

APTech

GAS CONTROL NEWS

QUALITY – RELIABILITY – SAFETY

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AZ Valves Forge Onward!

AP Tech is literally forging ahead in our drive to provide cost effective solutions. Stainless steel forgings have been employed to help create a new line up - the AZ series 1/4 and 3/8 inch diaphragm valves. A wide array of valves will soon be released which include two entirely new models in addition to AZ versions of all existing AP series in this size range. The AZ valves will have two types of bodies, forged and machined from bar stock. The forged body provides the least cost solution. The machined from bar stock body enables a broader choice of porting and connections. The AZ valves are a new step for AP Tech – a step towards a much lower price horizon.

As with the AZ regulators, the AZ valves have the same functional performance and specifications (other than material of construction) as their AP equivalents. The same diaphragms, seats and design geometries are used for both series. If the four digit, numerical model numbers match, the actuating mechanisms are common to both AP and AZ. The primary difference lies with the body material, and of course, the new models have new actuating mechanisms.

The AZ 30, 35 and 36 series have operating pressures from 125 psig (9 bar) to 3,000 psig (207 bar) with flow capacities from 0.23 to 0.29 Cv. The AZ 45 and 46 series have operating pressures from 125 psig (9 bar) to 250

psig (17 bar) and a 0.5 Cv. A wide array of pneumatic (NC and NO) and manual actuating mechanisms is available to address most all preferences.

The AZ 3652 & 4652 are an entirely new manual valve design. Efforts were made to reduce costs while providing enhanced features. The unique knob combines a scalloped round knob with a raised rectangular section, allowing a choice of grip. Open / closed indication is prominently displayed in two windows in addition to being indicated by position of raised section.



The AZ 3542 & 4542 are new normally closed (NC) pneumatic valves. It's compact size has a complimentary compact price.

The AZ valve array has nineteen family members to choose from, with more on the way! ❖

Corporate Office:

687 Technology Way
Napa, California 94558
Ph: 1-707-259-0102
Fax: 1-707-259-0117

www.aptech-online.com

AK 9200 – A New 3/4 Inch Connection

The AK 9200 series is a new high flow pressure regulator for 3/4 and 1 inch line sizes. It joins the AZ 9200, providing the same performance with threaded connections rather than welded. The AK and AZ 9200 are line regulators capable of delivering flow rates to 2,000 slpm. With a source pressure rating of 300 psig (21 bar) and flow coefficient (Cv) of 1.6, the AK and AZ 9200 are great choices for point of use applications and moderately high flow requirements.

In the spirit of cost containment, the AK 9200 has limited options. It is only available in 316 stainless steel, porting is 4PL with 3/4 NPT connections, and seat material is PFA.

The AK and AZ 9200 are the new regulators of choice for point of use delivery of medium to high flow rates of gases in 3/4 and 1 inch lines. The applications include bulk and specialty gas delivery for a wide range of industries. ❖



Nitrous Oxide – seat material compatibility

In the early 90's, flow rates at the source were increasing as the industry shifted to switchover gas systems feeding multiple tools from single cylinder per tool. Springless diaphragm valves were also being introduced to the industry. PCTFE seat failures in N₂O service began to occur as a result. The higher flow rates caused seats to fail at the source cylinder. Many valves would restrict or shut off flow due to seat swelling. Vespel was found to be more compatible than PCTFE with N₂O and it was adopted as a solution.

Though the Vespel was only really needed for source applications where there is higher pressure, most manufacturers began recommending Vespel for all N₂O applications – source through point of use. The thinking was that it was easier to remember Vespel for N₂O than Vespel for N₂O at the source. The hope was that fewer mistakes would be made by simply recommending Vespel for all N₂O applications.

AP Tech conducted a recent study to evaluate the effects of N₂O on PTFE, PCTFE and Vespel seat materials. The study is posted in the Tech Briefs section of our website. The findings were as we suspected, Vespel had superior performance at source cylinder pressure, but the other materials performed equally well at low pressure. Though some manufacturer's products may require Vespel seats for all N₂O applications, AP Tech products only require Vespel in source manifold applications.

In the interests of cost reduction, a change to PTFE or PCTFE is recommended for point of use N₂O applications as Vespel is a more expensive option. Standardizing on one seat material also helps reduce inventory by eliminating need for Vespel seated components in addition to standard seat material. ❖