

Your Ideal Vacuum Pump



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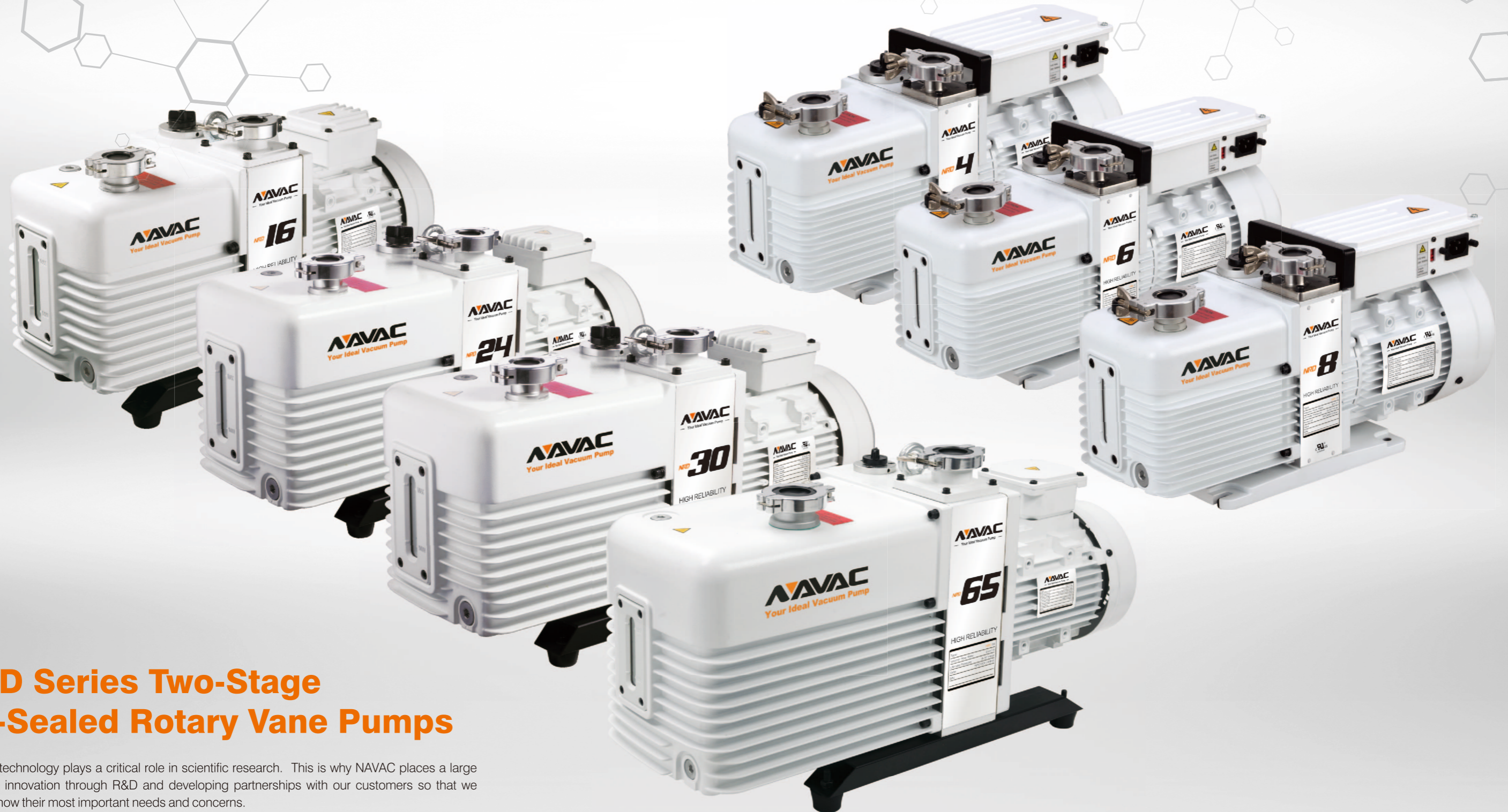
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## Scientific Research

Speed • Innovation • Quality

# Your Ideal Vacuum Pump

Speed • Innovation • Quality



## NRD Series Two-Stage Oil-Sealed Rotary Vane Pumps

Vacuum technology plays a critical role in scientific research. This is why NAVAC places a large focus on innovation through R&D and developing partnerships with our customers so that we always know their most important needs and concerns.

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## Refrigeration Industry

Refrigerant charging, A/C, helium leak detection, helium recovery systems, etc...



## Medical Industry

Plasma sterilizers, vacuum freeze drying, vacuum mixing. NRD M Series available to handle large amounts of H<sub>2</sub>O<sub>2</sub> gas and water vapor.



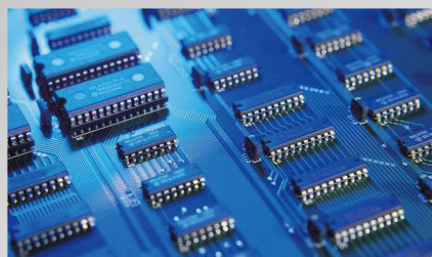
## Analytical Instruments

Mass spectrometry, SEM, Helium Leak Detection, Analytical Equipment in Chemistry.



## Power Industry

Transformer drying, Solar Cell Production, etc...



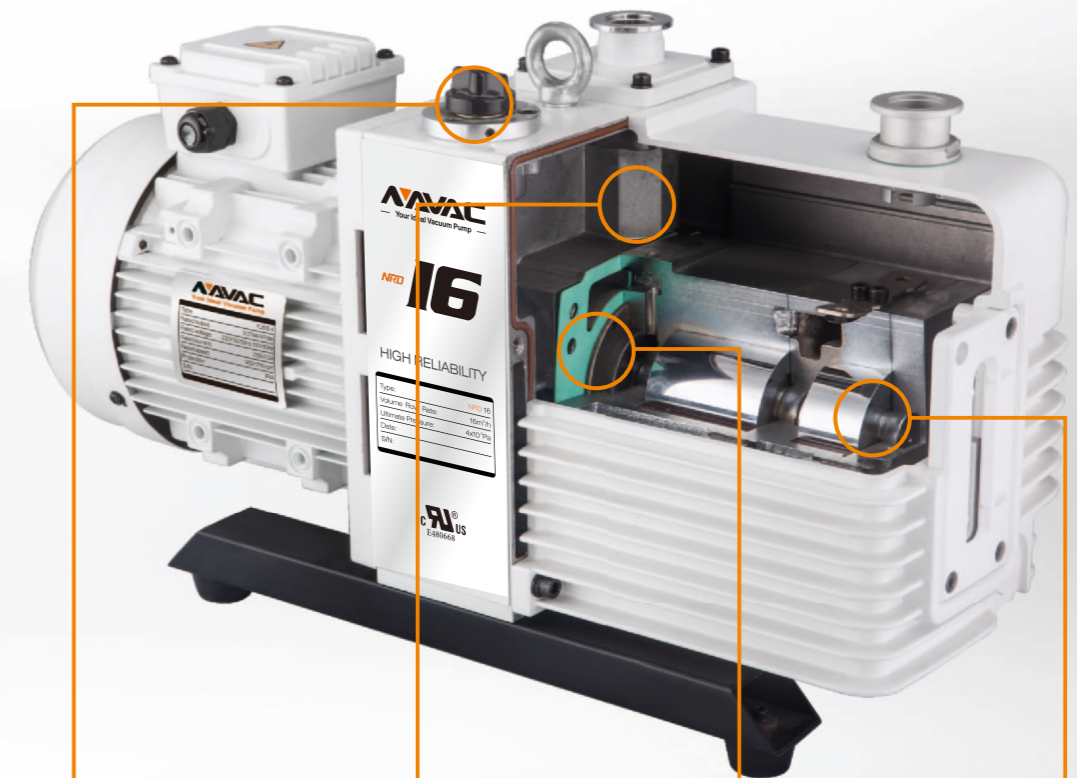
## Electronics, Semi-Conductor Industry

Sf<sub>6</sub> gas recovery, vacuum oven, glovebox, sapphire and polycrystalline furnace, vacuum annealing/heat treatment, plasma cleaning, thin film vacuum coatings, backing high vacuum or roots systems.

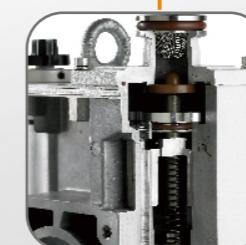
## NRD Series Vacuum Pump

Your Ideal Vacuum Pump

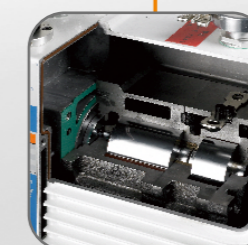
## Perfect Design And Performance



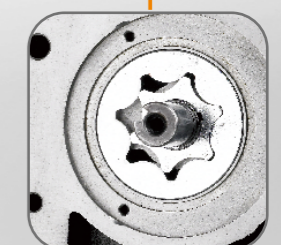
**Two-shift adjustable gas ballast valve**  
allows for the different requirements of condensable gas to be exhausted.



**Dual automatic anti-suckback design**  
Protects vacuum system from oil contamination in the event of an unexpected shut down



**Forced oil circulation system**  
ensures stable running of the pump



**Integrated cylinder structure and pin connection**  
convenient and accurate for maintenance and inspection

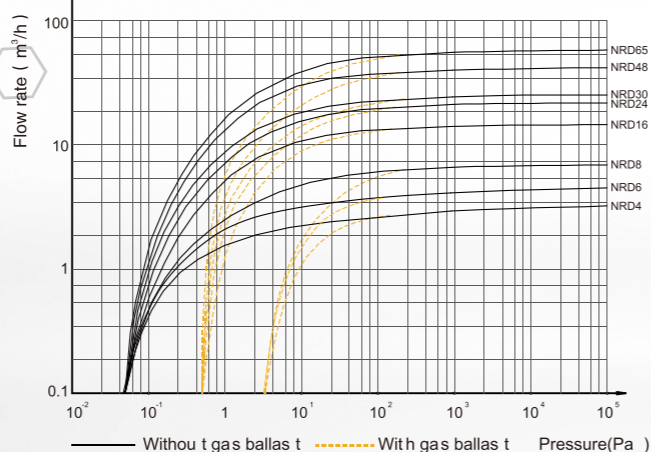
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## Features

- ✔ **Gas Ballast**  
 Adjustable gas ballast allows for the different requirements of condensable gas to be exhausted.
- ✔ **Oil**  
 High quality mineral oil provided standard with the pump. All models can also be prepped for PFPE.
- ✔ **Anti Suck Back Design**  
 Protects vacuum system from oil contamination in the event of an unexpected shut down.

## Flow Rate Characteristic



# NRD8

## NRD Series Vacuum Pump

Your Ideal Vacuum Pump

Specification		NRD4	NRD6	NRD8	NRD16
Displacement speed	m <sup>3</sup> /h (50Hz)	4	6	8	16
	cfm (60Hz)	2.8	4.2	5.6	11.3
Ultimate pressure (total)	pa	5×10 <sup>-1</sup>	5×10 <sup>-1</sup>	5×10 <sup>-1</sup>	4×10 <sup>-1</sup>
	torr	3.75×10 <sup>-3</sup>	3.75×10 <sup>-3</sup>	3.75×10 <sup>-3</sup>	3.0×10 <sup>-3</sup>
	mbar	5×10 <sup>-3</sup>	5×10 <sup>-3</sup>	5×10 <sup>-3</sup>	4×10 <sup>-3</sup>
Ultimate pressure GB (total)	pa	3	3	3	8×10 <sup>-1</sup>
	torr	2.25×10 <sup>-2</sup>	2.25×10 <sup>-2</sup>	2.25×10 <sup>-2</sup>	6.0×10 <sup>-3</sup>
Water vapor tolerance	mbar	30	30	30	25
	torr	22	22	22	18
Water vapor capacity	kg/h	0.1	0.1	0.2	0.3
Power rating	kw	0.4	0.4	0.4	0.75
	hp	0.5	0.5	0.5	1
Motor speed	rpm (50Hz)	1440	1440	1440	1440
	rpm (60Hz)	1720	1720	1720	1720
Oil capacity	litres	1	1	1	1.5
Oil type (NPO)		46H	46H	46H	68H
Inlet and exhaust flange		KF16	KF16	KF16	KF25
Noise level	dB	56	56	56	58
Ambient Temperature	°C	5-40	5-40	5-40	5-40
Net weight	kg	19	20	20	33
	lbs	42	44	44	73
Dimensions	mm	460×144×207	460×144×207	460×144×207	520×188×272
	inch	18.1×5.6×8.1	18.1×5.6×8.1	18.1×5.6×8.1	20.5×7.4×10.7

Specification		NRD24	NRD30	NRD48	NRD65
Displacement speed	m <sup>3</sup> /h (50Hz)	24	30	48	65
	cfm (60Hz)	17	21.2	34	46
Ultimate pressure (total)	pa	4×10 <sup>-1</sup>	4×10 <sup>-1</sup>	4×10 <sup>-1</sup>	4×10 <sup>-1</sup>
	torr	3.0×10 <sup>-3</sup>	3.0×10 <sup>-3</sup>	3.0×10 <sup>-3</sup>	3.0×10 <sup>-3</sup>
	mbar	4×10 <sup>-3</sup>	4×10 <sup>-3</sup>	4×10 <sup>-3</sup>	4×10 <sup>-3</sup>
Ultimate pressure GB (total)	pa	8×10 <sup>-1</sup>	8×10 <sup>-1</sup>	8×10 <sup>-1</sup>	8×10 <sup>-1</sup>
	torr	6.0×10 <sup>-3</sup>	6.0×10 <sup>-3</sup>	6.0×10 <sup>-3</sup>	6.0×10 <sup>-3</sup>
Water vapor tolerance	mbar	25	25	20	20
	torr	18	18	15	15
Water vapor capacity	kg/h	0.5	0.6	0.7	0.9
Power rating	kw	1.1	1.1	1.5	2.2
	hp	1.5	1.5	2	3
Motor speed	rpm (50Hz)	1440	1440	1440	1440
	rpm (60Hz)	1720	1720	1720	1720
Oil capacity	litres	2	2	4	4
Oil type (NPO)		68H	68H	100H	100H
Inlet and exhaust flange		KF25	KF25	KF40	KF40
Noise level	dB	58	58	62	62
	°C	5-40	5-40	5-40	5-40
Net weight	kg	35	37	62	65
	lbs	77	82	137	143
Dimensions	mm	560×188×272	560×188×272	720×234×358	720×234×358
	inch	20.5×7.4×10.7	20.5×7.4×10.7	28.3×9.2×14.1	28.3×9.2×14.1

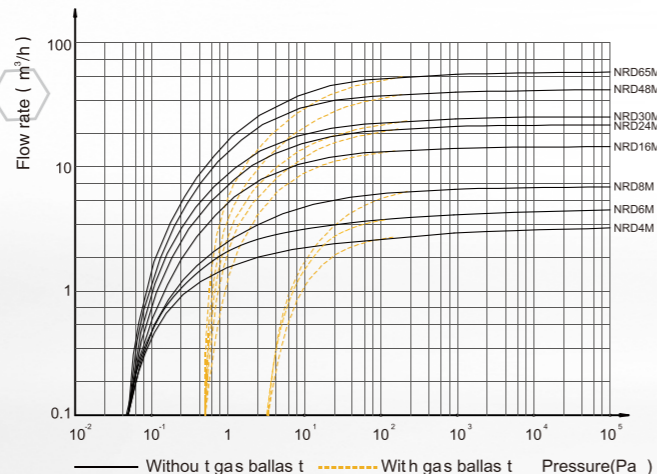
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## Features

- ✔ **Gas Ballast**  
 Adjustable gas ballast allows for the different requirements of condensable gas to be exhausted.
- ✔ **Oil**  
 High quality mineral oil provided standard with the pump. All models can also be prepped for PFPE.
- ✔ **Anti Suck Back Design**  
 Protects vacuum system from oil contamination in the event of an unexpected shut down.

## Flow Rate Characteristic



## NRD8M

- ✔ **Mild Corrosion Resistant**

NRD M Series pumps are designed to perform in mildly corrosive applications such as H<sub>2</sub>O<sub>2</sub>.

## NRD M Series Vacuum Pump

Your Ideal Vacuum Pump

Specification		NRD8M	NRD16M	NRD30M
Displacement speed	m <sup>3</sup> /h (50Hz)	8	16	30
	cfm (60Hz)	5.6	11.3	21.2
Ultimate pressure (total)	pa	5×10 <sup>-1</sup>	4×10 <sup>-1</sup>	4×10 <sup>-1</sup>
	torr	3.75×10 <sup>-3</sup>	3.0×10 <sup>-3</sup>	3.0×10 <sup>-3</sup>
	mbar	5×10 <sup>-3</sup>	4×10 <sup>-3</sup>	4×10 <sup>-3</sup>
Ultimate pressure GB (total)	pa	3	8×10 <sup>-1</sup>	8×10 <sup>-1</sup>
	torr	2.25×10 <sup>-2</sup>	6.0×10 <sup>-3</sup>	6.0×10 <sup>-3</sup>
Water vapor tolerance	mbar	30	25	25
	torr	22	18	18
Water vapor capacity	kg/h	0.2	0.3	0.6
Power rating	kw	0.4	0.75	1.1
	hp	0.5	1	1.5
Motor speed	rpm (50Hz)	1440	1440	1440
	rpm (60Hz)	1720	1720	1720
Oil capacity	litres	1	1.5	2
Oil type (NPO)		46H	68H	68H
Inlet and exhaust flange		KF16	KF25	KF25
Noise level	dB	56	58	58
Ambient Temperature	°C	5-40	5-40	5-40
Net weight	kg	20	33	37
	lbs	44	73	82
Dimensions	mm	460×144×207	520×188×272	560×188×272
	inch	18.1×5.6×8.1	20.5×7.4×10.7	20.5×7.4×10.7



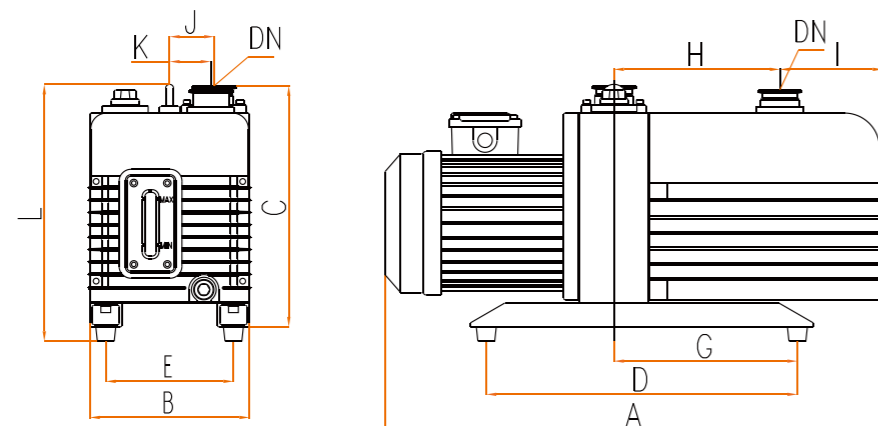
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## Available Motor Specifications

	NRD4	NRD6	NRD8	NRD16	NRD24	NRD30	NRD48	NRD65
115-230V / 50-60Hz, 1ph	yes	yes	yes					
115V / 60Hz, 1ph				yes	yes	yes		
230-460V / 50-60Hz, 3ph	yes	yes	yes	yes	yes	yes	yes	yes

## Dimension



### Dimensions (mm)

	A	B	C	D	D	E	G	H	I	J	K	L	DN
NRD4	460	144	207	207	210	110	126	154	45	45	34	/	KF16
NRD6	460	144	207	207	210	110	126	154	45	45	34	/	KF16
NRD8	460	144	207	207	210	110	126	154	45	45	34	/	KF16
NRD16	520	188	272	272	320	148	160	165	69	59	38	295	KF25
NRD24	560	188	272	272	320	148	160	185	82	59	47	295	KF25
NRD30	560	188	272	272	320	148	160	185	82	59	47	295	KF25
NRD48	730	234	358	358	396	190	200	223	157	69	55	390	KF40
NRD65	730	234	358	358	396	190	200	223	157	69	55	390	KF40

### Dimensions (inch)

Model	A	B	C	D	D	E	G	H	I	J	K	L	DN
NRD4	18.1	5.7	8.1	8.1	8.3	4.3	5	6.1	1.8	1.8	1.3	/	KF16
NRD6	18.1	5.7	8.1	8.1	8.3	4.3	5	6.1	1.8	1.8	1.3	/	KF16
NRD8	18.1	5.7	8.1	8.1	8.3	4.3	5	6.1	1.8	1.8	1.3	/	KF16
NRD16	20.5	7.4	10.7	10.7	12.6	5.8	6.3	6.5	2.7	2.3	1.5	11.6	KF25
NRD24	22	7.4	10.7	10.7	12.6	5.8	6.3	7.3	3.2	2.3	1.9	11.6	KF25
NRD30	22	7.4	10.7	10.7	12.6	5.8	6.3	7.3	3.2	2.3	1.9	11.6	KF25
NRD48	28.7	9.2	14.1	14.1	15.6	7.5	7.9	8.8	6.2	2.7	2.2	15.4	KF40
NRD65	28.7	9.2	14.1	14.1	15.6	7.5	7.9	8.8	6.2	2.7	2.2	15.4	KF40

## Spare Parts

### Your Ideal Vacuum Pump



#### Oil Mist Filter/Filter Element

VOT-8A/B  $\phi$ 53x92  
 VOT-30B/C  $\phi$ 79x100  
 VOT-65C  $\phi$ 118x166  
 A for KF16 B for KF25; C for KF40



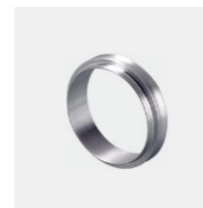
#### KF Model Air Inlet

KF16 stainless steel  
 KF25 stainless steelM  
 KF40 stainless steel



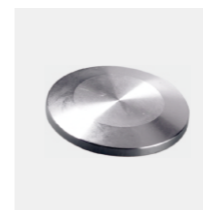
#### O-Ring

VPS116  $\phi$ A:18  $\phi$ B:5.3  
 VPS125  $\phi$ A:28  $\phi$ B:5.3  
 VPS140  $\phi$ A:42  $\phi$ B:5.3



#### Centering Ring

VPS316  $\phi$ A:17  $\phi$ B:16 C:3.9 D:8  
 VPS325  $\phi$ A:26  $\phi$ B:25 C:3.9 D:8  
 VPS340  $\phi$ A:41  $\phi$ B:40 C:3.9 D:8



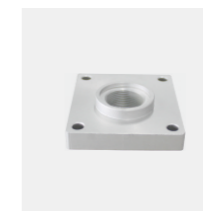
#### Flange

VPS516  $\phi$ A:30  $\phi$ B:18.2 D:4.5  
 VPS525  $\phi$ A:40  $\phi$ B:27.2 D:4.5  
 VPS540  $\phi$ A:50  $\phi$ B:42.2 D:5



#### Tube Fittings

$\phi$ 22 x M20 Aluminum alloy  
 $\phi$ 18 x M20 Aluminum alloy  
 $\phi$ 15 x M20 Aluminum alloy  
 $\phi$ 12 x M20 Aluminum alloy  
 $\phi$ 8 x M20 Aluminum alloy



#### 55 Permanent seat

M20 Aluminum alloy



#### Clamp

VPS216 A:45 B:61 C:16  $\phi$ D:22  
 VPS225 A:55 B:72 C:16  $\phi$ D:32  
 VPS240 A:70 B:90 C:18  $\phi$ D:47



#### Filter

VPS416  $\phi$ A:17  $\phi$ B:16 C:3.9 D:8 E:21  
 VPS425  $\phi$ A:26  $\phi$ B:25 C:3.9 D:8 E:21  
 VPS440  $\phi$ A:41  $\phi$ B:39 C:3.9 D:8 E:36  
 VPS425A  
 VPS440A



#### Adapter

Customized according to customers' requirements

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## Ordering info



Your Ideal Vacuum Pump

### NRD

Model	Product Description	Order No. VPO mineral oil	Order No. PFPE oil not included
NRD4	115/230V, 50/60Hz, 1 ph, set to 115V	N10041001	N10042001
	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10041002	N10042002
NRD6	115/230V, 50/60Hz, 1 ph, set to 115V	N10061001	N10062001
	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10061002	N10062002
NRD8	115/230V, 50/60Hz, 1 ph, set to 115V	N10081001	N10082001
	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10081002	N10082002
NRD16	115V, 60Hz, 1 ph	N10161001	N10162001
	230V, 50Hz, 1 ph	N10161002	N10162002
	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10161003	N10162003
NRD24	115V, 60Hz, 1 ph	N10241001	N10242001
	230V, 50Hz, 1 ph	N10241002	N10242002
	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10241003	N10242003
NRD30	115V, 60Hz, 1 ph	N10301001	N10302001
	230V, 50Hz, 1 ph	N10301002	N10302002
	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10301003	N10302003
NRD48	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10481001	N10482001
NRD65	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10651001	N10652001

### NRD M

Model	Product Description	Order No. VPO mineral oil	Order No. PFPE oil not included
NRD8	115/230V, 50/60Hz, 1 ph, set to 115V	N10081001M	N10082001M
	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10081002M	N10082002M
NRD16	115V, 60Hz, 1 ph	N10161001M	N10162001M
	230V, 50Hz, 1 ph	N10161002M	N10162002M
	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10161003M	N10162003M
NRD24	115V, 60Hz, 1 ph	N10241001M	N10242001M
	230V, 50Hz, 1 ph	N10241002M	N10242002M
	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10241003M	N10242003M
NRD30	115V, 60Hz, 1 ph	N10301001M	N10302001M
	230V, 50Hz, 1 ph	N10301002M	N10302002M
	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10301003M	N10302003M
NRD48	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10481001M	N10482001M
NRD65	200-220/380-415V, 50Hz, 200-230/460V, 60Hz, 3 ph	N10651001M	N10652001M

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## Ordering info

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### Oil and others

Model	Product Description	Order No.
Oil	NPO46H (1 liter bottle, for NRD4/6/8)	NPO46H
	NPO68H(1 liter bottle, for NRD16/24/30 and NRS22/28/40/65/100/160/200/300)	NPO68H
	NPO100H (one 4-liter bottle, for NRD48/65)	NPO100H
Oil mist filter	NOT8A (KF16, for NRD4/6/8)	NOT8A
	NOT8B (KF25, for NRD4/6/8)	NOT8B
	NOT30B (KF25, for NRD16/24/30)	NOT30B
	NOT65C (KF40, for NRD48/65)	NOT65C
Service kit	for NRD4	NSK4
	for NRD6	NSK6
	for NRD8	NSK8
	for NRD16	NSK16
	for NRD24	NSK24
	for NRD30	NSK30
	for NRD48	NSK48
Service kit	for NRD65	NSK65
	for NRD8M	NSK8M
	for NRD16M	NSK16M
	for NRD24M	NSK24M
	for NRD30M	NSK30M
	for NRD48M	NSK48M
	for NRD65M	NSK65M

