

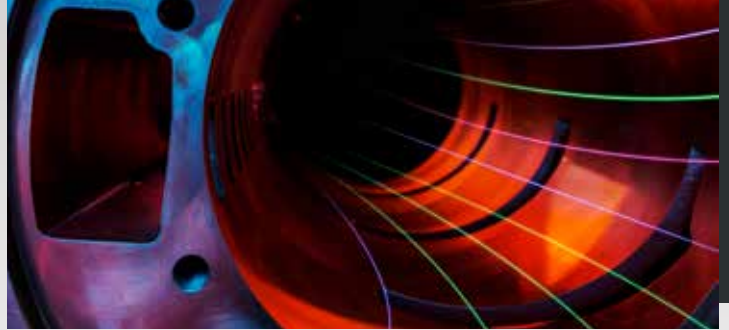


# RVX ULTRA PERFORMANCE



**45 | 55 | 75 kW**

FIXED-SPEED ROTARY VANE AIR COMPRESSORS



The **MATTEI® Rotary Vane Xtreme Ultra Performance (RVX UP) Series** of advanced volumetric air compressors are engineered to slash energy costs like nothing you've seen before and, to deliver eco-sustainability in the planetary battle against global warming. We welcome you to experience the longest lasting, most energy efficient, **45÷75 kW**, fixed-speed, direct-drive air compressors the world has ever seen.

RVX UP Series compressors leverage the legendary durability of Mattei's proprietary "bearingless" **Rotary Vane Technology** in delivering a truly unique, rugged, and reliable energy efficient solution that delivers unrivaled performance and unbeatable energy savings to industry.

**WHEN SLASHING ENERGY COSTS ARE TANTAMOUNT**

Lowest Energy & Lifecycle Cost

Highest Eco-Sustainability

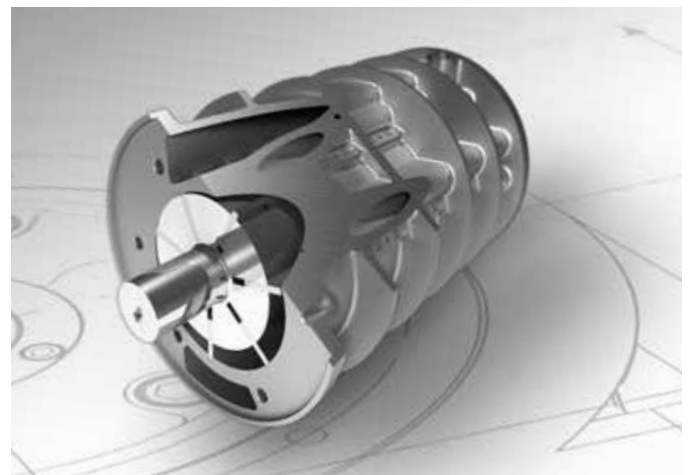
Xtreme Technological Advancements



**THINK GREEN**

## **TIMELESS "BEARING-LESS" AIREND**

Mattei's Vane Technology is "Simply Different." Whereas a rotary screw compressor relies on a pair of precision mated helically cut rotors supported by anywhere from 6 to 9 ball or roller bearings to manage the axial and thrust forces, a Mattei vane compressor is comprised of a single rotor supported by 2 white metal bushes to manage the axial forces – there are NO thrust forces in a vane compressor. Thrust forces are what cause bearing tolerances to wear until the airend needs to be rebuilt. This wear condition requires that you replace the bearings if caught early enough or, you must replace the entire airend when other critical components are damaged due to extreme bearing wear prior to attempting service.



**"Simply Different"**

## WHERE SPEED AND PERFORMANCE MEET

Our Maxima Series was the first fixed-speed vane compressor to establish true energy efficiency dominance in the world of rotary positive machines.

We learned that when we direct-coupled a big bore compressor to a 6 pole (1.000 rpm @ 50 hz) motor, we got more air out with less energy in. Size-for-size, this slow-speed combination resulted in some of the most incredible Specific Power and Isentropic Efficiency values ever seen.

## PERFORMANCE PEDIGREE

In 2021, we introduced the RVXi Series of variable-speed inverter-controlled compressors. In comparing them to the published certified performance data of 60 hz rotary screw competitors, we had conclusive evidence that RVXi Series models 55i, 75i and 90i were the most energy efficient variable-speed compressors in the world when properly applied to the 40% through 70% range of universal acceptance.

Furthermore, the engineering community of Plant Engineering Magazine recognized and rewarded that effort born with freshly patented Xtreme Injection Technology as part of a winning trifecta of XTREME advancements, in awarding **Mattei's RVXi Series the Silver Medal as the 2021 Product of the Year.**

## SHATTERING SPECIFIC ENERGY BOUNDARIES

Next, we challenged Mattei's talented engineering team to create fixed-speed versions that would shatter the specific energy boundaries of the industry. They responded by designing the **MATTEI® Rotary Vane Xtreme Ultra Performance (RVX UP) Series** of air compressors that further expand the next frontier in the Xtreme revolution of energy efficient fixed-speed compressors.

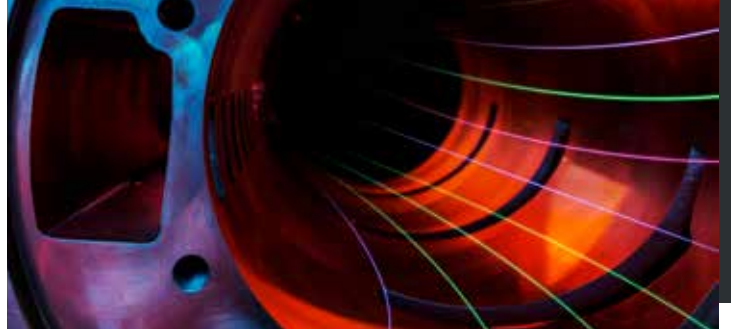
It is no secret that slower speeds represent a major advantage in energy efficiency with our proprietary rotary vane technology. Already armed with the energy saving advancements thanks to the new trifecta of **XTREME Technologies**, they concluded that if we took a much larger compressor pump and repurposed an inverter to lock the speed at an ideal rate of rotation rather relying on gears or belts, we would then have the most energy efficient fixed-speed compressor known to humanity. Thus, the RVX ULTRA PERFORMANCE (UP) Series was born.

## VANE TECHNOLOGY PAYS YOU BACK

**“To invent the next great thing, you have to have a better idea.”** Or so goes the philosophy for real change. Well, imagine, a fixed-speed compressor that incorporates VSD technology to:

- a) eliminate those electric bill “demand charges” created by traditional full voltage or wye-delta starters and,
- b) lock the rotational speed at an ideal rpm that delivers extremely low Specific Energy values and,
- c) gives you the opportunity to save so much money on your electric bills that the machine pays for itself many times over during its legendary long lifecycle.

In fact, you simply cannot achieve this level of energy efficiency from any comparably sized fixed-speed rotary screw air compressor.



## MATTEI'S EXCLUSIVE XTREME TECHNOLOGY SUITE

- ▶ **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 +45°C/113°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 blanket of atomized synthetic V-Life Xtreme lubricant fog slashes oil circulation by 50% while delivering a quantum leap in energy efficiency and eco-sustainability.



### XTREME LUBRICANT RECOVERY TECHNOLOGY

Maintenance free scavenged oil return system leverages an intelligent solenoid valve to enhance energy efficiency and slash recirculation losses while improving air quality.



### XTREME THERMAL MANAGEMENT TECHNOLOGY

Big 45°C/113°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.

## SLASHING ENERGY COSTS

**RVX Ultra Performance Series** Series shatters the boundaries in charting the evolution of energy focused fixed-speed air compressor designs. Led by a suite of XTREME technological innovations, these **45, 55, 75 kW** fixed-speed products slash energy costs as the undisputed global leader in Specific Power and Isentropic Efficiency for rotary compressors.

## DESIGN TECHNOLOGY: VANE VS SCREW

Rotary vane technology is Simply Different. The air moves latitudinally within this single-rotor compressor pump that rotates on a pair of white metal bushes. 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. Motor inrush current is limited to 1x of nameplate amps thanks to an inverter that slowly ramps it up to a locked rotational speed. Inlet control operates in "Load/No load" mode between two pressure set points.

In rotary screw compressors, air moves longitudinally. A pair of mated helical rotors rotate on anywhere from 6 to 9 ball/roller bearings. As they cannot touch the cylinder walls, they rely on oil flooding to fill the cylinder and endplate gaps. Motor inrush amperage at starting can be anywhere from 6x-8x (direct online) up to 3x (wye-delta, soft starter). Air inlet control operates in "Load/No load" mode between two pressure set points.

## SPECIFIC ENERGY VS ISENTROPIC EFFICIENCY

These are the “key indicators” on the level of energy efficiency delivered by an air compressor. In essence, the more energy efficient these numbers are in the machine you purchase, the less you will pay your electric service provider for electricity to a) “start” (demand charge-based inrush current) and, b) “to run” (your normal energy charge) for your compressor of choice. Specific Energy is a calculation that refers to the total amount of input power (kW) that goes into a compressor package vs how much air (acfm) comes out. The lower the specific energy number, the more energy efficient the machine, the lower your electric bill.

This number will vary depending upon the operating pressure (bar) of the package. Isentropic Efficiency is a calculation that neutralizes the pressure variant in defining how close to 100% mechanical efficiency is achieved in each compressor. It also refers to the total amount of input power (kW) that goes into a compressor package vs how much air (m³/min) comes out. Here, the higher the number, the more energy efficient the compressor is with 100% being perfection.

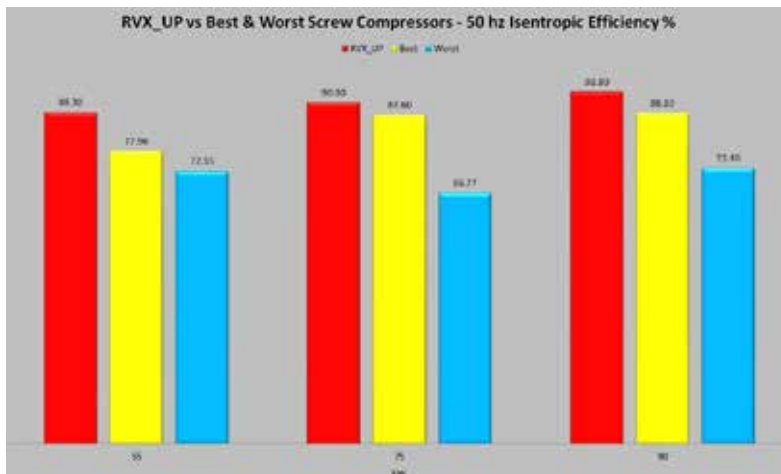


Fig. 1

## NO VANE. NO GAIN.

If you want the lowest electric bills with the highest rate of return on your investment, you have but one choice – a Mattei RVX UP vane compressor. Curve (Figure 1) and table (Figure 2) show a head-to-head comparison of the RVX UP against the best and the worst efficiency curves from 50 hz single-stage rotary screw air compressors.

So, ask yourself, “Would I rather increase my profitability thanks to the XTREME energy efficiency levels engineered into an RVX UP or, would I be happy to pay significantly more every month on my electric bill than I had to?”

**THE CHOICE IS YOURS.**

Energy Cost over 5 years period  
Assumes 24/7, 2 Euro/kWh

				Competitive Comparison <sup>(1)</sup>			RVX 45 UP		
45 kW	Specific Energy Advantage <sup>(2)</sup>	Rate of flow	Relation to full rated capacity	5 Year Energy Cost	Energy Efficiency Advantage	Energy Saved with RVX 45 UP			
<b>RVX 45 UP</b>	0%	9,4 m³/min	87%	€ 358.308	0%	€ -			
Best Screw	-16,8%	9,4 m³/min	92,8%	€ 391.828	8,6%	€ 33.520			
Worst Screw	-25,5%	9,4 m³/min	100%	€ 441.930	18,9%	€ 83.622			

				Competitive Comparison <sup>(1)</sup>			RVX 55 UP		
55 kW	Specific Energy Advantage <sup>(2)</sup>	Rate of flow	Relation to full rated capacity	5 Year Energy Cost	Energy Efficiency Advantage	Energy Saved with RVX 55 UP			
<b>RVX 55 UP</b>	0%	11,86 m³/min	81,9%	€ 441.844	0%	€ -			
Best Screw	-3,2%	11,86 m³/min	99,2%	€ 465.084	5%	€ 23.240			
Worst Screw	-40,3%	11,86 m³/min	100%	€ 606.350	27,1%	€ 164.506			

				Competitive Comparison <sup>(1)</sup>			RVX 75 UP		
75 kW	Specific Energy Advantage <sup>(2)</sup>	Rate of flow	Relation to full rated capacity	5 Year Energy Cost	Energy Efficiency Advantage	Energy Saved with RVX 75 UP			
<b>RVX 75 UP</b>	0%	15,53 m³/min	91,5%	€ 550.887	0%	-			
Best Screw	-6%	15,53 m³/min	97,1%	€ 592.147	7%	€ 41.261			
Worst Screw	-31,8%	15,53 m³/min	100%	€ 722.260	23,7%	€ 171.373			

(1) At identical rate of flow  
(2) At full rated capacity

# RVX ULTRA PERFORMANCE

45 - 55 - 75



### 1. AIR/OIL SEPARATOR

Nested deep-pleated air/oil separator elements limit oil carryover to 1-3 mg/m<sup>3</sup>.



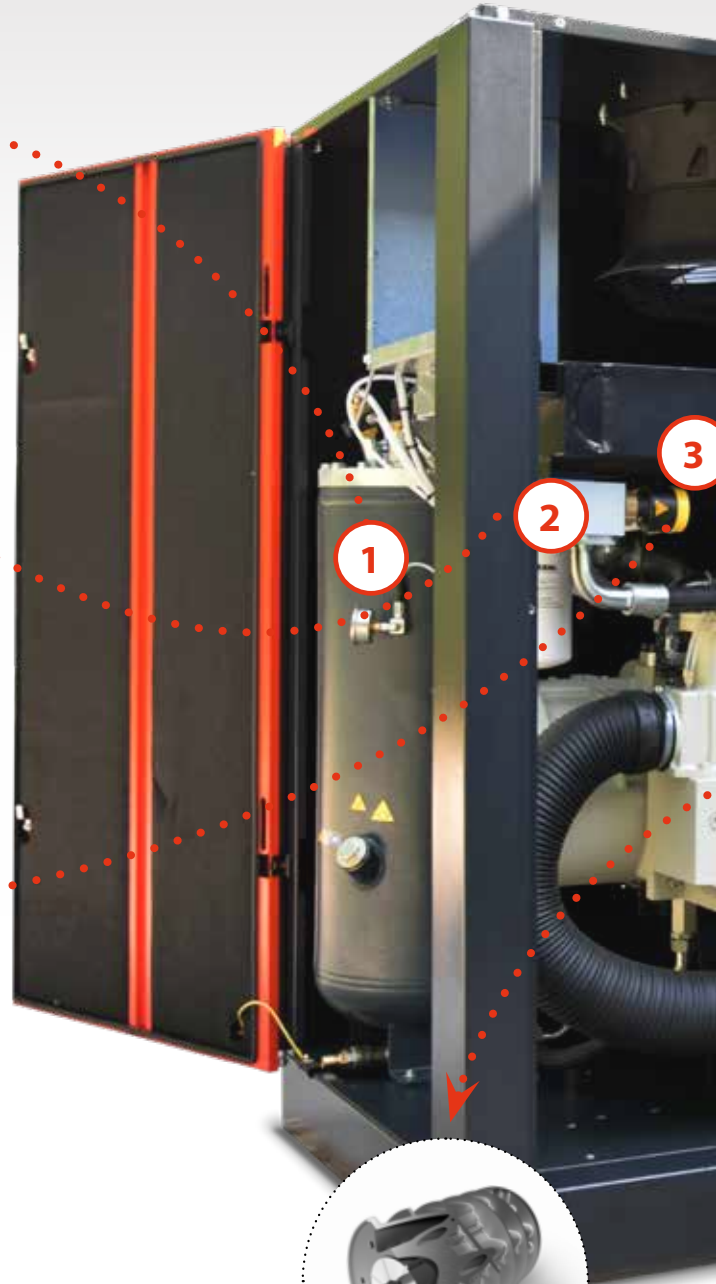
### 2. FLANGED CONNECTIONS

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



### 3. 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!



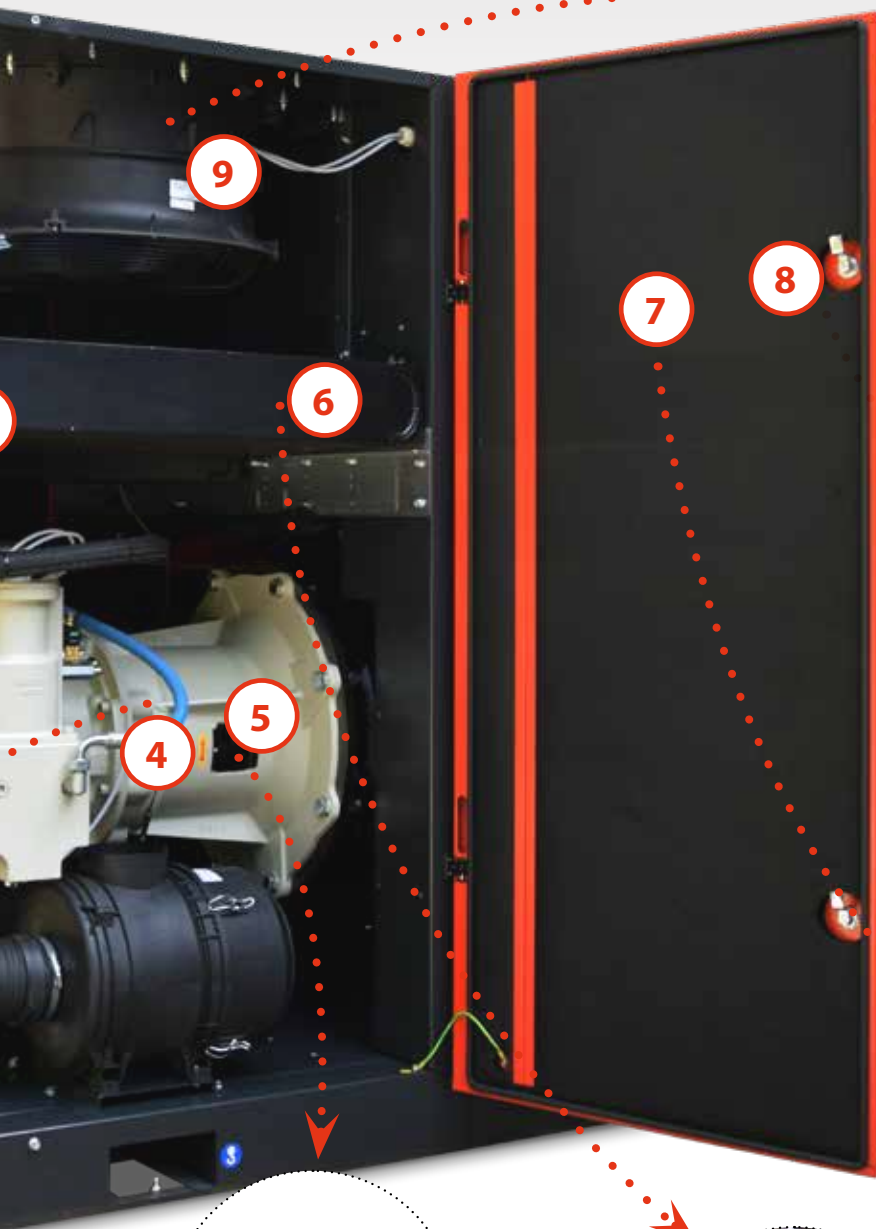
### 4. ROTOR STATOR UNIT (RSU)

Proprietary “bearing-less compressor.” Zero wear vanes. Zero wear bushes. Zero thrust forces. Rated >100,000 hours of operation without an airend overhaul.



### IE5 EFFICIENCY RATING

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



**9. VARIABLE SPEED FAN**

Variable-speed cooling fan operation follows electronic thermostatic valve as directed by Maestro XC for precise energy efficient operation.



**8. INVERTER-CONTROLLED COMPRESSOR**

Rugged and reliable AC inverter drive eliminates energy provider demand charges and locks rotation at the perfect speed for 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. OVERSIZED COOLERS**

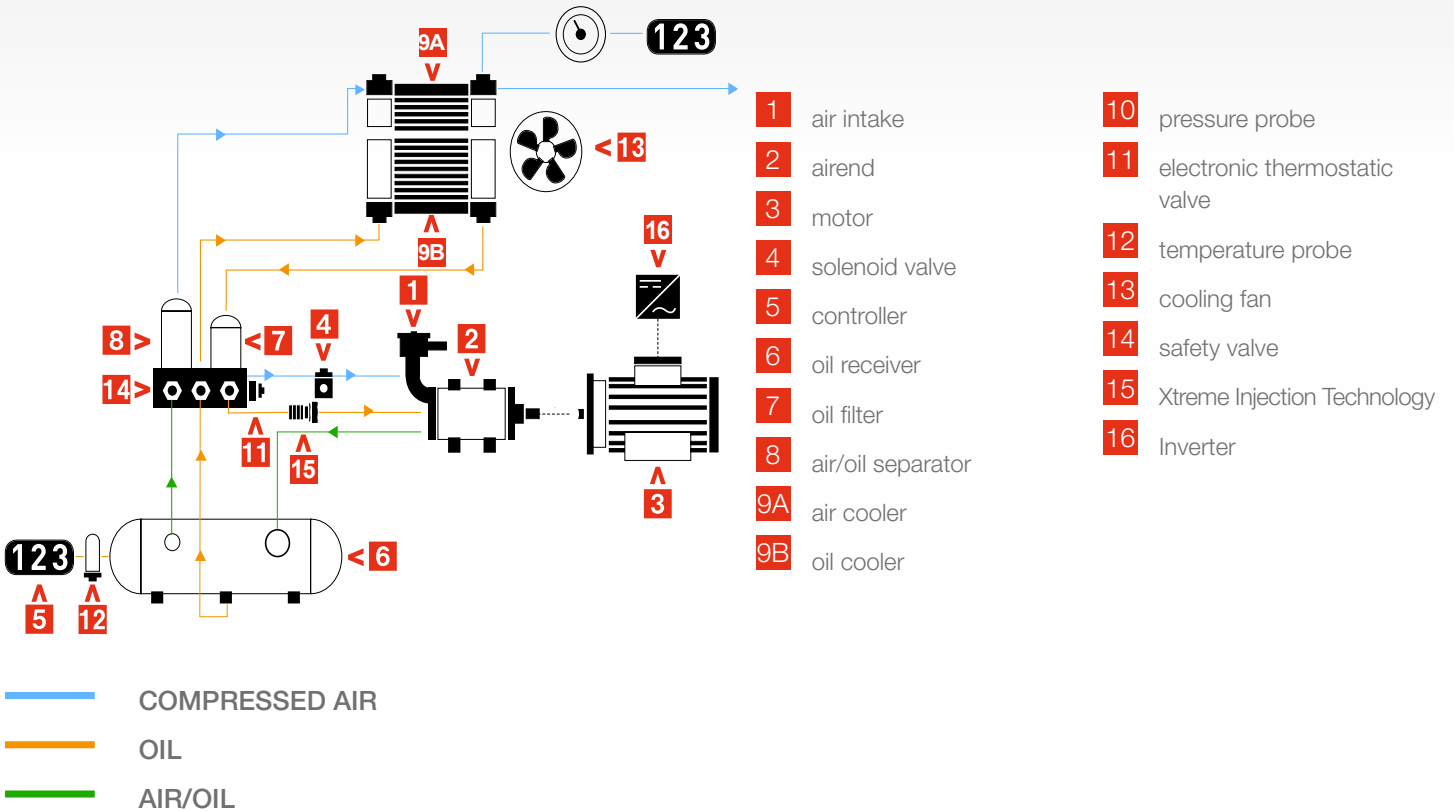
Engineered for dependable service in hot, humid climates. Rated for 45°C/113°F ambient. Optimal temperature control across a broad range of operating conditions.



**5. 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.

### HOW IT WORKS



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). Motor (3) speed is locked at the optimal rpm by Inverter (16) to maximize energy efficiency. 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.



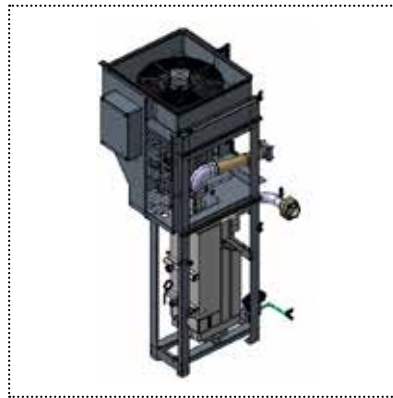
## OPTIONS

### WATERCOOLED VERSION



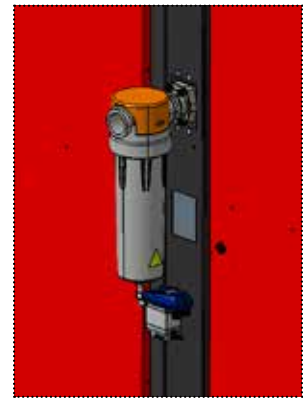
RVX 45-75 UP W compressors are equipped with water-cooled plate style heat exchangers. One is an oil cooler and the other an aftercooler. A dedicated cooling fan provides heat exchange for the cabinet.

### VERSION WITH INTEGRATED REFRIGERANT DRYER



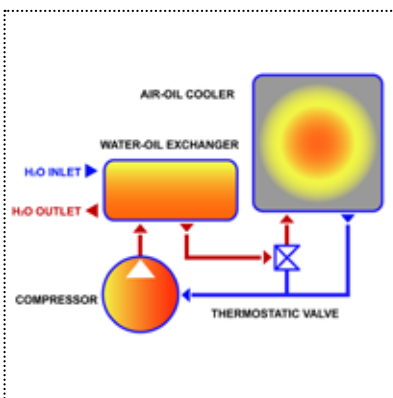
RVX 45-75 UP Plus compressor models include an integrated noncycling refrigerated air dryer. PLUS models include a condensate separator with zero-loss automatic drain, which is an option on all RVX base models.

### 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



RVX45-75UP Rare 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

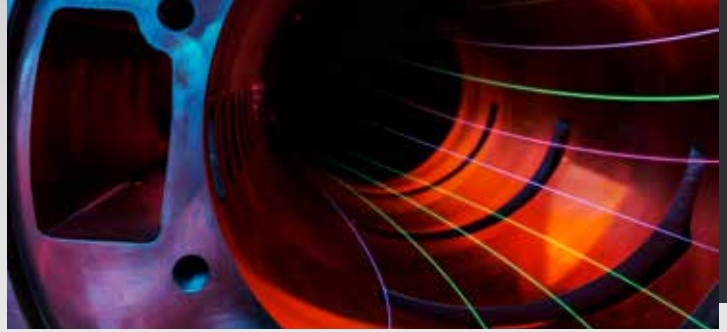


Real-time Industry 4.0 ready predictive maintenance modeling of lubricant acidity. Interfaces with Maestro XC controller programmed to manage sensor output. Lubricant condition can be monitored remotely by customer or distributor via Mattei Cloud.

### IE5 PACKAGE EFFICIENCY



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



## TECHNICAL DATA

Model	Capacity m <sup>3</sup> /min	Sound pressure level db(A)	Power kW	Isentropic Efficiency %	Length		Width		Height		Weight	
					mm	inch	mm	inch	mm	inch	kg	lbs

### 45-75 KW - RVX SERIES SPECIFICATIONS

<b>RVX 45 UP (*)</b>	10,4	68	45	88,3	2420	95,3	1245	49	1890	74,4	2000	4409
<b>RVX 55 UP (*)</b>	13,3		55	90,9	2420	95,3	1245	49	1890	74,4	2200	4850
<b>RVX 75 UP (*)</b>	16,0		75	93,8	2420	95,3	1245	49	1890	74,4	2200	4850

<b>RVX 45 UP PLUS (*)</b>	10,4	68	55	88,3	2420	95,3	1245	49	1890	74,4	2160	4762
<b>RVX 55 UP PLUS (*)</b>	13,3		75	90,9	2420	95,3	1245	49	1890	74,4	2360	5203
<b>RVX 75 UP PLUS (*)</b>	16,0		90	93,8	2420	95,3	1245	49	1890	74,4	2360	5203

(\*) Available with energy recovery system (R) or in water-cooled version (W).

F.A.D. in accordance with ISO 1217, annex "C"  
 Sound pressure level according to ISO 2151, tolerance  $\pm 3$ dB(A).  
 Working pressure: 7,5 bar for version 8 bar

## MATTEI MYCARE 6

With RVX 45-75 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





**ITALY - ING. ENEA MATTEI SpA**  
Strada Padana Superiore, 307  
20055 VIMODRONE (MI)  
Tel + 39 02253051 - Fax +39 0225305243  
E-mail: info@matteigroup.com

[www.matteigroup.com](http://www.matteigroup.com)



UNI EN ISO 9001:2015



**FRANCE**

MATTEI COMPRESSEURS  
Phone +33 5 35 54 22 05 - Fax +33 9 72 31 68 33  
E-MAIL: info@matteigroup.com - www.mattei.fr

**GERMANY**

MATTEI KOMPRESSOREN DEUTSCHLAND GmbH  
Phone +49 07191 - 933801  
E-MAIL: mde.info@matteigroup.com

**GREAT BRITAIN**

MATTEI COMPRESSORS Ltd  
Phone +44 (0)1789 450577 - Fax +44 (0)1789 450698  
E-MAIL: muk.info@matteigroup.com - www.mattei.co.uk

**USA - MATTEI COMPRESSORS Inc**

9635 Liberty Road, suite E  
Randallstown, MD 21133  
Phone +1 410 5217020 - Fax +1 410 5217024  
E-mail: info@matteigroup.com

**RUSSIA AND CIS COUNTRIES**

ING. ENEA MATTEI SpA  
Phone +7 499 1124877  
E-MAIL: mattei-rus@mail.ru

**SPAIN**

ING. ENEA MATTEI SpA  
Phone + 39 02253051 - Fax +39 0225305243  
E-MAIL: info@matteigroup.com

**PEOPLE'S REPUBLIC OF CHINA**

Mattei (SuZhou) Air Compressors Manufacturing Co., Ltd  
WFOE by Ing. Enea Mattei SpA - Italy  
Tel: +86 512 66679986 Fax: +86 512 66679989  
E-MAIL: sales.china@matteigroup.com - www.matteisuzhou.cn