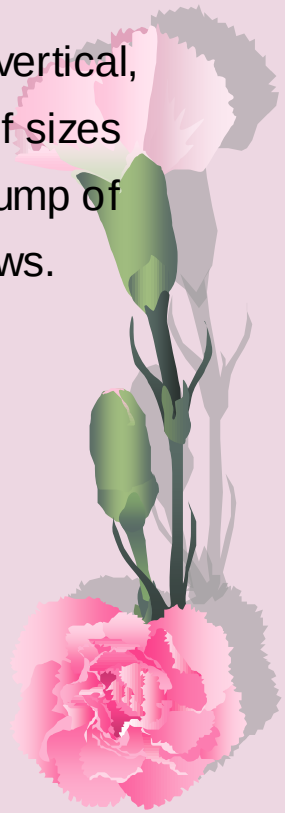
Pump standardization - What is pump standardization?

1. What is pump standardization?

According to Koujien, standardization is “Unite the quality, shape, and the size of the manufacturing product etc. with standards. Interchangeability is improved by it.”
When applying this to standardization of the pump, pump standardization is “Unite the quality, shape, and the size of a pump with standards. Interchangeability is improved by it.”

In a pump, there are various models like single stage horizontal, single stage vertical, multistage horizontal, and multistep vertical, etc. Moreover, there are various of sizes in each model from a small pump to a large pump, too. In general, when the pump of a model with a lot of numbers of production is standardized, the advantage grows.



Pump standardization - Keywords

2. Keywords

In pump standardization, there are six keywords. It is six “quality, shape, dimension, standard, unification, and interchangeability”. What is concretely respectively?

(1) Quality

・It is stabilized pump performances: The same performance is obtained.

・The processes of material purchasing, manufacturing, inspection, and shipment are united: Pump business is made a pattern.

(2) Shape

・Shape of the pump and parts that compose is united: The business is made a pattern.

・Externals of the pump are united: It is understood which pump vendor when only from looking the pump

(3) Dimension

・It never hesitates to design according to standard(below (4)) when the pump is designed.

・Parts used can also select suitable parts from parts that exist in standard(below (4)).

Pump standardization - Keywords

2. Keywords

(4) Standard

・Parts used are provided by size and applicable criteria from the small one to the large one.

・This standard is a company standard in the pump vendor as design standard.

(5) Unification

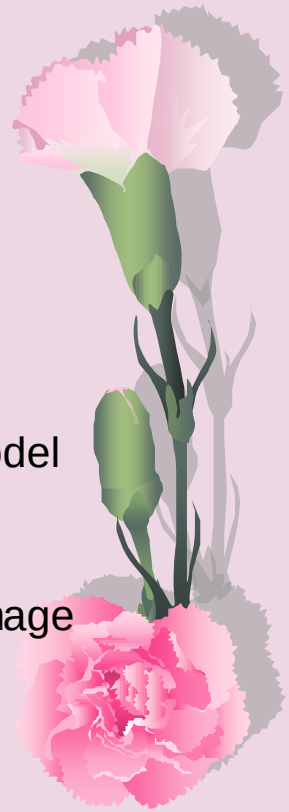
・Design by whoever, it becomes the same pump.

(6) Interchangeability

・In pumps of a specific model, there are a lot of situations as which parts used are the same as for pumps with a different size.

・There is a situation as which parts used between pumps of a different model are the same.

・In procurement of parts and stock of spare parts, it becomes easy to manage because it can decrease the kind.



Pump standardization - Advantage and disadvantage

3. Advantage and disadvantage

It is quite difficult for pump designers to design newly in every case according to customer's rating (flow, total head, etc.). It is only used though it takes much time for standardization if it standardizes once. Thinking about the manufacturing side, parts such as casing, cover, and impeller, etc. are produced by making patterns and by casting. The necessity for making patterns in every case comes out, if it manufactures from a different dimension in every case.

Therefore, pump standardization saves design hours and reductions of manufacturing. There is disadvantage such as not improving new design ability because design is made a pattern on the other hand, too. Then, let us concretely take up advantage and disadvantage.

Pump standardization -Advantage and disadvantage

3. Advantage and disadvantage

Advantage

(1) It can save time of design and manufacturing.

(2) Design cost and manufacturing cost can be reduced.

(3) If design method is expressed numerically, computer can be used.

(4) It is possible to apply also to pumps of other models.

(5) When new designing, standard can be used.

Disadvantage

(1) Not improving new design ability because design is made a pattern.

(2) When standard is revised, it is necessary to prepare another standard about how to be known.

(3) The means to prevent it from leaking outside is necessary.