



MODEL MSJ

R&D SCALE FERMENTOR

For process development and scale up experiment

Seven kinds of different size vessel are available (10,20, 30, 40, 50, 70 and 90liters) as standard. Another vessel sizes are also available According to the customer's request.

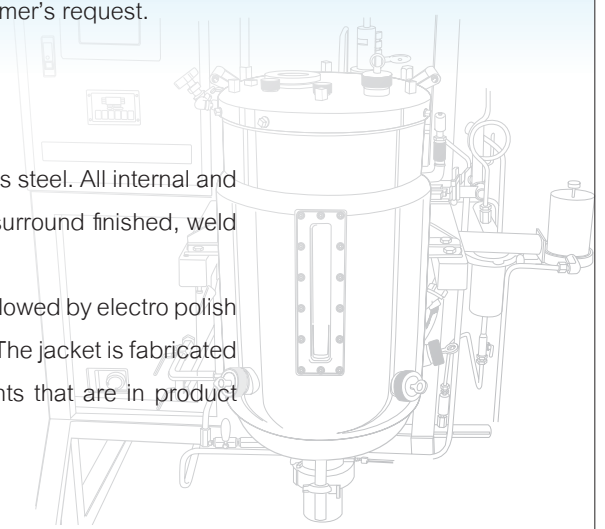
Material, Finish, Design and Fabrication

All surfaces in product contact are fabricated of type 316L stainless steel. All internal and vessel welds are ground smooth and mechanically polish to match the surround finished, weld are free of ripper, pits, burrs, folds, inclusions, crevices and nicks,

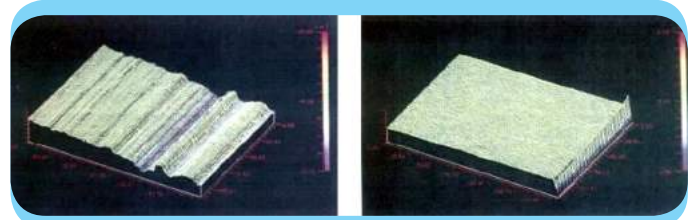
All interior surfaces are polished to Ra < 0.2 micrometer or better followed by electro polish and exterior surfaces are polished to Ra < 1.2 micrometer or better finish. The jacket is fabricated of type 304 stainless steel, diaphragms and other elastomer components that are in product contact are steam resistances silicon or EPDM.

Function and Feature

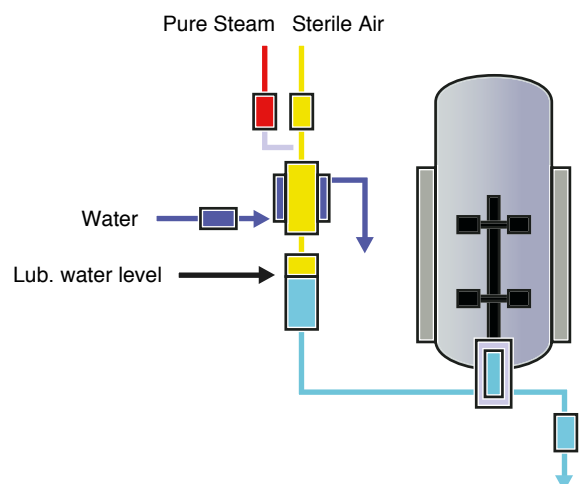
- Sterilization In Place
- Either top entry or bottom entry driving system is available with double mechanical seal.
- Versatile use for microbes (Bacteria, Yeast, Fungi) with standard and plant tissue or mammalian cell with special modification.
- Flexible design suite to the condition of customer's installation site.



Mechanical polish:#320 Electrochemical polish



Lubrication system for mechanical seals



Agitation system

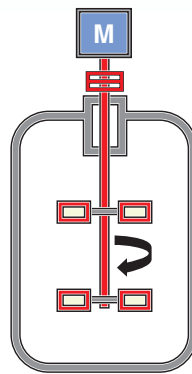
Various kinds of agitation System are available according to the purpose for which Fermentation is used.

- Top entry drive Mechanical seal system
- Bottom entry drive Mechanical seal system

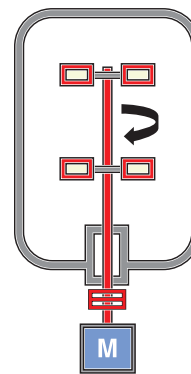
The Fermentor agitation system designed to provide oxygen transfer rate, mixing, and heat transferred.

- All components coming in to contact with product are high alloy stainless steels, e.g. AISI316, 316L, 316Ti etc.
- Surface finish as per requirement of up to $Ra \leq 0.2 \mu m$.
- The units can be supplied jacket for heating or cooling system,
- Agitators are designed according to the process requirements.

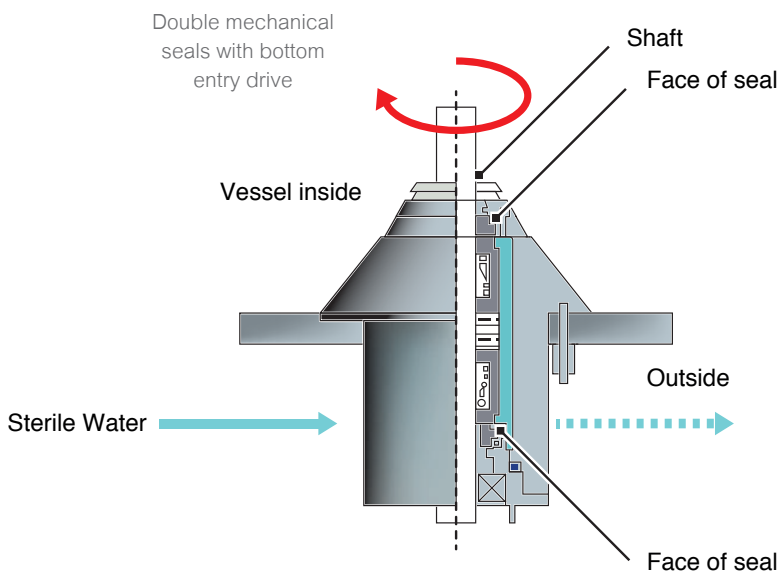
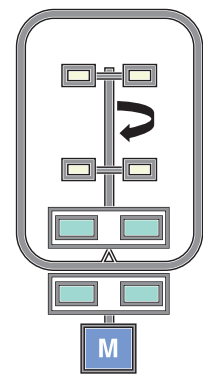
Top entry mechanical seal



Bottom entry mechanical seal



Bottom entry magnetic coupling



DO Cascade setting

On the DO (Dissolved Oxygen) channel, cascade control can be performed between agitation and air supply.

Agitation system

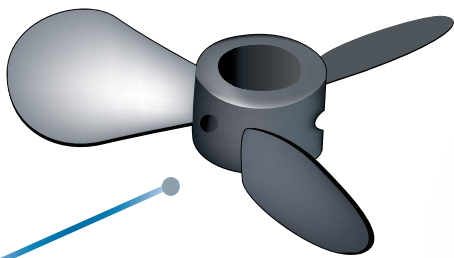
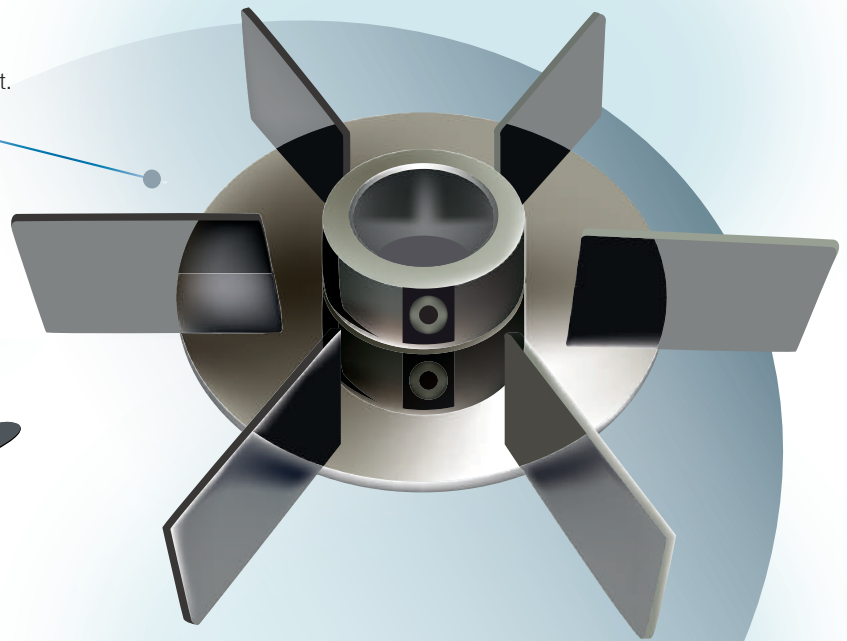
The following specification can be selected according to the purpose for which the Fermentor is use.

- Top entry driving system/ Bottom entry driving system.
- Magnetic coupling/ Mechanical seal.

Choose the best stirring impeller for the best culture process

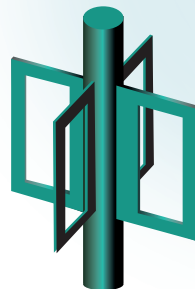
Disk Turbine Impeller

- Standard and versatile for Bacteria and Yeast.
- High shear stress.
- Well balance for radial flow, and vertical flow.
- High efficiency for air bubble dispersion.



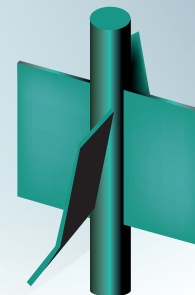
Marine Propeller

- Powerful vertical flow.
- Good performance for mammalian cell.



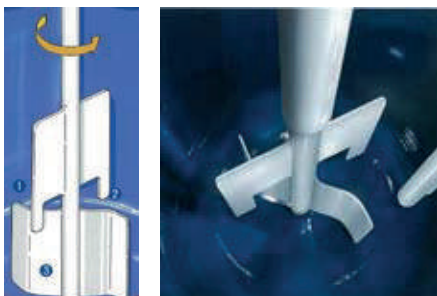
Modified Paddle Impeller

- Low shear stress.
- Suitable for fungi culture.
- Radial flow and vertical flow.
- Air entrainment with vortex agitation.



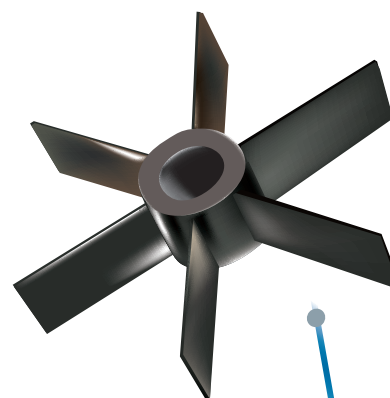
Inclined Paddle Impeller

- Gentle agitation with low shear stress.
- Suitable for mammalian cell culture.



Full Zone™ Impeller (Joint Development)

- Low shear stress.
- Good mixing at wide range of viscosity.
- Good for high viscous fermentation broth.
- Good for shear stress sensitive microbes such as Fungi, Actinomycetes and etc.



Disk free Turbine Impeller

- Vertical flow.
- Good mixing and high shear stress.
- High oxygen transfer efficiency.
- Suitable for Bacteria, Yeast aerobic culture.

STANDARD SPECIFICATION

MSJ-N2 (TOP DRIVE TYPE)

MODEL	10I	20I	30I	50I	70I	90I
Vessel Inside Diameter (mm)	196	246	284	336	374	400
Vessel Depth (mm)	336	425	479	584	644	723
Impeller Diameter (mm)	98	122	142	168	186	200
Motor (kW)		0.75		1.5		2.2
Agitation Speed (rpm)	100~800					
Heater Capacity (W)	100+200	200+400	300+500	300+600	300+700	
Range of Temperature Control	5°C above water supply temp. to 50°C					
Aeration Rate (NI/min.)	1~10	2~20	3~30	5~50	7~70	9~90
Stand Height (mm)		1700		1750	1800	1850
Stand Width (mm)	700		800		950	
Stand Length (mm)	850	900	950	1000	1150	

MSJ-U2 (BOTTOM DRIVE TYPE)

MODEL	10I	20I	30I	50I	70I	90I
Vessel Inside Diameter (mm)	196	246	284	336	374	400
Vessel Depth (mm)	336	425	479	584	644	723
Impeller Diameter (mm)	78	98	113	134	150	160
Motor (kW)		0.75		1.5		2.2
Agitation Speed (rpm)	100~1000					
Heater Capacity (W)	100+200	200+300	200+400	300+500	300+600	300+700
Range of Temperature Control	5°C above water supply temp. to 50°C					
Aeration Rate (NI/min.)	1~10	2~20	3~30	5~50	7~70	9~90
Stand Height (mm)		1700		1750		1850
Stand Width (mm)		800		900		950
Stand Length (mm)		950		1000		1150

FLEXIBILITY TO SPECIAL DEMANDS

We are pleased to meet the various kinds of customers demand both for hardware and software.