bimini + sprayhood

designer's sourcebook

design ideas using Makefast sprayhood fittings

30mm range
Makefast produce a wide range of sprayhood and bimini fittings. We are currently updating our collection with new designs which emphasise fittings for larger tubes. We are maintaining our policy of continuous improvement, updating designs and quality.

This booklet shows just our new range for 30 mm. tube. An important innovation is that we and our distributors can supply the tube for which all of the range has been designed.

This way the fit is guaranteed.

In addition to updating our sprayhood fittings, we now also manufacture a range of powered sunroofs, awnings and bimini units. Ask for details from our Sales Department or see our website www.makefast.com.
Ideas

Ways in which Makefast sprayhood fittings can be used on a range of structures

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Bimini 6
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Solutions

This section is dedicated to solving specific problems using Makefast fittings

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Range

Full details of the range of fittings available from Makefast

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Sprayhood Accessories 21
The Sprayhood is probably the simplest structure to construct on a boat, yet it has to be one of the strongest. Unlike most biminis and sunshades, sprayhoods have to stay up in all weathers, from coastal cruising to Atlantic storms. We offer the most comprehensive range of fittings available – not just tube ends and deck fittings! The diagram features just a few options available as standard from our range – including a grabrail system.
Eliminate your cover tensioning problems by fitting a Makefast sliding bar buckle! Try stitching webbing to the fabric and fitting a Makefast sliding bar buckle attached to a webbing bridge or deck plate.
Whether it is a powerboat or sailboat, the structures required to cover a cockpit (fore or aft) can be complex, and no matter what you tell the owner they will motor along at 30 knots with it up.

Makefast can provide a product for most needs from tube joints for easy erection and stowage, to deck fittings specially for larger tubes all finished in highly polished 316 stainless steel, making them perfect for any boat.
Eliminate erection misalignment problems by using our adjusting tube end fittings. Simply adjust the tube end to fit the gap required – total adjustment of 30mm (1 1/4”) is possible.

Jaw Slide
Cast stainless steel tube to tube connections

Positional Deck Mount
Cast stainless steel deck mount with variable take off angle

Adjustable End Plugs
Our adjustable tube ends make fitting a complex structure much easier

Sleek Track System
All stainless steel track and angled car ideal for vertical surfaces

Tube Joints
On larger structures like this our joints make erection much easier
Biminis offer a range of challenges to the manufacturer from construction to stowage. With our fittings everyday challenges are eliminated. Our new range of extendable jaw slides allows the bimini tubes to be stacked when the bimini is folded down. Telescopic poles are available as well as split jaw slides for tube to tube mountings and tube joints offer easy stowage for even the largest structures.

See our web site www.makefast.com or ask for details sales@makefast.com of our Hydraulic Bimini units.
No deck surface to mount your structure onto? Our split jaw slide eliminates this problem. So now you can fit onto everything from handrails to radar structures!
For those customers looking for on deck shade in marinas, the sunshade structure offers the easiest solution. For the maker, however, the problems of stowage and erection must be addressed. Makefast provide a range of solutions from tube hinge fittings, which enable large structures to be folded up for stowage, to fold flat deck fittings and an extensive range of quick release fittings both for frame tensioning and easy removal and assembly.
Quick Release Deck Fitting
Deck fittings with quick release pins for easy erection and stowage

Need a quick release on any fitting?
Makefast offer all deck and clamp fittings with a quick release option as well as a range of specially designed keyhole fittings for specific situations.

Tube Joints
On larger structures like this our joints make erection much easier

Positional Tube Mount
Ideal for complex frame junctions allowing frames to come off at variable angles

Jaw Slide
Cast stainless steel tube to tube connections

Adjustable End Plugs
Our adjustable tube ends make fitting a complex structure much easier

Quick Release Deck Fitting
Deck fittings with quick release pins for easy erection and stowage
Makefast have worked with the tube manufacturer to specify close tolerance 30 mm tube. The tube is available directly from Makefast or from their distributors.

All of the fittings are guaranteed to fit the tube.

**SPECIFICATIONS**
Type 316 stainless steel polished
Tube size 30 mm. i/d x 1.5 mm. wall thickness. Tolerances ± .15 mm outside diameter ± 10% on the wall.

**ORDER DETAILS**
Part No. 1200  30 mm. Tube 3 metres length
Part No. 1201  30 mm. Tube 6 metres length
Where to buy Makefast 30mm tube

International Distributors

Makefast 30mm stainless tube is available exclusively from our international distributors. If you have difficulty in sourcing please contact Makefast directly on sales@makefast.com.

AUSTRALIA
ICL (SA) PTY Ltd
3A Wirriga Street
Regency Point
SA 5010
Australia
(+61) 88347 4500 phone
(+61) 88347 4477 fax
cancut@iclsa.com.au

AUSTRALIA
Clipon
3 Advance Court
North Haven
5018
Australia
(+61) 4193 2400 phone
Darren.gow@gmail.com

FRANCE
TA France Sarl
9, Rue Bleriot
ZAC de Toul Garros
56400 Auray
France
(+33) 2 97 56 30 80 phone
(+33) 2 97 24 85 13 fax
contact@tafrance.fr

GERMANY
Robert Lindemann KG
Wendenstrasse 455
20537 Hamburg
Germany
(+49) 21 1197-0 phone
(+49) 21 119730 fax
info@lindemann.kg.de

NETHERLANDS
Arie Wiegmans BV
Scheendijk 6
32621 VB Breukelen
Netherlands
(+31) 346 261574 phone
(+31) 346 261030 fax
info@wiegmans.nl

NORWAY
Lorentzen and Lorentzen A/S
Nedre Rommen 5H
0988 Oslo
Norway
(+47) 2279 0740 phone
(+47) 2279 0741 fax
paul@lorentzen.no

SWEDEN
Asperö Handels AB
PO Box 5009
Traneredsvägen 112
426 05 Västra Frölunda
Sweden
(+46) 31 29 9190 phone
(+46) 31 69 19 65 fax
info@aspero.se

U.K.
Kayospruce Ltd.
2, Cockerell Close
Segensworth West
Fareham
Hants, PO15 5SR
(+44) 1489 581696 phone
(+44) 1489 573489 fax
sales@sailcloth.co.uk
The adjusting end plugs have been developed to make installation of a sprayhood easier. No boat is uniform, the decks are not symmetrical surfaces, so this creates all sorts of problems for the fitter. Even the most careful maker will have to adjust the positions of the end plugs on site to make them fit deck fixings. In the past this often meant removing the plug and cutting the tube. Now all it means is unscrewing the adjuster slightly or changing the adjuster for a different size.

No more on site tube cutting and perfect for fine adjustments when tensioning the frame and fabric.

For the cover maker this means that most of the work can be completed in the workshop before going to the boat, safe in the knowledge that small adjustments can be easily made on site without having to cut metal.

**EXTERNAL ADJUSTING END PLUG**
All stainless steel end plug which fits outside the tube.
Part No. 1090 Right Hand
Part No. 1090L Left Hand

**INTERNAL ADJUSTING END PLUGS**
All stainless steel end plug which fits inside the tube.
Part No. 1091 Right Hand
Part No. 1091L Left Hand
fixed end plugs

**FIXED INTERNAL END PLUG**
All stainless steel end plug which fits inside the tube.
Part No. 1098

**FIXED EXTERNAL END PLUG**
All stainless steel end plug which fits outside the tube.
Part No. 1097

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**internal end plugs**

**ADVANTAGES**
Internal plugs allow the clamps to be taken on and off without having to disassemble the canopy.
No need to use grub screws
Looks better and is stronger in bending.

**DISADVANTAGES**
Must be riveted to tube to be used in tension.
Tube ends must be cut with a clean edge.
Specific end plug for specific tube gauge.

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**external end plugs**

**ADVANTAGES**
Quality of cutting on tube end is not important.
Tube gauge is not important as only outside diameter matters.

**DISADVANTAGES**
Have to remove end plugs to take off clamps.
Weaker in bending and may be too bulky for some applications.
tube to tube

**Jaw Slide**
General purpose jaw slide used for all frame applications. Available in 3 lengths for bimini tubes to allow tube stacking when the bimini is folded down.

Part No. 1095
60 mm. Jaw slide extension

Part No. 1094
30 mm. Jaw slide extension

Part No. 1093
Jaw slide

**Split Jaw Slide**
Used for mounting tubes to tubes for frame anchorage points.
Part No. 1092

**Variable Position Tube Mount**
Designed for permanent structure. Can be locked into position.
Part No. 1100

tube to surface

**Variable Position Deck Mount**
Designed for permanent structure. Can be locked to any angle.
Part No. 1099

**Bulkhead Mount**
Can be screwed onto any surface, and the tube then fixed into the other end.
Part No. 1089

**Tube Socket Deck Mount**
Also available for 1 1/4" and 1 1/2" tube.
Part No. 1084
Stand off fitting
Stand Off fitting allows the creation of a grab rail without welding. Part No.1096

ASSEMBLY PROCEDURE

1. Loosen screws on stand off fittings. Slide stand off fittings onto grab rail and loosely tighten clamping screws. You need to fix one stand off every 500 mm (20") of grabrail with a minimum of two fittings per grabrail.

2. Fit end plugs (internal or external onto grab rail tube).

3. Use jaw slides on to the main frame to locate the grabrail. Adjust the positions of the fittings to ensure the grab rail is level then tighten screws. The grab rail is now ready for use.
The Universal Deck Fitting was one of the first innovations Makefast brought to the sprayhood fittings market, based on the simple idea of providing a hinging deck fixing which eliminated the need for angled shims or indeed grinding the deck or deck plate.

**Universal Deck Fitting for Larger Tubes**
Suitable for 30 mm, 32 mm (1 1/4”) and 40 mm (1 1/2”) tubes.
Full 180° adjustment to suit the majority of applications.
Compact and attractive addition to the finished canopy.
The versatile unit can be fitted either horizontally or vertically.
Quick release facility allows rapid removal for demounting.
Available with a dome head or ring pull pin.

Part No. 0986  Deck fitting with pull pin
Part No. 0987  Deck fitting with Quick Release Pin

Fits Adjustable and Fixed End Plugs,
Part Nos. 1090/1090L, 1091/1091L, 1097 and 1098.

Also fits 32mm and 38mm range.

**Using the universal deck fitting**
To allow the frame structure to fold the hinge pins (where the structure is mounted to) must be aligned as shown below. If the mounting point is not aligned the leverage generated by attempting to fold the frame will destroy the fittings and/or damage the tube itself.
**SLEEK TRACK** from Makefast offers an all stainless track which consists of 2 parts, the bottom track which is fixed, and the top decorative part which slides over the bottom track to conceal the fixings to present a pleasing appearance.

Available in 4 lengths
- Part No. 3360/L0.6 0.6 metre length
- Part No. 3360/L1.2 1.2 metre length
- Part No. 3360/L1.8 1.8 metre length
- Part No. 3360/L3.0 3 metre length

**Track car to fit the Makefast Sleek Track**
Universal track car with double lock system which allows significantly greater load than the previous version.
Improved styling with easy to operate lever mechanism
No visible fasteners and low friction plastic runners.
Fits 30, 32 and 40 mm. tube fittings

- **Straight fitting**
  Part No. 1150
- **Angled fitting**
  Part No. 1151

**Technical Data**
Under track fixing hole centres at 75 mm pitch.
Locking pitch for sliding car 15 mm.
For fixing to deck use M5 Pozi Drive Pan Head Self Tapping Screws of Machine Screw Bolts (not supplied).
Supplied with protective, low tack plastic cover film.

**End Stops**, supplied in pairs (2 required per track)
Part No. 3364

**Also suits 32mm and 38mm range**

**Set Stops**
To unlock press button and twist
Frame can then be moved to any required position
To lock twist button again
Part No. 3363
structural components

Telescopic Pole
Supplied without end plugs (leaving you to choose internal or external ones). Extendable up to 1400 mm. Inner tube is 22 mm. and is supplied with a 30 mm. tube adaptor. Depressing the lock unit allows adjustment. Available in two lengths:
Part No. 1020 - length 140mm
Part No. 1121 - Length 300mm

Tube Joint
A rigid component used to join two tubes. It is riveted to one tube and fixed to the other using a sprung clip as shown. Used for making large frames easier to manufacture and to provide a means of taking the frame apart for stowage. Part No. 1088

Locking Tube Hinge
No sleeve or spring required. Has retained spring loaded pin. Part No. 1087

(Not available in USA)

Also available is a drill jig to assist in assembling tube joint Part No.4149

Telescopic Pole

Tube Spring
Part No. 9378
Tube Crowners
The tube crowners accommodate a wide range of tube sizes. It has a geared drive wheel for ease of use and can form up to 38 mm (1 1/2”) diameter tube. The formers are interchangeable. As standard the tube crowners are supplied fitted with 25 mm (1”) formers.
If you wish to only purchase 30 mm rollers please request they be fitted to the tube crowners when ordering. If you prefer to have the standard crowners with 25 mm formers please order 30 mm formers separately (Part No. 9330F). If at any time in the future you would like to purchase 25 mm formers the Part No. is 9330E.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>To fit tube size</th>
</tr>
</thead>
<tbody>
<tr>
<td>9330</td>
<td>Tube Crowners</td>
<td>25 mm 1 14 swg</td>
</tr>
<tr>
<td>9330A</td>
<td>Tube formers</td>
<td>19 mm 1 14 swg</td>
</tr>
<tr>
<td>9330B</td>
<td>Tube formers</td>
<td>22 mm 7/8 14 swg</td>
</tr>
<tr>
<td>9330E</td>
<td>Tube formers</td>
<td>25 mm 1 14 swg</td>
</tr>
<tr>
<td>9330F</td>
<td>Tube formers</td>
<td>30 mm 1.5mm</td>
</tr>
<tr>
<td>9330C</td>
<td>Tube formers</td>
<td>32 mm 1 1/4 14 swg</td>
</tr>
<tr>
<td>9330D</td>
<td>Tube formers</td>
<td>38 mm 1 1/2 14 swg</td>
</tr>
</tbody>
</table>

Tube Formers for bends up to 90°
As standard the tube former is supplied fitted with 25 mm (1”) formers. If you wish to only purchase 30 mm rollers please request they be fitted to the tube crowners when ordering. If you prefer to have the standard former with 25 mm formers please order 30 mm formers separately (Part No. 9333F). If at any time in the future you would like to purchase 25 mm formers the Part No. is 9333E.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>To fit tube size</th>
</tr>
</thead>
<tbody>
<tr>
<td>9333</td>
<td>Former</td>
<td>25 mm 1 14 swg</td>
</tr>
<tr>
<td>9333A</td>
<td>Tube formers</td>
<td>19 mm 1 14 swg</td>
</tr>
<tr>
<td>9333B</td>
<td>Tube formers</td>
<td>22 mm 7/8 14 swg</td>
</tr>
<tr>
<td>9333E</td>
<td>Tube formers</td>
<td>25 mm 1 14 swg</td>
</tr>
<tr>
<td>9333F</td>
<td>Tube formers</td>
<td>30 mm 1.5mm</td>
</tr>
<tr>
<td>9333C</td>
<td>Tube formers</td>
<td>32 mm 1 1/4 14 swg</td>
</tr>
<tr>
<td>9333D</td>
<td>Tube formers</td>
<td>38 mm 1 1/2 14 swg</td>
</tr>
</tbody>
</table>
### 30mm product range

- **Universal Deck Fitting**
  - Part No. 0986
  - Part No. 0987 - Quick Release

- **Variable Deck Mount**
  - Part No. 1099

- **Bulkhead Mount**
  - Part No. 1089

- **Tube Socket Deck Mount**
  - Part No. 1084

#### 30mm Tube

- **3m Length**
  - Part No. 1200

- **6m Length**
  - Part No. 1201

#### Sleek Track System

- **Sleek Track**
  - Part No. 3360/L0.6: 0.6 metre length
  - Part No. 3360/L1.2: 1.2 metre length
  - Part No. 3360/L1.8: 1.8 metre length
  - Part No. 3360/L3.0: 3 metre length

- **Sleek Track Car**
  - Part No. 1150

- **Angled Sleek Track Car**
  - Part No. 1151

- **Set Stop**
  - Part No. 3363

- **End Stops (pair)**
  - Part No. 3364

#### Tube to Tube fittings

- **Jaw Slides**
  - Part No. 1093: Jaw slide
  - Part No. 1094: 30 mm. Jaw slide extension
  - Part No. 1095: 60 mm. Jaw slide extension

- **Split Jaw Slides**
  - Part No. 1092

- **Variable Position Tube Mount**
  - Part No. 1100

- **Stand Off Fitting**
  - Part No. 1092
## Tube End fittings

<table>
<thead>
<tr>
<th>Part No. 1091 - Right Hand</th>
<th>Part No. 1091L - Left Hand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustable Internal End Plugs</td>
<td></td>
</tr>
<tr>
<td>Fixed Internal End Plugs</td>
<td>Part No. 1098</td>
</tr>
<tr>
<td>Fixed External End Plugs</td>
<td>Part No. 1098</td>
</tr>
<tr>
<td>Part No. 1090 - Right Hand</td>
<td>Part No. 1090L - Left Hand</td>
</tr>
<tr>
<td>Adjustable External End Plugs</td>
<td></td>
</tr>
</tbody>
</table>

## Structural Components

<table>
<thead>
<tr>
<th>Part No. 1120 - 140mm</th>
<th>Part No. 1096</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telescopic Pole</td>
<td>Tube Joint</td>
</tr>
<tr>
<td>Part No. 1121 - 300mm</td>
<td>Drill Jig</td>
</tr>
<tr>
<td></td>
<td>Locking Tube Hinge</td>
</tr>
<tr>
<td></td>
<td>Part No. 4149</td>
</tr>
<tr>
<td></td>
<td>Part No. 1087</td>
</tr>
</tbody>
</table>

## Sprayhood Accessories

For full details visit www.makefast.com

<table>
<thead>
<tr>
<th>Lacing Buttons</th>
<th>Sew on Hooks and Eyes</th>
<th>Sliding Bar Buckles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available in stainless steel and plastic</td>
<td>Interlocking plastic hooks and eyes which can be sewn directly onto the fabric</td>
<td>Available in stainless steel with nylon or stainless bars</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lacing Hooks and Eyes</th>
<th>Webbing Bridges</th>
<th>D Rings, Rings and Triangles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available in stainless steel and plastic</td>
<td>An extensive range in plastic and stainless steel</td>
<td>An extensive range in plastic and stainless steel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Holding Down Clips</th>
<th>Quick Release Buckles</th>
</tr>
</thead>
<tbody>
<tr>
<td>To fit sliding bar buckles and D rings</td>
<td>Available in a range of sizes in nylon, acetal or stainless steel</td>
</tr>
</tbody>
</table>
Makefast sprayhood products are available from our international distributors. If you have difficulty in sourcing please contact Makefast directly on sales@makefast.com.

Makefast Limited
31 Mochdre Enterprise Park
Newtown
Powys
SY16 4LE
+44(0) 1686 629101 phone
+44(0) 1686 626700 fax
sales@makfast.com

Technical Information

Makefast has achieved ISO.9001:2000 Certificate No. FM60306
Continuous investment in the Design and Development Department has allowed Makefast to strengthen its position as a developer of innovative technical products. Accompanied by an extensive range of product technical data sheets, certificates of conformity, product and material traceability, Makefast offer a concise and full technical support service to all our customers.

MATERIAL GRADES
Unless otherwise specified, all stainless steel quoted in this catalogue is Type 316 for the highest levels of performance and corrosion resistance.
Makefast plastic products are offered in suitable materials for their intended applications, Nylon 6, Acetal and Nylon 66 30% Glass filled are used in loaded applications. Non loaded products are generally manufactured in Polypropylene, and High Density Polyethylene. If you have any queries relating to the performance of a particular product please contact us as we can offer technical advice relating to the suitability of various materials for particular applications.

LOADING ASSUMPTIONS
Breaking Loads (in Kg and KN) are for guidance only and do not form part of any warranty. All loads are quoted assuming a straight pull using shackles to secure the test equipment. Where the load on a buckle is not straight the strength could be reduced. Loading indicated in Kg. is Kg. Force where:

Load in KN = Load in KG x 9.81
Where formulas have been used to obtain a components breaking load, etc. an ultimate tensile stress has been assumed of:
500 N/mm² for stainless steel
300 N/mm² for aluminium (5083 marine grade)
350 N/mm² for carbon steel
In certain tests, buckles, D rings, etc. have been pulled using webbing, failure of the webbing occurs before the buckle reaches its Breaking Load. Our test data is available on request and tests can be made on customer’s applications if required. Buckles are used in a variety of applications and the factor of safety for Safe Working Loads (SWL) may vary. Our recommendation is that the Safe Working Load be one fifth of the Breaking Load (BL).

All data is given for guidance only and is done so without warranty. It is the obligation of the purchaser or end user to determine whether or not the item is suitable for its intended application. In no event shall our liability extend beyond the replacement cost of any item.