



## BASIC GUIDIE: HOW TO SELECT PUMP AND SOLAR PANELS

**STEP 1:** Determine required flow rate.

**STEP 2:** Calculate total head based on the following:

- Pumping water level to ground level
- Friction loss in discharge pipe (hydraulic gradient)
- Height from ground to discharge point (i.e bore to top of tank operating pressure if required)

**Example: Tank Fill**

Recommended Pump Setting: 40 metres

Required Flow: 3000l/hr(3m<sup>3</sup>) or 50L/min

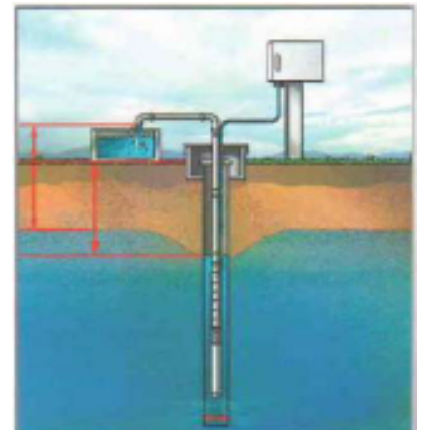
Standing Water Level: 27 metres

Pumping Water Level: 33 metres

Height from ground to discharge point: 2 metres

Discharge pipe: 35 metres of 40mm pn12.5 pipe

(Pipe ID 34mm) giving a friction loss of approx. 1m  
(see flow nomogram)



**STEP 3:** Add together the following:

Pumping water level	<b>33 metres</b>
Height from ground to discharge point	<b>2 metres</b>
Friction loss in discharge pipe	<b>1 metre</b>
<b>= Total</b>	<b>36 metres</b>

Therefore the Pump Duty is : [3000L/hr @ 36 metres](#)

**STEP 4:** Select the correct pump and determine how many solar panels are required

Looking at the pump curves there are two solar pumps to suit this duty the Grundfos SQF 3A-10N and SQF 5A-7N. Both of which require a minimum of 700 watts. If you add some redundancy you arrive at 800 watts or 4 panels.