

Dry Single-plate Magnetic Clutch and Brake

乾式單板電磁離合器 制動器

由本公司多年製造經驗及開發專業工程師做精湛的設計及CNC電腦鉗孔機及CNC電腦加工設備材料方面使用了最佳導磁率的材質來令片使用摩擦係數高，底摩擦的高級非石棉來令片，提高產品的應答時間及產品的使用壽命，是值得您信賴的供應廠商。

This product is designed by professional engineers with many years of experience, and produced using CNC boring and finishing machines. We use the finest materials available for magnetic components to yield high friction indexes, as well as premium non-asbestos linings to improve response times and extend useful life. We are the brand to rely on for these products.

■ 乾式單板電磁離合器·制動器特性 SPECIAL FEATURES :

- A. 高速應答：因為是乾式類所以扭力的傳答很快，可以達到便捷的動作。
 - B. 耐久性大：散熱情況良好，而且使用高級的材料，即使是高頻率，高能量的使用，也十分耐用。
 - C. 組裝、維護容易：屬於滾珠軸承內藏的磁場線圈靜止形，所以不需要將中蕊取出也不必利用碳刷，使用簡便。
 - D. 不需要進行磨耗調整：由於本結構不需要進行摩擦面的磨耗調整。因此安裝後不需要進行調整（一部份除外）。
 - E. 動作確實：使用板狀彈片，雖有強烈震動亦不會產生鬆動，耐久性佳。
 - F. 可以進行扭力調整：可以利用電流來調整摩擦扭力，因此可以進行各種不同用途的運轉。
- A. Fast response. Dry design means instant reaction to commands
 - B. Durability. Excellent heat dissipation and quality materials mean long life, even under high frequency and high performance conditions
 - C. Easy to install and maintain. Sealed bearing race eliminates the need for removal of the center core. No dust brush is needed, and operation is simpler and easier.
 - D. No adjustment of the motor. The motor is designed so that it does not need adjustment of the friction surface, and once it is installed only very minor adjustments are needed.
 - E. Sure motion. One-piece plate will not slip even under the strongest vibration for longer life.
 - F. Adjustable torque. Torque levels can be increased or decreased by changing the current, making it suitable for a variety of applications.

■ 乾式離合器、制動器廣被利用為機械的啓動、停止之用、或傳送速度、傳送方向的變換之用。具代表性的使用機械如下所述：

- 包裝及打包機械... 包裝機、捆包機、打包機械
- 纖維機械... 撚絲機、準備機械、紡織機械
- 金屬加工機械... 壓延機、伸線機、沖床機、焊接機、鋼線歸還機、切斷機、製管機械、捲線機。
- 工作機械... 車床、銑床、出鐵機、自動CNC床、專用機
- 搬運機械... 起重機、進給機、輸送機、捲上機、捲揚機。
- 紙用機械... 製袋機、紙箱機、縱斷器、製書機、切斷機、抄紙機。
- 印刷機械... 輪轉機、進給印刷機。
- 木工機械... 鋸木機、木工機、合板機械
- 事務機械... 電子複寫機、計算機、傳真機、銅板點算機、印表機
- 測量機械... 試驗機、耐久試驗裝置、測量機
- 食品加工機械... 切肉機械、製餅機械、裝瓶機械、製麵機。
- 其他... 減速機、電鍍裝置、理化學機械、製紙機械、樹脂加工機械。

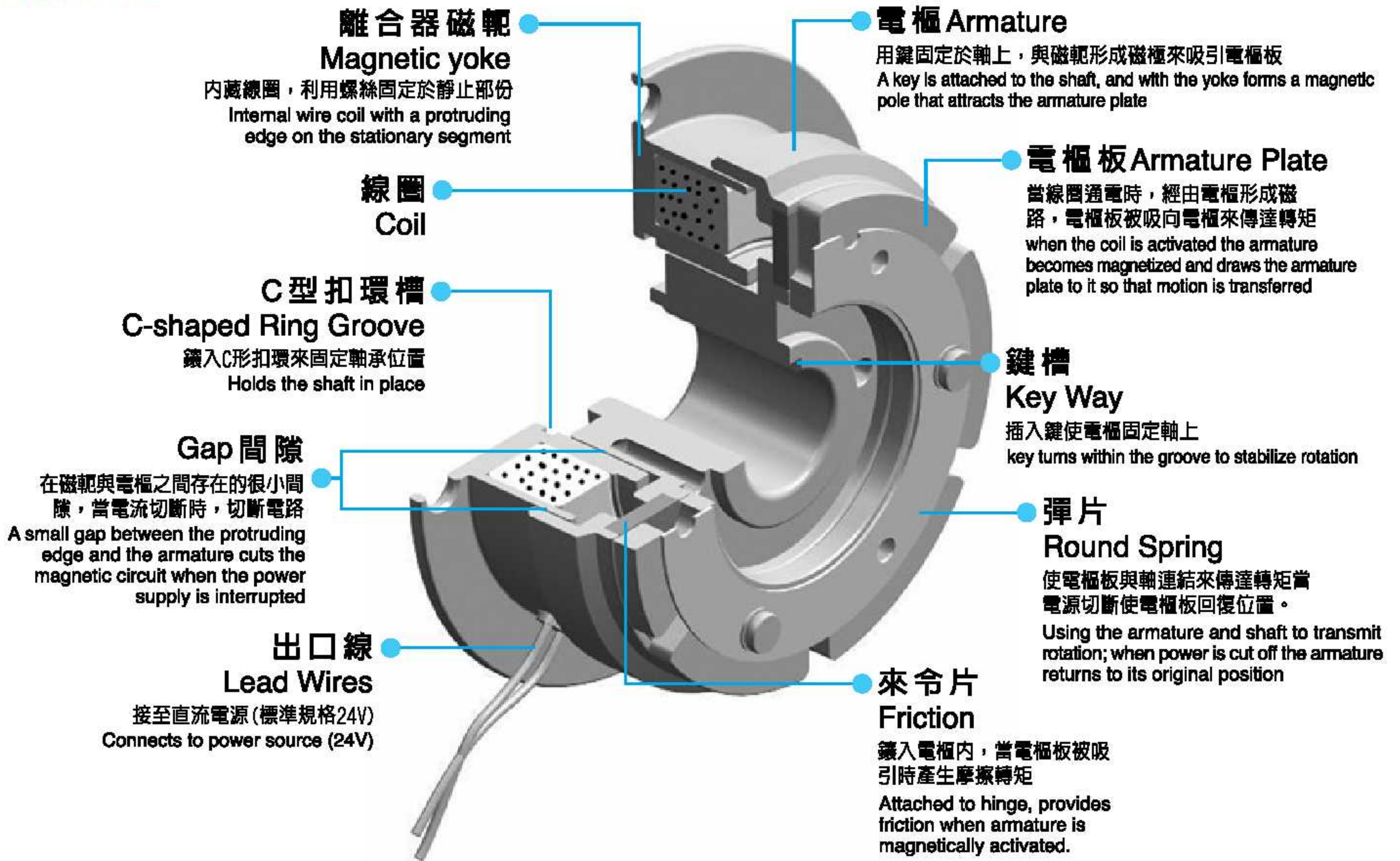
■ Dry clutch and driver can be used to drive and disengage machines, to transfer speeds and directions and for other applications including:

- Packing and wrapping systems: packing machines, strapping machines, wrapping machinery
- Textile machinery: fiber twisters, treatment machines, weaving machines
- Metal finishing systems: extruders, wire stretchers, presses, welders, steel wire retractors, cutters, pipe makers, wire winding machines
- Machine tool systems: lathes, millers, steel extruders, CNC lathes, specialized machinery
- Transportation equipment: hoists, feeders, conveyors, rollers, winders
- Paper-making systems: bag-making machines, box-making machines, slitters, book-making machinery, cutters, copy paper machines
- Printing systems: conveyors and in-feeders
- Wood-working systems: saws, wood-working machines, laminators
- Office equipment: electronic copy machines, calculators, fax machines, coin counters, printers
- Testing systems: lab machines, durability testers, measuring systems
- Food processing systems: meat cutting machines, cookie making machines, canning machines, noodle making machines
- Others: speed reducers, electroplating machinery, physics and chemistry machines, paper-making machines, pulp processing machines

Basic Construction

基本構造

離合器 Clutch



離合器的動作狀態及彈片的動作如下圖——

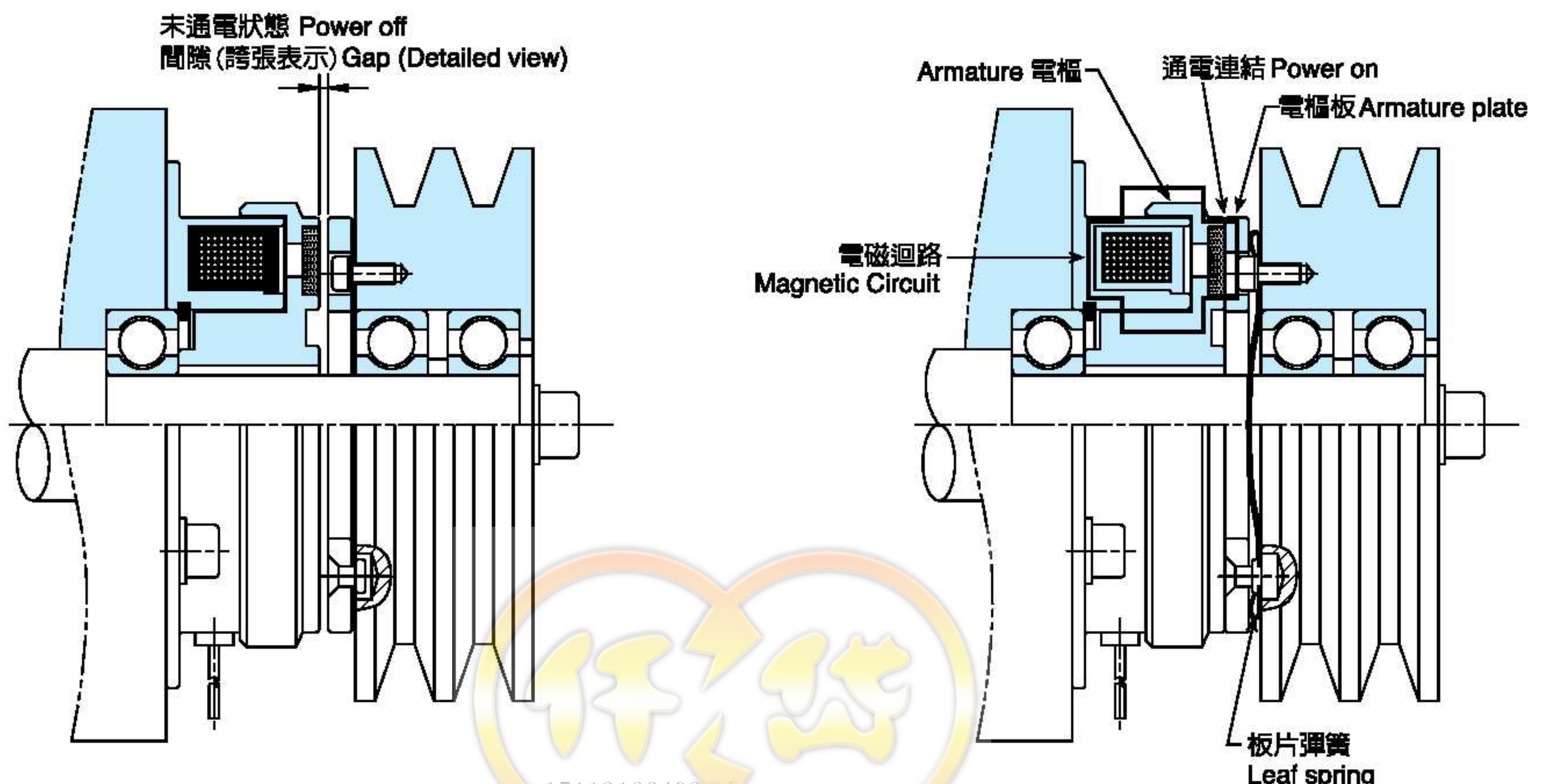
Diagram shows the actions of the clutch and spring

- 當磁場線圈通電時，電樞產生磁場，將電樞板吸住而產生連結，此時彈片形成伸張，其他零件保持不動，可避免產生磨耗或鬆動，此時已經產生連結動作。

When the magnetic coil is energized it becomes magnetic, drawing the armature plate over to make contact. At this point the spring is tensioned while no other parts are moving. This minimizes friction and possible looseness. Clutch is engaged.

- 當磁場線圈切斷電源時，電樞磁場消失，電樞板因沒有磁場吸住而被彈片拉回原來位置，而形成間隙，此時已經產生無連結動作。

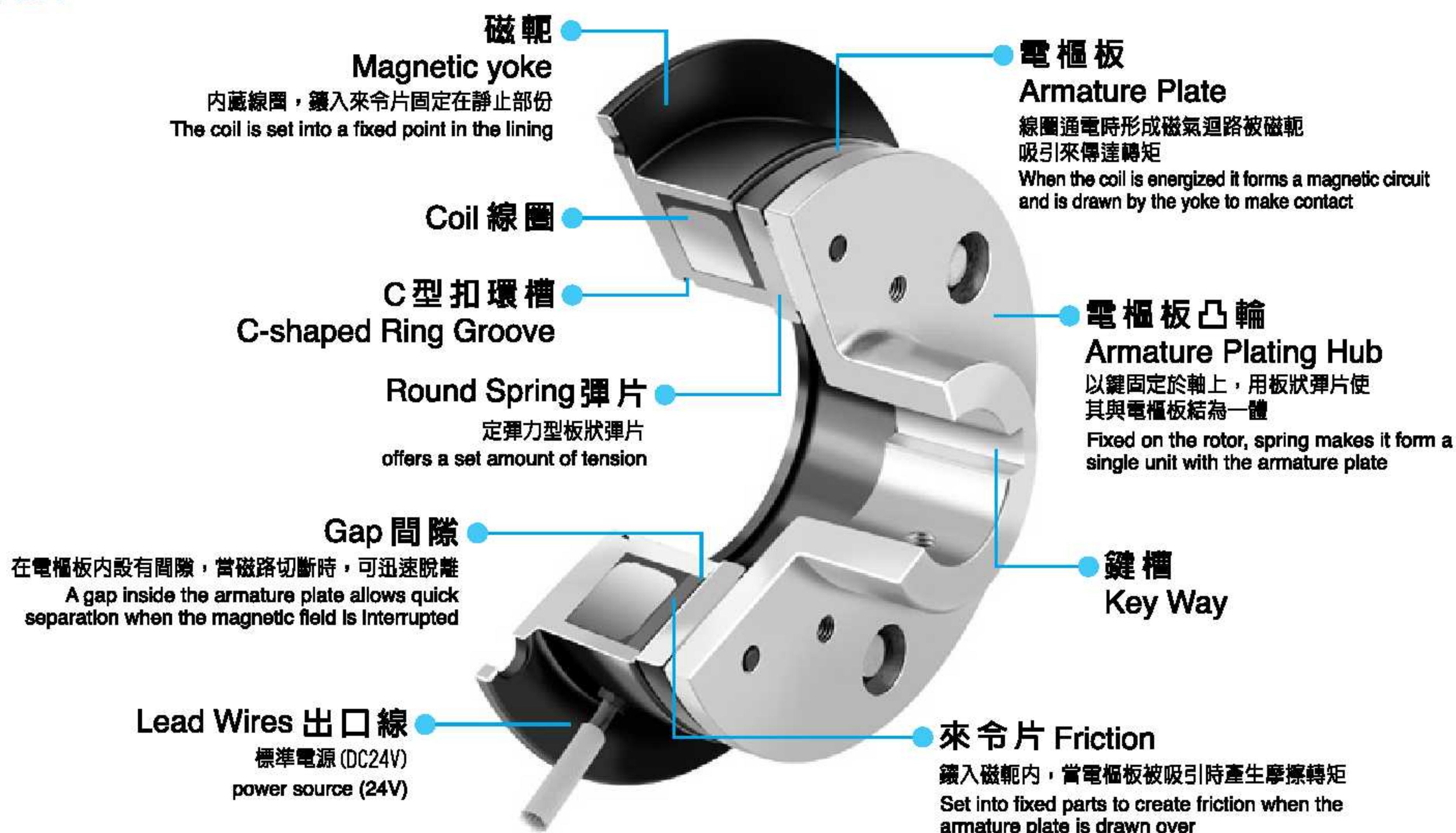
When power to the coil is cut it loses its magnetism. The armature plate is no longer drawn over and the spring pulls it back in place to restore the gap. Clutch is now disengaged.



Basic Construction

基本構造

煞車 Brake

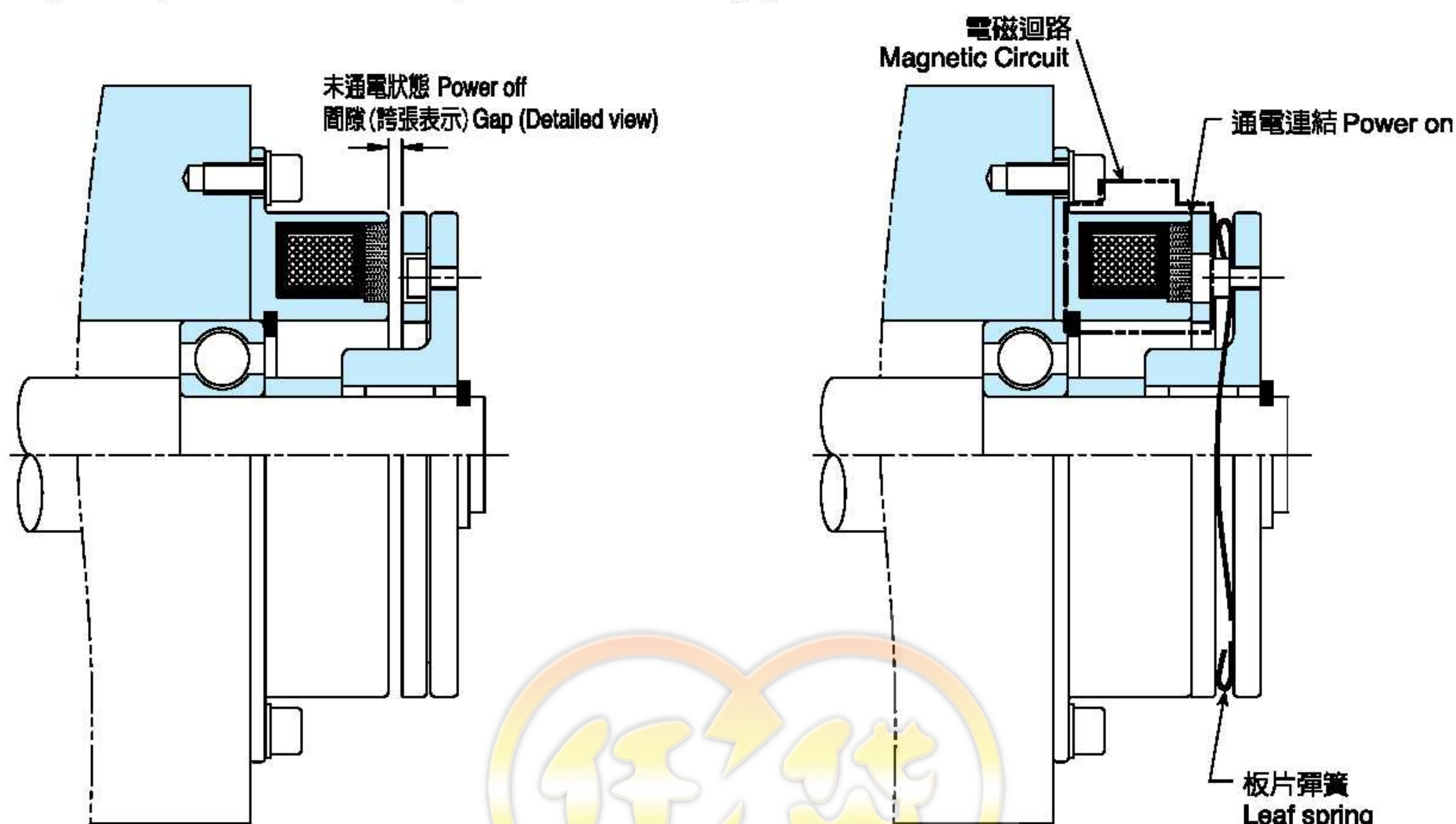


- 當磁場線圈切斷電源時，磁軛上的磁場消失，電樞板因沒有磁場吸住，而被彈片拉回原來位置而形成間隙，此時已經無制動動作。
When power to the magnetic coil is cut the magnetic field on the yoke collapses and the armature plate is no longer attracted. It is pulled back by the spring and motion transmission is cut

作動原理 Principles of Operation

刹車的動作狀態及彈片的動作 Actions of the brake and spring:

- 當磁場線圈通電時，磁軛產生磁場將電樞板吸住，磁軛上的來令片與電樞板產生摩擦，此時已經產生制動動作。
When the magnetic coil is energized the yoke is magnetized and draws the armature plate over. This causes friction between the lining on the yoke and the armature, and the clutch is engaged.

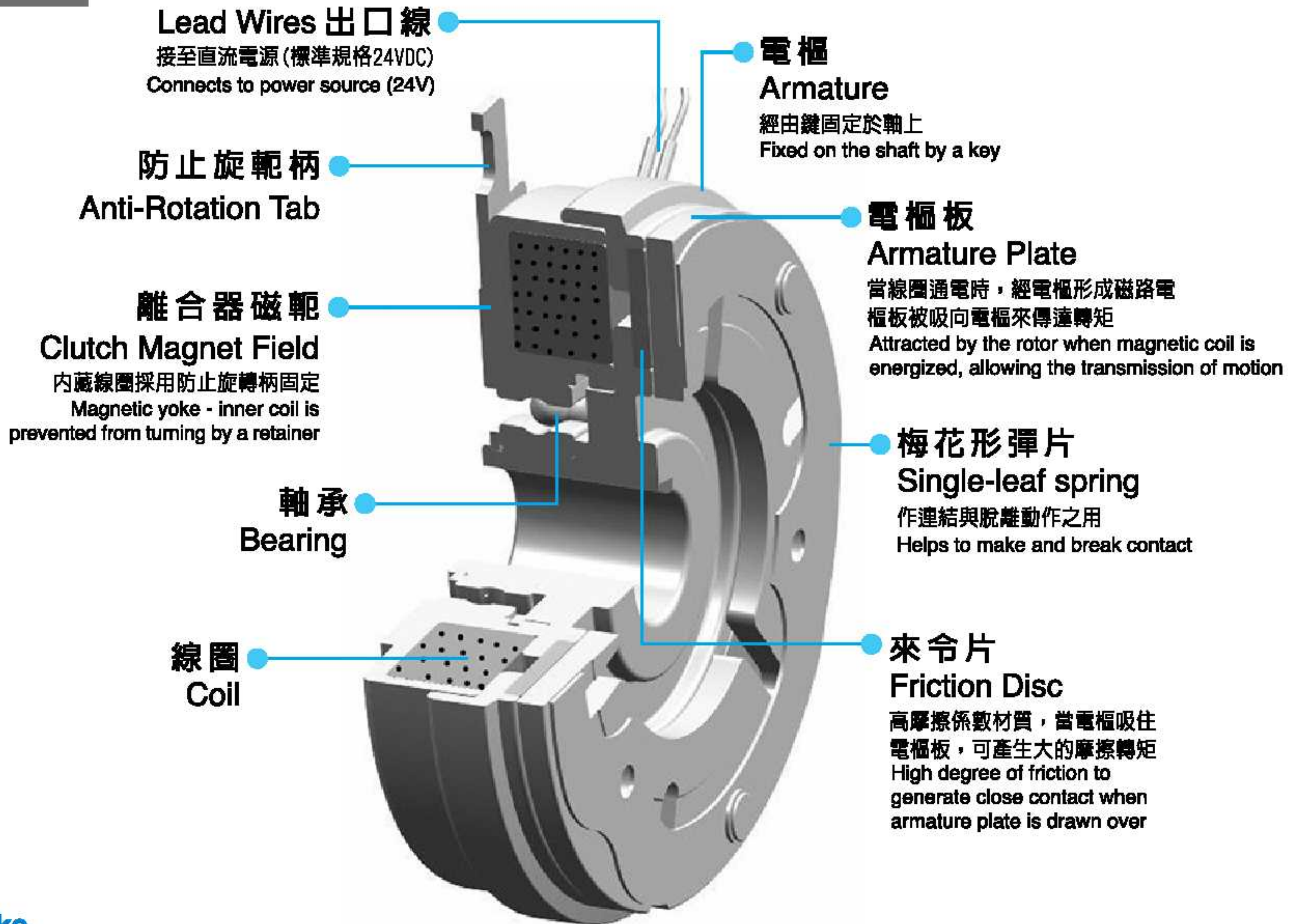


Basic Construction

基本構造

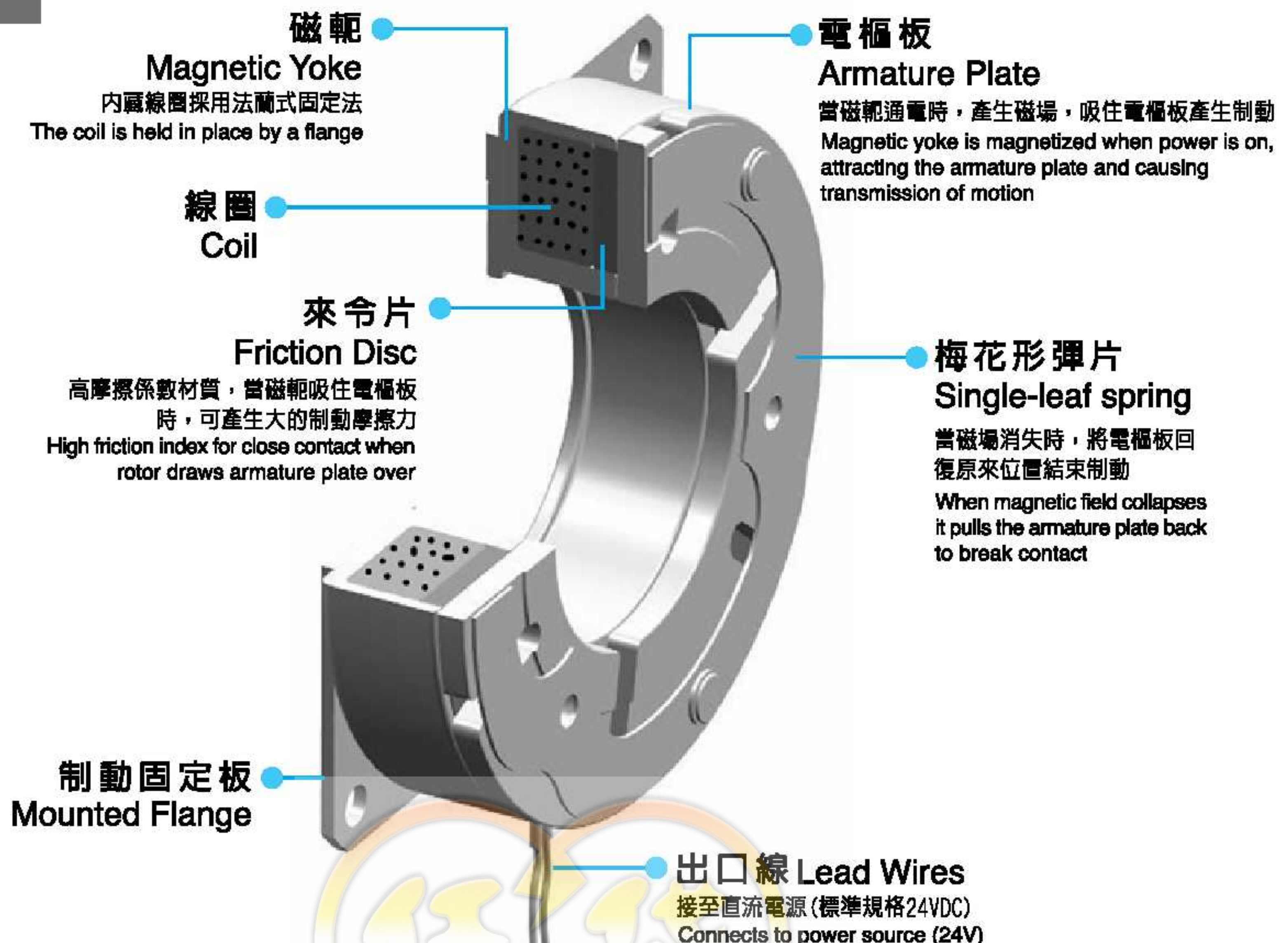
離合器 Clutch

CDJ



制動器 Brake

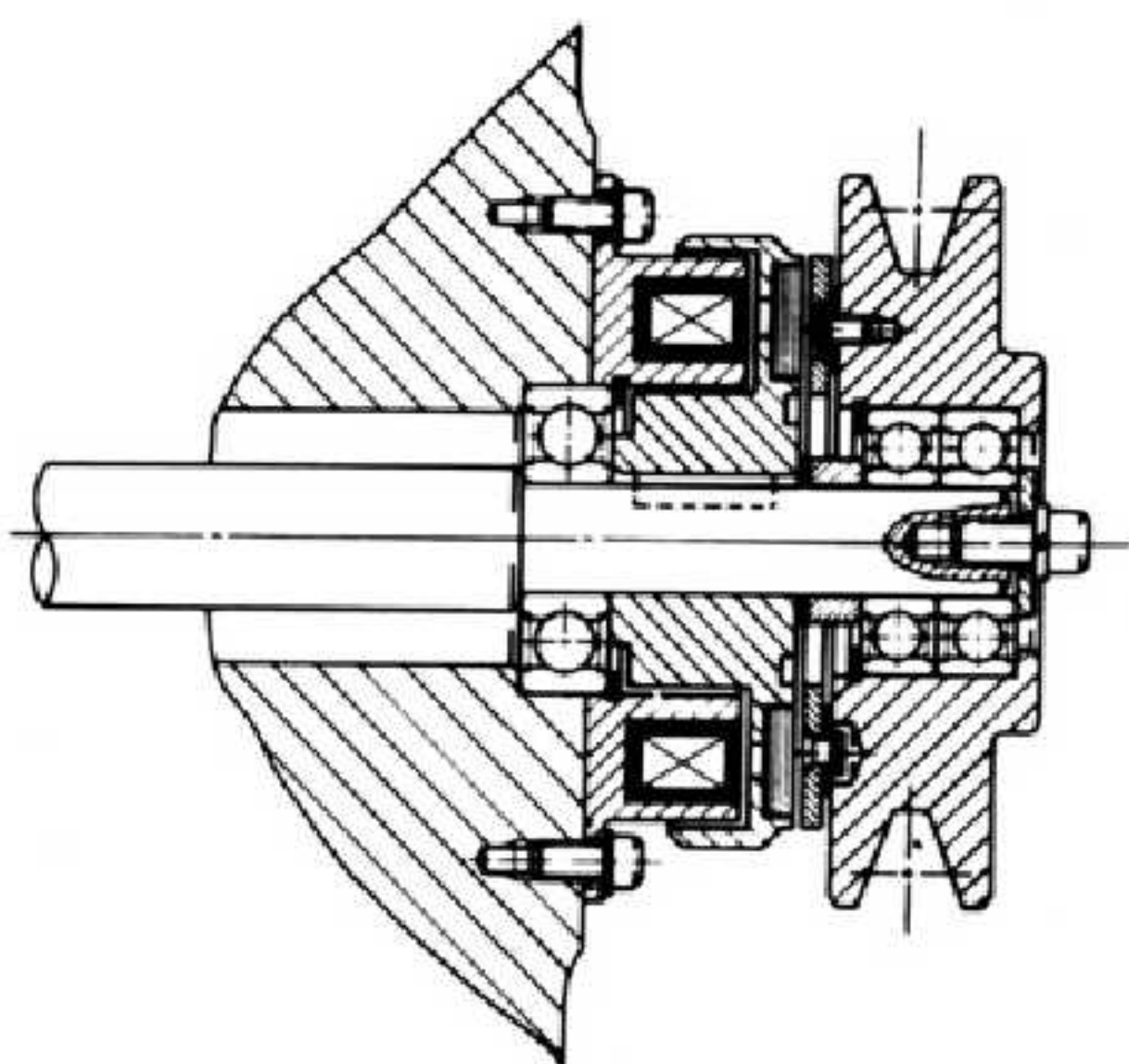
CDI



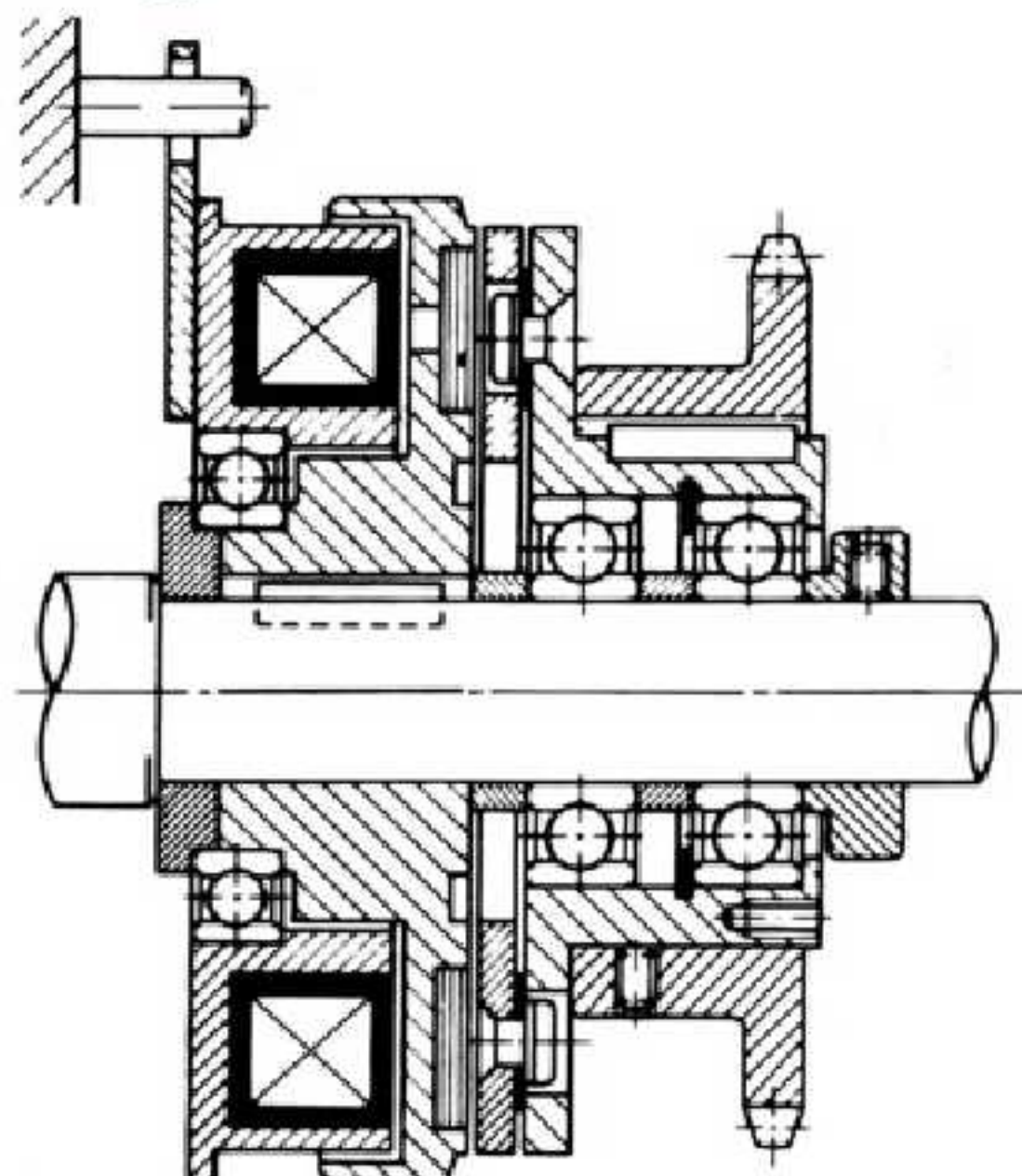
Applications

使用範例

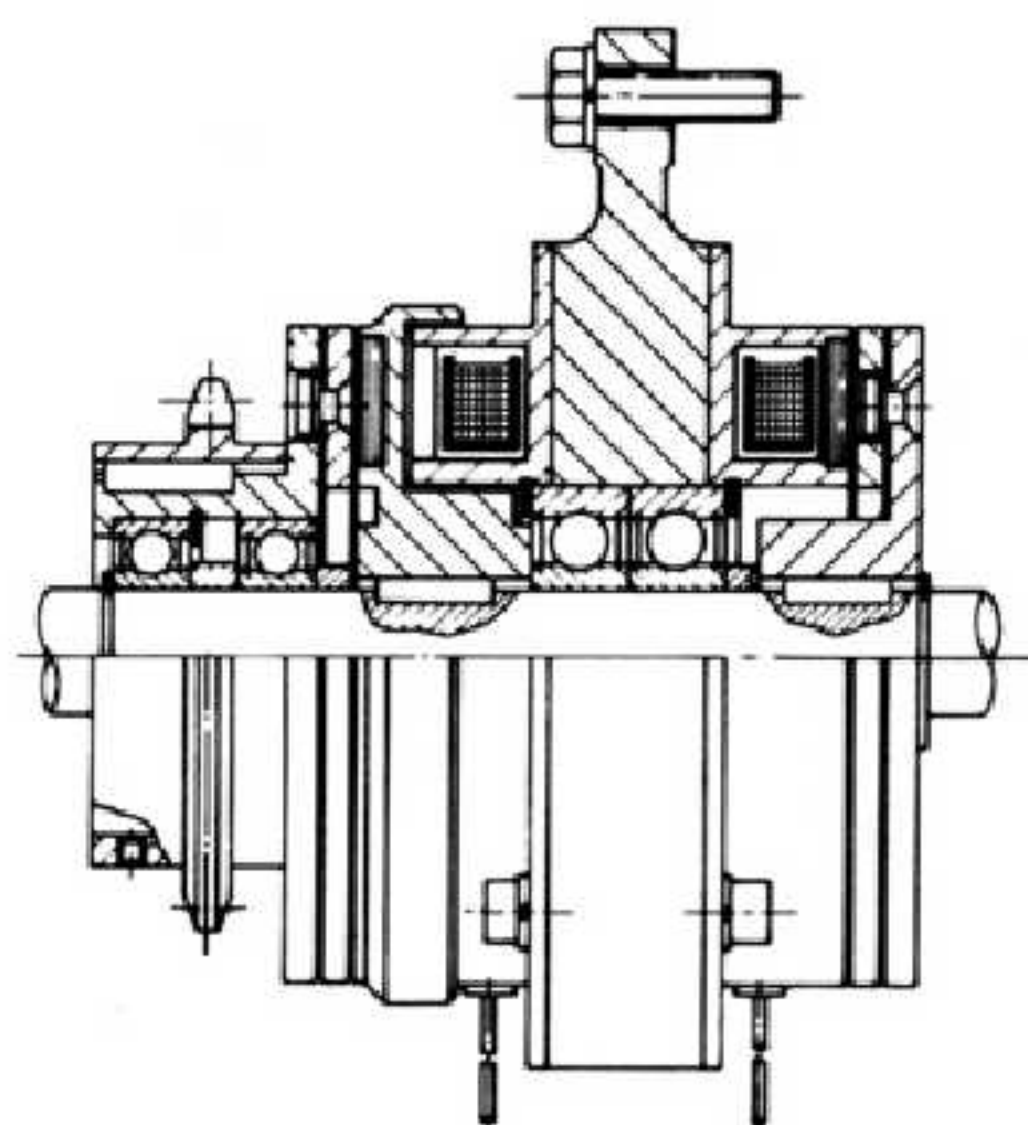
CDF 使用例
CDF Applications



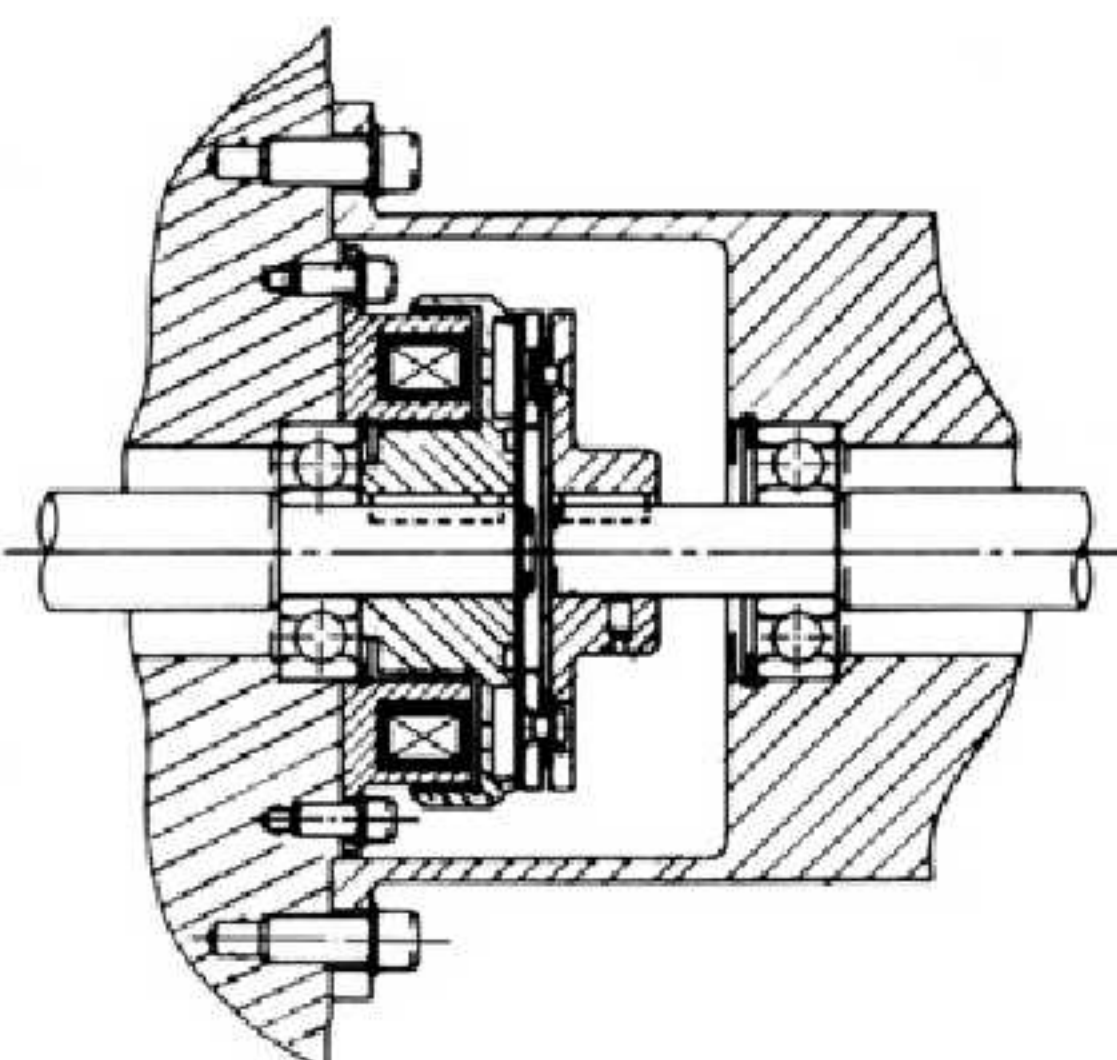
CDE使用例
CDE Applications



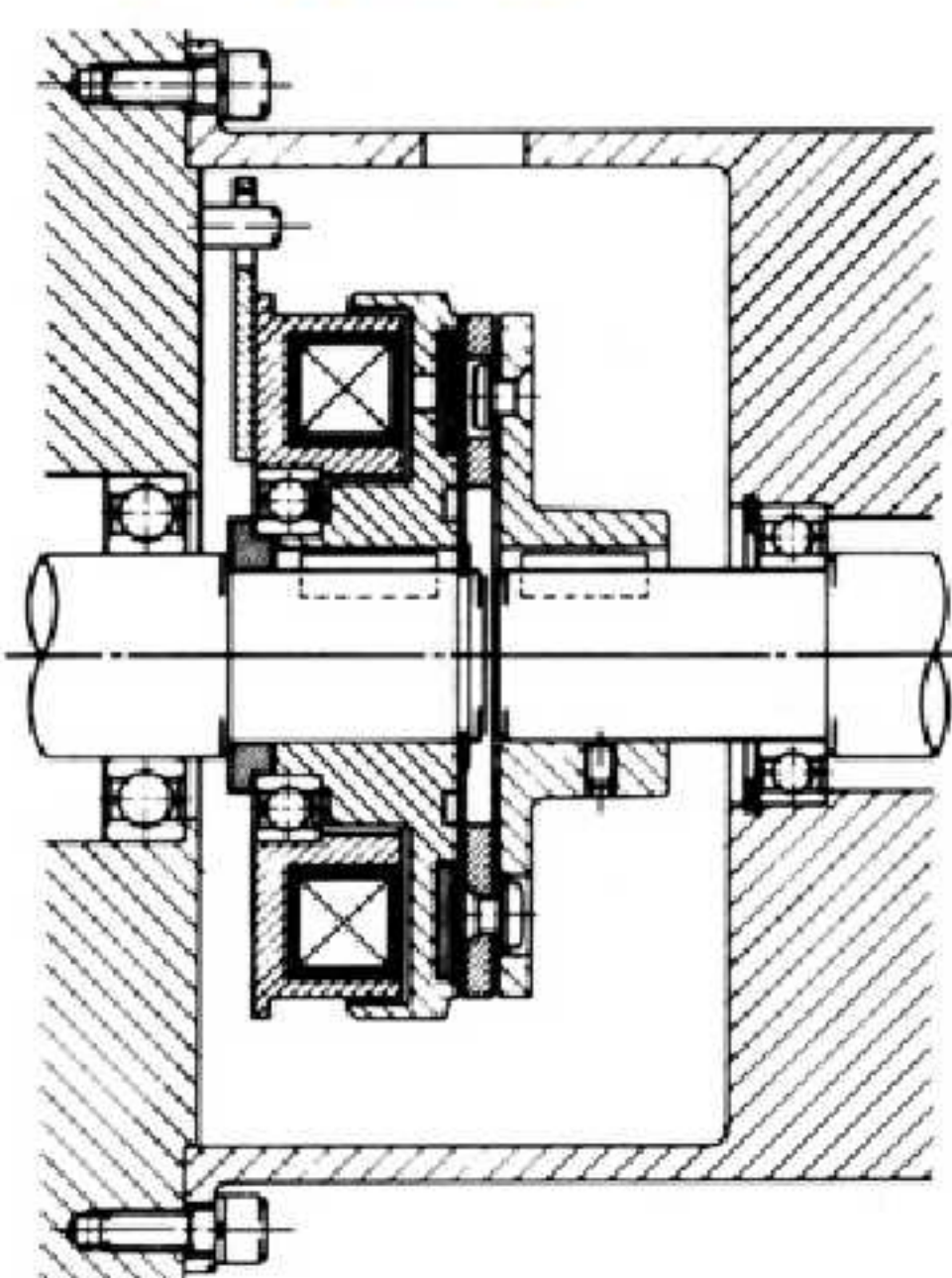
CDF與CDG組合使用例
CDF and CDG assembly applications



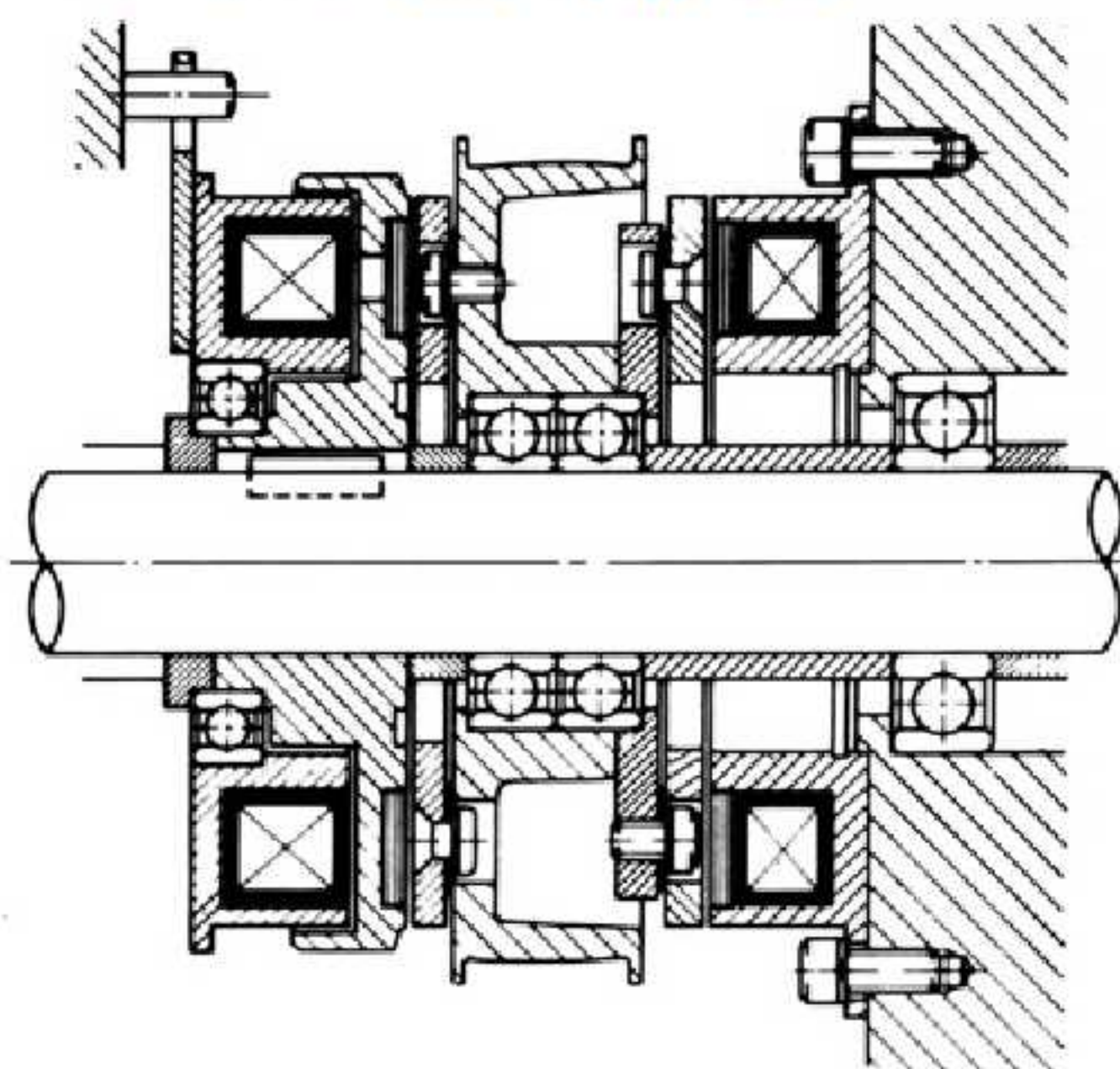
CF1



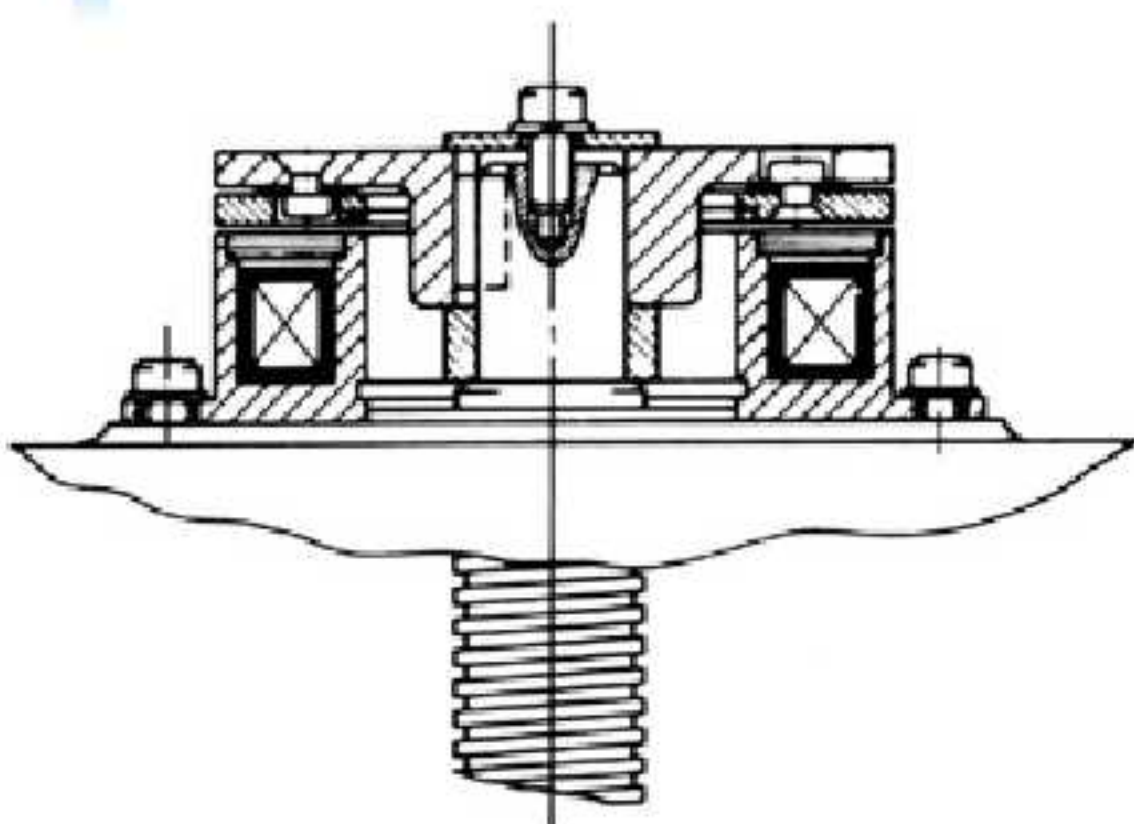
CE2使用例
CE2 Applications



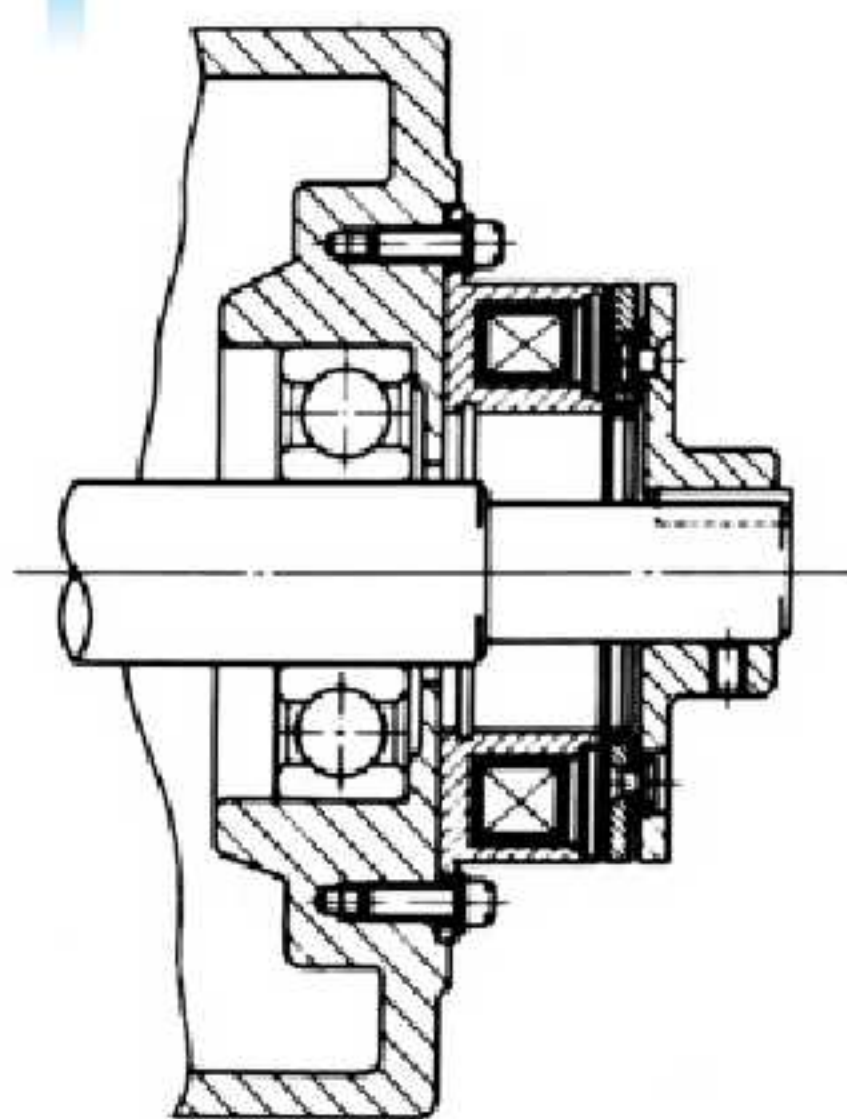
CDE與CDG組合使用例
CDE and CDG assembly applications



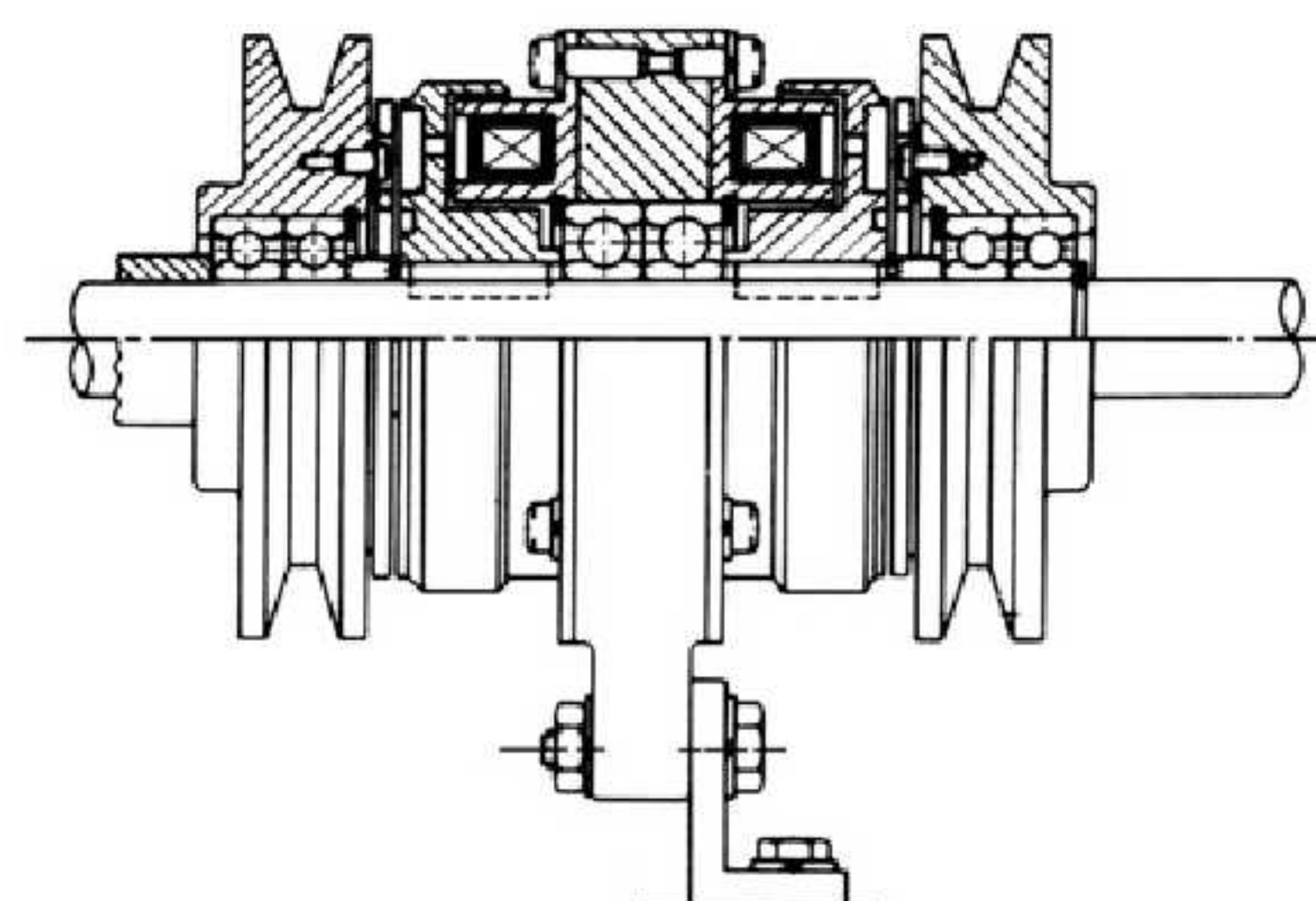
CG1



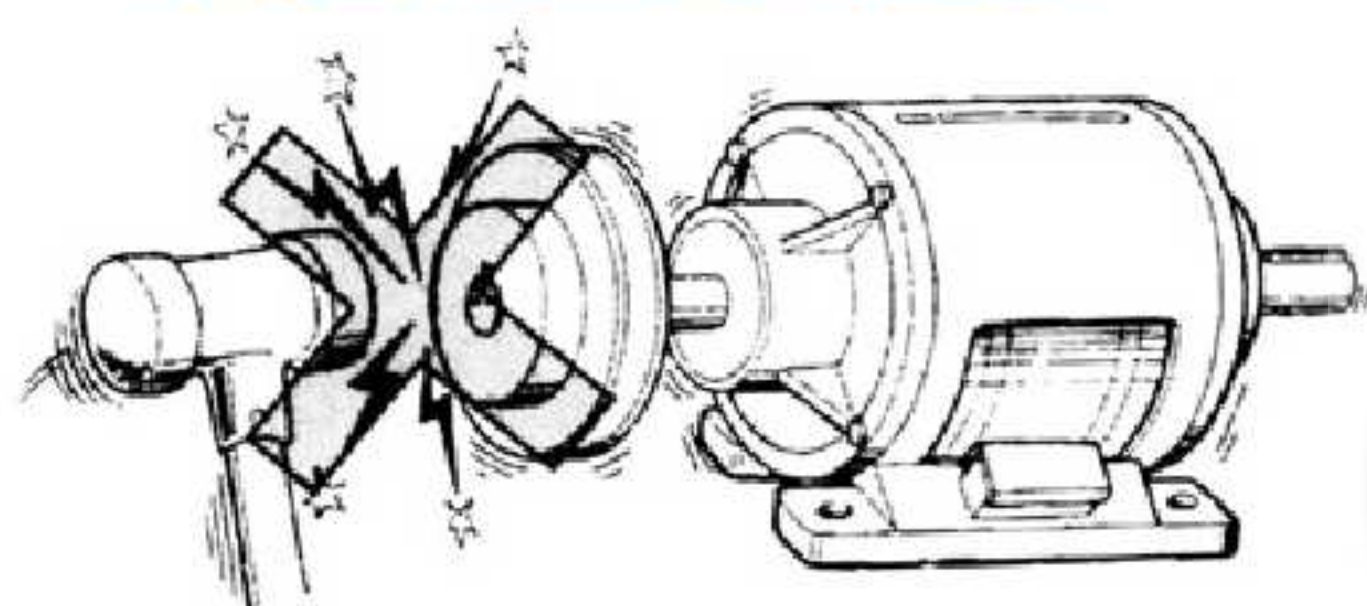
CG2



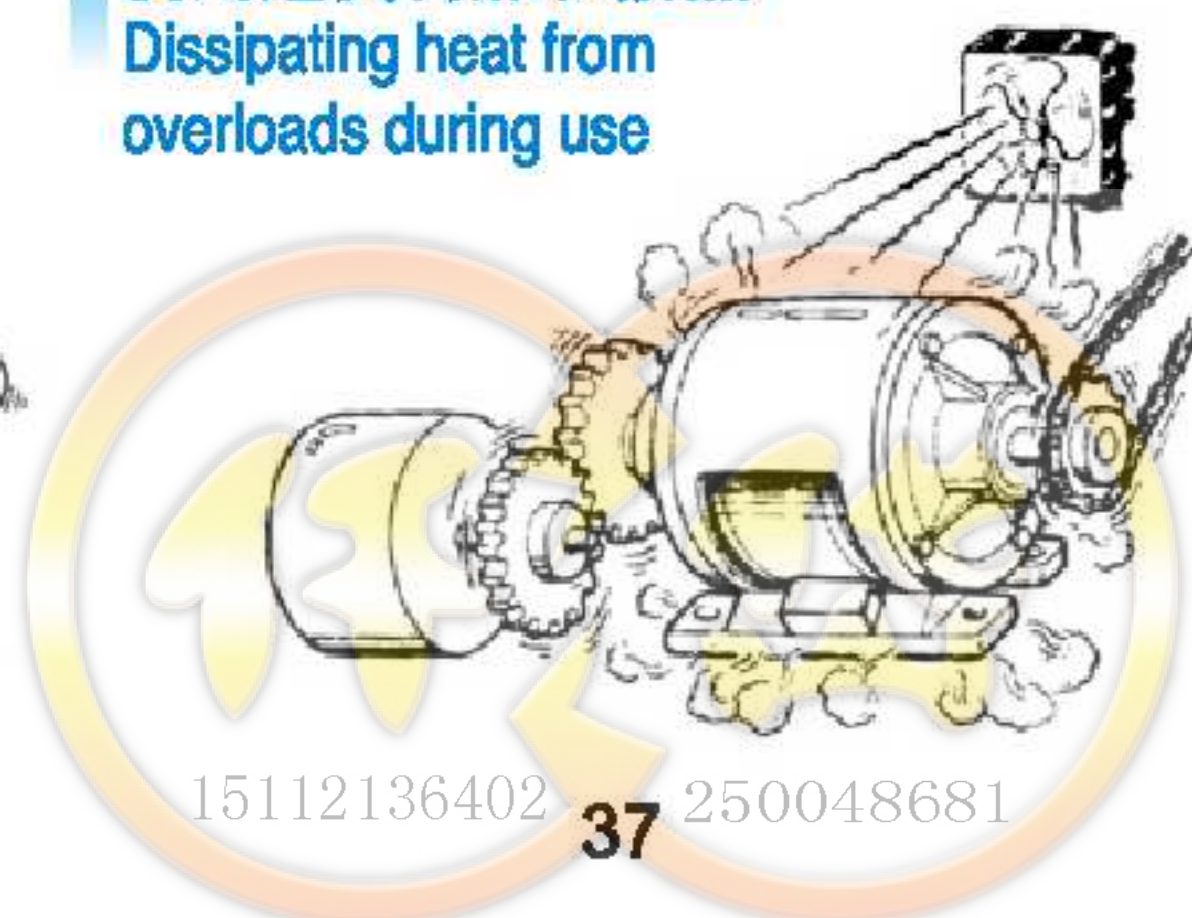
CDF雙組合使用例
CDF dual assembly applications



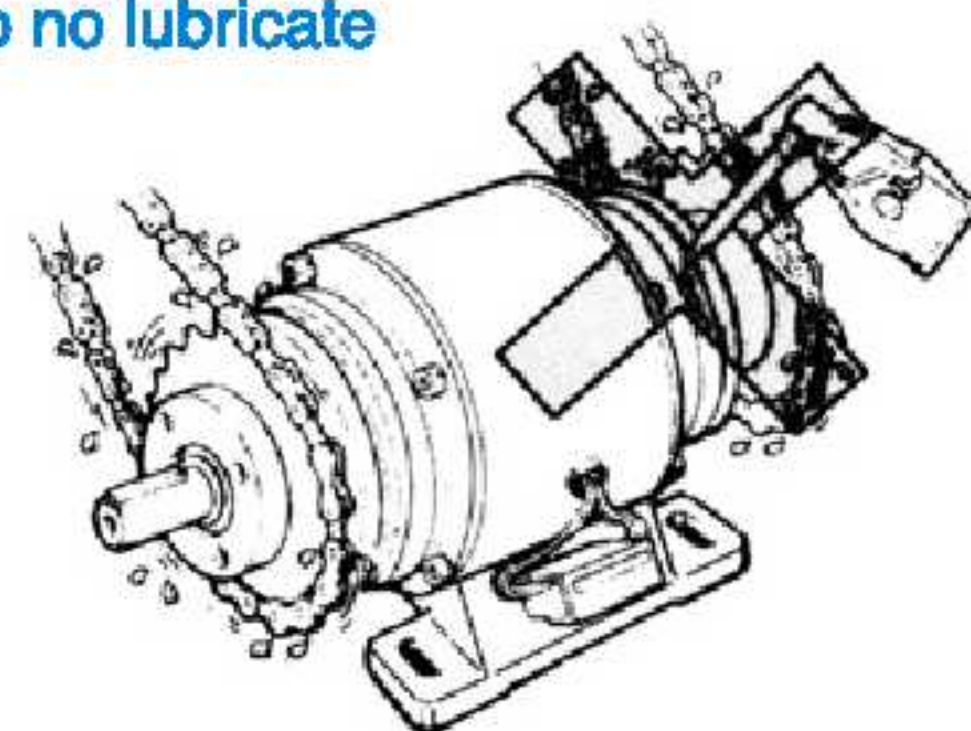
裝用時勿重力槌打
Non-gravity hammer for installation



使用超負荷加以散熱
Dissipating heat from overloads during use



勿加油脂
Do no lubricate



Reference Chart for Available Models

型號選用參考表

離合器使用條件分二種情況 Clutches are used in two main areas :

1. 啓動完成後再加上負載之情況 (例如車床加工為被加工物已達一定轉速再行切削)
Load is applied following activation (for example, in lathes, where the work piece is allowed to reach a certain turning speed before cutting work begins)
2. 啓動時已加上負載之情況 : (例如輸送帶其起動時負載已聯結上同時啓動)
Activation under load (as in conveyor belts where load is already present when the clutch is engaged)

選定表 I : 啓動完成後再加上負載之情況 Option Chart I: Application of load after engagement

馬達容量 Specifications of the motor		r.p.m																						
		100	200	300	400	500	600	700	800	900	1000	1100	1200	1500	1800	2000	2400	3000	3600	4000	4600	5000		
0.015kw	1/50 HP																							
0.035	1/20																							
0.065	1/12																							
0.1	1/8																							
0.125	1/5									1-5														
0.2	1/4																							
0.25	1/3																							
0.4	1/2																							
0.55	3/4									2-5														
0.75	1																							
1.1	1 1/2																							
1.5	2									5														
2.2	3									10														
3.7	5									10														
5.5	7 1/2																							
7.5	10									20														
11	15									40														
15	20																							
19	25									65														
22	30																							
30	40																							
37	50									100														
45	60																							
55	75																							
75	100									200														
92	125																							
110	150																							

選定表 II : 啓動時已加上最大負載之情況 Option Chart II: Engagement under load

馬達容量 Specifications of the motor		r.p.m																						
		100	200	300	400	500	600	700	800	900	1000	1100	1200	1500	1800	2000	2400	3000	3600	4000	4600	5000		
0.015kw	1/50 HP																							
0.035	1/20																							
0.065	1/12																							
0.1	1/8									1-5														
0.125	1/6																							
0.2	1/4																							
0.25	1/3									2-5														
0.4	1/2																							
0.55	3/4																							
0.75	1																							
1.1	1 1/2									5														
1.5	2									10														
2.2	3									20														
3.7	5									40														
5.5	7 1/2																							
7.5	10									65														
11	15									100														
15	20																							
19	25									200														
22	30																							
30	40																							

Sizes and Specifications

規格大小選定表

1 轉矩之檢討

連結・制動負荷所需要之轉矩 T，可由下式計算

$$T = (T_a \pm T_l) \times f \text{ (kgm)} \dots\dots\dots (1)$$

T_a: 加速轉矩=在一定之時間內加速到一定之回轉數時所需要之轉矩。

$$T_a = \frac{GD^2 \times N}{375 \times t_a} \text{ (kgm)} \dots\dots\dots (2)$$

GD²: 負荷側之慣性 (飛輪效應) (kgm²)

N: 相對回轉數

t_a: 加速時間 (sec)

T_l: 負荷轉矩=負荷阻抗及機械之摩擦阻抗 (kgm)

在 (1) 式中 T_l 之符號在離合器時取十，剎車時為一

f: 安全係數

2 動作量之檢討

一次之連結，制動所需要之動作量 E_e 可由下式計算

$$E_e = \frac{GD^2 \times N^2}{7160} \times \frac{T_d}{T_d \pm T_l} \text{ (kgm)} \dots\dots\dots (3)$$

T_d: 離合器 (剎車) 之轉矩 (kgm)

T 之符號在離合器時取一，剎車時取十

E_e 之值必需比容許摩擦量 E_a 為小。

$$E_e < E_a \dots\dots\dots (4)$$

高頻率之 ON-OFF 時，不可超過散熱能力 P_a。

$$E_e \times S < P_a \text{ (kgm/min)} \dots\dots\dots (5)$$

S: 動作頻度 (次/min)

3 動作時間之檢討

連結・制動負荷所需要之轉矩 t，為離合器・剎車本身之動作時間及負荷加速 (減速) 時間之總和。

$$t = t_1 + t_a \text{ (sec)} \dots\dots\dots (6)$$

t₁: 離合器・剎車之轉矩建立時間 (sec)

t_a: 加速時間 (sec)

$$T_a = \frac{GD^2 \times N}{375 \times (T_d \pm T_l)} \text{ (sec)} \dots\dots\dots (7)$$

之符號離合器時取一，剎車時為十

4 動作次數之檢討

間隙調整前所能動作次數可由下式計算 (次)

$$L = E_t / E_e \text{ (回)} \dots\dots\dots (8)$$

E_t: 第一次間隙調整前之容許動作總量

1 Torque

The torque needed for engagement and drive under load can be calculated as follows:

$$T = (T_a \pm T_l) \times f \text{ (kgm)} \dots\dots\dots (1)$$

T_a: acceleration torque = the torque needed to reach a given turning speed within a given time

$$T_a = \frac{GD^2 \times N}{375 \times T_a} \text{ (kgm)} \dots\dots\dots (2)$$

GD²: Abnormalcy of the load (applied force on the flywheel (kgm²))

N: number of revolutions

T_a: acceleration time (sec.)

T_l: load torque = load resistance + friction resistance of system (kgm)

In equation (1), T_l is positive during engagement and negative during braking

f = safety index

2 Amount of work

The amount of work or E_e needed for engagement can be calculated as shown:

$$E_e = \frac{GD^2 \times N^2}{7160} \times \frac{T_d}{T_d \pm T_l} \text{ (kgm)} \dots\dots\dots (3)$$

T_d: Clutch (brake) torque (kgm)

T is negative during engagement and positive during braking

E_e must be less than the acceptable friction amount E_a

$$E_e < E_a \dots\dots\dots (4)$$

During high-frequency switching on and off, this value cannot exceed the heat radiation capacity P_a.

$$E_e \times S < P_a \text{ (kgm/min)} \dots\dots\dots (5)$$

S = cycle speed (times/min)

3 Operating Times

The torque t needed for engagement and motion is the total during movement of the clutch and brake as well as the load during acceleration (or deceleration)

$$t = t_1 + t_a \text{ (sec)} \dots\dots\dots (6)$$

t₁: time needed to establish torque for clutch and brake (sec)

t_a: acceleration time

$$T_a = \frac{GD^2 \times N}{375 \times (T_d \pm T_l)} \text{ (sec)} \dots\dots\dots (7)$$

This value is positive for clutches and negative for brakes

4 Number of Operations

The number of operations possible before adjustment of the gap is needed can be calculated as shown:

$$L = E_t / E_e \dots\dots\dots (8)$$

E_t - amount of operations allowed before the first adjustment of the gap

SIZE	0S6AA	1S5AA	2S5AA	005AA	010AA	020AA	040AA
E _t	36 x 10 ⁵	60 x 10 ⁵	130 x 10 ⁵	250 x 10 ⁵	470 x 10 ⁵	10 x 10 ⁷	20 x 10 ⁷

■ 考慮負荷條件之係數 (原動機為電動機時) 依照使用制動器之機械或用途，分別適用下列安全係數—

Load Factor Index (when driving machine is electrical) The following safety factors apply for these machines and applications --

負荷條件 Load condition	
(a) 負荷變動少之低循環動作。例如事務機械、小型工作，木工機械。 Low cycle operation with little change in load (office machines, small shop equipment, wood-working machinery)	1.5 (~1.75)
(b) 負荷變動為中程度之低循環動作。例如中形沖壓機械、泵空壓機。 Low cycle operation with moderate variations in load (medium-sized presses, pumps, air compressors)	20 (1.75~2.25)
(c) 負荷變動大，高循環且慣性大。例如印刷機械、剪床。 High cycle repetitious operation with large variation in load (printing machinery, cutting machines)	25 (2.25~)

Basic Control Circuit

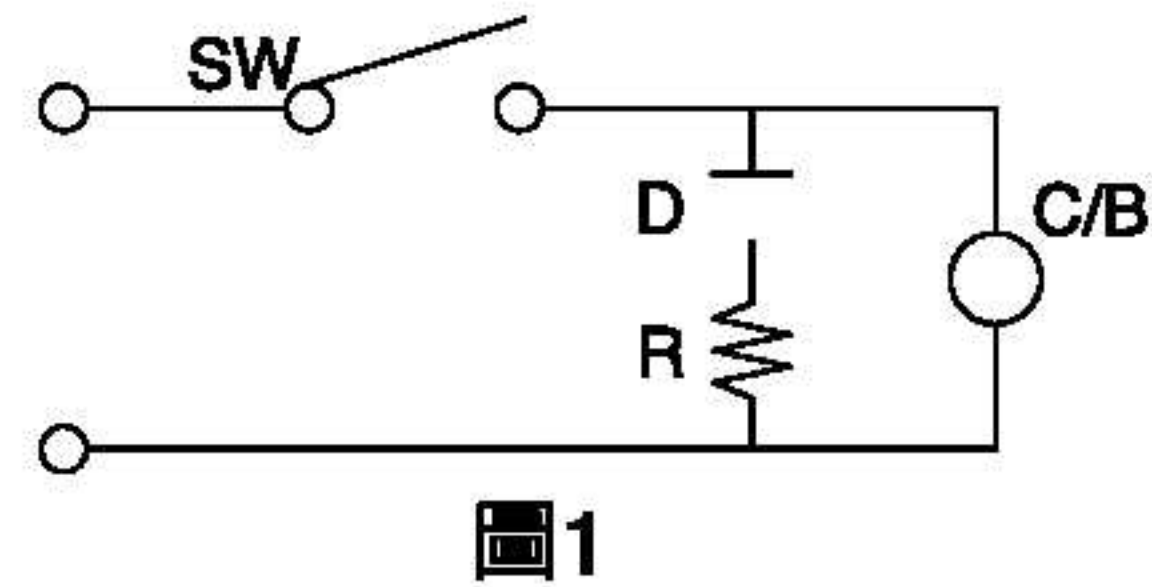
基本控制電路

於電磁離合器，制動器之線圈流過直流之勵磁電流時，在線圈內蓄積能量。切斷電流時，由於被蓄積之能量，在線圈之端子間產生逆電壓。此逆電壓依切斷速度、切斷電流時，有達到1000伏特以上者，因此，由於可能成爲線圈之絕緣破壞或開閉器之接點損壞等之原因，有必要設置適當之保護電路以防止這些問題。

When the coils in the clutch and driver are energized with direct current a certain level of energy is stored in the coils. When the current is cut the accumulated energy will create a negative voltage between the terminals of the coils. This negative voltage may be 1000V or more depending on the speed and timing of the cut-off. This could result in damage to the coil or the switch contacts, and protective circuits are built in to prevent this possibility.

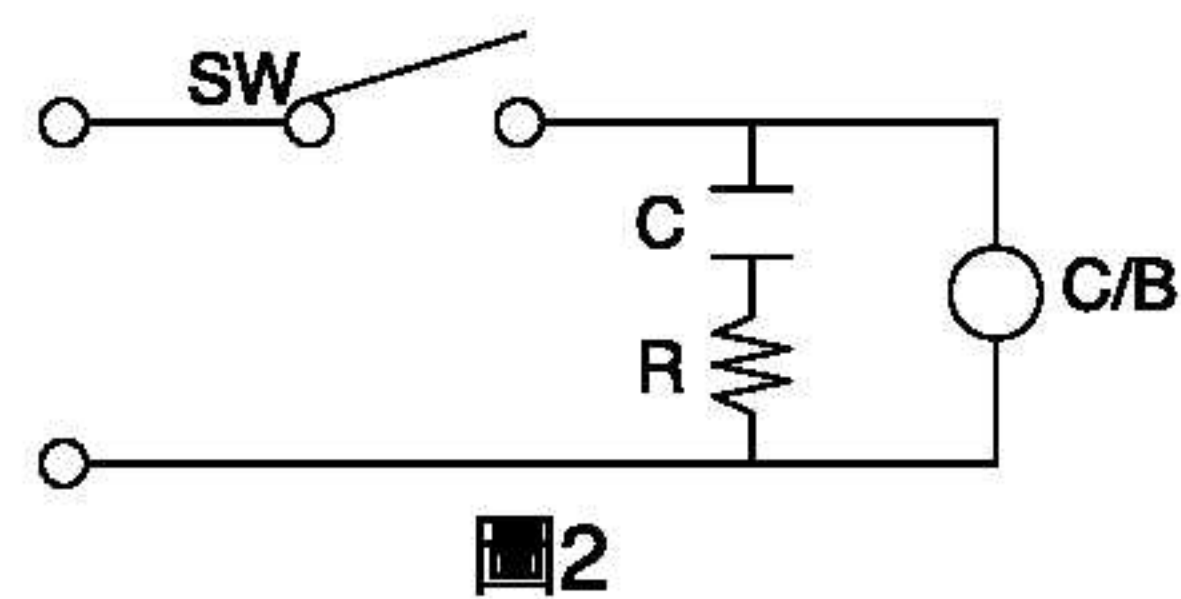
1 電阻+二極體 Resistors and diodes

- 可以使電源部消耗電力小，電阻之容量也可以小。電樞釋放時間有些延遲，高頻度使用需要注意。
- These help to lower power consumption and resistance capacity. They may cause slight delays when the armature is released, a point which should be kept in mind in high-frequency applications.



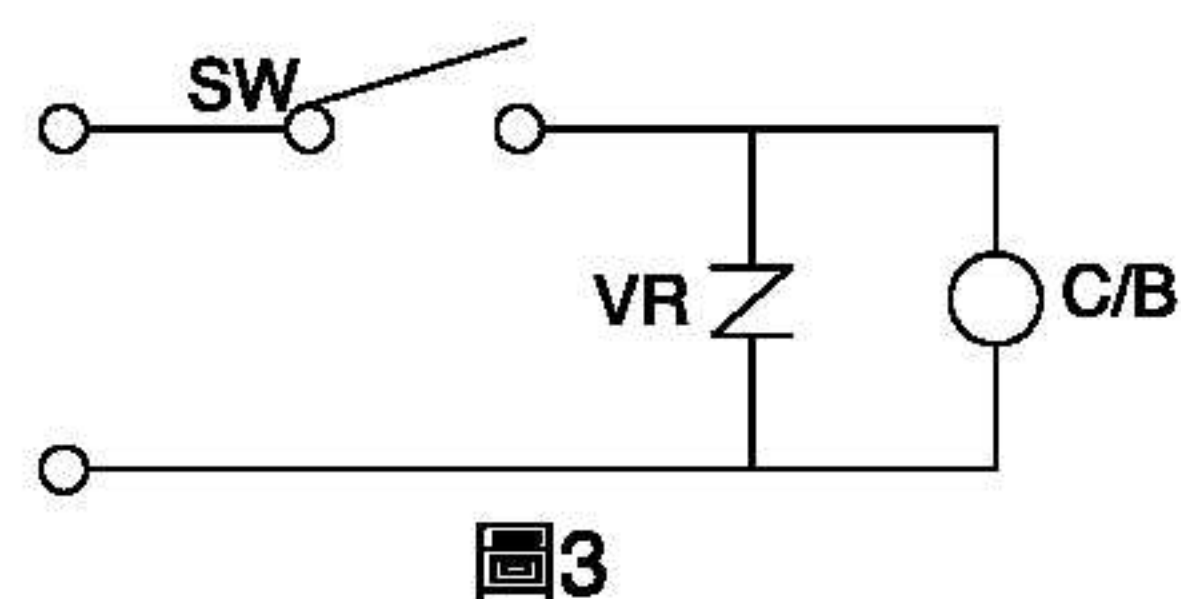
2 電阻+電容器 Resistors and capacitors

- 電樞釋放時間速度，有必要耐壓性高之電容器。
- Capacitors with high voltage resistance are needed to speed the release of the armature.



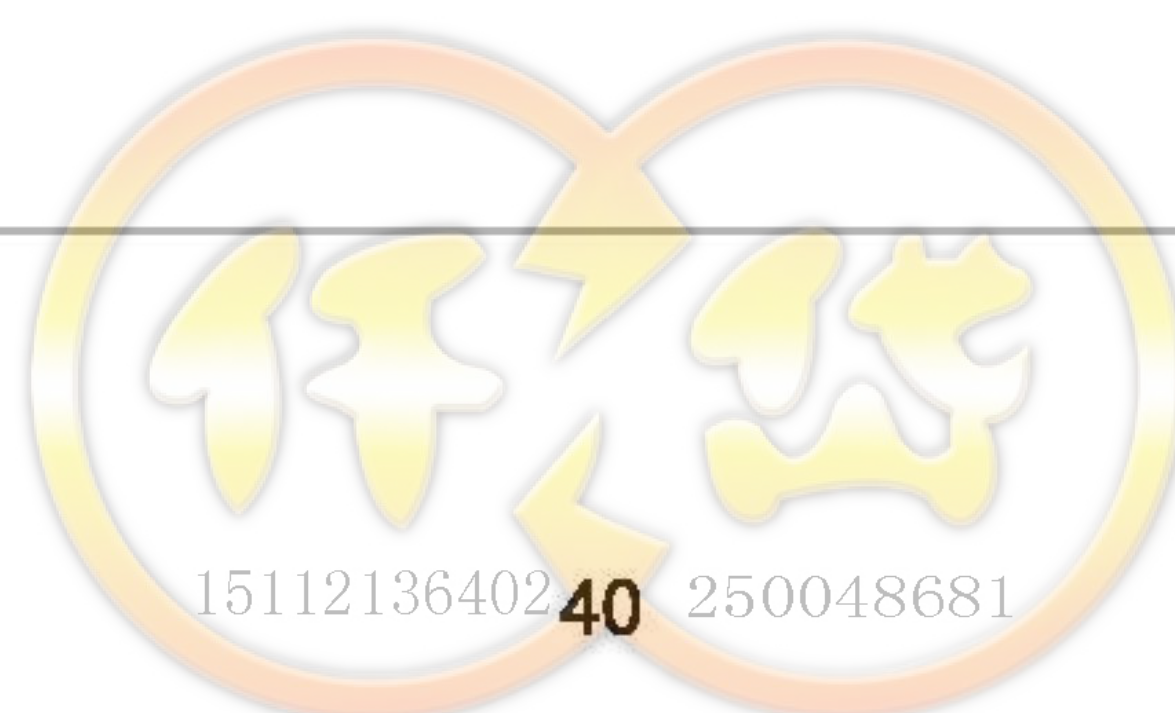
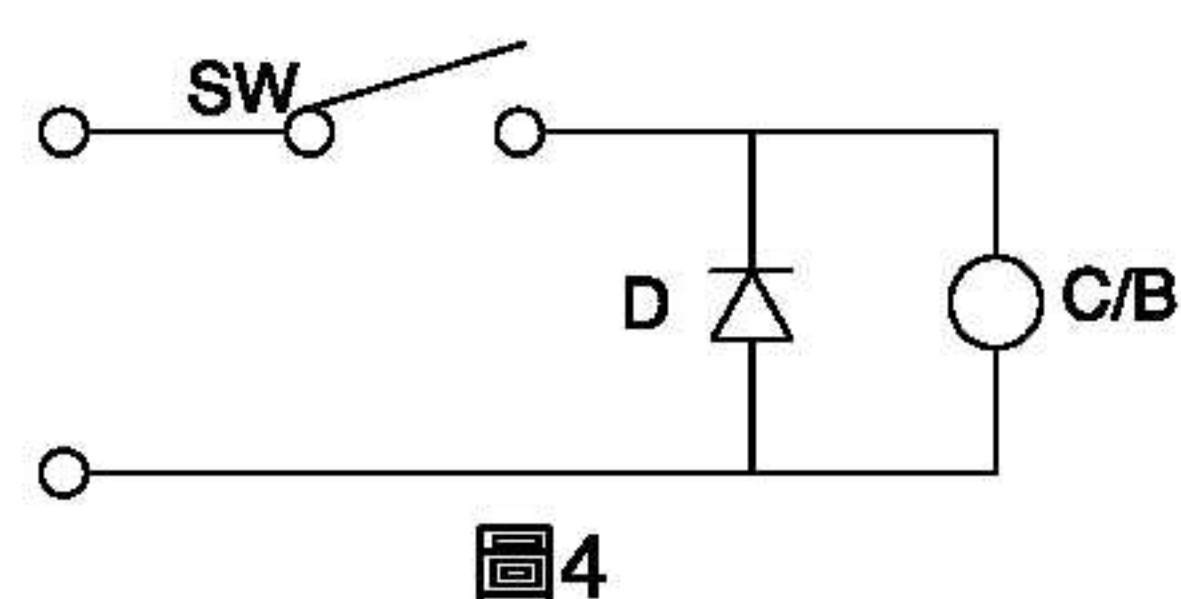
3 突波吸收器 Surge buffer

- 抑制突波效果大，無電樞釋放時間延遲。
- Offers firm control of surge currents to avoid delays in the release of the armature.



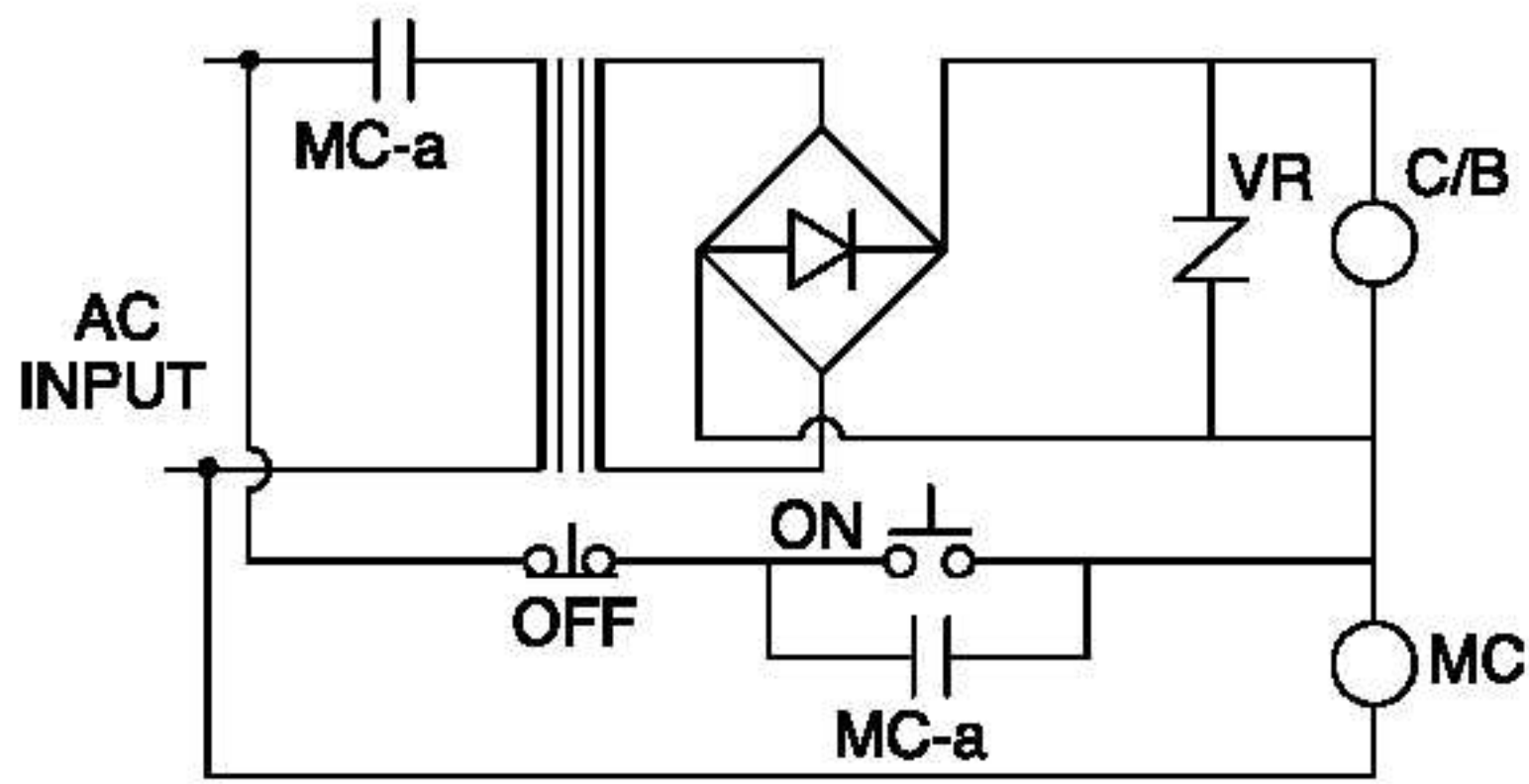
4 二極體 Diodes

- 抑制突波效果大，但是電樞釋放時間會延遲，易引起離合器制動器之相互干涉，不適合高頻度使用。
- Offer good control of surges but may result in delayed release of armature, and can cause conflicts between the clutch and the brake. Not suitable for high frequency applications.

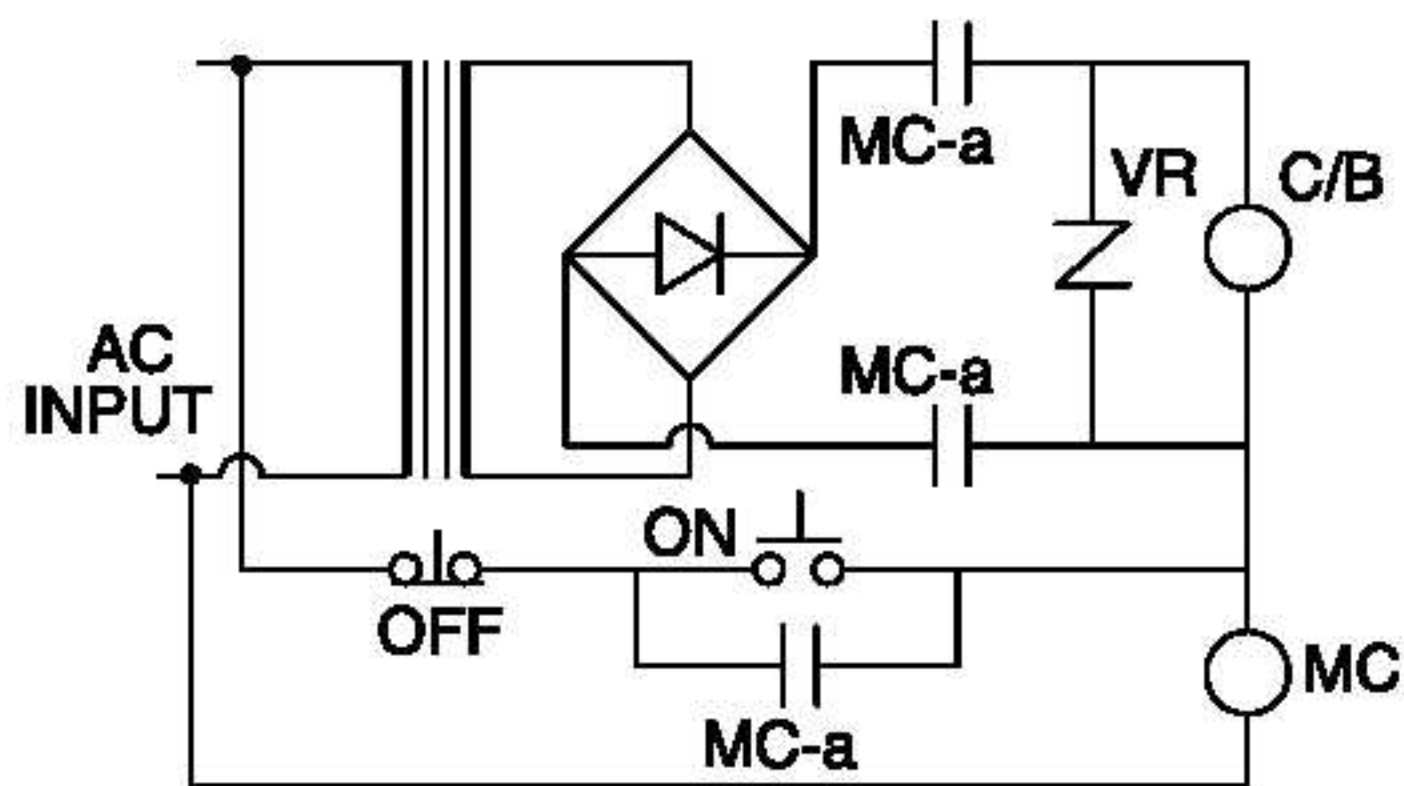


Basic Control Circuit

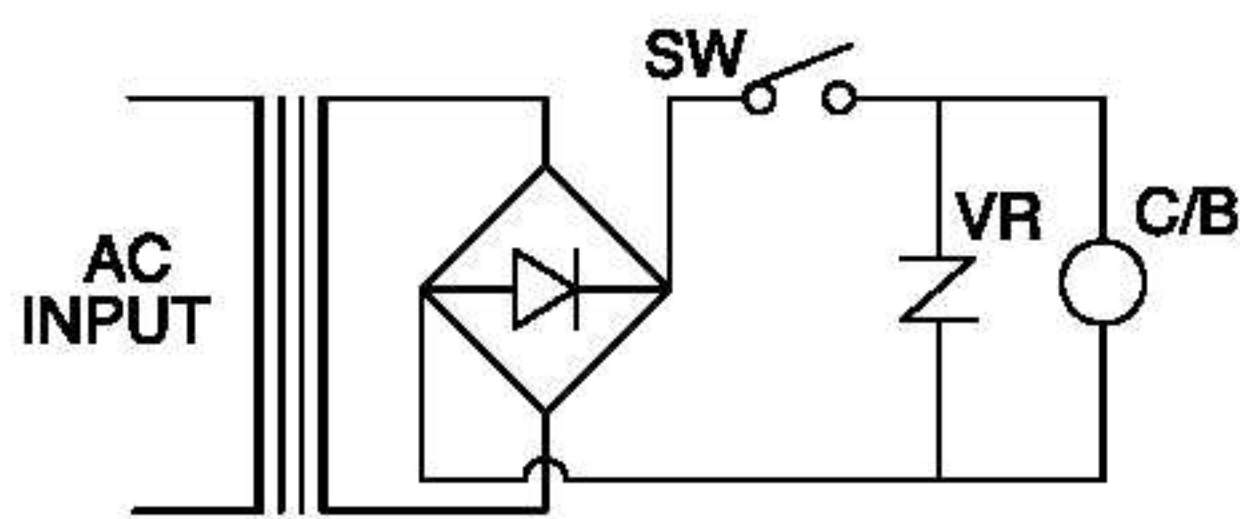
基本控制電路



- ▶ 電磁繼電器接點在交流側，所以接點容量可選用小容量。但釋放時間較在直流側長。
Connector for solenoid relay is on the AC side, making it possible to use a small-capacity connector. Release time is slower with direct current.



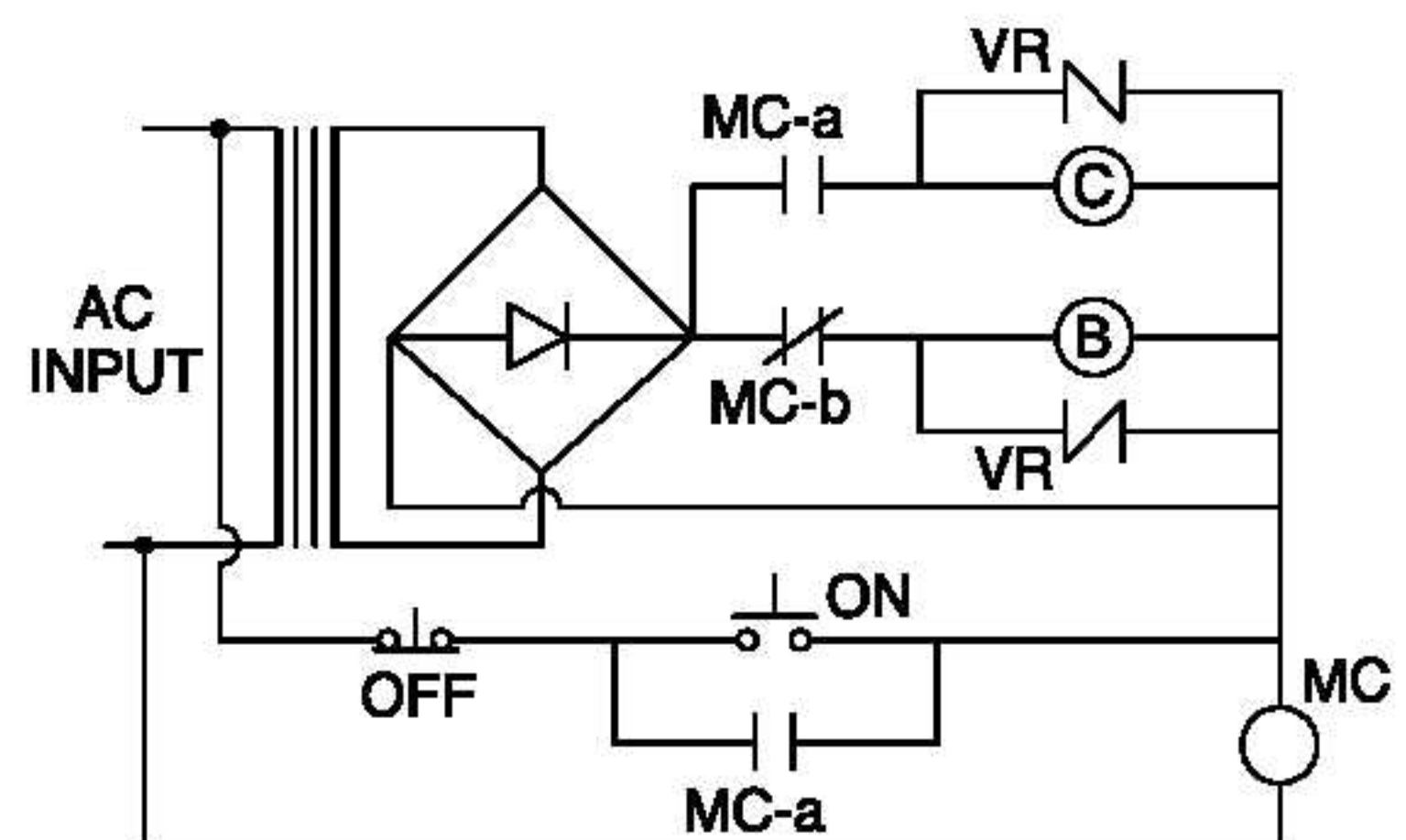
- ▶ 電磁繼電器接點在直流側，所以接點容量應選用標準負荷8倍左右。
Magnetic relay contacts are on the DC side, so standard load capacity should be in the range of 10A.



- ▶ 為控制離合器、制動器最基本回路，是由變壓器、整流器、突波吸收器及開關所構成。
The basic control circuit for clutch and brake consists of a transformer, rectifier, surge protector and switch

此電路常為離合器，制動器組使用，是以電磁繼電器 a、b 接點來切換，若均保持離合器。制動器OFF，須加裝開關來控制。

The circuit in figure 18 is widely used in clutch designs. Magnetic relays a and b are for switches. To ensure that the clutch and driver remain off it will be necessary to add another control switch.



Operating Guidelines

使用注意事項

- 電磁離合器在機械內部屬於一個重要的機械要素，一定要和機械本身取得十分的協調，因此使用請注意以下各點：
The magnetic clutch is a critical component in any machine, and it must be carefully adjusted to fit the rest of the system. Thus the following points should be carefully monitored during operation:

1 使用處所 Location

- 請在完全沒有水分、油分等的狀態下使用乾式電磁離合器、剎車器。如果摩擦部位沾有水分或油分等物質，會使摩擦扭力大為降低，離合器的靈敏度也會變差。為了在使用上避免這些情況，請加設罩蓋。
- Dry clutch and brake assemblies should be used in locations which are free of water, oil and other impurities. Water and oil can affect the friction of the clutch plate and decrease the effectiveness of the clutch. For added protection a cover should be installed.
- 在塵埃很多場所使用時，請將離合器及剎車器全部放入箱中。60kgm以下的電磁離合器、剎車器可以使用直立型。即使是更高的機種也可以使用。
- In dusty areas the clutch and brake assemblies should be completely enclosed. Magnetic clutches rated at 60KGM or less can be used vertically and in some cases with large machines.

2 安裝到機械上 Installation machinery

1. 與機械側的安裝 Side installation

- 用來安裝離合器及剎車器的長軸尺寸請使用JIS 0401 h6或js6的規格。
- 用於安裝軸的鍵(Key)請使用JIS B1301-1959 所規定的其中一種。另外，鍵的長度請採用接近尺寸圖L、N長度的數值。
- 考慮到熱膨脹等因素，安裝軸的推力請選擇在0.2mm以下。 ■ 凸緣（離合器）及軀（剎車器）的安裝尺寸請使用JIS B 0401 H7 h7 的規格。
- Consult JIS 0401 h6 or js6 guidelines in accordance with clutch and brake shaft lengths
- Use one of the guidelines in JIS B1301-1959 regarding installation of the key. Also, the length of the key should be in line with specification charts L and N.
- Check heating and other factors; the thrust duct of the installed shaft should be within 0.2mm.
- Consult JIS B0401 H7 H7 for specifications regarding installation of the clutch flange and brake yoke.

2. 貫通軸的安裝 Installation of the through shaft

- 在離合器安裝軸上的某些位置電樞的空轉安裝方法。
- 此時，特別是轉子及凸緣的保持部位在長軸方向務必鎖緊，不可有鬆弛現象。另外，用於安裝凸緣的機械部份，其結構一定要確保為直角度。
- 用於凸緣部位的螺絲請使用JIS B 1180機械性質7T以上的規格。 ■ 輸送帶進行驅動時，在設計上，請將負重落於軸承以上。
- Free-turning installation of armatures at several points on the shaft of the clutch
- At this time, ensure that the rotor and flange are tightly in place on the long shaft. In addition, the portion of the machinery used to install the flange must be precisely at a right angle.
- Use 7T or better quality bolts and nuts for the flange in accordance with JIS B 1180.
- Lay out conveyor belts so that the load is higher than the bearings

3. 相對軸型的安裝 Installation of opposing shafts

- 將驅動側及從動側分別安裝於兩個軸端、成為一體的狀況。
- 轉子、栓槽輪殼要用固定環、安裝螺釘及兩個孔狀金屬板等固定於長軸方向，不可有鬆弛現象。另外要注意兩軸之間的同心度及直角度。
- Install driving side and driven side on the two ends of the shaft to form a single piece
- The rotor and spline wheel hub are installed on the long shaft using a retaining band, installation screws and a metal plate with two holes; assembly must be tight. Check the centering and angles of the two shafts.

4. 剎車器的安裝 Installation of the brake

- 栓槽輪殼要用鎖定螺帽、固定環、安裝螺釘及軸環等固定於長軸方向，不可有鬆弛現象。另外要注意軀的安裝面與軸心之間的同心度及直角度。
- 請設置 $6\phi \sim 10\phi$ 的空氣抽取道，以供摩擦粉散逸用。 ■ 設置防止磨耗粉侵入軸承內部的薄片（氈片、橡膠旋轉片）。
- Use lock nuts, the retaining band and safety screws to hold the spline wheel hub in place along the long shaft. Ensure that everything is tight. Check the centering and angles of the yoke installation face and the shaft.
- Leave an air relief passage of 6~ to 10~ to allow dust from friction to dissipate
- Install a dust guard to keep friction-generated debris out of the bearing linings (felt strips and rubber rotators)

5. 一般注意事項 Routine checkpoints

- 安裝時，請在機械上將吸引間隙調整為規定值的 $\pm 20\%$ 以內。 ■ 請使托架保持輕盈，不要使離合器的軸承受過重的壓力。
- 關於組裝用的螺釘，請利用彈簧金屬片、接著劑等進行防止鬆弛的處理。 ■ 利用機械側的框架維持引線的同時，還要利用端子板等進行確實的連接。
- During installation adjust the draw space above the machinery to $\pm 20\%$ of specifications
- Use a hoist to lighten the load of the machinery and avoid pressure on the clutch bearing
- Use spring clips and glue wherever needed with screws and bolts to prevent loose connections
- Utilize the frames on the sides of the machinery to hold lead wires, and use the terminal box to ensure good connections

3 其他 Other

- 摩擦離合器會因摩擦面所遇到的狀況使扭力有所變化。因此機械剛安裝時，可能無法達到規定的扭力。此時，要盡量施以較輕的負載，給予定格電流，進行運轉使之習慣。
- 在軸端使用聯軸器時，一定要使用彈性聯軸器或相當等級的聯軸器。這是為了讓中蕊對準更容易進行。
- 使用CDE形CDA形、機組時，要注意軸端所承受的輻射形負載。特別是在高速運轉時，皮帶盤的驅動會產生問題。另外，在CDA形的皮帶盤驅動時，請在扭力啟動時間內完成連結。
- 使用CDA形、附原動機的機組時，負載的CDA很大時，驅動原動機會超過負荷（原動機的旋轉降低等），所以在選擇這種機器時要多加注意。
- The torque of the friction surface may change due to various conditions. A newly-installed clutch may not have the torque that is specified. During the break-in period keep loads relatively light and ensure that power levels are sufficient to allow proper operation.
- Use single-piece shaft joints to ensure solid jointing where necessary. This helps to keep shaft centers properly aligned
- Check radial loads on the shaft ends of models CDE and CDA during operation. Problems are particularly likely to occur when drive belts are used with high turning speeds.
- When CDA is used with a primary driver and the load on CDA is significant, the primary driver may exceed load limits (especially when its speed slows). Keep this in mind when using this type of machinery.

CDA Clutch and Brake Combination

CDA 電磁離合器煞車組合體

■ CDA型離合器煞車組合體為—CDF離合器與—CDG煞車之組合。

The CDA clutch and brake assemble incorporates the CDF clutch and the CDG brake into one unit.

■ 離合器之轉子被固定於入力軸上，離合器之電樞與煞車則在同軸而形成的出力軸，離合器之軛與煞車裝置於機架上。

當電流通過離合器時，出力軸即被帶動當離合器分離。煞車有電流通過時，出力軸就停止轉動。

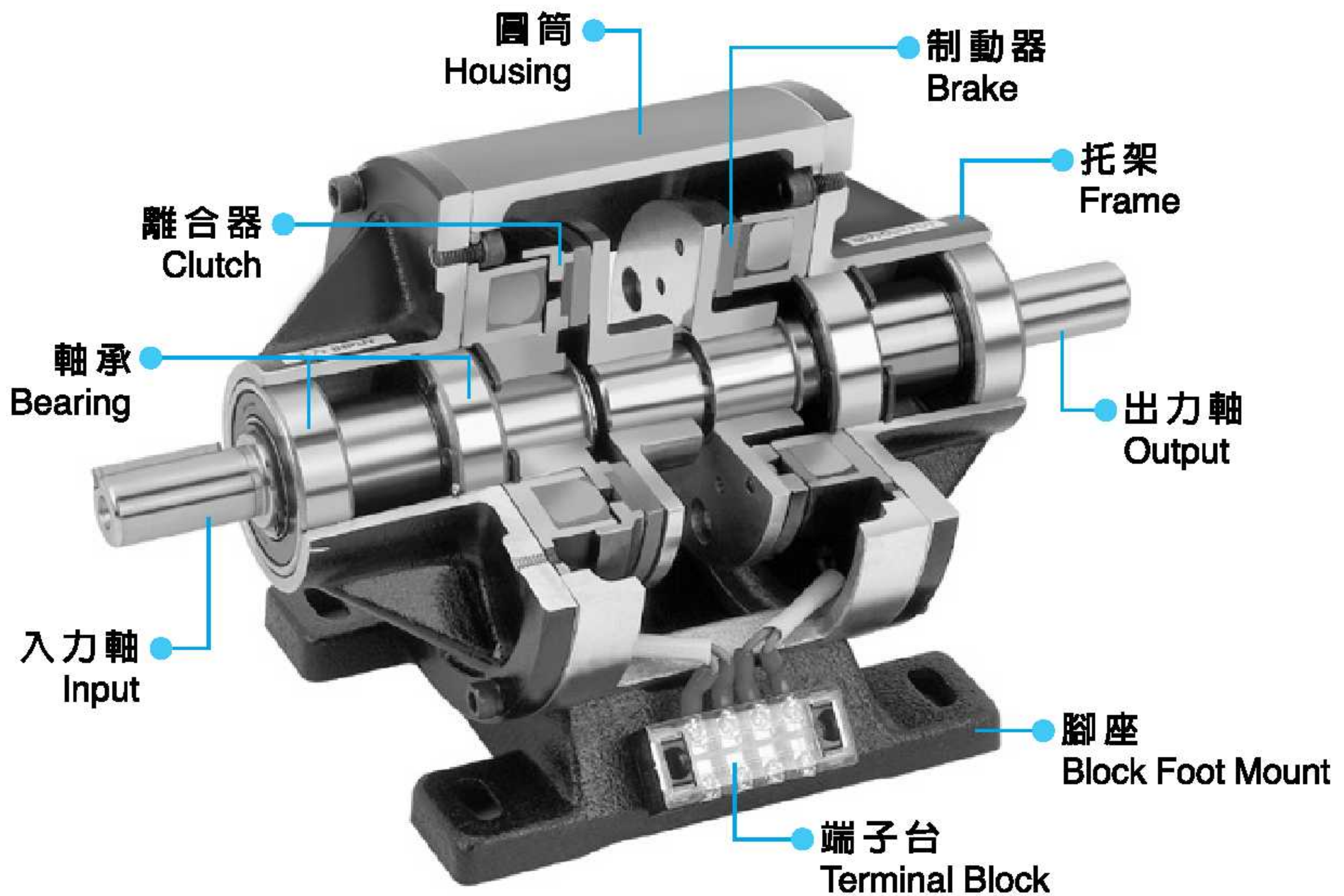
■ The clutch rotor is attached to the input shaft, and the clutch armature and brake use the same shaft which acts as an output shaft.

The clutch yoke and brake are set on the frame of the machine, and when the clutch is energized the output shaft is instantly moved away from the clutch. When the brake is energized the output shaft stops turning.

■ 本機種適用於起動、停止、高頻運轉，寸動定位。

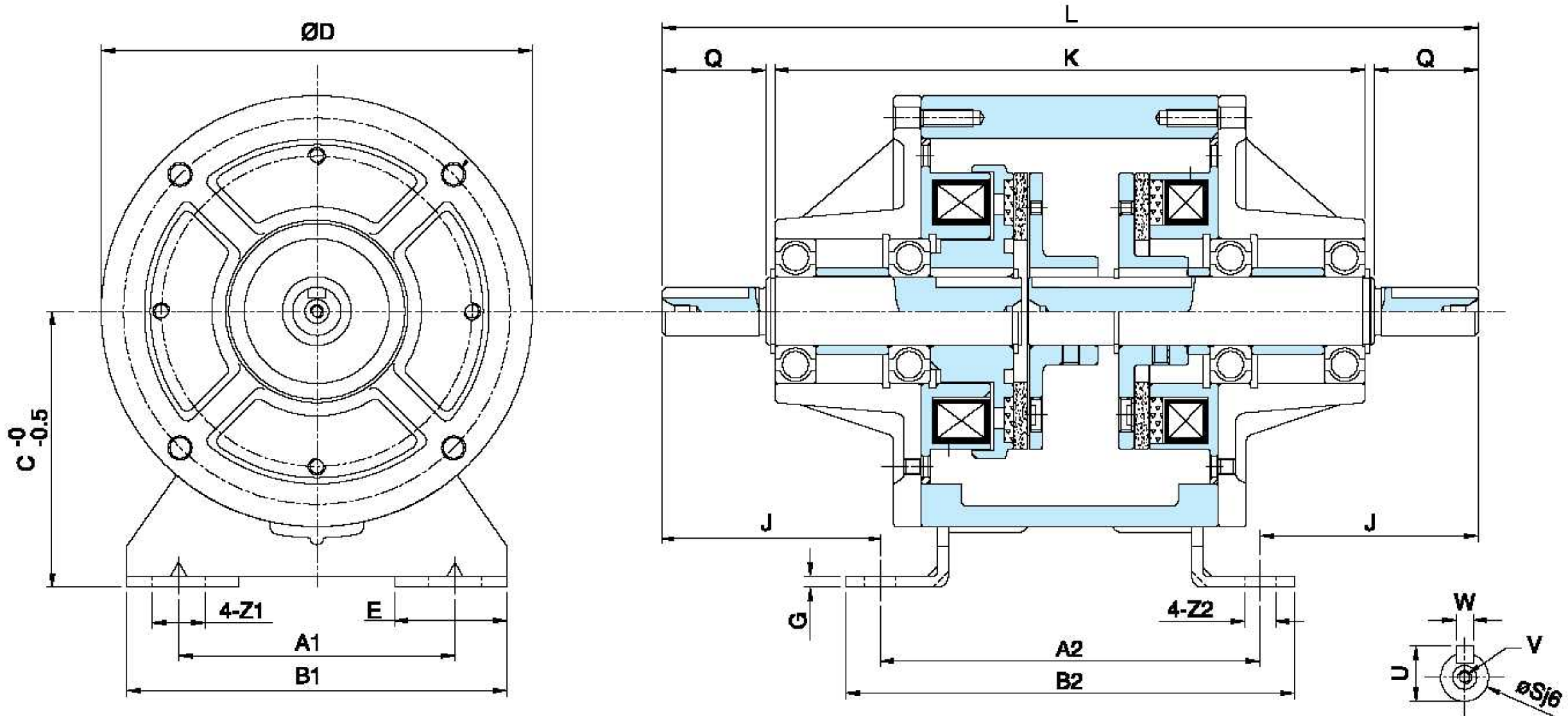
■ This unit is suitable for starting, stopping, high frequency cycles and stationary passive applications

■ 構造 Construction

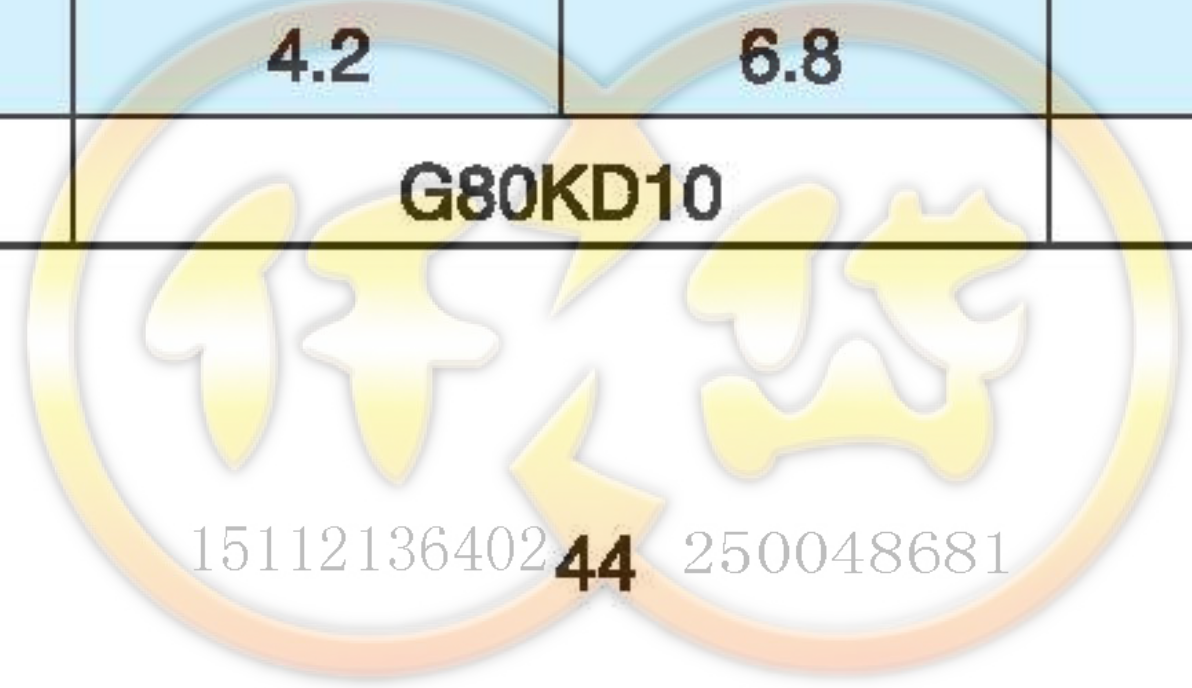


CDA Series

內藏式電磁離合、煞車器組 Internal Magnetic Clutch and Brake Combination



型號 MODEL	CDA0S6AA	CDA1S5AA	CDA2S5AA	CDA005AA	CDA010AA	CDA020AA	
靜摩擦轉距 Static Friction Torque [kgm](Nm)	0.55 (5.5)	1.1 (11)	2.2 (22)	4.5 (45)	9 (90)	17.5 (175)	
功率 Power [24V](W) at 20°C	11	15	20	25	35	45	
懸垂荷重 Suspended load (kgf)	32	48	70	90	130	180	
徑方向 Radius	A1	65	80	105	135	195	
	B1	90	110	140	175	240	
	C	65	80	90	112	160	
	D	100	125	150	190	290	
	E	27.5	32.5	35	42	47	
	S	11	14	19	24	38	
	U	12.5	16	21	27	41.5	
	W	4	5		7		10
	Z1	13.5	15.5	20	24	28	28
軸方向 Shaft	A2	90	110	135	160	240	
	B2	105	130	160	185	270	
	G	2.6	3.2	3.2	4.5	6	20
	J	47.5	63.2	80.1	107.95	145.1	188
	K	132	171	210	270	362	448
	L	187	236.2	295.3	375.8	490.3	616.2
	Q	25	30	40	50	60	80
	V	M4*0.7P*8L			M6*1P*11L		M10*1.5P*17L
	Z2	6.5	9	11		14	
重量 Weight (kg)	2.1	4.2	6.8	12	22	49	
保護素子 Protective band	470KD07	G80KD10		G80KD14			



CDB Clutch and Brake Combination

CDB 電磁離合器煞車組合體

■ CDB型離合器煞車組合體結構為開放式入力處出力之處。

The CDB clutch and brake assembly uses an open design for power input and output

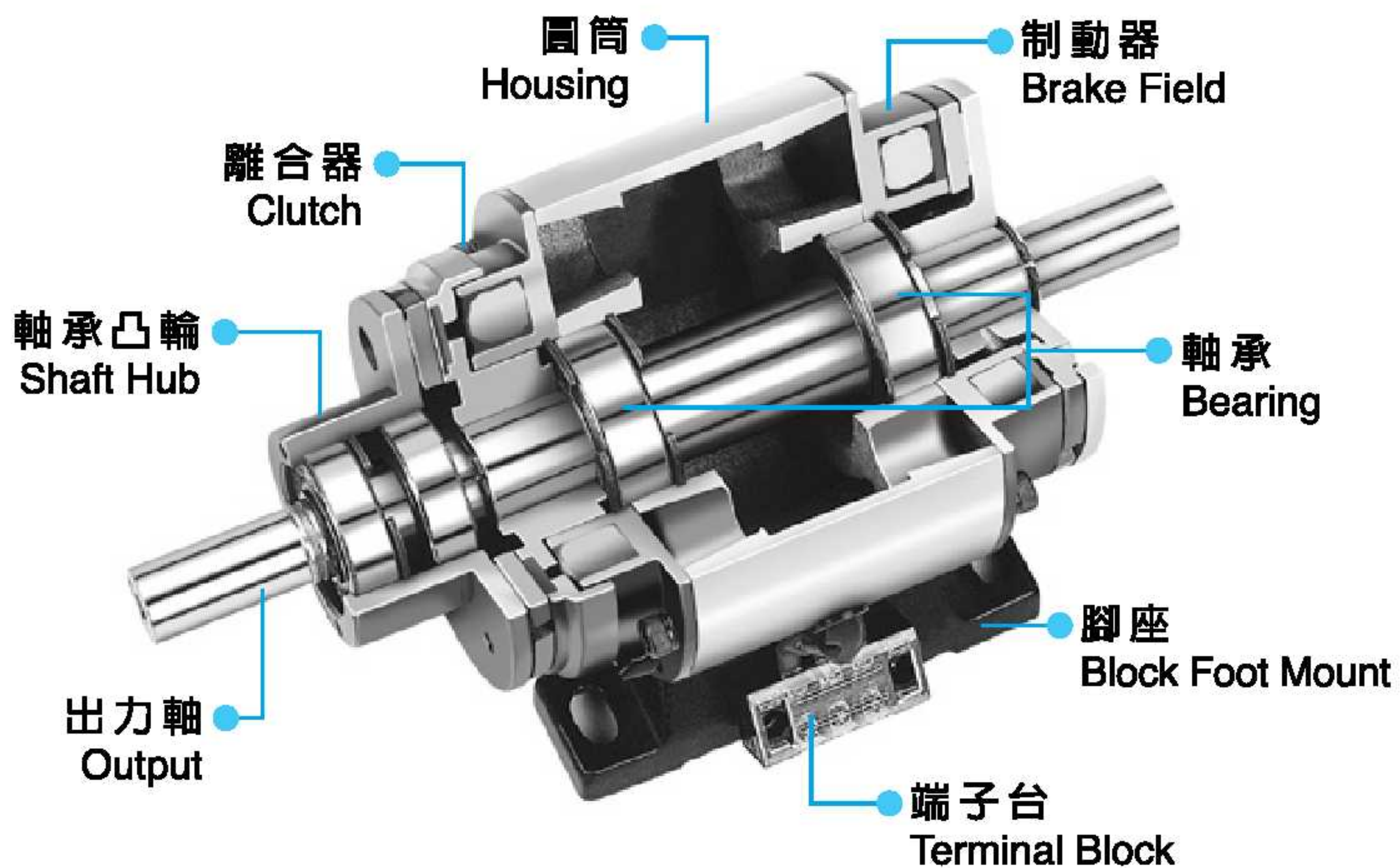
■ 離合器之轉子與煞車器被固定在同軸而形成出力車，入出為軸承凸輪當離合器電流通過時出入軸被帶動，當離合器斷電時出力軸與軸承凸輪分離，當煞車電流通電時，出力軸就停止運轉。

■ The clutch rotor and the brake are attached to the same rotor to form an output shaft with input via a bearing cam. When the clutch is energized, motion is transmitted to the input shaft. When power to the clutch is cut off the output shaft and the bearing cam are separated. When the brake is energized the output shaft stops turning.

■ 此機種適用於起動、停止、定位、高頻率起動、寸動。

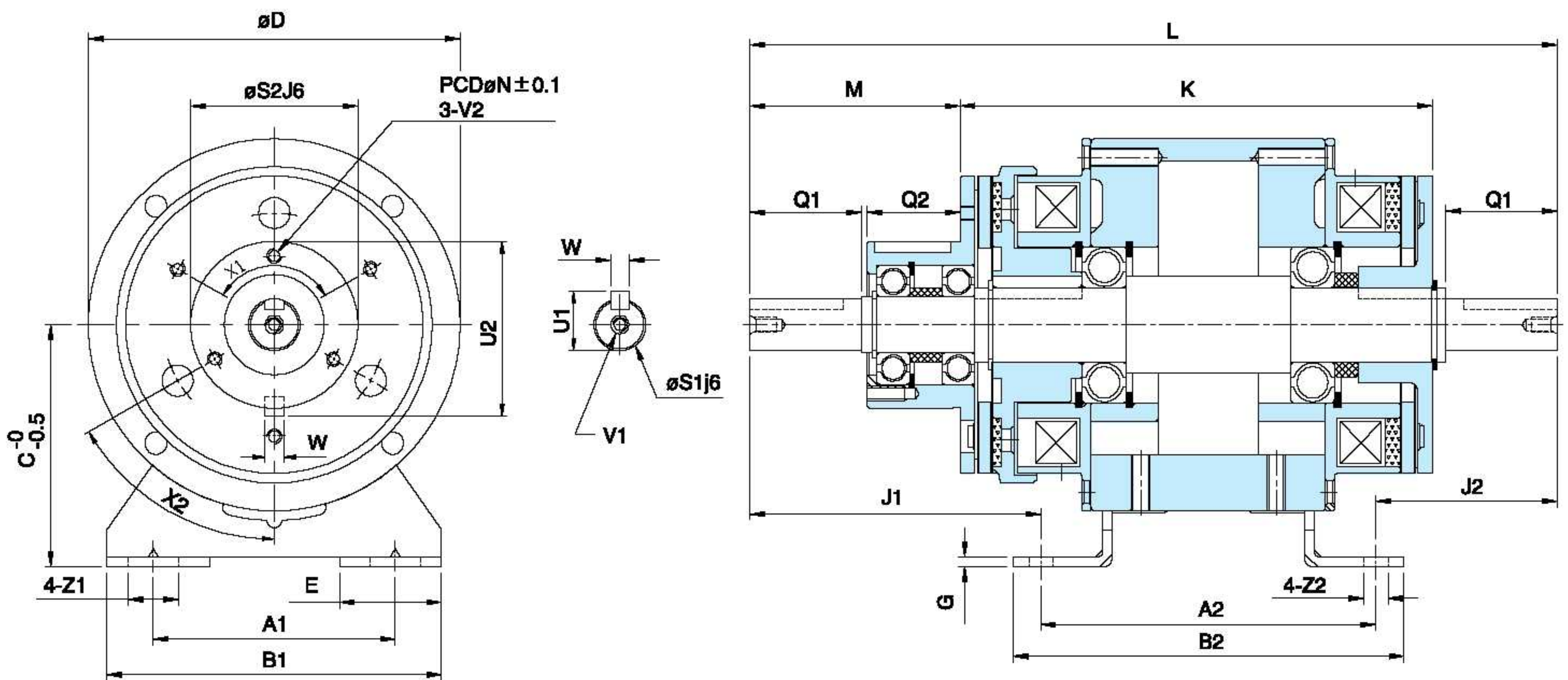
■ This unit is suitable for starting, stopping and positioning and for high frequency starts and holding

■ 構造 Construction



CDB Series

外露式電磁離合、煞車器組 Exposed Magnetic Clutch and Brake Combination



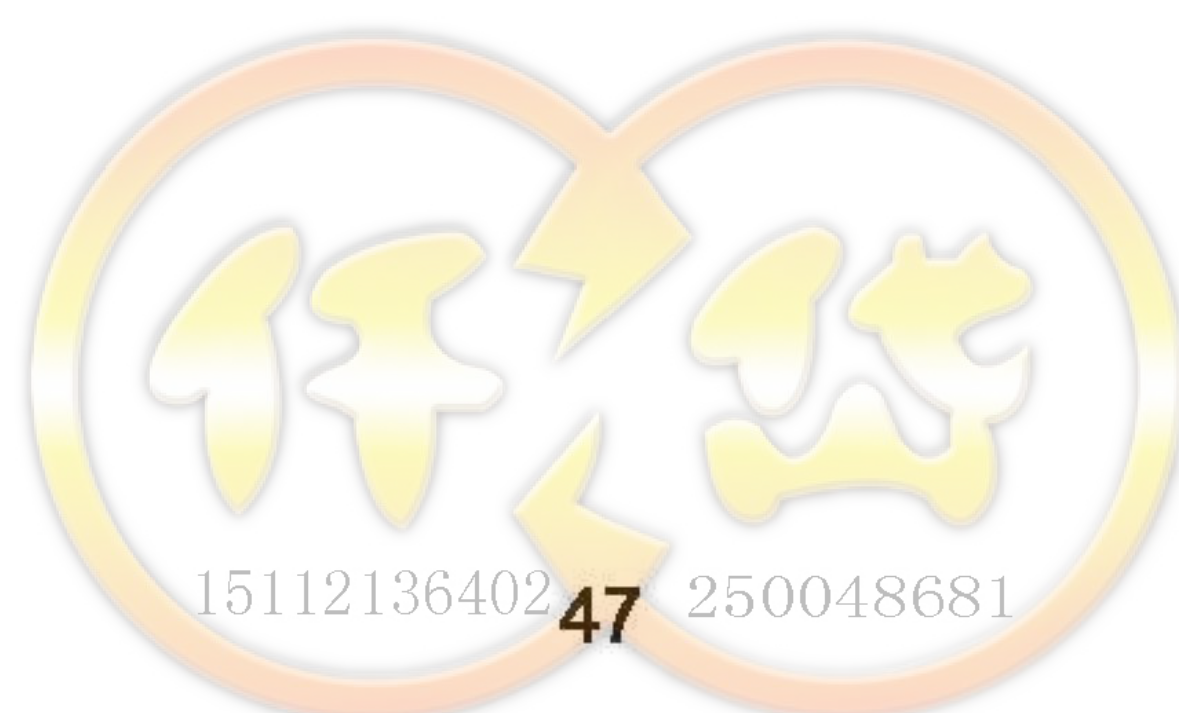
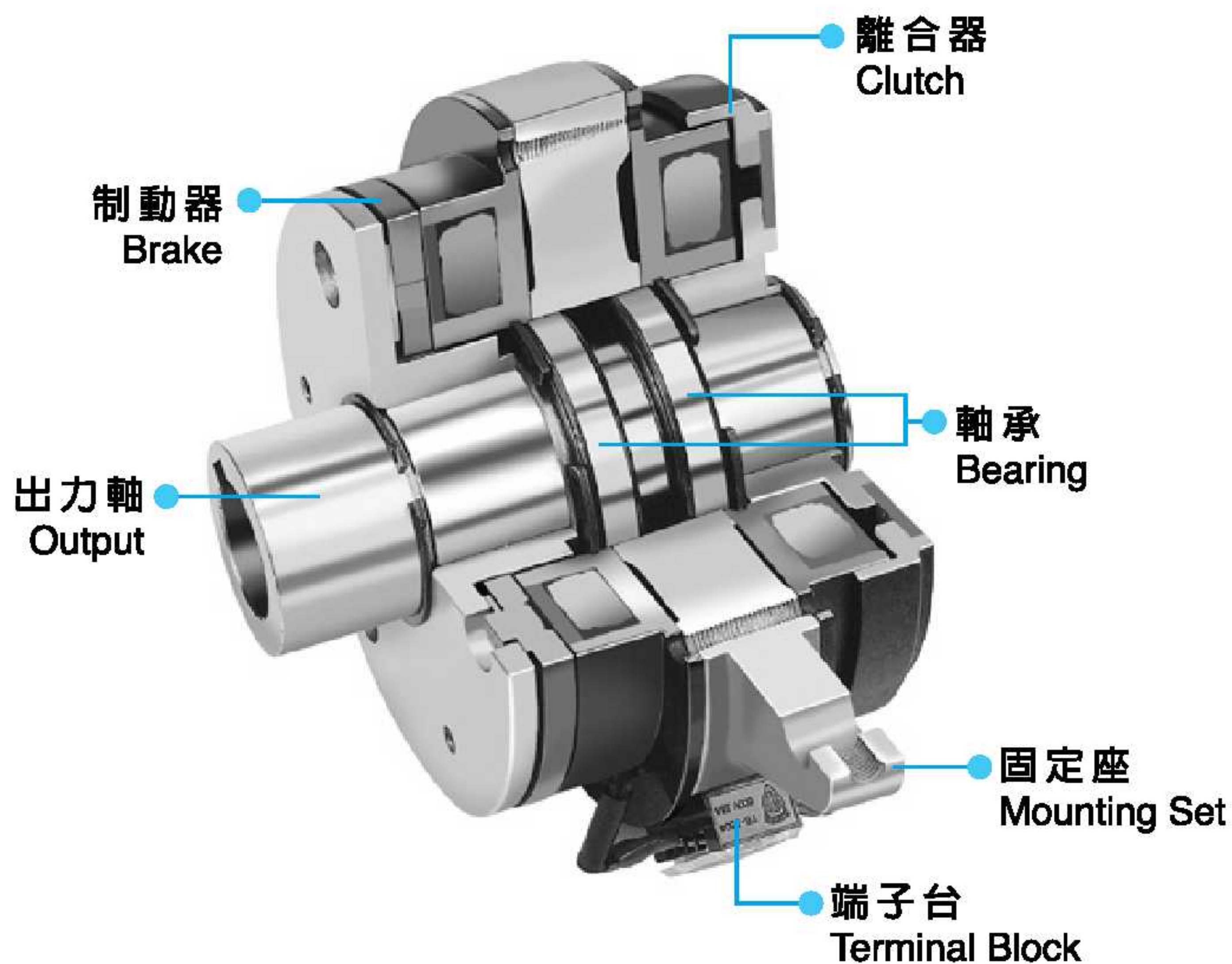
型號 MODEL	CDB0S6AA	CDB1S5AA	CDB2S5AA	CDB005AA	CDB010AA	CDB020AA	CDB040AA	
靜摩擦轉距 Static Friction Torque [kgm](Nm)	0.55 (5.5)	1.1 (11)	2.2 (22)	4.5 (45)	9 (90)	17.5 (175)	35 (350)	
功率 Power [24V](W) at 20°C	11	15	20	25	35	45	60	
懸垂荷重 Suspended load (kgf)	A	30	45	70	90	140	290	
	B	14	25	45	70	100	260	
徑方向 Radius	A2	75	90	110	135	160	240	
	B2	95	105	130	160	185.5	270	
	G	10	2.6	3.2	3.2	4.5	20	
	J1	66.25	78.2	98	120.3	149.5	238	
	J2	43.15	48.8	62	74.7	89.5	154	
	K	105.5	126.9	149.4	182.1	221.5	334	
	L	181	217	270	330	399	632	
	M	46.5	56.5	72	92	113	183	
	Q1	25	30	40	50	60	110	
	Q2	20	25	30	40	50	70	
V1	M4*0.7P*8L		M6*1P*11L			M10*1.5P*17L		
Z2	6.5	6.5	9	11	11.5	14	14	
軸方向 Shaft	A1	52	65	80	105	135	195	
	B1	72	90	110	140	175	240	
	C	55	65	80	90	112	160	
	D	80	100	125	150	190	290	
	E	27.5	27.5	32.5	35	42	47	
	N	33	37	47	52	62	101.5	
	S1	11	14	19	24	28	42	
	S2	38	45	55	64	75	115	
	U1	12.5	16	21	27	31	45.5	
	U2	39.5	47	57	67	78	118.5	
	V2	M4*0.7P*6L		M4*0.7P*8L			M6*1P*12L	
	W	4	5	7	10	12		
	X1	3-120°			4-90°			8-45°
	X2	60°			45°			22.5°
Z1	13.5	13.5	15.5	20	24	28	28	
重量 Weight (kg)	1.5	2.7	5.5	9.6	18.5	35	64	
保護素子 Protective band	470KD07	GD80KD10		GD80KD14				

CDC Clutch and Brake Combination

CDC 離合器煞車組合體

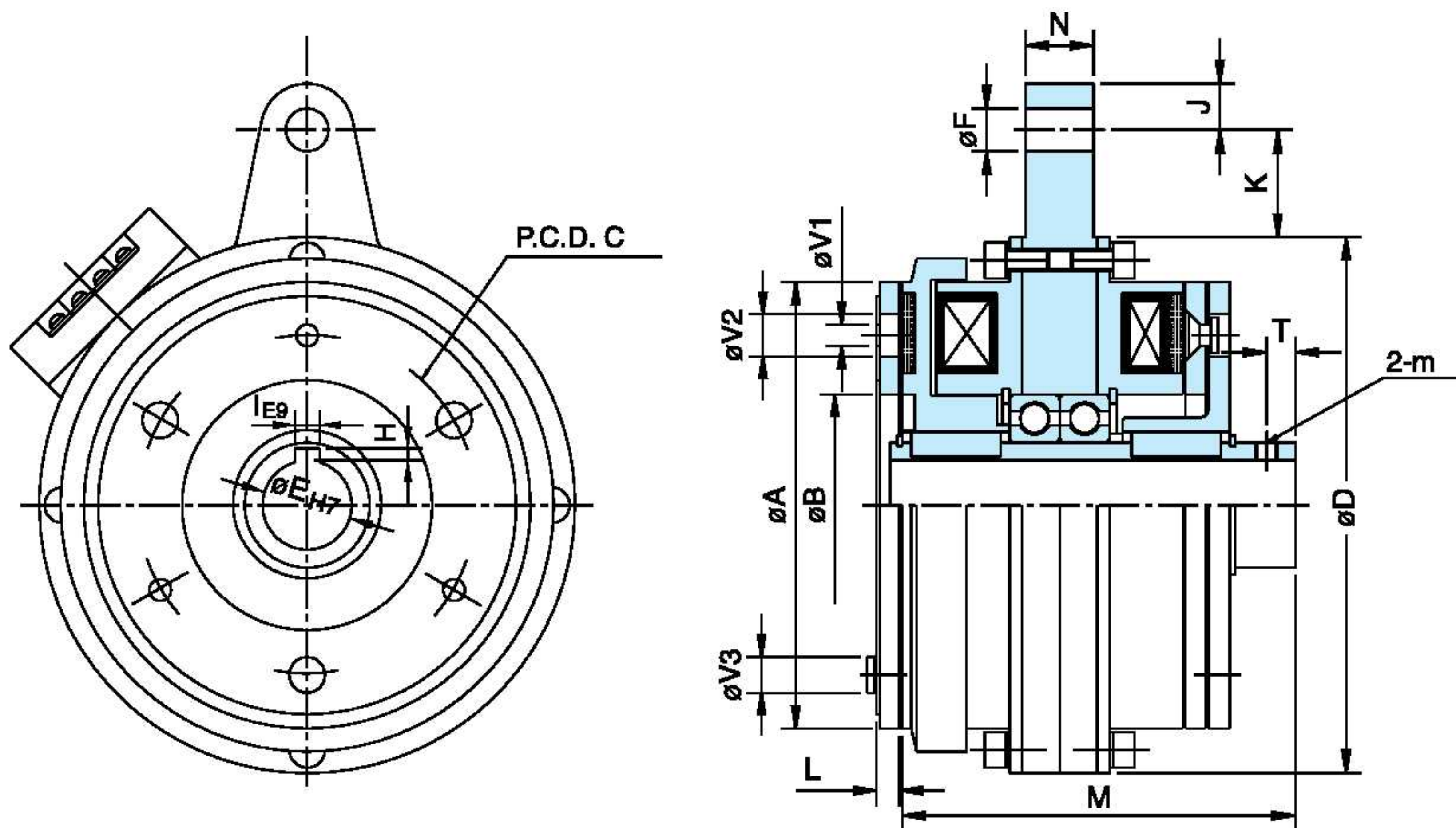
- 離合器之轉子與剎車器被固定在出力軸上，入力的電樞板可固定在入力的飛輪上，當電流通過離合器時飛輪帶動出力軸，當離合器分離時，剎車有電流通過出力軸就停止。
- Clutch rotor and brake are fixed on the output shaft, and the input armature plate can be set onto the input flywheel so that when the clutch is energized the fly wheel will drive the output shaft. When the clutch is disengaged and the brake is energized the output shaft will stop.
- 此機種採用鋁合金體，離合制動器相背貼，佔地空間小易於安裝。
- This unit features aluminum alloy construction with the clutch and drive attached back-to-back to save space and make installation easier.
- 適用於起動、停止、定位、高頻率起動。
- It can be used for starting, stopping, positioning and high frequency starting.

構造 Construction



CDC Series

套筒式電磁離合、煞車器組 Sleeve-type Magnetic Clutch and Brake Combination



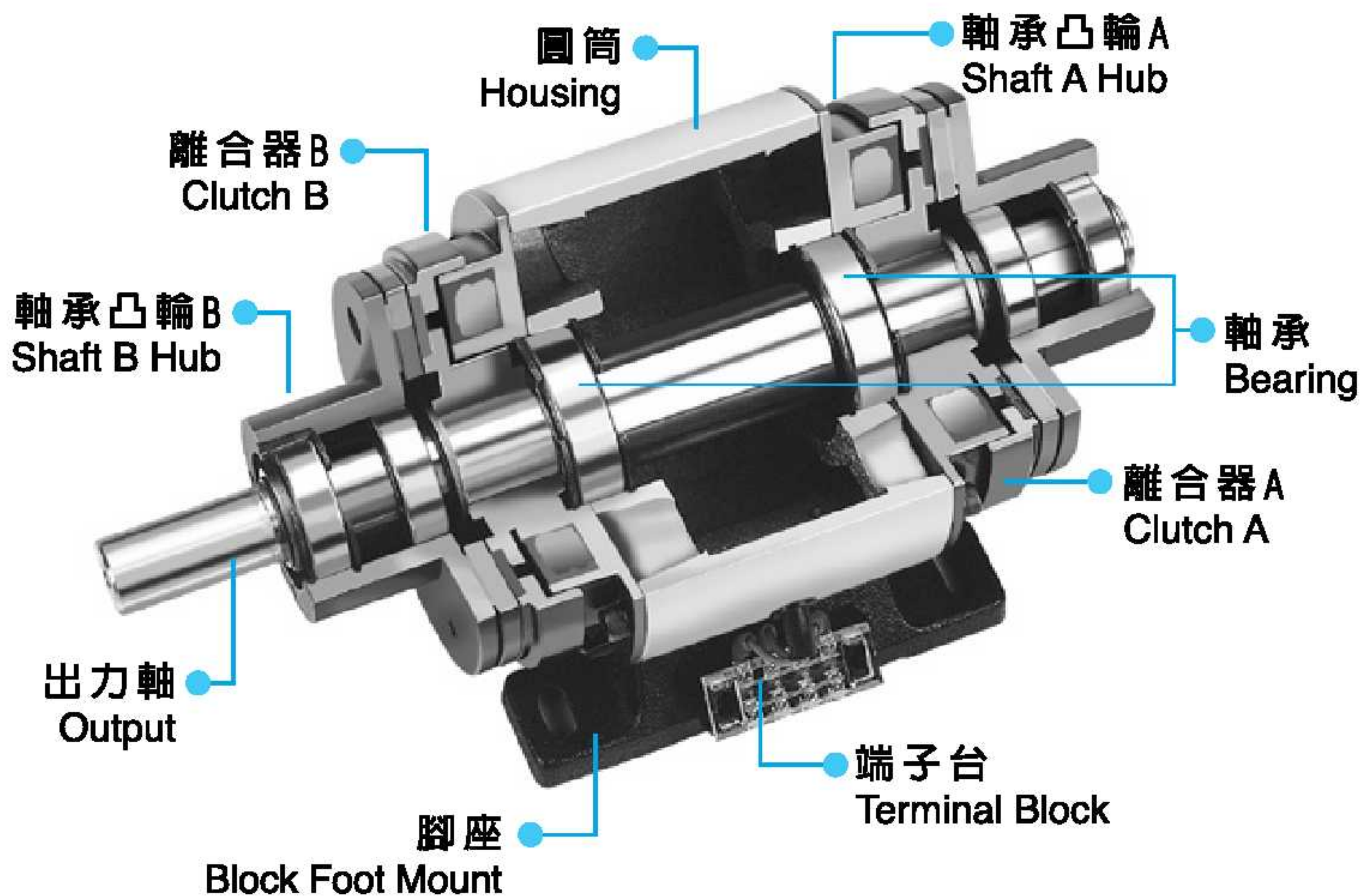
型號 MODEL	CDC1S5AA	CDC2S5AA	CDC005AA	CDC010AA	CDC020AA	CDC040AA	
靜摩擦轉距 Static Friction Torque [kgm](Nm)	1.1(11)	2.2(22)	4.5(45)	9.0(90)	17.5(175)	35(350)	
動摩擦轉距 Dynamic Friction Torque [kgm](Nm)	1.0(10)	2.0(20)	4.0(40)	8.0(80)	16(160)	32(320)	
功率 Power [24V](W) at 20°C	15	20	25	35	45	60	
徑 方 向 Radius	A	80	100	125	160	200	250
	B	42	52	62	80	100	124.5
	D	100	125	150	190	230	290
	F	10	10	12	15	18	21
	J	9	11	13	18	20	25
	K	20	25	30	37	44	50
	V1	3-4.1	3-5.1	3-6.1	3-8.1	3-10.2	4-12.2
	V2	3-8	3-10.5	3-12	3-15	3-18	4-22
	V3	3-7	3-9	3-10.5	3-14	3-17	4-19
軸 方 向 Shaft	C	60	76	95	120	158	210
	E	12	15	25	35	40	48
	H	1.8	2.3	3.3	3.8		
	I	4	5	7	10		12
	L	4.6	5.6	6.8	9.4	11.8	13
	M	97	107		148		148.3
	N	15	16	20			30
	T	8			12		
	m	M6			M8		
重量 Weight (kg)				13.5	23	41.5	
保護索子 Protective band	G80KD10			G80KD14			

CDD Dual Clutch Combination

CDD 雙離合器組合體

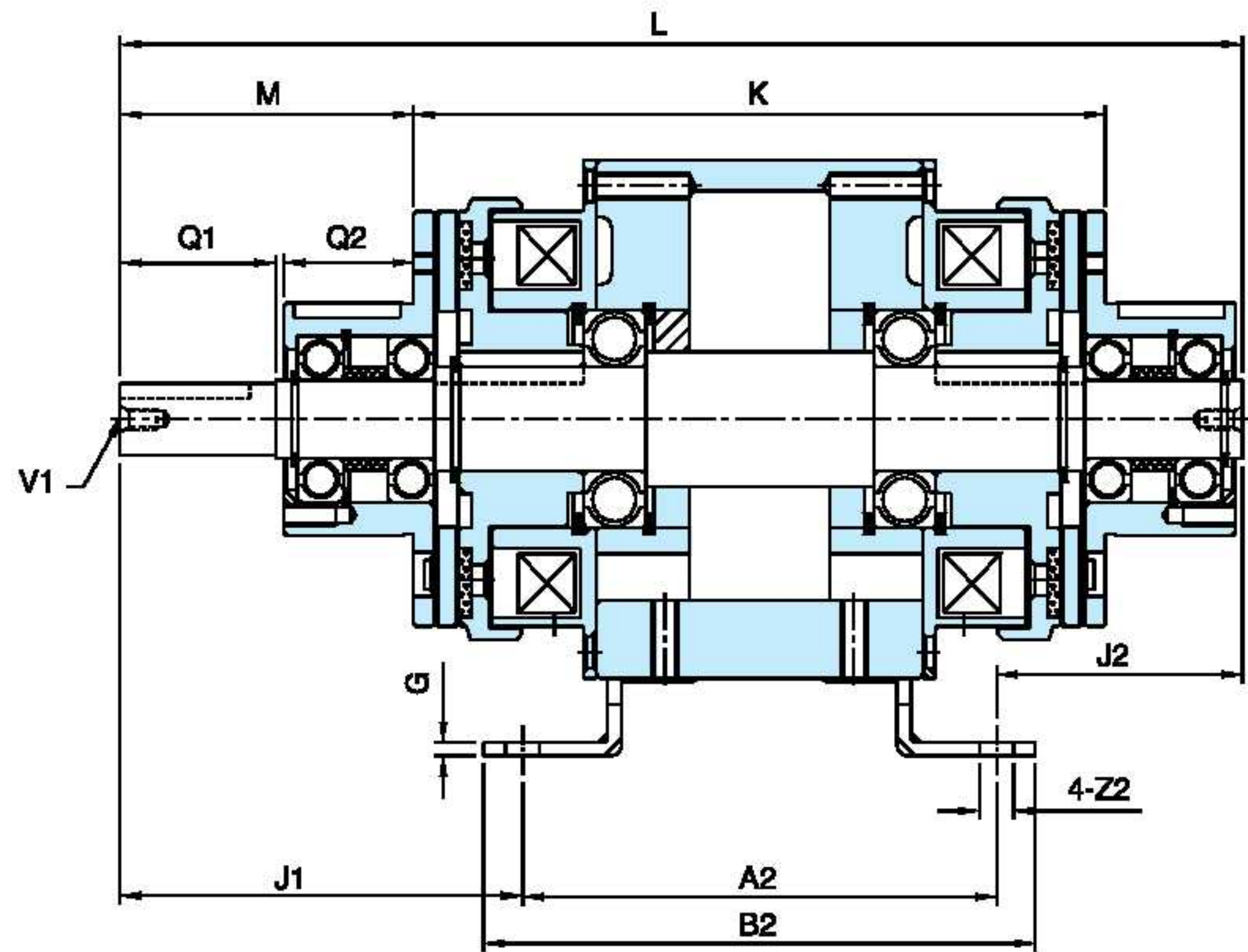
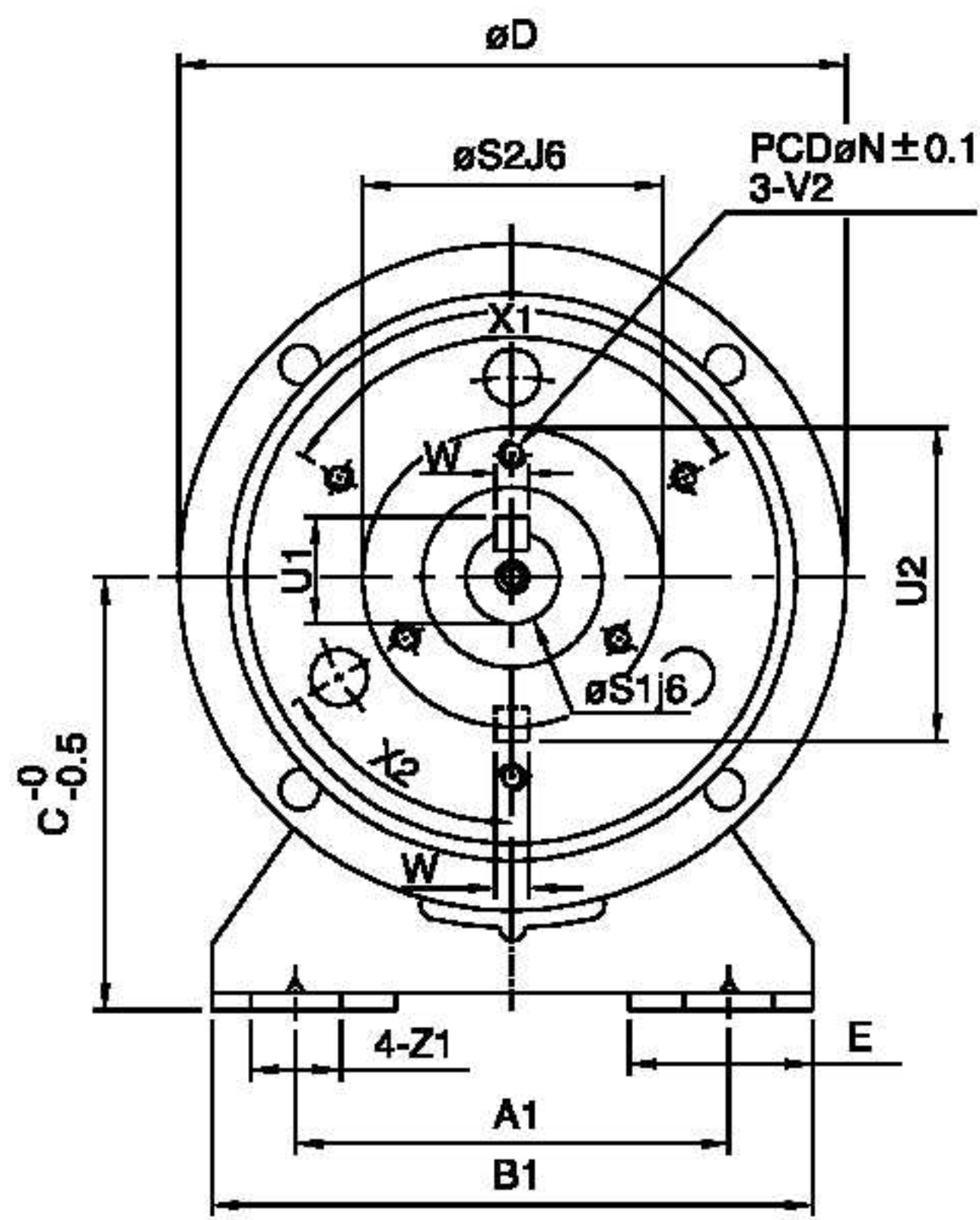
- 結構為開防式離合器2側出力軸1處
- Open-design dual clutch with one output shaft
- 雙側的離合器轉子被固定在出力軸上而離合器的軸承凸輪在出入軸上，當右側的離合器通過電流時出力軸就會被帶動，當右側斷電時離合器就會分離，出入軸就停止。當左離合器通電時出力軸被帶動，左側斷電時離合器就會分離，出力軸就停止。
- Two-way clutch rotor is attached to the output shaft, and clutch bearing cam is on the output-input shaft. When the right side is energized the output-input shaft is driven and when current is cut to the right side it disengages so the output-input shaft stops. When the left side is energized the output-input shaft is driven, and when current to the left side is cut the clutch disengages and the output-input shaft stops.
- 此機種適用於2段變速組合，正反轉組合動力傳達分配。
- This unit can be used in two-speed applications or where bi-directional rotation is used to transmit power.

構造 Construction



CDD Series

雙電磁離合器組 Dual Magnetic Clutch Combination



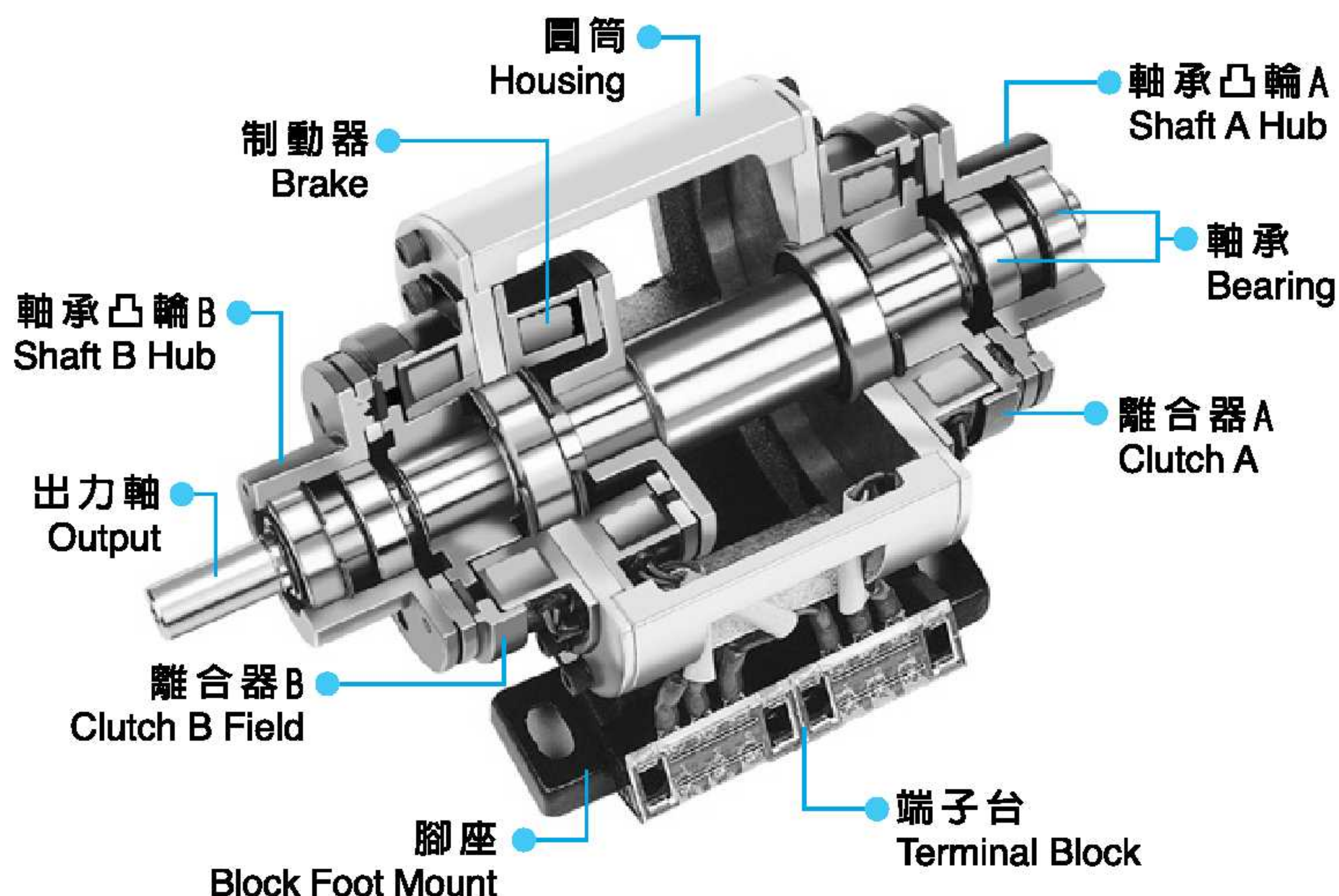
型號 MODEL	CDD0S6AA	CDD1S5AA	CDD2S5AA	CDD005AA	CDD010AA	CDD020AA	CDD040AA	
靜摩擦轉距 [kgm](Nm) Static Friction Torque	0.55(5.5)	1.1(11)	2.2(22)	4.5(45)	9(90)	17.5(175)	35(350)	
功率 Power [24V](W) at 20°C	11	15	20	25	35	45	60	
懸垂荷重 Suspended load (kgf)	14	25	45	70	100	180	260	
徑方向 Radius	A2	75	91.4	110	135	160	240	
	B2	95	106.4	130	160	185.5	270	
	G	10	2.6	3.2	3.2	4.5	6	
	J1	65.5	77.5	97.7	120.3	149.5	186.7	
	J2	40.5	47.5	58.3	71.7	87.5	105.3	
	K	111.5	133	161.4	191.6	233	289.4	
	L	181	217	266	327	397	492	
	M	46.5	56.5	72	92	113	142	
	Q1	25	30	40	50	60	80	
	Q2	20	25	30	40	50	60	
	V1	M4*0.7P*8L		M6*1P*11L		M10*1.5P*17L		
Z2	6.5	6.5	9	11	11.5	14	14	
軸方向 Shaft	A1	52	65	80	105	135	195	
	B1	80	90	110	140	175	240	
	C	55	65	80	90	112	160	
	D	80	100	125	150	190	290	
	E	27.5	27.5	32.5	35	42	47	
	N	33	37	47	52	62	101.5	
	S1	11	14	19	24	28	42	
	S2	38	45	55	64	75	115	
	U1	12.5	16	21	27	31	45.5	
	U2	39.5	47	57	67	78	118.5	
	V2	M4*0.7P*6L		M4*0.7P*8L		M6*1P*12L		
	W	4	5		7	10	12	
	X1	3-120°			4-90°			8-45°
	X2	60°			45°		22.5°	
Z1	13.5	13.5	15.5	20	24	28		
重量 Weight (kg)	1.5	2.7	5.5	9.6	18.5	35	64	
保護素子 Protective band	470KD07	GD80KD10		GD80KD14				

CFG Dual Clutch and Single Brake Combination

CFG 雙離合器單剎車組合體

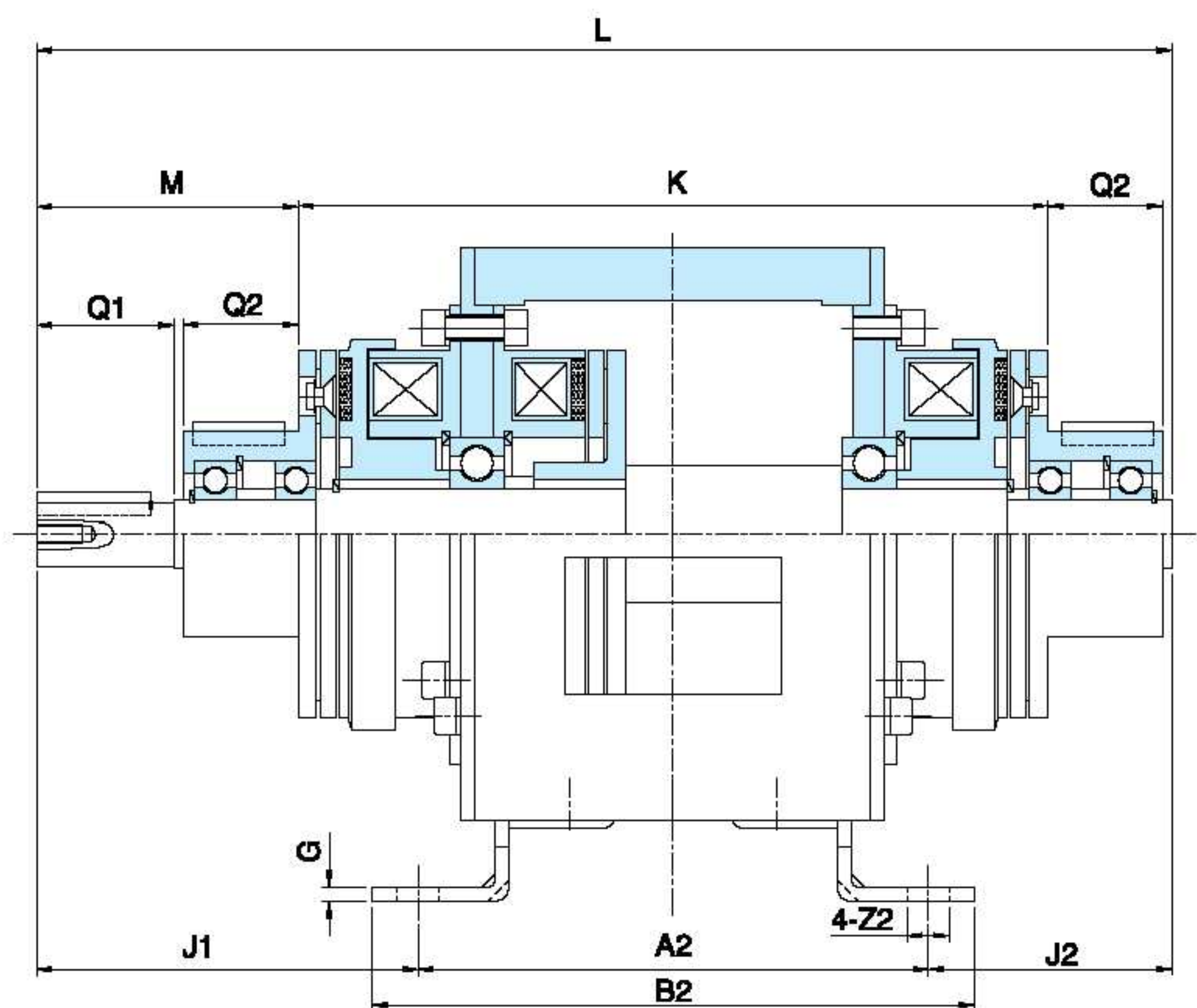
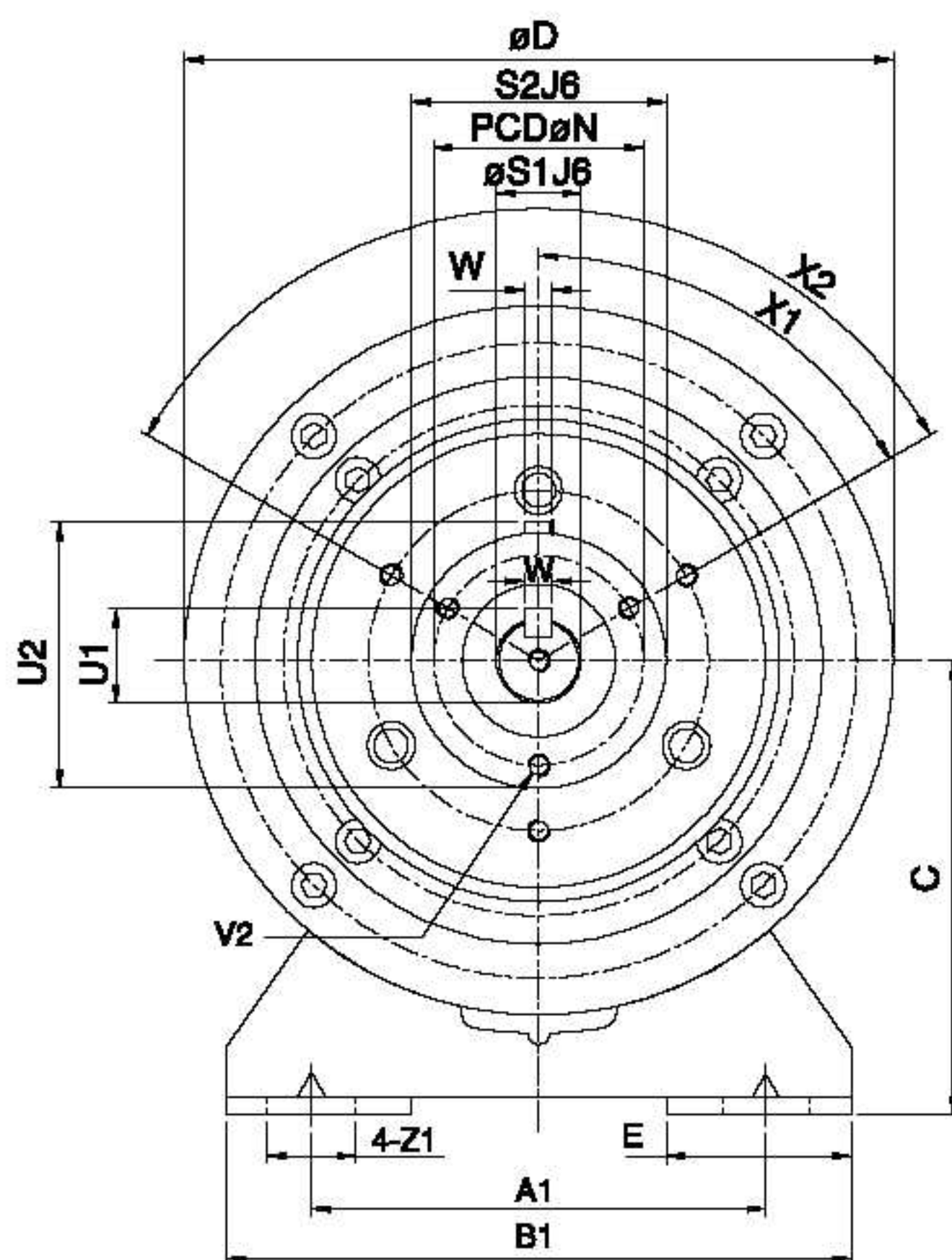
- 結構為開放式，輸入2處，輸出1處
- Open style with two input points and one output point
- 雙側的離合器轉子及剎車器被固定在同一出力軸上而雙側的離合器軸承凸輪被鑲在出力軸上當右側離合器電流通過時右側的軸承凸輪帶動出力軸，當右側離合器斷電時，軸承凸輪與出力軸分離，剎車器通電時出力軸停止。當左側離合器通電時，左側的軸承凸輪帶動出力軸，當左側離合器斷電時，左側軸承凸輪與出力軸分離
- Dual clutch rotor and brake are fixed on the same output shaft, and a dual clutch bearing cam is attached to the output shaft. When the right side is energized the right bearing cam drives the output shaft, and when current to the right side is cut the bearing cam and output shaft separate. When the brake is energized the output shaft stops. When the left side is energized the left bearing cam drives the output shaft, and when power to the left side is cut the left bearing cam and the output shaft separate.
- 此機種適用2段變速定位置停止，高頻率正逆轉，動力分配精確定位的傳動組合。
- This unit can be used for positioning and stopping in two-speed applications as well as high frequency and bi-directional rotation and precision positioning applications.

構造 Construction



CFG Series

外露式雙電磁離合器內單電磁煞車組 Exposed Dual Magnetic Clutch and Internal Single Magnetic Brake Combination



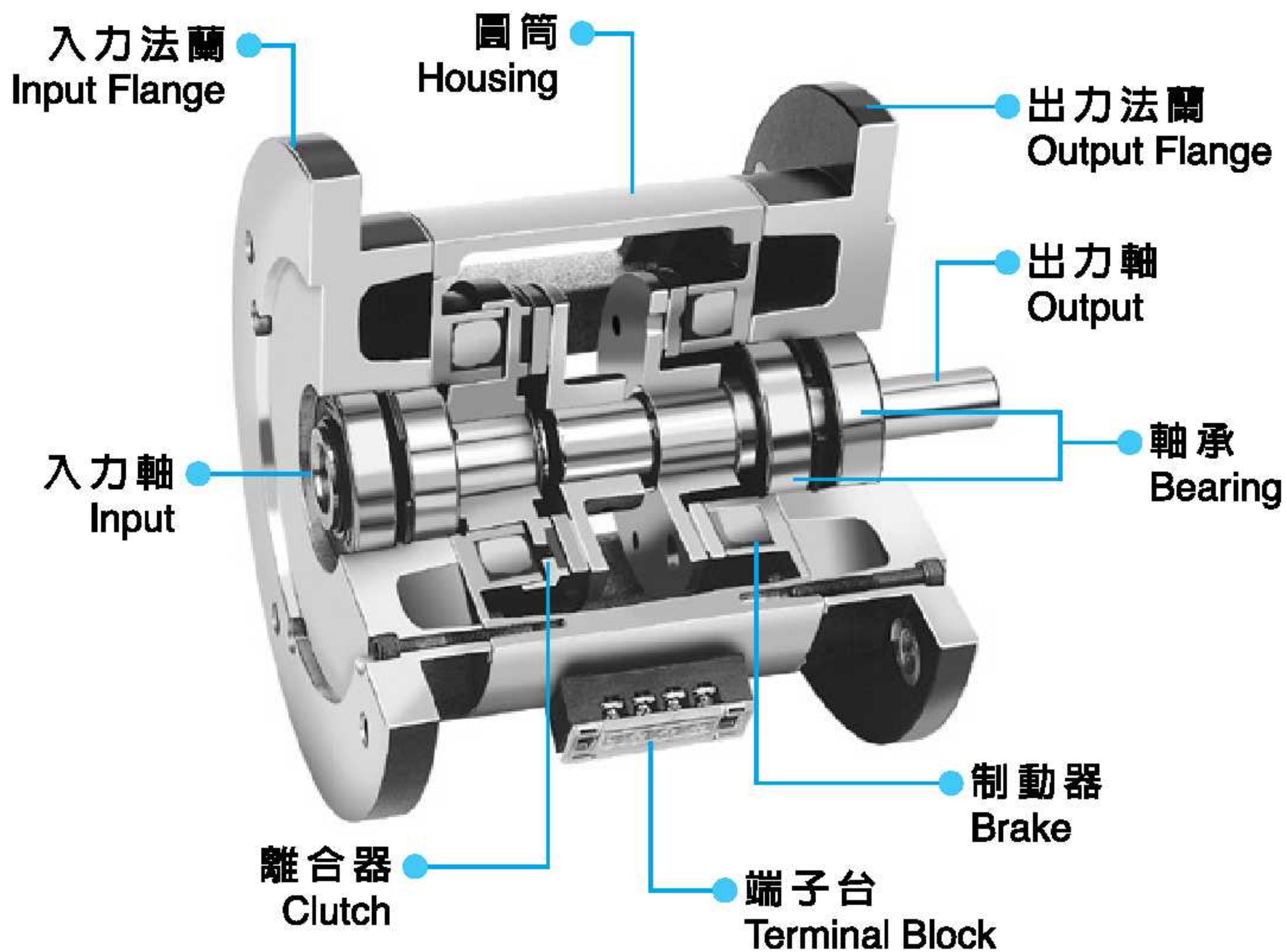
型號 MODEL	CFG0S6AA	CFG1S5AA	CFG2S5AA	CFG005AA	CFG010AA	CFG020AA	
靜摩擦轉距 Static Friction Torque [kgm](Nm)	0.55(5.5)	1.1(11)	2.2(22)	4.5(45)	9(90)	17.5(175)	
功率 Power [24V](W) at 20°C	11	15	20	25	35	45	
懸垂荷重 Suspended load	14	25	45	70	100	180	
徑方向 Radius	A2	91.4	110	135	157.5	200	
	B2	106.4	130	160	183	230	
	G	2.6	3.2	3.2	4.5	6	
	J1	73	83.6	99.5	124	150	
	J2	48	53.6	59.5	74	90	
	K	142	163.2	190	222	272	
	L	211	247.2	294	358	440	
	M	47	57	72	93	114	
	Q1	25	30	40	50	61	
	Q2	20	25	30	40	50	
	V1	M4*0.7P*8L		M6*1P*11L			M10*1.5P*17L
Z2	6.5	9	11	11.5	14	14	
軸方向 Shaft	A1	65	80	105	135	155	
	B1	90	110	140	175	200	
	C	65	80	90	112	132	
	D	100	125	150	190	230	
	E	27.5	32.5	35	42	45	
	F	60	68	81	97	110	
	N	33	37	47	52	62	
	S1	11	14	19	24	28	
	S2	38	45	55	64	75	
	U1	12.5	16	21	27	31	
	U2	39.5	47	57	67	78	
	V2	3-M4*0.7P*4L	3-M4*0.7P*6L	4-M4*0.7P*8L		6-M5*0.8P*8L	4-M6*1P*12L
	W	4	5		7		10
	X1	3-120°		4-90°		6-60°	4-90°
	X2	60°		45°		30°	45°
Z1	13.5	15.5	20	24	28	28	
重量 Weight (kg)	4	6	9	17	29	58	
保護素子 Protective band	470KD07	GD80KD10		GD80KD14			

CDN Clutch and Brake Combination

CDN 離合器剎車組合體

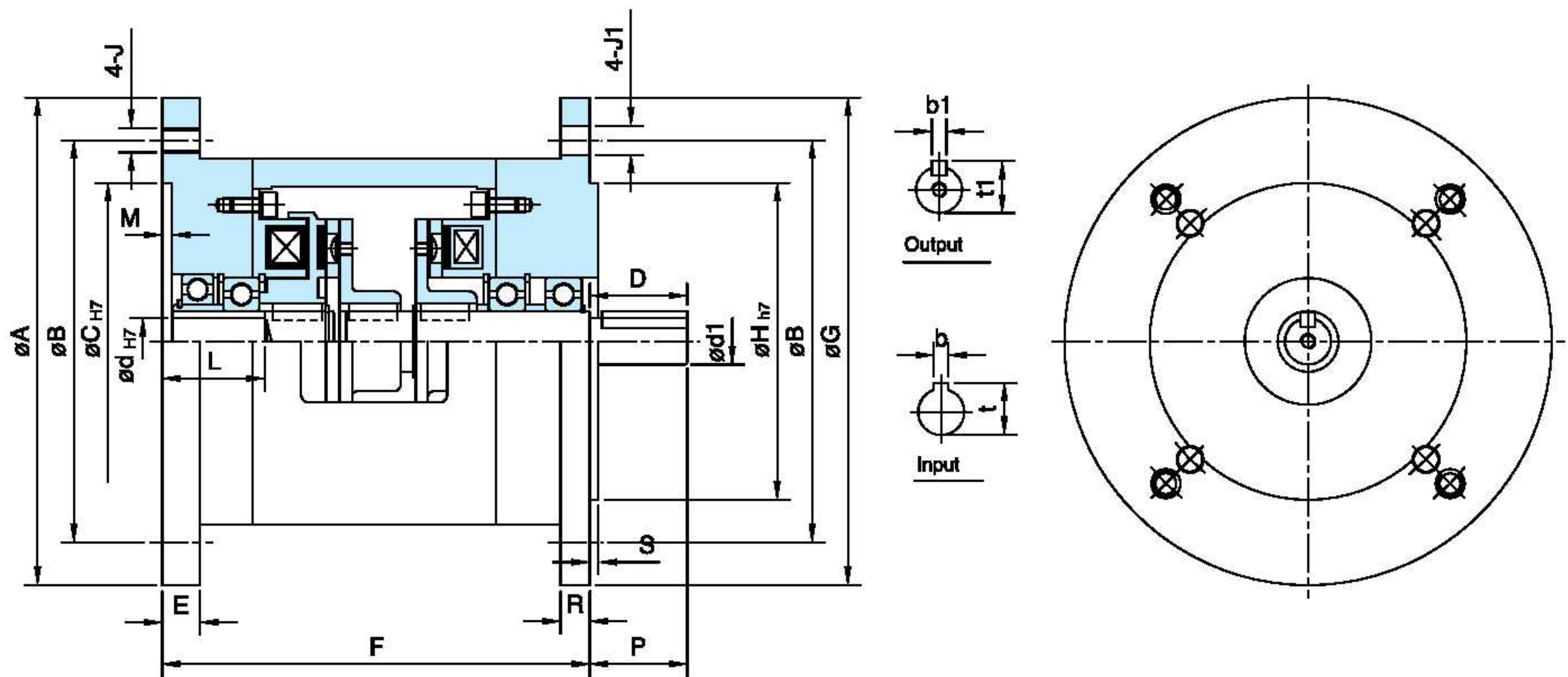
- 為雙法蘭面輸入1處，出力1處
- Flange surface with one input point and one output point
- 離合器的轉子固定在入力軸，而離合器的電樞板與剎車被固定在出力軸上。當電流通過離合器時，出力軸被帶動，當離合器分離時，剎車有電流通過時，出力軸就停止
- The clutch rotor is fixed on the input shaft and the clutch armature is fixed on the output shaft. When the clutch is energized the output shaft is driven; and when the clutch is disengaged and the brake is energized, the output shaft stops.
- 此機種適用於馬達連結出力軸再連結減速機法蘭面配合IEC國際規格安裝容易不佔空間
- This unit can be used for connections motors to output shafts and gear reduction flange interfaces under IEC standards. The unit is compact and very easy to install.
- 此機種用途：走動，停止、高頻運轉、定位、手動。
- Applications: start-up, stopping, high frequency operation, positioning, manual operation

構造 Construction



CDN Series

雙法蘭電磁離合、煞車器組 Dual-flange Magnetic Clutch-brake Combination



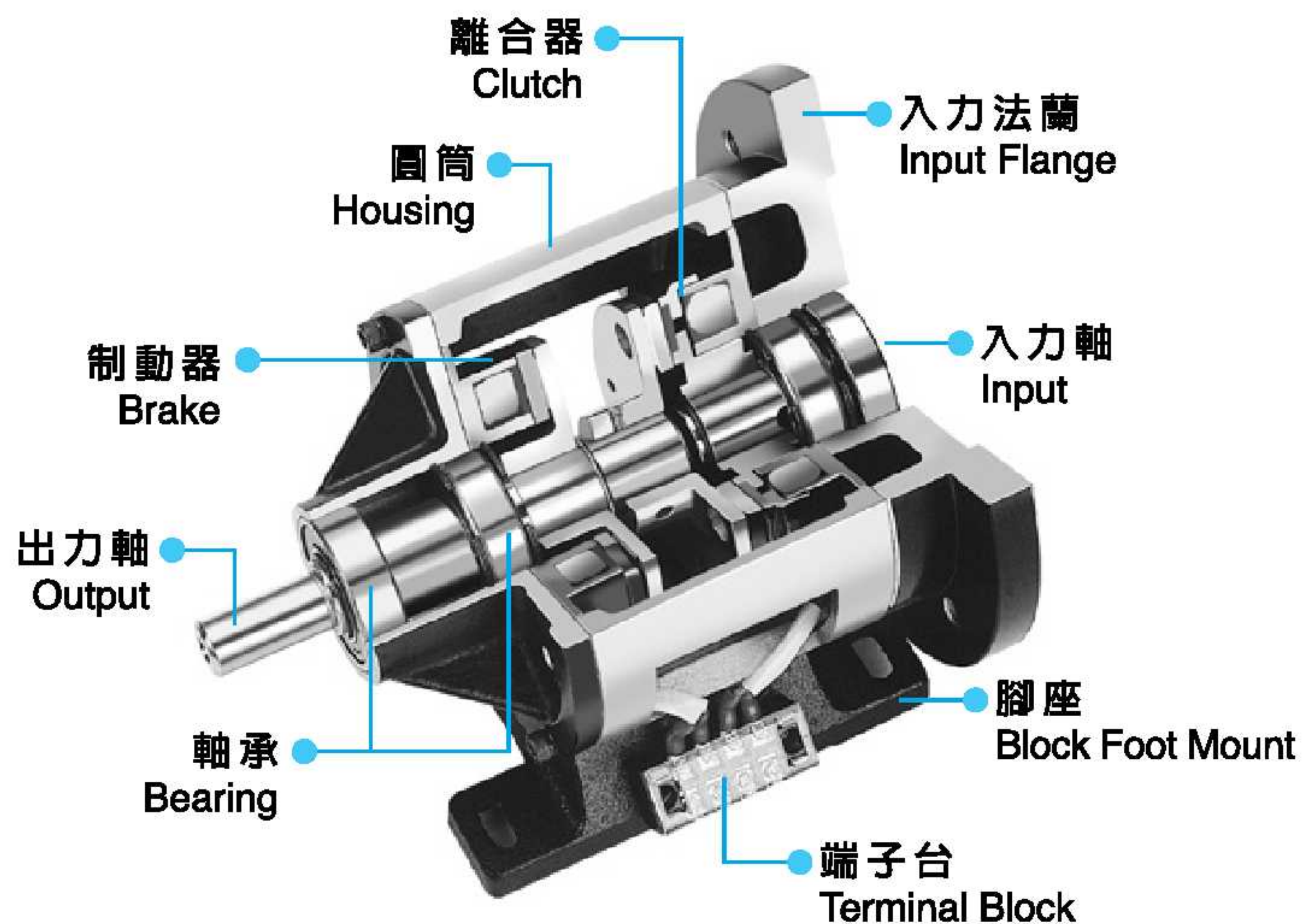
型號 MODEL	CDN0S6AA	CDN1S5AA	CDN2S5AA	CDN005AA	CDN010AA	CDN020AA	
靜摩擦轉距 Static Friction Torque [kgm](Nm)	0.55 (5.5)	1.1 (11)	2.2 (22)	4.5 (45)	9.0 (90)	17.5 (175)	
動摩擦轉距 Dynamic Friction Torque [kgm](Nm)	0.5 (5.0)	1.0 (10)	2.0 (20)	4.0 (40)	8.0 (90)	16.0 (160)	
功率 Power [24V](W) at 20°C	11	15	20	25	35	45	
徑方向 Radius	A	160	160	200	200	250	300
	B	130	130	165	165	215	265
	C	110	110	130	130	180	230
	H	110	110	130	130	180	230
	J	M8		M10		M12	
	J1	10		12		14	15
	d	11	14	19	24	28	38
	d1	11	14	19	24	28	38
	D	25	30	40	50	60	80
	軸方向 Shaft	E	12		15.5	14	12.3
F		131	150	175.5	241.5	285	430
L		29	30	40	50	66	81
M		3.5	4	4	4	4.5	6
P		25	30	39.45	48.5	60.75	80
R		9	9.5	12	10.5	9.5	13
S		3	3	3.5		4.5	4
b		4	5	6	8		10
t		13	16.5	22	27.5	32	41.8
b1		4	5	6	8		10
t1		12.5	16	21.5	27	31	41.5
重量 Weight (kg)	2.5	4.8	8.5	14	24	47	
保護素子 Protective band	470KD07	G80KD10		G80KD14			

CDM Clutch and Brake Combination

CDM 型 離合器剎車組合體

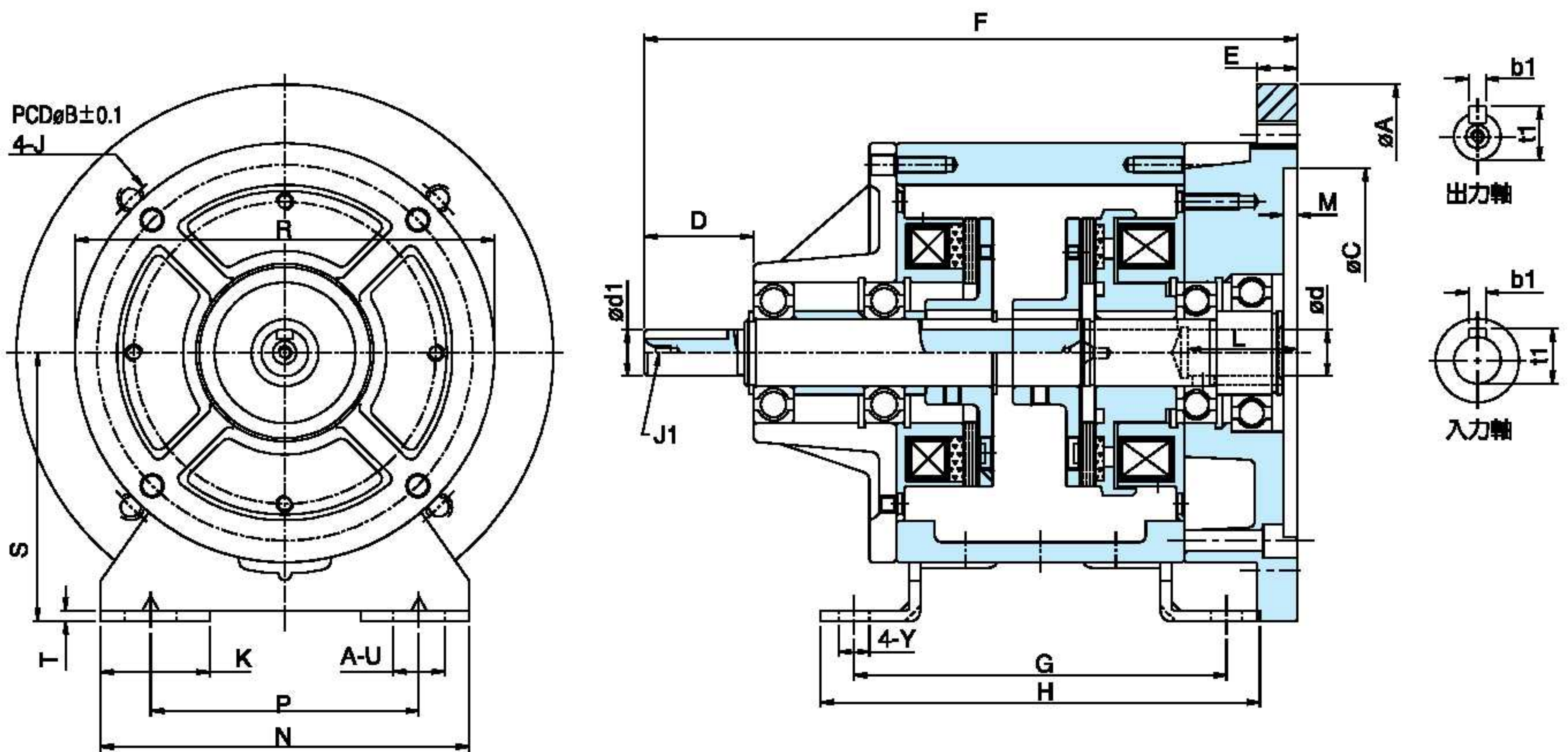
- 為單法蘭面入力1處，出力1處
- Single FA LAN surface with one input point and one output point
- 離合器的轉子固定在入力軸，而離合器的電樞板與剎車被固定在出力軸上。
當電流通過離合器時，出力軸被帶動，當離合器分離時，剎車有電流通過時，出力軸就停止
- The clutch rotor is fixed on the input shaft while the clutch armature and brake are fixed on the output shaft. When the clutch is energized the output shaft is driven; and when the clutch is disengaged and the brake is energized, the output shaft stops.
- 此機種適用於馬達直接連結，法蘭面配合IEC國際規格安裝容易不佔空間。
- This unit can be used in dual drive motors with IEC standard flange interfaces. The unit is compact and easy to install.
- 此機種用途：高頻運轉、定位、手動、起動停止。
- Applications: high speed rotation, positioning, manual operation, starting and stopping

構造 Construction



CDM Series

單法蘭電磁離合、煞車器組 Single-flange Magnetic Clutch-brake Combination



型號 MODEL	CDM0S6AA	CDM1S5AA	CDM2S5AA	CDM005AA	CDM010AA	CDM020AA	
靜摩擦轉距 Static Friction Torque [kgm](Nm)	0.55 (5.5)	1.1 (11)	2.2 (22)	4.5 (45)	9.0 (90)	17.5 (175)	
動摩擦轉距 Dynamic Friction Torque [kgm](Nm)	0.5 (5.0)	1.0 (10)	2.0 (20)	4.0 (40)	8.0 (80)	16.0 (160)	
功率 Power [24V](W) at 20°C	11	15	20	25	35	45	
徑 方 向 Radius	A	160	160	200	200	250	300
	B	130	130	165	165	215	265
	C	110	110	130	130	180	230
	J	M8		M10		M12	
	J1	M4*0.7P*8L		M6*1P*11L			M10*1.5P*17L
	R	100	125	150	190	230	290
	S	65	80	90	112	132	160
	T	2.6	3.2	3.2	4.5	6	20
	d	11	14	19	24	28	38
	d1	11	14	19	24	28	38
軸 方 向 Shaft	D	27.5	32.7	42.6	52.95	64.1	84
	E	12		15.5	14	12.5	17
	F	160.5	194.7	234.6	310.5	389.1	525
	G	90	110	135	57.5	200	240
	H	105	130	160	183	230	270
	K	27.5	32.5	35	42	45	47
	L	29	32.5	41.2	54.25	71.25	85
	M	3.5	4	4	4	4.5	6
	N	90	110	140	175	200	240
	P	65	80	105	135	155	195
	U	13.5	15.5	20	24	28	28
	Y	6.5	9	11	11.5	14	
	Z	47.5	62.7	80	109.2	145.1	188
	b	4	5	6	8		10
	t	13	16.5	22	27.5	32	41.8
	b1	4	5	5	7		10
	t1	12.5	16	21	27	31	41.5
重量 Weight (kg)	2.6	5	9	15	25	48	
保護素子 Protective band	470KD07	GD80KD10		GD80KD14			