

# SX SERIES

Force & flow in harmony



» IP54 compact size

» 690 V power supply

» True application oriented inverter

# Safe force and smooth flow...

*Designed to drive any high power application from 90 kW up to 1 MW, the new SX series of compact inverters features embedded application dedicated functionality plus logic programming and customizable LCD information to give you all the control flexibility required for applications ranging from high torque to smooth flow and pressure control. Housed in robust IP54 cabinets and with EMC C3 Class filters and fuses (from 22 kW) as standard, the SX series protects your process while reducing downtime.*



# ...in perfect harmony!

## Force & flow in harmony

SX inverters deliver force safely through direct torque and accurate speed control with efficient vector braking in torque applications (cranes, crushers, mills and mixers etc) and smooth motor control with optimized operation and reduced energy consumption in flow and pressure applications (compressors, blowers, pumps and fans etc).

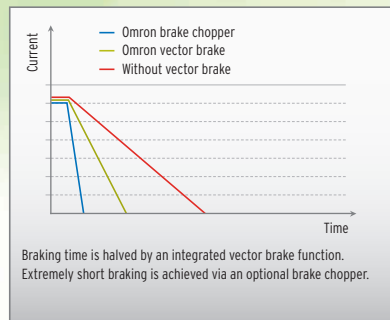
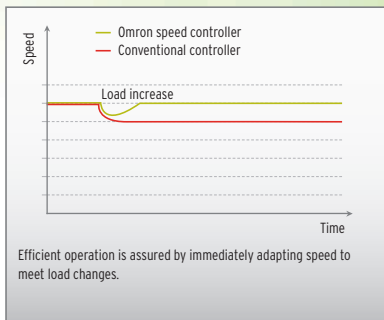
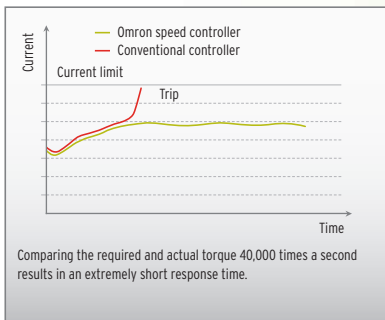
## Product features & benefits

- 500-690 V power supply (from 90 kW up to 1 MW)
- Built-in EMC filter for complete family and fuses from 200 kW save installation time & costs
- Multiple hardware customization to meet your needs in terms of safety (EN13849-1, EN62601), network communications, liquid cooling, special PCB coating, and more
- Compact & robust IP54 enclosure saves space & costs
- True application oriented thanks to its dedicated functionality, logic programmability and LCD customization
- Pre-maintenance alarms to protect your processes from damage and down-time
- Marine certificate DNV (Det Norske Veritas)





# Safe force



## Direct torque control

Operation is protected from interruptions by means of very accurate and extremely quick speed and direct torque control. Disturbances caused by, e.g. peak loads, sudden load changes, or inaccurate ramp times are entirely eliminated.

## Speed control

Changes liable to cause motor-speed deviation are reacted to quickly and the speed adjusted to the setpoint value. The set-up time is minimised thanks to an autotune function.

## Vector brake function

Instead of using mechanical brakes, rapid and protective braking is assured by an integrated vector brake function. As the braking energy is dissipated through the motor itself, interruptions caused by excessive brake voltages are avoided.

## Safe Force

The SX inverter series ensures that your installation is provided with all the power it requires while maintaining full control of the process itself. It does this by applying the combination of direct torque control, accurate speed control and efficient vector braking.

Moreover, it efficiently solves the critical start-up of high torque applications by boosting the torque to overcome initial peak loads, thus ensuring that sudden, jerky movements are prevented. This is achieved by providing the pre-magnetized motor with sufficient power to deliver the torque required to start the movement at the very moment the mechanical brake is released.



# Safe Force

## Product Overview

	Motor kW		Output characteristics		
	For HD setting (150%, 1 min)	For ND setting (120%, 1 min)	Max output current (A)	Rated output current (A) at HD	Rated output current (A) at ND
SX-D6090-E*	75	90	108	72	90
SX-D6110-E*	90	110	131	87	109
SX-D6132-E*	110	132	175	117	146
SX-D6160-E*	132	160	210	140	175
SX-D6200-E*	160	200	252	168	210
SX-D6250-E*	200	250	300	200	250
SX-D6315-E*	250	315	360	240	300
SX-D6355-E*	315	355	450	300	375
SX-D6450-E*	315	450	516	344	430
SX-D6500-E*	355	500	600	400	500
SX-D6600-E*	450	600	720	480	600
SX-D6630-E*	500	630	780	520	650
SX-D6710-E*	600	710	900	600	750
SX-D6800-E*	650	800	1032	688	860
SX-D6900-E*	710	900	1080	720	900
SX-D61K0-E*	800	1000	1200	800	1000

**\* For all types:**

Output voltage: 0 to Mains supply voltage

Max. output frequency: 400 Hz

Rated input voltage and frequency: 3-phase 500..690V, 50/60 Hz

Allowable voltage fluctuation: +10%..-15%

Allowable frequency fluctuation: 45 to 65 Hz

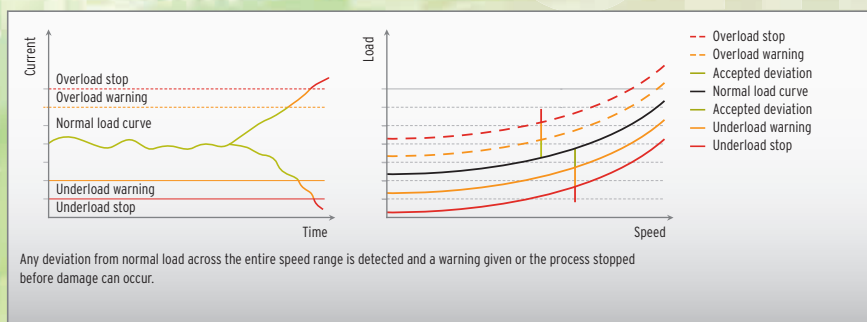
**\* Please add F or V depending on your application motor control needs:**

F: Flux Vector Motor Control

V: V/F Motor Control

## Smooth Flow

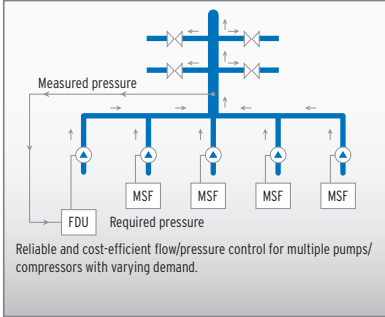
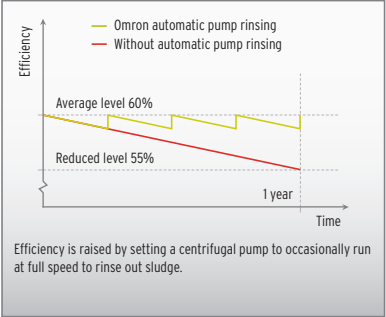
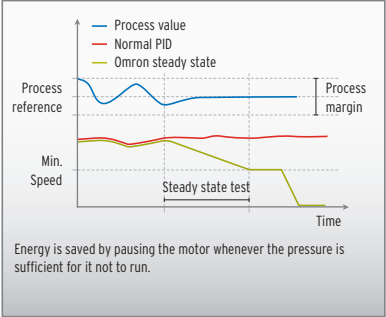
The SX inverter series ensures perfectly smooth control of flow and pressure. This is achieved by controlling the motor speed in fan and pump applications, as opposed to using mechanical solutions, such as throttle valves or dampers. The result is a considerable saving in energy consumption and therefore operating costs. Dedicated control functionality, such as a sleep mode, automatic pump rinsing and multiple pump control, ensure complete and precise control, while gentle starts and stops protect equipment from pressure spikes and eliminate the risk of pressure surges (water hammer).



## Load curve control

Your process is protected from damage and downtime by a built-in shaft power monitor in combination with a unique load curve protection function that monitors the equipment load curve across the entire speed range. This instantly detects harmful load conditions that could lead to inefficiency or damage. Setting the warning and safety stop levels is an easy matter.

# Smooth Flow



## Sleep function

Process optimisation is achieved by a built-in sleep function that reduces the motor speed to zero when the pressure does not require the motor to run. This also reduces the energy requirement as well as equipment wear.

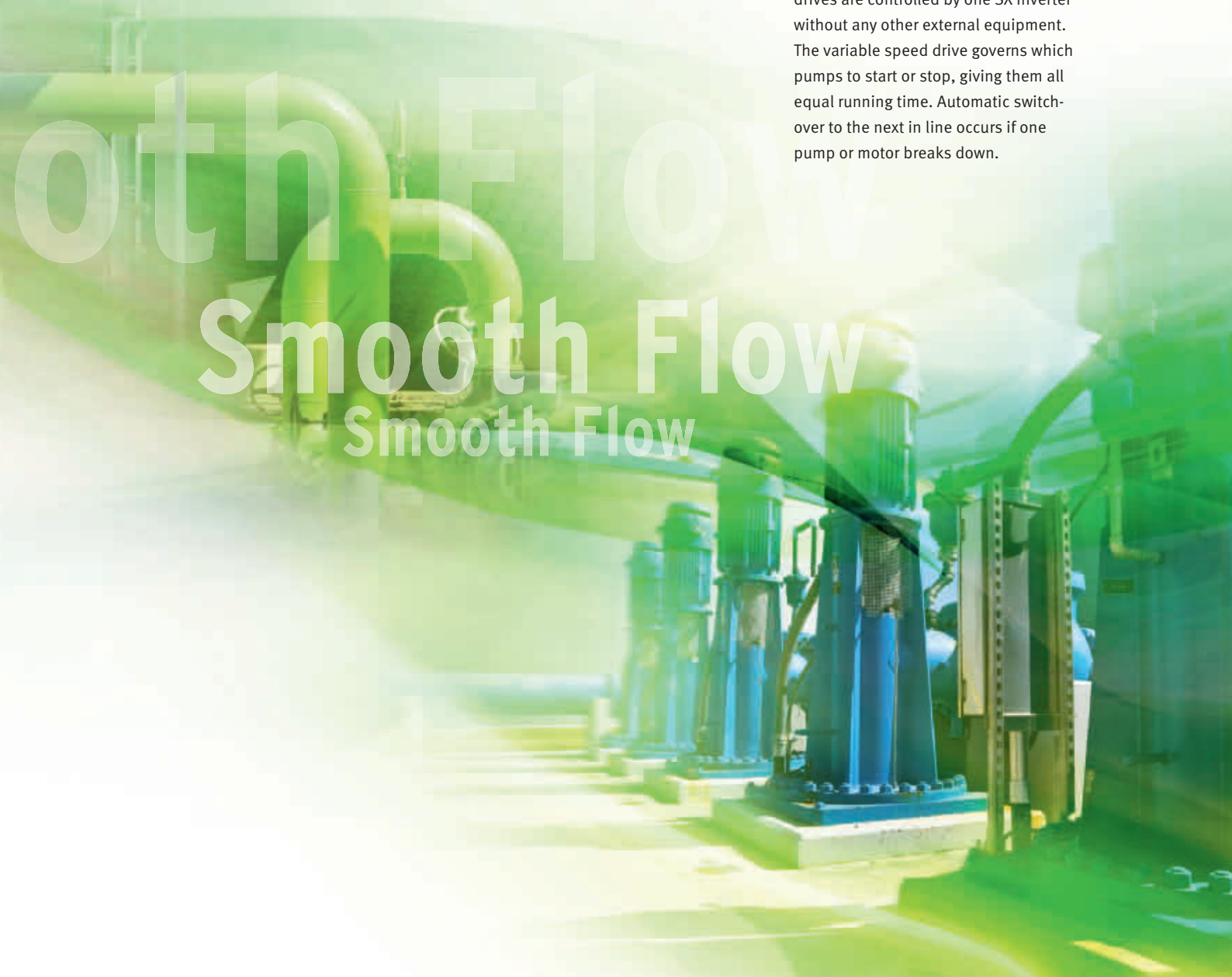
## Automatic pump rinsing

Sludge adhering to impellers can reduce efficiency if a pump is idle or running at low speed. The SX solves this by allowing you to set the pump to run at full speed upon start up, or at predetermined intervals, thus cleaning and maintaining efficiency.

## Multiple pump control

A flexible and cost-efficient way of keeping a constant flow or pressure despite varying demands is by using multiple pumps or compressors. Only the number of pumps or compressors required at any given time is used and thus energy is saved. Up to seven drives are controlled by one SX inverter without any other external equipment. The variable speed drive governs which pumps to start or stop, giving them all equal running time. Automatic switch-over to the next in line occurs if one pump or motor breaks down.

Smooth Flow  
Smooth Flow  
Smooth Flow



**OMRON EUROPE B.V.** Wegalaan 67-69, NL-2132 JD, Hoofddorp, The Netherlands. Tel: +31 (0) 23 568 13 00 Fax: +31 (0) 23 568 13 88 [www.industrial.omron.eu](http://www.industrial.omron.eu)

**Austria**

Tel: +43 (0) 2236 377 800  
[www.industrial.omron.at](http://www.industrial.omron.at)

**Belgium**

Tel: +32 (0) 2 466 24 80  
[www.industrial.omron.be](http://www.industrial.omron.be)

**Czech Republic**

Tel: +420 234 602 602  
[www.industrial.omron.cz](http://www.industrial.omron.cz)

**Denmark**

Tel: +45 43 44 00 11  
[www.industrial.omron.dk](http://www.industrial.omron.dk)

**Finland**

Tel: +358 (0) 207 464 200  
[www.industrial.omron.fi](http://www.industrial.omron.fi)

**France**

Tel: +33 (0) 1 56 63 70 00  
[www.industrial.omron.fr](http://www.industrial.omron.fr)

**Germany**

Tel: +49 (0) 2173 680 00  
[www.industrial.omron.de](http://www.industrial.omron.de)

**Hungary**

Tel: +36 1 399 30 50  
[www.industrial.omron.hu](http://www.industrial.omron.hu)

**Italy**

Tel: +39 02 326 81  
[www.industrial.omron.it](http://www.industrial.omron.it)

**Netherlands**

Tel: +31 (0) 23 568 11 00  
[www.industrial.omron.nl](http://www.industrial.omron.nl)

**Norway**

Tel: +47 (0) 22 65 75 00  
[www.industrial.omron.no](http://www.industrial.omron.no)

**Poland**

Tel: +48 (0) 22 645 78 60  
[www.industrial.omron.pl](http://www.industrial.omron.pl)

**Portugal**

Tel: +351 21 942 94 00  
[www.industrial.omron.pt](http://www.industrial.omron.pt)

**Russia**

Tel: +7 495 648 94 50  
[www.industrial.omron.ru](http://www.industrial.omron.ru)

**South Africa**

Tel: +27 (0)11 579 2600  
[www.industrial.omron.co.za](http://www.industrial.omron.co.za)

**Spain**

Tel: +34 913 777 900  
[www.industrial.omron.es](http://www.industrial.omron.es)

**Sweden**

Tel: +46 (0) 8 632 35 00  
[www.industrial.omron.se](http://www.industrial.omron.se)

**Switzerland**

Tel: +41 (0) 41 748 13 13  
[www.industrial.omron.ch](http://www.industrial.omron.ch)

**Turkey**

Tel: +90 216 474 00 40  
[www.industrial.omron.com.tr](http://www.industrial.omron.com.tr)

**United Kingdom**

Tel: +44 (0) 870 752 08 61  
[www.industrial.omron.co.uk](http://www.industrial.omron.co.uk)

**More Omron representatives**  
[www.industrial.omron.eu](http://www.industrial.omron.eu)

**Automation Systems**

- Programmable logic controllers (PLC) • Human machine interfaces (HMI) • Remote I/O
- Industrial PC's • Software

**Motion & Drives**

- Motion controllers • Servo systems • Inverters

**Control Components**

- Temperature controllers • Power supplies • Timers • Counters • Programmable relays
- Digital panel indicators • Electromechanical relays • Monitoring products • Solid-state relays
- Limit switches • Pushbutton switches • Low voltage switch gear

**Sensing & Safety**

- Photoelectric sensors • Inductive sensors • Capacitive & pressure sensors
- Cable connectors • Displacement & width-measuring sensors • Vision systems
- Safety networks • Safety sensors • Safety units/relay units • Safety door/guard lock switches