

*Auto Power*

歐特力機械有限公司

AUTO POWER MACHINERY CO., LTD.

# 超負荷保護裝置

OVERLOAD PROTECTOR



OL08S



OL08A



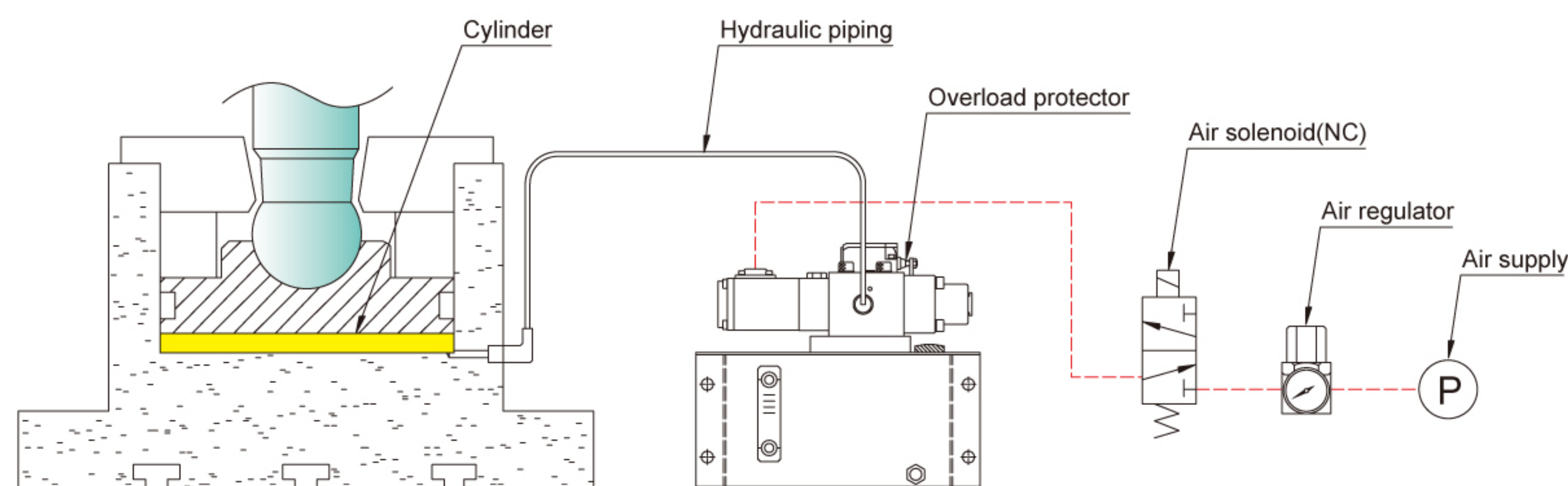
OL12S



OL12A



## 超負荷保護裝置 Overload Protector



## 功能 Function

超負荷保護器安裝於沖床上，用以檢測沖頭油壓缸內部油壓壓力，當沖床油壓超過所能負荷時，保護裝置可於千分之三秒內立刻洩放油壓。

當產生超負荷之情況時，超負荷保護器之限動開關將發出電氣訊號，立刻告知沖床停止運轉，以保護沖床和模具。

超負荷情況發生後，超負荷油壓單元會立刻補足沖床油壓缸所需之正常工作壓力，恢復正常作業。

超負荷保護器內部含有一穩壓控制閥，可消除沖床於沖壓過程中，因油溫上升而造成壓力上升之影響。

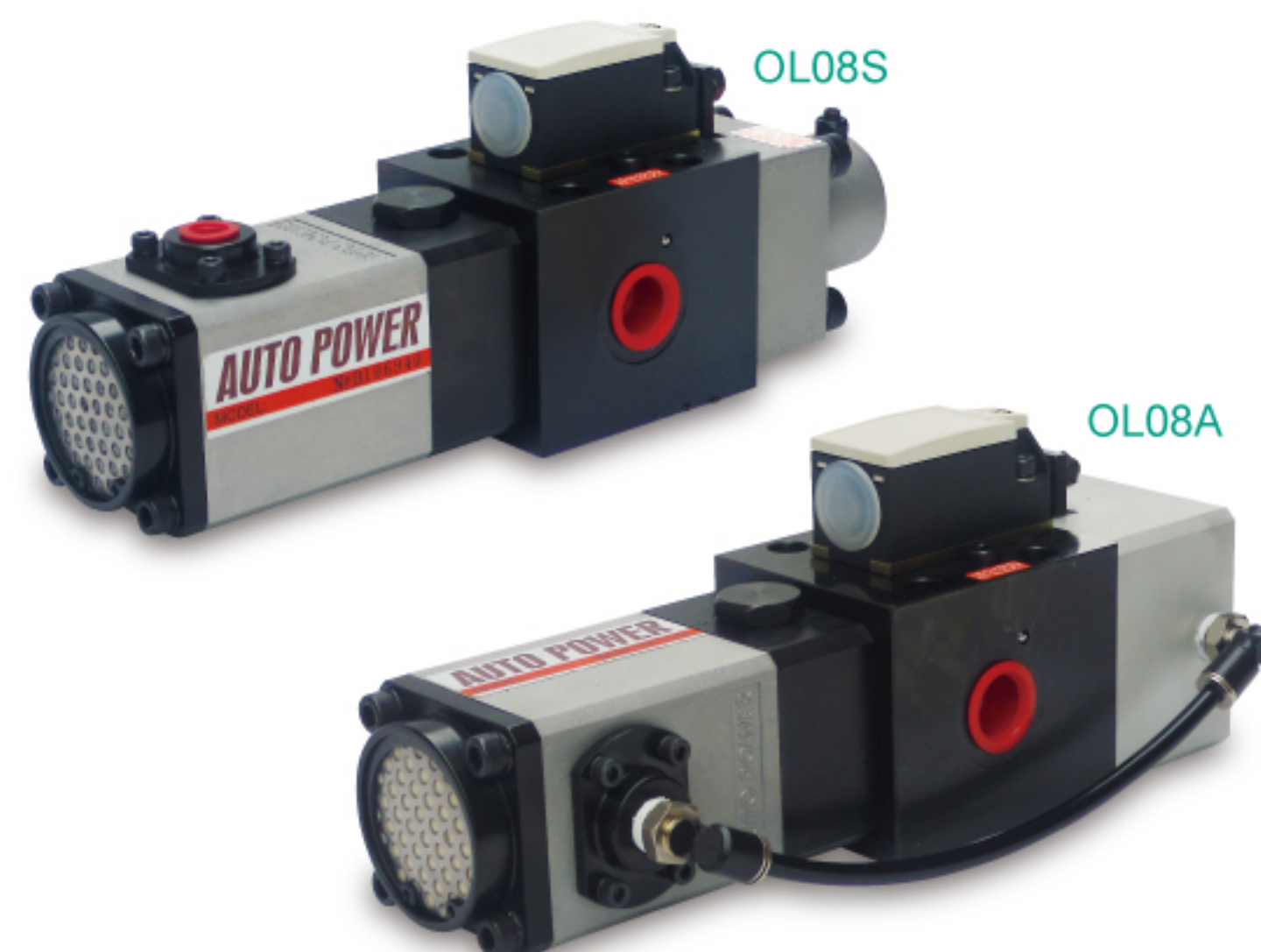
Overload protector is equipped in press machine to check the hydraulic pressure of cylinder inside the slider. If happen overload, the hydraulic pressure of cylinder will be released innediately within 3/1000 seconds.

When happen overload, in order to protect the press and die, the press will stop working immediately after receiving the signal from limit switch.

After happen overload, the air will drive hydraulic pump to supplement normal working pressure immediately and the press can work normally.

It has pressure control valve inside of overload protector, which can adjust hydraulic pressure automatically and eliminate the impact of rising pressure in pressing process.

### OL08S OL08A



### OL12S OL12A



## 超負荷保護裝置 OVERLOAD PROTECTOR

## 型式選定 Model Selection

OL 1 2 3 4 - 5 - 6

|   |                                           |                                                                       |
|---|-------------------------------------------|-----------------------------------------------------------------------|
| 1 | 適用於沖床噸數<br>Suitable for capacity of press | 06: 200 tons & down<br>08: 200 tons & down<br>12: 200~600 tons & down |
| 2 | 控制方式<br>Control type                      | A: Air pressure control<br>S: Spring adjust                           |
| 3 | 型式代號<br>Model                             | ex.107 or 707. ....                                                   |
| 4 | 設計變更碼<br>Design No.                       | Empty:First edition<br>A~Z: Revise edition                            |
| 5 | 超負荷壓力設定值<br>Pressure setting              | A Model:None<br>S Model: ex. 300 is 300Kgf/cm <sup>2</sup>            |
| 6 | 油箱容量<br>Control type                      | 0: None 1: 1.2 L 4: 4 L<br>8: 8L 12:12 L                              |

## 使用建議 Our Suggestion

空氣配管之內徑使用6mm以上。  
Inside diameter of air piping has to be than 6mm.

空氣原應去除水分、保持乾燥，以防水垢產生而影響到幫浦及其它零件的正常功能。  
The source of air have to keep arid the moisture will affect pump fuction.

氣壓電磁閥使用2口2位或3口2位都可以，但是必須選擇常閉型(NC)。  
Please use 2/2 or 3/2 way valve-electrically and choose NC.

## 配管安裝建議尺寸 Size of High Pressure Hose

| OL08S                        |                               |
|------------------------------|-------------------------------|
| 油管尺寸(內徑/外徑)<br>SIZE(I.D/O.D) | 最高使用壓力<br>WORK PRESSURE(MAX.) |
| 12/18mm                      | 400kgf/cm <sup>2</sup>        |
| 13/18mm                      | 320kgf/cm <sup>2</sup>        |
| 14/18mm                      | 250kgf/cm <sup>2</sup>        |

| OL12S                        |                               |
|------------------------------|-------------------------------|
| 油管尺寸(內徑/外徑)<br>SIZE(I.D/O.D) | 最高使用壓力<br>WORK PRESSURE(MAX.) |
| 14/22mm                      | 400kgf/cm <sup>2</sup>        |
| 16/22mm                      | 300kgf/cm <sup>2</sup>        |
| 18/22mm                      | 200kgf/cm <sup>2</sup>        |

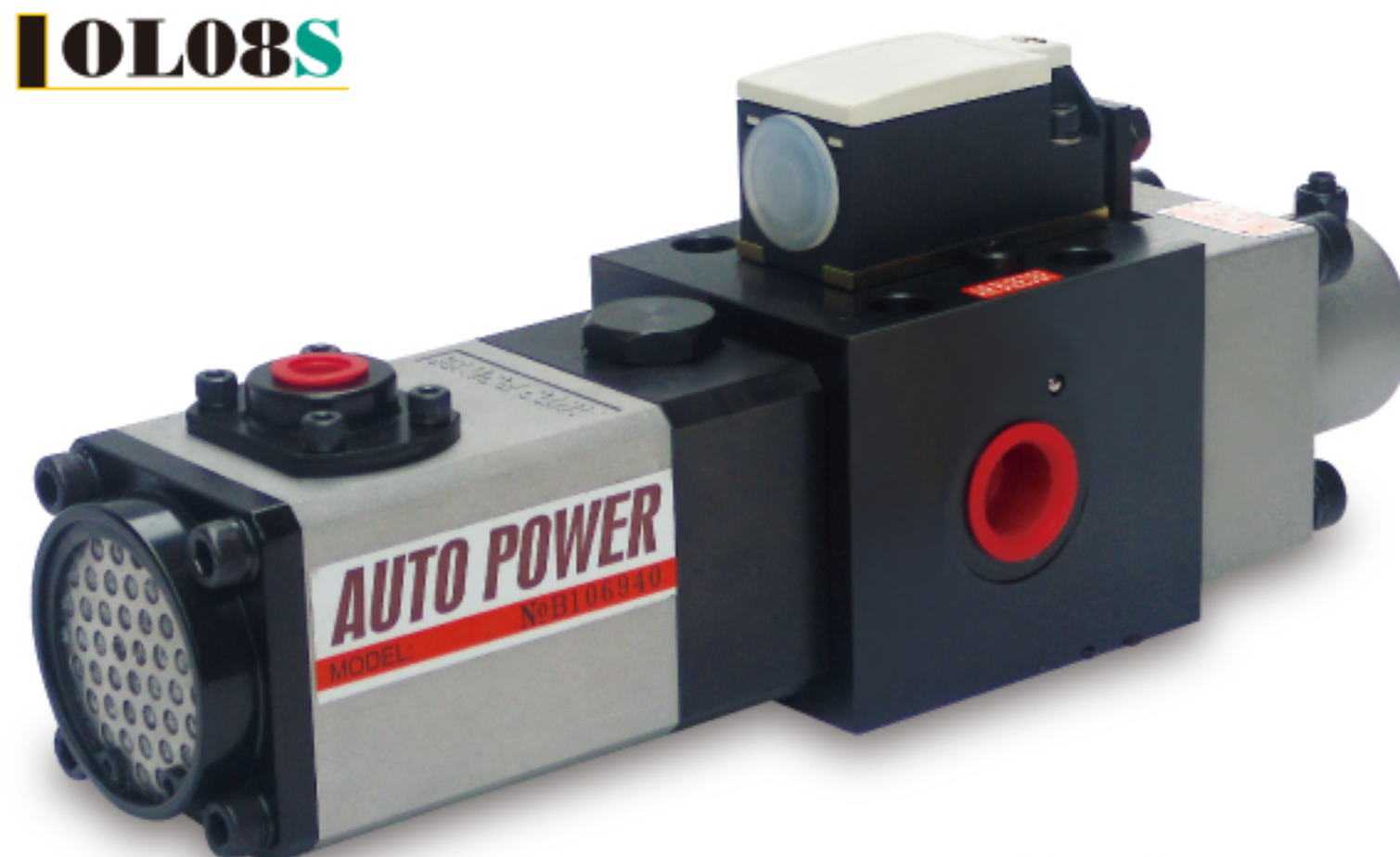
### OL06S OL06A



### OL+油箱 OL08S+油箱



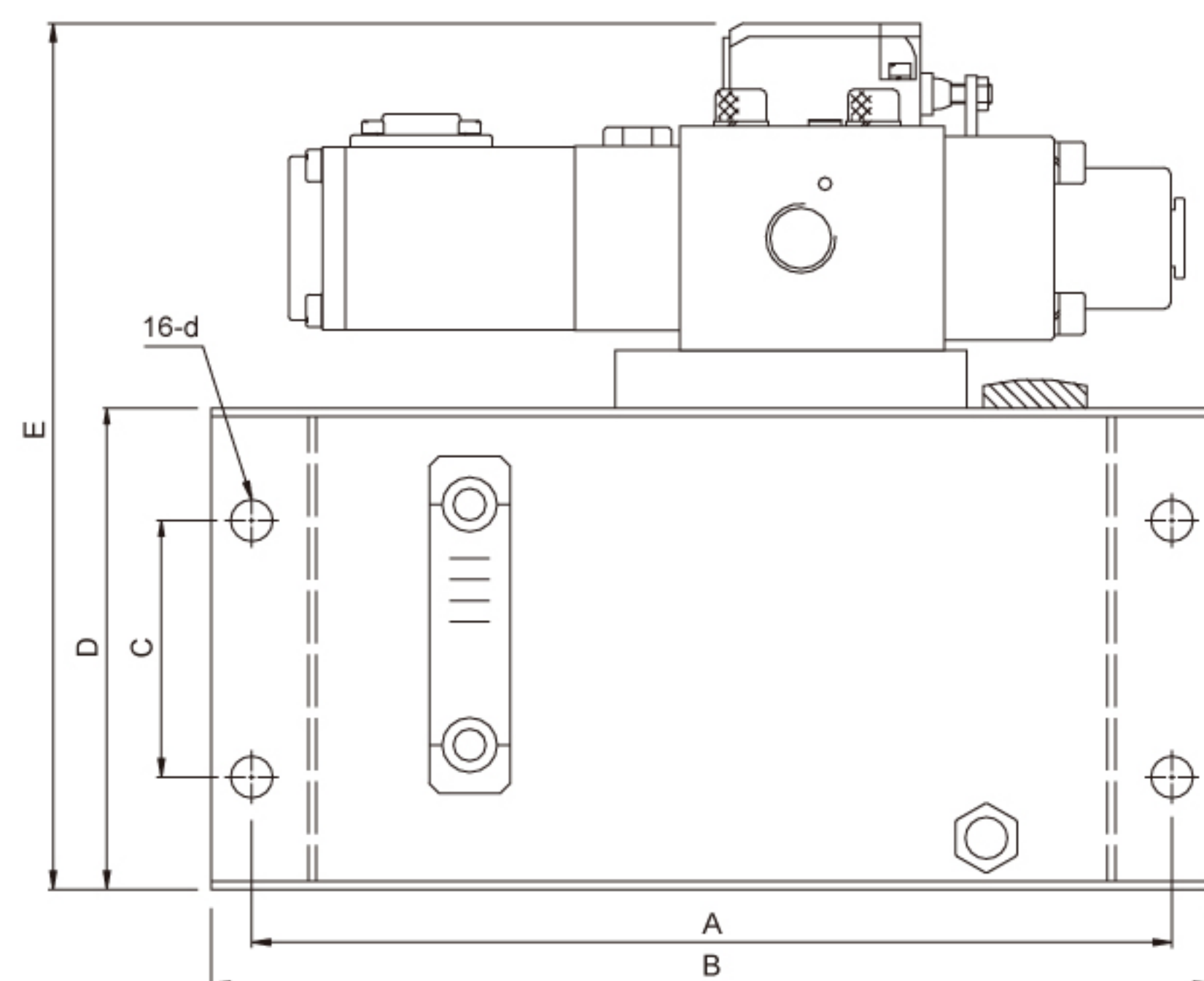
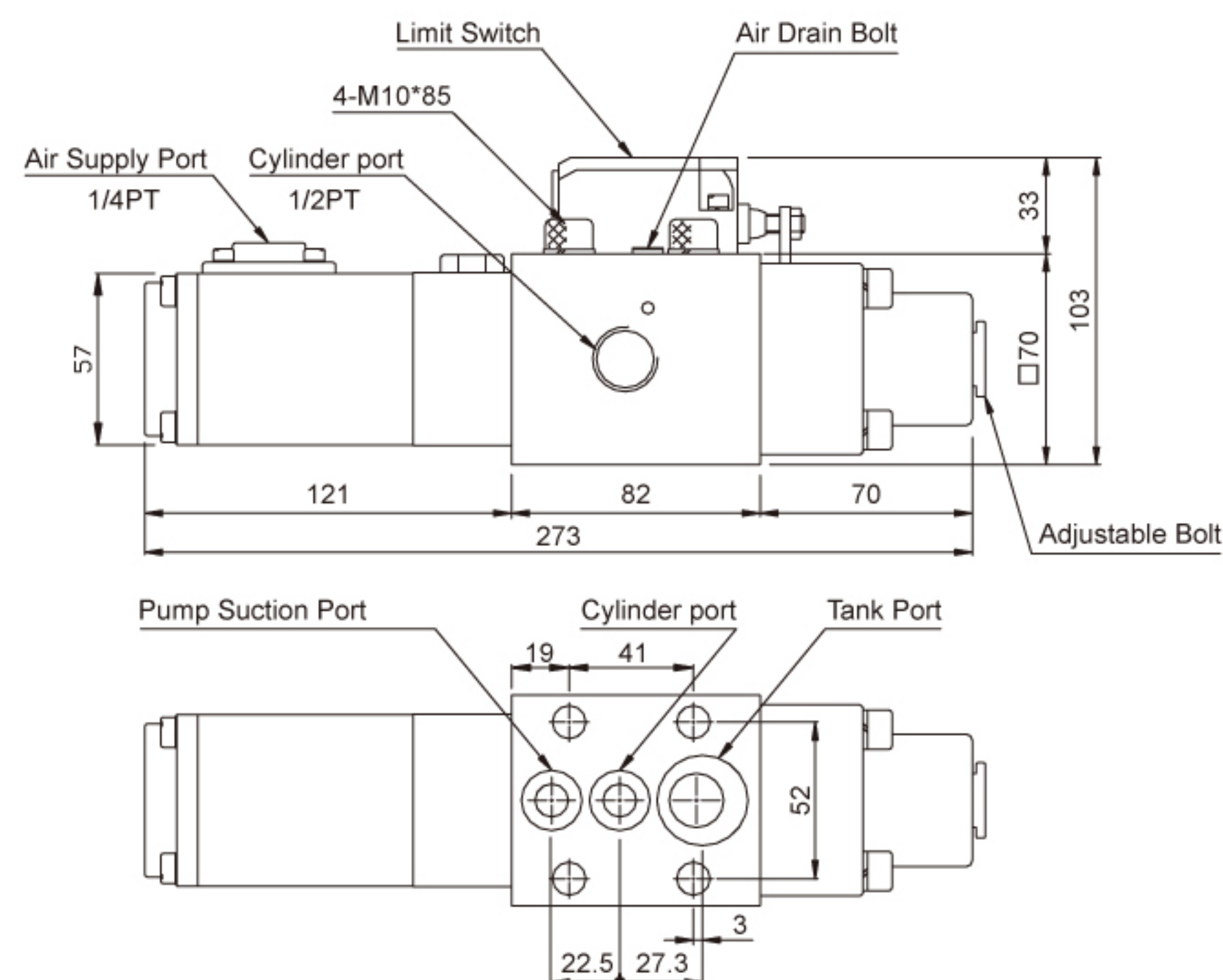
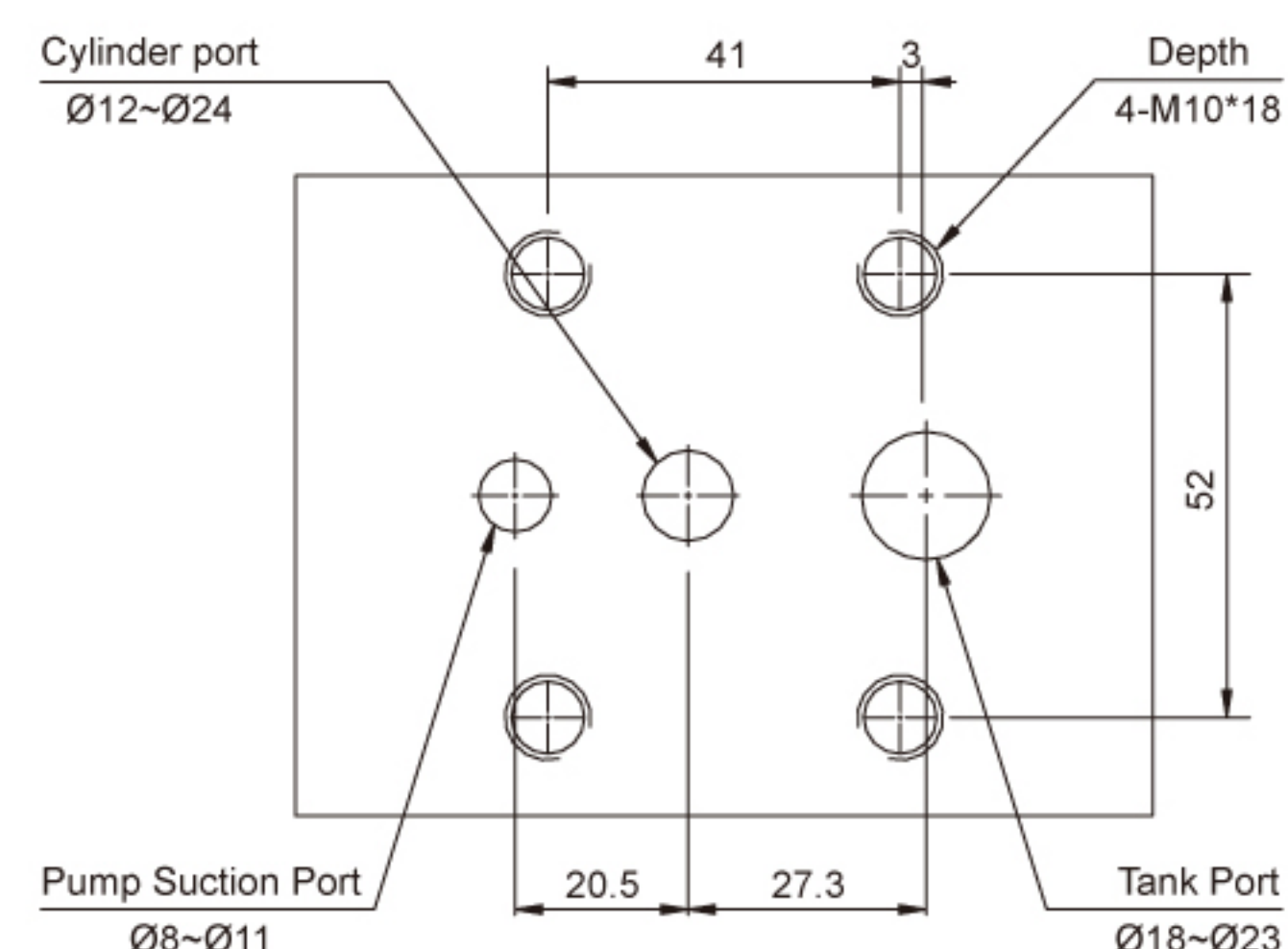
## OL08S



● 含油箱 (Include Oil Tank)



### 安裝配合尺寸 Installation Dimensions



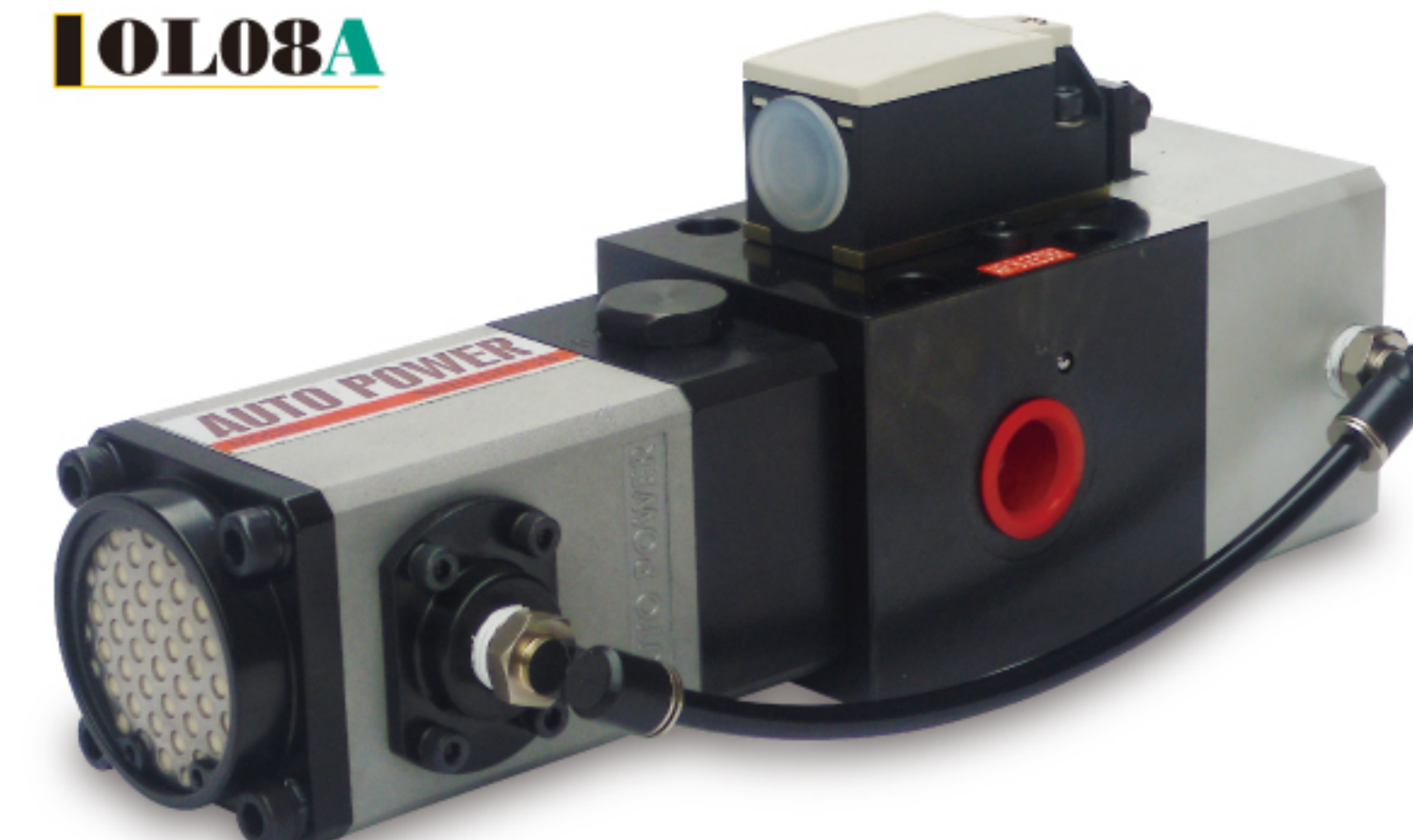
Unit:mm

| 型式 Model    | A   | B   | C   | D   | E   | d   | VOLUME |
|-------------|-----|-----|-----|-----|-----|-----|--------|
| OL08S-□-□-1 | 206 | 230 | 50  | 100 | 225 | Ø11 | 1.2 L  |
| OL08S-□-□-4 | 285 | 310 | 80  | 150 | 275 | Ø13 | 4.0 L  |
| OL08S-□-□-8 | 355 | 380 | 130 | 200 | 325 | Ø13 | 8.0 L  |

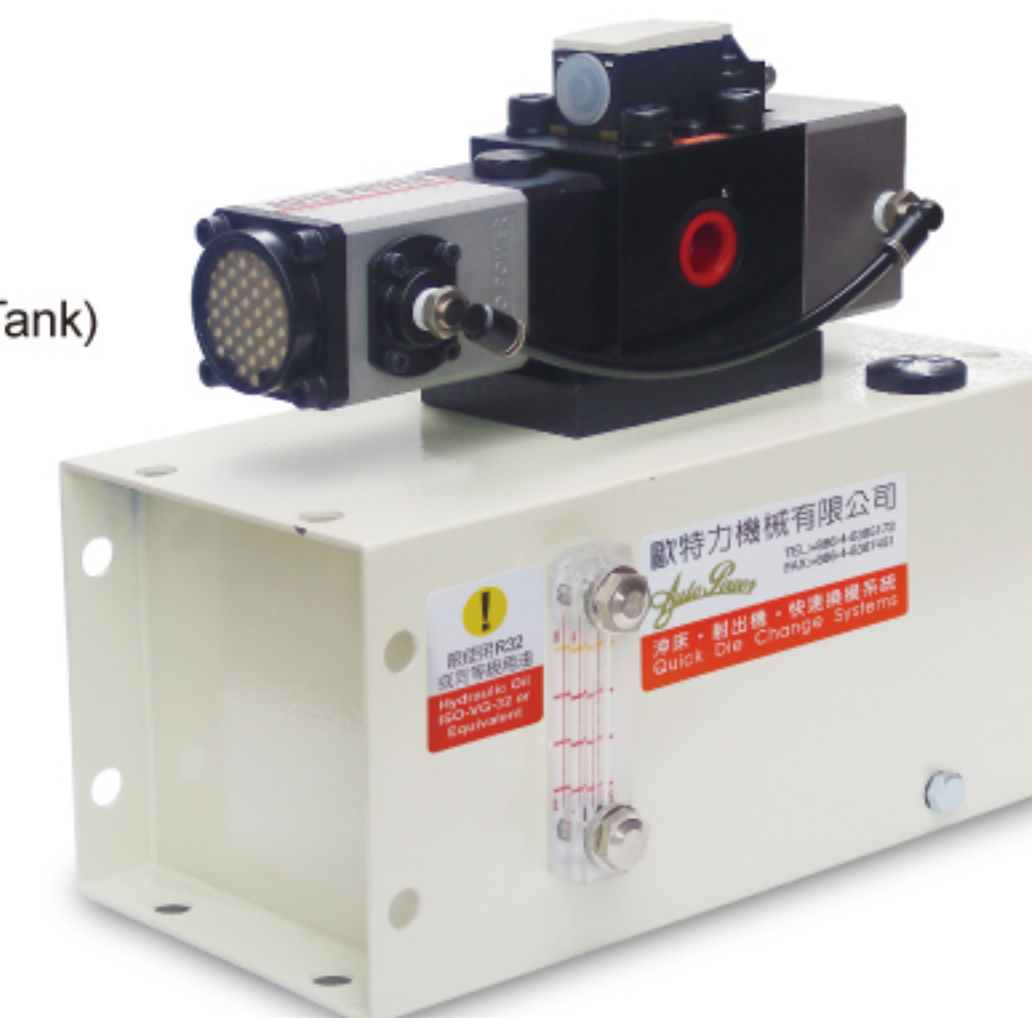
| 型式 MODEL  | 洩放流量<br>Releasing Flow Rate<br>(cm <sup>2</sup> /sec) | 制流孔面積<br>Area of Orifice<br>(cm <sup>2</sup> ) | 超負荷壓力設定範圍<br>Pressure Setting Range<br>(kgf/cm <sup>2</sup> ) | 壓力設定方式<br>Pressure settig | 適用空氣壓力<br>Air Supply<br>(kgf/cm <sup>2</sup> ) |
|-----------|-------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------|---------------------------|------------------------------------------------|
| OL08S 117 | 15500                                                 | 0.7                                            | 150~250                                                       | 彈簧式設定<br>Spring adjust    | 3~5                                            |
| OL08S 107 | 13000                                                 | 0.5                                            | 210~400                                                       |                           |                                                |
| OL08S 137 | 11500                                                 | 0.4                                            | 270~450                                                       |                           |                                                |
| OL08S 807 | 13000                                                 | 0.5                                            | 250~400                                                       |                           |                                                |
| OL08S 837 | 11500                                                 | 0.4                                            | 270~450                                                       |                           |                                                |
| OL08S 707 | 13000                                                 | 0.5                                            | 250~400                                                       |                           |                                                |
| OL08S 737 | 11500                                                 | 0.4                                            | 270~450                                                       |                           |                                                |
| OL08S 113 | 18000                                                 | 0.7                                            | 210~400                                                       |                           |                                                |
| OL08S 813 | 18000                                                 | 0.7                                            | 270~450                                                       |                           |                                                |
| OL08S 713 | 18000                                                 | 0.7                                            | 270~450                                                       |                           |                                                |

● 適用沖床:200噸(含)以下 Suitable for press tons:200 tons & down.  
● 使用液壓油 Hydraulic Oil:ISO-VG-32 or equivalent.

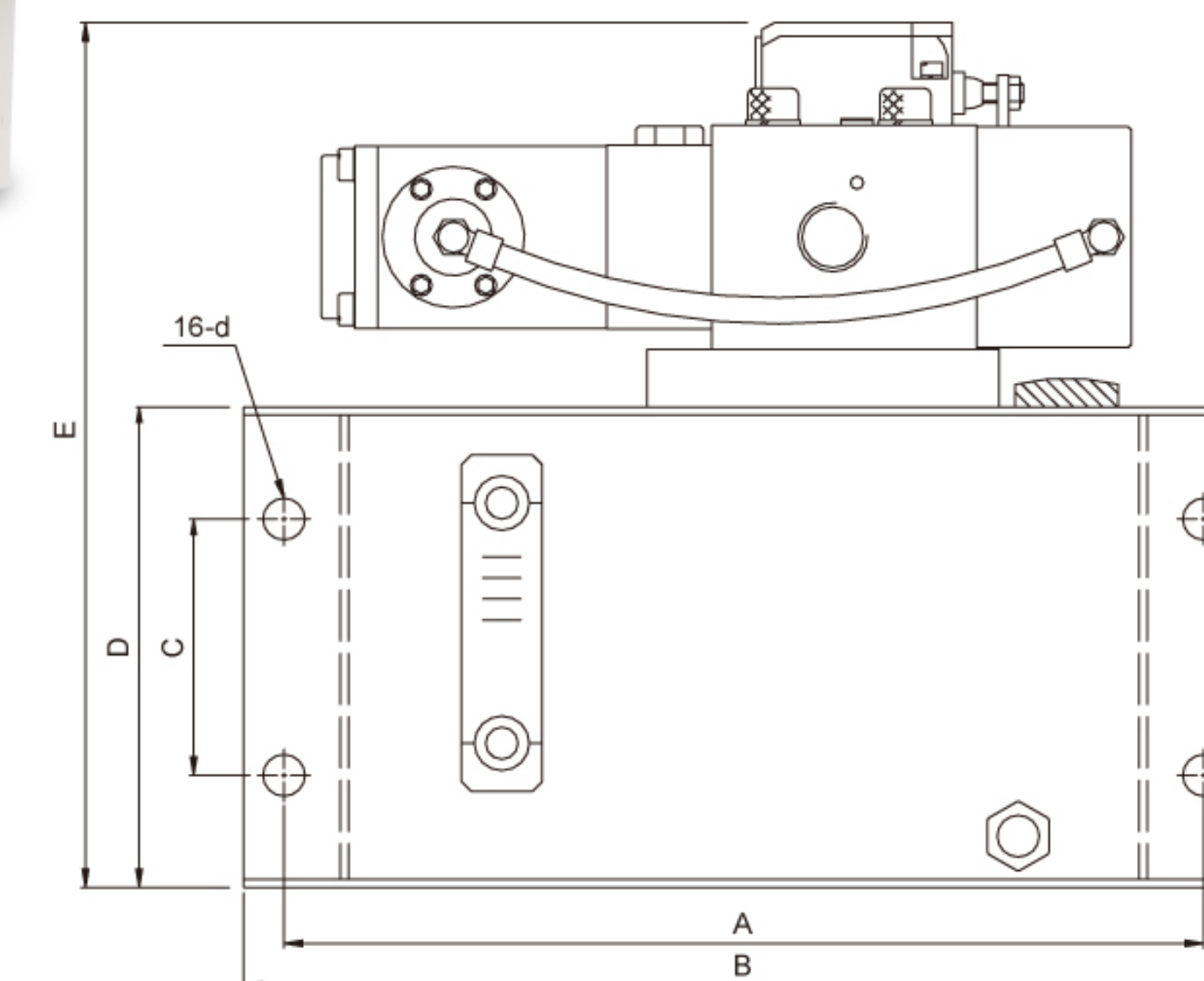
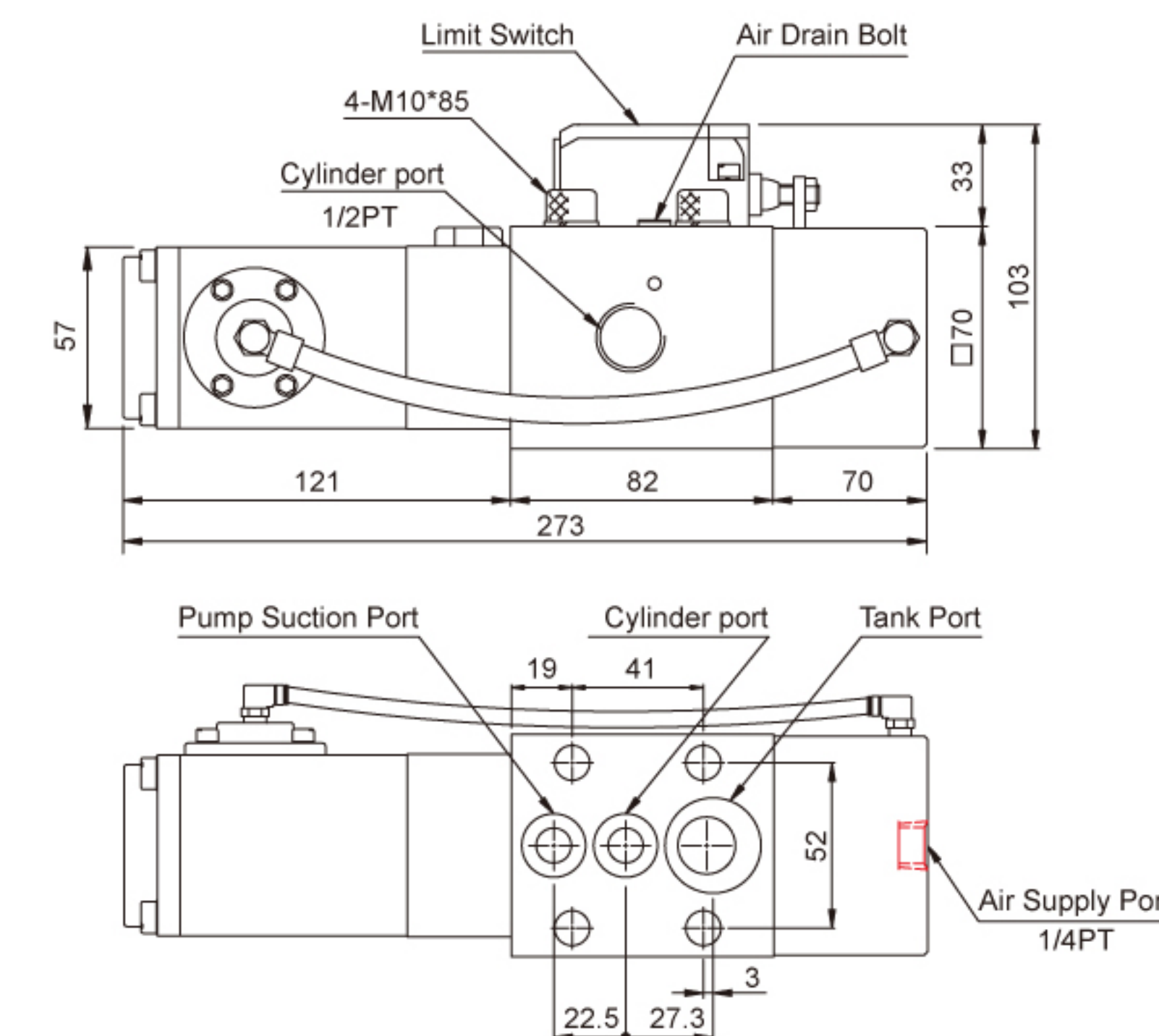
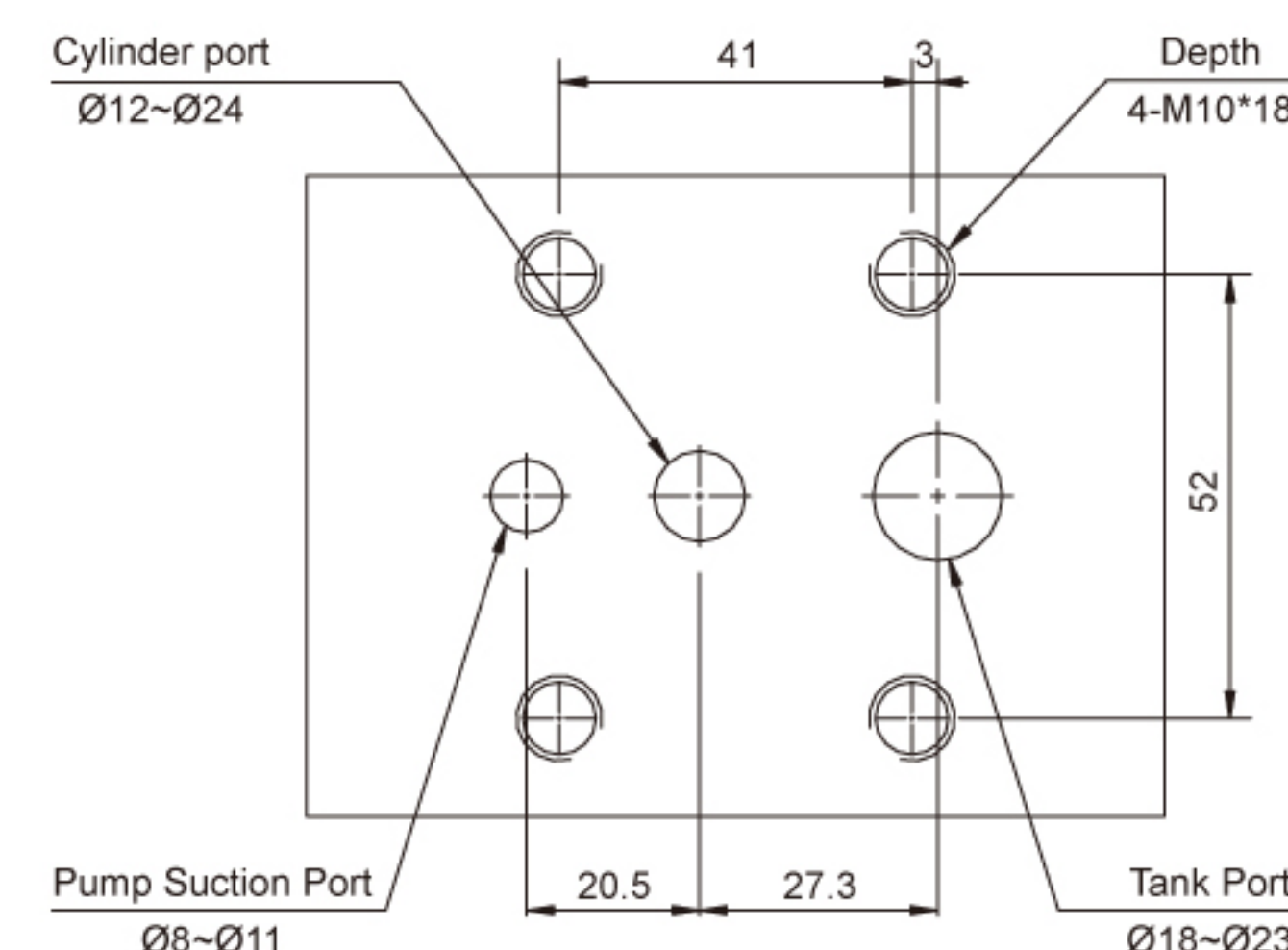
## OL08A



● 含油箱 (Include Oil Tank)



### 安裝配合尺寸 Installation Dimensions



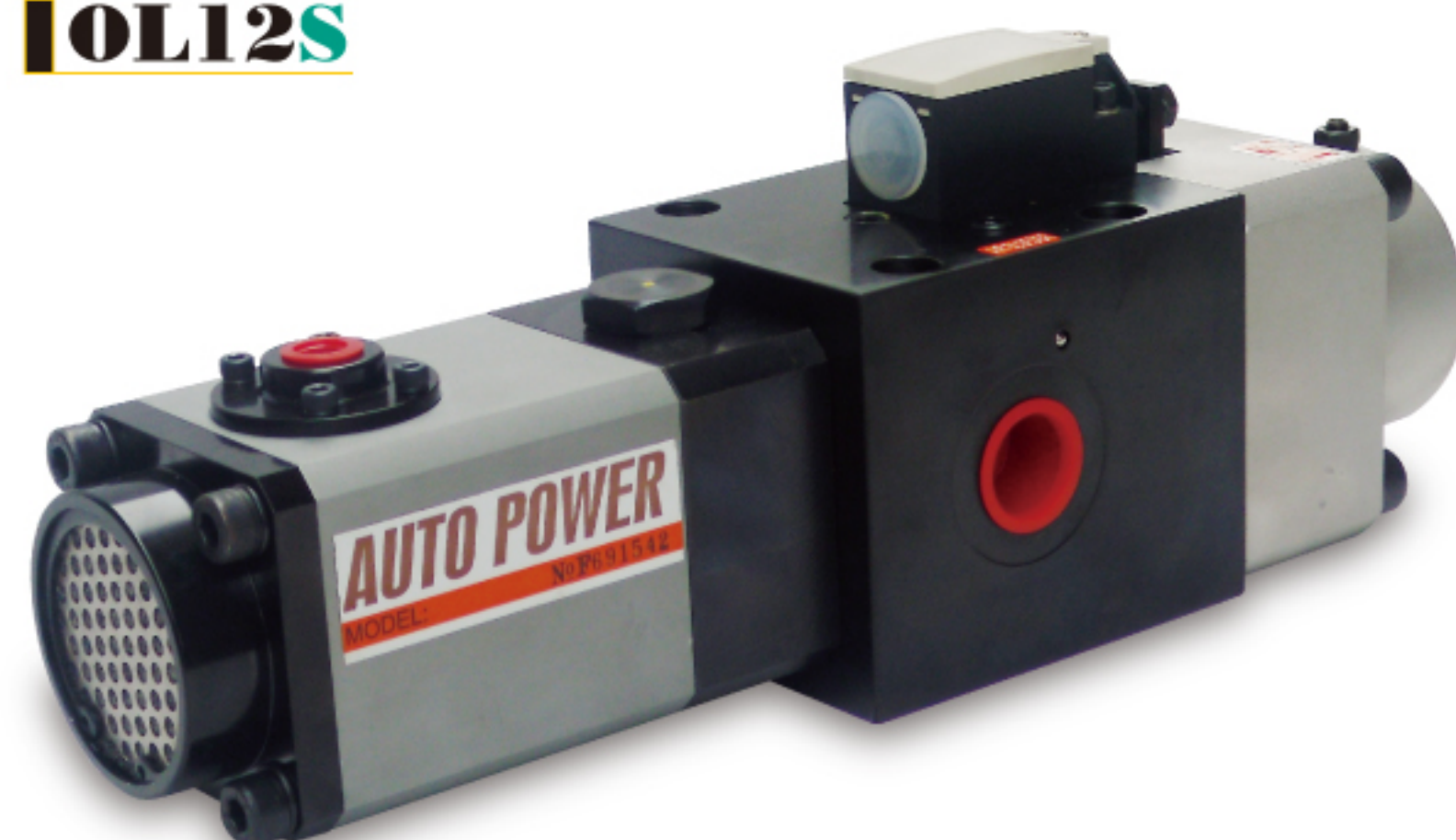
Unit:mm

| 型式 Model    | A   | B   | C   | D   | E   | d   | VOLUME |
|-------------|-----|-----|-----|-----|-----|-----|--------|
| OL08A-□-□-1 | 206 | 230 | 50  | 100 | 225 | Ø11 | 1.2 L  |
| OL08A-□-□-4 | 285 | 310 | 80  | 150 | 275 | Ø13 | 4.0 L  |
| OL08A-□-□-8 | 355 | 380 | 130 | 200 | 325 | Ø13 | 8.0 L  |

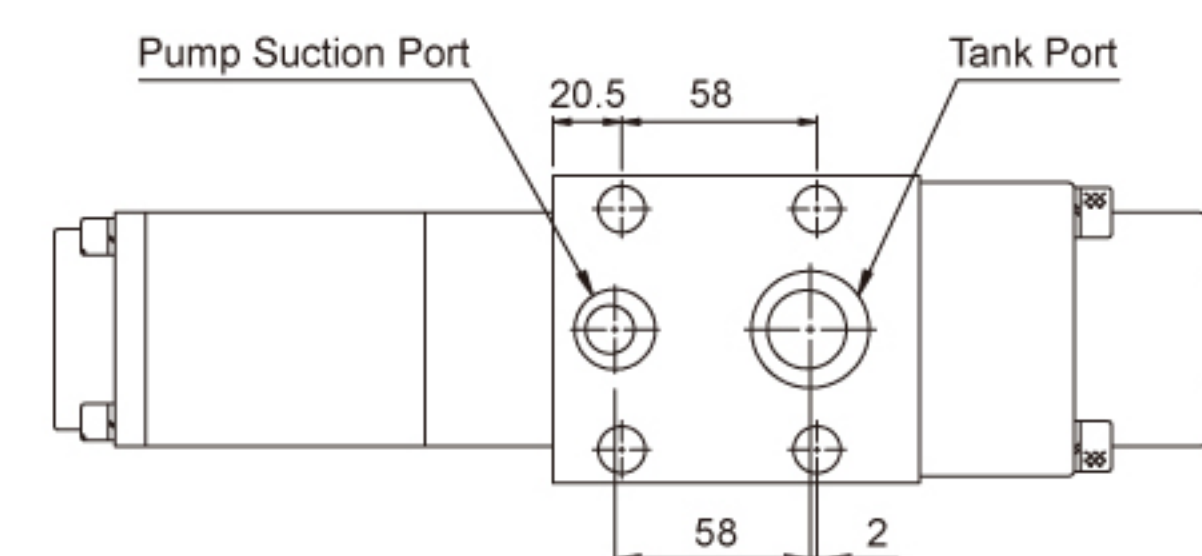
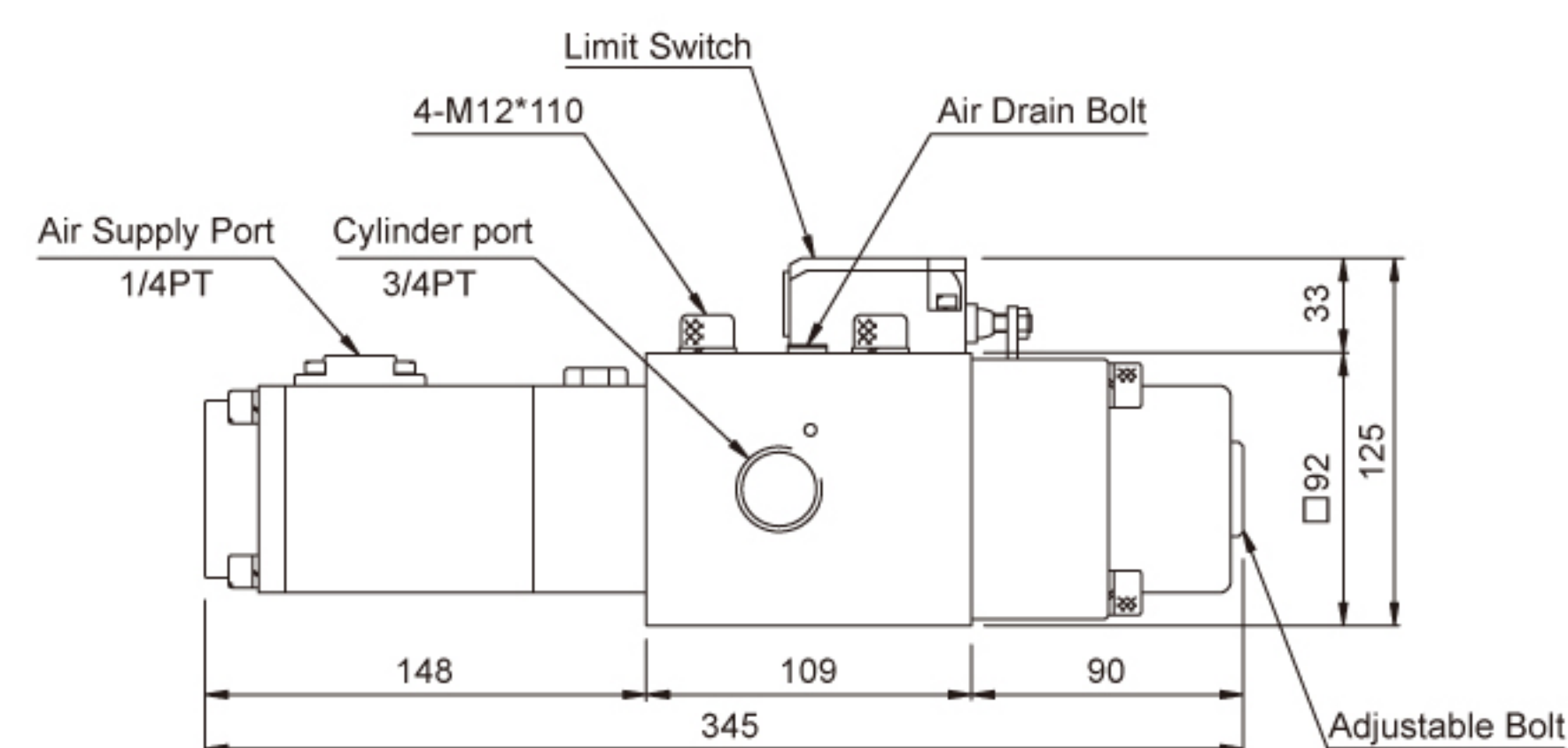
| 型式 MODEL  | 洩放流量<br>Releasing Flow Rate<br>(cm <sup>2</sup> /sec) | 制流孔面積<br>Area of Orifice<br>(cm <sup>2</sup> ) | 超負荷壓力設定範圍<br>Pressure Setting Range<br>(kgf/cm <sup>2</sup> ) | 壓力設定方式<br>Pressure settig | 適用空氣壓力<br>Air Supply<br>(kgf/cm <sup>2</sup> ) |
|-----------|-------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------|---------------------------|------------------------------------------------|
| OL08A 117 | 15500                                                 | 0.7                                            | 150~250                                                       | Air prssre x 50 ratio     | 3~5                                            |
| OL08A 107 | 13000                                                 | 0.5                                            | 210~350                                                       | Air prssre x 70 ratio     |                                                |
| OL08A 137 | 11500                                                 | 0.4                                            | 270~450                                                       | Air prssre x 90 ratio     |                                                |
| OL08A 807 | 13000                                                 | 0.5                                            | 210~350                                                       | Air prssre x 70 ratio     |                                                |
| OL08A 837 | 11500                                                 | 0.4                                            | 270~450                                                       | Air prssre x 90 ratio     |                                                |
| OL08A 707 | 13000                                                 | 0.5                                            | 280~350                                                       | Air prssre x 70 ratio     |                                                |
| OL08A 737 | 11500                                                 | 0.4                                            | 270~450                                                       | Air prssre x 90 ratio     |                                                |

● 適用沖床:200噸(含)以下 Suitable for press tons:200 tons & down.  
● 使用液壓油 Hydraulic Oil:ISO-VG-32 or equivalent.

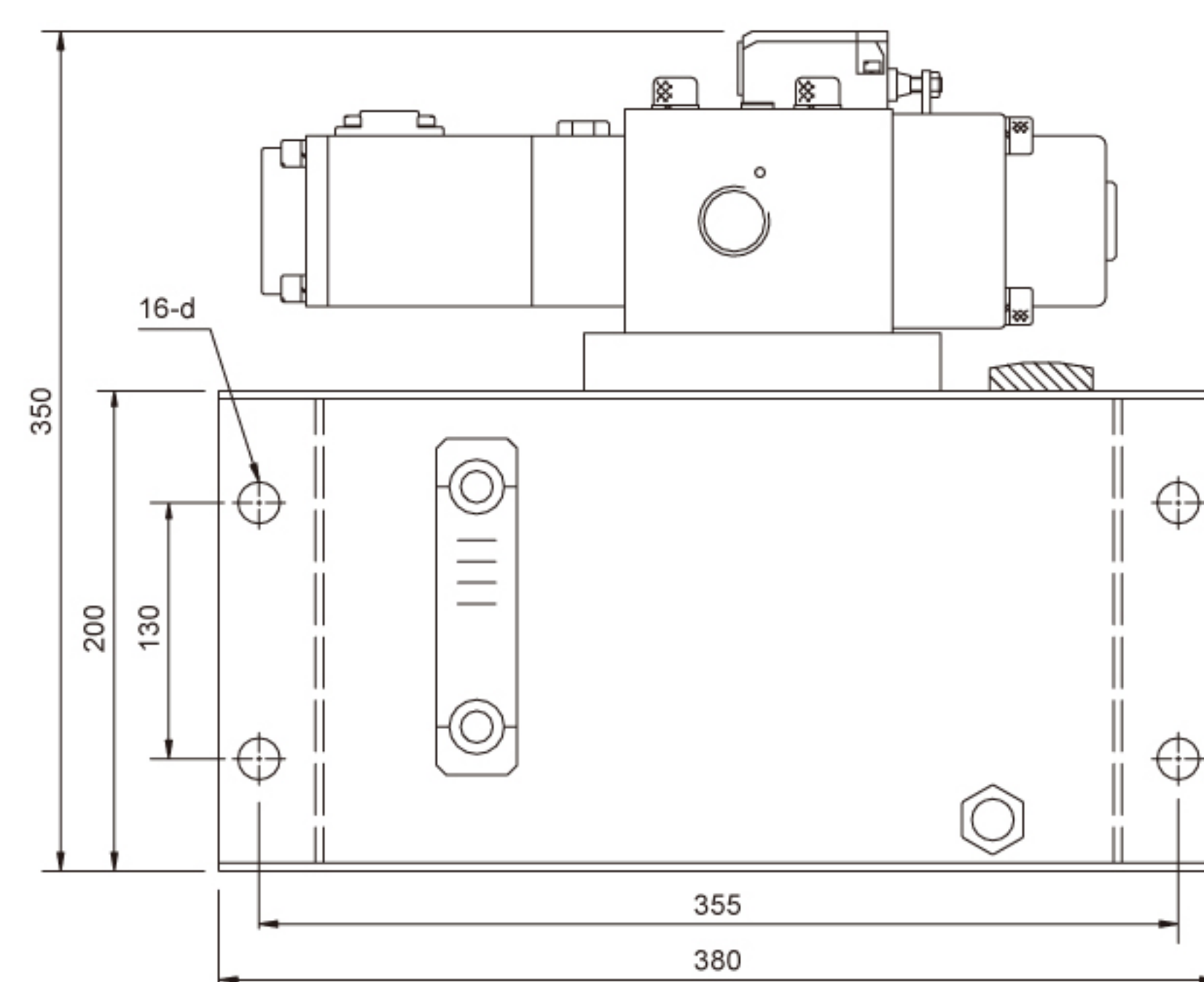
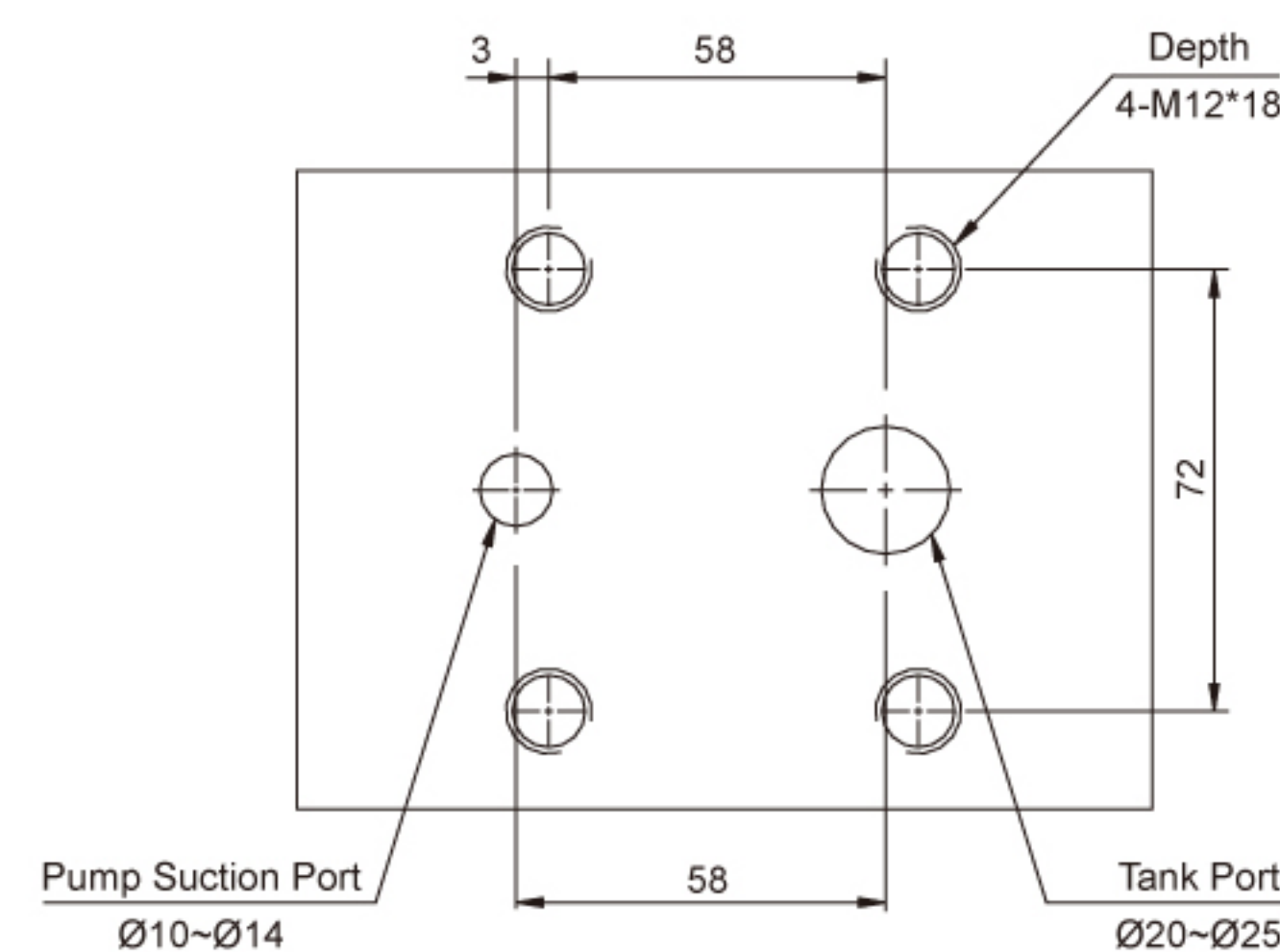
**OL12S**



● 含油箱(Include Oil Tank)



**安裝配合尺寸 Installation Dimensions**



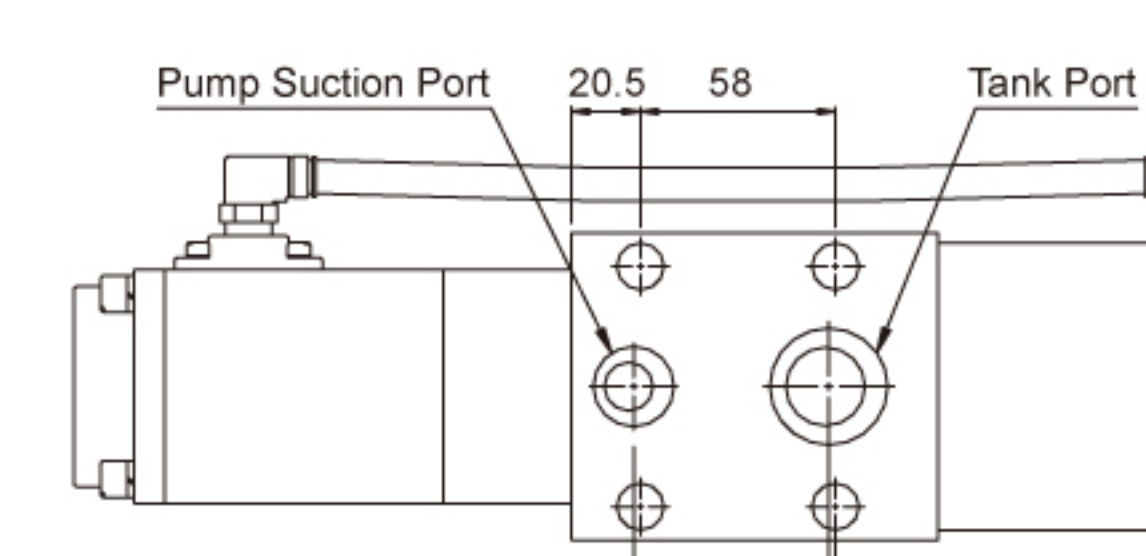
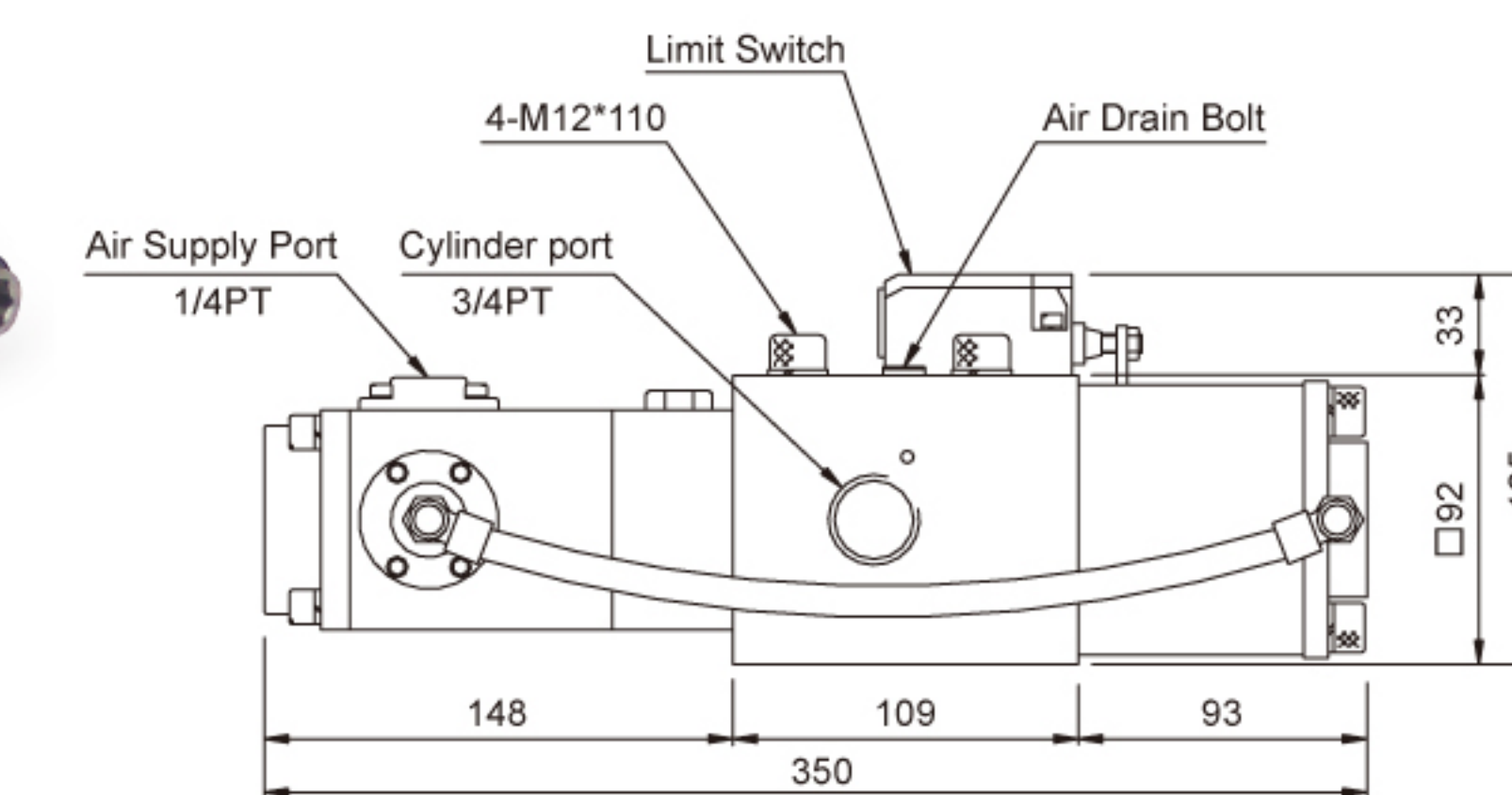
| 型式<br>MODEL | 洩放流量<br>Releasing Flow Rate<br>(cm <sup>2</sup> /sec) | 制流孔面積<br>Area of Orifice<br>(cm <sup>2</sup> ) | 超負荷壓力設定範圍<br>Pressure Setting Range<br>(kgf/cm <sup>2</sup> ) | 壓力設定方式<br>Pressure settig | 適用空氣壓力<br>Air Supply<br>(kgf/cm <sup>2</sup> ) |
|-------------|-------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------|---------------------------|------------------------------------------------|
| OL12S 117   | 39000                                                 | 1.7                                            | 150~250                                                       | 彈簧式設定<br>Spring adjust    | 3~5                                            |
| OL12S 107   | 31000                                                 | 1.2                                            | 210~350                                                       |                           |                                                |
| OL12S 137   | 27000                                                 | 0.9                                            | 270~450                                                       |                           |                                                |
| OL12S 707   | 31000                                                 | 1.2                                            | 250~400                                                       |                           |                                                |
| OL12S 737   | 27000                                                 | 0.9                                            | 270~450                                                       |                           |                                                |

● 適用沖床:200噸(含)以下 Suitable for press tons:200 tons & down.  
● 使用液壓油 Hydraulic Oil:ISO-VG-32 or equivalent.

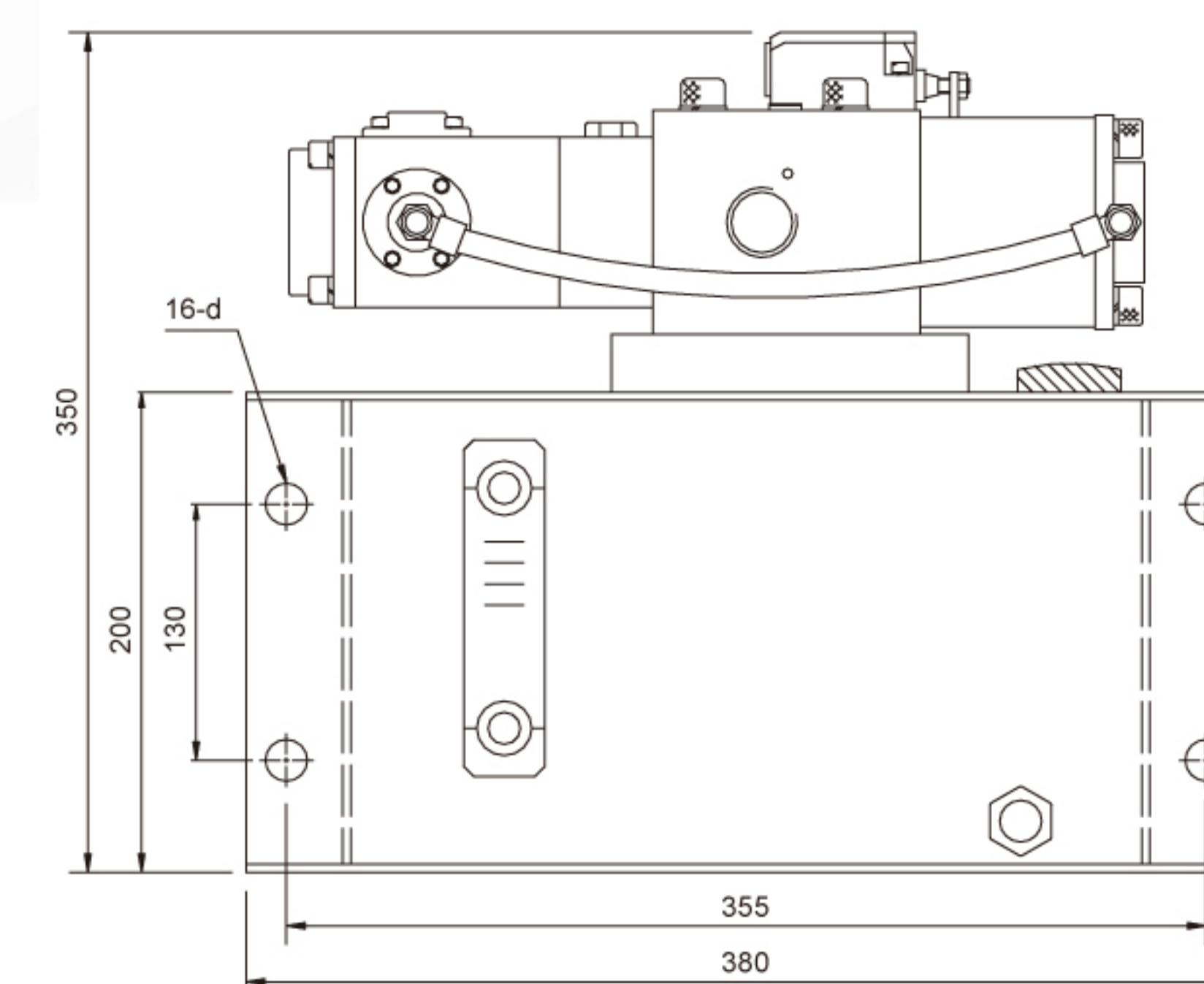
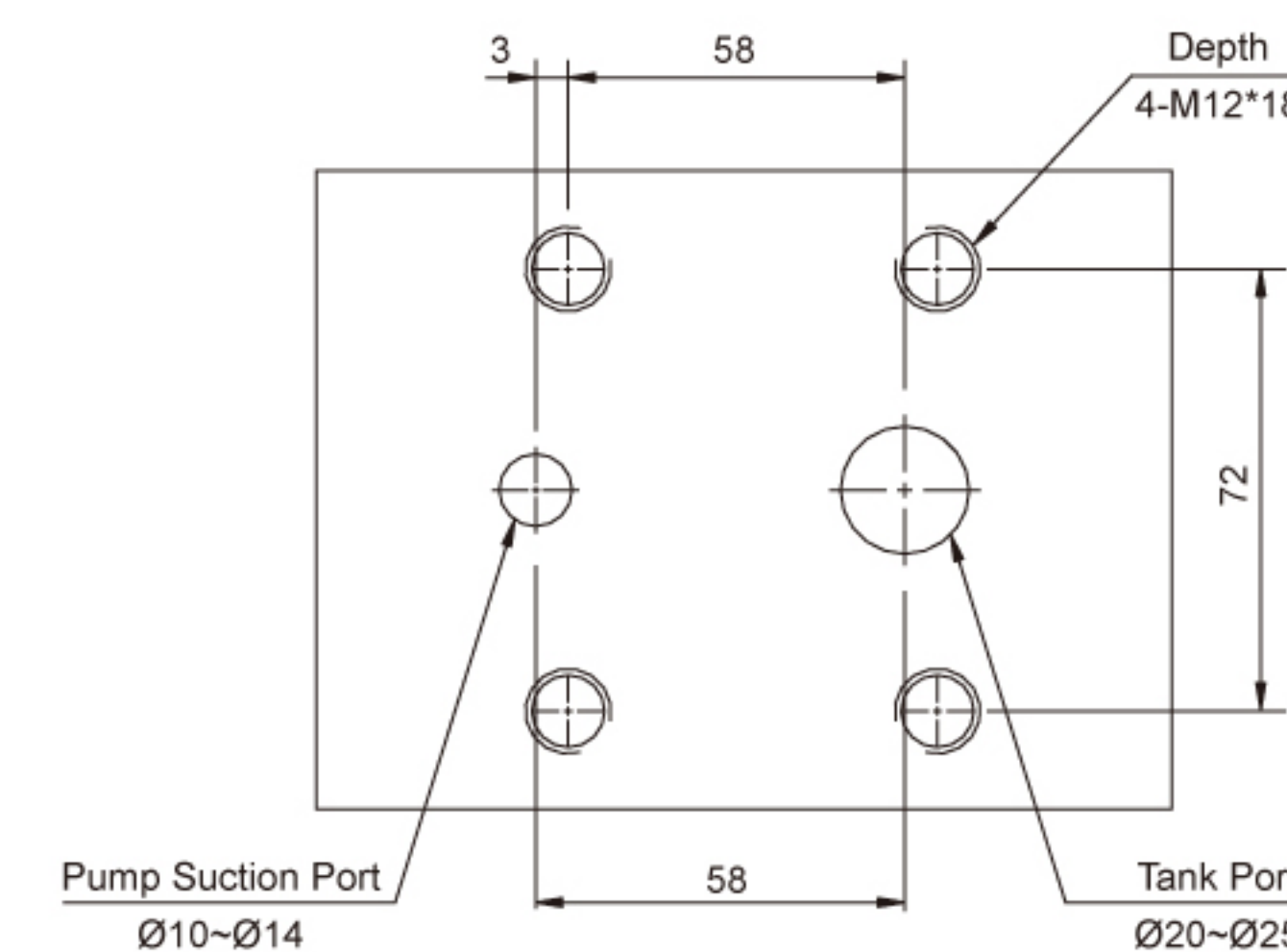
**OL12A**



● 含油箱(Include Oil Tank)



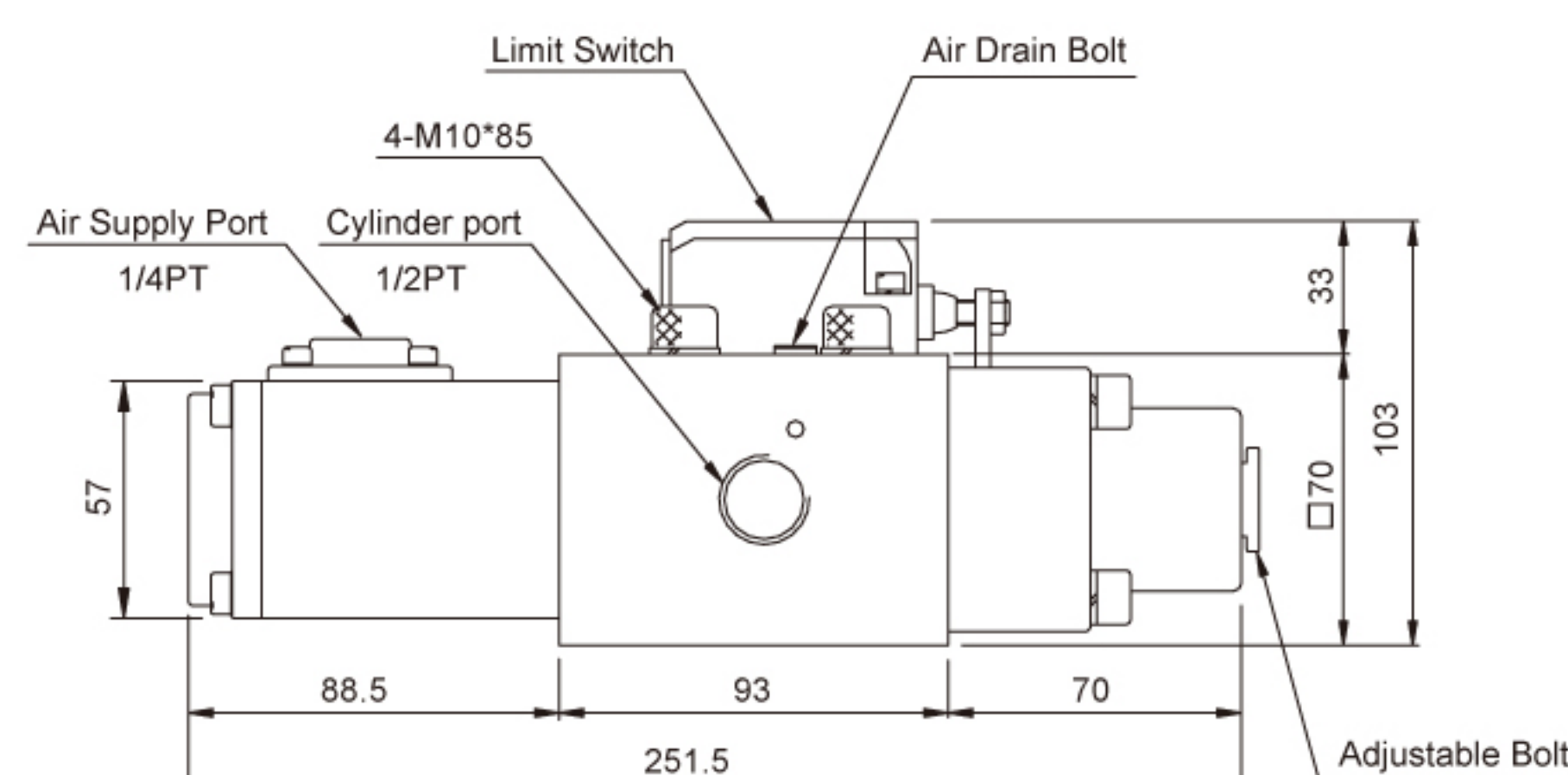
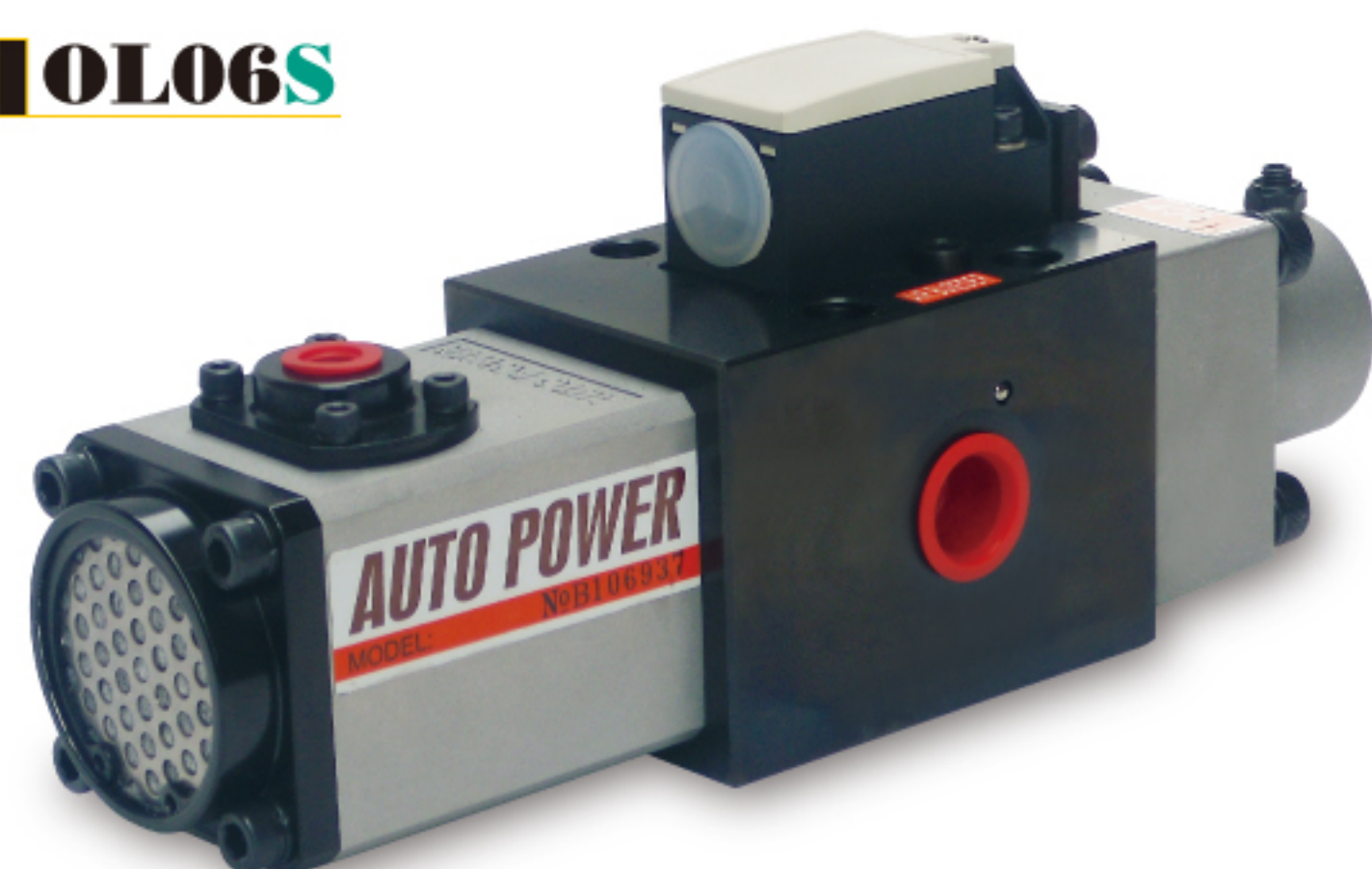
**安裝配合尺寸 Installation Dimensions**



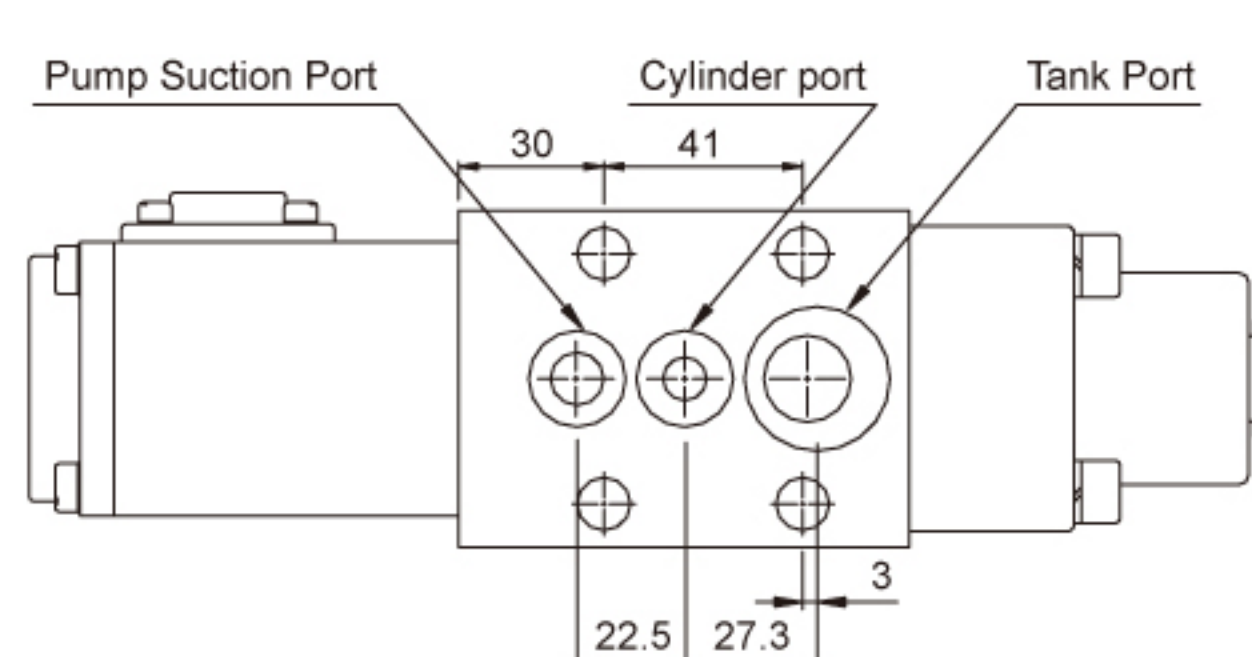
| 型式<br>MODEL | 洩放流量<br>Releasing Flow Rate<br>(cm <sup>2</sup> /sec) | 制流孔面積<br>Area of Orifice<br>(cm <sup>2</sup> ) | 超負荷壓力設定範圍<br>Pressure Setting Range<br>(kgf/cm <sup>2</sup> ) | 壓力設定方式<br>Pressure settig | 適用空氣壓力<br>Air Supply<br>(kgf/cm <sup>2</sup> ) |
|-------------|-------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------|---------------------------|------------------------------------------------|
| OL12A 115   | 39000                                                 | 1.7                                            | 150~250                                                       | Air prssre x 50 ratio     | 3~5                                            |
| OL12A 105   | 31000                                                 | 1.2                                            | 210~350                                                       | Air prssre x 70 ratio     |                                                |
| OL12A 135   | 27000                                                 | 0.9                                            | 270~450                                                       | Air prssre x 90 ratio     |                                                |
| OL12A 705   | 31000                                                 | 1.2                                            | 250~400                                                       | Air prssre x 70 ratio     |                                                |
| OL12A 735   | 27000                                                 | 0.9                                            | 270~450                                                       | Air prssre x 90 ratio     |                                                |

● 適用沖床:200噸(含)以下 Suitable for press tons:200 tons & down.  
● 使用液壓油 Hydraulic Oil:ISO-VG-32 or equivalent.

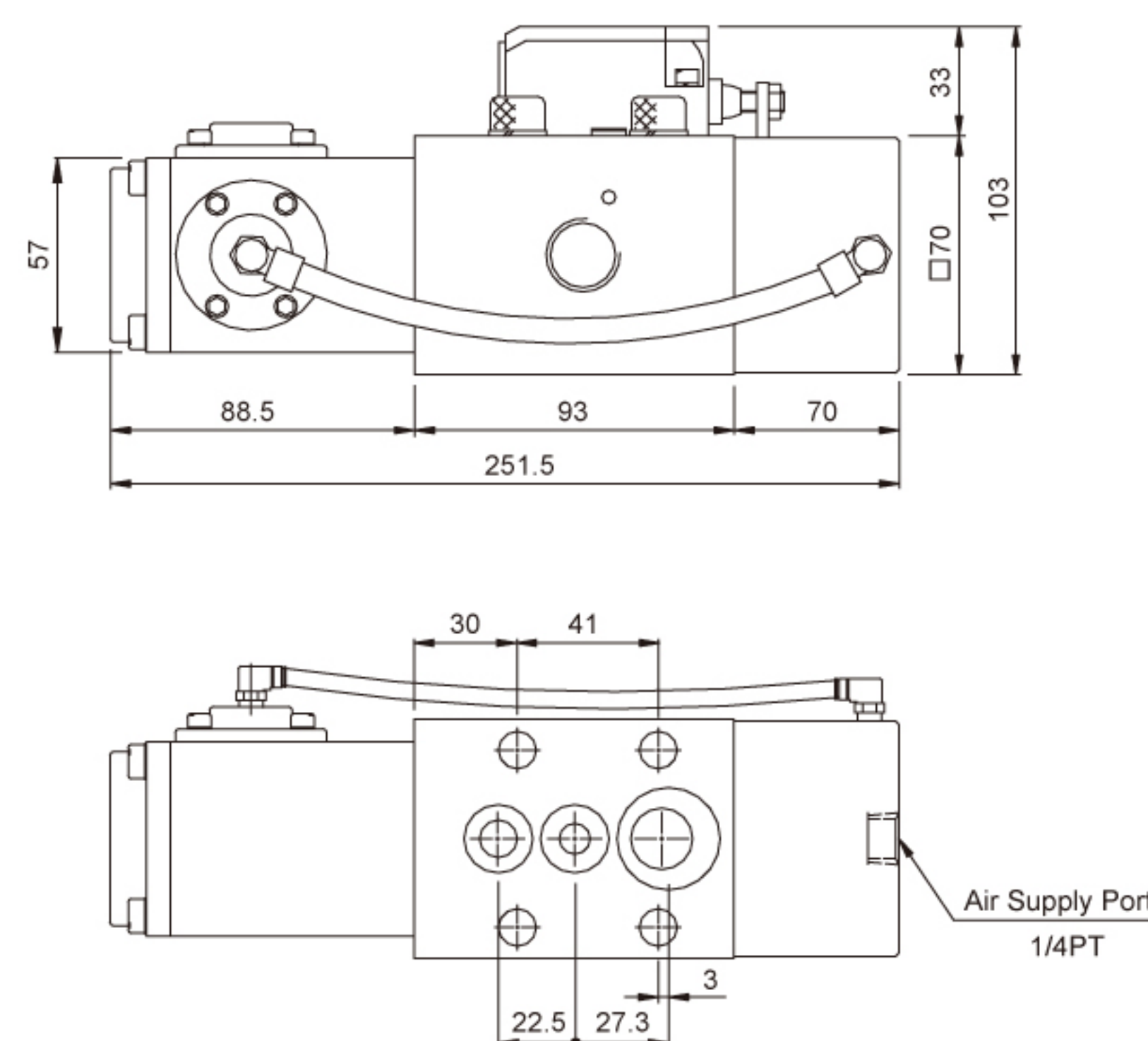
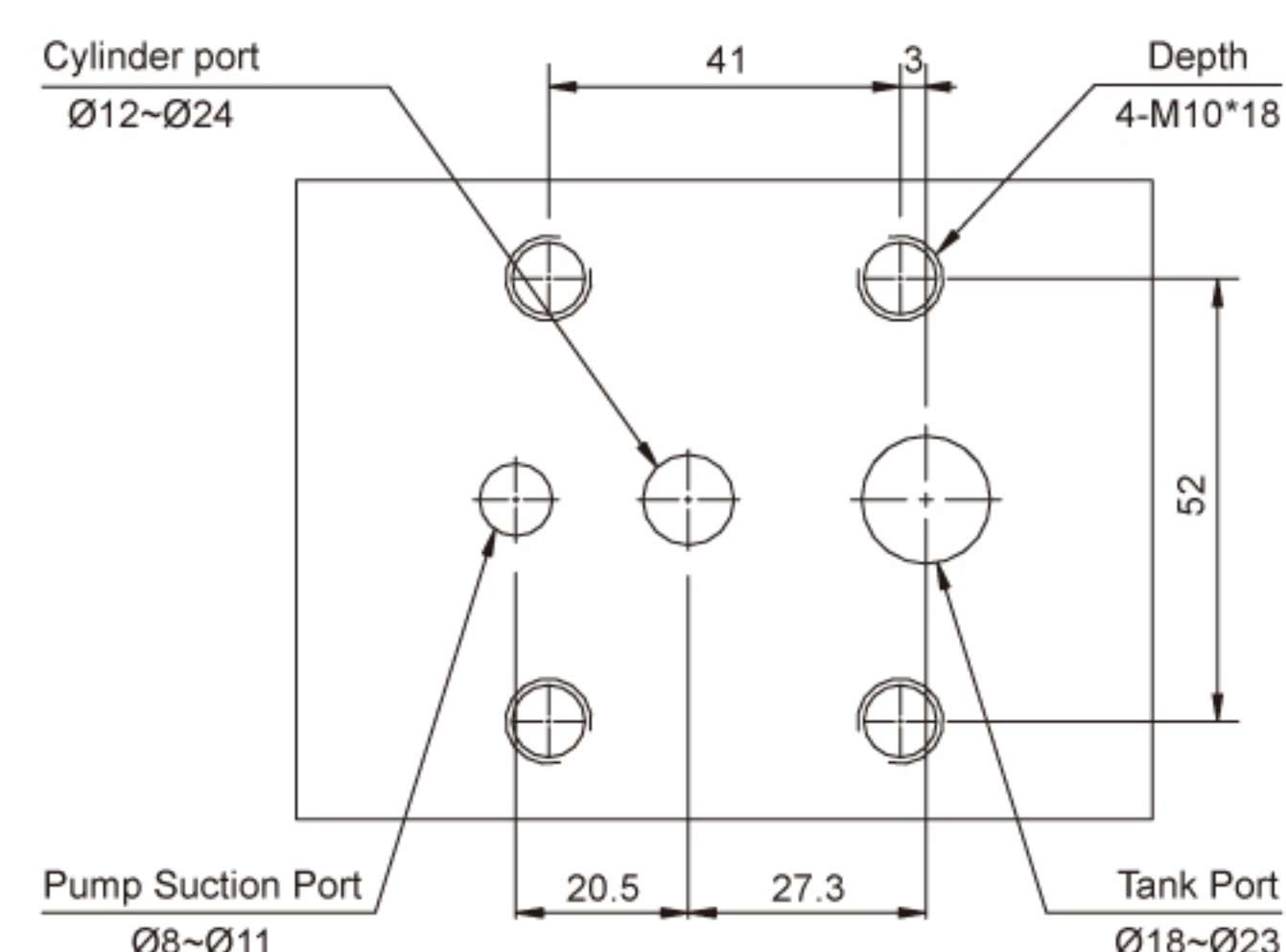
## OL06S



## OL06A



## 安裝配合尺寸 Installation Dimensions



| 型式<br>MODEL | 洩放流量<br>Releasing Flow Rate<br>(cm <sup>3</sup> /sec) | 制流孔面積<br>Area of Orifice<br>(cm <sup>2</sup> ) | 超負荷壓力設定範圍<br>Pressure Setting Range<br>(kgf/cm <sup>2</sup> ) | 壓力設定方式<br>Pressure settig | 適用空氣壓力<br>Air Supply<br>(kgf/cm <sup>2</sup> ) |
|-------------|-------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------|---------------------------|------------------------------------------------|
| OL06S 107   | 13000                                                 | 0.5                                            | 210~400                                                       | 彈簧式設定<br>Spring adjust    | 3~5                                            |
| OL06S 137   | 11500                                                 | 0.4                                            | 270~450                                                       |                           |                                                |
| OL06S 707   | 13000                                                 | 0.5                                            | 250~400                                                       |                           |                                                |
| OL06S 737   | 11500                                                 | 0.4                                            | 270~450                                                       |                           |                                                |
| OL06A 107   | 13000                                                 | 0.5                                            | 210~400                                                       | Air prssre x 70 ratio     | 3~5                                            |
| OL06A 137   | 11500                                                 | 0.4                                            | 270~450                                                       | Air prssre x 90 ratio     |                                                |
| OL06A 707   | 13000                                                 | 0.5                                            | 250~400                                                       | Air prssre x 70 ratio     |                                                |
| OL06A 737   | 11500                                                 | 0.4                                            | 270~450                                                       | Air prssre x 90 ratio     |                                                |

●適用沖床:200噸(含)以下 Suitable for press tons:200 tons & down.  
●使用液壓油 Hydraulic Oil:ISO-VG-32 or equivalent.

## 選用依據 SELECTION BASIS

### 選用依據 Selection Basis

#### 沖床規格參數 SPECIFICATION & PARAMETER OF PRESS

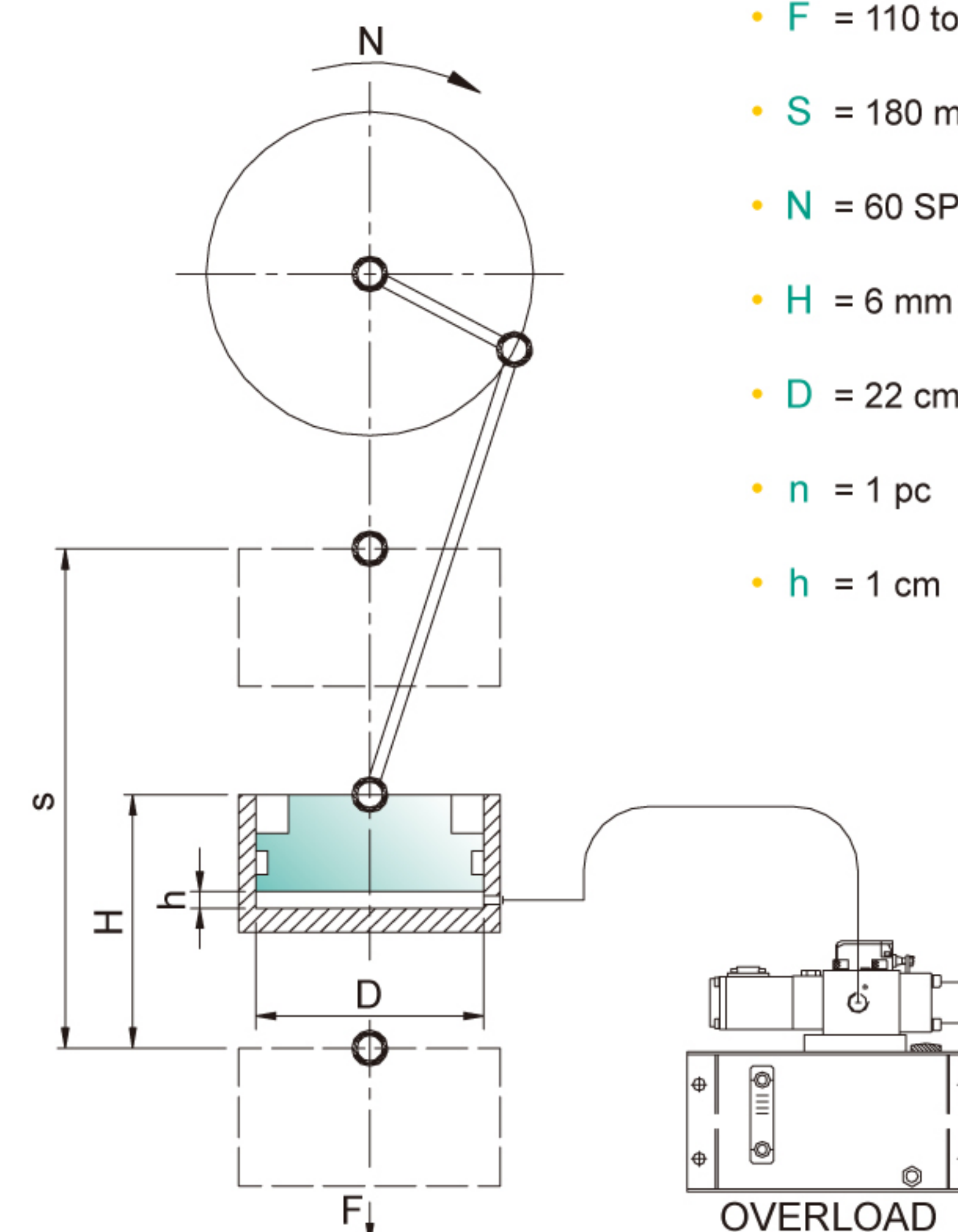
- F** 沖床能力 (tons)  
Press Rated Capacity
- S** 沖床滑塊行程 (mm)  
Stroke Length
- N** 沖床滑塊行程數 (spm)  
Stroke Per Minute
- H** 能力發生位置 (mm)  
Rated Tonnage Point
- D** 滑塊油缸直徑 (cm)  
Cylinder Diameter
- n** 滑塊油缸個數 (個)  
Cylinder Number
- h** 滑塊油缸之活塞行程 (mm)  
Cylinder Stroke
- m** 超負荷壓力倍數  
Ratio Of Overload Hydraulic Pressure

#### 型式選用計算流程 CALCULATION FORMULAS FOR MODEL SELECTION

- A** 滑塊油缸總面積  
Cylinder area  
 $= (\pi D^2 / 4) \times n \text{ (cm}^2\text{)}$
- P** 超負荷設定的油壓壓力 (OL08S Model)  
Hydraulic pressure setting of overload  
 $= F \times 1.1 \times 1000 / A \text{ (kgf/cm}^2\text{)}$
- Pa** 超負荷設定的空氣壓力 (OL08A Model)  
Air pressure setting of overload  
 $= P / m \text{ (kgf/cm}^2\text{)}$
- V** 滑塊下降速度  
Drop speed of slide  
 $\approx N \sqrt{SH - H^2} / 87.5 \text{ (cm/sec)}$
- Q** 超負荷發生時的滑塊油缸洩放量  
Releasing flow rate  
 $= A \times V \text{ (cm}^3\text{/sec)}$
- L** 油箱總容量  
Volume of oil tank  
 $\geq 4 \times A \times h \text{ (cm}^3\text{)}$

■ Releasing flow rate (Q) of overload protector, which you choose has to be more than of cylinder volume.  
If releasing flow rate isn't enough, please use two sets of overload protector.

### 範例 Example model: OL08S(A)



- F** = 110 tons
- S** = 180 mm
- N** = 60 SPM
- H** = 6 mm
- D** = 22 cm
- n** = 1 pc
- h** = 1 cm
- A** =  $(\pi 22^2 / 4) \times 1$   
= 380 (cm<sup>2</sup>)
- P** =  $110 \times 1.1 \times 1000 / 380$   
= 318 (kgf/cm<sup>2</sup>)-----OL08S modle
- Pa** =  $318 / 70$   
= 4.54 (kgf/cm<sup>2</sup>)-----OL08A modle
- V** =  $60 \sqrt{180 \times 6 - 6^2} / 87.5$   
= 22.1 (cm/sec)
- Q** =  $380 \times 22.1$   
= 8398 (cm<sup>3</sup>/sec)
- L**  $\geq 4 \times 380 \times 1$   
 $\geq 1520 \text{ (cm}^3\text{)}$

## 滑塊鎖固器 SLIDE LOCK

專用於高速沖床滑塊鎖單一迴路的控制  
Application high speed press-slide lock single circuit control



### 型式選定 Model Selection

1 2 3

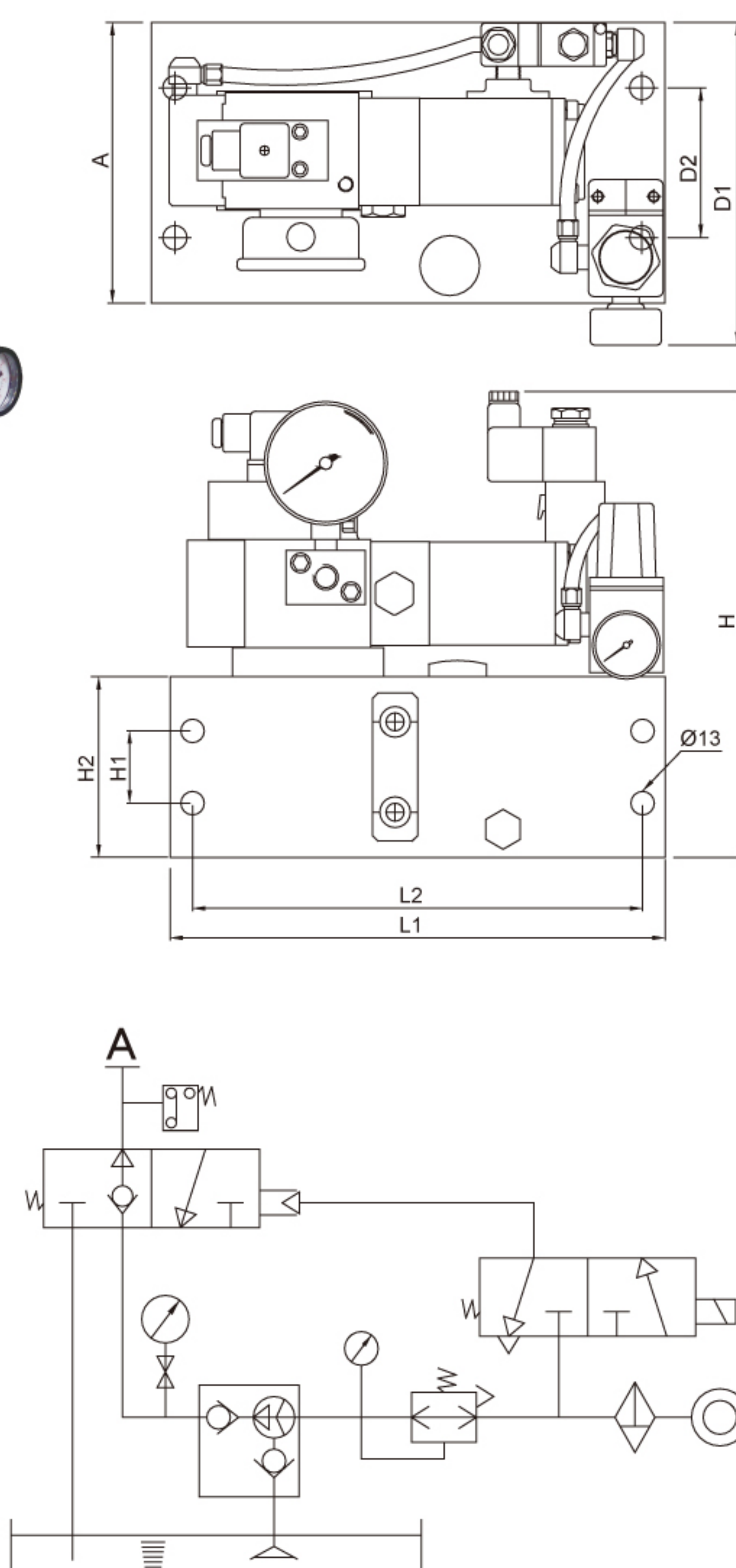
1 氣動油壓單元規格 PL0106~08 HPL0106~08

| 型式 MODEL | 吐出壓力<br>Hydraulic Pressure | 流量<br>Flow (cc/min) cc |
|----------|----------------------------|------------------------|
| PL0106   | 250                        | 900                    |
| PL0107   | 210                        | 1000                   |
| PL0108   | 160                        | 1300                   |
| HPL0106  | 420                        | 1000                   |
| HPL0107  | 320                        | 1300                   |
| HPL0108  | 250                        | 1500                   |

2 配件加裝 O:None R:洩壓閥

3 電壓指定 1:110V 2:220V 3:DC24

| 型式 MODEL | L1  | L2  | H   | H1 | H2  | D1  | D2 | A   |
|----------|-----|-----|-----|----|-----|-----|----|-----|
| PL01     | 275 | 250 | 260 | 40 | 100 | 200 | 80 | 150 |
| HPL01    | 275 | 250 | 300 | 80 | 150 | 210 | 80 | 160 |



## 送料架專用油壓單元

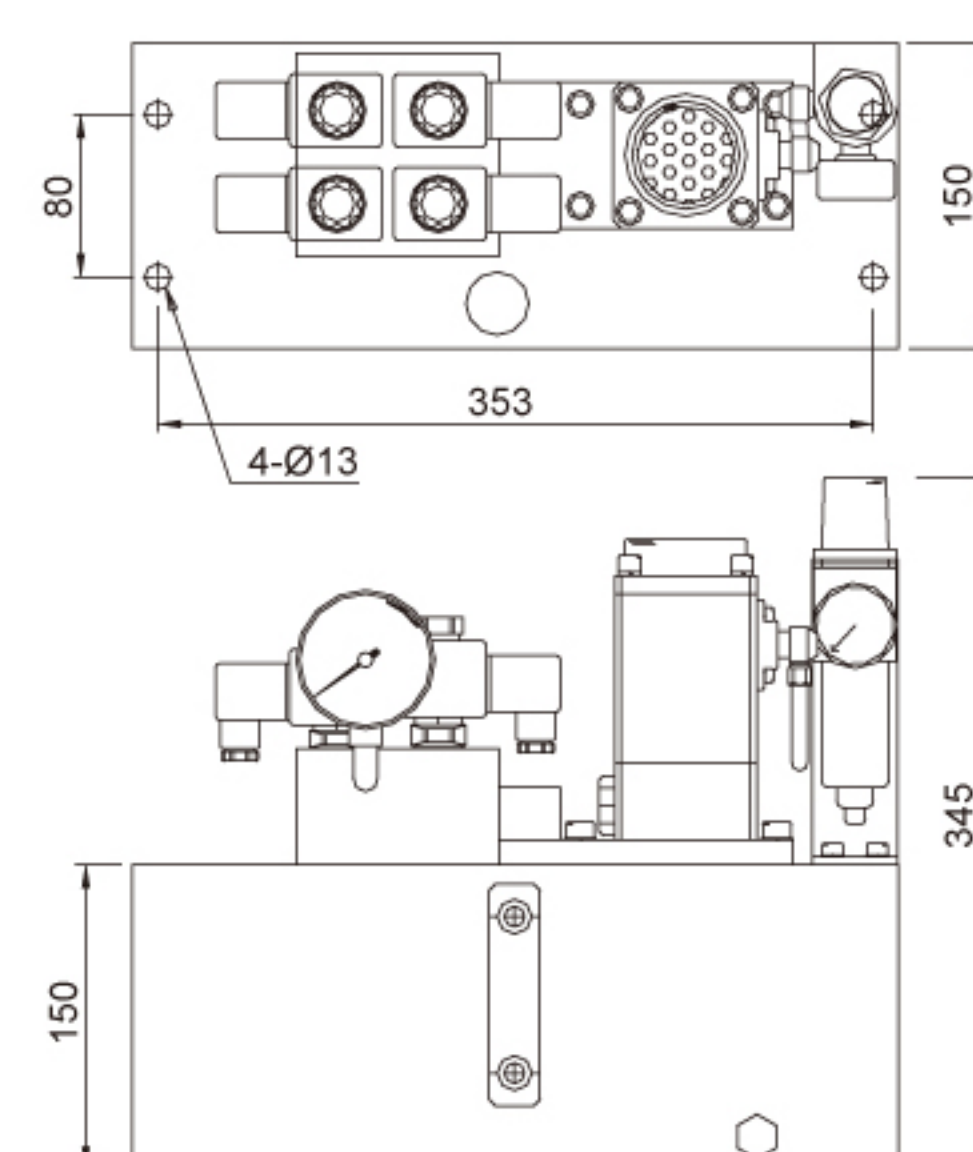
專用於送料架之油壓供給  
Hydraulic press uresupply for feeder



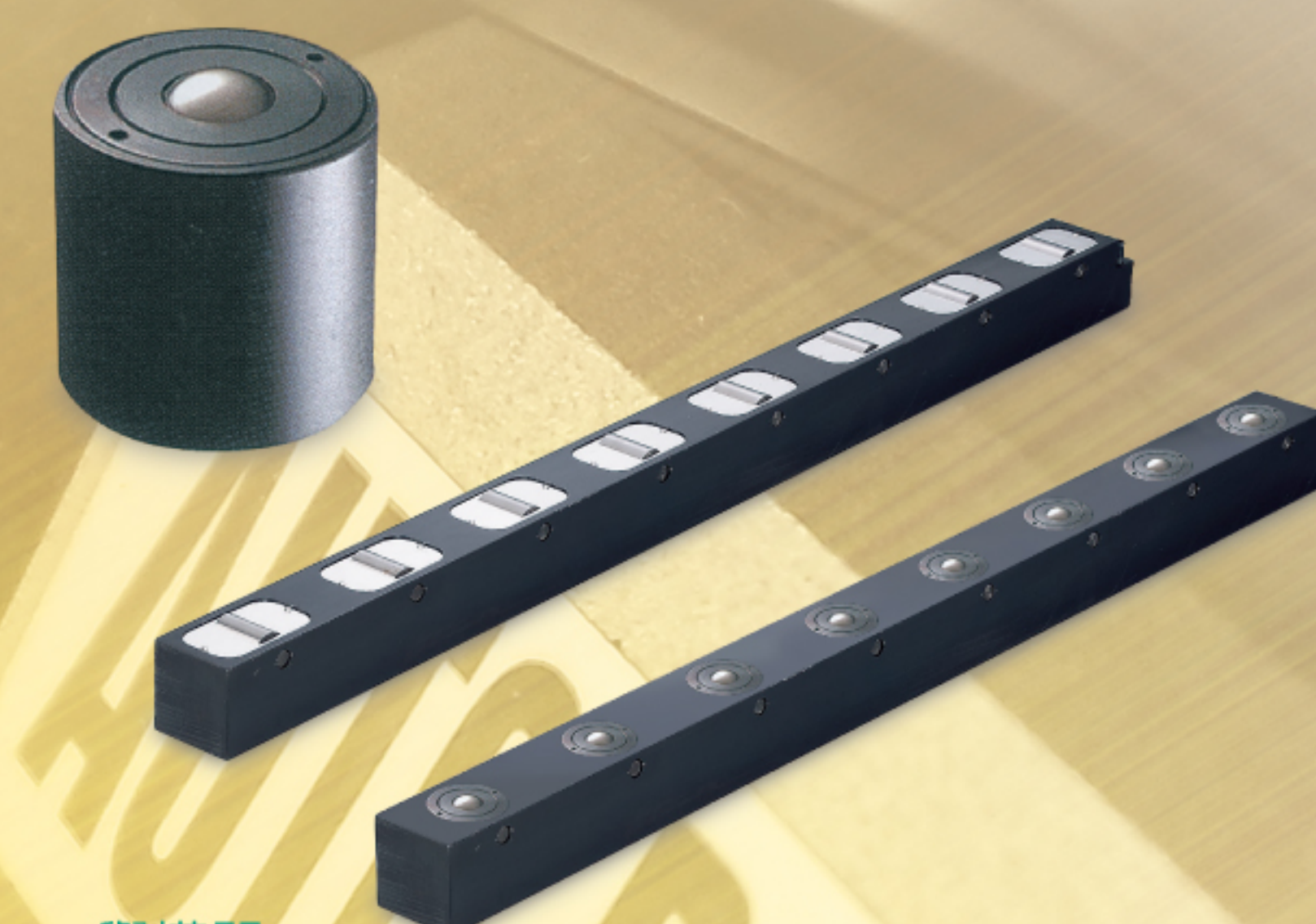
### 型式選定 Model Selection

PF10-2E-1

1 電壓指定 1:110V 2:220V 3:DC24



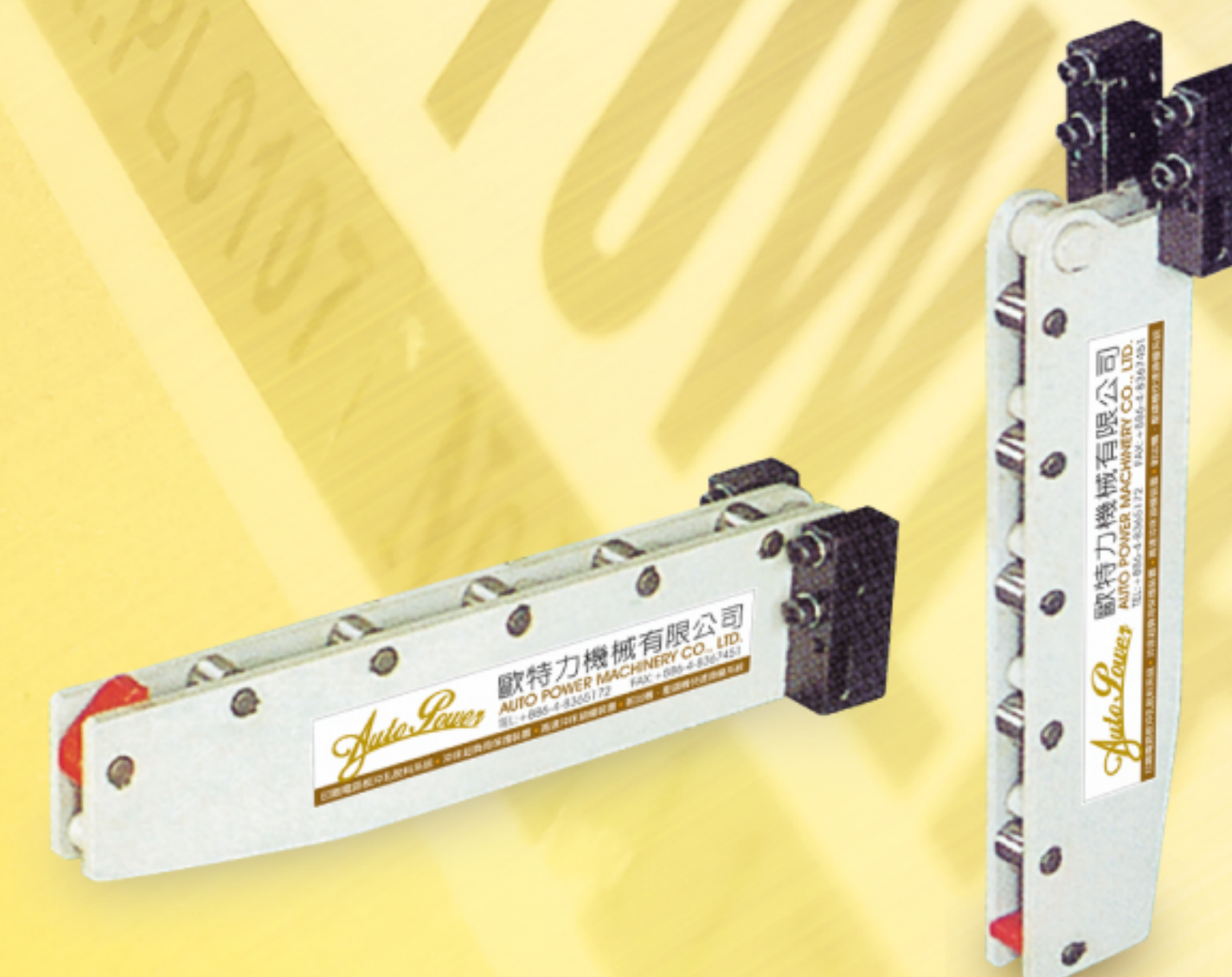
TA型夾模器 (直拉式)  
TA DIE CLAMP



舉模器  
DIE LIFTER SERIES



TB型夾模器 (壓板式)  
TB DIE CLAMP



移模臂  
BOLSTER EXTENSION SERIES



氣動油壓泵浦單元  
AIR DRIVE HYDRAULIC PUMP UNIT



電控操作箱  
ELECTRONIC CONTROL OPERATION PANEL

OL08S



OL08A



OL12S



OL12A



# 超負荷保護裝置

## OVERLOAD PROTECTOR



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