

# SHIPO Rope pump Model 3



Version 13-8-2014  
[www.shipo-tz.org](http://www.shipo-tz.org)

## Context

The Rope pump Model 3 is a simple and low cost model. It can be installed on both tube wells and hand dug wells. It is recommended to combine it with a well cover and apron to avoid any contamination. Even without a well cover, the water quality will drastically improve since the recontamination by using a bucket, will be avoided. This pump model can be a 1st step in improving a well. If a family has limited funds they can start with a basic pump. If there is more a well cover and apron can be installed. The handle can be installed at any height for instance at 1.3 meters high to fill up a tank of 90 cm high. If the handle is higher than 90 cm, it is essential to make a platform so the handle is at the height of the belly button. See manual pump model 1. In this model a wheel cover is optional as well as a return PVC pipe. See pictures below.



Rope pump Model 3, with a return pipe, without wheel cover. Used for domestic use and irrigation of a garden. The length of the poles in the ground is 60 to 80 cm.



For mounting of the pump pipe and return pipe use galvanized wire. The yellow rope prevents that the handle turns back after pumping is stopped.

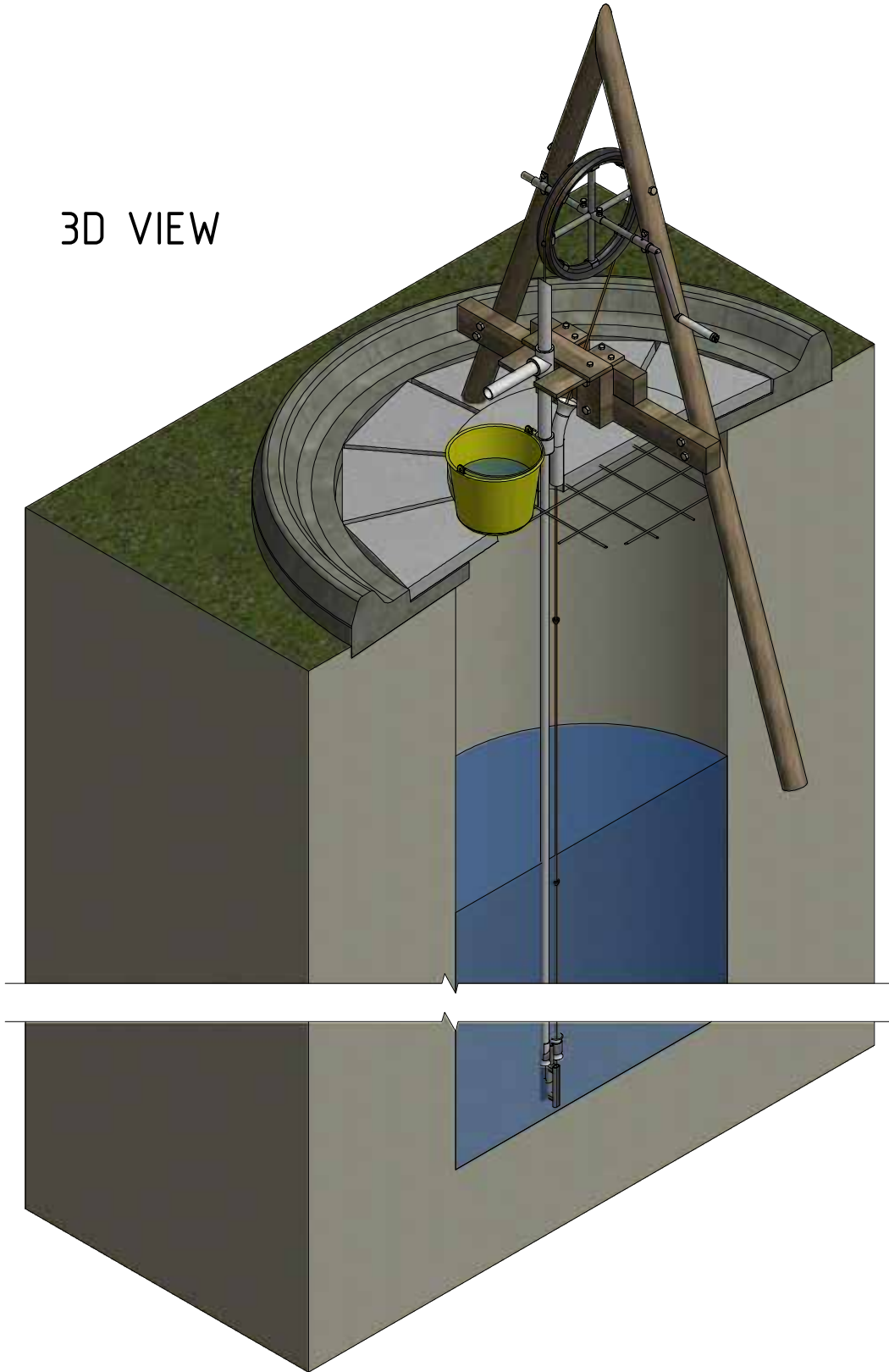


By mounting the handle higher a water tank can be filled up. The dimensions; length, distance of poles depend on the situation. To avoid termites poles have to be treated with Creosote and or oil. Also the part in the ground can be protected with plastic sheet around the poles.






The Model can be a 1st step pump.  
Step 1. Install handle and PVC pipes  
Step 2. Install well cover and apron  
Even without a well cover, water quality will improve 60% or more.

# 3D VIEW

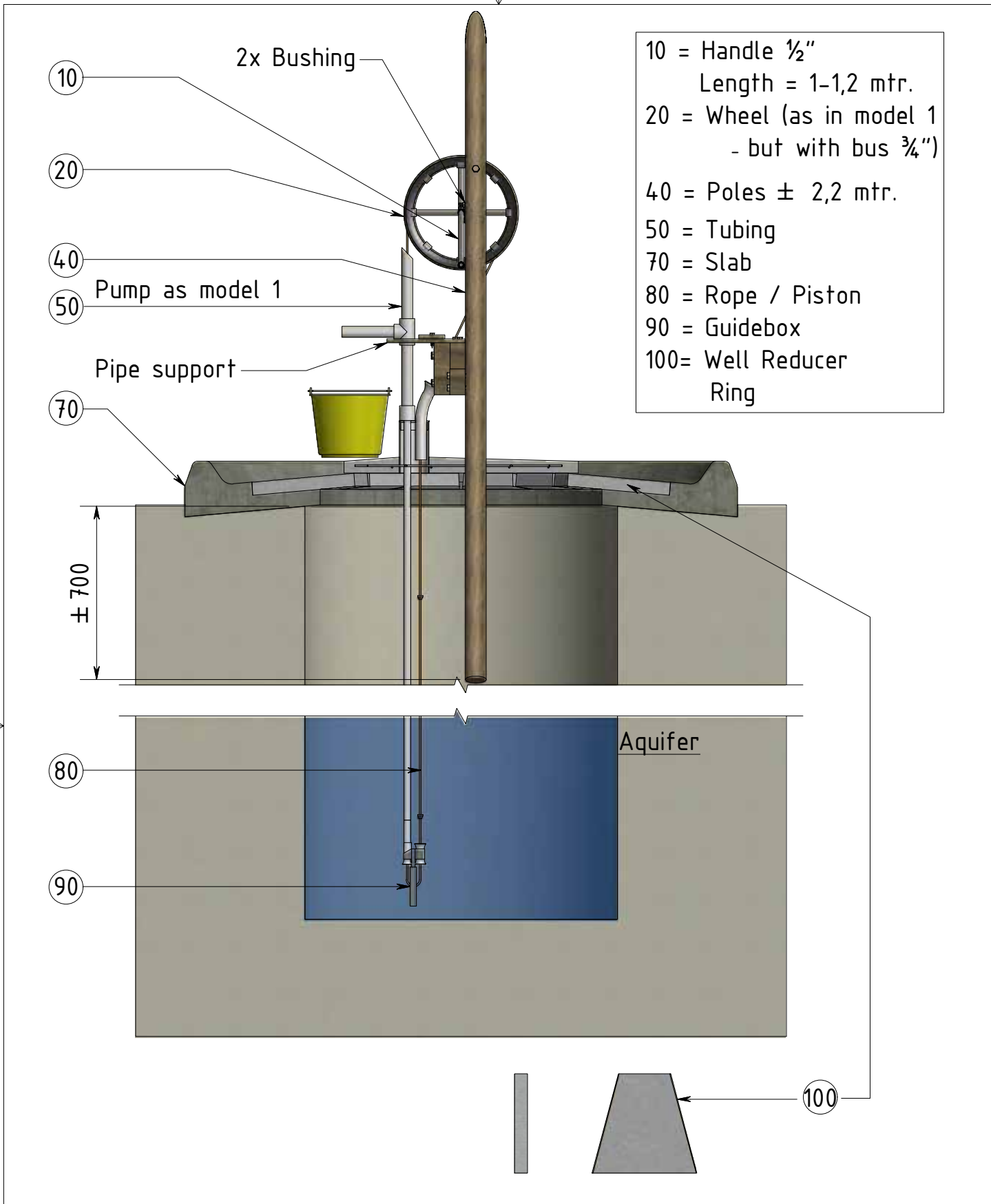


Roughness:	Dimensional tolerance:	Title/Name: <b>ROPE PUMP Model 3</b>
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Projection: 	Scale: 	Unit : mm	Drawing by: AvdHeuvelSR	Creation Date: 5-7-2014
			Approved by: H. Holtslag	Approved Date: 5-7-2014


 <b>META</b>	Parts:	Part number:	Sheet size:
	3D View - Dug Well	3D View Dug Well Mod	

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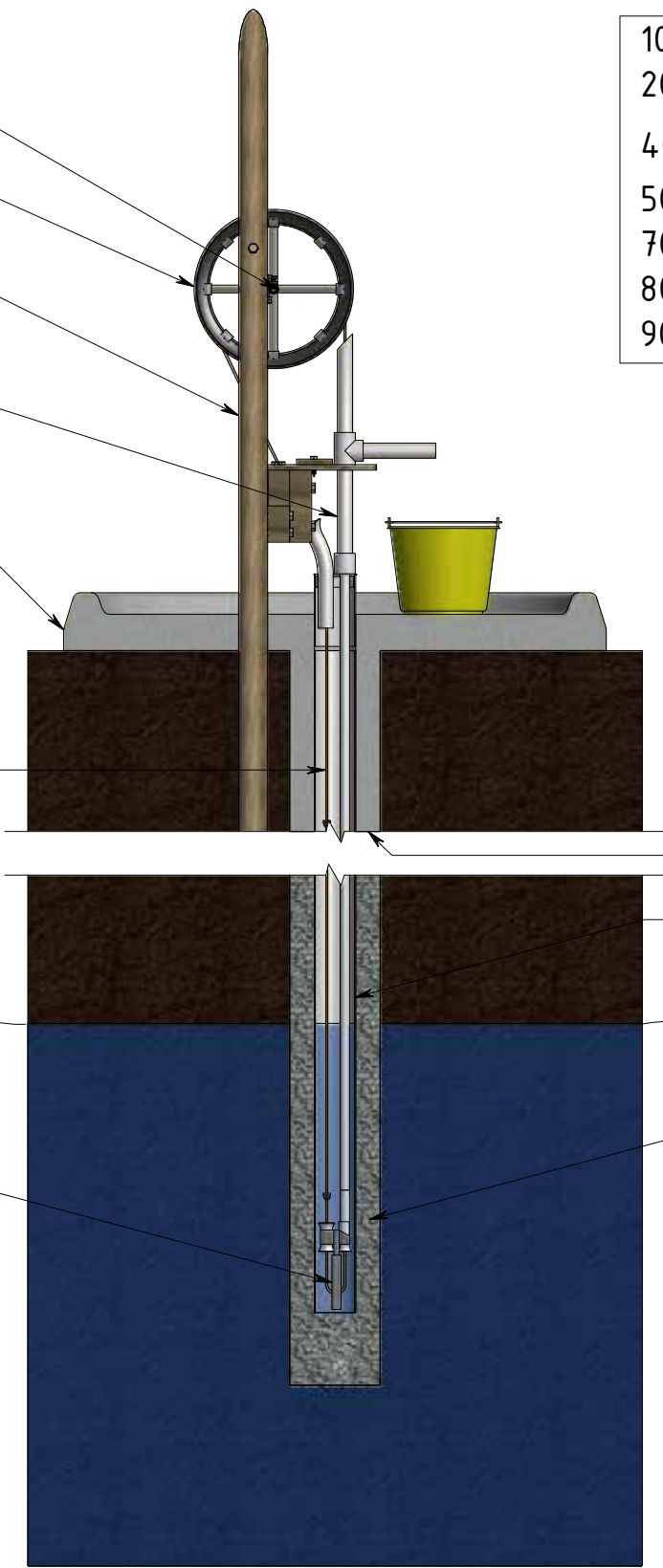
Roughness:      Dimensional tolerance:      Title/Name: **ROPE PUMP Model 3**

Projection:       Scale: 1 : 20      Drawing by: AvdHeuvelSR      Creation Date: 3-7-2014  
 Unit : mm      Approved by: H. Holtslag      Approved Date: 5-7-2014

 **META**      Parts: Installed on a Dug Well      Part number:      Sheet size: **A4**

- 10
- 20
- 40
- 50
- 70
- 80
- 90

10 = Handle  
 20 = Wheel  
 40 = Poles ± 2,2 mtr.  
 50 = Tubing  
 70 = Slab  
 80 = Rope / Piston  
 90 = Guidebox



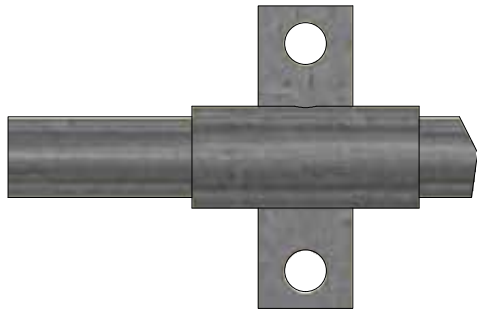
Hygienic seal  
 Casing PVC  
 2" to 4"  
 Gravel pack

Aquifer

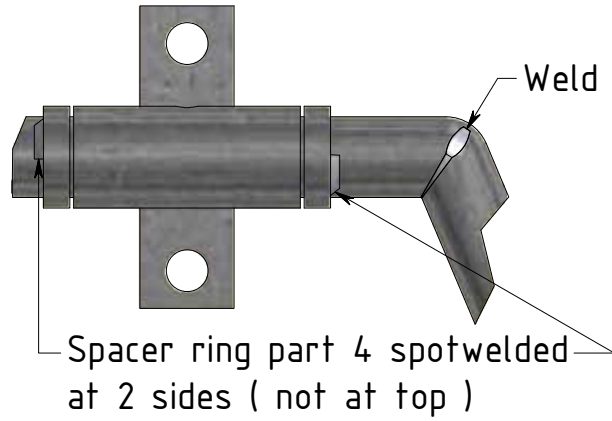
Roughness:	Dimensional tolerance:	Title/Name: <b>ROPE PUMP Model 3</b>		
Projection:	Scale: 1 : 20 Unit : mm	Drawing by: AvdHeuvelSR	Creation Date: 3-7-2014	
	Parts: Installed on a Borehole	Approved by: H. Holtslag	Part number:	Approved Date: 4-7-2014
<b>META</b>				Sheet size: <b>A4</b>

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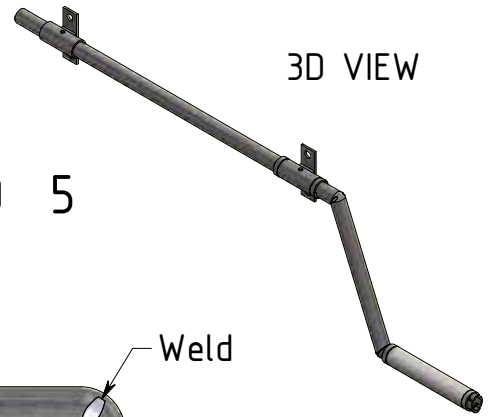
DETAIL A  
( 1 : 2 )  
PART 3 AND 5



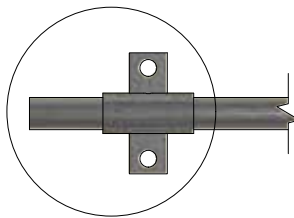
DETAIL B  
( 1 : 2 )  
PART 3 AND 5



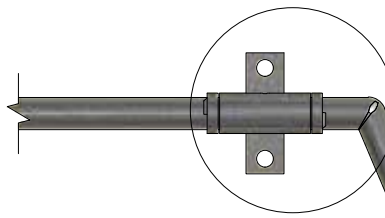
3D VIEW



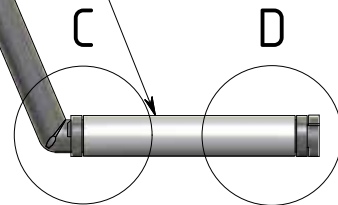
A



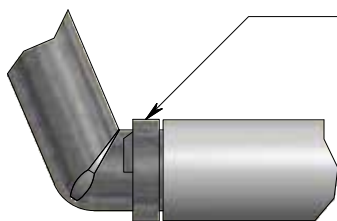
B



PVC pipe as long as possible  
( without friction )

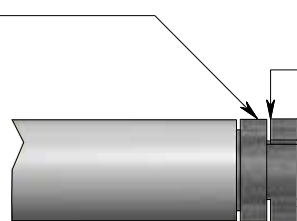


DETAIL C  
( 1 : 2 )



DETAIL D  
( 1 : 2 )

Spacer ring part 4



Cut and bend



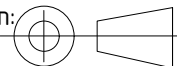
Roughness:

Dimensional tolerance:  
ISO 2768-1-f / -2-H

Title/Name:

ROPE PUMP Model 3

Projection:



Scale: 1:2 1:5

Unit : mm

Drawing by: AvdHeuvelSR

Approved by: H. Holtslag

Creation Date: 3-7-2014

Approved Date: 4-7-2014



META  
META

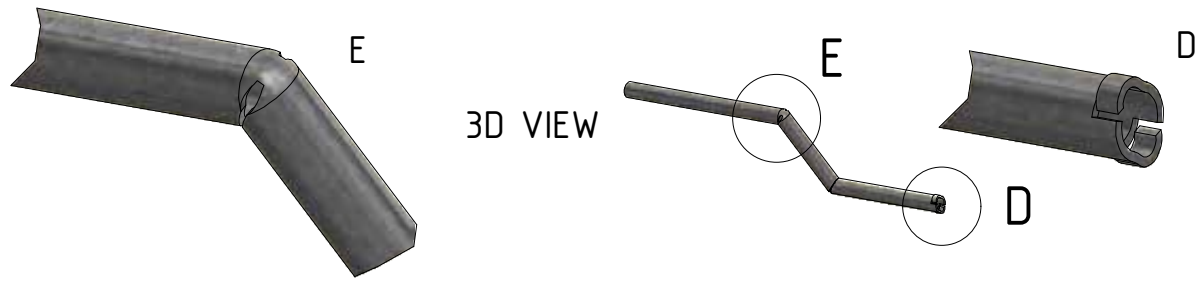
Parts:  
Handle - Assembly

Part number:

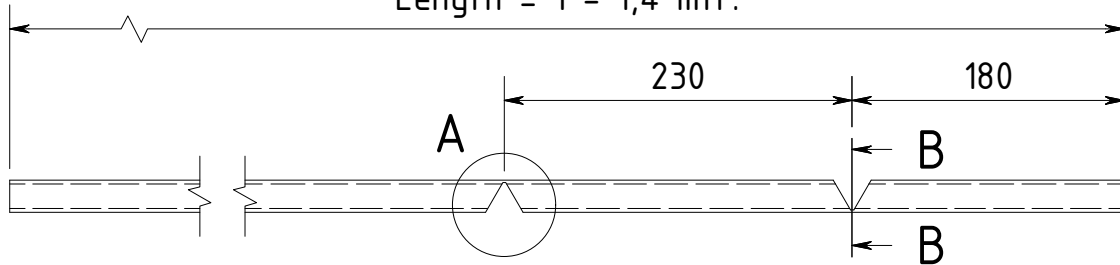
10

Sheet size:

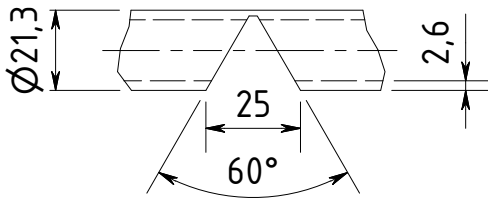
A4



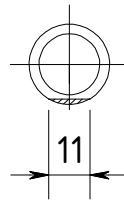
Length = 1 - 1,4 mtr.



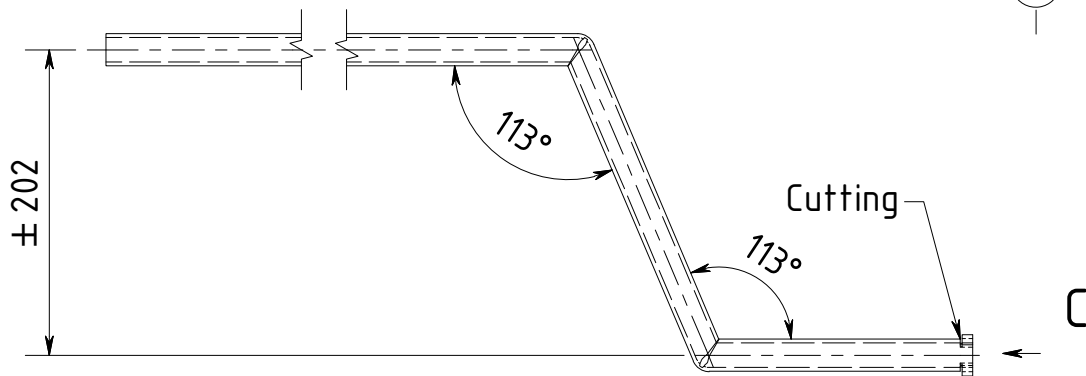
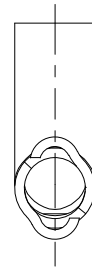
DETAIL A  
( 1 : 2 )



SECTION B-B  
( 1 : 2 )



VIEW C  
( 1 : 2 )



ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER	MASS
1	1	Pipe 21,3 x 2,6 mm Length 1 - 1,4 mtr.	S 235 JRH	Part 10-1	0,641 kg

PARTS LIST

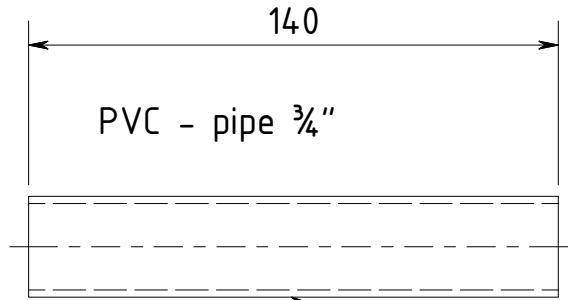
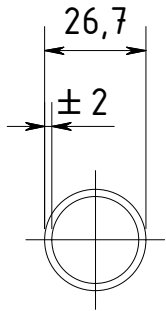
Roughness:	Dimensional tolerance: ISO 2768-1-f / -2-H	Title/Name: <b>ROPE PUMP Model 3</b>
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Projection:	Scale: 1:2 1:5 Unit : mm	Drawing by: AvdHeuvelSR Approved by: H. Holtslag	Creation Date: 3-7-2014 Approved Date: 4-7-2014
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	Parts: Handle - Galvanized	Part number: 10-1	Sheet size: A4
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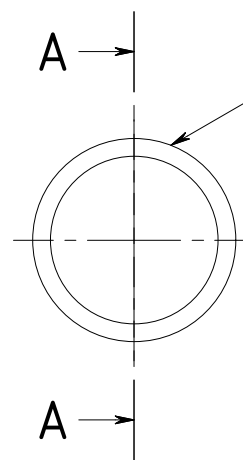
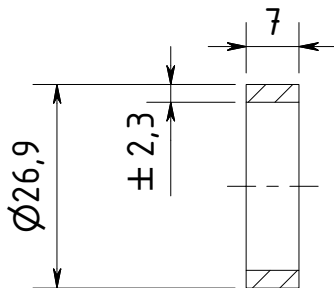


3D VIEW



Part 2

SECTION A-A  
( 1 : 1 )



Part 4


Spacer ring  
pipe 3/4"  
Galvanized

4	4	Pipe 26,9 x 2,3 mm Length 7 mm	S 235 JRH	Part 4	
2	1	Pipe 26,7 x 2 mm Length 140 mm	PVC	Part 2	0,029 kg
ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER	MASS

PARTS LIST

Roughness:	Dimensional tolerance: ISO 2768-1-f / -2-H	Title/Name: <b>ROPE PUMP Model 3</b>
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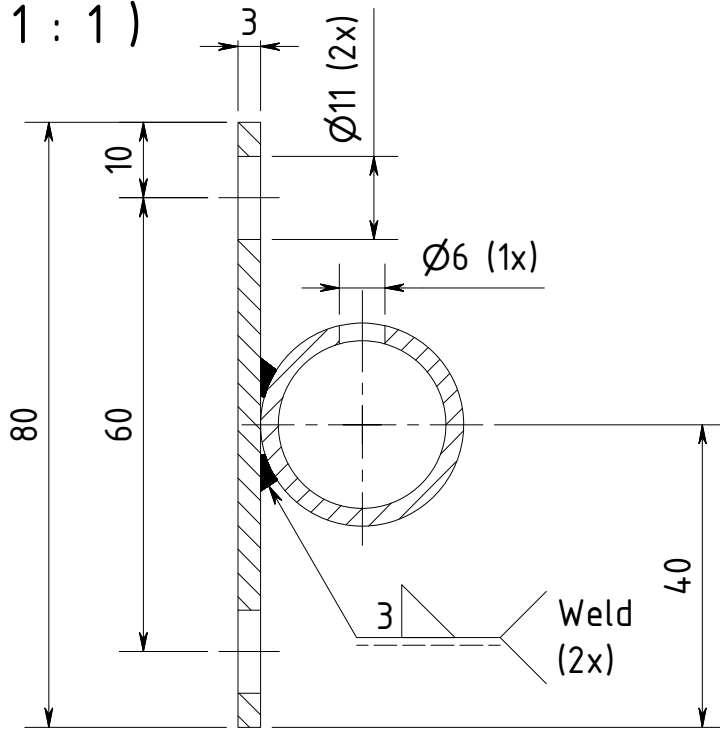
Projection:	Scale: 1:1 1:2 Unit : mm	Drawing by: AvdHeuvelSR Approved by: H. Holtslag	Creation Date: 3-7-2014 Approved Date: 4-7-2014
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	Parts: Handle, PVC pipe and Spacer ring	Part number: 10-2 10-4	Sheet size: A4
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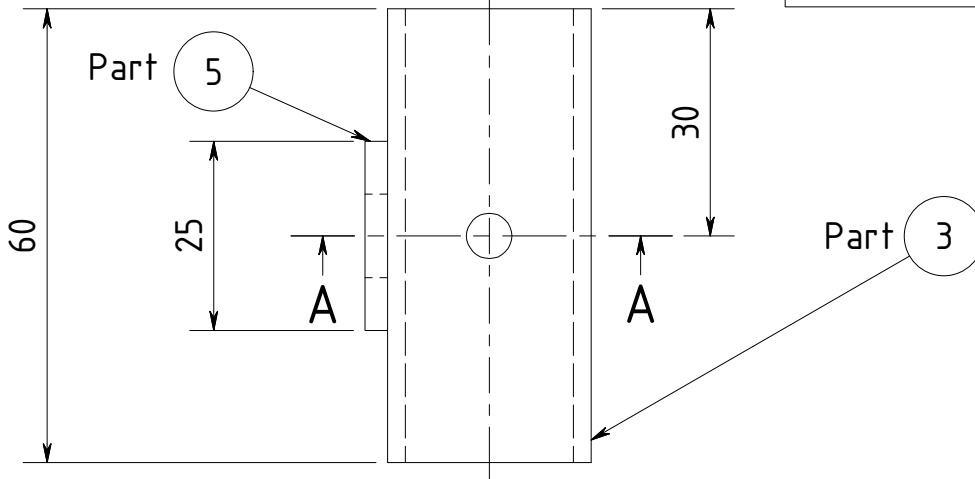
SECTION A-A  
( 1 : 1 )

3D VIEW



Pipe 3/4" x ± 2,3 Galvanized \* ± 22,2

\* Inside diametre 0,5-0,8 mm more than outside diametre of handle.



ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER	MASS
5	2	Flat bar 25 x 3mm Length 100mm	S 235 JR	Part 5	0,043 kg
3	2	Pipe 3/4" x 2,35mm Length 60mm	S 235 JRH	Part 3	0,085 kg

PARTS LIST

Roughness:	Dimensional tolerance: ISO 2768-1-f / -2-H	Title/Name: ROPE PUMP Model 3
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Projection:	Scale: 1 : 1	Drawing by: AvdHeuvelSR	Creation Date: 3-7-2014
	Unit : mm	Approved by: H. Holtslag	Approved Date: 4-7-2014

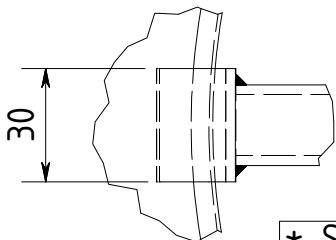
	Parts: Bushing - Assembly	Part number: 10-3 10-5	Sheet size: A4
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# DETAIL C ( 1 : 2 )



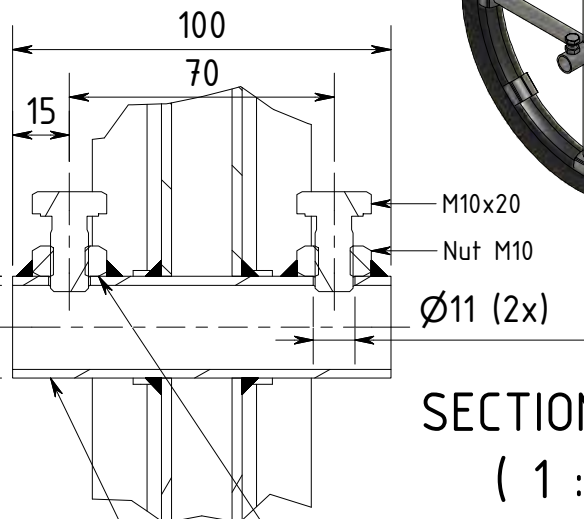
Clamps made off  
3/4" Pipe-Galvanized

# DETAIL B ( 1 : 2 )

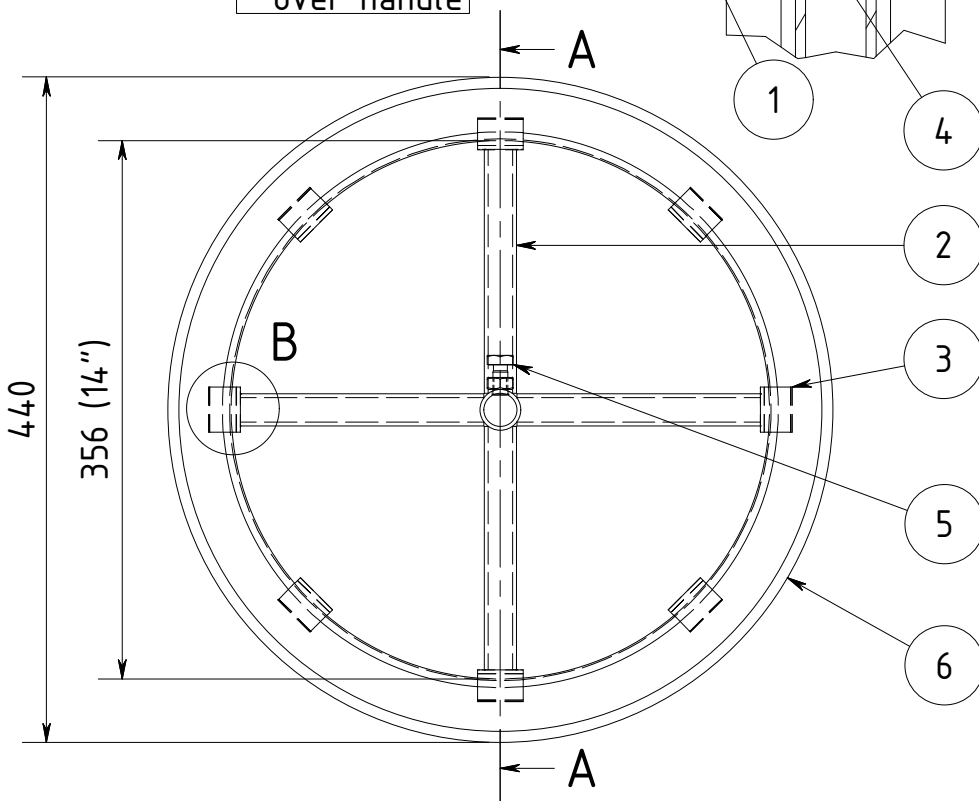
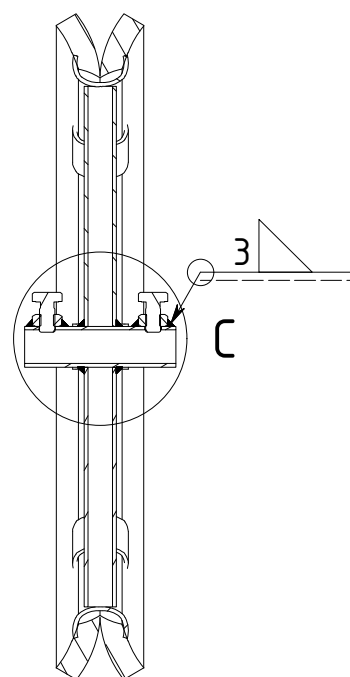


Depends on tire used  
( should be tight fit )

\* Should fit  
over handle



# SECTION A-A ( 1 : 5 )




2	4	Pipe 1/2" x 2,6 mm Length 159 mm	S 235 JRH Galv.	Part 2	0,192 kg
3	8	Pipe 3/4" x 2,6 mm Length 30 mm	S 235 JRH Galv.	Part 3	0,037 kg
5	2	Bolt M10 x 20 mm	Steel 8.8 Galvanized	Part 5	0,024 kg
6	1	Wheel rim 14"	Car tire 14"	Part 6	1,320 kg
4	2	Nut M10	Steel 8.8 Galvanized	Part 4	0,012 kg
1	1	Pipe 3/4" x 2,6 mm Length 100 mm	S 235 JRH Galv.	Part 1	0,139 kg
ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER	MASS

## PARTS LIST

Roughness: Dimensional tolerance: ISO 2768-1-f / -2-H Title/Name: **ROPE PUMP Model 3**

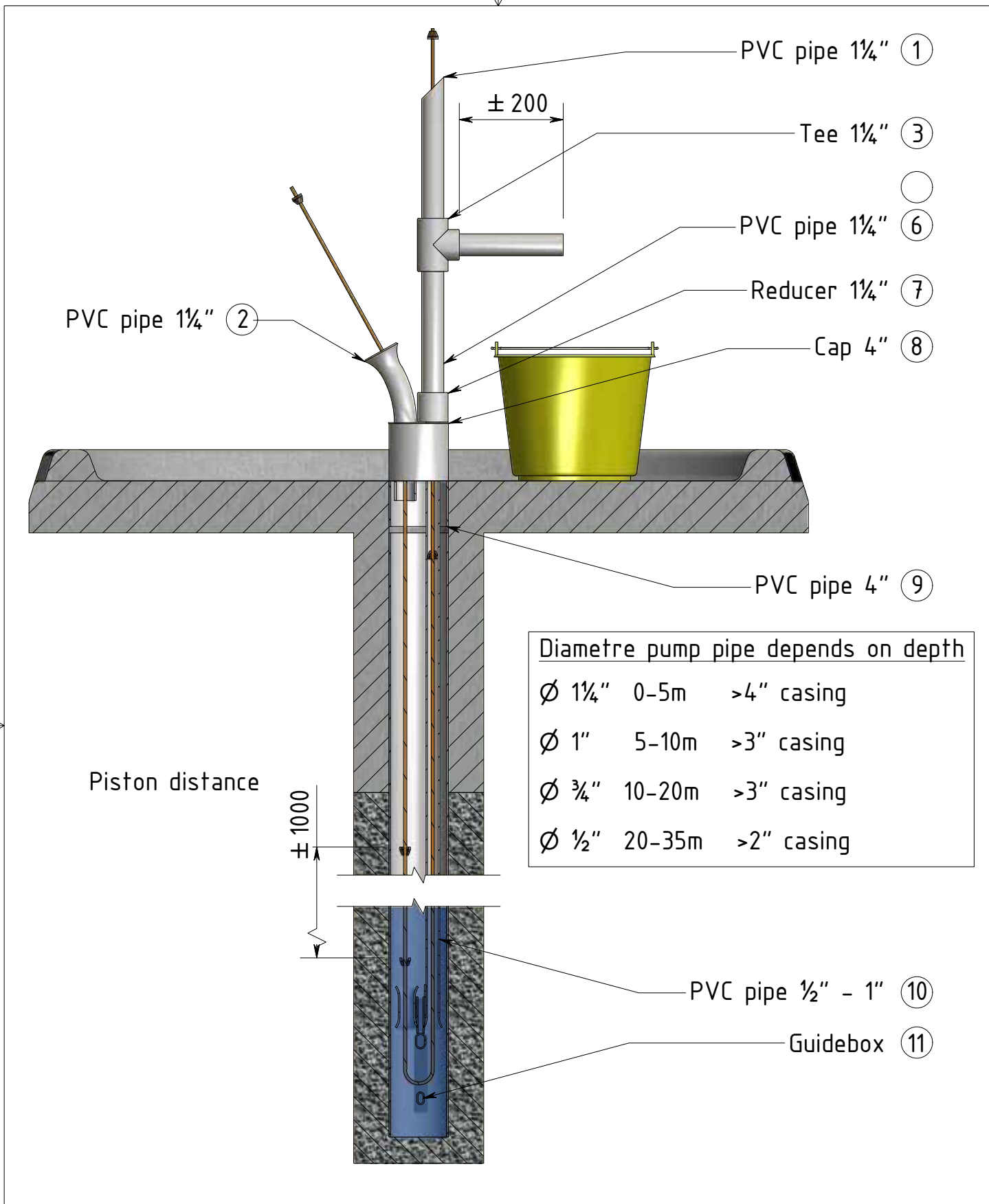
Projection: Scale: 1:2 1:5 Drawing by: AvdHeuvelSR Creation Date: 3-7-2014  
Unit : mm Approved by: H. Holtslag Approved Date: 4-7-2014



Parts:  
**Wheel - Assembly**

Part number:  
**20-1 to 20-6**

Sheet size:  
**A4**

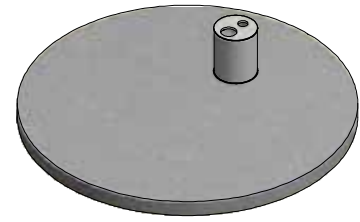
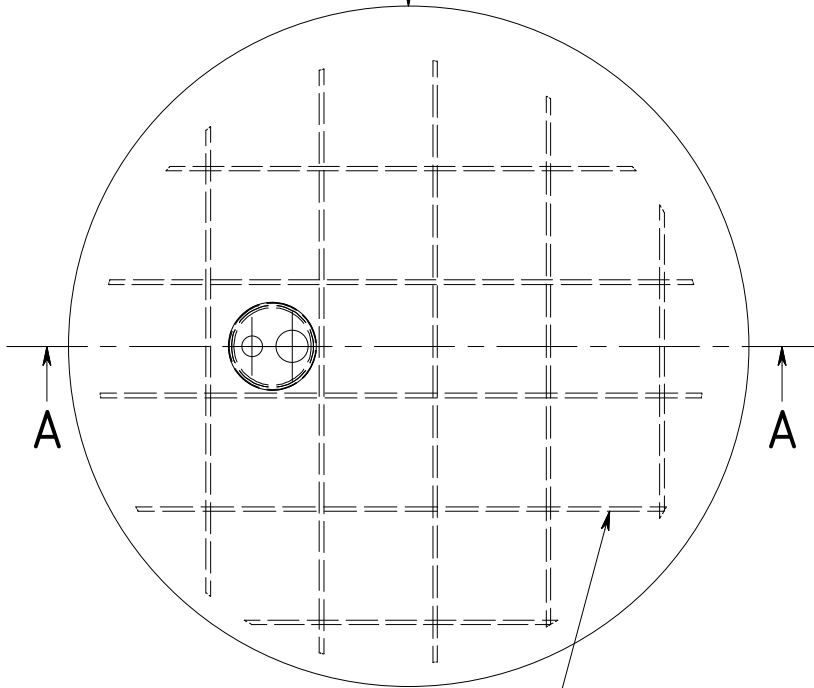


Roughness:	Dimensional tolerance:	Title/Name: <b>ROPE PUMP Model 3</b>		
Projection:	Scale: 1 : 10	Drawing by: AvdHeuvelSR	Creation Date: 3-7-2014	
	Unit : mm	Approved by: H. Holtslag	Approved Date: 4-7-2014	
	Parts: <b>Tubing - Assembly</b>	Part number: <b>50</b>	Sheet size: <b>A4</b>	

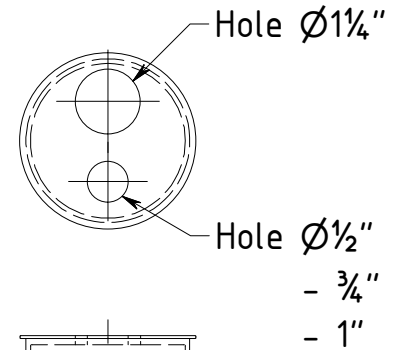
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Part ① - Cement slab

3D VIEW



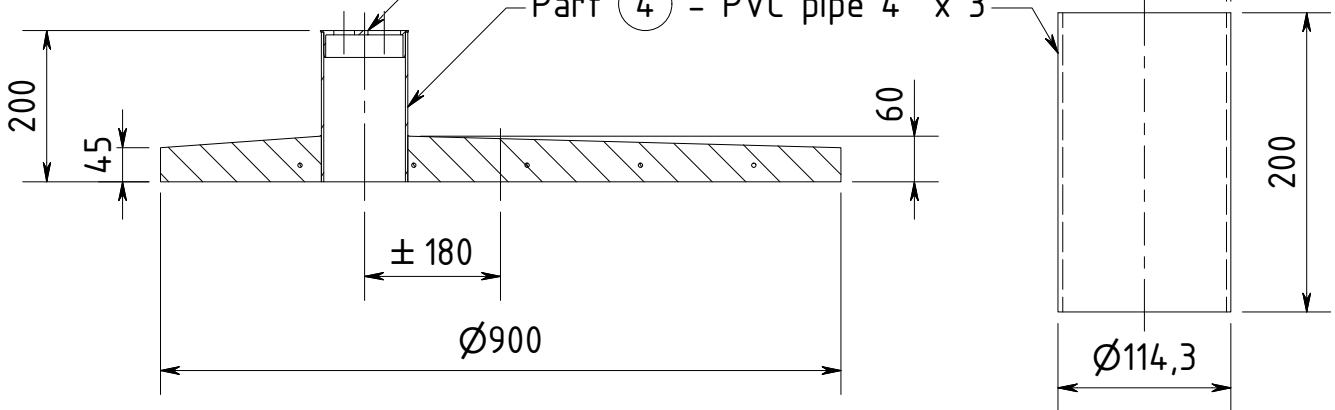
Part ② - Rebar  $\varnothing 6 - 800$



SECTION A-A  
( 1 : 10 )

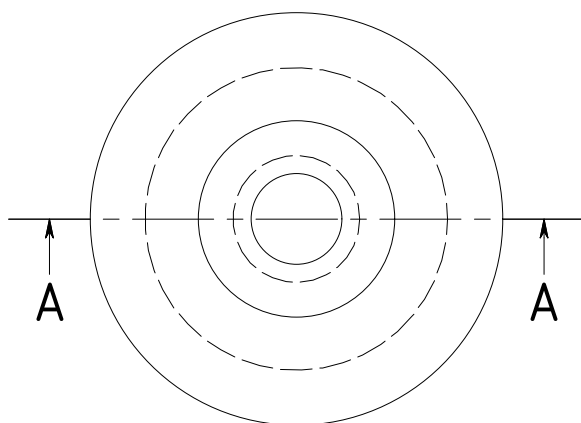
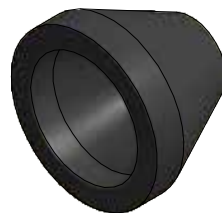
Part ③ - PVC cap 4"

Part ④ - PVC pipe 4" x 3"

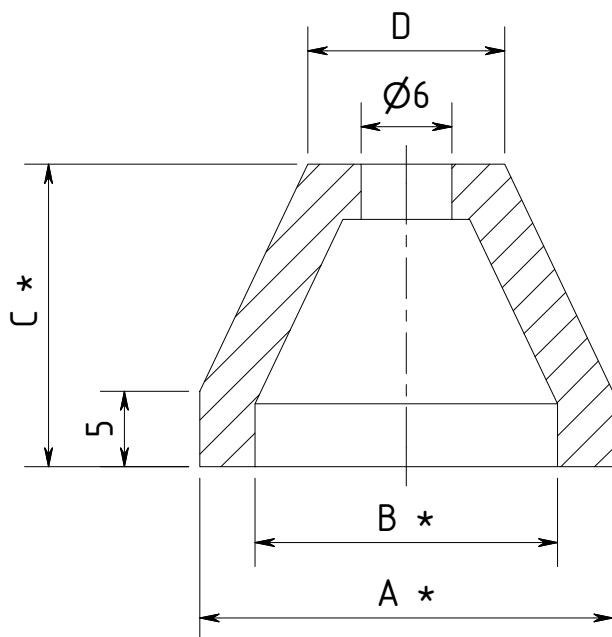


Roughness:	Dimensional tolerance: ISO 2768-1-f / -2-H	Title/Name: <b>ROPE PUMP Model 3</b>		
Projection:	Scale: 1:5 1:10 Unit : mm	Drawing by: AvdHeuvelSR	Creation Date: 5-7-2014	
		Approved by: H. Holtslag	Approved Date: 5-7-2014	
Parts: Slab / Wellcover - Assembly		Part number: <b>70-1 to 4</b>	Sheet size: <b>A4</b>	

3D VIEW



SECTION A-A  
( 2 : 1 )



\* Size depends on pump pipe diameter inside.

Pipe	A *	B **	C **	D
1/2"	15,3	11	13	11
3/4"	20,3	13	15	12
1"	27,3	20	20	13

\* Tolerance  $\pm 0,2$  \*\* Tolerance  $\pm 0,5$

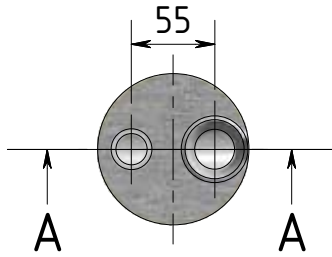
Based on pipes 1/2" OD = 20 ID = 16  
 3/4" OD = 25 ID = 21  
 1" OD = 32 ID = 28

OD Outside diameter  
 ID Inside diameter

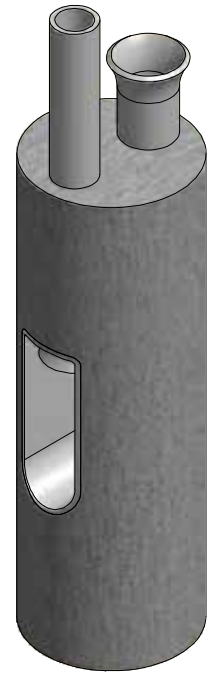
Roughness:	Dimensional tolerance: ISO 2768-1-f / -2-H	Title/Name: <b>ROPE PUMP</b>		
Projection:	Scale: 2 : 1 Unit : mm	Drawing by: AvdHeuvelSR	Creation Date: 23-6-2014	
	Parts: Piston	Approved by: H. Holtslag	Part number: <b>80</b>	Approved Date: 4-7-2014 Sheet size: <b>A4</b>

\* This guidebox is for  $\frac{3}{4}$ "  
 For pump pipes of 1" and  $\frac{1}{2}$ "  
 pump pipe + return pipe  
 are different  $\frac{1}{2}$ " -  $\frac{3}{4}$ "  
 1" -  $1\frac{1}{4}$ "

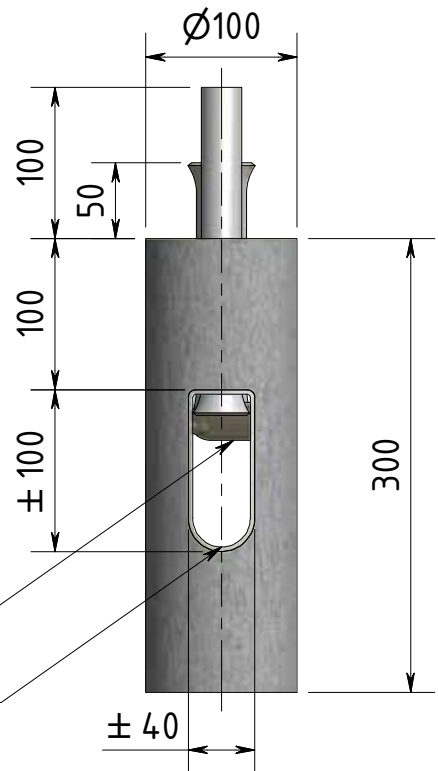
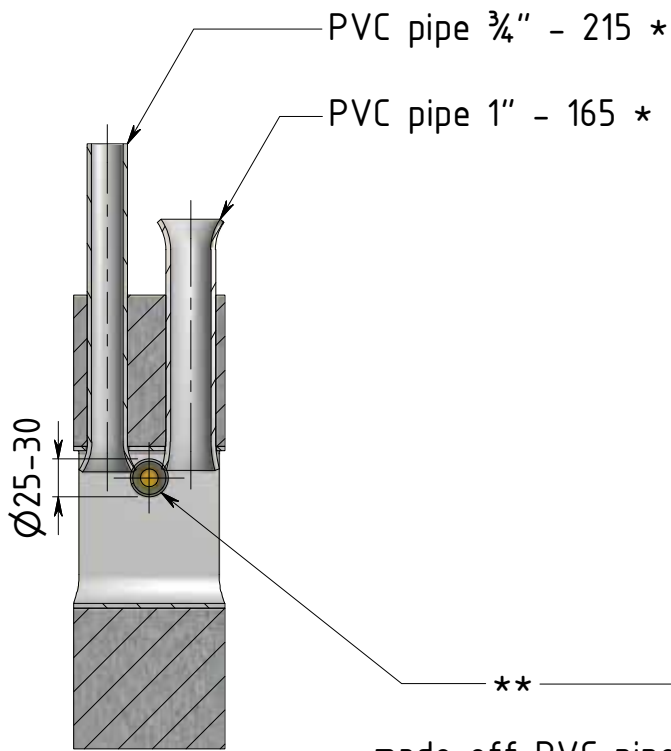
\*\* Use small glass bottle  
 or Galv. pipe  $\frac{3}{4}$ "



SECTION A-A  
 ( 1 : 5 )



3D VIEW



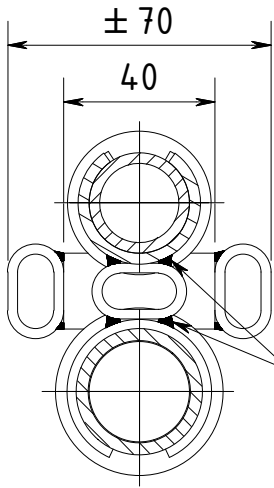
\*\* made off PVC pipe 3"

Roughness:	Dimensional tolerance:	Title/Name: <b>ROPE PUMP Model 3</b>		
Projection:	Scale: 1 : 5	Drawing by: AvdHeuvelSR	Creation Date: 25-6-2014	
	Unit : mm	Approved by: H. Holtslag	Approved Date: 4-7-2014	
	Parts: Guidebox Cement $\frac{3}{4}$ "	Part number: 90 Guidebox	Sheet size: A4	



### SECTION B-B

( 1 : 2 )

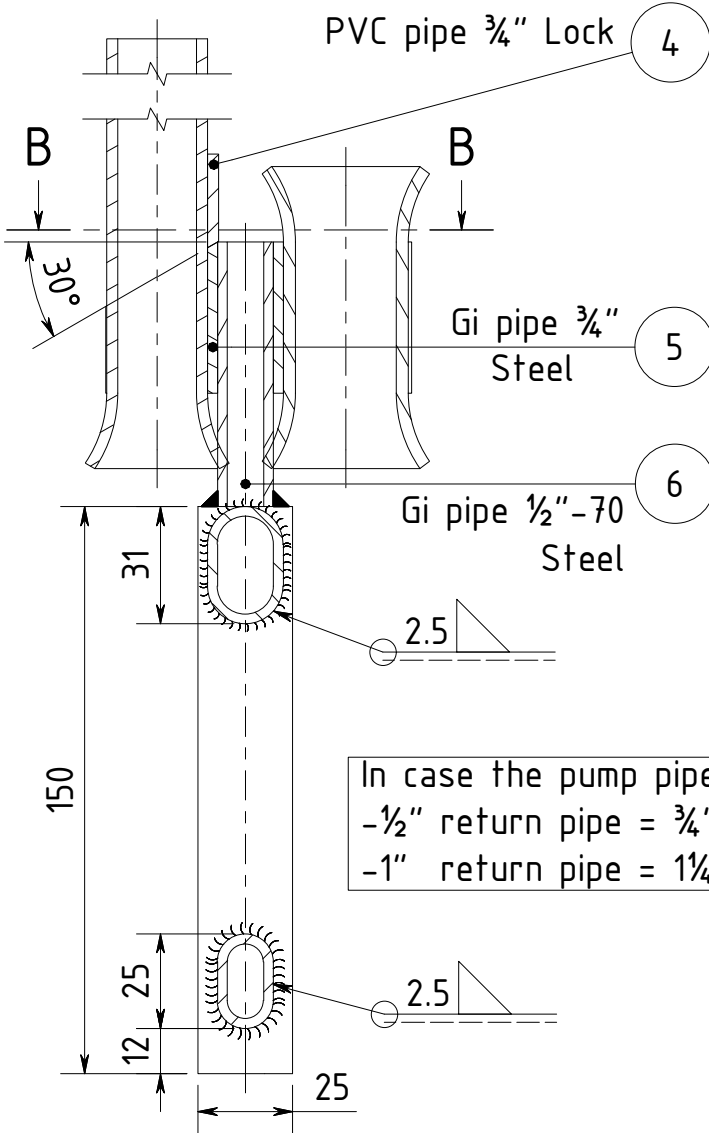


Guidebox has to fit in casing.  
min.tolerance 5 mm

2 Weld

### SECTION A-A

( 1 : 2 )

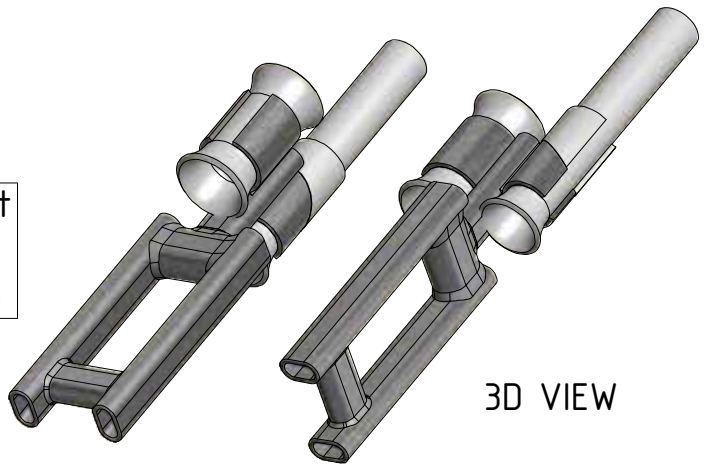


PVC pipe 3/4" Lock (4)

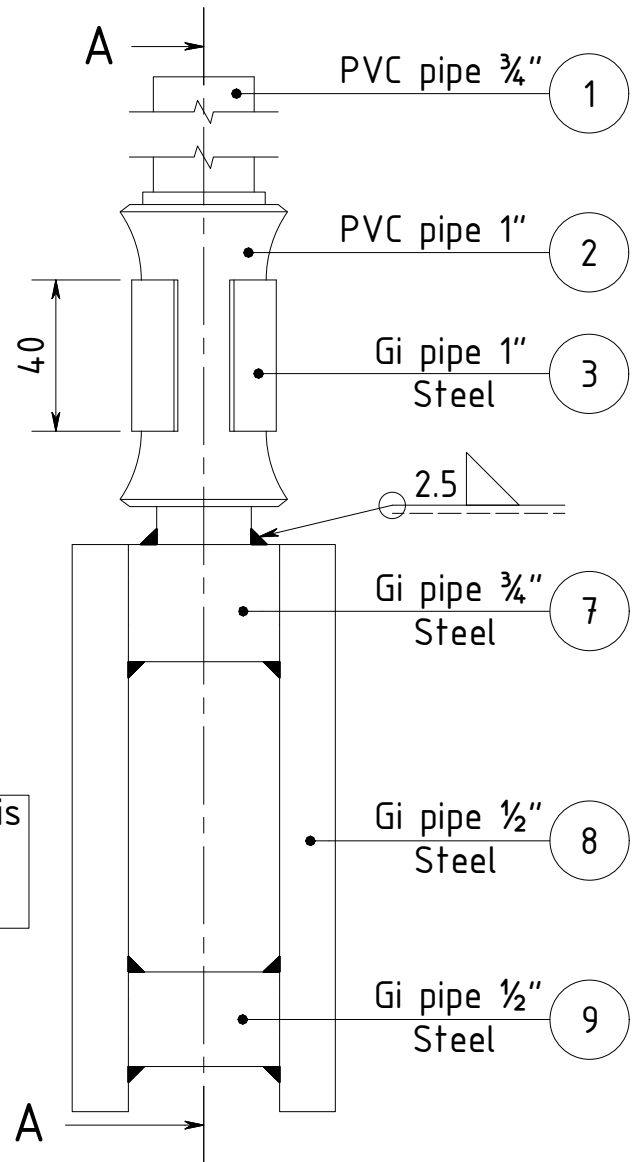
Gi pipe 3/4" Steel (5)

Gi pipe 1/2"-70 Steel (6)

In case the pump pipe is  
-1/2" return pipe = 3/4"  
-1" return pipe = 1 1/4"



3D VIEW



PVC pipe 3/4" (1)

PVC pipe 1" (2)

Gi pipe 1" Steel (3)

Gi pipe 3/4" Steel (7)

Gi pipe 1/2" Steel (8)

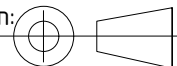
Gi pipe 1/2" Steel (9)

Roughness:

Dimensional tolerance:  
ISO 2768-1-f / -2-H

Title/Name: **ROPE PUMP Model 3**

Projection:



Scale: 1 : 2

Drawing by: AvdHeuvelSR

Creation Date: 3-7-2014

Unit : mm

Approved by: H. Holtslag

Approved Date: 4-7-2014



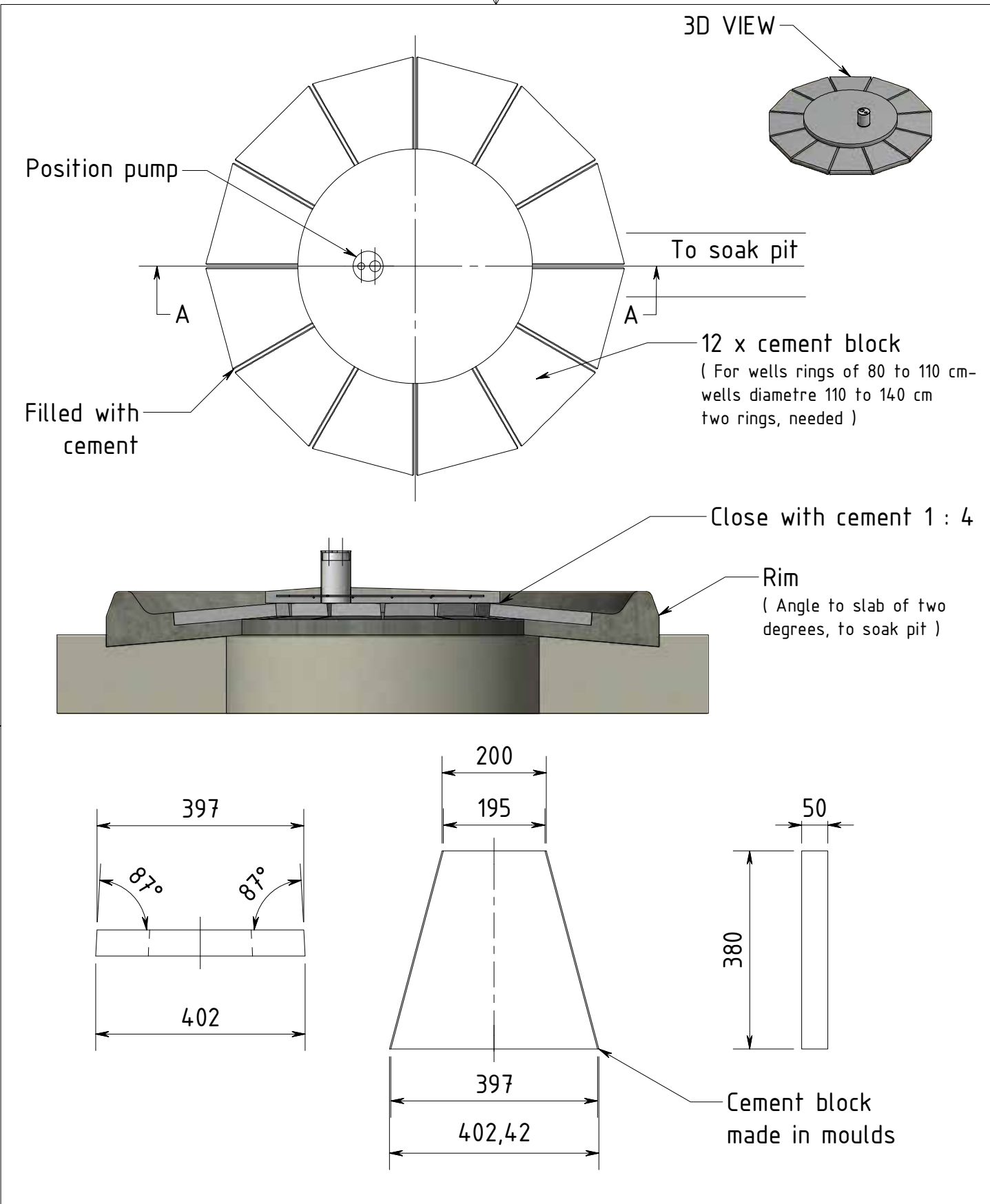
**META**  
**META**

Parts:  
Guidebox - Assembly

Part number:  
90 - 1 to 9

Sheet size:  
A4





Roughness:	Dimensional tolerance:	Title/Name: <b>ROPE PUMP Model 3</b>		
Projection:	Scale: 1:10 1: 20	Drawing by: AvdHeuvelSR	Creation Date: 5-7-2014	
	Unit : mm	Approved by: H. Holtslag	Approved Date: 5-7-2014	
	Parts: Well Reducer Ring	Part number: 100	Sheet size: A4	