Ingersoll Rand

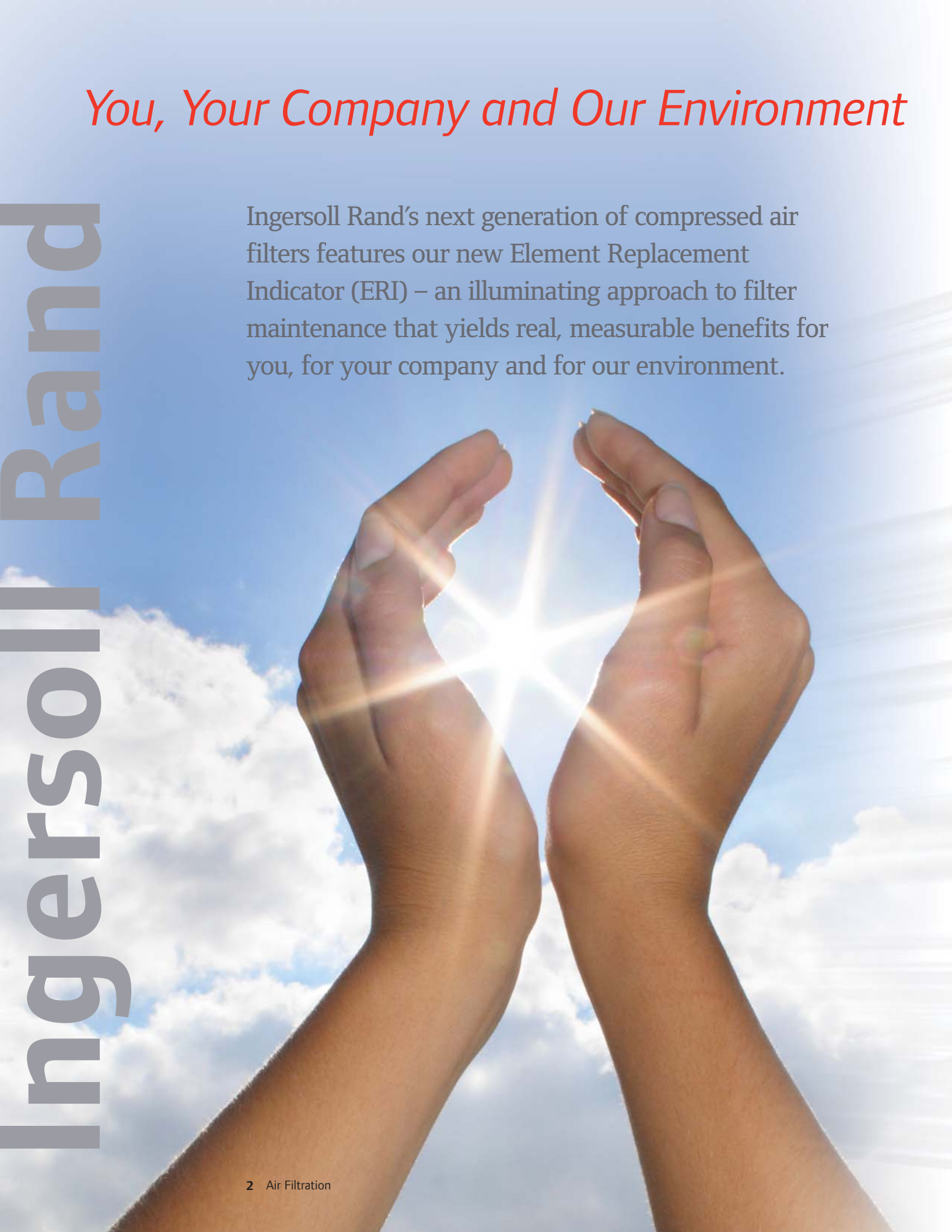
Air Filtration

Ingersoll Rand
Industrial Technologies

You, Your Company and Our Environment

Ingersoll Rand

Ingersoll Rand's next generation of compressed air filters features our new Element Replacement Indicator (ERI) – an illuminating approach to filter maintenance that yields real, measurable benefits for you, for your company and for our environment.



As the world's leading air treatment technology company, Ingersoll Rand set out to find a better way. The solution: re-imagining compressor air filter performance and maintenance using proactive time-based element replacement.

For You…The new Ingersoll Rand filter provides the ideal platform for an easier, more reliable and fully predictable maintenance schedule. By using a unique time-based approach, the ERI provides an easily visible indication to replace the filter element at the optimal time (bi-annually) to avoid high pressure drop and minimize energy consumption. In addition, the unique fit between the element and the filter body allows for a no-touch, no-hassle change out process that is quick and clean for you and your colleagues.

For Your Company…A standard schedule for element replacement significantly lowers your pressure drop (PD) loss across your air system. This leads to a more efficient air system with reduced energy consumption as well as providing a higher return on your filtration investment, and ultimately, longer compressor life.

For Our Environment…The environment is yours and ours…we all have a stake in making it the best we can, while remaining at necessary levels of productivity. For our environment, and yours, the ERI is a truly green solution: it reduces energy consumption and carbon footprint.

Progress is greener with Ingersoll Rand

Ingersoll Rand offers industry-leading products and solutions that enable businesses around the world to reduce energy consumption and costs and decrease harmful environmental emissions. From air compressors that reduce energy consumption to electric-powered golf cars with near-zero emissions, Ingersoll Rand provides the knowledge, experience and solutions to help our clients achieve their sustainability goals.

From Reactive to Proactive

Proactive time-based replacement of your air filter reduces energy use, the largest percentage of your filtration operating costs (78%) - unlike the traditional reactive approach that focuses only on element change out cost (13%).

Benefits for You:

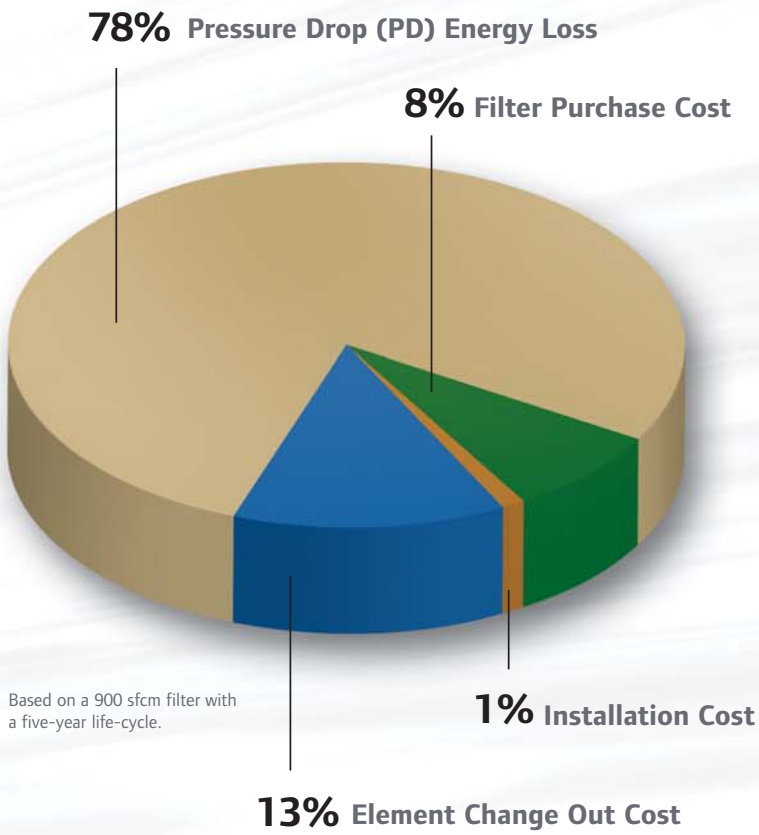
A New, Easy-to-use, Proactive Approach

The ERI is truly elegant in its simplicity: after six months of use, it provides a visual warning through an integral indicator to replace the element. That's it! How can such a simple solution provide such tremendous benefits? Easy...with a proactive time-based approach. Traditional usage-based systems focus on extending the life of the filter element – the filtration system's least expensive component – to the point when the element is completely clogged. This reactive mindset neglects the high energy costs associated with clogged filters and ignores the overwhelming economics of the proactive time-based ERI.

Benefits for Our Environment:

Reduced Energy Use, Reduced Emissions

The reactive approach to air filtration only focuses on element change out, which represents 13% of overall cost. Our new filter technology reduces PD energy losses, representing 78% of overall cost, by ensuring filter replacement before the PD rises exponentially. This also results in lower emissions, longer compressor life and higher production quality. The new filters also deliver air quality in accordance with ISO 8573.1: 2001 when tested with the stringent requirements of the new ISO 12500-1 international standard for Compressed Air Filter Testing.



Based on a 900 sfcm filter with a five-year life-cycle.

How it Works. When the filter element is initially installed, the ERI flashes briefly, and then turns off. After six months, it automatically flashes to indicate that it's time for replacement. 72 hours later, the indicator stays illuminated continuously… alerting everyone within view that replacement is necessary! It's that simple, that reliable.

Benefits For Your Company:

Time is on Your Side, and Money is, Too!

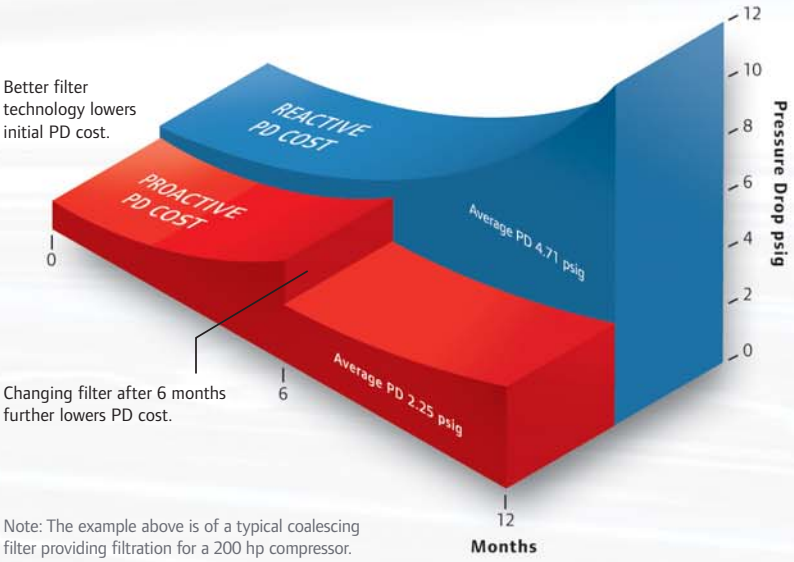
The examples below indicate the kinds of typical savings that can be achieved through Ingersoll Rand's time-based filtration technology. While your operation may differ in detail, the basics still apply: proactive time-based technology generates substantial savings over traditional reactive approaches.

Net Energy Cost Savings of $1,136

Typical PD Energy Cost Savings
200 hp Compressor (150 kW x 1.1 SF)

x 0.5% (1 psi PD = 0.5% of Power Source)
x 8,000 hrs
x $0.07/kWhr
x Average PD

Reactive PD cost	**$2,176**
Proactive PD cost	**- $1,040**
	= $1,136



Note: The example above is of a typical coalescing filter providing filtration for a 200 hp compressor.

No-touch, No-hassle Element Change Out

A unique zero-clearance design with safety lock enables the user to remove the filter body's bottom half and merely dispose of the old element…never touching the element itself. Standard element maintenance is an easy bi-annual event.

1. Turning the filter bowl counter-clockwise disengages the element from the filter head, allowing it to drop down into the bowl.

2. Simply dump the old dirty element out of the bowl and properly dispose.

3. To install a new element, simply place it into the bowl and screw the bowl back to the head of the filter body.

Truly Enlightened Filtration Technology

A visual indication of when it's time to change the filter element is just the start. Ingersoll Rand delivers next-generation improvements in filter **performance, efficiency, reliability and quality**.

Element Replacement Indicator (ERI) A
Environmentally-rated to IP55 and powered by (2) standard AA batteries

Smooth Corners B
90° elbow to direct air into the filter element, significantly reducing turbulence and pressure losses

High Efficiency Drainage Layer C
Improved liquid drainage properties and excellent chemical compatibility

Deep Pleating D
Reduces air flow velocity within the media – lower flow velocities improve filtration efficiency and reduce pressure losses

Flow Diffuser E
Provides turbulent-free distribution of air flow throughout the filter element

Low Profile Endcap F
Removes coalesced liquid from the air flow path increasing liquid removal efficiency and providing more usable filtration surface area

Surface Tension Breakers G
Prevents liquid from sticking, resulting in fast and efficient drainage of coalesced liquids

Drainage Ribs H
Vertical ribs cast into the filter bowl compress the lower part of the filter element allowing bulk liquid to rapidly drain away

Drain I
Reduces contamination clogging by 75% and features higher temperature and pressure ratings 176°F/250 psig (80°C/17 bar g)

Filters…just the way you need them. All of this great new technology wouldn't provide value if we didn't deliver it in precisely the filter type you need. That's why we offer dust filters, general purpose filters, coalescing filters and activated carbon filters.

Filter Specifications

Filter Grade	Pipe Size	Flow Rates		Dimensions								Weight	
	NPT	100 psig/7 bar g		A		B		C		D			
A, G, H, D	in	cfm	m^3/min	in	mm	in	mm	in	mm	in	mm	lb	kg
F35 I (grade)	0.50	21	0.58	2.99	76	1.81	46	8.07	205	1.00	25	1.5	0.68
F71 I (grade)	0.75	42	1.18	3.84	98	2.08	53	10.28	261	1.25	32	2.6	1.18
F108 I (grade)	0.75	64	1.80	3.84	98	2.08	53	10.28	261	1.25	32	2.6	1.18
F144 I (grade)	1.00	85	2.40	5.08	129	2.40	61	11.40	290	1.50	38	4.8	2.18
F178 I (grade)	1.00	105	2.97	5.08	129	2.40	61	11.40	290	1.50	38	4.8	2.18
F212 I (grade)	1.00	125	3.53	5.08	129	2.40	61	11.40	290	1.50	38	4.8	2.18
F395 I (grade)	1.50	233	6.58	5.08	129	2.40	61	15.00	381	1.50	38	6.2	2.81
F424 I (grade)	1.50	250	7.07	5.08	129	2.40	61	15.00	381	1.50	38	6.2	2.81
F577 I (grade)	2.00	339	9.62	6.69	170	2.90	74	19.70	500	2.00	51	12.4	5.62
F781 I (grade)	2.00	466	13.02	6.69	170	2.90	74	19.70	500	2.00	51	12.4	5.62
F985 I (grade)	2.00	580	16.42	6.69	170	2.90	74	19.70	500	2.00	51	12.4	5.62
F1155 I (grade)	3.00	680	19.25	8.06	205	3.40	86	22.50	572	2.25	57	27.5	12.47
F1529 I (grade)	3.00	900	25.48	8.06	205	3.40	86	26.50	673	2.25	57	31.2	14.15
F1718 I (grade)	3.00	1,070	28.63	8.06	205	3.40	86	29.77	756	2.25	57	34.5	15.65
F2124 I*(grade)	3.00	1,250	35.40	8.06	205	3.40	86	35.90	912	2.25	57	40.0	18.14
F2378 I**(grade)	3.00	1,400	39.63	8.06	205	3.40	86	35.90	912	2.25	57	40.0	18.14
AC, GP, HE, DP Please Note: The Following Models Require a 150 lb Flange													
(grade) 2100	4.00	2,100	60.00	17.70	450	7.90	201	44.80	1138	25.50	648	210.0	95.26
(grade) 2750	4.00	2,750	78.00	19.60	498	9.00	229	48.00	1219	25.50	648	298.0	135.17
(grade) 4100	6.00	4,100	117.00	22.80	579	10.70	272	50.90	1293	25.50	648	390.0	176.90
(grade) 7000	8.00	7,000	195.00	29.50	749	14.20	361	59.80	1519	25.50	648	812.0	368.32
(grade) 11000	10.00	11,000	312.00	29.10	739	16.00	406	66.20	1681	31.50	800	1135.0	514.84
(grade) 17000	12.00	17,000	468.00	39.30	998	19.00	483	70.00	1778	33.40	848	1506.0	683.12

*H only **A, G, D only

Grade A, AC - Activated Carbon Filtration
Oil vapor and hydrocarbon odor removal, providing a maximum remaining oil content of <0.003 mg/m^3 (<0.003 ppm) (excluding methane) @ 21°C. (Precede with Grade H filter)

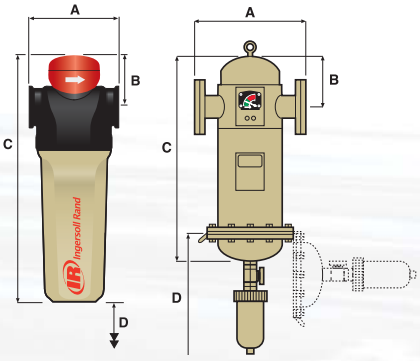
Grade G, GP - General Purpose Protection
Particle removal down to 1 micron including coalesced liquid, water and oil, providing a maximum remaining oil aerosol content of 0.5 mg/m^3 @ 21°C.

Grade H, HE - High Efficiency Oil Removal Filtration
Particle removal down to 0.01 micron including water and oil aerosols, providing a maximum remaining oil aerosol content of 0.01 mg/m^3 @ 21°C. (Precede with Grade G filter)

Grade D, DP - General Purpose Dust Filtration
Dust particle removal down to 1 micron.

Operating Limitations:
Maximum Operating Pressure 250 psig (17 bar g) up to 1,400 cfm and 232 psig (16 bar g) above 1,400 cfm
Maximum Recommended Operating Temperature (Grade G, H, D,GP, HE, DP) 150°F (66°C)
Maximum Recommended Operating Temperature (Grade A, AC) 86°F (30°C)
Minimum Recommended Operating Temperature 34°F (1°C)

Line Pressure	psig	15	29	44	73	100	131	160	189	218	232	250
	bar g	1	2	3	5	7	9	11	13	15	16	17
Correction Factors		0.38	0.53	0.65	0.85	1.00	1.13	1.25	1.36	1.46	1.51	1.56



21-1,400 cfm 2,100-17,000 cfm

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Ingersoll Rand Industrial Technologies provides products, services and solutions that enhance our customers' energy efficiency, productivity and operations. Our diverse and innovative products range from complete compressed air systems, tools and pumps to material and fluid handling systems and environmentally friendly microturbines. We also enhance productivity through solutions created by Club Car®, the global leader in golf and utility vehicles for businesses and individuals.

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