

Extinguishing
business
partner



Sinorix 1230 – extinguishing system

Planning Tool

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People spend about 90 percent
of their time indoors.
Improve the places where they spend
their lives and you improve their lives.
With our people and technology,
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our aim is to create perfect places.
For every stage of life.
When building technology creates
perfect places – that's ingenuity for life.
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Sinorix 1230 extinguishing system

1 Selection of extinguishing agents

Sinorix 1230
Novac 1230
10 (s)
42 (bar)
30 - 50 (m ³)
GWP = 1 ALT = 5d
10% Gas
>10% Gas
EN

Sustainable extinguishing systems

Sinorix™ 1230 is an excellent solution for the protection of high-value assets, business processes and people. It is based on the sustainable extinguishing agent 3M™ Novac™ 1230 Fire Protection Fluid. The high-pressure technology from Siemens allows highest design flexibility and the realization of single-sector and multi-sector systems. Enabling rapid, safe and automated interventions, Sinorix 1230 can prevent loss of data and secure business continuity.

Most effective for smoldering fires

Sinorix 1230 is an effective and clean extinguishing solution that is ideally suited to extinguish smoldering fires. It neither causes damage to nor leaves any residue on sensitive equipment. This makes it the perfect choice for eliminating electrical and electronic risks.

Fast, highly effective and economical

The high efficiency of the Sinorix 1230 system allows using a low extinguishing concentration. Novac 1230 fluid even offers the lowest extinguishing concentration of all currently authorized extinguishing agents. This enables compact system designs and requires less space for installation and cylinder storage.

Sinorix 1230 – typical applications

Sinorix 1230 is suitable for Class A and Class B fires and ideal for electrical risks in server and electrical switching rooms as well as telecommunication systems of small and medium size.



General requirements

General requirements

For safe operation, extinguishing systems must comply with generally accepted technical standards and be operated properly. Novac extinguishing systems fall into the lowest hazard class (extinguishing gas concentration below NOAEL and oxygen concentration above 12%).

Alarm device

Extinguishing areas must be equipped with acoustic and, if necessary, optical alarm devices to warn persons in the danger area.

Warning time

The warning time must be such that the endangered areas can be left from any point without haste.

Blocking mechanism

The activation of an extinguishing system must be electrically or mechanically blockable, depending on country-specific regulations.

Pipe network

Pipes must be electrically earthed.

Room integrity

In principle, the tightness of the rooms should be checked. Cable and pipe bulkheads must be tightly closed.

Escape routes

Escape routes must be available for all extinguishing areas.

Doorways

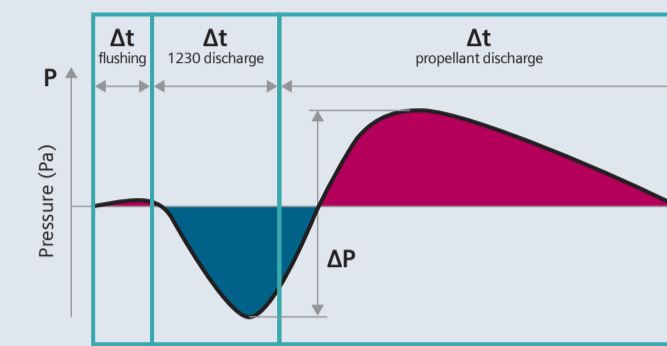
Doors must be self-closing and open outwards.

Warning

A warning of the danger point / extinguishing system must be placed at all entrances to the extinguishing area. Additional storage of material that cause further fire loads in the extinguishing area is not allowed.

10 Pressure release

During the flooding of the extinguishing agent, the typical pressure curve outlined below occurs. Suitable bidirectional pressure relief devices must be provided. The table shows values for an extinguishing agent concentration of 5.6% and rooms of different size.



Smaller overpressure can generally be expected when using chemical agent solutions, but the pressure gradient should be observed! Overpressure release to be considered!

Max. admitted pressure in the protected risk	Volume			
	100 m ³	250 m ³	500 m ³	1000 m ³
100 Pa	0,06	0,14	0,29	0,58
300 Pa	0,03	0,08	0,17	0,33
500 Pa	0,03	0,06	0,13	0,26

Required net opening (m²) per volume at a design concentration of 5.6%.

2 Determination of extinguishing agent concentration

Electrical risks in server and electrical switching rooms and telecommunication systems belong to Class A – High Hazard (HH).

	Clean agent Novac 1230 extinguishing concentrations							
	ISO14520 ed2016		EN15004 ed2008		VdS2381 ed2016		NFPA2001 ed2018	
	Safety margin	Design concentration	Safety margin	Design concentration	Safety margin	Design concentration	Safety margin	Design concentration
Class A	1.3	5.3%	1.3	5.3%	1.3*	4.55%	1.2	4.5%
Class A - High Hazard (HH)	1.3	5.6%	1.3	5.6%	1.3*	5.8%	1.35	4.5%**
Class B	1.3	5.9%	1.3	5.9%	1.3*	6.1%	1.3	5.9%

* +10% up to 19 cylinders, +5% as from 20 cylinders.

** Class C for NFPA. All concentrations reported are at 20°C (ISO/EN/VDs) respectively 70°F (NFPA).

3 Determination of the quantity of extinguishing agent

The table below shows the quantity of extinguishing agent without any safety margins.

Agent concentration	Room volume [m ³]									
	1	100	150	200	250	300	350	400	450	500
6.1%	0.90	90	136	181	226	271	316	362	407	452
6.0%	0.89	89	133	178	222	266	311	355	400	444
5.9%	0.87	87	131	174	218	262	305	349	393	436
5.8%	0.86	86	128	171	214	257	300	343	385	428
5.7%	0.84	84	126	168	210	252	294	336	378	420
5.6%	0.83	83	124	165	206	248	289	330	371	413
5.5%	0.81	81	121	162	202	243	283	324	364	405
5.4%	0.79	79	119	159	199	238	278	318	357	397
5.3%	0.78	78	117	156	195	234	273	311	350	389
5.2%	0.76	76	114	153	191	229	267	305	343	382
5.1%	0.75	75	112	150	187	224	262	299	336	374
5.0%	0.73	73	110	146	183	220	256	293	329	366
4.9%	0.72	72	108	143	179	215	251	287	323	358
4.8%	0.70	70	105	140	175	210	245	281	316	351
4.7%	0.69	69	103	137	172	206	240	274	309	343
4.6%	0.67	67	101	134	168	201	235	268	302	335
4.5%	0.66	66	98	131	164	197	229	262	295	328

Agent quantity [kg]

All concentrations reported are at 20°C.

4 Cylinder size/ number of cylinders

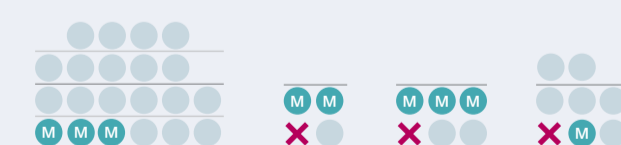
The maximum net-filling quantity per cylinder is subject to short and simple pipe networks. If several cylinders are needed, the total quantity must be divided evenly over all cylinders. In addition to the amount of useable extinguishing agent, the lost quantity must be filled.

Cylinder volume [l]	Filling ratio of a Sinorix 1230 cylinder		Lost agent quantity [kg]
	Usable agent net filling [kg]		
	Min.	Max.	
7	3	7	1
16	6.5	17.6	1.6
32	13	36.5	2
67	27	78.5	2
80	32	94	2
120	48	116	4

5 Cylinder arrangements

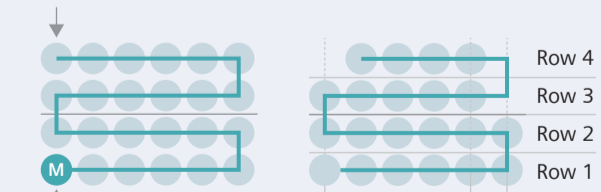
Possible master cylinder arrangement. In principle, it is possible to equip up to three master cylinders with actuators. The master cylinders are the first agent battery cylinders. An activated master cylinder activates all remaining agent cylinders pneumatically.

Position the master cylinder(s)



Arrangement limits

- 67 and 80 L 1230 cylinders banks up to 4 rows with up to 6 cylinders, that is up to 24 cylinders in total
- 120 L 1230 cylinders up to 2 rows with up to 6 cylinders each, that is up to 12 cylinders in total



6 Cylinder rack

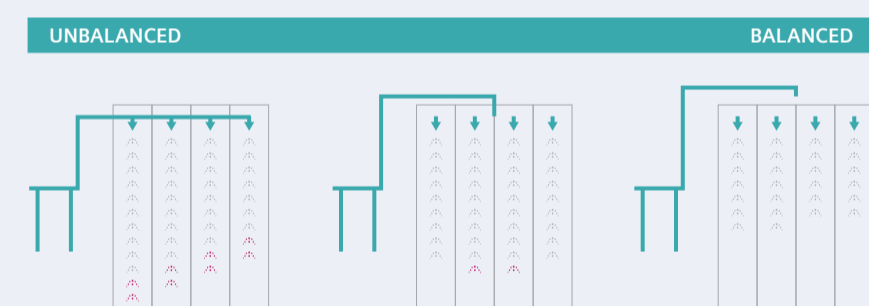
For racks, we have to choose between a wall mounting and a freestanding version.

9 Design of the pipe network

Pipe size (inch)		Pipe capacity								
		3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Flow rate (kg/l0sec.)	Max	10	19	33	56	79	125	215	290	485
	Min	0	10	19	33	56	79	125	215	290

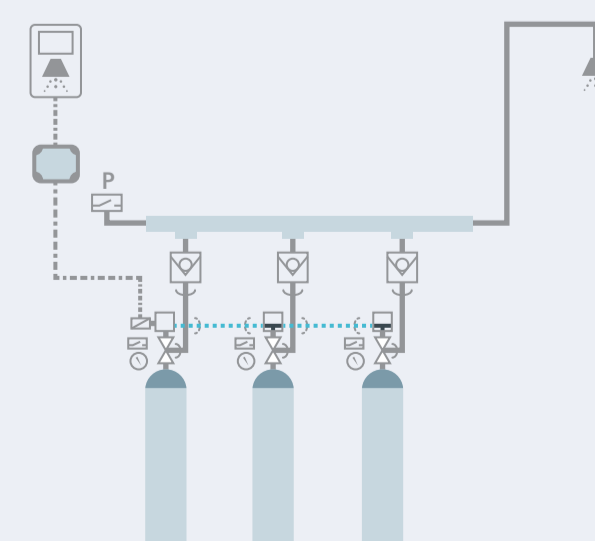
When designing the pipe network, please note that the maximum agent transit time difference between 2 nozzles must not exceed 2 seconds. The more symmetrical/balanced a system is, the smaller the agent transfer time difference is.

Balanced system design



7 Activation

The activation of single-zone systems is always advisable as master-slave configuration without control cylinder.



8 Selection of nozzles

The table below shows the maximum dischargeable extinguishing agent quantity in kg/l0s for the BUCEFA room protection and BFFP false floor nozzle.

Nozzle size (inch)	Nozzle capacity	
	Maximum flow rate BUCEFA (kg/l0sec.)	Maximum flow rate BFFP (kg/l0sec.)
1/4	10	-
3/8	-	10
1/2	20	20
3/4	33	33
1	56	56
1 1/4	79	-
1 1/2	125	-
2	210	-