

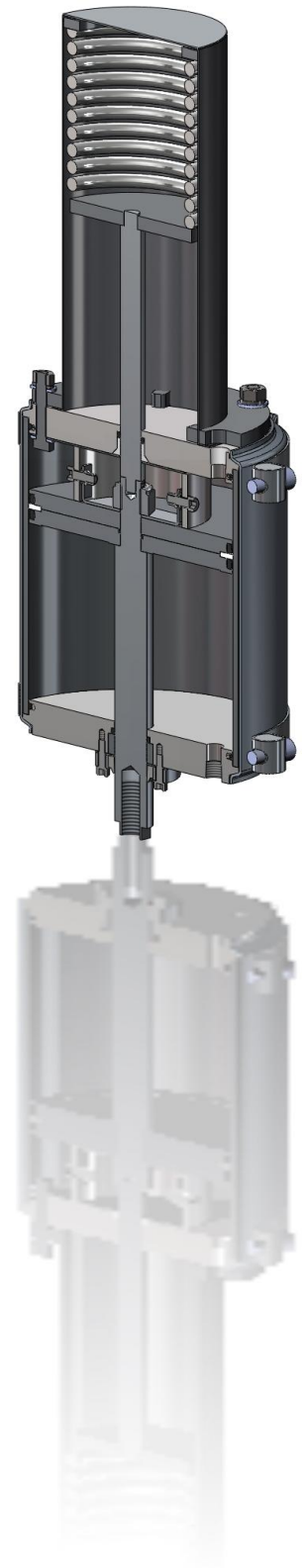
## eDART InfoSheet – Actuator Specification for Optimum flotation level control

When specifying actuators for valves for optimum level control on flotation machines it is eDART's practice to follow the following general guide lines.

It is normal practice for the flotation level market to request **fail closed actuators**. On the majority of installations a “downwards closing” or “flow over the plug” orientation is used. This is where the plug is located above the seat and the actuator retracts to lift the plug and open the valve, or the actuator extends to lower the plug and close the valve.

For the smaller valve sizes where the required stroke lengths required are less than 280 mm, **a bias spring is often specified** to close the plug (pictured to the right). For the smaller valve plug sizes a bias spring is sufficient to ensure that the plug closes in event of an air or signal failure. Also the price of the bias spring is relatively low compared to the cost of the valve. It is important that a bias spring is specified and not a full strength spring so that the spring force is low enough so that it does not significantly affect the performance of the positioner. From a control point of view, a double acting actuator will give superior control to one that is single acting. If a full strength spring was used in a single acting actuator, the actuator would need to be sized larger to overcome the additional spring force which in turn leads to a slower responding valve.

For the larger valve, i.e. greater than 300 mm in plug diameter, eDART recommends that a double acting actuator is specified, and that the valve is allowed to close under its own weight. This is because the weight of the valve plug and shaft is sufficient to close the valve under gravity alone and a spring with sufficient stroke length is large; expensive and impractical. If a more positive fail closed action is required, then it is recommended that an air receiver tank is specified.





# eDART InfoSheet – Actuator Specification for Optimum flotation level control

Below is a table for the standard actuators specified for the different size dart valves.

**Table 1: Actuator Selection Table**

Dart Plug diameter	Actuator diameter	Valve Stroke	Bias Spring	Volume Boosters	Actuator	Actuator Thrust (kN)
mm	mm	mm	Option	Recommended	Part No:	@ 500 kPa
80	160	56	Yes	No	EDA 160 - 56 BE	10.1
100	160	70	Yes	No	EDA 160 - 70 BE	10.1
150	160	105	Yes	No	EDA 160 - 105 BE	10.1
200	200	140	Yes	No	EDA 200 - 140 BE	15.7
250	200	175	Yes	No	EDA 200 - 175 BE	15.7
300	250	210	Yes	No	EDA 250 - 210 BE	24.5
350	250	245	Yes	No	EDA 250 - 245 BE	24.5
400	250	280	Yes	No	EDA 250 - 280 BE	24.5
450	300	315	No	No	EDA 300 - 315 DA	35.3
500	300	350	No	No	EDA 300 - 350 DA	35.3
600	300	420	No	No	EDA 300 - 420 DA	35.3
700	400	490	No	Yes	EDA 300 - 490 DA	62.8

**Table 2: Actuator Suffix**

Actuator Suffix	Description	Fail action for tri/iDARTs
BE	Bias Extend	Closed
BR	Bias Retract	Open
DA	Double Acting	None