Afridev Handpump Specification

Revision 5-2007
AFRIDEV Deep-well Handpump Specification

REVISION 5 - 2007

This HTN Specification contains a full product definition for the AFRIDEV Deepwell Handpump including:
- manufacturing processes and inspection,
- requirements for compliance with international standards,
- assembly and part drawings,
- parts list,

The Specification results from work carried out by the UNDP-World Bank Water and Sanitation Program in partnership with handpump field workers and development organisations in many countries. The experience gained in recent years in UNICEF, and many other country programmes, has been incorporated into Revision 5 - 2007.

Since the issue of the first AFRIDEV Specification in 1989, the AFRIDEV has become the deepwell VLOM handpump of choice in an increasing number of countries in Africa and Asia.

This Specification is intended to assist all users of the AFRIDEV pump, but is primarily aimed at purchasers, manufacturers and inspectors of the AFRIDEV. Suggestions for improvements and requests for further information are welcome, and should be sent to SKAT at the address given below.


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Revised edition: 5 - 2007 by the Technical Committee for Afridev Handpumps,

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AFRIDEV Deep-well Handpump Specification

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AFRIDEV Deep-well Handpump Specification

1.0 Scope

The AFRIDEV Deep-well Handpump is designed to lift water from depths of 10 m to 45 m. The AFRIDEV is suitable for boreholes with casing sizes of nominal 100 mm, 115 mm, 127 mm or 150 mm internal diameter (4", 4.5", 5" and 6").

Note: If the pump is to be used in dug wells, suitable provision must be made for locating the rising main. If a modification of the suction pipe is required, please see Appendix 3.

Options are available for the Pump head types (spout length), different Pump stand types and different arrangements for Rising main pipes, Cylinders and Pumprods. Please see pictures below:

Pump head types
(approx. scale = 1:10)

Option: A

Short spout (300 mm)

Option: B

Long spout (580 mm)

Cylinder arrangements
(approx. scale = 1:5)

Options:

A

Brass Receiver

Plastic Receiver

B

Pump stand types
(approx. scale = 1:10)

Options:

A

Both stand types can be used for casing pipes up to 6"

B
Plunger / Footvalve arrangements
(approx. scale = 1:5)

A. Options:
- Brass Plunger
- Plastic Footvalve
- Fishing connector
- Plastic Footvalve
- Eye assembly

B. Options:
- Brass Plunger

C.
- Brass Footvalve

Rising main arrangements
(approx. scale = 1:10)

A. Options:

IMPORTANT
State applicable Centraliser size for Casing used
- 4"
- 4.5"
- 5"
- 6"

PVC-U Riser pipes (with bell-ends) are available in 2.9 m lengths

B. Options:

IMPORTANT
State applicable Centraliser size for Casing used
- 4"
- 4.5"
- 5"
- 6"

PVC-U Riser pipes (pipes / sockets) are available in 3 m lengths
2.0 Nomenclature

A brief description of the major pump components as there are:
Pump assembly, Pump head assembly, Handle assembly, Pump stand assemblies, Cylinder arrangements, Pumprod arrangements and Installation tools are given below.

2.1 The Numbering System:
The numbering system of the technical drawings conforms to
the RWSN International Handpump Specification, which includes
all “Public Domain Handpumps”.
2.1.1 Every component has its own unique 4-digit number
2.1.2 Standard parts are found between 1001 to 2000
2.1.3 Components and assembling drawings 2001 to 9000
2.1.4 Any other drawings, diagrams, plans, layouts etc. 9001 to 10'000

2.2 The Capital Letter:
A capital letter is in front of every 4-digit number
2.2.1 Assembly drawings and subassemblies which are detachable, are marked with the letter “A”
2.2.2 Subassembly drawings, like welding assemblies, which are non-detachable, are marked with the letter “B”
2.2.3 All detail drawings are marked with the letter “C”
2.2.4 Sketches layouts or drafts will be marked with the letter “D”
2.2.5 The letter “M” situated in top of the drawing head is indicating that the same component is also used for other handpump types (M = Multi-use component).
3.0 Drawing Summary

3.1 Pump Assembly for the Afridev Handpump:

3.1.1 AFRIDEV pump assemblies ........................................ see Fig. D9021 / D9055

3.2 Pump Head:

3.2.1 Pump head arrangement .............................................. see Fig. A2002
3.2.2 Pump head assembly (A & B for short and long spout) .... see Fig. B2003
3.2.3 Detail drawings of Pump head parts see Fig. C2004 / C2005 / C2009 / C1016
                                          ........................................ see Fig. C2011 / C1017 / C1018 / C1025
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                                          ........................................ see Fig. C2041
3.3.14 Further detail drawings .......................................... see Fig. C2044 / C2045

3.4 Pump Stand:

3.4.1 Standard Pump stand assembly Type A (with 3 legs) .......... see Fig. B2050
3.4.2 Detail drawings of Pump stand parts see Fig. C2051 / C2052 / C2053 / C2054
3.4.3 **Option Pump stand assembly Type B** (Bottom plate) ........ see Fig. B2221
3.4.4 Detail drawings of Stand parts .......... see Fig. C2052 / C2053 / C2056 / C2058 C2059 / C2068
3.4.5 Anchor assembly ................................................ see Fig. B2083
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3.5 **Steel cone:**
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3.5.2 Detail drawings of Steel cone parts ............... see Fig. C2093 / C2094 / C2095

3.6 **Cylinder:**
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3.6.2 **Standard Cylinder assembly Type A** ..................... see Fig. B2071
3.6.3 Detail drawings of Cylinder parts ...... see Fig. C2072 / C2073 / C2074 / C2080 C2081 / C2082 / C1020 / C1087
3.6.4 Standard Plunger assembly ........................................... see Fig. A2266
3.6.5 Detail drawings of Plunger parts ................. see Fig. C2088 / C2757 / C2758
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3.7.2 Detail drawings of Riser pipe parts see Fig. C2042 / C2043 / C2046 / C2076 (or C2077 or C2078 or C2079) / C1087
3.7.3 **Option Rising main assembly Type B** ...................... see Fig. A2119
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3.9 **Installation Tools:**

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3.9.2 Detail drawings of Spanner parts ...................... see Fig. C2161 / C2162
3.9.3 Resting tool assembly ............................................... see Fig. B2415
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3.9.11 Spanners  ........................................  see Fig. C1005 / C1081 / C1092 / C1112
        / C1137 / C1152 / C1153

4.0  General Requirements

4.1  The material, tolerances, etc, shall be as given in the respective detail drawings and
     parts list.

4.2  The bolts and nuts used for the AFRIDEV pump shall conform to relevant parts of ISO
     4014/4017 for bolts and ISO 4032 for nuts.

4.3  The washers shall conform to designation of ISO 7089.

4.4  The rising main pipe shall be Serie 6.3, PN 16 conforming with ISO 4422-1, “Pipes
     and fittings of PVC-U for water supply”. Dimensions and Tolerances conforming to
     ISO 11922-1, “Thermoplastic pipes for the conveyance of fluids – Metric series”.

4.5  The steel plates, sheets, angle iron, square and round bars for the construction of the
     AFRIDEV pump components shall conform to designation of ISO 630, “Structural
     steels”.

Grade E185  Chemical properties of test pieces:
            C=0.22%max; P=0.050%max; S=0.050%max,
            Tensile strength:  300-540 N/mm²

Grade E235  Chemical properties of test pieces:
            C=0.22%max; P=0.055%max; S=0.055%max; Mn=1.5%max,
            Tensile strength:  340-470 N/mm²

Grade E355  Chemical properties of test pieces:
            C=0.20%max; P=0.040%max; S=0.040%max, Mn=1.6%max,
            Tensile strength:  490-640 N/mm²

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<tr>
<th></th>
<th>International</th>
<th>Europe 10025 (93)</th>
<th>Germany DIN 17100</th>
<th>U.K. BS 4360</th>
<th>Japan JIS 3101</th>
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<tr>
<td>E 185 (Fe 310)</td>
<td>S 185</td>
<td>Fe 310-0</td>
<td>St 33</td>
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<td>SS330</td>
<td>A283</td>
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<tr>
<td>E 235 (Fe 360 B)</td>
<td>S 235 JR</td>
<td>Fe E 360-B</td>
<td>RSt 37-2</td>
<td>40B</td>
<td>SS400</td>
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<td>E 355 (Fe 510 C)</td>
<td>S 355 JO</td>
<td>Fe 510-C</td>
<td>St 52-3 U</td>
<td>50C</td>
<td>SS490B</td>
<td>A633 gr</td>
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4.6  The Steel Pipes for the construction of AFRIDEV pump parts shall conform to
     designation of ISO 559, “Steel tubes for water and sewage” and 9330-1, “Welded
     steel tubes for pressure purposes, - technical delivery conditions”.

9
Grade ST 320  Chemical properties of test pieces:
(TW 320)  C=0.16%max;  P=0.04%max;  S=0.04%max;  Mn=0.7%max,
Tensile strength:  320-460 N/mm²
Dimensions shall conform to ISO 4200. "Plain end Steel Tubes, welded and seamless".

4.7  The Square Tube shall conform to ISO 4019, “Cold-finished steel structural hollow sections”.

4.8  The Plastic components shall be made of the following materials:
  a)  POM moulding and extrusion materials, conforming to ISO 9988-1
  b)  PA moulding and extrusion materials, conforming to ISO 1874-1
  c)  PVC-U moulding and extrusion materials, conforming to ISO 1163-1

4.9  Rubber components like Bobbin, Pumprod centraliser, Cup seal and O-Rings shall be
made of (Acrylo-) Nitrile-Butadien Rubber (NBR) conforming to BS 2751. General
Tolerance for Shore hardness should not exceed +/- 5°.)
The quality acceptance criteria for O-Rings is found in ISO 3601-1 and 3601-3.
Dimensions conforming to ISO 3302-1, “Rubber – Tolerances for products”.

4.10 Rubber components of minor importance, like Gasket C2059, Centralisers from 4” to
6” (C2076 /79) and Compression cone C2095, can be made of Nitrile or natural
Rubber, conforming to the specifications given in the drawings. (General Tolerance
for Shore hardness should not exceed +/- 5°.)

4.11 The Brass cylinder liner shall be made of seamless tubing of CuZn37 conforming to
ISO 426-1. For increased resistance to the de-zincification in corrosive waters (with
high chloride content for example), CuZn20Al2 or CuZn28Sn1 may be specified.

4.12 Brass components like Footvalve body C2759/61, Plunger body C2757, Footvalve
receiver C2299, Connector C5891/97, Collet C5893 and Fishing connector C2220
shall be made of CuZn38Pb4 conforming to ISO 426-2.

4.13 The Stainless Steel components shall be made of X5CrNi 18-9 as specified.
Chemical properties of X5CrNi 18-9 in accordance to ISO 15510:
C=0.07%max; Si=1.0%max; Mn=2.0%max; P=0.04%max; S=0.015%max;
N=0.11%max; Cr=17.0-19.5%; Ni=8.0-10.5%.
Tensile strength:  500 to 700 N/mm²
In situations where corrosion conditions are particularly severe, pump components
might be made of X5CrNiMo 17-12-2.
Chemical properties of X5CrNiMo 17-12-2 in accordance to ISO 15510:
C=0.07%max; Si=1.0%max; Mn=2.0%max; P=0.04%max; S=0.015%max;
N=0.11%max; Cr=16.0-18.0%; Mo=2.0-3.0%; Ni=10.0-13.0%.
Tensile strength:  510 to 710 N/mm²
Dimensions conforming to ISO 1127

4.14 The Welding of all steel parts shall be done in accordance with ISO 9692-1,
"Procedure for manual metal-arc welding and joint preparations”.

4.15 The Cementing compound for jointing of PVC-U pipes shall be made on the basis of
Tetra-Hydrofuran (Thf), conforming to ISO 7387-1. It must also conform to toxicity
requirements for drinking water.
The cleaning agent for preparation of the joints shall be made on the basis of
Methylene Chloride.
5.0 Anti-Corrosion Treatment

The AFRIDEV Handpump shall be given the anti-corrosion treatment as specified below:

5.1 Hot Dip Galvanizing:

The following pump assemblies shall be galvanized according to ISO 1461, "Protection against corrosion: hot dip galvanized coatings on fabricated ferrous products: requirements and tests":

The coating thickness should be between 70 to 80 μm in average.

- Pump head assembly .................. see Fig. B2003
- Handle front assembly .................. see Fig. B2013
- Handle rear assembly .................. see Fig. B2020
- Rodhanger assembly .................. see Fig. B2028
- Cover assembly .................. see Fig. B2036
- Stand assembly .................. see Fig. B2050
- Stand assembly .................. see Fig. B2221
- Steel cone assembly .................. see Fig. B2092
- Top rod assembly .................. see Fig. B2207
- Pumprod assembly .................. see Fig. B2214
- Fishing tools .................. see Fig. B2097 and B2150

Hot dip galvanized pumprods can be used in waters with a pH value greater than 6.5.

(Note: there are other important parameters that can also influence corrosion. In all other cases, Stainless Steel or FRP Rods (Fibre Reinforced Plastic Rods) should be used.

5.2 Electroplating and Passivating:

The Fulcrum pin C2025, Hexagonal Nut C2027, Hanger pin C2034, Spanner B2160, Resting tool B2415, Connecting tool B2420, all bolts, nuts and washers shall be electroplated and passivated to ISO 2081/82, "Electroplated coatings: coatings of zinc and cadmium coatings on iron and steel".

The coating thickness should be between 15 to 18 μm in average.

5.3 Chromate Conversion Coating:

The electroplated parts shall be given a chromate conversion coating, Type C to ISO 4520, "Protection against corrosion: chromating on electroplated zinc and cadmium coatings".
6.0 Testing

6.1 Sampling:
Unless otherwise specified in the contract or order, the procedure given in ISO 2859-1, “Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection”, shall be followed for sampling inspection. For the characteristics given under 6.3, the single sampling plan with “General Inspection level I” in Table I, and “Acceptable Quality Level” of one percent in Table II A, of ISO 2859-1, shall be used.

6.2 Visual and Dimensional Tests:
The following characteristics have to be checked:

6.2.1 One hundred percent interchangeability of sub-assemblies and components is an essential requirement.

6.2.2 All pumps shall be examined for welding, workmanship, finish, visual defects and surface coating.

6.2.3 All dimensions of the assemblies and sub-assemblies shall be checked for conformity with the drawings.

6.2.4 The following dimensions shall be specially checked:
   a) Stroke length (225 +/−6);
   b) Internal diameter and surface finish of Fulcrum housing and Hanger bush (Ø47 +0.1/0);
   c) Length of Hanger bush (58 +0.2/0) and Fulcrum housing (109.5 +0.2/0);
   d) Outside diameter of Hanger pin and Fulcrum pin (Ø38 0/-0.2);
   e) Length of Hanger pin (69 0/-0.5) and Fulcrum pin (120 0/-0.5);
   f) Distance between the plates of the Fulcrum bracket (120.2 +0.5/0);
   g) Distance between the Handle forks of the Handle front (69.2 +0.5/0);
   h) The outside diameter of PVC-U Riser pipes and Suction pipe.
   i) The inside diameter of PVC-U Sockets and Top sleeve.
   j) The inside diameter of PVC-U riser pipe bell ends.
   k) All Rising main pipes, Sockets, Top sleeve, Suction pipe, Cylinder pipe and the Liner shall be checked for the 15° chamfer according to the drawings (inside and outside diameter), especially its correct size and the rounded edges.

Inside chamfers on Rising main pipes. Cylinder pipe and Sleeve are important to give good guiding to the plunger during installation and dismantling.

Outside chamfers on Rising main pipes, Sockets and Bell ends are important to avoid that the Solvent cement applied is not stripped off during jointing.

6.2.5 Inside diameter of the Liner to be checked after shrink-fitting with the Cylinder pipe (Ø50 +0.3/0)

6.2.6 Stainless steel sleeves shall not protrude beyond the end faces of Fulcrum housing, Hanger bush, Fulcrum pin and Hanger pin.

6.2.7 The Bearing assembly shall have an easy sliding fit with the Fulcrum housing and with the Hanger bush. The pins shall have an easy sliding fit when bushes are in position. Locating lugs shall engage fully without excessive clearance.
6.2.8 The Rodhanger should fit in easily between the forks of the Handle front assembly and the Retainer bush shall be in line with the two slots provided at the top of the Pump head body.

6.2.9 Connection threads of threaded Pumprods shall be tested for their fitment, especially after the hot dip galvanizing process.

6.2.10 The following checks shall be carried out on the Cylinder assemblies in addition to dimensional checks:
   a) Outside diameter of the unlined cylinder length;
   b) Leakage test of 1.0 bar and 10.0 bar hydraulic pressure;
   c) Correct engagement of Footvalve with Fishing tool;
   d) Tensile test on one spin-welded Valve body assembly;

6.3 Routine Test:
   Unless otherwise specified in the contract or order, a minimum of two complete pumps from the selected samples shall be subjected to the following tests, in addition to the tests in 6.2 above:

6.3.1 The pumps and cylinders selected shall be dismantled and the components checked in detail for dimensional conformity to the drawings, general requirements and additional requirements.
   However the “Dimension Conformity” should be checked for critical dimensions only, which effect the performance of the pump. Any slight variation in dimensions, which are not critical should not be treated as non-acceptance.

6.3.2 Discharge Test:
   The Cylinder assembly shall be placed in a barrel of 200 litres water capacity. The cylinder shall be primed and testing shall start after a continuous flow of water through the spout has been obtained.
   The water shall then be collected in a container for 40 continuous full strokes of the plunger. This test shall be completed in one minute and the discharge thus measured shall not be less than 16.5 litres.

6.4 Criteria for Conformity:
   The lot shall be considered conforming to the requirements of this specification, if the pumps selected according to 6.1 and 6.3 satisfy the following requirements:
   a) The number of pumps not meeting the requirements of a characteristic inspected under 6.2 does not exceed the corresponding acceptance number, and
   b) The pumps inspected according to 6.3 meet the requirements given in 6.3.1 and 6.3.2.

6.5 National Standards:
   Wherever equivalent National Standards are available the materials and processes shall conform to such National Standards.

6.5.1 Further information on the ISO Standards or any other Standards used in these RWSN Specifications are available from SKAT - RWSN.
7.0 Guarantee:
Unless otherwise specified in the contract or order, the AFRIDEV Handpump and its
accessories shall be guaranteed for 12 months from the date of installation, or 18
months from the date of supply, whichever is earlier, against faulty workmanship
and/or materials.

8.0 Marking:
The nameplate shall be permanently attached to the Pump head. If pop-riveting is
used, the height of the nameplate shall be as such that the lowest rivet is above the
overflow cover.
The nameplate shall give the following information:
a) Manufacturer’s name and address;
b) Serial number;
c) Year and month of manufacture.
All flanges on Pump stand and Pump head shall be marked permanently with the
manufacturer’s name, identification mark and year of production.
The Cylinder assembly shall have the manufacturer’s name, identification mark and
year of production marked in permanent ink.

9.0 Supporting Documents:
a) “AFRIDEV Injection Moulding Manual”, Revision 1-1999,
b) “Moulding Guidelines for Rubber Components”, Revision 1-1999,
c) “Moulds for AFRIDEV Rubber Components” (Mould drawings), Edition 2003,
d) “Guidelines for Quality Control and Quality Assurance of the AFRIDEV
Handpump”, Revision 2-2008,
e) AFRIDEV Installation and Maintenance Manual”, Revision 1-2003,
   A French version is available (Edition 1995),
f) Maintenance Card for the AFRIDEV Handpump Edition 1995,
g) “Packaging Guidelines for AFRIDEV”, Edition 1992,
These documents are still valid, although the new numbering system and some
technical changes have taken place.
Afridev Handpump Specification, Revision 5-2007

Engineering Drawings (including Options)
NOTE: RHS 150x150 CAN BE FABRICATED FROM 4mm SHEET.

THE WELDS SHALL BE PLACED SUCH THAT THEY DO NOT
IMPEDE THE FUNCTION OF THE PUMPHANDLE.
THE WELDS TO BE CONTINUOUS ON INSIDE AND OUTSIDE.
OUTSIDE WELD TO BE GROUND SMOOTH FOR PROPER
FITMENT OF COVER ASSEMBLY (B2036)

GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED
ALL SHARP CORNERS TO BE ROUNDED OFF

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>150/150 x 4 x 460</td>
<td>E 235</td>
<td>ISO 630 bright</td>
<td>Scale: 1:2.5</td>
</tr>
</tbody>
</table>

Drawn by: T.Leder 15.03.97
Checked by: 02.03.07
Released by: 07.03.07

International Handpump Specification
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange</td>
<td>6 x 230 x 190</td>
<td>E 235</td>
<td>ISO 630</td>
</tr>
</tbody>
</table>

**Rural Water Supply Network**  
**Detail drawing**  
**Flange**

**International Handpump Specification**  
**Scale:** 1:2  
**Drawn by:**  
**Checked by:**  
**Released by:**

**GENERAL TOLERANCE +/− 1 UNLESS OTHERWISE STATED**  
**ALL SHARP CORNERS TO BE ROUNDED OFF**
### General Tolerance
+/-1 unless otherwise stated

### All Sharp Corners to Be Rounded Off

<table>
<thead>
<tr>
<th>Bracket plate</th>
<th>8 x 258 x 170</th>
<th>E 235</th>
<th>ISO 630</th>
<th>---</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Dimensions</td>
<td>Material</td>
<td>Standards</td>
<td>Remarks</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td>Bracket plate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**RWSN**

International Handpump Specification

**Scale:** 1:2

**Drawing Information:**
- **Drawn by:** t.l.e.d.e.r. 15.03.97
- **Checked by:** M 02.03.07
- **Released by:** 07.03.07

**Revision:** 5-2007

**Section A-A**

![Diagram of Bracket Plate with dimensions and notes]
### General Tolerance
+/-1 unless otherwise stated

**STOPPER PLATE**

**Description**
Rural Water Supply Network

**Dimensions**
6 x 160 x 120.2

**Material**
E 235

**Standards**
ISO 630

---

**Scale:** 1:1

**Drawn by:** t.lender 15.03.97
**Checked by:** 02.03.07
**Released by:** 07.03.07

**Remarks**

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stopper plate</td>
<td>6 x 160 x 120.2</td>
<td>E 235</td>
<td>ISO 630</td>
<td></td>
</tr>
</tbody>
</table>

**International Handpump Specification**

C2008
OVERFLOW COVER

Dimensions: 2 x 155 x 57.5
Material: E 235
Standards: ISO 630
Remarks: R2 max

GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED

CORNERS TO BE WELDED AND GROUND

Scale: 1:1

Drawn by: [Signature] 15.03.97
Checked by: [Signature] 02.03.07
Released by: [Signature] 07.03.07

International Handpump Specification

C2009
GENERAL TOLERANCE +/- 5 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>Spout end</td>
<td>C2011</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Spout</td>
<td>C2010</td>
<td>---</td>
</tr>
</tbody>
</table>

WELDED TO ISO 9692

Rural Water Supply Network

Sub assembly

Spout assembly

International Handpump Specification

Scale: 1:2

Drawn by: K.Erpf 08.07.98
Checked by: 02.03.07
Released by: 07.03.07

B2047
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spout end</td>
<td>Ø48.4/3.25 x 100</td>
<td>ST 320</td>
<td>ISO 559</td>
<td>NB 40, medium (1 1/2&quot;)</td>
</tr>
</tbody>
</table>

**Details**:
- **Scale**: 1:2
- **Drawn by**: [Signature] 15.03.97
- **Checked by**: [Signature] 02.03.07
- **Released by**: [Signature] 07.03.07
- **RWSN**
- **International Handpump Specification**

**General Tolerance**: +/-0.4

**All Sharp Corners to be Rounded Off**
GUIDELINES FOR HANDLE SETTINGS

HANDLE ASSEMBLY SHOULD BE BALANCED AS SUCH THAT IT REMAINS IN A HORIZONTAL POSITION.

FOR BALANCING THE HANDLE, ADJUST THE HANDLE REAR (B2020) AND TIGHTEN THE BOLT.

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>Hexagonal bolt</td>
<td>C1025</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Handle rear</td>
<td>B2020</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Handle front</td>
<td>B2013</td>
<td>---</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Sub assembly: Handle assembly

Scale: 1:2.5

A2012

International Handpump Specification
SLEEVE TO BE FIXED WITH EPOXY ADHESIVE
E.G. ARALDITE "STANDARD"
AFTER HOT DIP GALVANIZING

SLOT IN SLEEVE TO BE MACHINED
AFTER FITTING OF SLEEVE

HOT DIP GALVANIZED TO ISO 1461 (EXCEPT POS. 7)
ALL DIMENSIONS REFER TO AFTER GALVANIZING
GENERAL TOLERANCE +/−2 UNLESS OTHERWISE STATED
WELDED TO ISO 9692
DETAIL A
SCALE 2:1

GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleeve</td>
<td>Ø50 /1.5 x 109</td>
<td>Stainless Steel</td>
<td>ISO 15510</td>
<td>X5CrNi 18-9</td>
</tr>
</tbody>
</table>

Rural Water Supply Network
Detail drawing
Sleeve

Scale: 1:1 (2:1)

International Handpump Specification

Drawn by: t.leder 15.03.97
Checked by: 02.03.07
Released by: 07.03.07

C2019
<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>T-Bar</td>
<td>C2022</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Extension pipe</td>
<td>C2021</td>
<td>---</td>
</tr>
</tbody>
</table>

HOT DIP GALVANIZED TO ISO 1461
GENERAL TOLERANCE +/-5 UNLESS OTHERWISE STATED
WELDED TO ISO 9692

Rural Water Supply Network

Sub assembly:
Handle rear assy.

International Handpump Specification

Scale: 1:2

Drawn by: K.Erpf 01.02.04
Checked by: 02.03.07
Released by: 07.03.07

B2020
### Extension pipe

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ø48.4/4.05 x 615</td>
<td>ST 320</td>
<td>ISO 559</td>
<td>NB 40, heavy (1 1/2&quot;)</td>
</tr>
</tbody>
</table>

**Scale:** 1:1

**Drawn by:** Lieder 15.03.97
**Checked by:** 02.03.07
**Released by:** 07.03.07
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-Bar</td>
<td>Ø32 x 400</td>
<td>E 235</td>
<td>ISO 630</td>
<td></td>
</tr>
</tbody>
</table>

GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED

ALL SHARP CORNERS TO BE ROUNDED OFF

Scale: 1:2

Drawn by: t.leder. 15.03.97
Checked by: 02.03.07
Released by: 07.03.07

C2022
SLEEVE TO BE FIXED WITH EPOXY ADHESIVE E.G. ARALDITE "STANDARD" (AFTER ELECTROPLATING)

RIVETED AS SECURITY NOT TO LOSE THE HEX.NUT

GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>2</td>
<td>Washer</td>
<td>C1028</td>
<td>M8</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Hex.nut special</td>
<td>C2027</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Pin</td>
<td>C1027</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Sleeve</td>
<td>C2026</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Fulcrum pin</td>
<td>C2025</td>
<td>---</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Sub assembly

Fulcrum pin assy.

International Handpump Specification

Scale: 1:1

Drawn by: t.leder. 15.03.97
Checked by: 02.03.07
Released by: 07.03.07

B2024
Pressfit with Dowel pin C1027

Both holes to be in line

12
12
120 \( \pm 0.5 \)
(193.5)

\( \Theta 34.7 \pm 0.2 \)

6 \( \pm 0.2 \)

1 x 45°

0

\( \Theta 3.3 \pm 0.3 \)

27

5

**ELECTROPLATED TO ISO 2081/82**

**GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED**

**ALL SHARP CORNERS TO BE ROUNDED OFF**

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fulcrum pin</td>
<td>034.7 x 193.5</td>
<td>E 235</td>
<td>ISO 630</td>
<td>---</td>
</tr>
</tbody>
</table>

**Scale:** 1:1

**Rural Water Supply Network**

**Detail drawing**

**Fulcrum pin**

**International Handpump Specification**

**C2025**

Drawn by: I. Leder. 15.03.97

Checked by: 02.03.07

Released by: 07.03.07
SLEEVE POS.4, TO BE FIXED WITH EPOXY ADHESIVE E.G. ARALDITE "STANDARD" AFTER HOT DIP GALVANIZING

SLOT IN SLEEVE TO BE MACHINED AFTER FITTING OF SLEEVE

GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>Hex.bolt</td>
<td>C1105</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Sleeve</td>
<td>C2032</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Retainer bush</td>
<td>C2031</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Connector</td>
<td>C2030</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Hanger bush</td>
<td>C2029</td>
</tr>
</tbody>
</table>

Scale: 1:1

Rural Water Supply Network

Rodhanger assy.

International Handpump Specification

WELDED TO ISO 9692

HOT DIP GALVANISING TO ISO 1461 (POS. 1/2/3 ONLY)

Revision 5-2007

Drawn by: t.l.elder. 15.03.97
Checked by: 22.03.07
Released by: 07.03.07

B2028
**General Tolerance:** +/-0.5 unless otherwise stated

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retainer bush</td>
<td>Ø26.7 x 30</td>
<td>ST 320</td>
<td>ISO 559</td>
<td>NB 20, light (3/4&quot;)</td>
</tr>
</tbody>
</table>

**Details:**
- **Dimensions:** Ø26.7 ±0.3
- **Material:** ST 320
- **Standards:** ISO 559
- **Remarks:** NB 20, light (3/4")

**Scale:** 1:1

**Drawn by:** [Signature] 15.03.97
**Checked by:** [Signature] 02.03.07
**Released by:** [Signature] 07.03.07

**International Handpump Specification**

---

**Revision 5-2007**
### General Tolerance

+/- 1 unless otherwise stated

### Parts List

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>2</td>
<td>Washer</td>
<td>C1028</td>
<td>M8</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Hex.nut</td>
<td>C1018</td>
<td>M16</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Pin</td>
<td>C1027</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Sleeve</td>
<td>C2035</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Hanger pin</td>
<td>C2034</td>
<td>---</td>
</tr>
</tbody>
</table>

---

**Rural Water Supply Network**

**Sub assembly**

**Hanger pin assy.**

**International Handpump Specification**

**Scale:** 1:1

**B2033**
Pressfit with Dowel pin C1027

ELECTROPLATED TO ISO 2001/02
GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED
ALL SHARP CORNERS TO BE ROUNDED OFF

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hanger pin</td>
<td>Ø34.7 x 128.5</td>
<td>E 235</td>
<td>ISO 630</td>
<td>---</td>
</tr>
</tbody>
</table>

Rural Water Supply Network
Detail drawing

Hanger pin

International Handpump Specification

Scale: 1:1

Drawn by: I. Leder 15.03.97
Checked by: 02.03.07
Released by: 07.03.07

C2034
GENERAL TOLERANCE +/- 0.3 UNLESS OTHERWISE STATED
ALL SHARP CORNERS TO BE ROUNDED OFF

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleeve</td>
<td>Ø38/1.5 x 68</td>
<td>Stainless Steel</td>
<td>ISO 15510</td>
<td>X5CrNi 18-9</td>
</tr>
</tbody>
</table>

Rural Water Supply Network
Detail drawing

Sleeve

International Handpump Specification

Scale: 1:1

Drawn by: [Signature] 15.03.97
Checked by: [Signature] 02.03.07
Released by: [Signature] 07.03.07

C2035
**HOT DIP GALVANIZED TO ISO 1461**

**GENERAL TOLERANCE +/-2 UNLESS OTHERWISE STATED**

**WELDED TO ISO 9692**

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3</td>
<td>Shroud</td>
<td>C2041</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Deflector</td>
<td>C2040</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Right side plate</td>
<td>C2039</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Left side plate</td>
<td>C2038</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Cover plate</td>
<td>C2037</td>
<td>---</td>
</tr>
</tbody>
</table>

**Sub assembly**

**Cover assembly**

**Scale:** 1 : 2.5

**International Handpump Specification**

**B2036**
THE EXACT POSITION OF FOLDING- AND BENDING-LINES HAVE TO CORRESPOND WITH THE PROFILE OF THE LEFT- AND RIGHT SIDE PLATE (C2038 / C2039)

GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED

ALL SHARP CORNERS TO BE ROUNDED OFF

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover plate</td>
<td>2 x 575 x 162</td>
<td>E 235</td>
<td>ISO 630</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Detail drawing

Cover plate

International Handpump Specification

Scale: 1:2.5

Drawn by: l.leder 15.03.97
Checked by: 02.03.07
Released by: 07.03.07

C2037
<table>
<thead>
<tr>
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<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left side plate</td>
<td>2 x 337 x 219</td>
<td>E 235</td>
<td>ISO 630</td>
<td></td>
</tr>
</tbody>
</table>

**General Tolerance**: +/-1 unless otherwise stated

**All Sharp Corners to Be Rounded Off**

**Scale**: 1 : 2.5

**Drawn by**: t.lede, 15.03.97
**Checked by**: 02.03.07
**Released by**: 07.03.07

**International Handpump Specification**

**C2038**
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right side plate</td>
<td>2 x 337 x 219</td>
<td>E 235</td>
<td>ISO 630</td>
<td>---</td>
</tr>
</tbody>
</table>

General Tolerance: +/- 1 unless otherwise stated

All sharp corners to be rounded off

Scale: 1 : 2.5

C2039

Rural Water Supply Network
Detail drawing

Right side plate

International Handpump Specification
FIRST BENDING OPERATION

SECOND BENDING OPERATION

LENGTH PRIOR TO BENDING = 273 MM

Deflector: Ø6 x 273, E 235, ISO 630, drawn wire

Scale: 1:1

Revision 5-2007
OPTION:
ROLLED FROM 2.0mm STEEL SHEET

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shroud</td>
<td>Ø60/2.9 x 32</td>
<td>ST 320</td>
<td>ISO 559</td>
<td>NB 50, light (2&quot;)</td>
</tr>
</tbody>
</table>

GENERAL TOLERANCE +/−2 UNLESS OTHERWISE STATED
ALL SHARP CORNERS TO BE ROUNDED OFF

Scale: 1:1

Drawn by: K. Erpf 21.11.97
Checked by: 02.03.07
Released by: 07.03.07

International Handpump Specification
C2041
GENERAL TOLERANCE +/- 0.3 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearingbush outer</td>
<td>Ø64 x 30</td>
<td>POM-K (no filler)</td>
<td>ISO 9988-1</td>
<td>Injection moulded</td>
</tr>
</tbody>
</table>

**Rural Water Supply Network**

**Detail drawing**

**Bearingbush outer**

**International Handpump Specification**

**Scale:** 1:1

**Drawn by:** t.leder 15.03.97
**Checked by:** 02.03.07
**Released by:** 07.03.07

**DETAIL A**

SCALE 5:1

0.5x45°

1.8±0.1

R0.2

**DETAIL B**

SCALE 5:1

0.5x45°

30±0.2

6

4.3

+0.2

R0.2

Ø46.7±0.1

Ø60.5±0.2

Ø42.2±0.2

R0.2

0

6-0.2
Used for Casing pipes up to Ø6"

HOT DIP GALVANISED TO ISO 1461
GENERAL TOLERANCE +/-5 UNLESS OTHERWISE SPECIFIED

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>Leg</td>
<td>C2054</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Flange</td>
<td>C2053</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Gusset</td>
<td>C2052</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Stand pipe</td>
<td>C2051</td>
<td>(or NB 6&quot; medium)</td>
</tr>
</tbody>
</table>

Rural Water Supply Network
Sub assembly
Stand assembly
Type A
Scale: 1:5

International Handpump Specification
B2050

DRAWN BY: 15.03.97
CHECKED BY: 09.03.97
RELEASED BY: 07.03.97
### General Information

**Stand pipe**
- **Dimensions**: Ø185/4 x 690
- **Material**: E 235
- **Standards**: ISO 630

### Detailed Information

- **Description**: Stand pipe
- **Roll**: Rolled version
- **Scale**: 1:2
- **Remarks**: INTERNATIONAL HANDPUMP SPECIFICATION

**Revision Information**
- **Drawn by**: K. Erpf
- **Drawn Date**: 13.03.01
- **Checked by**: [Signature]
- **Checked Date**: 02.03.07
- **Released by**: [Signature]
- **Released Date**: 07.03.07

**Picture Notes**
- **Length prior to bending**: 580mm
- **Note**: Both ends to be faced square to the outer pipe. Rolled from 4mm sheet. Weld not ground. If well casing pipe up to 5" (125mm) is used, use of 6" (150mm) medium pipe 695 long.
Both shapes are permissible.

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gusset</td>
<td>6 x 22 x 22</td>
<td>E 235</td>
<td>ISO 630</td>
<td></td>
</tr>
</tbody>
</table>

General tolerance +/- 1 unless otherwise stated. All sharp corners to be rounded off.

Scale: 1:1

Drawn by: K.Erpf 20.07.01
Checked by: 20.03.07
Released by: 07.03.07

International Handpump Specification C2052
ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/-5 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Leg</th>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWSN</td>
<td>Detail drawing</td>
<td>EA 40 x 40 x 6 - 530 E 235</td>
<td>ISO 657-1</td>
<td>drawn by: 15.03.07</td>
<td>checked by: 02.03.07</td>
</tr>
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</table>

Scale: 1:2

International Handpump Specification

C2054
Used for Casing pipes up to Ø6"

<table>
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<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>4</td>
<td>Washer</td>
<td>C1069</td>
<td>M16</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>Hex.nut</td>
<td>C1130</td>
<td>M16</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Anchor assy</td>
<td>B2083</td>
<td>---</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>Gasket</td>
<td>C2059</td>
<td>---</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>Gusset</td>
<td>C2058</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Bottom flange</td>
<td>C2068</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Flange</td>
<td>C2053</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Gusset</td>
<td>C2052</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Stand pipe</td>
<td>C2056</td>
<td>---</td>
</tr>
</tbody>
</table>

WELDED TO ISO 9692

GENERAL TOLERANCE +/- 5 UNLESS OTHERWISE STATED
HOT DIP GALVANISED TO ISO 1461 (EXCEPT POS.6/7/8/9)

Rural Water Supply Network

Stand assembly

International Handpump Specification

B2221

Revision 5-2007
LENGTH PRIOR TO ROLLING = 580mm

NOTE:
- BOTH ENDS TO BE FACED SQUARE TO THE OUTER PIPE
- ROLLED FROM 4mm SHEET
- WELD NOT GROUND

ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/- 2 UNLESS OTHERWISE STATED

Stand pipe

Scale: 1:2

Drawn by: K.Erpf 13.03.01
Checked by: [Signature] 02.03.07
Released by: [Signature] 07.03.07

Stand pipe
ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom flange</td>
<td>8 x 300 x 300</td>
<td>E 235</td>
<td>ISO 630</td>
<td></td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Detail drawing

Bottom flange

International Handpump Specification

Scale: 1:2.5

Drawn by: K.Erpf 16.05.00
Checked by: 02.03.07
Released by: 07.03.07

C2068
ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/-2 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gusset</td>
<td>6 x 50 x 100</td>
<td>E 235</td>
<td>ISO 630</td>
<td></td>
</tr>
</tbody>
</table>

Rural Water Supply Network

**Gusset**

International Handpump Specification

Scale: 1:1

Drawn by: K.Erpf 13.03.01
Checked by: 02.03.07
Released by: 07.03.07

C2058
OPTION:
TO BE CUT OF A 5 MM RUBBER SHEET OF ANY COMPOUND TYPE

GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasket</td>
<td>5 x 300 x 300</td>
<td>Nitrile/nat. Rubber</td>
<td>ISO 3302-1 (M3)</td>
<td>60-70 Shore A</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td>Gasket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Handpump Specification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scale: 1 : 2.5

Drawn by: K. Erpf 13.03.01
Checked by: 16.03.07
Released by: 07.03.07

C2059
NOTE: PLACE THE ANCHOR ASSEMBLY AS SUCH THAT THE THREADED PART OF THE BOLTS IS PROTRUDING 45 MM FROM THE CEMENT PLATFORM.

WELDED TO ISO 9692
GENERAL TOLERANCE +/-5 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>4</td>
<td>Hex. bolt</td>
<td>C1114</td>
<td>M16 x 150</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>Fixing rod</td>
<td>C2084</td>
<td>---</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

**Sub assembly**

**Anchor assembly**

International Handpump Specification

**Scale:** 1:2

**Drawn by:** K.Erpf 14.03.01
**Checked by:** 02.03.07
**Released by:** 07.03.07

**Drawing No.:** B2083
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixing rod</td>
<td>Ø8 x 300</td>
<td>E 185</td>
<td>ISO 630</td>
<td></td>
</tr>
</tbody>
</table>

GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

Rural Water Supply Network

Detail drawing

Fixing rod

International Handpump Specification

Scale: 1:1

Drawn by: K.Erpf 14.03.01
Checked by: 02.03.07
Released by: 07.03.07

C2084
CHECK THIS OPENING, A Ø8 MM ROPE HAS TO PASS FREELY

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>Eye</td>
<td>C2094</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Steel cone</td>
<td>C2093</td>
<td>---</td>
</tr>
</tbody>
</table>

**HOT DIP GALVANIZED TO ISO 1461**

**Steel cone assy.**

**International Handpump Specification**

**Scale:** 1:2.5

**Drawn by:** [Signature] 15.03.97
**Checked by:** [Signature] 02.03.07
**Released by:** [Signature] 07.03.07

**Rural Water Supply Network**

**WELDED TO ISO 9692**

**B2092**
OPTION

STEEL CONES, WHICH ARE PRODUCED IN TWO PARTS (CONICAL ROLLED COLLAR, WELDED TO THE FLANGE) ARE ALSO ACCEPTABLE, PROVIDED THE DIMENSIONS ARE ACCORDING TO THIS DRAWING.
NOTE: THIS COMPONENT CAN ALSO BE MADE OF Ø6 MM ROD (OPTIONAL)

LENGTH PRIOR TO BENDING = 44MM

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye</td>
<td>Ø8 x 44</td>
<td>E 235</td>
<td>ISO 630</td>
<td></td>
</tr>
</tbody>
</table>

GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

Rural Water Supply Network

Detail drawing

Eye

Scale: 1:1

International Handpump Specification

Drawn by: t.leder, 15.03.97
Checked by: 02.03.07
Released by: 07.03.07

C2094
TWISTED GOOD QUALITY PLASTIC ROPE
Ø6 mm, POLYPROPYLENE
LENGTH: TWICE CYLINDER-SETTING + 4 METERS
2 KNOTS ON EITHER SIDE OF TUBE TO PREVENT SLIPPING

SLEEVE GLUED WITH SOLVENT CEMENT

AFTER SHRINK FITTING 100% TESTING REQUIRED
AGAINST SLIPAGE: TESTING LOAD 400N

AFTER SHRINK FITTING OF BRASS LINER OD OF CYLINDER PIPE TO BE MACHINED

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1</td>
<td>Rope</td>
<td>C1087</td>
<td>Ø5 x ...(2 x total length of Rising main + 4m)</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>Sleeve</td>
<td>C2082</td>
<td>--</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>Suction pipe</td>
<td>C2081</td>
<td>--</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Reducer</td>
<td>C2080</td>
<td>--</td>
</tr>
<tr>
<td>6</td>
<td>X</td>
<td>Centraliser 4-6&quot; div.</td>
<td>C1020</td>
<td>see A2099</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>O-Ring</td>
<td>C2074</td>
<td>--</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Floatvalve receiver</td>
<td>A2099</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td>Rising main assy.</td>
<td>C2073</td>
<td>--</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Liner</td>
<td>C2072</td>
<td>--</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Cylinder pipe</td>
<td>C2071</td>
<td>--</td>
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</table>

Rural Water Supply Network

Cylinder assembly

Type A

International Handpump Specification

Scale: 1:2.5

Drawn by: K.Enqf 02.03.00
Checked by: 02.03.07
Released by: 02.03.07

Revision 5-2007
### Cylinder Pipe Dimension and Material Details

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder pipe</td>
<td>Ø63/4.7 x 850</td>
<td>PVC-U</td>
<td>ISO 4422-2/11922-1</td>
<td>Serie 6.3 / PN 16</td>
</tr>
</tbody>
</table>

**GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED**

**ALL SHARP CORNERS TO BE ROUNDED OFF**

<table>
<thead>
<tr>
<th>Rural Water Supply Network</th>
<th>Detail drawing</th>
<th>Scale: 1:1</th>
<th>Drawn by: K.Erpf</th>
<th>Checked by: 02.03.07</th>
<th>Released by: 07.03.07</th>
<th>C2072</th>
</tr>
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</table>
GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED

<table>
<thead>
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<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liner</td>
<td>Ø54/2 x 700</td>
<td>Copper–zinc alloy</td>
<td>ISO 426-1</td>
<td>(CuZn 37)</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td>Liner</td>
<td>Scale: 1:1</td>
<td></td>
</tr>
<tr>
<td>International Handpump Specification</td>
<td></td>
<td></td>
<td></td>
<td>C2073</td>
</tr>
</tbody>
</table>
FOOTVALVE RECEIVER

Diameter 62 x 58

Material: POM-K (no filler)

Standards: ISO 9988-1

Injection moulded

GENERAL TOLERANCE +/- 0.3 UNLESS OTHERWISE STATED

Scale: 1:1

INTERNATIONAL HANDPUFF SPECIFICATION

C2074
FOR APPLICATION IN HAND-DUG WELLS
LENGTH MAY BE REDUCED TO 300mm

GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED
ALL SHARP CORNERS TO BE ROUNDED OFF

Suction pipe  Ø75/3.6 x 1000  PVC-U  ISO 4422-2/11922-1  Serie 10 / PN 10
Description  Dimensions  Material  Standards  Remarks
Rural Water Supply Network  Detail drawing  Suction pipe  Scale: 1:1
International Handpump Specification  Drawn by: K.Erpf  18.11.00
                                      Checked by:  02.03.07
                                      Released by: -07.03.07
                                      C2081
NOTE:
IF SLEEVES OF PA (POLYAMIDE OR "NYLON") ARE
USED, "LOCTITE PRISM 406" OR EQUIVALENT HAS
TO BE USED FOR JOINTING WITH SUCTION PIPE C2081.

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleeve</td>
<td>Ø12/1 x 75</td>
<td>PVC-U</td>
<td>ISO 4422-2/11922-1 extruded</td>
<td></td>
</tr>
</tbody>
</table>

| Scale:          | 1:1        |

| Drawn by:       | t.leder, 15.03.97 |
| Checked by:     | -02.03.07       |
| Released by:    | -07.03.07       |

International Handpump Specification C2082
Plunger assembly

<table>
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<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td>Plunger rod assy.</td>
<td>B2258</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Cup seal</td>
<td>C2758</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Bobbin</td>
<td>C2088</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Plunger body</td>
<td>C2757</td>
</tr>
</tbody>
</table>

Sub assembly

International Handpump Specification

Scale: 1:1

Drawn by: K. Erpf 16.02.00
Checked by: 02.03.07
Released by: 07.03.07

Revision 5-2007
ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/-0.5 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plunger body</td>
<td>Ø47 x 73</td>
<td>Copper-zinc alloy</td>
<td>ISO 426-2</td>
<td>CuZn38Pb4</td>
</tr>
<tr>
<td>RWSN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detail drawing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plunger body</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

International Handpump Specification

Scale: 1:1

Drawn by: K.Erpf 15.03.99
Checked by: 02.03.07
Released by: 07.03.07

C2757
IF NEW MOLDS ARE MADE, INCREASE LENGTH OF FINS FOR BETTER GUIDANCE. EXISTING BOBBIN WITH LENGTH 40 mm IS STILL ACCEPTABLE

 VALVE SEATING AREA
 SMOOTH WITHOUT FLASHING E.T.C

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bobbin</td>
<td>Ø26 x 44</td>
<td>Nitrile rubber</td>
<td>ISO 3302-1 (M2)</td>
<td>70-80 Shore A</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td>Bobbin</td>
<td>Scale: 1:1</td>
<td>C2088</td>
</tr>
</tbody>
</table>

GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED
FREE OF BURRS ON FLASHLINE

Drawn by: K. Erpf 21.11.97
Checked by: 02.03.07
Released by: 07.03.07
### Description

**Cup seal**

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cup seal</td>
<td>Ø50 x 14</td>
<td>Nitrile rubber</td>
<td>ISO 3302-1 (M2)</td>
</tr>
</tbody>
</table>

**Rural Water Supply Network**

**Detail drawing**

**Scale:** 1:1

**International Handpump Specification**

**Remarks**

- **Drawn by:** K.Erpf 15.03.99
- **Checked by:**  02.03.07
- **Released by:**  07.03.07

**General Tolerance:** +/- 0.5 unless otherwise stated

**Revision:** 5-2007
<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1</td>
<td>Washer</td>
<td>C1064</td>
<td>M10</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Hex. bolt</td>
<td>C1066</td>
<td>M10 x 35</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>O-Ring</td>
<td>C1021</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Eye assembly</td>
<td>B2089</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Bobbin</td>
<td>C2088</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Valve body assy.</td>
<td>B2085</td>
<td>---</td>
</tr>
</tbody>
</table>

Footvalve arrangement

International Handpump Specification

A2096
CONNECTION MADE BY SPIN WELDING

FOR FOOTVALVE FURNISH WITH O-RING C1021

AFTER SPINWELDING 100% TENSILE TESTING REQUIRED: TEST LOAD 3500 NEWTON

O-RING GROOVE MACHINED AFTER SPINWELDING AND TESTING

GENERAL TOLERANCE +/-0.2 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>Bobbin C2088</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Valve body upper C2087</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Valve body lower C2086</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>

Sub assembly

Valve body assy.

International Handpump Specification

Scale: 1:1

Rural Water Supply Network

Drawn by: K. Erpf 15.12.97
Checked by: 02.03.07
Released by: 07.03.07

B2085
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Injection moulded</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve body lower</td>
<td>Ø49 x 71</td>
<td>POM-K (no filler)</td>
<td>ISO 9988-1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GENERAL TOLERANCE +/-0.3 UNLESS OTHERWISE STATED**

**Scale:**

1:1 (2:1)

**Drawn by:** K.Erpf 15.12.97

**Checked by:** 02.03.07

**Released by:** 07.03.07
GENERAL TOLERANCE +/-0.3 UNLESS OTHERWISE STATED

Valve body upper Ø48.5 x 75.8 POM-K (no filler) ISO 9988-1 Injection moulded

Description Dimensions Material Standards Remarks

Rural Water Supply Network Detail drawing Scale: 1:1

Valve body upper

International Handpump Specification

Drawn by: K.Erpf 10.07.98
Checked by: 02.03.07
Released by: 07.03.07

C2087
LENGTH PRIOR TO BENDING = 129 MM

GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye</td>
<td>Ø6 x 129</td>
<td>Stainless St.</td>
<td>ISO 15510</td>
<td>X5CrNi 18-9</td>
</tr>
<tr>
<td>Detail drawing</td>
<td>Eye</td>
<td></td>
<td>1:1</td>
<td>C2090</td>
</tr>
</tbody>
</table>

Drawn by: K.Erpf 04.09.01
Checked by: 02.03.07
Released by: 07.03.07
Connector | Ø20 x 20 | Stainless St. | ISO 15510 | X5CrNi 18-9
Description | Dimensions | Material | Standards | Remarks
---|---|---|---|---
Rural Water Supply Network | Detail drawing | Connector
International Handpump Specification | Scale: 1:1

GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED
ALL SHARP CORNERS TO BE ROUNDED OFF

Drawn by: t.leder 15.03.97
Checked by: 02.03.07
Released by: 07.03.07

C2091
1. Secure against loosening with thread locking compound, e.g., Loctite 242.

2. Solvent cemented.
<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>1</td>
<td>Washer</td>
<td>C1064</td>
<td>M10</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>Hex. bolt</td>
<td>C1066</td>
<td>M10 x 35</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>O-Ring</td>
<td>C1021</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Push rod</td>
<td>C2760</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Fishing connector</td>
<td>C2220</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Bobbin</td>
<td>C2088</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Valve body assy.</td>
<td>B2085</td>
<td>---</td>
</tr>
</tbody>
</table>

### Foot Valve Arrangement

**Rural Water Supply Network**

**Sub assembly**

**Type B**

**Scale:** 1:1

**International Handpump Specification**

**Drawing No.:** A2265

**Revision:** 5-2007

**Drawn by:** K. Erpf

**Checked by:** 02.03.07

**Released by:** 07.03.07
<table>
<thead>
<tr>
<th>Fishing connector</th>
<th>Ø36 x 50</th>
<th>Copper-zinc alloy</th>
<th>ISO 426-2</th>
<th>CuZn38Pb4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detail drawing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing connector</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Handpump Specification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GENERAL TOLERANCES +/-0.5 UNLESS OTHERWISE STATED

ALL SHARP CORNERS TO BE ROUNDED OFF

Scale: 1:1

Drawn by: K.Erpf 16.11.98
Checked by: 02.03.07
Released by: 07.03.07

C2220
GENERAL TOLERANCE +/-0.5 UNLESS OTHERWISE STATED
ALL SHARP CORNERS TO BE ROUNDED OFF

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Push rod</td>
<td>Ø6 x 30</td>
<td>Stainless Steel</td>
<td>ISO 15510</td>
<td>X5CrNi 18-9</td>
</tr>
</tbody>
</table>

Drawn by: K.Erpf   15.03.99
Checked by:         02.03.07
Released by:        07.03.07

Rural Water Supply Network

Detail drawing

Push rod

International Handpump Specification

Scale: 1:1

C2760
TWISTED GOOD QUALITY PLASTIC
ROPE Ø 6mm, POLYPROPYLENE
LENGTH: TWICE CYLINDER-SETTING + 4 METERS
2 KNOTS ON EITHER SIDE OF TUBE TO PREVENT SLIPPING

SLEEVE GLUED WITH SOLVENT CEMENT

AFTER SHRINK FITTING OF BRASS LINER OD OF CYLINDER PIPE TO BE MACHINED

AFTER SHRINK FITTING 100% TESTING REQUIRED AGAINST SLIPPAGE; TESTING LOAD 400N

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1</td>
<td>Rope</td>
<td>C1087</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>Sleeve</td>
<td>C2263</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>Suction pipe</td>
<td>C2262</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Socket</td>
<td>C2261</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>X</td>
<td>Centraliser 4-6&quot;</td>
<td>div. see A2119</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>O-Ring</td>
<td>C1020</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Foot valve receiver</td>
<td>C2299</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Rising main assy.</td>
<td>A2119</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Liner</td>
<td>C2073</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Cylinder pipe</td>
<td>C2072</td>
<td></td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Cylinder assembly

International Handpump Specification
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suction pipe</td>
<td>Ø63/4.7 x 850</td>
<td>PVC-J</td>
<td>ISO 4422-2/11922-1</td>
<td>Suction pipe</td>
</tr>
</tbody>
</table>

General Tolerance +/-1 UNLESS OTHERWISE STATED

ALL SHARP CORNERS TO BE ROUNDED OFF

**Scale:** 1:1

**Drawing Information:**
- Drawn by: K.Erpf 02.03.99
- Checked by: 02.03.07
- Released by: 07.03.07

**International Handpump Specification**

**Code:** C2262
NOTE:
IF SLEEVES OF PA (POLYAMIDE OR "NYLON") ARE
USED, "LOCTITE PRISM 406" OR EQUIVALENT HAS
TO BE USED FOR JOINTING WITH SUCTION P/PE C2081.

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleeve</td>
<td>Ø12/1 x 63</td>
<td>PVC-U</td>
<td>ISO 4422-2/11922-1</td>
<td>extruded</td>
</tr>
</tbody>
</table>

GENERAL TOLERANCE +/-0.5 UNLESS OTHERWISE STATED

ALL SHARP CORNERS TO BE ROUNDED OFF

Scale: 1:1

Drawn by: K.Erpf 02.03.99
Checked by: 02.03.07
Released by: 07.03.07

International Handpump Specification

C2263
### Foot Valve Assembly (Type C)

#### Parts List

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>Hexagonal nut</td>
<td>C1121</td>
<td>M6</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Hexagonal bolt</td>
<td>C1120</td>
<td>M6 x 25</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>O-Ring</td>
<td>C1011</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Bobbin</td>
<td>C2088</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Foot Valve Body</td>
<td>C2759 or</td>
<td></td>
</tr>
</tbody>
</table>

#### Notes
- BRASS CASTING
- MACHINED (SEE DRAWING C2759)
- MACHINED OF SOLID MATERIAL (SEE DRAWING C2761)

---

**Sub assembly:** Foot Valve Assy.  
**Type C:**  
**Scale:** 1:1  
**Drawn by:** K. Erp 10.03.01  
**Checked by:** 12.03.07  
**Released by:** 07.03.07  
**International Handpump Specification:** A2298
**Detail X**

Scale 2:1

---

**THESE SURFACES TO BE MACHINED SMOOTHLY**

---

**THESE SLOTS TO BE USED FOR RELEASING THE WATER COLUMN WHEN RETRIEVING THE PUMP-RODS WITH PLUNGER AND FOOTVALVE ATTACHED**

---

**NOTE:**

FOOTVALVE MACHINED OF SOLID MATERIAL, SEE DRAWING C2761

---

ALL SHARP CORNERS TO BE ROUNDED OFF

GENERAL TOLERANCES +/-0.5 UNLESS OTHERWISE STATED

---

<table>
<thead>
<tr>
<th>Footvalve body</th>
<th>Ø47 x 88</th>
<th>Copper-zinc alloy</th>
<th>ISO 426-2</th>
<th>CuZn38Pb4 (for castings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Dimensions</td>
<td>Material</td>
<td>Standards</td>
<td>Remarks</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Footvalve body**

International Handpump Specification

---

**Scale:**

1:1 (2:1)

**Drawn by:** K.Erpf 10.03.01

**Checked by:** 02.03.07

**Released by:** 07.03.07

---

**Revision 5-2007**
Detail X
Scale 2:1

These surfaces to be machined smoothly

30°±30'

These holes to be used for releasing the water column when retrieving the pump-rods with plunger and footvalve attached

Note:
Footvalve machined of a casting, see drawing C2759

All sharp corners to be rounded off
General tolerances ±0.5 unless otherwise stated

<table>
<thead>
<tr>
<th>Footvalve body</th>
<th>Ø47 x 88</th>
<th>Copper-zinc alloy</th>
<th>ISO 426-2</th>
<th>CuZn38Pb4 (for castings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Dimensions</td>
<td>Material</td>
<td>Standards</td>
<td>Remarks</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td>Footvalve body</td>
<td>Scale: 1:1 (2:1)</td>
<td>Drawn by: K.Erpf 10.03.01</td>
</tr>
<tr>
<td>International Handpump Specification</td>
<td>C2761</td>
<td>Checked by: 02.03.07</td>
<td>Released by: 07.03.07</td>
<td></td>
</tr>
</tbody>
</table>
NOTE: CENTRALISERS TO BE PLACED AT EVERY BELL-END

SOLVENT CEMENTED
JOINING OF TOP SLEEVE IS THE LAST OPERATION DURING INSTALLATION

SOLVENT CEMENTED

PUMP CYLINDER

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>X</td>
<td>Rope</td>
<td>C1087</td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td>Centraliser</td>
<td>C2076, C2077, C2078 or C2079</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Top sleeve</td>
<td>C2042</td>
</tr>
<tr>
<td>1</td>
<td>X</td>
<td>Riser pipe</td>
<td>C2046</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Sub assembly Type A

Rising main assembly

International Handpump Specification

Scale: 1 : 2.5

Drawn by: K. Erpf 06.12.01
Checked by: 02.03.07
Released by: 07.03.07

A2099
IF PUMPRODS WITH Ø10 MM ARE USED, THE HOLE DIMENSION HAS TO BE Ø11 MM

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flapper</td>
<td>Ø80 x 6</td>
<td>HDPE or Rubber</td>
<td>---</td>
<td>punched or moulded</td>
</tr>
</tbody>
</table>

**GENERAL TOLERANCE +/-0.5 UNLESS OTHERWISE STATED**

**Hardness:** 50-70 Shore A

**Scale:** 1:1

**Drawn by:** t.ieder. 15.03.97
**Checked by:** 02.03.07
**Released by:** 07.03.07

**Rural Water Supply Network**
**Detail drawing**
**Flapper**

**International Handpump Specification**

---

[Diagram of a cylindrical object with dimensions Ø80 ±1.6 mm and length 6 mm]
**Centraliser 6"**

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centraliser 6&quot;</td>
<td>Ø140 x 24</td>
<td>Nitrile/nat Rubber</td>
<td>ISO 3302-1 (M3)</td>
<td>70-80 Shore A</td>
</tr>
</tbody>
</table>

**General Tolerance +/- 0.5 unless otherwise stated**

**Free of Burrs on Flashline**

**Scale:** 1:2

**Drawn by:** K.Erpf 13.03.01

**Checked by:** 02.03.07

**Released by:** 07.03.07

**International Handpump Specification**

**Revision 5-2007**

**NOTE:**

THE OLD VERSION
(WITH Ø8 MM HOLES)
IS STILL ACCEPTABLE
NOTE:
THE OLD VERSION
(WITH Ø8 MM HOLES)
IS STILL ACCEPTABLE

GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED
FREE OF BURRS ON FLASHLINE

<table>
<thead>
<tr>
<th>Centraliser 5&quot;</th>
<th>Ø118 x 24</th>
<th>Nitrile/nat. Rubber</th>
<th>ISO 3302-1 (M3)</th>
<th>70-80 Shore A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Dimensions</td>
<td>Material</td>
<td>Standards</td>
<td>Remarks</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td>Centraliser 5&quot;</td>
<td>Scale: 1:2</td>
<td>Drawn by: K.Erpf 13.03.01</td>
</tr>
<tr>
<td>International Handpump Specification</td>
<td></td>
<td></td>
<td>Checked by: 02.03.07</td>
<td>Released by: 07.03.07</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6 x 60°</th>
</tr>
</thead>
<tbody>
<tr>
<td>30°</td>
</tr>
<tr>
<td>(66)</td>
</tr>
<tr>
<td>R25</td>
</tr>
<tr>
<td>Ø62.5</td>
</tr>
<tr>
<td>Ø118±1.3</td>
</tr>
</tbody>
</table>

2×45°  
(13)  
R46±0.8
NOTE:
THE OLD VERSION
(WITH Ø8 MM HOLES
AND R30 RELIEVING)
IS STILL ACCEPTABLE

GENERAL TOLERANCE +/-0.5 UNLESS OTHERWISE STATED
FREE OF BURRS ON FLASHLINE

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centraliser</td>
<td>Ø100 x 24</td>
<td>Nitrile/nat. Rubber</td>
<td>ISO 3302-1 (M3)</td>
<td>70-80 Shore A</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td>Centraliser 4.5”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

International Handpump Specification

Scale: 1:2

Drawn by: K.Erpf 13.03.01
Checked by: 02.03.07
Released by: 07.03.07

C2078
NOTE:
THE OLD VERSION
(WITH Ø8 MM HOLES
AND R30 RELIEVING)
IS STILL ACCEPTABLE

GENERAL TOLERANCE +/-0.5 UNLESS OTHERWISE STATED
FREE OF BURRS ON FLASHLINE

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centraliser 4&quot;</td>
<td>Ø92 x 24</td>
<td>Nitrile/nat. Rubber</td>
<td>ISO 3302-1 (M3)</td>
<td>70-80 Shore A</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Centraliser 4"

International Handpump Specification C2079

Scale: 1:2

Drawn by: K.Erpf 13.03.01
Checked by: 02.03.07
Released by: 07.03.07
NOTE: CENTRALISERS TO BE PLACED AT EVERY SOCKET

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>X</td>
<td>Rope</td>
<td>C1087</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td>Centraliser</td>
<td>C2076, C2077, C2078 or C2079</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Top sleeve</td>
<td>C2042</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>X</td>
<td>Riser pipe assy.</td>
<td>B2106</td>
<td>---</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Rising main assembly

International Handpump Specification

Sub assembly: Type B

Scale: 1:4

Drawn by: K. Erpf 06.12.01
Checked by: 02.03.07
Released by: 07.03.07

A2119
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riser pipe</td>
<td>Ø63/4.7 x 3000</td>
<td>PVC-U</td>
<td>ISO 4422-2/11922-1</td>
<td>Serie 6.3 / PN 16</td>
</tr>
</tbody>
</table>

**General Tolerance**: +/- 1 unless otherwise stated

**All sharp corners to be rounded off**

**Scale**: 1:1

**Drawn by**: K.Erpf 27.03.01

**Checked by**: 02.03.07

**Released by**: 07.03.07

**Rural Water Supply Network**

**International Handpump Specification**

**Detail drawing**

**Riser pipe**

**C2129**
<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>Plunger rod assy.</td>
<td>B2258</td>
<td>see Plunger rod arrangement A2209</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td>Pumprod assy.</td>
<td>B2214</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Top rod assembly</td>
<td>B2207</td>
<td>---</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Sub assembly | Mild Steel

Pumprod arrangement A

International Handpump Specification

Scale: 1:2

Drawn by: K. Erpf 16.11.98
Checked by: 02.03.07
Released by: 07.03.07

A2206
<table>
<thead>
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<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>Pumprod centraliser</td>
<td>C2212</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Coupler</td>
<td>C2213</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Rod</td>
<td>C2208</td>
<td>---</td>
</tr>
</tbody>
</table>

**Top rod assembly**

**International Handpump Specification**

**Scale:** 1:1

**Drawing No.:** B2207

**Rural Water Supply Network**

**HOT DIP GALVANIZED TO ISO 1461**

**WELDED TO ISO 9692**

**General Tolerance:** +/- 1 UNLESS OTHERWISE STATED
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rod</td>
<td>Ø12 x 2990</td>
<td>E 235</td>
<td>ISO 630</td>
<td>bright</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>International Handpump Specification</strong></td>
<td></td>
<td></td>
<td></td>
<td>C2208</td>
</tr>
</tbody>
</table>
### General Tolerance
+/-0.5 unless otherwise stated.

### Description
**Rural Water Supply Network**
- **Detail drawing**

**Pumprod centraliser**

### Dimensions
- Ø48 x 20

### Material
- Nitrile rubber

### Standards
- ISO 3302-1 (M2)
- 70-80 Shore A

### Remarks

### Scale
1:1

### International Handpump Specification
C2212

**FREE OF BURRS ON FLASHLINE**

**Drawn by:** K.Erpf 09.03.98
**Checked by:** 02.03.07
**Released by:** 07.03.07
GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

WELDED TO ISO 9692
HOT DIP GALVANISED TO ISO 1461 (WITHOUT POS. 3)

<table>
<thead>
<tr>
<th>Pos. Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 1</td>
<td>Hex. coupler</td>
<td>C1012</td>
<td>M12 x 20</td>
</tr>
<tr>
<td>3 1</td>
<td>Pumprod centrailer</td>
<td>C2212</td>
<td>---</td>
</tr>
<tr>
<td>2 1</td>
<td>Coupler</td>
<td>C2213</td>
<td>---</td>
</tr>
<tr>
<td>1 1</td>
<td>Rod</td>
<td>C2372</td>
<td>---</td>
</tr>
</tbody>
</table>

Sub assembly: Pumprod assembly

Mild Steel

Scale: 1:1

Rural Water Supply Network

International Handpump Specification

B2214
### GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rod</td>
<td>Ø12 x 2990</td>
<td>E 235</td>
<td>ISO 630</td>
<td>bright</td>
</tr>
</tbody>
</table>

**Rural Water Supply Network**

*Detail drawing*

**Rod**

**International Handpump Specification**

**Scale:** 1:1

**Drawn by:** K.Erpf 15.03.97
**Checked by:** 02.03.07
**Released by:** 07.03.07

**C2372**
NOTE:
FOR AFRIDEV PUMPS WITH
BOTTOM SUPPORT SYSTEM,
NO TOPROD IS REQUIRED.

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>Plunger rod assy.</td>
<td>B2258</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td>Pumprod assy.</td>
<td>B2216</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Top rod assembly</td>
<td>B2210</td>
<td></td>
</tr>
</tbody>
</table>

Pumprod arrangement B

International Handpump Specification

Scale: 1:2

A2209

 đánh giá: K. Erpf  16.11.98
Kiểm tra:  02.03.07
Đường by: 07.03.07
### Top Rod Assembly

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>Pumprod Centraliser</td>
<td>C2212</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Coupler</td>
<td>C2215</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Rod</td>
<td>C2211</td>
<td>---</td>
</tr>
</tbody>
</table>

**General Tolerance: +/- 1 UNLESS OTHERWISE STATED**

**Welded to ISO 9692**

**Scale: 1:1**

**Drawn by:** K. Erpf 09.08.98  
**Checked by:** 02.03.07  
**Released by:** 07.03.07

**Rural Water Supply Network (RWSN)**

**International Handpump Specification**

**Drawing No.:** B2210
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rod</td>
<td>Ø12 x 2990</td>
<td>Stainless Steel</td>
<td>ISO 15510</td>
<td>X5CrNi 18-9, bright</td>
</tr>
<tr>
<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
<td>Rod</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General Tolerance** +/-1 unless otherwise stated.

**Scale:** 1:1

**Drawn by:** K.Erpf 03.08.98
**Checked by:** 02.03.07
**Released by:** 07.03.07

International Handpump Specification C2211
Pumprod assembly

Hex. coupler: C1053
Pumprod centraliser: C2212
Coupler: C2215
Rod: C2382

Dimensions:
- 20 ± 2
- 3000 ± 5
- 30

Material: Stainless Steel

Scale: 1:1

Rural Water Supply Network

International Handpump Specification
### General Tolerance
+/- 1 unless otherwise stated

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rod</td>
<td>Ø12 x 2990</td>
<td>Stainless Steel</td>
<td>ISO 15510</td>
<td>X5CrNi 18-9, bright</td>
</tr>
</tbody>
</table>

**Rural Water Supply Network**

**Detail drawing**

**Rod**

**International Handpump Specification**

**Scale:** 1:1

**Drawn by:** K.Erpf 15.03.97
**Checked by:** 02.03.07
**Released by:** 07.03.07
GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Rod</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø12 x 1000</td>
<td>Stainless Steel</td>
<td>ISO 15510</td>
<td>X5CrNi 18-9, bright</td>
<td></td>
</tr>
</tbody>
</table>

Description: Detail drawing

Rod

International Handpump Specification

Scale: 1:1

Drawn by: K. Erpf 16.01.02
Checked by: 02.03.07
Released by: 07.03.07

C2259
GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED

Hook 22/29 x 110 Stainless Steel ISO 15510 X5CrNi 18-9

Description Dimensions Material Standards Remarks

Rural Water Supply Network Detail drawing Hook

Scale: 1:1

International Handpump Specification

Drawn by: K. Erpf 21.11.97
Checked by: 02.03.07
Released by: 07.03.07

C2112
GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

ALL SHARP CORNERS TO BE ROUNDED OFF

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rod</td>
<td>Ø10 x 2800</td>
<td>Stainless Steel</td>
<td>ISO 15510</td>
<td>X5CrNi 18-9, bright</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Detail drawing

Rod

International Handpump Specification

Scale: 1:1

Drawn by: K. Erpf 21.11.97
Checked by: 02.03.07
Released by: 07.03.07

C2113
PREVIOUS VERSION

GENERAL TOLERANCE +/-0.5 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumprod centraliser</td>
<td>Ø48 x 23</td>
<td>Nitrile rubber</td>
<td>ISO 3302-1 (M2)</td>
<td>70-80 Shore A</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Detail drawing

Pumprod centraliser

International Handpump Specification

Scale: 1:1

Drawn by: tlder. 15.03.97
Checked by: 02.03.07
Released by: 07.03.07

C2109
### Top Rod Stainless Steel Ø10 MM (C2113)

### All Pumprods FRP, Ø10 MM (Fibre-Glass Reinforced Plastic)

### Plunger Rod Stainless Steel Ø12 MM with Thread M12 (B2258)

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>Plunger rod connector</td>
<td>A5890</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>X</td>
<td>Pumprod connector</td>
<td>A5896</td>
<td>---</td>
</tr>
</tbody>
</table>

---

**Sub assembly**

**Pumprod arrangement D**

**International Handpump Specification**

Scale: 1:2

- **Drawn by:** K. Erpf 02.08.00
- **Checked by:** 02.03.07
- **Released by:** 07.03.07

**Drawing No.:** A5889
5  1  Pumprod centraliser  C2212  ---
4  2  FRP Rod  C5894  Top rod made of Stainless Steel (C2113)
3  2  Collet  C5893  ---
2  2  Union nut  C5892  ---
1  1  Connector  C5897  ---

Pos.  Qty. Description  Drawing No.  Remarks

Rural Water Supply Network  Sub assembly  Pumprod connector

International Handpump Specification  Scale: 1:1

Drawn by: K.Erpf  17.08.01
Checked by:  02.03.07
Released by:  07.03.07

A5896
NOTE:
STAINLESS STEEL X5CrNi 18-9 IS EQUIVALENT TO AISI 304
STAINLESS STEEL X5CrNiMo 17-12-2 IS EQUIVALENT TO AISI 316

GENERAL TOLERANCE +/-0.2 UNLESS OTHERWISE STATED
ALL SHARP CORNERS TO BE ROUNDED OFF

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union nut</td>
<td>24A/F x 45</td>
<td>Stainless Steel:</td>
<td>ISO 15510</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>X5CrNi 18-9 or X5CrNiMo 17-12-2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rural Water Supply Network
Detail drawing
Union nut

International Handpump Specification

Scale: 2:1

Drawn by: K.Erpf 17.08.01
Checked by: 02.03.07
Released by: 07.03.07

C5892
SMOOTH SURFACE

GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collet</td>
<td>Ø17 x 23</td>
<td>Copper-zinc alloy</td>
<td>ISO 426-2</td>
<td>CuZn38Pb4</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Detail drawing

Collet

International Handpump Specification

Scale: 2 : 1

Drawn by: K Erpf 17.08.01
Checked by: 02.03.07
Released by: 07.03.07

C5893
FRP = Fibre-glass Reinforced Plastic

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRP Rod</td>
<td>Ø10 x 3000</td>
<td>Polyester resin, pultruded, 60-70% Glass fibres</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED
ALL SHARP CORNERS TO BE GROUND OFF

Scale: 1:1

Drawn by: K.Erpf 17.08.01
Checked by: 02.03.07
Released by: 07.03.07

Rural Water Supply Network
International Handpump Specification

C5894
<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>1</td>
<td>Pumprod centraliser</td>
<td>C2212</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>Coupler</td>
<td>C2215</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Plunger rod assy.</td>
<td>B2258</td>
<td>or any other Plunger rod type</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>FRP Rod</td>
<td>C5894</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Collet</td>
<td>C5893</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Union nut</td>
<td>C5892</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Connector</td>
<td>C5891</td>
<td></td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Sub assembly: Plunger rod connector

International Handpump Specification

Scale: 1:1

Drawn by: K.Erpf 17.06.01
Checked by: 02.03.07
Released by: 07.03.07

A5890
Connector Ø20 x 64 Copper-zinc alloy ISO 426-2 CuZn38Pb4

Description: Detail drawing

Connector

International Handpump Specification

Scale: 1:1

Drawn by: K.Erpf 17.08.01
Checked by: 02.03.07
Released by: 07.03.07

GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED

ALL SHARP CORNERS TO BE ROUNDED OFF
Afridev Handpump Specification, Revision 5-2007

Engineering Drawings (Tools)
ELECTROPLATED TO ISO 2081/82

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>Socket</td>
<td>C2162</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Handle rod</td>
<td>C2161</td>
<td>---</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Sub assembly

Spanner assembly

International Handpump Specification

Scale: 1:2

Drawn by: [Signature] 15.03.97
Checked by: [Signature] 02.03.07
Released by: [Signature] 07.03.07

B2160
Handle rod  Ø16 x 300  E 235  ISO 630  bright

Description  Dimensions  Material  Standards  Remarks

Rural Water Supply Network  Detail drawing  Scale: 1:2

Handle rod

International Handpump Specification  C2161

GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

ALL SHARP CORNERS TO BE ROUNDED OFF

Drawn by:  t.leder  15.03.97
Checked by:  02.03.07
Released by:  07.03.07
**Socket**

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWSN</td>
<td>Ø35 x 70</td>
<td>E 355</td>
<td>ISO 630</td>
<td></td>
</tr>
</tbody>
</table>

**Socket**

THIS SHAPE TO BE MADE WITH A HEXAGONAL PUNCH ON A HYDRAULIC PRESS (OUTSIDE SHAPE NOT RELEVANT)

---

**General Tolerance** +/- 0.5 UNLESS OTHERWISE STATED

**All Sharp Corners to Be Rounded Off**

<table>
<thead>
<tr>
<th>Socket</th>
<th>E355</th>
<th>ISO 630</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2162</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Scale:** 1:1

**Drawn by:** K.Erpf 22.06.98

**Checked by:** 02.03.07

**Released by:** 07.03.07
WELDED TO ISO 9692
ELECTROPLATED TO ISO 2081/82
GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>Handle</td>
<td>C2413</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Limiter</td>
<td>C2417</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Flange</td>
<td>C2416</td>
<td>---</td>
</tr>
</tbody>
</table>

Rural Water Supply Network
Sub assembly
Resting tool assembly
International Handpump Specification

Scale: 1:2

B2415
ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange</td>
<td>6 x 190 x 230</td>
<td>E 235</td>
<td>ISO 630</td>
<td></td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Detail drawing

International Handpump Specification

Scale: 1:2

Drawn by: K. Erpf 26.03.01
Checked by: 02.03.07
Released by: 07.03.07

C2416
ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED

Limiter | 16 x 16 x 4.0 | Tool Steel | --- | hardened
Description | Dimensions | Material | Standards |
Rural Water Supply Network | Detail drawing | Limiter | Scale: 1:1 |
International Handpump Specification | | C2417 |

Drawn by: K.Erpf 26.03.01
Checked by: 02.03.07
Released by: 07.03.07
Length prior to bending = 172 MM

All sharp corners to be rounded off.
General tolerance +/-1 unless otherwise stated.
WELDED TO ISO 9692
ELECTROPLATED TO ISO 2081/82

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
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<tbody>
<tr>
<td>3</td>
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<td>Hex. coupler</td>
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<tr>
<td>2</td>
<td>1</td>
<td>T-bar</td>
<td>C2422</td>
</tr>
<tr>
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<td>1</td>
<td>Rod</td>
<td>C2421</td>
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</table>

Rural Water Supply Network

Connecting tool assy.

International Handpump Specification

Scale: 1:2

Drawn by: K.Erpf 26.03.01
Checked by: 02.03.07
Released by: 07.03.07

B2420
GENERAL TOLERANCE +/-1 UNLESS OTHERWISE STATED

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<td>Rod</td>
<td>Ø12 x 200</td>
<td>E 235</td>
<td>ISO 630</td>
<td>bright</td>
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Detail drawing

Rod

International Handpump Specification

Scale: 1:1

Drawn by: K.Erpf 26.03.01
Checked by: 02.03.07
Released by: 07.03.07

C2421
<table>
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</thead>
<tbody>
<tr>
<td>T-bar</td>
<td>Ø12 x 200</td>
<td>E 235</td>
<td>ISO 630</td>
<td>bright</td>
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**Rural Water Supply Network**

**Detail drawing**

**T-bar**

**International Handpump Specification**

**Scale:** 1:1
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<th>Drawing No.</th>
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<td>C1012</td>
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<tr>
<td>6</td>
<td>1</td>
<td>Fishing hook</td>
<td>C2154</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Pin</td>
<td>C1029</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Back plate</td>
<td>C2153</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Side plate</td>
<td>C2152</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Cover plate</td>
<td>C2151</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Rod</td>
<td>C2098</td>
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**GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED**

**HOT DIP GALVANIZED TO ISO 1461 (EXCEPT POS. 5)**

**Scale:** 1:2

**Drawn by:** K.Erpf 13.12.01

**Checked by:** 02.03.07

**Released by:** 07.03.07

**Sub assembly:** Fishing tool assy.

**Remarks:**

- Fitted and riveted after galvanizing.
- Fishing hook to be able to swing freely to this position (30° max.)
- Grind sharp edges.

**International Handpump Specification**

**Revision 5-2007**
**General Tolerance** +/- 0.1 Unless Otherwise Stated

<table>
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<td>Ø12 x 1500</td>
<td>E 235</td>
<td>ISO 630</td>
<td>bright</td>
</tr>
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**Scale:** 1:1

**Drawn by:** K. Erpf 15.11.97
**Checked by:** 02.03.07
**Released by:** 07.03.07

**Rural Water Supply Network**

**International Handpump Specification**

**C2098**
### Detailed Description

**Rural Water Supply Network (RWSN)**

- **Detail drawing**
- **Side plate**

### Dimensions
- **Side plate**: 2 x 20 x 134.5

### Materials
- **E 235**

### Standards
- **ISO 630**

### Technical Specifications

- **Scale**: 1:1
- **Remarks**: General tolerance ±0.5 unless otherwise stated. All sharp corners to be rounded off.

### Drawing Information

- **Drawn by**: [Signature] 15.03.97
- **Checked by**: [Signature] 02.03.07
- **Released by**: [Signature] 07.03.07

### Drawing Reference

- **C2152**

---

**Diagram Details**

- **Dimensions and Angles**
  - 16
  - 2 ±0.2
  - 5 x 45°
  - 4.5°
  - 30°
  - 27
  - 19.5
  - Ø 6.5
  - 69
  - 13.5 (length prior to bending)
  - 20 - 0.5

---

**Legend**

- **R7**
- **R1**
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<tr>
<td>Back plate</td>
<td>2 x 36 x 95</td>
<td>E 235</td>
<td>ISO 630</td>
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**General Tolerance** +/-0.5 unless otherwise stated. All sharp corners to be rounded off.

**Scale:** 1:1

**Drawing details:**
- **Drawn by:** t.lener 15.03.97
- **Checked by:** 02.03.07
- **Released by:** 07.03.07

**Company:** Rural Water Supply Network

**Part of:** International Handpump Specification

**Part number:** C2153
GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED

ALL SHARP CORNERS TO BE ROUNDED OFF

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<th>Remarks</th>
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<tr>
<td>Fishing hook</td>
<td>6 x 22 x 65</td>
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<td>ISO 630</td>
<td>---</td>
</tr>
</tbody>
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Rural Water Supply Network

Detail drawing

Fishing hook

International Handpump Specification

Scale: 1:1

Drawn by: t.leder 15.03.97
Checked by: 02.03.07
Released by: 07.03.07

C2154
GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

Rod

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<th>Remarks</th>
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<td>Detail drawing</td>
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<td>E 235</td>
<td>ISO 630</td>
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Scale: 1:1

Drawn by: K. Erpf 21.11.97
Checked by: 02.03.07
Released by: 07.03.07

International Handpump Specification

C2103
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<th>Spanner</th>
<th>10A/F</th>
<th>Chrome alloy</th>
<th>---</th>
<th>for hex. bolts/nuts M6</th>
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**International Handpump Specification**
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<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>Spanner</td>
<td>13 A/F</td>
<td>Chrome alloy</td>
<td>---</td>
<td>for hex. bolts/nuts M8</td>
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<td><strong>Spanner</strong></td>
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**International Handpump Specification**

**Scale:** 1:1

**Drawn by:** K. Erpf 12.02.01

**Checked by:**

**Released by:**
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<th>Spanner</th>
<th>16 A/F</th>
<th>Chrome alloy</th>
<th>new Standard</th>
<th>for hex. bolts/nuts M10</th>
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</thead>
<tbody>
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<td>Remarks</td>
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International Handpump Specification
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<tbody>
<tr>
<td>Spanner</td>
<td>17 A/F</td>
<td>Chrome alloy</td>
<td>---</td>
<td>for hex bolts/nuts M10</td>
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**Rural Water Supply Network**

**International Handpump Specification**

**Scale:** 1:1

**Drawn by:** K. Erpf  
**Checked by:**  
**Released by:**

**Code:** C1137
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<td>18 A/F</td>
<td>Chrome alloy</td>
<td>new Standard</td>
<td>for hex. bolts/nuts M12</td>
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</table>

**Rural Water Supply Network**

Detail drawing

**Spanner**

**International Handpump Specification**

Scale: 1:1

**Drawn by:** K.Erp 15.08.08

**Checked by:**

**Released by:**

C1153
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<td>for hex. bolts/nuts M12</td>
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<td><strong>Spawner</strong></td>
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<td>Scale: 1:1</td>
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**RWSN**

Detail drawing

Drawn by: K.Erpf  27.11.03
Checked by
Released by

C1005
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<tr>
<td>Spanner</td>
<td>24A/F</td>
<td>Chrome alloy</td>
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<td>for hex. bolts/nuts M16</td>
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<td>Detail drawing</td>
<td>Spanner</td>
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<td>Drawn by: K.Epfr 07.01.99</td>
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</table>
Afridev Handpump Specification, Revision 5-2007

Engineering Drawings (Standard Parts)
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<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>O-Ring</td>
<td>Ø39.0 x 4.0</td>
<td>Nitrile rubber</td>
<td>ISO 3302-1 (M2)</td>
<td>65-75 Shore A</td>
</tr>
</tbody>
</table>

General Tolerance ±/-0.15 unless otherwise stated.

Detail drawing (standard size) Scale: 1:1

Rural Water Supply Network

International Handpump Specification

Drawn by: t.leder. 15.03.97
Checked by:
Released by:

C1011
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<th>Standards</th>
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<tbody>
<tr>
<td>Hexagonal coupler</td>
<td>M12 x 20</td>
<td>Free cutting steel</td>
<td>----</td>
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</tbody>
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**Rural Water Supply Network**

**Detail drawing**

**Hexagonal coupler**

**International Handpump Specification**

**Scale:** 1:1

**Electroplated to ISO 2081/82**

**General Tolerance:** +/-0.5 unless otherwise stated
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<td>Hexagonal coupler</td>
<td>M12 x 50</td>
<td>Free cutting steel</td>
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Rural Water Supply Network

Detail drawing

Hexagonal coupler

International Handpump Specification

Scale: 1:1

Drawn by: t.loder 15.03.97
Checked by: 
Released by: 

ELECTROPLATED TO ISO 2081/82

GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE StATED
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<tr>
<td>Hexagonal nut</td>
<td>M12</td>
<td>Free cutting steel</td>
<td>ISO 4032</td>
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Rural Water Supply Network

Detail drawing

Hexagonal nut

International Handpump Specification

Scale: 1:1

Drawn by: [Signature] 15.03.97
Checked by:
Released by:

ELECTROPLATED TO ISO 2081/82

C1016
Hexagonal bolt

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<tr>
<td>M12 x 40</td>
<td>ISO 4014 (4017)</td>
<td>Class 8.8</td>
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<td></td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Detail drawing

Hexagonal bolt

International Handpump Specification

Scale: 1:1

Drawn by: t.leder 15.03.97
Checked by:
Released by:
### Specifications

**Hexagonal Nut**

- **Description:** for M16
- **Dimensions:** Free cutting steel, ISO 4032
- **Material:** ISO 4032
- **Standards:** ---
- **Remarks:**

#### Additional Information

- **Scale:** 1:1
- **Drawing Code:** C1018

---

**Rural Water Supply Network (RWSN)**

**Detail Drawing**

**Hexagonal Nut**

- **Drawn by:** t.leder, 15.03.97
- **Checked by:**
- **Released by:**
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<th>Material</th>
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<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>O-Ring</td>
<td>Ø44.2 x 3.0</td>
<td>Nitrile rubber</td>
<td>ISO 3302-1 (M2)</td>
<td>65-75 Shore A</td>
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</table>

**Rural Water Supply Network**

**Detail drawing** (standard size)

**Scale**: 1:1

**Drawn by**: Tieder, 15.03.97

**Checked by**:       

**Released by**:       

**International Handpump Specification**

**C1020**
<table>
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</tr>
</thead>
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<tr>
<td>O-Ring</td>
<td>Ø28.0 x 2.5</td>
<td>Nitrile rubber</td>
<td>ISO 3302-1 (M2)</td>
<td>65-75 Shore A</td>
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**Rural Water Supply Network**

**O-Ring**

**International Handpump Specification**

**Scale:** 1:1

**Drawn by:** t.l.e.d.e.r. 15.03.97
**Checked by:**
**Released by:**

**GENERAL TOLERANCE +/− 0.15 UNLESS OTHERWISE STATED**
Hexagonal bolt

M16 x 25

Class 8.8

ISO 4017

---

Detail drawing

Hexagonal bolt

Scale: 1:1

International Handpump Specification

C1025

Rural Water Supply Network

ELECTROPLATED TO ISO 2001/82
<table>
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<th>Standards</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>Dowel pin</td>
<td>Ø6 x 16</td>
<td>Tool Steel</td>
<td>~ISO 2338</td>
<td>hardened (HRC 60)</td>
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Detail drawing

Dowel pin

International Handpump Specification

Scale: 1:1

Drawn by: t.leder. 15.03.97
Checked by: 
Released by: 

C1027
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<th>Remarks</th>
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<tr>
<td>Rural Water Supply Network</td>
<td>Ø17/8.4 x 1.6</td>
<td>Free cutting steel</td>
<td>ISO 7089</td>
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**Electroplated to ISO 2081/82**

**Drawn by:** t.leder. 15.03.97

**Scale:** 1:1

**Remarks:**

**International Handpump Specification**

**C1028**
**GENERAL TOLERANCE +/-0.5 UNLESS OTHERWISE STATED**

**ALL SHARP CORNERS TO BE ROUNDED OFF**

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<th>Remarks</th>
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<tr>
<td>Pin</td>
<td>Ø6 x 45</td>
<td>E295</td>
<td>ISO 2338</td>
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</table>

- **Detail drawing**: un-hardened
- **Scale**: 1:1

**Rural Water Supply Network**

**International Handpump Specification**

**Drawn by**: K.Erpf 14.01.03
**Checked by**: 
**Released by**: 

**C1029**
**NOTE:** THIS BALL BEARING IS ALSO AVAILABLE FROM TOYOTA MOTORS

INDICATION: TOYOTA KOYO UK 6204 RS

SPARE PART NO: 97140-06204

---

**Table:**

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<thead>
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<th>Remarks</th>
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<td>Ball bearing</td>
<td>Ø47/20 x 14</td>
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<td>ISO 15</td>
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**Detail drawing:**

- **Scale:** 1:1
- **Drawn by:** K.Erpf 19.12.00
- **Checked by:**
- **Released by:**

**International Handpump Specification**

---

**Diagram:**

- DOUBLE SHELDED
GENERAL TOLERANCE +/-0.5 UNLESS OTHERWISE STATED

<table>
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<th>Description</th>
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<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexagonal coupler</td>
<td>M12 x 50</td>
<td>Stainless steel</td>
<td>---</td>
<td>X5CrNi 18-9</td>
</tr>
</tbody>
</table>

Rural Water Supply Network

Detail drawing

Hexagonal coupler

Scale: 1:1

International Handpump Specification

Drawn by: K. Erpf 15.12.97
Checked by: 
Released by: 

C1055
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<td>Washer</td>
<td>Ø21/10.5 x 2</td>
<td>Stainless steel</td>
<td>ISO 7089</td>
<td>for M10, X5CrNi 18-9</td>
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</tbody>
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Rural Water Supply Network

Detail drawing

Washer

International Handpump Specification

Scale: 1:1

Drawn by: K.Erpf 08.08.98

Checked by: 

Released by: 

C1064
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<td>Hexagonal bolt</td>
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<td>X5CrNi 18-9</td>
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<td>International Handpump Specification</td>
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**Scale:** 1:1

**Drawn by:** K.Erpf 08.07.98
**Checked by:**
**Released by:**
Washer

Description: Ø30/17 x 3
Material: Brass
Standards: ISO 7089
Remarks: for M16

Scale: 1:1

Rural Water Supply Network

Detail drawing

Washer

International Handpump Specification

C1069
<table>
<thead>
<tr>
<th>Description</th>
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<td>Ø6 x ........</td>
<td>PP, PE or PA</td>
<td>twisted or woven</td>
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**Rope 6mm**

**Detail drawing**

**Scale:** 1:1

**Drawn by:** K. Erpf 12.03.00

**Checked by:**

**Released by:**

**International Handpump Specification**

**C1087**

TOLERANCE FOR ROPE THICKNESS IS +/- 1mm
<table>
<thead>
<tr>
<th>Rural Water Supply Network</th>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
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<tbody>
<tr>
<td>Electroplated to ISO 2081/82</td>
<td>Hexagonal bolt</td>
<td>M16 x 16</td>
<td>Class 8.8</td>
<td>ISO 4017</td>
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<td>25.11.00</td>
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<td>Hexagonal bolt</td>
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**Rural Water Supply Network**

**Detail drawing**

**Hexagonal bolt**

**International Handpump Specification**

Scale: 1:1

Drawn by: K.Erpf  
Checked by:  
Released by:  

C1114
Hexagonal bolt
Description: M6 x 25
Material: Stainless steel
Standards: ISO 4014
X5CrNi 18-9

Rural Water Supply Network
Detail drawing
Hexagonal bolt
International Handpump Specification

Scale: 1:1

Drawn by: K. Erpf 16.07.01
Checked by:
Released by:

C1120
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<tr>
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<td>Stainless steel</td>
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**Rural Water Supply Network**

**Detail drawing**

**Hexagonal nut**

**International Handpump Specification**

**Scale:** 1:1

**Drawn by:** K.Erpf 16.07.01

**Checked by:**

**Released by:**
Hexagonal nut
for M16
Brass
ISO 4032

Rural Water Supply Network
Detail drawing
Hexagonal nut
International Handpump Specification

Scale: 1:1

Drawn by: K.Erpf 19.12.01
Checked by:
Released by:

C1130
Afridev Handpump Specification, Revision 5-2007

Appendix 1

Parts list
<table>
<thead>
<tr>
<th>Part No</th>
<th>Qty</th>
<th>Description</th>
<th>Dimension</th>
<th>Material</th>
<th>Standard</th>
<th>Subsequent Process</th>
<th>Remarks</th>
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<td>Body</td>
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<td>C2007</td>
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<td>Bracket plate</td>
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<td>ISO 630</td>
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<td>machined</td>
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<tr>
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<td>Stopper plate</td>
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<tr>
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<td>Overflow cover</td>
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<td>E 235</td>
<td>ISO 630</td>
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<tr>
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<tr>
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<tr>
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<td>Handle fork left</td>
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<td>E 235</td>
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<tr>
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<td>Fulcrum housing</td>
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<td>X5CrNi 18-9 (X5CrNiMo 27-12-2)</td>
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<td>Part No</td>
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<td>Dimension</td>
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<td>ISO 630</td>
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<td>E 355</td>
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<td>ISO 559</td>
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<td>ISO 630</td>
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<td>ISO 630</td>
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<td>E 235</td>
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<tr>
<td>C2084</td>
<td>8</td>
<td>Fixing rod</td>
<td>Ø8 x 300</td>
<td>E 185</td>
<td>ISO 630</td>
<td>welding / ISO 9692 machined</td>
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<td>B2092</td>
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<td>E 355</td>
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<td>C2094</td>
<td>2</td>
<td>Eye</td>
<td>Ø8 x 44</td>
<td>E 355</td>
<td>ISO 630</td>
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<td>Compression cone</td>
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<td>Rubber</td>
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<td>moulded / 65-75 Shore A</td>
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<td>Cylinder pipe</td>
<td>Ø63/4.7 x 850</td>
<td>PVC-U</td>
<td>ISO 4422/11922-1</td>
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<td>C2073</td>
<td>1</td>
<td>Liner</td>
<td>Ø54/2 x 700</td>
<td>Copper-zinc all. ISO 426-1</td>
<td>pre-assembling CuZn 37 (CuZn20Al2 or CuZn28Sn1)</td>
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<tr>
<td>C2074</td>
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**TOOLS:**

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**STANDARD PARTS:**

<p>| C1011   | 1   | O-Ring              | Ø39.0 x 4.0| Nitrile rubber        | ISO 3601/1  | none                     | moulded / 65-75 Shore A, (standard size) |
| C1012   | X   | Hexagonal coupler   | M12 x 20  | Free cutting st.      | none        | electroplating           | ISO 2081/82                            |
| C1015   | X   | Hexagonal coupler   | M12 x 50  | Free cutting st.      | none        | electroplating           | ISO 2081/82                            |
| C1016   | 4   | Hexagonal nut       | M12       | Free cutting st.      | ISO 4032    | electroplating           | ISO 2081/82                            |
| C1017   | 4   | Hexagonal bolt      | M12 x 40  | Class 8.8             | ISO 4014 or 4017 | electroplating          | ISO 2081/82                           |
| C1018   | 4   | Hexagonal nut       | M16       | Free cutting st.      | ISO 4032    | electroplating           | ISO 2081/82                            |
| C1020   | 1   | O-Ring              | Ø44.2 x 3.0| Nitrile rubber        | ISO 3601/1  | none                     | moulded / 65-75 Shore A, (standard size) |
| C1021   | 1   | O-Ring              | Ø28.0 x 2.5| Nitrile rubber        | ISO 3601/1  | none                     | moulded / 65-75 Shore A, (standard size) |
| C1025   | 2   | Hexagonal bolt      | M16 x 25  | Class 8.8             | ISO 4017    | electroplating           | ISO 2081/82                            |
| C1027   | 4   | Pin                 | Ø6 x 16   | Tool Steel            | ISO 2358    | none                     | hardened, ground                      |
| C1028   | 4   | Washer (M8)         | Ø17/8.4 x 1.6| Free cutting st.      | ISO 7069    | electroplating           | ISO 2081/82                            |
| C1029   | 1   | Pin                 | Ø6 x 45   | Stainless Steel       | none        | none                     | X5CrNi 18-9                           |
| C1053   | X   | Hexagonal coupler   | M12 x 20  | Stainless Steel       | none        | none                     | X5CrNi 18-9                           |
| C1055   | X   | Hexagonal coupler   | M12 x 50  | Stainless Steel       | none        | none                     | X5CrNi 18-9                           |
| C1064   | 1   | Washer (M10)        | Ø21/10.5 x 2| Stainless Steel       | ISO 7069    | none                     | X5CrNi 18-9                           |
| C1066   | 1   | Hexagonal bolt      | M10 x 35  | Stainless Steel       | ISO 4014 or 4017 | none       | X5CrNi 18-9                           |
| C1069   | 4   | Washer (M16)        | Ø30/17 x 3| Brass                | ISO 7069    | none                     | CuZn38Pb4                             |
| C1087   | 1   | Rope 6mm            | Ø6 x …….  | PP, PE or PA          | none        | none                     | twisted or woven                      |</p>
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<th>Qty</th>
<th>Description</th>
<th>Dimension</th>
<th>Material</th>
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<th>Remarks</th>
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Afridev Handpump Specification, Revision 5-2007

Appendix 2

International Standards used in the Afridev Specification
International Standards used in the AFRIDEV Handpump Specifications

ISO 426-1  Wrought copper-zinc alloys – Non leaded and special copper-zinc alloy.
ISO 559    Steel tubes for water and sewage.
ISO 630    Structural steels.
ISO 1127   Stainless steel tubes - Dimensions, tolerances.
ISO 1163-1 Unplasticized compounds of vinyl chloride (PVC-U) – Designation.
ISO 1461   Metallic coatings - Hot dip galvanized coatings - Requirements.
ISO 1874-1 Plastics – Polyamide (PA) moulding and extrusion materials.
ISO 2081   Metallic coatings - Electroplated coatings of zinc on iron or steel.
ISO 2082   Metallic coatings - Electroplated coatings of cadmium on iron or steel.
ISO 2338   Parallel pins, unhardened.
ISO 2859-1 Sampling procedures for insp. by attributes – Sampling plans indexed by AQL.
ISO 3302-1 Rubber - Tolerances for products.
ISO 3601-1 Fluid systems - Sealing devices - O-rings - ID, cross-sections, tolerances.
ISO 3601-3 Fluid systems - Sealing devices - O-rings - Quality acceptance criteria.
ISO 4014   Hexagon head bolts - Product grades A and B.
ISO 4017   Hexagon head screws - Product grades A and B.
ISO 4019   Cold finished steel – Dimensions and sectional properties.
ISO 4032   Hexagon nuts, style 1 - Product grades A and B.
ISO 4065   Thermoplastic pipes - Universal wall thickness table.
ISO 4200   Plain end steel tubes, welded and seamless - Table of dimensions.
ISO 4422-1 Pipes and fittings (of PVC-U) for water supply – Specifications.
ISO 4422-2 Pipes and fittings (of PVC-U) for w & s – Pipes (with or without integral sockets).
ISO 4520   Chromate conversion coatings on electro plated zinc and cadmium coatings.
ISO 7089   Plain washers - Normal series - Product grade A.
ISO 7387-1 Adhesives with solvents for assembly of PVC pipes – Basic test methods.
ISO 9330-1 Welded steel tubes for pressure purposes - Technical delivery conditions.
ISO 9692-1 Metal-arc welding, gaz-shielded welding and gaz welding – Joint preparations.
ISO 11922-1 Thermoplastic pipes for the conveyance of fluids – Dimensions and tolerances.
ISO 15510  Stainless steels – Chemical composition.
BS 2751   Specification for general purpose acrylonitrile - butadiene rubbers.
Afridev Handpump Specification, Revision 5-2007

Appendix 3

R & D and Miscellaneous
Rising main arrangement in Dugwells:

Swinging of Rising main pipes:
Compared to steel pipes, plastic pipes are more elastic and they tend to stretch and swing (or snake) during operation of the pump. These motions can result in pipe failure, especially at the pipe joints. To prevent these movements, the following action has to be taken:

For **Boreholes** with casing diameter of 4" to 6", rubber centralisers of the required sizes are provided to keep the rising main in position. (For installation procedures please consult the "Afridev Handpump Installation and Maintenance Manual.")

For **Dugwells**, special provision is advisable; the rising main should be fixed in a vertical position to the wall, or to the reinforcement rings of the well. In such cases, it is an advantage if the handpump is installed such that the rising main is situated close to the wall of the dugwell. The fixation can be made by tying the rising main to anchor bolts with a piece of rope or rubber band, or other suitable systems.

Positioning the Pump Cylinder:
The cylinder setting in a dugwell should be at least 1 meter below the dynamic water level (DWL) in the dry season. The end of the suction pipe should be always set at least 0.5 to 1 m above the bottom of the well, to avoid pumping sand and silt (see sketch below).

If required, the length of the suction pipe can be easily adjusted with a hacksaw.
<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repair socket</td>
<td>Ø75/5.6 x 230</td>
<td>PVC-U</td>
<td>ISO 4422-2/11922-1</td>
<td>Serie 6.3 / PN 16</td>
</tr>
</tbody>
</table>

**General Tolerance**: +/−1 unless otherwise stated

All sharp corners to be rounded off.

Scale: 1:1

**Rural Water Supply Network**

Detail drawing

**International Handpump Specification**

Drawn by: K.Erpf 20.09.03
Checked by: V.02.03.07
Released by: - 07.03.07

C2438
THIS ANGLE CAN VARY BETWEEN 9 TO 20°

** BELL-ENDS TO BE MADE BY HEAT FORMING

ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/-2 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repair socket</td>
<td>Ø63/4.7 x 550</td>
<td>PVC-U</td>
<td>ISO 4422-2/11922-1</td>
<td>Serie 6.3 / PN 16</td>
</tr>
</tbody>
</table>

Scale: 1:2

International Handpump Specification

C2439
Afridev Handpump Specification Revision 5-2007
Explanation of new features and changes compared to the previous Revision 4-2002.

1.) General comments
The “layout” of the Afridev Handpump Specification Revision 5-2007 has slightly changed:
   a) Due to the name change from HTN (Handpump Technology Network) to the Rural Water Supply Network (RWSN), all logos had to be changed.
   b) The technical drawings are not any longer divided into 3 different sections (Standard version, Recommended Options and Non-recommended Options).
      To clarify the existing Options, a selection of the requested pump components with all options is illustrated at the beginning of the specification instead.
   c) A harmonisation of tolerances was made to comply with the ISO Standard.

The following list gives more information on changes, new components and deleted items:

2.) ISO Flange arrangement D9026 / D9071
The whole ISO Flange arrangement developed together with a number of manufacturers of public and private domain handpumps has been skipped, because of no support by the International Standard Organisation (ISO) in London.

3.) Handle assembly A2012
Fixation of Handle rear assembly:
Handle rear assembly B2186 changed back to the original set-up B2020:
   a) Extension pipe without indexing holes,
   b) Fixation of Extension pipe made by Hexagonal bolt (C1025),
   c) No hole drilled to the T-bar (for additional weights for balancing the handle),

4.) Stand assembly B2221
The “old” Stand assembly (B2055) is replaced by Stand assembly B2221, which uses the same pipe dimensions like Stand assembly B2050 (possible to be installed on a 6” casing pipe).
   a) “New” Bottom Flange C2068
   b) Gasket C2059 with larger hole dimension.

5.) Pumping arrangement A (A2070)
This arrangement is the standard option with Brass plunger (A2266) and Plastic footvalve with Eye assembly (A2096).
Please note:
   a) This drawing was changed by replacing the Plastic plunger by the Brass plunger.
   b) Make sure that no Plastic plungers with Cup-seals (A2064) are used any longer!

6.) Pumping arrangement B (A2257)
This arrangement is an option with Brass plunger (A2266) and Plastic footvalve with Fishing connector (A2265). This is the recommended Standard!

7.) Pumping arrangement C (A2296)
This arrangement is the option with Brass plunger (A2266) and Brass footvalve (A2298). Please note that the Cylinder for this pumping arrangement requires a Footvalve receiver of brass (B2297).

8.) Pumprod arrangement A (A2206)
Threaded Pumprods of Mild steel should not be used in aggressive waters!

9.) Pumprod arrangement B (A2209)
Threaded Pumprods of Stainless steel is the recommended Standard!

10.) Pumprod arrangement C (A2110)
     Pumprods of Stainless steel with Hook- & Eye connectors should not be used for installations exceeding 30 m (cylinder setting).

11.) Pumprod arrangement D (A5889)
     FRP Pumprods are a recommended option, especially for corrosive water and for deep and very deep installations.

12.) Ball Bearings
     An Option is available to change the fragile Plastic Bearing set with Ball Bearings (see Appendix 5)

29-12-2008
Karl Erpf
Appendix 4

Bearing Option

Ball Bearings instead of Plastic Bearings
(update 29-12-08)
GUIDELINES FOR HANDLE SETTINGS

HANDLE ASSEMBLY SHOULD BE BALANCED AS SUCH THAT IT REMAINS IN A HORIZONTAL POSITION.

FOR BALANCING THE HANDLE, ADJUST THE HANDLE REAR (B2020) AND FIX IT WITH THE HEXAGONAL BOLT.

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
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<td>4</td>
<td>1</td>
<td>Hexagonal bolt</td>
<td>C1025</td>
<td>M16 x 25</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Ball bearing</td>
<td>C1035</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Handle rear assy.</td>
<td>B2020</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Handle front assy.</td>
<td>B2385</td>
<td>---</td>
</tr>
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</table>

Rural Water Supply Network

Sub assembly

Handle arrangement

International Handpump Specification

Scale: 1:2.5

Drawn by: K.Erpf 14.11.02
Checked by: 10.08.06
Released by: 10.08.06

A2384
THESE DIMENSIONS REFER TO AFTER GALVANIZING

WELDED TO ISO 9692
HOT DIP GALVANIZED TO ISO 1461
GENERAL TOLERANCE +/−2 UNLESS OTHERWISE STATED
ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
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<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fulcrum housing</td>
<td>Ø75 x 109.8</td>
<td>E 235</td>
<td>ISO 630</td>
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</table>

Detail drawing
Fulcrum housing
International Handpump Specification

Scale: 1:1
<table>
<thead>
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<th>Drawing No.</th>
<th>Remarks</th>
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</thead>
<tbody>
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<td>6</td>
<td>2</td>
<td>Ball bearing</td>
<td>C1035</td>
<td>---</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>Hex. nut special</td>
<td>C2027</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Pump head assembly</td>
<td>B2003</td>
<td>(Fulcrum bracket assy.)</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Distance ring</td>
<td>C7155</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Fulcrum pin</td>
<td>C7148</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Fulcrum housing</td>
<td>C7024</td>
<td>---</td>
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**Sub assembly**

**Fulcrum arrangement.**

**International Handpump Specification**

**Scale:** 1:1

**Drawn by:** K.Erpf 15.11.02

**Checked by:**

**Released by:**

---
**Electroplated to ISO 2081/82**

**All sharp corners to be rounded off**

**General tolerance ±0.5 unless otherwise stated**

<table>
<thead>
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<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
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<tr>
<td>Fulcrum pin</td>
<td>Ø26 x 180</td>
<td>E 355</td>
<td>ISO 630</td>
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</table>

Rural Water Supply Network

Detail drawing

**Fulcrum pin**

International Handpump Specification

Scale: 1:1 (2:1)

Drawn by: K Erpf 15.12.02

Checked by: 10.08.06

Released by: 10.08.06

C7148
ELECTROPLATED TO ISO 2081/82
ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/-0.5 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Distance ring</th>
<th>Ø36 x 13</th>
<th>E 355</th>
<th>ISO 630</th>
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<td>Description</td>
<td>Dimensions</td>
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<td>Standards</td>
<td>Remarks</td>
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<td>Rural Water Supply Network</td>
<td>Detail drawing</td>
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Distance ring

International Handpump Specification

Scale: 1:1

Drawn by K.Erpf 15.12.02
Checked by 10.08.06
Released by 10.08.06

C7155
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<tbody>
<tr>
<td>7</td>
<td>1</td>
<td>Hexagonal bolt</td>
<td>C1105</td>
<td>M16 x 16</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>Hexagonal nut</td>
<td>C1018</td>
<td>M16</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>Ball bearing</td>
<td>C1035</td>
<td>--</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Handle front assy.</td>
<td>B2385</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Distance ring</td>
<td>C7155</td>
<td>--</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Hanger pin</td>
<td>C7162</td>
<td>--</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Rodhanger assy.</td>
<td>B2305</td>
<td>--</td>
</tr>
</tbody>
</table>

Sub assembly: Hanger arrangement

International Handpump Specification

Scale: 1:1

Drawn by: K. Erp

A2302
THESE DIMENSIONS TO BE CHECKED AND CLEANED AFTER WELDING AND GALVANIZING

GENERAL TOLERANCE +/- 1 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td>Hexagonal bolt</td>
<td>C1105</td>
<td>M16 x 16</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Retainer bush</td>
<td>C2031</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Connector</td>
<td>C2030</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Hanger bush</td>
<td>C7036</td>
<td>---</td>
</tr>
</tbody>
</table>

WELDED TO ISO 9692
HOT DIP GALVANISING TO ISO 1461

Rural Water Supply Network
(RWSN)

Sub assembly: Rodhanger assy.
Ball Bearing

International Handpump Specification

Scale: 1:1

Drawn by: K.Erpf  16.11.02
Checked by:
Released by:

B2305
ALL SHARP CORNERS TO BE ROUNDED OFF
GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Material</th>
<th>Standards</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hanger bush</td>
<td>Ø60 x 58</td>
<td>E 235</td>
<td>ISO 630</td>
<td>---</td>
</tr>
</tbody>
</table>

Detail drawing

Rural Water Supply Network

Hanger bush

International Handpump Specification

Scale: 1:1

Drawn by: K.Erpf 16.11.02
Checked by: 10.08.06
Released by: 10.08.06

C7036
Schematic drawing of a hanger pin.

**Dimensions:**
- Ø26 x 118
- Ø20 - 0.05
- 1.5 x 4.5°
- M16
- R0.5
- A/F 16

**Material:**
- E355

**Standards:**
- ISO 630

**Description:**
- Hanger pin

**Remarks:**
- ELECTROPLATED TO ISO 2081/82
- ALL SHARP CORNERS TO BE ROUNDED OFF
- GENERAL TOLERANCE +/- 0.5 UNLESS OTHERWISE STATED

**Scale:**
- 1:1
  - (2:1)

**Drawn by:** K.Erpf
- 16 01 03

**Checked by:**
- 10 08 06

**Released by:**
- 10 08 06

**International Handpump Specification**

**C7162**