THE GENBA

Vol. 35 Dec. 15, 2004

THE GENBA

Effective for hydrogen permeability!

Yamatake transmitter's gold-plated diaphragm

When transmitters are used in petroleum oil/petroleum chemical plants, often H_2 gas permeates the diaphragm of the transmitter and causes problems like shifting the output or changing the diaphragm shape. The prevention measure has already been established to avoid permeation of the hydrogen atom — gold-plate the wetted diaphragm surface. Depending on the method and the quality of the gold-plating, this prevention measure is not always effective. The quality of the gold-plating is the most important key.

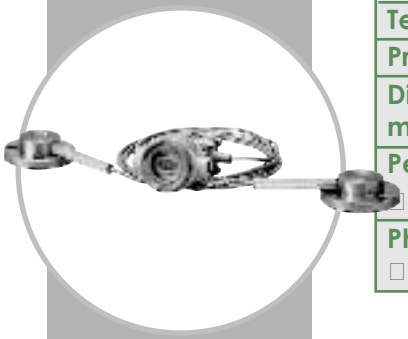
Here's one example:

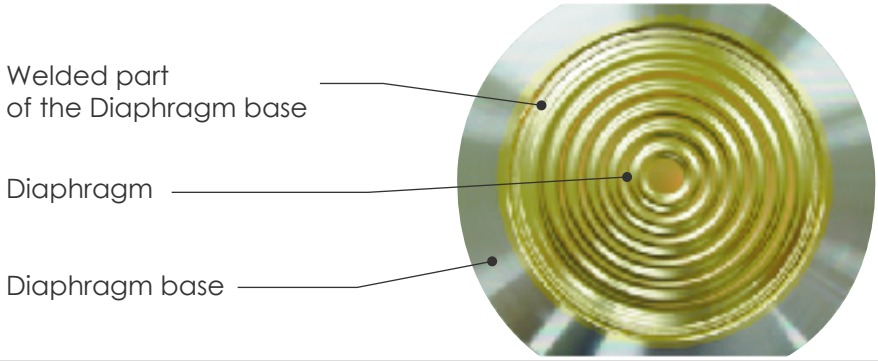
One might think of welding the diaphragm base after gold-plating the diaphragm surface, since several diaphragms can be gold-plated at once for an affordable price. However, with this method it is difficult to keep the homogeneity of the welded surface gold-plating. In this case, the H_2 gas will permeate the diaphragm and cause trouble despite the gold-plating.

To attach high value to the quality of the gold-plating, Yamatake has been gold-plating each welded part after welding the diaphragm to the diaphragm plate (see picture below). This high quality gold-plating method has been producing good results in many plants. Please try Yamatake gold-plated transmitters.

Performance of Yamatake Gold-plating

	A (before gold-plating)	A' (after gold-plating)	B (before gold-plating)	B' (after gold-plating)
Fluid condition	H_2 gas Including H_2S	H_2 gas Including H_2S	H_2 gas Including H_2S	H_2 gas Including H_2S
Temperature (°C)	200	200	50	50
Pressure (MPa)	14	14	15	15
Diaphragm material	Hastelloy C	Hastelloy C + **gold-plating**	SUS316L	SUS316L **+gold-plating**
Period	6 months	9 years	5 months	5 years and 3 months
Phenomenon	Ballooning of diaphragm	Normal	Ballooning of diaphragm	Normal





The GENBA
(On-site news)

Issued by
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Vol. 35 Dec. 15, 2004
AAC reference vol. 139 (issued on May. 28, 2004)
Yamatake Corporation

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