



KONGSBERG

K-Chief 600 VPS - Engine Performance

The following applications are included in the engine performance package

AVL's EPOS combustion analysis system, complete with cylinder combustion transmitters, pick ups and a user friendly software package. This module offers a wide range of engine monitoring and diagnosis.

Presented algorithm are based on empirical results and physical models.

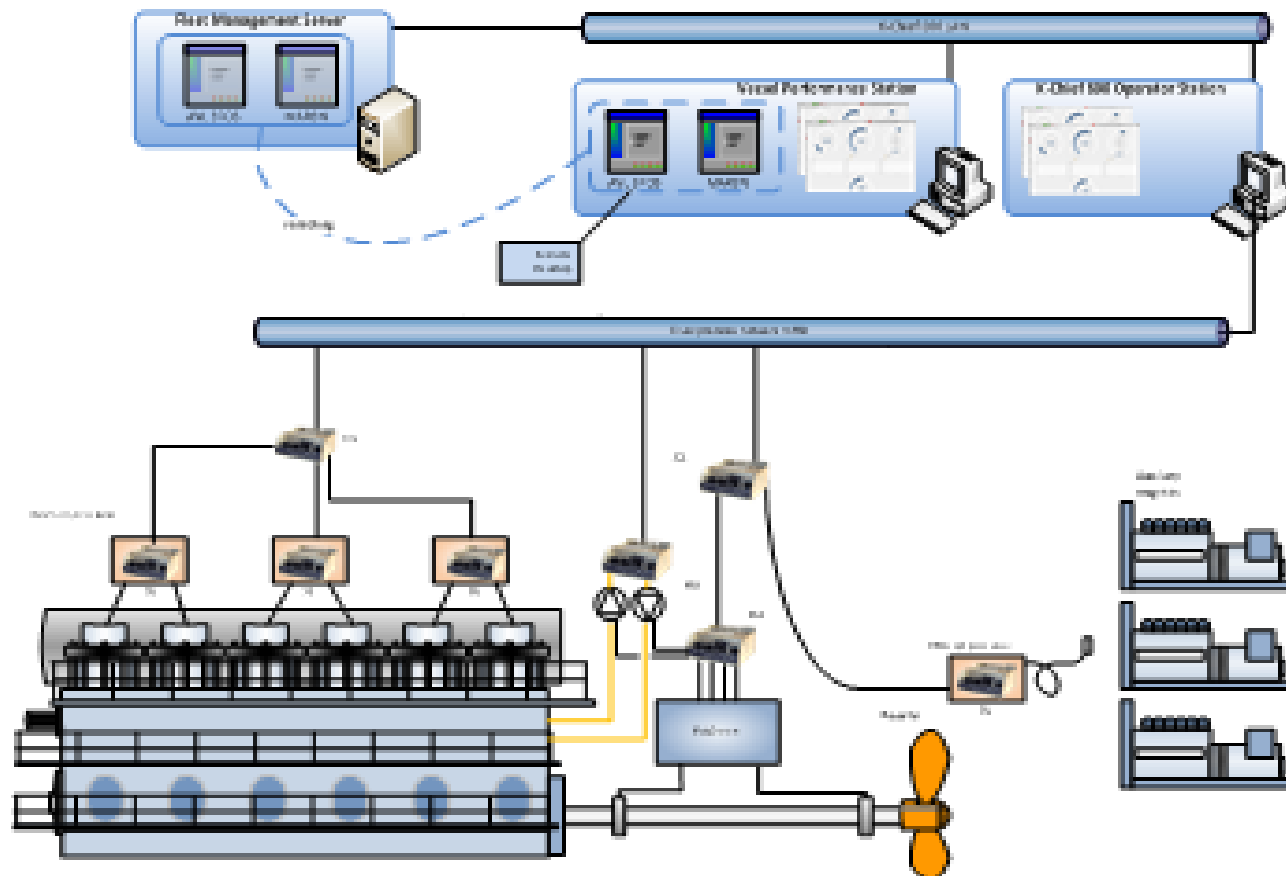
The system display the engine status (real time) and gives the operators a wide range of expert advices .



Engine Performance Monitoring



KONGSBERG

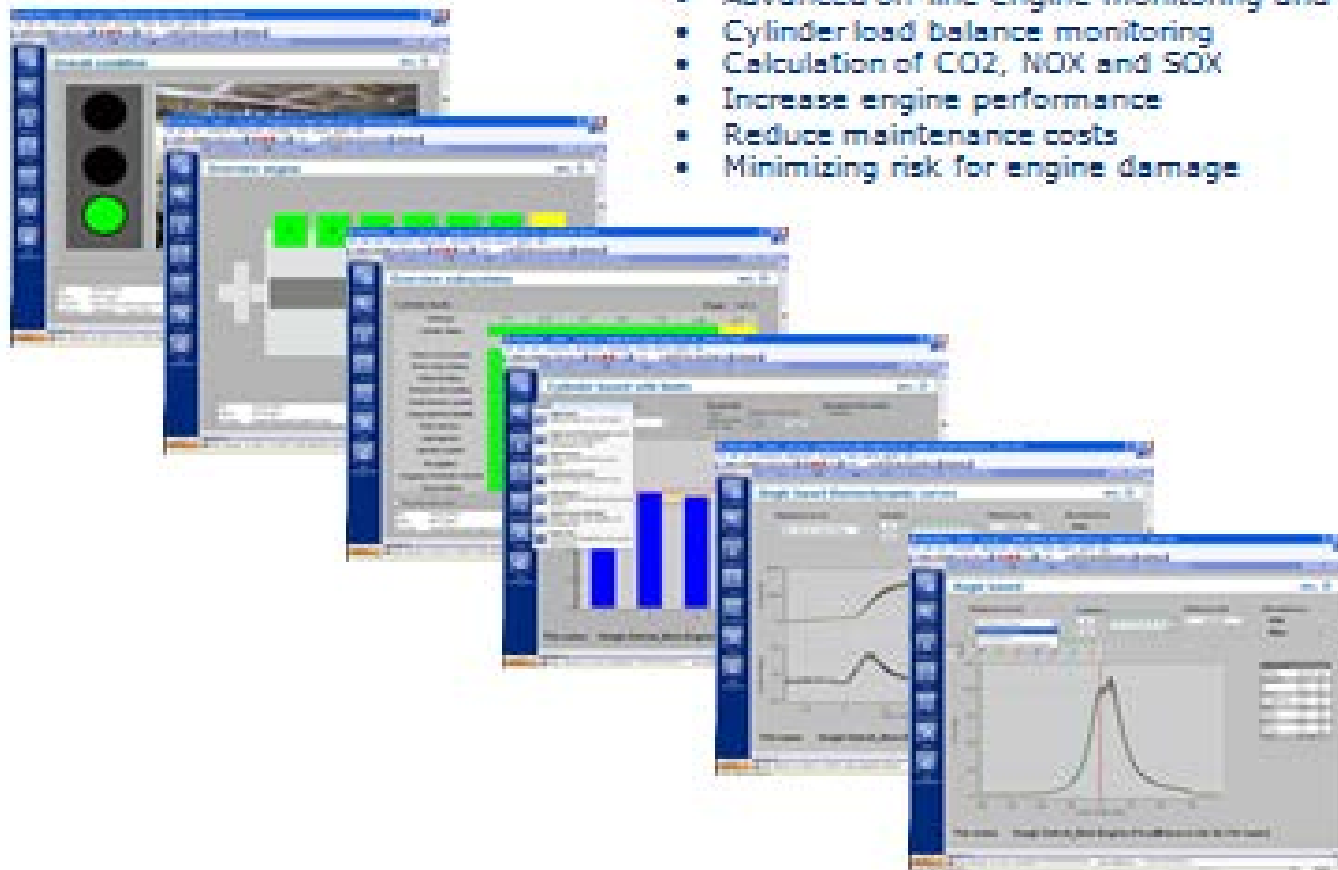


VPS - Engine Performance Monitoring (EPOS)



Key benefits of this system may include:

- Advanced on-line engine monitoring and diagnosis
- Cylinder load balance monitoring
- Calculation of CO₂, NO_x and SO_x
- Increase engine performance
- Reduce maintenance costs
- Minimizing risk for engine damage



Combustion monitoring on-line



Full Screen
Close Full Screen

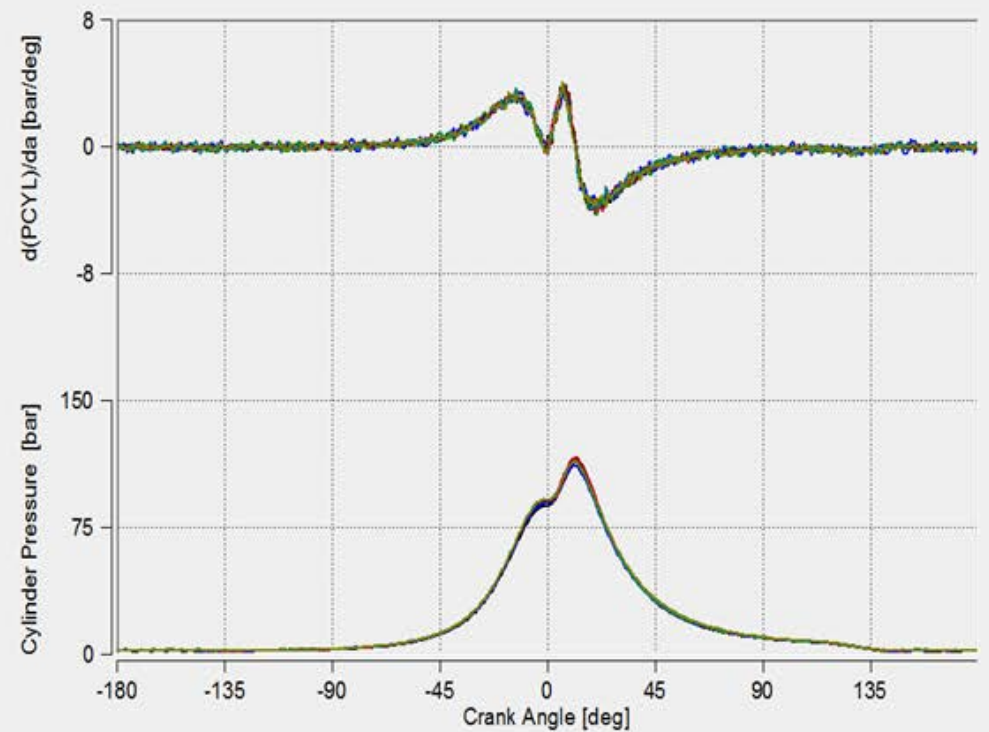
Angle based Thermodynamics Volume based Stroke based Paling diagram Cylinder limits

Display
Cylinder Pressure

Reference file
Load Ref.

Cylinders
All
Clear
1 2 3 4 5 6 7

Miscellaneous
d/da:
Filter:



Cylinder total	
Engine Speed	91 rpm
Indicated Power	1305 kW
Mean Indicated Press.	13.2 bar
Cyl. Press. at TDC	90,7 bar
Cyl. Press. at -30 °CA	26.4 bar
Max. Cyl. Press.	115,6 bar
Occ. of max. Cyl. Press.	11,8 deg
Cyl. Press. at +36 °CA	46 bar
Scavenging Pressure	2.64 bar
Exhaust Gas Temp.	324 deg C

Edit File

Simulate

File name: Hoegh Detroit_Main Engine.0564
 Reference file: No File loaded

Date: 2009/12/09 19:23:02

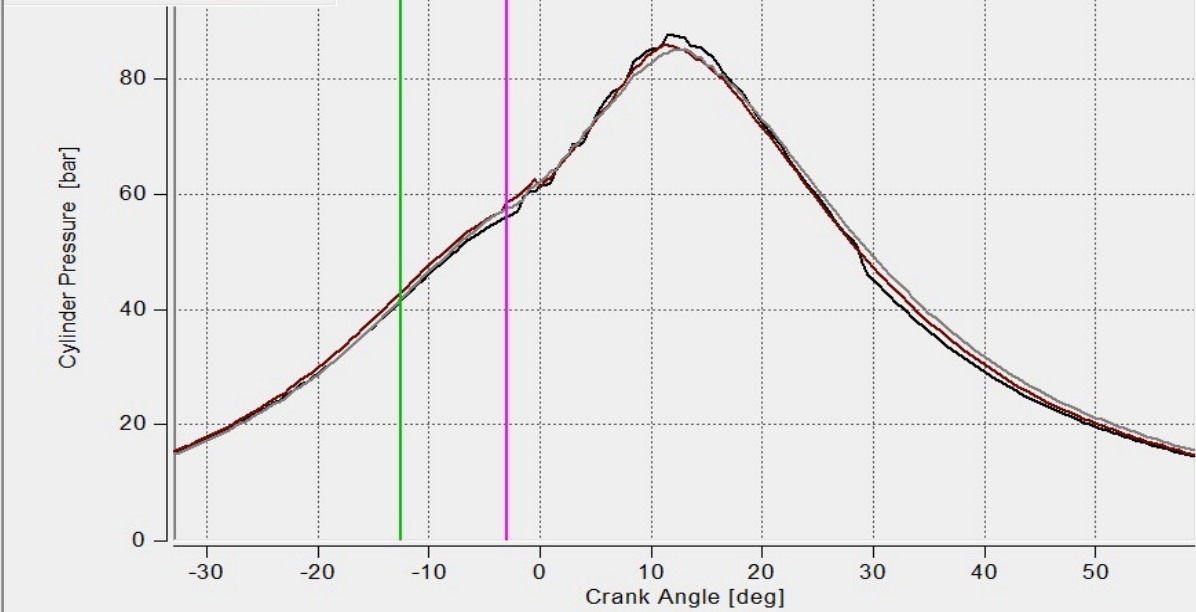
Display: Cylinder Pressure

Reference file: Load Ref.

Cylinders: All 1 2 3 4 5 6 7 8

Miscellaneous: d/da: Filter:

Crank Angle	PCyl1	PCyl5	PCyl8
deg	bar	bar	bar
-3.000	56.066	58.588	57.464
-12.500	41.576	42.998	41.734
-12.500	41.576	42.998	41.734
0.000	0.000	0.000	0.000



Cylinder total	
Engine Speed	164 Engi
Indicated Power	-96 kW
Mean Indicated Press.	-1.8 bar
Cyl. Press. at TDC	69.5 bar
Cyl. Press. at -30 °CA	39.5 bar
Max. Cyl. Press.	85.6 bar
Occ. of max. Cyl. Press.	-3.5 deg
Cyl. Press. at +36 °CA	21 bar
Scavenging Pressure	2.21 bar
Exhaust Gas Temp.	390

K-Chief 600
 15. Sep 2010 - 10:21:54
 ROS3:Engineer

Command control
 Harbour

0

ACK Home Left Arrow Right Arrow Refresh Undo X Print Menu

Dock

Home Mimics VESSELS PERFORMANCE Diagnosis Data management Import data

View Operate Alarms Tags
 Notes Tools System

File Edit View Components Measurement Parameters Extras Execute Window Help

Angle based Thermodynamics **Volume based** Stroke based Paling diagram Cylinder limits

Reference file
 Load Ref.

Cylinders
 All Clear

Miscellaneous
 Log. (p) vs Log(V):
 Filter:

Cylinder Pressure [bar]

Volume V / V_H [-]

File name: COLOR VIKING_MAIN ENGINE.00123
 Reference file: No File loaded

1 Cycle

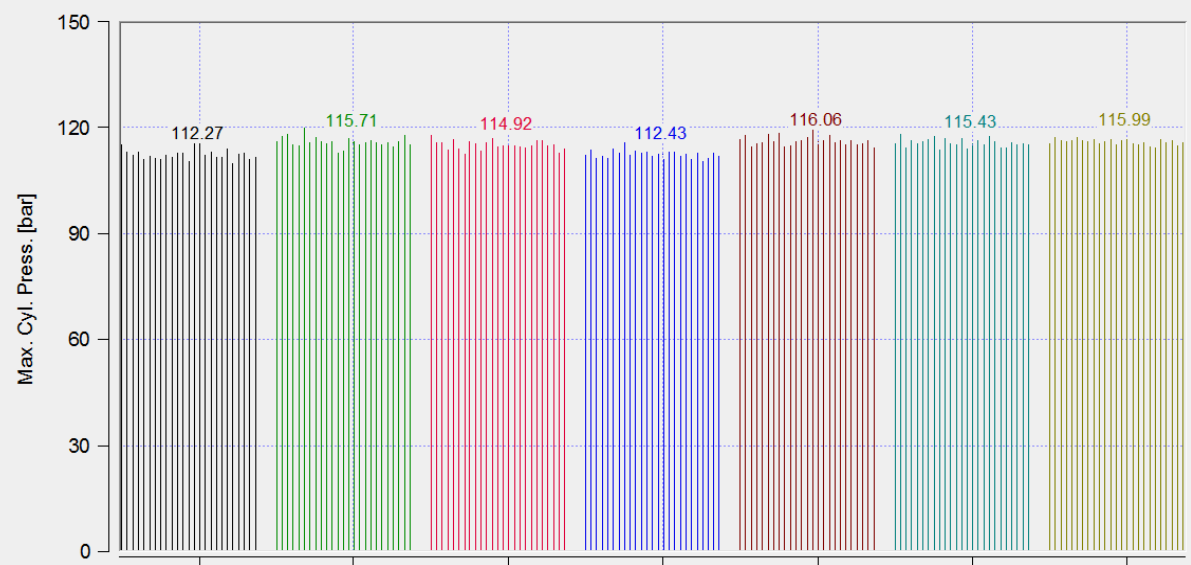
Detailed description: The image shows a software interface for engine performance analysis. The main window displays a graph of Cylinder Pressure (bar) versus Volume V / V_H [-]. The y-axis ranges from 0 to 90 bar, and the x-axis ranges from 0.00 to 1.00. Two curves are plotted: PCYL5 (red line) and PCYL8 (black line). Both curves show a sharp rise in pressure from approximately 0.1 to 0.15 volume, peaking at about 85-90 bar, followed by a gradual decline towards 0 bar at 1.00 volume. The PCYL5 curve is slightly higher than the PCYL8 curve during the expansion phase. The interface includes a menu bar, a toolbar, and several control panels for reference files, cylinder selection, and miscellaneous options. The status bar at the bottom indicates '1 Cycle'.

Volume V / V _H [-]	PCYL5 Pressure [bar]	PCYL8 Pressure [bar]
0.00	0	0
0.10	85	85
0.25	30	28
0.50	10	8
0.75	5	4
1.00	0	0

Angle based Thermodynamics Volume based Stroke based Paling diagram Cylinder limits

Full Screen
Close Full Screen

Display
Max. Cyl. Press.



Message List

- Wednesday, September 22, 2010 1:06:47 PM : Low Load condition detected, no diagnosis will be performed!
- Wednesday, September 22, 2010 1:06:48 PM : Low Load condition detected, no diagnosis will be performed!
- Wednesday, September 22, 2010 1:06:48 PM : Low Load condition detected, no diagnosis will be performed!
- Wednesday, September 22, 2010 1:30:47 PM : Loading Environment File c:\AVL\EPOS1.1\concerto.dvx

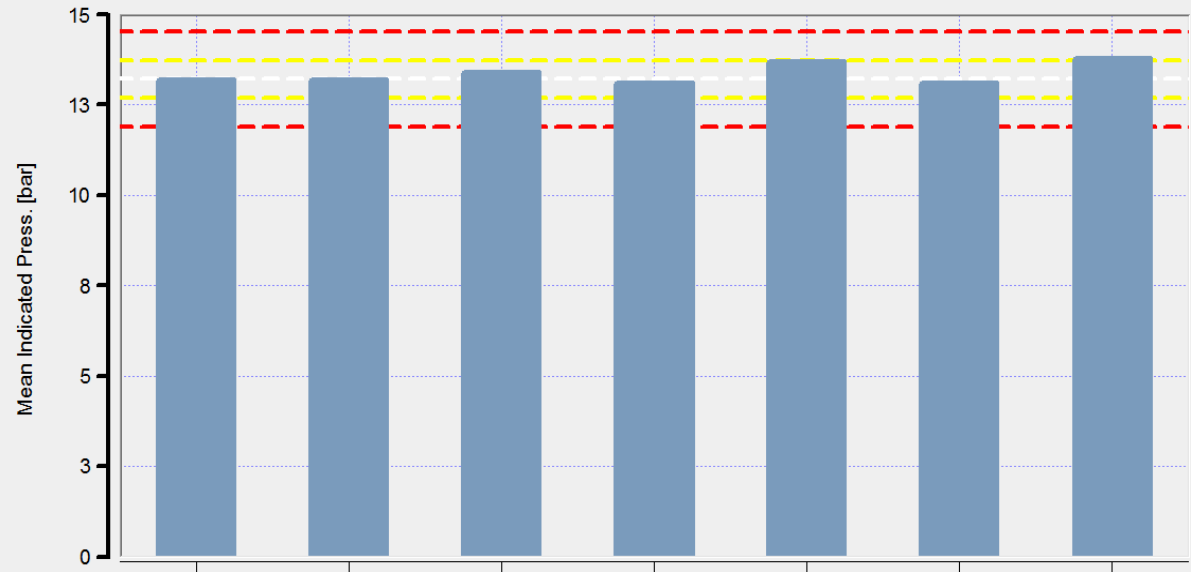
Diagram: Picket Fence

Angle based Thermodynamics Volume based Stroke based Paling diagram Cylinder limits

Display
Mean Indicated Press.

Thresholds
Type: Relative to mean value
Warning level: +- 4 %
Alarm level: +- 10 %

Deviation from mean
Deviation:



Message List

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Diagram: Diagramm1