

Product Overview | 1177E Cycle Valves

The 1177E Butterfly Cycle Valves are primarily used on the Twin-Bed Regenerataive Systems. The design of the system requires two burners to operate as a pair, one burner firing while its twin is exhausting. Two valves per burner are required. One valve is installed in the air piping to the burner and the other is installed in the exhaust piping to the burner. As one burner fires with air valve open and exhaust valve closed, its twin exhausts with air valve closed and exhaust valve open. Every 20 seconds the valves cycle to the opposite position thus switching which burner fires and which exhausts.

The 1177E Valve is a wafer butterfly valve which is pneumatically operated by a rack and pinion actuator. Actuator air pressure forces the pistons apart and compresses the springs. The linear travel of the piston is converted to a rotation of the drive shaft by the rack to pinion connection, thus opening the valve when pressure is applied to port 'A' (IN). A spring return closes the valve when air pressure is removed. An inlet snubber in port 'A' slows the valve response, preventing the disc from slamming against the internal stops. A small filter is in the actuator exhaust, port 'B'.

A proximity switch kit used to indicate that the valve is in the closed or open position is required on all valves for TwinBed applications. The switch kit is required on the exhaust valves to assure that the burner is not exhausting at the same time it is firing which would result in a rich condition. The switch is required on the air valves to assure that the exhausting burner's air valve is closed to prevent a rich condition on the firing burner. A second switch is available for open indication.

To indicate that a switch kit is needed the suffix "-LL" is used. A switch kit includes one open and one closed proximity switch. A switch kit with an integral 24VDC or 110VAC solenoid is also offered and is indicated by the suffix "-LL-S" or "LL-SV110". If a switch kit or solenoid is not needed the suffix is "-LW".

SERVICE SPECIFICATIONS

- Compressed air operating pressure: 60 to 70 psi clean and dry
- Max. operating pressure: 120 psi
- Actuator volume for 3" - 8" valves: 24.2 in.³
- Actuator volume for 10" and 16" valves: 55.8 in.³
- Combustion air or exhaust gas max. operating pressure: 2 psi
- Combustion air or exhaust gas max. differential: 1 psi
- Exhaust gas max temp.: 800°F
- Max. ambient temp.: actuator 176°F
- Min. ambient temp.: actuator -4°F
- Max. ambient temp.: position indicator switch 176°F
- Max. ambient temp.: 24VDC/110VAC coil 122°F
- Actuator cycle rating: 1,000,000 (closed to open to closed)
- Electrical switch:
 - Rated Operational Current: ≤ 200mA Max.
 - Protection Degree: IP66/68
- Area Class: Non-incendive
 - ATEX/IECEX Zone 2 1136D
 - Ex nA nC IIC Ex tc IIIC IP66/68
 - CI 1, Div 2, Grps A-D
 - CI 1, Div 2, Grps F & G

VALVE MATERIAL

- BODY - Heat Resistant C.I.
- SHAFT - 316 SST
- DISC - 316 SST
- DISC CLAMP - 316 SST
- DISC NUTS AND BOLTS - 304 SST

CAPACITIES

Valve designation	Size inches	C _v	Capacity, scfh air at 1" w.c. drop	Leak rate in closed position w/16 osi drop at 70°F
1177E-6	3	387	16,700	330
1177E-7	4	697	30,000	360
1177E-8	6	1,509	65,000	780
1177E-9	8	3,135	135,000	1,350
1177E-10	10	5,179	223,000	2,230
1177E-12	12	7,431	320,000	3,200
1177E-14	14	9,289	400,000	3,700
1177E-16	16	12,308	530,000	4,200