FULLER®

FUL-VANE™ COMPRESSORS

FOR AIR AND GAS APPLICATIONS

LOW ENERGY CONSUMPTION.
LOW MAINTENANCE. LONG LIFE.

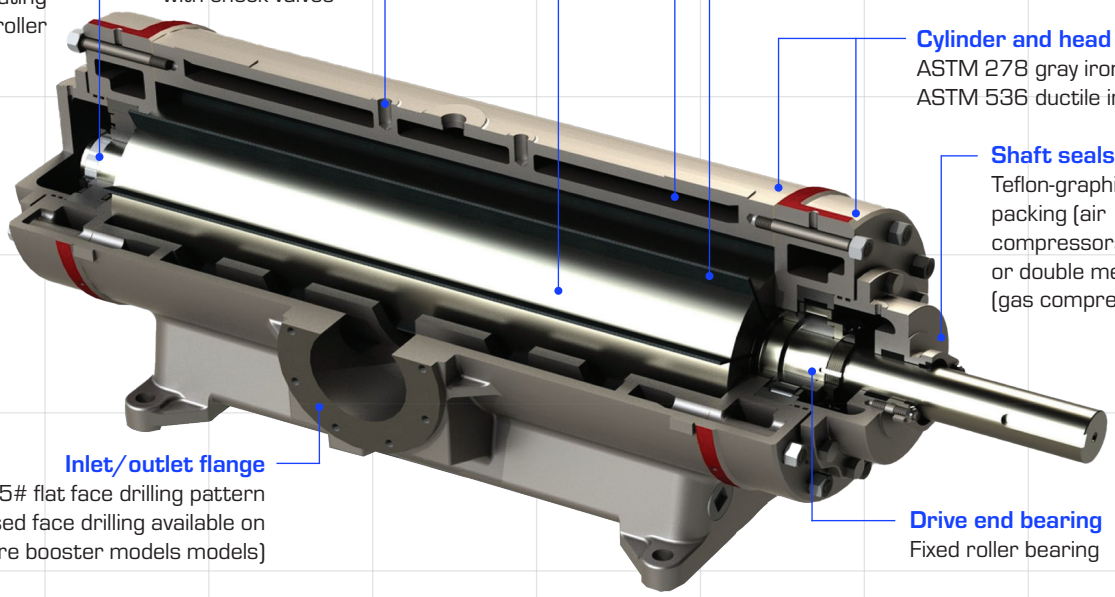
A HIGH-PERFORMANCE, LOW OPEX COMPRESSOR

When your compressor offers a poor maintenance track record and high energy costs, it's time to upgrade. Compressors are a critical part of your system and should not contribute to downtime and pile on costs. The Ful-Vane™ rotary vane compressor for air and gas applications provides smooth and reliable compression with reduced maintenance requirements, minimal wear, and lower energy consumption.

KEY BENEFITS

- **Minimal wear**
- **Long service life**
- **High efficiency**
- **Low maintenance**

FUL-VANE™ ROTARY VANE COMPRESSOR



Proven Performance

We understand the frustrations with most types of compressors. They are complex, with numerous high tolerance parts. They wear quickly and can't be rebuilt in the field. And after a short time, they don't operate as efficiently as they did when new, delivering less air and consuming more power. Our Ful-Vane Rotary Vane Compressor is designed to combat all these problems using a simple rotary design. The compressor maintains maximum efficiency with minimum wear.

We have also designed the Ful-Vane™ Rotary Vane Compressor so that the cylinder can be reconditioned, and the rotor can be reslotted several times, providing you with a better return on your investment.

- Large inlet area provides efficient capture of large air and gas flows
- Only three moving parts simplifies field maintenance
- Constant blade-to-cylinder contact maintains compression efficiency
- Low speed design minimises drive losses and wear
- Negligible inlet/outlet pressure drops minimise internal compression losses
- Extremely tolerant of dirty, dusty environments
- Drive options: Direct coupling, belt, or gearbox
- Shaft and bearings suited for maximum HP in all arrangements
- Integral overhead mounted motor available on CU/CC/FV-250 and larger compressors

FUL-PAK™ AUTOMATED AIR SUPPLY PACKAGES

Reliable air supply with drop-in convenience

We offer standard designed Ful-Pak™ air compressor packages for sizes CU/CC/FV-135 and larger. Ready for installation with only cooling water, power and discharge air piping connections needed.

Compact and totally self-contained in a low-noise enclosure, our Ful-Pak™ is a complete air source for reliable, efficient operations in dusty, demanding environments.

Standard Ful-Pak packages include:

- Compressor
- Cylinder assembly
- Discharge check valve
- Heavy-duty structural base

Drive

- Electric motor
- Belt drive

Pressurized lubrication system

- Reservoir
- Pumping unit
- Tubing

Weather/sound enclosure

- 85 dba at 1 meter
- Fan cooled enclosure
- Hinged doors for easy access

PLC control panel

- Instrumentation for monitoring of:
- Cooling water flow
- Lubrication no flow
- High air discharge temperature
- High inlet filter delta P
- HMI graphic terminal by leading brand

Ancillaries

- Inlet filter
- Inlet silencer
- Discharge silencer
- Discharge pressure relief valve
- Cooling water solenoid shut-off valve
- Cooling system piping

Options

- Closed-loop cooling
- Remote monitoring
- After cooler

FUL-VANE™ VACUUM PUMPS

High efficiency, long lasting and low maintenance

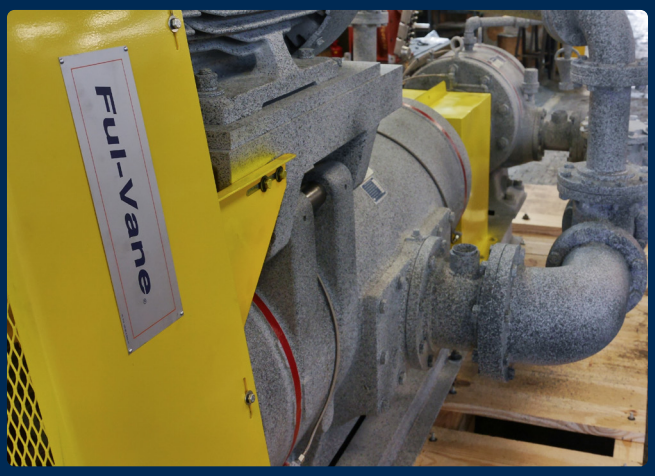
Compressors for Deep Vacuum

With a robust design and a pulse-free operation, our Ful-Vane™ vacuum pumps deliver high performance and durability in a wide range of vacuum applications. Developed from Fuller® design and technology, they automatically compensate for wear, resulting in a consistent, highly efficient operation in a small footprint.

Our standard vacuum pump rotor is constructed of cast ductile iron with an integral shaft. This quality engineered design assures durability and reduced maintenance, eliminating the need for auxiliary shafts. The bearings, vanes and seals are the only routine wearing parts, and are all easily accessible by removing the cylinder head.

Our vacuum pumps are suitable for a wide range of vacuum services, including vacuum filtering for mining; flash cooling for refrigeration; general vacuum holding and can manufacturing, and vacuum de-gassing for foundries.

Ful-Vane™ vacuum pumps are available as single and two-stage units: single-stage applications up to 26" Hg (880 mbar) vacuum; two-stage applications up to 29.95" Hg (1014 mbar) vacuum, and can include valves necessary for high-volume parallel operation at start-up, then crossing over to series for deeper vacuum.



- High-efficiency design requires less horsepower
- Field repairable for reduced downtime
- Water-cooled for maximum efficiency
- Two-stage arrangement allows high volume parallel operation at startup

Ful-Vane vacuum pump packages include:

Compressor

- Cylinder assembly
- Discharge non-return valve

Drive options

- Belt
- Direct coupling
- Gear box

Driver

- Electric motor

Ful-Lube™ Pressurized lubrication system

- Reservoir
- Pumping unit

Ancillaries

- Inlet vacuum gauge
- Wet service intake filter assembly
- Vacuum relief valve
- Vacuum relief valve filter
- Cooling water flow switch
- Cooling water solenoid valve
- Cooling water temperature switch

Options

- Structural base
- Kevlar vanes for applications with chlorine

SINGLE-STAGE COMPRESSOR PERFORMANCE

Pressure Service

FRAME SIZE*	SPEED RANGE RPM)	15 PSIG		30 PSIG		40 PSIG	
		SCFM	BHP	SCFM	BHP	SCFM	BHP
30/40/50	725-1848	95-350	8-38	90-335	12-52	87-325	14-60
60/70	500-1240	150-450	12-42	146-435	18-60	143-424	21-70
80/100	500-1240	215-635	16-59	207-615	25-85	202-599	30-99
110/120	400-924	295-770	21-66	285-750	32-97	280-735	39-113
135/150	400-924	377-980	27-81	367-955	41-119	360-938	49-140
175/200	325-740	475-1265	33-106	459-1232	51-155	450-1210	61-182
225	325-740	655-1485	45-123	635-1446	71-181	624-1420	85-213
250/300	325-740	740-1940	51-160	720-1890	80-236	708-1856	96-277
350	325-650	995-1985	67-154	966-1932	107-232	949-1897	128-274
375/400/450	300-514	1155-2370	80-180	1121-2305	126-274	1100-2263	151-325
508/608	300-514	1500-3000	104-230	1462-2920	164-349	1435-2867	197-414

* Available in undercut (C) or circular (CC) bore design
Elevation: 107 m (350 ft) ASL (14.50 PSIA)
Inlet temperature: 20°C (68°F)

Vacuum Service

FRAME SIZE**	SPEED RANGE (RPM)	15" Hg Vacuum		20" Hg Vacuum		26" Hg Vacuum	
		ICFM	BHP	ICFM	BHP	ICFM	BHP
30/40/50	725-1500	96-290	5-18	92-279	5-20	72-219	5-18
60/70	500-1000	156-373	7-20	150-360	7-21	123-294	7-19
80/100	500-1000	221-527	9-28	213-508	10-30	174-416	9-27
110/120	400-800	302-685	12-35	293-667	13-37	252-574	11-33
135/150	400-800	388-874	15-41	378-851	16-44	325-732	14-39
175/200	325-650	485-1144	19-56	472-1113	20-60	406-958	17-53
225	325-650	672-1343	26-65	653-1307	28-69	562-1125	24-62
250/300	325-650	762-1755	29-85	741-1707	32-90	638-1470	27-80
350	325-650	1022-2043	38-96	994-1987	41-102	856-1711	35-90

** Available in undercut (C) bore design only
Elevation: 107 m (350 ft) ASL (14.50 PSIA)
Inlet temperature: 20°C (68°F)

Two-stage packages are also available for both pressure- up to 250 PSIG, and vacuum - up to 29.95" Hg (1014 mbar) service.

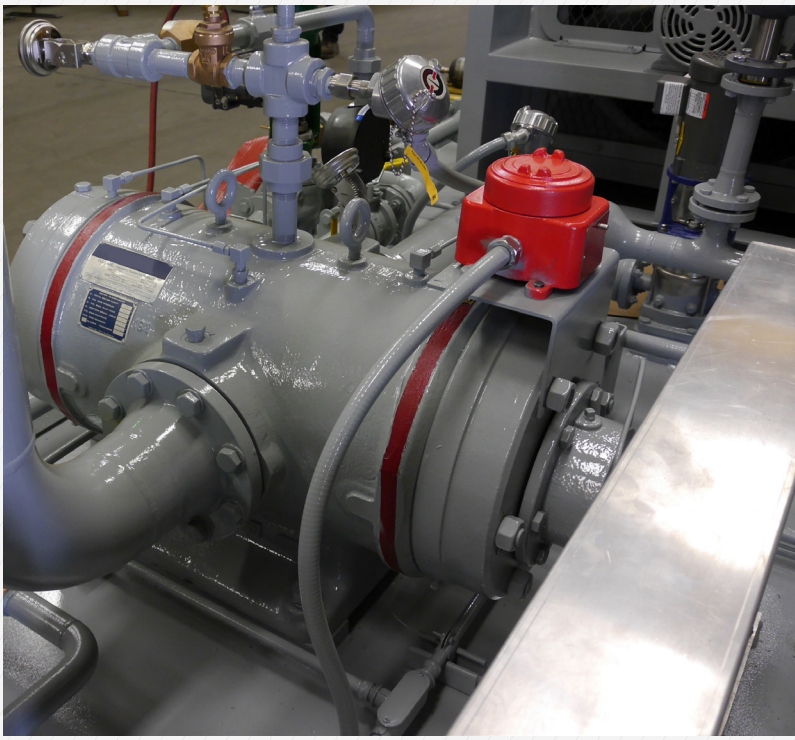
FUL-VANE™ COMPRESSORS FOR GAS APPLICATIONS

Energy efficient compression suitable for sour, corrosive gases

Delivering more compression with less energy, our Ful-Vane™ Gas Compressors are a highly efficient solution for gas compression and vapour recovery applications. These compressors deliver flow ranges from 50 to 3000 SCFM, compression ratios up to 5:1, and are available in booster sizes with maximum allowable working pressures up to 250 PSIG, making them suitable for a wide range of applications. Additionally, up to 50% capacity reduction is attainable with the use of Variable Frequency Drives.

Ful-Vane™ Gas Compressors are available in a full range of single-stage, two-stage, and booster sizes, all designed for consistent efficiency, long life, and minimal downtime. We can offer varying scope, from a bare-shaft compressor to a complete compression package – custom built to your project specifications or Fuller standards.

- High efficiency is maintained throughout operation life
- Low Speed operation, typically 325 to 1800 RPM
- Once-through lubrication protects internals against corrosive gasses using standard oils
- Gas maintained above dew point preventing internal condensation
- No minimum compression ratio required for operation, thus saving power
- Simple design reduces spare parts inventory requirements
- Boosters available specially designed for higher differential pressures



We've also made sure these compressors are built to last. Routine annual maintenance can easily be carried out in the field, saving you time and money.

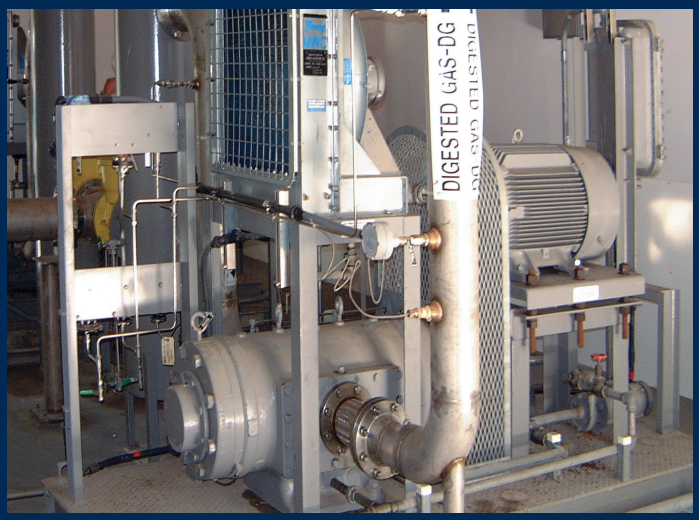
FUL-VANE™ COMPRESSORS FOR GAS APPLICATIONS

Energy efficient compression suitable for sour, corrosive gases

Digester gas service

Digester gas compression is a harsh process, with highly corrosive vapours that can quickly cause damage to your equipment. Our Ful-Vane™ compressors are specifically designed for reliable, efficient operation over many years in the most corrosive applications. Oil lubrication protects internal surfaces. The field repairable design minimises maintenance requirements. Widely used in digester gas applications, our Ful-Vane™ compressors are proven to be a reliable foundation of your biogas system.

Our compressors all include B3000™ carbon fibre blades, rugged cast construction and simple design for easy inspection and maintenance. Available in a wide range of sizes.



	LOW PRESSURE SERVICE[1]					MEDIUM PRESSURE SERVICE[2]				
SCFM	MODEL	BHP	NAMEPLATE HP	VE[3]	AE[4]	MODEL	BHP	NAMEPLATE HP	VE[3]	AE[4]
150	FV50	13	20	86.3%	74.5%	FV50	22	25	81.0%	82.0%
300	FV70	27	30	86.9%	71.8%	FV70	42	50	82.2%	80.0%
450	FV100	41	50	86.9%	71.2%	FV100	65	75	82.2%	79.6%
600	FV120	52	60	89.9%	71.5%	FV120	81	100	86.0%	80.0%
800	FV150	68	75	89.9%	73.4%	FV150	106	125	86.0%	81.5%
1000	FV200	85	100	89.9%	72.6%	FV200	132	150	86.0%	80.8%
1250	FV225	107	125	89.9%	72.0%	FV225	167	200	86.0%	80.3%
1500	FV300	125	150	89.9%	73.7%	FV300	196	200	86.0%	81.6%
1750	FV350	143	150	89.9%	75.4%	FV350	226	250	86.0%	83.0%
2000	FV450	159	200	89.9%	80.9%	FV450	254	300	86.0%	85.2%
2500	FV608	199	250	89.9%	78.5%	FV608	318	350	86.0%	85.3%

Performance based on digester gas with the following properties: MW = 17.429, SG = 0.599, C_P / C_V = 1.319, Elev. = 500 FASL, T_1 = 90°F

[1] P_1 = 0 psig, P_2 = 15 psig
[2] P^1 = 0 psig, P_2 = 30 psig
[3] VE = Volumetric Efficiency
[4] AE = Adiabatic Efficiency

FUL-VANE™ COMPRESSORS FOR GAS APPLICATIONS

Energy efficient compression suitable for sour, corrosive gases

Ammonia service

Originally designed by Fuller®, our Ful-Vane™ ammonia booster compressors are a highly energy efficient foundation of a two-stage refrigeration compression system. These rotary compressors have been used since 1949 as low-stage refrigeration booster compressors in commercial low temperature freezing applications due to their small footprint, high capacity, and low power per tonne refrigeration.

With low-speed operation and a robust design, these compressors are built to last. Designed for simplicity, they have only two bearings, no internal valves, and vibration-free rotary motion. Not only does the simple design reduce your energy and maintenance costs, it is also easily field repairable. Ful-Vane™ ammonia booster compressors feature rebuildable cylinders and rotors. So, rather than being replaced, the inner cylinder can be re-bored numerous times, and the rotor can be reslotted up to three times. This means the compressor can be rebuilt to factory specifications several times over its lifespan at a significant cost savings compared to replacing with a new unit.

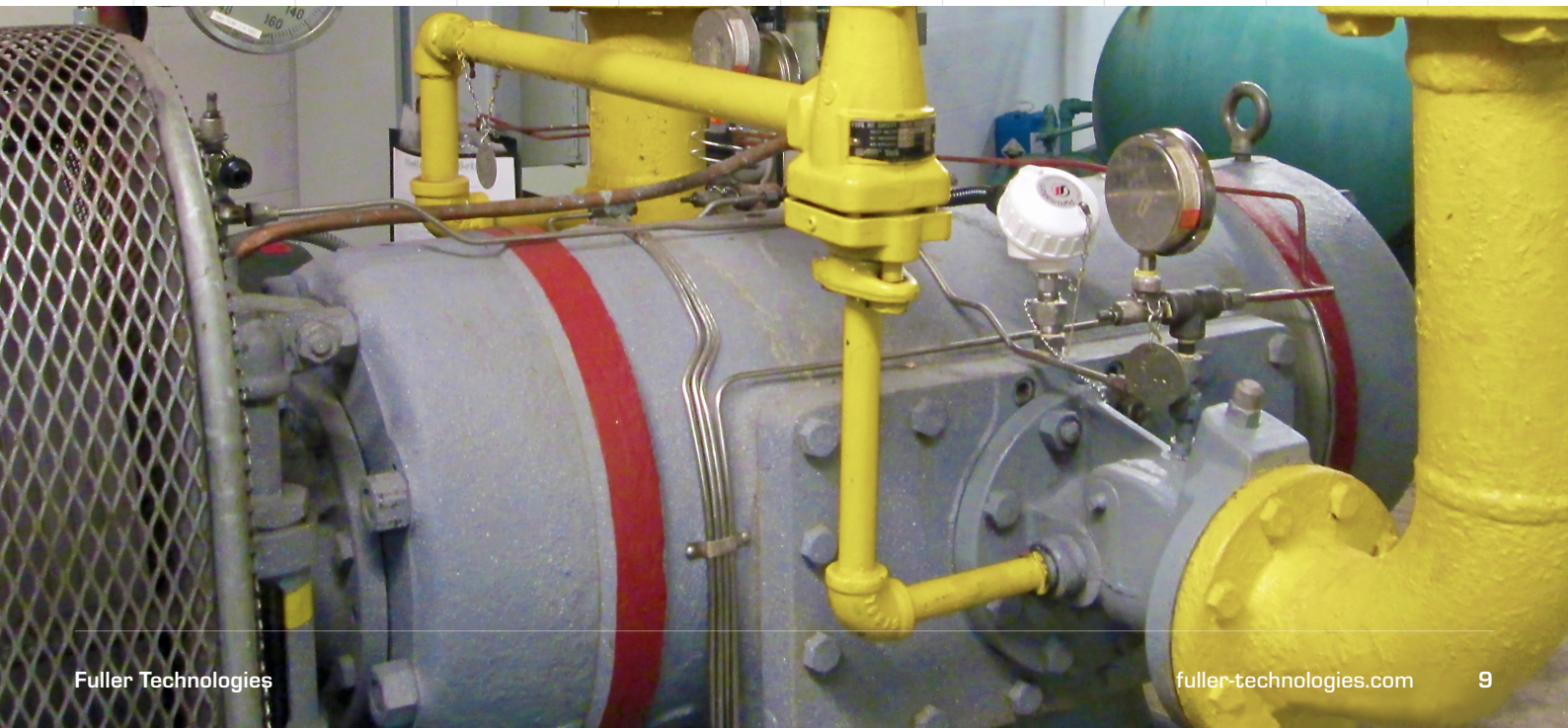
We manufacturer the original low-stage boosters including all 'A' and 'CA' sizes from 30 to 300.

OEM parts, including:

- Bearings
- B3000™ carbon fiber blades
- Replacement mechanical shaft seals

Also available:

- Replacement check valves
- Updated lubrication systems
- Modern belt drives for higher efficiency operation
- Factory-authorized service and rebuilds with new factory warranty
- On-site maintenance advisory and training services



ACCESSORIES AND UPGRADES

Customised add-ons for Ful-Vane™ compressors

FUL-POWER™ MOTOR
The high-efficiency power upgrade for your Ful-Vane™ compressor

The Ful-Vane™ compressor is a highly efficient source of compressed air. However, your direct-drive electric motor may be wasting energy, preventing you from taking full advantage of the compressor's efficiency.

Our Ful-Power™ high-efficiency motor upgrade is designed to reduce your energy costs and save you money. It allows you to replace your old, inefficient low-RPM direct drive motor with a premium efficiency 1800 RPM (or 1500 RPM with 50 HZ) motor.

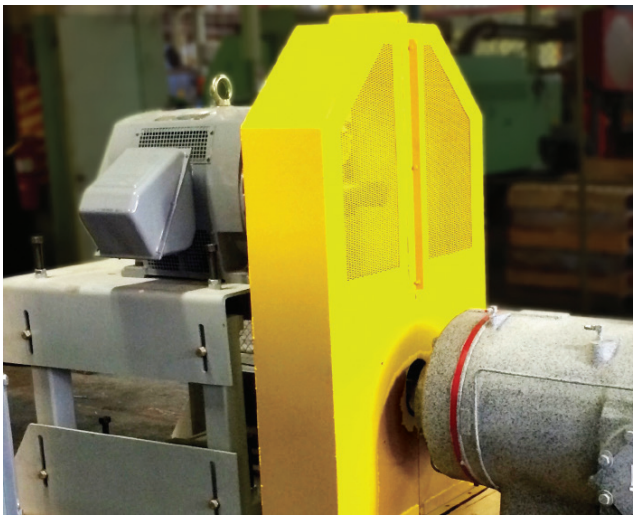
- Designed to fit in the same footprint as your original direct drive motor
- No need to move compressor or piping
- Eliminates the high-cost and long-delivery for replacement of a low-RPM motor

The Ful-Power upgrade kit includes everything you need to save on energy and the high cost for replacement of non-standard, low-speed motors:

- Adjustable motor stand
- Cog-belt type synchronous drive
- Safety guard

Additional options:

- Standard RPM, high-efficiency motor
- Ful-Lube™ lubrication system with 25 gallon oil reservoir



The Ful-Power™ upgrade may assist your facility in obtaining Energy Star designation through the EPA, or in taking advantage of utility rebates or government tax incentives related to upgrading outdated motors and reducing demand on the energy grid.

A West Coast customer saw the potential to cut electricity consumption while increasing reliability, by replacing older, low-speed motors with modern, energy efficient models. The result was a $110,000 rebate from their electric utility for decreased demand on the local energy grid. The energy savings alone paid for the investment cost in less than one year; the rebate was a bonus.

PARTS AND SERVICE

Keep your Ful-Vane™ running in prime condition

WORLD-CLASS SERVICE AND SUPPORT
An OEM and project partner you can trust

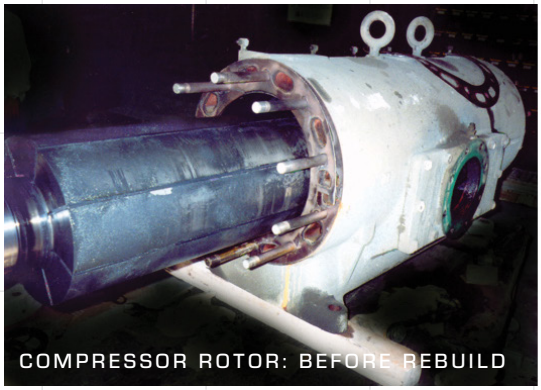
It's not always easy to know what you need, but you can always rely on us for advice, expertise and support. With more than a century of experience in this sector and thousands of references around the world, we know compressors inside and out. We can help you achieve optimum productivity and save you money with energy efficient, low maintenance solutions.

We manufacture all our compressors at our own manufacturing facilities, ensuring that every component is built and tested to the most rigorous standards. We also have an after-hours/aftermarket breakdown service, and on-site training for rebuilding compressors, so you can access the help you need, when you need it.

We have factory-certified independent service centres and parts warehouses in North America.

Compressor Exchange Programme

Our Compressor Exchange Programme enables you to replace your worn existing Fuller rotary air compressor in exchange for a factory rebuilt duplicate. Through this programme, you received factory reconditioned unit restored to original specifications and performance standards, with minimised downtime and cost. Exchange your worn Ful-Vane™ air compressor and receive a reconditioned unit built to Fuller specifications with new OEM parts. Each exchange compressor carries the same 48-month warranty as a new compressor.



COMPRESSOR ROTOR: BEFORE REBUILD

COMPRESSOR ROTOR: AFTER REBUILD

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