AROKO

شرکت مهندسی زیستی آروکو

Aroko Bio Engineering Co.

General Catalogue 2022

YOUR **BIOPROCESS** PARTNER

The Company Background:

Aroko Bioengineering Co. was established in early 2013; based on necessity of the technical knowledge of Bioprocess & biotechnology manufacturing.
Aroko Bioengineering Co. has focused on consultation, design, fabrication and installation of process equipment in biotech field, in Iran and Middle-East.
Aroko is following international standards and exploiting benefits of the the latest machinery, has led to achieve its place into the top world's manufacturers and to make it continuously present in this industry.
Biotechnology equipment manufacturing requires experience, expertise & quality based approach due to the high sensitivity and precision, Hence; this was a great achievement which made our products; expanded in all over the area of biopharmaceutical & pharmaceutical manufacturing in order to satisfy the customers' needs.
The use of up-to-date software, standards, technical codes such as ASME section VIII and wide range of top quality products in scale of the laboratory, pilot study and industrial; have made Aroko Bioengineering Co. a pioneer in the field of biopharmaceutical manufacturing across our country.
Consent and trust of customers, global standard quality products and its varieties have made us a distinguished company which help us to be present continuously in the market.
We hope that our experience, capabilities, scientific potential and top management at the Aroko Bioengineering co. could be used to serve the growing industries in the field of bioprocess and biotechnology in MENA region.

Our products:

- Mammalian Cell Bioreactor
- Bacterial & Yeast Fermenter
- Process Vessels
- Filtration Systems
- CIP (Cleaning-In-Place) Systems
- SIP (Sterilization-In-Place) Systems
- Aseptic Blending System
- Buffer Preparation & Storage System
- Mobile Jacketed vessels
- High-capacity TFF Systems
- WFI & PW Storage Tanks
- Viral Inactivation & Removal System (Kill Tanks)
- Chromatography Columns

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Aroko Bioengineering Co. staffs & engineers are highly experienced in the field of Automation, Mechanics and Bioprocess Engireening who tries to minimize your cost, project duration & maximize your production efficiency.

Our quality meets cGMP requirements as we are following ASME BPE 2014 and GAMP5.

Our automation systems comply with 21 CFR part 11 and our clients could easily perform computer system validation.

Our Vision:

Aroko Bioengineering Co. has set its vision to be globally recognized which will deliver consultation, design, fabricate and installation of high quality process equipment in biopharmaceutical & pharmaceutical industry for all companies all over the world.

Our Mission:

As a innovative company, we are here:

- To empower biopharmaceutical companies by facilitating the establishment of the production line which optimized regulatory compliant specification.
- To have strategic partnerships within the Bioprocess field which will cover the entire scope of the biopharmaceutical value chain.
- To deliver affordable cutting edge quality technologies through consultation, design, manufacturing and installation services to ensure Satisfied and contented customers.

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Aroko bioengineering has its own facility to perform electropolishing:

all process contact parts are made of 316L (electropolished) with internal surface roughness:

Ra ⩽ 0.38 μm Electro polished

Benefits of Electropolishing:

- Better Physical Appearance
- Enhanced Mechanical Properties
- Better Corrosion Protection
- Ease of Cleaning
- Disinfecting surfaces is easier
- Prevention of catalytic reactions on surface
- Good reflection of light on the surface of parts
- Creating hygienic surfaces
- Carbon removal of metals

We Design and fabricate vessels according to ASME section VIII as well as ASME BPE 2014 with high level of documentation.

We do design for semi & fully-automated systems with 21 CFR part 11 compliance.

Any Time
Any where
we will be in your team...

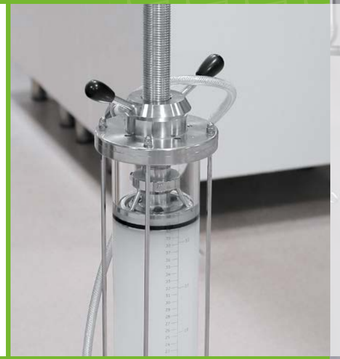
Fixed and Mobile Process Vessel

Functional specifications:

- **Volume:** 5 to 20,000 liters nominal capacity
- **Material:** stainless steel 316L,
- **Surface finish:** ≤ 0.38 µm
- **Surface polishing:** mechanical and/ or electropolishing
- **Pressure:** -1 to10 bar(g)
- **Temperature:** -20 °C to 200 °C
- **Cleaning options:** CIP / SIP
- **Design:** Single, double and triple wall design, insulated

Application

- **Preparation vessel for production of highly sterile products**
- **Buffer preparation vessel for blood plasma fractionation**
- **Media preparation for pharmaceutical fermentation processes**



Chromatogeraphy Column

Device used in chromatography for the separation of chemical and Biochemical compounds

Materials of Construction:

Process Wetted Components Glass, borosilicate 3.3;
Stainless steel, grade 316 L (EN 1.4404)
Nets: 20 µm – Polypropylene 10 µm – Polyamide
Net Support: Polypropylene Seals EPDM, black, peroxide cured Stand Stainless steel, grade 316 L (EN 1.4404)
Castors Stainless steel, grade 304

External Components:

Column Tube : Glass, borosilicate 3.3
Pressure Envelope Components: Stainless steel, grade 316 L (EN 1.4404)
Stand: Stainless steel, grade 316 L (EN 1.4404)
Castors: Stainless steel, grade 304
Wheels: Acetal

Application

Bacterial,yeast and mammalian cell culture

Fermenter & Bioreactor Range and Technical Specifications

- Unit sizes: 10 to 15,000 L working volume
- Systems designed to customer requirements
- H/D 3:1/ 2:1
- Defined surface finish (dry grinding) up to Ra ≤ 0.38 µm; e-polished
- pressure: -1 bar to +3 bar depending on customer requirements
- Temperature: –20 °C/200 °C (SIP up to 130 °C)
- Cleaning options: CIP, SIP
- Jacket with half pipe or spiral guide, optionally insulated.

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TFF

Tangential Flow Filtration (TFF) is a rapid and efficient method for separation and purification of biomolecules

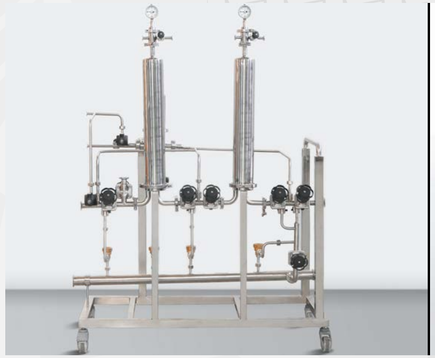
Application:

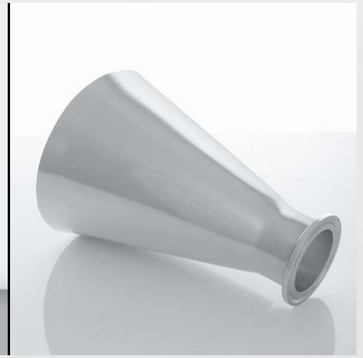
Tangential Flow Filtration (TFF) is a rapid and efficient method for separation and purification of biomolecules

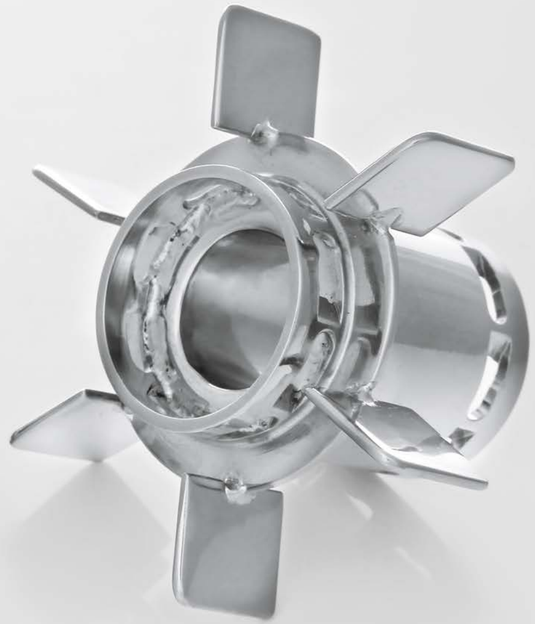
- Concentrate and desalt proteins and peptides.
- Concentrate and desalt nucleic acids [DNA/RNA/oligonucleotides.
- Recover and purify antibodies or recombinant proteins from cell culture media.
- Recover and purify plasmid DNA from cell lysates or chromosomal DNA from whole blood.
- Fractionate dilute protein mixtures
- Clarify cell lysates or tissue homogenates.
- Depyrogenate (remove endotoxin from) water, buffers, and media solutions.
- Prepare samples prior to column chromatography
- Harvest cells.
- Recover or remove viruses.

Filtration system

Application: Cell culture media sterilization







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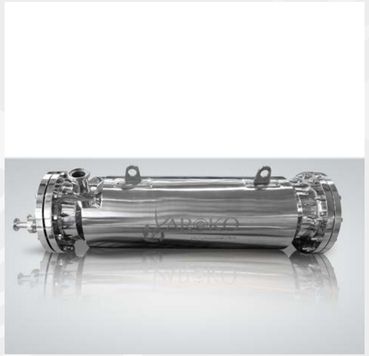
Stainless steel shell & tube Heat Exchanger

shell and tube heat exchangers are used in many comfort and industry applications for heating and cooling fluids. They consist of a shell with traditional plain tubes or enhanced surface tubes for high thermal performance.

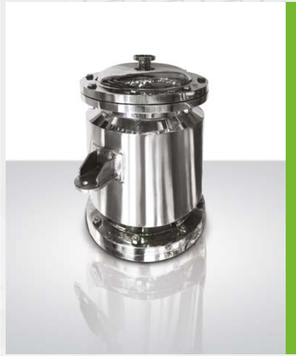
Application:

- Bioreactors / Fermentors
- WFI cooling
- Pure steam condensation



Flush Bottom valve:

The ability to quickly flush or CIP/SIP while the valve is closed solves downstream problems simply and speeds the product changeover.



Application:

- Bioreactors/Fermentors
- Sterile Holding
- Blood/Plasma Processing
- WFI Storage
- Media Preparation

Magnetic Agitator

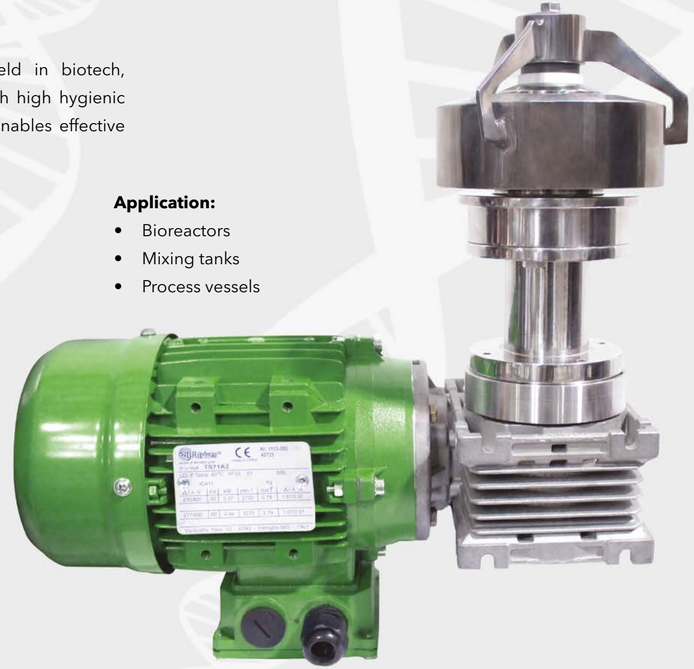
Aroko magnetic agitators maximize product yield in biotech, pharmaceutical and other aseptic applications with high hygienic demands. The unique levitating impeller design enables effective mixing right down to the last drop.

Specification:

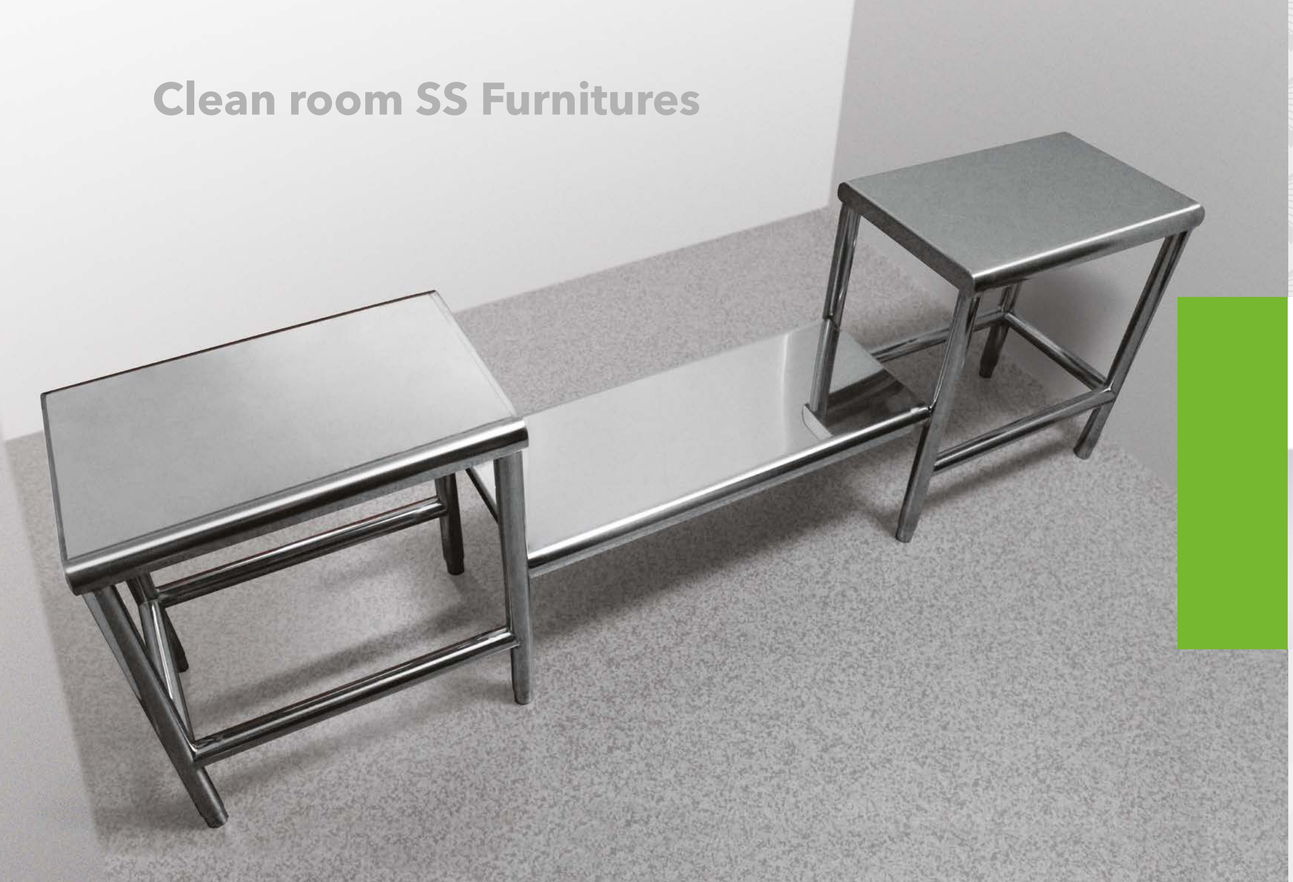
- High blending capacity with low shear.
- Magnetic coupling. No risk of leakage.
- CIP/SIP design.
- Low power consumption.
- Effective blending even of small volumes.
- No particle generation.
- Bottom mounted. Excellent for suspensions.
- Practical when there is no much space at the top of the tank.
- Autoclavable agitating element (with previous disassembly of the drive unit)
- **Design of mixing pattern by CFD**

Application:

- Bioreactors
- Mixing tanks
- Process vessels



Clean room SS Furnitures



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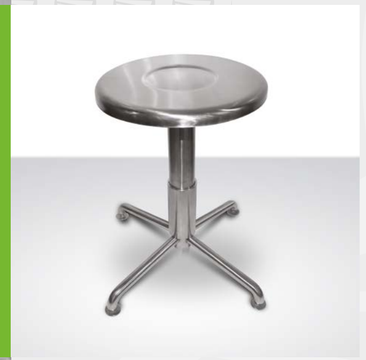

Clean room SS Furnitures:

- Cross over bench
- Garment Cubicle
- Bench
- Chairs
- Dynamic & Static Pass-box

We are following ASME sec. VII & ASME BPE for Vessel & ASME B.31.3 for piping design & fabrication.

For Quality control testing we are using validated methods & qualified instruments:

Roughness meter
Video Boroscopy
Passivation Koslow Tester
Ultra-sonic detector
Radiography

Drainability is an essential feature of any hygienic piping system. Retained fluid in the pipe lines provides a medium where bacteria could grow, adding an unacceptable bioburden to the system. Retained fluid could also promote corrosion, leading to product contamination. The utilization of gravity has been found to be the most effective method of removing all traces of liquid from a process system.

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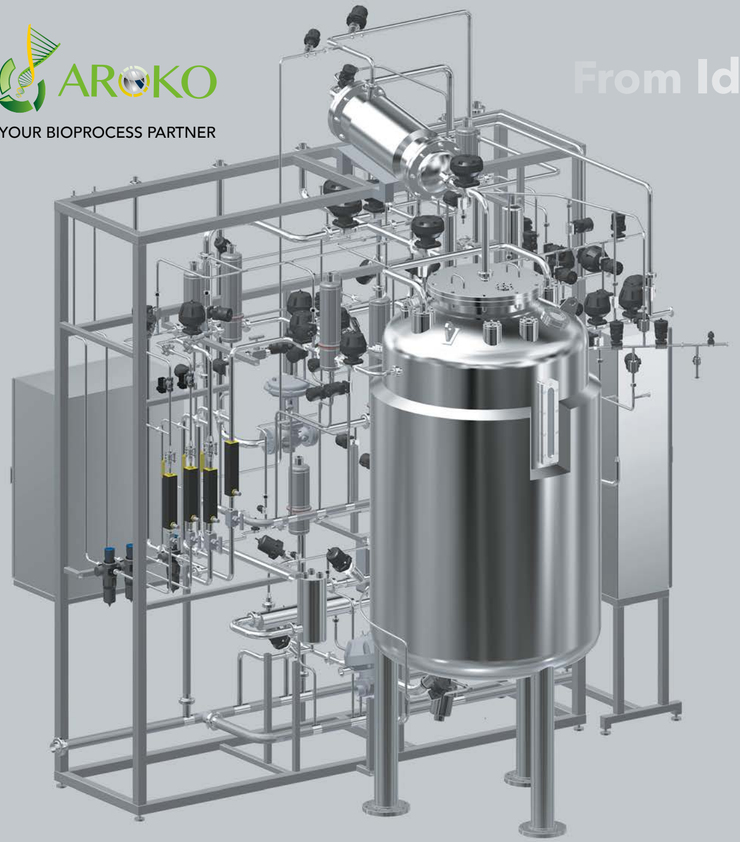
From Idea to the Reality



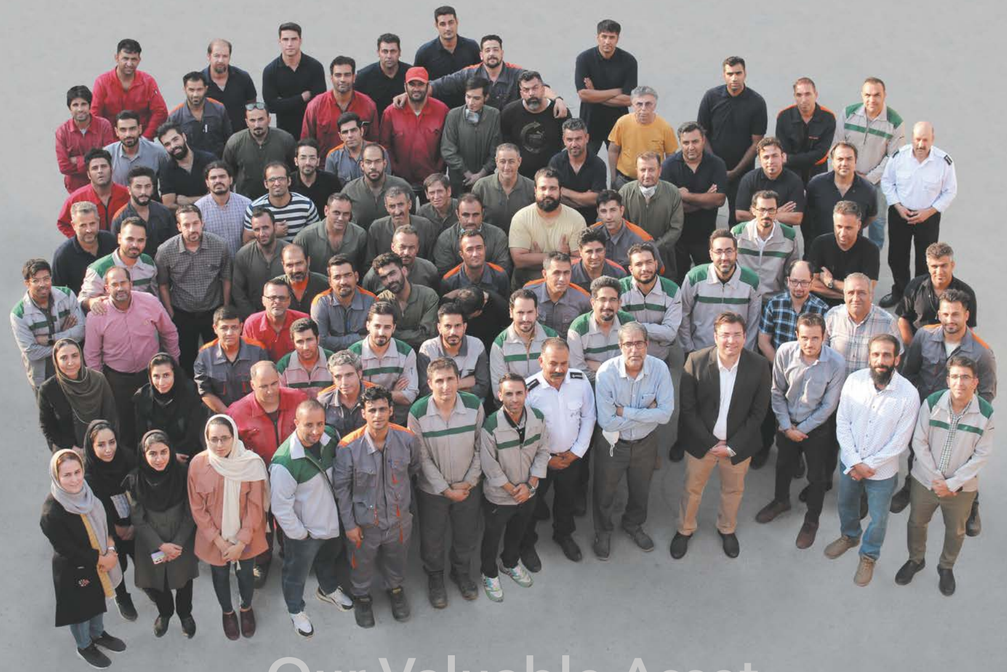
Special services:

- Consulting for Bioprocess Equipment Manufacturing
- Preparing URS
- Bioreactor/Fermenter Selection
- Process flow diagram
- Feeding strategy design
- Downstream process development
- Filtration system recommendation
- Commissioning Support
- Design of mixing pattern by **CFD** for bioreactor and fermenter
- Deign of SS piping and execution

High-Quality &
Electropolished
Hygienic Connections

EPCV Strategy

- Engineering
- Procurement
- Construction
- Validation



Our Valuable Asset

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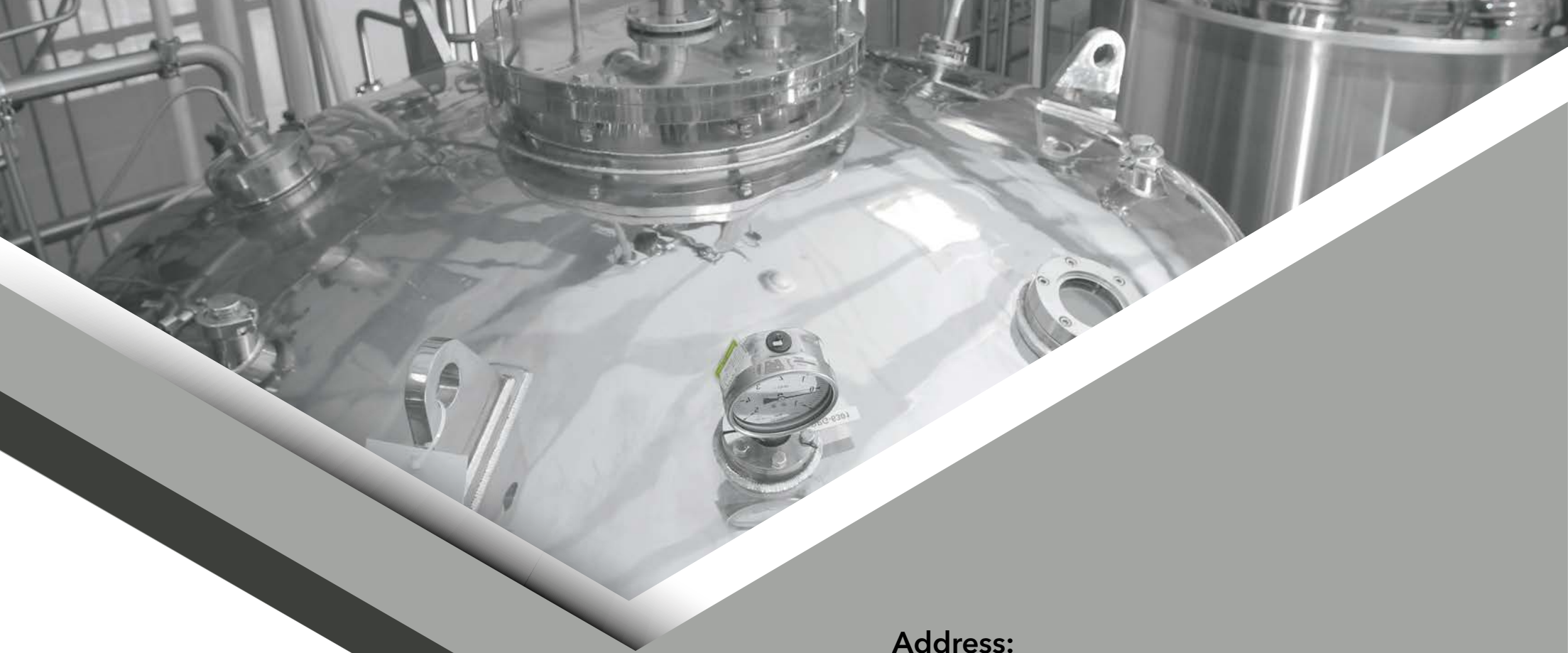

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