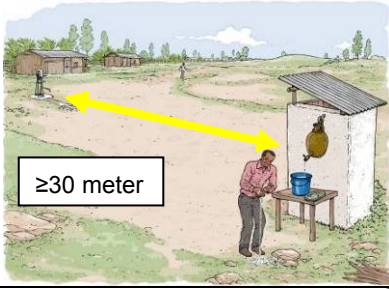
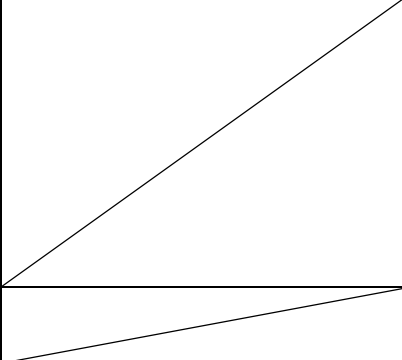










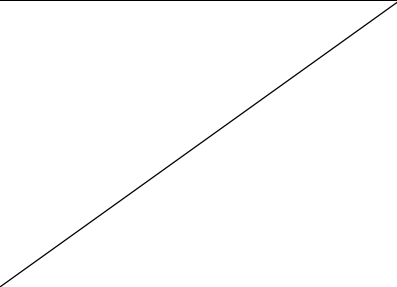

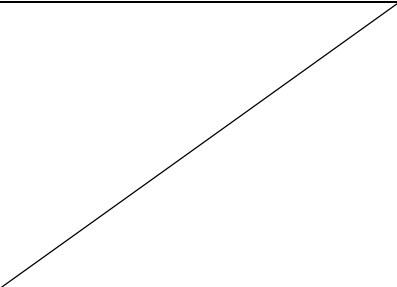





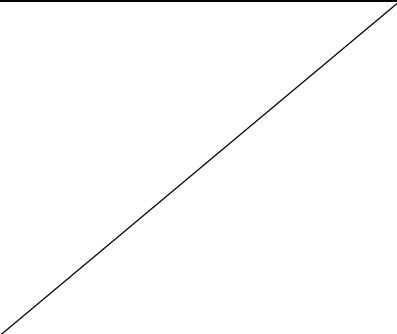


**Rope Pump INSTALLATION checklist for quality control**

	Description	Good sample	Bad sample
<b>A</b>	<b>Site selection and preparations of the well before installation</b>		
<b>A1</b>	<b>Hygiene and site selection</b>		
	<p>Before the Rope pump is installed on a well, please be aware of following hygiene aspects:                      The presence of a toilet/latrine is a serious threat to the water quality in the well. If the toilet is near the well, the well water may be contaminated with bacteria from the toilet. Therefore it is strongly recommended to:</p>		
1	Locate the well at a distance of 30 meters or more from the toilet (including a toilet from the neighbor),	 <p>≥30 meter</p>	
2	Locate the well upstream (or uphill) of the toilet,		
3	Check if the installer has informed the client about the hygiene aspects mentioned above.		
<b>A2</b>	<b>Preparations of the well before installation</b>		
	<p>Before the Rope pump is installed on a well, it is important that the well itself is of good quality. It is important that:</p>		
4	The well will not dry up during dry season. The well should be deep enough to hold at least 50 centimeter of water during the dry season. If the well is not deep enough, it should be deepened BEFORE INSTALLATION of the Rope pump,	 <p>deepening the well</p>	 <p>dry well, not deep enough</p>
5	The well should be a 'non-collapsing' well. If the bottom of the well consists of collapsing sand, the well will collapse again after deepening and the Rope pump will not work. The pump cannot be installed on a collapsing well unless the bottom of the well is reinforced, to prevent the well from collapsing.		 <p>well collapse, the wall of the well has collapsed</p>











*Rope pump installation check list for quality control, 3<sup>rd</sup> Edition August 2016*

	<b>Description</b>	<b>Good sample</b>	<b>Bad sample</b>
6	Check if the installer has informed the client about the well requirements mentioned above.		
7	Check if the installer has measured the water level in the well (and asked the client what the water level of the well is during dry season).		
8	Check if well cleaning and/or deepening of the well is done.		
<b>B Construction of the top works</b>			
<b>B1 Preparations before construction of the top works</b>			
9	Check if the installer has measured the diameter and depth of the well.		
10	Check if all construction materials are present on the site: cement, sand (without silt and organic impurities), gravel, stones, reducer blocks and well cover.		
<b>B2 Construction of the top works (checklist to be checked DURING construction)</b>			
11	Check if the top soil around the well is removed to a minimum depth of 20 centimeters.		
12	Check if the soil is compacted and the surface is levelled before placing the gravel/stones.		







Rope pump installation check list for quality control, 3<sup>rd</sup> Edition August 2016

	Description	Good sample	Bad sample
13	Check if the gravel/stones have been compacted (make sure there is enough gravel, because the final level of the reducer blocks should be slightly higher than the well surroundings).		
14	Check if the mix ratio for concrete is 1 cement: 2 sand: 3 gravel. Check if the mix ratio for mortar is 1 cement: 3 sand.		
15	Check if the reducer blocks are for max ¼ above the HDW (¾ on the concrete) and that the blocks are sloping to the outside of the well.		
16	Check if the space between the reducer blocks is equally divided.		
17	Check if the concrete is kept wet during curing. For curing times please the Module 2 of the Rope pump manual*		
18	Check if the concrete well cover is placed on the centre of the well (the overlap of the well cover on the reducer blocks should be equal on all sides).		


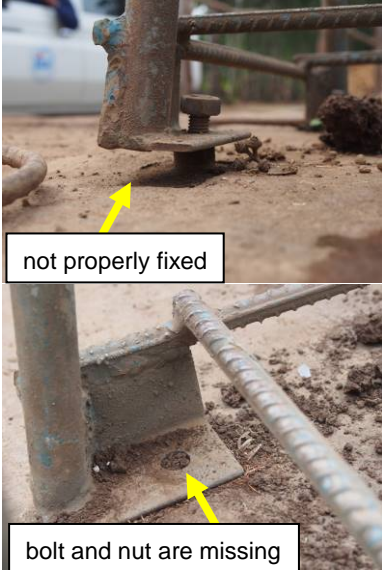



Rope pump installation check list for quality control, 3<sup>rd</sup> Edition August 2016

	Description	Good sample	Bad sample
19	Check if all the top works (apron and drainage channel) are plastered with mortar.		
20	Check if there is a levelled stand for the water container or bucket (not blocking the drain channel).		
21	Check if the apron, drainage channel and soak away pit (filled with stones) are constructed in such way that water CANNOT leak back into the well (the drain channel should be constructed in such way that water will drain away from the well to the 'lowest part' of the well surrounding).	 water will drain away from the well	 no drain channel, water can easily leak back into the well
<b>C Installation of the Rope pump</b>			
<b>C1 Materials (checklist to be checked during or after installation):</b>			
22	PVC pipes and fittings: All pipes and fittings should be of the same standard (ISO, DIN or equivalent, pressure class PN6) to allow proper fit.		 no fit, too much clearance
23	Pistons: Should be made out of PE (Poly Ethylene) and should fit the PVC pipes with a maximum clearance of 1mm.	 maximum clearance of 1 mm	 too much clearance
24	Rope: Should be made of PP (Poly Propylene) or Nylon, diameter 4mm for 1/2" (20mm) PVC pipes and 6mm for 3/4" (25mm) and 1" (32mm) PVC pipes.	/	/




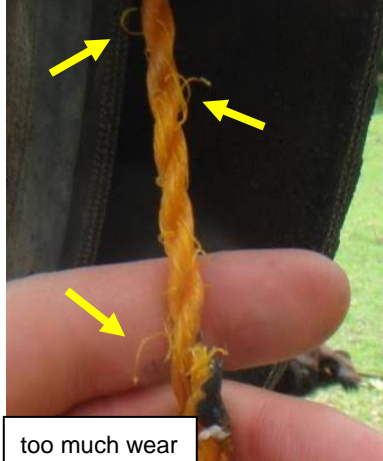
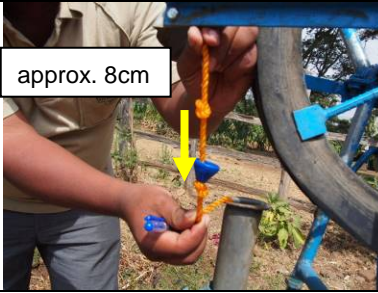
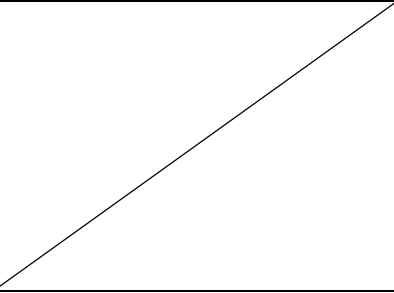




Rope pump installation check list for quality control, 3<sup>rd</sup> Edition August 2016

	Description	Good sample	Bad sample
25	Check if the diameter of the PVC raising pipe is correct in relation to the depth of the static water level (in dry season) in the well.	/	/
<b>C2 Installation (checklist to be checked during or after installation):</b>			
26	Check if all the PVC pipes (above well cover) and fittings are well connected with each other (and no play, damage or cracks can be observed).	 <p data-bbox="671 815 999 891">no damage, play or cracks, PVC pipes are well connected</p>	 <p data-bbox="1050 864 1431 940">fittings not well connected, PVC pipes, reducer and T do not fit</p>
27	Check if the outlet is high enough to fit the bucket or jerry can.		 <p data-bbox="1066 965 1225 994">outlet too low</p>
28	Check if length of the tanker is ok (there should not be any water flow out of the top of the tanker, only some water may splash out).		 <p data-bbox="1241 1496 1417 1525">tanker too short</p>




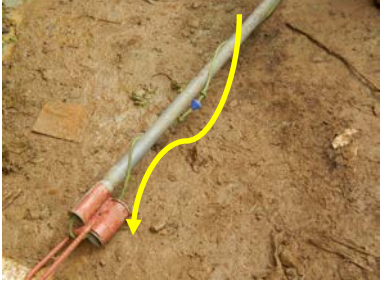

Rope pump installation check list for quality control, 3<sup>rd</sup> Edition August 2016

	Description	Good sample	Bad sample
29	Check if the pump is properly fixed (nuts tightened, no play) on the well cover.	 <p data-bbox="644 629 1026 703">Pump is properly fixed on the well cover</p>	 <p data-bbox="1066 479 1273 517">not properly fixed</p> <p data-bbox="1066 770 1337 804">bolt and nut are missing</p>
30	Check if all other bolts and nuts are tightened (especially the wheel and the raising and return pipe holders).	/	 <p data-bbox="1050 1106 1409 1135">bolt is missing, tanker has shifted</p>
31	Check if the wheel is aligned with the raising pipe (rope should enter the raising pipe in the middle).	 <p data-bbox="660 1487 986 1516">rope enters pipe in the middle</p>	 <p data-bbox="1066 1256 1193 1285">not aligned</p>

Rope pump installation check list for quality control, 3<sup>rd</sup> Edition August 2016





	Description	Good sample	Bad sample
32	Check if the rope tension is ok.	 <p data-bbox="651 768 1016 846">if you can turn your hand like this, the rope tension is ok</p>	
33	Check if there is any wear on the rope.	 <p data-bbox="660 1272 762 1317">no wear</p>	 <p data-bbox="1062 1290 1241 1323">too much wear</p>
34	Check if the direction of all pistons is ok. Check the distance between the pistons (approx. 1m). Check the distance between the knots (approx. 8cm).	 <p data-bbox="651 1384 794 1429">approx. 8cm</p>	
35	Check if the loops are made well and if the rope end is melted and seamed. The total length of the loop should not be more than 30 centimeters.		 <p data-bbox="1142 1899 1417 1933">loop end was not melted</p>
36	Check if the rope is slipping on the wheel.		

Rope pump installation check list for quality control, 3<sup>rd</sup> Edition August 2016

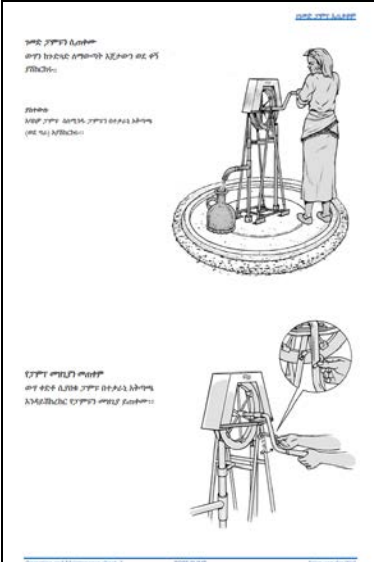


	Description	Good sample	Bad sample
37	Check if the rope with the pistons can move smoothly. No obstruction should be noted. If you can feel any obstruction of the rope and pistons while operating the pump, it needs further investigation.	/	/
38	If the reason for obstruction cannot be found above the well cover, the pump needs to be taken out of the well for further inspection. Reasons for obstruction may be:	/	/
	<ul style="list-style-type: none"> <li>a problem at the guide box (broken flairs, rope wound around the guide box).</li> </ul>		
	<ul style="list-style-type: none"> <li>a problem with the rope being wound around the raising pipe.</li> </ul>		
	<ul style="list-style-type: none"> <li>a problem with the sockets. Check the direction of the sockets (towards the well) or the presents of any rim of glue inside the sockets.</li> </ul>	 <p style="text-align: center;">sockets pointing towards the well</p>	/
	<ul style="list-style-type: none"> <li>a problem with the connection of the pipes, check if all pipes have been properly connected and glued</li> </ul>	/	/



Rope pump installation check list for quality control, 3<sup>rd</sup> Edition August 2016

	Description	Good sample	Bad sample
39	Check if the holes in the PVC cap(s) are properly made to fit the raising and return pipes (water may not leak back into the well).		
40	Check if the guide box is installed 10-50 centimeters above the bottom of the well. This can easily be done by checking the depth of the well. Then count the pistons to calculate the length of the rope and subtract 2.5 meter (rope above the well). Then divide by 2, to have an indication on the depth of the guide box.	/	/
41	Check if the bushings have been lubricated (recommended is new motor oil).		
<b>D Operation and maintenance</b>			
42	Check if the installer has given operation and maintenance training to the client (how to operate the pump, use of the pump lock, how to lubricate, how to tighten bolts and nuts, how to adjust rope tension, how to install a new rope and how to connect the rope and how to align the wheel with the raising pipe).	/	/

Rope pump installation check list for quality control, 3<sup>rd</sup> Edition August 2016

	Description	Good sample	Bad sample
43	Recommended: check if the installer has provided the client with one full set of ‘operation and maintenance sheets’.		/
44	Check if the installer has given any additional advices to the client, for example:	/	/
	<ul style="list-style-type: none"> <li>Advise for fencing (to avoid access of animals damaging the well, the pump and parts and for better sanitation).</li> </ul>		
	<ul style="list-style-type: none"> <li>Grassing around the well (to protect erosion of the well head surroundings).</li> <li>Flood diversion canal when needed.</li> </ul>	