SCARAFLEX®

Add more flexibility to your production





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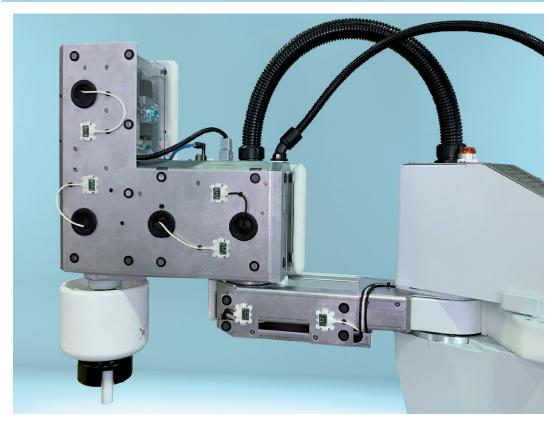
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SCARAFLEX® | AT A GLANCE

PRODUCT SPECIFICATIONS & SAFETY CONCEPT



WHAT IS SCARAFLEX®?

It is a safety device, that allowes the use of an EPSON Scara robot in a fencefree application.

It detects collisions with a soft safety skin, monitors and restricts the Robot speed – and as a consequence safely stops the robot.

The working sequence of the robot will continue from exactly this point as soon as a person will manually confirm by pushing a reset button.

WHERE CAN SCARAFLEX® BE USED?

Whenever an EPSON Scara Robot can be used – SCARAFLEX® can be used as well.

Typical applications are press feeding or de-feeding, pick and place tasks, product handling for packaging processes or quality control with vision systems.

There are no restrictions using the technical options EPSON Scara offers.





B/CERTIFIED KEY FEATURES ---->

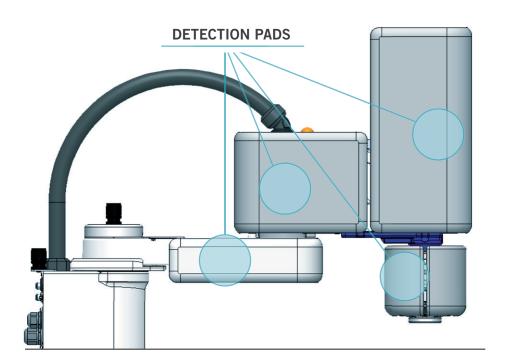
- 1. DETECTION PADS
- 2. SPEED GUARD
- 3. DETECTION FLANGE

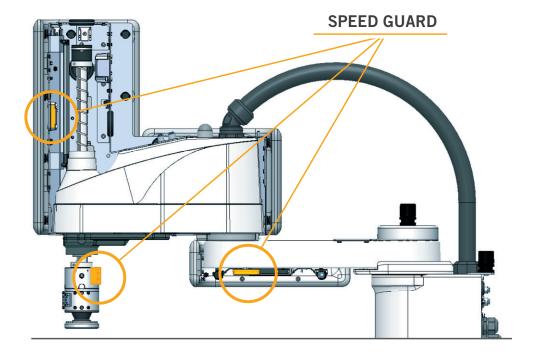


1. DETECTION PADS

The "Detection Pads" are airtight soft skin pads, which can detect a collision by permanently measuring the air pressure of the inner volume / chamber.

These "Detection Pads" are individualized AIRSKIN® Pads, patented and manufactured by Blue Danube Robotics.





2. SPEED GUARD

The "Speed Guard" is a 3-axis sensor system that monitors the robot speed including Z-axis permanently .

In case of exeeding the speed limit, the system triggers the stop.

The speed limit will be set by the System Integrator and must be determined by performing the "risk assessment".

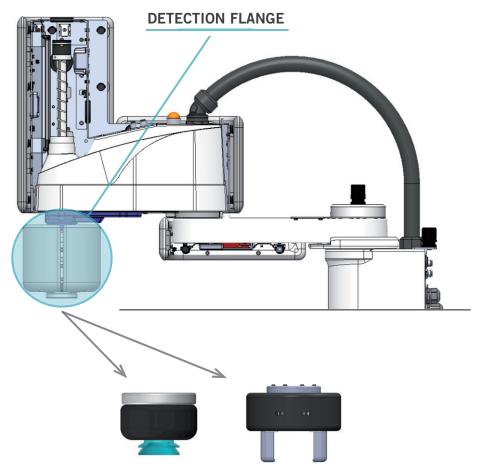
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3. DETECTION FLANGE

The "Detection Flange" is a certified component which is the mechanical interface for a gripper or vacuum suction cup.

It has a flexibillity to move when a collision occurs. This movement will be detected which triggers a safe stop.

The Detection Flange is prepared to mount a gripper or a vacuum suction cup.



Sample applications – no parts of SCARAFLEX®

SCARAFLEX® AT A GLANCE

A fence free SCARAFLEX® application is easier and faster to design because of the "Zone Model" / "Danger / Impact " and the Guided Risk analysis.

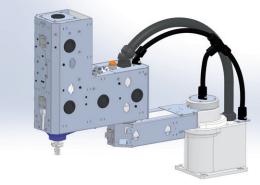
Depending on the application a speed up to 650 mm/s can be achieved – and it is still safe.

SCARAFLEX® is a safety component. To build a safe application, all safety devices of the application need to be appropriate. The weakest part specifies the performance level.

It remains the responsibility of the integrator to design and build the complete application considering the applicable technical standards and regulations.

Better safe than sorry -







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SCARAFLEX® – WHAT IS UNIQUE?

It is possible to use an EPSON Scara in a fence free application. The best of both worlds: the precision and stability of EPSON Scara and fast and safe without fence.

AIRSKIN and SpeedGuard technology are safety certified and secured by a patent / patent pending.

Excellent price product ratio — with the opportunity for distributors to spezialise as an expert.

Guided risk analysis allowes easier design work and risk assessment for Integrators.

It is ready to retrofit and it is reverseable.

High Speed up to 650 mm/s – depending on application and environment.

A certified product – manufactured and assembled in EU under high quality standards.

SCARAFLEX® is currently the only available product for fence free Scara applications from a serial production.

C/SAFETY



All active components of SCARAFLEX® have the certification as a Safety Part

Product: AIRSKIN® by Blue Danube Robotics

ISO 13849-1 Cat 3 / Ple IEC 62061 SILCL 3



The overall safety level that can be achieved in combination of SCARAFLEX® with an EPSON Scara is Pl-d.

SCARAFLEX® is a safety device which can be used to build safe and fence free applications (can be compared with a safety switch).

It still is the responsibility of the integrator to design and create the complete application considering the applicable technical standards and regulations.





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		EPSON LS6-B602S	SCARAFLEX® LS6/600	EPSON LS6-B702S	SCARAFLEX® LS6/700	
Load-bearing	Nom. (kg m²)	2		2		
capacity *1	Max. (kg m²)	6	5	6	5	
	(J1 + J2)	600		700		
Arm length	(J1)	325		425		
	(J2)	275		275		
Repetition accuracy	(J1 + J2) mm	+/- 0,02		+/- 0,02		
	(J1) mm	+/- 0,01		+/- 0,01		
	(J2) mm	+/- 0,01		+/- 0,01		
	(J3) mm	+/- 0,01		+/- 0,01		
	(J4) Degrees	+/- 0,01		+/- 0,01		
Standard cycle time (sec)		0,42	n.a.	0,43	n.a.	
	(J1) Degrees	+/- 132°	112,5°	+/- 132°	112,5°	
Maximum movement range	(J2) Degrees	+/- 150°	141°	+/- 150°	141°	
	(J3) mm	200		200		
	(J4) Degrees	+/- 360		+/- 360		
Ma	(J1+J2) mm/s	7.850	800*3	8.590	800*3	
Maximum axial speed *2	(J3) mm/s	1.110	220*3	1.110	220*3	
	(J4) Degrees/s	2.000	n.a.	2.000	n.a.	
(J4) Permissible Nom. (kg m²)		0,01		0,01		
moment of inertia	Max. (kg m²)	0,12		0,12		
(J3) Pressing force (N)		100		100		
Mounting type Floor		Floor				
Installation environment		Standard / IP 20		Standard / IP 20		
Weight (in kg, without cable)		17	23,5	18	25	
Insertable controller		RC90-B		RC90-B		
Cable lengths*4		3,5,10	3,5,10	3,5,10	3,5,10	
Power supply		230 V	24 V (external)	230 V	24 V (external)	

EPSON SAFETY STANDARDS

Compliant with EU regulation*5, KC, KCs ANSI/RIA R15.062-2012, NFPA 79 (version from 2007) SCARAFLEX® SAFETY STANDARDS

Compliant with EU Regulation*5, KC, KCs ANSI/RIA R15.062-2012, NFPA 79 (version from 2007). Assembled from safety components, which were certified in accordance with ISO 13849 (Ple/Cat 3)

- *1 Permissible maximum load not exceeded.
- *2 Maximum axial speed without the SCARAFLEX®option measured with 2 kg load on the spindle.
- *3 This is the maximum speed permitted by the "safe speed" feature limit.
 This value is stored in the Scaraflex firmware and cannot be changed.
- *4 Only standard cables are available.
- *5 As the robot is built and used in the customer's system, a "Declaration of Incorporation of Partly Completed Machinery" is contained in the robot scope.

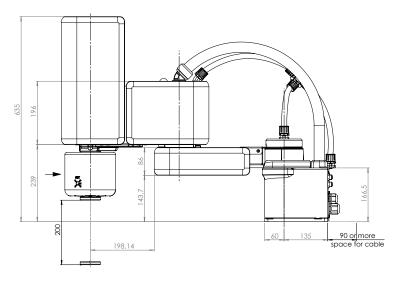
SCARAFLEX® is a safety option for EPSON robots made of safety components certified in accordance with ISO 13849 (PL-e/Kat3). Each of the specified robot types has been fitted with SCARAFLEX® and subjected, by an independent expert, to a risk assessment with full measurement of the force and compressive effect in accordance with ISO/TS 15066, DGUV FB-HM 080 and RIA TR R15.806-2018.

This certificate only applies to SCARAFLEX® in connection with the relevant robot type. The integrator for the entire application (analysis of the robot, with the gripper and the product in the application environment)continues to be responsible for performing its own risk assessment with a force-compressive force measurement.

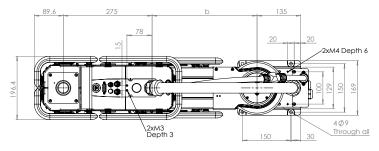
D/TECHNICAL SPECIFICATIONS

LS6/600/700

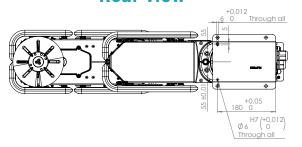
Side view



Overhead view



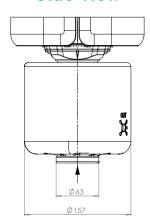
Rear view



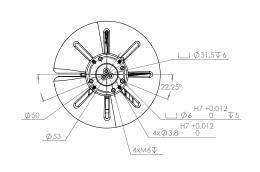
		EPSON LS6-B602S	SCARAFLEX® LS6/600	EPSON LS6-B702S	SCARAFLEX® LS6/700
а	Length of arm no.1 & arm no.2 (mm)	600		700	
b	Length of arm no. 1 (mm)	325		425	
C	Length of arm no. 2 (mm)	275		275	
d	(J1) Movement angle (degrees)	132°	112,5°	132°	112,5°
е	(J2) Movement angle (degrees)	150°	141°	150°	141°
f	Movement range (mm)	162,6	205	232	275
g	Movement range back (mm)	492,6	399,4	559,4	437,6
h	Angle of the (J1) mechanical stop (degrees)	2,8	n.a.	2,8	n.s.
i	Angle of the (J2) mechanical stop (degrees)	2,8	n.s.	2,8	n.s.
j	Mechanical stop area (mm)	142,5	n.s.	214	n.s.
k	Mechanical stop area back (mm)	504	n.s.	574,5	n.s.
m	(J3) Movement range (mm)	200		200	
n	Distance from the mounting base (mm)	51	66,65	51	66,65
р	(J3) Upper mechanical stop range (mm)	10		10	
р	(J3) Bottom mechanical stop range (mm)	11,8		11,8	
Z	Room without collision (mm)	n.a.	710	n.a.	810
	A = Middle of axis 3 (tool center poi B = Movement range	ooint)		E = Area limited by mechanical stop	

Detection flange

Side view

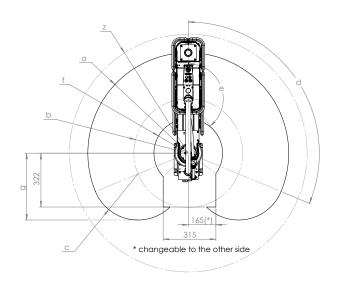


View from below

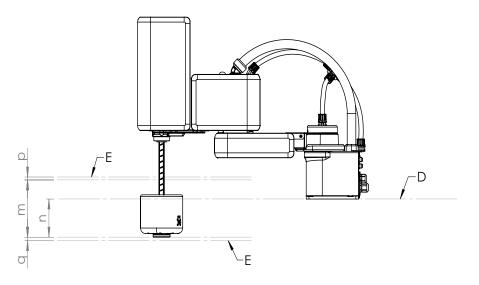


Work area

Overhead view



Side view



CONTACT US

Sales partner for SCARAFLEX®

If you are interested in SCARAFLEX® and would like to purchase one of our products, please visit our sales page:

www.scaraflex.com/sales

Do you have any questions about SCARAFLEX®?

Then simply contact us by e-mail or phone - we as the manufacturer are happy to be there for you! For all questions and concerns about sales, please note the information above or visit our sales page right away.

E-Mail: info@scaraflex.com Phone: +43 1 596 1000

Subject to changes, errors and printing errors

www.scaraflex.com





Certified to

- **>** ISO 13849
- > Cat 3 / PLe
- > IEC 62061
- > SILCL 3