

OVERVIEW OF COMMON SOLENOIDS

3-Way Normally Open (except where noted)

See *page 2* for complete specifications

See *page 3* for additional, special order models

12 VDC Latch

Model #	Manuf.	Orifice (mm)	Electrical Conn.	Max psi	Common Usage
E02	NELSON	2.0	1/2" MNPT w/ Leads	175	Robust for TWIG systems
E23	BACCARA	1.2	12" Leads	175	Economical for TWIG systems (2-3")
E29	NETAFIM	2.0	47" Leads	140	For TWIG systems

24 VAC

Model #	Manuf.	Orifice (mm)	Electrical Conn.	Max psi	Common Usage
E40	GEM-SOL	1.6	1/2" FNPT w/ Leads	175	Long wire runs, 50/60 Hz.
E41	PARKER	1.6 / 1.2	1/2" FNPT w/ Leads	175	Robust, high amps
E43	BACCARA	1.2	12" Leads	175	Economical
E46	GEM-SOL	1.6	1/2" FNPT w/ Leads	175	Short wire runs. 60 Hz.

12 VDC

Model #	Manuf.	Orifice (mm)	Electrical Conn.	Max psi	Common Usage
E11	GEM-SOL	1.6	1/2" FNPT w/ Leads	175	Normally Closed for PSNO (2-4")
E21	PARKER	1.6 / 1.2	1/2" FNPT w/ Leads	175	Robust, for non-PSNO applications
E25	SOLENOID SOLUTIONS	3.2	1/2" FNPT w/ Leads	150	Normally Closed for PSNO (6-8")

110-120 VAC

Model #	Manuf.	Orifice (mm)	Electrical Conn.	Max psi	Common Usage
E50	PARKER	1.6 / 1.2	1/2" FNPT w/ Leads	175	Pivot Point, standard. 50/60 Hz
E52	PARKER	3.2	1/2" FNPT w/ Leads	175	Pivot Point, faster response (6-8"). 50/60 Hz
E53	GEM-SOL	1.6	1/2" FNPT w/ Leads	175	Pivot Point, economical. 60 Hz

24 VDC

Model #	Manuf.	Orifice (mm)	Electrical Conn.	Max psi	Common Usage
E30	PARKER	1.6 / 1.2	1/2" FNPT w/ Leads	175	Robust 24VDC
E34	BACCARA	1.2	12" Leads	175	Economical 24VDC (2-4")

Normally Closed Solenoids

For normally open valve applications (e.g. PSNO)

Model #	Manuf.	Voltage	Orifice (mm)	Max psi	Common Usage
E11	GEM-SOL	12 VDC	1.6	175	PSNO valves (2-4")
E25	SOLENOID SOLUTIONS	12 VDC	3.2	150	PSNO valves (6-8")

Window+ Controllers

Model #	Manuf.	Orifice (mm)	Electrical Conn.	Max psi	Common Usage
E20	GEM-SOL	1.6	Window+	175	Robust for 2-8"
E31	BACCARA	1.2	Window+	175	For 2-4"

NOTE:

Orifice size affects the valve opening/closing speed (e.g. smaller orifice results in slower response).

STANDARD SOLENOIDS

Specifications

3-Way Normally Open (except where noted)

Model #	Manuf.	Part Numbers			Voltage	In-rush Amps	Hold-ing Amps	Ohm	Watts	Orifice ⁵ (mm)	Electrical Conn.	Max psi	Common Usage
		Kit (800 / 1000)	Solenoid Only	Coil Only									
E02	NELSON	8925-032 / 12575-002	12845	-	9-15 VDC Latch ¹⁰	-	-	-	-	2.0 ⁸	1/2" MNPT w/Leads	175	Robust for TWIG systems
E11 ¹	GEM-SOL	8925-011 / 12575-011	7510-011	-	12 VDC	-	0.83	14.3	10	1.6	1/2" FNPT w/Leads	175	PSNO (2-4")
E20 ²	GEM-SOL	11253-002 / -	7510-040 ⁹	-	12-24 VDC Latch	-	-	5	-	1.6	Window+	175	Window+ Controller for 4-8"
E21	PARKER	8925-001 / 12575-021	7510-001	7510-101	12 VDC	-	0.6	20	8	1.6 / 1.2	1/2" FNPT w/Leads	175	Robust 12VDC
E23	BACCARA	8925-035 / 12575-023	7510-052	7510-152 ⁷	9/12 VDC Latch ¹¹	-	-	4.2	3	1.2	12" Leads	175	Economical for TWIG systems (2-3")
E25 ¹	SOLENOID SOLUTIONS	8925-020 / -	7510-036	7510-136	12 VDC	1.42	1.42	-	17	3.2	1/2" FNPT w/Leads	150	PSNO fast response (6-8")
E29	NETAFIM	8925-029 / 12575-029	7510-029	NA	12-40 VDC Latch ¹²	-	-	4.2	-	2.0	47" Leads	140	For TWIG systems
E30	PARKER	8925-002 / -	7510-002	7510-102	24 VDC	-	0.3	83	8	1.6 / 1.2	1/2" FNPT w/Leads	175	Robust 24VDC
E31 ³	BACCARA	11253-001 / 11253-003	7510-053 ⁹	7510-153	18-21 VDC Latch	-	-	23	3	1.2	Window+	175	Window+ Controller for 2-4"
E34	BACCARA	8925-037 / 12575-034	7510-054	7510-154	24 VDC	0.125	0.125	119	3	1.2	12" Leads	175	Economical 24VDC (2-4")
E40	GEM-SOL	8925-043 / 12575-040	7510-015	7510-115	24 VAC (50/60 Hz)	0.15	0.15	diode ⁴	2.5	1.6	1/2" FNPT w/Leads	175	Long wire runs 24VAC
E41	PARKER	8925-003 / 12575-041	7510-003	7510-103	24 VAC	1.1	0.65	7.8	8	1.6 / 1.2	1/2" FNPT w/Leads	175	Robust 24VAC, high amps
E43	BACCARA	8925-033 / 12575-043	7510-050	7510-150	24 VAC	0.125	0.125	diode ⁴	3	1.2	12" Leads	175	Economical 24VAC
E46	GEM-SOL	8925-044 / 12575-046	7510-016	7510-116	24 VAC (60 Hz)	0.8	0.43	9	5.5	1.6	1/2" FNPT w/Leads	175	For short wire runs, 24VAC
E50	PARKER	8925-004 / 12575-050	7510-004	7510-104	120 VAC (50/60 Hz)	0.2	0.1	184	8	1.6 / 1.2	1/2" FNPT w/Leads	175	Pivot Point, standard
E52	PARKER	8925-024 / -	7510-033	7510-133 ⁹	120 VAC (50/60 Hz)	0.7	0.3	27	17	3.2	1/2" FNPT w/Leads	175	Pivot Point, faster response (6-8")
E53	GEM-SOL	8925-045 / 12575-053	7510-051	7510-151	110 VAC (60 Hz)	0.15	0.11	230	5.5	1.6	1/2" FNPT w/Leads	175	Pivot Point, economical

NOTES:

- Normally Closed.
- Was "E20-1" prior to June 2019.
- Was "E33-1" prior to June 2019.
- If the solenoid contains a diode, the resistance reading obtained using a voltmeter will be inaccurate (extremely high). This is because a diode acts like a check valve that only opens when a sufficient amount of "pressure" (voltage) is present. Used in low-wattage solenoids to allow longer wire runs, but may not be compatible with some controllers.
- Orifice size affects the valve opening/closing speed (e.g. smaller orifice results in slower response).
- Replacement coils for "Solenoid Solutions" brand order #7510-137.
- Base only part #7510-252.
- Adaptable to 4mm (for fast response) by removing common port restrictor.
- Window+ Controller with solenoid = #11222-001 (E31) or #11222-002 (E20). Window+ Controller only = #11222.
- Pulse width 60 msec.
- Pulse width 25-50 msec.
- Pulse width 80-500 msec.

SPECIAL ORDER SOLENOIDS

Specifications

3-Way Normally Open (except where noted)

These solenoids are special request only and may require longer lead times. Pricing is subject to change. Recommended to substitute for one of the standard options if possible (page 2).

Model #	Manuf.	Part Numbers			Voltage	In-rush Amps	Hold-ing Amps	Ohm	Watts	Orifice ² (mm)	Electrical Conn.	Max psi	Common Usage
		Kit (800 / 1000)	Solenoid Only	Coil Only									
-	BACCARA	-	-	7510-155	12 VDC Latch	-	-	12	-	-	Leads		2-way coil for using TWIG on 1-1.5" valves by others ⁵
E12'	GEM-SOL	8925-015 / 12575-012	7510-012	7510-112	24 VDC	-	-		10	1.6	1/2" FNPT w/Leads	175	For normally open valves
E13'	GEM-SOL	8925-016 / 12575-013	7510-013	7510-116	24 VAC (60 Hz)	0.8	0.43	9	5.5	1.6	1/2" FNPT w/Leads	175	For normally open valves
E14'	GEM-SOL	8925-014 / 12575-014	7510-014	7510-151	120 VAC (60 Hz)	0.15	0.11	230	5.5	1.6	1/2" FNPT w/Leads	175	For normally open valves
E24	BACCARA/MAD-TAKIN	8925-062 / -	7510-072	7510-152	9/12 VDC Latch	-	-	4.2	3	5.6	10" Leads	150	E23 actuated hyd. relay ⁴ , fast response for 6-8"
E42	PARKER	8925-023 / -	7510-032	7510-132	24 VAC (60 Hz)	3.6	1.8		16	3.2	1/2" FNPT w/Leads	175	Fast response for 6-8"
E44	BACCARA	8925-070 / -	7510-080	NA	24 VAC	0.21	0.018		0.43	1.6	1/2" FNPT w/Leads	200	Ultra-long distance
E45	BACCARA/MAD-TAKIN	8925-060 / -	7510-070	7510-150	24 VAC	0.125	0.125	diode ³	3	5.6	10" Leads	150	E43 actuated hyd. relay ⁴ , fast response for 6-8"
E47	GEM-SOL	-	7510-047	7510-147	24 VAC (50 Hz)	0.8	0.43	9	5.5	1.6	1/2" FNPT w/Leads	175	50 Hz version of E46
E48	PARKER	8925-048 / 12575-048	7510-048	-	24 VAC (50/60 Hz)	0.72			10	2.4	1/2" FNPT w/Leads	180	Fast response at lower amps
E49	GEM-SOL	8925-049 / 12575-049	7510-049	7510-116	24 VAC (60 Hz)	0.8	0.43	9	5.5	2.4	1/2" FNPT w/Leads	80	Faster response E46
E60	PARKER	8925-005 / -	7510-005	7510-105	220/240 VAC (50/60 Hz)	0.1	0.07	750	8	1.6	1/2" FNPT w/Leads	175	
E61	GEM-SOL	8925-046 / -	7510-017	7510-117	230 VAC (60 Hz)	0.07	0.05		5.5	1.6 / 1.2	1/2" FNPT w/Leads	175	
E62	PARKER	8925-025 / -	7510-034	7510-134	220/240 VAC (50/60 Hz)	0.3	0.2		16	3.2	1/2" FNPT w/Leads	175	Fast response for 6-8"
E70	PARKER	8925-006 / -	7510-006	7510-106	480 VAC	0.05	0.03			1.6 / 1.2	1/2" FNPT w/Leads	175	
E72	PARKER	8925-026 / -	7510-035	7510-135	480 VAC	0.2	0.08			3.2	1/2" FNPT w/Leads	175	Fast response for 6-8"
E80	MAD-TAKIN	9335-001 / -	_6	-	-						-		Hydraulic relay

NOTES:

- Normally Closed.
- Orifice size affects the valve opening/closing speed (e.g. smaller orifice results in slower response).
- If the solenoid contains a diode, the resistance reading obtained using a voltmeter will be inaccurate (extremely high). This is because a diode acts like a check valve that only opens when a sufficient amount of "pressure" (voltage) is present. Used in low-wattage solenoids to allow longer wire runs, but may not be compatible with some controllers.
- Solenoid actuated hydraulic relay also requires a minimum of 10 psi when the system is off in order to stay closed. If there is less than 10 psi, upstream water will leak out the vent port. Thus, it should not be used immediately downstream of sand media filter stations where the tanks could drain out when the system is off.
- This 2-way coil is known to work with Baccara, Dorot, and Bermad 1-1.5" valves. It may also work with other valves with an adapter available from others.
- E80 is a hydraulic relay (not a solenoid). The hydraulic relay alone is #9331-001 (see page 12 for details).

DISCONTINUED SOLENOIDS

Specifications

3-Way Normally Open (except where noted)

These solenoids are in the process of being discontinued - no or limited inventory remains. Contact factory for additional information.

Model #	Manuf.	Part Numbers			Voltage	In-rush Amps	Hold-ing Amps	Ohm	Watts	Orifice (mm)	Electrical Conn.	Max psi	Notes
		800 Series Kit	Solenoid Only	Coil Only									
-	EVOLUTION-ARY CONC.		7859		24 VAC	0.385	0.2			1.2	18" leads	90	(normally closed)
E22	PARKER	8925-021	7510-030	7510-130	12 VDC	-	1.2			3.2	1/2" FNPT	175	Use E25 for normally open valves
E26	BACCARA	8925-071	7510-081	NA	12 VDC	-	0.004			1.6	1/2" FNPT	200	Use E21
E27	GEM-SOL	8925-047	7510-041	7510-141	12-24 VDC Lat	-	-	13.5	5.5	1.6	Plug-In	175	Use E02
E28	BERMAD	8925-013	7510-021	NA	12-50 VDC Pul	-	-	4.2		2.2	10" Leads	150	Limited remaining inventory. (Use E02)
E32	PARKER	8925-022	7510-031	7510-131	24 VDC	-	0.6			3.2	1/2" FNPT w/Leads	175	Discontinued
E41.1	ASCO	8925-053	7510-060	7510-160	24VAC								Use E41
E50.1	ASCO	8925-054	7510-061	7510-161	120 VAC								Use E50
E82	PARKER	8925-027	7510-031	7510-131	24VDC		0.6			3.2	1/2" FNPT	175psi	Discontinued

PORTS AND ELECTRICAL CONNECTIONS

3-Way Normally Open Solenoid Logic

Energized = Common and Normally Closed are connected

De-Energized = Common and Normally Open are connected

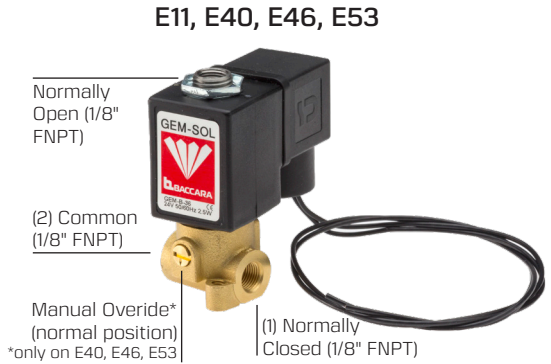
Baccara

Wire Leads



GEM-SOL

1/2" FNPT, Plug-in Hub with Wire Leads



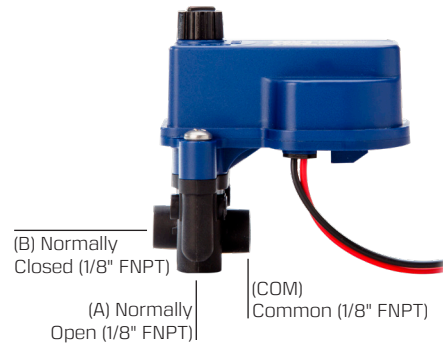
Nelson (E02)

1/2" MNPT with Wire Leads



Netafm (E29)

Wire Leads



Parker

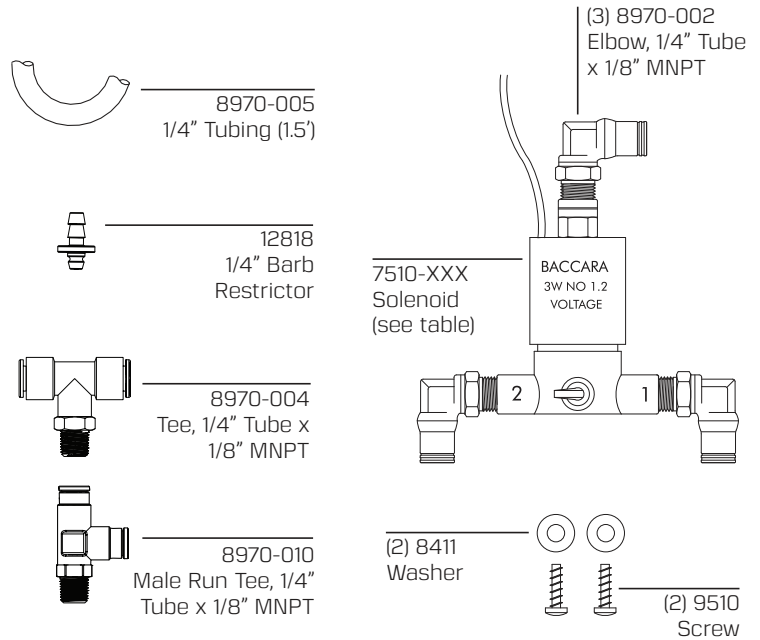
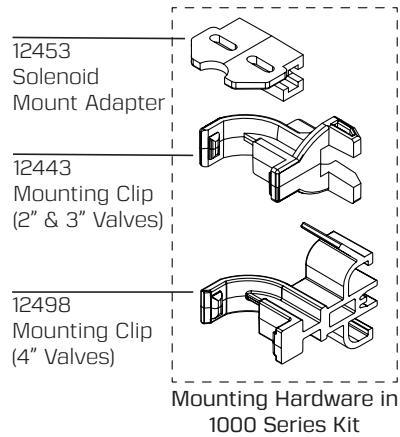
1/2" FNPT with Wire Leads



BACCARA KITS

Small orifice, economical

Model #	Part Numbers				Voltage
	Kit (800 / 1000)	Solenoid Only	Coil Only	Base Only	
E23	8925-035 / 12575-023	7510-052	7510-152	7510-252	9/12 VDC Latch
E34	8925-037 / 12575-034	7510-054	7510-154	-	24 VDC
E43	8925-033 / 12575-043	7510-050	7510-150	-	24 VAC



2-WAY SOLENOIDS

This Baccara 12 VDC Latching solenoid coil is approved for use with the TWIG® Wireless Control System on turf-style valves from other manufacturers. An adapter (available from others) may be required for some valve brands. **This solenoid is not for use with Nelson valves.**

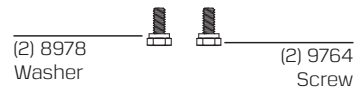
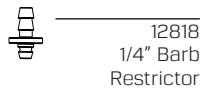
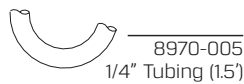
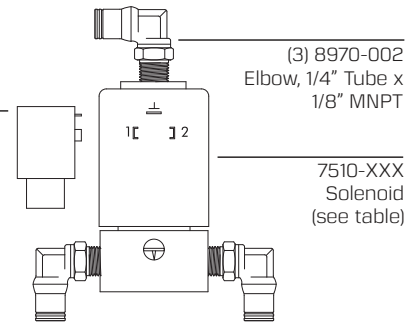
Model #	Part Numbers			Voltage	Ohm
	Kit	Coil + Base	Coil		
-	-	-	7510-155	12 VDC Latch	12



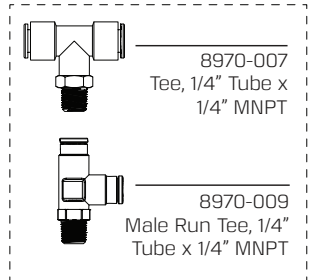
GEM-SOL KITS

Model #	Part Numbers			Voltage	Watts	Orifice (mm)
	Kit (800 / 1000)	Solenoid Only	Coil Only			
E11	8925-011 / 12575-011	7510-011		12 VDC (N.C.)	10	1.6
E40	8925-043 / 12575-040	7510-015	7510-115	24 VAC (50/60 Hz)	2.5	1.6
E46	8925-044 / 12575-046	7510-016	7510-116	24 VAC (60 Hz)	5.5	1.6
E53	8925-045 / 12575-053	7510-051	7510-151	110 VAC (60 Hz)	5.5	1.6

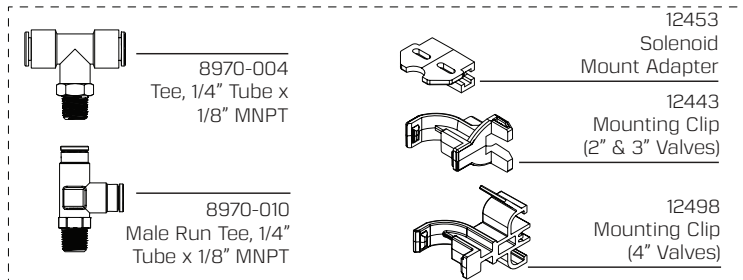
Plug-In Hub w/
1/2" FNPT
Conduit
Connection
(Connect wires to
terminals 1 and 2)



Additional Fittings in 800 Series Kit

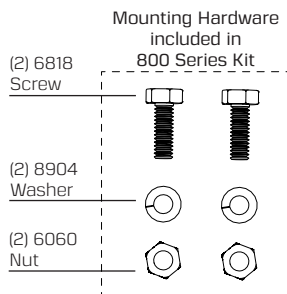
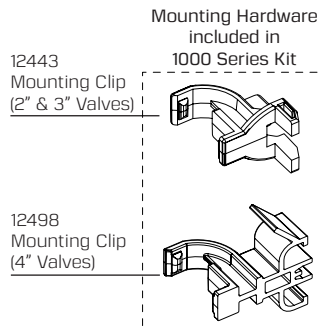
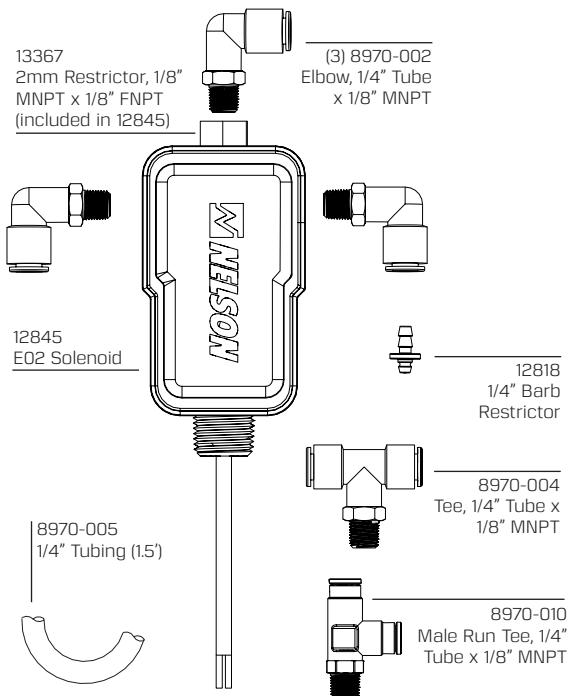


Additional Hardware in 1000 Series Kit



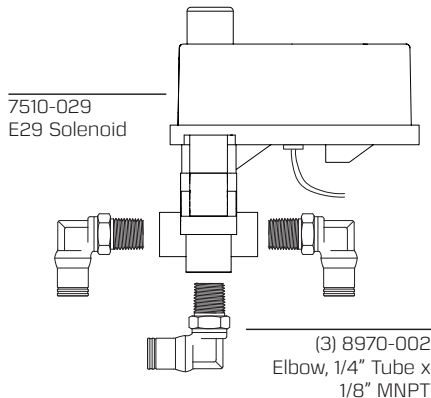
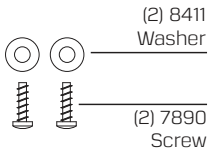
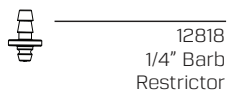
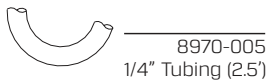
NELSON KITS

Model #	Part Numbers			Voltage
	Kit (800 / 1000)	Solenoid Only	Coil Only	
E02	8925-032 / 12575-002	12845	-	12 VDC Latch

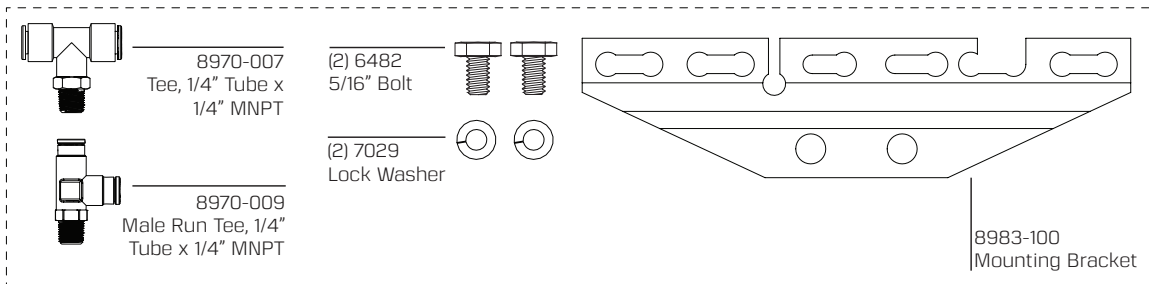


NETAFIM KITS

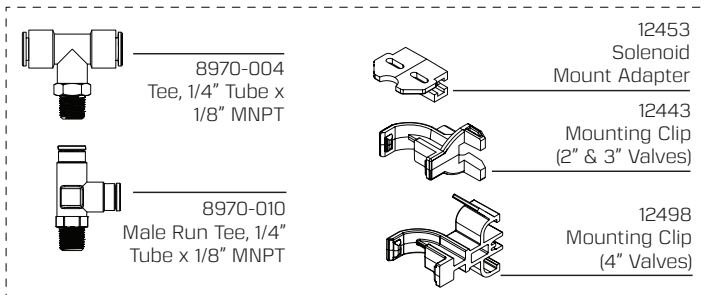
Model #	Part Numbers			Voltage
	Kit (800 / 1000)	Solenoid Only	Coil Only	
E29	8925-029 / 12575-029	7510-029	-	12-40 VDC Latch



Additional Hardware in 800 Series Kit



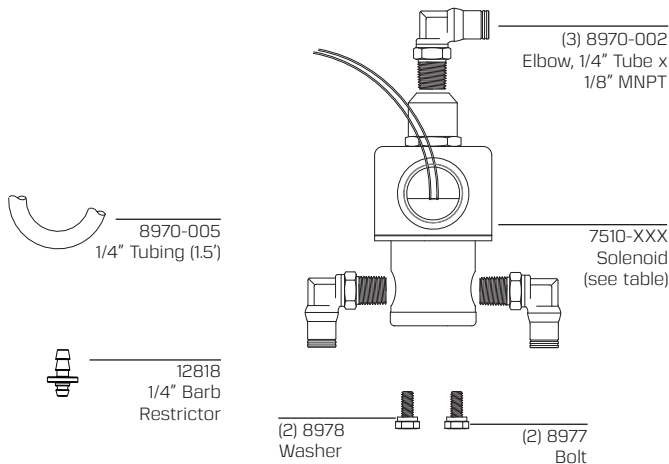
Additional Hardware in 1000 Series Kit



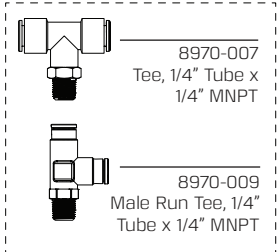
PARKER KITS

1.6/1.2 mm orifice. Includes custom frost resistant plunger.

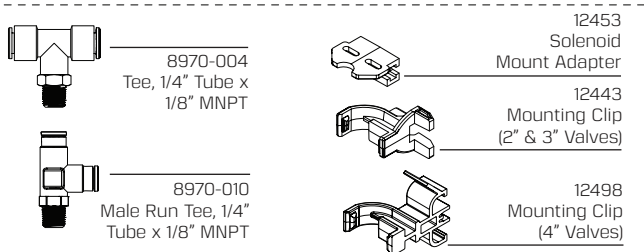
Model #	Part Numbers			Voltage
	Kit (800 / 1000)	Solenoid Only	Coil Only	
E21	8925-001 / 12575-021	7510-001	7510-101	12 VDC
E30	8925-002 / 12575-030	7510-002	7510-102	24 VDC
E41	8925-003 / 12575-041	7510-003	7510-103	24 VAC
E50	8925-004 / 12575-050	7510-004	7510-104	120 VAC (50/60 Hz)



Additional Fittings in 800 Series Kit



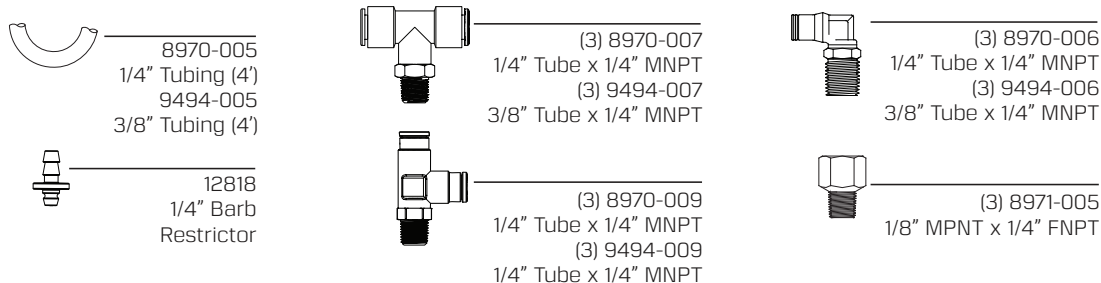
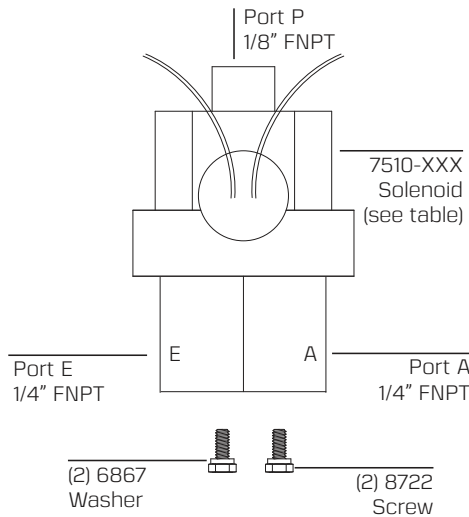
Additional Hardware in 1000 Series Kit



3.2 mm, fast response

Model #	Part Numbers			Voltage
	Kit 800 Series	Solenoid Only	Coil Only	
E42	8925-023	7510-032	7510-132	24 VAC (60 Hz)
E52	8925-024	7510-033	7510-133*	120 VAC (50/60 Hz)
E62	8925-025	7510-034	7510-134	220/240 VAC (50/60 Hz)
E72	8925-026	7510-035	7510-135	480 VAC

*Replacement old-style coil (Solenoid Solutions) use 7510-137.



WINDOW+ CONTROLLER KITS

Standalone timer with solenoid.

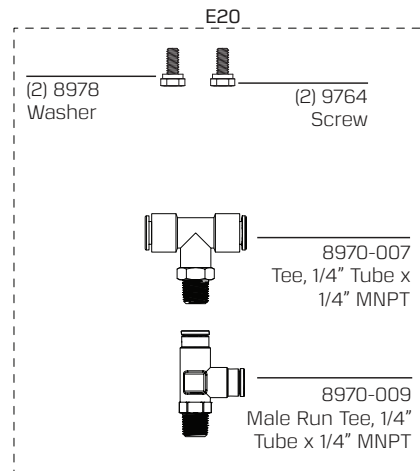
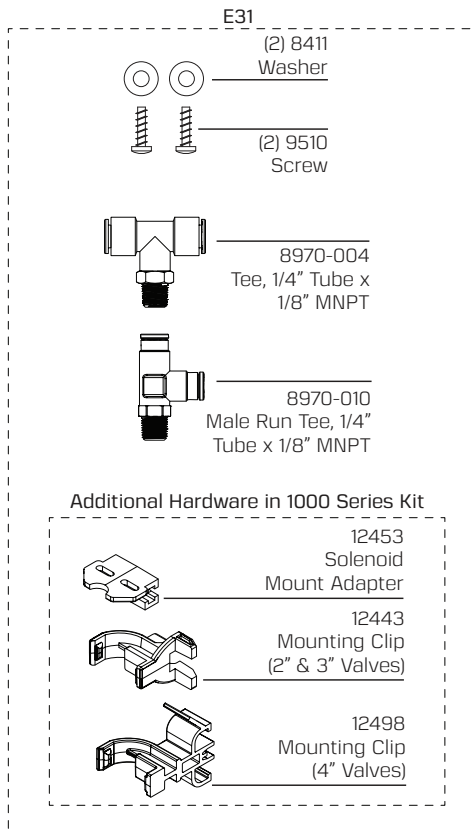
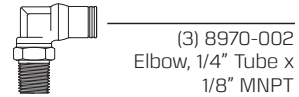
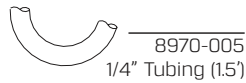
Model #	Part Numbers				Voltage
	Kit (800 / 1000)	Controller + Solenoid	Solenoid Only*	Coil Only*	
E20	11253-002 / -	11222-002	7510-040	-	12-24 VDC Latch
E31	11253-001 / 11253-003	11222-001	7510-053	7510-153	18-21 VDC Latch

*These solenoids should only be used with the Window+ Controller. They are not approved for use with other controllers.



7510-XXX Solenoid (7510-053 shown)

11222-XXX (see table)
Window+ Controller with Solenoid
(11222-001 Model E31 shown)



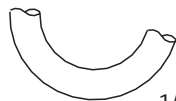
SOLENOID-ACTUATED HYDRAULIC RELAY

Hydraulic relay base with large (5.6 mm) orifices activated by a small solenoid coil for fast response on large valves.

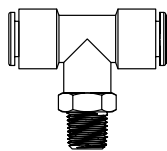
Model #	Part Numbers			Voltage
	Kit 800 Series	Coil + Base	Coil	
E24	8925-062	7510-072	7510-152	9/12 VDC Latch
E45	8925-060	7510-070	7510-150	24 VAC



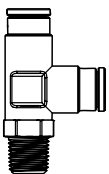
12818
1/4" Barb
Restrictor



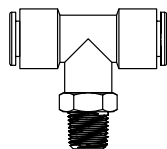
8970-005
1/4" Tubing (1.5')



8970-007
Tee, 1/4" Tube x
1/4" MNPT

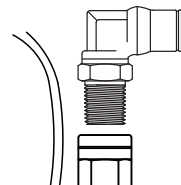


8970-009
Male Run Tee, 1/4"
Tube x 1/4" MNPT

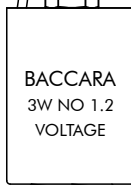


8970-004
Tee, 1/4" Tube x
1/8" MNPT

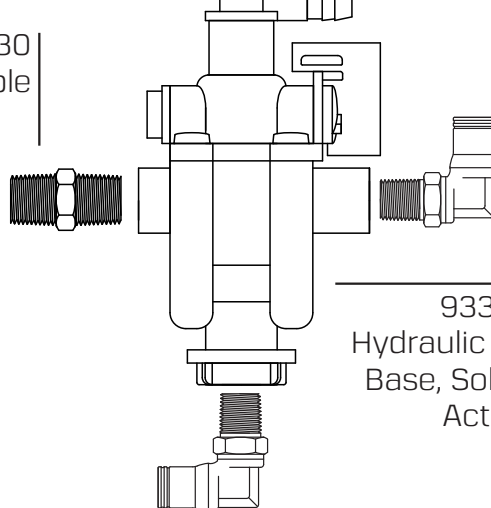
9369-030
1/8" Nipple



(3) 8970-002
Elbow, 1/4" Tube x
1/8" MNPT



7510-XXX
Solenoid Coil
(see table)

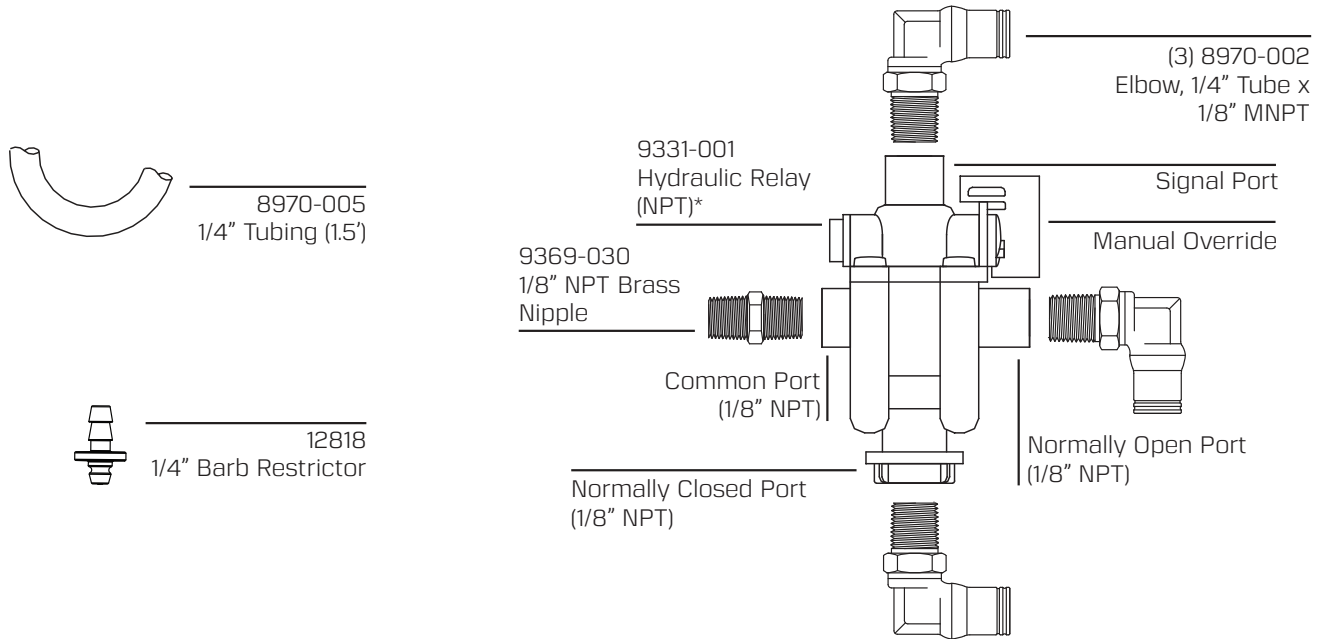


9331-003
Hydraulic Relay
Base, Solenoid
Actuated

HYDRAULIC RELAY

Open/close a valve based on remote pressure signal.

Model #	Part Numbers			Voltage
	Kit 800 Series	Coil + Base	Coil	
E80	9335-001	-	-	-



*Contact factory for BSP version