

# Products

## Oil-free Scroll Vacuum Pumps SCROLLVAC SC 5 D, SC 15 D, SC 30 D



Scroll vacuum pump SCROLLVAC SC 30 D

In 1905 the principle of the scroll compressor was developed by the Frenchman Leon Creux. The scroll pump is now being used as an oil-free vacuum pump. Every scroll pump consists of two Archimedes spirals engaging each other with an offset of 180°. Thus several crescent-shaped pockets of differing sizes are created. By means of an eccentric drive, a second spiral is made to orbit about a fixed spiral, thus reducing the volume of the pockets and compressing gases from the outside towards the inside thereby pumping the gases.

Important to the quality of a scroll pump is that precise manufacturing tolerances are maintained and that suitable materials are selected.

### Advantage for the User

- Absolutely oil-free
- High effective pumping speed
- Low ultimate pressure
- Low noise level
- Low vibration operation
- Atmospheric inlet pressure allowable
- Low weight
- Air cooling
- Low power consumption
- Integrated operating hours counter

### Typical Applications

- Electron beam welding
- Lasers
- Leak detection systems
- Accelerators / synchrotrons
- Surface analysis instruments
- Scanning electron microscopes
- Load lock
- Spectroscopy
- Lamp manufacturing
- As a backing pump for turbomolecular pump systems

### Maintenance Intervals

In order to maintain the performance of the pump, a standard maintenance is required after a certain number of operating hours.

For this we are offering complete maintenance kits

- Small maintenance kit (Minor Kit) after 8,000 h or at latest after an operating time of 12 months
- Large maintenance kit (Major Kit) after 16,000 hours or at latest after an operating time of 24 months

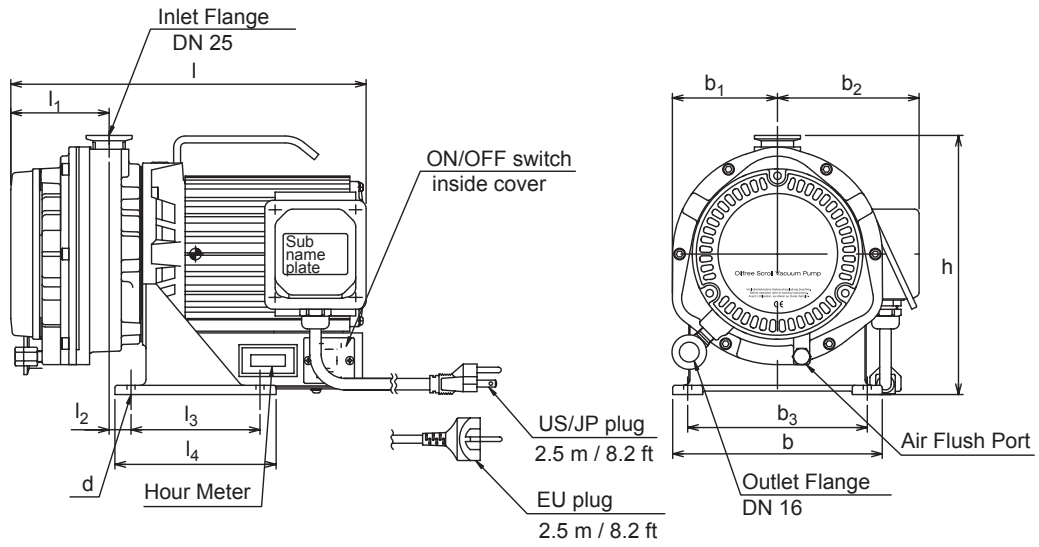
### Warranty

Upon signing a warranty contract, we will grant a two-year warranty for faulty material when complying with the required maintenance intervals.

Excluded are wearing parts as well as well wear due to the process.

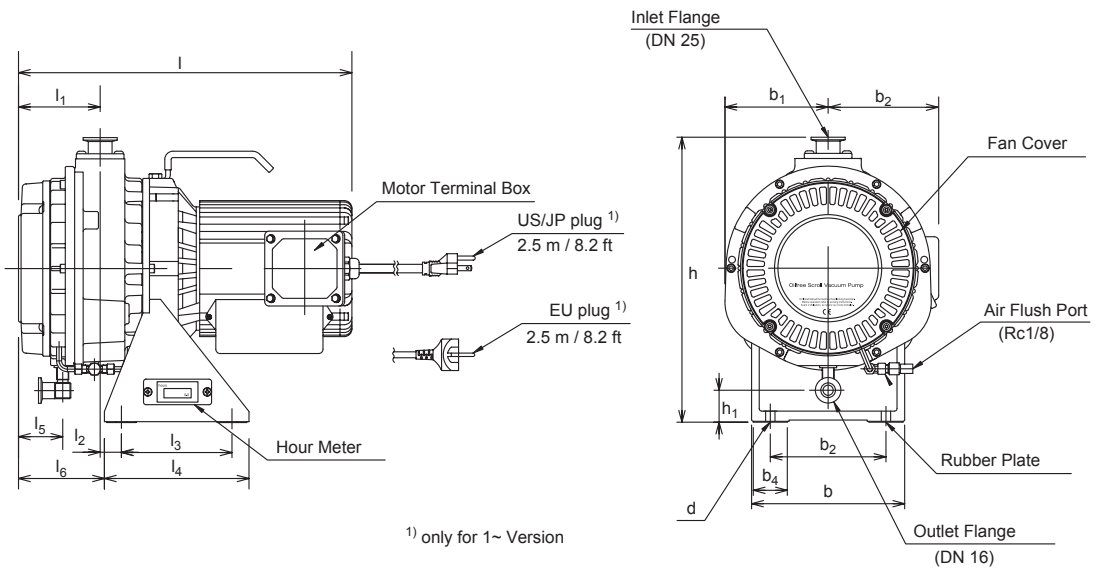
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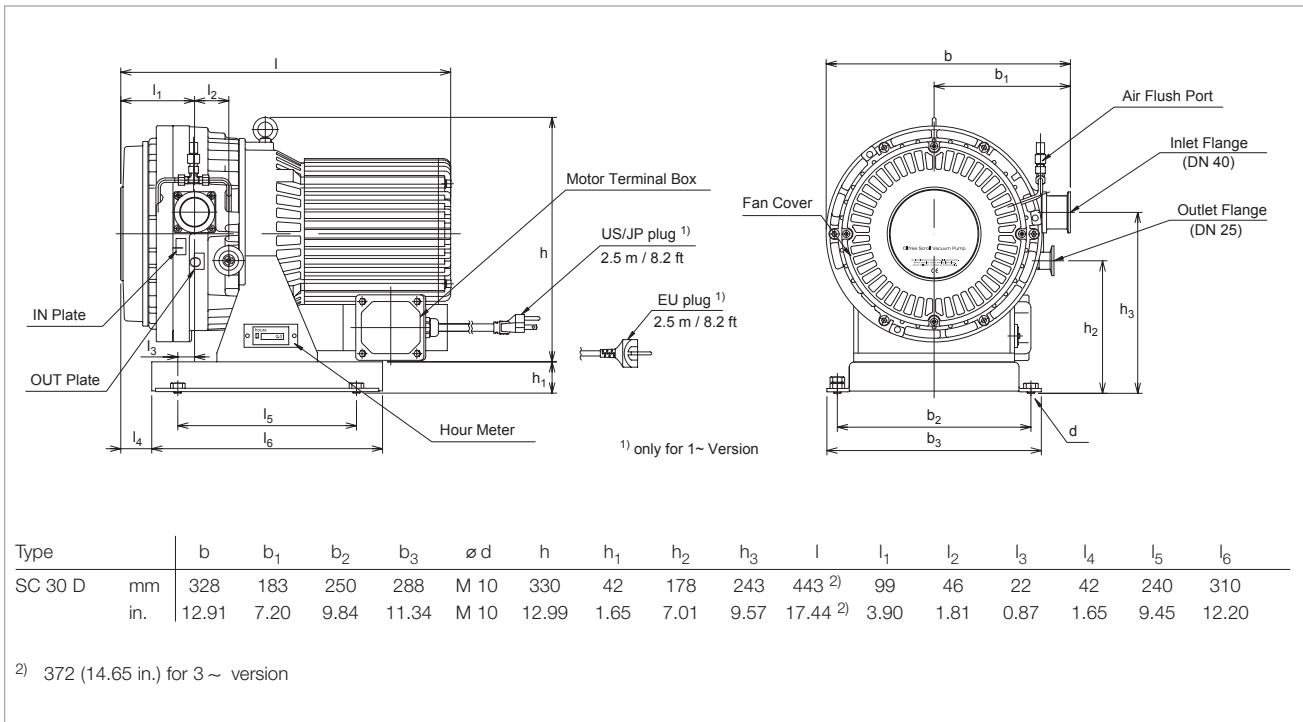
| Type           |     | b    | b <sub>1</sub> | b <sub>2</sub> | b <sub>3</sub> | b <sub>4</sub> | ∅ d  | h     | h <sub>1</sub> | l                   | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | l <sub>6</sub> |
|----------------|-----|------|----------------|----------------|----------------|----------------|------|-------|----------------|---------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| SC 5 D         | mm  | 180  | 91             | 123            | 154            | –              | 7    | 225   | –              | 308                 | 85             | 19             | 112            | 140            | –              | –              |
|                | in. | 7.09 | 3.58           | 4.84           | 6.06           | –              | 0.28 | 8.86  | –              | 12.13               | 3.35           | 0.75           | 4.41           | 5.51           | –              | –              |
| <b>SC 15 D</b> | mm  | 180  | 122            | 130            | 136            | 40             | 11   | 336   | 38             | 400 <sup>2)</sup>   | 96             | 25             | 130            | 170            | 52             | 101            |
|                | in. | 7.09 | 4.80           | 5.12           | 5.35           | 1.57           | 0.43 | 13.23 | 1.50           | 15.75 <sup>2)</sup> | 3.78           | 0.98           | 5.12           | 6.69           | 2.05           | 3.98           |

<sup>2)</sup> 370 (14.57 in.) for 3~ version

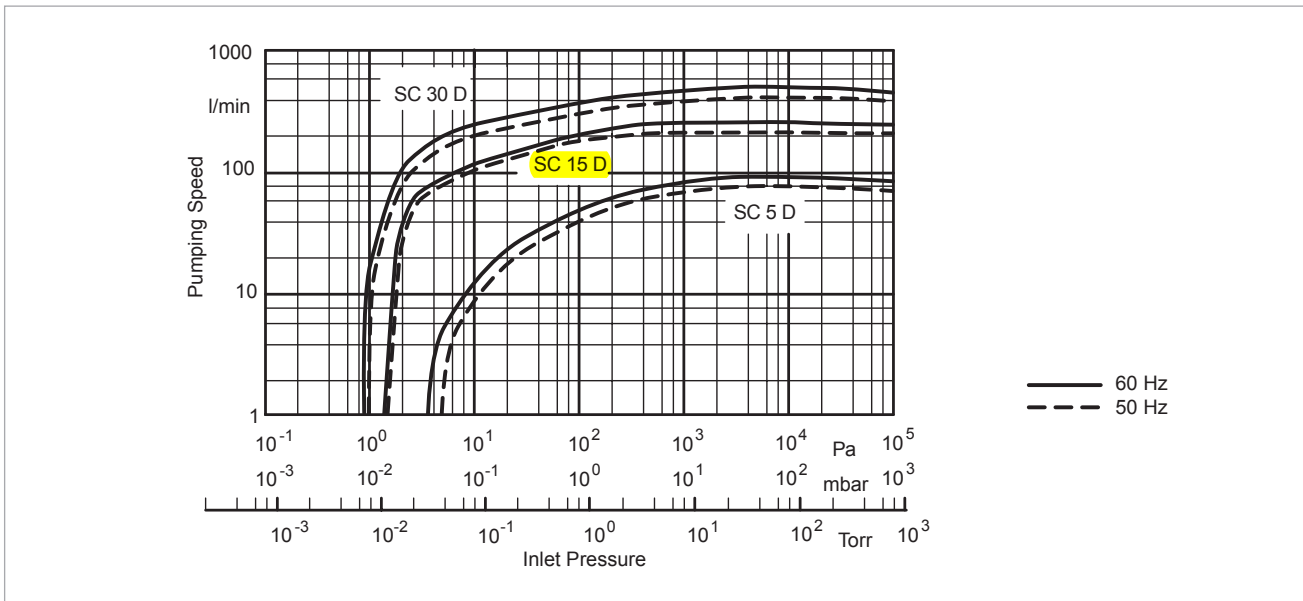


<sup>1)</sup> only for 1~ Version

Dimensional drawing for the scroll vacuum pump SCROLLVAC SC 5 D (above) and SC 15 D (below)



Dimensional drawing for the scroll vacuum pump SCROLLVAC SC 30 D



Pump down curve for the scroll vacuum pumps SCROLLVAC SC D

## Technical Data

## SCROLLVAC

|   |                         | SC 5 D   | SC 15 D  | SC 30 D  |
|---|-------------------------|--|--|--|
| Nominal pumping speed <sup>1)</sup>           |                         |  |  |  |
| 50 Hz   | m <sup>3</sup> /h (cfm) | 5.4 (3.2)  | 15.0 (8.8)   | 30.0 (17.7)  |
| 60 Hz   | m <sup>3</sup> /h (cfm) | 6.4 (3.8)  | 18.0 (10.6)  | 36.0 (21.2)  |
| Pumping speed <sup>1)</sup>                   |                         |  |  |  |
| 50 Hz   | m <sup>3</sup> /h (cfm) | 4.8 (2.8)  | 13.0 (7.7)   | 26.0 (13.3)  |
| 60 Hz   | m <sup>3</sup> /h (cfm) | 6.0 (3.5)  | 15.5 (9.1)   | 31.0 (18.3)  |
| Attainable ultimate pressure                  | mbar (Torr)             | ≤ 0.05 (≤ 0.038)   | ≤ 0.016 (≤ 0.012)  | ≤ 0.01 (≤ 0.008)   |
| Leak rate                                     | mbar l/s                | 1 × 10 <sup>-6</sup>   | 1 × 10 <sup>-6</sup>   | 1 × 10 <sup>-6</sup>   |
| Maximum inlet pressure                        |                         | Atmosphere   | Atmosphere   | Atmosphere   |
| Permissible ambient temperature               | °C (°F)                 | 5 to 40 (41 to 104)  | 5 to 40 (41 to 104)  | 5 to 40 (41 to 104)  |
| Connections                                   |                         |  |  |  |
| Inlet   | DN                      | 25   | 25   | 40   |
| Exhaust                                       | DN                      | 16   | 16   | 25   |
| Cooling                                       |                         | Air  | Air  | Air  |
| Water vapor capacity                          | g/h                     | 0.2  | 1.04   | 1.04   |
| with purge, min.                              | l/min                   | 9  | 10   | 10   |
| Protection class                              | IP                      | 20   | 20   | 20   |
| Motor power                                   | W (hp)                  | 150 (0.20)   | 400 (0.54)   | 600 (0.82)   |
| Motor speed                                   |                         |  |  |  |
| 50 Hz   | min <sup>-1</sup> (rpm) | 1440 (1440)  | 1450 (1450)  | 1450 (1450)  |
| 60 Hz   | min <sup>-1</sup> (rpm) | 1740 (1740)  | 1730 (1730)  | 1730 (1730)  |
| Motor voltage                                 | 1 ph. <sup>2)</sup>     | 100 V / 50 Hz<br>100 - 115 V / 60 Hz<br>200 - 230 V / 50/60 Hz | 100 V / 50 Hz<br>100 - 115 V / 60 Hz<br>200 - 230 V / 50/60 Hz | 100 V / 50 Hz<br>100 - 115 V / 60 Hz<br>200 - 230 V / 50/60 Hz |
|   | 3 ph.                   |  | 200 V, 380 - 415 V / 50 Hz<br>200 - 230 V, 460 V / 60 Hz       | 200 V, 380 - 415 V / 50 Hz<br>200 - 230 V, 460 V / 60 Hz       |
| Noise level at 1 m,<br>free field measurement | dB(A)                   | ≤ 52   | ≤ 58   | ≤ 62   |
| Dimensions (W x H x D)                        | mm<br>(in.)             | 308 x 214 x 225<br>(12.13 x 8.43 x 8.86)                       | 400 x 252 x 336<br>(15.75 x 9.92 x 13.23)                      | 443 x 328 x 372<br>(17.44 x 12.91 x 14.65)                     |
| Weight  |                         |  |  |  |
| Single-phase motor                            | kg (lbs)                | 14 (30.9)  | 25 (55.2)  | 44 (97.1)  |
| Three-phase motor                             | kg (lbs)                | -  | 23 (50.8)  | 38 (83.9)  |

## Ordering Information

## SCROLLVAC

|   |           | SC 5 D                      | SC 15 D                     | SC 30 D                     |
|---|-----------|-----------------------------|-----------------------------|-----------------------------|
| Oil-free scroll vacuum pump               |           |                             |                             |                             |
| Single-phase motor, with cable and plug   |           |                             |                             |                             |
| Europe (Schuko plug, 230 V)               |           | <b>Part No. 133 000</b>     | <b>Part No. 133 001</b>     | <b>Part No. 133 002</b>     |
| US / Japan (NEMA plug, 115 V)             |           | <b>Part No. 133 100</b>     | <b>Part No. 133 101</b>     | <b>Part No. 133 102</b>     |
| Three-phase motor, without cable          |           | -                           | <b>Part No. 133 003</b>     | <b>Part No. 133 004</b>     |
| Maintenance kits                          |           |                             |                             |                             |
| Small maintenance kit<br>(after 8,000 h)  | Minor Kit | <b>Part No. EK870000496</b> | <b>Part No. EK870000497</b> | <b>Part No. EK870000498</b> |
| Large maintenance kit<br>(after 16,000 h) | Major Kit | <b>Part No. EK870000499</b> | <b>Part No. EK870000500</b> | <b>Part No. EK870000501</b> |
| Tool kit SC 5/15/30 D                     |           | <b>Part No. EK870000502</b> | <b>Part No. EK870000503</b> | <b>Part No. EK870000503</b> |

<sup>1)</sup> In accordance with 28 400 and subsequent numbers

<sup>2)</sup> The Part No. for single-phase pumps will determine the voltage range at delivery