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GENERAL CATALOGUE 2006/2007

Motion & Drives

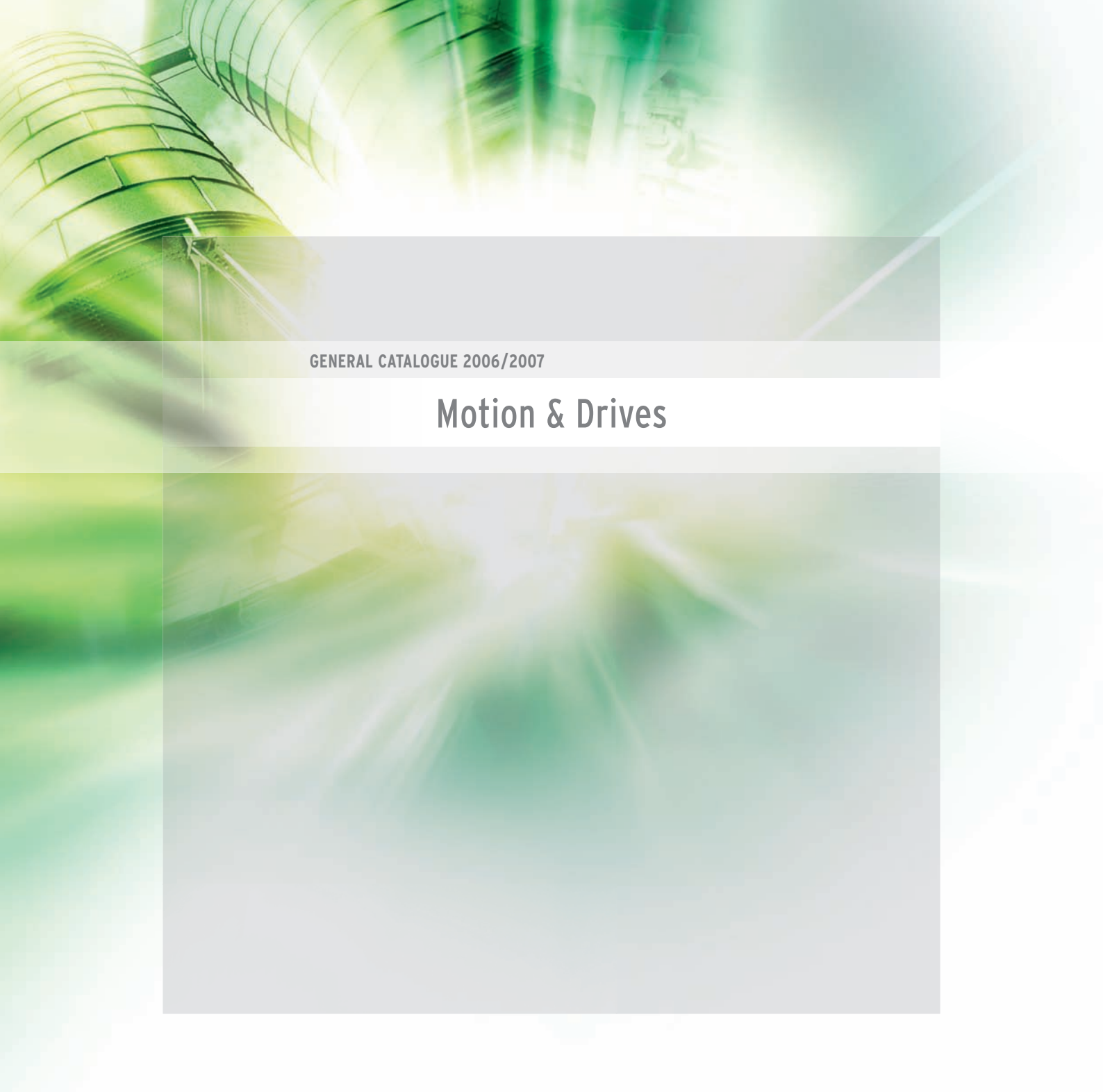




realizing

Advanced Industrial Automation

OMRON



GENERAL CATALOGUE 2006/2007

Motion & Drives

www.omron-industrial.com

Motion & Drives

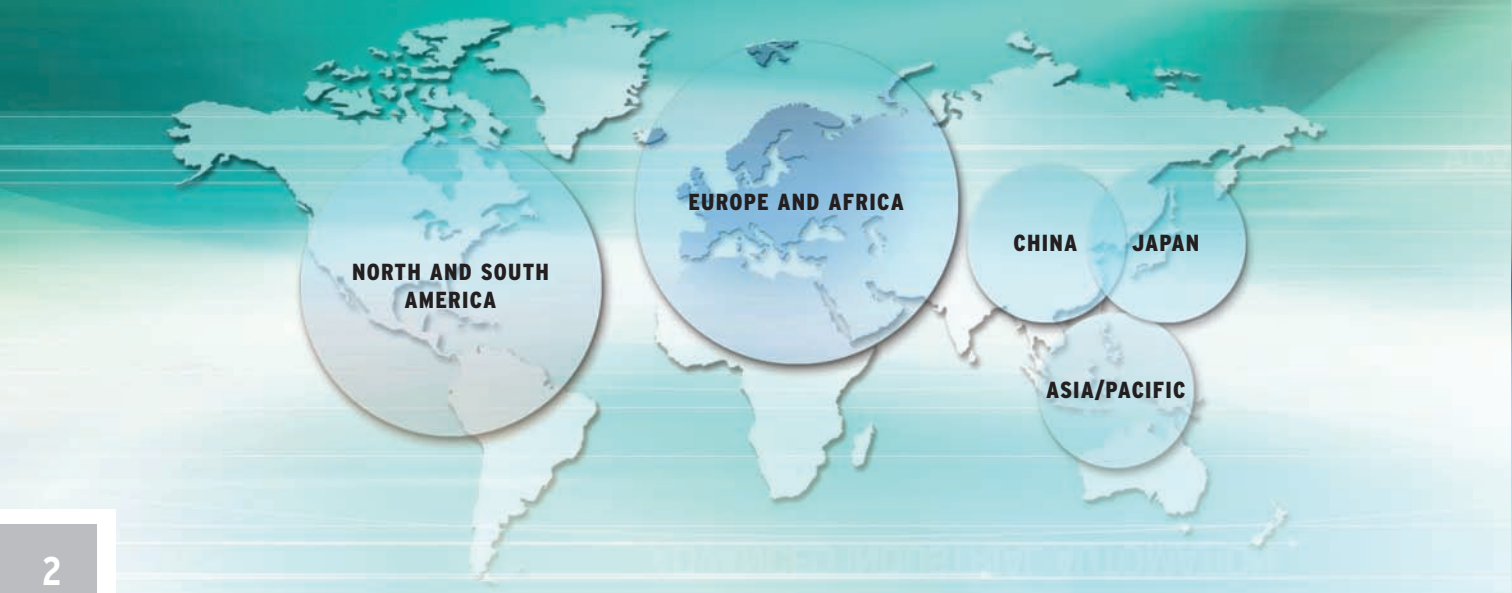
Never stop...

This catalogue features products that lead the field in motion technology by providing new control, motion, drive, servo and inverter solutions. What makes our products so special is that they are designed to deliver high performance and total reliability. With Omron Yaskawa's motion and drive products in your automation system, your systems never fail, and your production never stops.

The attached CD-ROM contains comprehensive information of our motion and drive product range. You can also find our latest innovations on www.omron-industrial.com or you can give us a call!

Omron – a global corporation

...with a local touch



Omron Industrial Automation

Omron Industrial Automation is a leading manufacturer of technologically advanced industrial automation products and a worldwide supplier of application expertise. You'll find our Industrial Automation technologies in factories and machines all over the world. Offering flexible and innovative solutions that support our guiding principle: never stop, never fail, just create!

Omron Industrial Automation Europe

In Europe we have maintained a leading position in machine and industrial automation for over 30 years. While offering global resources, our whole infrastructure is designed to act locally. So from sales and application knowledge through to R&D and customised production, we can support you wherever you're located, and through every step of your manufacturing process.

Omron Yaskawa Motion Control

For over a decade Yaskawa, a world leader in motion control, has worked with Omron in the marketing of machine automation products. This history of cooperation has now resulted in the formation of Omron Yaskawa Motion Control (OYMC) BV, a joint venture that handles our motion and drive products in Europe. OYMC provides customers with the best of all worlds – smart, innovating technologies combined with unrivalled reliability.

- 50 years in industrial automation
- Over 24,000 employees
- Over 1,800 employees in 18 European countries
- 8% of turnover invested in R&D
- More than 200,000 products
- 4,527 patents registered to date
- 6,235 patents pending

A solid history in customer service and support

As an Omron customer you have unprecedented support from our application engineers, who can advise you on-site anywhere in Europe.
The Omron Mechatronics Application Center (MAC) provides Omron engineers throughout Europe with up-to-date product knowledge and application support.

"From the moment you contact Omron, you get direct access to our application expertise, wherever and whenever you need it..."

European manufacturing on your doorstep

Yaskawa's Scottish facility in Cumbernauld manufactures AC Inverters and Servo Drives. Motion Control Products are manufactured in the Omron's manufacturing site in 's Hertogenbosch, the Netherlands. In addition to our standard product range, we can provide fast and flexible customised solutions using on-site R&D facilities and expertise. Both factories meet very strict quality and assurance standards, and are at the forefront in global enviromment protection.

European logistic centre – fast, reliable delivery

Lying at the heart of Europe, Omron's European Logistics Center (ELC) supports our National Sales Companies (NSCs). The ELC provides fast, reliable delivery of Omron products throughout Europe including the former Eastern European countries, and to the Middle East and Africa.

Repair services

While product reliability is vital, it's equally important for customers that repairs are completed quickly. Mean Time To Repair (MTTR) is the key service indicator here. In Europe, the Omron European Repair Centre and the Yaskawa Engineering Centre work closely together to guarantee a 5-day turnaround time. Omron-Yaskawa also offer a world-wide repair service that ensures a 24-hour site intervention.

Omron product portfolio

Smart Platform – one software, one connection, one minute

Why Smart Platform?

Smart Platform can help you increase the flexibility and efficiency of your machines or production lines. It provides:

- A single software environment for your machine covering sensing, regulation, control, motion, and visualisation.
- Easy drag & drop object-based programming and configuration of the complete system.
- Communications and architecture that is network independent.
- Distributed intelligent devices that are self-reporting and self-maintaining to reduce downtime and identify the source of production problems.

Motion & Drives

Motion controllers

Whether your interest is in stand-alone, PLC-based or servo-based motion controllers, Omron is the perfect choice. Omron motion controllers offer programming simplicity for control of up to 256 axes with no compromise on system performance. Functions like axis interpolation, master-slave, e-cam and multi-axis synchronisation over conventional I/Os or a robust digital servo-link are readily available.

New products
Page 10 »

Servo systems

Omron-Yaskawa's range of servo drives is unique in offering the highest dynamic performance in the most compact size. Add to that unparalleled reliability and you understand why our range of servos enjoys the largest installed base worldwide.

New products
Page 12 »

Inverters

Building on Yaskawa's world leading innovative design principles, the portfolio solution of inverter drives boasts everything from the micro J7, through application-dedicated drives such as the L7, up to the most advanced 3-level vector-control G7 frequency inverter. Also available the customised application software (CASE) that gives to a standard inverter the features of a dedicated solution.

New products
Page 14 »

Experts in Motion & Drives

Reliability matters!

Over 20 million drives installed worldwide, with a quarter in Europe alone, Omron-Yaskawa are a market reference in reliability. The latter is not some quantifiable parameter that one can just mention in the specification sheet. It is rather a rigorous process built in every stage of the product life cycle.

Defining reliability

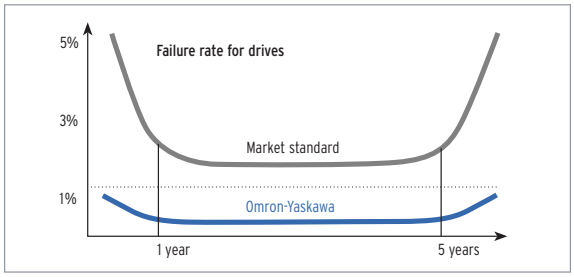
Reliability is technically termed as 'able to satisfy the required functions during the specified time at specified conditions'. In Yaskawa's quality assurance book it is expanded to cover user environment and usage conditions. Therefore it is termed as 'able to satisfy the required functions during the specified time under the customer usage environment and maintenance conditions'. Therefore reliability is not a mere "tick the box" exercise – it is a key element in total customer satisfaction.

Reliability built into the total product life cycle

Product reliability is a process that embraces the total product life cycle from new product planning to final service and repairs. Identifying strategic markets and understanding the environment in which they operate is key. For instance whereas a lift operates at typically 50,000 power cycles a year, an injection moulding machine would perform 500,000 cycles a year. Designing one standard inverter for both markets means that the IGBTs have to sustain 500,000 cycles a year. Meaning 10 times higher than their standard usage specification.

Development

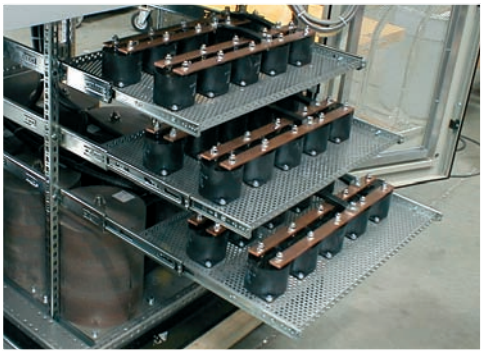
Identifying critical parts in the unit such as power stages and establishing a stringent incoming inspection test plays a key role in subsequent reliability performance of the drive. New component validation is also an important aspect. Development time is now significantly reduced thanks to CAE/CAD and thermal modelling. Automatic regression test in firmware development allows testing of new versions by ensuring ZERO knock-on effect on the rest of the program. Typically firmware tests takes two thirds of the time it took to develop it.



▲ **Not all drives are born equal ...**

Zero failure at -40°

BHP Billiton, the world's leading Mining Corporation relies on Yaskawa frequency inverters in their EKATI Diamond Mine, located 200 km south of the Arctic Circle.



"We only have one chance to get it right first time."

Mark Leeson

Technical Director
Gainsborough Craftsmen Ltd.

"We cannot let luck position our discs."

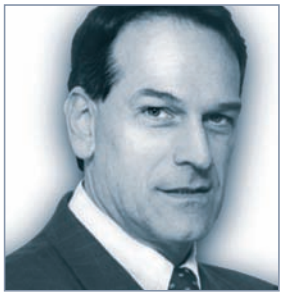
Francis Laroche

Managing Director
Esatec France

"Improving production yield is key, our machines contribute to that continuously."

Petri Väinölä

President and Chief Executive Officer
Cencorp Oyj



"Maximum reliability for total customar satisfaction."

Enrico Schmucker

Managing Director
Schmucker Italy

"We meet the demand for reliable plastic."

Glenn Dimmock

Managing Director
Oasys Technologies Ltd.

"My Machines never stop."

Herbert Herrman

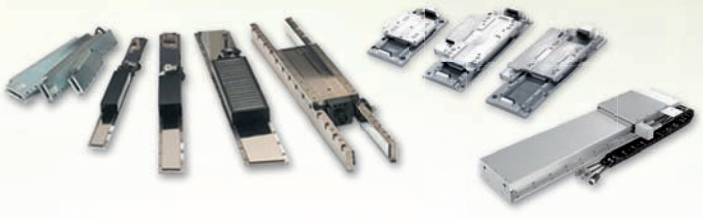
Manager
Mathias Bauerle GmbH

Motion & Drives – scalable, flexible,

Motion controllers

System architecture	Multi-axis			Single-axis
Drive control method	Pulse train control	Analogue output control	MECHATROLINK-II control	Direct Drive control
Continuous path control, Electronic CAMs, Advanced Motion control, Mutiaxes syncronisation		MCs 	MP2000  Trajexia  MCH71	MCW151  XtraDrive 
Point to Point Positioning Feed Equipment Indexers	NCs 		NCF71 	NS Units 

Servo systems

Drive control method	Pulse train control	Full control: Analogue Pulse, pulse train input and control option boards	Controller in the Drive
Servo drives	SmartStep 	Sigma-II 	XtraDive 
Servo motors		Linear motors 	Assembled Linear Axes
	SmartStep 	Sigma-II motors 	Direct Drives
	Precise positioning control	High dynamics, high accuracy, high motor range for continuous path control	

easy and above all, reliable

Frequency inverters

Very high performance, Heavy duty, Long cables	G7 				
Winders, Lifts, Cranes, Extruders	L7 Dedicated to lifts 	F7 			
Wide power range of pums, Fans	E7 				
Palletisers, Basic positioning, Textile winding, Door controllers	V7 				
Conveyors, Low Power Pumps & Fans	J7 				
		CASE – Customised Application Software			
	Basic speed control	Dynamic speed control	Energy saving	Precise torque control	3 level control

New products

Trajexia – the advanced motion controller that puts you in control

Datasheet page nr. 23

Main features and benefits

- 16 axes advanced motion coordination over a robust and fast motion link
- Each axis can run complex interpolation moves, e-cams and e-gearboxes
- Advanced debugging tools including trace and oscilloscope functions
- Multi-tasking controller capable of running up to 14 tasks simultaneously
- Open – Ethernet built-in, PROFIBUS-DP and DeviceNet as options

TrajeXia is the new motion platform that offers you the performance of a dedicated motion system, the ease of use you get from an automation specialist and the peace of mind you have from a global player. TrajeXia puts you in full control to create the best machines today and tomorrow.

Perfect control of 16 axes

Controlling all 16 axes with a total system cycle time of 1 ms, Trajexia ensures fastest operation at highest accuracy.

Real multi-tasking

Trajexia is a real multi-tasking controller capable of running up to 14 tasks simultaneously.

Robust and stable motion bus

Specifically designed for motion control, MECHATROLINK-II offers the communication speed and time accuracy essential to guarantee perfect motion control of servos.

Best-in-class servo drives

Offering a wide variety of rotary and linear servomotors, Omron's Sigma II servo series is designed with NO compromise on quality, reliability and performance to guarantee best-in-class motion control.

Inverters and servos over the same bus

The inverters connected to the MECHATROLINK-II are driven at the same update cycle time as the servo drives.

Freedom to communicate

Besides a built-in Ethernet port that provides connectivity meeting today's and foreseeable future communication standards, Trajexia also includes interfaces to popular field buses such as Profibus-DP and DeviceNet.

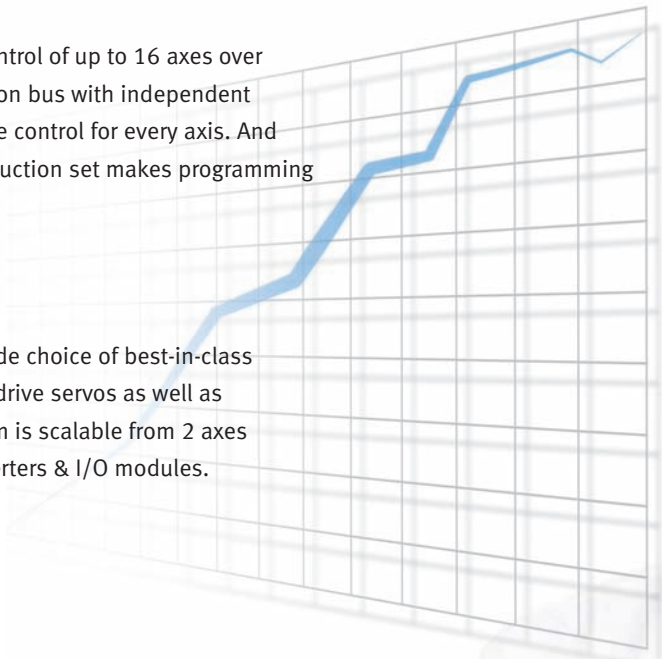
trajexia
you decide

Freedom to control

Trajexia offers perfect control of up to 16 axes over a MECHATROLINK-II motion bus with independent position, speed or torque control for every axis. And its powerful motion instruction set makes programming intuitive and easy.

Freedom to build

You can select from a wide choice of best-in-class rotary, linear and direct-drive servos as well as inverters. And the system is scalable from 2 axes up to 16 axes and 8 inverters & I/O modules.



New products

CJ1W-NCF71 – Point-to-point positioning in nano size

Datasheet page nr. 29

Main features and benefits

- Simplified wiring to drives. Data routing to all servo drives (MECHATROLINK-II)
- Integration into Omron Smart Platform: Function Blocks, SAP, CX-One
- Servo drives' full control and parameter access via MECHATROLINK
- Easy, fast, reliable, optimised for positioning applications
- Advanced PTP: Interpolation of 8 axes (4 axes + 4 axes)
- PLCopen compliant function blocks

16-axis point-to-point positioning controller over MECHATROLINK-II motion bus

The CJ1W-NCF71combined with the CJ1 PLC and Omron Yaskawa servo drives offer the best performance/size ratio on the market. The motion commands can be set directly from the PLC ladder program making it simple and easy to use, it include functions like interrupt feeding and interpolation. The NCF controllers is ideal for all PTP applications such as pick & place, gantry robots, electronic assembly, labelling stations, etc.

PLCopen motion control

NCT – a revolution in drive positioning algorithms

Datasheet page nr. 121

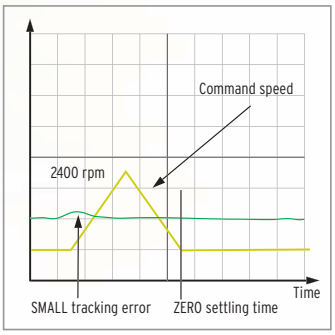
NCT main benefits

- Non-linear control, adaptive feed-forward algorithm and digital processing of encoder pulses, provide both small tracking error and zero settling time
- Increased throughput
- Reduced influence of external perturbations

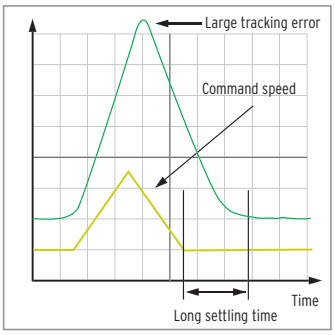
XtraDrive – All-in-one servo drive

If your application demands the highest positional accuracy combined with the shortest cycle times, the most compact size and an ability to connect to a Profibus network then look no further than XtraDrive. As a result of the revolutionary algorithms residing within the drive, XtraDrive offers the tightest control, providing near zero settling time, beneficial in a host of applications such as linear motor control.

Small tracking error, zero settling time



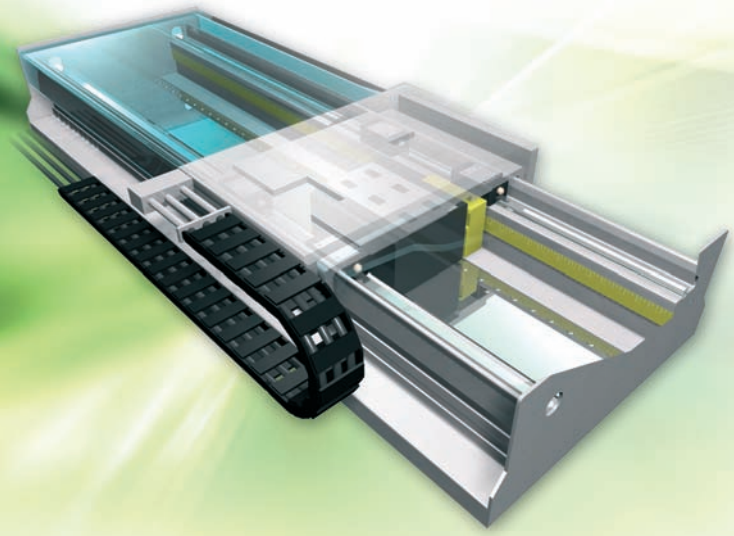
▲ Drive with NCT



▲ Other Drive

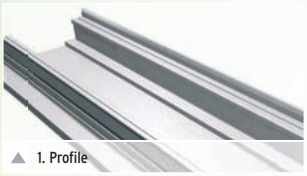
Assembled Linear axes – every single component counts

Datasheet page nr. 221

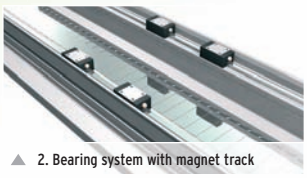


Main features and benefits

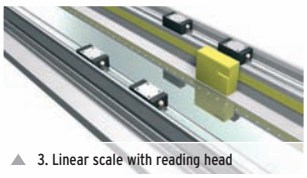
- Assembled axis ready to be assembled in the machine
- Plug & Drive – automatic motor recognition by servo drive
- Selection of the best components
- Robust construction for long durability and constant preformance
- Highly enclosed construction to protect the motor parts



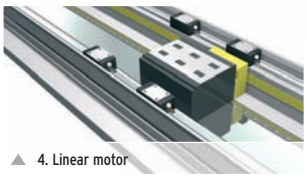
▲ 1. Profile



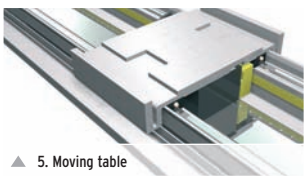
▲ 2. Bearing system with magnet track



▲ 3. Linear scale with reading head



▲ 4. Linear motor



▲ 5. Moving table

▲ 6. Cable chain and dust protection cover

An extremely high degree of flexibility, precision, speed and modularity is expected by customers in the plant engineering sector. Omron's product range of linear drive mechanisms offers the required characteristics and provides you with a decisive advantage over the competition.

Omron-Yaskawa's wide range of linear motor products has now been enhanced with the addition of a new series of complete linear axes. This series of plug & play axes offers not only excellent performance and a well-thought out design, but also the important advantages of modularity and a wide variety of versions. The modular system makes it possible to quickly configure the right solution for your tasks. Using 3D graphics, you are able to incorporate the selected system into your design, simply by clicking the mouse.

Regardless of the demands made on your system, Omron's wide product range of linear motors and linear axes provides you with the ideal linear drive solution at all times.

▶ The linear axis combines the best in class linear motors and components with an exclusive design providing a complete and reliable solution off-the-shelf.

New products

E7 IP54 inverter – built for the toughest conditions

Datasheet page nr. 309

Main features and benefits

- Robust chassis thanks to the metal box
- Built-in filter
- Lot of space inside for easy wiring
- Silent operation
- CASE (Customised application software) and PLC option board

The E7 is designed for variable torque applications such as fans and centrifugal pumps. It is supplied with V/f control and normal duty overload rating of 110% for one minute. A unique feature of the E7 is the energy-saving algorithm, which allows an extra saving of up to 20%.

E7 IP54 solution provides the inverter protection from non-conductive dust and splashed. These features make E7 IP54 the ideal solution for install it close to the motor saving space and money. E7 Series special features will allow you energy saving everywhere.

V7 IP65 – compact high protected inverter

Datasheet page nr. 329

Main features and benefits

- High inverter protection – IP65
- Built in filter
- Compact size
- High torque at low speed. 100% at 0,5 Hz
- CASE (Customised application software) and PLC option board

The Varispeed V7 is the perfect drive for standard industrial applications such as conveyor, cranes, grinders, etc. It delivers an amazing 100% torque at 0.5 Hz, ensuring a very stable motor speed.

V7 IP65 provides you high protection for compact sensorless vector control inverter, giving you the opportunity of decentralize your drives application without any extra cabinet cost and thanks to his features, being independent from main control panel.

Case – inverter application software

Datasheet page nr. 387

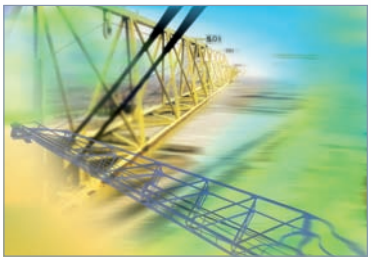
The CASE is special software that provides solutions for customised applications. It gives a standard inverter the performance of a custom-made solution, allowing huge savings in hardware equipment and increasing the overall system reliability. The inverter made for you.

Case 1. ELS – Electronic Line Shaft software for F7 inverter

The Electronic Line Shaft Application Software is the Omron-Yaskawa dedicated software for position and speed follower applications, allowing a slave drive to precisely follow a master encoder. It is the ideal solution for dual-motor synchronised applications.

Case 2. Crane software into a standard F7 inverter

The Crane Application Software is the Omron-Yaskawa dedicated solution for Cranes applications. It customises the F7 inverter high-performance features to the specific software and hardware needs of Crane applications.



Case 3. Pump sequenzer software for E7 series

The Pump Sequencer Application Software is the Omron-Yaskawa dedicated solution for pump sequencer applications up to 2 auxiliary pumps. It is the ideal solution for water treatment installations, building HVAC and industrial pumping.

Case 4. Point to point position control software

The Point-to-Point Application Software is the Omron-Yaskawa dedicated solution for point-to-point positioning applications. Absolute or relative positioning is possible. It is the ideal solution for palletisers, transfer lines, positioning machines or cyclic feed rolls.