

CSP

油壓支撐缸

CSP HYDRAULIC SUPPORT CLAMP



CSP-30BLP

CSP-30BLK

產品特性

- ★高支撐力：提高了活塞桿與夾套間的夾緊力，從而產生更高的工件支撐力。
- ★切削液清潔對策：為防止高壓冷卻液及切屑粉塵侵入內部結構而引發的作動不良，更換工件時可在排氣孔進行空氣清潔。空氣清潔需要專用的氣壓回路。（建議清潔氣壓0.3~0.5MPa）
- ★通用的配管底座：可安裝目前市售相同的日系缸規格，擁有互換性。

液壓上升型：

活塞桿初始狀態為下降，供給油壓使活塞桿上升並接觸工件任意位置後停止，在停止的同時油壓作用於夾套的夾緊力施加於活塞桿，使活塞桿得以穩固的支撐工件。

彈簧上升型：

活塞桿初始狀態為上升，將工件放置於活塞桿上因工件的重量而下降到特定距離，此時供給油壓作用於夾套的夾緊力施加於活塞桿，使活塞桿得以穩固的支撐工件。

接觸力與流量及壓力關係

規格	油壓(MPa)						Unit:kgf
	流量(L/min)	3	4	5	6	7	
CSP-26	5	0.2	0.2	0.2	0.2	0.2	
	7	0.4	0.6	0.6	0.6	0.6	
	10	1	1.2	1.2	1.2	1.2	
CSP-30	5	0.4	0.4	0.4	0.4	0.4	
	7	1.6	1.8	1.6	1.6	1.6	
	10	3.4	3.4	3.4	3.6	3.6	
CSP-36	5	0.2	0.2	0.2	0.2	0.2	
	7	2	2	2.2	2	2	
	10	2.4	2.4	2.4	2.4	2.4	
CSP-45	5	0.6	0.4	0.4	0.4	0.4	
	7	3.4	3.2	3.4	3.4	3.2	
	10	4	4.2	4.4	4.2	4.2	

測試條件為距離油缸4mm~5mm之最大接觸力

FEATURES

High Supporting Force: The gap between the plunger and the collet is expanded to improve its overall performance, resulting in a higher supporting force.
Cutting Fluid Cleaning Countermeasures: To prevent improper operation caused by high-pressure coolant and chip dust from entering the internal structure, air cleaning can be performed in the exhaust hole when replacing the workpiece. Air cleaning requires a specific air pressure circuit (recommended cleaning air pressure at 0.3~0.5MPa).
Universal piping base: The CSP series is compatible and interchangeable with Japanese branded cylinders that are currently on the market.

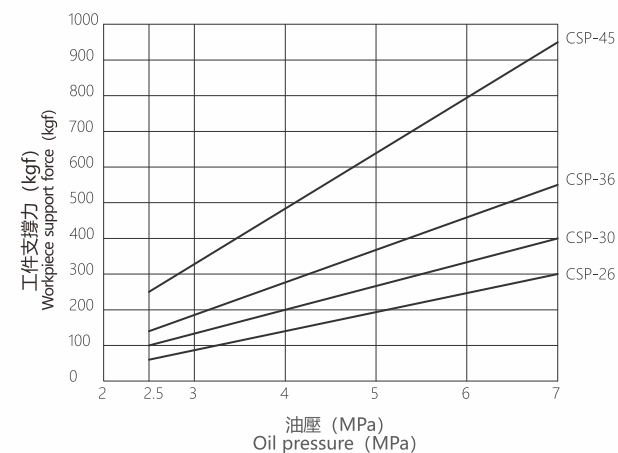
Hydraulic Pressure Rising Type:

The initial state of the piston rod is down. When the oil pressure is supplied, the piston rod rises and stops once contact is made with the workpiece at any position. During this period, the hydraulic pressure on the collet can grip the plunger with stronger power to generate the supporting force.

Spring Rising Type:

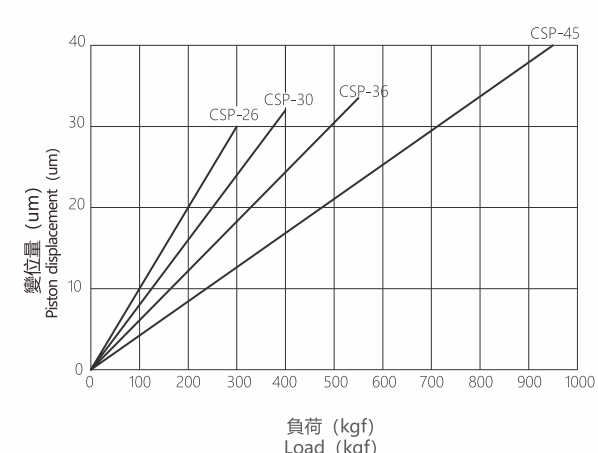
The initial state of the piston rod is up, and the workpiece is placed on the piston rod and dropped to a certain distance due to the weight of the workpiece. During this period, the hydraulic pressure on the collet can grip the plunger with stronger power to generate the supporting force.

油壓與工件支撐力的關係



※本圖表示靜態負荷條件下的支持力。

負荷與變位量的關係



※本圖表示供給油壓7MPa條件下的靜態負荷變化。

訂購標示法 ORDERING INDICATION

示例：CSP-30BLK(MH)

CSP	系列 Series	CSP	
30	油缸外徑 Oil cylinder external diameter	M26×1.5 M30×1.5	M36×1.5 M45×1.5
B	型式 Type	A: 彈簧上升型 B: 液壓上升型(標準)	A: Spring rising type B: Hydraulic rising type (standard)
L	壓強 Pressure	低壓7MPa	Low pressure 7MPa
K	版式 Format	K: K Type P: P Type	
M	氣檢式 Air sensing type	無記號: 標準型 M: 帶氣檢	Unmarked: Standard type M: Air sensing type
H	活塞彈簧力 Piston spring force	無記號: 標準型 H: 強彈簧(訂購前請來電諮詢)	Unmarked: Standard type H: Strong spring (please call for consultation before ordering)



規格參數表 SPECIFICATION

型號	工件支撐力 (油壓為7MPa時) ※1	油缸流量	上升彈簧力 ※2	活塞桿行程	最高使用壓力	最低使用壓力	保證耐壓	使用溫度	質量
MODEL	WORKPIECE SUPPORT FORCE (WHEN OIL PRESSURE IS 7MPa) (kgf)	OIL CYLINDER FLOW (cm ³)	RIISING SPRING FORCE※2 (kgf)	PISTON ROD STROKE (mm)	MAXIMUM WORKING PRESSURE (MPa)	MINIMUM WORKING PRESSURE (MPa)	ENSURE OVERPRESSURE -RESISTANT (MPa)	OPERATING TEMPERATURE (°C)	Quality (kg)
CSP-26	300	0.5	0.2~0.4	6.5	7	2.5	10.5	0~70	0.2
CSP-30	400	0.7	0.4~0.6	8	7	2.5	10.5	0~70	0.3
CSP-36	550	0.8	0.3~0.5	8	7	2.5	10.5	0~70	0.4
CSP-45	950	2.3	0.3~0.6	10	7	2.5	10.5	0~70	0.7

使用液體：普通礦物油基液壓油（相當於ISO-VG32）

※1:將支撐缸與夾緊缸對置使用時,為了使支撐力足夠,所使用的支撐缸支撐力應該為夾緊缸與切削負荷的1.5倍以上,請選擇型號匹配的支撐缸與夾緊缸。

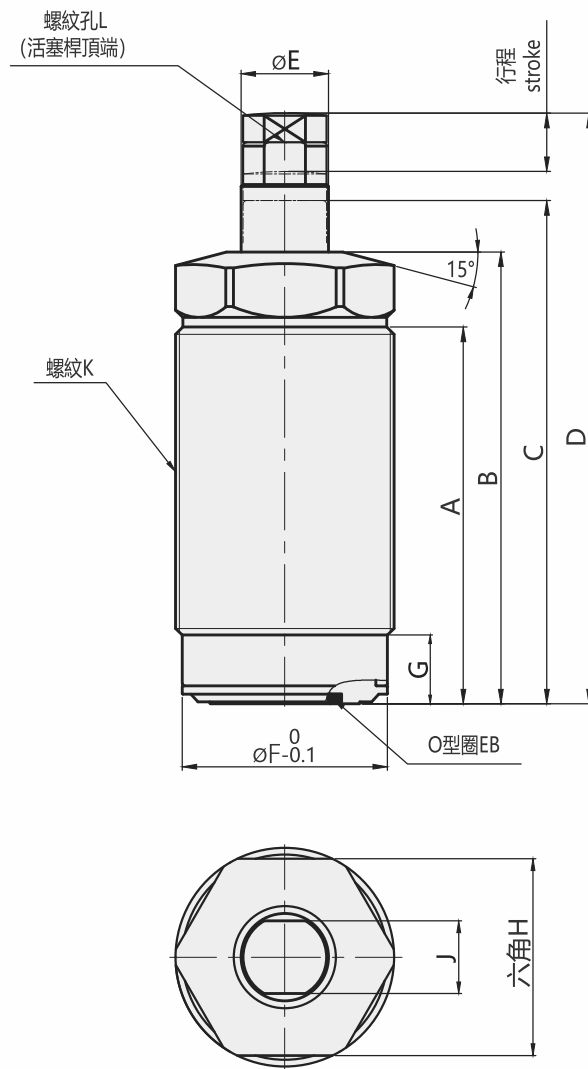
※2:活塞桿上升彈簧力的數值表示彈簧設計值。該值會因活塞桿的滑動阻力、彈簧特性等而產生一定的偏差,所以上升彈簧力為參考值。

Recommended: ISO-VG-32 hydraulic oil equivalent to ISO viscosity grade

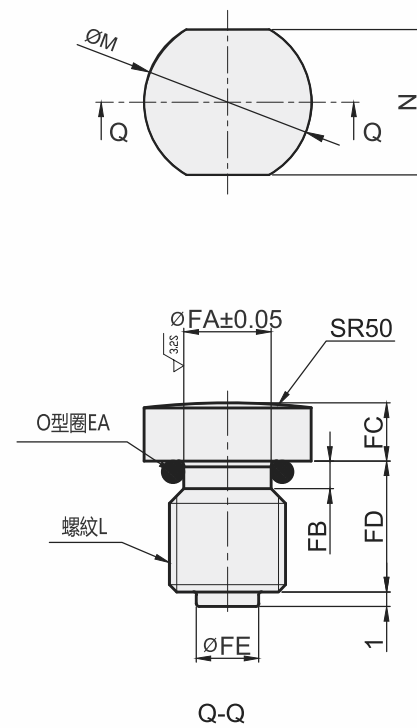
※ 1: When the support clamp and cylinder clamp are used opposite from each other, the supporting force must be 1.5 times the amount of the damping force and cutting load in order for the support clamp to work sufficiently. Please check the compatibility of the support clamp and cylinder clamp when selecting parts.

※ 2: The plunger spring force indicates the spring design value. It may vary depending on sliding resistance of the plunger and characteristic of the spring, etc. Please use the rising spring force as a reference value.

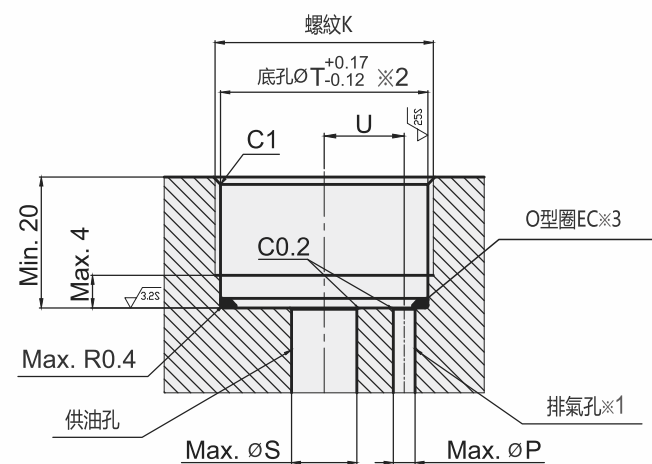
CSP-ALK油壓支撐缸外型尺寸圖



帽蓋詳圖



安裝孔加工圖



注意事項:

- ※1:排氣孔必須向大氣開放，且應注意防止冷卻液、切屑粉塵等侵入缸體內部。
- ※2:安裝孔底面最大表面粗糙度應加工在3.2S以下。
- ※3:附帶的O型圈EC要安裝到安裝孔內。

NOTE:

- ※: Vent hole must be open to the atmosphere, and attention should be paid to prevent coolant, chip dust and other intrusions into the cylinder body interior.
- ※2: The maximum surface roughness of the bottom of the installation hole shall be processed below 3.2S.
- ※3: The attached O-ring EC should be installed in the installation hole.

注意事項:

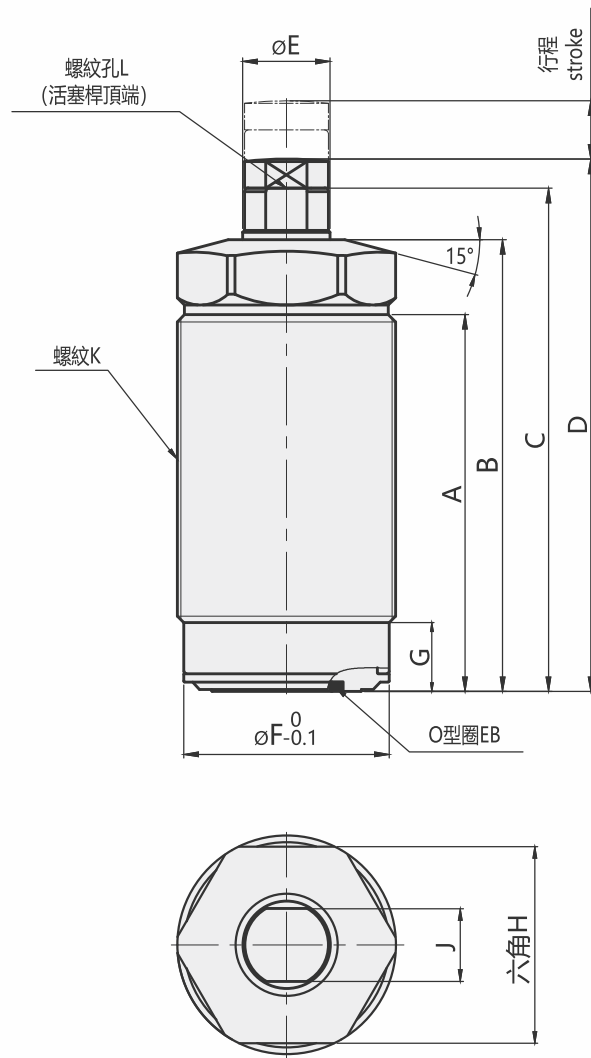
- 1、請務必安裝帽蓋，否則工件接觸彈簧將無法支撐工件，用戶自製帽蓋時，請參照帽蓋詳圖，設置O型圈槽，請務必使用附帶的O型圈，否則冷卻液等異物會入侵缸體內部，導致動作異常等故障。
- 2、用戶自製升起彈簧時，本公司不保證活塞桿正確作動。
- 3、如果O型圈破損或丟失，請務必參照型錄上的O型圈規格，不可任意更換其他O型圈尺寸，若有需要請向本公司業務聯繫。
- 4、輕量工件及薄型工件的情況下，請根據需求臨時固定工件，否則會有工件被頂起的現象。
- 5、空氣清潔迴路使用後，務必卸載氣壓，否則可能造成無法復位。
- 6、如果活塞桿上升速度過快，會造成活塞桿接觸工件時出現反彈的現象，並在回彈位置處夾緊，使活塞桿與工件之間產生間隙或形成衝擊，導致內部零件損壞。請通過單向流量控制閥來調整活塞桿的上升動作速度，以使其上升動作時間在0.5~1秒以上，並確認活塞桿與工件之間沒有間隙與衝擊情況後再投入使用。
- 7、請使用啟閉壓力為0.1MPa以下的帶單向閥的流量調整閥。如果閥的啟閉壓力過高，釋放時活塞桿就無法復位。

NOTE:

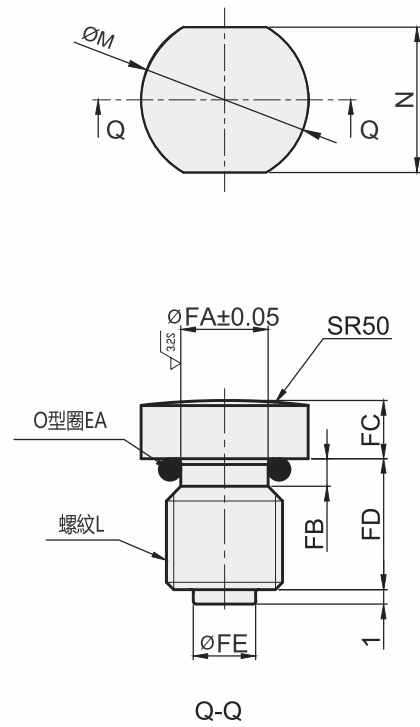
- 1、Be sure to install the cap. Otherwise, the workpiece will not be able to support the workpiece in contact with the spring. When the user makes the cap, please refer to the Cap Detailed Drawing and set O-ring groove. Please be sure to use the attached O-ring. Otherwise, foreign bodies such as coolant will intrude into the cylinder body and cause abnormal operation and other faults.
- 2、The Company does not guarantee the correct action of the piston rod when the user makes the rising spring by himself.
- 3、If the O-ring is damaged or lost, please refer to the specifications of O-ring in the catalogue, and do not change other O-ring sizes arbitrarily. If necessary, please contact our Company.
- 4、In the case of light and thin workpiece, please fix the workpiece temporarily according to the demand, otherwise the workpiece will be damaged.
- 5、The return of cleaning air pressure will cause the piston rod to be unable to reset if air is supplied all the time.
- 6、If the piston rod rising speed is too fast, it will cause the phenomenon of rebound when the piston rod contacts the workpiece, and damp at the rebound position, which will cause the gap or impact between the piston rod and the workpiece, leading to the damage of the internal parts. Please adjust the rising speed of the piston rod through one-way flow control valve so that the rising action time is more than 0.5-1 second, and confirm that there is no gap and impact between the piston rod and workpiece before putting into use.
- 7、Please use a flow control valve with a one-way valve under the opening pressure below 0.1MPa. If the opening pressure of the valve is too high, the piston rod cannot be reset when released.

型號 Model No	CSP-26ALK	CSP-30ALK	CSP-36ALK	CSP-45ALK
A	48.2	51.7	49.7	59.2
B	57	62	58	71
C	63	69	65	78
D	72.5	81	77	92
ØE	10	12	15	16
ØF	24.3	28.2	34.2	43.2
G	8.4	9.4	9.4	9
H	24	27	32	41
J (活塞桿對邊寬)	8	10	13	13
K (公稱直徑X螺距)	M26X1.5	M30X1.5	M36X1.5	M45X1.5
L (公稱直徑X螺距)	M6X1	M8X1.25	M10X1.5	M10X1.5
ØM	9.5	11.5	12.5	12.5
N (對邊寬)	8	10	11	11
ØP	2.6	3	3	3
ØS	7.5	9	9	9
ØT	24.5	28.5	34.5	43.5
U	9	11	13	16
ØFA	4.5	6	7.8	7.8
FB	1.5	1.9	1.9	1.9
FC	3	4	4	4
FD	7.5	9	9	9
ØFE	3.5	4.3	5	5
O型圈EA (氟橡膠 硬度Hs70)	S5	S6	S8	S8
O型圈EB (氟橡膠 硬度Hs90)	AS568-013	AS568-014	AS568-014	AS568-015
O型圈EC (氟橡膠 硬度Hs90)	AS568-020	AS568-022	AS568-026	AS568-030

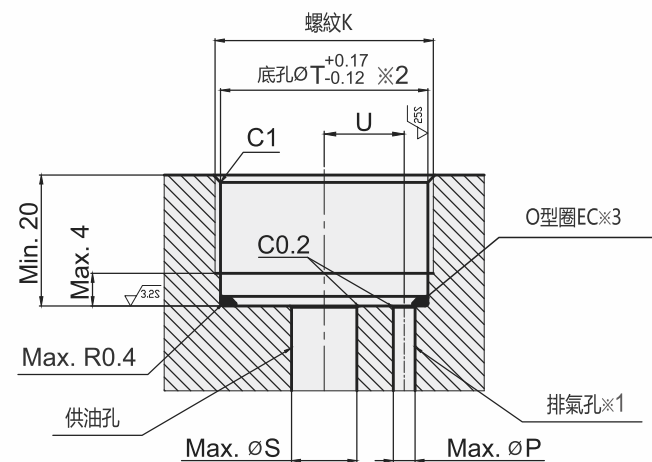
CSP-BLK油壓支撐缸外型尺寸圖



帽蓋詳圖



安裝孔加工圖



注意事項:

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- ※2:安裝孔底面最大表面粗糙度應加工在3.2S以下。
- ※3:附帶的O型圈EC要安裝到安裝孔內。

NOTE:

- ※1: Vent hole must be open to the atmosphere, and attention should be paid to prevent coolant, chip dust and other intrusions into the cylinder body interior.
- ※2: The maximum surface roughness of the bottom of the installation hole shall be processed below 3.2S.
- ※3: The attached O-ring EC should be installed in the installation hole.

CSP-BLK油壓支撐缸外型尺寸及安裝部位加工尺寸表

Unit:mm

型號 Model No	CSP-26BLK	CSP-30BLK	CSP-36BLK	CSP-45BLK
A	48.2	51.7	49.7	59.2
B	57	62	58	71
C	63	69	65	78
D	66	73	69	82
ØE	10	12	15	16
ØF	24.3	28.2	34.2	43.2
G	8.4	9.4	9.4	9
H	24	27	32	41
J (活塞桿對邊寬)	8	10	13	13
K (公稱直徑X螺距)	M26X1.5	M30X1.5	M36X1.5	M45X1.5
L (公稱直徑X螺距)	M6X1	M8X1.25	M10X1.5	M10X1.5
ØM	9.5	11.5	12.5	12.5
N (對邊寬)	8	10	11	11
ØP	2.6	3	3	3
ØS	7.5	9	9	9
ØT	24.5	28.5	34.5	43.5
U	9	11	13	16
ØFA	4.5	6	7.8	7.8
FB	1.5	1.9	1.9	1.9
FC	3	4	4	4
FD	7.5	9	9	9
ØFE	3.5	4.3	5	5
O型圈EA (氟橡膠 硬度Hs70)	S5	S6	S8	S8
O型圈EB (氟橡膠 硬度Hs90)	AS568-013	AS568-014	AS568-014	AS568-015
O型圈EC (氟橡膠 硬度Hs90)	AS568-020	AS568-022	AS568-026	AS568-030

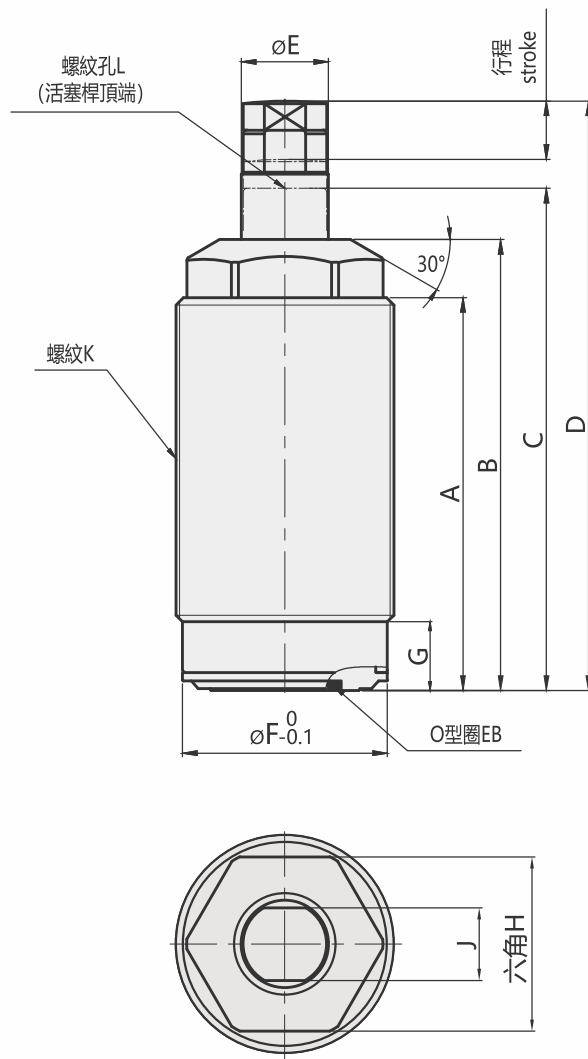
注意事項:

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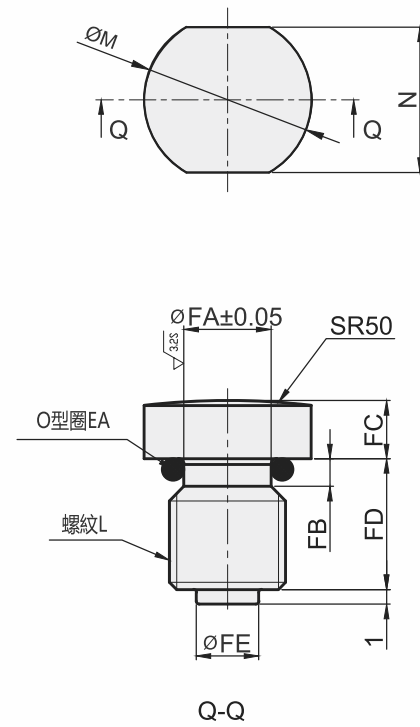
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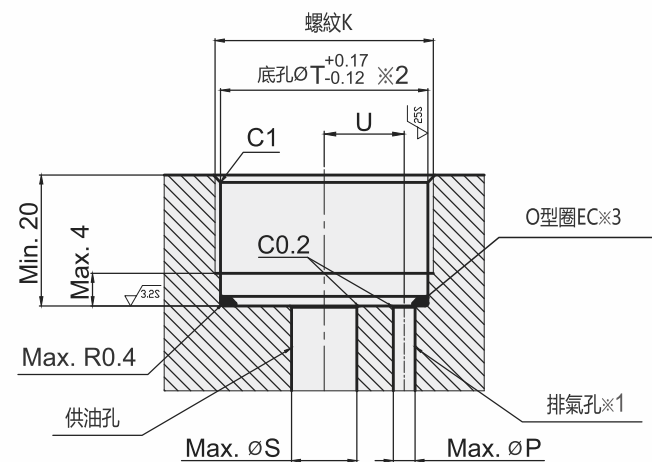
CSP-ALP油壓支撐缸外型尺寸圖



帽蓋詳圖



安裝孔加工圖



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CSP-ALP油壓支撐缸外型尺寸及安裝部位加工尺寸表

Unit:mm

型號 Model No	CSP-26ALP	CSP-30ALP	CSP-36ALP	CSP-45ALP
A	49	54	48	60
B	57	62	58	71
C	63	69	65	78
D	72.5	81	77	92
∅E	10	12	15	16
∅F	24.3	28.2	34.2	43.2
G	8.4	9.4	9.5	9.4
H	22	24	30	36
J (活塞桿對邊寬)	8	10	13	13
K (公稱直徑X螺距)	M26X1.5	M30X1.5	M36X1.5	M45X1.5
L (公稱直徑X螺距)	M6X1	M8X1.25	M10X1.5	M10X1.5
∅M	9.5	11.50	12.50	12.5
N (對邊寬)	8	10	11	11
∅P	2.6	3	3	3
∅S	7.5	9	9	9
∅T	24.5	28.5	34.5	43.5
U	9	11	13	16
∅FA	4.5	6	7.8	7.8
FB	1.5	1.9	1.9	1.9
FC	3	4	4	4
FD	7.5	9	9	9
∅FE	3.5	4.3	5	5
O形圈EA (氟橡膠 硬度Hs70)	S5	S6	S8	S8
O形圈EB (氟橡膠 硬度Hs90)	AS568-013	AS568-014	AS568-014	AS568-015
O形圈EC (氟橡膠 硬度Hs90)	AS568-020	AS568-022	AS568-026	AS568-030

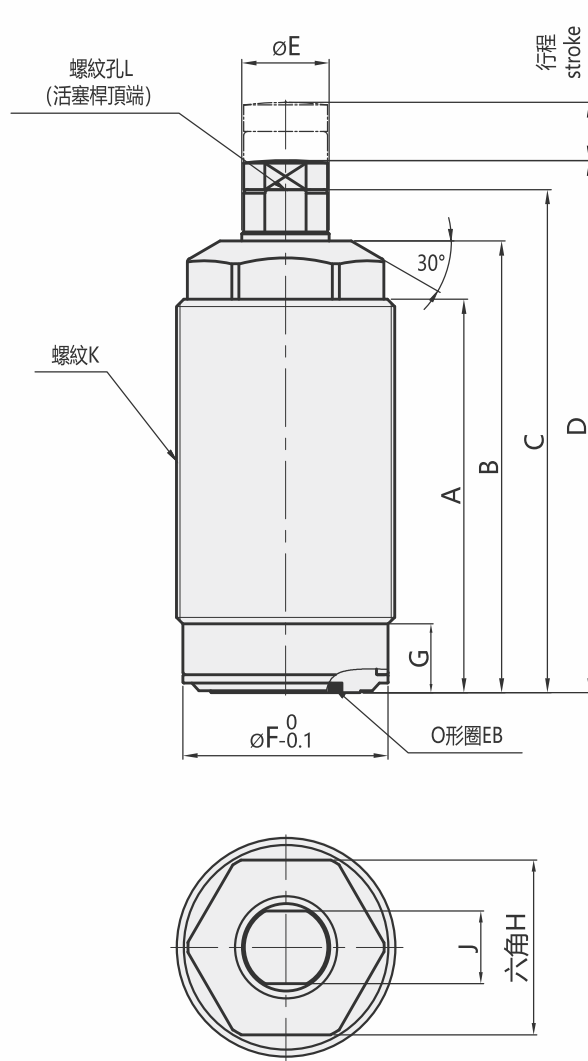
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- 1、請務必安裝帽蓋，否則工件接觸彈簧將無法支撐工件，用戶自製帽蓋時，請參照帽蓋詳圖，設置O型圈槽，請務必使用附帶的O型圈，否則冷卻液等異物會入侵缸體內部，導致動作異常等故障。
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- 4、輕量工件及薄型工件的情況下，請根據需求臨時固定工件，否則會有工件被頂起的現象。
- 5、空氣清潔迴路使用後，務必卸載氣壓，否則可能造成無法復位。
- 6、如果活塞桿上升速度過快，會造成活塞桿接觸工件時出現反彈的現象，並在回彈位置處夾緊，使活塞桿與工件之間產生間隙或形成衝擊，導致內部零件損壞。請通過單向流量控制閥來調整活塞桿的上升動作速度，以使其上升動作時間在0.5~1秒以上，並確認活塞桿與工件之間沒有間隙與衝擊情況後再投入使用。
- 7、請使用啟閉壓力為0.1MPa以下的帶單向閥的流量調整閥。如果閥的啟閉壓力過高，釋放時活塞桿就無法復位。

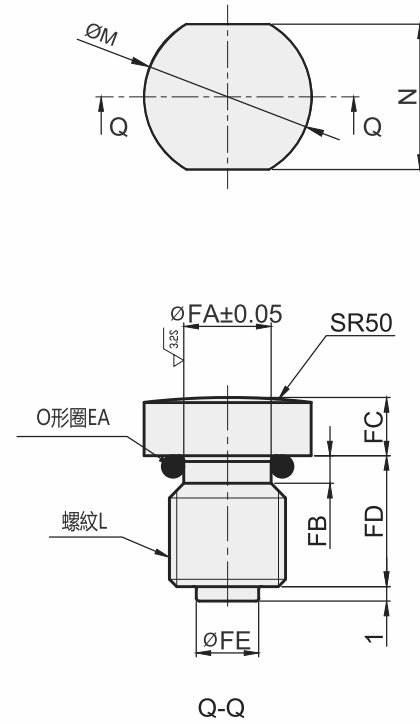
NOTE:

1. Be sure to install the cap. Otherwise, the workpiece will not be able to support the workpiece in contact with the spring. When the user makes the cap, please refer to the Cap Detailed Drawing and set O-ring groove. Please be sure to use the attached O-ring. Otherwise, foreign bodies such as coolant will intrude into the cylinder body and cause abnormal operation and other faults.
2. The Company does not guarantee the correct action of the piston rod when the user makes the rising spring by himself.
3. If the O-ring is damaged or lost, please refer to the specifications of O-ring in the catalogue, and do not change other O-ring sizes arbitrarily. If necessary, please contact our Company.
4. In the case of light and thin workpiece, please fix the workpiece temporarily according to the demand, otherwise the workpiece will be damaged.
5. The return of cleaning air pressure will cause the piston rod to be unable to reset if air is supplied all the time.
6. If the piston rod rising speed is too fast, it will cause the phenomenon of rebound when the piston rod contacts the workpiece, and damp at the rebound position, which will cause the gap or impact between the piston rod and the workpiece, leading to the damage of the internal parts. Please adjust the rising speed of the piston rod through one-way flow control valve so that the rising action time is more than 0.5-1 second, and confirm that there is no gap and impact between the piston rod and workpiece before putting into use.
7. Please use a flow control valve with a one-way valve under the opening pressure below 0.1MPa. If the opening pressure of the valve is too high, the piston rod cannot be reset when released.

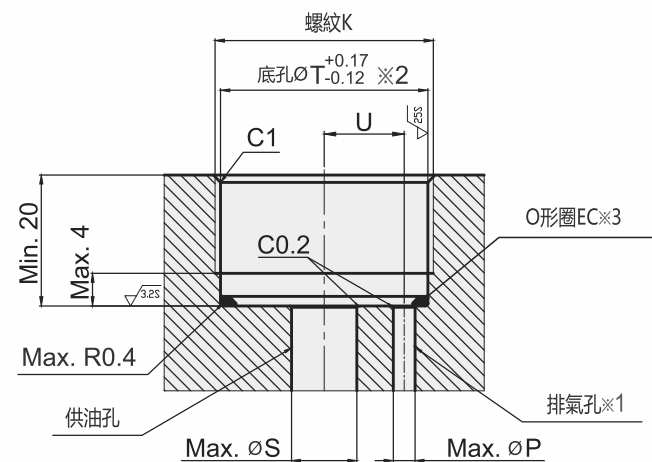
CSP-BLP油壓支撐缸外型尺寸圖



帽蓋詳圖



安裝孔加工圖



注意事項:

- ※1: 排氣孔必須向大氣開放，且應注意防止冷卻液、切屑粉塵等侵入缸體內部。
- ※2: 安裝孔底面最大表面粗糙度應加工在3.2S以下。
- ※3: 附帶的O型圈EC要安裝到安裝孔內。

NOTE:

- ※1: Vent hole must be open to the atmosphere, and attention should be paid to prevent coolant, chip dust and other intrusions into the cylinder body interior.
- ※2: The maximum surface roughness of the bottom of the installation hole shall be processed below 3.2S.
- ※3: The attached O-ring EC should be installed in the installation hole.

CSP-BLP油壓支撐缸外型尺寸及安裝部位加工尺寸表

Unit:mm

型號 Model No	CSP-26BLP	CSP-30BLP	CSP-36BLP	CSP-45BLP
A	49	54	48	60
B	57	62	58	71
C	63	69	65	78
D	66	73	69	82
ØE	10	12	15	16
ØF	24.3	28.2	34.2	43.2
G	8.4	9.4	9.5	9.4
H	22	24	30	36
J (活塞桿對邊寬)	8	10	13	13
K (公稱直徑X螺距)	M26X1.5	M30X1.5	M36X1.5	M45X1.5
L (公稱直徑X螺距)	M6X1	M8X1.25	M10X1.5	M10X1.5
ØM	9.5	11.5	12.5	12.5
N (對邊寬)	8	10	11	11
ØP	2.6	3	3	3
ØS	7.5	9	9	9
ØT	24.5	28.5	34.5	43.5
U	9	11	13	16
ØFA	4.5	6	7.8	7.8
FB	1.5	1.9	1.9	1.9
FC	3	4	4	4
FD	7.5	9	9	9
ØFE	3.5	4.3	5	5
O形圈EA (氟橡膠 硬度Hs70)	S5	S6	S8	S8
O形圈EB (氟橡膠 硬度Hs90)	AS568-013	AS568-014	AS568-014	AS568-015
O形圈EC (氟橡膠 硬度Hs90)	AS568-020	AS568-022	AS568-026	AS568-030

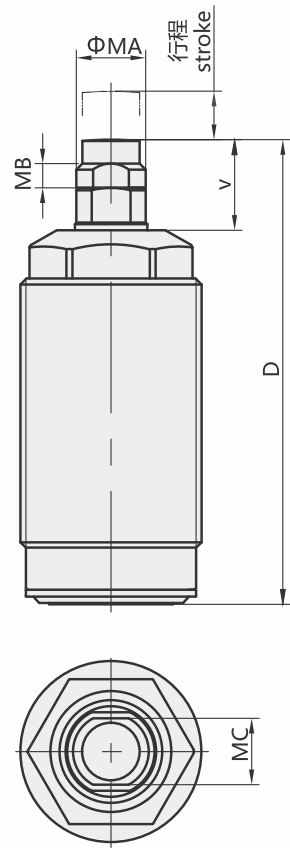
注意事項:

- 1、請務必安裝帽蓋，否則工件接觸彈簧將無法支撐工件，用戶自製帽蓋時，請參照帽蓋詳圖，設置O型圈槽，請務必使用附帶的O型圈，否則冷卻液等異物會入侵缸體內部，導致動作異常等故障。
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- 7、請使用啟閉壓力為0.1MPa以下的帶單向閥的流量調整閥。如果閥的啟閉壓力過高，釋放時活塞桿就無法復位。

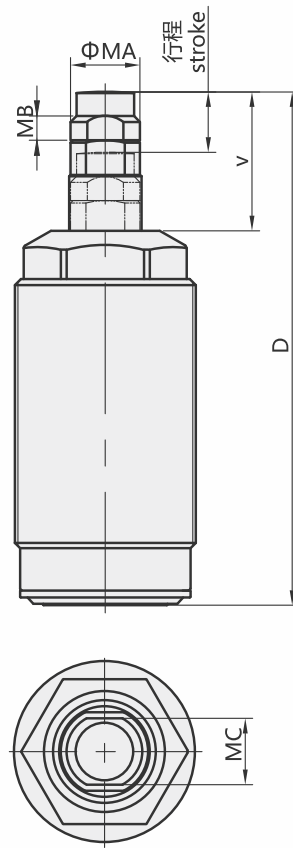
NOTE:

1. Be sure to install the cap. Otherwise, the workpiece will not be able to support the workpiece in contact with the spring. When the user makes the cap, please refer to the Cap Detailed Drawing and set O-ring groove. Please be sure to use the attached O-ring. Otherwise, foreign bodies such as coolant will intrude into the cylinder body and cause abnormal operation and other faults.
2. The Company does not guarantee the correct action of the piston rod when the user makes the rising spring by himself.
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5. The return of cleaning air pressure will cause the piston rod to be unable to reset if air is supplied all the time.
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7. Please use a flow control valve with a one-way valve under the opening pressure below 0.1MPa. If the opening pressure of the valve is too high, the piston rod cannot be reset when released.

CSP-□M油壓上頂型
氣檢支撐缸外形尺寸圖

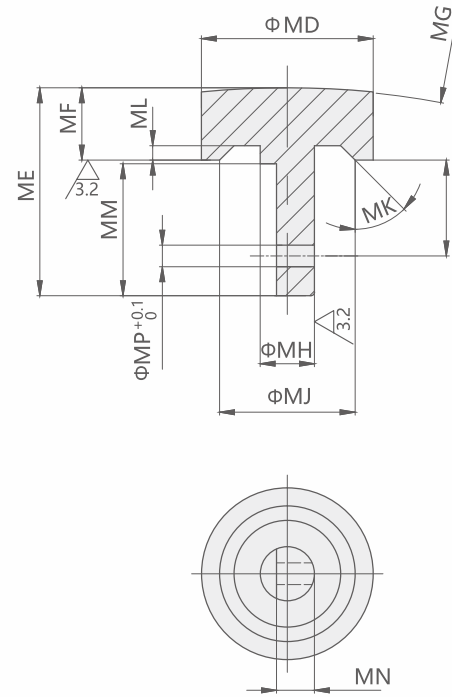


CSP-□M彈簧上頂型
氣檢支撐缸外形尺寸圖

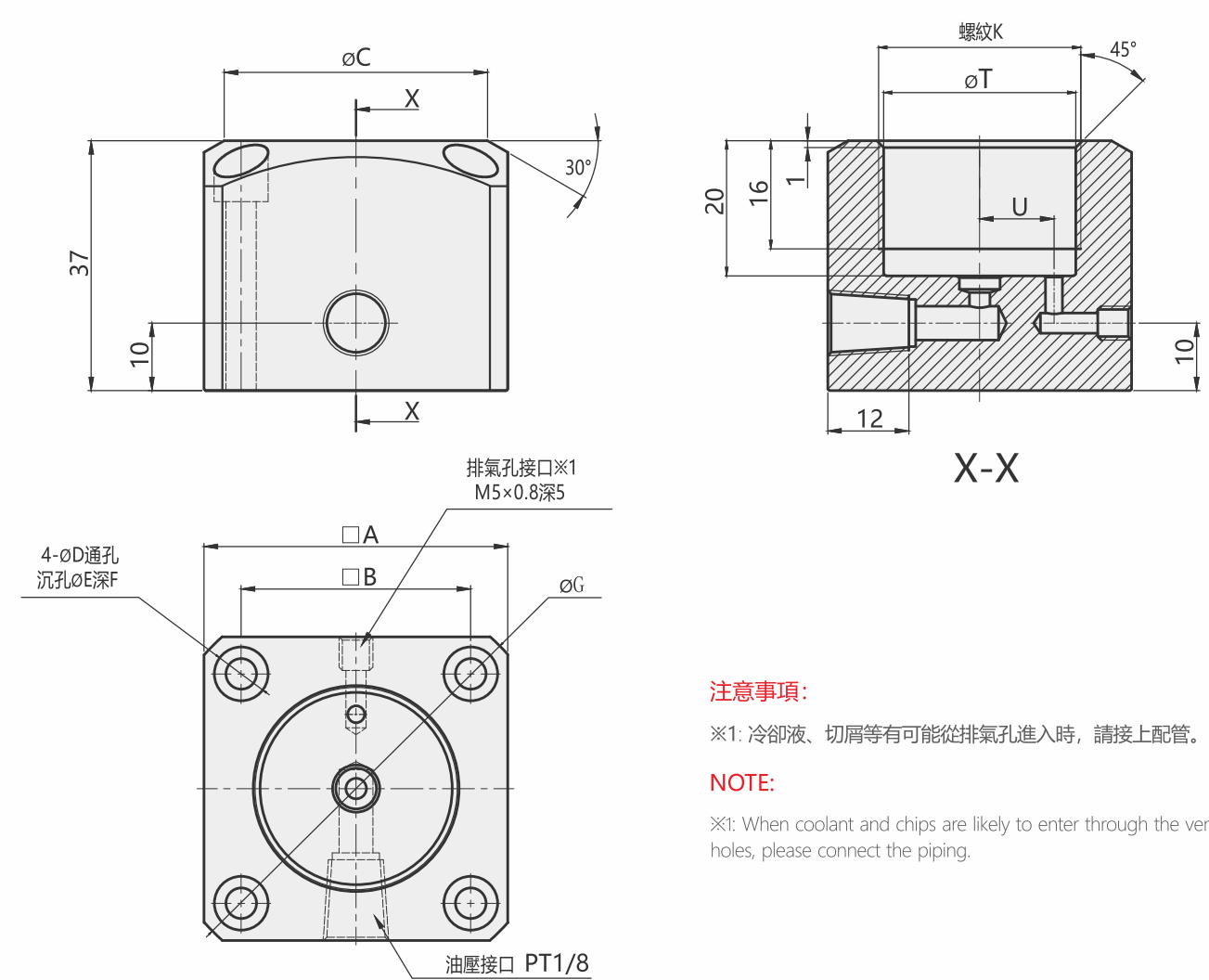


註：其他外形尺寸與非氣檢支撐缸一致

氣檢帽蓋詳圖



CSP-DF配管底座



注意事項：

※1: 冷卻液、切屑等有可能從排氣孔進入時，請接上配管。

NOTE:

※1: When coolant and chips are likely to enter through the vent holes, please connect the piping.

CSP-□M油壓氣檢支撐缸外形尺寸及氣檢帽蓋尺寸

Unit:mm

型號 Model No		CSP-26□M	CSP-30□M	CSP-36□M	CSP-45□M
行程stroke		6.5	8	8	10
D	CSP-□A□M	75.5	85	81	96
	CSP-□B□M	69	77	73	86
V	CSP-□A□M	18.5	23	23	25
	CSP-□B□M	12	15	15	15
MA		9	11.5	12.5	12.5
MB		3	4	4	4
MC		8	10	11	11
MD		8	9.5	10.5	10.5
ME		12.5	11.5	11.5	11.5
MF		3	4	4	4
MG		SR30	SR30	SR50	SR50
MH		2.5g7	3g7	4g7	5g7
MJ		6	7.5	8.5	8.5
MK		20°	45°	45°	45°
ML		0.8	0.8	0.8	0.8
MM		9.3	7.3	7.3	7.3
MN		1.7	2.1	3.2	3.2
MP		1.4	1.2	1.2	1.2
MQ		7.5	5.3	5.3	5.3

- 注意事項 1.氣檢回路推薦氣壓0.03~0.15Mpa，推薦使用SMC的ISA2-G、ISA3-G空氣傳感器；
2.因氣檢氣壓或拆卸工件等原因導致支撐桿退回動作遲緩時，可以在支撐桿退回動作中暫時切斷氣路供給。

CSP-DF油壓支撐缸配管式安裝座尺寸表

Unit:mm

型號 Model No	CSP-26DF	CSP-30DF	CSP-36DF	CSP-45DF
A	40	45	51	60
B	29	34	38	47
øC	34	39	45	54
øD	4.5	4.5	5.5	5.5
øE	8	8	9	9
F	9	9	12	12
øG	54	60	68	80
K(公稱直徑X螺距)	M26X1.5	M30X1.5	M36X1.5	M45X1.5
øT	24.5	28.5	34.5	43.5
U	9	11	13	16