Tolomatic
EXCELLENCE IN MOTION®

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Parts Sheet

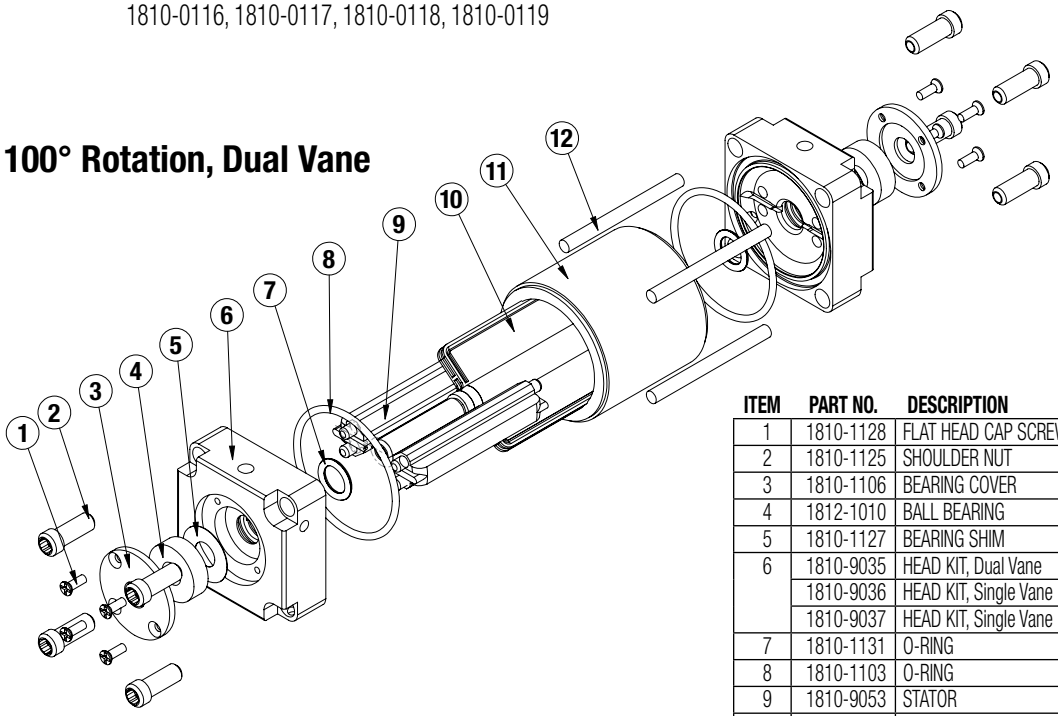
1800-4003_01

VRX 1810 Vane Rotary Actuators

1 inch (25 mm) Bore

Models: 1810-0110, 1810-0111, 1810-0112, 1810-0113, 1810-0116, 1810-0117, 1810-0118, 1810-0119

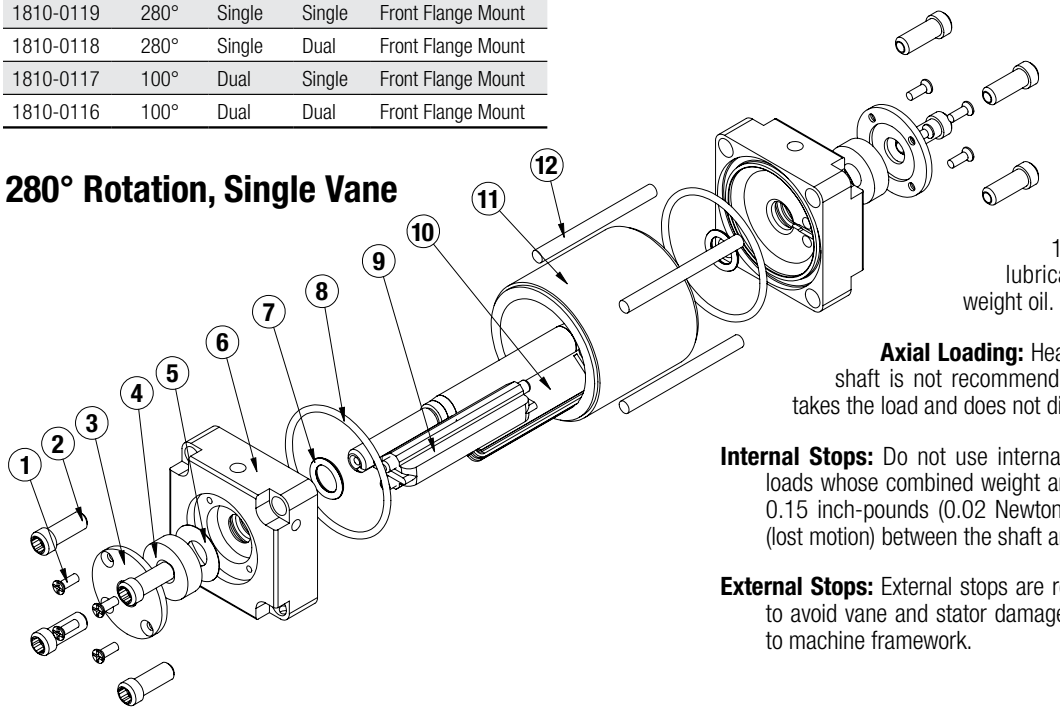
100° Rotation, Dual Vane



MODEL NUMBER	ROTATION	VANE / STATOR	SHAFT	OPTION
1810-0113	280°	Single	Single	
1810-0112	280°	Single	Dual	
1810-0111	100°	Dual	Single	
1810-0110	100°	Dual	Dual	
1810-0119	280°	Single	Single	Front Flange Mount
1810-0118	280°	Single	Dual	Front Flange Mount
1810-0117	100°	Dual	Single	Front Flange Mount
1810-0116	100°	Dual	Dual	Front Flange Mount

			100°		280°	
			1810-0110 1810-0116	1810-0111 1810-0117	1810-0112 1810-0118	1810-0113 1810-0119
ITEM	PART NO.	DESCRIPTION				
1	1810-1128	FLAT HEAD CAP SCREW	8	8	8	8
2	1810-1125	SHOULDER NUT	8	8	8	8
3	1810-1106	BEARING COVER	2	2	2	2
4	1812-1010	BALL BEARING	2	2	2	2
5	1810-1127	BEARING SHIM	A/R	A/R	A/R	A/R
6	1810-9035	HEAD KIT, Dual Vane	2	2	–	–
	1810-9036	HEAD KIT, Single Vane	–	–	1	1
	1810-9037	HEAD KIT, Single Vane	–	–	1	1
7	1810-1131	O-RING	2	2	2	2
8	1810-1103	O-RING	2	2	2	2
9	1810-9053	STATOR	2	2	1	1
10	1810-9052	ROTOR, Dual Vane, Dual Shaft	1	-	-	-
	1810-9069	ROTOR, Dual Vane, Single Shaft	-	1	-	-
	1810-9061	ROTOR, Single Vane, Dual Shaft	-	-	1	-
	1810-9059	ROTOR, Single Vane, Single Shaft	-	-	-	1
11	1810-1145	TUBE	1	1	1	1
12	1810-1118	TIE ROD	4	4	4	4

280° Rotation, Single Vane



Pneumatic Service: The VRX actuator should be operated with 100 PSI maximum pneumatic service lubricated with a non-detergent SAE 30 weight oil.

Axial Loading: Heavy end thrust loading of the actuator shaft is not recommended. Use an isolating coupling which takes the load and does not distribute it to the actuator shaft.

Internal Stops: Do not use internal stops to stop rotation except with loads whose combined weight and speed do not generate more than 0.15 inch-pounds (0.02 Newton-meters) of kinetic energy. Backlash (lost motion) between the shaft and load should be avoided.

External Stops: External stops are recommended for higher inertia loads to avoid vane and stator damage. Stops should be securely mounted to machine framework.

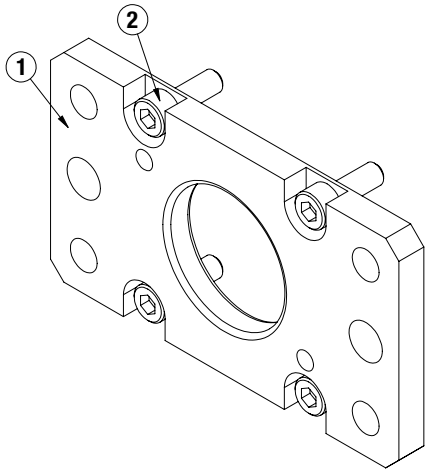
DISASSEMBLY NOTE:

VRX Ball Bearings (#4) are installed using retaining compound. Additional force may be required to separate the Ball Bearings (#4) during disassembly. Also note that the Ball Bearing (#4) may stay attached to the Rotor (#10) or to the Head (#6).

ASSEMBLY INSTRUCTIONS – 100° ACTUATOR

1. Use Teflon®-additive grease when lubrication is required.
2. Lubricate and install small O-Ring (#7) into groove in center bore of each Head (#6).
3. Lubricate and install large O-Ring (#8) into groove on face of each Head (#6).
4. Lubricate rubber surfaces and insert two [2] Stators (#9) into one Head (#6) by aligning the dowel pins with the holes in the Head (#6).
5. Lubricate rubber surfaces and insert Rotor (#10) between the two [2] Stators (#9) and into the center bore of the Head (#6).
6. Lightly lubricate the inside diameter of the Tube (#11) and slide over the Stators (#9) and Rotor (#10) until engaging the Head (#6).
7. Align and install the other Head (#6) onto the dowel pins of the two [2] Stators (#9) and the shaft of the Rotor (#10) through the center bore. NOTE: Assemble with the ports on the same side of both Heads (#6).
8. Thread four [4] Shoulder Nuts (#2) half way onto each of the four [4] Tie Rods (#12) then insert each Tie Rod (#12) through the holes in both Heads (#6).
9. Thread the remaining four [4] Shoulder Nuts (#2) onto the four [4] Tie Rods (#12). Shoulder Nuts (#2) must be inserted into Head (#6) then threaded onto the Tie Rod (#12).
10. Use a criss-cross pattern to evenly tighten each of the Shoulder Nuts (#2). Torque Shoulder Nuts (#2) to 20 in-lbs *(2.26 N-m).*

Optional Front Flange Assembly



ITEM	PART NO.	DESCRIPTION	1810-9031
1	1810-1112	FLANGE PLATE	1
2	0910-1040	SOCKET HEAD CAP SCREW	4

11. Place two [2] Bearing Shims (#5) over Rotor (#10) shaft and into bearing diameter in Head (#6).
12. Use retaining compound on the outside and inside diameter of the two [2] Ball Bearings (#4) then slide Ball Bearing (#4) over and into the bore of each Head (#6). NOTE: The Ball Bearing (#4) will bottom out on the Rotor (#10) shaft not the bore in the Head (#6).
13. Install Bearing Cover (#3) onto each of the Heads (#6) using Flat Head Screws (#1).

ASSEMBLY INSTRUCTIONS – 280° ACTUATOR

1. Use Teflon®-additive grease when lubrication is required.
2. Lubricate and install small O-Ring (#7) into groove in center bore of each Head (#6).
3. Lubricate and install large O-Ring (#8) into groove on face of each Head (#6).
4. Lubricate rubber surfaces and insert Stator (#9) into one Head (#6) by aligning the dowel pin with the hole in the Head (#6).
5. Lubricate rubber surfaces and insert Rotor (#10) next to the Stator (#9) and into the center bore of the Head (#6). Rotate the Rotor (#10) so the vane is across from the Stator (#9).
6. Lightly lubricate the inside diameter of the Tube (#11) and slide over the Stator (#9) and Rotor (#10) until engaging the Head (#6).
7. Align and install the other Head (#6) onto the dowel pin of the Stator (#9) and the shaft of the Rotor (#10) through the center bore. NOTE: Assemble with the ports on the same side of both Heads (#6).
8. Thread four [4] Shoulder Nuts (#2) half way onto each the four [4] Tie Rods (#12) then insert each Tie Rod (#12) through the holes in both Heads (#6).
9. Thread the remaining four [4] Shoulder Nuts (#2) onto the four [4] Tie Rods (#12). Shoulder Nuts (#2) must be inserted into Head (#6) then threaded onto the Tie Rod (#12).
10. Use a criss-cross pattern to evenly tighten each of the Shoulder Nuts (#2). Torque Shoulder Nuts (#2) to 20 in-lbs *(2.26 N-m).*
11. Place two [2] Bearing Shims (#5) over Rotor (#10) shaft and into bearing diameter in Head (#6).
12. Use retaining compound on the outside and inside diameter of the two [2] Ball Bearings (#4) then slide Ball Bearing (#4) over and into the bore of each Head (#6). NOTE: The Ball Bearing (#4) will bottom out on the Rotor (#10) shaft not the bore in the Head (#6).
13. Install Bearing Cover (#3) onto each of the Heads (#6) using Flat Head Screws (#1).

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