



# ENERGY-SAVING DRIVE PACKAGE SPRiPM MOTOR & YASKAWA V1000 INVERTER DRIVE

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# SPRiPM Overview

## SPRiPM - Super Premium IPM Motor & YASKAWA V1000 Inverter Drive

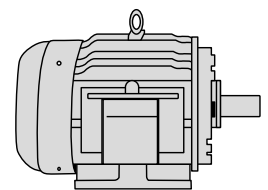
The SPRiPM Motor-Inverter Package was developed to support machine builders in meeting the power efficiency levels defined by EU directive 2009/125/EG. The package is a perfect solution for applications such as fans, pumps, conveyors, compressors and delivers high efficiency levels at reasonable cost.

### Motor-Inverter package SPRiPM with V1000: A winning combination

- ▶ Less energy consumption
- ▶ Less space
- ▶ Less cost
- ▶ Less weight
- ▶ Less CO<sub>2</sub> emission
- ▶ Easy change over
- ▶ Longer lifetime

### Ideal Solution for Retro-fit and Re-design

Being much lighter and smaller than most standard motors, the SPRiPM Motor delivers its high efficiency in a very compact frame size. In addition, standard motors can easily be replaced with SPRiPM Motor packages without redesigning the machine. Even more powerful motors can be applied for better productivity. With these features, the SPRiPM Motor makes the latest drive technology available for new or existing applications.



Easy  
change  
over



### Package Combination for Quick Install & Simple Set-up



+



Compact & Light  
Self-Tuning



Easy Installation  
Simple Set Up

Set Up Time

**3**

minutes

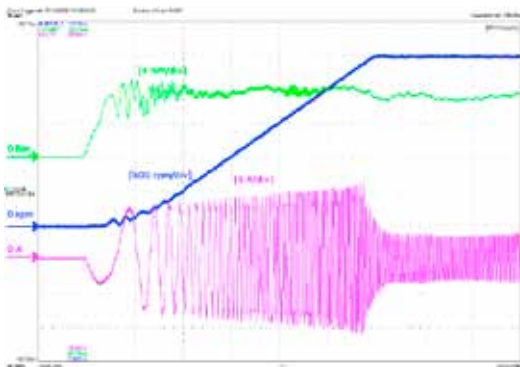
1. Connect Cables
2. Drive Configuration

Run!

## Applications: Extruders

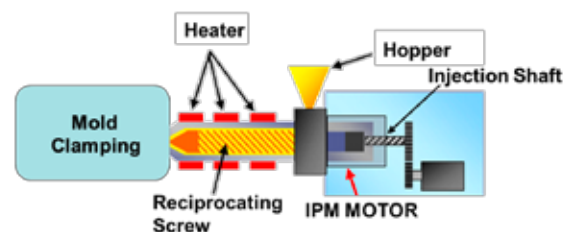
### Requirements

- Reliably drive extruder screws with constant torque
- Avoid damages due to overload
- Reliable speed control
- Save energy



### Benefits

- Elimination of gear
- Compact machine design
- High starting torque (over 100%)
- High acceleration (< 1 sec)
- High dynamic response
- Energy saving (IE4+)



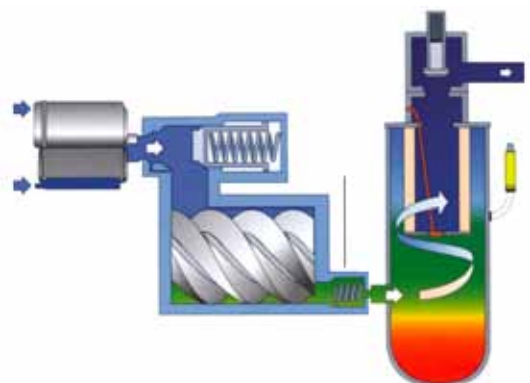
## Constant Torque Applications: Compressors

### Requirements

- Provide a versatile and easy-to-use solution for controlling compressor devices
- Give answers to growing energy saving requirements
- Control and reduce speed of compressor depending on requirement
- Save energy
- Prevent motor overload condition by software
- Utilize small or no pressure tanks

### Benefits

- Elimination of encoder
- Compact machine design
- High reliability
- Exceptional energy efficiency
- High starting torque
- High speed driving (= 150 Hz)



## Various Torque Applications: Fans, Pumps

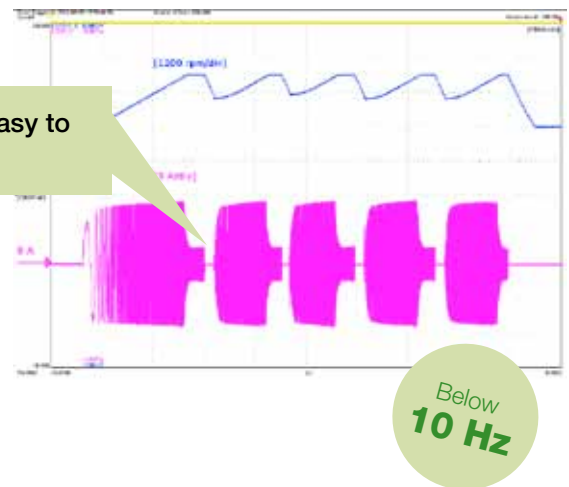
### Requirements

- Constant speed with varying torque
- Bridging gaps in power supply
- Breaking to stop also in generator operation mode
- Sequence control of several drives
- 4-quadrant drive

### Benefits

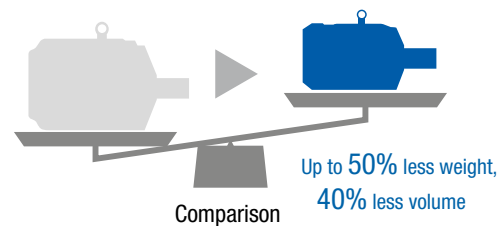
- Exceptional energy efficiency
- Energy efficient smooth - speed switch over at below 10 Hz
- Exceptional noise reduction

After power failure, it is easy to catch the motor speed



## SPRiPM Motor with YASKAWA V1000 Inverter Drive

### IE2 vs. SPRiPM IE4+

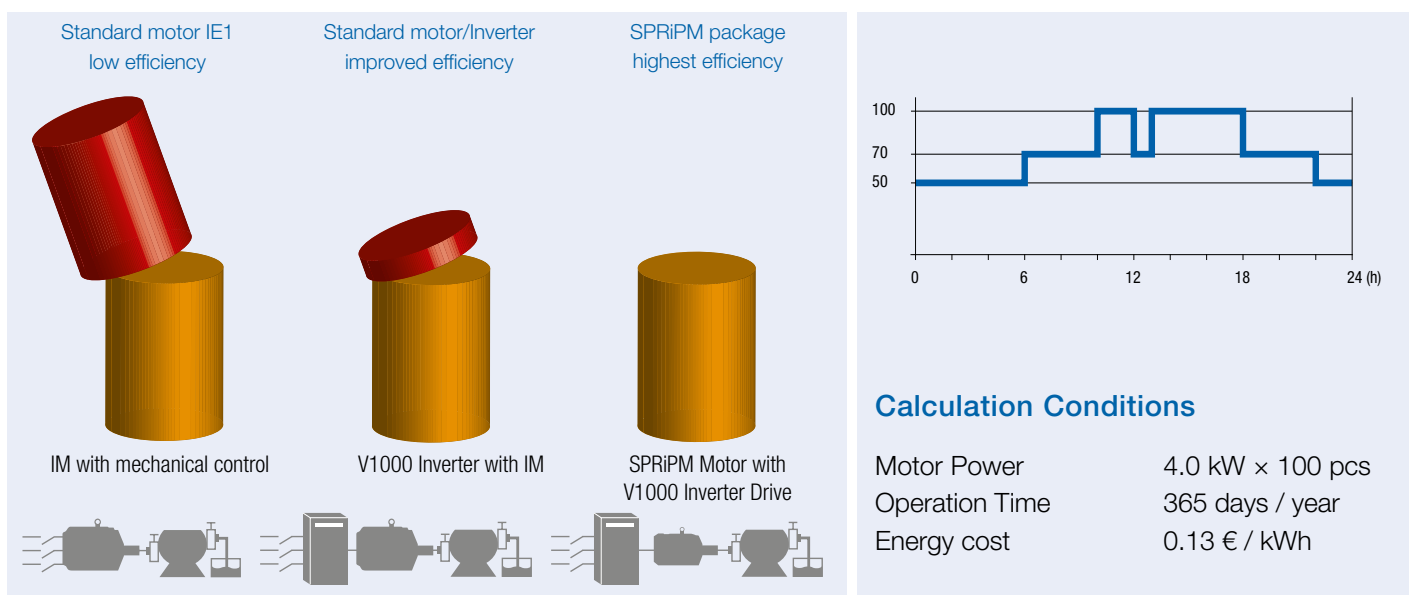


Type of Motor	IPM
Output Power	1.5 kW - 15 kW
Pole	8 poles
Frame Size	71 to 112
Protection	IP55
Voltage	200/400 V
Frequency	50 Hz or 60 Hz
Speed	1500 rpm - 3000 rpm (synchronous)
Insulation Class	Class F
Efficiency	IE4 (Super Premium Efficiency)
Ambient Temp.	-15 to +40 °C
Cooling Type	Fan Cooling or other
Mounting	B3, B5, B35

Torque (Nm)	Frame No.	Output (kW)	Speed (rpm)	Input (V)	Proper Inverter Model or Code
7.0	71	2.2	3000	400	CIMR-VC4A0007BAA
9.5	71	1.5	1500	400	CIMR-VC4A0005BAA
9.5	71	3	3000	400	CIMR-VC4A0009BAA
12.7	80	4	3000	400	CIMR-VC4A0011BAA
14.0	80	2.2	1500	400	CIMR-VC4A0007BAA
25.5	90S	4	1500	400	CIMR-VC4A0011BAA
35.0	100	11	3000	400	CIMR-VC4A0031BAA
47.7	112	15	3000	400	CIMR-VC4A0038BAA

## SPRiPM Motor & YASKAWA V1000 Inverter Drive Best of Class Energy Efficiency

Substantial energy cost savings mean that the break-even point will be reached in just a few months.



### Before: IM + V1000

Efficiency = 83.1% (IE3)  
Power Consumption: app. 4,216,600 kWh/year



### After: SPRiPM + V1000

Efficiency = 92% (IE4+)  
Power Consumption: app. 3,808,700 kWh/year



HVAC pump application:  
100 motors, 4.0 kW each, 24 hours/day, 365 days/year at 100% speed

Annual  
Energy Savings  
**407,900**  
kWh



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