



Automation
Robohand FERGUSON
CAMCO

Camco and Ferguson Index Drives Declaration of ATEX Conformity

BASIC INSTALLATION INSTRUCTIONS

I. GENERAL

NOTE: Please refer to the General Service Manual and the Model-Specific Manual for your index drive for complete installation and maintenance instructions.

1. The information listed below applies to all models of Camco and Ferguson Index Drives.
2. The input and output shafts can be rotated in either direction.

II. LUBRICATION:

1. Proper attention to lubrication is of the utmost importance. Camco and Ferguson Index Drives are shipped without oil in the housings. Before operating under power the housings should be filled with oil per the General Service manual (check the oil level by looking at the sight glass). The required oil should be a minimum ISO 220 grade or SAE 90 weight oil with EP additives and an FZG rating of 13 or greater, meeting API-GL-5 and Mil Spec 2105D/E parameters such as Mobilube HD Plus 80W90 or Mobil Delvac Synthetic Gear Oil 75W90. Synthetic oils, such as Mobil Delvac Synthetic Gear Oil 75W90, should be used in applications with cold morning starts. For camshaft speeds in excess of 300 rpm or units with cam followers of 2" diameter (50 mm) or greater use oil which meets the MIL-L-2105E specification such as Mobilube HD or Mobilube SHC or equivalent. Consult the General Service Manual or the unit-specific manual for your unit for additional information.

The sight glass, fill plug and magnetic drain plug have been installed at the factory in locations that will provide internal lubrication to all bearings according to the mounting arrangement specified at the time of the order.

GREASE PACKED BEARINGS: bearings used in Camco- Ferguson Index Drives require no additional maintenance. The bearings that are

not lubricated by partial submersion in oil are packed with a high quality bearing grease. However, bearings that are not lubricated as above require grease lubrication.

Grease fittings and internal retainers are furnished as required. They should be greased with NGLI #2 bearing grease at least once a month. Do not over-lube since the excess lubricant will eventually fall into the indexer oil reservoir.

III. INSTALLATION AND OPERATION:

1. Camco-Ferguson Index Drives should be mounted in a sturdy foundation and maximum size holding bolts should be used to secure the unit in place.
2. Extreme care should be taken to insure that all connections to both the input and output shafts are properly aligned and tight. There should not be any loose keys, set screws, couplings, etc.

Whenever possible taperlock types of connections or bolted flanges should be used to insure tight connections.

IV. MAINTENANCE:

1. When operated at rated speeds, Camco-Ferguson Index Drives require very limited maintenance. The oil level in the housing should be checked periodically to insure that it is at proper level. Under normal operating conditions the oil should be changed once a year.

CAUTION: An oil change is required every 2000 hours of operation, or every six months which ever occurs first.

2. Cam Followers should be checked every 8000 hours for excessive radial looseness. If radial play exceeds 0.0005" at a 6" radius, the cam followers should be replaced.

WARRANTY

1. LIMITED WARRANTY: Subject to the limitations of Section 2, Seller warrants that the Goods manufactured by Seller will be free from defects in material and workmanship under normal use and regular service and maintenance for a period of one year from the date of shipment of the Goods by Seller, unless otherwise specified by Seller in writing. Consumables, including, without limitation, glass parts and electrodes, membranes, liquid junctions, electrolytes and reagents, o rings, plastic tubes, elastomers, etc. are warranted to be free from defects in material and workmanship under normal use and service for a period of ninety (90) days from the date of shipment by Seller. Products purchased by Seller from a third party for resale to Buyer ("Resale Products") shall carry only the warranty extended by the original manufacturer. **THESE ARE THE SOLE AND EXCLUSIVE WARRANTIES GIVEN BY SELLER WITH RESPECT TO THE GOODS AND ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING**

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These warranties do not extend to any losses or damages due to misuse, accident, abuse, neglect, normal wear and tear, negligence (other than Seller's), unauthorized modification or alteration, use beyond rated capacity, unsuitable power sources or environmental conditions, improper installation, repair, handling, maintenance or application or any other cause not the fault of Seller. To the extent that Buyer or its agents has supplied specifications, information, representation of operating conditions or other data to Seller in the selection or design of the Goods and the preparation of Seller's quotation, and in the event that actual operating conditions or other conditions differ from those represented by Buyer, any warranties or other provisions contained herein which are affected by such conditions shall be null and void.

If within thirty (30) days after Buyer's discovery of any warranty defects within the warranty period, Buyer notifies Seller thereof in writing, Seller shall, at its option and as Buyer's exclusive remedy, repair, correct or replace F.O.B. point of manufacture, or refund the purchase price for, that portion of the Goods found by Seller to be defective. Failure by Buyer to give such written notice within the applicable time period shall be deemed an absolute and unconditional waiver of Buyer's claim for such defects. All costs of dismantling, reinstallation and freight and the time and expense of Seller's personnel and representatives for site travel and diagnosis under these warranties shall be borne by Buyer unless accepted in writing by Seller. Goods repaired or replaced during the warranty period shall be covered by the foregoing warranties for the remainder of the original warranty period or ninety (90) days from the date of shipment, whichever is longer.

Buyer assumes all other responsibility for any loss, damage, or injury to persons or property arising out of, connected with, or resulting from the use of Goods, either alone or in combination with other products/components.

Section 1 applies to any entity or person who may buy, acquire or use the Goods, including any entity or person who obtains the Goods from Buyer, and any such subsequent transferee shall be bound by the limitations therein, including Section 2. Buyer agrees to provide such subsequent transferee conspicuous, written notice of the provisions of Sections 1 and 2.

2. LIMITATION OF REMEDY AND LIABILITY: THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY WARRANTY HEREUNDER (OTHER THAN THE WARRANTY PROVIDED UNDER SECTION 14) SHALL BE LIMITED TO REPAIR, CORRECTION OR REPLACEMENT, OR REFUND OF THE PURCHASE PRICE UNDER SECTION 12.

SELLER SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE AND THE REMEDIES OF BUYER SET FORTH IN THIS AGREEMENT ARE EXCLUSIVE. IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION (WHETHER BASED IN CONTRACT, INFRINGEMENT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE), SHALL SELLER'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXCEED THE PRICE PAID BY BUYER FOR THE SPECIFIC GOODS PROVIDED BY SELLER GIVING RISE TO THE CLAIM OR CAUSE OF ACTION. BUYER AGREES THAT IN NO EVENT SHALL SELLER'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXTEND TO INCLUDE INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES.

The term "consequential damages" shall include, but not be limited to, loss of anticipated profits, business interruption, loss of use, revenue, reputation and data, costs incurred, including without limitation, for capital, fuel, power and loss or damage to property or equipment.

Buyer expressly acknowledges and agrees that Seller has set its prices and entered into this agreement in reliance upon the limitations of liability and other terms and conditions specified herein, which allocates the risk between Seller and Buyer and form a basis of this bargain between the parties.

It is expressly understood that any technical advice furnished by Seller with respect to the use of the Goods is given without charge, and Seller assumes no obligation or liability for the advice given, or results obtained, all such advice being given and accepted at Buyer's risk.

3. NUCLEAR. GOODS AND SERVICES SOLD HEREUNDER ARE NOT FOR USE IN CONNECTION WITH ANY NUCLEAR APPLICATIONS WITHOUT SPECIFIC REVIEW AND APPROVAL BY SELLER. Buyer accepts goods and services with the foregoing understanding, agrees to communicate the same in writing to any subsequent purchasers or users and to defend, indemnify and hold harmless Seller from any claims, losses, suits, judgments and damages, including incidental and consequential damages, arising from such use, whether the cause of action be based in tort, contract or otherwise, including allegations that the Seller's liability is based on negligence or strict liability.

4. PATENTS AND COPYRIGHTS: Subject to the limitations of the second paragraph of Section 13, Seller warrants that the Goods sold, except as are made specifically for Buyer according to Buyer's specifications, do not infringe any valid U.S. patent or copyright in existence as of the date of shipment. This warranty is given upon the condition that Buyer promptly notify Seller of any claim or suit involving Buyer in which such infringement is alleged and cooperate fully with Seller and permit Seller to control completely the defense, settlement or compromise of any such allegation of infringement. Seller's warranty as to use patents only applies to infringement arising solely out of the inherent operation according to Seller's specifications and instructions of such Goods. In the event such Goods are held to infringe such a U.S. patent or copyright in such suit, and the use of such Goods is enjoined, or in the case of a compromise or settlement by Seller, Seller shall have the right, at its option and expense, to procure for Buyer the right to continue using such Goods, or replace them with non-infringing Goods, or modify same to become non-infringing, or grant Buyer a credit for the depreciated value of such Goods and accept return of them. In the event of the foregoing, Seller may also, at its option, cancel the agreement as to future deliveries of such Goods, without liability.

PRODUCT MATERIALS

IMC Camco-Ferguson Materials List

Product	Model	Housing	Shafts	Cams & Followers	Oil Seals	Lubricant
Roller Gear Index Drives						
	80RDM	B319.0-F ALUM ALLOY	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	M601RDM	380 ALUM (A380)	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	M902RDM	380 ALUM (A380)	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	M1100RDM	B319.0-F ALUM ALLOY	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	M1305RDM	B319.0-F ALUM ALLOY	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	M1800RDM	CLASS 40 C.I.	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	FT108	EN AC-43100	4140 H.R.S.	K746	C.R.S./Nitrile	See Maint Manual
	FT160	EN GJL-260	4140 H.R.S.	K746	C.R.S./Nitrile	See Maint Manual
	PT122, PT182, PT242 PT362, PT482	EN GJL-250	4140 H.R.S.	K746	C.R.S./Nitrile	See Maint Manual
	40RGD/S, 50RGD/S, 70RGD/S, 80RGD/S	380 ALUM (A380)	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	110RGD/S	CLASS 35 C.I.	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	140RGD/S	CLASS 35 C.I.	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	T/MH2, T/MH3, T/1H2	EN GJL-250	4140	K746	C.R.S./Nitrile	See Maint Manual
	T/2H2	EN GJL-260	4140	K746	C.R.S./Nitrile	See Maint Manual
	T/G63	EN AC-42100	4140	K746	C.R.S./Nitrile	See Maint Manual
Parallel Index Drives						
	P40, P63, P80, P100, P125	EN AC-42100	4140	K746	C.R.S./Nitrile	See Maint Manual
	P160	EN AC-45200	4140	K746	C.R.S./Nitrile	See Maint Manual
	P200	EN GJL-260	4140	K746	C.R.S./Nitrile	See Maint Manual
	M900P	CLASS 40 C.I.	AISI 4140/42 H.R.S.	L6 Tool Steel	C.R.S./Nitrile	See Maint Manual
	M1200P	CLASS 40 C.I.	AISI 4140/42 H.R.S.	L6 Tool Steel	C.R.S./Nitrile	See Maint Manual
Right Angle Index Drives						
	301RA, M400RA, M401RA, M512RA, 662RA, 663RAD, 900RAD, 1200RAD	B319.0-F ALUM ALLOY	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	750E, 950E, 1150E, 1550E, 2050E, 2750E, E8000	H.R.S.	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual
	750RNG, 1100RNG, 1550RNG, 2000RNG	CLASS 30 C.I.	AISI 4140/42 H.R.S.	AISI 4140/42 H.R.S.	C.R.S./Nitrile	See Maint Manual

DECLARATION OF CONFORMITY

Declaration of conformity for the purpose of the EC Directive 94/9/EC **“Equipment and protective systems intended for use in potentially explosive atmospheres”**

European Directive ATEX 94/9/EC – II2G Z2 (EN60079-10) and II2D Z22 (EN50581-1)

Roller Gear Index Drives	80RDM	M1800RDM	PT242	70RGD/S	T/MH3
	M601RDM	FT108	PT362	80RGD/S	T/1H2
	M902RDM	FT160	PT482	110RGD/S	T/2H2
	M1100RDM	PT122	40RGD/S	140RGD/S	T/G63
	M1305RDM	PT182	50RGD/S	T/MH2	~

Right Angle Index Drives	301RA	662RA	750E	2050E	2000RNG
	400RA	663RAD	950E	750RNG	~
	401RA	900RAD	1150E	1100RNG	~
	512RA	1200RAD	1550E	1550RNG	~

Parallel Index Drives	900P	P40	P80	P125	P200
	1200P	P63	P100	P160	~

These products were developed, designed, and manufactured in compliance with the above mentioned EC Directive under the sole responsibility of:

Industrial Motion Control, LLC
 DE-STA-CO
 1444 South Wolf Road
 Wheeling, IL 60090 USA

DE-STA-CO France
 Rue de Flandre-Dunkerque
 43250 Sainte Florine
 FRANCE

We herewith confirm that the products as described above meet the demands defined in the Council Directives for approximating the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres (94/9/EC). The declaration applies to all exemplars manufactured to the engineering data being part of this declaration and deposited with the manufacturer.

Qualified personnel are required for the installation of these products in II2G Z2 (EN60079-10) and II2D Z22 (EN50581-1) environments.

Compliance confirmed by:

Name: _____

Title: _____

Signature: _____

Date: _____

Serial Number: _____

IMC Order: _____

Item Number: _____

Customer Name _____