

## TECHNICAL DATA

The technical data published in specific product data sheets is based upon ideal installation and load conditions.

Ideal installation conditions are defined as:

- The gearbox axes are horizontal.
- The gearbox housing is attached on the output side.
- The driving device (i.e. motor) is assembled with an adapter flange and motor pinion attached to the gearbox.
- The coupling at the output shaft will not generate forces, loads, or torques in excess of the values defined on the data sheets.
- The environmental conditions are within the limits defined on the data sheets.

Ideal load conditions are defined as continuous, steady (uniform motion) and without impact.

It is understood that gearbox selections for any application are to be in accordance with the ratings defined on the specification sheets. The service life depends on the application and its environment. The general gearbox calculation of service life under ideal installation conditions is 10,000 hours (worm gearboxes are 5,000 hours)

The technical data provided in the product data sheets is for general guideline purposes. It is understood that many applications are unique and can have varying load conditions. Therefore, each application needs to be evaluated individually. Tests may be required to determine load parameters under varying conditions.

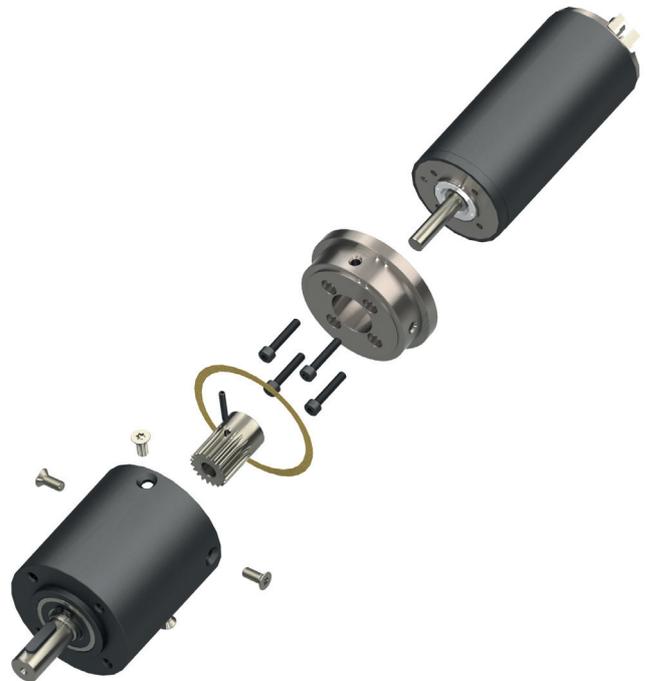
We can also design products to perform under non-ideal load conditions. Often such design goals can be achieved with appropriate modifications to a standard product design. Parameters such as ambient temperature ranges, torque loads, dimensional constraints, etc. can often be accommodated with customized designs.

## GEARBOX SELECTION

The loads at the gearbox output (output shaft) and the number of revolutions at the gearbox input are the primary consideration for gearbox selections. The gearbox size should not exceed the values applicable on the data sheets. We would be happy to evaluate the requirements if the values of the application exceed the values of a specific gearbox and an alternate gearbox is not available for the application.

## ASSEMBLY OF THE GEARBOX TO THE MOTOR

The assembly of the gearbox to the motor is basic. The motor pinion is glued to the motor shaft at a defined distance. The adapter plate, which is available but optional, is assembled to the motor using screws. The provided paper gasket is installed on the adapter plate. The motor with motor pinion is inserted and secured with screws provided within the gearbox kit. The assembly instructions are also included with the gearbox or are available upon request.



## GEARBOX TERMINOLOGY

### RATED TORQUE CONTINUOUS

Maximum torque load that can be applied to the output shaft for continuous operation under ideal installation conditions. The service life may be compromised if the torque load exceeds this rated value.

### RATED TORQUE INTERMITTENT

Maximum torque load that can be applied to the output shaft for intermittent operation under ideal installation conditions. The definition of intermittent operation is 10% of the service life. The service life may be compromised if the torque exceeds the published value.

### MAXIMUM EFFICIENCY AT RATED TORQUE

The maximum efficiency will be achieved at the rated continuous torque load with proper lubrication. Lower torque loads decrease the efficiency. If speed is reduced, the efficiency will then remain relatively constant.

### AVERAGE BACKLASH AT NO LOAD

The backlash is defined as the recoil angle of the output shaft, when the gearbox input pinion is locked in a fixed position. The recoil angle is the angle through which the output shaft can be rotated back and forth with this condition. The amount of torque used for this validation test is 1-2% of the rated continuous torque.

### MAXIMUM RADIAL LOAD

Sudden intermittent hits or impacts can exceed this load value and thereby also compromise the service life. The maximum radial load is the maximum load that can be applied radially (perpendicular) to the output shaft at the middle of the shaft. This load value is based upon an output shaft reference speed of 100 RPM. The service life may be compromised if this load value is exceeded.

### MAXIMUM AXIAL LOAD

The maximum axial load is the maximum load that can be applied axially to the output shaft. This load value is based upon an output shaft reference speed of 100 RPM. The service life may be compromised if this load value is exceeded. Sudden hits or impacts can easily exceed this load value and thereby also compromise the service life.

### MAXIMUM CONTINUOUS RATED SPEED AT DRIVE

The maximum continuous rated speed is the maximum speed in revolutions per minute (RPM) at the gearbox input for continuous operation under ideal installation conditions. The service life may be compromised if the speed exceeds this rated value.

### MAXIMUM INTERMITTENT RATED SPEED AT DRIVE

The maximum intermittent rated speed is the maximum speed in revolutions per minute (RPM) at the gearbox input for intermittent operation under ideal conditions. The definition of intermittent operation is 10% of the service life. The service life may be compromised if the speed exceeds this rated value.

### TYPE STANDARD

The type standard is the standard design version for each model series with regard to average backlash and torque rating. It utilizes synthetic gears in the first stage, which offers the advantage of reduced noise. Steel gears are used in the second and third stages if applicable.

### TYPE V HEAVY DUTY

Unlike the standard design version, the heavy duty version also uses planetary gears made of steel in the first stage. This provides higher torque capability with a backlash rating equivalent to the standard version. The heavy duty version is not ideal for continuous operation.

### TYPE R REDUCED BACKLASH

The reduced backlash version is similar to the standard version with synthetic gears in the first stage, except with a smaller recoil angle.

### TYPE S LOW BACKLASH

The low backlash version offers the smallest recoil angle. The planetary gears of the low backlash version are always made of steel. The low backlash version is not ideal for continuous operation.