CALCULATION SUMMARY

Project Name :

Project Location:

Drawing No. :

City:

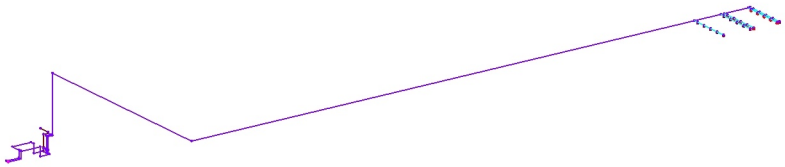
Design Areas

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
			(m?)	(l/min)	(bar)	(l/min/m?)	(bar)	(l/min)	#	(l/min)	(bar)
DesignArea_1	Demand (HW)		90	2607,65	Required 7,69	28,8	5,07	259,65	10	0	4,39

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_1
Remote Area Location	
Occupancy Classification	
Density (l/min/m²)	28,8
Area of Application (m²)	90
Coverage per Sprinkler (m²)	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)	7,69
Type of System	Wet
Volume - Entire System (l)	4424,7 l

Water Supply Information

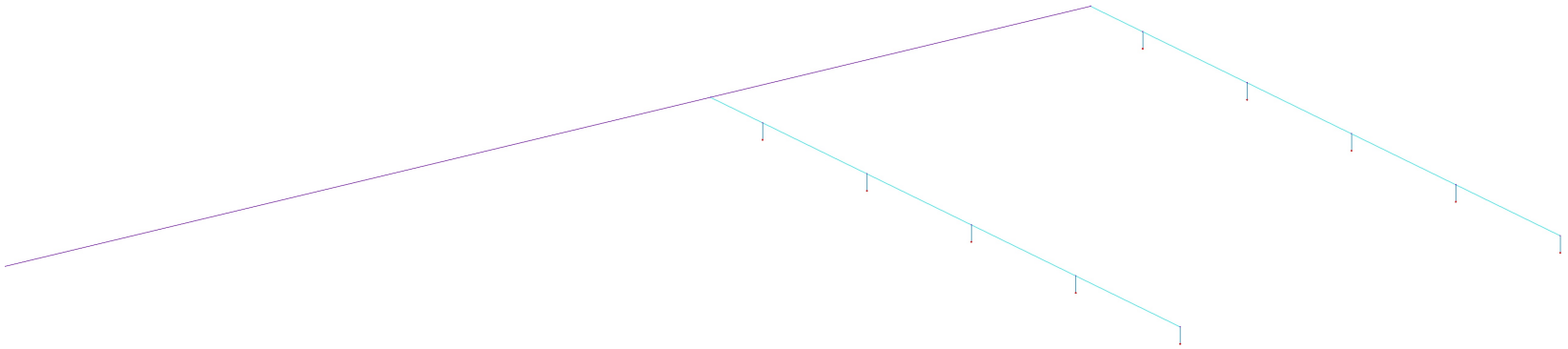
Date	
Location	
Source	

Notes

Job :

Node Labels: Off
Pipe Labels: Off

Diagram for Design Area : DesignArea_1



Job :

Hydraulic Analysis for : DesignArea_1

Calculation Info

Calculation Mode	Demand
Hydraulic Model	Hazen-Williams
Fluid Name	Water @ 60F (15.6C)
Fluid Weight, (N/m³)	N/A for Hazen-Williams calculation.
Fluid Dynamic Viscosity, (Pa·s)	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	7,69

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

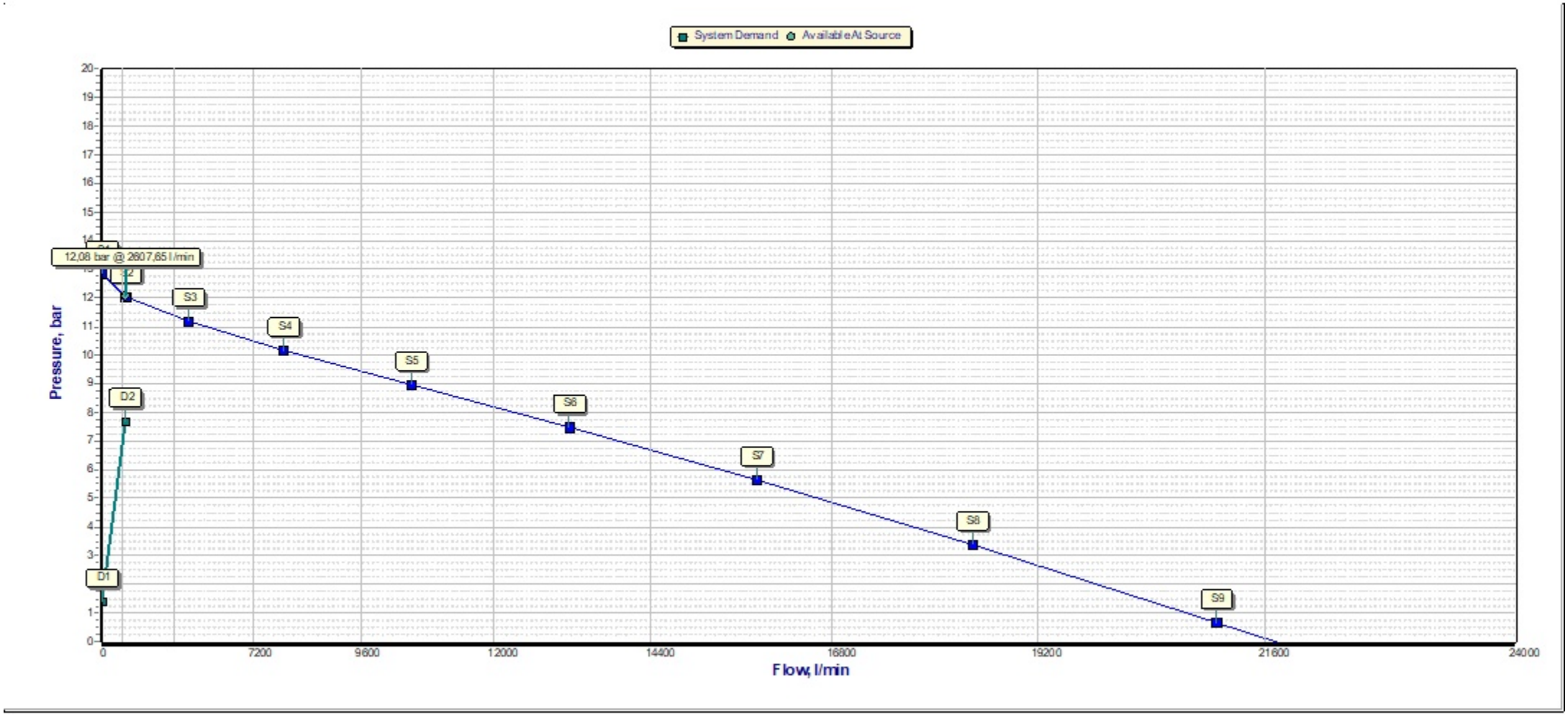
Ovehead Sprinkler Flow (l/min)	2607,65
InRack Sprinkler Flow (l/min)	0
Other (custom defined) Sprinkler Flow (l/min)	0
Total Sprinkler Flow (l/min)	2607,65

Other

Required Margin of Safety (bar)	0
Base of Riser - Pressure (bar)	7,69
Base of Riser - Flow (l/min)	2607,65
Demand w/o System Pump(s)	N/A

Job :

Hydraulic Analysis for : DesignArea_1



Job :

Hydraulic Analysis for : DesignArea_1

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	7,69

Curve Intersections & Safety Margins

Curve Name	Intersection		Safety Margin	
	Pressure (bar)	Flow (l/min)	Pressure (bar)	@ Flow (l/min)
Supply	11,85	3432,26	4,39	2607,65

Open Heads

Head Ref.	Head Type	Coverage	K-Factor	Required			Calculated		
				Density	Flow	Pressure	Density	Flow	Pressure
		(m?)	(lpm/bar?)	(l/min/m?)	(l/min)	(bar)	(l/min/m?)	(l/min)	(bar)
h1	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,9	259,84	5,08
h3	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,8	259,65	5,07
h6	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,9	260,11	5,09
h8	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	29	261,09	5,13
h10	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	29,2	262,75	5,19
h12	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,9	259,81	5,08
h13	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,9	260	5,08
h16	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	28,9	260,27	5,09
h18	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	29	261,25	5,13
h19	Overhead Sprinkler	9	115,3	28,8	259,65	5,07	29,2	262,91	5,2

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
h3 15,4	Overhead Sprinkler HEAD	115,3 Open	259,65 0	9 28,8	5,07 -1,41	5,07 259,65
h12 15,4	Overhead Sprinkler HEAD	115,3 Open	259,81 0,16	9 28,9	5,08 -1,41	5,07 259,65
h1 15,4	Overhead Sprinkler HEAD	115,3 Open	259,84 0,19	9 28,9	5,08 -1,41	5,07 259,65
h13 15,4	Overhead Sprinkler HEAD	115,3 Open	260 0,36	9 28,9	5,08 -1,41	5,07 259,65
h6 15,4	Overhead Sprinkler HEAD	115,3 Open	260,11 0,46	9 28,9	5,09 -1,41	5,07 259,65
h16 15,4	Overhead Sprinkler HEAD	115,3 Open	260,27 0,62	9 28,9	5,09 -1,41	5,07 259,65
h8 15,4	Overhead Sprinkler HEAD	115,3 Open	261,09 1,44	9 29	5,13 -1,41	5,07 259,65
h18 15,4	Overhead Sprinkler HEAD	115,3 Open	261,25 1,6	9 29	5,13 -1,41	5,07 259,65
h10 15,4	Overhead Sprinkler HEAD	115,3 Open	262,75 3,1	9 29,2	5,19 -1,41	5,07 259,65
h19 15,4	Overhead Sprinkler HEAD	115,3 Open	262,91 3,26	9 29,2	5,2 -1,41	5,07 259,65
n132 15,6	Node NODE				5,12 -1,43	
n159 15,6	Node NODE				5,12 -1,43	
n136 15,6	Node NODE				5,12 -1,43	
n177 15,6	Node NODE				5,13 -1,43	
n158 15,6	Node NODE				5,14 -1,43	
n176 15,6	Node NODE				5,14 -1,43	
n157 15,6	Node NODE				5,18 -1,43	
n175 15,6	Node NODE				5,18 -1,43	
n152 15,6	Node NODE				5,24 -1,43	
n162 15,6	Node NODE				5,25 -1,43	
n110 15,6	Node NODE				5,31 -1,43	
n109 15,6	Node NODE				5,32 -1,43	
n106 15,6	Node NODE				5,92 -1,43	
n2 15,6	Node NODE				6,15 -1,43	
n225 3,9	Node NODE				7,35 -0,28	
n226 3,9	Node NODE				7,36 -0,28	
n64 2,52	Node NODE				7,54 -0,15	

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
n58 2,52	Node NODE				7,54 -0,15	
n63 2,52	Node NODE				7,54 -0,15	
n59 2,52	Node NODE				7,54 -0,15	
n53 2,52	Node NODE				7,54 -0,15	
n61 2,52	Node NODE				7,54 -0,15	
n230 1,45	Node NODE				7,61 -0,04	
n229 1,2	Node NODE				7,66 -0,02	
n219 1	Node NODE				7,69 0	
src1 1	Supply SUPPLY		-2607,65		7,69 0	
n51 0,7	Node NODE				7,72 0,03	
n52 0,7	Node NODE				7,72 0,03	
n56 0,7	Node NODE				7,72 0,03	
n57 0,7	Node NODE				7,72 0,03	
n62 0,7	Node NODE				7,72 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 d3	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	n159 h3
1 b71	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	519,49 2,22	0,0092 0,02	0,02 0	n158 n159
1 b70	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	779,59 3,34	0,0194 0,04	0,06 0	n157 n158
1 b69	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	1040,68 4,46	0,0331 0,07	0,1 0	n152 n157
1 b53	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Br); 0,312	1 1,312	1303,42 5,58	0,0503 0,07	0,16 0	n110 n152
1 m54	Cmain PIPE	GOST10704-91 150	0 0	1(us.Tee-Run);	4,5	1303,42 1,3	0,0015 0,01	0,01 0	n109 n110
1 m51	Cmain PIPE	GOST10704-91 150	0 0	2(us.Tee-Run);1(us.90); 0,157	114,123 114,28	2607,65 2,61	0,0053 0,6	0,03 0	n106 n109
1 m57	Cmain PIPE	GOST10704-91 150	0 0	1(us.90); 0,157	42,786 42,943	2607,65 2,61	0,0053 0,23	0,03 0	n2 n106
1 m80	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	n225 n2
1 m81	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	n226 n225
1 m97	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	n230 n226
1 v1	Valve VALVE	AV-1 Check 150	0 0		0,25	2607,65 0	0,1041 0,03	0 0,02	n229 n230
1 m87	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	n51 n229
1 m24	Cmain PIPE	GOST10704-91 250	0 0	1(us.90); 0,374	0,474 0,848	1427,67 0,43	0,0001 0	0 0	n52 n51
1 m35	Cmain PIPE	GOST10704-91 250	0 0	1(us.90); 0,374	1,975 2,349	1427,67 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	1427,67 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	1427,67 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	1427,67 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 d12	Drop PIPE	GOST10704-91 25	0 0	1(us.Tee-Br); 0,088	0,2 0,288	259,81 7,24	0,2424 0,07	0,26 -0,02	n177 h12
2 b75	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	519,81 2,23	0,0092 0,02	0,02 0	n176 n177
2 b74	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	780,07 3,34	0,0194 0,04	0,06 0	n175 n176
2 b73	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	1041,32 4,46	0,0332 0,07	0,1 0	n162 n175
2 b54	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Br); 0,312	1 1,312	1304,23 5,58	0,0503 0,07	0,16 0	n109 n162
3 d1	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	n132 h1
3 b72	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	259,84 1,11	0,0025 0,01	0,01 0	n159 n132

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
	5,31 5,24
	5,32 5,31
	5,92 5,32
	6,15 5,92
	7,35 6,15
	7,36 7,35
	7,61 7,36
	7,66 7,61
	7,72 7,66
	7,72 7,72
	7,72 7,72
	7,54 7,72
	7,54 7,54
	7,54 7,54
	7,69 7,54
-2607,65	7,69 7,69
259,81	5,13 5,08
	5,14 5,13
	5,18 5,14
	5,25 5,18
	5,32 5,25
259,84	5,12 5,08
	5,12 5,12

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	
4 d13	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	n136 h13
4 b76	Brline PIPE	GOST10704-91 65	0 0	1(us.Tee-Run);	2	260 1,11	0,0025 0,01	0,01 0	n177 n136
5 d6	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	n158 h6
6 d16	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	n176 h16
7 d8	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	n157 h8
8 d18	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	n175 h18
9 d10	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	n152 h10
10 d19	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	n162 h19
11 m26	Cmain PIPE	GOST10704-91 250	0 0	3(us.Tee-Run);1(us.90); 0,374	1,525 1,899	1179,98 0,36	0,0001 0	0 0	n56 n51
11 m29	Cmain PIPE	GOST10704-91 250	0 0	1(us.90); 0,374	1,975 2,349	1179,98 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	1179,98 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	1179,98 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	1179,98 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	1179,98 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
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
	7,72 7,72
	7,72 7,72
	7,54 7,72
	7,54 7,54
	7,54 7,54
	7,54 7,54

Job name: Sheet number:_____

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)	
h3	15,4	115,3	259,65	25	1x(us.Tee-Br)=0,088	0,2	0	5,07	
n159	15,6		259,65	27,6		0,088	0,2421	-0,02	
						0,288		0,07	
n159	15,6		259,84	65		2	0	5,12	
n158	15,6		519,49	70,4		0	0,0092	0	
						2		0,02	
n158	15,6		260,11	65		2	0	5,14	
n157	15,6		779,59	70,4		0	0,0194	0	
						2		0,04	
n157	15,6		261,09	65		2	0	5,18	
n152	15,6		1040,68	70,4		0	0,0331	0	
						2		0,07	
n152	15,6		262,75	65	1x(us.Tee-Br)=0,312	1	0	5,24	
n110	15,6		1303,42	70,4		0,312	0,0503	0	
						1,312		0,07	
n110	15,6		0	150		4,5	0	5,31	
n109	15,6		1303,42	145,6		0	0,0015	0	
						4,5		0,01	
n109	15,6		1304,23	150	1x(us.90)=0,157	114,12	0	5,32	
n106	15,6		2607,65	145,6		3	0,0053	0	
						0,157		0,6	
						114,28			
n106	15,6		0	150	1x(us.90)=0,157	42,786	0	5,92	
n2	15,6		2607,65	145,6		0,157	0,0053	0	
						42,943		0,23	
n2	15,6		0	150	1x(us.90)=0,157	11,7	0	6,15	
n225	3,9		2607,65	145,6		0,157	0,0053	1,15	
						11,857		0,06	
n225	3,9		0	150	1x(us.90)=0,157	0,99	0	7,35	
n226	3,9		2607,65	145,6		0,157	0,0053	0	
						1,147		0,01	
n226	3,9		0	150	1x(coupling)=0,011	2,45	0	7,36	
n230	1,45		2607,65	145,6		0,011	0,0053	0,24	
						2,461		0,01	
n230	1,45		0	150		0,25	0	7,61	AV-1 Check
n229	1,2		2607,65	0		0	0,1041	0,02	***
						0,25		0,03	
n229	1,2		0	150	1x(us.Tee-Br)=0,337	0,5	0	7,66	
n51	0,7		2607,65	145,6		0,337	0,0053	0,05	
						0,837		0,00	
n51	0,7		-1179,98	250	1x(us.90)=0,374	0,474	0	7,72	
n52	0,7		1427,67	265		0,374	0,0001	0	
						0,848		0	
n52	0,7		0	250	1x(us.90)=0,374	1,975	0	7,72	
n62	0,7		1427,67	265		0,374	0,0001	0	
						2,349		0	
n62	0,7		0	250	1x(us.90)=0,374	1,82	0	7,72	
n63	2,52		1427,67	265		0,374	0,0001	-0,18	
						2,194		0	
n63	2,52		0	250	1x(us.90)=0,374	4,006	0	7,54	
n53	2,52		1427,67	265		0,374	0,0001	0	
						4,38		0	
n53	2,52		0	250	1x(us.Tee-Br)=0,849	0,255	0	7,54	
n61	2,52		1427,67	265		0,849	0,0001	0	
						1,104		0	
n61	2,52		1179,98	250	1x(us.90)=0,374	1,52	0	7,54	
n219	1		2607,65	265		0,374	0,0003	0,15	
						1,894		0	

Job name: Sheet number:_____

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)	
n219 src1	1 1		0 2607,65	250 265		2,677 0 2,677	0 0,0003	7,69 0 0	
h12 n177	15,4 15,6	115,3	259,81 259,81	25 27,6	1x(us.Tee-Br)=0,088	0,2 0,088 0,288	0 0,2424	5,08 -0,02 0,07	
n177 n176	15,6 15,6		260 519,81	65 70,4		2 0 2	0 0,0092	5,13 0 0,02	
n176 n175	15,6 15,6		260,27 780,07	65 70,4		2 0 2	0 0,0194	5,14 0 0,04	
n175 n162	15,6 15,6		261,25 1041,32	65 70,4		2 0 2	0 0,0332	5,18 0 0,07	
n162 n109	15,6 15,6		262,91 1304,23	65 70,4	1x(us.Tee-Br)=0,312	1 0,312 1,312	0 0,0503	5,25 0 0,07	
h1 n132	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	
n132 n159	15,6 15,6		0 259,84	65 70,4		2 0 2	0 0,0025	5,12 0 0,01	
h13 n136	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	
n136 n177	15,6 15,6		0 260	65 70,4		2 0 2	0 0,0025	5,12 0 0,01	
h6 n158	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	
h16 n176	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	
h8 n157	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	
h18 n175	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	
h10 n152	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	
h19 n162	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	
n51 n56	0,7 0,7		0 1179,98	250 265	1x(us.90)=0,374	1,525 0,374 1,899	0 0,0001	7,72 0 0	
n56 n57	0,7 0,7		0 1179,98	250 265	1x(us.90)=0,374	1,975 0,374 2,349	0 0,0001	7,72 0 0	
n57 n64	0,7 2,52		0 1179,98	250 265	1x(us.90)=0,374	1,82 0,374 2,194	0 0,0001	7,72 -0,18 0	

Job name: Sheet number:_____

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)	
n64	2,52		0	250	1x(us.90)=0,374	0,844	0	7,54	
n58	2,52		1179,98	265		0,374	0,0001	0	
						1,218		0	
n58	2,52		0	250	1x(us.90)=0,374	4,006	0	7,54	
n59	2,52		1179,98	265		0,374	0,0001	0	
						4,38		0	
n59	2,52		0	250	1x(us.Tee-Br)=0,849	2,588	0	7,54	
n61	2,52		1179,98	265		0,849	0,0001	0	
						3,437		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									
h3	15,4	115,3	259,65	25	1x(us.Tee-Br)=0,088	0,2	0	5,07	
n159	15,6		259,65	27,6		0,088	0,2421	-0,02	
						0,288		0,07	
n159	15,6		259,84	65		2	0	5,12	
n158	15,6		519,49	70,4		0	0,0092	0	
						2		0,02	
n158	15,6		260,11	65		2	0	5,14	
n157	15,6		779,59	70,4		0	0,0194	0	
						2		0,04	
n157	15,6		261,09	65		2	0	5,18	
n152	15,6		1040,68	70,4		0	0,0331	0	
						2		0,07	
n152	15,6		262,75	65	1x(us.Tee-Br)=0,312	1	0	5,24	
n110	15,6		1303,42	70,4		0,312	0,0503	0	
						1,312		0,07	
n110	15,6		0	150		4,5	0	5,31	
n109	15,6		1303,42	145,6		0	0,0015	0	
						4,5		0,01	
n109	15,6		1304,23	150	1x(us.90)=0,157	114,12	0	5,32	
n106	15,6		2607,65	145,6		3	0,0053	0	
						0,157		0,6	
						114,28			
n106	15,6		0	150	1x(us.90)=0,157	42,786	0	5,92	
n2	15,6		2607,65	145,6		0,157	0,0053	0	
						42,943		0,23	
n2	15,6		0	150	1x(us.90)=0,157	11,7	0	6,15	
n225	3,9		2607,65	145,6		0,157	0,0053	1,15	
						11,857		0,06	
n225	3,9		0	150	1x(us.90)=0,157	0,99	0	7,35	
n226	3,9		2607,65	145,6		0,157	0,0053	0	
						1,147		0,01	
n226	3,9		0	150	1x(coupling)=0,011	2,45	0	7,36	
n230	1,45		2607,65	145,6		0,011	0,0053	0,24	
						2,461		0,01	
n230	1,45		0	150		0,25	0	7,61	AV-1 Check
n229	1,2		2607,65	0		0	0,1041	0,02	***
						0,25		0,03	
n229	1,2		0	150	1x(us.Tee-Br)=0,337	0,5	0	7,66	
n51	0,7		2607,65	145,6		0,337	0,0053	0,05	
						0,837		0,00	
n51	0,7		-1179,98	250	1x(us.90)=0,374	0,474	0	7,72	
n52	0,7		1427,67	265		0,374	0,0001	0	
						0,848		0	
n52	0,7		0	250	1x(us.90)=0,374	1,975	0	7,72	
n62	0,7		1427,67	265		0,374	0,0001	0	
						2,349		0	
n62	0,7		0	250	1x(us.90)=0,374	1,82	0	7,72	
n63	2,52		1427,67	265		0,374	0,0001	-0,18	
						2,194		0	
n63	2,52		0	250	1x(us.90)=0,374	4,006	0	7,54	
n53	2,52		1427,67	265		0,374	0,0001	0	
						4,38		0	
n53	2,52		0	250	1x(us.Tee-Br)=0,849	0,255	0	7,54	
n61	2,52		1427,67	265		0,849	0,0001	0	
						1,104		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									
n61	2,52		1179,98	250	1x(us.90)=0,374	1,52	0	7,54	
n219	1		2607,65	265		0,374	0,0003	0,15	
						1,894		0	
n219	1		0	250		2,677	0	7,69	
src1	1		2607,65	265		0	0,0003	0	
						2,677		0	
src1								**7,69**	
Path No: 2									
h12	15,4	115,3	259,81	25	1x(us.Tee-Br)=0,088	0,2	0	5,08	
n177	15,6		259,81	27,6		0,088	0,2424	-0,02	
						0,288		0,07	
n177	15,6		260	65		2	0	5,13	
n176	15,6		519,81	70,4		0	0,0092	0	
						2		0,02	
n176	15,6		260,27	65		2	0	5,14	
n175	15,6		780,07	70,4		0	0,0194	0	
						2		0,04	
n175	15,6		261,25	65		2	0	5,18	
n162	15,6		1041,32	70,4		0	0,0332	0	
						2		0,07	
n162	15,6		262,91	65	1x(us.Tee-Br)=0,312	1	0	5,25	
n109	15,6		1304,23	70,4		0,312	0,0503	0	
						1,312		0,07	
n109								**5,32**	
Path No: 3									
h1	15,4	115,3	259,84	25	1x(us.90)=0,035	0,2	0	5,08	
n132	15,6		259,84	27,6		0,035	0,2425	-0,02	
						0,235		0,06	
n132	15,6		0	65		2	0	5,12	
n159	15,6		259,84	70,4		0	0,0025	0	
						2		0,01	
n159								**5,12**	
Path No: 4									
h13	15,4	115,3	260	25	1x(us.90)=0,035	0,2	0	5,08	
n136	15,6		260	27,6		0,035	0,2428	-0,02	
						0,235		0,06	
n136	15,6		0	65		2	0	5,12	
n177	15,6		260	70,4		0	0,0025	0	
						2		0,01	
n177								**5,13**	
Path No: 5									
h6	15,4	115,3	260,11	25	1x(us.Tee-Br)=0,088	0,2	0	5,09	
n158	15,6		260,11	27,6		0,088	0,2429	-0,02	
						0,288		0,07	
n158								**5,14**	

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: 6									
h16	15,4	115,3	260,27	25	1x(us.Tee-Br)=0,088	0,2	0	5,09	
n176	15,6		260,27	27,6		0,088	0,2432	-0,02	
						0,288		0,07	
n176								**5,14**	
Path No: 7									
h8	15,4	115,3	261,09	25	1x(us.Tee-Br)=0,088	0,2	0	5,13	
n157	15,6		261,09	27,6		0,088	0,2446	-0,02	
						0,288		0,07	
n157								**5,18**	
Path No: 8									
h18	15,4	115,3	261,25	25	1x(us.Tee-Br)=0,088	0,2	0	5,13	
n175	15,6		261,25	27,6		0,088	0,2449	-0,02	
						0,288		0,07	
n175								**5,18**	
Path No: 9									
h10	15,4	115,3	262,75	25	1x(us.Tee-Br)=0,088	0,2	0	5,19	
n152	15,6		262,75	27,6		0,088	0,2475	-0,02	
						0,288		0,07	
n152								**5,24**	
Path No: 10									
h19	15,4	115,3	262,91	25	1x(us.Tee-Br)=0,088	0,2	0	5,2	
n162	15,6		262,91	27,6		0,088	0,2478	-0,02	
						0,288		0,07	
n162								**5,25**	
Path No: 11									
n51	0,7		0	250	1x(us.90)=0,374	1,525	0	7,72	
n56	0,7		1179,98	265		0,374	0,0001	0	
						1,899		0	
n56	0,7		0	250	1x(us.90)=0,374	1,975	0	7,72	
n57	0,7		1179,98	265		0,374	0,0001	0	
						2,349		0	
n57	0,7		0	250	1x(us.90)=0,374	1,82	0	7,72	
n64	2,52		1179,98	265		0,374	0,0001	-0,18	
						2,194		0	
n64	2,52		0	250	1x(us.90)=0,374	0,844	0	7,54	
n58	2,52		1179,98	265		0,374	0,0001	0	
						1,218		0	
n58	2,52		0	250	1x(us.90)=0,374	4,006	0	7,54	
n59	2,52		1179,98	265		0,374	0,0001	0	
						4,38		0	
n59	2,52		0	250	1x(us.Tee-Br)=0,849	2,588	0	7,54	
n61	2,52		1179,98	265		0,849	0,0001	0	
						3,437		0	
n61								**7,54**	

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)	

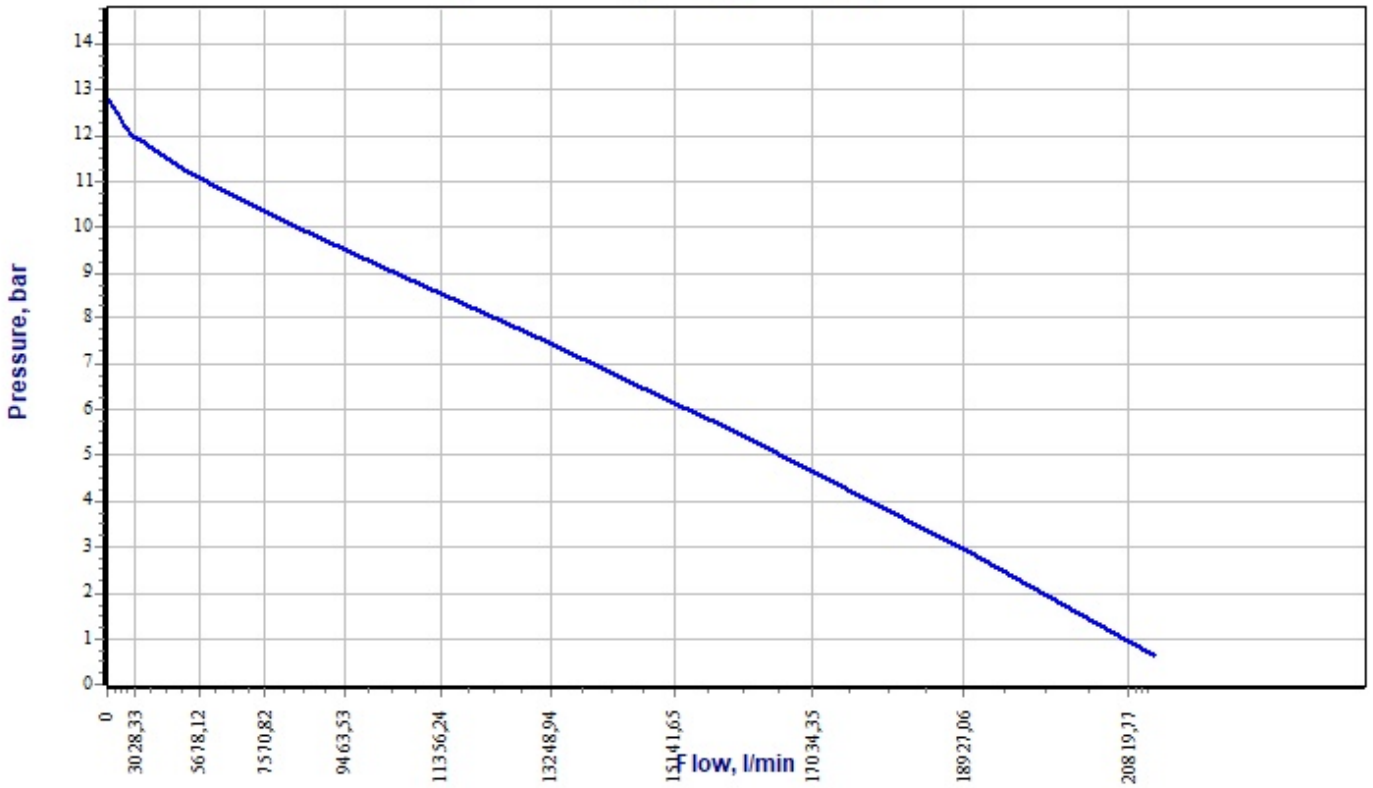
* Pressures are balanced to a high degree of accuracy. Values may vary by 0.01 bar due to display rounding.

* Maximum Velocity of 7,32 m/s occurs in the following pipe(s): (n162-h19)

*** 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_1; Supply Ref.: src1



Pressure Loss Function

Design Area: DesignArea_1; Valve Ref.: v1 (AV-1 Check, Size = 150); Inlet Node: n229; Outlet Node: n230