The Generation-7 8040
2-band vertical dipole

a full-size, full-coverage 40 meter and an 80/75 meter vertical dipole

Utilizes a motorized Tornado drive to cover the 80 & 75 meter bands.

Small footprint.

No ground radials.

Handles full legal power and can be programmed using an MFJ controller.

Base is 2” diameter and drops into a section of PVC in the ground, then either guyed at the Tornado drive using phyllistran, or a pair of optional fiberglass and aluminum rigid guys.

N6BT makes the best; others make comparisons

Web site: n6bt.com & nextgenerationantennas.com
e-mail: tom@n6bt.com
alternate e-mail canscan7@yahoo.com
Welcome to n6bt.com
Next Generation Antennas™

Next Generation Antennas, n6bt.com and, of course, N6BT, are located in Kingman, Arizona.

The rainbow photo displays a unique prototype. It is a rotatable vertical dipole array for 15 meters, patterned after the Team Vertical 2x2. It consists of (4) new EV 15-meter vertical dipoles. There are (2) pairs of 2-element parasitic arrays (driver/reflector) fed in phased broadside on an 18' boom. A similar array was built for 40 meters. Although it was not rotatable, it was switchable in front and rear directions.

**Vertical Development**

Our antenna development continues with verticals for 30, 40, 80 and 160 now up and running utilizing new concepts. One focus was to development a minimal footprint for the low bands for those with limited space.

The 80-meter verticals are 52' tall with (3) top radials and the guy points are only 28' from the base. There are a pair of these that can be fed in phased broadside, or a single. The first was installed the day of the 2017 CQWW CWW and worked 58 countries with about 10-11 hours of operating. The second was added and the country count stands at 93 as of April, 2018. It would be nice to not have such limited operating time, but the designs have shown themselves to be effective. The 80 RCP ("ring counterpoise") looks like this and is elevated 7': The RCP footprint is only 16’ per side. This makes a very compact 80 meter vertical antenna and the antenna self-resonates at 3.540 MHz without any additional loading. The computer model shows it to be 96% efficient.

The history of the ring counter-poise has its beginning in our Force 12, Inc. ZR series. This was back in 1996. We built the 20-15-10 ZR-3, plus many single banders for HF, 2 meters and 440, plus commercial and military. The ring on the HF models eventually became too labor intensive to keep at an attractive price point and it was replaced by the Sigma series, which used top and bottom "T-bars" instead of the ring. These antennas looked like a big letter "I", or an "H" on its side. We built this design in 5-banders, plus many mono-banders from 80 meters to 440 MHz. After recent testing of several methods for an efficient, small footprint for the low bands, we went back to the ring for the Gen-7. It was the right selection.

The 160 vertical is a similar design to the 80’s. It is 68’ tall with (3) top radials. The guy points are 28’ from the base and the top radials are 35’ from the base. It was live during the ARRL CW DX contest and, although conditions haven’t been all that wonderful, a total of 35 countries have been worked, including all continents. The RCP is a 3-wire arrangement to simulate a larger conductor and the model shows the efficiency to be 89%. As with the 80, this antenna is also self-resonant in the band, at 1.840 MHz.

A Gen-7 asymmetric vertical was also installed for 40, using an RCP. It is often compared on the air to the phased broadside array and fills in the deep side nulls of the array. Every station heard has been worked, including the recent 3B7 DXpedition. The RCP is utilizing only 3 sides of the square, which is 8’ per side – a very small footprint.

An important note is that there are no wires on the ground in the antenna field (except buried coax). There are no radial wires and the ground is desert.

The Generation-7 design has been applied to an 80/40 duo-bander. It is shown on the cover. The RCP is composed of tubular aluminum and is less than 8’ per side. The antenna has been a superlative performer on both bands. The motorized Tornado drive gives full coverage of both 80 and 75, plus the internal shorting switch places the antenna on 40 meters. It was designed for those with limited space who want an efficient and effective antenna on both of these bands. If you are running digital modes, you will truly enjoy this antenna working DX on these low bands with minimal low power.

The Gen-7 design has proven superior and the Evolution Vertical Series is being redesigned into the Gen-7 configuration.

We continue to build horizontal antennas, too, such as our new DXU-222 that has 2 elements on 40, 30 and 20.

...
Bravo Series
the popular single and multi-band vertical dipole leading the way since 2010

The first vertical dipoles were my ZR design at Force 12, Inc. in 1994. They were 98% efficient, but very difficult to manufacture. The SVDA’s followed, then the Sigma series in 2000. Called the “I” or “H” style by others, the Sigma was also highly efficient, but needed mechanical and electrical improvements. A few more years, more Team Vertical DXpeditions, and the Bravo became the Next Generation of verticals.

The Bravo series has been popular for home, portable and DXpeditions. It is available in many configurations from single band to 5-bands, plus many models in remote, relay-switched models. Customer suggestions have made all models easier/faster to set-up and stronger.

Bravo-5K  $229
20-17-15-12-10 mtrs
Quick band change
Full size on 15-12-10
>94% efficient
Full Power 13’ tall, 7#
2-section tri-pod
3’ sections

Bravo-5KS  $259
2’ section model
of the Bravo 5K
for traveling.

Bravo-7K  $349
40-30-20-17-15-12-10 mtrs
Fast manual band change
Full size on 20-17-15-12-10
>92% efficient
Full Power 18’ tall, 13#
2-section tri-pod
3’ sections

Bravo-5A  $329
20-17-15-12-10 mtrs
remote-switched
>92% efficient
800 Watts 9’ tall, 6.5#
2-section tri-pod
3’ sections

Bravo-7KR  $489
40-30-20 mtrs
Remote control w/12VDC relays
Full coverage and pre-tuned
Default band is 40 mtrs
21’ tall, section tri-pod
3’ sections

Bravo-7KS  $tbd
2’ section model of the Bravo 7K for traveling.

Bravo-40M  $389
Single band for 40 meters
23’ tall, 2-section tri-pod
>200 kHz 2:1 bandwidth
92% efficient, 12#
Excellent for 2el parasitic
and driven arrays
Full power, 1:1 balun required

SBVA
2-element
Switchable
Bravo Vertical
Dipole
Arrays

For all SBVA arrays, please zip off an e-mail to: tom@n6bt.com

.....Single Band Bravo Vertical Dipoles.....

<table>
<thead>
<tr>
<th>Model</th>
<th>Coverage</th>
<th>Height</th>
<th>Resonators</th>
<th>Efficiency</th>
<th>Price</th>
<th>Guys</th>
<th>Rqd</th>
<th>HD Avail</th>
</tr>
</thead>
<tbody>
<tr>
<td>80M</td>
<td>80/75</td>
<td>32’+base</td>
<td>2x18’</td>
<td>86%</td>
<td>$489</td>
<td>1</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>40M</td>
<td>40</td>
<td>23’+base</td>
<td>2x12’</td>
<td>92%</td>
<td>$389</td>
<td>1</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>20M</td>
<td>20</td>
<td>23’+base</td>
<td>2x10’</td>
<td>98%</td>
<td>$249</td>
<td>opt</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>15M</td>
<td>15</td>
<td>17’+base</td>
<td>2x8.5’</td>
<td>99%</td>
<td>$149</td>
<td>N</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>10M</td>
<td>10</td>
<td>12’+base</td>
<td>2x6.8’</td>
<td>99%</td>
<td>$129</td>
<td>N</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>
The New Evolution Vertical™
The innovative solution for those who want gain and directivity without a tower.

Making a gain antenna that doesn’t require a tower usually falls into the area of switched vertical arrays, like a 4-square. Some of the problems are the radial field and the phasing/switching system. We started with 20 meters.

The most straightforward approach was to put together a 2-element vertical array. The Bravo series would be excellent, except for the horizontal resonators made it awkward and potentially a safety issue. The key was to eliminate the horizontal components in the elements. After a year’s work, the result is the new Evolution Vertical™. In an attempt to describe it in a few words (like in a patent), it is a radical-ratio asymmetric vertical dipole. The feed point is also right where you want it – at boom level.

The first rotatable vertical beam was a 20-meter 2-element. I’ll have to admit that after using these 2-element arrays for years on beaches with Team Vertical, it felt strange to have one that could rotate. This was really breaking new ground and when it was rotated for the first time, it was amazing. This 2-element 20-meter is called the EVA-220, for Evolution Vertical™ Array.

EVA-220
2el 20m rotatable vertical beam is $489
Single lobe, 4.1-4.4dBi at 19° over 125kHz bandwidth
RBN-verified 8-13dB F/B over ground 120° ½ power beam-width
Vertical above boom is 17’ (1/4 λ) 21’ overall height, 9’ boom, 20#
Tuned for CW, >250kHz 2:1 VSWR >1kw, use RF choke, or 1:1 balun

EVE-40*
New, taller 40-meter vertical dipole,
Field-test proven,
Patent Pending design

Approximately 27’ overall height with air-core, copper inductors and an internal dual-core ferrite balun.
Tri-pod included and can be for permanent or portable operation.

Can be phased or used in parasitic arrays.

Excellent DX performer.
EVE-40* $629

GEN-7*
The new EVE-40 is using GEN-7* technology.

Several more GEN-7* verticals are in proto-type stage.

All of our research is to bring you the best possible antenna.

We utilize drones to give real-time testing of both patterns and also comparisons of various designs.

GEN-7* is the direct result of these efforts.
The perfect all band antenna for smaller locations, portable operations and DXpeditions
Based on the proven Bravo 7K
3’ sections, quick deploy and strong
remote auto tune 80-10m
8 bands & full power

Bravo Vertical Dipole Series
remote auto tune 80-10m
8 bands

Full vertical height = 19.5’ Typical horizontal tip-to-tip = 18.2’
Height overall (ground to top) ~ 24” Longest section = 3’
2” ground post (PVC sleeve incl.) Tuner clamps to base post.

Designed for MFJ & similar remote auto tuners to 1.5 KW
(can also be tuned at the transmitter)
Typical plots for all bands
Yagis and Dipoles

The second page of this brochure included some history, with a few highlights from the development of my original Force 12 product line and then on to this current line. Both electrical and mechanical modeling has been used since day one, back in 1991, and the relationship of the computer to real-life performance is known. One item not mentioned is that we had strategically located test sites in North America, South America and the Caribbean with experienced operators to feed back information on antenna performance. An interesting observation is that to date, you will find that all the new antennas being built follow the groundbreaking designs from my original line.

A comment on gain, F/B and VSWR – it is enjoyable to tweak the computer models; however, the practical side of antennas includes trade-offs. Often, the F/B ratio is elevated too high, when it is gain and operational bandwidth that most often “do the work.” Ever heard someone say, “My great F/B got me through that big pile-up”? Probably not…

Our vast experience allows us to literally build any antenna imaginable. The listing below is a select group of antennas that will meet the majority of needs. If you want something else, just ask.

Gain specification is practical and to a full size dipole at the same height. Since some others use dBi (to the theoretical isotropic source, increases gain number by 2.14), it is also included. F/R is typical to the 2 rear quadrants, not to a point at exactly 180°. DXr antennas are Yagis and dipoles: the Yagis are all multi-band and selective feed systems for a single feed line, or multiple. They follow my long-established overlay designs and are built to last even longer with such improvements. The DXr series will meet all of your needs for multi-band Yagis. Rated for >90mph; higher survival ratings on request. Feature 120° riveting and 5KW power and my original tapering schedule for elements that “surf” the wind.

<table>
<thead>
<tr>
<th>Model</th>
<th>Band</th>
<th>Tot</th>
<th>Pwr</th>
<th>Boom</th>
<th>Gain dBi</th>
<th>Typical F/R</th>
<th>Typical VSWR</th>
<th>Open Space</th>
<th>Wind-load</th>
<th>Turn Radius</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DXr-3M</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>4</td>
<td>5kw</td>
<td>7.5'</td>
<td>4.2dBd</td>
<td>12</td>
<td>&lt;1.6</td>
<td>68° (3' 8&quot;)</td>
<td>3.9</td>
</tr>
<tr>
<td>DXr-3MX</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>5</td>
<td>5kw</td>
<td>7.5'</td>
<td>4.2dBd</td>
<td>12</td>
<td>&lt;1.6</td>
<td>68° (3' 4&quot;)</td>
<td>3.9</td>
</tr>
<tr>
<td>DXr-3</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>6</td>
<td>5kw</td>
<td>11.7'</td>
<td>4.4dBd</td>
<td>17</td>
<td>&lt;1.4</td>
<td>55° (4' 7&quot;)</td>
<td>5.1</td>
</tr>
<tr>
<td>DXr-3se</td>
<td>24' 20m elements</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>6</td>
<td>5kw</td>
<td>11.7'</td>
<td>4.1dBd</td>
<td>18</td>
<td>&lt;1.4</td>
<td>55° (4' 7&quot;)</td>
</tr>
<tr>
<td>DXr-4</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>8</td>
<td>5kw</td>
<td>11.7'</td>
<td>4.5dBd</td>
<td>17</td>
<td>&lt;1.4</td>
<td>43° (3' 7&quot;)</td>
<td>5.8</td>
</tr>
<tr>
<td>DXr-5</td>
<td>20</td>
<td>17</td>
<td>15</td>
<td>12</td>
<td>16</td>
<td>10</td>
<td>5</td>
<td>9</td>
<td>5kw</td>
<td>15.5'</td>
<td>4.5dBd</td>
</tr>
<tr>
<td>DXr-6</td>
<td>Std on 6 is 2 ele, can be more</td>
<td>20</td>
<td>17</td>
<td>15</td>
<td>12</td>
<td>16</td>
<td>10</td>
<td>6</td>
<td>11</td>
<td>5kw</td>
<td>16’</td>
</tr>
<tr>
<td>DXr-29</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>14</td>
<td>5kw</td>
<td>29’</td>
<td>6.1dBd</td>
<td>24</td>
<td>&lt;1.8</td>
<td>42° (3' 6&quot;)</td>
<td>10.7</td>
</tr>
<tr>
<td>DXU-32</td>
<td>40</td>
<td>20</td>
<td>3el</td>
<td>5kw</td>
<td>28’</td>
<td>4.3dBd</td>
<td>&gt;17</td>
<td>&lt;1.7</td>
<td>&gt;70° (5' 10&quot;)</td>
<td>8.5</td>
<td>24'</td>
</tr>
</tbody>
</table>

Specifications and pricing available on request.
More Yagis and Dipoles

**DXU-222  40-30-20 mtrs**
20’ boom 2 elements on each band, shortened 40 & 30, full size 20

**DXr-W221  30-17-12 mtrs**
8’ boom 2 elements on 17 & 12, shortened 30 dipole

**SS-3ss  20-15-10 mtrs**, new model of our original C-3SS
11.5’ boom 2 elements on each band, shortened 20’s

The products below are dipoles and Yagis for 30 and 40 meters. Combinations for 30 and 40 are per customer request – just **ask and we will make it for you**. Relay switching for covering several segments is also available.

### 30 and 40 Meters

<table>
<thead>
<tr>
<th>Model</th>
<th>Bands</th>
<th>Tot ele</th>
<th>Pwr</th>
<th>Boom</th>
<th>Gain dB</th>
<th>Pwr</th>
<th>VSWR</th>
<th>Typical F/R</th>
<th>Typical VSWR</th>
<th>Element Length</th>
<th>Wind-load</th>
<th>Turn Radius</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DXr-130</td>
<td>30</td>
<td>1</td>
<td>3kw</td>
<td>n/a</td>
<td>-0.2dBd</td>
<td>1.9dBi</td>
<td>n/a</td>
<td>190kHz &lt;2:1</td>
<td>23’</td>
<td>1.7</td>
<td>12’</td>
<td>$389</td>
<td></td>
</tr>
<tr>
<td>DXr-230</td>
<td>30</td>
<td>2</td>
<td>3kw</td>
<td>12’</td>
<td>4.1dBd</td>
<td>6.3dBi</td>
<td>20pk</td>
<td>200kHz &lt;2:1</td>
<td>23’</td>
<td>3.6</td>
<td>14’</td>
<td>$895</td>
<td></td>
</tr>
<tr>
<td>DXr-140</td>
<td>40</td>
<td>1</td>
<td>3kw</td>
<td>n/a</td>
<td>-0.2dBd</td>
<td>1.9dBi</td>
<td>n/a</td>
<td>130kHz &lt;2:1</td>
<td>39.5’</td>
<td>1.9</td>
<td>20’</td>
<td>$449</td>
<td></td>
</tr>
<tr>
<td>DXr-240</td>
<td>40</td>
<td>2</td>
<td>3kw</td>
<td>18’</td>
<td>4.1dBd</td>
<td>6.3dBi</td>
<td>20pk</td>
<td>140kHz &lt;2:1</td>
<td>39.5’</td>
<td>3.9</td>
<td>22’</td>
<td>$1,149</td>
<td></td>
</tr>
<tr>
<td>DXr-240N</td>
<td>40</td>
<td>2</td>
<td>5kw</td>
<td>24’</td>
<td>4.5dBd</td>
<td>6.7dBi</td>
<td>20pk</td>
<td>240kHz &lt;2:1</td>
<td>58’</td>
<td>8.0</td>
<td>32’</td>
<td>call</td>
<td></td>
</tr>
<tr>
<td>NVIS-40</td>
<td>40</td>
<td>1</td>
<td>3kw</td>
<td>n/a</td>
<td>-0.3dBd</td>
<td>1.8dBi</td>
<td>n/a</td>
<td>30kHz &lt;2:1</td>
<td>23’</td>
<td>1.7</td>
<td>12’</td>
<td>call</td>
<td></td>
</tr>
</tbody>
</table>

**Single-band 50-ohm Yagis**

The 50-ohm feed makes the feed point the simplest of all, as there is no matching device. The first Yagi like this was built back in 1988 as part of an on-going test. It proved to be an excellent antenna and after beginning Force 12, Inc., the first 50-ohm Yagi in production was the 6el 20 on a 44’ boom in 1993. Many followed, including the incredible 6el and 8el 10’s, plus the big 7el 15. Array of Light has pages of 50-ohm Yagis. We have built single band Yagis that are direct 50-ohm feed for all HF and VHF bands. Contact us for the band you would like.
2016 is 25 years since I began Force 12, Inc. and came out with designs such as the trapless tribanders that changed the world of antennas. The original was the C-3 and it was later enhanced with the addition of a reflector for 10 meters, making the C-3E. Both of these antennas are the first ones in the Signature Series - the next generation of “the old” and the old “C” is now an “SS”, making the new SS-3 and SS-3e. We also have the SS-3S (old C-3S) and the SS-3SS, the old C-3SS.

Improvements include a superior feed system utilizing both closed and open feed styles. The SS uses parallel drive between 10 and 20, then open sleeve to 15 from 20. The feed point is 10 and the old second 10 driver has been reset to a second 10-meter director for added gain and higher F/B. The spacings and tuning have also been advanced. Mechanically, the Signature Series is more robust with a standard rating of 95mph, instead of the old 80mph.

**SS-3**
- **Boom Joints**
  - 12” inner liner
  - 5” outer sleeve

**SS-3S**
- **Boom Joints**
  - 12” inner liner
  - 5” outer sleeve

**SS-3e**
- **Boom Joints**
  - 12” inner liner
  - 5” outer sleeve

**SS-3**
- **Feed System**
  - spacers & parallel drive

**SS-3S**
- **Feed System**
  - spacers & parallel drive

**SS-3e**
- **Feed System**
  - spacers & parallel drive

<table>
<thead>
<tr>
<th><strong>SS-3</strong></th>
<th>20-15-10 mtr trapless tribander 7 ele</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>@ 70’</strong></td>
<td>gain  F/B  VSWR</td>
</tr>
<tr>
<td>20 mtrs</td>
<td>12.7dBi  15dB &lt;1.3:1 (14-14.35)</td>
</tr>
<tr>
<td>15 mtrs</td>
<td>12.7dBi  17dB &lt;1.3:1 (21-21.45)</td>
</tr>
<tr>
<td>10 mtrs</td>
<td>12.4dBi  &gt;15dB &lt;1.5:1 (28-29.5)</td>
</tr>
<tr>
<td>11.5’ boom, 5KW, 5.2sqft, 33#, 95mph</td>
<td></td>
</tr>
<tr>
<td>50-ohm feed through 1:1 balun</td>
<td></td>
</tr>
<tr>
<td><strong>$1049</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>SS-3S</strong></th>
<th>20-15-10 mtr trapless tribander 6 ele</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>@ 70’</strong></td>
<td>gain  F/B  VSWR</td>
</tr>
<tr>
<td>20 mtrs</td>
<td>12.7dBi  15dB &lt;1.3:1 (14-14.35)</td>
</tr>
<tr>
<td>15 mtrs</td>
<td>12.7dBi  19dB &lt;1.3:1 (21-21.45)</td>
</tr>
<tr>
<td>10 mtrs</td>
<td>12.6dBi  20dB &lt;1.5:1 (28-29.5)</td>
</tr>
<tr>
<td>11.5’ boom, 5KW, 5.2sqft, 33#, 95mph</td>
<td></td>
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<tr>
<td>50-ohm feed through 1:1 balun</td>
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<tr>
<td><strong>$949</strong></td>
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</table>

<table>
<thead>
<tr>
<th><strong>SS-3e</strong></th>
<th>20-15-10 mtr trapless tribander 8 ele</th>
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</thead>
<tbody>
<tr>
<td><strong>@ 70’</strong></td>
<td>gain  F/B  VSWR</td>
</tr>
<tr>
<td>20 mtrs</td>
<td>12.7dBi  15dB &lt;1.3:1 (14-14.35)</td>
</tr>
<tr>
<td>15 mtrs</td>
<td>12.8dBi  19dB &lt;1.3:1 (21-21.45)</td>
</tr>
<tr>
<td>10 mtrs</td>
<td>13.5dBi  &gt;26dB &lt;1.5:1 (28-29.5)</td>
</tr>
<tr>
<td>18’ boom, 5KW, 6.3sqft, 43#, 95mph</td>
<td></td>
</tr>
<tr>
<td>50-ohm feed through 1:1 balun</td>
<td></td>
</tr>
<tr>
<td><strong>$1149</strong></td>
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</tr>
</tbody>
</table>
New Generation 7 Vertical Design

80 meter vertical is 52' high, (3) top radials, full length ring (open end)
Self-resonant at 3.540 MHz, hairpin match

Ring is approx 69' total length
elevated 7', open at end

Feed Point

Aluminum tube to ring corner

Ferrite 1:1 Balun

Aluminum tube to corner feed point

Hairpin Match

Insulator between base and tube to ring corner

Wire ring (4th leg)

Rose insulator at end of wire ring

end of wire ring

n6bt-G7-80-d2-r2
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DXr-230240N at K0MD

24’ Boom  2el 30, 2el 40
new 58’ 40 mtr elements
Separate feed lines
5KW, 100MPH

Tower is rotating 140’
3-stack of my C-49XR’s
2-stack of 2el40
3el17/4el12
2el30

DXU-32 at KY6R

28’ Boom  3el 20, 2el 40
Separate feed lines
5KW, 100MPH
One of many to meet “Your needs and your dreams”

You need this book ➔

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