

Technical Specification Web Controlled Centre Pivot 1.4 ha

Water required: 12.0 mm/day
 Centre elevation: 3.5 m
 Field elevation: 5 m
 Irrigated angle (degrees): 360.0

Item	Pipe diameter / Centre selection	Span length	Flow to crop	Friction per unit length	Friction or pressure	Centre drive ratio	Weight on wheels (kg)
Centre:	3-Leg	1.0 m		0.00 kPa/m	0 kPa		1,165 kg
Span 1:	127 mm	40.3 m	0.7 l/s	0.01 kPa/m	0 kPa	40:1	1,930 kg
Span 2:	127 mm	40.3 m	2.2 l/s	0.00 kPa/m	0 kPa	40:1	1,079 kg
Span 3:	None						-
Span 4:	None						-
Span 5:	None						-
Span 6:	None						-
Span 7:	None						-
Span 8:	None						-
Span 9:	None						-
Span 10:	None						-
Span 11:	None						-
Span 12:	None						-
Span 13:	None						-
Span 14:	None						-
Overhang:	101 mm	6.7 m	0.5 l/s	0.00 kPa/m	0 kPa		
R55:	None		-				
P85 Endgun:	None		-				
Area:	2.4 Ha	88.2 m	3.7 l/s	Avg 0.01 kPa/m	1 kPa		
Circle time (time to run 360°): at 100 %			3.5 h	Total elevation:	83 kPa		
Application per pass at 100 %:			1.8 mm	End pressure:	14kPa		
Current drawn per phase (400 V 3 phase):			2.1 A	Inlet pressure:	224 kPa		
Outlet spacing:	3.35 m			Installation (y/n):	Yes		
Drops:	Yes			Transport from factory to farm:	500 km		
				Distance from branch to farm:	500 km		
Control panel:	Advanced RAIN						
Towerbox, GPS:	Yes			Slipping:	Yes		
Extra transducer with GPS:	Yes			Surestop:	No		
Web control annual for farm:	Yes			Barricades (# of):	0		
Web control annual for pivot:	Yes						
Towerbox, Stall timer:	No			Valve in SP diagonal pipe:	No		
VCT shutdown:	No			Additional anchor boxes (# of):	0		
Clearance:	Standard			Linear turntables (# of):	0		
Towable machine:	No			110 mm HDPE hose for linear:	0 m		
Tyres:	13.6-24" on 8" rims			125 mm HDPE hose for linear:	0 m		
Windsaver:	No			All adjustable drivetubes:	No		
Cablesaver (y/n):	Yes			Extra heavy duty gearboxes:	No		
Wheelsaver (y/n):	Yes						
Duplex (y/n):	No			Discount to customer on pivot (%):	22		
				Discount on installation (%):	0		

Pumping cost estimate (for pipe size optimisation)

A good centre pivot design minimises the sum of the capital outlay for the centre pivot and the pumping cost over the investment horizon.

	Price of energy:	R 0.00/kWh	Item	Pressure	Power	PV of cost
Real interest rate:	4.0%		Elevation of water:	83 kPa	0.4 kW	R 0
Investment horizon:	10 years		Friction in machine:	1 kPa	0.0 kW	R 0
Pump efficiency:	75%		End pressure:	140 kPa	0.7 kW	R 0

Annual pumping time:	2,500 hours	Total:	224 kPa	1.1 kW	R 0
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Percentage timer table		
Percentage timer setting (%)	Application per pass (mm)	Circle time (hours)
100	1.8	3.5
90	1.9	3.9
80	2.2	4.4
71	2.5	4.9
63	2.8	5.6
56	3.1	6.3
50	3.5	7.0
45	3.9	7.8
40	4.4	8.8
36	4.9	9.7
32	5.5	11.0
28	6.3	12.5
25	7.0	14.0
22	8.0	15.9
20	8.8	17.5
18	9.7	19.5
16	11.0	21.9
14	12.5	25.0
12	14.6	29.2
11	15.9	31.9
10	17.5	35.1
9	19.5	39.0
8	21.9	43.8
7	25.0	50.1
6	29.2	58.4
5	35.1	70.1
4	43.8	87.6
3	58.4	116.9
2	87.6	175.3
1	175.3	350.6
The relationship between water application, timer setting and pivot speed provided above are theoretical. Actual application rates may vary due to tire slippage, tire inflation and tread wear, variations in terrain and soils, wind drift, evaporation and drive train efficiency. The above data are intended only as a guide and should be used with due caution.		

Nozzle package (version 2.52)											
Span #	Outlet #	Nozzle type	Position from centre (m)	Distance covered by nozzle (m)	Pressure above regulator (kPa)	Regulator type	Hi- or Uni-flo	Sprinkler type	Nozzle size (1/128")	IAR (mm/hr)	Over-watering (%)
1	1	Plugged	2.7	-	141	100 kPa	-	D3000, brown	-	-	0
1	2	Single	6.0	9.38	141	100 kPa	Uni-flo	D3000, brown	9	1	-7
1	3	Plugged	9.4	-	140	100 kPa	-	D3000, brown	-	-	0
1	4	Single	12.7	5.03	140	100 kPa	Uni-flo	D3000, brown	11	4	1
1	5	Single	16.1	3.35	140	100 kPa	Uni-flo	D3000, brown	10	5	-6
1	6	Single	19.4	3.35	140	100 kPa	Uni-flo	D3000, brown	11	6	-8
1	7	Single	22.8	3.35	140	100 kPa	Uni-flo	D3000, brown	12	7	-7
1	8	Single	26.1	3.35	140	100 kPa	Uni-flo	D3000, brown	13	8	-5
1	9	Single	29.5	3.35	140	100 kPa	Uni-flo	D3000, brown	14	9	-2
1	10	Single	32.9	3.35	140	100 kPa	Uni-flo	O3000, orbitor	15	7	2
1	11	Single	36.2	3.35	140	100 kPa	Uni-flo	O3000, orbitor	16	7	6
1	12	Single	39.6	3.35	140	100 kPa	Uni-flo	O3000, orbitor	16	7	-2
2	13	Single	42.9	3.35	140	100 kPa	Uni-flo	O3000, orbitor	17	8	0
2	14	Single	46.3	3.35	140	100 kPa	Uni-flo	O3000, orbitor	18	9	4
2	15	Single	49.6	3.35	140	100 kPa	Uni-flo	O3000, orbitor	18	9	-2
2	16	Single	53.0	3.35	140	100 kPa	Uni-flo	O3000, orbitor	19	11	1
2	17	Single	56.3	3.35	140	100 kPa	Uni-flo	O3000, orbitor	19	10	-5
2	18	Single	59.7	3.35	140	100 kPa	Uni-flo	O3000, orbitor	20	12	-2
2	19	Single	63.0	3.35	140	100 kPa	Uni-flo	O3000, orbitor	21	13	3
2	20	Single	66.4	3.35	140	100 kPa	Uni-flo	O3000, orbitor	21	13	-1
2	21	Single	69.7	3.35	140	100 kPa	Uni-flo	O3000, orbitor	22	14	2
2	22	Single	73.1	3.35	140	100 kPa	Uni-flo	O3000, orbitor	22	14	-2
2	23	Single	76.4	3.35	140	100 kPa	Uni-flo	O3000, orbitor	23	15	1
2	24	Single	79.8	3.35	140	100 kPa	Uni-flo	O3000, orbitor	23	15	-2
Overhang	25	Single	83.1	3.35	140	100 kPa	Uni-flo	O3000, orbitor	24	17	1
Overhang	26	Single	86.5	3.35	140	100 kPa	Uni-flo	O3000, orbitor	24	17	-2
Overhang	27	Single	88.2	-	140	100 kPa	Uni-flo	O3000, orbitor	28	0	-1

