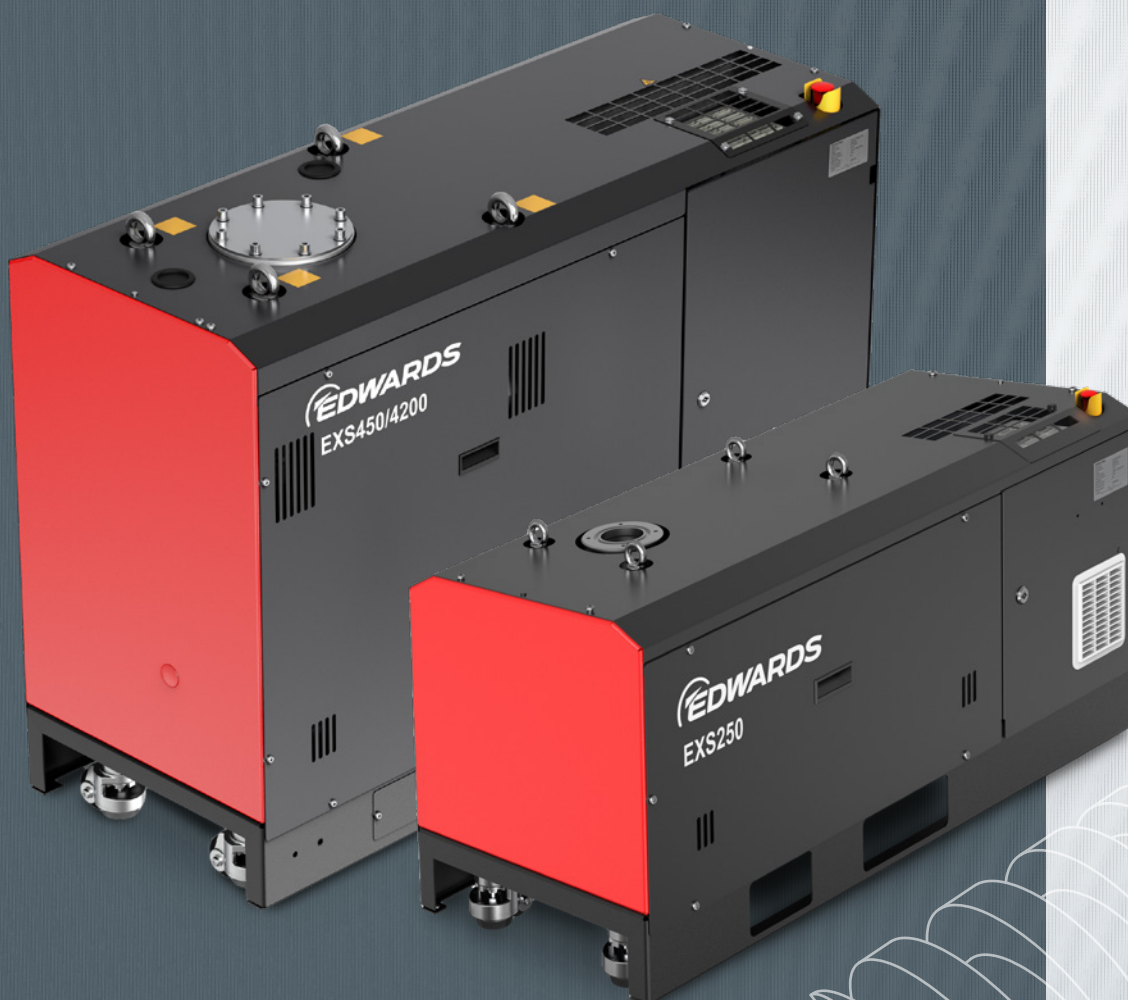


EXS DRY SCREW VACUUM PUMP



EDWARDS THE PARTNER OF CHOICE

Edwards is a world leader in the design, technology and manufacture of vacuum pumps for industrial applications with over 100 years' history.

We believe in delivering results that bring value to our customers by using our breadth of industry experience to identify and apply solutions. Using the most innovative and up-to-date modelling techniques, we can optimise the pumping configuration for customers to provide a system design giving the maximum performance in the most reliable and cost-effective way.

EXS DRY SCREW VACUUM PUMP

Our EXS dry screw vacuum pumps take our industry proven screw vacuum technology to the next level. Based around the same technology that we use in our GXS pumps, the EXS has been designed to bring the advantages of our market leading technology in a package that focuses on simplicity and robustness. With more performance, simple control philosophy and low maintenance costs, the EXS will deliver reliable performance for many years to come. Our EXS series of dry screw vacuum pumps are available in EXS160-750 and booster combinations.



EXS 160-750 and booster combinations



PROVEN – Based on existing GXS technology

- Huge install base on hundreds of applications
- Optimised design enables enhanced performance



ENVIRONMENTAL – Smooth, quiet running with low power and utilities consumption

- Small carbon footprint
- **Easy on environment:** No contaminated or dirty disposable oil



ECONOMICAL – Affordable capital investment and low cost of ownership

- **Substantial savings:** Low utilities and energy usage costs for substantial savings
- **Save on space:** Compact design to get the most of your storage, transportation and facility space



ROBUST – Reliable operation even in harsh industrial applications

- **Low maintenance cost:** No unplanned down times reduces maintenance costs
- **Increased productivity:** Longer intervals between service increases productivity



FAST – Increased pumping speed at high pressures and low ultimate performance

- **Increased productivity:** 450 and 750 dry pump with additional blow-off-valve for improved roughing speed, faster processing and pump down time
- **Low ultimate pressure:** Dry pump down to 1×10^{-2} mbar ultimate vacuum and booster combinations attain 1×10^{-3} mbar



SIMPLE – Easy control and broader connectivity

- **VFD (Variable frequency drive):** Supports speed control, suited to different industrial processes and enables energy savings
- **Connectivity:** Enable effective communication to various plant management systems for smart manufacturing

FEATURES AND INNOVATIVE SCREW TECHNOLOGY

Simple electrical strategy

- In-built, off-shelf inverter for simple connection and communication
- Protection sensors fitted, electrical cabinet design for reliability and safety
- Basic control philosophy for ease of installation and operation

Advanced core technology

- Non-contacting long-life seals with integral oil blocking labyrinth seal provides highly effective sealing
- Combined with a six litre per minute seal purge the gearbox is protected from contamination and the vacuum space is kept free of oil
- Industry proven on hundreds of applications
- Uses advanced quality bearings and special purpose oil with low vapour pressure for application compatibility and improved service life
- Non-cantilever design provides secure rotor support for extremely low vibration and superior starting reliability, especially on harsh processes
- Superior liquid and powder handling thanks to a sealing solution that is industry proven in many applications



Compact and robust design features

- Delivers the benefit of a simple and economical installation
- Reliable constant flow cooling system
- Dependable new gas system with manual gas ballast control
- Sleek sheet metal protective enclosure
- Patented tapered variable pitch Quinby profile screw

Detailed data insight

- **Local monitoring:** Any device can quickly connect to the pump and gain operational data visualisation
- **Remote monitoring:** Support a wide range of fieldbus protocols and achieve real time status tracking and alerts notification
- **IoT (Internet of Things):** GENIUS factory variants enable easy security and 24x7 remote access to the pump's conditions through the Edwards GENIUS Portal

Flexible communication and control

- **I/O:** Digital and analog signal input & output allow variable speed control
- **Modbus RTU** included as standard and offer more flexibilities for remote control
- **Communication cards (optional):** Fitted on the drive and support multi protocols fieldbus communication



APPLICATIONS

The EXS pump is suitable for a range of applications in various industries including:

Lithium-ion battery

- Electrode drying
- Electrolyte filling
- Formation



Vacuum chamber evacuation

- Space simulation chambers
- Gas recovery/circulation
- Load lock chambers

Metallurgy

- Vacuum brazing
- E-beam welding
- Nitrocarburising
- Low pressure nitriding
- Low pressure carburising
- Carbon vapour impregnation
- Sintering
- Metal injection moulding
- Precision investment casting
- Vacuum arc refining
- Steel degassing



Plasma processes

- Plasma welding
- Plasma nitriding



Solar

- Silicon crystal-pulling
- PV lamination



Coating

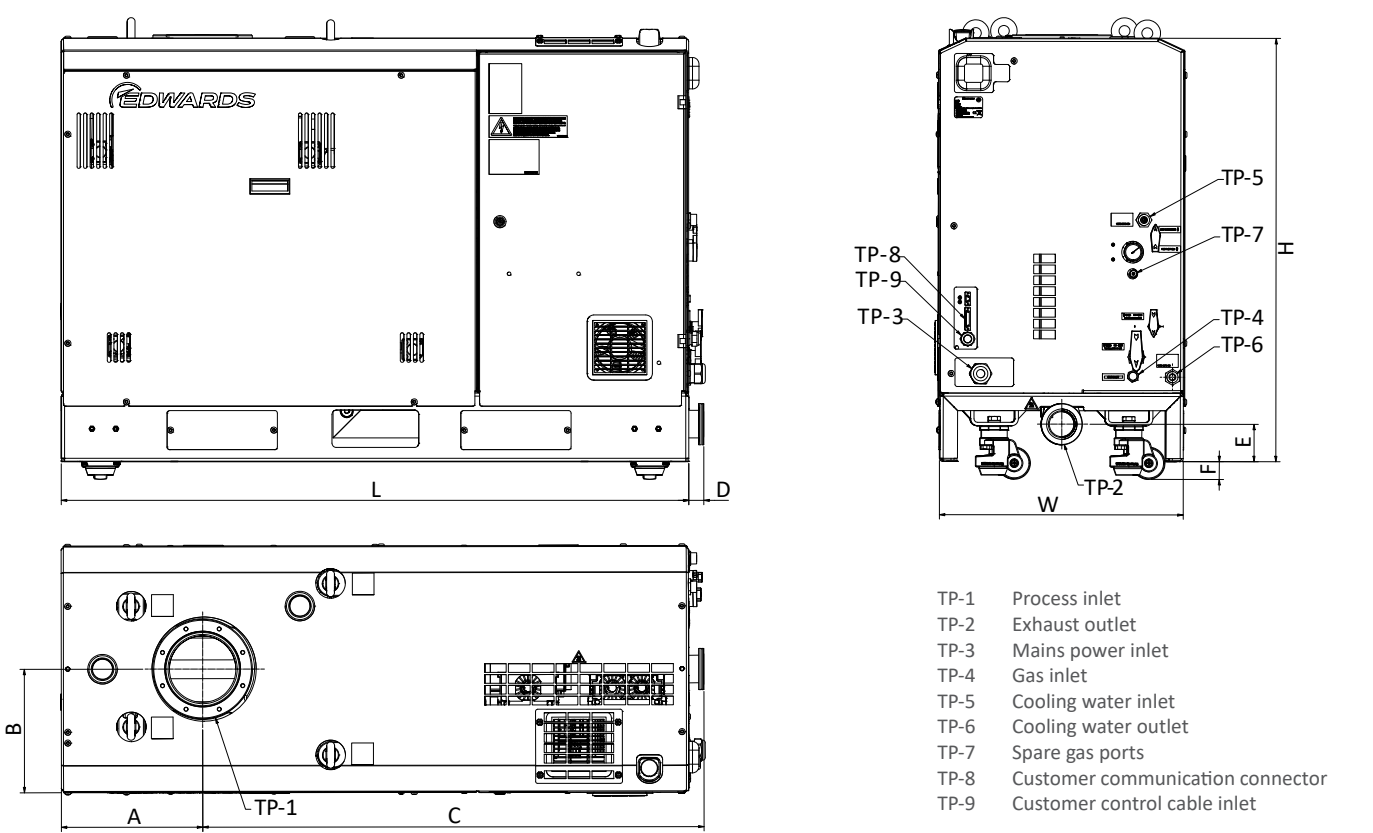
- Roll web coating
- Hard coating (CVD/DLC)
- Surface activation
- Plasma spray
- Glass coating

TECHNICAL SPECIFICATIONS

Specification		Unit	EXS160	EXS160/1750	EXS250	EXS250/2600
General	Ultimate vacuum	mbar (Torr)	1 x10 ⁻² (8x10 ⁻³)	<1 x10 ⁻³ (<8x10 ⁻⁴)	1 x10 ⁻² (8x10 ⁻³)	<1 x10 ⁻³ (<8x10 ⁻⁴)
	Peak pumping speed	m ³ /hr (cfm)	160 (94)	1200 (706)	250 (147)	1900 (1118)
	Maximum rotor speed	Rev/min	6600	DP: 6600 MB: 6120	6600	DP: 6600 MB: 6120
	Inlet/Outlet		ISO63/NW40	ISO100/NW40	ISO63/NW40	ISO160/NW40
Electrical	Electrical supply	V	380-460V 3Ph 50/60Hz 200-230V 3Ph 50/60Hz	380-460V 3Ph 50/60Hz 200-230V 3Ph 50/60Hz	380-460V 3Ph 50/60Hz 200-230V 3Ph 50/60Hz	380-460V 3Ph 50/60Hz 200-230V 3Ph 50/60Hz
	Ultimate power	kW (hp)	3.8 (5.1)	5.1 (6.8)	4.0 (5.4)	5.3 (7.1)
	Full load power	kW (hp)	5.0 (6.7)	7.4 (9.9)	9.0 (12.1)	9.7 (13.0)
Cooling	Connection	inch	¾" BSP male	¾" BSP male	¾" BSP male	¾" BSP male
	Cooling flow (Always on)	l/min (gal/min)	4.0 (1.1)	7.0 (1.9)	4.0 (1.1)	7.0 (1.9)
	Minimum differential pressure	bar	1	1	1	1
	Maximum supply pressure	barg (psig)	6.9 (100)	6.9 (100)	6.9 (100)	6.9 (100)
	Temperature	°C (°F)	5-40 (41-104)	5-40 (41-104)	5-40 (41-104)	5-40 (41-104)
Purge	Connection	inch	½" BSP male	½" BSP male	½" BSP male	½" BSP male
	Pressure	barg (psig)	2.5-6.9 (36-100)	2.5-6.9 (36-100)	2.5-6.9 (36-100)	2.5-6.9 (36-100)
	Shaft seal flow (Always on)	l/min (gal/min)	12 (3.17)	12 (3.17)	12 (3.17)	12 (3.17)
	Gas ballast flow (Manual adj.)	l/min (gal/min)	0-50 (0-13.2)	0-50 (0-13.2)	0-50 (0-13.2)	0-50 (0-13.2)
Operation	Ambient temperature range	°C (°F)	5-40 (41-104)	5-40 (41-104)	5 to 40 (41 to 104)	5 to 40 (41 to 104)
	Noise level with silencer	dB(A)	<64	<64	<64	<64
	Maximum exhaust back pressure	bara (psig)	1.2 (17.4)	1.2 (17.4)	1.2 (17.4)	1.2 (17.4)
Lubrication	Oil		PFPE Drynert 25/6	PFPE Drynert 25/6	PFPE Drynert 25/6	PFPE Drynert 25/6
	Oil volume	l (gal)	0.7 (0.2)	1.4 (0.4)	0.7 (0.2)	1.4 (0.4)

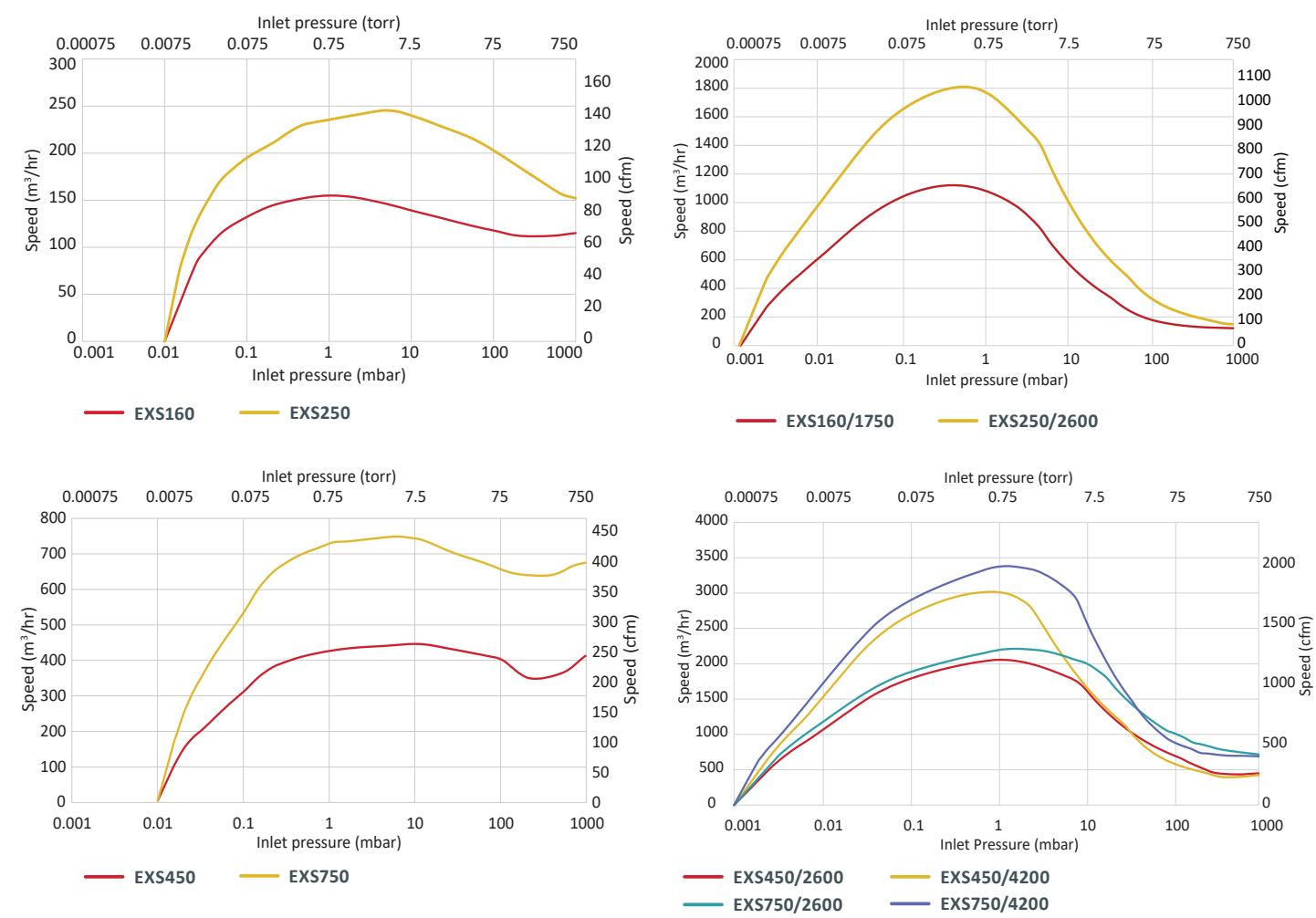
Specification		Unit	EXS450	EXS450/2600	EXS450/4200	EXS750	EXS750/2600	EXS750/4200
General	Ultimate vacuum	mbar (torr)	1 x10 ⁻² (8x10 ⁻³)	<1 x10 ⁻³ (<8x10 ⁻⁴)	<1 x10 ⁻³ (<8x10 ⁻⁴)	1 x10 ⁻² (8x10 ⁻³)	<1 x10 ⁻³ (<8x10 ⁻⁴)	<1 x10 ⁻³ (<8x10 ⁻⁴)
	Peak pumping speed	m ³ /hr (cfm)	450 (265)	2200 (1295)	3026 (1781)	740 (435)	2300 (1354)	3450 (2032)
	Maximum rotor speed	Rev/min	6600	DP: 6600 MB: 6120	DP: 6600 MB: 6120	6600	DP: 6600 MB: 6120	DP: 6600 MB: 6120
	Inlet/Outlet		ISO100/NW50	ISO160/ISO63	ISO160/ISO63	ISO100/NW50	ISO160/ISO63	ISO160/ISO63
Electrical	Electrical supply	V	380-460V 3Ph 50/60Hz 200-230V 3Ph 50/60Hz	380-460V 3Ph 50/60Hz 200-230V 3Ph 50/60Hz	380-460V 3Ph 50/60Hz 200-230V 3Ph 50/60Hz	380 - 460 3Ph 50/60Hz	380 - 460 3Ph 50/60Hz	380 - 460 3Ph 50/60Hz
	Ultimate power	kW (hp)	7.2 (9.6)	8.8 (11.8)	9.4 (12.6)	10.5 (14)	11.1 (14.9)	12 (16)
	Full load power		17.3 (23.2)	16 (21.5)	18.5 (24.8)	22 (30)	24 (32.2)	24 (32.2)
Cooling	Connection	inch	¾" BSP male	¾" BSP male	¾" BSP male	¾" BSP male	¾" BSP male	¾" BSP male
	Cooling flow (Always on)	l/min (gal/min)	10 (2.6)	12 (3.2)	12 (3.2)	12 (3.2)	15 (4)	15 (4)
	Minimum differential pressure	bar	1	1	1	1	1	1
	Maximum supply pressure	barg (psig)	6.9 (100)	6.9 (100)	6.9 (100)	6.9 (100)	6.9 (100)	6.9 (100)
	Temperature	°C (°F)	5-40 (41-104)	5-40 (41-104)	5-40(41-104)	5-40 (41-104)	5-40 (41-104)	5-40 (41-104)
Purge	Connection	inch	½" BSP male	½" BSP male	½" BSP male	½" BSP male	½" BSP male	½" BSP male
	Pressure	barg (psig)	2.5-6.9 (36-100)	2.5-6.9 (36-100)	2.5-6.9 (36-100)	2.5-6.9 (36-100)	2.5-6.9 (36-100)	2.5 - 6.9 (36 - 100)
	Shaft seal flow (Always on)	l/min (gal/min)	12 (3.17)	12 (3.17)	12 (3.17)	12 (3.17)	12 (3.17)	12 (3.17)
	Gas ballast flow (Manual adj.)	l/min (gal/min)	0-130 (0-34.3)	0-130 (0-34.3)	0-130 (0-34.3)	0-130 (0-34.3)	0-130 (0-34.3)	0-130 (0-34.3)
Operation	Ambient temperature range	°C (°F)	5 to 40 (41 to 104)	5 to 40 (41 to 104)	5 to 40 (41 to 104)	5 to 40 (41 to 104)	5 to 40 (41 to 104)	5 to 40 (41 to 104)
	Noise level with silencer	dB(A)	<64	<64	<64	<70	<70	<70
	Maximum exhaust back pressure	bara (psig)	1.2 (17.4)	1.2 (17.4)	1.2 (17.4)	1.2 (17.4)	1.2 (17.4)	1.2 (17.4)
Lubrication	Oil		PFPE Drynert 25/6	PFPE Drynert 25/6	PFPE Drynert 25/6	PFPE Drynert 25/6	PFPE Drynert 25/6	PFPE Drynert 25/6
	Oil volume	l (gal)	1.8 (0.5)	2.5 (0.7)	3.6 (1.0)	2.4 (0.6)	3.1 (0.8)	4.2 (1.1)

DIMENSIONS



	Dimensions									Mass
	Length (L) mm (in)	Width (W) mm (in)	Height (H) mm (in)	A mm (in)	B mm (in)	C mm (in)	D mm (in)	E mm (in)	F mm (in)	Kg (lbs)
EXS160	1265 (49.8)	520 (20.47)	558 (21.96)	290 (11.41)	307 (12.09)	995 (39.18)	20 (0.79)	76 (2.99)	27 (1.06)	305 (672)
EXS160/1750	1265 (49.8)	520 (20.47)	827 (32.66)	290 (11.41)	307 (12.09)	995 (39.18)	20 (0.79)	76 (2.99)	27 (1.06)	514 (1133)
EXS250	1265 (49.8)	520 (20.47)	558 (21.96)	315 (12.40)	307 (12.09)	969 (38.15)	20 (0.79)	76 (2.99)	27 (1.06)	305 (672)
EXS250/2600	1265 (49.8)	520 (20.47)	827 (32.66)	315 (12.40)	307 (12.09)	969 (38.15)	20 (0.79)	76 (2.99)	27 (1.06)	554 (1221)
EXS450	1265 (49.8)	567 (22.3)	642 (25.3)	260 (10.20)	284 (11.02)	1040 (40.90)	35 (1.40)	86 (3.40)	22 (0.90)	540 (1190)
EXS450/2600	1445 (56.9)	567 (22.3)	975 (38.4)	325 (12.80)	284 (11.02)	1155 (45.47)	35 (1.40)	86 (3.40)	41 (1.61)	816 (1799)
EXS450/4200	1445 (56.9)	567 (22.3)	975 (38.4)	325 (12.80)	284 (11.02)	1155 (45.47)	35 (1.40)	86 (3.40)	41 (1.61)	905 (1995)
EXS750	1650 (65)	567 (22.3)	642 (25.3)	949 (37.40)	284 (11.02)	737 (29)	35 (1.40)	86 (3.40)	22 (0.90)	650 (1433)
EXS750/2600	1895 (74.6)	567 (22.3)	975 (38.4)	824 (32.42)	284 (11.02)	1107 (43.58)	35 (1.40)	86 (3.40)	41 (1.61)	968 (2134)
EXS750/4200	1650 (65)	567 (22.3)	972 (38)	824 (32.42)	284 (11.02)	861 (33.88)	35 (1.40)	86 (3.40)	41 (1.61)	996 (2196)

PERFORMANCE CURVES



ORDERING INFORMATION

Part number	Pump description	High voltage	Low voltage	Side exhaust	Rear exhaust	Caster
A41860904	EXS160 HV MD RE CA	✓			✓	✓
A41860905	EXS160 LV MD RE CA		✓		✓	✓
A41860914	EXS160/1750 HV MD RE CA	✓			✓	✓
A41860915	EXS160/1750 LV MD RE CA		✓		✓	✓
A41850904	EXS250 HV MD RE CA	✓			✓	✓
A41850905	EXS250 LV MD RE CA		✓		✓	✓
A41850914	EXS250/2600 HV MD RE CA	✓			✓	✓
A41850915	EXS250/2600 LV MD RE CA		✓		✓	✓
A41840900	EXS450 HV MD SI	✓		✓		
A41840904	EXS450 HV MD RE CA	✓			✓	✓
A41840905	EXS450 LV MD RE CA		✓		✓	✓
A41840914	EXS450/2600 HV MD RE CA	✓			✓	✓
A41840915	EXS450/2600 LV MD RE CA		✓		✓	✓
A41840910	EXS450/4200 HV MD RE CA	✓			✓	✓
A41840911	EXS450/4200 LV MD RE CA		✓		✓	✓
A41870900	EXS750 HV MD SI	✓		✓		
A41870904	EXS750 HV MD RE CA	✓			✓	✓
A41870914	EXS750/2600 HV MD RE CA	✓			✓	✓
A41870910	EXS750/4200 HV RE CA	✓			✓	✓

ACCESSORIES AND SYSTEMISATION

There are a range of standard accessories available with the EXS to suit a variety of applications. All accessories can be fully integrated with EXS to provide an efficient and safe system. The accessories have been especially designed to match the pumping capacities of the EXS range and optimise performance. In addition to these standard accessories, full customer specific systems are also available on request.

	Description	Item number
Filter & separator	Inlet dust filter ISO63 (EXS160, EXS250)	M58810100
	Inlet dust filter ISO100 (EXS450, EXS750 and EXS160/1750)	M58810101
	Inlet dust filter ISO160 (2600 booster combinations)	M58810102
	Inlet dust filter ISO160 (4200 booster combinations)	M58810103
	Inlet gas liquid separator ISO63 (EXS160, EXS250)	M58810120
	Inlet gas liquid filter ISO100 (EXS450, EXS750 and EXS160/1750)	M58810121
	Inlet gas liquid filter ISO160 (2600 booster combinations)	M58810122
	Inlet gas liquid separator ISO160 (4200 booster combinations)	M58810123
Exhaust silencer & check valve	Exhaust check valve kit NW40	A50782000
	Exhaust check valve kit NW50	A50790000
	Cleanable silencer NW40	M58810140
	Cleanable silencer NW40 bottom drain	M58810142
	Cleanable silencer NW50	M58810141
	Cleanable silencer NW50 bottom drain	M58810143
	Cleanable silencer ISO63	M58810162
Inlet valve	Inlet Valve ISO100 kit	M58810145
Purge & flush	Purge free kit (EXS450 and EXS750)	M58810144
Cooling connection	Quick connector 1/2" for cooling water	3002615139
Booster support & castors	EXS750 Booster support kit (EH2600 & EH4200)	M58810148
	EXS450 Booster support kit (EH2600 & EH4200)	M58810150
	Castors (EXS450 and EXS750)	M58810149
Communication	Multi-protocol card (without housing)	M58810169
	Multi protocol module (with housing)	M58810170
	Profibus module	M58810147
	RS485 to Type C cable	M58810153

* More details refer to dry pump accessory manual M58811880 and M58808880

SERVICE AND SUPPORT

To ensure your EXS Dry Screw vacuum pump maintains optimal performance and reliability, we offer a wide range of service solutions, tailored to meet your needs. From Field Service intervention, Managed Maintenance agreements and Overhaul service in our Service Technology Centres (STC), we will take care of your pump to ensure that it continues to deliver clean, consistent, efficient performance, with lower running costs and optimum total cost of ownership for its operating life.

Selecting original spare parts, maintenance kits and oil means that every critical part performs as it was intended. Our services engineers only fit 100% genuine parts to ensure you receive the best result from each service.





Publication Number: 3602 117 101
© Edwards Limited 08.2024. All rights reserved.
Edwards and the Edwards logo are trademarks of
Edwards Limited.

Whilst we make every effort to ensure that we
accurately describe our products and services,
we give no guarantee as to the accuracy or
completeness of any information provided in
this brochure.

Edwards Ltd., registered in England and Wales
No. 6124750, registered office: Innovation Drive,
Burgess Hill, West Sussex, RH15 9TW, UK.