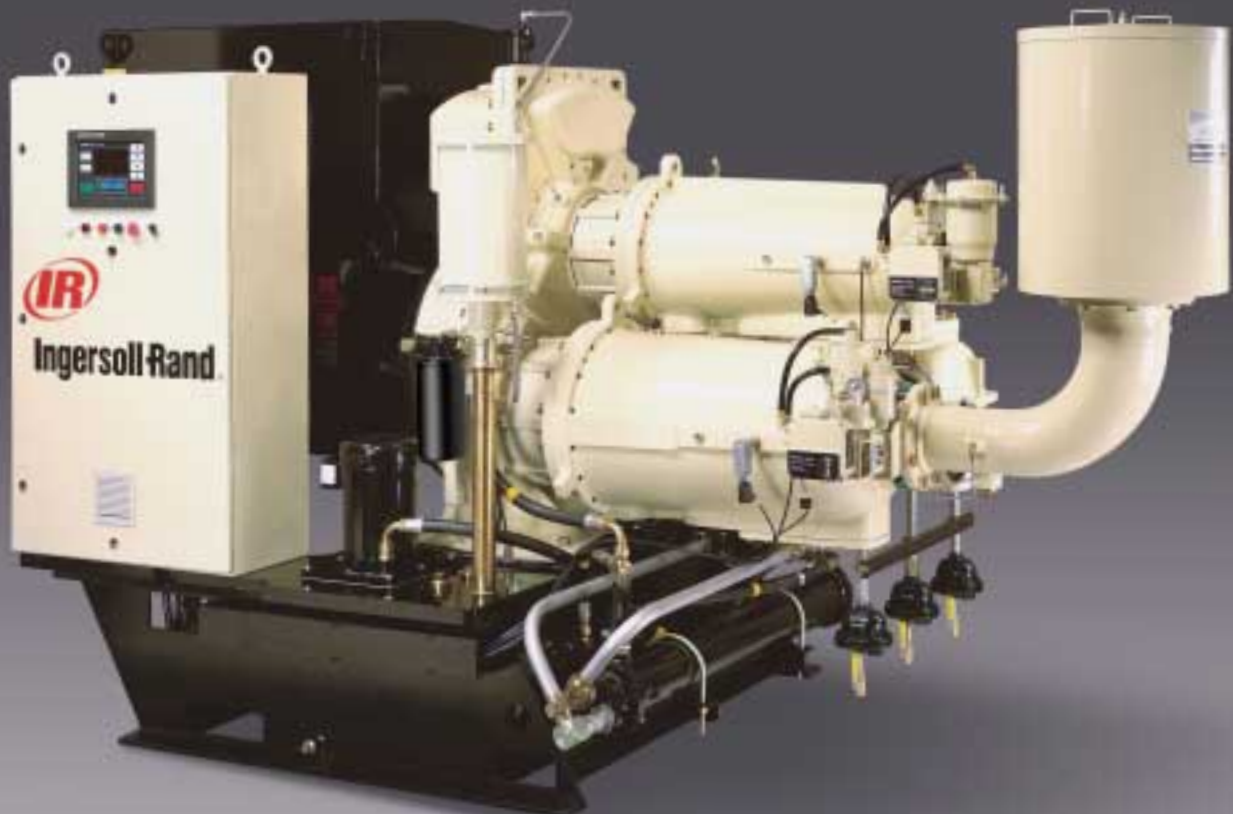


# Ingersoll Rand®

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## Oil-Free Centrifugal Air Compressors C250 / C350

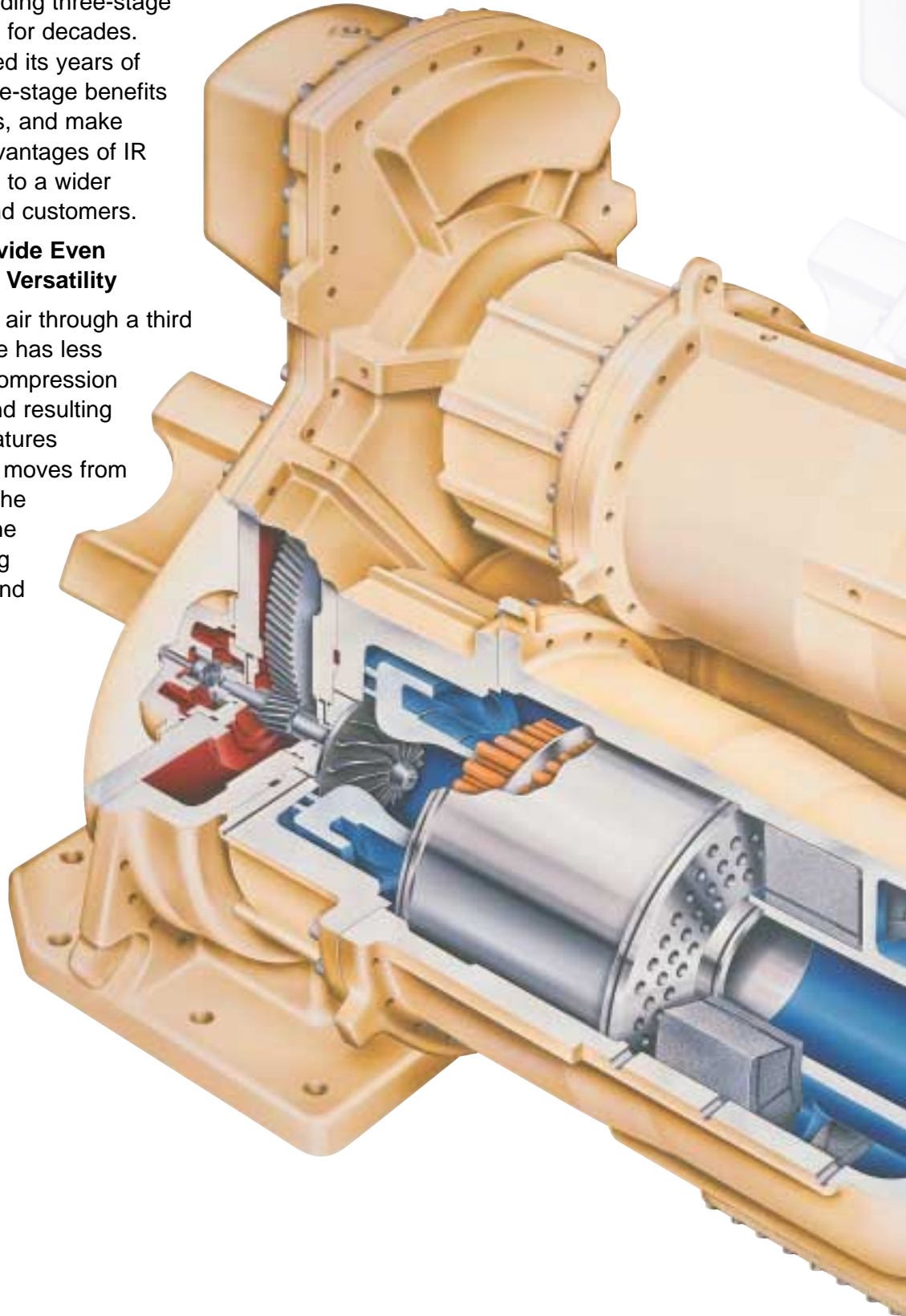


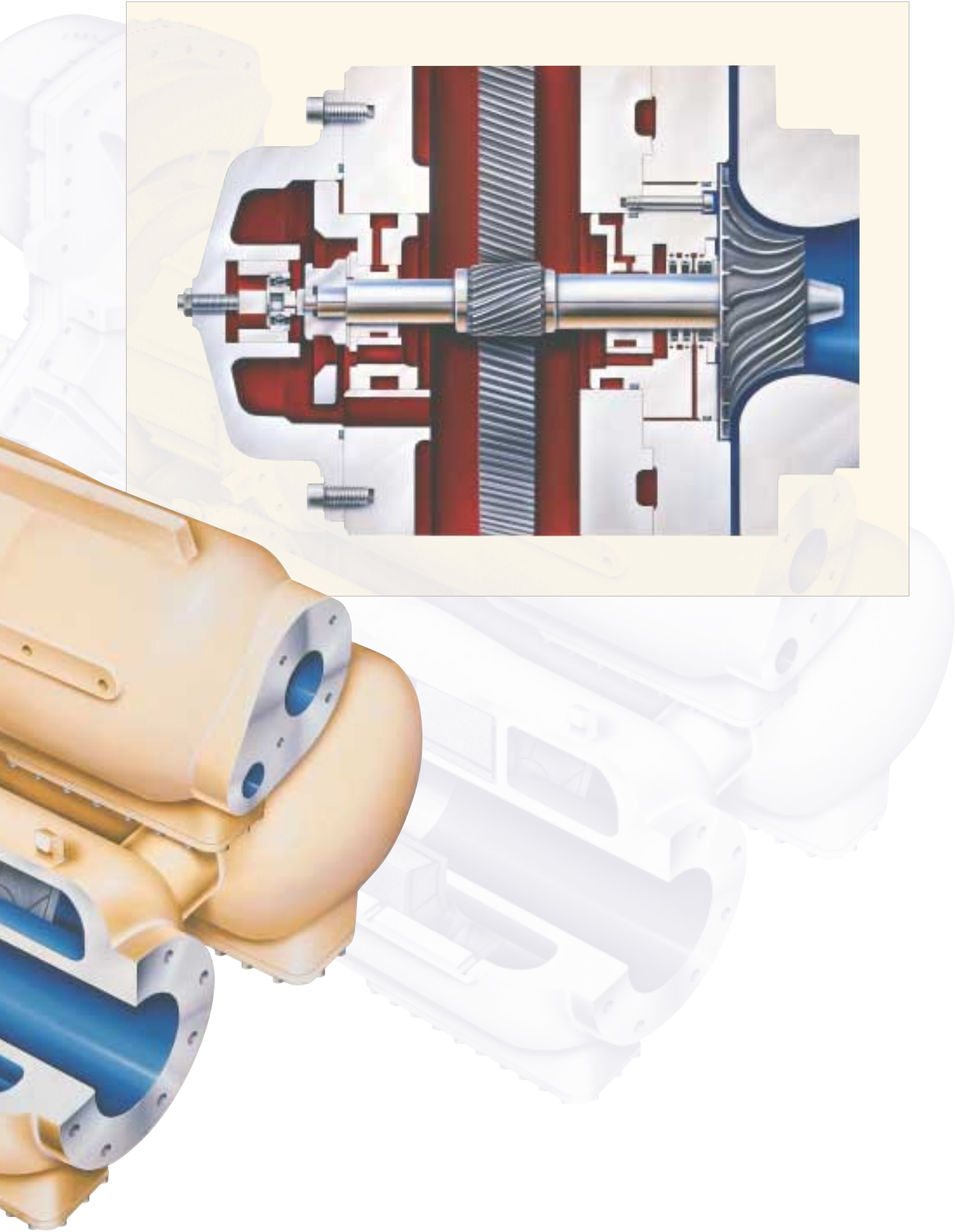
## The Three-Stage Solution

Centrifugal compressors are inherently oil-free and simple by design. Ingersoll-Rand has been designing and building three-stage centrifugal compressors for decades. Now, IR has now focused its years of experience to bring three-stage benefits to the 200-400 kW class, and make available the unique advantages of IR centrifugal compressors to a wider range of applications and customers.

### Three Stages Can Provide Even Greater Efficiency and Versatility

Putting the compressed air through a third stage means each stage has less work to do. The lower compression ratios in each stage, and resulting lower operating temperatures overall, mean cooler air moves from one stage to the next. The compressor produces the air more efficiently, using less mechanical effort and less energy.





## More Air for Your Money

### Simple Design in an Integrated Package

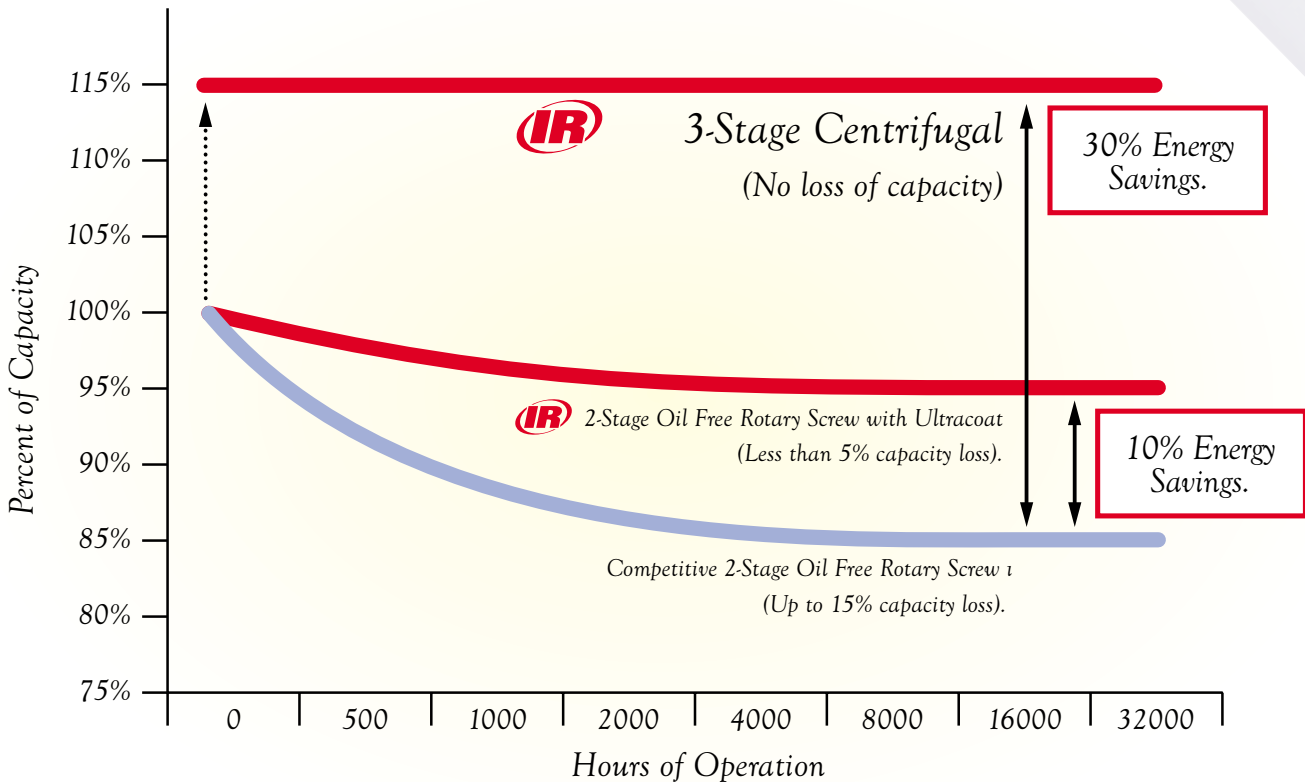
In a centrifugal compressor the most critical component, the impeller/pinion rotating assembly, simply spins imparting velocity to the air and converting that velocity energy to pressure.

The overall design is amazingly simple and all components, including inter-stage and aftercoolers, are integral to the package for easy installation.

### Greater Capacity and 30% Energy Savings

In addition, gradually stepping up the pressure over three stages allows the efficient centrifugal to achieve peak performance and enjoy an even greater increase in energy efficiency. With greater capacity to start with and no loss of capacity over its operating life, Ingersoll-Rand's three stage centrifugal, compared to a competitive two-stage oil-free rotary screw, can realise up to 30% in energy savings over its total life cycle.

## Ingersoll-Rand Energy Advantage



*The IR 3-stage centrifugal begins with as much as a 15% capacity advantage over a 2-stage oil-free rotary screw. That advantage widens to as much as 30% as the centrifugal capacity remains constant and the competitive rotary screw capacity degrades up to 15%.*

## The Three-Stage Package; Proven, Reliable, Versatile

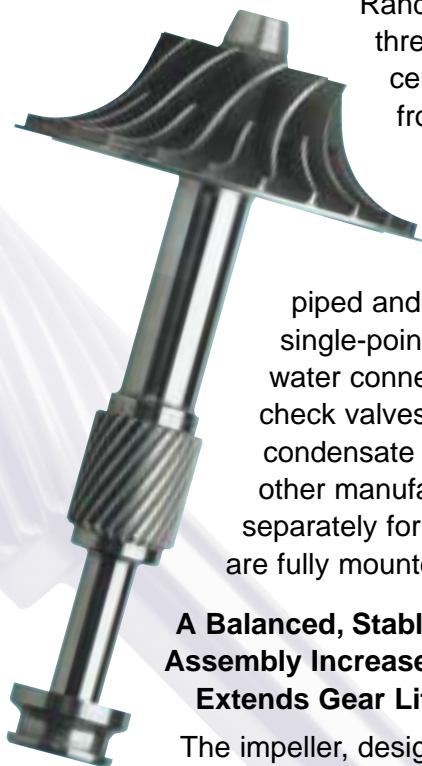
There are more Ingersoll-Rand centrifugal compressors providing oil-free air throughout the world than any other brand of centrifugal compressor. That is because IR centrifugal compressors are proven to be dependable, reliable, versatile machines that have enjoyed worldwide customer acceptance and loyalty for decades.

### Complete Package, Ready to Install; No Unmounted Components

At the heart of every unit are the essential components, designed, manufactured or specified by Ingersoll-Rand that set the IR three-stage centrifugal apart from all other compressors. Every component is mounted, piped and wired for easy, single-point air, electric and water connections. Even check valves and condensate traps, which other manufacturers ship separately for field installation, are fully mounted.

### A Balanced, Stable Rotor Assembly Increases Efficiency, Extends Gear Life

The impeller, designed and manufactured by Ingersoll-Rand from high-grade stainless steel, features vane geometry developed by IR for maximum pressure control over the widest operating range. And with just one impeller on each pinion, the rotor assembly has unequalled stability and minimal overhung weight. A thrust collar allows aerodynamic thrust loads to dissipate to the bearings without being transmitted to the main gear train, effectively extending gear life.



### Superior Bearing System Design Provides Longer Maintenance Intervals

The stability of the rotor assembly permits IR to use simple, fixed tilted pad bearings with no moving parts. The rotor spins on a stable film of oil, providing long intervals between scheduled maintenance checks.



### Vibration Monitoring

To provide reliable predictive maintenance.

### Seals

Full-floating non-contact carbon ring seals minimise air leakage under all operating conditions.

### Vertically Split Casing Reduces Maintenance Downtime

Ingersoll-Rand's exclusive vertically split casing not only makes it much easier to open up the machine, it makes possible single-piece bearings and seals, quick and easy field replacement of internal components, and the external setting of required running clearances without opening the casing at all.



## Peak Compressor Performance

No other compressor allows you to hit your performance requirements as easily and as economically as Ingersoll-Rand's 3-stage centrifugal. The greater efficiency and reliability made possible by three centrifugal stages and IR's unique features and controls provides you with an unbeatable combination of energy savings and a long, trouble free operating life.

### Exclusive Internal Coatings Extend Operating Life

All internal air, water and oil passages are coated to protect against corrosion and to increase operating life. Only IR coats these critical internal surfaces, no other centrifugal compressor has this feature.

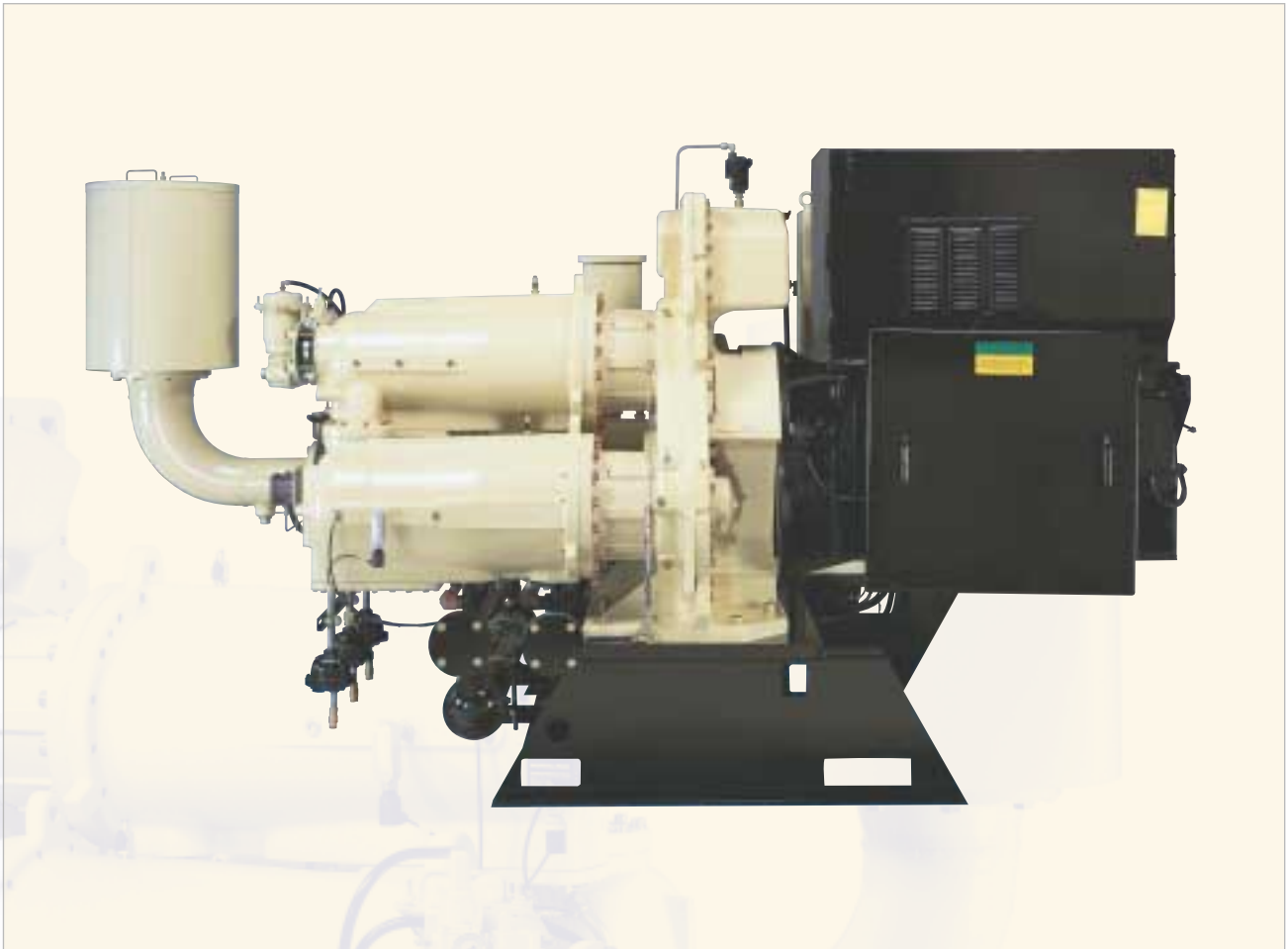
### Proven Reliability in Thousands of Installations

Ingersoll-Rand has built more than 16,000 centrifugal compressors and today there are more IR centrifugal compressors operating around the world than of any other manufacturer. From factory air to the most critical application in textiles, pharmaceuticals, power generation or electronics, the world relies on Ingersoll-Rand centrifugal compressors.

### Microprocessor Control System, Customised to Your Installation

Ingersoll-Rand's microcontroller is unmatched for comprehensive, flexible, precise control of your compressor. The large, easy-to-use panel displays all critical operating data and can be customised to your installation or application.





**Rugged Motor Designed For Years of Reliable Service**

IR's motor is applied with long term service in mind. All compressors are engineered to ensure years of reliable operation.

**Star Delta Starting System Cushions Every Startup**

The advanced Star Delta starter gives the compressor a controlled, cushioned start, lowers in-rush current, avoids power spikes and extends the life of the components.

**Most Accessible Casing for Unmatched Serviceability**

Ingersoll-Rand designs every one of its compressors to run a long time between service intervals. When the time comes, the 3-stage centrifugals from IR are the easiest in the industry to service. IR's exclusive vertically split case allows easy access to components, clearances can be set externally and bearings, seals and impellers are field-replaceable.

**Lube Oil System Protects Bearings and Gears**

A totally contained electric main oil pump provides oil to the bearings and gears. For added protection in the event of a power failure, IR has designed in an exclusive oil reservoir that supplies lubrication to the machine during coast-down to shut-off.





## **AirCare. Flexible Maintenance. Constant Quality.**

AirCare is Ingersoll-Rand's exclusive, responsive and flexible contract maintenance program custom-designed to provide customers with factory-authorized scheduled maintenance for increased system reliability. AirCare helps eliminate unscheduled downtime and relieves customers of the costly investment in monitoring equipment, ongoing training and a thorough knowledge of compressor technology.

### **Warranty Extended to Five Years**

IR's AirCare program allows you the opportunity to extend the drivetrain or full package warranty over five years, providing you with total peace of mind.

### **Comprehensive Coverage for Any Compressor**

AirCare is available for new machines or with overhauls and exchanges. In addition, AirCare can be coupled with service contracts for total coverage of parts and preventative maintenance service.

### **Lower Cost. Increased Productivity.**

A compressor installation covered by the AirCare program can expect:

- Reductions in emergency maintenance costs thanks to periodic inspections
- Reductions in energy costs thanks to increased operating efficiency
- Increased productivity thanks to dramatically shortened downtime

### **The AirCare Program**

No long-term maintenance program is more comprehensive than AirCare. The chief highlights of the program include:

- Certified, professional technicians will perform routine inspections and diagnostic service
- Performance will be enhanced through exclusive use of genuine IR parts and lubricants
- All-inclusive fluid analysis program will comprehensively monitor the lubricant in the compressor to detect problems at the earliest opportunity.
- Vibration analysis diagnostics pinpoint the need for component replacement through monitoring and trend analysis that predicts the service life of critical components.

### **Remote Monitoring**

An added option to AirCare is IR's Intelliguard™ remote monitoring feature. This 24-hour-a-day, seven-days-a-week, surveillance of the air compressor installation helps identify potential problems at an early stage and prevent unexpected repairs.



## Microcontroller Provides Flexible, Reliable and Efficient Operation

Your Ingersoll-Rand three-stage centrifugal features the most modern electronic control system in the industry. The control system utilises an advanced, self-regulating process computer to completely integrate the compressor, motor, starter and auxiliary equipment.

The microcontroller provides increased flexibility and improved control ability while performing unparalleled compressor system monitoring.

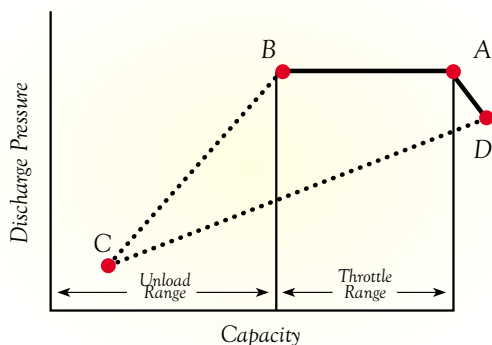


### User-Friendly

- Simple twelve-button keypad
- More on-screen data increases your ability to determine the compressor operating status.
- Operating parameters, alarm settings and trip settings appear on the graphic display panel
- Set points can be changed at the touch of a button

- Two separate language and unit sets, English and user-specified, are selectable from the display.

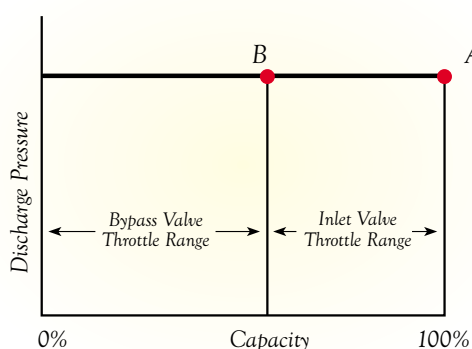
### Auto Dual Efficiency Mode



### Self-Diagnostic

- First-out indication and event log details
- Event log screen simplifies trouble shooting and analysis of your compressor
- Includes logic to determine a microcontroller malfunction
- Surge Absorber™ reduces the impact, both duration and magnitude, to system pressure changes from a surge condition for more reliable operation

### Constant Pressure Mode



### Control Flexibility

- Standard energy optimisation in auto dual control mode
- Standard constant pressure in modulate control mode

### Dependable Operation

- Fail-safe feature stores operating parameters at the time of shutdown due to power loss
- System automatically adjusts to a start condition when power is restored after a power failure.

### System Management

- Older centrifugal compressors (even non-IR) can be easily upgraded and automated into a single system

- The UCM also communicates through and accepts modem commands
- Energy management software is available to provide significant energy savings

### State-of-the-Art Electronics and Communications

- The Optional Universal Communications Module (UCM) allows for integration into a plant-wide control system
- The UCM supports MODBUS and Allen-Bradley DF1 protocols

### Three-Stage Options

The IR 3-stage centrifugal is available with a wide variety of options, ensuring that you can equip your machine to match your application requirements exactly.

## C250

Model	Nominal Capacity m <sup>3</sup> /min	Design Pressure bar (A)	Motor Rating 400V/3/50Hz kW	Weight kg	Length mm	Width mm	Height mm
C35MX3	35	from 8.0 to 9.5	200	4200	4600	1800	2100
C40MX3	40	from 8.0 to 9.5	250	4200	4600	1800	2100
C45MX3	45	from 8.0 to 9.5	250	4200	4600	1800	2100
C50MX3	50	from 8.0 to 9.5	300	4300	4600	1800	2100

## C350

Model	Nominal Capacity m <sup>3</sup> /min	Design Pressure bar (A)	Motor Rating 400V/3/50Hz kW	Weight kg	Length mm	Width mm	Height mm
C55MX3	55	from 8.0 to 9.5	300	7300	4600	1800	2100
C60MX3	60	from 8.0 to 9.5	350	7300	4600	1800	2100
C65MX3	65	from 8.0 to 9.5	350	7300	4600	1800	2100
C70MX3	70	from 8.0 to 9.5	400	7300	4600	1800	2100
C75MX3	75	from 8.0 to 9.5	400	7300	4600	1800	2100

Performance data is basis reference conditions of 14.1 psia/0.975 bar inlet pressure, 14.4 psia/1.0 bar barometric pressure, 95°F/35°C inlet temperature, 60% relative humidity, and 80°F/25°C water temperature. Test methods per ASME PTC-10.

Product improvement is a continuing goal at Ingersoll-Rand.  
Designs and specifications are subject to change without notice or obligation.

# More Than Air. Solutions.

Online solutions: <http://www.air.ingersoll-rand.com>



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