The GE generator product line is divided into three classifications based on the cooling method: air, hydrogen, and water. Air cooling, the least complex method of cooling, is preferred for lower output ratings and has the added benefit of ease of maintenance. The hydrogen cooled generator is completely sealed for operation with hydrogen gas as the cooling medium. The water cooled generator combines the architecture of a hydrogen cooled unit with direct armature winding cooling via deionized water passed through the stator bars. This enhances power density, which provides higher output and industry-leading efficiency in a smaller package.

**AIR COOLED (GEN-A)**

Increased Performance
- Totally enclosed water to air (TEWAC) or open ventilated (OV) cooling configurations.
- Option to ship fully assembled for ease of handling and installation.
- Continuously adjustable alignment with fixators (no shims).
- Robust configuration handles a full range of ambient conditions, including weather extremes and environmental contaminants.

**HYDROGEN COOLED (GEN-H)**

Highly Efficient
- Well suited for combined cycle or simple cycle applications on both steam and gas turbines.
- Automated hydrogen gas control and sealing, enabled by the Mark* VIe Control System, reduces the need for manual intervention in accessories operation.
- Upgraded end shield reduces deflection for improved seal system performance, accommodates increased drive train axial expansion and improves access to seal casing and bearing housing for ease of maintenance.

**WATER COOLED (GEN-W)**

Tailored to Individual Applications
- Incorporates the most advanced technology and robust construction for enhanced operability and ease of maintenance.
- GE’s advanced brazing technology provides the most reliable water cooled bar in the industry.
- Automated hydrogen gas control and sealing, enabled by the Mark* VIe Control System, which also reduces the need for manual intervention in efficient accessories operation.
GE takes generator performance seriously and builds machines to demanding specifications that keep customers on the leading edge of efficient, reliable output. Systems install fast, integrate easily, and deliver the power needed with more uptime. With more than 10,000 generators shipped around the world serving diverse applications, GE understands the operational challenges and offers a complete range of configurations and cooling technologies to help meet unique performance specs. GE fully integrates our engineering with manufacturing and life cycle services solutions, to keep customers’ operations reliable and available.

Cooling Technologies

- **GE GEN-A (air cooled)** generators are an ideal choice for power system applications that demand simple, flexible operation.
- **GE GEN-H (hydrogen cooled)** generators, with low gas density, high specific heat, and high thermal conductivity, are excellent for high efficiency applications.
- **GE GEN-W (water cooled)** generators are efficient, operate within a small footprint when high output requirements exceed the cooling capabilities of air cooled or conventional hydrogen cooled generators.

Innovation and Proven Technology for Reliable Operation

**Stator**
1. One-piece stator frame configuration eases installation and alignment. High-strength isolation system construction promotes low structural vibration.
2. GE’s Tetraloc* end-winding technology helps maintain mechanical integrity throughout the generator’s operating life.

**Rotor**
3. Computational fluid dynamics (CFD) analyses improve overall performance in a simplified radially cooled field winding.

**Armature Insulation System**
4. Micapal III* stator bar insulation technology enables higher power density with advanced voltage stress and thermal conductivity capabilities for greater armature performance.

Flexible Terminal Lead Arrangements
5. All generator models are available with either leads-up or leads-down arrangement to complement GE steam turbines with axial or side exhausts and capture the value of reduced centerline height foundations.

Modular Generator Architecture

- Constant cross-section core segments achieve higher product ratings.
- Each additional step is run through comprehensive model engineering rigor to ensure all electrical and mechanical specifications are met.
- Common end components drive greater spare parts efficiency, interchangeability, and maintenance familiarity.
- Four structured families covering all three generator cooling technologies.

Generator Naming Convention

- A = Air-Cooled
- H = Hydrogen-Cooled
- W = Water-Cooled
- Even first digit:
  - 4 = Small
  - 6 = Medium
  - 8 = Large
- Final digit = step/output size directional indicator within the small, medium or large families (i.e. 5 is a bigger unit with more output than 4).