

## COBRA N 0100 - 0300 B



COBRA N 0200 B

### Description

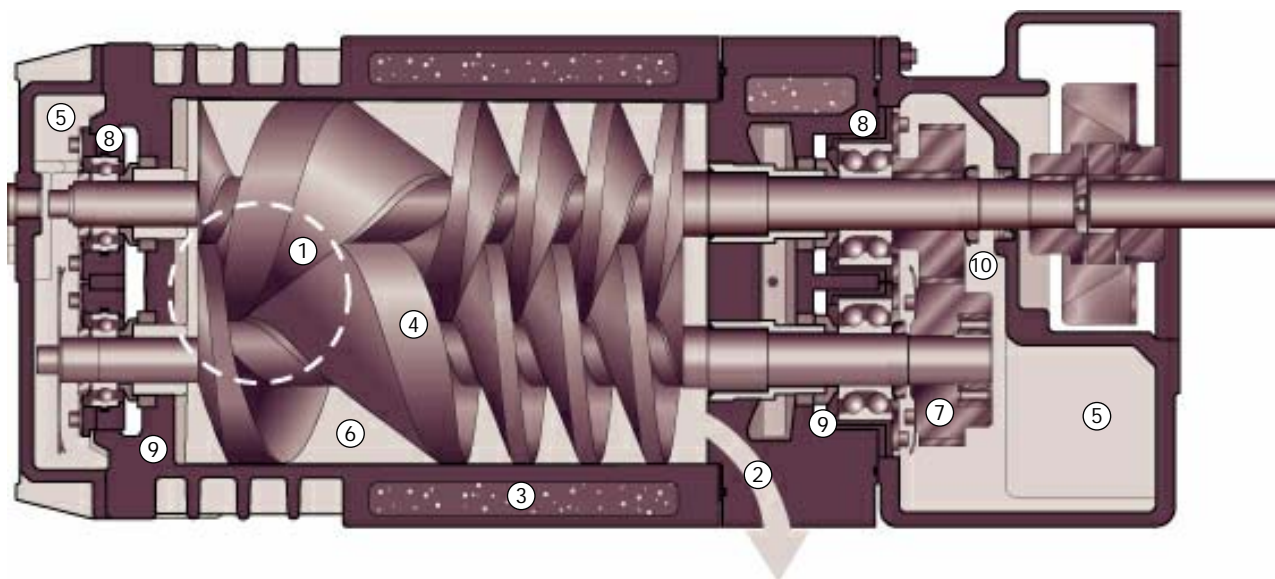
The **COBRA N** single stage, direct driven rotary screw dry vacuum pumps are designed for difficult applications in the pharmaceutical and chemical processing industries. **COBRA N B** version vacuum pumps incorporate a unique, monoblock, continuously variable pitch screw design. The variable pitch design operates more efficiently, has a higher CFM to horsepower ratio, and lower operating temperatures than traditional dry screw vacuum

pumps. The **COBRA N** series, B version vacuum pumps provide vacuum down to .0075 torr, and pumping speeds up to 225 ACFM. They will operate at any pressure from atmospheric down to ultimate pressure. Direct cooled and closed loop air-cooling models are available. For higher pumping speeds and lower ultimate pressures, Busch offers **COBRA/booster** systems along with many other custom designed vacuum systems.

### Standard Equipment

- NEMA C-face motor, explosion proof Class I, Groups C&D, Division 1, Service factor 1.15
- Cooling water flow control system (for direct cooled models)
- Cooling water temperature switch and gauge
- Exhaust gas temperature switch
- Stainless steel exhaust silencer
- Exhaust check valve
- Stainless steel inlet flange
- Oil lubricated, mechanical shaft seals on inlet shaft ends
- Oil lubricated, mechanical shaft seals with piston ring labyrinth seals on discharge shaft ends
- Purge regulator for discharge end labyrinth seals

## Operating Principle



- |                |                |
|----------------|----------------|
| 1 Inlet        | 6 Gas Path     |
| 2 Exhaust      | 7 Timing Gears |
| 3 Water Jacket | 8 Bearings     |
| 4 Screw        | 9 Shaft Seals  |
| 5 Oil          | 10 Oil Seal    |

### Operating Principle

Two counterrotating screw shaped rotors rotate inside of a common cylinder. As the screws rotate, they trap a volume of gas at the inlet of the vacuum pump, and convey that gas towards the vacuum pump discharge. The variable pitch design causes an internal compression within the pumping chamber prior to discharging the gas. This principle creates up to 50% higher efficiency (CFM per horsepower), and reduces the temperature rise by up to 1/2 in comparison with traditional screw designs.

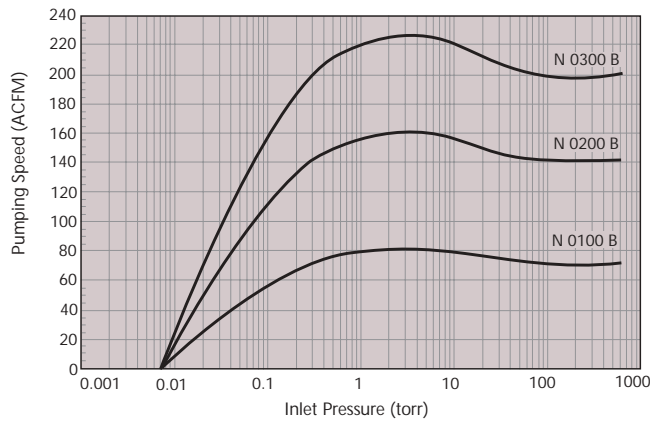
The screws do not contact each other or the cylinder/endplates due to precision manufacturing and gears that maintain rotor timing. Therefore, no lubricant is required in the pumping chamber. Lubricants for the bearings and gears are sealed from the pumping chamber by mechanical shaft seals. Cooling is achieved by either a direct cooled (once-through) water cooling system or by an integral coolant recirculating system, utilizing an internal liquid pump and a fan cooled radiator.

### Application

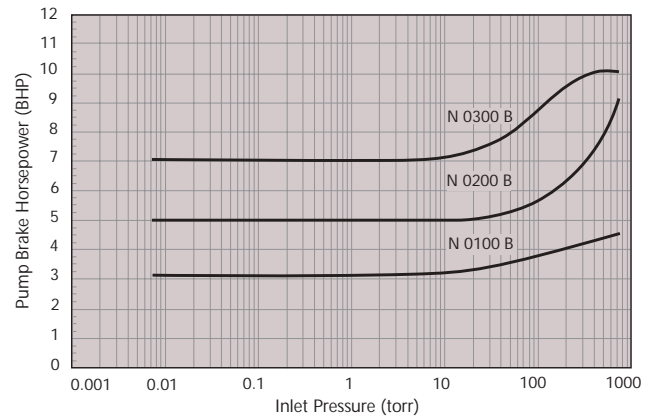
- Drying processes in the pharmaceutical industry demanding special product purity
- Recovery of solvents, from drying, filtration, crystallization and distillation processes
- Degassing processes in the furnace, metal and coating industry
- Vacuum bottling systems in the beverage industry
- Extruder degassing
- Recycling of processes in the food industry
- Vacuum separation of azeotropic mixtures
- Evacuation of gas bottles prior to filling with high-purity gases
- Central vacuum for laboratory and pilot plants
- Vacuum processes in all applications where oil-free vacuum is required

## Technical Data

Pumping Speed vs. Inlet Pressure



Pump Brake Horsepower vs. Inlet Pressure

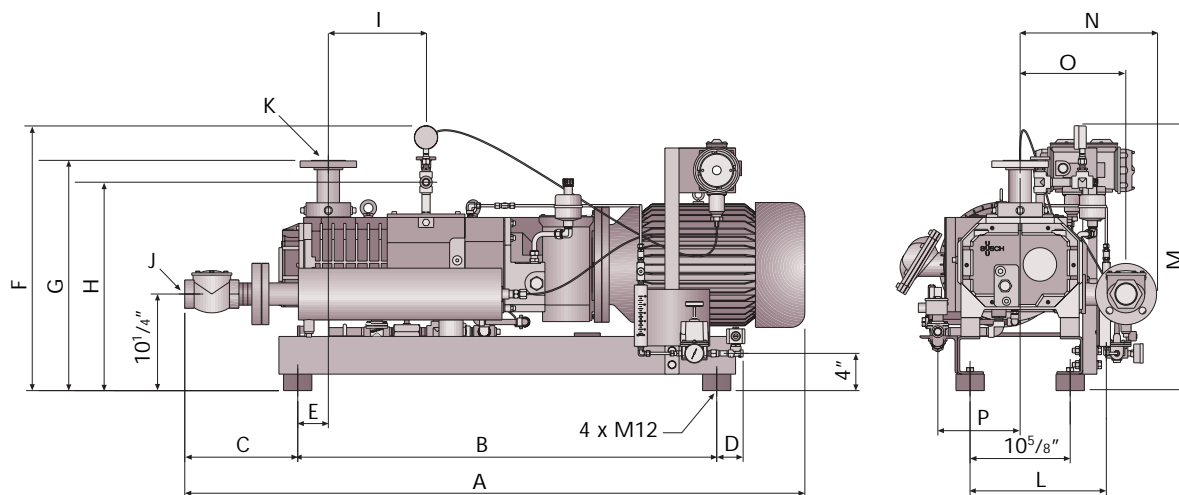


(Based on 60 cycle motor)

Technical Data		N 0100 B	N 0200 B	N 0300 B
COBRA Model				
Nominal pumping speed	ACFM	82	160	225
Free air displacement	CFM	90	177	241
Ultimate pressure	Torr	.0075	.0075	.0075
Motor size	HP	5	10	15
Motor rotational speed	RPM	3600	3600	3600
Sound level rating	dBA	75	78	80
Oil sump capacity	Qts.	2	2	2
Average water usage rate	GPM	1	1	1
Approximate weight	Lbs	517	638	693



Dimensions



Dimensions	A	B	C	D	E	F	G	H	I	J	K
COBRA N 0100 B	53 <sup>1</sup> / <sub>8</sub>	31 <sup>1</sup> / <sub>2</sub>	10 <sup>5</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>4</sub>	27 <sup>1</sup> / <sub>8</sub>	23 <sup>7</sup> / <sub>8</sub>	21 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>
COBRA N 0200 B	61 <sup>3</sup> / <sub>8</sub>	41 <sup>5</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>4</sub>	28 <sup>1</sup> / <sub>8</sub>	24 <sup>1</sup> / <sub>2</sub>	22 <sup>1</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>8</sub>	2	2
COBRA N 0300 B	65 <sup>7</sup> / <sub>8</sub>	44 <sup>1</sup> / <sub>2</sub>	12	2 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>4</sub>	28 <sup>1</sup> / <sub>8</sub>	24 <sup>3</sup> / <sub>8</sub>	22 <sup>1</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	2	2

Dimensions	L	M	N	O	P
COBRA N 0100 B	14 <sup>3</sup> / <sub>8</sub>	24	14	11	8 <sup>3</sup> / <sub>8</sub>
COBRA N 0200 B	14 <sup>3</sup> / <sub>8</sub>	26	14 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
COBRA N 0300 B	14 <sup>1</sup> / <sub>2</sub>	27 <sup>7</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>

All dimensions in inches unless otherwise noted.



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