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Product Profile

BSL MK2 Soldier system is a versatile and popular part of our proprietary range, with a multitude of uses in both formwork & false work applications. BSL MK2 Soldier system is offered with a variety of accessories to cater for every situation.

Modern constructions incorporate unlimited techniques to construct various structural elements. This system designed to cover wide ranges of construction and to withstand the high pressure exerted while pouring concrete members. The soldiers which are produced in many lengths can be assembled in combination to suit any heights of pouring. Clear unobstructed webs provide for easy fixing of tie systems, which means infinite flexibility in design. On the other hand, the holes in the web provide additional options for fixing and also for accessories. The comprehensive range of accessories enable the system to assemble rigid structures used for both temporary and permanent works. The system can be used for extensive applications, e.g. single or double soldiers shuttering system, inclined support, vertical shoring, horizontal support, supporting beam, and as space frame. The painted Steel Soldier has evolved into a wide range of uses mainly in formwork system, may it be for the service of vertical and/or horizontal purpose. The general purpose wall support system combining high performance with simple, rapid assembly great versatility and major cost advantages, the steel soldier system provides maximum benefits when used with heavy duty ties and steel waling.

Advantages

- Unique design with optimized ribs with diamond pattern helps higher strength with lower weight.
- This component has proven a great versatility in wall and column formworks, when used with appropriate.
- Minimal cost compared to conventional systems
- Painted components for corrosion prevention
- Safety for access: Access brackets and handrail posts provide a safe working platform whatever the height
Components

BSL Soldiers

Cross section

Stiffener Details

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>75</th>
<th>150</th>
<th>450</th>
<th>675</th>
<th>900</th>
<th>1125</th>
<th>1800</th>
<th>2700</th>
<th>3150</th>
<th>3600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (Kg)</td>
<td>5.7</td>
<td>7.2</td>
<td>11.7</td>
<td>17.5</td>
<td>21.5</td>
<td>25.4</td>
<td>37.4</td>
<td>55.2</td>
<td>62.4</td>
<td>71.0</td>
</tr>
</tbody>
</table>

Specifications

- Moment of Inertia: $1578 \text{ cm}^4$
- Min. Factor of Safety: 2.1
- End reaction: 115.0 kN
- Center Reaction: 115.0 kN
- Bending moment [Hog]: 38.0 kNm
- Bending moment [Sag]: 38.0 kNm
- Bending moment [At Joint]: 10.0 kNm
- Bending moment [Reinforced Joint]: 15.0 kNm
- Shear (Not less than): 75.0 kN
- Shear at Joint (Not less than): 75.0 kN

Min Bearing length = 155mm (As Tie washer)
Weight excludes timber insert. (Additional weight Approx. 1.1 kg /m)
Components

BSL Dual Aluminum Beam

BSL Internal Corners

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>900</th>
<th>1125</th>
<th>1800</th>
<th>2700</th>
<th>3150</th>
<th>3600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (Kg)</td>
<td>19.0</td>
<td>26.1</td>
<td>38</td>
<td>56.6</td>
<td>66.3</td>
<td>75.4</td>
</tr>
</tbody>
</table>
### BSL Hop-Up Bracket

It will hold/support 3 scaffold boards and 1 toe board. The spigot welded at the end will locate the guard post. The bolt holes between the diamond holes can be used for fixing the Hop Up Bracket.

<table>
<thead>
<tr>
<th>M16x90mm HT Set Screw</th>
<th>1 No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M16 nuts</td>
<td>1 No.</td>
</tr>
<tr>
<td>Weight</td>
<td>5.6 Kg</td>
</tr>
</tbody>
</table>

### BSL Form Jack

Used for leveling the form. Also it can be used horizontally as a plumbing device. A minimum of two jacks are required per form side.

<table>
<thead>
<tr>
<th>M16 x 45mm HT Set Screw</th>
<th>2 Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M16 nut</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>Weight</td>
<td>4.3 Kg</td>
</tr>
</tbody>
</table>

### BSL Soldier Bracing Coupler

A half coupler is attached a plate to hold the scaffold tube. The entire assembly is fixed to the Soldier. Used when lacing and bracing is to be attached (e.g. freestanding falsework).

<table>
<thead>
<tr>
<th>Plate dimensions</th>
<th>260mm x 100mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>3.9 Kg</td>
</tr>
</tbody>
</table>

### BSL Waling Clip

A simpler method to attach the scaffold tube to the BSL Soldier.

<table>
<thead>
<tr>
<th>Plate dimensions</th>
<th>260mm x 100mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>0.6 Kg</td>
</tr>
</tbody>
</table>

### BSL Waling Clamp

Used for connecting the two BSL waling to the corner soldiers.

<table>
<thead>
<tr>
<th>M10 x120 m set screw</th>
<th>1 No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M10 Nut</td>
<td>1 No.</td>
</tr>
<tr>
<td>Clamping-U-ends</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>Weight</td>
<td>0.59 Kg</td>
</tr>
</tbody>
</table>
BSL End-to-End connection

Used for connecting the two soldier ends.

- M16 x 35mm HT Set Screw: 4 Nos.
- M16 nut: 4 Nos.
- Max. Bending moment: 10 kN/m
- Weight: 0.11 Kg

BSL Universal Clamp

Used to fix S150 Dual waling to Soldiers; or soldier to soldier fixing.

Weight: 0.6 Kg

BSL Soldier Lifting Bracket

Used for lifting the soldier assembly using the crane. Minimum two brackets are used per form.

- M16 x 35mm HT Set Screw: 4 Nos.
- M16 nut: 4 Nos.
- Weight: 4.8 Kg

BSL Timber Waling Clamp

Used to connect the timber waling to the BSL Soldier. J Bolt is also used for connecting.

Weight: 0.3 Kg

J Bolt - Weight: 0.45 Kg

BSL Universal Anchor Clamp

Used to fix Dual T150 beams to Soldiers.

Weight: 0.31 Kg
BSL Soldier Joint Reinforcement Plate
Used for increasing the capacity bending moment of the assembly of the BSL Soldiers.
M16 x 50 HT bolt and Nut : 4 No.
Reinforcement plate : 4 No.
Max. Bending moment : 15 kNm
Weight : 0.7 Kg

BSL Support Plate
This part will be bolted to the bottom of the Soldiers, when an additional support to the walling and form face on crane handled forms is required. They should be fitted on the Soldiers to which the lifting brackets are attached.
M16 x 35mm HT Set Screw : 2 Nos.
M16 nut : 2 Nos.
Weight : 3.81 Kg

BSL Push Pull Bracket
Used to give a positive connection for up to 3 Shoring Adaptors to Soldiers in three directions: Horizontal / Vertical / Diagonally.
M24 x 90mm HT Set Screw (Grade 8.8) : 1 No. per shoring adapter
M24 nut : 1 No. per shoring adapter
Weight : 13.0 Kg

BSL Swivel connector
Used for angular connections between two BSL Soldiers.
Range of Angle available : 59° to 180°
M16 x 35mm HT Set Screw (Grade 8.8) : 4 No. per soldier end
M16 nut : 4 No. per soldier end
Weight : 6.1 Kg
BSL Soldier Brace / Wheel connector

Used for two purposes:
- It can be bolted to the BSL Soldier to accommodate a Shoring Adaptor
- The BSL SOLDIER system can be made mobile by fixing a wheel of a maximum of 48 x 150 mm diameter.

<table>
<thead>
<tr>
<th>Weight</th>
<th>9.0 Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>M16 x 90mm HT Screw (Grade 8.8)</td>
<td>2 No. per soldier end</td>
</tr>
<tr>
<td>M16 nut</td>
<td>2 No. per soldier end</td>
</tr>
</tbody>
</table>

BSL Wing Nut

Used along with tie plates for securing the rods in formwork applications. The range is coated with rust resistance material, and is appreciated for its tensile strength. Designs are such that it facilitates hand winding.

<table>
<thead>
<tr>
<th>Bar Size (MM)</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>0.33</td>
</tr>
<tr>
<td>20</td>
<td>0.35</td>
</tr>
</tbody>
</table>
**Tie Rod**
Used as formwork tie rods, with Continuous threaded rods for all types of concrete structures.
15 mm and 20 mm tie rods and accessories are compatible with all other leading makes.

15 mm Diameter:
SWL: 95.5 KN (2:1 Factor of Safety)

<table>
<thead>
<tr>
<th>Length (M)</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.75</td>
<td>1.12</td>
</tr>
<tr>
<td>1.00</td>
<td>1.50</td>
</tr>
<tr>
<td>1.50</td>
<td>2.25</td>
</tr>
<tr>
<td>2.00</td>
<td>3.00</td>
</tr>
<tr>
<td>3.00</td>
<td>4.50</td>
</tr>
<tr>
<td>6.00</td>
<td>9.00</td>
</tr>
</tbody>
</table>

20 mm Diameter:
SWL: 165 KN (2:1 Factor of Safety)

<table>
<thead>
<tr>
<th>Length (M)</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.40</td>
<td>1.07</td>
</tr>
<tr>
<td>1.00</td>
<td>2.08</td>
</tr>
<tr>
<td>1.50</td>
<td>4.02</td>
</tr>
<tr>
<td>6.00</td>
<td>16.08</td>
</tr>
</tbody>
</table>

**BSL Tie Washer**
Designed with lugs on the base to prevent any rotation when used with BSL Soldier.

$SWL$: 115 KN

<table>
<thead>
<tr>
<th>Bar Size (MM)</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>0.65</td>
</tr>
</tbody>
</table>

**BSL Plastic Sleeving**
Used as a distance keeper between form faces, these allow tie rods to be withdrawn for re-use. Available in 3m Length.

<table>
<thead>
<tr>
<th>Bar Size (MM)</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>0.66</td>
</tr>
<tr>
<td>20</td>
<td>0.66</td>
</tr>
</tbody>
</table>
**BSL Slewing Cone**

Used with the Plastic Slewing tube to suit either 15 mm or 20 mm tie rod.

<table>
<thead>
<tr>
<th>Bar Size (MM)</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>0.01</td>
</tr>
<tr>
<td>20</td>
<td>0.02</td>
</tr>
</tbody>
</table>

**BSL Water Barrier**

Cast into the concrete wall between two tie bars, these allow through-tie systems to be used in water-retaining structures.

<table>
<thead>
<tr>
<th>Bar Size (MM)</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>0.55</td>
</tr>
<tr>
<td>20</td>
<td>0.65</td>
</tr>
</tbody>
</table>

**BSL Multishore Pivot Base**

Part of the Ultra Loading components. It can be used where it is necessary to incorporate sloping levels either at the base or head of a shore. Fixed directly to a Multishore swivel jack.

**SWL = 200 kN**

- M16 x 35mm HT Set Screw (Grade 8.8) : 4 No. per soldier end
- M16 nut : 4 No. per soldier end
- Weight : 20 Kg

**BSL Multishore Swivel Jack**

Part of the Ultra Loading components. Provides adjustment in a range for final leveling.

- L = 350 to 485 mm.

**SWL = 320 kN**

- M16 x 35mm HT Set Screw (Grade 8.8) : 4 No. per soldier end
- M16 nut : 4 No. per soldier end
- Weight : 20 Kg
**BSL Multiway Connector**
A 3D connectivity for the frames is possible by using this part. Used for erecting a three-dimensional frame, allowing Soldiers to be connected on either axis for a single or double Soldier.

- **M16 x 35mm HT Screw (Grade 8.8)**: 4 No. per soldier end
- **M16 nut**: 4 No. per soldier end
- **Weight**: 29 Kg

**BSL Threaded Shoring Adaptor**
Bolted to the end of a Soldier, this attachment provides a screw-threaded fine adjustment range of 150 mm to 475 mm.

- **M16 x 35mm HT Screw (Grade 8.8)**: 4 No. per soldier end
- **M16 nut**: 4 No. per soldier end
- **Weight**: 8.5 Kg

<table>
<thead>
<tr>
<th>Properties</th>
<th>Normal</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Compression</td>
<td>100 kN</td>
<td>100 kN</td>
</tr>
<tr>
<td>Max. Tension</td>
<td>50 kN</td>
<td>80 kN</td>
</tr>
</tbody>
</table>

**BSL Tubular Shoring Adaptor**
Used for adjustment, in fixed steps by fixing to the end of a Soldier. Overall height varies from 405 - 645 mm in 80 mm increments. In conjunction with the Threaded Shoring Adaptor it is usable in most shoring applications.

- **SWL = 70 kN (to Web Bearing Plate)**

- **M16 x 35mm HT Screw (Grade 8.8)**: 4 No. per soldier end
- **M16 nut**: 4 No. per soldier end.
- **Weight**: 12.9 Kg

**BSL Web Bearing Plate**
Two Web Bearing Plates are required to clamp the HD Push/Pull Prop Adaptor to the Soldier at the diamond hole position.

- **M12x 80mm HT bolt & nuts**: 2 No. per (2nos.)Web Bearing Plates
- **Weight**: 0.6 Kg
BSL Heavy Duty Push-Pull Prop Adaptor

Used in conjunction with Web Bearing Plates, it provides a strong connection to Soldiers and develops the full load potential of the shore in tension or compression.

M24 x 90 HT bolts & M24 nuts : 2 No.

Weight : 6.8 Kg

BSL Swivel Shoring Base

Designed for use in conjunction with either Threaded or Tubular Shoring Adaptor for bolting inclined shore to a suitable foundation.

SWL = ±90 kN (limited by adaptors)

M24 x 90 HT bolts & M24 nuts : 1 No. per soldier end

Weight : 5.0 Kg

BSL Head/Base Plate

Used to spread the load at the top or bottom of a shore, these can be bolted to the end of the Shoring Adaptors.

SWL Compression = 100 kN (limited by adaptors)

M12 x 80 HT bolt and self-locking nut (optional) : 1 No. per soldier end

Weight : 3.2 Kg

BSL Forkhead

Forkheads can be used in place of the Head/Base Plate and will support BSL SOLDIERS and timber or steel beams up to 170 mm wide.

SWL Compression = 100 kN (limited by adaptors)

M12 x 80 HT bolt and self-locking nut (optional) : 1 No. per soldier end

Weight : 4.8 Kg
**BSL Soldier Shear Connector**

Can be used to join a Soldier at right angles without any reduction in shear loading. Can be used, for example, to fit Soldiers or Shoring Adaptors.

- M16 x 90 HT bolt and nut : 2 No. for fixing to soldier
- M16 x 60mm countersunk bolt and nut : 4 No.

**Weight** : 7.0 Kg

---

**BSL Right Angle Connector**

The Right Angle Connector is used to fix Soldiers end-to-end at right angles.

- M16 x 35 HT bolts & M16 nuts : 4 No. per soldier end

**Weight** : 11.2 Kg
Applications
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