

IMT V.2.2.3

Filename	-1A_04 serwerownia.imt
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Inergen System Data

Fire Hazard		Flame ext	
Tee Design factor			
Safety factor applied			EN 15004
Minimum design conc.	41.5 %		

Cylinder Type	Inergen 80L steel cylinder, Inergen 50L steel cylinder		
Cylinder fill	15.0 C°		300.0 bar
Cylinder Storage	20.0 C°		308.7 bar
Temperature (Room)	20.0 C°		
Atmospheric pressure (Room)	1013.0 mbar		
Pressure relief resistance	0.3		

Room	1	2	3	Total
Name	Głowna	Podlogowa		
Volume of room [m ³]	119.6	16.5		136.1
Actual conc. [%]	42.9	42.9		
Flooding [%]	56.0	56.0		
INERGEN [kg]	94.67	13.06		107.73
Final O ₂ [%]	12.0	12.0		
Final CO ₂ [%]	3.4	3.4		
Max flowrate [kg/sec]	2.01	0.29		2.3
Structural strength [Pa]	200	200		
Pressure relief [cm ²]	318.5	46.5		365.0

Cylinder quantity 80L	2	pcs.
Cylinder quantity 50L	2	pcs.
Pipe to Cylinder volume	1.0	%

Discharge time	120.0	Sec. to target
Target type	Inergen conc.	
Target	39.4 %	
Pipe type	FE galvanized welded steel pipe EN10220/10217-1 P235TR1.	

Pipe system

No	N1	N2	Elv	Start	End	Elb	Con	Usr	Noz	Room	L	vol	T	N/P	DN	Pres	Dia	M
MT_no1															25	308.0	6.8	
Pipe																59.9		
1	1	2		pP	pB						0.6	136.1	100.0	42.0	25			0.16
2	2	3	- 2.35	pR	pP	3	1		IN-15	2	6.3	16.5	12.1	12.8	15	58.4	5.3	0.062
3	2	4	0.4	pR	pR	2	2				2.3		87.9	59.5	20			0.284
4	4	5	- 0.1	pB	pP				IN-15	1	0.1	59.8	50.0	57.6	15	42.2	11.2	0.293
5	4	6	- 0.1	pR	pP	1			IN-20	1	1.9	59.8	50.0	29.2	20	46.1	11.0	0.143

Volume of pipe system 0.0028 m³
Min. Pipe working pressure. 60.0 bar

Description

MT: Manifold

Pipe: Pipe system inlet

N1, N2 : Nodes start & end

Elv: Elevation m

Start: Which kind of fitting is the pipe START connected to

End: Which kind of fitting is the pipe END connected to

pP: Plain pipe

pB: Branch Tee

pR: Run Tee

Elb: Fitting Elbow Qty

Con: Fitting Connector Qty

Usr: Fitting user defined Qty

Noz: Nozzle type (IN-15, IN-20, ...)

Room: Room number 1-3

L: Length of pipe in meters m

Vol: Volume of room protected by this pipe. m³

T: Tee split ratio (pipe inlet/upstream pipe mass flow ratio) %

N/P: Nozzle to pipe Area ratio %

Dn: Nominel pipe size

Pres: Max pressure in pipe section at outlet bar

Dia: Diameter of orifice (Nozzle / Manifold) mm

M: Mach number of gas in pipe

Nozzle calibration

Nozzle family : Mono orifice nozzle, maximum working pressure 125 bar.

Thread type : ISO

Node no.	Nozzle name	Nozzle type	Orifice mm ²	Orifice diameter (1 hole)	Drill 6*	Oxygen level	Max nozzle flow rate	total IG-541 mass
			mm ²	mm	mm	O ₂ %	kg/s	kg
3	Nozzle1	IN-15	21.9	5.3	2.2	12.0	0.3	13.1
5	Nozzle2	IN-15	98.2	11.2	4.6	12.0	1.0	47.3
6	Nozzle3	IN-20	95.0	11.0	4.5	12.0	1.0	47.3

Orifice

Thread type : ISO

Orifice name	Orifice connections	Orifice diameter (mm)	Orifice type	Hose type
MT_no1	4	6.8	Ci-MTX manifold	Hose DN10-400 0.5m to 2.0m

Calculation report

Hand wheel valve type: HWV Ø8mm type

Discharge valve type: Ci-IV8 type

Calculation method: Calculated pipe & orifices

Calculation time: 2020-06-24 09:35:08

Vendor: Fire Eater A/S

Program: IMT 2011 UL

IMT version: 2.2.3

Flow design engine: 2014-08-27
Room design engine: 2014-07-23

No errors during calculation.
No cautions during calculation.