

Dry Compressing Vacuum Pumps

Scroll Vacuum Pumps SCROLLVAC SC - D

Piston Vacuum Pumps ECODRY M

171.04.02

Excerpt from the Oerlikon Leybold Vacuum Full Line Catalog

Product Section C03

Edition May 2007

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General

Applications and Accessories

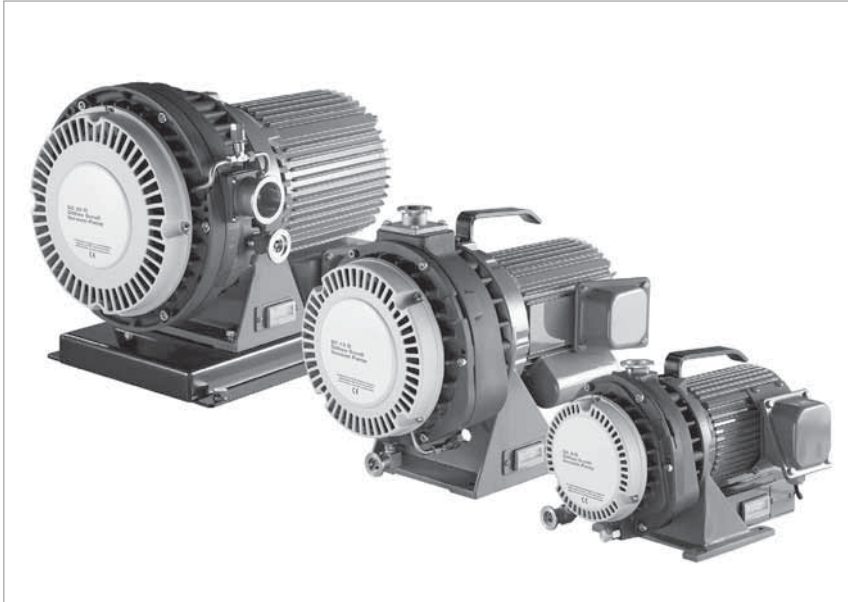
Pumps	SC 5 D	SC 15 D	SC 30 D
Applications			
Electron beam melting	■	■	■
Lasers	■	■	■
Leak detection systems	■		
Accelerators / Synchrotrons	■	■	■
Surface analysis instruments	■		
Scanning electron microscopy	■	■	■
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Spectroscopy	■		
Lamps manufacture	■	■	■
As backing pump for turbomolecular pump systems	■	■	■

Pumps	ECODRY M 15/20/30
Applications	
Applications in physics	■
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Mass spectrometers	■
Electron microscope	■
Lamps and bulbs manufacture	■
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Solenoid gas ballast valve	C03.17	■

Products

Oil-free Scroll Vacuum Pumps SCROLLVAC SC 5 D, SC 15 D, SC 30 D



Scroll vacuum pump SCROLLVAC SC 30 D

In 1905 the principle of the scroll compressor was developed by the Frenchman Leon Creux. The scroll pump is now being used as an oil-free vacuum pump. Every scroll pump consists of two Archimedes spirals engaging each other with an offset of 180°. Thus several crescent-shaped pockets of differing sizes are created. By means of an eccentric drive, a second spiral is made to orbit about a fixed spiral, thus reducing the volume of the pockets and compressing gases from the outside towards the inside thereby pumping the gases.

Important to the quality of a scroll pump is that precise manufacturing tolerances are maintained and that suitable materials are selected.

Advantage for the User

- Absolutely oil-free
- High effective pumping speed
- Low ultimate pressure
- Low noise level
- Low vibration operation
- Atmospheric inlet pressure allowable
- Low weight
- Air cooling
- Low power consumption
- Integrated operating hours counter

Typical Applications

- Electron beam welding
- Lasers
- Leak detection systems
- Accelerators / synchrotrons
- Surface analysis instruments
- Scanning electron microscopes
- Load lock
- Spectroscopy
- Lamp manufacturing
- As a backing pump for turbomolecular pump systems

Maintenance Intervals

In order to maintain the performance of the pump, a standard maintenance is required after a certain number of operating hours.

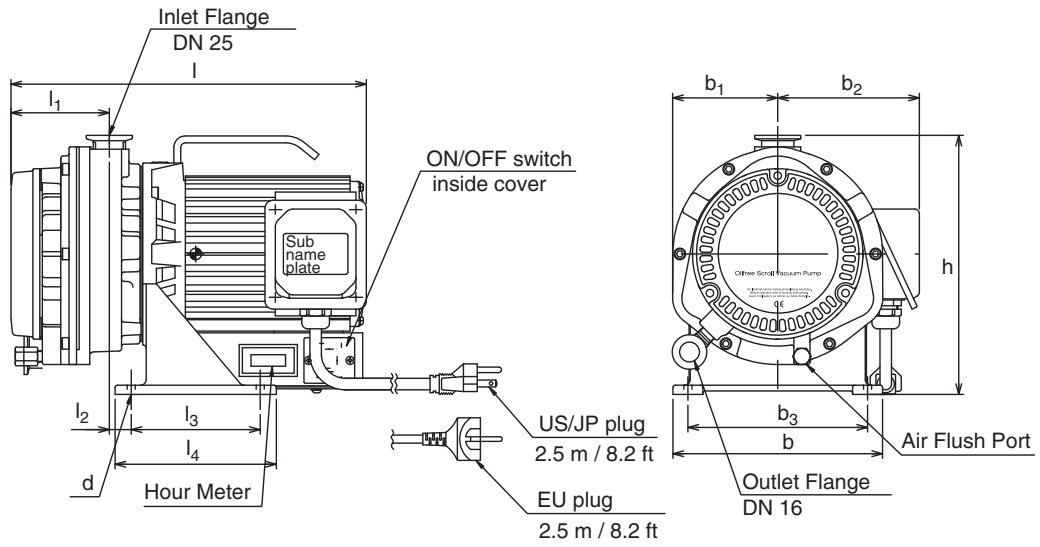
For this we are offering complete maintenance kits

- Small maintenance kit (Minor Kit) after 8,000 h or at latest after an operating time of 12 months
- Large maintenance kit (Major Kit) after 16,000 hours or at latest after an operating time of 24 months

Warranty

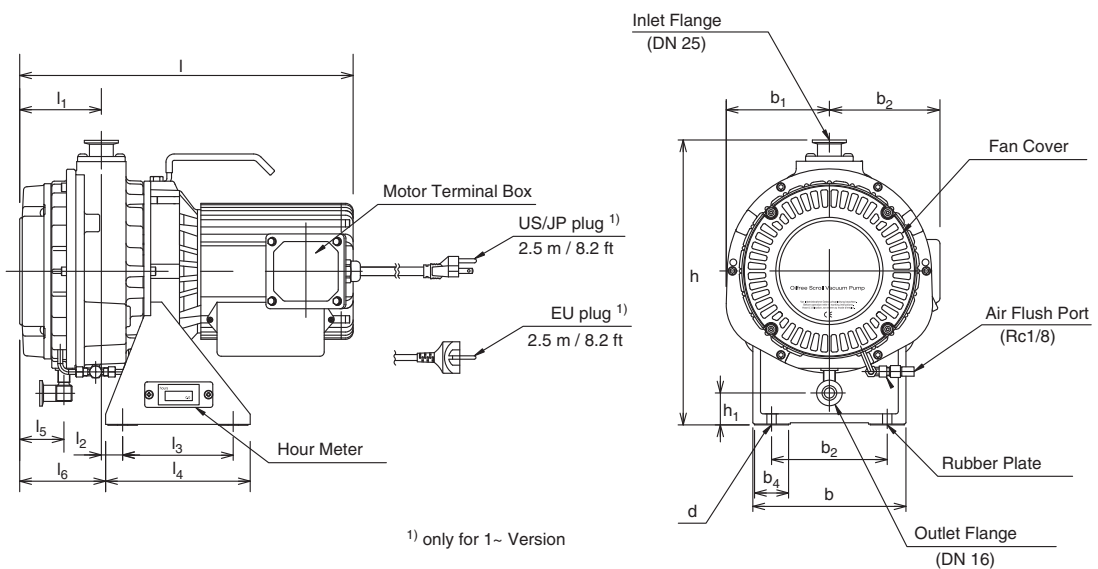
Upon signing a warranty contract, we will grant a two-year warranty for faulty material when complying with the required maintenance intervals.

Excluded are wearing parts as well as well wear due to the process.



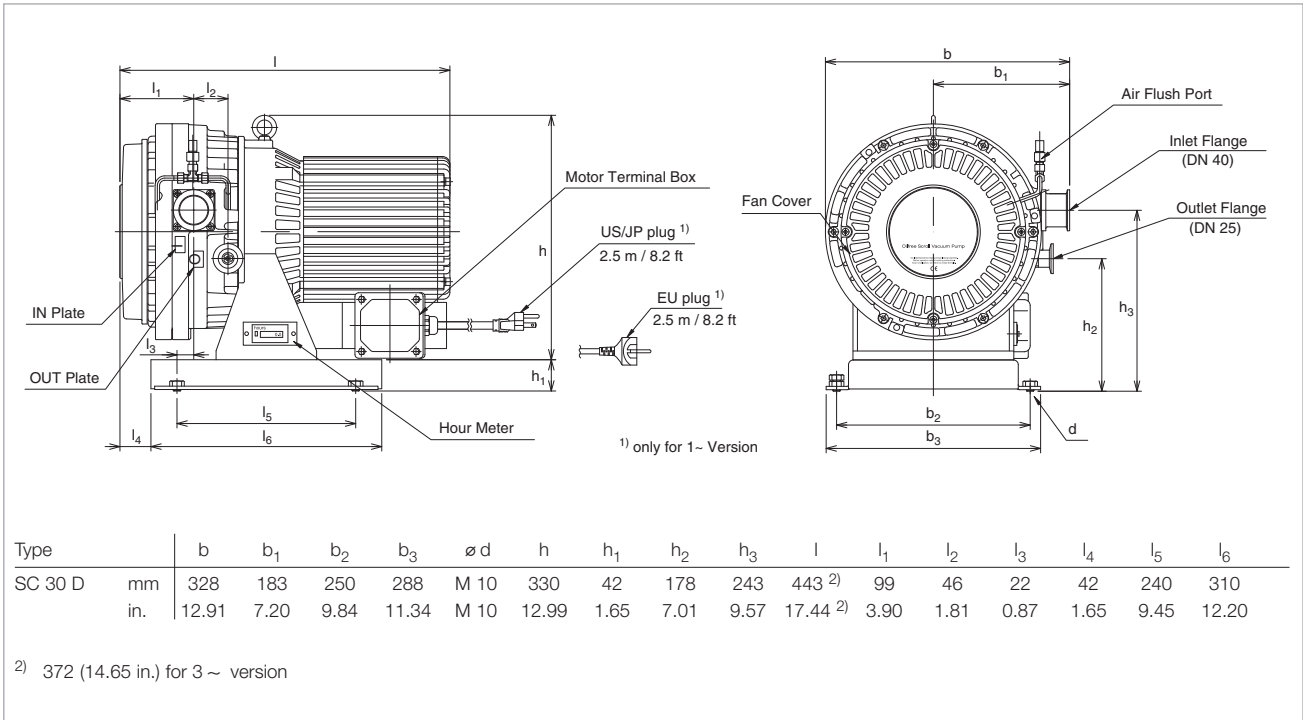
Type		b	b ₁	b ₂	b ₃	b ₄	∅ d	h	h ₁	l	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆
SC 5 D	mm	180	91	123	154	–	7	225	–	308	85	19	112	140	–	–
	in.	7.09	3.58	4.84	6.06	–	0.28	8.86	–	12.13	3.35	0.75	4.41	5.51	–	–
SC 15 D	mm	180	122	130	136	40	11	336	38	400 ²⁾	96	25	130	170	52	101
	in.	7.09	4.80	5.12	5.35	1.57	0.43	13.23	1.50	15.75 ²⁾	3.78	0.98	5.12	6.69	2.05	3.98

²⁾ 370 (14.57 in.) for 3~ version

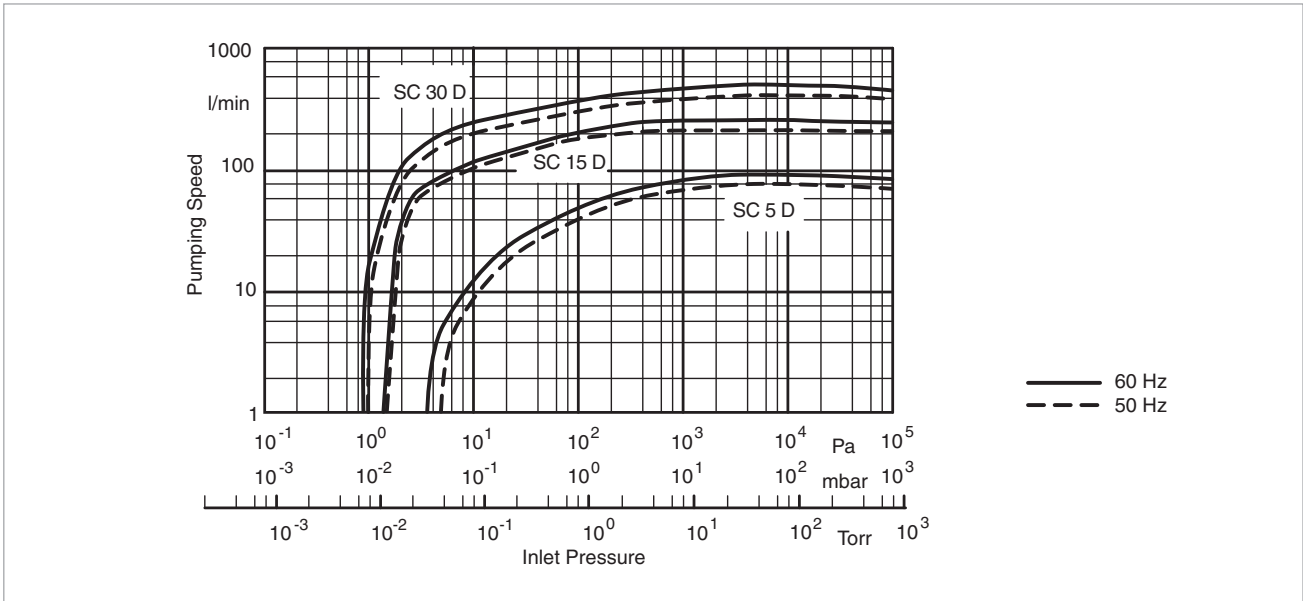


¹⁾ only for 1~ Version

Dimensional drawing for the scroll vacuum pump SCROLLVAC SC 5 D (above) and SC 15 D (below)



Dimensional drawing for the scroll vacuum pump SCROLLVAC SC 30 D



Pump down curve for the scroll vacuum pumps SCROLLVAC SC D

Technical Data

SCROLLVAC

		SC 5 D	SC 15 D	SC 30 D
Nominal pumping speed ¹⁾				
50 Hz	m ³ /h (cfm)	5.4 (3.2)	15.0 (8.8)	30.0 (17.7)
60 Hz	m ³ /h (cfm)	6.4 (3.8)	18.0 (10.6)	36.0 (21.2)
Pumping speed ¹⁾				
50 Hz	m ³ /h (cfm)	4.8 (2.8)	13.0 (7.7)	26.0 (13.3)
60 Hz	m ³ /h (cfm)	6.0 (3.5)	15.5 (9.1)	31.0 (18.3)
Attainable ultimate pressure	mbar (Torr)	≤ 0.05 (≤ 0.038)	≤ 0.016 (≤ 0.012)	≤ 0.01 (≤ 0.008)
Leak rate	mbar l/s	1 × 10 ⁻⁶	1 × 10 ⁻⁶	1 × 10 ⁻⁶
Maximum inlet pressure		Atmosphere	Atmosphere	Atmosphere
Permissible ambient temperature	°C (°F)	5 to 40 (41 to 104)	5 to 40 (41 to 104)	5 to 40 (41 to 104)
Connections				
Inlet	DN	25	25	40
Exhaust	DN	16	16	25
Cooling		Air	Air	Air
Water vapor capacity	g/h	0.2	1.04	1.04
with purge, min.	l/min	9	10	10
Protection class	IP	20	20	20
Motor power	W (hp)	150 (0.20)	400 (0.54)	600 (0.82)
Motor speed				
50 Hz	min ⁻¹ (rpm)	1440 (1440)	1450 (1450)	1450 (1450)
60 Hz	min ⁻¹ (rpm)	1740 (1740)	1730 (1730)	1730 (1730)
Motor voltage	1 ph. ²⁾	100 V / 50 Hz 100 - 115 V / 60 Hz 200 - 230 V / 50/60 Hz	100 V / 50 Hz 100 - 115 V / 60 Hz 200 - 230 V / 50/60 Hz	100 V / 50 Hz 100 - 115 V / 60 Hz 200 - 230 V / 50/60 Hz
	3 ph.		200 V, 380 - 415 V / 50 Hz 200 - 230 V, 460 V / 60 Hz	200 V, 380 - 415 V / 50 Hz 200 - 230 V, 460 V / 60 Hz
Noise level at 1 m, free field measurement	dB(A)	≤ 52	≤ 58	≤ 62
Dimensions (W x H x D)	mm (in.)	308 x 214 x 225 (12.13 x 8.43 x 8.86)	400 x 252 x 336 (15.75 x 9.92 x 13.23)	443 x 328 x 372 (17.44 x 12.91 x 14.65)
Weight				
Single-phase motor	kg (lbs)	14 (30.9)	25 (55.2)	44 (97.1)
Three-phase motor	kg (lbs)	-	23 (50.8)	38 (83.9)

Ordering Information

SCROLLVAC

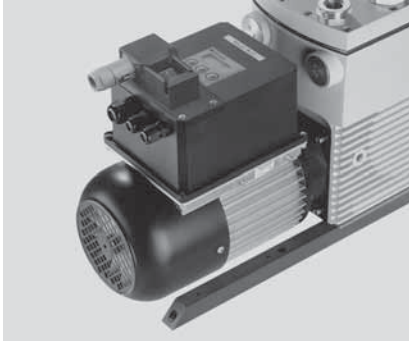
		SC 5 D	SC 15 D	SC 30 D
Oil-free scroll vacuum pump				
Single-phase motor, with cable and plug				
Europe (Schuko plug, 230 V)		Part No. 133 000	Part No. 133 001	Part No. 133 002
US / Japan (NEMA plug, 115 V)		Part No. 133 100	Part No. 133 101	Part No. 133 102
Three-phase motor, without cable		-	Part No. 133 003	Part No. 133 004
Maintenance kits				
Small maintenance kit (after 8,000 h)	Minor Kit	Part No. EK870000496	Part No. EK870000497	Part No. EK870000498
Large maintenance kit (after 16,000 h)	Major Kit	Part No. EK870000499	Part No. EK870000500	Part No. EK870000501
Tool kit SC 5/15/30 D		Part No. EK870000502	Part No. EK870000503	Part No. EK870000503

¹⁾ In accordance with 28 400 and subsequent numbers

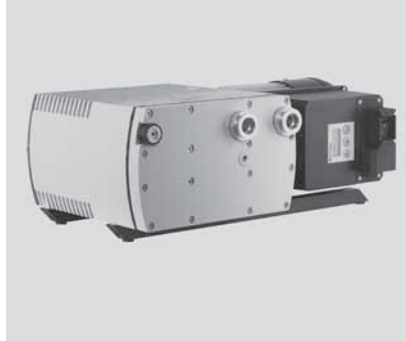
²⁾ The Part No. for single-phase pumps will determine the voltage range at delivery

Dry Compressing Piston Vacuum Pumps

ECODRY M



ECODRY M vertical (as delivered)



ECODRY M horizontal

The ECODRY M incorporates a dry sliding mechanism without the need for oil or hydrocarbons.

Through the further developed and optimised compression processes, the ECODRY M 15/30 attains with three compression stages a base pressure (total) in the low 10^{-2} mbar range.

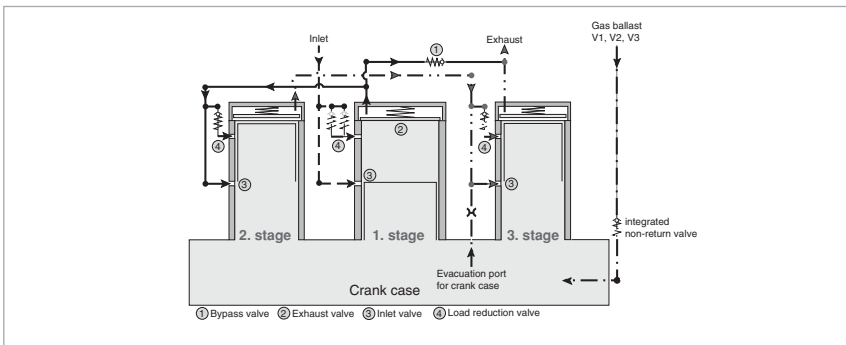
Since the ECODRY M 15/20/30 may be operated either vertically (as normally delivered) or horizontally, this pump is highly flexible when it has to be integrated into the customer's system.

The ECODRY M 15/20/30 is equipped with the well-proven inlet slits, and also with pressure controlled inlet valves. These cut the power requirement during the intake phase of the individual compression stages. This results in a lower overall power requirement of the pump, thereby making operation of the pump more cost-effective.

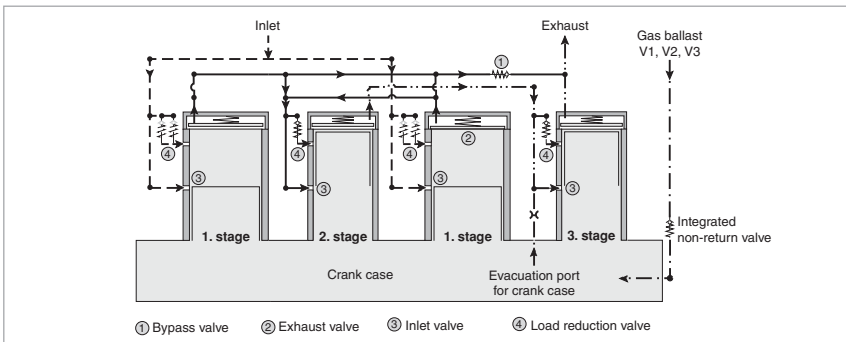
The ECODRY M 15/20/30 does not require any external cooling media like cooling water, for example.

The ECODRY M 15/20/30 is offered with different motor versions allowing operation of the pump off almost any mains voltage and frequency in the world (see Technical Data).

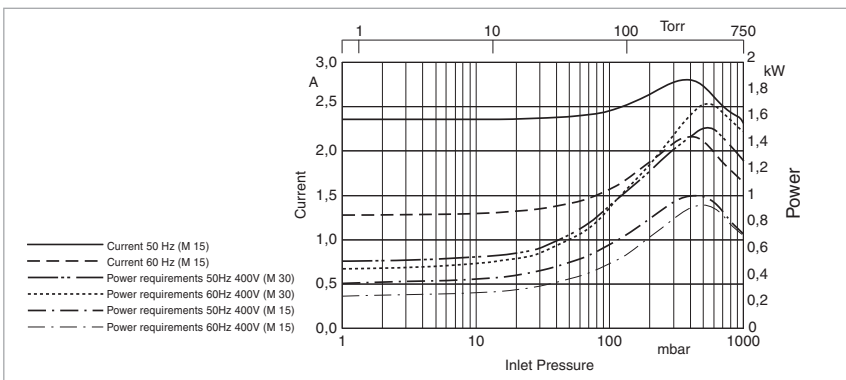
Also new is the universal frequency controlled motor which may be operated off all single-phase mains world-wide (90 to 264 V, 50/60 Hz).



Gasflow diagram for the ECODRY M 15 (three compressing stages)



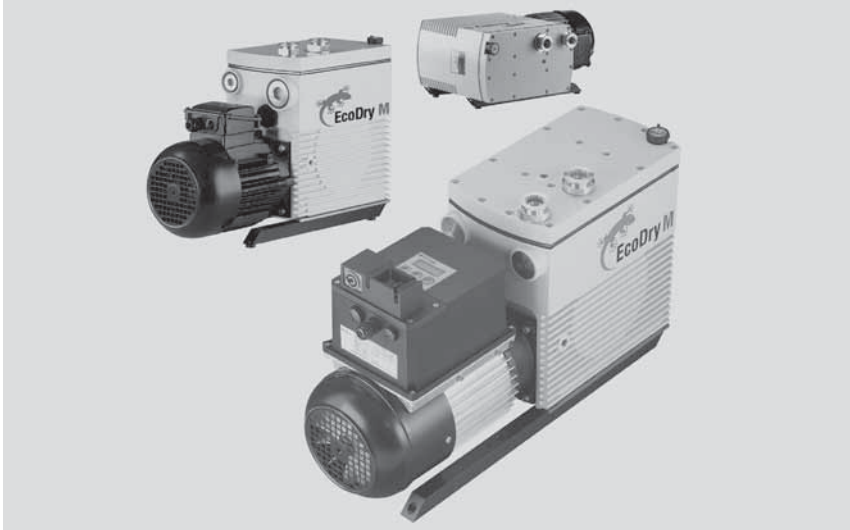
Gasflow diagram for the ECODRY M 30



Current/power consumption vs. inlet pressure for the ECODRY M 15 and 30 with 400 V, 50/60 Hz 3-phase motor

ECODRY M

Modular Line of Piston Vacuum Pump



ECODRY M line

The ECODRY M incorporates a dry sliding mechanism, and thus the pump contains neither oil nor lubricants containing hydrocarbons.

The allowable low speed (750 rpm; FC motor ¹⁾) and the reliance the on well proven components allow for maintenance intervals of up to 2 years (application dependent).

The modular design of the ECODRY M allows us to offer the following pumping speed:

S_{eff}	m ³ /h	cfm
M 15	15	8.8
M 20	20	11.8
M 30	30	17.8

Advantages to the User

- Low maintenance, free of oil and bearing lubrication, free of hydrocarbons
- Extremely low particle emissions on the intake and exhaust sides
- Rugged and most reliable
- Low power consumption
- Service friendly
- Air cooling
- Plug & play
- Good pumping speed at low base pressure
- High water vapour tolerance (gas ballast standard)
- No grease lubricated bearings in the vacuum section
- Leak tight
- Compact size
- Runs at 1000/1200 rpm (50/60 Hz mains)
- Rugged full cross section exhaust valves
- For both horizontal and vertical operation

Typical Applications

- Applications in physics
- Loadlock chambers
- Transfer chambers
- Mass spectrometers
- Electron microscopes
- Lighting
- Thinfilm coaters
- Freeze drying
- Forevacuum pump for dry high-vacuum systems
- Pumping of oxygen concentrations over 21 percent by volume upon request

These pumps basically differ by the way in which the third stage of the pump is arranged.

In the ECODRY M 15 the three compression stages are connected in series.

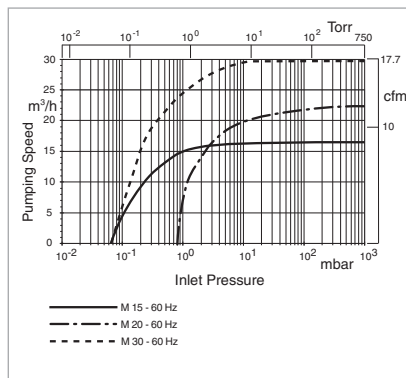
In the ECODRY M 20 the 1st and 2nd stage are connected in parallel and the 3rd stage in series. In the M 30 all stages operate like those of the M 15 in 3 compressing stages whereby the 2nd and the 4th stage form the single compressing stage (1st stage).

This results in the higher pumping speed of about 20 m³/h (11.8 cfm) and a base pressure (total) in the middle of the 10⁻¹ mbar range for the ECODRY M 20.

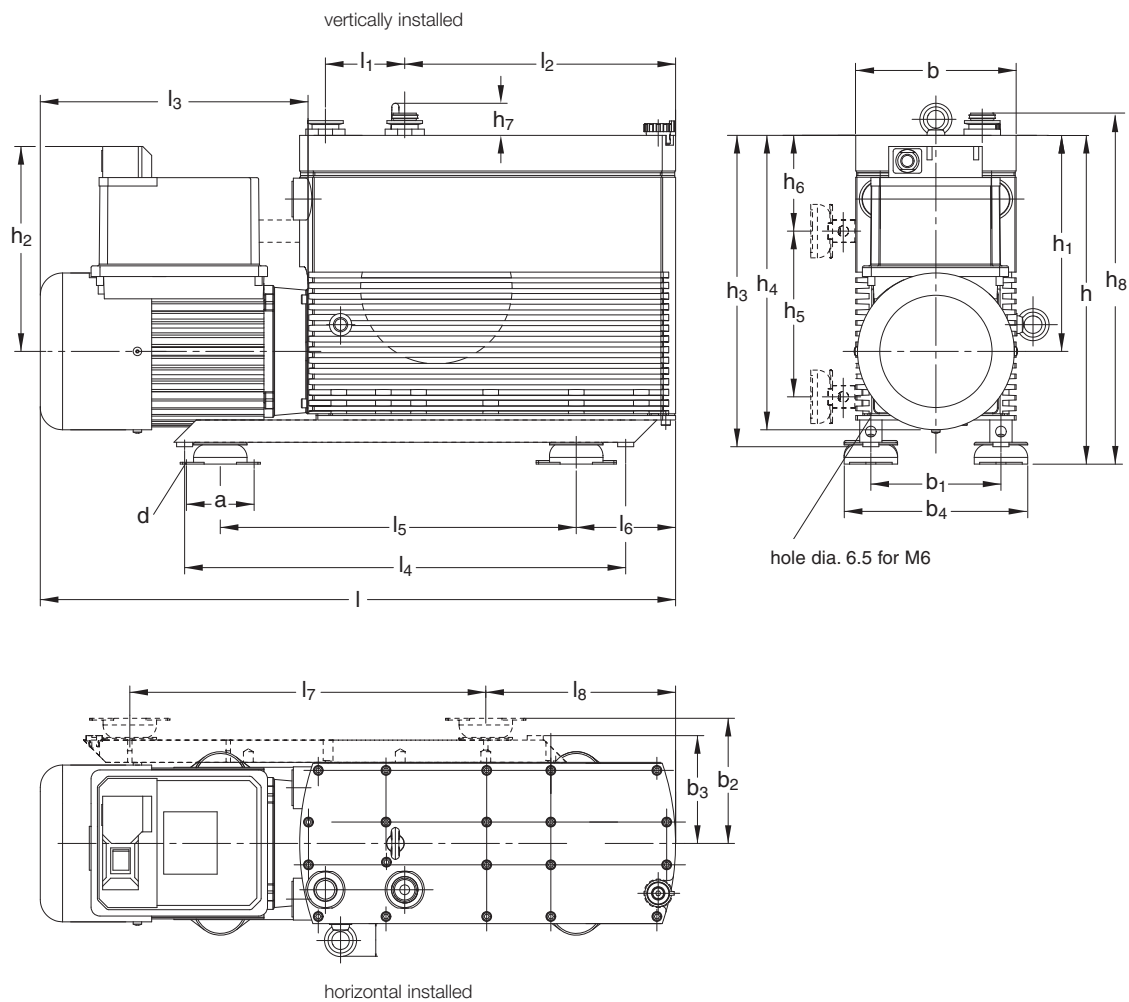
The ECODRY M is available as a plug and play system, complete with fitted silencing hood (including castors). Thus the noise level is reduced to significantly lower levels (see Technical Data).

Excluded from the warranty are the piston seals and the piston coatings.

¹⁾ FC motor = Frequency Controlled Motor



Pumping speed vs. inlet pressure for the ECODRY M 15 to M 30

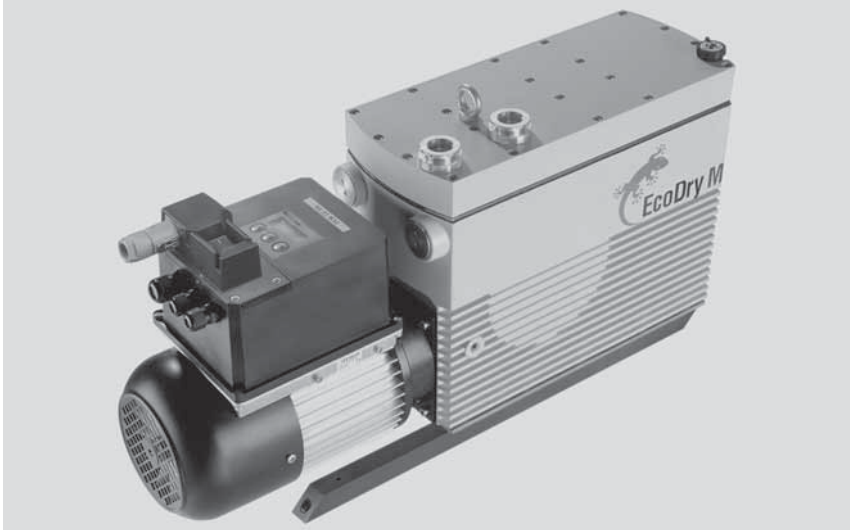


Type		a	b	b ₁	b ₂	b ₃	b ₄	ø d	h	h ₁	h ₂	h ₃	h ₄	h ₅
M 15/20 FC motor	mm	76	180	146	138	121	216	6.5	352.5	228	230	335	316	186
	in.	2.99	7.09	5.75	5.43	4.76	8.50	0.26	13.88	8.98	9.06	13.19	12.44	7.32
M 30 FC motor	mm	76	180	146	140.5	121	216	6.5	369	242.5	230	349.5	330.5	186
	in.	2.99	7.09	5.75	5.53	4.76	8.50	0.26	14.53	9.55	9.06	13.76	13.01	7.32
M 15/20 3-ph. motor	mm	76	180	146	138	121	216	6.5	352.5	228	148	335	316	186
	in.	2.99	7.09	5.75	5.43	4.76	8.50	0.26	13.88	8.98	5.83	13.19	12.44	7.32
M 30 3-ph. motor	mm	76	180	146	140.5	121	216	6.5	369	242.5	148	344.5	330.5	186
	in.	2.99	7.09	5.75	5.53	4.76	8.50	0.26	14.53	9.55	5.83	13.56	13.01	7.32

Type		h ₆	h ₇	h ₈	l	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆	l ₇	l ₈
M 15/20 FC motor	mm	93	37.5	373.5	598	89	191	300.5	495	289	105.5	289	101
	in.	3.66	1.48	14.7	23.54	3.5	7.52	11.83	19.49	11.28	4.15	11.28	3.98
M 30 FC motor	mm	107.5	36	390	713	89	304	300.5	495	399.5	111.5	399.5	213
	in.	4.23	1.42	15.35	28.07	3.5	11.97	11.83	19.49	15.73	4.39	15.73	8.39
M 15/20 3-ph. motor	mm	93	37.5	373.5	594	89	191	269.5	495	289	105.5	289	101
	in.	3.66	1.48	14.7	23.39	3.5	7.52	10.61	19.49	11.28	4.15	11.28	3.98
M 30 3-ph. motor	mm	107.5	36	390	709	89	304	269.5	495	399.5	111.5	399.5	213
	in.	4.23	1.42	15.35	27.91	3.5	11.97	10.61	19.49	15.73	4.39	15.73	8.39

Dimensional drawing for the ECODRY M 15/20 and M 30 with world motor; 3-phase motor without drawing (dimensions related to the version with standard feet)

Smart Drive Technology for a Tailor-Made Vacuum



ECODRY M with FC motor

To increase the performance of the ECODRY M piston vacuum pumps, a frequency converter integrated within the motor has been provided.

Oerlikon Leybold Vacuum is now offering this universal voltage/frequency feature for the entire ECODRY M line (ECODRY M 15, M 20 and M 30).

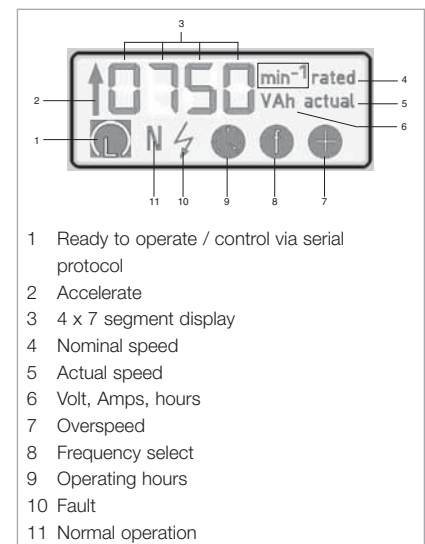
Advantages to the User

- Universal – can be run off all single-phase AC mains world-wide (50 and 60 Hz)
- Cost-effective to purchase and operate
- Increased pumping speed by up to 18% compared to standard 50 Hz AC mains powered versions
- Menu controlled two key operation for selecting the required speed range of 750, 1000 or 1200 rpm
- Infinitely variable speed control from 750 to 1200 rpm via analog interface
- Process and application control is possible by connecting vacuum gauges with an analog output (0 - 10 V); THERMOVAC TM 21, for example
- “Economy” operation (load optimised operation) can be set up in a well-defined manner to reduce power consumption, vibration and noise levels
- Conserving, low-wear operation through well-defined speed control

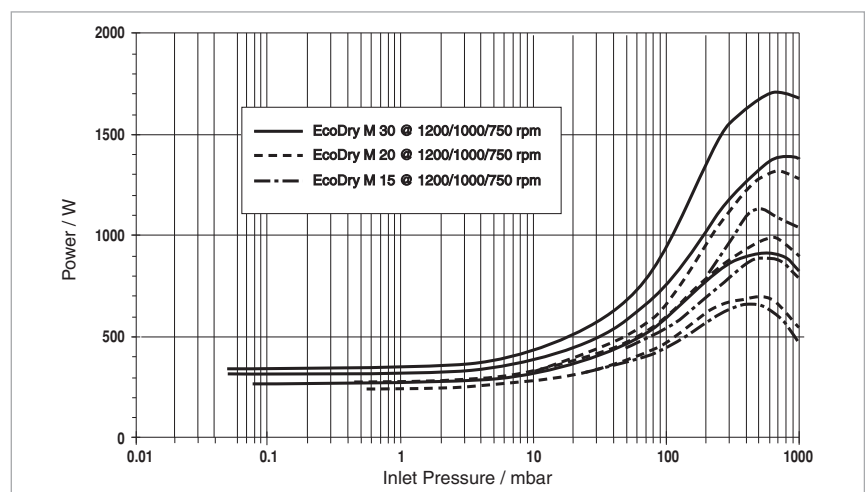
- LC display for indicating operational information like speed, operating hours, current
- CE and NRTL compliant

Technical Data

- Mains supply voltage range 90 to 264 V (13 A – 7 A) at 50/60 Hz
- Motor speed manually adjustable in three steps to 750, 1000 and 1200 rpm
- RS 485 C and analog interface (0 - 10 V)



LC display on the operating unit



Power uptake vs. inlet pressure for the ECODRY M 15 to M 30

Technical Data

ECODRY M 15

ECODRY M 20

3-phase motor FC motor ¹⁾ 3-phase motor FC motor ¹⁾

No. of cylinders		3	3	3	3
No. of stages		3	3	2	2
Max. pumping speed					
50 Hz ²⁾	m ³ x h ⁻¹ (cfm)	14 (8.2)	–	19 (11.2)	–
60 Hz ²⁾	m ³ x h ⁻¹ (cfm)	16 (9.4)	–	22 (12.9)	–
at 750 rpm	50/60 Hz ²⁾	–	11 (6.5)	–	14 (8.2)
at 1000 rpm	50/60 Hz ²⁾	–	15 (8.8)	–	18 (10.5)
at 1200 rpm	50/60 Hz ²⁾	–	16 (9.4)	–	22 (12.9)
Ultimate total pressure ³⁾					
3-phase motor	60 Hz mbar (Torr)	5.5 x 10 ⁻² (4.1 x 10 ⁻²)	–	8 x 10 ⁻¹ (6 x 10 ⁻¹)	–
FC motor ¹⁾ at 1000 rpm	50/60 Hz mbar (Torr)	–	5.5 x 10 ⁻² (4.1 x 10 ⁻²)	–	8 x 10 ⁻¹ (6 x 10 ⁻¹)
Max. permissible inlet pressure		Atmosphere	Atmosphere	Atmosphere	Atmosphere
Max. permissible permanent inlet pressure	mbar (Torr)	100 (75)	100 (75)	100 (75)	100 (75)
Water vapor tolerance (with gas ballast)	mbar (Torr)	25 (18.8)	25 (18.8)	25 (18.8)	25 (18.8)
Leak rate (integral)	mbar x l x s ⁻¹	≤ 1 x 10 ⁻⁴	≤ 1 x 10 ⁻⁴	≤ 1 x 10 ⁻⁴	≤ 1 x 10 ⁻⁴
Power consumption at < 10 mbar (7.5 Torr) inlet pressure	W (hp)	300 (0.41)	280 (0.38)	300 (0.41)	280 (0.38)
Motors		-5 % to +5 %		-5 % to +5 %	
3-phase (IP 54)					
50 Hz	V	220-240/346-415	–	220-240/346-415	–
60 Hz	V	200-277/380-480	–	200-277/380-480	–
FC motor, 50/60 Hz (IP 44)	V	–	90-264	–	90-264
Rotational speed					
with 3-phase motor	50 / 60 Hz rpm	1000 / 1200	–	1000 / 1200	–
with FC motor	50 / 60 Hz rpm	–	750/1000/1200	–	750/1000/1200
via analog interface 0 - 10 V					
50 / 60 Hz	rpm	–	750-1200, variable	–	750-1200, variable
Noise level at ultimate pressure without gas ballast (50 Hz at 3-phase and 750 rpm with FC motor)	dB(A)	≤ 59	≤ 59	≤ 59	≤ 59
Ambient temperature	°C (°F)	0 to +50 (32 to +122)	0 to +50 (32 to +122)	0 to +50 (32 to +122)	0 to +50 (32 to +122)
Connection					
Inlet port fitting	DN	25 KF	25 KF	25 KF	25 KF
Exhaust port fitting	DN	25 KF	25 KF	25 KF	25 KF
Dimensions, approx. (L x W x H) standard, flanges at motor side					
vertically installed	mm (in.)	545 x 182 x 356 (21.5 x 7.17 x 14.0)	598 x 182 x 356 (23.5 x 7.17 x 14.0)	545 x 182 x 356 (21.5 x 7.17 x 14.0)	598 x 182 x 356 (23.5 x 7.17 x 14.0)
horizontal installed	mm (in.)	545 x 356 x 211 (21.5 x 14.0 x 8.3)	598 x 356 x 211 (23.5 x 14.0 x 8.3)	545 x 356 x 211 (21.5 x 14.0 x 8.3)	598 x 356 x 211 (23.5 x 14.0 x 8.3)
Weight, approx.	kg (lbs)	40.5 (89.4)	47.0 (103.8)	40.5 (89.4)	47.0 (103.8)

¹⁾ FC motor = Frequency Controlled Motor

²⁾ According to DIN 28400 and subsequent numbers

³⁾ At delivery

Technical Data, 50 Hz

ECODRY M 30

	3-phase motor		FC motor ¹⁾	
No. of cylinders	4		4	
No. of stages	3		3	
Max. pumping speed				
50 Hz ²⁾ m ³ x h ⁻¹ (cfm)	27 (15.9)		-	
60 Hz ²⁾ m ³ x h ⁻¹ (cfm)	30 (17.7)		-	
at 750 rpm 50/60 Hz ²⁾ m ³ x h ⁻¹ (cfm)	-		19 (11.2)	
at 1000 rpm 50/60 Hz ²⁾ m ³ x h ⁻¹ (cfm)	-		25 (14.7)	
at 1200 rpm 50/60 Hz ²⁾ m ³ x h ⁻¹ (cfm)	-		30 (17.7)	
Ultimate total pressure ³⁾				
3-phase motor 60 Hz mbar (Torr)	5.5 x 10 ⁻² (4.1 x 10 ⁻²)		-	
FC motor ¹⁾ at 1000 rpm 50/60 Hz mbar (Torr)	-		5.5 x 10 ⁻² (4.1 x 10 ⁻²)	
Max. permissible inlet pressure	Atmosphere		Atmosphere	
Max. permissible permanent inlet pressure mbar (Torr)	100 (75)		100 (75)	
Water vapor tolerance (with gas ballast) mbar (Torr)	25 (18.8)		25 (18.8)	
Leak rate (integral) mbar x l x s ⁻¹	≤ 1 x 10 ⁻⁴		≤ 1 x 10 ⁻⁴	
Power consumption at < 10 mbar (7.5 Torr) inlet pressure W (hp)	450 (0.6)		330 (0.45)	
Motors	-5 % to +5 %			
3-phase (IP 54)				
50 Hz V	220-240/346-400		-	
60 Hz V	200-277/380-480		-	
FC motor, 50/60 Hz (IP 44) V	-		90-264	
Rotational speed				
with 3-phase motor 50 / 60 Hz rpm	1000 / 1200		-	
with FC motor 50 / 60 Hz rpm	-		750/1000/1200	
via analog interface 0-10 V 50 / 60 Hz rpm	-		750-1200, variable	
Noise level at ultimate pressure without gas ballast (50 Hz at 3-phase and 750 rpm with FC motor) dB(A)	≤ 59		≤ 59	
Ambient temperature °C (°F)	0 to +50 (32 to +122)		0 to +50 (32 to +122)	
Connection				
Inlet port fitting DN	25 KF		25 KF	
Exhaust port fitting DN	25 KF		25 KF	
Dimensions, approx. (L x W x H) standard, flanges at motor side				
vertically installed mm	709 x 182 x 369		713 x 182 x 369	
(in.)	(27.9 x 7.17 x 14.5)		(28.1 x 7.17 x 14.5)	
horizontal installed mm	709 x 369 x 211		713 x 369 x 211	
(in.)	(27.9 x 14.5 x 8.3)		(28.1 x 14.5 x 8.3)	
Weight, approx. kg (lbs)	53 (117)		59 (130.2)	

¹⁾ FC motor = Frequency Controlled Motor

²⁾ According to DIN 28400 and subsequent numbers

³⁾ At delivery

Ordering Information**ECODRY M 15**

	3-phase motor	FC motor ¹⁾
ECODRY M 15		
3-phase motor	Part No. 130 000	-
FC motor, 90 - 264 V	-	Part No. 130 005
FC motor, 90 - 264 V and silencing hood	-	Part No. 130 006
Exhaust silencer	Part No. 130 050	Part No. 130 050
Vibration absorber (set of 4 pieces)	Part No. 130 051	Part No. 130 051
Vibration absorbing kit	Part No. 130 052	Part No. 130 052
Solenoid gas ballast valve	Part No. 169 50	Part No. 169 50

Ordering Information**ECODRY M 20**

	3-phase motor	FC motor ¹⁾
ECODRY M 20		
3-phase motor	Part No. 130 010	-
FC motor, 90 - 264 V	-	Part No. 130 015
FC motor, 90 - 264 V and silencing hood	-	Part No. 130 016
Exhaust silencer	Part No. 130 050	Part No. 130 050
Vibration absorber (set of 4 pieces)	Part No. 130 051	Part No. 130 051
Vibration absorbing kit	Part No. 130 052	Part No. 130 052
Solenoid gas ballast valve	Part No. 169 50	Part No. 169 50

Ordering Information**ECODRY M 30**

	3-phase motor	FC motor ¹⁾
ECODRY M 30		
3-phase motor	Part No. 130 030	-
FC motor, 90 - 264 V	-	Part No. 130 033
FC motor, 90 - 264 V and silencing hood	-	Part No. 130 034
Exhaust silencer	Part No. 130 050	Part No. 130 050
Vibration absorber (set of 4 pieces)	Part No. 130 051	Part No. 130 051
Vibration absorbing kit	Part No. 130 052	Part No. 130 052
Solenoid gas ballast valve	Part No. 169 50	Part No. 169 50

¹⁾ FC motor = Frequency Controlled Motor

Accessories ECODRY M

Universal Silencing Hood (Retrofit Kit)



Universal silencing hood

Avantages to the User

- Reduction of noise level by up to 9 dB(A), independently of the operating mode
 - < 50 db(A) at M 15 with 750 U/min ¹⁾
 - < 53 db(A) at M 30 with 750 U/min ¹⁾
 - < 59 db(A) at M 30 with 1200 U/min ¹⁾
- Universal – suited for all models, also for those equipped with a world motor
- Integrated vibration absorbers
- Integrated additional fan - the improved temperature conditions increase the “between service” life-time until service of the unit
- Equipped with castors and feet for mobility and stability
- Also available as a mounting kit for retrofitting to existing pumps
- User-friendly - all controls are accessible from the outside, accessories can be connected from the outside

Technical Data

Universal Silencing Hood

Dimensions (W x H x D)	mm (in.)	828 x 280 x 474 (32.60 x 11.02 x 18.66)
Weight (only universal silencing hood)	kg (lbs)	10 (22.08)

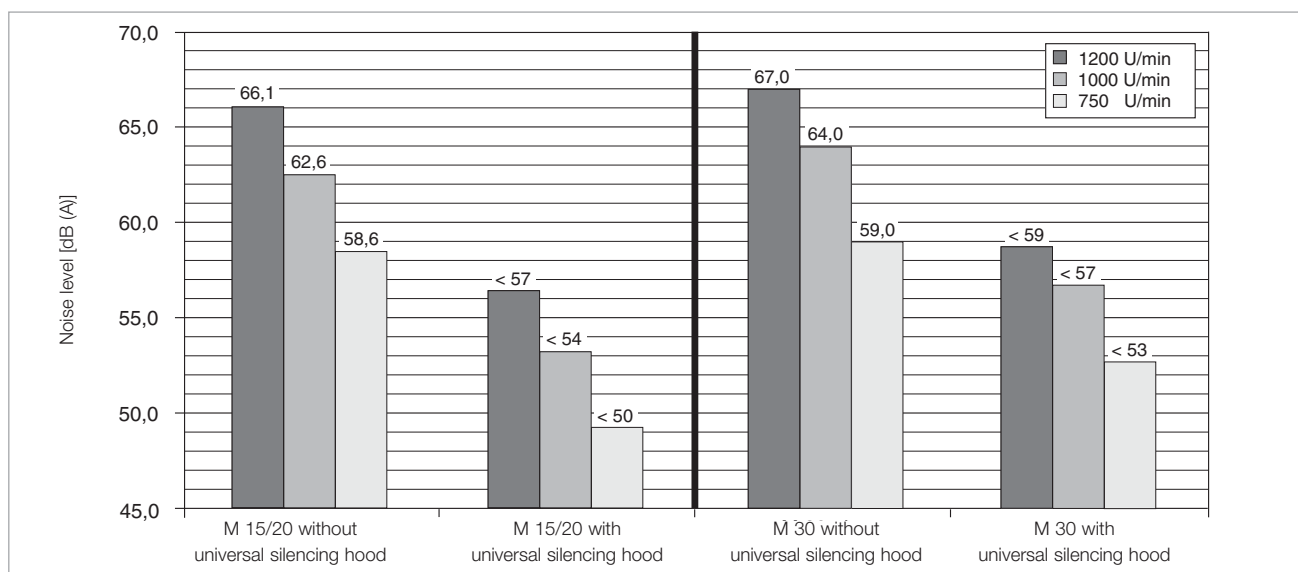
Ordering Information

Universal Silencing Hood

Universal silencing hood ²⁾	Part No. 130 056 ²⁾
Cable set for universal silencing hood for FC motor for 3-phase motor for 1-phase motor	Part No. 130 057 Part No. 130 058 Part No. 130 059

¹⁾ Operating at ultimate pressure

²⁾ **Caution:** Additional cable set is required (depending on the motor)



Noise level of ECODRY M 15, M 20 and M 30 with and without universal silencing hood (operating at ultimate pressure)

Exhaust Silencer



Exhaust silencer

The noise level of the ECODRY M is similar to that of oil-sealed rotary vane vacuum pumps and is setting new standards for dry-compressing vacuum pumps. If no exhaust line is required, this simple exhaust silencer may be fitted when pumping only non-hazardous permanent gases.

The silencer is fitted simply by exchanging the exhaust port on the pump against the exhaust silencer.

Technical Data

Exhaust Silencer

Dimensions (dia. x h)	mm (in.)	48 x 122 (1.89 x 4.80)
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Ordering Information

Exhaust Silencer

Exhaust silencer	Part No. 130 050
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Vibration Absorbing Feet



Vibration absorbing foot

Owing to the innovative arrangement of the pistons within the ECODRY M, the vibration levels are basically low. However, for most vibration sensitive applications these vibration absorbing feet are needed to decouple the vibrations from the surface supporting the pump.

Technical Data

Vibration Absorbing Feet

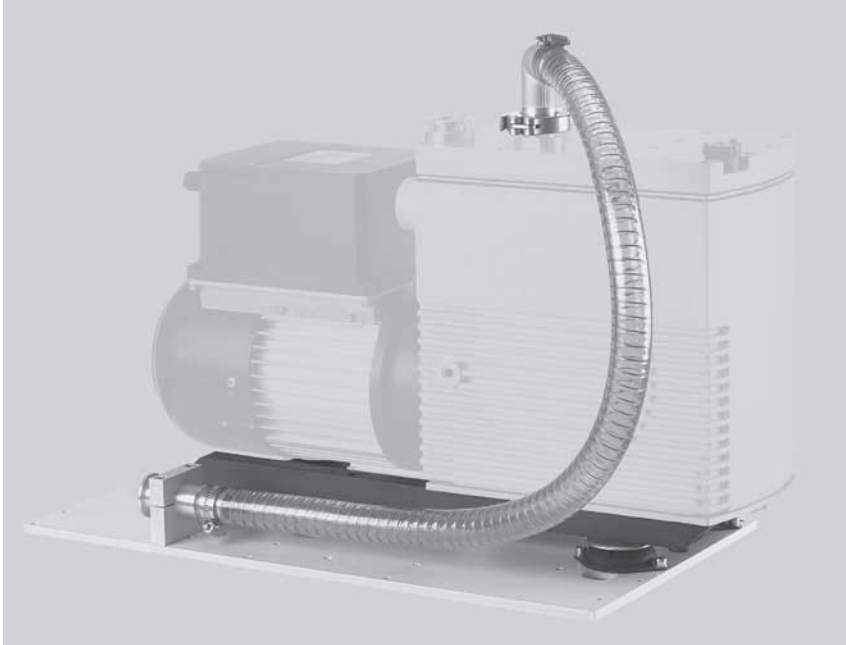
Mounting hole diameter	mm (in.)	6.5 (0.26)
Distance between the mounting holes	mm (in.)	76 (2.99)

Ordering Information

Vibration Absorbing Feet

Vibration absorbing feet, set of 4	Part No. 130 051
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Vibration Absorbing Kit



Vibration absorbing kit

This vibration absorbing kit was specifically developed for those applications which are most demanding vibration-wise, like some analytical applications.

The vibration absorbing kit reduces the vibrations transferred to the pump supporting surface and the intake line to a level significantly below the vibration levels produced by a rotary vane vacuum pump.

Technical Data

Vibration Absorbing Kit

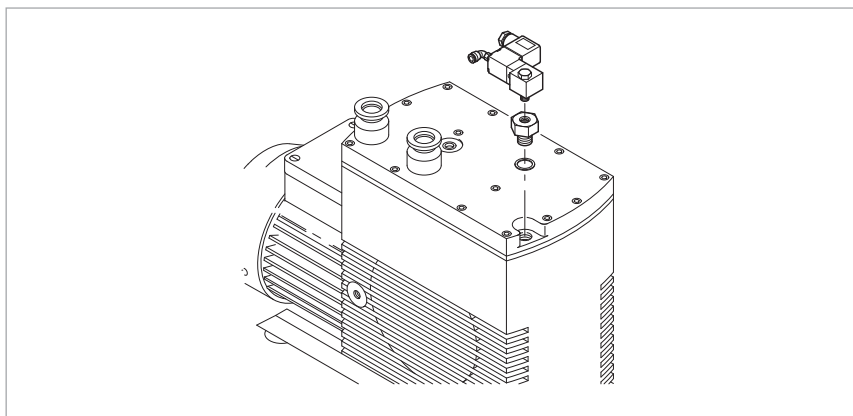
Dimensions (W x H x D)	mm (in.)	440 x 315 x 70 (17.32 x 12.40 x 2.76)
Weight, approx.	kg (lbs)	4.7 (10.38)

Ordering Information

Vibration Absorbing Kit

Vibration absorbing kit	Part No. 130 052
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Solenoid Gas Ballast Valve



Fitting the solenoid gas ballast valve

The solenoid gas ballast valve allows preventive operation with gas ballast when pumping condensable media.

The gas ballast may be operated either with ambient air or an inert gas like nitrogen, for example. A coupling for connecting a PVC hose of 6 mm dia. x 1 is provided.

This valve is of the normally open type and may thus be used as a permanent gas ballast. When wanting to cyclically supply the gas ballast into the pump, a voltage of 24 V DC is required to drive the gas ballast valve.

Avantages to the User

- Protection against condensation within the pump
- No contamination by the ambient air (when using inert gas)
- Low consumption of inert gas
- Can be used on all ECODRY M versions

Technical Data

Solenoid Gas Ballast Valve

Control voltage	V DC	24
Permissible inert gas pressure, absolute bar (psi, gauge)		1 to 4 (0 to 44)
Inert gas connection		Hose connection for PVC hose 6 mm dia. x 1 (0.24 in. dia. x 0.04 in.)
Inert gas flow	m ³ x h ⁻¹ (cfm)	0.10 to 0.55 (0.06 x 0.32)

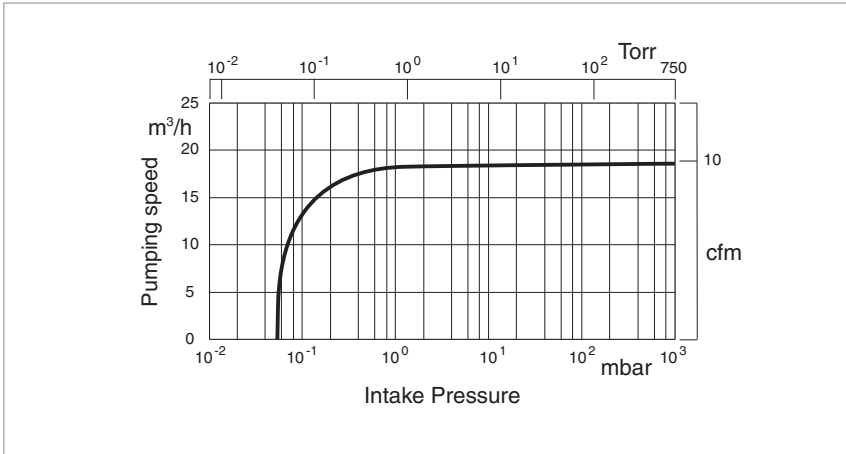
Ordering Information

Solenoid Gas Ballast Valve

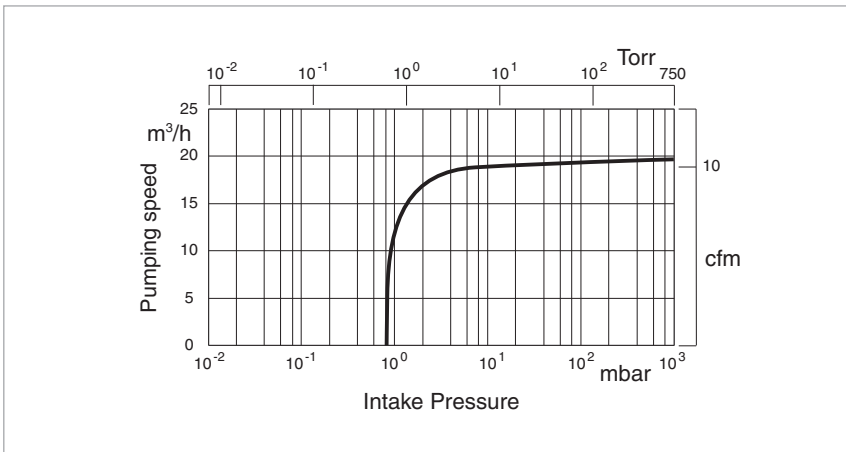
Solenoid gas ballast valve	Part No. 169 50
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Miscellaneous

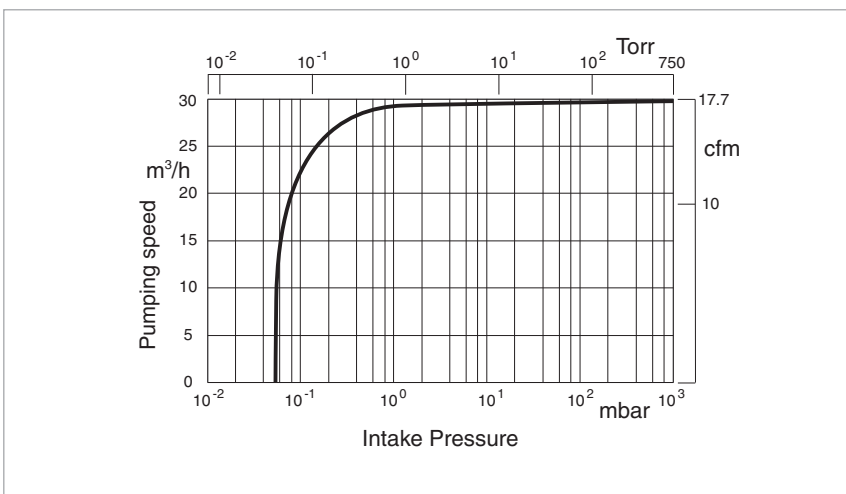
60 Hz Curves



Pumping speed vs. inlet pressure for the Ecodry M 15 at 60 Hz



Pumping speed vs. inlet pressure for the Ecodry M 20 at 60 Hz



Pumping speed vs. inlet pressure for the Ecodry M 30 at 60 Hz

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