QUARTER TURN AUTOMATION

Quarter Turn Automation – Pneumatic / Electric

Automation is an ideal solution for precise control of many valves in a system, when valves are remotely located, or when the process requires constant monitoring and adjustment. Pneumatic and electric actuators can be easily fitted on our ball, multi-port, and butterfly valves. Some features and functions include normally closed, normally open, or double-acting operation; corrosion resistant aluminum bodies, pre-loaded springs, and adjustable cams. Many accessories such as visual position indicators, limit switches, 3 and 4-way solenoids, and positioners are also available. For further information, please refer to the IPEX *Industrial Technical Manual Volume IX entitled*, "Quarter Turn Automation".

PNEUMATIC ACTUATORS OVERVIEW

Pneumatic actuators are the most common choice for quarter turn plastic valves in process applications. Compressed air systems are readily available in any plant, and the cost of the actuator itself is generally lower than that of an electric unit with a comparable torque output. Typical quarter turn automation seldom requires positioning (something achieved more easily with an electric actuator), therefore the cycle life of a pneumatic unit will be substantially greater, and will be intrinsically safer than an electric actuator in volatile environments. While there are many different kinds of pneumatic actuators, a rack and pinion style is the preferred choice within the plastic piping industry. This type of actuator is quite tough and rugged, and has a high cycle life. They generally have a compact, simple construction, and certain models can be quite light in weight. The design also allows the same basic actuator to be used as a double acting or (with minor additions) a spring return unit.

DID YOU KNOW?

The three basic control functions available through quarter turn automation are:

1. **Double Acting** – This requires external power for each stroke. For example, power to open the valve, then power to close the valve.

2. **Normally Closed** – Also referred to as "fail safe closed", the default position is closed and the actuator requires power to open the valve.

3. **Normally Open** – Also referred to as "fail safe open", the default position is open and the actuator requires power to close the valve.

ELECTRICAL ACTUATORS OVERVIEW

Although slightly more expensive than pneumatics, electric actuators have certain desirable benefits. They are the preferred choice when cycle time is an issue, as a quick closing pneumatically actuated valve could cause a damaging pressure surge condition (water hammer). The use of an electric actuator may also be preferred when the distance from the power source is considerable. The friction losses in long runs of compressed air line may result in reduced efficiency and/or additional compressor stations. In addition, electric actuators are the preferred (if not the only) choice when a quarterturn valve like a multi-port is used. In this case, it is possible that the travel required is not just 0° to 90° but 0° to 90° to 180°. A rack and pinion actuator would need four separate pistons and a multiplicity of related air chambers, whereas this is easily accomplished with an electric unit. Most electric actuators have a cam/limit switch arrangement which allows the unit to be set up for a variety of rotations. The two standard limit switches can be used to provide a remote location with an open or closed signal. A multitude of voltages both for AC and DC current are also typically available.

ACCESSORIES – MOUNTING

VKD, TKD & VKR Series Ball Valve Mounting Kit

Size Inches	Mounting Detail	Product Code	Universal Number
1/2	F03 / F04 / 11mm	154048	2KTPQCPEF
3/4	F04 / 11mm	154049	2KTPQCPGGF04
3/4	F03 / F05 / 11mm	154050	2KTPQCPGG
1	F04 / 11mm	154051	2KTPQCPHHF04
1	F03 / F05 / 11mm	154052	2KTPQCPHH
1-1/4	F05 / F07 / 11mm	154182	2KTPQCPII11
1-1/4	F05 / F07 / 14mm	154053	2KTPQCPII
1-1/2	F05 / F07 / 11mm	154183	2KTPQCPJJ11
1-1/2	F05 / F07 / 14mm	154054	2KTPQCPJJ
2	F05 / F07 / 11mm	154174	2KTPQPLL11
2	F05 / F07 / 14mm	154055	2KTPQPLL
2-1/2 - 4 (VKD)	F05 / F07	153001	1PIA08TM

VX & VXE Series Ball Valve Mounting Kit

1/2	F04 / F05 / 11mm	154042	PK0006F04
3/4	F04 / F05 / 11mm	154043	PK0007F04
1	F04 / F05 / 11mm	154044	PK0008F04
1-1/4	F04 / F05 / 11mm	154045	PK0009F04
1-1/2	F05 / F07 / 14mm	154046	PK0010F05
2	F05 / F07 / 14mm	154047	PK0011F05

TK Series 3-Way Ball Valve Mounting Kit

1/2	F03 / F04 / 11mm	154056	2KT00200
3/4	F04 / 11mm	154175	2KT0020111
3/4	F03 / F05 / 11mm	154057	2KT00201
1	F04 / 11mm	154176	2KT0020211
1	F03 / F05 / 11mm	154058	2KT00202
1-1/4	F05 / F07 / 11mm	154177	2KTF5F7II11
1-1/4	F05 / F07 / 14mm	154059	2KT5FII
1-1/2	F05 / F07 / 11mm	154178	2KTF5F7JJ11
1-1/2	F05 / F07 / 14mm	154060	2KTF5F7JJ
2	F05 / F07 / 11mm	154179	2KTF5F7LL11
2	F05 / F07 / 14mm	154061	2KTF5F7LL

Spacer Plate for FK Series Butterfly Valves

1-1/2 - 6	F05 / F07	153001	1PIA08TM
8	F10	153002	1PIA08VM

Square Stem Adapter

0.43 x 0.35	11mm x 9mm	253048	11X9SSA
0.55 x 0.43	14mm x 11mm	253049	14X11SSA
0.67 x 0.43	17mm x 11mm	253050	17X11SSA
0.67 x 0.55	17mm x 14mm	253051	17X14SSA
0.87 x 0.67	22mm x 17mm	253052	22X17SSA
1.06 x 0.87	27mm x 22mm	253053	27X22SSA
1.42 x 1.06	36mm x 27mm	253054	36X27SSA