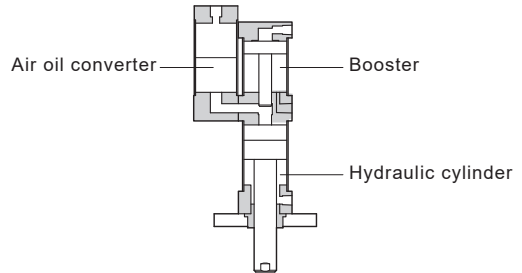
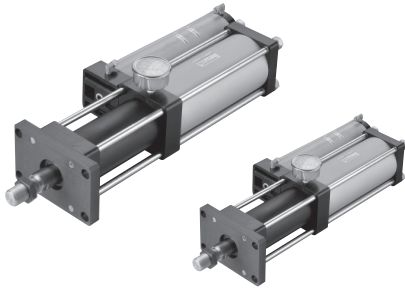


# PCU series Boosting Cylinder

## Product features

CHELIC

### Internal structure



### Specification

Item	Booster output	1T	3T	5T	10T	20T
Hydraulic cylinder bore size		Ø50	Ø63	Ø80	Ø100	Ø125
Booster bore size		Ø63	Ø80	Ø100	Ø125	Ø160
Working stroke		5, 10, 15, 20				
Action		Double acting				
Fluid		Air				
Pressure range	Kgf/cm <sup>2</sup> (kPa)	2 ~ 7 ( 200 ~ 700 )				
Low pressure speed range	mm/s	500	500	400	300	250
High pressure speed range	mm/s	40	40	20	12	8
Working frequency (max.)		40	30	20	10	6
Lubrication		ISO VG68				
Ambient and fluid temperature	°C	-5 ~ 60				

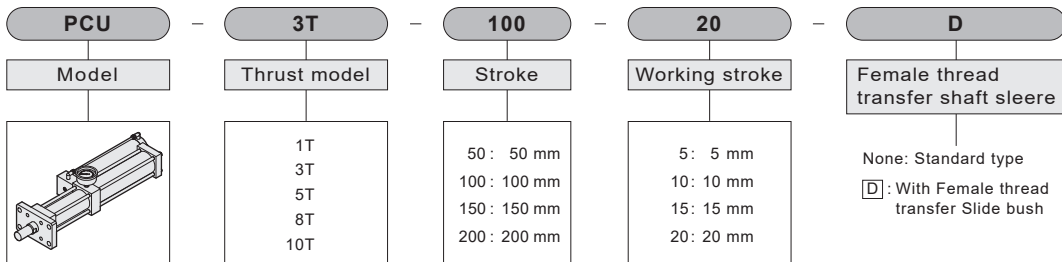
### Boosting cylinder theoretical force

Unit: mm

Booster output		1T			3T			5T			10T			20T		
Bore size		Ø50			Ø63			Ø80			Ø100			Ø125		
Piston rod dia		Ø32			Ø35			Ø40			Ø45			Ø50		
Operating force (Kg/cm <sup>2</sup> )	kg	Quick traverse	Intensified feeding	Swift reverse	Quick traverse	Intensified feeding	Swift reverse	Quick traverse	Intensified feeding	Swift reverse	Quick traverse	Intensified feeding	Swift reverse	Quick traverse	Intensified feeding	Swift reverse
	1	19	240	11	31	615	21	50	1038	37	78	1963	62	122	4007	103
	2	38	480	22	62	1230	42	100	2076	74	156	3926	124	244	8014	206
	3	57	720	33	93	1845	63	150	3114	111	234	5889	186	366	12021	309
	4	76	960	44	124	2460	84	200	4152	148	312	7852	248	488	16028	412
	5	95	1200	55	155	3075	105	250	5190	185	390	9815	310	610	20035	515
	6	114	1440	66	186	3690	126	300	6228	222	468	11778	372	732	24042	618
	7	133	1680	77	217	4305	147	350	7266	259	546	13741	434	854	28049	721

Note: Under general usage condition, air supply in 5kg/cm<sup>2</sup>, the output force could reach to 95%.

### Code of order



DC

DH

PCB

PCU

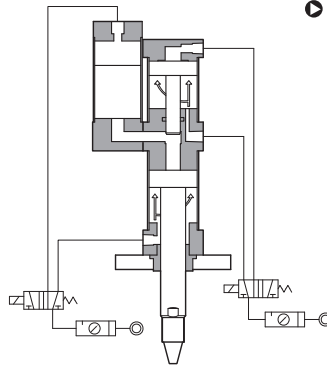
# PCU series - Boosting cylinder

## Instructions

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### Operating theory

The first step is low pressure; it should push the cylinder to connect with object (put oil into the cylinder) and process second step-high pressure (press the object)



### Calculation

The method of calculation :

$$\text{Piston area } A = (\text{Bore size})^2 \times \frac{\pi}{4}$$

$$\text{Working pressure } P2 = \text{Intensified pressure ratio} \times P \text{ (Air pressure Mpa)}$$

$$\text{Cylinder force } F = A \times P2 = \text{___ N}$$

### Operating expression

#### ① Quick traverse (low pressure)

Air oil converter transfer ratio 1:1 to move cylinder

Operating procedure :

P1 : Intake

P2 : Exhaust

D2 : Down

#### ② Intensified feeding (high pressure)

When closing the object, it should operated high pressure to the object.

Operating procedure :

P3 : Intake

P4 : Exhaust

D1 : Piston intensify goes down

#### ③ Swift reverse

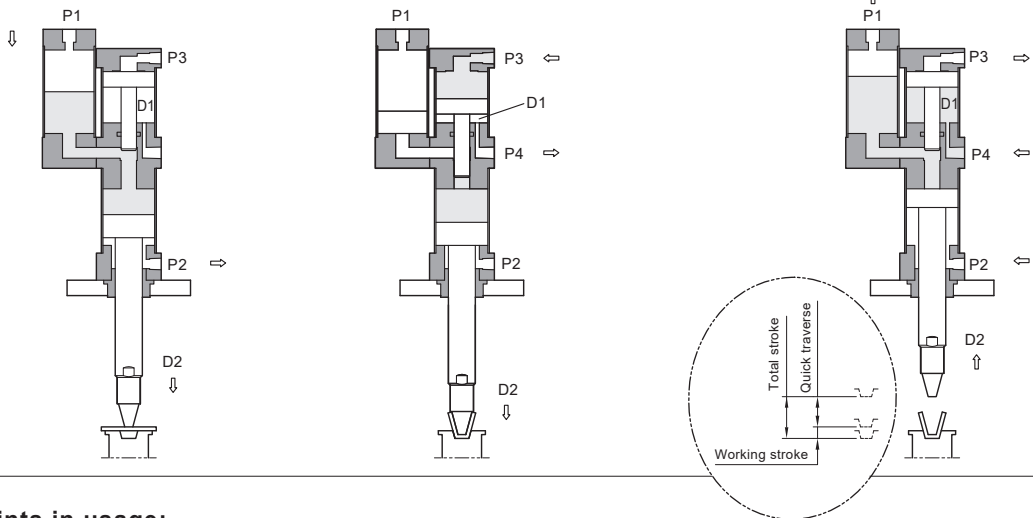
When finishing the procedure, cylinder and boosting restore to the original position.

Operating procedure :

P1&P3 : Exhaust

P2&P4 : Intake

Piston rod goes back to the original position.



### Points in usage:

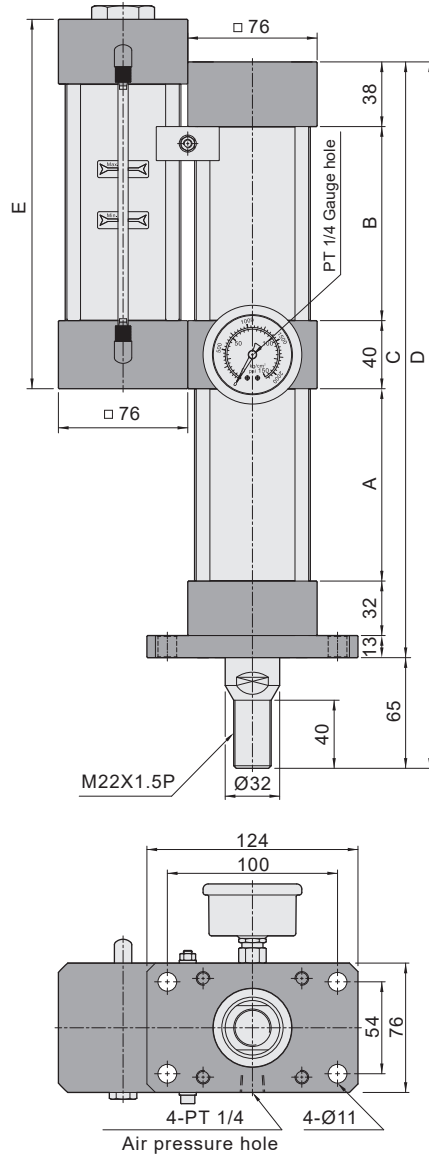
1. The power source for Boosting: Dry and compress air ( pressure between 200~700kpa ).
2. Installation for Boosting must use in vertical, or oil will flow from air exhaust.
3. Boosting oil adapt ISO VG68
4. It should add a regulator valve in the intake section of intensified feeding.
5. Boosting must install higher than hydraulic cylinder.
  - Boosting must install higher than hydraulic cylinder. When the oil is full with cylinder, the bubble will exhaust up.
  - If boosting install lower than cylinder, it should be exhaust the bubble first and fix the cylinder.
6. How to check oil
  - Add oil to the boosting until position in the middle of gauge.
  - Don't cause the oil full, or it will exhaust when operating the cylinder.
7. Frequency of use should be 6 times/min or lower.

# PCU series Boosting Cylinder

## Dimensions

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### PCU-1T



### Dimension

Total stroke	Working stroke	A	B	C	D	E	Total stroke	Working stroke	A	B	C	D	E
50	05	113	114	350	415	245	50	15	113	192	428	493	245
100	05	163	114	400	465	269	100	15	163	192	478	543	277
150	05	213	114	450	515	309	150	15	213	192	528	593	309
200	05	263	114	500	565	341	200	15	263	192	578	643	341
50	10	113	153	389	454	245	50	20	113	231	467	532	245
100	10	163	153	439	504	269	100	20	163	231	517	582	277
150	10	213	153	489	554	309	150	20	213	231	567	632	309
200	10	263	153	539	604	341	200	20	263	231	617	682	341

DC

DH

PCB

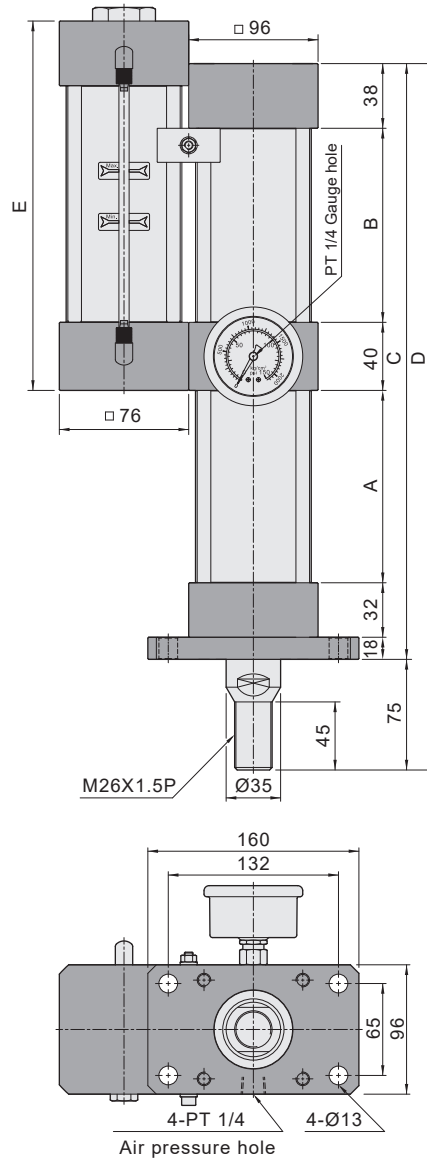
PCU

# PCU series Boosting Cylinder

## Dimensions

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### PCU-3T



### Dimension

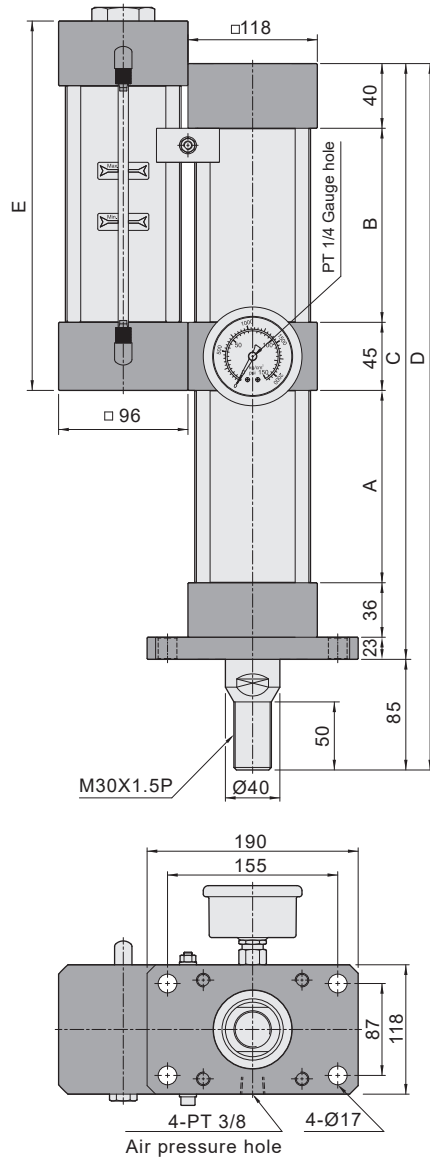
Total stroke	Working stroke	A	B	C	D	E	Total stroke	Working stroke	A	B	C	D	E
50	05	114	137	379	454	263	50	15	114	259	501	576	263
100	05	164	137	429	504	313	100	15	164	259	551	626	313
150	05	214	137	479	554	363	150	15	214	259	601	676	363
200	05	264	137	529	604	413	200	15	264	259	651	726	413
50	10	114	198	440	515	263	50	20	164	320	612	687	263
100	10	164	198	490	565	313	100	20	164	320	612	687	313
150	10	214	198	540	615	363	150	20	214	320	662	737	363
200	10	264	198	590	665	413	200	20	264	320	712	787	413

# PCU series Boosting Cylinder

## Dimensions

CHELIC

### PCU-5T



### Dimension

Total stroke	Working stroke	A	B	C	D	E	Total stroke	Working stroke	A	B	C	D	E
50	05	114	152	410	495	272	50	15	114	284	542	627	272
100	05	164	152	460	545	322	100	15	164	284	592	677	322
150	05	214	152	510	595	372	150	15	214	284	642	727	372
200	05	264	152	560	645	422	200	15	264	284	692	777	422
50	10	114	218	476	561	272	50	20	164	350	658	743	272
100	10	164	218	526	611	322	100	20	164	350	658	743	322
150	10	214	218	576	661	372	150	20	214	350	708	793	372
200	10	264	218	626	711	422	200	20	264	350	758	843	422

DC

DH

PCB

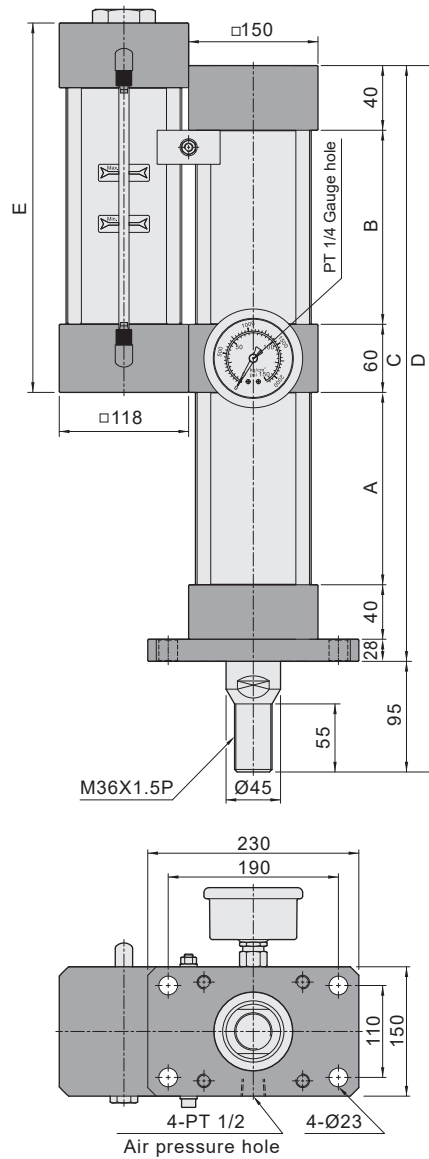
PCU

# PCU series Boosting Cylinder

## Dimensions

CHELIC

### PCU-10T



### Dimension

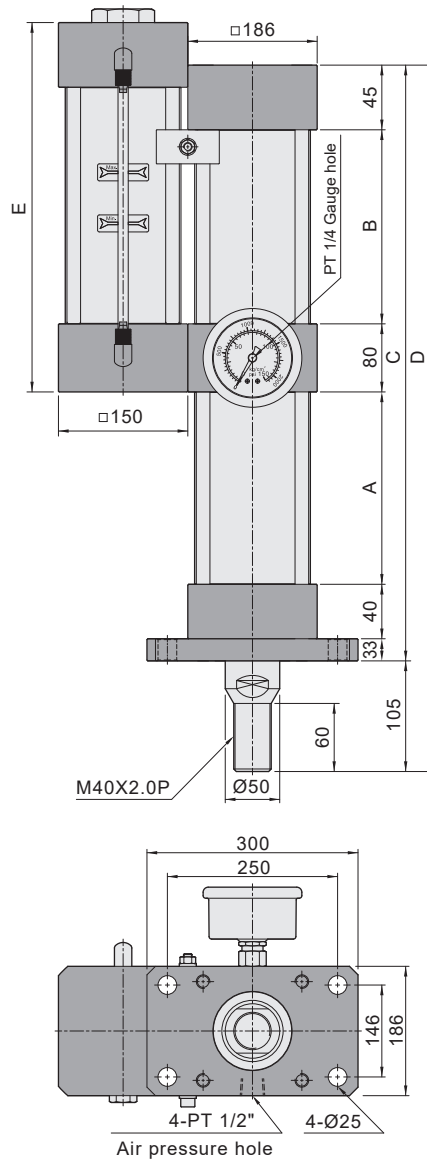
Total stroke	Working stroke	A	B	C	D	E	Total stroke	Working stroke	A	B	C	D	E
50	05	120	169	457	552	290	50	15	120	329	617	712	290
100	05	170	169	507	602	340	100	15	170	329	667	762	340
150	05	220	169	557	652	390	150	15	220	329	717	812	390
200	05	270	169	607	702	440	200	15	270	329	767	862	440
50	10	120	249	537	632	290	50	20	170	409	747	842	290
100	10	170	249	587	682	340	100	20	170	409	747	842	340
150	10	220	249	637	732	390	150	20	220	409	797	892	390
200	10	270	249	687	782	440	200	20	270	409	847	942	440

# PCU series Boosting Cylinder

## Dimensions

CHELIC

### PCU-20T



DC

DH

PCB

PCU

### Dimension

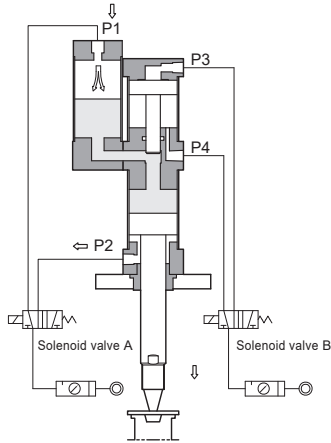
Total stroke	Working stroke	A	B	C	D	E	Total stroke	Working stroke	A	B	C	D	E
50	05	123	190	511	616	300	50	15	173	390	761	866	300
100	05	173	190	561	666	350	100	15	173	390	761	866	350
150	05	223	190	611	716	400	150	15	223	390	811	916	400
200	05	273	190	661	766	450	200	15	273	390	861	966	450
50	10	123	290	611	716	300	50	20	223	490	911	1016	300
100	10	173	290	661	766	350	100	20	223	490	911	1016	350
150	10	223	290	711	816	400	150	20	223	490	911	1016	400
200	10	273	290	761	866	450	200	20	273	490	961	1166	450

# PCU series Boosting Cylinder

## Circuit diagram

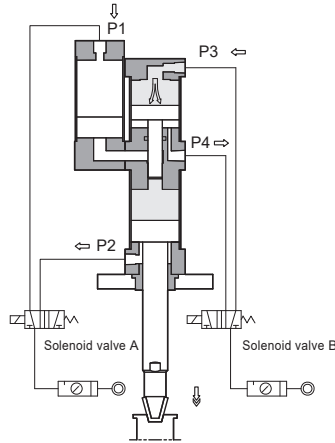
CHELIC

### Quick traverse



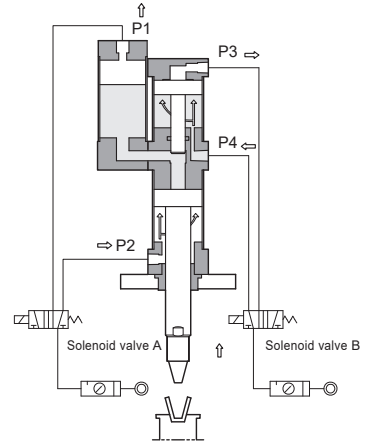
1. When the air is charged from the P1, the oil in the tank will forward the hydraulic cylinder quickly. The pressure is the same as the air pressure, but the inflow of oil is large in volume.

### Intensified feeding



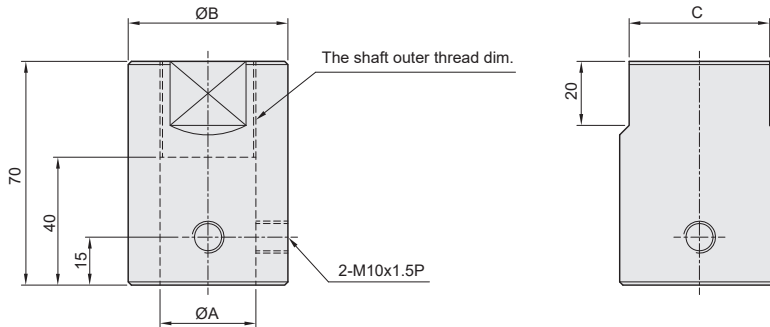
2. When the air is charged from the P3, the ram will advance. The highly pressured fluid will come in to the hydraulic cylinder which will be forwarder by large thrust.

### Swift reverse



3. When the air is send into port P4 and P2, the hydraulic cylinder is swiftly reversed and at the same time the ram goes down Operating procedure.

### Thread transfer bush – D



Force(Ton) \ Mark	ØA	ØB	C
1T	30	50	44
3T	30	50	44
5T	30	50	44
10T	30	60	54
20T	30	60	54