

# RV OIL SEALED ROTARY VANE PUMPS

The Edwards logo, featuring a stylized red 'E' with a black swoosh and the word 'EDWARDS' in red capital letters.



# PERFORMANCE YOU CAN RELY ON

THE RV SERIES IS THE ULTIMATE RANGE OF SMALL OIL SEALED ROTARY VANE PUMPS

The result of many years experience and a clean sheet design programme, with over 400,000 produced, these rugged vacuum pumps offer an excellent ultimate vacuum with good pumping speeds as well as superior vapour handling capabilities and quiet operation.

## Mode selector and two position gas ballast

Configure your pump to meet your vacuum needs

## High vapour handling

Flexibility to meet process needs

## Designed for easy maintenance

Standard kits available for routine maintenance with simple tools

## Fast acting, automatic inlet valve providing suck-back protection

Helps to protect process and systems

## Quiet running

Better work environment

## Superior oil lubrication

High reliability through positive pressure oil lubrication and generous oil pathways





# APPLICATIONS

You can be assured Edwards has the application expertise and the RV pump or integrated system solution to meet your needs.



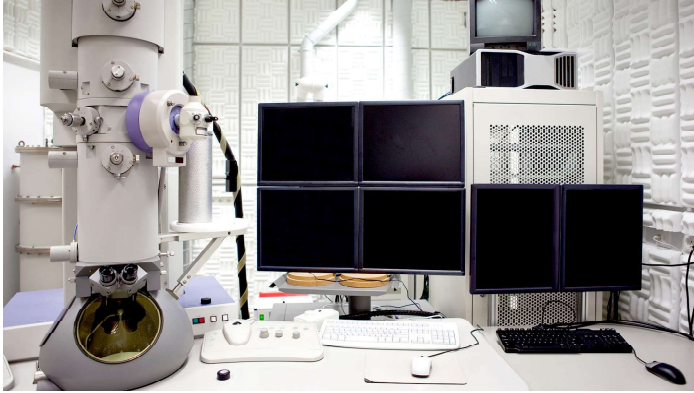
## Mass spectrometry

GCMS, LCMS, ICPMS, MALDI-TOF, RGA,  
surface science,  
leak detectors

## High energy physics

Beam lines, accelerators, mobile pump  
carts,  
turbomolecular pump backing, laser  
evacuation





## Electron microscopy

TEM, SEM, sample coaters

## Industrial

Glove boxes, coating systems, freeze drying, gas bottle filling/emptying, refrigeration system manufacture, degassing/curing (oil, epoxy resin)

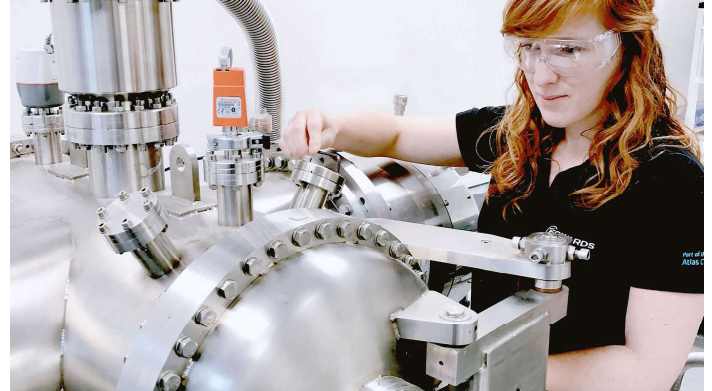


## Chemical and sample preparation

Gel dryers, glove boxes, rotary evaporators, concentrators, distillation/extraction/filtration

## Research and development

Chamber evacuation, coating systems,  
turbomolecular pump backing



# FEATURES AND BENEFITS







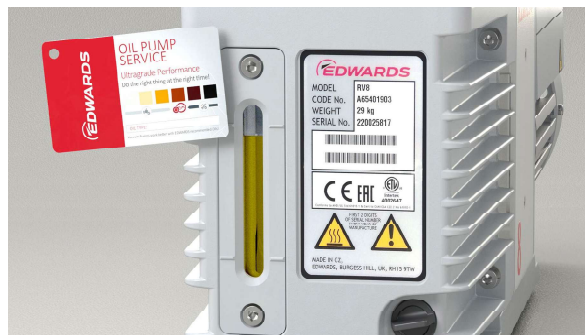
## 1. Gas ballast

Two position gas ballast allows either 60 g/hr or 220 g/hr (290 g/hr on RV12) of water vapour to be handled. This can be combined with an oil return accessory and an oil mist filter to enable continuous pumping with no loss of lubrication. Gas ballast can be automated by fitting the optional solenoid operated gas ballast valve.



## 2. Motor

Wide range single phase motor with an external switch to change the voltage from high to low volts and 3 phase motor options meet the requirements of the IE2 efficiency rating.



## 3. Oil

Edwards RV pumps are supplied with an initial charge of ULTRAGRADE™ Performance 19 oil. This premium quality oil has been specifically formulated with a unique package of additives to give the best vacuum performance of any mineral oil. As such it combines an extremely tightly controlled vapour pressure with a high resistance to oxidation for a long life. For oxygen rich applications PFPE prepared pumps are also available. XTRAGRADE ADVANCED PFPE 64 must be purchased separately for PFPE prepared pumps.



## 4. Inlet

Best in class anti-suckback protection

- Smooth controlled opening by oil pressure to eliminate pressure surges
- Rapid closing within 0.4 seconds of pump stopping

All Edwards RV pumps are supplied with an inlet seal and integrated inlet mesh filter.





## 5. Mode switch

The unique mode selector switch means that one pump fits all, so you only need one model for both high throughput and high vacuum applications. In high throughput mode the selector switch increases the oil flow to the high vacuum stage allowing the pump to operate continuously with high inlet pressures without any wear or loss of lubrication.



## 6. Designed for easy maintenance

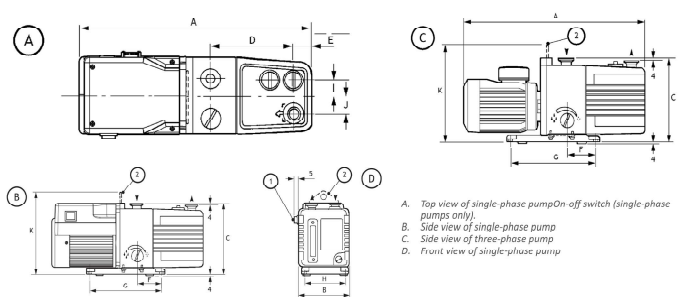
- One size hex-head wrench to dismantle all parts
- All parts self-aligning so no jigs or special assemblies required
- Polymer blades with no springs or pins for easier assembly and greater reliability
- Shaft seals can be replaced from the motor side without dismantling the pump mechanism
- No O-rings between the slices for easier assembly



## 7. No customer wiring

Integral IEC connector allows easy connection to mains electric supply for single phase standard motor pumps.

# DIMENSIONS



A. Lifting bracket (RV8 and RV12 pumps only; a lifting handle is fitted to the RV3 and RV5 pumps).  
B. On-off switch (single-phase pumps only).

	A	B	C	D	E	F	G	H	I	J	K
RV3	430	158	225	127	29	78	230	120	37	32	-
RV5	430	158	225	127	29	78	230	120	37	32	-
RV8	470	158	225	161	35	78	230	120	37	32	261
RV12	490	158	225	181	35	78	230	120	37	32	261

Single phase pump diagram shown, 3 phase pumps look different but share the same dimensions. Dimensions shown in mm





# TECHNICAL DATA

## Performance data

	Hz	Units	RV3	RV5	RV8	RV12
Peak pumping speed	60	cfm	2.3	3.7	5.9	8.4
	50	m3/h	3.3	5.1	8.5	12
Ultimate pressure (Total)	60	Torr	$1.5 \times 10^{-3}$ ( $1.5 \times 10^{-2}$ with PFPE)			
	50	mbar	$2.0 \times 10^{-3}$ ( $2.0 \times 10^{-2}$ with PFPE)			
Ultimate pressure GB I (Total)	50/60	Torr	$2.3 \times 10^{-2}$			
		mbar	$3.0 \times 10^{-2}$			
Ultimate pressure GB II (Total)	50/60	Torr	$9.1 \times 10^{-2}$	$7.5 \times 10^{-2}$	$4.6 \times 10^{-2}$	$4.6 \times 10^{-2}$
		mbar	$1.2 \times 10^{-1}$	$1 \times 10^{-1}$	$6.0 \times 10^{-2}$	$6.0 \times 10^{-2}$
Ultimate pressure high throughput mode	50/60	Torr	$2.3 \times 10^{-2}$			
		mbar	$3.0 \times 10^{-2}$			
Water vapour tolerance		Torr	60	38	28.5	24
		mbar	80	50	38	32
Water vapour capacity - GB I		g/h	60	60	60	60
Water vapour capacity - GB II		g/h	220	220	220	290
<b>Maximum continuous inlet pressure *</b>						
High Vac mode		mbar (Torr)	up to 50 (38)			
High Throughput mode		mbar (Torr)	up to 500 (380)			
Maximum gas ballast/purge pressure		mbar (Torr)	0.5 (7)			

\*These oil sealed rotary vane pumps are designed to evacuate chambers from atmospheric pressure down to ultimate vacuum. Please note there is a maximum pressure that these pumps can operate at continuously

## Motor data

	Hz	Units	RV3	RV5	RV8	RV12
Mechanical Power 1 phase (nominal) (W)	60	W	440			
	50	W	370			

## Motor data

	Hz	Units	RV3	RV5	RV8	RV12
Mechanical Power 3 phase (W)	60	W	300	300	550	550
	50	W	250	250	450	450
Nominal rotation speed (rpm)	60	rpm	1760			
	50	rpm	1470			

## Physical data

	Units	RV3	RV5	RV8	RV12
Weight	lb	55	55	61.6	63.8
	kg	25	25	28	29
Oil capacity	litres	0.7	0.7	0.75	1
Oil type (ULTRAGRADE™ Performance)		19			
Inlet flange		NW25			
Exhaust flange		NW25			
Noise level @ 50 Hz	dB(A)	48			
Noise level (with Acoustic Enclosure) @ 50 Hz	dB(A)	41			
Operating temperature range	°C	12 to 40			

# ORDERING INFORMATION

## Products

Product description	ULTRAGRADE Oil	PFPE prepared*
<b>RV3</b>		
115/230V, 1 phase 50/60Hz set to 230V IE2	A65201903	A65209903
100/200V, 1 phase 50/60Hz set to 200V IE2	A65201904	A65209904
200-220/380-415V, 50Hz 200-230/460V, 60Hz, 3 phase IE2	A65201905	A65209905
115/230V, 1 phase 50/60Hz set to 115V IE2	A65201906	A65209906
100/200V, 1 phase 50/60Hz set to 100V IE2	A65201907	N/A
<b>RV5</b>		
115/230V, 1 phase 50/60Hz set to 230V IE2	A65301903	A65309903
100/200V, 1 phase 50/60Hz set to 200V IE2	A65301904	A65309904
200-220/380-415V, 50Hz 200-230/460V, 60Hz, 3 phase IE2	A65301905	A65309905
115/230V, 1 phase 50/60Hz set to 115V IE2	A65301906	A65309906
100/200V, 1 phase 50/60Hz set to 100V IE2	A65301907	N/A
<b>RV8</b>		
115/230V, 1 phase 50/60Hz set to 230V IE2	A65401903	A65409903
100/200V, 1 phase 50/60Hz set to 200V IE2	A65401904	A65409904
380-415V, 50Hz 460V, 60Hz, 3 phase IE2	A65422905	A65429905
200-208V, 50Hz 200-230V, 60Hz, 3 phase IE2	A65422925	A65429925
115/230V, 1 phase 50/60Hz set to 115V IE2	A65401906	A65409906
100/200V, 1 phase 50/60Hz set to 100V IE2	A65401907	N/A
<b>RV12</b>		
115/230V, 1 phase 50/60Hz set to 230V IE2	A65501903	A65509903
100/200V, 1 phase 50/60Hz set to 200V IE2	A65501904	A65509904
380-415V, 50Hz 460V, 60Hz, 3 phase IE2	A65522905	A65529905
200-208V, 50Hz 200-230V, 60Hz, 3 phase IE2	A65522925	A65529925
115/230V, 1 phase 50/60Hz set to 115V IE2	A65501906	A65509906
100/200V, 1 phase 50/60Hz set to 100V IE2	A65501907	N/A

\* PFPE fluid (XTRAGRADE ADVANCED PFPE 64) not included: to be purchased separately for PFPE Prepared pumps. 1 litre = 1.89kg.



## Accessories

	Product description	Order No.
Cord sets for single phase IEC pumps	UK, three pin plug	A50505000
	North European plug	A50506000
	North American plug	A50507000
	No plug	A50508000
Oil	ULTRAGRADE™ Performance 19, 1 litre bottle	H11025015
	XTRAGRADE ADVANCED PFPE 64 (1 litre)	H11041121
	ULTRAGRADE™ Performance 19 oil 4 litre	H11025013
Inlet accessories	Foreline trap - FL20K	A13305000
Outlet accessories	Oil mist filter - EMF10	A46226000
	Oil mist filter - EMF20	A46229000
Oil return kits	Clean application (no gas ballast)	A50419000
	Adjustable gas ballast	A50523000
Vibration isolators	Vibration isolators	A24801404
Spares kits	Clean and overhaul kit	A65201131
Acoustic enclosure	Low volts 110-120V	NRD317000
Acoustic enclosure	High volts 200-240V	NRD318000

Pumps are supplied with initial charge of ULTRAGRADE™ Performance oil



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