



Costruzioni Novicrom srl

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HIGH TECH MANUFACTURING

Prototypes
Small series and pre-series
Engines manufacturing
Aerospace and Military components
Mechanical high-tech
Units assembling
Supply of complete machines

1947

Opening the first factory in Pontedera as mechanical workshop and protective chrome plating system.

'60

Beginning collaboration with aerospace companies (Alfa Romeo Avio and Aeritalia)

'80

The precision mechanics becomes the core business of Costruzioni Novicrom



Factory Surface: 15000 mq

Functional Internal Layout
➤ Lean Manufacturing



101 Employees

- 65 Highly specialized operators
- 20 Technical department
- 7 Quality department
- 9 Administrative and Logistic



TYPES OF MANUFACTURE

Costruzioni Novicrom offers a large variety of product types and can supply a wide range of manufacturing solutions:

- Processing and/or construction of components in small and medium batches for car, motorbike, marine and aeronautical engines
- Machine tools
- Overhaul of aviation components in accordance with PART 145
- Aviation components and assemblies for the Defence
- Construction of fixtures
- Packaging machines
- Construction of prototypes
- Assembly operations



Costruzioni Novicrom has been operating for over 60 years in the precision mechanic field:

- High added value in design and development
- Specialization in the mechanical machining of CAST, FORGED and SOLID components

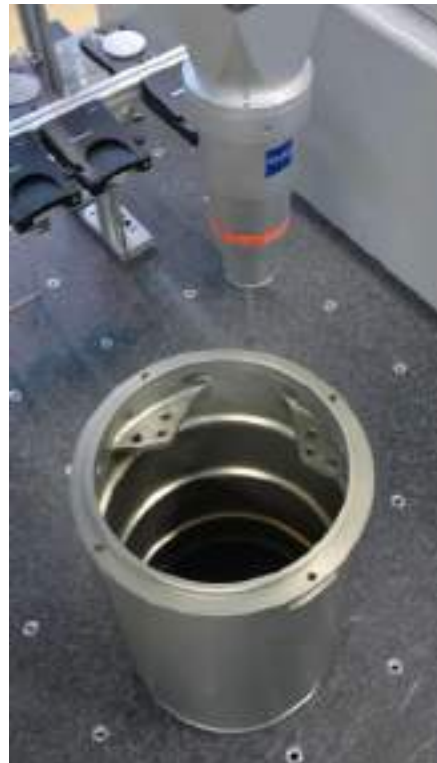


Costruzioni Novicrom is a Landmark of ITALIAN EXCELLENCE:

AEROSPACE



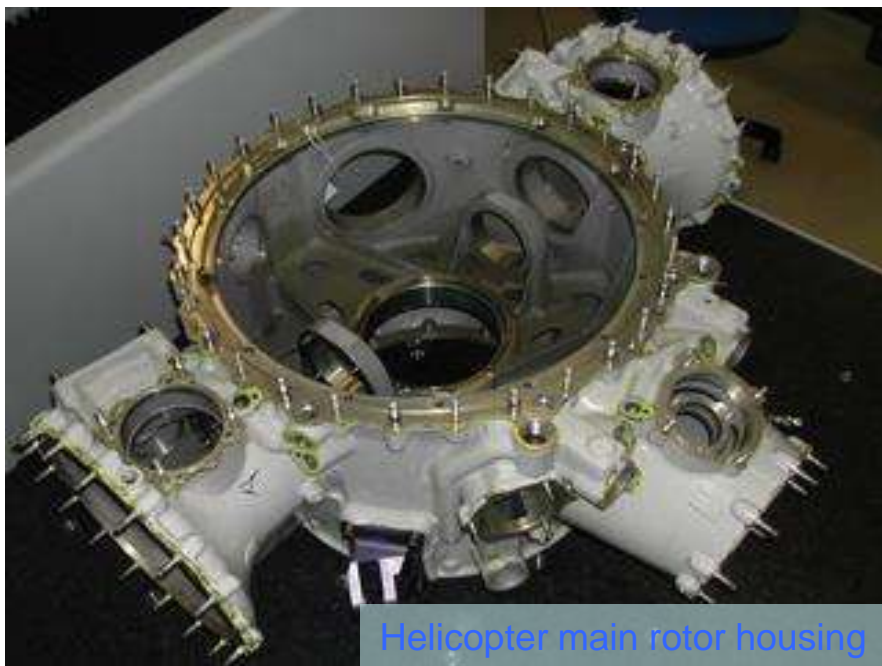
DEFENCE



AUTOMOTIVE



Aeronautical and military components



Helicopter main rotor housing



Helicopter swashplate



Helicopter transmission sleeves

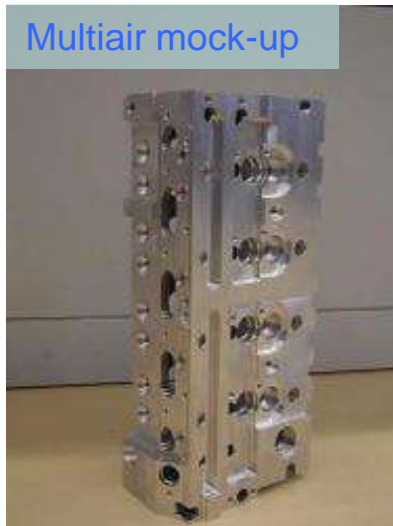


Helicopter input pinion

Aeronautical and military components



Multiair mock-up



Wind tunnel model



Stabilizer mount

Automotive



Formula 1 V8 Cylinder head



V12 Cylinder block

V12 Lower crankcase



V12 Distribution cover



V12 Gearbox

Racing Motorbike



MotoGP V4 Cylinder head



SBK V4 Engine



MotoGP V4 Billet Lower crankcase

Certificated quality system

UNI EN 9100:2018

Certificated quality system

UNI EN ISO 9001:2015

Qualification for Overhaul

MOE - PART 145

Qualification **Leonardo SPA**

Qualification **GE Avio**

License for Manufacture of **Components for Defence**

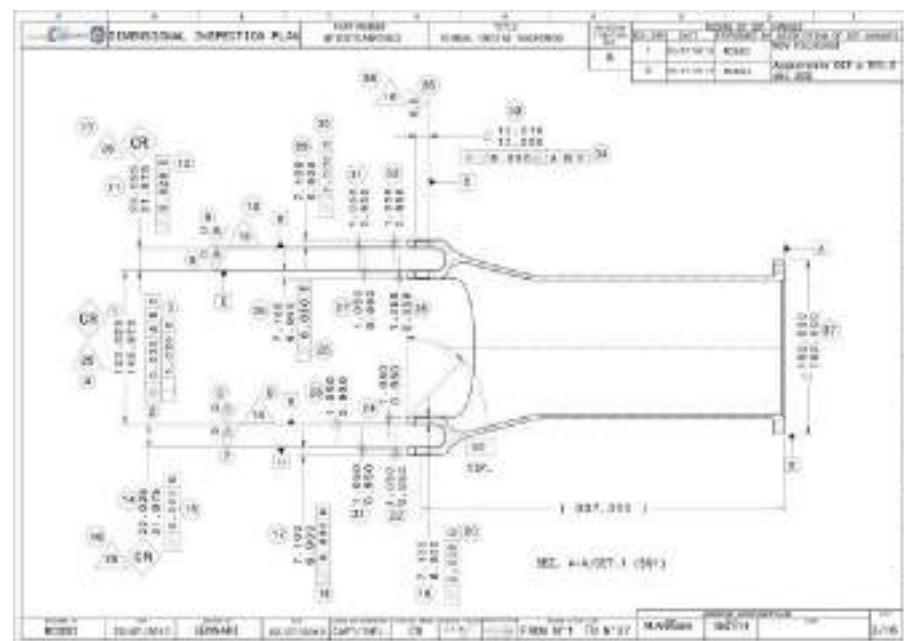
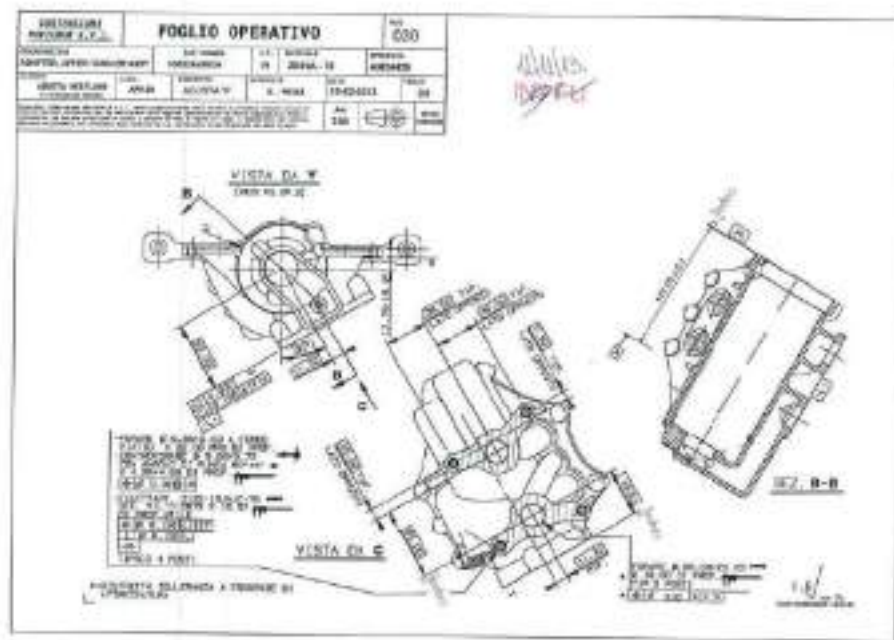
The main qualifications of process for aerospace components:

- ✓ LIQUID PENETRANT INSPECTION
- ✓ ASSEMBLING THERMAL FITS
- ✓ CHROMATE TREATMENTS OF MAGNESIUM ALLOYS
- ✓ LOCATED CHROMATE CONVERSION TREATMENT OF ALUMINIUM ALLOYS
- ✓ PRESSURE TEST
- ✓ CLEANLINESS CHECK



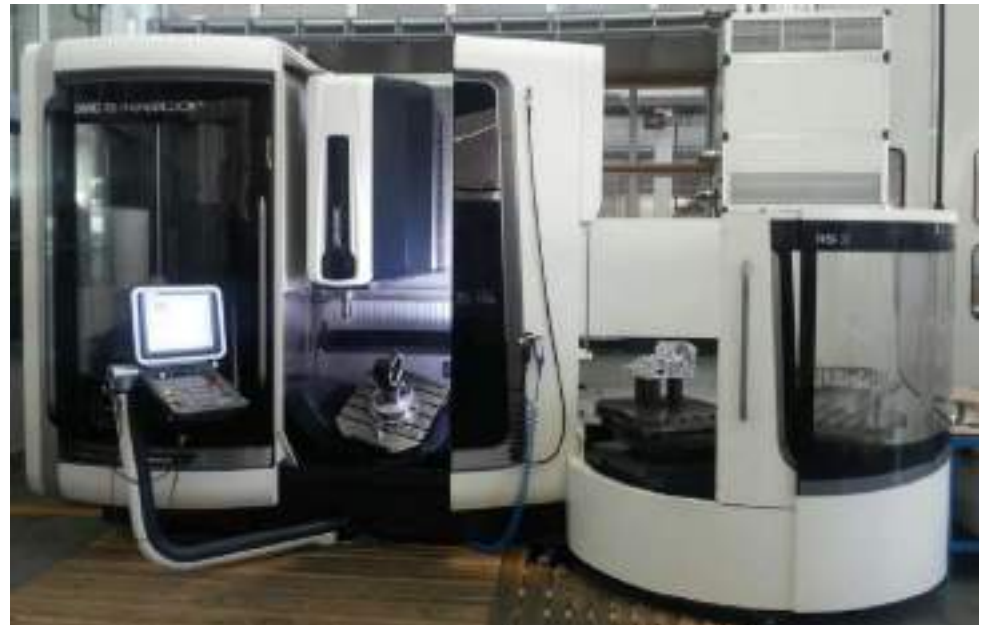
Technical Department:

- CAD 3D - Catia V5
- CAM - Open Mind Hyper Mill
- Detailed working cycles
- Step by step operative instructions (what and how)
- Step by step multilevel controls
- 100% checking with balloned quotes



5 AXIS Department:

- n.9 Machines
- Temperature Controlled Room
- High flexibility production
- Complex geometry
- Few placements
- Constant investment



LIST OF MACHINES

TMC=Tools Magazine Capacity
TCR=Temperature Controlled Room

Name	X (mm)	Y (mm)	Z (mm)	Year	TMC	TCR
DMG Mori DMC 160U	1600	1600	1100	2019	186	✓
DMG Mori DMC 125U	1250	1250	1000	2018	186	✓
HERMLE C1200U	1200	600	300	2001	30	✓
MIKRON HPM 1000U	1000	800	600	2007	250	✓
DMG Mori DMC 85	935	850	650	2015	90	✓
DMG Mori DMC 85	935	850	650	2021	120	✓
MIKRON UCP 800	800	650	500	2007	30	✓
HERMLE C800U	800	450	300	1999	30	✓
MIKRON HSM 600U	800	600	500	2006	50	✓

4 AXIS Department:

- n.8 Machines
- High pressure coolant circuit
- High number of tools
- Multi palletized machines
- Reduction of setup time



TMC=Tools Magazine Capacity

LIST OF MACHINES

Name	X (mm)	Y (mm)	Z (mm)	Year	TMC	Pressure (bar)
DIXI DHP 80	1180	1090	1080	2002	200	70
CNS CNC KMV16	1600	815	815	2018	30	15
MAZAK FH-8800	1300	1100	1000	2004	240	40
MAZAK H-800	1250	1000	850	1995	80	40
MAZAK FH-6800	1050	800	880	2001	150	40
MAZAK H-630 N	1000	800	750	1997	120	15
HITACHI HG-630	900	800	710	1992	120	40
MAZAK FH-480	560	560	510	1995	90	15

Boring Machines Department:

- n.6 Machines
- Vertical and horizontal spindle
- Temperature Controlled Room
- High structural precision
- Extremely precise machining
- Accuracy 5 microns



LIST OF MACHINES

TMC=Tools Magazine Capacity
TCR=Temperature Controlled Room

Name	X (mm)	Y (mm)	Z (mm)	CNC	5 AXES	TMC	TCR
SIP 8000	1600	900	950	✓	✓	80	✓
SIP 4000	1500	1000	600	✓	✓	140	✓
DIXI 350	800	920	1200	✓	✓	100	✓
SIP 640	1000	700	1000	✓	-	1	✓
SIP HYDROPTIC 6-A	1000	700	500	-	-	1	✓
DIXI 75	800	800	800	-	-	1	✓

CNC Mill Turn Department:

- n.3 CNC Mill Turn Machines
- Multi-tasking
- Multi axis
- Constant investment



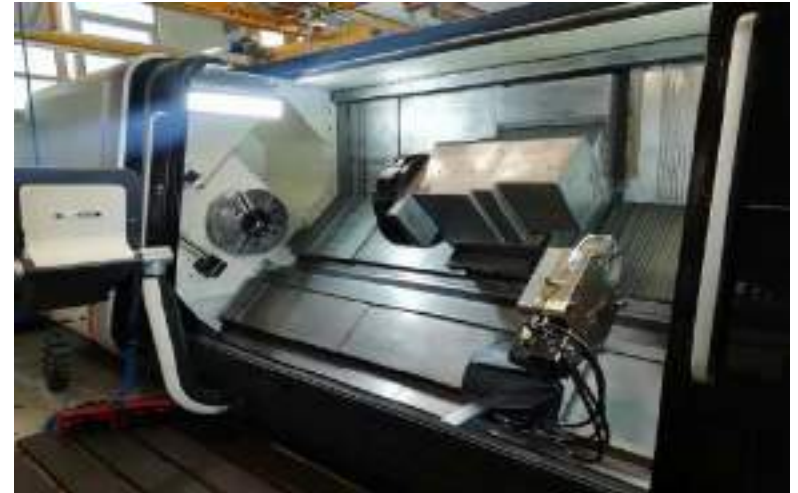
TMC=Tools Magazine Capacity

LIST OF MACHINES

Name	X (mm)	Y (mm)	Z (mm)	Ø (mm)	Spindle (mm)	Year	TMC
DMG CTX Gamma 2000 TC	1250	400	2000	720	315	2011	36
DMG CTX Beta 2000 TC	650	300	2050	720	400	2019	50
DMG CTX Beta 1250 TC	490	250	1300	415	315	2017	80

CNC Turning Department:

- n.8 CNC Turning Machines
- Temperature Controlled Room
- High precision machining



TCR=Temperature Controlled Room

LIST OF MACHINES

Name	X (mm)	Y (mm)	Z (mm)	Ø (mm)	Spindle (mm)	Year	TCR
HYUNDAI L600 MA	800	-	1600	920	800	2019	-
DMG CTX G 3000	495	160	3050	700	500	2017	✓
CNS VT 36 2000	385	-	1960	630	380	2018	-
DMG Ecoturn 650	412	-	1150	600	315	2019	✓
DMG Ecoturn 650	412	-	1150	600	315	2015	-
HITACHI NR 1742	180	-	340	165	240	1990	✓

Wire EDM (Electro Discharge Machining):

- Agie Charmilles CUT30P
- Dimensions of 1050x800x350mm
- High precision machining
- Shape hard to create with conventional machines



Grinding Department:

- Flat machining
- Round machining
- Internal and external surfaces
- Traditional and semiautomatic



Motor shaft



Lens support

Traditional Machining Department:

- n.6 traditional milling machines
- n.5 traditional drilling machines
- n.6 traditional turning machines



Sharpening department:

- 6 axis machine
- Design and construction of special tools
- Integral bar hard metal in complex shape



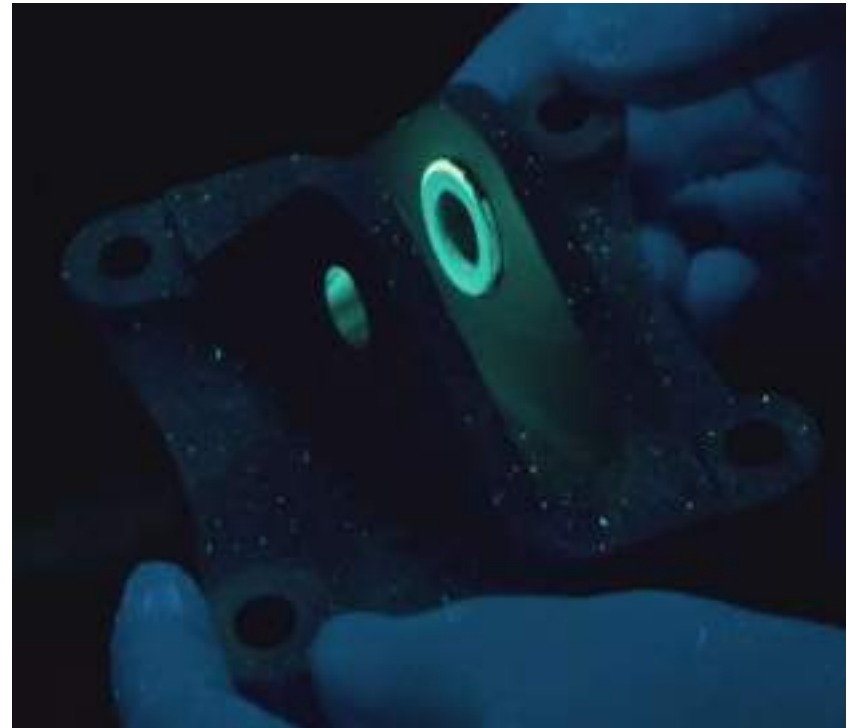
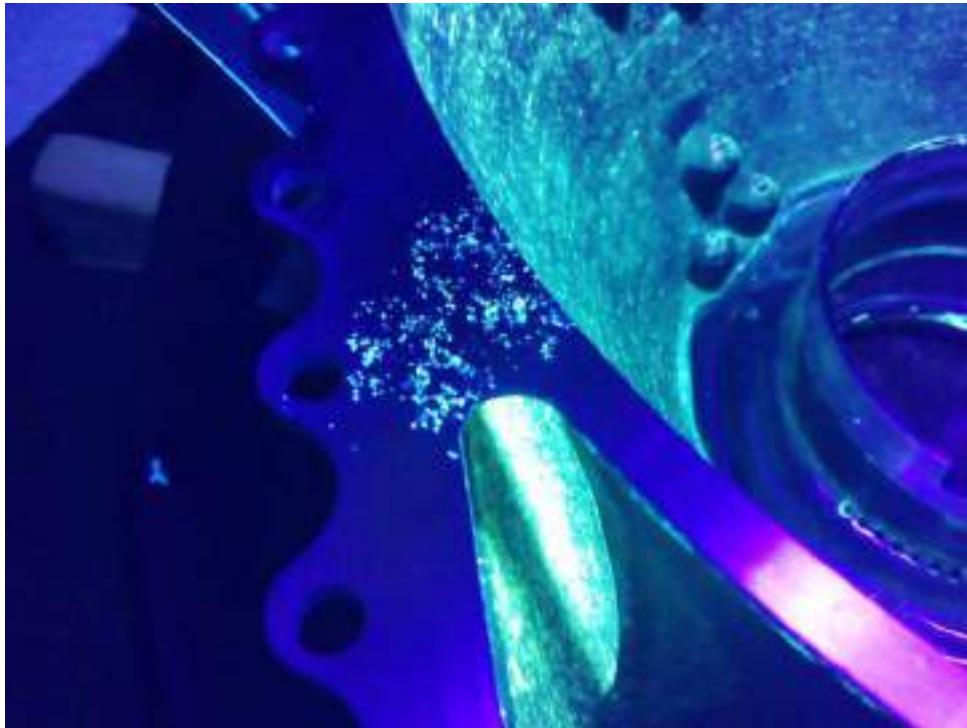
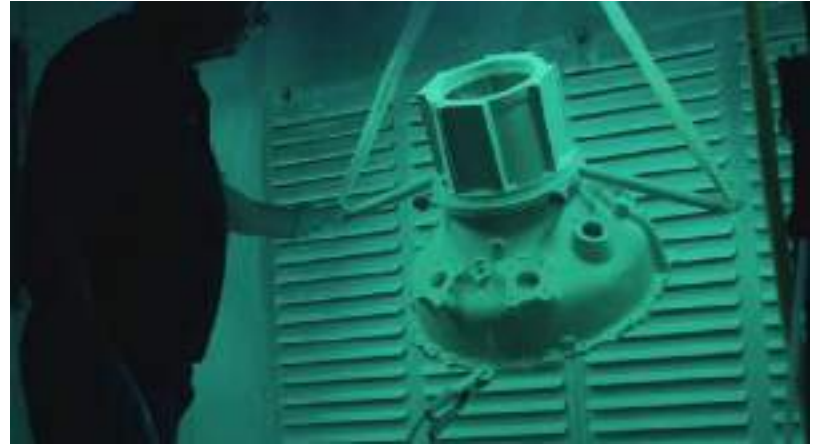
Metrology department:

- n.5 CMM ZEISS
- Maximum dimensions 1600x2400x1000
- Temperature and humidity controlled room
- Calypso Software with direct import from Catia V5 DMFG
- Profile and roughness
- Metrology lab with SIP instruments calibration bench



FPI department:

- NADCAP certification for NDT
- Tanks system implant (300x300x300)
- Electrostatic spray cabin (1500x1500x1500)



Heat Treatment department:

- n.3 pit furnaces
- Case hardening
- Tempering
- Quenching
- Normalizing
- Annealing
- Stress relieving

P (kW)	Ø (mm)	Depth (mm)	Max Temp (° C)
80	1300	700	1300
64	680	1700	900
26	440	900	900



Oil pressure test facility:

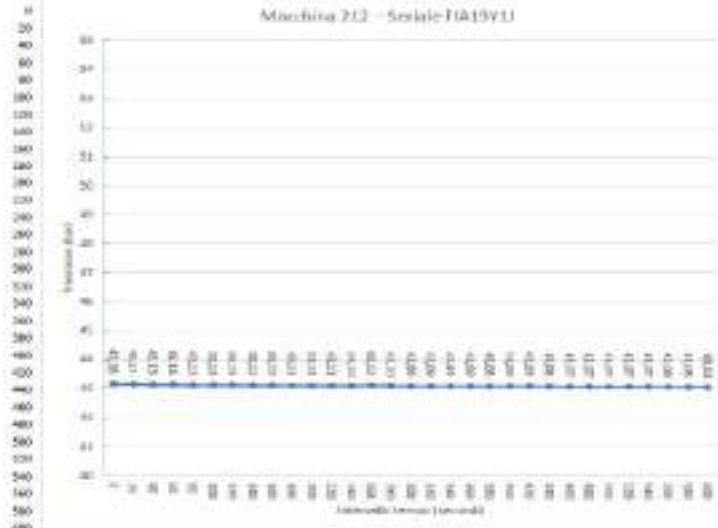
- n.4 channels
- Range 1 ÷ 60 bar
- Test report

REPORT PROVA PRESSIONE OLIO

File: \\Meccanica\Server\Provaol_Oil_2015_875_20150511200409.008
Graph Block Set: 3
Tag Count: 1
Time Span in Sec.: 30
Start Time: 11.05.12 09:43.25
Start Time (PR): 11.05.12 09:43.25
Stop Time: 11.05.12 09:53.25
Sample Count: 30000
Notes:

COMMIT KIMMAYE PROVAOL

11.05.12 09:43.25	4010	40.00
11.05.12 09:43.45	4017	40.17
11.05.12 09:44.05	4015	40.15
11.05.12 09:44.25	4015	40.15
11.05.12 09:44.45	4013	40.13
11.05.12 09:45.05	4018	40.18
11.05.12 09:45.25	4013	40.13
11.05.12 09:45.45	4012	40.12
11.05.12 09:46.05	4012	40.12
11.05.12 09:46.25	4014	40.14
11.05.12 09:46.45	4011	40.11
11.05.12 09:47.05	4011	40.11
11.05.12 09:47.25	4010	40.10
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11.05.12 09:48.05	4010	40.10
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11.05.12 09:48.45	4009	40.09
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11.05.12 09:49.45	4009	40.09
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11.05.12 09:50.25	4007	40.07
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11.05.12 09:51.45	4007	40.07
11.05.12 09:52.05	4007	40.07
11.05.12 09:52.25	4007	40.07
11.05.12 09:52.45	4006	40.06
11.05.12 09:53.05	4005	40.05
11.05.12 09:53.25	4004	40.04



Duct washing system
Oil passages and orifices cleaning

10 μ filter

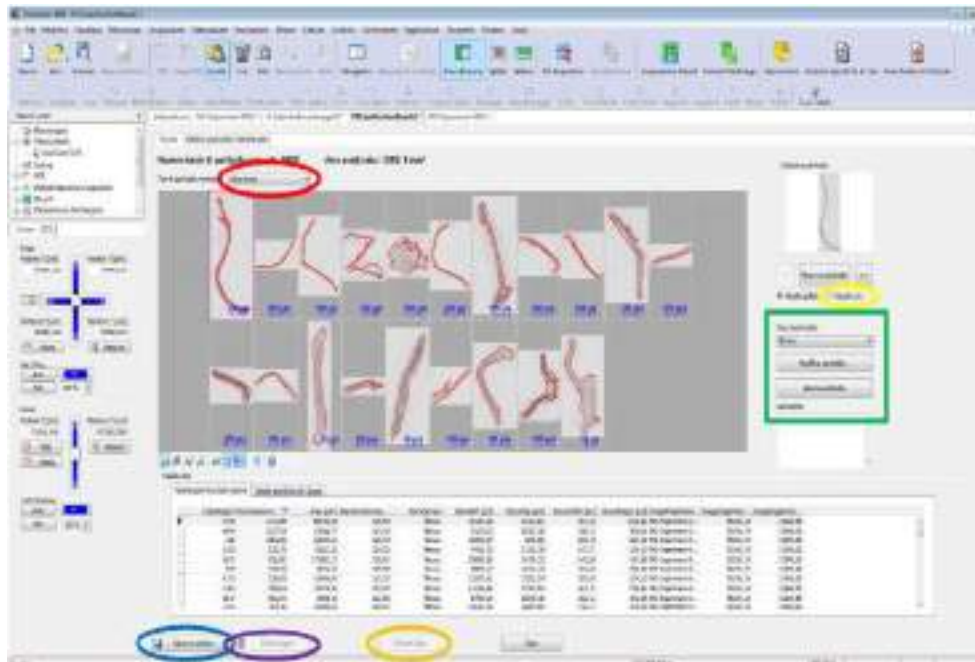


High resolution
Fiberscopes



Cleanliness check facility:

- Debris weight
- Hard particles size
- Hard particles shape





Helicopter case lower assy



V12 Cylinder head



Helicopter support variable pitch



Engine impeller



Helicopter support oil level



Engine Carrier Planetary Gears



Helicopter Case Output



Transmission carter



Idraulic damper assy



Transmission Case



Helicopter Input pinion

LEONARDO HELICOPTERS

AVIO AERO

SCUDERIA FERRARI

LEONARDO SYSTEM DEFENCES

MAGNAGHI AERONAUTICA SPA

FERRARI

LEONARDO LAND & NAVAL
SYSTEM ELECTRONICS

PIAGGIO AERO

MASERATI

ANSALDO ENERGIA

UMBRA GROUP

DUCATI CORSE

BOEING

LAMBORGHINI

CENTRO RICERCHE FIAT

SALVER

PIAGGIO

MCLAREN

GRAINGER & WORRALL

AEREA SPA

APRILIA RACING

INNSE BERARDI

THANK YOU