

The use of stainless steel has had an exponential growth in the last years. New market demands, hygienic requirements in food industry and the applications in oxidizing environments require an higher and higher employment of stainless materials.

## X series

From the beginning UNIMEC has been able to supply its products in stainless steel for its customers. Anyway, realizing those components meant long manufacturing times. For the most requested products and sizes UNIMEC is now able to propose a complete series: the X series. This choice gives multiple advantages: on the one hand a shortening of the delivery times as the components are all available on stock, on the other hand the manufacturing allows to obtain quite interesting costs, because it starts from the row casted pieces.





## THE X SERIES

The X series is composed by trapezoidal screw jacks and bevel gearboxes. The material used for the manufacturing of the stainless components is steel type AISI 316. It corresponds to the following European norms: X5 CrNiMo 17-12-2 (UNI EN 10088-1:2005) for laminates and X5 CrNiMo 19-11-2 (UNI EN 10283:2000) for casting.

The main feature of an AISI 316 steel is its high resistance to corrosion, above all in the sea and food environments, where AISI 304 seems to have some problems. The table below lists a series of substances which are normally critical for common type steels and puts in evidence the AISI 316 resistance as compared to the AISI 304 one.

A stainless steel yield point is lower than the typical C45 values of about 30%. Thus, in order to keep the same safety coefficient used to effect the calculations on screw jacks and bevel gearboxes, it is necessary to multiply the limit load by 0,7 in case they are referred to a stainless steel component with respect to a different type of steel. The only exception to this rule is the verification at the buckling load for thin long spindles: in this case the limit load is only the function of the elastic module, and the difference between the AISI 316 and the C45 values is only 5%.

## X TYPE SCREW JACKS

Screw jacks belonging to the X series are sizes 204, 306, 407, in all the construction models.

The components made of stainless steel are casings, bushings, covers, motor flanges, spindles and all end fittings. Even the accessories are all made of AISI 316 steel or they are compatible with the X series; the only exception are TPR models with over-size spindle and the AR anti-rotation system with grooved spindle.

The only component which is manufactured in non stainless steel is the worm screw. In case the screw tangs are exposed to oxidizing agents it is possible, on demand, to protect them by means of the Niploy treatment which has been described at the end of the trapezoidal screw jacks chapter.

## X TYPE BEVEL GEARBOXES

Gear boxes belonging to the X series are sizes 86, 110, 134 in all construction models.

The components made of stainless steel are casings, hubs, covers, motor flanges, and all the hollow as well as the protruding shafts.



	AISI 304	AISI 316		AISI 304	AISI 316
Acetylene	●	●	10% Zinc chloride	●	●
Vinegar	●	●	Sulphur chloride	●	●
Vinegar (vapours)	●	●	Coke	●	●
100 °C acetone	●	●	Ether	●	●
20% acetic acid	●	●	Formaldehyde	●	●
5% boric acid	●	●	10% Ammonium phosphate	●	●
5% butyric acid	●	●	Sodium phosphate	●	●
Hydrocyanic acid	●	●	Furan	●	●
5% citric acid	●	●	Chlorine gas	●	●
Hydrochloric acid	●	●	Coke-oven-gas	●	●
5% chromic acid	●	●	Gelatine	●	●
Hydrofluoric acid	●	●	Glycerol	●	●
5% Phosphoric acid	●	●	Ethyl glycol	●	●
5% lactic acid	●	●	Glucose	●	●
100% linoleic acid	●	●	Lac	●	●
40% malic acid	●	●	40% Ammonium hydroxide	●	●
Muriatic acid	●	●	10% calcium hydroxide	●	●
10% nitric acid	●	●	10% magnesium hydroxide	●	●
100% oleic acid	●	●	50% potassium hydroxide	●	●
5% oxalic acid	●	●	20% sodium hydroxide	●	●
Picric acid	●	●	Calcium hypochlorite	●	●
100% hydrogen sulphide	●	●	Sodium hypochlorite	●	●
5% sulphuric acid	●	●	Milk	●	●
100% sulphurous acid	●	●	Yeast	●	●
100% stearic acid	●	●	Mayonnaise	●	●
100% tartaric acid	●	●	Molasses	●	●
Fresh water	●	●	Mustard	●	●
Salt water	●	●	50% ammonium nitrate	●	●
30% hydrogen peroxide	●	●	40% sodium nitrate	●	●
Oil of turpentine	●	●	Medicinal oil	●	●
Ethyl alcohol	●	●	Vegetable oil	●	●
Methyl alcohol	●	●	Paraffin	●	●
Molten aluminium	●	●	10% sodium perborate	●	●
Ammonia	●	●	10% hydrogen peroxide	●	●
Acetic anhydride	●	●	10% sodium peroxide	●	●
Carbon dioxide	●	●	Molten lead	●	●
90% sulphur dioxide	●	●	Propane	●	●
Aniline	●	●	Soap	●	●
Tanning baths	●	●	Sugar syrup	●	●
Chrome plating baths	●	●	Milk serum	●	●
Photo fixing baths	●	●	Sodium silicate	●	●
Photo developing baths	●	●	10% aluminium sulphate	●	●
Gasoline	●	●	10% ammonium sulphate	●	●
Benzene	●	●	10% ferric sulphate	●	●
Sodium bicarbonate	●	●	40% ferrous sulphate	●	●
Beer	●	●	40% magnesium sulphate	●	●
15% sodium bisulphate	●	●	30% nickel sulphate	●	●
Carbon bisulphide	●	●	10% potassium sulphate	●	●
5% borax	●	●	10% copper sulphate	●	●
Butane	●	●	10% sodium sulphate	●	●
Coffee	●	●	10% zinc sulphate	●	●
Bleaching	●	●	10% sodium sulphide	●	●
Camphor	●	●	Orange juices	●	●
5% sodium carbonate	●	●	Lemon juices	●	●
Sodium citrate	●	●	Carbon tetrachloride	●	●
Chloroform	●	●	60% sodium thiosulfate	●	●
1% ammonium chloride	●	●	Toluene	●	●
50% ferric chloride	●	●	Trichloroethylene	●	●
20% ferrous chloride	●	●	Varnishes	●	●
20% Magnesium chloride	●	●	Wine	●	●
10% mercuric chloride	●	●	Whisky	●	●
30% nickel chloride	●	●	Molten zinc	●	●
5% potassium chloride	●	●	Molten sulphur	●	●
5% sodium chloride	●	●			

- Optimum resistance
- Medium resistance
- Bad resistance