



# MAXWOR

Focus on Excellence

PUMPS • SEALS • GASKETS • BLOWERS • EXPANSION JOINTS • HEAT EXCHANGERS  
COOLING SYSTEMS • WATER HEATER TANKS • ACCUMULATION TANKS  
BUFFER TANKS • EXPANSION TANKS • SEPERATORS

## PRODUCT CATALOGUE

- ✓ Reliability
- ✓ Sustainability
- ✓ Productivity
- ✓ High Quality
- ✓ Strong Sales Network
- ✓ Service Networks




# MAXWOR

## Focus on Excellence

Maxwor Makina is the supplier needed by the leader companies in the sector with its engineering solutions and special products it produces.

Carry out in heating, cooling, transfer and storage of fluids; specializes in technology and process equipment manufacturing and offers sustainable solutions in these areas.

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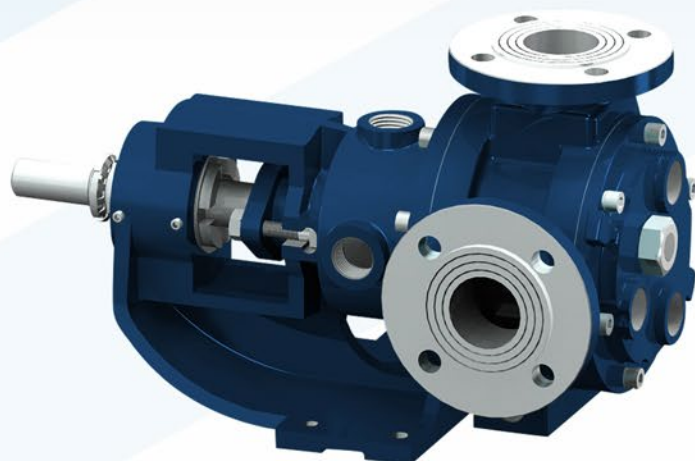
 You can click the lines for quick access to the related pages

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# P U M P S



- ✓ AODD PUMPS
- ✓ HYGENIC CENTRIFUGAL PUMPS
- ✓ GEAR PUMPS
- ✓ LOBE PUMPS
- ✓ DOSING (METERING) PUMPS



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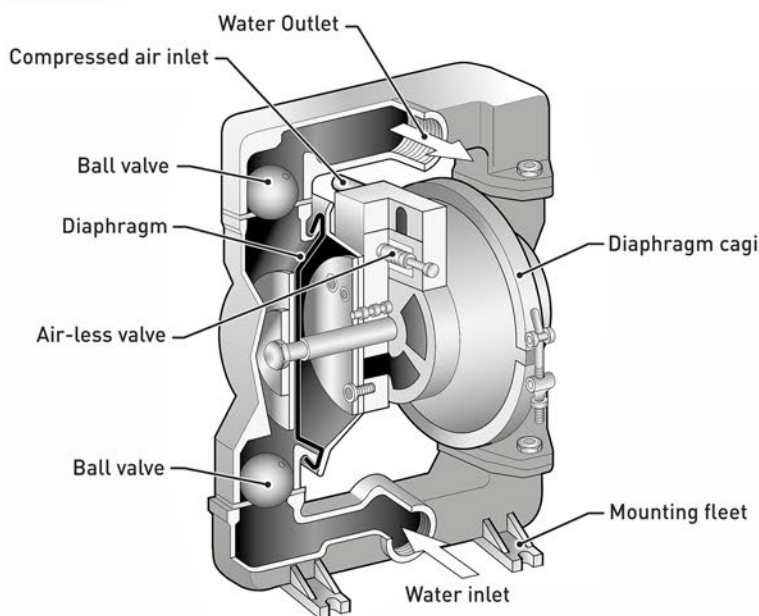
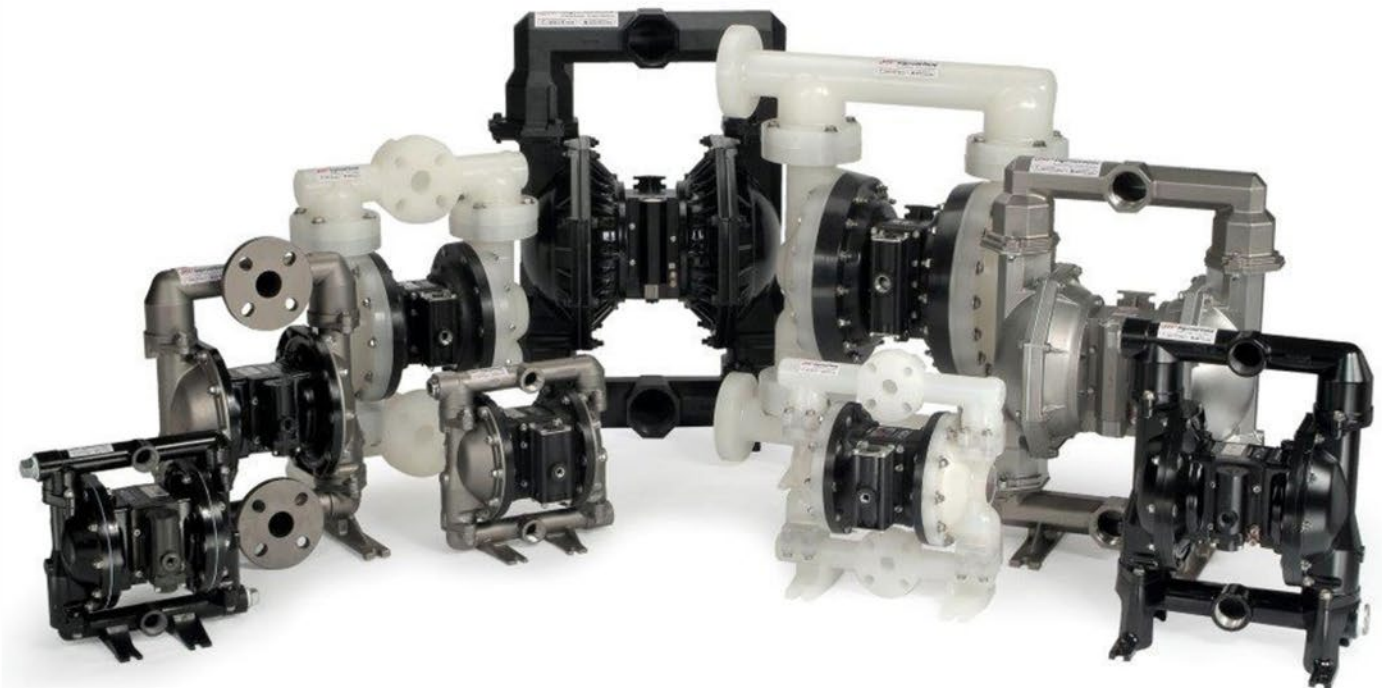


## AODD (Air Operated Double Diaphragm) PUMPS

Maxwor AODD Pumps are air operated pumps with two diaphragms. AODD pumps are widely used fluid transfer equipment in machinery, chemical, food, pharmaceutical, petroleum and many industries.

AODD Pumps can be produced from different materials according to the environment and fluid type in which they are used. In particular, ATEX certified air diaphragm pumps for flammable and combustible fluids are widely used in different industries. Cast iron, aluminum, stainless steel, polypropylene, PVDF, PE or PTFE are the most commonly needed material types for the body. In applications such as food, medicine, cosmetics, beverage etc. where hygiene conditions are important and compliance with FDA standards are required, pumps made of 316L quality stainless steel are used.

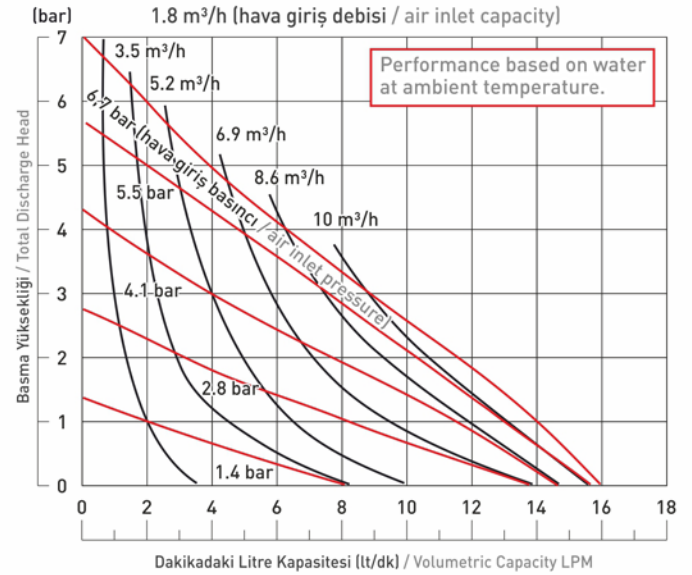
Depending on the purpose of use and fluid flow, we have models that can work between 20 lt / min and 1000 lt / min.



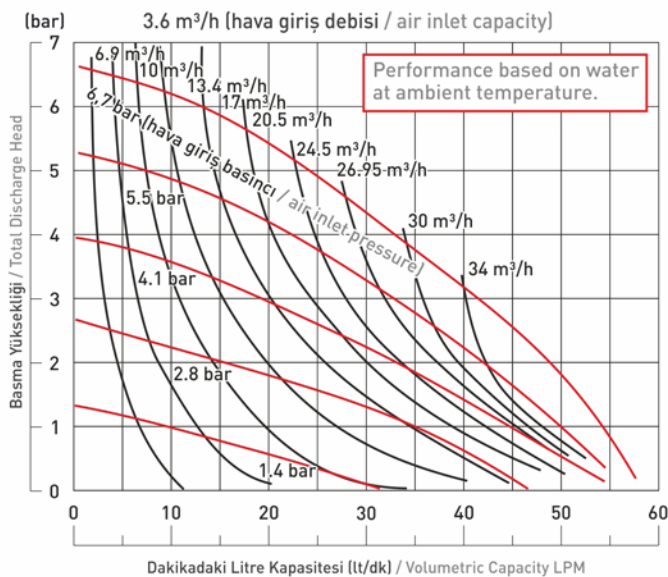
	ADP25	ADP75	ADM75	ADP100	ADM100
Pump Inlet-Outlet	1/4"	3/4"	3/4"	1"	1"
Max Capacity	16 lt/min	56 lt/min	56 lt/min	160 lt/min	160 lt/min
Total Discharged Head (max)	70 m	70 m	70 m	70 m	70 m
Operating Pressure (max)	7 bar	7 bar	7 bar	7 bar	7 bar
Suction Lift (max)	6-7 m	6-7 m	6-7 m	6-7 m	6-7 m
Operating Temperature	0-100°C	0-100°C	-18-100°C	0-100°C	-18-100°C
Air Inlet	1/4"	1/4"	1/4"	1/2"	1/2"
Particle Size (max)	1 mm	3 mm	3 mm	4 mm	4 mm
Elastomers	S, N, B, E, V, T	S, N, B, E, V, T	S, N, B, E, V, T	S, N, B, E, V, T	S, N, B, E, V, T
Wetted Material	PP-PVDF	PP-PVDF	SS, AL	PP-PVDF	SS, AL
Weight	1,5 kg (PP)	4,2 kg (PP)	4,9 kg (AL)	8 kg (PP)	9 kg (AL)

MATERIALS of AODD PUMPS		
PUMPS BODY MATERIALS	PLASTIC	PVDF PP
	METAL	Aluminum Cast Iron Stainless Steel
POMPS INTERNAL MATERIALS (ELASTOMERS)		Santoprene Neoprene Buna-N EPDM Viton PTFE (Teflon)

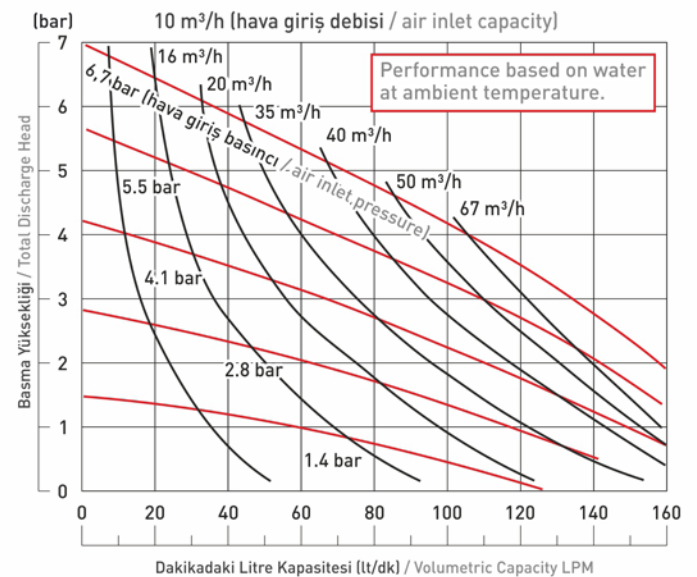
ADP25 Performance Curve



ADP75 ve ADM75 Performance Curve



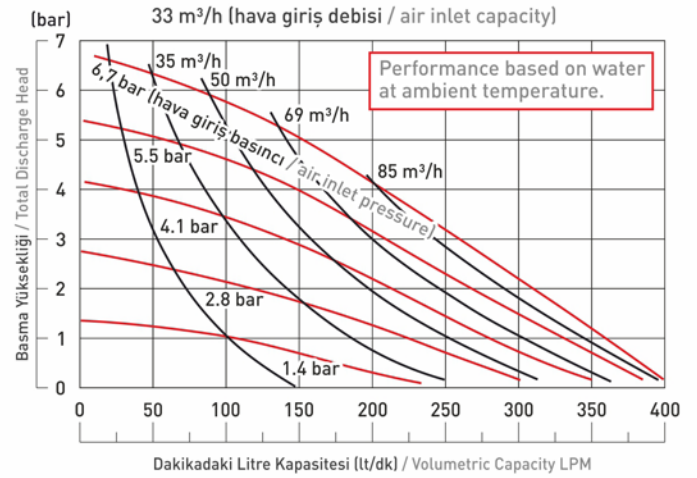
ADP100 ve ADM100 Performance Curve



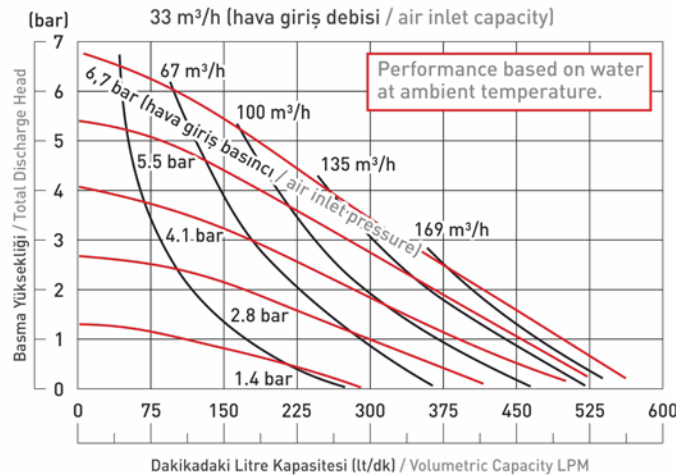
	ADP150	ADM150	ADP200	ADM200	ADP300	ADM300
Pump Inlet-Outlet	1 1/2"	1 1/2"	2"	2"	3"	3"
Max Capacity	400 lt/min	400 lt/min	560 lt/min	560 lt/min	900 lt/min	900 lt/dk
Total Discharged Head (max)	70 m	70 m	70 m	70 m	75 m	75 m
Operating Pressure (max)	8 bar	8 bar	8 bar	8 bar	8 bar	8 bar
Suction Lift (max)	6-7 m	6-7 m	6-7 m	6-7 m	6-7 m	6-7 m
Operating Temperature	0-100°C	-18-100°C	0-100°C	-18-100°C	0-100°C	-18-100°C
Air Inlet	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Particle Size (max)	6 mm	6 mm	6 mm	6 mm	9 mm	9 mm
Elastomers	S, N, B, E, V, T	S, N, B, E, V, T	S, N, B, E, V, T	S, N, B, E, V, T	S, N, B, E, V, T	S, N, B, E, V, T
Wetted Material	PP-PVDF	SS, AL, DD	PP-PVDF	SS, AL, DD	PP-PVDF	SS, AL, DD
Weight	20,5 kg (PP)	25 kg (AL)	29,5 kg (PP)	32 kg (AL)	48 kg (PP)	51 kg (AL)

MATERIALS of AODD PUMPS		
PUMPS BODY MATERIALS	PLASTIC	PVDF PP
	METAL	Aluminum Cast Iron Stainless Steel
POMPS INTERNAL MATERIALS (ELASTOMERS)		Santoprene Neoprene Buna-N EPDM Viton PTFE (Teflon)

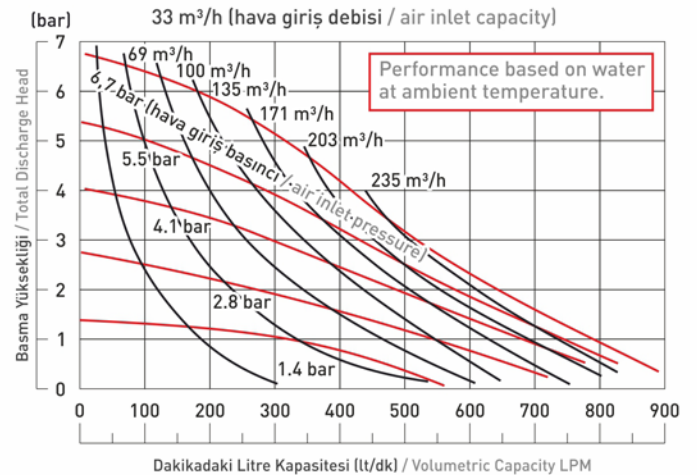
ADP150 ve ADM150 Performance Curve



ADP200 ve ADM200 Performance Curve



ADP300 ve ADM300 Performance Curve



## HYGENIC CENTRIFUGAL PUMPS

Maxwor Hygienic Centrifugal Pumps are produced with the body and interior parts. Our hygienic pumps have the necessary features for the transfer of all liquids in the milk, beer, soft drinks, pharmaceutical and chemical sectors where hygienic work is at the forefront, especially such as cleaning and drainage ability. Our pumps have high corrosion resistance. For this reason, it is not only used for transferring low or medium viscosity fluids, but also for transferring suspension and abrasive fluids.

Parts of Maxwor Hygienic Centrifugal Pump : motor, fan, pump chamber, and mechanical seal. Thanks to the easy disassembly feature of these parts and special mechanical seals structure. Our pumps provide the opportunity to be easily disassembled, cleaned and controlled.

Thanks to the special design of the cover and fan, friction is reduced and unhygienic blind spots are eliminated. Another convenience provided by its special structure is that the fluid can reach its maximum performance in the pump and reach all points during cleaning in terms of hygiene.



### MATERIAL PROPERTIES OF THE HYGENIC PUMPS

- ✓ Surfaces in contact with the product, Stainless Steel 304 and 316,
- ✓ Seals in contact with the product are FDA approved EPDM material,
- ✓ Other steel surfaces, Stainless Steel 304,
- ✓ Outer surface is matt, inner surface is glossy





MODEL	CAPACITY		Motor kW	INLET & OUTLET
	m <sup>3</sup> /h	Meter		
HPS114	1	14	0,55	DN40/DN32
HPS316	3	16	0,75	DN40/DN40
HPS516	5	16	1,1	DN40/DN40
HPS324	3	24	1,5	DN50/DN40
HPS330	3	30	2,2	DN50/DN40
HPS524	5	24	1,5	DN50/DN40
HPS530	5	30	2,2	DN50/DN40
HPS1024	10	24	2,2	DN50/DN40
HPS1036	10	36	3	DN50/DN40
HPS1524	15	24	3	DN50/DN50
HPS2024	20	24	4	DN50/DN50
HPS2036	20	36	5,5	DN50/DN50
HPS2535	25	35	5,5	DN50/DN50
HPS3024	30	24	5,5	DN65/DN50
HPS3036	30	36	7,5	DN65/DN50
HPS4024	40	24	7,5	DN65/DN50
HPS2060	20	60	11	DN65/DN50
HPS3050	30	50	11	DN65/DN65
HPS4035	40	35	11	DN65/DN65
HPS4050	40	50	15	DN80/DN65
HPS6030	60	30	15	DN80/DN65
HPS3060	30	60	15	DN80/DN50

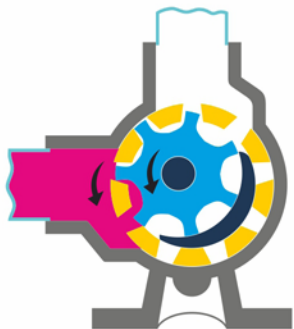


## GEAR PUMPS

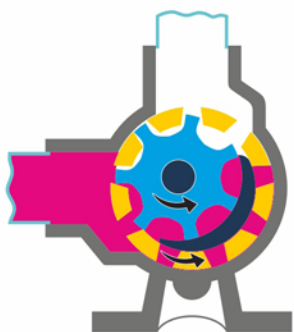
### INTERNAL ECCENTRIC GEAR PUMP

Internal eccentric gear pumps are positive displacement pumps and can be used for many purposes. These pumps have two basic movable parts, perimeter gear and idler gear. Therefore, they are easy to maintain, durable and safe. It is designed specifically for every conditions and processes by our expert engineers.

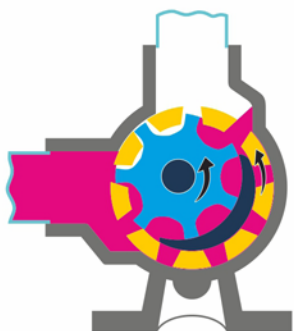
#### Working Principle



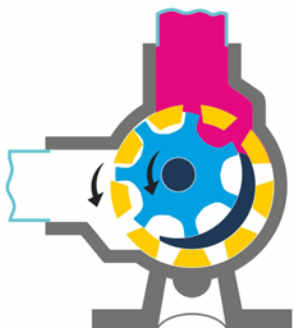
1- While the peripheral gear (rotor) rotates in the direction of the arrow with the circular motion it receives from the motor; the inner idler gear (star) rotates and separates from the ring gear. The fluid fills the gap created by the separation of the gears.



2- The half moon (crescent) in the pump cover and the gears are separated from each other. Thanks to by gear gaps are transported the fluid.



3- While the ring gear and idler gear are intertwined, the fluid is thrown into the discharge channel.



4- The fluid thrown into the discharge channel moves through the installation and the fluid is transferred.



#### USAGE AREAS

- ✓ Fuel Oil Service Tanks, Gas Oil, Diesel Tankers
- ✓ Resin and Polymers
- ✓ Asphalt and Bitumen
- ✓ Paper and Paint Industry
- ✓ Small scaled hot oil circulation
- ✓ Pharmaceutical, chemical and detergent industry
- ✓ Food Industry



## ADVANTAGES

- ✓ They occupy less space than external gear pumps that provide the same flow and flow conditions.
- ✓ It is easy to maintain and durable.
- ✓ Suitable for high viscosity liquids.
- ✓ It provides a regular discharge flow.
- ✓ It has a high suction capacity.

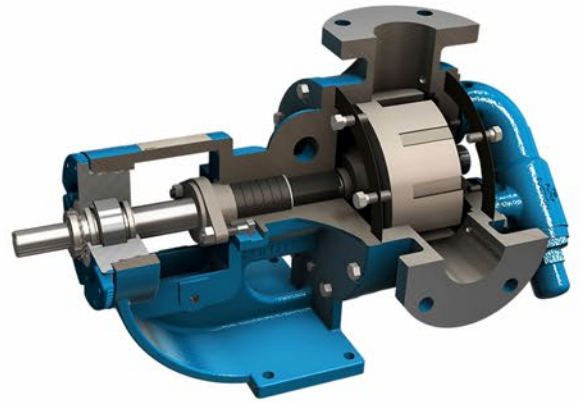
## MATERIAL OPTIONS

Pump Body, Covers : Cast (cast iron), Ductile iron, Cast steel, Stainless AISI 304- AISI 316 casting

Gears : Ductile iron, Cast steel, Stainless AISI 304- AISI 316 casting

Bearings : Snbz 12 bronze, carbon graphite, Silicon Carbide, Hard Metal Coating, Bearing

Sealing : Soft Seal, Mechanical seal, Sealed System



## PUMP RATINGS

Capacity (Q) : 0,1 m<sup>3</sup>/h - 250 m<sup>3</sup>/h

Pressure (P) : 1-14 bar

Temperature : 0 ~ 200 °C

Cycle (n) : 20 - 1720 rpm

Viscosity : 20 ~ 50.000 cP

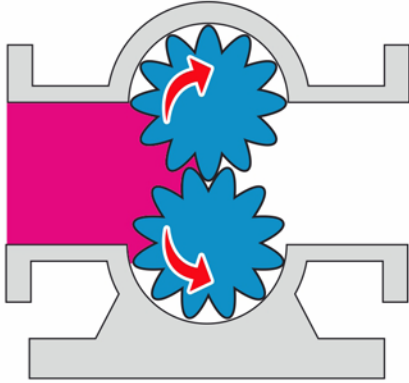
Inlet & Outlet : 3/8", 1/2", 1", 1 1/2", 2",

Diameters : 2 1/2", 3", 4", 6"



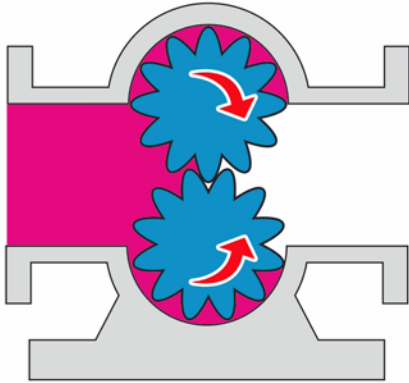
## HELICAL GEAR PUMPS

Maxwor Helical Gear pumps are positive displacement pumps and they are pumps working with the gear pump principle. They are used for the transfer of fluids with low and medium viscosity that can operate at higher speeds than internal gear pumps.

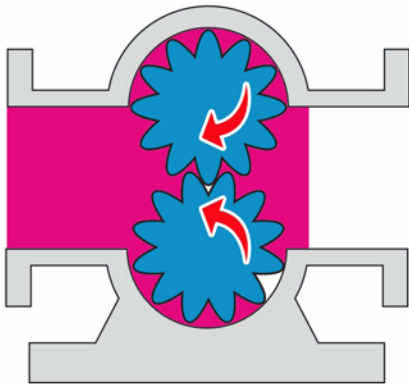


### Working Principle

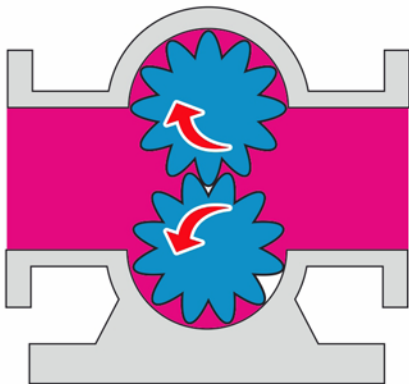
1- Pump shaft transmits the circular movement with gear on shaft to other gear on opposite direction. Then, the fluid fills the gap created by the separation of these gears.



2- The fluid filled into the gap is transported towards the discharge channel of the pump between the gears gaps.



3- As the gears are intertwined, the fluid is transferred out of the discharge channel.



4- The fluid transferred to the discharge channel moves through the installation and the transfer process takes place.



### USAGE AREAS

- ✓ In industrial applications
- ✓ Molasses
- ✓ Oil & Gas
- ✓ Fuel
- ✓ In high volume transfers



## ADVANTAGES

- ✓ They can work at high speeds.
- ✓ Suitable for low and medium viscosity fluids.
- ✓ Due to the fact that they have helical gear, they work quietly.
- ✓ It is easy to maintain and long lasting.
- ✓ They provide uninterrupted flow.

## MATERIAL OPTIONS

Pump Body, Covers: Cast (cast iron), cast steel, stainless  
AISI 304/316 casting, ductile iron

Bearings : Snbz 12 bronze, bearing, carbon  
graphite, ina bush

Sealing : Gland Packing, mechanical seal.

## PUMP RATINGS

Capacity (Q) : 0,1 m<sup>3</sup>/h - 350 m<sup>3</sup>/h

Pressure (P) : 2 - 15 bar

Temperature : 0 ~ 200°C

Cycle (n) : 20 - 1500 rpm

Viscosity : 100 ~ 25.000 cP

Inlet & Outlet Diameters: 3/8", 1/2", 1", 1 1/2", 2",  
2 1/2", 3", 4", 6"

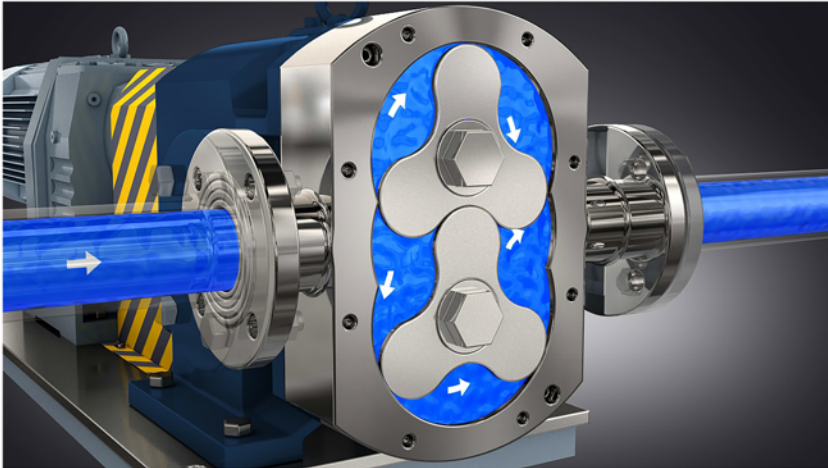


MAXWOR

## LOBE PUMPS

Lobe pumps are used in transfers of viscous products and fluids containing solid particles. Positive displacement gear pumps that do not disturb the structure of the products.

Lobe pumps consist of two lobe rotors rotating simultaneously in a casing without touching each other. As the rotors rotate, the space between the protrusions and the casing is filled with liquid, thus providing efficient pumping.



Lobe pumps are popular in a variety of areas with their hygiene, high efficiency, safety and on-site cleanability. It is widely used in food, chemistry, paper, beverage, pharmaceutical sector. In lobe pumps, the contact of the lobes is prevented by the timing drive gears. Since there is no contact between the lobes and they have a larger pumping reservoir than other pump types, they can transfer solid particles without damaging them. The pump is connected to the shaft of the lobe, the motor receives the motion of the timer with the drive gear and the other lobe is in the opposite direction. As the lobes move in opposite directions, the volume expands at the suction opening of the pump. Through the suction obtained, the liquid flows to the pump. The liquid that is transported between the lobes and the rotorcase moves toward the discharge mouth. The liquid does not pass through the lobes. The lobes penetrate inside the discharge port and push the liquid together with the pressure. In each turn of the pump shaft, liquid is transferred as much as the volume of the pump. Therefore, the pump's capacity is directly proportional to its size and cycle.



### ADVANTAGES

- ✓ They are positive displacement pumps (allows transfer to both right and left directions)
- ✓ Various connection possibilities
- ✓ They provide trouble-free transfer in stop-and-go with their seal and heating jacket options.
- ✓ Handles the transfer of high viscosity products without any problem.
- ✓ It works silently and without vibration
- ✓ Surface materials do not rub against each other during transfer.
- ✓ Provides the opportunity to work at high temperatures
- ✓ Provides the opportunity to transfer solid particles
- ✓ Easy to clean
- ✓ Transfers smoothly without disturbing the properties of the product to be transferred.
- ✓ Provides sterilization in place (CIP / SIP) feature



## WORKING PRINCIPLE OF LOBE PUMPS

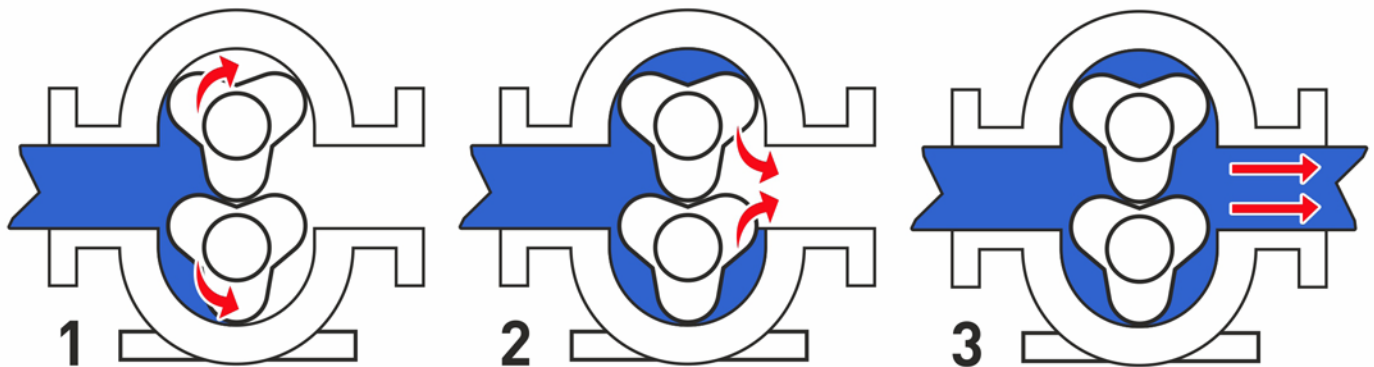
Maxwor Lobe pumps in 304L or 316L stainless steel are assembled on a cast iron gearbox which has a protective coating in epoxy paint finish. The chamber separating the rotor case and gearbox enables the fitting of balanced compact reversible mechanical seals, avoiding the contamination between the pumped fluid and the gearbox lubricant.

The base of the gearbox is designed to make installation easier for connecting into horizontal and vertical pipelines. Maxwor Lobe Pump is modular in design allowing the main parts such as the rotor and seals to be changed quickly and easily.



Quality and high precision working is obtained through having compact and rigid mechanical parts including double conical roller bearings shafts and oversized gears running in an oil bath within the gearbox. This is to obtain smaller tolerances as the rotors do not have any compact points. This ensures a good pump performance and reliability is obtained. In the lobe pumps the rotors rotate in an opposite direction without contact with each

other. Thanks to this characteristic the metal parts do not wear and contaminate the product and there is also no damage to the product. The lobe pumps are also suitable for handling abrasive products. The transmission movement from the motor drive shaft to the driven shaft is made by double high precision gears. The timing device is simple and accessible – one gear is fixed and the other gear mounted on the bush is adjustable.



## MATERIALS OF CONSTRUCTION

All shafts are made of stainless steel AISI 304L or AISI 316L. Lobes are manufactured from high quality AISI 304L or AISI 316L extruded shaped bar or special stainless steel non-shrink alloy. The pump body is also made of AISI 304L or AISI 316L stainless steel.



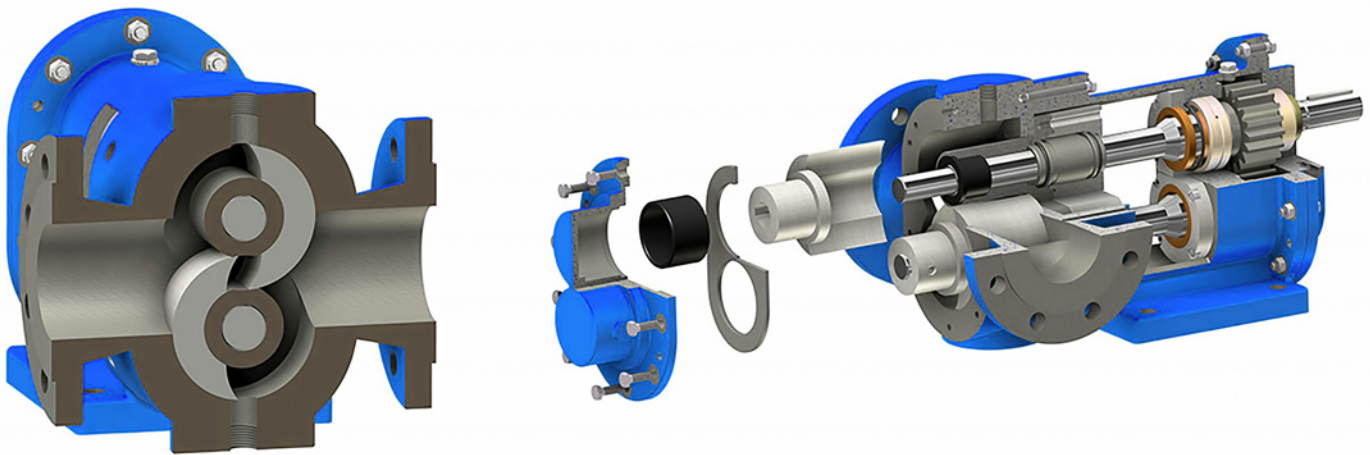
## ADVANTAGES of LOBE PUMPS

One of the most beneficial things that a rotary lobe pump has to offer is the fact that they can handle medium sized solid particles in the pumping fluid. This is due to the fact that the lobes do not come in contact with each other and because the pumping chambers inside the pump are large enough to handle solid particles. This is an advantage for the food industry.

For example, when processing something like cherries, this type of pump is great. The cherries and fluid can move into and through the pump without being damaged or broken

down. They are then sent to their desired destination. Just like the cherries, there are many different scenarios where it is crucial that the product is not negatively impacted. This could be a slurry of solid particles that need transferred from one part of the plant to another, for example.

You may also need to transfer a viscous fluid that would be broken down if it traveled through a different style of pump. The correct type of rotary lobe pump will handle the material with care.



## LOBE PUMP SELECTION

While choosing the lobe pump, the features of the product to be transferred, the features of the line to be transferred, are the required technical details.

These desired values are shown in the table in detail below.

REQUIRED DETAILS	EXAMPLE INFORMATION
Type of Fluid	Chocolate, honey, ayran etc.
Flow of Fluids	m <sup>3</sup> /H, L/H, TON/H etc.
Fluid Pressure	Bar, mSS etc.
Fluids Viscosity	cP, cSt etc.
Fluid Temperature	0°C
Density of Fluid	g/cm <sup>3</sup>

MAXIMUM - MINIMUM OPERATING VALUES		
Cycle Gap (rpm)	100	420
Flow (m <sup>3</sup> /h)	1	40
Pressure (bar)	2	20
Power (kW)	0,75	15
Viscosity (cp)	100	120000
Temperature (°C)	0	150





## DOSING PUMPS

Dosing pumps are used for the automatic dosing of some chemicals in desired ratios in many different areas. Dosing pumps are products that are required for dosing with the precision required by the processes.

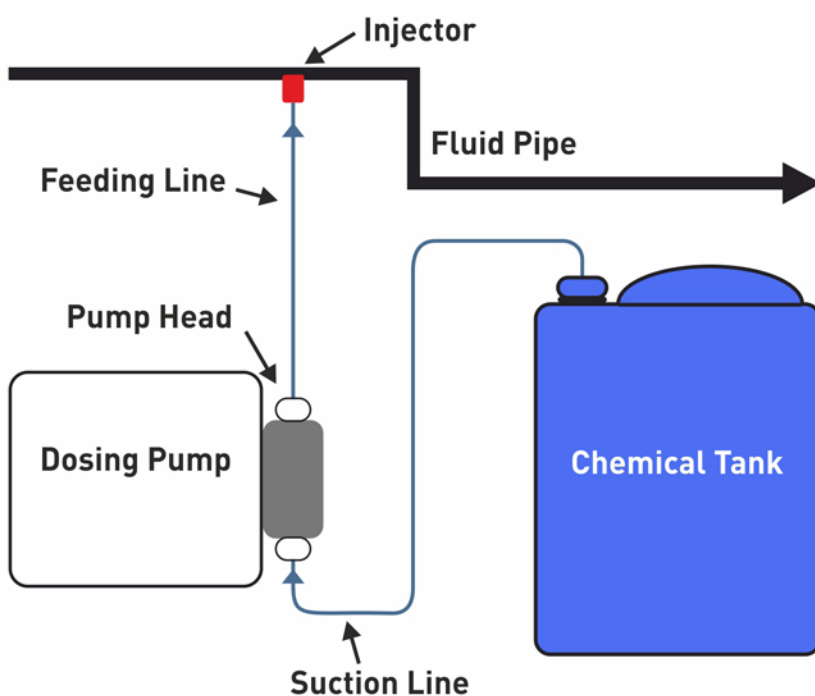
Dosage systems prevent chemical wastage. Moreover, it ensures that clean water is used in the right amount and is not wasted.

### Properties of Dosing Pumps

Dosing pumps used in many areas in the industry have different diversity in themselves.

#### General Properties

- ✓ Dosing process depending on the determined time and duration
- ✓ It can be activated by manual control
- ✓ Chemical dosing can be easily done proportionally according to process characteristics.
- ✓ Easy setup
- ✓ It can dose with all kinds of corrosive and abrasive chemicals
- ✓ Pump body providing high resistance to corrosive chemicals
- ✓ Long life diaphragm
- ✓ Stroke speed adjustable design



### USAGE AREAS

- ✓ Chemical Laboratory & Chemical Industry
- ✓ Food and Beverage Industry
- ✓ Water Treatment System
- ✓ Energy Industry
- ✓ Swimming pools
- ✓ Cooling tower



## DOSING PUMP TYPES

We can divide the dosing pumps into 3 types as motorized (mechanical diaphragm), electromagnetic (solenoid) and non-electric models.

### Motorized Dosing Pumps

The working principle of motor driven dosing pumps derives its power from the electric motor. It is a type of pump that is generally produced with mechanical diaphragms. It has different capacities between 5,5lt / h and 500lt / h. It can work between 5 bar and 400 bar. There are models working with 220V, 380V.



### Electromagnetic Dosing Pumps

The working principle of electromagnetic dosing pumps gives the motion power a magnet that creates a magnetic field with electrical energy. It is also called solenoid dosage pump. Chemical dosing can be made up to 100 lt / h capacity. It can work between 0,1 bar and 20 bar. It works with 220V. This type of pump is used in simpler applications due to its production technology.

### Water Powered (Non-Electric) Dosing Pumps

Dosing pumps are generally preferred for low capacity needs. It can make dosing depending on the water flow rate and amount. These pumps, with flow rates between 1 lt/h and 25 lt/h, can dose between 0.1% and 10% depending on the model.



# S E A L S



- ✓ MECHANICAL SEALS
- ✓ COMPRESSION PACKINGS

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# MECHANICAL SEALS

## O - RING SEALS



### Technical Specifications

- ✓ Single Seal
- ✓ Unbalanced
- ✓ Independent of Rotation Direction
- ✓ Leaf Spring
- ✓ EN 12756

#### Working Limits

Shaft Size :  $d_1 = 8 \dots 100 \text{ mm}$   
Pressure :  $p_1 = 16 \text{ bar}$   
Temperature :  $t = -50 \dots 220^\circ\text{C}$   
Speed :  $v_g = 15 \text{ m/s}$

#### Axial Movement

$d_1 \leq 25 \text{ mm} \dots \pm 1.0 \text{ mm}$   
 $28 \leq d_1 \leq 63 \text{ mm} \dots \pm 1.5 \text{ mm}$   
 $d_1 \geq 65 \text{ mm} \dots \pm 2.0 \text{ mm}$

### Material Combinations

Seal Face : Car/ CrNi /SiC/TuC  
Seat : Car/ CrNi /SiC/TuC  
Elastomers : FKM, NBR, EPDM, VMQ



## ELASTOMER BELOW SEALS



### Technical Specifications

- ✓ Single Seal
- ✓ Unbalanced
- ✓ Bellows Type
- ✓ Dependent on Rotation Direction
- ✓ En12756

### Working Limits

Shaft Size :  $d_1 = 8 \dots 100$  mm  
Pressure :  $p_1 = 16$  bar  
Temperature :  $t = -20 \dots 140^\circ\text{C}$   
Speed :  $v_g = 13$  m/s,  $15$  m/s

### Material Combinations

Seal Face : Cer/Car/SiC/TuC  
Seat : Cer/Car/SiC/TuC  
Elastomers : FKM, NBR, EPDM



## METAL BELOW SEALS



### Technical Specifications

- ✓ Single Seal
- ✓ Balanced
- ✓ Metal Bellows
- ✓ Independent of Rotation Direction
- ✓ EN 12756

### Working Limits

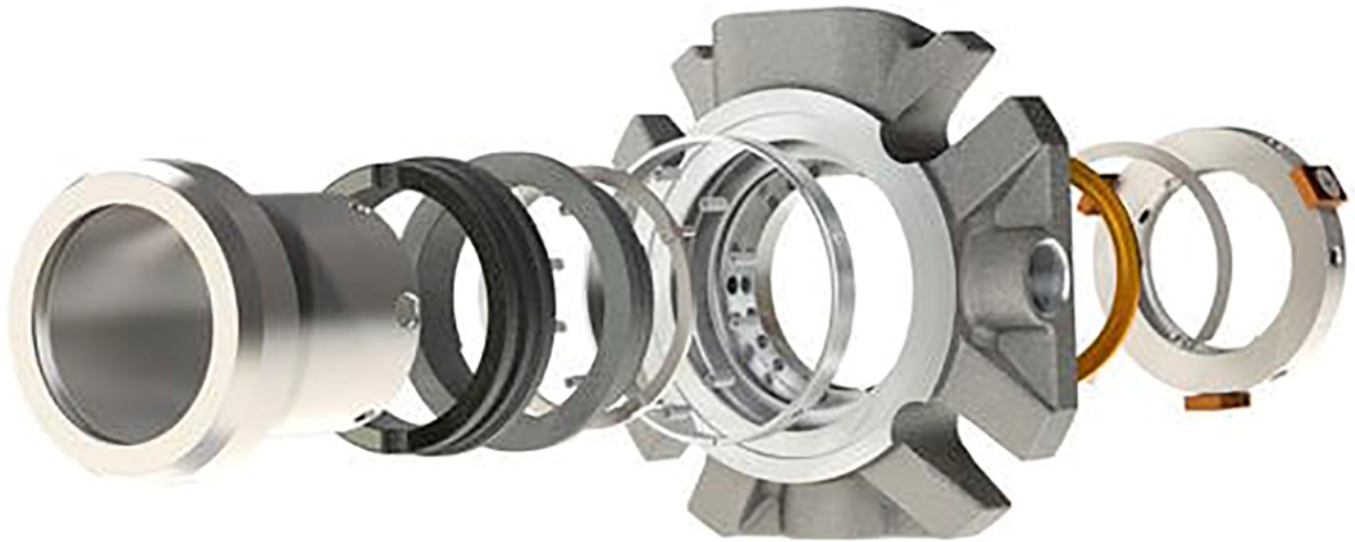
Shaft Size :  $d_1 = 16 \dots 100$  mm  
Pressure :  $p_1 = 25$  bar  
Temperature :  $t = -40 \dots 220^\circ\text{C}$   
Speed :  $v_g = 20$  m/s

### Material Combinations

Seal Face : Car/SiC  
Seat : SiC  
Elastomers : FKM



## STANDARD CARTRIDGE TYPE SEALS



### Technical Specifications

- ✓ Single Seal
- ✓ Cartridge type
- ✓ Balanced
- ✓ Independent of Rotation Direction

### Working Limits

Shaft Size :  $d_1 = 25 \dots 100 \text{ mm}$   
(Other sizes are made on request.)

Temperature:  $t = -40 \dots 140^\circ\text{C}$

### Kar/SiC Surface Combinations

Pressure :  $p_1 = 25 \text{ bar}$

Environmental Speed :  $V_g = 16 \text{ m/s}$

### SiC/SiC ve TuC/SiC Surface Combinations

Pressure :  $p_1 = 12 \text{ bar}$

Environmental Speed :  $V_g = 10 \text{ m/s}$

Axial Movement :  $\pm 1.0 \text{ mm}$ ,  $d_1 \geq 75 \text{ mm} \pm 1.5 \text{ mm}$

### Advantages

- ✓ Ideally used in standard pump processes
- ✓ They are ideal seals for standardization
- ✓ Due to dynamically loaded O-ring, shaft is protected from damage in centrifugal pumps
- ✓ Long-Lasting Use
- ✓ Installation and assembly failure are prevented
- ✓ Low operational cost
- ✓ Dirt and dust cannot damage the seal during installation
- ✓ Pre-Installed seal group provides simple and easy installation and time loss reduced during installation
- ✓ Customized designed system



## STANDARD MIXER TYPE SEALS



### Technical Specifications

- ✓ Single - Double Seal
- ✓ For Top Driven Equipment
- ✓ Unbalanced
- ✓ Independent of Rotation Direction
- ✓ Flange Cooled
- ✓ Liquid Lubrication
- ✓ Cartridge Unit

### Working Limits

Shaft Size :  $d_1 = 40 \dots 100 \text{ mm}$   
Temperature :  $t = -80 \dots 350^\circ\text{C}$   
Pressure :  $p_1 = 6 - 16 \text{ bar}$   
Environmental Speed:  $V_g = 2 \text{ m/s}$

### Advantages

- ✓ They are ideal seals for standardization
- ✓ Without bearing
- ✓ ATEX certificate available on request
- ✓ Self-closing feature in reverse pressure
- ✓ They are factory collected and tested products





# COMPRESSION PACKINGS

**PURE PTFE  
TEFLON PACKING**



**GRAPHITE  
PTFE PACKING**



**SYNTHETIC  
FIBER PACKING**



**CARBON  
PACKING**



**RAMIE  
FIBRE PACKING**



**KEVLAR  
(ARAMID) PACKING**



**PATTERNED DESING  
PACKING**



**PURE GRAPHITE  
PACKING**



**WIRED PURE  
GRAPHITE PACKING**



# GASKETS



- ✓ NON METALLIC FLAT GASKETS
- ✓ SEMI-METALLIC GASKETS
- ✓ METAL GASKETS
- ✓ NUTS & BOLTS, DISC SPRING WASHERS



**MAXWOR**  
Focus on Excellence



## GASKETS

We assure high quality, environmentally-friendly sealing products to our customers. Comprehensive range of gaskets can fulfill different needs and is suitable for various industries and even the most challenging applications.

### NON METALLIC FLAT GASKETS

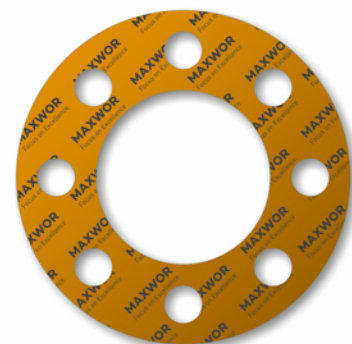
The non-metallic or flat gaskets are the most typical ones from the family of flat static gaskets. They are used in large numbers by various industries and in a variety of applications. Soft gaskets are made of non-asbestos (CSF), graphite, PTFE, mica, aramid/ graphite and rubber sealing materials. Available in standard and non-standard gasket design.

#### • Fiber Gasket Sheets & Gaskets

Our fiber sheets and gaskets are the most common in the family of flat static gaskets. They can be used in large numbers by various industries and in a variety of applications.

##### Properties / Applications

Our products are made from non-asbestos (CSF), graphite, aramid/graphite, PTFE, mica or rubber sealing materials.



#### • Graphite Gasket Sheets & Gaskets

Graphite sheets and gaskets have excellent resistance to various substances, excellent strength, excellent thermal properties and chemical stability. They are used in large numbers by various industries and in a variety of applications.

##### Properties / Applications

These products are made from flexible graphite sheets.

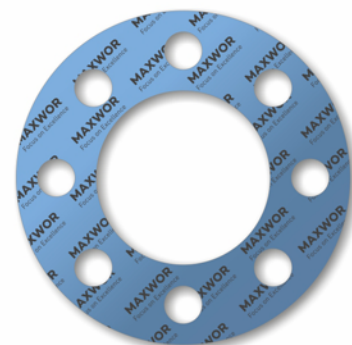


#### • Mica Gasket Sheets & Gaskets

Mica gaskets have a high temperature and chemical resistance. They are used in the automotive industry, in gas turbines, heat exchangers and industrial burners.

##### Properties / Applications

Mica sheets and gaskets are made from aluminosilicate.



#### • PTFE, Modified PTFE & Expanded PTFE Gaskets

PTFE, PTFE compounds and expanded PTFE are compound products which offer good mechanical, electrical and thermal properties as well as chemical resistance, a low friction coefficient and good resistance to wear.

##### Properties / Applications

All PTFE gaskets have excellent chemical resistance. Modified and expanded PTFE also have improved cold flow and creep resistance.



PTFE gaskets are one of the most suitable types of gaskets for a variety of sealing applications and are mostly based on virgin PTFE or filled PTFE. PTFE gaskets provide an extensive range of applications. PTFE is a fluoropolymer, which features an outstanding chemical resistivity to almost all chemicals, good thermal insulation properties, and useful mechanical and processing characteristics. The above-mentioned PTFE features can be usefully applied in PTFE gaskets. They can be mostly used in valve seats, bearings, requested to resin sliding and chemicals, elastic band for un-lubricated compressors, O-rings where elastomers are not durable. In addition, an extended range of improved mechanical and processing properties can be achieved by combining virgin PTFE with different fillers.

### ADVANTAGES

Virgin PTFE, PTFE compounds and expanded PTFE offer a wide range of compounded products with good mechanical properties, electrical properties, thermal properties, chemical resistance, low friction coefficient and good resistance to wear.

#### • Flat PTFE Enveloped Gaskets

PTFE enveloped gaskets have a PTFE envelope open on one side, usually on the outside. Thanks to their high chemical stability, good mechanical properties and permanent resistance to the atmosphere (humidity, gas and temperature changes) they are suitable for use with various substances, particularly aggressive chemicals.



#### Properties / Applications

Products are made from PTFE.

The sealing insert is made of corrugated stainless steel, soft nonasbestos material, or rubber and different combinations. This insert is coated with PTFE and open on one side, usually on the outer.

Thanks to their high chemical stability, good mechanical properties and permanent resistance in the atmosphere (to humidity, gasses, temperature changes) they are suitable for all types of gaskets and different media, mostly for aggressive chemicals.

### ADVANTAGES

Benefits from the high stability of C-F bond virgin PTFE, which is used for the envelope and exhibits extraordinary chemical resistance. Combinat number of different applications.

### SEMI-METALLIC GASKETS

#### • Spiral Wound Gaskets

Spiral wound gaskets are very suitable for applications featuring heavy operating conditions. They can be used for sealing flange joints, manhole and handhold covers, tube covers, boilers, heat exchangers, pressure vessels, pumps, compressors and valves.



## PROPERTIES AND APPLICATIONS

Spiral wound gaskets are special semi-metallic gaskets of great resilience, therefore they are very suitable for applications featuring heavy operating conditions. Spiral wound gaskets are manufactured by spirally winding a V-shaped metal strip and a strip of non-metallic filler material. The metal strip holds the filler, providing the gasket with mechanical resistance and resilience. Spiral wound gaskets can be reinforced by an outer centering ring and/or inner retaining ring. The outer centering ring controls the compression and holds the gasket centrally within the bolt circle. The inner retaining ring increases the axial rigidity and resilience of the gasket.

Spiral wound gaskets should always be in contact with the flange and should not protrude into the pipe or project from the flange. They can be used for sealing flange joints, manhole and handhold covers, tube covers, boilers, heat exchangers, pressure vessels, pumps, compressors and valves; in industries such as petrochemical, pharmaceutical, shipbuilding, and food processing, in power industries and nuclear power stations. They are ideal for sealing steam, oil, liquids, gases, acids, alkalines, various organic media and solvents.

## ADVANTAGES

- ✓ Sealing under heavy operating conditions.
- ✓ Strong stress compensation, stable and reliable sealing performance even under frequent pressure fluctuation conditions.
- ✓ Solid construction provides stability and sealability even when the sealing surfaces are slightly corroded or bent.
- ✓ Easy installation.

### • Metal Jacketed Gaskets

Metal Jacketed Gaskets are particularly suitable for sealing the flat surfaces of heat exchangers, pipe flanges, boilers and process equipment. The metal outer jacket protects the inner soft resilient filler from corrosive substances, pressure and temperature.



## PROPERTIES AND APPLICATIONS

Metal-jacketed gaskets are particularly suitable for sealing flat surfaces of heat exchangers, gas pipes, cast iron flanges, autoclaves and similar. By their sealing efficiency, provided by exerting strong pressure on circular rims of the flanges, metal-jacketed gaskets can stand up to 30% deviation from the initial thickness, which is very useful in case of irregular or faulty flange rims. The chemical compatibility of the metal and the medium being sealed should be considered.

## ADVANTAGES

- ✓ Suitable for high assembly stress.
- ✓ Highly resistant against blow-out.



## • Gaskets for Heat Exchangers

Heat exchanger gaskets are manufactured using graphite, compressed fibersheet or millboard as a soft filler, protected by an outer double jacket in various metals such as soft iron, copper or stainless steel. These gaskets can be made with integral or welded pass bars.



### Properties / Applications

Suitable for sealing flanges at high operating temperature and pressures, in both heat exchangers and pressure vessels.

Heat exchanger gasket is a term that has been given to gaskets used in heat exchangers. The structure of the gasket or its type varies according to the operating conditions of the exchangers. The heat exchanger gaskets come in a wide spectrum of types including single or double-jacketed, corrugated, plain metal, soft and many others. A large selection of different materials allows heat exchangers to operate at temperatures beyond the capabilities of most soft gasket materials.

### ADVANTAGES

- ✓ Available in wide range of materials, since they are all custom made. There are few limitations regarding size and shape.
- ✓ The metal jacket provides mechanical strength to contain the filler and improves chemical resistance.
- ✓ Unique construction provides stability and ensures trouble-free handling and installation.

MATERIAL	ASTM	EN Material No.
Low Carbon Steel	CS	1.0038 (DC04 St14)
Stainless Steel	AISI 304	1.4301
Stainless Steel	AISI 309	1.4828
Stainless Steel	AISI 316, AISI 316L	1.4401, 1.4404
Stainless Steel	AISI 316Ti	1.4571
Stainless Steel	AISI 321	1.4541
Monel (NiCu30Fe)	Alloy 400	2.4360
Copper	Copper	2.0090
Brass	Brass Ms 63	2.0321
Titanium	Titanium Gr2	1.4462



## • GROOVED GASKETS

### PROPERTIES AND APPLICATIONS

The grooved gasket is the preferred gasket solution when improved performance at low seating stresses is required. It features excellent anti-blow-out properties. A tighter joint is provided with reliable solid metal to metal seal combined with a soft sealing face. Metal gaskets with grooved faces have proven to be very effective for sealing flange connections, and they are

particularly suitable for applications where high temperatures, pressures and fluctuating conditions are encountered. Non-metallic cover layers ensure that flanges are not damaged, even at extreme loads, and that they provide excellent sealing properties when supported by the grooved metallic gasket. The grooved gasket can be used as an alternative for applications associated with jacketed gaskets (for heat exchangers, vessels and reactors and various flanged connections).



### ADVANTAGES

- ✓ Capable of sealing pressures exceeding 250 bar.
- ✓ Capable of withstanding temperatures up to 700 °C.
- ✓ Particularly effective in maintaining performance under condition of fluctuating temperatures and pressures.
- ✓ Solid construction provides stability even for large diameters and ensures trouble-free handling and installation.
- ✓ Gaskets can be fitted to existing assemblies without modification.

## • Corrugated Metal Gaskets

Corrugated gaskets can be used on uneven or distorted sealing surfaces, where a more elastic material with better sealing performance is needed. They are used in low-pressure applications usually in large diameter flue gas ducts at high temperatures.



### ADVANTAGES

- ✓ Outstanding mechanical strength and thermal conductivity.
- ✓ Capable of withstanding high temperatures.
- ✓ There are almost no limitations regarding size.
- ✓ Solid construction provides stability even for large diameters and ensures trouble-free handling and installation.

## • Gaskets with Metal Inner Eyelet

Gaskets with metal inner eyelet offer special protection against blowout where sealing critical or dangerous substances. The austenitic stainless steel inner eyelet offers excellent protection for the soft gasket material against erosion and corrosion, while it also prevents contamination towards the medium within the pipeline.



- **Flat Kammprofile Gaskets**

Kammprofile gaskets are the preferred gasket solution when improved sealing and safety performance is required. Metal gaskets with serrated faces have proven to be very effective for sealing flange connections, particularly for applications where high temperatures, pressures and cycling conditions are encountered.



## METAL GASKETS

- **Ring Type Joints**

Metallic ring type joint gaskets are manufactured according to the API 6A and ASME B 16.20 standard for applications at elevated temperatures and pressures. The small sealing area with high contact pressure results in an excellent seal with greater reliability.



## PROPERTIES AND APPLICATIONS

The metallic ring joint gaskets are manufactured according to the API 6A and ASME B16.20 standards for application at elevated temperatures and pressures. The small sealing area with high contact pressure results in great reliability. The contact surfaces of the gaskets and flange should be carefully processed. Some types of ring joints are pressure activated, which means, the higher the pressure the better the sealability.

## ADVANTAGES

The metal ring joint gaskets have been designed to withstand exceptionally high assembly loads over a small area, thus producing high seating stresses.

- **Lens Ring Gaskets**

Lens ring gaskets are made from solid machined metal gaskets. These spherical shaped gaskets are mainly used in the chemical and petrochemical industries for high pressure and temperature applications.





## NUTS & BOLTS, DISC SPRING WASHERS

### • Nuts & Bolts

Stud nuts and bolts are manufactured in accordance with the highest quality standards for the petrochemical, offshore, steel, construction and OEM



### • Disc Spring Washers

Washers provide a safe operation by removing the pre-tension of the bolt. It shows great resistance to vibration thanks to its specially designed closed form and notches on both sides. Long-term use for several times is another advantage.



## PHYSICAL PROPERTIES OF METAL GASKET MATERIALS

AISI / ASTM	INDIVIDUAL NAME	MATERIAL NO	DIN 17006	HARDNESS HB	TENSILE STRENGTH - Rm (N/mm <sup>2</sup> )	YIELD STRESS - Rp0.2 (N/mm <sup>2</sup> )	TEMPERATURE (°C)		DENSITY (g/cm <sup>3</sup> )
							MIN	MAX	
<b>FERROUS METALS</b>									
A 570 Gr. 36	Low carbon steel	1.0038	Rst 37-2	100-130	370-450	220	-40	+450	7.85
Soft-iron	Soft-iron	1.1003	M2 / Armco	90-110	270-350	190	-60	+450	7.85
430	Stainless steel	1.4016	X6Cr17	130-170	450-600	270	-20	+ 350	7.70
304 (304H)	Stainless steel	1.4301	X5CrNi18-10	130-180	500-700	195	-200	+ 425	7.90
304L	Stainless steel	1.4306	X2CrNi19-11	130-170	460-680	180	-270	+ 425	7.90
316	Stainless steel	1.4401	X5CrNiMo17-12-2	130-180	500-670	205	-200	+ 425	7.95
316L	Stainless steel	1.4404	X2CrNiMo17-13-2	120-170	490-690	190	-200	+ 550	7.95
321	Stainless steel	1.4541	X6CrNiTi18-10	130-190	500-730	205	-270	+ 550	7.90
347	Stainless steel	1.4550	X6CrNiNb18-10	130-190	510-740	205	-200	+ 870	7.90
316Ti	Stainless steel	1.4571	X6CrNiMoTi17-12-2	130-190	500-730	215	-270	+ 550	7.98
309	Stainless steel	1.4828	X15CrNiSi20-12	130-220	500-750	230	-110	+ 800	7.90
B408, B409	Incoloy 800	1.4876	X10NiCrAlTi32-20	130-220	500-750	210	-110	+ 850	8.00
<b>NON-FERROUS METALS</b>									
-	Copper	2.0090	SF-CU	55-65	200-250	90	-270	+350	8.94
Brass	Messing Ms 63	2.0321	CuZn 37	60-80	290-370	140	-200	+260	8.44
-	Plumbum 99.9	2.3040	Pb 99.9	4	12	-	-250	+ 200	11.50
-	Nickel 99.6	2.4060	Ni 99	100-150	340-400	140	-60	+ 600	8.90
Alloy 200	Nickel 99.2	2.4066	Ni 99.2	100-150	380-450	160	-60	+ 600	8.90
Alloy 200	Monel 400	2.4360	NiCu 30 Fe	100-130	450-580	200	-60	+ 500	8.88
Alloy 200	Inconel 600	2.4816	NiCr 15 Fe	140-200	550-800	200	-60	+ 600	8.42
-	Aluminium 99.5	3.0255	Al 99.5	20-25	70-80	509	-250	+ 300	2.70
-	Aluminium alloy	3.3315	AlMg 1	25-35	90-110	60	-250	+ 300	2.70
B 348 Gr. 1	Titan I	3.7025	71	110-140	290-410	180	-60	+ 300	4.50
B 348 Gr. 2	Titan II	3.7035	71	120-160	390-540	250	-60	+ 350	4.50

The values in the table are given only as guidance, since they depend not only on the type of material but also on the assembly conditions.

Very important factors are type of gasket, nature of service medium, type of flange and surface stress.



## HOW TO SELECT AN INDUSTRIAL GASKET?

For any gasket application the choice of gasket material will depend on the operating conditions, mechanical features of the flanged assembly, the gasket characteristics and dimensions. In general, operating conditions determine the choice of jointing material, whereas the dimensional and mechanical features of the flange define the gasket type. The performance of any jointing material is influenced by the temperature, internal pressure, fluid, bolts (compressive stress), flange (type of flange, flange surface finish ...), cost-effectiveness and other special considerations.

## HOW TO INSTALL AND USE GASKETS IN THE FIELD?

Successful sealing of a flanged connection depends upon many elements of a well-designed flanged system working well together. Here is a summary, which should serve as a guideline for maintenance operators, engineers, and fitters in order to ensure successful gasket installation and assembly of bolted flange connections.

### TOOLS REQUIRED

Special tools are required for cleaning and tensioning the fasteners. In addition, always use standard safety equipment and follow good safety practice. Prepare the following equipment prior to installation:

- ✓ calibrated torque wrench, hydraulic or other tensioner,
- ✓ wire brush,
- ✓ lubricant,
- ✓ helmet and safety goggles,
- ✓ other plant-specified equipment.



### 1. Clean and examine

Remove all particles and debris from seating surfaces, fasteners (bolts or studs), nuts, and washers. Use plant-specified dust control procedures. Examine fasteners (bolts or studs), nuts, and washers for defects such as burrs or cracks. Examine flange surfaces for warping, radial scores, heavy tool marks, or anything prohibiting proper gasket seating. Replace components if found to be defective.

### 2. Align flanges

Align flange faces and bolt holes without using excessive force. Report any misalignment.

### 3. Install gasket

Verify if the gasket is of the specified size and material. Carefully insert gaskets between the flanges. Make sure the gasket is centred between the flanges. Do not use “jointing compounds”, graphite, grease or release agents on the gasket or seating surfaces. Bring flanges together, ensuring the gasket isn’t pinched or damaged.



#### 4. Lubricate load-bearing surfaces

Use only specified or approved lubricants. Liberally apply lubricant uniformly to all thread, nut, and washer load-bearing surfaces. Ensure lubricant doesn't contaminate either flange or gasket face.

#### 5. Install and tighten bolts

Always use proper tools: calibrated torque wrench or other controlled-tensioning device.

Consult our Technical expert.

Always torque nuts in a cross bolt-tightening pattern. Tighten the nuts in multiple steps:

- Step-1 : Tighten all nuts initially by hand.  
(Larger bolts may require a small hand wrench.)
- Step-2 : Torque each nut to approximately 40% of full torque.
- Step-3 : Torque the nuts to approximately 70% of full torque.
- Step-4 : Torque each nut to full torque, again using the cross bolt-tightening pattern. (Large-diameter flanges may require additional tightening passes.)
- Step-5 : Apply at least one final full torque to all nuts in a clock-wise direction until all torque is uniform.  
(Large-diameter flanges may require additional tightening passes.)



#### 6. Retightening

Do not retorque elastomer-based, asbestos free gaskets after they have been exposed to elevated temperatures unless otherwise specified. Retorque fasteners exposed to aggressive thermal cycling. All retorquing should be performed at ambient temperature and atmospheric pressure.

#### STORING GASKETS

Industrial gaskets consist of various materials, which are subjected to ageing, weathering, oxidation ... Ageing causes decreasing of the mechanical properties of gaskets. For this reason storage under the following conditions is recommended:

- ✓ ambient temperature of storage - move away from heaters,
- ✓ dark storage room - move away from direct sunlight,
- ✓ dry atmosphere,
- ✓ avoid areas where electric discharge appears - ozone production,
- ✓ gaskets must lie horizontally - avoid hanging on hooks or folding which could cause cracking.

Avoid storing gaskets for more than two years.



# B L O W E R

- ✓ SINGLE STAGE BLOWER
- ✓ DOUBLE STAGE BLOWER

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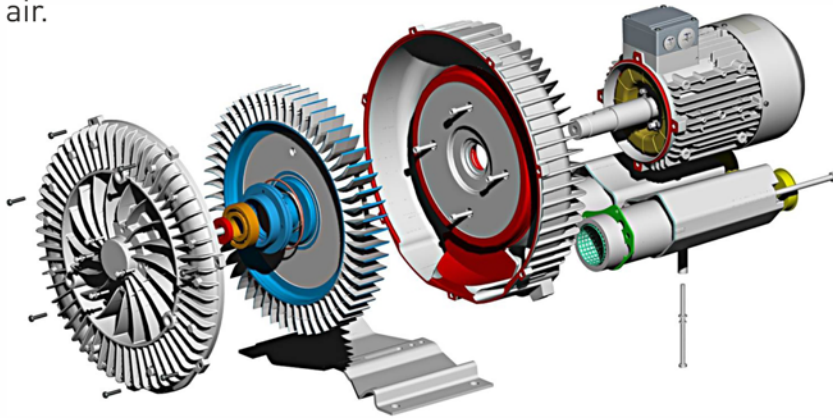


MAXWOR

## BLOWER

Maxwor Blowers are motor and fan coupled systems. The fan rotates with the force it receives from the motor and vacuums the air from the suction part, the compressed air inside is pushed outwards to the outlet side.

Blowers are used as blowing and vacuum, usually to convey air.



### MAIN USAGE AREAS OF MAXWOR BLOWERS

#### Cleaning Sector

- ✓ Dust Extraction Systems
- ✓ Industrial Type Vacuum Cleaners
- ✓ Vehicle Washing Systems and Auto Cleaner Applications
- ✓ Spa and Jacuzzi Applications

#### Machine Systems

- ✓ Drying and Paper Feeding Systems
- ✓ Steam Ironing Presses
- ✓ Label and Nylon Bag Printing Machines
- ✓ Collecting Scrap in Printing Machines
- ✓ Air Bag Applications in Cutting Machines

#### Mining

- ✓ Mining and Mineral Processing Industry
- ✓ Methane Gas and Ventilation

#### Agriculture and Livestock

- ✓ Olive Cultivation and Olive Processing Technology
- ✓ Air Intake Applications

- ✓ Culture and Fisheries and Fish Farms
- ✓ Agricultural spraying
- ✓ Milking
- ✓ Collection of Agricultural Products

#### Ceramic

- ✓ Plastic
- ✓ Plastic Welding
- ✓ Shaping

#### Chemistry

- ✓ Solvent Recovery
- ✓ Surface Treatment and Coating Plants

#### Health

- ✓ Central Vacuum Systems
- ✓ Respiratory Devices

#### Textile

- ✓ Vacuum Fixing
- ✓ Knitting Machines

#### Food

- ✓ Air Knife Applications
- ✓ Vacuum Fixing
- ✓ Transfer of Food Products



### ADVANTAGES

- ✓ It has single and double stage features.
- ✓ Provides a maximum air flow of 2050 m<sup>3</sup> / h.
- ✓ They have a maximum vacuum of 460 mbar and 670 mbar blowing pressure.
- ✓ With its aluminum die-cast body and propeller structure, it has the ability to work up to 60-70 ° C high temperatures.
- ✓ It can go up to a maximum of 25 kW motor power.
- ✓ They can be assembled easily as they are suitable for horizontal and vertical mounting



## SINGLE STAGE BLOWERS

MODEL	MOTOR POWER (kW)	CONNECTION SIZE (inch)	MAX AIR FLOW (m <sup>3</sup> /h)	MAX VACUUM (mbar)	MAX PRESSURE (mbar)	SOUND LEVEL (dBA)	WEIGHT (kg)
MAMT-025	0,25	1 1/4"	55	-80	90	51	7
MBMT-040	0,4	1 1/4"	80	-120	130	53	10
MCMT-055	0,55	1 1/4"	110	-110	110	55	12
MDTT-070	0,7	1 1/2"	145	-120	120	63	13
MDMT-085	0,85	1 1/2"	145	-160	160	63	15
MDMT-130	1,3	1 1/2"	145	-170	200	63	16
MEMT-160	1,6	2"	210	-200	190	64	21
MEMT-200	2	2"	210	-220	270	64	25
METT-200	2	2"	270	-220	230	65	26
MFMT-200	2	2"	265	-220	250	65	27
MFTT-300	3	2"	345	-240	220	65	32
MGMT-200	2	2"	318	-210	200	69	29
MGMT-400	4	2"	318	-290	330	69	42
MGTT-300	3	2"	420	-220	220	70	37
MGTT-400	4	2"	420	-260	310	70	43
MHMT-550	5,5	2 1/2"	530	-300	300	70	63
MHMT-750	7,5	2 1/2"	530	-300	300	70	63
MGTT-750	7,5	2 1/2"	700	-270	260	70	69
MIMT-1250	12,5	4"	1050	-280	270	74	116
MIMT-1850	18,5	4"	1050	-340	460	74	126
MITT-1250	12,5	4"	1370	-210	190	75	121
MITT-1850	18,5	4"	1370	-310	320	75	131

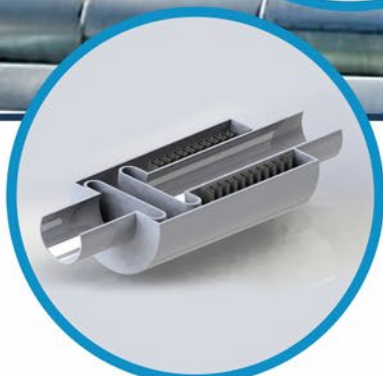


## DOUBLE STAGE BLOWERS

MODEL	MOTOR POWER (kW)	CONNECTION SIZE (inch)	MAX AIR FLOW (m <sup>3</sup> /h)	MAX VACUUM (mbar)	MAX PRESSURE (mbar)	SOUND LEVEL (dBA)	WEIGHT (kg)
MBTC-070	0,7	1 1/4"	88	-210	240	55	14
MDTC-160	1,6	1 1/2"	150	-280	280	66	24
METC-200	2	1 1/2"	150	-330	440	66	27
METC-300	3	2"	230	-340	410	72	39
METC-400	4	2"	230	-390	490	72	43
MGTC-200	2	2"	320	-220	210	73	42
MGTC-300	3	2"	320	-280	260	73	47
MGTC-430	4,3	2"	320	-360	380	73	53
MGTC-550	5,5	2"	320	-440	500	73	70
MGMC-750	7,5	2"	320	-440	570	73	77
MHTC-750	7,5	2 1/2"	520	-400	400	74	86
MHMC-1100	11	2 1/2"	900	-280	370	74	110
MIMC-2500	25	4	2050	-310	270	75	235







# EXPANSION JOINTS

- ✓ METAL EXPANSION JOINTS
- ✓ RUBBER EXPANSION JOINTS
- ✓ FABRIC EXPANSION JOINTS

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Focus on Excellence



## EXPANSION JOINTS FOR EVERY APPLICATION

### METAL EXPANSION JOINT

They are flexible connections, installed in piping and ducting systems to accommodate expansion and vibration caused by changes in temperature, pressure and/or media.

Metal bellows are made of one or multiple plies of stainless steel in austenitic steel, Incolloys, Inconels or other formable materials.

Metal expansion joints can be designed with hardware, intended to retain system pressure thrust load, while allowing intended design movement.

Maxwor offers reliable and innovative expansion joints solutions for many applications worldwide.



#### USAGE AREAS

- ✓ Power Generation
- ✓ Ship power and ship building
- ✓ District Heating
- ✓ Steel Mills
- ✓ Water Treatment
- ✓ Wind Power
- ✓ Pulp and Paper Plants
- ✓ Desulphurization plants
- ✓ Refineries
- ✓ Chemical and Petrochemical Plants

Maxwor offers a full range of metal expansion joints from round and rectangular ducting expansion joints to highly engineered and complex FCCU assemblies with a long history of welding and forming of special materials including a wide range of nickel alloys. Documentation is offered according to the latest industry standards.

Metal expansion joints are installed in flue gas piping systems. Also, metal expansion joints can be designed in many shapes and sizes.

Metal expansion joints are installed in engines and exhaust gas systems.



## PRESSURIZED METAL EXPANSION JOINTS

### Axial Type - Lateral Type - Angular Type Expansion Joints

Pressure Type Metal Expansion Joints are used in piping systems to allow axial, lateral or angular motion.

Pressurized Metal Expansion Joints are manufactured with a standard 30 mm and 60 mm expansion; There are also special productions for other different expansion values. Liner material is used optionally and is also used to give smoothness to flow and to cut the connection between bellows and fluid. The bellows material, wall thickness and number of layers are designed depending on the fluid temperature and pressure used.

#### Advantages

- ✓ Easy to absorb the expansion movements
- ✓ No direction changes of the flow
- ✓ Minimum application area
- ✓ Possible lateral and angular expansion absorption by the additional bellows.
- ✓ To provide a non-stressed area where the pressure is not too high such as pump and compressor applications.
- ✓ Low application costs

#### Application Areas

- ✓ HVAC piping lines
- ✓ Exhaust Systems
- ✓ Vibration absorption
- ✓ Industrial process & applications
- ✓ Power generation & Energy plants

#### Design Structure

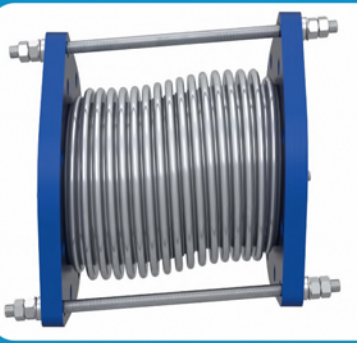
- Bellow Material : Stainless Steel AISI 321 (opt.304, 316L, 316TI, 309)
- Connection Types : Fixed and Floating Flanged and Welded Ended
- Flange Material : Carbon Steel St.37.2 as standard, the material can be customised on request
- Inner Sleeve : Available in stainless steel AISI 321 (opt.304, 316L, 316TI, 309) on request



### AX Type Expansion Joints

AX Type Expansion Joints are used to absorb only movements along the longitudinal axis (axial) of the pipeline.

They can be equipped with weld ends, fixed or loose flanges.



### LA Type Expansion Joints

LA Type Expansion Joints are intended for lateral movement only. Lateral expansion joints are available in two principal types.

One with tie rods, and one with hinges that controls how the bellows move. Tie rods and hinges retain the load generated by the system pressure (pressure thrust), within the expansion joint.

### AN Type Expansion Joints

AN Type Expansion Joints are intended for angular movement only. They are divided into two types. For one plane angular movement a hinged type is appropriate. For two plane angular movement a gimbal type must be used.



## EXTERNAL PRESSURIZED EXPANSION JOINTS

Multi-knuckle compensators are used to absorb high expansion amounts in very long pipelines. As the number of knuckles increases, the possibility of twisting of the expansion joint increases. Although this situation can be prevented with a certain amount of liner, the best solution is external pressure expansion joints.. In addition, it is suitable to use in fluids that require high safety values (eg hot oil, etc.).

In these applications; By changing the direction of the fluid, the pressure is applied to the outside of the bellows, creating a expansion joint(compensator) that can withstand high pressure and expansion amounts without torsion.

Although externally pressurized expansion joints are manufactured with 30, 60, 90 and 120 mm expansion as standard, special production is possible for other desired expansion values.



**Design Structure:** Design and production are made according to EJMA standards. Pressure and temperature values comply with DIN2401 values

**Materials:**

It is produced in stainless steel in accordance with the DIN 17440 standard, and the fittings are produced as stainless steel or carbon steel. Other materials can be produced on demand.

**Bellow Material:** Stainless Steel AISI 321 (opt.304,316L,316TI,309)

**Pipe Material:** Carbon Steel St.37.2 as standard, the material can be customised on request



**Connection Types:**

Fixed and Floating Flanged and Welded End

**Nominal Diameters:**

DN 25 (1")- DN 1500 (60")

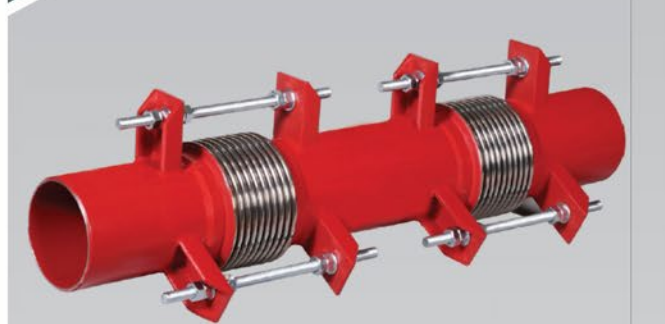
**Operating Pressure:**

As standard PN 16. Available in for high pressure classes we can design and produce special external pressurized expansion joints.

**Operating Temperature:** -196 C°/+600 C°

**Applications :**

Thermal equilibrium and mechanical expansion in all types of pipelines. The widest application area is underground pipelines. It is frequently used especially in geothermal lines.



## PIPE EXPANSION JOINT

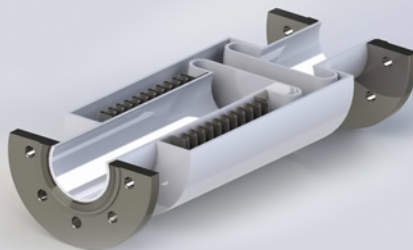
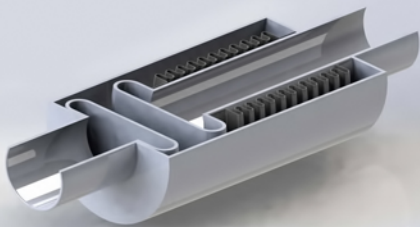
Pipe expansion joints are expansion parts that absorb vibration and noise. The piping system is divided into various expansion sections and isolated by means of fixed points. Thus, the movement in a vibration zone is absorbed by the pipe compensator used in this zone.



Nowadays widespread heating of multi-storey buildings and hot water supply temperature change resulting from contraction and expansion on the column line, for bending the pipe, the noise, the breakage of the joints and cause the stripping teeth.

### Advantages of Pipe Expansion Joints

- ✓ They prevent damage to pipelines result of the line movements
- ✓ They absorb the possible noises and provide convenience for the users
- ✓ They are installed easily and provide time and money saving
- ✓ They have a compact and decorative design that reduces the waste of space
- ✓ They help to protect equipment from stress due to misalignment



A heating pipeline system at 90/70°C causes approximately 3 mm of movement for each floor of the buildings. The expansion in the column line of a 7-storey(21 meters) building can be taken with the elbows in the vent and main line collection. The pipe expansion joint, which must be used in the column lines of buildings higher than 7 floors, should be used at most every 30 meters(every 10-storey).

- ✓ The maximum distance between two fixed points is 30 meters. The pipe compensator is mounted on the floor between two fixed points, close to the ceiling.

### Materials Structure:

In accordance with the DIN17440 standard stainless steel exterior part, decorative appearance of aluminum, fittings manufactured in carbon steel.

**Connection Types:** Threaded and Welded End  
**Operation Conditions**

**Operating Temperature:** 20°C - 100°C

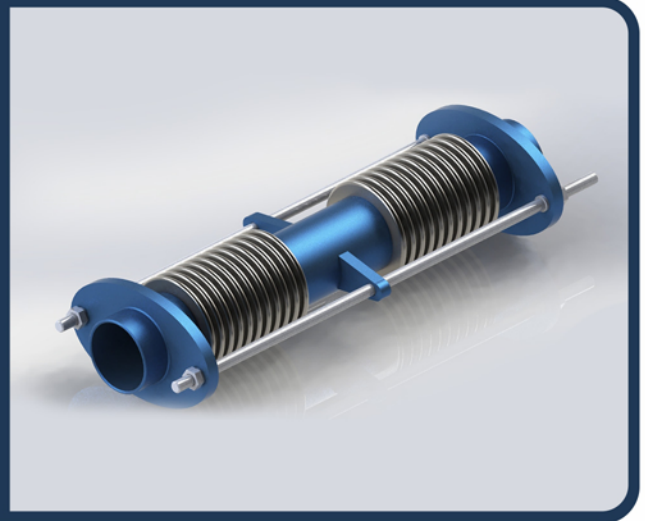
**Operating Pressure:** PN 16

**Nominal Diameters:** DN15 (1/2") - DN100 (4")



## UNIVERSAL TYPE JOINT WITH TIE ROD

Universal tied expansion joints (limit rod type) are placed in the determined places in the pipe systems and in building collapses and movements; Despite its rigid pipe structure, thanks to its flexible structure, it prevents stress, rupture, etc. in pipelines. They are the elements that protect the system by removing the problems.



Universal tied expansion joints are made up of two bellows connected each other by an intermediate pipe and a system of tie rods able to withstand the thrust resulted of the internal pressure. Universal tied expansion joints are absorbed 50, 100, 150 and 200 mm lateral movements as standard, also special productions are possible for other desired expansion values. In this type of compensators, the part is stabilized by using control rods.

**Materials Structure:** Accordance in DIN17440 for stainless steel, the fittings can be produced stainless steel or carbon steel. Design and production are made according to EJMA standards. Pressure and temperature values comply with DIN2401 standards. They have the ability to absorb collapsing movements thanks to their bellows and limit rod on their double side.

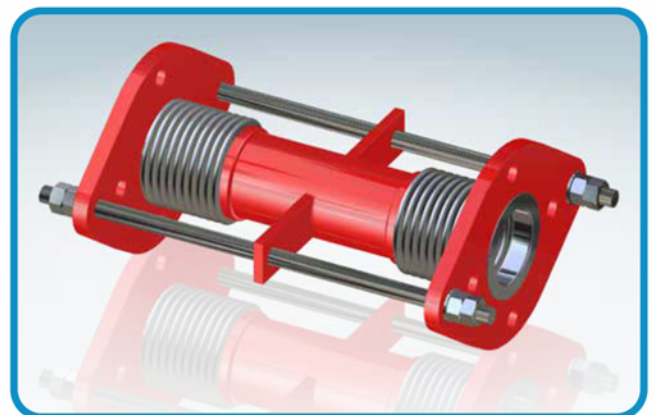
**Connection Types:** Fixed Flanged, Rotary Flanged, and Welded End

**Nominal Diameters:** DN25 (1") - DN1000 (40")

**Operating Pressure:** As standard PN16. Also we can produce different pressure class for special design. Operating pressure depends on nominal diameter and operating temperature.

**Operating Temperature:** For materials structure -196°C - 600°C

**Application:** At all dilatation points in the building history, underground, above ground, overhead, etc. It is used in all lines and all systems with fluid.



## GIMBAL TYPE EXPANSION JOINTS

Gimbal type Expansion Joints protect the system by absorbing the movements (circular movements in X, Y, Z directions) in all directions such as earthquakes and collapses, absorbing any movement in the pipelines. It protects rigid pipe systems from stress thanks to their flexible and mobile structure.



Gimbal type Expansion Joints absorb axial movements, lateral deviations and angular rotation with containing two bellows. Since it is an FM approved product in fire circuits, it has an absolute use in dilatation passages. Design and production are made according to "EJMA" standards. Pressure and temperature values comply with DIN2401 standards. It has the capability of damping or absorbing all kinds of movements thanks to its bellows and universal joints on its double side.

Gimbal type Expansion Joints can absorb standard 100, 200, 300 and 400mm lateral movements, and special production is possible for other desired expansion values.

**Material Structure:** Stainless steel in accordance with DIN17440; fittings can be produced in stainless steel or carbon steel.

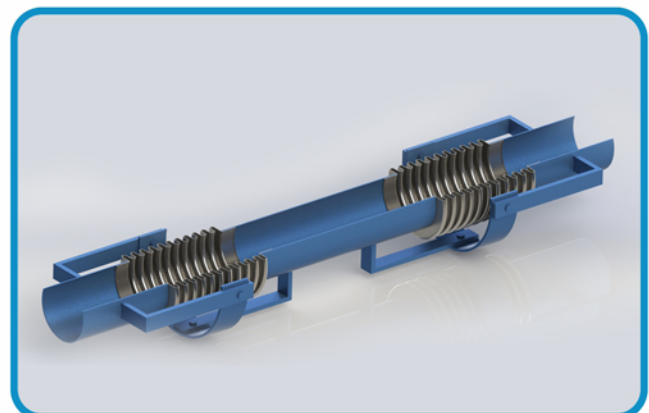
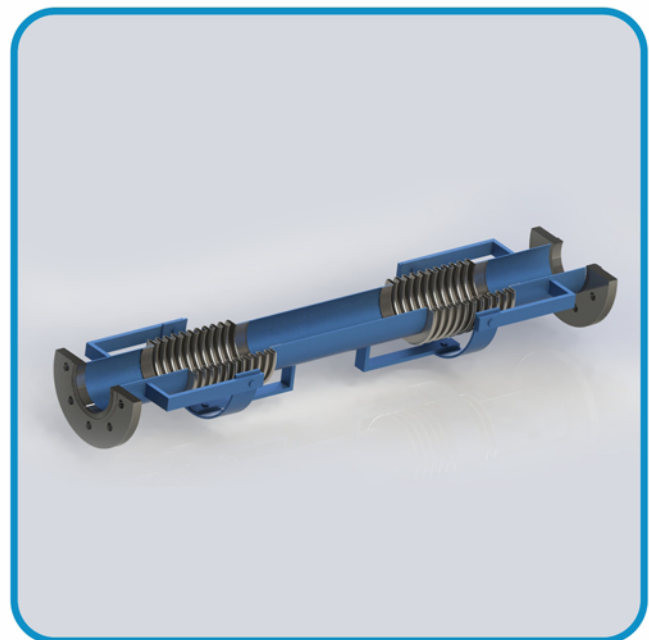
**Connections:** Rotating Flanged, Fixed Flanged, Welding Neck, Grooved, Threaded

**Nominal Diameter:** DN25 (1") - DN1000 (40")

**Pressure Values:** Gimbal type Expansion Joints are produced in the standard PN16 pressure class and are manufactured as a result of special designs for higher pressure classes. The operating pressure depends on the nominal diameter and operating temperature.

**Operating Temperature:** From -196 °C to 600 °C depending on the material structure.

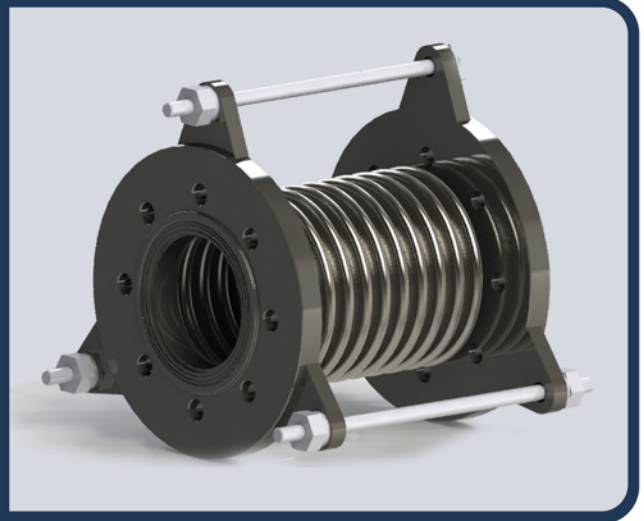
**Application:** Dilatation - Earthquake Compensator is used in dilatation passages in fire circuit lines, all fuel tanks, tanks, all kinds of machine-device outlets, and all pipelines.





## VIBRATION ABSORBER EXPANSION JOINTS

Metal bellows Vibration Absorber Expansion Joints reduce the stress and axial imbalance in the system. Thanks to their special designs, they can absorb vibration, absorb noise and sounds.



### Structure

Design and production: Made according to EJMA standards. Pressure and temperature values are in accordance with DIN 2401 standards.

**Material Structure:** Bellows and liners are produced in stainless steel in accordance with DIN 17440, fittings are made of stainless steel or carbon steel. Other materials can be produced on request.

**Connections:** Rotating flange Welding neck

**Nominal Diameter:** DN 25 (1") - DN 2600 (104")

**Pressure Values:** Vibration absorber expansion joints are produced in standard PN16 pressure class, and they are manufactured as a result of special designs for higher pressure classes. The operating pressure depends on the nominal diameter and operating temperature.

**Operating Temperature:** Depending on the material structure - 196 °C to + 600 °C

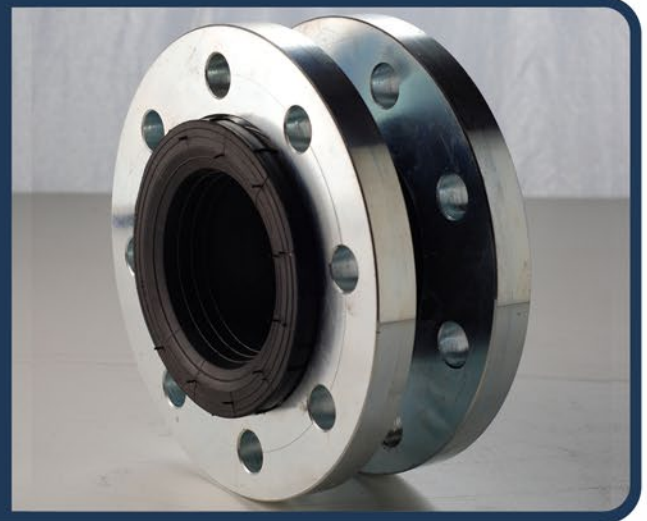
### Applications:

- ✓ Air conditioning, ventilation systems, sanitary installations
- ✓ Air compressors
- ✓ Pipe lines
- ✓ Canalization and drainage lines
- ✓ Suction and discharge nozzles in pumps
- ✓ Hot air lines
- ✓ Chemical facilities
- ✓ Industrial facilities
- ✓ Power machines
- ✓ Marine systems



## RUBBER EXPANSION JOINTS

Rubber Expansion Joints are expansion parts that absorb vibration and noise. Due to their chemical composition and excellent forming technique, they can be used at burst pressures above 40 kg / cm<sup>2</sup> or at normal internal pressures of 10 kg / cm<sup>2</sup>. In addition, it can withstand 700 mm Hg vacuum and is an indispensable element of pump systems in suction and discharge.



### Structure:

Rubber Expansion Joints have a heat resistant structure. Due to these features, they can also be used in hot water systems. Rubber Expansion Joints, due to its very soft skeleton structure, isolate vibration and intense sounds in all directions and prevent noise generation.

### Other Advantages:

- ✓ They absorb elongation and shortening caused by temperature changes, and balance lateral and angular movements.
- ✓ They absorb water hammer and prevent water hammer.
- ✓ Since the flanges are rotary type, they can be easily mounted on pipelines. In addition, they can be equipped with flanges suitable for all pressure levels.
- ✓ They do not require gasket and packing.

**Material Structure:** Special synthetic rubber

**Connection:** Rotating Flange

**Nominal Diameter :** DN32 (3/4") - DN5000 (200")

**Pressure Values:** Max. Up to 10 bar. The operating pressure depends on the nominal diameter and operating temperature.

**Operating Temperature:** Depending on the material structure, from - 10 ° C to + 160 ° C



Elastomer expansion joints are characterized by gas tightness and drip tightness even if there is condensation.

Maximum propagation temperature is 200 ° C. The choice of rubber grade depends on the operating temperature and environment.

This decision is made based on our extensive experience and relevant durability tables.

For the most corrosive environments, we can equip the compensator with an additional PTFE liner that bonds tightly to the rubber bellows.

PTFE is resistant to a range of chemicals and many different mixtures and can therefore be used in case of corrosive chemical attack.

The table below provides an overview of the elastomers we use.

RUBBER GRADES		
Up to 100°C	EPDM	Flue gases, acids, bases, rinsing acids, dilute chlorine compounds, cooling water, hot water
	EPDM, drinking water approved	Drinking water
	EPDM, white, food grade	Foodstuffs
	EPDM, abrasion-resistant	Abrasive media, Water-sand conveyance
	EPDM, insulating	Electrical systems construction
	IIR	Acids, bases, gases
	CSM	Strong acids, bases, chemicals
	NBR	Petrol, solvents, compressed air
	NBR, bright, food grade	Oil, fatty foods
Up to 80°C	CR	Cooling water, slightly oily water, seawater
Up to 70°C	NR	Abrasive media
Up to 150°C	HNBR	Oils, petrol, solvents, compressed air
Up to 180°C	FPM	Corrosive chemicals, petroleum distillates
Up to 200°C	Silicon (Q)	Air, saltwater atmosphere
	Silicon (Q), white, food grade	Foodstuffs, medical technology
PTFE lining	Permanently embedded against chemical attacks on the interior at the rubber bellows, available starting at NB 300.	

## USAGE AREAS

- ✓ Plumbing systems
- ✓ Pumps
- ✓ Bellows
- ✓ Ventilators
- ✓ Vibration absorbers
- ✓ Coolers
- ✓ Ship Building
- ✓ AC systems
- ✓ Chemical, Petro-chemical and industrial systems
- ✓ Power supplies
- ✓ Iron and steel industries
- ✓ Nautical industries
- ✓ Paper industries



## FABRIC EXPANSION JOINTS

Maxwor fabric expansion joints, are vital components in most industrial plants. They are installed as flexible connections in duct and piping systems to take up or compensate for thermal expansion, vibration and/or misalignment. Selecting the right expansion joint for your system is important toward ensuring reliable operation.



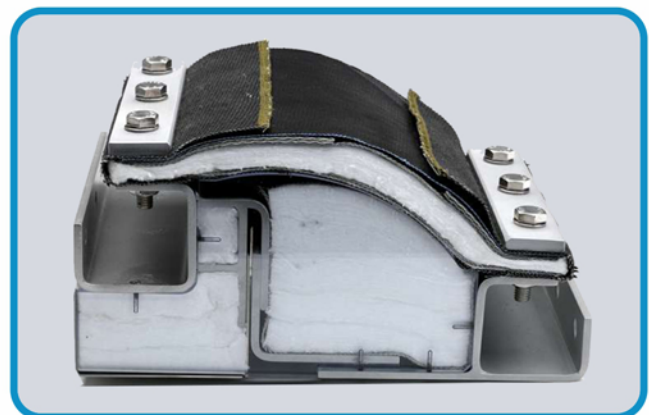
A properly designed and installed expansion joint can ensure uninterrupted plant performance between scheduled maintenance shutdowns. Selecting the right expansion joint for your system is important to ensure reliable operation. A properly designed and installed expansion joints can provide uninterrupted plant performance between scheduled maintenance stops. Our design engineers provide optimum solutions both technically and economically, combining different materials and taking into account the thermal, chemical and mechanical strength and fatigue properties of the material.

### Fabric Expansion Joint Advantages:

- ✓ Compensates for movements in several directions simultaneously
- ✓ Minimal reactive forces
- ✓ Advanced insulation design ensures minimal heat loss
- ✓ Reduced surface temperature on the outer layer during operation to protect site personnel
- ✓ Working pressure up to 850 °C
- ✓ High flexibility
- ✓ Requires little space for installation
- ✓ Easily adapts to existing physical conditions
- ✓ Easy to transport

### Criteria for Applications & Design

- ✓ Which type of Expansion Joint
- Place and Conditions of installation
- ✓ Movements
- ✓ Mechanical Loads (Vibrations and Structural
- ✓ Noise)
- Pressure
- ✓ Flow Rates
- ✓ Product (Air, Flue Gases, etc.)
- ✓ Leakage Requirements
- ✓ Solid Matter
- ✓ Temperatures Below the Dew Point



# HEAT EXCHANGERS



- ✓ GASKETED PLATE HEAT EXCHANGERS
- ✓ BRAZED PLATE HEAT EXCHANGERS
- ✓ SHELL & TUBE HEAT EXCHANGERS
- ✓ FINNED TUBE HEAT EXCHANGERS



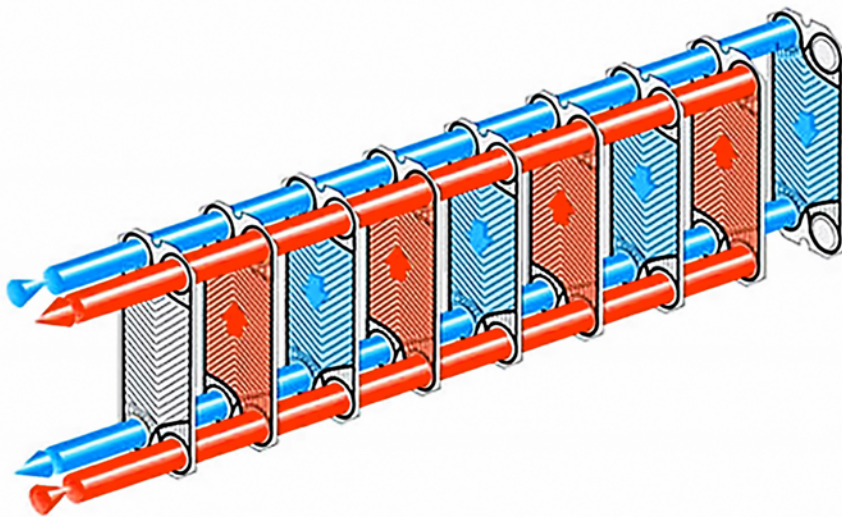
**MAXWOR**  
Focus on Excellence



MAXWOR

## GASKETED PLATE HEAT EXCHANGERS

Maxwor Gasketed Plate Heat Exchangers (GPHE) are equipment that enables heat transfer with maximum efficiency by using each point of the plate surface thanks to their special plate design. It can be easily to service and maintain due compact structure. The working principle of the heat exchanger is to transfer the heat of the fluid with a high temperature to the other fluid at low temperature that is in contact with the other surface of the plate. Thus, the hot fluid starts to cool by transferring its energy, the cold fluid starts to heat up and heat transfer takes place. Both fluids are directed with the help of gaskets, preventing them from mixing with each other.



### FEATURES of GASKETED PLATE HEAT EXCHANGERS

- ✓ Plate material is very important for different applications.  
Our plate materials: 1.4301 / AISI304, 1.4401 / AISI316, 1.4404 / AISI316L, 1.4539 / AISI904L, 1.4547 / 254SMO, 2.4819 / Hastelloy C276, Titanium
- ✓ Gasket materials for different applications : EPDM, NBR, VITON
- ✓ Frame materials: St-37, St-52 or AISI304
- ✓ Between DN25-DN500 connection diameter
- ✓ 25 Bar max operating pressure
- ✓ Between -15 / +180°C operating temperature
- ✓ Easy installation & fast maintenance
- ✓ Long slide and stud designed with capacity increase in the future,
- ✓ High efficiency heat transfer rate thanks to special plate desing



### USAGE AREAS

- ✓ Iron and Steel Industry
- ✓ Milk And Beverage
- ✓ Power Plants
- ✓ Building Heating & Cooling
- ✓ Petroleum & Petrochemicals
- ✓ Food Industry
- ✓ Shipbuilding & Marine Industry
- ✓ Chemical Industry
- ✓ Refrigeration Industry
- ✓ Heat Recovery Systems
- ✓ Evaporation & Condensation



## MAXWOR PLATE HEAT EXCHANGER GASKETS

Gaskets are selected according to the prescriptions prepared specially for plate heat exchangers are divided into EPDM, NBR & VITON according to the which fluid used. The most sensitive point in Plate Heat Exchangers is the gasket, therefore, choosing the gaskets that will ensure the sealing is the most important element of the plate heat exchanger.

You can contact us for the supply of all brand model plates & gaskets.



## SERVICE AND SPARE PARTS SERVICE

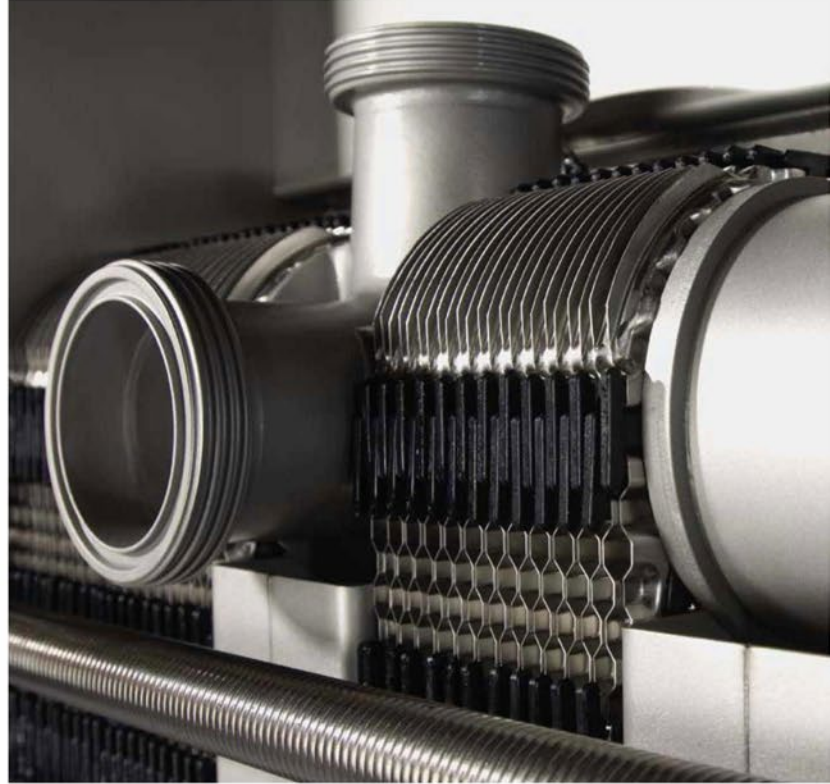
We provide Turkey's largest stock of plates and gaskets to all brand models exchanger having our company as maxw service and spare parts to speed.

Before your heat exchanger becomes unusable, maintenance services with low costs prevent large-scale malfunctions for the future, prolonging the product life by periodic maintenance, preventing material loss from prolonged downtime in case of malfunction, and preventing the loss of quality of the produced product.



## USE OF HEAT EXCHANGERS IN FOOD AND HEALTH SECTOR

MCP series plate is designed in accordance with completely hygienic applications, taking into account maximum smoothness, minimum pollution and perfect homogeneous distribution. It can be used for long periods without the need for intermediate CIP. Maxwor, knows the importance of hygiene and offers plates developed with human health in mind above all.



### FEATURES OF MAXWOR MCP SERIES FOOD HEAT EXCHANGERS

- ✓ Complete Stainless Structure,
- ✓ Gradual heating and cooling structure,
- ✓ Homogeneous flow,
- ✓ Surface roughness rate below 3.1RA,
- ✓ Wide gap plate usage according to usage conditions,
- ✓ Withstand temperature up to -15 / 180 °C,
- ✓ Long slide and stud designed with capacity increase in the future,
- ✓ Maximum 25 Bar operating pressure,
- ✓ It has the advantage of fast maintenance and easy assembly.





## BRAZED PLATE HEAT EXCHANGERS



Brazed plate heat exchangers, which are different from gasketed plate heat exchangers, are used where sealing is important. They are equipment that is sealed at high temperature, under vacuum, using copper or nickel materials.

### FEATURES OF BRAZED HEAT EXCHANGERS

- ✓ High Pressure Resistance - 45 bar
- ✓ Due to their compact structure, they occupy less space than gasketed heat exchangers.
- ✓ High resistance temperature - MIN -180 ° C / MAX 250 ° C
- ✓ Can be used as super coolers and condensers
- ✓ Can be used as an evaporator in cooling systems.
- ✓ Can be produced from plate materials such as AISI 304, AISI 316.

MODEL	LMW-14	LMW-20	LMW-26	LMW-26C
Width (mm)	78	76	111	124
Height (mm)	206	310	310	304
Length (mm)	9+2,3*N	9+2,3*N	10+2,36*N	10+2,4*N
Horizontal Port Distance (mm)	42	42	50	70
Vertical Port Distance (mm)	172	282	250	250
Heat Exchange Area (m <sup>2</sup> )	0,014*(N-2)	0,02*(N-2)	0,026*(N-2)	0,026*(N-2)
Max Pressure (Mpa)	4,5	4,5	4,5	4,5
Max Flowrate (m <sup>3</sup> /h)	3,5	3,8	8,1	8,1
Weight (mm)	0,6+0,06N	1+0,08N	1,3+0,12N	2,2+0,16N

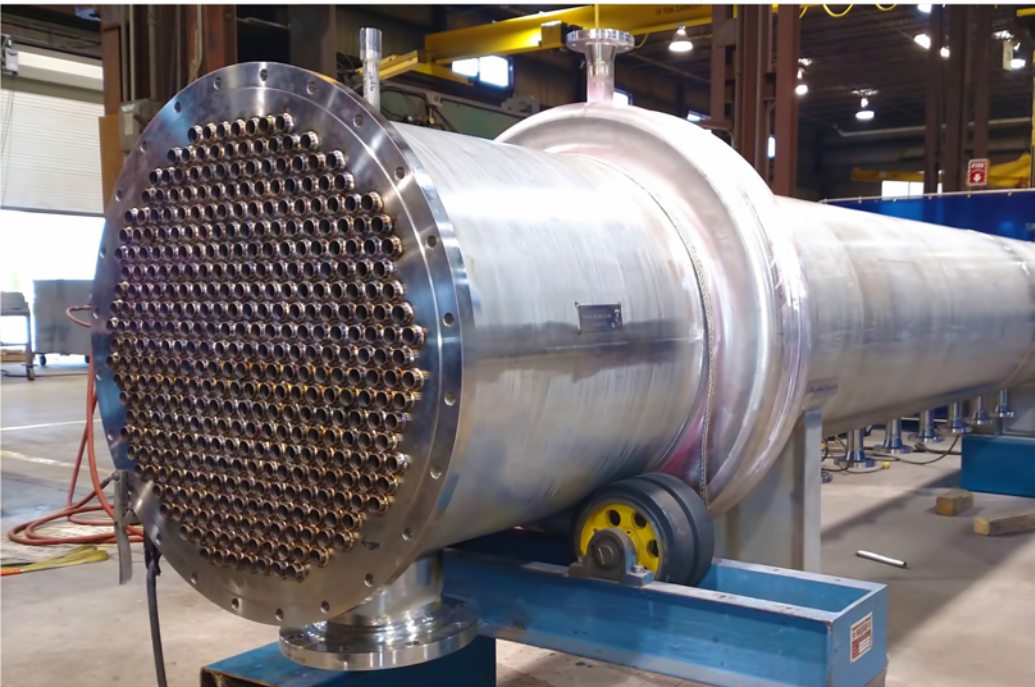
MODEL	LMW-50	LMW-95	LMW-100	LMW-120
Width (mm)	111	191	111	124
Height (mm)	525	616	310	304
Length (mm)	10+2,35*N	11+2,35*N	10+2,36*N	13+2,4*N
Horizontal Port Distance (mm)	50	92	50	70
Vertical Port Distance (mm)	466	519	250	250
Heat Exchange Area (m <sup>2</sup> )	0,05*(N-2)	0,095*(N-2)	0,1*(N-2)	0,12*(N-2)
Max Pressure (Mpa)	4,5	4,5	4,5	4,5
Max Flowrate (m <sup>3</sup> /h)	12,8	40	42,5	42,5
Weight (mm)	2,6+0,19N	7,8+0,36N	6,5+0,37N	7,2+0,52N



MAXWOR

## SHELL & TUBE HEAT EXCHANGERS

Maxwor Shell & Tube Heat Exchangers consist of a cylindrical body with parallel heat transfer tubes. While one of the fluids passes through the tubes, the other passes through the body and provides the heat transfer between the fluids. It is the most widely used heat exchanger in oil refineries and large chemical plants and is suitable for higher pressure applications.



Necessary information to design a shell and tube heat exchanger; flow rate, temperature and physical properties of fluids. Besides, other data that may be important depending on the application are the inlet pressure, maximum acceptable pressure drop and flow rate.

Maxwor Shell & Tube Heat Exchangers's thermodynamic and mechanical calculations are designed according to international standards (TEMA, ASME, API and EN 13445) with professional software. We provide the most suitable heat exchanger technology with minimum cost, maximum reliability and efficiency in our designs.



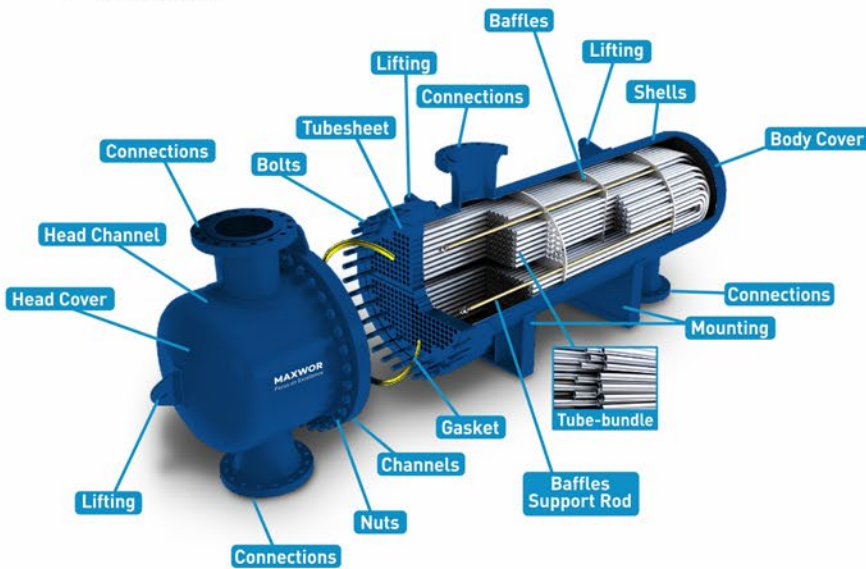
### USAGE AREAS

- ✓ Petroleum and Petrochemical Industry,
- ✓ Chemical Plants,
- ✓ Cement Factories,
- ✓ Iron and Steel Factories,
- ✓ Paper Plants,
- ✓ Textile Factories
- ✓ Food and Pharmaceutical Industry,
- ✓ Ship and Sea Transportation,
- ✓ Energy, Environment and Recycling Systems,
- ✓ HVAC (Ventilation-Air Conditioning, Heating-Cooling Systems)



The main engineering materials we use in heat exchanger manufacturing:

- ✓ Carbon steel,
- ✓ Low Alloy Steel,
- ✓ Stainless steel,
- ✓ Duplex Stainless Steel,
- ✓ Copper and Copper Alloys,
- ✓ Copper-Nickel Alloys,
- ✓ Nickel,
- ✓ Nickel Alloys,
- ✓ Titanium.



### ADVANTAGES OF SHELL & TUBE EXCHANGERS

- ✓ Provides the opportunity to work at high operating temperature and pressure,
- ✓ Pressure losses in the heat exchanger are low,
- ✓ Particulate or fibrous products are easy to process,
- ✓ As the pressure test is simple, pipe leaks are easily found and easy to repair,
- ✓ Thanks to the anode used on the heat exchanger, measures can be taken against corrosion.

### DISADVANTAGES OF SHELL & TUBE EXCHANGERS

- ✗ The heat transfer coefficient is lower, so the heat transfer areas are usually large,
- ✗ Cleaning and maintenance is inconvenient as movement space is required to remove the inner pipes,
- ✗ In case of need, the heat exchanger capacity cannot be increased.



## FINNED TUBE HEAT EXCHANGERS

Finned tubes consist of thin fins wrapped over the tubes to increase the heat transfer area. Depending on the purpose of use and ambient conditions, straight pipe or finned pipe product design can be made. The blades are wrapped in pipes with thickness, height and pitch.



### USAGE AREAS

- ✓ Textile Drying Machines
- ✓ Drying Radiator in Food and Medicine Industry
- ✓ Tea and Tobacco Drying Radiator
- ✓ Economizers
- ✓ Air Curtains
- ✓ Air Handling Units
- ✓ Waste Incineration Plants
- ✓ Wind Tunnels

With the combination of finned pipes, product groups such as serpentine, economizer, radiator, recuperator are formed according to need.

#### Serpentines:

- ✓ Spiral Finned Serpentine
- ✓ Scaling Serpentine
- ✓ Scrubbing Pipes
- ✓ Oval Tube Serpentine

#### Radiators:

- ✓ Steam Radiators
- ✓ Hot Water Radiators
- ✓ Hot Oil Radiators



What materials of pipe and fin we use in our finned pipes,

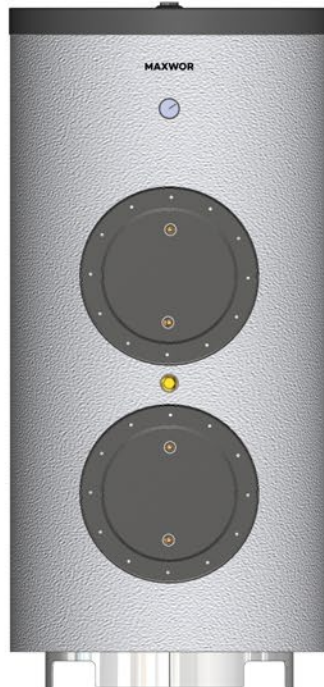
- ✓ Carbon Steel Pipe - Carbon Steel Finned Serpentine
- ✓ Copper Tube - Copper Finned Serpentine
- ✓ Copper Tube - Carbon Steel Finned Serpentine
- ✓ Brass Tubing - Copper Finned Serpentine
- ✓ Stainless Tube - Stainless Finned Serpentine
- ✓ Alloy Pipe - Copper Finned Serpentine
- ✓ Electro galvanized coated coils
- ✓ Hot dip galvanized coils
- ✓ Copper Tube - Aluminum Wing Retaining Coil
- ✓ Brass Tube - Aluminum Wing Retaining Coil
- ✓ Stainless Tube - Aluminum Wing Retaining Coil
- ✓ Carbon Steel Tube - Aluminum Wing Retaining Coil



Fluids such as the following are generally used in our products.

- ✓ Weather
- ✓ Water
- ✓ Hot Oil
- ✓ Steam
- ✓ Oil
- ✓ Hot Water
- ✓ Flue gas
- ✓ Sea water
- ✓ Hot Water
- ✓ Chemical Containing Liquids
- ✓ Waste Gases





# P R E S S U R E V E S S E L S

- ✓ SINGLE SERPENTINE WATER HEATER
- ✓ DOUBLE SERPENTINE WATER HEATER
- ✓ ELECTRICAL WATER HEATER
- ✓ ACCUMULATION TANK
- ✓ BUFFER TANK
- ✓ EXPANSION TANKS

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# WATER HEATER TANKS

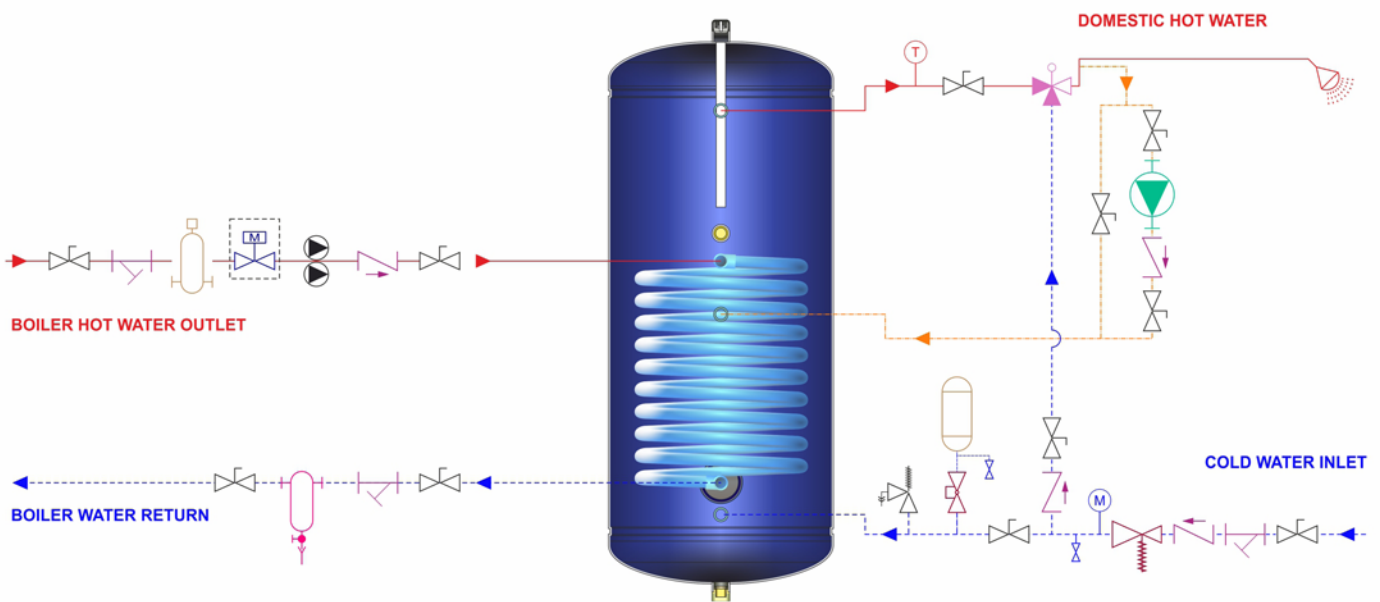


## SINGLE SERPENTINE WATER HEATER

It provides both economical and hygienic domestic hot water supply with the heat energy it receives from a single heat source (steam boiler, hot water boiler, solar energy panels, geothermal energy, heat pump, etc.).

There are 2 inputs on it so that a thermometer and thermostat can be fitted.

- ✓ Capacity from 100 liters to 6000 liters
- ✓ Hygienic, due to the coating, Surfaces in contact with water are double enameled
- ✓ 50 mm thick polyurethane insulation from 100 liters to 600 liters, special sponge insulation from 800 liters to 6000 liters,
- ✓ Electrostatic powder painted cover on galvanized sheet from 100 liters to 600 liters,
- ✓ Special winlex cover from 800 liters to 6000 liters,
- ✓ Cathodic protection,
- ✓ High efficiency,
- ✓ Optionally, electrical resistance,
- ✓ Aesthetic appearance
- ✓ 10 bar operating pressure
- ✓ According to European standards (EN 12897)



Single Serpentine Water Heater Connection Diagram

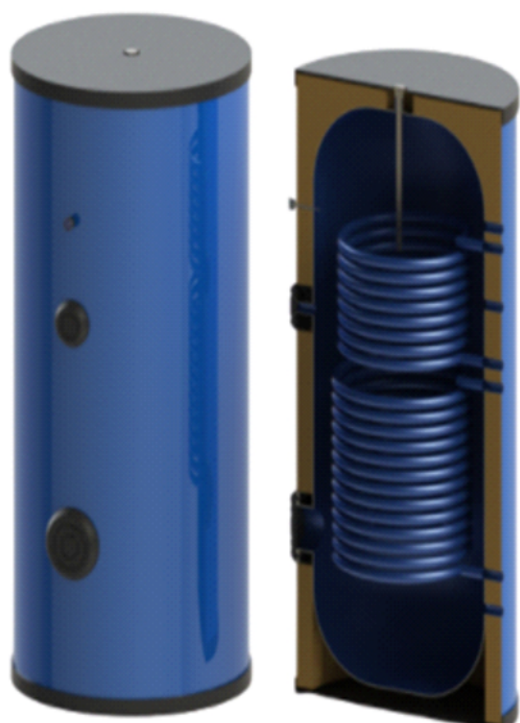


## MAX SINGLE SERPENTINE WATER HEATER

MODEL	CAPACITY LT	DIAMETER mm	HEIGHT mm	HEATER INLET-OUTLET	COLLECTOR INLET-OUTLET	COLD WATER INLET-OUTLET	CIRCULATION	SERPENTINE SURFACE	NET WEIGHT (Kg)
MAX100-1	100	485	1050	1"	1"	3/4"	3/4"	0,6	73
MAX160-1	160	585	1050	1 1/4"	1 1/4"	3/4"	3/4"	0,8	89
MAX200-1	200	585	1250	1 1/4"	1 1/4"	3/4"	3/4"	1,1	100
MAX350-1	350	750	1270	1 1/4"	1 1/4"	1"	1"	1,45	132
MAX500-1	500	750	1750	1 1/4"	1 1/4"	1"	1"	2,2	181
MAX600-1	600	750	1970	1 1/4"	1 1/4"	1"	1"	2,2	194
MAX800-1	800	900	2100	1 1/4"	1 1/4"	1 1/4"	1 1/4"	3,1	286
MAX1000-1	1000	1000	2130	1 1/4"	1 1/4"	1 1/4"	1 1/4"	3,1	352
MAX1500-1	1500	1120	2420	1 1/4"	1 1/4"	1 1/2"	1 1/2"	5	407
MAX2000-1	2000	1260	2450	1 1/4"	1 1/4"	1 1/2"	1 1/2"	5	537
MAX2500-1	2500	1460	2350	1 1/4"	1 1/4"	2"	2"	6,6	680
MAX3000-1	3000	1460	2750	1 1/4"	1 1/4"	2"	2"	7	810
MAX4000-1	4000	1660	2480	2"	2"	2 1/2"	2"	8,5	1190
MAX5000-1	5000	1660	2980	2"	2"	2 1/2"	2"	10	1370
MAX6000-1	6000	1660	3500	2"	2"	2 1/2"	2"	12	1545

## DOUBLE SERPENTINE WATER HEATER

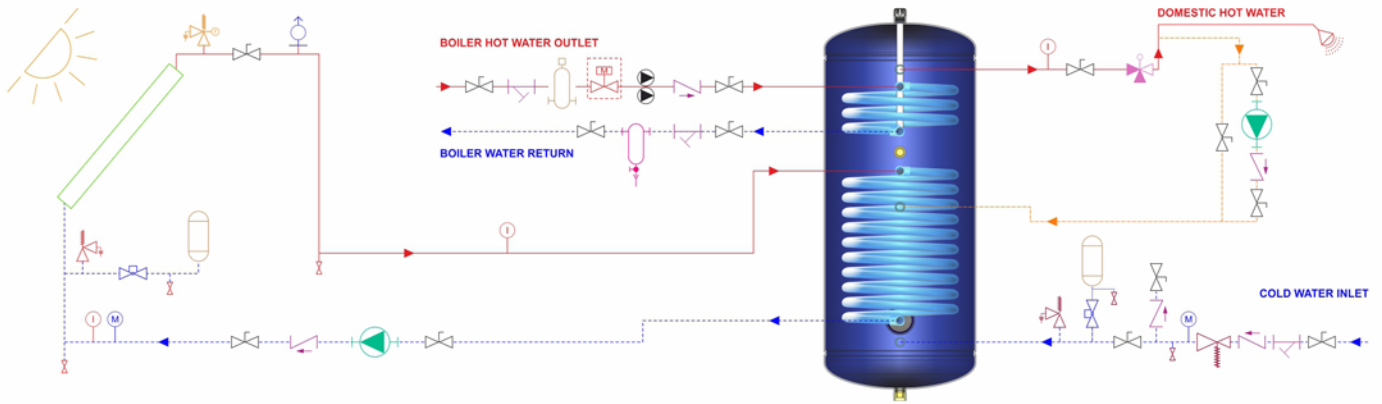
Double serpentine water heater are used where there are two heat sources (solar energy, boiler etc.). It is connected to the solar energy collector and the boiler. Heating is primarily carried out by solar energy collector, in cases where the temperature does not reach the set level, the boiler line is automatically activated. There are 2 inputs on it so that a thermometer and thermostat can be fitted.



- ✓ Capacity from 100 liters to 6000 liters
- ✓ Hygienic, due to the coating, Surfaces in contact with water are double enameled
- ✓ 50 mm thick polyurethane insulation from 100 liters to 600 liters, special sponge insulation from 800 liters to 6000 liters,
- ✓ Electrostatic powder painted cover on galvanized sheet from 100 liters to 600 liters,
- ✓ Special winlex cover from 800 liters to 6000 liters,
- ✓ Cathodic protection,
- ✓ High efficiency,
- ✓ Optionally, electrical resistance,
- ✓ Aesthetic appearance
- ✓ 10 bar operating pressure
- ✓ According to European standards (EN 12897)



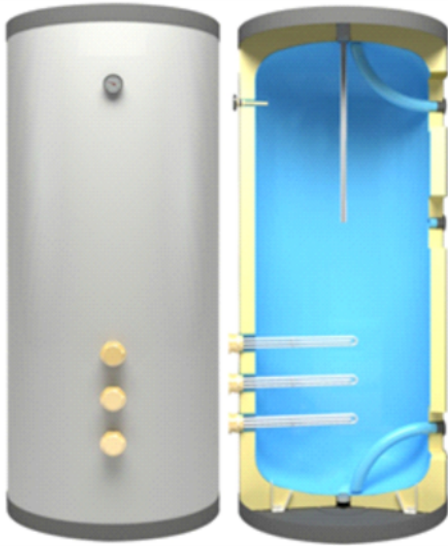




Double Serpentine Water Heater Connection Diagram

MAX DOUBLE SERPENTINE WATER HEATER										
MODEL	CAPACITY LT	DIAMETER mm	HEIGHT mm	HEATER INLET-OUTLET	COLLECTOR INLET-OUTLET	COLD WATER INLET-OUTLET	CIRCULATION	SERPENTINE SURFACE		NET WEIGHT (Kg)
								BOTTOM	TOP	
MAX160-2	160	585	1050	1 1/4"	1 1/4"	3/4"	3/4"	0,75	0,59	102
MAX200-2	200	585	1250	1 1/4"	1 1/4"	3/4"	3/4"	0,8	0,74	114
MAX350-2	350	750	1270	1 1/4"	1 1/4"	1"	1"	1,2	1	143
MAX500-2	500	750	1750	1 1/4"	1 1/4"	1"	1"	2,2	1,39	198
MAX600-2	600	750	1970	1 1/4"	1 1/4"	1"	1"	2,2	1,39	227
MAX800-2	800	900	2100	1 1/4"	1 1/4"	1 1/4"	1 1/4"	3,1	1,54	330
MAX1000-2	1000	1000	2130	1 1/4"	1 1/4"	1 1/4"	1 1/4"	3,1	1,54	390
MAX1500-2	1500	1120	2420	1 1/4"	1 1/4"	1 1/2"	1 1/2"	5	2,18	447
MAX2000-2	2000	1260	2450	1 1/4"	1 1/4"	1 1/2"	1 1/2"	5	2,18	582
MAX2500-2	2500	1460	2350	1 1/4"	1 1/4"	2"	2"	6,6	3,03	765
MAX3000-2	3000	1460	2750	1 1/4"	1 1/4"	2"	2"	7	3,4	895
MAX4000-2	4000	1660	2480	2"	2"	2 1/2"	2"	8,5	4,25	1250
MAX5000-2	5000	1660	2980	2"	2"	2 1/2"	2"	10	5,01	1440
MAX6000-2	6000	1660	3500	2"	2"	2 1/2"	2"	12	6	1645





## ELECTRICAL WATER HEATER

It is a type of water heater that works with electrical energy where there is no hot water source eg. heat pump, steam boiler, solar collector, hot water boiler etc.

Similar to serpentine heaters, enamel coating is used for hygien in electrical water heaters.

Electrical water heaters offer an effective and safe heating solution with fuse, safety, operating thermostat, switches and residual current relay in electrical panels.

- ✓ Capacity from 100 liters to 6000 liters
- ✓ Hygienic, due to the coating, Surfaces in contact with water are double enameled  
50 mm thick polyurethane insulation from 100 liters to 600 liters, special sponge insulation from 800 liters to 6000 liters,
- ✓ Electrostatic powder painted cover on galvanized sheet from 100 liters to 600 liters, Special winlex cover from 800 liters to 6000 liters,
- ✓ Cathodic protection, ✓ High efficiency, ✓ Stainless resistances ✓ Aesthetic appearance
- ✓ 10 bar operating pressure

### MAX ELECTRICAL WATER HEATER

MODEL	CAPACITY LT	DIAMETER mm	HEIGHT mm	COLD WATER INLET-OUTLET	HOT WATER INLET-OUTLET	CIRCULATION	NET WEIGHT (Kg)
MAX100-3	100	486	1100	3/4"	3/4"	3/4"	65
MAX160-3	160	586	1100	3/4"	3/4"	3/4"	74
MAX200-3	200	586	1300	3/4"	3/4"	3/4"	89
MAX350-3	350	756	1320	1"	1"	3/4"	156
MAX500-3	500	756	1770	1"	1"	3/4"	177
MAX600-3	600	756	2020	1"	1"	3/4"	194
MAX800-3	800	910	2150	1 1/4"	1 1/4"	1"	250
MAX1000-3	1000	1010	2180	1 1/4"	1 1/4"	1"	310
MAX1500-3	1500	1120	2470	1 1/2"	1 1/2"	1 1/4"	417
MAX2000-3	2000	1260	2500	1 1/2"	1 1/2"	1 1/4"	590
MAX2500-3	2500	1460	2350	2"	2"	1 1/2"	560
MAX3000-3	3000	1460	2700	2"	2"	1 1/2"	690
MAX4000-3	4000	1660	2480	2 1/2"	2 1/2"	2"	980
MAX5000-3	5000	1660	2980	2 1/2"	2 1/2"	2"	1140
MAX6000-3	6000	1660	3500	2 1/2"	2 1/2"	2"	1300

\* Heater selection is made according to customer demand.

\*\* The weight of the products varies according to the heater.



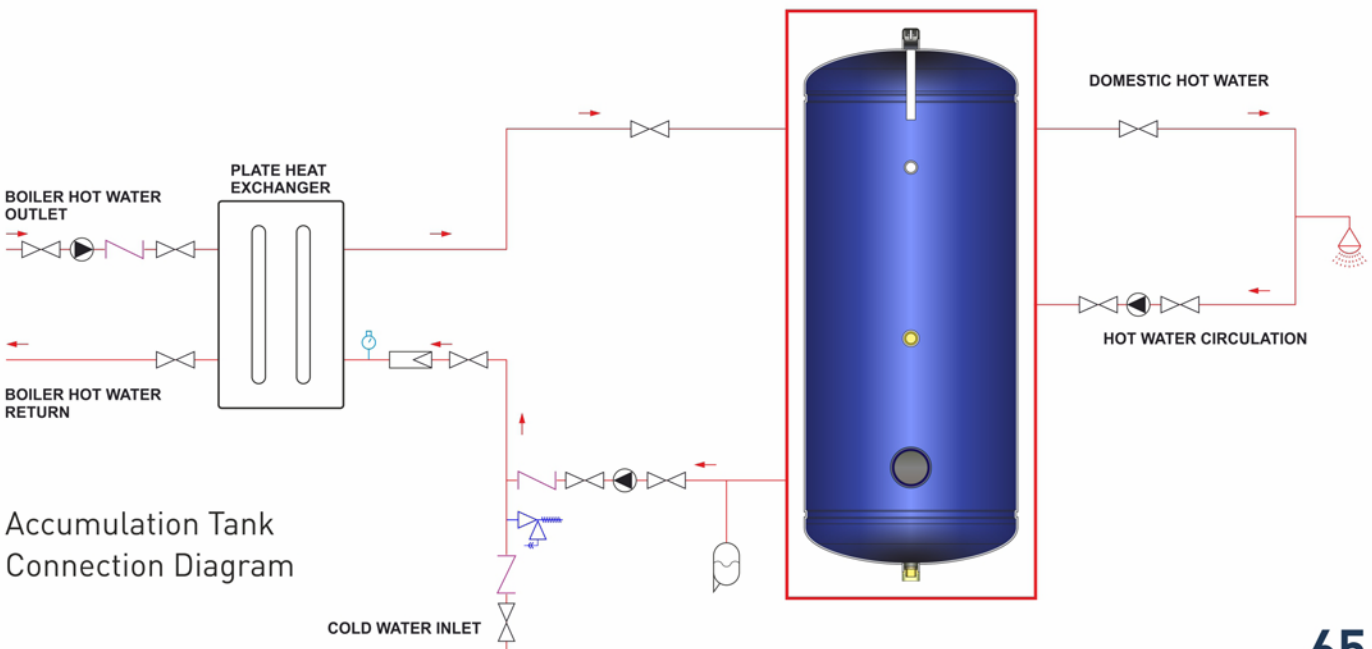
# ACCUMULATION TANK



Accumulation tanks, is a system that provides storage by heating the water in the tank with heat from various sources such as heat pumps or solar systems. Especially for high hot water needs where serpentine water heaters remain low, the use of an accumulation tank is one of the best solutions.

Accumulation tanks are manufactured as enameled or hot dip galvanized. Accumulation tanks get the highest efficiency from all heat sources. It extends the life of heating resources, as well as lowering high savings and heating costs. Utilizing solar energy and storing hot water reduces energy costs, especially in places that need hot water such as hotels. For this reason, consumers who want to benefit from solar energy have the opportunity to store hot water at high capacity thanks to the accumulation tanks.

- ✓ Capacity from 100 liters to 6000 liters
- ✓ Hygienic, due to the coating, Surfaces in contact with water are double enameled
  - 50 mm thick polyurethane insulation from 100 liters to 600 liters, special sponge insulation from 800 liters to 6000 liters,
- ✓ Electrostatic powder painted cover on galvanized sheet from 100 liters to 600 liters, Special winlex cover from 800 liters to 6000 liters,
- ✓ Cathodic protection, ✓ High efficiency, ✓ Optional electrical resistance,
- ✓ Aesthetic appearance
- ✓ 10 bar operating pressure



## MAX ACCUMULATION TANK

MODEL	CAPACITY LT	DIAMETER mm	HEIGHT mm	COLD WATER INLET-OUTLET	CIRCULATION	NET WEIGHT (Kg)
MAX100-4	100	485	1050	1"	-	60
MAX160-4	160	585	1050	1 1/4"	-	70
MAX200-4	200	585	1250	1 1/4"	-	83
MAX350-4	350	750	1270	1 1/4"	-	110
MAX500-4	500	750	1750	1 1/4"	-	145
MAX600-4	600	750	1970	1 1/4"	-	160
MAX800-4	800	900	2100	1 1/2"	1 1/4"	235
MAX1000-4	1000	1000	2130	2"	1 1/2"	300
MAX1500-4	1500	1120	2420	2 1/2"	1 1/2"	350
MAX2000-4	2000	1260	2450	2 1/2"	1 1/2"	470
MAX2500-4	2500	1460	2350	3"	2"	540
MAX3000-4	3000	1460	2750	3"	2"	640
MAX4000-4	4000	1660	2480	3"	2"	950
MAX5000-4	5000	1660	2980	3"	2"	1100
MAX6000-4	6000	1660	3500	3"	2"	1250

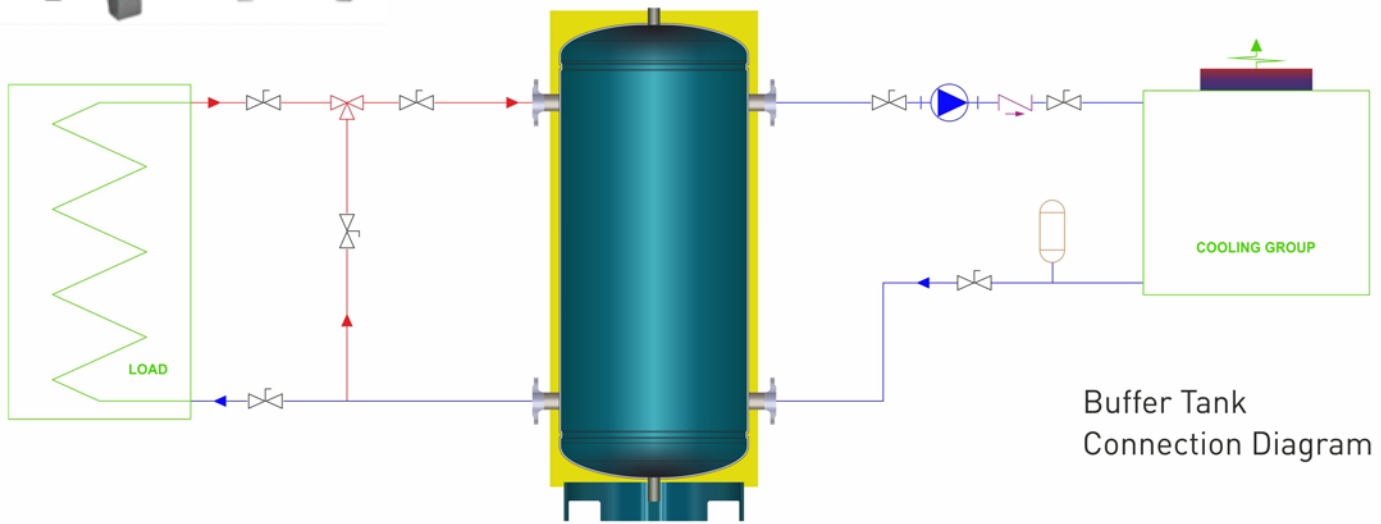


## BUFFER TANK

Buffer tank, is a pool system that stores heat to increase energy efficiency. It is recommended to use buffer tanks in the assembly of heat pumps among renewable energy systems. When the water inside is heated to the desired temperature by the heat pump, the buffer tank stores the energy (hot water) like a battery and supplies it to the system when needed. Energy loss is at minimum level since high insulation is used in buffer tanks.



- ✓ Capacity from 100 liters to 6000 liters
- ✓ There is no internal coating, black sheet is applied.
- ✓ 50 mm thick polyurethane insulation from 100 liters to 600 liters, special sponge insulation from 800 liters to 6000 liters,
- ✓ Electrostatic powder painted cover on galvanized sheet from 100 liters to 600 liters, Special winlex cover from 800 liters to 6000 liters,
- ✓ High efficiency, ✓ Aesthetic appearance
- ✓ 10 bar operating pressure



MAX BUFFER TANKS							
MODEL	CAPACITY LT	DIAMETER mm	HEIGHT mm	PRIMER & SECONDER INLET OUTLET ( " / DN )	DRAIN	AIR RELIEF	NET WEIGHT (Kg)
MAX100-5	100	490	1070	1 1/2"	1 1/4"	1 1/4"	50
MAX300-5	300	590	1840	2"	1 1/2"	1 1/4"	85
MAX500-5	500	750	1750	2 1/2"	1 1/2"	1 1/4"	140
MAX800-5	800	1010	1700	DN 80	2"	1 1/4"	370
MAX1000-5	1000	1010	2050	DN 100	2"	1 1/4"	470
MAX1500-5	1500	1120	2300	DN 125	2"	1 1/4"	750
MAX2000-5	2000	1260	2350	DN 125	2"	1 1/4"	850
MAX2500-5	2500	1460	2170	DN 150	2 1/2"	1 1/4"	1200
MAX3000-5	3000	1460	2510	DN 150	2 1/2"	1 1/4"	1260
MAX4000-5	4000	1710	2500	DN 200	2 1/2"	1 1/4"	1775
MAX5000-5	5000	1710	3000	DN 200	2 1/2"	1 1/4"	1895





EXPANSION  
TANKS

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## EXPANSION TANKS (VESSELS)

Expansion tanks used to balance the water volume in central heating and cooling systems due to the temperature changes of the water. Maxwor Expansion Tanks can be produced in three different pressure classes as 10, 16 and 25 bar.

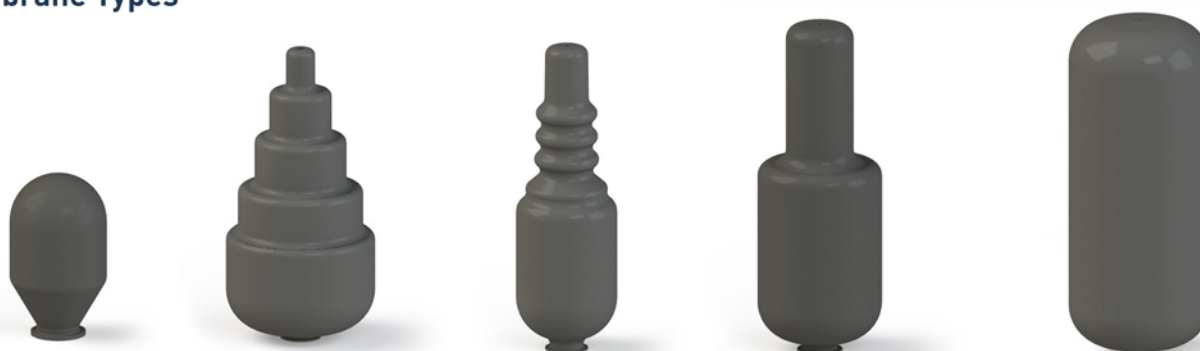
- ✓ Our expansion tanks are suitable for use in drinking and utility water systems.
- ✓ It can be used in central heating and cooling systems.
- ✓ Replaceable EPDM or BUTYL membrane
- ✓ Standard colour is red but the colours can be changed with customer requests.
- ✓ Specially manufactured AISI304, AISI316 tanks between 24LT-5000LT for food systems

### 10 BAR CLOSED EXPANSION VESSELS without FOOTLESS

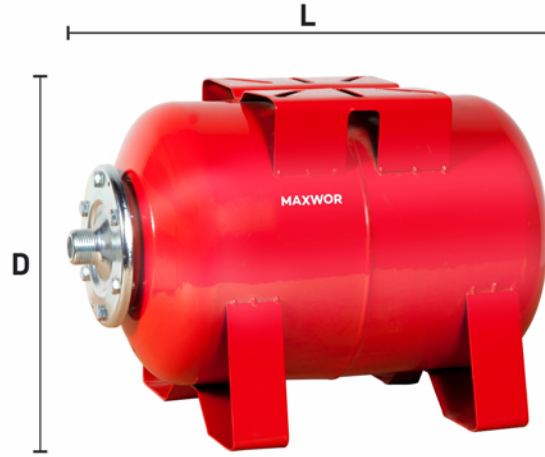


MODEL	VOLUME (LT)	PRE-CHARGE PRESSURE	CONNECTION	DIMENSIONS (MM)		MEMBRANE
				Height (H)	Diameter (D)	
MG 10 V	8	2	1"	320	220	EPDM
MG 10 V	12	2	1"	380	220	EPDM
MG 10 V	19	2	1"	430	280	EPDM
MG 10 V	24	2	1"	470	280	EPDM
MG 10 V	24 Sphere	2	1"	325	360	EPDM
MG 10 V	35	2	1"	470	380	EPDM
MG 10 V	50	4	1"	560	380	EPDM

### Membrane Types



## 10 BAR HORIZONTAL CLOSED EXPANSION VESSELS



MODEL	VOLUME (LT)	PRE-CHARGE PRESSURE	CONNECTION	DIMENSIONS (MM)		MEMBRANE
				Height (L)	Diameter (D)	
MG 10 H	24	2	1"	470	280	EPDM
MG 10 H	50	4	1"	620	380	EPDM
MG 10 H	60	4	1"	670	380	EPDM
MG 10 H	80	4	1"	720	430	EPDM
MG 10 H	100	4	1"	800	460	EPDM





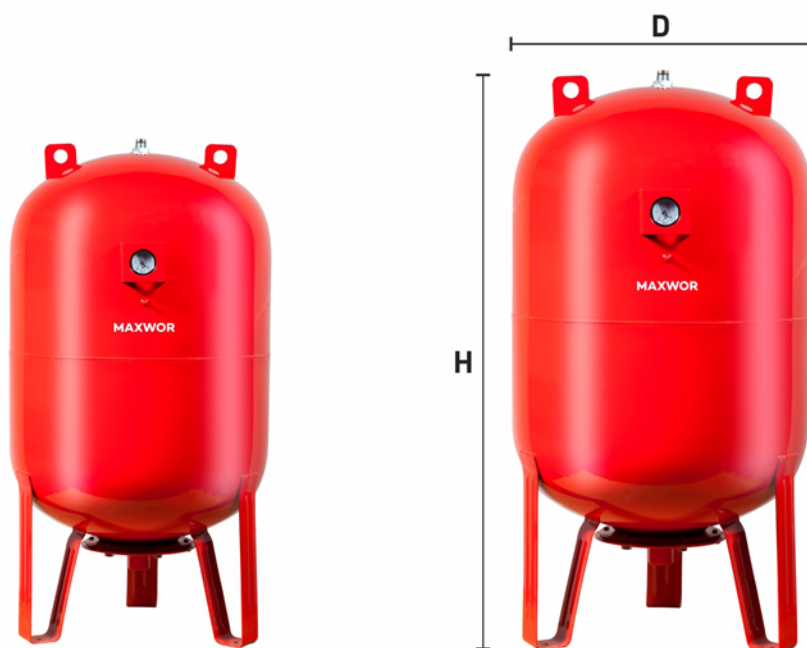
## 10 BAR VERTICAL EXPANSION VESSELS



MODEL	VOLUME (LT)	PRE-CHARGE PRESSURE	CONNECTION	DIMENSION (MM)		MEMBRANE
				Height (H)	Diameter (D)	
MG 10	50	4	1"	750	380	EPDM
MG 10	60	4	1"	810	380	EPDM
MG 10	80	4	1"	960	430	EPDM
MG 10	100	4	1"	990	460	EPDM
MG 10	150	4	1"	1100	500	EPDM
MG 10	200	4	1 - 1/4"	1120	590	EPDM
MG 10	300	4	1 - 1/4"	1230	640	EPDM
MG 10	500	4	1 - 1/4"	1550	750	EPDM
MG 10	750	4	2"	1950	750	EPDM
MG 10	750	4	2"	1850	800	EPDM
MG 10	900	4	2"	1950	800	EPDM
MG 10	1000	4	2"	2180	800	EPDM
MG 10	1500	4	2"	2380	960	EPDM
MG 10	2000	4	2"	2520	1100	EPDM
MG 10	3000	4	2 - 1/2"	2800	1200	BUTYL
MG 10	4000	4	3"	3100	1450	BUTYL
MG 10	5000	4	3"	3720	1450	BUTYL
MG 10	10000	4	Dn100	5750	1600	BUTYL



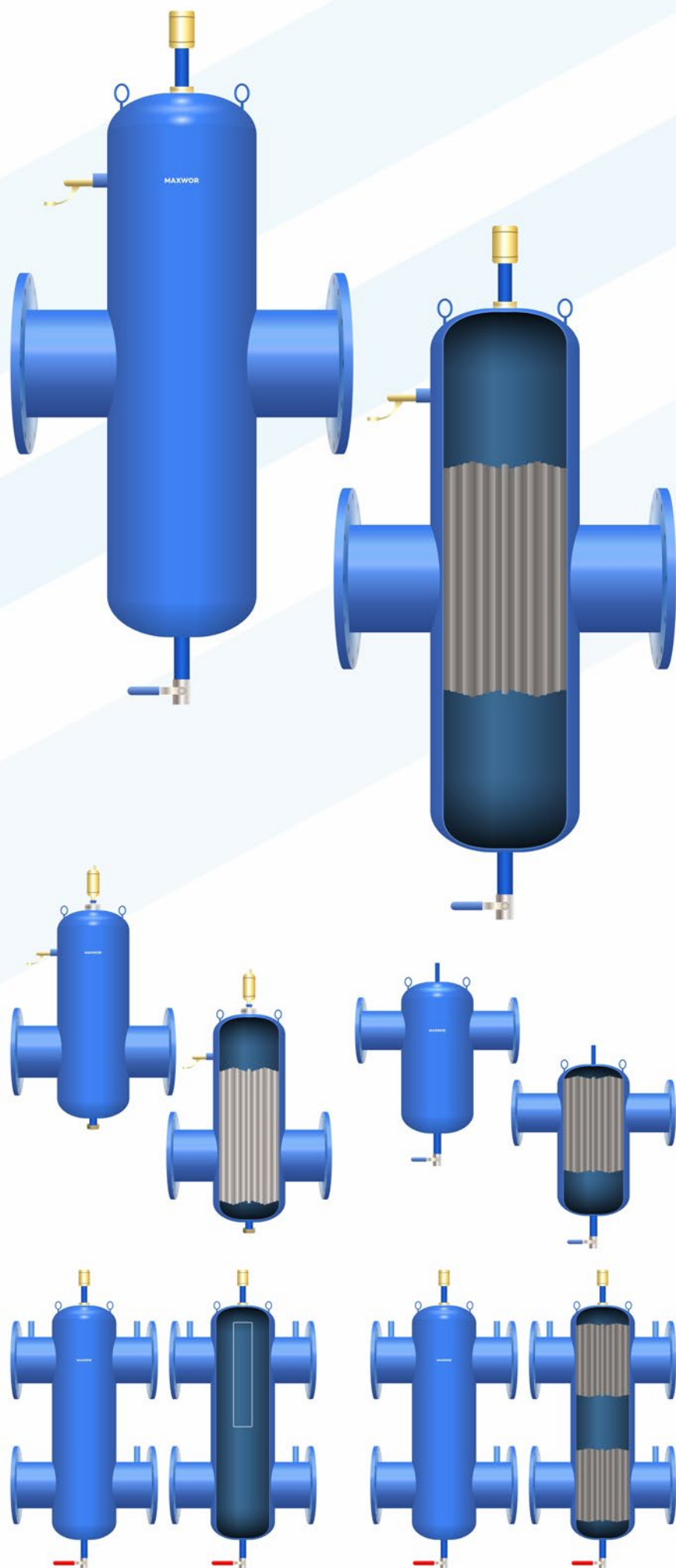
## 16 BAR VERTICAL EXPANSION VESSELS



MODEL	VOLUME (LT)	PRE-CHARGE PRESSURE	CONNECTION	DIMENSIONS (MM)		MEMBRANE
				Height (H)	Diameter (D)	
MG 16	50	4	1"	750	380	EPDM
MG 16	60	4	1"	810	380	EPDM
MG 16	80	4	1"	960	430	EPDM
MG 16	100	4	1"	990	460	EPDM
MG 16	150	4	1"	1100	500	EPDM
MG 16	200	4	1 - 1/4"	1120	590	EPDM
MG 16	300	4	1 - 1/4"	1230	640	EPDM
MG 16	500	4	1 - 1/4"	1550	750	EPDM
MG 16	750	4	2"	1850	800	EPDM
MG 16	900	4	2"	1950	800	EPDM
MG 16	1000	4	2"	2180	800	EPDM
MG 16	1500	4	2"	2380	960	EPDM
MG 16	2000	4	2"	2520	1100	EPDM
MG 16	3000	4	2 - 1/2"	2800	1200	BUTYL
MG 16	4000	4	31	3100	1450	BUTYL
MG 16	5000	4	3"	3720	1450	BUTYL
MG 16	10000	4	Dn100	5750	1600	BUTYL



# SEPARATOR VESSELS

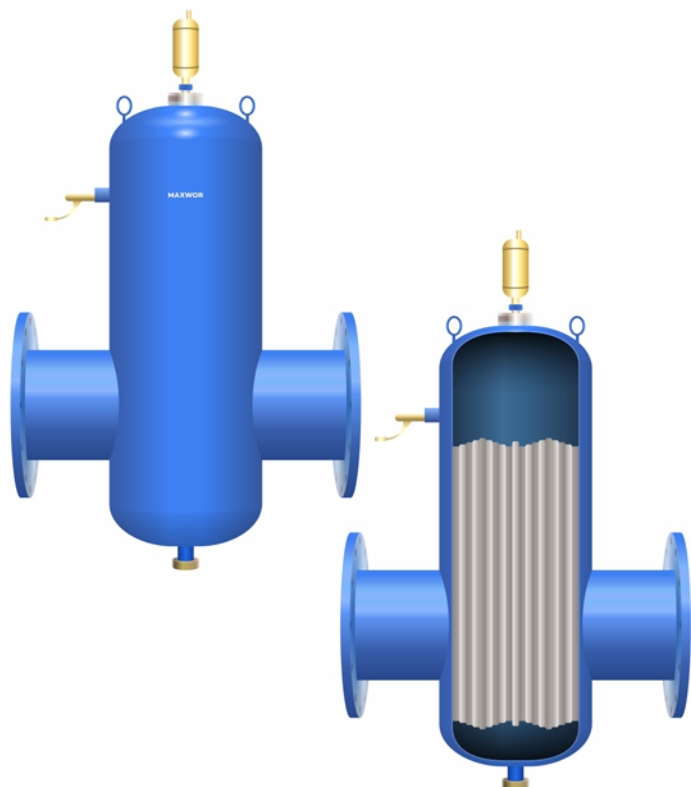


- ✓ AIR SEPARATOR
- ✓ DIRT SEPARATOR
- ✓ AIR AND DIRT SEPARATOR
- ✓ BALANCE TANK
- ✓ PACKAGE BALANCE TANK

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## AIR SEPARATOR



Oxygen dissolved in water; is released when its temperature increases under pressure and creates air bubbles in the water. Air bubbles cause corrosion in heating systems and all plumbing pipes, and cavitation in pumps and plumbing. Bubbles adhering to heat transfer surfaces decrease heat permeability and result in loss of efficiency. It causes malfunctions in pumps and other armatures, disturbing noises in plumbing pipes and especially in radiators.

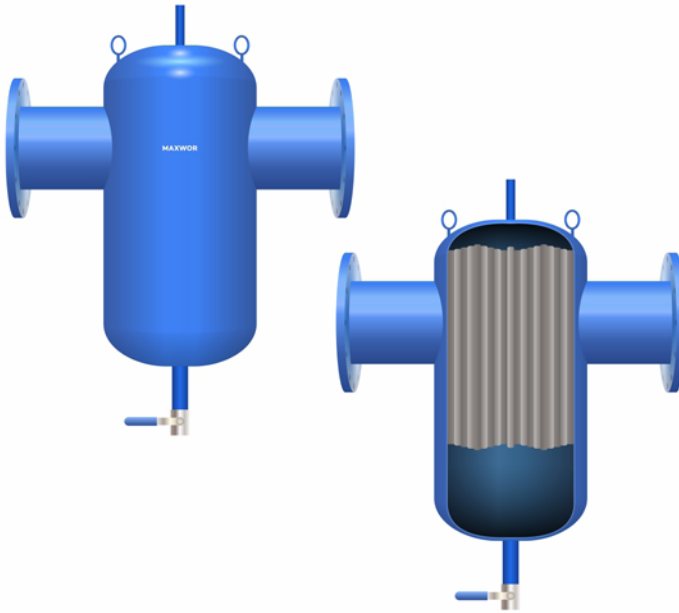
The Air Separator collects the air bubbles in the water on the surface of the specially designed metal filling material and throws them out. Thus, problems occurring in the installation and heat transfer equipment are prevented, and the system works properly.

MHA - AIR SEPARATOR			
MODEL	CONNECTION DN	DIAMETER QD	HEIGHT H (mm)
MHA-25	25	100	300
MHA-32	32	125	310
MHA-40	40	125	310
MHA-50	50	150	320
MHA-65	65	150	420
MHA-80	80	200	490
MHA-100	100	200	490
MHA-125	125	250	630
MHA-150	150	300	680
MHA-200	200	400	700
MHA-250	250	500	1030
MHA-300	300	600	1320

- Body : St 37.2 Carbon Steel
- Air Separator : AISI 304 Stainless Steel
- Max. Working Pressure : 16 Bar
- Max. Working Temperature : 100°C
- Connection Type : Threaded / Flanged



## DIRT SEPARATOR



Sediment and dirt in the water causes wear, low efficiency and malfunctions in heating and cooling installations, pumps and other armatures. Cleaning and maintenance can not be done easily by the user in conventional type strainers, so cleaning is often neglected. This negligence leads to problems such as clogging of the filters and inefficient operation of the system and consequently, not being able to heat sufficiently.

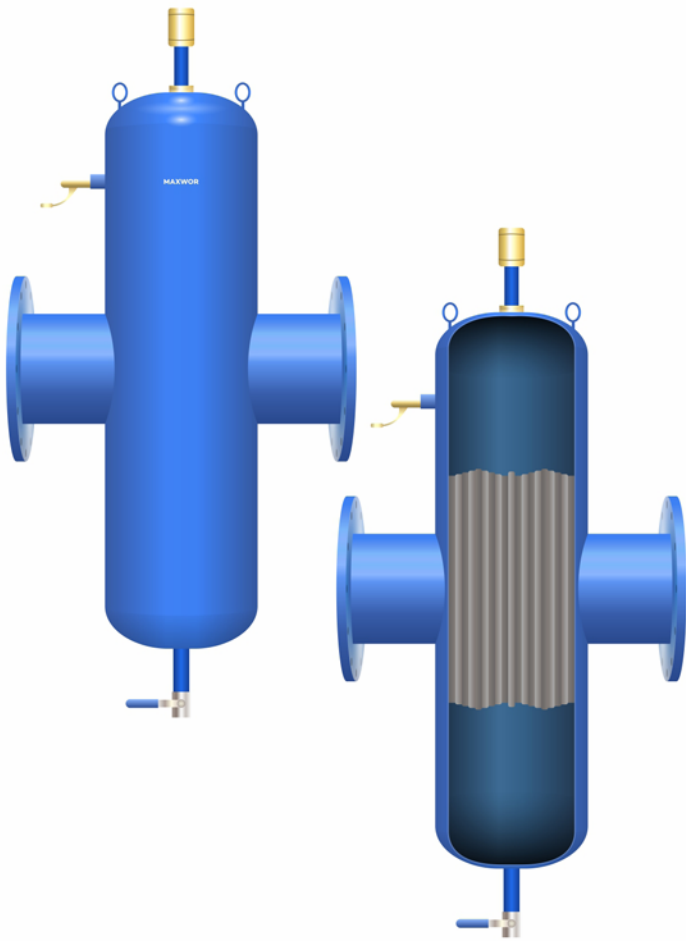
**Note:** A drain valve must be used for the system to operate properly and efficiently.

MTT - DIRT SEPARATOR			
MODEL	CONNECTION DN	DIAMETER QD	HEIGHT H (mm)
MTT-25	25	100	300
MTT-32	32	125	310
MTT-40	40	125	310
MTT-50	50	150	320
MTT-65	65	150	420
MTT-80	80	200	490
MTT-100	100	200	490
MTT-125	125	250	630
MTT-150	150	300	680
MTT-200	200	400	840
MTT-250	250	500	1030
MTT-300	300	600	1320

Body : St 37.2 Carbon Steel  
 Air Separator : AISI 304 Stainless Steel  
 Max. Working Pressure : 16 Bar  
 Max. Working Temperature : 100°C  
 Connection Type : Threaded / Flanged



## AIR AND DIRT SEPARATOR



Sediment and dirt in the water causes wear, low efficiency and malfunctions in heating and cooling installations, pumps and other armatures. Cleaning and maintenance can not be done easily by the user in conventional type strainers, so cleaning is often neglected. This negligence leads to problems such as clogging of the filters and inefficient operation of the system and, consequently, not being able to heat sufficiently.

Body : St 37.2 Carbon Steel  
 Air Separator : AISI 304 Stainless Steel

Max. Working : 16 Bar  
 Pressure

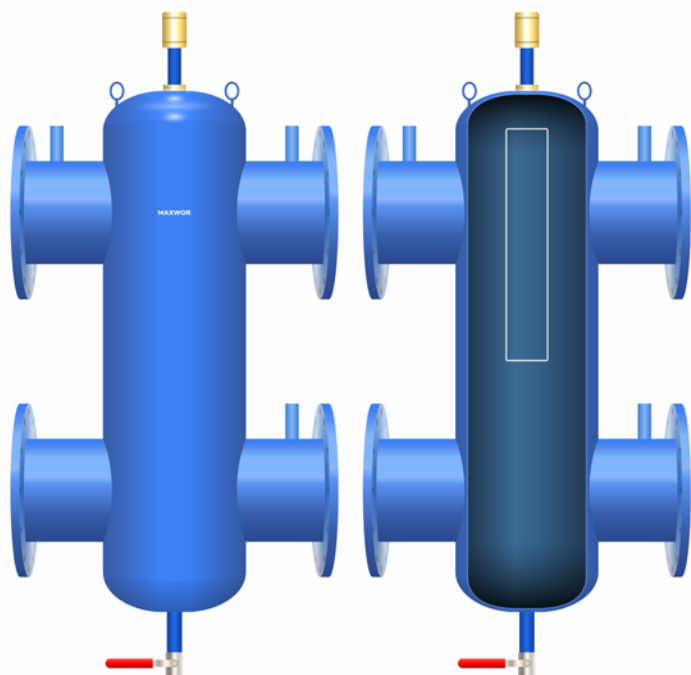
Max. Working : 100°C  
 Temperature

Connection Type : Threaded / Flanged

MPH - AIR AND DIRT SEPARATOR			
MODEL	CONNECTION DN	DIAMETER QD	HEIGHT H (mm)
MPH-25	25	100	300
MPH-32	32	125	310
MPH-40	40	125	310
MPH-50	50	150	320
MPH-65	65	150	420
MPH-80	80	200	490
MPH-100	100	200	490
MPH-125	125	250	610
MPH-150	150	300	675
MPH-200	200	400	750
MPH-250	250	500	1030
MPH-300	300	600	1320



## BALANCE TANK



The fluid loses heat as it returns from the installation to the boiler. This causes thermal stresses in the boiler. The main task of the balance tank is to ensure the thermal balance by mixing the cooled water coming from the installation with the water coming from the boiler. Temperature can be controlled with the sensor attached on it.

**Note:** A drain valve must be used for the system to operate properly and efficiently.

Body : St 37.2 Carbon Steel

Max. Working : 16 Bar  
Pressure

Max. Working : 100°C  
Temperature

Connection : Flanged / Welded End

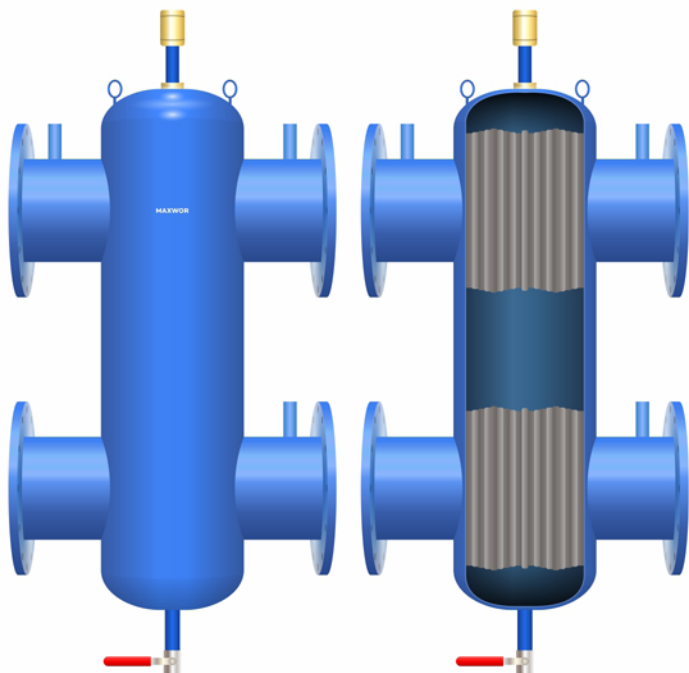
### Balance Tank Selection:

- ✓ When dimensioning, the max. heating water flow should be based.
- ✓ The water flow in the hydraulic balance tank is max. sizing should be done to 0.2 m / s.
- ✓ The pump on the primary side must be selected to overcome the resistance of the boiler and the primary side installation. The pump on the secondary side must be selected to overcome the resistances of the secondary side installation. All heating circuits on the secondary side must have separate pumps. The resistance of the balance tank is negligible.
- ✓ The flow temperature is measured by a sensor, which is welded to the secondary side, through the hydraulic equilibrium vessel.

MDK - BALANCE TANK							
MODEL	CONNECTION DN	DIAMETER QD	HEIGHT H (mm)	LENGTH BETWEEN CONNECTION H (mm)	FLOW M <sup>3</sup> /H	CAPACITY KW	CAPACITY Kcal
MDK-25	25	65	450	280	1	20	12.200
MDK-32	32	65	450	270	1,7	29	24.940
MDK-40	40	80	480	320	2,5	43	36.980
MDK-50	50	100	600	350	4	70	60.200
MDK-65	65	150	720	400	8	140	120.400
MDK-80	80	200	940	500	12	12	180.600
MDK-100	100	200	940	500	20	350	301.000
MDK-125	125	250	1160	600	32	550	473.000
MDK-150	150	300	1380	700	52	900	774.000
MDK-200	200	400	1840	1000	100	1750	1.505.000
MDK-250	250	500	2130	1250	185	3250	2.795.000
MDK-300	300	600	2420	1660	300	5250	4.515.000



## PACKAGE BALANCE TANK



Thanks to a magnificent hydraulic balancing, an efficient operation is provided in systems where more than one or cooling group is used and multi-pump systems. Beside the hydraulic balance, it is very important to separate the air and sediment in the system. With a single product, hydraulic balance, residue and air separation can be achieved together. In this way, 4 installation connections will be sufficient instead of 8 connections. It provides an advantage in terms of both initial investment and assembly & labor costs.

Package balance tank should be placed between the primary circuit and the secondary circuit. This point is also an ideal place for air separators and dirt separator.

### Advantages

- ✓ Package balance tank is a stand-alone function for all three of the air separator, hydraulic equilibrium and sediment retention devices.
- ✓ The use of the package balance tank prevents hydraulic imbalance.
- ✓ Prevents overloading of pumps and damage caused by this load.
- ✓ Significantly improved heat transfer ensures more qualified output in the automation system.

The package balance tank must be placed between the primary circuit and the secondary circuit. This point is also an ideal place for the air separator and sediment retainer.

Body : St 37.2 Carbon Steel      Max. Working Pressure : 16 Bar  
 Connection : Flanged / Welded End      Max. Working Temperature : 100°C

MPD - PACKAGE BALANCE TANK							
MODEL	CONNECTION DN	DIAMETER QD	HEIGHT H (mm)	LENGTH BETWEEN CONNECTION H (mm)	FLOW M <sup>3</sup> /H	CAPACITY KW	CAPACITY Kcal
MPD-25	25	65	450	280	1	20	12.200
MPD-32	32	65	450	270	1,7	29	24.940
MPD-40	40	80	480	320	2,5	43	36.980
MPD-50	50	100	600	350	4	70	60.200
MPD-65	65	150	720	400	8	140	120.400
MPD-80	80	200	940	500	12	12	180.600
MPD-100	100	200	940	500	20	350	301.000
MPD-125	125	250	1160	600	32	550	473.000
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MPD-200	200	400	1840	1000	100	1750	1.505.000
MPD-250	250	500	2130	1250	185	3250	2.795.000
MPD-300	300	600	2420	1660	300	5250	4.515.000





The background of the entire page is a photograph of an industrial facility, likely a refinery or chemical plant. It features several tall, vertical distillation columns or towers, each equipped with multiple levels of red metal ladders and platforms. The columns are interconnected by a complex network of yellow and blue pipes. The sky is a pale, overcast blue. In the foreground, a large, horizontal silver metal pipe is visible, curving slightly to the right.

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