

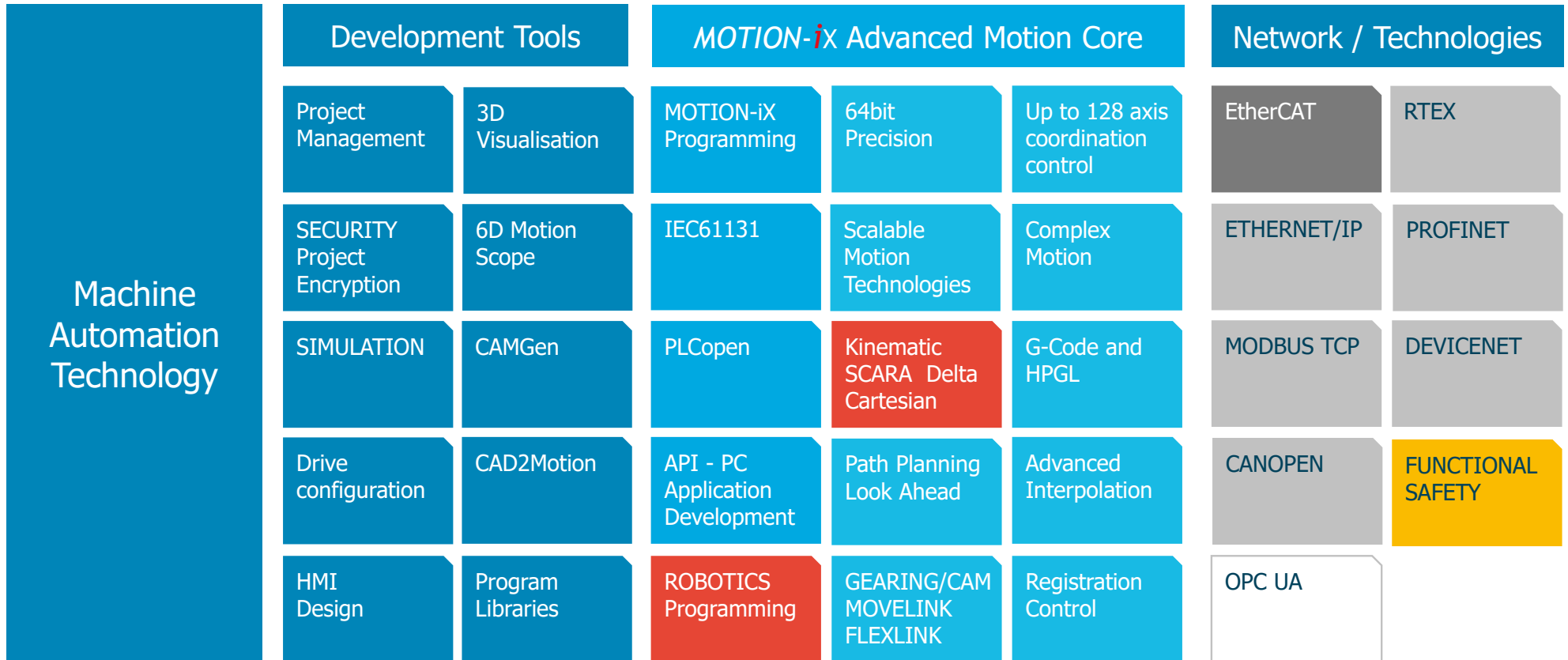


A MEMBER OF THE **ESTUN** GROUP

TRIO MOTION TECHNOLOGY **SCARA ROBOT**



THE MOTION SPECIALIST



Combining an advanced motion core with Trio's ease-of-use, Motion-iX offers performance and dependability of packaged solutions, from "The Motion Specialist", where motion is the core and not just a bolt-on capability.

Motion-iX – a unified software engineering framework for machine development, that places the focus on optimising motion and complex kinematics, including robotics such as SCARA, to deliver truly optimal machine control performance.

Motion-iX includes development in IEC61131 and PLCopen, and boasts inverse kinematics

capabilities to truly coordinate all machine axes as one, including robots to maintain tight synchronisation or robots and machine as one. Virtualization allows simulation of the mechanics and motion to significantly reduce development and testing, delivering optimal control every time, by minimising machine cycle times.

Motion Perfect

Design, Develop, Test, Deploy and Secure

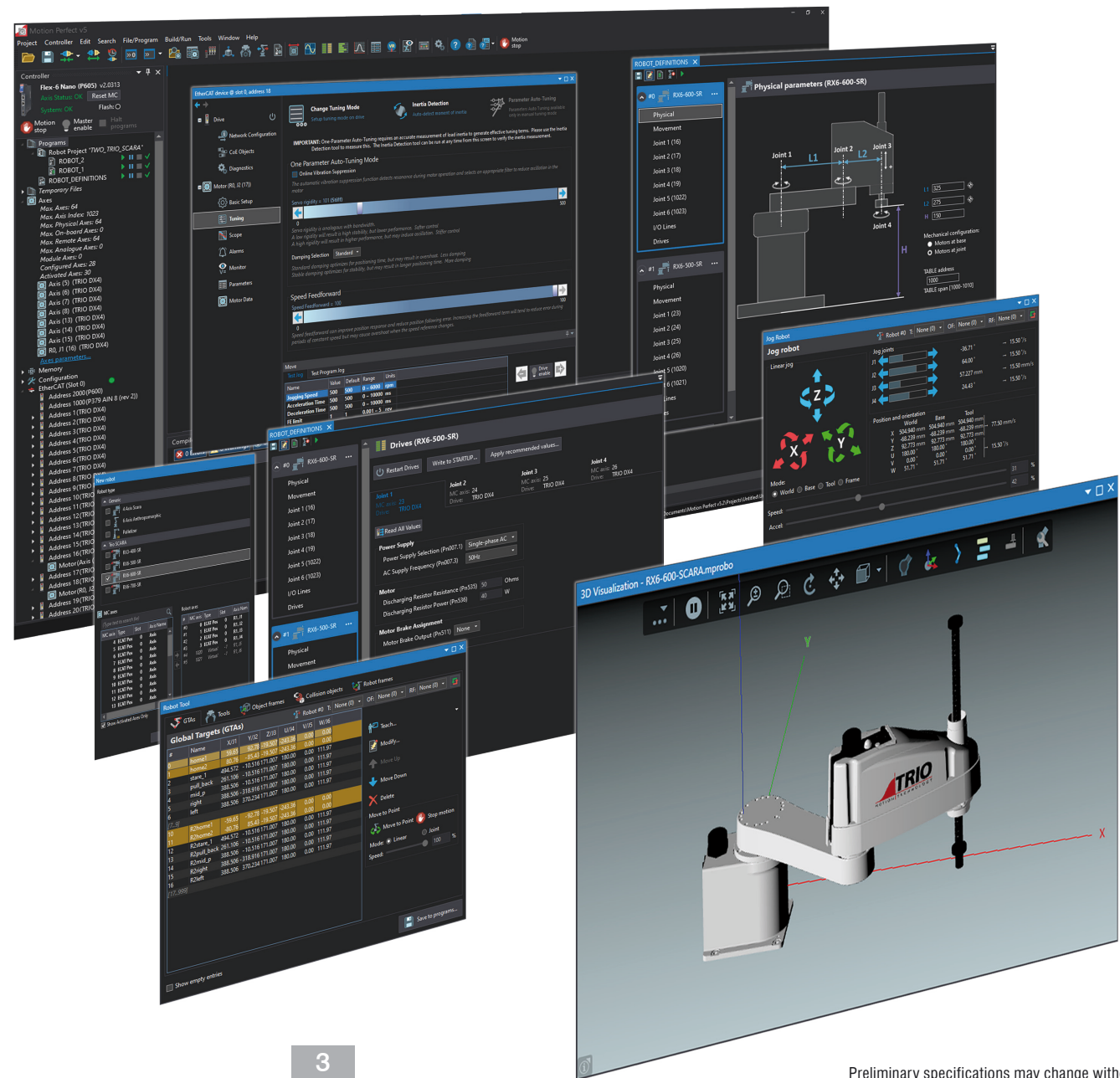
Built on Trio's **Motion-iX** core technology, *Motion Perfect* provides the user with an easy to understand interface for rapid application development, controller and drive configuration and monitoring of functions.

Motion Perfect includes access to IEC 61131 and PLCopen, advanced visualisation including a 3D oscilloscope and IP protection of your projects and the robotics solution; TrioRPS - the "Complete Automation Solution for Machine and Robot".



Trio RPS, brings robotics automation to everyone, with a great user experience and incredibly fast setup.

The Trio RPS is a sophisticated package of tools and software that can be adapted to different robot manufacturer's requirements, adding high value to your production line thanks to the combination of advanced motion control and industrial robotics.



SCARA

D1000 – D1003

400mm - 700mm SCARA Robot

Why Interface when you can Integrate?

Using a traditional robot controller approach presents challenges of programming the interaction between a machine controller and the robot controller, and two separate systems to maintain.

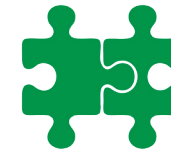
An integrated solution with robot and machine control as one coordinated system, maximizes performance and simplifies the programming and future maintainability and extensibility of the system.

AT A GLANCE

- ★ Trio SCARA package based on standard parts for simpler maintenance and offers standard cabinet install (no custom box required)
- ★ Applications specific integration, adaptation of the application is possible, including IO extension with our FlexSlice IO offer
- ★ Motion is simpler to implement in the Trio software environment (which includes IEC61131) than many PLCs
- ★ The Trio controller can be programmed to control more of the machine solution and integrate machine elements, including additional axes, simplifying the PLC hardware and project
- ★ Upstream Ethernet connection to the machine system / PLC (Ethernet/IP, Modbus TCP, Profinet IO)
- ★ DX standard drives can be used for other machine axes, making spares and maintenance even simpler



Efficiency-Benefits



Integration Efficiency

Rapid application development of controller and robot configuration with TrioRPS within *Motion Perfect*.



Design Efficient

One system to program, simplifying development and any future production changes needed.



Performance Efficient

Tightly coupled actions between robot and machine axes improves process quality and performance.



Maintenance Efficient

Spares holding of the robot control unit is simplified by using standard servo drives and motors to minimize downtime and reduce spares value

True Robot and Machine Integration

One Scalable integrated solution

Machine and Robot Control



A choice of Trio EtherCAT *Motion Coordinators* Scalable to 128 axes of control

Machine Axes



DX4 and MX Motors

SCARA Axes



DX4 and MX Motors

Multiple SCARA Robots Integrated With Your Machine



Multiple machine and robot axes synchronised from one controller

MACHINE CONTROLLER

Responsible for the entire machine cycle and motion control.

Integrated robot path planning and coordination with machine axes.

TRIO DX4 DRIVE AXES FOR THE MACHINE

Common spares and service experience for robot and machine axes.

Tightly coupled motion between machine and SCARA.

MULTIPLE INTEGRATED AXES

Axes easily coordinated by the machine controller as part of the standard machines axes, making interactive processes simpler to implement.

Your machine may only need one or two SCARA now, but how would you handle future expansion?

One Controller - Multiple Drives - Multiple SCARA.

SCARA

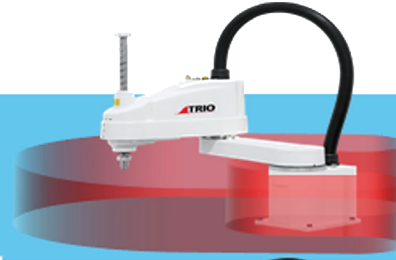
Specifications All SCARA Robots

RX6-700-SR

Rated load capacity
2kg
MAX load capacity
6kg

Weight **19kg** Installation **Floor** IP20

Arm Range **700mm**



Repeatability		Range	Speed	
J1+J2	±0.025mm	1 ±132°	375°/s	Complex Speed 7403mm/s
J3	±0.015mm	2 ±150°	588°/s	
J4	±0.01°	3 0~200mm	1100mm/s	
		4 ±360°	2000°/s	

RX6-600-SR

Rated load capacity
2kg
MAX load capacity
6kg

Weight **18kg** Installation **Floor** IP20

Arm Range **600mm**



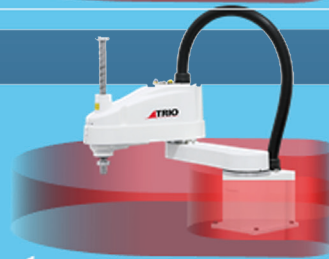
Repeatability		Range	Speed	
J1+J2	±0.025mm	1 ±132°	375°/s	Complex Speed 7403mm/s
J3	±0.015mm	2 ±150°	588°/s	
J4	±0.01°	3 0~200mm	1100mm/s	
		4 ±360°	2000°/s	

RX6-500-SR

Rated load capacity
2kg
MAX load capacity
6kg

Weight **18kg** Installation **Floor** IP20

Arm Range **500mm**



Repeatability		Range	Speed	
J1+J2	±0.025mm	1 ±132°	375°/s	Complex Speed 6094mm/s
J3	±0.015mm	2 ±150°	588°/s	
J4	±0.01°	3 0~200mm	1100mm/s	
		4 ±360°	2000°/s	

RX3-400-SR

Rated load capacity
1kg
MAX load capacity
3kg

Weight **15kg** Installation **Floor** IP20

Arm Range **400mm**

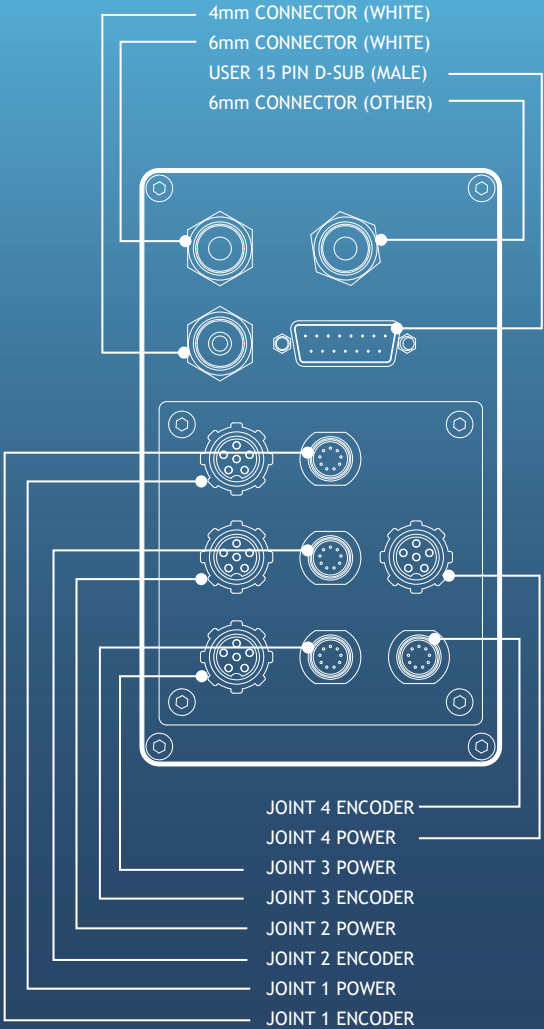
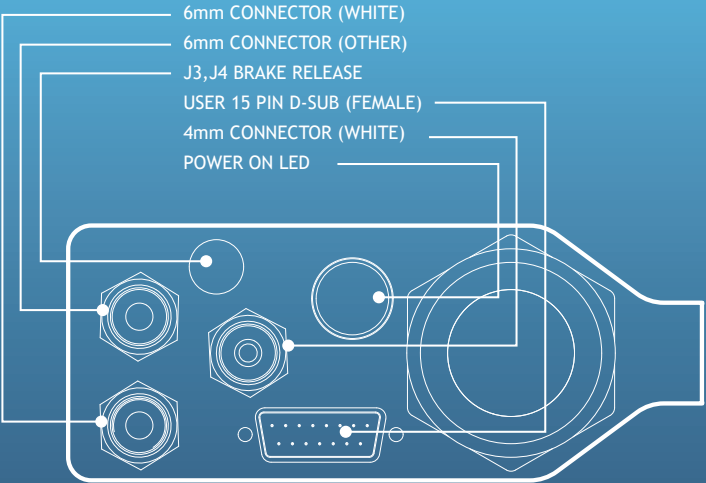


Repeatability		Range	Speed	
J1+J2	±0.02mm	1 ±132°	600°/s	Complex Speed 5984mm/s
J3	±0.015mm	2 ±141°	600°/s	
J4	±0.01°	3 0~150mm	1100mm/s	
		4 ±360°	2000°/s	



SCARA

Connectivity



Connectivity

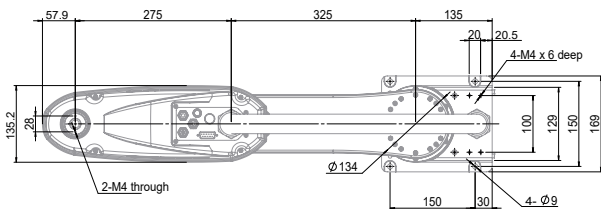
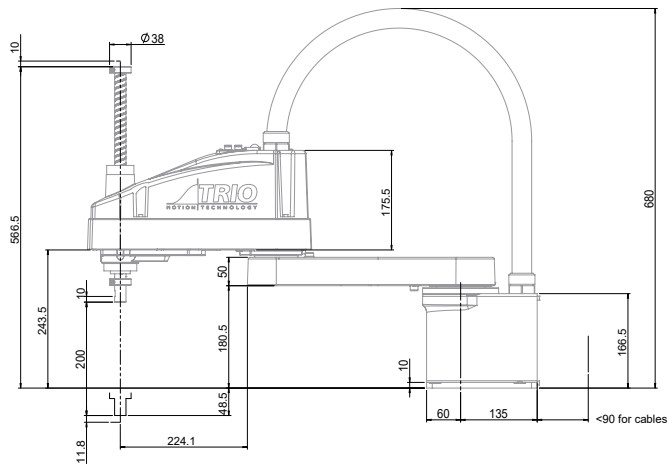
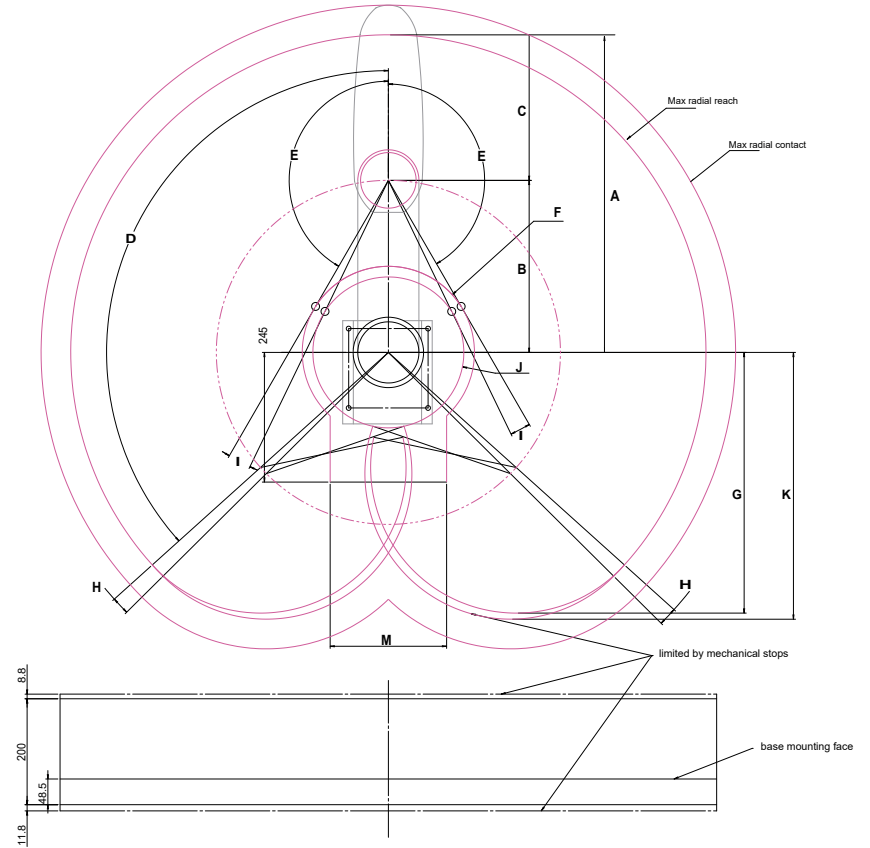
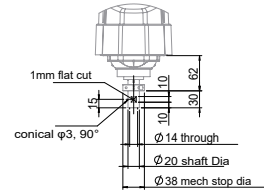
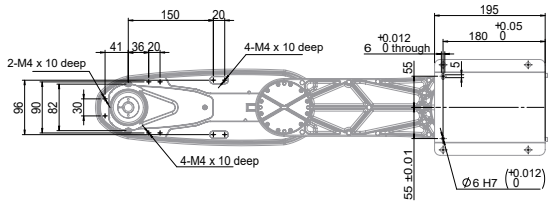
SCARA gives you the option to connect compressed air systems and electrical power via a 15 pin D-SUB connector for pneumatic and electrical end effectors which can be purchased separately.

Each motor axis and encoder cable can be supplied in lengths of 1.5m, 5m, 10m, 15m and 20m allowing a range of positioning of the drives from the robot. Alternatively, encoder and motor cable kits are available for those customers wishing to make their own lengths.



SCARA

Specifications RX6-500-SR | RX6-600-SR | RX6-700-SR



STANDARD MODEL - RX6-				
Item	500-SR	600-SR	700-SR	
A	Length-Arm #1 & Arm #2 (mm)	500	600	700
B	Length-Arm #1 (mm)	225	325	425
C	Length-Arm #2 (mm)	275	275	275
D	Motion range -Joint #1 (°)	± 132	± 132	± 132
E	Motion range -Joint #2 (°)	± 150	± 150	± 150
F	Motion range (mm)	138.1	162.6	232
G	Motion range of backside (mm)	425.6	492.5	559.4

STANDARD MODEL - RX6-				
Item	500-SR	600-SR	700-SR	
H	Mechanical stop position angle-Joint #1 (°)	2.8	2.8	2.8
I	Mechanical stop position angle-Joint #2 (°)	4.2	4.2	4.2
J	Mechanical stop position range (mm)	121.8	142.5	214
K	Mechanical stop position range-backside (mm)	432	504	617.3
M	Motion range (mm)	240	220	220
	Maximum space (mm)	560	660	760

SCARA

The Future is an integrated Machine



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Part #	Product	Arm Reach mm
D1000	RX3-400-SR	400
D1001	RX6-500-SR	500
D1002	RX6-600-SR	600
D1003	RX6-700-SR	700

TRIO Worldwide Network

TRIO OFFICES
 UK - Tewkesbury HQ
 USA - Pittsburgh
 India - Pune
 China - Shanghai
 Italy - Milan

R&D Centres
 2 x Control & Software Technology
 2 x Servo Drives & motors

EUROPE
 BELGIUM
 DENMARK
 FRANCE
 GERMANY

HUNGARY
ITALY
 NETHERLANDS
 NORWAY

POLAND
 PORTUGAL
 ROMANIA
 SLOVAKIA

SLOVENIA
 SPAIN
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 ARGENTINA
 BRAZIL

CHINA
 BEIJING
 DONGGUAN
 GUANGDONG
SHANGHAI
 YANTAI

MIDDLE EAST
 ISRAEL
 UAE

ASIA
 INDIA
 KOREA
 SINGAPORE
 TAIWAN
 THAILAND

OCEANIA
 AUSTRALIA
 NEW ZEALAND

4
R&D Centres

18
Integrators

32
Countries of Sale

103
Sales Partners Globally



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TRIO MOTION TECHNOLOGY SCARA ROBOT



Trio Motion Technology specialises in advanced motion control as a core, providing a range of **Motion Coordinators**, drives and motors, expansion interfaces, IO modules and HMI's built on **Motion-iX** technologies and designed to enable the control of industrial machines with the minimum of external components.

In support of the Trio concept, we aim to offer the best technical support by telephone, email, our comprehensive website and training courses held throughout the year. Please look at our web site for details.

www.triomotion.com

TRIO MOTION TECHNOLOGY
UK | USA | CHINA | INDIA
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Version 1-SCARA Product brochure