

Cycle Test Data on Series 100P and 200P Pressure Switches

ITT Neo-Dyn® Diaphragm and Piston Type Switches

The following test results were obtained from production units and not special prototypes.
The test conditions were far in excess of normal day to day applications.

Series 100P – (Diaphragm)
 Cycled: 0 to 3000 PSI (207 bar)
 Cycle Rate: 1,200 Cycles Per Minute
 Rise Rate: 200,000 PSI Per Second
Note: All test pressures are in PSI (bar)

	No of Cycles	Increasing	Decreasing	Repeat Increasing	Repeat Decreasing	Hysteresis Increasing	Hysteresis Decreasing
Initial Reading	0	100 (6.89)	93 (0.64)	100 (6.89)	93 (0.64)	100 (6.89)	93 (0.64)
End Reading	498,200	101 (6.96)	91 (6.27)	100 (6.89)	91 (6.27)	99.5 (6.86)	92 (6.34)

Series 200P – (Piston)
 Cycled: 0 to 5000 PSI (345 bar)
 Cycle Rate: 1,800 Cycles Per Minute
 Rise Rate: 3,300,000 PSI Per Second
Note: All test pressures are in PSI (bar)

	No of Cycles	Increasing	Decreasing	Repeat Increasing	Repeat Decreasing	Hysteresis Increasing	Hysteresis Decreasing
Initial Reading #1	0	1015 (69.98)	880 (60.67)	1015 (69.98)	880 (60.67)	1010 (69.64)	880 (60.67)
# Cycles	53,980	1015 (69.98)	880 (60.67)	1015 (69.98)	880 (60.67)	995 (68.60)	882 (56.67)
# Cycles	73,985	1010 (69.94)	882 (56.67)	1010 (69.94)	880 (60.67)	1005 (69.29)	880 (60.67)
# Cycles	138,385	1017 (70.12)	885 (61.02)	1015 (69.98)	885 (61.02)	1010 (69.64)	882 (56.67)
# Cycles	436,866	1020 (70.33)	895 (61.71)	1020 (70.33)	895 (61.71)	1020 (70.33)	890 (61.36)

Cycle Test Data 100P/200P Switches

Series 200P – (Piston)
 Cycled: 0 to 5000 PSI (345 bar)
 Cycle Rate: 1,800 Cycles Per Minute
 Rise Rate: 3,300,000 PSI Per Second
Note: All test pressures are in PSI (bar)

	No of Cycles	Increasing	Decreasing	Repeat Increasing	Repeat Decreasing	Hysteresis Increasing	Hysteresis Decreasing
Initial Reading #1	0	2990 (206.15)	2735 (188.57)	2985 (205.81)	2730 (188.23)	2985 (205.81)	2730 (188.23)
# Cycles	644,465	3020 (208.22)	2760 (190.30)	3020 (208.22)	2760 (190.30)	3020 (208.22)	2765 (190.64)

	No of Cycles	Increasing	Decreasing	Repeat Increasing	Repeat Decreasing	Hysteresis Increasing	Hysteresis Decreasing
Initial Reading #1	0	4470 (308.20)	4250 (293.03)	4470 (308.20)	4250 (293.03)	4460 (307.51)	4250 (293.03)
# Cycles	114,418	4515 (311.30)	4225 (291.30)	4515 (311.30)	4225 (291.30)	4510 (310.95)	4225 (291.30)
# Cycles	554,523	4470 (308.20)	4515 (311.30)	4470 (308.20)	4515 (311.30)	4465 (307.85)	4515 (311.30)

Note: 1,635,854 total cycles on the series 200P and it was still functional.

Notes:

1. Special attention must be called to the rise rate imposed on both series of pressure switches. It was purposely done to impose the most stringent of operating conditions on the entire spring system and actuation mechanism. Most competitive switches subjected to the same test have had a maximum life of 30,000 cycles before catastrophic failure.
2. Also note that the maximum set point shift under these demanding conditions was less than 2%.
3. Regarding the 100P series (Diaphragm); when the pressure rise rate exceeds 100,000 PSI per Second, a snubber should be used.
4. Regarding the 200P series (Piston); the factory should be consulted on applications where the pressure rise rate exceeds 1,000,000 PSI per second.