HANDPUMP CATALOGUE

REVISED DRAFT
EDITION

September 1981

Postal Address:

P.O. Box 5500
2280 HM Rijswijk (The Hague)
The Netherlands
International Reference Centre for Community Water Supply and Sanitation

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International Reference Centre for Community Water Supply
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Since 1977, the IRC has been collecting technical documentation of handpump models from manufacturers and suppliers of handpumps around the world. The documentation compiled by IRC includes product sheets, manufacturers' pamphlets, specifications, and drawings.

The present catalogue has been produced from this documentation, using a standard format with each individual handpump model presented in a separate sheet. The catalogue contains over 70 handpump models of more than 35 manufacturers from 24 countries. The pump model sheets are arranged by region and country. Another entry to the catalogue is through a table listing the various pump models by key characteristic. This is designed to guide the user of the catalogue directly to those handpump models that are of particular interest to him.

It is conceded that the present catalogue is neither complete nor final. Inclusion of any handpump model in this catalogue does not constitute an endorsement, nor a recommendation of any listed manufacturer or his product(s). Also, omission from the catalogue of any handpump model does not imply rejection. Certain manufacturers may have missed the request to supply their documentation. It is hoped that more handpump models may be included in the revised edition of the catalogue which is planned to be produced as soon as appropriate.

All manufacturers reserve the right to make changes to their products and specifications.

E.H. Hofkes
September 1981
ACKNOWLEDGEMENT

Appreciation is expressed to Mr. A.J.H. Negenman who produced, from the extensive and very diverse source materials, the present uniformly organised catalogue. We are indebted to Mr. Negenman for the considerable amount of work he did in processing the source documentation, and preparing all the sheets complete with graphic material.
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<table>
<thead>
<tr>
<th>Cylinder</th>
<th>Handwheel</th>
<th>Handcylinder</th>
<th>Crank</th>
<th>Foot Operated</th>
</tr>
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<tbody>
<tr>
<td>x</td>
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</tbody>
</table>

Legend:
- x: Present
- ☑: Absent

Note: The table indicates the presence or absence of various components in different regions.
<table>
<thead>
<tr>
<th>Region</th>
<th>Brand</th>
<th>Model</th>
<th>Model</th>
<th>Shallow</th>
<th>Deep</th>
<th>Force</th>
<th>1-proof</th>
<th>2-proof</th>
<th>Drafting box</th>
<th>Guide pillars</th>
<th>Tying allowed</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTH AMERICA</td>
<td>GSW</td>
<td>prototype</td>
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<td>GSW</td>
<td>Colburn (R05)</td>
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<td>114HD/110D</td>
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<td>Columbiana</td>
<td>jg 1980</td>
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<td>Demaster</td>
<td>13 F</td>
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<td>Helco Allen</td>
<td>jg 50 RS</td>
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<td>Clayfu Park</td>
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<td>Roffran/Fyres</td>
<td>2V12/2V12</td>
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</tbody>
</table>
HANDPUMP NOMENCLATURE
HANDPUMP NOMENCLATURE

GENERAL

- PIN COUPLING
- PUMP ROD
- CAP
- FULCRUM
- HANDLE
- DISCHARGE CHECK VALVE
- CUP SEALS
- SUCTION CHECK VALVE
- CAP
- DROP PIPE
- PUMP CYLINDER
- CONNECTING ASSEMBLY
- PUMP STAND
- STAND BASE
- SPOUT
- CAP
HANDPUMP NOMENCLATURE

FORCE PUMP

- FORCE PUMP
- COUPLING
- PUMP ROD
- STUFFING BOX
- NUT
- CAP
- STUFFING BOX AND PACKING
- TRAP TUBE
- SPOUT
- STAND
- DROP PIPE
- PUMP ROD
- PIN
- FULCRUM
- HANDLE
- STAND BASE
- AIR CHAMBER

FULCRUM ASSEMBLY

- handle
- connecting rod
- movable bar
- cap
- stuffing box nut
HANDPUMP NOMENCLATURE

PLUNGER

LEGEND
1. Valve cage or yoke
2. Threaded connection for pump rod
3. Plunger cap seal
4. Valve poppet in open position
5. Valve poppet in closed position
6. Valve lift (L)
7. Valve seat and gasket
8. Valve seat diameter (Dv)
9. Machined threads
10. Poppet stem and weight
11. Plunger follower
12. Spacer
13. Cup seal follower
HANDPUMP MODEL
INFORMATION
SHEETS
Description:
The stand of the ABI Type M handpump consists of a top section made of two castings, connected to a frame made of steel angle sections. The sections are welded to a simple base plate with a hole in the centre through which the drop pipe fits. The handle is made of a welded steel framework and is fitted with two large sealed ball races, for the main fulcrum, on a simple plain bearing to give direct connection to the pump rod. No correction for the pump rod alignment variation, due to handle movement, is thus provided. The handle main bearings are clamped between the two top castings of the stand. Metal-to-metal handle stops are provided inside the castings.

The cylinder diameter 60, 70 or 80 mm, is made from thick walled brass extruded tube and has fittings. The single leather plunger is fitted with plastic (nylon?) winged valves, which have rubber sealing rings.

40 mm (1½") ID galvanised steel pipe is used for the drop pipe and 14 mm diameter zinc painted steel for the pump rod. The sprout is a piece of bent steel pipe. A grey painted finish is used. The pump stand has to be installed on the concrete well head by four 20 mm anchor bolts on a 297.5 mm square.

Specifications (output ratings)
For agents: see next page

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm)</td>
<td>(mm)</td>
<td></td>
<td>1/min.</td>
<td>(m)</td>
</tr>
<tr>
<td>Type M</td>
<td>80</td>
<td>100</td>
<td>0.50</td>
<td>30</td>
<td>0-12</td>
</tr>
<tr>
<td></td>
<td>70</td>
<td>100</td>
<td>0.38</td>
<td>23</td>
<td>13-30</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>100</td>
<td>0.28</td>
<td>17</td>
<td>31</td>
</tr>
</tbody>
</table>

Applications at 60 str/min.

Countries where used:
- Ivory Coast 6500 pcs
- Upper Volta 1000 "
- Niger 100 "
- Mali 80 "
- Liberia 100 pcs
- Togo 100 "
- Senegal/Cameroun 40 "
- Central Africa (some)
Pump Head

. rod linkage
   Hand-operated; vertical reciprocating operation; two-pivot system; variable stroke length.

. pins, bearings, fasteners
   Two main handle ball races (80.0 mm OD x 40.2 mm ID) and a plain bearing for linkage to the rod (30.0 mm OD x 72.0 mm long); the pump rod is fastened to the shaft by two bolts (with nuts and counternuts)

. materials
   Mainly cast iron; partly fabricated steel plate sections; painted.

. weight: 74 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod: steel painted with zinc-rich primer</td>
<td>120 kg/m</td>
<td>14 mm</td>
<td></td>
</tr>
<tr>
<td>drop pipe: galvanised steel or PVC</td>
<td>4.4 kg/m</td>
<td>1½ inch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4 kg/m</td>
<td>1½ inch</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

. type: closed type

. material: gauged brass tube

. plunger: brass

. cup seals: 1 leather

. discharge valve type: special winged

. suction valve type: special winged (+ strainer valve/foot valve fixed at the lower end of the suction pipe)

. weight: 4.7 kg

. min. well casing diam: 4" (100 mm)
ABI

Local Dealers ABI Type M

Upper Volta:
Timex
B.P. 1603
Ouagadougou

Mali:
Somea
B.P. 724
Bamako
**Specifications (output ratings)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm) (in)</th>
<th>Stroke Length (mm) (in)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW</td>
<td>100 (4) (and several other sizes)</td>
<td>178 (7)</td>
<td>1.27</td>
<td>28 (22 strokes /min.)</td>
<td>15 (50)</td>
</tr>
</tbody>
</table>

**Applications**

Countries where used:

Kenya, Tanzania, Uganda, Sudan, Zambia, Mozambique, Ghana, Malawi, Upper Volta, Ethiopia, Pakistan and Guatemala

**Description:**

The Kenya handpump has a deep and shallow well design which differ only in the means of fixing the pump to the well. The shallow well model is usually fitted on to cement or wood covers of dug wells. For this, the pump is provided with a foot plate, reinforced by flanges.

The pumphandle is linked with two connecting rods to the pumprod. The upper part of the pump rod fits in a guidepipe, to limit lateral movement. Pump handle and upright are made of hard wood.

The cylinder is available in different sizes; extractable type. The cylinder is entirely made of brass, with ball valves.
Pump Head

rod linkage

Pump rod vertical reciprocating operation; three-pivot handle system. Variable stroke length. Guide pipe accommodates sliding rod pipe.

pins, bearings, fasteners
plain bearings

materials
steel, plate and wood

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Cylinder

type closed (4")

<table>
<thead>
<tr>
<th>material</th>
<th>brass</th>
</tr>
</thead>
<tbody>
<tr>
<td>plunger</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>cup seals</th>
<th>3 leathers</th>
</tr>
</thead>
<tbody>
<tr>
<td>discharge valve type</td>
<td>ball</td>
</tr>
<tr>
<td>suction valve type</td>
<td>ball</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>weight</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>min. well casing diam.</td>
<td>4&quot; - 10&quot;</td>
</tr>
</tbody>
</table>
Description:

The Kenya handpump has a deep and a shallow well design which differ only in the means of fixing the pump to the well. The deepwell model is to be fitted directly onto the well casing of a borehole. The pump can be fitted to a 4"x10" casing with double U-bolts and nuts. The discharge pipe is secured with two supporting irons. The pump handle is linked with two connecting rods to the pump rod. The upper part of the pump rod fits in a guide pipe, to limit lateral movement. Pump handle and upright are made of hard wood.

The cylinder is available in different sizes, entirely made of brass with ball valves. All cylinders except the 100 mm (4") size are of the extractable type.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>1½</td>
<td>178</td>
<td>7</td>
<td>0.32</td>
<td>60</td>
<td>200</td>
</tr>
<tr>
<td>57</td>
<td>2½</td>
<td>178</td>
<td>7</td>
<td>0.46</td>
<td>50</td>
<td>165</td>
</tr>
<tr>
<td>70</td>
<td>2½</td>
<td>178</td>
<td>7</td>
<td>0.66</td>
<td>25</td>
<td>80</td>
</tr>
<tr>
<td>100</td>
<td>4</td>
<td>178</td>
<td>7</td>
<td>1.27</td>
<td>15</td>
<td>50</td>
</tr>
</tbody>
</table>

Applications

22 str/min.

Countries where used:

Kenya, Tanzania, Uganda, Sudan, Zambia, Mozambique, Ghana, Malawi, Upper Volta, Ethiopia, Pakistan and Guatemala
Pump Head
- rod linkage
  Hand-operated vertical reciprocating operation; three-pivot handle system;
  Variable stroke length; guide pipe for pump rod.
- pins, bearings, fasteners
  plain bearings
- materials
  steel plate; wood

Connecting Assembly
- pumprod material weight size length
- drop pipe

Cylinder
- type
  open 1½" - 2½" - 2¾" 
  closed 4"
- material brass
- plunger
- cup seals leathers (3)
- discharge valve type: ball
- suction valve type: ball
- weight
- min. well casing diam. 4" - 10"
Description:

The B and C Model 1 is made from steel plate with individual sections welded together. The pumpbody is painted after fabrication. It has a three-pivot handle of the yoke type. Pump rod guide for maintaining operating alignment of pump rod. The handle is made of wood.

The pump head base has a foundation plate with a welded socket. The plate can be bolted onto the concrete well apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm) (in)</td>
<td>(mm) (in)</td>
<td></td>
<td>1/min.</td>
<td>(m) (ft)</td>
</tr>
<tr>
<td>Model 1</td>
<td>77 (3)</td>
<td>102 (4)</td>
<td>0.26</td>
<td>7</td>
<td>45-60 150-200</td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Malawi
Pump Head

. rod linkage

  Hand-operated vertical reciprocating operation; three-pivot system; rod guide for maintaining pump rod alignment; fixed stroke length

. pins, bearings, fasteners

. materials

  fabricated from steel sections and plate; all parts except galvanised parts painted with red oxide

---

Connecting Assembly

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
<th>Weight</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>bright mild steel</td>
<td>1.58 kg/m</td>
<td>166 mm Dia</td>
<td>3 m</td>
</tr>
<tr>
<td>drop pipe</td>
<td>class 2 Gal BSP</td>
<td>1.03 Lbs/ft</td>
<td>5/8&quot; Dia</td>
<td>10 Ft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.05 kg/m</td>
<td>50 mm Bore</td>
<td>3 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.39 Lbs/ft</td>
<td>2&quot; BSP</td>
<td>10 Ft</td>
</tr>
</tbody>
</table>

Cylinder

. type closed

. material brass

. plunger brass

. cup seals Neoprene

. discharge valve type Check

. suction valve type Check

. weight 7.9 kg, 17.38 Lbs

. min. well casing diam. 150 mm, 6 inches
**Description:**

The B and C Model II is made from steel plate with all sections welded together. The pump body is painted after fabrication.

This pump model has a pivot handle of the guide- and - roller type. The rollers are attached to the vertical cast iron slide block.

The handle is made of wood. The pump stand base has a foundation plate which can be bolted on to the concrete well apron.

---

**Specifications (output ratings)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke (1/min.)</th>
<th>Output Q (1/min)</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model II</td>
<td>77 (3)</td>
<td>102 (4)</td>
<td>0.27</td>
<td>7</td>
<td>60-75</td>
<td>200-250</td>
</tr>
</tbody>
</table>

**Applications**

Countries where used:

Malawi
SPECIFICATION B and C Model II  DW Africa 5

Pump Head

- rod linkage
  Hand operated; vertical reciprocating operation; one pivot, guide and roller arrangement; fixed stroke length

- pins, bearings, fasteners
  heavy duty roller bearings at pivot point

- materials
  Mild steel, cast iron and stainless steel fabricated from steel sections and plate; all parts except galvanized parts painted with red oxide.

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td>bright mild steel</td>
<td>1.56 kg/m</td>
<td>16 mm Dia</td>
<td>3 m</td>
</tr>
<tr>
<td></td>
<td>1.04 lbs/ft</td>
<td>5/8&quot; Dia</td>
<td></td>
<td>10 ft</td>
</tr>
<tr>
<td></td>
<td>class 2 gal B.S.P.</td>
<td>5.05 kg/m</td>
<td>50 mm bore</td>
<td>3 m</td>
</tr>
<tr>
<td></td>
<td>3.39 lbs/ft</td>
<td>2&quot; B.S.P.</td>
<td></td>
<td>10 ft</td>
</tr>
</tbody>
</table>

Cylinder

- type closed

- material brass

- plunger brass

- cup seals Neoprene

- discharge valve type Check

- suction valve type Check

- weight 7.9 kg, 17.38 lbs

- min. well casing diam. 150 mm, 6 inches
Description:

The pump stand is of cast iron, and supports a flywheel with handle. The flywheel drives the pump rod through a connecting rod and crank. The pump rod is guided by a stuffing box.

The crank rotates in two ball races. Both lift and force application. The pump can be fitted with two flywheels to enable pumping water from greater depths.

Cylinder diameter selection is roughly as follows: for wells of $\leq 10$ metres depth: $4''$; $10$ to $15$ metres: $3\frac{1}{2}''$; $15$ to $20$ metres: $3''$; and $20$ to $30$ metres: $2\frac{1}{4}''$.

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>100</td>
<td></td>
<td>1,80</td>
<td>33</td>
<td>25-45</td>
</tr>
<tr>
<td>3\frac{1}{2}&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2\frac{1}{4}&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Countries where used:
Pump Head

- rod linkage

  Hand-operated; rotating flywheel; fixed stroke length

- pins, bearings, fasteners

  two ball races in crank stand

- materials

  cast iron

  steel fittings

- weight: (approx.) 95 kg

Connecting Assembly

- pumprod material weight size length

- drop pipe galvanised steel

Cylinder

- type

- material cast iron

- plunger

- cup seals

- discharge valve type

- suction valve type

- weight

- min. well casing diam.
Description:

The Siscoma handpump is manufactured from steel and plate. A cable on a quadrant is connected to the plunger in the cylinder. The cylinder is of the extractable (open) type. The pump has one pivot, the handle is of heavy construction in order to counterbalance the cable's weight. The pumphead is to be placed not on top of the well casing, but beside it. The pump can be operated by up to 4 persons jointly.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td>25</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td>58</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Senegal, Somalia, Gambia, Guinea Bissau, Mauritania, Mali
Pump Head

- rod linkage

Hand-operated; vertical reciprocating movement;
Variable stroke length

- pins, bearings, fasteners

- materials

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod cable</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type open

- material

- plunger

- cup seals

- discharge valve type

- suction valve type

- weight

- min. well casing diam. 10"
Description:

The National Pump models DP 22 and DP 23 are of cast iron. These pumps use a three-pivot type of handle. The pump rod reciprocates guided by a yoke which slides on two guide pillars. The handle pivot allows a choice of three positions (holes), so that the mechanical advantage can be varied.

Various cylinder sizes are available. Model DP 23 is suitable for water delivery through the spout, model DP 22 is suitable for force duty to deliver water at an elevation higher than the pump.

The pumpbase 10 1/4" diameter has 4 3/8" holes on 8 3/4" circle.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP 22 and DP 23</td>
<td>3/4</td>
<td>6/8/10</td>
<td>11</td>
<td>4</td>
<td>130</td>
<td>30 str/min.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>14</td>
<td>400</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>23</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 1/2</td>
<td>33</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>45</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 1/2</td>
<td>50</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Applications: South Africa
Pump Head

- rod linkage

Hand-operated; vertical reciprocating operation; three-pivot system; double guides for pumprod alignment; variable stroke length; variable handle pivot positions for adjustment of mechanical advantage.

- pins, bearings, fasteners

- materials

---

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td></td>
<td>5/8&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type

- material

- plunger

- cup seals

- discharge valve type

- suction valve type

- weight

- min. well casing diam.
Description:

The National Pump rotary model has an externally placed gearing which allows removal of pump rod and cylinder assembly without removing the drive mechanism.

The plunger in the cylinder is fitted with two cup leathers and rubber expander rings.

The pump head is of cast iron; it supports the flywheel which drives the pump rod via a connecting rod and crank.

The moving components are all oil-bath lubricated from an internal reservoir. A sliding pumprod seal in a cylinder under the crankcase is provided for double acting.

The pump head is bolted to a concrete apron covering the well head.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm) (in)</td>
<td>(mm) (in)</td>
<td></td>
<td>1/min.</td>
<td>(m) (ft)</td>
</tr>
<tr>
<td>rotary</td>
<td>3/4</td>
<td>6</td>
<td></td>
<td>8</td>
<td>375</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>6</td>
<td></td>
<td>10</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>6</td>
<td></td>
<td>22</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>6</td>
<td></td>
<td>39</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>6</td>
<td></td>
<td>61</td>
<td>65</td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Pump Head

- rod linkage

Hand-operated; rotating flywheel operation; fixed stroke length

- pins, bearings, fasteners

  two ball races fitted in the crankcase
  lubrication from internal oil reservoir

- materials

  cast iron with forged steel crankshaft and other steel fittings.

Connecting Assembly

- pumprod material weight size length

- drop pipe

Cylinder

- type different sizes

- material

- plunger

- cup seals two leathers

- discharge valve type

- suction valve type

- weight

- min. well casing diam.
Description:
The Stewarts and Lloyds pump model F104 has a flywheel drive; stroke length is 100 mm (4"). All the rotating parts are fitted in 'sealed for life' casings with ballbearings. All the oscillating parts work in dry bearing bushes (P.T.T.E.). No lubrication is required. The main pump stand is of steel, and the crankcase is a high duty iron casting with an inspection hole and cover. All setscrews on the crankcase are of the balton-head 'Allen' type; they can only be removed by using the appropriate Allen key. The rollers are of J.G. iron and run on replacable steel guides. The box is 13" diameter tapped 2" BSP for the rising main; the model has 3/4" diameter foundation bolt holes on 11" PCD. The delivery outlet is 1 1/2" (40 mm) diameter. A sliding pump rod seal in a cylinder housing below the crank is provided for double-acting pumping.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F 104</td>
<td>65</td>
<td></td>
<td></td>
<td>9</td>
<td>37</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>76</td>
<td></td>
<td></td>
<td>13</td>
<td>26</td>
<td>85.7</td>
</tr>
<tr>
<td></td>
<td>98</td>
<td></td>
<td></td>
<td>17</td>
<td>19</td>
<td>62.3</td>
</tr>
<tr>
<td></td>
<td>102</td>
<td></td>
<td></td>
<td>22</td>
<td>14</td>
<td>46.2</td>
</tr>
<tr>
<td></td>
<td>115</td>
<td></td>
<td></td>
<td>28</td>
<td>11</td>
<td>36.1</td>
</tr>
<tr>
<td></td>
<td>125</td>
<td></td>
<td></td>
<td>35</td>
<td>9</td>
<td>30.4</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

South Africa
Pump Head

- rod linkage

  Hand-operated; rotating flywheel; fixed stroke length

- pins, bearings, fasteners

  two ball races mounted in the crank case sealed for life.
  All the oscillating parts work in dry bearings

- materials

  Cast iron with forged steel crankshaft and other steel fittings

---

Connecting Assembly

- pumprod material weight size length

- drop pipe

---

Cylinder

- type

- material

- plunger

- cup seals

- discharge valve type

- suction valve type

- weight

- min. well casing diam.
Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F 100</td>
<td>51</td>
<td></td>
<td></td>
<td>14</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td></td>
<td></td>
<td>23</td>
<td>21</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>76</td>
<td></td>
<td></td>
<td>33</td>
<td>14</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>90</td>
<td></td>
<td></td>
<td>45</td>
<td>11</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td></td>
<td></td>
<td>59</td>
<td>8</td>
<td>26</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

South Africa
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; three-pivot handle system; rod guide for pumprod alignment; variable stroke-length.

- pins, bearings, fasteners
  plain bearings

- materials
  mainly cast iron

Connecting Assembly

- pumprod material weight size length
- drop pipe

Cylinder

- type

- material

- plunger

- cup seals

- discharge valve type

- suction valve type

- weight

- min. well casing diam.
Description:
The Golden Harvest SB 40-1 is mainly of cast iron components. The pump has a three-pivot handle system (yoke type) with a rod guide stuffing box.

The pump rod is chromium plated, the cylinder has a porcelain enameled lining.

The pump is suitable for both lift and force duty. The pump is mounted on a pillar constructed separately to the desired height for the pump users. Special deepwell configurations of the pump can be provided.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke (l/min)</th>
<th>Output Q (at 40str/min.)</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB 40-1</td>
<td>84</td>
<td>150</td>
<td>0.8</td>
<td>32</td>
<td>9</td>
<td>30</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

China
SPECIFICATION  Golden Harvest SB 40-1  SW Asia 1

**Pump Head**

- rod linkage
  - Hand-operated; vertical reciprocating operation;
  - three-pivot handle drive system; stuffing box/rod guide arrangement

- pins, bearings, fasteners
  - 6 plain bearings

- materials
  - mainly cast iron; stuffing box/rod guide of brass
  - Pump rod chromium plated
  - weight 17.5 kg

**Connecting Assembly**

- pumprod material  weight  size  length
  - drop pipe  not supplied by pump manufacturer

**Cylinder**

- type  housed in pumpstand

- material  cast iron with porcelain enameled cylinder lining

- plunger  cast iron

- cup seals  rubber (1 No)

- discharge valve type  flapper

- suction valve type  flapper

- weight

- min. well casing diam.
Description:

The Golden Harvest SB 38-1 is mainly of cast iron. The pump uses a two pivot system, with no special provision for the pump rod alignment.

The pump is suitable for shallow wells up to 6 m depth only. It is mounted on a brick or wooden stand, or a concrete pillar constructed separately.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min. (at 45 str/min.)</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB 38-1</td>
<td>100</td>
<td>160</td>
<td>1.1</td>
<td>50</td>
<td>8</td>
<td>26</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

China
**Pump Head**

- rod linkage  
  Hand operated; vertical reciprocating operation; two-pivot handle system; variable stroke length.

- pins, bearings, fasteners  
  plain bearings

- materials  
  cast iron

  weight: 18 kg

---

**Connecting Assembly**

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td>suction pipe not supplied by pump manufacturer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Cylinder**

- type  
  in pump stand

- material  
  cast iron; porcelain enameled lining

- plunger  
  cast iron

- cup seals  
  rubber (1)

- discharge valve type  
  flapper

- suction valve type  
  flapper

- weight

- min. well casing diam.
Description:

The Mahasagar handpump is mainly of cast iron; it is suitable for both lift and force duty; an air chamber is provided to even out the discharge of water.

The pump rod is guided by a yoke sliding on two guide pillars. The handle has a three-pivot arrangement.

The type I pump has a handle and bracket made of mild steel; the flange has an additional support which is not provided in type II.

The cylinder is of brass, and is available in various sizes. The pumpstand is bolted to the platform.

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke (in)</th>
<th>Output Q l/min.</th>
<th>Max. Lift (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td>65</td>
<td>8</td>
<td>30</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Type II</td>
<td>76</td>
<td>8</td>
<td>42</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>89</td>
<td>10</td>
<td>57</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>12</td>
<td>74</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Applications (at 50 str/min)

Countries where used:

India
SPECIFICATION Mahasagar Type I and II

Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; three-pivot system; double guide rods for pump rod alignment; stuffing box is provided; variable stroke length
- pins, bearings, fasteners

- materials
  cast iron

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type
- material brass
- plunger
- cup seals
- discharge valve type
- suction valve type
- weight
- min. well casing diam. 100 mm (4") for 3" ID
  150 mm (6") for 4" ID
Description:

The Jal Javahar pump is mainly of cast iron. It is a lift and force pump; an air chamber is provided to even out the discharge of water.

The pump rod is guided by a yoke sliding on two guide pillars.

The handle arrangement is of the three-pivot system. The normal stroke length is 6" but can be adapted by selecting another position for the handle pin.

The pumpstand is bolted to the well platform. The pumpstand base is tapered to fit over 1½" suction pipe.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q (l/min.)</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:

India
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating movement; 3 pivot system;
  Double guide rods for maintaining pump rod alignment;
  Stuffing box rod guide; variable stroke length
- pins, bearings, fasteners

- materials

<table>
<thead>
<tr>
<th>Connecting Assembly</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td></td>
<td></td>
<td>1½&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type
- material
- plunger
- cup seals
- discharge valve type
- suction valve type
- weight
- min. well casing diam.
Description:

The India Mark-II Pump Head Assembly is fabricated from steel plate sections that are bolted together. Additional lock nuts are provided. The chain-and-quadrant system is used to provide pump rod alignment avoiding lateral movements. The main pivot housing is filled with grease and fitted with single side shielded ball bearings.

The handle is of heavy and sturdy construction. It is designed to give a mechanical advantage of 8:1. It will counter-balance the pump rod weight for a cylinder depth of about 25 metres.

The cylinder has a cast iron body fitted with a brass liner and painted outside with red enamel paint. The inside cylinder assembly components are manufactured from gun metal and naval brass. The cup washers are of chrome tanned leather. The valve seatings are made of acrylic rubber.

The pump stand base is to be grouted in 1:2:4 cement concrete up to the level of platform indicated in the diagram.

The Mark II-75 model has a 1½" dia N.B. spout fitted to the water tank.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark II</td>
<td>63.5</td>
<td>100</td>
<td>0.32</td>
<td>13</td>
<td>60</td>
<td>200</td>
</tr>
<tr>
<td>Mark II-75</td>
<td>75</td>
<td>100</td>
<td>0.50</td>
<td>20</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>

Countries where used:
India, Burma, Bangladesh, Philippines; Haiti, West Indies; Sudan, Zaire, Ghana, Upper Volta, Togo, Benin, Central African Republic, Niger, Guinea, Gambia, Mali; Ethiopia, Uganda, Kenya, Nigeria, Sierra Leone, Botswana
Pump Head Assembly

- **rod linkage**
  
  Hand-operated; vertical reciprocating operation; variable stroke length; mechanical advantage approx. 8:1. (handle can be supplied with differential weight on the two sides of the fulcrum point)

- **pins, bearings, fasteners**
  
  Uses only one main handle pivot with a chain and quadrant for linkage to the pump rod; pivot has two sealed ball bearings each 47.0 mm OD x 20.1 mm ID; lubrication of chain required at generous intervals.

- **materials**
  
  Fabricated from steel plate sections. Pump head can be supplied fully hot dip galvanised or painted as per customer's requirement. In the painted pumps, water tank is hot dip galvanised and other parts coming in contact with water are coated with epoxy paint.

---

Connecting Rod Assembly

<table>
<thead>
<tr>
<th>Pumprod</th>
<th>Material</th>
<th>Weight</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop Pipe</td>
<td>Steel, hot dip galvanised or B-Class GI-pipe</td>
<td>3.2 kg/m</td>
<td>1 1/4&quot; (32 mm N.B.)</td>
<td>3.0 m</td>
</tr>
</tbody>
</table>

---

Cylinder

- **type** closed

- **material** Cast iron sleeve fitted inside with seamless solid drawn brass liner having excellent inner surface finish. Ends of Brass liner flared.

- **plunger** gun metal/ naval brass

- **cup seals** leathers chrome-tanned (2 Nos.)

- **discharge valve type** puppet type (winged)

- **suction valve type** puppet (winged)

- **weight** Mark-II 6.4 kg; Mark-II-75 8.8 kg

- **min. well casing diam.** Mark II 100 mm (4''); Mark II 75 115 mm (4 1/2'')
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Phone</th>
<th>Telex</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balaji Industrial Agricultural Castings</td>
<td>4-3-140, Hill Street, Ghasmandi, Secunderabad-3, India</td>
<td>73210</td>
<td></td>
<td>'BOREPUMPS'</td>
</tr>
<tr>
<td>Central India Engineering Co.</td>
<td>2153/5 Hill Street, Ranigunj, Secunderabad-500.003 A.P., India</td>
<td>76831</td>
<td></td>
<td>'CIECO'</td>
</tr>
<tr>
<td>Inalsa</td>
<td>19 Kasturba Ghandi Marg, P.O. Box 206, New Delhi - 110001, India</td>
<td>352317</td>
<td>31-3536</td>
<td>'INALSA'</td>
</tr>
<tr>
<td>Meera Industries</td>
<td>1-7-1056/B Industrial Area, Azambad, Hyderabad - 500020, India</td>
<td>63 252</td>
<td></td>
<td>'CIECO'</td>
</tr>
<tr>
<td>Charotar Iron Factory</td>
<td>Anand Sojitra Road, Anand - 388001 Gujanat, India</td>
<td>172 1679</td>
<td></td>
<td>'MAHASAGAR'</td>
</tr>
<tr>
<td>M/s Richardson &amp; Crudass (1972) Ltd.</td>
<td>First Line Beach, P.O. Box No. 1276, Madras - 600 001, India</td>
<td>22401</td>
<td>041-7128</td>
<td>'IRONWORKS'</td>
</tr>
<tr>
<td>Sholapur Well Service</td>
<td>560/59 South Sadar Bazaar, Civil Lines, Sholapur - 413003 Maharashtra, India</td>
<td>2583</td>
<td></td>
<td>WELLSERV   413003</td>
</tr>
</tbody>
</table>
Description:
The Lifetime AH pump model is of cast iron, with the cylinder of extruded brass.

The pump is suitable for lifting water from depths up to 60 m; also for force pumping to a height of 7.5 m. The pump has an air chamber for evening out the discharge of water.

The pump rod is guided by a yoke sliding on two guide pillars.

The handle operates on a three-pivot system with adjustable setting for mechanical advantage.

Electro-galvanised pump rod sections are supplied (12 mm dia) to a length of 9 feet or 10 feet complete with couplings. The pump stand is bolted to the well platform.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH-1</td>
<td>63.5</td>
<td>8</td>
<td></td>
<td>30</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>AH-4</td>
<td>76</td>
<td>8</td>
<td></td>
<td>43</td>
<td></td>
<td>125</td>
</tr>
</tbody>
</table>

Applications

Countries where used: 40 str/min

India (Rajasthan)
Pump Head

- rod linkage
  
  Hand-operated; vertical reciprocating operation; three pivot system; double guide rods for pump rod alignment
  
- pins, bearings, fasteners

- materials
  
  Cast iron

---

Connecting Assembly

<table>
<thead>
<tr>
<th></th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>galvanized</td>
<td>12 mm</td>
<td>12 mm</td>
<td>9-10 feet</td>
</tr>
<tr>
<td>drop pipe</td>
<td>steel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Cylinder

- type closed

- material brass

- plunger brass

- cup seals 2 leathers

- discharge valve type poppet

- suction valve type poppet

- weight

- min. well casing diam. 4\" (100mm)
Description:

The Lifetime deepwell pump is fabricated from steel plate. A chain and quadrant system is used to provide pump rod alignment; sealed ball races are used for the main pivot. A stuffing box is provided; the pump is suitable for lift and force duty. The cylinder is of extruded brass.

The pumpstand base is bolted to the well apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm) (in)</td>
<td>(mm) (in)</td>
<td></td>
<td>1/min.</td>
<td>(m) (ft)</td>
</tr>
<tr>
<td>deepwell</td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>200</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

India (Rajasthan)
Pump Head

- rod linkage
  Hand operated; vertical reciprocating operation;
  variable stroke length;
  stuffing box/rod guide arrangement

- pins, bearings, fasteners
  One main handle pivot with a chain-and-quadrant linkage;
  pivot has two sealed ball races

- materials
  Fabricated from steel sections

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td>galvanized steel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type closed

- material brass

- plunger brass

- cup seals 2 leathers

- discharge valve type poppet

- suction valve type poppet

- weight

- min. well casing diam. 4" (100mm)
Description:
The Senthil pump is fabricated from steel plate sections bolted together.

A chain and quadrant system is used for pumprod alignment. Sealed ball races serves for the main pivot.

The cylinder is cast iron with a brass lining.

¾" diameter pumprod and 1¼" drop pipe (both galvanised) are used to operate the 2½" diameter cylinder.

### Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder I.D. (mm)</td>
</tr>
<tr>
<td>2½</td>
</tr>
</tbody>
</table>

### Applications

Countries where used:

India
**Pump Head**

- Rod linkage
  
  Hand-operated; vertical reciprocating operation; variable stroke length

- Pins, bearings, fasteners
  
  Main handle pivot with a chain-and-quadrant linkage; pivot has two sealed ball bearings

- Materials
  
  Steel plate sections

**Connecting Assembly**

<table>
<thead>
<tr>
<th>Material</th>
<th>Weight</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumprod</td>
<td>galvanised steel</td>
<td>1¾&quot;</td>
<td></td>
</tr>
<tr>
<td>Drop pipe</td>
<td>galvanised steel</td>
<td>1¾&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**Cylinder**

- Type        closed

- Material    cast iron with brass lining

- Plunger     brass

- Cup seals   two leathers

- Discharge valve type poppet (T)

- Suction valve type poppet (T)
  
  Brass foot valve (poppet T)

- Weight

- Min. well casing diam. 4" (100 mm)
Description:
The Bandung handpump is a shallow well pump which has been developed for local manufacture in Indonesia. It is mainly made of grey cast iron components.

A two-pivot handle arrangement is used with no special provision for the pumprod alignment. Two steel pins serve as pivots.

The handle is of mild steel. The pump rod is 5/8" dia steel; drop pipe is 1¾" galvanised iron.

The cup seal is a single natural rubber cup. The cylinder is lined with porcelain enamel.

The pumpstand is painted with a two layer composite. It is bolted with four anchor bolts to the concrete pillar or well cover placing the pump at a sufficient height for the pump users.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>96</td>
<td>100</td>
<td></td>
<td>0.7</td>
<td>28</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(40 str/mm)</td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Indonesia
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation;
  two-pivot system; variable stroke length,
  mechanical advantage 5:1

- pins, bearings, fasteners
  Two-pivot handle; two plain bearings; stainless steel pins;
  lubrication holes provided

- materials
  grey cast iron

Weight: 23 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td>galvanised iron</td>
<td>1/4&quot;</td>
<td>6 m</td>
</tr>
</tbody>
</table>

Cylinder

- type      shallow well

- material  steel cylinder lining porcelain enameled

- plunger   cast iron

- cup seals  natural rubber (1)

- discharge valve type  disc valve

- suction valve type  disc valve with plastic valve cover

- weight

- min. well casing diam. 2"
Bandung pump Manufactures

Batur-Jaya
Batur Ceper - Klalen
Central - Jaya
Indonesia

C. V. Malabar
Jalal Halteu Andir 30
Bandung - Jabar
Description:
The Dragon No.2C is a shallow well pump;

The cylinder is housed in the pump stand which is made of cast iron. The pump has a three-pivot system of the yoke type with a stuffing box rod guide. The pump is suitable for both lift and force duty. When the valve in a specially designed three-way spout is closed, the pump is ready for force duty.

The cylinder has a porcelain enamel lining. The plunger rod is chromium plated.

The pump stand is directly connected with suction pipe of $\frac{1}{4}$ inch.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q (l/min)</th>
<th>Max. Lift (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.2 C</td>
<td>96</td>
<td>100</td>
<td>0.7</td>
<td>28 (40 str/min)</td>
<td>8</td>
</tr>
</tbody>
</table>

Applications
Countries where used:
Japan, Indonesia, Philippines
Pump Head

- Rod linkage
- Hand-operated; vertical reciprocating operation;
- Three-pivot system; stuffing box/guide for pump rod alignment;
- Variable stroke length

- Pins, bearings, fasteners
- Plain bearings (6)

- Materials
- Cast iron; brass stuffing box/guide of brass
- Painted green

Weight: 21kg

Connecting Assembly

<table>
<thead>
<tr>
<th>Material</th>
<th>Weight</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumprod</td>
<td>SS41B (chromium plated)</td>
<td>600g</td>
<td>4/8&quot;</td>
</tr>
<tr>
<td>Drop pipe</td>
<td>Not supplied by pump manufacturer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- Type: housed in pumpstand

- Material: cast iron; porcelain enameled lining

- Plunger: cast iron

- Cup seals: rubber (1 No.)

- Discharge valve type: flapper

- Suction valve type: flapper

Weight: 4kg

Minimum well casing diam. : 1 1/4" (suction pipe)
Description:
The Dragon No.2(D) is a shallow well pump, but can be used as a deep well pump with special accessories such as cylinder drop pipes, etc. (see Fig.1. Deep well version of Model NO.2(D))

Chromium plated pump rod and porcelain enamelled cylinder lining. The pump can be used for both lift and force duty; it has a special designed spout allowing force duty by closing a valve.

The baseplate is designed for mounting on a solid stand (e.g. concrete pillar) separately constructed, to a suitable height for the pump users.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.2 D</td>
<td>96 (3(\frac{4}{5}))</td>
<td>100 (4)</td>
<td>0.7</td>
<td>14 (20 str/min.)</td>
<td>18 (59)</td>
</tr>
</tbody>
</table>

Applications
Countries where used;
Indonesia, Philippines, Japan
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation;
  three-pivot system; stuffing box/guide for pump rod alignment;
  variable stroke length

- pins, bearings, fasteners
  plain bearings

- materials
  cast iron; brass stuffing box
  Weight : 21kg

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SS41B</td>
<td>600g</td>
<td>4 8</td>
<td>16 1 5</td>
</tr>
<tr>
<td></td>
<td>(chromium plated)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>Not supplied by pump manufacturer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type : closed

- material : cast iron with porcelain enamelled lining

- plunger : cast iron

- cup seals : 1 rubber

- discharge valve type : flapper

- suction valve type : flapper

- weight : 4kg

- min. well casing diam. : 8"
Description:
The tomoe pump is a simple handpump for shallow well application (up to 8m). The pump is mainly of cast iron.

The pump is mounted on a stand (e.g. concrete pillar) constructed on the well cover.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.5</td>
<td>96</td>
<td>160</td>
<td>1.1</td>
<td>50 (45 str./min.)</td>
<td>8</td>
</tr>
</tbody>
</table>

Applications
Countries where used:
Japan, Indonesia
Pump Head

- rod linkage
  Hand operated; vertical reciprocating operation;
  two-pivot system; variable stroke length

- pins, bearings, fasteners
  plain bearing

- materials
  cast iron

Weight: 9.5kg

Connecting Assembly

<table>
<thead>
<tr>
<th>component</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>SS41B (Zinked)</td>
<td>450g</td>
<td>3/8&quot;</td>
<td>320m</td>
</tr>
<tr>
<td>drop pipe</td>
<td>Not supplied by pump manufacturer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type: open

- material: cast iron

- plunger: wood

- cup seals: leather

- discharge valve type: flapper

- suction valve type: flapper

- weight: 9.5kg

- min. well casing diam.: 1 1/4" (suction pipe)
Kawamoto

Agent Indonesia
C. V. Lumber dir.
Jalan Pinangsia Raya
80 Jakarta, Indonesia

Agent Philippines
Sea Commercial Co., Inc.
3085 R. Magsaysay Blvd.
Cor. V. V. Cruz St.
P. O. Box 1489
Manila, Philippines
phone: 616521
603026
telex: ITT 7420178
grams: 'SEACOM'

Licensee
Philippines: Seacom Industrial Corp.
30 Scout Tuason
St. Cor. Dr. Lazcano, Diliman
Quezon City, Philippines

Manufacturer
Kashima Trading Co., Ltd.
P. O. Box No. 110 Higashi
No. 32 Nonoike-cho, Higashi-ku
Nagoya
Japan
phone: 935-4601
telex: No. KASHIMA J
J59943
grams: 'KASHIMA' NAGOYA
Description:

The Inalsa Shallow Well Handpump is a newly developed pump which bases components of the India Mark-II deepwell pump.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke (1/min.)</th>
<th>Output Q (L/min.)</th>
<th>Max. Lift (m)</th>
<th>(ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW-1</td>
<td>77</td>
<td>135</td>
<td>0.60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW-2</td>
<td>101.5</td>
<td>135</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Countries where used:

40-50 str/min.
SPECIFICATION Inalsa SW Asia 12

Pump Head

- rod linkage

- pins, bearings, fasteners

- materials

Connecting Assembly

<table>
<thead>
<tr>
<th>Pumprod material</th>
<th>Weight</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe 32 mm dia (SW-1)</td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 mm dia (SW-2)</td>
<td>28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type

- material

- plunger

- cup seals

- discharge valve type

- suction valve type

- weight

- min. well casing diam.
Description:

The Vogel Type 7 pump is mainly made of cast iron.

There are four different modes of installation; with or without a base column, and with or without a separate cylinder (brass lining).

The pump uses a two-pivot handle system. The cylinder foot valve is of the spear-suction type.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 7</td>
<td></td>
<td></td>
<td>0.8</td>
<td>36</td>
<td>7.5</td>
<td>25</td>
</tr>
<tr>
<td>7 S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 ST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Austria
Pump Head

- rod linkage
  
  Hand-operated; vertical reciprocating operation; two-pivot system; variable stroke length.

- pins, bearings, fasteners
  plain bearings

- materials
  cast iron

Connecting Assembly

- pumprod material weight size length
- drop pipe

Cylinder

- type closed

- material cast iron with brass lining

- plunger brass

- cup seals leather (1)

- discharge valve type poppet (T)

- suction valve type spear

- weight

- min. well casing diam.
Description:
The Vogel Type 7W is a lift and force pump. It is made mainly of cast iron.

A three-pivot handle system is used with a stuffing box and pump rod guide.

The pump has an air chamber for smoothing out the water discharge.

There are four different installation arrangements: with or without pump column, and either with or without a separate cylinder.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 7W</td>
<td></td>
<td></td>
<td>0.8</td>
<td>36</td>
<td>7.5</td>
<td>25</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Austria

45 str/min.
Pump Head
- rod linkage
  Hand-operated; vertical reciprocating operation; three-pivot system; stuffing box; pump rod alignment; variable stroke length.
- pins, bearings, fasteners
  plain bearings
- materials
  cast iron

Connecting Assembly
<table>
<thead>
<tr>
<th>pumprod material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td></td>
<td>1½&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder
- type closed
- material cast iron with brass lining
- plunger brass
- cup seals leather (1)
- discharge valve type poppet T
- suction valve type spear
- weight
- min. well casing diam.
Description:

The Tropic II pump has:

Two flywheels with 1/2 reduction gear to the mechanism. No reciprocating movements in the mechanism. All moving parts are rotating and have roller bearings with antidust gaskets.

Operating components are lubricated from a large oil sump reducing maintenance.

Pumpstand is made of massy cast iron, no welded parts are used. Bolted to the well apron.

Pump rods and plunger can be removed without moving the pumpstand. Able to discharge against positive head.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropic II</td>
<td>50</td>
<td>200</td>
<td>0.39</td>
<td>13</td>
<td>95</td>
<td>310</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>200</td>
<td>0.56</td>
<td>19</td>
<td>65</td>
<td>210</td>
</tr>
<tr>
<td></td>
<td>75</td>
<td>200</td>
<td>0.88</td>
<td>29</td>
<td>45</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>90</td>
<td>200</td>
<td>1.27</td>
<td>42</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>200</td>
<td>1.57</td>
<td>52</td>
<td>20</td>
<td>65</td>
</tr>
</tbody>
</table>

35 strokes/minute

Countries where used:

Benin, Burundi, Liberia, Niger, Rwanda, Sudan, Tanzania, Upper Volta, Zaire
Pump Head

. rod linkage

Hand, motor or animal operated, by means of two or one flywheel and pulley, equipped with ball races, fixed stroke length, lubrication from sealed internal oil reservoir.

. pins, bearings, fasteners

Pins: silver steel; Bearings: Ball bearings sealed and permanently greased; Fasteners: Selflocking and/or counternuts.

. materials

Pumpstand and flywheels: cast iron. Mechanism: steel and cast iron.

<table>
<thead>
<tr>
<th>Connecting Assembly</th>
<th>Material</th>
<th>Cyl. Ø</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>According to local situations</td>
<td>wood or stainless steel</td>
<td>0,8 kg/m</td>
<td>3 to 5 cm</td>
<td>5 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>steel or galvanized steel</td>
<td>1 kg/m</td>
<td>Ø 12 mm</td>
<td>3 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>steel or galvanized steel</td>
<td>6 kg/m</td>
<td>2½&quot;</td>
<td>3 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>steel or galvanized steel</td>
<td>7,5 kg/m</td>
<td>3&quot;</td>
<td>3 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>steel or galvanized steel</td>
<td>9 kg/m</td>
<td>4&quot;</td>
<td>3 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>steel or galvanized steel</td>
<td>10 kg/m</td>
<td>4&quot;</td>
<td>3 m</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

. type open

. material brass and gun metal

. plunger gun metal (bronze)

. cup seals 2 leathers

. discharge valve type poppet; diabolo shaped (can be made springloaded)

. suction valve type poppet; diabolo shaped (can be made springloaded)

. weight Ø 50 - 12 kg; Ø 60 - 13 kg; Ø 75 - 15 kg; Ø 90 - 20 kg; Ø 100 - 23 kg.

. min. well casing diam. 70 (3"); 90 (3½"); 100 (4"); 130 (6"); 130 (6").
Description:

Tropic III model.

Heavy construction to withstand rough handling. Pumpstand in cast iron, bolted to the well apron. Fitted with single flywheel that drives the pump rod via a connecting rod and crank. No oiling or greasing required. Easy drive, even by children. Both the suction valve and the plunger valve can be removed from the well while leaving the cylinder in place: Tight ball bearings and self lubricating bushings. Can discharge against positive head. No welded part is used. Totally enclosed construction.

The flywheel can be replaced by a pulley receiving the drive belt of an electrical or petrol/diesel motor.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropic III</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(with single flywheel)</td>
<td>50</td>
<td>150</td>
<td>16</td>
<td>60</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60</td>
<td></td>
<td>24</td>
<td>40</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>Tropic VIII</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(singly flywheel)</td>
<td>75</td>
<td></td>
<td>37</td>
<td>30</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>90</td>
<td></td>
<td>54</td>
<td>20</td>
<td>65</td>
<td></td>
</tr>
</tbody>
</table>

Countries where used:

Zaire, Rwanda, Burundi

at 60 strokes/minute
Pump Head

- rod linkage
  Hand, animal or motor operated; rotary; single flywheel; fixed stroke length.

- pins, bearings, fasteners
  ball bearings (sealed & self-lubricated)

- materials
  pump stand: cast iron
  driving mechanism: steel and cast iron

<table>
<thead>
<tr>
<th>Connecting Assembly</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>galvanized steel or stainless steel</td>
<td>1,3 kg/m 0,89 kg/m</td>
<td>1/2&quot; Ø 12 mm Ø</td>
<td>3 m 3 m</td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanized steel</td>
<td>6,6 kg/m</td>
<td>2&quot; 1/2</td>
<td>3 m</td>
</tr>
<tr>
<td>for cylinder</td>
<td>50, 60 mm</td>
<td>8,6 kg/m</td>
<td>3&quot;</td>
<td>3 m</td>
</tr>
<tr>
<td></td>
<td>75 mm</td>
<td>12,3 kg/m</td>
<td>4&quot;</td>
<td>3 m</td>
</tr>
</tbody>
</table>

Cylinder

- type open

- material red copper

- plunger bronze

- cup seals leather (2)

- discharge valve type poppet T (diabolo-shaped)

- suction valve type poppet T (diabolo-shaped)

- weight 50 mm Ø: 12 kg; 60 mm Ø: 13 kg; 75 mm Ø: 15 kg; 90 mm Ø: 20 kg.

- min. well casing diam. for a cylinder 50 mm: 70 mm (3"); 60 mm: 90 mm (3" 1/2); 75 mm: 100 mm (4"); 90 mm: 130 mm (6")
Description:

Tropic IV model

Heavy construction to withstand rough handling. Pumpstand in cast iron, bolted to the well apron. Fitted with one flywheel that drives the pump rod via a connecting rod and crank. No welded part is used. Totally enclosed construction. No oiling or greasing required. Both the suction valve and the plunger valve can be removed from the well while leaving the cylinder in place. Tight ball bearings and self lubricating bushings. Can discharge against positive head.

The flywheel can be replaced by a pulley receiving the drive belt of electrical or petrol/diesel motor.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropic IV</td>
<td></td>
<td></td>
<td></td>
<td>16</td>
<td>60</td>
<td>200</td>
</tr>
<tr>
<td>(double</td>
<td>50</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flywheel)</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td>40</td>
<td>130</td>
</tr>
<tr>
<td></td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>65</td>
</tr>
</tbody>
</table>

at 60 strokes/minute

Countries where used:

Congo, Zaire, Rwanda, Burundi
Pump Head

- rod linkage
  
  Hand, motor or animal drive; rotary; double flywheel; fixed stroke length

- pins, bearings, fasteners

  ball bearings (sealed and self-greased)
  fasteners: self-locking and/or counterants

- materials

  pump stand: cast iron
  drive mechanism: steel and cast iron components

---

<table>
<thead>
<tr>
<th>Connecting Assembly</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pump prod</td>
<td>galvanized steel</td>
<td>1,3 kg/m</td>
<td>1/2&quot; Ø</td>
<td>3 m</td>
</tr>
<tr>
<td></td>
<td>or stainless steel</td>
<td>0,89 kg/m</td>
<td>12 mm Ø</td>
<td>3 m</td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanized steel</td>
<td>6,6 kg/m</td>
<td>2&quot; 1/2</td>
<td>3 m</td>
</tr>
<tr>
<td>for cylinder</td>
<td>50, 60 mm</td>
<td>8,6 kg/m</td>
<td>3&quot;</td>
<td>3 m</td>
</tr>
<tr>
<td></td>
<td>75 mm</td>
<td>12,3 kg/m</td>
<td>4&quot;</td>
<td>3 m</td>
</tr>
</tbody>
</table>

Cylinder

- type open

- material red copper

- plunger bronze

- cup seals leathers (2 No.)

- discharge valve type poppet (diabolo-shaped)

- suction valve type poppet (diabolo-shaped)

- weight 50 mm Ø: 12 kg; 60 mm Ø: 13 kg; 75 mm Ø: 15 kg; 90 mm Ø: 20 kg

- min. well casing diam. 50 mm: 70 mm (3"); 60 mm: 90 mm (3" 1/2);
  75 mm: 100 mm (4"); 90 mm: 130 mm (6").
Description:

The Tropic Model VII pump has a double flywheel driving the pumprod via a connecting rod and crank. The pump is suitable for both lift and force duty.

Heavy construction to withstand rough handling. Pumpstand in cast iron, bolted to the well apron. No welded part is used. Totally enclosed construction. No oiling or greasing required. Both the suction valve and the plunger valve can be removed from the well while leaving the cylinder in place. Tight ball bearings and self lubricating bushings.

The flywheel can be replaced by a pulley receiving the drive belt of an electrical or petrol/diesel motor.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropic VII</td>
<td>50</td>
<td>150</td>
<td>16</td>
<td>60</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>(double</td>
<td>60</td>
<td></td>
<td>24</td>
<td>40</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>flywheel)</td>
<td>75</td>
<td>150</td>
<td>37</td>
<td>30</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>90</td>
<td></td>
<td>54</td>
<td>20</td>
<td>65</td>
<td></td>
</tr>
</tbody>
</table>

Countries where used:

Zaire
Pump Head

- rod linkage
  Hand, motor or animal driven; rotary; two flywheels; fixed stroke length.

- pins, bearings, fasteners
  ball bearings (sealed and self-greased)
  fasteners: self-locking and/or counternuts

- materials
  pumpstand: cast iron
  drive mechanism: steel and cast iron components

### Connecting Assembly

<table>
<thead>
<tr>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>1,3 kg/m</td>
<td>1/2&quot; Ø</td>
<td>3 m</td>
</tr>
<tr>
<td>or stainless steel</td>
<td>0,89 kg/m</td>
<td>12 mm Ø</td>
<td>3 m</td>
</tr>
<tr>
<td>drop pipe for cylinder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>galvanized steel</td>
<td>6,6 kg/m</td>
<td>2&quot; 1/2</td>
<td>3 m</td>
</tr>
<tr>
<td>galvanized steel</td>
<td>8,6 kg/m</td>
<td>3&quot;</td>
<td>3 m</td>
</tr>
<tr>
<td>for cylinder 50, 60 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for cylinder 75 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for cylinder 90 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>weight</td>
<td>12,3 kg/m</td>
<td>4&quot;</td>
<td>3 m</td>
</tr>
</tbody>
</table>

### Cylinder

- type open

- material red copper

- plunger bronze

- cup seals leathers (2 No.)

- discharge valve type poppet (diabolo-shaped)

- suction valve type - do -

- weight 50 mm Ø 12 kg; 60 mm Ø: 13 kg; 75 mm Ø: 15 kg; 90 mm Ø: 20 kg.

- min. well casing diam. for cylinders 50 mm : 70 mm (3"); 60 mm : 90 mm (3 1/2"); 75 mm : 100 mm (4"); 90 mm : 130 mm (6")
Description:

The Tropic VI uses a three-pivot handle system. The plunger operates either in the pumpbody (for a depth up to 7.5 m) or in the cylinder (up to 30 m depth). Stuffing box and rod guide provided.

The pump is made of cast iron, and of sturdy design.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropic VI/i (deep well)</td>
<td>50 (mm)</td>
<td>170 (in)</td>
<td></td>
<td>12 l/min</td>
<td>30 (m) 98 (ft)</td>
</tr>
<tr>
<td></td>
<td>60 (mm)</td>
<td></td>
<td></td>
<td>17 l/min</td>
<td>20 (m) 66 (ft)</td>
</tr>
<tr>
<td></td>
<td>75 (mm)</td>
<td></td>
<td></td>
<td>27 l/min</td>
<td>15 (m) 59 (ft)</td>
</tr>
<tr>
<td>Tropic VI/i (shallow well)</td>
<td>90 (mm)</td>
<td></td>
<td></td>
<td>39 l/min</td>
<td>± 7,5 ± 24</td>
</tr>
</tbody>
</table>

Countries where used:

Congo, Zaire, Rwanda, Burundi
Pump Head

- Rod linkage
  Hand-operated; vertical reciprocating operation; three-pivot system; stuffing box; pump rod alignment.

- Pins, bearings, fasteners
  Plain bearings: Tropic VI/1: cylinder in the pump body
  Tropic VI/2: cylinder in the well

- Materials
  Cast iron (pump body); steel (pump rod, pins, etc.)

<table>
<thead>
<tr>
<th>Connecting Assembly</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>. Pumprod</td>
<td>galvanized steel</td>
<td>1.3 kg/m</td>
<td>1/2&quot; Ø</td>
<td>3 m</td>
</tr>
<tr>
<td></td>
<td>stainless steel</td>
<td>0.9 kg/m</td>
<td>12 mm Ø</td>
<td>3 m</td>
</tr>
<tr>
<td>. Drop pipe</td>
<td>Ø 50 mm galvanized</td>
<td>6.6 kg/m</td>
<td>2 1/2&quot;</td>
<td>3 m</td>
</tr>
<tr>
<td></td>
<td>steel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ø 75 mm galvanized</td>
<td>8.6 kg/m</td>
<td>3&quot;</td>
<td>3 m</td>
</tr>
<tr>
<td></td>
<td>steel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- Type: open

- Material: Red copper

- Plunger: Bronze

- Cup seals: Leather (2 No.)

- Discharge valve type: Poppet (diabolo-shaped)

- Suction valve type: - do -

- Weight: 50 mm Ø: 12 kg; 60 mm Ø: 13 kg; 75 mm Ø: 15 kg

- Min. well casing diam.: for 50 mm Ø cylinder: 70 mm (3"
  for 60 mm Ø cylinder: 90 mm (3 1/2"
  for 75 mm Ø cylinder: 100 mm (4"


Description:
The Intersigma handpump is a shallow well or cistern handpump designed for light duties. It uses a two-pivot system. It has to be mounted at a height suitable for the user.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q (l/min.)</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-P</td>
<td>75</td>
<td>160</td>
<td></td>
<td>28</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>N-P</td>
<td>90</td>
<td>160</td>
<td></td>
<td>40</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Applications

40 str/min.

Countries where used:

Europe, Asia, Africa, South America
Pump Head
- rod linkage
  Hand-operated; vertical reciprocating operation;
  two-pivot system
- pins, bearings, fasteners
plain bearings; main pivot fastened with cotter pins.

- materials
  cast iron
- weight: 17 kg all-in

Connecting Assembly
- pumprod   material   weight   size   length
- drop pipe

Cylinder
- type       situated in pumpstand
- material   bronze
- plunger    cast iron
- cup seals  1 leather
- discharge valve type poppet T
- suction valve type poppet T
- weight
- min. well casing diam.
Description:
The Nira AF-76 handpump is made of GRS pig iron, castings coated with polyamid pulver paint.

The handle is made of steel and special bronze, with the fulcrum pin running in dry lubricated bearings. A two-pivot handle is used, with special pump rod alignment.

The pump uses stainless steel pumprod with brass connectors. The drop pipe is 2" galvanized steel. The cylinder with reinforced-thread fillets and the plunger are made of brass; the valves (flapper-type) are made of rubber apart from the cup seal which is of nitril rubber.

The pumpstand is bolted directly to the well head concrete apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF-76</td>
<td>76</td>
<td>150</td>
<td>0.7</td>
<td>50</td>
<td>36</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Tanzania, Senegal, Finland
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; two-pivot system; variable stroke length.

- pins, bearings, fasteners
  two-pivot handle; stainless steel pins (complete with cotter pin and with fastener)

- materials
cast iron

- weight: 42 kg

Connecting Assembly

- pumprod material weight size length
  stainless steel
- drop pipe galvanized steel 2" 6 m

Cylinder

- type closed

- material brass

- plunger brass

- cup seals 1 nitril rubber

- discharge valve type flapper

- suction valve type flapper

- weight 41 kg

- min. well casing diam. 4" (100 mm)
Description:

The Solo No. 3 is a special pump design for use in developing countries. It is made mainly of cast iron components.

The pump uses a three-pivot handle system (yoke type) with adjustable fulcrum position; stuffing box; pump rod alignment.

The cylinder is available in two models; it is made of galvanised iron with brass lining or PVC lining.

The pumprod diameter is 2 mm and the pipe size 1\(\frac{1}{4}\)" or 1\(\frac{1}{2}\)". The pumpstand has a base plate with built-in anchor bolts and stainless steel bolts.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solo No.3</td>
<td>40</td>
<td></td>
<td>11</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Applications

60 str/min

Countries where used:

Mali, Cape Verde, Benin, Upper Volta, Niger, Ivory Coast, Mauretania, Senegal
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation;
  three-pivot system; stuffing box; pumprod alignment; variable stroke length;
  variable fulcrum position.
- pins, bearings, fasteners
  plain bearings (stainless steel; self-lubricating

- materials

  cast iron
  weight: 40 kg

<table>
<thead>
<tr>
<th>Connecting Assembly</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>galvanised iron</td>
<td>12 mm</td>
<td>3 m</td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanised iron</td>
<td>1½&quot; or 1¾&quot;</td>
<td>3 m</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type    closed type; two models, various diameters available
- material galvanised iron with brass or PVC lining
- plunger  cast iron
- cup seals leather (1)
- discharge valve type  poppet
- suction valve type  spear or spring activated poppet valve
- weight  5 to 6 kg
- min. well casing diam. 4" (100 mm)
Description:
The Tracta handpump has a cylindrical pumpstand made of heavy gauged plasticized plate. The handle operates the cylinder directly.

Inside the pumpstand a stainless steel spring is fitted for easy operation. The upper rod section is a stainless steel tube sliding in a bearing which is self lubricating with water.

The cylinder is of the retractable type which enables it to be fitted or lifted, without dismantling or removing the drop pipe or the pump head. The cup seals consist of a special braid supplied as a ring coil. This makes it possible to replace the packings without difficulty. The plunger is operated by a PVC pumprod. The pumprod is bolted directly to the concrete well head.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracta</td>
<td>40 mm (1¼&quot;)</td>
<td>400 mm</td>
<td>16&quot;</td>
<td>20</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Senegal, Upper Volta, Mali, Cameroun, Tchad, Algiers
Pump Head
  . rod linkage
    Hand-operated; vertical reciprocating operation; direct drive;
    variable stroke length
  . pins, bearings, fasteners
    water lubricated bearing of the operating rod
  . materials
    plate steel, plasticized

Connecting Assembly
  . pumprod material weight size length
     PVC 1.8 kg 40 mm 3 m
  . drop pipe galvanised steel 17.0 kg 2" 3 m

Cylinder
  . type open
  . material brass
  . plunger bronze
  . cup seals special braid supplied in a ring coil
  . discharge valve type poppet (T)
  . suction valve type poppet (T) double
  . weight 11 kg
  . min. well casing diam. 2 1/4"
Description:

The operating principle of the Briau Nepta T is that of a conventional rod operated pump: cylinder with reciprocating piston in the well, activated by a handle. The plunger is linked to the handle by a stainless steel rod.

The pumpstand is a plasticized watertight steel body.

The handle is of adjustable length, and is fixed on a shaft supported by two sealed bearings.

The drop pipe is normally of galvanised steel tube (if desired with corrosion proof coating or PVC).

Extractable or non-extractable cylinder can be applied. A spring is fitted to push the plunger back in the lower position. The plunger has rings of a special braid supplied as a ring coil.

The pump base is bolted directly to the well head concrete apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm) (in)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nepta T</td>
<td>120</td>
<td>200 mm (8&quot;)</td>
<td>75</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>&quot;</td>
<td>&quot;</td>
<td>50</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>&quot;</td>
<td>&quot;</td>
<td>33</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>&quot;</td>
<td>&quot;</td>
<td>20</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>&quot;</td>
<td>&quot;</td>
<td>13</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>&quot;</td>
<td>&quot;</td>
<td>8</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Applications | 40 str/min.

Countries where used:

Senegal, Upper Volta, Mali, Cameroun, Tchad, Algiers
Pump Head

- rod linkage

Hand-operated; vertical reciprocating operation; one-pivot, rod operated; variable stroke length.

- pins, bearings, fasteners

sealed ball bearings (2)

- materials

plate steel, plasticised

- weight: 70 kg (total)

Connecting Assembly

<table>
<thead>
<tr>
<th>Product</th>
<th>Material</th>
<th>Weight</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>stainless steel rod</td>
<td>2 kg</td>
<td>10 mm</td>
<td>3 m</td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanised steel or PVC</td>
<td>2 kg</td>
<td>1½ to 2&quot;</td>
<td>3 m</td>
</tr>
</tbody>
</table>

Cylinder

- type open or closed

- material brass

- plunger bronze

- cup seals special braid supplied as a ring coil

- discharge valve type poppet (T)

- suction valve type poppet (T) double

- weight 23 kg

- min. well casing diam. 4" (100 mm)
Description:

The Briau pump Royale is mainly of cast iron. It uses a three-pivot handle system with two adjustable pivots for varying the mechanical advantage and stroke length. The pump has a guide for alignment of the pump rod; stuffing box and packing tube are provided for force duties.

Various cylinder sizes of different materials available.

The pumpstand is bolted on a flange which is fixed on the well head apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q l/min.</th>
<th>Max. Lift m</th>
<th>Max. Lift ft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm) (in)</td>
<td>(mm) (in)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Royale</td>
<td>50</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>200</td>
<td>3</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Senegal, Upper Volta, Mali, Cameroun, Tchad, Algeria
Pump Head

- rod linkage

Hand-operated; vertical reciprocating operation; three-pivot handle system; adjustable mechanical advantage; variable stroke length (from 100 to 200 mm); pump rod guide; stuffing box.

- pins, bearings, fasteners

plain bearings; self lubricating

- materials

  cast iron

- weight: 78 kg

Connecting Assembly

<table>
<thead>
<tr>
<th></th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>galvanized steel</td>
<td>4.5 kg</td>
<td>14 mm</td>
<td>3 m</td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanized steel</td>
<td></td>
<td>1\frac{1}{2} to 2&quot;</td>
<td>3 m</td>
</tr>
</tbody>
</table>

Cylinder

- type

  closed

- material

  brass

- plunger

  bronze

- cup seals

  leather or special braid (on request)

- discharge valve type

- suction valve type

- weight

- min. well casing diam. 100 mm (4")
Description:

The Briau Africa pump model is a fly-wheel operated pump.

It has a heavy metal sheet pump body. The pump mechanism consists of a direct or step-down drive.

Three connecting rod stroke length positions, and the different drive arrangements, provide six possible modes for operating.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>60</td>
<td>100</td>
<td></td>
<td>5 - 9</td>
<td>40 - 80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>140</td>
<td></td>
<td>14 - 18</td>
<td>40 - 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>180</td>
<td></td>
<td>15 - 28</td>
<td>50 - 30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>120</td>
<td></td>
<td>46 - 83</td>
<td></td>
<td></td>
<td>&lt; 30</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Senegal, Upper Volta, Mali, Cameroun, Tchad, Algeria
Pump Head

- rod linkage

Hand-operated; rotary; two flywheels. Variable stroke length (100-140-180 mm); step-down ratio 1/3 and 2 gives 6 possible operating modes: 1.0; 1.4; 1.8; 3.2; 4.5; 5.7.

- pins, bearings, fasteners
  ball bearings; self-lubricating

- materials
  steel, plate and cast iron housing (for the gearing)

- weight: 116 kg

Connecting Assembly

<table>
<thead>
<tr>
<th></th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>galvanized steel</td>
<td>5 kg</td>
<td>16 mm</td>
<td>3 m</td>
</tr>
<tr>
<td>drop pipe</td>
<td></td>
<td>17 kg</td>
<td>2 &quot;</td>
<td>3 m</td>
</tr>
</tbody>
</table>

Cylinder

- type          closed

- material      brass

- plunger       bronze

- cup seals     leather or special braid (on request)

- discharge valve type

- suction valve type

- weight        26 kg

- min. well casing diam. 100 mm (4")
Description:

The Vergnet pump is a diaphragm type pump, foot operated with a hydraulic drive system.

The pumping element consists of a rubber diaphragmatic hose inside a stainless steel cylinder, equipped with discharge and suction valves. From the cylinder water is forced to the outlet through a 32 mm OD x 26 mm ID high-density polyethylene pipe.

The foot pedal is of stainless steel and a plunger in the hydraulic drive system. The drive cylinder is of stainless steel.

The pumpstand is of galvanised steel, fabricated construction. A support is provided for the user operating the pump.

A rubber gasket fits over the pumpstand pipe at the well platform to seal off the pumped water against contamination.

Specifications (output ratings)

For agents: see next page

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm)</td>
<td>(mm)</td>
<td></td>
<td>1/min.</td>
<td>(m)</td>
</tr>
<tr>
<td>Type C</td>
<td>30</td>
<td>320 or 250</td>
<td></td>
<td>27 - 9</td>
<td>80 - 250</td>
</tr>
<tr>
<td>Type 4C2</td>
<td>40</td>
<td>250</td>
<td></td>
<td></td>
<td>&lt; 80</td>
</tr>
</tbody>
</table>

Countries where used:

Africa: Cameroun, Ivory Coast, Gabon, Upper Volta, Mali, Niger, Senegal, Togo, Tunis, Tchad.

Asia : Nemap

Vergnet pump type A taken out of production.
SPECIFICATION Hydro Vergnet Type C

Pump Head

. rod linkage

Foot-operated; vertical reciprocating operation; hydraulic drive system; variable stroke length.

. pins, bearings, fasteners

none

. materials

Welded plate and tubular steel; galvanized; foot pedal rod is stainless steel; rod guide and seals urethane; brass drive cylinder; stainless ball valves on brass seats (pumping unit).

. Weight: 21 kg.

Connecting Assembly

<table>
<thead>
<tr>
<th>part</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>high density</td>
<td>0.28 kg/m</td>
<td>26 x 32 mm</td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>polyethylene</td>
<td>0.39 kg/m</td>
<td>23 x 32 mm</td>
<td></td>
</tr>
</tbody>
</table>

(Pumping Element)

<table>
<thead>
<tr>
<th>Cylinder</th>
<th></th>
<th>(Drive Unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>rubber hose diaphragm (nylon reinforced)</td>
<td>piston rings of urethane (4 No.)</td>
</tr>
<tr>
<td>material</td>
<td>rubber hose diaphragm in stainless steel cylinder</td>
<td></td>
</tr>
<tr>
<td>plunger</td>
<td>n - a</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>cup seals</th>
<th>in drive unit</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>discharge valve</th>
<th>ball valve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>stainless steel ball</td>
</tr>
<tr>
<td></td>
<td>brass seat</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>suction valve</th>
<th>ball valve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>stainless steel ball</td>
</tr>
<tr>
<td></td>
<td>brass seat</td>
</tr>
</tbody>
</table>

| weight          | 8 kg (18 lbs) |

<p>| min. well casing diam. | 4&quot; (100 mm) |</p>
<table>
<thead>
<tr>
<th>PAYS</th>
<th>SIEGE</th>
<th>NOM &amp; ADRESSE DU CONCESSIONNAIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMEROUN</td>
<td>GEOMELEC</td>
<td>SOCOPAO - B.P. 291</td>
</tr>
<tr>
<td></td>
<td>Vieugy</td>
<td>GAROUA (Cameroun)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COTE D'IVOIRE</td>
<td>FORACO</td>
<td>FORACO CI - B.P. 11592</td>
</tr>
<tr>
<td></td>
<td>Paris</td>
<td>ABIDJAN (Cote Ivoire)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GABON</td>
<td>FORACO</td>
<td>G.A.F.O.R - B.P. 3958</td>
</tr>
<tr>
<td></td>
<td>Paris</td>
<td>LIBREVILLE (Gabon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAUTE VOLTA</td>
<td>FORACO</td>
<td>S. A. R. - B.P. 107</td>
</tr>
<tr>
<td></td>
<td>Paris</td>
<td>OUAGADOUGOU (Hte Volta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALI</td>
<td>Cie NIGER</td>
<td>NOSOCO-SENegal - B.P. 791</td>
</tr>
<tr>
<td></td>
<td>FRANCAIS</td>
<td>DAKAR (Sénégal)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEPAL</td>
<td>IMEX</td>
<td>IMEX INTERNATIONAL - B.P. 334</td>
</tr>
<tr>
<td></td>
<td>Nepal</td>
<td>KATHMANDU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIGER</td>
<td>Cie NIGER</td>
<td>NIGER-AFRIQUE - NIAMEY</td>
</tr>
<tr>
<td></td>
<td>FRANCAIS</td>
<td>(Niger)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R.C.A.</td>
<td>GEOMELEC</td>
<td>PEYRISSAC-SENegal - B.P. 193</td>
</tr>
<tr>
<td></td>
<td>Vieugy</td>
<td>DAKAR (Sénégal)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SENEGAL</td>
<td>OPTORG</td>
<td>U.A.C.-TOGO - LOME</td>
</tr>
<tr>
<td></td>
<td>Paris</td>
<td>(Togo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOGO</td>
<td>Cie NIGER</td>
<td>C.T.I.N.A. - 8, rue P. de Coubertin</td>
</tr>
<tr>
<td></td>
<td>FRANCAIS</td>
<td>TUNIS (Tunisie)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TUNISIE</td>
<td>CTINA</td>
<td>SOCOPAO - B.P. 140</td>
</tr>
<tr>
<td></td>
<td>Tunis</td>
<td>N,DJAMENA (Tchad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCHAD</td>
<td>GEOMELEC</td>
<td>DANISH CONSTRUCTION CORP.</td>
</tr>
<tr>
<td></td>
<td>Tchad</td>
<td>RODOVER (Danemark)</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>FONDS DANOIS pr</td>
<td>FORACO</td>
<td></td>
</tr>
<tr>
<td>FORAGES AFRIQUE</td>
<td>Paris</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Description:

The Allweiler 400 serie is mainly made of cast iron. The pumps are designed for mounting on a platform or column in a free-standing position.

A three-pivot system is used; stuffing box; pump rod alignment.

The pump is suitable for both lift and force duty (up to 20 m high).

The handle has a wooden grip. The pump can be supplied with a complete cylinder of cast iron with brass lining and Simrit rubber cupseal.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>471</td>
<td>75</td>
<td>3</td>
<td></td>
<td>35</td>
<td>7</td>
</tr>
<tr>
<td>472</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>473</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Pump Head

rod linkage

Hand-operated; vertical reciprocating operation;
three-pivot system; stuffing box; pump rod alignment; variable stroke length.

pins, bearings, fasteners

plain bearings

materials

cast iron

Connecting Assembly

pumprod  material  weight  size  length
     galvanised steel
drop pipe   galvanised steel

Cylinder

type  closed

material  cast iron; brass lining

plunger  cast iron

cup seals  Simrit rubber

discharge valve type  poppet (T)

suction valve type  poppet (T)

weight

min. well casing diam.
Description:
The Allweiler 300 serie has a cast iron pumping house and pumpstand. The pump can be installed with or without the pumpstand base; it can also be used with a separate cylinder.

A two-pivot handle system is used.

The cylinder is of cast iron with brass lining. The pump rod is galvanised steel. The cupseal is of Simrit rubber.

Specifications (output ratings)
For agents and affiliates: see next page

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>301 to 309</td>
<td>75</td>
<td>3</td>
<td></td>
<td>35</td>
<td>10</td>
</tr>
</tbody>
</table>

Applications
Countries where used:
SPECIFICATION Allweiler 301 to 309

Pump Head

rod linkage
Hand-operated; vertical reciprocating operation;
two-pivot handle system; variable stroke length.

pins, bearings, fasteners
plain bearings

materials
cast iron
weight: 30 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td>galvanised steel</td>
<td></td>
<td>32 or 40</td>
<td>1½&quot; or 1½&quot;</td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanised steel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

type
in the models 301-302-309 the cylinder is placed in the above-ground pumphead; the models 306 and 311 have a closed-type cylinder underground.

material cast iron with brass lining
plunger cast iron
cup seals Simrit rubber (1)
discharge valve type poppet (T)
suction valve type poppet (T)
weight
min. well casing diam.
Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q l/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Countries where used:
West Africa (model taken out of production)
Pump Head
- rod linkage
- pins, bearings, fasteners
- materials

Connecting Assembly
- pumprod material weight size length
- drop pipe

Cylinder
- type
- material
- plunger
- cup seals
- discharge valve type
- suction valve type
- weight
- min. well casing diam.
Description:

The Volanta pump uses a flywheel with a connecting rod and crank to provide reciprocating drive of the piston in the cylinder. The crank is adjustable for various depth settings. The axis rotates on two self-adjusting pre-lubricated roller bearings mounted on a concrete pedestal.

The pump rod is guided by a water-lubricated PTFE guide bush.

The cylinder is of the extractable type, and can be serviced without extracting and dismantling the drop pipe.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm)</td>
<td>(mm)</td>
<td>(mm)</td>
<td>(l/min.)</td>
<td>(m)</td>
</tr>
<tr>
<td>I</td>
<td>55</td>
<td>400</td>
<td>0.750</td>
<td>30</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.425</td>
<td>17</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.275</td>
<td>11</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.210</td>
<td>8.5</td>
<td>80</td>
</tr>
</tbody>
</table>

* at 40 rpm

Countries where used:

Guinnee Bissau, Upper Volta
Pump Head

- rod linkage
  
  Hand-operated; rotary handwheel operation; variable stroke length (adjustable crank)

- pins, bearings, fasteners
  
  two self-adjusting pre-lubricated roller bearings
  two plain bearings

- materials
  
  cast iron flywheel; steel fittings

Connecting Assembly

<table>
<thead>
<tr>
<th></th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>steel cable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanised steel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type open

- material

- plunger

- cup seals

- discharge valve type

- suction valve type

- weight

- min. well casing diam.
Description:

The Kangaroo pump has a steel tube which is mounted vertically on a baseplate with a stainless steel spring placed down in its centre. The spring rests on a stop near the baseplate and protrudes some distance above the tube. A second tube, slightly wider than the first, fits over it. To the top of the second tube a cap is welded with the pump rod attached at its centre. The pumprod is thus at a central position inside both tubes. The spring also rests against the inside of the cap. To the lower end of the outer tube, a circular platform is welded; this is held down, with the spring slightly under compression by a stop. A spout is attached to the inner tube at the baseplate level.

The cylinder is of the double-sided hydraulic seal type with ball valves. The pump is operated by pushing down the foot platform to compress the spring at the same time pushing down the plunger in the cylinder. Releasing the platform allows the spring to push it back. The plunger is lifted and water is pumped.

The pump is bolted with four bolts to the platform.

Specifications (output ratings)
For affiliate: see next page

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm) (in)</th>
<th>Stroke Length (mm) (in)</th>
<th>L/stroke</th>
<th>Output Q (l/min.)</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td>33</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Tanzania: 900 pcs
Guinee Bissau: 60 pcs
Pump Head

- rod linkage
  Foot-operated; vertical spring loaded; reciprocating operation; variable stroke length.

- pins, bearings, fasteners
  no bearings; sliding action between two concentric steel tubes; no special lubrication.

- materials
  Fabricated from steel plate and sections; Painted.
  Weight: 35 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC (pipe)</td>
<td>0.47 kg/m</td>
<td>1&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>PVC</td>
<td>0.99 kg/m</td>
<td>2&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type       closed
- material   PVC pipe
- plunger
- cup seals  rubber
- discharge valve type ball
- suction valve type ball
- weight
- min. well casing diam. 4" (100 mm)
Description:
The Petro pump uses a novel pumping principle: a diaphragmatic hose acts as the pumping element. The pump has a \( \frac{1}{2} \) galvanized steel pipe which serves both to operate the pumping element and to deliver the water.

For fixing the pump requires a solid formation at the bottom of the well where the jaws underneath the hose can find a strong grip. Alternatively, the jaws can also have a sufficient grip in a 4" well casing. The drop pipe extends from the top of the hose.

By operating the handle, the delivery pipe is lifted thereby stretching the hose and reducing its internal volume; water is forced up the pipe. The water flow is controlled by valves at the top and foot of the hose.

The pump stand is of a simple design using only one handle pivot; the handle-drop pipe linkage is formed by a steel cable laid over the quadrant handle end.

### Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 95</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:

- Africa: Sudan, Nigeria, Ivory Coast, Liberia
- Asia: Papua New Guinea, Indonesia, Thailand, Bangladesh, India
- Europe: England, Norway and Sweden
- Latin America: Columbia, Costa Rica

at 40 str/min.
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; one-pivot system; variable stroke length. The handle is linked to the drop pipe with a steel cable resting over the quadrant handle end; counterweight balances the droppipe weight.

- pins, bearings, fasteners
  Pump stand supports hollow journal bearing and self-lubricating teflon bushing 16 x 90 mm bearing; locked with bolt and nut

- materials
  Sheet and tubular steel, zinc plated; stainless steel lifting cable. Plastic guide blocks for drop pipe.

  weight: (Type 95): 28 kg
  (Type 48): 29 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>not applicable</td>
<td>n-a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanised steel</td>
<td>16 kg/m</td>
<td>1&quot;</td>
</tr>
</tbody>
</table>

Cylinder (pumping element)

- type rubber hose diaphragm with helical wire insert

- material natural rubber

- plunger n-a

- cup seals n-a

- discharge valve type poppet (winged)

- suction valve type poppet (winged)

  weight
  Type 95: 6 kg
  Type 48: 3 kg

  min. well casing diam.
  Type 95: 95 mm
  Type 48: 48 mm
Description:

The Climax handpump uses a pumping cylinder made of extruded brass. The two-leather plunger of 2⅛" size is operated by a 5/8" diameter zinc-plated steel pumprod.

Drop pipe size is 2⅛" when used with an extractable type cylinder. Both the suction valve (a spear valve) and the plunger valve can be removed from the well while leaving the cylinder in place.

The pumpstand is mainly of cast iron. It supports a counterbalanced flywheel, which drives the pumprod via a connecting rod and crank.

All mechanical components are splash-lubricated from an oilbath. A moving pumprod seal in a separate cylinder under the crank provides for double-acting pumping.

The pumpstand is bolted to the well apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm) (in)</th>
<th>Stroke Length (mm) (in)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig. 9D</td>
<td>various sizes from 1 3/8&quot; to 4&quot;</td>
<td>5&quot;</td>
<td>0.32</td>
<td>various outputs for different sizes of cylinder</td>
<td>180</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Africa: Malawi, Gambia and Ghana
**Pump Head**

- **rod linkage**
  Hand-operated; rotary, with heavy counterbalanced flywheel;
  fixed stroke length

- **pins, bearings, fasteners**
  ball races on crankshaft/flywheel (83.1 mm OD x 38.1 ID); double steel backed shells; lubrication from internal oil reservoir.

- **materials**
  cast iron with forced steel crankshaft and steel fittings;
  completely painted; cast iron flywheel

- **weight**: 184.3 kg

**Connecting Assembly**

- **pumprod material**
  zinc plated steel 1.64 kg/m 5/8"

- **drop pipe material**
  galvanised steel 8.0 kg/m 2¼"

**Cylinder**

- **type**
  extractable (open). Other types available

- **material**
  brass

- **plunger**
  brass

- **cup seals**
  two leathers

- **discharge valve type**
  poppet (T)

- **suction valve type**
  spear (also poppet T footvalve)

- **weight**
  7.0 kg

- **min. well casing diam.**
  4" (100 mm)
Description:

The Consallen pump stand is made from mild steel plate; sections are welded together. Some parts of the handle are flame cut with a profile cutter.

The pump body is hot dipped galvanised after fabrication.

A simple two-pivot handle is used, with no separate provision for pump rod alignment. Heavy duty sealed ball races are used in each pivot point.

3/8" dia. stainless steel pump rod with brass connectors and plastic guides are used; 1" ABS plastic pipe is used for drop pipe, or G.I. may also be used.

Cylinders are of stainless steel, with machined ABS end caps which are a press fit in the cylinder and retained by circlips. A single polymeric seal is used with a wear ring and a brass disc valve. The suction valve consists of a rubber diaphragm inside a perforated stainless steel strainer.

The pump stand may be bolted to the well apron, but a cast-in version is also offered as are alternative water outlets in the form of bent spouts and screwed nipples to take an extension pipe.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm)</td>
<td>(mm)</td>
<td>(m)</td>
<td>(l/m)</td>
<td>(m)</td>
</tr>
<tr>
<td></td>
<td>(in)</td>
<td>(in)</td>
<td>(ft)</td>
<td>(l/min)</td>
<td>(ft)</td>
</tr>
<tr>
<td>LD. 4</td>
<td>50**</td>
<td>150</td>
<td>.30</td>
<td>13 3/4</td>
<td>60</td>
</tr>
<tr>
<td>LD. 5</td>
<td>63</td>
<td>150</td>
<td>.475</td>
<td>21</td>
<td>45</td>
</tr>
<tr>
<td>LD. 6</td>
<td>75</td>
<td>150</td>
<td>.68</td>
<td>31</td>
<td>30</td>
</tr>
</tbody>
</table>

(45 str/min)

Countries where used:
Liberia (199 pos), Ethiopia, Sri Lanka, Gambia, Indonesia, Seychelles, Somalia & Tanzania.
Agents in Ghana, Nigeria, India & Malawi.

** Standard cylinder
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation;
  two-pivot system; variable stroke length; mechanical advantage 6:1 or 8:1

- pins, bearings, fasteners
  two-pivot handle; main pivot consists of two sealed ball races each 53 mm OD x 20 mm ID; the other pivot has one sealed ball race 53 mm OD x 20 mm ID. All bolts and fastenings are of stainless steel with SS nylock nuts.

- materials
  fabricated from steel plate; completely galvanised after fabrication.
  weight: 30.5 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>component</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>stainless steel</td>
<td>0.38 kg/m</td>
<td>3/8&quot;</td>
<td>3 m</td>
</tr>
<tr>
<td>drop pipe</td>
<td>ABS plastic</td>
<td>0.69 kg/m</td>
<td>1&quot;</td>
<td>3 m</td>
</tr>
</tbody>
</table>

(G.I. Pipe may also be used if required)

Cylinder

- type closed

- material stainless steel with SS circlips & ABS plastic end plugs

- plunger brass but also thermoset plastic

- cup seals 1 No. polymer seal together with artificial resin wear ring as a set.

- discharge valve type disc of brass

- suction valve type natural rubber (or polyurethane) diaphragm acting inside a perforated stainless steel strainer.

- weight 2 - 3 kg depending on size.

- min.well casing - 2½" (65mm) Ø for 2" cyl; 3" Ø for 2½" cyl; 3½" Ø for 3" cyl. (OD of cylinders is 0.25 inches (6mm) greater than nominal cylinder bore)
Description:

The Edeco pump is made of tubular all-steel welded construction, flanged and bolted. Standard tapped 1½" BSP for fitting delivery pipe when the pump is used for lift and force duties. The spout can be replaced by a 1½" BSP plug.

The pump uses a three-pivot handle system; stuffing box and guide for pumprod alignment; adjustment can be made through side panel.

The handle is of all steel construction; it is counterbalanced. A three-position lever fulcrum gives a choice of 10:1, 6,5:1 or 4:1 ratios with corresponding selection of stroke and operating depth.

The pump cylinder is of the extractable type made from brass and gun metal; ball valves.

The pump rod is of wood with steel straps and fork ends. The pump stand has drilled holes allowing the pump to be mounted on concrete plinth or special stand.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm) (in)</th>
<th>Stroke Length (mm) (in)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3½</td>
<td>8</td>
<td>7</td>
<td>32</td>
<td>43</td>
<td>140</td>
</tr>
<tr>
<td>3¼</td>
<td>8</td>
<td></td>
<td>24</td>
<td>56</td>
<td>185</td>
</tr>
<tr>
<td>2½</td>
<td>7</td>
<td></td>
<td>17</td>
<td>79</td>
<td>260</td>
</tr>
<tr>
<td>2⅛</td>
<td>6½</td>
<td></td>
<td>11</td>
<td>119</td>
<td>390</td>
</tr>
</tbody>
</table>

Applications

25 str/min.

Countries where used:
Pump Head

- rod linkage

Hand-operated; vertical reciprocating operation; three-pivot system; stuffing box and guide for pumprod alignment; three-position lever fulcrum; mechanical advantage 10:1, 6.5:1 or 4:1; variable stroke length.

- pins, bearings, fasteners

lever and linkage pivots are equipped with lubricated and completely sealed anti-friction bearings

- materials

- tubular all-steel welded construction; painted

Connecting Assembly

<table>
<thead>
<tr>
<th>component</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>wood</td>
<td></td>
<td>1 1/2&quot; x 1 1/2&quot;</td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanized or hot bitumen coated steel</td>
<td>4&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type         closed (extractable) 3 1/2" - 3 3/4" - 2 1/2" - 2 1/4" ID

- material     gun metal with brass lining

- plunger      gun metal

- cup seals    2 leathers

- discharge valve type ball

- suction valve type ball

- weight

- min. well casing diam. 5 1/2"
Description:

The Godwin model HLS has the cylinder situated in the pumpstand. Three pump models are available with cylinders of 3", 3½" and 4", made of fabricated steel with brass lining. The pump is operated with a round shaped handle of mild steel.

The pumpstand is of fabricated steel and supports the three-pivot handle system with a stuffing box rod guide.

Two types of spout are available. For lift and force duty, the spout is cast iron fitted with a tap.

The pump stand base of cast iron is secured with 4" bolts to the well platform.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS 3</td>
<td>3</td>
<td>7</td>
<td></td>
<td>32</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>HLS 3½</td>
<td>3½</td>
<td>7</td>
<td></td>
<td>44</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>HLS 4</td>
<td>4</td>
<td>7</td>
<td></td>
<td>58</td>
<td>27</td>
<td>27</td>
</tr>
</tbody>
</table>

Applications

40 str/min.

Countries where used:
Pump Head

- rod linkage
  
  Hand-operated; vertical reciprocating operation; three-pivot handle system; fixed stroke length; stuffing box/rod guide

- pins, bearings, fasteners
  
  hardened steel pins

- materials
  
  fabricated steel pumpstand with cast iron base; gunmetal stuffing box allowing, pumps to be used for lift and force duty; when used for lift duty only, a brass guide is fitted.

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n - s</td>
<td>n - s</td>
<td>n - s</td>
<td>n - s</td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanised steel</td>
<td>n - s</td>
<td>1½ - 2</td>
<td>n - s</td>
</tr>
</tbody>
</table>

Cylinder

- type situated in pumpstand

- material brass

- plunger gunmetal

- cup seals one leather

- discharge valve type n - s

- suction valve type poppet valve

- weight n - s

- min. well casing diam. 3"
Description:

The Godwin model HLD has a cylinder which is largely gunmetal. For the extractable type of cylinder, the pump rods are of pinewood fitted with steel fork ends and strap couplings. Steel rods are used with the non-extractable cylinder.

The fabricated steel pumpstand supports a three-pivot handle system with a stuffing box/rod guide.

Two spouts are available for lift and force duty. The spout is of cast iron fitted with a tap. A delivery tap is provided when the pump is required for lift and force duty.

The pumpstand has a base of cast iron, which is bolted to the well platform.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q (l/min.)</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLD 2 (closed)</td>
<td>2</td>
<td>7</td>
<td>14</td>
<td>40 str/min.</td>
<td>n - s</td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; three-pivot handle system; fixed stroke length; stuffing box/rod guide

- pins, bearings, fasteners
  hardened steel pins

- materials
  fabricated steel pumpstand with cast iron base; gunmetal stuffing box for pumps used for lift and force duty; for lift duty only a brass guide is fitted.

Connecting Assembly

<table>
<thead>
<tr>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pinewood (extractable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>steel (non-extractable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>galvanised steel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type  
  extractable cylinder pumps are available with cylinder sizes of 2½" - 2¾" - 3½" and 3¾". Non-extractable cylinder types have cylinder sizes of 2", 2½", 3" and 3½".

- material  
  largely brass and gunmetal; brass lining

- plunger  
  gun metal

- cup seals  
  leather

- discharge valve type  
  n - s

- suction valve type  
  n - s
  ball foot valve

- weight  
  n - s

- min. well casing diam.  
  depends on cylinder size
Description:

The Godwin WIH model uses a standard pumping cylinder made of extracted brass and gunmetal; stainless steel ball valves for the suction valve, the discharge valve and the foot valve. Extractable and non-extractable cylinders in various sizes are available.

A wooden pump rod is used which is assembled with plates, bolted to both wide faces of the rectangular section rod.

The pump stand is partly fabricated steel and partly cast iron. The handle operates a light fly wheel; rotation speed is reduced in the ratio of 4:1 by gearing; conversion reciprocating action is by a connecting rod and crank. All internal components are lubricated from an oil bath.

The spout is cast iron, and has a tap for use when force pumping is required.

The pump stand base is cast iron; it is bolted to the well platform.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIH 51</td>
<td>2\frac{1}{2}</td>
<td>6</td>
<td>8</td>
<td></td>
<td>350 (2 men)</td>
<td></td>
</tr>
</tbody>
</table>

Applications 20 str/min

Countries where used:
**Pump Head**

- **rod linkage**

  Hand-operated; rotary operation with light flywheel; fixed stroke length.

- **pins, bearings, fasteners**

  ball races on handwheel shaft (69.1 mm OD x 31.8 mm ID)

  plain bearings in other pivot points. Lubrication from internal oil reservoir.

- **materials**

  base and pump are cast iron; painted; pump stand and handwheel are fabricated steel; topcover is fabricated sheet steel; other fittings are of steel.

---

**Connecting Assembly**

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>wood</td>
<td>0.79 kg/m</td>
<td>2&quot; x 1½&quot;</td>
<td>n - s</td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanised steel</td>
<td>8 kg/m</td>
<td>2½&quot;</td>
<td>n - s</td>
</tr>
</tbody>
</table>

**Cylinder**

- **type**

  extractable 2½ - 3½ - 3½ ID

  non-extractable 2½ - 3 - 3½ - 4 ID

- **material**

  brass and gun metal

- **plunger**

  gun metal

- **cup seals**

  leathers (2)

- **discharge valve type**

  ball

- **suction valve type**

  ball (also ball footvalve)

- **weight**

  11.2 kg

- **min. well casing diam.**

  4" (100 mm)
Description:

The Godwin X model has a standard pumping cylinder made in extruded brass and gunmetal. The pump uses stainless steel ball valves for the suction and discharge valves, as well as for the footvalve. Extractable and non-extractable cylinders in various sizes are available.

The pumprod is of wood joined together by plates bolted to both wide faces of the rectangular shaped rod.

The cast iron pumpstand supports a counter balanced flywheel driving the pump rod via a connecting rod and crank.

All moving components are splash-lubricated from an oil bath. A moving pump rod seal in a cylinder below the crank provides the effect of a double-acting pumping.

The spout is cast iron, of the flange type fitted with a tap.

The pump stand base of cast iron is bolted to the well platform.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm) (in)</th>
<th>Stroke Length (mm) (in)</th>
<th>L/stroke</th>
<th>Output Q l/min.</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X 1</td>
<td>2½</td>
<td>5</td>
<td></td>
<td>13</td>
<td>175</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

at 40 str/min
Pump Head

rod linkage

Hand-operated; rotary operation with counterbalanced flywheel; fixed stroke length.

pins, bearings, fasteners
two ball races mounted in the crankcase; lubrication from internal oil reservoir.

materials
Cast iron with forged steel crankshaft; other fittings are steel.

<table>
<thead>
<tr>
<th>Connecting Assembly</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>wood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanised steel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cylinder</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>extractable 2¼&quot; - 2½&quot; - 3¼&quot; - 3½&quot; ID</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>non-extractable 2¼&quot; - 3½&quot; - 4&quot; ID</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>material</td>
<td>brass and gun metal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>plunger</td>
<td>gunmetal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cup seals</td>
<td>leathers (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>discharge valve type</td>
<td>ball</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>suction valve type</td>
<td>ball (also ball footvalves)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>min. well casing diam.</td>
<td>4&quot; (100 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Description:

The Oasis handpump is mainly of cast iron. The pump has a counter balanced flywheel, driving the pumprod via a connecting rod and crank.

All mechanical components are splash-lubricated from an oil bath.

A moving pumprod seal in separate cylinders below the crank provides the effect of a double-acting pumping.

The spout is a simple bended pipe or a cast iron spout with a tap can be fitted for force pump duty.

The cylinder is of the extractable type and available in 4 sizes. The drop pipes are galvanised steel; the pump rod sections are of wood, joined together by galvanised langets and fish plates.

The foot valve is of brass, and is fitted with a strainer. The pump stand is bolted to the well apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm) (in)</th>
<th>Stroke Length (mm) (in)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1½</td>
<td>6</td>
<td>6</td>
<td>61</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>2½</td>
<td>10</td>
<td>10</td>
<td>41</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>2½</td>
<td>15</td>
<td>15</td>
<td>29</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>3½</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>65</td>
</tr>
</tbody>
</table>

Applications

30 705/min

Countries where used:
Pump Head
  
  rod linkage
  Hand-operated; rotary operation with heavy counterbalanced flywheel; fixed stroke length.

  pins, bearings, fasteners
  ball races on crankshaft
  lubrication from internal oil reservoir.

  materials
  cast iron with forged steel crankshaft; other fittings of steel; cast iron fly wheel.

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td>galvanised steel</td>
<td>2½&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

  type open (extractable type)

  material brass

  plunger brass

  cup seals leathers (2)

  discharge valve type poppet (T)

  suction valve type spear (poppet T footvalve)

  weight

  min. well casing diam. 4" (100 mm)
Specifications (output ratings)
For agents: see annex

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm) (in)</td>
<td>(mm) (in)</td>
<td></td>
<td>1/min.</td>
<td>(m) (ft)</td>
</tr>
<tr>
<td>ES 30</td>
<td></td>
<td></td>
<td></td>
<td>5 - 19</td>
<td>45</td>
</tr>
</tbody>
</table>

Applications
Countries where used:
Africa: Gambia, Ghana, Kenya, Morocco, Nigeria, Oman, Tanzania, Zambia, Southern Africa
Asia: Ethiopia, India, Pakistan, Sri Lanka
Europe: Holland
North America: Canada

Description:

The Monolift handpump is a rotary pump, operated with one or two handles. Gearing transmits the drive to the plain steel shaft, the gearing is immersed in a special grease (and needs no further attention throughout its life). The pumping element uses the helical rotary principle: "progressive cavity" pumping. A chromium-plated, double helical rotor rotates inside a triple-helical rubber stator. As the rotor turns, sealed cavities are formed which force the water up between the rotor and stator.

A suction valve is provided for keeping the pump primed when it is not being used.

The pumpstand is mainly of cast iron. It is designed for mounting on a concrete stand or pillar, at a height convenient to the users.
Pump Head

- rod linkage
  One or two-handle operation; rotary drive.

- pins, bearings, fasteners
  For handle: plain bearings (white metal) 31.7 mm dia, 32 mm length;
  triple ball races on vertical pump shaft; 72 mm OD x 34.9 mm ID;
  Lubrication from internal oil reservoir.

- materials
  cast iron; pointed steel fittings.

- weight: 53.8 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>steel</td>
<td>0.85 kg/m</td>
<td>12 mm</td>
<td>1.5 m</td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanised steel</td>
<td>4.4 kg/m</td>
<td>1½&quot; (40 mm)</td>
<td>3 m</td>
</tr>
</tbody>
</table>

Cylinder

- type  helical rotor stator

- material  steel cylinder; rubber stator; painted rotor chromium-plated

- plunger  n - a

- cup seals n - a

- discharge valve type  none

- suction valve type  Poppet (winged)

- weight  9.5 kg

- min. well casing diam.  4" (100 mm)
Mono Pumps Ltd. agents (Water Pump Division):

**Ethiopia**
Grous Electrical Engineering Company Limited
P.O. Box 142, Addis Ababa

**Ghana**
Holman Brothers (Ghana) Limited
P.O. Box 3309, Accra

**Kenya**
Warren Kenya Limited
Warren House, Loita Street, P.O. Box 30151, Nairobi.

**Morocco**
Les Equipments Industriels (Anciennement Jullien)
256 Boulevard Ba Hamad, Casablanca

**Nigeria**
Holman Brothers (Nigeria) Limited
P.O. Box 81, 26 Burma Road, Apapa

**Zambia**
A.F.E. Limited
P.O. Box 1505, Freedom Way, Lusaka

Individual sales arrangements in:
Several Manufacturers Pitcher Handpump

(see annexed sheet)

Pitcher Spout

| SW | Europe | 31 |

Description:

![Diagram of a pitcher handpump]

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm) (in)</th>
<th>Stroke Length (mm) (in)</th>
<th>L/stroke</th>
<th>Output Q l/min.</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Sigma Pumping equipment and valves manufacturing works
Václavslá nám c 60
P.O. Box 1111
11187 Praha 1
Czecho Slowakia

"Intersigma"
"Orient"

phone: Praha 242951-9
phone: 96-1321200

telex: Praha 121205 insic
telex:

grams: Intersigma Praha
grams:

Bombas Borja S.L.
Calle Villa Madrid Parcela 168
Paterna, Valencia
Spain

phone: 96-1321200
phone: 96-3654200

telex:
telex:

grams:
grams: GEYDA

Garlos Gens, S.L.
Bombas Geyda
Avenida de Burjasot 54
Valencia 9
Spain

phone: 96-3654200
phone: 96-1321200

telex:
telex:

grams: GEYDA
Description:

The Lago models 201H and 201B are suitable for shallow wells up to 7 m of depth; the pumps can be used for force pumping to raise water to levels up to 12 m above the pump.

The type H pump is entirely fabricated of cast iron. Type B is also available with a brass barrel.

The pump uses a three-pivot handle system with a brass or iron stuffing box and rod guide. The spout has a tap which is closed for force pumping.

The pumpstand is bolted to the well apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke (L/stroke)</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>201 H or 201 B</td>
<td>76.2</td>
<td>139.7</td>
<td>5½</td>
<td>20</td>
<td>7</td>
<td>23</td>
</tr>
</tbody>
</table>

Countries where used:
Argentina, Bolivia, Costa Rica, Cuba, Colombia, Guatemala, El Salvador, Honduras, Dominican Republic, Nicaragua, Curacao, Chili, Venezuela, Paraguay, Peru, Panama
**Pump Head**

- Rod linkage
  Hand-operated; vertical reciprocating operation; three-pivot system; stuffing box/rod guide; variable stroke length.
- Pins, bearings, fasteners
  Plain bearings

- Materials
  Cast iron; brass or iron stuffing box/rod guide
  Weight: 18 kg

**Connecting Assembly**

<table>
<thead>
<tr>
<th>Part</th>
<th>Material</th>
<th>Weight</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumprod</td>
<td>Galvanized steel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drop pipe</td>
<td>Galvanized steel</td>
<td>1&quot;</td>
<td>21 ft</td>
<td></td>
</tr>
</tbody>
</table>

**Cylinder**

- Type situated in pumpstand
- Material cast iron or brass
- Plunger cast iron
- Cup seals leather (1)
- Discharge valve type flapper
- Suction valve type flapper

- Min. well casing diam. 4" (100 mm)
Description:

The Lago handpump models 3 to 8 are especially suitable for shallow wells up to 7 m where no provision for force pumping is desired.

The pump is made of cast iron. It has a one-leather cast iron plunger. The handle is of the two-pivot system.

The pumpstand is bolted to the well apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>70</td>
<td>152</td>
<td></td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>76</td>
<td>178</td>
<td></td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>82</td>
<td>178</td>
<td></td>
<td>23</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>89</td>
<td>203</td>
<td></td>
<td>27</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>102</td>
<td>203</td>
<td></td>
<td>33</td>
<td>7</td>
</tr>
</tbody>
</table>

Countries where used:

Argentina, Bolivia, Costa Rica, Cuba, Colombia, Panama, Nicaragua, Honduras, El Salvador, Guatemala, Belice, Dominican Republic, Peru, Venezuela; Nigeria, Algeria; Spain
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; two-pivot system; variable stroke length.

- pins, bearings, fasteners
  plain bearings

- materials
  cast iron
  weight: 15-25 kg: Nbr 3-11 kgs; Nbr 4-14 kgs; Nbr 4-15 kgs; Nbr 5-21 kgs, and Nbr 8-25 kgs.

Connecting Assembly

- pumprod
  material: galvanized steel
  weight
  size
  length
  drop pipe
  galvanized steel
  1½
  21 foot

Cylinder

- type
  situated in pumpstand

- material
  cast iron

- plunger
  cast iron

- cup seals
  leather (1)

- discharge valve type
  flapper

- suction valve type
  flapper

- weight

- min. well casing diam.
  4" (100 mm)
Description:

The Lago pump model 203 for deep wells is made entirely of cast iron.

The pump uses a three-pivot handle system; it has a rod guide for alignment of the pump rod; the pump lever can be adjusted for different stroke lengths.

The cylinder is available in 2¼" to 3" dia with brass lining and cast iron caps. The plunger is of cast iron and brass with two seats (leathers).

The pumpstand is bolted to the well apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>203</td>
<td>57</td>
<td>305</td>
<td>12</td>
<td></td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>64</td>
<td>2¼</td>
<td>356</td>
<td>14</td>
<td></td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>70</td>
<td>2½</td>
<td>406</td>
<td>16</td>
<td></td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>76</td>
<td>3</td>
<td>457</td>
<td>18</td>
<td></td>
<td>120</td>
<td>120</td>
</tr>
</tbody>
</table>

Countries where used:

Argentina, Bolivia, Costa Rica, Cuba, Colombia, Chile, Nicaragua, El Salvador, Guatemala, Panama, Honduras, Dominican Republic, Peru, Paraguay, Curacao, Venezuela; Nigeria.
Pump Head
- rod linkage
  - Hand-operated; vertical reciprocating operation;
  - three-pivot system; rod guide for maintaining pump rod alignment;
  - variable stroke length.
- pins, bearings, fasteners
  - plain bearings

- materials
  - cast iron, brass or cast iron stuffing box
- weight: 26 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>Pumprod Material</th>
<th>Weight</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galvanised steel</td>
<td>0.8 kg/m</td>
<td>7/16&quot;</td>
<td>3 m</td>
</tr>
<tr>
<td>Drop pipe</td>
<td></td>
<td>1/&quot;</td>
<td>3 m</td>
</tr>
</tbody>
</table>

Cylinder
- type closed
- material brass barrel with iron caps
- plunger cast iron and brass
- cup seals leathers (2)
- discharge valve type flapper
- suction valve type flapper
- weight
- min. well casing diam. 4" (100 mm)
Description:

The Boliviana handpump is a locally manufactured handpump; it is suitable for depths up to 14 m.

The pump uses a two-pivot handle system.

The pumpstand is made of tube steel on which a spoutpipe is welded.

The pumpstand base is bolted to a prefabricated concrete slab, using 4 anchor bolts.

The drop pipe is 2" PVC tube, which also serves as the cylinder lining.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q (l/min)</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>2</td>
<td>100</td>
<td>4</td>
<td>8</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

Applications

40 str/min

Countries where used:

Bolivia 1000 pcs
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; two-pivot system; variable stroke length

- pins, bearings, fasteners

  Plain bearings

- materials
  tube steel

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe PVC</td>
<td></td>
<td>2&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type open

- material PVC

- plunger cast iron

- cup seals leather (1)

- discharge valve type flapper

- suction valve type flapper

- weight

- min. well casing diam. 4" (100 mm)
Description:

The Americana M 1400 handpump is fabricated of cast iron.

The pump uses a three-pivot handle system with a stuffing box/rod guide; it is suitable for both lift and force duty.

The pumpstand is bolted to the well platform.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 1400</td>
<td></td>
<td></td>
<td></td>
<td>17</td>
<td>8,5</td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Brazil
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation;
  three-pivot system; stuffing box/rod guide; variable stroke length

- pins, bearings, fasteners
  plain bearings

- materials
  cast iron

Connecting Assembly

- pumprod material weight size length
- drop pipe

Cylinder

- type closed
- material
- plunger
- cup seals
- discharge valve type
- suction valve type
- weight
- min. well casing diam.
Description:

The Americana M 1500 handpump is fabricated of cast iron.

The pump uses a three-pivot handle system with a stuffing box/rod guide; it is suitable for both lift and force duty.

This deepwell pump model has a non-extractable cylinder positioned at maximum depth of 30 m.

The pumpstand is bolted to the well-platform.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 1500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation;
  three-pivot system; stuffing box/rod guide; variable stroke length

- pins, bearings, fasteners
  plain bearings

- materials
  cast iron

Connecting Assembly

- pumprod material weight size length

- drop pipe

Cylinder

- type situated in pumpstand

- material

- plunger

- cup seals

- discharge valve type

- suction valve type

- weight

- min. well casing diam.
Description:

The Gera H. Model has a special pumpstand design. A square waterchamber is fixed on a frame and connected to the drop pipe.

The pump has a three-pivot handle system with a stuffing box/rod guide.

The pumpframe is bolted to the well apron. The pump is suitable both for lift and force duty (force pumping up to 10 m).

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q (l/min.)</th>
<th>Max. Lift (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
<td>35</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Paraguay
Pump Head

- rod linkage

  Hand-operated; vertical reciprocating operation; three-pivot system; stuffing box/rod guide; variable stroke length

- pins, bearings, fasteners

  plain bearings

- materials

  cast iron and fabricated steel

  weight: 25 kg

Connecting Assembly

- pumprod material weight size length

  drop pipe

Cylinder

- type closed

- material

- plunger

- cup seals

- discharge valve type

- suction valve type

- weight

- min. well casing diam.
Description:

The Gera G-60 is a shallow well handpump. It is mainly of cast iron.

The pump uses a three-pivot handle system with a stuffing box/pump rod guide.

The pumpstand is mounted on a separately constructed support at a height convenient to the pump users (pumpheight 70 m).

The cylinder is of the double acting type. Suitable for lift pumping to 7 m and force pumping up to 12 m.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G-60</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Paraguay
Pump Head

- Rod linkage
  Hand-operated; vertical reciprocating operation;
  three-pivot system; stuffing box/rod guide; variable stroke length

- Pins, bearings, fasteners
  Plain bearings

- Materials
  Cast iron
  Weight: 17 kg

Connecting Assembly

- Pump prod material weight size length
- Drop pipe

Cylinder

- Type situated in pumpstand; double acting type

- Material

- Plunger

- Cup seals

- Discharge valve type

- Suction valve type

- Weight

- Min. well casing diam.
The AID/Batelle handpump is the result of a considerable amount of research and development work carried out since 1966 by the Batelle Laboratories, Georgia Institute of Technology and others, for the US Agency for International Development (AID).

The AID/Batelle pump (modified design) is being introduced, with assistance from US AID, in the Dominican Republic and other countries, for installation on rural water supply wells. Both shallow-well and deep-well are manufactured locally.

The shallow-well model has the cylinder situated in the pumpstand. The pump uses a two-pivot handle arrangement.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AID/Batelle Handpump</td>
<td>68</td>
<td>152</td>
<td>56.7</td>
<td></td>
<td>37</td>
<td>120</td>
</tr>
<tr>
<td>AID Handpump (New model)</td>
<td>68</td>
<td>152</td>
<td>46</td>
<td></td>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>

Countries where used:
Dominican Republic, Haiti, Guatemala, C.A.
Pump Head
- rod linkage

- pins, bearings, fasteners
  - Pins: Length 5 1/8"; Diameter 5/8"
    3 11/16"; 5/8"
  - Bussings: Length 11/16; ID 41/64; OD 25/32"

- materials

Connecting Assembly

<table>
<thead>
<tr>
<th>Pumprod</th>
<th>Material</th>
<th>Weight</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td>galvanized steel</td>
<td>1 lbs</td>
<td>7/16&quot;</td>
<td>16&quot; 21&quot;</td>
</tr>
</tbody>
</table>

Cylinder
- type
- material galvanized steel, PVC pipe (inside), brass and cast iron, Diam. 69 mm length 73 mm.
- plunger
  - cup seals leather best quality
- discharge valve type flapper valve and check valve
- suction valve type flapper suction and check valve
- weight deep-well: 8.2 kg; shallow-well: 5.0 kg
- min. well casing diam. 6" inches but can be 4"
Description:

In the manufacturing of the GSW (Beatty) pump model, a wide range of production processes is used.

The pump stand base is made from pressed steel, it is welded to the lower part of the pump body which is of steel tube. The middle section of the pumpstand, including the spout is an iron casting. The handle is made from steel tubing.

The pumprod is supported by a yoke, sliding on two guide pillars (bronze bushings).

The pump has a three-pivot handle system, with plain pin bearings running in bronze bushings. The handle provides three different pivot positions for varying the mechanical advantage. Lubrication of the pivot points is by way of an oiled felt pad.

The 2½" ID cylinder is made of brass with cast iron and caps; the plunger has two leather washers.

Pump rod dia. 7/16", and drop pipe 1½". Pump is painted blue finish.

Pump stand is bolted to the well platform.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td>1205 (Ghana)</td>
<td>63 (mm) 2½ (in)</td>
<td>153 (mm) 6&quot; (in)</td>
<td>0.45</td>
<td>14</td>
<td>40 125</td>
</tr>
</tbody>
</table>

Countries where used:

Africa: Ghana 1200 pcs. and Zaire; Canada

22 str/min
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; three-pivot system; double guides for maintaining pump rod alignment; variable stroke length; variable mechanical advantage.

- pins, bearings, fasteners
  The two upper bearings in the main pivot point are sintered bronze, lubricated by an oiled felt pad; pins are 14.2 mm dia. secured by locking bolts, rod guide pillars are of white metal.

- materials
  cast iron parts, steel and pressed steel sections; painted; rod guides are zinc plated.
  25.3 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>galvanized zinc-plated</td>
<td>0.79 kg/m</td>
<td>7/16&quot;</td>
<td></td>
</tr>
<tr>
<td>drop pipe galvanized</td>
<td>3.5 kg/m</td>
<td>1&quot;</td>
<td></td>
</tr>
<tr>
<td>steel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type closed

- material brass with cast iron end caps

- plunger

- cup seals two leathers

- discharge valve type poppet T

- suction valve type poppet (spring)

- weight 4.3 kg

- min. well casing diam.
Description:

The GSW Deep Well Hand Pump 1205 AFB is manufactured from steel, cast iron and ductile iron.

The three point pivot handle system uses sealed ball bearings.

The spout is cast iron with the pivot linkage in ductile iron. The handle is made from steel tubing.

The base is formed steel welded to a steel tube.

The 2½" ID cylinder is made of brass with cast iron end caps; the plunger has two leather washers.

Pump rod dia. 7/16", and drop pipe 1¾". Pump is painted, blue finish.

Pump stand is bolted to the well platform.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mm)</td>
<td>(mm)</td>
<td></td>
<td>1/min.</td>
<td>(m)</td>
</tr>
<tr>
<td>1205 AFB</td>
<td>63</td>
<td>153</td>
<td>0.45</td>
<td>14</td>
<td>40</td>
</tr>
</tbody>
</table>

Countries where used:
Pump Head

- rod linkage

   Hand operated, vertical reciprocating operation: three-pivot system.

- pins, bearings, fasteners

   The bearings are sealed and lubricated ball bearing.
   Pivot pins are 14.2 mm. secured by locking nuts.

- materials

   Cast iron parts, steel and pressed steel sections, steel tubing painted; some castings are ductile iron.
   25 kg.

Connecting Assembly

<table>
<thead>
<tr>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>galvanized zinc</td>
<td>0.79 kg/m</td>
<td>7/16&quot;</td>
<td></td>
</tr>
<tr>
<td>plated steel</td>
<td>3.5 kg/m</td>
<td>1&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type closed

- material brass with cast iron end caps

- plunger

- cup seals two leathers

- discharge valve type poppet T

- suction valve type poppet (spring_ weight 4.3 kg

- min. well casing diam. 4" (100 mm)
Description:

The GSW Deep Well Hand Pump 1205X is manufactured from steel and cast iron. It features a two-point pivot handle system with sealed ball bearings.

All fasteners are concealed to prevent tampering and the spout and handle enclosure prevents contamination entering the water chamber.

The spout and handle enclosure is cast iron with a steel tubing handle.

The base is a heavy gauge steel with steel reinforcing brackets welded in four positions.

The 2½" ID cylinder is made of brass with cast iron and caps; the plunger has two leather washers.

Pump rod dia. 7/16", and drop pipe 1½". Pump is painted, blue finish.

Pump stand is bolted to the well platform.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q l/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1205X</td>
<td>63</td>
<td>2 - 1/2</td>
<td>153</td>
<td>6</td>
<td>0.45</td>
<td>14</td>
</tr>
</tbody>
</table>

Countries where used: 22 str/min.
Pump Head

- rod linkage
  Hand operated, vertical reciprocating operation; two pivot system.
  Concealed linkage inside spout and handle enclosure.

- pins, bearings, fasteners
  Bearings are ball type, sealed and lubricated. Pins and fasteners are recessed or locked type to prevent vandalism.

- materials
  Cast iron parts, steel and pressed steel sections, steel tubing, handle sockets and internal linkage is ductile iron, painted.

  25.5 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td>galvanized zinc</td>
<td>0.79 kg/m</td>
<td>7/16&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>plated steel</td>
<td>3.5 kg/m</td>
<td>1 1/4&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>galvanized steel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type closed

- material brass with cast iron end caps

- plunger

- cup seals two leathers

- discharge valve type poppet T

- suction valve type poppet (spring)

- weight 4.3 kg

- min. well casing diam. 4" (100 mm)
Description:

The Monarch P3 is mainly made of cast iron components.

The pump uses a three-pivot handle system (yoke type). Each pivot has two double-sealed ball races. The handle is separate and made of wood; it is bolted to the lever.

Two-sintered bronze bushes guide the top of the pump rod; pivot point for linkage to the handle.

The 2½" dia cylinder is made of brass; plunger has two leathers.

Pump dia rod is 7/16" and drop pipe size 1½". The pump is completely painted (orange colour).

The pumpstand base has a foundation plate with built-in anchor bolts and stainless steel mounting bolts, to fit 102 mm, 127 mm and 152 mm (4, 5 or 6 inch) well casings.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3</td>
<td>89</td>
<td>150</td>
<td>6&quot;</td>
<td>47</td>
<td>46</td>
<td>150</td>
</tr>
</tbody>
</table>

Applications

50 str/min

Countries where used:

Ghana: 1100 pcs
Pump Head

- rod linkage

Hand-operated; vertical reciprocating operation; three-pivot handle system; rod guide for maintaining pump rod alignment; variable stroke length; mechanical advantage 6:1

- pins, bearings, fasteners

The three-pivot handle system has two sealed ball races for each pivot (i.e. six in all); ball races are identical and measure 28.5 mm OD x 12.6 mm ID; pins with castle nuts; rod guide bearings are of sintered bronze.

- materials

Mostly cast (ductile) iron; wooden handle.

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>galvanised steel</td>
<td>0.79 kg/m</td>
<td>7/16&quot;</td>
<td></td>
</tr>
<tr>
<td>drop pipe galvanised steel</td>
<td>44 kg/m</td>
<td>14&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type closed

- material brass or cast iron

- plunger

- cup seals leathers (2)

- discharge valve type poppet (T)

- suction valve type poppet (T)

- weight 4.6 kg

- min. well casing diam. 4" (100 mm)
Description:

The Monitor pump model 11 HA is a shallow well hand pump. It is mainly made of cast iron.

The pump uses a two-pivot handle system, suitable for lift duty only.

The pump stand features an additional brace for fitting the pump to the well apron.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke (l/stroke)</th>
<th>Output Q (l/min)</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 HA</td>
<td>63,5</td>
<td>152,4</td>
<td>6</td>
<td>0,48</td>
<td>19</td>
<td>10</td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Several countries in Latin America
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; three pivot system; adjustable fulcrum; variable stroke length; pump rod guide/stuffing box for alignment.

- pins, bearings, fasteners
  plain bearings

- materials
  cast iron

Connecting Assembly

- pumprod material weight size length
  galvanised steel 7 1/16 18'

- drop pipe galvanised steel

Cylinder

- type closed

- material cast iron or brass

- plunger brass

- cup seals leathers (2)

- discharge valve type flapper

- suction valve type flapper

- weight

- min. well casing diam. 4" (100 mm)
Description:

The Monitor HD and HB models are mainly of cast iron.

These pumps use a three-pivot handle system with an adjustable fulcrum (three positions) rod guides are provided for pump rod alignment; an additional stuffing box and packing tube is available for using the pump for force duty. Can be used with windmill.

Various types of cylinder, cast iron, or brass, are available.

The pumpstand is bolted to a flange which is fixed on the well casing. A sealed pump flange is also available.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 HD</td>
<td>force pump</td>
<td>2½</td>
<td>4.6.8</td>
<td></td>
<td>100</td>
<td>360</td>
</tr>
<tr>
<td>12 HD</td>
<td>lift pump</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 HB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 HD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Several countries in Latin America

40 str/min
Pump Head
- rod linkage
   Hand-operated; vertical reciprocating operation; three-pivot system
   adjustable mechanical advantage; variable stroke length; pump rod guide;
   stuffing box
- pins, bearings, fasteners
   plain bearings

- materials
  cast iron/ductile iron/steel

Connecting Assembly
- pumprod material weight size length
  galvanised steel 7/16" 18'
- drop pipe galvanised steel

Cylinder
- type closed
- material cast iron or brass
- plunger brass
- cup seals leathers (2)
- discharge valve type flapper
- suction valve type flapper
- weight

min. well casing diam. 2" (50 mm). May be used on 2" dia driven well with
1 11/16" I.D. cylinder
Description:

The Columbiana No. 121 handpump is mainly of cast iron.

The pump uses a two-pivot handle system. Pumpstand and drop pipe are of the same construction.

The pumstand is fixed to the well apron with bolts and nuts.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 121</td>
<td>2½</td>
<td>6</td>
<td></td>
<td>25</td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; two-pivot system; variable stroke length

- pins, bearings, fasteners
  Plain bearings

- materials
  cast iron

Connecting Assembly

- pumprod material weight size length

- drop pipe

Cylinder

- type closed

- material iron or brass lined

- plunger

- cup seals

- discharge valve type

- suction valve type

- weight

- min. well casing diam.
Description:

The Columbiana Nr. 80 handpump is mainly of cast iron.

The pump uses a three-pivot handle system; stuffing box and pump rod alignment.

Pump stand and drop pipe are of the same construction.

The pump is installed with a flange bolted on the well apron; an additional support is provided.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q l/min.</th>
<th>Max. Lift (m) (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 80</td>
<td>2(\frac{1}{4})</td>
<td>6</td>
<td></td>
<td></td>
<td>25-75</td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Pump Head

- rod linkage
  - Hand-operated; vertical reciprocating operation; three-pivot system; variable stroke length; stuffing box; pump rod alignment
- pins, bearings, fasteners
  - plain bearings

- materials
  - cast iron; stuffing box bronze

Connecting Assembly

- pumprod material weight size length
- drop pipe

Cylinder

- type closed
- material highly polished iron or brass
- plunger
- cup seals
- discharge valve type
- suction valve type
- weight
- min. well casing diam.
Description:

The Dempster pump Model 23F (EX) uses a normal non-extractable pumping cylinder of cast iron with brass lining; two-leather plunger, galvanized pump rod.

The pumpstand is mainly of cast iron. Pump uses a three-pivot handle system; stuffing box/rod guide. Handle assembly is formed from 1" steel pipe.

An airchamber is provided, to even out the water discharge during force pumping. Two types of spouts are available.

The pumpstand is equipped with 8-1/2" bolt holes for fixing to the well platform; for wooden platform use 7/16" x 2" lag screws; for concrete platform use 7/16" x 8" bolts.

** Note: These Max. Lift values are based on comfortable pump operating force onto the pump handle.

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q l/min.</th>
<th>Max. Lift **</th>
</tr>
</thead>
<tbody>
<tr>
<td>23F (EX)</td>
<td>2-1/4&quot; (Brass lined)</td>
<td>7-1/4&quot;</td>
<td>.47</td>
<td>19</td>
<td>40</td>
</tr>
<tr>
<td>or</td>
<td>2-1/2&quot; (PVC)</td>
<td>7-1/4&quot;</td>
<td>.58</td>
<td>23</td>
<td>33</td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Pump Head

- Rod linkage
  Hand-operated; vertical reciprocating operation; three-pivot handle system; variable stroke-length; stuffing box/rod guide

- Pins, bearings, fasteners
  Plain bearings with induction hardened galvanized steel pins running in nylon bushes; two 5/8" Dia. pins and one 1/2" Dia. pin, secured by split pins; no special provision for lubrication.

- Materials
  Mainly cast iron; painted; brass stuffing box with hemp packing

  Weight: 30 kg

Connecting Assembly

<table>
<thead>
<tr>
<th>Pumprod material</th>
<th>Weight</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galvanized steel</td>
<td>0.79 kg/m</td>
<td>7/16&quot;</td>
<td>20 Ft.</td>
</tr>
<tr>
<td>Galvanized steel</td>
<td>3.5 kg/m</td>
<td>1-1/4&quot;</td>
<td>20 Ft.</td>
</tr>
</tbody>
</table>

Cylinder

- Type Model 81 Non-Extractable (Closed)

- Material Brass lining; cast iron

- Plunger Brass

- Cup seals two

- Discharge valve type Poppet (winged)

- Suction valve type Poppet (winged)

- Weight 6 kg

- Min. well casing diam. 4" (100 mm)
Description:

The Heller-Aller lift and force pump is mainly of cast iron.

The pump uses a three-pivot handle system; pump rod guide and stuffing box. The spout has a tap which is locked when the pump is used for force duty.

The cylinder is of brass and available in different sizes.

The pump stand base with flange is mounted on concrete apron built around well casing, or pump is mounted on a platform cover of dug well.

Specifications (output ratings)

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D.</th>
<th>Stroke Length</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nr. 50 ASB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Several countries in Latin America, Africa, India/Burma
Pump Head

- rod linkage
  Hand-operated; vertical reciprocating operation; three-pivot system;
  pump rod guide/stuffing box; variable stroke length.

- pins, bearings, fasteners
  plain bearings

- materials
  cast iron

Connecting Assembly

<table>
<thead>
<tr>
<th>component</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pumprod</td>
<td>galvanised steel</td>
<td></td>
<td>3/8&quot;</td>
<td></td>
</tr>
<tr>
<td>drop pipe</td>
<td>galvanised steel</td>
<td></td>
<td>1½&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type       closed
- material   brass
- plunger    brass
- cup seals  leather (2)
- discharge valve type poppet
- suction valve type poppet

- weight

- min. well casing diam. 4" (100 mm)
Description:

The Clayton Mark pump is an assembly-type of pump.

The pump has a pumpstand, connecting assembly and cylinder; suitable for a 1½" or 2" shallow well for pumping from depths up to 15 m.

This pump is of cast iron; it can be used for both lift and force duty.

The pump uses a three-pivot system; stuffing box; pumprod alignment.

Cylinder is 1½" dia, epoxy lined, galvanised steel.

The pump is specially designed for use in driven wells; first the drop pipe is driven then the cylinder is positioned in the well and sealed in the well pipe; the pumpstand is fitted over the well pipe and bolted to the platform.

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>

Applications

Countries where used:
Pump Head

- rod linkage

Hand-operated; vertical reciprocating operation; three-pivot system; stuffing box/pumprod guide; variable stroke length.

- pins, bearings, fasteners
  plain bearings

- materials
  cast iron

Connecting Assembly

<table>
<thead>
<tr>
<th>pumprod</th>
<th>material</th>
<th>weight</th>
<th>size</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>drop pipe</td>
<td>galvanised iron</td>
<td>3/8&quot;</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>drive pipe</td>
<td>galvanised iron</td>
<td>1½&quot;</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Cylinder

- type open

- material galvanised steel, epoxy lined

- plunger cast iron

- cup seals leathers (2)

- discharge valve type poppet

- suction valve type poppet

- weight

- min. well casing diam. driven well
Description:

The Robbins and Myers Models 1V12 and 2V12 are rotary handpumps, driven by one or two handles.

The rotary drive is transmitted to the mild steel pump rod by means of cast bevel gearing; gears are immersed in an oil bath.

The pumping element is of the helical rotor type, i.e. it is a progressive cavity pump. The single helical rotor rotates inside a double helical stator.

Suction valve is provided for maintaining the prime of the pump when it is not being used.

The pumpstand has an inside diameter of 14 cm allowing it to be placed directly over the well casing. Pumpstand is fabricated from steel plate and pipe and coated.

Pumpstand is mounted on a separate concrete base. Anchor bolts are placed in the well platform. For covering of dug wells pre-cast well apron are most suitable in combination with this pump.

Specifications (output ratings)
For other supplier: see next page

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1V12</td>
<td></td>
<td></td>
<td>8</td>
<td>45</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>2V12</td>
<td></td>
<td></td>
<td>8</td>
<td>90</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

Applications

Countries where used:

Ghana 500 pcs (Evaluation projects too)
Upper Volta 150 pcs

50 rpm
Pump Head

- rod linkage
  One (1V12) or two (2V12) handle drive of rotary crank.

- pins, bearings, fasteners
  plain bearings for handle; tapered roller bearings in the vertical pump shaft; lubrication from internal oil reservoir.

- materials
  cast iron; gears are cast steel fittings

- weight: 45.5 kg

Connecting Assembly

- pumprod material weight size length
  steel 0.85 kg/m 1" 3 m
  drop pipe galvanised steel 4.4 kg/m 1½" 3 m

Cylinder

- type helical rotor/stator

- material steel cylinder with rubber stator; painted chromium-plated rotor

- plunger n-a

- cup seals n-a

- discharge valve type none

- suction valve type poppet (spring loaded)

- weight 16.5 or 19.4 kg

- min. well casing diam. 8 cm
Various manufacturers

See next page

<table>
<thead>
<tr>
<th>Model</th>
<th>Cylinder I.D. (mm)</th>
<th>Stroke Length (mm)</th>
<th>L/stroke</th>
<th>Output Q 1/min.</th>
<th>Max. Lift (m)</th>
<th>Max. Lift (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>3&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

Description:

The Pitcher Spout handpump is a shallow well or cistern pump with open spout.

The pump uses a two-pivot handle system.

The pump is bolted on a separate stand to a height convenient for the users.

Applications

Countries where used:

U.S.A.
Manufactureres of Pitcher Spout Handpumps

Columbiana Pump Co.
131 E. Railroad St.
Columbiana, Ohio, 4408
U.S.A.
phone: (216)-482-3381
telex:
grams:

Mart Controls International
1900 Dempster St, Evanston
Illinois 60204
U.S.A.
phone: (312)-864-9100
telex: 72-4353
grams:

Sanders Company Inc.
410 North Poindexter Street
P.O. Box 324
Elizabeth City, N.C. 27909
U.S.A.
phone: (919)-338-3995
telex:
grams: