



SprayNozzleENGINEERING
Total Spraying Solutions



M-Series tank cleaning solutions

The washer with the unique patented **Flow Step** rotor



technology

Operating Manual

Total Spraying Solutions

Compilation and Publication

This manual has been compiled and published, covering the latest product descriptions and specifications.

The contents of this manual and the specifications of this product are subject to change without notice.

Spray Nozzle Engineering reserves the right to make changes without notice in the specifications and materials contained herein and shall not be responsible for any damages (including consequential) caused by reliance on the materials presented, including but not limited to typographical and other errors relating to this manual.

These products are protected by the following patent numbers: Australian Patent 691903, United Kingdom patent 2302048, United States Patent 5823435, United States Patent 359340, Australian Design no. 104215, 104613, 121769, 124600. Other possible patents pending.

Spray Nozzle Engineering M-Series Tank Washer

Installation Guide

Congratulations on purchasing your new M-Series rotating tank washer. The M-Series rotating tank washer is manufactured to the highest standards using quality materials. Please take your time in reading through this operating manual prior to first use for the correct setup procedure and installation instructions.



PLEASE READ THIS GUIDE COMPLETELY BEFORE INSTALLING AND USING THIS TANK WASHER HEAD. SAVE THIS GUIDE FOR FUTURE REFERENCE AND KEEP IN THE VICINITY OF THE TANK WASHER – IF IN DOUBT, ALWAYS CONSULT FACTORY

The new M-Series II rotating tank washer now makes similar styles of tank washers and spray balls virtually obsolete. What makes this so is the unique patented self cleaning features for trouble free operation and superior hydraulic water impact via patented channelled water jet streams in a true 360 degree spray.

At no flow or very low flow conditions the unique distributing rotor of the M-Series II washer is forced to ride high on the shaft. This allows for a maximum solids flushing effect when the unit is started or stopped, flushing out any possible solids that may impede rotation of lesser brands.

This is possible due to a constantly varying clearance tolerance between the axle shaft and the rotor about this shaft along with specially located flushing jets in the shaft itself. In other brands this clearance is fixed allowing solids to be wedged between rotating surfaces and thus impeding their rotation.

As the flow increases an audible “Whirring” sound begins. This is another unique function of our patented self-cleaning action during operation. Almost undetectable frequency variations of flow and pressure are transmitted to our rotor producing this “Whirring” sound as the washer transmits these frequency variations of flow and pressure into oscillations of the rotor up and down the shaft as it rotates. Again this constantly varying clearance tolerance between the axle shaft and the rotor about this shaft helps prevent solids being wedged between rotating surfaces and keeps the M-Series II Washer spinning! No other rotating cleaning device has these unique features!

At the point before rotation commences and as the flow is being slowly increased, the unique solid streams of liquid can be seen to emanate from the rotor. This is a product of our unique and patented flow steps. These are carefully located about the head to produce total spray coverage while channelling the spray into defined thick solid streams of concentrated mass flow to ensure a far superior hydraulic action on your tank surface.

Lesser brands of rotating washers produce thin films of water from easily manufactured smooth impeller blades that atomize the cleaning solution into finer droplets of low mass and thus lower impact. This is particularly the case with spray balls of the drilled hole variety which due to their inefficiency atomize the cleaning solution into fine low impact droplets that are merely wetting the soiled tank surfaces. You will also notice on our M-50-II series flow directly down which fills the void of lesser brands and produces not only a complete 360 degree spray but a concentrated down ward jet that is perfect for agitator cleaning in smaller tanks.

As the flow is increased the head begins to rotate and that “Whirring” sound becomes more audible. This is our self-cleaning function in action! The spray is becoming more developed and the total and superior impact on the clear tank walls becomes very evident.

Its time you replaced your regular old spray balls with the M-series washer today and experience the difference!

General Installation Guide – M-30 Series

1. With the M-30 Series rotating tank washer assembled, attached the stem to the required inlet. The inlet is standard ½" BSP. For other thread sizes please contact factory.
2. Inspect the M-Series rotating tank washer to ensure that the Spring Clip is secured correctly and the rotating Tank Cleaning Head is free to spin without hesitation.

General Removal and Cleaning Guide – M-30 Series

1. Remove the Retainer Screw (1) from the M-30 Series rotating tank washer assembly.



2. Once the Retainer Screw is removed, the M-30 head can be removed.
3. Clean all components thoroughly.



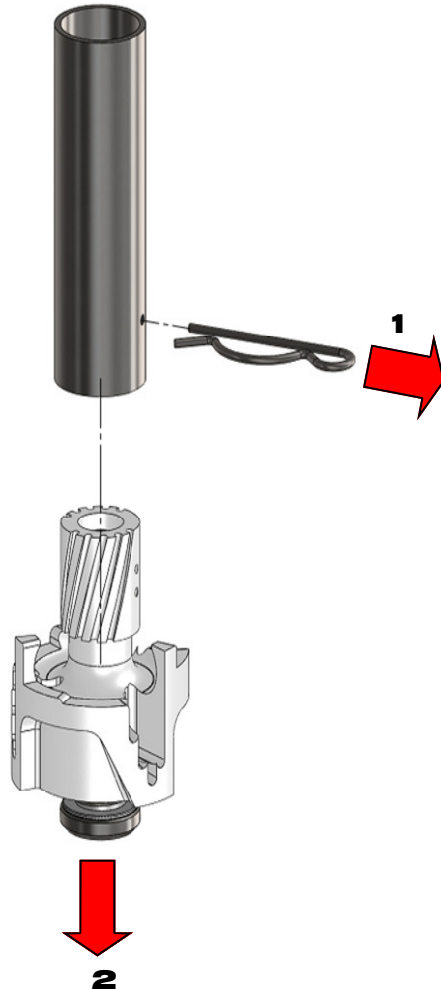
WARNING: Please check suitability of any cleaning products prior to use on the M-Series Tank washing head and your processes.

4. Reassemble components in the reverse order of the removal of the M-Series rotating tank washer.
5. Use a food grade Loctite or similar to secure the Retainer Screw to the assembly.
6. Inspect the M-Series rotating tank washer to ensure that the unit is secured correctly and the rotating Tank Cleaning Head is free to spin without hesitation.

General Installation Guide – Weld On Series

(Threaded Inlet Series available upon request)

1. Remove the Spring Clip from the M-Series rotating tank washer assembly (1).
The M-Series rotating tank washing head should be safely removed (2).



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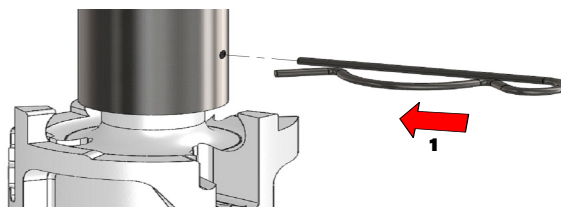
NOTE: The M-Series tank washer can be ordered with inlet connection, item #10, omitted. Please contact factory for correct “non-factory” connection tube fitting details

2. Weld the tube to your pipe inlet. Spray Nozzle Engineering suggests welding to ASME B31.3. Other connection methods available upon request.



WARNING: Do not attempt to weld the tube connection with the M-Series rotating tank washer head still connected as this may cause damage to the M-Series rotating tank washer components.

3. Place the M-Series rotating tank washing head back into the Tube Body.
4. Carefully insert the Spring Clip through the hole in tube and through the M-Series rotating tank washing head **(1)**. Ensuring the Spring Clip moves full through and around the connecting tube securely.
5. Inspect the M-Series rotating tank washer to ensure that the Spring Clip is secured correctly and the rotating Tank Cleaning Head is free to spin without hesitation.



General Removal and Cleaning Guide – Weld On Series

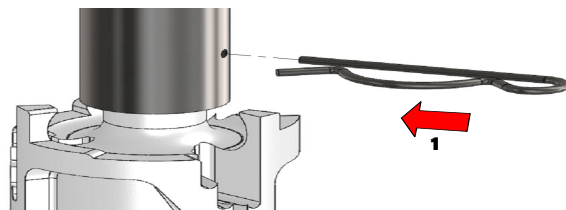
1. Remove the Spring Clip from the M-Series rotating tank washer assembly.
2. Using a small pin and a small hammer, gently remove the pin from the director assembly.
3. Once the small pin is removed, all the components can be removed with ease.
4. Clean all components thoroughly.



WARNING: Please check suitability of any cleaning products prior to use on the M-Series Tank washing head and your processes.

5. Reassemble components in the reverse order of the removal of the M-Series rotating tank washer.
6. Place the M-Series rotating tank washing head back into the Tube Body.
7. Carefully insert the Spring Clip through the hole in tube and through the M-Series rotating tank washing head **(1)**. Ensuring the Spring Clip moves full through and around the connecting tube securely.
8. Inspect the M-Series rotating tank washer to ensure that the Spring Clip is secured correctly and the rotating Tank Cleaning Head is free to spin without hesitation.

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Please note that any incorrect installation or operating conditions is not covered by warranty – if in doubt, always consult factory.

NOTE: New Square locating “Security: Clip now available as optional extra (Refer to parts break down for more information)

Operational Guide

1. Visually inspect the M-Series rotating tank washer for any damage or missing components prior to use.
2. If the M-Series rotating tank washer is not in position for cleaning, lower the M-Series rotating tank washer into position.
3. Switch on pump flow to head.
4. Increasing the pump flow pressure to the head can increase the spray coverage of the M-Series rotating tank washer.

Troubleshooting

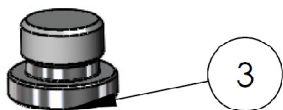
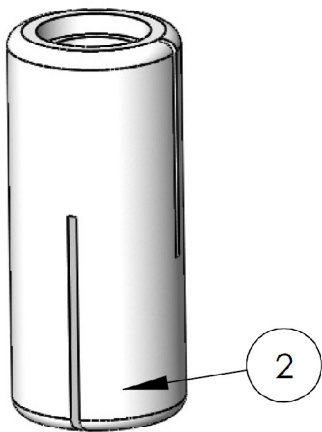
	SYMPTOMS	POSSIBLE CAUSES	POSSIBLE SOLUTION
1	M-Series Tank Washer head not rotating	Not enough head pressure at the nozzle.	Increase head pressure.
		Not enough flow to the nozzle.	Increase fluid flow.
		M-Series Tank Washer incorrectly assembled.	Reassembly M-Series Tank Washer.
2	M-Series Tank Washer is not reaching the required spray coverage	Not enough head pressure at the nozzle.	Increase head pressure.
		Poorly located M-Series Tank Washer.	Change location of the M-Series Tank Washer to reach the required distance
			Add additional Tank Washer if required
3	M-Series Tank Washer head rotates intermediately	Incorrectly sized M-Series Tank Washer.	Change model of M-Series Tank Washer. Please consult with your local representative for more information.
		Not enough head pressure at the nozzle.	Increase head pressure.
		Not enough flow to the nozzle.	Increase fluid flow.
		M-Series Tank Washer incorrectly assembled.	Reassembly M-Series Tank Washer.
		Worn PTFE washers.	Replace PTFE washers.
		Worn Spring.	Replace Spring.

M-30 – SS/Acetal ½” BSP Pipe Tank Washer

Parts Breakdown



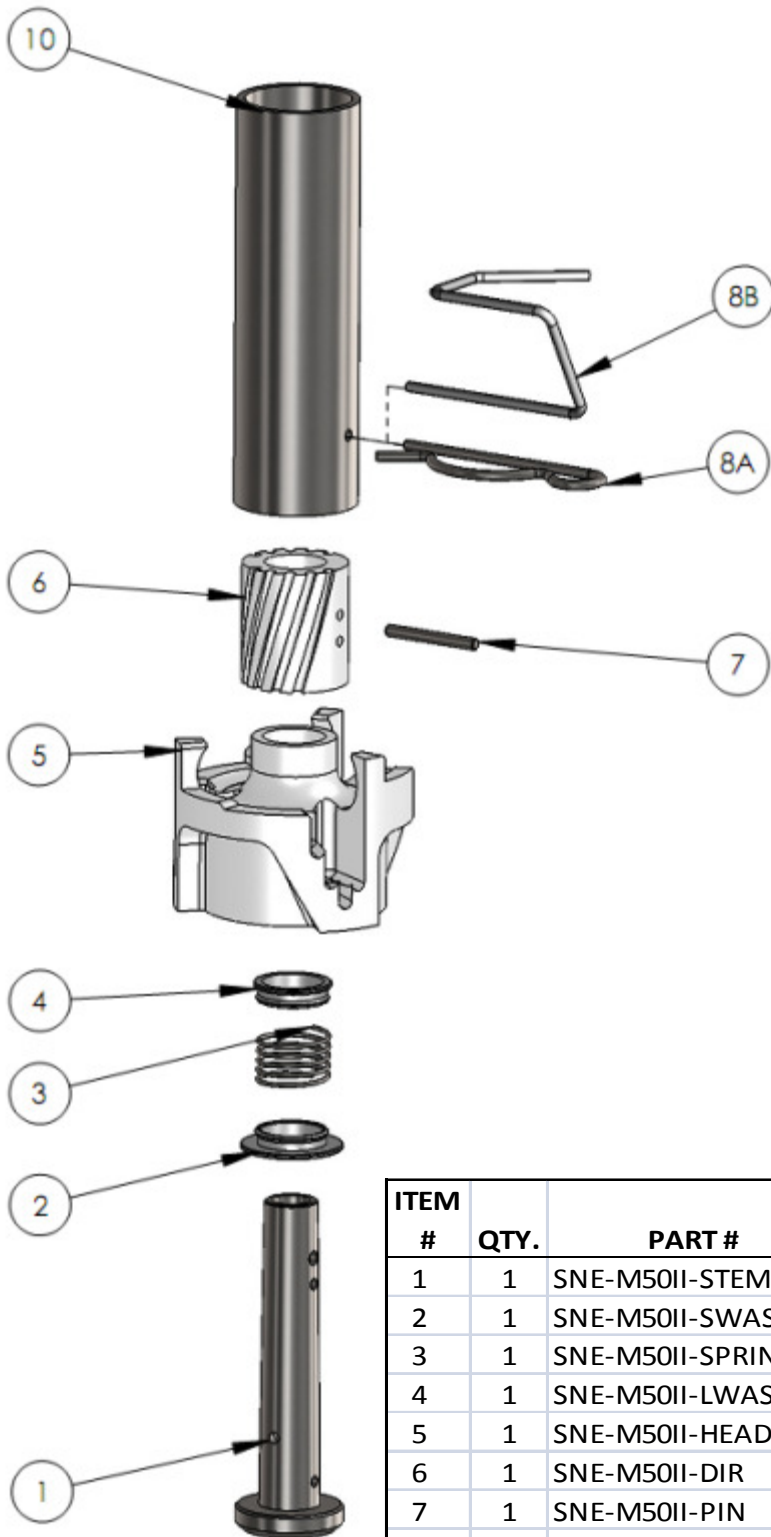
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ITEM #	QTY.	PART #	DESCRIPTION
1	1	SNE-M30-STEM	316SS 1/2" BSP Stem Shaft
2	1	SNE-M30-HEAD	Acetal Rotary Head M30
3	1	SNE-M30-RETAINR	316SS Retainer Screw
		<i>* Alternative connections available upon request</i>	
		<i>** Please consult with your local representative suitability of material</i>	
		<i>Please specify part number and material when ordering</i>	

M-50-II – SS/Acetal 1" Tube Tank Washer

Parts Breakdown

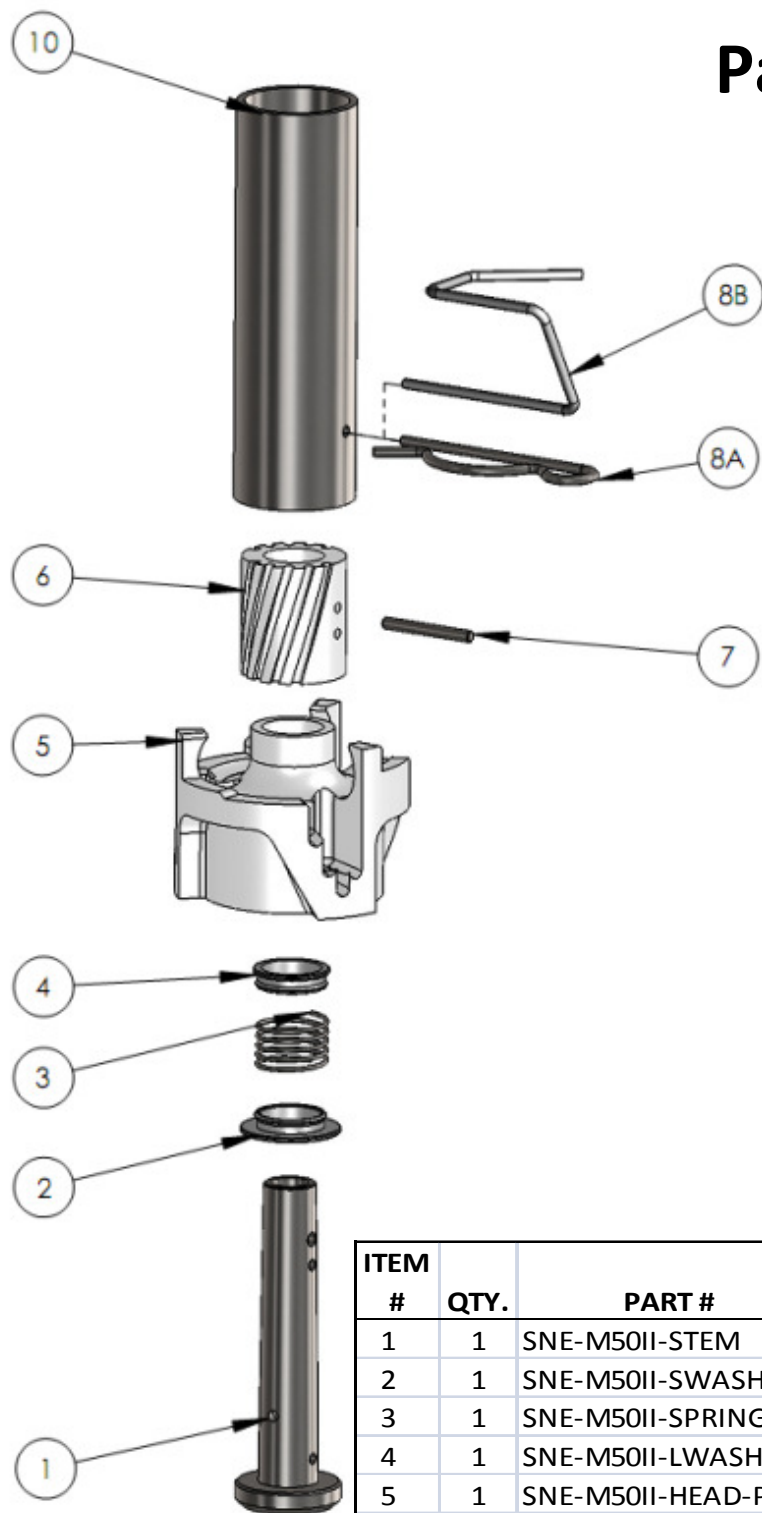


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ITEM #	QTY.	PART #	DESCRIPTION
1	1	SNE-M50II-STEM	316SS Stem Shaft M50II
2	1	SNE-M50II-SWASH	PTFE Small Washer M50II
3	1	SNE-M50II-SPRING	Spring for M50II
4	1	SNE-M50II-LWASH	PTFE Large Washer M50II
5	1	SNE-M50II-HEAD	Acetal Rotary Head M50II
6	1	SNE-M50II-DIR	Acetal 10 Slot Flow Director M50II
7	1	SNE-M50II-PIN	316SS Locating Pin M50II
8A	1	SNE-M50II-CLIP	316SS Spring Clip M50II
8B	1	SNE-M50IISQ-CLIP	<i>Optional</i> 316SS Square Clip to suit 1" Tube
10	1	SNE-M50II-TUBE*	316SS 1" Tube Body Connection M50II
		* Alternative connections available upon request	
		** Please consult with your local representative suitability of material	
		Please specify part number and material when ordering	

M-50-II-PVDF – SS/PVDF 1" Tube Tank Washer

Parts Breakdown



ITEM #	QTY.	PART #	DESCRIPTION
1	1	SNE-M50II-STEM	316SS Stem Shaft M50II
2	1	SNE-M50II-SWASH	PTFE Small Washer M50II
3	1	SNE-M50II-SPRING	Spring for M50II
4	1	SNE-M50II-LWASH	PTFE Large Washer M50II
5	1	SNE-M50II-HEAD-PVDF	PVDF Rotary Head M50II
6	1	SNE-M50II-DIR-PVDF	PVDF 10 Slot Flow Director M50II
7	1	SNE-M50II-PIN	316SS Locating Pin M50II
8A	1	SNE-M50II-CLIP	316SS Spring Clip M50II
8B	1	SNE-M50IISQ-CLIP	Optional 316SS Square Clip to suit 1" Tube
10	1	SNE-M50II-TUBE*	316SS 1" Tube Body Connection M50II

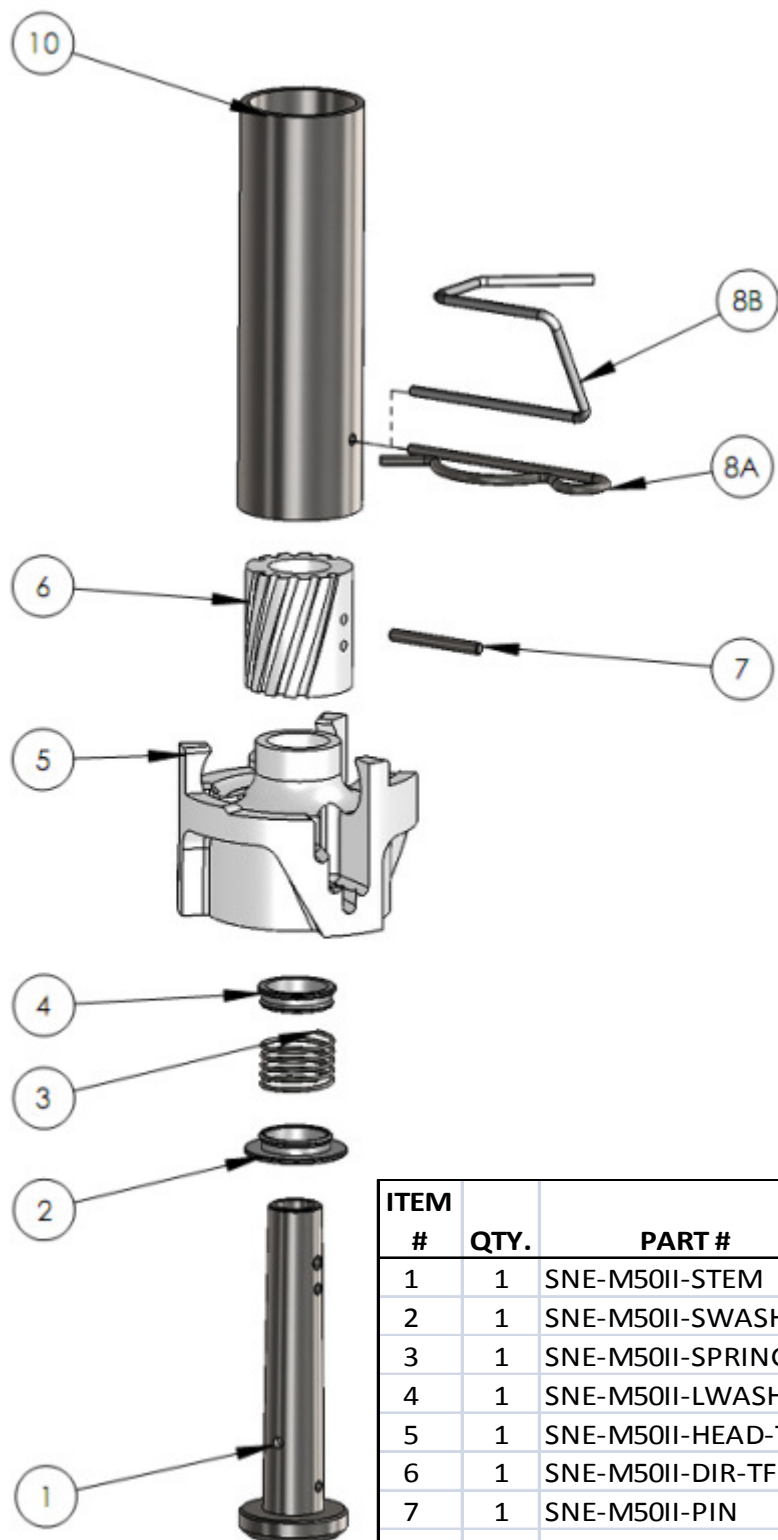
* Alternative connections available upon request

** Please consult with your local representative suitability of material

Please specify part number and material when ordering

M-50-II-TF – SS/PTFE 1" Tube Tank Washer

Parts Breakdown

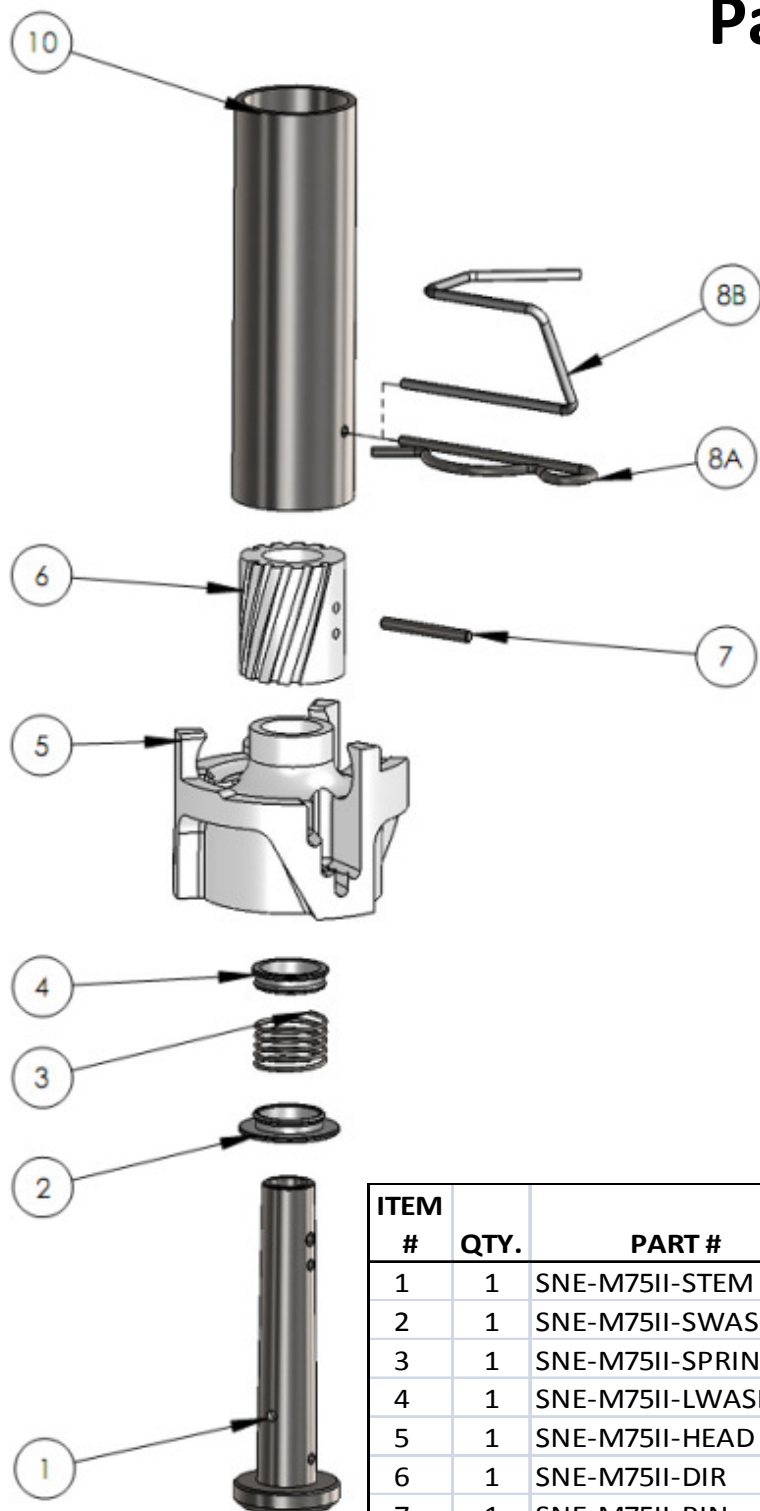


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ITEM #	QTY.	PART #	DESCRIPTION
1	1	SNE-M50II-STEM	316SS Stem Shaft M50II
2	1	SNE-M50II-SWASH	PTFE Small Washer M50II
3	1	SNE-M50II-SPRING	Spring for M50II
4	1	SNE-M50II-LWASH	PTFE Large Washer M50II
5	1	SNE-M50II-HEAD-TF	PVDF Rotary Head M50II
6	1	SNE-M50II-DIR-TF	PTFE 10 Slot flow director M50II
7	1	SNE-M50II-PIN	316SS Locating Pin M50II
8A	1	SNE-M50II-CLIP	316SS Spring Clip M50II
8B	1	SNE-M50IISQ-CLIP	Optional 316SS Square Clip to suit 1" Tube
10	1	SNE-M50II-TUBE*	316SS 1" Tube Body Connection M50II
		* Alternative connections available upon request	
		** Please consult with your local representative suitability of material	
		Please specify part number and material when ordering	

M-75-II – SS/Acetal 1-½” Tube Tank Washer

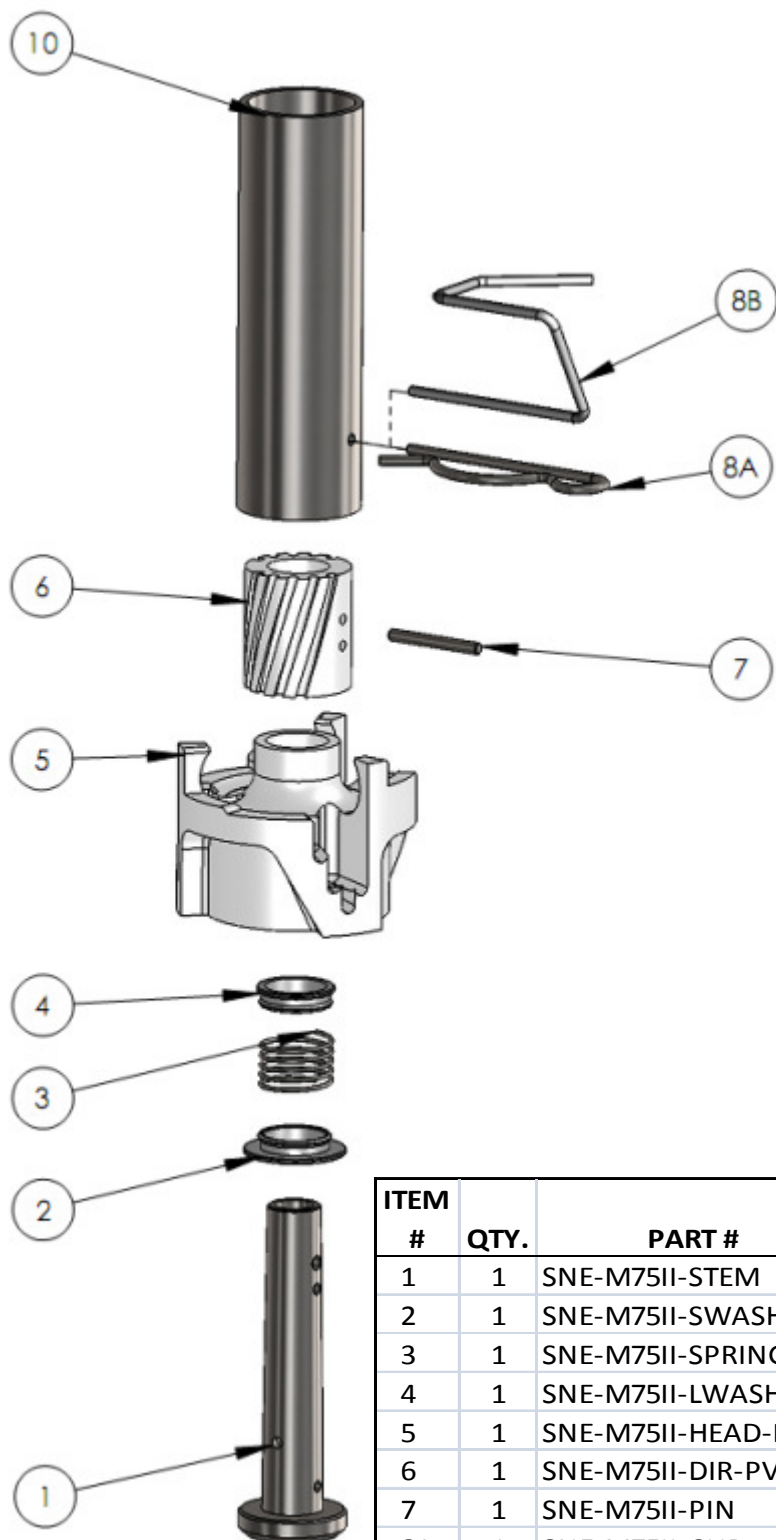
Parts Breakdown



ITEM #	QTY.	PART #	DESCRIPTION
1	1	SNE-M75II-STEM	316SS Stem Shaft M75II
2	1	SNE-M75II-SWASH	PTFE Small Washer M75II
3	1	SNE-M75II-SPRING	Spring for M75II
4	1	SNE-M75II-LWASH	PTFE Large Washer M75II
5	1	SNE-M75II-HEAD	Acetal Rotary Head M75II
6	1	SNE-M75II-DIR	Acetal 10 Slot Flow Director M75II
7	1	SNE-M75II-PIN	316SS Locating Pin M75II
8A	1	SNE-M75II-CLIP	316SS Spring Clip M75II
8B	1	SNE-M75IISQ-CLIP	Optional 316SS Square Clip to suit 1.5" Tube
10	1	SNE-M75II-TUBE*	316SS 1.5" Tube Body Connection M75II
		* Alternative connections available upon request	
		** Please consult with your local representative suitability of material	
		Please specify part number and material when ordering	

M-75-II-PVDF – SS/PVDF 1-½” Tube Tank Washer

Parts Breakdown

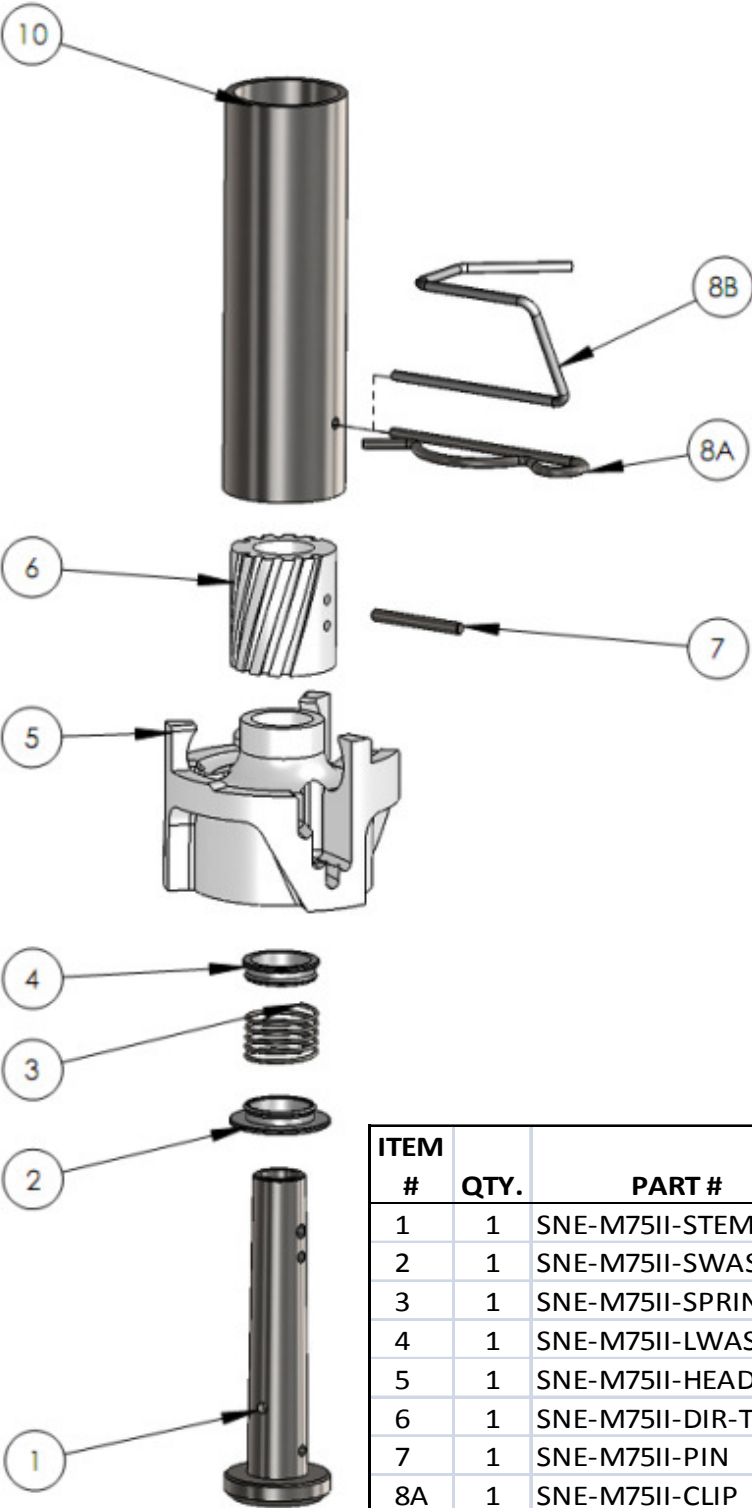


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ITEM #	QTY.	PART #	DESCRIPTION
1	1	SNE-M75II-STEM	316SS Stem Shaft M75II
2	1	SNE-M75II-SWASH	PTFE Small Washer M75II
3	1	SNE-M75II-SPRING	Spring for M75II
4	1	SNE-M75II-LWASH	PTFE Large Washer M75II
5	1	SNE-M75II-HEAD-PVDF	PVDF Rotary Head M75II
6	1	SNE-M75II-DIR-PVDF	PVDF 10 Slot Flow Director M75II
7	1	SNE-M75II-PIN	316SS Locating Pin M75II
8A	1	SNE-M75II-CLIP	316SS Spring Clip M75II
8B	1	SNE-M75IISQ-CLIP	Optional 316SS Square Clip to suit 1.5" Tube
10	1	SNE-M75II-TUBE*	316SS 1.5" Tube Body Connection M75II
		* Alternative connections available upon request	
		** Please consult with your local representative suitability of material	
		Please specify part number and material when ordering	

M-75-II-TF – SS/PTFE 1-½” Tube Tank Washer

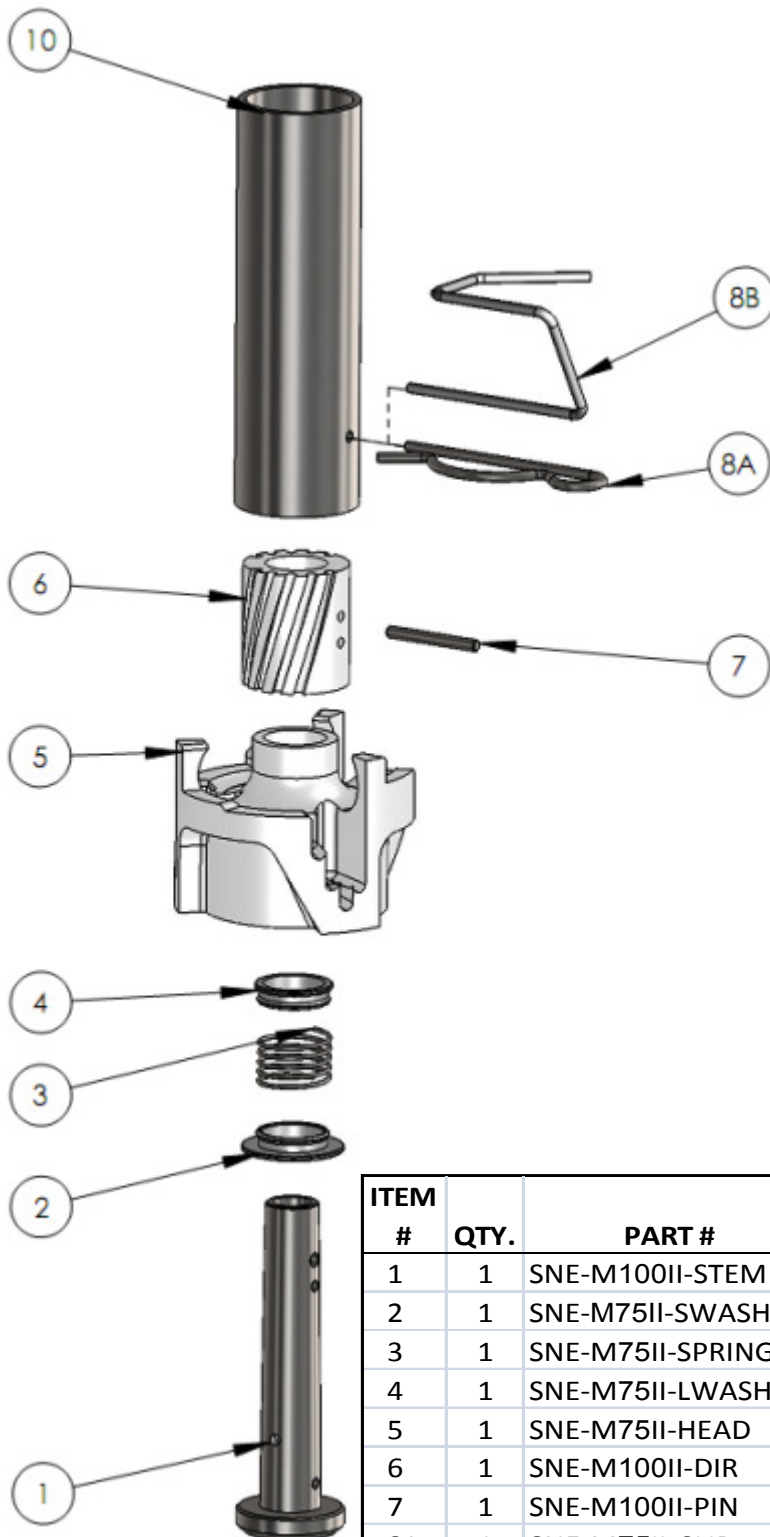
Parts Breakdown



ITEM #	QTY.	PART #	DESCRIPTION
1	1	SNE-M75II-STEM	316SS Stem Shaft M75II
2	1	SNE-M75II-SWASH	PTFE Small Washer M75II
3	1	SNE-M75II-SPRING	Spring for M75II
4	1	SNE-M75II-LWASH	PTFE Large Washer M75II
5	1	SNE-M75II-HEAD-TF	PTFE Rotary Head M75II
6	1	SNE-M75II-DIR-TF	PTFE 10 Slot Flow Director M75II
7	1	SNE-M75II-PIN	316SS Locating Pin M75II
8A	1	SNE-M75II-CLIP	316SS Spring Clip M75II
8B	1	SNE-M75IISQ-CLIP	Optional 316SS Square Clip to suit 1.5" Tube
10	1	SNE-M75II-TUBE*	316SS 1.5" Tube Body Connection M75II
* Alternative connections available upon request			
** Please consult with your local representative suitability of material			
Please specify part number and material when ordering			

M-100-II – SS/Acetal 2" Tube Tank Washer

Parts Breakdown

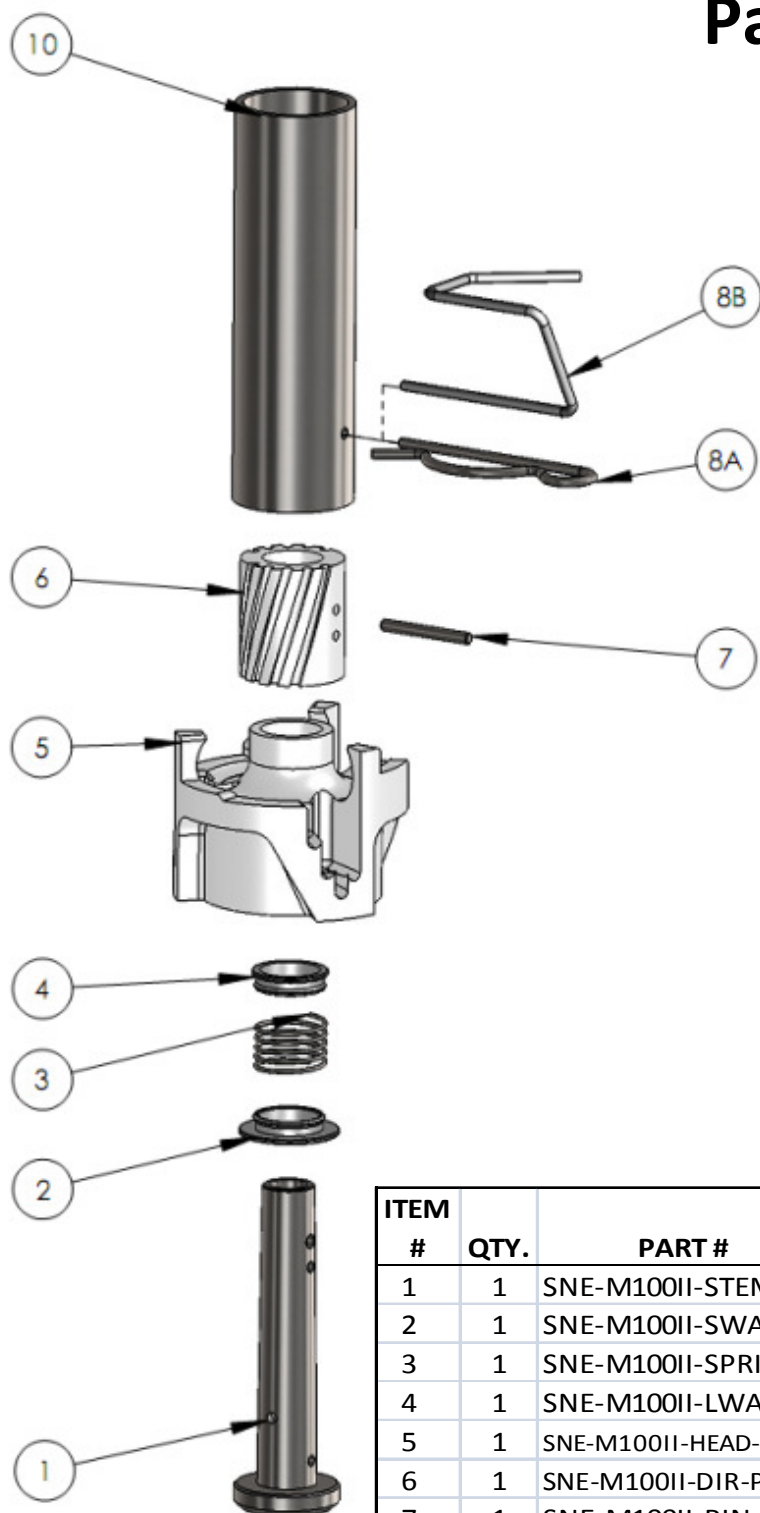


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ITEM #	QTY.	PART #	DESCRIPTION
1	1	SNE-M100II-STEM	316SS Stem Shaft M100II
2	1	SNE-M75II-SWASH	PTFE Small Washer M75II
3	1	SNE-M75II-SPRING	Spring for M75II
4	1	SNE-M75II-LWASH	PTFE Large Washer M75II
5	1	SNE-M75II-HEAD	Acetal Rotary Head M75II
6	1	SNE-M100II-DIR	Acetal 10 Slot Flow Director M100II
7	1	SNE-M100II-PIN	316SS Locating Pin M100II
8A	1	SNE-M75II-CLIP	316SS Spring Clip M75II
8B	1	SNE-M100IISQ-CLIP	Optional 316SS Square Clip to suit 2" Tube
10	1	SNE-M100II-TUBE*	316SS 2" Tube Body Connection M100II
		* Alternative connections available upon request	
		** Please consult with your local representative suitability of material	
		Please specify part number and material when ordering	

M-100-II-PVDF – SS/PVDF 2" Tube Tank Washer

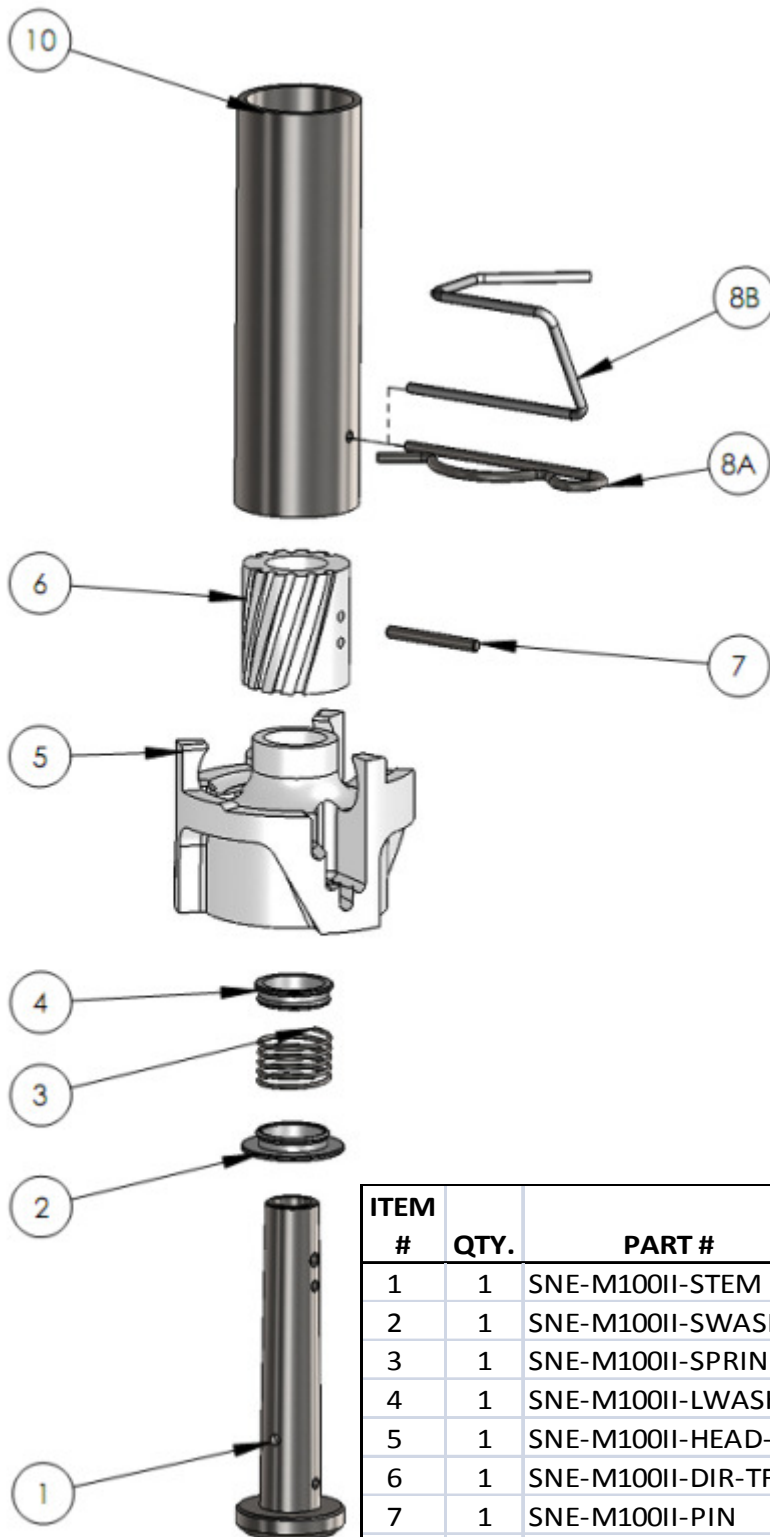
Parts Breakdown



ITEM #	QTY.	PART #	DESCRIPTION
1	1	SNE-M100II-STEM	316SS Stem Shaft M100II
2	1	SNE-M100II-SWASH	PTFE Small Washer M100II
3	1	SNE-M100II-SPRING	Spring for M100II
4	1	SNE-M100II-LWASH	PTFE Large Washer M100II
5	1	SNE-M100II-HEAD-PVDF	PVDF Rotary Head M100II
6	1	SNE-M100II-DIR-PVDF	PVDF 10 Slot Flow Director M100II
7	1	SNE-M100II-PIN	316SS Locating Pin M100II
8A	1	SNE-M100II-CLIP	316SS Spring Clip M100II
8B	1	SNE-M100IISQ-CLIP	Optional 316SS Square Clip to suit 2" Tube
10	1	SNE-M100II-TUBE*	316SS 2" Tube Body Connection M100II
		* Alternative connections available upon request	
		** Please consult with your local representative suitability of material	
		Please specify part number and material when ordering	

M-100-II-TF – SS/PTFE 2" Tube Tank Washer

Parts Breakdown



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ITEM #	QTY.	PART #	DESCRIPTION
1	1	SNE-M100II-STEM	316SS Stem Shaft M100II
2	1	SNE-M100II-SWASH	PTFE Small Washer M100II
3	1	SNE-M100II-SPRING	Spring for M100II
4	1	SNE-M100II-LWASH	PTFE Large Washer M100II
5	1	SNE-M100II-HEAD-TF	PTFE Rotary Head M100II
6	1	SNE-M100II-DIR-TF	PTFE 10 Slot Flow Director M100II
7	1	SNE-M100II-PIN	316SS Locating Pin M100II
8A	1	SNE-M100II-CLIP	316SS Spring Clip M100II
8B	1	SNE-M100IISQ-CLIP	<i>Optional 316SS Square Clip to suit 2" Tube</i>
10	1	SNE-M100II-TUBE*	316SS 2" Tube Body Connection M100II
		* Alternative connections available upon request	
		** Please consult with your local representative suitability of material	
		Please specify part number and material when ordering	

NOTES:



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