

Falk Enclosed Gear Drives

(See Page 3 for Open Gearing, Spare Parts and Footnotes)

Information provided herein supplements instructions furnished with the drive. These instructions are based on the use of the products shown in footnotes on Page 3. Refer to the instructions furnished with the product if other supplier's products are used.

FACTORY SHIPPING PREPARATION — Enclosed gear drives are protected against corrosion at the Factory prior to shipment for the following periods after date of shipment (stamped on drive nameplate):

	Outdoor	Shelter - Outdoor ★	Dry Building †
Domestic Shipment of Standard Drives	0 Months	4 Months	12 Months
Standard Drives Factory Prepared for Long Term Storage	0 Months	12 Months	24 Months
Export Shipments of Standard Drives	0 Months	12 Months	24 Months
All Shipments of Custom Design, Marine and High Speed Drives	0 Months	12 Months	24 Months

CAUTION: DRIVES ARE NOT TO BE STORED OUTDOORS WITHOUT SHELTER. STANDING WATER ON DRIVES SIGNIFICANTLY INCREASES RISK OF WATER INGRESSION AND RUST. INSTALLER ASSUMES RISK.

If the drive is stored OUTDOORS, position it on blocks. Build a frame around it if possible and cover it with a tarpaulin. Leave the bottom open for ventilation. DO NOT use a plastic cover. (See Figure 1)

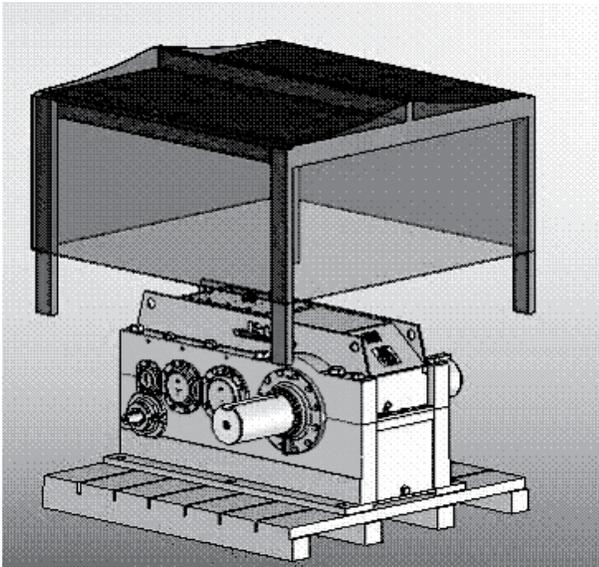


FIGURE 1

Inspect the storage condition of drives stored outdoors every three (3) months to ensure area is dry, there is no standing water on the drive and there is no apparent risk to continued storage of drive. If possible, rotate the shafts one quarter rotation (90 degrees) in order to prevent fretting (false brinelling) in the gearing and bearings due to static vibrations. If the gear drive is opened for any reason during the storage period the customer is to protect inside of drive from moisture and re-seal the drive as outlined in paragraph 1C through 1E of the Extended Storage section.

Drives prepared for Long Term Storage and Export are spin tested with rust preventative oil *, pressure tested, and charged with vapor-phase rust inhibitor ‡ at the Factory. Informative tape is applied to critical locations to deter unplanned breakage of sealed condition. When lifted, this tape will leave the words "VOID" on the gearbox in order to indicate that the long term storage has been compromised. Shaft extension seals are protected with a grease purge and exposed bare metal coated with a polar type rust inhibiting compound ■. Unsealed dipsticks and RTDs are shipped loose with the drive.

EXTENDED STORAGE — The following procedure is recommended for drives stored beyond the initial Factory preparation period and must be inspected prior to expiration of protection period which is based on the factory ship date that is stamped on drive nameplate:

1. Maintenance Required for Extended Storage

- A. Inspect the external storage condition of drive every three (3) months to ensure area is dry, there is no standing water on the drive and there is no apparent risk to continued storage of drive. For external surfaces protected at the Factory, inspect and protect scratched surfaces as required, see *Open Gearing and Spare Parts, Extended Storage*.
- B. Remove inspection cover and inspect for internal water contamination, rust or damage. Drain if necessary. Rotate shafts to inspect gear teeth which had been in contact and bearings for signs of surface rust. Should minor surface rust be present remove visible rust and increase inspection interval. Contact Factory for review if necessary and note that internal bearing components cannot be effectively inspected. Undetected rust poses risk of start-up problems and/or reduced life.
- C. If using mineral or PAO oils:
 1. Recoat the internal components with rust preventative oil *.
 2. Add vapor-phase rust inhibitor ‡ at the rate of one ounce per cubic foot of internal drive space. For drives that have oil installed, add vapor-phase rust inhibitor at the rate of 2% of sump capacity.
- D. If using GMAX or a PAG oil, ensure that the drive is 100% full to prevent corrosion.
- E. Reseal drive and repeat every three (3) months until drive is put into operation.

2. Start-Up After Storage

- A. Remove all informative tape applied to sealed areas in storage preparation.
- B. Remove inspection cover and inspect for internal water contamination, rust or damage. Drain if necessary. Rotate shafts to inspect gear teeth which had been in contact and bearings for signs of surface rust. Should minor surface rust be present remove visible rust. Contact Factory for review if necessary.
- C. If components such as dipsticks and breathers have been shipped loose with the drive, remove the plugs and install them. Contact Factory for installation instructions for loose-shipped RTDs.
- D. If using mineral or PAO oils, vapor-phase rust inhibitor is soluble in recommended lubricating oils

and need not be flushed from the drive. GMAX or PAG oils are not compatible with the vapor-phase rust inhibitor. If the drive has been stored with rust inhibitor, it must be flushed per oil manufacturer's recommendations.

- E. If the drive has been prepared for Extended Storage with GMAX, remove the standpipe and reduce the oil in the drive to the recommended operating level.
- F. Refer to individual Manuals furnished with the drive for recommended lubricants and instructions for installation and maintenance. **Note: For Type A, AB, Y and YB drives, the oil troughs must be primed as instructed in the installation instructions.**

CUSTOMER INTERMITTENT STORAGE — (1 to 6 months) - The following procedure is recommended when a drive is not used for prolonged periods. Examples of intermittent storage are *Winter Lay Up* for marine applications, Power Plant outages between commissioning and start up, and spare drives.

1. Customer Preparation for Storage

- A. Drain all moisture from the drive and check for damage if water was present. Remove all visible surface rust. If rust cannot be removed contact Falk Renew for a full inspection/repair of your drive.
- B. If using mineral or PAO oils and the drive has been drained of oil, add vapor-phase rust inhibitor ‡ at the rate of one ounce per cubic foot of internal drive space. For drives that have not been drained of oil, add vapor-phase rust inhibitor at the rate of 2% of sump capacity.
- C. GMAX and PAG oils are not compatible with a vapor-phase rust inhibitor. If using GMAX or PAG, fill the drive 100% to prevent corrosion. A stand pipe must be attached to the top of the drive to allow for oil expansion.
- D. Seal the drive completely by tightening all gauges and plugs, remove all vented dipsticks and breathers and replace them with plugs; or carefully seal air vents and the area around the dip stick with pressure sensitive tape •.
- E. Drain all water from any attached cooling system.
- F. Remove all moisture from shaft areas near the oil seals and purge the grease cavities or wrap tape • against the seals so that corrosion does not take place near or under the seal area.
- G. After three months, inspect the external storage condition of drive to ensure area is dry, there is no standing water on the drive and there is no apparent risk to continued storage of drive.
- H. After three months, remove inspection cover and inspect for internal water contamination, rust or damage. Drain if necessary. Rotate shafts to inspect gear teeth which had been in contact and bearings for signs of surface rust. Should minor surface rust be present remove visible rust and increase inspection interval. Contact Factory for review if necessary.

- I. If using mineral or PAO oils:
 - 1. Recoat the internal components with rust preventative oil *.
 - 2. Add vapor-phase rust inhibitor ‡ at the rate of one ounce per cubic foot of internal drive space. For drives that have oil installed, add vapor-phase rust inhibitor at the rate of 2% of sump capacity.
- J. GMAX and PAG oils are not compatible with a vapor-phase rust inhibitor. If using GMAX or a PAG, fill the drive 100% full to prevent corrosion. A stand pipe must be attached to the top of the unit to allow for oil expansion.
- K. Reseal drive and repeat every three (3) months until drive is put into operation.

2. Start-Up After Storage

- A. Remove all tape applied in storage preparation.
- B. Remove inspection cover and inspect for internal water contamination, rust or damage. Drain if necessary. Rotate shafts to inspect gear teeth which had been in contact and bearings for signs of surface rust. Should minor surface rust be present remove visible rust and increase inspection interval. Contact Factory for review if necessary and note that internal bearing components cannot be effectively inspected. Undetected rust poses risk of start up problems and/or reduced life.
- C. If components such as dipsticks and breathers have been removed from the drive, remove the plugs and install them.
- D. If using mineral or PAO oils, vapor-phase rust inhibitor is soluble in recommended lubricating oils and need not be flushed from the drive. GMAX or PAG oils are not compatible with the vapor-phase rust inhibitor. If the drive has been stored with rust inhibitor, it must be flushed per oil manufacturer's recommendations.
- E. If the drive has been prepared for Extended Storage with GMAX, remove the standpipe and reduce the oil in the drive to the recommended operating level.
- F. Refer to individual Manuals furnished with the drive for recommended lubricants and instructions for installation and maintenance. **Note: For Type A, AB, Y and YB drives, the oil troughs must be primed as instructed in the installation instructions.**

Falk™ Open Gearing & Spare Parts

FACTORY SHIPPING PREPARATION — Open gearing and spare parts are protected at the Factory prior to shipment for the following periods:

	Outdoor	Shelter - Outdoor ★	Dry Building †
Open Gearing	0 Months	18 Months	30 Months
Small Parts of Assemblies in Corrugated, Paper or Wooden Boxes	0 Months	0 Months	24 Months

Small parts and assemblies which are packaged for shipment in corrugated, paper, or wooden boxes are only protected for shipment in a covered carrier and for indoor storage in a dry building.

EXTENDED STORAGE — For storage beyond the standard periods, the following procedures are recommended:

- Gearing, Shafts, Metallic Coupling Components, Gear Shaft Assemblies** — Thoroughly coat all assemblies and other metallic parts which are not protected by painting, plating, etc. with a firm film forming polar type rust inhibitor compound ■.
- Gear Shaft Assemblies With Attached Bearings** — Grease bearings, cover bearings with Nox-Rust Vapor Paper ♦, cover vapor paper with plastic sheeting and tape completely. Coat the gear shaft assembly with a firm film forming polar type rust inhibitor compound. DO NOT coat the plastic sheeting covering the bearings.
- Small Metallic Components And Hardware** — Wrap parts that are not protected by painting, plating, etc. in water repellent vapor-phase rust inhibitor paper and seal with pressure sensitive tape. In lieu of rust inhibitor paper, place the hardware in plastic bags containing vapor-phase rust inhibiting type oil ‡ at the rate of 0.3 ounce per cubic foot of space. Seal plastic bags with pressure sensitive tape.
- Rubber Elements** — Keep out of direct sunlight and DO NOT coat the rubber elements of couplings in any way.
- All Stored Components** — On a monthly basis, inspect for corrosion due to scratched coatings or ripped plastic bags.

STORAGE REMOVAL — After storage, remove all applied tape and protective coverings. Remove firm film forming polar type rust inhibitor by swabbing and scrubbing with kerosene, mineral spirits, No. 2 fuel oil aromatic xylol, or Stoddards solvent in a well ventilated area.

- ★ Drive raised on blocks, a frame built around it if possible, and covered with a tarpaulin. DO NOT use plastic material, and leave the bottom open for ventilation.
- † A shelter closed off from rain and snow, where there is no standing water.
- ‡ Nox-Rust Motorstor VCI-10, Daubert Chemical Company.
- Permacel Pressure Sensitive Tape, Permacel Corporation.
- Noccotex 202, National Oil and Chemical Company, X-145, Daubert Chemical Company.
- ♦ Nox-Rust Water Repellent Vapor Paper No. 80D, Daubert Chemical Company. Listings of other manufacturer's products and prices in Falk™ literature does not constitute an endorsement or warranty of the product by Rexnord. Refer to the original manufacturer for application recommendations, service and current prices.
- ★ Mobilarma 524, Mobil Oil Company



CORROSION PROTECTION MAINTENANCE LOG

If this drive has been prepared for long term storage by Rexnord, this maintenance log can be used to record the maintenance of corrosion protection in a Falk gear drive and the steps taken to properly put the drive into service. Refer to Pages 1-3 of this Manual 128-014 for storage requirements. The information below has been provided as a supplement and does not replace or supersede the storage or operation requirements stated in this Manual 128-014. Contact Rexnord at phone number 866-REXNORD with questions concerning this information.

GEAR DRIVE IDENTIFICATION & SHIPMENT	See nameplate on gearbox for the following identification information: Rexnord order number M.O.: _____ Gear box identification number: _____ Gear drive shipped from Rexnord on ___/___/____.
STORAGE The gear drive is provided with an internal preservation agent. To keep the warranty intact, the drive must remain sealed during to retain the preservation agent or the effectiveness of the preservation agent will be compromised. DO NOT install breather or remove the dipstick, inspection cover, etc during storage period. Refer to Manual 128-014. The gear drive must be kept dry. Indoor storage is recommended. If stored outdoors, cover with tarpaulin and allow sufficient air circulation to prevent accumulation of condensation. Refer to Manual 128-014. Internal preservation agent MUST be replenished in this drive twelve (12) months after the Rexnord ship date if stored in a sheltered outdoor location. (See drive nameplate for ship date.) The internal preservation agent MUST be replenished in twenty four (24) months after the Rexnord ship date if stored indoors. If not operated within three (3) months, this replenishment process must be repeated. Visually inspect the drive and, if possible, rotate the shafts every three months. Refer to Manual 128-014. Use this form to document this activity, retain this record.	Visual inspection of unit to occur every three months during storage: ___/___/___ (MM/DD/YY) by _____ (signature) ___/___/___ (MM/DD/YY) by _____ (signature) Replenishment of internal preservation agent occurred on: ___/___/___ (MM/DD/YY) by _____ (signature) ___/___/___ (MM/DD/YY) by _____ (signature) ___/___/___ (MM/DD/YY) by _____ (signature)
INSPECTION If the drive is not commissioned within the factory-prepared long term storage period, the equipment must be inspected and prepared for additional storage. This procedure must be repeated every three (3) months until the drive is commissioned. Prior to operation, inspection by manufacturer's rep is recommended. Three months prior to planned operation, contact Rexnord at phone number 866-REXNORD to schedule this inspection.	Storage is sheltered outdoors (12 months) or indoors (24 months) (circle one). First inspection/preparation required on ___/___/___ (MM/DD/YY) Dates of inspection by Rexnord representative: ___/___/___ (MM/DD/YY) by _____ (signature) for re-prep for additional storage or pre-operational inspection (circle one) ___/___/___ (MM/DD/YY) by _____ (signature) for re-prep for additional storage or pre-operational inspection (circle one) ___/___/___ (MM/DD/YY) by _____ (signature) for re-prep for additional storage or pre-operational inspection (circle one)
PRE-OPERATION Oil requirements: See drive nameplate which specifies the type and viscosity of the operating oil required. After using the nameplate to determine the type of oil required, refer to the installation and maintenance manual to select an approved manufacturer and brand of oil. Contact Rexnord at phone number 866-REXNORD to determine if manufacturers representative will be on site during start-up of drive.	Indicate oil used in gearbox. Manufacturer: _____ Brand: _____ Type: _____ Viscosity: _____