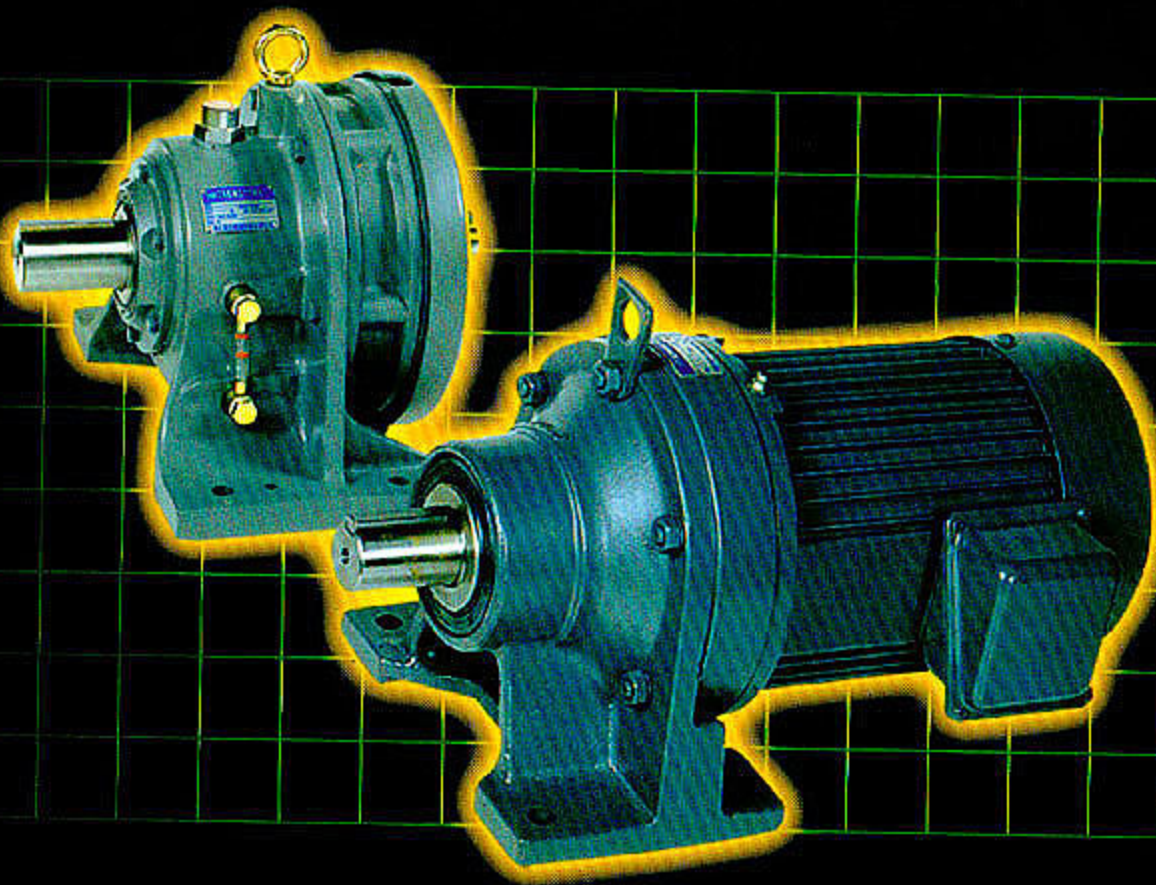


# TRANSCYKO

CYCLOIDAL SPEED REDUCERS

**600** SERIES



Transtec Heavy Industry Co., Ltd.

Transmission Machinery Co., Ltd.

ISO 9002 Registered Company

ISO 9002 Registered Company





# TRANSCYKO PRODUCT SERIES

- CYCLOIDAL SPEED REDUCERS
- GEAR BOXES
- VARIABLE SPEED DRIVES
- ECCENTRIC BEARING
- GEAR MOTOR
- WHEEL REDUCERS
- HIGH PRECISION PLANETARY GEARBOXES

## ● GEAR BOXES



## ● CYCLOIDAL SPEED REDUCERS



## ● VARIABLE SPEED DRIVES

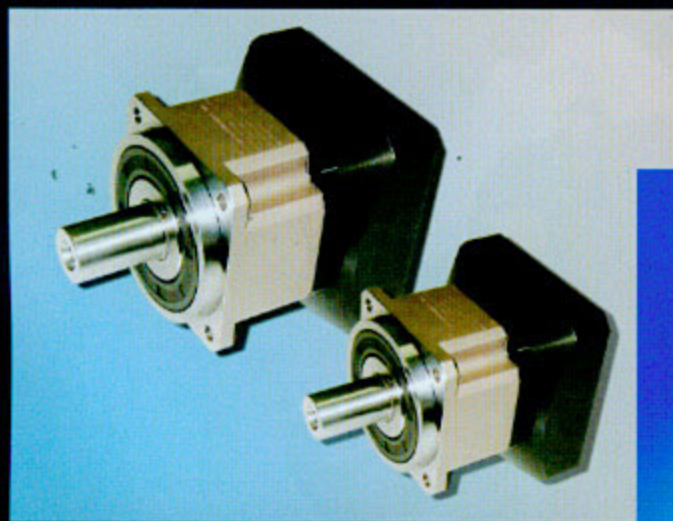




● ECCENTRIC BEARING



● GEAR MOTOR



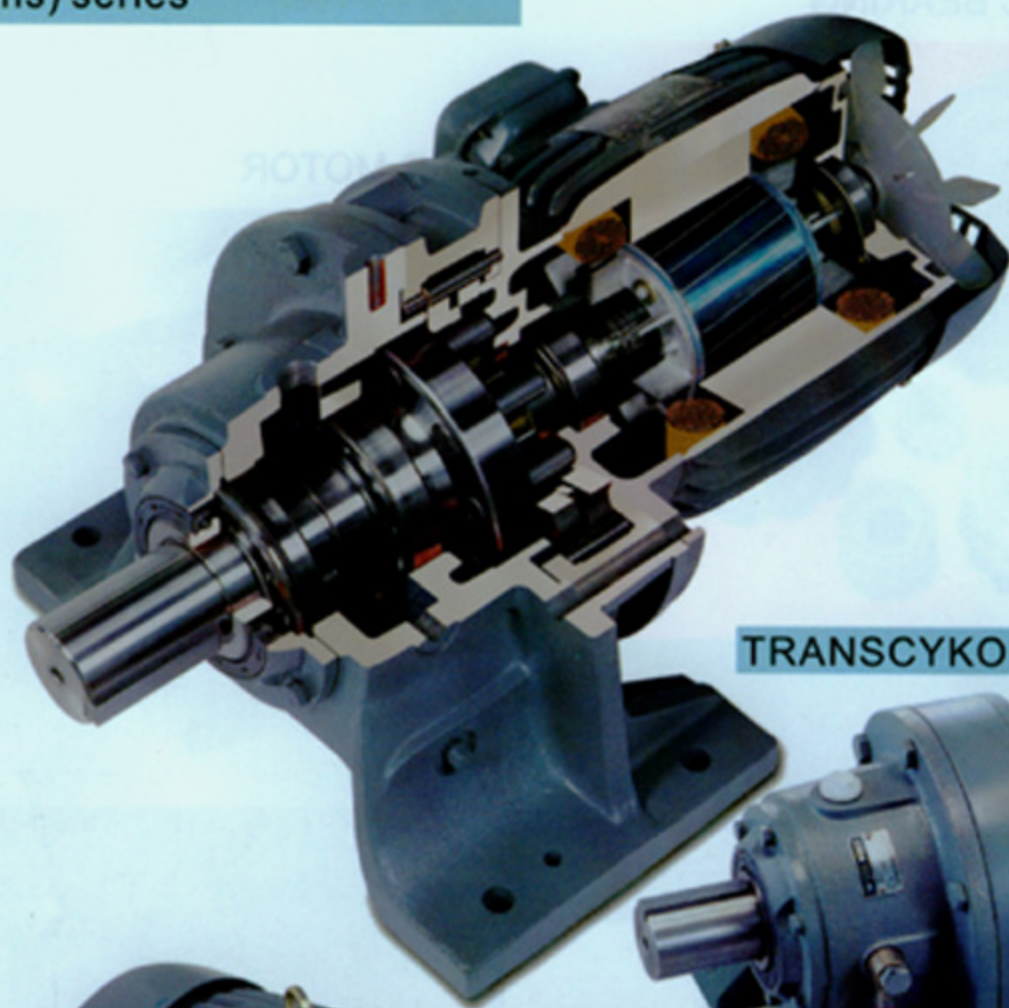
● HIGH PRECISION  
PLANETARY GEARBOXES

● WHEEL REDUCERS

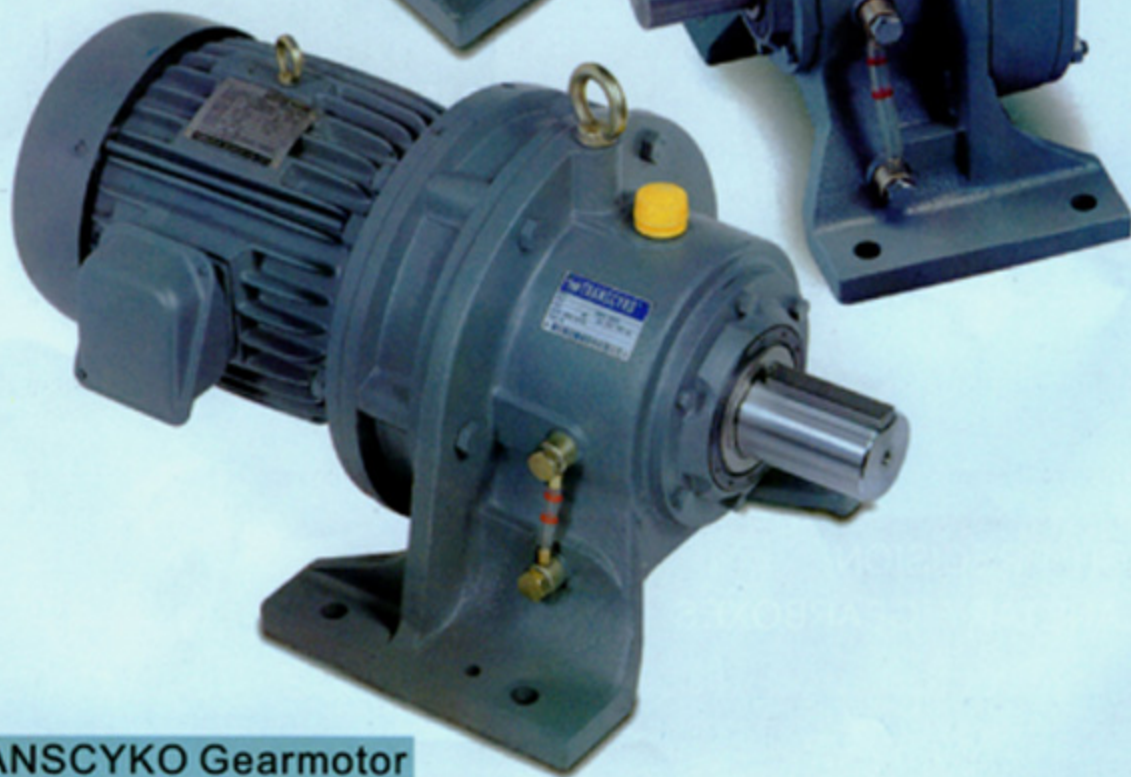




**Transcyko cycloidal Speed reducers  
(productions) series**



**TRANSCYKO Speed Reducer**



**TRANSCYKO Gearmotor**



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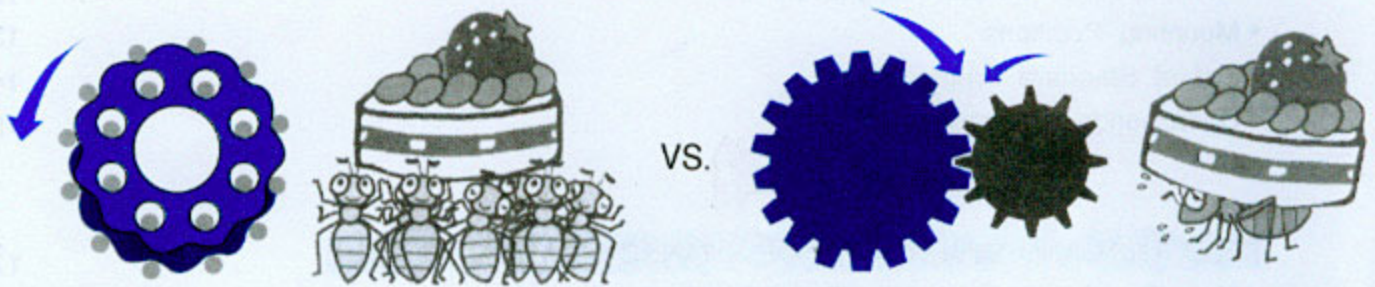
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# ADVANTAGES AND FEATURES

By replacing more conventional helical, worm and spur gear units throughout the world, TRANSCYKO 600 series High-Efficiency Speed Reducers has proven itself in a wide variety of applications.



## ADVANTAGES

### **High Efficiency**

The superior cycloidal design over conventional gear tooth design, with all torque transmitting parts operate in compression, allows for many teeth to share the load. Cycloidal teeth transmit torque by rolling from one element to another. There is no sliding friction as in conventional gear reducers. This design eliminates sliding friction and creates a vibration-free operation. High efficiencies are reached in excess of 90% in single stage reduction units and 80% plus in double stage reduction units. TRANSCYKO Speed Reducers can make your individual applications more productive and efficient.

### **Overload Protection**

The TRANSCYKO cycloidal tooth design maximizes 67% tooth contact. The loadsharing capabilities eliminates gear teeth being sheared off and provides an overload protection of 500%.

### **Warranty**

Exceptionally versatile engineering and manufacturing capabilities enable us to offer TRANSCYKO Speed Reducers for virtually any industrial application. Every TRANSCYKO Speed Reducer receives our standard 24 month warranty. Proper selection and correct maintenance will provide the end-user with unequaled service life for many years.



## **FEATURES**

### **A Wide Range of Models for Every Need**

TRANSCYKO provides a wide range of Speed Reducers in combinations of sizes, ratios, input horsepowers, mountings and configurations. High reduction ratios 6:1 through 119:1 per single stage, through 7569:1 double and almost up to 1,000,000:1 triple reductions. Input horsepower from 1/16 to over 200 H.P., Output torque exceeds 6,000kg-m (500,000 in-lbs).

A wide variety of horizontal and vertical mounts with various IEC/NEMA input adaptors for maximum installation ease.\* TRANSCYKO housings are manufactured from ductile iron for ultimate durability. The power transmitting internals are manufactured from bearing steel 52100 series, through hardened and tempered to Rockwell Rc. 59 - 62.

These manufacturing features have produced a very compact reducer compared to conventional helical reducers for similar applications. Since we can now provide a smaller compact reducer, with high efficiency, this allows us to use a smaller size motor to provide the same output torque rating as previously required. We have this compact motor designed for integral coupling with our TRANSCYKO Speed Reducer.

### **Quiet and Smooth Running**

Compared with conventional gear tooth reducers, the cycloidal design uses hardened and polished rolling elements to provide a very quiet and smooth running reducer with minimum vibration levels.

### **Ideal for Stop/Start and Reversing Operation**

TRANSCYKO Speed Reducers are manufactured to very high tolerance levels, when combined with our low inertia levels, are well suited for all dynamic situations.

### **Economical**

Our reducers are competitively priced compared to conventional gear reducers, they have lower operating costs because of longer life cycles and minimum maintenance.

### **Quality**

We are committed to delivering high quality TRANSCYKO Speed Reducer to the marketplace. We have demonstrated this commitment through process improvement and ISO registration. We offer additional value through our extensive machining and engineering capabilities, in conjunction with our proven on-time delivery and short lead-time.

\*Sizes: 607 to 619 are Cast Iron (Ductile Iron is available on request)

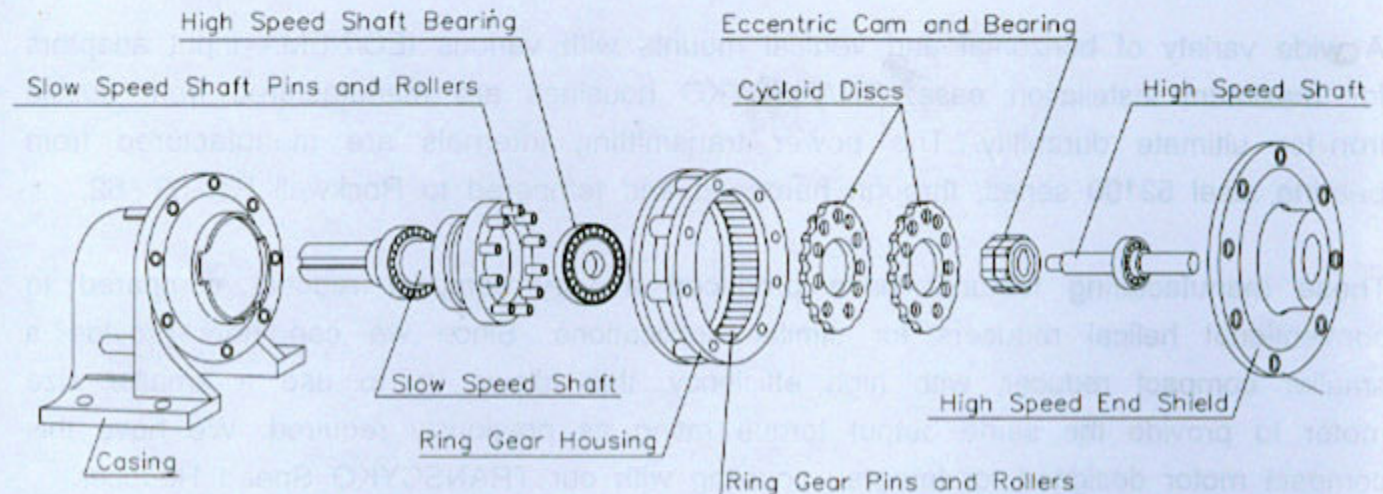
Sizes: 620 to 627 are Ductile Iron



# PRINCIPLE OF OPERATION

The cycloidal design basically has three major components.

- (1) Input shaft assembly (high speed) with eccentric cam, roller bearing and seals.
- (2) Cycloid discs.
- (3) Output shaft assembly (slow speed) with support bearings and seals.



Torque transmitted to the high speed shaft rotates the eccentric cam and roller bearing assembly, and rolls the cycloid discs around the internal circumference of the stationary ring gear housing.

The teeth of the cycloid discs contact the pins of the stationary ring gear, producing a reverse rotation at a reduced speed. Each rotation of the high speed shaft advances the cycloid discs a distance of one tooth pitch in the opposite direction.

The reduced rotation of the cycloid discs is transmitted to the output shaft assembly by means of drive pins and rollers, that are projected through holes located around the bore of the cycloid discs.



# DESIGN CRITERIA

TRANSCYKO Speed Reducers are designed and manufactured for trouble free operation, based upon uniform loading conditions. Ten(10) hour daily service is equivalent to AGMA service factor of 1.0. If the application requires longer daily service, the selection rating (service factor) must be applied to the loading conditions for proper drive selection.

## Recommended TRANSCYKO Load Factors

Load conditions Hours of daily operation	U Uniform Loading		M Moderate Shock Loading		H Heavy Shock Loading	
	TRANSCYKO	AGMA1	TRANSCYKO	AGMA2	TRANSCYKO	AGMA3
Continuous Running - 3 hours	0.80	0.80	1.00	1.00	1.35	1.50
Continuous Running - 10 hours	1.00	1.00	1.20	1.25	1.50	1.75
Continuous Running - 24 hours	1.20	1.25	1.35	1.50	1.60	2.00

## Machine Load Classifications:

### Agitators

- U Pure liquid
- M Liquids+solids
- M Variable-viscosity liquids

### Brewing & distilling equip.

- U Capping machine
- U Can machine
- M Weighing machine
- M Pulling machine
- U Cooker

### Pottery machines

- M Mixer
- H Brick press
- M Grinding machine

### Conveyors (average)

- U Segmented
- M Accumulator-type
- U Belt
- U Bucket
- U \*Oven-type
- U Screw-type

### Conveyors (heavy duty)

- M Segmented
- M Belt
- M Suspension bucket
- M Screw-type
- M Hopper-type
- H \*Reciprocating
- H Rocker-type

### Winches

- M Suspension-bucket
- M Horizontal
- M Vertical
- H Main hoist (heavy duty)
- M Main hoist (medium duty)

### Crushers

- H Diamond
- H Stone
- M Raw sugar

### Dredges

- M Cable drum
- M Conveyor
- H Cutting head
- H Mold-board drive
- M Winch
- M Pump
- M \*Stacker
- H Seine drive

### Elevator

- U Suspension hopper (avg. load)
- M Suspension hopper (heavy duty)
- M Suspension hopper (continuous)
- U Escalator
- M Cargo
- M Utility

### Feed supply systems

- M Segmented belts
- U \*Round segment types
- H \*Reciprocating
- M Screw-type

### Food processing

- M Raw sugar & turnip cutters
- U \*Ovens
- M Meat slicers
- M Noodle mixer

### Axies

- M Drive train
- U Lightly loaded
- U Other axles

### Timber equipment

- H \*Reservoir pumps
- H Chain & \*drogue saws
- H Chain transmission
- H Brake drum
- H Gear boxes
- H Segmented conveyors
- U Sawdust conveyor(belt)
- M Sawdust conveyor(chain)
- M \*Sorting conveyor
- M Utility conveyor

### Sheet metal equipment

- M Forming rolls
- H Punch press(drive gear)
- H Flat planer
- H Drill
- M Other main drives
- U Auxiliary drives

### Machine shop equipment

- M \*Table feeds
- H Shapers
- Non-reversible conveyors
- M \*Collective drives
- H Individual drives
- H Screw machines

### Solid-material mixers

- M Cement drums
- M Dryers, coolers
- M \*Kilns
- M Gravel
- M \*Barrel packers
- H \*Pellet-abrasion machines

### Liquid mixers

- M Concrete (continuous duty)
- M Concrete (\*intermittent)
- U Fixed viscosity
- M Variable viscosity

### Petroleum equipment

- M Stack coolers
- Well-head pumps
- M \*Pressurized lubricant drives
- M \*Reversing kiln

### Sugar Industry

- H Mills
- M Crushers
- M Cane Knives

### Rubber processing equip

- M Rubber strainer
- M Roll
- M \*Thin plate
- M Mixer

### Paper-making equipment

- M Agitator
- M \*paper-maker
- M De-barker
- M Beater
- M Impact-type beater
- U Bleacher
- M Pressurized strainer
- H Large strainer
- U Conveyor
- M Dryer
- M \*Felt extender
- H \*Felt press
- M Finishing press

### Textile (fiber) equipment

- M Carding machine
- M Strainer
- M Dryer
- M Dyer
- M Washing machine
- M Spinning machine
- M \*Lapping machine

### Water treatment equip.

- U Sludge recovery machine
- M Sludge compactor
- M Low & high speed mixers
- U Chemical-supply devices

### Steel Industry

- H Forming machine
- C Reversing pinch, dryer & scrubber roll
- M Slitters
- M Draw bench carriage & main drive
- C Reversing table conveyor
- M Group drive of non-reversing table conveyor
- H Individual drive of non-reversing table conveyor
- M Wire winding, wire drawing & flattening machines

C - Contact us

\* - Refer to factory



# GENERAL INFORMATION

## Shaft Rotation

For single and triple reduction units, the low speed shaft turns in the opposite direction to the high speed shaft. For double reduction drives, the low speed and high speed shafts turn in the same direction.

Note: On all TRANSCYKO Speed Reducers, the high speed and low speed shafts have the same common axis.

## Motor Input Speed (nominal)

1800 R.P.M., 1500 R.P.M., 1200 R.P.M., 1000 R.P.M., 900 R.P.M., 750R.P.M., 600 R.P.M.

Note: For non-standard input speed, please contact your factory representative to confirm torque ratings.

## Shaft Connections

Proper mounting of sheaves, gears, pulleys, chain sprockets, belt and couplings is essential for trouble free operation. All shaft connections must be mounted as close as possible to the cycloidal housing, but never touching. Overhung loads should be located as close to the bearing as possible. If shaft connections are mounted at the end of the shaft, the overhung load may cause excessive loading on the bearings and possible shaft deflection. Radial loads have been designed at the midpoint of the slow speed shaft. If this is not possible, please contact your factory representative to confirm proper selection. Proper alignment procedures for all shaft connections are imperative for trouble free operation.

Permissible torsional forces such as, thrust and radial loads applied to the low speed shaft must be calculated to confirm their allowable limits for each selection.



# LUBRICATION AND MAINTENANCE

## Mounting

Horizontal and vertical oil lubricated drives should be mounted in a level and plumb plane to ensure proper lubrication.

Grease and oil lubrication systems are adopted subject to the size and ratio of TRANSCYKO Speed Reducer. Please refer to the tables shown below.

## Standard Lubrication Type

One stage reduction	Frame Nr.	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	
	Horizontal Type	Grease(Maintenance - Free)								Oil - Bath													
Vertical Type	Grease(Maintenance - Free)								Oil - Bath				Forced - Oil Lubrication(P)										(TP)
Double reduction	Frame Nr.	607/07 608/07 609/08	610/06 611/08 611/09	613/06 613/09 613/10	614/06 614/09 614/10	616/09 616/10	617/08 617/10	618/10	616/11	617/11	618/13	619/11 619/13	620/11 620/13	621/13 621/15	622/13 622/17	623/16 623/18	624/16 624/18	625/17 625/19	626/18	627/19			
	Horizontal Type	Grease (M.F.)		Grease (Replenish)				Oil - Bath															
	Ratio							-	473	841	1015	2065	-						2537	Forced - Oil Lubrication (TP)			
	Vertical Type	Grease (M.F.)		Grease (Replenish)				Forced - Oil Lubrication(p)															
Ratio							-	559	1003	1247	2537	-						3045					
							Grease (Replenish)																

## Grease Lubricated Reducers

Are factory packed and ready for operation. Maintenance - Free grease lubricated units are filled with specially designated long-life grease assure maintenance free operation, replenishment is unnecessary, but replacement in every 20,000 hours of operation or every 4 - 5 years intervals is recommended for longer service life.

For those grease lubricated units other than Maintenance - Free types, please replenish or replace according to the service manual. The mixture of the two types of grease is permissible.

## Recommended Grease Lubricants for TRANSCYKO Speed Reducers

Ambient Temperature °C (°F)	Maintenance - Free Grease	Replenish Grease	Electric Motor
-15°C (5°F)   50°C (122°F)	Shell Alvania Grease RA or equivalent	Shell Alvania Grease No.2, Cosmo Grease Dynamax SH No. 2 or equivalent	Shell Alvania Grease No. 2 or equivalent