

# TRIVAC B, Two-Stage Rotary Vane Vacuum Pumps TRIVAC D 4 B to D 65 B



The TRIVAC B is the logical step ahead within the well-proven TRIVAC concept. Here the performance and the characteristics of the pumps have been adapted without compromise to market requirements. The TRIVAC B pumps with their comprehensive range of accessories have proven themselves time and again as rugged pumps in many and varied applications.

The inner body is assembled from individual parts without sealing components. The parts are pinned in order to ensure easy disassembly and reassembly of the parts.

All pumps from the D 4 B to the D 25 B model are equipped either with single-phase or three-phase motors. D 40 - 65 B models are equipped with three-phase motors. Moreover, all pumps of the B series are available also without the motor.

In the TRIVAC B, the pump unit and the motor are linked by an elastic coupling.

The TRIVAC B range is a modular system which divides into three groups:

TRIVAC 4/8 Series  
TRIVAC 16/25 Series  
TRIVAC 40/65 Series

## Advantages to the User

- All basic models (single-phase and three-phase motor) are certified in accordance with 94/9/EG (ATEX) (Category 3 inside)
- High water vapor tolerance
- Continuous operation even at 1000 mbar
- Built-in oil pump; pressure-lubricated sliding bearings
- All controls as well as the oil sight glass are located on the front face
- Either vertical or horizontal intake and exhaust ports
- Exchangeable inner body
- Anti-suckback valve controlled via the oil pressure
- Free of yellow metals
- Service-friendly
- Ideal as backing pump for medium and high vacuum applications, because of low oil backstreaming
- Highly leaktight (He-3-capable)

## Typical Applications

See section "General, Applications and Accessories"

## Supplied Equipment

Small flanges, centering and clamping rings. The intake flange contains a dirt trap.

A carrying handle is standard for all pumps up to the D 25 B. TRIVAC B pumps with single-phase motors are delivered with ON/OFF switch, main cord and main plug, ready for immediate operation.

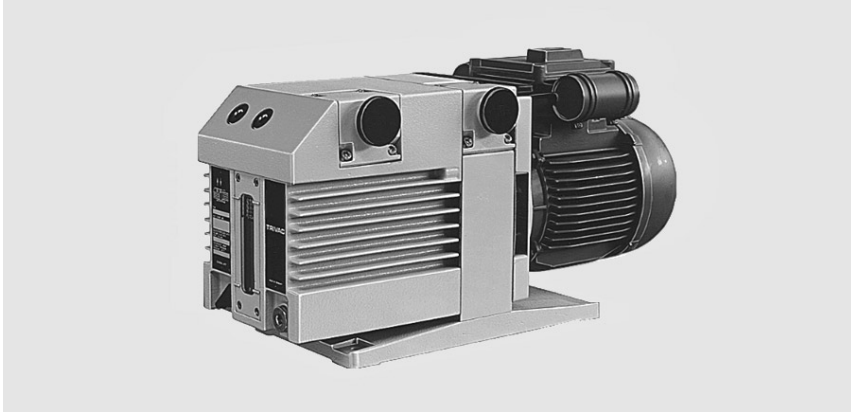
Standard TRIVAC B pumps come with a filling of N 62 special oil (HE-200 in the U.S.), others with special oil fillings can be specified.

ALL PUMPS ARE SUBJECTED TO A VACUUM TEST BEFORE DELIVERY!

## Custom Models

- ATEX (Category 3 inside and 3 outside)
- Brake fluid
- Oils for refrigerating machines, e.g. ester oils for refrigerant circuits with R 134 a
- Pressure burst resistant (for the new refrigerants propane and isobutane)
- He-3-tight (for cryostats)
- Special motors

# TRIVAC D 16 B-DOT



The TRIVAC B-DOT pumps operate with brake fluid (DOT 4) as the sealing and lubricating agent. Therefore these pumps are equipped with EPDM seals. EPDM is highly compatible with brake fluid.

As to the D 8 B-DOT, D 25 B-DOT and D 40 B-DOT please ask us for a quotation.

## Advantages to the User

- Matching exhaust filters with EPDM gaskets (AF-DOT)
- Except for the seals and the fluid the TRIVAC B-DOT pumps are identical to the oil-sealed TRIVAC B pumps

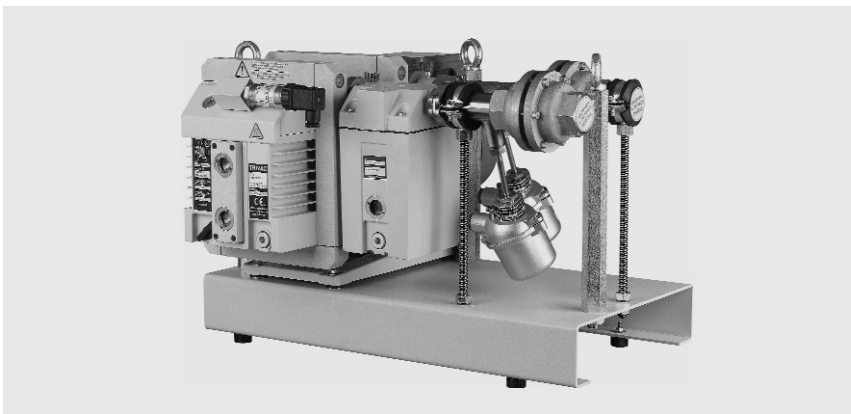
## Typical Applications

- For filling of brake fluid circuits in the automotive industry

## Supplied Equipment

- The brake fluid is inside the pump when shipped

# TRIVAC D 16 B-Ex, Explosion Protected and Pressure Burst Resistant



## ATEX

Category 1 inside and 2 outside

## Typical Applications

- Pumping of gases belonging to Group IIB3 and IIC <sup>1)</sup> from Zone 0

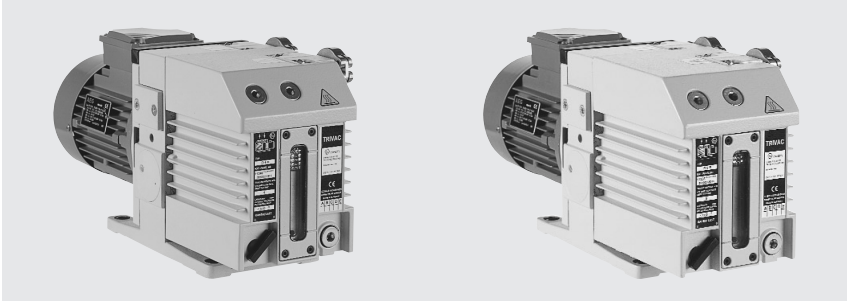
Vacuum pumps TRIVAC D 16 B-Ex meet the requirements of the European Directive 94/9/EG (ATEX Directive). TRIVAC D 16 B-Ex pumps are classified inside as Category 1, outside as Category 2. Thus these pumps are suited for pumping explosive gases from Zone 0, the pump itself may be located in Zone 1.

The vacuum pumps TRIVAC D 16 B-Ex are qualified for gases of Explosion Groups IIC <sup>1)</sup> and IIB3. The temperature class is T4. TRIVAC D 16 B-Ex pumps are explosion resistant and correspond to the state-of-the-art. They are equipped as standard with one each temperature sensor on the intake and delivery side.

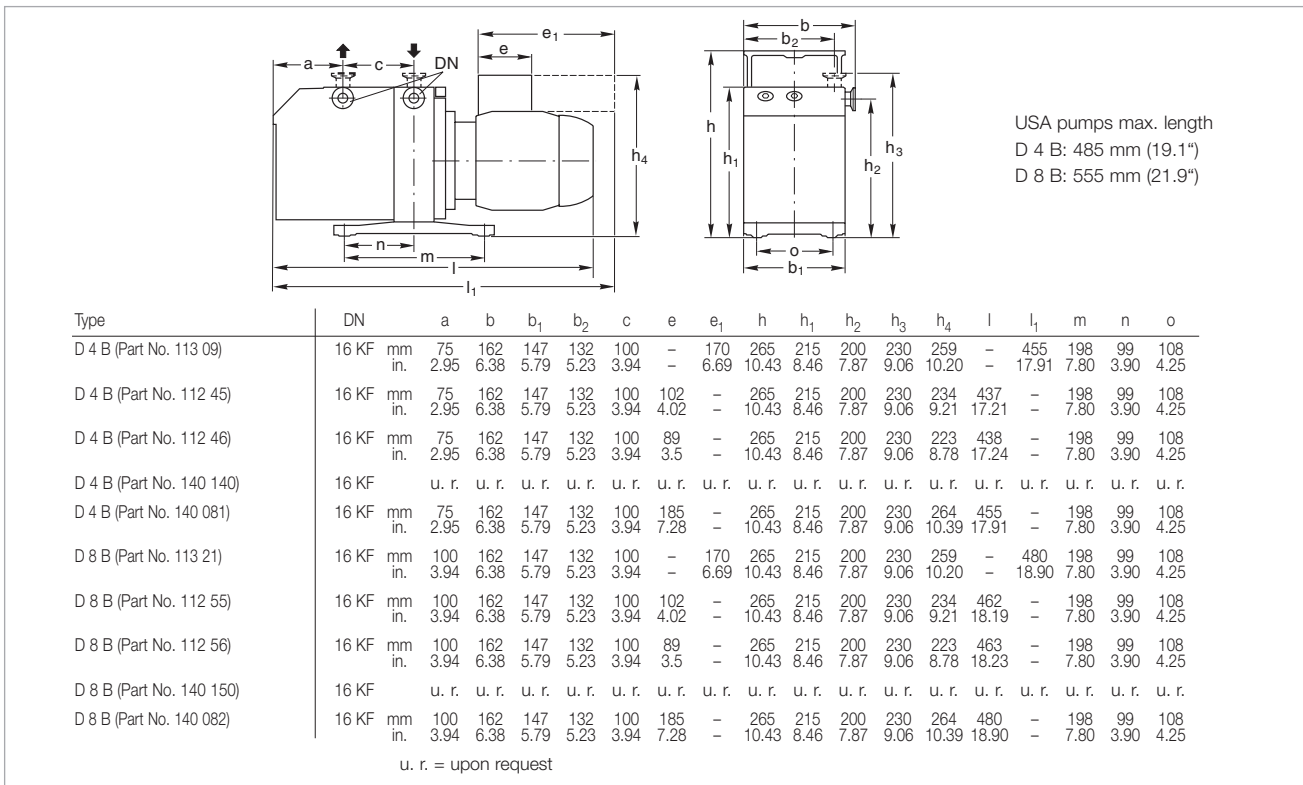
Moreover, the pressure inside the pump is monitored. Flame arresters on the intake and delivery side protect the upstream and downstream system sections. Also provided as standard is an exhaust filter for every pump.

<sup>1)</sup> with the exception of acetylene and carbon bisulphide

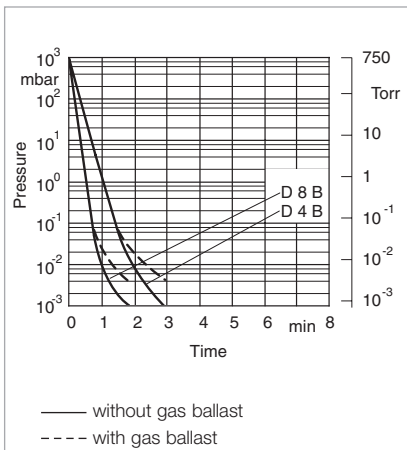
# TRIVAC D 4 B and D 8 B



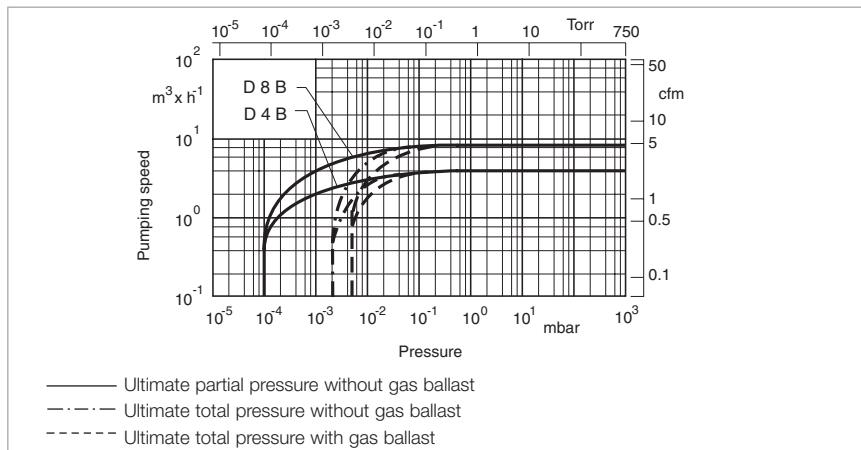
TRIVAC D 4 B (left) and TRIVAC D 8 B (right)



Dimensional drawing for the TRIVAC D 4 B and D 8 B



Pump-down characteristics of a 10 l vessel at 50 Hz



Pumping speed characteristics at 50 Hz (60 Hz curves at the end of the section)

## Technical Data

### TRIVAC D 4 B two-stage

### TRIVAC D 8 B two-stage

|  |  | 50 Hz  | 60 Hz  | 50 Hz  | 60 Hz  |
|--|--|--|--|--|--|
| Nominal pumping speed <sup>1)</sup>                                    | m <sup>3</sup> x h <sup>-1</sup> (cfm) | 4.8 (2.8)  | 5.8 (3.4)  | 9.7 (5.7)  | 11.6 (6.9)   |
| Pumping speed <sup>1)</sup>  | m <sup>3</sup> x h <sup>-1</sup> (cfm) | 4.2 (2.5)  | 5 (3)  | 8.5 (5)  | 10.2 (6)   |
| Ultimate partial pressure<br>without gas ballast <sup>1)</sup>         | mbar (Torr)                            | 10 <sup>-4</sup> (0.75 x 10 <sup>-4</sup> )        | 10 <sup>-4</sup> (0.75 x 10 <sup>-4</sup> )        | 10 <sup>-4</sup> (0.75 x 10 <sup>-4</sup> )        | 10 <sup>-4</sup> (0.75 x 10 <sup>-4</sup> )        |
| Ultimate total pressure<br>without gas ballast <sup>1)</sup>           | mbar (Torr)                            | < 2 x 10 <sup>-3</sup> (< 1.5 x 10 <sup>-3</sup> ) | < 2 x 10 <sup>-3</sup> (< 1.5 x 10 <sup>-3</sup> ) | < 2 x 10 <sup>-3</sup> (< 1.5 x 10 <sup>-3</sup> ) | < 2 x 10 <sup>-3</sup> (< 1.5 x 10 <sup>-3</sup> ) |
| Ultimate total pressure<br>with gas ballast <sup>1)</sup>              | mbar (Torr)                            | < 5 x 10 <sup>-3</sup> (< 3.8 x 10 <sup>-3</sup> ) | < 5 x 10 <sup>-3</sup> (< 3.8 x 10 <sup>-3</sup> ) | < 5 x 10 <sup>-3</sup> (< 3.8 x 10 <sup>-3</sup> ) | < 5 x 10 <sup>-3</sup> (< 3.8 x 10 <sup>-3</sup> ) |
| Water vapor tolerance <sup>1)</sup>                                    | mbar (Torr)                            | 30 (22.5)  | 30 (22.5)  | 25 (18.8)  | 25 (18.8)  |
| Water vapor capacity   | g/h                                    | 93   | 93   | 157  | 157  |
| Oil filling, min. / max.   | l (qt)                                 | 0.3 / 0.8 (0.3 / 0.85)                             | 0.3 / 0.8 (0.3 / 0.85)                             | 0.3 / 0.9 (0.3 / 0.95)                             | 0.3 / 0.9 (0.3 / 0.95)                             |
| Noise level <sup>2)</sup> to DIN 45 635,<br>without / with gas ballast | dB(A)                                  | 50 / 52  | 50 / 52  | 50 / 52  | 50 / 52  |
| Admissible ambient temperature   | °C (°F)                                | 12 - 40 (54 - 104)                                 | 12 - 40 (54 - 104)                                 | 12 - 40 (54 - 104)                                 | 12 - 40 (54 - 104)                                 |
| Motor rating <sup>2)</sup>   | W (HP)                                 | 370 (0.50)   | 370 (0.50)   | 370 (0.50)   | 370 (0.50)   |
| Nominal speed  | rpm                                    | 1500   | 1800   | 1500   | 1800   |
| Type of protection <sup>3)</sup>                                       | IP                                     | 54   | 54   | 54   | 54   |
| Weight <sup>2)</sup>   | kg (lbs)                               | 18.7 (41.2)  | 18.7 (41.2)  | 21.2 (46.7)  | 21.2 (46.7)  |
| Connections, Intake and Exhaust  | DN                                     | 16 KF  | 16 KF  | 16 KF  | 16 KF  |

<sup>1)</sup> To DIN 28 400 and following numbers

<sup>2)</sup> Weight, motor rating and noise levels for the pumps with global version 230 V, 50 Hz AC motor only.

Any data that deviate from the above for pumps with other motors, and other motor-dependent data are given in section "Products", paragraph "Motor Dependent Data for the TRIVAC B, BCS and BCS-PFPE"

<sup>3)</sup> Global versions only. North and South American versions are TEFC