Varian, Inc.
Vacuum Technologies

Industry Leading Vacuum Performance
High Capacity MS-Series Rotary Vane Pumps
& RPS-Series Roots Pumping Systems
Varian MS-Series High Capacity Mono Stage Oil Lubricated Rotary Vane Pumps, from 70 to 630 m³/h

- MS-Series Pumps are robust, easy to install, and are ideal for use in many different applications
- Because of their compact size, MS-Series Pumps can easily replace other pumps of equivalent pumping speed

Shorter Cycle Times
- Smooth continuous operation, from atmospheric to base pressure
- High pumping speed even at low pressure

Industry Leading Vacuum Performance
- Pump design allows lowest base pressure

Easy to Install
- Air cooling
  - cover design optimizes cooling air channels
  - integrated heat exchanger carries excess heat away
- Smaller than pumps of equivalent pumping speed

Highly Robust for Stringent Applications
- Steel rotor
- Cast iron stator and cover
- Carbon fiber vanes
- Viton seals
- Gas ballast valve, for pumping high water vapor content
- Anti-suckback isolation inlet valve eliminates oil backstreaming and holds vacuum in case of power loss

Highly Reliable
- Highly efficient oil circulation system ensures perfect lubrication and sealing in all critical areas of the pump
- Low noise and vibration

Environmentally Friendly
- A demister system limits oil exhaust over the entire range of working pressures

More than 20,000 RV pumps in operation!

Varian, Inc. Vacuum Technologies
RP-Series Roots Pumps

State-of-the-art, high performance Roots Pumps are ideal for use in demanding industrial applications

High Performance Roots Pumps
- Very high compression ratio
- Varian Roots Pumps can withstand high mechanical loads reducing pumpdown cycles

Clean
Ideal for use in applications demanding the highest levels of cleanliness:
- Special labyrinth seal prevents contamination
- A high capacity trap chamber captures condensation
- Advanced shaft seal technology avoids contamination of the process chamber

Compact and Easy to Use
- Varian Roots Pumps are simple to use and to install
- Air cooling

RPS-Series Roots Pumping Systems

Varian's RPS Systems combine the ruggedness and reliability of High Capacity MS-Series RVPs with wide range Roots Pumps

Wide Product Range offering
- Combining 5 MS-Series RVPs (from 70 to 630 m³/h) and 10 Roots Pumps (from 180 to 4000 m³/h) allows tailored solutions optimizing performance, cost and power consumption

Rugged and Reliable
- Low noise and vibration, thanks to dynamically balanced rotors and precision ground gears
- Long maintenance intervals
- Air Cooling

Designed for Optimum System Integration
- Ideal combination for roughing down and backing Diffusion Pumps, Turbomolecular Pumps, and other HV pumps
- Optional electronics for continuous operation and monitoring of Vacuum Systems

Varian's RPS Systems combine the ruggedness and reliability of High Capacity MS-Series RVPs with wide range Roots Pumps

More than 15,000 Roots pumps in operation!
Typical Applications

ROUGHING AND BACKING HIGH VACUUM PUMPS

The new MS Pumps and RPS Systems are ideally suited for use in combination with Varian Turbo-V and Diffusion pumps or with HV pumps of any other manufacturer.

Surface coating systems

The most common application where the RPS are used are coaters of different dimensions, from small ones used in research fields to the very large ones used in industrial applications, including for instance glass coaters or coaters where large automotive or aircraft parts are treated. The ability to offer large RV pumps, up to 630 m³/h and Roots pumps up to 4000 m³/h make the Varian offer in this range particularly interesting and able to satisfy different needs.

Metallurgy and heat treatment

In this field Varian has offered so far a very large number of Diffusion Pumps, with sizes ranging up to 35,000 m³/h. The availability now to provide the full vacuum system up to the atmospheric pressure is rapidly bringing this offer to satisfy most of the users, who are particularly interested in rapid cycle times and the excellent overall reliability of the Varian solution.

Helium leak detection

When large volumes or short cycle are required for a process involving leak detection, typically but not only using helium, the Varian RV pumps alone or in combination with the Roots pumps are an ideal solution to reach the parameters necessary for industrial applications. Varian is well aware of technical aspects of this technology having been a pioneer in leak detection for several decades.

Electron beam welding

EBW equipment requires the use of both High Vacuum Pumps, during generation and running of the welding beam, and Medium Vacuum Pumps for the rest of the process taking place in the chamber where the parts to be welded are positioned. Thanks to the introduction of the new Roots Pumping Systems, today Varian is in a position to offer the entire vacuum system, as a single supply source in this important industry.

Other industrial applications

Varian RV pumps and Roots Systems are suitable for use in many other applications, including lamps manufacturing, vacuum drying and degassing, gas recovery, packing industry, chemistry and process technology, PET processing, pharmaceutical industry, vacuum distillation, cryogenic vessel evacuation, and others.

Varian, Inc. Vacuum Technologies
# MS-301

## TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump model</td>
<td>MS-301</td>
</tr>
<tr>
<td>Free Air Displacement, 50/60 Hz</td>
<td>290/350 m³/h (170/210 cfm)</td>
</tr>
<tr>
<td>Pumping Speed according to Pneurop 50/60 Hz</td>
<td>250 / 290 m³/h (150/170 cfm)</td>
</tr>
<tr>
<td>Ultimate partial pressure (with gas ballast closed)</td>
<td>$\leq 8 \times 10^{-2}$ mbar ($\leq 6 \times 10^{-2}$ Torr)</td>
</tr>
<tr>
<td>Ultimate total pressure (with gas ballast open)</td>
<td>$\leq 0.7$ mbar ($\leq 0.5$ Torr)</td>
</tr>
<tr>
<td>Power (50/60 Hz)</td>
<td>5.5 / 7.5 kW (7.4/10.0 HP)</td>
</tr>
<tr>
<td>Power Supply Voltage (50Hz / 60Hz)</td>
<td>230/400 V / 208-230/460 V</td>
</tr>
<tr>
<td>Revolutions number (50/60 Hz)</td>
<td>1450 / 1750 RPM</td>
</tr>
<tr>
<td>Water vapor tolerance</td>
<td>30/40 mbar (22/30 Torr)</td>
</tr>
<tr>
<td>Water vapor capacity</td>
<td>5 / 7 kg/h (5.5 / 7.7 qt/hr)</td>
</tr>
<tr>
<td>Noise level*</td>
<td>72 / 76 dBA</td>
</tr>
<tr>
<td>Inlet Port</td>
<td>Flange DN 63 ISO-K / 2&quot; Gas</td>
</tr>
<tr>
<td>Exhaust Port</td>
<td>2&quot; Gas</td>
</tr>
<tr>
<td>Oil</td>
<td>type MS-01 / charge 7 liter (7.4 qt)</td>
</tr>
<tr>
<td>Working Ambient Temperature Range</td>
<td>+12 / +40 °C ( +54 / +105 F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-15 / +70 °C ( +5 / +158 F)</td>
</tr>
<tr>
<td>Dimensions with motor (50/60 Hz)</td>
<td>986 x 550 x 460 / 1015 x 550 x 460 mm (38.8 x 21.6 x 18.1 / 40.0 x 21.6 x 18.1 in)</td>
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<tr>
<td>Dimensions without motor</td>
<td>741 x 550 x 460 mm (29.1 x 21.6 x 18.1 in)</td>
</tr>
<tr>
<td>Total weight with and without motor</td>
<td>190/141 Kg (420/310 lb)</td>
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* measured according to EN ISO 2151 (50/60 Hz)

## ORDERING INFORMATION

### High Capacity Rotary Vane Pumps

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>949-5001</td>
<td>MS-301 with motor 5,5 kW, 50 Hz, 230/400 V</td>
</tr>
<tr>
<td>949-5201</td>
<td>MS-301 with motor 5,5 kW, 50 Hz, 230/400 V, Inlet Flange DN 63 ISO-K</td>
</tr>
<tr>
<td>949-5101</td>
<td>MS-301 with motor 7,5 kW, 60 Hz, 208-230/460 V</td>
</tr>
<tr>
<td>949-5301</td>
<td>MS-301 with motor 7,5 kW, 60 Hz, 208-230/460 V, Inlet Flange DN 63 ISO-K</td>
</tr>
<tr>
<td>949-5012</td>
<td>MS-01 Oil Charge for MS-301 (7 liters)</td>
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</table>

### Accessories

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>949-5059</td>
<td>Inlet Air Filter with Polyester Cartridge, for 2&quot; Gas connection</td>
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<tr>
<td>949-5159</td>
<td>Inlet Air Filter with Polyester Cartridge with DN 63 ISO-K Flange</td>
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<tr>
<td>949-5065</td>
<td>Connection Fitting Kit, for 2&quot; Gas connection</td>
</tr>
<tr>
<td>949-5165</td>
<td>Connection Fitting Kit, for DN 63 ISO-K Flange connection</td>
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### Protective Accessories

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>949-5076</td>
<td>Pump Thermal Protection Switch</td>
</tr>
<tr>
<td>949-5077</td>
<td>Oil Separator Control Pressure Switch</td>
</tr>
<tr>
<td>949-5078</td>
<td>MS-301 Oil Level Protection Switch</td>
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</tbody>
</table>

### Spare Parts

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>949-5020</td>
<td>MS-301 Minor Spare Part Kit</td>
</tr>
<tr>
<td>949-5021</td>
<td>MS-301 Major Spare Part Kit</td>
</tr>
<tr>
<td>949-5070</td>
<td>Oil Filter (Type A)</td>
</tr>
<tr>
<td>949-5083</td>
<td>MS-301 Inlet Air Filter Polyester Cartridge</td>
</tr>
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</table>
MS-631

**TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Pump model</td>
<td>MS-631</td>
</tr>
<tr>
<td>Free Air Displacement, 50/60 Hz</td>
<td>660/790 m³/h (390/465 cfm)</td>
</tr>
<tr>
<td>Pumping Speed according to Pneurop 50/60 Hz</td>
<td>590 /680 m³/h (350/400 cfm)</td>
</tr>
<tr>
<td>Ultimate partial pressure (with gas ballast closed)</td>
<td>≤ 8 x 10⁻² mbar (≤ 6 x 10⁻² Torr)</td>
</tr>
<tr>
<td>Ultimate total pressure (with gas ballast open)</td>
<td>≤ 0,7 mbar (≤ 0,5 Torr)</td>
</tr>
<tr>
<td>Power (50/60 Hz)</td>
<td>15 / 18,5 kW (20,1/24,8 HP)</td>
</tr>
<tr>
<td>Power Supply Voltage (50Hz / 60Hz)</td>
<td>400/690 V / 440-480 V</td>
</tr>
<tr>
<td>Revolutions number (50/60 Hz)</td>
<td>820 / 1000 RPM</td>
</tr>
<tr>
<td>Water vapor tolerance</td>
<td>30/40 mbar (23/30 Torr)</td>
</tr>
<tr>
<td>Water vapor capacity</td>
<td>20/30 kg/h (22,0 / 33.1 qt/hr)</td>
</tr>
<tr>
<td>Noise level*</td>
<td>71 / 73 dB(A)</td>
</tr>
<tr>
<td>Inlet Port</td>
<td>Flange DN 100 ISO-K / 4&quot; Gas</td>
</tr>
<tr>
<td>Exhaust Port</td>
<td>4&quot; Gas</td>
</tr>
<tr>
<td>Oil type</td>
<td>MS-01 / charge 22 liter (23.2 qt)</td>
</tr>
<tr>
<td>Working Ambient Temperature Range</td>
<td>+12 +40 °C (+54 +105 F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-15 +70 °C (+5 +158 F)</td>
</tr>
<tr>
<td>Dimensions with motor (50/60 Hz)</td>
<td>1455 x 823 x 683 / 1480 x 823 x 683 mm</td>
</tr>
<tr>
<td>Dimensions without motor</td>
<td>1125 x 823 x 683 mm</td>
</tr>
<tr>
<td>Total weight with and without motor</td>
<td>575 / 385 kg (1270/850 lb)</td>
</tr>
</tbody>
</table>

* measured according to EN ISO 2151 (50/60 Hz)

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Part Number</th>
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<tbody>
<tr>
<td>High Capacity Rotary Vane Pumps</td>
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</tr>
<tr>
<td>MS-631 with motor 15,0 kW, 50 Hz, 400/690 V</td>
<td>949-5002</td>
</tr>
<tr>
<td>Inlet Port 4&quot; Gas</td>
<td></td>
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<tr>
<td>MS-631 with motor 15,0 kW, 50 Hz, 400/690 V Inlet Flange DN 100 ISO-K</td>
<td>949-5202</td>
</tr>
<tr>
<td>MS-631 with motor 18,5 kW, 60 Hz, 440-480 V Inlet Port 4&quot; Gas</td>
<td>949-5102</td>
</tr>
<tr>
<td>MS-631 with motor 18,5 kW, 60 Hz, 440-480 V Inlet Flange DN 100 ISO-K</td>
<td>949-5302</td>
</tr>
<tr>
<td>MS-01 Oil Charge for MS-631 (22 liters)</td>
<td>949-5014</td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td></td>
</tr>
<tr>
<td>Inlet Air Filter with Polyester Cartridge, for 4&quot; Gas connection</td>
<td>949-5062</td>
</tr>
<tr>
<td>Inlet Air Filter with Polyester Cartridge with DN 100 ISO-K Flange</td>
<td>949-5162</td>
</tr>
<tr>
<td>Connection Fitting Kit, for 4&quot; Gas connection</td>
<td>949-5066</td>
</tr>
<tr>
<td>Connection Fitting Kit, for DN 100 ISO-K Flange connection</td>
<td>949-5166</td>
</tr>
<tr>
<td><strong>Protective Accessories</strong></td>
<td></td>
</tr>
<tr>
<td>Pump Thermal Protection Switch</td>
<td>949-5076</td>
</tr>
<tr>
<td>Oil Separator Control Pressure Switch</td>
<td>949-5077</td>
</tr>
<tr>
<td>MS-631 Oil Level Protection Switch</td>
<td>949-5079</td>
</tr>
<tr>
<td><strong>Spare Parts</strong></td>
<td></td>
</tr>
<tr>
<td>MS-631 Minor Spare Part Kit</td>
<td>949-5087</td>
</tr>
<tr>
<td>MS-631 Major Spare Part Kit</td>
<td>949-5088</td>
</tr>
<tr>
<td>Oil Filter (Type B)</td>
<td>949-5090</td>
</tr>
<tr>
<td>MS-631 Inlet Air Filter Polyester Cartridge</td>
<td>949-5089</td>
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</tbody>
</table>
### TECHNICAL SPECIFICATIONS

#### RPS-751/301
- **Nominal pumping speed, 50/60 Hz**: 750/1200 m³/h (440/710 cfm)
- **Ult. total pressure (gas ballast closed)**: ≤ 7 x 10⁻³ mbar (≤ 5 x 10⁻³ Torr)
- **Ult. total pressure (gas ballast open)**: ≤ 2 x 10⁻³ mbar (≤ 1.5 x 10⁻³ Torr)
- **Roots pump start up pressure**: ≤ 80 mbar (≤ 60 Torr)
- **Power (50/60 Hz)**: 3.0 + 5.5 / 4.0 + 5.5 / 5.5 + 5.5 kW
- **Power Supply Voltage (50Hz)**: 208-230 / 230 V
- **Noise level**: 74 / 76 dB(A)
- **Oil charge**: 1.5 + 7.0 liter (1.6 + 7.4 qt)
- **Working Ambient Temperature Range**: +12 +40 °C (+54 +105 F)
- **Storage Temperature**: -15  +70 °C (+5  +158 F)
- **Dimensions D x W x H**: 750 x 1130 x 1175 mm (29.5 x 44.5 x 46.3 in)
- **Total weight (50/60 Hz)**: 450 / 510 kg (1000 / 1130 lb)

#### RPS-1001/301
- **Nominal pumping speed, 50/60 Hz**: 1000/1200 m³/h (590/710 cfm)
- **Ult. total pressure (gas ballast closed)**: ≤ 7 x 10⁻³ mbar (≤ 5 x 10⁻³ Torr)
- **Ult. total pressure (gas ballast open)**: ≤ 2 x 10⁻³ mbar (≤ 1.5 x 10⁻³ Torr)
- **Roots pump start up pressure**: ≤ 80 mbar (≤ 60 Torr)
- **Power (50/60 Hz)**: 4.0 + 5.5 / 5.5 + 5.5 / 6.3 + 7.5 kW
- **Power Supply Voltage (50Hz)**: 208-230 / 230 V
- **Noise level**: 74 / 76 dB(A)
- **Oil charge**: 1.5 + 7.0 liter (1.6 + 7.4 qt)
- **Working Ambient Temperature Range**: +12 +40 °C (+54 +105 F)
- **Storage Temperature**: -15  +70 °C (+5  +158 F)
- **Dimensions D x W x H**: 750 x 1153 x 1195 mm (29.5 x 45.4 x 47 in)
- **Total weight (50/60 Hz)**: 510 / 570 kg (1130 / 1260 lb)

#### RPS-1401/301
- **Nominal pumping speed, 50/60 Hz**: 1430/1700 m³/h (840/1000 cfm)
- **Ult. total pressure (gas ballast closed)**: ≤ 7 x 10⁻³ mbar (≤ 5 x 10⁻³ Torr)
- **Ult. total pressure (gas ballast open)**: ≤ 2 x 10⁻³ mbar (≤ 1.5 x 10⁻³ Torr)
- **Roots pump start up pressure**: ≤ 80 mbar (≤ 60 Torr)
- **Power (50/60 Hz)**: 5.5 + 5.5 / 6.3 + 7.5 / 7.3 + 8.4 kW
- **Power Supply Voltage (50Hz)**: 208-230 / 230 V
- **Noise level**: 74 / 76 dB(A)
- **Oil charge**: 1.5 + 7.0 liter (1.6 + 7.4 qt)
- **Working Ambient Temperature Range**: +12 +40 °C (+54 +105 F)
- **Storage Temperature**: -15  +70 °C (+5  +158 F)
- **Dimensions D x W x H**: 750 x 1289 x 1195 mm (29.5 x 50.7 x 47 in)
- **Total weight (50/60 Hz)**: 570 / 630 kg (1260 / 1380 lb)

#### RPS-2001/631
- **Nominal pumping speed, 50/60 Hz**: 2000/2400 m³/h (1180/1415 cfm)
- **Ult. total pressure (gas ballast closed)**: ≤ 7 x 10⁻³ mbar (≤ 5 x 10⁻³ Torr)
- **Ult. total pressure (gas ballast open)**: ≤ 2 x 10⁻³ mbar (≤ 1.5 x 10⁻³ Torr)
- **Roots pump start up pressure**: ≤ 55 mbar (≤ 41 Torr)
- **Power (50/60 Hz)**: 7.5  + 15.0 / 11.0 + 15.0 / 11.0 + 15.0 kW
- **Power Supply Voltage (50Hz)**: 400/690 V
- **Noise level**: 78 / 76 dB(A)
- **Oil charge**: 2.5 + 22.0 liter (2.6 + 23.2 qt)
- **Working Ambient Temperature Range**: +12 +40 °C (+54 +105 F)
- **Storage Temperature**: -15  +70 °C (+5  +158 F)
- **Dimensions D x W x H**: 750 x 1130 x 1175 mm (29.5 x 44.5 x 46.3 in)
- **Total weight (50/60 Hz)**: 510 / 570 kg (1130 / 1260 lb)

#### RPS-3001/631
- **Nominal pumping speed, 50/60 Hz**: 2900/3450 m³/h (1710/2030 cfm)
- **Ult. total pressure (gas ballast closed)**: ≤ 7 x 10⁻³ mbar (≤ 5 x 10⁻³ Torr)
- **Ult. total pressure (gas ballast open)**: ≤ 2 x 10⁻³ mbar (≤ 1.5 x 10⁻³ Torr)
- **Roots pump start up pressure**: ≤ 55 mbar (≤ 41 Torr)
- **Power (50/60 Hz)**: 11.0  + 20.1 / 14.7 + 20.1 / 14.7 + 20.1 kW
- **Power Supply Voltage (50Hz)**: 400/690 V
- **Noise level**: 78 / 76 dB(A)
- **Oil charge**: 2.5 + 22.0 liter (2.6 + 23.2 qt)
- **Working Ambient Temperature Range**: +12 +40 °C (+54 +105 F)
- **Storage Temperature**: -15  +70 °C (+5  +158 F)
- **Dimensions D x W x H**: 750 x 1153 x 1195 mm (29.5 x 45.4 x 47 in)
- **Total weight (50/60 Hz)**: 510 / 570 kg (1130 / 1260 lb)

#### RPS-4001/631
- **Nominal pumping speed, 50/60 Hz**: 3900/4700 m³/h (2200/2770 cfm)
- **Ult. total pressure (gas ballast closed)**: ≤ 7 x 10⁻³ mbar (≤ 5 x 10⁻³ Torr)
- **Ult. total pressure (gas ballast open)**: ≤ 2 x 10⁻³ mbar (≤ 1.5 x 10⁻³ Torr)
- **Roots pump start up pressure**: ≤ 55 mbar (≤ 41 Torr)
- **Power (50/60 Hz)**: 11.0  + 20.1 / 14.7 + 20.1 / 14.7 + 20.1 kW
- **Power Supply Voltage (50Hz)**: 400/690 V
- **Noise level**: 78 / 76 dB(A)
- **Oil charge**: 2.5 + 22.0 liter (2.6 + 23.2 qt)
- **Working Ambient Temperature Range**: +12 +40 °C (+54 +105 F)
- **Storage Temperature**: -15  +70 °C (+5  +158 F)
- **Dimensions D x W x H**: 750 x 1153 x 1195 mm (29.5 x 45.4 x 47 in)
- **Total weight (50/60 Hz)**: 510 / 570 kg (1130 / 1260 lb)

* Measured according to EN ISO 2151 (50/60 Hz)
RPS-Series Roots Pumping Systems

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Part Number</th>
<th>RPS-751/301, with RP-751, MS-301, frame, flex. hose. 50 Hz, 230 / 400 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>949-6008</td>
<td>RPS-751/301, with RP-751, MS-301, frame, flex. hose. 208-230 / 460 V</td>
</tr>
<tr>
<td>949-6106</td>
<td>RPS-1001/301, with RP-1001, MS-301, frame, flex. hose. 50 Hz, 230 / 400 V</td>
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<tr>
<td>949-6001</td>
<td>RPS-1001/301, with RP-1001, MS-301, frame, flex. hose. 208-230 / 460 V</td>
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<tr>
<td>949-6101</td>
<td>RPS-1401/301, with RP-1401, MS-301, frame, flex. hose. 50 Hz, 230 / 400 V</td>
</tr>
<tr>
<td>949-6002</td>
<td>RPS-1401/301, with RP-1401, MS-301, frame, flex. hose. 208-230 / 460 V</td>
</tr>
<tr>
<td>949-6102</td>
<td>RPS-2001/631, with RP-2001, MS-631, frame, flex. hose. 50 Hz, 400/690 V</td>
</tr>
<tr>
<td>949-6004</td>
<td>RPS-3001/631, with RP-3001, MS-631, frame, flex. hose. 50 Hz, 400/690 V</td>
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<td>949-6005</td>
<td>RPS-3001/631, with RP-3001, MS-631, frame, flex. hose. 208-230 / 460 V</td>
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<tr>
<td>949-6103</td>
<td>RPS-4001/631, with RP-4001, MS-631, frame, flex. hose. 50 Hz, 400/690 V</td>
</tr>
<tr>
<td>949-6006</td>
<td>RPS-4001/631, with RP-4001, MS-631, frame, flex. hose. 208-230 / 460 V</td>
</tr>
</tbody>
</table>

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