

ECODRY M

The Economical Dry Vacuum Solution for Clean Applications

Technical information 171.92.02

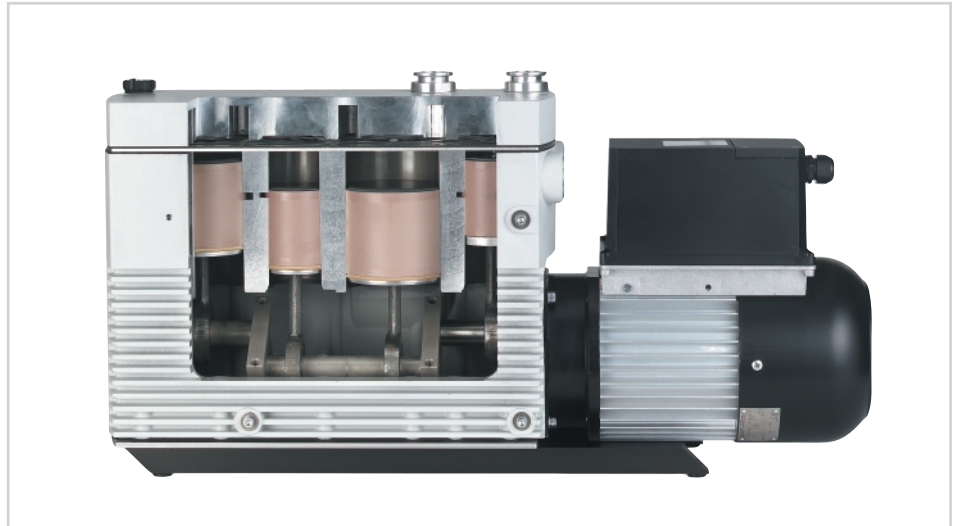


ECODRY M - compact, versatile and reliable.

Oerlikon Leybold Vacuum introduces the extended series of modular piston vacuum pumps ECODRY M.

The ECODRY M is especially designed to satisfy customer requirements in market segments where an ultraclean forevacuum is needed.

The ECODRY M replaces more expensive dry pumps and can also be used in traditional clean applications where oilsealed rotary vane pumps are being used to date. It is suited for all applications in which mostly clean gases are being pumped.



Design feature "robust piston principle" shown for an ECODRY M 30



Process monitoring

Design advantages

- Compact size and flexible to use
- Low wear and sturdy design
- Dry - no oil
- Very low particle emission
- Very efficient frequency converter
- Standard manually operated 3-stage gas ballast valve
- Optional solenoid purge valve

Applications

Dry running ECODRY M piston vacuum pumps are suitable for many clean applications, e. g.

- Backing of turbomolecular and compound molecular pumps
- General clean R&D applications
- Lamps and bulbs
- Small load locks and transfer chambers
- Electron microscopes and surface analysis devices
- Mass spectrometers and X-ray spectrometers
- Freeze drying
- Small sterilizers
- Roughing and regeneration of cryo pumps
- Other applications requiring oil-free vacuum

Benefits

The special design of the EcoDry M and the properties of the materials used offer a multitude of benefits to the customer:

- Horizontal and/or vertical installation
- High system availability
- No oil contamination, no oil changes, no disposal costs
- One motor world-wide - universal use off all AC mains (optional)
- High water vapor tolerance
- Useful accessories optional
- Extended application range
- Low "Cost of Ownership"
- Extended maintenance intervals
- Service-friendly
- Complies with international standards (CE and NRTL)

The partner for a clean vacuum.

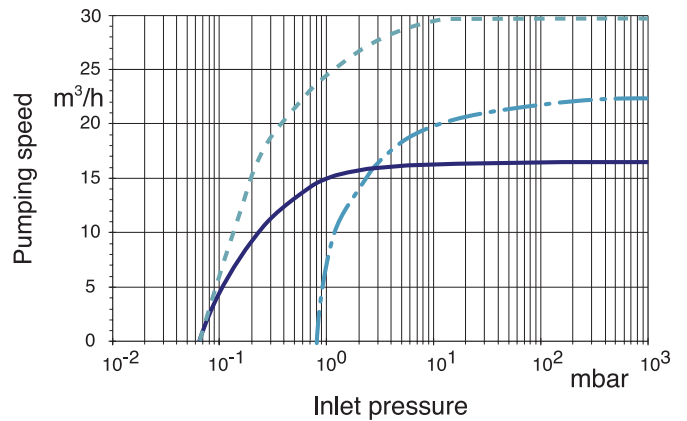
Smart drive technology

FC motor optional

Frequency converter drive unit integrated into the motor for a tailor-made vacuum:

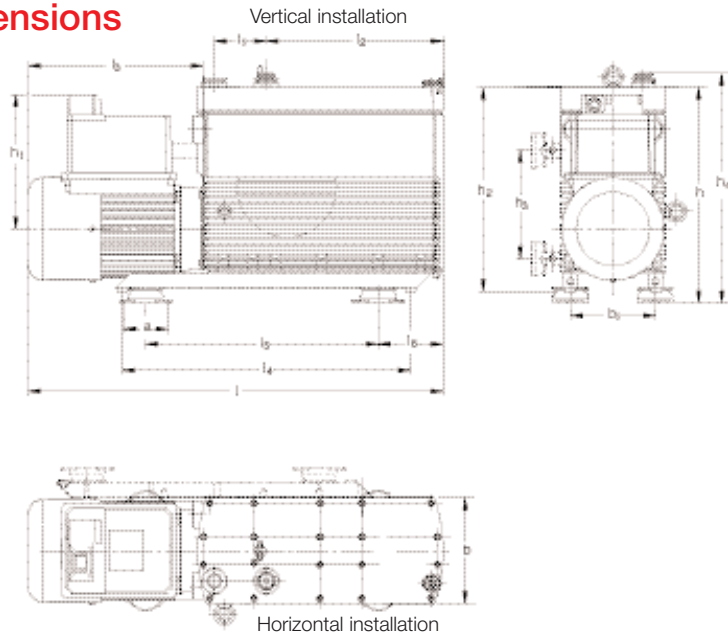
- One motor for all AC mains
- Cost-effective to purchase and operate
- Low power consumption due to load optimized operation = up to 30% reduction of energy costs
- Up to 18% increase in pumping speed compared to standard AC pumps (50 Hz)
- Shorter cycle times
- Menu controlled three key operation for selecting the desired speed range (750, 1000 and 1200 rpm)
- Infinitely variable speed control within the selected speed ranges via analog interface
- "Economy mode" (load optimized operation) can be set-up to reduce power consumption and improve vibration and noise characteristics
- Preserving, low-wear operation through specific speed control

Pumping speed



Pumping speed vs. inlet pressure

Dimensions



Model / motor	a	b	b ₁	h	h ₁	h ₂	h ₃	h ₄	l	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆
ECODRY M 15/20 with FC-Motor	76	180	146	352,5	230	335	186	373,5	598	89	191	300,5	495	289	105,5
ECODRY M 30 with FC-Motor	76	180	146	369	230	349,5	186	390	713	89	304	300,5	495	399,5	111,5
ECODRY M 15/20 with DS-Motor	76	180	146	352,5	148	335	186	373,5	594	89	191	269,5	495	289	105,5
ECODRY M 30 with DS-Motor	76	180	146	369	148	344,5	186	390	709	89	304	269,5	495	399,5	111,5

All dimensions in mm. Version with vibration absorbers (optional)

Technical data

Dry compressing vacuum pump with motor

			ECODRY M 15		ECODRY M 20		ECODRY M 30	
			3-phase	FC motor	3-phase	FC motor	3-phase	FC motor
No. of cylinders / stages			3 / 3		3 / 2		4 / 3	
Max. pumping speed	50 Hz ¹⁾ m ³ /h (cfm)		14 (8.2)	16 (9.4)	19 (11.2)	22 (12.9)	27 (15.9)	30 (17.7)
	60 Hz ¹⁾ m ³ /h (cfm)		16 (9.4)	16 (9.4)	22 (12.9)	22 (12.9)	30 (17.7)	30 (17.7)
Ultimate pressure (absolute) ²⁾	mbar (Torr)		5,5 x 10 ⁻² (4.1 x 10 ⁻²)		8 x 10 ⁻¹ (6 x 10 ⁻¹)		5,5 x 10 ⁻² (4.1 x 10 ⁻²)	
Max. permissible permanent inlet pressure	mbar (Torr)		100 (75)		100 (75)		100 (75)	
Water vapor tolerance (with gas ballast)	mbar (Torr)		25 (18.8)		25 (18.8)		25 (18.8)	
Power consumption at inlet pressure ³⁾	<10 mbar (7.5 Torr) W (hp)		300 (0.41)	280 (0.38)	300 (0.41)	280 (0.38)	450 (0.6)	330 (0.45)
Motors			-10% to +5%		-10% to +5%		-10% to +5%	
	50 Hz V		220 - 240 / 346 - 415	90 - 264	220 - 240 / 346 - 415	90 - 264	220 - 240 / 346 - 400	90 - 264
	60 Hz V		200 - 277 / 380 - 480	90 - 264	200 - 277 / 380 - 480	90 - 264	200 - 277 / 380 - 480	90 - 264
Rotational speed with 3-phase motor	50/60 Hz rpm		1000 / 1200	–	1000 / 1200	–	1000 / 1200	–
Rotational speed with FC motor	50/60 Hz rpm		–	750 / 1000 / 1200	–	750 / 1000 / 1200	–	750 / 1000 / 1200
via analog interface 0 - 10 V ⁴⁾	50/60 Hz rpm		–	750 - 1200, variable	–	750 - 1200, variable	–	750 - 1200, variable
Ambient temperature	°C (°F)		0 - 50 (32 to 122)		0 - 50 (32 to 122)		0 - 50 (32 to 122)	
Inlet / exhaust port fitting	DN		25 KF / 25 KF		25 KF / 25 KF		25 KF / 25 KF	
Dimensions ⁵⁾ (approx.) L x W x H								
standing	mm		545 / 182 / 356	598 / 182 / 356	545 / 182 / 356	598 / 182 / 356	709 / 182 / 369	713 / 182 / 369
	(inch)		(21.5 / 7.17 / 14.0)	(23.5 / 7.17 / 14.0)	(21.5 / 7.17 / 14.0)	(23.5 / 7.17 / 14.0)	(27.9 / 7.17 / 14.5)	(28.1 / 7.17 / 14.5)
lying	mm		545 / 356 / 211	598 / 356 / 211	545 / 356 / 211	598 / 356 / 211	709 / 369 / 211	713 / 369 / 211
	(inch)		(21.5 / 14.0 / 8.3)	(23.5 / 14.0 / 8.3)	(21.5 / 14.0 / 8.3)	(23.5 / 14.0 / 8.3)	(27.9 / 14.5 / 8.3)	(28.1 / 14.5 / 8.3)

¹⁾ according to DIN 28400

²⁾ at 1000 rpm, 50/60 Hz

³⁾ at 750 rpm

⁴⁾ 0-10 V, 2-20 V; 0-20 mA, 4-20 mA

⁵⁾ equipped with standard feet

Ordering information

ECODRY M			ECODRY M 15	ECODRY M 20	ECODRY M 30
3-phase DC motor			Part No. 130 000	Part No. 130 010	Part No. 130 030
1-phase FC motor 90 - 264 V	world		Part No. 130 005	Part No. 130 015	Part No. 130 033
1-phase AC motor 115 V, 60Hz	USA		Part No. 130 001	Part No. 130 011	Part No. 130 031
Accessories			Part No.		
Exhaust silencer			130 050		
Vibration absorber (set of 4 pieces)			130 051		
Vibration absorbing kit			130 052		
Solenoid gas ballast valve			169 50		
Universal silencing hood			130 056		
Cable set for universal silencing hood					
- for 3-phase DC motor			130 058		
- for 1-phase FC motor			130 057		
- for 1-phase AC motor			130 059		

Headquarter Germany

Oerlikon
Leybold Vacuum GmbH
Bonner Strasse 498
D-50968 Köln

T +49 (0) 221-347-0
F +49 (0) 221-347-1250
info.vacuum@oerlikon.com

www.oerlikon.com