



Valves used in the primary heat transport system of nuclear power plants are designed in accordance with ASME Boiler And Pressure Vessel Code, Section III, Subsection NB. They have to answer to three major technical requirements: tightness of sealing system to prevent radioactive fluid leakages into the atmosphere, earthquake resistant constructions, construction in accordance with normally required endurance tests at service condition.

A typical well proven construction are bellows seal gate valves, ASME/ANSI classes 600#, 900# and 1500#, materials low temperature carbon steels, austenitic stainless steels, nickel alloys, sizes ranging from 3/4" to 8" nominal size. FLUITEK ORSENIKO VALVES design has considered and applied the following principles:

- eliminate the use of castings for pressure containing parts
- eliminate the use of strength welds, using threaded and seal welded connections where needed
- use of a very compact and geometrically homogeneous design, reducing stress concentration points
- introduction of a system (see separate presentation) allowing verification in service of the integrity of the bellows and, at the same time, verification of the sealing capacity of the secondary stem sealing system.

The ability of submitting production samples to endurance tests (e.g. cycling to failure at pressure and temperature conditions), to demonstrate conformity with the guaranteed minimum cycle life required, is available. The verification of the design in relation to the ability of withstanding earthquake loads is carried out using a shake table and operating base earthquake details.



detail of bellow  
to stem threaded  
and seal welded  
connection

A typical example are the gate valves with forged integral body, class 1500#, butt-weld ends.

CHARACTERISTICS – ANSI 1500#					
Nominal Size [inches]	Pressure Class	Bore Diameter [mm]	Face to face [mm]	From center line to top of mounting flange [mm]	Total weight without actuator [kg]
3/4"	1500	17,5	229	356	29
1"	1500	22,1	254	420	32
1 1/2"	1500	34,8	305	505	60
2"	1500	47,5	368	595	92
3"	1500	69,9	470	783	135
4"	1500	91,9	546	928	226
6"	1500	136,4	705	1282	490
8"	1500	177,8	832	1622	774