

TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

ETAS ID: TM495446

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST

CONVEYING PARTY DATA

Name	Formerly	Execution Date	Entity Type
AMERICAN PRECISION INDUSTRIES INC.		10/01/2018	Corporation: DELAWARE
KOLLMORGEN CORPORATION		10/01/2018	Corporation: NEW YORK
JACOBS VEHICLE SYSTEMS, INC.		10/01/2018	Corporation: DELAWARE
G&L MOTION CONTROL INC.		10/01/2018	Corporation: DELAWARE
MOTION ENGINEERING INCORPORATED		10/01/2018	Corporation: CALIFORNIA
THOMSON INDUSTRIES, INC.		10/01/2018	Corporation: DELAWARE

RECEIVING PARTY DATA

Name:	JPMORGAN CHASE BANK, N.A., AS COLLATERAL AGENT
Street Address:	10 South Dearborn
Internal Address:	Floor 07
City:	Chicago
State/Country:	ILLINOIS
Postal Code:	60603
Entity Type:	Association: OHIO

PROPERTY NUMBERS Total: 81

Property Type	Number	Word Mark
Registration Number:	3095287	DELEVAN
Registration Number:	3809860	DELTRAN
Registration Number:	3693882	AKD
Registration Number:	3638836	AKM
Registration Number:	3053461	KOLLMORGEN
Registration Number:	3191405	KOLLMORGEN CARTRIDGE DDR
Registration Number:	2231789	KOLLMORGEN GOLDLINE
Registration Number:	2201427	MOTIONEERING
Registration Number:	2115875	MOTIONLINK
Registration Number:	2274719	PLATINUM

TRADEMARK

Property Type	Number	Word Mark
Registration Number:	1123137	PMI
Registration Number:	1634654	POWERMAX II
Registration Number:	2179949	SERVOSTAR
Registration Number:	1490083	J
Registration Number:	2222114	JACOBS
Registration Number:	813395	JACOBS
Registration Number:	2575531	JACOBS ENGINE BRAKE
Registration Number:	2597144	JACOBS EXHAUST BRAKE
Registration Number:	3589708	JACOBS VEHICLE SYSTEMS
Registration Number:	3635163	JACOBS VEHICLE SYSTEMS
Registration Number:	3759975	JACOBS VEHICLE SYSTEMS
Registration Number:	2864614	JAKE BRAKE
Registration Number:	3635162	JAKE BRAKE
Registration Number:	3589709	JAKE BRAKE
Registration Number:	3663312	JAKE BRAKE
Registration Number:	5332299	JJ JVS ENGINEERING
Registration Number:	2122829	ROBO-LASH
Registration Number:	4134189	THE JOURNEY CONTINUES
Registration Number:	4403543	EVOLVE BY JACOBS
Registration Number:	3050141	RAPIDTRAK
Registration Number:	1893972	ELECTRAK
Registration Number:	685066	SLO-SYN
Registration Number:	859252	SLO-SYN
Registration Number:	777758	SLO-SYN
Registration Number:	855965	SLO-SYN
Registration Number:	2377482	WARPDRIVE
Registration Number:	606358	MICRON
Registration Number:	1974978	MICRON
Registration Number:	1937231	TRUE PLANETARY
Registration Number:	2488640	MMC
Registration Number:	3782112	MECHAWARE
Registration Number:	2634523	MEI
Registration Number:	2620516	MOTION ENGINEERING
Registration Number:	2811152	SYNQNET
Registration Number:	639298	60 CASE
Registration Number:	650866	BALL BUSHING
Registration Number:	2488100	GEARHEAD EXPRESS
Registration Number:	2118346	FLUORONYLINER

Property Type	Number	Word Mark
Registration Number:	1704076	LINEARLUBE
Registration Number:	3120696	LINEARRACE
Registration Number:	2824081	MICROGUIDE
Registration Number:	2279900	MICROSTAGE
Registration Number:	1717036	MULTITRAC
Registration Number:	1740447	MULTITRAC BALL BUSHING
Registration Number:	603296	NYLINER
Registration Number:	1681788	NYLINER PLUS
Registration Number:	1590572	PERFORMANCE PAK
Registration Number:	1591717	PPA
Registration Number:	1722910	QUICKSLIDE
Registration Number:	737512	ROUNDWAY
Registration Number:	2184381	SMART RAIL
Registration Number:	817732	TI
Registration Number:	1576046	SUPER BALL BUSHING
Registration Number:	1804986	SUPER PLUS BALL BUSHING
Registration Number:	4313434	SUPER SMART
Registration Number:	1867461	SUPER SMART BALL BUSHING
Registration Number:	1590556	SUPERSLIDE
Registration Number:	3134977	T THOMSON
Registration Number:	1787261	T THOMSON INDUSTRIES, INC.
Registration Number:	789637	THOMSON
Registration Number:	1565499	THOMSON SAGINAW
Registration Number:	1811339	T THOMSON FIRST IN LINEAR MOTION TECHNOL
Registration Number:	1877400	T THOMSON PRECISION BALL COMPANY,LLC.
Registration Number:	1229306	XR
Serial Number:	88085136	BRONCO
Serial Number:	87444565	RGM
Serial Number:	85916016	RSD
Serial Number:	87245320	ACTIVE DECOMPRESSION TECHNOLOGY
Serial Number:	87241239	HPD
Serial Number:	87245251	ADT
Serial Number:	87241243	HIGH POWER DENSITY

CORRESPONDENCE DATA

Fax Number: 8004947512

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: 800-494-5225

Email: ipteam@cogencyglobal.com
Correspondent Name: Stewart Walsh
Address Line 1: 1025 Vermont Ave NW, Suite 1130
Address Line 2: Cogency Global Inc.
Address Line 4: Washington, D.C. 20005

ATTORNEY DOCKET NUMBER: 1001782 TM1

NAME OF SUBMITTER: Emily Ohannessian

SIGNATURE: /Emily Ohannessian/

DATE SIGNED: 10/25/2018

Total Attachments: 38

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PATENT SECURITY AGREEMENT

This PATENT SECURITY AGREEMENT, dated as of October 1, 2018 (this “Agreement”), is entered into by and among KOLLMORGEN CORPORATION, a New York corporation, JACOBS VEHICLE SYSTEMS, INC., a Delaware corporation, THOMSON INDUSTRIES, INC., a Delaware corporation, THOMSON LINEAR LLC, a Delaware limited liability company, and BALL SCREWS AND ACTUATORS CO. INC., a California corporation, and AMERICAN PRECISION INDUSTRIES INC., a Delaware corporation (each a “Grantor” and collectively, the “Grantors”), and JPMORGAN CHASE BANK, N.A. (“JPMorgan”), as collateral agent for the Secured Parties (as defined in the Credit Agreement (as defined below)) (in such capacity, the “Collateral Agent”).

Reference is made to (a) the Guarantee and Collateral Agreement, dated as of October 1, 2018 (as amended, amended and restated, supplemented or otherwise modified from time to time, the “Guarantee and Collateral Agreement”), among Altra Industrial Motion Corp., a Delaware corporation (the “Company”), the Grantors from time to time party thereto and the Collateral Agent and (b) the Credit Agreement dated as of October 1, 2018 (as amended, amended and restated, supplemented or otherwise modified from time to time, the “Credit Agreement”), among the Company, the Designated Borrowers from time to time party thereto, the Lenders from time to time party thereto and JPMorgan, as administrative agent and as collateral agent. The Lenders have agreed to extend credit to the Company and the Designated Borrowers subject to the terms and conditions set forth in the Credit Agreement. The obligations of the Lenders to extend such credit are conditioned upon, among other things, the execution and delivery of this Agreement. Each Grantor will derive substantial benefits from the extension of credit pursuant to the Credit Agreement and is willing to execute and deliver this Agreement in order to induce the Lenders to extend such credit. Accordingly, the parties hereto agree as follows:

SECTION 1. Terms. Capitalized terms used in this Agreement and not otherwise defined herein have the meanings specified in the Credit Agreement or the Guarantee and Collateral Agreement, as applicable. The rules of construction specified in Section 1.04 of the Credit Agreement also apply to this Agreement, *mutatis mutandis*.

SECTION 2. Grant of Security Interest. As security for the payment or performance, as the case may be, in full of the Obligations, each Grantor hereby assigns, pledges and grants to the Collateral Agent, its successors and assigns, for the benefit of the Secured Parties, a security interest in, all of its right, title and interest in, to and under any and all of the following assets and properties now owned or at any time hereafter acquired by such Grantor or in which such Grantor now has or at any time in the future may acquire any right, title or interest (collectively, the “*Patent Collateral*”):

- (i) all letters patent of the United States or the equivalent thereof in any other country, all registrations and recordings thereof, and all applications for letters patent of the United States or the equivalent thereof in any other country, including registrations, recordings and pending applications in the United States Patent and Trademark Office (or any successor or any similar offices in any other country), including those listed on Schedule I attached hereto;
- (ii) all reissues, continuations, divisions, continuations-in-part, renewals or extensions thereof, and the inventions disclosed or claimed therein, including the right to make, use and/or sell the inventions disclosed or claimed therein;
- (iii) income, fees, royalties, damages, claims and payments now and hereafter due and/or payable with respect to any of the foregoing; and

(iv) rights to sue for past, present and future infringement, misappropriation or other violations of any of the foregoing.

SECTION 3. Security Agreement. The security interests granted to the Collateral Agent herein are granted in furtherance, and not in limitation of, the security interests granted to the Collateral Agent pursuant to the Guarantee and Collateral Agreement. Each Grantor hereby acknowledges and affirms that the rights and remedies of the Collateral Agent with respect to the Patent Collateral are more fully set forth in the Guarantee and Collateral Agreement, the terms and provisions of which are hereby incorporated herein by reference as if fully set forth herein. In the event of any conflict between the terms of this Agreement and the Guarantee and Collateral Agreement, the terms of the Guarantee and Collateral Agreement shall govern.

SECTION 4. Counterparts. This Agreement may be executed in counterparts (and by different parties hereto on different counterparts), each of which shall constitute an original but all of which when taken together shall constitute a single contract.

SECTION 5. Applicable Law. This Agreement shall be construed in accordance with and governed by the laws of the State of New York.

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IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement as of the day and year first above written.

AS MOTION LLC, as a Grantor

By



Name: Todd Patriacca

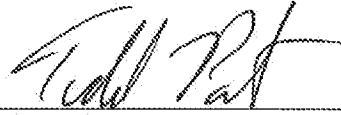
Title: Treasurer

[Signature Page of Patent Security Agreement]

TRADEMARK
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KOLLMORGEN CORPORATION, as a
Grantor

By



Name: Todd Patriacca

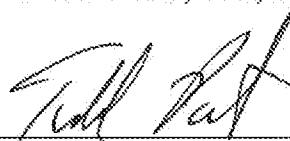
Title: Treasurer

[Signature Page of Patent Security Agreement]

TRADEMARK
REEL: 006469 FRAME: 0335

JACOBS VEHICLE SYSTEMS, INC., as a
Grantor

By



Name: Todd Patriacca

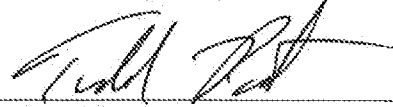
Title: Treasurer

[Signature Page of Patent Security Agreement]

TRADEMARK
REEL: 006469 FRAME: 0336

THOMSON INDUSTRIES, INC., as a Grantor

By



Name: Todd Patriacca

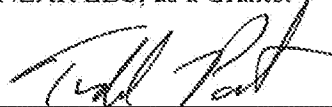
Title: Treasurer

[Signature Page of Patent Security Agreement]

TRADEMARK
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THOMSON LINEAR LLC, as a Grantor

By



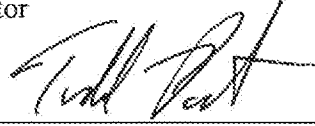
Name: Todd Patriacca
Title: Treasurer

[Signature Page of Patent Security Agreement]

TRADEMARK
REEL: 006469 FRAME: 0338

BALL SCREWS AND ACTUATORS CO.
INC., as a Grantor

By



Name: Todd Patriacca

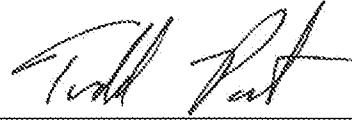
Title: Treasurer

[Signature Page of Patent Security Agreement]

TRADEMARK
REEL: 006469 FRAME: 0339

AMERICAN PRECISION INDUSTRIES, INC.,
as a Grantor

By



Name: Todd Patriacca

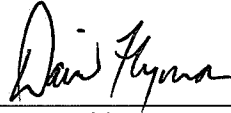
Title: Treasurer

[Signature Page of Patent Security Agreement]

TRADEMARK
REEL: 006469 FRAME: 0340

JPMORGAN CHASE BANK, N.A., as Collateral
Agent,

By:



Name: David Hyman

Title: Executive Director

SCHEDULE I

Patents

Kollmorgen Corporation Patent/Application List

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
Method for Winding a Stator of Multi-Phase Motors	Kollmorgen Corporation	Kollmorgen Corporation	US	10/791422	7135799	14-Nov-06
		Kollmorgen Corporation	US	11/172324	7152301	26-Dec-06
Design for Frameless Cartridge Motors	Kollmorgen Corporation	Kollmorgen Corporation	US	10/067117	6577036	10-Jun-03
Highly Efficient Permanent Magnet Brushless Motor	Kollmorgen Corporation	Kollmorgen Corporation	US	10/624258	7105973	12-Sep-06
Separable Tooth Tip Armature Construction	Kollmorgen Corporation	Kollmorgen Corporation	US	13/157,516	8,786,157	22-Jul-14
Rotor Lamination Stress Relief	Kollmorgen Corporation	Kollmorgen Corporation	US	13/479408	9035520	19-May-15
		Kollmorgen Corporation	US	15/248,538		
		Kollmorgen Corporation	US	15/288,793		

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
Hygienic Adapter for Electrical Motors	Kollmorgen Corporation	Kollmorgen Corporation	US	15/254,680		
Robot Arm Joint	Kollmorgen Corporation	Kollmorgen Corporation	US	15/819,174		
Encoder for a Motor Controller	Kollmorgen Corporation	Kollmorgen Corporation	US	10/946203	7187305	9-21-2004
Design Patent Motor Drive Enclosure (HV12)	Kollmorgen Corporation	Kollmorgen Corporation	US	29/331633	D619104	29-Jan-09
Design Patent Motor Drive Enclosure (HV36)	Kollmorgen Corporation	Kollmorgen Corporation	US	29/331637	D608300	19-Jan-10
Current Sensor for DC Powered Three Phase Motor Control	Kollmorgen Corporation	Kollmorgen Corporation	US	10/655993	6998800	14-Feb-06
Auto-Tune of a Control System Based on Frequency Response	Kollmorgen Corporation	Kollmorgen Corporation	US	12/687385	8214063	3-Jul-12
Dynamic Breaking for Electric Motors	Kollmorgen Corporation	Kollmorgen Corporation	US	12/481925	8154228	4-Oct-2012
Interpolator for a Networked Motion Control System	Motion Engineering, Inc.	Kollmorgen Corporation	US	12/105942	8214415	3-Jul-2012
Safe Torque Off Over Network Wiring	Kollmorgen Corporation	Kollmorgen Corporation	US	13/214507	8566415	22-Oct-13

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
System and Methods for Supporting Two Different Protocols on a Same Physical Connection	Kollmorgen Corporation	Kollmorgen Corporation	US	13/294,236	9634863	25-Apr-17
			US	11/501,736	7406354	29-Jul-08
			US	11/501,737	7460471	02-Dec-08
System for Motion Control, Method of using the System for Motion Control, and Computer Readable Instructions for Use with the System for Motion Control		Kollmorgen Corporation	US	11/120,207	7143301	28-Nov-06
Method and system for removing and returning nodes in a synchronous network	Motion Engineering Inc.	Kollmorgen Corporation	US	12/114873	8072999	6-Dec-11
Method and system for scheduling, transporting, and receiving inbound packets efficiently in networks with cyclic packet scheduling	Motion Engineering, Inc.	Kollmorgen Corporation	US	12/203293	7969985	28-Jun-11

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
System for Determining the Mass of an Item in Motion	Motion Engineering, Inc.	Kollmorgen Corporation	US	12/038394	7838781	23-Nov-10
System and Method for Improved DC Power Line Communication	Kollmorgen Corporation	Kollmorgen Corporation	US	15/274,517		
Method and Apparatus for Power-Saving, Fail-Safe Control of an Electromechanical Brake	Kollmorgen Corporation	Kollmorgen Corporation	US	15/411,759		
Self-Sanitizing Electrical Machine	Kollmorgen Corporation	Kollmorgen Corporation	US	15/248,312		
Low Voltage Electronic Motor Wire Termination	Kollmorgen Corporation	Kollmorgen Corporation	US	10/987,836	7,317,269	08-Jan-08
Design of the Magnet and Webs in Interior Permanent Magnet Rotors	Kollmorgen Corporation	Kollmorgen Corporation	US	11/258,181	7498708	03-Mar-09
Environmentally Protected Housingless Generator/Motor	Kollmorgen Corporation	Kollmorgen Corporation	US	13/091,962	9035503	19-May-15

Jacobs Vehicle Systems Patent/Application List

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
COMBINED ENGINE BRAKING AND POSITIVE POWER ENGINE LOST MOTION VALVE ACTUATION SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	13/192,330	8936006	20-Jan-2015
COMBINED ENGINE BRAKING AND POSITIVE POWER ENGINE LOST MOTION VALVE ACTUATION SYSTEM (DIV)	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/274,899		
SYSTEM FOR COMBINATION COMPRESSION RELEASE BRAKING AND EXHAUST GAS RECIRCULATION	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/198,522	6,189,504	20-Feb-2001
BAR ENGINE BRAKE		Jacobs Vehicle Systems, Inc.	US	09/608,963		
VALVE SEATING CONTROL DEVICE WITH VARIABLE AREA ORIFICE	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/383,987	6,302,370	16-Oct-2001

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
METHOD AND SYSTEM FOR CONTROLLED EXHAUST GAS RECIRCULATION IN AN INTERNAL COMBUSTION ENGINE WITH APPLICATION TO RETARDING AND POWERING FUNCTION	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/165,364	6,170,474	09-Jan-2001
VALVE OPENING MECHANISM	Hino Jidosha K.K.; Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/890,150	6,732,686	11-May-2004
SLAVE PISTON ASSEMBLY WITH VALVE MOTION MODIFIER	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/172,917	6,240,898	05-Jun-2001
LOST MOTION VALVE ACTUATION SYSTEM	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/185,600	6,321,701	27-Nov-2001
INTEGRATED LOST MOTION SYSTEM FOR RETARDING AND EGR	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/196,315	6,152,104	28-Nov-2000

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
DEVICE TO LIMIT VALVE SEATING VELOCITIES IN LIMITED LOST MOTION TAPPETS	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/196,314	6,192,841	27-Feb-2001
VARIABLE LOST MOTION VALVE ACTUATOR AND METHOD	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	09/209486	6,085,705	11-Jul-2000
VARIABLE LOST MOTION VALVE ACTUATOR AND METHOD	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	09/594,791	6,293,237	25-Sep-2001
VARIABLE LOST MOTION VALVE ACTUATOR AND METHOD	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	09/749,907	6,510,824	28-Jan-2003
VARIABLE LOST MOTION VALVE ACTUATOR AND METHOD	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	10/251,748	7,059,282	13-Jun-2006
VARIABLE LOST MOTION VALVE ACTUATOR AND METHOD	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/450,286	7,882,810	08-Feb-2011

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
VARIABLE LOST MOTION VALVE ACTUATOR AND METHOD	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	13/021,531	8820276	02-Sep-2014
VARIABLE LOST MOTION VALVE ACTUATOR AND METHOD	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/139308	8776738	15-Jul-2014
ROCKER BRAKE ASSEMBLY WITH HYDRAULIC LOCK	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/165,291	5,975,251	02-Nov-1999
HYDRAULIC LASH ADJUSTER WITH COMPRESSION RELEASE BRAKE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	09/949,937	6,718,940	13-Apr-2004
APPARATUS FOR VALVE SEATING VELOCITY CONTROL	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	09/663,415	6,474,277	05-Nov-2002
AN ACTUATOR PISTON ASSEMBLY FOR A ROCKER ARM SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	09/663,412	6,394,050	28-May-2002

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
CAPTIVE VOLUME ACCUMULATOR FOR A LOST MOTION SYSTEM	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/663,414	6,415,752	09-Jul-2002
CAPTIVE VOLUME ACCUMULATOR FOR A LOST MOTION SYSTEM		Jacobs Vehicle Systems, Inc.	US	10/144,708	6,591,795	15-Jul-2003
USE OF EXTERNAL EXHAUST GAS RECIRCULATION ("EGR") TO IMPROVE COMPRESSION RELEASE BRAKING AND METHOD FOR EGR VALVE AND SYSTEM CLEANING		Jacobs Vehicle Systems, Inc.	US	09/822,203	6,584,954	01-Jul-2003
EXHAUST AND INTAKE ROCKER ARM ASSEMBLIES FOR MODIFYING VALVE LIFT AND TIMING DURING POSITIVE POWER	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/549,028	6,354,254	12-Mar-2002
LOST MOTION ROCKER ARM SYSTEM WITH INTEGRATED COMPRESSION BRAKE	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/657,534	6,422,186	23-Jul-2002

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
METHOD AND APPARATUS FOR HYDRAULIC CLIP AND RESET OF ENGINE BRAKE SYSTEMS UTILIZING LOST MOTION	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/739,960	6,450,144	17-Sep-2002
ENGINE BRAKING METHODS AND APPARATUS	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	10/739,098	7,162,996	16-Jan-2007
LOST MOTION SYSTEM AND METHOD FOR FIXED-TIME VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	10/246,670	6,694,933	24-Feb-2004
COMPACT LOST MOTION SYSTEM FOR VARIABLE VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	10/408,254	6,883,492	26-Apr-2005
COMPACT LOST MOTION SYSTEM FOR VARIABLE VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/102,804	7,152,576	26-Dec-2006

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
SYSTEM AND METHOD FOR INTERNAL EXHAUST GAS RECIRCULATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	10/660,508	6,827,067	07-Dec-2004
METHOD AND SYSTEM FOR ENGINE BRAKING IN AN INTERNAL COMBUSTION ENGINE WITH EXHAUSE PRESSURE REGULATION AND TURBO CHARGER CONTROL	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	09/960,386	6,594,996	22-Jul-2003
METHOD AND SYSTEM FOR ENGINE BRAKING IN AN INTERNAL COMBUSTION ENGINE USING A STROKE LIMITED HIGH PRESSURE ENGINE BRAKE	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	10/101,629	6,866,017	15-Mar-2005
METHOD OF MODIFYING EXHAUST VALVE TIMING TO IMPROVE ENGINE PERFORMANCE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/159,275	7,237,540	03-Jul-2007

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Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
SYSTEM AND METHOD FOR VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/012,324	7,069,888	04-Jul-2006
SYSTEM AND METHOD OF GAS RECIRCULATION IN AN INTERNAL COMBUSTION ENGINE	Diesel Engine Retarders, Inc.	Jacobs Vehicle Systems, Inc.	US	10/458,257	6,868,824	22-Mar-2005
MULTIPLE SLAVE PISTON VALVE ACTUATION SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	10/733,516	7,559,300	14-Jul-2009
VALVE SEATING CONTROL FOR PUSH-TUBE TYPE 3.5 VVA SYSTEMS	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	10/826,404	7,156,062	02-Jan-2007
SYSTEM AND METHOD FOR MULTI-LIFT VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/059,378	7,066,159	27-Jun-2006
COMBINED EXHAUST RESTRICTION AND VARIABLE VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/202,201	7,954,465	07-Jun-2011

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
PRIMARY AND OFFSET ACTUATOR ROCKER ARMS FOR ENGINE VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/123,063	7,392,772	01-Jul-2008
VALVE BRIDGE WITH INTERGRATED LOST MOTION SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	13/004,607		
VALVE BRIDGE WITH INTERGRATED LOST MOTION SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/079,249	7,905,208	15-Mar-2011
VALVE BRIDGE WITH INTEGRATED LOST MOTION SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	13/004,695	8,578,901	12-Nov-2013
SYSTEM AND METHOD FOR MODIFYING ENGINE VALVE LIFT	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	10/816,828	6,920,868	26-Jul-2005
SYSTEM AND METHOD FOR CONTROLLING EXHAUST PRESSURE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/030,895	7,350,502	01-Apr-2008

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
COMPACT EXTERNAL SELF-ADJUSTING VALVE CATCH	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/401,260	8453613	04-Jun-2013
METHOD FOR OPERATING AN ENGINE BRAKE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/429,225	7,284,533	23-Oct-2007
FINGER FOLLOWER LOST MOTION VALVE ACTUATION SYSTEM WITH LOCATING LINK	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/524,292	7,600,497	13-Oct-2009
METHOD FOR VARIABLE VALVE ACTUATION TO PROVIDE POSITIVE POWER AND ENGINE BRAKING	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/073,020	7,565,896	28-Jul-2009
SYSTEM AND METHOD FOR HYDRAULIC VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/290,518	7,555,998	07-Jul-2009
VALVE ACTUATION SYSTEM AND METHOD OF DRIVING TWO SLAVE PISTONS WITH ONE MASTER PISTON	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/637,047	7,665,432	23-Feb-2010

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
ENGINE BRAKE APPARATUS	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	11/976,793	7,793,624	14-Sep-2010
LOST MOTION VVA SYSTEM FOR ENGINE BRAKING AND EARLY EXHAUST OPENING	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/436,573	7,712,449	11-May-2010
ENGINE BRAKE HAVING AN ARTICULATED ROCKER ARM AND A ROCKER SHAFT MOUNTED HOUSING	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/076,173	7,823,553	02-Nov-2010
VARIABLE VALVE ACTUATION SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/155,243	8,087,392	03-Jan-2012
SELF ADJUSTING VALVE CATCH WITH VALVE SEATING CONTROL	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/233,312	8,079,338	20-Dec-2011
LOST MOTION VARIABLE VALVE ACTUATION SYSTEM WITH VALVE CATCH PISTON	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/852,115	8,516,984	27-Aug-2013

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
BIAS SYSTEM FOR DEDICATED ENGINE BRAKING ROCKER ARM IN A LOST MOTION SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/533,702	7,971,569	05-Jul-2011
BIAS SYSTEM FOR DEDICATED ENGINE BRAKING ROCKER ARM IN A LOST MOTION SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	13/160,112	8,151,763	10-Apr-2012
DEDICATED ROCKER ARM ENGINE BRAKE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	13/257,240	8851048	07-Oct-2014
EXHAUST BRAKE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/483,854	7,735,466	15-Jun-2010
INDIVIDUAL ROCKER SHAFT AND PEDESTAL MOUNTED ENGINE BRAKE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/754,346	8,528,508	10-Sep-2013
ROCKER SHAFT PEDESTAL INCORPORATING AN ENGINE VALVE ACTUATION SYSTEM OR ENGINE BRAKE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	13/080,497	8726863	20-May-2014

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
PRIMARY AND HALF ROCKER ARM ASSEMBLY FOR ENGINE VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	13/481,026	8627791	14-Jan-2014
SYSTEMS AND METHODS FOR HYDRAULIC LASH ADJUSTMENT IN AN INTERNAL COMBUSTION ENGINE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	13/946,860	9200541	01-Dec-2015
INTEGRATED LOST MOTION ROCKER BRAKE WITH AUTOMATIC RESET	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/035,707	9016249	28-Apr-2015
INTEGRATED PRIMARY AND AUXILIARY VALVE ACTUATION SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	10/342,178	6,854,433	15-Feb-2005
SYSTEM AND METHOD OF RETAINING HYDRAULIC FLUID VAIVLE ACTUATION SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	10/737,932	7,059,283	13-Jun-2006
CONTROLLING MOTION OF A MOVABLE PART	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/227122	9091184	28-Jul-2015

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
DIFFERENTIAL VALVE LIFT LOST MOTION VARIABLE VALVE MECHANISMS	Jacobs Vehicle Systems, Inc. and BorgWarner, Inc.	Jacobs Vehicle Systems, Inc.	US	15/272986		
Engine braking apparatus with mechanical linkage and lash adjustment	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/217813	7789065	07-Sep-2010
Engine braking apparatus with mechanical linkage and lash adjustment	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	12/854716	7909017	22-Mar-2011
ENGINE SYSTEM AND OPERATION METHOD USING ENGINE BRAKING MECHANISMS FOR EARLY EXHAUST VALVE OPENING	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/008,811	9234467	12-Jan-2016
ENGINE SYSTEM AND OPERATION METHOD USING ENGINE BRAKING MECHANISMS FOR EARLY EXHAUST VALVE OPENING	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/954413	9845713	19-Dec-2017

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
EXHAUST ROCKER ARM WITH INTEGRATED MASTER SLAVE BRAKE CIRCUIT	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/188867	9068478	30-Jun-2015
INTEGRATED ROCKER SYSTEM	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/561908	9512746	06-Dec-2016
INTRA-CYLINDER AUXILIARY ACTUATION OF ENGINE VALVES THROUGH SELECTIVE DISCONTINUATION OF MAIN VALVE EVENTS	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/190540	9347383	24-May-2016
LINKAGE BETWEEN AN AUXILIARY MOTION SOURCE AND A MAIN MOTION LOAD PATH IN AN INTERNAL COMBUSTION ENGINE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/735247		
LOST MOTION ASSEMBLY IN A VALVE BRIDGE FOR USE WITH A VALVE TRAIN COMPRISING A HYDRAULIC LASH ADJUSTER	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/858644	9611767	04-Apr-2017

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
LOST MOTION VALVE ACTUATION SYSTEMS WITH LOCKING ELEMENTS INCLUDING WEDGE LOCKING ELEMENTS	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/331,982	9790824	17-Oct-2017
METHOD AND APPARATUS FOR DETERMINING EXHAUST BRAKE FAILURE	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	15/390512		
METHOD AND SYSTEM FOR ENGINE CYLINDER DECOMPRESSION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	13/624,478	8863726	21-Oct-2014
PUSHROD ASSEMBLY	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/800,092	10077686	18-Sep-2018
ROCKER LATCH FOR CONTROLLING ENGINE VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/133,090	9410455	09-Aug-2016
ROCKER LATCH FOR CONTROLLING ENGINE VALVE ACTUATION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	15/184,904	9739184	22-Aug-2017

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
METHOD AND APPARATUS FOR COMBINED EXHAUST AND COMPRESSION RELEASE ENGINE BRAKING	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	15/253708		
SYSTEM COMPRISING A PUMPING ASSEMBLY OPERATIVELY CONNECTED TO A VALVE ACTUATION MOTION SOURCE OR VALVE TRAIN COMPONENT	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/846098		
SYSTEM COMPRISING AN ACCUMULATOR UPSTREAM OF A LOST MOTION COMPONENT IN A VALVE BRIDGE SYSTEM FOR ENGINE VALVE ACTUATION COMPRISING LASH-PREVENTION VALVE ACTUATION MOTION	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	14/799837	9702276	11-Jul-2017
Spring Loaded Bridge	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	15/280063		
		Jacobs Vehicle Systems, Inc.	US	62/584,642		

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
Removable Valve Bridges and Valve Actuation Systems Including the Same	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	15/692,773		
SYSTEM FOR CONTROL OF A ROCKER ARM		Jacobs Vehicle Systems, Inc.	US	62/639,993		
ROCKER ARM WITH LOST MOTION ASSEMBLY		Jacobs Vehicle Systems, Inc.	US	62/526,476		
METHOD FOR CONTROLLING INTAKE COUNTER FLOW SEEN DURING HPD TRANSIENT		Jacobs Vehicle Systems, Inc.	US	62/540,763		
SPRING LOADED BRIDGE TO ENABLE HLA AND LOST MOTION ENGINE BRAKE SYSTEM		Jacobs Vehicle Systems, Inc.	US	62/584,642		
SYSTEM AND METHOD FOR ADDITIONAL INTAKE OPENING FOR IEGR		Jacobs Vehicle Systems, Inc.	US	62/648,106		

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
COLLAPSING VALVE BRIDGE WITH PIN ELEMENTS		Jacobs Vehicle Systems, Inc.	US	62/691,947		
SYSTEMS AND METHODS FOR COMBINED ENGINE BRAKING AND LOST MOTION EXHAUST VALVE OPENING		Jacobs Vehicle Systems, Inc.	US	62/698,727		
SYSTEMS AND METHODS FOR COUNTER FLOW MANAGEMENT AND VALVE MOTION SEQUENCING IN ENHANCED ENGINE BRAKING	Jacobs Vehicle Systems, Inc.	Jacobs Vehicle Systems, Inc.	US	16/054,721		
IMPROVED LOST MOTION HYDRAULIC VARIABLE VALVE ACTUATION SYSTEM AND METHOD		Jacobs Vehicle Systems, Inc.	US	62/729,214		

Thomson Patent/Application List

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
LINEAR MOTION BEARING WITH INTEGRAL PERFORMANCE ENHANCING FEATURES	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US	09/674,206	6435718	8/20/2002
LINEAR MOTION BEARING ASSEMBLY	Thomson Industries, Inc.	Thomson Industries, Inc.	US	09/273,289	6174086	1/16/2001
LINEAR MOUNTING BEARING ASSEMBLY WITH LOAD COMPENSATION	Thomson Industries, Inc.	Thomson Industries, Inc.	US	09/393,476	6174084	1/16/2001
RECIRCULATING ROLLING ELEMENT CARTRIDGE FOR LINEAR MOTION BEARING ASSEMBLY	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US	10/110,861	6939044	9/6/2005
ADJUSTABLE TOOL STATION	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US	10/146,106	6918330	7/19/2005
LINEAR MOTION BEARING WITH PLATE RETAINING STRUCTURE HAVING A PLURALITY OF PIECES	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US	13/810096	8702309	4/22/2014
LINEAR MOTION BEARING WITH INTERLOCK STRUCTURE	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US	13/810239	8979373	3/17/2015
LINEAR BEARING WITH MODULAR BEARING SEGMENTS	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US CIP	14/610344	9689426	6/27/2017
LINEAR BEARING WITH IMPROVED OUTER HOUSING SLEEVE	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US DIV	14/750263	9512877	12/6/2016
LINEAR BEARING WITH NESTED BEARING TRACKS	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US	13/810264	9080603	7/14/2015

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
LINEAR BEARING WITH NESTED BEARING TRACKS	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US CON	14/727158	9599154	3/21/2017
LINEAR MOTION BEARING SYSTEM WITH SELF-ALIGNING RAIL	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US	13/812608	9217466	12/22/2015
CLAM SHELL LINEAR MOTION BEARING ASSEMBLY	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US	13/814830	8998490	4/7/2015
CLAM SHELL LINEAR MOTION BEARING ASSEMBLY	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US CON	14/640806	9534631	1/3/2017
HYBRID CLAM-SHELL LINEAR BEARING	Thomson Industries, Inc.	Thomson Industries, Inc.	US	13/485070	9212695	12/15/2015
TAPER LOCK APPARATUS	Thomson Industries, Inc.	Thomson Industries, Inc.	US	14/307949	9482324	11/1/2016
TAPER LOCK APPARATUS	Thomson Industries, Inc.	Thomson Industries, Inc.	CON US	15/207656	9874249	1/23/2018
INJECTION MOLDED BLANK FOR LEAD SCREW, ROTOR-BLANK ASSEMBLY AND METHOD FOR PRODUCING SAME	Thomson Industries, Inc.	Thomson Industries, Inc.	PCT US	14/911818	9735646	8/15/2017
SECONDARY DRIVE COUPLING FOR USE WITH A SHAFT	Thomson Industries, Inc.	Thomson Industries, Inc.	US	14/934,374		
DIFFERENTIAL LOCK ACTUATION AND CONTROL	Thomson Industries, Inc.	Thomson Industries, Inc.	US	15/913,075		

Thomson Linear LLC Patent/Application List

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
Apparatus and methods for controlling hydraulically-powered apparatus	Thomson Linear LLC	Thomson Linear LLC	US	12/909318	9234582	01/12/2016
LINEAR ACTUATOR	Danaher Motion LLC	Thomson Linear LLC	US	09/443235	6259175	10 Jul 2001
LINEAR ACTUATOR	Danaher Corporation	Thomson Linear LLC	US	13/823254	9453563	27-Sep-16
HEAVY DUTY ELECTRO-MECHANICAL ACTUATOR	Thomson Linear LLC	Thomson Linear LLC	US	15/863254		
ELECTRO-MECHANICAL LINEAR ACTUATOR	Thomson Linear LLC	Thomson Linear LLC	US	15/921,732		

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
PLANETARY ELECTRO-MECHANICAL ACTUATOR TO SHIFT A MARINE OUTBOARD TRANSMISSION		Thomson Linear LLC	US	15/897251		
ROTARY ACTUATOR		Thomson Linear LLC	US	29/633760		

Ball Screws and Actuators Patent/Application List

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
Self lubricating linear motion guided screw assembly	Ball Screw & Actuators Co.	Ball Screw & Actuators Co. Inc.	US	13/744,580	9400047	07/26/2016
LINEAR MOTION GUIDED SCREW ASSEMBLY	Ball Screws & Actuators Co.	Ball Screw & Actuators Co. Inc.	US	13/445469	9500224	11/22/2016

American Precision Industries, Inc. Patent/Application List

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
PERMANENT MAGNET WRAP SPRING CLUTCH	American Precision Industries, Inc.	American Precision Industries, Inc.	US	12/434815	8256598	09/04/2012

Title	Registered Owner	Grantor	Country	Application #	Patent #	Patent Issue Date
Contaminant-Resistant Motors for Surgical Instruments	American Precision Industries, Inc.	American Precision Industries, Inc.	US	15/466762		

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