

# Compact cylinder

## ACQ Series(Big bore size)



### Specification

| Bore size(mm)       | 125  | 140 | 160 |
|---------------------|--|-----|-----|
| Acting type         | Double acting                                |     |     |
| Fluid               | Air(to be filtered by 40 μ m filter element) |     |     |
| Operating pressure  | 0.05~1.0MPa(7~145psi)                        |     |     |
| Proof pressure      | 1.5MPa(215psi)                               |     |     |
| Temperature °C      | -20~80                                       |     |     |
| Speed range mm/s    | 30~500                                       |     |     |
| Stroke tolerance mm | +1.4<br>0                                    |     |     |
| Cushion type        | Bumper                                       |     |     |
| Port size ①         | 3/8"   |     |     |

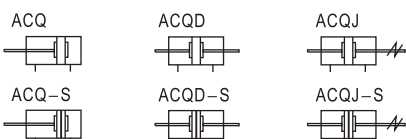
① PT thread, NPT thread and G thread are available. Add) Refer to P419~442 for detail of sensor switch.

### Stroke

| Bore size (mm) | Standard stroke (mm)                          | Max. std stroke | Max. stroke |
|----------------|---|-----------------|-------------|
| 125            | 10 20 30 40 50 75 100 125 150 175 200 250 300 | 300             | 300         |
| 140            |   |                 |             |
| 160            |   |                 |             |

Note) 1. Please contact the company for other special strokes.  
2. The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 23mm stroke cylinder has the same dimensions of 25 std. stroke cylinder.

### Symbol

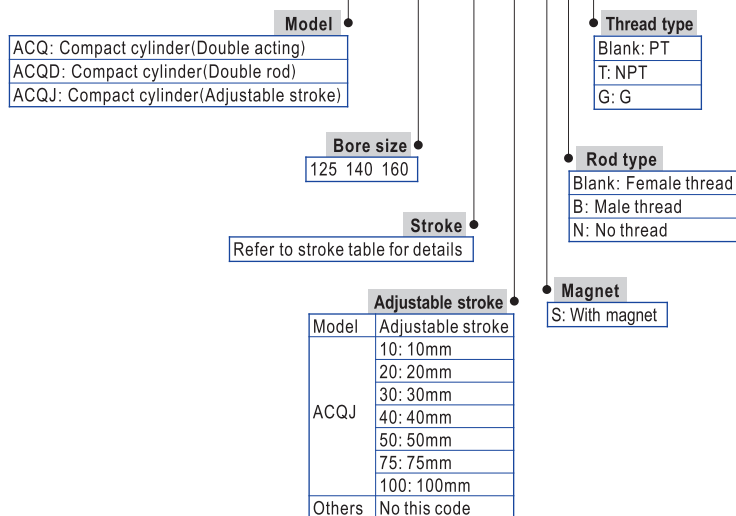


### Product feature

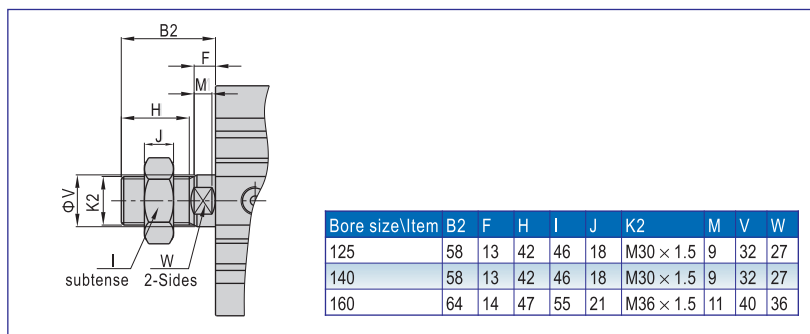
- JIS standard is implemented.
- C clip is adopted to connect the cylinder body and back cover or front cover to make it compact and reliable.
- The internal diameter of the body is treated with rolling followed by the treatment of hard anodizing, forming an excellent abrasion resistance and durability.
- The seal of piston adopts heterogeneous two-way seal structure. It has compact dimension and the function of grease reservation.
- Compact structure can effectively save installation space.
- There are magnetic switch slots around the cylinder body, which is convenient to install inducting switch.

### Ordering code

|      |             |   |   |                          |
|------|-------------|---|---|--------------------------|
| ACQ  | 125 × 30    | S | B | <input type="checkbox"/> |
| ACQD | 125 × 30    | S | B | <input type="checkbox"/> |
| ACQJ | 125 × 30-30 | S | B | <input type="checkbox"/> |



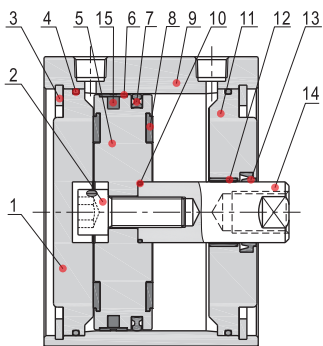
### Male thread



# Compact cylinder

## ACQ Series(Big bore size)

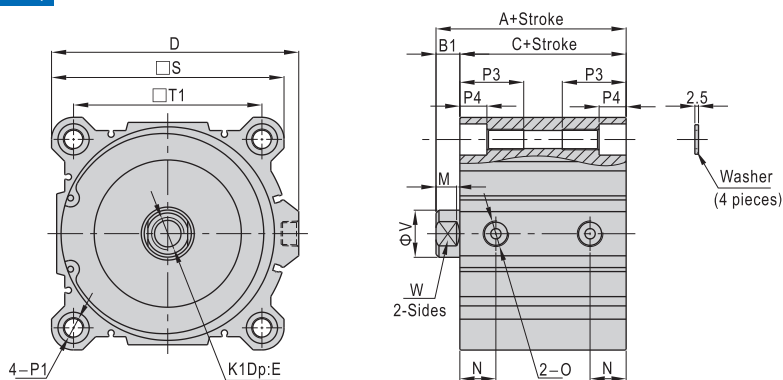
### Inner structure and material of major parts



| NO. | Item                | Material                               |
|-----|---------------------|--|
| 1   | Back cover          | Aluminum alloy                         |
| 2   | Screw               | Carbon steel                           |
| 3   | C clip              | Spring steel                           |
| 4   | O-ring              | NBR                                    |
| 5   | Piston              | Aluminum alloy                         |
| 6   | Wear ring           | Wear resistant material                |
| 7   | Piston seal         | NBR                                    |
| 8   | Bumper              | NBR                                    |
| 9   | Body                | Aluminum alloy                         |
| 10  | O-ring              | NBR                                    |
| 11  | Front cover         | Aluminum alloy                         |
| 12  | Bushing             | Wear resistant material                |
| 13  | Front cover packing | NBR                                    |
| 14  | Piston rod          | Carbon steel with 20 μ m chrome plated |
| 15  | Magnet              | Rubber                                 |

### Dimensions

#### ACQ



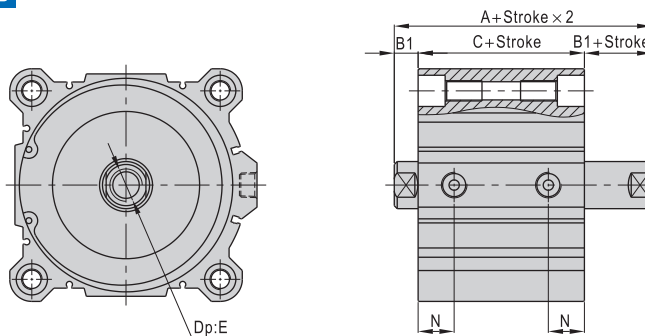
| Bore size\Item | A   | B1 | C  | D   | E     |       | K1        | M  | N    | O    | S   | T1  | V  |
|----------------|-----|----|----|-----|-------|-------|-----------|----|------|------|-----|-----|----|
|                |     |    |    |     | St≤10 | St>10 |           |    |      |      |     |     |    |
| 125            | 99  | 16 | 83 | 153 | 22.5  | 30    | M22 × 2.5 | 12 | 24.5 | 3/8" | 142 | 114 | 32 |
| 140            | 99  | 16 | 83 | 168 | 22.5  | 30    | M22 × 2.5 | 12 | 24.5 | 3/8" | 158 | 128 | 32 |
| 160            | 108 | 17 | 91 | 188 | 26.5  | 33    | M24 × 3.0 | 14 | 27.5 | 3/8" | 178 | 144 | 40 |

| Bore size\Item | P1   | P3   | P4   | W  |
|----------------|--|------|------|----|
| 125            | 2-Sides: Φ21.2 Thread:M14 × 2.0 Thru.hole: Φ12.3 | 43.4 | 18.4 | 27 |
| 140            | 2-Sides: Φ21.2 Thread:M14 × 2.0 Thru.hole: Φ12.3 | 43.4 | 18.4 | 27 |
| 160            | 2-Sides: Φ24.2 Thread:M16 × 2.0 Thru.hole: Φ14.3 | 49.2 | 21.2 | 36 |

Remark) Washer must be used when the cylinder be mounted by through hole.  
Please refer to page 272 for male thread dimensions.

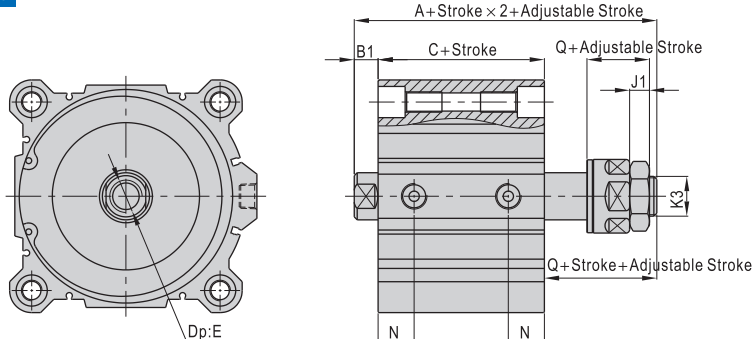
#### ACQD



| Bore size\Item | A   | B1 | C  | E     |       | N    |
|----------------|-----|----|----|-------|-------|------|
|                |     |    |    | St≤10 | St>10 |      |
| 125            | 115 | 16 | 83 | 22.5  | 30    | 24.5 |
| 140            | 115 | 16 | 83 | 22.5  | 30    | 24.5 |
| 160            | 125 | 17 | 91 | 26.5  | 33    | 27.5 |

Remark) The unmarked dimension is the same as ACQ standard type.  
Please refer to page 272 for male thread dimensions.

#### ACQJ



| Bore size\Item | A     | B1 | C  | E     |       | N    | Q    | J1   | K3        |
|----------------|-------|----|----|-------|-------|------|------|------|-----------|
|                |       |    |    | St≤10 | St>10 |      |      |      |           |
| 125            | 140.8 | 16 | 83 | 22.5  | 30    | 24.5 | 42.5 | 13.5 | M27 × 2.0 |
| 140            | 140.8 | 16 | 83 | 22.5  | 30    | 24.5 | 42.5 | 13.5 | M27 × 2.0 |
| 160            | 175.3 | 17 | 91 | 26.5  | 33    | 27.5 | 68   | 18   | M36 × 2.0 |

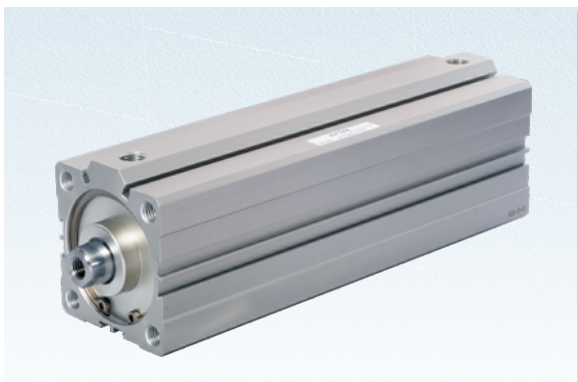
Remark) The unmarked dimension is the same as ACQ standard type.  
Please refer to page 272 for male thread dimensions.



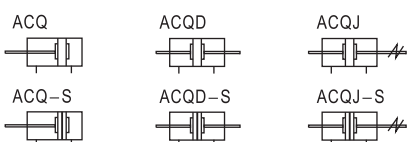
ACQ

# Compact cylinder

## ACQ Series(Longer stroke)



### Symbol



### Product feature

- JIS standard is implemented.
- C clip is adopted to connect the cylinder body and back cover or front cover, and riveted structure is adopted to connect piston and piston rod to make it compact and reliable.
- The internal diameter of the body is treated with rolling followed by the treatment of hard anodizing, forming an excellent abrasion resistance and durability.
- The seal of piston adopts heterogeneous two-way seal structure. It has compact dimension and the function of greasel reservation.
- Compact structure can effectively save installation space.
- There are magnetic switch slots around the cylinder body, which is convenient to install inducting switch.
- Installing accessories with various specifications are optional.

### Specification

| Bore size(mm)       | 32   | 40 | 50   | 63 | 80   | 100 |
|---------------------|--|----|------|----|------|-----|
| Acting type         | Double acting  |    |      |    |      |     |
| Fluid               | Air(to be filtered by 40 μ m filter element)                           |    |      |    |      |     |
| Operating pressure  | 0.1~1.0MPa(15~145psi)  |    |      |    |      |     |
| Proof pressure      | 1.5MPa(215psi)   |    |      |    |      |     |
| Temperature °C      | -20~80   |    |      |    |      |     |
| Speed range mm/s    | 30~500   |    |      |    |      |     |
| Stroke tolerance mm | 101~150 <sup>+1.0</sup> <sub>0</sub> >150 <sup>+1.4</sup> <sub>0</sub> |    |      |    |      |     |
| Cushion type        | Bumper   |    |      |    |      |     |
| Port size ①         | 1/8"   |    | 1/4" |    | 3/8" |     |

① PT thread, NPT thread and G thread are available. Add) Refer to P419~442 for detail of sensor switch.

### Stroke

| Bore size (mm)     | Standard stroke (mm) |     |     |     |     |     | Max. std stroke | Max. stroke |
|--------------------|----------------------|-----|-----|-----|-----|-----|-----------------|-------------|
| 32 40 50 63 80 100 | 125                  | 150 | 175 | 200 | 250 | 300 | 300             | 350         |

Note) Within allowable stroke scope, when the stroke is larger than the maximum value, it shall be treated as non-standard one. Please contact the company for other special strokes.

### Ordering code

|      |             |   |   |                          |                          |
|------|-------------|---|---|--------------------------|--------------------------|
| ACQ  | 50 × 150    | S | B | <input type="checkbox"/> | <input type="checkbox"/> |
| ACQD | 50 × 150    | S | B | <input type="checkbox"/> | <input type="checkbox"/> |
| ACQJ | 50 × 150-30 | S | B | <input type="checkbox"/> | <input type="checkbox"/> |

**Model**

- ACQ: Compact cylinder (Double acting)
- ACQD: Compact cylinder (Double rod)
- ACQJ: Compact cylinder (Adjustable stroke)

**Bore size**

32 40 50 63 80 100

**Stroke**

Refer to stroke table for details

**Adjustable stroke**

| Model      | Adjustable stroke |
|------------|-------------------|
| ACQJ       | 10: 10mm          |
|            | 20: 20mm          |
|            | 30: 30mm          |
|            | 40: 40mm          |
|            | 50: 50mm          |
|            | 75: 75mm          |
| 100: 100mm |                   |
| Others     | No this code      |

**Thread type**

- Blank: PT
- T: NPT
- G: G

**Mounting type ①**

| Model        | Mounting type         |
|--------------|-----------------------|
| ACQ          | Blank: No accessories |
|              | FA: FA type           |
|              | FB: FB type           |
|              | CB: CB type           |
| LB: LB type  |                       |
| ACQD<br>ACQJ | Blank: No accessories |
|              | FA: FA type           |
|              | FB: FB type           |
|              | LB: LB type           |

**Rod type**

- Blank: Female thread
- B: Male thread
- N: No thread

**Magnet**

- Blank: Without magnet
- S: With magnet

① Please refer to page 279 for accessory parts.

### Inner structure and material of major parts

ACQS

ACQ

| NO. | Item          | Material       | NO. | Item                | Material                                |
|-----|---------------|----------------|-----|---------------------|---|
| 1   | Magnet washer | NBR            | 9   | Wear ring           | No(Φ32)\Wear resistant material(Others) |
| 2   | Magnet        | Plastic        | 10  | Piston seal         | NBR                                     |
| 3   | Body          | Aluminum alloy | 11  | Magnet holder       | Aluminum alloy                          |
| 4   | O-ring        | NBR            | 12  | Piston rod          | Carbon steel with 20 μ m chrome plated  |
| 5   | Bumper        | NBR            | 13  | Front cover         | Aluminum alloy                          |
| 6   | Back cover    | Aluminum alloy | 14  | Bushing             | No(Φ32)\Wear resistant material(Others) |
| 7   | Piston        | Aluminum alloy | 15  | Front cover packing | NBR                                     |
| 8   | C clip        | Spring steel   |     |                     |   |

## Accessories

### ■ Dimensions

**ACQ**       $\Phi 32 - \Phi 100$  (Stroke > 100)

| Bore size\Item | A    | B1 | C    | D     | E  | K1        | M   | N    | O    |
|----------------|------|----|------|-------|----|-----------|-----|------|------|
| 32             | 62.5 | 17 | 45.5 | 49.5  | 13 | M8 × 1.25 | 6   | 12.5 | 1/8" |
| 40             | 72   | 17 | 55   | 57    | 13 | M8 × 1.25 | 6   | 14   | 1/8" |
| 50             | 73.5 | 18 | 55.5 | 71    | 15 | M10 × 1.5 | 6.5 | 14   | 1/4" |
| 63             | 75   | 18 | 57   | 84    | 15 | M10 × 1.5 | 6.5 | 16.5 | 1/4" |
| 80             | 86   | 20 | 66   | 104   | 21 | M16 × 2.0 | 8.5 | 19   | 3/8" |
| 100            | 97.5 | 22 | 75.5 | 123.5 | 27 | M20 × 2.5 | 9.5 | 23   | 3/8" |

| Bore size\Item | P1   | P2 | Q  | R  | S   | T1 | V  | W  |
|----------------|--|----|----|----|-----|----|----|----|
| 32             | 2-Sides: M6 × 1.0 Thru.hole: $\Phi 5.2$    | 10 | 12 | 22 | 45  | 34 | 16 | 14 |
| 40             | 2-Sides: M6 × 1.0 Thru.hole: $\Phi 5.2$    | 10 | 12 | 28 | 53  | 40 | 16 | 14 |
| 50             | 2-Sides: M8 × 1.25 Thru.hole: $\Phi 6.8$   | 14 | 13 | 35 | 64  | 50 | 20 | 17 |
| 63             | 2-Sides: M10 × 1.5 Thru.hole: $\Phi 8.5$   | 18 | 13 | 35 | 77  | 60 | 20 | 17 |
| 80             | 2-Sides: M12 × 1.75 Thru.hole: $\Phi 10.3$ | 22 | 15 | 43 | 98  | 77 | 25 | 22 |
| 100            | 2-Sides: M12 × 1.75 Thru.hole: $\Phi 10.3$ | 22 | 17 | 59 | 117 | 94 | 32 | 27 |



**ACQD**       $\Phi 32 - \Phi 100$  (Stroke > 100)

**ACQJ**       $\Phi 32 - \Phi 100$  (Stroke > 100)

| Bore size\Item | A              |             | A1             |             | C              |             | B1 | E  | N    | Q    | J1   | K3         |
|----------------|----------------|-------------|----------------|-------------|----------------|-------------|----|----|------|------|------|------------|
|                | Without magnet | With magnet | Without magnet | With magnet | Without magnet | With magnet |    |    |      |      |      |            |
| 32             | 79.5           | 89.5        | 95.5           | 105.5       | 45.5           | 55.5        | 17 | 13 | 12.5 | 28   | 7    | M12 × 1.25 |
| 40             | 89             | 99          | 105            | 115         | 55             | 65          | 17 | 13 | 14   | 28   | 7    | M12 × 1.25 |
| 50             | 91.5           | 101.5       | 107.5          | 117.5       | 55.5           | 65.5        | 18 | 15 | 14   | 29   | 8    | M16 × 1.5  |
| 63             | 93             | 103         | 109            | 119         | 57             | 67          | 18 | 15 | 16.5 | 29   | 8    | M16 × 1.5  |
| 80             | 106            | 116         | 126.5          | 136.5       | 66             | 76          | 20 | 21 | 19   | 35.5 | 10   | M20 × 1.5  |
| 100            | 119.5          | 129.5       | 145            | 155         | 75.5           | 85.5        | 22 | 27 | 23   | 42.5 | 13.5 | M27 × 2.0  |

Remark) The unmarked dimension is the same as ACQ standard type.

**Male thread** (Bore size:  $\Phi 32 - \Phi 100$ , Stroke > 100, Longer type)

| Bore size\Item | B2   | H    | J  | K2        | M   | R  | V  | W  |
|----------------|------|------|----|-----------|-----|----|----|----|
| 32             | 38.5 | 23.5 | 8  | M14 × 1.5 | 6   | 22 | 16 | 14 |
| 40             | 38.5 | 23.5 | 8  | M14 × 1.5 | 6   | 28 | 16 | 14 |
| 50             | 43.5 | 28.5 | 11 | M18 × 1.5 | 6.5 | 35 | 20 | 17 |
| 63             | 43.5 | 28.5 | 11 | M18 × 1.5 | 6.5 | 35 | 20 | 17 |
| 80             | 53.5 | 35.5 | 13 | M22 × 1.5 | 8.5 | 43 | 25 | 22 |
| 100            | 53.5 | 35.5 | 13 | M26 × 1.5 | 10  | 59 | 32 | 27 |