

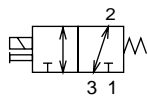
# 3PA Series

Discrete valve: Body porting

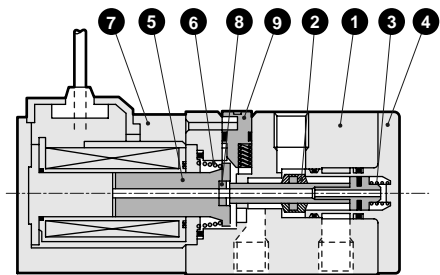
## Internal structure and parts list

### 3PA110

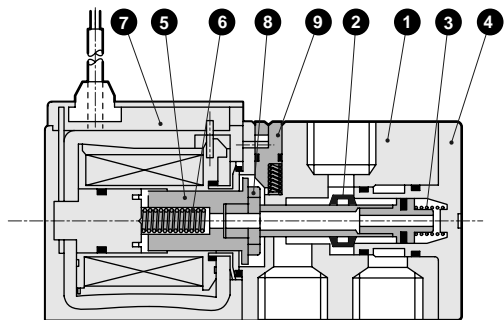
• 2-position single



- Port number 1, 2 and 3 show
- Port 1: P, NC
- Port 2: A, COM
- Port 3: R, NO.



### 3PA210



### Main parts list

No.	Parts name	Material
1	Body	Aluminum alloy die casting
2	Valving element (stem assembly)	-
3	Valve spring	Stainless steel
4	Cap	Polyphenylen sulfite resin
5	Plunger	Stainless steel
6	Plunger spring	Stainless steel
7	Coil assembly	-
8	Dowel	Polyacetal resin
9	Manual button	Polyacetal resin

### Repair parts list

No./parts name	5 6 7 8
Model No.	Coil assembly •
3PA110	3P1 -[Electric connection]- Coil -[Voltage] └ For grommet lead wire, blank.
3PA210	3P2 -[Electric connection]- Coil -[Voltage] └ For grommet lead wire, blank.

- 1: For coil assembly, plunger assembly is attached. Don't change the combination of coil and plunger. A different combination cannot be used.
- 2: For terminal box/connector type of coil assembly, option listed on how to order is assembled/attached.
- 3: When assembling coil assembly into valve, consult with CKD about the procedures.

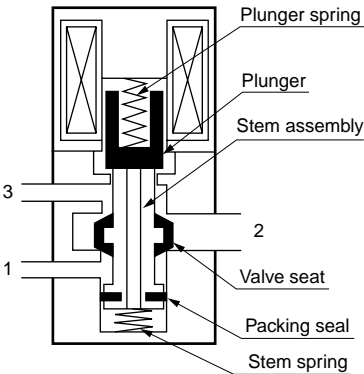
### Operation principle

3P series is a pressure balance poppet valve which is not effected by working pressure. This valve maintains large flow rate but low wattage consumption.

Port can be pressurized from either port of 1, 2 or 3.

The diameters of valve seat and packing seal of stem assembly are same. Since pressure differentials of each port are stabilized by through hole of stem assembly, pressure is well balanced during ON and OFF.

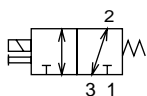
- When de-energized  
The stem assembly is pushed toward Port 1 side by the plunger spring force transmitted by the plunger.  
Valve seat and packing seal of stem assembly close Port 1, while open Port 2 and 3.



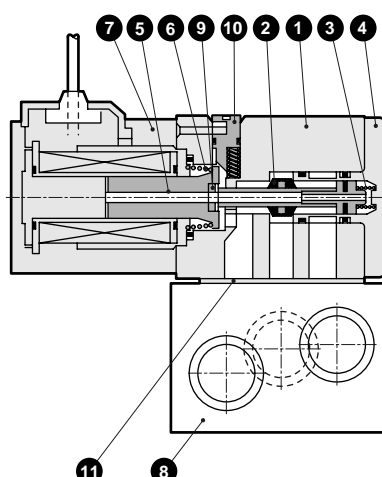
### Internal structure and parts list

#### 3PB110

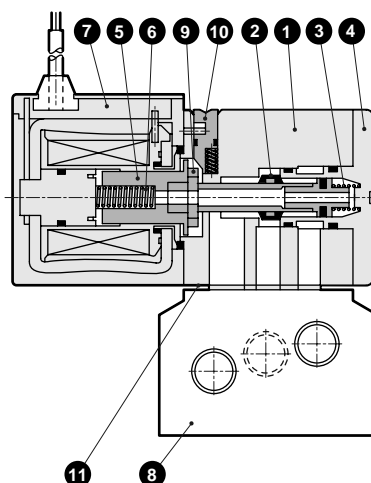
- 2-position single



- Port number 1, 2 and 3 show  
Port 1: P, NC  
Port 2: A, COM  
Port 3: R, NO.



#### 3PB210



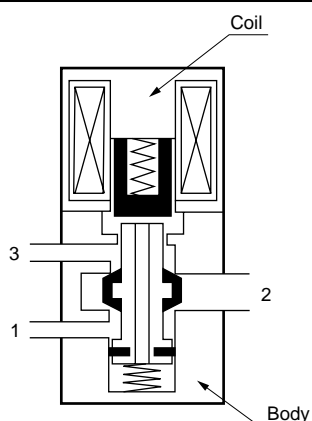
### Main parts list

No.	Parts name	Material
1	Body	Aluminum alloy die casting
2	Valving element (stem assembly)	-
3	Valve spring	Stainless steel
4	Cap	Polyphenylen sulfite resin
5	Plunger	Stainless steel
6	Plunger spring	Stainless steel
7	Coil assembly	-
8	Sub base	Aluminum alloy die casting
9	Dowel	Polyacetal resin
10	Manual button	Polyacetal resin
11	Gasket	Nitrile rubber

### Repair parts list

No./parts name	5 6 7 9
Model No.	Coil assembly •
3PB110	3P1 -[Electric connection]- Coil -[Voltage] └ For grommet lead wire, blank.
3PB210	3P2 -[Electric connection]- Coil -[Voltage] └ For grommet lead wire, blank.

• 1: For coil assembly, plunger assembly is attached. Don't change the combination of coil and plunger. A different combination cannot be used.  
• 2: For terminal box/connector type of coil assembly, option listed on how to order is assembled/attached.  
• 3: When assembling coil assembly into valve, consult with CKD about the procedures.



- When energized  
When energizing the coil, the plunger is absorbed toward the coil side, while the stem assembly is moved by the stem spring force. This opens Port 1 and 2, but closes Port 3.

4SA/B0

4SA/B1

4GA/B

MN4GA/B

4GA/B  
(master)

MN3S0/  
MN4S0

4TB

4L2-4/  
LMF0

4KA/B

4F

PV5/  
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/  
NVP

4F\*\*0E

HMV/  
HSV

Uniwire  
system

SKH

PCD/  
FS/FD

Discrete  
3 port direct acting valve