

Gardner Denver

ULTIMA U75-U160 | 100-200 HP
OIL-FREE TWO-STAGE VARIABLE SPEED ROTARY SCREW COMPRESSOR

Ultima



What makes the ULTIMATE oil-free compressor?

Is it highest efficiency?
Is it lowest noise level?
Is it smallest footprint, or
Is it lowest unloaded power?

The groundbreaking design
of the Ultima gives you all
of these and more!

Lowest Unloaded Power

Ultima uses only 8 kW
when running unloaded
as compared to >20
kW for conventional
machines

13% Higher Efficiency

The Digital Gearbox drives each
airend individually, significantly
improving performance over the
complete turndown range*

No Ducting

Installation is simplified
with the closed loop
cooling system requiring
no external ductwork

No Inlet Valve

The unique dual-motor
technology eliminates
the pressure loss and
maintenance associated
with an inlet valve

Water- Cooled Airends

Water-cooled airends provide
improved performance and
increased longevity

ULT
100
OIL-F

>97% Motor Efficiency

Permanent magnet synchronous motors provide >97% efficiency and compact size

Ultra Quiet: 63 dBA

Fully enclosed water-cooled package offers industry leading noise performance as low as 63 dBA

47% Smaller Footprint

Allows 3 machines to fit in the same space as 2 competitive machines

98% Heat Recovery

Excess heat is recovered for use in other plant processes

Patented Technology

The Ultima incorporates three revolutionary patents in control, pulsation dampening, and enclosed cooling

*Uses up to 13% less energy than competitive dry screw compressors

Ultima Water-Cooled



Ultima: A Revolution in Dry Screw Compressor Technology

What makes the Ultima so unique?

- Most efficient two-stage dry screw compressor on the market
- Uses independent low and high pressure dry screw airends
- Each airend is individually driven by a variable-speed, permanent-magnet, water-cooled motor
- Each motor operates at **97% efficiency** (greater than IE4)
- Large turn down range up to 70%
- Lowest unloaded power consumption—only 8 kW
- Significantly smaller footprint while maintaining 63-70 dBA noise performance
- Water-cooled or air-cooled, both with heat recovery options

Superior Heat Recovery

- All the major components in the Ultima are water-cooled providing more efficient performance
- Approximately 94% of the energy used in a compressor is converted into heat. The closed loop cooling system in the Ultima cools all of the major components, removing heat from the motors, inverters and airends
- Ultima cooling philosophy maximizes energy recovery from the complete compressor package
- Ultima recovers 98% of the heat generated (approximately 12% more than standard), which can be used for other processes, reducing the building HVAC load
- Outlet water temperatures up to 194°F
- Heat recovery connections are standard on water-cooled machines, optional on air-cooled machines





High-Efficiency Water Cooling System allows for a Completely Sealed Enclosure

- Completely sealed package = lower noise level
- No customer ducting required = simple installation
- Up to 12% more heat available for heat recovery than competitive offering

Water-Cooled Components

- Intercooler
- Aftercooler
- Airends
- Main motors
- Inverters
- Thermal radiation from airends, coolers, etc.



Air Cooled with Heat Recovery: The Ultimate Efficiency

Unique Cooling

Ultima's **innovative and patented closed package cooling system** allows for the collection and **recovery of up to 98% of the heat** that is generated during the compression process. This energy can be harnessed to provide process water heating, reaching usable water temperatures of up to 185°F (85°C).

In fact, **Ultima is the first and only air-cooled, oil-free air compressor on the market, capable of utilizing heat recovery** for process water heating.

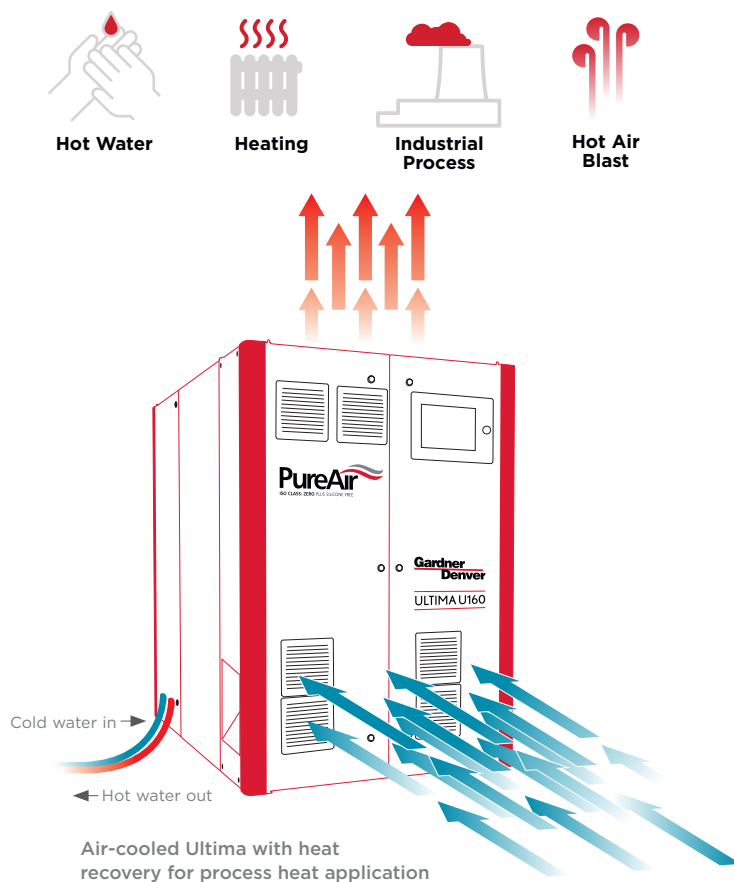
Ultima has the added benefit of **"hybrid cooling mode"** operation. Depending upon the most economic cooling method at the time (e.g. in the case of seasonally changing availability of cooling water) Ultima can operate in either air-cooled or water-cooled mode or a combination of both concurrently.

By utilizing the superior design of the closed loop water system, Ultima requires no air for internal cooling. The unique design processes cooling air within the compressor. By utilizing a heat exchanger, the Ultima cools the internal air, then recirculates it via the base frame around the compressor. This also ensures that no dust or particulates can enter the inside of the compressor.

As a result, installation is made easy with no requirement for ducting, compressor rooms can be kept to the minimum size, noise levels are greatly reduced and machines can be easily installed at point of use.

Integrated Heat Recovery

Significant energy and costs savings can be achieved with Ultima's efficient integrated heat recovery system. It can be either factory fitted or supplied as a retrofit kit including all necessary pipe-work and fittings.



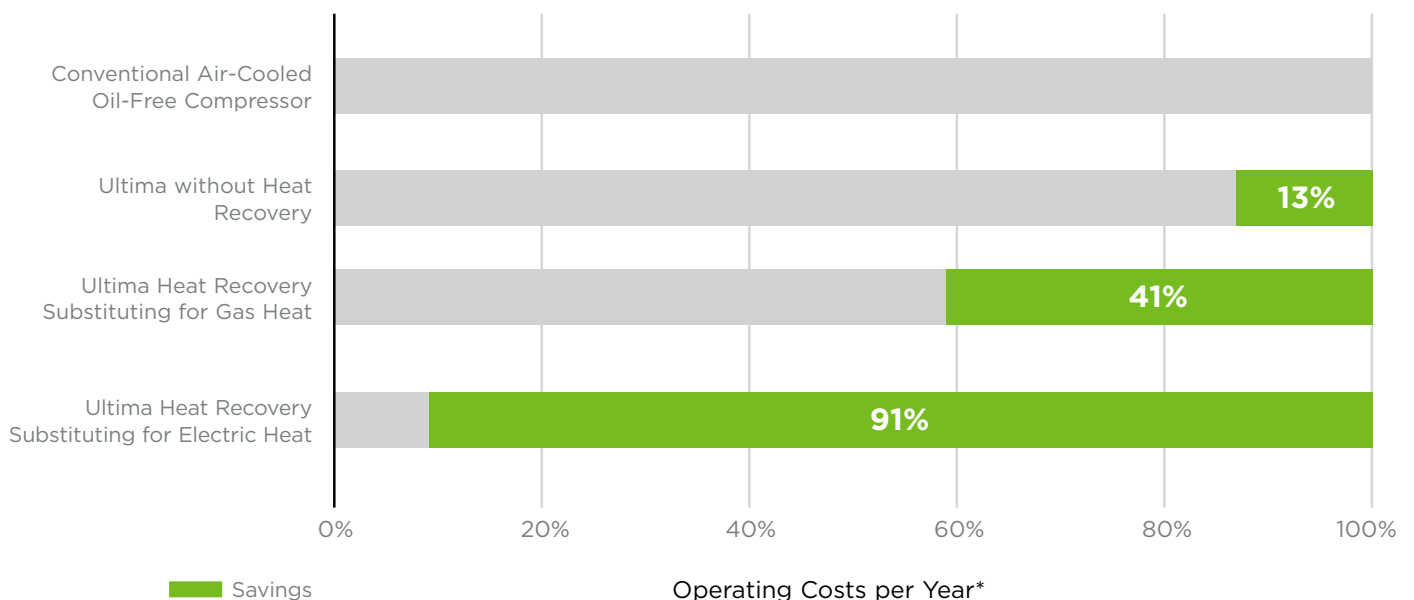


Ultima Air Cooled

Hybrid Cooling Economics

- Almost 100% of the energy cost can be recovered
- Heat Recovery allows up to 91% savings of operating costs
- Ultima is the only air-cooled oil-free compressor that allows heat recovery for process heat
- Even without heat recovery, savings compared to industry standard are up to 13%

COMPARISON OF ANNUAL OPERATING COSTS



*Operation @ 700 cfm 116 psig (20m³/min 8 bar), 4,000 hours per year, electricity price \$0.15/kWh, gas price \$0.05/kWh

Next-Generation Design



TRADITIONAL MOTOR DESIGN

- Traditional oil-free compressors are driven by a single motor. A gearbox drives both the low and high pressure airends.
- Gearboxes require oil and create friction which results in added energy loss.

- Ultima uses ultra-high efficiency motors to independently drive each airend, replacing the gearbox and the single motor.
- This allows the airends to turn at different speeds, maximizing efficiency under all conditions



ULTIMA DESIGN

Digital Gearbox

- As factory air demand changes, airends slow down or speed up to meet the demand.
- With each stage being individually driven, the intelligent, on-board controller individually controls the speed of each airend, perfectly matching the delivery ratio for optimum efficiency.
- This creates a variable speed oil-free compressor with the highest levels of efficiency across the full turndown range, up to 13% better than the nearest competitor.



Driving the airends at different speeds, dependant on the demand, maximizes the efficiency of the airend pair.



SECOND STAGE



DIGITAL GEARBOX



FIRST STAGE

GD Pilot XTC:

State-of-the-Art Control

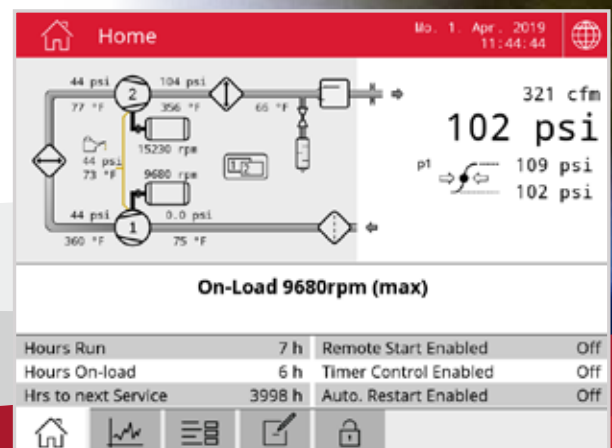
The “GD Pilot XTC” with its 8.0” high resolution touch screen display is extremely user-friendly and easy to navigate. All functions are clearly structured in five main menus and are intuitively visual.

The multilingual “GD Pilot XTC” control system ensures reliable operation and protects your investment by continuously monitoring the operational parameters, which is essential for reducing your operating costs.

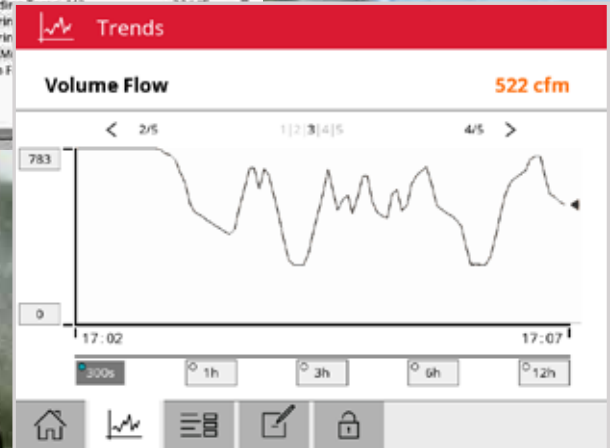
With the ability to display detailed system analysis in the form of trend diagrams and graphs, operating parameters can be precisely set to maximize the efficiency.

Features & Functions

- Compressor status
- Line/network pressure
- Motor speed
- On load hours/total hours run & average volume flow
- Weekly average volume flow
- Ambient pressure & temperature
- Inlet/outlet pressure and temperature at both stages
- Optional base-load sequencing for up to four compressors
- Real time clock-allows pre-setting of compressor starting/stopping
- Second pressure setting
- Auto restart after power failure
- Remote control via programmable inputs
- RS485 Modbus RTU standard
- Optional SD card for data logging



Ambient Pressure	12.60 psi	Ambient Temp.	64 °F
St.1 In Press.	0.0 psi	St.2 In Press.	44 psi
St.1 Out Press.	44 psi	St.2 Out Press.	103 psi
Pressure Ratio St.1	4.4	Pressure Ratio St.2	2.1
St.1 In Temp.	75 °F	St.2 In Temp.	77 °F
St.1 Out Temp.	360 °F	St.2 Out Temp.	356 °F
Line Pressure	102 psi	Line Temp.	66 °F
Oil Pressure	-44 psi	Oil Temp.	73 °F
Jacket Cool. Water In	15 psi	Jacket Cool. Water In	75 °F
Cooling Water In Temp.	55 °F	Cooling Water Out Temp.	72 °F
Vacuum Oil Sump	-0.33 psi		
Motor Speed M1	9770 rpm	Motor Speed M2	15170 rpm
Output Current VSD G1	135.1 AMP	Output Current VSD G2	142.2 AMP
VSD Heatsink Temp. G1	77 °F	VSD Heatsink Temp. G2	79 °F
VSD DC-Bus Voltage G1	326 Vdc	VSD DC-Bus Voltage G2	325 Vdc
	113 °F	Winding	
	100 °F	Bearing	
	108 °F	Bearing	
	342 rpm	Fan M1	
	79 °F	High F	



Ultima Air-Cooled

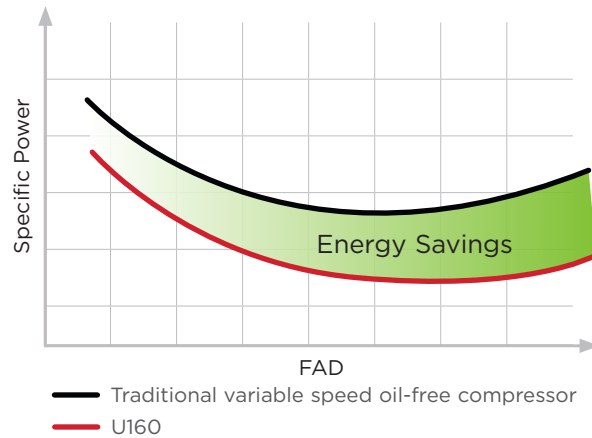
Unmatched Efficiency

With efficiency up to 13% higher than the closest competitor, Ultima delivers unrivaled value. From the 97% efficient motors to the direct drive no gearbox design, Ultima harnesses the highest efficiency of any dry screw compressor on the market.

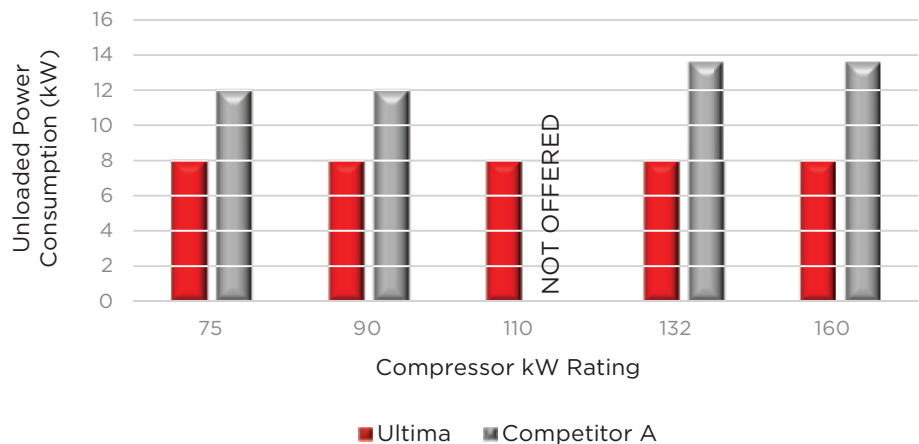
Lowest Unloaded Power Consumption

- Plant demand varies causing compressors to cycle from loaded to unloaded operation
- During unloaded operation, no compressed air is being produced
- All of the energy consumed while running unloaded is wasted
- Lower unloaded power consumption means less wasted energy
- Ultima uses up to **68% less energy** when unloaded: only 8 kW!

EFFICIENCY 160 kW at 145 psi(g)



NO LOAD POWER CONSUMPTION

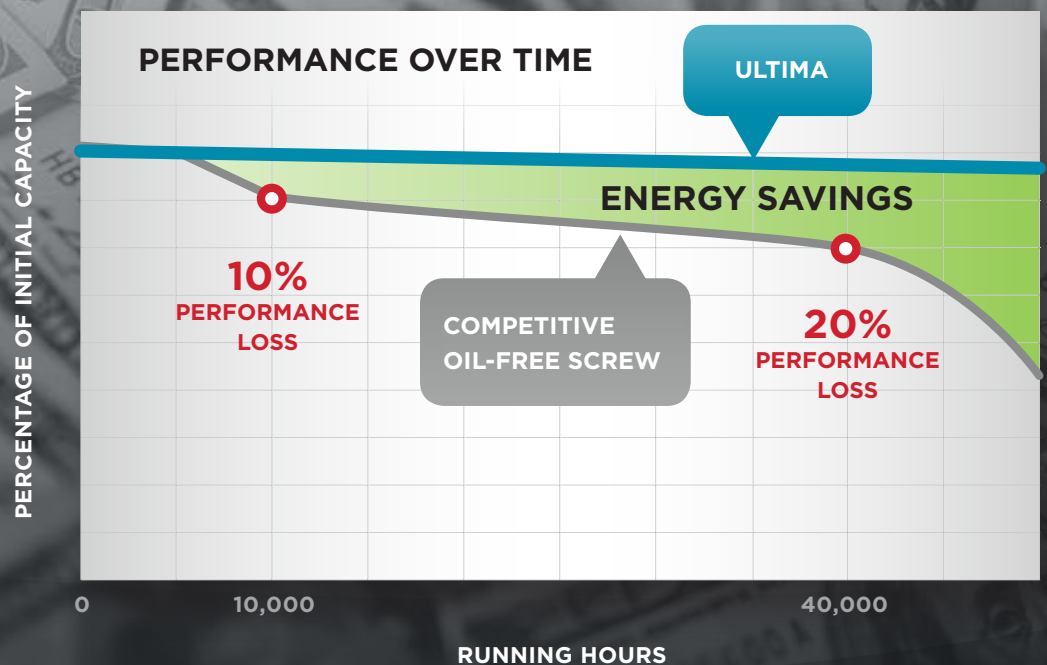


Superior Airend Coating

- 2 stage dry screw airend rotors are coated to:
 - Prevent corrosion
 - Maximize efficiency
 - Provide the best possible protection against rotor wear
- Not all coatings are the same! Gardner Denver uses a two layer hard coating process to ensure maximum efficiency and protection throughout the life of the compressor
- Other manufacturers use a two-part process with a soft second layer Teflon-Graphite coating which ensures good sealing on day one, but rapidly wears, reducing performance by as much as 10%
- Ultima: Guaranteed maximum efficiency throughout the compressor life



THE
HIGHEST
LEVELS OF
EFFICIENCY
THROUGHOUT THE LIFE
OF THE
COMPRESSOR



Eliminate the Risk: Guaranteed 100% Oil-Free

The Ultima features an Oil-Free design. There is no oil used anywhere in the compression process, which eliminates the risk of product contamination due to oil carryover. The Ultima meets ISO 8573-1 Class 0, the most stringent class. It is also certified Silicone-Free which is critical for applications such as automotive and pharmaceutical.

Silicone-Free

Silicone contamination in compressed air systems cause problems across a wide range of industries such as electronics, pharmaceuticals and automotive. Costly product spoilage, re-work and production downtime can result from this contamination.

For example, a high quality paint finish is essential to the automotive industry. Blisters, cracks, craters and loss of adhesion are all symptoms of silicone contamination.

- 100% silicone-free, guaranteed
- Specifically designed for use in pure-air critical applications such as the automotive industry
- Avoids contamination and provides the highest air quality standards
- Independently tested and certified

CLASS	CONCENTRATION TOTAL OIL (AEROSOL, LIQUID, VAPOR) MG/M ³
0	As specified by the equipment user or supplier and more stringent than class 1
1	≤ 0.01
2	≤ 0.1
3	≤ 1
4	≤ 5



PureAir
ISO CLASS: ZERO PLUS SILICONE FREE

Footprint Savings

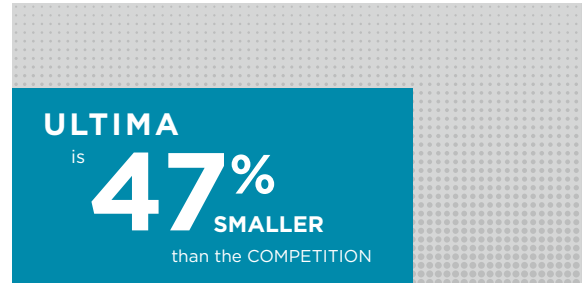
Compact Design

- The unique design of the Ultima results in an extremely small package
- Ultima's footprint is up to 47% smaller than the competition
- This allows easy installation in the smallest possible space

Simple Installation

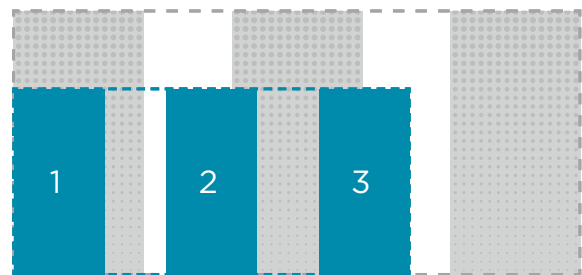
The Ultima compressor is only a fraction of the weight and size of equivalent conventional dry screw compressors and therefore features a smaller footprint.

- Lower installation costs
- Increased flexibility when determining installation location
- In multiple machine installations this results in considerable building and real estate savings



FOOTPRINT COMPARISON

- Standard 200 HP Screw Package
- Ultima U160 Air-Cooled Package



Without sacrificing serviceability,
Ultima packages feature the
smallest footprint
in the industry.

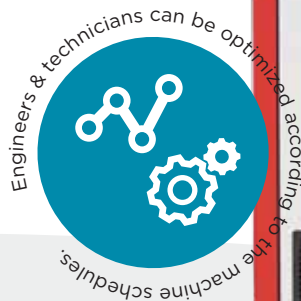
THREE Ultima
compressors fit in
the space required for
TWO conventional
dry screw
compressors

Peace-of-Mind Protection & Smarter Performance

Fitted with the GD Pilot XTC™ touch screen controller, Ultima provides the ability to monitor the installation's operational parameters, through a multilingual and user-friendly control system, which is essential for protecting your investment and lowering running costs.

The controller in turn allows connection to iConn—the real-time monitoring service providing in-depth, accurate and real-time knowledge about the system. This proactive, smart technology provides total peace-of-mind, ensuring that production planning is protected by precise statistics and insight generated by the controller. This data keeps users informed about performance and highlights any cause for concern before a problem arises.

The Gardner Denver
iConn platform
mitigates risk
and allows you to
continuously monitor
your compressed air
equipment.

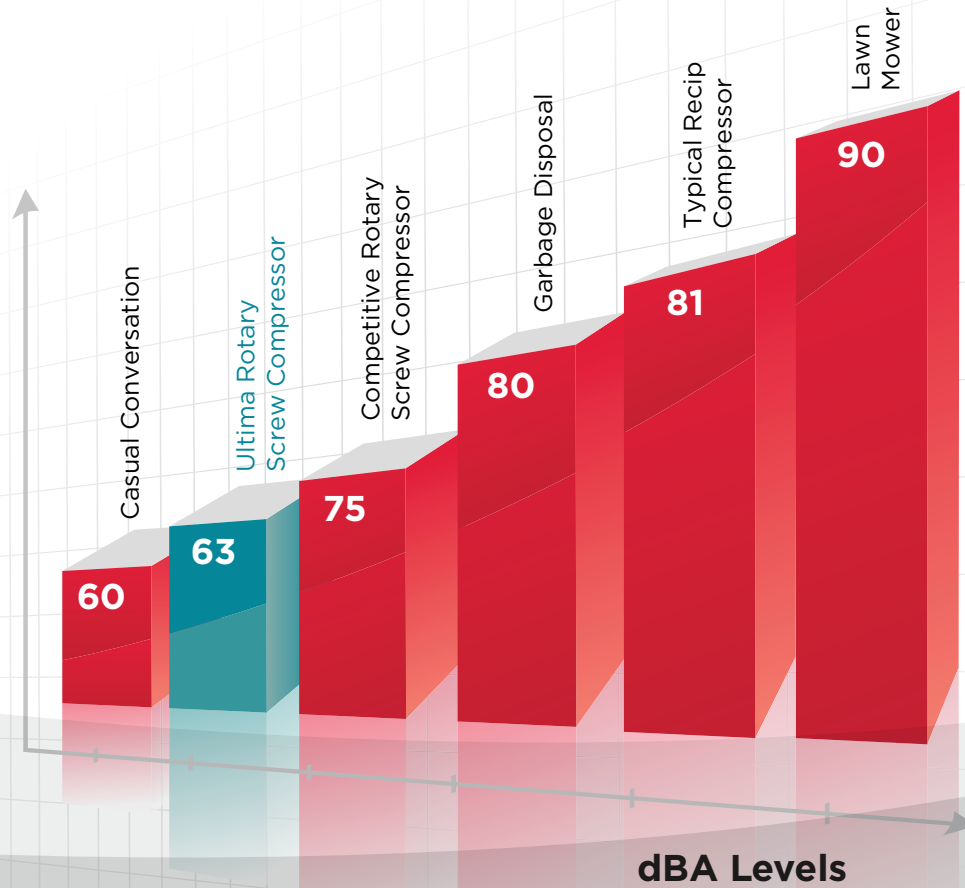




ULTIMA
TAKES
QUIET
TO A WHOLE
NEW LEVEL

Lowest Sound Levels

The Gardner Denver Ultima Series compressors utilize high-quality, sound-insulating enclosure panels and a completely sealed cabinet. These features reduce the sound levels and eliminate the need for a separate compressor room, saving money on installation costs and providing installation location flexibility.



Sales & Service Distributors Across America

An Extensive Network

By leveraging the extensive network of Gardner Denver factory-trained authorized local distributors, your sales, service, and technical support needs can be handled quickly and easily.



Best Warranty in the Industry

Experience Peace of Mind

The engineering philosophy of Gardner Denver ensures long-lasting, reliable equipment. Our simple, but bold warranty programs demonstrate our belief in the quality found in Gardner Denver compressors.

Our standard warranty ensures that you have peace of mind when it comes to your system's operation. For added protection, take advantage of our 5-year extended airend warranty program. Simply stated, it's the best in the industry.



To find a distributor visit:
www.gardnerdenver.com/gdproducts/

Ultima Technical Data

VARIABLE SPEED MACHINES, 50 & 60 HZ

MODEL	DRIVE MOTOR		NOMINAL PRESSURE		FAD*		COOLING METHOD	NOISE LEVEL** DB(A)	WEIGHT		DIMENSIONS L x W x H IN. (MM)
	HP	KW	PSIG	BAR	ACFM	M ³ /MIN			LBS	KG	
U75	100	75	100	6.9	463	13.10	Air	64	7408	3360	127.7 x 54.9 x 78.4 (3244 x 1394 x 1992)
			125	8.6	403	11.42	Water	63	6063	2750	85.4 x 54.9 x 78.4 (2168 x 1394 x 1992)
U90	125	90	100	6.9	568	16.09	Air	65	7408	3360	127.7 x 54.9 x 78.4 (3244 x 1394 x 1992)
			125	8.6	506	14.32	Water	64	6063	2750	85.4 x 54.9 x 78.4 (2168 x 1394 x 1992)
U110	150	110	100	6.9	697	19.75	Air	65	7408	3360	127.7 x 54.9 x 78.4 (3244 x 1394 x 1992)
			125	8.6	634	17.94	Water	64	6063	2750	85.4 x 54.9 x 78.4 (2168 x 1394 x 1992)
U132	180	132	100	6.9	818	23.16	Air	67	7408	3360	127.7 x 54.9 x 78.4 (3244 x 1394 x 1992)
			125	8.6	763	21.60	Water	66	6063	2750	85.4 x 54.9 x 78.4 (2168 x 1394 x 1992)
U160	215	160	100	6.9	848	24.01	Air	70	7408	3360	127.7 x 54.9 x 78.4 (3244 x 1394 x 1992)
			125	8.6	842	23.85	Water	69	6063	2750	85.4 x 54.9 x 78.4 (2168 x 1394 x 1992)
			145	10	835	23.64					

*Data measured and stated in accordance with ISO1217 4th Edition Annex C and E at the following conditions:
Air Intake Pressure: 1 bar a/14.5 psi, Air Intake Temperature: 20°C/68°F, Humidity: 0% (dry)

**Measured in free field conditions in accordance with the ISO 2151, tolerance ±3 dB(A)



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by continuously improving all business processes
with a focus on innovation and velocity

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