

*a clear edge*

*RV oil-sealed rotary vane pumps*



**EDWARDS**

Vacuum science... product solution.

# *a clear edge*

*dedicated to science*

## *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, RGA, surface science, leak detectors

### Electron microscopy

TEM, SEM, sample coaters

### Sample preparation

Gel dryers, glove boxes, rotary evaporators, centrifuges

### Research and development

Chamber evacuation, coating systems, turbopump backing

### High energy physics

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

### Industrial

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

### Chemical

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

# *RV oil-sealed rotary vane pumps*

**Edwards 30 years of experience in scientific applications affords us a deep understanding of research practices and the role that vacuum plays within them, enabling us to develop and support class-leading vacuum products that underpin our customers entire research process.**

The RV series of small oil-sealed rotary vane pumps deliver excellent ultimate vacuum pressure, high pumping speeds and superior vapour handling capabilities with quiet operation. With over 200,000 units sold, these pumps offer proven performance that sets the industry standard for R&D and scientific pumping applications.

All RV pumps are approved to UL and CSA standards by an external test house and feature our unique mode selector switch, meaning one model is suitable for both high vacuum or high throughput applications. In summary, you can rest assured that when you choose an Edwards RV oil-sealed rotary vane pump you are choosing a product you can rely on from a company you can trust.



# Features and benefits

## Gas ballast

Two position gas ballast allows either 60g/hr or a class leading 220g/hr (290g/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.

## Motor

Universal motor to cover the widest possible voltage and frequency range from a single motor. The single phase motor has an external switch change from high (220-240V) to low (110-120V) voltage range. A universal 3 phase motor is also available on all models and for special applications, pumps with flameproof ATEX approved motors can be offered.

## 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 due to dump valve

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

## Oil

Edwards RV pumps are supplied with an initial charge of Ultragrade 19 oil. This premium quality 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. Fomblin® must be purchased separately for PFPE prepared pumps.

## Designed for easy maintenance

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

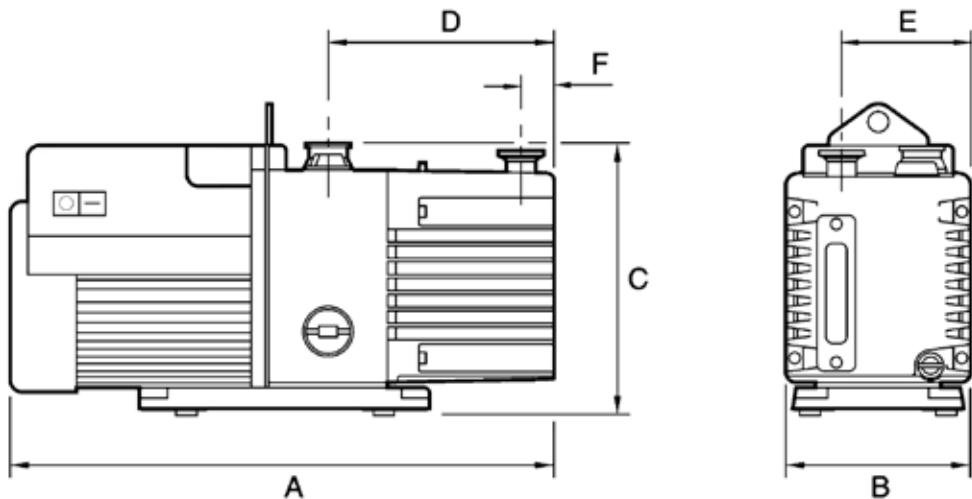
## Mode switch

The unique patented 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.



## Dimensions



	A	B	C	D	E	F
RV3	430 (16.93)	158 (6.22)	225 (8.86)	156 (6.41)	111 (4.37)	29 (1.14)
RV5	430 (16.93)	158 (6.22)	225 (8.86)	156 (6.41)	111 (4.37)	29 (1.14)
RV8	470 (18.50)	158 (6.22)	225 (8.86)	196 (7.72)	111 (4.37)	35 (1.38)
RV12	490 (19.29)	158 (6.22)	225 (8.86)	216 (8.50)	111 (4.37)	35 (1.38)

Note: Single phase pump diagram shown, 3 phase pumps look different but share the same dimensions.

Dimensions shown in mm(inch).

# Technical data

	Hz	Units	RV3	RV5	RV8	RV12
<b>VACUUM DATA</b>						
Peak pumping speed	60	cfm	2.3	3.6	5.9	8.4
	50	m <sup>3</sup> /h	3.3	5.1	8.5	12
Ultimate pressure (Total)	60	Torr	—	1.5 x 10 <sup>-3</sup>	—	1.5 x 10 <sup>-2</sup> with Fomblin®
	50	mbar	—	2.0 x 10 <sup>-3</sup>	—	2.0 x 10 <sup>-2</sup> with Fomblin®
Ultimate pressure GB I (Total)	50/60	Torr	—	2.3 x 10 <sup>-2</sup>	—	—
		mbar	—	3.0 x 10 <sup>-2</sup>	—	—
Ultimate pressure GB II (Total)	50/60	Torr	9.1 x 10 <sup>-2</sup>	9.1 x 10 <sup>-2</sup>	4.6 x 10 <sup>-2</sup>	9.1 x 10 <sup>-2</sup>
		mbar	1.2 x 10 <sup>-1</sup>	1.2 x 10 <sup>-1</sup>	6.0 x 10 <sup>-2</sup>	1.2 x 10 <sup>-1</sup>
High throughput mode	50/60	Torr	—	2.3 x 10 <sup>-2</sup>	—	—
		mbar	—	3.0 x 10 <sup>-2</sup>	—	—
Water vapor tolerance		Torr	60	38	38	24
		mbar	80	50	60	32
Water vapor capacity - GB I		g/h	—	60	—	—
Water vapor capacity - GB II		g/h	220	220	220	290
<b>MOTOR DATA</b>						
Motor rating 1 phase (nominal)	60	W	—	550	—	—
	50	W	—	450	—	—
Motor rating 3 phase	60	W	300	300	550	550
	50	W	250	250	450	450
Nominal rotation speed	60	rpm	—	1800	—	—
	50	rpm	—	1500	—	—
<b>PHYSICAL DATA</b>						
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)			—	19	—	—
Inlet flange			—	NW25	—	—
Exhaust flange			—	NW25	—	—
Noise level	50	dB(A)	—	48	—	—
Noise level (with Acoustic Enclosure)*	50	dB(A)	—	41	—	—
Operating temperature range		°C	—	12 to 40	—	—

\* approximate noise reduction of 7 dB(A)

## Ordering information

	Product description	Order No.	Order No.		Product description	Order No.
		Ultragrade Oil	PFPE prepared*			
RV3	115/230V, 50/60Hz set to 230V	A65201903	A65209903	Cord sets	UK, three pin plug	A50505000
	100/200V, 50/60Hz	A65201904	A65209904		North European plug	A50506000
	200-220/380-415V, 50Hz	A65201905	A65209905		North American plug	A50507000
	200-230/460V, 60Hz, 3 phase				No plug	A50508000
RV5	115/230V, 50/60Hz set to 115V	A65201906	A65209906	Oil	Ultragrade 19, 1 liter bottle	H11025015
	115/230V, 50/60Hz set to 230V	A65301903	A65309903		Fomblin YVAC 06/6 1kg (532 ml)	H11301019
	100/200V, 50/60Hz	A65301904	A65309904	Inlet accessories	Foreline trap - FL20K	A13305000
	200-220/380-415V, 50Hz	A65301905	A65309905		Oil mist filter - EMF10	A46226000
RV8	200-230/460V, 60Hz, 3 phase			Outlet accessories	Oil mist filter - EMF20	A46229000
	115/230V, 50/60Hz set to 115V	A65301906	A65309906		Clean application (no gas ballast)	A50420000
	115/230V, 50/60Hz set to 230V	A65401903	A65409903	Oil return kits	Adjustable gas ballast	A50523000
	100/200V, 50/60Hz	A65401904	A65409904		Vibration isolators	A24801404
RV12	200-220/380-415V, 50Hz	A65401905	A65409905	Spares kits	Clean and overhaul kit	A65201131
	200-230/460V, 60Hz, 3 phase				Acoustic enclosure	A50635906
	115/230V, 50/60Hz set to 115V	A65401906	A65409906	Acoustic enclosure	Low volts 110-120V	A50635903
	115/230V, 50/60Hz set to 230V	A65501903	A65509903		High volts 200-240V	
	100/200V, 50/60Hz	A65501904	A65509904			
	200-220/380-415V, 50Hz	A65501905	A65509905			
	200-230/460V, 60Hz, 3 phase					
	115/230V, 50/60Hz set to 115V	A65501906	A65509906			

\*PFPE fluid not included

Pumps fitted with ATEX approved motors are available, contact Edwards for details

Pumps are supplied with initial charge of Ultragrade oil



# Global contacts

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