With an array of 8 dual dipole elements, the DB420 is heavy duty, lightweight, and provides high gain and constant performance across a broad omni or elliptical pattern. The antenna is suitable for mounting to the top, or on the side of a tower. Clamps for top mounting are supplied with the antenna.

- **Rugged** — Resists winds to 100 mph (161 km/hr).
- **Broad Response** — With 14 to 24 MHz bandwidth, this antenna gives optimum performance in single or multi-frequency systems.
- **Moisture Resistant** — VAPOR-BLOC® cable harness provides weather protection and assures inphase signal distribution to all elements.
- **Lightning Resistant** — Radiators operate at DC ground, and the aluminum mast, with its pointed top, provides a low resistance discharge path to the tower or ground system.
- **Circular Pattern** — DB420 has dual dipoles positioned at 90° angles from each other. When the dual dipole elements are mounted with the top 4 at a 90° angle to the 4 at the bottom, an omni-directional pattern, with 9.2 dBi gain, is produced.
- **Offset Pattern** — DB420L has all dual dipoles mounted in line, collinearly, on the mast, an elliptical pattern with 10.4 dBi results. The pattern can be changed in the field with ordinary hand tools.
- **Dual** — Two antennas can operate on the same mast with any combination of circular and elliptical patterns. The DB420 is also available with independent antennas on a common mast, each with a separate feed line. Model DB420D consists of two DB408 type antennas.

The elements of these dual antennas can be aligned to produce either an omni or elliptical pattern, each without regard to other antennas on the mast.

4 models, each with a bandwidth of approximately 20 MHz, cover the 406-420 and 450-512 MHz bands. Gain and VSWR are virtually constant across the band, which permits the antenna to give optimum performance in single or multi-frequency systems.

A binary cable harness assures equal inphase signal distribution to all elements.

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**ORDERING INFORMATION**

Use model number for correct frequency.
Order the DB420 omni or DB420L elliptical. DB365-OS Clamps are included. Order DB5012 Side Mount Kit if needed. Additional sized clamps can be special ordered.

**Example:** DB420-B or DB420L-B for 450-470 MHz range. Order jumper cable separately.

**Antenna Gain vs Frequency**

The curves illustrate the gain of the DB420 and DB420L across a 20 MHz bandwidth. Maximum gain of 9.2 dBi (DB420) and 10.4 dBi (DB420L) occur at the mid-band frequency of each frequency range. The gain of the DB420L is shown at the pattern maximum in the horizontal plane.
Exposed Dipole Quasi-Omni Antenna

406 - 512 MHz / 6.6 to 10.4 dBi Gain

**SIDE MOUNTING**

The DB420 and DB420L patterns indicate the typical shape of the antenna side mounted on a tower with an 18" (457.2 mm) face. The patterns for 12" (304.8 mm) and 24" (609.6 mm) towers will be similar.

The DB5012 Side Mount Kit position the antenna approximately 16" from the tower and consists of an upper sway brace, lower bracket (both galvanized) and the necessary hardware for attaching the bracket to round tower members up to 3" OD, or angular members up to 2" on a side. Additional sized clamps can be supplied on special order.

**ELECTRICAL DATA**

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency – MHz</th>
<th>Gain - dBi / dBi</th>
<th>Overall Length – in. (mm)</th>
<th>Net Weight (w/clamps) - lbs. (kg)</th>
<th>Shipping Weight (w/clamps) - lbs. (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB420-A</td>
<td>406 - 420</td>
<td>9.2 / 10.4</td>
<td>231 (5,867.4)</td>
<td>34 (15.4)</td>
<td>58 (26.3)</td>
</tr>
<tr>
<td>DB420-B</td>
<td>450 - 470</td>
<td>9.2 / 10.4</td>
<td>233 (5,918.2)</td>
<td>34.5 (15.7)</td>
<td>58.5 (26.6)</td>
</tr>
<tr>
<td>DB420-D</td>
<td>486 - 512</td>
<td>9.2 / 10.4</td>
<td>232 (5,892.2)</td>
<td>34.5 (15.7)</td>
<td>58 (26.3)</td>
</tr>
<tr>
<td>DB420-E</td>
<td>486 - 512</td>
<td>6.6 / 7.8</td>
<td>232 (5,892.2)</td>
<td>34.5 (15.7)</td>
<td>58 (26.3)</td>
</tr>
<tr>
<td>DB420L-B</td>
<td>450 - 470</td>
<td>6.6 / 7.8</td>
<td>233 (5,918.2)</td>
<td>34.5 (15.7)</td>
<td>58.5 (26.6)</td>
</tr>
<tr>
<td>DB420L-D</td>
<td>486 - 512</td>
<td>6.6 / 7.8</td>
<td>232 (5,892.2)</td>
<td>34.5 (15.7)</td>
<td>58 (26.3)</td>
</tr>
<tr>
<td>DB420MS-E</td>
<td>485 - 505</td>
<td>8</td>
<td>188 (4,775)</td>
<td>30 (13.6)</td>
<td>46 (20.9)</td>
</tr>
</tbody>
</table>

**MECHANICAL DATA**

- Mast – Upper (aluminum) – in. (mm) 1.75 (44.45) OD with 0.0625 to 0.125 (1.59 to 3.18) wall
- Mast – Lower (aluminum) – in. (mm) 2 (50.8) OD with 0.125 to 0.25 (3.18 to 6.35) wall
- Radiating Elements (aluminum) – in. (mm) 0.375 (9.53) OD with 0.058 (1.47) wall
- Maximum Exposed Area (flat plate equivalent) – ft² (m²) 3.33 (.309)

**Wind Rating:**

- Survival w/o Ice – mph (km/hr) 100 (161)
- Survival with 0.5" (12.7 mm) Radial Ice – mph (km/hr) 70 (112.65)

**Lateral Thrust at 100 mph** (161 km/hr) – lbf (N) 133 (592.5)

**Overall Length** – in. (mm) See table

**Net Weight** (w/clamps) – lbs. (kg) See table

**Shipping Weight** (w/clamps) – lbs. (kg) See table

**NOTE:** The mechanical specifications are slightly degraded for the antenna covering the 406-420 MHz band.