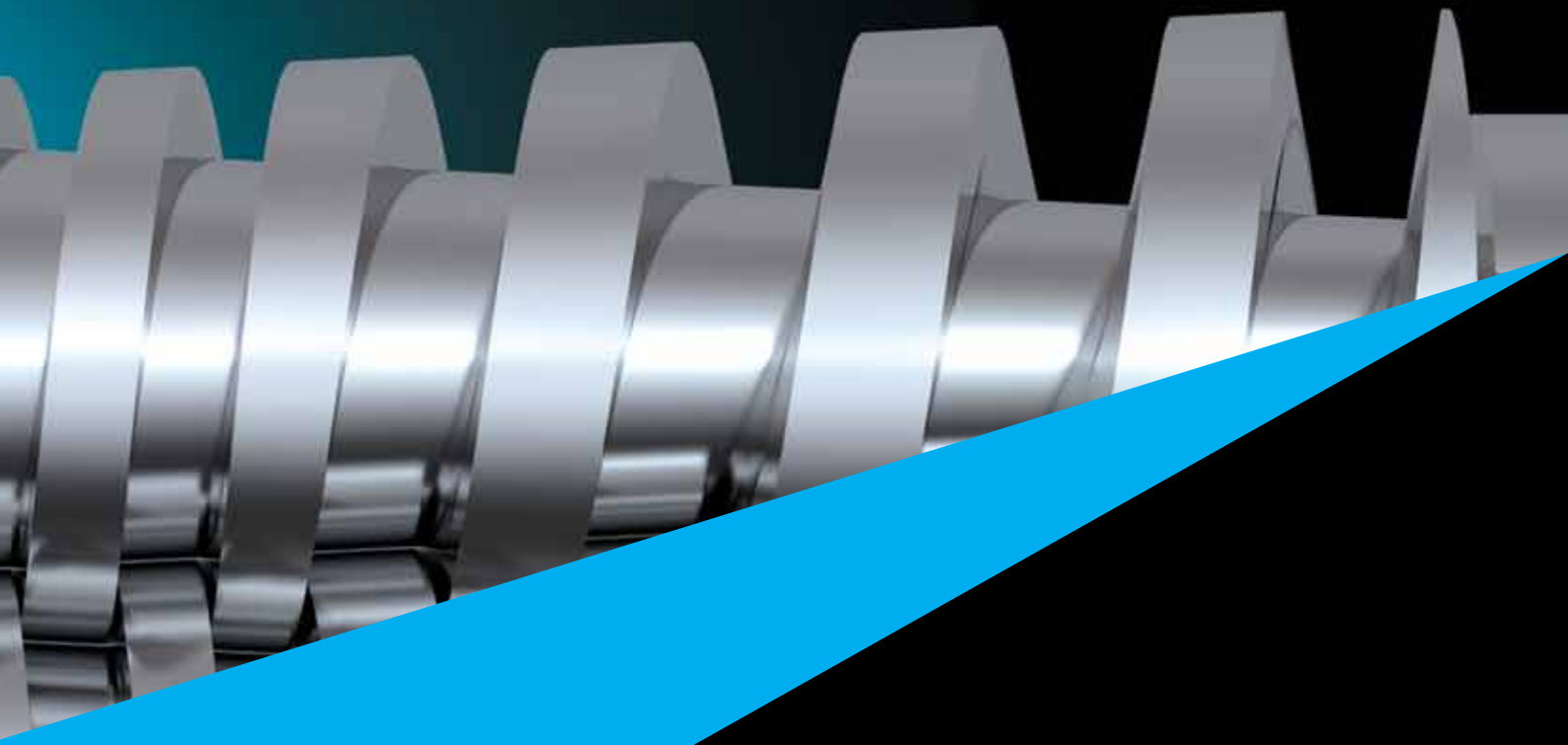


a clear edge

GXS dry screw vacuum pumps



Vacuum science... product solution.

a clear edge

modernising your world through vacuum

fast

Reduced pump down times with ultimate vacuum of 5×10^{-4} mbar

robust

Reliable operation even in harsh industrial applications

intelligent

On-board controller with extensive communication and automated control capabilities

economical

Affordable capital investment and low cost of ownership

environmental

Smooth, quiet running with low power and utilities consumption

GXS dry screw pumps & combinations

Edwards is synonymous with vacuum. Having over 90 years experience and over 150,000 dry pumps installed worldwide, our high quality products and application know-how are renowned in the world of vacuum technology.

Our new GXS dry pumps take vacuum performance to the next level. With unique screw technology and world leading high efficiency drives, enabling advanced temperature control and long service intervals, you are guaranteed best-in-class pumping speeds and low running costs for many years to come.

Be assured, Edwards compact and highly intelligent GXS range of pumps and combinations are our most robust and economical vacuum pumps for industrial applications.



Applications

Metallurgy

From tempering and annealing to steel degassing, from surface treatments to melting, refining, casting and beam welding, the GXS offers the ideal combination of vacuum performance, extreme reliability, ease of integration and low cost of ownership for all metallurgical applications.

Coating

Vacuum coating systems for glass, precision optics, polymer films, and reflective components all require robust vacuum pumping with high performance and low cost of ownership - as ably provided by the GXS.

Drying

Whether for high voltage transformer assemblies, gas pipe lines, components for the manufacture of Lithium-ion batteries, or freeze dried products, vacuum drying using GXS assures excellent results, even with extreme water vapour loads.

Plasma processes

With high tolerance to process contamination and excellent low pressure pumping speed to handle the high outgassing and deep vacuum requirements, the GXS excels in vacuum plasma processes.

Solar

The GXS has been very widely adopted throughout the solar industry for reliable vacuum in silicon crystal-pulling chambers, and for robust performance in PV lamination systems.

LED manufacture

For these multiple step vacuum processes requiring standardised vacuum pump sets, the GXS provides consistent high performance, long service intervals, low cost of ownership and full remote control integration capabilities.

Vacuum chamber evacuation

High pumping speed, fast cycle capability, and deep ultimate vacuum performance all make the GXS the ideal pump for rapid evacuation of load locks and all types of vacuum test chambers.

Vacuum packaging

Quiet operation, compact size and low cost of ownership are key benefits provided by GXS in medium vacuum systems such as packaging, laboratory and house vacuum installations.

Customised solutions for your application

Whether you require a single pump, pump and booster combination or complete vacuum system, we have a range of additional accessories designed to provide optimal performance in a wide range of applications.

Inlet and exhaust accessories

Inlet and exhaust accessories have been especially designed so they are sized perfectly to match the pumping capacities of the GXS range and optimise performance.

- (ISO-ANSI and NW-ANSI)
- Foreline spool adaptor
- Inlet isolation valve (with position indicator)
- Inlet spool
- Inlet filter
- Cleanable and drainable silencer
- Exhaust check valve

Control and monitoring accessories

We have designed a range of control and monitoring accessories specifically for the GXS range to enable complete integration into our customers control systems

- Motor Control Module (MCM) Micro Tool Interface Module (TIM)
- Profibus DP control module
- Cooling water flow sensor
- Purge gas flow switch
- Instrument pack (PT100, ASG and cables)

For detailed advice and availability please consult one of our applications engineers.



Features and benefits

Best-in-class pumping speeds with high reliability

GXS dry pumps are at the cutting edge of dry pumping performance. The tapered variable pitch screw design enables excellent pumping speeds, the advanced thermal management system maximises pump performance and operational life. GXS pumps will deliver best-in-class pumping speeds below 1 mbar, compared to other pumps of similar peak speeds, this results in the GXS range consistently providing highly repeatable performance with dry pumping typically down to 5×10^{-4} mbar ultimate vacuum.

Robust and reliable performance even in the harshest applications

GXS pumps incorporate many advanced technologies to ensure optimum reliability and a robust, repeatable performance in the harshest of industrial applications. Advanced bearing technology, automatic on-board thermal management, proven shaft sealing systems, long-life lubrication, intelligent on-board features and water cooling for motors and the electronics systems all contribute to the overall reliability of the range. There is also a full range of internal application options and external application accessories to configure the GXS to suit all types of processes.

On-board intelligent control for simple operation

The GXS is an intelligent pump with a fully enabled on-board control system, which may be programmed for automatic start and stop routines and self-cleaning using solvents and/or purges. This ensures the pump is maintained in the optimum operating condition regardless of the process challenges of the application. The onboard PID pressure control loop function will control process pressure by modulating the GXS's own speed, removing the need for any additional control hardware. These on-board intelligence features can save up to 5000 Euros or more on external control equipment which may otherwise be needed.



Affordable capital investment and low cost of ownership

High efficiency, water cooled motors, built-in inverter drives, and advanced low-friction seals will ensure the GXS delivers class-leading savings on power and utilities consumptions. Installation cost are reduced by the provision of fully integrated on-board controls and communications protocols, enabling the GXS to be operated without any additional switchgear or control hardware, providing true “plug and pump” functionality.

The long-life non-oxidizing gearbox oil, intelligent programming and optimized screw design can enable long service intervals of up to five years and near maintenance free operations, providing ongoing and long term cost savings.

Environmentally friendly with low power consumption

Edwards advanced screw rotor design provides the GXS with an extremely smooth and quiet operation, with a noise specification of less than 64 dB(A), up to 12 dB(A) quieter than other dry pumps of a similar size.

GXS dry pump design features ensure environmental impact is minimal by providing low power consumption which can be further enhanced by the use of the standby mode (Green Mode) when the pump is off process using reduced speed and less purge gas. The advanced non-oxidising lubricant system eliminates any need for hydrocarbon oils, and the used lubricant can be recovered on servicing and fully recycled.

Compact, combined with simple installation and integration

Each pump is easily fork-lifted or rolled into position, coupled to the process and services using the supplied mating connectors, and run at the push of a button. This simple “plug and pump” operation, together with the serial and LAN-based communications facilities provided as standard on all pumps, makes it very easy to integrate the GXS into other customer systems.

*on-board
intelligent
features
save up to
5000 euros*

GXS innovative screw technology

1

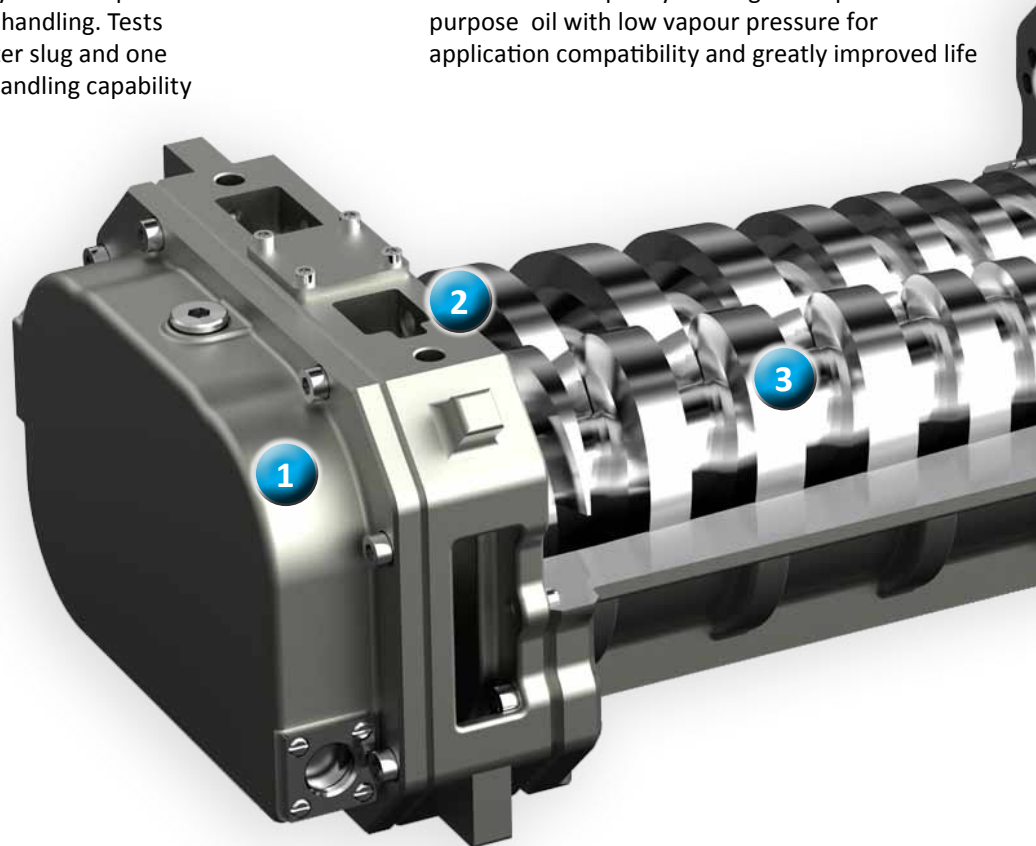
Double ended shaft support

- Non-cantilever design provides secure rotor support for extremely low vibration and superior starting reliability, especially on harsh processes
- Superior liquid and powder handling. Tests demonstrate a five litre water slug and one kilogram fine powder slug handling capability

2

Bearing and lubrication

- Oil lubricated gears eliminate grease and the need for periodic maintenance
- Uses advanced quality bearings and special purpose oil with low vapour pressure for application compatibility and greatly improved life



3

Advanced pumping mechanism design

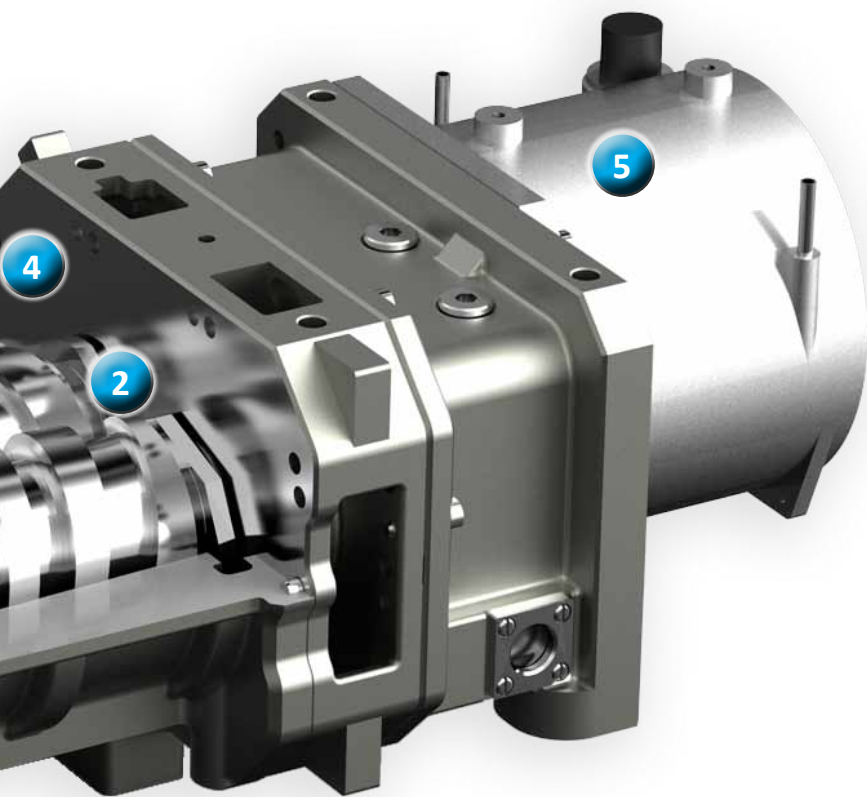
- Enhanced screw-type rotor design results in smooth, gradual compression along the length of the rotor for improved thermal control and optimised pumping at all inlet pressures
- Integrated heat management and unique rotor and stator design features provide argon gas pumping capability at full concentration
- Advanced machining techniques and design features eliminate the need for rotor coatings while maintaining superb ultimate vacuum performance
- Improved manufacturing technology and design contributes to low vibration and extremely quiet running without a silencer

4

Advanced shaft sealing technology

- Non-contacting long-life seals with integral oil blocking labyrinth seal provides for 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





5

World leading motor and drive technology

- Extremely high efficiency motors with electronic drives deliver maximum torque performance for difficult processes
- Hermetically sealed motor eliminates oil leaks and improves pump reliability
- Water-cooled motors and drives provide for improved reliability and long life to reduce service costs

6

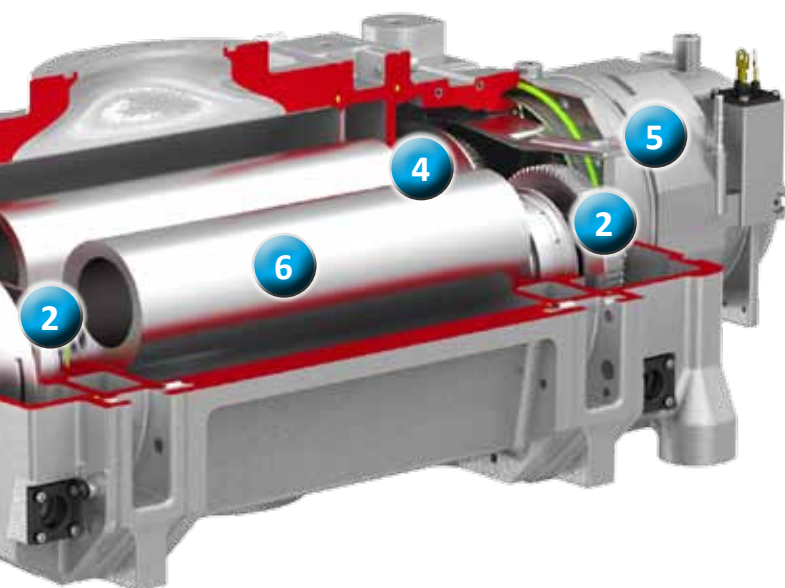
Roots booster mechanism

- High efficiency vacuum booster design
- Optimised for maximum performance with automatic thermal management

Accessories for enhanced reliability

- High-flow inlet purge accessory available to aid powder removal from the pump mechanism
- Solvent flush accessory for in-situ cleaning and removal of sticky substances from the pump mechanism
- Solvent injection accessory for use during vacuum processing
- All accessories controllable via the pump's advanced control system with optional hand-held Pump Display Terminal (PDT)

GXS booster



Fully enabled intelligent on-board control panel

- Running mode and fault status indicator with soft button control
- True "plug and pump" capability for immediate operation
- Intelligently programmed with automatic start/stop routines, power saving, green mode AUC and self cleaning options
- Remote control and monitoring functionality through Ethernet and serial connectors (including Profibus, simple text control protocol, and discrete hard-wired I/O options)
- Optional Pump Display Terminal (PDT) for improved diagnostic and configuration capacity



Technical data

		Unit	GXS160	GXS160/1750	GXS250	GXS250/2600
Peak Pumping Speed		m ³ /hr (cfm)	160 (94)	1200 (706)	250 (147)	1900 (1118)
Ultimate Pressure (without purge)		mbar (Torr)	7x10 ⁻³ (5.3x10 ⁻³)	7x10 ⁻⁴ (5.3x10 ⁻⁴)	4x10 ⁻³ (3.0x10 ⁻³)	5x10 ⁻⁴ (3.8x10 ⁻⁴)
Full Load Power	@ ultimate pressure	kW (hp)	3.8 (5.1)	5.1 (6.8)	4.0 (5.4)	5.3 (7.1)
	@ peak pumping load	kW (hp)	5.0 (6.7)	7.4 (9.9)	9.0 (12.1)	9.7 (13.0)
Electrical	Supply options	High volt	380-460V 3Ø 50/60Hz		380-460V 3Ø 50/60Hz	
		Low volt	200-230V 3Ø 50/60Hz		200-230V 3Ø 50/60Hz	
	Connection	High volt	Harting Han K 4/4-F		Harting Han K 4/4-F	
		Low volt				
Vacuum Couplings	Inlet		ISO63	ISO100	ISO63	ISO160
	Exhaust		NW40		NW40	
Cooling Water	Supply pressure (max)	bar (psig)	6.9 (100)		6.9 (100)	
	DP across pump (min)	bar (psig)	1.0 (14.7)		1.0 (14.7)	
	Flow @ min DP	l/min (gal/min)	4.0 (1.1)	7.0 (1.9)	4.0 (1.1)	7.0 (1.9)
	Temperature	°C (°F)	5-40 (41-104) All variants		5-40 (41-104) All variants	
Purge Gas*	Connection		3/8" BSP Male (G 3/8")		3/8" BSP Male (G 3/8")	
	Pressure	bar (psig)	2.5-6.9 (36-100)		2.5-6.9 (36-100)	
	Light Duty	sl/min	12		12	
	Medium Duty	sl/min	18-52		18-52	
High Flow Purge/ Solvent Flush	Connection		Swagelok® Ø ¼" tube with olive		Swagelok® Ø ¼" tube with olive	
	Supply pressure	bar (psig)	2.5-6.9 (36-100)		2.5-6.9 (36-100)	
	Control valve connection		Swagelok® Ø 3/8" tube with olive		Swagelok® Ø 3/8" tube with olive	
	Filter connection		½" NPT Male		½" NPT Male	
Mass	Solvent connection		3/8" BSP Male (G 3/8")		3/8" BSP Male (G 3/8")	
		Kg (lbs)	305 (672)	475 (1047)	305 (672)	515 (1035)
Noise (with suitable exhaust pipe)		dB(A)	<64		<64	
Operating Temperature		°C (°F)	5-40 (41-104)		5-40 (41-104)	
Exhaust Back Pressure (MAX)		mbar (psia)	1400 (20)		1400 (20)	
System IP rating	Standard		31		31	
Lubrication	Type		PFPE Drynert® 25/6		PFPE Drynert® 25/6	
	Volume	l (gal)	0.7 (0.2)	1.4 (0.4)	0.7 (0.2)	1.4 (0.4)
Monitoring & Control	Standard	Control	Front panel "Dashboard" Serial - RS232		Front panel "Dashboard" Serial - RS232	
		Monitoring	Ethernet Webserver		Ethernet Webserver	
	Option	Control	Parallel - MCM MicroTIM		Parallel - MCM MicroTIM	
		Control & Monitoring	Profibus DP Pump Display Terminal (PDT)		Profibus DP Pump Display Terminal (PDT)	
		Monitoring	FabWorks®		FabWorks®	
*Pump combinations	Light duty	Shaft Seal Purge only		Shaft Seal Purge only		
	Medium duty	Shaft Seal Purge, High Vac Purge, Inlet Purge, variable Gas Ballast & Exhaust Purge (with Exhaust Pressure Sensor)		Shaft Seal Purge, High Vac Purge, Inlet Purge, variable Gas Ballast & Exhaust Purge (with Exhaust Pressure Sensor)		
	Medium duty +	As Medium duty, plus High Flow Purge / Solvent Flush		As Medium duty, plus High Flow Purge / Solvent Flush		

* Purge Gas information

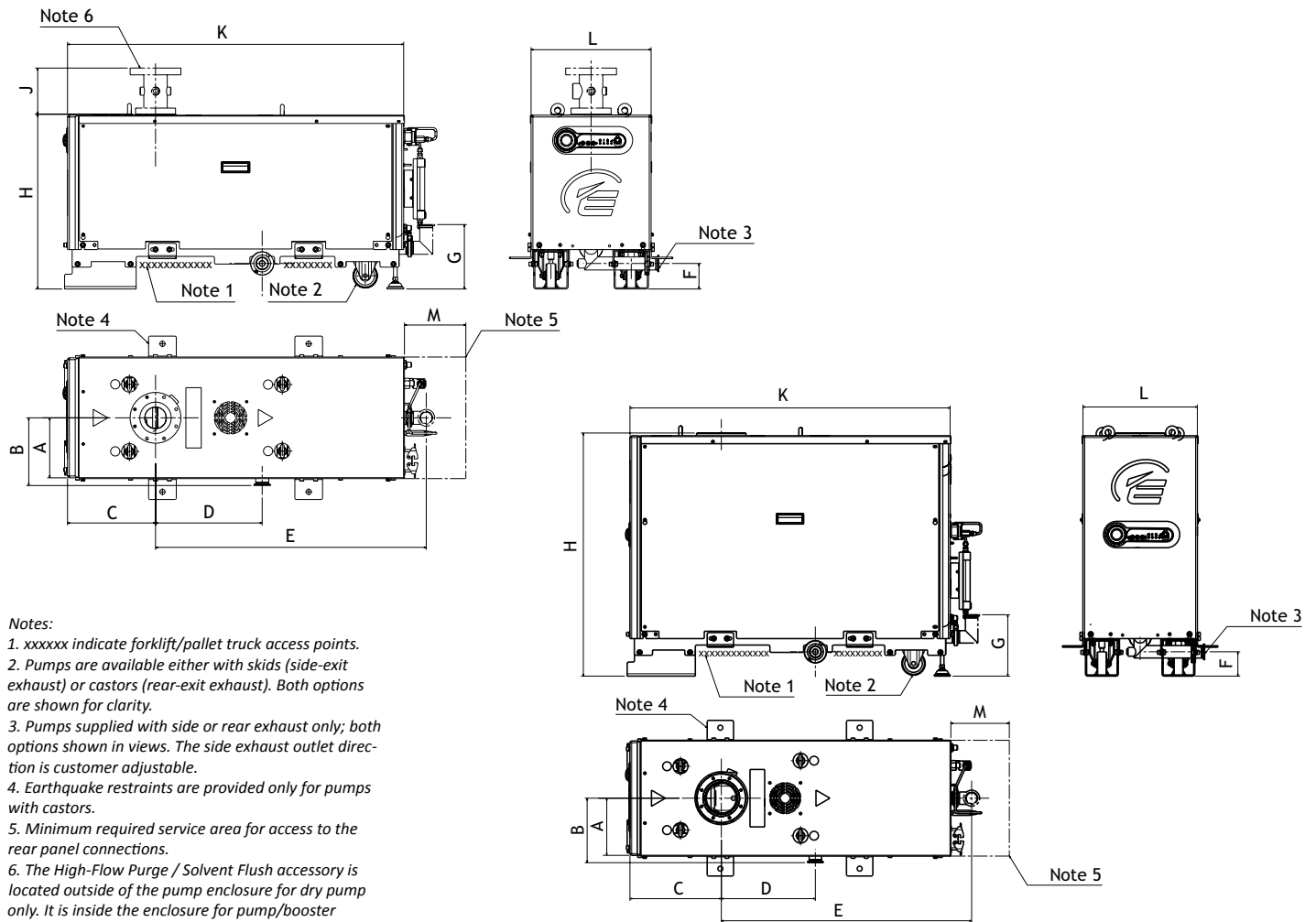
Light duty: shaft seal purge only

Medium duty: Shaft seal purge, inlet purge, variable gas ballast & exhaust purge (with exhaust pressure sensor)

Medium duty plus: As Medium duty, plus High Flow Purge/Solvent Flush

GXS450	GXS450/2600	GXS450/4200	GXS750	GXS750/2600	GXS750/4200
450 (265)	2200 (1295)	3026 (1781)	740 (436)	2300 (1354)	3450 (2031)
5×10^{-3} (3.8x10 ⁻³)	5×10^{-4} (3.8x10 ⁻⁴)		3×10^{-3} (2.3x10 ⁻³)	5×10^{-4} (3.8x10 ⁻⁴)	
7.2 (9.6)	8.8 (11.8)	9.4 (12.6)	10.0 (13.4)	11.1 (14.9)	11.5 (15.4)
17.3 (23.2)	20.0 (26.8)	21.1 (28.3)	37.0 (49.6)	40.0 (53.6)	40.0 (53.6)
380-460V 3Ø 50/60Hz			380-460V 3Ø 50/60Hz		
200-230V 3Ø 50/60Hz			200-230V 3Ø 50/60Hz		
Harting Han K 4/4-F	Harting Han 100A-F		Harting Han 100A-F		
			Harting Han 200A-F		
ISO100	ISO160		ISO100	ISO160	
NW50			NW50		
6.9 (100)			6.9 (100)		
1 (15)	1.5 (22)		2 (29)	2.5 (36)	
6 (1.6)	12 (3.2)		10 (2.6)	12 (3.2)	
5-40 (41-104) All variants			5-40 (41-104) High Volt variants		
			5-30 (41-86) Low Volt variants		
3/8" BSP Male (G 3/8")			3/8" BSP Male (G 3/8")		
2.5-6.9 (36-100)			2.5-6.9 (36-100)		
12			12		
18-146			18-146		
Swagelok® Ø ¼" tube with olive			Swagelok® Ø ¼" tube with olive		
2.5-6.9 (36-100)			2.5-6.9 (36-100)		
Swagelok® Ø 3/8" tube with olive			Swagelok® Ø 3/8" tube with olive		
½" NPT Female			½" NPT Female		
3/8" BSP Male (G 3/8")			3/8" BSP Male (G 3/8")		
640 (1411)	860 (1996)	868 (1914)	640 (1411)	908 (2002)	953 (2101)
<64			<70		
5-40 (41-104)			5-40 (41-104)		
1400 (20)			1400 (20)		
31			31		
PFPE Drynert® 25/6			PFPE Drynert® 25/6		
1.8 (0.5)	2.5 (0.7)	3.6 (1.0)	2.4 (0.6)	3.1 (0.8)	4.2 (1.1)
Front panel "Dashboard" Serial - RS232			Front panel "Dashboard" Serial - RS232		
Ethernet Webserver			Ethernet Webserver		
Parallel - MCM MicroTIM			Parallel - MCM MicroTIM		
Profibus DP			Profibus DP		
Pump Display Terminal (PDT)			Pump Display Terminal (PDT)		
FabWorks®			FabWorks®		
Shaft Seal Purge & High Vac Purge only			Shaft Seal Purge & High Vac Purge only		
Shaft Seal Purge, High Vac Purge, Inlet Purge, variable Gas Ballast & Exhaust Purge (with Exhaust Pressure Sensor)			Shaft Seal Purge, High Vac Purge, Inlet Purge, variable Gas Ballast & Exhaust Purge (with Exhaust Pressure Sensor)		
As Medium duty, plus High Flow Purge / Solvent Flush			As Medium duty, plus High Flow Purge / Solvent Flush		

Dimensions



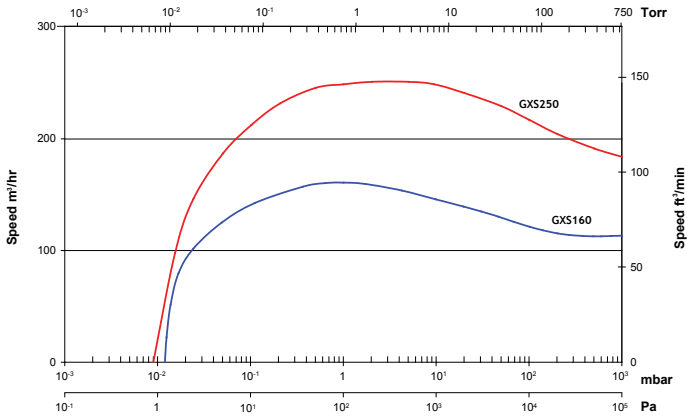
- Notes:
- xxxxx indicate forklift/pallet truck access points.
 - Pumps are available either with skids (side-exit exhaust) or castors (rear-exit exhaust). Both options are shown for clarity.
 - Pumps supplied with side or rear exhaust only; both options shown in views. The side exhaust outlet direction is customer adjustable.
 - Earthquake restraints are provided only for pumps with castors.
 - Minimum required service area for access to the rear panel connections.
 - The High-Flow Purge / Solvent Flush accessory is located outside of the pump enclosure for dry pump only. It is inside the enclosure for pump/booster combinations.

	A	B	C	D	E	F	G	H	J	K	L	M		
GXS160	195 (7.68)	220 (8.66)	285.9 (11.26)	346.5 (13.64)	879.5 (34.63)	83 (3.27)	209.4 (8.24)	568 (22.36)	150 (5.9)	1092 (42.99)	390 (15.35)	250 (9.84)		
GXS250			311.6 (12.27)	320.8 (12.63)	853.8 (33.61)			829.5 (32.66)	-					
GXS160/1750			394 (15.51)	300 (11.81)	871.6 (34.31)			717 (28.23)	150 (5.9)				1186 (46.69)	
GXS250/2600			576.4 (22.69)	413 (16.23)	1133.6 (44.63)			1622 (63.86)	-					
GXS450	258.5 (10.18)	283.5 (11.16)	361.8 (14.24)	332.3 (13.08)	903.8 (33.58)		261.4 (10.29)	1030.5 (40.57)	-	-	1186 (46.69)	517 (20.35)	250 (9.84)	
GXS450/2600			657.2 (25.87)		1052.8 (41.45)									1622 (63.86)
GXS450/4200														
GXS750														
GXS750/2600														
GXS750/4200														

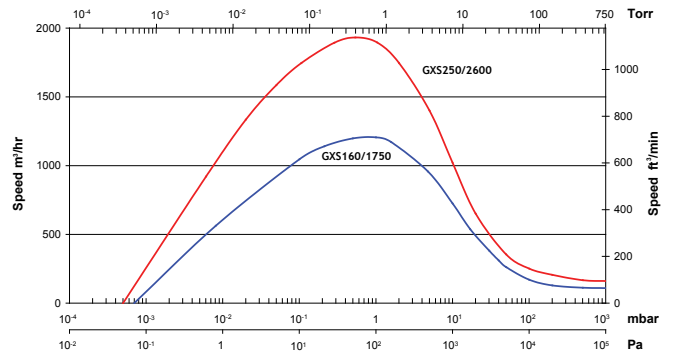
Key pump dimensions: mm (ins)

Performance curves

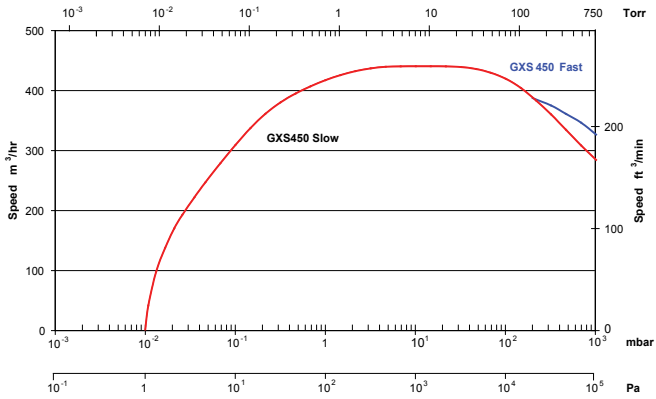
Pumping speed curves for GXS160 & GXS250



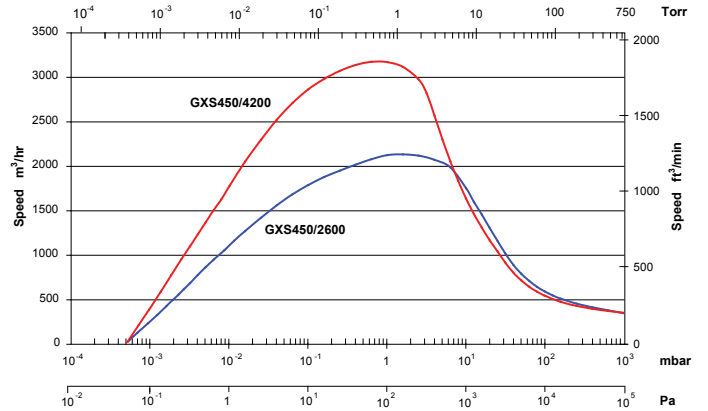
Pumping speed curves for GXS160/1750 & GXS250/2600



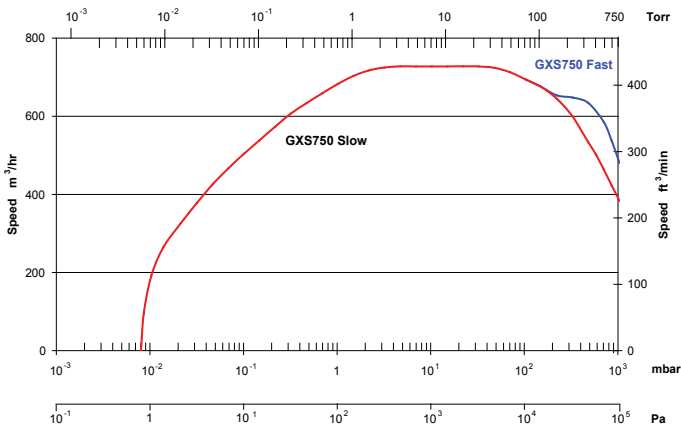
Pumping speed curves for GXS450



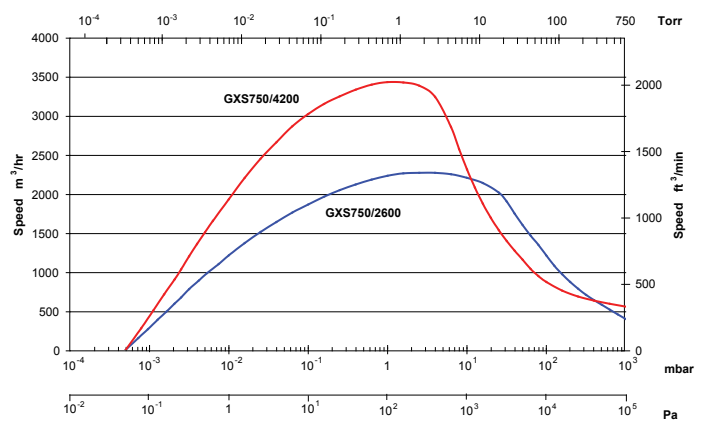
Pumping speed curves for GXS450/2600 & GXS450/4200



Pumping speed curves for GXS750



Pumping speed curves for GXS750/2600 & GXS750/4200



NOTE: Performance curves displayed are with purge.

Service and support

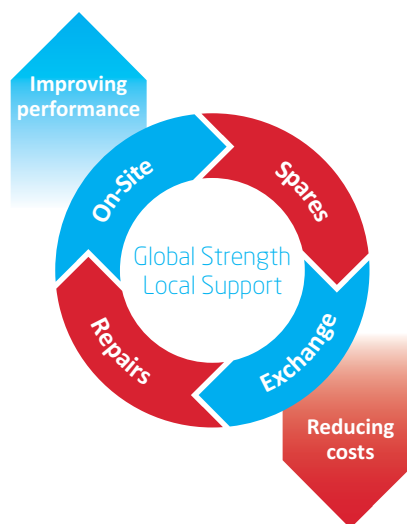


Our expertise, your advantage

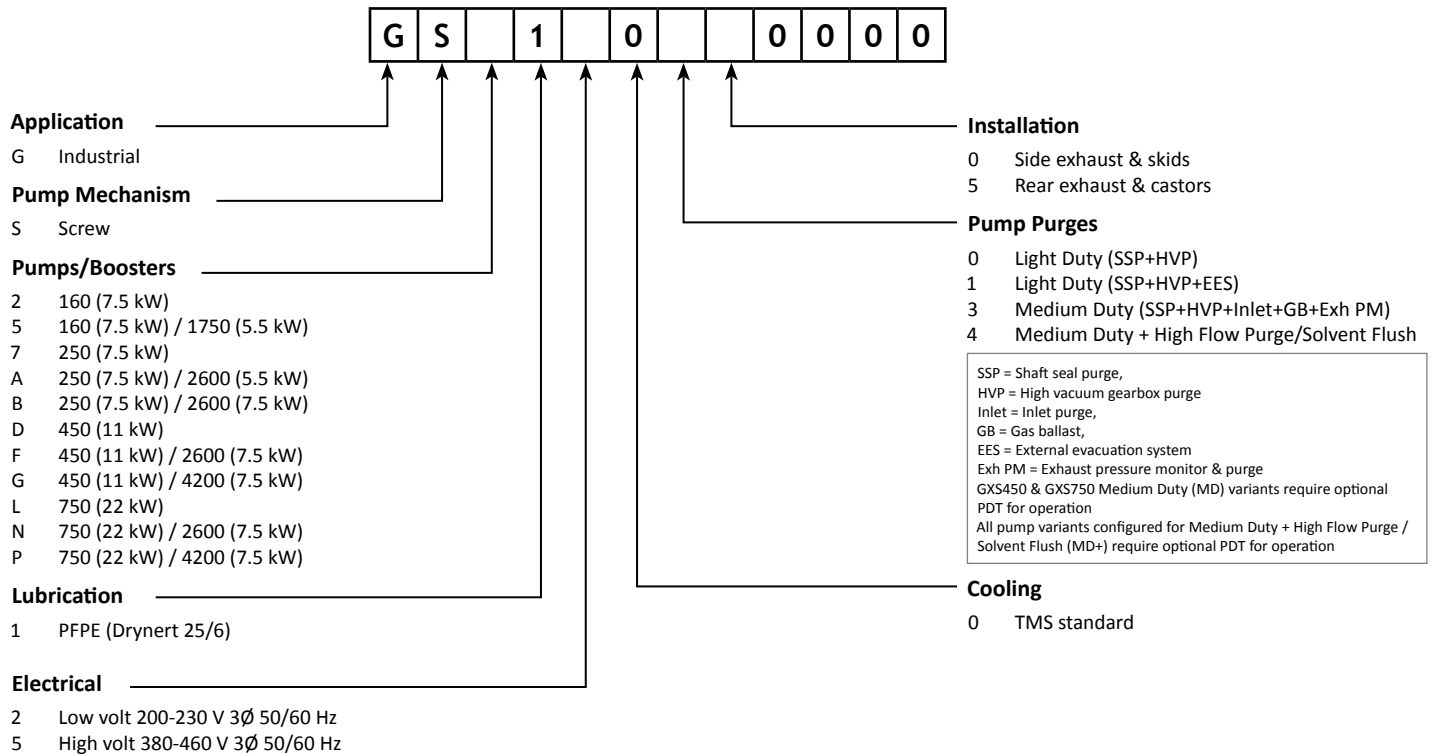
Our expertise is in vacuum technology, we have been in the business since 1919 and our knowledge runs deep. We design, develop and manufacture vacuum equipment to the very highest standards.

But it's not just the technology. With a global installed base of 750,000 pumps, we understand how vacuum pumps and systems perform in real life. We know how to get the best from our products, whatever the application. We know how to look after them. That's why a large section of our expert workforce is dedicated to service and support.

Our service solutions come under three main headlines; on-site service, repairs and exchange, and quality spares. All built on our world-class technical know-how and backed by our sophisticated logistics and supply chain infrastructure.



GXS ordering information



Recommended Accessory:

Pump Display Terminal (PDT)* D37280700

*Access to full functionality for Medium Duty & Medium Duty+ pumps requires a PDT

Optional Accessories:

GXS Auxilliary gauge cable (0-10V) D37241017

GXS Pressure input cable (4-20mA) D37241019

MCM MicroTIM D37360320

Connector kit for MCM MicroTIM** D37422802

Profibus® Module D39753000

Cooling water flow monitoring switch A50783000

Purge gas flow switch options

160 LD/MD/MD+, 250 LD/MD/MD+, 450 LD, 750 LD A50633000

450 MD/MD+, 750 MD/MD+ A50634000

Drynert 25/6 fluid 1 kg (528 ml) H11312021

Drynert 25/6 fluid 5 kg (2646 ml) H11312025

** Required to build interface cable



Global contacts

Belgium

Brussels +32 2 300 0730

Brazil

Sao Paulo +55 11 3952 5000

China

Shanghai (toll free) 400 111 9618

France

Paris +33 1 4121 1256

Germany

Munich 0800 000 1456

India

Pune +91 20 4075 2222

Israel

Qiryat Gat +972 8 681 0633

Italy

Milan +39 02 48 4471

Japan

Yachiyo +81 47 458 8831

Korea

Bundang +82 31 716 7070

Singapore

Singapore +65 6546 8408

Taiwan R.O.C.

Jhunan Town +886 3758 1000

United Kingdom

Crawley +44 1293 528844

UK (local rate) 08459 212223

United States

Niagara (toll free) 1 800 848 9800