VLT Energy Box Report

Date: 03/03/2016

To:

TODESCHINI ROBERTO , RESPONSABILE
TECNICO
GIT
GRANDATE
ITALIA

Prepared by:

BOILERSERVICE SRL
VIGNATE (MI)

Pump Application

Project: 02. 2016

System Data

Design Head:	4,50 Bar
Set Point Static Head:	3,00 Bar
Shaft Power:	32,0 kW
Removed Pressure D	1,49 Bar

AC Motor Data

Motor Power:	37,0 kW
Motor Efficiency:	90,0 %

Drive Data

Drive Power:	37,0 kW
Drive Efficiency:	96,0 %
Drive Cost:	€ 6.000

Electricity

Cost per kWh:	€ 0,150
Utility Incentive:	€/kW 0

Duty Cycle			Constant Volume System	AC Drive
Flow (%)	Time (%)	Time (hrs)	kW-hr/yr	kW-hr/yr
100%	2	101	3.584	2.608
90%	2	101	3.584	2.382
80%	2	101	3.584	2.163
70%	5	252	8.960	4.870
60%	10	504	17.920	8.660
50%	19	958	34.048	14.366
40%	20	1.008	35.840	12.857
30%	20	1.008	35.840	10.505
20%	10	504	17.920	4.029
10%	10	504	17.920	2.759
		=====	=======	=======
	Total:	**5.040**	**179.200**	**65.200**
		kW-hr/yr savings:		**114.000**
		Annual cost savings:		**€ 17.100**

Energy Savings

Individual System Costs

Constant Volume System

Initial Cost:	€ 0
Annual Energy Cost:	€ 26.880
Other Annual Cost:	€ 0

Drive System

Drive Cost:	€ 6.000
Initial Cost:	€ 13.600
Annual Energy Cost:	€ 9.780
Other Annual Cost:	€ 0

Drive System Cost Comparison

Net Cost Savings

Drive System Inc. Initial Cost:	€ 19.600
Utility Incentive:	€ 0
Annual Energy Cost Savings:	€ 17.100
Other Annual Cost Savings:	€ 0

* Initial cost includes drive cost

Cost Savings

Simple Payback Time:	1.15 Years

Initial and Annual Cost Details

Drive Cost:	€ 6.000

Initial Costs, Drive System

Installation:	€2.500
Startup:	€2.500
Equipment:	€2.500
:	€3.500
:	€2.600
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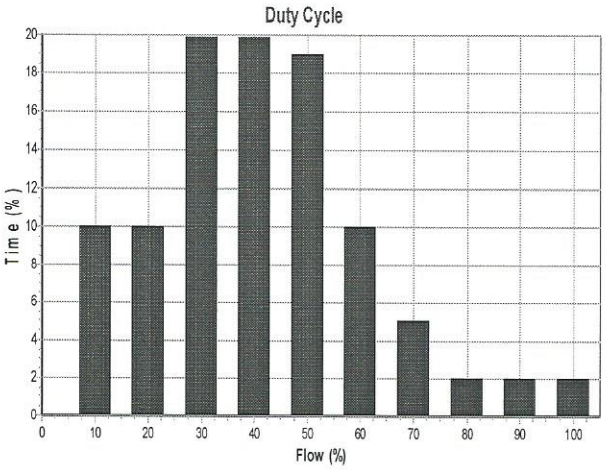
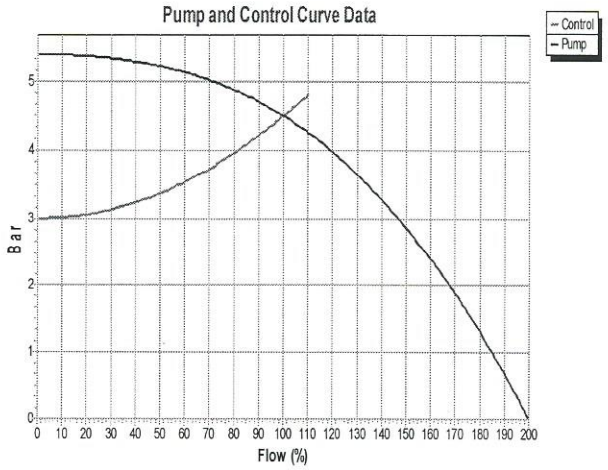
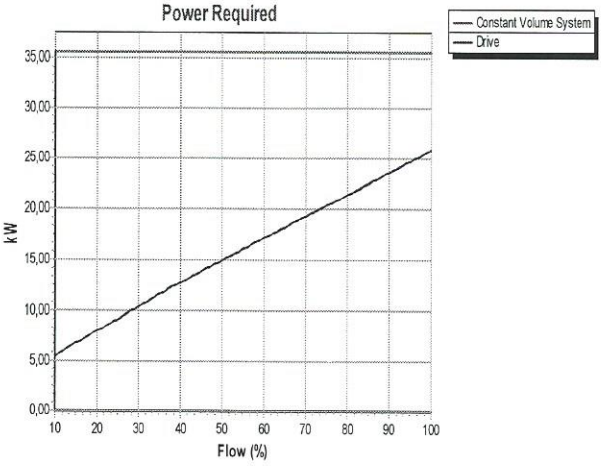
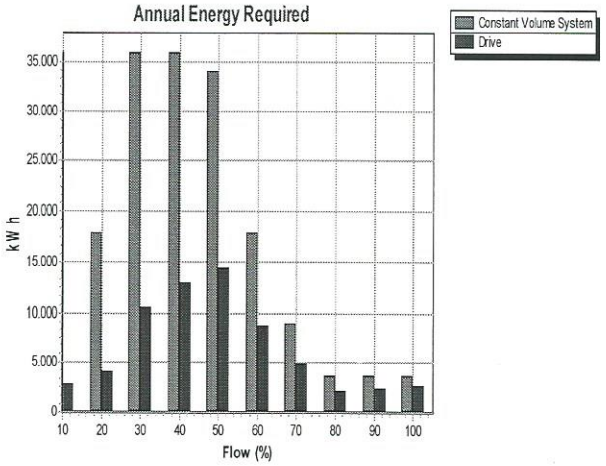
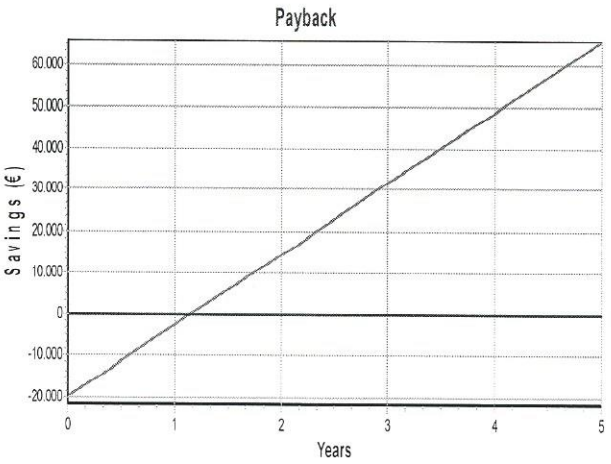
Total:	**€ 13.600**


Duty Cycle
Time (%)
Flow (%)


Pump and Control Curve Data
Control
Pump
Bar
Flow (%)


Power Required
Constant Volume System
Drive
kW
Flow (%)


Annual Energy Required
Constant Volume System
Drive
kWh
Flow (%)


Payback
Savings (€)
Years