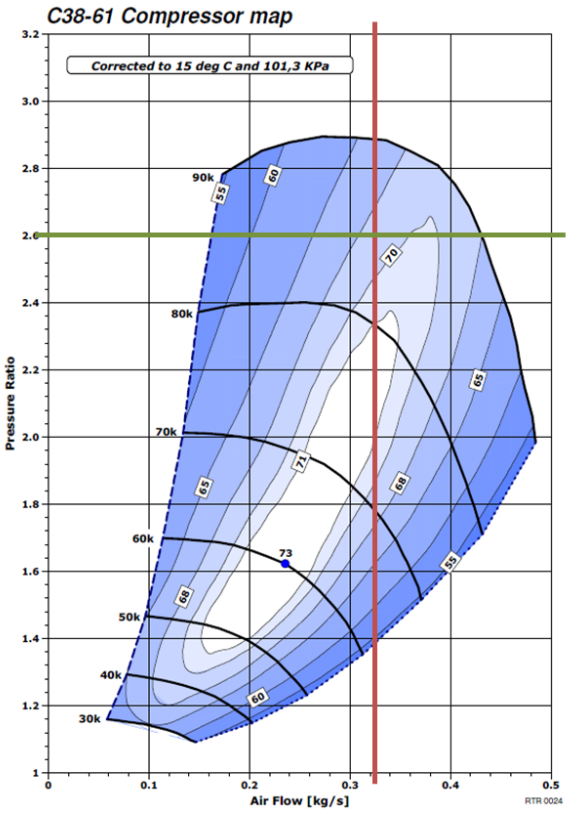
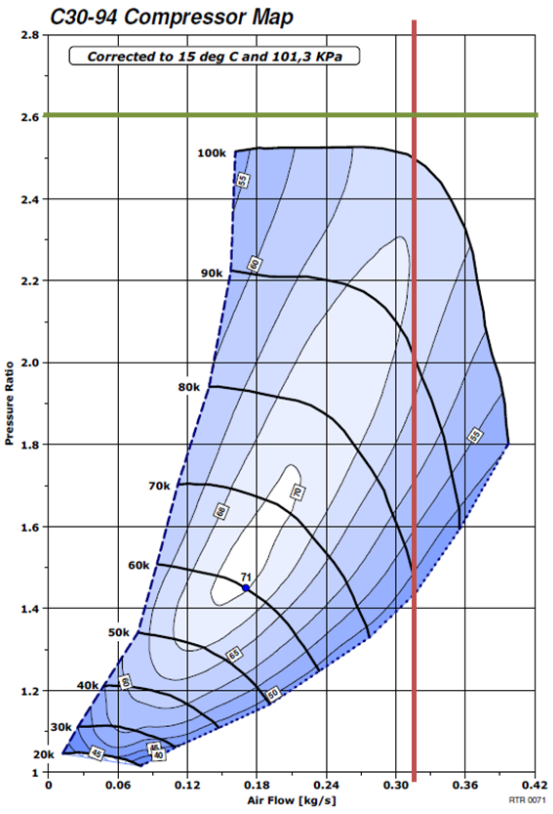
Supercharger sizing

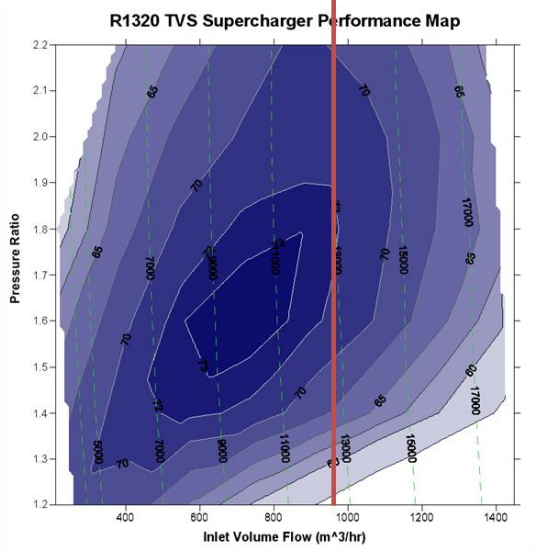
1. **Calculate air flow**
   - Assume max RPM of 7200
   - Assume 160 HP at max RPM
   - 3600/60 * 2 liters = 120 liters/sec → 0.120 m^3 * 1.2 kg/m^3 = 0.144 kg/sec
   - 0.144 kg/sec for 160 HP → 111 HP per 0.1 kg/sec. Rotrex handbook states 120 HP per 0.1 kg/sec, so ballpark right
   - For 360 HP: 360/160 * 0.144 = **0.324 kg/sec**

2. **Calculate Pressure Ratio**
   - Assume target of 360 HP at 7200 RPM
   - 360/160 = 2.25 multiply with 1.15 to cover losses (pressure losses, power to drive SC) → PR = 2.25 * 1.15 of about **2.6**

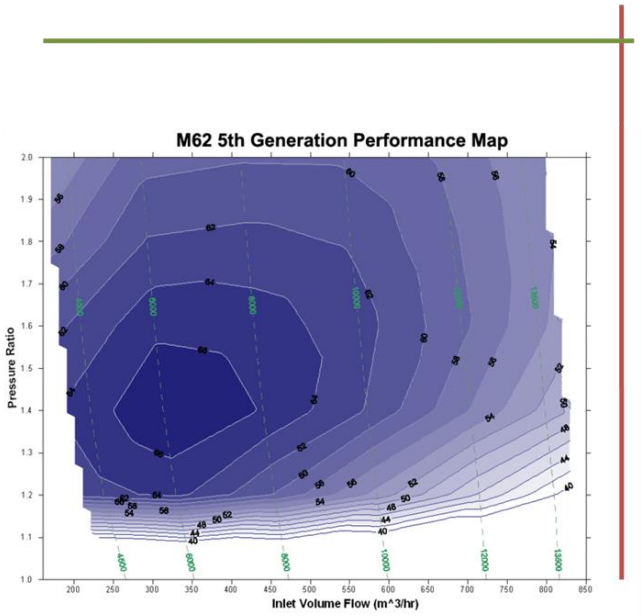




Off the map, but seems likely the TVS1320 can cope with a flow of 0.32 kg/sec at a PR 0f 2.6, but efficiency will suffer



Completely off the map, the Eaton will just push hot air



Conclusions:

- The Rotrex C38-61 seems to be up to the job
- The Rotrex C30-94 does not reach high enough pressure levels and is out of the efficiency range
- The Harrop TVS1320 seems to be up to the job, even though you have to extrapolate the map. It flows more than enough air, but efficiency will suffer
- The Eaton has no chance of reaching the required levels without suffering a lot on the efficiency side
- Within the C38 range, the C38-61 seems the best choice as it handles higher pressure ratios better than the other models