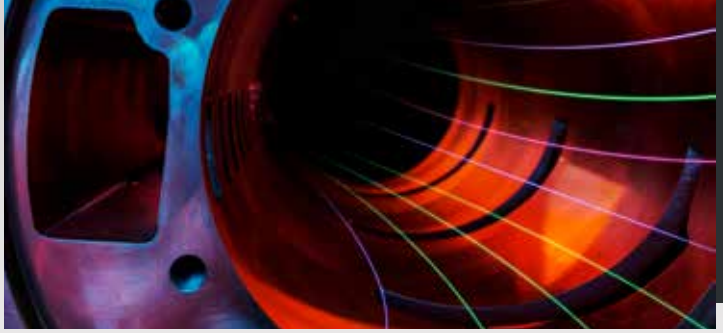
mattei®
COMPRESSED AIR SINCE 1919

THINK GREEN

RVXi

55 | 75 | 90 kW
75 | 100 | 125 hp

VARIABLE-SPEED ROTARY VANE AIR COMPRESSORS



The **MATTEI® Rotary Vane Xtreme Inverter (RVXi) Series** of advanced volumetric air compressors are engineered to raise the bar on lifecycle costs and eco-sustainability in the planetary battle against global warming. We welcome you to experience the longest lasting, most energy efficient, single-stage, 55÷90 kW, variable-speed, direct-drive air compressors the world has ever seen.

RVXi Series compressors leverage the legendary durability of Mattei's proprietary "bearingless" **Rotary Vane Technology** in delivering a unique, rugged, and reliable energy efficient solution that delivers unrivaled performance and exceptional energy savings to the industrial marketplace.

THE FORCE TO BE RECKONED WITH

Lowest Lifecycle Cost

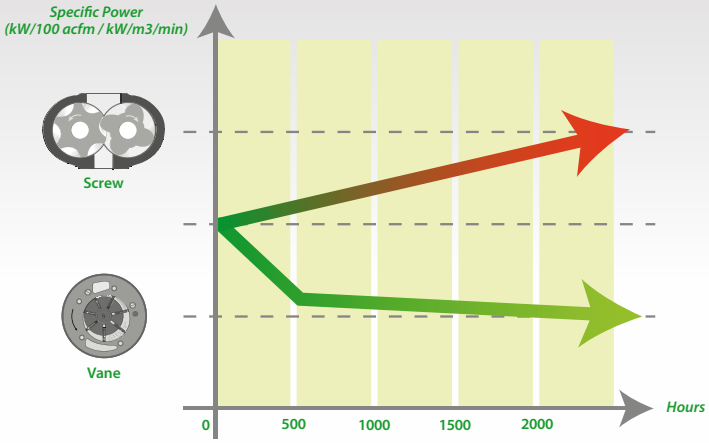
Highest Eco-Sustainability

Xtreme Technological Advancements

THINK GREEN

GET YOUR "VANE GAIN"

VANE GAIN = LOWER ENERGY COSTS



Only Mattei's rotary vane technology is proven to be even more energy efficient the longer it runs.
We call it VANE GAIN.
Third party testing confirms that our lifetime-rated cast-iron blades begin to season from the moment you turn it on.

What does that mean to you? Simple.
Our VANE lets you GAIN lower energy costs over time - an exclusive benefit found ONLY in Mattei's proprietary rotary vane technology.

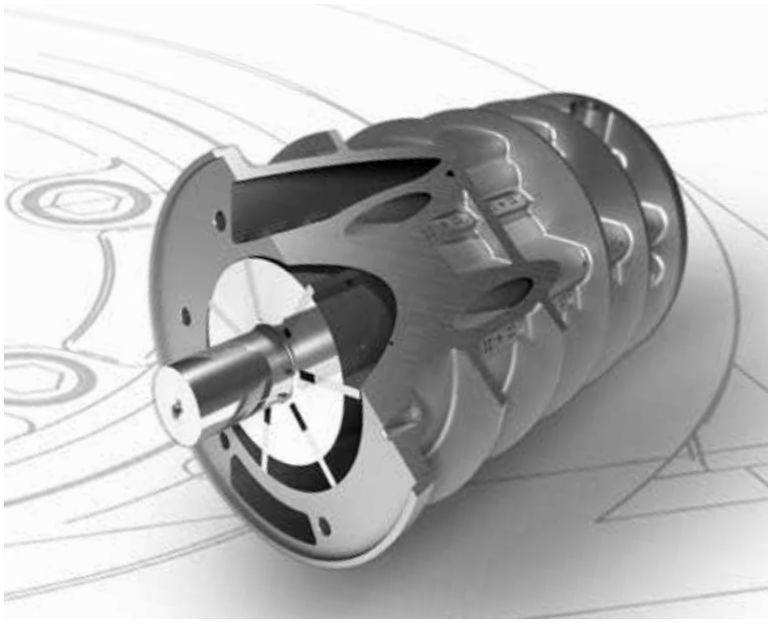
"Simply Different"

VARIABLE-SPEED vs. FIXED-SPEED

Want an air compressor that pays you back? Applications with changing air demand profiles are ideal candidates for saving a lot of money in energy costs.

Did you know that you will spend more than 10x what you pay to buy the compressor just for electricity to run it over its lifetime?

Fully, 83% of all the money you will spend on your air compressor over its life goes to the power company just to pay the electric bill. Discover how your company can profit from choosing Mattei's proprietary **Rotary Vane Technology** for your next air compressor.



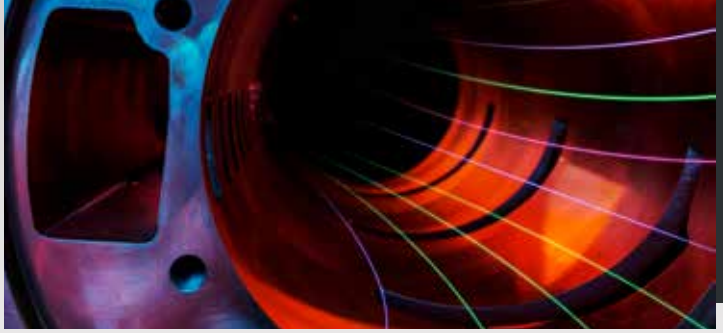
CHOOSE WISELY

Rotary style, inverter driven, variable-speed air compressors are engineered to deliver the lowest possible energy costs when properly applied. The general rule-of-thumb is to apply a VSD style air compressor to applications where it would be operating for extended periods of time between 40% and 70% of the rated capacity of an air compressor.

Why not outside those ranges, might you ask? The answer is different at each end of the scale. Keep in mind that an inverter consumes energy to save you energy so the closer you are to maximum capacity, the less sense it makes to use an inverter. So, if your application averages over 70% of rated capacity, the potential energy savings with a VSD compressor are negligible which may result in an unacceptably long return on investment. Here, a fixed-speed compressor with appropriate air storage is your best value.

If you run for extended periods of time below 40% of rated capacity – you bought too large of an air compressor! And it may fail to achieve its normal operating temperature as heat energy production is severely limited. Insufficient operating temperatures allow the moisture to condense into liquid droplets that "rain" down inside your oil reservoir.

As water is heavier than oil, it sinks to the bottom of the oil reservoir and dilutes the lubricant. Diluted oil and liquid water are injected into the air compressor. Rather than seal, cool and lubricate all the moving surfaces, water flushes out the oil and breaks the surface tension of the lubricant. Metal-to-metal contact results which can severely damage or destroy the air compressor if left unchecked.
Rely on your Mattei, compressed air professional for sizing guidance to ensure you get the lowest energy costs and longest service life out of your investment.



MATTEI'S EXCLUSIVE TECHNOLOGICAL TRIFECTA

- **Patented Xtreme Injection Technology provides a quantum leap in compression process efficiency.**
- **Xtreme Thermal Management Technology balances the cooling system processes to maximize temperature stability in climes to +46°C/115°F.**
- **Xtreme Communications Technology leverages IoT Industry 4.0 ready Maestro XC controller to maximize energy efficiency and deliver real-time communications globally via Mattei Cloud.**

XTREME COMMUNICATIONS TECHNOLOGY

IoT Industry 4.0 ready Maestro XC, 10" touchscreen control panel combines with Mattei Cloud to deliver real-time operational and historical data communications globally.

XTREME INJECTION TECHNOLOGY

Innovative scavenged oil return system combines with a blanket of atomized synthetic V-Life Xtreme lubricant fog to slash oil circulation by 50% while delivering a quantum leap in energy efficiency and eco-sustainability.

XTREME THERMAL MANAGEMENT TECHNOLOGY

Big 46°C/115°F rated coolers combine with servo-controlled electronic thermostatic valve and independent PM cooling fan as directed by IoT Industry 4.0 Maestro XC controller to ensure precise operating temperature control across a broad range of ambient temperatures and capacities.

DON'T TURN-DOWN ENERGY SAVINGS

RVXi Series heralds an evolution in variable speed air compressor design. A trifecta of technological innovations has positioned this 55÷90 kW variable speed product as the undisputed global leader in **Specific Power and Isentropic Efficiency** in addressing the 40%-to-70% range of capacity universally accepted by air compressor manufacturers as the correct flow range in which to position variable speed compressor technology to maximize energy savings.

VARIABLE SPEED TECHNOLOGY: VANE VS SCREW

Rotary vane technology is Simply Different. Air moves latitudinally. Centrifugal force propels the vanes/blades outward and keeps the tips stable against the stator wall where they ride upon a thin film of lubricant. Force diminishes as rotational speed slows to limit "turn-down" to 40-50% of nominal speed. Below the minimum speed set point, vane technology operates in "Load/No load" mode. This method generates significantly better energy savings than an inverter-controlled screw does when operating in the 60-75% turn-down range.

In rotary screw compressors, air moves longitudinally. Helical rotors cannot touch the cylinder walls, so they rely on oil flooding to fill the cylinder and endplate gaps between mating rotors. Ideal screw efficiency is achieved at tip speeds of 18-21 meters per second to minimize internal "blowhole" efficiency losses from recirculation. Below 40% capacity, "blowhole" losses increase so, it takes more revolutions to produce the same volume of air.

SPECIFIC ENERGY VS ISENTROPIC EFFICIENCY

Efficiency losses at reduced rotational speeds is evident in certified Specific Power curves. The peak efficiency point is usually observed between 40%-to-50% of rated capacity. Efficiency decay accelerates below the peak. Screw compressors typically provide 60%-to-75% capacity rate turn-down from published maximum capacity ratings.

Recently, in addition to publishing Specific Power values at various flow rates, Isentropic Efficiency calculations have been introduced. Mattei, applauds this transition as it eliminates pressure/flow variances to better level the playing field in demonstrating how close to 100% efficiency each compressor operates at any point along the capacity range.
However, official "package" Isentropic Efficiency ratings completely ignore what happens between 40% and 70% of rated capacity - the peak efficiency range variable speed compressors are designed to address.

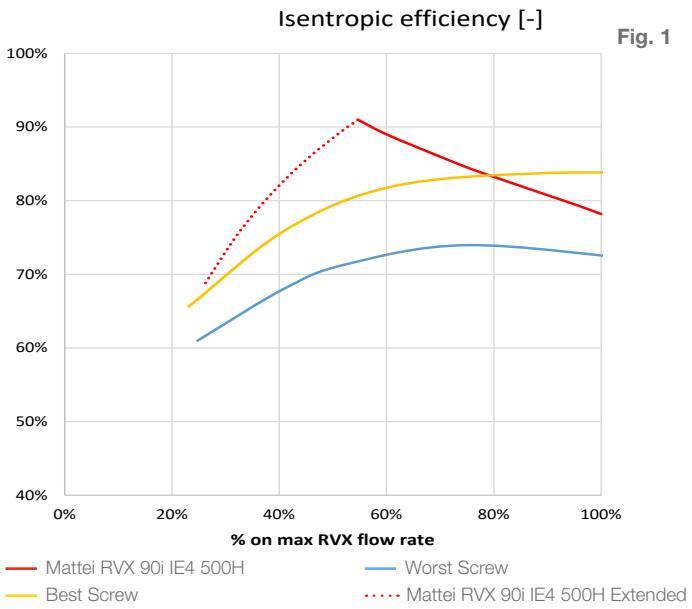


Fig. 1

Screw performance data as certified and published on manufacturer websites as of June 7, 2021, per specifications of the CAGI Performance Verification Program.

BE VANE ABOUT SAVING ENERGY

Why does that matter? Because it is your money. Curve (Figure 1) and table (Figure 2) project a head-to-head operating cost comparison of the Mattei RVX 90i rotary vane compressor against the most energy efficient (best) and the least energy efficient (worst) single-stage oil-flooded rotary screw air compressors.

The rotary screw data is certified by the Compressed Air and Gas Institute (CAGI) of the USA under their "Performance Verification" program. Note that performance results are identical globally regardless of input frequency and voltage due to the universal output characteristics of inverters.
So, ask yourself, "Would I rather increase my profitability thanks to the XTREME energy efficiency levels engineered into an RVXi or, would I be happy sharing my profits every month with the electric company?"

In choosing a rotary screw compressor, your "Lost Profits" are somewhere between the "Best" and "Worst" values seen in Figure 2. Or, you could "Get a Mattei" and add those savings to your bottom line. **The choice is yours.**

	Time at flow					
	25%	25%	50%			
	Comparison Flow Rate				RVX 55i	Fig. 2
55 kW	3,9 m³/min	5,3 m³/min	6,7 m³/min	Energy Cost	**Advantage**	Lost Profits
RVX 55i	€ 53.747	€ 61.996	€ 166.169	€ 281.912	**0,0%**	€ 0
Best Screw	€ 57.928	€ 73.081	€ 196.476	€ 327.486	**13,9%**	€ 45.573
Worst Screw	€ 68.677	€ 89.915	€ 218.423	€ 377.015	**25,2%**	€ 95.103
					RVX 75i	
75 kW	4,9 m³/min	6,6 m³/min	8,5 m³/min	Energy Cost	**Advantage**	Lost Profits
RVX 75i	€ 67.475	€ 77.831	€ 221.731	€ 367.037	**0,0%**	€ 0
Best Screw	€ 74.972	€ 98.964	€ 242.723	€ 416.659	**11,9%**	€ 49.622
Worst Screw	€ 86.968	€ 110.819	€ 271.587	€ 469.374	**21,8%**	€ 102.337
					RVX 90i	
90 kW	6,2 m³/min	8,5 m³/min	10,8 m³/min	Energy Cost	**Advantage**	Lost Profits
RVX 90i	€ 86.250	€ 105.607	€ 283.584	€ 475.440	**0,0%**	€ 0
Best Screw	€ 94.448	€ 121.955	€ 302.042	€ 518.445	**8,3%**	€ 43.005
Worst Screw	€ 104.996	€ 168.760	€ 337.280	€ 611.036	**22,2%**	€ 135.595

Energy Cost over 5 year period. Compares RVXi with IE 3 motor vs the BEST (most energy efficient) and WORST (least energy efficient) single-stage rotary screw air compressors. Assumes 24/7, 2 Euro/kWh.

RVXi 55 - 75 - 90

1. AIR/OIL SEPARATOR
Nested deep-pleated air/oil separator elements limit oil carryover to 1-3 mg/m^3.

2. FLANGED CONNECTIONS
Durable leak free flanged fluid connections feature o-ring seals for fast, safe and easy maintenance.

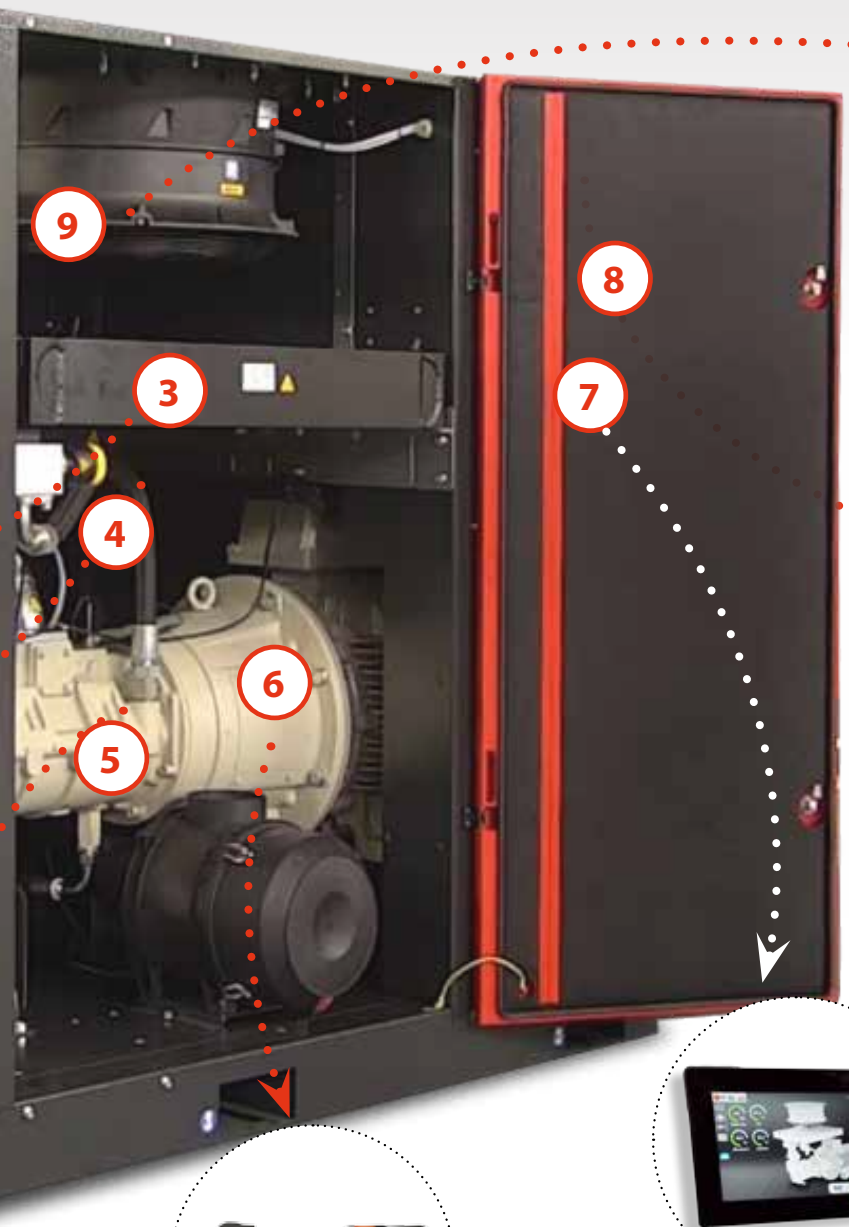
3. OVERSIZED COOLERS
Engineered for dependable service in hot, humid climes. Rated for 46°C/115°F ambient. Optimal temperature control across a broad range of operating conditions.

4. SERVO-CONTROLLED THERMOSTAT
Xtreme Thermal Management begins with electronic servo-controlled thermostatic valve. Heats up fast and keeps water out of the oil– a Mattei exclusive!

5. ROTOR STATOR UNIT (RSU)
Proprietary “bearing-less compressor.” Zero wear vanes. Zero wear bushes. Zero thrust forces. Rated >100,000 hours of operation without an airend overhaul.

IE5

IE5 EFFICIENCY RATING
Forget expensive heat sensitive custom PM motors that risk demagnetization. RVXi, is so energy efficient that we deliver IE4 or optional IE5 efficiency classifications using standard AC motors.



9. VARIABLE SPEED FAN
Maestro XC manages the electronic thermostatic valve first then, the variable-speed PM scroll style fan for precision thermal management and energy efficient operation.

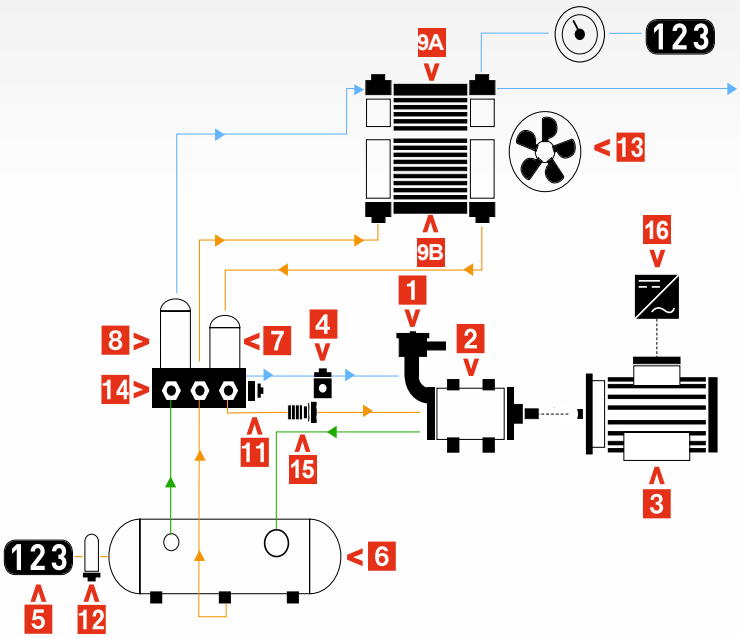
8. INVERTER-CONTROLLED COMPRESSOR
Rugged and reliable variable-speed AC drive motor interacts with self-learning algorithm as directed by Maestro XC, to deliver smooth speed changes and maximum energy efficiency.

7. MAESTRO XC CONTROLLER
IoT, Industry 4.0 ready, 10” touchscreen controller directs, manages, and monitors system logic and communicates globally via Mattei Cloud. Programmable Start/Stop timers, Maintenance Reminders, Phase Reversal Protection– all standard.

6. DIRECT-DRIVE COUPLING
Easy-access flexible coupling ensures perfect shaft alignment, low-noise, long life, and eliminates power robbing gear or belt losses and their associated high maintenance costs.

RVXi 55 - 75 - 90

HOW IT WORKS



1 air intake
2 airend
3 motor
4 solenoid valve
5 controller
6 oil receiver
7 oil filter
8 air/oil separator
9A air cooler
9B oil cooler
10 pressure probe
11 electronic thermostatic valve
12 temperature probe
13 cooling fan
14 safety valve
15 Xtreme Injection Technology
16 Inverter

COMPRESSED AIR
OIL
AIR/OIL

Air Intake (1), feeds ambient air into Airend, (2) which is powered by Motor (3). Solenoid Valve (4) is managed by Controller (5) to open and close or modulate the inlet valve to deliver ambient air into the airend. Oil Receiver (6) holds the lubricant which is fed to Oil Filter (7) via differential pressure to ensure a clean supply of oil is delivered to the Xtreme Injection Technology (15) before being atomized into the Airend (2) to maximize energy efficiency while compressing the air. The pressurized air/oil mixture exits the Airend (2) and flows into Oil receiver (6) where the compressed air is separated mechanically from the oil to flow through the Air/oil Separator (8). The compressed air exits the Air/oil Separator (8) and flows through Air Cooler (9A) before exiting the compressor at rated pressure and flow.

In operation, Controller (5) monitors Pressure Probe (10) to open and close Solenoid Valve (4) in conjunction with varying Motor (3) speed with Inverter (16) to most efficiently match air production to plant air demand. Thermostatic Valve (11) remains closed until the proper operating temperature is achieved at which point it opens and sends the heated oil to Oil Cooler (9B) for cooling.

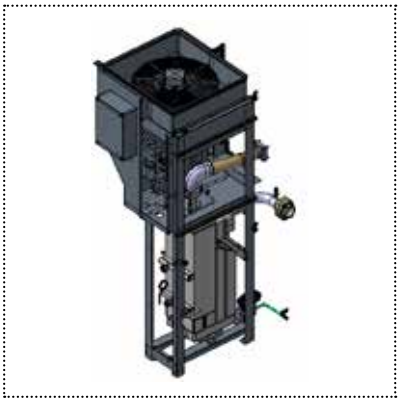
The Controller (5) monitors Temperature Probe (12) to manage Electronic Thermostatic Valve (11) in conjunction with variable speed Cooling Fan (13) to ensure the desired operating temperature is maintained. If the air pressure gets to high, Safety Valve (14) opens to protect the system from over pressurization.

OPTIONS

WATERCOOLED VERSION

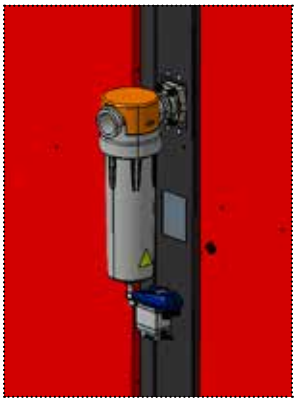
RVX 55-90i W compressors are equipped with water-cooled plate style heat exchangers. One is an oil cooler and the other an aftercooler. A dedicated cooling fan provides heat exchange for the cabinet.

VERSION WITH INTEGRATED REFRIGERANT DRYER



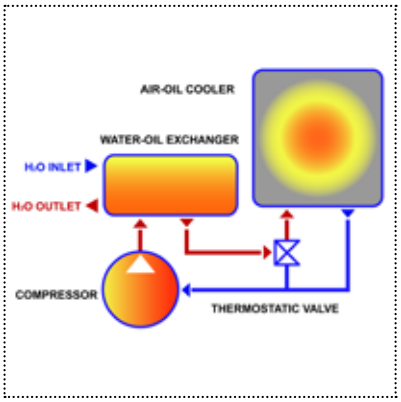
RVX 55-90i Plus compressor models include and integrated noncycling refrigerated air dryer. PLUS models include a condensate separator with zero-loss automatic drain, which is an option on all RVX i base models.

MOISTURE SEPARATOR



Moisture separator removes 65% of all condensable moisture via electronic Zero Loss condensate drain valve. Dry alarm contacts provide peace of mind.

VERSION WITH ENERGY RECOVERY SYSTEM



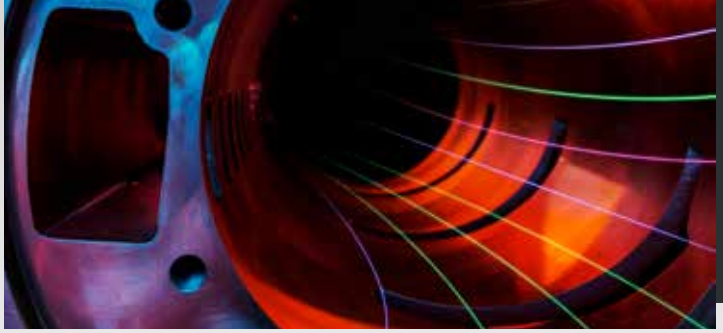
RVX 55-90 i R are air-cooled compressors with an integrated Heat Recovery System for process water heating. Recovers up to 80% of mechanical energy (equivalent to more than 70% of electricity consumption required at mains) into hot water. Maximum outlet water temperature: 65-70°C/149-158°F.

OIL QUALITY SENSOR

Real-time Industry 4.0 ready predictive maintenance modeling of lubricant acidity. Interfaces with Maestro XC controller programed to manage sensor output. Lubricant condition can be monitored remotely by customer or distributor via Mattei Cloud.

IE5 PACKAGE EFFICIENCY

IE4 motor upgrade option combines with inverter to deliver IE5 global efficiency classification.



TECHNICAL DATA

Model	Max. working pressure		F.A.D.*		Sound pressure level	Power		Length		Width		Height		Weight	
	bar	psi	m^3/min	acfm	db(A)	kW	hp	mm	inch	mm	inch	mm	inch	kg	lbs
55-90 KW - RVXi SERIES SPECIFICATIONS															
RVX 55i	7÷10	102÷145	5.22÷10.3	184÷364	68	55	75	2420	95	1245	49	1890	74	1770	3902
RVX 55i R														1800	3968
RVX 55i W														1770	3902
RVX 55 Hi	7÷13	102÷188	4.94÷9.75	175÷344										1770	3902
RVX 55 Hi R														1800	3968
RVX 55 Hi W														1770	3902
RVX 75i	7÷10	102÷145	6.55÷12.94	231÷457	68	75	100	2420	95	1245	49	1890	74	1770	3902
RVX 75i R														1800	3968
RVX 75i W														1770	3902
RVX 75 Hi	7÷13	102÷188	6.05÷11.92	214÷421										1770	3902
RVX 75 Hi R														1800	3968
RVX 75 Hi W														1770	3902
RVX 90i	7÷10	102÷145	8.39÷16.55	296÷584	68	90	120	2420	95	1245	49	1890	74	1970	4343
RVX 90i R														2000	4409
RVX 90i W														1970	4343
RVX 90 Hi	7÷13	102÷188	6.43÷12.67	227÷447										1970	4343
RVX 90 Hi R														2000	4409
RVX 90 Hi W														1970	4343

(*) Flow rate @500h. Hi version capacity @10 barg

1. Rated input: AC voltage/frequency: Three-phase 380 to 480V 50Hz/60Hz
2. RVX 55i-90i includes factory fill of premium V-LIFE XTREME lubricant as standard.
3. Food Grade lubricant is available as an option - consult factory.

MATTEI MYCARE 6

With RVX 55-90i you can benefit from the new MyCare 6 extended warranty plan, this provides cover for 6-years of service assistance and any repair required.

Carrying out regular and correct maintenance is the simplest and best way to ensure your compressor continues to perform reliably and efficiently, avoiding faults and energy wastage. Mattei's Service Centres employ qualified service engineers and carry specific tooling and original spare parts for maintenance operations.

GET MYCARE 6 PLAN. You will benefit from monetary savings and a defined cost for easier budget planning.

MATTEI ORIGINAL SPARE PARTS

Mattei Original Spare Parts and Mattei lubricants are made to very high design standards and conform to exact technical specifications. Only Mattei original spare parts allow you to be sure of maintaining, over time, the same levels of performance, reliability and safety of your Mattei product.

- Mattei Original Spare Parts are crucial to ensure the efficiency of your compressed air equipment
- Parts are always available in stock
- They are quality tested and conform to manufacturer's specifications
- Parts are designed for Mattei's recommended maintenance intervals

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