

FHC - Hydraulic Calculation Report

Project: Knit Reflex Ltd.
Project Ref: k.r.L/23
Area Ref: Most RemoteInst.
Number: 113

Project Data and Design Parameters

Project name : Knit Reflex Ltd.
Area reference : Most Remote
Address / location : Dhaka-Munsiganj road, Gognogor, Sayedpur, N
Project number : k.r.L/23
Installation number(s) : 113
Drawing number(s) : 113
Issue no / date : 29-04-2021
Designers reference : Md.Radiullah Shikder
Project Data File : HYDROLIC CALCULATION.FHC
Hazard classification : Ordinary Hazard Group-2
Design authority : National Fire Protection Association
Insurance company : N/A
Specified density of discharge : 0.00 mm/min (l/min/m2)
Assumed maximum area of operation : 0.00 m2
Number of operating sprinkler heads : 3
Maximum area covered per head : 0.00 m2
Highest head / nozzle above source : 0.00 m
Number of pipes in system : 35 from 65 to 150 mm
Pressure loss equation used : Hazen-Williams
Fluid : Water
Pipe Data Table : STD_PIPE.PDT
Maximum fluid velocity : 5.21 m/s in pipe 404 414
Volume of pipework and fittings : 1.29 m3
Elbows are welded for : 65 mm and above
Comment : AS PER NFPA
Checked by & Date :

Source duty = 2856.5 l/min @ 7.490 bar at node no 100

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Operating Sprinkler Heads, Nozzles and Hydrants

Head no	Node no	Size mm	'K' factor	Flow l/min	Area m2	Density mm/min	Req.d	Actual	Pressure bar	Min	Actual	Heights m	Pipe no
7	273		445.95	946.4	0.000	0.00	0.00	0.00	4.50	4.504		23.500	18
13	414		445.95	964.1	0.000	0.00	0.00	0.00	4.50	4.674		20.500	33
14	434		445.95	946.0	0.000	0.00	0.00	0.00	4.50	4.500		23.500	35

0 heads are under the required density / minimum pressures

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Hydraulically Significant Pipes in System

NUMBERS		P I P E		F L O W		DIMENSIONS		ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
Pipe no	Start End	Size Bore	Type 'C'	L/min Vel m/s	Length EL T	VJ VT	Dir. Slope		Eq. len mbar/m	Start End	Start End	Frict Static
1	100 110	150mm 155.32	MW 120	2856.5 2.5	2.500 0 0		Up 90.0		2.50 4.5	0.000 2.500	7.490 7.234	-0.011 -0.245
2	110 120	150mm 155.32	MW 120	2856.5 2.5	2.000 1 0		90 0.0		4.85 4.5	2.500 2.500	7.234 7.212	-0.022 0.000
3	120 150	150mm 155.32	MW 120	2856.5 2.5	1.500 1 0		Up 90.0		4.35 4.5	2.500 4.000	7.212 7.045	-0.020 -0.147
4	150 160	150mm 155.32	MW 120	2856.5 2.5	7.000 1 0		180 0.0		9.85 4.5	4.000 4.000	7.045 7.000	-0.045 0.000
5	160 170	100mm 105.14	MW 120	946.4 1.8	1.500 0 1		Up 90.0		8.48 3.9	4.000 5.500	7.000 6.820	-0.033 -0.147
7	170 190	100mm 105.14	MW 120	946.4 1.8	3.000 0 0		Up 90.0		3.00 3.9	5.500 8.500	6.820 6.514	-0.012 -0.294
9	190 201	100mm 105.14	MW 120	946.4 1.8	3.000 0 0		Up 90.0		3.00 3.9	8.500 11.500	6.514 6.208	-0.012 -0.294
11	201 212	100mm 105.14	MW 120	946.4 1.8	3.000 0 0		Up 90.0		3.00 3.9	11.500 14.500	6.208 5.903	-0.012 -0.294
13	212 232	100mm 105.14	MW 120	946.4 1.8	3.000 0 0		Up 90.0		3.00 3.9	14.500 17.500	5.903 5.597	-0.012 -0.294
15	232 243	100mm 105.14	MW 120	946.4 1.8	3.000 0 0		Up 90.0		3.00 3.9	17.500 20.500	5.597 5.291	-0.012 -0.294
17	243 263	100mm 105.14	MW 120	946.4 1.8	3.000 0 0		Up 90.0		3.00 3.9	20.500 23.500	5.291 4.986	-0.012 -0.294
18	263 273	65mm 62.68	S40 120	946.4 5.1	6.500 1 0	BV	270 0.0		9.85 48.9	23.500 23.500	4.986 4.504	-0.481 0.000
19	160 283	150mm 155.32	MW 120	1910.1 1.7	1.000 0 0		180 0.0		1.00 2.2	4.000 4.000	7.000 6.998	-0.002 0.000
20	283 293	150mm 155.32	MW 120	1910.1 1.7	1.000 1 0		270 0.0		3.85 2.2	4.000 4.000	6.998 6.990	-0.008 0.000
21	293 303	150mm 155.32	MW 120	1910.1 1.7	26.000 1 0		180 0.0		28.85 2.2	4.000 4.000	6.990 6.927	-0.062 0.000
22	303 313	100mm 105.14	MW 120	1910.1 3.7	1.500 1 0		Up 90.0		3.59 14.4	4.000 5.500	6.927 6.729	-0.052 -0.147
24	313 324	100mm 105.14	MW 120	1910.1 3.7	3.000 0 0		Up 90.0		3.00 14.4	5.500 8.500	6.729 6.391	-0.043 -0.294
26	324 344	100mm 105.14	MW 120	1910.1 3.7	3.000 0 0		Up 90.0		3.00 14.4	8.500 11.500	6.391 6.054	-0.043 -0.294
28	344 364	100mm 105.14	MW 120	1910.1 3.7	3.000 0 0		Up 90.0		3.00 14.4	11.500 14.500	6.054 5.717	-0.043 -0.294
30	364 384	100mm 105.14	MW 120	1910.1 3.7	3.000 0 0		Up 90.0		3.00 14.4	14.500 17.500	5.717 5.380	-0.043 -0.294
32	384 404	100mm 105.14	MW 120	1910.1 3.7	3.000 0 0		Up 90.0		3.00 14.4	17.500 20.500	5.380 5.043	-0.043 -0.294
33	404 414	65mm 62.68	S40 120	964.0 5.2	1.500 0 1	BV	270 0.0		7.29 50.6	20.500 20.500	5.043 4.674	-0.369 0.000
34	404 424	100mm 105.14	MW 120	946.1 1.8	3.000 0 0		Up 90.0		3.00 3.9	20.500 23.500	5.043 4.737	-0.012 -0.294
35	424 434	65mm 62.68	S40 120	946.1 5.1	1.500 1 0	BV	270 0.0		4.85 48.8	23.500 23.500	4.737 4.500	-0.237 0.000

Maximum flow rate error at nodes : 0.02838 L/min
Maximum pressure drop error at nodes : 0.00068 bar
Maximum pressure drop error in loops : 0.00000 bar
Overall head flow balance error : 0.00141 %

