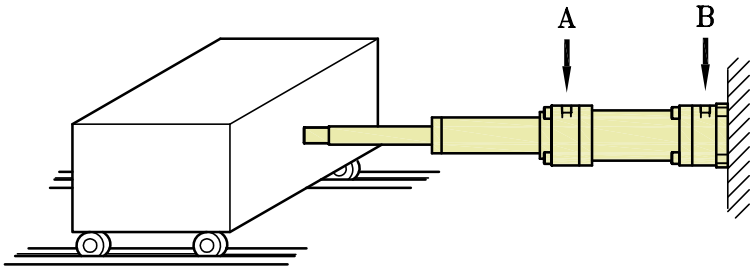
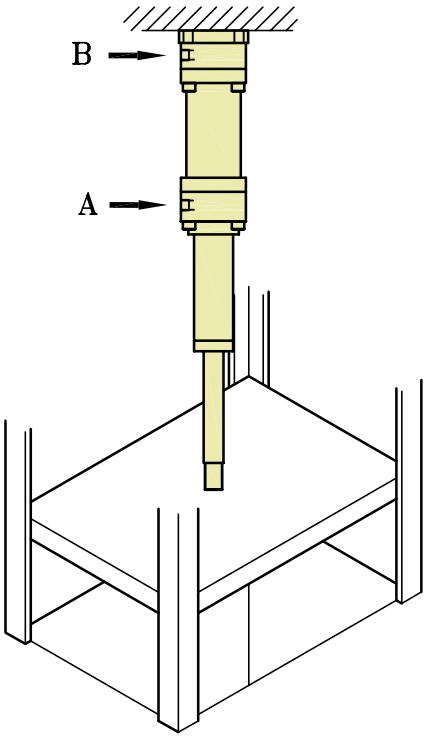
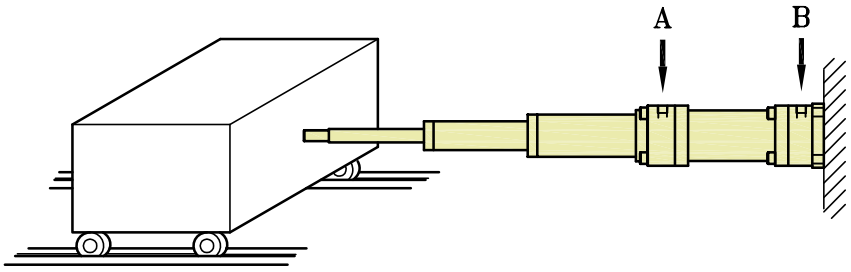
HC10系列油壓缸 /Series Hydraulic Cylinders

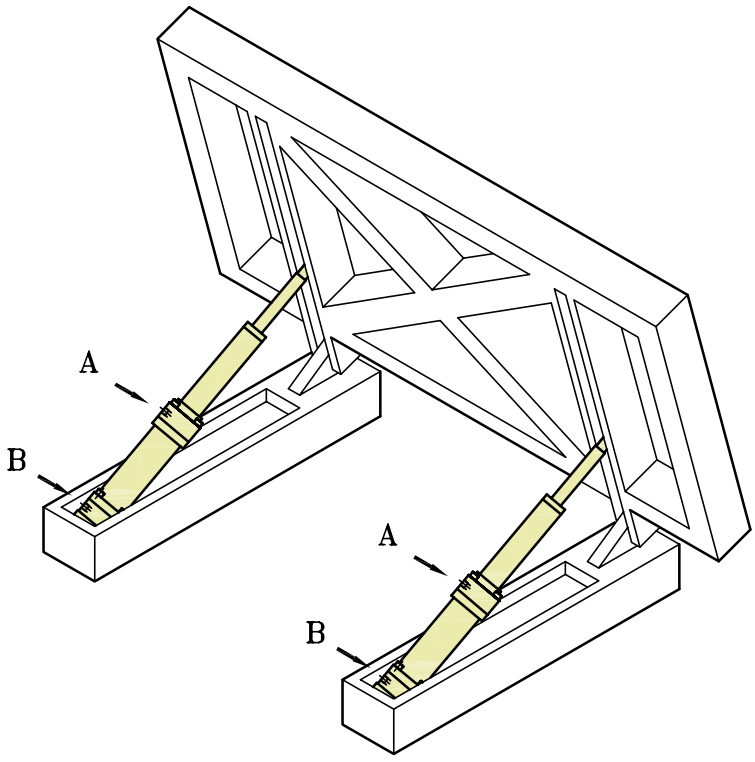
HC10– 複動(前後蓋出入油口)多節油壓缸
HC10– (Port Position At Head & Cap)Multi–Stage Hyd. Cyl.

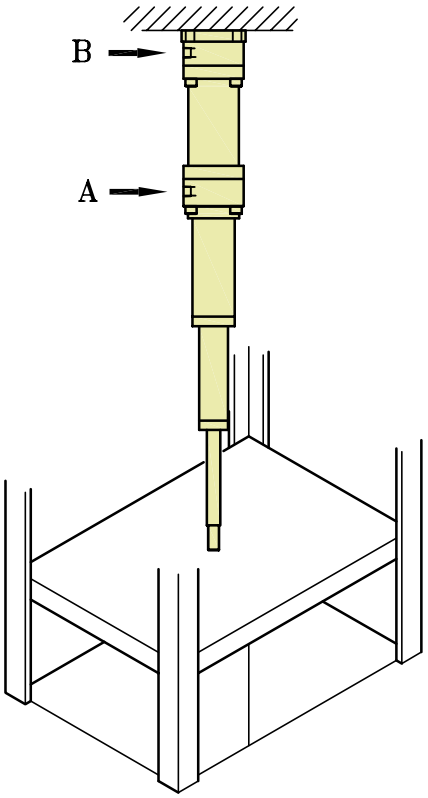
用途例 Use example











*訂購內容索引 Ordering Index :

140 | HC10 | TC | 125 | 2 | 1000 | E

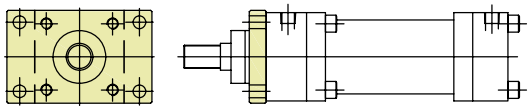
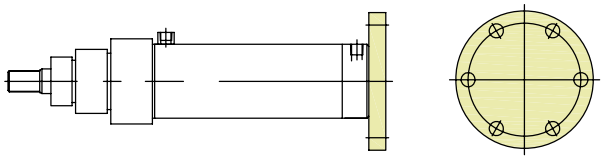
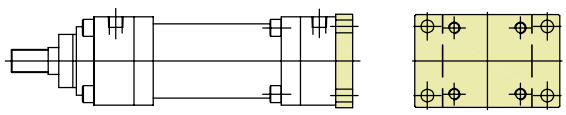
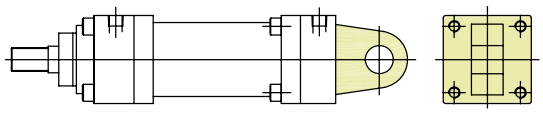
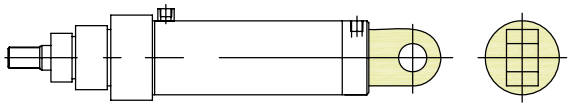
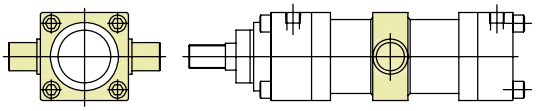
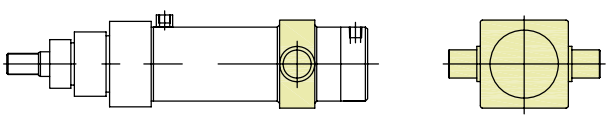
- 使用壓力140 kgf/cm² Max. Operating Pres.
- HC10:系列 HC10:Series Number
- 固定座形式 Mounting FA, FB, CA, TC
- 缸管內徑 Cylinder Bore mm ø63,ø90,ø110,ø125,ø140,ø160
- 節數記號 Stage Symbol 2, 3,
- 衝程 Stroke mm 要考慮最大容許衝程 Max. Permissible stroke
- 特殊附件 E:異形螺紋 K:附固定螺帽 L:附I接頭 M:附Y接頭 Optional Attachment E:Rod end with other threading K:With locking nut L:With I adapter M:With Y adapter

規範 Specifications

最高使用壓力 Max.Operating Pressure	140 kgf/cm²								
使用溫度範圍 Range of Ambient Temperature	−10°C ~ +50°C								
適用作動油 Fluid	一般礦物性作動油 Mineral oil								
缸管內徑−節數 Cylinder Bore−Stage	63−2	90−2	90−3	110−2	110−3	125−2	125−3	140−2	160−2
常用速度 Operating speed mm/sec	166	150	150	140	140	128	128	118	115
標準行程限制 Permissible Stroke mm	1700	2500	2500	3100	3100	3100	3100	3100	3100

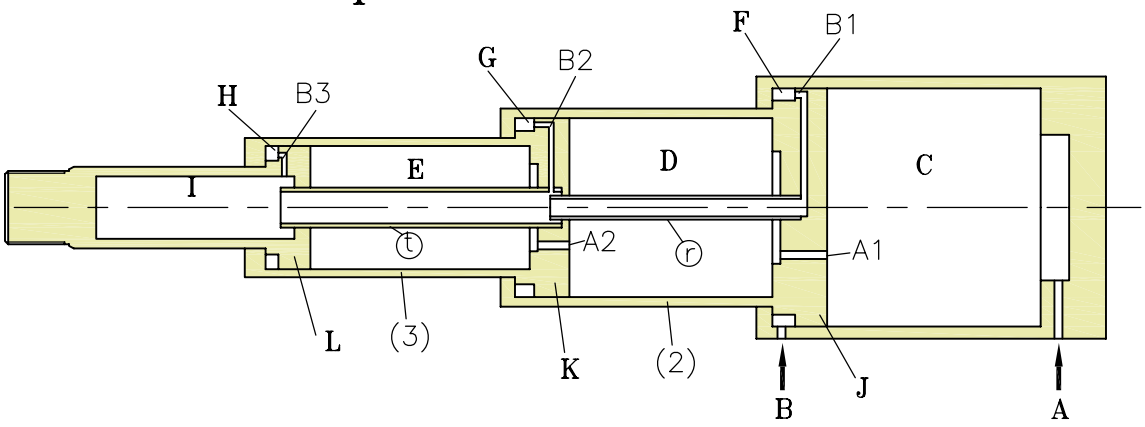
* 上表之數據是標準品，其最大之行程應考慮活塞桿裝置時其彎曲設定值，如果要求比上表之標準品更長時，請與敝公司商談 -
The above mentioned which means the standard model and the max. stroke also must considered the set bending value during installed. if want more longer size please consult us.

* 固定座形式 Mounting :

記號 Symbol	略圖 Configuration	記號 Symbol	略圖 Configuration
FA		FB	
FB			
CA		CA	
TC		TC	

HC10

＊ 動作原理 The Principle of Action:



→ 拉入:(ROD> 3 >2)
Retracting

← 推出:(2 > 3 >ROD)
Extending

＊ 推出原理 The Principle of Extending :

＊ 從A油口流入的壓油，進入C室，推動活塞J，第2節油缸動作,同時在F室內的油，從B油口排出 -

＊ 當活塞J到達前蓋端時，壓油再經由A1油孔進入D室，推動活塞K，第3節油缸動作，同時在G室的油，經由B2油孔，導管r及B1油孔，流入F室，再從B油口排出 -

＊ 當活塞K到達前蓋端時，壓油再經由A2油孔進入E室，推動活塞L，活塞桿推出，同時在H室的油，經由B3油孔流入I室，再經由導管t，導管r及B1油孔，流入F室，再從B油口排出 -

＊The hyd. action oil flow from port A and into portion C and thrusted piston J, Meanwhile, the second cyl. actioned furthermore the oil in port F will be discharged from port B.

＊During the piston J is approached to the cyl. head and the hyd. action oil flow from port A1 into portion D also for which will thrusted piston K , Meanwhile, the third cyl. actioned the oil in portion G flow through port B2 piston rod guide tube r & port B1 into portion F for which will be discharged from port B.

＊During the piston K is approached to the cyl. head and the hyd. action oil flow port A2 into portion E also for which will thrusted piston L, Meanwhile the piston rod extended the oil in portion H flow through port B3 into portion I thus the oil will flow through piston rod guide tube t & r and port B1 into portion F and for which will discharged from port B.

＊ 縮收原理 The Principle of Extracting :

＊從B油口流入的壓油，進入F室，推動活塞J，第2節油缸開始縮收，同時在C室的油，從A油口排出 -

＊ 當活塞J到達後蓋端時，壓油經由B1油孔，導管r及B2油孔，進入G室，推動活塞K，第3節油缸縮收，同時在D室的油經由A1油孔，從A油口排出 -

＊ 當活塞K到達後蓋端時，壓油進入I室，經油B3油孔進入H室，推動活塞L，活塞桿縮收，同時在E室的油，經由A2油孔及A1油孔，從A油口排出 -

＊ 作動壓力相同，受力面積大者先動作，所以動作順序，依受力面積的大小爲順序 -

The hyd. action oil flow from port B and into portion F for which will thrusted the piston J, Meanwhile the second cyl. will retracted also the hyd. action oil in portion C will be discharged from port A.

During the piston J is approached to the cap end and the hyd. action oil will flow through port B1 piston rod guide tube r and port B2 into portion G and thrust piston K, Meanwhile the third cyl. will retracted also the hyd. action oil in portion D will be discharged from post A.

During the piston K is approached to the cap end and the hyd. action oil flow into portion I also flow through port B3 into portion H and thrust piston L, Meanwhile the piston rod will retracted also the hyd. action oil in portion E will flow through port A2 & A1 and discharged from port A.

There are same actioned stress and being with more bigger stressed area which actioned ahead. so that the actioned sequence for which will according to the stressed area.

活塞有效斷面積 / Effective Section Area of Piston: (cm2)

方向 / 機種 Model	推 出 Extending			縮 收 Extracting		
	1節 1st	2節 2nd	3節 3rd	1節 1st	2節 2nd	3節 3rd
63−2	31.2	11.4	−	9.1	6.4	−
90−2	63.6	31.4	−	19.4	21.8	−
90−3	63.6	36.7	14.7	13.3	10.2	10
110−2	95	48.5	−	31.4	34.3	−
110−3	95	55	23.4	24.1	18.3	15.7
125−2	122.7	61	−	36.1	39.8	−
125−3	122.7	76.7	39.3	24.2	21.8	20.4
140−2	153.9	71.4	−	44.6	50.2	−
160−2	201	110.5	−	64.2	56.3	−

＊ 例題 For Example:

HC10− **125−2形複動式多節油壓缸，設使用壓力為100kgf/cm2時，求推出及縮收之各節出力為多少?(kgf)　　F=AxPx β　公式 Formula

HC10− **125−2 double acting multi−stage hyd. cyl. and the operating press. : 100kgf/cm2 for which derived the extending & extracting of stage? (kgf)

推出之各節壓力 / Extending pressure of stage :

(1)第1節 /1st stage : A=122.7cm2，F=122.7x100x0.8=9820kgf
(2)第2節 /2nd stage : A=76.7cm2，F=76.7x100x0.8=6140kgf
(3)第3節 /3rd stage : A=39.3cm2,F=39.3x100x0.8=3150kgf

縮收之各節壓力 / Extracting pressure of stage :

(1)第1節 /1st stage : A=24.2cm2，F=24.2x100x0.8=1940kgf
(2)第2節 /2nd stage : A=21.8cm2，F=21.8x100x0.8=1750kgf
(3)第3節 /3rd stage : A=20.4cm2,F=20.4x100x0.8=1640kgf

＊ 如何選擇機種 How To Select The Suited Model:

又今預使用複動式多節油壓缸且設使用壓力為140kgf/cm2時，縮收之荷重，在第3節時需要1800kgf，求該形(第3節)之油壓缸，其機種為何?

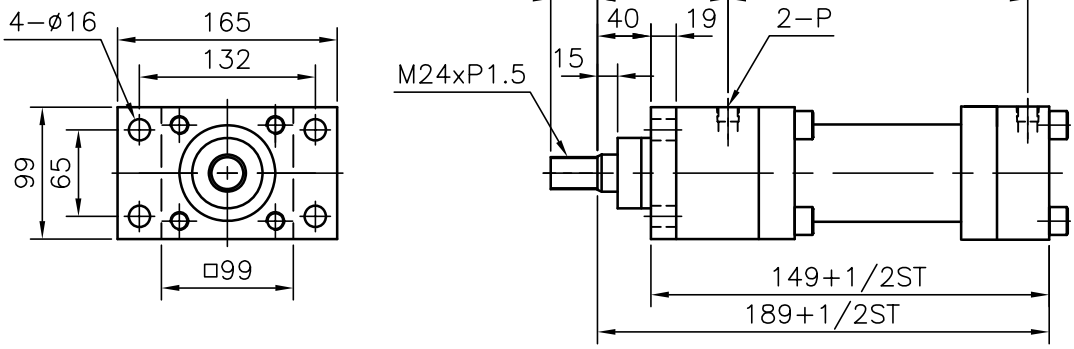
Now if want employed the double acting multi−stage hyd. cyl. and the operating pressure : 140 kgf/cm2 also the extracting load at 3rd stage and with load 1800kgf for which derived 3rd hyd. cyl.

$$A=\frac{F}{Px\beta}$$ 公式 Formula $$A=\frac{1800kgf}{140kgf/cm2\ x\ 0.8}=16cm2$$

由上表(HC10− 活塞有效斷面積)縮收時，得知為15.7cm2與20.4cm2則適用之機種條件為:(1)HC10− **110−3或(2)HC10− **125−3之機種

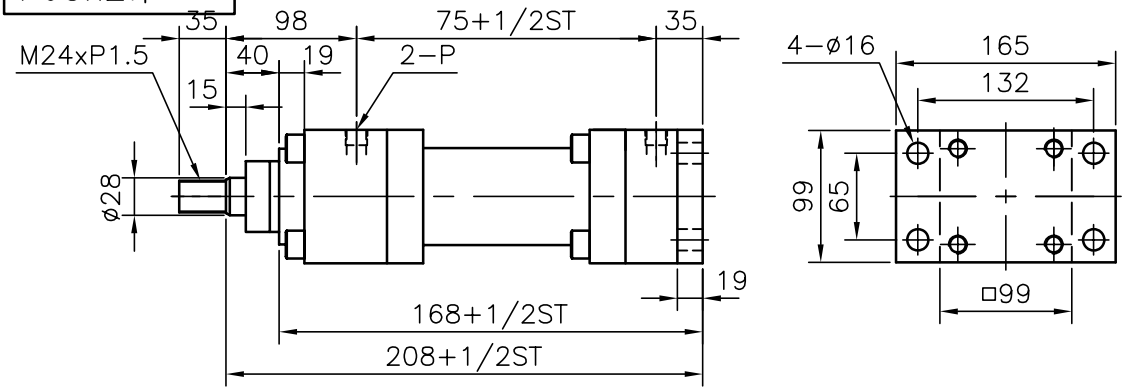
From above table the HC10− at extracting and achieved 15.7cm2 and 20.4cm2 which suited the model (1)HC10− **110−3 or (2)HC10− **125−3

HC10−FA
ø63x2節



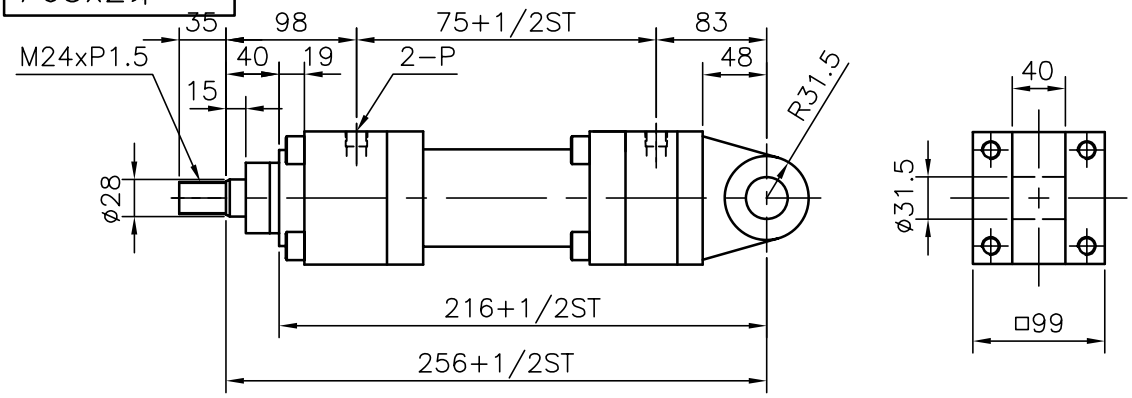
DIMENSION P
RC3/8”
G3/8”

HC10−FB
ø63x2節



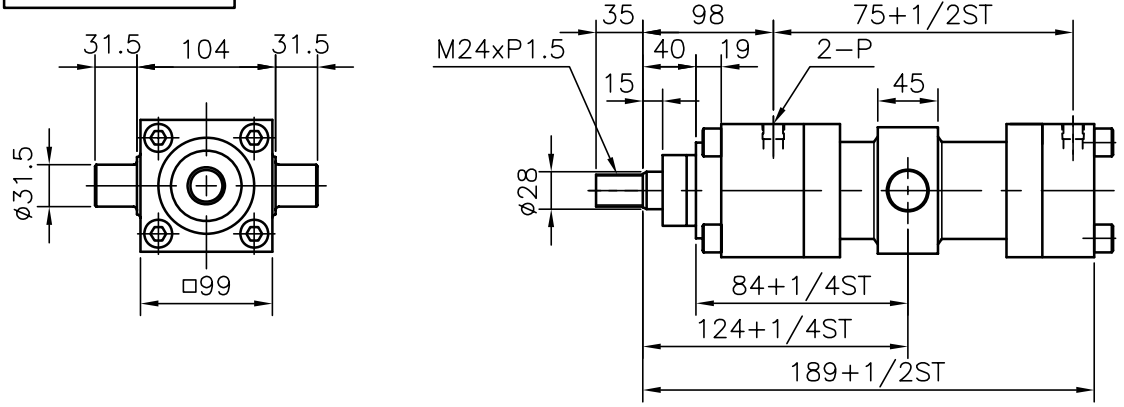
DIMENSION P
RC3/8”
G3/8”

HC10−CA
ø63x2節



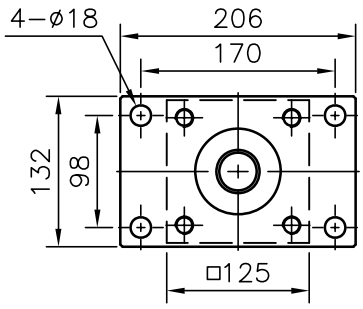
DIMENSION P
RC3/8”
G3/8”

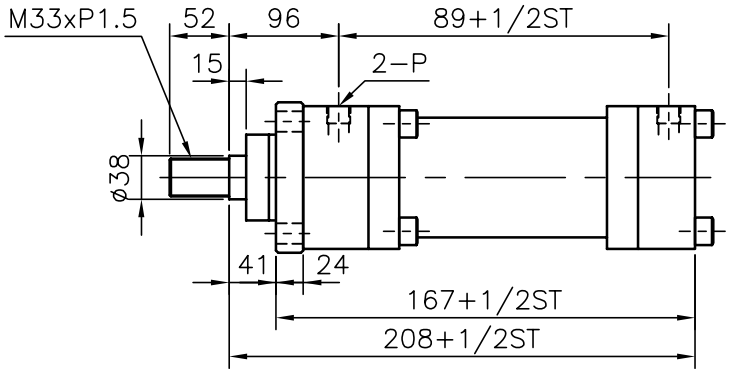
HC10−TC
ø63x2節



DIMENSION P
RC3/8”
G3/8”

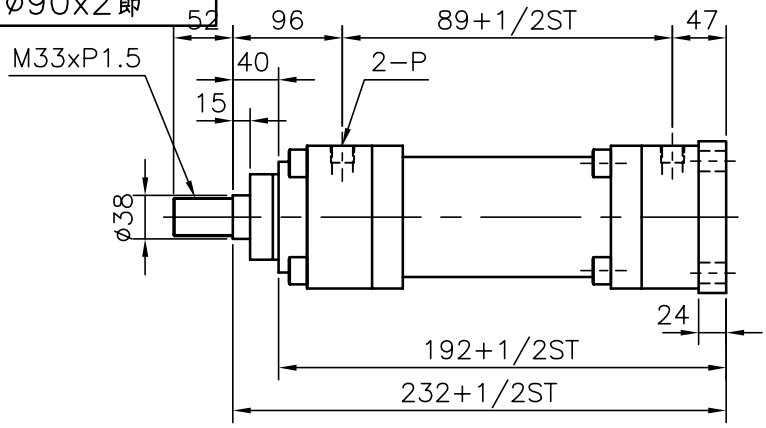
HC10−FA
ø90x2節

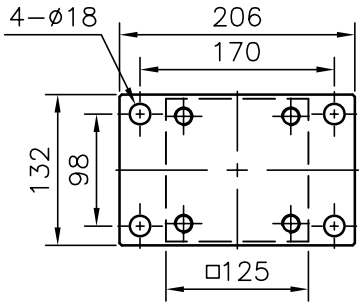




DIMENSION P
RC1/2”
G1/2”

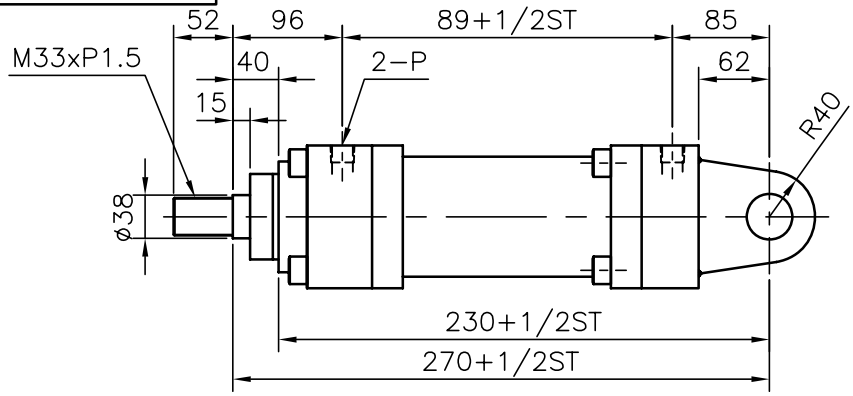
HC10−FB
ø90x2節

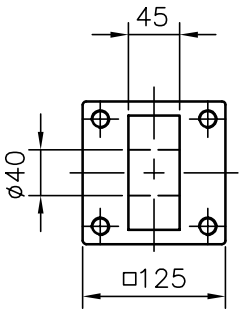




DIMENSION P
RC1/2”
G1/2”

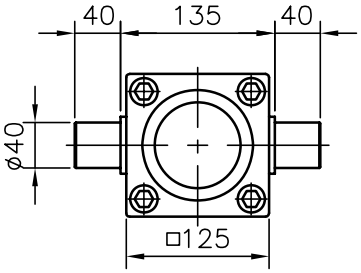
HC10−CA
ø90x2節

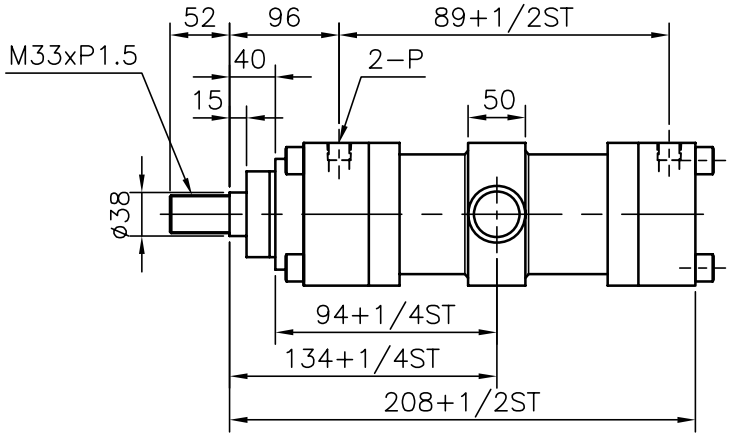




DIMENSION P
RC1/2”
G1/2”

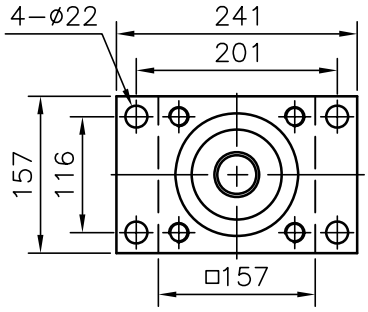
HC10−TC
ø90x2節

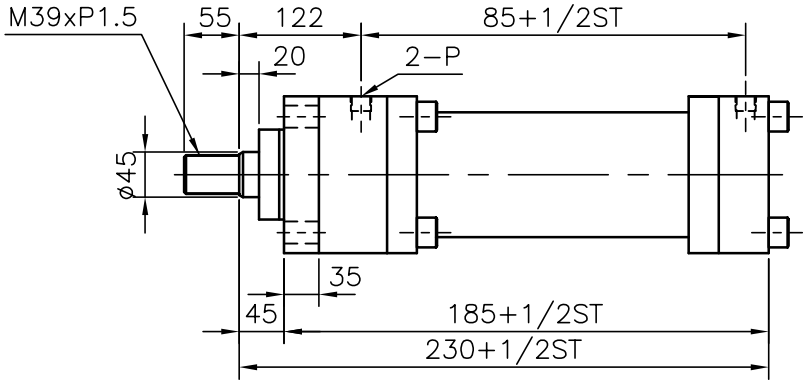




DIMENSION P
RC1/2”
G1/2”

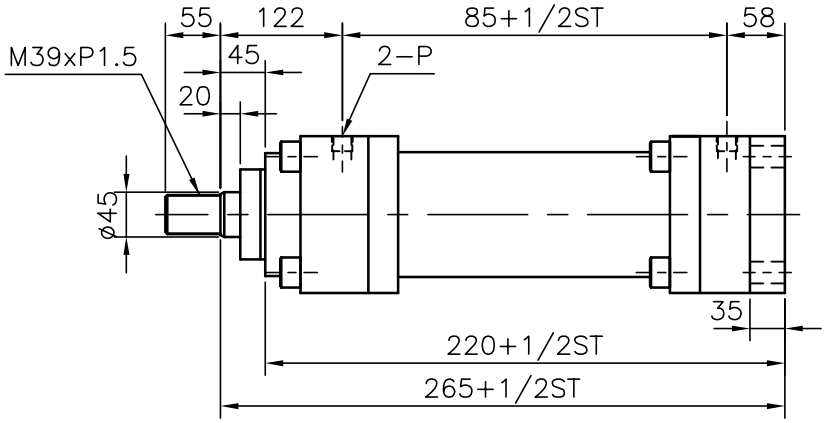
HC10−FA
ø110x2節

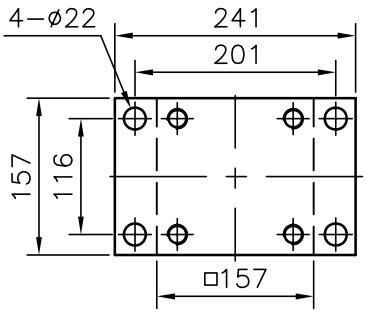




DIMENSION P
RC1/2”
G1/2”

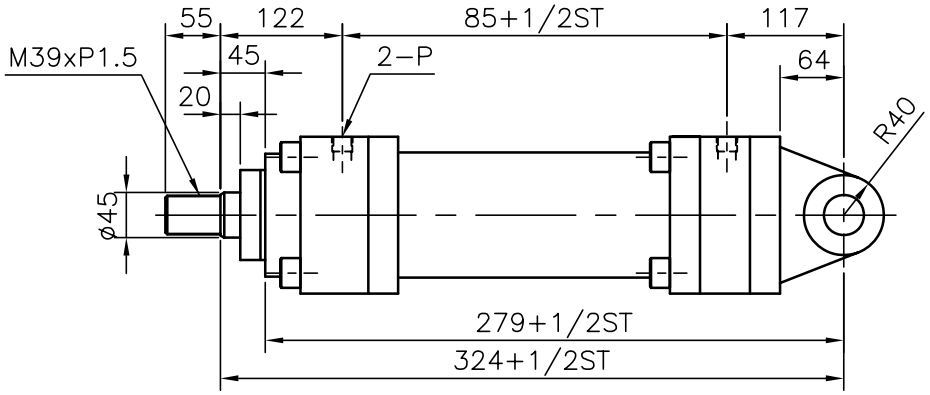
HC10−FB
ø110x2節

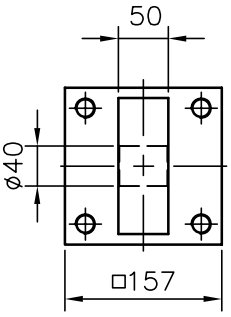




DIMENSION P
RC1/2”
G1/2”

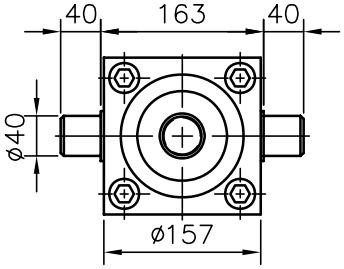
HC10−CA
ø110x2節

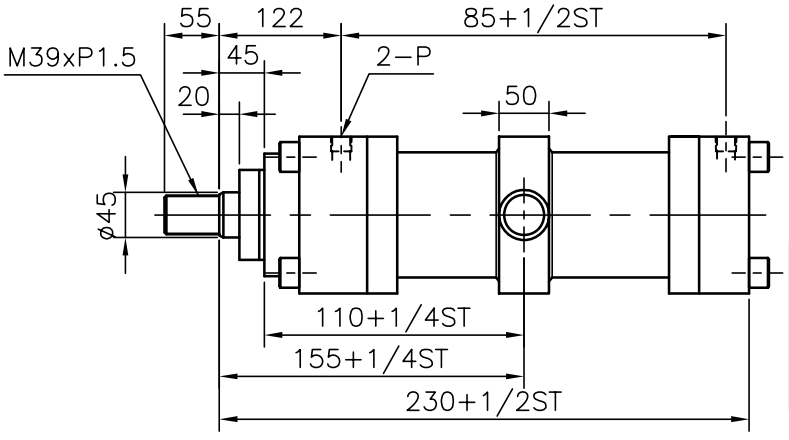




DIMENSION P
RC1/2”
G1/2”

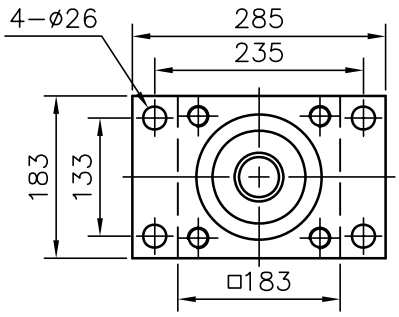
HC10−TC
ø110x2節

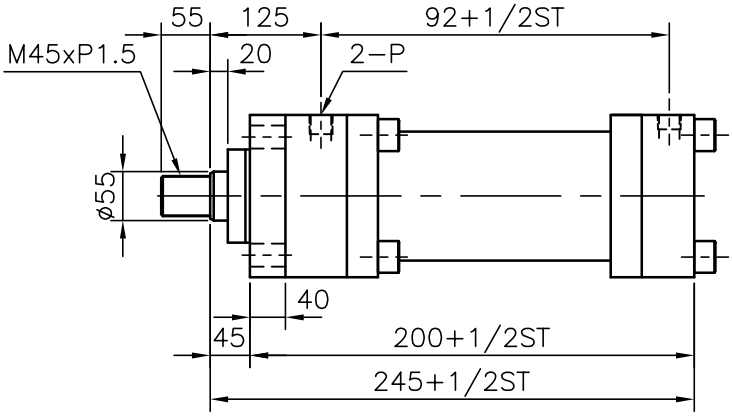




DIMENSION P
RC1/2”
G1/2”

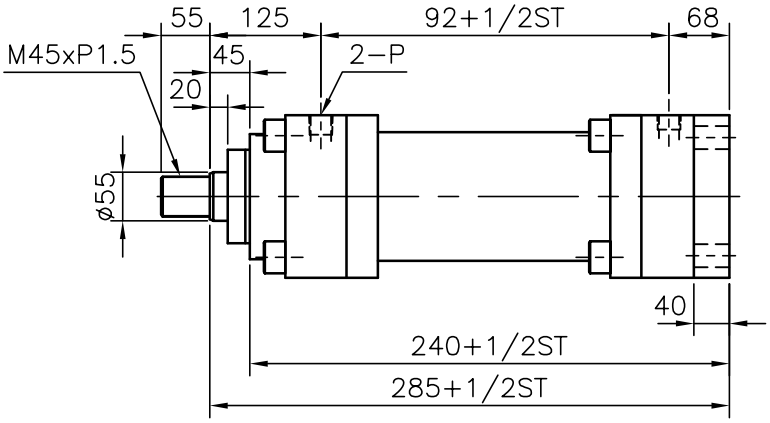
HC10−FA
ø125x2節

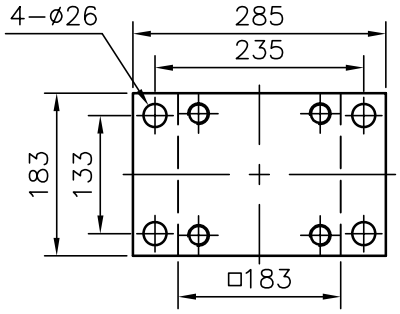




DIMENSION P
RC3/4”
G3/4”

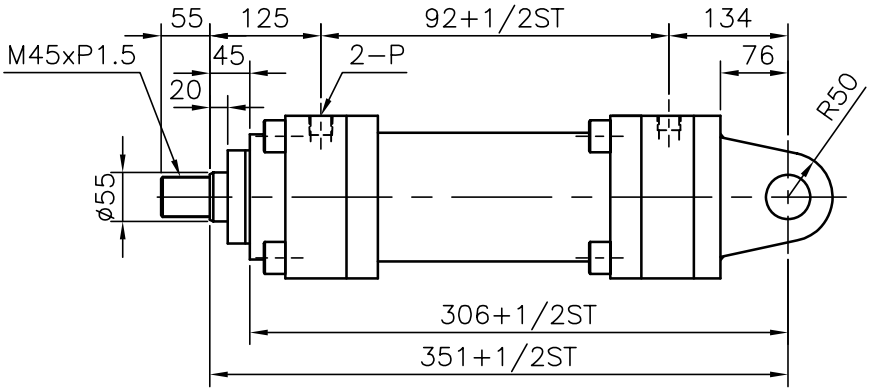
HC10−FB
ø125x2節

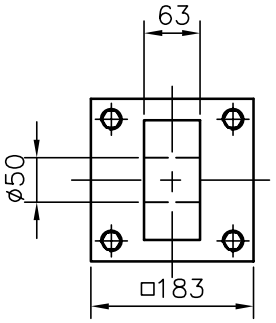




DIMENSION P
RC3/4”
G3/4”

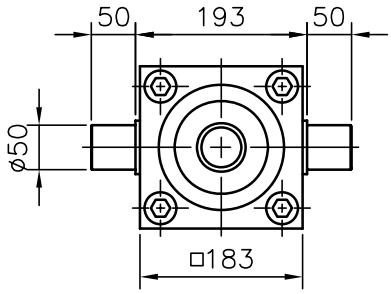
HC10−CA
ø125x2節

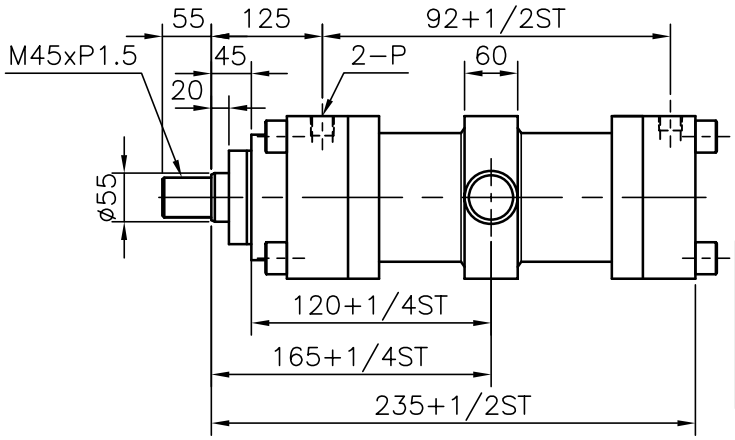




DIMENSION P
RC3/4”
G3/4”

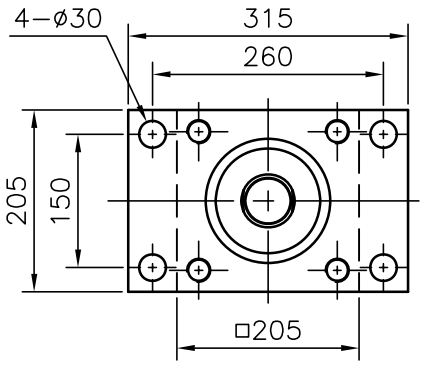
HC10−TC
ø125x2節

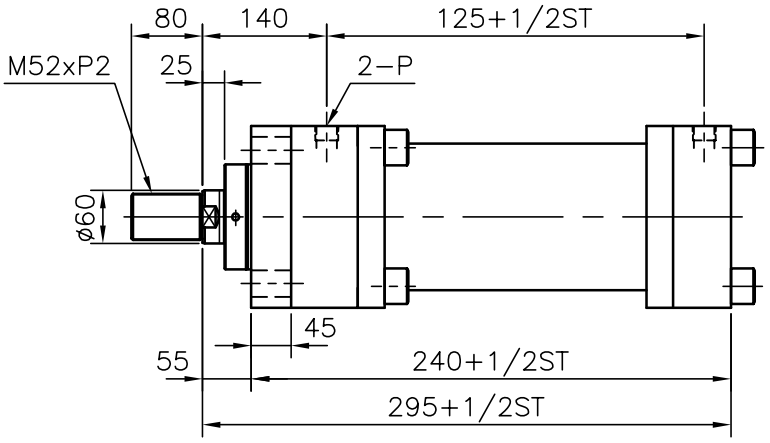




DIMENSION P
RC3/4”
G3/4”

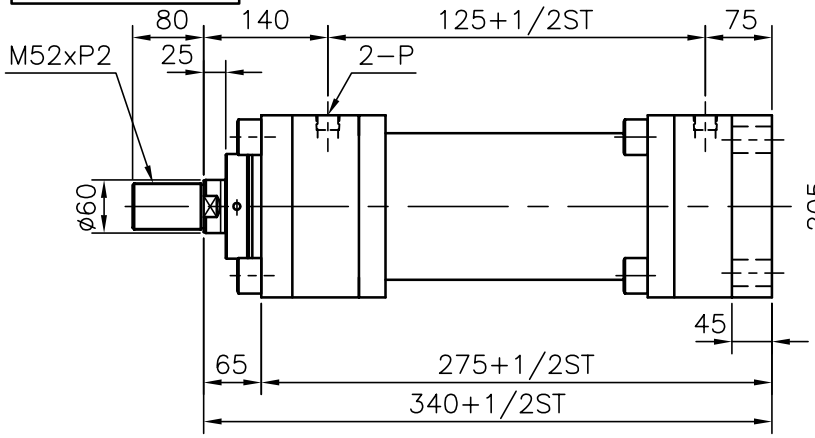
HC10−FA
ø140x2節

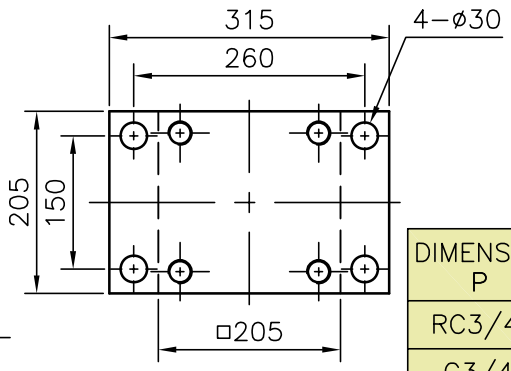




DIMENSION P
RC3/4”
G3/4”

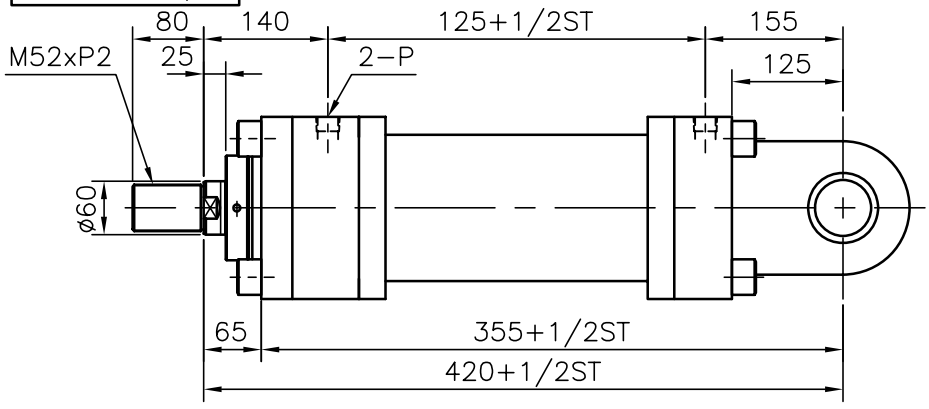
HC10−FB
ø140x2節

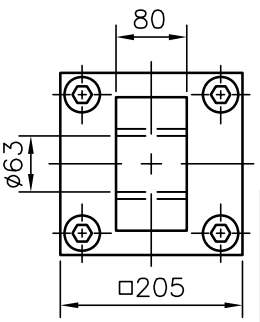




DIMENSION P
RC3/4”
G3/4”

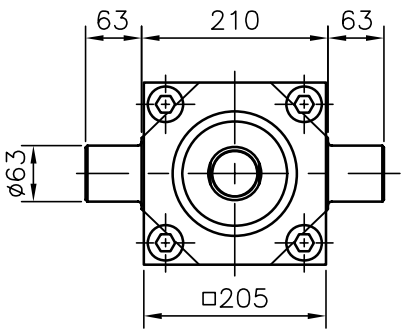
HC10−CA
ø140x2節

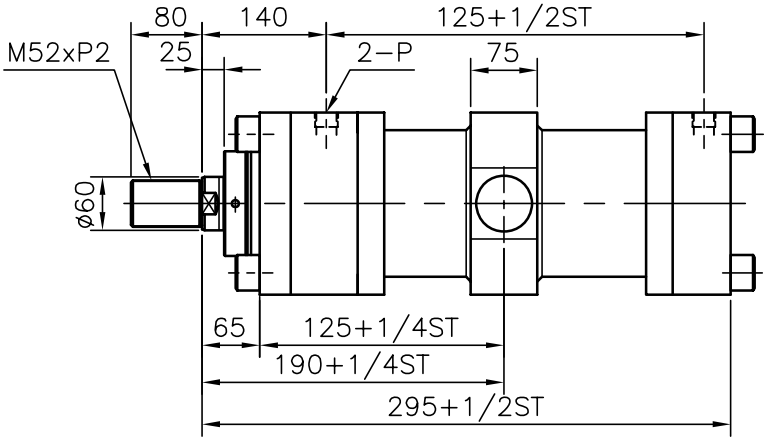




DIMENSION P
RC3/4”
G3/4”

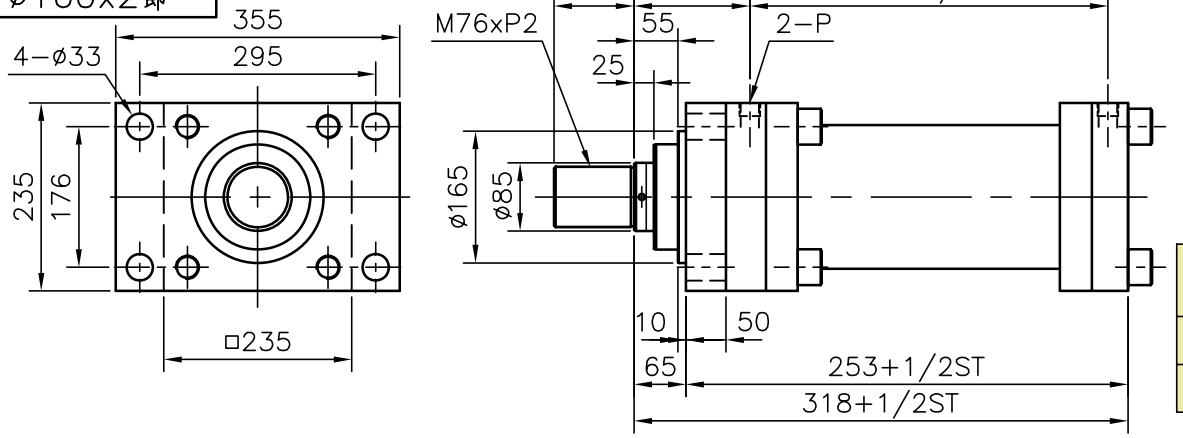
HC10−TC
ø140x2節





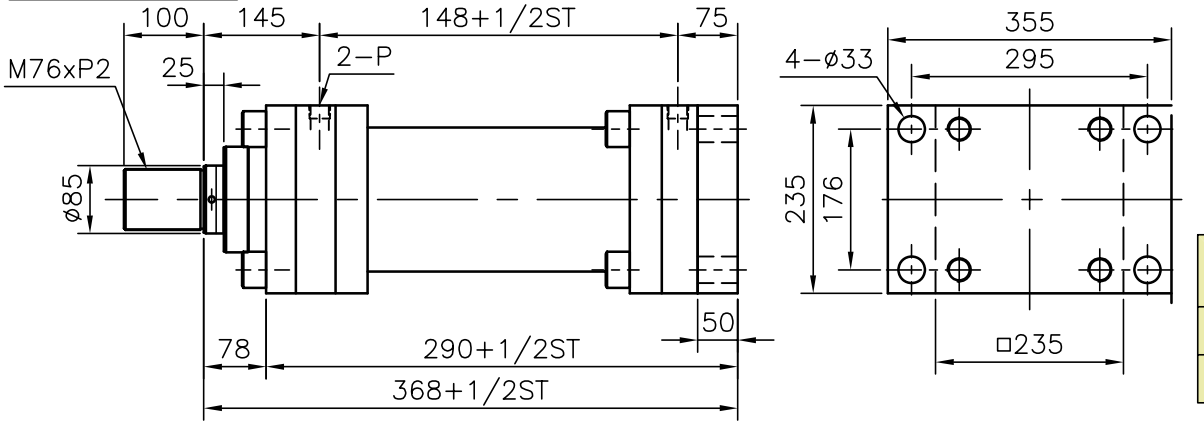
DIMENSION P
RC3/4”
G3/4”

HC10−FA
ø160x2節



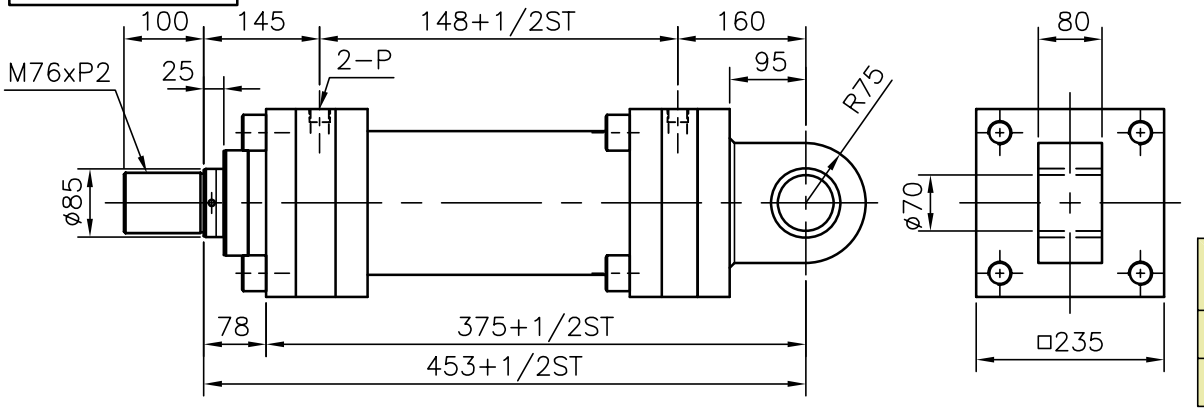
DIMENSION P
RC3/4”
G3/4”

HC10−FB
ø160x2節



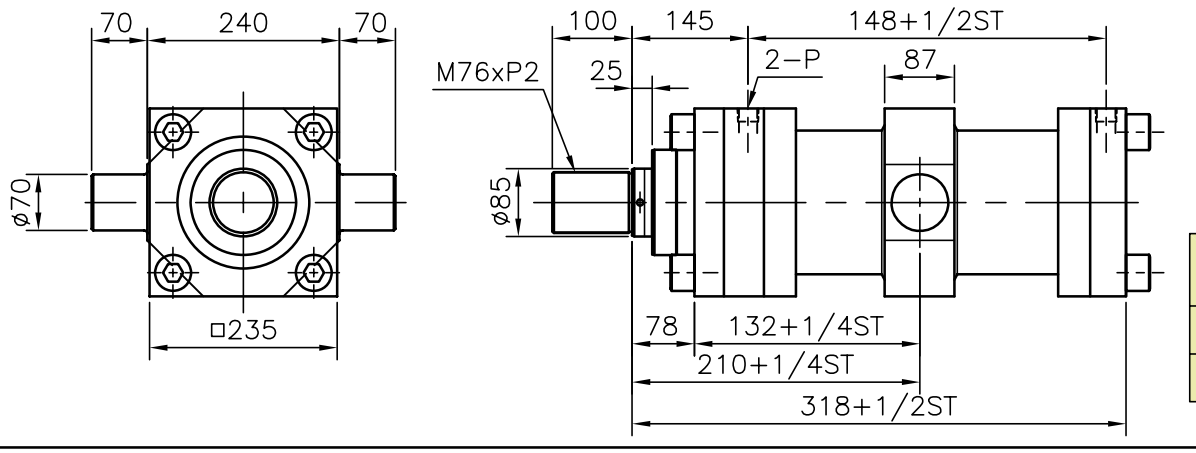
DIMENSION P
RC3/4”
G3/4”

HC10−CA
ø160x2節



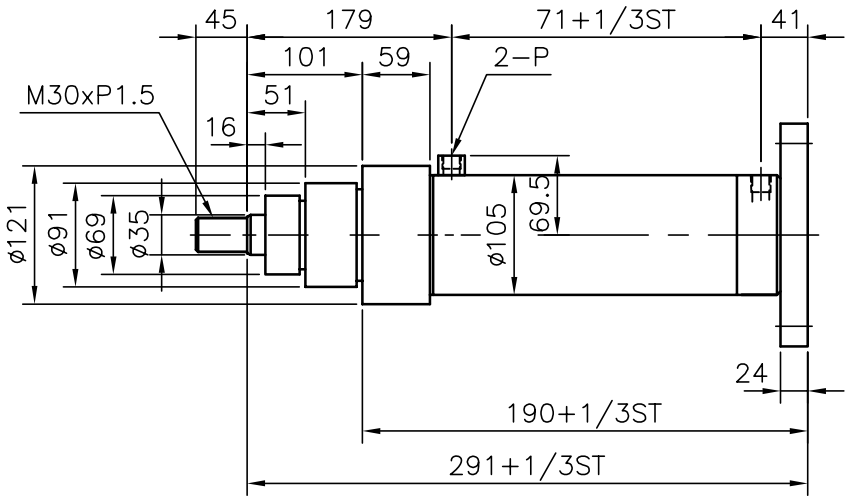
DIMENSION P
RC3/4”
G3/4”

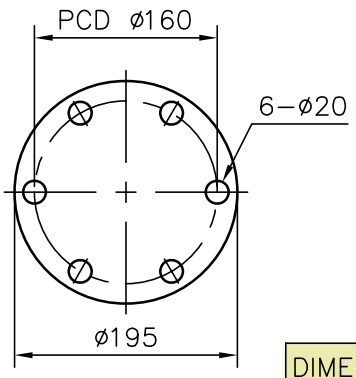
HC10−TC
ø160x2節



DIMENSION P
RC3/4”
G3/4”

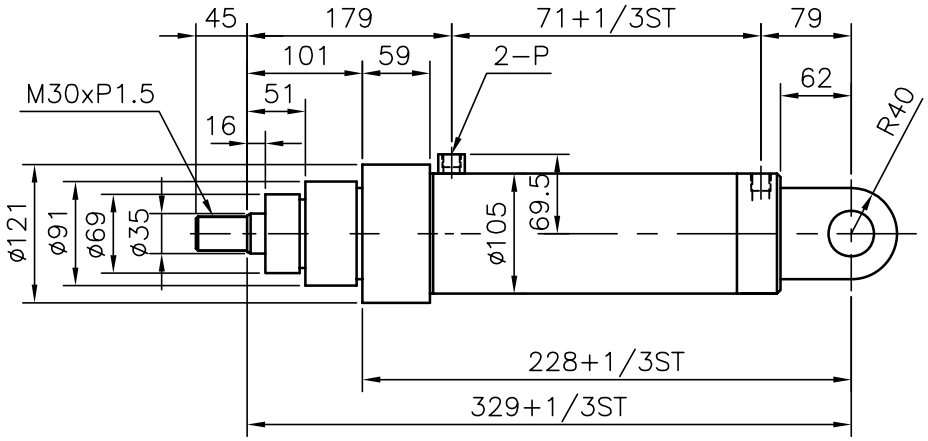
HC10−FB
ø90x3節

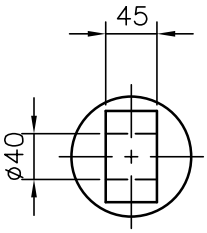




DIMENSION P
RC1/2”
G1/2”

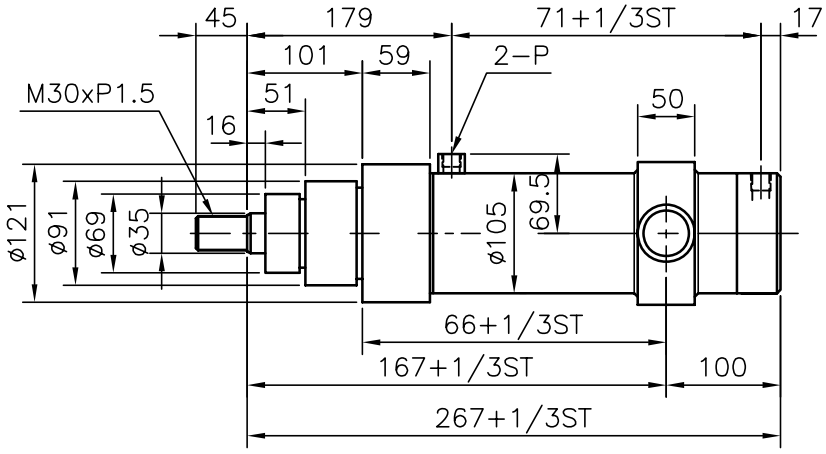
HC10−CA
ø90x3節

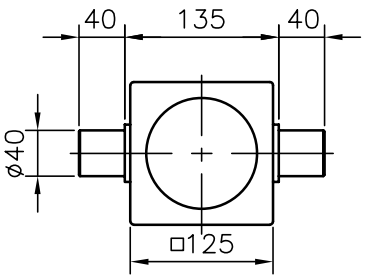




DIMENSION P
RC1/2”
G1/2”

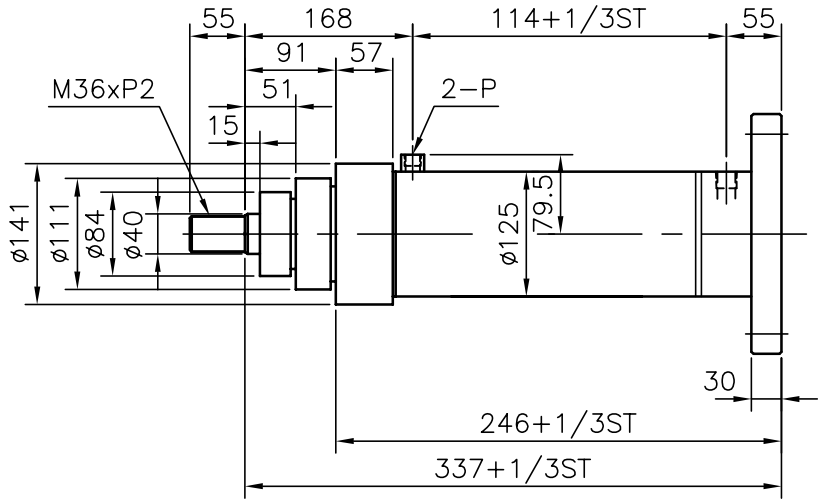
HC10−TC
ø90x3節

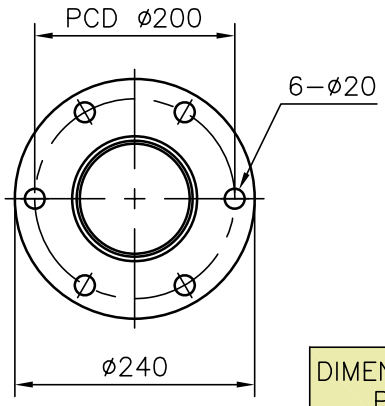




DIMENSION P
RC1/2”
G1/2”

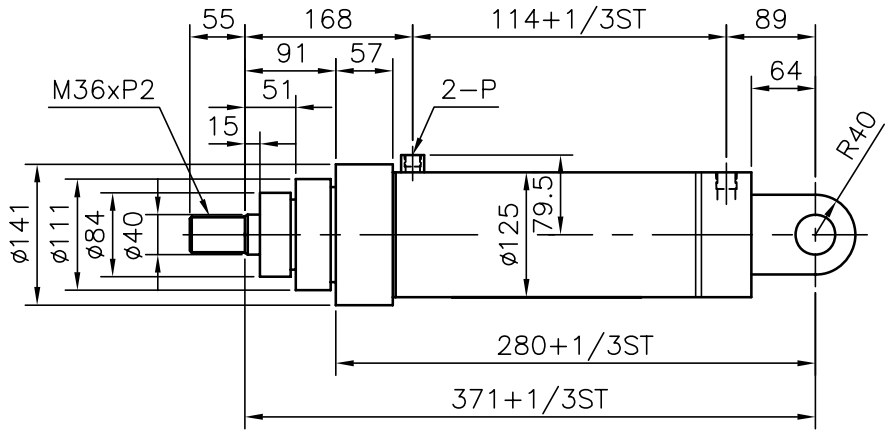
HC10−FB
ø110x3節

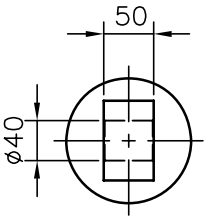




DIMENSION P
RC1/2”
G1/2”

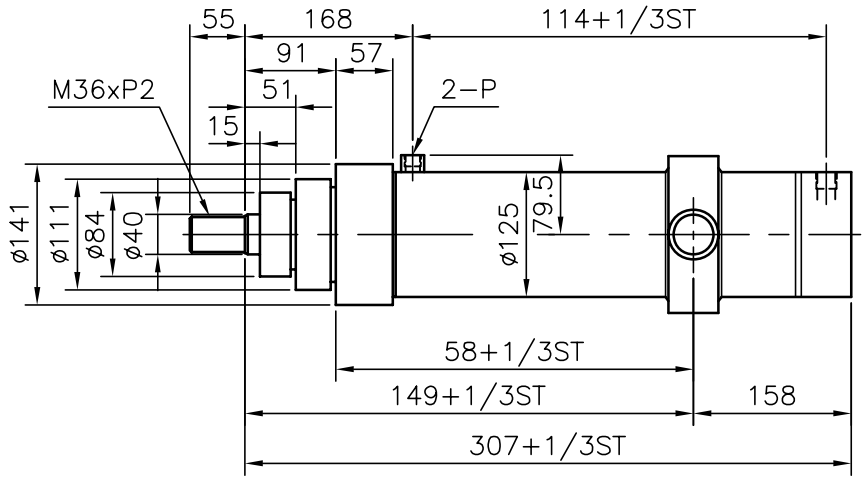
HC10−CA
ø110x3節

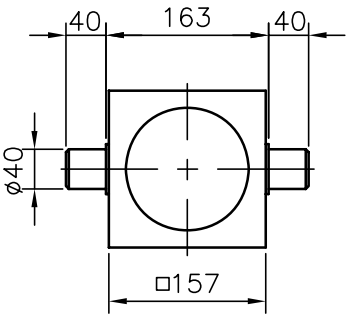




DIMENSION P
RC1/2”
G1/2”

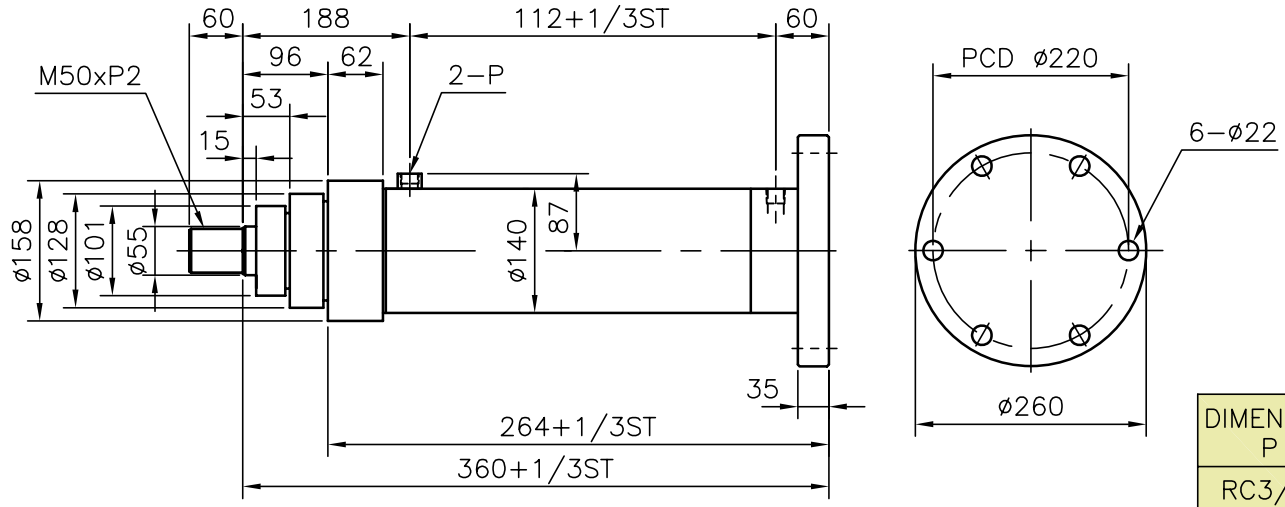
HC10−TC
ø110x3節





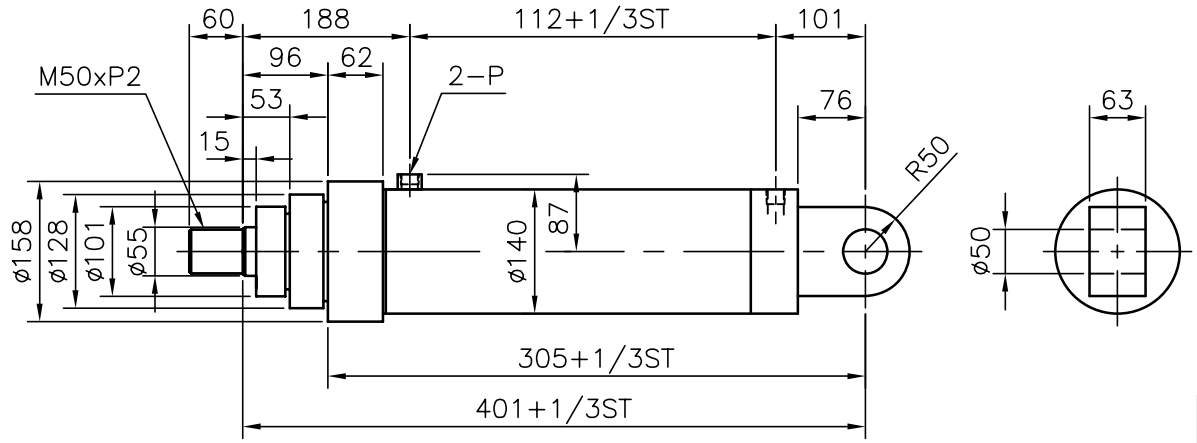
DIMENSION P
RC1/2”
G1/2”

HC10−FB
ø125x3節



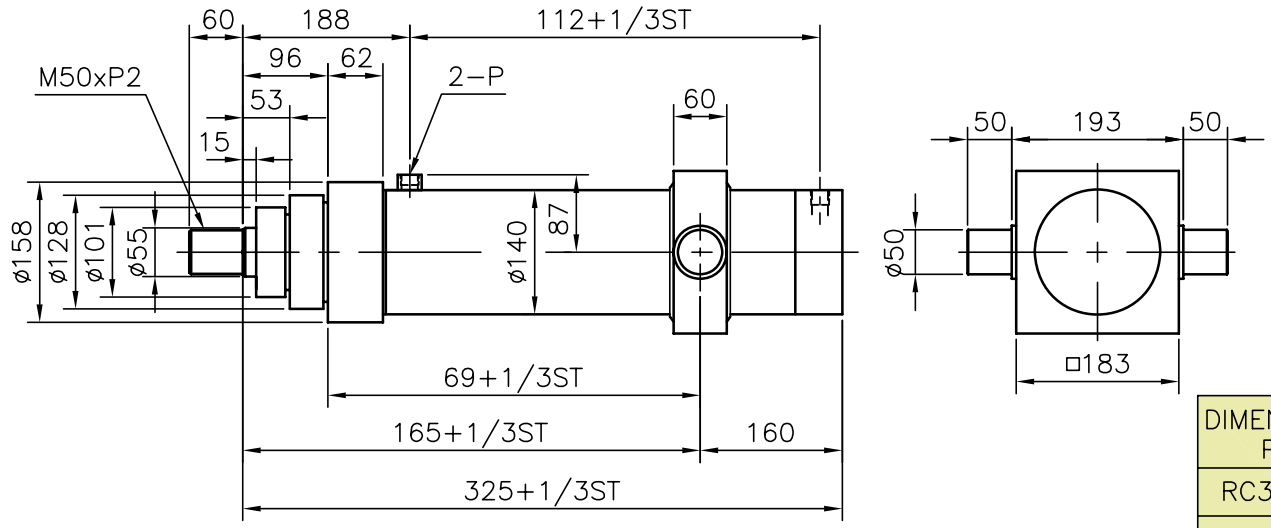
DIMENSION P
RC3/4”
G3/4”

HC10−CA
ø125x3節



DIMENSION P
RC3/4”
G3/4”

HC10−TC
ø125x3節



DIMENSION P
RC3/4”
G3/4”