Type 4 One-Way Flow Altitude Control Valve with Differential Control

SINGER®
a MUELLER brand

Technical Guide W4.67

The Singer 106-A-Type 4, 206-A-Type 4 altitude control valves are ideal for maintaining a preset maximum water level. The valve functions as a two position control valve, either fully open or fully closed.

Applications
Potable water
Pressure control
Municipal
Mining Applications
Irrigation Applications

Product Attributes
No overflows
Adjustable draw-down level (differential) set-point
Superior repeatability
Positive shut-off
Adjustable draw-down for improved water cycling

Approvals/Standards
AS 5081:2008
Flanges to AS/NZS 4087 Fig. B5
Coating complies with AS/NZS 4158

WaterMark **Licence Number:** *WMK/SMK26726*

We are the supply partner of choice for New Zealand's civil construction industry, specialising in water and infrastructure based solutions.

HYNDSwater

The Type 4 allows normal forward flow to fill the reservoir to the maximum level, then closes drip-tight at the set-point. It opens to refill the tank once the level drops an adjustable amount below the high water level. Distribution from the reservoir is through a separate pipeline.

Note: *This valve does not operate as a check valve to prevent reverse flow.*

STANDARD MATERIALS

Standard materials for pilot system components are:

- Ductile Iron
- Stainless-Steel
- Brass
- Copper

SELECTION SUMMARY

1. Generally, select line size to minimise losses during normal forward flow.
2. Use the performance curves and sizing bulletin to check the pressure drop across the valve at normal flow rate.
3. Limit maximum continuous flow velocity to less than 6 m/s for 106 and less than 5 m/s for 206.
4. The pilot system exhausts to atmosphere ensuring the valve opens fully; requires that the displaced volume of water be taken to drain with each opening.
5. Select pilot spring range. Standard *(301-4)* is 3-18m. Specify for 301-4 ranges:
   - 1-6m
   - 12-38m
   - 18-67m
6. Select differential pilot spring range. Standard is 1.5 - 4.6 m and 3 - 15 m. Specify for 3.7 - 15 m. The total differential includes the non-adjustable differential of the altitude pilot.
7. If the fill line discharges below the reservoir surface, an internal drop check or separate check valve is suggested. This prevents return flow on loss of supply pressure.

ORDERING INSTRUCTIONS

Refer to the order form and ordering instructions. Additionally, include the following information for this product.

1. Single Chamber *(106)* or *(206)*
2. Pilot Range

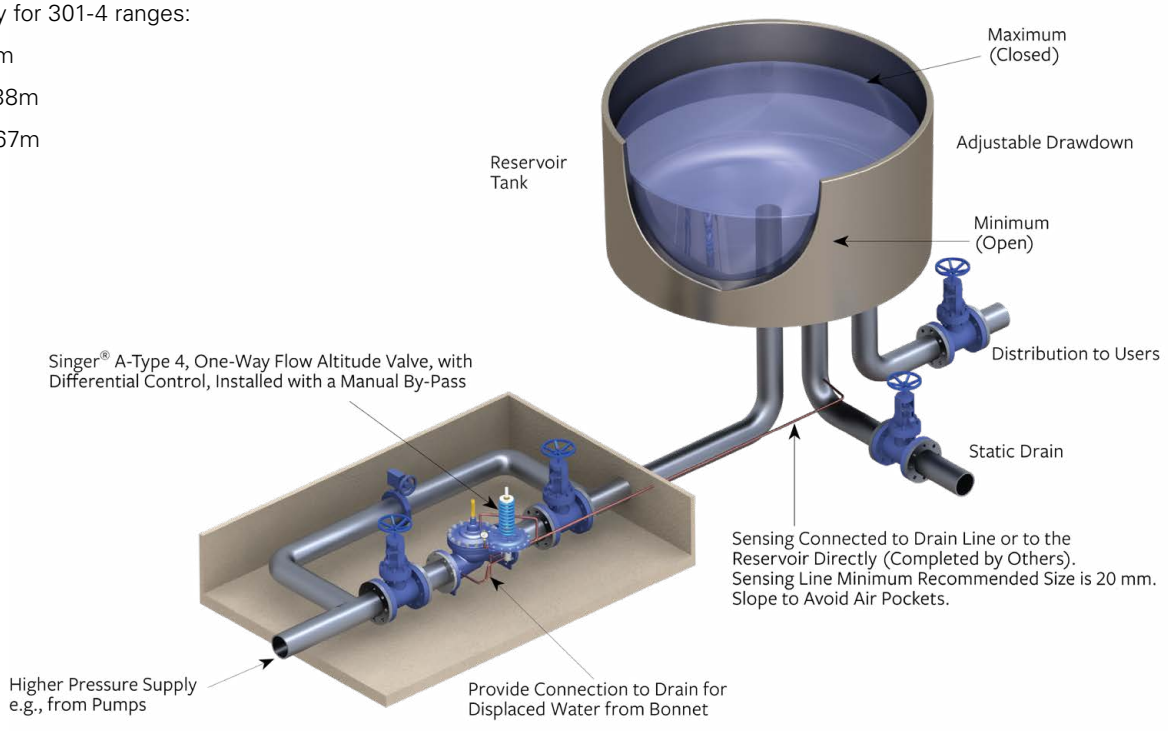

FIG. 1 Typical application

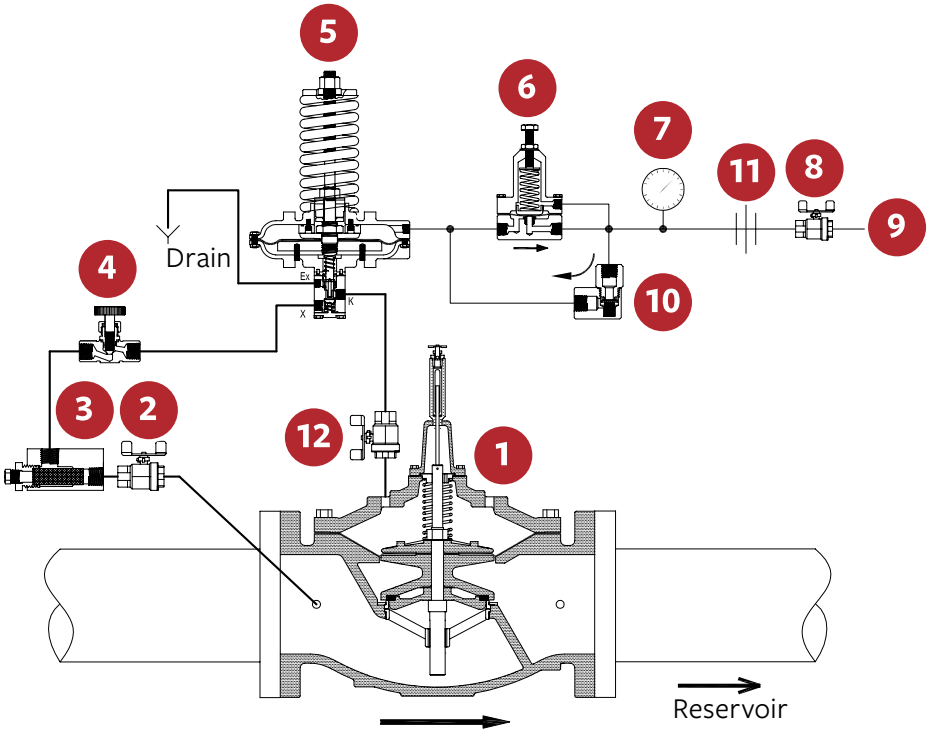

FIG. 2 Schematic A-0415C

SCHEMATIC DRAWING

1. Main Valve – 106-PG, or 206-PG – with X107 Position Indicator
2. Isolation Valve
3. Strainer – 40 mesh stainless steel screen.
4. Closing Speed Control
5. Model 301-4 Altitude Pilot
6. Model 106-RD Differential Pilot
7. Altitude Gauge - Dual Scale - Feet and Meter
8. Isolation Valve
9. Sensing Connection to Reservoir *(Complete in Field by Others)*
10. Model 10 Check Valve
11. Union
12. Isolation Valve

TABLE 1 **106 and 206-A-Type 4 Flow Coefficient Kv**

Size (mm)	K_v²	
	106-A-Type 4	**206-A-Type 4**
80	95	52
100	173	130
150	398	216
200	692	437
250	1125	852
300	1817	1341
350	2227	-
400	2855	1903
450	-	2855
500	4412	2941
600	6574	-
600 x 400	-	3028
600 x 500	-	4412
700	-	6747
750	-	6747
800	-	6834
900	14134	6920
1000	-	14134
1200	-	14134

**K_v = L / s at 1 bar pressure drop

($Q=K_v \sqrt{\Delta P}$)

Note: Based on fully open valve