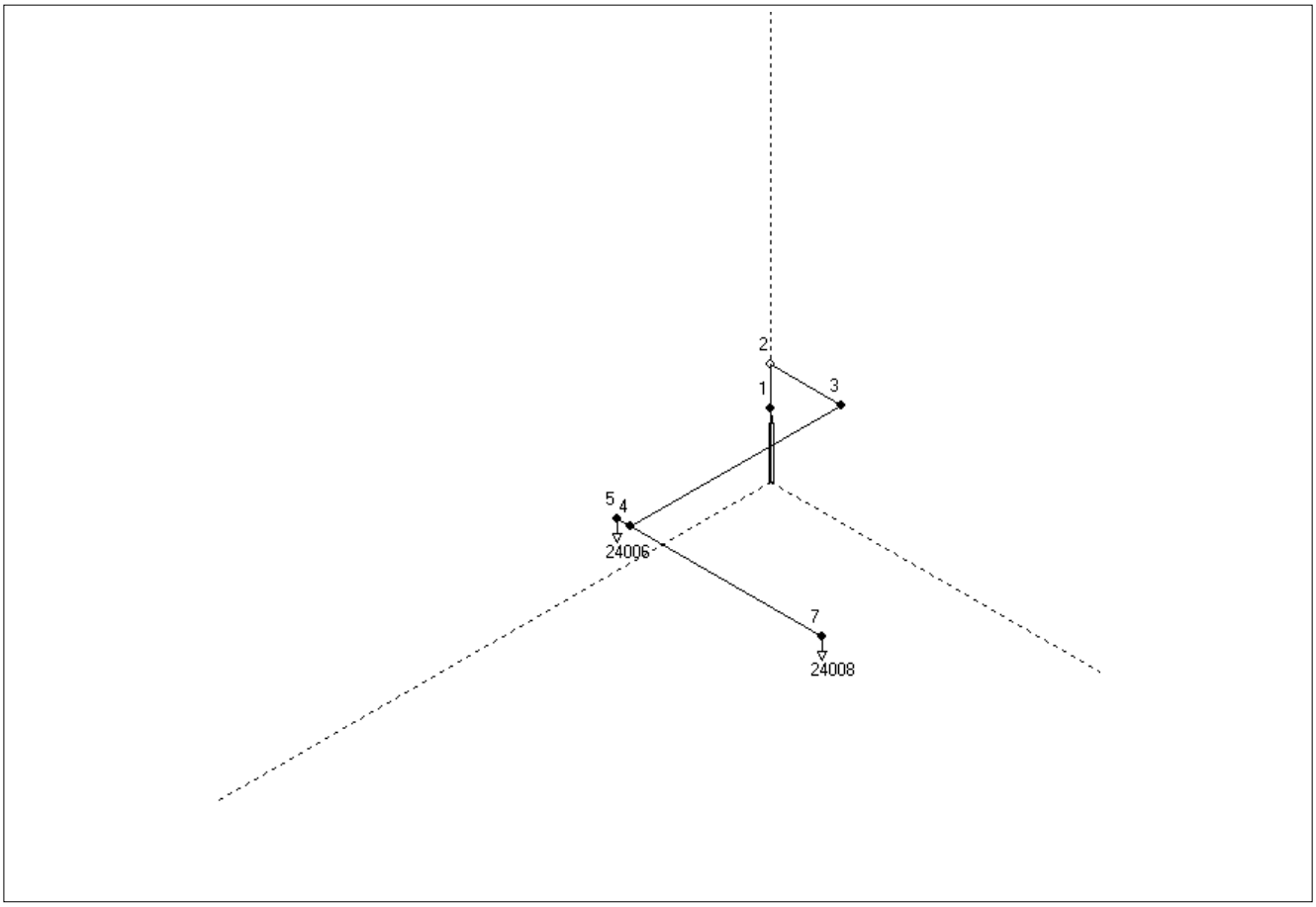
Project:	Archive-Small Room
Project-No:	
Building:	
Object:	
Contractor:	
Owner:	
Project engineer:	
Date:	11.3.2019
Altitude above sealevel:	400 m
Regulation rule for calculation of FK-5-1-12 quantities:	ISO 14520-1, Edition 2000
Pipe catalogue:	1230_SEE_20150727.rkl
Component catalogue:	1230_20150727.arm
Nozzle catalogue:	1230_25052007.noz



Pipesystem data:

Section-No:	Starting-node	Endnode	Length [m]	Height [m]	Pipetype	Diameter [mm]	Fitting *	Component code	Component coefficient	Nb of containers FK-5-1-12 quantity
1	0	1	0,100	0,100	31	27,0	C	102	3,490	1
2	1	2	0,600	0,600	13	35,9		-	-	
3	2	3	1,100	0,000	13	35,9	E	-	-	
4	3	4	3,300	0,000	13	35,9	E	-	-	
5	4	5	0,200	0,000	13	27,2	T-90°	-	-	
6	5	24006	0,200	-0,200	13	27,2	E	-	-	42.3
7	4	7	3,000	0,000	13	27,2	T-90°	-	-	
8	7	24008	0,200	-0,200	13	27,2	E	-	-	42.3

* C=Component, B=Bend, T=T-Piece, E=Elbow

Legend of pipetypes

Type	Pipeclass	Pipe roughness
31	Manifolds/diptubes/valve section	galvanized
13	EN 10255-M	black pipe

Legend of components

Code	Type	Resistance coefficient
102	VSB33+diptube (Di 27 mm)+FRF33	3,490

Calculation zone data:

Zone	Total volume [m3]	Volume of building parts [m3]	Calculated volume [m3]	Max. Over-pressure [mbar]	Design temp. [°C]	Extinguish-conc. [% Vol]	Design factor	Design conc. [% Vol]	Design quantity [kg]
1 Archive-Small Roc	108,1	0,0	108,1	3,000	20,0	4,1	1,30	5,3	84,25

Regulation rule for calculation of FK-5-1-12 quantities: ISO 14520-1, Edition 2000
Altitude above sealevel: 400,0 m

Further information:
Design with included gas discharge time

Calculation results:

FK-5-1-12 storage data:

Design quantity:	84,3 kg
Supplement factor:	1,00
Minimum storage quantitiy:	84,3 kg
Container volume:	120,0 l
Filling ratio:	0,74 kg/l
Filling pressure:	42,0 bar abs
FK-5-1-12 -mass per container:	88,8 kg
Number of containers:	1
Actual storage quantity:	88,8 kg
Storage temperature:	20,0 °C
Starting container pressure:	42,0 bar abs

Discharge time:

Discharge time air:	0,2 s
Total gas discharge time:	0,7 s
Two-phase discharge time:	9,3 s
Total discharge time:	10,0 s

System information:

Container working pressure:	27,5 bar abs
Container working temperature:	20,0 °C
Total network volume:	7,2 l
Medium pipe content:	9,7 kg FK-5-1-12
Filling portion in pipe system:	0,11 kg FK-5-1-12 /kg FK-5-1-12 -storage

Pipe system:

Section-No:	Starting-node	Endnode	Pressure [bar abs]	Flowrate [kg/s]	Pipedimension Di [mm]	DN
1	0	1	24,37	8,58	27,0	tube
2	1	2	24,18	8,58	35,9	1 1/4"
3	2	3	23,48	8,58	35,9	1 1/4"
4	3	4	22,46	8,58	35,9	1 1/4"
5	4	5	21,96	4,29	27,2	1"
6	5	24006	21,49	4,29	27,2	1"
7	4	7	21,55	4,29	27,2	1"
8	7	24008	21,08	4,29	27,2	1"

Nozzle data:

Calculation-zone no:	Nozzle no.	Nozzle type	Number of orifices	Pipeconnection Di [mm]	DN	Orifice [mm]	FK-5-1-12 out-put [kg]
1	24006	2	4	27,2	1"	6,0	42,3
1	24008	2	4	27,2	1"	6,1	42,3

MAXIMUM TRANSPORT TIME DIFF. BETWEEN NOZZLES: 24008./ 24006. IS 0.49 S

Concentrations:

Calculation-zone no:	Gascomposition after discharge [%] O2	FK-5-1-12	N2
1	19,8	5,5	73,8

Pressure relief opening:

Calculation-zone no:	Recommended area against overpressure Area [ml]	Overpressure [mbar]	Max. flow [kg/s]
1	0,048	3,0	

Component list:

Component	Number	Code	Coefficient
VSB33+diptube (Di 27	1	102	3,500

Nozzle-type	Number
BFFP	2

Pipe-type	Di [mm]	DN	Length [m]
31	27,00	tube	0,100
13	35,90	1 1/4"	5,000
13	27,20	1"	3,600

Number of bends (+) and elbows (-)

Bend-type	Di [mm]	DN	Number
-90	35,90	1 1/4"	2
-90	27,20	1"	2

Number of T-distributors (in- and outdiameter)

Number	Input	90-out	90-out	0-out
1	35,9	27,2	27,2	0,0