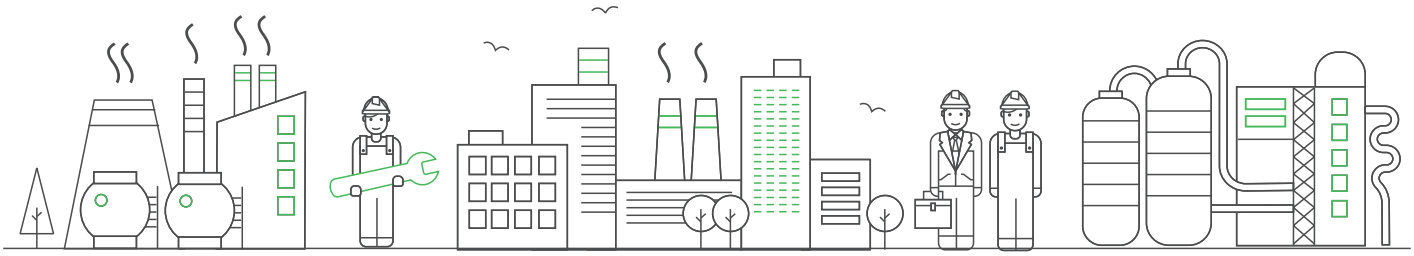
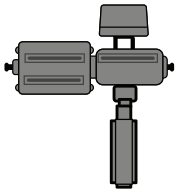


Neles™ and Jamesbury™ valve maintenance recommendation

General approach for plantwide maintenance cycles



	Maintenance scope		
	Inspection	**Minor maintenance**	**Major maintenance**
Maintenance intervals*	Every 5 years	Every 10 years	Every 15 years
Maintenance scope with required spare parts	Workshop inspection + spare part set	Workshop inspection + spare part set + seat & bearings	Workshop inspection + spare part set + seat & bearings + trim parts
Varying intervals according to valve condition	New inspection within 5 years if valve in good condition, otherwise according to the maintenance intervals.	If in minor maintenance trim parts are in good condition, only workshop inspection is needed in next 5 years. If trim parts are worn, then major maintenance.	When major maintenance is performed only workshop inspection is needed in next 5 years. If valve is an obsolete model replacement can be considered instead major maintenance.

* The rules are defined for general valve service. It is considered generally accepted good operating practice to operate valves at least once per year to verify they function. For high cycle, fast stroke, corrosive, erosive duty and special applications ask Valmet sales for consultancy.

During maintenance Valmet technicians check parts that are not mentioned here and replace damaged parts if possible. Valmet technicians also make recommendations for future inspection and maintenance. Device condition monitoring helps determine whether a particular valve needs attention.

Wearing out of devices:

Bearings and sealing elements

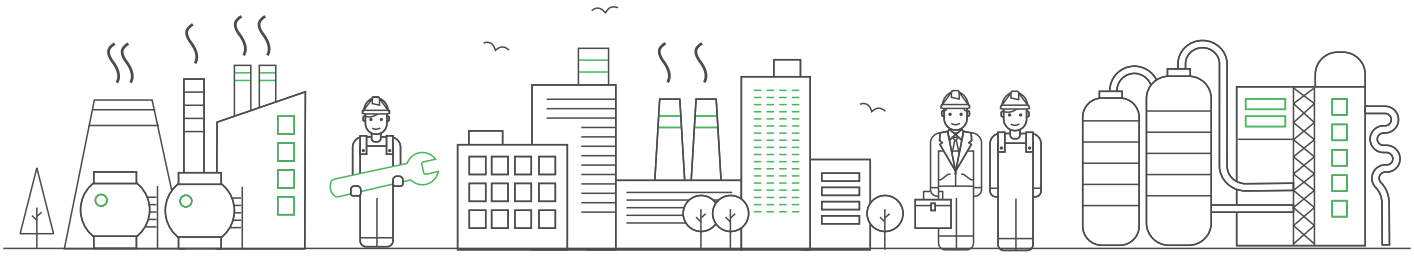
Lever arm, bearings and sealing elements

Valve controller components

Instrumentation components

Operational benefits:

- Improved plant availability
- Optimized performance
- Ensured quality
- Improved safety



Rotary actuator maintenance recommendation
General approach for plant wide maintenance cycle

Neles B / B1-series pneumatic cylinder actuator	Maintenance scope	
	Inspection	Maintenance
Maintenance intervals*	Every 5 years	Every 10 years
Maintenance scope with required spare parts	Workshop inspection + spare part set	Workshop inspection + spare part set + linkage assy & cylinder

Jamesbury QP / OPX-series pneumatic diaphragm actuator	Maintenance scope	
	Inspection	Maintenance
Maintenance intervals*	Every 5 years	Every 10 years
Maintenance scope with required spare parts	Workshop inspection + spare part kit A	Workshop inspection + spare part kit B & driver arm
	Kit A = diaphragm, guide buttons	Kit B = Kit A & bearings

* The rules are defined for general service. It is considered generally accepted good operating practice to operate actuators at least once per year to verify they function. For high cycle, fast stroke, corrosive, erosive duty and special applications ask Valmet sales for consultancy.

Instrumentation components	Maintenance intervals	
	5 years	10 years
Neles valve controllers	Refer to the maintenance recommendation of the corresponding product	
Limit switch	Check**	Check**
Solenoid valve, Air operated valve	Check**	Replace
Volume booster, Quick exhaust	Check**	Replace
Air filter	Replace	Replace
Other instrumentation component	Check**	Replace

** Replace component or parts if damaged

During maintenance Valmet technicians check parts that are not mentioned here and replace damaged parts if possible. Valmet technicians also make recommendations for future inspection and maintenance. Device condition monitoring helps determine whether a particular valve needs attention.

Wearing out of devices:

Bearings and sealing elements

Lever arm, bearings and sealing elements

Valve controller components

Instrumentation components

Operational benefits:

- Improved plant availability
- Optimized performance
- Ensured quality
- Improved safety