

TMXFLOW[®]
let it flow

Product Catalogue | **TSX Twin
Screw Pumps**



KEY USES

The TSX Twin Screw Pump is a positive displacement pump engineered to meet the highest hygienic standards. Designed for demanding applications in the food, dairy, beverage, cosmetics, pharmaceutical, chemical, and personal care industries, it ensures safe, smooth, and reliable product transfer across a wide range of process conditions.

Its axial, uniform, and nearly pulsation-free flow preserves the physical structure of shear-sensitive materials, making it ideal for handling delicate products such as fruit pieces, curd, suspensions, and crystallized formulations without causing damage or quality loss.

Design and Features

Stainless steel body and cover: AISI 316 stainless steel is used as the pump body (casing) and front cover (seal housing).

Rotor design: The twin-screw rotor design separates the volumes in contact with the product into closed chambers thanks to the precise gaps between the two screws.

Hygienic mechanical seal: The TSX Twin Screw Pump is available with single or double mechanical seal options.

Easy maintenance: CIP compatibility enables cleaning and sterilization without dismantling the pump line.

Material options: AISI 316 stainless steel is standard for all parts that come into contact with the product. conditions.

Materials

Pump Casing: AISI 316

Screws, Front Cover, Seal Housing: AISI 316

Inside Surface Finish: $Ra \leq 0.8$

Gear Box: Stainless Steel / Cast Steel

Base Plate: Stainless Steel

Product Wetted Elastomers: FKM

Other Elastomers: FKM

Shaft Seal: Single/Double

Rotary Seal Face: Silicon Carbide / Tungsten

Stationary Seal Face: Silicon Carbide / Tungsten

Operating

The TSX Twin Screw Pump works on the positive displacement principle, transferring a fixed volume of product based on the speed and pitch of the screws. As the screws rotate, they create closed chambers that move axially, forming vacuum at the inlet and pressure at the outlet.

Operating Limits

- Maximum flow: 110m³/h
- Maximum working pressure: 12 bar
- Temperature range: -40°C to 150°C
- Max CIP temperature: 150°C
- Max Speed: 3500rpm / 60hz

Weight

Model	Weight
TSX 1	47 kg
TSX 2	85 kg
TSX 3	235 kg

Operating Data

Model		max(m ³ /h)	Volume Lt./100 rpm	Max Bar	Max Speed 60hz (rpm)
TSX 0-N		4,32	0,20	12bar	3600
TSX 0-M		5,61	0,26	12bar	3600
TSX 0-L		8,64	0,40	12bar	3600
TSX 1-N		17,82	0,82	10bar	3600
TSX 1-M		24,84	1,11	10bar	3600
TSX 1-L		35,64	1,65	10bar	3600
TSX 2-N		27,64	1,28	10bar	3600
TSX 2-M		34,56	1,60	10bar	3600
TSX 2-L		69,12	3,20	10bar	3600
TSX 3-N		79	3,66	8bar	3600
TSX 3-M		132,84	6,15	8bar	3600
TSX 3-L		197,64	9,15	8bar	3600

SCREWS

THE IMPORTANCE OF SELECTING THE RIGHT SCREW FOR A TWIN-SCREW PUMP

The effective and reliable operation of a twin-screw pump depends not only on the pump design itself, but also on selecting the correct screw geometry / configuration for the intended application. The screw geometry including screw type, pitch, clearance and structural design is a key factor that determines flow behavior, solids or particle handling capacity, suction performance, and product integrity.

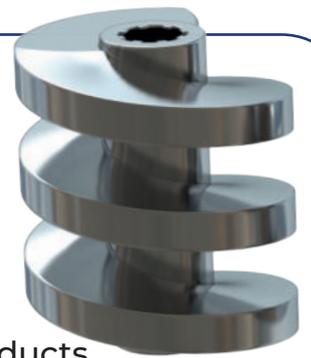
N SCREW

If there are particles/solid content in the liquid large particles may be damaged or the pump may become clogged while passing through this narrow channel.

Why Suitable: The narrow screw gap and tight channel geometry ensure minimal slip during flow and good volumetric efficiency. This is particularly advantageous for volumetric accuracy, low loss, and smooth flow in sensitive products.

Advantages:

- Very smooth, pulsation-free flow—when high precision is required.
- Efficient operation in low/medium viscosity liquids; smooth volume control dependent on pump speed.
- If particles are absent, the narrow spacing ensures efficient transfer without increasing the risk of contamination or clogging.



M SCREW

Food, cosmetics, and chemical applications include fruit-based sauces, cream-based products, protein-rich dairy products, and more.

Why Suitable: The medium-width channel allows for both fluid viscosity and particle content tolerance; volumetric transfer remains efficient.

Advantages:

- Provides a stable and uninterrupted flow for medium-viscosity materials—cream, sauces, and various food processing fluids.
- In products with light particles, the likelihood of particle transport is increased, and the risk of clogging is reduced compared to narrow spacing.
- The pump offers flexibility for both low-viscosity liquids and medium-viscosity products.



L SCREW

Suitable for use in food (fruit jam, fruit puree, sauces with solid particles), chemicals (polymer pastes, resins), and cosmetics (granulated gels, creams with particles), etc.

The wide screw gap and larger channel allow for high-viscosity fluids and/or large particles, reducing the risk of clogging or shearing.

Advantages:

- Suitable for conveying large-particle or highly viscous products.
- Passage of particles without damage—this is especially critical for fruit particles, pulpy ingredients, solid-liquid mixtures, etc.
- Low shear force—maintains texture/structure in shear-sensitive products.
- Stable performance in large volume requirements or high-density flows.



APPLICATION AREAS & INDUSTRY SOLUTIONS

FOOD & BEVERAGE



The TSX Twin Screw Pump ensures product integrity and smooth flow for dairy products including milk, cream, yogurt, butter, and curd.

Its screw design allows delicate and particulate-containing products such as curd or fruit pieces in sauces to be pumped without damage or texture deformation.

With full CIP/SIP compatibility, it meets the strict hygienic requirements of dairy, chocolate, syrup, and brewery applications.

COSMETIC APPLICATIONS



The TSX Twin Screw Pump is designed to provide gentle, precise, and hygienic transfer of a wide range of cosmetic products, including creams, gels, lotions, and emulsions.

Its screw design ensures that viscous or shear-sensitive formulations are pumped without damaging texture, consistency, or active ingredients. Particulates, beads, or delicate additives pass through the pump smoothly and intact, maintaining product quality.

APPLICATION AREAS & INDUSTRY SOLUTIONS

CHEMICAL & PETROCHEMICAL APPLICATIONS



The TSX Twin Screw Pump is designed to handle viscous, abrasive, and chemically aggressive fluids commonly found in chemical and petrochemical processes, including polymers, resins, adhesives, and solvents.

Its screw design enables smooth, pulsation-free transfer of both single-phase and multiphase fluids, while also accommodating solids or particulate-laden liquids without clogging or damaging the product.

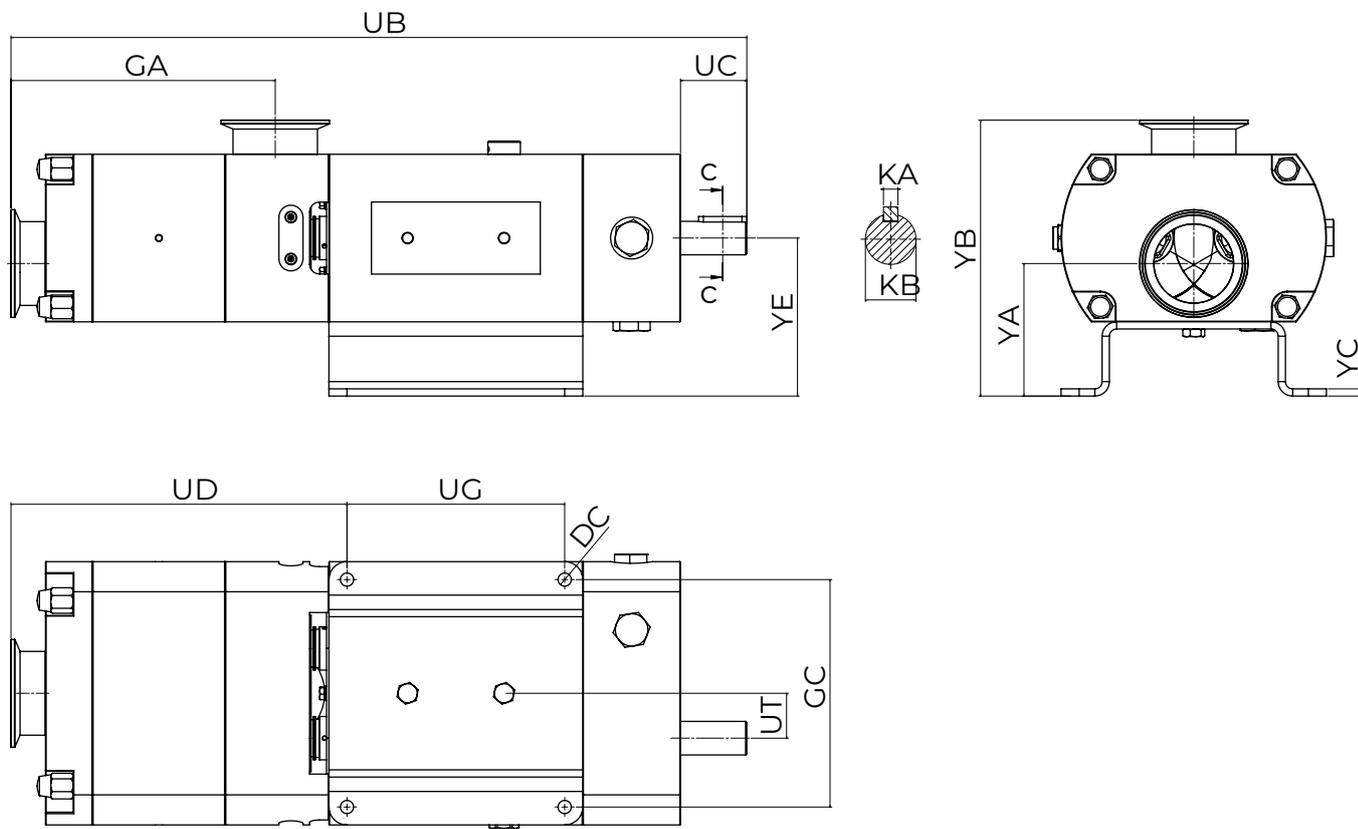
FERTILIZER APPLICATIONS



The TSX Twin Screw Pump is an ideal solution for the safe, stable, and precise transfer of both chemically rich and highly viscous fertilizer solutions.

Mineral-based fertilizers (urea, ammonium nitrate, phosphate solutions) and organic liquid fertilizers are often corrosive, abrasive, and sometimes even contain solid particles. Despite these challenging conditions, the TSX's twin screw design ensures a pulsation-free, vibration-free, and uninterrupted flow.

DIMENSIONS



Dimensions

TYPE	UB	UC	UD	UG	UT	GA	GC	YA	YB	YC	YE	KA	KB	DC
TSX 0	348	30	168	91	20	115	130	72,5	161	5	90	5	15	7
TSX 1	486	55	206,5	148,5	30	162,5	158	162,5	191	6	112	8	22	9
TSX 2	610	55	279	180,5	37,5	219	190	111	230	6	132	8	22	11
TSX 3	762	65	353	219	60	283	292	125	294	8	160	12	42	13