

MODEL A106-DL DYNAMIC LIFTER® SPRING PRESSURE RELIEF VALVE

KEY FEATURES

- Low maintenance
- Hygienic and minimal time to flush and test operations
- Premium materials reduce maintenance, providing the lowest long-term cost of ownership



PRODUCT OVERVIEW

The A106-Dynamic Lifter (DL) sewage/dirty water pressure relief valve is a direct acting spring loaded relief valve. The valve is adjusted to open when the pressure exceeds the set-point, which is approximately 10% above the normal operating pressure. The valve closes drip-tight when pressure falls below the set-point.

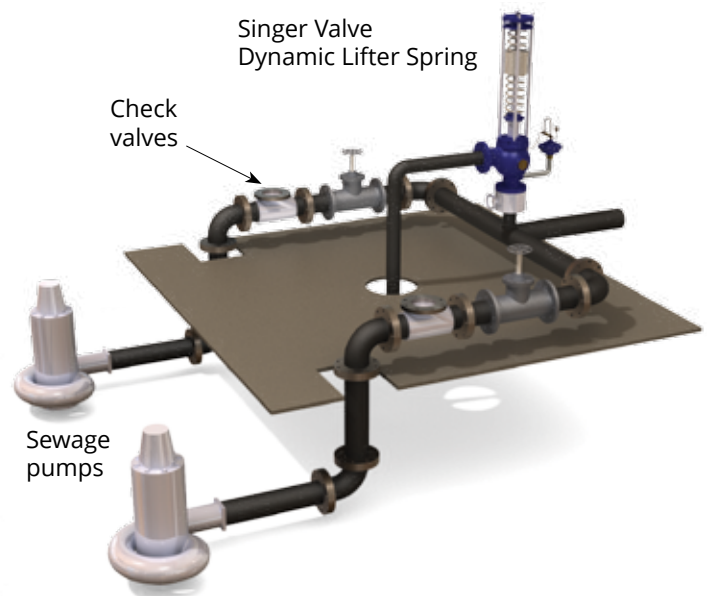
The DL is connected on a tee off the main line and usually discharges relief flow back to the main sump to reduce the surge over-pressure. A speed control permits adjustment of the closing speed.

The opening force is boosted by the line pressure operating, via the separation chamber, on the piston. By applying external pressure to the test connection, the valve may be cycled open for routine maintenance.

Ideal for:

- raw water that contains organics
- lower pressure sewage lift stations
- booster sewage stations

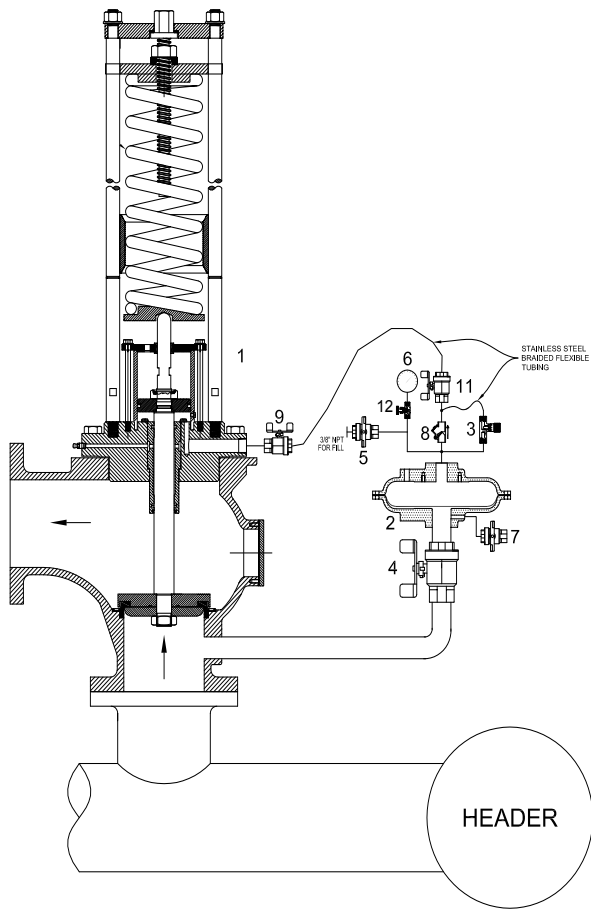
TYPICAL APPLICATION



MODEL A106-DL DYNAMIC LIFTER® SPRING PRESSURE RELIEF VALVE

SCHEMATIC DRAWING

1. Model A106-DL - Body
2. Diaphragm isolator
3. Closing speed control
4. Isolating valve
5. Oil filled isolating valve
6. Pressure gauge
7. Isolating valve
8. Teflon seated swing check valve
9. Isolating valve – external pressure for test and flush cycle
10. 3/8 NPT flexible hose
11. Isolating valve
12. Gauge cock



SCHEMATIC DRAWING – OPERATIONAL DETAILS

- Operating oil is separated from sewage by the chamber and diaphragm isolator (2).
- System pressure is applied to piston by mineral oil and isolator (2).
 - Piston and closing speed controls operate in clean non-contaminating environment
- System (over) pressure is applied to the opening piston throughout the full stroke.
 - Allows more relief flow as it does not lose opening force as the inner valve leaves the seat.
- By closing valve (4), external pressure may be applied through port and on to piston by the mineral oil opening of the Dynamic Lifter (1).
 - A tire pump or compressed air may be used to open the valve and check the relief setting or flush stringy material from the seat.
- Where conventional spring operated valves allow build-up of waste-water residue (dry pack) on the valve's downstream and exhaust pipe to sump, Singer's A106-DL can easily be opened fully, through the actuator, to flush out these unwanted build-ups.
- Heat fused, heavy epoxy coating inside and out, 316 stainless steel seat and stem. The stem is also Oxy-Nitride coated to reduce mineral or debris build-up

ORDERING INSTRUCTIONS

Refer to page 244 for the order form and ordering instructions.

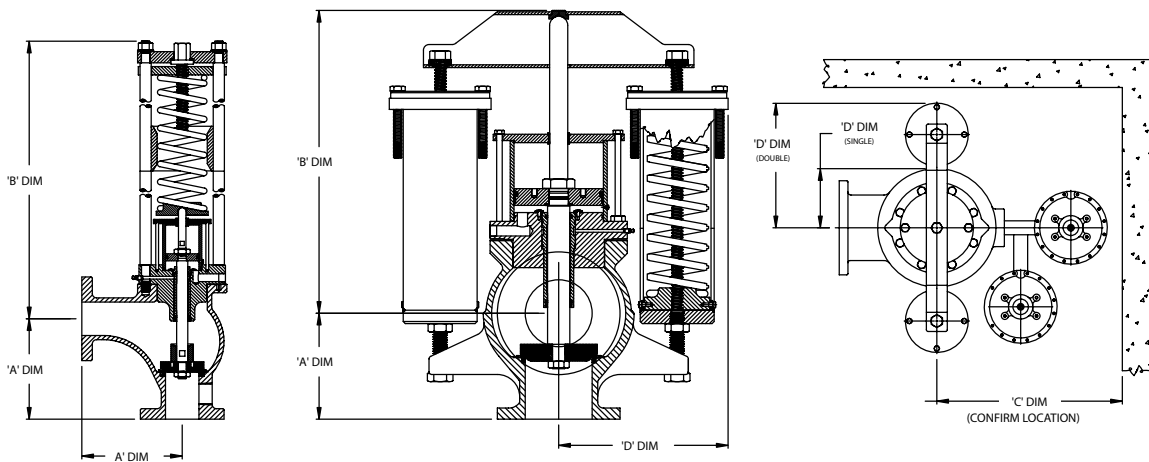
Additionally, include the following information for this product:

- Inlet / outlet pressure range

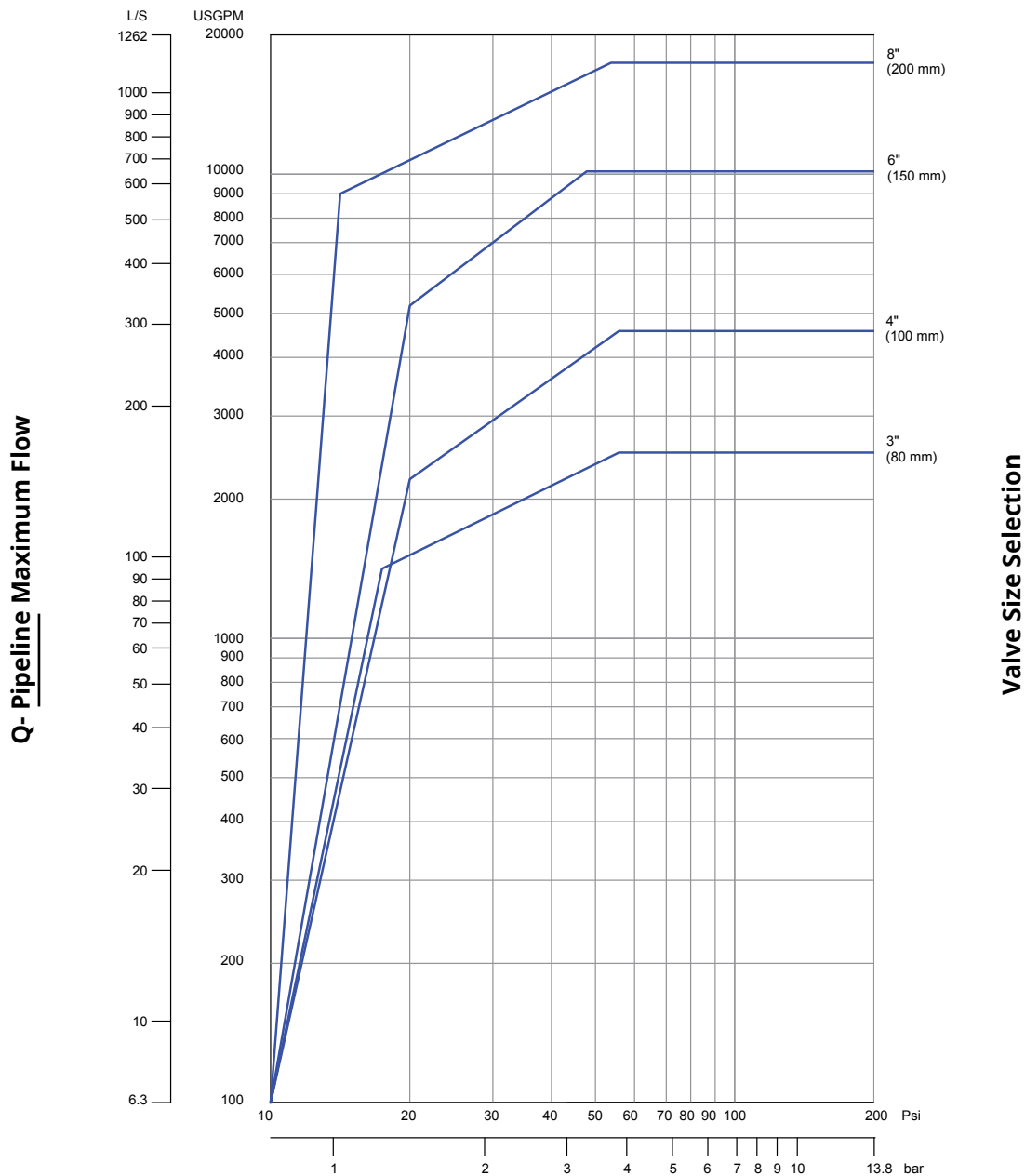
VALVE SIZING & MEASUREMENTS

A106-DL ANSI DATA (US UNITS)	SINGLE SPRING STACK								DOUBLE SPRING STACK			
Size	3 in		4 in		6 in		8 in		6 in		8 in	
	Relief Settings (psi)											
Spring Specific Ranges	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	25	90	20	65	15	30	10	15	40	90	30	50
	70	200	60	145	25	60	15	30	90	160	50	80
	Other ranges available, consult with Singer Valve											
Lift / Opening	2 in		2 in		2 1/2 in		3 in		2 1/2 in		3 in	
Dimension A	9 in		10 in		11.5 in		14 in		11.5 in		14 in	
Dimension B	38.5 in		39.5 in		43.75 in		45.75 in		25.25 in		26.75 in	
Dimension C	30.5 in		30.5 in		32"		32 in		32"		32 in	
Dimension D	4.75 in		5.75 in		7.5 in		10 in		15.25 in		18.25 in	

A106-DL ANSI DATA (METRIC UNITS)	SINGLE SPRING STACK								DOUBLE SPRING STACK			
Size	80 mm		100 mm		150 mm		200 mm		150 mm		200 mm	
	Relief Settings (bar)											
Spring Specific Ranges	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	1.72	6.21	1.38	4.48	1.03	2.07	0.69	1.03	2.76	6.21	2.07	3.45
	4.83	13.79	4.14	10.00	1.72	4.14	1.03	2.07	6.21	11.03	3.45	5.52
	Other ranges available, consult with Singer Valve											
Lift / Opening	50 mm		50 mm		64 mm		76 mm		64 mm		76 mm	
Dimension A	229 mm		254 mm		292 mm		356 mm		292 mm		356 mm	
Dimension B	978 mm		1004 mm		1112 mm		1162 mm		641 mm		680 mm	
Dimension C	775 mm		775 mm		813 mm		813 mm		813 mm		813 mm	
Dimension D	121 mm		146 mm		191 mm		254 mm		387 mm		464 mm	



Dynamic Lifter Sizing Graph Curve: 3 in / 80 mm – 8 in / 200 mm
 Conventional relief valves for sewage are typically sized "larger" than a
 Singer Valve Dynamic Lifter due to opening forces being lost as the inner valve leaves the seat.



ΔP - Minimum pressure drop across dynamic lifter.

Examples of valve size selection:

- 1) Relief setting 80 psi / 5.5 bar - discharge to atmosphere: Max. flow in main pipeline 1,200 USGPM / 75.7 l/s - Find intersect of 80 psi / 5.5 bar ΔP and 1200 USGPM / 75.7 l/s flow. Select next larger size Dynamic Lifter, for example, 3 in / 80 mm size.
- 2) Relief setting 55 psi / 3.8 bar - discharge 20 psi / 1.38 bar back pressure: Max. flow in main pipeline 4,000 USGPM / 252.4 l/s Find intersect of 55 psi - 20 = 35 psi / 2.4 bar ΔP and 4000 USGPM / 252.4 l/s flow. Select next larger size Dynamic Lifter, for example, 6 in / 150 mm size.

Note:

if the discharge was to atmosphere, $\Delta P = 55$ psi / 3.8 bar and 4 in / 100 mm size would be selected.

this graph is based on current practice for standard applications. It is intended to be a guide only and no selection guarantee is implied or intended.