

ValveSense

Engineered responsibly
For your plant safety



Functional Valve Position Monitoring System

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Watching the valves in your plant.



For automated processing plants, the ability to monitor and control production processes with safety and greatest efficiency becomes more and more important.

In petrochemical plants, the explosive fluid is always transported through various flow control devices, valves. It is essential to know the exact status of valve (i.e., open or close) on a continuous basis.

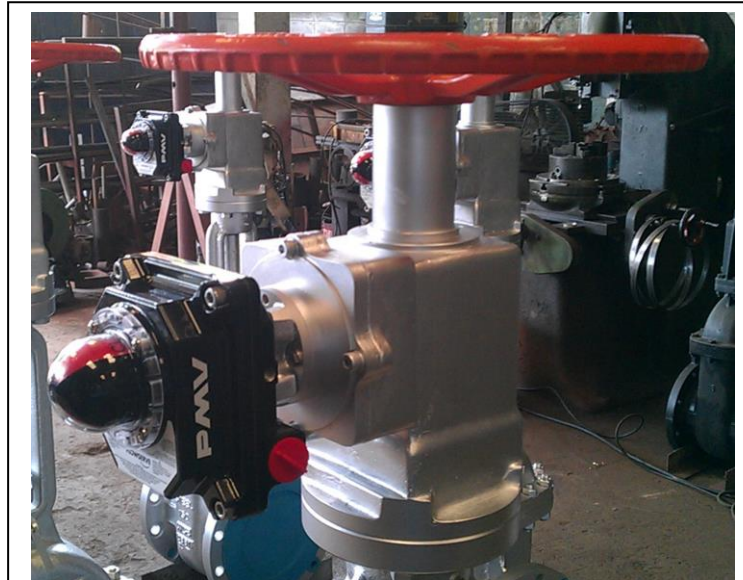
Valve position indicators are electrical switching devices sensing both closed and opened position.

The limit switches can be either mounted directly onto the valve/actuator housing in case of quarter-turn valves or mounted to the dedicated mechanical modules to sense the position of manually operated multi-turn, gate, valves.



APPLICATIONS

ValveSense Position Monitoring System comprises of dedicated mechanical modules and position sensing instruments.



**ValveSense VS12CGV with Flowserve PMV
EExD Switch Box**

The mechanical modules are designed to be installed between the valve yoke and the hand wheel by mean of suitable mounting flange and hand wheel adaptor for the following purposes

Remote monitoring of valve status

- Open & Close Indication
- Continuous 0-100% Indication

Electrical interlocking to other field equipment operation

- Interlocking of other Electric / Pneumatic operated valves or Pump Starting System

What may be caused by poorly installed valve limit switches?

- * ***False position feedback and alarm***
- * ***Product contamination***
- * ***Unexpected process shutdown***
- * ***Unpredictable hazards***

What we had during old days



One problem with old-fashioned position indicators employing the limit switch to physically sense directly from the end of valve stem, as illustrated, is the potential for non-reliable or false-position feedback. The position sensing of large size valves such as 12" and above by old-fashion design is almost impractical.

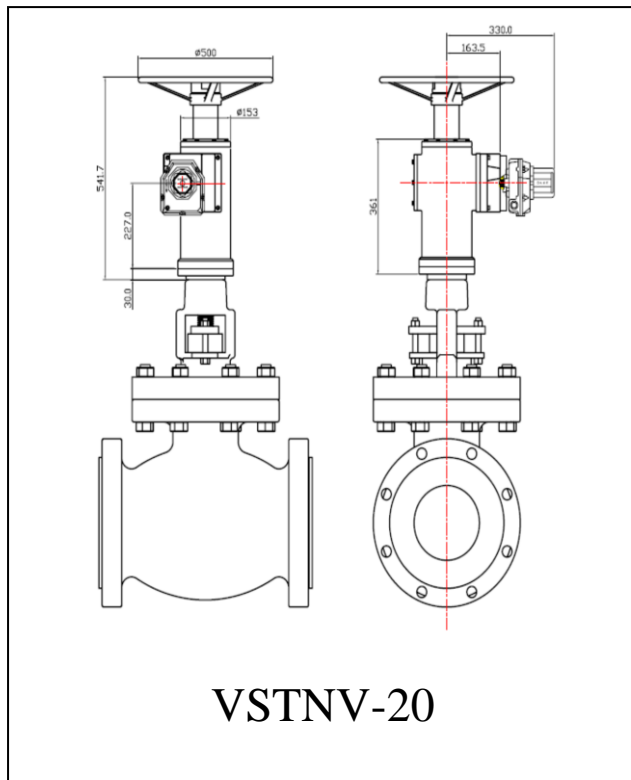
With old-styled method, the precise, reliable and, most important, secured valve position monitoring function could not be achieved.

When evolution of valve position sensing started, there was only one design of GBS module. This design was called '**Travelling Nut Type**'.

The **travelling nut type** design employs conversion of the multi turn operation of hand wheel to linear movement. Then the linear movement is converted back to final 90-degree movement for standardized switch box. Due to the intermediate linear movement, the module height limits the linear movement. The module hand wheel cannot be turned to exceed the travel limit. The modules therefore require skilled and trained person to install the GBS module. Incorrect installation may result in damages of internal parts.



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Furthermore due to the intermediate linear movement limitation, the **travelling nut type** is not suitable for valves requiring high number of rotation, especially the valve size 10 inch and above.

The hand wheel will be raised up considerably above its existing level causing more troublesome to operate the valve.

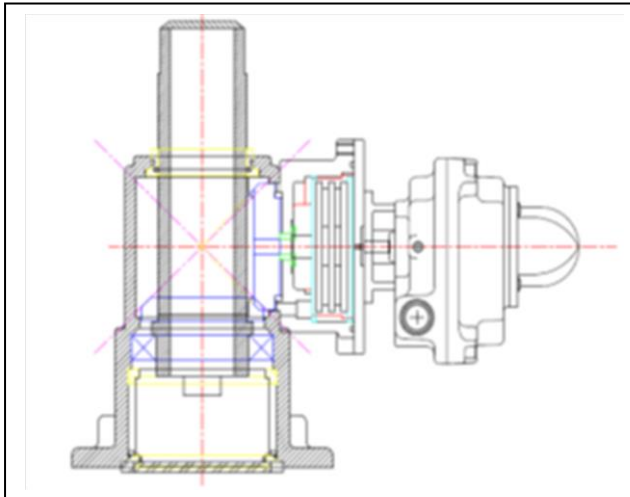


We are aware of such constraint. In order to supply the customer with more robust and reliable products, from long time experience, we have designed the new mechanical module concept.



Introducing ValveSense CG

More advanced ValveSense CG with Counter Gear system.



With the Counter Gear system, the advantage of high reduction gearing in compact gear train shall be employed to solve the problem of high number of valve rotation.

The counter gear design converts angular movement from multi rotation to final 90 degree angle through multi-level gear train.

There is no travel limit like the travelling nut design.

Thus the module hand wheel can be turned exceeding the travel limit without damaging the internal parts in case of incorrect installation.

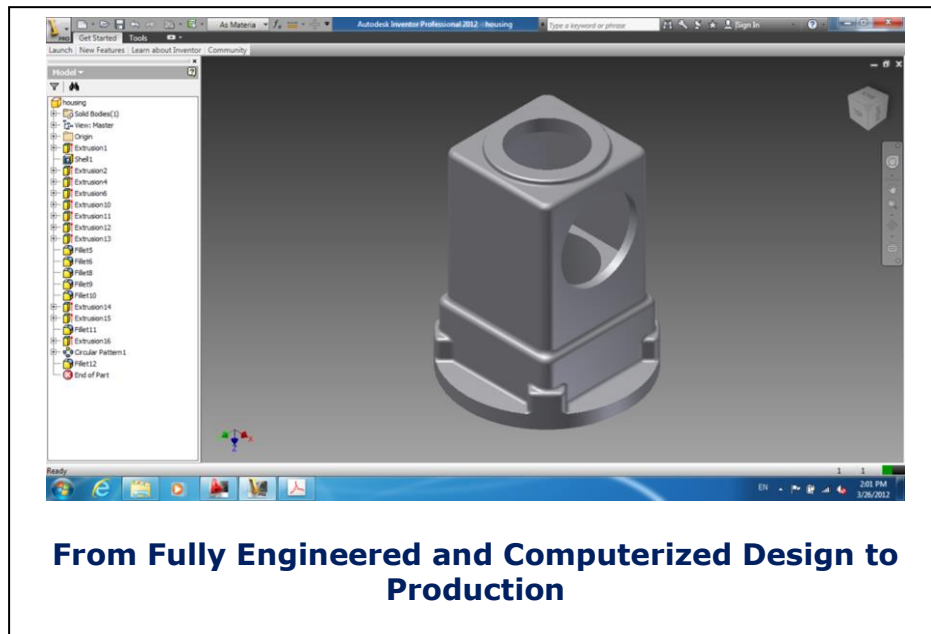
The module with countering gear design does not require as much skilled person as for the travelling nut design.



For large gate valves, size 10", 12" or 14" and above, the number of operating turns is much higher.

The ValveSense CG is the only smart choice.

ValveSense CG DESIGN PHILOSOPHY



- * Reliable and robust design.
- * Flexibility in switches, sensors and certified enclosure.
- * *The mechanical modules must be compact but effective*
- * *Disturbing the live process during retrofitting mechanical modules onto existing valves must be minimized.*



- * *The mechanical modules after installed must not require major modification of the structure of the plant in order to operate the valve safely.*

The mechanical module installation must be cost effective to justify the worth return of investment.

Partial Project Pictures



**ValveSense VSCGV-12 installed on Kitz Valve
ThaiOil New Tank Project**



**ValveSense Modules to be retrofitted
to existing valves in ThaiOil 2013**

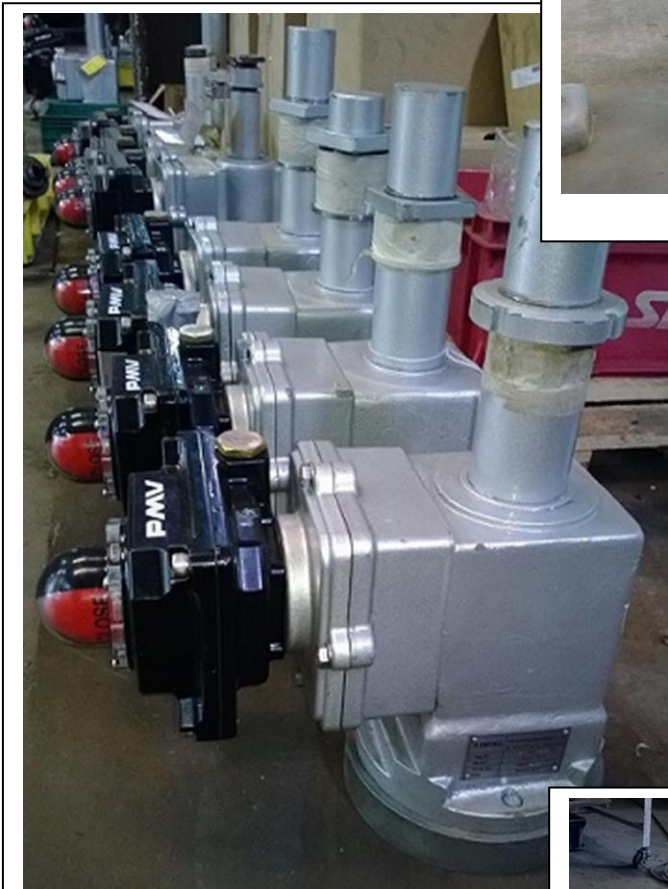


**VSTNV-12 mounted Kitz valves
Client : Thai Paraxylene Co., Ltd.**

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Colony of VSTNV-06 in ThaiOil



VSCGV12 For ThaiOil OMIP P

*With our tough & smart
ValveSense system together
with our alliances from over
the world,*

*watching valve status in your
plant continuously is no longer
troublesome.*



**FM04 Bevel Gear Box with VSCGV-03 and
PMV, Flowserve Switch Box**

Extended Possibilities

The **ValveSense** mechanical module can be supplied together with the following valve accessories.



Also with other accessories such as.

- Lockable and/or De-clutching Hand Wheel
- Key Interlocking System
- Side Hand Wheel Options
- Remote ValveSense Module. Where the space is limited, ValveSense modules can be installed away from the valves. Sensing the position is achieved via flexible shaft link.

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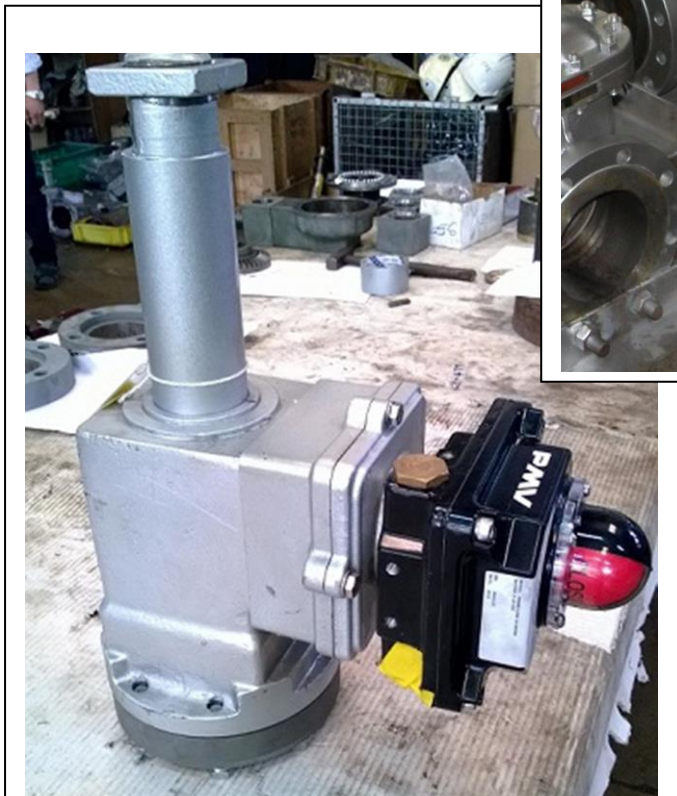
Available Models



VSTNV-03

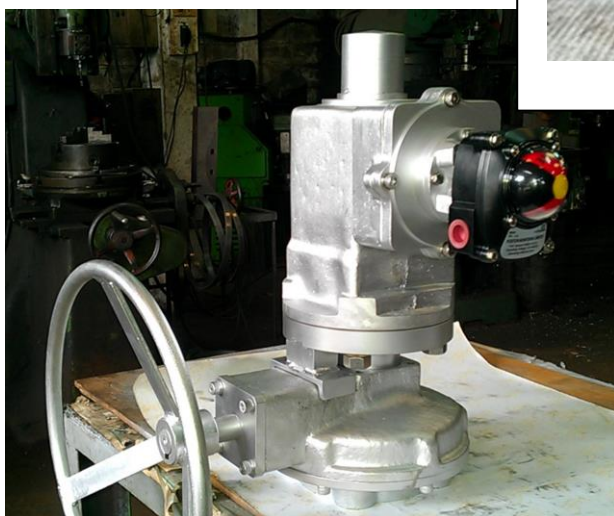


VSTNV-01



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VSTNV-20 with FLOWSERVE switch box mounted on KITZ 12" gate valve



ValveSense on the bevel gear box

Note:

For very larger gate valve such as 40" and above, please consult our sales office. We have our dedicated design which will fit your requirement.

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ValveSense System can be offered with various designs of switch boxes and connectivities.



Your other choices or your own switch boxes are always welcome.