

Technical Information

技術資料

潤滑油

當實際工作環境溫度超過表格中所記載的範圍時，須依據其實際工作環境而做不同之因應措施或與原廠技術人員連繫。

當工作環境低於攝氏 -15°C 或高於 45°C 時，必須更換耐熱油封。

當工作環境低於攝氏 0°C 時，必須考慮下列條件：

- (1) 使用的馬達必須適合在低溫環境中工作。
- (2) 馬達的功率必須要滿足在低溫起動時較大的扭矩要求。
- (3) 在設備剛使用時，潤滑油的黏度會有較高的問題時，應該先讓機器空載運轉幾分鐘再加負載，避免導致設備故障。

最初使用 300 小時後，洗淨內部、換上新油以後每 2000 小時換油，而更換時間也因看實際操作環境有所變動。

Lubrication

In cases of ambient temperatures not envisaged in the table, call our Technical Service.

In the case of temperatures under -15°C or over 45°C it is necessary to use oil seals with special properties.

For operating ranges with temperatures under 0°C it is necessary to consider the following:

- (1) The motors need to be suitable for operation at the envisaged ambient temperature.
- (2) The power of the electric motor needs to be adequate for exceeding the higher starting torques required.
- (3) During the early stages of service, problems of lubrication may arise due to the high level of viscosity taken on by the oil and so it is wise to have a few minutes of rotation under no load.

After Initial 300 hours of usage, the interior of the reducing gear should be cleaned up and refill new oil.

And then, after every 2000 hours of usage replace new oil again. The period depends on the type of service and the environment where the reduction unit works.

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安裝與操作限制

如果須使用其它的安裝方式或者特殊的輸入轉數時，請參考下面附表裡面的各個相對參數。
此外，當使用者遇到下面所列的任何情況時也必須跟原廠技術人員聯繫：

- 使用條件超出額定轉速時。
- 使用條件超出額定扭矩時。
- 當減速機出現故障時有可能導致使用者受傷的情況時。
- 將安裝於旋轉慣性特別大的設備上時。
- 將用於起重的捲揚機上 (需要逆止特性) 時。
- 當減速機外殼會承受高度動態的負載時。
- 當工作環境超過攝氏 -5 度到 +40 度的範圍內時。
- 將安裝於有腐蝕性化學品的環境中。
- 將安裝在鹽份濕度較高的環境中。
- 輻射性高的環境中。
- 安裝於氣壓異於正常大氣壓力的環境中。

避免把減速機 (整臺或部分) 浸在水裡或其它液體中。

實際使用時的最高負載扭矩 (*) 絕對不能超過性能表上的額定扭矩 (當 f.s.=1) 的三倍。

(*) 所述的參數是指能承受瞬間短暫的過載，這種情況常出現在滿載啟動、剎車、震動或其它動態操作環境中。

Critical applications

For other mounting positions and/or particular input speeds, refer to the tables that highlight different critical situations for each size of reduction unit.

It is also necessary to take due consideration of and carefully assess the following applications by calling our Technical Service:

- When the application conditions exceed the rated speed.
- When the application conditions exceed the rated torque.
- Use in services that could be hazardous for people if the reduction unit fails.
- Applications with especially high inertia.
- Use as a lifting winch.
- Applications with high dynamic strain on the case of the reduction unit.
- In places with T° under -5° C or over 40° C.
- Use in chemically aggressive environments.
- Use in a salty environment.
- Use in radioactive environments.
- Use in environments pressures other than atmospheric pressure.

Avoid applications where even partial immersion of the reduction unit is required.

The maximum torque (*) that the gear reducer can support must not exceed three times the nominal torque (f.s.=1) stated in the performance tables.

(*) intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those that are dynamic.

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安裝注意事項

當安裝減速機時，請注意下列的事項：

- 減速機必須牢固地安裝在機器上，避免有任何鬆動或振動的情況。
- 將減速機安裝到機器上之前，必須再次確認減速機的輸出軸旋轉方向是否正確。
- 如果減速機在使用前已經放置了一段時間 (4 到 6 個月)，而油封又沒有浸在潤滑油中或給予應有之保護措施，建議應該把油封更換，因為有可能油封已經黏在軸上，甚至可能失去彈性而不能發揮正常之功能。
- 請盡量避免把減速機放置及安裝在強烈陽光之下，或者在極端惡劣的環境之下，如有可能盡量給予減速機防護措施，以增加使用壽命。
- 盡量為馬達的散熱風扇提供足夠的流通空氣，以免影響散熱的效率。
- 減速機的標準工作環境是從攝氏 -15 度到 +45 度，如超過這範圍時，請與原廠技術人員聯繫。
- 各種零件 (滑輪、齒輪、聯軸器、軸等) 必須安裝在實心或空心軸上，該用專用的螺紋孔或其它工具以確保正確安裝而不會損壞軸承或減速器外端的所有零件。並以潤滑油來潤滑接觸表面避免卡死或氧化。
- 啟動時必須逐漸啟動，不要立即把負載提到最高，該逐步增加。
- 如有任何在減速機旁的零件、物體或材料會因漏出的油而遭損壞時，應安裝特別的保護或遮擋。

Installation

To install the reduction unit it is necessary to note the following recommendations:

- The mounting on the machine must be stable to avoid any vibration.
- Check the correct direction of rotation of the reduction unit output shaft before fitting the unit to the machine.
- In the case of particularly lengthy periods of storage (4/6 months), if the oil seal is not immersed in the lubricant inside the unit, it is recommended to change it since the rubber could stick to the shaft or may even have lost the elasticity it needs to function properly.
- Whenever possible, protect the reduction unit against solar radiation and bad weather.
- Ensure the motor cools correctly by assuring good passage of air from the fan side.
- In the case of ambient temperatures $< 15^{\circ}\text{C}$ or $> +45^{\circ}\text{C}$ call the Technical Services.
- The various parts (pulleys, gear wheels, couplings, shafts, etc.) must be mounted on the solid or hollow shafts using special threaded holes or other systems that anyhow ensure correct operation without risking damage to the bearings or external parts of the units. Lubricate the surfaces in contact to avoid seizure or oxidation.
- Starting must take place gradually, without immediately applying the maximum load.
- When there are parts, objects or materials under the motor drive that can be damaged by even limited spillage of oil, special protection should be fitted.

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操作系數

減速機的操作系數 f.s. 是取決於減速機實際操作的運轉狀況。

正確選擇最合適的使用系數時，必須考慮到下列的幾種因素：

● 運轉機器的負載類型：A — B — C

● 每日運轉的時間：小時 / 每天 (Δ)

● 啟動的頻率：啟動次數 / 小時。(*)

負載類型： A — 均勻負載 $fa \leq 0.3$

B — 中等衝擊 $fa \leq 3$

C — 劇烈衝擊 $fa \leq 10$

$fa = Je/Jm$

● Je (kgm²) 驅動軸上的外圍轉動慣量

● Jm(kgm²) 馬達的轉動慣量

如果 $fa > 10$ 請與原裝技術人員聯繫。

A — 輕負載的螺旋輸送機，風扇裝備線，輕負載輸送帶，小型攪拌器，升降機，清洗機，罐裝機，控制機。

B — 卷揚機，木材加工進料機，貨物升降機，平衡器，絞螺紋機器，中型攪拌器，重型輸送帶，絞盤，滑動閘門，刮料機，包裝機械，混凝土攪拌機，吊車驅動裝置，銑床，摺床，齒輪泵。

C — 大型攪拌機，剪床，沖壓機，離心機，旋轉式支撐架，重型絞盤和起重機，磨床，碎石機，斗式挖土機，鑽床，衝床，凸輪壓力機，摺床，轉盤，滾桶清潔裝置，振動器，粉碎機。

Service factor

The service factor (f.s.) depends on the operating conditions the reduction unit is subjected to.

The parameters that need to be taken into consideration to select the most adequate service factor correctly comprise:

● type of load of the operated machine: A - B - C

● length of daily operating time: hours/day (Δ)

● start-up frequency: starts/hour (*)

TYPE OF LOAD: A - uniform $fa \leq 0.3$

B - moderate shocks $fa \leq 3$

C - heavy shocks $fa \leq 10$

$fa = Je/Jm$

● fa factor of inertia

● Je (kgm²) moment of reduced external inertia at the drive-shaft

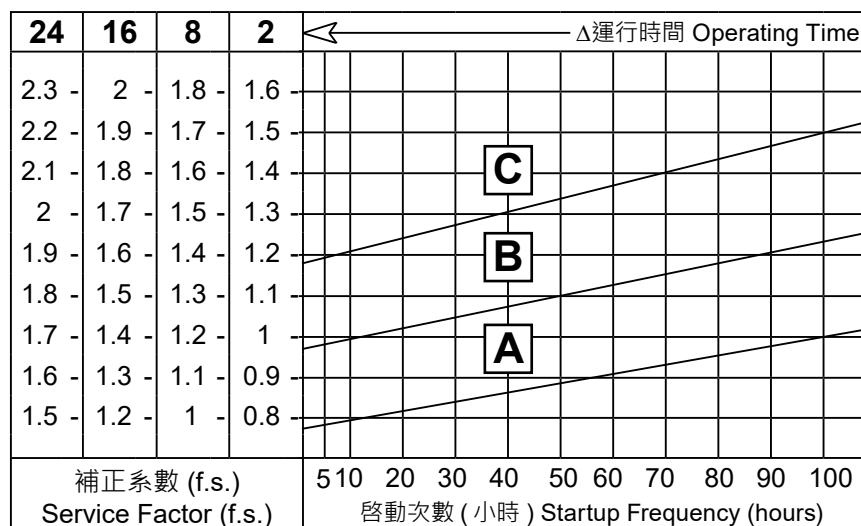
● Jm(kgm²) moment of inertia of motor

If $fa > 10$ call our Technical Service.

A -Screw feeders for light materials, fans, assembly lines, conveyor belts for light materials, small mixers, lifts, cleaning machines, fillers, control machines.

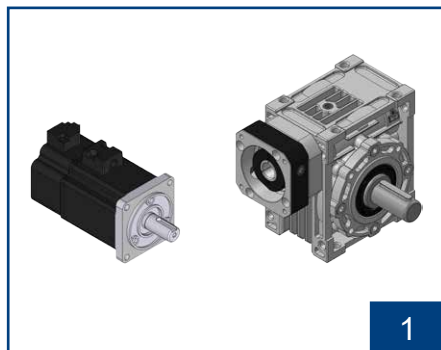
B -Winding devices, woodworking machine feeders, goods lifts, balancers, threading machines, medium mixers, conveyor belts for heavy materials, winches, sliding doors, fertilizer scrapers, packing machines, concrete mixers, crane mechanisms, milling cutters, folding machines, gear pumps.

C -Mixers for heavy materials, shears, presses, centrifuges, rotating supports, winches and lifts for heavy materials, grinding lathes, stone mills, bucket elevators, drilling machines, hammer mills, cam presses, folding machines, turntables, tumbling barrels, vibrators, shredders.



Aluminum Alloy Worm Reducer and Motor Mounting Instructions

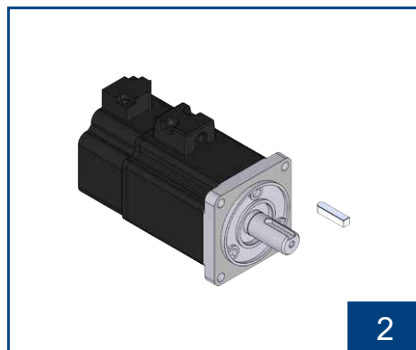
鋁合金蝸輪減速機與馬達安裝指南



1

核對馬達型號與減速機規格是否正確。並將配合面擦拭乾淨。

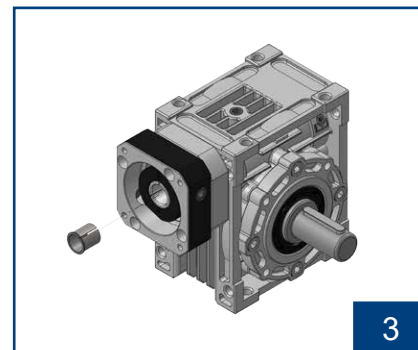
Confirm the motor, and gearbox size. Clean up the mounting surface.



2

確認減速機與馬達是否有鍵配合。

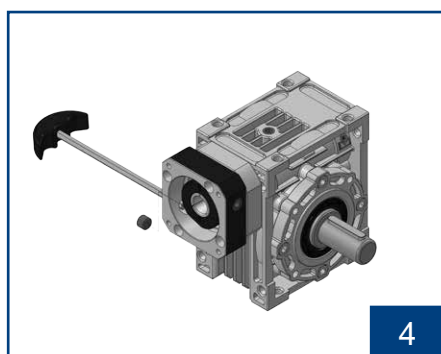
Confirm whether the reducer and motor are keyed together.



3

檢查馬達出力軸尺寸，如需軸套，請先裝進減速機入力孔內。

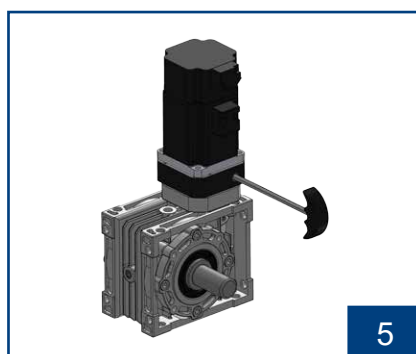
Check motor shaft size and insert bushing into input bore of the gear box if necessary.



4

取出塞頭，使用六角扳手將迫緊環螺絲鬆開。並將扳手與螺絲對準孔位。

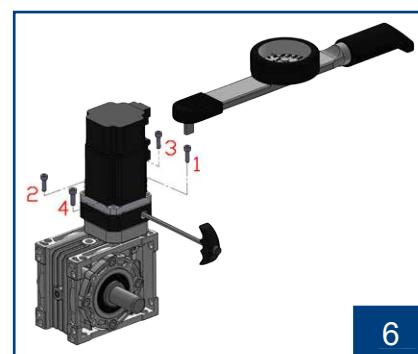
Remove the plug on the adapter plate. Rotate the set collar till the bolt is line up.



5

將馬達垂直裝入減速機。

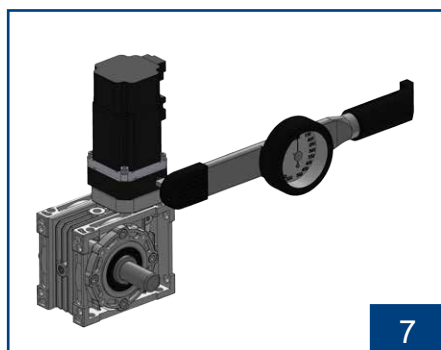
Put the motor into the gearbox vertically.



6

依序 1~4 使用扭力扳手鎖上內六角螺絲。

Tighten the mounting bolt in 1~4 order with torque wrench.



7

使用扭力扳手將迫緊環螺絲鎖緊。

Tighten the set collar bolt with torque wrench.



8

裝回塞頭並鎖緊。

Tighten back the screw plug.

1. 務必先鎖緊馬達固定面，才能鎖緊馬達軸心迫緊環。

Please be sure to tighten motor flange on gear box flange first and then to tighten the set collar on motor shaft.

2. 請依步驟順序組裝，尤其步驟 6、7 不可顛倒。

Please assembly in order according to above steps, especially for step 6 and step 7.

3. 安裝完畢後，請將塞頭回塞，避免細小物品掉入減速機中。

Please noted that tighten back the screw plug to protect the gear box.