



# K-Line™ Std and Mid Irrigation

The grass is always greener



an *Aliaxis* company

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# K-Line™ Std and Mid Irrigation



Whether you are storing, transporting or distributing water or wastewater RX Plastics has the solution for you, with manufacturing facilities New Zealand wide and selections of strong supporting brands RX Plastics can assist whatever your requirements.

## The simple facts about irrigation

Good irrigation is getting the required amount of water to the required area of pasture with as little cost and as little effort as possible. However, nothing is as simple as it should be.

Working to achieve the ideal balance you'll have to consider such things as: the rate of application; the cost of running your irrigation system; the efficiency of application and not to mention the capital cost of setting up, running and upgrading or expanding your irrigation system.

All of these factors can contribute to an efficient system or a white elephant.

Firstly, the rate of application. A lower rate of application over a longer period of time ensures maximum absorption and helps maintain an excellent balance between the plant and its soil environment. So good irrigation is more than just 'hurling' as much water as you can at the area as fast as you can. You need a simple, flexible system that you can control with ease depending on conditions.

Next, running costs. Higher running pressures using higher pressure rated pipes and pumping systems equates to higher running costs. It all adds up to rather a lot of expensive equipment which is costly to use. And don't forget the labour! Labour costs can add up to a large portion of ongoing irrigation expenditure. Your time is too valuable. You need a simple, flexible

system which is inexpensive to install, cheap to run and above all easy to use.

Finally, consideration must be given to your existing farm layout and the expense of any alterations required to install your new irrigation system. Existing shelter belts, paddock layouts, water ways and farm tracks all require a tremendous effort to remove or relocate. You need a simple, flexible, easy to fit system that doesn't turn your farm upside down.

**In a few words, you need the ideal irrigation system. It's called the K-LINE™.**

## What is K-Line™?

K-Line™ is a revolutionary flexible hose line sprinkler irrigation system designed to reduce the time and money you spend on irrigation.

At the heart of the system is a series of small, tough, plastic pods protecting a small sprinkler firmly attached to special K-Pipe™. The system can be run on low pressure and is designed to distribute water on a slow absorption method for up to a 24 hour period, firstly, to eliminate the need to shift irrigation several times a day and secondly, to allow maximum absorption into the soil, reducing run-off and pooling. K-Line™ uses less water much more effectively. K-Line™ is also very flexible. Variables such as running time per day/night, rotations, application rates etc., can be easily adjusted to suit your farm management style. Stock can also continue to use the paddocks being irrigated.

Each paddock has its own sprinkler line, customised to suit the size and shape of the paddock, and is run simultaneously depending on water supply. However, you don't need to run them all at once. You may choose to run only what's needed, or what's available depending on your water constraints. The small, flexible, strong, lightweight lines can be shifted in only minutes by a 4 wheeled motor bike, by simply driving across the paddock.



# K-Line™ Irrigation process

## What you need

### What's involved with installing K-Line™?

The process starts with a plan for your new system. There is a need to examine the shape and size of your property, land use, the quality and quantity of the water supply, irrigation rotation and the soil types involved. Consideration of your needs will determine the scale of system. Together, with a hydraulic analysis, water pressure requirements, pump sizes, power systems and budget, your options can be determined.

Typically, the water supply requirements for K-Line™ are similar to any other piped irrigation system, although with the K-Line™ (slow absorption method) many farmers are saying that every litre of water applied goes much further. However, the overall energy requirement should be much less if the distribution pipes are sized correctly. Pumps should be sized to suit the maximum number of sprinklers expected to be operating at any given time.

You'll need a network of distribution mains to deliver the water to each paddock (FIG 1). The size of these pipes are reduced as the number of paddocks fed progressively reduce and get further away from the pump source reducing the cost of mains piping. The mains terminate with a single riser or risers depending on the size of each paddock.

The feed lines (FIG 3) connect to the isolation valve at the riser, and are customised depending on the size and shape of the paddock. The sprinkler lines are also customised for the paddock, using 32mm, 40mm or 45mm special K-Pipe™. The K-Line™ pods are then fitted.

The K-Line™ sprinkler units consist of a sprinkler, a specially designed tapping saddle and a tough protective housing (pod). The pod serves many purposes, such as protecting the sprinkler, keeping the sprinkler upright and stopping the crop interfering with the sprinkler action.

Assembly is so simple many people choose to install the feed and sprinkler lines themselves. Of course, the UV protected, tough, poly plastic used ensures a long life in all weather conditions.

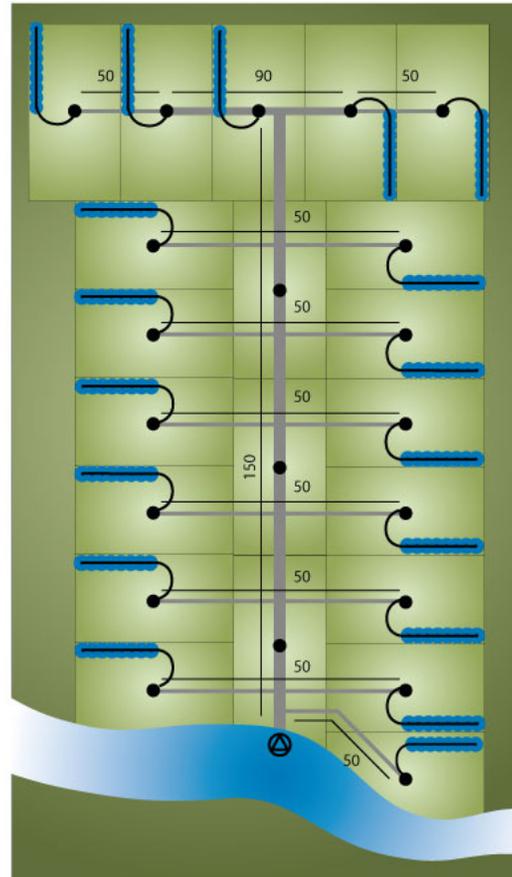


FIG 1 - Typical farm layout showing distribution lines and reducing pipe sizes

## Easy Shifting

It should be clear by now that K-Line™ is a truly simple and effective system. And that's also true when it comes to shifting the lines. The unique skid characteristics of the pod and the shifting process have been carefully designed so that, when done correctly, the shifting process places no extra stress on your farm bike or other vehicles. The process works for paddocks of all shapes and sizes.

### The simple process is as follows:

Go to the far end of the sprinkler line (point (A) in FIG 2). While still on your bike slow down facing the direction you intend to go. In one easy movement, hook onto the sprinkler line, line yourself up with the marker at the other end of the paddock (point (B)) and drive to the other end. Unhook and repeat shifting process in the next paddock.

When the field has been irrigated completely (point (C)), disconnect the sprinkler line from the feed line, tow the sprinkler line back to the starting position (FIG 3), reposition feed line, connect to the sprinkler line and you're ready to start the irrigation rotation again.

# Shifting process

## The major benefits are:

- Low capital cost
- Ease of installation, use and shifting
- Suits ALL types of terrain
- Best possible use of available water supplies.

## Other, very important advantages:

- Cost flexibility: can be installed initially on a small scale, and then expanded as budgets allow
- Suits properties from 1 to 1000+ hectares
- Effective on flat, undulating or even hilly ground, as the feed and sprinkler lines follow the contours of the land
- Less investment in underground networks. Mains can be reduced at the extremities, branch lines reduced in size and no hydrants required
- Minimal irrigation time lost during shifts. Each line can be moved in minutes, while they are still operating
- Shifts can be done quickly with your 4 wheeled motorbike or available vehicle
- Low maintenance costs. The only moving parts are the sprinklers, pipe, pumps and valves
- You can add new lines to existing systems with ease
- Low energy requirements
- Application up to a 24 hour period maximises absorption with little or no run-off
- Crops can be irrigated
- Livestock is not affected
- No storage required. Lines and pods can be left in the paddock
- Simply disconnect and move the lines to the fence when mowing, cultivating or harvesting.

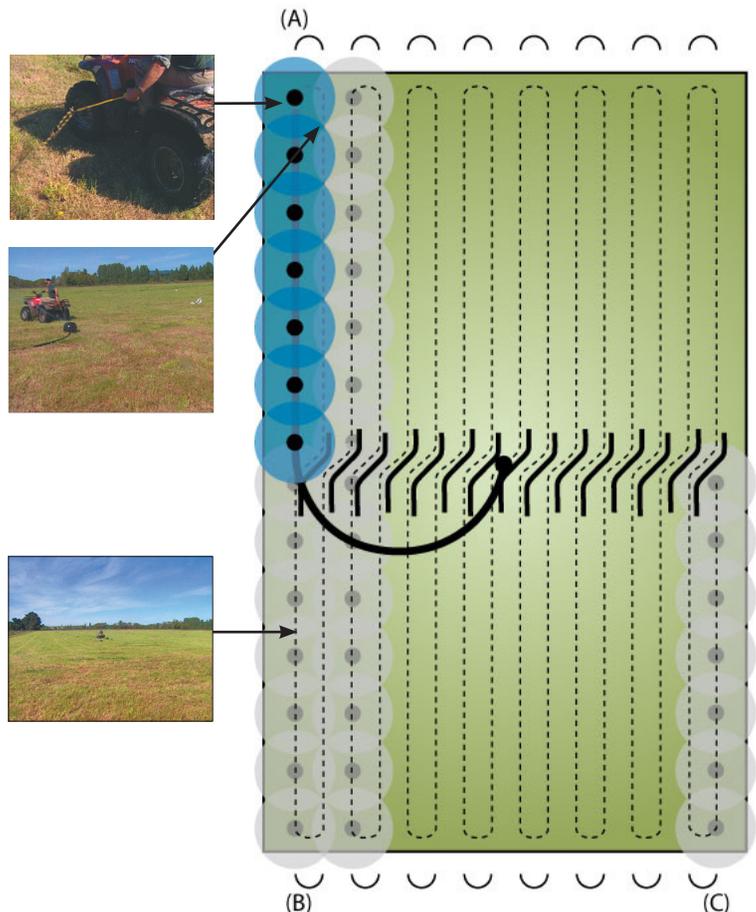


FIG 2

Shifting rotation within a typical paddock

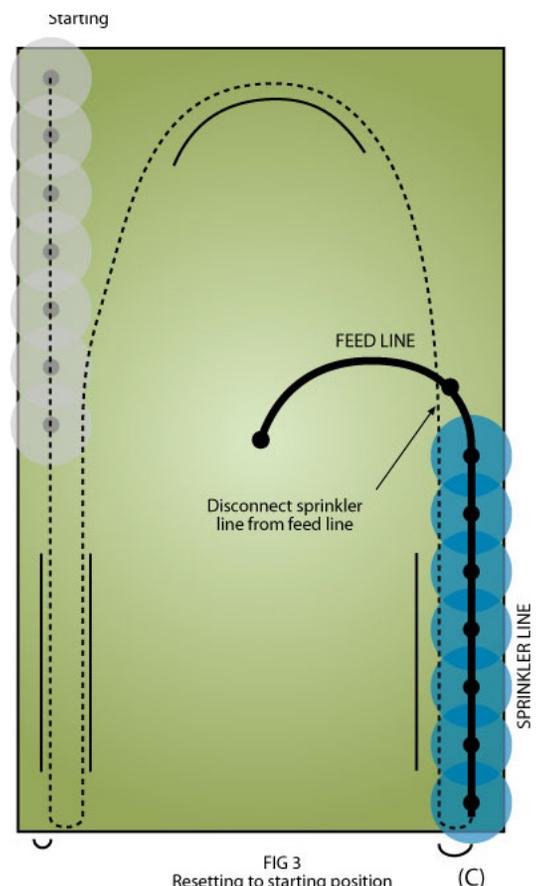


FIG 3  
Resetting to starting position

# Sprinkler options



Pressure and flows of the Senninger 5023

Pressure (Bar)	2.50	2.75	3.00
#13 Nozzle (5.16mm)			
(m <sup>3</sup> /hr)	1.63	1.71	1.78
Diameter (metres)	29.2	29.8	30.3
#14 Nozzle (5.56mm)			
(m <sup>3</sup> /hr)	1.87	1.96	2.05
Diameter (metres)	30.1	30.7	31.2
#15 Nozzle (5.95mm)			
(m <sup>3</sup> /hr)	2.13	2.23	2.33
Diameter (metres)	30.7	31.3	32.1
#16 Nozzle (6.35mm)			
(m <sup>3</sup> /hr)	2.41	2.53	2.64
Diameter (metres)	31.3	31.9	32.7
#17 Nozzle (6.75mm)			
(m <sup>3</sup> /hr)	2.68	2.81	2.93
Diameter (metres)	31.9	32.5	33.3
#18 Nozzle (7.14mm)			
(m <sup>3</sup> /hr)	2.98	3.12	3.26
Diameter (metres)	32.5	33.1	33.9



Pressure and flows of the Naan 5035

Pressure (Bar)	3.00	4.00	5.00
Blue (3.5mm)			
(m <sup>3</sup> /hr)	0.81	0.93	1.02
Diameter (metres)	26.5	27.5	28.0
Black (4.0mm)			
(m <sup>3</sup> /hr)	1.06	1.22	1.35
Diameter (metres)	28.0	29.0	29.5
Brown (4.5mm)			
(m <sup>3</sup> /hr)	1.29	1.50	1.65
Diameter (metres)	28.5	30.0	33.0
Purple (5.0mm)			
(m <sup>3</sup> /hr)	1.60	1.85	2.10
Diameter (metres)	30.0	33.5	34.0
Orange (5.5mm)			
(m <sup>3</sup> /hr)	1.95	2.25	2.50
Diameter (metres)	32.0	34.5	36.0
Red (6.0mm)			
(m <sup>3</sup> /hr)	2.30	2.70	3.00
Diameter (metres)	33.0	35.5	36.0



Pressure and flows of the Naan 5022

Pressure (Bar)	2.00	3.00	4.00
Purple (2.5mm)			
(m <sup>3</sup> /hr)	0.35	0.43	0.49
Diameter (metres)	21.5	22.0	22.0
Orange (2.8mm)			
(m <sup>3</sup> /hr)	0.45	0.55	0.63
Diameter (metres)	22.0	23.0	24.0
Red (3.0mm)			
(m <sup>3</sup> /hr)	0.51	0.63	0.72
Diameter (metres)	23.0	24.5	25.0
Green (3.2mm)			
(m <sup>3</sup> /hr)	0.57	0.70	0.81
Diameter (metres)	23.5	24.5	25.0
Blue (3.5mm)			
(m <sup>3</sup> /hr)	0.66	0.81	0.93
Diameter (metres)	25.0	26.0	26.0
Black (4.0mm)			
(m <sup>3</sup> /hr)	0.85	1.03	1.18
Diameter (metres)	24.0	26.0	26.0

*"We have two farms – the dairy farm is 400 acres and irrigated with K-Line™ and shifting takes 2 – 2 ½ hours. The other at 300 acres takes about an hour with better layout and flatter terrain."*

*"K-Line's™ fantastic on the hills. Pretty much anywhere you can go on your bike you can go with K-Line™."*



K-Line™ can be shifted easily over all sorts of terrain including undulating paddocks and hillsides.

# Sprinkler options



Pressure and flows of the Nelson R20000 WF Sprinkler



Pressure and flows of the Nelson R33 Sprinkler

## Plate/Nozzle Options and Flow Performance in LPH

Plate Options*	Recommended Nozzles	BAR				
		2.75	3.0	3.5	4.0	4.5
<b>Green WF14</b> Radius: 39 - 41 Ft (11.9 - 12.5 M)	#14 Green (7/64)	487	509	550	590	626
<b>Red WF16</b> Radius: 40 - 42 Ft (12.2 - 12.8 M)	#15 Tan (15/128)	574	597	647	695	737
	#16 Red (1/8)	655	685	739	792	837
<b>Gold WF18</b> Radius: 41-43 Ft (12.5 - 13.1 M)	#18 Gold (9/64)	834	869	940	1001	1060
<b>Dark Brown WF20</b> Radius: 42-45 Ft (12.8 - 13.7 M)	#20 Dark Brown***	1016	1062	1144	1222	1295

## R33 Performance

		R33 PERFORMANCE RANGE 2.75-4.5 BAR							
		Pressure in BAR							
		2.75	3	3.25	3.5	3.75	4	4.25	4.5
<b>Gold 18 3.6 mm</b>	LPH	825	862	897	931	964	996	1027	1058
	RAD (m)	13.4	13.6	13.7	13.7	13.7	14.0	14.0	13.7
<b>Brown 20 4.0 mm</b>	LPH	1009	1054	1099	1143	1179	1217	1255	1293
	RAD (m)	14.0	14.2	14.5	14.6	14.7	14.6	14.5	14.3
<b>Gray 22 4.4 mm</b>	LPH	1218	1272	1325	1375	1423	1468	1511	1554
	RAD (m)	14.6	14.8	15.1	15.2	15.0	15.0	14.8	14.6
<b>Green 24 4.8 mm</b>	LPH	1447	1513	1577	1639	1698	1753	1807	1862
	RAD (m)	14.9	15.2	15.4	15.5	15.5	15.5	15.5	15.2

"I find K-Line™ very easy to use. I was able to complete the installation myself. We've added onto it just by hooking on additional lines when we need them."

"The low application rate means we get no run-off. It's all absorbed."

"The reliability is what has impressed me."

"With our old system ... we were pooling water in the hollows. That's disappeared with K-Line™."



"I've never irrigated because all the equipment that was available was too labour intensive and too time consuming. Until K-Line™ came along."

"They can get into areas the big irrigators can't."

"K-Line™'s so simple and doesn't get in the way... we can still run our stock in the same paddock while it's operating. We can even shift it without worrying about the herd."

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