

### Electronically Enhanced Solenoids (Next Generation)

All RedHat Next Generation solenoid valves are rated for continuous duty under the operating conditions outlined within this section.

#### Coil Operating Voltage Ranges

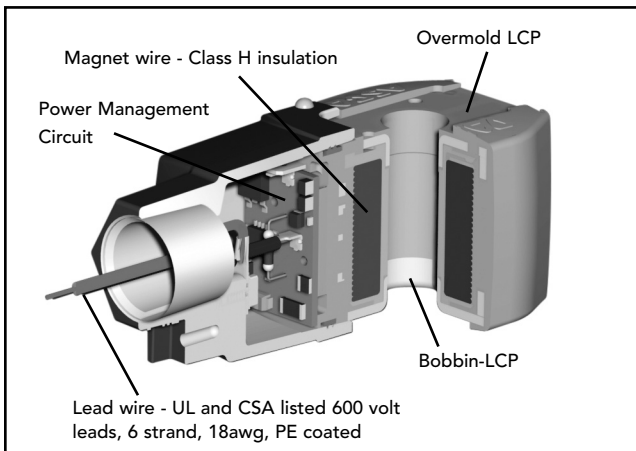
All coils are designed for industrial operating voltages and can be used on the following voltage ranges:

Voltage Range	Minimum Voltage	Maximum Voltage
100-240V/50 or 60Hz/DC	85	264
24-99V/50 or 60Hz/DC	20.4	109
12-24/DC only	10.4	26.4

The coils with voltage ranges of 100-240 and 24-99 have three lead wires, 24 inches long (2 red for power input, and one green lead for grounding where necessary). These two versions are not polarity sensitive.

The coil with a voltage range of 12-24/DC has 3 lead wires, one red, one black, and one green. This coil is polarity sensitive. The red lead is the positive, black is the negative, and green is the ground wire. This solenoid is also polarity protected. Reversing the polarity will not damage the coil, but the coil will not function until the correct polarity is applied.

**Note:** The 100-240 voltage range is also suitable for battery charging circuits designed around a 125/DC nominal voltage range.



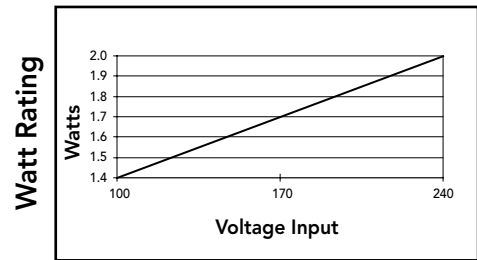
### Electrical Specifications

2 Watt Electronic Coils	Type
Maximum Ambient Temperature	140°F
Maximum Cycle Rate	1 Operation/ Second
Standard Coil Class of Insulation	H

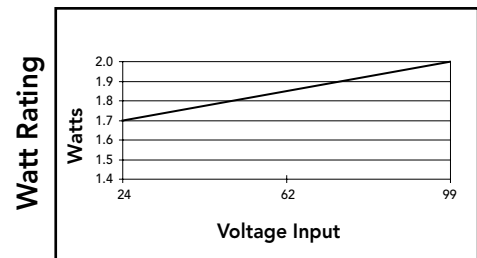
### Power Consumption

The Next Generation solenoid nominal power rating is 2 watts. Depending on the input voltage applied, the actual power rating may vary. Please use the charts below to determine your actual power rating.

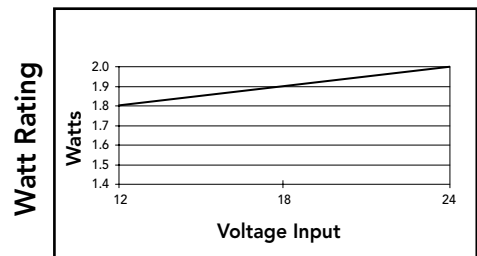
**Version**  
100-240/50-60Hz



**Version**  
24-99/50-60Hz



**Version**  
12-24/DC



The advanced technology used in the Next Generation coil includes electronic circuitry which may limit the compatibility with certain control system components. The following issues need to be considered when specifying an output card or device to operate the Next Generation coil. An initial inrush current spike is drawn by the Next Generation coil. This inrush spike is 72 msec in duration, which is sufficient time for the core to reach the plugnut. The electrical requirement then drops to the holding value.

**Inrush Current:** The power source, wiring, and output device used need to have surge ratings equal to or greater than the inrush current value (appropriate to the voltage range) specified in the table below.

Inrush Current Rating	
Coil Version	Peak Inrush Current (Amps)
12-24/DC	3.2
24-99/50-60Hz/DC	1.4
100-240/50-60Hz/DC	0.32
Maximum Duration = 72 ms	

**Holding Current:** The power source, wiring, and output device used need to have continuous current ratings equal to or greater than the holding current value (appropriate to the voltage range) specified in the table below.

Holding Current Rating			
Coil Version	Input Voltage	Average Holding Current (Amps)	Average Holding Volt-Amps (VA)
12-24/DC	12	0.340	4.0
	24	0.250	6.0
24-99/50-60Hz/DC	24	0.170	4.0
	99	0.100	10.0
100-240/50-60Hz/DC	100	0.040	4.0
	240	0.032	7.5

**Leakage Currents:** The leakage current is defined as a current that is supplied from an output device when the device is in its off or de-activated state. Operation of Next Generation coil in a system that utilizes supervisory currents is not recommended.

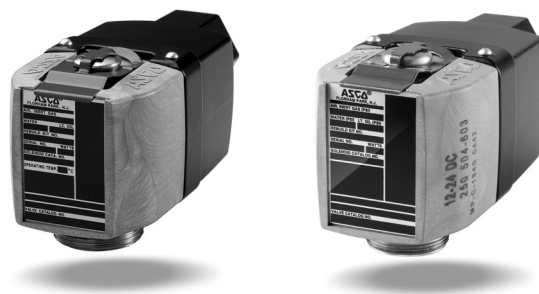
<b>Maximum Leakage Current</b>	3 mA
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## Solenoid Enclosures

The Next Generation solenoid coil is fully encapsulated using Dupont™ Zenite® Liquid Crystal Polymer resin (LCP). Zenite (LCP) is a thermoplastic polyester resin which exhibits several advantages over other thermoplastics. The advantages include excellent resistance to a wide range of organic solvents and automotive fluids\*, resistance to impact, and long term retention of properties at continuous-use temperatures.

\*Chemical resistance of Zenite LCP may not be suitable for all applications. Zenite LCP is not suitable for caustic solution. *Please consult ASCO for appropriate product solutions.*

Zenite is a registered Trademark of Dupont Co.



### RedHat Next Generation Solenoids are available as:

**General Purpose/Watertight** – Intended for indoor and outdoor use and provides protection classifications from NEMA Types 1 through 4X.

**Class I, Division 2 for Hazardous Locations/Watertight** – Meets Types 1 through 4X and is UL listed and CSA certified for Class I, Division 2, Groups A, B, C, and D and Class II, Division 2, Groups F and G. Operating temperature code T4A (120°C).

## Valve Specifications

### Maximum Ambient Temperature

The maximum ambient temperature is 140°F (60°C). This limit is based on continuous energization with the maximum fluid temperatures as shown on each catalog page.

### Response Time

Response time from fully closed to fully open or vice versa depends on valve size, operating mode, fluids, temperature, inlet pressure, and pressure drop. The response times for Next Generation are defined as:

- Small direct acting valves – 10 to 60 msec
- Large direct acting valves – 25 to 90 msec

### Internally pilot operated valves:

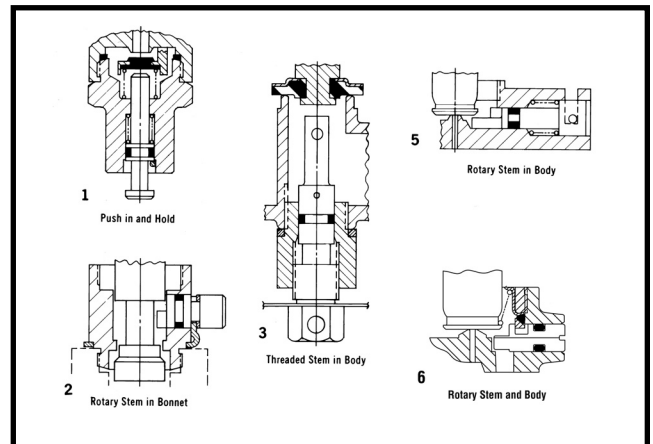
- Small diaphragm types – 20 to 100 msec
- Large diaphragm types – 80 to 150 msec
- Small piston types – 80 to 150 msec
- Large piston types – 105 to 200 msec

Operation on liquids has relatively little effect on small direct acting valves, however, response times of large direct acting and internally piloted valves may be lengthened by 50% to 100%.

## Manual Operators

Manual operators are provided to operate the valves manually when electric actuation is not provided. There are two basic types of manual operators, momentary and maintained. To determine which type of manual operator is available for your valves, please see the Optional Features Chart on the relevant valve catalog page. Once it is determined that the subject valve can accommodate a manual operator, the chart below will tell you the type of manual operator. The chart also references the relevant cutaway illustration.

Series Number	Const. Ref.	Manual Operator Suffix	Manual Operator Type	Illustration Number
8030	8	MO	Maintained	3
8210	4, 7, 10, 11, 12	MO	Maintained	2
8262	1	MS	Maintained	6
8263	1	MS	Maintained	6
8314	1	MS	Maintained	6
8316	5, 6	MO	Maintained	2
8320	2	MO	Momentary	1
8320	2	MS	Maintained	6
8321	4	MO	Momentary	1
8321	4	MS	Maintained	3
8344	1, 3, 4	MO	Maintained	2
8345	2	MO	Maintained	5



Valve Parts in Contact with Fluids						
Series	Body	Seals and Discs	Disc Holder	Core Guide	Springs	Shading Coil
8030	Brass	NBR	-	-	302 Stainless Steel	Copper
8210	304 Stainless Steel	NBR	-	-	302 Stainless Steel	Silver
	Brass	NBR	①	-	302 Stainless Steel	Copper
8223	304 Stainless Steel	PTFE, NBR	-	-	302 Stainless Steel	Silver
	Brass	NBR, PA, PTFE	-	-	302 Stainless Steel	Copper
8262	304 Stainless Steel	NBR	-	-	302 Stainless Steel	Silver
8262P261	304 Stainless Steel	UR	-	-	302 Stainless Steel	Silver
8262R099	304 Stainless Steel	UR	-	-	302 Stainless Steel	Silver
8262R107	304 Stainless Steel	UR	-	-	302 Stainless Steel	Silver
8262R175	304 Stainless Steel	UR	-	-	302 Stainless Steel	Silver
8262R178	304 Stainless Steel	UR	-	-	302 Stainless Steel	Silver
8262	Brass	NBR	-	-	302 Stainless Steel	Copper
8262R077	Brass	LT NBR	-	-	Inconel	Copper
8262R078	Brass	LT NBR	-	POM	Inconel	Copper
8263	304 Stainless Steel	NBR	-	-	302 Stainless Steel	Silver
8263	Brass	NBR	-	-	302 Stainless Steel	Copper
8314	304 Stainless Steel	NBR, FKM	-	POM	302 Stainless Steel	Silver
8314	Brass	NBR, FKM	-	POM	302 Stainless Steel	Copper
8316	Brass	NBR	POM	POM	302, 17-7PH Stainless Steels	Copper
8317	Brass	NBR, FKM, CR	-	POM	302, 17-7PH Stainless Steels	Copper
8320	303 Stainless Steel	NBR	POM	POM	302 Stainless Steel	Silver
8320	Brass	NBR	POM	POM	302 Stainless Steel	Copper
8321	Brass	NBR	POM	POM	302 Stainless Steel	Copper
8344	Brass	NBR	POM	POM	302, 17-7PH Stainless Steels	Copper
8345	Brass	NBR, PA	-	POM	302 Stainless Steel	Copper
8551	316 Stainless Steel	NBR, PA	-	POM	302 Stainless Steel	Copper
8551	Anodized Aluminum	NBR, PA	-	POM	302 Stainless Steel	Copper

Note: All core tubes are 305 stainless steel and all cores and plugnuts are 430F stainless steel. ① 8210P033, 8210P034, and 8210P035 with PA Disc Holder