

Pump protection instrument

1 . Pump protection instruments

We have a minimum flow line installed beforehand because abnormality is not caused to a pump, and have instruments such as the vibration detector, thermometer, and leakage detector to stop a pump detecting abnormality of the function as well. Main protection instruments are enumerated as follows.

(1) Minimum flow line

Piping is installed on pump discharge, and shut-off operation or minimum flow can be avoided. It is likely to substitute it with a minimum flow valve though it is expensive.

(2) Vibration detector

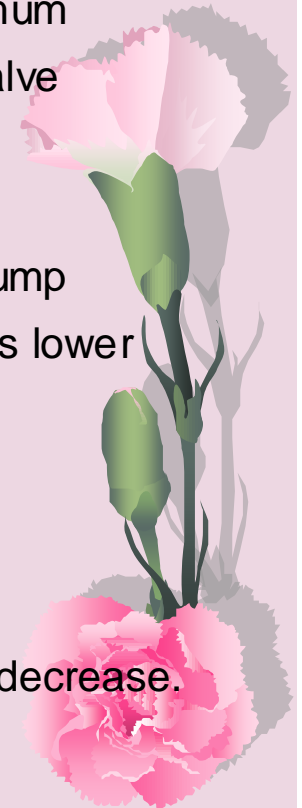
An abnormal vibration of a bearing is detected. In general, when a pump speed is 1450min⁻¹ or more, vibration velocity is detected or when it is lower than it, an amplitude is detected.

(3) Temperature detector

An abnormal temperature of the bearing etc. are detected.

(4) Suction pressure detector

It detects abnormal suction pressure drop so that NPSHA should not decrease.



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(5) Discharge pressure detector

It detects abnormal discharge pressure drop. When turbine driven, an abnormal rise of pump speed is detected.

(6) Mechanical seal leakage detector

There are a case for liquid leakage detect and a case that takes leaked liquid into reservoir tank, and detects it indirectly with a pressure switch and/or a level switch.

(7) Filled with liquid detector

Liquid is detected having been filled in a pump before it is started.

(8) Safety valve (Relief valve)

It lets high pressure liquid go in suction tank etc. when discharge pressure rises abnormally.

(9) Dry operation prevention relay

It detects when starting without filling liquid in a pump before it is started.

(10) Flow relay Neither Flushing nor cooling water are detected flowing.



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2 . Is pump protection instrument necessary?

There is no answer of it. In a word, there is no standard necessary protection instrument. However, I think that it is good to decide yes/no by thinking about the followings.

- (1) Importance of pump
- (2) Bigness and smallness of risk giving it to production when stopping
- (3) Pump maker's stock status
- (4) Time necessary to restore
- (5) Is the contract for maintenance made?
- (6) Is spare pump set up?

