



Evolution Series Product Launch

2.2 to 5KW

and

Small Recips

May 2017

Gurunandan Kabad – Product Marketing India

Agenda



Торіс	Duration	Facilitator
Opening Remarks	2 minutes	Boris Takov
Product Unveiling 2.2 to 5 KW Product Specifications Compressor component Support Material	20 minutes	Guru Kabad
Product Unveiling Small Recips Product Specifications Compressor component	20 minutes	Guru Kabad
Route to Market	10 minutes	Jatinder Tiwana
Leader Comments	5 minutes	Jatinder Kaul/ Rajesh Fotedar/Yao xun
Q&A	15 minutes	All
Closing Remarks	2 minutes	Boris Takov







2.2 - 5.5 kW Market Trend



Historically dominated by Reciprocating Technology

- Piston Technology dates back to the early 1900's
- Price Competitive
- Simplistic Design
- Reliability
- Previous lack of Rotary Technology
- Health & Safety was less of an issue



Evolution[™] 4</sup>

Evolution Product Launch



2.2 to 5 Kw Rotary

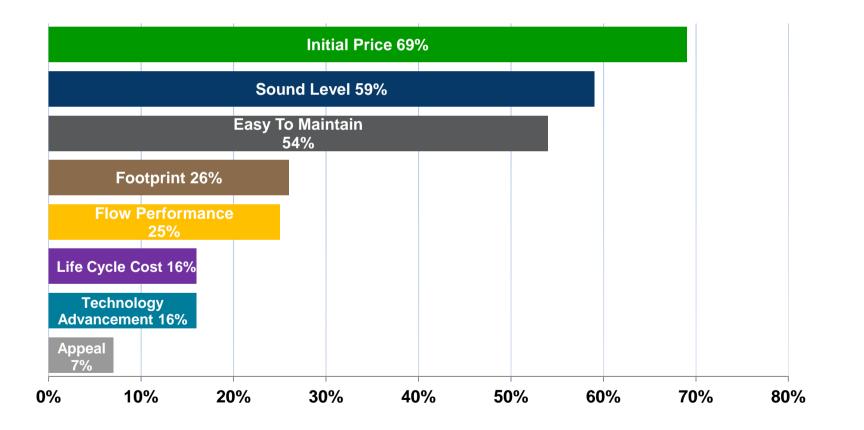




Voice of the Customer



The 2.2 - 5.5 kW Rotary Screw Compressor is designed to meet the identified customer values.





Product Specifications

Basic Product Specifications

- 2.2, 4 & 5.5 kW power sizes
- 400/3/50 electrics
- All units are 7 or 10 bar(g) rated
- Start/Stop pressure switch control
- Starter
 - 2.2 DOL
 - 4 kW DOL
 - 5.5 kW Star/Delta







Product Specifications



Continued

- All units 200L receiver mounted Sound levels as low as 64dB(A)
- Ingersoll Rand manufactured airend
- Ultra Coolant
- 46°C ambient temperature
- Dryer option





Dryer Option



- ND72IN refrigeration dryer
- Manufactured in Ingersoll Rand, India
- Full feature control panel
- 50°C ambient temperature
- Same footprint of non-dryer model
- Own power supply (230/1/50)







Quiet Performance



Reduced Noise Levels vs Reciprocating Unit

- Lower vibration levels
- Enclosed silenced unit
- Panels lined with noise reducing foam
- Rotary as low as 64dB(A) vs recip 80⁺dB(A)

Results in:

- Compressor located closer to point of use
- Less disruption to workforce
- Reduced risk of breaking Health & Safety regulations
- More productive & safer working environment



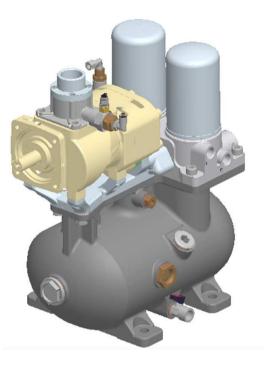


Integrated Airend/Separation Unit



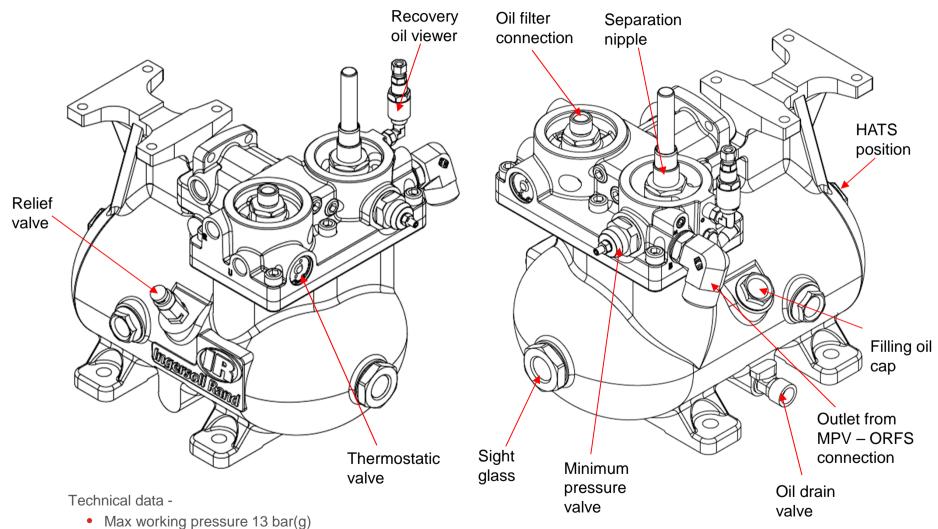
Includes

- Airend connected directly to separator tank
- Common manifold
 - MPV Minimum Pressure Valve
 - Thermostatic valve
 - Oil filter
 - Separator element
- Intake valve and blowdown arrangement
- HATS High Air Temperature Switch
- Advantages: Minimal joints and leak paths Package is clean and free from pipes, etc. Space reduction Proven design



Integrated Airend/Separation Unit





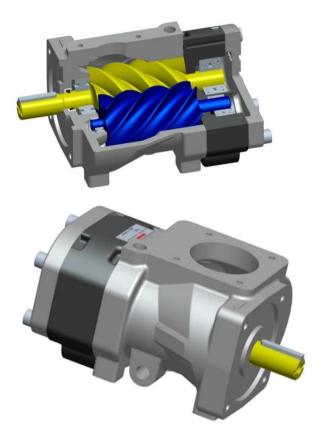
MPV @ 4 bar(g)

Airend

Summary

- Ingersoll Rand manufactured
- Proven design
- Been in production since 2005
- Over 5,000 units in the field
- 2009 YTD zero failures
- Profile 4/6 lobes



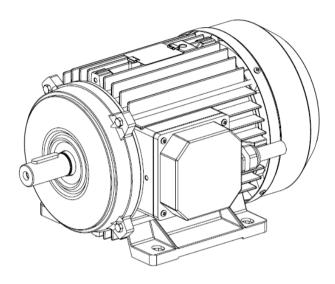


Main Motor

Highlights

- Sizes 2.2, 4 & 5.5 kW
- Voltage 400v (±10%)
- IP55
- 'F' class insulation
- S1 duty (continuous duty)
- Motor service factor 1.15
- Proven in the field







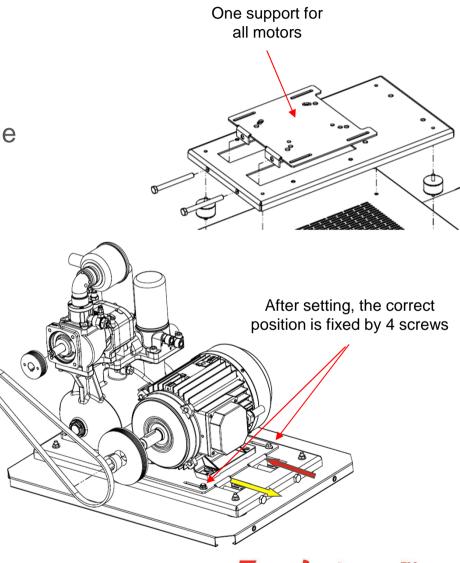
Evolution[™]14</sup>

Drive & Belt Tension

Basic Details

- Easy motor positioning
- One motor support for all range
- Precise transmission ratio
- Accurate belt alignment
- Minimum new parts
- Reduced noise & vibration



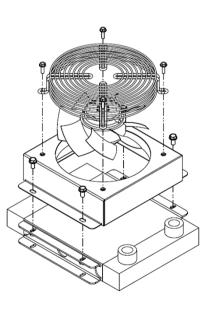




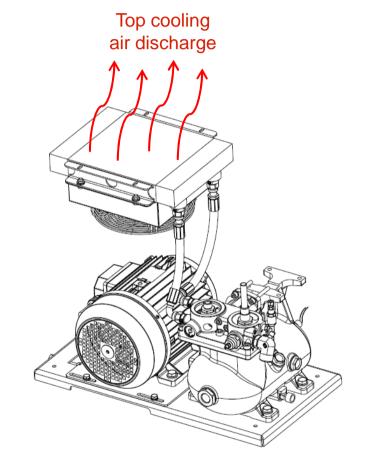
Cooling

Overview

- 46°C ambient temperature
- Oil Cooler
- Pack of cooler with shroud and 400V fan
- Common parts
 - same hose for oil in/oil out
 - connections
- Serviceability
- 2.5 litres of coolant



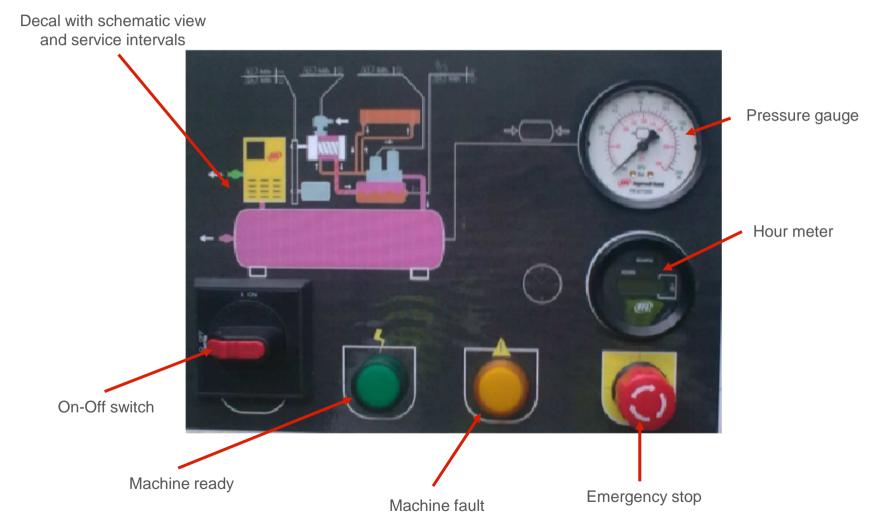






Control Panel



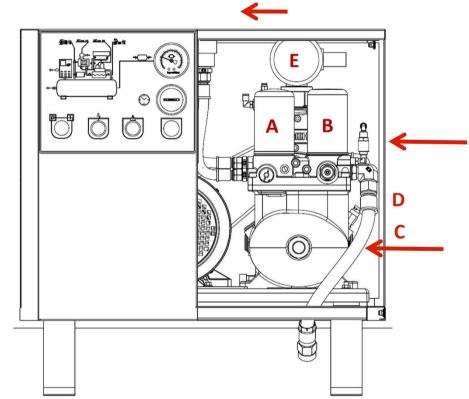


Ease of Maintenance



Routine Service & Maintenance Easy to Perform

- Quick access through easily removeable panels
 - spin on oil filter (A)
 - separator element (B)
 - coolant level check (C)
 - coolant top up or change (D)
 - quick change air filter (E)
- Rear panel access
 - belt
 - motor





Performance & Nomenclature



Model	Capa	city	Operating	CCN			
woder	m³/min	ft ³ /min	bar(g)	psi(g)	CCN		
	-TAS						
N 2-7-200	0.26	9.5	7.5	110	47555350001		
N 2-10-200	0.24	8.5	10	145	47555351001		
N 4-7-200	0.61	22	7.5	110	47555352001		
N 4-10-200	0.46	17	10	145	47555353001		
N 5-7-200 SD	0.76	27	7.5	110	47555354001		
N 5-10-200 SD	0.62	22	10	145	47555355001		
	TAS						
N 2-7-200-D	0.26	9.5	7.5	110	47557554001		
N 2-10-200-D	0.24	8.5	10	145	47557555001		
N 4-7-200-D	0.61	22	7.5	110	47557556001		
N 4-10-200-D	0.46	17	10	145	47557557001		
N 5-7-200 SD-D	0.76	27	7.5	110	47557558001		
N 5-10-200 SD-D	0.62	22	10	145	47557559001		

N 5-10-200 SD-D

Rotary N	
Series	

kW size

10 bar(g) 200L Receiver Star/Delta Starter 5.5 kW standard

ter Dryer rd Option



Support Material

- Updated Price Pages
- Electronic Brochures
- Quote Formats
- Streetfighters
- Presentation (pdf)
- Engineering Material



Evolution, for easy and reliable air supply Evolution[™] rotary screw air compressors are designed to provide ease of operation.

Incersoli-Rand Air Solutions

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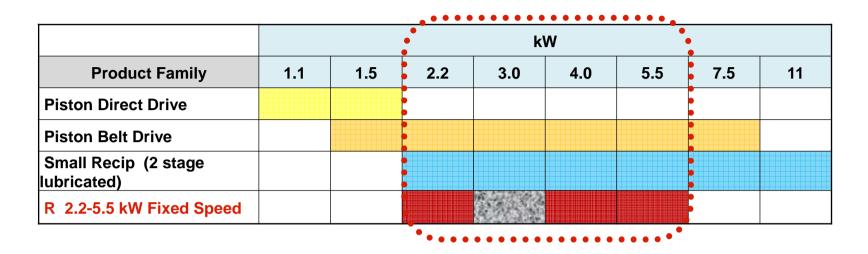
EvolutionTM 2.2-11 kW Rotary Screw Air Compressors

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				N2-10-20 N4-7-200	0 2.2	8.5	145	152	1403		1134		200
				N4-7-200 N4-10-20									200
				N5-7-200		77	100	152	1403		1134		200
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				N2-7-200		95	100	110	1403		1134		200
					0-0 2.2								200
			-	N4-7-200		21.4			1403				200
				N4-10-20	D-D 4	16.5	145	152	1403	560	1134	227	200
				N5-7-200		27			1403				200
N7				N5-10-200	SD-0 5.5	22	145	152	1403	560	1134	250	200
			-	N7-7	7	37.4	95	102	850	790	810	280	
		-		N7 -8	7	35.3	109	116	850	790	810	280	
				N7-10	7	30		145	850		810	280	-
-	5			N11-7	11						810		
-	1000			N11-8	11	51.2	109	116	850	790	810	280	-
-	-			N11-10	11		138						
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-	-	-		N7-8-272	7	35.3	109	116	850	1470	1550	450	272
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Portfolio





- Ingersoll Rand has now a complete product portfolio in this power range
- Broader Rotary Fix Speed product offering
- Prices are set to be competitive



Summary

Value Proposition

- Low initial price
- Low sound level
- Easy to maintain
- Minimal footprint
- Competitive flow/performance
- Evolution Ingersoll Rand brand







Evolution Product Launch



Small Recips





Commercial Industry Products





Putting Air To Work for More Than 100 Years

Since 1872, Ingersoll-Rand air compressors have been valued as reliable workhorses for industry.

Evolution Product Launch



This is the original.

Powerful, durable, reliable, built to last. A legend from the very beginning.





Quality Engineered, Two Stage, Cast-Iron Pump for Unmatched Reliability

1 2

Cast iron cylinder head ensures pump reliability at high operating temperatures Radial fin design provides even 360° cooling and improves reliability by eliminating hot spots. Individually cast cylinder design also reduces maintenance effort and time



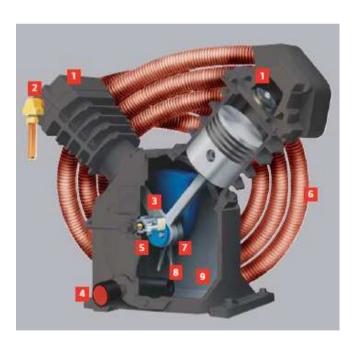






Quality Engineered, Two Stage, Cast-Iron Pump for Unmatched Reliability

- 3 One-piece connecting rod simplifies maintenance and reduces wear due to fewer parts
- 4 Slot for oil sight glass or low oil level switch
- 5 Centrifugal Unloader (10,15 and 20HP only) ensures loadless starts, for maximum starter protection





One-piece connecting rod





Quality Engineered, Two Stage, Cast-Iron Pump for Unmatched Reliability

- 6 Finned copper intercooler provides increased cooling between 2 stages resulting in higher efficiency
- Precision balanced crankshaft reduces noise and vibration. Overhung design simplifies maintenance and wear-sleeve replacement



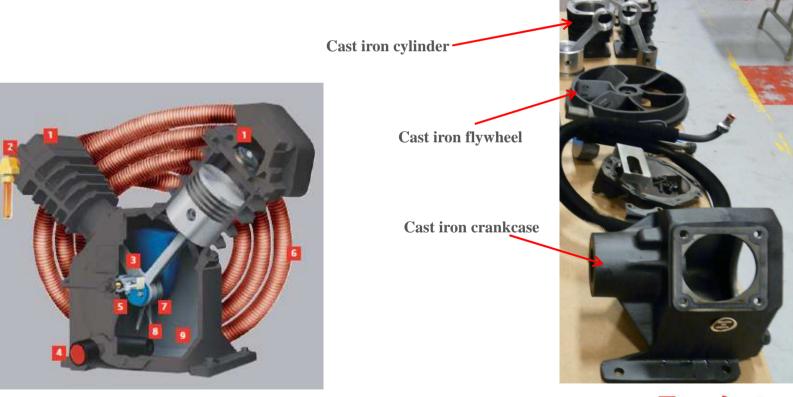






Quality Engineered, Two Stage, Cast-Iron Pump for Unmatched Reliability

8 Simple and reliable splash lubrication
 9 Rugged cast iron pump construction (cylinders, heads, crankcase and flywheel) for
 9 improved reliability in continuous duty applications





Stainless Steel Valves

- Stainless steel finger valve design built for high performance environment
- Exclusive edge processing design for increased reliability in continuous duty applications
- Optimized valve design for increased volumetric efficiency
- Easily accessible and simple design for quick scheduled maintenance
- Poke yoke design for error proof assembly during scheduled maintenance and regular cleaning



Cast iron cylinder head



Stainless steel finger valves







>100% Cast Iron: Durable heavy duty construction that lasts
 >V-Block Configuration: Provides even 360 degree cooling around each head, eliminating hot spots leading to longer life.

➤Two-Stage Design: Standard 175 psi durable operation with 250 psi as an option.

Finger Valves: Stainless steel construction, simple design for easy maintenance

>Finned Copper Intercooler: Ensure cooler operation even in the most demanding applications

>Overhung Crankshaft: Precision balanced to ensure dependable smooth, low vibration operation.

>One-Piece Connecting Rod: Fewer wearing parts

>Splash Lubrication: Simple and reliable.

Ingersoll-Rand Design

- "V" Block Design
- 100% Cast Iron Design for Durability
- 100% Continuous Duty Operation
- 2/5 Year Extended Warranty
- 15,000+ hour design life

Advantage:

- Longer life and increased durability
- Increased durability & reliability
- Longer run time than competitive offerings
- Guaranteed reliability & performance
- Less maintenance, longer life.



Product Performance

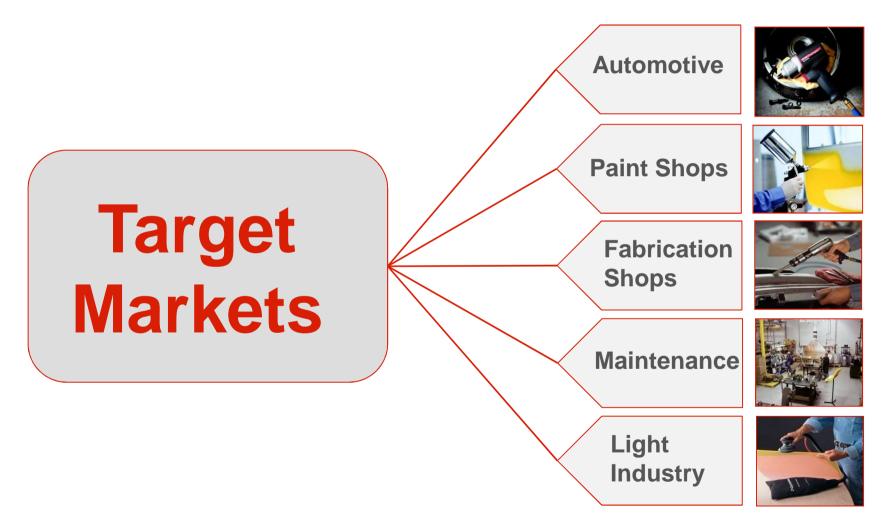


Small Recip performance

Description	RPM	Max Pr. In psig	Mounting	HP	CFM	Control
2340F3 Evolution	1000	175	150	3	8.65	ASSC
2475C5 Evolution	866	175	225	5	13.99	ASSC
2475C7.5 Evolution	1100	175	225	7.5	17.77	ASSC
2545D10 Evolution	750	175	300	10	24.64	ASSC
2545E 10 Evolution	950	175	500	10	30.00	ASSC
2545E 12.5 Evolution	1050	175	500	12.5	35.2	CSC
15T 350 Evolution	800	350	500	20	50	ASSC



Duty requirements for a wide range of applications



Target Markets



How to reach the Target Market

- Wholesalers
- Specialized Shop
- Retailers
- Dealers
- Agents

Market Coverage is the KEY !



Leadership Comments



Leaders Opinion



Next Generation R-Series



Q&A session



