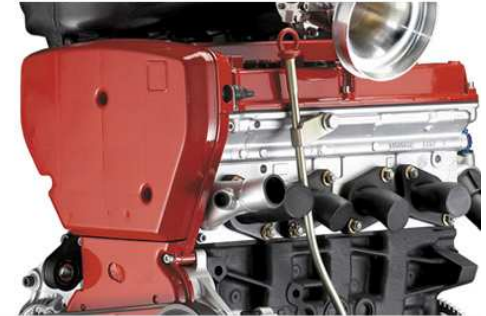


FIAT
GROUP

Engines and Transmissions

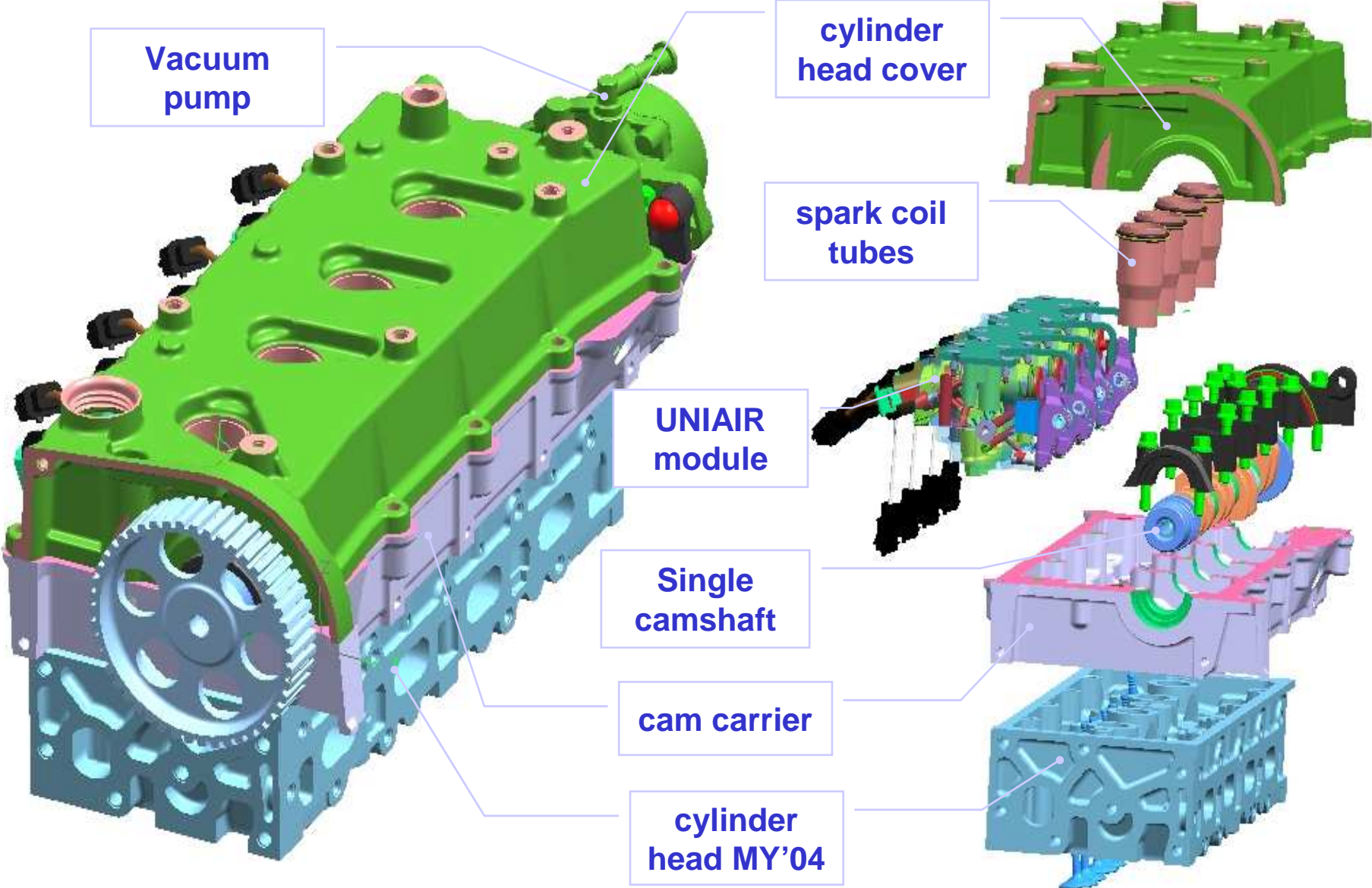


FIRE Multiair engines: NA 105 CV and TC 135 CV & 170 CV

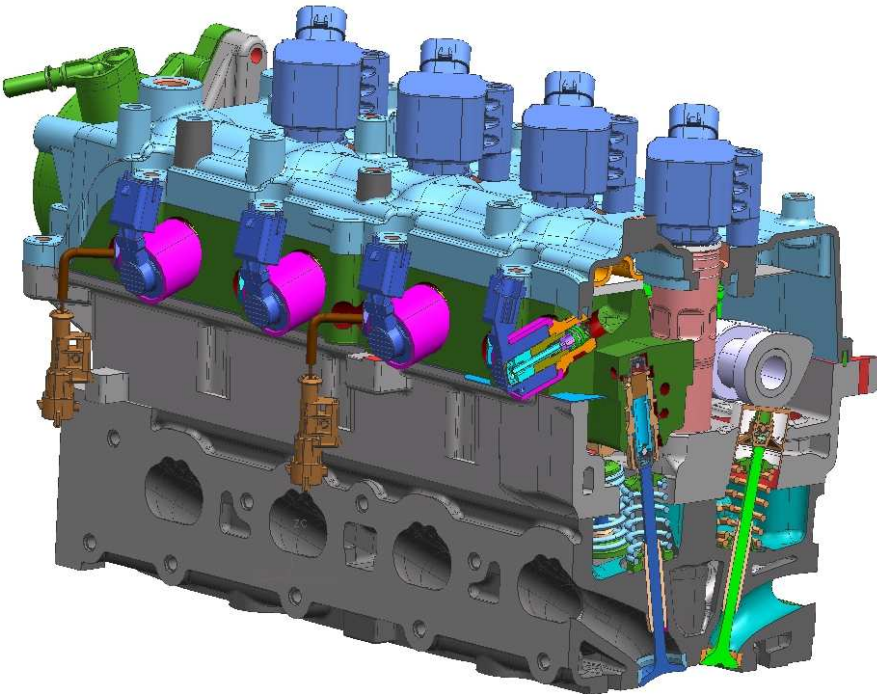
Sistema UNIAIR - Principi Funzionamento

- **FIRE 1.4 16V MAIR architecture**
- UNIAIR basic principles
- UNIAIR's main components
- UNIAIR system interfaces
- Oil supply circuits
- UNIAIR System: valve lift characteristics

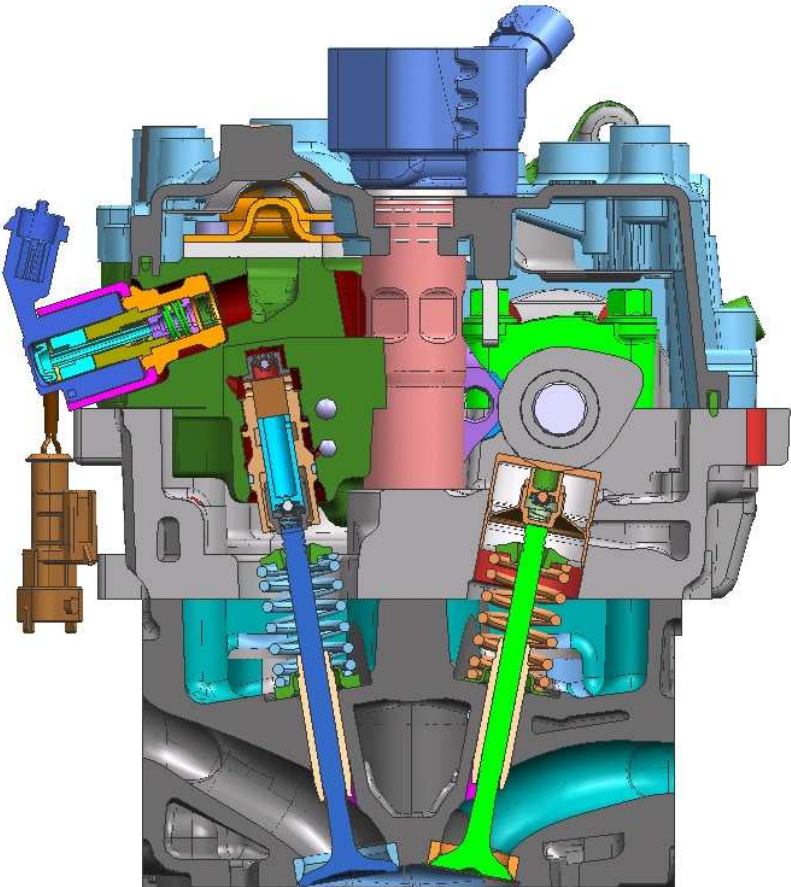
FIRE 1.4 16V MAIR architecture - ALPHA Lay-out



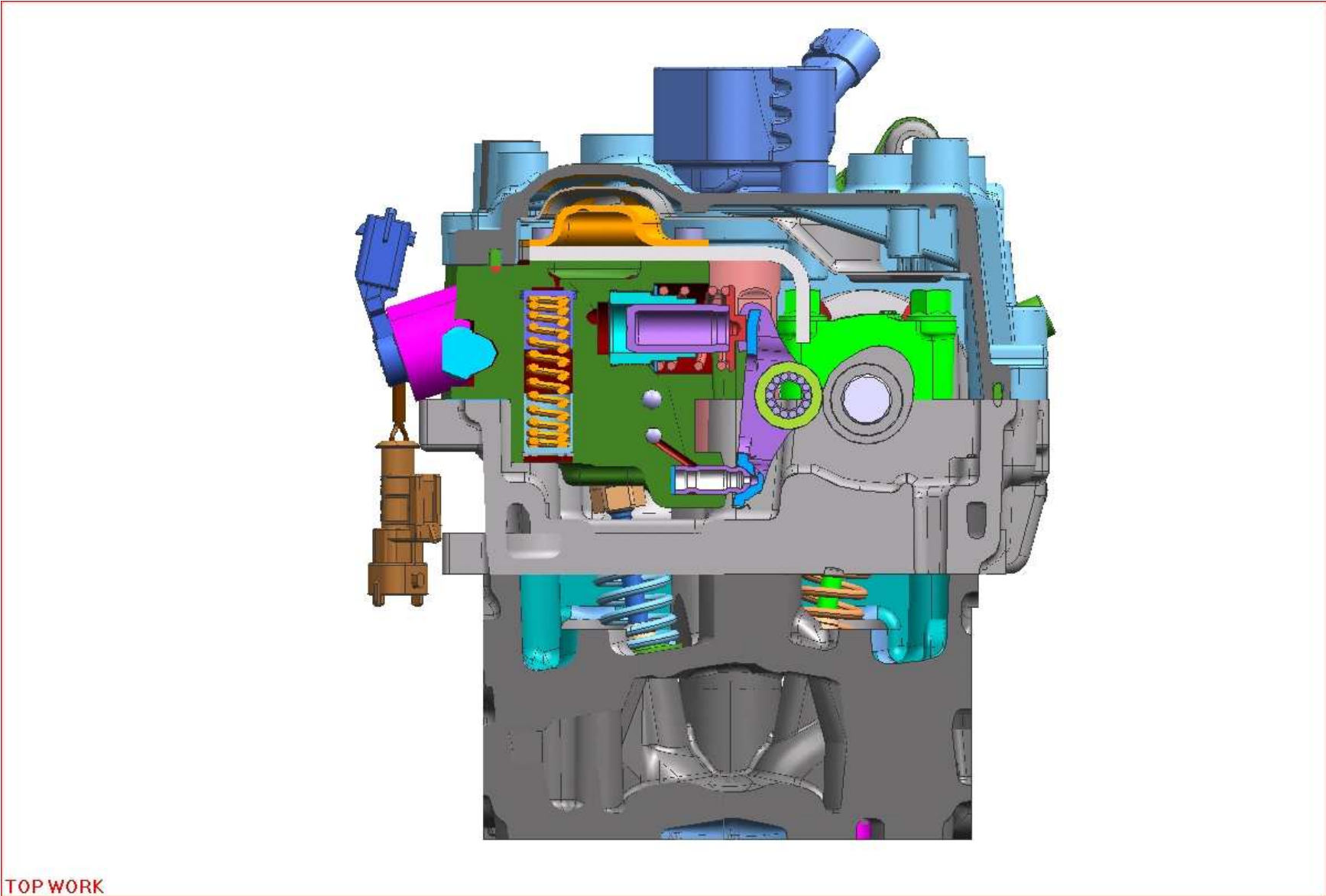
FIRE 1.4 16V MAIR architecture - BETA Lay-out



TOP WORK

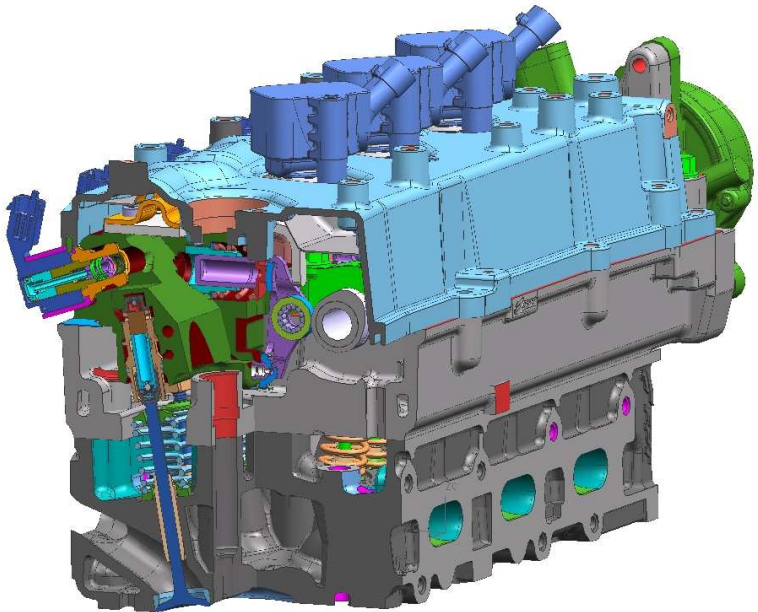
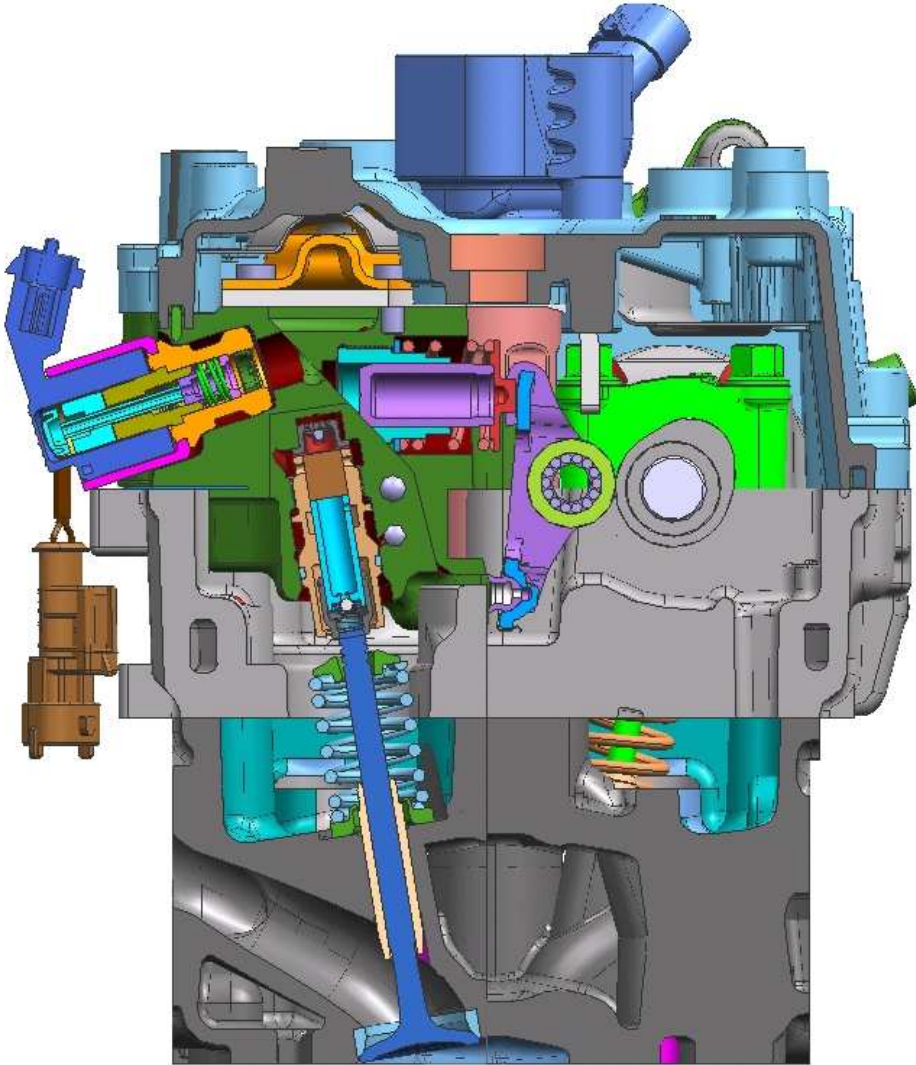


FIRE 1.4 16V MAIR architecture - BETA Lay-out



TOP WORK

FIRE 1.4 16V MAIR architecture - BETA Lay-out



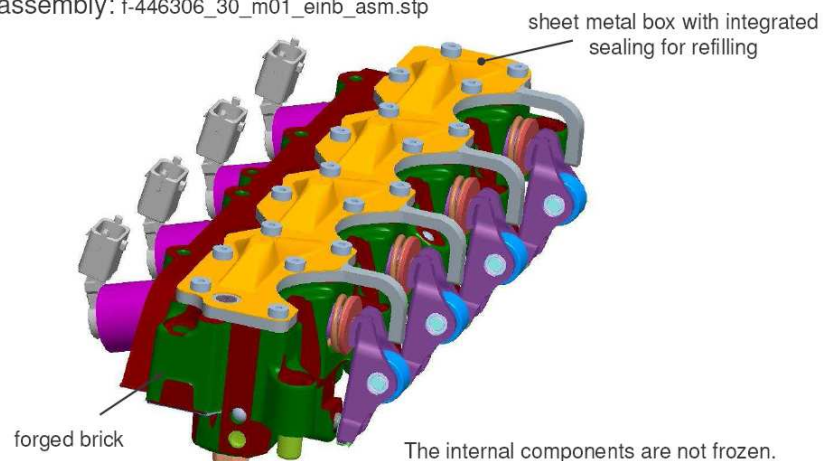
IK

- FIRE 1.4 16V MAIR architecture
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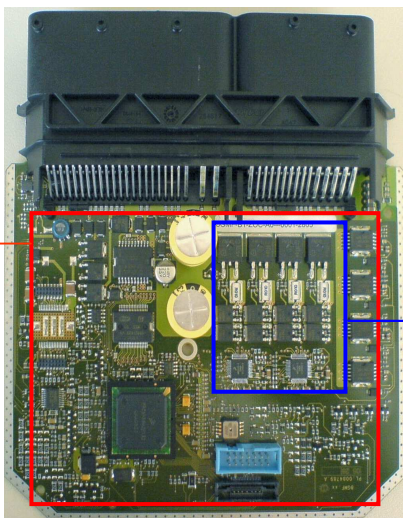
FIRE Mair – NA (105CV) e TC (135/165CV) Euro5 versions

Multiair Actuator CAD model

BETA2 assembly: f-446306_30_m01_einb_asm.stp



Air&Combustion Management system

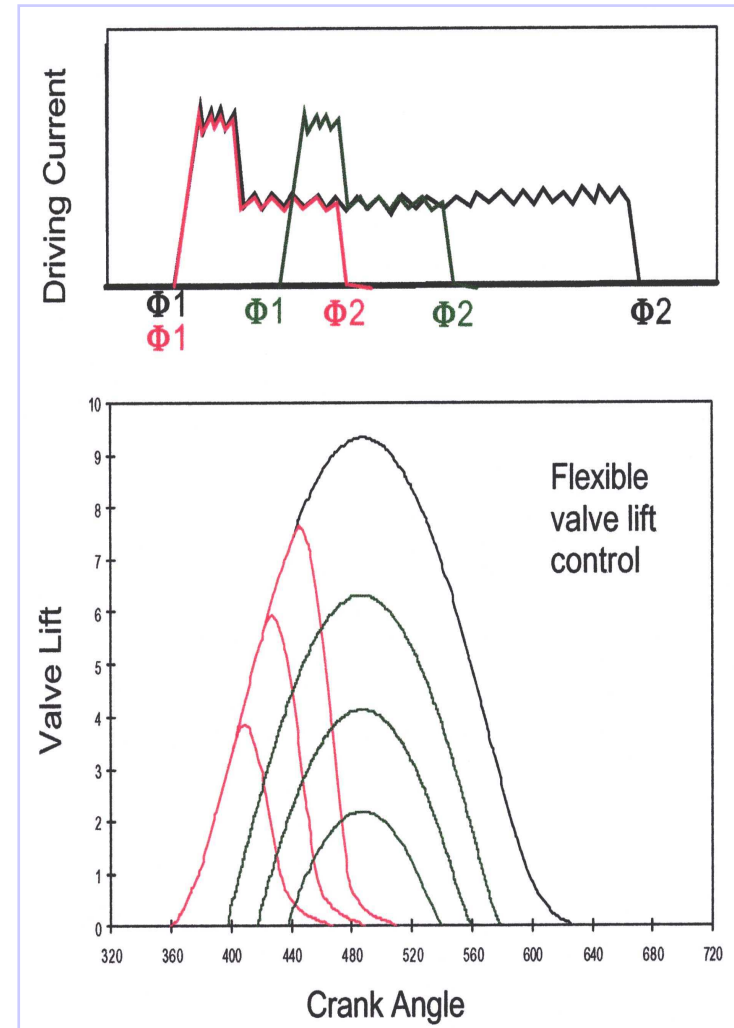
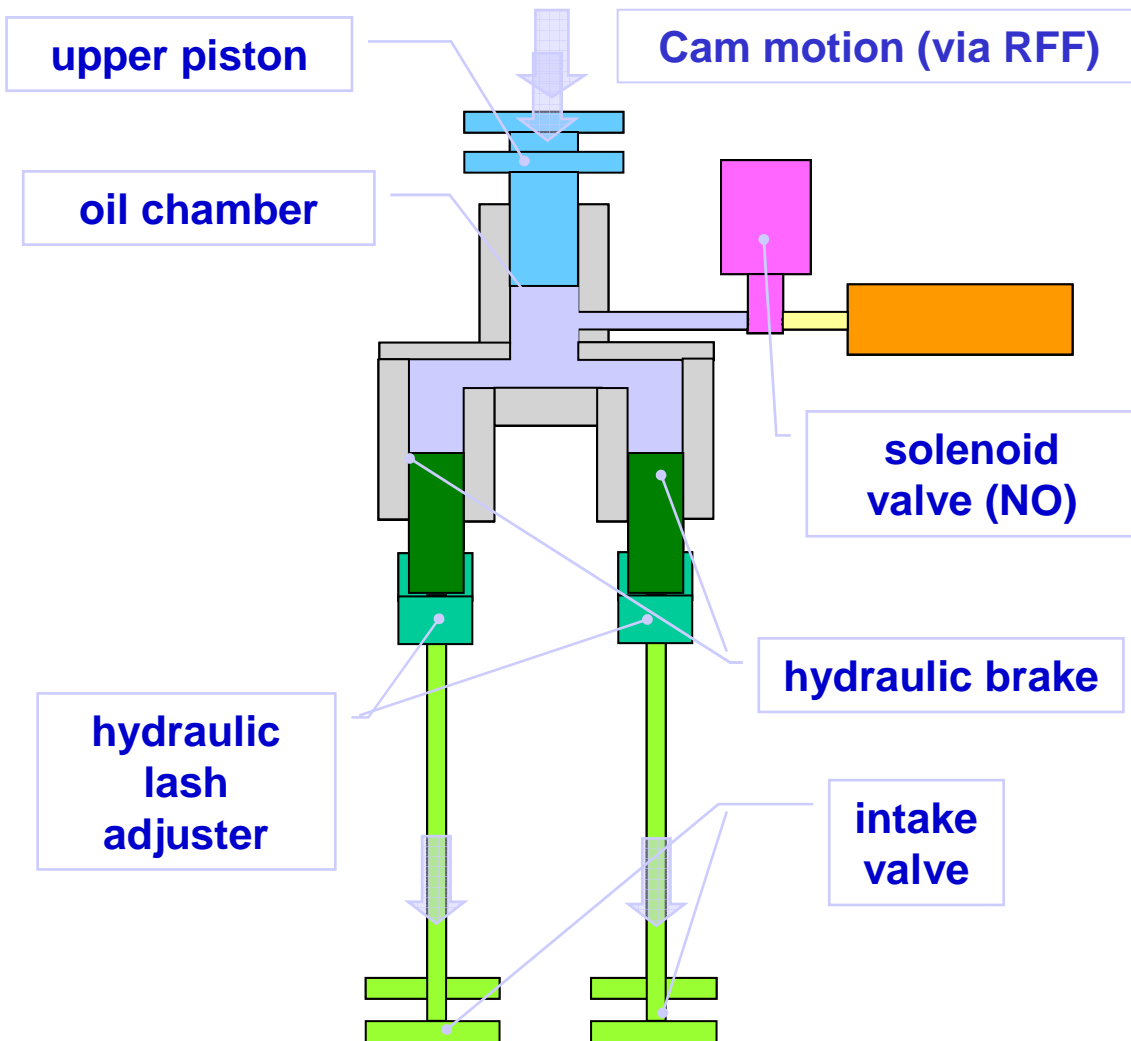


MULTI AIR ENGINE CONTROL:
ADVANCED AIR AND COMBUSTION CONTROL STRATEGIES (UNIAIR SPECIFIC)

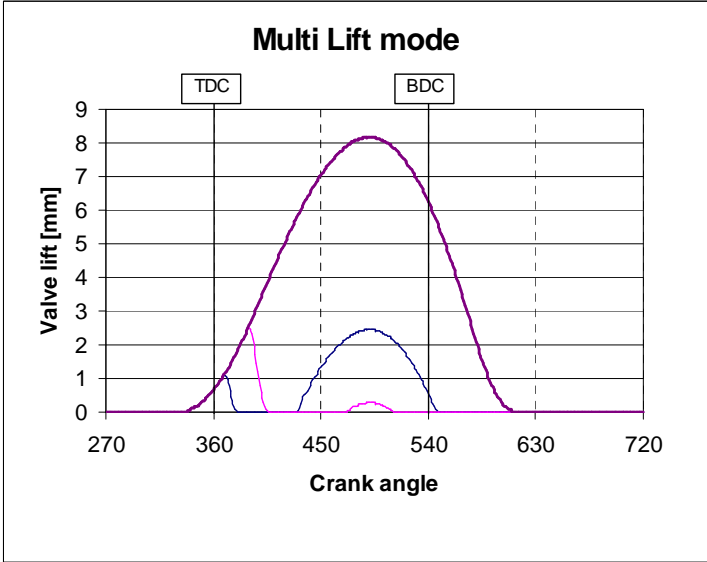
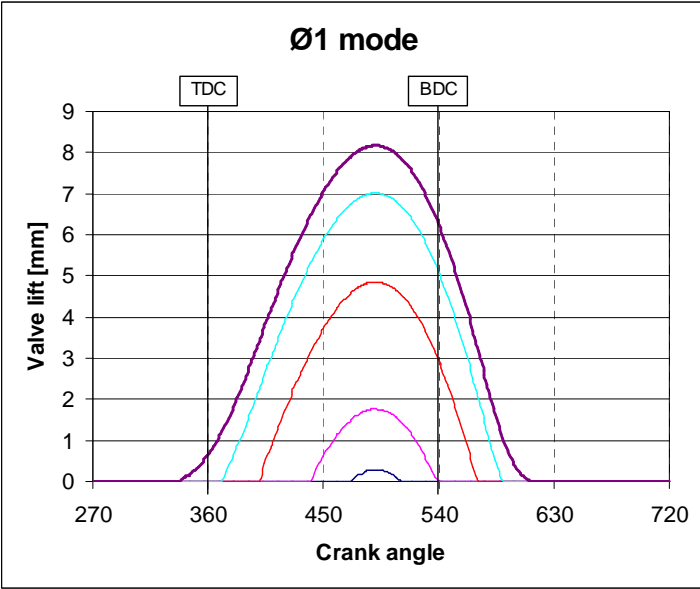
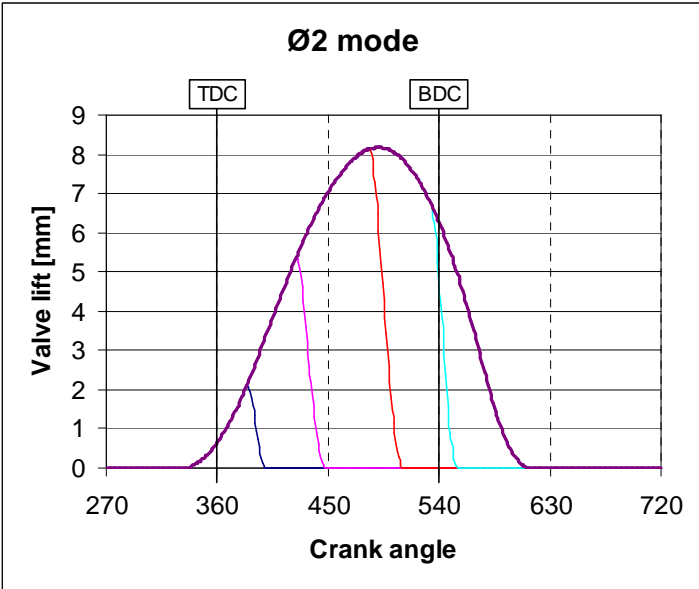
UNIAIR ACTUATOR CONTROL:

- VALVE OPENING / CLOSING
- DIAGNOSIS
- OBD MONITORING

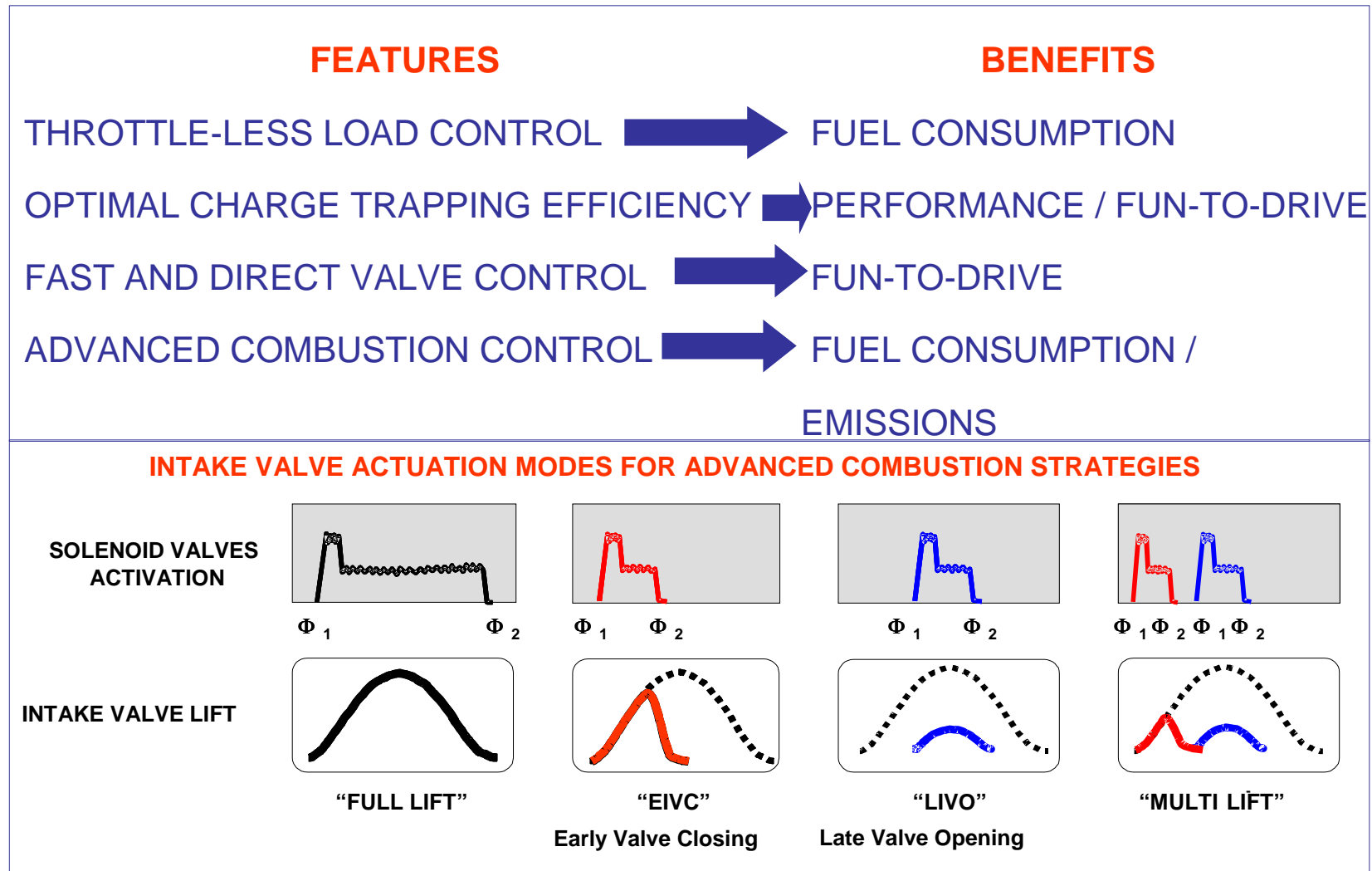
UNI AIR system and basic principles



UNIAIR system and basic principles - Valve modes

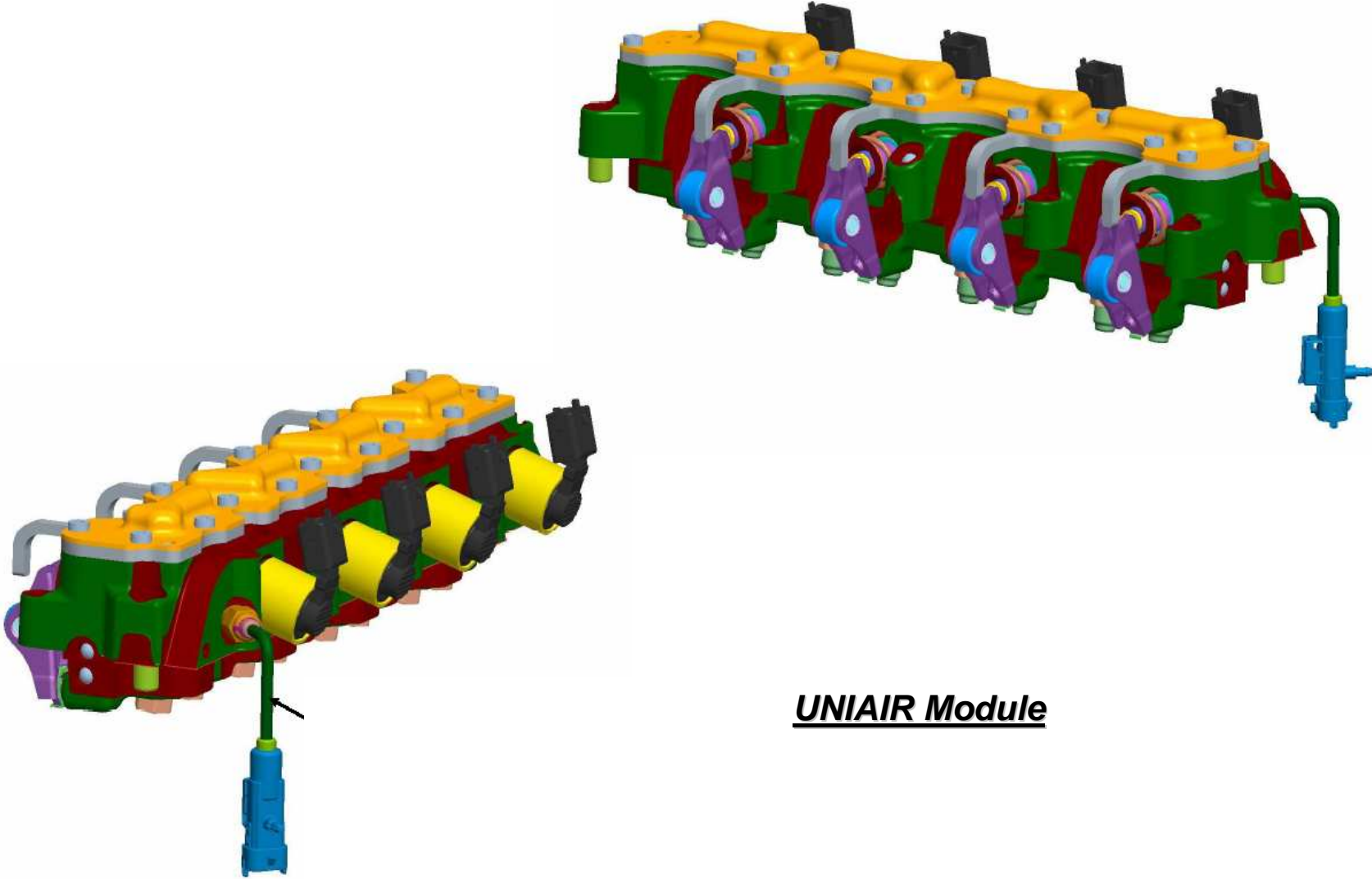


Uniair Technologies features & benefits



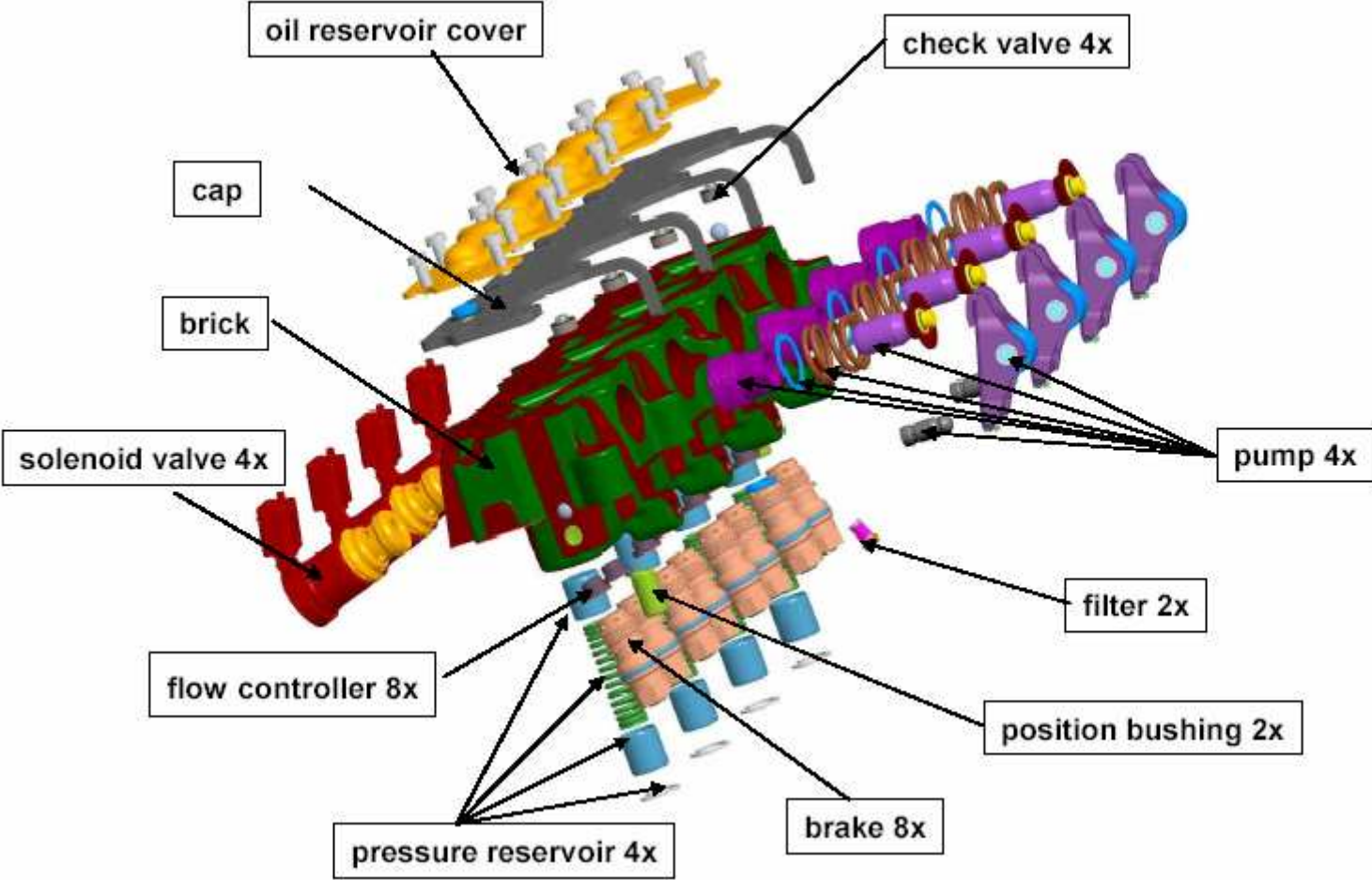
- FIRE 1.4 16V MAIR architecture
- UNIAIR basic principles
- **UNIAIR's main components**
- UNIAIR system interfaces
- Oil supply circuits
- UNIAIR System: valve lift characteristics

UNIAIR's main components



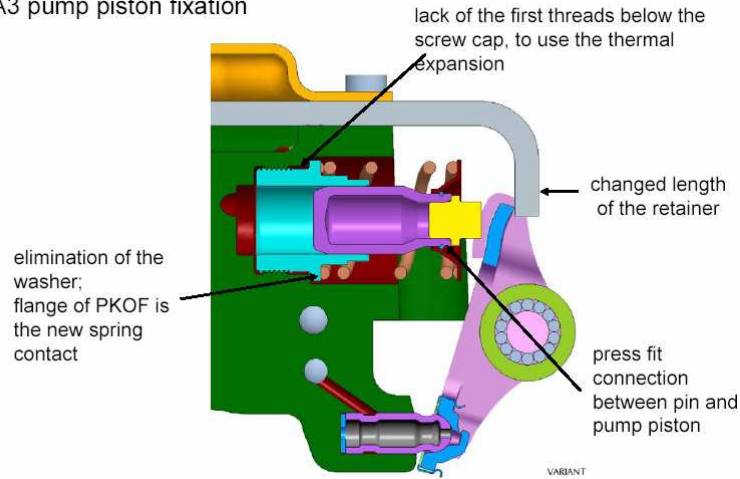
UNIAIR Module

UNIAIR's main components

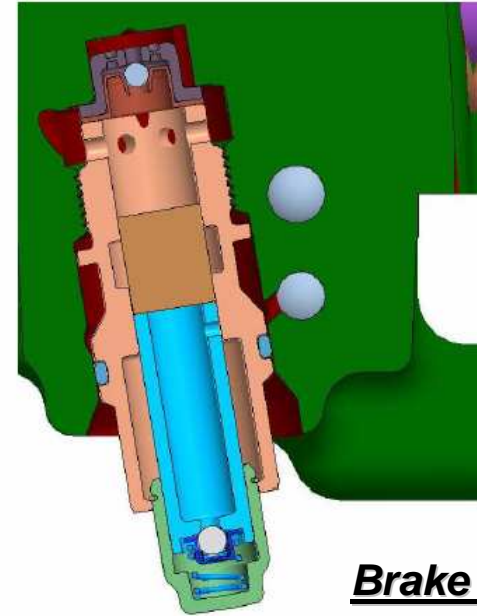


UNIAIR's main components

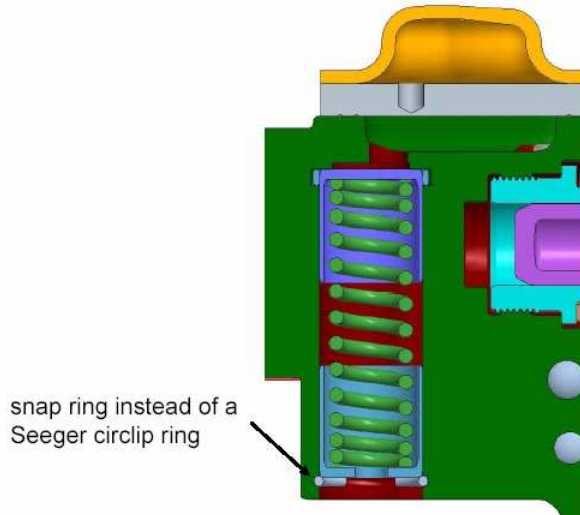
BETA3 pump piston fixation



Pump Piston Unit



Brake Piston Unit



Pressure Accumulator



Solenoid Valve

- FIRE 1.4 16V MAIR architecture
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- **Electrical interfaces:**
 - N. 4 solenoid connectors
 - N. 1 NTC oil temperature sensor connector

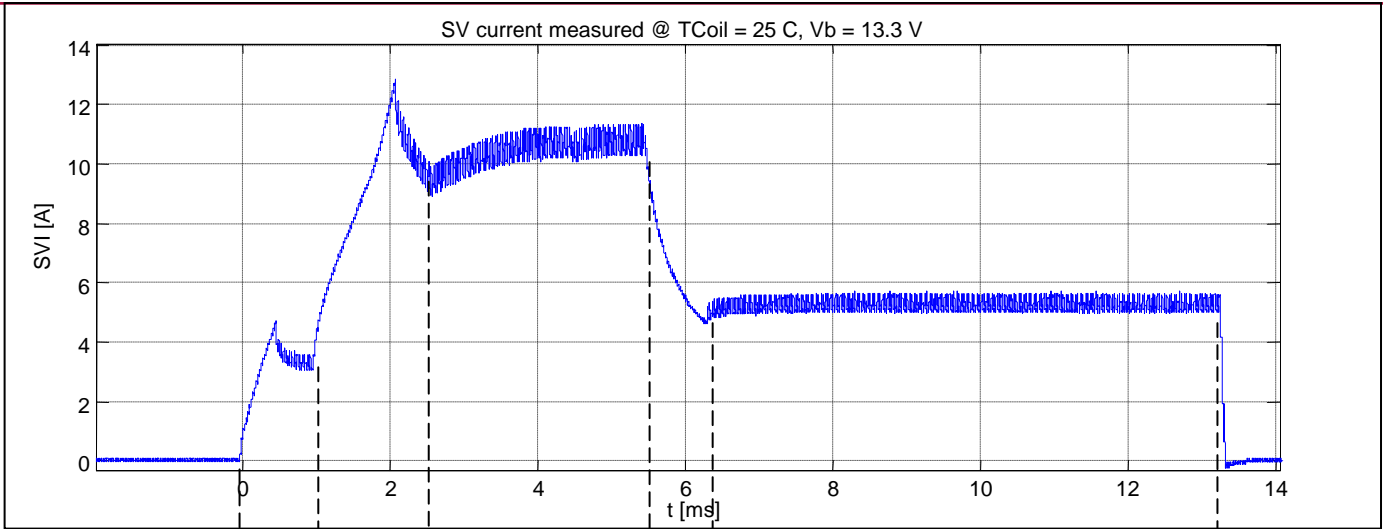
- **Mechanical interfaces:**
 - Cam-carrier
 - Engine cover

- **Hydraulic interfaces from cam-carrier:**
 - Supply line for HLA and RFF lubrication
 - Supply line for VVA actuators

Timing Characterization of SV command



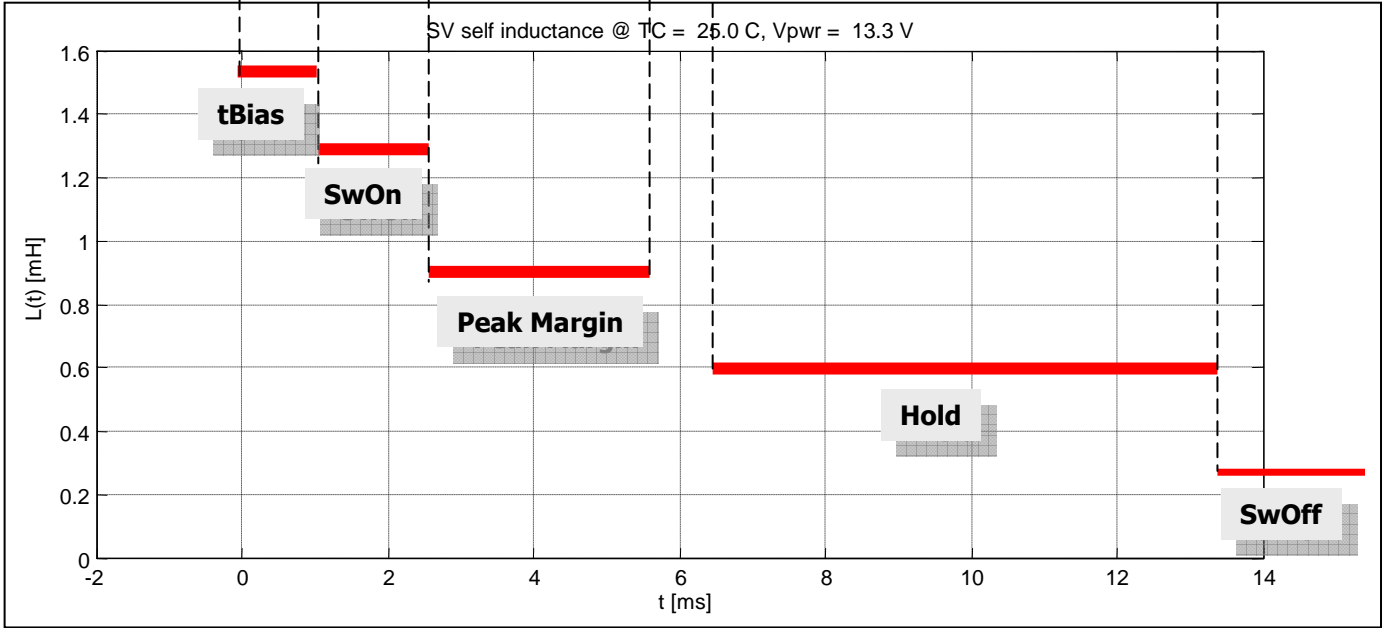
SV CURRENT



F = 30 kHz

Vpwr = 13.3 V

TIMING



tBias = 0.7ms

SwOn = 1.5 ms ±0.2
@ 90°C
50bar
Q 5 l/min ms ±0.2

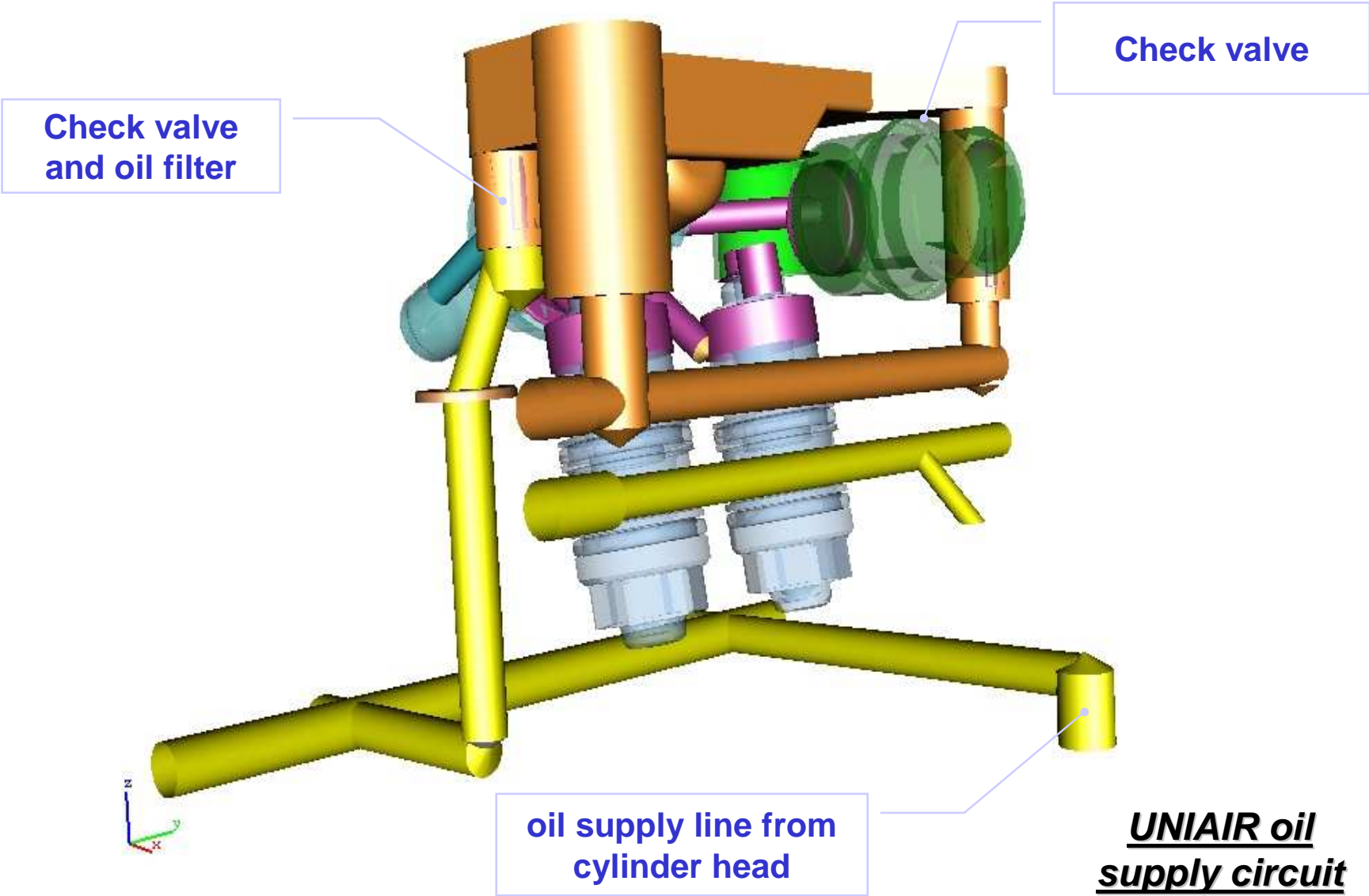
Peak Margin = 0.5 ms
@ 13 V
20°C

Hold = {rpm, req. angle}

SwOff = 1ms ±0.2
@ 90°C
50bar
Q 5 l/min

- FIRE 1.4 16V MAIR architecture
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Oil supply circuits

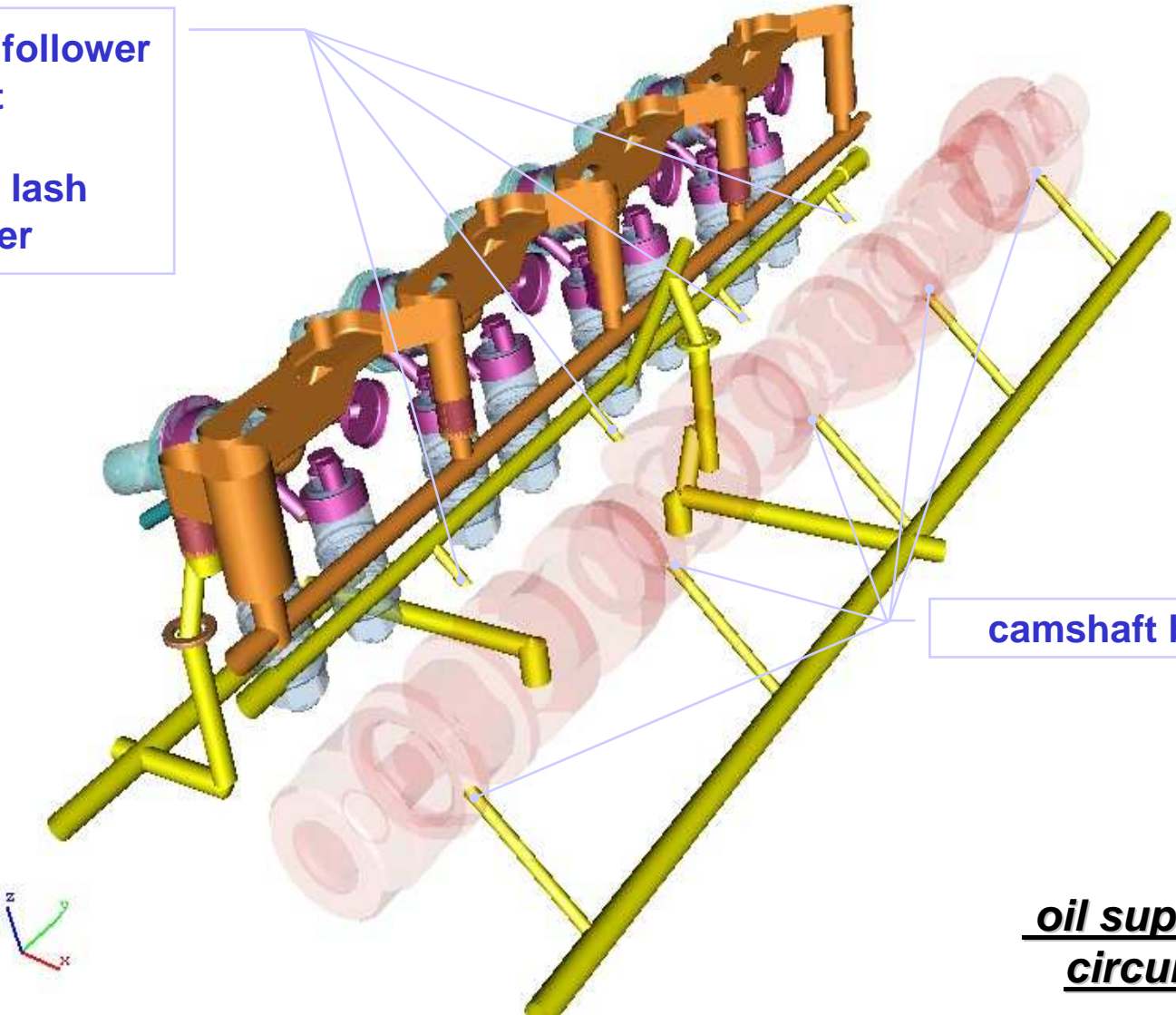


UNIAIR oil supply circuit

Oil supply circuits



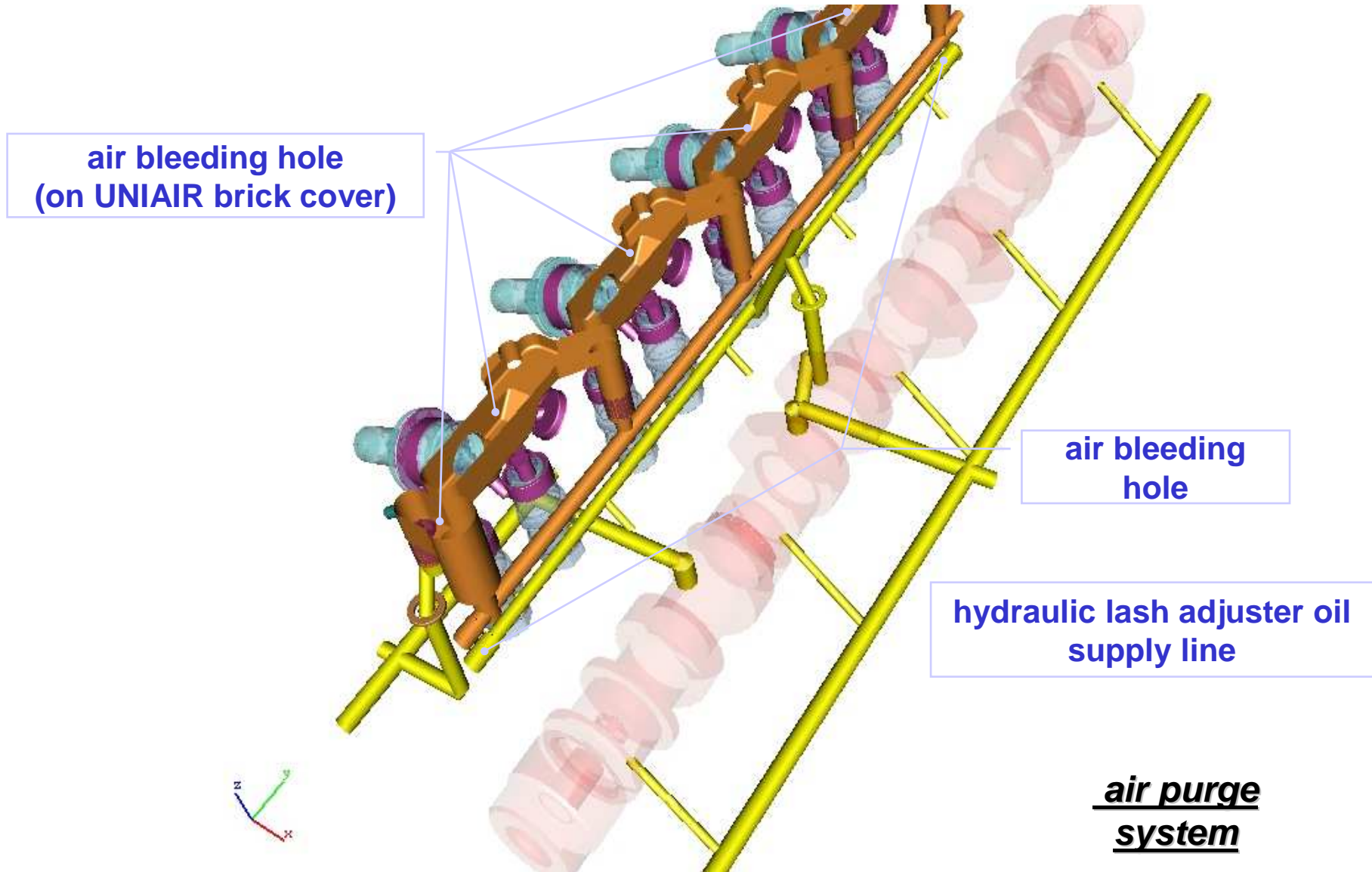
roller finger follower
pivot
&
hydraulic lash
adjuster

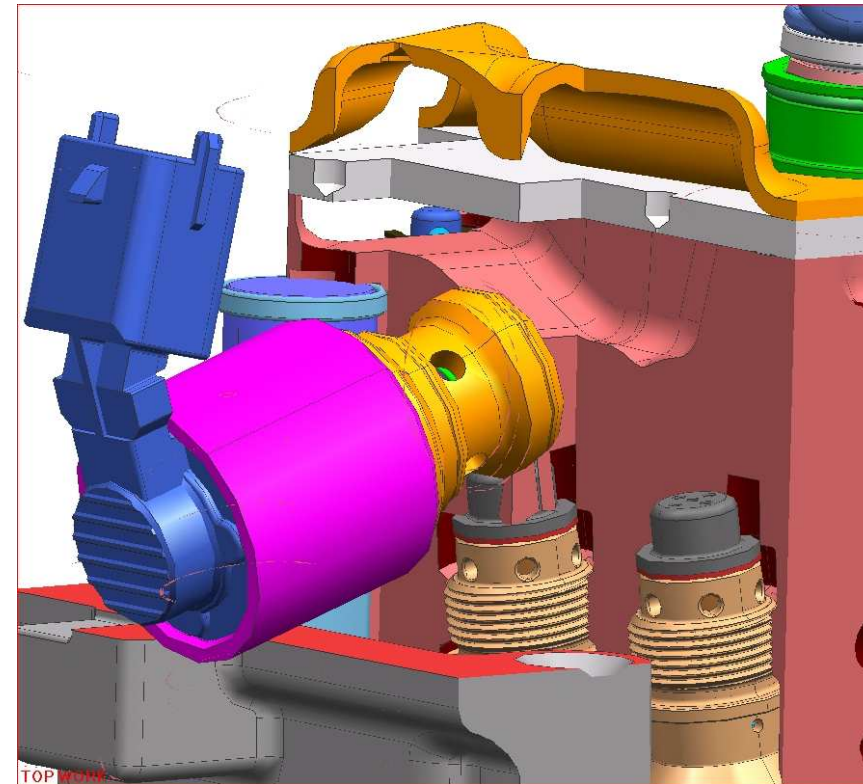
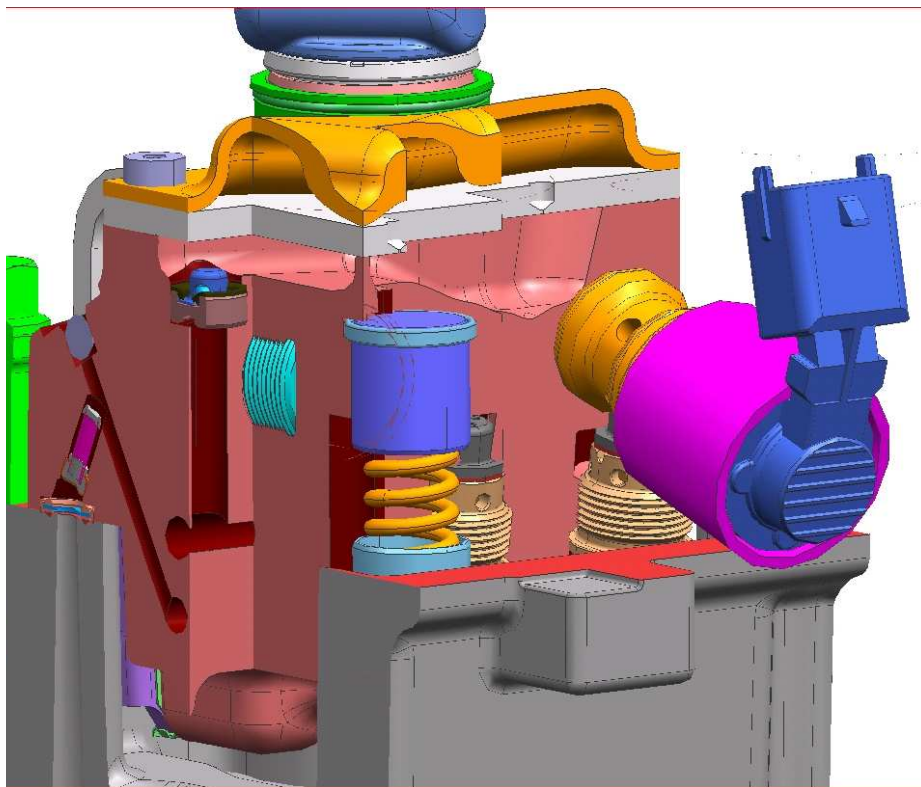


camshaft bearing

oil supply
circuit

Oil supply circuits





air purge system and oil volume

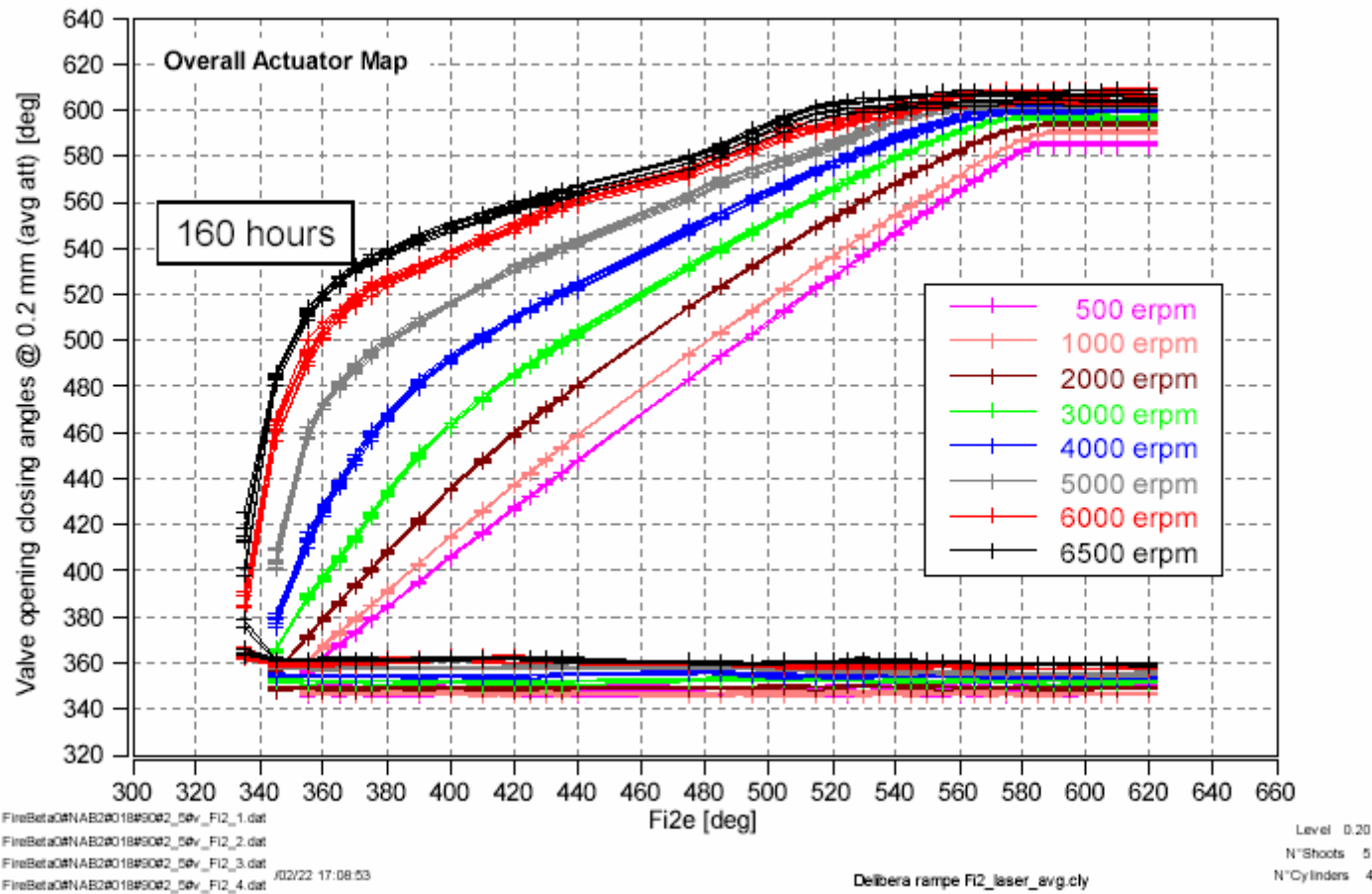
- FIRE 1.4 16V MAIR architecture
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- **UNIAIR System: valve lift characteristics**

UNIAIR System: valve lift characteristics

EVC characteristic



Testa NA B2 Master - Beta 0 Brick 018 - Toil 90°C Poil 2.5 bar (SAE 5W40)V

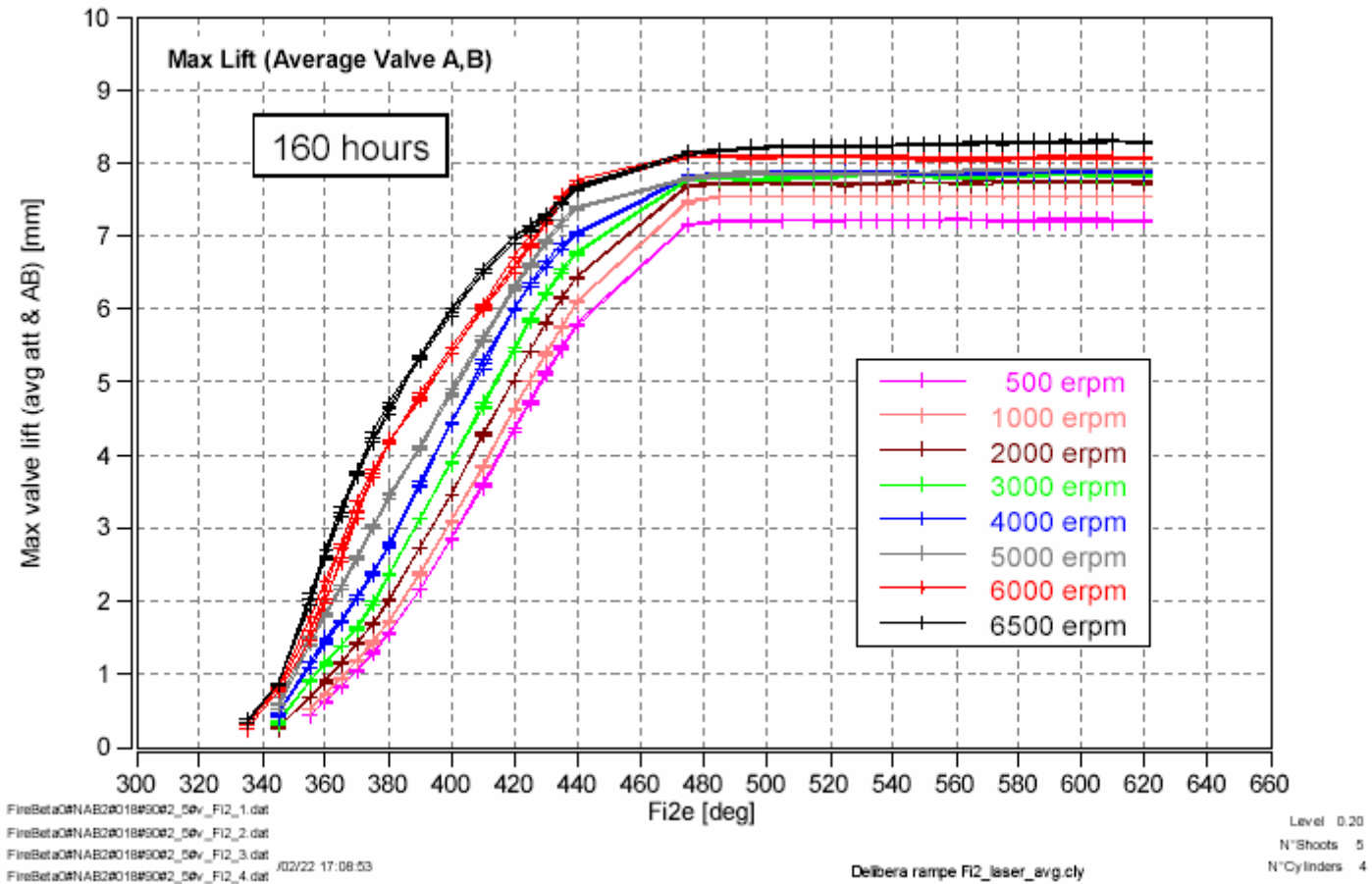


UNIAIR System: valve lift characteristics

EVC characteristic

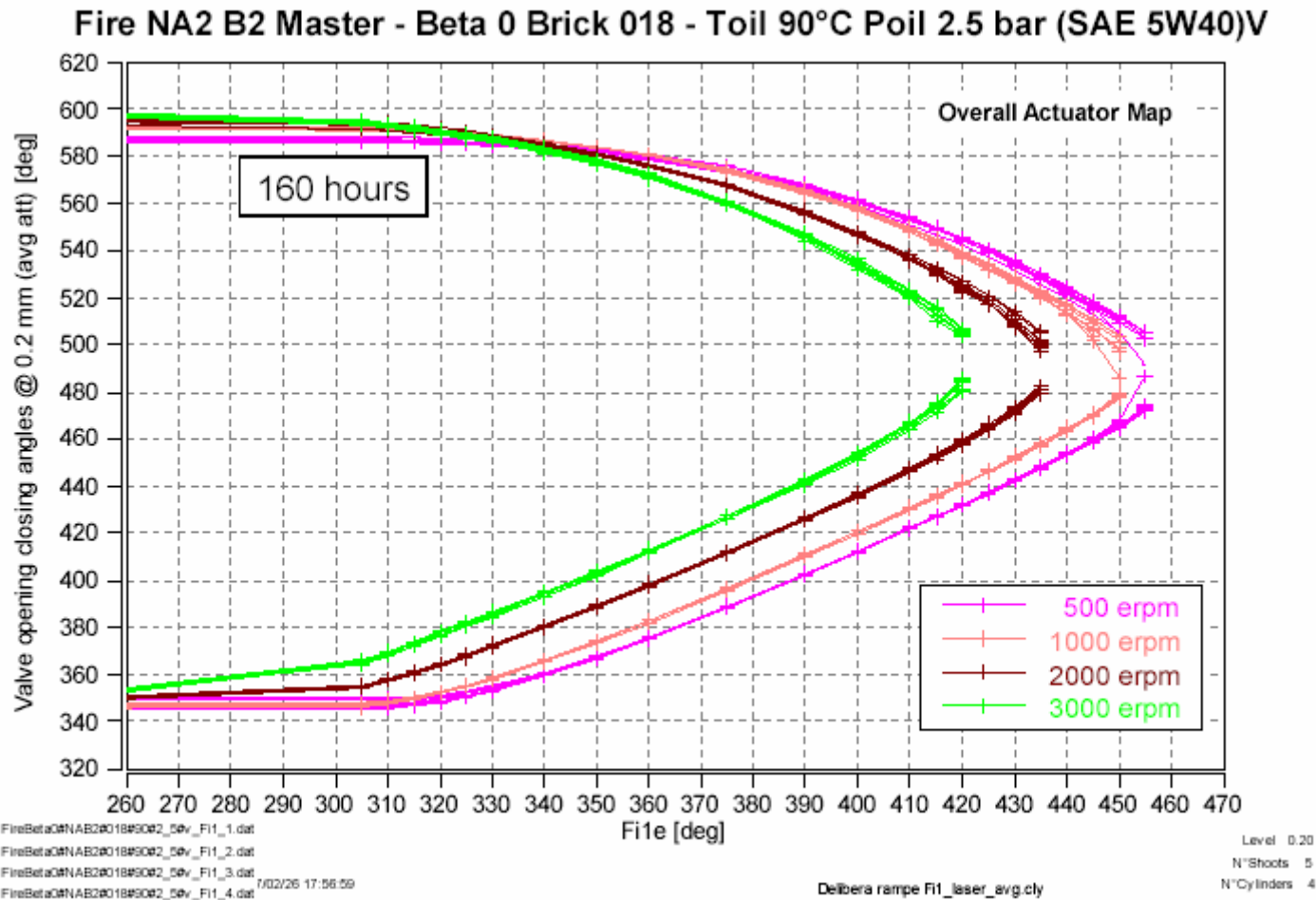


Testa NA B2 Master - Beta 0 Brick 018 - Toil 90°C Poil 2.5 bar (SAE 5W40)V



UNIAIR System: valve lift characteristics

LVO characteristic



UNIAIR System: valve lift characteristics

LVO characteristic



Fire NA2 B2 Master - Beta 0 Brick 018 - Toil 90°C Poil 2.5 bar (SAE 5W40)V

