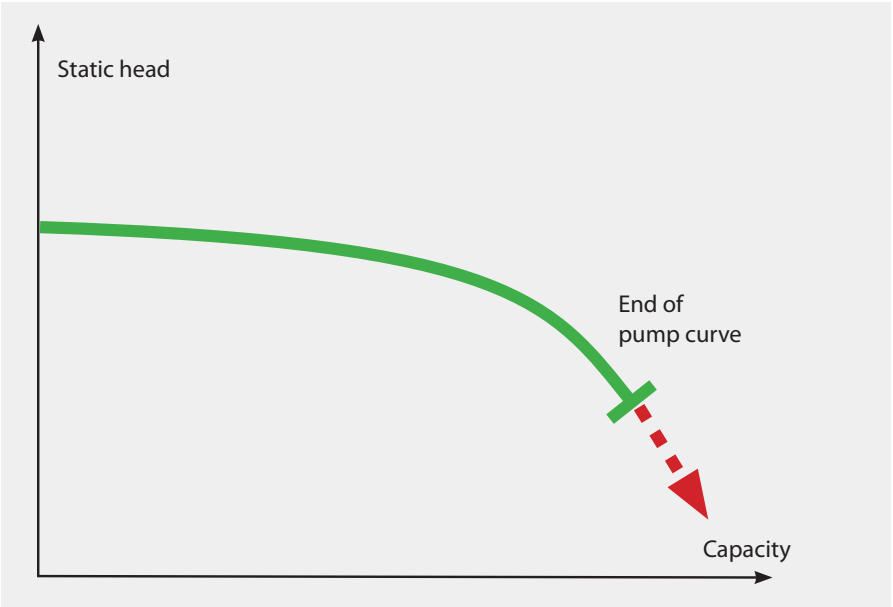
VLT® End of Curve feature

The VLT® HVAC Drive provides an End of Curve feature for pump systems. The feature detects leaks or breaks in the system. These conditions can cause pump or building damage if not detected and corrected promptly.

End of Curve detection is based on measurement of the feedback pressure and the speed of the motor. If there is a leak or break in the system, pressure will decrease and the pump will accelerate to maximum speed to try to increase the system pressure to the design static head pressure.

When the drive is running at maximum speed with a feedback signal less than 97.5% of the set point pressure for a user – defined time period, an End of Curve action is initiated.

This can be used to give a warning, to generate an alarm, or to shut down the pump. The End of Curve feature is used in closed loop mode with the built-in PID controller.



The perfect solution for
- Intelligent control
- HVAC and water system protection
- Remote status reporting

Features	Benefits
Provides an additional level of security for property and equipment	Provides greater protection without installation of additional equipment
A warning or alarm can alert the operator of the problem	Provides proper operation and protection of equipment and property
Programming is quick and easy with pre-programmed software	Saves time and increases reliability

Programming is quick and easy

The drive software makes programming the End of Curve feature quick and easy. Using the Main Menu chose 22 - ** Application Functions and then 22 – 5* End of Curve.

Parameter	Description	Settings		Comments
		Factory setting	Recommended setting	
1 - 00	Configuration Mode	Open Loop	Closed Loop	This feature can only be used in Closed Loop where the feedback is monitored and used to control the drive speed.
In the Main Menu select 22 Application Functions and 22 - 5* End of Curve				
22 - 5*	End of Curve			Select Function
End of Curve Function Menu				
22 - 50	End of Curve Function	Off	Alarm	Select action to be performed - Off/Warning/Alarm
22 - 51	End of Curve Delay	10 sec.		Set this proof timer long enough to avoid false indications of operation off the end of curve. Setting this too long may result in excessive water loss through a pipe leak or pump damage due to cavitation caused by over-flowing the pump.
The following parameters give an indication to a BMS if a no flow condition is detected				
5-40	Function Relay		[192] End of Curve	Program one of the relays to selection [192], End of Curve. The selected relay will be activated when an End of Curve condition occurs.

Reporting Broken Belt via serial communications		
Protocol	Alarm word	Warning word
BACnet™	BV:79 Curve End	BV:143 End of Curve
LonWorks	nvoAlarmword Bit 39	nvoWarningword Bit 39
Modbus RTU	Register 16910 Bit 7	Register 16930 Bit 7

Danfoss Drives, Ulsnaes 1, DK-6300 Graasten, Denmark, Tel. +45 74 88 22 22, Fax +45 74 65 25 80, www.danfoss.com/drives • E-mail: info@danfoss.com