



Two-Stage Rotary Screw Air Compressor

Tandem Series — TS-20 | TS-32 | TS-32S

Unparalleled energy efficiency and durability



- 100 to 600 Horsepower
- Two-Stage Lubricated Rotary Screw Air Compressors

Energy Benefits:

- **Energy Savings up to 13% on Full Load**
- **Energy Savings up to 30% on Part Load**



Advantage of Two-Stage Compression at Full Load

Two-stage compressors* have a power advantage of 11% to 13% over equivalent sized single-stage compressors for two key reasons:

Compression is divided between the two stages

In a single stage compressor operating at 100 psig at sea level, the compression ratio is 7.9 to 1 (in absolute terms). A two-stage compressor operating at the same pressure will have a compression ratio of 2.8 to 1 in each stage (2.8 is the square root of 7.9) achieving the compressor's power savings.

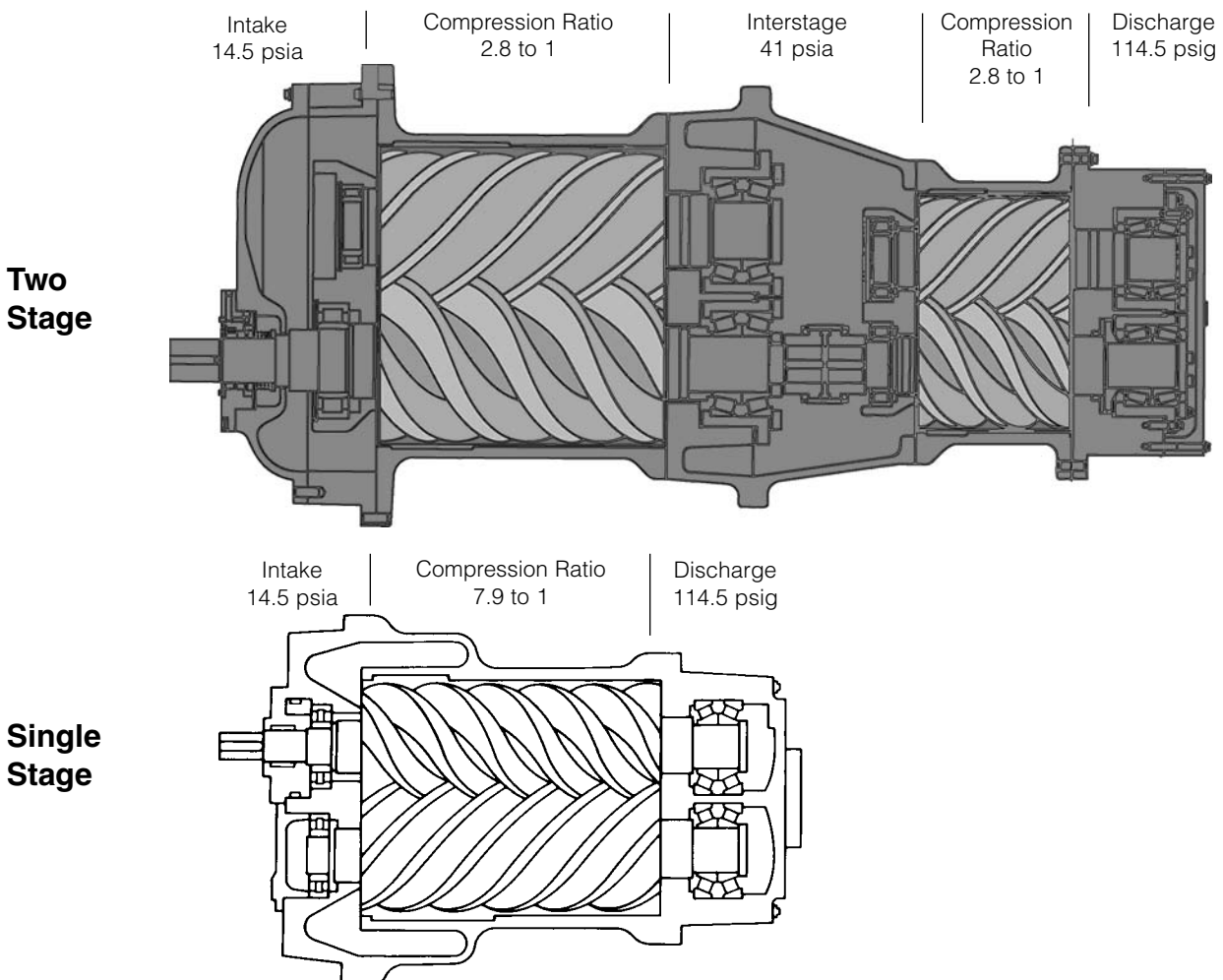
Internal leakage losses are reduced

Reduced pressure difference across each stage facilitates reduction in leakage losses.

Sullair's superior end-to-end design

Sullair's TS two-stage tandem compressors use two sets of rotors arranged in a unique end-to-end design that achieve higher efficiencies than other two-stage rotor arrangements. This design is based on Sullair's proven technology used in its single-stage units, which has set the standards for efficiency and reliability in single-stage compressors for more than 4 decades.

*Compressed Air and Gas Handbook, Sixth Edition.



The industry standard since its introduction in 1984, the TS Series tandem compressors offer unmatched full-load efficiency; often providing a two-year payback in energy savings compared with single-stage compressors. With the tandem's variable capacity control, featuring spiral valve technology, further operating efficiencies can be achieved during part-load operation.

Rotary screw reliability

These TS models use a two-stage rotary screw air end, featuring Sullair's rugged bearing design: tapered roller bearings on the discharge end and cylindrical roller bearings on the inlet for high load carrying capacity.

Sullair warranty

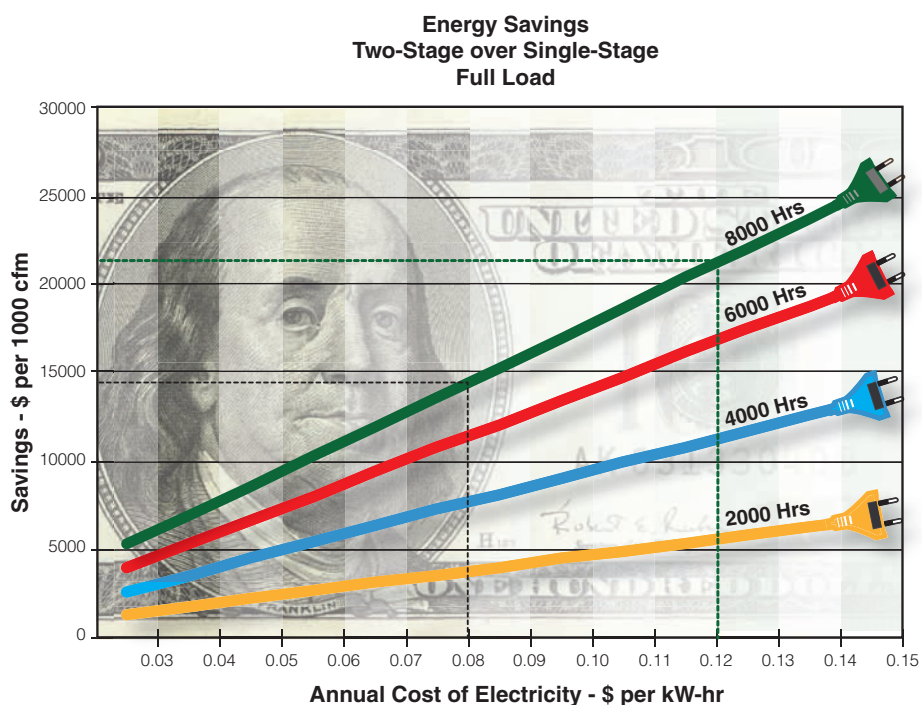
Sullair's 5-year Emerald Health Assurance is the best warranty in the industry. Sullair's Emerald Health Assurance 5-year warranty also includes motor, air/fluid receiver and cooler(s). "L", "H" and "HH" models.

Sullair's Optional 24KT™ 10-year air-end warranty also includes 5 years on the motor, air/fluid receiver and cooler(s).

Extended bearing life

By dividing the compression ratio across two stages, the two-stage tandem will significantly exceed the life of the average single-stage compressor.

Power Savings per 1000 cfm on TS-32



Power savings per 1000 cfm. Two-stage tandem vs single-stage rotary screw at full load. At a power cost of \$.08/kWh, the black dotted line shows that a tandem two-stage compressor will save \$14,373 per 1,000 cfm over a single-stage compressor operating for 8,000 hours at 100 psig. At a power cost of \$.12/kWh, the green dotted line shows a saving of \$21,560 per 1,000 cfm over a single-stage compressor operating for 8,000 hours at 100 psig. The savings will be significantly greater for higher capacity compressors.

The Sullair TS Two-Stage Tandem Compressor Part Load Savings

It's a fact: the electric power cost to run an air compressor continuously for one year is often 2 to 3 times greater than the purchase price of the compressor itself.

That's why Sullair developed the two-stage tandem compressor. By combining two-stage compression and a spiral valve, the TS performs with unmatched full-load and part-load efficiency and often provides a two-year payback in energy savings compared to a single-stage compressor.

Energy savings Built In

Sullair two-stage tandem compressors have been proven to be 13 percent more efficient than single-stage screw compressors at full load operation. At 60 percent load, the Sullair two-stage tandems provide up to 30 percent savings over single-stage compressors.

How it Works

The compression volume varies to suit the air demand by progressively opening or closing internal bypass ports on the air-end.

Capacity is matched to system demand, reducing cycling time and extending component life.

Part load capacity and efficiency can produce energy savings up to 17%.

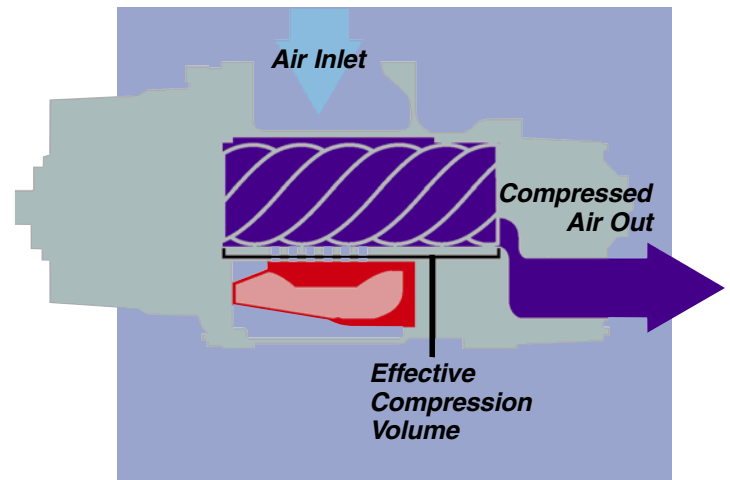
Variable Capacity Control saves you power

The compressor displacement is matched to the output need. The VCC technology assures precision operation for virtually any part-load point. It provides significant power savings at part-load conditions, compared to compressors using suction throttling, or load/no load control.

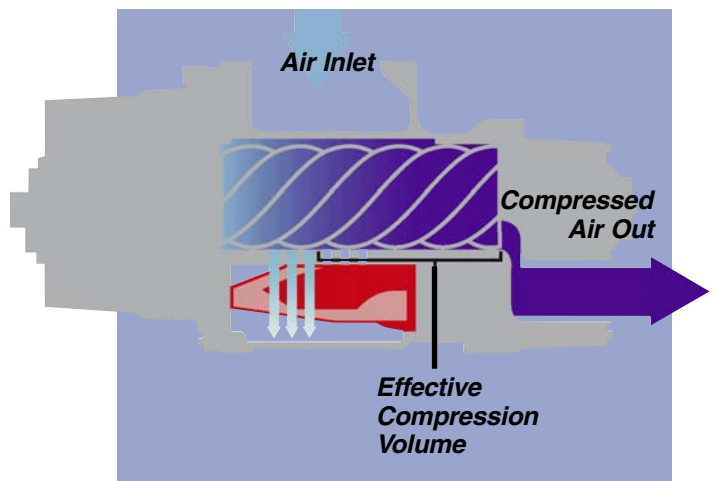
Increases capacity control efficiency

By activating automatically when the unit is operating under partial load, and allowing the compression of only the required quantity of air, the spiral valve increases the efficiency of the compression process. The ultimate result is greater compression efficiency and reduced power consumption.

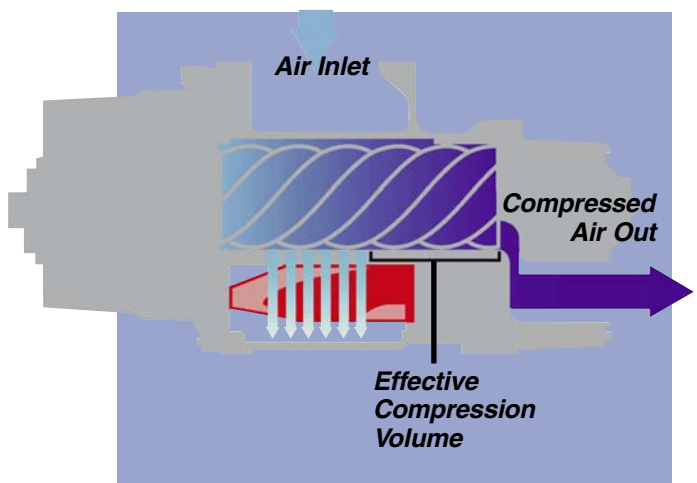
Spiral Valve Operation



Closed Bypass Ports

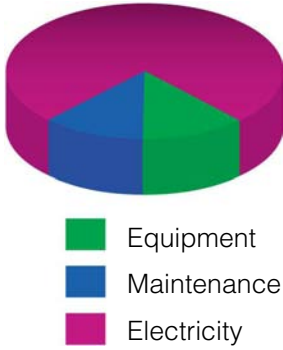


Partially Open Bypass Ports

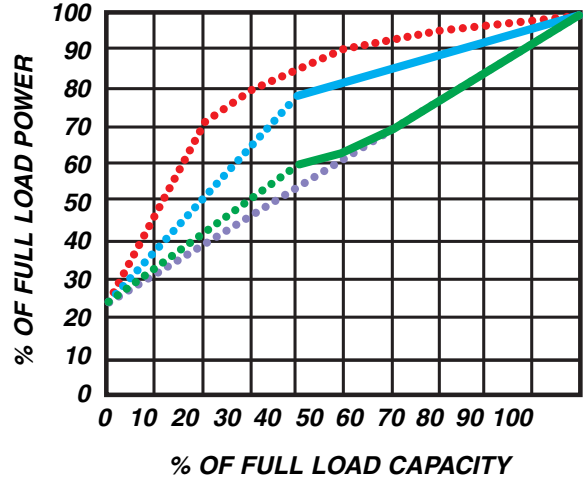


Open Bypass Ports

Compressor Life Cycle Costs



Electricity constitutes on average 76% of compressed air system operating costs over a ten year period.

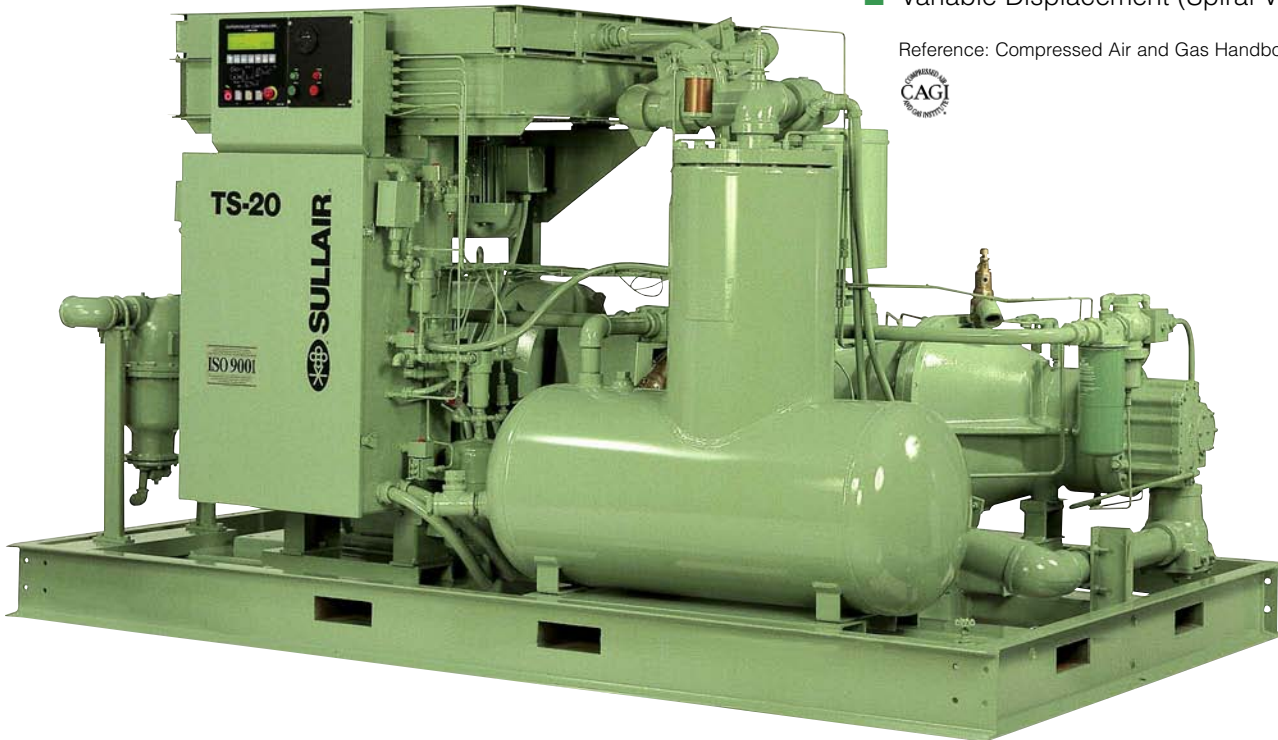


Part-load Capacity Control Comparisons

The curve shows how a rotary screw compressor with spiral control valve reduces power consumption as the compressor load drops. More importantly, it illustrates the substantial power savings at part load when compared to other capacity control systems.

- Actual Load/No Load, based on 1 gallon per cfm air storage
- Theoretical Load/No Load
- Suction Throttling
- Variable Displacement (Spiral Valve)

Reference: Compressed Air and Gas Handbook, 6th Edition, page 223.



The Sullair TS-20, TS-32 and TS-32S

Two-Stage Compressor Air End

- Delivers more air
- Reduces power consumption
- Extends air end bearing life

Time Proven End-to-End Design

- Reduces pressure drop through stages
- Easier serviceability

Variable Capacity Control System Featuring Spiral Valve Technology ②

- Lowers part-load operating costs
- Reduces cycling duty on package
- Maintains consistent plant pressure
- Simple control
- Reduces bearing load

Sullair Supervisor™ Controller ③

- State-of-the-art technology.
- Four-line, full text display
- Accurately monitors and controls the compressor
- Computer-based controller allows sequencing of multiple compressors and communication capability
- Service and preventative maintenance information built into the controller



Multi-Stage Air Fluid Separation ④

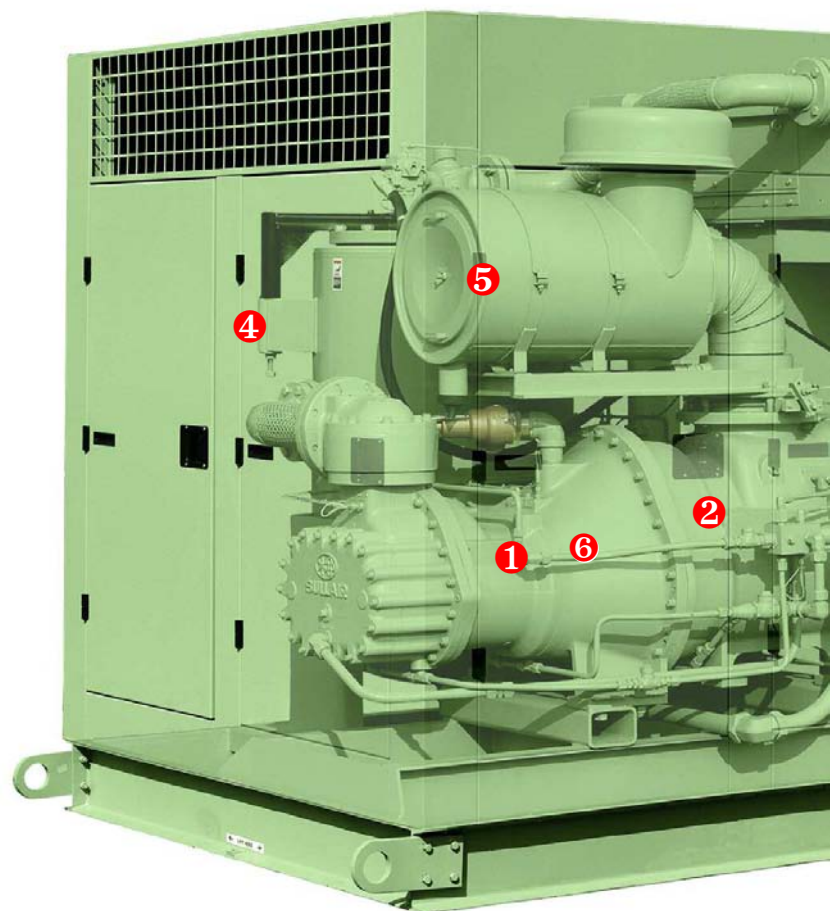
- Dual nested Optimizer™ separator elements, reduce fluid carry-over to a maximum of 1 ppm
- Reduced carryover lowers make-up fluid costs
- Pleated Optimizer elements lower initial pressure drop for greater efficiency and extends element life
- Easy to change with built-in lid lifting device on models TS-32 and TS-32S

Optimalair™ Heavy-Duty Air Intake Filter ⑤

- Includes remote air intake connection
- Provides finest inlet filtration in the industry (.4 microns using Fine Fiber Technology)
- Keeps fluid clean and extends life of other internal components
- Reduces pressure drop throughout the operating life, resulting in energy savings

Fiberglass Fluid Filter

- Composite glass media, coreless element provides better filtration, and ease of disposal
- Up to 20% more efficient than conventional paper elements
- Lengthens life of the compressor





Interstage Cooling Process 6

- Absorbs heat of compression
- Dramatically reduces power costs

Enhanced Serviceability for Air-Cooled Oil and Aftercoolers 7

- Easy to remove panels provide access for cleaning coolers (TS-32)



Versatile Control System

- Variable Capacity
- Inlet modulation
- Load/no load

NEMA 4

- Wye Delta starter for softer start (TS-32)



Bearing Fluid Reservoirs

- Ensure that fluid is available at startup
- Extend air end life

Select a Long-Life Fluid

- Sullube™ 8,000 hour is standard factory fill
- Biodegradable
- Reduces fluid disposal costs

Sullair's Warranties

- Sullair's 5-year Emerald Health Assurance is the best warranty in the industry.
- Sullair's Optional 24KT™ 10-year air-end warranty also includes 5 years on the motor, air/fluid receiver and cooler(s).

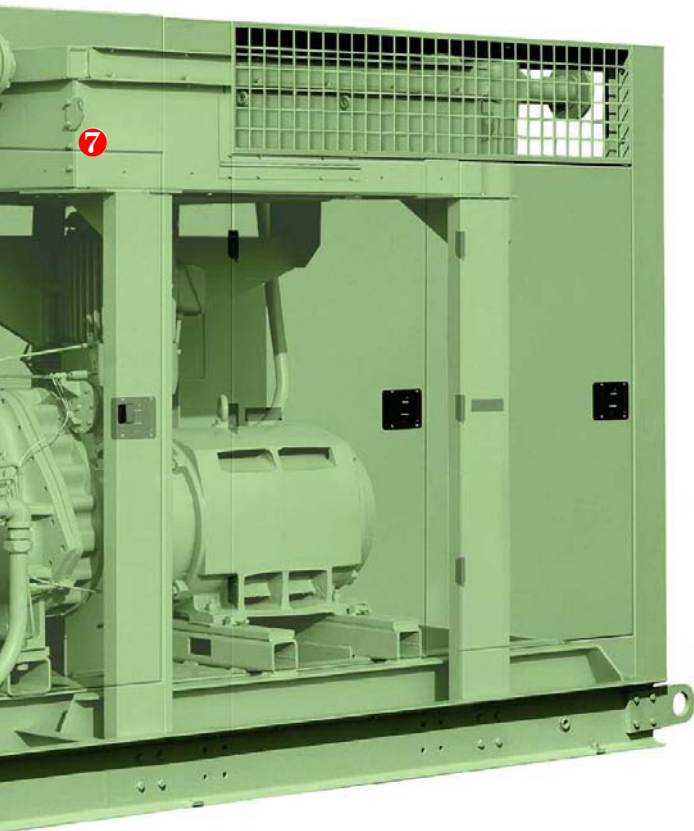
Free fluid sampling and analysis program available with either fluid

Motor and Compressor are Direct Coupled

- Motor coupled to air-end through non-lubricated, flexible coupling
- Allows use of standard NEMA frame motor
- Simplifies installation and start-up

Easy Maintenance

- Access to all critical components even with a sound enclosure installed



The Reliable Sullair Air-end

Decades of proven reliability are testimony to the quality of the Sullair air end

Although the principle of rotary screw compression remains the same, Sullair is continually improving materials, engineering and design of its air ends and compressor packages.

No loss of capacity or efficiency

Sullair air ends have only two moving parts: the asymmetrical profile rotors. Contact occurs only on a lubricated pitchline, so wear is virtually eliminated. As a result, Sullair compressors do not lose capacity or efficiency.

Longer air end life

Controlled pressure lubrication and BFR (Bearing Fluid Reservoirs) assure a reliable supply of fluid to rotating elements.



Lower operating costs

Discharge port matches ratios of volume and operating pressure for maximum efficiency. Axial air inlet avoids preheating inlet air for further savings.

Sullair Compressor Fluids

Sullube™ 8,000 hour: Environmentally compatible

- Biodegradable and recyclable
- Low levels in condensate may be accepted for direct sewer disposal without additional separation equipment. Contact local authorities for approval
- 8,000-hour fluid can operate for three full shifts for one year so labor related to fluid change-out and associated downtime costs are virtually eliminated.
- Sullube will not varnish
- Longer fluid life because unique additive package maintains desired characteristics over a wide range of operating conditions for extended periods



Sullair 24KT™ and the 10-year warranty

- Sullair is the only compressor manufacturer to offer this unprecedented warranty
- No foreseeable end to the useful life of 24KT™ fluid
- Fluid-related maintenance costs are reduced
- Routine fluid disposal costs are eliminated
- 24KT fluid extends compressor component life
- Chemically inert. Will not break down or varnish
- Filters, separators and coolers will not plug
- Constant viscosity insures excellent lubrication to all rotating parts
- Bearings last longer



The Sullair Supervisor™ Controller

PC Compatible and user-friendly

This computer-compatible microprocessor controller has a four-line, full text display and an easy-to-read keypad.

Safeguard your system

- Acts like a sentry for your compressed air system
- Protects your compressor from malfunction
- Monitors operating conditions and service needs
- Sequences up to 16 compressors.

Modular design, easy to expand

- The Supervisor™ is a network of individual modules with specific functions, daisy-chained by a simple communications cable.
- Each module contains a microprocessor and memory so application-specific features can be added, as well as upgrades

Pay only for the functions you need

- Provides all the needed features of a PLC—without the PLC price.

Control network components

- Supervisor™ consists of a Display Module (LCD display and keypad) and I/O Module (interface for sensors and relays).
- RS 485 Communications Module and DeviceNet Channel is added to network for compressor sequencing or remote monitoring and control communications
- eConnect™ remote monitoring available
- All critical parameters can be accessed remotely, viewed or changed
- Menus are clear, sharp, backlit, and easy to understand



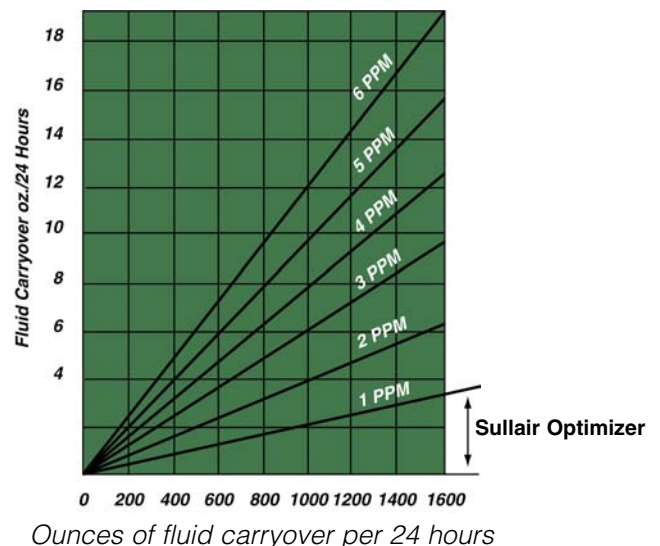
Air Quality Is One of the Best in the Industry

Lowest Fluid Carryover

While others claim a low carryover of 5 ppm or more, Sullair's Tandem compressors offer a carryover rate less than 1 ppm—the lowest in the industry. Sullair's MSS, Multi Stage Separation, uses a sump design, which allows use of oversized dual nested separators.

Sullair Optimizer Air/Fluid Separator

A high-efficiency separator that will pay for itself (during the life of the separator) in reduced compressor fluid carryover and electrical power consumption.



Standard Features and Options

	TS-20, 100-200 HP	TS-20, 250 HP	TS-32, 200-350 HP	TS-32S, 400-600 HP
Sullair Supervisor Controller	●	●	●	●
Direct Coupled	●	●	●	●
Highly Efficient Air/Fluid Separation	●	●	●	●
Fiberglass Fluid Filter	●	●	●	●
Optimalair™ Intake Filter	●	●	●	●
Sullube™ 8000 Hour Compressor Fluid	●	●	●	●
Optimizer™ Separator	●	●	●	●
Bearing Fluid Reservoir	●	●	●	●
Sullair's Versatile Control System	●	●	●	●
Totally Enclosed Premium Efficient Fan Motor	●	●	●	●
Emerald 5-year Health Assurance ⁽¹⁾	●	●	●	●
Wye Delta Starter ⁽²⁾	●	●	●	●
SCD Zero Air Loss Condensate Drain	●	●	●	●
ODP Premium Efficient Motor ⁽³⁾	●	●	●	●
Full Voltage Starter	●	●	●	●
24KT™ (10-Year Air End Warranty) ⁽⁴⁾	●	●	●	●
Sound Attenuating Enclosure	●	●	●	●
Cold Weather Package	●	●	●	●
Energy Efficiency System	●	●	●	●
Solid State Starter	●	●	●	●
Totally Enclosed Premium Efficient Motor	●	●	●	●

- Standard Feature
- Option

⁽¹⁾ Sullair's 5-year warranty includes air end, motor, air/fluid receiver and cooler(s). "L", "H", and "HH" models only.
⁽²⁾ Standard on TS-20, 250 hp and TS-32, 200-450 hp; and optional on TS-32S, 500-600 hp
⁽³⁾ Standard on TS-32, 200-350 hp and optional on TS-32S, 400-500 hp
⁽⁴⁾ Sullair's 24KT warranty includes 5 years on the motor, air/fluid receiver and cooler(s). "L" and "H" models only.

The Most Comprehensive Warranties in the Industry

Our confidence in the high quality workmanship, materials, and components of Sullair products allows us to offer the most unique warranty coverage: A comprehensive five-year protection package. Sullair is the only manufacturer to offer this unprecedented warranty. Simply complete and return your startup card to activate your warranty. No kits or spare parts agreements required.



Ultra Emerald Five-Year Compressor Warranty

With the Ultra Emerald Warranty, you get all the benefits of Sullair's Emerald Five-Year Compressor Health Assurance, with the added benefit of our Variable Speed Drive (VSD). Sullair compressors with VSD keep working at maximum efficiency for longer life and lower energy costs.



24KT™ Ten-Year Warranty

When you use the 24KT™ compressor fluid, the Sullair 24KT™ System carries an unprecedented ten-year warranty on the Sullair air-end. You receive the benefits of our five-year coverage on all other major components.

Sullair Oil-Free and Critical Air Guarantee



Sullair matches the best combination of compressor, dryer, and filters to remove atmospheric particulate, aerosols, and other pollutants to provide two levels of air quality—from general purpose to the most critical applications.

Specifications: 60 Hz Horsepower Rated

TS-20 – 100 to 150 Horsepower

Model	100L	100H	125L	125H	125HH*	125XH*	150L	150H	150HH*	150XH*
Compressor Performance										
Full Load Pressure (psig)	100	125	100	125	150	175	100	125	150	175
Capacity (acfm)	575	500	680	615	575	500	826	763	680	616
Motor (hp)	100	100	125	125	125	125	150	150	150	150
Dimensions and Weights										
Length (in)	120	120	120	120	120	120	120	120	120	120
Width (in)	72	72	72	72	72	72	72	72	72	72
Height (in)	68	68	68	68	68	68	68	68	68	68
Weight (lb)	8100	8100	8200	8200	8200	8200	8400	8400	8400	8400

* "HH" and "XH" Models not available with 24KT.

TS-20 – 200 to 250 Horsepower

Model	200L	200H	200HH*	200XH*	250L	250H	250HH	250XL
Compressor Performance								
Full Load Pressure (psig)	100	125	150	175	100	125	150	175
Capacity (acfm)	1035	960	826	776	1200	1132	1035	960
Motor (hp)	200	200	200	200	250	250	250	250
Dimensions and Weights								
Length (in)	120	120	120	120	120	120	120	120
Width (in)	72	72	72	72	72	72	72	72
Height (in)	68	68	68	68	66	66	66	66
Weight (lb)	8600	8600	8600	8600	8600	8600	8600	8600

* "HH" and "XH" Models not available with 24KT.

TS-32 – 200 to 350 Horsepower

Model	200L	250L	250H	250HH*	300L	300H	300HH*	300XH*	350L	350H	350HH*	350XH*	350ZH*
Compressor Performance													
Full Load Pressure (psig)	100	100	125	150	100	125	150	175	100	125	150	175	200
Capacity (acfm)	1105	1335	1240	1100	1640	1440	1330	1240	1875	1733	1575	1440	1330
Motor (hp)	200	250	250	250	300	300	300	300	350	350	350	350	350
Dimensions and Weights													
Length (in)	154	154	154	154	154	154	154	154	154	154	154	154	154
Width (in)	78	78	78	78	78	78	78	78	78	78	78	78	78
Height (in)	86	86	86	86	86	86	86	86	86	86	86	86	86
Weight (lb)	12480	12720	12720	12720	13270	13270	13270	13270	13620	13620	13620	13620	13620

* "HH", "XH" and "ZH" Models not available with 24KT.

TS-32S – 400 to 600 Horsepower

Model	400L	400H	400HH*	450L	450H	450HH*	500L	500H	500HH*	600L	600H	600HH*
Compressor Performance												
Full Load Pressure (psig)	100	125	150	100	125	150	100	125	150	100	125	150
Capacity (acfm)	2220	1943	1681	2350	2135	1943	2530	2350	2220	3000	2700	2530
Motor (hp)	400	400	400	450	450	450	500	500	500	600	600	600
Dimensions and Weights												
Length (in)	175	175	175	175	175	175	175	175	175	175	175	175
Width (in)	84	84	84	84	84	84	84	84	84	84	84	84
Height (in)	94	94	94	94	94	94	94	94	94	94	94	94
Weight (lb)	15900	15900	15900	15900	15900	15900	16400	16400	16400	16400	16400	16400

* "HH" Models not available with 24KT.

Air Audits

Sullair air audits review your entire compressed air system to identify ways to maximize efficiency; reduce waste; and reduce utility, maintenance, and equipment costs. And, Sullair is the only compressor manufacturer to offer three levels of air system audits that address the Department of Energy's standard levels — walk-through, assessment, and audit.

Customer Care™ by Sullair®

Our Customer Care program gives you a complete package of all the system maintenance resources you need, and our training programs teach you how to properly operate, maintain, and service Sullair equipment. Our global customer support network gives you high-speed access to genuine Sullair service parts and responsive, knowledgeable service.

AirTility™

Sullair's AirTility™ is the industry's most comprehensive air outsourcing solution. Think of AirTility™ for your compressed air system just as you think of the electrical and water systems at your facility — as a utility. AirTility™ is for those who want a reliable, safe compressed air system with no capital expenditures and no maintenance worries.

System Monitoring

Sullair's eConnect™ remotely monitors and diagnoses the health of your compressed air equipment. Using only a computer and a web browser, the status of your entire system can be viewed from anywhere in the world. System monitoring also helps in preventive maintenance and trend analysis.

Core Products

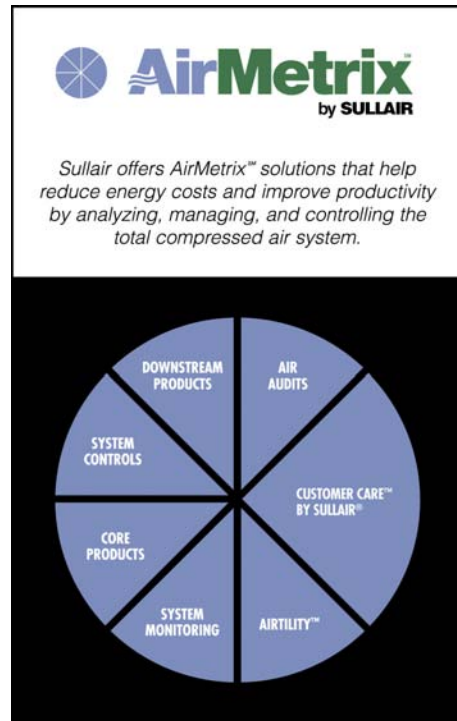
No one gives you more ways to efficiently produce clean air power than Sullair. Compressors are the heart of our business, and our reputation for reliability is reflected in our entire industrial compressor range, from 5 to 600 hp. Sullair also offers a wide range of dryers and filters for contaminant removal, as well as a range of rotary screw vacuum systems.

System Controls

Compressed air system controls match compressed air supply with system demand, and let you take a total systems approach to the most efficient production, distribution, and use of compressed air. Proper control is essential to efficient system operation and high performance.

Downstream Products

Sullair — and our distributor partners — are complete systems solutions providers for the demand side of your compressed air system. From the filter, regulator, and lubricator to the piping system and storage tanks, we provide a complete range of equipment and expertise to help keep your system at peak productivity.



For more information on Sullair products and services, please contact your local Sullair distributor.



www.sullair.com

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