

Machining, Fabrication,
Assembly, Design,
& Engineering

Orange, CA
Facility



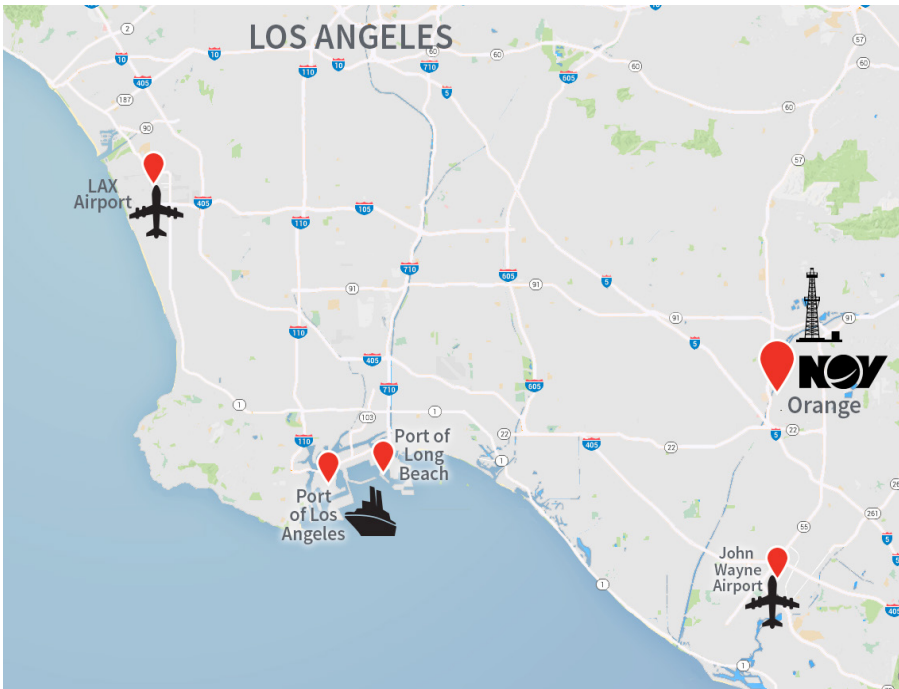
NOV is the Worldwide leader...

in the design, manufacture and sale of equipment and components used in the oil and gas drilling and production operations. As an international company we also provide customer-centric oilfield and supply chain integration services to the upstream oil and gas industry.



NOV Orange offers a wide breadth of manufacturing capabilities (Machining, Fabrication, Assembly, Inspection, Full Design, Analysis, Engineering Services); recently expanded with the 2015 investment.

NOV's Orange, CA facility strives to be the leading manufacturer of oil drilling equipment and provides world-class manufacturing capabilities to all customers through innovation, responsiveness, and dedication to our commitments.



We are conveniently located within 45 minutes of multiple major airports and ports of Los Angeles and Long Beach. We have partnered with transportation companies allowing us to meet our customers' expedited demands.



**295,000 sq. ft.
roofline, 22 acres**



9 Buildings



**ISO 9001:2008 Certified
API Spec Q1 compliant**

Machining Capabilities

Mazak Integrex E-Ramtec N/12 VTL

2013 Installation

- Axis Travels - 120" x 66" x 70" x 35" (X,Y,Z,W)
- Dual pallet
- Table Diameter – 73"
- 15,000 lb. Capacity

2 PAMA Dual Speedmat HP4 HBMs with an FMS

NEW 2015 Installation

- Pallet system provides offline set-ups
- 26,000 lb. table capacity
- D'Andrea boring head
- Universal perpendicular indexing head
- 1700 ft-lb torque 6.3" boring spindle diameter



Vertical Machining Centers

Qty.	Description	X-Axis	Y-Axis	Z-Axis	W-Axis	B-Axis	Swing	Features
1	MAZAK VARIAXIS 730-5X II	120 in.	67 in.	71 in.	35 in.	Yes	Yes	ATC; Pallet Changer, 5-Axis
9	MAZAK, HMC	35 in.	No	70 in.	No	Yes	54	ATC; Pallet Changer
1	MAZAK INTEGREGX E-RAM-TEC N/12 VTL	120.28 in.	66.63 in.	70.85 in.	35.43 in.	Yes	Yes	ATC; Pallet Changer

Horizontal Machining Centers

Qty.	Description	X-Axis	Y-Axis	Z-Axis	B-Axis	Features
1	MAZAK VARIAXIS 730-5X II	29 in.	33 in.	22 in.	Yes	ATC; Pallet Changer, 5-Axis
9	MAZAK, HMC	41-67 in.	32-55 in.	32-55 in.	Mixed (Y/N)	ATC; Pallet Changer
2	PAMA SPEEDMAT HP4	118.11 in.	98.42 in..	90.55	Yes	Pallet Changer with 78.74"x 62.99" Table

Fabrication Capabilities

Column Welding Positioner (ALM MHL-2P 15K; 68”x 152”)

- 2 tables with waterjet, plasma and torch cutting capabilities
- 1 - Table 8’ x 20’; Water Jet <0.5”, Plasma <1.75”, Torch <8”
- 1 - Table 8’ x 10’; Plasma <1.75”, Torch <8”
- Small and Medium Welding (2 shifts, 10 booths)
- Large Weld
- Stress relief furnaces (Baker L200” x W80” x H90”)



Robot Welder

State of the art robot welder (90”x120”) features:

- Six axis articulated arm with multi-axis work holding equipment
- Precisely deposits weld up to 30” per minute

All welders are certified to ASME IX and AWS
Weld capabilities include:

Flux Core Arc Welding	(FCAW)
Gas Metal Arc Welding	(GMAW)
Submerged Arc Welding	(SAW)
Shielded Metal Arc Welding	(SMAW)
Gas Tungsten Arc Welding	(GTAW)

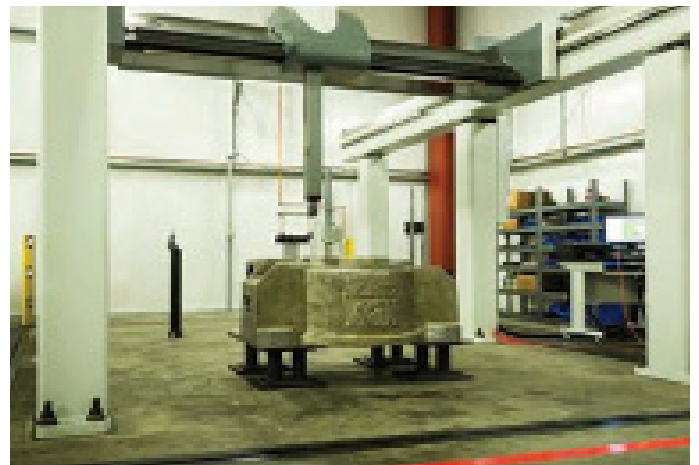


Inspection Capabilities

HEXAGON Coordinate Measuring Machine

NEW 2015 Installation

- Accuracy- Repeatability-Automated Inspection
- Large workpiece envelope (L5m x W2.5m x H1.5m)
- Resolution 0.1µm
- Inspection is fully automated and is continuous probe scan capable
- Continuous probe scanning
- Temperature controlled environment



NOV Orange Quality Statement:

NOV Orange Quality organization is committed to eliminating non-value added costs and activities by focusing on process and product improvement while ensuring that internal and external customer requirements are understood by the facility and providing the infrastructure to exceed them. Quality is integrated with Operations so that the facility meets industry standards, maintains accurate documentation, supports our customers’ needs, and strengthens through improvement.



Machining Capabilities

WFL Millturn Machine

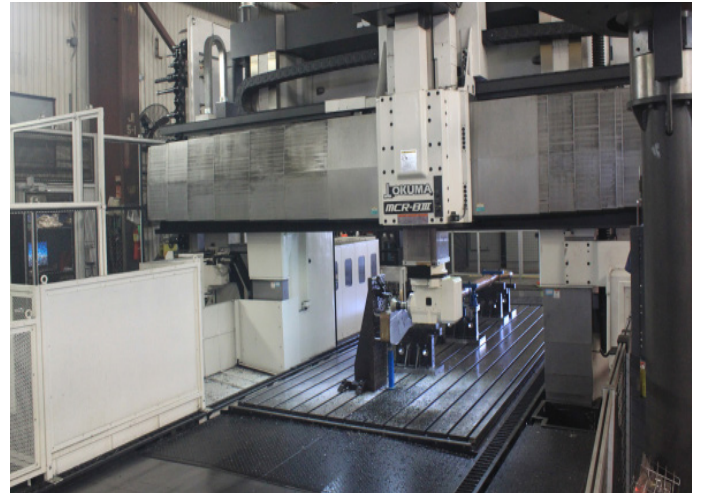
NEW 2015 Installation

- Integrated hobbing
- 118" travel in z
- 39" swing
- Bore up to 36"

Okuma MCR-BIII Double Column Machining Center w/ programmable Cross Rail

NEW 2015 installation

- CAT50 Big Plus Spindle
- Table Size 98" x 248" – 95,000lb. capacity
- Axis Travels - 256" x 146" x 31" x 51" (X,Y,Z,W)
- 90 Degree and 1 Degree Universal Heads



Lathes (CNC)

Qty.	Description	X-Axis	Y-Axis	Z-Axis	B-Axis	Swing	Chuck Dia.	Features
7	MAZAK INTEGREGX	18-35 in.	7-26 in.	40-160 in.	Yes	20-36	20-30 in.	ATC; S-Rest; 20" B-Bar
9	VARIOUS MAKES, CNC LATHES	10-29 in.	6-10 in.	20-120 in.	Mixed (Y/N)	12-36	10-30 in.	ATC; S-Rest
1	MAZAK MULTIPLEX 6300 LATHE	12 in.	No	12 in.	Yes	17	12 in.	Dual Spindle; Dual Turret
1	WFL M80 MILLTURN	35.43 in.	25.59 in.	129.92 in.	Yes	40	25 in.	77HP, 5000RPM spindle speed

Horizontal Boring Mills CNC

Qty.	Description	X-Axis	Y-Axis	Z-Axis	W-Axis	B-Axis	Features
1	GIDDINGS & LEWIS, FLOOR MILL	384 in.	139 in.	48 in.	30 in.	Yes in.	90° Head capability
2	GIDDINGS & LEWIS, HBM	98 in.	68 in.	32 in.	72 in.	Yes	Adaptive Control
4	GIDDINGS & LEWIS, HBM	72 in.	84 in.	36 in.	36-42 in.	Mixed (Y/N)	AutoTool changer

Vertical Machining Centers

Qty.	Description	X-Axis	Y-Axis	Z-Axis	W-Axis	Table Width	Table Length	Features
2	MAZAK, VERTICAL MILL, -MTV-515/155	51 in.	21 in.	22 in.	No	22 in.	51 in.	90° Head capability
2	MAZAK, VERTICAL MILL, -MTV-VCN-410A	22 in.	16.1 in.	20 in.	No	22 in.	44 in.	ATC
1	OKUMA, VERTICAL MILL, -MCR-BIII	256 in.	146 in.	31 in.	51 in.	98 in.	248 in.	ATC; 5-Axis; Universal heads, 90° capability, auto-head changer, Snout
2	MAZAK VERTICAL MILL, -VCN 510C50-II	41 in.	20 in.	23 in.	No	22 in.	51 in.	

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