



Voltage Regulator Offerings

Prolec GE regulators has multiple offerings depending on the needs from the industry.

They can be grouped as follows:

Regulator per Installation	<ul style="list-style-type: none">• Pole mounted• Platform mounted• Substation
Regulator per design type	<ul style="list-style-type: none">• Non-standard designs (Legacy)• Standard designs• New redesigns• Volt-Var designs
Regulator per requirements	<ul style="list-style-type: none">• Standard offerings• Special request



Voltage Regulator Offerings

- Per Installation

Voltage Regulator Offerings

Pole Mounted



Pole/Platform Mounted



Substation





Voltage Regulator Offerings

- Per Design Type

Regulator per design type

- Non-standard designs (Legacy)
- Standard designs
- Volt-Var designs

These are old designs that aren't considered part of our standard offering. The main characteristics of these designs are:

- The radiator panels were made of 9" width
- Multiple tank diameters that weren't standardized
- They have some components that we don't use anymore. (Previous version of tank bases, lifting lugs, etc.)

Note: We still manufacture these designs as needed, when customers request the exact same design that they previously received.



The main characteristics of our standard designs are:

- Radiator panels have been updated to 15" width
- Tank diameters were standardized to 21", 25" and 28"
- Standardization of components and placement



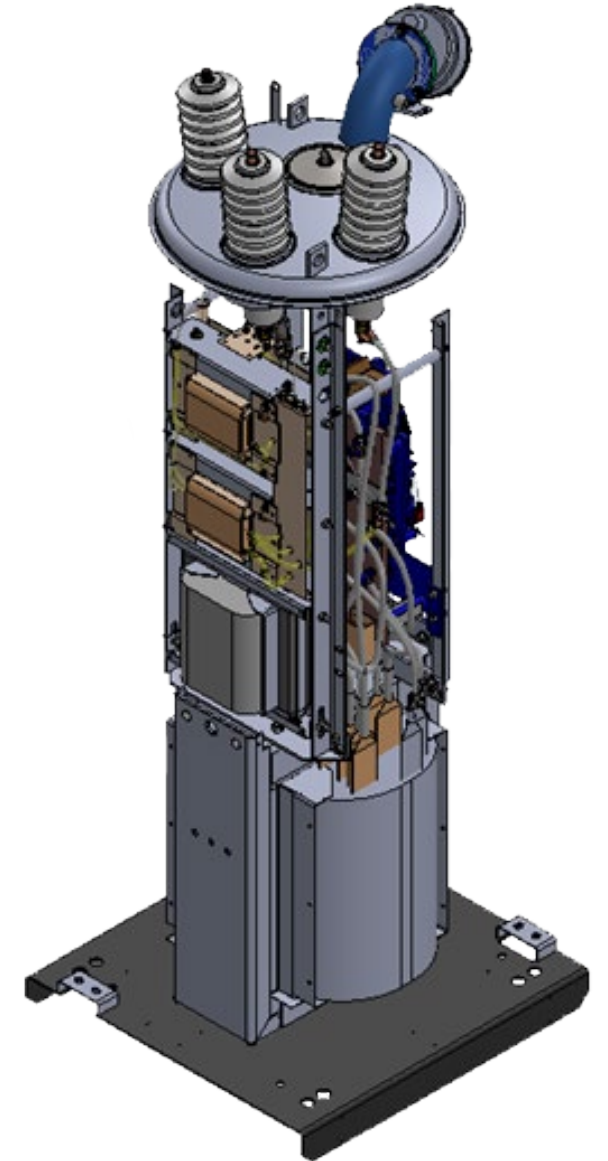
Volt-Var Designs

Created in 2016, due to the requirements of the market to have units capable of “Reverse Power Flow.” This is measured on both sides (Source and Load).

Contain two (2) Potential Transformers – for a true measured voltage on both sides of the regulator, instead of calculated.

These designs have similar features as the standard designs (larger in size) to allow the unit to fit the additional PT.

Note: All our regulators come equipped with controls with the ability to detect reverse power flow. They have a Load Excited PT, and the controller gives a calculated voltage based on the reverse power to the unit via load measure and tap position.





Voltage Regulator Offerings

- Per Customer Requirements

We evaluate using our “Product Scope” to determine offerings:

- 1) Standard design
- 2) Special design
- 3) If no offer is available for those requirements.

Characteristics of “Special” Designs are:

- Requirements outside the “Green zone” from next slides.
- Special provisions request on tank.
- Carbon Steel with Stainless Steel material combinations on the design.
- Special items that we have not provided before.
- Etc.

Voltage Regulators							
Product line	Connection (Type)	Frequency	Three Phase Connection	Tap changer	Maximum capacity (kVA)	Maximum Rated Voltage (kV)	BIL range (kV)
Pole Voltage Regulator (1 ph)	Source (A) Load (B)	60	NA	OLTC 32 taps + neutral 668 A max	167	2.5 / 4.33 Y	60
					250	5 / 8.66 Y	75
					333	7.62 / 13.2 Y	95 - 110
					276	13.8	95 - 110
					288	14.4 / 24.94 Y	150
		50	NA	OLTC 32 taps + neutral 668 A max	200	19.92 / 34.5 Y	150
					240	6.0	95
					220	11.0	95 - 110
					220	22.0	150
Platform/Substation Voltage Regulator (1 ph)	Source (A) Load (B)	60	NA	OLTC 32 taps + neutral 668 A max	167	2.5 / 4.33 Y	60
					333	5 / 8.66 Y	75
					509	7.62 / 13.2 Y	95 - 110
					276	7.97 / 13.8 Y	95
					833	14.4 / 24.94 Y	150
		50	NA	OLTC 32 taps + neutral 668 A max	833	19.92 / 34.5 Y	150
					360	6.0	95
					726	11.0	95 - 110
					660	22.0	150

Standard Quote / Green Zone	
Voltage Regulators	
Type	Liquid immersed type.
Mounting	Pole, platform and substation.
Altitude	≤ 1000 m (3300 ft).
Seismic zone	IEEE 693-2018 High 0.5G ZPA
Temperature rise	55°C, 55/65°C
Cooling type	ONAN
Thermal class	120 °C
Ambient operating temperature	-20°C to +40°C, maximum average of 30°C for any 24 h period.
Radiators	9" & 15" panels Mild steel (Carbon steel). Stainless Steel (304L).
Insulating fluid	Mineral Oil.
Noise level	According to IEEE C57.12.15-2017 Table 13.
Tank	Round tank. Mild steel (Carbon steel). Stainless Steel (304L).
Bushing material	Porcelain

Standard Quote / Green Zone

- IEEE Std.C57.15-2017
- Oil filled
- Wound core, 3-legged
- Copper and aluminum windings
- Maximum current of 668 A
- 50 & 60 Hz frequency
- Single-phase
- Guarantee on losses per customer: a) IEEE Std tolerance on average, b) Hard limits on average (LL&NLL), c) Hard limits on individual positions, d) No losses quoted e) Hard limits on total losses at specific position or f) Hard limits on average total.
- Impedance levels < 0.6% according to IEEE Std.
- On Load Tap Changer (OLTC) 32 steps (16 rise, 16 lower and 1 neutral), $\pm 10\%$, 5/8% steps per IEEE Std., maximum current of 668 A
- 25x times short circuit current withstand per IEEE Std
- Bypass arrester, internal only
- Shunt arrester for S, L or SL, external only
- Supplementary continuous current ratings per Table 8 of IEEE C57.15-2017
- Voltage supply ratios per Table 10 of IEEE C57.15-2017
- Load, source and serial source potential transformer
- Ratio correction transformer

I have a regulator installed. How do I know which type I have?

The **regulator serial number** and **design number** can be found in multiple places:

- Decals installed on the tank
- Nameplate
- Certified test reports provided with the unit.

Once we locate the design number, it is read as follows:

