

JVNW

JV NORTHWEST, INC.

Process Vessels



Storage Tanks



Mix Tanks



Skid Systems



Fermentation Tanks



Totes, Portables & Custom



"exceptionally personalized service"





Company Profile

JVNW is a premier design-build company providing cost effective solutions from concept through installation. The vessels, mixers, and systems manufactured by JVNW are an integral part of production for the following key industries:

- Food
- Bio-Pharm
- Beverage/Juice
- Cosmetic
- Pure water
- Beer/Wine
- Nutraceutical
- Chemical
- Alternative energy

We pride ourselves on the collaborative nature of our customer relationships. The result is a rich history of repeat business.



What We Do

Service is an essential part of our products. Our goal is to accept nothing short of total customer satisfaction. To accomplish this JVNW operates on the following principles:

- We make a point to understand your business. We encourage feedback, we want to continually improve and learn.
- Price quotations are prepared quickly, often within a day.
- A Project Manager is assigned to every order.
- Every piece of equipment is subjected to extensive quality control. Every single weld is checked and signed. We are an ASME code shop and adhere to 3A standards. cGMP procedures are followed.
- Projects are completed and delivered on time. Period.
- Full year warranty. All defects in parts or workmanship are fixed or replaced for one year. If our good customers think a defect is our fault, then it's our fault. We run our business honestly and we assume the same of others.



“unyielding quality”



250 liter Process Vessels with automated controls.



Portable Bulk Solution Sterilizer with controls.



100 liter ASME Mammalian (CHO) Cell Culture Vessel. Magnetic mixer, differential level control, pH and conductivity controls, dissolved O₂/O₃ instrumentation.



JVNW Vessels & Process Systems

- WFI Vessels
- Bioreactors
- Portable Transfer Vessels
- Sterile Surge Vessels
- Fermentation Vessels
- Bio-storage Tanks
- Kettles
- Pilot Scale and R&D Vessels
- Agitation Systems

One Source:

- Mixer laboratory
- Ultra-sanitary Sanifoil Impeller, solid shafts
- Factory electropolishing
- Controls, instrumentation, wiring:
 - level
 - pressure
 - DO
 - RPM sensors
 - pressure relief
 - temperature
 - pH
 - conductivity
 - displays
- Complete mixer installation
- Cleaning devices, fixed positioning, testing
- Mixer and tank performance tested prior to delivery (FAT)
- Pre-validation documentation packages



ASME Aerobic Fermentation Vessel
100 HP microbial agitator.



Interior view, Electropolished finish.



Top view, Easy Change mechanical seal with retracting shaft, adjustable hub and Sanifoil Impellers.

The Geometry of a Process Vessel

The Complete Process Vessel is one where all components are perfectly matched for efficiency and performance. Cleaning devices must reach every corner but must not interfere with shafts and impellers. Instrumentation must be properly located to avoid false readings. Heat transfer jacketing must be sized for batch loads or zoned for flexibility. The same mechanical engineering talent that invented the patented Sanifoil and Easy Change mechanical seal (patent pending) continually solve the most difficult processing challenges. Instrumentation, mixer and vessel are designed as one, and undergo complete performance testing prior to shipment. JVNW pre-validation support is thorough and on time.



200 liter Process Vessel, spring assist access, ASME, CE, PED.



IV Batch Production Line Vessel—installation.



Water for Injection (WFI) 25,000 liter Storage Vessel. ASME, SIP/CIP, electropolished interior, expansion mount saddle supports.

JVNW Holding Tanks

The JVNW manufacturing plant accommodates large tank fabrication. The 65 foot tall building allows one piece vertical assembly for tanks up to 50 feet tall. Vertical assembly is an economical manufacturing method for large tanks. Vessels exceeding 50 feet in height can utilize the vertical assembly method with the exception of the final circumferential weld.

The actual building site or installation constraints may require on-site tank assembly. Seismic conditions are always considered.

Venting

Venting is especially critical in large volume tanks. General rules and calculations are compiled with weather related effects to vent large tanks built for outdoor service.

Tank Skirts

Large tanks can be outfitted with an enclosed skirt allowing tanks in exterior locations to safely house instrumentation and monitoring equipment.



15,000 gallon Bulk Wine Storage Tanks, bench mounted for outdoor service.

Legs

Mild steel or stainless steel legs, diagonal cross bracing and center supports are used in place of bases when applications require on-site adjustability.

Load Cells

Load cells are mounted on sidewall brackets or legs. Sidewall bracket mounting facilitates suspended vessels, and are braced structurally within the tank wall. Leg-mounted load cells can be supplied during tank construction.

Base

Economical sectional bases are available in coated structural steel. The egg crate design can accommodate sloping or flat bottom tanks.



Storage tanks are most often sized using multiples of tanker load capacity.



8,000 gallon dished bottom Storage Tank with shadowless access door.



6,000 gallon single wall Storage Tank. 2B (mill) finish, caged ladder, top rail, sloping bottom.



Tip-up Formula
Clearance (C) needed for tip up: $C = \sqrt{A^2 + B^2}$



50,000 gallon Bulk Storage Tank preparing for transit.

“revolutionary performance”

Storage Tanks

Mix Tanks



Steam jacketed Sauté Pan.



Interior view, Scrape-lift-fold Mixer.



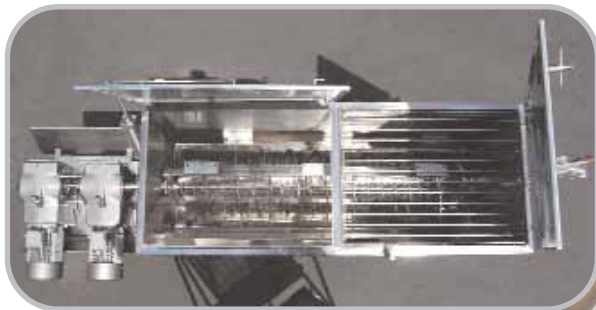
Top View, Double hatches with dump grid.



Batch Process Tanks with stainless steel mixers.

Mixers

- Double/Triple counter-motion mixers
- High shear mixers
- Ribbon style blenders
- Scrape mixers
- Gate style mixers
- Multiple Agitation systems



Top view Double Helix Ribbon Blender, counter rotating scrape.



Interior view, Double Helix Ribbon Blender, counter rotating scrape.



Patented Sanifoil Impeller with sanitary hub.



Pilot Reactor with lid-mount mixer.



Cosmetic Mix Tank with tank-mounted agitator speed control.



Interior view, Dual Motion Scrape Agitator with Sanifoil Impellers.

Integral Parts

- Sanifoil impellers (patented)
- Turbine impellers
- Full/Partial sweeps
 - side sweeps
 - scrapers
 - counter rotating scraper turbines



5,500 gallon jacketed Mix Tanks (for high viscous products), with scrape surface mixers and high efficiency gear motors/reducers (right). 3,400 gallon BioDiesel Reactors with explosion-proof mixer motors (left).

The Complete Mix Tank

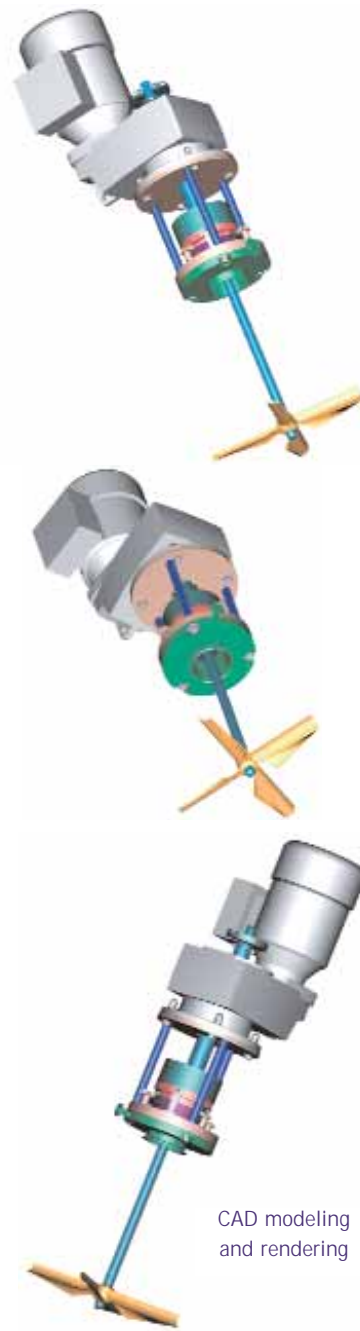
All aspects of a desired mixing process are thoroughly researched before designing a JVNW mix tank. A JVNW mixer testing laboratory is available to check viscosity and mixing characteristics of customer supplied samples. The data is evaluated by the engineering department to determine proper mixer design.

The rheology of the fluid to be agitated is an important factor, as well as the desired mixing levels, utilities available, time constraints, and any unusual environmental considerations such as explosive atmospheres, foaming, burn on, etc. The whole process from shaft sizing to seal design is most effective when incorporated into the tank design.

JVNW combines tank fabrication experience with applications knowledge.

JVNW Mixer Features

- Plate or clamp mounting
- Electropolish finish for wetted surfaces available
- Gear-reduced drive for low-shear mixing
- Non-toxic, edible lubricants used in gear reducers
- Solid shafts to eliminate potential source of contaminates
- Wide selection of sealing systems:
 - Dry running, single mechanical seals with debris capture well
 - Split mechanical seals for ease of maintenance
 - Single and double cartridge-type mechanical seals
 - Low pressure lip seals
 - CIP containment seals and slingers



CAD modeling and rendering



Process Mix Tanks — removable tops, right angle and parallel gear motors.



Ointment Processor, full scrape mix tank batch homogenizer.



Interior view, High Shear Mixer.



Water Recirculation Bath,
PLC based technology.



Batch Solution Processor skid load cells
with weight indicator.



Portable Sanitizing System.

Skid Mounted Process Systems

- Cosmetics – Personal Care
- Food-Juice
- Alternative energy
- Nutraceutical
- Water reclamation
- Bio/Pharm
- Microbrewing

Turn-key Systems

JVNW provides experienced, professional installation and commissioning services for domestic as well as international locations. We apply creative and innovative techniques in adverse situations.

Modular Systems

To expedite installation and avoid unwelcome surprises in the field, many JVNW customers prefer to skid mount portions of their process equipment. The modular approach has helped simplify the installation of complicated processes, and has gained wide acceptance in the bio-pharmaceutical industry. Partial or fully skid-mounted systems have also proven to be popular with food, beverage, cosmetic, and alternative energy industries. JVNW has developed small flexible, expandable units with high levels of customer satisfaction for these industries.

JVNW prides itself on its record of break-through innovation, attention to detail and on-time delivery. Complete confidentiality for OEMs.



Skid-mounted CIP System (left), PLC based technology.



JVNW vessels provided to OEM system integrator.



Automated Pilot Plant, large scale brewery.

Engineering

- 3-D modeling
- P&IDs
- Flow diagrams
- Mechanical and electrical schematics
- Full/Partial automation controls
- Custom system components

Manufacturing and Project Management

- Comprehensive system maintenance manual
- Documentation package
- FAT
- Commissioning
- Full parts department



Sanitary Color Supply Blending Skid.



Modular 7BBL Brewing System.



In-line Dairy Ingredient Incorporation Skid.



Water Reclamation Module,
500,000 gallons
per day capacity.



Combi Wine Fermenters.



Wine Fermenters.

JVNW Wine Tanks

JVNW is a leader in manufacturing innovative tanks for cutting edge fermentation technology. All tanks are available in 2B (mill) finish or polished stainless steel.

- Drains, sump style for complete drainage
- Racking ports can be outfitted with drain screens or angled and reinforced for mixer use.
- Sample ports
- Braced temp wells
- Vent ports

Dimpled heat transfer surfaces (HTS) allow economical cooling/heating jackets to regulate the heat of fermentation. Multiple or split jackets offer precise control.

Legs/bases are adjustable and can always accommodate fork lifts. Legs can be replaced with anchor pads for bench mounted vessels. Tank sizing specifications reflect seismic conditions.



Automatic punch-down vessels in production.



Variable Capacity Wine Tanks.



Interior view, Convertible Fermentation Tank.



Convertible Fermentation Tanks, installed.



50 BBL Fermenter with bottom cone manway.

JVNW Craft Brewing Vessels

JVNW Inc is an original partner in the pioneering efforts to revive the craft brewing industry. The JVNW craft brewing system is a flexible turnkey system with sturdy components built for the brewpub segment.

JVNW supplies custom fermentation and cellar tanks as well as complete automated brewhouses to microbreweries.

Services include design, layout, equipment manufacturing, installation, piping, system testing, and commissioning. A large parts department maintains detailed brewery records, and stocks spare parts for the majority of craft breweries.

Brewing Vessels

- Turn-key systems
- Brewhouses
 - 7bbls to 50bbls
 - Lauter Tun
 - Brew Kettle
 - Mash Kettle
 - Whirlpool
- Fermenters
- Hot liquor tanks
- Control panels
- Lautering stations
- Cellar tanks
- Brewers platforms



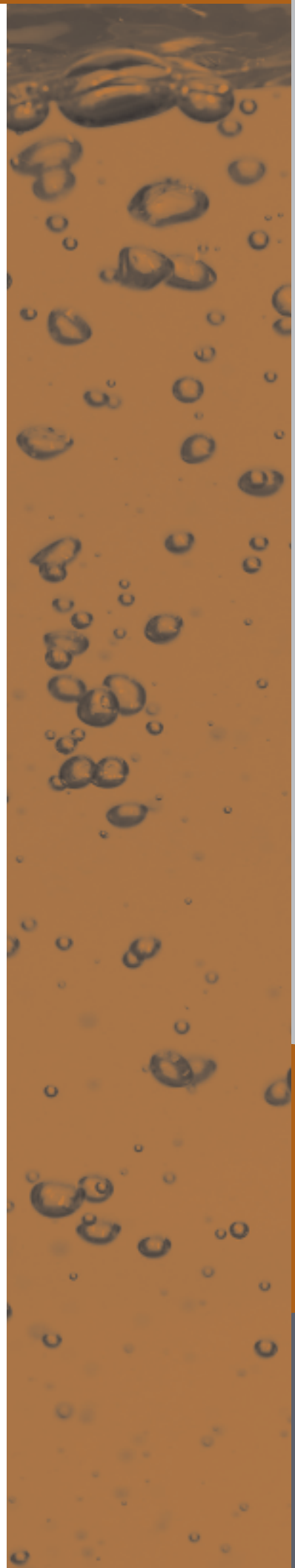
10 BBL Brewhouse with Hop Back.



50 BBL Automated Brewhouse.



Stainless steel and copper Brewhouses, in production.



Totes & Portable Tanks



ASME Transfer Tanks, cosmetic compounding.



Portable Open Top Totes small lot fermentation.



Two Ton Totes, jacketed stackable wine totes with manways.

Thickness (gauge)



14 Gauge

12 Gauge

10 Gauge

Gauge material
Stainless steel
Actual size

Custom Fabrication



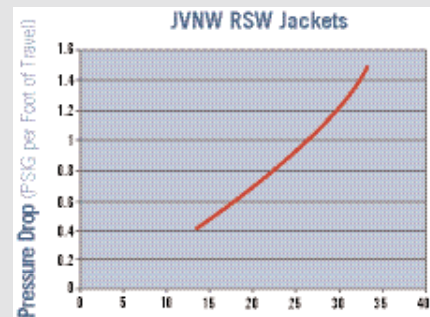
Horizontal Vegetable Oil storage tank.



Small-scale R&D vessel.



Vacuum Chambers with hinged heads.



Standard (commonly used) Stainless Steel Welds & Finishes

Weld sample parent material: 150 grit polished stainless steel, unless otherwise noted.

MIG Welds

TIG Welds



MIG
As-welded



MIG-Double Pass
As-welded



TIG
As-welded



TIG
Ground smooth
to 150 grit



MIG
Buffed/Polished



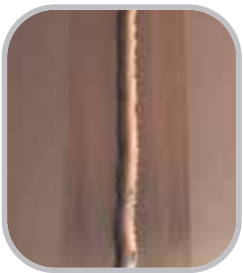
MIG-Double Pass
Buffed/Polished



TIG
Buffed/Polished



TIG
Ground smooth
to 180 grit



MIG
Buffed/Polished
2B Mill finish



MIG-Double Pass
Buffed/Polished
2B Mill finish



TIG
Buffed/Polished
2B Mill finish



TIG
Ground Smooth
to 240 grit and
Electropolished

- Ra 50 = 100 grit
- Ra 35 = 120 grit
- Ra 30 = 150 grit
- Ra 25 = 180 grit
- Ra 18 = 240 grit
- Ra 10 = 320 grit

Roughness Average

The peaks and valleys of the stainless surface are measured by a profilometer and averaged together to determine the roughness average (Ra) of the surface. The Ra is measured in micro inches—One-million micro inches = one inch.



JVNW, Inc.
390 S. Redwood
Canby, OR 97013
USA

PH 503-263-2858
FX 503-263-2868

www.jvnw.com
tanks@jvnw.com



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FACILITY**