

## R 5 Series Vacuum Pumps and Systems



# R 5 Series Rotary Vane Vacuum Pumps & Systems



R 5 Series Vacuum Pumps

The modular designed Busch R 5 series rotary vane vacuum pumps are single stage, air-cooled, and direct driven. This oil-recirculating design is one of the simplest and most reliable vacuum pumps available on the world market. These rugged pumps are used in a variety of industries such as packaging and food processing, rubber molding, thermoforming, printed

circuit board testing, hospitals, laboratories, robotics, vacuum lamination, printing, and many others. Displacements range from 3 to 1130 CFM. Three models are available: the RC for applications to 15 torr (29.3"Hg); the RB for applications to 2 torr (29.8"Hg); and the RA for applications to 0.5 torr (29.9"Hg).



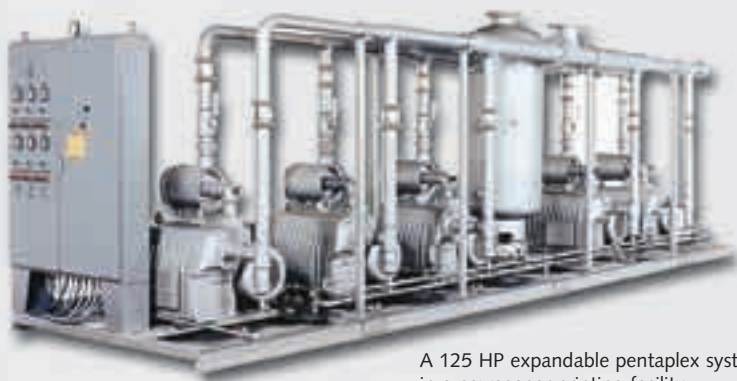
Duplex tank mounted system is one of many standard configurations.



Duplex expandable model uses a common skid for mounting vacuum pumps, electrical controls, and a vertical receiver.

## R 5 Advantages

- Compact, simple design for easy installation and low maintenance
- Air-cooled, requiring no water
- Direct drive, eliminating belts and gears to loosen or wear
- Oil mist eliminator for 99.9% oil-free exhaust
- No special oil required
- Quiet operation
- Water-cooled versions available



A 125 HP expandable pentaplex system used in a newspaper printing facility.



Mechanical Expansion Module includes pump, filters, piping, and pre-drilled stand or skid for quick and easy installation onto system frame.



Components of the Electrical Expansion Module quickly fasten into pre-drilled positions in the control panel. They include: hour meter, H-O-A switch, and motor starter.

## Laboratory Central Vacuum Systems

Designed specifically for laboratories, these Busch vacuum systems are equipped with a manual or automatic purge assembly to remove condensable vapors from the pump prior to shutdown. They also feature special seal materials; corrosion resistant components in the exhaust box; and an exhaust flange adaptor to permit remote exhausting of gases. Busch laboratory systems are available in many configurations.



◀ Vertical simplex laboratory system with manual purge assembly.

Expandable duplex laboratory system with automatic purge assembly. ▶



## Busch R 5 System Advantages

- Expandable with easy-to-install mechanical and electrical modules
- Remote location reduces noise and heat near work stations
- Lower operation and energy costs
- Automatic alternation for even pump wear
- Easy access for servicing
- Backup pump eliminates downtime
- Air-cooled pumps eliminate the expense of water use and disposal

## Applications

- Packaging
- Rubber molding
- Thermoforming
- Printed circuit board testing
- Hospitals
- Laboratories
- Printing
- Woodworking
- Lamination and many others

## R 5 Vacuum Systems and R 5 Expandable Vacuum Systems

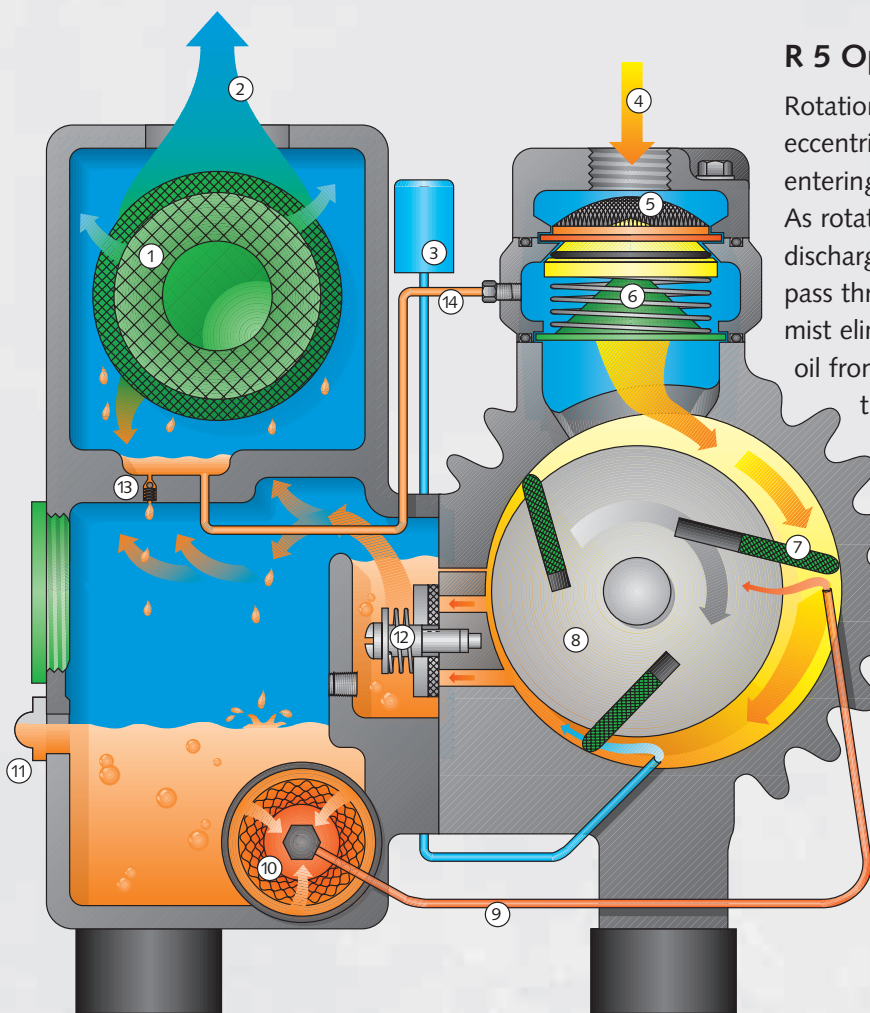
Centrally located Busch R 5 vacuum systems reduce both maintenance and energy costs compared to multiple single pumps.

Busch offers over 300 standard vacuum systems plus custom designed systems for a wide range of applications in many different industries.

Busch application engineers will work with you to determine which vacuum system configuration meets your requirements.







## R 5 Operating Principle

Rotation of the pump rotor, which is mounted eccentrically in the pump cylinder, traps entering vapor between rotor vane segments. As rotation continues, vapor is compressed and discharged into the exhaust box. Vapors then pass through several stages of internal oil and mist eliminators to remove 99.9% of lubricating oil from the exhaust. Oil is then returned to the oil reservoir. Additional features include an automotive type spin-on oil filter, and a built-in inlet anti-suckback valve that prevents the pump from rotating backwards. A built-in gas ballast is available on most models, which permits pumping with high water vapor loads.

- |                        |                        |
|------------------------|------------------------|
| 1. Oil Mist Eliminator | 8. Rotor               |
| 2. Exhaust             | 9. Main Oil Feed Line  |
| 3. Gas Ballast (RA)    | 10. Spin-On Oil Filter |
| 4. Inlet               | 11. Oil Sight Glass    |
| 5. Inlet Screen        | 12. Exhaust Valve      |
| 6. Anti-Suckback Valve | 13. Oil Return Valve   |
| 7. Vane                | 14. Oil Return Line    |

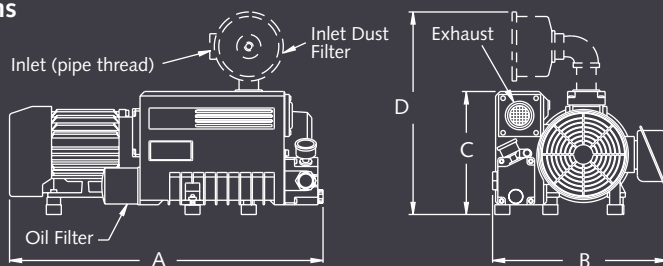
## Technical Data

R 5 Model	0004	0006	0010	0012	0016	0021	0025	0040	0063	0100	0165	0205	0255	0400	0630	1000	1600
Nominal pumping speed (ACFM)	3.3	3.9	6	7	8.6	14	18	26	36	56	115	130	170	305	455	670	1030
Free air displacement (CFM)	3	4.2	7.1	8.5	11.2	15	20	28	41	63	117	141	180	330	490	704	1130
Max. sound level (dBA)	58	62	69	68	70	72	70	70	70	71	79	79	81	83	85	85	86
Motor size for 3 phase (HP)	NA	1/2	3/4	3/4	3/4	1	1 1/2	2	3	5	7.5	7.5	10	15	25	40	50
Motor size for 1 phase (HP)	3/8	1/2	1	3/4	1	1 1/4	1 1/2	2	3	5	NA	NA	NA	NA	NA	NA	NA
Motor rotational speed (rpm)	1750	3550	1750	1750	1750	3550	1750	1750	1750	1750	1750	1750	1750	1150	1150	1150	1150
Approx. oil capacity, (qt.)*	0.1	0.1	0.5	0.5	0.5	0.5	1.4	1.4	2.5	2.7	7	7	7	14	16	42	44
Inlet connections — NPT (inch)	3/8	3/8	3/4	1" Hose	3/4	1" Hose	1 1/4	1 1/4	1 1/4	1 1/4	2	2	2	3	3	6 (ASA)	6 (ASA)
End Vacuum Torr (RC)	NA	NA	15	15	15	15	15	15	15	15	NA	NA	NA	15	15	15	15
End Vacuum Torr (RA) <sup>1</sup>	5**	2**	0.5	2**	0.5	2**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Approximate Weight (lbs.)	27	28	49	42	60	42	106	120	172	198	416	435	460	1152	1525	2151	2833

\*We recommend Busch R-530 vacuum pump oil for most applications; Busch R-580 vacuum pump oil for models 0004, 0006 and 0021; and Busch R-590 for severe applications.

\*\* RB version for Models 0004, 0006, 0012, and 0021. 1. Models 0165-0630 are continuous duty. Consult factory for special applications.

## R 5 Dimensions

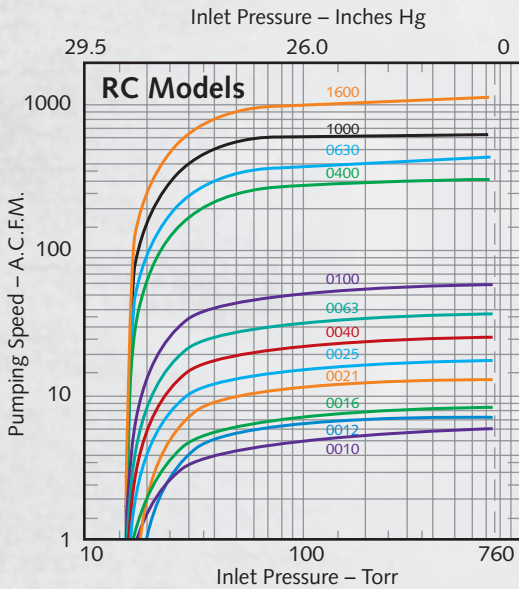
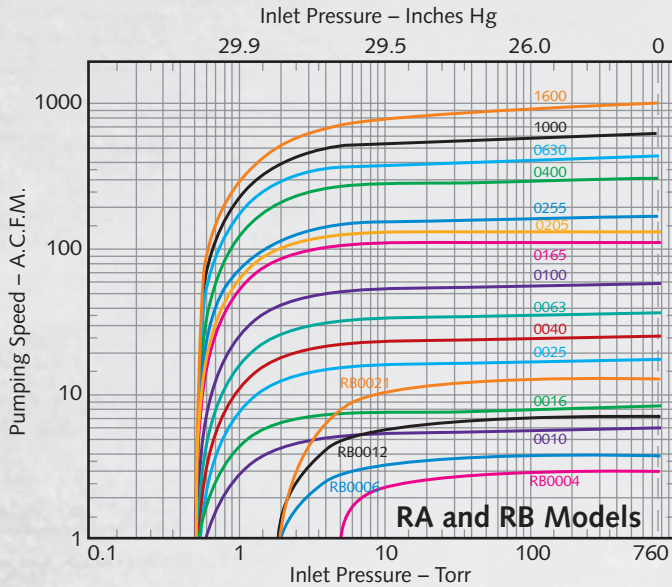


Model 0025 shown

Model	0004	0006	0010	0012	0016	0021
A length	12 <sup>1</sup> / <sub>8</sub>	12	17 <sup>11</sup> / <sub>16</sub>	16 <sup>5</sup> / <sub>8</sub>	19 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>4</sub>
B width	7 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	10 <sup>3</sup> / <sub>4</sub>	11	8 <sup>1</sup> / <sub>2</sub>	11 <sup>7</sup> / <sub>16</sub>
C height	7	6 <sup>1</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>4</sub>	8	7 <sup>3</sup> / <sub>16</sub>
D height*	NA	NA	11 <sup>7</sup> / <sub>8</sub>	10 <sup>5</sup> / <sub>8</sub>	11 <sup>7</sup> / <sub>8</sub>	10 <sup>5</sup> / <sub>8</sub>

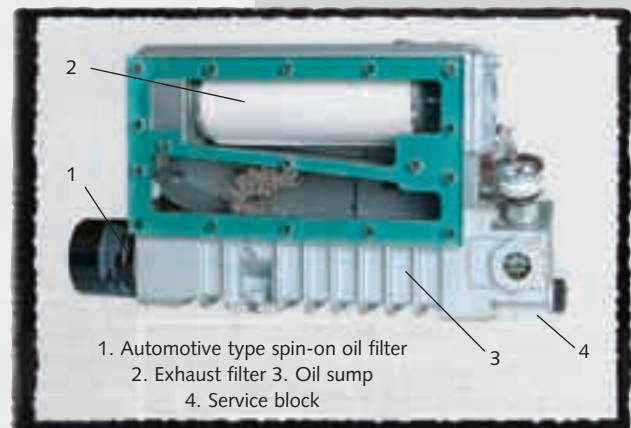
\*With filter; All dimensions in inches. Dimensions m

## Performance Data (Based on 60 cycle motor, with gas ballast closed)



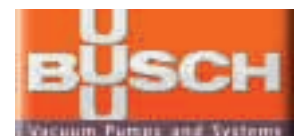
## Standard Equipment

- TEFC motor
- Motor starter (optional)
- NPT inlet on most models
- Exhaust pressure gauge
- Anti-suckback valve
- Built-in exhaust filter
- Wire mesh inlet screen
- Non-metallic, non-asbestos vanes
- Vibration isolators
- Automotive type spin-on oil filter on most models
- Oil level sight glass



0025	0040	0063	0100	0165	0205	0255	0400	0630	1000	1600
26 <sup>1</sup> / <sub>8</sub>	26 <sup>13</sup> / <sub>16</sub>	28	29 <sup>1</sup> / <sub>2</sub>	40 <sup>1</sup> / <sub>2</sub>	40 <sup>1</sup> / <sub>2</sub>	43 <sup>5</sup> / <sub>8</sub>	54 <sup>3</sup> / <sub>8</sub>	70	75	87 <sup>3</sup> / <sub>4</sub>
14 <sup>9</sup> / <sub>16</sub>	14 <sup>9</sup> / <sub>16</sub>	19 <sup>5</sup> / <sub>16</sub>	19 <sup>5</sup> / <sub>16</sub>	23 <sup>9</sup> / <sub>16</sub>	23 <sup>9</sup> / <sub>16</sub>	23 <sup>9</sup> / <sub>16</sub>	36 <sup>3</sup> / <sub>8</sub>	37 <sup>3</sup> / <sub>4</sub>	45 <sup>5</sup> / <sub>8</sub>	45 <sup>5</sup> / <sub>8</sub>
10 <sup>3</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	11 <sup>7</sup> / <sub>8</sub>	11 <sup>7</sup> / <sub>8</sub>	16 <sup>1</sup> / <sub>2</sub>	16 <sup>1</sup> / <sub>2</sub>	16 <sup>1</sup> / <sub>2</sub>	26 <sup>1</sup> / <sub>2</sub>	26 <sup>1</sup> / <sub>2</sub>	36 <sup>3</sup> / <sub>4</sub>	36 <sup>3</sup> / <sub>4</sub>
17 <sup>1</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>8</sub>	18 <sup>1</sup> / <sub>4</sub>	18 <sup>3</sup> / <sub>4</sub>	25 <sup>3</sup> / <sub>8</sub>	25 <sup>3</sup> / <sub>8</sub>	25 <sup>3</sup> / <sub>8</sub>	42	42	57	57

ay vary depending on motor specs.



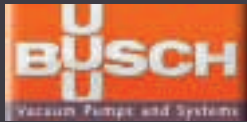


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## R 5 Maintenance Items

**Exhaust Filters** – Designed for proper oil and air separation with minimal back pressure. End caps resist corrosion. Filter materials are manufactured for long service life.

**Inlet Filters** – Filter incoming air and protects pump against particulates.

**Oil Filters** – Filter out impurities in the oil. Designed for low pressure filtration for proper oil flow.

**Pump Oil** – Pump oils are odorless, detergent free, and derived from highly refined paraffinic crudes with excellent lubrication properties for longer pump life.

**Overhaul Kits** – Genuine Busch parts consisting of vanes, O-rings, gaskets, bearings and shaft seals designed specifically for R 5 pumps.

**Maintenance Kits** – include 12 month supply of exhaust filters, inlet filter, pump oil, and oil drain plugs. Synthetic baffles are included with pump models 0165 to 1600.

**Standard Warranty** – 12 months from date of installation or 18 months from date of shipment, whichever occurs first.

**Extended Warranties** – available for up to 3 years on new pumps and 18 months on factory rebuilt pumps if Busch Maintenance Kits are used during the warranty period.



Maintenance kit for 0025 pump shown.



Busch Factory Service Centers maintain an extensive inventory of maintenance items.

