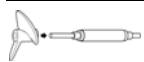


# 2012 SOLAR CHALLENGE CATALOGUE



**CONTENTS:**  
SOLAR PANELS  
Solar Panel Power Controller

Driveline components: incl. Motors, drive-shafts, guide-tubes, bearings, coupling, tapes, wheels



## SOLAR TECHNOLOGY IN SCHOOLS

TO HELP YOU, the teacher, to get your class involved in the various SOLAR CHALLENGES, we have designed some solar panels specifically suited for that use. We also offer a variety of other components and items, suitable for use in the SOLAR CHALLENGES. If you don't want to participate at one of the formal events, in addition to this range, our Technology Catalogue has an additional selection of solar panels and items, to allow you to experiment with the GENERATION OF SOLAR POWER.

## SOLAR PANEL

Panel no.		Dimensions	Area of Solar cells	Watts (nominal)	Volts-Amps	Weight (approx.)	Price (each)
#26 Boat Panel 350		160x252mm	350 sq. cm.	5.2-5.7	7.0V - 0.9A	50 grams	\$77.00
#26 Boat Panel 350		160x252mm	350 sq. cm.	5.8 +	7.0V - 1.0A	50 grams	\$89.00
#29 Car panel **		250x162mm	---	4.9	7.0V - 0.7A	---	\$75.90
#10 Calibrated ***		This panel measures the intensity of the sunlight, as a percentage, when connected to a digital multi-meter.			100 mA	100% sun = 100mA	\$9.20

\*\* Two Panels are required per Solar Challenge Model Car

\*\*\* This is designed for use as a sunlight intensity „meter“. It is used to determine how intense / powerful the sun is at the time of testing.

## SOLAR PANEL POWER CONTROLLER KIT (Multiplies starting current)

### SOLAR PANEL POWER CONTROLLER (SPPC) - Multiplies starting current



The SPPC kit is useful, as powering an electric motor directly from a solar panel can be inefficient. The SPPC circuit holds the output of the solar panel at a preset power voltage point, and substantially boosts the starting current available to the motor. The Kit comes unassembled, and consists of the PCB and electronic components. *Weight approx. 45 grams.* Note: formerly called SOLAR SWITCH or SOLAR MAXIMISER Price SSOLLV & SSOLAR - \$9.62

The SOLAR PANEL POWER CONTROLLER is available in 2 variants:

SSOLLV: This version is the Low voltage unit (VOC 6.5-12V), for use in the Solar Boat challenge, and the ADVANCED SOLAR CAR.

SSOLAR: This version is the Standard voltage unit (VOC 13-23v), and is designed for use in the Solar Model car challenge

## DRIVELINE COMPONENTS – ESSENTIAL for both CAR & BOAT SOLAR CHALLENGES

### ELECTRIC MOTORS

### FOAM ADHESIVE TAPES

	MODEL	ST-806 T1	FAULHABER 2232	SINGLE SIDED	DOUBLE SIDED
	Code	ST-806#	SSM-FAU	SSTAPE	SSFOT
<b>PERFORMANCE/ PRICE</b>		\$17.20	\$166.50	Width: 12 mm	Width: 12 mm
Efficiency		67%	87%	Roll of 66m	Roll of 25m
Operating range (Volts)		6.0V	Nom. 6.0 V	Price \$5.05	Price \$11.25
No load	RPM	9,000	7,100	<i>Suitable for use to retain motors and guide tubes</i>	
	Amps	0.17			
Under load at Max efficiency	RPM	7,790	1,190		
	Amps	1.1			
	Torque-g.cm	51 g.cm.			
Testing voltage		6.0		<b>OUR WEBSITE</b>	
<b>DIMENSIONS</b>				<b>HAVE A LOOK AT OUR WEBSITE:</b> you will find more information on how to use our components for both the Boat and the Solar model car Challenges. <i>We are adding more information to the website as needed. Is there anything that you would like to see, to help you? If so, let us know.</i>	
Body size (O.D.) mm		32.0	22.0		
Body length (mm)		29.0	32.2		
Shaft dia. & length (mm)		2.9	2.0 / 6.0		
Weight (grams)		76.5g	62 g		
#Additional performance information available upon request					

## INTRODUCTION TO SOLAR POWER:

We have prepared a brief introductory write up about Solar power (as it relates to small solar panels). Available from us either by e-mail or from our website.



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## PROPELLER SHAFTS, AXLES AND GUIDE TUBES

Item	Steel Rod	Steel Rod	Carbon fibre rod	Guide Tube	Guide Tube	Steel rod & Guide tube	Steel rod & Guide tube	Carbon fibre rod & Guide tube
Usage	Axle, Prop.shaft	Axle/shaft & Guide tube	Axle, Prop.shaft	Prop.shaft's Guide tube	Axle, Prop.shaft	Prop.shaft Guide tube	Prop.shaft Guide tube	Prop.shaft Guide tube
Code	<b>SSTR</b>	<b>SSSTR</b>	<b>SSCFR</b>	<b>SSGUIDW</b>	<b>SSGUIDY</b>	<b>SSGT</b>	<b>SSGTY</b>	<b>SSCFY</b>
Rod OD	2.5mm	3.0 mm	2.5mm	n/a	n/a	2.5 mm	2.5mm	2.5mm
Length	500 mm	500 mm	500 mm			500 mm	500 mm	500 mm
Tube ID	n/a	n/a	n/a	2.7mm	4.5 mm	2.7mm	4.5mm	4.5mm
Length				500 mm	500 mm	500 mm	500 mm	500 mm
Price -5 of ea	n/a	n/a	n/a	n/a	n/a	\$12.06	\$14.56	\$ TBA
Price for 20	\$9.31	\$15.47	\$ TBA	\$17.31	\$25.27	n/a	n/a	n/a

#1 This guide tube has a larger inner diameter, so that drive line bearings can be used for the steel rod

## DRIVELINE COMPONENTS – SOLAR BOAT CHALLENGE

COUPLING: Motor to Prop. Shaft		BOAT PROPELLERS			#4	DRIVE LINE BEARING#5	
Material	<b>Silicon rubber tube</b>	Prop. Type #4	<b>2 blade</b>	<b>3 blade</b>		Packs of 10	
I.D. / O.D.	1.3 / 3.3mm / 2.0 / 4.0 mm	Diameter	28 mm	25 mm		\$5.20 pack	
Price (per m.)	\$4.50 p.m. / \$5.20 p.m.	Hole size	2.4 mm	2.4 mm	Usage	2.5mm rod	
Usage	#2 / #3	Price pack of 10	\$10.55	\$10.55	Reqd	2 per axle	

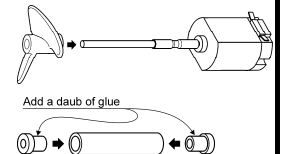
The coupling provides a flexible connection (refer #2 & #3), between motor and propeller shafts

#2 - to join the (2.0mm) Motor shaft to the (2.5mm) Propeller shaft

#3 - to join the (2.3mm) Motor shaft to the (2.5mm / 3.0mm) Propeller shaft

#4 The boat propellers are a press-fit onto a 2.5mm shaft.

#5 Two bearings are used per propeller shaft, at the ends of the 4.5mm ID tube. Using the nylon bearings, the power consumption is very (very) significantly reduced (due to the reduced friction)



## DRIVELINE COMPONENTS – MODEL SOLAR CAR CHALLENGE

WHEELS (Low rolling resistance)					BEARINGS			
WHEEL code:	<b>SS70E</b>	<b>SS70A</b>	<b>SS70B</b>	<b>SS70D</b>		Type: single row, unsealed ball races		
Hole size –mm	10.0dia. #6	7.0 dia. #6	3.0 dia.	2.5 dia.			Plain	Flanged
Colour	Yellow	Yellow	Yellow	Blue	Bearing code	<b>SSB6 #6</b>	<b>SSB10 #6</b>	
Price ea (pack of 10)	\$ TBA each (Pack \$ TBA)		\$2.95 each (Pack \$29.50)			Outer / flange dia	7.0	10.0 / 11.2
Wheel diam.	70 mm diameter #7				Bore dia / Width	3.0dia / 3.0	6.0dia / 3.0	
Material	Moulded Nylon				Price -packs of 10	\$26.25	\$28.35	
Disc thickness	2.0 mm							
<b>TYRES / MATERIAL</b>	<b>TYRE MATERIAL</b> This Rubber Tyre material is designed to suit the 70mm wheels, and has to be glued to form the tyre Price (p.m.) \$4.90 per metre.							
<b>TYRE ('O' RING)</b>	This 'O' Ring is approx. 1.0mm diameter, to suit the groove in WHEELS SS70A and SS70E, to increase traction. Price: 1– 19 \$0.35 / 20+ \$0.32 – sold in lots of 10							
<b>COLLAR (AXLE RETAINER)</b>	Used to retain wheels on the 6.0 diameter axle shaft (carbon fibre tube). The collar is retained to the axle by a small grub screw. Note: Inner diameter is 6.2mm. - Designed to be also used with wheel <b>SS70E</b> and Flanged Bearing <b>SSB10</b> . Supplied in packs of 10: \$4.00 pack				<b>LOCTITE</b>	<b>406</b>	<b>609</b>	
					Type	Retaining compound	Instant adhesive	
	Usage	Tyre material #8	Ball Bearings #9					
	Bottle size	25 ml bottle	10 ml bottle					
	Price	\$28.95	\$19.95					
#6:	Ball bearing races are press fitted in the hub. The hub accepts two races side by side.							
#7:	These wheels are grooved, to suit the "TYRE ('O' RING)" – and provide increased traction							
#8:	If a smaller diameter wheel is required, it can be turned down on a lathe.							
#9:	The Loctite 406 Retaining compound is used to glue the ends of the tyre material, to form a tyre							
#9:	The Loctite 609 Instant adhesive is used to retain Ball bearing races inside the wheels' hubs.							

## OTHER COMPONENTS

Scorpio Technology offer a much wider range of components, for SOLAR experimentation, as well as more general items, all suitable for use in schools, by hobbyists, or at home. These include such items as: GEARS (0.5 Module), FASTENERS (nuts, bolts, washers), ALLIGATOR CLIPS, ELECTRONICS kits and parts, Smaller SOLAR PANELS, ELECTRIC MOTORS, a range of GEARBOXES, and much more. Refer to our website or our **TECHNOLOGY CATALOGUE** for a comprehensive listing

## HOW TO ORDER WHAT YOU NEED

Just post or fax your official school order to us (include the teacher's name). We will include our invoice with the goods.

**POSTAGE: Postage & Packaging are additional** – for prices refer to our Website or Technology Catalogue

Note: Prices and stock availability are subject to change without notice.

We are **happy to help** you – just call or e-mail us. Our business hours are: **Mon. - Fri. 9.00am. To 3.00 pm**