

Table 15-2 Excerpt from API 676 Pump Data Sheet**Operating Conditions**

Parameter	Maximum	Minimum
Discharge Pressure (kPa)	10000	5000
Differential Pressure (kPa)	3000	2000
NPSH ¹ available (m)	5	

CONSTRUCTION

Pump Type

- ☐ Internal Gear ☐ Twin Screw ☒ Vane
☐ External Gear ☐ Three Screw ☐ Progressing Cavity

¹NPSH stands for Net Positive Suction Head, the difference between the actual pressure of a liquid in a pipe and its vapor pressure at a given temperature.

classes that are elements of the specification. To illustrate this I take some examples from the American Petroleum Institute's standard pump data sheet, API 676, shown in Table 15-2.

Notice that the first two parameters have a maximum and minimum value; that is, they specify a range. This is quite normal as it would be difficult for any pump to have an exact discharge pressure. You will notice that NPSH is shown as a single value; however, if you understand pumps, you will know that this is actually a minimum value but that there is no particular upper limit. Some parameters are single valued though; take, for example, the pump type, which can be one of the six types listed (in this case).

Figure 15-7 shows a Venn diagram for the elements from Table 15-2 of the **XYZ requirement specification**.

One particular thing to note here is the ranges of **kind_of_physical_quantity**. In Chapter 12, I developed a data model for physical quantities, but this did not cover ranges. A range of physical quantities is simply the superclass of all the physical quantities that are in the range. It is not generally useful to note

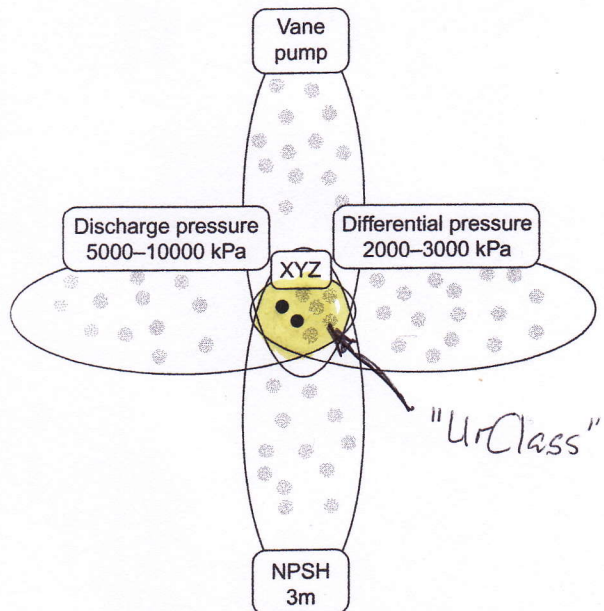


Figure 15-7 Building up the requirement specification from the elements.