

ISO/VDMA-Druckluft-Zylinder

Serie CP95

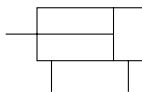
ø32, ø40, ø50, ø63, ø80, ø100

Abmessungen entsprechend ISO 6431, VDMA 24562, CETOP RP43P.

Technische Daten



ISO-Symbol
doppeltwirkend



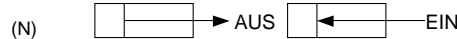
| Kolbendurchmesser | ø32 | ø40 | ø50 | ø63 | ø80 | ø100 |
|-----------------------------|---|------|------|------|------|------|
| Funktion | doppeltwirkend | | | | | |
| Medium | Druckluft | | | | | |
| Prüfdruck | 1.5MPa | | | | | |
| Max. Betriebsdruck | 1.0MPa | | | | | |
| Min. Betriebsdruck | 0.05MPa | | | | | |
| Umgebungs- Medientemperatur | ohne Magnet -10 bis 70°C (nicht gefroren) | | | | | |
| | mit Magnet -10 bis 60°C (nicht gefroren) | | | | | |
| Schmierung | nicht erforderlich (dauer geschmiert) | | | | | |
| Kolbengeschwindigkeit | 50 bis 1000mm/s | | | | | |
| Hubtoleranz | bis 250: ^{+1,0} ₀ , 251 bis 1000: ^{+1,4} ₀ | | | | | |
| Dämpfung | beidseitig (pneumatisch) | | | | | |
| Anschlussgrösse | G1/8 | G1/4 | G1/4 | G3/8 | G3/8 | G1/2 |
| Montage | Grundausführung, Fuss, Flansch vorne, Flansch hinten, sphärisches Lager, Schwenkbefestigung hinten, Gabelbefestigung hinten | | | | | |

Standardhub

| Kolben-ø (mm) | Standardhub (mm) | Max. * Hub |
|---------------|---|------------|
| 32 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500 | 700 |
| 40 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500 | 800 |
| 50 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600 | 1000 |
| 63 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600 | 1000 |
| 80 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600 | 1000 |
| 100 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600 | 1000 |

Zwischenhublängen sind ebenfalls erhältlich.

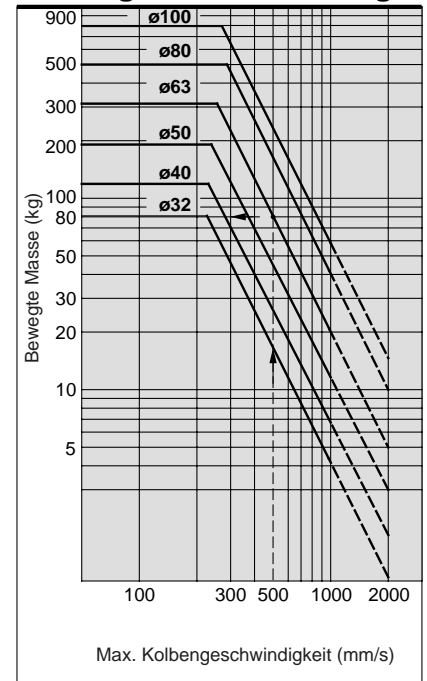
Theoretische Zylinderkräfte



| Kolben-Ø (mm) | Kolbenstangen-Ø (mm) | Bewegungsrichtung | Nutzkolbenfläche (mm²) | Betriebsdruck (MPa) | | | | | | | | | |
|---------------|----------------------|-------------------|------------------------|---------------------|------|------|------|------|------|------|------|------|--|
| | | | | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | |
| 32 | 12 | AUS | 804 | 161 | 241 | 322 | 402 | 482 | 563 | 643 | 724 | 804 | |
| | | EIN | 691 | 138 | 207 | 276 | 346 | 415 | 484 | 553 | 622 | 691 | |
| 40 | 16 | AUS | 1257 | 251 | 377 | 503 | 629 | 754 | 880 | 1006 | 1131 | 1257 | |
| | | EIN | 1056 | 211 | 317 | 422 | 528 | 634 | 739 | 845 | 950 | 1056 | |
| 50 | 20 | AUS | 1963 | 393 | 589 | 785 | 982 | 1178 | 1374 | 1570 | 1767 | 1963 | |
| | | EIN | 1649 | 330 | 495 | 660 | 825 | 989 | 1154 | 1319 | 1484 | 1649 | |
| 63 | 20 | AUS | 3117 | 623 | 935 | 1247 | 1559 | 1870 | 2182 | 2494 | 2805 | 3117 | |
| | | EIN | 2803 | 561 | 841 | 1121 | 1402 | 1682 | 1962 | 2242 | 2523 | 2803 | |
| 80 | 25 | AUS | 5027 | 1005 | 1508 | 2011 | 2514 | 3016 | 3519 | 4022 | 4524 | 5027 | |
| | | EIN | 4536 | 907 | 1361 | 1814 | 2268 | 2722 | 3175 | 3629 | 4082 | 4536 | |
| 100 | 30 | AUS | 7854 | 1571 | 2356 | 3142 | 3927 | 4712 | 5498 | 6283 | 7068 | 7854 | |
| | | EIN | 7147 | 1429 | 2144 | 2859 | 3574 | 4288 | 5003 | 5718 | 6432 | 7147 | |

Anm.) Theoretische Zylinderkraft (N) = Druck (MPa) X Kolbenfläche (mm²)

Zulässige kinetische Energie



Beispiel: Ermitteln Sie die max. bewegte Masse am Kolbenstangenende eines Ø63-Zylinders bei einer Kolbengeschwindigkeit von 500mm/s. Suchen Sie den Schnittpunkt der vertikalen Achse für 500mm/s und der Linie für Ø63 und entnehmen Sie den entsprechenden Wert für die max. bewegte Masse am linken Rand. In diesem Fall beträgt die max. bewegte Last 80kg.

Gewichtstabelle

[kg]

| Kolben-Ø | Befestigungsart | 32 | 40 | 50 | 63 | 80 | 100 |
|----------------------------|------------------|------|------|------|------|------|------|
| Grundgewicht | Grundauführung B | 0.59 | 0.87 | 1.44 | 2.00 | 3.37 | 4.45 |
| Zusatzgewicht je 50 mm Hub | | 0.11 | 0.17 | 0.28 | 0.40 | 0.67 | 0.89 |

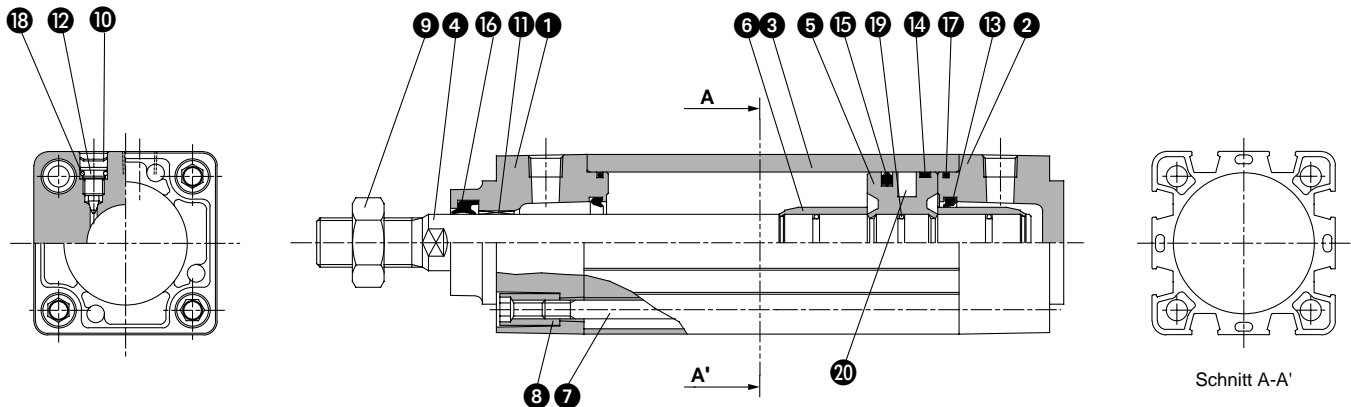
Berechnungsmethode

Beispiel: CP95S32-100
(Grundauführung Ø32, 100mm Hub)

- Grundgewicht0.59kg (Standard Ø32)
- Zusatzgewicht0.11kg/50mm Hub
- Zylinderhub100mm

Zylindergewicht =
 $0.59 + (0.11 \times 100/50) = 0.81\text{kg}$

Konstruktion



Stückliste

| Pos. | Bezeichnung | Material |
|------|-----------------------------|--------------------------------|
| 1 | Zylinderkopf | Aluminium |
| 2 | Zylinderdeckel | Aluminium |
| 3 | Zylinderrohr | Aluminium |
| 4 | Kolbenstange | Chromstahl C45 |
| 5 | Kolben | Aluminium |
| 6 | Dämpfungsring | Messing |
| 7 | Zugstange | Stahl, verzinkt u. chromatiert |
| 8 | Zugstangenmutter | Stahl, verzinkt u. chromatiert |
| 9 | Kolbenstangenmutter | Stahl, verzinkt u. chromatiert |
| 10 | Sicherungsring | Stahl, vernickelt |
| 11 | Buchse | Verbundlagermetall |
| 12 | Dämpfungsschraube | Stahl, verzinkt u. chromatiert |
| 13 | Dämpfungsdichtung | Elastomer |
| 14 | Kolbenführungsband | Lagermetall |
| 15 | Kolbendichtung | NBR |
| 16 | Abstreifer | NBR |
| 17 | Dichtring Zylinderrohr | NBR |
| 18 | Dichtring Dämpfungsschraube | NBR |
| 19 | Dichtring Kolben/Stange | NBR |
| 20 | Magnetring | |

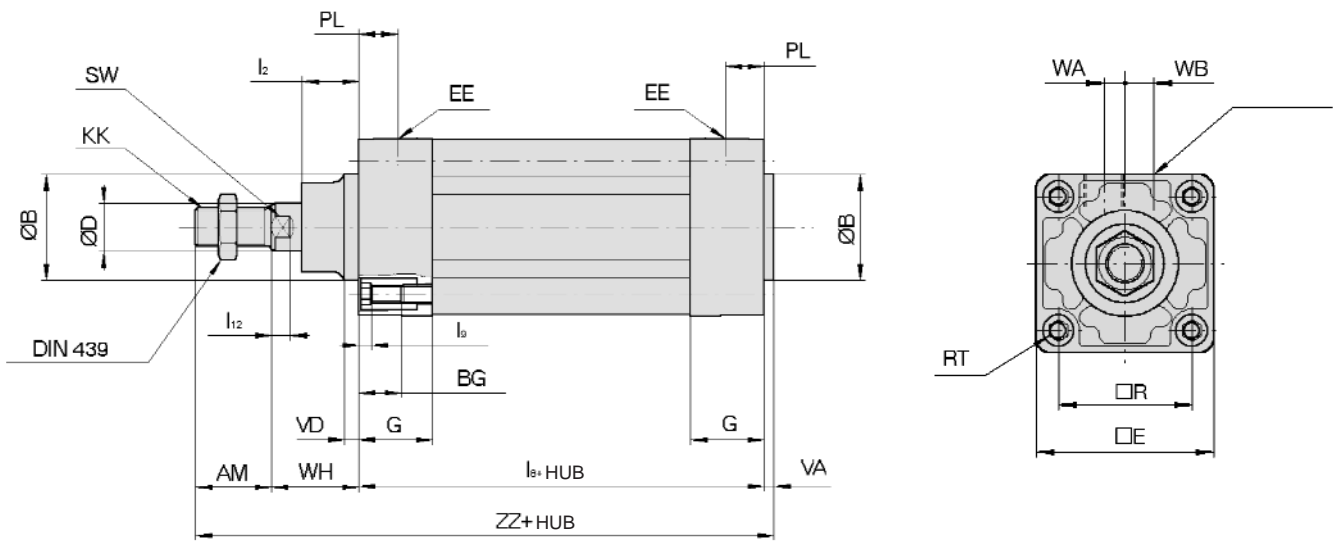
Dichtungssets:

Ø32 enthält die Pos. 13 bis 17,

Ø40 - Ø100 enthält die Pos. 12 bis 18

| Ø | Bestell-Nr. |
|-----|-----------------|
| 32 | CS95-32 |
| 40 | CS95-40 |
| 50 | CS95-50 |
| 63 | CS95-63 |
| 80 | CS95-80 |
| 100 | CS95-100 |

Ohne Befestigungselement

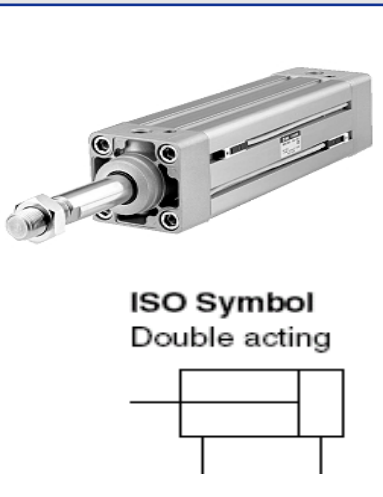


| Kolben-Ø | AM | ØB | ØD | EE | PL | RT | I ₁₂ | KK | SW | G | BG | I ₈ | VD | VA | WA | WB | WH | ZZ | ZY | □E | □R | I ₂ | I ₉ |
|----------|----|----|----|------|------|-----|-----------------|----------|----|------|----|----------------|----|----|------|------|----|-----|-----|-----|------|----------------|----------------|
| 32 | 22 | 30 | 12 | G1/8 | 13 | M6 | 6 | M10x1.25 | 10 | 27 | 16 | 94 | 4 | 4 | 4 | 6.5 | 26 | 146 | 190 | 46 | 32.5 | 15 | 4 |
| 40 | 24 | 35 | 16 | G1/4 | 14 | M6 | 6.5 | M12x1.25 | 13 | 27 | 16 | 105 | 4 | 4 | 4 | 9 | 30 | 163 | 213 | 52 | 38 | 17 | 4 |
| 50 | 32 | 40 | 20 | G1/4 | 15.5 | M8 | 8 | M16x1.5 | 16 | 31.5 | 16 | 106 | 6 | 4 | 5 | 10.5 | 37 | 179 | 244 | 65 | 46.5 | 24 | 5 |
| 63 | 32 | 45 | 20 | G3/8 | 16.5 | M8 | 8 | M16x1.5 | 16 | 31.5 | 16 | 121 | 6 | 4 | 9 | 12 | 37 | 194 | 259 | 75 | 56.5 | 24 | 5 |
| 80 | 40 | 45 | 25 | G3/8 | 19 | M10 | 10 | M20x1.5 | 21 | 38 | 16 | 128 | 8 | 4 | 11.5 | 14 | 46 | 218 | 300 | 95 | 72 | 30 | 5 |
| 100 | 40 | 55 | 30 | G1/2 | 19 | M10 | 10 | M20x1.5 | 21 | 38 | 16 | 138 | 8 | 4 | 17 | 15 | 51 | 233 | 320 | 114 | 89 | 32 | 5 |

Air Cylinders

Languages > 

SMC Air Cylinder ISO 6431 - Type CP95SDB - Double Acting



ISO Symbol
Double acting



Air Cylinders
Item no.: 206210000000

Product Description

- SMC pressure air cylinder for modern construction of aluminium line-profiles
- ISO/DMA-norm cylinder, profile building method with integrated pull rods
- New swimming extreme position attenuation, makes even drive out movements possible
- Signal generator fully integrated in the housing (optional)
- Smooth cylinder cap, therefore small susceptible to dirt
- Dust-tight through signal generator coverage

Technical Data

| Bore size | ø32 | ø40 | ø50 | ø63 | ø80 | ø100 |
|-------------------------------|---|------|------|------|------|------|
| Action | Double acting | | | | | |
| Fluid | Air | | | | | |
| Proof pressure | 1.5MPa | | | | | |
| Max. operating pressure | 1.0MPa | | | | | |
| Min. operating pressure | 0.05MPa | | | | | |
| Ambient and fluid temperature | Without magnet -10 to 70°C (No freezing) | | | | | |
| | With magnet -10 to 60°C (No freezing) | | | | | |
| Lubrication | Not required (Non-lube) | | | | | |
| Operating piston speed | 50 to 1000mm/s | | | | | |
| Allowable stroke tolerance | to 250: ^{+1.0} ₀ , 251 to 1000: ^{+1.4} ₀ | | | | | |
| Cushion | Both ends (Air cushion) | | | | | |
| Port size | G1/8 | G1/4 | G1/4 | G3/8 | G3/8 | G1/2 |
| Mounting | Basic, axial foot, front flange, rear flange, spherical bearing, single rear clevis, double rear clevis | | | | | |

Standard Stroke

| Bore size (mm) | Standard stroke (mm) | Max. * stroke |
|----------------|---|---------------|
| 32 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500 | 700 |
| 40 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500 | 800 |
| 50 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600 | 1000 |
| 63 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600 | 1000 |
| 80 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600 | 1000 |
| 100 | 25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600 | 1000 |

Intermediate strokes are available.


* Changes and mistakes excepted, prices plus packing and VAT.

Air Cylinders

Languages > 

SMC Air Cylinder ISO 6431 - Type CP95SDB - Double Acting

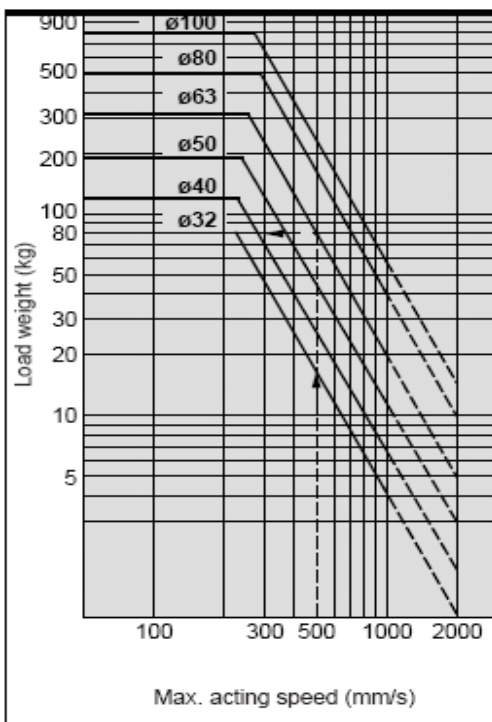
Theoretical Force

(Unit : N) 

| Bore size (mm) | Rod diameter (mm) | Operating direction | Piston area (mm ²) | Operating pressure (MPa) | | | | | | | | |
|----------------|-------------------|---------------------|--------------------------------|--------------------------|------|------|------|------|------|------|------|------|
| | | | | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
| 32 | 12 | OUT | 804 | 161 | 241 | 322 | 402 | 482 | 563 | 643 | 724 | 804 |
| | | IN | 691 | 138 | 207 | 276 | 346 | 415 | 484 | 553 | 622 | 691 |
| 40 | 16 | OUT | 1257 | 251 | 377 | 503 | 629 | 754 | 880 | 1006 | 1131 | 1257 |
| | | IN | 1056 | 211 | 317 | 422 | 528 | 634 | 739 | 845 | 950 | 1056 |
| 50 | 20 | OUT | 1963 | 393 | 589 | 785 | 982 | 1178 | 1374 | 1570 | 1767 | 1963 |
| | | IN | 1649 | 330 | 495 | 660 | 825 | 989 | 1154 | 1319 | 1484 | 1649 |
| 63 | 20 | OUT | 3117 | 623 | 935 | 1247 | 1559 | 1870 | 2182 | 2494 | 2805 | 3117 |
| | | IN | 2803 | 561 | 841 | 1121 | 1402 | 1682 | 1962 | 2242 | 2523 | 2803 |
| 80 | 25 | OUT | 5027 | 1005 | 1508 | 2011 | 2514 | 3016 | 3519 | 4022 | 4524 | 5027 |
| | | IN | 4536 | 907 | 1361 | 1814 | 2268 | 2722 | 3175 | 3629 | 4082 | 4536 |
| 100 | 30 | OUT | 7854 | 1571 | 2356 | 3142 | 3927 | 4712 | 5498 | 6283 | 7068 | 7854 |
| | | IN | 7147 | 1429 | 2144 | 2859 | 3574 | 4288 | 5003 | 5718 | 6432 | 7147 |

Note) Theoretical force(N) = Pressure (MPa) X Piston area (mm²)

Allowable Kinetic Energy / Weight Table



| Ø Bore | Mounting type | 32 | 40 | 50 | 63 | 80 | 100 |
|------------------------------------|--------------------------|-------|------|------|------|------|------|
| Basic weight | Basic type B | 0.59 | 0.87 | 1.44 | 2.00 | 3.37 | 4.45 |
| | Foot L | 0.16 | 0.20 | 0.38 | 0.46 | 0.89 | 1.09 |
| | Front/rear flange F | 0.20 | 0.23 | 0.47 | 0.58 | 1.30 | 1.81 |
| | Male rear clevis C | 0.16 | 0.23 | 0.37 | 0.60 | 1.07 | 1.73 |
| | Female rear clevis D | 0.20 | 0.32 | 0.45 | 0.71 | 1.28 | 2.11 |
| | Angled rear clevis E | 0.16 | 0.22 | 0.42 | 0.52 | 0.94 | 1.40 |
| | Female rear clevis DS | 0.17 | 0.27 | 0.45 | 0.64 | 1.37 | 2.05 |
| | Spherical bearing ES | 0.18 | 0.27 | 0.46 | 0.55 | 0.97 | 1.33 |
| Additional weight per 50 mm stroke | | 0.11 | 0.17 | 0.28 | 0.40 | 0.67 | 0.89 |
| | Accessories | | | | | | |
| | Piston rod ball joint KJ | 0.15 | 0.23 | 0.26 | 0.26 | 0.60 | 0.83 |
| | Rod clevis GKM | 0.22 | 0.37 | 0.43 | 0.43 | 0.87 | 1.27 |
| | Floating joint JA | 0.015 | 0.20 | 0.26 | 0.26 | 0.9 | 0.9 |

Weight calculation method

Example: CP95S32-100

(basic Ø32, 100st)

- Basic weight0.59kg (Standard Ø32)
- Additional weight . . .0.11kg/50mm stroke
- Cylinder stroke . . .100st

Cylinder weight =
0.59+(0.11 x 100/50)=0.81kg

Example: Load limit at rod end when air cylinder ø63 is actuated with max. actuating speed 500mm/s. See the intersection of lateral axis 500mm/s and ø63 line, and extend the intersection to left. Thus the allowable load is 80kg.

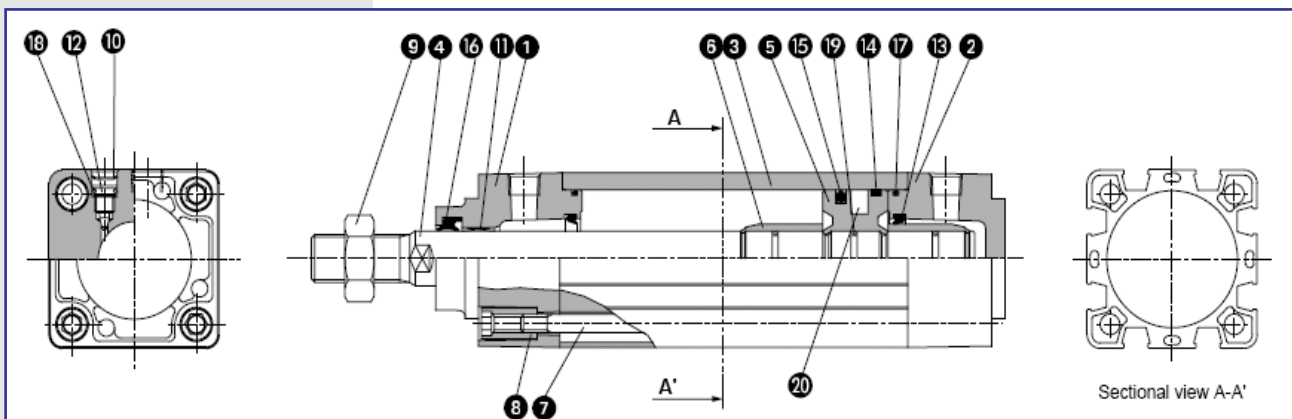
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Air Cylinders

Languages > 

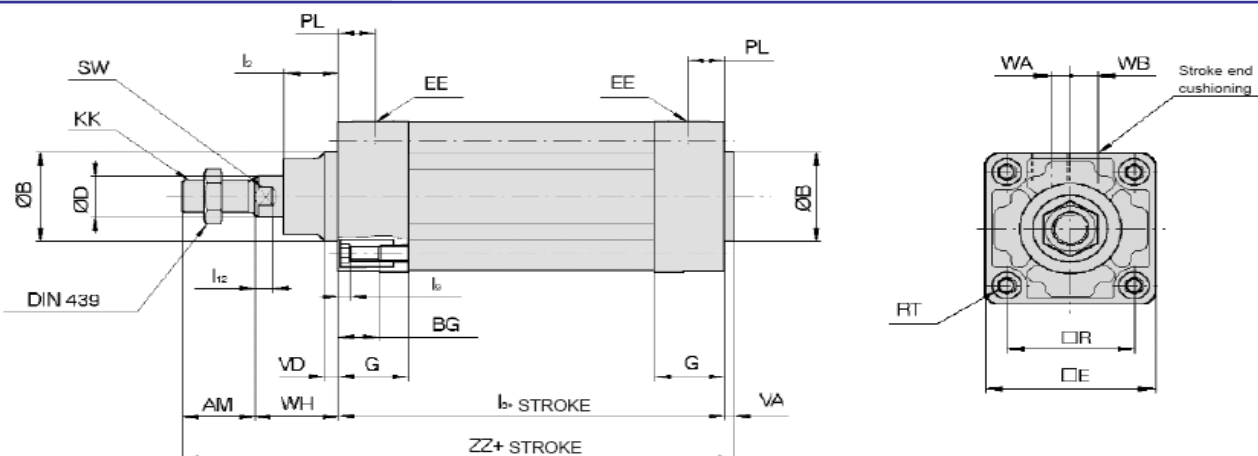
SMC Air Cylinder ISO 6431 - Type CP95SDB - Double Acting

Construction



| Pos. | Description | Material | Pos. | Description | Material |
|------|---------------|-----------------------------|------|-----------------------|-----------------------------|
| 1 | Rod Cover | Die-Cast Aluminium | 11 | Bushing | Lead-Bronze Casting |
| 2 | End Cover | Die-Cast Aluminium | 12 | Cushion Valve | Steel, Zinc Chromate Plated |
| 3 | Cylinder Tube | Die-Cast Aluminium | 13 | Cushion Seal | Elastomer |
| 4 | Piston Rod | Hard Chromed Steel C45 | 14 | Wear Ring | Antifriction Material |
| 5 | Piston | Die-Cast Aluminium | 15 | Piston Seal | Elastomer |
| 6 | Cushion Ring | Brass | 16 | Rod Seal | NBR |
| 7 | Tie Rod | Steel, Zinc Chromate Plated | 17 | Cylinder Tube Gasket | NBR |
| 8 | Tie Rod Nut | Steel, Zinc Chromate Plated | 18 | Cushioning Valve Seal | NBR |
| 9 | Rod End Nut | Steel Nickel Plated | 19 | Piston/Rod Gasket | NBR |
| 10 | Snap Ring | Steel Nickel Plated | 20 | Magnet Ring | |

Dimensions



| Ø Bore | AM | ØB | ØD | EE | PL | RT | l _{1/2} | KK | SW | G | BG | l ₃ | VD | VA | WA | WB | WH | ZZ | ZY | ØE | ØR | l ₂ | l ₀ |
|--------|----|----|----|------|------|-----|------------------|----------|----|------|----|----------------|----|----|------|------|-----|-----|-----|-----|------|----------------|----------------|
| 32 | 22 | 30 | 12 | G1/8 | 13 | M6 | 6 | M10x1.25 | 10 | 27 | 16 | 94 | 4 | 4 | 4 | 6.5 | 26 | 146 | 190 | 46 | 32.5 | 15 | 4 |
| 40 | 24 | 35 | 16 | G1/4 | 14 | M6 | 6.5 | M12x1.25 | 13 | 27 | 16 | 105 | 4 | 4 | 9 | 30 | 163 | 213 | 52 | 38 | 17 | 4 | 4 |
| 50 | 32 | 40 | 20 | G1/4 | 15.5 | M8 | 8 | M16x1.5 | 16 | 31.5 | 16 | 106 | 6 | 4 | 5 | 10.5 | 37 | 179 | 244 | 65 | 46.5 | 24 | 5 |
| 63 | 32 | 45 | 20 | G3/8 | 16.5 | M8 | 8 | M16x1.5 | 16 | 31.5 | 16 | 121 | 6 | 4 | 9 | 12 | 37 | 194 | 259 | 75 | 56.5 | 24 | 5 |
| 80 | 40 | 45 | 25 | G3/8 | 19 | M10 | 10 | M20x1.5 | 21 | 38 | 16 | 128 | 8 | 4 | 11.5 | 14 | 46 | 218 | 300 | 95 | 72 | 30 | 5 |
| 100 | 40 | 55 | 30 | G1/2 | 19 | M10 | 10 | M20x1.5 | 21 | 38 | 16 | 138 | 8 | 4 | 17 | 15 | 51 | 233 | 320 | 114 | 89 | 32 | 5 |

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