



aerospace
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Pneumatic cylinders

Series C05 and C05S
Short stroke cylinders

Catalogue PDE2560TCUK June 2011



ENGINEERING YOUR SUCCESS.

| Features | Air cylinder | Hydraulic cylinder | Electro mechanical actuators |
|---|--------------|--------------------|------------------------------|
| Overload safe | *** | *** | * |
| Easy to limit force | *** | *** | * |
| Easy to vary speed | *** | *** | * |
| Speed | *** | ** | ** |
| Reliability | *** | *** | *** |
| Robustness | *** | *** | * |
| Installation cost | *** | * | ** |
| Ease of service | *** | ** | * |
| Safety in damp environments | *** | *** | * |
| Safety in explosive atmospheres | *** | *** | * |
| Safety risk with electrical installations | *** | *** | * |
| Risk of oil leak | *** | * | *** |
| Clean, hygienic | *** | ** | * |
| Standardised measurements | *** | *** | * |
| Service life | *** | *** | * |
| Hydraulic system required | *** | * | *** |
| Weight | *** | ** | ** |
| Purchase price | *** | ** | * |
| Power density | ** | *** | * |
| Noise level during operation | ** | *** | ** |
| High force for size | ** | *** | * |
| Positioning possibilities | * | *** | *** |
| Total energy consumption | * | ** | *** |
| Service interval | * | ** | *** |
| Compressor capacity required | * | *** | *** |

* = good, **=average, ***=excellent



Important

Before attempting any external or internal work on the cylinder or any connected components, make sure the cylinder is vented and disconnect the air supply in order to ensure isolation of the air supply.



Note

All technical data in this catalogue are typical data only.
Air quality is essential for maximum cylinder service life (see ISO 8573).



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

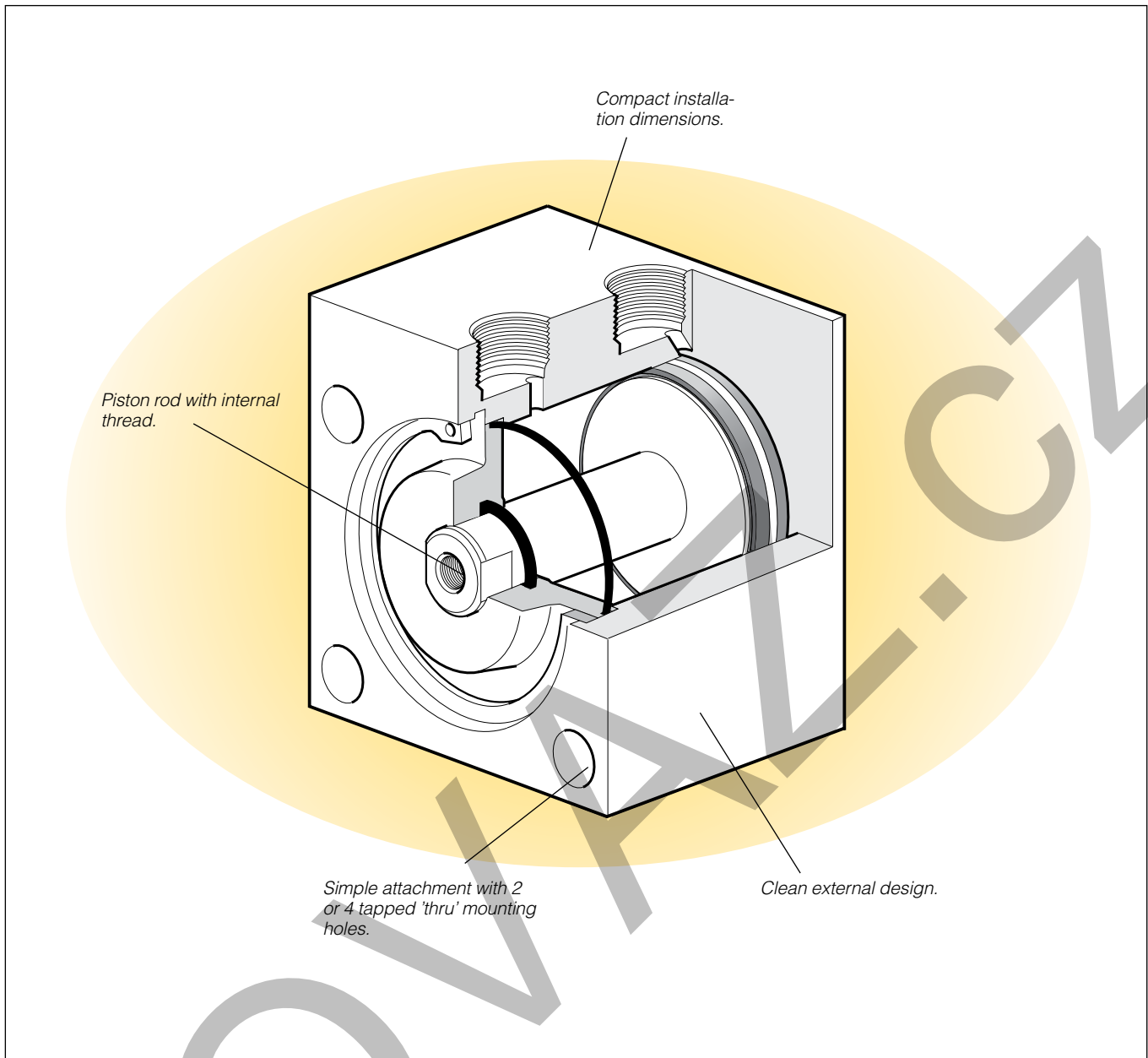
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Cylinders, type C05 and C05S

Compact short stroke cylinders are available in single as well as double acting versions. Ideally suited for clamping and locking operations the range includes bores from 12 to 63 mm, providing thrust forces of up to 3000 N.

The design has been optimized to include the following features:

Installation

The compact design with mounting holes through the cylinder body makes the unit easy to install in confined spaces.

Clean design

The main body is machined from one piece thus providing an easy to clean unit. Fitted with stainless steel piston rod as standard for corrosion resistance.

Maintenance free

The units are pre-lubricated for use also without additional lubrication, reducing maintenance costs as well as providing an improved working environment.

Main data

| Cylinder | Cylinder | | Piston rod | | Theor. piston force | | Air consumption ¹⁾ l | Spring force N | Stroke mm | Weight Kg |
|----------------------|------------|-------------------------|------------|-------------------------|------------------------------|--------------|------------------------------------|----------------------|--------------|--------------|
| | bore mm | area cm ² | diam mm | area cm ² | at 6 bar in N plus stroke | minus stroke | | | | |
| C05S-8-4-4 | 8 | 0.5 | 4 | 0.13 | 28 | - | 0,0045 | 2 | 4 | 0.016 |
| C05S-12-5-4 | 12 | 1.1 | 5 | 0.20 | 65 | - | 0,0099 | 3 | 4 | 0.023 |
| C05S-20-10-4 | 20 | 3.1 | 10 | 0.79 | 184 | - | 0,0151 | 6 | 4 | 0.067 |
| C05S-32-12-5 | 32 | 8.0 | 12 | 1.13 | 463 | - | 0,0653 | 17 | 5 | 0.192 |
| C05S-50-16-10 | 50 | 19.6 | 16 | 2.01 | 1145 | - | 0,1695 | 35 | 10 | 0.416 |
| C05S-63-16-10 | 63 | 31.1 | 16 | 2.01 | 1825 | - | 0,2602 | 45 | 10 | 0.663 |
| C05-12-5-10 | 12 | 1.1 | 5 | 0.20 | 68 | 56 | 0,0186 | - | 10 | 0.045 |
| C05-20-10-10 | 20 | 3.1 | 10 | 0.79 | 190 | 143 | 0,0505 | - | 10 | 0.125 |
| C05-32-12-10 | 32 | 8.0 | 12 | 1.13 | 480 | 415 | 0 1236 | - | 10 | 0.320 |
| C05-32-12-25 | 32 | 8.0 | 12 | 1.13 | 480 | 415 | 0 1236 | - | 25 | 0.400 |
| C05-50-16-25 | 50 | 19.6 | 16 | 2.01 | 1180 | 1060 | 0,3167 | - | 25 | 0.675 |
| C05-63-16-25 | 63 | 31.1 | 16 | 2.01 | 1870 | 1750 | 0,4982 | - | 25 | 0.800 |

1) Consumption of free air per 10 mm stroke for a double stroke at 600 kPa (6 bar).

Additional data

Working pressure Max 10 bar
Working temperature -20 °C to +70 °C

Prelubricated, further lubrication is not normally necessary.
If additional lubrication is introduced it has to be continued.

Material specifications

Cylinder housing Black anodized aluminium
Front end cover, single action Ø50-63 Black anodized aluminium
Front end cover, other Brass
Piston rod bearing single action Ø50-63 PTFE/Brass/steel
Piston rod bearing, other Brass
Piston, Ø8-32 mm Stainless steel
Piston, Ø50-63 mm Aluminium
Piston rod Stainless steel
Seals Nitrile, NBR
Circlip Steel spring
Return spring Surface treated steel spring

Working medium, air quality

Working medium Dry, filtered compressed air
to ISO 8573-1 class 3.4.3.

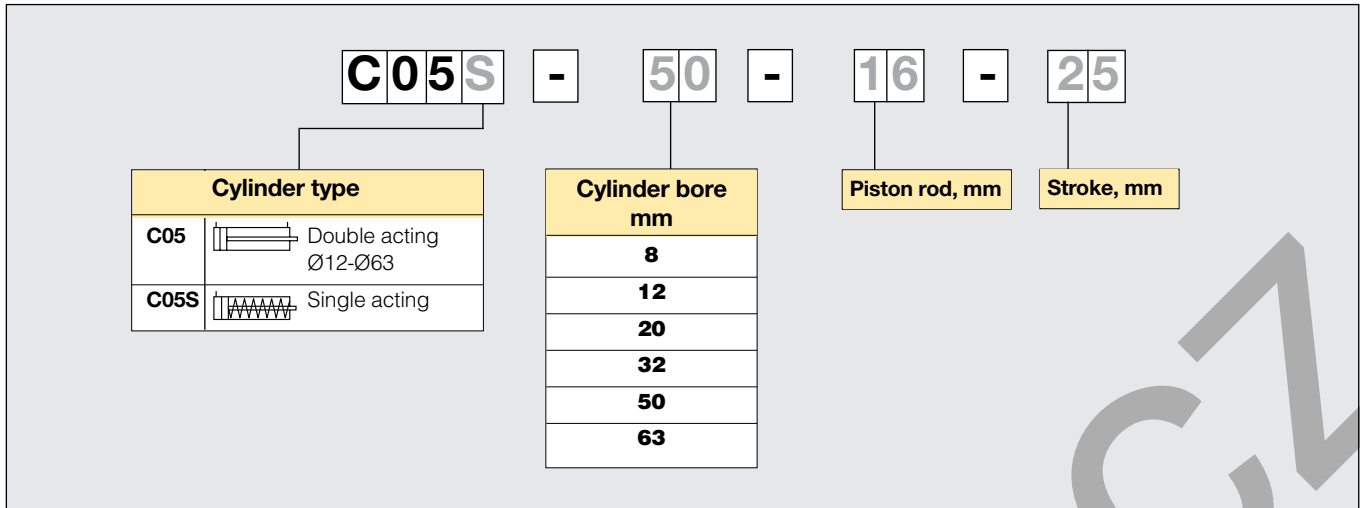
Recommended air quality for cylinders

For best possible service life and trouble-free operation, ISO 8573-1 quality class 3.4.3 should be used. This means 5 µm filter (standard filter) dew point +3 °C for indoor operation (a lower dew point should be selected for outdoor operation) and oil concentration 1.0 mg oil/m³, which is what a standard compressor with a standard filter gives.

ISO 8573-1 quality classes

| Quality class | Pollution | | Water max. press. dew point (°C) | Oil max concentration (mg/m ³) |
|---------------|--------------------|--|----------------------------------|--|
| | particle size (µm) | max concentration (mg/m ³) | | |
| 1 | 0,1 | 0,1 | -70 | 0,01 |
| 2 | 1 | 1 | -40 | 0,1 |
| 3 | 5 | 5 | -20 | 1,0 |
| 4 | 15 | 8 | +3 | 5,0 |
| 5 | 40 | 10 | +7 | 25 |
| 6 | - | - | +10 | - |

Order key



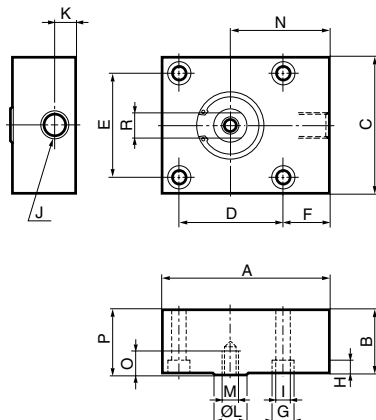
Main data for C05 and C05S cylinders

| Symbol | Cyl. dia. mm | Piston rod mm | Spring force | | Conn. thread | Stroke mm | Weight Kg | Designation |
|-----------|--------------|---------------|--------------|-------|--------------|-----------|---------------------|----------------------|
| | | | Max N | Min N | | | | |
| | 12 | 5/- | | | M5 | 10 | 0,01 | C05-12-5-10 |
| | 20 | 10/M5 | | | M5 | 10 | 0,25 | C05-20-10-10 |
| | 32 | 12/M6 | | | G1/8 | 10 | 0,30 | C05-32-12-10 |
| | | | | | G1/8 | 25 | 0,79 | C05-32-12-25 |
| | 50 | 16/M8 | | | G1/4 | 25 | 0,65 | C05-50-16-25 |
| 63 | 16/M8 | | | G1/4 | 25 | 1,07 | C05-63-16-25 | |
| | 8 | 4/- | 3 | 2 | M5 | 4 | 0,02 | C05S-8-4-4 |
| | 12 | 5/- | 7 | 3 | M5 | 4 | 0,02 | C05S-12-5-4 |
| | 20 | 10/M5 | 10 | 6 | G1/8 | 4 | 0,16 | C05S-20-10-4 |
| | 32 | 12/M6 | 25 | 19 | G1/8 | 5 | 0,21 | C05S-32-12-5 |
| | 50 | 16/M8 | 42 | 35 | G1/4 | 10 | 0,36 | C05S-50-16-10 |
| | 63 | 16/M8 | 58 | 45 | G1/4 | 10 | 0,56 | C05S-63-16-10 |

Indicated cylinder forces are theoretical and should be reduced according to the working conditions.

Dimensions, basic cylinder

Single acting



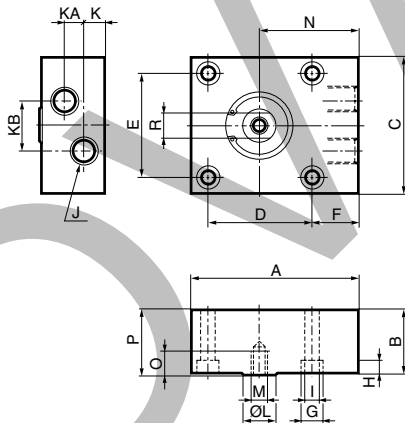
CAD drawings on the Internet

Our home page www.parker.com/euro_pneumatic includes the AirCad Drawing Library with 2D and 3D drawings for the main versions.

| Type | A | B | C | D | E | F | G | H | I | J | K | KA | KB | L |
|---------------|----|----|----|----|----|------|----|-----|-----|------|------|----|----|----|
| C05S-8-4-4 | 20 | 16 | 18 | 0* | 11 | 5,5 | 6 | 3,4 | 3,4 | M5 | 5,0 | - | - | 4 |
| C05S-12-5-4 | 25 | 16 | 20 | 0* | 13 | 7,0 | 6 | 3,4 | 3,4 | M5 | 6,0 | - | - | 5 |
| C05S-20-10-4 | 40 | 20 | 32 | 0* | 20 | 9,0 | 10 | 5,0 | 5,5 | G1/8 | 9,5 | - | - | 10 |
| C05S-32-12-5 | 55 | 26 | 45 | 0* | 32 | 14,0 | 10 | 5,0 | 5,5 | G1/8 | 9,5 | - | - | 12 |
| C05S-50-16-10 | 80 | 30 | 65 | 50 | 50 | 22,5 | 11 | 6,5 | 6,5 | G1/4 | 11,0 | - | - | 16 |
| C05S-63-16-10 | 90 | 35 | 80 | 62 | 62 | 19,0 | 15 | 9,0 | 9,0 | G1/4 | 11,0 | - | - | 16 |

| Type | M | N | O | P | R |
|---------------|----|------|----|----|----|
| C05S-8-4-4 | - | 13,5 | - | 17 | - |
| C05S-12-5-4 | - | 15,0 | - | 17 | - |
| C05S-20-10-4 | M5 | 24,0 | 8 | 21 | - |
| C05S-32-12-5 | M6 | 32,0 | 12 | 27 | 9 |
| C05S-50-16-10 | M8 | 47,5 | 12 | 31 | 14 |
| C05S-63-16-10 | M8 | 50,0 | 14 | 36 | 14 |

Double acting



| Type | A | B | C | D | E | F | G | H | I | J | K | KA | KB | L |
|--------------|----|----|----|----|----|------|----|-----|-----|------|------|------|-----|----|
| C05-12-5-10 | 25 | 27 | 20 | 0* | 13 | 7,0 | 6 | 3,4 | 3,4 | M5 | 6,0 | 13,0 | 3 | 5 |
| C05-20-10-10 | 40 | 30 | 32 | 0* | 20 | 9,0 | 10 | 5,0 | 5,5 | M5 | 6,0 | 16,0 | 6 | 10 |
| C05-32-12-10 | 55 | 36 | 45 | 0* | 32 | 14,0 | 10 | 5,0 | 5,5 | G1/8 | 9,5 | 16,5 | 14 | 12 |
| C05-32-12-25 | 55 | 51 | 45 | 0* | 32 | 14,0 | 10 | 5,0 | 5,5 | G1/8 | 9,5 | 31,5 | 0** | 12 |
| C05-50-16-25 | 80 | 50 | 65 | 50 | 50 | 22,5 | 11 | 6,5 | 6,5 | G1/4 | 11,0 | 28,0 | 0** | 16 |
| C05-63-16-25 | 90 | 55 | 80 | 62 | 62 | 19,0 | 15 | 9,0 | 9,0 | G1/4 | 11,0 | 33,0 | 0** | 16 |

| Type | M | N | O | p | R |
|--------------|----|------|----|----|----|
| C05-12-5-10 | - | 16,0 | - | 28 | - |
| C05-20-10-10 | M5 | 24,0 | 8 | 31 | - |
| C05-32-12-10 | M6 | 32,0 | 12 | 37 | 9 |
| C05-32-12-25 | M6 | 32,0 | 12 | 52 | 9 |
| C05-50-16-25 | M8 | 47,5 | 12 | 51 | 14 |
| C05-63-16-25 | M8 | 50,0 | 14 | 56 | 14 |

* Only two mounting holes (F).

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