

**McQUINN
PUMPS**

MILLER HYDRAULIC RAM PUMP

NO.5 MODEL PUMP

THE HYDRAULIC RAM IS AN AUTOMATIC DEVICE FOR ELEVATING WATER. WHEREEVER A FLOW OF WATER WITH A GRADUAL FALL CAN BE OBTAINED, A PORTION OF THE WATER MAY BE FORCED TO A CONSIDERABLE HEIGHT.



TRACK
PUMPS — IRRIGATION

MANUFACTURED BY TRACK INDUSTRIES

Below are the calculations for the No5 Ram as per Steve Miller Rural Services. Steve has had many years of experience with these Rams and handed the patterns etc onto us to manufacture. His figures are relatively conservative as he is thinking about how the Ram will run as it ages as well.

The calculation to use for the No5 Ram is

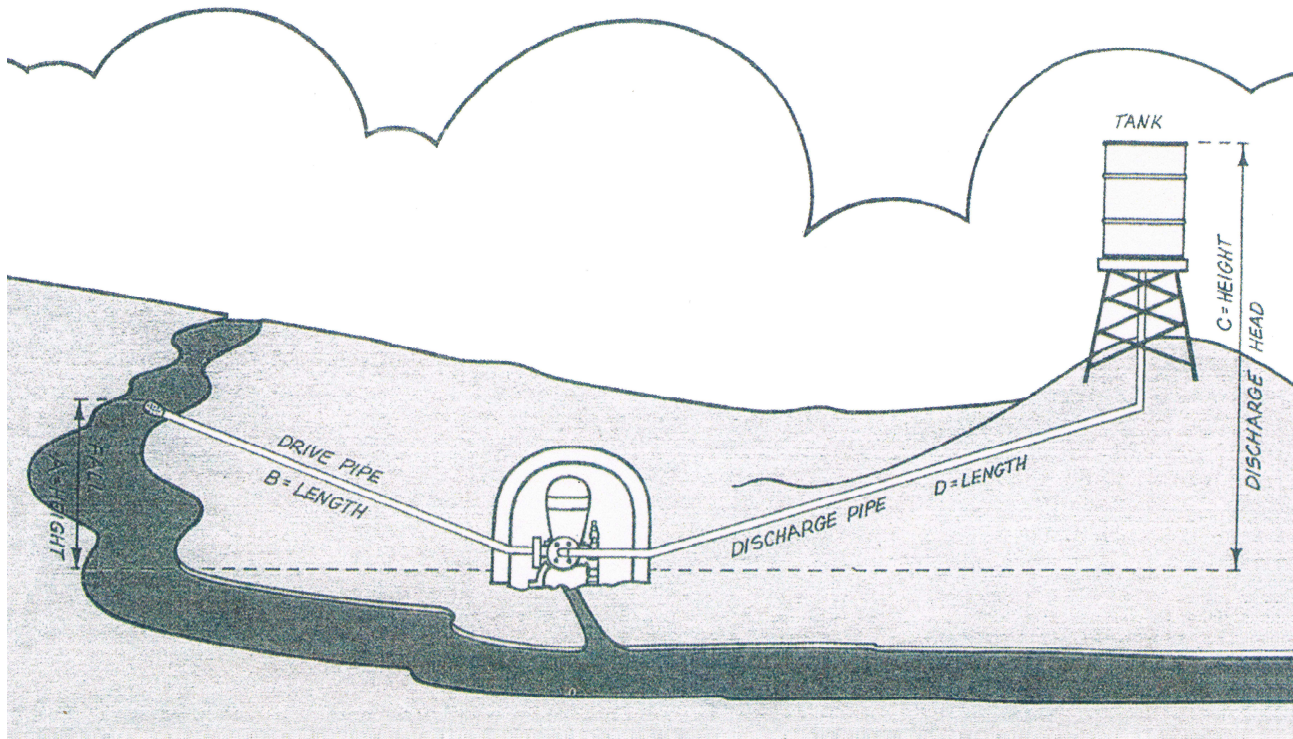
1m head of fall to deliver 6m height requires 9m (1 ½ lengths) of drive pipe

(1) Fall required = $1\text{m}/6\text{m} = 0.167 \times \text{m delivery height required (50m)} = 8.35\text{m}$ fall required to Ram

(2) Drive pipe required = 9m per 1m of fall $9\text{m} \times 8.3\text{m} = 74.7\text{m}$ (11 ½ lengths)

No5 Rams require 50mm ID Galvanised drive pipe and 20mm ID Outlet Pipe.

Do not use direct angle bends. Only used very curved bends when required and as few as possible.



SELECTING A HYDRAULIC RAM

Study this diagram and make your own measurements as listed below. Check the measurements against the chart overleaf to choose the most suitable Ram for your needs.

1. Litres of water per minute available for supply.
2. Litres of water required at discharge in 24 hours
3. Vertical Fall (in metres) from supply to Ram (a)
4. Distance from supply to Ram (b)
5. Vertical distance from Ram to point of discharge (c)
6. Length of discharge pipe from Ram (d)



TABLE OF PROPORTIONATE HEAD OF FALL

These figures give maximum efficiency in the operation of Hydraulic Rams.

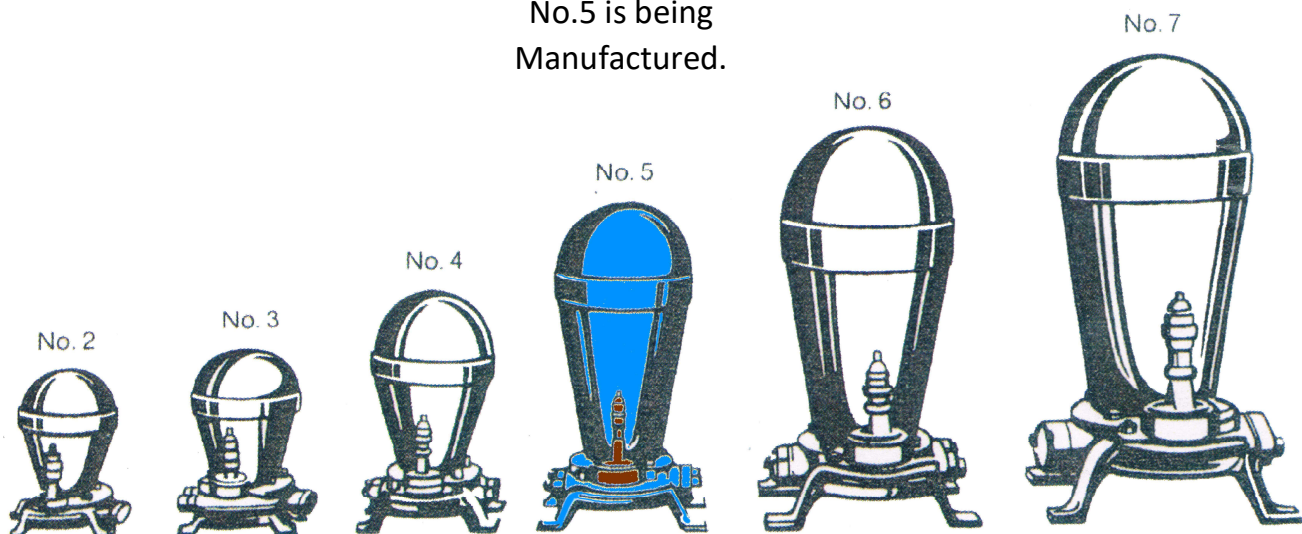
Place Ram under: (metres)		To deliver Water to height of: (metres)		Proper length of Drive Pipe: (metres)
1.0m	Head of Fall	6.0m	above Ram	9m
1.2m	Head of Fall	9.0m	above Ram	9m
1.5m	Head of Fall	12.2m	above Ram	12.2m
2.1m	Head of Fall	15.0m	above Ram	15m
2.5m	Head of Fall	18.0m	above Ram	18m
3.0m	Head of Fall	24.0m	above Ram	24m
4.3m	Head of Fall	30.0m	above Ram	30m
5.2m	Head of Fall	36.5m	above Ram	38m

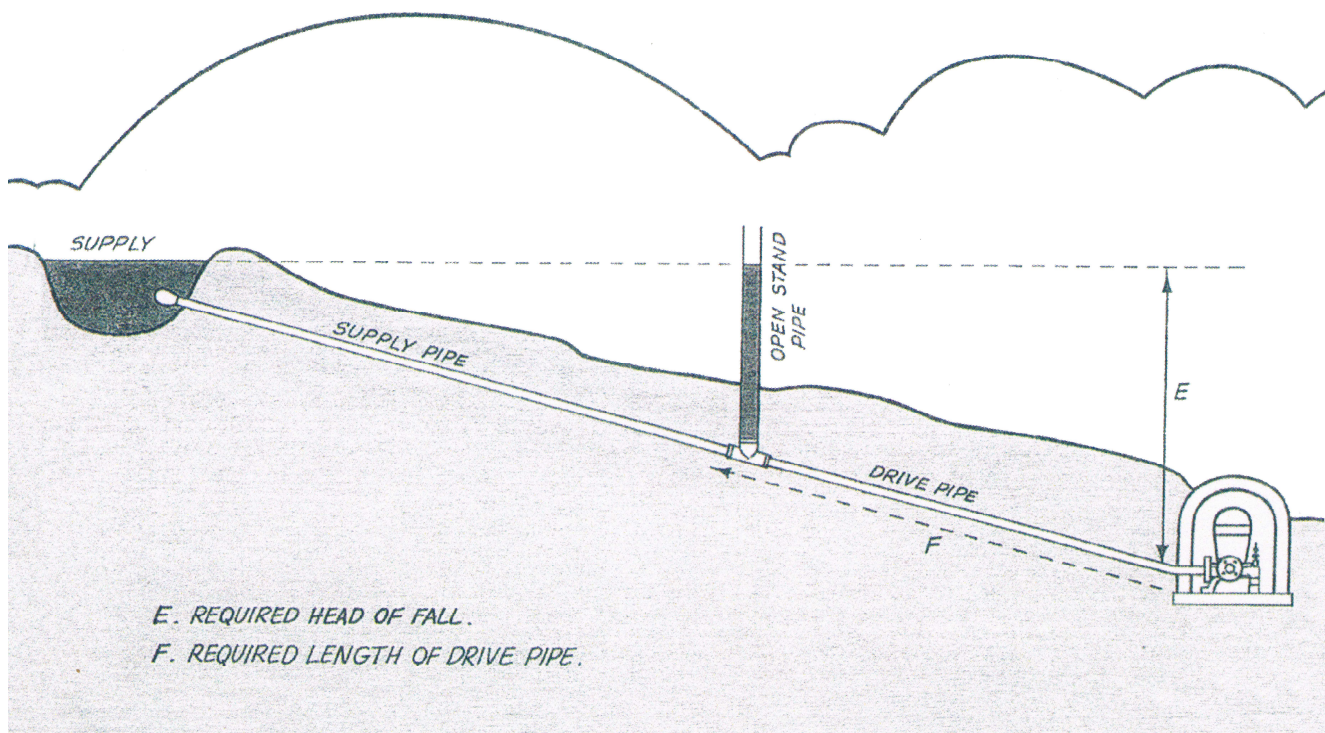
Any size Ram may be operated under these conditions, and will give the following approximate delivery:

	Internal diameter of pipes:	
	Drive	Discharge
No.2 requires 9 to 13.5 litres/minute and delivers 45 to 60 litres/hour	20mm	10mm
No.3 requires 9 to 18 litres/minute and delivers 45 to 90 litres/hour	25mm	15mm
No.4 requires 14 to 32 litres/minute and delivers 68 to 160 litres/hour	32mm	15mm
No.5 requires 27 to 55 litres/minute and delivers 135 to 270 litres/hour	50mm	20mm
No.6 requires 50 to 90 litres/minute and delivers 295 to 450 litres/hour	65mm	25mm
No.7 requires 80 to 160 litres/minute and delivers 410 to 795 litres/hour	65mm	32mm

It is recommended that the smaller Rams are not selected for extreme high lift, as the friction loss of water in a small drive and discharge pipe reduces efficiency and performance capability. Where the water supply will permit, always select a ram of ample size for your requirements.

Currently JUST the
No.5 is being
Manufactured.





EXCEPTIONS TO THE RULES

If your measurements and conditions do not match any of those mentioned here, write to us with full details as listed overleaf, there are, however, some exceptions we can detail here.

Drive pipes for each size of Ram **must** be of the size and proportionate length shown in the table overleaf. Excessive lengths cause friction and loss of power. Water can be carried any distance from supply to Ram, even when there is insufficient Fall within the required length of pipe. In these conditions an open standpipe of barrel is placed in the pipe line at the necessary distance from the Ram (see sketch above.)

In some cases, it may be more practical to sink the Ram in a pit to obtain the necessary Fall. The wastewater is then redirected through a drainpipe.

SETTING UP A HYDRAULIC RAM

- The Ram should be positioned absolutely level, and bolted to the foundation.
- Fix a strainer to the inlet end of the drive pipe to prevent grit and debris entering the Ram. The drive pipe should be free of bends.
- To start the Ram, let the water enter the drive pipe and hold the overflow or push valve down for a short while to allow the water to wash through the Ram. Now free the pulse valve and it will rise to its seat. Should it stay there and refuse to drop, it must be pressed down and worked by hand for a few strokes.
- If the pulse valve immediately beats quickly and erratically, the drive pipe still contains air. Hold the pulse valve down again, and the water washing through the Ram will remove the air.
- Adjust the cap on the pulse valve to alter the valve stroke. As long a stroke as possible is recommended.
- All Rams are workshop tested before delivery.

HYDRAULIC RAMS SAVE ENERGY COSTS

In today's world of higher and higher costs, Hydraulic Rams are a big advantage in any water pumping situation. Petrol and electric powered pumps are subject to rising prices, supply restrictions and sometime complete supply cuts. In these conditions, Hydraulic Rams efficiently carry on pumping water, cheaply and effectively.