

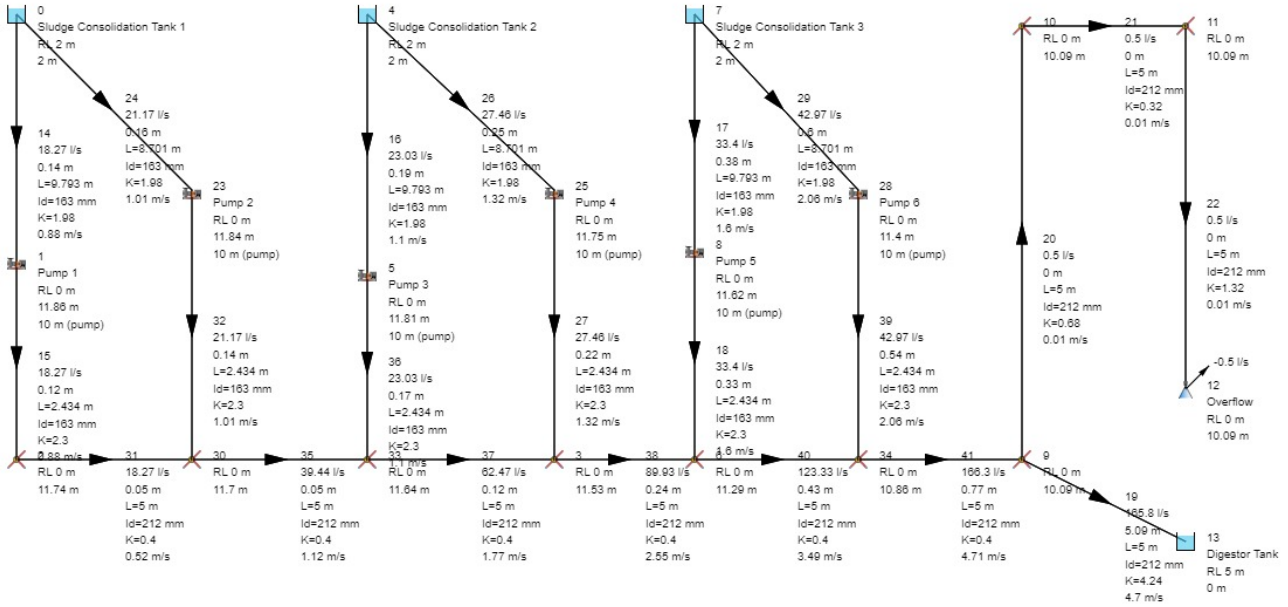
**Helix Technologies Pty Ltd**

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Network Type	Liquid	Calc. Method	Darcy
Description	Mectron Sewage Sludge system		

Sewage sludge transfer system example.  
Model drawn for sketch. Required flow rate not specified, example only.

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		



Mectron Sewage Sludge system

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	14	From node to node	0 - 1
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	0.92 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	9.793 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Pipe Fitting Description		Qty	K value
Entrance - flush 1/2		1	0.5
Bend - 90 degree elbow r/d = 4		1	0.28
Exit - Sharp edged		1	1
Knife Gate Valve		1	0.2
Total Fittings k	1.98	Total Fittings kf	0
Flow Rate	18.27 l/s	Velocity	0.88 m/s
Friction Loss	0.06 m	Fitting Losses	0.08 m
Slurry Losses	0.02 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.14 m	Total Pressure Drop	1.38 kPa
Entry Total Head	2 m	Exit Total Head	1.86 m
Entry Gauge Head	0 m	Exit Gauge Head	1.86 m
Reynolds No.	143642.04	Friction Factor	0.01698 (Darcy f)

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	15	From node to node	1 - 2
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	0.92 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	2.434 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Pipe Fitting Description		Qty	K value
Entrance - flush 1/2		1	0.5
Sudden Enlargement - 1:2		1	0.6
Gate Valve		1	0.2
Check Valve - Swing type, full bore		1	1
			Kft value
			0
			30
			8
			50
Total Fittings k	2.3	Total Fittings kf	0
Flow Rate	18.27 l/s	Velocity	0.88 m/s
Friction Loss	0.03 m	Fitting Losses	0.09 m
Slurry Losses	0.02 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.12 m	Total Pressure Drop	1.17 kPa
Entry Total Head	11.86 m	Exit Total Head	11.74 m
Entry Gauge Head	11.86 m	Exit Gauge Head	11.74 m
Reynolds No.	143642.07	Friction Factor	0.01698 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	16	From node to node	4 - 5
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	1.16 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	9.793 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	1.98	Total Fittings kf	0
Flow Rate	23.03 l/s	Velocity	1.1 m/s
Friction Loss	0.07 m	Fitting Losses	0.12 m
Slurry Losses	0.01 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.19 m	Total Pressure Drop	1.88 kPa
Entry Total Head	2 m	Exit Total Head	1.81 m
Entry Gauge Head	0 m	Exit Gauge Head	1.81 m
Reynolds No.	181060.75	Friction Factor	0.01627 (Darcy f)

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	17	From node to node	7 - 8
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	1.68 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	9.793 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	1.98	Total Fittings kf	0
Flow Rate	33.4 l/s	Velocity	1.6 m/s
Friction Loss	0.12 m	Fitting Losses	0.26 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.38 m	Total Pressure Drop	3.73 kPa
Entry Total Head	2 m	Exit Total Head	1.62 m
Entry Gauge Head	0 m	Exit Gauge Head	1.62 m
Reynolds No.	262580.43	Friction Factor	0.01524 (Darcy f)

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	18	From node to node	8 - 6
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	1.68 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	2.434 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	2.3	Total Fittings kf	0
Flow Rate	33.4 l/s	Velocity	1.6 m/s
Friction Loss	0.03 m	Fitting Losses	0.3 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.33 m	Total Pressure Drop	3.26 kPa
Entry Total Head	11.62 m	Exit Total Head	11.29 m
Entry Gauge Head	11.62 m	Exit Gauge Head	11.29 m
Reynolds No.	262580.43	Friction Factor	0.01524 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	19	From node to node	9 - 13
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid Sl	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	8.34 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	1.04 m/s
Settling Flow Rate	36.59 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE100 AS4130	Pipe Class	PN12.5
Nominal Diameter	250 mm	Inside Diameter	212 mm
Outside Diameter	250 mm	Pipe Length	5 m
Pipe Roughness	0.003 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Pipe Fitting Description		Qty	K value
Exit - Sharp edged		1	1
Tee - Line to Branch		1	1.2
Bend - Standard 90 degree elbow		2	0.6
Bend - Standard 45 degree elbow		2	0.32
Gate Valve		1	0.2
Total Fittings k	4.24	Total Fittings kf	0
Flow Rate	165.8 l/s	Velocity	4.7 m/s
Friction Loss	0.32 m	Fitting Losses	4.77 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	5.09 m	Total Pressure Drop	50.21 kPa
Entry Total Head	10.09 m	Exit Total Head	5 m
Entry Gauge Head	10.09 m	Exit Gauge Head	0 m
Reynolds No.	1002202.85	Friction Factor	0.01195 (Darcy f)



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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	20	From node to node	9 - 10
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	0.03 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	1.04 m/s
Settling Flow Rate	36.59 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE100 AS4130	Pipe Class	PN12.5
Nominal Diameter	250 mm	Inside Diameter	212 mm
Outside Diameter	250 mm	Pipe Length	5 m
Pipe Roughness	0.003 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Pipe Fitting Description		Qty	K value
Bend - 90 degree elbow r/d = 6		2	0.34
			Kft value
			17
Total Fittings k	0.68	Total Fittings kf	0
Flow Rate	0.5 l/s	Velocity	0.01 m/s
Friction Loss	0 m	Fitting Losses	0 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0 m	Total Pressure Drop	0 kPa
Entry Total Head	10.09 m	Exit Total Head	10.09 m
Entry Gauge Head	10.09 m	Exit Gauge Head	10.09 m
Reynolds No.	3022.36	Friction Factor	0.04343 (Darcy f)

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	21	From node to node	10 - 11
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	0.03 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	1.04 m/s
Settling Flow Rate	36.59 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE100 AS4130	Pipe Class	PN12.5
Nominal Diameter	250 mm	Inside Diameter	212 mm
Outside Diameter	250 mm	Pipe Length	5 m
Pipe Roughness	0.003 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Pipe Fitting Description		Qty	K value
Bend - Standard 45 degree elbow		1	0.32
			Kft value
			16
Total Fittings k	0.32	Total Fittings kf	0
Flow Rate	0.5 l/s	Velocity	0.01 m/s
Friction Loss	0 m	Fitting Losses	0 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0 m	Total Pressure Drop	0 kPa
Entry Total Head	10.09 m	Exit Total Head	10.09 m
Entry Gauge Head	10.09 m	Exit Gauge Head	10.09 m
Reynolds No.	3022.36	Friction Factor	0.04343 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	22	From node to node	11 - 12
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid Sl	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	0.03 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	1.04 m/s
Settling Flow Rate	36.59 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE100 AS4130	Pipe Class	PN12.5
Nominal Diameter	250 mm	Inside Diameter	212 mm
Outside Diameter	250 mm	Pipe Length	5 m
Pipe Roughness	0.003 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Pipe Fitting Description		Qty	K value
Bend - Standard 45 degree elbow		1	0.32
Exit - Sharp edged		1	1
Total Fittings k	1.32	Total Fittings kf	0
Flow Rate	0.5 l/s	Velocity	0.01 m/s
Friction Loss	0 m	Fitting Losses	0 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0 m	Total Pressure Drop	0 kPa
Entry Total Head	10.09 m	Exit Total Head	10.09 m
Entry Gauge Head	10.09 m	Exit Gauge Head	10.09 m
Reynolds No.	3022.36	Friction Factor	0.04343 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	24	From node to node	0 - 23
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	1.06 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	8.701 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	1.98	Total Fittings kf	0
Flow Rate	21.17 l/s	Velocity	1.01 m/s
Friction Loss	0.06 m	Fitting Losses	0.1 m
Slurry Losses	0.01 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.16 m	Total Pressure Drop	1.58 kPa
Entry Total Head	2 m	Exit Total Head	1.84 m
Entry Gauge Head	0 m	Exit Gauge Head	1.84 m
Reynolds No.	166443.45	Friction Factor	0.01652 (Darcy f)

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	26	From node to node	4 - 25
Description		Equipment No	
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	1.38 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	8.701 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	1.98	Total Fittings kf	0
Flow Rate	27.46 l/s	Velocity	1.32 m/s
Friction Loss	0.07 m	Fitting Losses	0.17 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.25 m	Total Pressure Drop	2.46 kPa
Entry Total Head	2 m	Exit Total Head	1.75 m
Entry Gauge Head	0 m	Exit Gauge Head	1.75 m
Reynolds No.	215882.67	Friction Factor	0.01577 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	27	From node to node	25 - 3
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	1.38 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	2.434 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	2.3	Total Fittings kf	0
Flow Rate	27.46 l/s	Velocity	1.32 m/s
Friction Loss	0.02 m	Fitting Losses	0.2 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.22 m	Total Pressure Drop	2.21 kPa
Entry Total Head	11.75 m	Exit Total Head	11.53 m
Entry Gauge Head	11.75 m	Exit Gauge Head	11.53 m
Reynolds No.	215882.66	Friction Factor	0.01577 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	29	From node to node	7 - 28
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	2.16 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	8.701 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	1.98	Total Fittings kf	0
Flow Rate	42.97 l/s	Velocity	2.06 m/s
Friction Loss	0.17 m	Fitting Losses	0.43 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.6 m	Total Pressure Drop	5.89 kPa
Entry Total Head	2 m	Exit Total Head	1.4 m
Entry Gauge Head	0 m	Exit Gauge Head	1.4 m
Reynolds No.	337799.87	Friction Factor	0.01461 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	31	From node to node	2 - 30
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	0.92 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	1.04 m/s
Settling Flow Rate	36.59 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE100 AS4130	Pipe Class	PN12.5
Nominal Diameter	250 mm	Inside Diameter	212 mm
Outside Diameter	250 mm	Pipe Length	5 m
Pipe Roughness	0.003 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Pipe Fitting Description		Qty	K value
Tee - Line to Line		1	0.4
			Kft value
			20
Total Fittings k	0.4	Total Fittings kf	0
Flow Rate	18.27 l/s	Velocity	0.52 m/s
Friction Loss	0.04 m	Fitting Losses	0.01 m
Slurry Losses	0.03 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.05 m	Total Pressure Drop	0.45 kPa
Entry Total Head	11.74 m	Exit Total Head	11.7 m
Entry Gauge Head	11.74 m	Exit Gauge Head	11.7 m
Reynolds No.	110441.39	Friction Factor	0.0177 (Darcy f)



## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	32	From node to node	23 - 30
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	1.06 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	2.434 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	2.3	Total Fittings kf	0
Flow Rate	21.17 l/s	Velocity	1.01 m/s
Friction Loss	0.02 m	Fitting Losses	0.12 m
Slurry Losses	0.01 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.14 m	Total Pressure Drop	1.42 kPa
Entry Total Head	11.84 m	Exit Total Head	11.7 m
Entry Gauge Head	11.84 m	Exit Gauge Head	11.7 m
Reynolds No.	166443.44	Friction Factor	0.01652 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	35	From node to node	30 - 33
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	1.98 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	1.04 m/s
Settling Flow Rate	36.59 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE100 AS4130	Pipe Class	PN12.5
Nominal Diameter	250 mm	Inside Diameter	212 mm
Outside Diameter	250 mm	Pipe Length	5 m
Pipe Roughness	0.003 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	0.4	Total Fittings kf	0
Flow Rate	39.44 l/s	Velocity	1.12 m/s
Friction Loss	0.03 m	Fitting Losses	0.03 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.05 m	Total Pressure Drop	0.52 kPa
Entry Total Head	11.7 m	Exit Total Head	11.64 m
Entry Gauge Head	11.7 m	Exit Gauge Head	11.64 m
Reynolds No.	238414.91	Friction Factor	0.01524 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	36	From node to node	5 - 33
Description		Equipment No	
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	1.16 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	2.434 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	2.3	Total Fittings kf	0
Flow Rate	23.03 l/s	Velocity	1.1 m/s
Friction Loss	0.02 m	Fitting Losses	0.14 m
Slurry Losses	0.01 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.17 m	Total Pressure Drop	1.63 kPa
Entry Total Head	11.81 m	Exit Total Head	11.64 m
Entry Gauge Head	11.81 m	Exit Gauge Head	11.64 m
Reynolds No.	181060.74	Friction Factor	0.01627 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	37	From node to node	33 - 3
Description		Equipment No	
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	3.14 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	1.04 m/s
Settling Flow Rate	36.59 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE100 AS4130	Pipe Class	PN12.5
Nominal Diameter	250 mm	Inside Diameter	212 mm
Outside Diameter	250 mm	Pipe Length	5 m
Pipe Roughness	0.003 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	0.4	Total Fittings kf	0
Flow Rate	62.47 l/s	Velocity	1.77 m/s
Friction Loss	0.05 m	Fitting Losses	0.06 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.12 m	Total Pressure Drop	1.15 kPa
Entry Total Head	11.64 m	Exit Total Head	11.53 m
Entry Gauge Head	11.64 m	Exit Gauge Head	11.53 m
Reynolds No.	377626.79	Friction Factor	0.01402 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	38	From node to node	3 - 6
Description		Equipment No	
Liquid	Water	Viscosity	1.002 cp
Temperature	20 C	Density	998.2 kg/m3
Vapour Pressure	2.34 kPa		
Pipe Description	Polyethylene PE100 AS4130	Pipe Class	PN12.5
Nominal Diameter	250 mm	Inside Diameter	212 mm
Outside Diameter	250 mm	Pipe Length	5 m
Pipe Roughness	0.003 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	0.4	Total Fittings kf	0
Flow Rate	89.93 l/s	Velocity	2.55 m/s
Friction Loss	0.1 m	Fitting Losses	0.13 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.24 m	Total Pressure Drop	2.3 kPa
Entry Total Head	11.53 m	Exit Total Head	11.29 m
Entry Gauge Head	11.53 m	Exit Gauge Head	11.29 m
Reynolds No.	538070.69	Friction Factor	0.0132 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	39	From node to node	28 - 34
Description		Equipment No	
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	2.16 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	0.91 m/s
Settling Flow Rate	18.97 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE80 AS4130	Pipe Class	PN12.5
Nominal Diameter	200 mm	Inside Diameter	163 mm
Outside Diameter	200 mm	Pipe Length	2.434 m
Pipe Roughness	0.007 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	2.3	Total Fittings kf	0
Flow Rate	42.97 l/s	Velocity	2.06 m/s
Friction Loss	0.05 m	Fitting Losses	0.5 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.54 m	Total Pressure Drop	5.37 kPa
Entry Total Head	11.4 m	Exit Total Head	10.86 m
Entry Gauge Head	11.4 m	Exit Gauge Head	10.86 m
Reynolds No.	337799.87	Friction Factor	0.01461 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	40	From node to node	6 - 34
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid Sl	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	6.2 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	1.04 m/s
Settling Flow Rate	36.59 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE100 AS4130	Pipe Class	PN12.5
Nominal Diameter	250 mm	Inside Diameter	212 mm
Outside Diameter	250 mm	Pipe Length	5 m
Pipe Roughness	0.003 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	0.4	Total Fittings kf	0
Flow Rate	123.33 l/s	Velocity	3.49 m/s
Friction Loss	0.18 m	Fitting Losses	0.25 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.43 m	Total Pressure Drop	4.27 kPa
Entry Total Head	11.29 m	Exit Total Head	10.86 m
Entry Gauge Head	11.29 m	Exit Gauge Head	10.86 m
Reynolds No.	745501.72	Friction Factor	0.01251 (Darcy f)

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Pipe No	41	From node to node	34 - 9
Description	Equipment No		
Slurry Type	Settling Slurry		
Slurry Description	Sewage Sludge	Slurry Reference	CWRP
SG Carrier Liquid SI	1	Liquid Viscosity	1 cP
SG of Dry Solids	1.2	SG of Mixture	1.01
Conc. by Mass Cw	5 % w/w	Concentration by Vol	1.01 % v/v
Solids Flow Rate	8.36 kg/s	Particle Size d50	0.5 mm
Grading	Widely Graded		
Durand co-eff. FI	1.13	Settling Velocity VI	1.04 m/s
Settling Flow Rate	36.59 l/s		
Pump Wear Factor Pw	1	Pump Head Ratio HR	0.99
Pipe Description	Polyethylene PE100 AS4130	Pipe Class	PN12.5
Nominal Diameter	250 mm	Inside Diameter	212 mm
Outside Diameter	250 mm	Pipe Length	5 m
Pipe Roughness	0.003 mm	Allowable Press.	1250 kPa
Orifice Plate Dia	-	Non Return Valve	No
Total Fittings k	0.4	Total Fittings kf	0
Flow Rate	166.3 l/s	Velocity	4.71 m/s
Friction Loss	0.32 m	Fitting Losses	0.45 m
Slurry Losses	0 m	Orifice Losses	0 m
Fixed Head Loss	0 m	Booster Pump Head	0 m
Total Head Loss	0.77 m	Total Pressure Drop	7.62 kPa
Entry Total Head	10.86 m	Exit Total Head	10.09 m
Entry Gauge Head	10.86 m	Exit Gauge Head	10.09 m
Reynolds No.	1005225.21	Friction Factor	0.01195 (Darcy f)



## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	0	Node Type	Tank
Description	Sludge Consolidation Tank 1	Equipment No	
Rel. Level (RL)	2 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	-
Int.(Gauge) Head	-	Int.(Gauge) Pressure	-
Total Node Head	2 m		

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	1	Node Type	Pump
Description	Pump 1	Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	-
Int.(Gauge) Head	-	Int.(Gauge) Pressure	-
Total Node Head	11.86 m		
Pump Head	10 m	Pump Flow Rate	18.27 l/s
Pump / Fan Efficiency	70 %	Pump Absorbed Power	2.58 kW
Casing Pressure	215.77 kPa		
Pump NPSH required	0 m	Pump NPSH available	21.9 m

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	2	Node Type	Junction
Description		Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	0 l/s
Int.(Gauge) Head	11.74 m	Int.(Gauge) Pressure	115.89 kPa
Total Node Head	11.74 m		

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	3	Node Type	Junction
Description		Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	0 l/s
Int.(Gauge) Head	11.53 m	Int.(Gauge) Pressure	113.77 kPa
Total Node Head	11.53 m		

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	4	Node Type	Tank
Description	Sludge Consolidation Tank 2	Equipment No	
Rel. Level (RL)	2 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	-
Int.(Gauge) Head	-	Int.(Gauge) Pressure	-
Total Node Head	2 m		

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	5	Node Type	Pump
Description	Pump 3	Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	-
Int.(Gauge) Head	-	Int.(Gauge) Pressure	-
Total Node Head	11.81 m		
Pump Head	10 m	Pump Flow Rate	23.03 l/s
Pump / Fan Efficiency	70 %	Pump Absorbed Power	3.25 kW
Casing Pressure	215.26 kPa		
Pump NPSH required	0 m	Pump NPSH available	21.88 m

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	6	Node Type	Junction
Description		Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	0 l/s
Int.(Gauge) Head	11.29 m	Int.(Gauge) Pressure	110.53 kPa
Total Node Head	11.29 m		

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	7	Node Type	Tank
Description	Sludge Consolidation Tank 3	Equipment No	
Rel. Level (RL)	2 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	-
Int.(Gauge) Head	-	Int.(Gauge) Pressure	-
Total Node Head	2 m		



## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	8	Node Type	Pump
Description	Pump 5	Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	-
Int.(Gauge) Head	-	Int.(Gauge) Pressure	-
Total Node Head	11.62 m		
Pump Head	10 m	Pump Flow Rate	33.4 l/s
Pump / Fan Efficiency	70 %	Pump Absorbed Power	4.71 kW
Casing Pressure	213.41 kPa		
Pump NPSH required	0 m	Pump NPSH available	21.76 m

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	9	Node Type	Junction
Description		Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	0 l/s
Int.(Gauge) Head	10.09 m	Int.(Gauge) Pressure	99.56 kPa
Total Node Head	10.09 m		

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Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	10	Node Type	Junction
Description		Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	0 l/s
Int.(Gauge) Head	10.09 m	Int.(Gauge) Pressure	99.56 kPa
Total Node Head	10.09 m		

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	11	Node Type	Junction
Description		Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	0 l/s
Int.(Gauge) Head	10.09 m	Int.(Gauge) Pressure	99.56 kPa
Total Node Head	10.09 m		

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	12	Node Type	Nozzle
Description	Overflow	Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	0	Ext Flow (+In/-Out)	-0.5 l/s
Int.(Gauge) Head	10.09 m	Int.(Gauge) Pressure	99.56 kPa
Total Node Head	10.09 m		

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	13	Node Type	Tank
Description	Digestor Tank	Equipment No	
Rel. Level (RL)	5 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	-
Int.(Gauge) Head	-	Int.(Gauge) Pressure	-
Total Node Head	0 m		

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	23	Node Type	Pump
Description	Pump 2	Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	-
Int.(Gauge) Head	-	Int.(Gauge) Pressure	-
Total Node Head	11.84 m		
Pump Head	10 m	Pump Flow Rate	21.17 l/s
Pump / Fan Efficiency	70 %	Pump Absorbed Power	2.99 kW
Casing Pressure	116.86 kPa		
Pump NPSH required	0 m	Pump NPSH available	11.84 m

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	25	Node Type	Pump
Description	Pump 4	Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	-
Int.(Gauge) Head	-	Int.(Gauge) Pressure	-
Total Node Head	11.75 m		
Pump Head	10 m	Pump Flow Rate	27.46 l/s
Pump / Fan Efficiency	70 %	Pump Absorbed Power	3.87 kW
Casing Pressure	115.98 kPa		
Pump NPSH required	0 m	Pump NPSH available	11.76 m



## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	28	Node Type	Pump
Description	Pump 6	Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	-
Int.(Gauge) Head	-	Int.(Gauge) Pressure	-
Total Node Head	11.4 m		
Pump Head	10 m	Pump Flow Rate	42.97 l/s
Pump / Fan Efficiency	70 %	Pump Absorbed Power	6.06 kW
Casing Pressure	112.55 kPa		
Pump NPSH required	0 m	Pump NPSH available	11.41 m

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	30	Node Type	Junction
Description		Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	0 l/s
Int.(Gauge) Head	11.7 m	Int.(Gauge) Pressure	115.44 kPa
Total Node Head	11.7 m		

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	33	Node Type	Junction
Description		Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	0 l/s
Int.(Gauge) Head	11.64 m	Int.(Gauge) Pressure	114.92 kPa
Total Node Head	11.64 m		

## Helix Technologies Pty Ltd

Project	Demo Project	Client	Mectron
Project No.	4567	Design Date	17/06/2017
Category	Demo Sludge	Atmos. Press	101.09 kPa
Description	Mectron Sewage Sludge system		
Node No	34	Node Type	Junction
Description		Equipment No	
Rel. Level (RL)	0 m	Pressure Input	0 kPa
Nozzle K value	-	Ext Flow (+In/-Out)	0 l/s
Int.(Gauge) Head	10.86 m	Int.(Gauge) Pressure	107.18 kPa
Total Node Head	10.86 m		