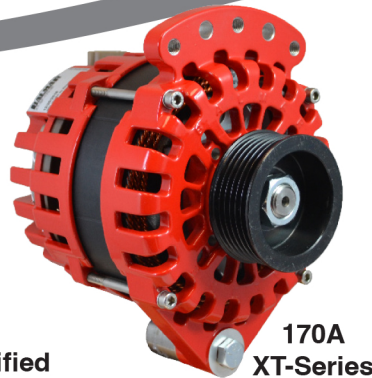


## XT-Series Alternators

### Designed for Recreational Applications

- 170A or 250A in a Small Case Package
- Up to 180A at Idle Speeds
- Patented Smart Ready® Technology
- Dual Fan Cooling, High Airflow Frame
- Ideal for Large Battery Banks
- USCG Title 33, ISO 8846 and SAE J1171 Certified



**New XT-Series Alternators** from Balmar bring together the latest innovations in alternator design to deliver incredible charging power in a compact, Marine & RV-friendly package.



Advanced Braided Stator

The **New XT-Series Alternator** family features a state-of-the-art, braided wire stator design to generate exceptional output in the smallest possible area. The XT-Series produces more power than our previous AT-Series designs and operates 5°-10°C cooler. In addition, we've added Balmar's Smart Ready® internal regulator technology to provide an additional level of fault tolerance for cruising boaters. Available XT-Series mounting styles have been expanded to include the "Vortec" 9Si design found on many GM gasoline engines.

**XT-Series Alternators** feature 96 slots - compared to 36 slots in a traditional S-wound stator – allowing the stator to develop superior electromagnetic energy and efficiency compared to traditional stator designs. The XT-170 and XT-250 are designed to deliver superior performance at idle speeds - up to 128A and 186A, respectively for 12V applications.

**XT-Series Alternators** may require a Tachometer Signal Stabilizer (Part No.05-1013) if your current tach is not adjustable. XT-Series Alternators should only be used in Dual Vee or Multi-Groove Serpentine belt configurations. Balmar's range of **AltMount® Serpentine Pulley Conversion Kits** support **XT-Series Alternators**.

| 6-Series Output | Power Taking Off | Mounting                 | Pulley         | Alternator Only P/N | Kits                          |                |         |         |
|-----------------|------------------|--------------------------|----------------|---------------------|-------------------------------|----------------|---------|---------|
|                 |                  |                          |                |                     | Kit with Max Charge Regulator |                |         |         |
| 170A, 12V       | 5.2 HP           | Single Foot 1-2" Spindle | Dual Vee       | 05-3300             | 05-3400                       |                |         |         |
|                 |                  |                          | K-6 Serpentine | 05-3302             | 05-3402                       |                |         |         |
|                 |                  |                          | J10 Serpentine | 05-3308             | 05-3405                       |                |         |         |
| 170A, 12V       | 5.2 HP           | Dual Foot 3.15" Saddle   | Dual Vee       | 05-3301             | 05-3401                       |                |         |         |
|                 |                  |                          | K-6 Serpentine | 05-3303             | 05-3403                       |                |         |         |
|                 |                  |                          | J10 Serpentine | 05-3309             | 05-3406                       |                |         |         |
| 170A, 12V       | 5.2 HP           | Vortec Mount             | K-6 Serpentine | 05-3304             | 05-3404                       |                |         |         |
|                 |                  |                          | 250A, 12V      | 6.0 HP              | Single Foot 1-2" Spindle      | Dual Vee       | 05-3312 | 05-3407 |
|                 |                  |                          |                |                     |                               | J10 Serpentine | 05-3317 | 05-3414 |
| Dual Vee        | 05-3313          | 05-3408                  |                |                     |                               |                |         |         |
| 250A, 12V       | 6.0 HP           | Dual Foot 3.15" Saddle   | K-6 Serpentine | 05-3315             | 05-3411                       |                |         |         |
|                 |                  |                          | J10 Serpentine | 05-3318             | 05-3415                       |                |         |         |
|                 |                  |                          | Dual Vee       | 05-3327             | 05-3409                       |                |         |         |
| 250A, 12V       | 6.0 HP           | Dual Foot 4" Saddle      | K-6 Serpentine | 05-3328             | 05-3412                       |                |         |         |
|                 |                  |                          | 90A, 24V       | 5.2 HP              | Single Foot 1-2" Spindle      | Dual Vee       | 05-3320 | 05-3416 |
|                 |                  |                          |                |                     |                               | K-6 Serpentine | 05-3322 | 05-3418 |
| J10 Serpentine  | 05-3325          | 05-3421                  |                |                     |                               |                |         |         |
| 90A, 24V        | 5.2 HP           | Dual Foot 3.15" Saddle   | Dual Vee       | 05-3321             | 05-3417                       |                |         |         |
|                 |                  |                          | K-6 Serpentine | 05-3323             | 05-3419                       |                |         |         |
|                 |                  |                          | J10 Serpentine | 05-3326             | 05-3422                       |                |         |         |
| 90A, 24V        | 5.2 HP           | Vortec Mount             | K-6 Serpentine | 05-3324             | 05-3420                       |                |         |         |

**How to Select the Correct Balmar Charging System for Your Vessel**

**Step 1: Determine your Electrical Load**

All your device loads and expected duty cycles will clarify your expected daily battery discharge requirements. Add a safety factor.

**Step 2: Identify your Battery Bank Technology and Capacity**

How many batteries are in your bank and what is the total storage capacity?  
 What type of batter chemistries are employed? (requiring different charge programs)

**Step 3: Select your Alternator Output**

The correct charging load depends on the battery chemistry and capacity.  
 An AGM battery can accept a 40% charge load, so a 400Ah bank of AGMs can accept 160A of charging from the alternator. Note: Lithium batteries can accept an unlimited charge load.

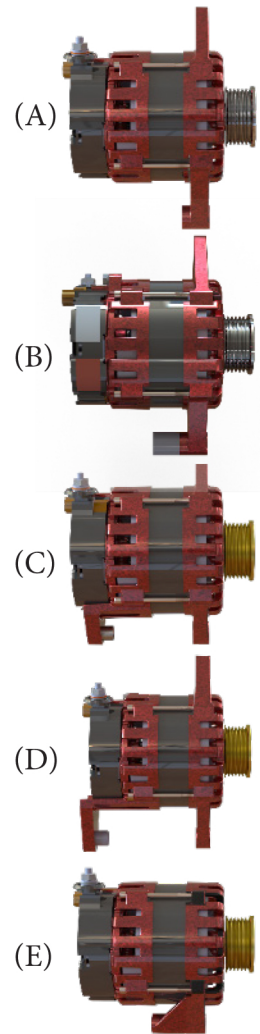
**Step 4: Identify the Alternator Mounting Style Present on your Engine**

|   |                  |                      |
|---|------------------|----------------------|
| The most common mounting styles are shown to the right: |                  |                      |
| (A) 1" Single Foot (Spindle Mount)                      | "Motorola Style" | Balmar XT-SF Series  |
| (B) 2" Single Foot (Spindle Mount)                      | "Delco Style"    | Balmar XT-SF Series  |
| (C) 3.15" Dual Foot (Saddle Mount)                      | "Hitachi Style"  | Balmar XT-DF Series  |
| (D) 4" Dual Foot (Saddle Mount)                         | "J-180 Style"    | Balmar XT-DF4 Series |
| (E) GM Delco Vortec Mount                               | "Vortec Style"   | Balmar XT-VT Series  |

**Step 5: Determine your Belt and Pulley Requirements**

An Altmount® belt/pulley conversion kit may be required to handle your alternator Power Take-Off ("PTO") load.

Detailed toolsets for calculating loads and selecting the appropriate charging system for your vessel are available in the Balmar Catalog or at [www.balmar.net](http://www.balmar.net)

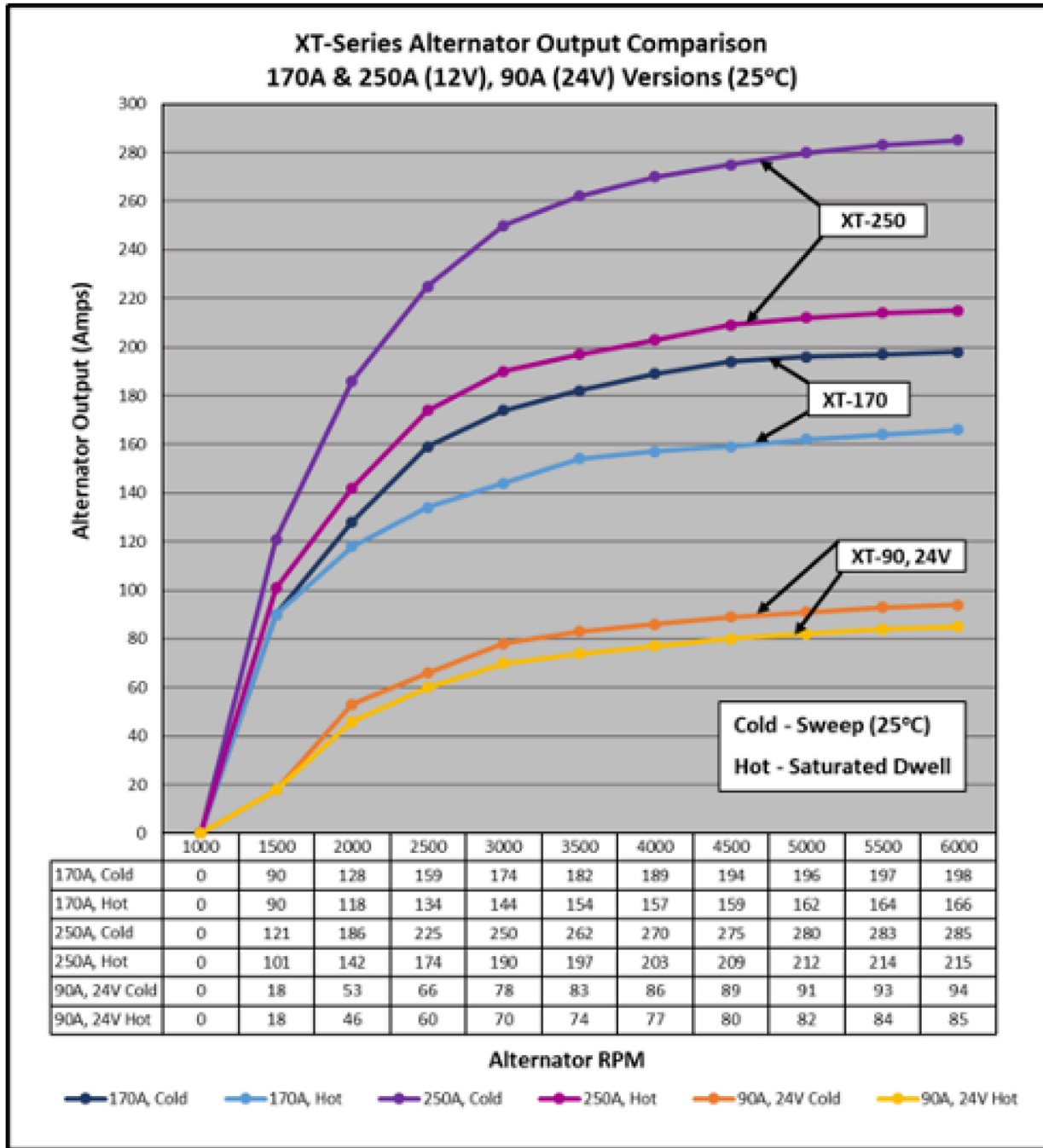


**XT-Series Alternator Specifications**

|  |   |
|--|---|
| <b>Alternator Style:</b> Small Case, Positive Field Excitation (P-Type)                                      | <b>Mounting Styles:</b> XT-VT Series: Delco Vortec Style<br>XT-SF Series: 1" or 2" Single Foot (Spindle)<br>XT-DF Series: 3.15" Dual Foot (Saddle)<br>XT-DF4 Series: 4" Dual Foot (Saddle)(XT-250 Only) |
| <b>Regulation:</b> External P-Type (MC-618)<br>XT-Series Includes an Internal Smart Ready® Voltage Regulator | <b>Positive Output:</b> Threaded Stud<br>Dimensions: XT-170 & XT-250: M8 x 1.25   |
| <b>Cooling:</b> Dual Internal Fans   | <b>Grounding:</b> Case Ground<br>XT-170 Isolated Ground Available on Request  |
| <b>Bearings:</b> Sealed Bearings, Heavy Duty Radial (front & rear)   | <b>AC/Stator Output:</b> 16 Poles<br>Stator Output Wire included in Pigtail Plug  |
| <b>Case Construction:</b> Ventilated Cast Aluminum   | <b>Diodes +/-:</b> 6 Positive, 6 Negative; 50A Rated  |
| <b>Finish:</b> Red Power Coat  | <b>Smart Ready® Internal Voltage Regulation:</b><br>14.1 Volts (12V Systems)  |
| <b>Tensioning Arm Mount:</b> XT-250 (not applicable)<br>XT-170: Five Position Crown (3x: M8 x 1.25, 2x: 8mm) | <b>Cut-In RPM:</b> 170A: 1,150 rpm, 90A & 250A: 1,350 rpm<br>Max Alternator RPM: 18,000 rpm   |
| <b>Mounting Foot Bore:</b> XT-VT, DF, SF 2"-Series: 10mm (3/8")<br>XT-SF 1", DF4-Series: ½"                  | <b>Normal Operating Temperature:</b> 180oF / 82oC<br>Max Operating Temperature: 225oF / 108oC   |
| <b>Ignition Protection Ratings:</b> USCG Title 33, SAE J1171, CE, ISO 8846                                   |   |

## Alternator Output Curves

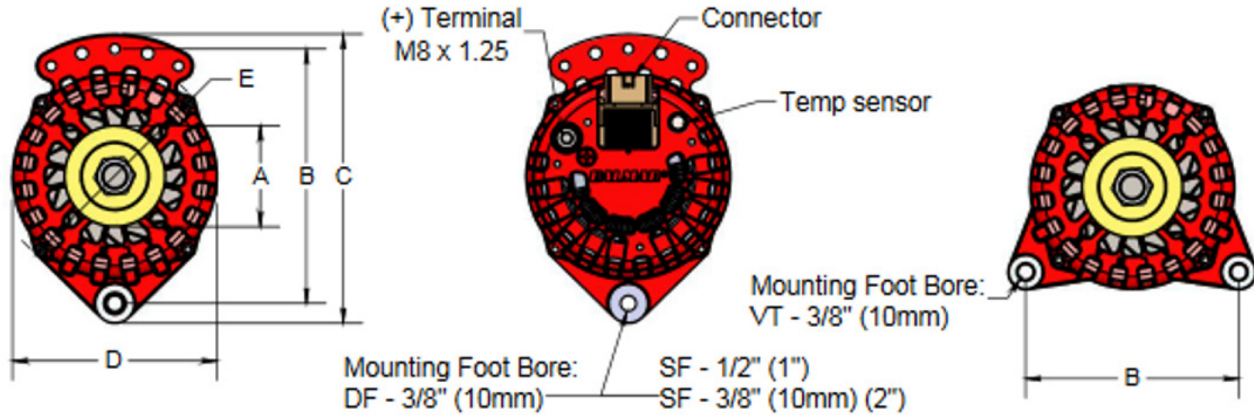
Alternator output is dependent upon several factors: battery condition and capacity, wire size, engine horsepower and RPM, battery temperature and alternator temperature. Of these factors, alternator speed and temperature are most important. The following graph describes alternator output based on ambient (25°C) temperature in “sweep” and “saturated dwell” conditions. Test voltages are set at 13.5V.



Balmar XT-Series Alternators and Charging Kits provide maximum charging power in a small case package suitable for installation in most small-to-medium sized diesel engines and most GM-based 4.3L to 8.1L gasoline engines.

Utilize the Balmar product configurator at [www.balmar.net](http://www.balmar.net) to locate a solution for your engine.

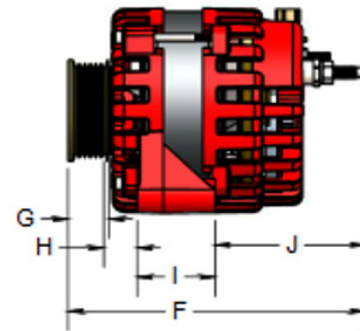
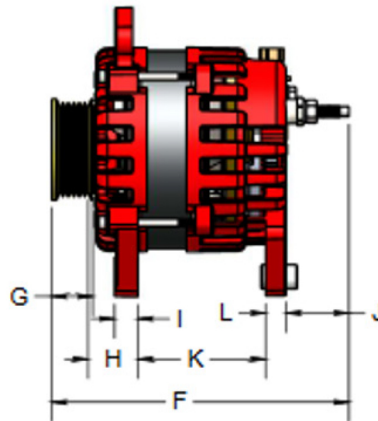
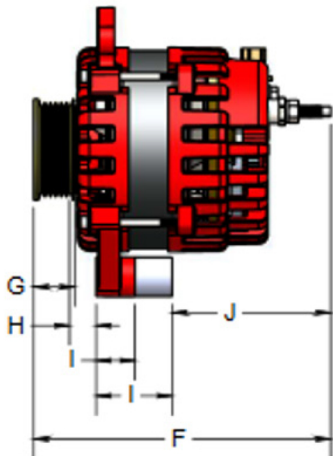
**XT-170 Series Alternator Dimensions**



XT-SF-170-XX

XT-DF-170-XX

XT-VT-170-K6

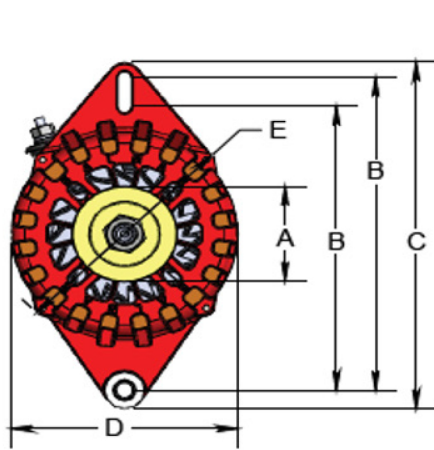


| ITEM | DESCRIPTION                  | IN.  | mm  |
|------|------------------------------|------|-----|
| A    | Dual Vee (DV) Pulley Dia.    | 2.71 | 68  |
|      | K6 (serpentine) Pulley Dia.  | 2.42 | 61  |
|      | J10 (serpentine) Pulley Dia. | 2.28 | 57  |
| B    | Mounting Hole (VT)           | 5.47 | 138 |
|      | Mounting Hole (SF)           | 6.53 | 165 |
| C    | Overall Height               | 7.43 | 188 |
| D    | Case Diameter                | 5.26 | 134 |
| E    | Mounting Ear to Mounting Ear | 5.70 | 144 |
| F    | Overall Length w/ DV Pulley  | 8.00 | 203 |
|      | Overall Length w/ K6 Pulley  | 7.63 | 193 |
|      | Overall Length w/ J10 Pulley | 7.86 | 99  |
| G    | DV Pulley Width              | 1.53 | 38  |
|      | K6 Pulley Width              | 1.18 | 29  |
|      | J10 Pulley Width             | 1.40 | 35  |

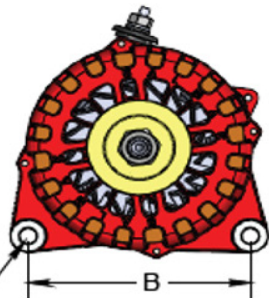
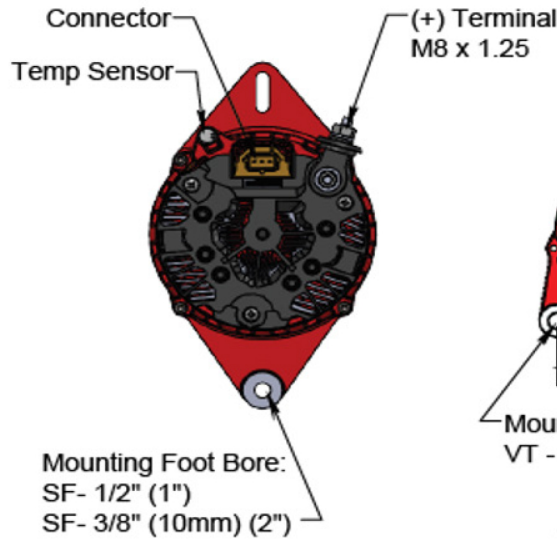
| ITEM | DESCRIPTION                   | IN.  | mm  |
|------|-------------------------------|------|-----|
| H    | First Groove to Mounting (SF) | 0.68 | 17  |
|      | First Groove to Mounting (DF) | 1.28 | 32  |
|      | First Groove to Mounting (VT) | 0.85 | 21  |
| I    | Foot Thickness (SF) 1"        | 1.00 | 25  |
|      | Foot Thickness (SF) 2"        | 1.95 | 49  |
|      | Foot Thickness (DF)           | 0.60 | 15  |
| J    | Foot Thickness (VT)           | 2.00 | 50  |
|      | Foot to (+) Terminal (SF) 1"  | 5.03 | 127 |
|      | Foot to (+) Terminal (SF) 2"  | 4.08 | 103 |
| K    | Foot to (+) Terminal (DF)     | 1.61 | 40  |
|      | Foot to (+) Terminal (VT)     | 3.86 | 98  |
|      | DF Saddle Width (MIN)         | 2.88 | 73  |
| L    | DF Saddle Width (MAX)         | 3.28 | 83  |
|      | DF Saddle Width               | 3.15 | 80  |
| L    | Rear Foot Thickness           | 0.52 | 13  |

Dimensions are provided for illustrative purposes. Contact Balmar Technical Support if detailed drawings are required.

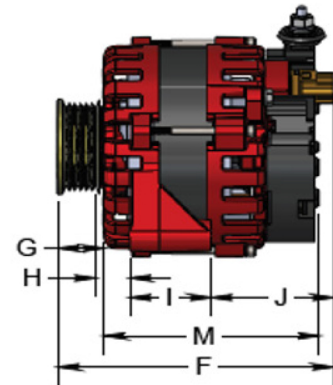
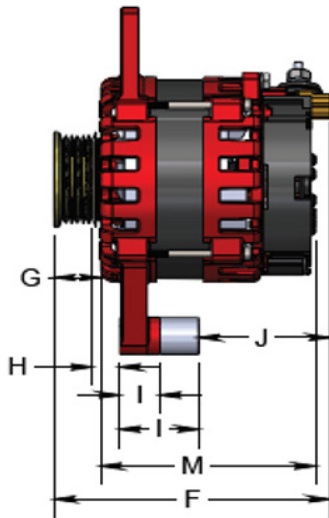
**XT-250 Series Alternator Dimensions – Single Foot and Vortec Mounts**



XT-SF-250-XX



XT-VT-250-XX

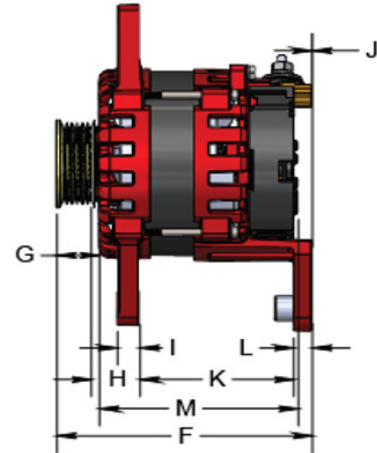
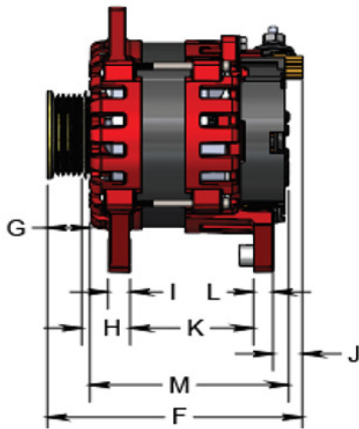
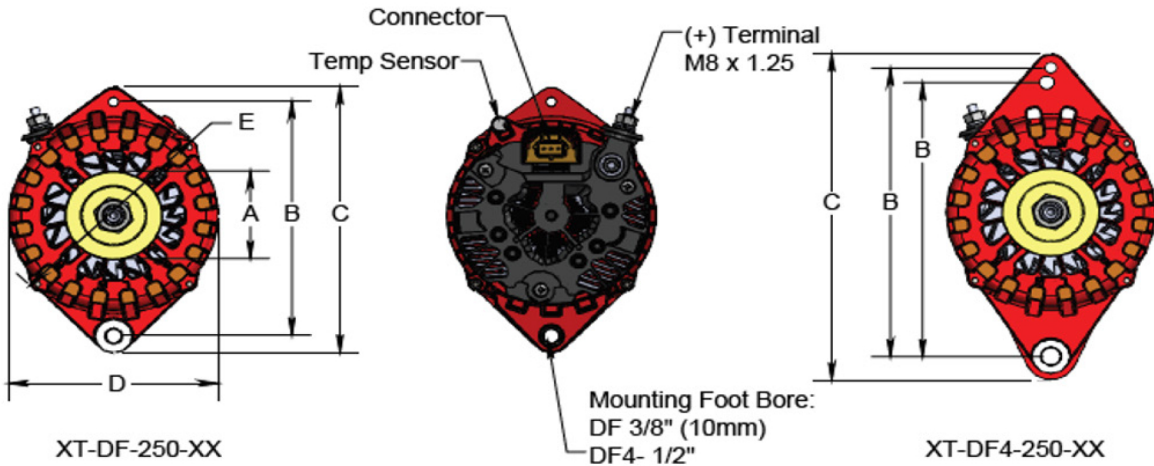


| ITEM | DESCRIPTION                           | IN.  | mm  |
|------|---------------------------------------|------|-----|
| A    | Dual Vee (DV) Pulley Dia.             | 2.71 | 68  |
|      | K6 (serpentine) Pulley Dia.           | 2.42 | 61  |
|      | J10 (serpentine) Pulley Dia.          | 2.28 | 57  |
| B    | Mounting Hole to Hole (VT)            | 5.47 | 138 |
|      | Mounting Hole to Hole (SF Upper Slot) | 8.50 | 216 |
|      | Mounting Hole to Hole (SF Lower Slot) | 7.72 | 196 |
| C    | Overall Height (SF)                   | 9.44 | 240 |
| D    | Case Diameter                         | 5.59 | 142 |
| E    | Mounting Ear to Mounting Ear          | 6.10 | 154 |
| F    | Overall Length w/ DV Pulley           | 7.15 | 181 |
|      | Overall Length w/ K6 Pulley           | 6.80 | 172 |
|      | Overall Length w/ J10 Pulley          | 7.02 | 178 |

| ITEM | DESCRIPTION                       | IN.  | mm  |
|------|-----------------------------------|------|-----|
| G    | DV Pulley Width                   | 1.53 | 38  |
|      | K6 Pulley Width                   | 1.18 | 29  |
|      | J10 Pulley Width                  | 1.40 | 35  |
| H    | First Groove to Mounting (SF K6)  | 0.68 | 17  |
|      | First Groove to Mounting (SF J10) | 0.75 | 18  |
|      | First Groove to Mounting (SF K6)  | 0.85 | 21  |
| I    | Foot Thickness (SF) 1"            | 1.00 | 25  |
|      | Foot Thickness (SF) 2"            | 1.95 | 49  |
| J    | Foot Thickness (VT)               | 2.00 | 50  |
|      | Foot Connector (SF) 1"            | 4.19 | 106 |
| K    | Foot Connector (SF) 2"            | 3.24 | 82  |
|      | Foot Connector (VT)               | 3.02 | 76  |
| M    | Front Housing to Rear Cover       | 5.30 | 134 |

Dimensions are provided for illustrative purposes. Contact Balmar Technical Support if detailed drawings are required.

**XT-250 Series Alternator Dimensions – Dual Foot Mounts**



| ITEM | DESCRIPTION                       | IN.  | mm  |
|------|-----------------------------------|------|-----|
| A    | Dual Vee (DV) Pulley Dia.         | 2.71 | 68  |
|      | K6 (serpentine) Pulley Dia.       | 2.72 | 61  |
|      | J10 (Serpentine) Pulley Dia.      | 2.28 | 57  |
| B    | Mounting Hole to Hole (DF)        | 6.88 | 175 |
|      | Mounting Hole to Hole (DF4 Upper) | 8.50 | 216 |
|      | Mounting Hole to Hole (DF4)       | 8.07 | 205 |
| C    | Overall Height (DF)               | 7.81 | 198 |
|      | Overall Height (DF4)              | 9.61 | 244 |
| D    | Case Diameter                     | 5.59 | 142 |
| E    | Mounting Ear to Mounting Ear      | 6.10 | 154 |
| F    | Overall Length w/ DV Pulley       | 7.15 | 181 |
|      | Overall Length w/ DV Pulley (DF4) | 7.17 | 182 |
|      | Overall Length w/ K6 Pulley       | 6.80 | 172 |
|      | Overall Length w/ K6 Pulley (DF4) | 6.81 | 173 |
|      | Overall Length w/ J10 Pulley      | 7.02 | 178 |
| G    | DV Pulley Width                   | 1.53 | 38  |
|      | K6 Pulley Width                   | 1.18 | 29  |
|      | J10 Pulley Width                  | 1.40 | 35  |

| ITEM | DESCRIPTION                       | IN.                         | mm   |
|------|-----------------------------------|-----------------------------|------|
| H    | First Groove to Mounting (DF K6)  | 1.29                        | 32   |
|      | First Groove to Mounting (DF J10) | 1.36                        | 34   |
|      | First Groove to Mounting (DF DV)  | 1.58                        | 40   |
|      | First Groove to Mounting (DF4 K6) | 1.29                        | 32   |
|      | First Groove to Mounting (DF4 DV) | 1.58                        | 40   |
| I    | Foot Thickness (DF)               | 0.60                        | 15   |
|      | Foot Thickness (DF4)              | 0.60                        | 15   |
| J    | Foot Connector (DF)               | 0.78                        | 19   |
|      | Foot Connector( DF4)              | -0.02                       | -0.5 |
| K    | DF Saddle Width (MIN)             | 2.88                        | 73   |
|      | DF Saddle Width (MAX)             | 3.28                        | 83   |
|      | DF Saddle Width                   | 3.15                        | 80   |
|      | DF4 Saddle Width (MIN)            | 3.60                        | 91   |
|      | DF4 Saddle Width (MAX)            | 4.10                        | 104  |
| L    | DF4 Saddle Width                  | 4.00                        | 101  |
|      | Rear Foot Thickness (DF)          | 0.52                        | 13   |
| L    | Rear Foot Thickness (DF4)         | 0.50                        | 12   |
|      | M                                 | Front Housing to Rear Cover | 5.30 |

Dimensions are provided for illustrative purposes. Contact Balmar Technical Support if detailed drawings are required.