

HDPE PIPING SYSTEMS

**FIRE FIGHTING
APPLICATION by
POLYETHYLENE
PIPE**

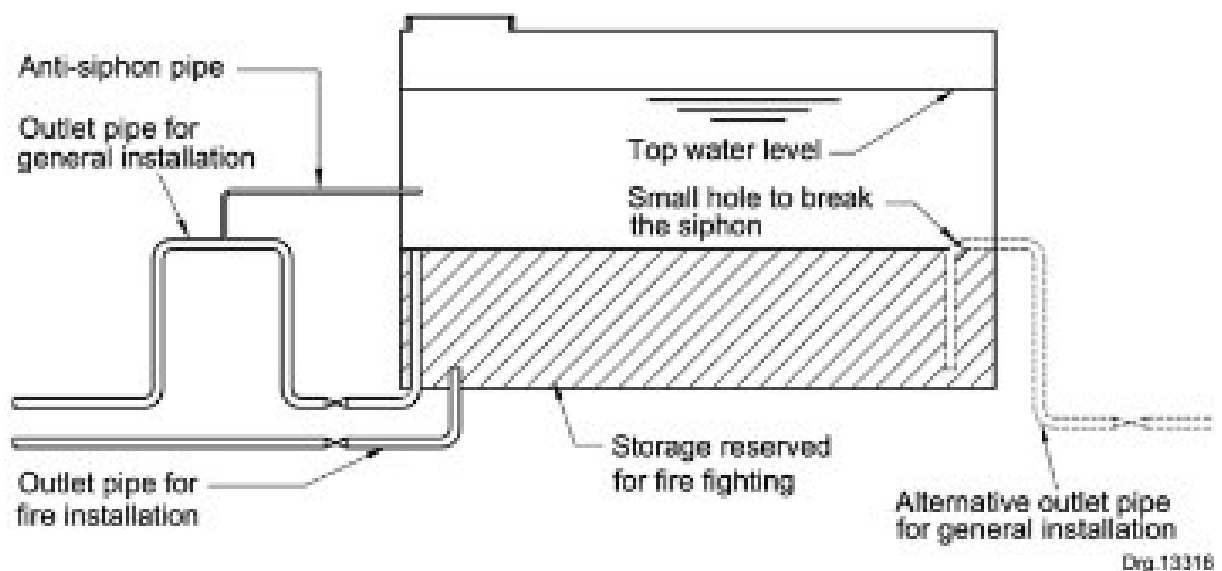
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HDPE PIPE (POLYETHYLENE PIPE) FOR FIRE FIGHTING PIPING SYSTEMS

1 - GENERAL PRINCIPLES OF FIRE FIGHTING SYSTEMS

Fire fighting systems "The Regulation of the Building Fire Protection" provisions, will be designed in accordance with the relevant fire fighting and polyethylene piping systems world standards and installation regulations to be established and approved.

The provisions of this regulation, if there is a change in the applicable standards of hdpe piping systems and hdpe pipe installation regulations will be designed in accordance with this change will be established and approved.



NOTE Only outlet pipes are shown.

2- WATER STORAGE AND WATER RESOURCES BY HDPE PIPING

Dedicated sections of the reserve water tank to be used for fire fighting systems will not be used for other purposes and storage systems with HDPE piping will be arranged to serve only hdpe pipe fire fighting systems.

Firstly polyethylene pipes and other kind of plastic pipes, provide returns significantly for fire fighting projects. HDPE pipes chemical resistance is very strong, when compared with the less developed they are wear-resistant material is an important factor in the fire system.

HDPE pipes are located in quite well as fire systems are preferred in many areas. Water tank capacity, according to the structure of the fire hazard class in fire regulations shall not be less than the specified value, the design flow rate for unit area (design density) will be based on the relative fire fighting and hdpe piping standards. Some of the standard are EN 12201-2, BS EN 12201-2, for the fire fighting systems [FM Approvals](#) on the polyethylene pipes quality.

In the structure if the sprinkler system is fire cabinets only system available water capacity shall be calculated according to fire regulations for fixed fire extinguishing systems. Only in the event of hydrant system does the structure environment at least 1,900 liters of water flow needs to be done according to the nature of the risk categories, including the capacity to meet for 90 minutes will be determined by hydraulic calculations.

Before the installation polyethylene pipe must be tested by the quality laboratuvars of the hdpe pipe manufactrurer factory plant and the test report must be provide to the buyer. It is a way also hdpe pipe manufacturer’s technical support must be with the applicator, that support could provide in the area of fire fighting hdpe pipe sytems. The test reports of the polyethylene pipes gives the details of the pressures of pipe, density, flow rates and with the report high density polyethylene pipes applicable for the fire fighting project.

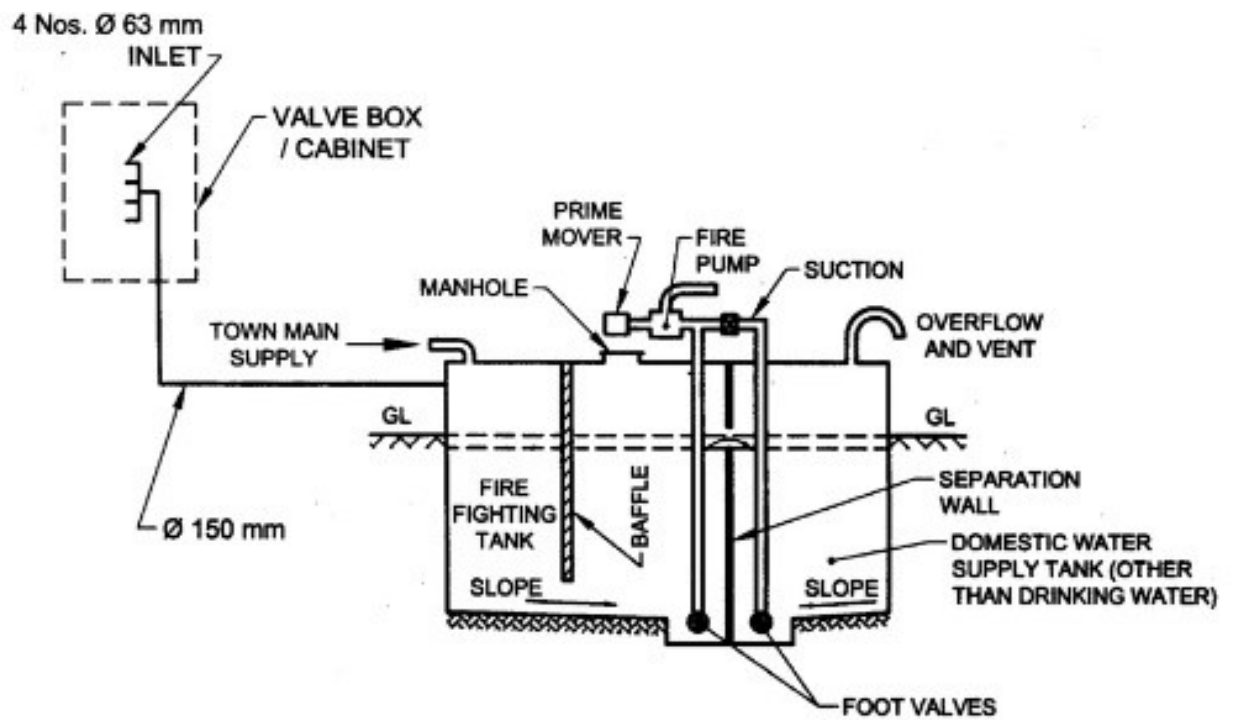
The fire fighting systems is need the fittings as well as pressurized hdpe pipes as pressurized hdpe pipe fittings and cast iron valves, pressure reducing valves, underground & aboveground fire hydrants suitable for the piping systems.

The high density polyethylene pipes must be supply for the outlet of the fire systems, inlet piping systems, domestic piping systems and the hdpe piping usable in special fire works mainly must be have for the maximum working pressure to which the piping is exposed to but must not be have less than 150 psi /10 bar pressure. Polyethylene pipe diamters has stated in below table with the inch values.

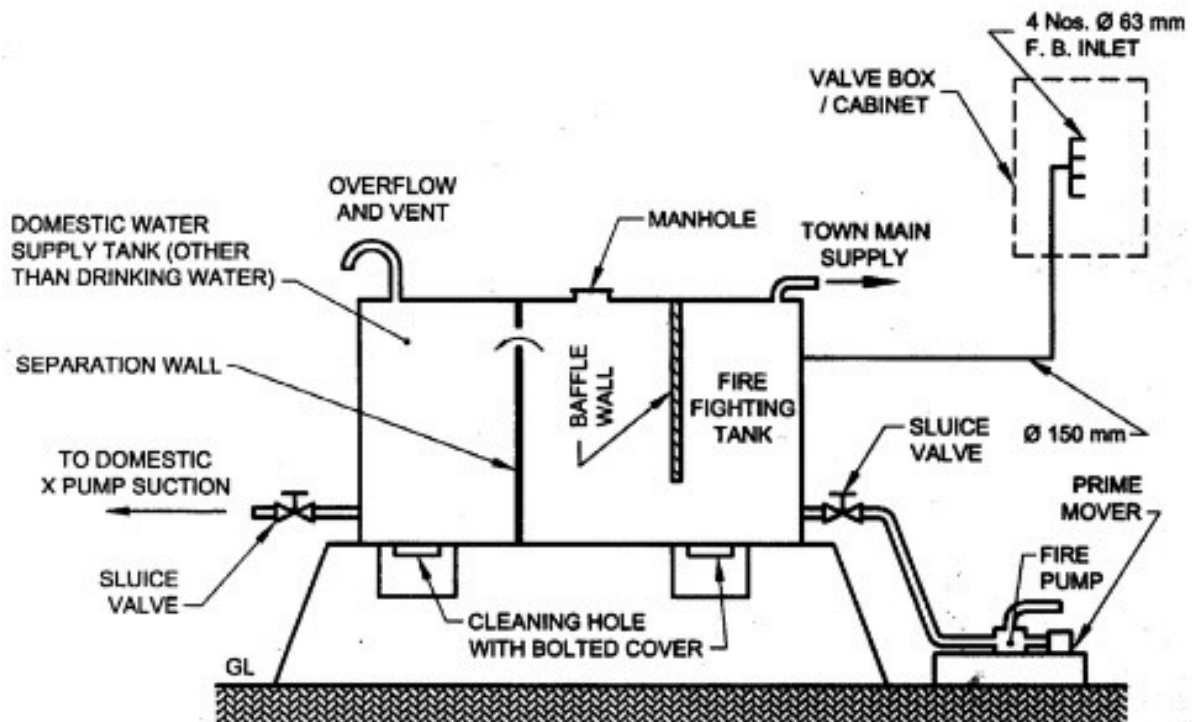
<u>Nominal Pipe Size (in.)</u>	<u>3/4 in. (15.9 mm)</u>	<u>1 in. (19.1 mm)</u>	<u>1 1/4 in. (22.2 mm)</u>	<u>1 in. (25.4 mm)</u>
4	2	—	—	—
6	2	—	—	—
8	3	2	—	—
10	4	3	2	—
12	6	4	3	2
14	8	5	4	3
16	10	7	5	4

Note: This table has been derived using pressure of 225 psi (15.5 bar) and design stress of 25,000 psi (172.4 MPa).





6A WITH NEGATIVE SUCTION

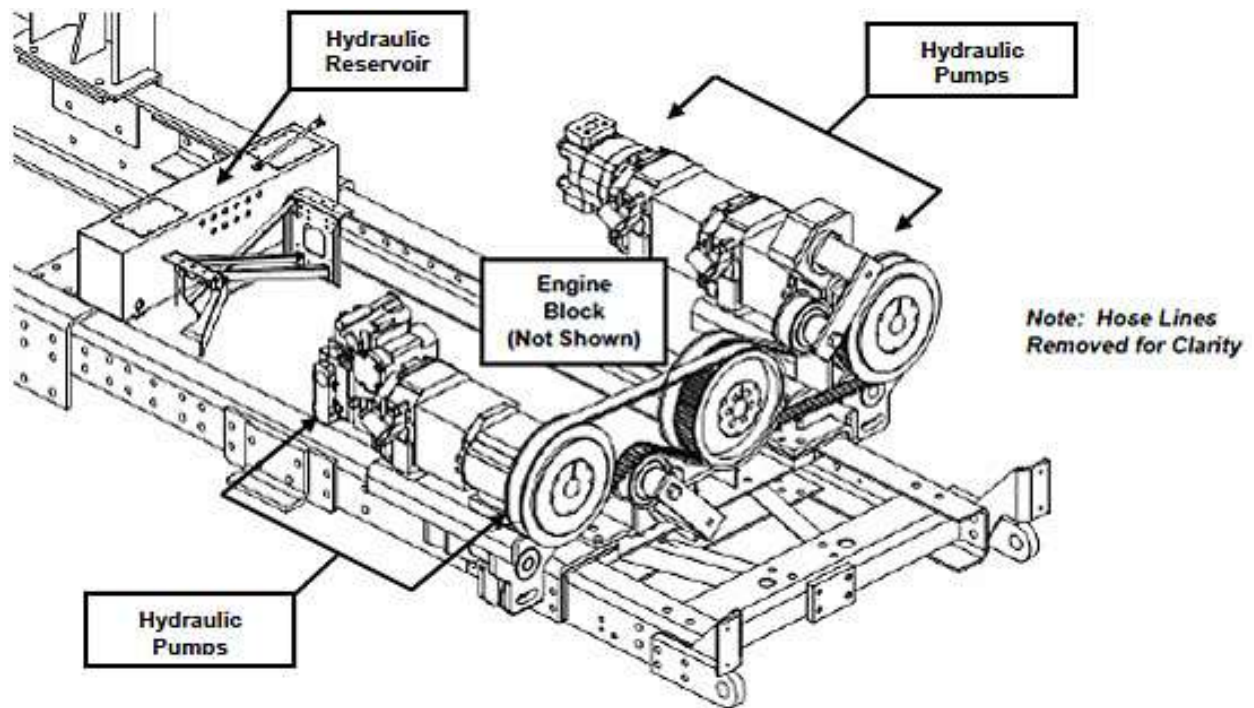


3B WITH POSITIVE SUCTION

3- PUMPS

Fire pump providing pressurized water from HDPE pipe to the sprinkler system, the nominal flow rate and pressure pumps are expressed in nominal value.

If you use the pump in the polyethylene piping system must be redundant pumps in the same capacity. Provided that a sufficient number of spare pumps backed up at least 50% of the total capacity will be used in case of multiple pumps



4- FIXED POLYETHYLENE PIPING AND FIRE CABINETS

HDPE pipe connections on all fixed piping shall be in accordance with the standards used by the fire department. The polyethylene pipe applicable some norms of ASTM 3350, EN 12201, BS EN 12201, ISO 4427 usable in fire fighting systems.

In the application must be have the staff who are experienced about HDPE pipe laying, pipe connecting and polyethylene pipe welding such as trained staff. HDPE pipe for fire cabinets must comply with the standards to which they relate. HDPE pipes in accordance with the standard norms that are round about half-hard, HDPE pipe diameter and pipe length should be appropriate to the project should not exceed the quantities in the project.

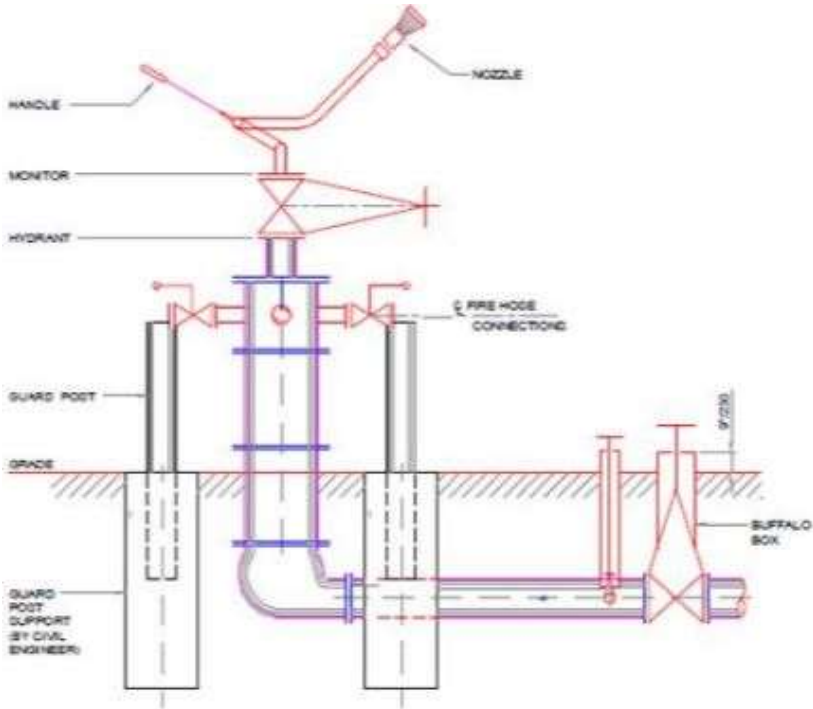
Nozzle or lance off, spraying and / or be able fountain. Fire mouth without water getting round semi-rigid HDPE pipe fire cabinet design flow of 100 l / min and pressure in the launch entry must be 400 mPa. If it is exceed 700 mPa of pressure, then pressure reducing valves

should be used. Flat HDPE pipe can be used in structures which have to keep the trained fire fighters that they must conform to standards regarding fire cabinets. Flat HDPE pipe nominal diameter of 50 mm and a length of hose 20 m shall not exceed.

5-HYDRANT SYSTEMS FOR HDPE PIPING IN FIRE SYSTEMS

In the fire protection of buildings, first intervention in extinguishing non-fire to be established in order to cover as much structure or the entire perimeter of the building it is possible to interrupt the external HDPE pipe hydrant system to be installed on-site fire hydrants, fire department and should be organized in a way that can easily approach can and connectivity tools.

Hydrant system should be design flow at least 1900 l / min flow rate should be, and should be increased according to the risk class structure. Fire hydrants in the output should be pressure 700 mPa. The distance between hydrants is too risky areas 50 m, 100 m-risk areas, medium-risk zone 125 m, 150 m must be taken in low-risk areas. Under the normal conditions, the average 5-15 m hydrants should be located as far away from the protected building.



6- AUTOMATIC SPRINKLER EXTINGUISHING SYSTEMS

Sprinkler system components and system design must conform to the standards to which they relate.

Sprinkler Protection Area (m²): One area can protect the sprinklers. Low hazard class field for 18 -21 m², 12 m² for medium hazard class and 8-12 m² for high hazard class

Sprinklers Application: Low and medium hazard class 139m² and 232m² for high-hazard class

Maximum Floor Area: Low to medium hazard class of 4830 m², for high hazard class in calculation statements made with HDPE pipe tables that value in 2320 m², 3715 m² in hydraulic calculations.

Application Rate (flow rate): 4.1 liters for low hazard class. / Min / m²

For medium hazard class 6.1 ... 8.1 liters. / Min / m²

For high hazard class 12.3 ... 16.3 liters. / Min / m²

Operate design Pressure: Max. 12 Bar

Distance Between Sprinklers: Standard types of outlets on or between deployed maximum distance between sprinklers for low and medium hazard class 4.6 m and 3.7 m for high hazard class. The distance between the wall-mounted hood can be approved according to the conservation area.

If the sprinkler heads have to be placed closer than 1.8 m, the curtain between sprinkler heads (division) should be placed. Sprinkler distance from the wall of the title two sprinklers should not be more than half the allowable distance is 10cm from the wall should not be justified in the title or closer.

