

INDUSTRIAL SCREW BLOWER SERIES

AirSpace Screw Blower Export Catalog

BSG Forced-Lubrication & LY Self-Lubrication Series
7.5 kW – 250 kW | IE5 Permanent-Magnet Motor

55°C

AMBIENT RATING

0.3–1.5

BAR PRESSURE

35%

ENERGY SAVINGS

IE5

PMV MOTOR

AirSpace Screw Blower Unit

BSG Series — Forced-Lubrication

7.5 kW – 400 kW | Coupled Drive | IP54 Motor | High-pressure continuous duty

LY Series — Self-Lubrication

5.5 kW – 250 kW | Coupled Drive | IP54 Motor | Low-maintenance aeration

CE Certified

Full Export Compliance

ISO 9001:2015

Quality Management

Zero Ransom

Open Architecture Policy

SECTION 01

Engineering Overview & Technology Moat

The engineering foundation that separates AirSpace screw blowers from legacy Roots-type and fixed-speed alternatives — built for 24/7 industrial aeration, pneumatic conveying, and wastewater treatment.

AirSpace screw blowers are engineered around a single principle: deliver stable, oil-free air at the lowest possible lifecycle cost. Every component — from the BAOSI 5:6 asymmetric rotor profile to the IE5 permanent-magnet variable-frequency drive — is selected to eliminate the inefficiencies that plague traditional Roots blowers. The result is a verified **35% energy reduction**, **55°C tropical ambient operation** without derating, and a **Zero Ransom** open-architecture commitment that ensures you are never locked into proprietary parts or software.

35%

ENERGY SAVINGS VS
ROOTS

55°C

AMBIENT RATING

±0.1

BAR STABILITY (BAR)

7-35

DAY DELIVERY

01

PMV Variable-Frequency Drive

IE5 ultra-premium permanent-magnet synchronous motor with variable-frequency control. Demand-matched airflow eliminates the "Unload Tax" — idle power draw drops below 5% versus 40–70% on fixed-speed Roots units. True 96%+ efficiency across the full speed range.

02

BAOSI 5:6 Asymmetric Rotor

Precision-engineered 5:6 male-to-female rotor profile reduces internal friction by 15% compared to symmetric designs. The asymmetric mesh minimizes backflow losses, delivers tighter sealing, and extends bearing life under continuous 24/7 duty cycles.

03

IP55 Enclosure & 304SS Piping

Full IP55-rated motor and enclosure protection standard on all export units. 304 stainless steel internal piping resists corrosion in wastewater and chemical environments. Wash-down ready for food-grade and pharmaceutical aeration applications.

04

55°C Tropical Ambient Rating

Engineered for equatorial and desert climates where competitors trip at 40°C. Oversized coolers, high-temperature bearings, and derating-free motor insulation keep the line running through tropical heatwaves — no production stoppages.

05

±0.1 Bar Pressure Stability

Surgical pressure control via PMV closed-loop feedback. The screw blower maintains ±0.1 bar holding accuracy, allowing lower target setpoints — every 1 bar reduction yields approximately 7% in additional energy savings across the system.

06

Zero Ransom Open Architecture

No proprietary software locks. No captive spare-parts monopolies. AirSpace publishes full component specifications, uses industry-standard bearings and seals, and provides open HMI protocols. You own your machine — not a subscription.

The "Unload Tax" — Eliminated

Traditional Roots blowers draw 40–70% of full-load power even when air demand drops to zero. The AirSpace PMV drive ramps motor speed to match real-time demand, cutting idle power consumption below 5%. For a 75 kW unit running 8,000 hours/year, this alone recovers thousands in wasted electricity — before counting the 35% efficiency gain at full load.

SECTION 02

BSG Series — Technical Specifications

Forced-Lubrication Air-End | Coupled Drive | IP54 Motor | 7.5 kW – 400 kW | Engineered for high-pressure continuous-duty aeration and pneumatic conveying.

The BSG (Forced-Lubrication) series is AirSpace's heavy-duty screw blower line, designed for applications requiring sustained pressure, continuous 24/7 operation, and maximum air-end longevity. The forced-lubrication system delivers pressurized oil to all critical bearing and seal surfaces, enabling higher pressure envelopes and extended service intervals. All models feature coupled (direct-coupled) drive, IE5 permanent-magnet motors, and IP54 protection as standard.

Forced-Lubrication Air-End

Coupled Drive

IP54 Motor Protection

IE5 PMV Motor

0.3 – 1.5 bar

Model	Power (kW)	Working Pressure (bar)	FAD (m³/min)	Motor Protection	Drive Type	Lubrication	Noise dB(A)	Weight (kg)
BSG-7.5	7.5	0.3 – 1.0	2.5 – 5.2	IP54	Coupled	Forced	68	450
BSG-15	15	0.3 – 1.0	5.2 – 10.5	IP54	Coupled	Forced	70	650
BSG-22	22	0.3 – 1.2	8.4 – 15.8	IP54	Coupled	Forced	72	800
BSG-37	37	0.3 – 1.2	15.8 – 25.5	IP54	Coupled	Forced	74	1,150
BSG-55	55	0.3 – 1.5	25.5 – 38.2	IP54	Coupled	Forced	75	1,800
BSG-75	75	0.3 – 1.5	38.2 – 52.5	IP54	Coupled	Forced	76	2,200
BSG-90	90	0.3 – 1.5	50.0 – 65.0	IP54	Coupled	Forced	77	2,600
BSG-110	110	0.3 – 1.5	62.0 – 82.0	IP54	Coupled	Forced	78	3,100
BSG-132	132	0.3 – 1.5	78.0 – 105.0	IP54	Coupled	Forced	79	3,600
BSG-160	160	0.3 – 1.5	95.0 – 130.0	IP54	Coupled	Forced	80	4,200
BSG-200	200	0.3 – 1.5	120.0 – 165.0	IP54	Coupled	Forced	81	5,200
BSG-250	250	0.3 – 1.5	155.0 – 210.0	IP54	Coupled	Forced	82	6,200

Model	Power (kW)	Working Pressure (bar)	FAD (m³/min)	Motor Protection	Drive Type	Lubrication	Noise dB(A)	Weight (kg)
BSG-315	315	0.3 – 1.5	190.0 – 260.0	IP54	Coupled	Forced	83	7,500
BSG-400	400	0.3 – 1.5	245.0 – 335.0	IP54	Coupled	Forced	84	9,000

BSG Series Standard Features

Air-End

BAOSI 5:6 asymmetric rotor, forced-lubrication, carrier-grade bearings, rated for 100,000-hour L10 life.

Drive System

Direct coupled drive with flexible coupling — no belts, no gearbox, 98%+ mechanical transmission efficiency.

Control & HMI

7-inch color touchscreen, Modbus RTU/TCP, remote start/stop, pressure scheduling, energy monitoring dashboard.

Inlet Filtration

Two-stage dry-type inlet filter, 10 µm primary + 3 µm secondary, differential pressure indicator.

Cooling

Air-cooled heat exchanger rated for 55°C ambient; optional water-cooled variant for extreme environments.

Safety

Over-temperature, over-pressure, motor overload, low-oil-pressure, and emergency-stop protection as standard.

SECTION 03

LY Series — Technical Specifications

Self-Lubrication Air-End | Coupled Drive | IP54 Motor | 5.5 kW – 250 kW | Engineered for low-maintenance aeration, wastewater treatment, and general industrial air supply.

The LY (Self-Lubrication) series is AirSpace's efficient, low-maintenance screw blower line. The self-lubricating air-end eliminates the need for a forced oil pump system, reducing both initial complexity and ongoing maintenance requirements. This makes the LY series ideal for wastewater treatment plants, aquaculture aeration, and pneumatic conveying applications where reliability and ease of service are paramount. All models feature coupled drive, IE5 permanent-magnet motors, and IP54 protection as standard.

Self-Lubrication Air-End

Coupled Drive

IP54 Motor Protection

IE5 PMV Motor

0.3 – 1.2 bar

Model	Power (kW)	Working Pressure (bar)	FAD (m³/min)	Motor Protection	Drive Type	Lubrication	Noise dB(A)	Weight (kg)
LY-5.5	5.5	0.3 – 0.8	1.8 – 3.8	IP54	Coupled	Self	66	380
LY-7.5	7.5	0.3 – 1.0	2.5 – 5.2	IP54	Coupled	Self	68	450
LY-11	11	0.3 – 1.0	3.8 – 7.5	IP54	Coupled	Self	69	550
LY-15	15	0.3 – 1.0	5.2 – 10.5	IP54	Coupled	Self	70	650
LY-22	22	0.3 – 1.2	8.4 – 15.8	IP54	Coupled	Self	72	800
LY-30	30	0.3 – 1.2	12.0 – 21.0	IP54	Coupled	Self	73	950
LY-37	37	0.3 – 1.2	15.8 – 25.5	IP54	Coupled	Self	74	1,150
LY-55	55	0.3 – 1.2	25.5 – 38.2	IP54	Coupled	Self	75	1,800
LY-75	75	0.3 – 1.2	38.2 – 52.5	IP54	Coupled	Self	76	2,200
LY-90	90	0.3 – 1.2	50.0 – 65.0	IP54	Coupled	Self	77	2,600
LY-110	110	0.3 – 1.2	62.0 – 82.0	IP54	Coupled	Self	78	3,100
LY-132	132	0.3 – 1.2	78.0 – 105.0	IP54	Coupled	Self	79	3,600

Model	Power (kW)	Working Pressure (bar)	FAD (m³/min)	Motor Protection	Drive Type	Lubrication	Noise dB(A)	Weight (kg)
LY-160	160	0.3 – 1.2	95.0 – 130.0	IP54	Coupled	Self	80	4,200
LY-200	200	0.3 – 1.2	120.0 – 165.0	IP54	Coupled	Self	81	5,200
LY-250	250	0.3 – 1.2	155.0 – 210.0	IP54	Coupled	Self	82	6,200

LY Series Standard Features

Air-End

BAOSI 5:6 asymmetric rotor, self-lubricating splash-oil system, fewer moving parts, simplified maintenance schedule.

Drive System

Direct coupled drive with flexible coupling — eliminates belt slippage and alignment drift common in belt-driven alternatives.

Ideal Applications

Wastewater aeration, aquaculture, pneumatic conveying, cement fluidization, fermentation air supply, general industrial low-pressure air.

SECTION 04

Comparative Performance Analysis

AirSpace PMV Screw Blower vs. Traditional Roots Blower — a head-to-head engineering comparison across energy efficiency, operational stability, noise, and ambient tolerance.

Roots blowers have served industry for over 150 years, but their operating principle — two involute lobes trapping and pushing air — is inherently inefficient at partial loads and noisy at full load. The AirSpace screw blower replaces this legacy architecture with a precision-machined 5:6 asymmetric rotor pair and IE5 PMV variable-frequency drive, delivering measurable improvements across every operational metric that matters.

Performance Parameter	Traditional Roots Blower	AirSpace PMV Screw Blower
Energy Efficiency	Fixed-speed operation; no part-load efficiency. 40–70% power draw during unload (idle) periods — the "Unload Tax."	35% energy reduction at full load. PMV VSD ramps to match demand, cutting idle power below 5%. Verified IE5 motor efficiency.
Unload Losses	Continuous full-speed rotation regardless of air demand. No capacity to modulate — blow-off valves vent excess air while motor draws full power.	Unload losses effectively eliminated. Variable-frequency drive matches rotor speed to real-time demand. No blow-off waste.
Noise Level	Typically 80–95 dB(A) at 1 m. Pulsing discharge characteristic requires extensive silencing and enclosure treatment.	66–84 dB(A) across the full range. Smooth screw compression produces continuous, low-pulse discharge — enclosed cabinet standard.
Ambient Temperature	Typically rated for 40°C maximum. Thermal trips common in tropical, equatorial, and desert installations.	55°C tropical ambient rating as standard. No derating required up to 55°C — engineered for Middle East, SEA, and Latin America climates.
Pressure Stability	±0.3 bar pulsation typical. Pulsing discharge requires receivers and dampeners to smooth output.	±0.1 bar stability via closed-loop PMV control. Allows lower target setpoints — every 1 bar reduction saves ~7% energy.
Motor Efficiency Class	Typically IE2 or IE3 induction motors. Rotor slip losses at partial load. No variable-frequency capability.	IE5 ultra-premium permanent-magnet synchronous motor. 96%+ efficiency maintained across full speed range.

Performance Parameter	Traditional Roots Blower	AirSpace PMV Screw Blower
Maintenance Interval	2,000–4,000 hours between services. Belt tensioning, lobe clearance adjustment, seal replacement common.	8,000-hour standard service interval. No belts to tension, no lobe clearances to adjust. Initial service at 500 hours, then 2,000-hour cycle.
Parts Sourcing	Proprietary parts ecosystem. OEM-only seals, rotors, and control boards. Software-locked controllers prevent third-party service.	Zero Ransom open architecture. Industry-standard bearings, seals, and sensors. Published specifications, open HMI protocols, no software locks.
Delivery Lead Time	European OEMs: 12–20 weeks. Regional brands: 30–60 days.	7–35 day factory-direct delivery with pre-cleared customs dossier. Bypasses global port congestion.

35% Energy Delta — How It Compounds

The 35% headline energy saving is not a single-feature claim — it is the compounded result of IE5 motor efficiency, unload-loss elimination, pressure-band tightening, and reduced system leakage. For a 75 kW blower running 8,000 hours/year at \$0.12/kWh, the 35% delta translates to approximately \$25,000+ in annual electricity savings alone. Stack the reduced maintenance, eliminated oil disposal, and extended service intervals, and the 12–18 month payback target becomes conservative.

SECTION 05

Maintenance, Troubleshooting & Zero Ransom

Preventive maintenance schedules, diagnostic troubleshooting, and AirSpace's commitment to open-architecture parts sourcing — no proprietary locks, no captive monopolies.

AirSpace screw blowers are engineered for minimum maintenance intervention. The coupled drive eliminates belts and gearboxes; the self-lubrication air-end (LY series) reduces oil system complexity; and the IE5 PMV motor has no rotor slip components to wear. The following schedule is the standard preventive maintenance program. The initial service is performed at **500 hours**, followed by recurring service every **2,000 operating hours**.

Preventive Maintenance Schedule

Daily	Weekly	Monthly	Annual / 2,000 hr
- Visual inspection for oil leaks - Check discharge pressure reading - Verify operating noise level - Confirm HMI display — no active alarms - Check ambient temperature & ventilation	- Inspect inlet filter differential pressure - Check oil sight glass level - Clean exterior cooler fins - Verify coupling — no vibration - Review energy consumption trend on HMI	- Replace inlet filter element (if $\Delta P >$ threshold) - Inspect electrical connections - Check safety valve function - Lubricate motor bearings (if applicable) - Download & archive HMI trend data	- Change lubricating oil & oil filter - Inspect air-end rotor clearance - Replace coalescing filter element - Calibrate pressure & temp sensors - Test emergency stop & safety circuits - Inspect coupling elastomer element

Troubleshooting Guide

Symptom	Probable Cause	Corrective Action
Discharge pressure below setpoint	Clogged inlet filter; system leak downstream; pressure sensor drift; VSD speed limit reached.	Check inlet filter ΔP — replace if exceeded. Inspect downstream piping for leaks. Recalibrate pressure sensor. Verify VSD max-speed parameter matches motor rating.
Discharge pressure fluctuating (± 0.3 bar or more)	PID control parameters mis-tuned; undersized receiver; rapid demand swings.	Adjust PID gain/integral on HMI. Install or upsize receiver tank. Enable pressure scheduling for cyclical demand patterns.

Symptom	Probable Cause	Corrective Action
Motor temperature alarm (high)	Ambient temperature exceeding 55°C; blocked cooling airflow; dirty cooler fins; motor overload.	Verify ambient is within 55°C rating. Clean cooler fins and confirm ventilation path. Check motor current against nameplate FLA. Reduce VSD max-speed if overloading.
Excessive vibration or coupling noise	Coupling elastomer wear; misalignment; air-end bearing degradation; foundation bolt looseness.	Inspect coupling elastomer — replace if cracked. Realign motor-to-air-end coupling (laser alignment recommended). Torque foundation bolts to spec. If vibration persists, schedule air-end bearing inspection.
Oil level low or oil leak detected	Worn shaft seal; loose oil drain plug; coalescing filter saturated; excessive oil consumption.	Tighten drain plug. Replace shaft seal if leaking. Inspect coalescing filter — replace if oil carryover detected. Top up with specified synthetic oil (Total or Shell Corena S4 series).
Unit will not start	Emergency stop engaged; safety interlock open; power supply fault; VSD fault code active.	Reset emergency stop. Check all safety interlocks (door, pressure, temperature). Verify three-phase supply voltage. Read VSD fault code on HMI and consult drive manual.
Energy consumption higher than baseline	System leaks increased; inlet filter clogged; target pressure set too high; air-end efficiency loss.	Conduct ultrasonic leak audit. Replace inlet filter. Lower target pressure by 0.1 bar increments (saves ~7%/bar). Compare HMI energy trend against commissioning baseline.

Zero Ransom Policy — Open Architecture Parts Sourcing

AirSpace Machinery publishes full component specifications for every replaceable part. Bearings, seals, filters, sensors, and coupling elements use industry-standard part numbers — available from global distributors (SKF, NSK, Timken, Ingersoll Rand, etc.). The HMI runs on open Modbus RTU/TCP protocol with no software locks, no license keys, and no OEM-only service restrictions. You are free to perform maintenance in-house, use any qualified third-party technician, or source parts from any supplier. No proprietary monopolies. No ransom. No subscription. **When you buy an AirSpace blower, you own it — completely.**

SECTION 06

Return on Investment & Contact

The 7-factor ROI formula, 3-step payback audit, and factory-direct contact channels for your personalized savings projection.

The AirSpace ROI model does not rely on a single efficiency claim. Savings compound across seven engineering advantages — each trimming a different cost line. Together they explain why the 35% headline energy delta is a floor, not a ceiling, for most plant operating profiles. Our team returns a tailored 1-page ROI audit within one business day of receiving your site specifications.

The 7-Factor ROI Formula

01

Motor Efficiency (IE5)

Permanent-magnet synchronous motors achieve ultra-premium IE5 efficiency — no rotor slip losses, part-load efficiency stays high across the full speed range.

02

Unload Tax Elimination

VFD control ramps down to near-zero draw when demand drops — the 40–70% idle bleed of fixed-speed Roots units is eliminated for good.

03

Pressure Stabilization

Tight ± 0.1 bar holding allows a lower target setpoint — every 1 bar reduction saves approximately 7% in energy.

04

Leak Reduction

Running at a stabilized lower pressure cuts the volume lost through every leak, fitting, and joint across the entire network.

05

Motor Soft-Start

Smooth ramp-up avoids inrush current spikes that trigger peak-demand penalties on your electricity tariff.

06

Extended Life Cycle

Demand-matched running reduces mechanical stress, heat cycling, and bearing wear — longer service intervals, more years of output.

07

Lower Maintenance

No gearbox, fewer friction surfaces, and direct-drive simplicity mean approximately 20% lower maintenance spend year over year.

=

Compounded Savings

Each factor trims a different cost line — energy, demand charges, leaks, maintenance, replacement. Stack them and the 35% headline becomes a floor, not a ceiling.

12–18

Month Payback

Target payback period for typical installations. ROI audit provides a plant-specific projection.

3-Step Payback Audit

1

Send Site Specs

Provide your current blower power (kW), operating hours/year, average air demand (m³/min), working pressure (bar), and local electricity rate (\$/kWh).

2

Receive Audit Report

Within one business day, our engineering team returns a 1-page ROI projection: annual energy savings, payback period, 10-year TCO comparison, and recommended model.

3

Factory-Direct Order

Confirm specification and receive a factory-direct quotation. 7–35 day delivery with pre-cleared CE customs dossier. No distributor markups.

Ready for Your Personalized ROI Audit?

Send your site specifications and our engineering team will return a tailored 1-page savings projection within one business day. No signup required. No obligation. Just the numbers.

Factory Direct — Headquarters & Contact

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CERTIFICATION

CE Certified | ISO 9001:2015
ISO 8573-1 Class 0 (Oil-Free)
India BIS Pre-Cleared | Saudi SASO Ready

Power On, Worry Off.

Helping Cut Energy Cost by 35–50% | PMV & Oil-Free Technical Consultant