



Racing

Solar

2019/20

Catalogue

2019/20



Cam Solar Racing

WELCOME

Welcome to our Solar Racing materials Catalogue. We hope this becomes a valuable resource to you as you and your students prepare for the Solar Challenge.

We commit to offering the best possible prices and range of product, so that when you're looking for solar challenge materials you can find them all under the one roof. We would like to take this opportunity to thank those people that have assisted us and those who have inspired us in producing this catalogue, most notably Ian Gardner.

ORDERING

To place an order, simply fax or email your school purchase order. Please identify the item, size and quantity you require. Our trading terms for schools are 30 days.

Fax number: 03-9887-9806 Email: sales@camartech.com.au

BACKORDERS

If we are unable to supply your entire order, the items not supplied will be back ordered and sent when available. Please advise us if you don't want backorders.

PRICES

The prices listed were those current on the 1st of July 2008 and where possible these prices will be maintained. There may be some variations due to currency fluctuations on products and components that are imported.

GST

The two price columns shown in this catalogue give the amount prior to GST, and the GST inclusive amount. We issue our customers with invoices in the prescribed Tax Invoice format, which will allow your bursar to claim back the GST paid.

Please note our ABN: 23004 461 769.

DELIVERY

MELBOURNE METROPOLITAN: A delivery charge of \$ 2.90 per carton plus gst will apply, with a maximum of \$12.00 per order, (except parcels exceeding 1 cubic meter or 30kg).

* We subsidize these freight charges. Note that prices may vary due to fluctuating fuel costs.

OUTER METROPOLITAN AREAS OR COUNTRY

Road freight : \$5.50 per parcel.

INTERSTATE

Please phone for up to date pricing.

SHORT DELIVERIES

Any error or omission in your order must be reported to us immediately on receipt of delivery. When returning the goods, please provide a copy of the invoice and the reason for return.

WE WOULD LIKE YOUR HELP

If you have any suggestions on how we can improve our service or product range, please drop us a line. We welcome any feedback you may have. Postal Address: CAM Art Craft & Technology PO Box 2330, Mt Waverley 3149. Email sales@camartech.com.au

BUYING INFORMATION - TRADING HOURS

9.00 - 5.00 pm Weekdays

10.00 - 2.00 pm Saturdays

PARKING - is available at the rear of the building off Larch Crescent.

ENGELEC SOLAR CAR ENERGY MAXIMISER

Why use one ?

A Maximiser increases the energy transferred from the solar panel to the motor resulting in improved performance.

Computerised simulation predicts that the Box Hill High test car, if fitted with this Engelec Maximiser would have a race time a bit over two seconds faster than with no maximiser !

An added advantage is easier car set-up.

When using a maximiser, gear changes are usually not required to accommodate for sun level variances as the maximiser not only provides starting current multiplication, but is designed to remain active during the whole race. This maintains the solar panel voltage at its maximum power point and consequently improves energy transfer from the solar panel to the motor for the duration of the race.



This unit has been evaluated by Ian Gardner, mentor to Box Hill High Solar Model Car students. The evaluation was conducted to give the most realistic results possible without track testing. A Solarex SX10 panel was used in conjunction with a light box as a power source. Light intensity was varied to represent differing sun levels. Tests included Dynamometer testing with both the 6V 2224 and 2232 Faulhaber Motors as well as a pure resistance load. In all tests the Engelec Maximiser performed at least as well as the Box Hill High Version 2 Electronics which had out performed all other circuits tested previously.

Note: The Faulhaber 2232 motor has the ability to take the extra current.

Ian's conclusion based on all of the test results indicated that this Engelec unit is as good as the Box Hill High School V2 circuit making it the best commercially available unit that he has tested.

Our thanks to Ian Gardner for his comprehensive notes on the testing of the Engelec Maximiser unit. More detailed test results are available. Ph 9802-4200 for further information.

ENGELEC SOLAR CAR ENERGY MAXIMISER PRICING

29SOEM99.00 108.90

The idea behind this module is to maintain the solar panel at its maximum power voltage, irrespective of the speed and hence the the voltage of the motor. It uses a dedicated power supply controller IC in a buck converter and will work with panels from 8Volts to 24 Volts. A comprehensive set of instructions is supplied with the module.

29SOEMK66.00 72.60

Same as the above but in kit form, requires soldering.

WEBSITES FOR REFERENCE

www.modelsolar-vic.net for Model Solar Vehicle Challenge Regulations.

www.tassolarcar.4t.com for info.on the solar energy maximiser.

www.faulhaber.com for further information on faulhaber motors

Product ExGST IncGST



30ALFI



30ARRA

ADHESIVES

ALL FIX

30ALFI 8.25 9.08
Sticks just about anything to anything. Is fast, strong and safe. 250 gram tube.

EPOXY RESIN

30AARA 6.30 6.93
(5 MIN) Epoxy resin in a package of two tubes. Mix for heavy duty joining of metals, perspex, plastic, and wood. Drying time approx. 5 min.

BLUTACK

30ABLU 2.15 2.37
Reusable adhesive for temporarily holding joints or other materials.

MULTIBOND

30CLST 2.70 2.97
30ml tube. A fast drying, flexible universal adhesive for sticking most materials including PVC and glass.

GLUE GUN - HOT MELT

30HMGH 19.75 21.73
Heavy duty hot melt. Industrial quality with trigger action. We recommend the use of a glue gun silicon pad and cotton gloves for safety purposes.

GLUE GUN STICKS - HOT MELT

30HMG5.. Pkt of 5 5.30 5.83
11mm thick.
30HMG5B Bulk Pack 15.95 17.55
1 kilo. Approx. 32 sticks, 11 diam. x 300mm long.

GLUE GUN - LOW MELT

30HMG 9.10 10.01
For those projects where nothing else will stick! Use on wood, most metals, paper, fabric, ceramics, leather, plastic and polystyrene. Trigger action. Adhesive sets in 60 sec. and is waterproof.

GLUE GUN STICKS - LOW MELT

30LMGR 1.80 1.98
Pkt of 12. Thin sticks, 7 diam, 100mm long.
30LMGRB 17.95 19.75
Bulk Pack . 1 kilo, approx 72 sticks, 300mm long.

GLUE GUN SILICON PAD

30GGSP 8.10 8.91
For resting glue guns on when in use.

GLOVES - COTTON (for glue gun use)

30GLOV 10.35 11.38
Pkt of 12. To protect small hands from hot glue..



30ABLU



30CLST



30HMGH



30HMG



30HMG5

30LMGR

*The Hot melt glue sticks are thicker than the Low melt glue sticks. Be sure to use the correct glue stick with the right gun.



30GLOV



30HCG....

Product

ExGST

IncGST

HANDCRAFT GLUE

Acetone based craft glue. Good for general purpose fastening including fabric to fabric.

30HCG50 . 50ml	1.65	1.82
30HCG100 125ml	3.30	3.63
30HCG250 250ml	4.25	4.68
30HCG500 500ml	7.50	8.25

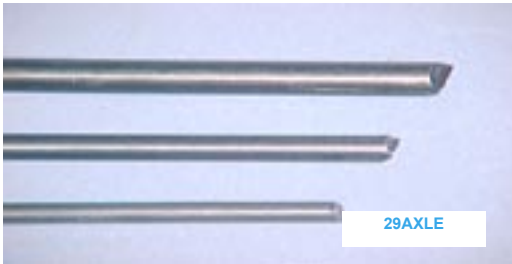
CONSTRUCTION

ACETATE SHEET -THICK (Not illustrated)

28ACSHT	2.95	3.24
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This semi rigid clear sheet is ideal for construction.

Thickness: 0.25mm Sheet size: 1400 x 635mm



29AXLE

AXLE LENGTHS - METAL (Steel)

29AXLE2 ... Steel 2.5 Diam. x 900 mm.....	3.50	3.85
29AXLE3 ... Steel 3 Dam. x 900 mm.....	3.50	3.85
29AXLE5 ... Steel 5 Diam. x 900 mm.....	3.50	3.85

AXLE LENGTHS - Silver Steel (Not illustrated)

29AXLE6 ... 6mm Diam. x 1 metre	19.50	21.45
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Silver Steel axle lengths to fit Ball Races on next page.



28BABE

BALL BEARINGS

28BABE3 3mm diam pkt 10	1.50	1.65
28BABE8 8mm diam pkt 10.	6.09	6.70
28BABE12 12mm diam pkt 10.	10.50	11.55

BALL RACES - Double Shields except

29RBO3*

	Inner Diam. mm	Outer Diam mm	WIDTH mm		
29RB01	4	10	4	4.94	5.43
29RB02	4	9	4	5.20	5.72
29RB03*	4	8	2.5	6.91	7.60
29RB04	4	8	2.5	8.30	9.13
29RB05	5	11	5	6.69	7.36
29RB08	6	10	3	6.90	7.59
29RB09	6	12	3	7.20	7.92
29RB10	6	10	2.5	8.75	9.63

Axles to fit above available in silver steel.

(Prices and length not available at time of printing, please phone 9802-4200 for details)



28RBO..



29FLBE

FLANGE BEARING

29FLBE .. each.....	8.67	9.53
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Miniature flanged shielded bearing to suit 6mm shaft. 10mm O.D x 3mm wide.



Product

ExGST

IncGST

BALSA WOOD



30BWD1

NO. 1 SCHOOL BOX BALSA WOOD

30BWD1 59.50 65.45

This has a selection of blocks, sticks and sheets particularly suited for construction work.



30BWD2

NO. 2 SCHOOL BOX BALSA WOOD

30BWD2 59.50 65.45

This has a selection of blocks only in assorted sizes which are excellent for carving and modelling.



30BWD3

NO. 3 SCHOOL BOX BALSA WOOD

30BWD3 59.50 65.45

This is a box made up entirely of sheets. The sizes vary, and are between 75 x 150mm (3" x 6") wide and approximately 450mm (18") long and 1-5mm (1/32" x 1/4") thick. Each box is 480 long x 310 wide x 310mm high.

CORFLUTE

28COFL .. each 2.85 3.14

A semi rigid plasticised sheet. Great for bodies or building a test track. White 455 x 610 x 3mm thick.



28COFL

DOWEL RODS

28DOW5 12.50 13.75

5 x 450mm Tasmanian oak wood rods. 15 pieces per bundle.

30KDOW 14.50 15.95

6 x 900mm Tasmanian oak wood rods. 15 pieces per bundle.



DOWEL

DUST MASKS

20DUMA 4.45 4.90

Suitable for protection from NON-TOXIC dust particles and powder etc., that can be a nuisance when working with wood. Pkt of 10.



20DUMA



30FL...

FISHING LINE

Make sure your boat can keep on the guide wire!

30FL100 100 m reel 9lb Breaking strain 4.10 4.51

30FL200 200 m reel 30lb Breaking strain 4.70 5.17

30FL500 500 m reel 9lb Breaking strain 9.00 9.90

MILK CARTONS

28MICA 2.80 3.08

Brand new, unprinted. Can be as a simple boat hull. Size 1 litre. Pkt 10.



28MICA



30PLAS



30PLSB



30POS1



28CLRI



28RARI



30SAND

30SAQU



EXAMPLE
28PRASC

Product

ExGST

IncGST

PLASTICOLOUR SHEETS

30PLAS 2.51 2.76

Sheet size:455 x 600 mm approx .5mm thick. This semi flexible plastic material is suitable for use as body panels and is available in the following colors: Black, Yellow, Green, Royal Blue and Turquoise.

PLASTIC SHEETING

Construct your own test "pond" for your boats.

30PLSB 8.10 8.91

Black polythene x 2mtrs wide.Thickness 100um, 5 m lengths.

POLYSTYRENE SHEETS

Can be used as body panels or for constructing a boat hull.

30POS1 8.50 9.35

1200 x 1200 x12mm.

30POS2 .. x 15.07 16.58

1200 x 1200 x 25mm.

Refer **TOOLS** section for Polystyrene cutters.

RIVETS - CLICK

28CLRI 12.02 13.22

Two part plastic rivets designed for fixing two pieces of sheet material together. Click Rivets require a 4mm hole. Total thickness joined is between 3.5mm - 4.5mm. Pkt 50.

RIVETS- RATCHET

28RARI 22.68 24.95

Two part plastic rivets designed for fixing two pieces of sheet material together. Ideal for use with corflute. Simply drill an 8mm hole and press the two ratchet halves together. Total thickness joined is between 6-7.5mm. Pack of 50 fittings.

SANDPAPER

30SAND 4.85 5.34

An assortment of fine, medium and coarse sheets. Size: 228 x 280mm approx. Pack of 20 sheets.

SANDPAPER BLOCKS

30SAQU 2.40 2.64

Sponge block with a tough, long lasting, abrasive outer coating. Ideal for use with polystyrene, balsa wood, and plastic.. 110 x 70 x 35mm.

SILICONE TUBING

28PRASC 0.50 0.55

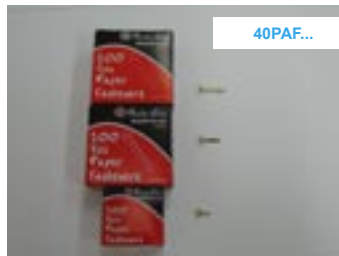
This high-quality silicon tubing can be used as a universal joint for metal shafts from 1.5 to 3mm diam. Length: 300mm

SKEWERS

30BASKL 15.50 17.05

Size: 4mm thick x 250mm long. Pack of 1000.





40PAF...

Product

ExGST

IncGST

SPLIT PINS (Paper Fasteners)

40PAF3 Brass. Length 11mm box of 200	5.60	6.16
40PAF5 Brass. Length 19mm box of 200	8.20	9.02
40PAF7 Brass. Length 25mm box of 200	9.10	10.01

TAPES

30TACL

CLOTH TAPE - Reinforced

Extremely tough and durable. Colours: Black, Blue, Red, Green, Beige. Typically used for bookbinding.

30TACL24 24mm x 25m	4.30	4.73
30TACE48 48mm x 25m	9.05	9.96
30TACE72 72mm x 25m	13.98	15.38

DOUBLE SIDED TAPE - Heavy Duty

30TADS18H 18mm x 50m	16.05	17.66
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Very clear, suitable for use on Acetate sheet. Not illust.

ELECTRICAL TAPE

30TAEL	1.20	1.32
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Each roll is 18mm x 20 m This product is yellow with green stripes though it. Not illust.

JOINTING TAPE

28TAPE	3.95	4.35
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Special silver jointing tape, extremely strong. Ideal for hinges and joining. Water resistant
Size: 50mm x 30 m in length.

VELCRO

Self adhesive Velcro tape. Width: 25mm. White.

20VALM	1.95	2.15
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Per meter

*Please specify hook (softer backing side) or loop (rough gripping side).

WIRE - HANDY

30WIRG	7.50	8.25
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1kg x 16 gauge (approx. 1.25mm diameter). Not illust.

TOOLS

35ALLE

ALLEN KEYS

35ALLE .. Set of 8	2.50	2.75
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Range 1.5 - 6mm.



35CLAMF

CLAMPS

35CLAMG Set of 3 - G clamps	7.95	8.75
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Sizes: 30mm, 50mm and 70mm.

35CLAMF. 200mm - F clamps	7.80	8.58
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35CLAMG

CUTTING MATS

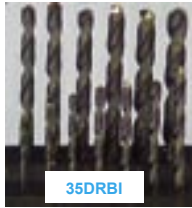
Self healing cutting mats to protect desks and benches.

35CUMA Size: A3 - 297 X 420mm	10.95	12.05
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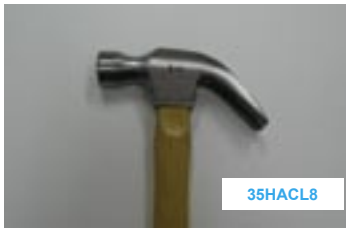
35CUMAL Size: A2 - 420 x 595	22.60	24.86
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35CUMA



35DRBI



35HAACL8



35CKNL

35CKNM

35CKNS



35CKHO

35CUMA



35CKSR

35CKSRB

35CKSF

Product

ExGST

IncGST

TOOLS

DRILL BITS

35DRBI 14.40 15.84

High Speed, steel 13 pc drill set comprising the following sizes: 1.5, 2, 2.5, 3, 3.2, 3.5, 4, 4.5, 4.8, 5, 5.5, 6, and 6.5mm.

HAMMER Claw

35HAACL8 8oz - wooden grip 8.50 9.35

35HAACL12 12oz - wooden grip 7.95 8.75

KNIVES - With snap off blades

35CKNS .. Small Knife 1.80 1.98

Handy small pocket model with clip. Safe sturdy with locking turn-button. Semicircular tailpiece for safely snapping off blunt knives. Size:130 x 13mm.

35CKNM Medium Knife 1.90 2.09

Wider blade ideal for stronger cutting work. Size:150 x 28mm.

35CKNL .. Large Knife 2.95 3.25

Heavy-duty cutter for cutting balsa, board, plastic etc. Safety locking mechanism.

Size: 155 x 35mm.

35CKNB1 5.50 6.05

Small cutter spare blades. Wallets of 10 blades. Not illust.

35CKKB2 3.00 3.30

Medium and Jumbo cutter spare blades. Wallets of 5 blades. Not illust.

HOBBY KNIFE

35CKHO 3.50 3.85

Pen shaped knife with a scalpel type blade.

HOBBY KNIFE BLADES

35CKHOB 1.80 1.98

Spare blades - pkt 5. Not Illust.

STANLEY KNIVES

Genuine Stanley Brand

35CKSR No. 99 Retractable. 13.25 14.58

Available in bright fluorescent colours.

35CKSF No. 299. Fixed 9.10 10.01

Stanley knife fixed blade

35CKSRB Stanley style, budget version 3.95 4.35

Retractable with blades.

STANLEY KNIFE BLADES

35CKSRB5 Blades - packets of 5 4.40 4.84





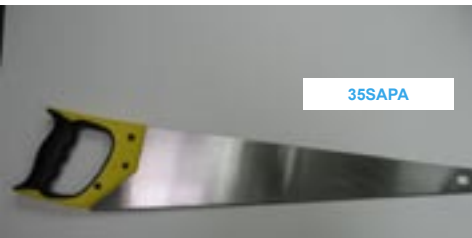
PLIERS (Not illustrated)

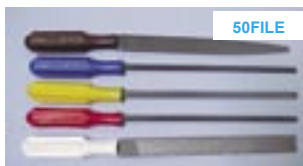
Insulated handles - Quality.

35PLCE .. Combination engineers. (150mm). 15.05 16.56

35PLLN .. Long nose. (200mm) 11.50 12.65



	Product	ExGST	IncGST
	POLYSTYRENE HOT WIRE CUTTER -small (Not illustrated)		
	35POWC	17.50	19.25
	A compact hand held battery operated Hot Wire Cutter (2A size batteries not included). The thin cutter wire which spans the parallel supports becomes hot and melts through the polystyrene cleanly. Teacher use/ guidance required		
	35POWCR	4.10	4.51
	Replacement wire for Hot Wire cutter.Length 5 mtrs		
	POLYSTYRENE CUTTER- Heavy Duty 35HWFC	84.70	93.17
	This cutter has adjustable collars allowing for clean accurate cuts in foam. 220 V. Teacher use/ guidance required.		
	35HWFCR	5.95	6.55
	Replacement wire for above. Special Nichrome wire retains an even temperature for clean cutting Length 1200mm		
	SIDE CUTTERS 35SICU	9.15	10.07
	Wire cutters - 150mm		
	RULERS - STEEL (Not illustrated)		
	35RUS30 . 300mm	3.95	4.35
	35RUS1 .. 1 metre	21.00	23.10
SAWS			
	COPING SAW 35SACO	10.05	11.06
	COPING SAW BLADES 35SACOB	6.05	6.66
	COPING SAW - Stanley Brand (Not illust.) 35SACOS	14.75	16.22
	COPING SAW BLADES- Stanley Brand (Not illustrated.) 35SACOB S Pkt of 12	6.95	7.64
	HACKSAW 35SAHA	9.50	10.45
	HACKSAW BLADES 35SAHAB	9.44	10.38
	MINI HACKSAW 35SAMI	6.80	7.48
	Takes standard hacksaw blades - length without blade 200mm. Ideal for all light cutting such as balsa and heavy card. A lightweight and versatile saw.		
	PANEL SAW 35SAPA	21.50	23.65
	A good quality that will last. 500mm x 8 point with a solid plastic handle.		



Product ExGST IncGST

TENON SAW

35SATE 15.90 17.49
350mm Hardened steel resharpenable.

SAFETY GOGGLES

28SAGO 3.00 3.30
Made from impact resistant polycarbonate -flexible

SCREWDRIVERS

*Top quality Stanley brand- Not illustrated.

35SCDS .. Small 4 diameter x 75mm 2.85 3.14
35SCDM .. Medium 5 diameter x 100mm 4.55 5.01
35SCDL .. Large 7 diameter x 150mm 7.10 7.81
Phillipshead 150mm shaft 9.80 10.78
Phillipshead - 75mm shaft 4.60 5.06

SOLDER

28SOLD 8.50 9.35
Flux cored, 7mm thick, 200 gram roll.

SOLDERING STATION

28SOST 28.00 30.80
Affordable kit, designed for general purpose soldering. Kit includes a 25 watt 240 volt soldering iron, a quality metal stand with sponge, a length of solder and a roll of solderwick.

SOLDER SUCKER

28SOSU 14.50 15.95
For removing solder from electrical circuits.

TIN SNIPS

35TINS 6.25 6.88
Size:250mm

VICE

28VICEC 22.50 24.75
An economical table vice that can be clamped to the work bench or desk. Suitable for items up to 50mm thick. Being removable makes it ideal for use in the classroom.

WARDING FILE SET

50FILE 12.50 13.75
Miniature files (16cm including handle) for intricate shaping and smoothing. Set of 5 pieces.

ELECTRICAL

ALLIGATOR CLIPS

28ALCL 2.50 2.75
Pack of 5.

BANANA PLUGS

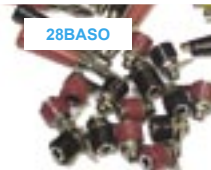
28BAPL 25.50 28.05
Pack of 50.

Product

ExGST

IncGST

ELECTRICAL Cont...



28BASO



28BAEL



28CITE



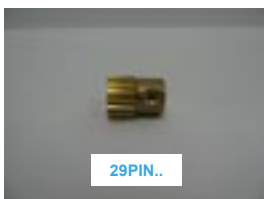
28CON



28CRPL



28LECR



29PIN..

BANANA PLUG SOCKETS

28BASO5.50 6.10

A simple and quick way to convert a circuit, just push together. It is recommended that the leads should be soldered to the plug and base. Pkt 10.

BATTERY ELIMINATOR

28BAEL21.00 23.10

Does away with batteries or panels altogether, although your model must be connected by a lead. Will supply voltages from 3V to 12V.

CIRCUIT TESTER

28CITE5.95 6.55

Have you made a complete circuit? This simple light will tell you.

CONNECTOR TABS

28CON3.10 3.41

Can be soldered or squeezed onto wires, to provide easy connection to motors and globe holders. Pkt 15.

CRIMPING PLIER

28CRPL9.98 10.98

Combines a wire cutter and terminal crimper.

LEADS - (CROCODILE)

28LECR5.90 6.49

410mm long with crocodile clips at either end. 10 per pack, assorted colors.

GEARS & PINIONS

PINIONS-BRASS

Machine Cut. Module 0.5mm

Pinion Code	No of TEETH	FACE WIDTH	BORE SIZE	OUTER DIAM		
	mm	mm	mm	mm		
29PIN9	9	6	2	6	8.00	8.80
29PIN10	10	6	2	6	8.00	8.80
29PIN11	11	6	2	6.5	8.00	8.80
29PIN12	12	6	2	7	8.00	8.80
29PIN13	13	6	2	7.5	8.00	8.80
29PIN14	14	6	2	8	8.50	9.35
29PIN15	15	6	2	8.5	8.50	9.35
29PIN16	16	6	2	9	8.50	9.35
29PIN18	18	6	2	10	9.00	9.90
29PIN20	20	6	2	11	9.00	9.90
29PIN24	24	6	4	13	9.50	10.45
29PIN25	25	6	4	13.5	9.50	10.45

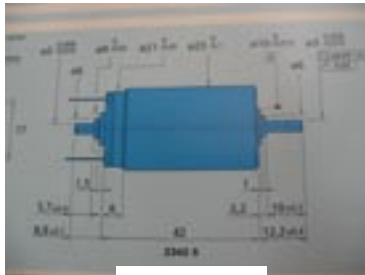
Note: Pinions are secured to the Faulhaber motor with an M3 grub screw.



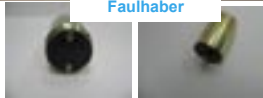
29GEARA..



28GUIDE



Faulhaber



28MOTO

R&I GEARS

GEARS-ACETAL

Machine Cut. Module 0.5mm

Gear Code	No of TEETH	FACE WIDTH	BORE SIZE	OUTER DIAM		
29GEARA40	40	6	6	21	8.00	8.80
29GEARA45	45	6	6	23.5	8.40	9.24
29GEARA48	48	6	6	25	8.60	9.46
29GEARA50	50	3	6	26	8.90	9.79
29GEARA60	60	3	6	31	9.20	10.12
29GEARA70	70	3	6	35.5	9.50	10.45
29GEARA75	75	3	6	38.5	9.80	10.78
29GEARA80	80	3	6	41	10.20	11.22
29GEARA90	90	3	6	46	11.40	12.54
29GEARA100	100	3	6	51	12.50	13.75
29GEARA110	110	3	6	56	14.80	16.28
29GEARA120	120	3	6	61	15.60	17.16
29GEARA130	130	3	6	66	17.50	19.25

GUIDE ROLLER

28GUIDE 8.60 9.46

Outer diameter 25.5mm with a bore size of 10mm, tolerance 9.975mm.

MOTORS

FAULHABER - Made in Switzerland

28M2232	Faulhaber 2232	6V	each	125.50	138.05
28M2334	Faulhaber 2233	4.5V	each	80.80	88.88
28MS2246	Faulhaber 2224	6V	each	80.80	88.88
28M3426	Faulhaber 2342	6V	with ball races	162.90	179.19

For further detail on Faulhaber motors see www.faulhaber.com

MOTOR 3V

28MOTO - each 1.25 1.38

3 Volt motor, approximately 11,000 revs per minute.

Well suited to boats.

Voltage range 1.5 - 3 V 0.35 Amp

Shaft size: 6.5mm x 2mm.

MOTOR 9V (Not illustrated)

28MOTO9 - each 1.10 1.21

9 Volt motor, low speed-low torque.

Voltage range 3-12 V

Speed (no load) 3,600 revs per minute

Shaft size: 8.1mm x 2mm.

MOTOR - SOLAR (Not illustrated)

28SOMDS - each 2.75 3.03

Low cost DC electric motor designed to be driven from solar modules with an output of 1.5V - 3.0V @ 25mA or higher. Supplied with a standard shaft diameter of 2mm and length of 6.5mm.





Compatible with the CAM solar panel (28SOCAM).



Product	ExGST	IncGST
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MOTORS Continued..

SOLAR MOTOR - CAM'S

28MOTCAM	\$2.20	\$2.42
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A 4.5V motor that is compatible with the CAM solar panel (28SOCAM). Suitable for use in making models for the solar car and boat challenge.

DICK SMITH MOTOR (Not illustrated)

28SOMDS	\$2.75	\$3.03
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This motor can be driven with an output from 1.5V up to 3.0V at 25mA or higher. Shaft diameter 2mm with a length of 6.5mm.

MOTOR & GEARBOX (SOLAR)

28SOMG	\$15.30	\$16.83
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This very impressive and low cost unit is ideal to use as the driver of a mechanical model powered by solar energy. The output has a maximum gear ratio of 27:1 making the output torque surprisingly powerful. The output shaft has a 2mm diameter making the propellers and impellers a tight push fit onto the spindle. It has an operating range of 0.7 to 5.0 volts at just 200mA.

MOTOR CLIPS

28MOCL - Pack 10	9.30	10.23
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Push fit plastic clip which secures the 3 Volt motor. Has self adhesive pad on the base for easy mounting.

MOTOR MOUNTS - Plastic

28MOMO - each	1.65	1.82
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Allows the motor above to be mounted horizontally. The motor is fixed by utilizing one of the inserts provided.

MULTIMETER

28MUME	12.00	13.20
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Digital multimeter, complete with test leads and instruction manual.
 3.5 Digit LCD Display
 Diode and transistor tester
 Ranges - DC: 0.02, 0.2, 20, 200, 1000V
 - AC: 200, 750V
 - Res: 200, 2000, 20k, 200k, 2000k

Product ExGST IncGST

PROPELLERS

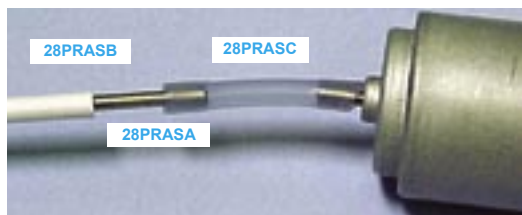
IMPORTANT - Please ensure propellers are properly fitted to the motor shaft, or they may spin off and cause injury !

PROPELLER - MARINE ASSEMBLY A.

This unit is for boats, designed to hook up to our electrical motors. Assembly comprises:

28PRASA. A. Inner shaft - length 150mm	2.50	2.75
28PRASB. B. Outer tube - length 140mm	2.50	2.75
28PRASC. C. 30mm of rubber tubing50	.55
..... (as universal joint)		
28PRASD. D. 3 bladed propeller 20mm diam.	25	.28
OR		
28PROU. . Purchase as a unit.	5.00	5.50

Note: A drop of adhesive to secure the propeller to the shaft is recommended.



PROPELLER - MARINE ASSEMBLY - DELUXE

28PROUC	11.50	12.65
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SOLD COMPLETE ONLY

This unit is as authentic as you could get.

Inner shaft: 240 x 2mm with threaded end.

Outer cover: Brass tube 5 diam. x 225mm long with plastic end pieces fitted.

Propeller: 3 bladed black plastic 25mm diam with threaded brass insert to take inner shaft



IMPELLOR - 4 BLADED

28IMP	2.36	2.60
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Approximately 55mm diameter wide. Will push fit directly onto the pin of the 3 and 9volt motors.



SOLAR

ENGELEC SOLAR CAR ENERGY MAXIMISER

29SOEM	99.00	108.90
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The idea behind this module is to maintain the solar panel at its maximum power voltage, irrespective of the speed and hence the the voltage of the motor. It uses a dedicated power supply controller IC in a buck converter and will work with panels from 8Volts to 24 Volts. A comprehensive set of instructions is supplied.

ENGELEC SOLAR CAR ENERGY MAX. KIT

29SOEMK	66.00	72.60
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Same as the above, but supplied in kit form. Soldering required.



SOLAR PANELS - 1A .45V

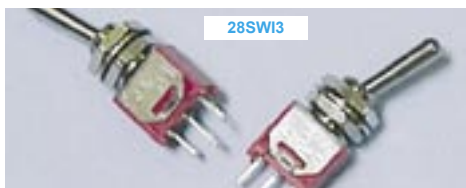
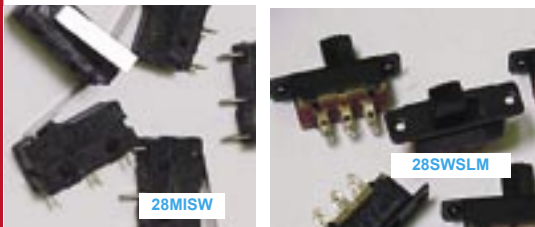
28SOPA	8.20	9.02
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These panels have a honeycomb lens and are perfect for building a custom solar array. 95 x 65 x 6mm.





Compatible with the CAM solar MOTOR (28MOTCAM).



Product ExGST IncGST

SOLAR Cont...

CAM'S SOLAR PANEL

28SOCAM\$16.50 \$18.15

Module: 1.8V 590mA

This robust solar panel is compatible with CAM's Solar motor. Combine the two for maximum performance.

Size: 60mm x 120mm x3mm.

SOLAR PANEL 12VOLT 4.5 WATT

29SOCL91.00 100.10

Voltage max: 18V. Current max: Up to 250mA.

Panel Size: 187 x 255 x 17mm.

SOLAR PANEL - 1.5V 500MA

28SOHC16.50 18.15

These solar modules feature tough coatings and weather protection, and are more robust than the above. Very efficient for their size.

SWITCHES

DOUBLE POLE

28SWID2.30 2.53

2 position switch. Can control 2 separate circuits. 2 Amp. Not illust.

MICRO SWITCH

28MISW1.70 1.87

Uses very little pressure or movement. Perfect for use as a cut-off switch to mount on the front of your vehicle

SINGLE POLE

28SWIP2.05 2.26

2 position toggle switch. 1.5 Amp. Not illust.

SLIDE SWITCH - MINI

28SWSLM80 .88

2 position, double pole - on - off.

THREE POSITION SWITCH

28SWI32.95 3.25

Three position, double pole toggle switch with centre off position. 2 Amp.

WIRE

WIRE CABLE (Hook up wire)

100 meter coil with a 1mm copper core.

28WIRE1R red8.50 9.35

28WIRE1B black8.50 9.35

CONNECTOR TABS

28CON3.10 3.41

Can be soldered or squeezed onto wires, to provide easy connection to motors and globe holders. Pkt 15.



28WIST

WIRE STRIPPER - Adjustable

Product	ExGST	IncGST
28WIST	15.75	17.33

With self adjusting mechanism that allows stripping of PVC insulated wire from 0.5mm to 6mm in diameter without damaging the conductor. The stripping length is adjustable from approx. 3 to 25mm, and manual adjustment is available. With in-built cable cutter.



29WHLT

WHEELS

WHEEL

29WHLT	21.00	23.10
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Drive wheel made from acetal 62.5 diameter x 5 wide with tyre, extended boss for locating drive gear and recessed for 6 x 10mm bearing.

We have not yet found a better quality wheel.

29WHLR	20.50	22.55
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Wheel 63mm with radius and extended boss. Suits bearing 10mm O.D. Suit bearing 6 x 10mm (not incl.)

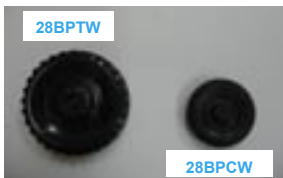


28WHCA

WHEELS CARDBOARD pkt 100

Centre hole size: 3mm

28WHCA35 35mm.....	8.50	9.35
28WHCA45 45mm.....	8.50	9.35
28WHCA55 55mm.....	8.80	9.68
28WHCA65 65mm.....	8.80	9.68



28BPTW

28BPCW

WHEELS PLASTIC

28BPCW	14.50	15.95
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Black plastic car wheels.

Size: 32mm pkt 100

28BPTW	18.90	20.79
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Black plastic truck wheels

Size: 48mm pkt 100



28BUHD60

WHEELS/PULLEY PLASTIC - HEAVY DUTY

28PUHD60

Pack of 5 , heavy duty plastic. Size: Diameter 60mm. Centre hole size: 4mm

9.55	10.50
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WHEEL RETAINERS

28WHRE	2.85	3.14
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Four per packet, with screws. Designed to fasten on to a 4mm metal axle, these units will hold firmly with retaining screws.



28WHRE

A	
Acetal Wheels	15
Acetate Sheet -thick	3
Adhesives	2
Allen Keys	6
Alligator Clips	9
All Fix	2
Axle Lengths - Metal	3
B	
Ball Bearings	3
Ball Races	3
Balsa Wood	4
Banana Plugs	9
Battery Eliminator	10
Blutack	2
C	
Circuit Tester	10
Clamps	6
Cloth Tape	6
Connector Tabs	10&14
Coping Saw	8
Coping Saw Blades	8
Corflute	4
Crimping Plier	10
Cutting Mats	6
D	
Double Pole Switch	14
Double Sided Tape	6
Dowel Rods	4
Drill Bits	7
Dust Masks	4
E	
Electrical components	9-11
Electrical Tape	6
Ernie Motors (Faulhaber)	11
Engelec Solar Car Energy Maximiser	1, 13
Epoxy Resin	2
F	
Faulhaber Motors	11
Fishing Line	4
Flange Bearing	3
G	
Gears & Pinions	10
Gloves - Cotton	2
Glue Guns (Hot & Low Melt)	2
Glue Gun Silicon Pad	2
Glue Gun Sticks	2
Guide Rollers	11
H	
Hacksaw	8
Hacksaw Blades	8
Hammer	7
Handcraft Glue	3
Hobby Knife	7
Hobby Knife Blades	7
I	
Impellor - 4 Bladed	13
J	
Jointing Tape	6
K	
Knives	7
L	
Leads - (Crocodile)	10
M	
Marine Assembly Unit	13
Micro Switch	14
Milk Cartons	4
Mini Hacksaw	8
Motors	11-12
Motor Clips	12
Motor & Gearbox	12
Motor Mounts	12
Multibond	2
Multimeter	12
P	
Panel Saw	8
Paper Fasteners	6
Plasticolour Sheets	5
Plastic Sheeting	5
Pliers	7
Polystyrene Cutter	8
Polystyrene Hot Wire Cutter	8
Polystyrene Sheets	5
Propellers	13
R	
R & I Gears	11
Rivets - Ratchet	5
Rivets - Click	5
Rulers - Steel	8
S	
Safety Goggles	9
Sandpaper	5
Saws	8
Screwdrivers	9
Side Cutters	8
Silicone Tubing	5
Skewers	5
Slide Switch - Mini	14
Solar Car Energy Maximiser Module	13
Solar Motors	12
Solar Panels	13-14
Solder	9
Soldering Station	9
Solder Sucker	9
Split Pins	6
Stanley Knives	7
Stanley Knife Blades	7
Switches	14
T	
Tape	6
Tenon Saw	9
Three Position Switch	14
Tin Snips	9
Tools	6-8
V	
Velcro	6
Vice- 100mm	9
W	
Warding File Set	9
Wheels/pulley Plastic - Heavy Duty	15
Wheels Plastic	15
Wheels Cardboard	15
Wheel Acetal	15
Wheel Retainers	15
Wire	6&14
Wire Cable	14
Wire Stripper	15