



## Application Note

# Settings of parameters for VLT<sup>®</sup> 5000 Series

### Short guideline for setting parameters for VLT<sup>®</sup> 5000 Series

1. All motor data must be programmed according to the motor data information. This concerns the parameters: P102, P103, P104, P105 and P106.
2. Now an AMA is performed with the help of P107 for  $R_s$  and  $X_s$  on a "cold" motor.
3. Increase then the setting for  $R_s$  in P108 with about 10% (this is partly because the calculation by the AMA is conservative, partly because the motor gets warm and then the  $R_s$  increases later on).
4. Decrease the setting for  $X_s$  in P109 with about 5% (this is mainly because the AMA calculation is conservative).
5. If you do not have to provide a holding torque (like application with Crane or palletises), then P110 and P111 need not to be adjusted.
6. In order to increase the torque for acceleration, then set P113 to (120%) - 130%, and P114 to (130%) - 140%. Those two settings are the equivalent setting to the VLT 3000 series V/A compensation. Normally the higher you set the value the more torque you get, but too high a setting will draw too much current and can make the drive unstable. 130% for P113 and 140% for P114 are experience values, which normally work well; if it is too much, use the values in brackets.
7. If you need slip regulation, then leave P115 at 100% and the slip is compensated for according to the information from P106. If the application does not need slip compensation, then set P115 to 0%.
8. P116 is the time constant for the slip regulation and factory set at 0,5 sec; even if P115 is 0%, then a setting of 0,1 sec. normally gives a higher performance. It is recommended to change to this value.

9. P117 is factory set at 100%, and should be left there, unless a resonance problem is seen for the motor with unstable RPM (and fluctuation of the current possible with high peaks), you can increase the setting for P117 (setting higher than 300% is normally not recommended).
10. P118 is normally not adjusted.
11. P119 is factory set at 0,0 sec., and should be left there. However it can be set to max. 0,5 sec., which will bypass the torque setting in P221 and P222 at start up for the selected time. In the first 0,5 sec., the current is allowed to increase to the next level, supervised by the ASIC on the powercard, (this level is dependent on the size of the IGBT, but is about 200% of the nominal output current for the drive). Since this ASIC has the task to protect the IGBT, then the drive will suddenly shut down if the actual current come over this 200%. Therefore, this "feature" should normally not be used, but be left at 0,0 sec. Let the torque limit in P221/222 handle an overcurrent situation.
12. Adjust P221 to max. torque level, and if you have a brake resistor, then also P222 should be adjusted to max. value. Remember that this is a torque adjustment and only load on the motor shaft will be regulated by decreasing the output frequency. This means that the magnetising current will not be considered by the torque limit. Therefore, an oversize motor with a higher magnetising current is more likely to run into a "warning 13", which means the current is over the torque limit set in P221 (due to the higher mag. current). Warning 13 can only be reset after mains have been interrupted. If you want to avoid this "warning 13", then you must set P221 to a lower value. You will get a "warning 12", if the torque demand is higher than the drive is able to supply. You will be able to run in "warning 12" for a very long time, if P409 is set to OFF, as in factory setting.

**VLT**<sup>®</sup> frequency converters **BAUER** geared motors

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