-18-2011			Apr-18-2031
TAOC	13161-101732/IN/01	Front cab damper with double path mount	India	Pending	Patent	PCT/US2011/032830	Apr-18-2011			Apr-18-2031
TAOC	13161-101732/JP/01	Front cab damper with double path mount	Japan	Granted	Patent	PCT/US2011/032830	Apr-18-2011	5896988	Mar-11-2016	Apr-18-2031
TAOC	13161-101732/KR/01	DOUBLE PATH MOUNT FOR CAB SUSPENSION WITH TILTING FUNCTION	South Korea	Pending	Patent	PCT/US2011/032830	Apr-18-2011			Apr-18-2031
TAOC	13161-101732/TH/01	Front cab damper with double path mount	Thailand	Pending	Patent	PCT/US2011/032830	Apr-18-2011			Apr-18-2031
TAOC	1316N-001732/US	Front cab damper with double path mount	United States	Granted	Patent	12/772446	May-03-2010	8371562	Feb-12-2013	May-03-2030
TAOC	13161-101733/CN/01	Multi stage valve & Hydraulic Damped Valve	China	Granted	Patent	201480020859.3	May-09-2011	Z1201180020859.3	Dec-16-2015	May-09-2031
TAOC	13161-101733/DE/01	Multi stage valve & Hydraulic Damped Valve	Germany	Pending	Patent	112011101883.5	May-09-2011			May-09-2031
TAOC	13161-101733/IN/01	Multi stage valve & Hydraulic Damped Valve	India	Pending	Patent	8467/DELNP/2012	May-09-2011			May-09-2031
TAOC	13161-101733/TH/01	Multi stage valve & Hydraulic Damped Valve	Thailand	Pending	Patent	1201066209	May-09-2011			May-09-2031
TAOC	1316N-001733/US	Multi stage valve & Hydraulic Damped Valve	United States	Granted	Patent	12/791036	Jun-01-2010	8627933	Jan-14-2014	Jun-01-2030

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TAOC	13161-101734/CN/01	Multipart spring seat design	China	Granted	Patent	201180005449.1	Apr-18-2011	ZL2011800054491	Jun-03-2015	Apr-18-2031
TAOC	13161-101734/DE/01	Multipart spring seat design	Germany	Pending	Patent	11 2011 101 557.7	Apr-18-2011			Apr-18-2031
TAOC	13161-101734/IN/01	Multipart spring seat design	India	Pending	Patent	5009/DELNP/2012	Apr-18-2011			Apr-18-2031
TAOC	13161-101734/JP/01	Multipart spring seat design	Japan	Granted	Patent	2013-509087	Apr-18-2011	5781155	Jul-24-2015	Apr-18-2031
TAOC	1316N-001734/US	Multipart spring seat design	United States	Granted	Patent	12/772459	May-03-2010	8196941	Jun-12-2012	May-03-2030
TAOC	13161-101735/CN/01	Damper Tubel Reinforcement Sleeve for Shock Absorber	China	Granted	Patent	201180064447X	Dec-15-2011	ZL201180064447X	Jun-03-2015	Dec-15-2031
TAOC	13161-101735/CN/02	Damper Tubel Reinforcement Sleeve for Shock Absorber	China	Granted	Patent	2012800206874	Jun-21-2012	ZL2012800206874	Aug-05-2015	Jun-21-2032
TAOC	13161-101735/DE/01	Damper Tubel Reinforcement Sleeve for Shock Absorber	Germany	Pending	Patent	11 2011 104 729.0	Dec-15-2011			Dec-15-2031
TAOC	13161-101735/DE/02	Damper Tubel Reinforcement Sleeve for Shock Absorber	Germany	Pending	Patent	112012002602.0	Jun-21-2012			Jun-21-2032
TAOC	13161-101735/IN/01	Damper Tubel Reinforcement Sleeve for Shock Absorber	India	Pending	Patent	4862/DELNP/2013	Dec-15-2011			Dec-15-2031
TAOC	13161-101735/IN/02	Damper Tubel Reinforcement Sleeve for Shock Absorber	India	Pending	Patent	8396/DELNP/2013	Jun-21-2012			Jun-21-2032
TAOC	13161-101735/JP/02	Damper Tubel Reinforcement Sleeve for Shock Absorber	Japan	Granted	Patent	2014-517150	Jun-21-2012	5997268	Sep-02-2016	Jun-21-2032
TAOC	13161-101735/TH/02	Damper Tubel Reinforcement Sleeve for Shock Absorber	Thailand	Pending	Patent	1301007078	Jun-21-2012			Jun-21-2032
TAOC	1316N-001735/US	Damper Tubel Reinforcement Sleeve for Shock Absorber	United States	Granted	Patent	13/007718	Jan-17-2011	8408569	Apr-02-2013	Jan-17-2031
TAOC	1316N-001735/US/CPA	Damper Tubel Reinforcement Sleeve for Shock Absorber	United States	Granted	Patent	13/167056	Jun-23-2011	8434772	May-07-2013	Jan-17-2031
TAOC	13161-101736/CN/01	Support Washer for Shock Absorber Valve with Blow-Off Tunability (hold 6-1-08)	China	Granted	Patent	201280006470.8	Jan-18-2012	ZL201280006470.8	Mar-25-2015	Jan-18-2032
TAOC	13161-101736/DE/01	Support Washer for Shock Absorber Valve with Blow-Off Tunability (hold 6-1-08)	Germany	Pending	Patent	11 2012 000 683.6	Jan-18-2012			Jan-18-2032
TAOC	13161-101736/IN/01	Support Washer for Shock Absorber Valve with Blow-Off Tunability (hold 6-1-08)	India	Pending	Patent	5896/DELNP/2013	Jan-18-2012			Jan-18-2032
TAOC	13161-101736/JP/01	Support Washer for Shock Absorber Valve with Blow-Off Tunability (hold 6-1-08)	Japan	Granted	Patent	2013-552543	Jan-18-2012	5908926	Apr-01-2016	Jan-18-2032
TAOC	13161-101736/KR/01	Support Washer for Shock Absorber Valve with Blow-Off Tunability (hold 6-1-08)	South Korea	Granted	Patent	10-2013-7019694	Jan-18-2012	101465677	Nov-20-2014	Jan-18-2032
TAOC	13161-101736/TH/01	Support Washer for Shock Absorber Valve with Blow-Off Tunability (hold 6-1-08)	Thailand	Pending	Patent	1301004313	Jan-18-2012			Jan-18-2032
TAOC	1316N-001736/US	Support Washer for Shock Absorber Valve with Blow-Off Tunability (hold 6-1-08)	United States	Granted	Patent	13/020822	Feb-04-2011	8739948	Jun-03-2014	Feb-04-2031
TAOC	13161-101737/CN/01	Low Noise Compression/Rebound Valve Assembly	China	Granted	Patent	201280030069.8	Jul-11-2012	ZL201280030069.8	Jun-09-2017	Jul-11-2032
TAOC	13161-101737/DE/01	Low Noise Compression/Rebound Valve Assembly	Germany	Pending	Patent	112012003051.6	Jul-11-2012			Jul-11-2032
TAOC	13161-101737/IN/01	Low Noise Compression/Rebound Valve Assembly	India	Pending	Patent	9931/DELPN/2013	Jul-11-2012			Jul-11-2032
TAOC	13161-101737/JP/01	Low Noise Compression/Rebound Valve Assembly	Japan	Granted	Patent	2014-521656	Jul-11-2012	5972370	Jul-22-2016	Jul-11-2032
TAOC	13161-101737/KR/01	Low Noise Compression/Rebound Valve Assembly	South Korea	Pending	Patent	10-2013-7034211	Jul-11-2012			Jul-11-2032
TAOC	13161-101737/TH/01	Low Noise Compression/Rebound Valve Assembly	Thailand	Pending	Patent	1401000271	Jul-11-2012			Jul-11-2032



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TAOC	1316N-001737/US	Low Noise Compression/Rebound Valve Assembly	United States	Granted	Patent	13/187647	Jul-21-2011	9169890	Oct-27-2015	Jul-21-2031
TAOC	1316I-101738/CN/01	Energy harvesting passive & active suspension	China	Granted	Patent	201280052390.6	Oct-09-2012	201280052390.6	Aug-17-2016	Oct-09-2032
TAOC	1316I-101738/DE/01	Energy harvesting passive & active suspension	Germany	Pending	Patent	DE 11 2012 004 573.4	Oct-09-2012			Oct-09-2032
TAOC	1316I-101738/IN/01	Energy harvesting passive & active suspension	India	Pending	Patent	2630/DELNP/2014	Oct-09-2012			Oct-09-2032
TAOC	1316I-101738/JP/01	Energy harvesting passive & active suspension	Japan	Granted	Patent	2014-538816	Oct-09-2012	6169584	Jul-07-2017	Oct-09-2032
TAOC	1316I-101738/KR/01	Energy harvesting passive & active suspension	South Korea	Pending	Patent	10-2014-7013676	Oct-09-2012			Oct-09-2032
TAOC	1316I-101738/TH/01	Energy harvesting passive & active suspension	Thailand	Pending	Patent	1401002287	Oct-09-2012			Oct-09-2032
TAOC	1316N-001738/US	Energy harvesting passive & active suspension	United States	Granted	Patent	13/286457	Nov-01-2011	8966889	Mar-03-2015	Nov-01-2031
TAOC	1316N-001738/US/COB	Energy harvesting passive & active suspension	United States	Granted	Patent	14/616112	Feb-06-2015	9784288	Oct-10-2017	Nov-01-2031
TAOC	1316I-101740/CN/01	Piston Assembly With Open Bleed	China	Granted	Patent	201480015152.7	Feb-28-2014	Z1201480015152.7	Jun-23-2017	Feb-28-2034
TAOC	1316I-101740/DE/01	Piston Assembly With Open Bleed	Germany	Pending	Patent	112014001485-0	Feb-28-2014			Feb-28-2034
TAOC	1316I-101740/DE/02	Monotube Blow Off piston Assembly with Open Bleed	Germany	Pending	Patent	112014007303.2	Feb-14-2018			Feb-28-2034
TAOC	1316I-101740/JP/01	Piston Assembly With Open Bleed	Japan	Pending	Patent	2016500500	Feb-28-2014			Feb-28-2034
TAOC	1316I-101740-KR-01	Monotube Blow Off piston Assembly with Open Bleed	South Korea	Pending	Patent	2018-038258	Mar-05-2018			Feb-28-2034
TAOC	1316I-101740-KR-01	Piston Assembly With Open Bleed	South Korea	Pending	Patent	1020157025187	Feb-28-2014			Feb-28-2034
TAOC	1316I-101740-KR-02	Monotube Blow Off piston Assembly with Open Bleed	South Korea	Pending	Patent	10-2018-7006513	Mar-06-2018			Feb-28-2034
TAOC	1316N-001740/US	Monotube Blow Off piston Assembly with Open Bleed	United States	Granted	Patent	14/191538	Feb-27-2014	9067471	Jun-30-2015	Feb-27-2034
TAOC	1316I-101741/BR/01	Active suspension with energy recuperation option	Brazil	Pending	Patent	112015015885.4	Dec-31-2013			Dec-31-2033
TAOC	1316I-101741/CN/01	Passive and Active Suspension with Optimization of Energy Use	China	Granted	Patent	201380069821.4	Dec-31-2013	Z1201380069821.4	Aug-08-2017	Dec-31-2033
TAOC	1316I-101741/DE/01	Passive and Active Suspension with Optimization of Energy Use	Germany	Pending	Patent	112013006374.3	Dec-31-2013			Dec-31-2033
TAOC	1316I-101741/IN/01	Active suspension with energy recuperation option	India	Pending	Patent	5322/DELNP/2015	Dec-31-2013			Dec-31-2033
TAOC	1316I-101741/JP/01	Passive And Active Suspension With Optimization Of Energy Usage	Japan	Pending	Patent	2015551742	Dec-31-2013			Dec-31-2033
TAOC	1316I-101741/KR/01	Passive And Active Suspension With Optimization Of Energy Usage	South Korea	Pending	Patent	1020157021257	Dec-31-2013			Dec-31-2033
TAOC	1316N-001741/US	Active suspension with energy recuperation option	United States	Granted	Patent	13/736269	Jan-08-2013	9481221	Nov-01-2016	Jan-08-2033
TAOC	1316I-101742/BR/01	Spring Seat Manufacturing Installation Land or Stop Formed Into Seat	Brazil	Pending	Patent	112014013414-6	Nov-06-2012			Nov-06-2032
TAOC	1316I-101742/DE/01	Spring Seat Manufacturing Installation Land or Stop Formed Into Seat	Germany	Pending	Patent	112012005129.7	Nov-06-2012			Nov-06-2032
TAOC	1316I-101742/IN/01	Spring Seat Manufacturing Installation Land or Stop Formed Into Seat	India	Pending	Patent	3956/DELNP/2014	Nov-06-2012			Nov-06-2032
TAOC	1316I-101742/KR/01	Spring Seat Manufacturing Installation Land or Stop Formed Into Seat	South Korea	Pending	Patent	10-2014-7014568	Nov-06-2012			Nov-06-2032

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TAOC	13161-101742/TH/01	Spring Seat Manufacturing Installation Land or Stop Formed Into Seat	Thailand	Pending	Patent	1401002972	Nov-06-2012			Nov-06-2032
TAOC	1316N-001742/US	Spring Seat Manufacturing Installation Land or Stop Formed Into Seat	United States	Granted	Patent	13/314314	Dec-08-2011	8696004	Apr-15-2014	Dec-08-2031
TAOC	13161-101743/CN/01	Multi-Tuneable Degressive Valve	China	Granted	Patent	201380046349.2	Apr-09-2013	ZL2013800463492	May-17-2017	Apr-09-2033
TAOC	13161-101743/DE/01	Multi-Tuneable Degressive Valve	Germany	Pending	Patent	112013004396.3	Apr-09-2013			Apr-09-2033
TAOC	13161-101743/IN/01	Multi-Tuneable Degressive Valve	India	Pending	Patent	840/DELNP/2015	Apr-09-2013			Apr-09-2033
TAOC	13161-101743/P/01	Multi-Tuneable Degressive Valve	Japan	Pending	Patent	2015531066	Apr-09-2013			Apr-09-2033
TAOC	13161-101743/KR/01	Multi-Tuneable Degressive Valve	South Korea	Pending	Patent	10-2015-7007042	Apr-09-2013			Apr-09-2033
TAOC	1316N-001743/US	Multi-Tuneable Degressive Valve	United States	Granted	Patent	13/606039	Sep-07-2012	9080629	Jul-14-2015	Sep-07-2032
TAOC	13161-101745/CN/01	Rod Guide Arrangement For Electronically Controlled Valve Applications	China	Pending	Patent	201480015734.5	Feb-28-2014			Feb-28-2034
TAOC	13161-101745/EP/01	Rod Guide Arrangement For Electronically Controlled Valve Applications	European Patent	Pending	Patent	PCT/US2014/19307	Feb-28-2014			Feb-28-2034
TAOC	13161-101745/IN/01	Rod Guide Arrangement For Electronically Controlled Valve Applications	India	Pending	Patent	PCT/US2014/19307	Feb-28-2014			Feb-28-2034
TAOC	13161-101745/P/01	Rod Guide Arrangement For Electronically Controlled Valve Applications	Japan	Pending	Patent	PCT/US2014/19307	Feb-28-2014			Feb-28-2034
TAOC	13161-101745/KR/01	Rod Guide Arrangement For Electronically Controlled Valve Applications	South Korea	Pending	Patent	PCT/US2014/19307	Feb-28-2014			Feb-28-2034
TAOC	1316N-001745/US	Rod guide arrangement for digital valve applications	United States	Granted	Patent	13/947169	Jul-22-2013	9163691	Oct-20-2015	Jul-22-2033
TAOC	13161-101746/CN/01	Two Position Valve With Face Seal And Pressure Relief Port	China	Granted	Patent	201480015691-0	Mar-14-2014	ZL2014800156910	Oct-24-2017	Mar-14-2034
TAOC	13161-101746/CN/02	Two Position Valve With Face Seal and Pressure Relief Port	China	Pending	Patent	201710864984.1	Mar-14-2014			Mar-14-2034
TAOC	13161-101746/IN/01	Two Position Valve With Face Seal And Pressure Relief Port	India	Pending	Patent	7659/DELNP/2015	Mar-14-2014			Mar-14-2034
TAOC	13161-101746/P/01	Two Position Valve With Face Seal And Pressure Relief Port	Japan	Pending	Patent	2016502714	Mar-14-2014			Mar-14-2034
TAOC	13161-101746/KR/01	Two Position Valve With Face Seal And Pressure Relief Port	South Korea	Pending	Patent	1020157025614	Mar-14-2014			Mar-14-2034
TAOC	1316N-001746/US	Two Position Valve Arrangements for Shock Absorber	United States	Granted	Patent	14/208410	Mar-13-2014	9879748	Jan-30-2018	Mar-13-2034
TAOC	13161-101747/BR/01	Recuperating Passive and Active Suspension	Brazil	Pending	Patent	112015008918.6	Oct-23-2013			Oct-23-2033
TAOC	13161-101747/CN/01	Recuperating Passive and Active Suspension	China	Granted	Patent	201380055743.2	Oct-23-2013	ZL201380055743.2	Jun-30-2017	Oct-23-2033
TAOC	13161-101747/DE/01	Active suspension system with hydraulic energy recuperation, storage and reuse with chamber decoupling and hydraulic boost	Germany	Pending	Patent	112013005150.8	Oct-23-2013			Oct-23-2033
TAOC	13161-101747/IN/01	Recuperating Passive and Active Suspension	India	Pending	Patent	2835/DELNP/2015	Oct-23-2013			Oct-23-2033
TAOC	13161-101747/P/01	Recuperating Passive and Active Suspension	Japan	Granted	Patent	2015-539745	Oct-23-2013	6301943	Mar-09-2018	Oct-23-2033
TAOC	13161-101747/KR/01	Recuperating Passive and Active Suspension	South Korea	Pending	Patent	1020157011441	Oct-23-2013			Oct-23-2033

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TAOC	131 6N-001747/US	Active suspension system with hydraulic energy recuperation, storage and reuse with chamber decoupling and hydraulic boost	United States	Granted	Patent	13/660234	Oct-25-2012	8820064	Sep-02-2014	Oct-25-2032
TAOC	131 6I-101748/CN/01	Dual Range Damping System for a Shock Absorber	China	Granted	Patent	201380032521.9	May-09-2013	201380032521.9	Jun-08-2016	May-09-2033
TAOC	131 6I-101748/DE/01	Dual Range Damping System	Germany	Pending	Patent	112013003335.6	May-09-2013			May-09-2033
TAOC	131 6I-101748/IN/01	Dual Range Damping System for a Shock Absorber	India	Pending	Patent	9910/DEINP/2014	May-09-2013			May-09-2033
TAOC	131 6I-101748/J/01	Dual Range Damping System for a Shock Absorber	Japan	Granted	Patent	2015-520184	May-09-2013	6212551	Dec-22-2017	May-09-2033
TAOC	131 6I-101748/KR/01	Dual Range Damping System for a Shock Absorber	South Korea	Pending	Patent	10-2015-7000727	May-09-2013			May-09-2033
TAOC	131 6N-001748/US	Dual Range Damping System for a Shock Absorber	United States	Granted	Patent	13/849581	Mar-25-2013	9074651	Jul-07-2015	Mar-25-2033
TAOC	131 6I-101749/BR/01	Jounce Bumper Nose Retaining Feature For A Shock Absorber	Brazil	Pending	Patent	112015021424.0	Mar-04-2014			Mar-04-2034
TAOC	131 6I-101749/CN/01	Jounce bumper nose retaining feature for a Shock Absorber	China	Granted	Patent	201480012634.7	Mar-04-2014	Z12014800126347	Oct-03-2017	Mar-04-2034
TAOC	131 6I-101749/CN/02	Jounce bumper nose retaining feature for a Shock Absorber	China	Pending	Patent	201710877461.0	Mar-14-2014			Mar-04-2034
TAOC	131 6I-101749/DE/01	Jounce bumper nose retaining feature for a Shock Absorber	Germany	Pending	Patent	112014001146.0	Mar-04-2014			Mar-04-2034
TAOC	131 6I-101749/IN/01	Jounce bumper nose retaining feature for a Shock Absorber	India	Pending	Patent	7225/DEINP/2015	Mar-04-2014			Mar-04-2034
TAOC	131 6I-101749/J/01	Jounce bumper nose retaining feature for a Shock Absorber	Japan	Pending	Patent	2015561547	Mar-04-2014			Mar-04-2034
TAOC	131 6I-101749/KR/01	Jounce Bumper Nose Retaining Feature For A Shock Absorber	South Korea	Pending	Patent	1020157023795	Mar-04-2014			Mar-04-2034
TAOC	131 6N-001749/US	Jounce Bumper Nose Retaining feature for a Shock Absorber	United States	Granted	Patent	13/787941	Mar-07-2013	9004470	Apr-14-2015	Mar-07-2033
TAOC	131 6I-101750/CN/01	Valve Switching Controls For Adjustable Damper	China	Granted	Patent	PCT/US2014/019426	Feb-28-2014	Z12014800111341	Jun-06-2017	Feb-28-2034
TAOC	131 6I-101750/EP/01	Valve Switching Controls For Adjustable Damper	European Patent	Granted	Patent	PCT/US2014/019426	Feb-28-2014	2962011	Feb-21-2018	Feb-28-2034
TAOC	131 6I-101750/EP/02	Integrated Electronics, or Printed Circuit Board Assembly (PCBA), for an adjustable hydraulic damper	European Patent	Pending	Patent	17207671.3	Feb-28-2014			Feb-28-2034
TAOC	131 6I-101750/IN/01	Valve Switching Controls For Adjustable Damper	India	Pending	Patent	PCT/US2014/019426	Feb-28-2014			Feb-28-2034
TAOC	131 6I-101750/J/01	Valve Switching Controls For Adjustable Damper	Japan	Pending	Patent	PCT/US2014/019426	Feb-28-2014			Feb-28-2034
TAOC	131 6I-101750/KR/01	Valve Switching Controls For Adjustable Damper	South Korea	Pending	Patent	1020157023797	Feb-28-2014			Feb-28-2034
TAOC	131 6N-001750/US	Valve Switching Controls for Adjustable Damper	United States	Granted	Patent	14/191885	Feb-27-2014	9217483	Dec-22-2015	Feb-27-2034
TAOC	131 6N-001750/COC	Integrated Electronics, or Printed Circuit Board Assembly (PCBA), for an adjustable hydraulic damper	United States	Pending	Patent	15/872451	Jan-16-2018			Feb-27-2034
TAOC	131 6N-001750/US/DVB	Valve Switching Controls for Adjustable Damper	United States	Granted	Patent	14/947222	Nov-20-2015	9925842	Mar-27-2018	Aug-18-2034
TAOC	131 6I-101751/CN/01	Rod Guide Assembly With Multi-Piece Valve Assembly	China	Granted	Patent	201480015694	Mar-14-2014	Z12014800156944	Aug-15-2017	Mar-14-2034
TAOC	131 6I-101751/EP/01	Rod Guide Assembly With Multi-Piece Valve Assembly	European Patent	Pending	Patent	14762991.9	Mar-14-2014			Mar-14-2034

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TAOC	13161-101751/IN/01	Rod Guide Assembly With Multi-Piece Valve Assembly	India	Pending	Patent	8020/DELNP/2015	Mar-14-2014			Mar-14-2034
TAOC	13161-101751/JP/01	Rod Guide Assembly With Multi-Piece Valve Assembly	Japan	Pending	Patent	2016502773	Mar-14-2014			Mar-14-2034
TAOC	13161-101751/KR/01	Rod Guide Assembly With Multi-Piece Valve Assembly	South Korea	Pending	Patent	1020157024166	Mar-14-2014			Mar-14-2034
TAOC	1316N-001751/US	Rod Guide Assembly with Multi-Piece Valve Assembly, Single Coil Overmold Assembly, Circuit Board Assembly, and Oil Seal Located above the Upper Rod Guide	United States	Granted	Patent	14/211318	Mar-14-2014	9404551	Aug-02-2016	Mar-14-2034
TAOC	13161-101753/CN/01	Suspension Leveling System	China	Granted	Patent	201480020380-3	Apr-10-2014	Z1201480020380.3	Jul-04-2017	Apr-10-2034
TAOC	13161-101753/DE/01	Suspension Leveling System	Germany	Pending	Patent	1120140019046	Apr-10-2014			Apr-10-2034
TAOC	13161-101753/JP/01	Suspension Leveling System	Japan	Pending	Patent	2016507653	Apr-10-2014			Apr-10-2034
TAOC	13161-101753/KR/01	Suspension Leveling System	South Korea	Pending	Patent	1020157028613	Apr-10-2014			Apr-10-2034
TAOC	1316N-001753/US	Suspension Leveling System	United States	Granted	Patent	14/249461	Apr-10-2014	9272598	Mar-01-2016	Apr-10-2034
TAOC	13161-101754/CN/01	Recuperating Passive And Active Suspension	China	Granted	Patent	2014800406742	May-21-2014	Z12014800406742	Dec-26-2017	May-21-2034
TAOC	13161-101754/CN-2	Vehicle Leveling System	China	Pending	Patent	20171128586X	Nov-15-2017			May-21-2034
TAOC	13161-101754/DE/01	Recuperating Passive And Active Suspension	Germany	Pending	Patent	112014003382.0	May-21-2014			May-21-2034
TAOC	13161-101754/JP/01	Recuperating Passive And Active Suspension	Japan	Pending	Patent	PCT/US2014/38884	May-21-2014			May-21-2034
TAOC	13161-101754/KR/01	Recuperating Passive And Active Suspension	South Korea	Pending	Patent	1020167001343	May-21-2014			May-21-2034
TAOC	1316N-001754/US	Hydraulic leveling in combination with an active suspension system	United States	Granted	Patent	13/950379	Jul-25-2013	9108484	Aug-18-2015	Jul-25-2033
TAOC	1316N-001754/DVB	Recuperating Passive and Active Suspension	United States	Granted	Patent	14/793866	Jul-08-2015	9586456	Mar-07-2017	Jul-25-2033
TAOC	13161-101755/DE/01	Frequency dependant passive valve working in rebound and compression	Germany	Pending	Patent	112014002982.3	May-21-2014			May-21-2034
TAOC	1316N-001755/US	Frequency dependant passive valve working in rebound and compression	United States	Granted	Patent	13/950423	Jul-25-2013	9080634	Jul-14-2015	Jul-25-2033
TAOC	13161-101756/CN/01	Shock Absorber with Frequency Dependent Passive Valve	China	Pending	Patent	PCT/US2015/016571	Feb-19-2015			Feb-19-2035
TAOC	13161-101756/DE/01	Shock Absorber with Frequency Dependent Passive Valve	Germany	Pending	Patent	112015001028.9	Feb-19-2015			Feb-19-2035
TAOC	13161-101756/IN-01	Shock Absorber with Frequency Dependent Passive Valve	India	Pending	Patent	PCT/US2015/016571	Feb-19-2015			Feb-19-2035
TAOC	13161-101756/JP/01	Shock Absorber with Frequency Dependent Passive Valve	Japan	Pending	Patent	PCT/US2015/016571	Feb-19-2015			Feb-19-2035
TAOC	13161-101756/KR/01	Shock Absorber with Frequency Dependent Passive Valve	South Korea	Pending	Patent	PCT/US2015/016571	Feb-19-2015			Feb-19-2035
TAOC	1316N-001756/US	Frequency dependant passive valve working in rebound and compression	United States	Granted	Patent	14/193102	Feb-28-2014	9500255	Nov-22-2016	Jul-05-2034
TAOC	13161-101757/CN/01	Shock Absorber With Frequency Dependent Passive Valve	China	Granted	Patent	201480044217.0	May-21-2014	Z12014800442170	Oct-03-2017	May-21-2034
TAOC	13161-101757/EP/01	Frequency dependant passive valve working in rebound or in compression	European Patent	Pending	Patent	14839704.5	May-21-2014			May-21-2034
TAOC	13161-101757/IN/01	Frequency dependant passive valve working in rebound or in compression	India	Pending	Patent	201617000442	May-21-2014			May-21-2034
TAOC	13161-101757/KR/01	Shock Absorber With Frequency Dependent Passive Valve	South Korea	Pending	Patent	1020167002922	May-21-2014			May-21-2034

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TAOC	1316N-001757/US	Frequency dependant passive valve working in rebound or in compression	United States	Granted	Patent	13/975454	Aug-26-2013	9239092	Jan-19-2016	Aug-26-2033
TAOC	1316N-001757/US/CPB	SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	United States	Granted	Patent	14/878397	Oct-08-2015	9638280	May-02-2017	Aug-26-2033
TAOC	1316N-101757/JP-01	Frequency dependant passive valve working in rebound or in compression	Japan	Pending	Patent	PCT/US2014/38874	May-21-2014			May-21-2034
TAOC	1316I-101758/CN/01	Orifice disc for regulating flow in a damper	China	Granted	Patent	2014800270386	May-13-2014	Z1201480027038.6	Jul-04-2017	May-13-2034
TAOC	1316I-101758/DE/01	Orifice disc for regulating flow in a damper	Germany	Pending	Patent	1120140011231	May-13-2014			May-13-2034
TAOC	1316I-101758/KR/01	Orifice disc for regulating flow in a damper	South Korea	Pending	Patent	1020157027898	May-13-2014			May-13-2034
TAOC	1316N-001758/US	Orifice disc for regulating flow in a damper	United States	Granted	Patent	14/275235	May-12-2014	9441699	Sep-13-2016	May-12-2034
TAOC	1316I-101759/CN/01	Low pressure high compression damping mono tube shock	China	Granted	Patent	2014800439248	Aug-14-2014	Z1201480043924.8	Jul-28-2017	Aug-14-2034
TAOC	1316I-101759/DE/01	Low pressure high compression damping mono tube shock	Germany	Pending	Patent	PCT/US2014/51062	Aug-14-2014			Aug-14-2034
TAOC	1316I-101759/IN/01	Low Pressure High Compression Damping Monotube Shock Absorber	India	Pending	Patent	201617002923	Aug-14-2014			Aug-14-2034
TAOC	1316I-101759/KR/01	Low Pressure High Compression Damping Monotube Shock Absorber	South Korea	Pending	Patent	1020167002921	Aug-14-2014			Aug-14-2034
TAOC	1316N-001759/US	Low pressure high compression damping monotube shock absorber	United States	Granted	Patent	14/459394	Aug-14-2014	9533538	Jan-03-2017	Aug-14-2034
TAOC	1316N-101759/JP/01	Low pressure high compression damping mono tube shock	Japan	Pending	Patent	PCT/US2014/51062	Aug-14-2014			Aug-14-2034
TAOC	1316I-101761/CN/01	Damper with Integrated Electronics	China	Granted	Patent	2014800108283	Feb-28-2014	Z12014800108283	May-04-2018	Feb-28-2034
TAOC	1316I-101761/CN/02	Damper with Integrated Electronics	China	Pending	Patent	201611658979	Dec-16-2016			Feb-28-2034
TAOC	1316I-101761/EP/01	Damper with Integrated Electronics	European Patent	Pending	Patent	14756361.3	Feb-28-2014			Feb-28-2034
TAOC	1316I-101761/IN/01	Damper with Integrated Electronics	India	Pending	Patent	7362/DELNP/2015	Feb-28-2014			Feb-28-2034
TAOC	1316I-101761/JP/01	Damper with Integrated Electronics	Japan	Pending	Patent	2015560364	Feb-28-2014			Feb-28-2034
TAOC	1316I-101761/KR/01	Damper with Integrated Electronics	South Korea	Pending	Patent	1020157023799	Feb-28-2014			Feb-28-2034
TAOC	1316N-001761/US	Damper with Integrated Electronics (In Guide)	United States	Granted	Patent	14/193879	Feb-28-2014	9399383	Jul-26-2016	Feb-28-2034
TAOC	1316N-001761/US/COC	Damper with Integrated Electronics	United States	Granted	Patent	15/218501	Jul-25-2016	10000104	Jun-19-2018	Feb-28-2034
TAOC	1316N-001761/US/CPB	Damper with Integrated Electronics (In Cap)	United States	Granted	Patent	14/303943	Jun-13-2014	9802456	Oct-31-2017	Feb-28-2034
TAOC	1316I-101763/CN/01	Autonomous Control Damper	China	Pending	Patent	201480010846-1	Feb-28-2014			Feb-28-2034
TAOC	1316I-101763/EP/01	Autonomous Control Damper	European Patent	Pending	Patent	14757104.6	Feb-28-2014			Feb-28-2034
TAOC	1316I-101763/IN/01	Autonomous Control Damper	India	Pending	Patent	7519/DELNP/2015	Feb-28-2014			Feb-28-2034
TAOC	1316I-101763/JP/01	Autonomous Control Damper	Japan	Pending	Patent	2015560348	Feb-28-2014			Feb-28-2034
TAOC	1316I-101763/KR/01	Autonomous Control Damper	South Korea	Pending	Patent	1020157023846	Feb-28-2014			Feb-28-2034
TAOC	1316N-001763/US	Autonomous Control Damper	United States	Granted	Patent	14/192173	Feb-27-2014	9884533	Feb-06-2018	Feb-27-2034
TAOC	1316I-101765/EP-01	Rod Guide System and Method with Multiple Solenoid Valve Cartridges and Multiple Pressure Regulated Valve Assemblies	European Patent	Pending	Patent	PCT/US2015/035568	Jun-12-2015			Jun-12-2035

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TAOC	13161-101765-CN-01	Rod Guide System and Method with Multiple Solenoid Valve Cartridges and Multiple Pressure Regulated Valve Assemblies	China	Pending	Patent	PCT/US2015/035568	Jun-12-2015			Jun-12-2035
TAOC	13161-101765-IN-01	Rod Guide System and Method with Multiple Solenoid Valve Cartridges and Multiple Pressure Regulated Valve Assemblies	India	Pending	Patent	PCT/US2015/035568	Jun-12-2015			Jun-12-2035
TAOC	13161-101765-JP-01	Rod Guide System and Method with Multiple Solenoid Valve Cartridges and Multiple Pressure Regulated Valve Assemblies	Japan	Pending	Patent	PCT/US2015/035568	Jun-12-2015			Jun-12-2035
TAOC	13161-101765-KR-01	Rod Guide System and Method with Multiple Solenoid Valve Cartridges and Multiple Pressure Regulated Valve Assemblies	South Korea	Pending	Patent	PCT/US2015/035568	Jun-12-2015			Jun-12-2035
TAOC	1316N-001765/US	Rod Guide System and Method with Multiple Solenoid Valve Cartridges and Multiple Pressure Regulated Valve Assemblies	United States	Granted	Patent	14/738332	Jun-12-2015	9879746	Jan-30-2018	Nov-11-2035
TAOC	13161-101766/CN/01	Electromagnetic Flywheel Damper and Method Therefor	China	Pending	Patent	201580039548X	Jul-15-2015			Jul-15-2035
TAOC	13161-101766/DE/01	Electromagnetic Flywheel Damper and Method Therefor	Germany	Pending	Patent	112015003485.4	Jul-15-2015			Jul-15-2035
TAOC	13161-101766/JP/01	Electromagnetic Flywheel Damper and Method Therefor	Japan	Pending	Patent	2017503986	Jul-15-2015			Jul-15-2035
TAOC	1316N-001766/US	Electromagnetic Flywheel Damper and Method Therefor	United States	Granted	Patent	14/799179	Jul-14-2015	9624998	Apr-18-2017	Jul-14-2035
TAOC	13161-101767/DE	Integrated Crash Structure for Plastic Spring Seat	Germany	Pending	Patent	102015112099.2	Jul-24-2015			Jul-24-2035
TAOC	1316N-001767/US	Plastic Spring Seat Having Integrated Crash Member	United States	Granted	Patent	14/806776	Jul-23-2015	9802454	Oct-31-2017	Jul-23-2035
TAOC	13161-101769/CN/01	SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	China	Pending	Patent	PCT/US2015/038413	Jun-30-2015			Jun-30-2035
TAOC	13161-101769/DE/01	SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	Germany	Pending	Patent	PCT/US2015/038413	Jun-30-2015			Jun-30-2035
TAOC	13161-101769/JP/01	SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	Japan	Pending	Patent	2017-507693	Jun-30-2015			Jun-30-2035
TAOC	1316N-001769/US	SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	United States	Granted	Patent	14/459513	Aug-14-2014	9441700	Sep-13-2016	Aug-14-2034
TAOC	13161-101770/CN/01	SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	China	Pending	Patent	PCT/US2015/038416	Jun-30-2015			Jun-30-2035
TAOC	13161-101770/DE/01	SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	Germany	Pending	Patent	PCT/US2015/38416	Jun-30-2015			Jun-30-2035
TAOC	13161-101770/JP-01	SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	Japan	Pending	Patent	2017508521	Jun-30-2015			Jun-30-2035
TAOC	1316N-001770/US	SHOCK ABSORBER WITH FREQUENCY DEPENDENT PASSIVE VALVE	United States	Granted	Patent	14/459589	Aug-14-2014	9222539	Dec-29-2015	Aug-14-2034
TAOC	13161-101771/CN/01	Shock Absorber having Orifice Check Disc	China	Pending	Patent	201580062911X	Nov-23-2015			Nov-23-2035
TAOC	13161-101771/DE/01	Shock Absorber having Orifice Check Disc	Germany	Pending	Patent	112015005308.5	Nov-23-2015			Nov-23-2035
TAOC	1316N-001771/US	Shock Absorber Having Orifice Check Disc	United States	Granted	Patent	14/553118	Nov-25-2014	9500251	Nov-22-2016	Nov-25-2034
TAOC	1316N-001772/US	Double Tube Damper With Structural Pressure Tube	United States	Granted	Patent	14/991306	Jan-08-2016	9739330	Aug-22-2017	Jan-08-2036
TAOC	13161-101773/CN-01	System and Method For Attaching A Control Element Of An Air Spring With Internal Height Regulating Valve	China	Pending	Patent	PCT/US2015/049324	Sep-10-2015			Sep-10-2035
TAOC	1316N-001773/US	System and Method For Attaching A Control Element Of An Air Spring With Internal Height Regulating Valve	United States	Granted	Patent	14/849005	Sep-09-2015	9579944	Feb-28-2017	Sep-09-2035

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TAOC	131 6N-101773/DE-01	System and Method For Attaching A Control Element Of An Air Spring With Internal Height Regulating Valve	Germany	Pending	Patent	PCT/US2015/049324	Sep-10-2015			Sep-10-2035
TAOC	131 6I-101774/DE/01	Variable Radius Spring Disc for Vehicle Shock Absorber	Germany	Pending	Patent	1120150012346	May-20-2015			May-20-2035
TAOC	131 6I-101774-CN-01	Variable Radius Spring Disc for Vehicle Shock Absorber	China	Pending	Patent	PCT/US2015/031700	May-20-2015			May-20-2035
TAOC	131 6N-001774/US	Helical Blow-off Disc	United States	Granted	Patent	14/716048	May-19-2015	9587703	Mar-07-2017	May-19-2035
TAOC	131 6N-001774/US/COB	Variable Pressure Area Non-Concentric Land Piston	United States	Pending	Patent	15/402813	Jan-10-2017			May-19-2035
TAOC	131 6I-101775/CN	Shock Absorber Having Check Disc for Orifice Passage	China	Pending	Patent	2017100773658	Feb-14-2017			Feb-14-2037
TAOC	131 6I-101775/DE	Shock Absorber Having Check Disc for Orifice Passage	Germany	Pending	Patent	1020171018409	Jan-31-2017			Jan-31-2037
TAOC	131 6N-001775/US	Shock Absorber Having Check Disc for Orifice Passage	United States	Granted	Patent	15/046566	Feb-18-2016	9845839	Dec-19-2017	Feb-18-2036
TAOC	131 6I-101777/CN	Monotube Active Suspension System Having Different System Layouts for Controlling Pump Flow Distribution	China	Pending	Patent	201710103616.5	Feb-24-2017			Feb-24-2037
TAOC	131 6I-101777/DE	Monotube Active Suspension System Having Different System Layouts for Controlling Pump Flow Distribution	Germany	Pending	Patent	102017103915.5	Feb-24-2017			Feb-24-2037
TAOC	131 6N-001777/US	Monotube Active Suspension System Having Different System Layouts for Controlling Pump Flow Distribution	United States	Pending	Patent	15/434435	Feb-16-2017			Feb-16-2037
TAOC	131 6N-001778/US	System for Active Control of Suspension	United States	Pending	Patent	15/440059	Feb-23-2017			Feb-23-2037
TAOC	131 6N-001778/WO/POA	System and Method for Controlling Dampers of an Active Suspension System	WO	Pending	Patent	PCT/US2017/019330	Feb-24-2017			Aug-24-2019
TAOC	131 6I-101779/DE	Damper Having Reinforced Catcher	Germany	Pending	Patent	102017105424.3	Mar-14-2017			Mar-14-2037
TAOC	131 6I-101779/IN	Damper Having Reinforced Catcher	India	Pending	Patent	201714008995	Mar-15-2017			Mar-15-2037
TAOC	131 6N-001779/US	Damper Having Reinforced Catcher	United States	Granted	Patent	15/077214	Mar-22-2016	9873303	Jan-23-2018	Mar-22-2036
TAOC	131 6N-101779/CN	Damper Having Reinforced Catcher	China	Pending	Patent	201710155977.4	Mar-16-2017			Mar-16-2037
TAOC	131 6N-101779/JP	Damper Having Reinforced Catcher	Japan	Pending	Patent	2017-055650	Mar-22-2017			Mar-22-2037
TAOC	131 6I-101780/AU	Single Piece Steering Stabilizer for Motor Vehicle	Australia	Pending	Patent	2017204212	Jun-21-2017			Jun-21-2037
TAOC	131 6I-101780/CN	Steering Stabilizer for Motor Vehicle	China	Pending	Patent	201710475012.3	Jun-21-2017			Jun-21-2037
TAOC	131 6I-101780/DE	Steering Stabilizer for Motor Vehicle	Germany	Pending	Patent	102017113299.6	Jun-16-2017			Jun-16-2037
TAOC	131 6N-001780/US	Single Piece Steering Stabilizer for Motor Vehicle	United States	Pending	Patent	15/189574	Jun-22-2016			Jun-22-2036
TAOC	131 6N-001780-US-CO1	Single Piece Steering Stabilizer for Motor Vehicle	United States	Pending	Patent	16/109992	Aug-23-2018			Jun-22-2036
TAOC	131 6N-001781/US	Method of Alerting Driver to Condition of Suspension System	United States	Pending	Patent	15/716671	Sep-27-2017			Sep-27-2037
TAOC	131 6N-001781-WO-POA	Method of Alerting Driver to Condition of Suspension System	WO	Pending	Patent	US2017/054704	Oct-02-2017			Apr-03-2020
TAOC	131 6N-001782/US	Baffle Tube for Damper with Electromechanical Valve	United States	Granted	Patent	15/380468	Dec-15-2016	10054182	Aug-21-2018	Dec-15-2036
TAOC	131 6I-101783/IN	Frequency Dependent Damper	India	Pending	Patent	201621040502	Nov-28-2016			Nov-28-2036
TAOC	131 6N-001783/WO-POA	Frequency Dependent Damper	WO	Pending	Patent	PCT/US2017/062211	Nov-17-2017			May-28-2020
TAOC	131 6N-001783/WO-POB	Frequency Dependent Damper	WO	Pending	Patent	PCT/US2017/062841	Nov-21-2017			May-28-2020
TAOC	131 6N-001784/CN	Quad FET for Power and Accuracy	China	Pending	Patent	201810229838.6	Mar-20-2018			Mar-20-2038
TAOC	131 6N-001784/DE	Quad FET for Power and Accuracy	Germany	Pending	Patent	1020181061277	Mar-16-2018			Mar-16-2038
TAOC	131 6N-001784/US	Damper with Power Drive Electronics	United States	Pending	Patent	15/464735	Mar-21-2017			Mar-21-2037
TAOC	131 6N-001785/US	Interlinked Active Suspension	United States	Pending	Patent	15/613398	Jun-05-2017			Jun-05-2037

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TAOC	1316N-001785/WO/POA	Acoustic	WO	Pending	Patent	PCT/US2018/035866	Jun-04-2018			Dec-05-2020
TAOC	1316I-101786/CN/01	A Reinforcement Fabric For Reinforcement Of An Impact Resistant Or Structural Composite Part	China	Pending	Patent	201480083174.7	Nov-04-2014			Nov-04-2034
TAOC	1316I-101786/DE/01	A Reinforcement Fabric For Reinforcement Of An Impact Resistant Or Structural Composite Part	Germany	Pending	Patent	112014007131.5	Nov-04-2014			Nov-04-2034
TAOC	1316N-001787/US	Damper with Volume Reducing Insert	United States	Pending	Patent	16/009592	Jun-15-2018			Jun-15-2038
TAOC	1316N-001787/WO	Damper with Volume Reducing Insert	WO	Pending	Patent	PCT/US2018/039708	Jun-27-2018			Dec-28-2020
TAOC	1316I-101788/CN	Damper With Printed Circuit Board Carrier	China	Pending	Patent	201810510326.7	May-24-2018			May-24-2038
TAOC	1316I-101788/DE	Damper With Printed Circuit Board Carrier	Germany	Pending	Patent	102018111907.0	May-17-2018			May-17-2038
TAOC	1316I-101788/IN	Damper With Printed Circuit Board Carrier	India	Pending	Patent	2018240193.4	May-29-2018			May-29-2038
TAOC	1316N-001788/US	Damper With Printed Circuit Board Carrier	United States	Pending	Patent	15/615053	Jun-06-2017			Jun-06-2037
TAOC	1316N-001790/US	Systems and methods for integrated chassis control in ground vehicles	United States	Pending	Patent	15/843369	Dec-15-2017			Dec-15-2037
TAOC	1316N-001791/US	Systems And Methods For Ride Control Blending In Electric Vehicles	United States	Pending	Patent	15/843395	Dec-15-2017			Dec-15-2037
TAOC	1316N-001792/US	Damper with Electro-magnetic Actuator	United States	Pending	Patent	15/903571	Feb-23-2018			Feb-23-2038
TAOC	1316N-001793/US	Damper with Valve Preload Limiter	United States	Pending	Patent	15/933951	Mar-23-2018			Mar-23-2038
TAOC	1316N-001794/US	Damper with Floating Piston Bleed Channel	United States	Pending	Patent	15/933993	Mar-23-2018			Mar-23-2038
TAOC	1316N-001795/US	BAFFLE FOR DAMPER WITH FLUCTUOMECHANICAL VALVE	United States	Pending	Patent	15/843340	Dec-15-2017			Dec-15-2037
TAOC	1316N-001796/US	Active Damper System Actuator Arrangement	United States	Pending	Patent	15/903415	Feb-23-2018			Feb-23-2038
TAOC	1316N-001797/US	Damper With Internal Hydraulic Stop	United States	Pending	Patent	15/966056	Apr-30-2018			Apr-30-2038
TAOC	1316N-001798/US	Damper Bumper Cap with Labyrinth Air Passageway	United States	Pending	Patent	15/964317	Apr-27-2018			Apr-27-2038
TAOC	1316N-001800/US	Active Tire Force Vector	United States	Pending	Patent	16/110025	Aug-23-2018			Aug-23-2038
TAOC	2001E-001625/US	ACOUSTIC SYSTEM IDENTIFICATION USING ACOUSTIC MASKING	United States	Granted	Patent	09/195294	Nov-18-1998	6594365	Jul-15-2003	Nov-18-2018
TAOC	2001U-001626/US	STRAIGHT THROUGH MUFFLER WITH CONICALY-ENDED OUTPUT PASSAGE	United States	Granted	Patent	09/339996	Jun-25-1999	6158546	Dec-12-2000	Jun-25-2019
TAOC	2001U-001630/US	METHOD AND APPARATUS FOR SEALING CANISTERS	United States	Granted	Patent	09/568632	May-10-2000	6446322	Sep-10-2002	May-10-2020
TAOC	2001U-001637/US	EMBOSSED SHELL FOR SPUN MUFFLERS	United States	Granted	Patent	10/373821	Feb-25-2003	6892855	May-17-2005	Feb-25-2023
TAOC	2001P-101639/CN/01	COMBINED MUFFLER / HEAT EXCHANGER	China	Granted	Patent	200580020805.1	Jun-21-2005	ZL200580020805.1	May-13-2009	Jun-21-2025
TAOC	2001P-101639/DE/01	COMBINED MUFFLER / HEAT EXCHANGER	Germany	Granted	Patent	11 2005 001 444.4	Jun-21-2005	11 2005 001 444	Mar-01-2012	Jun-21-2025
TAOC	2001P-101639/IN/01	COMBINED MUFFLER / HEAT EXCHANGER	India	Granted	Patent	7035/DELNP/2006	Jun-21-2005	271335	Feb-17-2016	Jun-21-2025
TAOC	2001P-101639/JP/01	COMBINED MUFFLER / HEAT EXCHANGER	Japan	Granted	Patent	2007-518178	Jun-21-2005	4621735	Nov-05-2010	Jun-21-2025
TAOC	2001P-101639/KR/01	COMBINED MUFFLER / HEAT EXCHANGER	South Korea	Granted	Patent	10-2006-7026182	Jun-21-2005	10-1177763	Aug-22-2012	Jun-21-2025
TAOC	2001U-001639/US	COMBINED MUFFLER / HEAT EXCHANGER	United States	Granted	Patent	10/876242	Jun-24-2004	7063134	Jun-20-2006	Jun-24-2024
TAOC	2001P-101644/IN/01	POST CALIBRATION CATALYTIC CONVERTER CANNING APPARATUS AND METHOD	India	Pending	Patent	4944/DELNP/2007	Jan-12-2006			Jan-12-2026
TAOC	2001U-001647/US	Selective catalyst reduction of nitrogen oxides with hydrogen	United States	Granted	Patent	11/269124	Nov-08-2005	7723308	May-11-2010	Nov-08-2025
TAOC	2001P-101658/BR/04	Snap action valve for Exhaust system	Brazil	Pending	Patent	PI0908042.2	Jan-13-2009			Jan-13-2029
TAOC	2001P-101658/BR/06	SNAP-ACTION VALVE FOR EXHAUST SYSTEM	Brazil	Pending	Patent	112013013079.2	Nov-28-2011			Nov-28-2031
TAOC	2001P-101658/CN/01	Snap action valve for Exhaust system	China	Granted	Patent	200780052009.5	Nov-02-2007	ZL2007800520095	Mar-28-2012	Nov-02-2027



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TAOC	2001P-101658/CN/06	SNAP-ACTION VALVE FOR EXHAUST SYSTEM	China	Pending	Patent	US2011062179	Nov-28-2011	ZL2011800571341	Oct-19-2016	Nov-28-2031
TAOC	2001P-101658/DE/01	Snap action valve for Exhaust system	Germany	Granted	Patent	11 2007 003 404.1	Nov-02-2007	1120070034041	Mar-19-2015	Nov-02-2027
TAOC	2001P-101658/DE/04	Snap action valve for Exhaust system	Germany	Granted	Patent	11 2009 000 440.7	Jan-13-2009	112009000440	Oct-23-2014	Jan-13-2029
TAOC	2001P-101658/DE/06	SNAP-ACTION VALVE FOR EXHAUST SYSTEM	Germany	Granted	Patent	US2011062179	Nov-28-2011	2646661	Sep-20-2017	Nov-28-2031
TAOC	2001P-101658/EP/06	SNAP-ACTION VALVE FOR EXHAUST SYSTEM	European Patent	Granted	Patent	US2011062179	Nov-28-2011	2646661	Sep-20-2017	Nov-28-2031
TAOC	2001P-101658/IN/04	Snap action valve for Exhaust system	India	Granted	Patent	57993/DELNP/2010	Jan-13-2009	289053	Oct-31-2017	Jan-13-2029
TAOC	2001P-101658/IN/06	SNAP-ACTION VALVE FOR EXHAUST SYSTEM	India	Pending	Patent	US2011062179	Nov-28-2011		Oct-31-2017	Nov-28-2031
TAOC	2001P-101658/JP/01	Snap action valve for Exhaust system	Japan	Granted	Patent	2009-553559	Nov-02-2007	5281022	May-31-2013	Nov-02-2027
TAOC	2001P-101658/JP/04	Snap action valve for Exhaust system	Japan	Granted	Patent	2010-549681	Jan-13-2009	5377524	Oct-04-2013	Jan-13-2029
TAOC	2001P-101658/KR/04	Snap action valve for Exhaust system	South Korea	Granted	Patent	10-2010-7019826	Jan-13-2009	10-1504894	Mar-17-2015	Jan-13-2029
TAOC	2001P-101658/KR/07	SNAP-ACTION VALVE FOR EXHAUST SYSTEM	South Korea	Pending	Patent	US2011062179	Nov-28-2011	101570971	Nov-17-2015	Nov-28-2031
TAOC	2001U-001658/US	Snap action valve for Exhaust system	United States	Granted	Patent	11/687151	Mar-16-2007	7434570	Oct-14-2008	Mar-16-2027
TAOC	2001U-001658/US/COC	Snap action valve for Exhaust system	United States	Granted	Patent	12/139637	Jun-16-2008	8215103	Jul-10-2012	Jun-16-2028
TAOC	2001U-001658/US/CPPB	Snap action valve for Exhaust system	United States	Granted	Patent	12/041114	Mar-03-2008	7775322	Aug-17-2010	Mar-03-2028
TAOC	2001U-001658/US/CPE	Snap action valve for Exhaust system	United States	Granted	Patent	12/955199	Nov-29-2010	8468813	Jun-25-2013	Nov-29-2030
TAOC	2001U-001660/TH	Catalytic Converter Mid Bed Insulation Ring	Thailand	Pending	Patent	0701006108	Nov-30-2007			Nov-30-2027
TAOC	2001U-001660/US/01	Catalytic Converter Mid Bed Insulation Ring	United States	Granted	Patent	11/856931	Sep-18-2007	7897117	Mar-01-2011	Sep-18-2027
TAOC	2001P-101662/CN/01	Exhaust Gas Cooling Pipe Design	China	Granted	Patent	200880104847.7	Aug-28-2008	ZL200880104847.7	Oct-17-2012	Aug-28-2028
TAOC	2001P-101662/DE/01	Exhaust Gas Cooling Pipe Design	Germany	Granted	Patent	11 2008 002 339.5	Aug-28-2008	11 2008 002 339	May-22-2014	Aug-28-2028
TAOC	2001P-101662/IN/01	Exhaust Gas Cooling Pipe Design	India	Pending	Patent	867CHENP2010	Aug-28-2008			Aug-28-2028
TAOC	2001P-101662/KR/01	Exhaust Gas Cooling Pipe Design	South Korea	Granted	Patent	10 2010-7004447	Aug-28-2008	10-1388625	Apr-17-2014	Aug-28-2028
TAOC	2001U-001662/US/01	Exhaust Gas Cooling Pipe Design	United States	Granted	Patent	12/200012	Aug-28-2008	7845465	Dec-07-2010	Aug-28-2028
TAOC	2001P-101663/DE/01	Chair Air Bypass for Aftertreatment Combustion Air Supply	Germany	Pending	Patent	11 2009 000 424.5	Jan-13-2009			Jan-13-2029
TAOC	2001P-101663/IN/01	Charged Air Bypass for Aftertreatment Combustion Air Supply	India	Pending	Patent	57992/DELNP/2010	Jan-13-2009			Jan-13-2029
TAOC	2001P-101663/JP/01	Charged Air Bypass for Aftertreatment Combustion Air Supply	Japan	Pending	Patent	2010-549682	Jan-13-2009			Jan-13-2029
TAOC	2001U-001663/US	Charged Air Bypass for Aftertreatment Combustion Air Supply	United States	Granted	Patent	12/041943	Mar-04-2008	7980061	Jul-19-2011	Mar-04-2028
TAOC	2001U-001663/US/COB	Charged Air Bypass for Aftertreatment Combustion Air Supply	United States	Granted	Patent	13/171947	Jun-29-2011	8776504	Jul-15-2014	Oct-15-2028
TAOC	2001P-101665/BR/01	Snap Action Valve with Bumper Pad	Brazil	Pending	Patent	PI1006433.8	Mar-22-2010			Mar-22-2030

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TAOC	2001P-101665/CN/01	Snap Action Valve with Bumper Pad	China	Granted	Patent	201080016686.3	Mar-22-2010	ZL201080016686.3	Apr-02-2014	Mar-22-2030
TAOC	2001P-101665/JN/01	Snap Action Valve with Bumper Pad	India	Pending	Patent	7240/CHENP/2011	Mar-22-2010			Mar-22-2030
TAOC	2001P-101665/JF/01	Snap Action Valve with Bumper Pad	Japan	Granted	Patent	2012-506043	Mar-22-2010	5638061	Oct-31-2014	Mar-22-2030
TAOC	2001P-101665/KR/01	Snap Action Valve with Bumper Pad	South Korea	Pending	Patent	10-2011-7023933	Mar-22-2010			Mar-22-2030
TAOC	2001P-101665/KR/02	Rotary Valve Assembly	South Korea	Granted	Patent	10-2016-7008403	Mar-30-2016	101652958	Aug-25-2016	Mar-30-2036
TAOC	2001U-001665/US	Snap Action Valve with Bumper Pad	United States	Granted	Patent	12/424915	Apr-16-2009	8191572	Jun-05-2012	Apr-16-2029
TAOC	2001P-101666/BR/01	SNAP ACTION VALVE WITH INERTIAL DAMPER	Brazil	Pending	Patent	PI1007720.0	May-07-2010			May-07-2030
TAOC	2001P-101666/CN/01	SNAP ACTION VALVE WITH INERTIAL DAMPER	China	Granted	Patent	201080022088.7	May-07-2010	ZL201080022088.7	May-21-2014	May-07-2030
TAOC	2001P-101666/DE/01	SNAP ACTION VALVE WITH INERTIAL DAMPER	Germany	Granted	Patent	11 2010 002 064.7	May-07-2010	1120100020647	Jan-04-2018	May-07-2030
TAOC	2001P-101666/JN/01	SNAP ACTION VALVE WITH INERTIAL DAMPER	India	Pending	Patent	7749/CHENP/2011	May-07-2010			May-07-2030
TAOC	2001P-101666/JF/01	SNAP ACTION VALVE WITH INERTIAL DAMPER	Japan	Granted	Patent	2012-511884	May-07-2010	5801797	Sep-04-2015	May-07-2030
TAOC	2001P-101666/KR/01	SNAP ACTION VALVE WITH INERTIAL DAMPER	South Korea	Pending	Patent	10-2011-7027830	May-07-2010			May-07-2030
TAOC	2001P-101666/KR/02	SNAP ACTION VALVE WITH INERTIAL DAMPER	South Korea	Granted	Patent	10-2015-7016675	May-07-2010	10-1609629	Mar-31-2016	May-07-2030
TAOC	2001P-101666/KR/03	SNAP ACTION VALVE WITH INERTIAL DAMPER	South Korea	Pending	Patent	PCT/JUS2010/034061	May-07-2010			May-07-2030
TAOC	2001U-001666/DE/02	SNAP ACTION VALVE WITH INERTIAL DAMPER	Germany	Granted	Patent	PCT/JUS2010/034061	May-07-2010	202010018591.2	Jan-07-2018	May-07-2030
TAOC	2001U-001666/US	SNAP ACTION VALVE WITH INERTIAL DAMPER	United States	Granted	Patent	12/470560	May-22-2009	7896130	Mar-01-2011	May-22-2029
TAOC	2001P-101667/BR/01	METHOD OF INSTALLING SNAP ACTION VALVE IN A CONDUIT	Brazil	Pending	Patent	PI1006594.6	Mar-22-2010			Mar-22-2030
TAOC	2001P-101667/CN/01	METHOD OF INSTALLING SNAP ACTION VALVE IN A CONDUIT	China	Granted	Patent	201080016938.2	Mar-22-2010	ZL201080016938.2	Jan-15-2014	Mar-22-2030
TAOC	2001P-101667/DE/01	METHOD OF INSTALLING SNAP ACTION VALVE IN A CONDUIT	Germany	Granted	Patent	11 2010 001 634.8	Mar-22-2010	1120100016348	Feb-21-2013	Mar-22-2030
TAOC	2001P-101667/JN/01	METHOD OF INSTALLING SNAP ACTION VALVE IN A CONDUIT	India	Pending	Patent	7369/CHENP/2011	Mar-22-2010			Mar-22-2030
TAOC	2001P-101667/JF/01	METHOD OF INSTALLING SNAP ACTION VALVE IN A CONDUIT	Japan	Granted	Patent	2012-506045	Mar-22-2010	5498567	Mar-14-2014	Mar-22-2030
TAOC	2001P-101667/KR/01	METHOD OF INSTALLING SNAP ACTION VALVE IN A CONDUIT	South Korea	Granted	Patent	10-2011-7024199	Mar-22-2010	10513238	Apr-13-2015	Mar-22-2030
TAOC	2001U-001667/US	METHOD OF INSTALLING SNAP ACTION VALVE IN A CONDUIT	United States	Granted	Patent	12/424783	Apr-16-2009	8381401	Feb-26-2013	Apr-16-2029
TAOC	2001P-101668/CN/01	Snapper Valve for Hot End Systems with Burners	China	Granted	Patent	201180008119.8	Feb-23-2011	ZL201180008119.8	Jun-24-2015	Feb-23-2031
TAOC	2001P-101668/DE/01	Snapper Valve for Hot End Systems with Burners	Germany	Pending	Patent	11 2011 100697.7	Feb-23-2011			Feb-23-2031
TAOC	2001P-101668/JN/01	Snapper Valve for Hot End Systems with Burners	India	Pending	Patent	5788/CHENP/2012	Feb-23-2011			Feb-23-2031
TAOC	2001P-101668/TH/01	Snapper Valve for Hot End Systems with Burners	Thailand	Pending	Patent	1201004244	Feb-23-2011			Feb-23-2031
TAOC	2001U-001668/US	Snapper Valve for Hot End Systems with Burners	United States	Granted	Patent	12/712395	Feb-25-2010	8353153	Jan-15-2013	Feb-25-2030
TAOC	2001P-101669/CN/01	09-0370 Ultrasonic Acoustic Emissions to Detect Substrate Fracture	China	Pending	Patent	201180025387.0	May-13-2011			May-13-2031

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TAOC	2001P-101669/JN/01	09-0370 Ultrasonic Acoustic Emissions to Detect Substrate Fracture	India	Pending	Patent	9258/CHENP/2012	May-13-2011			May-13-2031
TAOC	2001U-001669/US	09-0370 Ultrasonic Acoustic Emissions to Detect Substrate Fracture	United States	Granted	Patent	12/788882	May-27-2010	8281661	Oct-09-2012	May-27-2030
TAOC	2001P-101671/BR/02	On Vehicle NOx aftertreatment system	Brazil	Pending	Patent	112012019611.1	Feb-16-2011			Feb-16-2031
TAOC	2001P-101671/JN/02	On Vehicle NOx aftertreatment system	India	Pending	Patent	7634/CHENP/2012	Feb-16-2011			Feb-16-2031
TAOC	2001U-001671/US	On Vehicle NOx aftertreatment system	United States	Granted	Patent	12/773314	May-04-2010	8381514	Feb-26-2013	May-04-2030
TAOC	2001P-101672/TH/01	Inverted Exhaust Gas Treatment Injector	Thailand	Pending	Patent	1201005772	May-02-2011			May-02-2031
TAOC	2001P-101673/JN/01	Exhaust Gas Stream Vortex Breaker	India	Pending	Patent	2445/CHENP/2013	Oct-18-2011			Oct-18-2031
TAOC	2001P-101673/TH/01	Exhaust Gas Stream Vortex Breaker	Thailand	Pending	Patent	1301002084	Oct-18-2011			Oct-18-2031
TAOC	2001U-001673/US/01	Exhaust Gas Stream Vortex Breaker	United States	Granted	Patent	12/907421	Oct-19-2010	8438839	May-14-2013	Oct-19-2030
TAOC	2001P-101676/JN/01	HIGH VOLUME EXHAUST GAS TREATMENT SYSTEM	India	Pending	Patent	2897/CHENP/2013	Oct-18-2011			Oct-18-2031
TAOC	2001P-101676/KR/01	HIGH VOLUME EXHAUST GAS TREATMENT SYSTEM	South Korea	Pending	Patent	10-2013-7010696	Oct-18-2011			Oct-18-2031
TAOC	2001P-101676/KR/02	HIGH VOLUME EXHAUST GAS TREATMENT SYSTEM	South Korea	Granted	Patent	1020157015585	Jun-11-2015	101548494	Aug-25-2015	Jun-11-2035
TAOC	2001P-101677/BR/01	Exhaust Treatment Device Insulation System	Brazil	Pending	Patent	112013013280.9	Nov-15-2011			Nov-15-2031
TAOC	2001P-101677/CN/01	Exhaust Treatment Device Insulation System	China	Pending	Patent	201180057343.6	Nov-15-2011			Nov-15-2031
TAOC	2001P-101677/JN/01	Exhaust Treatment Device Insulation System	India	Pending	Patent	3650/CHENP/2013	Nov-15-2011			Nov-15-2031
TAOC	2001U-001677/DE	Exhaust Treatment Device Insulation System	Germany	Pending	Patent		Nov-15-2011			Nov-15-2031
TAOC	2001P-101679/BR/01	Inlet for Exhaust Treatment Device	Brazil	Pending	Patent	112013012354.0	Nov-15-2011			Nov-15-2031
TAOC	2001P-101679/DE/01	Inlet for Exhaust Treatment Device	Germany	Pending	Patent	112011103815.1	Nov-15-2011			Nov-15-2031
TAOC	2001P-101679/JN/01	Inlet for Exhaust Treatment Device	India	Pending	Patent	3618/CHENP/2013	Nov-15-2011			Nov-15-2031
TAOC	2001U-001679/US	Inlet for Exhaust Treatment Device	United States	Granted	Patent	12/948974	Nov-18-2010	8464516	Jun-18-2013	Nov-18-2030
TAOC	2001P-101680/JN/01	Axial Exhaust Inlet / Outlet Configuration for T.R.U.E.-Clean	India	Pending	Patent	5680/CHENP/2013	Jan-27-2012			Jan-27-2032
TAOC	2001P-101680/KR/01	Axial Exhaust Inlet / Outlet Configuration for T.R.U.E.-Clean	South Korea	Granted	Patent	10-2013-7019637	Jan-27-2012	101551618	Sep-03-2015	Jan-27-2032
TAOC	2001P-101680/TH/01	Axial Exhaust Inlet / Outlet Configuration for T.R.U.E.-Clean	Thailand	Pending	Patent	1301004247	Jan-27-2012			Jan-27-2032
TAOC	2001U-001680/US	Co Axial Exhaust Inlet / Outlet Configuration for T.R.U.E.-Clean	United States	Granted	Patent	13/316872	Dec-12-2011	8656708	Feb-25-2014	Dec-12-2031
TAOC	2001U-001680/US/COB	Axial Exhaust Inlet / Outlet Configuration for T.R.U.E.-Clean	United States	Granted	Patent	14/177255	Feb-11-2014	9140158	Sep-22-2015	Dec-12-2031
TAOC	2001P-101682/CN/01	Tank Air Interchange Normalizing Tube	China	Granted	Patent	201180058572.X	Dec-07-2011	Z1201180058572.X	Jul-22-2015	Dec-07-2031
TAOC	2001P-101682/DE/01	Tank Air Interchange Normalizing Tube	Germany	Granted	Patent	112011104219.1	Dec-07-2011	1120111042191	Aug-04-2016	Dec-07-2031
TAOC	2001P-101682/JN/01	Tank Air Interchange Normalizing Tube	India	Pending	Patent	3765/CHENP/2013	Dec-07-2011			Dec-07-2031
TAOC	2001P-101682/JP/01	Tank Air Interchange Normalizing Tube	Japan	Granted	Patent	2013-543296	Dec-07-2011	5736466	Apr-24-2015	Dec-07-2031

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Grantor	Docket ID	Technology/Invention Title	Country	Status	Type	Application Number	Application Date	Grant Number	Grant Date	Expiration Date
TAOC	2001P-101682/TH/01	Tank Air Interchange Normalizing Tube	Thailand	Granted	Patent	1301002980	Dec-07-2011	42285	Dec-09-2014	Dec-07-2031
TAOC	2001U-001682/US	Reagent Tank Normalizing System	United States	Granted	Patent	13/274408	Oct-17-2011	8402750	Mar-26-2013	Oct-17-2031
TAOC	2001P-101683/CN/01	Exhaust Aftertreatment Device With Integrated Shell And Baffle	China	Granted	Patent	201280011773.9	Feb-27-2012	Z1201800117739	Jun-29-2016	Feb-27-2032
TAOC	2001P-101683/IN/01	Exhaust Aftertreatment Device With Integrated Shell And Baffle	India	Pending	Patent	1570/MUMNP/2013	Feb-27-2012			Feb-27-2032
TAOC	2001P-101683/JP/01	Exhaust Aftertreatment Device With Integrated Shell And Baffle	Japan	Granted	Patent	2013-557748	Feb-27-2012	57966093	Aug-21-2015	Feb-27-2032
TAOC	2001P-101683/KR/01	Exhaust Aftertreatment Device With Integrated Shell And Baffle	South Korea	Granted	Patent	10-2013-7025693	Feb-27-2012	101521965	May-14-2015	Feb-27-2032
TAOC	2001P-101683/TH/01	Exhaust Aftertreatment Device With Integrated Shell And Baffle	Thailand	Pending	Patent	1301004844	Feb-27-2012			Feb-27-2032
TAOC	2001U-001683/US	Exhaust Aftertreatment Device With Integrated Shell And Baffle	United States	Granted	Patent	13/040623	Mar-04-2011	8609030	Dec-17-2013	Mar-04-2031
TAOC	2001U-001683/US/COB	Exhaust Aftertreatment Device With Integrated Shell And Baffle	United States	Granted	Patent	14/075095	Nov-08-2013	8784742	Jul-22-2014	Nov-08-2033
TAOC	2001U-001683/US/COC	Exhaust Aftertreatment Device With Integrated Shell And Baffle	United States	Granted	Patent	14/326727	Jul-09-2014	9005535	Apr-14-2015	Jul-09-2034
TAOC	2001P-101684/CN/01	Tri-Flow Exhaust Treatment Device with Reductant Mixing Tube	China	Granted	Patent	201280012298.7	Feb-27-2012	201800122987	May-25-2016	Feb-27-2032
TAOC	2001P-101684/IN/01	Tri-Flow Exhaust Treatment Device with Reductant Mixing Tube	India	Pending	Patent	1572/MUMNP/2013	Feb-27-2012			Feb-27-2032
TAOC	2001P-101684/JP/01	Tri-Flow Exhaust Treatment Device with Reductant Mixing Tube	Japan	Granted	Patent	2013-557749	Feb-27-2012	5675028	Jan-09-2015	Feb-27-2032
TAOC	2001P-101684/JP/02	Tri-Flow Exhaust Treatment Device With Reductant Mixing Tube	Japan	Granted	Patent	2014-259596	Feb-27-2012	5987050	Aug-12-2016	Feb-27-2032
TAOC	2001P-101684/KR/01	Tri-Flow Exhaust Treatment Device with Reductant Mixing Tube	South Korea	Granted	Patent	10-2013-7026509	Feb-27-2012	101531603	Jun-19-2015	Feb-27-2032
TAOC	2001P-101684/TH/01	Tri-Flow Exhaust Treatment Device with Reductant Mixing Tube	Thailand	Pending	Patent	1301004922	Feb-27-2012			Feb-27-2032
TAOC	2001U-001684/US	Tri-Flow Exhaust Treatment Device with Reductant Mixing Tube	United States	Granted	Patent	13/043889	Mar-09-2011	8776509	Jul-15-2014	Mar-09-2031
TAOC	2001U-001684/US/COB	Tri-Flow Exhaust Treatment Device with Reductant Mixing Tube	United States	Granted	Patent	14/326739	Jul-09-2014	9759108	Sep-12-2017	Mar-09-2031
TAOC	2001P-101685/CN/01	Poka-Yoke Mounting System for an Exhaust Treatment Device	China	Granted	Patent	201280011526.9	Feb-27-2012	201800115269	May-18-2016	Feb-27-2032
TAOC	2001P-101685/CN/02	DPF Box with Poki Yoke	China	Pending	Patent	201610239346.6	Apr-18-2016			Feb-27-2032
TAOC	2001P-101685/IN/01	Poka-Yoke Mounting System for an Exhaust Treatment Device	India	Pending	Patent	1571/MUMNP/2013	Feb-27-2012			Feb-27-2032
TAOC	2001P-101685/JP/01	Poka-Yoke Mounting System for an Exhaust Treatment Device	Japan	Granted	Patent	2013-556760	Feb-27-2012	5689187	Feb-06-2015	Feb-27-2032
TAOC	2001P-101685/TH/01	Poka-Yoke Mounting System for an Exhaust Treatment Device	Thailand	Pending	Patent	1301004823	Feb-27-2012			Feb-27-2032
TAOC	2001U-001685/US	Poka-Yoke Mounting System for an Exhaust Treatment Device	United States	Granted	Patent	13/039559	Mar-03-2011	8561395	Oct-22-2013	Mar-03-2031
TAOC	2001U-001685/US/COC	Poka-Yoke Mounting System for an Exhaust Treatment Device	United States	Granted	Patent	14/823161	Aug-11-2015	9664101	May-30-2017	Oct-21-2033
TAOC	2001U-001685/US/DVB	Poka-Yoke Mounting System for an Exhaust Treatment Device	United States	Granted	Patent	14/058342	Oct-21-2013	9151198	Oct-06-2015	Oct-21-2033
TAOC	2001P-101694/CN/01	Reductant Injection Control System	China	Granted	Patent	201280038254.1	Jul-19-2012	Z12012800382541	Mar-08-2017	Jul-19-2032
TAOC	2001P-101694/DE/01	RReductant Injection Control System	Germany	Pending	Patent	11 2012 003 259.4	Jul-19-2012			Jul-19-2032

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TAOC	2001P-101694/JN/01	RReductant Injection Control System	India	Pending	Patent	713/CHENP/2014	Jul-19-2012			Jul-19-2032
TAOC	2001P-101694/KR/01	RReductant Injection Control System	South Korea	Granted	Patent	10-2014-7005754	Jul-19-2012	101551773	Sep-03-2015	Jul-19-2032
TAOC	2001P-101694/TH/01	RReductant Injection Control System	Thailand	Pending	Patent	1401000542	Jul-19-2012			Jul-19-2032
TAOC	2001U-001694/US	Reductant Injection Control System	United States	Granted	Patent	13/198952	Aug-05-2011	8635854	Jan-28-2014	Aug-05-2031
TAOC	2001U-001697/US	Leaf Spring Bracket	United States	Granted	Patent	13/154529	Jun-07-2011	8690115	Apr-08-2014	Jun-07-2031
TAOC	2001P-101698/CN/01	Pre-Injection Flow Modifier	China	Granted	Patent	2012800438848	Aug-29-2012	ZL2012800438848	Aug-01-2017	Aug-29-2032
TAOC	2001P-101698/CN/02	Pre-Injection Flow Modifier	China	Pending	Patent	2017105849121	Aug-29-2012			Aug-29-2032
TAOC	2001P-101698/CN/03	In-Line Flow Diverter	China	Pending	Patent	PCT/US2015/017220	Feb-24-2015			Feb-24-2035
TAOC	2001P-101698/CN-04	Pre-Injection Flow Modifier	China	Pending	Patent	20161110849X	Dec-02-2016			Dec-02-2036
TAOC	2001P-101698/DE/01	Pre-Injection Flow Modifier	Germany	Pending	Patent	11 2012 003 742.1	Aug-29-2012			Aug-29-2032
TAOC	2001P-101698/DE/03	In-Line Flow Diverter	Germany	Pending	Patent	PCT/US2015/017220	Feb-24-2015			Feb-24-2035
TAOC	2001P-101698/JN/01	Pre-Injection Flow Modifier	India	Pending	Patent	967/CHENP/2014	Aug-29-2012			Aug-29-2032
TAOC	2001P-101698/JN/03	In-Line Flow Diverter	India	Pending	Patent	PCT/US2015/017220	Feb-24-2015			Feb-24-2035
TAOC	2001P-101698/JF/01	Pre-Injection Flow Modifier	Japan	Pending	Patent	2014-529765	Aug-29-2012			Aug-29-2032
TAOC	2001P-101698/KR/01	Pre-Injection Flow Modifier	South Korea	Granted	Patent	10-2014-7008739	Aug-29-2012	10-1610707	Apr-04-2016	Aug-29-2032
TAOC	2001P-101698/TH/01	Pre-Injection Flow Modifier	Thailand	Pending	Patent	1401001124	Aug-29-2012			Aug-29-2032
TAOC	2001U-001698/DE/04	Pre-Injection Flow Modifier	Germany	Pending	Patent	1020161233137	Dec-02-2016			Dec-02-2036
TAOC	2001U-001698/JN/04	Pre-Injection Flow Modifier	India	Pending	Patent	201624041122	Dec-01-2016			Dec-01-2036
TAOC	2001U-001698/US	Pre-Injection Flow Modifier	United States	Granted	Patent	13/227952	Sep-08-2011	8677738	Mar-25-2014	Sep-08-2031
TAOC	2001U-001698/US/CPB	Pre-Injection Flow Modifier	United States	Granted	Patent	14/193499	Feb-28-2014	9347355	May-24-2016	Feb-28-2034
TAOC	2001U-001698/US/CPD	Pre-Injection Flow Modifier	United States	Granted	Patent	14/956727	Dec-02-2015	9726063	Aug-08-2017	Feb-28-2034
TAOC	2001U-001698/US/DVE	Pre-Injection Flow Modifier	United States	Granted	Patent	15/148179	May-06-2016	10077702	Sep-18-2018	Feb-28-2034
TAOC	2001P-101700/CN/01	Exhaust Gas Aftertreatment System for Engines Equipped with Exhaust Gas Recirculation EQUIPPED WITH EXHAUST GAS RECIRCULATION	China	Pending	Patent	PCT/US2012/053633	Sep-04-2012			Sep-04-2032
TAOC	2001P-101702/CN/01	Exhaust Treatment Device with Integral Mount	China	Granted	Patent	201280053844.1	Sep-04-2012	ZL2012800538441	Feb-17-2017	Sep-04-2032
TAOC	2001P-101702/CN/04	Exhaust Treatment Device with Integral Mount	China	Pending	Patent	PCT/US2015/027908	Apr-28-2015			Apr-28-2035
TAOC	2001P-101702/DE/01	Exhaust Treatment Device with Integral Mount	Germany	Pending	Patent	11 2012 004 198.4	Sep-04-2012			Sep-04-2032
TAOC	2001P-101702/DE/04	Exhaust Treatment Device with Integral Mount	Germany	Granted	Patent	PCT/US2015/027908	Apr-28-2015	1120120041984	Feb-22-2018	Apr-28-2035
TAOC	2001P-101702/JN/01	Exhaust Treatment Device with Integral Mount	India	Pending	Patent	574/MUMNP/2014	Sep-04-2012			Sep-04-2032

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TAOC	2001P-101702/JF/01	ExhausTreatment Device with Integral Mount	Japan	Granted	Patent	2014-534570	Sep-04-2012	5985647	Aug-12-2016	Sep-04-2032
TAOC	2001P-101702/KR/01	ExhausTreatment Device with Integral Mount	South Korea	Granted	Patent	10-2014-7011523	Sep-04-2012	10-1623511	May-17-2016	Sep-04-2032
TAOC	2001P-101702/WO/PD-IN	ExhausTreatment Device with Integral Mount	India	Pending	Patent	PCT/US2015/027908	Apr-28-2015			Apr-28-2035
TAOC	2001P-101702/WO/PD-JP	ExhausTreatment Device with Integral Mount	Japan	Pending	Patent	PCT/US2015/027908	Apr-28-2015			Apr-28-2035
TAOC	2001U-001702/US	ExhausTreatment Device with Integral Mount	United States	Granted	Patent	13/268124	Oct-07-2011	8721977	May-13-2014	Oct-07-2031
TAOC	2001U-001702/US/COC	ExhausTreatment Device with Integral Mount	United States	Granted	Patent	14/619613	Feb-11-2015	9140174	Sep-22-2015	Oct-07-2031
TAOC	2001U-001702/US/CPB	ExhausTreatment Device with Integral Mount	United States	Granted	Patent	14/274818	May-12-2014	9163549	Oct-20-2015	Oct-07-2031
TAOC	2001P-101703/CN/01	Threaded Mount for Injectors	China	Pending	Patent	201280057185.9	Nov-20-2012			Nov-20-2032
TAOC	2001P-101703/KR/01	Threaded Mount for Injectors	South Korea	Pending	Patent	10-2014-7016598	Nov-20-2012			Nov-20-2032
TAOC	2001P-101703/TH/01	Threaded Mount for Injectors	Thailand	Pending	Patent	1401002696	Nov-20-2012			Nov-20-2032
TAOC	2001P-101704/CN/01	XNOX Common rail	China	Granted	Patent	201380032123.7	Jun-05-2013	ZL2013800321237	Aug-08-2017	Jun-05-2033
TAOC	2001P-101704/IN/01	Common Rail Reducant Injection System	India	Pending	Patent	8276/CHENP/2014	Jun-05-2013			Jun-05-2033
TAOC	2001P-101704/JF/01	Common Rail Reducant Injection System	Japan	Pending	Patent	2015518423	Jun-05-2013			Jun-05-2033
TAOC	2001P-101704/KR/01	XNOX Common rail 1	South Korea	Pending	Patent	10-2014-7033098	Jun-05-2013			Jun-05-2033
TAOC	2001P-101704/TH/01	Common Rail Reducant Injection System	Thailand	Pending	Patent	1401007395	Jun-05-2013			Jun-05-2033
TAOC	2001P-101705/BR/01	Peak and Hold Voltage Peak and Hold Threshold Control	Brazil	Pending	Patent	112014013884.2	Nov-20-2012			Nov-20-2032
TAOC	2001P-101705/CN/01	Peak and Hold Voltage Peak and Hold Threshold Control	China	Granted	Patent	201280059848.0	Nov-20-2012	201280059848.0	Jun-22-2016	Nov-20-2032
TAOC	2001P-101705/DE/01	Peak and Hold Voltage Peak and Hold Threshold Control	Germany	Pending	Patent	11 2012 005 108.5	Nov-20-2012			Nov-20-2032
TAOC	2001P-101705/IN/01	Peak and Hold Voltage Peak and Hold Threshold Control	India	Pending	Patent	3630/CHENP/2014	Nov-20-2012			Nov-20-2032
TAOC	2001P-101705/JF/01	Peak and Hold Voltage Peak and Hold Threshold Control	Japan	Pending	Patent	2014-545926	Nov-20-2012			Nov-20-2032
TAOC	2001P-101705/KR/01	Peak and Hold Voltage Peak and Hold Threshold Control	South Korea	Granted	Patent	10-2014-7015136	Nov-20-2012	101590927	Jan-27-2016	Nov-20-2032
TAOC	2001P-101705/KR/02	Peak and Hold Voltage Peak and Hold Threshold Control	South Korea	Granted	Patent	1020167002350	Jan-27-2016	10-1661631	Sep-26-2016	Jan-27-2036
TAOC	2001P-101705/TH/01	Peak and Hold Voltage Peak and Hold Threshold Control	Thailand	Pending	Patent	1401003109	Nov-20-2012			Nov-20-2032
TAOC	2001U-001705/US	Reagent Injector Control System	United States	Granted	Patent	13/311806	Dec-06-2011	8701389	Apr-22-2014	Dec-06-2031
TAOC	2001P-101706/CN/01	Exhaust Treatment Secondary Air Supply System	China	Pending	Patent	201380013925.3	Jan-30-2013			Jan-30-2033
TAOC	2001P-101706/IN/01	Exhaust Treatment Secondary Air Supply System	India	Pending	Patent	6456/CHENP/2014	Jan-30-2013			Jan-30-2033
TAOC	2001P-101706/JF/01	Exhaust Treatment Secondary Air Supply System	Japan	Pending	Patent	2014-560915	Jan-30-2013			Jan-30-2033
TAOC	2001P-101706/KR/01	Exhaust Treatment Secondary Air Supply System	South Korea	Pending	Patent	10-2014-7025352	Jan-30-2013			Jan-30-2033

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TAOC	2001U-001706/TH/01	Exhaust Treatment Secondary Air Supply System	Thailand	Pending	Patent	1401005393	Jan-30-2013			Jan-30-2033
TAOC	2001U-001706/US	Exhaust Treatment Secondary Air Supply System	United States	Granted	Patent	13/420982	Mar-15-2012	9133743	Sep-15-2015	Mar-15-2032
TAOC	2001P-101707/BR/01	Pilot tube connection for thermal growth	Brazil	Pending	Patent	112014013885.0	Dec-07-2012			Dec-07-2032
TAOC	2001P-101707/CN/01	Pilot tube connection for thermal growth	China	Pending	Patent	201280060481.4	Dec-07-2012			Dec-07-2032
TAOC	2001P-101707/DE/01	Pilot tube connection for thermal growth	Germany	Pending	Patent	11 2012 005 121.1	Dec-07-2012			Dec-07-2032
TAOC	2001P-101707/IN/01	Pilot tube connection for thermal growth	India	Pending	Patent	3628/CHENP/2014	Dec-07-2012			Dec-07-2032
TAOC	2001P-101707/JP/01	Pilot tube connection for thermal growth	Japan	Pending	Patent	2014-546127	Dec-07-2012			Dec-07-2032
TAOC	2001P-101707/KR/01	Pilot tube connection for thermal growth	South Korea	Pending	Patent	10-2014-7015226	Dec-07-2012			Dec-07-2032
TAOC	2001P-101707/TH/01	Pilot tube connection for thermal growth	Thailand	Pending	Patent	1401003070	Dec-07-2012			Dec-07-2032
TAOC	2001P-101709/CN/01	Fully insulated Exhaust Treatment Device	China	Granted	Patent	PCT/US2013/020020	Jan-03-2013	Z12013800046776	Dec-14-2016	Jan-03-2033
TAOC	2001P-101709/IN/01	Fully insulated Exhaust Treatment Device	India	Pending	Patent	PCT/US2013/020020	Jan-03-2013			Jan-03-2033
TAOC	2001P-101709/JP/01	Fully insulated Exhaust Treatment Device	Japan	Pending	Patent	PCT/US2013/020020	Jan-03-2013			Jan-03-2033
TAOC	2001P-101709/KR/01	Fully insulated Exhaust Treatment Device	South Korea	Pending	Patent	PCT/US2013/020020	Jan-03-2013			Jan-03-2033
TAOC	2001P-101709/TH/01	Fully insulated Exhaust Treatment Device	Thailand	Pending	Patent	PCT/US2013/020020	Jan-03-2013			Jan-03-2033
TAOC	2001P-101711/CN/01	Coaxial Flow Injector	China	Pending	Patent	201380024479.6	Apr-24-2013			Apr-24-2033
TAOC	2001P-101711/CN/02	Coaxial Flow Injector	China	Pending	Patent	201710433058.9	Apr-24-2013			Apr-24-2033
TAOC	2001P-101711/DE/01	Coaxial Flow Injector with Coaxial Supply and Return Lines.pdf	Germany	Granted	Patent	112013002372.5	Apr-24-2013	112013002372.5	Dec-11-2017	Apr-24-2033
TAOC	2001P-101711/IN/01	Coaxial Flow Injector with Coaxial Supply and Return Lines.pdf	India	Pending	Patent	7243/CHENP/2014	Apr-24-2013			Apr-24-2033
TAOC	2001P-101711/JP/01	Coaxial Flow Injector with Coaxial Supply and Return Lines.pdf	Japan	Granted	Patent	2015-511496	Apr-24-2013	6085672	Feb-03-2017	Apr-24-2033
TAOC	2001P-101711/KR/01	Coaxial Flow Injector with Coaxial Supply and Return Lines.pdf	South Korea	Pending	Patent	10-2014-7028258	Apr-24-2013			Apr-24-2033
TAOC	2001P-101711/TH/01	Coaxial Flow Injector with Coaxial Supply and Return Lines.pdf	Thailand	Pending	Patent	1401006631	Apr-24-2013			Apr-24-2033
TAOC	2001U-001711/US	Coaxial Flow Injector with Coaxial Supply and Return Lines.pdf	United States	Granted	Patent	13/468614	May-10-2012	8910884	Dec-16-2014	May-10-2032
TAOC	2001U-001711/US/COB	Coaxial Flow Injector with Coaxial Supply and Return Lines.pdf	United States	Granted	Patent	14/564450	Dec-09-2014	9759113	Sep-12-2017	May-10-2032
TAOC	2001P-101712/CN/01	Fluid injector with an inlet below the coil for non-compromised flux and flow paths	China	Granted	Patent	201380022496.6	Apr-24-2013	Z1201380022496.6	Jun-30-2017	Apr-24-2033
TAOC	2001P-101712/DE/01	Fluid injector with an inlet below the coil for non-compromised flux and flow paths	Germany	Pending	Patent	US2013037939	Apr-24-2013			Apr-24-2033
TAOC	2001P-101712/IN/01	Fluid injector with an inlet below the coil for non-compromised flux and flow paths	India	Pending	Patent	US2013037939	Apr-24-2013			Apr-24-2033
TAOC	2001P-101712/JP/01	Reagent Injector	Japan	Granted	Patent	US2013037939	Apr-24-2013	5947457	Dec-10-2016	Apr-24-2033

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TAOC	2001P-101712/JF/02	Fluid injector with an inlet below the coil for non-compromised flux and flow paths	Japan	Pending	Patent	PCT/US2013/037939	Apr-24-2013			Apr-24-2033
TAOC	2001P-101712/KR/01	Fluid injector with an inlet below the coil for non-compromised flux and flow paths	South Korea	Pending	Patent	US2013037939	Apr-24-2013			Apr-24-2033
TAOC	2001P-101712/TH/01	Fluid injector with an inlet below the coil for non-compromised flux and flow paths	Thailand	Pending	Patent	US2013037939	Apr-24-2013			Apr-24-2033
TAOC	2001U-001712/US	Reagent Injector	United States	Granted	Patent	13/465281	May-07-2012	8978364	Mar-17-2015	May-07-2032
TAOC	2001U-001712/US/COB	Reagent Injector	United States	Pending	Patent	14/619543	Feb-11-2015			May-07-2032
TAOC	2001P-101713/CN/01	DPF Thermal slip joint	China	Pending	Patent	201380044473.5	Jul-12-2013			Jul-12-2033
TAOC	2001P-101713/JN/01	Exhaust Component Mounting System	India	Pending	Patent	912/CHENP/2015	Jul-12-2013			Jul-12-2033
TAOC	2001P-101713/JF/01	Exhaust Component Mounting System	Japan	Pending	Patent	2015-528467	Jul-12-2013			Jul-12-2033
TAOC	2001P-101713/KR/01	Exhaust Component Mounting System	South Korea	Pending	Patent	10-2015-7006336	Jul-12-2013			Jul-12-2033
TAOC	2001P-101713/TH/01	Exhaust Component Mounting System	Thailand	Pending	Patent	1501000906	Jul-12-2013			Jul-12-2033
TAOC	2001P-101714/CN/01	Method for Mixing an Exhaust Gas Flow	China	Granted	Patent	201380042168.2	Jul-24-2013	Z12013800421682	Sep-05-2017	Jul-24-2033
TAOC	2001P-101714/CN/02	Improvement to EUFC2 stage mixer ref (EUFC-9100)	China	Pending	Patent	201710676165.4	Aug-09-2017			Jul-24-2033
TAOC	2001P-101714/CN/04	Improvement to EUFC2 stage mixer ref (EUFC-9100)	China	Granted	Patent	PCT/US2014/066355	Nov-19-2014	201480064128-2	Jul-17-2018	Nov-19-2034
TAOC	2001P-101714/DE/01	Method for Mixing an Exhaust Gas Flow	Germany	Pending	Patent	112013004008.5	Jul-24-2013			Jul-24-2033
TAOC	2001P-101714/DE/04	Improvement to EUFC2 stage mixer ref (EUFC-9100)	Germany	Pending	Patent	PCT/US2014/066355	Nov-19-2014			Nov-19-2034
TAOC	2001P-101714/JN/01	Improvement to EUFC2 stage mixer ref (EUFC-9100)	India	Pending	Patent	PCT/US2013/051773	Jul-24-2013			Jul-24-2033
TAOC	2001P-101714/JF/01	Method for Mixing an Exhaust Gas Flow	Japan	Granted	Patent	2015-526555	Jul-24-2013	6114391	Mar-24-2017	Jul-24-2033
TAOC	2001P-101714/JF/02	Improvement to EUFC2 stage mixer ref (EUFC-9100)	Japan	Granted	Patent	PCT/US2013/051773	Jul-24-2013	6298493	Mar-02-2018	Jul-24-2033
TAOC	2001P-101714/KR/01	Method for Mixing an Exhaust Gas Flow	South Korea	Granted	Patent	10-2015-7005667	Jul-24-2013	101696203	Jan-09-2017	Jul-24-2033
TAOC	2001P-101714/KR/02	Improvement to EUFC2 stage mixer ref (EUFC-9100)	South Korea	Granted	Patent	1020177000038	Jul-24-2013	KR101808162	Dec-06-2017	Jul-24-2033
TAOC	2001P-101714/KR/03	Improvement to EUFC2 stage mixer ref (EUFC-9100)	South Korea	Pending	Patent	10-2017-7034383	Nov-28-2017			Jul-24-2033
TAOC	2001P-101714/TH/01	Method for Mixing an Exhaust Gas Flow	Thailand	Pending	Patent	1501000690	Jul-24-2013			Jul-24-2033
TAOC	2001U-001714/US	Improvement to EUFC2 stage mixer ref (EUFC-9100)	United States	Granted	Patent	13/571542	Aug-10-2012	8939638	Jan-27-2015	Apr-21-2029
TAOC	2001U-001714/US/COE	Improvement to EUFC2 stage mixer ref (EUFC-9100)	United States	Granted	Patent	14/799081	Jul-14-2015	9975093	May-22-2018	Apr-21-2029
TAOC	2001U-001714/US/CPB	Improvement to EUFC2 stage mixer ref (EUFC-9100)	United States	Granted	Patent	14/089822	Nov-26-2013	9095827	Aug-04-2015	Apr-21-2029
TAOC	2001U-001714/US/DVC	Improvement to EUFC2 stage mixer ref (EUFC-9100)	United States	Granted	Patent	14/325460	Jul-08-2014	9440204	Sep-13-2016	Apr-21-2029
TAOC	2001P-101715/CN/01	Reagent Injector with Crimped Pinble	China	Pending	Patent	201380046615.1	Jul-12-2013			Jul-12-2033
TAOC	2001P-101715/JN/01	Reagent Injector with Crimped Pinble	India	Pending	Patent	812/CHENP/2015	Jul-12-2013			Jul-12-2033



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TAOC	2001P-101715/KR/01	Reagent Injector with Crimped Pinble	South Korea	Pending	Patent	10-2015-7004768	Jul-12-2013			Jul-12-2033
TAOC	2001P-101715/TH/01	Reagent Injector with Crimped Pinble	Thailand	Pending	Patent	1501001256	Jul-12-2013			Jul-12-2033
TAOC	2001U-001715/US	Reagent Injector with Crimped Pinble	United States	Granted	Patent	13/606409	Sep-07-2012	8998116	Apr-07-2015	Sep-07-2032
TAOC	2001P-101716/CN/01	Injector With Capillary Aerosol Generator	China	Pending	Patent	201380056388.0	Oct-22-2013			Oct-22-2033
TAOC	2001P-101716/IN/01	Injector With Capillary Aerosol Generator	India	Pending	Patent	2228/CHENP/2015	Oct-22-2013			Oct-22-2033
TAOC	2001P-101716/JP/01	Injector with Capillary Aerosol Generator	Japan	Pending	Patent	2015539705	Oct-22-2013			Oct-22-2033
TAOC	2001P-101716/KR/01	Injector With Capillary Aerosol Generator	South Korea	Pending	Patent	1020157013985	Oct-22-2013			Oct-22-2033
TAOC	2001P-101716/TH/01	Injector With Capillary Aerosol Generator	Thailand	Pending	Patent	1501002319	Oct-22-2013			Oct-22-2033
TAOC	2001P-101718/BR/01	Exhaust Component Mounting Structure	Brazil	Pending	Patent	112015012778.9	Nov-13-2013			Nov-13-2033
TAOC	2001P-101718/CN/01	Exhaust Component Mounting Structure	China	Granted	Patent	201380063058.4	Nov-13-2013	ZL2013800630584	May-24-2017	Nov-13-2033
TAOC	2001P-101718/DE/01	Large Engine Mounting structure attachment	Germany	Pending	Patent	PCT/US2013/069821	Nov-13-2013			Nov-13-2033
TAOC	2001P-101718/IN/01	Exhaust Component Mounting Structure	India	Pending	Patent	PCT/US2013/069821	Nov-13-2013			Nov-13-2033
TAOC	2001P-101718/JP/01	Exhaust Component Mounting Structure	Japan	Pending	Patent	PCT/US2013/069821	Nov-13-2013			Nov-13-2033
TAOC	2001P-101718/KR/01	Exhaust Component Mounting Structure	South Korea	Granted	Patent	1020157017653	Nov-13-2013	101698906	Jan-17-2017	Nov-13-2033
TAOC	2001P-101718/TH/01	Exhaust Component Mounting Structure	Thailand	Pending	Patent	PCT/US2013/069821	Nov-13-2013			Nov-13-2033
TAOC	2001U-001718/US	12-0708 Large Engine Mounting structure attachment	United States	Granted	Patent	13/692127	Dec-03-2012	9057316	Jun-16-2015	Dec-03-2032
TAOC	2001U-001718/US/COB	Exhaust Component Mounting Structure	United States	Granted	Patent	14/731770	Jun-05-2015	9291086	Mar-22-2016	Dec-03-2032
TAOC	2001P-101719/BR/01	Reductant Injection Control System	Brazil	Pending	Patent	1120150122558	Nov-12-2013			Nov-12-2033
TAOC	2001P-101719/CN/01	Reductant Injection Control System	China	Pending	Patent	201380062514.3	Nov-12-2013			Nov-12-2033
TAOC	2001P-101719/IN/01	Reductant Injection Control System	India	Pending	Patent	3419/CHENP/2015	Nov-12-2013			Nov-12-2033
TAOC	2001P-101719/KR/01	Reductant Injection Control System	South Korea	Pending	Patent	1020157016627	Nov-12-2013			Nov-12-2033
TAOC	2001P-101719/TH/01	Reductant Injection Control System	Thailand	Pending	Patent	1501002913	Nov-12-2013			Nov-12-2033
TAOC	2001U-001719/US	Reductant Injection Control System	United States	Granted	Patent	13/690090	Nov-30-2012	9080487	Jul-14-2015	Nov-30-2032
TAOC	2001P-101721/CN/01	Urea Common Rail	China	Granted	Patent	201480010930.3	Feb-14-2014	ZL201480010930-3	Apr-17-2018	Feb-14-2034
TAOC	2001P-101721/IN/01	Urea Common Rail Injection	India	Pending	Patent	2232/MUMNP/2015	Feb-14-2014			Feb-14-2034
TAOC	2001P-101721/JP/01	Urea Common Rail	Japan	Pending	Patent	2015560203	Feb-14-2014			Feb-14-2034
TAOC	2001U-001721/US	Urea Common Rail Injection	United States	Granted	Patent	13/780279	Feb-28-2013	9222388	Dec-29-2015	Feb-28-2033
TAOC	2001U-001721/US/COB	Urea Common Rail Injection	United States	Granted	Patent	14/944800	Nov-18-2015	9695722	Jul-04-2017	Feb-28-2033
TAOC	2001P-101722/BR/01	Exhaust Gas Flow Distribution System	Brazil	Pending	Patent	112015006062.5	Sep-18-2013			Sep-18-2033

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TAOC	2001P-101722/CN/01	Exhaust Gas Flow Distribution System	China	Granted	Patent	201380048591.1	Sep-18-2013	ZL2013800485913	Nov-24-2017	Sep-18-2033
TAOC	2001P-101722/DE/01	Exhaust Gas Flow Distribution System	Germany	Pending	Patent	1120130045249	Sep-18-2013			Sep-18-2033
TAOC	2001P-101722/IN/01	Exhaust Gas Flow Distribution System	India	Pending	Patent	1152/CHENP/2015	Sep-18-2013			Sep-18-2033
TAOC	2001P-101722/JP/01	Exhaust Gas Flow Distribution System	Japan	Pending	Patent	2015532156	Sep-18-2013			Sep-18-2033
TAOC	2001P-101722/KR/01	Exhaust Gas Flow Distribution System	South Korea	Pending	Patent	1020157007437	Sep-18-2013			Sep-18-2033
TAOC	2001P-101722/TH/01	Exhaust Gas Flow Distribution System	Thailand	Pending	Patent	1501001418	Sep-18-2013			Sep-18-2033
TAOC	2001U-001722/US	Exhaust Gas Flow Distribution System	United States	Granted	Patent	14/028645	Sep-17-2013	9518496	Dec-13-2016	Sep-17-2033
TAOC	2001P-101723/BR/01	Exhaust Valve with Resilient Spring Pad	Brazil	Pending	Patent	112015013559.5	Nov-20-2013			Nov-20-2033
TAOC	2001P-101723/CN/01	Exhaust Valve with Resilient Spring Pad	China	Granted	Patent	US2013070879	Nov-20-2013	ZL201380065260.0	Jun-13-2017	Nov-20-2033
TAOC	2001P-101723/DE/01	Soft Bumper for HP Valve Rattle Fix	Germany	Pending	Patent	112013005995.9	Nov-20-2013			Nov-20-2033
TAOC	2001P-101723/IN/01	Exhaust Valve with Resilient Spring Pad	India	Pending	Patent	US2013070879	Nov-20-2013			Nov-20-2033
TAOC	2001P-101723/JP/01	Exhaust Valve with Resilient Spring Pad	Japan	Granted	Patent	US2013070879	Nov-20-2013	5998291	Sep-02-2016	Nov-20-2033
TAOC	2001P-101723/KR/01	Exhaust Valve with Resilient Spring Pad	South Korea	Granted	Patent	US2013070879	Nov-20-2013	101709163	Feb-16-2017	Nov-20-2033
TAOC	2001P-101723/TH/01	Exhaust Valve with Resilient Spring Pad	Thailand	Pending	Patent	US2013070879	Nov-20-2013			Nov-20-2033
TAOC	2001U-001723/US	Soft Bumper for HP Valve Rattle Fix	United States	Granted	Patent	13/715172	Dec-14-2012	8657065	Feb-25-2014	Dec-14-2032
TAOC	2001P-101724/CN/01	Exhaust Aftertreatment Burner With Preheated Combustion Air	China	Granted	Patent	201480010555.2	Feb-14-2014	ZL2014800105552	Sep-01-2017	Feb-14-2034
TAOC	2001P-101724/DE/01	Exhaust Aftertreatment Burner with Preheated Combustion Air	Germany	Pending	Patent	112014001010.3	Feb-14-2014			Feb-14-2034
TAOC	2001U-001724/US	Exhaust Aftertreatment Burner with Preheated Combustion Air	United States	Granted	Patent	13/778649	Feb-27-2013	9027331	May-12-2015	Feb-27-2033
TAOC	2001P-101725/CN/01	Burner with Air-Assisted Fuel Nozzle and Vaporizing Ignition System	China	Pending	Patent	201480010835.3	Feb-14-2014			Feb-14-2034
TAOC	2001P-101725/DE/01	Burner with Air-Assisted Fuel Nozzle and Vaporizing Ignition System	Germany	Pending	Patent	112014001011.1	Feb-14-2014			Feb-14-2034
TAOC	2001U-001725/US	Burner with Air-Assisted Fuel Nozzle and Vaporizing Ignition System	United States	Granted	Patent	13/778682	Feb-27-2013	8991163	Mar-31-2015	Feb-27-2033
TAOC	2001P-101726/CN/01	Ion Sensor with Decoking Heater	China	Pending	Patent	201480010877.7	Feb-18-2014			Feb-18-2034
TAOC	2001P-101726/DE/01	Ion Sensor with Decoking Heater	Germany	Pending	Patent	112014001029.4	Feb-18-2014			Feb-18-2034
TAOC	2001U-001726/US	Flame rod ion sensing system with integral decoking heater	United States	Granted	Patent	13/778709	Feb-27-2013	9027332	May-12-2015	Feb-27-2033
TAOC	2001P-101727/CN/01	Exhaust System For Dual Fuel Engines	China	Pending	Patent	201480015020.4	Mar-13-2014			Mar-13-2034
TAOC	2001P-101727/EP/01	Exhaust System For Dual Fuel Engines	European Patent	Pending	Patent	14773039.4	Mar-13-2014			Mar-13-2034
TAOC	2001P-101727/JP/01	Exhaust System For Dual Fuel Engines	Japan	Pending	Patent	PCT/US2014/025345	Mar-13-2014			Mar-13-2034
TAOC	2001P-101727/KR/01	Exhaust System For Dual Fuel Engines	South Korea	Pending	Patent	1020157025250	Mar-13-2014			Mar-13-2034
TAOC	2001U-001727/US	Burner for dual fuels and prevention of ammonia bi sulfide	United States	Granted	Patent	13/804027	Mar-14-2013	9057303	Jun-16-2015	Mar-14-2033

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TAOC	2001U-001727/US/DVB	Exhaust System for Dual Fuel Engines	United States	Granted	Patent	14/732833	Jun-08-2015	9719393	Aug-01-2017	Mar-14-2033
TAOC	2001U-001728/US	Max (Full Flow Burner) re-design eliminating secondary combustion zone, adding vane type mixing	United States	Granted	Patent	13/778737	Feb-27-2013	8959902	Feb-24-2015	Feb-27-2033
TAOC	2001P-101729/CN/01	Compressor For Exhaust Treatment System	China	Pending	Patent	201480011813.9	Feb-18-2014			Feb-18-2034
TAOC	2001U-001729/US	Electrically assisted, belt driven compressor for RGU	United States	Granted	Patent	13/782240	Mar-01-2013	8893478	Nov-25-2014	Mar-01-2033
TAOC	2001P-101730/EP/01	Modular Exhaust Treatment System	European Patent	Pending	Patent	14768807.1	Mar-05-2014			Mar-05-2034
TAOC	2001P-101730/JP/01	Modular Isothermal Box	Japan	Pending	Patent	2015561574	Mar-05-2014			Mar-05-2034
TAOC	2001P-101730/KR/01	Modular Exhaust Treatment System	South Korea	Pending	Patent	1020157025938	Mar-05-2014			Mar-05-2034
TAOC	2001U-001730/US	Modular Isothermal Box	United States	Granted	Patent	13/833574	Mar-15-2013	9103252	Aug-11-2015	Mar-15-2033
TAOC	2001P-101731/CN/01	Exhaust Treatment Component Mounting System	China	Pending	Patent	2014800140768	Mar-06-2014			Mar-06-2034
TAOC	2001P-101731/DE/01	Exhaust Treatment Component Mounting System	Germany	Pending	Patent	112014001319.6	Mar-06-2014			Mar-06-2034
TAOC	2001U-001731/US	Single-Ended DPF Assembly Joint System (Exhaust treatment mounting System)	United States	Granted	Patent	13/795430	Mar-12-2013	8974740	Mar-10-2015	Mar-12-2033
TAOC	2001P-101732/CN/01	MULTI-LOBED SOOT BLOWER	China	Granted	Patent	201380071768.1	Jan-31-2013	Z12013800717681	Oct-20-2017	Jan-31-2033
TAOC	2001P-101732/JP/01	MULTI-LOBED SOOT BLOWER	Japan	Pending	Patent	201555519	Jan-31-2013			Jan-31-2033
TAOC	2001P-101732/KR/01	MULTI-LOBED SOOT BLOWER	South Korea	Pending	Patent	1020157023504	Jan-31-2013			Jan-31-2033
TAOC	2001U-001732/US/NP	MULTI-LOBED SOOT BLOWER	United States	Granted	Patent	14/764847	Jan-31-2013	9719386	Aug-01-2017	Jan-31-2033
TAOC	2001P-101733/CN/01	Multi-Layer Liquid-Cooled Mount	China	Granted	Patent	201480015667.7	Mar-06-2014	Z1201480015667.7	Oct-10-2017	Mar-06-2034
TAOC	2001P-101733/DE/01	Multi-Layer Liquid-Cooled Mount	Germany	Pending	Patent	112014001473.7	Mar-06-2014			Mar-06-2034
TAOC	2001P-101733/JP/01	Liquid Cooled Injector mount	Japan	Pending	Patent	2016500746	Mar-06-2014			Mar-06-2034
TAOC	2001P-101733/KR/01	Multi-Layer Liquid-Cooled Mount	South Korea	Pending	Patent	1020157025939	Mar-06-2014			Mar-06-2034
TAOC	2001U-001733/US	Multi-Layer Liquid Cooled Injector mount	United States	Granted	Patent	13/833850	Mar-15-2013	8973355	Mar-10-2015	Mar-15-2033
TAOC	2001P-101734/CN/01	Air-Assisted Reductant Delivery System	China	Granted	Patent	201380010877.2	Feb-17-2013	201380010877.2	Aug-08-2017	Feb-17-2033
TAOC	2001P-101734/IN/01	Air-Assisted Reductant Delivery System	India	Pending	Patent	5518/CHE/NP/2014	Feb-17-2013			Feb-17-2033
TAOC	2001P-101734/JP/01	Air-Assisted Reductant Delivery System	Japan	Pending	Patent	2014-557983	Feb-17-2013			Feb-17-2033
TAOC	2001P-101734/TH/01	Air-Assisted Reductant Delivery System	Thailand	Pending	Patent	1401007448	Feb-17-2013			Feb-17-2033
TAOC	2001U-001734/US/NP	Air-Assisted Reductant Delivery System	United States	Granted	Patent	14/380414	Feb-17-2013	9359928	Jun-07-2016	Feb-17-2033
TAOC	2001U-001735/US	Modular System for Reduction of Sulphur Oxides in Exhaust	United States	Granted	Patent	14/180616	Feb-14-2014	9387438	Jul-12-2016	Feb-14-2034
TAOC	2001P-101737/CN/01	Exhaust Treatment Device Insulation Detection System	China	Pending	Patent	PCT/US2015/010444	Jan-07-2015			Jan-07-2035
TAOC	2001U-001737/US	Exhaust detection for large engine	United States	Granted	Patent	14/154524	Jan-14-2014	9108157	Aug-18-2015	Jan-14-2034
TAOC	2001P-101739/BR/01	Exhaust Treatment System With Urea Temperature Rationality Diagnostic	Brazil	Pending	Patent	112015022330.3	Mar-07-2014			Mar-07-2034

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TAOC	2001P-101739/DE/01	Exhaust Treatment System With Urea Temperature Rationally Diagnostic	Germany	Pending	Patent	112014001297.1	Mar-07-2014			Mar-07-2034
TAOC	2001P-101739/IN/01	Exhaust Treatment System With Urea Temperature Rationally Diagnostic	India	Pending	Patent	2537/MUMNP/2015	Mar-07-2014			Mar-07-2034
TAOC	2001P-101739/JP/01	Exhaust Treatment System With Urea Temperature Rationally Diagnostic	Japan	Pending	Patent	2016500804	Mar-07-2014			Mar-07-2034
TAOC	2001P-101739/KR/01	Exhaust Treatment System With Urea Temperature Rationally Diagnostic	South Korea	Pending	Patent	1020157025251	Mar-07-2014			Mar-07-2034
TAOC	2001U-001739/US	Urea Temperature Rationally Diagnostic	United States	Granted	Patent	13/803205	Mar-14-2013	9016043	Apr-28-2015	Mar-14-2033
TAOC	2001P-101740/CN/01	Mirrored Two-Stage Mixer	China	Pending	Patent	US2014048533	Jul-29-2014			Jul-29-2034
TAOC	2001P-101740/JP-01	Mirrored 2-Stage Mixer Concept	Japan	Pending	Patent	US2014048533	Jul-29-2014			Jul-29-2034
TAOC	2001P-101740/KR/01	Mirrored Two-Stage Mixer	South Korea	Granted	Patent	US2014048533	Jul-29-2014	101780339	Sep-14-2017	Jul-29-2034
TAOC	2001P-101741/CN	Water Injection Exhaust Treatment System	China	Pending	Patent	PCT/CN2013/081643	Aug-16-2013			Aug-16-2033
TAOC	2001P-101741/CN/01	Water Injection Exhaust Treatment System	China	Pending	Patent	201510650030.1	Oct-09-2015			Oct-09-2035
TAOC	2001P-101741/DE	Water Injection Exhaust Treatment System	Germany	Pending	Patent	112013007188.6	Aug-16-2013			Aug-16-2033
TAOC	2001U-001741/US/CPA	Water Injection Exhaust Treatment System	United States	Granted	Patent	14/512609	Oct-13-2014	9822685	Nov-21-2017	Aug-16-2033
TAOC	2001U-001741/US/NP	Water Injection Exhaust Treatment System	United States	Granted	Patent	14/389224	Aug-16-2013	9334775	May-10-2016	Aug-16-2033
TAOC	2001U-001741/US/CPA/CN	Water Injection Exhaust Treatment System	China	Pending	Patent	201510650030.1	Oct-09-2015			Oct-09-2035
TAOC	2001U-001741/US/CPA/US	Water Injection Exhaust Treatment System	United States	Granted	Patent	14/512609	Oct-13-2014	9822685	Nov-21-2017	Aug-16-2033
TAOC	2001P-101742/CN/01	Engine Exhaust After-Treatment System	China	Pending	Patent	20138007545668	Apr-10-2013			Apr-10-2033
TAOC	2001P-101742/JP/01	Engine Exhaust After-Treatment System	Japan	Pending	Patent	2016-506743	Apr-10-2013			Apr-10-2033
TAOC	2001U-001742/US/NP	Engine Exhaust After-Treatment System	United States	Pending	Patent	14/782874	Apr-10-2013			Apr-10-2033
TAOC	2001P-101743/CN/04	Flow Reversing Exhaust Gas Mixer	China	Pending	Patent	201480025720.1	May-07-2014			May-07-2034
TAOC	2001P-101743/CN/08	Axial Flow Atomization Module	China	Granted	Patent	PCT/US2014/048374	Jul-28-2014	201480044809.2	Apr-05-2018	Jul-28-2034
TAOC	2001P-101743/DE/04	Flow Reversing Exhaust Gas Mixer	Germany	Pending	Patent	112014002314.0	May-07-2014			May-07-2034
TAOC	2001P-101743/DE/08	Axial Flow Atomization Module	Germany	Pending	Patent	112014003600.5	Jul-28-2014			Jul-28-2034
TAOC	2001P-101743/DE/10	Vertical Ultrasonic Decomposition Pipe	Germany	Pending	Patent	PCT/US2015/049623	Sep-11-2015			Sep-11-2035
TAOC	2001P-101743/IN/10	Vertical Ultrasonic Decomposition Pipe	India	Pending	Patent	PCT/US2015/049623	Sep-11-2015			Sep-11-2035
TAOC	2001P-101743/IN/11	Exhaust Mixing Assembly (Flow Stabilizer)	India	Pending	Patent	PCT/US2015/049638	Sep-11-2015			Sep-11-2035
TAOC	2001P-101743/JP/08	Axial Flow Atomization Module	Japan	Pending	Patent	PCT/US2014/048374	Jul-28-2014			Jul-28-2034
TAOC	2001P-101743/KR/08	Axial Flow Atomization Module	South Korea	Granted	Patent	1020167005610	Jul-28-2014	101780341	Sep-14-2017	Jul-28-2034
TAOC	2001P-101743-CN-09	Axial Flow Atomization Module	China	Pending	Patent	PCT/US2015/010450	Jan-07-2015			Jan-07-2035
TAOC	2001P-101743-DE-09	Axial Flow Atomization Module	Germany	Pending	Patent	PCT/US2015/010450	Jan-07-2015			Jan-07-2035

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TAOC	2001P-101743-DE/11	Exhaust Mixing Assembly (Flow Stabilizer)	Germany	Pending	Patent	PCT/US2015/049638	Sep-11-2015			Sep-11-2035
TAOC	2001P-101743-KR-09	Axial Flow Atomization Module	South Korea	Pending	Patent	PCT/US2015/010450	Jan-07-2015			Jan-07-2035
TAOC	2001U-001743/CN/10	Vertical Ultrasonic Decomposition Pipe	China	Pending	Patent	PCT/US2015/049623	Sep-11-2015			Sep-11-2035
TAOC	2001U-001743/CN/11	Exhaust Mixing Assembly (Flow Stabilizer)	China	Pending	Patent	PCT/US2015/049638	Sep-11-2015			Sep-11-2035
TAOC	2001U-001743/US	Flow Reversing Exhaust Gas Mixer	United States	Granted	Patent	13/888861	May-07-2013	9289724	Mar-22-2016	May-16-2034
TAOC	2001U-001743/US/CPA	Axial Flow Atomization Module (reverse Flow)	United States	Granted	Patent	13/958955	Aug-05-2013	9314750	Apr-19-2016	Jan-22-2034
TAOC	2001U-001743/US/CPB	Compact High-Velocity Urea Atomization Tube (auto wetting)	United States	Granted	Patent	14/165923	Jan-28-2014	9291081	Mar-22-2016	Aug-30-2033
TAOC	2001U-001743/US/CPA	Vertical Ultrasonic Decomp Pipe (Ultrasonic)	United States	Granted	Patent	14/486171	Sep-15-2014	9334781	May-10-2016	May-07-2033
TAOC	2001U-001743/US/CPE	Compact High-Velocity Urea Atomization Tube Assembly for Multiple SCR Substrates	United States	Granted	Patent	14/486213	Sep-15-2014	9352276	May-31-2016	Jun-08-2033
TAOC	2001U-001743/US/CPF	Exhaust Mixing Assembly (Flow Stabilizer)	United States	Granted	Patent	14/486253	Sep-15-2014	9364790	Jun-14-2016	Jun-21-2033
TAOC	2001P-101745/CN/01	Reductant Sensor System	China	Pending	Patent	201480025433.0	May-07-2014			May-07-2034
TAOC	2001P-101745/DE/01	Reductant Sensor System	Germany	Pending	Patent	112014002334.5	May-07-2014			May-07-2034
TAOC	2001P-101745/JP/01	Reductant Sensor System	Japan	Pending	Patent	PCT/US2014/37157	May-07-2014			May-07-2034
TAOC	2001P-101745/KR/01	Reductant Sensor System	South Korea	Pending	Patent	1020157031717	May-07-2014			May-07-2034
TAOC	2001U-001745/US	Reductant Sensor System	United States	Granted	Patent	14/271788	May-07-2014	9752486	Sep-05-2017	May-07-2034
TAOC	2001P-101746/CN/01	Exhaust Treatment Regeneration Control System	China	Pending	Patent	201380077162.9	Jun-06-2013			Jun-06-2033
TAOC	2001P-101746/DE/01	Exhaust Treatment Regeneration Control System	Germany	Pending	Patent	112013007140.1	Jun-06-2013			Jun-06-2033
TAOC	2001P-101746/IN/01	Closed Loop non-Linear Targeting and Fuel Control for DOC/DPF	India	Pending	Patent	3294/MUMNP/2015	Jun-06-2013			Jun-06-2033
TAOC	2001P-101746/JP/01	Closed Loop non-Linear Targeting and Fuel Control for DOC/DPF	Japan	Pending	Patent	PCT/US2013/044420	Jun-06-2013			Jun-06-2033
TAOC	2001U-001746/US	Closed Loop non-Linear Targeting and Fuel Control for DOC/DPF	United States	Granted	Patent	13/910626	Jun-05-2013	9046021	Jun-02-2015	Jun-05-2033
TAOC	2001P-101747/CN/01	Soot Load Determination System	China	Granted	Patent	PCT/US2014/56208	Sep-18-2014	Z12014800514893	Nov-24-2017	Sep-18-2034
TAOC	2001P-101747/JP/01	Soot Load Determination System	Japan	Pending	Patent	PCT/US2014/56208	Sep-18-2014			Sep-18-2034
TAOC	2001P-101747/KR/01	Soot Load Determination System	South Korea	Pending	Patent	PCT/US2014/56208	Sep-18-2014			Sep-18-2034
TAOC	2001U-001747/US	Method for Use of Ammonia Sensor to Determine Soot Load on SCR Coated DPF	United States	Granted	Patent	14/032665	Sep-20-2013	9371767	Jun-21-2016	Sep-20-2033
TAOC	2001P-101748/CN/02	Perforated Mixing Pipe with Swirler	China	Granted	Patent	PCT/US2014/048381	Jul-28-2014	201480043906.X	Mar-20-2018	Jul-28-2034
TAOC	2001P-101748/CN/03	Perforated Mixing Pipe with Swirler	China	Pending	Patent	PCT/US2015/026843	Apr-21-2015			Apr-21-2035
TAOC	2001P-101748/DE/02	Perforated Mixing Pipe with Swirler	Germany	Pending	Patent	1120140036188	Jul-28-2014			Jul-28-2034
TAOC	2001P-101748/DE/03	Perforated Mixing Pipe with Swirler	Germany	Pending	Patent	PCT/US2015/026843	Apr-21-2015			Apr-21-2035
TAOC	2001P-101748/IN/03	Perforated Mixing Pipe with Swirler	India	Pending	Patent	PCT/US2015/026843	Apr-21-2015			Apr-21-2035

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TAOC	2001P-101748/JP/02	Perforated Mixing Pipe with Swirler	Japan	Granted	Patent	2016-531790	Jul-28-2014	6167239	Jun-30-2017	Jul-28-2034
TAOC	2001P-101748/KR/02	Perforated Mixing Pipe with Swirler	South Korea	Granted	Patent	1020167004942	Jul-28-2014	101787499	Oct-12-2017	Jul-28-2034
TAOC	2001U-001748/US	Perforated Mixing Pipe with Swirler	United States	Granted	Patent	13/960151	Aug-06-2013	9410464	Aug-09-2016	Aug-06-2033
TAOC	2001U-001748/US/CPA	Perforated Mixing Pipe with Swirler	United States	Granted	Patent	14/260555	Apr-24-2014	9435240	Sep-06-2016	Aug-06-2033
TAOC	2001P-101749/CN/01	Tailor to Fit Muffler Design	China	Granted	Patent	PCT/US2014/051785	Aug-20-2014	201480045990.9	Apr-20-2018	Aug-20-2034
TAOC	2001P-101749/CN/02	Tailor to Fit Muffler Design	China	Pending	Patent	201810232662.X	Mar-20-2018			Aug-20-2034
TAOC	2001P-101749/DE/01	Tailor to Fit Muffler Design	Germany	Pending	Patent	1120140038148	Aug-20-2014			Aug-20-2034
TAOC	2001P-101749/JP/01	Tailor to Fit Muffler Design	Japan	Granted	Patent	PCT/US2014/051785	Aug-20-2014	6178009	Jul-21-2017	Aug-20-2034
TAOC	2001P-101749/KR/01	Tailor to Fit Muffler Design	South Korea	Granted	Patent	PCT/US2014/051785	Aug-20-2014	101798944	Nov-13-2017	Aug-20-2034
TAOC	2001P-101749/KR-2	Tailor to Fit Muffler	South Korea	Granted	Patent	10-2017-7032792	Nov-13-2017	10-1844387	Mar-27-2018	Aug-20-2034
TAOC	2001P-101749-JP-02	Tailor to Fit Muffler Design	Japan	Pending	Patent	2017-136662	Jul-12-2017			Aug-20-2034
TAOC	2001U-001749/US	Tailor to Fit Muffler Design	United States	Granted	Patent	14/462857	Aug-19-2014	9121320	Sep-01-2015	Aug-19-2034
TAOC	2001U-001749/US/COB	Tailor to Fit Muffler Design	United States	Granted	Patent	14/810590	Jul-28-2015	9689301	Jun-27-2017	Aug-19-2034
TAOC	2001P-101750/CN-01	Fluid Injection Control System	China	Pending	Patent	PCT/US2014/066131	Nov-18-2014			Nov-18-2034
TAOC	2001P-101750/DE-01	Fluid Injection Control System	Germany	Pending	Patent	PCT/US2014/066131	Nov-18-2014			Nov-18-2034
TAOC	2001P-101750/IN-01	Fluid Injection Control System	India	Pending	Patent	PCT/US2014/066131	Nov-18-2014			Nov-18-2034
TAOC	2001P-101750/JP-01	Fluid Injection Control System	Japan	Granted	Patent	PCT/US2014/066131	Nov-18-2014	6236529	Nov-02-2017	Nov-18-2034
TAOC	2001P-101750/KR-01	Fluid Injection Control System	South Korea	Pending	Patent	PCT/US2014/066131	Nov-18-2014			Nov-18-2034
TAOC	2001U-001750/US	Injector height compensation sw algorithm	United States	Granted	Patent	14/085308	Nov-20-2013	9221014	Dec-29-2015	Nov-20-2033
TAOC	2001P-101752-CN-01	Exhaust/Aftertreatment system with Low-Temperature SCR	China	Pending	Patent	PCT/US2015/032093	May-22-2015			May-22-2035
TAOC	2001P-101753-CN-01	Exhaust Treatment System with Soot Blower	China	Pending	Patent	PCT/CN2014/072101	Feb-14-2014			Feb-14-2034
TAOC	2001U-001754/US	Exhaust System with Zone Coated Catalyst	United States	Granted	Patent	14/592034	Jan-08-2015	9482131	Nov-01-2016	Jan-08-2035
TAOC	2001U-001756/US	Exhaust After-treatment System Having Low Temperature SCR Catalyst	United States	Pending	Patent	14/445686	Jul-29-2014			Jul-29-2034
TAOC	2001P-101757/CN/01	Recirculating Exhaust Treatment Fluid System	China	Granted	Patent	PCT/US2014/037171	May-07-2014	ZL2014800254345	Jan-26-2018	May-07-2034
TAOC	2001P-101757/CN/02	Recirculating Exhaust Treatment Fluid System	China	Pending	Patent	2017114210649	Dec-25-2017			May-07-2034
TAOC	2001P-101757/DE/01	Recirculating Exhaust Treatment Fluid System	Germany	Pending	Patent	PCT/US2014/037171	May-07-2014			May-07-2034
TAOC	2001P-101757/JP/01	Recirculating Exhaust Treatment Fluid System	Japan	Granted	Patent	PCT/US2014/037171	May-07-2014	6307595	Mar-16-2018	May-07-2034
TAOC	2001P-101757/KR/01	Recirculating Exhaust Treatment Fluid System	South Korea	Pending	Patent	PCT/US2014/037171	May-07-2014			May-07-2034
TAOC	2001U-001757/US	Recirculating Exhaust Treatment Fluid System	United States	Granted	Patent	14/271811	May-07-2014	9903250	Feb-27-2018	Aug-31-2036
TAOC	2001U-001757/US/COB	Recirculating Exhaust Treatment Fluid System	United States	Pending	Patent	15/868132	Jan-11-2018			May-07-2034

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TAOC	2001P-101758-CN-01	Fluid Delivery System with Line Pressure Control Valve	China	Pending	Patent	PCT/CN2014/079662	Jun-11-2014			Jun-11-2034
TAOC	2001P-101758-DE-01	Fluid Delivery System with Line Pressure Control Valve	Germany	Pending	Patent	PCT/CN2014/079662	Jun-11-2014			Jun-11-2034
TAOC	2001P-101758-IN-01	Fluid Delivery System with Line Pressure Control Valve	India	Pending	Patent	PCT/CN2014/079662	Jun-11-2014			Jun-11-2034
TAOC	2001U-001758-US-NP	Fluid Delivery System with Line Pressure Control Valve	United States	Pending	Patent	PCT/CN2014/079662	Jun-11-2014			Jun-11-2034
TAOC	2001P-101759/CN/01	System and Method for Detecting face-Plugging of an Exhaust Aftertreatment Component	China	Pending	Patent	201580073546.2	Oct-22-2015			Oct-22-2035
TAOC	2001P-101759/DE/01	System and Method for Detecting face-Plugging of an Exhaust Aftertreatment Component	Germany	Pending	Patent	112015005978.4	Oct-22-2015			Oct-22-2035
TAOC	2001U-001759/US	System and Method for Detecting Face-Plugging of an Exhaust Aftertreatment Component	United States	Granted	Patent	14/597745	Jan-15-2015	9702284	Jul-11-2017	Jan-15-2035
TAOC	2001U-001760/US	Carbon Dioxide Recirculation System	United States	Granted	Patent	14/925062	Oct-28-2015	9546621	Jan-17-2017	Oct-28-2035
TAOC	2001P-101761/CN/01	Exhaust Aftertreatment System Having Mixer Assembly	China	Pending	Patent	201680006780.8	Jan-21-2016			Jan-21-2036
TAOC	2001P-101761/DE/01	Exhaust Aftertreatment System Having Mixer Assembly	Germany	Pending	Patent	112016000450.8	Jan-21-2016			Jan-21-2036
TAOC	2001U-001761/US	Exhaust Aftertreatment System Having Mixer Assembly	United States	Granted	Patent	15/001356	Jan-20-2016	9784163	Oct-10-2017	Jan-20-2036
TAOC	2001U-001761/US/COB	Exhaust Aftertreatment System Having Mixer Assembly (Dogbow)	United States	Granted	Patent	15/677458	Aug-15-2017	10047657	Aug-14-2018	Jan-24-2036
TAOC	2001U-001761/US/COB	Exhaust Aftertreatment System Having Mixer Assembly	United States	Pending	Patent	16/014106	Jun-21-2018			Jan-20-2036
TAOC	2001P-101763/CN	Waste Heat Recovery System with Current Regulator	China	Pending	Patent	201610274765.3	Apr-22-2016			Apr-22-2036
TAOC	2001P-101763/DE	Waste Heat Recovery System with Current Regulator	Germany	Pending	Patent	102016107458.6	Apr-22-2016			Apr-22-2036
TAOC	2001P-101764/CN	Urea Electrolysis for NH3 and H2 Blends	China	Pending	Patent	201710037450.1	Jan-20-2017			Jan-20-2037
TAOC	2001P-101764/DE	Urea Electrolysis for NH3 and H2 Blends	Germany	Pending	Patent	102017100682.6	Jan-16-2017			Jan-16-2037
TAOC	2001U-001764/US	EXHAUST AFTER-TREATMENT SYSTEM INCLUDING AMMONIA AND HYDROGEN GENERATION	United States	Granted	Patent	15/001448	Jan-20-2016	10036291	Jul-31-2018	Sep-25-2036
TAOC	2001U-001765/US	Exhaust System Having Segmented Service Flange	United States	Granted	Patent	14/677012	Apr-02-2015	9687784	Jun-27-2017	Apr-02-2035
TAOC	2001P-101766/DE	Utilization of exhaust heat for heating electrolysis reactor for fast electrolysis and evaporation of water	Germany	Pending	Patent	112016003787.2	Feb-08-2018			Feb-08-2038
TAOC	2001P-101766-CN-01	Tri Mode Injection	China	Pending	Patent	PCT/US2016/047700	Aug-19-2016			Aug-19-2036
TAOC	2001U-001766/US	Exhaust Aftertreatment System With Ammonia Gas Generator	United States	Granted	Patent	14/931039	Nov-03-2015	9702291	Jul-11-2017	Nov-03-2035
TAOC	2001U-001766/WO/POA	Tri Mode Injection	WO	Pending	Patent	PCT/US2016/047700	Aug-19-2016			Feb-20-2019
TAOC	2001U-001766-US-NPB	Exhaust Aftertreatment System with Ammonia Gas Generator	United States	Pending	Patent	15/753494	Feb-19-2018			Feb-19-2038
TAOC	2001P-101767/CN/01	Combo Mixer	China	Pending	Patent	2016800300253	Nov-23-2017			Nov-23-2037
TAOC	2001U-001767/US	Combination Mixer Assembly	United States	Granted	Patent	14/722762	May-27-2015	9534525	Jan-03-2017	May-27-2035
TAOC	2001U-001767/WO/POA	Combo Mixer	WO	Pending	Patent	PCT/US16/34150	May-25-2016			Nov-27-2018

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TAOC	2001P-101768/CN	Electrolysis Generated H2 and NH3 for LNT and SCR	China	Pending	Patent	201611164404X	Dec-16-2016			Dec-16-2036
TAOC	2001P-101768/DE	Electrolysis Generated H2 and NH3 for LNT and SCR	Germany	Pending	Patent	1020161238503	Dec-08-2016			Dec-08-2036
TAOC	2001U-001768/US	Exhaust After-Treatment System Including Electrolysis Generated H2 and NH3	United States	Granted	Patent	14/972642	Dec-17-2015	9790830	Oct-17-2017	Dec-17-2035
TAOC	2001P-101769/CN/01	Dual Auger Mixing System	China	Pending	Patent	PCT/US2016/019122	Feb-23-2016			Feb-23-2036
TAOC	2001P-101769/DE/01	Dual Auger System	Germany	Pending	Patent	PCT/US2016/019122	Feb-23-2016			Feb-23-2036
TAOC	2001U-001769/US	Dual Auger System	United States	Pending	Patent	15/050504	Feb-23-2016			Feb-23-2036
TAOC	2001P-101770/CN	Arrangement of Catalyzed TEG Systems	China	Pending	Patent	2016105944742	Jul-26-2016			Jul-26-2036
TAOC	2001P-101770/DE	Arrangement of Catalyzed TEG Systems	Germany	Pending	Patent	10 2016 112 816.3	Jul-13-2016			Jul-13-2036
TAOC	2001U-001770/US	Arrangement of Catalyzed TEG Systems	United States	Granted	Patent	14/809730	Jul-27-2015	9551257	Jan-24-2017	Jul-27-2035
TAOC	2001P-101771/CN	Engine Exhaust Particulate Sensor Filtering Housing	China	Pending	Patent	201610594460.0	Jul-26-2016			Jul-26-2036
TAOC	2001P-101771/DE	Engine Exhaust Particulate Sensor Filtering Housing	Germany	Pending	Patent	102016113232.2	Jul-19-2016			Jul-19-2036
TAOC	2001U-001771/US	Particulate Sensor Assembly	United States	Pending	Patent	14/818361	Aug-05-2015			Aug-05-2035
TAOC	2001P-101773/CN	Exhaust Treatment System Having Membrane Module for Water Removal	China	Pending	Patent	201710100002.1	Feb-23-2017			Feb-23-2037
TAOC	2001P-101773/DE	Membrane Module for H2O Removal	Germany	Pending	Patent	102017102430.1	Feb-08-2017			Feb-08-2037
TAOC	2001U-001773/US	Exhaust Treatment System Having Membrane Module For Water Removal	United States	Granted	Patent	15/050521	Feb-23-2016	10054022	Aug-21-2018	Jul-21-2036
TAOC	2001P-101774/CN/01	Slotted Snap-Action Valve Assembly for Exhaust System	China	Pending	Patent	PCT/US2017/045907	Aug-08-2017			Aug-08-2037
TAOC	2001P-101774/DE/01	Slotted Snap-Action Valve Assembly for Exhaust System	Germany	Pending	Patent	PCT/US2017/045907	Aug-08-2017			Aug-08-2037
TAOC	2001U-001774/US	Slotted Snap-Action Valve Assembly for Exhaust System	United States	Pending	Patent	15/238838	Aug-17-2016			Aug-17-2036
TAOC	2001U-001774/US/CPB	Alignment System for Slotted Snap-Action Valve Assembly for Exhaust System	United States	Pending	Patent	15/797140	Oct-30-2017			Aug-17-2036
TAOC	2001U-001774/WO/POA	Slotted Snap-Action Valve Assembly for Exhaust System	WO	Pending	Patent	PCT/US2017/045907	Aug-08-2017			Feb-17-2020
TAOC	2001P-101775/CN	Filter for Assembly	China	Pending	Patent	201710140846.9	Mar-10-2017			Mar-10-2037
TAOC	2001P-101775/DE	Filter for Assembly	Germany	Pending	Patent	102017105420.0	Mar-14-2017			Mar-14-2037
TAOC	2001U-001775/US	Filter Assembly	United States	Granted	Patent	15/075803	Mar-21-2016	9956509	May-01-2018	Nov-02-2036
TAOC	2001U-001775/US/DVA	Fluid Delivery System for Exhaust Aftertreatment System	United States	Pending	Patent	15/928710	Mar-22-2018			Mar-22-2038
TAOC	2001P-101776/CN	Fluid Delivery System for Exhaust Aftertreatment System	China	Granted	Patent	201620556991.6	Jun-08-2016	ZL201620556991.6	Dec-28-2016	Jun-08-2036
TAOC	2001P-101776/IN	Fluid Delivery System for Exhaust Aftertreatment System	India	Pending	Patent	201641012576	Apr-11-2016			Apr-11-2036
TAOC	2001U-001776/US	Fluid Delivery System for Exhaust Aftertreatment System	United States	Pending	Patent	15/172357	Jun-03-2016			Jun-03-2036
TAOC	2001U-001776/US-DVA	Fluid Delivery System for Exhaust Aftertreatment System	United States	Pending	Patent	15/928710	Mar-22-2018			Jun-03-2036
TAOC	2001P-101777/CN	Compact Inline Inlet with Integrated Cast Ring	China	Pending	Patent	201710318013.7	May-08-2017			May-08-2037
TAOC	2001P-101777/DE	Compact Inline Inlet with Integrated Cast Ring	Germany	Pending	Patent	10 2017 109 908.5	May-09-2017			May-09-2037
TAOC	2001U-001777/US	Compact Inline Inlet with Integrated Cast Ring	United States	Pending	Patent	15/494592	Apr-24-2017			Apr-24-2037
TAOC	2001P-101778/CN/01	Canthleaved Mixer	China	Pending	Patent	201610487729.5	Jun-28-2016			Jun-28-2036
TAOC	2001P-101778-DE-01	Canthleaved Mixer	Germany	Pending	Patent	DE102016111704	Jun-27-2016			Jun-27-2036
TAOC	2001U-001778/US	Canthleaved Flow Distributing Apparatus	United States	Pending	Patent	15/182697	Jun-15-2016			Jun-15-2036



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TAOC	2001P-101779/CN/01	Flutter Dampened Exhaust Valve	China	Pending	Patent	PCT/US2017/045923	Aug-08-2017			Aug-08-2037
TAOC	2001P-101779/DE/01	Flutter Dampened Exhaust Valve	Germany	Pending	Patent	PCT/US2017/045923	Aug-08-2017			Aug-08-2037
TAOC	2001U-001779/US	Flutter Dampened Exhaust Valve	United States	Pending	Patent	15/238872	Aug-17-2016			Aug-17-2036
TAOC	2001U-001779/WO/POA	Flutter Dampened Exhaust Valve	WO	Pending	Patent	PCT/US2017/045923	Aug-08-2017			Feb-17-2020
TAOC	2001P-101780/CN	Passive Exhaust Valve with Dual Torsion Spring	China	Pending	Patent	2017106575877	Aug-03-2017			Aug-03-2037
TAOC	2001P-101780/DE	Passive Exhaust Valve with Dual Torsion Spring	Germany	Pending	Patent	1020171169776	Jul-27-2017			Jul-27-2037
TAOC	2001U-001780/US	Passive Exhaust Valve with Dual Torsion Spring	United States	Granted	Patent	15/229180	Aug-05-2016	9982793		Sep-17-2036
TAOC	2001P-101781/CN	Passive Exhaust Valve with External Torsion Spring	China	Pending	Patent	2017103877432	May-27-2017			May-27-2037
TAOC	2001P-101781/DE	Passive Exhaust Valve with External Torsion Spring	Germany	Pending	Patent	1020171133798	Jun-19-2017			Jun-19-2037
TAOC	2001U-001781/US	Passive Exhaust Valve with External Torsion Spring	United States	Granted	Patent	15/229189	Aug-05-2016	9982794	May-29-2018	Aug-06-2036
TAOC	2001P-101783/DE	Apparatus And Method Of Producing Insulation Pream With Graded Porosity	Germany	Pending	Patent	102171289682	Dec-06-2017			Dec-06-2037
TAOC	2001U-001783/CN	Apparatus And Method Of Producing Insulation Pream With Graded Porosity	China	Pending	Patent	2017113724876	Dec-19-2017			Dec-19-2037
TAOC	2001U-001783/US	Apparatus And Method Of Producing Insulation Pream With Graded Porosity	United States	Pending	Patent	15/386126	Dec-21-2016			Dec-21-2036
TAOC	2001U-001784/US	Method for Urea Conversion Efficiency Measurement	United States	Pending	Patent	15/874358	Jan-18-2018			Jan-18-2038
TAOC	2001U-001784-WO-POA	Improved Method for Urea Conversion Efficiency Measurement	WO	Pending	Patent	PCT/US2018/014410	Jan-19-2018			Jul-20-2020
TAOC	2001U-001785/CN	Exhaust Conduit Hanger	China	Pending	Patent	2018102899829	Apr-03-2018			Apr-03-2038
TAOC	2001U-001785/DE	Exhaust Conduit Hanger	Germany	Pending	Patent	1020181065957	Mar-21-2018			Mar-21-2038
TAOC	2001U-001785/US	Exhaust Conduit Hanger	United States	Pending	Patent	15/480776	Apr-06-2017			Apr-06-2037
TAOC	2001P-001786/DE	Double Thin Wall Conduit Hanger	Germany	Pending	Patent	1020181065965	Mar-21-2018			Mar-21-2038
TAOC	2001U-001786/CN	Double Thin Wall Conduit Hanger	China	Pending	Patent	2018102899759	Apr-03-2018			Apr-03-2038
TAOC	2001U-001786/US	Double Thin Wall Conduit Hanger	United States	Pending	Patent	15/480830	Apr-06-2017			Apr-06-2037
TAOC	2001P-101787/CN	Counter-Swirl Mixer Concept	China	Pending	Patent	2018102529713	Mar-26-2018			Mar-26-2038
TAOC	2001P-101787/DE	Counter-Swirl Mixer Concept	Germany	Pending	Patent	1020181062869	Mar-19-2018			Mar-19-2038
TAOC	2001U-001787/JN	Counter-Swirl Mixer Concept	India	Pending	Patent	201824014466	Apr-16-2018			Apr-16-2038
TAOC	2001U-001787/US	Counter-Swirl Mixer	United States	Pending	Patent	15/496128	Apr-25-2017			Apr-25-2037
TAOC	2001P-101792/CN	Spokes Mixer	China	Pending	Patent	201810510319-7	Jun-27-2017			Jun-27-2037
TAOC	2001P-101792/DE	Spokes Mixer	Germany	Pending	Patent	1020181118864	Jun-27-2017			Jun-27-2037
TAOC	2001U-001792/US	Impingement Mixer for Exhaust Treatment	United States	Pending	Patent	15/634402	Jun-27-2017			Jun-27-2037
TAOC	2001U-001798/US	Method and Apparatus for Preparation of a Urea Solution	United States	Pending	Patent	15/712253	Sep-22-2017			Sep-22-2037
TAOC	2001U-001798/US/CPA	Method and Apparatus for Preparation of a Urea Solution	United States	Pending	Patent	15/944891	Apr-04-2018			Sep-22-2037
TAOC	2001U-001799/US	Wire Mesh Mixing Tube	United States	Pending	Patent	15/719699	Sep-29-2017			Sep-29-2037
TAOC	2001U-001802/US	Fluid Pump With Shim and Related Methods Of Manufacture	United States	Pending	Patent	15/797101	Oct-30-2017			Oct-30-2037
TAOC	2001U-001803-US	XNOx Pressure Sensing Systems and Methods	United States	Pending	Patent	15/727976	Oct-09-2017			Oct-09-2037
TAOC	2001U-001804/US	Pipe and Metal Sheet Subassembly For An Exhaust Treatment Device	United States	Pending	Patent	15/817721	Nov-20-2017			Nov-20-2037
TAOC	2001U-001805/US/PS1	Acoustically Tuned Muffler	United States	Pending	Patent	62/568421	Oct-05-2017			Oct-05-2018
TAOC	2001U-001805/US/PS2	Acoustically Tuned Muffler	United States	Pending	Patent	62/598147	Dec-13-2017			Dec-13-2018

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TAOC	2001U-001805-US	Acoustically Tuned Muffler SYSTEMS AND METHODS FOR IMPROVING INJECTOR ACCURACY	United States	Pending	Patent	16/119011	Aug-31-2018			Aug-31-2038
TAOC	2001U-001807-US	Muffler Assembly Including a Center Muffler and Two Satellite Mufflers	United States	Pending	Patent	15/878952	Jan-24-2018			Jan-24-2038
TAOC	2001U-001808-US	Diesel Exhaust Fluid Pressure Measuring and Control Systems and Methods	United States	Pending	Patent	15/972663	May-07-2018			May-07-2038
TAOC	2001U-001809-US	Acoustically Tuned Muffler System for Neutralizing the PH of Exhaust Condensate	United States	Pending	Patent	15/890409	Feb-07-2018			Feb-07-2038
TAOC	2001U-001810-US	Exhaust Valve Damper	United States	Pending	Patent	15/955252	Apr-17-2018			Apr-17-2038
TAOC	2001U-001813-US	Muffler Assembly Including a Center Muffler and Two Satellite Mufflers	United States	Pending	Patent	15/949206	Apr-10-2018			Apr-10-2038
TAOC	2001U-001814-US	Reduced Length Exhaust System With Valve	United States	Pending	Patent	15/972686	May-08-2018			May-08-2038
TAOC	2001U-001814-US	Loose-Fill Insulation Exhaust Gas Treatment Device and Methods of Manufacturing	United States	Pending	Patent	16/040975	Jul-20-2018			Jul-20-2038
TAOC	52533-143989/CN	Loose-Fill Insulation Exhaust Gas Treatment Device and Methods of Manufacturing	China	Pending	Patent	201380060442.9	Nov-20-2013			Nov-20-2033
TAOC	52533-143990/JP	Loose-Fill Insulation Exhaust Gas Treatment Device and Methods of Manufacturing	Japan	Pending	Patent	2015-544114	Nov-20-2013			Nov-20-2033
TAOC	52533-143992/KR	Loose-Fill Insulation Exhaust Gas Treatment Device and Methods of Manufacturing	South Korea	Pending	Patent	10-2015-7016428	Nov-20-2013			Nov-20-2033
TAOC	52533-143993/IN	Loose-Fill Insulation Exhaust Gas Treatment Device and Methods of Manufacturing	India	Pending	Patent	4095/DELNP/2015	Nov-20-2013			Nov-20-2033
TAOC	52533-128061/US	LOSE-FILL INSULATION EXHAUST GAS TREATMENT DEVICE AND METHODS OF MANUFACTURING	United States	Granted	Patent	14/085576	Nov-20-2013	9790836	Oct-17-2017	Mar-14-2033
TAOC	BRAZIL-1/CN	Safe Check 1 -Device to monitor the wear of an automotive suspension (SLM)	China	Granted	Patent	200780052141.6	Dec-14-2007	ZL200780052141.6	Jan-23-2013	Dec-14-2027
TAOC	BRAZIL-1/KR	Safe Check 1 -Device to monitor the wear of an automotive suspension (SLM)	South Korea	Pending	Patent	2009-7017110	Dec-14-2007			Dec-14-2027
TAOC	BRAZIL-3/AR	CYCLES SENSOR- SHOCK ABSORBER	Argentina	Pending	Patent	080105058	Nov-20-2008			Nov-20-2028
TAOC	BRAZIL-4/BR	SHOCK ABSORBER WITH BIODEGRADABLE FLUID AND BIODEGRADABLE FLUID FOR ALL TYPES OF SHOCK ABSORBERS	Brazil	Pending	Patent	P10900559.5	Feb-20-2009			Feb-20-2029
TAOC	13161-101799-BR	PHS (Progressive Hydraulic Stop)	Brazil	Pending	Utility Model	MU9102003-4	Nov-01-2011			Nov-01-2026
TAOC	BRAZIL-6/AR	PHS (Progressive Hydraulic Stop)	Argentina	Granted	Utility Model	20120104083	Nov-01-2012	AR0086602B4	Jun-29-2018	Nov-01-2022
TAOC	BRAZIL-7/BR	SHOCK ABSORBER WITH BIODEGRADABLE FLUID AND BIODEGRADABLE FLUID FOR ALL TYPES OF SHOCK ABSORBERS	Brazil	Pending	Patent	P11005122.8	Nov-03-2010			Nov-03-2030
TAOC	P046834-US-NP/US	Dual Compound Elastomer Bushing for Vehicle Suspension Component	United States	Pending	Patent	16/100575	Aug-10-2018			Aug-10-2038
TAOC	PA-NACA-15-01040-US	Exhaust Aftertreatment System for an Engine	United States	Pending	Patent	16/022085	Jun-28-2018			Jun-28-2038
TAOC	PA-NACA-17-01189/US	Regent Injector Freeze Protection	United States	Pending	Patent	16/045036	Jul-25-2018			Jul-25-2038
TAOC	PA-NACA-17-01197/US	Compact CSTU	United States	Pending	Patent	16/106780	Aug-21-2018			Aug-21-2038
TAOC	PA-NACA-18-01250-US	Regent Injector	United States	Pending	Patent	16/044980	Jul-25-2018			Jul-25-2038
TAOC	PA-NACA-18-01257-US	Valve Assembly	United States	Pending	Patent	16/045235	Jul-25-2018			Jul-25-2038

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Grantor	DocketID	Technology/Invention Title	Country	Status	Type	Application Number	Application Date	Grant Number	Grant Date	Expiration Date
TAOC	PA-NACA-18-01260/US	Joint Assembly	United States	Pending	Patent	16/045184	Jul-25-2018			Jul-25-2038
TAOC	PA-NARP-17-01212-US	SUSPENSION SYSTEM AND METHOD FOR CONTROLLING SUSPENSION SYSTEM	United States	Pending	Patent	15/972604	May-07-2018			May-07-2038
TAOC	PA-NARP-18-00002-US	DAMPER WITH PRINTED CIRCUIT BOARD CARRIER	United States	Pending	Patent	16/103068	Aug-14-2018			Jun-06-2037
TAOC	PA-NARP-18-00003/US	Valve Assembly	United States	Pending	Patent	16/044922	Jul-25-2018			Jul-25-2038
TAOC	PA-NARP-18-03111-US	Method of Manufacturing a Damper Tube	United States	Pending	Patent	16/045271	Jul-25-2018			Jul-25-2038
TAOC	01239-0001/US	Water Separation Device for Engine Exhaust Gas	United States	Pending	Patent	15/648748	Jul-13-2017			Jul-13-2037
TAOC	01239-0002/US	Passive NOx Adsorber	United States	Pending	Patent	15/723635	Oct-03-2017			Oct-03-2037
TAOC	T115-1010/US	Linear Control of an Automobile Suspension	United States	Granted	Patent	10/861373	Jun-07-2004	7386378	Jun-10-2008	Jun-07-2024
TAOC	T115-1040/DE2	SHOCK ABSORBER WITH INTEGRATED DISPLACEMENT SENSOR	Germany	Granted	Patent	10 2005 063 565.2	Jul-14-2005			Jul-14-2025
TAOC	T115-1040-1/CN	SHOCK ABSORBER PISTON ROD	China	Granted	Patent	200580023566.5	Jul-14-2005	Z1200580023566.5	May-05-2010	Jul-14-2025
TAOC	T115-1040-1/DE1	SHOCK ABSORBER PISTON ROD	Germany	Granted	Patent	11 2005 001 650.1	Jul-14-2005	11 2005 001650 B4	Jun-06-2012	Jul-14-2025
TAOC	T115-1040-1/DE-2	SHOCK ABSORBER PISTON ROD	Germany	Granted	Patent	PCT/US2005/024986	Jul-14-2005	10 2005 063565 B3	Jul-07-2016	Jul-14-2025
TAOC	T115-1040-1/US	SHOCK ABSORBER WITH INTEGRATED DISPLACEMENT SENSOR	United States	Granted	Patent	11/181026	Jul-14-2005	7493995	Feb-24-2009	Jul-14-2025
TAOC	TEN10442P00010/CN	Device for Lowering Tail Pipe Exhaust Temperature	China	Granted	Patent	2007800422618	Nov-14-2007	Z1200780042261.8	Apr-24-2013	Nov-14-2027
TAOC	TEN10442P00010/JP	Device for Lowering Tail Pipe Exhaust Temperature	Japan	Granted	Patent	2009-537193	Nov-14-2007	5789084	Aug-07-2015	Nov-14-2027
TAOC	TEN10442P00010/KR	Device for Lowering Tail Pipe Exhaust Temperature	South Korea	Granted	Patent	10-2009-7012102	Nov-14-2007	10-1377233	Mar-14-2014	Nov-14-2027
TAOC	TEN10442P00010/US	Device for Lowering Tail Pipe Exhaust Temperature	United States	Granted	Patent	11/985221	Nov-14-2007	7913489	Mar-29-2011	Nov-14-2027
TAOC	TEN10442P00020/US	Exhaust Gas Additive / Treatment System and Mixer for Use Therein	United States	Granted	Patent	12/150269	Apr-25-2008	8141353	Mar-27-2012	Apr-25-2028
TAOC	TEN10442P00030/EP-DE	Tailpipe cooling device	European Patent	Granted	Patent	09742985.6	Apr-17-2009	2262982	Aug-17-2016	Apr-17-2029
TAOC	TEN10442P00030/US	Tailpipe cooling device	United States	Granted	Patent	12/386449	Apr-17-2009	8272210	Sep-25-2012	Apr-17-2029
TAOC	TEN10442P00090/DE	IMD or GBD control for Multi-Layer mat wrap	Germany	Pending	Patent	11 2009 002 618.4	Nov-11-2009			Nov-11-2029
TAOC	TEN10442P00090/IN	IMD or GBD control for Multi-Layer mat wrap	India	Pending	Patent	1224/KOLNP/2011	Nov-11-2009			Nov-11-2029
TAOC	TEN10442P00090/JP	IMD or GBD control for Multi-Layer mat wrap	Japan	Granted	Patent	2011-535787	Nov-11-2009	5608665	Sep-05-2014	Nov-11-2029
TAOC	TEN10442P00090/KR	IMD or GBD control for Multi-Layer mat wrap	South Korea	Granted	Patent	10-2011-7010730	Nov-11-2009	10-1643953	Jul-25-2016	Nov-11-2029
TAOC	TEN10442P00090/US	IMD or GBD control for Multi-Layer mat wrap	United States	Granted	Patent	12/616568	Nov-11-2009	8667681	Mar-11-2014	Nov-11-2029
TAOC	TEN10442P00092/CN	IMD or GBD control for Multi-Layer mat wrap	China	Pending	Patent	201510131051.2	Nov-11-2009			Nov-11-2029
TAOC	TEN10442P00100/CN	Injector Mounting System	China	Granted	Patent	201080006041.1	Feb-02-2010	Z1201080006041.1	Dec-24-2014	Feb-02-2030
TAOC	TEN10442P00100/DE	Injector Mounting System	Germany	Pending	Patent	11 2010 004 027.3	Feb-02-2010			Feb-02-2030
TAOC	TEN10442P00100/IN	Injector Mounting System	India	Pending	Patent	1344/KOLNP/2011	Feb-02-2010			Feb-02-2030

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TAOC	TEN10442P00100/US	Injector Mounting System	United States	Granted	Patent	12/698488	Feb-02-2010	8327829	Dec-11-2012	Feb-02-2030
TAOC	TEN10442P00110/BR	Burner for a Diesel Aftertreatment System	Brazil	Pending	Patent	1120120058274	Sep-15-2010			Sep-15-2030
TAOC	TEN10442P00110/JN	Burner for a Diesel Aftertreatment System	India	Pending	Patent	1309/CHENP/2012	Sep-15-2010			Sep-15-2030
TAOC	TEN10442P00140/CN	Elim-NOx Injector firing control circuit concepts	China	Granted	Patent	201080054959.3	Dec-02-2010	ZL201080054955.3	Dec-24-2014	Dec-02-2030
TAOC	TEN10442P00140/JN	Elim-NOx Injector firing control circuit concepts	India	Pending	Patent	3353/CHENP/2012	Dec-02-2010			Dec-02-2030
TAOC	TEN10442P00140/KR	Elim-NOx Injector firing control circuit concepts	South Korea	Pending	Patent	10-2012-7010997	Dec-02-2010			Dec-02-2030
TAOC	TEN10442P00150/CN	Flared Siphon Tube (Non round dust ejector)	China	Pending	Patent	CN201080042628.8	Sep-22-2010			Sep-22-2030
TAOC	TEN10442P00150/JN	Flared Siphon Tube (Non round dust ejector)	India	Pending	Patent	1315/CHENP/2012	Sep-22-2010			Sep-22-2030
TAOC	TEN10442P00150/JP	Flared Siphon Tube (Non round dust ejector)	Japan	Granted	Patent	2012-530992	Sep-22-2010	5806671	Sep-11-2015	Sep-22-2030
TAOC	TEN10442P00150/KR	Flared Siphon Tube (Non round dust ejector)	South Korea	Granted	Patent	10-2012-7006374	Sep-22-2010	101524220	May-22-2015	Sep-22-2030
TAOC	TEN10442P00150/TH	Flared Siphon Tube (Non round dust ejector)	Thailand	Pending	Patent	1201001053	Sep-22-2010			Sep-22-2030
TAOC	TEN10442P00150/US	Flared Siphon Tube (Non round dust ejector)	United States	Granted	Patent	12/567311	Sep-25-2009	8277548	Oct-02-2012	Sep-25-2029
TAOC	TEN10442P00151/KR-02	Flared Siphon Tube (Non round dust ejector)	South Korea	Pending	Patent	10-2013-7034768	Sep-22-2010			Sep-22-2030
TAOC	TEN10442P00160/JN	Butterfly Mixer - Enhanced	India	Pending	Patent	US2010056982	Nov-17-2010			Nov-17-2030
TAOC	TEN10442P00160/JP	Butterfly Mixer - Enhanced	Japan	Granted	Patent	US2010056982	Nov-17-2010	5782447	Jul-24-2015	Nov-17-2030
TAOC	TEN10442P00160/KR	Butterfly Mixer - Enhanced	South Korea	Granted	Patent	US2010056982	Nov-17-2010	101573880	Nov-26-2015	Nov-17-2030
TAOC	TEN10442P00160/TH	Butterfly Mixer - Enhanced	Thailand	Pending	Patent	US2010056982	Nov-17-2010			Nov-17-2030
TAOC	TEN10442P00160/US	Butterfly Mixer - Enhanced	United States	Granted	Patent	12/620302	Nov-17-2009	8375709	Feb-19-2013	Nov-17-2029
TAOC	TEN10442P00170/JN	Calcination of Silica Fiber Insulation Materials Prior to Installation in Application	India	Pending	Patent	6133/CHENP/2012	Jun-03-2010			Jun-03-2030
TAOC	TEN10442P00170/TH	Calcination of Silica Fiber Insulation Materials Prior to Installation in Application	Thailand	Pending	Patent	1201003714	Jun-03-2010			Jun-03-2030
TAOC	TEN10442P00190/CN	Spiral Telescoping for Multi-Layer Wrapping	China	Granted	Patent	201180046942.8	May-26-2011	ZL201180046942.8	Apr-22-2015	May-26-2031
TAOC	TEN10442P00190/DE	Spiral Telescoping for Multi-Layer Wrapping	Germany	Pending	Patent	11 2011 104 746.0	May-26-2011			May-26-2031
TAOC	TEN10442P00190/JN	Spiral Telescoping for Multi-Layer Wrapping	India	Pending	Patent	560/KOLNP/2013	May-26-2011			May-26-2031
TAOC	TEN10442P00190/JP	Spiral Telescoping for Multi-Layer Wrapping	Japan	Granted	Patent	2013/531570	May-26-2011	5878927	Feb-05-2016	May-26-2031
TAOC	TEN10442P00190/KR	Spiral Telescoping for Multi-Layer Wrapping	South Korea	Granted	Patent	10-2013-7008091	May-26-2011	10-1478590	Dec-26-2014	May-26-2031
TAOC	TEN10442P00190/TH	Spiral Telescoping for Multi-Layer Wrapping	Thailand	Pending	Patent	1301001039	May-26-2011			May-26-2031
TAOC	TEN10442P00190/US	Spiral Telescoping for Multi-Layer Wrapping	United States	Granted	Patent	12/894712	Sep-30-2010	8752290	Jun-17-2014	Sep-30-2030

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TAOC	TEN10442P00190/US/2	Spiral Telescoping for Multi-Layer Wrapping	United States	Granted	Patent	13/399365	Sep-30-2010	8661673	Mar-04-2014	Sep-30-2030
TAOC	TEN10442P00230/CN	Taper Cut Edge Mat	China	Granted	Patent	201180046941.3	May-26-2011	201180046941.3	Mar-16-2016	May-26-2031
TAOC	TEN10442P00230/DE	Taper Cut Edge Mat	Germany	Pending	Patent	11 2011 103 328.1	May-26-2011			May-26-2031
TAOC	TEN10442P00230/JP	Taper Cut Edge Mat	Japan	Granted	Patent	2013/531571	May-26-2011	5815036	Oct-02-2015	May-26-2031
TAOC	TEN10442P00230/KR	Taper Cut Edge Mat	South Korea	Granted	Patent	10-2013-7008092	May-26-2011	10-1478591	Dec-26-2014	May-26-2031
TAOC	TEN10442P00230/TH	Taper Cut Edge Mat	Thailand	Pending	Patent	1301001040	May-26-2011			May-26-2031
TAOC	TEN10442P00230/US	Method of installing a longitudinally offset multi-layer mat in an exhaust gas aftertreatment or acoustic device	United States	Granted	Patent	12/894851	Sep-30-2010	8505203	Aug-13-2013	Sep-30-2030
TAOC	TEN10442P00240/CN	Multi-Layer Wrap Mat to Mat Adhesion for Transportation of Wrapped Substrates	China	Pending	Patent	201280037388.1	Jun-27-2012			Jun-27-2032
TAOC	TEN10442P00280/JP	Method of Insulating an Exhaust Device	Japan	Pending	Patent	2014-520176	Dec-16-2011			Dec-16-2031
TAOC	TEN10442P00280/TH	Method of Insulating an Exhaust Device	Thailand	Pending	Patent	1301006694	Dec-16-2011			Dec-16-2031
TAOC	TEN10442P00280/US	Method of Insulating an Exhaust Device	United States	Granted	Patent	13/179982	Jul-11-2011	8100315	Jan-24-2012	Jul-11-2031
TAOC	TEN10442P00290/CN	Method of Producing an Insulated Exhaust Device	China	Pending	Patent	201280050971.6	Jun-28-2012			Jun-28-2032
TAOC	TEN10442P00290/US	Method of Producing an Insulated Exhaust Device	United States	Granted	Patent	13/277663	Oct-20-2011	9217357	Dec-22-2015	Oct-20-2031
TAOC	TEN10442P00310/CN	Method of Installing a Multi-Layer Batt, Blanket or Mat in an Exhaust Gas Aftertreatment or Acoustic Device	China	Pending	Patent	201380047558.9	Jun-27-2013			Jun-27-2033
TAOC	TEN10442P00310/IN	Method of Installing a Multi-Layer Batt, Blanket or Mat in an Exhaust Gas Aftertreatment or Acoustic Device	India	Pending	Patent	2911/KOLNP/2014	Jun-27-2013			Jun-27-2033
TAOC	TEN10442P00310/JP	Method of Installing a Multi-Layer Batt, Blanket or Mat in an Exhaust Gas Aftertreatment or Acoustic Device	Japan	Pending	Patent	2015-531071	Jun-27-2013			Jun-27-2033
TAOC	TEN10442P00310/KR	Method of Installing a Multi-Layer Batt, Blanket or Mat in an Exhaust Gas Aftertreatment or Acoustic Device	South Korea	Pending	Patent	10-2015-7001723	Jun-27-2013			Jun-27-2033
TAOC	TEN10442P00310/TH	Method of Installing a Multi-Layer Batt, Blanket or Mat in an Exhaust Gas Aftertreatment or Acoustic Device	Thailand	Pending	Patent	1501000446	Jun-27-2013			Jun-27-2033
TAOC	TEN10442P00310/US	11-0632_Powder Insulation Impregnated Multi-Layer wrap.pdf	United States	Granted	Patent	13/612269	Sep-12-2012	8747510	Jun-10-2014	Sep-12-2032

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40869	1	AFTERMARKET-MISC	United States	Design	Original Filing	National
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40514		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
40840	1	CHASSIS & BRAKE HARD PARTS	United States	Regular	Division	National
40840		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
41077		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
41081		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
41245		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
41566		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
41566-1	1	CHASSIS & BRAKE HARD PARTS	United States	Regular	Continuation-In-Part	National
41650		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
42131		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National



50084		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50139		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50139	1	CHASSIS & BRAKE HARD PARTS	United States	Regular	Division	National
50142		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50152		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50185		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50230		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50245		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50248		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50253	1	CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50253	2	CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50259	1	CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50259	2	CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50260		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50264		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50265		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50267		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50380		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50380	1	CHASSIS & BRAKE HARD PARTS	United States	Regular	Division	National
50509		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50546		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50547		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50548		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50548	1	CHASSIS & BRAKE HARD PARTS	United States	Regular	Continuation-In-Part	National
50568		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50569		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50584		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50665		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50730		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50731		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50760		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50771		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50778		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50779		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50780		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National

50785		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50786		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50802		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
50813		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50814		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50890		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50891		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50903		CHASSIS & BRAKE HARD PARTS	United States	Regular	Original Filing	National
50906		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
50924		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
50925		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
50945		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
50966		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
50986		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
51022		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
51036		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
51037		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
51041		CHASSIS & BRAKE HARD PARTS	United States	Provisional Filing	Original Filing	National
40046		CORPORATE GENERAL	United States	Regular	Original Filing	National
50978		CPT	United States	Regular	Original Filing	Patent Cooperation Treaty
50978	1	CPT	United States	Regular	Original Filing	Patent Cooperation Treaty
50978	2	CPT	United States	Regular	Original Filing	Patent Cooperation Treaty
50979		CPT	United States	Regular	Original Filing	Patent Cooperation Treaty
50981		CPT	United States	Regular	Original Filing	Patent Cooperation Treaty
50982		CPT	United States	Regular	Original Filing	Patent Cooperation Treaty
00375		CYLINDER LINERS	United States	Regular	Original Filing	National
00376	1	CYLINDER LINERS	United States	Regular	Original Filing	National
02655		CYLINDER LINERS	United States	Regular	Original Filing	National
30096		CYLINDER LINERS	United States	Regular	Original Filing	National
30194		CYLINDER LINERS	United States	Regular	Original Filing	National
30419		CYLINDER LINERS	United States	Regular	Original Filing	National
30510		CYLINDER LINERS	United States	Regular	Original Filing	National
40255		CYLINDER LINERS	United States	Regular	Original Filing	National
40667		CYLINDER LINERS	United States	Regular	Original Filing	National
40886		CYLINDER LINERS	United States	Regular	Original Filing	National

41894		CYLINDER LINERS	United States	Regular	Original Filing	National
42020		CYLINDER LINERS	United States	Regular	Original Filing	National
42041		CYLINDER LINERS	United States	Regular	Original Filing	National
42370		CYLINDER LINERS	United States	Regular	Original Filing	Patent Cooperation Treaty
42394		CYLINDER LINERS	United States	Regular	Original Filing	Patent Cooperation Treaty
42405		CYLINDER LINERS	United States	Regular	Original Filing	National
50053		CYLINDER LINERS	United States	Regular	Original Filing	National
50053	1	CYLINDER LINERS	United States	Regular	Continuation	National
50225		CYLINDER LINERS	United States	Regular	Original Filing	National
50541		CYLINDER LINERS	United States	Regular	Original Filing	National
02626		FACE SEALS	United States	Regular	Original Filing	National
02708		FACE SEALS	United States	Regular	Original Filing	National
40327(MW)29		FACE SEALS	United States	Regular	Original Filing	Patent Cooperation Treaty
41604		FACE SEALS	United States	Regular	Original Filing	Patent Cooperation Treaty
41903		FACE SEALS	United States	Regular	Original Filing	Patent Cooperation Treaty
41925		FACE SEALS	United States	Regular	Original Filing	Patent Cooperation Treaty
41926		FACE SEALS	United States	Regular	Original Filing	Patent Cooperation Treaty
50107		FACE SEALS	United States	Regular	Original Filing	Patent Cooperation Treaty
00200-FR	2	FRICITION	United States	Regular	Division	National
40575		FRICITION	United States	Regular	Original Filing	Patent Cooperation Treaty
40809		FRICITION	United States	Regular	Continuation	Patent Cooperation Treaty
40809	5	FRICITION	United States	Design	Original Filing	National
40809	3	FRICITION	United States	Design	Original Filing	National
40809	4	FRICITION	United States	Design	Original Filing	National
40809	9	FRICITION	United States	Design	Original Filing	National
40809	10	FRICITION	United States	Design	Original Filing	National
40809	11	FRICITION	United States	Design	Original Filing	National
40809	12	FRICITION	United States	Design	Original Filing	National
40809	13	FRICITION	United States	Design	Original Filing	National
40809	8	FRICITION	United States	Design	Original Filing	National
40809	6	FRICITION	United States	Design	Original Filing	National
40809	7	FRICITION	United States	Design	Original Filing	National
40809	2	FRICITION	United States	Design	Original Filing	National
40809	1	FRICITION	United States	Regular	Original Filing	National
40809		FRICITION	United States	Regular	Original Filing	National

40809	2	FRICITION	United States	Regular	Division	National
40809a	8	FRICITION	United States	Design	Division	National
40809a	13	FRICITION	United States	Design	Division	National
40809a	12	FRICITION	United States	Design	Division	National
40809a	10	FRICITION	United States	Design	Division	National
40809a	9	FRICITION	United States	Design	Division	National
40809a	6	FRICITION	United States	Design	Division	National
40809a	2	FRICITION	United States	Design	Division	National
40809a	4	FRICITION	United States	Design	Division	National
40809a	3	FRICITION	United States	Design	Division	National
40809a	5	FRICITION	United States	Design	Division	National
40809a	11	FRICITION	United States	Design	Division	National
40809a	7	FRICITION	United States	Design	Division	National
40809b	5	FRICITION	United States	Design	Division	National
40809b	4	FRICITION	United States	Design	Division	National
40809b	13	FRICITION	United States	Design	Division	National
40809b	2	FRICITION	United States	Design	Division	National
40809b	11	FRICITION	United States	Design	Division	National
40809b	7	FRICITION	United States	Design	Division	National
40809b	8	FRICITION	United States	Design	Division	National
40809b	10	FRICITION	United States	Design	Division	National
40809b	6	FRICITION	United States	Design	Division	National
40809b	9	FRICITION	United States	Design	Division	National
40809b	12	FRICITION	United States	Design	Division	National
40809b	3	FRICITION	United States	Design	Division	National
40809c	13	FRICITION	United States	Design	Division	National
40809c	11	FRICITION	United States	Design	Division	National
40809c	4	FRICITION	United States	Design	Division	National
40809c	2	FRICITION	United States	Design	Division	National
40809c	10	FRICITION	United States	Design	Division	National
40809c	7	FRICITION	United States	Design	Division	National
40809c	5	FRICITION	United States	Design	Division	National
40809c	6	FRICITION	United States	Design	Division	National
40809c	8	FRICITION	United States	Design	Division	National
40809c	9	FRICITION	United States	Design	Division	National

40809c	3	FRICITION	United States	Design	Division	National
40809c	12	FRICITION	United States	Design	Division	National
40809d	11	FRICITION	United States	Design	Division	National
40809d	3	FRICITION	United States	Design	Division	National
40809e	11	FRICITION	United States	Design	Division	National
40809e	3	FRICITION	United States	Design	Division	National
41112	3	FRICITION	United States	Regular	Continuation-In-Part	National
41114		FRICITION	United States	Regular	Original Filing	National
41915		FRICITION	United States	Regular	Original Filing	National
42049		FRICITION	United States	Regular	Original Filing	National
50240		FRICITION	United States	Regular	Original Filing	National
50322		FRICITION	United States	Regular	Original Filing	Patent Cooperation Treaty
50323		FRICITION	United States	Regular	Original Filing	Patent Cooperation Treaty
50375		FRICITION	United States	Regular	Original Filing	Patent Cooperation Treaty
50378		FRICITION	United States	Regular	Original Filing	Patent Cooperation Treaty
50480		FRICITION	United States	Regular	Original Filing	National
50519	1	FRICITION	United States	Design	Original Filing	National
50519	10	FRICITION	United States	Design	Division	National
50519	5	FRICITION	United States	Design	Original Filing	National
50519	8	FRICITION	United States	Design	Original Filing	National
50519	3	FRICITION	United States	Design	Original Filing	National
50519	6	FRICITION	United States	Design	Original Filing	National
50519	2	FRICITION	United States	Design	Original Filing	National
50519	4	FRICITION	United States	Design	Original Filing	National
50519	9	FRICITION	United States	Design	Original Filing	National
50519	7	FRICITION	United States	Design	Original Filing	National
50630		FRICITION	United States	Regular	Original Filing	National
50885		FRICITION	United States	Provisional Filing	Original Filing	National
50894		FRICITION	United States	Provisional Filing	Original Filing	National
00202-PS	1	HD PISTONS	United States	Regular	Original Filing	National
00369	1	HD PISTONS	United States	Regular	Original Filing	National
00374	1	HD PISTONS	United States	Regular	Original Filing	National
00374	2	HD PISTONS	United States	Regular	Continuation	National
00377	1	HD PISTONS	United States	Regular	Original Filing	National
30140	1	HD PISTONS	United States	Regular	Original Filing	National

30140	2	HD PISTONS	United States	Regular	Continuation-In-Part	National
30152		HD PISTONS	United States	Regular	Original Filing	National
30185		HD PISTONS	United States	Regular	Original Filing	National
30197	1	HD PISTONS	United States	Regular	Original Filing	National
30197	2	HD PISTONS	United States	Regular	Division	National
30253		HD PISTONS	United States	Regular	Original Filing	National
30254		HD PISTONS	United States	Regular	Original Filing	National
30255		HD PISTONS	United States	Regular	Original Filing	National
30275		HD PISTONS	United States	Regular	Original Filing	National
30318	1	HD PISTONS	United States	Regular	Original Filing	National
30421	1	HD PISTONS	United States	Regular	Original Filing	National
30421	2	HD PISTONS	United States	Regular	Continuation-In-Part	National
30436	1	HD PISTONS	United States	Regular	Original Filing	National
30436	2	HD PISTONS	United States	Regular	Division	National
30497		HD PISTONS	United States	Regular	Original Filing	National
40015		HD PISTONS	United States	Regular	Original Filing	National
40227		HD PISTONS	United States	Regular	Original Filing	National
40466		HD PISTONS	United States	Regular	Original Filing	National
40499		HD PISTONS	United States	Regular	Original Filing	Patent Cooperation Treaty
40509		HD PISTONS	United States	Regular	Original Filing	National
40510		HD PISTONS	United States	Regular	Original Filing	National
40777		HD PISTONS	United States	Regular	Original Filing	National
40778		HD PISTONS	United States	Regular	Original Filing	National
40800		HD PISTONS	United States	Regular	Original Filing	National
40950		HD PISTONS	United States	Regular	Original Filing	National
40953	1	HD PISTONS	United States	Design	Original Filing	National
40953		HD PISTONS	United States	Regular	Original Filing	National
40953	2	HD PISTONS	United States	Regular	Continuation-In-Part	National
41291		HD PISTONS	United States	Regular	Original Filing	National
41295	2	HD PISTONS	United States	Regular	Division	National
41295		HD PISTONS	United States	Regular	Original Filing	National
41295	1	HD PISTONS	United States	Regular	Continuation-In-Part	National
41329		HD PISTONS	United States	Regular	Original Filing	National
41420		HD PISTONS	United States	Regular	Original Filing	National
41422	1	HD PISTONS	United States	Regular	Continuation	National

41422		HD PISTONS	United States	Regular	Original Filing	National
41564	1	HD PISTONS	United States	Regular	Original Filing	National
41564	2	HD PISTONS	United States	Regular	Continuation-In-Part	National
41564	3	HD PISTONS	United States	Regular	Continuation	National
41578		HD PISTONS	United States	Regular	Original Filing	National
41595		HD PISTONS	United States	Regular	Original Filing	National
41638		HD PISTONS	United States	Regular	Original Filing	National
41758		HD PISTONS	United States	Regular	Original Filing	National
41771		HD PISTONS	United States	Regular	Original Filing	National
41806		HD PISTONS	United States	Regular	Original Filing	National
41821		HD PISTONS	United States	Regular	Original Filing	National
41823		HD PISTONS	United States	Regular	Original Filing	National
41825		HD PISTONS	United States	Regular	Original Filing	National
41909		HD PISTONS	United States	Regular	Original Filing	National
41918		HD PISTONS	United States	Regular	Original Filing	National
41918	1	HD PISTONS	United States	Regular	Division	National
41935		HD PISTONS	United States	Regular	Original Filing	National
42067		HD PISTONS	United States	Regular	Original Filing	National
42067	1	HD PISTONS	United States	Regular	Continuation-In-Part	National
42089		HD PISTONS	United States	Design	Original Filing	National
42184		HD PISTONS	United States	Regular	Original Filing	National
42305		HD PISTONS	United States	Regular	Original Filing	National
42359	1	HD PISTONS	United States	Regular	Division	National
42359		HD PISTONS	United States	Regular	Original Filing	National
42433		HD PISTONS	United States	Regular	Original Filing	National
42434	1	HD PISTONS	United States	Regular	Division	National
42434		HD PISTONS	United States	Regular	Original Filing	National
42454		HD PISTONS	United States	Regular	Original Filing	National
42575	2	HD PISTONS	United States	Regular	Continuation	National
42575		HD PISTONS	United States	Regular	Original Filing	National
42575	1	HD PISTONS	United States	Regular	Original Filing	National
42575	3	HD PISTONS	United States	Regular	Continuation	National
42575	5	HD PISTONS	United States	Regular	Division	National
42575	4	HD PISTONS	United States	Regular	Continuation-In-Part	National

50002		HD PISTONS	United States	Regular	Original Filing	National
50017		HD PISTONS	United States	Regular	Original Filing	National
50036		HD PISTONS	United States	Regular	Original Filing	National
50058		HD PISTONS	United States	Regular	Original Filing	National
50141	2	HD PISTONS	United States	Design	Original Filing	National
50141	1	HD PISTONS	United States	Regular	Original Filing	National
50141	5	HD PISTONS	United States	Regular	Continuation	National
50141	3	HD PISTONS	United States	Regular	Continuation	National
50141	4	HD PISTONS	United States	Regular	Continuation-In-Part	National
50141	1	HD PISTONS	United States	Regular	Division	National
50193		HD PISTONS	United States	Regular	Original Filing	National
50204		HD PISTONS	United States	Regular	Original Filing	National
50206		HD PISTONS	United States	Regular	Original Filing	National
50220		HD PISTONS	United States	Regular	Original Filing	National
50332		HD PISTONS	United States	Regular	Original Filing	National
50373		HD PISTONS	United States	Regular	Original Filing	National
50382		HD PISTONS	United States	Regular	Original Filing	National
50383		HD PISTONS	United States	Regular	Original Filing	National
50437		HD PISTONS	United States	Regular	Original Filing	National
50446		HD PISTONS	United States	Regular	Original Filing	National
50448		HD PISTONS	United States	Regular	Original Filing	National
50459		HD PISTONS	United States	Regular	Original Filing	National
50474		HD PISTONS	United States	Regular	Original Filing	National
50475		HD PISTONS	United States	Regular	Original Filing	National
50530		HD PISTONS	United States	Regular	Original Filing	National
50556		HD PISTONS	United States	Regular	Original Filing	National
50559		HD PISTONS	United States	Regular	Original Filing	National
50578		HD PISTONS	United States	Regular	Original Filing	National
50613		HD PISTONS	United States	Regular	Original Filing	National
50622		HD PISTONS	United States	Regular	Original Filing	National
50623		HD PISTONS	United States	Regular	Original Filing	National
50624		HD PISTONS	United States	Regular	Original Filing	National
50625		HD PISTONS	United States	Regular	Original Filing	National
50626		HD PISTONS	United States	Regular	Original Filing	National
50627		HD PISTONS	United States	Regular	Original Filing	National



50629		HD PISTONS	United States	Regular	Original Filing	National
50632		HD PISTONS	United States	Regular	Original Filing	National
50639		HD PISTONS	United States	Regular	Original Filing	National
50671		HD PISTONS	United States	Regular	Original Filing	National
50794	1	HD PISTONS	United States	Design	Original Filing	National
50794	2	HD PISTONS	United States	Design	Original Filing	National
50794	3	HD PISTONS	United States	Design	Original Filing	National
50794	4	HD PISTONS	United States	Design	Original Filing	National
50794	5	HD PISTONS	United States	Regular	Original Filing	National
50794	6	HD PISTONS	United States	Regular	Original Filing	National
50826		HD PISTONS	United States	Provisional Filing	Original Filing	National
50826	1	HD PISTONS	United States	Regular	Continuation-In-Part	National
50826	2	HD PISTONS	United States	Regular	Continuation-In-Part	National
50836		HD PISTONS	United States	Regular	Original Filing	National
50837		HD PISTONS	United States	Regular	Original Filing	National
50861		HD PISTONS	United States	Regular	Original Filing	National
50868		HD PISTONS	United States	Regular	Original Filing	National
50991		HD PISTONS	United States	Provisional Filing	Original Filing	National
50993		HD PISTONS	United States	Provisional Filing	Original Filing	National
51030		HD PISTONS	United States	Provisional Filing	Original Filing	National
51031		HD PISTONS	United States	Provisional Filing	Original Filing	National
51032	1	HD PISTONS	United States	Provisional Filing	Original Filing	National
51032	2	HD PISTONS	United States	Provisional Filing	Original Filing	National
41218		IGNITION - ACIS	United States	Regular	Original Filing	National
41408		IGNITION - ACIS	United States	Regular	Original Filing	National
41409	1	IGNITION - ACIS	United States	Regular	Continuation	National
41409		IGNITION - ACIS	United States	Regular	Original Filing	National
41457		IGNITION - ACIS	United States	Regular	Original Filing	National
41466	1	IGNITION - ACIS	United States	Regular	Continuation-In-Part	National
41466		IGNITION - ACIS	United States	Regular	Original Filing	National
41466	2	IGNITION - ACIS	United States	Regular	Continuation-In-Part	National
41467		IGNITION - ACIS	United States	Regular	Original Filing	National
41469		IGNITION - ACIS	United States	Regular	Original Filing	National
41691		IGNITION - ACIS	United States	Regular	Original Filing	National
41728	1	IGNITION - ACIS	United States	Regular	Division	National

41728		IGNITION - ACIS	United States	Regular	Original Filing	National
41728	2	IGNITION - ACIS	United States	Regular	Division	National
41729		IGNITION - ACIS	United States	Regular	Original Filing	National
41777		IGNITION - ACIS	United States	Regular	Original Filing	National
41849		IGNITION - ACIS	United States	Regular	Original Filing	National
41938		IGNITION - ACIS	United States	Regular	Original Filing	National
41943		IGNITION - ACIS	United States	Regular	Original Filing	National
41944		IGNITION - ACIS	United States	Regular	Original Filing	National
41947		IGNITION - ACIS	United States	Regular	Original Filing	National
41954	1	IGNITION - ACIS	United States	Regular	Continuation	National
41954		IGNITION - ACIS	United States	Regular	Original Filing	National
42010		IGNITION - ACIS	United States	Design	Original Filing	National
42038		IGNITION - ACIS	United States	Regular	Original Filing	National
42039		IGNITION - ACIS	United States	Regular	Original Filing	National
42106		IGNITION - ACIS	United States	Regular	Original Filing	National
42141		IGNITION - ACIS	United States	Regular	Original Filing	National
42280		IGNITION - ACIS	United States	Regular	Original Filing	National
42280	1	IGNITION - ACIS	United States	Regular	Division	National
42280	2	IGNITION - ACIS	United States	Regular	Continuation	National
42324	2	IGNITION - ACIS	United States	Regular	Continuation-In-Part	National
42324	3	IGNITION - ACIS	United States	Regular	Continuation-In-Part	National
42324	1	IGNITION - ACIS	United States	Regular	Continuation	National
42324		IGNITION - ACIS	United States	Regular	Original Filing	National
42324	4	IGNITION - ACIS	United States	Regular	Continuation	National
42419	2	IGNITION - ACIS	United States	Regular	Original Filing	National
42419	3	IGNITION - ACIS	United States	Regular	Division	National
42419	5	IGNITION - ACIS	United States	Regular	Division	National
42419	4	IGNITION - ACIS	United States	Regular	Division	National
42419	1	IGNITION - ACIS	United States	Regular	Original Filing	National
42456		IGNITION - ACIS	United States	Regular	Original Filing	National
42486	1	IGNITION - ACIS	United States	Regular	Continuation	National
42486		IGNITION - ACIS	United States	Regular	Original Filing	National
42486	2	IGNITION - ACIS	United States	Regular	Continuation	National
50034		IGNITION - ACIS	United States	Regular	Original Filing	National
50129	1	IGNITION - ACIS	United States	Regular	Original Filing	National

50134		IGNITION - ACIS	United States	Regular	Original Filing	National
50147		IGNITION - ACIS	United States	Regular	Original Filing	National
50164		IGNITION - ACIS	United States	Regular	Original Filing	National
50191		IGNITION - ACIS	United States	Regular	Original Filing	National
50196		IGNITION - ACIS	United States	Regular	Original Filing	National
50196	1	IGNITION - ACIS	United States	Regular	Continuation-In-Part	National
50197		IGNITION - ACIS	United States	Regular	Original Filing	National
50197	1	IGNITION - ACIS	United States	Regular	Continuation-In-Part	National
50333		IGNITION - ACIS	United States	Regular	Original Filing	National
50334		IGNITION - ACIS	United States	Regular	Original Filing	National
50359		IGNITION - ACIS	United States	Regular	Original Filing	National
50538		IGNITION - ACIS	United States	Regular	Original Filing	National
50538	1	IGNITION - ACIS	United States	Regular	Division	National
50597		IGNITION - ACIS	United States	Regular	Original Filing	National
50690		IGNITION - ACIS	United States	Regular	Original Filing	National
50734		IGNITION - ACIS	United States	Regular	Original Filing	National
50831		IGNITION - ACIS	United States	Regular	Original Filing	National
50851		IGNITION - ACIS	United States	Provisional Filing	Original Filing	National
50898		IGNITION - ACIS	United States	Regular	Original Filing	National
25609		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
30063		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
30212		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	Patent Cooperation Treaty
30297	1	IGNITION - AUTOMOTIVE	United States	Reissue Patent	Original Filing	National
30664		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
30712	1	IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
30712	2	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
40034		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40105(IT)		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	Patent Cooperation Treaty
40304 KEEP	3	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
40304 keep	2	IGNITION - AUTOMOTIVE	United States	Regular	Continuation-In-Part	National
40309	1	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
40366		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40469		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40472	2	IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40472	3	IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National

40472	1	IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40472	2	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
40497		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40515		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40555		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40556		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40613		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40652	6	IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40652	2	IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40652	4	IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40684	2	IGNITION - AUTOMOTIVE	United States	Regular	Continuation	National
40684	3	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
40689	1	IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40699		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40699		IGNITION - AUTOMOTIVE	United States	Re-Examination	Original Filing	National
40703	2	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
40703		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40703	4	IGNITION - AUTOMOTIVE	United States	Regular	Continuation-In-Part	National
40703	3	IGNITION - AUTOMOTIVE	United States	Regular	Continuation	National
40705	1	IGNITION - AUTOMOTIVE	United States	Regular	Continuation-In-Part	National
40705		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40718		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40753		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40754	1	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
40754		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40755	2	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
40755	1	IGNITION - AUTOMOTIVE	United States	Regular	Continuation-In-Part	National
40762		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
40865		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	Patent Cooperation Treaty
41044		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41065		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	Patent Cooperation Treaty
41084		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41084	2	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
41105		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41138	1	IGNITION - AUTOMOTIVE	United States	Regular	Continuation	National

41138		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41139		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41205		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41212	1	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
41212		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41212	2	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
41259		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41330		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41402		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41402	1	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
41438		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41445		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41485		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41647		IGNITION - AUTOMOTIVE	United States	Regular	Continuation-In-Part	National
41668		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41671	1	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
41671		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41683	2	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
41683	1	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
41683		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41696	1	IGNITION - AUTOMOTIVE	United States	Regular	Continuation-In-Part	National
41698	2	IGNITION - AUTOMOTIVE	United States	Regular	Continuation-In-Part	National
41698		IGNITION - AUTOMOTIVE	United States	Regular	Continuation-In-Part	National
41698	1	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
41858		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41897		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41979		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
41985		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42013		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42014		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42138	1	IGNITION - AUTOMOTIVE	United States	Regular	Division	National
42138		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42209		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42209	1	IGNITION - AUTOMOTIVE	United States	Regular	Continuation	National
42241		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National

42278		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42317		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42318		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42331		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42331	1	IGNITION - AUTOMOTIVE	United States	Regular	Continuation	National
42332		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42333		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42335		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
42335	1	IGNITION - AUTOMOTIVE	United States	Regular	Continuation-In-Part	National
42395		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
50037		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
50059		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
50328		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
50416		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
50494		IGNITION - AUTOMOTIVE	United States	Regular	Original Filing	National
50579		IGNITION - AUTOMOTIVE	United States	Regular	Continuation-In-Part	National
42519		IGNITION - GERMANY	United States	Regular	Original Filing	National
42522		IGNITION - GERMANY	United States	Regular	Original Filing	National
42524		IGNITION - GERMANY	United States	Regular	Original Filing	National
42525		IGNITION - GERMANY	United States	Regular	Original Filing	National
42526		IGNITION - GERMANY	United States	Regular	Original Filing	National
42526	1	IGNITION - GERMANY	United States	Regular	Continuation	National
42530		IGNITION - GERMANY	United States	Regular	Original Filing	National
42539		IGNITION - GERMANY	United States	Regular	Original Filing	National
42540		IGNITION - GERMANY	United States	Regular	Original Filing	National
42541		IGNITION - GERMANY	United States	Regular	Original Filing	National
42546		IGNITION - GERMANY	United States	Regular	Original Filing	National
42548		IGNITION - GERMANY	United States	Regular	Original Filing	National
42549		IGNITION - GERMANY	United States	Regular	Original Filing	National
42550		IGNITION - GERMANY	United States	Regular	Original Filing	National
42559 [9886]		IGNITION - GERMANY	United States	Regular	Original Filing	National
42560		IGNITION - GERMANY	United States	Regular	Original Filing	National
42564		IGNITION - GERMANY	United States	Regular	Original Filing	National
42567		IGNITION - GERMANY	United States	Regular	Original Filing	National
50140		IGNITION - GERMANY	United States	Regular	Original Filing	National

50298		IGNITION - GERMANY	United States	Regular	Original Filing	National
50299		IGNITION - GERMANY	United States	Regular	Original Filing	National
50343		IGNITION - GERMANY	United States	Regular	Original Filing	National
50358		IGNITION - GERMANY	United States	Regular	Original Filing	National
50360		IGNITION - GERMANY	United States	Regular	Original Filing	National
50521		IGNITION - GERMANY	United States	Regular	Original Filing	National
50521	1	IGNITION - GERMANY	United States	Regular	Continuation	National
50577		IGNITION - GERMANY	United States	Regular	Original Filing	National
50596		IGNITION - GERMANY	United States	Regular	Original Filing	National
50701		IGNITION - GERMANY	United States	Regular	Original Filing	National
50747		IGNITION - GERMANY	United States	Regular	Original Filing	National
50776		IGNITION - GERMANY	United States	Regular	Original Filing	National
50781		IGNITION - GERMANY	United States	Regular	Original Filing	National
50798		IGNITION - GERMANY	United States	Regular	Original Filing	National
30495	1	IGNITION - IRIDIUM	United States	Regular	Original Filing	National
30495	2	IGNITION - IRIDIUM	United States	Regular	Continuation-In-Part	National
40036	3	IGNITION - IRIDIUM	United States	Regular	Continuation	National
40036	2	IGNITION - IRIDIUM	United States	Regular	Division	National
40037		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41421		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41446		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41597		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41712		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41713		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41714		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41747		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41759		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41921		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41978		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
41990		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
42158		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
42270		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
42275		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
42330		IGNITION - IRIDIUM	United States	Regular	Original Filing	National
40363(F8030)		INDUSTRIAL & NON-VEHICULAR	United States	Regular	Original Filing	National

40760(F8044)		INDUSTRIAL & NON-VEHICULAR	United States	Regular	Original Filing	National
41035(F8053)		INDUSTRIAL & NON-VEHICULAR	United States	Regular	Original Filing	National
25578		LIGHTING JUAREZ	United States	Regular	Original Filing	National
30261	4	LIGHTING JUAREZ	United States	Regular	Continuation	National
40380		LIGHTING JUAREZ	United States	Regular	Original Filing	National
40409		LIGHTING JUAREZ	United States	Regular	Original Filing	National
40409	1	LIGHTING JUAREZ	United States	Regular	Division	National
40422		LIGHTING JUAREZ	United States	Regular	Original Filing	National
40493		LIGHTING JUAREZ	United States	Regular	Original Filing	National
40792		LIGHTING JUAREZ	United States	Regular	Original Filing	National
40969		LIGHTING JUAREZ	United States	Regular	Continuation-In-Part	National
40994		LIGHTING JUAREZ	United States	Regular	Original Filing	National
41510		LIGHTING JUAREZ	United States	Regular	Original Filing	National
30681		MANUF. TECHNOLOGY	United States	Regular	Original Filing	National
40206		MANUF. TECHNOLOGY	United States	Regular	Original Filing	National
40354		MANUF. TECHNOLOGY	United States	Regular	Original Filing	National
00177		old *** SEALS & GASKETS	United States	Regular	Original Filing	National
30007		old *** SEALS & GASKETS	United States	Regular	Original Filing	National
30008		old *** SEALS & GASKETS	United States	Regular	Original Filing	National
30029		old *** SEALS & GASKETS	United States	Regular	Original Filing	National
30046	1	old *** SEALS & GASKETS	United States	Regular	Original Filing	National
30046	2	old *** SEALS & GASKETS	United States	Regular	Division	National
30206		old *** SEALS & GASKETS	United States	Regular	Original Filing	National
30246	1	old *** SEALS & GASKETS	United States	Regular	Original Filing	National
30287	1	old *** SEALS & GASKETS	United States	Regular	Original Filing	National
30287	2	old *** SEALS & GASKETS	United States	Regular	Division	National
02527		PISTON RINGS	United States	Regular	Original Filing	National
02583		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
02632		PISTON RINGS	United States	Regular	Original Filing	National
02642		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
02666		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
02689		PISTON RINGS	United States	Regular	Original Filing	National
02701		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
30324 (MW)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
30486 (MW)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty



30486 (MW)		PISTON RINGS	United States	Regular	Division	Patent Cooperation Treaty
30537 (MA)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40010 (MA)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40088(MW)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40598(MA300)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40625(MA302)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40626(MA302)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40657(MA303)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40770(MA305)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40811(MA305)		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40833		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40834		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40835		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
40946		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41074		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41118		PISTON RINGS	United States	Regular	Division	National
41118		PISTON RINGS	United States	Regular	Original Filing	National
41125		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41126		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41242		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41251		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41252		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41252	2	PISTON RINGS	United States	Regular	Division	Patent Cooperation Treaty
41306	1	PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41306	2	PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41307		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41320		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41336		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41337		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41338		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41339		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41411		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41431		PISTON RINGS	United States	Regular	Division	Patent Cooperation Treaty
41431		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41500		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty

41519		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41526		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41582		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41587		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41609		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41610		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41619		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41637		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41656		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41664		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41673		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41682		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41701		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41717	1	PISTON RINGS	United States	Regular	Division	National
41717		PISTON RINGS	United States	Regular	Original Filing	National
41770		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41799		PISTON RINGS	United States	Regular	Original Filing	National
41804		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41805	2	PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41805	1	PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41818		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41820		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41835		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41847		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41856		PISTON RINGS	United States	Regular	Original Filing	National
41890		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41971		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
41971		PISTON RINGS	United States	Regular	Division	Patent Cooperation Treaty
41984		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42045		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42081		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42084		PISTON RINGS	United States	Regular	Original Filing	National
42090		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42170		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42263		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty

42268		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42286	1	PISTON RINGS	United States	Regular	Division	National
42286		PISTON RINGS	United States	Regular	Original Filing	National
42299		PISTON RINGS	United States	Regular	Original Filing	National
42300		PISTON RINGS	United States	Regular	Original Filing	National
42301		PISTON RINGS	United States	Regular	Original Filing	National
42302		PISTON RINGS	United States	Regular	Original Filing	National
42303		PISTON RINGS	United States	Regular	Original Filing	National
42393		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42399		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42410		PISTON RINGS	United States	Regular	Original Filing	National
42431		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42432		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42458		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42460		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42470		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
42471		PISTON RINGS	United States	Regular	Continuation	Patent Cooperation Treaty
50004		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50144		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50151		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50179		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50214		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50223		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50291		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50330		PISTON RINGS	United States	Regular	Original Filing	National
50330	1	PISTON RINGS	United States	Regular	Continuation	National
50411		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50413		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50449		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50486		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50510		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50517		PISTON RINGS	United States	Regular	Original Filing	National
50555		PISTON RINGS	United States	Regular	Original Filing	National
50599		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50611NEU		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty

50633		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50667		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50675		PISTON RINGS	United States	Regular	Original Filing	Patent Cooperation Treaty
50726		PISTON RINGS	United States	Provisional Filing	Original Filing	National
40173(NU289		PISTONS	United States	Regular	Original Filing	Patent Cooperation Treaty
40524		PISTONS	United States	Regular	Original Filing	National
40848	1	PISTONS	United States	Regular	Continuation	National
40848		PISTONS	United States	Regular	Original Filing	National
40852		PISTONS	United States	Regular	Original Filing	Patent Cooperation Treaty
40875	1	PISTONS	United States	Regular	Division	National
40875		PISTONS	United States	Regular	Original Filing	National
40885		PISTONS	United States	Regular	Original Filing	Patent Cooperation Treaty
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42271		PISTONS	United States	Regular	Original Filing	National
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42390		PISTONS	United States	Regular	Original Filing	Patent Cooperation Treaty
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40891		SEALS - DYNAMIC SEALS	United States	Regular	Original Filing	National
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41377		SEALS - HEAT SHIELDS	United States	Regular	Original Filing	Patent Cooperation Treaty
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02588 US-C		SEALS - HOT GASKETS	United States	Regular	Continuation-In-Part	National
02705		SEALS - HOT GASKETS	United States	Regular	Original Filing	National
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30535 (DA)		SEALS - HOT GASKETS	United States	Regular	Original Filing	Patent Cooperation Treaty
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40479(DA298)		SEALS - HOT GASKETS	United States	Regular	Original Filing	Patent Cooperation Treaty
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41021	1	SEALS - HOT GASKETS	United States	Regular	Division	National
41124	1	SEALS - HOT GASKETS	United States	Regular	Continuation-In-Part	National

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50529		SEALS - HOT GASKETS	United States	Regular	Original Filing	National
40141	1	SEALS - MODULES	United States	Regular	Division	National
40282(BR293		SEALS - MODULES	United States	Regular	Original Filing	National



50387		SEALS - MODULES	United States	Regular	Original Filing	Patent Cooperation Treaty
30218	1	SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	National
40775		SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	Patent Cooperation Treaty
41140	1	SINTERED - VAVLE SEATS &	United States	Regular	Continuation-In-Part	National
41140		SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	National
41140	3	SINTERED - VAVLE SEATS &	United States	Regular	Continuation	National
41140	2	SINTERED - VAVLE SEATS &	United States	Regular	Division	National
41461	1	SINTERED - VAVLE SEATS &	United States	Regular	Division	National
41461		SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	National
41461	2	SINTERED - VAVLE SEATS &	United States	Regular	Division	National
41916		SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	National
42185		SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	National
42411		SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	Patent Cooperation Treaty
50470		SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	National
50607		SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	National
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50723		SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	National
50827		SINTERED - VAVLE SEATS &	United States	Regular	Original Filing	Patent Cooperation Treaty
40245		SKOKIE SEALING	United States	Regular	Original Filing	National
40245	2	SKOKIE SEALING	United States	Regular	Continuation-In-Part	National
40245	1	SKOKIE SEALING	United States	Regular	Division	National
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41767		SKOKIE SEALING	United States	Regular	Original Filing	National
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50127		SKOKIE SEALING	United States	Regular	Original Filing	National
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30586	1	SYSTEMS PROTECTION	United States	Reissue Patent	Original Filing	National
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P/3021		SYSTEMS PROTECTION	United States	Regular	Original Filing	National	
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D5		WIPERS	United States	Design	Original Filing	National

Application Date	Application Number	Grant Date	Patent Number	Status	Expiration Date	Title
09/04/2007	29/284221	09/15/2009	D600125 S	Granted	09/15/2023	PACKAGE DESIGN FOR MULTI-USE CONTAINER
01/30/2008	12/022232	01/26/2016	9243750	Granted	08/29/2034	MULTI-USE CONTAINER FOR ENGINE
11/04/1999	09/433689	11/06/2001	6312579	Granted	11/04/2019	BEARING HAVING MULTI-LAYER OVERLAY AND
09/19/2001	09/957317	08/26/2003	6609830	Granted	11/04/2019	BEARING HAVING MULTI-LAYER OVERLAY AND
02/26/1999	09/258,639	04/23/2002	6376062	Granted	02/26/2019	OVERLAY MATERIAL AND COMPOSITE
02/26/1999	09/258624	04/23/2002	6376061	Granted	02/26/2019	COMPOSITE MULTILAYER MATERIAL
12/26/2000	09/748,610	12/10/2002	6492039	Granted	12/26/2020	GLYCO 188 (VM 250)
01/16/2001	09/760875	11/19/2002	6481895	Granted	01/16/2021	LONG RELIEF CONTOURED FLANGE BEARING
10/07/2002	10/265953	06/08/2004	6746154	Granted	10/07/2022	LEAD-FREE BEARING (LF-5)
12/08/2003	10/730308	02/15/2005	6854183	Granted	10/07/2022	LEAD-FREE BEARING
10/15/2002	10/272054	09/07/2004	6787100	Granted	12/28/2022	MULTIPLE LAYER POWDER METAL BEARINGS
12/07/2004	11/006273	06/12/2007	7229699	Granted	08/04/2025	BEARING HAVING EMBEDDED HARD PARTICLE
06/01/2005	11/141895	04/08/2008	7354199	Granted	02/17/2026	THRUST BEARING
02/13/2008	12/030384	10/25/2011	8042272	Granted	08/26/2030	THRUST BEARING
08/05/2004	10568110	08/18/2009	7575814	Granted	08/05/2024	SCHICHTVERBUNDWERKSTOFF, HERSTELLUNG
11/12/2004	10/987014	08/21/2007	7258489	Granted	02/10/2025	LOW-COST THREE-PIECE THRUST WASHER
06/28/2005	11/169032	12/02/2008	7458158	Granted	10/06/2026	METHOD OF MAKING A SLIDING BEARING
09/24/2002	10490849	10/08/2013	8551569	Granted	09/24/2022	VERFAHREN ZUR HERSTELLUNG EINES MIT
03/16/2006	11377039	09/23/2008	7426855	Granted	03/16/2026	VERFAHREN UND VORRICHTUNG ZUR
05/13/2006	11/914,356	08/09/2011	7993758	Granted	05/13/2026	GLEITLAGERVERBUNDWERKSTOFF,
05/13/2006	11914350	01/29/2013	8360647	Granted	05/13/2026	GLEITLAGERVERBUNDWERKSTOFF,
05/13/2006	11914352	08/14/2012	8241758	Granted	05/13/2026	GLEITLAGERVERBUNDWERKSTOFF,
05/22/2006	11/915283	11/08/2011	8053087	Granted	07/20/2028	ANTIFRICTION COMPOSITE, USE OF THE
12/13/2006	12/097401	11/10/2015	9181976	Granted	12/13/2026	LAGERSCHALE UND VERFAHREN ZU IHRER
04/26/2010	13/266887	07/08/2014	8771838	Granted	04/26/2030	Nachgiebige Lagerschale mit Anpassungspotential
07/15/2008	12669363	04/22/2014	8703660	Granted	07/15/2028	BLEIFREIER GESINTERTER
03/24/2014	14/223513	05/23/2017	9657777	Granted	08/18/2028	WEAR RESISTANT LEAD FREE ALLOY BUSHING
07/31/2007	11/830913	03/25/2014	8679641	Granted	11/24/2030	BUSHING MATERIAL WITH IMPROVED WEAR
11/10/2008	12742826	02/19/2013	8376618	Granted	11/10/2028	Bundlager mit lasergepunkteten Anlaufscheiben und
12/28/2009	13/142887	10/25/2016	9476454	Granted	12/28/2029	Application of iron oxide in painted bearings
				Docketed		Application of iron oxide in painted bearings
12/28/2009	15262469			Filed		Application of iron oxide in painted bearings
12/28/2009	13142953	02/11/2014	8646977	Granted	12/28/2029	Self-lubricating thermoplastic coatings with PTFE
02/16/2012	14/004505	07/22/2014	8783954	Granted	02/16/2032	upper main-bearing, oil groove configuration Oberes

03/21/2011	13635967	08/20/2013	8511900	Granted	03/21/2031	Oil grooves for bearings Maßnahmen zur
03/10/2010	13/262104	06/10/2014	8748006	Granted	03/10/2030	lead free material for sintered bearings Bleifreier
05/18/2011	13/110482	12/17/2013	8608385	Granted	10/26/2031	MAIN BEARING FOR ENGINE WITH HIGH BELT
05/18/2010	13259938	04/08/2014	8689457	Granted	05/18/2030	process and device for protrusion measurement of
05/05/2010	13/318521	10/18/2016	9468974	Granted	05/05/2030	CuFe2P coating Bleifreier Gleitlagerwerkstoff auf
04/14/2011	13/811314	11/01/2016	9482275	Granted	04/14/2031	Structured sliding surface / Herstellung einer gezielt
05/23/2011	13/820389	05/17/2016	9341211	Granted	05/23/2031	laser structured dirt depot in surface seals
12/16/2010	13/518557	12/29/2015	9222513	Granted	12/16/2030	PTFElayer improvement Verbesserung der Haftung
09/01/2011	13/820220	07/22/2014	8783956	Granted	09/01/2031	dirt capturing bags in bearings Schmutzfanglaschen
12/22/2014	PCT/EP2014/079008			Filed		PTFE sliding layer with filler in synergistic composition
06/10/2010	13/703137	05/12/2015	9027249	Granted	06/10/2030	Sintered bushing material with improved corrosion
09/17/2015	PCT/EP2015/071328			Filed		Lead free aluminium, bearing with optimized
09/02/2011	13820262	09/02/2014	8821023	Granted	09/02/2031	dirt conduction groove at bearings
10/27/2011	13/985814	11/24/2015	9193017	Granted	10/27/2031	unleaded clad aluminium bearing material with
05/27/2011	13822158			Filed		graphitised tin (IV) sulfid dispersion coating
05/25/2012	14/124932	07/14/2015	9080604	Granted	05/25/2032	bearing with in axial direction profiled surface geometry
12/10/2013	14651017			Filed		composite material steel - cu - bronze - aluminium
12/28/2011	14/111629	11/15/2016	9492868	Granted	12/28/2031	Sintered bushing material with improved corrosion
11/06/2013	14/647,188	04/10/2018	9937564	Granted	11/06/2033	Bearings, variable surface $\mu$ -profile, getting deeper
10/10/2013	14/050501	08/18/2015	9108275	Granted	10/10/2033	BI-MATERIAL STRIP AND A METHOD OF
07/22/2015	14/805892	12/19/2017	9844836	Granted	10/10/2033	BI-MATERIAL STRIP AND A METHOD OF
11/29/2012	14/363477			Filed		Lead free sintered matrix material as a basis for the
08/17/2012	14/36947	04/04/2017	9611889	Granted	08/17/2032	increase of fatigue strength by bi-aluminium-bearings
12/22/2014	15106917			Filed		conditions of BASO4 and ZnS at paints for bearings
11/20/2013	14/085181	06/14/2016	9366290	Granted	02/29/2020	HIGH STRENGTH LOW FRICTION ENGINEERED
05/12/2016	15/153541			Filed		HIGH STRENGTH LOW FRICTION ENGINEERED
05/31/2012	14/404,857	03/08/2016	9279454	Granted	05/31/2032	Convex shape bearings with straight coated polymer
06/06/2014	14896502			Filed		
03/02/2015	14651017	01/16/2018	9869349	Granted	03/02/2035	Stretch metal bushing with trapezoidal form of clinch
05/08/2014	14890002			Filed		Copper based lead-free sintered bushing material with
12/22/2014	15107972	05/15/2018	9970483	Granted	12/22/2034	Self-lubricating thermoplastic coatings with PTFE alloy
04/16/2015	PCT/EP2015/058235			Filed		unleaded plain bearing material based on CU Fe2P
08/27/2015	15508239			Filed		unleaded bearing material based on CuCrZr coating
05/13/2015	14/710918			Filed		APPLYING POLYMER COATING TO CONNECTING
07/06/2016	15/744,406			Filed		substrat material for bearings

05/18/2016	102016208482.8				Filed		Method and process of manufacture composite
03/21/2018	15/927461				Filed		BEARING AND METHOD OF MANUFACTURING
05/11/2017	PCT/EP2017/061306				Filed		Method and process for manufacturing composite
05/05/2000	09/566288	07/02/2002	6413003	05/05/2020	Granted	05/05/2020	COMPLIANT PIVOT SOCKET FOR AUTOMOTIVE
05/15/2002	10/145683	01/13/2004	6676325	05/05/2020	Granted	05/05/2020	COMPLIANT PIVOT SOCKET FOR AUTOMOTIVE
09/18/2001	09/955001	08/27/2002	6439794	05/05/2020	Granted	05/05/2020	COMPLIANT PIVOT SOCKET FOR AUTOMOTIVE
09/18/2001	09/954743	09/24/2002	6454484	05/05/2020	Granted	05/05/2020	COMPLIANT PIVOT SOCKET FOR AUTOMOTIVE
10/07/1998	09/167917	03/20/2001	6202280	10/07/2018	Granted	10/07/2018	COVER-PLATE EXPANSION ASSEMBLY METHOD
10/20/1998	09/175915	10/03/2000	6125541	10/20/2018	Granted	10/20/2018	DEVICE AND METHOD FOR CLOSING A
12/20/2000	09/742863	08/27/2002	6439795	12/20/2020	Granted	12/20/2020	BALL JOINT COVER MEANS
03/15/2001	09/681305	03/18/2003	6532665	03/15/2021	Granted	03/15/2021	METHOD FOR EXPANDING A COVER PLATE
09/06/2001	09/948005	09/16/2003	6619873	09/06/2021	Granted	09/06/2021	DEVICE AND METHOD FOR CLOSING MOVABLE
10/18/2002	10/273958	06/10/2003	6575030	10/18/2022	Granted	10/18/2022	BRAKE ROTOR MILL BALANCE CLAMPING
01/16/2004	10/760053	05/02/2006	7037199	01/16/2024	Granted	01/16/2024	UNIVERSAL JOINT WASHER BAFFLE
01/02/2006	11/366131	02/20/2007	7179172	01/16/2024	Granted	01/16/2024	UNIVERSAL JOINT
02/18/2003	10/369153	04/05/2005	6874380	02/18/2023	Granted	02/18/2023	SLIDE ADJUSTMENT SYSTEM FOR BRAKE
03/30/2004	10/813242	11/01/2011	8047739	04/03/2024	Granted	04/03/2024	METAL SPLIT BEARING COMPRESSION LOAD
03/16/2004	10/802641	03/18/2008	7344311	09/20/2024	Granted	09/20/2024	SUSPENSION JOINT BEARING
12/21/2004	11/018765	07/25/2006	7080539	12/21/2024	Granted	12/21/2024	FORGED KNURLED SOCKET HOUSING AND
06/07/2006	11/422746	09/28/2010	7802940	12/21/2024	Granted	12/21/2024	FORGED KNURLED SOCKET HOUSING
08/25/2006	11/510327	03/02/2010	7670078	08/25/2026	Granted	08/25/2026	DUST BOOT WITH GREASE PASSAGE RIBS
08/25/2006	11/510326	04/27/2010	7704007	11/26/2026	Granted	11/26/2026	DUST BOOT WITH GREASE CHANNEL
08/18/2005	11/206889	03/11/2014	8668058	07/09/2028	Granted	07/09/2028	VENTED BRAKE ROTOR
09/19/2006	11/533186	07/02/2008	7393152	09/19/2026	Granted	09/19/2026	CONE ADAPTOR FOR BALL JOINT STUDS, TIE
06/13/2008	12/139177	11/23/2010	7837407	09/19/2026	Granted	09/19/2026	CONE ADAPTOR FOR BALL JOINT STUDS, TIE
01/17/2006	11/332886	01/12/2010	7644500	12/07/2026	Granted	12/07/2026	METHOD OF SETTING THE PRE-LOAD FOR A
10/21/2016	15/331254			05/21/2028	Filed	05/21/2028	BALL JOINT ASSEMBLY AND METHOD OF
05/21/2008	12/124215	10/25/2016	9476447	03/25/2031	Granted	03/25/2031	BALL JOINT ASSEMBLY AND METHOD OF
03/06/2009	12/399460	06/10/2014	8747012	03/06/2029	Granted	03/06/2029	TIE ROD END WITH FRICTION REDUCING
02/17/2009	12/372038	10/13/2009	7600940	02/17/2029	Granted	02/17/2029	BALLJOINT WITH SPACER CUP
02/13/2009	12/371051	01/01/2013	8342769	11/08/2029	Granted	11/08/2029	COMPLIANT PIVOT SOCKET FOR AUTOMOTIVE
12/03/2009	12/630357	09/20/2016	9446644	04/05/2033	Granted	04/05/2033	CONCENTRIC KNURL BALL JOINT
08/17/2016	15/238923				Filed		CONCENTRIC KNURL BALL JOINT
09/25/2013	14/036119	04/19/2016	9316250	09/25/2033	Granted	09/25/2033	BALL JOINT WITH IMPROVED UPPER BEARING
03/14/2013	13/804571	01/06/2015	8925944	03/14/2033	Granted	03/14/2033	CONTROL ARM WITH SOCKET [HEIM JOINT

07/23/2014	14/339282				Filed			DUST BOOT FOR A MOVEABLE JOINT
12/23/2014	14/581130	09/19/2017	9765811	Granted	07/24/2035			PIVOTAL SOCKET FOR AUTOMOTIVE STEERING
09/18/2017	15/706912			Filed				PIVOTAL SOCKET FOR AUTOMOTIVE STEERING
03/04/2015	14/637707	03/27/2018	9925838	Granted	04/04/2036			BALL JOINT ASSEMBLY FOR A CONTROL ARM
12/19/2014	14/576472	01/05/2016	9227661	Granted	12/19/2034			LENGTH ADJUSTER AND CLAMPING MECHANISM
12/23/2014	14/580572	05/03/2016	9327570	Granted	12/23/2034			BALL JOINT ASSEMBLY FOR A CONTROL ARM
12/03/2014	14/559233	03/22/2016	9291195	Granted	12/03/2034			BALL JOINT ASSEMBLY [COMPRESSION LOADED
06/22/2001	09/887851	01/14/2003	6505990	Granted	06/22/2021			BEARING SOCKET LINER FOR BALL JOINT
04/05/2001	09/828063	04/22/2003	6550120	Granted	04/05/2021			THREADED CONVERSION KIT FOR
12/22/1999	09/470349	10/09/2001	6298570	Granted	12/22/2019			GAGE ASSEMBLY AND METHOD
12/27/1999	09/473260	08/07/2001	6269545	Granted	12/27/2019			GAGE ASSEMBLY AND METHOD
12/07/2004	11/006269	06/24/2008	7390126	Granted	07/22/2025			ZERO RADIAL PLAY IDLER ARM BRACKET
06/18/2008	12/141590	07/08/2014	8770846	Granted	09/16/2028			ZERO RADIAL PLAY IDLER ARM BRACKET
05/26/2000	09/579647	04/16/2002	6371682	Granted	05/26/2020			ANCHOR POST NON-ARTICULATING IDLER
01/30/2001	09/771683	10/08/2002	6461267	Granted	01/30/2021			ELECTRONICALLY CONTROLLED AXLE
06/05/2001	09/874951	11/11/2003	6644671	Granted	07/31/2021			HIGH ARTICULATION DUST BOOT FOR BALL
12/22/1999	09/469801	03/25/2003	6536779	Granted	12/22/2019			SLEEVE DUST COVER
05/21/2015	14/718715	10/17/2017	9790983	Granted	11/12/2035			MOVABLE JOINT ASSEMBLY [Grease Boot With
10/16/2017	15/784749			Filed				MOVABLE JOINT ASSEMBLY [Grease Boot With
03/01/2016	15/057703	12/19/2017	9845823	Granted	03/01/2036			RESTRICTED SWING ANGLE BEARING PACKAGE
03/15/2016	15/070363			Filed				BALL JOINT ASSEMBLY WITH FLOATING LOWER
07/13/2016	15/209100			Filed				BALL JOINT ASSEMBLY
06/29/2016	15/197168	07/10/2018	10017026	Granted	06/29/2036			SWAY BAR LINKAGE WITH BUSHING
07/06/2018	16/028997			Filed				SWAY BAR LINKAGE WITH BUSHING
06/10/2016	15/178779			Filed				SOCKET ASSEMBLY AND METHOD OF MAKING A
03/22/2016	15/077444			Filed				FLANGE FORMING DUST BOOT DESIGN WITH
09/13/2016	15/263982			Filed				A SOCKET ASSEMBLY WITH AN IMPROVED BOOT
06/01/2016	15/170600			Filed				SOCKET ASSEMBLY AND METHOD OF MAKING A
12/22/2016	15/388135	06/19/2018	10001163	Granted	12/22/2036			BALL JOINT WITH IMPROVED UPPER BEARING
04/17/2017	US15/489422			Filed				BALL JOINT WITH IMPROVED UPPER BEARING
06/21/2017	US15/629209			Filed				ALTERNATIN STEP INSERT FOR DUST BOOTS
03/01/2017	15/446105			Filed				BEARING OVERMOLD
03/10/2017	15/455302			Filed				Ball joint with self centering stud
03/14/2017	15/458164			Filed				Rotary shaft seal with unidirectional sealing feature for
08/09/2017	15/673127			Filed				SERRATED SEAL DUST RETAINER

06/22/2017	US15/629844				Filed		DUST BOOT BEARING FOR SICKLE BAR
06/22/2017	US15/629875				Filed		BUSHING WITH CONTROLLED ELASTIC
07/25/2018	62703069				Filed	07/25/2019	ALIGNMENT SAFETY JACK STAND
07/13/2017	15/649042				Filed		WAVE DUST BOOT
07/13/2017	15/649069				Filed		GUSSET DUST BOOT
03/06/2018	15/912715				Filed		PLASTIC BEARING WITH METAL RETAINER FOR
03/06/2018	15/912777				Filed		OVERMOLDED PLASTIC BEARING WITH METAL
03/23/2018	15/933684				Filed		Ball Joint with Low Friction Thrust Bearing
11/29/2017	62/592297				Filed	11/29/2018	POWDERED METAL MATRIX COMPOSITE
10/27/2017	62/577900				Filed	10/27/2018	CONTROL ARM BUSHING WITH INTEGRATED
10/27/2017	62/578103				Filed	10/27/2018	CARBON FIBER BEARING AND INDUCTION HEAT
03/16/2018	62/643954				Filed	03/16/2019	BALL JOINT WITH ONE TRANSLATIONAL DEGREE
07/18/2018	62699847				Filed	07/18/2019	SPRING STEEL SPLIT PRELOAD BEARING
05/11/2018	62/670035				Filed	05/11/2019	Tri-Bearing Solid Axle compression Loaded Ball Joint
07/17/2018	62699122				Filed	07/17/2019	FIBER REINFORCED ACETAL BALL SOCKET FOR
05/18/2018	62673616				Filed	05/18/2019	LOW PROFILE - HIGH STRENGTH RETENTION
07/13/2018	62697467				Filed	07/13/2019	THREADED INSERT AND DOME COVER PLATE
08/02/2018	62/13588				Filed	08/02/2019	BELLEVILLE SPRING WASHER WITH FRICTION
12/05/2005	11/293943	04/28/2009	7525222		Granted	12/24/2026	SENSOR ASSEMBLY AND SENSING SYSTEM FOR
09/03/2009	13/063451	09/24/2013	8541914		Granted	09/03/2029	LIQUID COOLED ELECTRICAL MACHINE
06/19/2013	13/921978	08/25/2015	9118228		Granted	06/19/2033	LIQUID COOLED ELECTRICAL MACHINE
06/19/2013	13/922041	01/21/2014	8633624		Granted	06/19/2033	LIQUID COOLED ELECTRICAL MACHINE
09/16/2009	13/063457	01/31/2017	9559570		Granted	09/16/2029	ELECTRICAL MACHINE
12/18/2013	14/431704				Filed		POSITION SENSING SYSTEM
04/23/2014	14/784755	08/15/2017	9732681		Granted	04/23/2034	GENERATION OF ELECTRICITY FROM EXHAUST
03/07/2000	09/520111	03/19/2002	6357400		Granted	03/07/2020	PISTON SLEEVE
10/16/2000	09/688676	05/11/2004	6732698		Granted	02/28/2022	AUSTEMPERED GRAY IRON CYLINDER LINER
04/10/2001	09829610	03/12/2002	6354259		Granted	04/10/2021	ZYLINDERLAUFBUCHSE
09/18/2001	09/954810	07/08/2003	6588408		Granted	09/18/2021	CYLINDER LINER FOR DIESEL ENGINES WITH
09/18/2001	09/954903	01/21/2003	6508240		Granted	09/18/2021	CYLINDER LINER HAVING EGR COATING
10/10/2002	10/268820	04/20/2004	6722320		Granted	10/10/2022	CYLINDER LINER
03/14/2005	11/079032	06/01/2010	7726273		Granted	05/04/2025	HIGH STRENGTH STEEL CYLINDER LINER FOR
09/13/2005	11/225523	12/12/2006	7146939		Granted	09/13/2025	ANTICAVITATION DIESEL CYLINDER LINER
04/03/2007	11/695638	10/21/2008	7438038		Granted	04/03/2027	CYLINDER LINER AND METHODS
06/22/2007	11/766898	11/17/2009	7617805		Granted	07/24/2027	CYLINDER LINER AND METHOD OF

06/06/2011	13/153897	10/27/2015	9170210	Granted	06/06/2031	TECHNIQUE FOR CYLINDRICAL PART INNER
09/07/2012	13/606286			Filed		CYLINDER LINER WITH A THERMAL BARRIER
06/11/2012	13/493215	12/30/2014	8919318	Granted	06/28/2033	GERMANIUM CONTAINING COATING FOR INNER
04/29/2013	14/419.30	07/10/2018	10017845	Granted	04/29/2033	cylinder surface for internal combustion engine
07/15/2013	14428867	06/26/2018	10006399	Granted	07/15/2033	Multilayer Cylinder Liner with graded peripheral zone
03/13/2013	13/801736	09/19/2017	9765726	Granted	07/06/2035	CYLINDER LINERS WITH ADHESIVE METALLIC
07/16/2014	14/332586	04/19/2016	9316173	Granted	07/16/2034	CYLINDER LINER WITH BONDING LAYER
10/26/2015	14/922657			Filed		CYLINDER LINER WITH BONDING LAYER
03/18/2015	14/661520	10/31/2017	9803583	Granted	11/10/2035	DOUBLE WALL SELF-CONTAINED LINER
03/15/2016	15/071114	01/23/2018	9873928	Granted	03/15/2036	HIGH STRENGTH CAST IRON FOR CYLINDER
11/20/2000	09715006	12/17/2002	6494459	Granted	11/20/2020	GLEITRINGDICHTUNG
01/23/2002	10/052443	12/20/2005	6976681	Granted	01/23/2022	LAUFWERKDICHTUNG WINKELFOERMIG MIT
02/08/2006	11/817752	11/27/2012	8317942	Granted	02/08/2026	Werkstoff für verschleißfesteren und
12/02/2010	13/516323	12/19/2017	9845887	Granted	12/02/2030	High-load face-seal - Hochbelastbare
01/20/2012	14/000304	04/05/2016	9302378	Granted	01/20/2032	assembly instruction Dinro seals
02/29/2012	14/003982	08/02/2016	9404583	Granted	02/29/2032	notch for face-seals
01/20/2012	13/984989	02/21/2017	9574665	Granted	01/20/2032	elastomeric design for high external pressure of face
07/03/2014	15026037			Filed		Face seals with molten functional group
08/07/2000	09/633432	02/12/2002	6345427	Granted	07/30/2019	APPARATUS AND METHOD FOR RE-SHAPING
11/15/2006	12/094829	07/10/2012	8215461	Granted	11/15/2026	BACKPLATE FOR DISC BRAKE PADS
05/02/2012	13/462441			Filed		BACKPLATE FOR DISC BRAKE PADS
08/01/2007	29/282913	03/20/2009	D588969 S	Granted	03/20/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282909	03/24/2009	D589419 S	Granted	03/24/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282911	03/24/2009	D588968 S	Granted	03/24/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282918	03/24/2009	D588970 S	Granted	03/24/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282920	03/24/2009	D588971 S	Granted	03/24/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282921	03/24/2009	D588972 S	Granted	03/24/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282922	03/24/2009	D588973 S	Granted	03/24/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282924	03/24/2009	D588974 S	Granted	03/24/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282917	04/14/2009	D590310 S	Granted	04/14/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282914	07/14/2009	D596092 S	Granted	07/14/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282915	07/14/2009	D596093 S	Granted	07/14/2023	BRAKE FRICTION PAD [design]
08/01/2007	29/282904	07/21/2009	D596544 S	Granted	07/21/2023	BRAKE FRICTION PAD [design]
08/01/2008	12/184455	04/10/2012	8151433	Granted	12/25/2030	METHOD OF MAKING DISC BRAKE PADS
08/01/2008	12/184606	08/13/2013	8505698	Granted	01/27/2031	BRAKE PAD



03/15/2012	13/421218	03/15/2014	8689421	Granted	07/26/2032	UNIQUE DISC PAD SHAPE (CENTER NOTCH
02/16/2009	29/332368	08/11/2009	D597905 S	Granted	08/11/2023	BRAKE FRICTION PAD [design]
02/13/2009	29/332352	08/11/2009	D597902 S	Granted	08/11/2023	BRAKE FRICTION PAD [design]
02/13/2009	29/332349	08/11/2009	D597901 S	Granted	08/11/2023	BRAKE FRICTION PAD [design]
02/13/2009	29/332359	08/11/2009	D597903 S	Granted	08/11/2023	BRAKE FRICTION PAD [design]
02/13/2009	29/332361	08/11/2009	D597904	Granted	08/11/2023	BRAKE FRICTION PAD [design]
02/13/2009	29/332369	08/11/2009	D597906 S	Granted	08/11/2023	BRAKE FRICTION PAD [design]
02/13/2009	29/332370	08/11/2009	D597907 S	Granted	08/11/2023	BRAKE FRICTION PAD [design]
02/12/2009	29/332273	08/11/2009	D597900 S	Granted	08/11/2023	BRAKE FRICTION PAD [design]
02/13/2009	29/332365	08/18/2009	D598343 S	Granted	08/18/2023	BRAKE FRICTION PAD [design]
02/13/2009	29/332367	08/18/2009	D598344 S	Granted	08/18/2023	BRAKE FRICTION PAD [design]
02/13/2009	29/332354	08/18/2009	D598342 S	Granted	08/18/2023	BRAKE FRICTION PAD [design]
02/13/2009	29/332363	09/08/2009	D599723 S	Granted	09/08/2023	BRAKE FRICTION PAD [design]
04/29/2009	29/336118	10/27/2009	D602824	Granted	10/27/2023	BRAKE FRICTION PAD [design]
04/29/2009	29/336142	10/27/2009	D602825	Granted	10/27/2023	BRAKE FRICTION PAD [design]
04/30/2009	29/336248	10/27/2009	D602827	Granted	10/27/2023	BRAKE FRICTION PAD [design]
04/30/2009	29/336246	10/27/2009	D602826	Granted	10/27/2023	BRAKE FRICTION PAD [design]
04/29/2009	29/336147	11/10/2009	D603768	Granted	11/10/2023	BRAKE FRICTION PAD [design]
04/30/2009	29/336264	11/10/2009	D603771	Granted	11/10/2023	BRAKE FRICTION PAD [design]
04/30/2009	29/336252	11/10/2009	D603769	Granted	11/10/2023	BRAKE FRICTION PAD [design]
04/30/2009	29/336253	11/10/2009	D603770	Granted	11/10/2023	BRAKE FRICTION PAD [design]
04/30/2009	29/336271	11/17/2009	D604215	Granted	11/17/2023	BRAKE FRICTION PAD [design]
04/30/2009	29/336247	11/17/2009	D604213	Granted	11/17/2023	BRAKE FRICTION PAD [design]
04/30/2009	29/336256	11/17/2009	D604214	Granted	11/17/2023	BRAKE FRICTION PAD [design]
04/29/2009	29/336172	01/26/2010	D608704	Granted	01/26/2024	BRAKE FRICTION PAD [design]
07/31/2009	29/341136	01/26/2010	D608707	Granted	01/26/2024	BRAKE FRICTION PAD [design]
08/06/2009	29/341489	01/26/2010	D608708	Granted	01/26/2024	BRAKE FRICTION PAD [design]
06/30/2009	29/339403	01/26/2010	D608705	Granted	01/26/2024	BRAKE FRICTION PAD [design]
07/31/2009	29/341142	02/23/2010	D610508	Granted	02/23/2024	BRAKE FRICTION PAD [design]
08/06/2009	29/341483	02/23/2010	D610509	Granted	02/23/2024	BRAKE FRICTION PAD [design]
08/06/2009	29/341493	02/23/2010	D610510	Granted	02/23/2024	BRAKE FRICTION PAD [design]
07/30/2009	29/341096	03/10/2010	D612780	Granted	03/10/2024	BRAKE FRICTION PAD [design]
09/22/2009	29/343963	04/27/2010	D614553	Granted	04/27/2024	BRAKE FRICTION PAD [design]
09/21/2009	29/343849	04/27/2010	D614551	Granted	04/27/2024	BRAKE FRICTION PAD [design]
09/21/2009	29/343876	04/27/2010	D614552	Granted	04/27/2024	BRAKE FRICTION PAD [design]

11/17/2009	29/350449	05/04/2010	D615010	Granted	05/04/2024	BRAKE FRICTION PAD [design]
09/22/2009	29/343977	06/08/2010	D617241	Granted	06/08/2024	BRAKE FRICTION PAD [design]
11/20/2009	29/350624	06/29/2010	D618601	Granted	06/29/2024	BRAKE FRICTION PAD [design]
03/08/2010	29/357126	05/22/2012	D660206	Granted	05/22/2026	BRAKE FRICTION PAD [design]
03/26/2010	29/358424	10/26/2010	D626043	Granted	10/26/2024	BRAKE FRICTION PAD [design]
04/10/2012	29/417882	10/30/2012	D669828 S	Granted	10/30/2026	BRAKE FRICTION PAD [design]
08/18/2011	13/212445	10/21/2014	8863917	Granted	11/27/2028	FRICTION MATERIAL FOR BRAKES
10/03/2008	12/245253	05/08/2012	8172051	Granted	01/06/2031	COPPER FREE NAO BRAKE PAD FORMULATIONS
09/26/2012	13/627120	03/10/2015	8974725	Granted	05/14/2033	IMPROVED FRICTION MATERIAL TOOLING
11/30/2011	13/307563	06/03/2014	8739947	Granted	04/23/2032	BRAKE LINING FOR A DRUM BRAKE ASSEMBLY
06/12/2015	14/737885	05/23/2017	9657797	Granted	06/12/2035	DISC BRAKE PAD FOR A VEHICLE
10/20/2014	15030915			Filed		TRAGER MIT FASE IM TILGERLOCH
10/20/2014	15030921			Filed		BEFESTIGUNG VON TILGERMASSE
06/02/2016	15/579,679			Filed		spring system for reaming of flexible brake lining
04/27/2016	15580102			Filed		assembly of friction elements at brake pad
12/14/2016	15/378961			Filed		FRICTION LINING AND BRAKE PAD FOR A
09/01/2015	29/538117	04/18/2017	D784222	Granted	04/18/2032	DISC PAD DESIGN (Part No. OEX785)
09/01/2015	29/538136	04/25/2017	D784876	Granted	04/25/2032	DISC PAD DESIGN (Part No. OEX1324)
09/01/2015	29/538126	04/25/2017	D784874	Granted	04/25/2032	DISC PAD DESIGN (Part No. OEX1210)
09/01/2015	29/538133	04/25/2017	D784875	Granted	04/25/2032	DISC PAD DESIGN (Part No. OEX1327)
09/01/2015	29/538121	05/02/2017	D785518	Granted	05/02/2032	DISC PAD DESIGN (Part No. OEX1084)
09/01/2015	29/538129	05/02/2017	D785519	Granted	05/02/2032	DISC PAD DESIGN (Part No. OEX1414)
09/01/2015	29/538120	05/16/2017	D786751	Granted	05/16/2032	DISC PAD DESIGN (Part No. OEX1363)
09/01/2015	29/538122	05/16/2017	D786752	Granted	05/16/2032	DISC PAD DESIGN (Part No. OEX976)
09/01/2015	29/538135	05/23/2017	D787393	Granted	05/23/2032	DISC PAD DESIGN (Part No. OEX1508)
09/01/2015	29/538130	05/25/2017	D787392	Granted	05/25/2032	DISC PAD DESIGN (Part No. OEX1421)
06/25/2018	16/017975			Filed		IMPROVED BRAKE PAD DESIGN TO AID COOLING
04/06/2018	62/653679			Filed	04/06/2019	FRICTION RETENTION PLATE
05/16/2018	62/672323			Filed	05/16/2019	STEEL BACKPLATE METAL ADHESION LAYER
11/23/1998	09/198297	02/06/2001	6182630	Granted	11/23/2018	BOLTED ARTICULATED PISTON
10/16/2000	09/688677	05/06/2003	6557457	Granted	04/05/2021	BUSHINGLESS PISTON AND CONNECTING ROD
10/06/2000	09/684127	11/12/2002	6477941	Granted	10/06/2020	DUAL GALLERY PISTON
08/12/2002	10/217854	11/25/2003	6651549	Granted	10/06/2020	DUAL GALLERY PISTON
12/27/2000	09/749705	07/08/2003	6588320	Granted	12/27/2020	PISTON HAVING UNCOUPLED SKIRT
10/17/2001	09/981414	01/11/2005	6840155	Granted	10/17/2021	MULTI-AXIALLY FORGED PISTON

07/27/2004	10/899959	01/18/2011	7870669	Granted	10/17/2021	MULTI-AXIALLY FORGED PISTON
08/24/2001	09/939195	03/04/2003	6526871	Granted	08/24/2021	MONOBLOC PISTON FOR DIESEL ENGINES
09/18/2001	09/954842	08/19/2003	6606983	Granted	09/18/2021	FERRROUS PISTONS FOR DIESEL ENGINES
05/21/2003	10/442472	02/13/2007	7175752	Granted	01/26/2024	METHOD AND APPARATUS FOR
10/30/2006	11/554198	12/14/2010	7850831	Granted	03/06/2026	METHOD AND APPARATUS FOR
09/19/2001	09/957703	12/10/2002	6491013	Granted	09/19/2021	CLOSED GALLERY PISTON HAVING REINFORCED
09/19/2001	09/957704	04/01/2003	6539910	Granted	09/19/2021	CLOSED GALLERY PISTON HAVING CON ROD
09/19/2001	09/957716	02/04/2003	6513477	Granted	09/19/2021	CLOSED GALLERY PISTON HAVING PIN BORE
09/24/2002	10/253785	03/08/2005	6862976	Granted	09/24/2022	MONOBLOC PISTON
02/03/2004	10/770930	04/11/2006	7024981	Granted	04/03/2024	WRIST PIN
11/04/2003	10/701274	11/30/2004	6825450	Granted	11/04/2023	PISTON AND METHOD OF MANUFACTURE
12/12/2003	10/735798	02/28/2006	7005620	Granted	12/01/2023	PISTON AND METHOD OF MANUFACTURE
11/04/2003	10/700657	01/31/2006	6990890	Granted	11/04/2023	MONOBLOC PISTON HAVING OPEN FLOOR
09/28/2005	11/237463	12/05/2006	7143685	Granted	11/04/2023	MONOBLOC PISTON HAVING OPEN FLOOR
09/24/2002	10/253786	05/06/2003	6557514	Granted	09/24/2022	CLOSED GALLERY MONOBLOC PISTON HAVING
05/10/2006	11/431297	12/02/2008	7458358	Granted	05/30/2026	THERMAL OXIDATION PROTECTIVE SURFACE
07/20/2005	11/185413	08/05/2008	7406941	Granted	08/26/2025	ONE PIECE CAST STEEL MONOBLOC PISTON
05/23/2006	11/439353	06/10/2008	7383807	Granted	08/11/2026	COATED POWER CYLINDER COMPONENTS FOR
07/26/2006	12/092185	11/15/2011	8057644	Granted	06/27/2028	PROCESS AND APPARATUS FOR PLATING
04/04/2007	11/696278	10/20/2009	7603944	Granted	12/18/2027	PISTON ASSEMBLY AND WRIST PIN THEREFOR
12/09/2008	12/330932	09/24/2013	8539928	Granted	01/01/2031	PISTON ASSEMBLY AND CONNECTING ROD
08/08/2007	11/835489	01/19/2010	7647911	Granted	08/29/2027	SMALL END CON ROD GUIDANCE PISTON
07/03/2007	11/772869	06/10/2008	7383808	Granted	07/03/2027	ARTICULATED PISTON SKIRT
10/02/2008	12/244355	01/24/2012	8100048	Granted	05/13/2030	PINLESS PISTON AND CONNECTING ROD
06/13/2008	12/138660	09/20/2011	8020530	Granted	03/10/2030	Joint w/Volvo Lubrizol MIT aka Wavy Spiral Topland
10/27/2009	29/346124	09/28/2011	D645883	Granted	09/28/2025	PISTON LOWER CROWN
08/12/2008	12/190256	10/25/2011	8042453	Granted	03/15/2030	[MONOBLOC] PISTON WITH A SKIRT HAVING OIL
11/13/2009	12/617772	07/02/2013	8474366	Granted	01/18/2031	MONOBLOC PISTON WITH A SKIRT HAVING OIL
02/26/2010	12/713814	12/31/2013	8616114	Granted	11/02/2032	PISTON WITH CENTRAL DIRECTIONAL OIL FLOW
04/12/2016	15/096377	03/13/2018	9915223	Granted	12/23/2029	PISTON, METHOD OF CONSTRUCTION, AND
12/23/2009	12/646227	12/11/2012	8327537	Granted	04/29/2031	REINFORCED DUAL GALLERY PISTON AND
11/14/2012	13/677022	05/10/2016	9334957	Granted	05/28/2031	PISTON, METHOD OF CONSTRUCTION, AND
05/04/2009	12/434713	11/29/2011	8065985	Granted	06/08/2030	FLANGE FOR PISTON COOLING
04/09/2010	12/757391	04/30/2013	8430070	Granted	06/17/2031	AUXILIAR COOLING JET FOR PISTON
08/29/2013	14/013349	10/28/2014	8869768	Granted	08/04/2031	PISTON INCLUDING A PAIR OF COOLING

08/04/2011	13/197813	10/01/2013	8544441	Granted	12/07/2031	PISTON INCLUDING A PAIR OF COOLING
10/01/2010	12/896202	08/19/2014	8807109	Granted	12/27/2032	STEEL PISTON WITH COOLING GALLERY AND
05/20/2011	13/112772	05/15/2018	9970384	Granted	08/27/2033	STEEL PISTON WITH COOLING GALLERY AND
08/14/2014	14/459929			Filed		STEEL PISTON WITH COOLING GALLERY AND
08/27/2010	12/869906	03/06/2018	9909526	Granted	08/22/2032	MONOBLOC PISTON WITH A LOW FRICTION
08/06/2010	12/851654	10/21/2014	8863718	Granted	02/23/2031	LOW THERMAL CONDUCTIVITY PISTON AND
11/10/2010	12/943283	01/28/2014	8635943	Granted	10/07/2032	PISTON WITH BLOW-BY FEATURE AND METHOD
10/31/2012	13/664778	10/21/2014	8863720	Granted	10/31/2032	COATED PISTON AND A METHOD OF MAKING A
11/04/2013	14/070839	09/08/2015	9127619	Granted	11/13/2033	PISTON WITH A COOLING GALLERY PARTIALLY
02/10/2012	13/370609	02/17/2015	8955486	Granted	11/06/2032	PISTON WITH ENHANCED COOLING GALLERY
02/10/2012	13/370744	02/17/2015	8955487	Granted	12/13/2032	PISTON AND COOLED PISTON RING THEREFOR
02/10/2012	13/370645			Filed		PISTON WITH ENHANCED COOLING GALLERY
02/10/2012	13/370695	03/04/2014	8662026	Granted	08/26/2032	PISTON WITH SUPPLEMENTAL COOLING
01/09/2012	13/345851	08/11/2015	9103441	Granted	02/10/2034	NOVEL PISTON PIN FOR HEAT DISSIPATION
04/13/2012	13/446683	04/11/2017	9616529	Granted	07/08/2034	PISTON AND METHOD OF MAKING A PISTON
11/23/2016	15/360060			Filed		PISTON AND METHOD OF MAKING A PISTON
07/19/2013	13/946866	06/23/2015	9062768	Granted	09/11/2033	PISTON WITH OIL COOLING PASSAGE AND
11/28/2011	13/304895	10/27/2015	9169800	Granted	11/28/2031	PISTON WITH ANTI-CARBON DEPOSIT COATING
03/05/2013	13/786156	10/20/2015	9163579	Granted	01/04/2032	PISTON WITH ANTI-CARBON DEPOSIT COATING
05/20/2011	29/392404	09/16/2014	D713422	Granted	09/16/2028	Piston (design) See also CIP case 50141
12/07/2012	13/708656	06/30/2015	9068531	Granted	04/05/2033	ONE-PIECE PISTON WITH IMPROVED
02/20/2013	13/772022	04/14/2015	9004037	Granted	02/20/2033	PISTON ASSEMBLY FOR INTERNAL
08/04/2015	14/817385			Filed	09/27/2033	REDUCED COMPRESSION HEIGHT PISTON AND
09/27/2013	14/040259	09/08/2015	9127618	Granted	09/27/2033	REDUCED COMPRESSION HEIGHT PISTON AND
08/30/2018	16/117263			Filed		REDUCED COMPRESSION HEIGHT PISTON AND
10/09/2013	14/049622	09/08/2015	9127616	Granted	10/09/2033	PISTON ASSEMBLY AND METHOD OF MAKING A
03/18/2016	15/073988	06/13/2017	9677500	Granted	09/18/2033	STEEL PISTON WITH COUNTERBORE DESIGN
09/18/2013	14/030530	03/22/2016	9291120	Granted	10/21/2033	STEEL PISTON WITH COUNTERBORE DESIGN
01/21/2014	14/159729			Filed		PISTON AND METHOD OF MAKING A PISTON
04/12/2016	15/096498	08/22/2017	9739234	Granted	02/18/2033	COMPLEX SHAPED FORGED PISTON OIL
02/18/2013	13/769751	05/10/2016	9334958	Granted	10/08/2033	COMPLEX SHAPED FORGED PISTON OIL
02/17/2014	14/182165	01/26/2016	9243582	Granted	02/17/2034	COMPLEX SHAPED PISTON OIL GALLERIES WITH
12/14/2015	14/968415	05/16/2017	9650988	Granted	02/17/2034	PISTONS WITH COMPLEX SHAPED PISTON
05/15/2017	15/594964			Filed		PISTONS WITH COMPLEX SHAPED PISTON
03/23/2016	15/078813			Filed		COMPLEX SHAPED FORGED PISTON OIL

08/28/2014	14/471069	07/11/2017	9702317	Granted	08/28/2034	DOUBLE WELDED STEEL PISTON WITH FULL
09/16/2014	14/487498	04/05/2016	9303584	Granted	09/16/2034	PINLESS PISTON WITH GALLERY
04/04/2014	14/245138			Filed		PISTON MADE USING ADDITIVE
04/09/2015	14/682649			Filed		DESIGN OF ZERO OIL COOLED (ZOC) PISTON
07/16/2014	29/496734	10/04/2016	D768207	Granted	10/04/2030	PISTON [CIP of 420891]
11/07/2014	14/535839	02/08/2018	9869268	Granted	06/21/2035	MONOLITHIC, GALLERYLESS PISTON AND
08/23/2018	16/110874			Filed		MONOLITHIC, GALLERYLESS PISTON AND
11/13/2015	14/940416			Filed		MONOLITHIC, GALLERYLESS PISTON AND
01/06/2016	14/988885			Filed		MONOLITHIC, GALLERYLESS PISTON AND
07/21/2017	15/657018			Filed		MONOLITHIC, GALLERYLESS PISTON AND
03/02/2015	14/655348	09/19/2017	9765727	Granted	06/25/2035	ONE PIECE PISTON FEATURING ADDITIVE
02/01/2016	15/011784			Filed		PISTON WITH COOLING GALLERY COOLING
04/30/2015	14/700654	04/24/2018	9951714	Granted	06/30/2035	STEEL PISTON WITH FILLED GALLERY
05/23/2014	14/286328			Filed		PISTON WITH KEYSTONE SECOND RING
10/30/2015	14/928870			Filed		PISTON, OIL CONTROL RING THEREFOR AND
02/01/2016	15/011852			Filed		PISTON WITH SEALED COOLING GALLERY AND
12/18/2015	14/975451	06/10/2018	10018148	Granted	06/28/2036	PISTON WITH COOLING GALLERY HAVING
12/28/2015	14/981319			Filed		REDUCED COMPRESSION HEIGHT DUAL
03/22/2016	15/077168			Filed		Robust, Lightweight, Low Compression Height Piston
01/25/2017	15/414954			Filed		PISTON WITH ANTI COKING DESIGN FEATURES
04/19/2016	15/132924			Filed		PISTON WITH COMPLEX SHAPED COMBUSTION
01/23/2017	15/412457			Filed		PISTON WITH COOLING GALLERY RADIATOR
11/11/2016	15/349820			Filed		ISOBARIC PISTON ASSEMBLY
04/05/2017	15/480066			Filed		PISTON WITH THERMALLY INSULATING INSERT
09/27/2016	15/277443			Filed		PISTON RING BELT STRUCTURAL
12/23/2016	15/389862			Filed		PISTON INCLUDING A COMPOSITE LAYER
11/30/2016	15/364616			Filed		PISTON WITH SEALED COOLING GALLERY
11/15/2016	15/352418			Filed		CONCEPT TO REDUCE HEAT LOSS TO PISTON
05/18/2017	15/598564			Filed		PISTON HAVING AN UNDERCROWN SURFACE
02/24/2017	15/441659			Filed		GALLERYLESS PISTON WITH CONNECTION TO
02/28/2017	15/445317			Filed		GALLERYLESS PISTON WITH SLOTTED RING
02/21/2017	15/437631			Filed		GALLERYLESS PISTON WITH IMPROVED
03/02/2017	15/448522			Filed		GALLERYLESS PISTON WITH OIL DRAIN
03/02/2017	15/448421			Filed		GALLERYLESS PISTON WITH CUTOUT ABOVE
04/20/2017	15/493025			Filed		PISTON WITH ASYMMETRIC UPPER

01/25/2018	15/880359				Filed		STEEL PISTON WITH METALLURGICALLY
02/20/2017	15/436966				Filed		INSULATION LAYER ON STEEL PISTONS
03/14/2017	15/458495	06/10/2018	10018146	Granted	03/14/2037		PISTON WITH ADVANCED CATALYTIC ENERGY
01/09/2018	15/866121			Filed			GALLERYLESS SHORT COMPRESSION
04/27/2018	29/645655			Filed			DESIGN PATENT IDEA FOR APPEARANCE OF
04/27/2018	29/645668			Filed			DESIGN PATENT IDEA FOR APPEARANCE OF
04/27/2018	29/645685			Filed			DESIGN PATENT IDEA FOR APPEARANCE OF
04/27/2018	29/645694			Filed			DESIGN PATENT IDEA FOR APPEARANCE OF
05/01/2018	29/645698			Filed			DESIGN PATENT IDEA FOR APPEARANCE OF
05/01/2018	29/645715			Filed			DESIGN PATENT IDEA FOR APPEARANCE OF
10/27/2017	62/578105			Filed	10/27/2018		STEEL PISTON CROWN AND/OR COMBUSTION
12/20/2017	15/848763			Filed			STEEL PISTON CROWN AND/OR COMBUSTION
04/05/2018	15/936285			Filed			COMBUSTION ENGINE COMPONENTS WITH
04/26/2018	15/963838			Filed			PISTON WITH OPTIMIZED OIL RING NEGATION
02/21/2018	15/901783			Filed			COATING TO REDUCE COKING DEPOSITS ON
03/30/2018	15/942359			Filed			LUBRICATION FEATURE FOR TWO STROKE
05/15/2018	15/980595			Filed			DUAL GALLERY STEEL PISTON
02/28/2018	62/636423			Filed	02/28/2019		DUAL GALLERY TWO STROKE PISTON
06/26/2018	62/68970			Filed	06/26/2019		METHOD TO DETERMINE CRANK ANGLE FROM
06/19/2018	62/686811			Filed	06/19/2019		PIEZOCERAMIC GENERATOR FOR PISTON
07/10/2018	62/696259			Filed	07/10/2019		LINEAR INDUCTION GENERATOR FOR
06/26/2018	62/690156			Filed	06/26/2019		ROTATIONAL INDUCTION GENERATOR FOR
07/24/2018	62/702880			Filed	06/26/2019		ROTATIONAL INDUCTION GENERATOR FOR
10/05/2009	12/573380	02/05/2013	8365710	Granted	05/07/2031		IGNITOR FOR AIR/FUEL MIXTURE AND ENGINE
01/12/2010	12/686251	05/07/2013	8434443	Granted	01/12/2030		IGNITOR SYSTEM FOR IGNITING FUEL
03/07/2012	13/414129	07/02/2013	8474428	Granted	01/12/2030		FLEXIBLE IGNITER ASSEMBLY FOR AIR/FUEL
01/12/2010	12/685825	04/10/2012	8151781	Granted	10/11/2030		CORONA IGNITOR MADE IN TWO PIECES
10/28/2011	13/283666	05/20/2014	8729782	Granted	05/06/2032		NON-THERMAL PLASMA IGNITION ARC
03/15/2013	13/842803	08/09/2016	9413314	Granted	10/09/2031		CORONA IGNITION WITH SELF-TUNING POWER
05/10/2010	12/777105	11/12/2013	8578902	Granted	07/06/2032		CORONA IGNITION WITH SELF-TUNING POWER
08/08/2016	15/230927			Filed			CORONA IGNITION WITH SELF-TUNING POWER
01/13/2012	13/350456	09/30/2014	8844490	Granted	09/09/2032		CORONA IGNITOR PRODUCING CORONA
05/04/2010	12/773608	06/18/2013	8464679	Granted	10/09/2031		CORONA TIP INSULATOR
04/13/2011	13/085991	07/15/2014	8776751	Granted	12/04/2032		IGNITER INCLUDING A CORONA ENHANCING
11/13/2014	14/540861	08/08/2017	9728941	Granted	01/10/2032		IGNITER ASSEMBLY INCLUDING ARCING

05/26/2011	13/116269	11/18/2014	8890397	Granted	01/30/2033	IGNITER ASSEMBLY INCLUDING ARCING
08/07/2017	15/670312			Filed		IGNITER ASSEMBLY INCLUDING ARCING
12/14/2011	13/325433			Filed		CORONA IGNITER WITH IMPROVED CORONA
01/14/2011	13/006555	09/23/2014	8839752	Granted	07/04/2033	CORONA IGNITER WITH MAGNETIC SCREENING
08/31/2011	13/222616	06/10/2014	8749945	Granted	08/31/2031	ELECTRICAL ARRANGEMENT OF HYBRID
12/29/2011	13/339737	09/23/2014	8839753	Granted	12/12/2032	CORONA IGNITER HAVING IMPROVED GAP
12/14/2011	13/325362	05/26/2015	9041273	Granted	01/22/2033	CORONA IGNITER HAVING SHAPED INSULATOR
12/15/2011	13/326897	01/28/2014	8638540	Granted	07/25/2032	CORONA IGNITER INCLUDING IGNITION COIL
12/13/2011	13/324069	08/11/2015	9103313	Granted	02/18/2034	CORONA IGNITION DEVICE HAVING
05/07/2014	14/271817	10/28/2014	8869766	Granted	01/13/2032	CORONA IGNITION SYSTEM HAVING SELECTIVE
01/13/2012	13/349921	05/20/2014	8726871	Granted	11/08/2032	CORONA IGNITION SYSTEM HAVING SELECTIVE
02/22/2011	29/385899	11/06/2012	D670246 S	Granted	11/06/2026	KEEP THIS PATENT - IGNITER [design]
04/03/2012	13/438116	11/10/2015	9181920	Granted	06/28/2033	SYSTEM AND METHOD FOR DETECTING ARC
04/03/2012	13/438127	06/24/2014	8760067	Granted	06/22/2032	SYSTEM AND METHOD FOR CONTROLLING ARC
06/27/2012	13/534251	06/10/2014	8749126	Granted	07/12/2032	CORONA IGNITER ASSEMBLY INCLUDING
08/20/2012	13/589617	04/21/2015	9010294	Granted	06/21/2033	CORONA IGNITER INCLUDING TEMPERATURE
03/14/2013	13/829405	05/12/2015	9030086	Granted	03/14/2033	SHRINK FIT CERAMIC CENTER ELECTRODE
05/11/2015	14/709094	11/22/2016	9502865	Granted	03/14/2033	SHRINK FIT CERAMIC CENTER ELECTRODE
11/16/2016	15/355516			Filed		SHRINK FIT CERAMIC CENTER ELECTRODE
08/18/2016	15/240502	08/21/2018	10056737	Granted	04/06/2032	CORONA IGNITION DEVICE WITH IMPROVED
08/10/2016	15/240652	08/21/2018	10056738	Granted	04/05/2033	CORONA IGNITION DEVICE WITH IMPROVED
06/17/2015	14/742064	05/15/2018	9970408	Granted	11/15/2033	CORONA IGNITION DEVICE WITH IMPROVED
03/15/2013	13/843336	07/21/2015	9088136	Granted	02/07/2034	CORONA IGNITION DEVICE WITH IMPROVED
07/20/2018	16/041209			Filed		CORONA IGNITION DEVICE WITH IMPROVED
12/23/2013	14/138249	04/19/2016	9318881	Granted	08/09/2033	INTER-EVENT CONTROL STRATEGY FOR
04/11/2016	15/095436	07/18/2017	9709018	Granted	12/23/2033	INTER-EVENT CONTROL STRATEGY FOR
07/17/2017	15/651562	05/29/2018	9982649	Granted	12/23/2033	INTER-EVENT CONTROL STRATEGY FOR
10/06/2016	15/286947	04/17/2018	9945345	Granted	12/24/2033	INTRA-EVENT CONTROL STRATEGY FOR
12/23/2013	14/138228	10/11/2016	9466953	Granted	09/29/2034	INTRA-EVENT CONTROL STRATEGY FOR
03/15/2014	14/215540	04/17/2018	9945347	Granted	03/21/2035	WEAR PROTECTION FEATURES FOR CORONA
05/17/2017	15/595142	07/24/2018	10033162	Granted	03/15/2034	HIGH VOLTAGE CONNECTION SEALING METHOD
03/15/2014	14/215375	05/16/2017	9653885	Granted	07/22/2035	HIGH VOLTAGE CONNECTION SEALING METHOD
06/27/2018	16/019901			Filed		HIGH VOLTAGE CONNECTION SEALING METHOD
05/05/2014	14/269448			Filed		CORONA IGNITION WITH HERMETIC
12/12/2014	14/568219			Filed		FLEXIBLE CONTROL SYSTEM FOR CORONA

12/12/2014	14/568438	07/25/2017	9716371	Granted	01/10/2036	NON-INVASIVE METHOD FOR RESONANT
12/12/2014	14/568266	11/28/2017	9831639	Granted	12/12/2034	CONCURRENT METHOD FOR RESONANT
08/06/2014	14/452802	06/09/2015	9054502	Granted	08/06/2034	CERAMIC FOR IGNITION DEVICE INSULATOR
06/18/2014	14/307796	12/20/2016	9525274	Granted	01/08/2035	DISTRIBUTION OF CORONA IGNITER POWER
08/10/2015	14/822073	09/05/2017	9751797	Granted	08/10/2035	CORONA IGNITION DEVICE WITH IMPROVED
08/01/2016	15/225341	06/20/2017	9685767	Granted	08/10/2035	CORONA IGNITION DEVICE WITH IMPROVED
08/10/2015	14/822159	08/02/2016	9407069	Granted	08/10/2035	SPARK PLUG WITH IMPROVED SEAL
08/01/2016	15/225216	02/13/2018	9893495	Granted	08/10/2035	SPARK PLUG WITH IMPROVED SEAL [related to
03/22/2016	15/077475	06/26/2018	10008831	Granted	03/22/2036	CORONA SUPPRESSION AT MATERIALS
03/22/2016	15/077615	09/05/2017	9755405	Granted	03/22/2036	CORONA SUPPRESSION AT THE HIGH VOLTAGE
12/12/2014	14/568330	06/05/2018	9991681	Granted	12/12/2034	RELAY-MODE METHOD TO DRIVE CORONA
09/21/2016	15/271874	04/10/2018	9941671	Granted	09/21/2036	AIR-FREE CAP END DESIGN FOR CORONA
04/09/2018	15/948238			Filed		AIR-FREE CAP END DESIGN FOR CORONA
01/19/2017	15/409694			Filed		CORONA IGNITER WITH HERMETIC
03/15/2017	15/459753			Filed		ADVANCED IGNITION COIL WIRES
03/26/2018	15/935540			Filed		IGNITOR ASSEMBLY WITH IMPROVED
04/10/2018	15/949296			Filed		IGNITER ASSEMBLY, INSULATOR THEREFOR
01/04/2018	62/613518			Filed	01/04/2019	SHAPED COLLET FOR ELECTRICAL STRESS
08/27/2018	16/113177			Filed		CORONA IGNITER FIRING END ELECTRODE TIP
10/20/1998	09/175437	10/17/2000	6132277	Granted	10/20/2018	APPLICATION OF PRECIOUS METAL TO SPARK
07/27/2000	09/626759	07/02/2002	6412465	Granted	07/27/2020	IGNITION DEVICE HAVING A FIRING TIP FORMED
09/15/2002	10/486962	01/29/2008	7323810	Granted	06/28/2023	A SPARK PLUG FOR AN INTERNAL COMBUSTION
03/10/2009	12/401120	09/14/2010	RE41672E	Granted	11/05/2022	SPARK PLUG
11/08/2005	11/164042	07/07/2009	7557495	Granted	03/31/2027	LASER CAPPING WELD REINFORCEMENT OF
11/09/2004	10/984135	01/30/2007	7169723	Granted	11/09/2024	CERAMIC WITH IMPROVED HIGH-TEMPERATURE
12/18/2006	11/611946	09/21/2010	7799717	Granted	11/09/2024	SPARK PLUG HAVING A CERAMIC WITH
10/20/2004	10/969492	10/28/2008	7443088	Granted	02/28/2027	COAXIAL TWIN-SPARK PLUG
04/19/2005	11/587653	08/17/2010	7775187	Granted	04/19/2025	FMSIEMENS - A GLOW PLUG HEAD EQUIPPED
09/07/2012	13/607224	11/08/2016	9490609	Granted	02/12/2027	METALLIC INSULATOR COATING FOR HIGH
02/12/2007	11/673815	10/02/2012	8278808	Granted	11/08/2028	METALLIC INSULATOR COATING FOR HIGH
09/21/2009	12/563625	12/20/2011	8079136	Granted	06/12/2030	METHOD FOR FORMING LAYERED HEATING
06/16/2006	11/454995	10/28/2008	7443089	Granted	05/02/2027	SPARK PLUG WITH TAPERED FIRED-IN
06/19/2007	11/765179	10/05/2010	7808165	Granted	05/01/2028	SPARK PLUG WITH FINE WIRE GROUND
11/20/2006	11/602146	04/21/2009	7521850	Granted	11/20/2026	SPARK PLUG WITH MULTI-LAYER FIRING TIP
11/20/2006	11/602169	03/02/2010	7671521	Granted	11/20/2026	SPARK PLUG WITH MULTI-LAYER ELECTRODE



11/20/2006	11/602028	09/01/2009	7581304	Granted	02/11/2027	METHOD OF FORMING A SPARK PLUG WITH
03/25/2009	12/410847	05/24/2011	7948159	Granted	02/27/2027	SPARK PLUG WITH MULTI-LAYER FIRING TIP
09/06/2006	11/516920	08/03/2010	7768183	Granted	08/22/2027	EXTENSION SPARK PLUG
08/08/2006	11/500850	12/14/2010	7851984	Granted	09/02/2026	IGNITION DEVICE HAVING A REFLOWED FIRING
06/18/2007	11/764528	11/02/2010	7823556	Granted	06/18/2027	ELECTRODE MATERIAL FOR SPARK PLUGS AND
09/25/2006	11/534718	04/21/2009	7521849	Granted	04/25/2027	SPARK PLUG WITH WELDED SLEEVE ON
08/03/2007	11/833810	09/14/2010	7795791	Granted	08/03/2027	ONE-PIECE SHELL, HIGH THREAD SPARK PLUG
06/19/2007	11/765060	03/24/2009	7508121	Granted	06/19/2027	SMALL BORE DIAMETER AND/OR RATIO
06/19/2007	11/765032	09/15/2009	7589460	Granted	06/19/2027	SMALL DIAMETER/LONG REACH SPARK PLUG
06/19/2007	11/765051	08/11/2009	7573185	Granted	10/06/2027	SMALL DIAMETER/LONG REACH SPARK PLUG
01/12/2009	12/351240	05/04/2010	7707985	Granted	06/18/2027	ELECTRODE FOR AN IGNITION DEVICE
03/17/2010	12/726048	01/11/2011	7866294	Granted	01/12/2029	ELECTRODE FOR AN IGNITION DEVICE
04/05/2007	11/697124	08/04/2009	7569979	Granted	05/24/2027	SPARK PLUG
05/08/2007	11/745736	10/06/2009	7598661	Granted	07/15/2027	SPARK PLUG INSULATOR
06/17/2016	90/013748			Filed		SPARK PLUG INSULATOR
09/23/2011	13/243543	06/25/2013	8471450	Granted	08/22/2028	CERAMIC ELECTRODE, IGNITION DEVICE
08/22/2008	12/200244	10/25/2011	8044561	Granted	05/16/2029	CERAMIC ELECTRODE, IGNITION DEVICE
10/29/2014	14/526862	01/05/2016	9231381	Granted	09/03/2031	IGNITION DEVICE, INCLUDING CERAMIC
05/21/2013	13/898898	12/02/2014	8901805	Granted	09/03/2031	CERAMIC ELECTRODE, IGNITION DEVICE
09/26/2007	11/861834	09/27/2011	8026654	Granted	08/17/2028	IGNITION DEVICE HAVING AN INDUCTION
01/18/2007	11/624272	04/12/2011	7923909	Granted	10/18/2028	IGNITION DEVICE HAVING AN ELECTRODE WITH
06/15/2007	11/763786	06/28/2011	7969077	Granted	06/15/2027	SPARK PLUG
08/29/2008	12/201567	10/19/2010	7816845	Granted	08/29/2028	CERAMIC ELECTRODE FOR SPARK PLUG
08/17/2011	13/211539	09/25/2012	8272909	Granted	05/16/2028	SMALL DIAMETER SPARK PLUG WITH A
05/16/2008	12/121821	09/06/2011	8013502	Granted	11/26/2029	SMALL DIAMETER SPARK PLUG WITH A
12/01/2010	12/957757	09/06/2011	8012898	Granted	12/20/2026	See 30712 CERAMIC WITH IMPROVED HIGH
12/20/2006	11/642210	12/28/2010	7858547	Granted	09/17/2027	See 30712 CERAMIC WITH IMPROVED HIGH
03/07/2008	12/044155	11/02/2010	7825573	Granted	03/07/2028	14 MM EXTENSION SPARK PLUG
06/28/2007	12/307841	06/12/2012	8196459	Granted	11/08/2028	[FM/Continental] SPARK PLUG INCORPORATING A
10/29/2008	12/740438	10/14/2014	8860291	Granted	05/11/2031	FMS/SIEMENS - SPARK IGNITION DEVICE WITH
09/04/2009	13/062346	11/04/2014	8875565	Granted	05/01/2030	FM/CONTINENTAL - Device with an integral pressure
08/29/2008	12/201590	10/25/2011	8044565	Granted	03/30/2029	COMPOSITE CERAMIC ELECTRODE IGNITION
10/24/2011	13/279862	02/26/2013	8384279	Granted	03/30/2029	COMPOSITE CERAMIC ELECTRODE IGNITION
11/17/2008	12/271948	11/27/2012	8319153	Granted	09/20/2031	REDUCED DIAMETER CONNECTION, METAL
08/01/2013	13/957025	04/05/2016	9304059	Granted	06/23/2030	[F-M & Continental] SPARK PLUG WITH

01/29/2010	12/696456	08/13/2013	8505366	Granted	04/15/2031	[F-M & Continental] SPARK PLUG WITH
01/29/2010	12/696532	11/12/2013	8578762	Granted	02/18/2031	[F-M & Continental] SPARK PLUG WITH INTEGRAL
08/14/2009	12/541425	06/28/2011	7969268	Granted	08/14/2029	IGNITION COIL WITH SPACED SECONDARY
03/24/2014	14/223216	07/17/2018	10027092	Granted	02/08/2031	SPARK IGNITION DEVICE FOR AN INTERNAL
12/15/2009	12/638597	04/29/2014	8707922	Granted	11/27/2032	SPARK IGNITION DEVICE FOR AN INTERNAL
07/16/2018	16/036062			Filed		SPARK IGNITION DEVICE FOR AN INTERNAL
08/14/2009	12/541442	04/24/2012	8164241	Granted	04/10/2030	EXTENSION-TYPE SPARK PLUG
10/19/2009	12/581539	03/25/2014	8680758	Granted	02/27/2032	SPARK PLUG HAVING A PLASTIC UPPER
08/12/2010	12/855229	10/16/2012	8288927	Granted	08/12/2030	SPARK PLUG INCLUDING ELECTRODES WITH
09/14/2012	13/617237.	08/26/2014	8816577	Granted	09/17/2030	SPARK PLUG INCLUDING ELECTRODES WITH
03/30/2010	12/749570	08/07/2012	8237341	Granted	10/02/2030	SPARK IGNITION DEVICE WITH BRIDGING
07/15/2010	12/837026	11/05/2013	8575829	Granted	01/12/2031	SPARK PLUG INCLUDING HIGH TEMPERATURE
03/31/2010	12/750775	10/07/2014	8853924	Granted	12/05/2031	SPARK IGNITION DEVICE FOR AN INTERNAL
08/26/2010	12/869259	12/24/2013	8614542	Granted	10/26/2031	ALUMINA CERAMIC FOR SPARK PLUG
06/15/2010	12/816035	10/16/2012	8289117	Granted	08/11/2030	IGNITION COIL WITH ENERGY STORAGE AND
10/20/2014	14/518166	01/12/2016	9236713	Granted	01/13/2032	SPARK PLUG HAVING IMPROVED GROUND
01/13/2012	13/350140	10/21/2014	8866369	Granted	02/28/2032	SPARK PLUG HAVING IMPROVED GROUND
09/15/2012	13/620786	02/04/2014	8641467	Granted	05/14/2030	SPARK IGNITION DEVICE AND GROUND
09/15/2012	13/620783	02/04/2014	8643262	Granted	05/14/2030	SPARK IGNITION DEVICE AND GROUND
05/14/2010	12/780166	10/16/2012	8288930	Granted	10/22/2030	SPARK IGNITION DEVICE AND GROUND
03/22/2012	13/427043	11/25/2014	8896194	Granted	01/12/2033	SPARK PLUG - LASER WELD GROUND
12/19/2014	14/577174	12/22/2015	9219351	Granted	08/28/2028	CERAMIC ELECTRODE TIP FOR SPARK PLUG
10/24/2011	13/279418	12/24/2013	8614541	Granted	08/28/2028	CERAMIC ELECTRODE TIP FOR SPARK PLUG
11/20/2013	14/085293	01/13/2015	8933617	Granted	08/28/2028	CERAMIC ELECTRODE TIP FOR SPARK PLUG
10/08/2013	14/048368	05/10/2016	9337624	Granted	02/02/2034	ELECTRODE MATERIAL FOR A SPARK PLUG AND
06/15/2012	13/524054	07/09/2013	8482188	Granted	06/15/2032	SPARK PLUG ELECTRODE WITH NANOCARBON
09/16/2013	14/028269	02/21/2017	9573218	Granted	02/03/2035	WELDING SYSTEM FOR ATTACHING FIRING TIPS
05/09/2013	13/890661	03/17/2015	8981634	Granted	05/09/2033	SPARK PLUG WITH INCREASED MECHANICAL
09/21/2012	13/624316	10/29/2013	8569940	Granted	09/21/2032	SPARK PLUG FIRING END CONFIGURATION
06/28/2012	13/535505	08/27/2013	8519607	Granted	06/28/2032	SPARK PLUG ELECTRODE CONFIGURATION
05/11/2015	14/709004	04/18/2017	9627856	Granted	12/13/2031	JDA w Trimac - ELECTRON BEAM WELDED
12/13/2011	13/324054	05/12/2015	9028289	Granted	01/30/2033	JDA w Trimac - ELECTRON BEAM WELDED
11/11/2013	14/076840	07/04/2017	9698573	Granted	12/13/2034	EXTRUDED INSULATOR FOR SPARK PLUG AND
05/25/2017	15/605223			Filed		EXTRUDED INSULATOR FOR SPARK PLUG AND
12/10/2012	13/709237	02/04/2014	8643263	Granted	12/10/2032	IMPROVEMENTS TO INSULATOR STRENGTH BY

02/05/2014	14/173451	07/14/2015	9083156	Granted	02/05/2034	ELECTRODE CORE MATERIAL FOR SPARK
03/11/2014	14/204281	06/02/2015	9048635	Granted	03/11/2034	SPARK PLUG WITH LASER KEYHOLE WELD
03/17/2014	14/216094	05/16/2017	9651306	Granted	09/13/2034	METHOD FOR DRYING SEAL MATERIALS FOR
08/08/2013	13/962496	06/06/2017	9673593	Granted	03/05/2035	SPARK PLUG HAVING FIRING PAD [IDF #1 -
05/03/2017	15/585907			Filed		SPARK PLUG HAVING FIRING PAD [IDF #1 -
06/03/2013	13/908255	09/08/2015	9130356	Granted	01/30/2034	SPARK PLUG HAVING A THIN NOBLE METAL
10/17/2013	14/055536	04/19/2016	9318879	Granted	11/20/2033	SPARK PLUG HAVING FIRING PAD [IDF #3 -
01/28/2014	14/166145	05/26/2015	9041274	Granted	01/28/2034	SPARK PLUG HAVING FIRING PAD [IDF #5 - HIGH
04/28/2015	14/698339	01/05/2016	9231379	Granted	01/28/2034	SPARK PLUG HAVING FIRING PAD [IDF #5 - HIGH
02/14/2014	14/180745	09/08/2015	9130357	Granted	02/17/2034	METHOD OF CAPACITIVE DISCHARGE WELDING
03/12/2014	14/206121	01/20/2015	8937427	Granted	03/12/2034	METHOD OF MANUFACTURING SPARK PLUG
04/18/2017	15/490061			Filed		SPARK PLUG INSULATOR AND METHOD OF
01/26/2016	15/005426			Filed		METHOD AND TOOLING FOR MAKING AN
06/13/2016	15/180606	05/15/2018	9972978	Granted	06/24/2036	IMPROVED SPARK PLUG GASKET AND METHOD
07/24/2017	15/661282			Filed		SPARK PLUG WITH A SUPPRESSOR THAT IS
01/26/2017	15/417007	02/13/2018	9893496	Granted	10/05/2035	Related to 41671 - SPARK PLUG HAVING
03/31/2015	14/674470	10/10/2017	9787063	Granted	08/03/2035	Seal ring for a spark plug of a combustion engine.
03/30/2015	14/672383	09/13/2016	9444228	Granted	03/30/2035	SPARK PLUG [POKAL ZUNDEKERZE (OHNE
08/19/2016	15/240222	05/16/2017	9653887	Granted	08/19/2036	SPARK PLUG FOR A PRECHAMBER INTERNAL
08/07/2015	14/821417	10/03/2017	9780536	Granted	09/02/2035	Spark Plug with Interference-Suppressor Element
08/10/2016	15/233668	07/10/2018	10020640	Granted	08/10/2036	SPARK PLUG
06/07/2018	16/002773			Filed		SPARK PLUG
08/21/2014	14/465026	02/07/2017	9562510	Granted	03/06/2035	Spark Plug for a Gas-Powered Internal Combustion
12/15/2010	12/969245	11/18/2014	8890396	Granted	05/28/2031	Spark plug for combustion engines with gas.
03/15/2011	13/048067	07/02/2013	8476816	Granted	05/14/2031	Spark plug and manufacturing method
07/15/2011	13/135819	12/17/2013	8610342	Granted	07/15/2031	Spark plug and manufacturing method
04/07/2011	13/082218	06/25/2013	8471449	Granted	04/07/2031	ATTACHING A PRECIOUS METAL COMPONENT
03/16/2012	13/420287	03/25/2014	8680757	Granted	03/16/2032	spark plug and manufacturing method
12/21/2011	13/334055	11/18/2014	8890398	Granted	12/24/2032	Spark plug for spark ignition engine, has center
08/22/2013	13/973247	07/14/2015	9083154	Granted	08/22/2033	SPARK PLUG
10/18/2000	09/690887	06/24/2003	6583538	Granted	10/18/2020	Spark plug
04/09/2001	09/828357	03/16/2004	6705009	Granted	04/09/2021	Spark plug
06/03/2003	10/452209	12/21/2004	6833658	Granted	06/03/2023	middle electrode with precious metal reinforcement an
03/31/2006	11/278230	06/22/2010	7740513	Granted	03/31/2026	Method for producing an electrode for spark plugs
02/09/2017	15/428895	08/22/2017	9742159	Granted	02/09/2037	Shielded Spark Plug

11/14/2014	14/932762	07/26/2016	9401587	Granted	11/14/2034	Method of Manufacturing an Ignition Plug
07/15/2016	15/211810	02/06/2018	9887520	Granted	07/15/2036	Method for Producing a Spark Plug
12/02/2015	14/956762	02/07/2017	9564740	Granted	12/02/2035	SPARK PLUG FOR A GAS-POWERED INTERNAL
06/30/2016	15/199294	04/17/2018	9948066	Granted	08/10/2036	SPARK PLUG [Zündkerze mit Fine Wire
09/28/2016	15/278577	05/30/2017	9667037	Granted	09/28/2036	PRECHAMBER SPARK PLUG FOR A GAS-
09/14/2016	15/265602	07/04/2017	9698576	Granted	09/14/2036	MIM - METHOD FOR MANUFACTURING AN
05/26/2017	15/606544	11/28/2017	9831640	Granted	09/14/2036	MIM - METHOD FOR MANUFACTURING AN
12/15/2016	15/380323	10/24/2017	9800023	Granted	12/15/2036	SPARK PLUG [Zündkerzenelektroden aus Dual
11/01/2017	15/800816			Filed		PRECHAMBER SPARK PLUG FOR A GAS-
08/14/2017	15/676134			Filed		SPARK PLUG AND METHOD FOR ITS
05/07/2018	15/973096			Filed		Spark Plug with a Conical Outer Seal Seat and a
03/20/2018	15/926559			Filed		Pre-Chamber Spark Plug for Highly Stressed Mobile
04/04/2018	15/945048			Filed		Pre-Chamber Spark Plug With Defined Volume Ratio
03/26/2018	15/935408			Filed		PRE-CHAMBER SPARK PLUG WITH ORIENTATED
03/17/2003	10/390075	04/26/2005	6885136	Granted	03/17/2023	JV w/ Johnson Matthey - IGNITION DEVICE HAVING
07/23/2004	10/897844	04/01/2008	7352120	Granted	04/06/2024	JV w/ Johnson Matthey - IGNITION DEVICE HAVING
07/21/2009	12/506314	07/05/2011	7973459	Granted	03/02/2024	SPARK PLUG CONFIGURATION HAVING A NOBLE
07/02/2007	11/772553	08/04/2009	7569978	Granted	08/31/2024	SPARK PLUG WITH IRIIDIUM-BASED FIRING TIP
02/26/2004	10/787280	01/20/2008	7323811	Granted	09/24/2024	NOBLE METAL FIRING TIP FOR A SPARK PLUG
11/24/2010	12/954262	09/25/2012	8274204	Granted	12/31/2030	SPARK PLUG WITH PLATINIUM-BASED
11/24/2010	12/954061	07/23/2013	8492963	Granted	02/11/2031	SPARK PLUG WITH VOLUME-STABLE
11/24/2010	12/954011	09/25/2012	8274203	Granted	01/06/2031	ELECTRODE MATERIAL FOR A SPARK PLUG
07/16/2013	13/943423	01/05/2016	9231380	Granted	09/02/2033	ENHANCED MATERIAL FOR A SPARK PLUG
01/03/2012	13/342709	06/25/2013	8471451	Granted	01/03/2032	RUTHENIUM-BASED ELECTRODE MATERIAL FOR
02/22/2012	13/402437	06/24/2014	8760044	Granted	04/14/2032	ELECTRODE MATERIAL FOR A SPARK PLUG
07/28/2011	13/193121	05/07/2013	8436520	Granted	08/01/2031	ELECTRODE MATERIAL FOR USE WITH A SPARK
01/23/2012	13/355891	11/05/2013	8575830	Granted	02/24/2032	ELECTRODE MATERIAL FOR A SPARK PLUG
10/24/2012	13/659297	04/14/2015	9004969	Granted	07/12/2033	SPARK PLUG ELECTRODE AND SPARK PLUG
06/26/2012	13/533264	07/01/2014	8766519	Granted	06/26/2032	ELECTRODE MATERIAL FOR A SPARK PLUG
05/20/2013	13/898016	11/18/2014	8890399	Granted	07/04/2033	METHOD OF MAKING RUTHENIUM-BASED
04/25/2013	13/870631			Filed		ELECTRODE MATERIAL FOR A SPARK PLUG [RU
06/20/2013	13/922632	03/17/2015	8979606	Granted	06/20/2033	METHOD OF MANUFACTURING A SPARK PLUG
03/07/2014	14/201335	06/14/2016	9368943	Granted	03/07/2034	SPARK PLUG HAVING MULTI-LAYER SPARKING
02/28/2014	14/193914	09/08/2015	9130358	Granted	02/28/2034	METHOD OF MANUFACTURING SPARK PLUG
12/15/2005	11300936	12/30/2008	7470065	Granted	12/15/2025	Gleitlagerement und Verfahren zur Herstellung einer

09/14/2007	11855535	01/22/2013	8357622	Granted	09/14/2027	Kunststoffgleichschicht und Gleitelement mit einer
02/15/2007	11855512	07/24/2012	8226297	Granted	02/15/2027	Gewickelter Gleit-Werkstoff auf Kunststoff-Basis und
09/16/1998	09154092	10/31/2000	6139334	Granted	09/16/2018	INTEGRAL SOCKET BACKPLATE
01/10/2005	11/032512	12/12/2006	7147521	Granted	05/29/2023	WIRING JUNCTION BLOCK
02/15/2006	11/354674	10/23/2007	7284882	Granted	03/13/2026	LED LIGHT MODULE ASSEMBLY
10/15/2007	11/872207	04/06/2010	7690950	Granted	10/15/2027	WIRING SYSTEM AND CONNECTOR THEREFOR
03/08/2010	12/719498	04/26/2011	7931506	Granted	10/15/2027	WIRING SYSTEM AND CONNECTOR THEREFOR
10/26/2006	11/553193	07/09/2013	8480275	Granted	07/23/2030	MOLDED LIGHT SOCKET (See also 40969 CIP of
11/17/2006	11/561045	10/20/2009	7604386	Granted	02/18/2027	LAMP ASSEMBLY HAVING A SOCKET MADE
11/12/2007	11/938549	11/17/2009	7618275	Granted	11/12/2027	VENTED SOCKET
10/02/2008	12/243245	01/01/2013	8342727	Granted	07/25/2028	(THIS CASE IS A CIP OF 40422) MOLDED
08/20/2008	12/194959	08/23/2011	8003888	Granted	08/20/2028	ELECTRICAL JUNCTION ADSEMBLY FOR
03/15/2013	13/843570	05/24/2016	9347637	Granted	09/12/2033	VEHICLE LAMP SOCKET ASSEMBLY
09/07/2004	10/935546	08/21/2007	7259351	Granted	09/07/2024	HEAT TREATING ASSEMBLY AND METHOD
05/23/2005	11/135469	07/15/2008	7400417	Granted	07/13/2026	DIFFRACTION METHOD FOR MEASURING
03/29/2006	11/391879	08/04/2009	7568409	Granted	03/29/2026	HYBRID ORBITING SPINDLE FOR SHAPING NON-
08/17/1999	09/375735	05/08/2001	6227784	Granted	08/17/2019	FASTENER ASSEMBLY WITH VIBRATION
04/02/2001	09/824449	12/31/2002	6499743	Granted	04/02/2021	GASKET WITH DYNAMIC JOINT MOTION
06/13/2000	09/592969	06/13/2006	7059609	Granted	07/28/2023	METAL GASKET WITH COLD-FORMED STOPPER
03/25/2002	10/105519	12/30/2003	6669204	Granted	03/25/2022	CYLINDER HEAD GASKET HAVING REINFORCED
05/31/2002	10/158814	01/27/2004	6682079	Granted	05/31/2022	METAL PLATE GASKET
11/20/2003	10/718935	10/03/2006	7114254	Granted	07/24/2023	METAL PLATE GASKET
10/25/2001	10/004071	03/28/2006	7017918	Granted	10/25/2021	COMBUSTION STOPPER SEAL
02/25/2003	10/373913	08/23/2005	6931705	Granted	12/04/2023	CYLINDER LINER HAVING MODIFIED
11/07/2002	10/289891	04/20/2004	6722660	Granted	11/07/2022	MOLDED GASKET
02/10/2004	10/775430	09/13/2005	6942827	Granted	11/07/2022	METHOD OF INJECTION MOLDING A GASKET
11/30/1998	09203174	03/13/2001	6199274 B1	Granted	11/30/2018	DELFRINGE MIT CKS-BESCHICHTUNG
06/15/2000	09/786570	01/07/2003	6503642	Granted	06/15/2020	GDC-SCHICHT
08/24/2001	09/935607	10/14/2003	6631908	Granted	08/24/2021	KOMPRESSIONSKOLBENRING
12/19/2000	10/169,774	10/10/2006	7117594B2	Granted	12/19/2020	OLABSTREIFKOLBENRING SOWIE VERFAHREN
08/17/2001	10/363341	05/03/2005	6887585	Granted	08/17/2021	KOLBENRING MIT PULVERBESCHICHTUNG
06/03/2002	10/158836	04/27/2004	6726216	Granted	06/03/2022	OXIDIEREN VON GAS- UND PLASMANTRIERTEN
11/17/2001	10/450220	02/21/2006	7001670B2	Granted	11/17/2021	WOLFRAMHALTIGE
02/01/2003	10/505042	09/11/2007	7267344	Granted	02/01/2023	PVD-BESCHICHTUNGEN FÜR
09/18/2003	10/536665	04/20/2010	7699970	Granted	09/18/2023	STRUKTURIERTE HARTCHROMSCHICHT UND

01/07/2010	12/683890	10/02/2012	8277953	Granted	09/18/2023	STRUKTURIERTE HARTCHROMSCHICHT UND
01/31/2004	10551245	02/04/2009	7494129	Granted	01/31/2024	PISTON RING
11/17/2004	10583433	01/18/2011	7871078	Granted	11/17/2024	KOLBENRING MIT AUFDAMPFBESCHICHTUNG
01/05/2005	11/587117	02/07/2012	8110087	Granted	01/05/2025	STRUKTURIERTE GALVANISCH ERZEUGTE
11/30/2006	12159428	06/19/2012	8201831	Granted	11/30/2026	PVD-Beschichtungen für Kolbenringe mit optimiertem
10/01/2007	12/444187	03/21/2017	9598763	Granted	10/01/2027	Kolbenring mit viellagig strukturierter
05/07/2007	12/377,789	08/14/2012	8241559	Granted	05/07/2027	Hochsiliciumhaltiger Stahlwerkstoff für Kolbenringe
10/01/2007	12/444217			Filed		Kolbenring mit nonolagig strukturierter
07/18/2008	12/671,100	09/20/2016	9447490	Granted	07/18/2028	Kolbenring mit Verschleißschutzschicht
06/12/2008	12/664,462	09/25/2012	8273469	Granted	06/12/2028	Kolbenring mit Verschleißschutzschicht auf der Basis
12/18/2007	12/527,051	01/22/2013	8356820	Granted	12/18/2027	Kolbenring mit DLC-Einlaufsicht und kleiner unterer
01/30/2008	12527115	04/30/2013	8430410	Granted	01/30/2028	Verschleißschutz der Kolbenringflanken durch PVD-
01/24/2008	12/527,152	08/07/2012	8235393	Granted	01/24/2028	Gekammerter Kolbenring mit PVD-Beschichtung /
04/15/2008	12664536	02/12/2013	8371585	Granted	04/15/2028	Ölabstreifring mit fertigungstrendreicher Kontur Ölring
01/20/2009	12933181	07/16/2013	8484843	Granted	01/20/2029	Nanopartikel verstärkte Beschichtungen für
01/27/2014	14/164535	03/29/2016	9297421	Granted	01/04/2031	PISTON AND RING ASSEMBLY / ENGINE
08/03/2010	12/849097	02/04/2014	8640314	Granted	07/18/2031	PISTON AND RING ASSEMBLY / ENGINE
03/18/2009	12936003	02/04/2014	8641046B2	Granted	03/18/2029	Gleitelement, insbesondere Kolbenring, mit
01/22/2009	12/936158	12/25/2012	8337687	Granted	01/22/2029	Strukturierte Hartchromschicht mit in deren
08/26/2009	13123580	02/18/2014	8652620B2	Granted	08/26/2029	Bearing, esp. piston ring, with reduced friction during
11/23/2009	13/259300	11/27/2012	8317938	Granted	11/23/2029	Nitrid capable cast steel material for piston rings and
11/23/2009	13260476	05/16/2017	9650702	Granted	11/23/2029	High silicon containing chrome steel material for
03/25/2010	13/260437	02/11/2014	8,647,448	Granted	03/25/2030	High silicon containing chrome steel material for
02/24/2010	13/321261	10/27/2015	9169547	Granted	02/24/2030	DLC coating typ Aa-C / Gleitelement, insbesondere
05/19/2010	13/321689	03/24/2015	8986821	Granted	05/19/2030	DLC coating typ Aa-C / Gleitelement, insbesondere
10/15/2009	13/124709	11/07/2017	9809885	Granted	10/15/2029	Piston ring with different portions of hard coating and
12/04/2009	13/201172	10/04/2016	9458934	Granted	12/04/2029	PVD-coated 2 lip ring out of steel or cast iron for
10/12/2009	13203559	11/12/2013	8580048	Granted	10/12/2029	High silicon chromium steel - material for piston rings
10/13/2009	13203580	08/13/2013	8506727	Granted	10/13/2029	High silicon steel material with primary carbid for
08/26/2011	13/203596	02/10/2012	8277576	Granted	08/26/2031	Highsilicium manganese steel material for piston rings
10/13/2009	13/203609	11/11/2014	8882937	Granted	10/13/2029	High silicium steel material with bor for piston rings
05/24/2011	13/699898	07/12/2016	9388900	Granted	05/24/2031	Sliding element, in particular piston ring, with a-
12/10/2009	14813481	04/10/2018	9938626	Granted	03/19/2029	Sliding element with physical coating bolstered up by
12/10/2009	13/257396			Filed		Sliding element with physical coating bolstered up by
11/23/2009	13/260107	12/16/2014	8911875	Granted	11/23/2029	Piston ring / Gleitelement, insbesondere Kolbenring

01/25/2010	13/259968	03/24/2015	8985009	Granted	01/25/2030	Thermal sprayed sliding element with released
10/14/2010	13/508799	10/14/2014	8857820	Granted	10/14/2030	High load piston ring Hochbelastbarer Kolbenring
04/15/2010	13/387864	09/09/2014	8827276	Granted	04/15/2030	Sliding element, especially piston ring with thermal
05/11/2010	13/390238	04/04/2017	9611543	Granted	05/11/2030	DLC-coated sliding element, especially piston ring
01/09/2012	13/980994	03/17/2015	8979094	Granted	01/09/2032	Gap relief for inlaid PVD, DLC or Cr coated Piston
09/09/2010	13/502843	12/22/2015	9217507	Granted	09/09/2030	Form optimized Piston Rings Systems with expander /
08/19/2010	13/505308			Filed		CrN-DLC coated sliding element, piston rings / CrN-
02/17/2011	13/553690	08/11/2015	9103015	Granted	02/17/2031	multi-layer CrN/DLC-coated bearings, esp. piston-
02/09/2011	13/580783	07/14/2015	9079276	Granted	02/09/2031	simplified method to manufacture a complete
11/09/2010	13/576459	07/08/2014	8770590	Granted	11/09/2030	oil rings with quadrat scraping
02/17/2011	13/553715			Filed		two piece oil scraper ring with inside coil spring:
07/19/2011	13/879472	11/03/2015	9174276	Granted	07/19/2031	casting material with embedded particles to avoid side
02/17/2011	13/583828	04/14/2015	9,004,465	Granted	02/17/2031	oilring with PVD/PA-CVD Multilayer - coated coil
06/17/2015	14/741678	04/19/2016	9316313	Granted	11/29/2032	HIGH MODULUS WEAR RESISTANT GRAY CAST
11/29/2012	13/688802	07/28/2015	9091345	Granted	05/16/2033	HIGH MODULUS WEAR RESISTANT GRAY CAST
06/20/2011	13/811582	11/24/2015	9194492	Granted	06/20/2031	piston ring with thermal sprayed coating lubrication
08/07/2014	14/453849	08/23/2016	9423028	Granted	08/07/2034	PISTON RING
03/13/2000	09/936894	03/09/2004	6703145	Granted	03/13/2020	ZEOLIT Process for electrolytic coating of a substrate
03/18/2002	10/471561	05/30/2006	7052018	Granted	03/18/2022	MIRA II Nickel-Aluminide based wear resistant
03/18/2002	10/469686	01/04/2005	6838196	Granted	03/18/2022	MIRA I Nickel-Aluminide based wear resistant
09/02/2011	13/823051	07/21/2015	9085056	Granted	09/02/2031	sharp-edged PVD-ring with conically surface
09/02/2011	13/823040	09/15/2015	9132517	Granted	09/02/2031	half-inlaid ring or fully inlaid compressionring with PVD-
11/24/2011	13/990236	08/11/2015	9103442	Granted	11/24/2031	DLC-coated sliding element, particularly piston ring
08/13/2011	13/823566	03/10/2015	8973262	Granted	08/13/2031	Profile grinded oil rings
11/09/2012	13/673546	05/10/2016	9334960	Granted	12/18/2033	PISTON RING WITH A WEAR-RESISTANT COBALT
10/13/2011	13/637526	07/21/2015	9086148	Granted	10/13/2031	manufacture of wear and friction resistant piston rings
01/14/2013	14371909	03/13/2018	9915346 B2	Granted	01/14/2033	Sliding Element
				Docketed		Sliding Element
02/02/2012	14/005969	05/31/2016	9352427	Granted	02/02/2032	inlaid and nitrided PVD-ring with "sharp" unnitrided
12/07/2012	14385327	08/02/2016	9404578	Granted	12/07/2032	Nitrided piston ring
03/14/2012	14/116970	03/12/2016	9,273,629	Granted	03/14/2032	Piston/ Piston ring design for optimisation of oil-film
07/03/2012	13/540884	06/10/2014	8746976	Granted	07/03/2032	DLC coated piston ring with defined surface
03/19/2012	14/127356	11/08/2016	9487855	Granted	03/19/2032	HVOF coated piston ring with extrem Mo-element
12/06/2012	14/361956	11/22/2016	9500558	Granted	12/06/2032	measuring method and definition of light gap pistons
01/15/2013	14378170	09/13/2016	9442039	Granted	01/15/2033	gap edge rounding measurement device

04/25/2013	14401946	05/02/2017	9638321	Granted	04/25/2033	axial low LKZ oilring with fat hard coating (> 10 µm)
01/21/2016	15/002753	11/15/2016	9494233	Granted	03/14/2033	comb with 42315 LOW TENSION PISTON RINGS
03/14/2013	13/827255	02/16/2016	9261190	Granted	06/08/2033	comb with 42315 LOW TENSION PISTON RINGS
02/15/2013	13/768284			Filed		Piston Ring for an Internal Combustion Engine
02/15/2013	13/768435			Filed		PISTON RING FOR AN INTERNAL COMBUSTION
02/15/2013	13/768535	11/22/2016	9500280	Granted	05/30/2034	Piston Ring for an Internal Combustion Engine
02/15/2013	13/768196			Filed		PISTON RONG FOR AN INTERNAL COMBUSTION
02/15/2013	13/768355	04/19/2016	9316312	Granted	07/20/2034	Piston Ring for an Internal Combustion Engine
07/30/2013	14/420,733	10/25/2016	9476504	Granted	07/30/2033	DLC coated sliding element particularly piston ring
10/31/2013	14439813	11/08/2016	9488276	Granted	10/31/2033	DCL coated piston ring
10/11/2013	14/051696	03/06/2018	9909210	Granted	11/11/2036	CHEMICAL VAPOR DEPOSITION OF WEAR
01/08/2014	14762278	11/08/2016	9488275	Granted	01/08/2034	Piston ring with carbon coating including high strength
09/09/2013	14/428,140	01/16/2018	9869390	Granted	09/09/2033	piston ring with thermal sprayed running face
05/10/2014	14896179			Filed		
10/29/2013	14/653611	08/01/2017	9719596	Granted	10/29/2033	Piston Ring with Roll Burnished Edges
09/24/2013	14/441,891	06/06/2017	9671019	Granted	09/24/2033	oil distribution ring with variable oil distribution groove
05/29/2018	15991503			Filed		oil distribution ring with variable pivotpoint layer
04/09/2014	14/783,926			Filed		variable ring-borecontact surface at piston ring scope
03/04/2015	15123876			Filed		oil scraper ring with special design for axial low
12/08/2014	15111272			Filed		piston ring with carbon based coating and definite
09/15/2015	15529232			Filed		two pieces compression rings
03/18/2015	15/312293	04/24/2018	9951868	Granted	03/18/2035	piston ring with groove
06/10/2015	15/321844			Filed		piston ring with compensation of piston edge tip
07/15/2015	15325860			Filed		sliding element, especially piston ring, with reduced
04/22/2015	14/693194	01/24/2017	9551419	Granted	04/22/2035	COATED SLIDING ELEMENT
01/23/2017	15/412551	11/14/2017	9816613	Granted	04/22/2035	COATED SLIDING ELEMENT
06/02/2016	15/744247			Filed		Double BS ring
04/19/2016	15/737867			Filed		compression ring with self- side gasket
06/22/2016	15/742,356			Filed		sharp-edged chromium plated compression ring
06/16/2016	15745535			Filed		optimized layout of topring running face
07/07/2016	15765871			Filed		Flange + Sinus Wave
07/07/2016	15/204264	04/17/2018	9945481	Granted	07/07/2036	POLYMER COATING IN CRACKED PISTON RING
04/18/2016	15/131641			Filed		TEETER-TOTTER OIL RING (TTOR)
04/28/2017	PCT/EP2017/060200			Filed		Sliding element, particularly a Piston ring, with
03/01/2017	PCT/EP2017/054747			Filed		coated pistonring with protective coating



11/28/2016	PCT/EP2016/078954				Filed		MF-oil ring system with steel rail segment and wear
04/26/2017	PCT/EP2017/059855				Filed		2 piece oil ring with oil pressure effect
05/22/2017	PCT/EP2017/062263				Filed		Compression - Oil Control - Piston Ring
11/02/2017	62/580792				Filed	11/02/2018	PISTON COMPRESSION RING WITH BLOW-BY
09/01/2005	11575010	07/06/2010	7748361		Granted	09/01/2025	Kühlkanal für Brennkraftmaschinen-Kolben
01/25/2008	12/019817	12/07/2010	7845269		Granted	02/25/2029	PISTON WITH PIN BORE LUBRICATION
01/20/2011	13/010149	12/25/2012	8336446		Granted	11/08/2027	PISTON HAVING TWISTED SKIRT PANELS
11/08/2007	11/937276	03/01/2011	7895937		Granted	05/31/2029	PISTON HAVING TWISTED SKIRT PANELS
06/13/2008	12679110	04/15/2014	8695559		Granted	06/13/2028	Översorgungsrinne für Nebenbohrungen / Oil groove
05/12/2011	13/008250	08/07/2012	8235090		Granted	04/14/2028	PISTON MOLD ASSEMBLY AND METHOD OF
04/14/2008	12/102379	02/22/2011	7891403		Granted	04/28/2029	PISTON MOLD ASSEMBLY AND METHOD OF
04/17/2008	12664441	04/29/2014	8709175		Granted	04/17/2028	Hochlegierter Gusseisenwerkstoff mit lamellarer
10/02/2008	12746400	03/04/2014	8662049		Granted	10/02/2028	Gußkolben in Querrippenausführung casted piston
06/22/2009	12/488853	10/16/2012	8286607		Granted	06/22/2029	WRIST PIN, CONNECTING ROD, PISTON AND
03/29/2012	13/434700	09/24/2013	8539927		Granted	06/22/2029	WRIST PIN, CONNECTING ROD, PISTON AND
09/18/2013	14/030291	05/31/2016	9353863		Granted	07/06/2036	WRIST PIN AND METHOD OF REDUCING WEAR
04/01/2016	15/088625				Filed		WRIST PIN AND METHOD OF REDUCING WEAR
03/21/2011	13/052431	09/08/2015	9128036		Granted	10/31/2033	MULTISPECTRAL IMAGING SYSTEM AND
06/15/2009	13/000219	07/05/2016	9382869		Granted	06/15/2029	"STEP UP" Cooling gallery / Kühlkanal
04/22/2009	12/999719				Filed		Steißelastischer Kolbenschaft stößelastisch piston skirt
08/09/2013	13/963525	01/06/2015	8926239		Granted	06/24/2029	METHOD OF FORMING PISTON PIN HOLES AND
06/24/2009	12/490616	08/13/2013	8506215		Granted	01/03/2032	METHOD OF FORMING PISTON PIN HOLES AND
07/09/2009	12/500291	01/22/2013	8356550		Granted	05/25/2031	PISTON WITH OIL RESERVOIR AND OIL RECESS
03/09/2010	13/266559	12/02/2014	8898898		Granted	03/09/2030	process for automatic manufacture of pistons with
04/27/2010	13/318193	09/13/2016	9441182		Granted	04/27/2030	wear-resistant seal paint for coating on engine pistons
10/26/2012	13/661597	04/17/2018	9945480		Granted	09/16/2035	PISTON ASSEMBLY INCLUDING A POLYMER
03/24/2011	13/637501	11/18/2014	8887794		Granted	03/24/2031	Compressed air cooling and - quenching of the pin
01/11/2012	13/979692	02/17/2015	8955488		Granted	01/11/2032	Piston with parabolic geometry shaft
11/18/2011	13/997432	03/24/2015	8985186		Granted	11/18/2031	HYBRID Design of ElastovalvePiston
07/09/2012	13/544978	06/11/2013	8459332		Granted	07/09/2032	PISTON OUTER PANEL MOLD AND METHOD OF
03/27/2012	14/008652	12/22/2015	9216480		Granted	03/27/2032	piston with machined gallery; optional with improved
06/29/2012	13/538653	06/02/2015	9046053		Granted	08/28/2033	PISTON WITH AN UNDER CROWN SUPPORT
04/26/2013	14/397267				Filed		Casting method for pistons as a combination of
07/10/2013	14415221				Filed		Process for manufacturing of pistons with remelted
03/12/2013	13/795361				Filed		ENGINE PISTON LIGHT WEIGHT STEEL PISTON

03/13/2014	14/209201	12/15/2015	9212621	Granted	03/13/2034	PISTON AND METHOD OF CONSTRUCTION
12/05/2017	15831834			Filed		Aluminum Alloy for engine parts
11/14/2013	14/442,615			Filed		Aluminum Alloy for engine parts
03/04/2013	13/784015	09/30/2014	8844341	Granted	03/29/2023	DATA COLLECTOR FOR AN INTERNAL ENGINE
05/11/2015	15313829			Filed		Aluminum Alloy for engine parts
07/28/2014	14907985			Filed		
04/29/2016	15576972			Filed		Lightweight-Pistonskirt with load optimized wall
07/30/2014	14/910,082	04/17/2018	9945320	Granted	07/30/2034	Kolben für Verbrennungsmotor
02/04/2015	14/613603	03/06/2018	9909528	Granted	04/26/2036	PISTON WITH ABRADABLE COATING TO
08/27/2014	14/470200	03/06/2018	9909527	Granted	12/19/2035	HYBRID INDUCTION WELDING PROCESS
10/30/2015	14/928033			Filed		PISTON ISTEEL PISTON MANUFACTURING
03/21/2016	15/563,786			Filed		Aluminium casting alloy and manufacturing process
06/18/2015	14/743221			Filed		POWER GENERATOR FOR PISTON
01/26/2016	15/546,339			Filed		weight reduced steel piston for internal combustion
02/22/2017	PCT/EP2017/054011			Filed		adhesive and wear-resistant slide paint for coating at
11/08/2016	15774393			Filed		Piston with polysilazane-based coating
11/17/2016	15/354001			Filed		THERMALLY INSULATED STEEL PISTON CROWN
11/17/2016	15/354080			Filed		THERMALLY INSULATED ENGINE COMPONENT
01/19/2017	15/409928			Filed		VARIABLE COMPRESSION RATIO CONNECTING
08/22/2018	16/109328			Filed		PISTON WITH BROAD OVATE GALLERY
09/30/2003	10/675750	06/20/2006	7063327	Granted	09/30/2023	DICHTPROFIL FÜR AKUSTISCHE ENTKOPPLUNG
05/13/2004	10/844927	10/28/2008	7442422	Granted	05/13/2024	DECKEL MIT NEUER DICHTUNGSTECHNOLOGIE
01/15/2010	12/688114	04/17/2012	8157269	Granted	08/17/2025	GASKET FOR SEALING MULTIPLE FLUIDS
06/07/2005	11/146735	02/15/2011	7887063	Granted	01/15/2028	GASKET FOR SEALING MULTIPLE FLUIDS
04/17/2006	11/405306	01/04/2011	7862049	Granted	12/07/2026	GASKET AND METHOD OF FORMING A SEAL
11/07/2007	11/936489	01/11/2011	7866670	Granted	10/26/2028	STATIC GASKET
01/18/2007	12279801	08/07/2012	8235016	Granted	01/18/2027	Dichtsystem mit Kunststoffträgerrahmen
11/07/2007	11/936409	10/05/2010	7806413	Granted	01/05/2029	STATIC GASKET
05/10/2010	13/393126	04/24/2018	9951665	Granted	05/10/2030	innovative fixing conception/gasket with fixed body
09/12/2014	14/484680	05/16/2017	9651152	Granted	03/03/2032	GASKET ASSEMBLY WITH IMPROVED LOCATING
12/20/2010	12/972907	09/16/2014	8833771	Granted	12/05/2032	GASKET ASSEMBLY WITH IMPROVED LOCATING
11/28/2012	14/396864	03/27/2018	9926882	Granted	11/28/2032	land solution to reduce stress at sealing profiles
07/09/2002	10/191945	09/16/2003	6620361	Granted	07/09/2022	METHOD FOR MANUFACTURING A COMPOSITE
03/21/2003	10/394272	06/06/2006	7055828	Granted	07/24/2023	SHAFT SEAL
05/11/2004	10578987	11/02/2010	7823886	Granted	05/11/2024	BESCHICHTUNG DES AUSSENDURCHMESSERS

PATENT

REEL: 047223 FRAME: 0170

09/12/2005	11/224362	07/09/2013	8480092	Granted	02/28/2031	RADIAL SEAL AND METHOD OF MAKING
04/27/2006	11/412471	03/25/2008	7347424	Granted	04/27/2026	SHAFT SEAL HAVING INTEGRATED REMOVAL
01/25/2008	12/019752	09/06/2011	8011671	Granted	05/16/2028	SHAFT SEAL HAVING INTEGRATED REMOVAL
09/12/2007	11/853861	03/22/2011	7909333	Granted	06/07/2029	UNITIZED OIL SEAL HAVING SOFT RETENTION
03/07/2008	12/044252	11/08/2011	8052152	Granted	02/26/2030	DYNAMIC SHAFT SEAL AND METHOD OF
07/06/2007	11/774233	10/04/2011	8029714	Granted	01/23/2028	RADIAL SEAL IMPROVEMENT (CIP of DS-40072)
12/07/2012	13/708294	03/31/2015	8991829	Granted	11/19/2028	Non-Contract Labryrith Seal Assembly and Method of
02/13/2015	14/622809	03/22/2016	9291272	Granted	11/27/2028	Non-Contract Labryrith Seal Assembly and Method of
11/19/2008	12/273995	01/01/2013	8342535	Granted	08/26/2031	Non-Contract Labryrith Seal Assembly and Method of
06/11/2009	12/482562	06/14/2011	7959840	Granted	07/30/2029	LOW TORQUE SHAFT SEAL AND METHOD OF
09/30/2009	12/571083	05/22/2012	8182646	Granted	11/13/2029	SUBSTRATE AND RUBBER COMPOSITION AND
05/01/2012	13/461009	07/05/2016	9382451	Granted	07/21/2032	SUBSTRATE AND RUBBER COMPOSITION AND
03/17/2010	12/725759	08/07/2012	8235391	Granted	03/17/2030	RADIAL SHAFT SEAL ASSEMBLY WITH
03/11/2010	12/722109	08/13/2013	8505926	Granted	12/29/2030	LOW TORQUE SHAFT SEAL WITH IMPROVED
06/17/2011	13/162646	10/15/2013	8556270	Granted	09/10/2031	RADIAL SHAFT SEAL, RADIAL SHAFT SEAL
08/23/2011	13/215528	11/05/2013	8573602	Granted	12/03/2031	RADIAL SHAFT SEAL WITH DUST EXCLUSION
01/28/2010	12/695534	03/19/2013	8398089	Granted	03/17/2031	RADIAL SHAFT SEAL, RADIAL SHAFT SEAL
01/28/2010	12/695404	08/06/2013	8500130	Granted	02/16/2032	DYNAMIC SHAFT SEAL AND METHOD OF
05/03/2011	13/099474	06/11/2013	8459654	Granted	10/11/2031	HYDRODYNAMIC SEAL WITH INCREASED
01/27/2012	13/359721	12/30/2014	8919206	Granted	09/05/2032	METHOD OF TESTING SEAL LIP BOND
10/06/2015	14/875990	05/16/2017	9651154	Granted	10/25/2032	RADIAL SHAFT SEAL, RADIAL SHAFT SEAL
10/25/2012	13/660766	11/03/2015	9175774	Granted	10/21/2033	RADIAL SHAFT SEAL, RADIAL SHAFT SEAL
09/20/2010	12/886099	05/14/2013	8439363	Granted	11/19/2031	DYNAMIC RADIAL SHAFT SEAL ASSEMBLY WITH
03/08/2011	13/042533	06/23/2015	9062773	Granted	07/22/2031	RADIAL SHAFT SEAL, RADIAL SHAFT SEAL
01/24/2013	13/748752	07/21/2015	9086150	Granted	01/24/2033	ELASTOMERIC SHAFT SEAL FORMED WITHOUT
06/17/2015	14/741737			Filed		ELASTOMERIC SHAFT SEAL FORMED WITHOUT
10/04/2012	13/645303	07/19/2016	9394998	Granted	01/02/2035	RADIAL SHAFT SEAL ASSEMBLY WITH SNAP IN
11/23/2011	13/303242	02/10/2015	8950753	Granted	10/24/2033	RADIAL SHAFT SEAL, RADIAL SHAFT SEAL
07/06/2011	13/176835	09/27/2016	9452464	Granted	05/13/2034	METHOD OF FORMING A TUBULAR MEMBER
09/26/2016	15/275731			Filed		METHOD OF FORMING A TUBULAR MEMBER
10/14/2011	13/273514	09/15/2015	9133698	Granted	10/10/2033	MODULAR FRACTURE PLUG AND METHOD OF
03/19/2012	13/423365	08/12/2014	8800996	Granted	08/03/2032	LOW TORQUE RADIAL SHAFT SEAL ASSEMBLY
03/21/2012	13/426450	06/23/2015	9062774	Granted	05/30/2033	RADIAL SHAFT SEAL WITH STATIC AND
08/24/2012	13/594765	09/16/2014	8833804	Granted	08/24/2032	HAMMER UNION FACE SEALS WITH WELDED
02/26/2014	14/190199			Filed		JV w/ Hendrickson - MAIN SEAL FOR A HEAVY

06/04/2013	13/909874	02/17/2015	8955849	Granted	06/04/2033	RADIAL SHAFT SEAL AND ASSEMBLY
08/14/2014	14/459702	10/04/2016	9458937	Granted	08/14/2034	SHAFT SEAL ASSEMBLY WITH EXCLUSION PUMP
03/17/2014	14/216640	06/10/2018	10018272	Granted	05/31/2036	SCAVENGER PUMP SEAL AND RADIAL SHAFT
05/20/2015	14/717178	08/22/2017	9739318	Granted	07/15/2035	CLUTCH PISTON ASSEMBLY
10/18/2016	15/296587			Filed		RADIAL SHAFT SEAL ASSEMBLY WITH AXIALLY
09/25/2017	15/714477			Filed		RADIAL SHAFT SEAL ASSEMBLY WITH DEBRIS
12/07/2009	13255605	08/13/2013	8507067	Granted	12/07/2029	Temperature-Vibration decoupling element /
05/08/2012	14/342507	07/04/2017	9694761	Granted	05/08/2032	Heat shielding plate in hybrid construction
11/20/2013	14/779705	12/05/2017	9835219	Granted	11/20/2033	shock absorber of shield plate [Schwingungsdämpfer
12/27/2015	14/979416	12/12/2017	9840959	Granted	12/27/2035	HEAT SHIELD ASSEMBLY FOR AN EXHAUST
04/21/2016	15/134568			Filed		HEAT AND VIBRATION MOUNTING ISOLATOR
01/18/2002	10/050906	04/06/2004	6715770	Granted	07/24/2020	LASERSCHWEISSVERFAHREN FUER DUENNE
01/16/2002	10/046664	04/20/2004	6722662	Granted	01/16/2022	MLS FUER DIESELMOTOREN
11/01/2001	10/037052	03/23/2004	6708983	Granted	11/01/2021	SPIRAL WOUND CYLINDER HEAD GASKET
12/13/2002	10/318,701	09/28/2004	6796562	Granted	12/13/2022	OPTIMIERTE ZKD ZUM AUSGLEICH VON
02/28/2007	11/679955	05/20/2008	7374176	Granted	01/13/2024	LASER WELDED MULTI-LAYERED STEEL GASKET
01/13/2004	10/756591	04/10/2007	7200932	Granted	03/02/2025	LASER WELDED MULTI-LAYERED STEEL GASKET
12/11/2003	10/733914	08/30/2005	6935635	Granted	12/11/2023	METAL GASKET
12/12/2003	10/545885	04/06/2010	7690657	Granted	12/12/2023	GLEITENDE STATISCHE DICHTUNG.
01/11/2005	11/032738	07/22/2008	7401790	Granted	05/17/2025	MOTION CONTROLLING RIGID GASKET DESIGN
04/21/2011	13/091191	10/15/2013	8556271	Granted	06/05/2025	MULTILAYER METAL GASKET
09/22/2004	10583535	02/26/2013	8382123	Granted	09/22/2024	SICKE AUF STOPPER MIT ZUSÄTZLICHER
06/03/2009	13413997	05/21/2013	8444154	Granted	09/22/2024	SICKE AUF STOPPER MIT ZUSÄTZLICHER
09/30/2005	11/241206	01/11/2011	7867374	Granted	08/16/2029	ACTIVE MATRIX ELECTROCHEMICAL MACHINING
07/03/2007	11/773200	05/04/2010	7708842	Granted	07/03/2027	METAL GASKET AND METHOD OF MAKING
03/18/2010	12/726591	05/15/2012	8177929	Granted	11/06/2027	METAL GASKET AND METHOD OF MAKING
12/18/2009	12/641772	10/20/2015	9163321	Granted	01/19/2027	FABRICATION OF TOPICAL STOPPER ON HEAD
03/27/2006	11/277544	02/02/2010	7655126	Granted	02/29/2028	THE FABRICATION OF TOPOGRAPHICAL
06/13/2006	12/066,699	08/21/2012	8246054	Granted	06/13/2026	Fomschlüssig befestigte Stopperbrille
01/31/2008	12/023339	01/24/2012	8100409	Granted	06/07/2030	METALLIC CYLINDER HEAD GASKET
06/24/2013	13/925038	04/11/2017	9618121	Granted	11/13/2029	METAL GASKET [HTA ALLOY HIGH STRESS
03/10/2008	12/045215	06/25/2013	8470098	Granted	10/19/2031	METAL GASKET [HTA ALLOY HIGH STRESS
08/11/2010	12/854626	12/13/2016	9518660	Granted	07/29/2031	BIMETALLIC STATIC GASKET AND METHOD OF
12/07/2016	15/371426			Filed		BIMETALLIC STATIC GASKET AND METHOD OF
12/17/2013	14/108709	07/22/2014	8783692	Granted	02/12/2029	MULTILAYER STATIC GASKET WITH BEAD

02/12/2009	12/3/20253	01/21/2014	8632077	Granted	12/03/2029	MULTILAYER STATIC GASKET WITH BEAD
04/14/2011	13/086481	07/04/2017	9695936	Granted	02/20/2032	MULTILAYER METAL GASKET WITH BEAD
06/24/2010	12/822392	06/26/2018	10006403	Granted	03/21/2032	CYLINDER HEAD GASKET
01/26/2010	13320595	03/11/2014	8668205	Granted	01/26/2030	Stamping bead on limiter ring / Prägung Sticke auf
06/25/2010	13/379112	11/21/2017	9822879	Granted	06/25/2030	Structure limiter ring for steel gaskets /
08/19/2010	12/859398	04/15/2014	8695986	Granted	09/01/2031	CYLINDER HEAD GASKET ASSEMBLY
10/14/2010	13/577501			Filed		metal gasket with fibre application
03/05/2012	13/412139	02/10/2015	8950754	Granted	04/26/2033	CYLINDER HEAD GASKET
10/06/2011	13/267020	12/31/2013	8616557	Granted	01/09/2032	MULTILAYER GASKET WITH SEGMENTED
01/31/2012	13/362459	05/12/2015	9027935	Granted	04/15/2033	GASKET WITH A COMPRESSION LIMITER
05/11/2015	14/708922			Filed		GASKET WITH A COMPRESSION LIMITER
02/24/2012	13/404188	03/24/2015	8984750	Granted	03/03/2033	STATIC GASKET WITH WIRE COMPRESSION
03/23/2015	14/665178			Filed		STATIC GASKET WITH WIRE COMPRESSION
02/01/2012	13/363714	10/15/2013	8556272	Granted	02/01/2032	MULTILAYER STATIC GASKET WITH SECONDARY
06/05/2012	13/488805	05/09/2017	9644741	Granted	01/03/2034	METAL GASKET [CHG WELD STOPPER WITH
05/18/2012	13/475025	06/17/2014	8752841	Granted	05/18/2032	GASKET WITH A COMPRESSION LIMITER
03/14/2013	13/827828	05/15/2018	9970548	Granted	07/10/2033	MULTI-LAYER GASKET
03/14/2013	13/804853	04/10/2018	9939066	Granted	03/14/2033	ELASTIC SEALING MEMBER RADially
08/12/2013	14439983			Filed		steel elastomer cylinder head gasket - integrated dirt-
03/14/2013	13/828024	02/24/2015	8960682	Granted	03/14/2033	HYBRID RING WELDED CYLINDER HEAD GASKET
02/13/2014	14/179934	01/26/2016	9243584	Granted	03/23/2034	CYLINDER HEAD GASKET WITH COMPRESSION
01/16/2015	14/588547	01/09/2018	9863535	Granted	02/08/2035	GASKET COMPONENT WITH HALF-STOP AND
06/10/2014	14/300694			Filed		STATIC GASKET AND METHOD OF
09/15/2014	14/486145	11/03/2015	9175637	Granted	09/15/2034	HOT GASKET WITH STAINLESS STEEL
09/10/2014	14/482230	09/08/2015	9127621	Granted	09/10/2034	COATINGLESS CYLINDER HEAD GASKET [CHG
02/13/2014	14/179961			Filed		CYLINDER HEAD GASKET FOR HIGH LOAD AND
06/22/2015	14/746202			Filed		CYLINDER HEAD GASKET WITH COMPRESSION
02/27/2015	14/633946	12/27/2016	9528466	Granted	06/27/2035	CYLINDER HEAD GASKET
12/23/2016	15/389798			Filed		CYLINDER HEAD GASKET
01/05/2016	14/988228			Filed		MULTI-LAYER GASKET ASSEMBLY
12/19/2015	14/975263			Filed		MULTILAYER STATIC GASKET, DISTANCE LAYER
07/28/2015	14/811150			Filed		MULTI LAYER GASKET ASSEMBLY [HYBRID HIGH
09/23/2016	15/274783			Filed		STATIC GASKET AND METHOD OF
10/05/2009	12/573372	10/09/2012	8281475	Granted	01/16/2027	SHEET METAL JOINT
12/05/2005	11/293152	10/16/2007	7281508	Granted	12/05/2025	NEUES MODULKONZEPT FÜR

10/14/2015	15534180				Filed			balance modul consisting of piston and spring
04/30/2002	10/135817	01/20/2004	6679932	Granted	04/30/2022			HIGH MACHINABILITY IRON BASE SINTERED
08/09/2007	12/377,094	10/02/2012	8277533	Granted	08/09/2027			Improved Powder Metallurgy Composition
03/15/2013	13/837549	10/20/2015	9162285	Granted	04/07/2029			[J.V. with Ecole Polytechnique] POWDER METAL
04/07/2009	12/419683	01/17/2017	9546412	Granted	11/29/2031			POWDERED METAL ALLOY COMPOSITION FOR
09/13/2017	15/709552			Filed				[J.V. with Ecole Polytechnique] POWDER METAL
09/16/2015	14/855883			Filed				[J.V. with Ecole Polytechnique] POWDER METAL
08/03/2012	13/566432	08/12/2014	8801828	Granted	10/15/2029			METHOD TO PRODUCE POWDER METAL
10/15/2009	12/579772	09/04/2012	8257462	Granted	03/24/2030			METHOD TO PRODUCE POWDER METAL
06/18/2014	14/308030			Filed				IRON-BASED SINTERED POWDER METAL FOR
12/05/2011	13/311123	02/24/2015	8962147	Granted	08/16/2032			POWDERED METAL COMPONENT IMPREGNATED
03/08/2013	13/790466	04/18/2017	9624568	Granted	10/12/2034			JDA W/ Ecole Polytechnique THERMAL SPRAY
02/15/2011	13/579083			Filed				A MASTER ALLOY FOR PRODUCING SINTER
10/17/2016	15/295733			Filed				JV with Ecole Polytechnique - TREATMENT OF
10/16/2017	15/784587			Filed				FREE GRAPHITE CONTAINING POWDERS [CAST
09/01/2017	15/693747			Filed				SELF-GENERATED PROTECTIVE ATMOSPHERE
08/03/2017	15/668368			Filed				COPPER INFILTRATED MOLYBDENUM AND/OR
12/15/2017	15/844277			Filed				THERMOMETRIC METALLURGY MATERIALS
04/12/2018	15/951688			Filed				MULTILAYER SINTERED BUSHINGS AND
07/29/2005	11/193810	12/11/2007	7306235	Granted	07/29/2025			PINNED LIMITER
09/14/2012	13/617651	05/27/2014	8733763	Granted	07/29/2025			GASKET ASSEMBLY HAVING ISOLATED
10/29/2007	11/927221	05/13/2014	8720906	Granted	10/08/2026			GASKET ASSEMBLY HAVING ISOLATED
07/29/2005	11/193812	12/04/2007	7302925	Granted	07/29/2025			MANIFOLD GASKET HAVING PUSHROD GUIDE
10/23/2007	11/877362	10/23/2012	8292303	Granted	08/09/2026			MANIFOLD GASKET HAVING PUSHROD GUIDE
02/03/2010	12/699310	10/08/2013	8550469	Granted	10/11/2031			MULTI-LAYERED COMPOSITE GASKET
06/08/2012	13/492143	12/19/2017	9845883	Granted	07/04/2032			SHAFT SEAL ASSEMBLY [TRUCK AXLE SEAL
03/17/2014	14/215796	09/13/2016	9441574	Granted	04/25/2034			ENGINE SPACER PLATE GASKET
08/29/2016	15/249745			Filed				ENGINE SPACER PLATE GASKET
07/15/2014	14/331972	11/01/2016	9482179	Granted	07/15/2034			CYLINDER HEAD GASKETS WITH PUSH-ROD
08/19/2014	14/462836	05/23/2017	9657840	Granted	09/19/2034			MULTI-LAYER GASKET ASSEMBLY
08/20/2014	14/464161			Filed				MULTI-LAYER GASKET ASSEMBLY
08/01/2018	62/713018			Filed	08/01/2019			SELF-EMBOSSING GASKET TECHNOLOGY
11/14/2001	09/993155	10/28/2003	6639148	Granted	11/14/2021			DUAL DRAIN WIRE FOR EMI SHIELDING SLEEVE
10/22/2002	10/277297	03/30/2004	6711920	Granted	10/22/2022			KNIT CONVOLUTE PROTECTED SLEEVE
06/20/2003	10/600944	12/27/2005	6978643	Granted	01/20/2024			MULTIPLE LAYER INSULATING SLEEVE

PATENT

REEL: 047223 FRAME: 0174

03/02/2004	10/791230	11/01/2005	6960722	Granted	03/02/2024	HARNNESS JUNCTION OVERWRAP
11/01/2007	11/933767	05/25/2010	RE41348E	Granted	03/02/2024	HARNNESS JUNCTION OVERWRAP
12/21/2004	11/018700	04/24/2007	7207762	Granted	12/21/2024	ATTACHABLE PUSH-ON RETAINERS
03/27/2007	11/691541	09/11/2012	8263866	Granted	09/16/2024	PROTECTION SHIELD POSITIONING ASSEMBLY
08/08/2012	13/569775	10/13/2015	9157564	Granted	03/27/2027	PROTECTION SHIELD POSITIONING ASSEMBLY
09/08/2015	14/847706			Filed		PROTECTION SHIELD POSITIONING ASSEMBLY
08/06/2002	10/213022	08/26/2003	6610928	Granted	08/06/2022	THERMALLY INSULATIVE SLEEVE
02/22/2005	11/063321	03/13/2007	7188642	Granted	08/18/2025	LOW FRICTION PULL TAPE
10/01/2004	10/956550	05/15/2007	7216622	Granted	10/01/2024	WIRING HARNNESS WITH INTEGRATED
12/21/2005	11/316313	02/06/2007	7171940	Granted	12/21/2025	HEAT SHIELD FOR ENGINE MOUNT
07/20/2005	11/185589	05/15/2007	7216678	Granted	07/20/2025	SELF-WRAPPING TUBE
12/28/2006	11/616983	07/08/2008	7395680	Granted	07/27/2025	SELF-CURLING KNITTED SLEEVE AND METHOD
03/12/2007	11/684984	08/18/2009	7576286	Granted	03/12/2027	PROTECTIVE SLEEVE FABRICATED WITH
08/01/2000	10/048568			Filed		SOUND ABSORBENT PROTECTIVE SLEEVE
12/03/2002	10/498997	07/10/2007	7241482	Granted	02/16/2023	PROTECTIVE SHEATH RECLOSABLE BY
03/22/2004	10/550727	06/26/2007	7235737	Granted	03/22/2024	ELECTROMAGNETIC SHIELDING SLEEVE WHICH
05/22/2007	11/751927			Filed		ELECTROMAGNETIC SHIELDING SLEEVE FOR
10/14/2005	11/665328	11/02/2010	7823420	Granted	10/14/2025	ELEMENT TEXTILE DE PROTECTION D'UN
10/11/2005	11/665536			Filed		PROCEDE DE FIXATION D'UN ECRAN
03/14/2006	11/375326	10/28/2008	7442875	Granted	05/26/2026	PROTECTED SHEATH WITH INTEGRAL BIASED
08/23/2012	13/593325	03/04/2014	8663766	Granted	01/18/2027	FABRIC FOR END FRAY RESISTANCE AND
01/18/2007	11/654943	09/25/2012	8273429	Granted	10/04/2028	FABRIC FOR END FRAY RESISTANCE AND
01/04/2007	11/619736	05/29/2012	8186325	Granted	06/10/2030	HEAT SHIELD HAVING LOCATING AND
05/11/2012	13/469658	11/18/2014	8887687	Granted	06/10/2030	HEAT SHIELD HAVING LOCATING AND
02/26/2007	12/279725			Filed		SLEEVIING FOR IMPACT PROTECTION OF A PIPE
03/01/2007	11/712650	10/13/2009	7600539	Granted	07/10/2027	LOW PROFILE TEXTILE WIRE BUNDLER SLEEVE
12/28/2006	11/617686	06/04/2013	8455080	Granted	12/28/2026	SELF-ADHESIVE PROTECTIVE SUBSTRATE
04/09/2007	11/697836	04/28/2009	7523532	Granted	04/09/2027	NONWOVEN SELF WRAPPING ACOUSTIC
03/25/2009	12/410947	07/13/2010	7754301	Granted	04/09/2027	NONWOVEN SELF WRAPPING ACOUSTIC
04/03/2007	11/696043	12/28/2010	7858164	Granted	08/06/2029	END FRAY SOLUTION FOR TEXTILE STRUCTURE
09/02/2011	13/224401	06/18/2013	8464427	Granted	06/27/2027	SLEEVE BEARING ASSEMBLY AND METHOD OF
06/27/2007	11/769354	04/10/2012	8152380	Granted	01/12/2030	SLEEVE BEARING ASSEMBLY AND METHOD OF
09/21/2007	11/859428	09/18/2012	8268916	Granted	09/21/2027	FLAME-RETARDANT COMPOUND AND METHOD
01/09/2008	11/971484	06/29/2010	7744143	Granted	10/15/2028	NONWOVEN PANEL AND METHOD OF
12/17/2013	14/109601	01/05/2016	9228278	Granted	02/25/2029	PROTECTIVE TEXTILE SLEEVE HAVING HIGH

02/25/2009	12/392156	04/22/2014	8701716	Granted	02/09/2032	PROTECTIVE TEXTILE SLEEVE HAVING HIGH
05/07/2008	12/599099			Filed		ELECTROMAGNETIC PROTECTION SHEATH
07/16/2008	12/669850	07/08/2014	8771817	Granted	07/16/2028	METHOD OF APPLYING AN ELASTOMER TO A
01/06/2009	12/349264	05/12/2015	9028937	Granted	12/01/2031	MULTILAYER PROTECTIVE TEXTILE SLEEVE AND
08/22/2008	12/196375	07/20/2010	7757517	Granted	09/07/2028	PROTECTIVE SLEEVE WITH KNITTED OPENING
10/07/2010	12/900105	01/17/2017	9548596	Granted	06/14/2031	FLEXIBLE TEXTILE SLEEVE WITH END FRAY
11/30/2010	12/995276			Filed		OVEN SEALING WITH SPRING EFFECT FOR
09/03/2009	12/553231	06/10/2014	8747582	Granted	09/03/2029	SELF-WRAPPING TEXTILE SLEEVE WITH
05/15/2014	14/278798	05/10/2016	9336924	Granted	09/03/2029	SELF-WRAPPING TEXTILE SLEEVE WITH
03/25/2009	12/933773	05/21/2013	8445784	Granted	02/07/2030	Protective Device, Particularly for Connection Element
06/10/2009	12/481670			Filed		NON-WOVEN SELF-WRAPPING THERMAL
08/22/2008	12/196715	01/25/2011	7874184	Granted	04/10/2029	THERMAL PROTECTION SLEEVE WITH KNIT
05/10/2011	13/104508			Filed		NON-WOVEN, SELF-WRAPPING THERMAL
08/16/2011	13/210638			Filed		NON-KINKING SELF-WRAPPING WOVEN SLEEVE
06/16/2011	13/162006	04/15/2014	8697786	Granted	06/16/2031	FLAME-RETARDANT COMPOUND, CONTINUOUS
06/10/2010	12/797798			Filed		FLEXIBLE, ABRASION RESISTANT TEXTILE
12/08/2011	13/314289			Filed		TEXTILE SLEEVE WITH PROTECTIVE COATING
09/04/2009	12/554454	10/09/2012	8283563	Granted	07/10/2029	EMI/RF/ESD SHIELDING SLEEVES FABRICATED
07/19/2010	12/838816	05/07/2013	8434333	Granted	12/19/2030	TRI-LAYER KNIT FABRIC, THERMAL PROTECTIVE
03/15/2013	13/836299	06/23/2015	9062396	Granted	09/18/2033	CORRUGATED KNIT SLEEVE AND METHOD OF
06/08/2015	14/733031	01/02/2018	9856061	Granted	11/09/2030	LOW PROFILE, WRAPPABLE ELONGATE
11/09/2010	12/942309	06/23/2015	9062802	Granted	06/25/2032	LOW PROFILE, WRAPPABLE SPACER FOR
12/28/2017	15/856634			Filed		LOW PROFILE, WRAPPABLE ELONGATE
10/02/2012	13/633528	11/04/2014	8875746	Granted	11/08/2032	TEXTILE SLEEVE WITH TWISTED HYBRID FILL
08/16/2010	12/856919	07/04/2017	9695962	Granted	10/26/2032	FIRE RESISTANT TEXTILE SLEEVE AND
11/24/2010	12/953788	02/05/2013	8367182	Granted	06/11/2031	OPEN SLEEVE WITH INTEGRATED FIXING (LOOP)
06/15/2011	13/160613	09/24/2013	8540531	Granted	11/16/2031	EMI CONNECTOR FERRULE AND ASSEMBLY
08/22/2012	13/592150	05/10/2016	9334591	Granted	12/27/2032	FLEXIBLE GREEN NONWOVEN BATTERY COVER
04/12/2016	15/096426			Filed		FLEXIBLE GREEN NONWOVEN BATTERY COVER
07/16/2014	14/333342	04/05/2016	9307685	Granted	07/16/2034	See also 50118 THE USE OF LOW MELT FUSABLE
03/23/2016	15/078341			Filed		PROTECTIVE SLEEVE WITH BONDED WIRE
09/20/2011	13/236960			Filed		(JDA with e2e) COMPOSITE PANEL HAVING
09/30/2011	13/249667	08/13/2013	8505339	Granted	12/23/2031	KNIT SLEEVE WITH KNIT BARRIER HAVING A
10/04/2012	13/644781	01/09/2018	9862109	Granted	10/04/2034	METHOD OF CUTTING TUBULAR MEMEBERS
06/25/2012	13/531768	04/17/2018	9945054	Granted	10/21/2032	HIGH TEMPERATURE RESISTANT WEFT KNIT



06/14/2012	13/523405	09/10/2013	8528456	Granted	06/14/2032	COATED TEXTILE SLEEVE AND METHOD OF
08/22/2012	13/592172	06/24/2014	8757215	Granted	09/07/2032	RADIALLY COLLAPSIBLE AND EXPANDABLE
06/11/2012	13/493661			Filed		REFLECTIVE TEXTILE SLEEVE AND METHOD OF
04/18/2012	13/450021			Filed		MULTILAYER TEXTILE SLEEVE AND METHOD OF
07/25/2014	14/340691			Filed		REINFORCED WRAPPABLE PROTECTIVE SLEEVE
03/13/2013	13/801633	03/06/2018	9913415	Granted	01/19/2036	EMI SHIELDING TEXTILE FABRIC, WRAPPABLE
11/01/2013	14/070237	06/26/2018	10006157	Granted	04/07/2034	POWDER RESIN LAYERED NONWOVEN
03/01/2013	13/782813	07/28/2015	9091002	Granted	03/01/2033	WRAPPABLE END FRAY RESISTANT
03/05/2014	14/198288	03/22/2016	9290876	Granted	03/20/2034	HEAT-SHRUNK TEXTILE SLEEVE WITH
02/04/2014	14/172715	03/06/2018	9909237	Granted	06/23/2035	NON-KINKING SELF-WRAPPING WOVEN SLEEVE
03/05/2018	15/911525			Filed		NON-KINKING SELF-WRAPPING WOVEN SLEEVE
03/13/2013	13/801889	03/01/2016	9277684	Granted	11/02/2033	SELF-WRAPPING EMI SHIELDING TEXTILE
04/12/2016	15/096561	03/06/2018	9908251	Granted	10/05/2032	METHOD OF CUTTING TUBULAR MEMBERS AND
10/05/2012	13/645097	05/10/2016	9333662	Granted	12/20/2033	METHOD OF CUTTING TUBULAR MEMBERS AND
03/11/2013	13/793397	10/25/2016	9478954	Granted	10/22/2028	SELF-CURLING NONWOVEN SLEEVE AND
10/19/2016	15/297330			Filed		SELF-CURLING NONWOVEN SLEEVE AND
03/11/2014	14/204294			Filed		WRAPPABLE TEXTILE SLEEVE HAVING
02/11/2013	13/764443	05/12/2015	9027706	Granted	06/13/2033	ENHANCED, LIGHTWEIGHT SCRIM ABSORBER
02/06/2013	13/761049	07/19/2016	9394636	Granted	04/29/2034	ENHANCED BRAIDED SLEEVE AND METHOD OF
12/10/2012	13/710148	03/29/2016	9297491	Granted	08/15/2033	CLEVAFLEX ACQUISITION - THERMALLY
05/09/2002	10/142017	03/16/2004	6705669	Granted	05/09/2022	CLEVAFLEX ACQ - ENERGY ABSORBER
12/11/2003	10/733596	08/12/2008	7410550	Granted	12/11/2023	CLEVAFLEX ACQ - FLEXIBLE INSULATING
03/17/2014	14/216444			Filed		MOLDABLE NONWOVEN HAVING HIGH
11/27/2017	15/823102			Filed		IF-M POWERTRAIN AND ACOME JOINTLY OWN
12/10/2013	14/102180			Filed		IF-M POWERTRAIN AND ACOME JOINTLY OWN
07/26/2013	13/952441			Filed		WRAPPABLE PROTECTIVE SLEEVE WITH
03/10/2014	14/203162	09/08/2015	9127381	Granted	03/26/2034	WRAPPABLE TEXTILE SLEEVE WITH
03/13/2014	14/209340	08/29/2017	9745679	Granted	11/24/2035	WARP KNIT WRAPPABLE SLEEVE WITH
03/13/2014	14/209563	11/14/2017	9816208	Granted	11/11/2035	SELF-WRAPPABLE ePTFE TEXTILE SLEEVE AND
09/12/2014	14/484369			Filed		HIGH SURFACE AREA FIBER AND METHOD OF
03/03/2015	14/636662	08/16/2016	9416469	Granted	03/03/2035	FLEXIBLE, ABRASION RESISTANT TEXTILE
03/14/2013	13/803225			Filed		END-FRAY RESISTANT HEAT-SHRINKABLE
12/03/2014	14/559832	08/02/2016	9404204	Granted	03/15/2033	CIP of SY-41554 FLEXIBLE, ABRASION
03/15/2013	13/837136	01/06/2015	8925592	Granted	06/08/2033	CIP of SY-41554 FLEXIBLE, ABRASION
05/28/2014	14/288795	04/25/2017	9633758	Granted	11/07/2034	WRAPPED TEXTILE SLEEVE WITH BONDED

09/02/2016	15/255661				Filed			WRAPPED TEXTILE SLEEVE WITH BONDED
11/21/2014	14/550621				Filed			SPIRAL WRAPPED NONWOVEN SLEEVE AND
08/26/2014	14/468997				Filed			PROTECTIVE TEXTILE SLEEVE WITH HOT MELT
04/02/2018	15/943201				Filed			50115 50116 combined into 50112 WRAPPABLE
10/01/2013	14/043663				Filed			50115 50116 combined into 50112 WRAPPABLE
08/26/2014	14/468858				Filed			WRAPPABLE MULTI-LAYERED HEATSHIELD
05/01/2015	14/701875				Filed			MICRO-PERFORATED REFLECTIVE TEXTILE
02/20/2015	14/627462	12/12/2017	9840793		Granted	10/15/2035		Non-Kinking Wrappable Knit Sleeve and Method of
12/08/2014	14/563786	01/09/2018	9863070		Granted	05/01/2036		TUBULAR KNITTING EDGES TO PREVENT
07/16/2015	14/801175				Filed			WRAPPABLE ABRASION RESISTANT,
03/10/2015	14/643638	05/08/2018	9963808		Granted	06/26/2036		KNIT EMI SHIELD AND METHOD OF
08/24/2015	14/833461				Filed			FLEXIBLE BATTERY COVER WITH INTEGRAL LID,
09/21/2015	14/859632	05/02/2017	9637071		Granted	09/21/2035		MOLDABLE NATURAL FIBER NONWOVEN WIRE
09/24/2015	14/863201				Filed			TEXTILE SLEEVE WITH ADHESIVE FIXATION
02/27/2015	14/634216				Filed			BRAIDED TEXTILE SLEEVE WITH SELF-
10/30/2015	14/928107				Filed			BRAIDED TEXTILE SLEEVE WITH SELF-
11/25/2015	14/952553	10/04/2016	9457739		Granted	11/25/2035		NONWOVEN ACOUSTIC SLEEVE AND METHOD
07/05/2016	15/202132	01/23/2018	9876339		Granted	07/05/2036		THERMAL SLEEVE WITH INTEGRAL POSITIONING
08/03/2016	15/227585	01/09/2018	9865379		Granted	08/03/2036		THERMAL SLEEVE WITH SELF-ADJUSTING
07/29/2016	15/224348				Filed			THERMAL SLEEVE WITH POSITIONING MEMBER,
08/03/2016	15/227210				Filed			THERMAL SLEEVE WITH REFLECTIVE
08/03/2016	15/227329				Filed			THERMAL SLEEVE WITH SELF-RETAINING
07/24/2017	15/658128				Filed			KNIT TUBULAR PROTECTIVE SLEEVE AND
12/18/2015	14/975129				Filed			WRAPPABLE END FRAY RESISTENT WOVEN
04/15/2016	15/130076				Filed			EMI PROTECTIVE SLEEVE AND METHOD OF
09/30/2016	15/282366				Filed			TOOL FOR FIXING A TEXTILE SLEEVE ABOUT AN
06/08/2016	15/176584				Filed			TRANSPARENT, END-FRAY RESISTANT TEXTILE
08/03/2016	15/227480				Filed			WOVEN TUBULAR THERMAL SLEEVE AND
12/08/2016	15/530182				Filed			BRAIDED, REFLECTIVE TEXTILE SLEEVE AND
10/28/2016	15/337472				Filed			SELF-WRAPPING, BRAIDED TEXTILE SLEEVE
11/10/2016	15/348682				Filed			BRAIDED TEXTILE SLEEVE WITH AXIALLY
10/28/2016	15/337750				Filed			BRAIDED TEXTILE SLEEVE WITH INTEGRATED
02/08/2018	15/892242				Filed			THERMALLY INSULATIVE, DURABLE,
06/30/2017	15/639053				Filed			CIRCUMFERENTIALLY CONTINUOUS AND
03/13/2017	15/457085				Filed			TEXTILE SLEEVE HAVING A LOW MELT

07/12/2017	15/648336				Filed		KNIT TEXTILE SLEEVE WITH SELF-SUSTAINING
03/13/2017	15/457729				Filed		TOOL FOR FIXING A TEXTILE SLEEVE ABOUT AN
01/20/2017	15/411080				Filed		ABRASION RESISTANT BRAIDED TEXTILE
01/18/2017	15/409150				Filed		ABRASION RESISTANT TEXTILE SLEEVE,
02/08/2017	15/428029				Filed		BRAIDED TEXTILE SLEEVE WITH SELF-
07/26/2018	16/046919				Filed		BRAIDED TEXTILE SLEEVE WITH LOCKED YARNS
08/23/2017	15/684857				Filed		IMPACT RESISTANT, SHRINKABLE WOVEN
08/23/2017	15/684875				Filed		IMPACT RESISTANT, SHRINKABLE KNITTED
08/23/2017	15/684799				Filed		IMPACT RESISTANT, SHRINKABLE BRAIDED
10/27/2017	15/796333				Filed		MULTI-CAVITY, SHRINKABLE SLEEVE AND
01/31/2018	15/885638				Filed		WOVEN SLEEVE WITH INTEGRAL ATTACHMENT
02/28/2018	15/908791				Filed		ABRASION RESISTANT BRAIDED CONVOLUTE
12/13/2017	15/840514				Filed		GROUND STRAP AND METHOD OF GROUNDING
07/25/2018	16/045521				Filed		BRAIDED TEXTILE SLEEVE WITH HOT-MELT
04/03/2018	15/944708				Filed		WOVEN EMI AND ABRASION RESISTANT SLEEVE
01/30/2018	15/884174				Filed		BRAIDED ELECTROMAGNETIC INTERFERENCE
01/10/2018	62/615842				Filed	01/10/2019	IMPACT RESISTANT, TUBULAR TEXTILE SLEEVE
11/06/2017	62/582140				Filed	11/06/2018	REFLECTIVE THERMAL BATTERY INSULATOR
06/18/2018	62/686572				Filed	06/18/2019	TOOL FOR FIXING A TEXTILE SLEEVE ABOUT AN
04/06/2018	62/654177				Filed	04/06/2019	SELF-WRAPPING SLEEVE AND METHOD OF
06/05/2018	62/681006				Filed	06/05/2019	IMPACT RESISTANT, TUBULAR TEXTILE SLEEVE
04/26/1999	09/299247	05/08/2001	6227094		Granted	04/26/2019	BRAIDED TUBULAR ARTICLE
11/28/1994	08/345206	10/21/2003	6635128		Granted	10/21/2020	WORK HARDENED POPPET EXHAUST VALVE
12/10/2001	10/016343	09/02/2003	6613251		Granted	12/10/2021	METHOD OF FORMING A CERAMIC ARTICLE
08/19/2002	10/223182	03/14/2006	7011067		Granted	08/19/2022	CHROME PLATED ENGINE VALVE
07/10/2006	11/483882	03/23/2010	7682471		Granted	07/10/2026	AUSTENITIC IRON-BASED ALLOY
07/27/2016	15762170				Filed		Hollow valve with hollow sided whirling blades
07/11/2016	15761643				Filed		cavity valve with blanking over with reducing notch
07/06/2016	PCT/EP2016/065965				Filed		heat roll of cavity valve
08/21/2002	10/130908	03/27/2007	7194781		Granted	08/21/2022	WINDSCREEN WIPER DEVICE (WEAR
10/02/2000	10/110357	11/23/2004	6820304		Granted	10/02/2020	WINDSCREEN WIPER DEVICE ( X 6
03/21/2002	10/103477	07/27/2004	6766553		Granted	05/24/2022	HEAVY-DUTY FLAT WIPER BLADE ASSEMBLY
03/10/2004	10/797336	05/01/2007	7210228		Granted	03/21/2022	METHOD OF MANUFACTURING A FLAT WIPER
05/02/2002	10/476929	09/01/2009	7581277		Granted	05/02/2022	SPOILER FOR YOKELESS BLADE ( X 1 SPOILERS
07/28/2009	12/510476	01/08/2013	8347449		Granted	05/02/2022	SPOILER FOR YOKELESS BLADE ( X 1 SPOILERS

12/18/2012	13718355	11/12/2013	8578583	Granted	05/02/2022	SPOILER FOR YOKELESS BLADE ( X 1 SPOILERS
07/25/2013	13/950615	04/14/2015	9003597	Granted	05/02/2022	SPOILER FOR YOKELESS BLADE ( X 1 SPOILERS
04/29/2003	10/511,473	04/06/2010	7690073	Granted	04/29/2023	NEW FIXATION OF CONNECTOR ON YOKELESS
09/23/2003	10/528,856	12/11/2007	7305734	Granted	09/23/2023	BAYONET CONNECTORS
09/23/2003	11/930503	12/22/2009	7634833	Granted	09/23/2023	BAYONET CONNECTORS
08/25/2004	10/570729	10/02/2012	8276239	Granted	08/25/2024	CO-EXTRUDED SPOILER FOR X1 BLADE ( CO-
05/22/2008	10/562193	07/22/2014	8782844	Granted	05/22/2028	X1 END CAP
02/06/2006	11816368	07/09/2013	8479349	Granted	02/06/2026	X1 BAYONET FITTING POKA-YOKE
06/03/2005	11/144,435	07/15/2008	7398577	Granted	06/03/2025	A WINDSCREEN WIPER DEVICE ( STANDARD
02/16/2005	10590753	10/08/2013	8549696	Granted	02/16/2025	X1 BAYONET FITTING WITH EXTRA SAFETY
08/07/2014	14454307	08/22/2017	9738261	Granted	07/18/2025	X1 BAYONET FITTING WITH NEW SPACER
06/04/2013	13/909620	08/12/2014	8800099	Granted	07/18/2025	X1 BAYONET FITTING WITH NEW SPACER
06/15/2011	13/160920	08/13/2013	8505152	Granted	07/18/2025	X1 BAYONET FITTING WITH NEW SPACER
06/04/2017	13909475	03/22/2016	9290157	Granted	07/18/2025	X1 BAYONET FITTING WITH NEW SPACER
07/18/2005	11/573065	07/19/2011	7979950	Granted	09/02/2028	X1 BAYONET FITTING WITH NEW SPACER
08/05/2013	13/759,833	06/14/2016	9365189	Granted	01/10/2026	X1 BAYONET LOW COST VERSION
01/10/2006	11814022	09/03/2013	8522393	Granted	01/10/2026	X1 BAYONET LOW COST VERSION
10/06/2005	11/665,593			Filed		NEW SPRING RETENTION IN CHANNEL
02/09/2006	11817719	06/12/2012	8196252	Granted	02/09/2026	X1 End Cap with Rubber Retention
01/13/2006	11815515	03/26/2013	8402593	Granted	01/13/2026	X1 (Flat Blade) with refillable construction
07/06/2006	11996225	01/22/2013	8356383	Granted	07/06/2026	BRAZING TECHNIQUE BETWEEN X1 (FLAT
04/05/2007	12/297,945			Filed		New Master Connector for X1
03/02/2009	12/298853	07/14/2015	9079569	Granted	03/02/2029	Standard Spacer for X1 Arm with U Shape
02/05/2013	13759883	08/06/2013	8499408	Granted	07/02/2027	Low cost connection for flat blade with improve
04/23/2007	12/300,202	06/24/2014	8756748	Granted	04/23/2027	Connector retrofit for X1
05/12/2014	14275682	10/27/2015	9168897	Granted	04/23/2027	Connector retrofit for X1
05/14/2007	12301561	01/01/2013	8341801	Granted	05/14/2027	RUBBER ELEMENT RETENSION FOR X1
06/28/2007	12/307,460	03/24/2015	8984707	Granted	06/28/2027	Connector X1 to avoid after spray on some
09/22/2006	29/249129	04/10/2007	D540243	Granted	04/10/2021	[DESIGN PATENT] TWO-PIECE CONNECTOR FOR
09/20/2007	11/855641	04/28/2009	7523522	Granted	09/20/2027	2-PIECE CONNECTOR FOR FLAT BLADE
10/29/2007	11/926229	07/05/2011	7971313	Granted	05/04/2030	WIPER ARM ASSEMBLY HAVING A LOCKING TAB
10/29/2007	11/926344	10/25/2011	8042219	Granted	07/26/2030	WIPER ASSEMBLY HAVING LOCKING SURFACES
11/03/2011	13/181004	10/16/2012	8286321	Granted	10/29/2027	WIPER ARM ASSEMBLY HAVING A LOCKING
10/29/2007	11/926543	08/09/2011	7992249	Granted	06/08/2030	WIPER ARM ASSEMBLY HAVING A LOCKING
09/23/2011	13/241866	05/21/2013	8443505	Granted	10/24/2027	WIPER ARM ASSEMBLY HAVING A LOCKING

10/24/2007	11/923311	10/18/2011	8037569	Granted	05/22/2030	ANTI ROTATION FEATURE ON A PLASTIC
10/24/2007	11/877929	08/16/2011	7996952	Granted	12/05/2028	WIPER ARM ASSEMBLY HAVING A LOCKING
11/17/2011	13/190834	02/13/2014	8720035	Granted	02/18/2029	WIPER ARM ASSEMBLY HAVING A LOCKING
09/22/2006	29/249147	10/09/2007	D552486	Granted	10/09/2021	CONTOUR FLAT BLADE PACKAGING DESIGN
09/21/2007	11/859319	04/06/2010	7690509	Granted	07/01/2028	CONTOUR FLAT BLADE PACKAGING DESIGN
06/18/2008	12/666558	11/13/2012	8307493	Granted	06/18/2028	Single flexor X1 rubber holder and connector sharpe
06/17/2008	12/666901	01/09/2018	9862355	Granted	06/17/2028	Single flexor X1 connection between the rubber holder
05/21/2008	12/124623	08/09/2011	7992248	Granted	01/22/2030	SPOILERLESS FLATBLADE WIPER BLADE
11/03/2011	13/180618	05/13/2014	8720033	Granted	05/03/2031	METHOD OF ASSEMBLING A WIPER BLADE
09/30/2008	12681157	10/12/2013	8544138	Granted	09/30/2028	Arm With Tube Spring Retention
03/30/2009	12/935649	11/21/2017	9821772	Granted	03/30/2029	Spoiler symmetric with variable geometry
03/16/2009	12/933483	08/04/2015	9096195	Granted	03/16/2029	SINGLE flexor flat blade with sliding spoiler
03/23/2009	12/935055	07/14/2015	9079568	Granted	03/23/2029	Double "Stege" Profile and other "Stege" Position
03/02/2009	12/933458	08/15/2014	8793833	Granted	03/02/2029	X1 with longer rubber with guiding and localisation of
02/17/2009	12918261	03/26/2013	8402594	Granted	02/17/2029	RUBBER HOLDER FOR SINGLE FLEXOR FLAT
03/31/2009	12936240	03/26/2013	8402595	Granted	03/31/2029	End Cap X1 with metallic insert
06/29/2009	12/493550	10/15/2013	8555455	Granted	06/29/2029	RE-ENFORCED CONNECTOR BASE FOR FFAT
08/26/2009	12/548062	11/13/2012	8307494	Granted	08/26/2029	END CAP WITH RUBBER RETENTION TO LOCK
07/13/2009	12/501768	11/11/2014	8.881.337	Granted	07/13/2029	New arm and blade concept direct connection
04/01/2010	13/262740	01/31/2017	9555774	Granted	04/01/2030	Connector Base for mono flexor flat blade (X0)
05/20/2010	13699100	05/03/2016	9327688	Granted	05/20/2030	Universal connector for 9x3 and 9x4 pin hole plus slide
10/28/2009	13/504610	06/07/2016	9358957	Granted	10/28/2029	Dedicated limitation in rotation device for hook
04/13/2010	12/761637	12/03/2013	8595890	Granted	04/13/2030	End Cap of Single Flexor Blade hold on the Rubber
04/24/2009	13/265941			Filed		Very strong connection for wiper system with no
03/22/2010	12/727683	12/11/2012	8327499	Granted	03/22/2030	Flat blade rubber for single flexor flat blade having
04/27/2009	13/266572	09/09/2014	8826485	Granted	04/27/2029	FLAT BLADE RUBBER ("W") FOR SINGLE FLEXOR
07/08/2010	12/832134	01/01/2013	8341799	Granted	07/01/2031	MULTIFUNCTIONAL WIPER BLADE CONNECTOR
04/22/2010	13/642718			Filed		A WIndscreen Wiper Device
05/20/2010	13/699200	04/26/2016	9321431	Granted	05/20/2030	RETROFIT CONNECTOR FOR X1 WITH THE CAP
04/28/2010	13/695146			Filed		WO CO EXTRUDED RUBBER
06/23/2010	13/806517			Filed		W0 Connector to avoid fish Tailling
07/12/2010	13/810012	12/01/2015	9199612	Granted	07/12/2030	W0 Connector in two parts
12/18/2015	14974397			Filed		Cut at the extremity of the W0
09/30/2010	13/877215			Filed		Retention Rubber - flexor - Base for the W0
09/30/2010	13/877209	12/19/2017	9845078	Granted	09/30/2030	PACKING FLAT BLADE HOLDER

09/30/2010	15/846874					Filed			PACKING FLAT BLADE HOLDER
02/02/2011	13/983212	08/16/2016	9415750	Granted	02/02/2031	Granted		Connector Tab with step 9x3 9x4	
02/03/2011	13/983621	02/28/2017	9580048	Granted	02/03/2031	Granted		Connector Base for W0 with double "U" shape	
02/03/2011	15281922			Filed				Connector Base for W0 with double "U" shape	
04/07/2011	14/110218	08/01/2017	9718442	Granted	04/07/2031	Granted		ASSEMBLY PROCESS FOR THE W0	
04/13/2011	14/111632	04/18/2017	9623844	Granted	04/13/2031	Granted		W0 CONNECTOR WITH PIN LOCK	
04/13/2011	14/111630	02/28/2017	9580047	Granted	04/13/2031	Granted		W0 CONNECTOR WITH PIN CUT AND LOCK	
04/13/2011	14/111637	02/14/2017	9566949	Granted	04/13/2031	Granted		New X1 Retention for extruded rubber	
06/28/2011	14/129487	12/19/2017	9845075	Granted	06/28/2031	Granted		W0 CONNECTOR WITH PIN INTEGRATED	
11/16/2012	13/678863			Filed				WINDSCREEN WIPER DEVICE [MICROTEXTURED	
10/26/2011	PCT/EP2011/068732	04/18/2017	9623842	Granted	10/26/2031	Granted		W0 RUBBER CAVITY WITH CONCAVE SURFACE	
08/31/2011	14/926,113			Filed				W0 WIPER BLADE WITH CONNECTOR BASE	
08/31/2011	14/342,500			Filed				W0 WIPER BLADE WITH CONNECTOR BASE	
12/14/2012	13/714987	04/07/2015	8997304	Granted	12/14/2032	Granted		WINDSCREEN WIPER DEVICE (WIPER BLADE	
04/07/2015	14/680602	12/05/2017	9834178	Granted	12/14/2032	Granted		WINDSCREEN WIPER DEVICE (WIPER BLADE	
12/14/2011	14/365737			Filed				End Cap for W0	
12/14/2011	13/714497	10/18/2016	9469276	Granted	12/14/2031	Granted		WINDSCREEN WIPER DEVICE (Floating End Cap)	
10/28/2016	15/337303			Filed	12/13/2032			WINDSCREEN WIPER DEVICE (M-Shaped Flexors)	
12/14/2012	13/714742	05/09/2017	9643573	Granted	12/14/2032	Granted		WINDSCREEN WIPER DEVICE (Flanged End Caps)	
12/13/2012	13/713173	11/01/2016	9481343	Granted	04/06/2033	Granted		WINDSCREEN WIPER DEVICE (M-Shaped Flexors)	
12/14/2012	13/714800	05/10/2016	9333947	Granted	06/06/2033	Granted		WINDSCREEN WIPER DEVICE (Method of Sliding	
12/14/2012	13/714662			Filed				WINDSCREEN WIPER DEVICE (Subassemblies and	
12/14/2011	14/365804	02/20/2018	9896064	Granted	12/14/2031	Granted		ARM HINGE DESIGN FOR PAINTING HELPFUL	
12/16/2011	14365730			Filed				REAR WIPER ARM SAFE LOCK FOR SERVICE	
12/15/2011	14/365733			Filed				END CAP FOR W0 2	
12/27/2012	13/728280	11/10/2015	9180839	Granted	07/31/2033	Granted		WINDSCREEN WIPER DEVICE (Wiper Connector	
04/05/2012	PCT/EP2012/056356	07/19/2016	9393934	Granted	04/05/2032	Granted		New arm articulation with stopin service position	
06/21/2012	PCT/EP2012/061914			Filed				Arm articulation with service stop with improve groove	
05/14/2012	14/401025	10/10/2017	9783164	Granted	05/14/2032	Granted		bayonet connection without adapter	
06/26/2012	14/410,826			Filed				AX1 base with pin inserted for flexor retention	
11/21/2012	PCT/EP2012/073237			Filed				END CAP with spoiler groove	
05/02/2013	14784159	08/01/2017	9718443	Granted	05/02/2033	Granted			
04/14/2014	14/252296			Filed				WINDSCREEN WIPER DEVICE	
05/22/2013	14/892455			Filed				Extrusion Tandem Back to Back	
07/22/2013	14905037			Filed				Cap cover with integrated water spray	

05/29/2014	14/290609	03/07/2017	9586560	Granted	04/30/2035	WINDSCREEN WIPER DEVICE
11/06/2014	14/534820	12/19/2017	9845079	Granted	02/19/2036	REAR WINDSHIELD WINDSCREEN WIPER
11/06/2014	14/535073	03/20/2018	9919684	Granted	04/24/2036	WINDSCREEN WIPER DEVICE [FLAT BLADE
07/09/2013	14903329	09/12/2017	9758131	Granted	07/09/2033	Poke yoke for rear flat blade
12/16/2014	14/572101			Filed		WINDSCREEN WIPER DEVICE [X1 BEAM BLADE
07/03/2014	15/321941			Filed		Multiclip connector bayonet 19 and 22 mm
07/03/2014	15/322016			Filed		Side 22 and low cost connector
05/01/2014	15307479			Filed		Optimized wiper arm extension (u shape) with
07/16/2014	15321310			Filed		Retrofit multiclip wiperblade (universal wiperblade)
05/13/2015	14/710745	08/29/2017	9744946	Granted	05/13/2035	WINDSCREEN WIPER DEVICE
10/16/2015	14/885395			Filed		WINDSCREEN WIPER DEVICE [X1 BEAM BLADE
10/16/2015	14/885297			Filed		WINDSCREEN WIPER DEVICE [CYLINDRICAL
10/14/2015	15766940			Filed		15 02 Connector base compatible with ultrasonic weld
02/15/2016	PCT/EP2016/053149			Filed		153 LPC with no visible hopening in the top
09/24/2015	PCT/EP2015/072026			Filed		15 04 LPC WITH EXTRA OPENING TO RELEASE
12/04/2015	PCT/EP2015/078685			Filed		15 09 HEATING BLADE
12/09/2015	PCT/EP2015/079122			Filed		1510 W0 CLIPPING PIN
02/15/2016	16076795			Filed		Wiper Arm WITH SPRING EXTENSION 15 15
06/13/2017	US15/620852			Filed		X1 FLAT BLADE CONNECTOR FOR 22MM, 19MM,
06/26/2017	15/632495			Filed		X1 BLADE WITH SIDE LOCKS ON CONNECTOR
10/13/2017	15/782949			Filed		METAL/PLASTIC CONNECTOR BASE [3 BASE
10/13/2017	15/782949			Filed		METAL/PLASTIC CONNECTOR BASE [19mm AND
11/03/2017	15/802750			Filed		CONNECTOR SLIDE LOCKS
11/03/2017	62/581432			Filed	11/03/2018	DUAL BUTTON SPACER
11/03/2017	62/581458			Filed	11/03/2018	DUAL BUTTON SPACER
11/03/2017	62/581419			Filed	11/03/2018	DUAL BUTTON SPACER
09/04/2018	62/726534			Filed	09/04/2019	SPOILER WITH ELEMENT AND FLEXOR
04/26/2004	29/204288			Filed		Windscreen wiper blade no. 1
04/26/2004	29/204227	07/03/2007	D545752	Granted	07/03/2021	Windscreen wiper blade no. 5

Current Owner	Publication Date	Publication Number	Segment
FEDERAL-MOGUL WORLD WIDE LLC			NP
FEDERAL-MOGUL LLC			NP
FEDERAL-MOGUL WORLD WIDE LLC			PT
FEDERAL-MOGUL WORLD WIDE LLC	01/31/2002	2002/0011414	PT
FEDERAL-MOGUL WIESBADEN GMBH			PT
FEDERAL-MOGUL WIESBADEN GMBH			PT
FEDERAL-MOGUL WIESBADEN GMBH	08/23/2001	2001/0016267	PT
FEDERAL-MOGUL WIESBADEN GMBH	07/18/2002	US2002-0094143	PT
FEDERAL-MOGUL WORLD WIDE LLC	04/10/2003	US2003-0068106	PT
FEDERAL-MOGUL WORLD WIDE LLC			PT
FEDERAL-MOGUL WORLD WIDE LLC	04/17/2003	US2003-0072670	PT
FEDERAL-MOGUL WORLD WIDE LLC			PT
FEDERAL-MOGUL WORLD WIDE LLC			PT
FEDERAL-MOGUL WORLD WIDE LLC			PT
FEDERAL-MOGUL WORLD WIDE LLC			PT
FEDERAL-MOGUL WORLD WIDE LLC	02/17/2005	2005/015036	PT
FEDERAL-MOGUL WIESBADEN GMBH			PT
FEDERAL-MOGUL WIESBADEN GMBH	11/02/2006	2006/0243046	PT
FEDERAL-MOGUL WIESBADEN GMBH	03/26/2009	2009-00814771	PT
FEDERAL-MOGUL WIESBADEN GMBH	11/16/2006	2006/120016	PT
FEDERAL-MOGUL WIESBADEN GMBH	11/16/2006	2006/120022	PT
FEDERAL-MOGUL WIESBADEN GMBH	11/30/2006	2006/125584	PT
FEDERAL-MOGUL WIESBADEN GMBH	07/12/2007	WO2007/076803	PT
FEDERAL-MOGUL WIESBADEN GMBH	11/04/2010	WO2010/125026	PT
FEDERAL-MOGUL WIESBADEN GMBH	01/29/2009	WO2008/013178	PT
FEDERAL-MOGUL WORLD WIDE LLC			PT
FEDERAL-MOGUL WORLD WIDE LLC			PT
FEDERAL-MOGUL WIESBADEN GMBH			PT
FEDERAL-MOGUL WIESBADEN GMBH	07/08/2010	WO2010/076306	PT
FEDERAL-MOGUL WIESBADEN GMBH			PT
FEDERAL-MOGUL WIESBADEN GMBH			PT
FEDERAL-MOGUL WIESBADEN GMBH	07/08/2010	WO2010/076307	PT
FEDERAL-MOGUL WIESBADEN GMBH	09/20/2012	WO2012/123213	PT



FEDERAL-MOGUL WIESBADEN GMBH	09/22/2011	WO2011/113952	pt
FEDERAL-MOGUL WIESBADEN GMBH	10/07/2010	WO2010/112309	pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL WIESBADEN GMBH	11/25/2010	WO2010/133579	pt
FEDERAL-MOGUL WIESBADEN GMBH	11/11/2010	WO2010/128086	pt
FEDERAL-MOGUL WIESBADEN GMBH	01/26/2012	WO2012/010334	pt
FEDERAL-MOGUL WIESBADEN GMBH	03/08/2012	WO2012/028345	pt
FEDERAL-MOGUL WIESBADEN GMBH	06/30/2011	WO2011/076662	pt
FEDERAL-MOGUL WIESBADEN GMBH	03/08/2012	WO2012/028682	pt
FEDERAL-MOGUL WIESBADEN GMBH	07/22/2015	WO2015/097158	pt
FEDERAL-MOGUL WIESBADEN GMBH	12/15/2011	WO2011/154039	pt
FEDERAL-MOGUL WIESBADEN GMBH	04/21/2016	WO2016/08780	pt
FEDERAL-MOGUL WIESBADEN GMBH	03/08/2012	WO2012/028715	pt
FEDERAL-MOGUL WIESBADEN GMBH	08/23/2012	WO2012/110115	pt
FEDERAL-MOGUL WIESBADEN GMBH	03/15/2012	WO2012031792	pt
FEDERAL-MOGUL WIESBADEN GMBH	12/13/2012	WO2012/168096	pt
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FEDERAL-MOGUL WIESBADEN GMBH	10/18/2012	WO2012/139671	pt
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FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL WIESBADEN GMBH	12/05/2013	WO2013/178266A1	pt
FEDERAL-MOGUL WIESBADEN GMBH	12/11/2014	WO2014/195458	pt
FEDERAL-MOGUL WIESBADEN GMBH	09/11/2015	WO2015/132188	pt
FEDERAL-MOGUL WIESBADEN GMBH	12/31/2014	WO2014/180951A3	pt
FEDERAL-MOGUL WIESBADEN GMBH	07/22/2015	WO2015/097160	pt
FEDERAL-MOGUL WIESBADEN GMBH	10/22/2015	WO2015/158807	pt
FEDERAL-MOGUL WIESBADEN GMBH	03/10/2016	WO2016/034484	pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL WIESBADEN GMBH	01/19/2017	WO2017/009132A1	pt













FEDERAL-MOGUL LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC	02/27/2003	US2003-0037671			pt
FEDERAL-MOGUL WORLD WIDE LLC	03/20/2003	US2003-0051714			pt
FEDERAL-MOGUL WORLD WIDE LLC	11/27/2003	2003-0217930A1			pt
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FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC	03/20/2003	US2003-0051694			pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC	04/24/2003	US-2003-007504			pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC	04/24/2003	US2003-0075137			pt
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FEDERAL-MOGUL LLC					pt

















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FEDERAL-MOGUL IGNITION COMPANY	08/17/2017	2017/0237235	pt
FEDERAL-MOGUL IGNITION COMPANY			pt
FEDERAL-MOGUL IGNITION COMPANY	04/24/2014	2014/0111078	pt
FEDERAL-MOGUL IGNITION COMPANY	07/31/2014	US20140210334	pt
FEDERAL-MOGUL IGNITION COMPANY	07/31/2014	US20140210334	pt
FEDERAL-MOGUL IGNITION COMPANY	08/28/2014	20140239796	pt
FEDERAL-MOGUL IGNITION COMPANY			pt
FEDERAL-MOGUL IGNITION COMPANY	07/28/2016	2016/0218488	pt
FEDERAL-MOGUL IGNITION COMPANY	12/15/2016	2016/0365706	pt
FEDERAL-MOGUL IGNITION COMPANY			pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL IGNITION GmbH			pt
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FEDERAL-MOGUL IGNITION GmbH			pt
FEDERAL-MOGUL IGNITION GmbH		2011/227472	pt
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FEDERAL-MOGUL IGNITION GmbH	10/05/2006	20060223406	pt
FEDERAL-MOGUL IGNITION GmbH			pt







FEDERAL-MOGUL BURSCHHEID GMBH	05/06/2010	2010/0112376	pt
FEDERAL-MOGUL BURSCHHEID GMBH	10/14/2004	WO2004/088179	pt
FEDERAL-MOGUL BURSCHHEID GMBH	07/07/2005	WO2005/061751	pt
FEDERAL-MOGUL BURSCHHEID GMBH	03/13/2008	US2008/0060945	pt
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FEDERAL-MOGUL BURSCHHEID GMBH	08/07/2008	WO2008/040695	pt
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FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL BURSCHHEID GMBH	10/08/2009	WO2009/121719	pt
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FEDERAL-MOGUL BURSCHHEID GMBH	08/26/2010	WO2010/094247	pt
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FEDERAL-MOGUL BURSCHHEID GMBH	12/22/2011	20110311391	pt
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FEDERAL-MOGUL BURSCHHEID GMBH			pt
FEDERAL-MOGUL BURSCHHEID GMBH	09/23/2010	WO2010/105710	pt
FEDERAL-MOGUL BURSCHHEID GMBH	10/14/2010	WO2010/115448	pt

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FEDERAL-MOGUL BURSCHHEID GMBH	05/19/2011	WO2011/057875	pt
FEDERAL-MOGUL BURSCHHEID GMBH	02/03/2011	WO2011/012336	pt
FEDERAL-MOGUL BURSCHHEID GMBH	02/17/2011	2011/018252	pt
FEDERAL-MOGUL BURSCHHEID GMBH	11/21/2013	2013/0307221A1	pt
FEDERAL-MOGUL BURSCHHEID GMBH	04/28/2011	WO2011/047922	pt
FEDERAL-MOGUL BURSCHHEID GMBH	05/05/2011	WO2011/051008A	pt
FEDERAL-MOGUL BURSCHHEID GMBH	09/15/2011	WO2011/110413	pt
FEDERAL-MOGUL BURSCHHEID GMBH	09/01/2011	WO2011/103853	pt
FEDERAL-MOGUL BURSCHHEID GMBH	08/04/2011	WO2011/091876	pt
FEDERAL-MOGUL BURSCHHEID GMBH	09/15/2011	WO2011/110411	pt
FEDERAL-MOGUL BURSCHHEID GMBH	04/19/2012	WO2012/048919	pt
FEDERAL-MOGUL BURSCHHEID GMBH	09/15/2011	WO2011/110412	pt
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FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL BURSCHHEID GMBH	01/26/2012	WO2012/010376	pt
FEDERAL-MOGUL LLC			pt
DAROS PISTON RINGS AB			pt
DAROS PISTON RINGS AB			pt
DAROS PISTON RINGS AB			pt
FEDERAL-MOGUL BURSCHHEID GMBH	07/25/2013	2013/0187340A1	pt
FEDERAL-MOGUL BURSCHHEID GMBH	07/18/2013	2013-0181411	pt
FEDERAL-MOGUL BURSCHHEID GMBH			pt
FEDERAL-MOGUL BURSCHHEID GMBH	07/25/2013	2013/0187341A1	pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL BURSCHHEID GMBH			pt
FEDERAL-MOGUL BURSCHHEID GMBH	07/18/2013	WO2013/104784	pt
FEDERAL-MOGUL BURSCHHEID GMBH	07/18/2013	WO2013/104784	pt
FEDERAL-MOGUL BURSCHHEID GMBH	01/09/2014	2014/0008874	pt
FEDERAL-MOGUL BURSCHHEID GMBH	02/26/2015	UA2015/0054222A1	pt
FEDERAL-MOGUL BURSCHHEID GMBH	03/20/2014	2014/0076265	pt
FEDERAL-MOGUL BURSCHHEID GMBH			pt
FEDERAL-MOGUL BURSCHHEID GMBH	01/17/2013	WO/2013/007401	pt
FEDERAL-MOGUL BURSCHHEID GMBH	05/07/2015	US2015/0122045A1	pt
FEDERAL-MOGUL BURSCHHEID GMBH	08/22/2013	WO2013/120471	pt

FEDERAL-MOGUL BURSCHIED GMBH	05/14/2015	US2015/0130143A1	pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL LLC			pt
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FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL BURSCHIED GMBH	02/13/2014	WO2014/023615	pt
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FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL BURSCHIED GMBH	07/24/2014	WO2014/111294	pt
FEDERAL-MOGUL BURSCHIED GMBH	03/20/2014	WO2014/040940	pt
FEDERAL-MOGUL BURSCHIED GMBH	05/05/2016	2016/0122862A1	pt
FEDERAL-MOGUL BURSCHIED GMBH	07/17/2014	WO2014/108226A1	pt
FEDERAL-MOGUL BURSCHIED GMBH	05/15/2014	WO2014/072115	pt
FEDERAL-MOGUL BURSCHIED GMBH			pt
FEDERAL-MOGUL FRIEDBERG GMBH	10/16/2014	WO2014/166997	pt
FEDERAL-MOGUL BURSCHIED GMBH	01/19/2017	2017/0016537A1	pt
FEDERAL-MOGUL BURSCHIED GMBH	07/23/2015	WO2015/106884	pt
FEDERAL-MOGUL BURSCHIED GMBH	06/02/2016	WO2016082955	pt
FEDERAL-MOGUL FRIEDBERG GMBH	11/26/2015	WO2015/176843	pt
FEDERAL-MOGUL BURSCHIED GMBH	12/30/2015	WO2015/197361	pt
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FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL LLC			pt
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FEDERAL-MOGUL BURSCHIED GMBH	01/26/2017	WO2017/012796	pt
FEDERAL-MOGUL BURSCHIED GMBH	04/13/2017	WO2017/059971	pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL BURSCHIED GMBH	11/02/2017	WO2017/186915A1	pt
FEDERAL-MOGUL BURSCHIED GMBH	10/26/2017	WO2017/182185	pt

FEDERAL-MOGUL BURSCHHEID GMBH	09/21/2017	WO2017/157490	pt
FEDERAL-MOGUL BURSCHHEID GMBH	12/07/2017	WO2017/207172	pt
FEDERAL-MOGUL BURSCHHEID GMBH	12/07/2017	WO2017/207323	pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL NÜRNBERG GMBH	03/16/2006	WO2006/027157	pt
FEDERAL-MOGUL WORLD WIDE LLC			pt
FEDERAL-MOGUL WORLD WIDE LLC			pt
FEDERAL-MOGUL WORLD WIDE LLC			pt
FEDERAL-MOGUL NÜRNBERG GMBH	04/02/2009	WO2009/040148	pt
FEDERAL-MOGUL POWERTRAIN LLC			pt
FEDERAL-MOGUL POWERTRAIN LLC			pt
FEDERAL-MOGUL NÜRNBERG GMBH			pt
FEDERAL-MOGUL NÜRNBERG GMBH			pt
FEDERAL-MOGUL LLC			pt
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FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL NÜRNBERG GMBH	12/23/2009	WO2009/153237	pt
FEDERAL-MOGUL NÜRNBERG GMBH	12/23/2009	WO2009/153088	pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL NÜRNBERG GMBH	11/04/2010	WO2010/124894A	pt
FEDERAL-MOGUL NÜRNBERG GMBH	11/04/2010	WO2010/125060	pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL NÜRNBERG GMBH	09/29/2011	WO2011/117343	pt
FEDERAL-MOGUL NÜRNBERG GMBH	07/19/2012	WO2012/095445	pt
FEDERAL-MOGUL NÜRNBERG GMBH	06/28/2012	WO2012/084364	pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL NÜRNBERG GMBH	10/04/2012	WO2012/130839	pt
FEDERAL-MOGUL LLC			pt
FEDERAL-MOGUL NÜRNBERG GMBH	10/31/2013	WO2013/160447	pt
FEDERAL-MOGUL NÜRNBERG GMBH	01/23/2014	WO2014/012826	pt
FEDERAL-MOGUL LLC			pt







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FEDERAL-MOGUL LLC					pt
FEDERAL-MOGUL LLC					pt
FEDERAL-MOGUL LLC					pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH	09/16/2010		WO2010/102656		pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH			WO2013/034321		pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH	10/02/2014		WO2014/54307		pt
FEDERAL-MOGUL LLC					pt
FEDERAL-MOGUL LLC					pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH	07/18/2002		US-2002-009314		pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH					pt
FEDERAL-MOGUL WORLD WIDE LLC	05/01/2003		US2003-0080517		pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH					pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH					pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH					pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH					pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH					pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH					pt
FEDERAL-MOGUL WORLD WIDE LLC	04/06/2006		20060070887		pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL SEALING SYSTEMS GMBH	03/22/2007		WO2007/031127		pt
FEDERAL-MOGUL WORLD WIDE LLC					pt
FEDERAL-MOGUL LLC					pt
FEDERAL-MOGUL LLC					pt
FEDERAL-MOGUL LLC					pt
FEDERAL-MOGUL LLC					pt
FEDERAL-MOGUL LLC					pt

















FEDERAL-MOGUL SA (AUBANGE)	05/02/2013	US2013/0104371	NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)	05/24/2007	US2007/0113367	NAP
FEDERAL-MOGUL SA (AUBANGE)	09/18/2008	US2008/0222833	NAP
FEDERAL-MOGUL SA (AUBANGE)	08/24/2006	WO2006/050683	NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)	02/09/2006	WO2006/013152	NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)	09/08/2006	WO2006/092356	NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)	11/01/2007	US2010000041	NAP
FEDERAL-MOGUL SA (AUBANGE)	11/15/2007	WO2007/128677	NAP
FEDERAL-MOGUL SA (AUBANGE)	06/13/2013	2013/0145569A1	NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)	03/26/2015	2015/0082578	NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL WORLD WIDE LLC			NAP
FEDERAL-MOGUL WORLD WIDE LLC			NAP
FEDERAL-MOGUL WORLD WIDE LLC			NAP
FEDERAL-MOGUL WORLD WIDE LLC			NAP
FEDERAL-MOGUL WORLD WIDE LLC			NAP
FEDERAL-MOGUL WORLD WIDE LLC			NAP
FEDERAL-MOGUL WORLD WIDE LLC			NAP
FEDERAL-MOGUL WORLD WIDE LLC			NAP
FEDERAL-MOGUL WORLD WIDE LLC			NAP

FEDERAL-MOGUL WORLD WIDE LLC					NAP
FEDERAL-MOGUL WORLD WIDE LLC					NAP
FEDERAL-MOGUL WORLD WIDE LLC					NAP
FEDERAL-MOGUL WORLD WIDE LLC					NAP
FEDERAL-MOGUL WORLD WIDE LLC					NAP
FEDERAL-MOGUL SA (AUBANGE)	12/31/2008	WO2009/000729			NAP
FEDERAL-MOGUL SA (AUBANGE)	12/31/2008	WO2009/000706			NAP
FEDERAL-MOGUL LLC		2009/0044365			NAP
FEDERAL-MOGUL LLC					NAP
FEDERAL-MOGUL SA (AUBANGE)					NAP
FEDERAL-MOGUL SA (AUBANGE)	10/08/2009	WO2009/12849			NAP
FEDERAL-MOGUL SA (AUBANGE)	09/24/2009	WO2009/15494			NAP
FEDERAL-MOGUL SA (AUBANGE)	10/10/2009	WO2009/18279			NAP
FEDERAL-MOGUL SA (AUBANGE)	09/24/2009	WO2009/15408			NAP
FEDERAL-MOGUL SA (AUBANGE)					NAP
FEDERAL-MOGUL SA (AUBANGE)	10/08/2009	WO2009/121896			NAP
FEDERAL-MOGUL SA (AUBANGE)					NAP
FEDERAL-MOGUL SA (AUBANGE)					NAP
FEDERAL-MOGUL SA (AUBANGE)	10/07/2010	WO2010/112579			NAP
FEDERAL-MOGUL SA (AUBANGE)					NAP
FEDERAL-MOGUL SA (AUBANGE)	05/05/2011	WO2011/050836			NAP
FEDERAL-MOGUL SA (AUBANGE)					NAP
FEDERAL-MOGUL SA (AUBANGE)	10/28/2010	WO2010/121665			NAP
FEDERAL-MOGUL SA (AUBANGE)					NAP
FEDERAL-MOGUL SA (AUBANGE)	11/04/2010	WO2010/124718			NAP
FEDERAL-MOGUL LLC					NAP
FEDERAL-MOGUL SA (AUBANGE)	10/27/2011	WO2011/131245			NAP
FEDERAL-MOGUL SA (AUBANGE)					NAP
FEDERAL-MOGUL SA (AUBANGE)	11/03/2011	WO2011/134502			NAP
FEDERAL-MOGUL SA (AUBANGE)	12/29/2011	WO2011/160689			NAP
FEDERAL-MOGUL SA (AUBANGE)	01/19/2012	WO2012/007028			NAP
FEDERAL-MOGUL SA (AUBANGE)	04/05/2012	WO2012/041379			NAP
FEDERAL-MOGUL SA (AUBANGE)	04/05/2012	WO2012/041378			NAP
FEDERAL-MOGUL SA (AUBANGE)	04/05/2012	WO2012/041384			NAP

FEDERAL-MOGUL SA (AUBANGE)	04/05/2012	WO2012/041384	NAP
FEDERAL-MOGUL SA (AUBANGE)	08/09/2012	WO2012/103944	NAP
FEDERAL-MOGUL SA (AUBANGE)	08/09/2012	WO2012/103947	NAP
FEDERAL-MOGUL SA (AUBANGE)	08/09/2012	WO2012/103947	NAP
FEDERAL-MOGUL SA (AUBANGE)	10/11/2012	WO2012/136257	NAP
FEDERAL-MOGUL SA (AUBANGE)	10/18/2012	WO2012/139645	NAP
FEDERAL-MOGUL SA (AUBANGE)	10/18/2012	WO2012/139635	NAP
FEDERAL-MOGUL SA (AUBANGE)	10/18/2012	WO2012/139643	NAP
FEDERAL-MOGUL SA (AUBANGE)	01/03/2013	WO2013/000502	NAP
FEDERAL-MOGUL LLC	05/23/2013	20130125332	NAP
FEDERAL-MOGUL SA (AUBANGE)	10/30/2014	2014-0317877	NAP
FEDERAL-MOGUL SA (AUBANGE)	03/17/2016	US2016/0077604A1	NAP
FEDERAL-MOGUL SA (AUBANGE)	08/28/2014	US2014/0237750A1	NAP
FEDERAL-MOGUL LLC			NAP
FEDERAL-MOGUL LLC			NAP
FEDERAL-MOGUL SA (AUBANGE)	06/20/2013	WO2013/087098	NAP
FEDERAL-MOGUL LLC			NAP
FEDERAL-MOGUL LLC			NAP
FEDERAL-MOGUL LLC			NAP
FEDERAL-MOGUL LLC			NAP
FEDERAL-MOGUL LLC			NAP
FEDERAL-MOGUL LLC			NAP
FEDERAL-MOGUL SA (AUBANGE)	06/20/2013	WO2013/087102	NAP
FEDERAL-MOGUL SA (AUBANGE)	06/20/2013	WO2013/087121	NAP
FEDERAL-MOGUL SA (AUBANGE)	06/20/2013	WO2013/087109	NAP
FEDERAL-MOGUL LLC			NAP
FEDERAL-MOGUL SA (AUBANGE)	10/10/2013	WO2013/149676	NAP
FEDERAL-MOGUL SA (AUBANGE)	12/27/2013	WO2013/189539	NAP
FEDERAL-MOGUL SA (AUBANGE)	11/21/2013	WO2013/170877	NAP
FEDERAL-MOGUL SA (AUBANGE)	01/03/2014	WO2014/000768	NAP
FEDERAL-MOGUL SA (AUBANGE)	03/02/2014	WO2014/079488	NAP
FEDERAL-MOGUL SA (AUBANGE)	11/06/2014	WO2014/177219	NAP
FEDERAL-MOGUL LLC			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)			NAP
FEDERAL-MOGUL SA (AUBANGE)	01/29/2015	WO2015/010719	NAP

FEDERAL-MOGUL LLC				NAP
Federal-Mogul Motorparts Corporation				NAP
Federal-Mogul Motorparts Corporation				NAP
FEDERAL-MOGUL SA (AUBANGE)	01/15/2015	WO2015/003740		NAP
Federal-Mogul Motorparts Corporation				NAP
FEDERAL-MOGUL SA (AUBANGE)	01/07/2016	WO2016/000778		NAP
FEDERAL-MOGUL SA (AUBANGE)	01/07/2016	WO2016/000785		NAP
FEDERAL-MOGUL SA (AUBANGE)	11/05/2015	WO2015/165543		NAP
FEDERAL-MOGUL SA (AUBANGE)	01/21/2016	WO2016/008523A1		NAP
Federal-Mogul Motorparts LLC				NAP
Federal-Mogul Motorparts Corporation				NAP
Federal-Mogul Motorparts Corporation				NAP
FEDERAL-MOGUL SA (AUBANGE)	03/30/2017	WO2017/050381		NAP
FEDERAL-MOGUL SA (AUBANGE)				NAP
FEDERAL-MOGUL SA (AUBANGE)				NAP
FEDERAL-MOGUL SA (AUBANGE)				NAP
Federal-Mogul Motorparts LLC				NAP
Federal-Mogul Motorparts Corporation				NAP
Federal-Mogul Motorparts Corporation				NAP
Federal-Mogul Motorparts LLC				NAP
Federal-Mogul Motorparts LLC				NAP
Federal-Mogul Motorparts LLC				NAP
Federal-Mogul Motorparts LLC				NAP
FEDERAL-MOGUL SA (AUBANGE)				NAP
FEDERAL-MOGUL SA (AUBANGE)				NAP

PATENT