

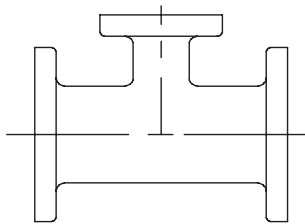
VERTICAL TURBINE FIRE PUMP | ACCESSORIES

File No: F51.450
 Date: AUGUST 15, 2005
 Supersedes: NEW
 Date: NEW

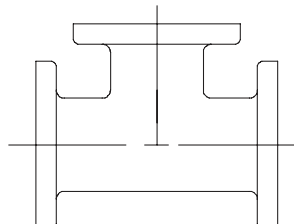
Consult engine data sheet for minimum raw water flow rate.

COMMERCIAL DISCHARGE FITTINGS

Standard commercial pipe fittings are utilized to provide a convenient mounting location for the main relief valve and to adapt the pump discharge size to the minimum required discharge pipe size. The basic arrangement consists of a discharge tee (reducing) and a relief valve tee.



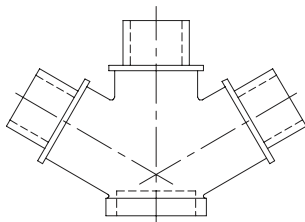
Discharge tee (reducing)



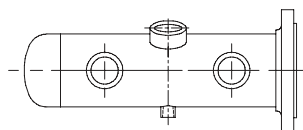
Relief valve tee

HOSE VALVE MANIFOLD

The hose valve manifold provides the necessary outlets for the required number of hose valves. The hose valve manifolds are derby type intended for installation on the outside of buildings. On these rare occasions where an inside head is required, the derby type is satisfactory-mounted on a commercial tee.



Hose valve manifold cast brass (typical for two or three valves)



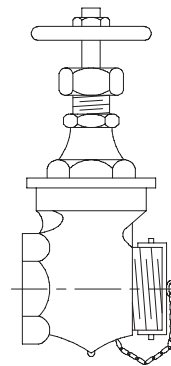
Fabricated steel hose valve manifold (typical for four or more valves)

HOSE VALVE

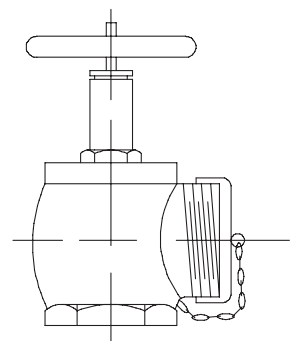
NFPA standards require that one approved 2½" hose valve shall be provided for each 250 GPM of flow.

The primary purpose of the hose valve is for field testing of the pump, but on occasion they may be used for actual fire fighting. Without this hose connection it would not be possible to field test the units on some installations without flooding the protected area.

Caps and chains will be furnished for the valves.



2½" Gate type hose valve with cap and chain



2½" Globe type hose valve with cap and chain

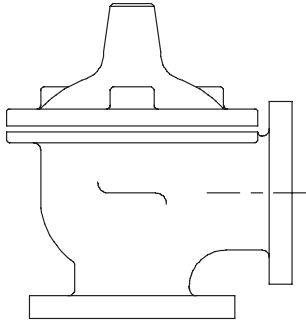
MAIN RELIEF VALVE

The main relief valve is required for all pumps that are driven by adjustable speed drivers, such as diesel engines and steam turbines. It is also required on pumps driven by constant speed drivers when the maximum working pressure; i.e., pump shut-off pressure exceeds the pressure for which the system is designed to operate.

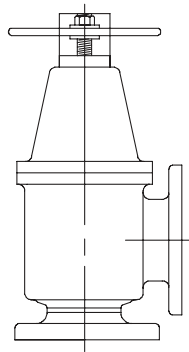
The relief valve should be set to open at a pressure slightly higher than the normal operating pressure of the pump. When so set, it should be capable of passing all of the water discharged by the pump without developing excessive pressure.

Factory setting of relief valves is not practical as the actual pressures usually vary somewhat from the calculated pressures. Field adjustments are therefore necessary in accordance with instructions which accompany the valves.

The valve should discharge through a cone or funnel into an open pipe in plain sight of the operator. If there will be back pressure on the valve, an enclosed cone with sight glasses must be used and the local insurance inspector should be consulted prior to making the installation. If the valve discharges into an underground drain, care should be taken that no steam enters near enough to work through the cone and into the pump room.



Relief valve
(ocv pilot type)



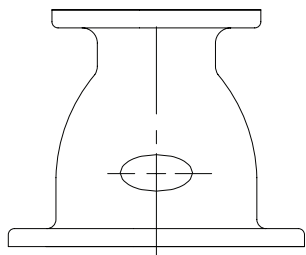
Relief valve
(kunkle spring type)

RELIEF VALVE DISCHARGE CONES

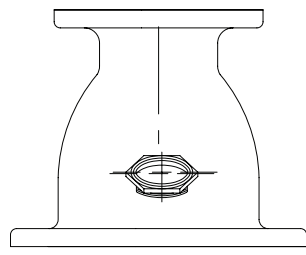
Relief valve discharge cones or overflow cones are available as follows:

The open cones have openings strategically placed to curtail splashing while permitting the operator to see any water being wasted through them. Open cones should be used only when there is no possibility of back pressure; if so, an enclosed cone should be used. The enclosed cones are fitted with sight glasses to permit the operator to see any waste through them.

The overflow cones provide inlets suitable for the fitting connected to them and outlets equal to or larger than the minimum waste pipe sizes as specified in the NFPA Stan



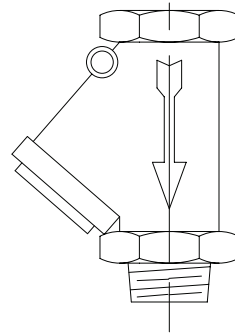
Flanged open



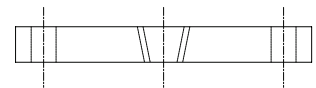
**flanged closed relief
cone used**

AIR RELEASE VALVE

NFPA Standards require all vertical fire pumps to have installed at the highest point of the discharge line a 1 1/2" or larger automatic air release valve. The purpose of this valve is to vent the air from the column and head upon starting the pump, and to admit air to dissipate the vacuum when the pump is stopped. To satisfy this requirement it will be necessary to install an ordinary 1 1/2" swing check valve which is mounted vertically in an inverted position. Air will not close the valve but water pressure will; thus it permits the rapid exit of air upon starting and the rapid entry of air upon stopping, while remaining closed at all times when the discharge line is under pressure.



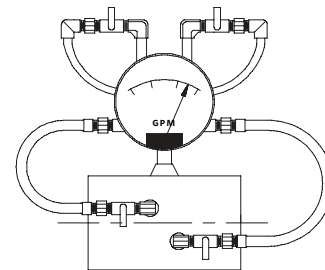
Air release and vacuum valve



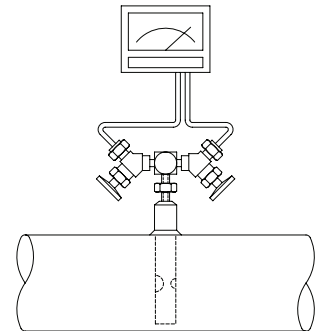
**Reducing flange for air
release valve**

FLOW METERS

Flow meters can be used with local approval in lieu of hose valves for testing purpose.



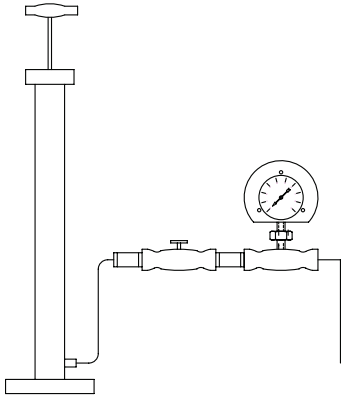
Flange venturi flow meter
(gerand)



Annubar flow sensor
(dieterich standard
Eagle-eye)

WATER LEVEL TESTING DEVICE

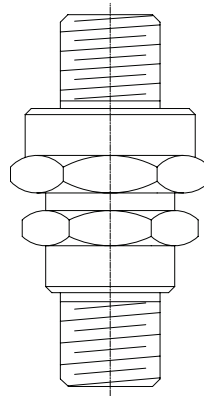
NFPA Standard require all vertical fire pumps that are installed in wet wells to be equipped with a suitable water level detector. This device consists of an altitude gauge and fittings, a hand pump and copper tubing or galvanized pipe. The water level detector is required to be permanently installed.



Water level detector kit
(used on deep well pumps)

BALL DRIP VALVE

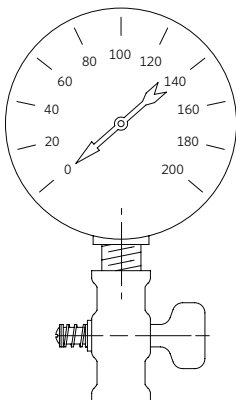
Where the hose valve header is located out side, or at a distance from the pump, and there is danger of freezing, a listed indicating ball drip valve or butterfly gate valve and drain valve or ball drip shall be located in the pipe line to the hose valve header. The valve shall be at a point in the line closed to the pump.



Ball drip valve

DISCHARGE PRESSURE GAUGE

NFPA Standard require all vertical fire pumps that are installed in wet wells to be equipped with a suitable water level detector. This device consists of an altitude gauge and fittings, a hand pump and copper tubing or galvanized pipe. The water level detector is required to be permanently installed.



Pressure gauge 3½"
Available 0-200, 0-300, 0-400
and 0-600 psi.

TORONTO

23 BERTRAND AVENUE
TORONTO, ONTARIO
CANADA
M1L 2P3
+1 416 755 2291

BUFFALO

93 EAST AVENUE
NORTH TONAWANDA, NEW YORK
U.S.A.
14120-6594
+1 716 693 8813

BIRMINGHAM

HEYWOOD WHARF, MUCKLOW HILL
HALESOWEN, WEST MIDLANDS
UNITED KINGDOM
B62 8DJ
+44 (0) 8444 145 145

MANCHESTER

WENLOCK WAY
MANCHESTER
UNITED KINGDOM
M12 5JL
+44 (0) 8444 145 145

BANGALORE

#59, FIRST FLOOR, 3RD MAIN
MARGOSA ROAD, MALLESWARAM
BANGALORE, INDIA
560 003
+91 (0) 80 4906 3555

SHANGHAI

NO. 1619 HU HANG ROAD, XI DU TOWNSHIP
FENG XIAN DISTRICT, SHANGHAI
P.R.C.
201401
+86 21 3756 6696

ARMSTRONG FLUID TECHNOLOGY
ESTABLISHED 1934

ARMSTRONGFLUIDTECHNOLOGY.COM

**MAKING
ENERGY
MAKE
SENSE™**