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METRIC 公制尺寸

F

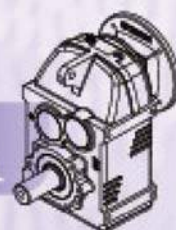
平行軸斜齒減速機

SERIES PARALLEL SHAFT HELICAL GEARMOTORS



外型安裝尺寸與德國領導品牌相容

INSTALLATION DIMENSION ARE CONSISTENT WITH GERMAN MODEL





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公司介紹

- 1.1960年本公司董事長陳茂正先生創設“成大機器廠”於高雄市自強二路，工廠取名“成大”乃本於其對母校成功大學機械系在機械專業知識教育養成之感恩及飲水思源之情。
- 2.成大機器廠成立後，專門從事汽車船舶引擎曲軸之研磨再生，汽缸搪缸及柴油引擎校正等機械加工工程，當時為南台灣之翹楚，由於技術精良服務親切，開業後旋即聞名遐邇，生意蓬勃。
- 3.1971年本於公司發展應有自主性產品，才能永續經營遂與日本減速機製造廠技術合作，開始生產製造自有品牌之成大齒輪減速機，發展至今，公司員工近90名，產品以自有之CHENTA品牌行銷全球。主要市場為台灣、亞洲、北美洲及中東，至今已執台灣業界之牛耳。並在海外設立美國分公司及中國上海分公司。
- 4.建廠以來，本公司即本著“結合一流人才，研發製造高品質的產品”為信念。
產品政策以“品質保證” “交貨準確” “價格競爭” “生產合理” 及“行銷國際” 為追求目標。
- 5.累積40多年之機械製造經驗及誠信經營精神，本公司已自然形成一種優良的公司文化，此精神文化乃是公司最寶貴之資源，表諸文字即是“新” “實” “勤” “效”，乃創新、信實、勤快、效益，之意也。
- 6.全體員工受此公司文化之薰陶，工作勤奮盡忠職守。在良好工作環境下，協力合作積極創新。使公司持續穩定發展，營造共同效益。
- 7.本公司將在現有資源文化基礎上，繼續秉持敬業精神，以客戶至上的服務態度，精益求精，生產高品質具競爭價位之齒輪減速機回饋國內外客戶，與客戶攜手成長，以臻永續經營之目標。

公司概要

公司名稱：成大精機工業股份有限公司
CHENTA PRECISION MACHINERY IND. INC.
成立：民國 60 年（1971 年）
職工人數：90 名
廠房面積：仁武廠 7000m²
上海廠 6800m²

COMPANY PROFILE

1. IN 1960, Mr. Mao Cheng Chen, president of the company, and two other colleagues in the department of Mechanical Engineering of the Tainan Engineering College (predecessor of Cheng Kung University) established a company called " Chen Ta Machinery Works" . It was named "Chen Ta" in remembrance of, and also giving acknowledgement to, their alma mater, Cheng Kung University (called Chen Ta in short) from where Mr. Chen and his colleagues had received their specialized mechanical education.
2. Chen Ta Machinery Works specialized in machining jobs such as grinding/re-building of the crankshafts of automobile and vessel engines, cylinder overhaul, and diesel engine adjustment. Back then, she was the best of her field in southern Taiwan. Due to the excellent technique and the cordial service, the company name was soon well known and the business became prosperous.
3. In 1971, to support a long-term operation, the company needed her own products, so the technique cooperation between CHENTA and Japan reducer manufacturer began. From then on, CHENTA started manufacturing her own brand, "CHENTA GEAR RDUCERS". Now the company has about 90 employees, and her products have been marketing to the world under the name of "CHENTA". The major markets are in Taiwan, Asia, and North America. In Taiwan, she remains at the top of the field and also established branch offices in America and in Shanghai (in China).
4. Since the beginning of the company, our conviction is to "Gather excellent human resource, and research and manufacture high quality products". Our product policy is targeting at "Guaranteed Quality", "On Time Delivery", "Competitive Prices", "Rational Production", and "International Marketing".
5. With more than 40 years of experience in mechanical manufacturing and honest operation, a fine culture has naturally grown inside the cooperation. This spirit is the most precious resource of our company. The motto of our company is based on "INNOVATION", "HONESTY", "DILIGENCE", and "EFFICIENCY".
6. Influenced gradually under such fine culture, all employees in CHENTA work hard and take responsibility. They cooperate with each other and innovate actively. With their efforts, CHENTA keep developing and growing up to fight for the mutual benefit.
7. To reach our long term operation goal, based on the company's existing cultural resources, we will: have high expertise in the field; serve our customers with respect; constantly improve ourselves; manufacture high quality and affordable speed reducers for customers throughout the world, all so that we can grow together with our customers.

COMPANY PROFILE

Company Name: CHNTA PRECISION MACHINERY IND. INC.
 Established: 1971
 Employee: 90 persons
 Plant Sizes: Jen Wu Plant 7000m²
 Shanghai Plant: 6800m²

平行軸斜齒輪速機產品特點說明

- 1> 設計理念：標準化設計與模組化設計相結合，達到與國際領導品牌具有互換性，且兼具結構緊湊，體積小等特點。
- 2> 高效率：高效斜齒輪組傳動，效率可以達到 90% 以上
- 3> 大速比：速比可以從 4:1 ~ 254:1 之間任意選擇。
- 4> 負載範圍：負載可根據不同需求從 1/4HP ~ 60HP 任意選擇，可滿足不同之需求。
- 5> 大承載能力：所有斜齒輪採用鉻鉬合金鋼經滲碳及研磨處理，具有更高的承載能力。
- 6> 結構緊湊性：平行軸的設計提高空間使用效率，適合空間受限情況使用。
- 7> 安裝靈活性：每種規格可以從 M1 到 M6 任意方向位置上安裝，安裝更靈活，更方便。
- 8> 結構外形美觀，堅固。

Parallel Shaft Helical Gear Reducers

Advantages 1>Design Concepts: The combination of standardization and modularization allowed interchangeability with international leading brands, while keeping structure rigidity and compactness.

2>Noise Level: Leveraging the advantage of high efficiency of helical gears, the reducers performs with higher stability and lower noise level.

3>Ratios Selections: The ratio ranges between 4:1 ~ 254:1, providing wide range of ratio accommodation.

4>Loading Capacity: Available with power ranges from 1/4HP up to 60HP, depending on different requirements and applications.

5>Tensile Strength: Pinion, gears and worm shafts are made with 20CrMo alloy steel plus carburized heat treatment.

6>Space Efficiency: The parallel shaft orientation is designed to minimize space needed for installation.

7>Installation Flexibility: All models are designed for various mounting position (M1~M6) specified by customers.

8>Appearance Aesthetics: The reducers are designed with modern exterior while maintaining high rigidity.

操作需知

- 此操作需知是為了幫助您正確安裝及使用本減速機，為了防止問題產生，適當的安裝與操作是很重要的，而這個需知也包含了重要的保養建議。
- 在出貨前每一台成大減速機都經過檢驗及測試後才妥善包裝，不過當您收到貨品時請立刻檢查是否有短少或運輸損壞情形，若有，請記錄損壞或短少情形以便日後與運輸廠商求償，同時也請您通知成大公司貨品受損情形。

OPERATION MANUAL

- This operation manual is trying to help you install and use speed reducer correctly. To prevent problem occurred, proper installation and operation is very crucial. Certainly, this operation manual will also suggest you how to maintain in order to extend the life of speed reducer.
- Every CHENTA speed reducer is passed strict inspection and testing and well packaged before shipping. However when you receive speed reducer, please check immediately if there is any shortage or damage of parts via transportation. This will be much helpful as evidence when you offer claim to the transportation carrier, meanwhile please also notice us for improving our transportation service with a qualified and responsible carrier. Also, we are eager to help to fix the problem for you and to reduce your inconvenience to minimum.

一、潤滑

- 除非客人有特殊指定，否則成大公司會在每一台減速機出廠前根據安裝方式填加適當及適量之潤滑油，若客人欲自行填加潤滑油也請根據潤滑油建議表適當填加。

I. Lubrication

- Unless it's a special request from customer, every CHENTA speed reducer will be supplied with proper quantity lubricant according to different installation position before shipping. If customer prefers to fill in the lubricant oil by himself, please follow the instruction of operation manual in latter pages in this catalog.

二、長期儲存

- 如果減速機沒有立即安裝使用，請將它保存在乾燥安全處所，而減速機經過長時間儲放後再使用，請您再聯絡成大公司，我們技術人員會告訴您使用前應該注意事項。

II.Storage

- If you won't install the speed reducer soon, please keep it out from humid place. And, please contact our service people if you want to install speed reducer for operation after storage. Our service people will inform you what should be noticed and checked in advance before operation.

三、安裝附件於減速機軸心上

1. 注意！不可重擊軸心！重擊軸心可能造成軸承傷害導致軸承壽命縮短，我們建議用加熱方式安裝，附件只要加熱到80°C就可滑入軸心，如此可以減少軸承損傷的可能性。軸心尺寸公差請參照產品型錄。
2. 安裝軸心聯軸器時應該正確的對心及校正以避免震動及聯軸器異常磨耗等情形發生，並且讓軸心上的軸承免於提早損壞。
3. 為避免出力軸上之軸承承受極度的負載，請參照型錄上的可承受懸吊荷重表，請不可超出限制，如果必須超出建議荷重或是合併有額外軸向及徑向負載，請聯絡我們的工程師，因此時正確的使用應該同時考慮速度、旋轉方向、安裝位置、較大外來的軸向和徑向荷重等合併之因素。

III. Attachments the parts on reducer's shaft

1. Notice : Don't hit on shafts heavily. It will cause bearings damaged and shorten life of bearings. We prefer to suggest use heating method, to heat the parts up to 80°C, it could easily slip in on the shafts and reduce the possibility of bearings damaged. As to the tolerance of shaft's diameter, please refer to the specification in catalog.
2. While install the coupling, make sure to check the alignment of coupling and shaft of speed reducer properly to eliminate the damage on bearings and reduce to vibration frequency and abnormal wear.
3. To avoid over load on the bearings of output shaft, please refer to the OHL(over hung loading) in catalog and don't exceed. If exceed or extra axial loading, please contact our service engineer for consultation.
4. The actual application of following factors such as input and output speed, direction of rotation, installation site and over axial and radial loading should be careful to watch.

四、安裝與操作

1. 減速機安裝應考慮以下幾項因素：

- * 環境溫度應低於40°C。
- * 通暢的通風環境。
- * 適當位置的油位旋塞、透氣注油旋塞與洩油旋塞。
- * 保留適當的空間以便做設備上的檢修或更換。

2. 減速機應該安置在平坦防震且堅固的構造上，準確的對心是非常重要的，安裝在不平坦的平面上會造成減速機機殼的拉扯甚至破損。

3. 基座平坦度公差請勿超出以下建議：

- * 77型或更小----0.1mm
- * 87型或更大----0.2mm

- 4.運輸過程中為防止減速機內潤滑油從透氣旋塞滲漏出來，出廠前我們會將透氣孔以紅色插梢堵住，請記得當您安裝好減速機運轉之前，一定要把透氣旋塞上的紅色插拔掉。
- 5.安裝前請再次檢視其輸入馬力、減速比與銘牌相符，並檢查減速機輸出軸之旋轉方向與需求一致。

IV. Installation & Operation

1. The under lying factors should be taken into consideration:

- *Ambient temperature below 40°C

- *Location with food air ventilation

- *Proper locations for oil plug and drain plug

- *Sufficient space for periodical inspection or maintenance of replacement

- 2.To install necessarily on a flat, stable and solid base for accurate alignment to prevent form the breakage of reducer' s housing.

- 3.The suggested tolerance of flatness on base :

- For size 77 or smaller, < 0.1mm/m

- For size 87 or bigger, <0.2mm/m

4. To avoid the lubricant splash out during the transportation, breather plug with red pin inserted into air breathing hold. Please remove the red pin before start-up.

5. Before installation, double check the input horsepower and ratio is the same as the punched name plate of reducer.

五、保養

警告！在電源移除之前不可拆卸或更換設備。

- 1.潤滑油油位與品質應為平時保養重點，且根據使用頻率與環境狀況，潤滑油也必須依據建議表做換新動作。
- 2.檢查聯軸器的同心度，鍊條或皮帶的鬆緊度，基座固定螺絲之緊度等是否均適當，並保持設備的清潔。

V. Maintenance

Be aware ! The power should be off before removal or replacement of reducer.

1. Oil level and quality lubricant is key point of daily maintenance. Please refer to our suggestion to change the lubricant periodically according to operation frequency site situation.
2. Check the alignment of coupling, the tightness of chain, and nuts and keep clean of reducer.

斜齒傘齒輪減速機可能發生之異常狀況及改善方法

以下所列為一般性故障，如有特殊異常情形發生時，請與本公司聯絡，我們將提供正確之服務。

異常情況	原因	改善方法
一、機體發熱	1. 超過標準負荷運轉 2. 潤滑油加入過多或過少 3. 加入潤滑油不適當或不良 4. 油封唇部潤滑不足	1. 調整至正常負荷 2. 潤滑油應加至油位指示處 3. 更換適當之齒輪潤滑油 4. 塗抹少許油脂於油封唇處
二、運轉有聲音	1. 有規律噪音 { 齒面接觸不良 軸 承 損 壞 2. 尖銳的金屬聲音 { 軸承間隙太小 潤 滑 油 不 足 3. 不規律噪音 { 異物掉入 軸承受損	1. { 修整齒接觸面 更換軸承 2. { 更換軸承 補足潤滑油 3. { 除去異物，更換新潤滑油 更換軸承
三、運轉時振動	1. 齒輪磨損 2. 異物掉入 3. 軸承磨耗或受損 4. 螺絲鬆動	1. 更換齒輪 2. 除去異物，更換新潤滑油 3. 更換軸承 4. 鎖緊螺絲
四、漏油	1. 油封損傷 2. 墊片破損 3. 排油栓未鎖牢 4. 蓋類或法蘭螺絲鬆脫	1. 更換油封 2. 更換墊片 3. 鎖緊排油栓塞 4. 鎖緊螺絲
五、入力軸及出力軸無法轉動	1. 齒輪嚙合面因高熱而黏合 2. 軸承已損壞 3. 有固形物（硬物）嚙入齒輪接合面	1. 依程度而判斷可調整或更換齒輪 2. 更換軸承 3. 除去硬物，清洗內部後更新潤滑油
六、入力軸空轉而無法帶動出力軸轉動	1. 齒輪已磨耗 2. 齒輪與出力軸之配合鍵破損 3. 入力軸折斷 4. 出力軸折斷	1. 更換齒輪 2. 更換鍵 3. 更換入力軸 4. 更換出力軸
七、齒輪磨耗較大	1. 超正常負荷 2. 潤滑油不良或不適當 3. 潤滑油不足 4. 運轉環境溫度過高	1. 調整適當負荷 2. 更換適當之潤滑油 3. 補充潤滑油 4. 改善通風環境

Cause & Trouble shooting for the general problem and Improvement

The following lists are general problem situations. In case other problem happen, please contact directly with us to get more information.

CAUSE	REASON	IMPROVEMENT
一、Overheat	1. overload 2. lubricant oil overfill or shortage 3. improper lubricant oil 4. over friction on oil seal(lack of lubricant)	1. adjust to proper loading 2. Add lubricant to the level of oil gauge 3. Chang proper lubricant oil 4. Lip lubricant at oil seal
二、Noise	1. consistent noise { improper gears contact ; bearing damaged 2. screaming noise { bearing gap too small ; Lubricant oil shortage 3. consistent noise { some object insert ; bearing damaged	1. { repair gears ; replace bearing 2. { replace bearing ; fill in lubricant oil 3. { remove debris & replace lubricant oil ; replace bearing
三、Vibration	1. gear over-fricative 2. Debris inside 3. bearing worn-out or damaged 4. blot loose	1. replace gear 2. remove debris & replace lubricant oil 3. replace bearing 4. tighten bolt
四、Oil Leakage	1. oil seal damaged 2. gasket damaged 3. drain plug loose 4. covers or flange loose	1. replace oil seal 2. replace gasket 3. tighten drain plug 4. tighten the bolts
五、Input and Output Shaft Fail	1. overheat cause gear-bound 2. bearing damaged 3. some debris between gears	1. adjust or replace gears 2. replace bearing 3. remove debris ; clean inside then replace lubricant oil
六、Input shaft fail to drive output shaft	1. gear worn-out 2. the key connecting gear and output shaft damaged 3. input shaft broken 4.output shaft broken	1. replace gears 2. replace key 3. replace input shaft 4. replace output shaft
七、Gear Worn-out	1. overload 2. improper lubricant oil 3. lubricant oil shortage 4. ambient temperature too high	1. adjust to proper loading 2. change proper lubricant oil 3. refill lubricant oil 4. ventilation improvement

使用說明書

感謝您選用本公司的產品。在使用之前，請詳細參閱以下說明，以確保正確使用。

一、安裝

1. 減速機入力軸直接與馬達聯結時，應採彈性聯軸器；出力軸直接與設備聯結時，宜採用齒輪聯軸器。
2. 減速機應安裝在穩固的基礎座，且須注意空氣流通及換油時，注油及洩油之方便性。
2. 減速機安裝後，用手轉動需靈活，不可有卡死現象。
4. 減速機安裝好，使用前應先進行空負荷運轉，確定機器各部份都無異狀後，方可正式使用，如有故障應先排除。

二、潤滑

1. 新減速機使用時，於運轉 500 小時候，需更換新油，其後每使用 2500 小時需換油；但在使用過程中仍應定期檢查油的質、量，若油有雜質、老化、變質情況，必須隨時更換。
2. 減速機應使用固定品牌、規格之齒輪油，不應將不同品牌、規格或不同類型的油箱混合使用。
3. 在換油過程中，應先將減速機內部清除乾淨，再注入新油。
4. 在使用期間，當發現油溫過高（超過 80°C 以上）時，以及有不正常的噪音等現象，應立即停止使用、檢查原因，等排除故障或更換潤滑油後，才可繼續使用。
5. 推薦用油：中國石油 HD-320 之極壓機油，或中國石油 # 90 多效齒輪油。

三、維護

1. 減速機應定期檢修，發現異狀或有顯著磨損，必須立即採取有效措施制止，備用零件之材質精度、亦須照標準製造。更新零件後，應先進行空負荷運轉，確定正常後再正式使用。
2. 使用單位應建立合理的維護制度，對減速機的使用狀況及檢修中發現的問題，做仔細記錄。

Operation Instruction

I . INSTALLATION

1. Input shaft connects to motor directly, a flexible coupling prefer to apply according ; output shaft connects to machine, it is better to use a gear coupling.
2. Install on a stable foundation and good air ventilation and the convenience of oil filling /draining should be considered.
3. The input shaft of the reducer and the motor shaft should be in alignment and the tolerance should fit the allowance.
4. After installation, please check input shaft by hand first to check whether running smoothly of nut.
5. Before start-up, no-load running test should be proceeded and any abnormal status occurred should be corrected immediately.

II . LUBRICATION

1. A new reducer needs replace oil in the beginning of 500 hrs operation ; and then, each 2,500 hrs change again. Mover, a regular oil checking is required and change necessarily.
2. Please change by equivalent specification of oil and don't mix with other brand of specification of oil.
3. Before changing oil, the inside of reducer should be flushed and drain out, then fill in new oil.
4. During operation, if the heat is over 80°C or any abnormal noise occurred , please shut down the reducer for checking immediately and start running only after the cause is resolved.
5. Lubricant recommendation: MOBILE gear 632, SHELL omala 320 or MOBIL mobilube HD80W-90, SHELL spirax E.P 90.

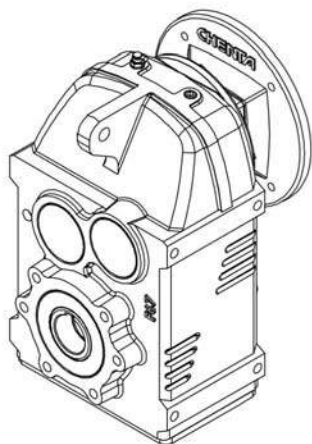
III . MAINTENANCE

1. A regular maintenance is required and if found any worn out, corrective action should be taken. The accuracy of spare parts replaced should be exactly the same as the original standard and no-load running test in advance is required.
2. Build maintenance system and data collection of failure carefully for all problems been met.

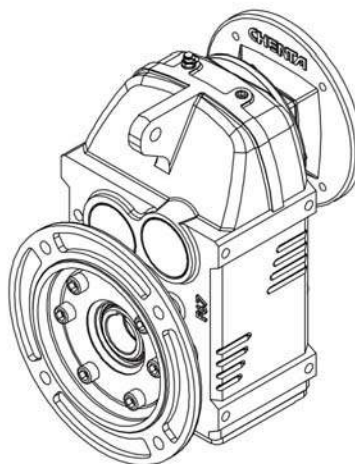


Parallel shaft helical Gear Units Type Introduction

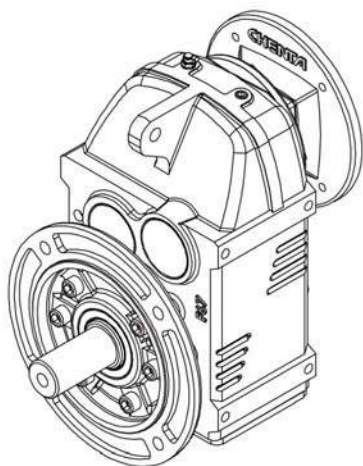
FHF...



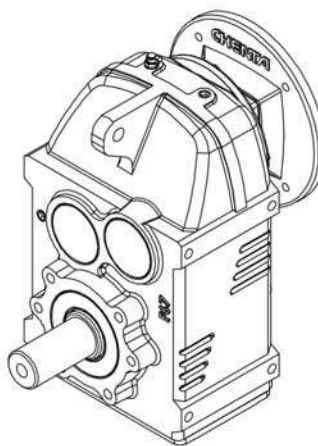
FMF...

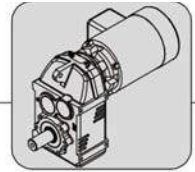


FNF...

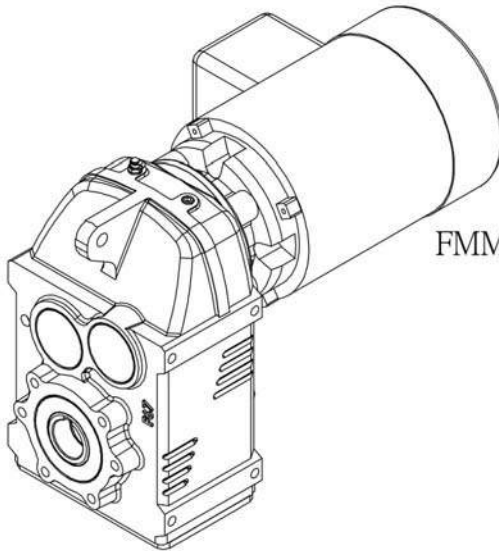


FSF...

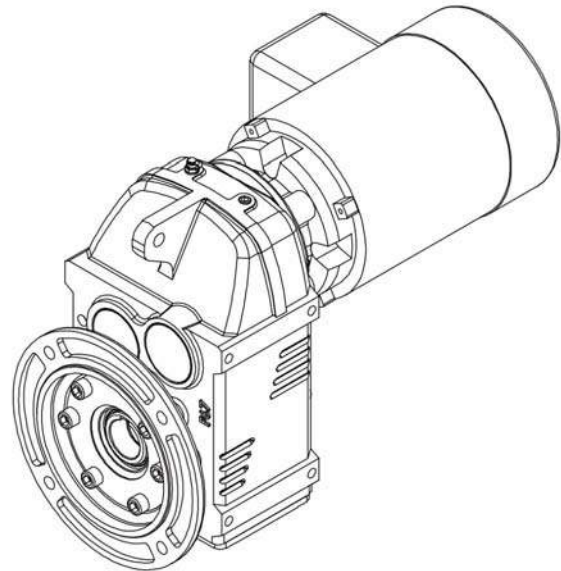




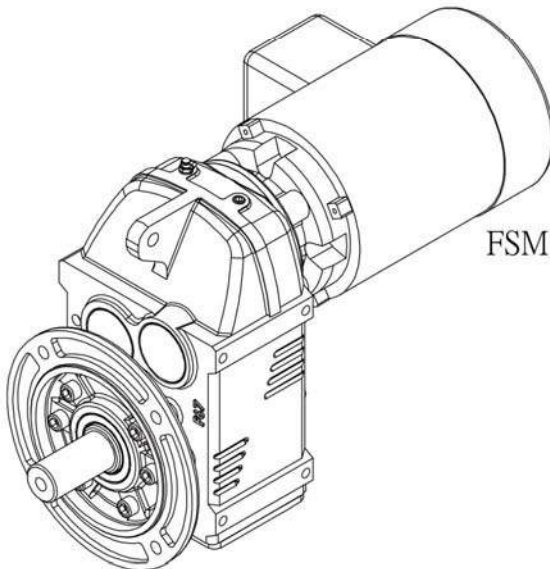
FHM...



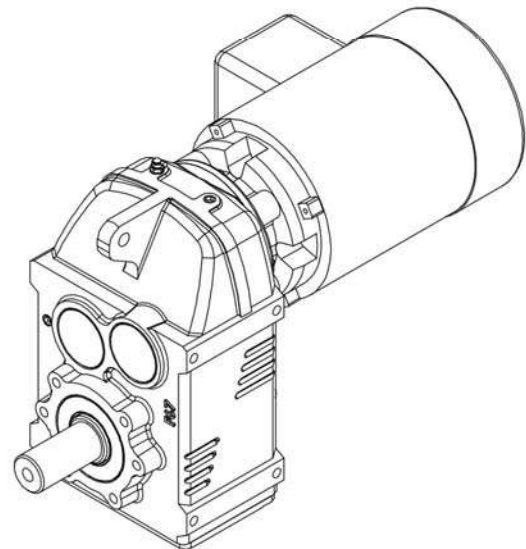
FMM...



FNM...



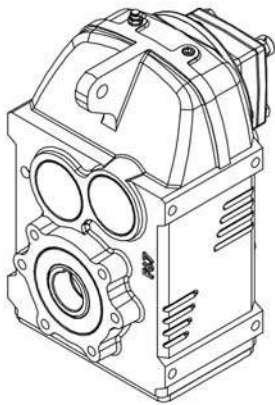
FSM...



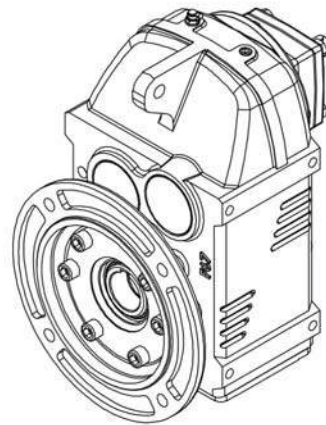


Parallel shaft helical Gear Units Type Introduction

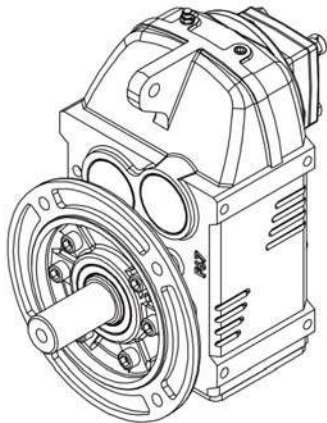
FHS...



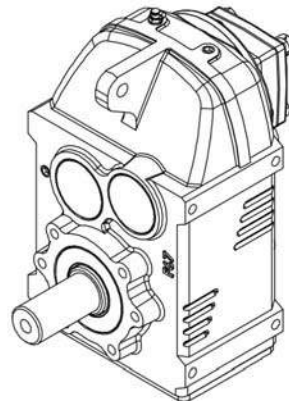
FMS...



FNS...



FSS...



馬達直結式欄位
Column only for Couple with Motor



法蘭框號/入力軸徑 Flange Frame/ Input Shaft DIA

公制框號	英制框號	入力軸徑
IEC Standard 4-Pole	NEMA Standard	Input Shaft DIA
QQ : 1/4HP 25 : 25HP	01 : 56C	16 : φ16
HH : 1/2HP 30 : 30HP	02 : 143T	19 : φ24
01 : 1HP 40 : 40HP	04 : 182/184T	24 : φ24
02 : 2HP 50 : 50HP	06 : 213/215T	28 : φ28
03 : 3HP 60 : 60HP	08 : 254/256T	38 : φ38
05 : 5HP	10 : 284/286T	42 : φ42
07 : 7.5HP	12 : 324/326T	48 : φ48
10 : 10HP	14 : 364/365T	55 : φ55
15 : 15HP	16 : 404/405T	70 : φ70
20 : 20HP		

安裝位置 Mounting Positions

M1、M2、M3、M4、M5、M6

L: 灰漆 Gray

2 : 220/380	C : 220/400	H : 200/346
4 : 240/415	D : 230/400	K : 208/220
5 : 220/440	E : 230/440	M : 208/240
A : 220/230	F : 240/480	N : 380/660
B : 220/240	G : 120/208	V : 208~480

頻率 Hz

6 : 60Hz

速比 Ratio

接線盒位置 Position of Terminal Box

U、D、L、R



Parallel shaft helical Gear Units Information on Selection Tables

許可配接表 Permitted Combinations

F57 , ne=1400 1/min			600 Nm							實心入力軸徑
na [1/min]	Mamax [Nm]	FRa [N]	i	63	71	80	90L	100L	112M	Input shaft mm
 3										
8	600	9200	175							Ø19
10	600	9200	139							
11	600	9200	122							
12	600	9200	115							
15	600	9200	95							
16	600	9200	85.5							
19	600	9200	73.4							

減速機-減速比
Gear unit reduction ratio

最大輸出扭矩時・許可的徑向負載 (OHL)
Permitted overhung load at maximum output torque

最大輸出扭矩
Maximum output torque

輸出轉速
Output speed

 標準配接
Standard

 法蘭 / 實心入力 - 標準配接
Input Flange / Solid Input Shaft - Standard

馬達直結 - 接受客製・請洽公司客服
Couple with motor - Customization accepted
Please contact our customer service



選型表 Selection Tables

F..F/..M

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]

- [1] 馬達額定功率
Rated power driving motor
- [2] 輸出轉速
Output speed
- [3] 輸出扭矩
Output torque
- [4] 減速機-減速比
Gear unit reduction ratio
- [5] 出力端許可的徑向負載 (OHL)
Permissible overhung load output side

- [6] 操作係數
Service factor
- [7] 減速機規格
Gear unit size
- [8] 馬達型號
Motor type
- [9] 重量
Weight

選型表 Selection Tables

F..S

i	na [1/min]	Mamax [Nm]	Pe [kW]	FRa [N]	FRa [N]			m [kg]
K37								200Nm
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]

- [1] 減速機-減速比
Gear unit reduction ratio
- [2] 輸出轉速
Output speed
- [3] 最大許可輸出扭矩
Maximum permitted output torque
- [4] 減速機許可入力功率
Calculated drive power of the gear unit
- [5] 最大輸出扭矩時・許可的徑向負載 (OHL)
Permitted overhung load at maximum output torque

- [6] 入力端許可的徑向負載 (OHL)
Permitted overhung load on the input side
- [7] 減速機規格
Gear unit size
- [8] 入力端軸徑
Input shaft diameter
- [9] 重量
Weight



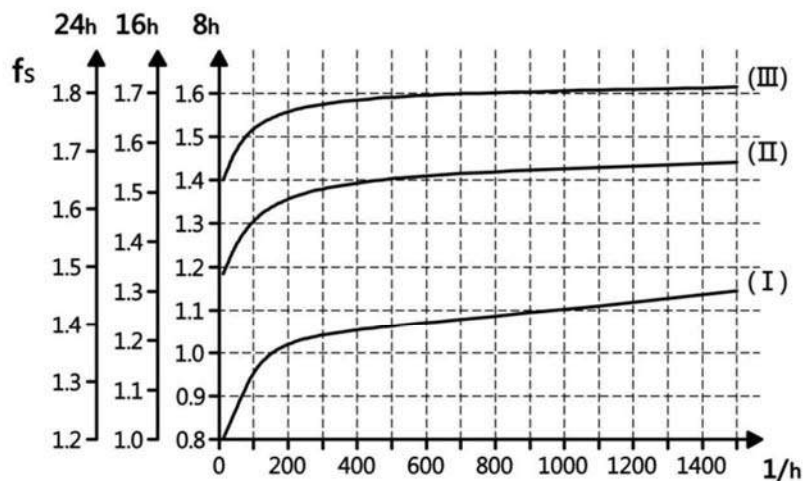
Parallel shaft helical Gear Units Information on Selection Tables

操作系數選用 Determining the service factor

為確保減速機在不同環境與使用條件下可正常運作，可由[操作系數表]選用合適型號來使用，決定操作系數前必須先確定減速機一天運轉時數、每小時起停次數和負載類型。

The service factor is determined along with the daily operating time (hours/day), operating condition (continuous or intermittent) and level of load; for a proper gear selection, please determine the service factor accordingly.

$$M_a \times f_s \leq M_{max}$$

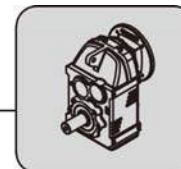


操作系數表
Service Factor

負載類型	I 平均負載：慣性加速系數 ≤ 0.2
Load	Light shocks : mass acceleration factor
Classification	II 中級衝擊負載：慣性加速系數 ≤ 3
	Moderate shocks : mass acceleration factor
	III 重級衝擊負載：慣性加速系數 ≤ 10
	Heavy shocks : mass acceleration factor

$$\text{慣性加速系數} = \frac{\text{所有外部的慣性矩}}{\text{馬達的慣性矩}}$$

$$\text{Mass acceleration factor} = \frac{\text{all exterior moments of inertia}}{\text{moments of inertia drive motors}}$$



[所有外部的慣性矩] - 減速機與驅動設備所產生的慣性矩，需要轉換成等效馬轉速下之慣性矩，公式如下：

[All exterior moments of inertia] - recalculated to motor speed, formula

$$J_x = J \times \left(\frac{n}{n_M} \right)^2$$

J_x : 馬達軸心等效慣性矩
 mass moment of inertia scaled down to the motor shaft
 J : 減速機輸出轉速下的慣性矩
 mass moment of inertia with reference to the output speed of the gear unit
 n : 減速機輸出轉速
 output speed of the gear unit
 n_M : 馬達轉速
 motor speed

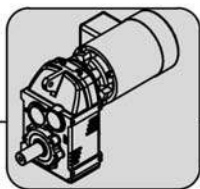
操作系數計算
Calculation of
service factor

$$f_s = \frac{M_{amax}}{M_a}$$

M_{amax} : 減速機最大輸出扭矩
 the maximum permitted continuous torque
 M_a : 減速機輸出扭矩
 output torque of the gear unit

例 慣性加速系數 2.5(負載類型 II)，一天運轉 14 小時(選 16h/天)，每小時起停次數為 300 次。 ... 查表可得 $f_s=1.51$ 。
 根據選型表所選擇減速機的 f_s 則需 ≥ 1.51 。

EX If the mass acceleration factor is 2.5 (Moderate shocks II), the operating time is 14 hours per day in an intermittent condition by 300 times per hour. We can acquire $f_s=1.51$ from the f_s chart; according to selection tables, we will know to select the gear unit with $f_s \geq 1.51$.



Parallel shaft helical Gear Units

Information on Selection Tables

公差 Tolerances

軸高

Shaft heights

下列公差適用於外型圖標註之尺寸：

The following tolerances apply to the indicated dimensions:

$h \leq 250 \text{ mm} \rightarrow -0.5 \text{ mm}$

$h > 250 \text{ mm} \rightarrow -1 \text{ mm}$

底座安裝減速機：需檢查所使用的馬達，因為它有可能會超出安裝面的下方。

Foot-mounted gear units: Check the mounted motor because it may project below the mounting surface.

軸端

Shaft ends

直徑公差：

Diameter tolerance:

$\emptyset \leq 50 \text{ mm} \rightarrow k6$

$\emptyset > 50 \text{ mm} \rightarrow m6$

中心孔：

Center bores

$\emptyset > 24 \dots 30 \text{ mm} \rightarrow M10$

$\emptyset > 30 \dots 38 \text{ mm} \rightarrow M12$

$\emptyset > 38 \dots 50 \text{ mm} \rightarrow M16$

$\emptyset > 50 \dots 85 \text{ mm} \rightarrow M20$

$\emptyset > 85 \dots 130 \text{ mm} \rightarrow M24$

中空軸

Hollow shafts

直徑公差：

Diameter tolerance:

$\emptyset H7$

出力法蘭

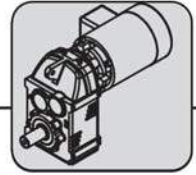
Output Flanges

定位唇公差：

Centering shoulder tolerance:

$\emptyset \leq 230 \text{ mm} \rightarrow j6$

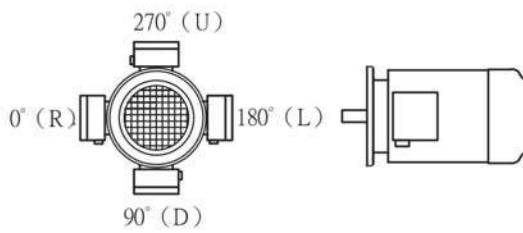
$\emptyset > 230 \text{ mm} \rightarrow h6$



安裝位置 MOUNTING POSITION (FS/FH37~97)

接線盒位置 Position of Terminal Box

若未特別指示,標準安裝位置為"U"
Standard position "U", unless specific requirements



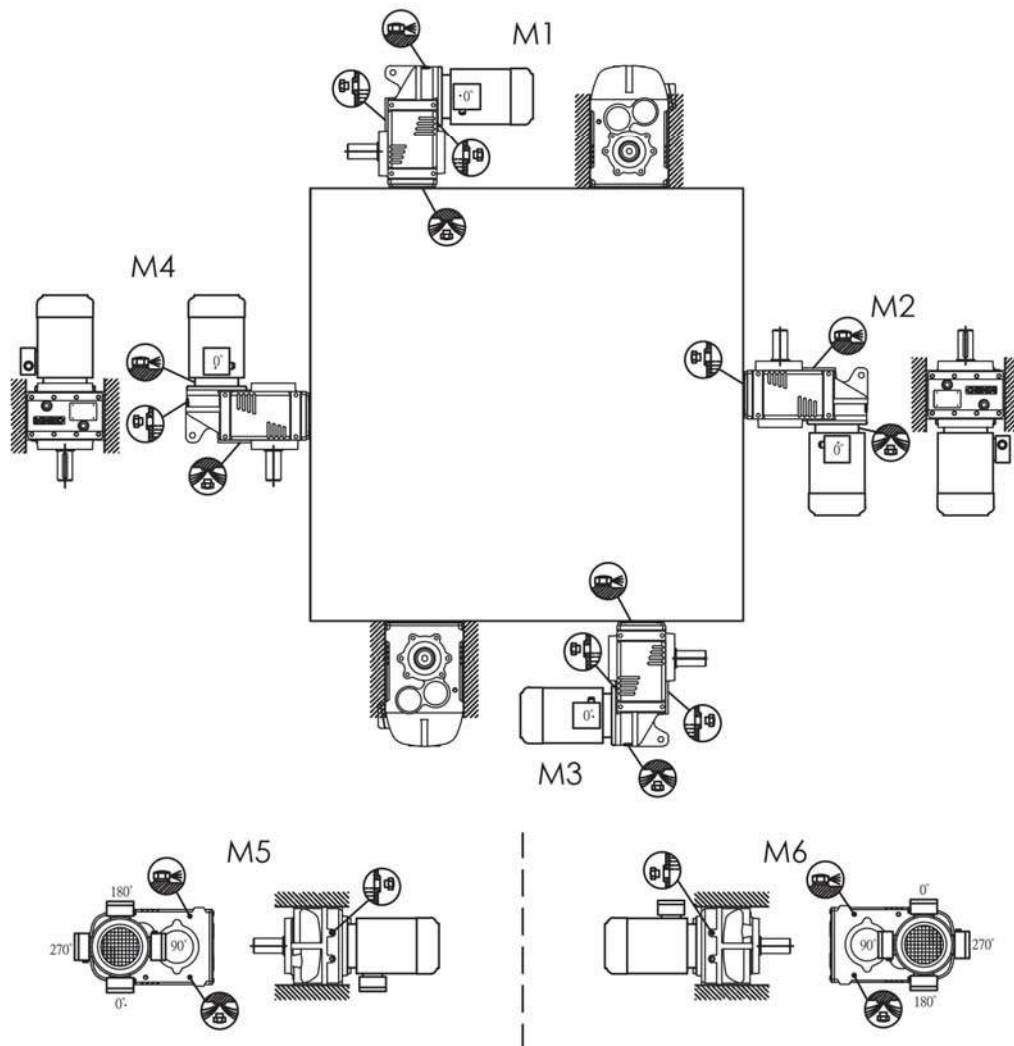
透氣孔 Breather

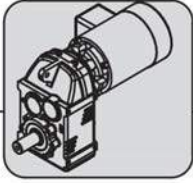


洩油孔 Oil Drain



油位孔 Oil Level



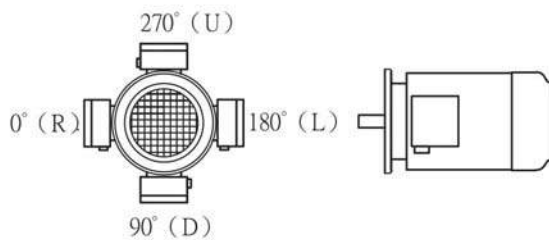


Parallel shaft helical Gear Mounting positions

安裝位置 MOUNTING POSITION (FN/FM37~97)

接線盒位置 Position of Terminal Box

若未特別指示,標準安裝位置為"U"
Standard position "U", unless specific requirements



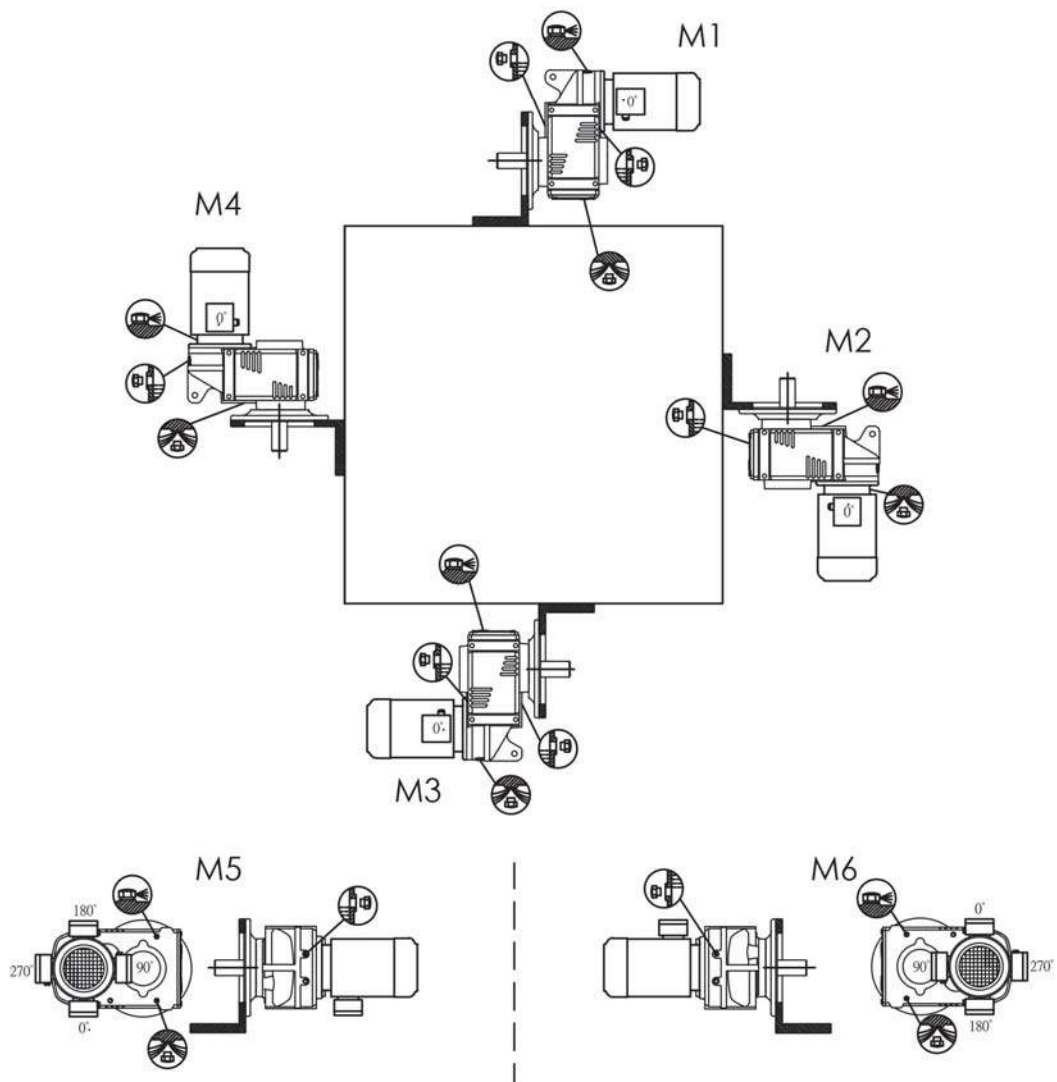
透氣孔 Breather

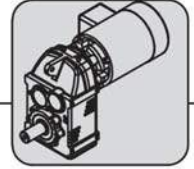


洩油孔 Oil Drain



油位孔 Oil Level

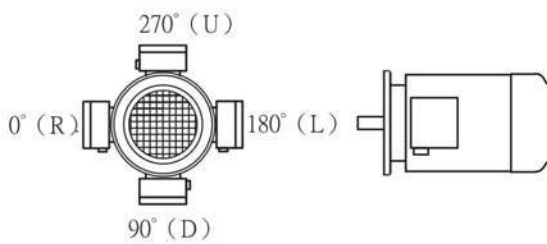




安裝位置 MOUNTING POSITION (FH37~97)

接線盒位置 Position of Terminal Box

若未特別指示,標準安裝位置為"U"
Standard position "U", unless specific requirements



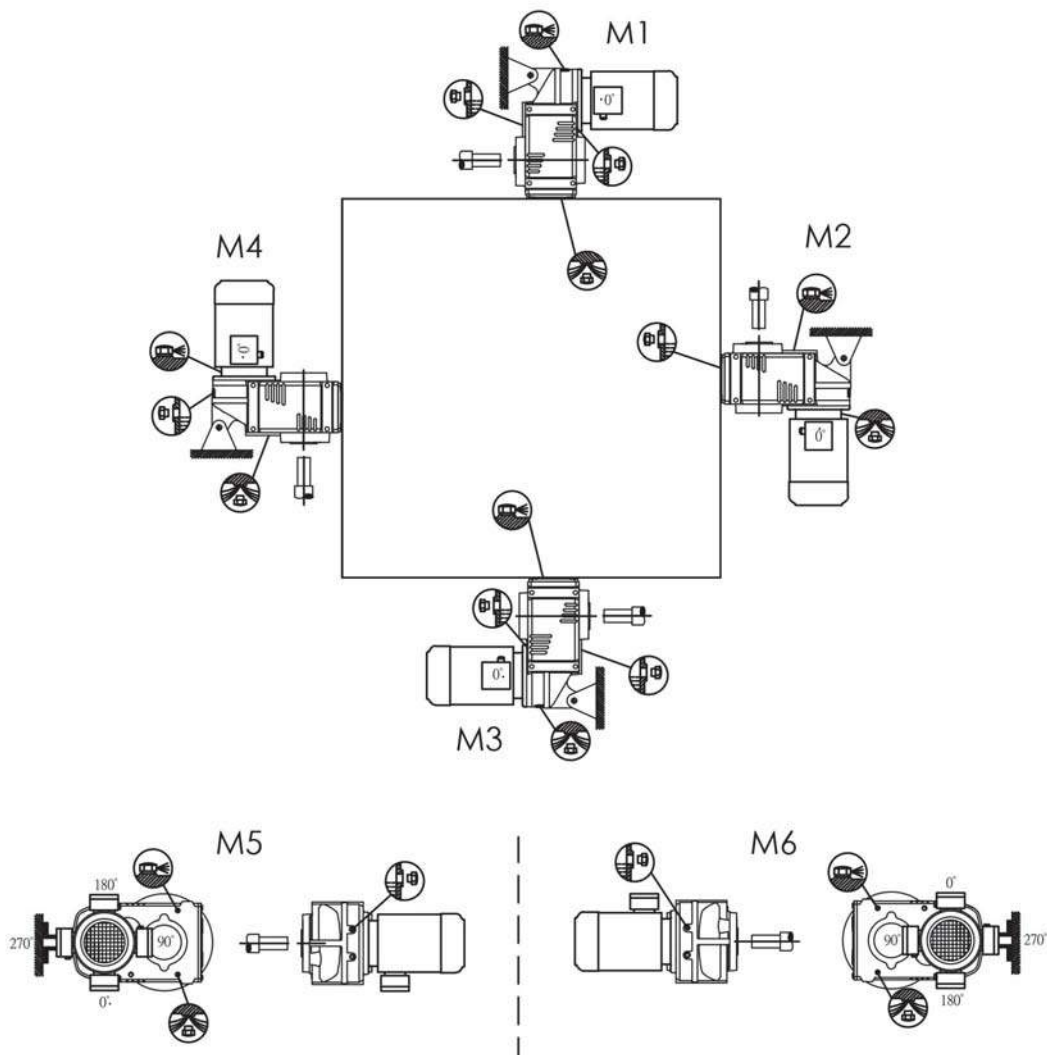
透氣孔 Breather

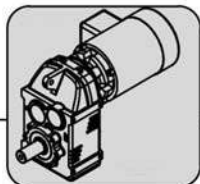


洩油孔 Oil Drain



油位孔 Oil Level





Parallel shaft helical Gear Lubricant Volume&Lubricant Selection

潤滑油用量&潤滑油選擇 Lubricant Volume&Lubricant Selection

標準負荷，入力轉速600PRM或以上 Standard Load, Input 600 RPM or more.				
環境溫度 Temperature(C°)	中國石油CPC	ISO VG	Mobil	Shell
-30~-15	HD 100	VG 100	Mobilgear 627	Omala 100
-15~-3	HD 150	VG 150	Mobilgear 629	Omala 150
-3~23	HD 220	VG 220	Mobilgear 630	Omala 220
23~40	HD 320	VG 320	Mobilgear 632	Omala 320
40~80	HD 460	VG 460	Mobilgear 634	Omala 460

超重負荷，入力轉速600RPM或以上 Heavy Load, Input 600 RPM or more.				
環境溫度 Temperature(C°)	中國石油CPC	ISO VG	Mobil	Shell
-30~-15	HD 150	VG 150	Mobilgear 629	Omala 150
-15~-3	HD 220	VG 220	Mobilgear 630	Omala 220
-3~23	HD 320	VG 320	Mobilgear 632	Omala 320
23~40	HD 460	VG 460	Mobilgear 634	Omala 460
40~80	HD 680	VG 680	Mobilgear 636	Omala 680

出力轉速>100R.P.M,使用中油國光牌HD220極壓機油或同級品
 output RPM<100R.P.M,please use CPC HD-220 E .P.lubricant or equivalent
 出力轉速<100R.P.M,使用中油國光HD320極壓機油或同級品
 output PRM<100R.P.M,please use CPC HD-320 E.P.lubricant or equivalent

用油量參照表 單位：升 Lubricant Volume (L)						
減速機型號 Gear unit	M1	M2	M3	M4	M5	M6
F...37	1.10	1.35	0.80	1.40	1.10	1.10
F...47	1.70	2.10	1.20	2.00	1.60	1.60
F...57	2.90	3.70	2.20	3.80	3.00	3.00
F...67	3.00	4.00	2.30	3.90	3.20	3.20
F...77	6.00	7.50	4.50	8.20	6.30	6.30
F...87	10.5	13.4	8.00	14.3	11.2	11.2
F...97	19.5	22.7	12.7	25.7	20.5	20.5

以上數據僅供參考
 RECOMMENDATIONS



1400 Input Rpm

F37 , ne=1400 1/min				200 Nm				實心入力軸徑
na [1/min]	Mamax [Nm]	FRa [N]	i	63	71	80	90L	Input shaft mm
 3								
11	200	4290	128.51					Ø16
12	200	4290	117.88					
14	200	4290	100.36					
17	200	4290	80.65					
20	200	4290	70.5					
21	200	4290	66.09					
24	200	4290	58.32					
26	200	4290	54.54					
27	200	4290	51.7					
32	200	4290	43.83					
37	200	4290	38.31					Ø19
39	200	4290	35.91					
44	200	4290	31.69					
50	200	4070	28.1					
 2								
57	200	3820	24.7					Ø19
71	200	3425	19.71					
81	200	3210	17.32					
86	200	3110	16.29					
116	200	2660	12.09					
135	200	2445	10.39					
151	137	2405	9.27					
172	130	2315	8.14					
246	113	2075	5.68					



Parallel Shaft Gear Units

Permitted Combinations

1400 Input Rpm

F47 , ne=1400 1/min				400 Nm				實心入力軸徑
na [1/min]	Mamax [Nm]	FRa [N]	i	63	71	80	90L	Input shaft mm
 3								
9	400	5920	148.71					Ø16
12	400	5920	121.06					
13	400	5920	104.91					
15	400	5920	95.57					
16	400	5920	85.41					
18	400	5920	79.30					Ø19
20	400	5920	71.21					
21	400	5920	67.43					
23	400	5920	60.83					
25	400	5920	55.95					
28	400	5920	50.24					
33	400	5920	42.91					
39	385	5200	36.06					
43	369	4885	32.38					
46	361	4730	30.66					
55	336	4535	25.44					
 2								
57	370	4990	24.76					Ø19
64	371	4710	21.75					
68	372	4565	20.45					
92	374	3865	15.19					
107	374	3520	13.04					
124	243	3580	11.26					
142	230	3450	9.89					
151	225	3390	9.30					
203	200	3110	6.90					
236	188	2970	5.93					
335	164	2680	4.18					



1400 Input Rpm

F57 , ne=1400 1/min				600 Nm						實心入力軸徑
na [1/min]	Mamax [Nm]	FRa [N]	i	63	71	80	90L	100L	112M	Input shaft mm
 3										
8	600	9200	174.58							Ø19
10	600	9200	139.34							
11	600	9200	122.42							
12	600	9200	115.11							
15	600	9200	95.01							
16	600	9200	85.46							
19	600	9200	73.4							
27	600	9200	51.72							
22	600	9200	64.76							
25	600	9200	56.9							
35	589	9005	39.72							
41	572	8405	34.11							
58	550	7305	24.04							
 2										
53	549	7585	26.46							Ø19
60	551	7210	23.31							
73	553	6565	19.11							
78	553	6370	18.01							Ø24
90	555	5905	15.55							
104	557	5465	13.5							
114	558	5190	12.29							
123	600	4145	11.35							
150	550	3620	9.31							
160	541	3595	8.77							
185	512	3425	7.57							
213	485	3270	6.57							
234	468	3185	5.98							



Parallel Shaft Gear Units

Permitted Combinations

1400 Input Rpm

F67 , ne=1400 1/min				820 Nm						實心入力軸徑
na [1/min]	Mamax [Nm]	FRa [N]	i	63	71	80	90L	100L	112M	Input shaft mm
 3										
7	820	10300	187.70							Ø19
9	820	10300	151.68							
10	820	10300	133.62							
13	797	10300	109.55							
14	791	10300	103.23							
16	767	10300	89.11							
18	748	10300	77.36							
20	732	10300	70.42							
22	722	10300	64.95							
24	706	10300	57.22							
30	680	10300	46.91							
32	671	10300	44.20							
37	653	10300	38.16							
42	636	10300	33.12							
46	626	10300	30.15							
 2										
49	619	10300	28.44							Ø24
77	622	10300	18.10							
87	623	10300	16.12							
97	625	10300	14.46							
105	626	10300	13.31							
124	628	10090	11.31							
165	632	9105	8.48							
211	543	8215	6.63							
236	525	7950	5.94							
256	513	7750	5.47							

1400 Input Rpm

Parallel Shaft Gear Units

Permitted Combinations



F77 , ne=1400 1/min				1500 Nm						實心入力軸徑
na [1/min]	Mamax [Nm]	FRa [N]	i	80	90L	100L	112M	132S	132M	Input shaft mm
 3										
8	1500	15700	166.80							Ø19
9	1500	15700	160.23							
9	1500	15700	147.56							
15	1500	15700	93.90							
17	1500	15700	83.63							
19	1500	15700	75.02							
24	1500	15700	59.38							Ø24
26	1500	15700	53.26							
29	1500	15700	49.04							
34	1500	15700	41.67							
45	1500	15700	31.25							Ø38
 2										
57	1500	15700	24.73							Ø38
65	1500	15700	21.49							
85	1500	15515	16.56							
90	1500	15160	15.64							
100	1500	14495	14.06							
114	1500	13700	12.28							
154	1500	11995	9.07							
179	1230	11310	7.83							
189	1207	11135	7.40							
211	1174	10755	6.65							
241	1346	8930	5.81							



Parallel Shaft Gear Units

Permitted Combinations

1400 Input Rpm

F87 , ne=1400 1/min				3000 Nm							實心入力軸徑
na [1/min]	Mamax [Nm]	FRa [N]	i	90L	100L	112M	132S	132M	160M	160L	Input shaft mm
 3											
9	3000	19800	162.37								Ø19
10	3000	19800	141.09								
13	3000	19800	108.77								Ø28
14	3000	19800	102.70								
15	3000	19800	92.34								
17	3000	19800	83.32								Ø38
18	3000	19800	78.67								
20	2940	19800	70.73								
23	2866	19800	61.76								
26	2092	19800	53.48								
30	2077	19495	46.47								
39	2088	17310	35.83								
56	2104	14560	24.98								Ø42
71	2117	12850	19.61								
 2											
43	2543	16330	32.21								Ø38
49	2486	15590	28.41								
54	2446	15080	25.94								
63	2420	14045	22.10								
68	2423	13610	20.73								
75	2429	12900	18.69								Ø42
85	2436	12115	16.55								
95	2443	11375	14.76								
106	2450	10705	13.23								
143	2469	8950	9.76								
174	2212	7280	8.04								
197	2161	6915	7.12								
221	2089	6665	6.35								
246	2022	6450	5.69								
334	1840	5925	4.20								



1400 Input Rpm

F97 , ne=1400 1/min				4300 Nm							實心入力軸徑
na [1/min]	Mamax [Nm]	FRa [N]	i	100L	112M	132S	132M	160M	160L	180M	Input shaft mm
 3											
8	4300	29900	170.08								Ø28
9	4300	29900	149.98								
10	4300	29900	136.95								
13	4300	29900	109.42								Ø38
12	4300	29900	116.67								
14	4300	29900	98.66								
16	4300	29900	87.40								
18	4218	29785	77.93								
22	4075	27895	64.52								Ø42
24	3985	26740	57.15								
27	3900	25665	50.96								
31	3823	24690	45.69								
42	3616	22170	33.70								
 2											
43	3588	21825	32.38								Ø42
48	3514	20930	28.88								
62	3365	19190	22.72								
80	3350	17010	17.48								Ø48
101	3369	15090	13.86								
108	2332	16330	12.95								
121	2917	13305	11.55								
154	2715	12385	9.09								
200	2049	13165	6.99								
253	2339	10670	5.54								



Parallel Shaft Gear Units

Permitted Combinations

1400 Input Rpm

F37R17 , $n_e=1400$ 1/min							200 Nm
na [1/min]	Mamax [Nm]	FRa [N]	i	56	63	71	80
 3  3							
0.17	200	4290	8021				
0.20	200	4290	6901				
0.24	200	4290	5950				
0.25	200	4290	5538				
0.28	200	4290	5013				
0.31	200	4290	4537				
0.36	200	4290	3911				
0.41	200	4290	3452				
0.47	200	4290	3001				
0.54	200	4290	2616				
0.60	200	4290	2323				
0.72	200	4290	1939				
0.82	200	4290	1711				
0.92	200	4290	1520				
 2  3							
0.71	200	4290	1973				
0.82	200	4290	1697				
0.96	200	4290	1463				
1.03	200	4290	1354				
1.25	200	4290	1123				
1.36	200	4290	1026				
1.43	200	4290	979				
1.61	200	4290	869				
1.93	200	4290	725				
2.02	200	4290	693				
2.44	200	4290	573				
2.93	200	4290	478				
3.29	200	4290	426				
3.84	200	4290	365				
 3  2							
1.16	200	4290	1211				
1.32	200	4290	1057				
1.57	200	4290	891				
1.73	200	4290	810				
1.98	200	4290	707				
2.33	200	4290	600				
2.55	200	4290	549				



F47R17 , $n_e=1400$ 1/min							400 Nm
n_a [1/min]	M_{amax} [Nm]	F_{Ra} [N]	i	56	63	71	80
 3  3							
0.12	400	5920	11882				
0.14	400	5920	10223				
0.16	400	5920	8814				
0.19	400	5920	7426				
0.21	400	5920	6555				
0.25	400	5920	5651				
0.28	400	5920	5054				
0.32	400	5920	4368				
0.38	400	5920	3690				
0.42	400	5920	3356				
0.48	400	5920	2930				
0.54	400	5920	2598				
0.60	400	5920	2330				
0.67	400	5920	2090				
 2  3							
0.71	400	5920	1977				
0.82	400	5920	1701				
0.94	400	5920	1495				
1.00	400	5920	1406				
1.16	400	5920	1212				
1.34	400	5920	1045				
1.51	400	5920	930				
1.73	400	5920	810				
1.95	400	5920	720				
2.28	400	5920	613				
 3  2							
0.77	400	5920	1818				
0.89	400	5920	1575				
1.05	400	5920	1327				
1.16	400	5920	1207				
1.33	400	5920	1054				
1.53	400	5920	914				
1.76	400	5920	797				
1.98	400	5920	708				
2.20	400	5920	635				
2.58	400	5920	543				
2.94	400	5920	476				



Parallel Shaft Gear Units

Permitted Combinations

1400 Input Rpm

F57R37 , $n_e=1400$ 1/min							600 Nm
na [1/min]	Mamax [Nm]	FRa [N]	i	63	71	80	90
 3  3							
0.10	600	9200	14610				
0.10	600	9200	13392				
0.11	600	9200	12757				
0.12	600	9200	11211				
0.14	600	9200	9770				
0.16	600	9200	8716				
0.18	600	9200	7837				
0.20	600	9200	6830				
0.23	600	9200	6017				
0.26	600	9200	5391				
0.30	600	9200	4617				
0.35	600	9200	4024				
0.39	600	9200	3573				
0.44	600	9200	3171				
0.49	600	9200	2856				
0.57	600	9200	2465				
0.63	600	9200	2217				
0.74	600	9200	1899				
0.83	600	9200	1680				
0.95	600	9200	1476				
1.13	600	9200	1236				
 2  3							
0.50	600	9200	2780				
0.53	600	9200	2661				
0.61	600	9200	2282				
0.69	600	9200	2030				
0.78	600	9200	1786				
0.87	600	9200	1611				
0.98	600	9200	1424				
1.13	600	9200	1241				
1.32	600	9200	1061				
1.50	600	9200	934				
1.66	600	9200	842				
1.83	600	9200	767				
2.09	600	9200	668				
2.58	600	9200	543				
2.90	600	9200	483				

Parallel Shaft Gear Units

Permitted Combinations



1400 Input Rpm

F67R37 , n _e =1400 1/min							820 Nm
n _a [1/min]	M _{amax} [Nm]	F _{Ra} [N]	i	63	71	80	90
 3  3							
0.08	820	10300	18485				
0.09	820	10300	15177				
0.11	820	10300	13084				
0.13	820	10300	11025				
0.14	820	10300	10040				
0.16	820	10300	8750				
0.18	820	10300	7914				
0.20	820	10300	7087				
0.24	820	10300	5942				
0.26	820	10300	5355				
0.30	820	10300	4667				
0.34	820	10300	4138				
0.39	820	10300	3575				
0.45	820	10300	3116				
0.51	820	10300	2767				
0.57	820	10300	2466				
 2  3							
0.41	820	10300	3394				
0.49	820	10300	2859				
0.54	820	10300	2604				
0.62	820	10300	2269				
0.64	820	10300	2181				
0.70	820	10300	1986				
0.84	820	10300	1659				
0.97	820	10300	1446				
1.12	820	10300	1252				
1.23	820	10300	1140				
1.41	820	10300	994				
1.59	820	10300	883				
1.93	820	10300	727				
2.21	820	10300	633				
2.62	820	10300	533				
 3  2							
0.68	820	10300	2059				
0.74	820	10300	1897				
0.86	820	10300	1626				
0.98	820	10300	1433				



Parallel Shaft Gear Units

Permitted Combinations

1400 Input Rpm

F77R37 , ne=1400 1/min							1500 Nm
na [1/min]	Mamax [Nm]	FRa [N]	i	63	71	80	90
 3  3							
0.07	1500	15700	19110				
0.08	1500	15700	17598				
0.09	1500	15700	16102				
0.09	1500	15700	14828				
0.10	1500	15700	13504				
0.12	1500	15700	11768				
0.12	1500	15700	11310				
0.14	1500	15700	10300				
0.14	1500	15700	9747				
0.16	1500	15700	8605				
0.19	1500	15700	7499				
0.21	1500	15700	6563				
0.24	1500	15700	5720				
0.27	1500	15700	5098				
0.31	1500	15700	4563				
0.37	1500	15700	3768				
0.42	1500	15700	3359				
0.47	1500	15700	3006				
0.53	1500	15700	2619				
0.60	1500	15700	2326				
0.67	1500	15700	2079				
 2  3							
0.41	1500	15700	3420				
0.47	1500	15700	2949				
0.55	1500	15700	2563				
0.62	1500	15700	2263				
0.71	1500	15700	1972				
0.81	1500	15700	1726				
0.85	1500	15700	1647				
0.98	1500	15700	1432				
1.05	1500	15700	1336				
1.21	1500	15700	1161				
1.30	1500	15700	1078				
1.57	1500	15700	894				
 3  2							
0.83	1500	15700	1682				
0.93	1500	15700	1499				

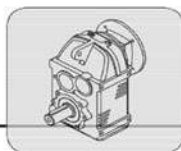
1400 Input Rpm

Parallel Shaft Gear Units

Permitted Combinations



F87R57 , ne=1400 1/min									3000 Nm
na [1/min]	Mamax [Nm]	FRa [N]	i	63	71	80	90	100L	112M
 3  3									
0.06	3000	19800	23147						
0.07	3000	19800	19942						
0.08	3000	19800	18215						
0.09	3000	19800	15922						
0.10	3000	19800	14034						
0.11	3000	19800	12267						
0.13	3000	19800	10452						
0.15	3000	19800	9392						
0.17	3000	19800	8180						
0.20	3000	19800	7045						
0.22	3000	19800	6274						
0.25	3000	19800	5553						
0.28	3000	19800	4989						
0.33	3000	19800	4258						
0.38	3000	19800	3729						
 2  3									
0.29	3000	19800	4750						
0.33	3000	19800	4261						
0.37	3000	19800	3796						
0.41	3000	19800	3421						
0.44	3000	19800	3209						
0.49	3000	19800	2853						
0.55	3000	19800	2567						
0.65	3000	19800	2140						
0.73	3000	19800	1907						
0.82	3000	19800	1710						
0.98	3000	19800	1433						
1.12	3000	19800	1249						
1.24	3000	19800	1126						
1.41	3000	19800	990						
1.57	3000	19800	890						
1.78	3000	19800	785						
1.83	3000	19800	766						
 3  2									
0.42	3000	19800	3322						
0.47	3000	19800	2957						
0.54	3000	19800	2596						



Parallel Shaft Gear Units

Permitted Combinations

1400 Input Rpm

F97R57 , ne=1400 1/min									4300 Nm
na [1/min]	Mamax [Nm]	FRa [N]	i	63	71	80	90	100L	112M
 3  3									
0.05	4300	29900	27882						
0.06	4300	29900	24021						
0.07	4300	29900	21182						
0.08	4300	29900	17946						
0.09	4300	29900	15461						
0.10	4300	29900	13932						
0.11	4300	29900	12345						
0.13	4300	29900	10870						
0.15	4300	29900	9601						
0.17	4300	29900	8340						
0.19	4300	29900	7207						
0.22	4300	29900	6417						
0.25	4300	29900	5648						
0.28	4300	29900	5047						
0.32	4300	29900	4366						
 2  3									
0.24	4300	29900	5927						
0.27	4300	29900	5282						
0.31	4300	29900	4580						
0.34	4300	29900	4081						
0.42	4300	29900	3296						
0.47	4300	29900	2977						
0.54	4300	29900	2580						
0.61	4300	29900	2299						
0.72	4300	29900	1950						
0.81	4300	29900	1738						
0.95	4300	29900	1473						
1.05	4300	29900	1333						
1.14	4300	29900	1226						
1.33	4300	29900	1049						
 3  2									
0.37	4300	29900	3786						
0.40	4300	29900	3458						
0.48	4300	29900	2943						
0.54	4300	29900	2575						
0.61	4300	29900	2292						
0.71	4300	29900	1967						

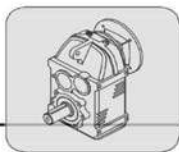
Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M



1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
0.12 (0.16HP)	0.22	4374	6417	29900	0.98	FS97 R57	63	187
	0.25	3849	5648	29900	1.12	FM97 R57		202
	0.28	3440	5047	29900	1.25	FN97 R57		217
	0.32	2976	4366	29900	1.45	FH97 R57		177
	0.34	2867	4081	29900	1.50	FS97 R57	63	182
	0.42	2316	3296	29900	1.86	FM97 R57		197
	0.47	2092	2977	29900	2.06	FN97 R57		212
	0.54	1813	2580	29900	2.37	FH97 R57		172
	0.33	2902	4258	19800	1.03	FS87 R57	63	117
	0.38	2541	3729	19800	1.18	FM87 R57		127
						FN87 R57		137
						FH87 R57		112
	0.44	2254	3209	19800	1.33	FS87 R57 FM87 R57 FN87 R57 FH87 R57	63	112
	0.49	2005	2853	19800	1.50			122
	0.55	1804	2567	19800	1.66			132
	0.65	1504	2140	19800	1.99			107
	0.73	1340	1907	19800	2.24			
	0.82	1202	1710	19800	2.50			
	0.98	1006	1433	19800	2.98			
	1.12	878	1249	19800	3.42			
	1.24	791	1126	19800	3.79			
	0.53	1785	2619	15700	0.84	FS77 R37	63	66
	0.60	1585	2326	15700	0.95	FM77 R37		68
	0.67	1417	2079	15700	1.06	FN77 R37		76
						FH77 R37		62
	0.81	1213	1726	15700	1.24	FS77 R37 FM77 R37 FN77 R37 FH77 R37	63	65
	0.85	1157	1647	15700	1.30			66
	0.98	1006	1432	15700	1.49			74
	1.05	938	1336	15700	1.60			61
	1.21	816	1161	15700	1.84			
	1.30	757	1078	15700	1.98			
	1.57	628	894	15700	2.39			
	0.98	1007	1433	10300	0.81	FS67 R37 FM67 R37 FN67 R37 FH67 R37	63	42
	1.09	904	1287	10300	0.91			46
	1.26	781	1112	10300	1.05			48
	1.38	711	1012	10300	1.15			40
	1.65	596	848	10300	1.38			
	1.88	524	746	10300	1.56			
	2.15	457	651	10300	1.79			
	2.45	402	572	10300	2.04			
	2.73	361	513	10300	2.27	FS57 R37 FM57 R37 FN57 R37 FH57 R37	63	39
	3.20	307	437	10300	2.67			45
	1.65	596	848	9200	1.01			46
	1.90	516	735	9200	1.16			39
	2.15	457	650	9200	1.31			44
	2.54	387	551	9200	1.55			45
	2.83	347	494	9200	1.73			38
	3.14	313	446	9200	1.91			
	3.31	306	423	9200	1.96	FS57 R37 FM57 R37 FN57 R37 FH57 R37	63	25
	3.67	276	382	9200	2.17			27
	4.23	240	331	9200	2.50			28
	4.65	218	301	9200	2.75			25
	5.28	192	265	9200	3.12			
	2.58	382	543	5920	1.05	FS47 R17 FM47 R17 FN47 R17 FH47 R17	63	25
	2.94	335	476	5920	1.20			27
	3.36	293	417	5920	1.37			28
								25
	3.77	269	372	5920	1.49			25
	4.28	237	327	5920	1.69			27



Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M

1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	4.56	223	307	5920	1.80	FN47 R17	63	28
	5.41	188	259	5920	2.13	FH47 R17		25
	4.28	230	327	4290	0.87	FS37 R17		20
	5.12	192	273	4290	1.04	FM37 R17	63	21
	5.92	166	236	4290	1.20	FN37 R17		22
	6.32	156	222	4290	1.28	FH37 R17		20
	4.48	226	313	4290	0.88			
	4.73	214	296	4290	0.93	FS37 R17		20
	5.64	180	248	4290	1.11	FM37 R17	63	21
	6.39	159	219	4290	1.26	FN37 R17		22
	7.61	133	184	4290	1.50	FH37 R17		20
	8.56	118	164	4290	1.69			
	7.46	140	187.70	10300	5.84	FS67		32
						FM67	63	36
						FN67		38
						FH67		30
	8.02	130	174.58	9200	4.60	FS57		29
	10.05	104	139.34	9200	5.77	FM57	63	25
						FN57		36
						FH57		29
	9.41	111	148.71	5920	3.60	FS47		20
	11.57	90	121.06	5920	4.43	FM47	63	22
	13.35	78	104.91	5920	5.11	FN47		23
	14.67	71	95.57	5920	5.61	FH47		20
	10.89	96	128.51	4290	2.09			
	11.88	88	117.88	4290	2.27			
	13.95	75	100.36	4290	2.67	FS37		15
	17.36	60	80.65	4290	3.32	FM37	63	16
	19.86	53	70.50	4290	3.81	FN37		17
	21.18	49	66.09	4290	4.06	FH37		15
	24.01	44	58.32	4290	4.59			
	25.67	41	54.54	4290	4.90			
	27.08	39	51.70	4290	5.17			
0.18 (0.25HP)	0.32	4463	4366	29900	0.96	FS97 R57		187
						FM97 R57	63	202
						FN97 R57		217
						FH97 R57		177
	0.34	4301	4081	29900	1.00			
	0.42	3474	3296	29900	1.24			
	0.47	3137	2977	29900	1.37			
	0.54	2719	2580	29900	1.58	FS97 R57		182
	0.61	2423	2299	29900	1.77	FM97 R57	63	197
	0.72	2055	1950	29900	2.09	FN97 R57		212
	0.81	1831	1738	29900	2.35	FH97 R57		172
	0.95	1553	1473	29900	2.77			
	1.05	1405	1333	29900	3.06			
	1.14	1292	1226	29900	3.33			
	0.54	2735	2596	19800	1.10			
	0.64	2291	2174	19800	1.31			
	0.72	2039	1935	19800	1.47			
	0.81	1828	1735	19800	1.64	FS87 R57	63	117
	0.94	1564	1484	19800	1.92	FM87 R57		127
	1.08	1364	1294	19800	2.20	FN87 R57		137
	1.20	1227	1164	19800	2.45	FH87 R57		112
	1.32	1121	1064	19800	2.68			
	1.46	1013	961	19800	2.96			
	1.72	860	816	19800	3.49			
	0.93	1580	1499	15700	0.95			
	1.04	1414	1342	15700	1.06			

Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M



1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
1.17	1266	1201	15700	1.19			66	
1.32	1120	1062	15700	1.34			63	68
1.59	927	880	15700	1.62			63	76
1.75	842	799	15700	1.78			63	62
1.97	750	712	15700	2.00				
2.35	629	596	15700	2.39				
1.65	894	848	10300	0.92			42	
1.88	787	746	10300	1.04			63	46
2.15	686	651	10300	1.20			63	48
2.45	603	572	10300	1.36			63	40
2.73	541	513	10300	1.52				
3.20	461	437	10300	1.78				
3.66	403	382	10300	2.04			41	
2.75	553	509	10300	1.48			63	45
3.15	483	444	10300	1.70			63	47
3.50	435	400	10300	1.88			63	39
4.19	363	334	10300	2.26				
4.90	310	285	10300	2.64				
5.91	257	237	10300	3.19			39	
7.30	208	192	10300	3.94			63	45
2.54	581	551	9200	1.03			63	46
2.83	521	494	9200	1.15			63	39
3.14	470	446	9200	1.28				
3.64	405	384	9200	1.48				
4.13	357	339	9200	1.68			38	
3.31	459	423	9200	1.31			63	44
3.67	415	382	9200	1.45			63	45
4.23	360	331	9200	1.67			63	38
4.65	327	301	9200	1.83				
5.28	288	265	9200	2.08				
6.22	244	225	9200	2.45			25	
6.89	221	203	9200	2.72			63	27
3.75	394	374	5920	1.02			63	28
4.31	343	325	5920	1.17			63	25
4.86	304	288	5920	1.32				
5.68	260	247	5920	1.54				
4.28	355	327	5920	1.13			25	
4.56	334	307	5920	1.20			63	27
5.41	281	259	5920	1.42			63	28
6.41	237	218	5920	1.69			63	25
7.27	209	192	5920	1.91				
8.28	184	169	5920	2.18				
7.61	200	184	4290	1.00			20	
8.56	178	164	4290	1.13			63	21
9.54	159	147	4290	1.25			63	22
10.86	140	129	4290	1.43			63	20
7.46	210	187.70	10300	3.90				
9.23	170	151.68	10300	4.82				
10.48	150	133.62	10300	5.48			32	
							63	36
							63	38
							63	30
8.02	196	174.58	9200	3.07				
10.05	156	139.34	9200	3.84				
11.44	137	122.42	9200	4.37			29	
12.16	129	115.11	9200	4.65			63	25
14.74	106	95.01	9200	5.63			63	36
							63	29
9.41	167	148.71	5920	2.40				
11.57	136	121.06	5920	2.95				
13.35	118	104.91	5920	3.40			20	
14.67	107	95.57	5920	3.74			22	



Parallel Shaft Gear Units

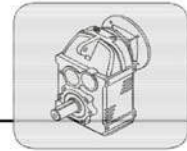
Selection Tables [kW] F..F/..M

1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	16.41	96	85.41	5920	4.19	FN47	63	23
	17.63	89	79.30	5920	4.50	FH47		20
	19.66	80	71.21	5920	5.02			
	20.81	75	67.43	5920	5.31			
	23.00	68	60.83	5920	5.87			
	10.89	144	128.51	4290	1.39			
	11.88	132	117.88	4290	1.52			
	13.95	112	100.36	4290	1.78			
	17.36	90	80.65	4290	2.22			
	19.86	79	70.50	4290	2.54	FS37		15
	21.18	74	66.09	4290	2.70	FM37		16
	24.01	65	58.32	4290	3.06	FN37	63	17
	25.67	61	54.54	4290	3.26	FH37		15
	27.08	58	51.70	4290	3.45			
	31.94	49	43.83	4290	4.07			
	36.54	43	38.31	4290	4.66			
	38.98	40	35.91	4290	4.96			
	44.18	35	31.69	4290	5.62			
0.25 (0.34HP)	0.48	4308	2943	29900	1.00			
	0.54	3769	2575	29900	1.14			
	0.61	3355	2292	29900	1.28	FS97 R57		187
	0.71	2879	1967	29900	1.49	FM97 R57		202
	0.81	2528	1727	29900	1.70	FN97 R57	71	217
	0.89	2309	1578	29900	1.86	FH97 R57		177
	1.04	1965	1343	29900	2.19			
	1.23	1663	1136	29900	2.59			
	1.39	1475	1008	29900	2.92			
	0.72	2832	1935	19800	1.06			
	0.81	2539	1735	19800	1.18			
	0.94	2172	1484	19800	1.38	FS87 R57		117
	1.08	1894	1294	19800	1.58	FM87 R57		127
	1.20	1704	1164	19800	1.76	FN87 R57	71	137
	1.32	1557	1064	19800	1.93	FH87 R57		112
	1.46	1406	961	19800	2.13			
	1.72	1194	816	19800	2.51			
	1.98	1036	708	19800	2.89			
	1.32	1555	1062	15700	0.96			
	1.59	1288	880	15700	1.16			
	1.75	1169	799	15700	1.28	FS77 R37		66
	1.97	1042	712	15700	1.44	FM77 R37	71	68
	2.35	873	596	15700	1.72	FN77 R37		76
	2.59	792	541	15700	1.89	FH77 R37		62
	2.90	706	482	15700	2.13			
	3.36	610	416	15700	2.46			
	2.45	838	572	10300	0.98	FS67 R37		42
	2.73	751	513	10300	1.09	FM67 R37	71	46
	3.20	640	437	10300	1.28	FN67 R37		48
						FH67 R37		40
	2.75	768	509	10300	1.07	FS67 R37		41
	3.15	670	444	10300	1.22	FM67 R37	71	45
	3.50	604	400	10300	1.36	FN67 R37		47
	4.19	504	334	10300	1.63	FH67 R37		39
	4.90	431	285	10300	1.90			
	5.91	357	237	10300	2.29			
	3.64	562	384	9200	1.07	FS57 R37		39
	4.13	496	339	9200	1.21	FM57 R37	71	45
	5.54	370	253	9200	1.62	FN57 R37		46
						FH57 R37		39
	3.67	576	382	9200	1.04			

Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M



1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	4.23	499	331	9200	1.20	FS57 R37	71	38
	4.65	455	301	9200	1.32	FM57 R37		44
	5.28	400	265	9200	1.50	FN57 R37		45
	6.22	340	225	9200	1.77	FH57 R37		38
	6.89	307	203	9200	1.96			
	7.93	266	176	9200	2.25			
	5.68	361	247	5920	1.11	FS47 R17	71	25
	6.53	314	214	5920	1.28	FM47 R17		27
	7.39	277	189	5920	1.44	FN47 R17		28
	8.06	254	174	5920	1.57	FH47 R17		25
	5.41	391	259	5920	1.02	FS47 R17	71	25
	6.41	330	218	5920	1.21	FM47 R17		27
	7.27	290	192	5920	1.38	FN47 R17		28
	8.28	255	169	5920	1.57	FH47 R17		25
	9.43	224	149	5920	1.78			
	10.70	197	131	5920	2.03			
	9.54	221	147	4290	0.90	FS37 R17	71	20
	10.86	195	129	4290	1.03	FM37 R17		21
	11.95	177	117	4290	1.13	FN37 R17		22
	14.23	148	98	4290	1.35	FH37 R17		20
	16.19	130	86	4290	1.53			
	8.39	259	166.80	15700	5.78	FS77	71	57
						FM77		58
						FN77		66
						FH77		53
	7.46	292	187.70	10300	2.81		71	
	9.23	236	151.68	10300	3.47	FS67		32
	10.48	208	133.62	10300	3.95	FM67		36
	12.78	170	109.55	10300	4.67	FN67		38
	13.56	161	103.23	10300	4.93	FH67		30
	15.71	139	89.11	10300	5.53			
	8.02	272	174.58	9200	2.21		71	
	10.05	217	139.34	9200	2.77	FS57		29
	11.44	190	122.42	9200	3.15	FM57		25
	12.16	179	115.11	9200	3.35	FN57		36
	14.74	148	95.01	9200	4.05	FH57		29
	16.38	133	85.46	9200	4.50			
	19.07	114	73.40	9200	5.26			
	9.41	231	148.71	5920	1.73		71	
	11.57	188	121.06	5920	2.12			
	13.35	163	104.91	5920	2.45			
	14.67	148	95.57	5920	2.69			
	16.41	133	85.41	5920	3.01	FS47		20
	17.63	124	79.30	5920	3.24	FM47		22
	19.66	111	71.21	5920	3.61	FN47		23
	20.81	105	67.43	5920	3.82	FH47		20
	23.00	95	60.83	5920	4.22			
	25.01	87	55.95	5920	4.59			
	27.89	78	50.24	5920	5.12			
	32.62	67	42.91	5920	5.99			
	10.89	200	128.51	4290	1.00		71	
	11.88	183	117.88	4290	1.09			
	13.95	156	100.36	4290	1.28			
	17.36	125	80.65	4290	1.59			
	19.86	110	70.50	4290	1.83			
	21.18	103	66.09	4290	1.95	FS37		15
	24.01	91	58.32	4290	2.21	FM37		16
	25.67	85	54.54	4290	2.35	FN37		17
	27.08	80	51.70	4290	2.48	FH37		15



Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M

1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	31.94	68	43.83	4290	2.93			
	36.54	60	38.31	4290	3.35			
	38.98	56	35.91	4290	3.57			
	44.18	49	31.69	4290	4.05			
	49.83	44	28.10	4290	4.56			
	56.68	40	24.70	4290	5.05			
						FS37		15
						FM37	71	16
						FN37		17
						FH37		15
0.37 (0.5HP)	0.71	4261	1967	29900	1.01			
	0.81	3741	1727	29900	1.15	FS97 R57		187
	0.89	3417	1578	29900	1.26	FM97 R57		202
	1.04	2908	1343	29900	1.48	FN97 R57	71	217
	1.23	2461	1136	29900	1.75	FH97 R57		177
	1.39	2183	1008	29900	1.97			
	1.56	1944	897	29900	2.21			
	1.08	2803	1294	19800	1.07			
	1.20	2522	1164	19800	1.19			
	1.32	2305	1064	19800	1.30	FS87 R57		117
	1.46	2081	961	19800	1.44	FM87 R57		127
	1.72	1768	816	19800	1.70	FN87 R57	71	137
	1.98	1534	708	19800	1.96	FH87 R57		112
	2.20	1378	636	19800	2.18			
	2.58	1176	543	19800	2.55			
	2.87	1057	488	19800	2.84			
	1.75	1730	799	15700	0.87			
	1.97	1542	712	15700	0.97			
	2.35	1292	596	15700	1.16	FS77 R37		66
	2.59	1172	541	15700	1.28	FM77 R37	71	68
	2.90	1045	482	15700	1.44	FN77 R37		76
	3.36	902	416	15700	1.66	FH77 R37		62
	3.83	793	366	15700	1.89			
	4.47	679	313	15700	2.21			
	3.66	828	382	10300	0.99	FS67 R37		42
	4.22	719	332	10300	1.14	FM67 R37		46
	4.63	655	303	10300	1.25	FN67 R37	71	48
	5.45	557	257	10300	1.47	FH67 R37		40
	6.12	496	229	10300	1.65			
	5.54	548	253	9200	1.10	FS57 R37		39
	6.75	449	207	9200	1.34	FM57 R37	71	45
	7.20	421	194	9200	1.42	FN57 R37		46
						FH57 R37		39
	5.28	593	265	9200	1.01			
	6.22	502	225	9200	1.19	FS57 R37		38
	6.89	454	203	9200	1.32	FM57 R37	71	44
	7.93	394	176	9200	1.52	FN57 R37		45
	9.19	340	152	9200	1.76	FH57 R37		38
	10.44	299	134	9200	2.00			
	8.28	377	169	5920	1.06	FS47 R17		25
	9.43	332	149	5920	1.21	FM47 R17	71	27
	10.70	292	131	5920	1.37	FN47 R17		28
						FH47 R17		25
	8.39	384	166.80	15700	3.90	FS77		57
	8.74	369	160.23	15700	4.07	FM77	71	58
	9.49	340	147.56	15700	4.42	FN77		66
						FH77		53
	7.46	432	187.70	10300	1.90			
	9.23	349	151.68	10300	2.35			
	10.48	308	133.62	10300	2.67			

Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M



1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	12.78	252	109.55	10300	3.16	FS67	71	32
	13.56	238	103.23	10300	3.33	FM67		36
	15.71	205	89.11	10300	3.74	FN67		38
	18.10	178	77.36	10300	4.20	FH67		30
	19.88	162	70.42	10300	4.50			
	21.56	150	64.95	10300	4.83			
	24.47	132	57.22	10300	5.37			
	8.02	402	174.58	9200	1.49		71	
	10.05	321	139.34	9200	1.87			
	11.44	282	122.42	9200	2.13	FS57		29
	12.16	265	115.11	9200	2.26	FM57		25
	14.74	219	95.01	9200	2.74	FN57		36
	16.38	197	85.46	9200	3.04	FH57		29
	19.07	169	73.40	9200	3.55			
	27.07	119	51.72	9200	5.03			
	21.62	149	64.76	9200	4.02			
	24.61	131	56.90	9200	4.57			
	9.41	343	148.71	5920	1.17		71	
	11.57	279	121.06	5920	1.44			
	13.35	242	104.91	5920	1.66			
	14.67	220	95.57	5920	1.82			
	16.41	196	85.41	5920	2.04			
	17.63	183	79.30	5920	2.19			
	19.66	164	71.21	5920	2.44	FS47		20
	20.81	155	67.43	5920	2.58	FM47		22
	23.00	140	60.83	5920	2.85	FN47		23
	25.01	129	55.95	5920	3.10	FH47		20
	27.89	116	50.24	5920	3.46			
	32.62	99	42.91	5920	4.05			
	38.80	83	36.06	5920	4.64			
	43.26	75	32.38	5920	4.95			
	45.79	70	30.66	5920	5.13			
	55.03	59	25.44	5920	5.74			
	13.95	231	100.36	4290	0.86		71	
	17.36	186	80.65	4290	1.08			
	19.86	162	70.50	4290	1.23			
	21.18	152	66.09	4290	1.32			
	24.01	134	58.32	4290	1.49	FS37		15
	25.67	126	54.54	4290	1.59	FM37		16
	27.08	119	51.70	4290	1.68	FN37		17
	31.94	101	43.83	4290	1.98	FH37		15
	36.54	88	38.31	4290	2.27			
	38.98	83	35.91	4290	2.41			
	44.18	73	31.69	4290	2.74			
	49.83	65	28.10	4290	3.08			
	56.68	59	24.70	4290	3.41	FS37	71	15
	71.01	47	19.71	4290	4.27	FM37		16
	80.83	41	17.32	4290	4.86	FN37		17
	85.96	39	16.29	4290	5.17	FH37		15
0.55 (0.74HP)	1.04	4323	1343	29900	0.99		80	
	1.23	3658	1136	29900	1.18			
	1.39	3245	1008	29900	1.33			
	1.56	2890	897	29900	1.49	FS97 R57		188
	1.86	2427	754	29900	1.77	FM97 R57		203
	2.06	2187	679	29900	1.97	FN97 R57		218
	2.32	1940	603	29900	2.22	FH97 R57		178
	2.63	1714	532	29900	2.51			
	2.96	1521	472	29900	2.83			
	3.50	1287	400	29900	3.34			



Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M

1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
3.95	1142	355	29900	3.77				
1.46	3094	961	19800	0.97				
1.72	2628	816	19800	1.14		FS87 R57		118
1.98	2280	708	19800	1.32		FM87 R57		128
2.20	2049	636	19800	1.46		FN87 R57	80	138
2.58	1749	543	19800	1.72		FH87 R57		113
2.87	1571	488	19800	1.91				
3.80	1188	369	19800	2.53				
2.90	1553	482	15700	0.97		FS77 R37		68
3.36	1341	416	15700	1.12		FM77 R37	80	70
3.83	1178	366	15700	1.27		FN77 R37		78
4.47	1009	313	15700	1.49		FH77 R37		64
5.45	827	257	10300	0.99		FS67 R37		44
6.12	737	229	10300	1.11		FM67 R37	80	48
6.88	655	203	10300	1.25		FN67 R37		50
8.06	559	174	10300	1.47		FH67 R37		42
8.62	556	162.37	19800	5.40		FS87	80	97
						FM87		107
						FN87		117
						FH87		92
8.39	571	166.80	15700	2.63				
8.74	548	160.23	15700	2.74		FS77		59
9.49	505	147.56	15700	2.97		FM77	80	60
14.91	321	93.90	15700	4.66		FN77		68
16.74	286	83.63	15700	5.23		FH77		55
18.66	257	75.02	15700	5.84				
7.46	642	187.70	10300	1.28				
9.23	519	151.68	10300	1.58				
10.48	457	133.62	10300	1.79				
12.78	375	109.55	10300	2.12				
13.56	353	103.23	10300	2.24				
15.71	305	89.11	10300	2.51		FS67	80	34
18.10	265	77.36	10300	2.82		FM67		38
19.88	241	70.42	10300	3.03		FN67		40
21.56	222	64.95	10300	3.25		FH67		32
24.47	196	57.22	10300	3.61				
29.85	161	46.91	10300	4.23				
31.67	151	44.20	10300	4.44				
36.69	131	38.16	10300	5.01				
42.27	113	33.12	10300	5.62				
8.02	597	174.58	9200	1.00				
10.05	477	139.34	9200	1.26				
11.44	419	122.42	9200	1.43				
12.16	394	115.11	9200	1.52				
14.74	325	95.01	9200	1.84		FS57	80	31
16.38	292	85.46	9200	2.05		FM57		27
19.07	251	73.40	9200	2.39		FN57		38
27.07	177	51.72	9200	3.38		FH57		31
21.62	222	64.76	9200	2.70				
24.61	195	56.90	9200	3.07				
35.25	136	39.72	9200	4.32				
41.04	117	34.11	9200	4.89				
11.57	414	121.06	5920	0.97				
13.35	359	104.91	5920	1.11				
14.67	327	95.57	5920	1.22				
16.41	292	85.41	5920	1.37				
17.63	272	79.30	5920	1.47				
19.66	244	71.21	5920	1.64		FS47		22
20.81	230	67.43	5920	1.74		FM47		24

Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M



1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	23.00	208	60.83	5920	1.92	FN47	80	25
	25.01	192	55.95	5920	2.09	FH47		22
	27.89	172	50.24	5920	2.33			
	32.62	147	42.91	5920	2.72			
	38.80	124	36.06	5920	3.12			
	43.26	111	32.38	5920	3.33			
	45.79	105	30.66	5920	3.45			
	55.03	87	25.44	5920	3.86			
	19.86	241	70.50	4290	0.83			
	21.18	226	66.09	4290	0.88			
	24.01	200	58.32	4290	1.00			
	25.67	187	54.54	4290	1.07	FS37		17
	27.08	177	51.70	4290	1.13	FM37	80	18
	31.94	150	43.83	4290	1.33	FN37		19
	36.54	131	38.31	4290	1.52	FH37		17
	38.98	123	35.91	4290	1.62			
	44.18	108	31.69	4290	1.84			
	49.83	96	28.10	4290	2.07			
	56.68	87	24.70	4290	2.29			
	71.01	70	19.71	4290	2.88			
	80.83	61	17.32	4290	3.27	FS37		17
	85.96	57	16.29	4285	3.48	FM37	80	18
	115.79	43	12.09	3960	4.68	FN37		19
	134.81	37	10.39	3795	5.47	FH37		17
	151.08	33	9.27	3605	4.19			
	171.96	29	8.14	3480	4.54			
	246.33	20	5.68	3145	5.66			
0.75 (1HP)	1.39	4425	1008	29900	0.97			
	1.56	3941	897	29900	1.09			
	1.86	3310	754	29900	1.30	FS97 R57		188
	2.06	2983	679	29900	1.44	FM97 R57	80	203
	2.32	2646	603	29900	1.63	FN97 R57		218
	2.63	2338	532	29900	1.84	FH97 R57		178
	2.96	2074	472	29900	2.07			
	3.50	1755	400	29900	2.45			
	3.95	1557	355	29900	2.76			
	1.98	3109	708	19800	0.96	FS87 R57		118
	2.20	2794	636	19800	1.07	FM87 R57	80	128
	2.58	2384	543	19800	1.26	FN87 R57		138
	2.87	2143	488	19800	1.40	FH87 R57		113
	3.80	1620	369	19800	1.85			
	3.83	1607	366	15700	0.93	FS77 R37		68
	4.47	1376	313	15700	1.09	FM77 R37	80	70
	4.98	1235	281	15700	1.21	FN77 R37		78
						FH77 R37		64
	8.23	794	170.08	29900	5.42	FS97	80	169
						FM97		184
						FN97		199
						FH97		159
	8.62	758	162.37	19800	3.96	FS87		97
	9.92	658	141.09	19800	4.56	FM87	80	107
	12.87	508	108.77	19800	5.92	FN87		117
						FH87		92
	8.39	778	166.80	15700	1.93			
	8.74	748	160.23	15700	2.01	FS77		59
	9.49	689	147.56	15700	2.18	FM77	80	60
	14.91	438	93.90	15700	3.42	FN77		68
	16.74	390	83.63	15700	3.84	FH77		55
	18.66	350	75.02	15700	4.29			



Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M

1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
23.58	277	59.38	15700	5.40				
7.46	876	187.70	10300	0.94				
9.23	708	151.68	10300	1.16				
10.48	624	133.62	10300	1.32				
12.78	511	109.55	10300	1.56				
13.56	482	103.23	10300	1.64				
15.71	416	89.11	10300	1.84		FS67		34
18.10	361	77.36	10300	2.07		FM67		38
19.88	329	70.42	10300	2.22		FN67	80	40
21.56	303	64.95	10300	2.38		FH67		32
24.47	267	57.22	10300	2.65				
29.85	219	46.91	10300	3.11				
31.67	206	44.20	10300	3.26				
36.69	178	38.16	10300	3.67				
42.27	155	33.12	10300	4.12				
46.43	141	30.15	10300	4.44				
49.23	137	28.44	10300	4.52		FS67		35
						FM67	80	39
						FN67		41
						FH67		33
10.05	650	139.34	9200	0.92				
11.44	571	122.42	9200	1.05				
12.16	537	115.11	9200	1.12				
14.74	443	95.01	9200	1.35				
16.38	399	85.46	9200	1.50		FS57		31
19.07	343	73.40	9200	1.75		FM57		27
27.07	241	51.72	9200	2.48		FN57	80	38
21.62	302	64.76	9200	1.98		FH57		31
24.61	266	56.90	9200	2.25				
35.25	185	39.72	9200	3.17				
41.04	159	34.11	9200	3.59				
58.25	112	24.04	9200	4.89				
52.91	127	26.46	9200	4.31		FS57		32
60.06	112	23.31	9200	4.91		FM57	80	28
						FN57		39
						FH57		32
13.35	490	104.91	5920	0.82				
14.67	445	95.57	5920	0.90				
16.41	398	85.41	5920	1.00				
17.63	371	79.30	5920	1.08				
19.66	332	71.21	5920	1.20				
20.81	314	67.43	5920	1.27		FS47		22
23.00	284	60.83	5920	1.41		FM47	80	24
25.01	261	55.95	5920	1.53		FN47		25
27.89	234	50.24	5920	1.71		FH47		22
32.62	200	42.91	5920	2.00				
38.80	168	36.06	5920	2.29				
43.26	151	32.38	5920	2.44				
45.79	143	30.66	5920	2.53				
55.03	119	25.44	5920	2.83				
56.55	119	24.76	5920	3.11				
64.35	105	21.75	5920	3.54				
68.43	98	20.45	5920	3.78		FS47		22
92.05	73	15.19	5920	5.10		FM47		24
107.48	63	13.04	5775	5.98		FN47	80	25
124.41	54	11.26	5450	4.48		FH47		22
141.57	48	9.89	5260	4.84				
150.54	45	9.30	5170	5.02				
202.52	33	6.90	4750	6.00				

Parallel Shaft Gear Units

1400 Input Rpm

Selection Tables [kW] F..F/..M



Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
1.1 (1.5HP)	27.08	241	51.70	4290	0.83	FS37 FM37 FN37 FH37	80	17
	31.94	205	43.83	4290	0.98			18
	36.54	179	38.31	4290	1.12			19
	38.98	168	35.91	4290	1.19			17
	44.18	148	31.69	4290	1.35			17
	49.83	131	28.10	4290	1.52			17
	56.68	119	24.70	4290	1.68	FS37 FM37 FN37 FH37	80	17
	71.01	95	19.71	4275	2.11			18
	80.83	83	17.32	4160	2.40			19
	85.96	78	16.29	4105	2.55			17
	115.79	58	12.09	3825	3.43			17
	134.81	50	10.39	3680	4.01			17
	151.08	45	9.27	3480	3.07	FS97 R57 FM97 R57 FN97 R57 FH97 R57	90	188
	171.96	39	8.14	3370	3.33			203
	246.33	27	5.68	3070	4.15			218
	2.06	4375	679	29900	0.98			178
	2.32	3881	603	29900	1.11			178
	2.63	3429	532	29900	1.25			178
	2.96	3042	472	29900	1.41			178
	3.50	2574	400	29900	1.67			178
	3.95	2283	355	29900	1.88			178
	2.87	3142	488	19800	0.95	FS87 R57 FM87 R57 FN87 R57 FH87 R57	90	118
	3.80	2376	369	19800	1.26			128
	4.37	2065	321	19800	1.45			138
	5.67	1591	247	19800	1.89			113
	8.23	1164	170.08	29900	3.70			169
	9.33	1027	149.98	29900	4.19			184
	10.22	937	136.95	29900	4.59	FS97 FM97 FN97 FH97	90	199
	12.79	749	109.42	29900	5.75			159
	12.00	799	116.67	29900	5.39			159
	8.62	1111	162.37	19800	2.70			97
	9.92	966	141.09	19800	3.11			107
	12.87	745	108.77	19800	4.03			117
	13.63	703	102.70	19800	4.27	FS87 FM87 FN87 FH87	90	117
	15.16	632	92.34	19800	4.75			92
	16.80	570	83.32	19800	5.26			92
	17.80	539	78.67	19800	5.56			92
	8.39	1142	166.80	15700	1.31	FS77 FM77 FN77 FH77	90	59
	8.74	1097	160.23	15700	1.37			60
	9.49	1010	147.56	15700	1.49			68
	14.91	643	93.90	15700	2.33			55
	16.74	572	83.63	15700	2.62			55
	18.66	514	75.02	15700	2.92			55
	23.58	406	59.38	15700	3.68	FS67 FM67 FN67 FH67	90	34
	26.29	365	53.26	15700	4.11			38
	28.55	336	49.04	15700	4.47			40
	33.60	285	41.67	15700	5.25			32
	10.48	915	133.62	10300	0.90			34
	12.78	750	109.55	10300	1.06			38
	13.56	707	103.23	10300	1.12			40
	15.71	610	89.11	10300	1.26			32
	18.10	529	77.36	10300	1.41			32
	19.88	482	70.42	10300	1.51			32
	21.56	445	64.95	10300	1.63			32
	24.47	392	57.22	10300	1.81			32
	29.85	321	46.91	10300	2.12			32
	31.67	303	44.20	10300	2.22			32
	36.69	261	38.16	10300	2.50			32
	42.27	227	33.12	10300	2.81			32



Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M

1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	46.43	206	30.15	10300	3.03			
	49.23	201	28.44	10300	3.08	FS67		35
	77.37	128	18.10	10300	4.86	FM67	90	39
	86.87	114	16.12	10300	5.47	FN67		41
						FH67		33
	14.74	650	95.01	9200	0.92			
	16.38	585	85.46	9200	1.02			
	19.07	502	73.40	9200	1.20	FS57		31
	27.07	354	51.72	9200	1.69	FM57	90	27
	21.62	443	64.76	9200	1.35	FN57		38
	24.61	389	56.90	9200	1.54	FH57		31
	35.25	272	39.72	9200	2.16			
	41.04	234	34.11	9200	2.45			
	58.25	165	24.04	9200	3.33			
	52.91	187	26.46	9200	2.94			
	60.06	164	23.31	9200	3.35	FS57		32
	73.26	135	19.11	9025	4.10	FM57	90	28
	77.74	127	18.01	8880	4.35	FN57		39
	90.05	110	15.55	8525	5.06	FH57		32
	103.74	95	13.50	8190	5.85			
	19.66	487	71.21	5920	0.82			
	20.81	460	67.43	5920	0.87			
	23.00	417	60.83	5920	0.96			
	25.01	383	55.95	5920	1.04	FS47		22
	27.89	344	50.24	5920	1.16	FM47	90	24
	32.62	294	42.91	5920	1.36	FN47		25
	38.80	247	36.06	5920	1.56	FH47		22
	43.26	222	32.38	5920	1.67			
	45.79	209	30.66	5920	1.72			
	55.03	174	25.44	5920	1.93			
	56.55	175	24.76	5920	2.12			
	64.35	154	21.75	5920	2.42			
	68.43	144	20.45	5920	2.58			
	92.05	107	15.19	5770	3.48	FS47		22
	107.48	92	13.04	5555	4.07	FM47	90	24
	124.41	79	11.26	5220	3.06	FN47		25
	141.57	70	9.89	5055	3.30	FH47		22
	150.54	66	9.30	4980	3.42			
	202.52	49	6.90	4610	4.09			
	236.45	42	5.93	4420	4.49			
	334.53	30	4.18	4005	5.56			
	38.98	246	35.91	4105	0.81	FS37		17
	44.18	217	31.69	4100	0.92	FM37	90	18
	49.83	192	28.10	4075	1.04	FN37		19
						FH37		17
	56.68	174	24.70	3990	1.15			
	71.01	139	19.71	3895	1.44			
	80.83	122	17.32	3825	1.64	FS37		17
	85.96	115	16.29	3790	1.74	FM37	90	18
	115.79	85	12.09	3590	2.34	FN37		19
	134.81	73	10.39	3480	2.73	FH37		17
	151.08	65	9.27	3255	2.10			
	171.96	57	8.14	3175	2.27			
	246.33	40	5.68	2935	2.83			
1.5 (2HP)	2.63	4675	532	29900	0.92	FS97 R57		188
	2.96	4148	472	29900	1.04	FM97 R57	90	203
	3.50	3510	400	29900	1.23	FN97 R57		218
	3.95	3113	355	29900	1.38	FH97 R57		178
	4.37	2816	321	19800	1.07	FS87 R57		118

Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M



1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	5.67	2170	247	19800	1.38	FM87 R57 FN87 R57 FH87 R57	90	128 138 113
8.23	1588	170.08	29900	2.71				
9.33	1400	149.98	29900	3.08				
10.22	1278	136.95	29900	3.37		FS97		169
12.79	1021	109.42	29900	4.21		FM97	90	184
12.00	1089	116.67	29900	3.96		FN97		199
14.19	921	98.66	29900	4.68		FH97		159
16.02	816	87.40	29900	5.27				
17.96	727	77.93	29900	5.81				
8.62	1516	162.37	19800	1.98				
9.92	1317	141.09	19800	2.28				
12.87	1015	108.77	19800	2.96				
13.63	959	102.70	19800	3.13		FS87		97
15.16	862	92.34	19800	3.48		FM87	90	107
16.80	778	83.32	19800	3.86		FN87		117
17.80	734	78.67	19800	4.08		FH87		92
19.79	660	70.73	19800	4.45				
22.67	576	61.76	19800	4.96				
26.18	499	53.48	19800	4.19				
30.12	434	46.47	19800	4.78				
8.39	1557	166.80	15700	0.96				
8.74	1496	160.23	15700	1.00				
9.49	1377	147.56	15700	1.09				
14.91	876	93.90	15700	1.71		FS77	90	59
16.74	781	83.63	15700	1.92		FM77		60
18.66	700	75.02	15700	2.14		FN77		68
23.58	554	59.38	15700	2.70		FH77		55
26.29	497	53.26	15700	3.02				
28.55	458	49.04	15700	3.28				
33.60	389	41.67	15700	3.85				
44.80	292	31.25	15700	5.14				
13.56	964	103.23	10300	0.82				
15.71	832	89.11	10300	0.92				
18.10	722	77.36	10300	1.04				
19.88	657	70.42	10300	1.11		FS67	90	34
21.56	606	64.95	10300	1.19		FM67		38
24.47	534	57.22	10300	1.32		FN67		40
29.85	438	46.91	10300	1.55		FH67		32
31.67	413	44.20	10300	1.63				
36.69	356	38.16	10300	1.84				
42.27	309	33.12	10300	2.06				
46.43	281	30.15	10300	2.22				
49.23	274	28.44	10300	2.26				
77.37	174	18.10	10300	3.57		FS67	90	35
86.87	155	16.12	10300	4.01		FM67		39
96.84	139	14.46	10300	4.49		FN67		41
105.18	128	13.31	10300	4.89		FH67		33
123.79	109	11.31	10300	5.75				
19.07	685	73.40	9200	0.88				
27.07	483	51.72	9200	1.24		FS57	90	31
21.62	604	64.76	9200	0.99		FM57		27
24.61	531	56.90	9200	1.13		FN57		38
35.25	371	39.72	9200	1.58		FH57		31
41.04	318	34.11	9200	1.79				
58.25	224	24.04	9200	2.44				
52.91	255	26.46	9200	2.15				
60.06	224	23.31	9150	2.46				



Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M

1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	73.26	184	19.11	8725	3.00	FS57	90	32
	77.74	173	18.01	8595	3.19	FM57		28
	90.05	150	15.55	8280	3.71	FN57		39
	103.74	130	13.50	7975	4.29	FH57		32
	113.95	118	12.29	7780	4.71			
	123.30	109	11.35	7510	5.50			
	27.89	469	50.24	5920	0.85	FS47	90	22
	32.62	401	42.91	5920	1.00	FM47		24
	38.80	337	36.06	5670	1.14	FN47		25
	43.26	302	32.38	5680	1.22	FH47		22
	45.79	285	30.66	5675	1.26			
	55.03	237	25.44	5620	1.42			
	56.55	238	24.76	5920	1.55	FS47	90	22
	64.35	209	21.75	5835	1.77			24
	68.43	197	20.45	5780	1.89			25
	92.05	146	15.19	5475	2.55			22
	107.48	125	13.04	5305	2.99			24
	124.41	108	11.26	4950	2.24			25
	141.57	95	9.89	4825	2.42	FH47		22
	150.54	89	9.30	4760	2.51			
	202.52	67	6.90	4445	3.00			
	236.45	57	5.93	4280	3.30			
	334.53	40	4.18	3910	4.08			
	56.68	238	24.70	3445	0.84	FS37	90	17
	71.01	190	19.71	3460	1.05			18
	80.83	167	17.32	3445	1.20			19
	85.96	157	16.29	3430	1.28			17
	115.79	116	12.09	3325	1.72			
	134.81	100	10.39	3255	2.00			
	151.08	89	9.27	3000	1.54			
	171.96	78	8.14	2950	1.67			
	246.33	55	5.68	2775	2.07			
2.2 (3HP)	4.96	3637	282	29900	1.18	FS97 R57	100	191
	5.57	3239	251	29900	1.33	FM97 R57		206
						FN97 R57		221
						FH97 R57		181
	8.23	2328	170.08	29900	1.85	FS97	100	172
	9.33	2053	149.98	29900	2.10			187
	10.22	1875	136.95	29900	2.30			202
	12.79	1498	109.42	29900	2.87			162
	12.00	1597	116.67	29900	2.70			
	14.19	1351	98.66	29900	3.19			
	16.02	1196	87.40	29900	3.59	FM97	100	
	17.96	1067	77.93	29900	3.96			
	21.70	883	64.52	29900	4.61			
	24.50	782	57.15	29900	5.08			
	27.47	698	50.96	29900	5.59			
	8.62	2223	162.37	19800	1.35	FS87	100	100
	9.92	1931	141.09	19800	1.55			110
	12.87	1489	108.77	19800	2.02			120
	13.63	1406	102.70	19800	2.13			95
	15.16	1264	92.34	19800	2.37			
	16.80	1141	83.32	19800	2.63			
	17.80	1077	78.67	19800	2.78	FM87	100	
	19.79	968	70.73	19800	3.03			
	22.67	845	61.76	19800	3.38			
	26.18	732	53.48	19800	2.86			
	30.12	636	46.47	19800	3.26			
	39.08	490	35.83	19800	4.26			

Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M



1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
14.91	1286	93.90	15700	1.17				
16.74	1145	83.63	15700	1.31				
18.66	1027	75.02	15700	1.46		FS77		62
23.58	813	59.38	15700	1.84		FM77	100	63
26.29	729	53.26	15700	2.06		FN77		71
28.55	671	49.04	15700	2.24		FH77		58
33.60	570	41.67	15700	2.62				
44.80	428	31.25	15700	3.51				
56.62	349	24.73	15700	4.30		FS77		63
65.16	303	21.49	15700	4.95		FM77	100	65
						FN77		73
						FH77		59
21.56	889	64.95	10300	0.81				
24.47	783	57.22	10300	0.90		FS67		37
29.85	642	46.91	10300	1.06		FM67	100	41
31.67	605	44.20	10300	1.11		FN67		43
36.69	522	38.16	10300	1.25		FH67		35
42.27	453	33.12	10300	1.40				
46.43	413	30.15	10300	1.51				
49.23	401	28.44	10300	1.54				
77.37	255	18.10	10300	2.43				
86.87	227	16.12	10300	2.73		FS67		38
96.84	204	14.46	10300	3.06		FM67	100	42
105.18	188	13.31	10300	3.33		FN67		44
123.79	160	11.31	10300	3.92		FH67		36
165.05	120	8.48	10300	5.28				
211.32	93	6.63	9695	5.80				
27.07	708	51.72	9200	0.85		FS57		34
35.25	544	39.72	9200	1.08		FM57	100	30
41.04	467	34.11	9080	1.22		FN57		41
58.25	329	24.04	8610	1.67		FH57		34
52.91	373	26.46	8685	1.47				
60.06	329	23.31	8505	1.68				
73.26	270	19.11	8195	2.05				
77.74	254	18.01	8095	2.18				
90.05	219	15.55	7850	2.53		FS57		35
103.74	190	13.50	7605	2.92		FM57	100	31
113.95	173	12.29	7440	3.21		FN57		42
123.30	160	11.35	7145	3.75		FH57		35
150.40	131	9.31	6820	4.19				
159.61	124	8.77	6725	4.38				
184.89	107	7.57	6480	4.79				
212.98	93	6.57	6245	5.23				
233.95	84	5.98	6095	5.54				
43.26	443	32.38	4380	0.83		FS47		24
45.79	419	30.66	4445	0.86		FM47	100	26
55.03	348	25.44	4600	0.97		FN47		27
						FH47		24
56.55	349	24.76	5110	1.06				
64.35	307	21.75	5100	1.21				
68.43	289	20.45	5090	1.29				
92.05	215	15.19	4960	1.74		FS47		24
107.48	184	13.04	4865	2.04		FM47	100	26
124.41	159	11.26	4485	1.53		FN47		27
141.57	140	9.89	4415	1.65		FH47		24
150.54	131	9.30	4375	1.71				
202.52	98	6.90	4160	2.05				
236.45	84	5.93	4035	2.25				
334.53	59	4.18	3735	2.78				



Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M

1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	80.83	244	17.32	2775	0.82	FS37 FM37 FN37 FH37	100	19
	85.96	230	16.29	2805	0.87			20
	115.79	171	12.09	2860	1.17			21
	134.81	147	10.39	2850	1.37			19
	151.08	131	9.27	2555	1.05			
	171.96	115	8.14	2560	1.14			
	246.33	80	5.68	2505	1.41			
3 (4HP)	8.23	3175	170.08	29900	1.36	FS97 FM97 FN97 FH97	100	172
	9.33	2800	149.98	29900	1.54			187
	10.22	2557	136.95	29900	1.68			202
	12.79	2043	109.42	29900	2.11			162
	12.00	2178	116.67	29900	1.98			
	14.19	1842	98.66	29900	2.34			
	16.02	1631	87.40	29900	2.64			
	17.96	1455	77.93	29900	2.90			
	21.70	1204	64.52	29900	3.38			
	24.50	1067	57.15	29900	3.73			
	27.47	951	50.96	29900	4.10			
	30.64	853	45.69	29900	4.48			
	41.54	629	33.70	29900	5.73			
	43.23	623	32.38	29900	5.76			177
								192
								207
								167
	8.62	3031	162.37	19800	0.99	FS87 FM87 FN87 FH87	100	100
	9.92	2634	141.09	19800	1.14			110
	12.87	2030	108.77	19800	1.48			120
	13.63	1917	102.70	19800	1.56			95
	15.16	1724	92.34	19800	1.74			
	16.80	1555	83.32	19800	1.93			
	17.80	1469	78.67	19800	2.04			
	19.79	1320	70.73	19800	2.23			
	22.67	1153	61.76	19800	2.48			
	26.18	998	53.48	19800	2.09			
	30.12	868	46.47	19800	2.39			
	39.08	669	35.83	19800	3.12			
	56.03	466	24.98	19800	4.50			
	71.39	366	19.61	19800	5.77			
	43.46	620	32.21	19800	4.10			105
	49.28	547	28.41	19800	4.54			115
	53.97	499	25.94	19800	4.90			125
	63.36	425	22.10	19800	5.69			100
	14.91	1753	93.90	15700	0.85	FS77 FM77 FN77 FH77	100	62
	16.74	1561	83.63	15700	0.96			63
	18.66	1400	75.02	15700	1.07			71
	23.58	1108	59.38	15700	1.35			58
	26.29	994	53.26	15700	1.51			
	28.55	915	49.04	15700	1.64			
	33.60	778	41.67	15700	1.92			
	44.80	583	31.25	15700	2.57			
	56.62	476	24.73	15700	3.15			63
	65.16	414	21.49	15700	3.63			65
	84.52	319	16.56	15700	4.71			73
	89.51	301	15.64	15700	4.98			59
	99.56	271	14.06	15700	5.54			
	31.67	825	44.20	10300	0.81	FS67 FM67 FN67 FH67	100	37
	36.69	712	38.16	10300	0.92			41
	42.27	618	33.12	10300	1.03			43
	46.43	563	30.15	10300	1.11			35

Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M



1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
49.23	547	28.44	10300	1.13				
77.37	348	18.10	10300	1.78				
86.87	310	16.12	10300	2.00				
96.84	278	14.46	10300	2.24		FS67		38
105.18	256	13.31	10300	2.44		FM67	100	42
123.79	218	11.31	10300	2.88		FN67		44
165.05	163	8.48	10300	3.87		FH67		36
211.32	127	6.63	9580	4.25				
235.58	114	5.94	9305	4.59				
255.86	105	5.47	9095	4.87				
41.04	637	34.11	8035	0.90		FS57		34
58.25	449	24.04	7875	1.22		FM57	100	30
						FN57		41
						FH57		34
52.91	509	26.46	7850	1.08				
60.06	449	23.31	7765	1.23				
73.26	368	19.11	7590	1.50				
77.74	347	18.01	7530	1.60				
90.05	299	15.55	7360	1.85		FS57		35
103.74	260	13.50	7175	2.14		FM57	100	31
113.95	236	12.29	7050	2.35		FN57		42
123.30	219	11.35	6735	2.75		FH57		35
150.40	179	9.31	6480	3.07				
159.61	169	8.77	6405	3.21				
184.89	146	7.57	6205	3.51				
212.98	127	6.57	6005	3.84				
233.95	115	5.98	5875	4.06				
64.35	419	21.75	4260	0.89				
68.43	394	20.45	4300	0.94				
92.05	293	15.19	4375	1.28				
107.48	251	13.04	4360	1.49		FS47		24
124.41	217	11.26	3955	1.12		FM47	100	26
141.57	190	9.89	3945	1.21		FN47		27
150.54	179	9.30	3935	1.26		FH47		24
202.52	133	6.90	3830	1.50				
236.45	114	5.93	3755	1.65				
334.53	81	4.18	3535	2.04				
115.79	233	12.09	2325	0.86		FS37		19
134.81	200	10.39	2395	1.00		FM37	100	20
171.96	157	8.14	2110	0.83		FN37		21
246.33	109	5.68	2190	1.04		FH37		19
4 (5.4HP)	8.23	4233	170.08	29900	1.02			
	9.33	3733	149.98	29900	1.15			
	10.22	3409	136.95	29900	1.26			
	12.79	2724	109.42	29900	1.58			
	12.00	2904	116.67	29900	1.48	FS97		172
	14.19	2456	98.66	29900	1.75	FM97	112	187
	16.02	2175	87.40	29900	1.98	FN97		202
	17.96	1940	77.93	29900	2.18	FH97		162
	21.70	1606	64.52	29900	2.54			
	24.50	1422	57.15	29900	2.79			
	27.47	1268	50.96	29900	3.07			
	30.64	1137	45.69	29900	3.36			
	41.54	839	33.70	29900	4.30			
	43.23	831	32.38	29900	4.32	FS97		177
	48.47	741	28.88	29515	4.74	FM97	112	192
	61.61	583	22.72	27800	5.77	FN97		207
						FH97		167
9.92	3512	141.09	19800	0.85				



Parallel Shaft Gear Units

Selection Tables [kW] F..F/..M

1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
12.87	2707	108.77	19800	1.11	FS87 FM87 FN87 FH87	112	100	
13.63	2556	102.70	19800	1.17			110	
15.16	2298	92.34	19800	1.31			120	
16.80	2074	83.32	19800	1.45			95	
17.80	1958	78.67	19800	1.53				
19.79	1761	70.73	19800	1.67				
22.67	1537	61.76	19800	1.86				
26.18	1331	53.48	19800	1.57				
30.12	1157	46.47	19800	1.79				
39.08	892	35.83	19800	2.34				
56.03	622	24.98	19800	3.38				
71.39	488	19.61	19800	4.33				
43.46	827	32.21	19800	3.08	FS87 FM87 FN87 FH87	112	105	
49.28	729	28.41	19800	3.41			115	
53.97	666	25.94	19800	3.67			125	
63.36	567	22.10	19800	4.27			100	
67.55	532	20.73	19800	4.55				
74.92	480	18.69	19800	5.06				
84.58	425	16.55	19325	5.72				
18.66	1867	75.02	15700	0.80	FS77 FM77 FN77 FH77	112	62	
23.58	1478	59.38	15700	1.01			63	
26.29	1326	53.26	15700	1.13			71	
28.55	1221	49.04	15700	1.23			58	
33.60	1037	41.67	15700	1.44				
44.80	778	31.25	15700	1.93	FS77 FM77 FN77 FH77	112	63	
56.62	635	24.73	15700	2.36			65	
65.16	551	21.49	15700	2.72			73	
84.52	425	16.56	15700	3.53			59	
89.51	401	15.64	15700	3.74				
99.56	361	14.06	15700	4.16				
114.03	315	12.28	15700	4.75	FS67 FM67 FN67 FH67	112	37	
46.43	751	30.15	10300	0.83			41	
							43	
							35	
49.23	730	28.44	10300	0.85	FS67 FM67 FN67 FH67	112	38	
77.37	464	18.10	10300	1.34			42	
86.87	414	16.12	10300	1.50			44	
96.84	371	14.46	10300	1.68			36	
105.18	342	13.31	10300	1.83				
123.79	290	11.31	10300	2.16				
165.05	218	8.48	10195	2.90				
211.32	170	6.63	9440	3.19				
235.58	152	5.94	9180	3.45				
255.86	140	5.47	8980	3.65	FS57 FM57 FN57 FH57	112	34	
58.25	598	24.04	6955	0.92			30	
							41	
							34	
52.91	679	26.46	6805	0.81	FS57 FM57 FN57 FH57	112	35	
60.06	598	23.31	6845	0.92			31	
73.26	490	19.11	6835	1.13			42	
77.74	462	18.01	6815	1.20			35	
90.05	399	15.55	6745	1.39				
103.74	346	13.50	6645	1.61				
113.95	315	12.29	6565	1.77				
123.30	291	11.35	6215	2.06				
150.40	239	9.31	6060	2.30				
159.61	225	8.77	6005	2.41				

Selection Tables [kW] F..F/..M



1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	184.89	194	7.57	5860	2.64			
	212.98	169	6.57	5705	2.88			
	233.95	154	5.98	5600	3.05			
5.5 (7.4HP)	9.33	5133	149.98	29900	0.84			
	10.22	4687	136.95	29900	0.92			
	12.79	3745	109.42	29900	1.15			
	12.00	3993	116.67	29900	1.08			
	14.19	3377	98.66	29900	1.28	FS97	132S	177
	16.02	2991	87.40	29900	1.44	FM97		192
	17.96	2667	77.93	29900	1.58	FN97		207
	21.70	2208	64.52	29900	1.84	FH97		167
	24.50	1956	57.15	29900	2.03			
	27.47	1744	50.96	29900	2.23			
	30.64	1564	45.69	29900	2.44			
	41.54	1153	33.70	29745	3.12			
	43.23	1143	32.38	29385	3.14	FS97	132S	182
	48.47	1019	28.88	28655	3.45	FM97		197
	61.61	802	22.72	27120	4.20	FN97		212
	80.09	617	17.48	25450	5.43	FH97		172
12.87	3723	108.77	19800	0.81				
13.63	3515	102.70	19800	0.85				
15.16	3160	92.34	19800	0.95				
16.80	2852	83.32	19800	1.05				
17.80	2693	78.67	19800	1.11	FS87	132S	106	
19.79	2421	70.73	19800	1.21	FM87		116	
22.67	2114	61.76	19800	1.35	FN87		126	
26.18	1830	53.48	19800	1.14	FH87		101	
30.12	1591	46.47	19800	1.30				
39.08	1226	35.83	19800	1.70				
56.03	855	24.98	19800	2.46				
71.39	671	19.61	19050	3.15				
43.46	1137	32.21	19800	2.24				
49.28	1002	28.41	19800	2.48				
53.97	915	25.94	19800	2.67	FS87	132S	111	
63.36	780	22.10	19800	3.10	FM87		121	
67.55	731	20.73	19675	3.31	FN87		131	
74.92	659	18.69	19255	3.68	FH87		106	
84.58	584	16.55	18750	4.16				
94.85	521	14.76	18270	4.69				
105.80	467	13.23	17820	5.24				
26.29	1823	53.26	15700	0.82	FS77	132S	68	
28.55	1678	49.04	15700	0.89	FM77		69	
33.60	1426	41.67	15700	1.05	FN77		77	
44.80	1070	31.25	15700	1.40	FH77		64	
56.62	872	24.73	15700	1.72				
65.16	758	21.49	15700	1.98				
84.52	584	16.56	15700	2.57	FS77	132S	69	
89.51	552	15.64	15700	2.72	FM77		71	
99.56	496	14.06	15700	3.02	FN77		79	
114.03	433	12.28	15700	3.46	FH77		65	
154.41	320	9.07	15700	4.69				
178.71	276	7.83	15700	4.46				
189.27	261	7.40	15480	4.62				
77.37	638	18.10	10300	0.97				
86.87	569	16.12	10300	1.09				
96.84	510	14.46	10300	1.22	FS67	132S	44	
105.18	470	13.31	10300	1.33	FM67		48	
123.79	399	11.31	10300	1.57	FN67		50	
165.05	299	8.48	9980	2.11	FH67		42	



Parallel Shaft Gear Units

Selection Tables [kW] F..F../M

1400 Input Rpm

Pm [kW]	na [1/min]	Ma [Nm]	i	FRa [N]	fs			m [kg]
	211.32	234	6.63	9230	2.32			
	235.58	210	5.94	8990	2.51			
	255.86	193	5.47	8805	2.66			
	73.26	674	19.11	5705	0.82			
	77.74	635	18.01	5750	0.87			
	90.05	549	15.55	5820	1.01			
	103.74	476	13.50	5845	1.17	FS57		41
	113.95	433	12.29	5835	1.28	FM57		37
	123.30	401	11.35	5440	1.50	FN57	132S	48
	150.40	328	9.31	5420	1.68	FH57		41
	159.61	309	8.77	5405	1.75			
	184.89	267	7.57	5340	1.92			
	212.98	232	6.57	5260	2.09			
	233.95	211	5.98	5195	2.22			
7.5 (10HP)	12.79	5107	109.42	29900	0.84			
	12.00	5445	116.67	29900	0.79			
	14.19	4605	98.66	29900	0.94			
	16.02	4079	87.40	29900	1.05	FS97		177
	17.96	3637	77.93	29900	1.16	FM97	132M	192
	21.70	3011	64.52	29900	1.35	FN97		207
	24.50	2667	57.15	29900	1.49	FH97		167
	27.47	2378	50.96	29900	1.64			
	30.64	2132	45.69	29900	1.79			
	41.54	1573	33.70	28450	2.29			
	43.23	1558	32.38	28100	2.30			
	48.47	1390	28.88	27510	2.53	FS97		182
	61.61	1093	22.72	26215	3.08	FM97		197
	80.09	841	17.48	24755	3.98	FN97	132M	212
	101.02	667	13.86	23460	5.06	FH97		172
	108.10	623	12.95	22690	3.74			
	121.19	556	11.55	22095	5.25			
	17.80	3672	78.67	19800	0.82			
	19.79	3301	70.73	19800	0.89			
	22.67	2882	61.76	19800	0.99	FS87		106
	26.18	2496	53.48	18910	0.84	FM87	132M	116
	30.12	2169	46.47	19095	0.96	FN87		126
	39.08	1672	35.83	19095	1.25	FH87		101
	56.03	1166	24.98	18575	1.80			
	71.39	915	19.61	18000	2.31			
	43.46	1550	32.21	19800	1.64			
	49.28	1367	28.41	19605	1.82			
	53.97	1248	25.94	19375	1.96			
	63.36	1063	22.10	18920	2.28	FS87		111
	67.55	997	20.73	18720	2.43	FM87		121
	74.92	899	18.69	18395	2.70	FN87	132M	131
	84.58	796	16.55	17985	3.05	FH87		106
	94.85	710	14.76	17595	3.44			
	105.80	637	13.23	17210	3.84			
	143.41	470	9.76	16105	5.24			
	174.23	387	8.04	15125	5.72			
	44.80	1458	31.25	15700	1.03	FS77		68
						FM77	132M	69
						FN77		77
						FH77		64
	56.62	1190	24.73	15700	1.26			
	65.16	1034	21.49	15700	1.45			
	84.52	797	16.56	15700	1.88			
	89.51	752	15.64	15700	1.99	FS77	132M	69
	99.56	677	14.06	15700	2.22	FM77		71