

CALCULATION SUMMARY

Project Name :

Project Location:

Drawing No. :

City:

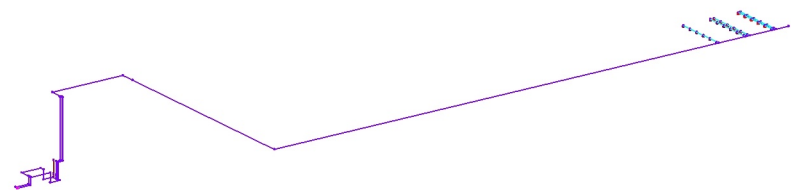
Design Areas

Design Area Name	Calc. Mode (Model)	Occupancy	Area of Application	Total Water	Pressure @ Source	Min. Density	Min. Pressure	Min. Flow	Calculated Heads	Hose Streams	Margin To Source
			(m²)	(l/min)	(bar)	(l/min/m²)	(bar)	(l/min)	#	(l/min)	(bar)
DesignArea_2	Demand (HW)		90	2607,65	Required 7,8	28,8	5,07	259,65	10	0	4,27

Job :

Node Labels: Off
Pipe Labels: Off

Diagram for Initial System



HYDRAULIC CALCULATIONS for

Job Information

Project Name :

Contract No. :

City:

Project Location:

Date: 31.03.2019

Contractor Information

Name of Contractor:

Address:

City:

Phone Number:

E-mail:

Name of Designer:

Authority Having Jurisdiction:

Design

Remote Area Name	DesignArea_2
Remote Area Location	
Occupancy Classification	
Density (l/min/m ²)	28,8
Area of Application (m ²)	90
Coverage per Sprinkler (m ²)	9
Number of Calculated Sprinklers	10
In-Rack Demand (l/min)	0
Special Heads	
Hose Streams (l/min)	0
Total Water Required (incl. Hose Streams) (l/min)	2607,65
Required Pressure at Source (bar)	7,8
Type of System	Wet
Volume - Entire System (l)	4529,3 l

Water Supply Information

Date

Location

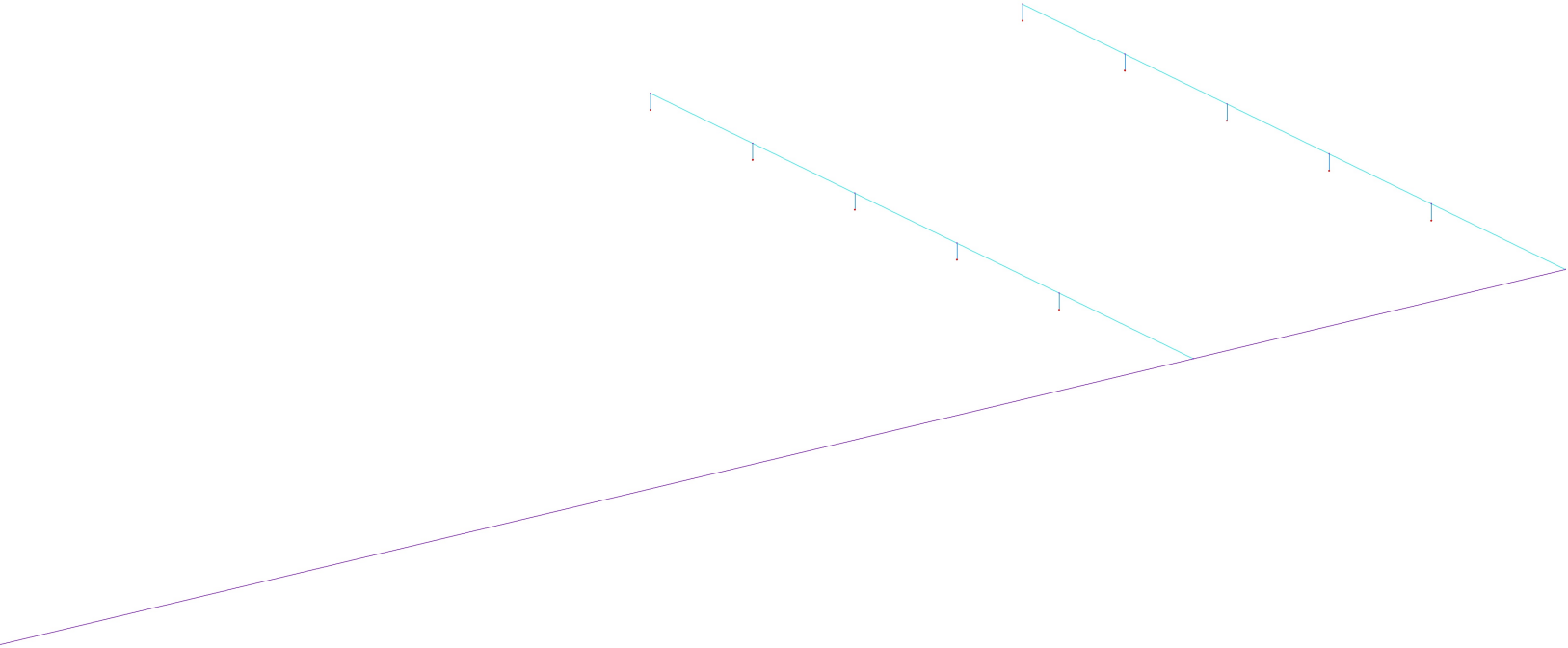
Source

Notes

Job :

Node Labels: Off
Pipe Labels: Off

Diagram for Design Area : DesignArea_2



Job :

Hydraulic Analysis for : DesignArea_2

Calculation Info

Calculation Mode
Hydraulic Model
Fluid Name
Fluid Weight, (N/m³)
Fluid Dynamic Viscosity, (Pa·s)

Demand
Hazen-Williams
Water @ 60F (15.6C)
N/A for Hazen-Williams calculation.
N/A for Hazen-Williams calculation.

Water Supply Parameters

Supply 1 : src1

Flow (l/min)	Pressure (bar)
0	12,85
2638,33	12,06
5276,67	11,19
7915	10,19
10551,67	8,97
13190	7,48
15828,33	5,65
18466,67	3,4
21105	0,67

Supply Analysis

Node at Source	Static Pressure (bar)	Residual Pressure (bar)	Flow (l/min)	Available Pressure (bar)	Total Demand (l/min)	Required Pressure (bar)
src1	12,85	12,06	2638,33	12,08	2607,65	7,8

Hoses

Inside Hose Flow / Standpipe Demand (l/min)

Outside Hose Flow (l/min)

Additional Outside Hose Flow (l/min)

Other (custom defined) Hose Flow (l/min)

Total Hose Flow (l/min)

Sprinklers

Ovehead Sprinkler Flow (l/min) 2607,65

InRack Sprinkler Flow (l/min) 0

Other (custom defined) Sprinkler Flow (l/min) 0

Total Sprinkler Flow (l/min) 2607,65

Other

Required Margin of Safety (bar) 0

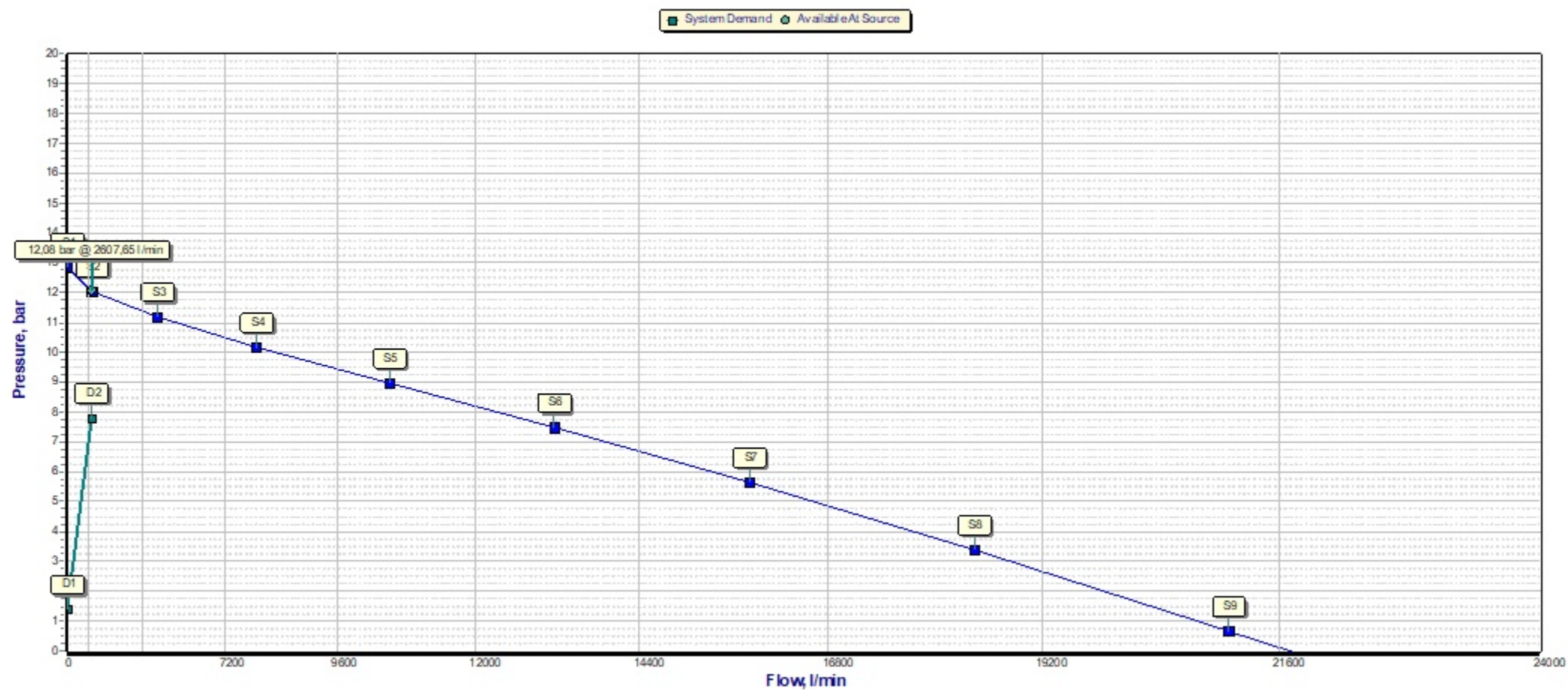
Base of Riser - Pressure (bar) 7,8

Base of Riser - Flow (l/min) 2607,65

Demand w/o System Pump(s) N/A

Job :

Hydraulic Analysis for : DesignArea_2



Job :

Hydraulic Analysis for : DesignArea_2

Graph Labels

Label	Description	Values	
		Flow (l/min)	Pressure (bar)
S1	Supply point #1 - Static	0	12,85
S2	Supply point #2	2638,33	12,06
S3	Supply point #3	5276,67	11,19
S4	Supply point #4	7915	10,19
S5	Supply point #5	10551,67	8,97
S6	Supply point #6	13190	7,48
S7	Supply point #7	15828,33	5,65
S8	Supply point #8	18466,67	3,4
S9	Supply point #9	21105	0,67
D1	Elevation Pressure	0	1,41
D2	System Demand	2607,65	7,8

Curve Intersections & Safety Margins

Curve Name	Intersection		Safety Margin	
	Pressure (bar)	Flow (l/min)	Pressure (bar)	@ Flow (l/min)
Supply	11,86	3401,08	4,27	2607,65

Open Heads

Head Ref.	Head Type	Coverage	K-Factor	Required			Calculated		
				Density	Flow	Pressure	Density	Flow	Pressure
		(m²)	(lpm/bar²)	(l/min/m²)	(l/min)	(bar)	(l/min/m²)	(l/min)	(bar)
h31	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	29	261,09	5,13
h32	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	29,2	262,75	5,19
h35	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,9	260,11	5,09
h37	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,8	259,65	5,07
h39	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,9	259,84	5,08
h43	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	29	261,25	5,13
h44	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	29,2	262,91	5,2
h46	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,9	260,27	5,09
h49	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,9	259,8	5,08
h51	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,9	260	5,08

Node Data

Node# Elev	Type Hgroup	K-Fact. Open/Closed	Discharge Overdischarge	Coverage Density	Tot. Pres. Elev. Pres.	Req. Pres. Req. Discharge
m		lpm/bar?	l/min l/min	m? l/min/m?	bar bar	bar l/min
h37 15,4	Overhead Sprinkler HEAD	115,3 Open	259,65 0	9 28,8	5,07 -1,41	5,07 259,65
h49 15,4	Overhead Sprinkler HEAD	115,3 Open	259,8 0,16	9 28,9	5,08 -1,41	5,07 259,65
h39 15,4	Overhead Sprinkler HEAD	115,3 Open	259,84 0,19	9 28,9	5,08 -1,41	5,07 259,65
h51 15,4	Overhead Sprinkler HEAD	115,3 Open	260 0,35	9 28,9	5,08 -1,41	5,07 259,65
h35 15,4	Overhead Sprinkler HEAD	115,3 Open	260,11 0,46	9 28,9	5,09 -1,41	5,07 259,65
h46 15,4	Overhead Sprinkler HEAD	115,3 Open	260,27 0,62	9 28,9	5,09 -1,41	5,07 259,65
h31 15,4	Overhead Sprinkler HEAD	115,3 Open	261,09 1,44	9 29	5,13 -1,41	5,07 259,65
h43 15,4	Overhead Sprinkler HEAD	115,3 Open	261,25 1,6	9 29	5,13 -1,41	5,07 259,65
h32 15,4	Overhead Sprinkler HEAD	115,3 Open	262,75 3,1	9 29,2	5,19 -1,41	5,07 259,65
h44 15,4	Overhead Sprinkler HEAD	115,3 Open	262,91 3,26	9 29,2	5,2 -1,41	5,07 259,65
n89 15,6	Node NODE				5,11 -1,43	
n197 15,6	Node NODE				5,12 -1,43	
n99 15,6	Node NODE				5,12 -1,43	
n207 15,6	Node NODE				5,13 -1,43	
n196 15,6	Node NODE				5,14 -1,43	
n206 15,6	Node NODE				5,14 -1,43	
n195 15,6	Node NODE				5,18 -1,43	
n205 15,6	Node NODE				5,18 -1,43	
n194 15,6	Node NODE				5,24 -1,43	
n204 15,6	Node NODE				5,25 -1,43	
n151 15,6	Node NODE				5,39 -1,43	
n161 15,6	Node NODE				5,4 -1,43	
n105 15,6	Node NODE				5,92 -1,43	
n68 15,6	Node NODE				6,16 -1,43	
n67 15,6	Node NODE				6,24 -1,43	
n66 15,6	Node NODE				6,26 -1,43	
n224 3,9	Node NODE				7,47 -0,28	

Node Data

Node# Elev	Type Hgroup	K-Fact. Open/Closed	Discharge Overdischarge	Coverage Density	Tot. Pres. Elev. Pres.	Req. Pres. Req. Discharge
m		lpm/bar?	l/min l/min	m? l/min/m?	bar bar	bar l/min
n227 3,9	Node NODE				7,47 -0,28	
n64 2,52	Node NODE				7,65 -0,15	
n58 2,52	Node NODE				7,65 -0,15	
n63 2,52	Node NODE				7,65 -0,15	
n59 2,52	Node NODE				7,65 -0,15	
n53 2,52	Node NODE				7,65 -0,15	
n61 2,52	Node NODE				7,65 -0,15	
n234 1,45	Node NODE				7,73 -0,04	
n231 1,2	Node NODE				7,78 -0,02	
n219 1	Node NODE				7,8 0	
src1 1	Supply SUPPLY		-2607,65		7,8 0	
n54 0,7	Node NODE				7,83 0,03	
n52 0,7	Node NODE				7,83 0,03	
n56 0,7	Node NODE				7,83 0,03	
n57 0,7	Node NODE				7,83 0,03	
n62 0,7	Node NODE				7,83 0,03	

Pipe Data

Path # Pipe Ref.	Type Hgroup	Schedule Size	HWC Rough.	Fittings Eq. Len.	Length Total Len.	Flow Velocity	Fr.Resist. Loss Frict.	Vel.Pres. Loss Elev.	Start End
			mm	m	m m	l/min m/s	bar/m bar	bar bar	
1 d37	Drop PIPE	GOST10704-91 25	0 0	1(us.Tee-Br); 0,088	0,2 0,288	259,65 7,23	0,2421 0,07	0,26 -0,02	n197 h37
1 b35	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	519,49 2,22	0,0092 0,02	0,02 0	n196 n197
1 b34	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	779,59 3,34	0,0194 0,04	0,06 0	n195 n196
1 b33	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	1040,68 4,46	0,0331 0,07	0,1 0	n194 n195
1 b23	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run); 1(us.Tee-Br); 0,312	2,625 2,937	1303,43 5,58	0,0503 0,15	0,16 0	n151 n194
1 m49	Cmain PIPE	GOST10704-91 150	0 0	1(us.Tee-Run);	4,5	1303,43 1,3	0,0015 0,01	0,01 0	n161 n151
1 m46	Cmain PIPE	GOST10704-91 150	0 0	2(us.Tee-Run); 1(us.90); 0,157	99,317 99,474	2607,65 2,61	0,0053 0,52	0,03 0	n105 n161
1 m98	Cmain PIPE	GOST10704-91 150	0 0	1(us.90); 0,157	45,491 45,648	2607,65 2,61	0,0053 0,24	0,03 0	n68 n105
1 m44	Cmain PIPE	GOST10704-91 150	0 0	1(us.90); 0,157	14,806 14,963	2607,65 2,61	0,0053 0,08	0,03 0	n67 n68
1 m43	Cmain PIPE	GOST10704-91 150	0 0	1(us.90); 0,157	2,817 2,974	2607,65 2,61	0,0053 0,02	0,03 0	n66 n67
1 m79	Cmain PIPE	GOST10704-91 150	0 0	1(us.90); 0,157	11,7 11,857	2607,65 2,61	0,0053 0,06	0,03 1,15	n224 n66
1 m82	Cmain PIPE	GOST10704-91 150	0 0	1(us.90); 0,157	0,99 1,147	2607,65 2,61	0,0053 0,01	0,03 0	n227 n224
1 m95	Cmain PIPE	GOST10704-91 150	0 0	1(coupling); 0,011	2,45 2,461	2607,65 2,61	0,0053 0,01	0,03 0,24	n234 n227
1 v3	Valve VALVE	AV-1 Check 150	0 0		0,25	2607,65 0	0,1041 0,03	0 0,02	n231 n234
1 m89	Cmain PIPE	GOST10704-91 150	0 0	1(us.Tee-Br); 0,337	0,5 0,837	2607,65 2,61	0,0053 0,00	0,03 0,05	n54 n231
1 m26	Cmain PIPE	GOST10704-91 250	0 0	1(us.Tee-Run); 1(us.90); 0,374	0,736 1,11	1412,98 0,43	0,0001 0	0 0	n52 n54
1 m35	Cmain PIPE	GOST10704-91 250	0 0	1(us.90); 0,374	1,975 2,349	1412,98 0,43	0,0001 0	0 0	n62 n52
1 m36	Cmain PIPE	GOST10704-91 250	0 0	1(us.90); 0,374	1,82 2,194	1412,98 0,43	0,0001 0	0 -0,18	n63 n62
1 m40	Cmain PIPE	GOST10704-91 250	0 0	1(us.90); 0,374	4,006 4,38	1412,98 0,43	0,0001 0	0 0	n53 n63
1 m34	Cmain PIPE	GOST10704-91 250	0 0	1(us.Tee-Br); 0,849	0,255 1,104	1412,98 0,43	0,0001 0	0 0	n61 n53
1 m74	Cmain PIPE	GOST10704-91 250	0 0	1(us.90); 0,374	1,52 1,894	2607,65 0,79	0,0003 0	0,00 0,15	n219 n61
1 m76	Cmain PIPE	GOST10704-91 250	0 0		2,677	2607,65 0,79	0,0003 0	0,00 0	src1 n219
2 d49	Drop PIPE	GOST10704-91 25	0 0	1(us.Tee-Br); 0,088	0,2 0,288	259,8 7,24	0,2424 0,07	0,26 -0,02	n207 h49
2 b45	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	519,8 2,23	0,0092 0,02	0,02 0	n206 n207
2 b44	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	780,07 3,34	0,0194 0,04	0,06 0	n205 n206
2 b43	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	1041,31 4,46	0,0332 0,07	0,1 0	n204 n205
2 b25	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run); 1(us.Tee-Br); 0,312	2,625 2,937	1304,22 5,58	0,0503 0,15	0,16 0	n161 n204

Pipe Data

Start Disch. End Disch.	Start Tot.Pres. End Tot.Pres.
l/min l/min	bar bar
259,65	5,12 5,07
	5,14 5,12
	5,18 5,14
	5,24 5,18
	5,39 5,24
	5,4 5,39
	5,92 5,4
	6,16 5,92
	6,24 6,16
	6,26 6,24
	7,47 6,26
	7,47 7,47
	7,73 7,47
	7,78 7,73
	7,83 7,78
	7,83 7,83
	7,83 7,83
	7,65 7,83
	7,65 7,65
	7,65 7,65
	7,8 7,65
-2607,65	7,8 7,8
259,8	5,13 5,08
	5,14 5,13
	5,18 5,14
	5,25 5,18
	5,4 5,25

Pipe Data

Path # Pipe Ref.	Type Hgroup	Schedule Size	HWC Rough.	Fittings Eq. Len.	Length Total Len.	Flow Velocity	Fr. Resist. Loss Frict.	Vel. Pres. Loss Elev.	Start End
			mm	m	m m	l/min m/s	bar/m bar	bar bar	
3 d39	Drop PIPE	GOST10704-91 25	0 0	1(us. 90); 0,035	0,2 0,235	259,84 7,24	0,2425 0,06	0,26 -0,02	n89 h39
3 b36	Brline PIPE	GOST10704-91 65	0 0	1(us. Tee-Run);	2	259,84 1,11	0,0025 0,01	0,01 0	n197 n89
4 d51	Drop PIPE	GOST10704-91 25	0 0	1(us. 90); 0,035	0,2 0,235	260 7,24	0,2428 0,06	0,26 -0,02	n99 h51
4 b46	Brline PIPE	GOST10704-91 65	0 0	1(us. Tee-Run);	2	260 1,11	0,0025 0,01	0,01 0	n207 n99
5 d35	Drop PIPE	GOST10704-91 25	0 0	1(us. Tee-Br); 0,088	0,2 0,288	260,11 7,25	0,2429 0,07	0,26 -0,02	n196 h35
6 d46	Drop PIPE	GOST10704-91 25	0 0	1(us. Tee-Br); 0,088	0,2 0,288	260,27 7,25	0,2432 0,07	0,26 -0,02	n206 h46
7 d31	Drop PIPE	GOST10704-91 25	0 0	1(us. Tee-Br); 0,088	0,2 0,288	261,09 7,27	0,2446 0,07	0,26 -0,02	n195 h31
8 d43	Drop PIPE	GOST10704-91 25	0 0	1(us. Tee-Br); 0,088	0,2 0,288	261,25 7,28	0,2449 0,07	0,26 -0,02	n205 h43
9 d32	Drop PIPE	GOST10704-91 25	0 0	1(us. Tee-Br); 0,088	0,2 0,288	262,75 7,32	0,2475 0,07	0,27 -0,02	n194 h32
10 d44	Drop PIPE	GOST10704-91 25	0 0	1(us. Tee-Br); 0,088	0,2 0,288	262,91 7,32	0,2478 0,07	0,27 -0,02	n204 h44
11 m27	Cmain PIPE	GOST10704-91 250	0 0	2(us. Tee-Run); 1(us. 90); 0,374	1,263 1,637	1194,67 0,36	0,0001 0	0 0	n56 n54
11 m29	Cmain PIPE	GOST10704-91 250	0 0	1(us. 90); 0,374	1,975 2,349	1194,67 0,36	0,0001 0	0 0	n57 n56
11 m37	Cmain PIPE	GOST10704-91 250	0 0	1(us. 90); 0,374	1,82 2,194	1194,67 0,36	0,0001 0	0 -0,18	n64 n57
11 m38	Cmain PIPE	GOST10704-91 250	0 0	1(us. 90); 0,374	0,844 1,218	1194,67 0,36	0,0001 0	0 0	n58 n64
11 m31	Cmain PIPE	GOST10704-91 250	0 0	1(us. 90); 0,374	4,006 4,38	1194,67 0,36	0,0001 0	0 0	n59 n58
11 m32	Cmain PIPE	GOST10704-91 250	0 0	1(us. Tee-Run); 1(us. Tee-Br); 0,849	2,588 3,437	1194,67 0,36	0,0001 0	0 0	n61 n59

Pipe Data

Start Disch. End Disch.	Start Tot.Pres. End Tot.Pres.
l/min l/min	bar bar
259,84	5,11 5,08
	5,12 5,11
260	5,12 5,08
	5,13 5,12
260,11	5,14 5,09
260,27	5,14 5,09
261,09	5,18 5,13
261,25	5,18 5,13
262,75	5,24 5,19
262,91	5,25 5,2
	7,83 7,83
	7,83 7,83
	7,65 7,83
	7,65 7,65
	7,65 7,65
	7,65 7,65

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added(q)* Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per m	total (Pt) elev (Pe) frict (Pf)	NOTES
	(m)	(lpm/bar?)	(l/min)	(mm)	(m)	(m)	(bar)	(bar)	
h37 n197	15,4 15,6	115,3	259,65 259,65	25 27,6	1x(us. Tee-Br) = 0,088	0,2 0,088 0,288	0 0,2421	5,07 -0,02 0,07	
n197 n196	15,6 15,6		259,84 519,49	65 70,4		2 0 2	0 0,0092	5,12 0 0,02	
n196 n195	15,6 15,6		260,11 779,59	65 70,4		2 0 2	0 0,0194	5,14 0 0,04	
n195 n194	15,6 15,6		261,09 1040,68	65 70,4		2 0 2	0 0,0331	5,18 0 0,07	
n194 n151	15,6 15,6		262,75 1303,43	65 70,4	1x(us. Tee-Br) = 0,312	2,625 0,312 2,937	0 0,0503	5,24 0 0,15	
n151 n161	15,6 15,6		0 1303,43	150 145,6		4,5 0 4,5	0 0,0015	5,39 0 0,01	
n161 n105	15,6 15,6		1304,22 2607,65	150 145,6	1x(us. 90) = 0,157	99,317 0,157 99,474	0 0,0053	5,4 0 0,52	
n105 n68	15,6 15,6		0 2607,65	150 145,6	1x(us. 90) = 0,157	45,491 0,157 45,648	0 0,0053	5,92 0 0,24	
n68 n67	15,6 15,6		0 2607,65	150 145,6	1x(us. 90) = 0,157	14,806 0,157 14,963	0 0,0053	6,16 0 0,08	
n67 n66	15,6 15,6		0 2607,65	150 145,6	1x(us. 90) = 0,157	2,817 0,157 2,974	0 0,0053	6,24 0 0,02	
n66 n224	15,6 3,9		0 2607,65	150 145,6	1x(us. 90) = 0,157	11,7 0,157 11,857	0 0,0053	6,26 1,15 0,06	
n224 n227	3,9 3,9		0 2607,65	150 145,6	1x(us. 90) = 0,157	0,99 0,157 1,147	0 0,0053	7,47 0 0,01	
n227 n234	3,9 1,45		0 2607,65	150 145,6	1x(coupling) = 0,011	2,45 0,011 2,461	0 0,0053	7,47 0,24 0,01	
n234 n231	1,45 1,2		0 2607,65	150 0		0,25 0 0,25	0 0,1041	7,73 0,02 0,03	AV-1 Check ***
n231 n54	1,2 0,7		0 2607,65	150 145,6	1x(us. Tee-Br) = 0,337	0,5 0,337 0,837	0 0,0053	7,78 0,05 0,00	
n54 n52	0,7 0,7		-1194,67 1412,98	250 265	1x(us. 90) = 0,374	0,736 0,374 1,11	0 0,0001	7,83 0 0	
n52 n62	0,7 0,7		0 1412,98	250 265	1x(us. 90) = 0,374	1,975 0,374 2,349	0 0,0001	7,83 0 0	
n62 n63	0,7 2,52		0 1412,98	250 265	1x(us. 90) = 0,374	1,82 0,374 2,194	0 0,0001	7,83 -0,18 0	
n63 n53	2,52 2,52		0 1412,98	250 265	1x(us. 90) = 0,374	4,006 0,374 4,38	0 0,0001	7,65 0 0	

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added(q)* Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per m	total (Pt) elev (Pe) frict (Pf)	NOTES
	(m)	(lpm/bar?)	(l/min)	(mm)	(m)	(m)	(bar)	(bar)	
n53 n61	2,52 2,52		0 1412,98	250 265	1x(us. Tee-Br) = 0,849	0,255 0,849 1,104	0 0,0001	7,65 0 0	
n61 n219	2,52 1		1194,67 2607,65	250 265	1x(us. 90) = 0,374	1,52 0,374 1,894	0 0,0003	7,65 0,15 0	
n219 src1	1 1		0 2607,65	250 265		2,677 0 2,677	0 0,0003	7,8 0 0	
h49 n207	15,4 15,6	115,3	259,8 259,8	25 27,6	1x(us. Tee-Br) = 0,088	0,2 0,088 0,288	0 0,2424	5,08 -0,02 0,07	
n207 n206	15,6 15,6		260 519,8	65 70,4		2 0 2	0 0,0092	5,13 0 0,02	
n206 n205	15,6 15,6		260,27 780,07	65 70,4		2 0 2	0 0,0194	5,14 0 0,04	
n205 n204	15,6 15,6		261,25 1041,31	65 70,4		2 0 2	0 0,0332	5,18 0 0,07	
n204 n161	15,6 15,6		262,91 1304,22	65 70,4	1x(us. Tee-Br) = 0,312	2,625 0,312 2,937	0 0,0503	5,25 0 0,15	
h39 n89	15,4 15,6	115,3	259,84 259,84	25 27,6	1x(us. 90) = 0,035	0,2 0,035 0,235	0 0,2425	5,08 -0,02 0,06	
n89 n197	15,6 15,6		0 259,84	65 70,4		2 0 2	0 0,0025	5,11 0 0,01	
h51 n99	15,4 15,6	115,3	260 260	25 27,6	1x(us. 90) = 0,035	0,2 0,035 0,235	0 0,2428	5,08 -0,02 0,06	
n99 n207	15,6 15,6		0 260	65 70,4		2 0 2	0 0,0025	5,12 0 0,01	
h35 n196	15,4 15,6	115,3	260,11 260,11	25 27,6	1x(us. Tee-Br) = 0,088	0,2 0,088 0,288	0 0,2429	5,09 -0,02 0,07	
h46 n206	15,4 15,6	115,3	260,27 260,27	25 27,6	1x(us. Tee-Br) = 0,088	0,2 0,088 0,288	0 0,2432	5,09 -0,02 0,07	
h31 n195	15,4 15,6	115,3	261,09 261,09	25 27,6	1x(us. Tee-Br) = 0,088	0,2 0,088 0,288	0 0,2446	5,13 -0,02 0,07	
h43 n205	15,4 15,6	115,3	261,25 261,25	25 27,6	1x(us. Tee-Br) = 0,088	0,2 0,088 0,288	0 0,2449	5,13 -0,02 0,07	
h32 n194	15,4 15,6	115,3	262,75 262,75	25 27,6	1x(us. Tee-Br) = 0,088	0,2 0,088 0,288	0 0,2475	5,19 -0,02 0,07	
h44 n204	15,4 15,6	115,3	262,91 262,91	25 27,6	1x(us. Tee-Br) = 0,088	0,2 0,088 0,288	0 0,2478	5,2 -0,02 0,07	
n54 n56	0,7 0,7		0 1194,67	250 265	1x(us. 90) = 0,374	1,263 0,374 1,637	0 0,0001	7,83 0 0	

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added(q)* Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per m	total (Pt) elev (Pe) frict (Pf)	NOTES
	(m)	(lpm/bar?)	(l/min)	(mm)	(m)	(m)	(bar)	(bar)	
n56 n57	0,7 0,7		0 1194,67	250 265	1x(us. 90)= 0,374	1,975 0,374 2,349	0 0,0001	7,83 0 0	
n57 n64	0,7 2,52		0 1194,67	250 265	1x(us. 90)= 0,374	1,82 0,374 2,194	0 0,0001	7,83 -0,18 0	
n64 n58	2,52 2,52		0 1194,67	250 265	1x(us. 90)= 0,374	0,844 0,374 1,218	0 0,0001	7,65 0 0	
n58 n59	2,52 2,52		0 1194,67	250 265	1x(us. 90)= 0,374	4,006 0,374 4,38	0 0,0001	7,65 0 0	
n59 n61	2,52 2,52		0 1194,67	250 265	1x(us. Tee-Br)= 0,849	2,588 0,849 3,437	0 0,0001	7,65 0 0	

* Discharge shown for flowing nodes only

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per m	total (Pt) elev (Pe) frict (Pf)	NOTES
	(m)	(lpm/bar?)	(l/min)	(mm)	(m)	(m)	(bar)	(bar)	

Path No: 1

h37 n197	15,4 15,6	115,3	259,65 259,65	25 27,6	1x(us. Tee-Br) = 0,088	0,2 0,088 0,288	0 0,2421	5,07 -0,02 0,07	
n197 n196	15,6 15,6		259,84 519,49	65 70,4		2 0 2	0 0,0092	5,12 0 0,02	
n196 n195	15,6 15,6		260,11 779,59	65 70,4		2 0 2	0 0,0194	5,14 0 0,04	
n195 n194	15,6 15,6		261,09 1040,68	65 70,4		2 0 2	0 0,0331	5,18 0 0,07	
n194 n151	15,6 15,6		262,75 1303,43	65 70,4	1x(us. Tee-Br) = 0,312	2,625 0,312 2,937	0 0,0503	5,24 0 0,15	
n151 n161	15,6 15,6		0 1303,43	150 145,6		4,5 0 4,5	0 0,0015	5,39 0 0,01	
n161 n105	15,6 15,6		1304,22 2607,65	150 145,6	1x(us. 90) = 0,157	99,317 0,157 99,474	0 0,0053	5,4 0 0,52	
n105 n68	15,6 15,6		0 2607,65	150 145,6	1x(us. 90) = 0,157	45,491 0,157 45,648	0 0,0053	5,92 0 0,24	
n68 n67	15,6 15,6		0 2607,65	150 145,6	1x(us. 90) = 0,157	14,806 0,157 14,963	0 0,0053	6,16 0 0,08	
n67 n66	15,6 15,6		0 2607,65	150 145,6	1x(us. 90) = 0,157	2,817 0,157 2,974	0 0,0053	6,24 0 0,02	
n66 n224	15,6 3,9		0 2607,65	150 145,6	1x(us. 90) = 0,157	11,7 0,157 11,857	0 0,0053	6,26 1,15 0,06	
n224 n227	3,9 3,9		0 2607,65	150 145,6	1x(us. 90) = 0,157	0,99 0,157 1,147	0 0,0053	7,47 0 0,01	
n227 n234	3,9 1,45		0 2607,65	150 145,6	1x(coupling) = 0,011	2,45 0,011 2,461	0 0,0053	7,47 0,24 0,01	
n234 n231	1,45 1,2		0 2607,65	150 0		0,25 0 0,25	0 0,1041	7,73 0,02 0,03	AV-1 Check ***
n231 n54	1,2 0,7		0 2607,65	150 145,6	1x(us. Tee-Br) = 0,337	0,5 0,337 0,837	0 0,0053	7,78 0,05 0,00	
n54 n52	0,7 0,7		-1194,67 1412,98	250 265	1x(us. 90) = 0,374	0,736 0,374 1,11	0 0,0001	7,83 0 0	
n52 n62	0,7 0,7		0 1412,98	250 265	1x(us. 90) = 0,374	1,975 0,374 2,349	0 0,0001	7,83 0 0	
n62 n63	0,7 2,52		0 1412,98	250 265	1x(us. 90) = 0,374	1,82 0,374 2,194	0 0,0001	7,83 -0,18 0	

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per m	total (Pt) elev (Pe) frict (Pf)	NOTES
	(m)	(lpm/bar?)	(l/min)	(mm)	(m)	(m)	(bar)	(bar)	

Path No: 1

[illegible]

Path No: 2

[illegible]**Path No: 3**[illegible]**Path No: 4**[illegible]

PIPE INFORMATION

Node 1 Node 2	Elev 1 Elev 2	K-Factor 1 K-Factor 2	Flow added (q) Total flow (Q)	Nominal ID Actual ID	Fittings quantity x (name) = length	L F T	C Factor Pf per m	total (Pt) elev (Pe) frict (Pf)	NOTES
	(m)	(lpm/bar?)	(l/min)	(mm)	(m)	(m)	(bar)	(bar)	

Path No: 11

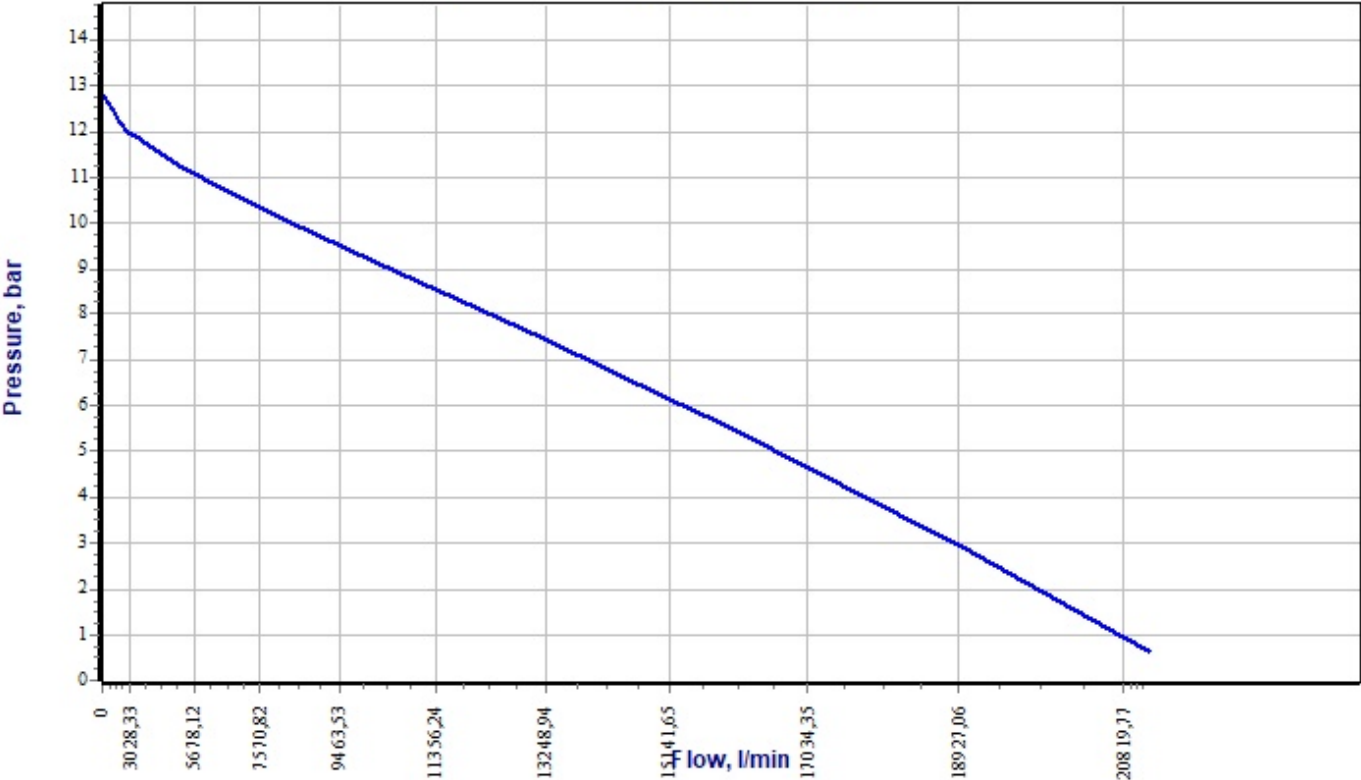
n54 n56	0,7 0,7		0 1194,67	250 265	1x(us. 90) = 0,374	1,263 0,374 1,637	0 0,0001	7,83 0 0	
n56 n57	0,7 0,7		0 1194,67	250 265	1x(us. 90) = 0,374	1,975 0,374 2,349	0 0,0001	7,83 0 0	
n57 n64	0,7 2,52		0 1194,67	250 265	1x(us. 90) = 0,374	1,82 0,374 2,194	0 0,0001	7,83 -0,18 0	
n64 n58	2,52 2,52		0 1194,67	250 265	1x(us. 90) = 0,374	0,844 0,374 1,218	0 0,0001	7,65 0 0	
n58 n59	2,52 2,52		0 1194,67	250 265	1x(us. 90) = 0,374	4,006 0,374 4,38	0 0,0001	7,65 0 0	
n59 n61	2,52 2,52		0 1194,67	250 265	1x(us. Tee-Br) = 0,849	2,588 0,849 3,437	0 0,0001	7,65 0 0	
n61								7,65	

* Pressures are balanced to a high degree of accuracy. Values may vary by 0.01 bar due to display rounding.

* Maximum Velocity of 7,32 m/s occurs in the following pipe(s): (n204-h44)

*** Device pressure loss (gain in the case of pumps) is calculated from the device's curve. If the device curve is printed with this report, it will appear below. The length of the device as shown in the table above comes from the CAD drawing. The friction loss per unit of length is calculated based upon the length and the curve-based loss/gain value. Internal ID and C Factor values are irrelevant as the device is not represented as an addition to any pipe, but is an individual item whose loss/gain is based solely on the curve data.

Pressure vs. Flow Function
Design Area: DesignArea_2; Supply Ref.: src1



Pressure Loss Function
Design Area: DesignArea_2; Valve Ref.: v3 (AV-1 Check, Size = 150); Inlet Node: n231; Outlet Node: n234

