

# POSITIVE-DISPLACEMENT SCREW PUMPS



## CSF INOX SPA

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# GENERAL CHARACTERISTICS AND MAIN APPLICATIONS

## DELIVERY

Thanks to the volumetric operating principle, the delivery of the positive-displacement screw pump is directly proportional to the number of revolutions.

## PRESSURE

The differential pressure depends on the number of stages and on the characteristics of the pumped fluid; in case of non-abrasive fluids, the maximum allowable pressure per stage is equal to 6 bar.

## TEMPERATURE

The maximum working temperature of the fluid depends on the type of stator. It also depends on the kind of fluid and the operational conditions of the pump.

## IN-TAKE

The screw pump is self-priming even at low running speeds and with fluids such as water at a temperature of 20° C., specific weight = 1 Kg/dm<sup>3</sup> and viscosity 1°E it is capable of in-taking a 7-meter column.

## DELIVERY

The pump works according to the principle of the volumetric pumps, namely with positive displacement, pumping a constant amount of fluid, smoothly and without sudden variations in flow rate.

## FLUIDS THAT CAN BE PUMPED

This type of pump (compatibly with the chemical and mechanical resistance of the elastomer of the stator) is capable of pumping almost all types of non-Newton fluids up to a viscosity of 150/200.000 cP and with pumps of the MC series up to a viscosity of 800.000 cP. Fluids with solid suspended substances can be pumped (provided that they are not abrasive) without compromising the perfect efficiency of the pump.

## STARTING AND ADJUSTMENTS

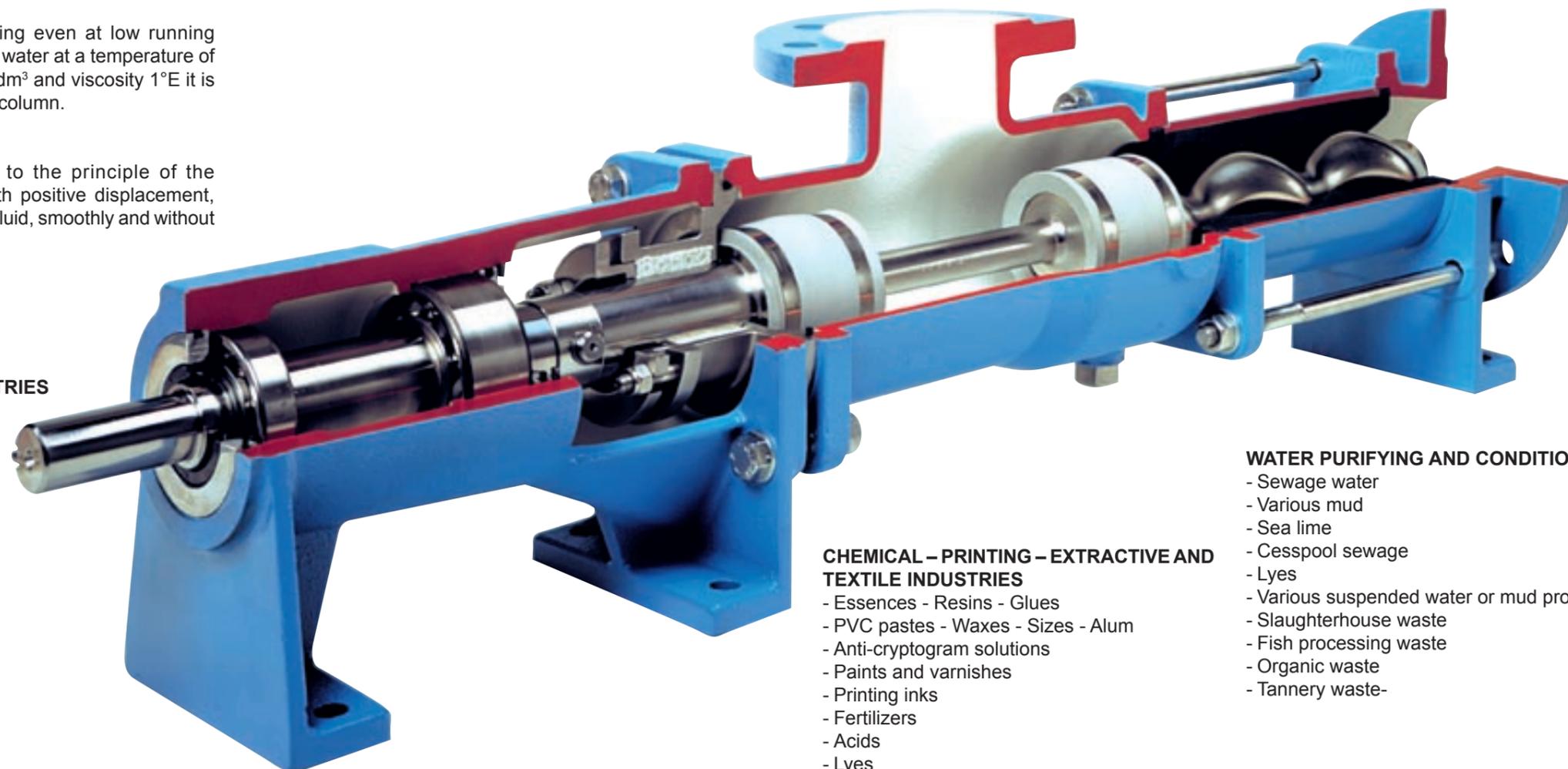
To safeguard the pump stator fill the pump with the fluid to be pumped and ensure that the stop valves on the inlet and outlet are completely open. To adjust the fluid flow rate adjust the pump speed if it is coupled with a continuous variable speed motor or fit an adjustable by-pass valve between the outlet and inlet.

## WARNINGS

- 1) Never run the pump without fluid. This could damage the stator's elastomer.
- 2) Never adjust the flow rate by choking the delivery valves, considering that the pump is the positive displacement type, the stress on the rotor axis would be increased with consequent damage to the drives and motor, if these are not protected by overload micro-switches.

## DATA REQUIRED TO CHOOSE THE RIGHT PUMP

- 1) Type of installation and use of the system for which it is to be used.
- 2) Flow rate in litres/min or m<sup>3</sup>/h.
- 3) Total delivery pressure (bar).
- 4) Available NPSH, or in-taking conditions (pressure or vacuum, head, piping, valves etc.).
- 5) Chemical-Physical nature of the fluid to be pumped: chemical composition, pH, viscosity, density and temperature.
- 6) Presence of suspended solid particles (max. dimension) and abrasiveness.
- 7) Power supply voltage and frequency of the motor.
- 8) Type of Motor-Pump coupling (direct with gear motor with variable speed motor – bare shaft pump).



## FOOD PROCESSING INDUSTRIES

- Various concentrates
- Whole tomatoes
- Mashed tomatoes
- Marmalades - Jams
- Various fruits
- Fruit salad
- Vegetables
- Various creams
- Dairy cream
- Vegetable extracts
- Meat extracts
- Various juices
- Melted cheese
- Honey - Eggs - Icing - Lard
- Cake dough
- Fish paste
- Milk and by-products
- Homogenised products
- Various sauces
- Vegetable fats
- Oils and sauces
- Treacle
- Gelatine solutions
- Chocolate, sweet fruit pickles, pectin Mustard
- Pasteuriser feeding
- Press feeding

## BEVERAGE INDUSTRIES

- Distilled products
- Wines and spirits
- Beer and malt
- Filter feeding
- Essences - Aromas
- Mineral waters
- Syrups - Yeasts
- Filling machine feeding
- Milk of lime

## COSMETIC AND PHARMACEUTICAL INDUSTRY

- Various creams
- Toothpaste
- Soaps - Shampoo - Detergents
- Bubble bath
- Vitamin solutions
- Emulsions and dispersions
- Hand-cleaning pastes

## CHEMICAL – PRINTING – EXTRACTIVE AND TEXTILE INDUSTRIES

- Essences - Resins - Glues
- PVC pastes - Waxes - Sizes - Alum
- Anti-cryptogram solutions
- Paints and varnishes
- Printing inks
- Fertilizers
- Acids
- Lyes
- Dextrins
- Paper pastes
- Starch solutions
- Cellulose
- Petrol - Oils
- Sludges
- Milk of lime
- Aniline water

## TILE, BUILDING AND RELATED INDUSTRIES

- Slurry
- Casting paste
- Clay products
- Various mud
- Various malts
- Cement milk
- Glass sludge
- Various drainage water
- Mixes - Asbestos - Cement

## WATER PURIFYING AND CONDITIONING PLANTS

- Sewage water
- Various mud
- Sea lime
- Cesspool sewage
- Lyes
- Various suspended water or mud processing waste
- Slaughterhouse waste
- Fish processing waste
- Organic waste
- Tannery waste-

## OENOLOGICAL INDUSTRY

- Musts and concentrates
- Wine
- Grapes without stalks
- Whole grapes
- Crushed grapes with stalk
- Dregs of crushed grapes
- Pressing waste
- Filtration
- Refrigeration
- Bottling

## POSITIVE-DISPLACEMENT SCREW PUMPS

The screw pump is a positive displacement, self-priming pump with one single rotating shaft. The steel rotor and rubber stator are the main pumping components.

The rotor is a circular section single or double-threaded screw with short or long pitch. The rubber stator is vulcanized inside a steel pipe. Its hollow core is screw shaped like the rotor but with pitch double the size of the rotor.

The rotor turns inside the stator and is forced to accomplish a hypocycloidal movement during which the recesses between the rotor and the stator accomplish an helicoidal movement, conveying the fluid from the inlet towards the delivery section.

### STANDARD GEOMETRY CHARACTERISTICS

- uniform and delicate flow
- wide section allowing solid suspensions to flow freely
- low flowing rate and excellent NPSH
- compact size with respect to the maximum allowable pressure and to the number of stages
- suitable for high and very viscosity
- suitable for compact and pasty products

### LONG PITCH GEOMETRY CHARACTERISTICS

- high volumetric efficiency
- extremely delicate flow without pulses
- nearly double delivery at the same operating speed compared to the standard design
- reduced wear of the parts thanks to the low contact speed between rotor and stator
- suitable for medium-low viscosity and abrasive products
- compact size with relation to the maximum delivery
- minimum axial thrusts on transmission and bearings

### 2/3 THREAD GEOMETRY CHARACTERISTICS

- high volumetric efficiency
- good dosing precision
- delivery approximately equal to 1,5 times the standard geometry at the same operating speed
- suitable for medium-low viscosity products and without solid materials in suspension
- extremely compact size with relation to the maximum delivery



## VARIOUS EXECUTIONS

### SERIES MA FOODSTUFFS EXECUTION

Pumps for foodstuffs with large suction chamber, free from product stagnation zones.

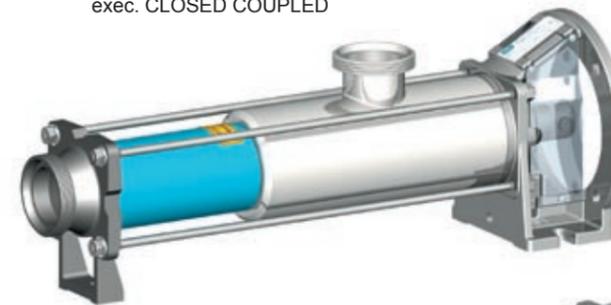
All parts in contact with the product are in polished / glazed stainless steel. The inlet and outlet fittings are threaded according to DIN 11851 standards and on request in the SMS, CLAMP, RJT-BS and IDF, OENOLOGICAL versions. The rubber stator is directly vulcanised in a steel tube.

The special telescopic assembly means that the whole pump can be disassembled without having to remove its drive, thus amazingly facilitating the inspection of all parts for cleaning and maintenance purposes.

The MAE series, with pump directly coupled to the drive, allows to minimise the overall dimensions and costs, yet leaving the pumping part with the same characteristics and disassembly facility as the MAN series.

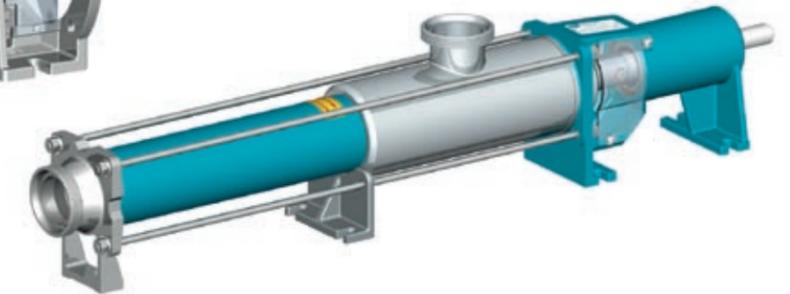
#### MAE

exec. CLOSED COUPLED



#### MAN

exec. WITH BASE AND FLEXIBLE JOINT



### SERIES MI INDUSTRIAL EXECUTION

Industrial sturdy pumps suitable for heavy duty requirements. Fully made in stainless steel or cast iron with steel axel shaft. The inlets and outlets are flanged according to UNI 2223 PN16 standard. The rubber stator is directly vulcanised in a steel tube.

The MIE series, with pump directly coupled to the drive, allows to minimise the overall dimensions and costs, yet leaving the pumping part with the same characteristics and disassembly facility as the MIN series.

#### MIE

exec. CLOSED COUPLED



#### MIN

exec. WITH BASE AND FLEXIBLE JOINT



# VARIOUS EXECUTIONS

## SERIES MC EXECUTION WITH HOPPER AND PRE-FEEDING SCREW

Version with hopper equipped with pre-feeding screw suitable for viscous products that do not flow easily inside the pipes. The top part is equipped with a rectangular flange to which any type of conveyance system can be connected.

The outlet can be with DIN 11851 fitting or with UNI 2223 PN16 flange. It can be manufactured on request in the SMS, CLAMP, RJT-BS, IDF and OENOLOGICAL versions.

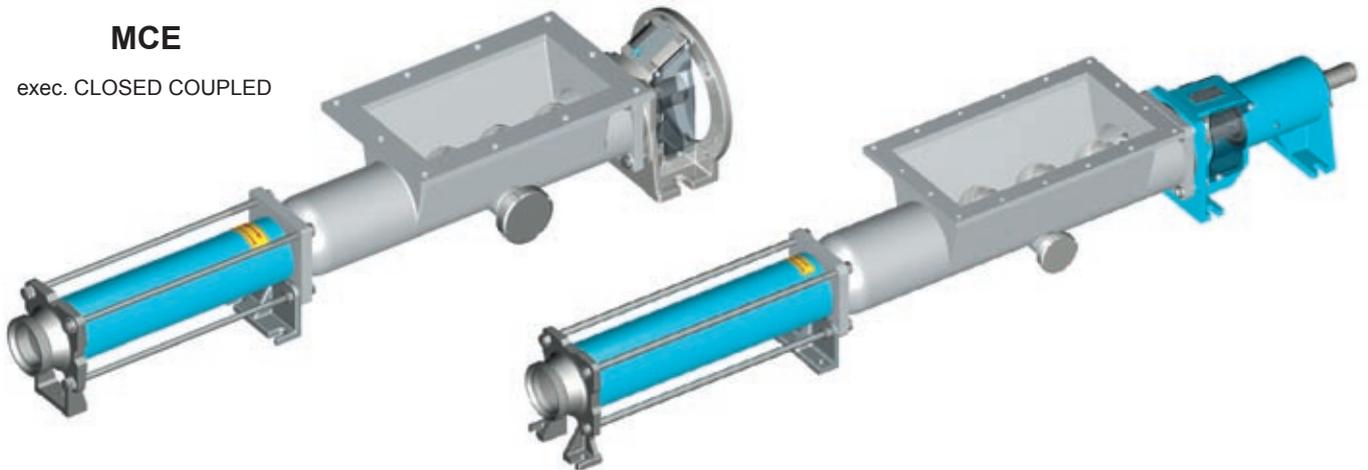
The MCE series, with pump directly coupled to the drive, allows to minimise the overall dimensions and costs, yet leaving the pumping part with the same characteristics and disassembly facility as the MCN series.

A lid with fitting means that the pump can be used for the typical applications of the MA series.



### MCE

exec. CLOSED COUPLED



### MCN

exec. WITH BASE AND FLEXIBLE JOINT

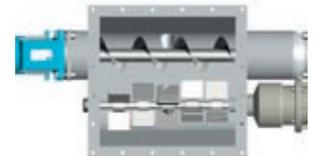
## SERIES MCR EXECUTION WITH HOPPER, PRE-FEEDING SCREW AND VANE CRUSHER

Version with hopper equipped with pre-feeding screw and vane crusher, suitable for dense products in blocks, pieces or that tend to form a bridge on the screw.

The vane crusher driven by an independent speed gear motor, crushes the product to be pumped, breaking down any blocks that have built up and pushes it against the pre-feeding screw.

The outlet may be equipped with DIN 11851 fitting or UNI 2223 PN16 flange. It can be manufactured in the SMS, CLAMP, RJT-BS, IDF and OENOLOGICAL versions.

As for the MC series, it can be in the E or N version and it can be supplied, on request, with a lid.



### MCRE

exec. CLOSED COUPLED



### MCRN

exec. WITH BASE AND FLEXIBLE JOINT

# VARIOUS EXECUTIONS

## SERIES **MC2R** EXECUTION WITH HOPPER, PRE-FEEDING SCREW E 2 BLADE FEEDERS

Version with hopper equipped with pre-feeding screw and 2 blade feeders.

The two feeders press the product against the pre-feeding screw to prevent the product from forming a bridge on the actual screw and thus clogging up feeding when the product is considerably viscous.

The surface of the blades allows to cover completely the entrance of the hopper avoiding the formation of stagnation areas.

The feeders are driven by an independent electric motor with reduction unit or variable speed motor.

The outlet can be equipped with DIN 11851 fitting or UNI 2223 PN16 flange. It can be manufactured in the SMS, CLAMP, RJT-BS and IDF versions.

Ideal for particularly viscous products for which a pressure is required to feed the pump screw:



## SERIES **MC2C** EXECUTION WITH HOPPER, 2 PRE-FEEDING SCREWS AND 1 BLADE FEEDER

Version with hopper and double synchronised pre-feeding screw, with vane crusher operated by a reduction unit.

The two pre-feeding screws pull the product to feed the pump stator.

The vane crusher blades push the product towards the bottom of the hopper thus feeding the two pre-feeding screws and preventing product stagnation. They are ideal for very viscous products that do not flow easily, such as dough, minced products and products in blocks.

It can be manufactured as a single screw pump that feeds directly or as a simple feeder in combination with a lobe pump.

The outlet can be equipped with DIN 11851 fitting or UNI 2223 PN16 flange. It can be manufactured in the SMS, CLAMP, RJT-BS and IDF versions.

Suitable for products in blocks for which a crushing is required to feed the pump screw:



# BOTTLING - REFRIGERATION - MUSTS AND WINES

## CHARACTERISTICS

The positive displacement screw pumps, exploited in the wine making sector, have the remarkable advantage that they are self-priming and do not require inlet or outlet valves for the product pumped. They can also be totally reversed, by inverting the rotation direction. The product is pumped delicately, constantly and smoothly, which is a crucial feature to ensure correct filtering or refrigeration. The pumps can be driven by gear motors or with variable speed motors with variable flow rates.

If used correctly the pumps require no maintenance for years, if not the replacement of the rubber stator when it is worn to such an extent to compromise the hydraulic characteristics of the pump. These pumps are manufactured in sturdy stainless steel with stator in elastomer for foodstuff (Perbunan) of sure reliability and are produced in a wide range to meet all sector requirements.



- Conveyance of wine and liquids in general
- Filtration
- Feeding of extractors and decanters
- Refrigeration
- Musts and concentrates

The new feeding system achieved consists of a screw pump couplet with a speed gear motor, control panel, frequency transformer, microprocessor, duly transformed signal detector, enabling the acceleration or deceleration of the pump's rpm according to the specific application. The various instruments foreseen mean that they pumps can be used with a number of machines:

- ISOBARIC FILLING MACHINES
- FALL TYPE FILLING MACHINES
- REFRIGERATORS

Pressure transducer and digital regulator.



Heat probe and digital heat regulator.



Potentiometer and digital Voltmeter

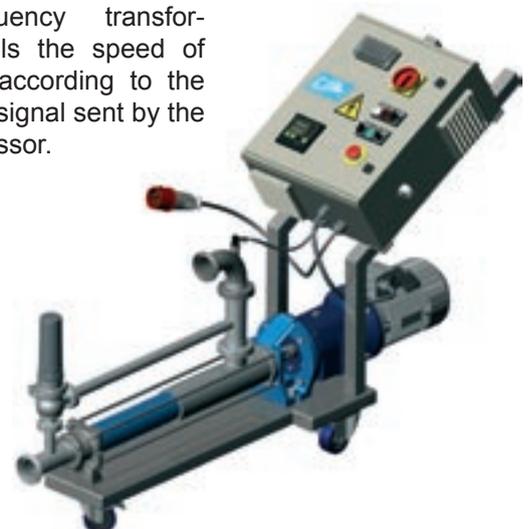


The product is fed delicately without sudden starts and stops but with pre-established accelerations and decelerations, avoiding hammering and sudden pressure variations. The microprocessor means that the signal sent by the detectors can be received and modified, according to the parameters set by the operator.

The frequency transformer controls the speed of the pump according to the modulated signal sent by the microprocessor.

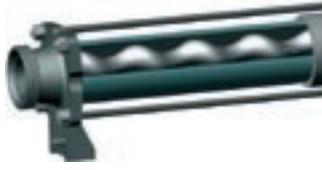
## BARRIQUE EMPTYING SCREW PUMP

This is a handy and reliable pump for barrique emptying, equipped with electrical control panel, level probe and DN 40 STAINLESS STEEL gate, control push button on gate to start emptying and automatic stoppage when the container is empty.



MAE for filling machines with by-pass, flowmeter and panel with microprocessor

# PERFORMANCES



1 stage - max. 6 bar

2 stages - max.12 bar

1 stage "S" - max. 10 bar

2 stages "S" - max. 22 bar

h = Head, bar Q = Flow rate, m³/h Na = Power, HP n = rpm

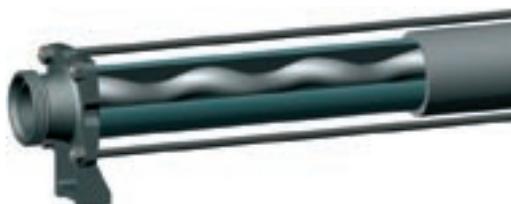
Values referred to water at 20°C a.s.l.

Size	Stages	Version N	Version E	h	n=200		n=300		n=400		n=500		n=600		n=700		n=800		n=900		n=1000		n=1400			
					Q	Na	Q	Na	Q	Na	Q	Na														
25	1	--	MAE	1					0,3	0,23	0,38	0,24	0,45	0,25	0,52	0,26	0,6	0,27	0,68	0,28	0,75	0,3	1,05	0,35		
				2					0,3	0,26	0,38	0,27	0,45	0,28	0,52	0,3	0,6	0,31	0,68	0,33	0,75	0,34	1,05	0,39		
	4					0,25	0,28	0,33	0,3	0,4	0,32	0,46	0,33	0,54	0,35	0,52	0,37	0,68	0,39	0,96	0,45					
	2	--	MAE	6						0,38	0,35	0,45	0,38	0,52	0,40	0,6	0,43	0,66	0,46	0,75	0,49	1,05	0,58			
10								0,35	0,45	0,42	0,5	0,5	0,53	0,56	0,64	0,60	0,71	0,64	1	0,78						
40	1	MAN MCN	MAE MCE	1					0,6	0,35	0,8	0,35	1	0,35	1,2	0,4	1,4	0,45	1,6	0,5	1,8	0,55	2,6	0,8		
				3					0,3	0,35	0,5	0,35	0,7	0,4	0,9	0,45	1,1	0,5	1,3	0,55	1,5	0,6	2,3	0,85		
	6											0,2	0,45	0,4	0,5	0,6	0,55	0,8	0,6	1	0,65	1,8	0,9			
	2	MAN MCN	MAE MCE	9						0,3	0,6	0,5	0,7	0,7	0,8	0,9	0,9	1,1	1	1,3	1,1					
12										0,3	0,9	0,5	1	0,7	1,1	0,9	1,3	1,1	1,4							
50	1	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	0,9	0,6	1,5	0,6	2	0,6	2,6	0,7	3,2	1	3,8	1,2	4,3	1,2	4,8	1,4	5,4	1,6	7,8	2,1		
				3	0,8	0,8	1,3	0,9	1,8	1	2,4	0,9	3	1,2	3,5	1,3	4,1	1,4	4,6	1,6	5,2	1,8				
	6	0,6	0,9	1,1	1,1	1,6	1,1	2,2	1,2	2,8	1,5	3,3	1,6	3,9	1,7	4,4	2	4,9	2,3							
	2	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	9	0,2	1,1	0,9	1,2	1,6	1,6	2,1	2	2,8	2,4	3,5	2,7	4,2	2,8	4,9	3,1						
12	-			-	0,4	1,3	1,2	1,8	1,4	2,2	2	2,6	2,8	2,8	3,3	3,1	4	3,7								
55	4	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	8	1	1,5	1,6	1,7	2,2	2	2,8	2,5	3,4	3												
				16	0,7	1,8	1,3	2,3	1,8	2,8	2,4	3,4	3	4,2												
				24	0,4	2,2	0,8	3	1,3	3,6	1,9	4,4	2,4	5,2												
60	L	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	2	2,5	1,2	3,7	1,3	5	1,4	6,2	1,6	7,5	1,8	8,7	2	10	2,2	11,2	2,5	12,5	2,7				
				4	2,3	1,5	3,5	1,7	4,7	1,8	5,8	2	7	2,3	8,2	2,6	9,4	2,8	10,6	3,2	11,7	3,5				
				6	2	1,7	3,1	1,9	4,2	2,1	5,2	2,4	6,4	2,6	7,4	3	8,5	3,4	8,6	3,8	10,7	4,1				
65	1	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	2,5	1,1	3,6	1,1	5	1,4	6,4	1,5	7,6	1,7	8,7	2	9,7	2,3	11,3	2,6						
				3	2,3	1,2	3,6	1,2	4,5	1,6	5,9	1,9	7,3	2,2	8,4	2,4	9,4	2,5	10,8	3,2						
	6	1,7	1,5	2,8	1,7	4	2,1	5	2,6	6,5	2,8	7,5	3,2	8,5	3,4											
	2	MAN - MIN - MCN MCRN - MC2RN	MAE - MIE MCE - MCRE	9	1	2,8	2,6	3,3	4,1	3,7	5,7	4,2	7,3	4,9	8,8	6										
	12			0,3	3	1,6	3,4	3,6	3,9	5,5	4,6	7	5,7													
	2S	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	14	2	3	3,3	3,7	4,8	5	6,2	6,4														
17	1,7			3,3	3	4,1	4,5	5,5																		
20	1,3	3,6	2,6	4,6	4,1	6,1																				
70	L	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	2	5,4	2	8	2,3	10,6	2,8	13,1	3,3	15,9	3,9	18	4,5										
				4	5	2,3	7,6	3	10,3	3,7	12,8	4,4	15,5	5,4												
				6	4,6	2,8	7,2	3,7	9,8	4,6	12,1	5,8														
80	1	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	4,7	2,2	7,5	2,5	10,1	2,9	12,7	3,2	15,5	3,5	18	3,7										
				3	4,4	2,5	7	3	9,6	3,3	12,1	3,8	14,8	4,5	17,4	5,2										
	6	3,8	2,9	6,4	3,5	8,9	4,3	10,9	5	13,4	6,2															
	2	MAN - MIN - MCN MCRN - MC2RN	MAE - MIE MCE - MCRE	9	3,2	2,9	5,5	3,5	8	4,5	11	6	14	7,2												
	12			2,4	3,2	4,4	3,9	7,3	5,3	10	7,5															
	2S	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	14	3,8	7,8	6,8	9,2	9,8	11	12,8	13,2														
	17			2,9	8,2	5,8	9,8	9	11,9																	
	20	0,7	9	3,5	11	6,5	14																			
4	MAN - MIN MCN - MCRN MC2RN	--	8	5,5	2,5	8,1	3,3	11,5	4,5	14	5,5															
16			4	4,1	7,2	6,1	10,5	8,3	13,2	11																
24			2,5	5,3	6	8,7	9,5	11,9	12,5	14,9																
90	L	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	2	13,4	3,5	20,5	4,1	26,6	5	34	6,1	41	7,4	48	8,8										
				4	12,2	4,1	19	5,3	25,5	6,7	32,5	8,4	39,5	11												
				6	10,8	5,2	17,2	6,5	24	8	30,8	10,8	37,8	14,3												
100	1	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	9,5	3,2	14,5	3,4	19,5	3,8	25	4,4	30	5												
				3	7,8	3,7	12,8	4,1	17,7	5	22,5	6,2	28	7,2												
	6	6	4,2	10,5	5,8	15	7,5	19,5	9,2																	
	2	MAN - MIN - MCN MCRN - MC2RN	MAE - MIE MCE - MCRE	9	5,5	6	10,8	8,1	15,5	12	20	14,8														
	12			4	7,3	7	10	12	14,5	16,2	17															
	2S	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	14	6	14	11,2	16	16,4	18																
	17			5	15,2	10,2	17,3																			
	20	2,5	16	7,5	19,5																					
4	MAN - MIN MCN - MCRN MC2RN	--	8	10	6	15	7	20	12																	
16			8,5	10	13,5	14	19	19																		
24	6	13	11	18,5																						

# PERFORMANCES



4 stages - max. 24 bar

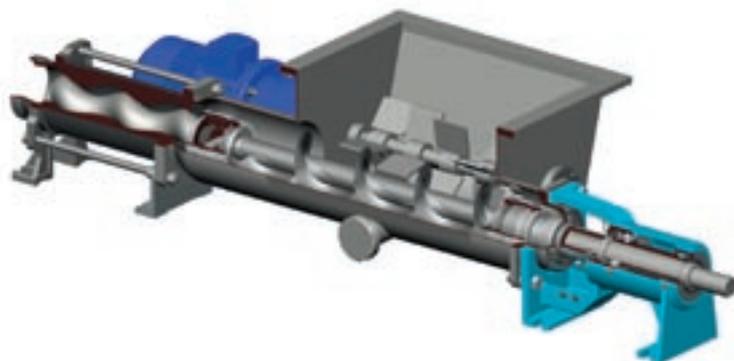


long pitch - max. 6 bar

h = Head, bar    Q = Flow rate, m³/h    Na = Power, HP    n = rpm

Values referred to water at 20°C a.s.l.

Size	Stages	Version <b>N</b>	Version <b>E</b>	h	n=200		n=300		n=400		n=500		n=600		n=700		n=800		n=900		n=1000		n=1400			
					Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na
					<b>110</b>	<b>L</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	2	22	4	35	5	45	6	57	8,5									
				4	20,5	5,5	31	8	42	11	53,5	13														
				6	19	7,5	29,5	11	40,5	14	51,5	18														
<b>115</b>	<b>1</b>	MAN - MIN MCN - MCRN	MAE - MIE MCE - MCRE	1	12	5	21	5,5	29	6	36	7														
				3	11	5,5	20	6,5	27	7,5	34	9														
				6	9	6	16	8	23	10	30	12														
<b>125</b>	<b>2</b>	MAN - MIN MCN - MCRN	MAE - MIE MCE - MCRE	4	14	7	22	8	29	9,5																
				8	13	8	20,5	10	27,5	13																
				12	12	10	19	13	26	16																
<b>125</b>	<b>1</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	18,5	4,5	30	5,5	42	7,5	53	9,5														
				3	14	5,5	25,5	8,0	38	10,5																
				6	9	6,5	20	11,3																		
	<b>2</b>	MAN - MIN - MCN MCRN - MC2RN	MAE - MIE MCE - MCRE	9	11	14,5	23	18,3	34,4	24																
				12	8	16,5	19	22	30	30																
	<b>2S</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	14	9,6	24	21	36	31	47																
				17	7,4	32	18	44																		
<b>4</b>	MAN - MIN MCN - MCRN	--	--	8	22	14	33	20	44	23																
				16	20	20	31	29,5	41,5	39																
				24	18	28	27,5	42																		
<b>130</b>	<b>L</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	2	29	6,1	44	8	59	10	74	12														
				4	26,8	8	42	11,9	57	15	72,5	19														
				6	23	10	38,4	15	54	20	69	25														
<b>150</b>	<b>1</b>	MIN - MCN MCRN	MIE - MCE MCRE	2	44	8	67	12	90	16	113	20														
				4	32	12	56	17	78	23	101	29														
				6	16	14,5	40	22	62	30	85	37														
	<b>1S</b>	MIN - MCN MCRN	MIE - MCE MCRE	1	44	10	70	12	93	16	115	21														
				4	40	12	62	18	85	26	105	38														
				8	31	20	52	30	72	42																
				10	20	24	40	38																		
<b>2</b>	MIN - MCN MCRN	MIE - MCE MCRE	4	44	8,8	67	14	92	19																	
			6	40,5	14,5	64	23	87	30,5																	
			12	32	23	55	35	79,5	48																	
<b>160</b>	<b>L</b>	MIN - MCN MCRN	MIE - MCE	2	86	10	132	16																		
				4	80	17	123	28																		
				6	75	24	115	42																		



# PERFORMANCES DOUBLE-THREAD VERSIONS

The new series of screw pumps offered together with the existent series is a logical evolution that derives from research made to optimise performance.

New shapes, additionally even structures, reduction of friction and greater volumes all enable improved performance.

They fit in with the existent series without dimensional modifications and are perfectly interchangeable.

This version of CSF screw pumps can be offered with a wide performance range to better meet all requirements.

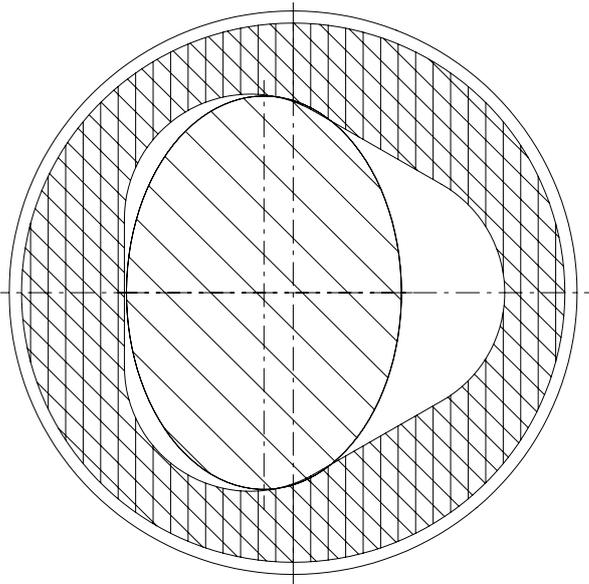
In the new series the pump dimensions, assembly, drive, versions, constructional materials remain unaltered.

The following benefits are obtained:

- Greater mass = volume pumped
- Less eccentricity
- Less rotor mass
- Improved overall performance
- Lower internal speed, therefore improved flow rate
- Greater transversal pumping
- Even thickness of the elastomer wall, therefore less driving torque and therefore less absorbed power



New shape of the rotor/stator  
 Greater volumetric mass = volume pumped  
 Improved performance  
 Improved NPSH values



h = Head, bar    Q = Flow rate, m<sup>3</sup>/h    Na = Power, HP    n = rpm

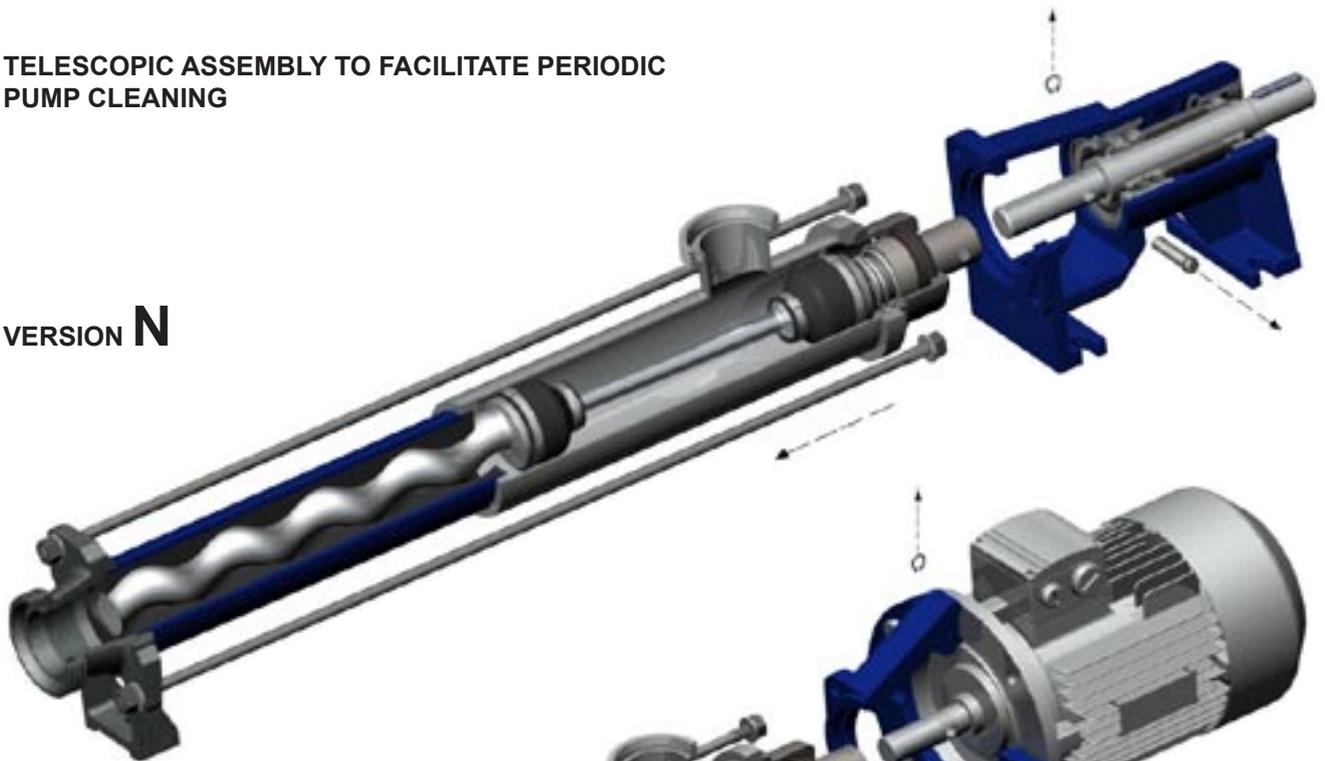
Values referred to water at 20°C a.s.l.

Size	Stages	Version <b>N</b>	Version <b>E</b>	h	n=200		n=300		n=400		n=500		n=600		n=700		n=800		n=900		n=1000		n=1400					
					Q	Na	Q	Na	Q	Na	Q	Na	Q	Na														
<b>63</b>	<b>1</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	3,7	1,1	5,6	1,2	7,4	1,3	9,2	1,4	11,1	1,5	12,9	1,8	14,7	2,1										
				2	3,6	1,2	5,4	1,4	7,2	1,5	8,9	1,8	10,7	2,1	12,5	2,6	14,2	3										
				4	3,3	1,7	5	1,8	6,6	2,2	8,3	2,7	10	3,5	11,7	4,4	13,4	5,4										
<b>83</b>	<b>1</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	6,5	1,8	10,1	2,1	11,8	2,3	17,5	3,4																
				2	6,4	2	9,8	2,6	11,7	3	16,8	4,2																
				4	6	2,3	9,4	3,2	13	4,4	16,4	6,5																
				6	5,6	2,6	9	4	12,6	5,6	15,9	7,6																
<b>103</b>	<b>1</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	14	2,8	21,1	3,5	28,5	4,6	35,4	6																
				2	12,6	3,6	19,9	4,2	26,9	5,6	33,9	7,3																
				4	11	4,5	18,2	5,5	25,4	7,2	32,5	9,5																

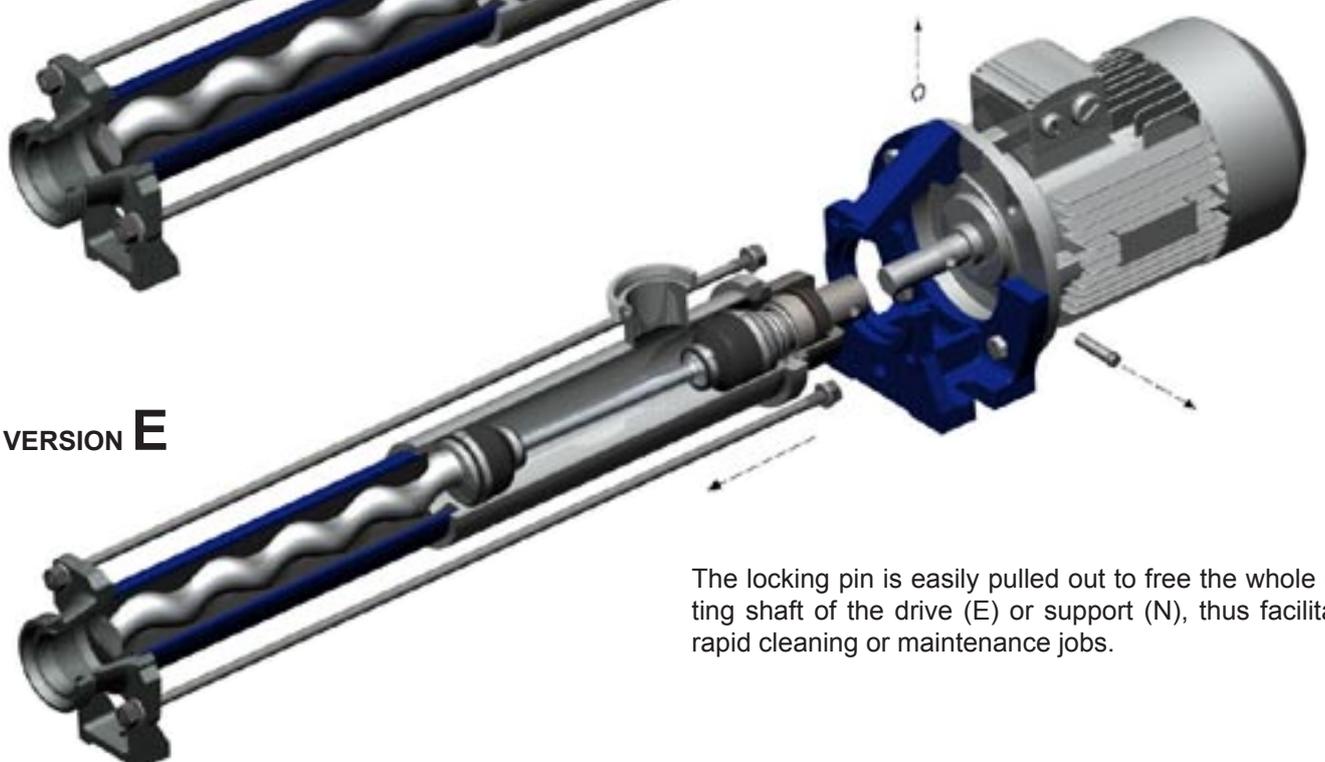
# JOINT VERSIONS

TELESCOPIC ASSEMBLY TO FACILITATE PERIODIC PUMP CLEANING

VERSION N



VERSION E



The locking pin is easily pulled out to free the whole rotating shaft of the drive (E) or support (N), thus facilitating rapid cleaning or maintenance jobs.

## JOINTED JOINTS

In wear-resisting version with hardened bushes for heavy duty conditions and loads and safety sleeves.



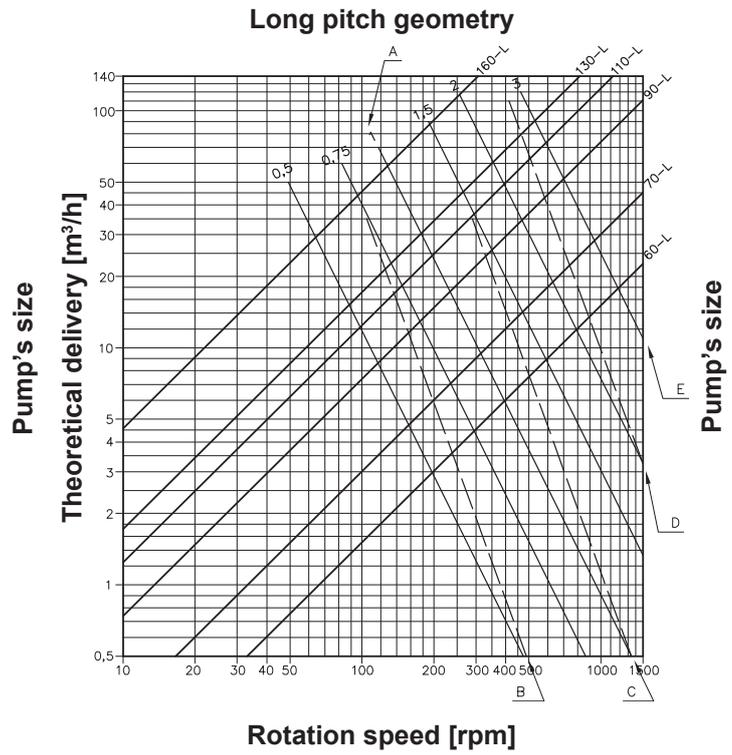
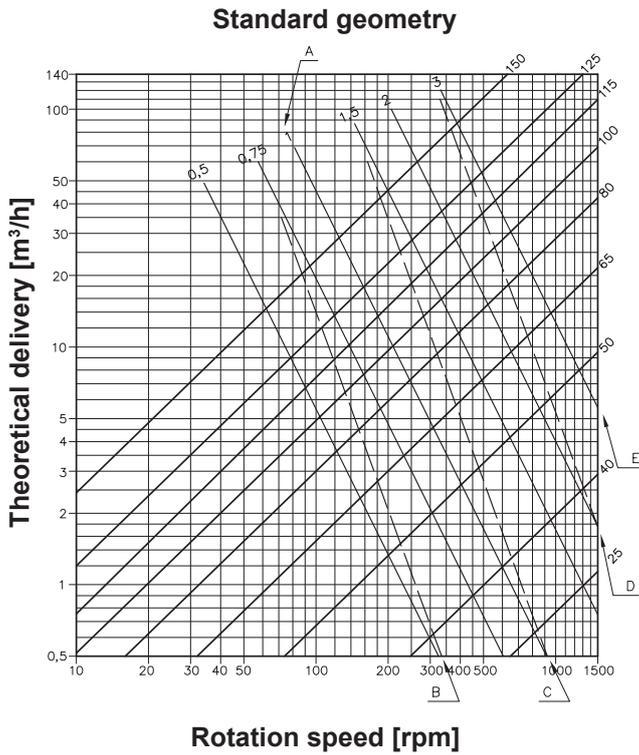
Execution from pump's size M 65 to M 160

In sturdy stainless steel with OR seals or safety sleeves.



# PUMP SIZING

## DIAGRAM FOR THE CHOICE OF SCREW PUMPS



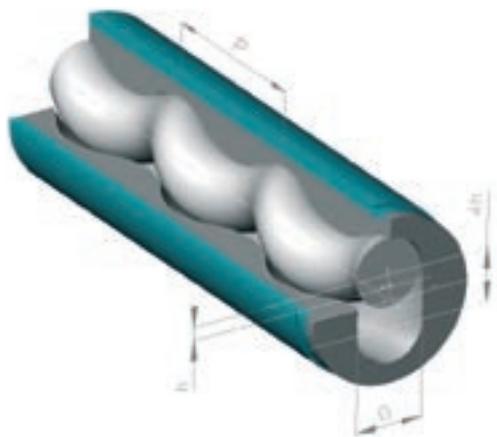
A = Rotor/stator drive speed  
in m/sec

B = Very abrasive \_\_\_\_\_  
Very viscous - - - -

C = Averagely abrasive \_\_\_\_\_  
Averagely viscous - - - -

D = Not very abrasive \_\_\_\_\_  
Not very viscous - - - -

E = Not abrasive



### ABSORBED POWER CALCULATION

$$NA = \frac{Q \cdot H \cdot \gamma}{4500 \cdot \eta}$$

Q = Flow rate in l/min.

Na = Absorbed power in Hp.

H = Total head in meters of liquid column

$\gamma$  = Specific weight of the liquid in kg/dm<sup>3</sup>.

$\eta$  = Total efficiency (volumetric efficiency multiplied by mechanical efficiency)

### THEORETICAL DELIVERY CALCULATION

The output of the CSF screw volumetric pumps is directly proportional to the rpm:

$$Q = D \cdot 4h \cdot 2P \cdot N$$

Q = Flow rate in l/min.

h = Eccentricity of rotor in dm.

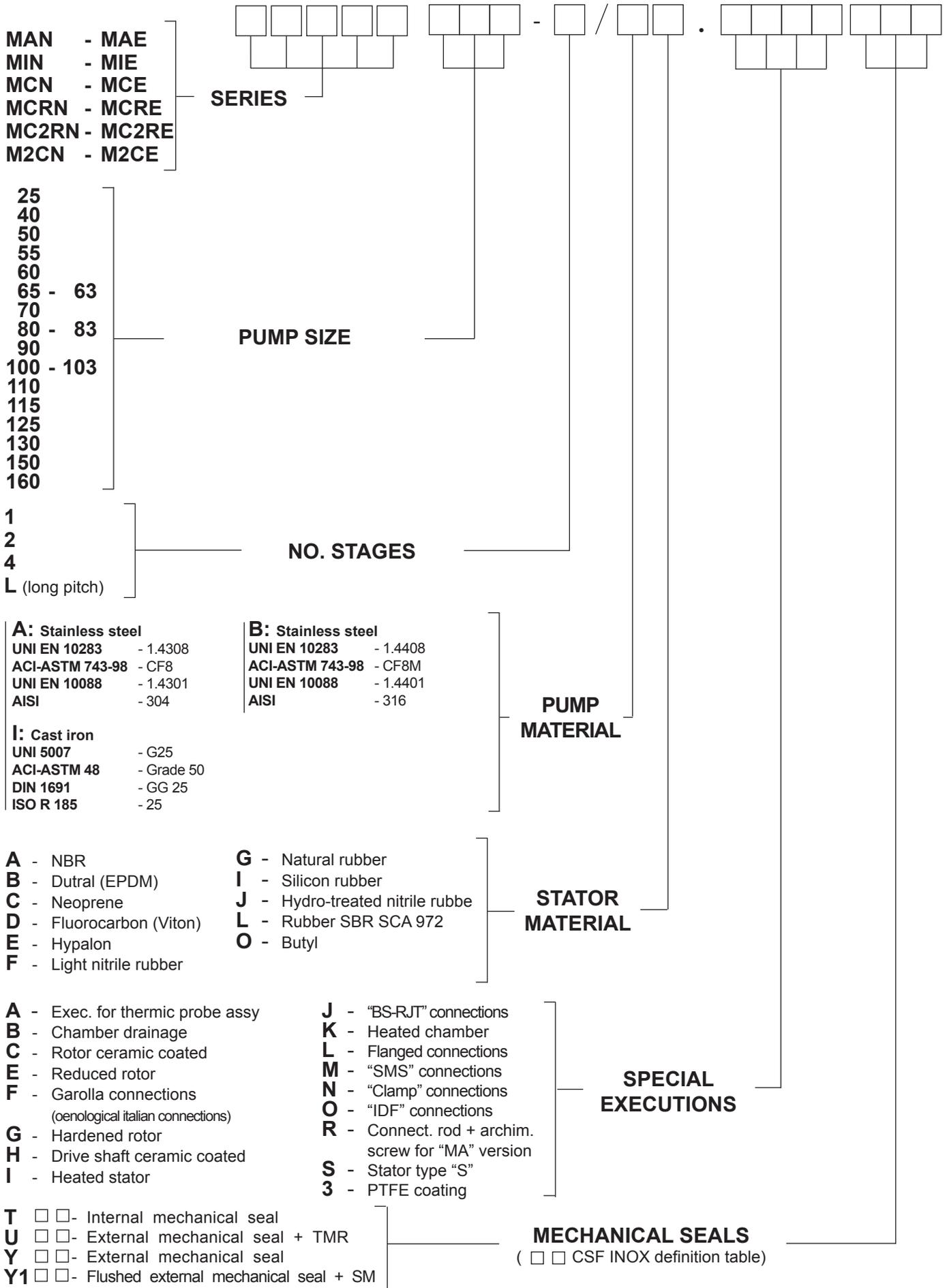
P = Rotor pitch in dm.

2P = Stator pitch

n = rpm.

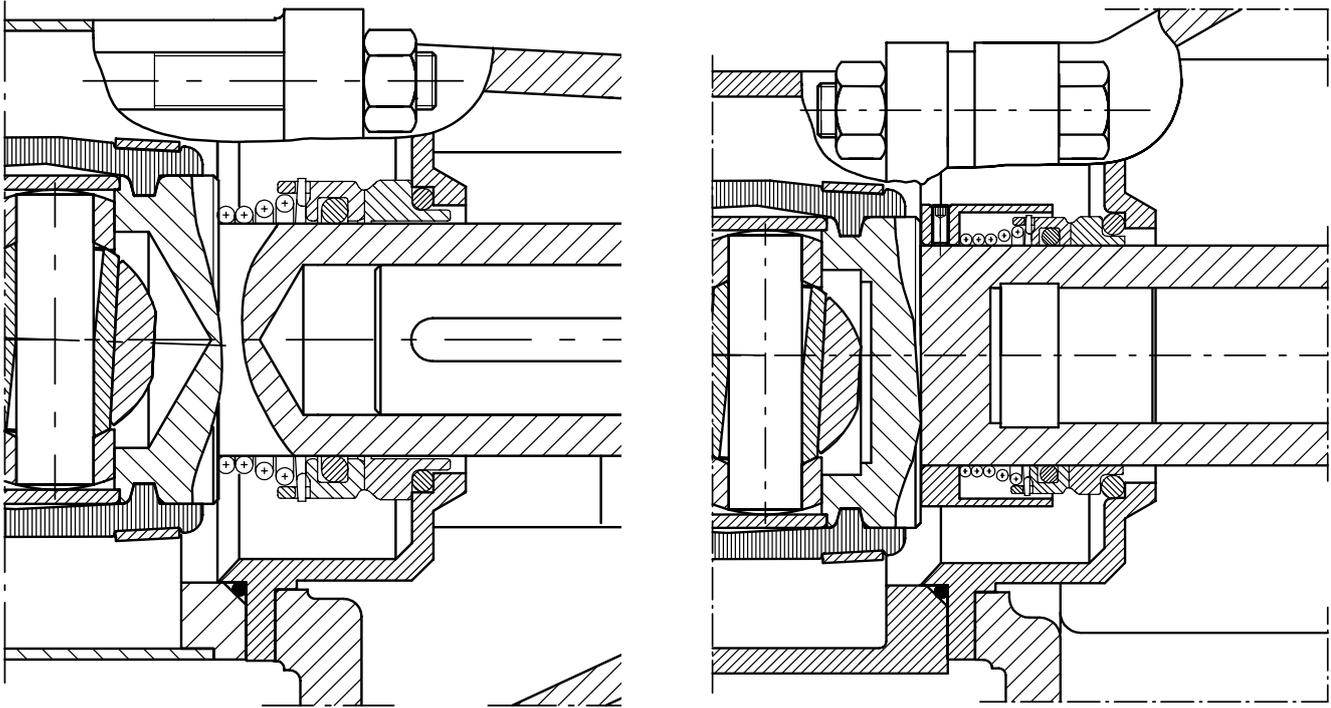
d = Diameter of rotor in dm.

# PUMP CODES GUIDE



Example: **MAN 100-2 / AF. ET32**

# MECHANICAL SEALS



## EXECUTION T



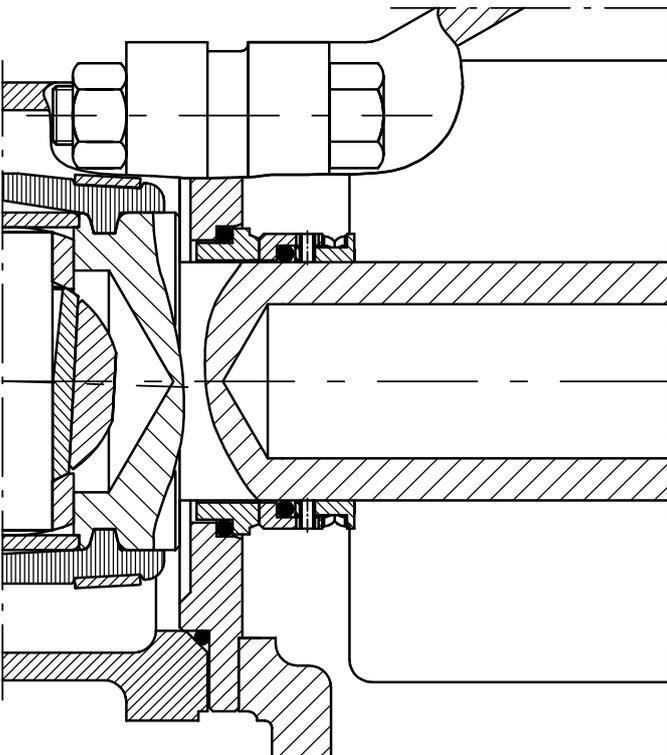
One direction



Reversible

### Internal mechanical seal

The rotary mechanical seal is internal in order to ensure improved cooling and consequently to reduce its wear. The type of mechanical seal and the materials of the rotating surfaces and of the elastomers are chosen each time, among the several types available, according to the nature of the handled product.



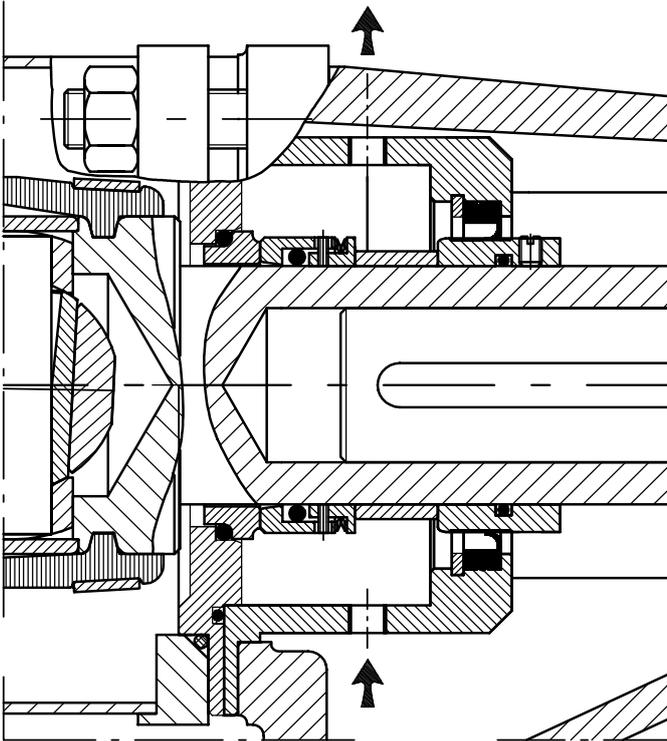
## EXECUTION Y

### External mechanical seal

For all cases for which the flushing is impossible and where the mechanical seal must not touch the pumped product, in order to avoid sanitary problems, corrosion and conditioning of its running.



# FLUSHED MECHANICAL SEALS



## EXECUTION U - Y1

### Double mechanical seal (U) Flushed mechanical seal (Y1)

Double mechanical seal with circulation of the cleaning and cooling liquid.

It is used with products that tend to crystallise, to glue, to harden, to be abrasive, to reach high temperatures and whenever the seal life is limited.

The function of the fluxing is to clean, lubricate and cool the seal; the circulating liquid must be clean and compatible with the pumped liquid.

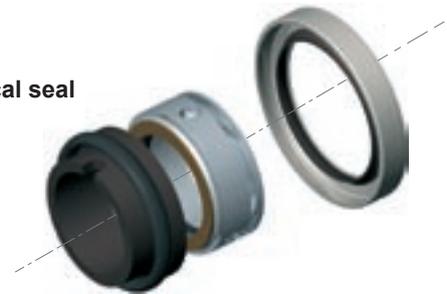
If the seal is leaking the fluxing liquid will point out this fault.

The U execution is composed by an axial mechanical seal and a radial one working on ceramic coated shaft.

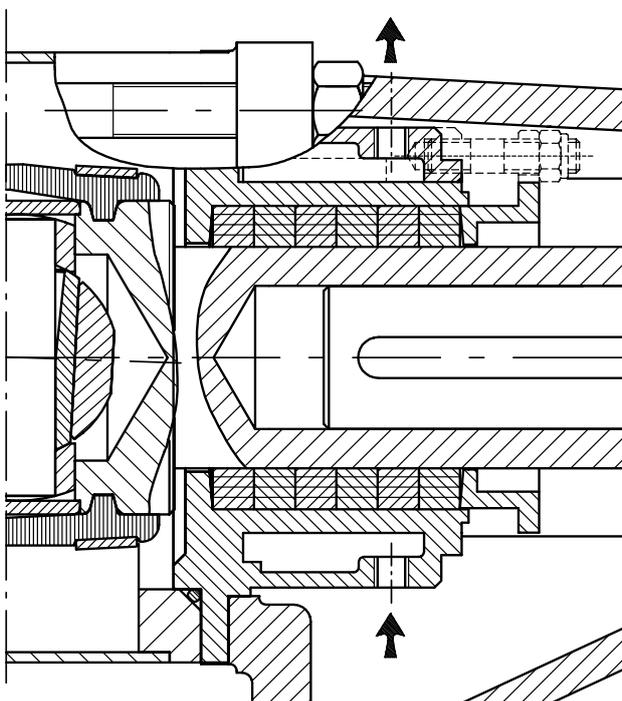
The Y1 execution is composed by an axial mechanical seal and a lip seal for the less heavy duty conditions.

Radial mech. seal

Mechanical seal



# PACKED GLAND SEAL



## EXECUTION XT00

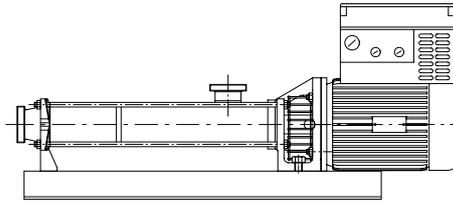
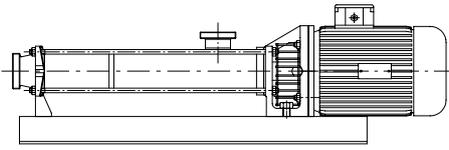
### Cooled packed gland seal

Traditional solution in which a slight dripping does not disturb.



<b>FB</b>		<p><b>DIRECT MOTOR + FIXED BASE</b></p> <p><b>DIRECT MOTOR + INVERTER AND FIXED BASE</b></p>
<b>FD</b>		<p><b>MOTOR, PULLEY AND FIXED BASE</b></p>
<b>FE</b>		<p><b>GEAR MOTOR AND FIXED BASE</b></p> <p><b>GEAR MOTOR + INVERTER AND FIXED BASE</b></p>
<b>FF</b>		<p><b>MECHANICAL VARIABLE SPEED MOTOR AND FIXED BASE</b></p> <p><b>BELT VARIABLE SPEED MOTOR AND FIXED BASE</b></p>
<b>F 1 B</b>		<p><b>DIRECT MOTOR AND TROLLEY</b></p> <p><b>DIRECT MOTOR + INVERTER AND TROLLEY</b></p>
<b>F 1 D</b>		<p><b>MOTOR, PULLEY AND TROLLEY</b></p>
<b>F 1 E</b>		<p><b>GEAR MOTOR AND TROLLEY</b></p> <p><b>GEAR MOTOR + INVERTER AND TROLLEY</b></p>
<b>F 1 F</b>		<p><b>MECHANICAL VARIABLE SPEED MOTOR AND TROLLEY</b></p> <p><b>BELT VARIABLE SPEED MOTOR AND TROLLEY</b></p>
		<p><b>VERSION N</b></p> <p>Independent bench support with double grease lubricated bearings for coupling with flexible joint.</p>

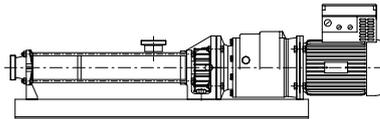
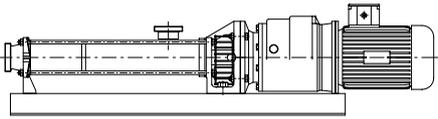
**F B**



**DIRECT MOTOR +  
FIXED BASE**

**DIRECT MOTOR + INVERTER  
AND FIXED BASE**

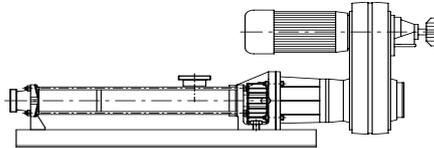
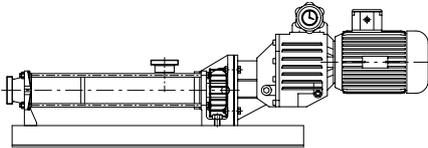
**F E**



**GEAR MOTOR AND FIXED BASE**

**GEAR MOTOR + INVERTER AND  
FIXED BASE**

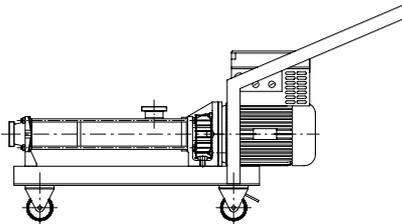
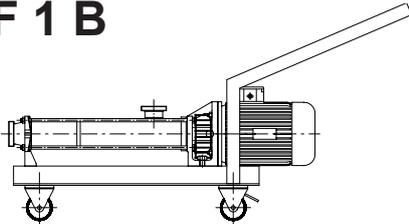
**F F**



**MECHANICAL VARIABLE SPEED  
MOTOR AND FIXED BASE**

**BELT VARIABLE SPEED MOTOR  
AND FIXED BASE**

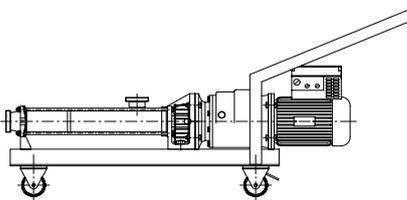
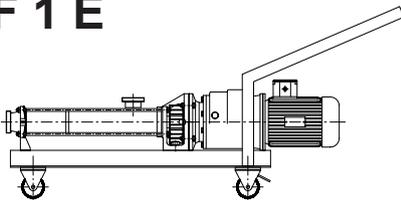
**F 1 B**



**DIRECT MOTOR AND TROLLEY**

**DIRECT MOTOR + INVERTER  
AND TROLLEY**

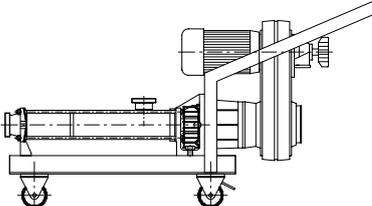
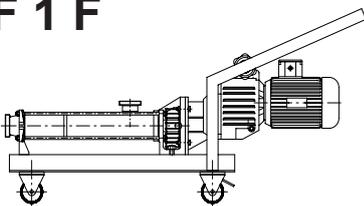
**F 1 E**



**GEAR MOTOR AND TROLLEY**

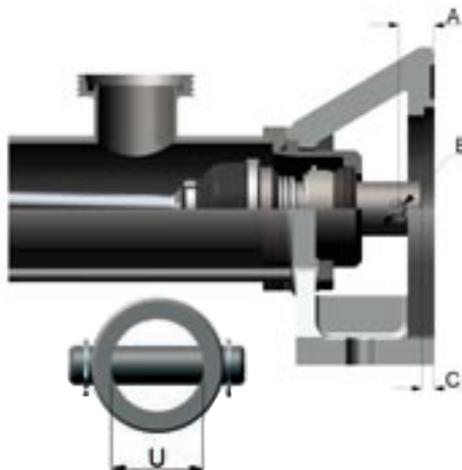
**GEAR MOTOR + INVERTER AND  
TROLLEY**

**F 1 F**



**MECHANICAL VARIABLE SPEED  
MOTOR AND TROLLEY**

**BELT VARIABLE SPEED MOTOR  
AND TROLLEY**



**VERSION E**

**PUMP SHAFT - COUPLING DIMENSIONS**

	TYPE								
	M 25	M 40	M 50 M 55 M 60L	M 63 M 65 M 70L	M 83 M 80 M 90L	M 100 M 103 M 110 M 115	M 125	M 130	M 150
<b>A</b>	15	20	25	25	26	30	32	32	32
<b>B H7</b>	6	8	10	14	16	16	18	18	18
<b>C</b>	=	=	10	10	10	10	10	10	10
<b>U H7</b>	14	19	24	32	35	42	55	55	55

# ACCESSORIES

**HOPPER LID**



**AUTOMATIC BY-PASS**



**STATOR HEATING CHAMBER**



**MANUAL BY-PASS**



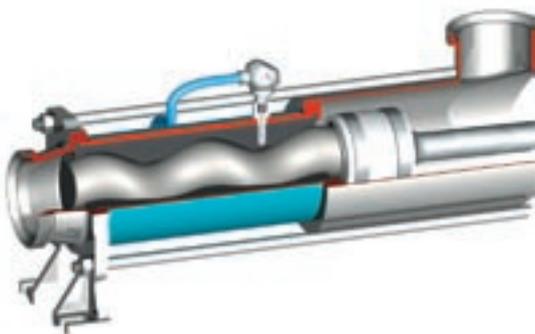
**FLOW METER FOR  
SAFETY AGAINST DRY  
RUNNING**

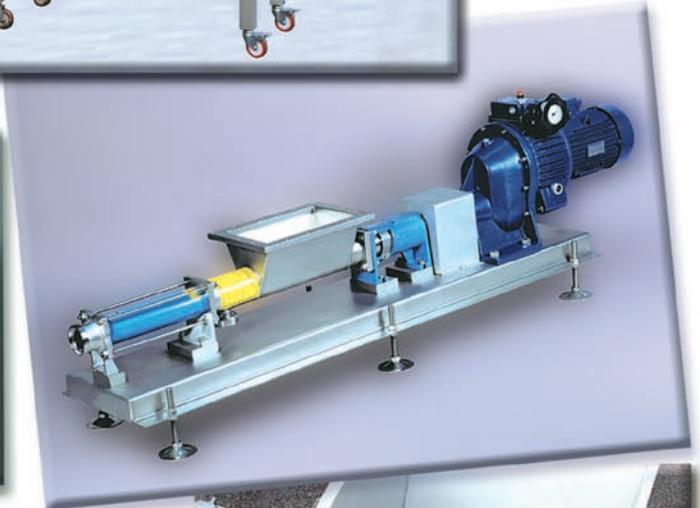


**ELECTRICAL CONTROL PANEL**



**HEAT PROBE**





# DIMENSIONAL CATALOGUE POSITIVE-DISPLACEMENT SCREW PUMPS

**Flow Comm**

**benelux bv**

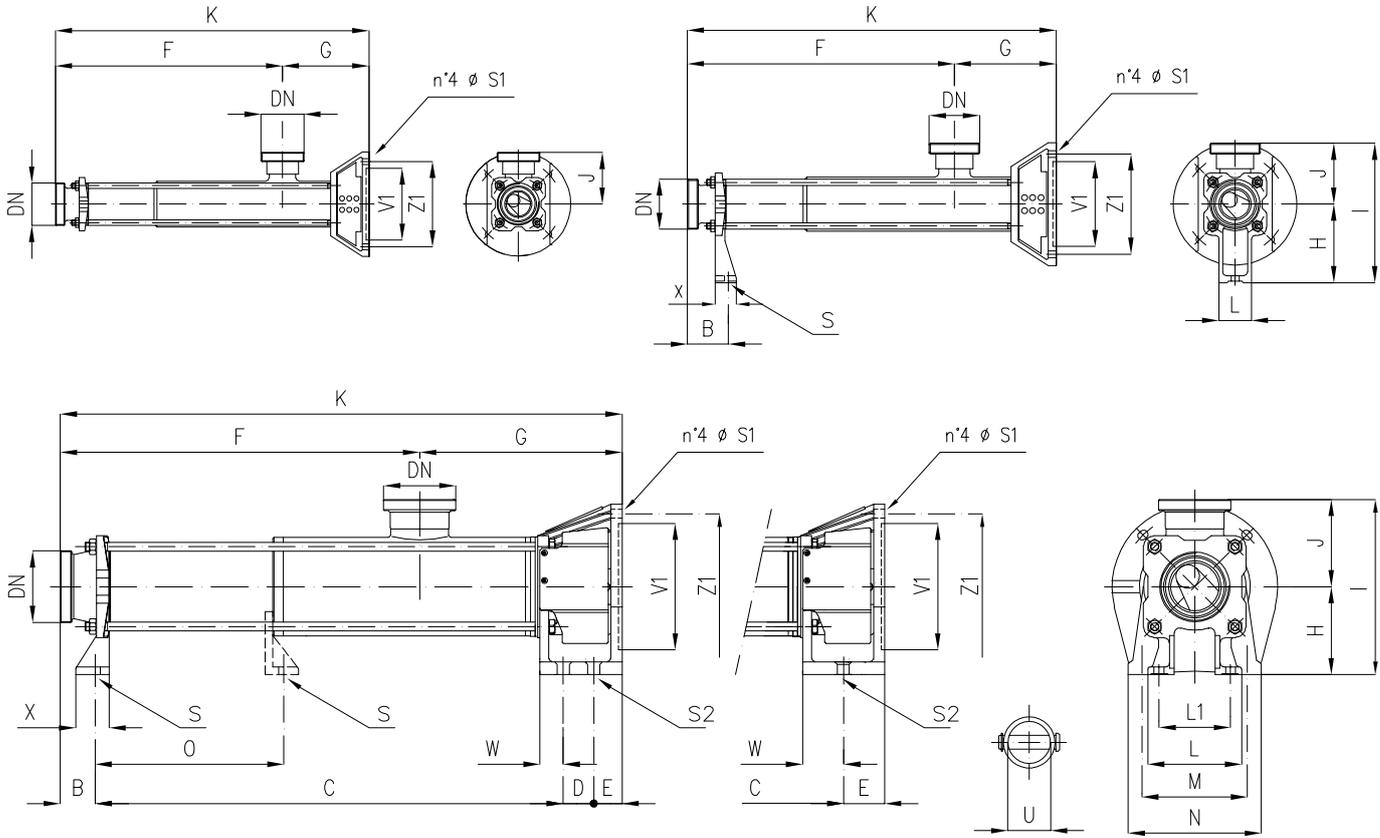
EDP code: ZMAE

# MAE

## OVERALL DIMENSIONS

MAE 25

MAE 40



(\*\*) To be determined according to the motorization used.

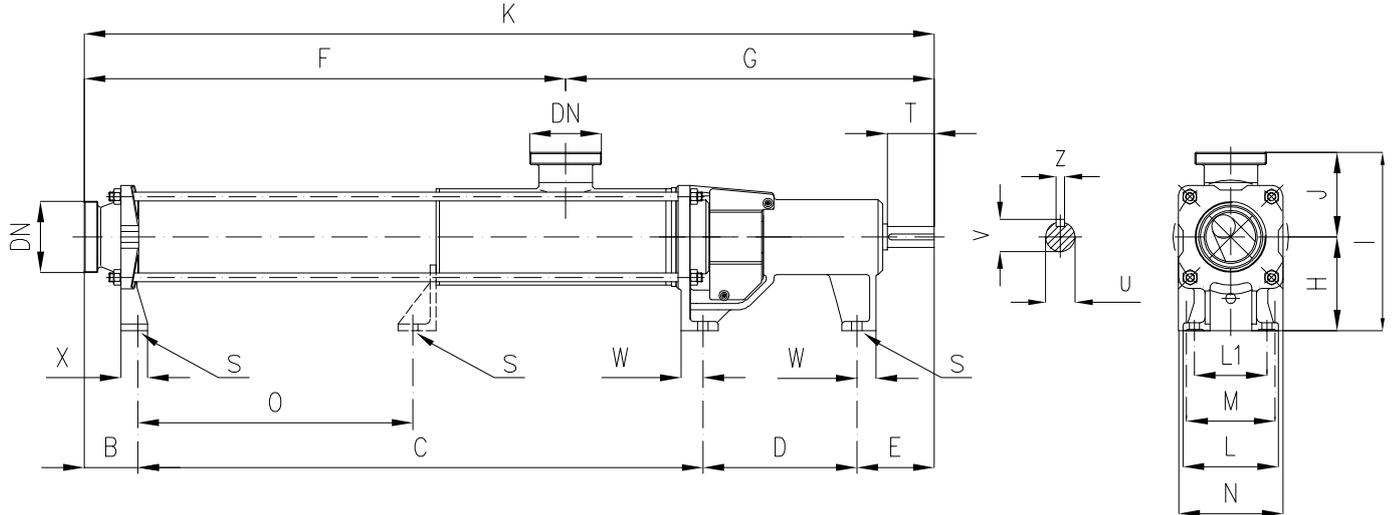
**Dimensions not binding**

TYPE	B	C	D	E	F	G	K	H	J	I	L	L1	M	N	O	DN	S	U	(**) V1	(**) Z1	S1	X	W	Weight kg
MAE 25-1	-	**	-	-	236	115	351	**	62	**	-	-	**	**	-	25	-	14	70	85	7	-	-	5
MAE 25-2	-	**	-	-	316	115	431	**	62	**	-	-	**	**	-	25	-	14	70	85	7	-	-	6
MAE 40-1	53	**	-	-	344	131	475	**	79	**	42	-	**	**	-	40	10	19	110	130	9	27	-	7
MAE 40-2	53	**	-	-	444	131	575	**	79	**	42	-	**	**	-	40	10	19	110	130	9	27	-	9
MAE 50-1	71	530	-	49	452	198	650	100	86	186	68	-	110	150	-	50	12	24	130	165	13	35	43	19
MAE 50-2	71	680	-	49	602	198	800	100	86	186	68	-	110	150	-	50	12	24	130	165	13	35	43	24
MAE 55-4	71	985	-	49	907	198	1105	100	86	186	68	-	110	150	-	50	12	24	130	165	13	35	43	-
MAE 60-L	71	697	-	49	619	198	817	100	86	186	68	-	110	150	-	50	12	24	130	165	13	35	43	-
MAE 65-1 MAE 63-1	71	572	-	59	438	264	702	125	113	138	88	-	140	180	-	65	14	32	180	215	14	35	52	32
MAE 65-2	71	772	-	59	638	264	902	125	113	138	88	-	140	180	363	65	14	32	180	215	14	35	52	38
MAE 70-L	71	772	-	59	638	264	902	125	113	138	88	-	140	180	363	65	14	32	180	215	14	35	52	38
MAE 80-1 MAE 83-1	82	617,5	-	63	536	226,5	762,5	140	119,5	259,5	100	-	150	190	-	80	14	35	180	215	14	39	55	39
MAE 80-2	82	874	-	63	786	233	1019	140	132	272	100	-	150	190	458	80	14	35	180	215	14	39	55	50
MAE 90-L	82	944	-	63	856	233	1089	140	132	272	100	-	150	190	528	80	14	35	180	215	14	39	55	-
MAE 100-1 MAE 103-1	52,5	860,5	55	51	651	368	1019	160	158	318	185	145	190	240	-	100	18	42	230	265	16	60	42	75
MAE 100-2	52,5	1166,5	55	51	957	368	1325	160	158	318	185	145	190	240	606	100	18	42	230	265	16	60	42	101
MAE 110-L	52,5	1210,5	55	51	1001	368	1369	160	158	318	185	145	190	240	650	100	18	42	230	265	16	60	42	-
MAE 115-1	52,5	900,5	55	51	691	368	1059	160	158	318	185	145	190	240	-	100	18	42	230	265	16	60	42	-
MAE 115-2	52,5	1250,5	55	51	1041	368	1409	160	158	318	185	145	190	240	690	100	18	42	230	265	16	60	42	-
MAE 125-1	55	1079	67	50	814	437	1251	180	174	354	215	170	230	280	-	100	18	55	230 250	265 300	18	65	43	125
MAE 125-2	55	1479	67	50	1214	437	1651	180	174	354	215	170	230	280	796	100	18	55	230 250	265 300	18	65	43	165
MAE 130-L	55	1393	67	50	1128	437	1565	180	174	354	215	170	230	280	711	100	18	55	230 250	265 300	18	65	43	-

EDP code: ZMAN

# MAN

## OVERALL DIMENSIONS



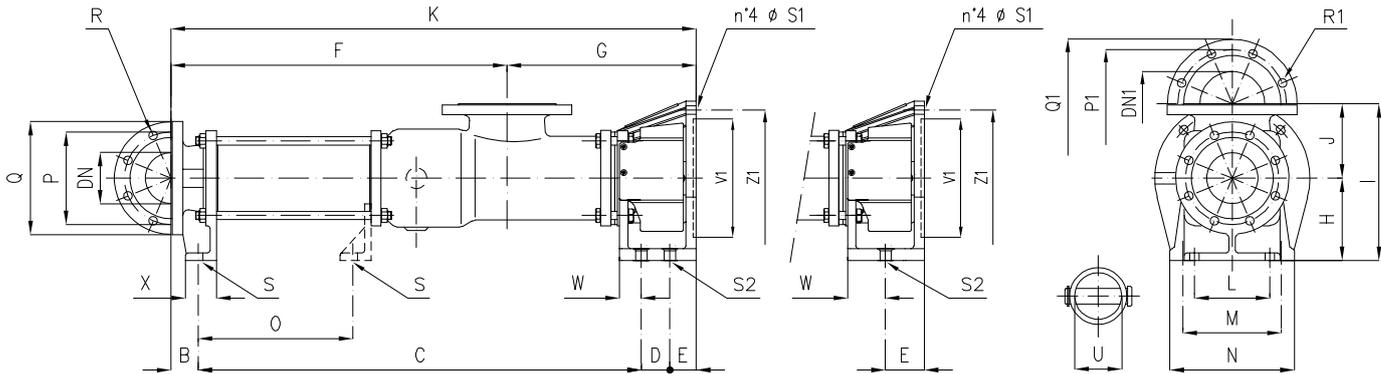
Dimensions not binding

TYPE	B	C	D	E	F	G	K	H	J	I	L	L1	M	N	O	DN	S	T	U	V	Z	X	W	Weight Kg
MAN 40-1	53	404	-	166	344	279	623	90	79	169	42	-	60	82	-	40	10	35	14	16	5	27	30	9
MAN 40-2	53	504	-	166	444	279	723	90	79	169	42	-	60	82	-	40	10	35	14	16	5	27	30	11
MAN 50-1	71	515	152	81	452	367	819	100	86	186	68	-	85	110	-	50	12	50	25	28	8	35	27	22
MAN 50-2	71	662	152	81	599	367	966	100	86	186	68	-	85	110	-	50	12	50	25	28	8	35	27	27
MAN 55-4	71	970	152	81	907	367	1274	100	86	186	68	-	85	110	-	50	12	50	25	28	8	35	27	-
MAN 60-L	71	678	152	81	615	367	982	100	86	186	68	-	85	110	-	50	12	50	25	28	8	35	27	-
MAN 65-1	71	549	204	102	438	488	926	125	113	238	88	-	108	138	-	65	14	62	28	31	8	35	25	35
MAN 63-1	71	549	204	102	438	488	926	125	113	238	88	-	108	138	-	65	14	62	28	31	8	35	25	35
MAN 65-2	71	749	204	102	638	488	1126	125	113	238	88	-	108	138	363	65	14	62	28	31	8	35	25	42
MAN 70-L	71	749	204	102	638	488	1126	125	113	238	88	-	108	138	363	65	14	62	28	31	8	35	25	42
MAN 80-1	82	594	222	124	536	486	1022	140	120	260	100	-	115	155	-	80	14	75	35	38	10	39	34	49
MAN 83-1	82	594	222	124	536	486	1022	140	120	260	100	-	115	155	-	80	14	75	35	38	10	39	34	49
MAN 80-2	82	851	222	124	786	493	1279	140	132	272	100	-	115	155	458	80	14	75	35	38	10	39	34	60
MAN 80-4	82	1373	222	124	1308	493	1801	140	132	272	100	-	115	155	980	80	14	75	35	38	10	39	34	-
MAN 90-L	82	921	222	124	856	493	1349	140	132	272	100	-	115	155	528	80	14	75	35	38	10	39	34	-
MAN 100-1	52,5	854,5	274	141	651	671	1322	160	158	318	185	145	145	185	-	100	18	90	42	45	12	60	35	94
MAN 103-1	52,5	854,5	274	141	651	671	1322	160	158	318	185	145	145	185	-	100	18	90	42	45	12	60	35	94
MAN 100-2	52,5	1160,5	274	141	957	671	1628	160	158	318	185	145	145	185	606	100	18	90	42	45	12	60	35	120
MAN 100-4	52,5	1789,5	274	141	1586	671	2257	160	158	318	185	145	145	185	1235	100	18	90	42	45	12	60	35	-
MAN 110-L	52,5	1204,5	274	141	1001	671	1672	160	158	318	185	145	145	185	650	100	18	90	42	45	12	60	35	-
MAN 115-1	52,5	894,5	274	141	691	671	1362	160	158	318	185	145	145	185	-	100	18	90	42	45	12	60	35	-
MAN 115-2	52,5	1244,5	274	141	1041	671	1712	160	158	318	185	145	145	185	690	100	18	90	42	45	12	60	35	-
MAN 125-1	55	1079	318	167	814	805	1619	180	174	354	215	170	170	215	-	100	18	110	55	59	16	65	40	150
MAN 125-2	55	1479	318	167	1214	805	2019	180	174	354	215	170	170	215	796	100	18	110	55	59	16	65	40	190
MAN 125-4	55	2290	318	167	2025	805	2830	180	174	354	215	170	170	215	1608	100	18	110	55	59	16	65	40	-
MAN 130-L	55	1393	318	167	1128	805	1933	180	174	354	215	170	170	215	711	100	18	110	55	59	16	65	40	-

EDP code: ZMIE

# MIE

## OVERALL DIMENSIONS



(\*\*) To be determined according to the motorization used.

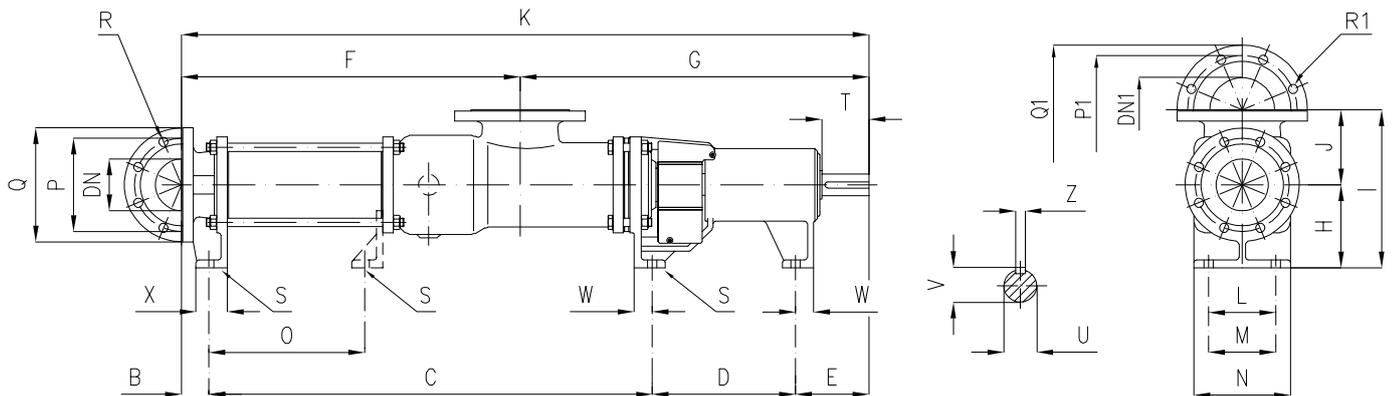
Dimensions not binding

TYPE	B	C	D	E	F	G	K	H	J	I	L	M	N	O	DN	P	Q	R	no. holes	DN1	P1	Q1	R1	no. holes	S	(**) S1	U	(**) V1	(**) Z1	X	W	Weight kg
MIE 50-1	54	558	-	49	462	198	660	100	93	193	85	110	150	-	50	125	165	18	4	50	125	165	18	4	12	13	24	130	165	40	43	26
MIE 50-2	54	708	-	49	612	198	810	100	93	193	85	110	150	-	50	125	165	18	4	50	125	165	18	4	12	13	24	130	165	40	43	30
MIE 55-4	54	1015	-	49	920	198	1118	100	93	193	85	110	150	-	50	125	165	18	4	50	125	165	18	4	12	13	24	130	165	40	43	-
MIE 60-L	54	723	-	49	628	198	826	100	93	193	85	110	150	-	50	125	165	18	4	50	125	165	18	4	12	13	24	130	165	40	43	-
MIE 65-1 MIE 63-1	44	602	-	59	438	267	705	125	120	245	108	140	180	-	65	145	185	18	4	80	160	200	18	8	14	14	32	180	215	45	52	39
MIE 65-2	44	802	-	59	638	267	905	125	120	245	108	140	180	392	65	145	185	18	4	80	160	200	18	8	14	14	32	180	215	45	52	45
MIE 70-L	44	802	-	59	638	267	905	125	120	245	108	140	180	392	65	145	185	18	4	80	160	200	18	8	14	14	32	180	215	45	52	45
MIE 80-1 MIE 83-1	41	663	-	63	481	286	767	140	130	270	115	150	190	-	80	160	200	18	8	100	180	220	18	8	14	14	35	180	215	50	55	52
MIE 80-2	41	913	-	63	731	286	1017	140	130	270	115	150	190	500	80	160	200	18	8	100	180	220	18	8	14	14	35	180	215	50	55	61
MIE 90-L	41	983	-	63	801	286	1087	140	130	270	115	150	190	570	80	160	200	18	8	100	180	220	18	8	14	14	35	180	215	50	55	-
MIE 100-1 MIE 103-1	52,5	854,5	55	51	648	365	1013	160	145	305	145	190	240	-	100	180	220	18	8	125	210	250	18	8	18	16	42	230	265	60	42	90
MIE 100-2	52,5	1160,5	55	51	954	365	1319	160	145	305	145	190	240	606	100	180	220	18	8	125	210	250	18	8	18	16	42	230	265	60	42	116
MIE 110-L	52,5	1204,5	55	51	998	365	1363	160	145	305	145	190	240	650	100	180	220	18	8	125	210	250	18	8	18	16	42	230	265	60	42	-
MIE 115-1	52,5	894,5	55	51	688	365	1053	160	145	305	145	190	240	-	100	180	220	18	8	125	210	250	18	8	18	16	42	230	265	60	42	-
MIE 115-2	52,5	1244,5	55	51	1038	365	1403	160	145	305	145	190	240	690	100	180	220	18	8	125	210	250	18	8	18	16	42	230	265	60	42	-
MIE 125-1	46,5	1079,5	67	50	806	437	1243	180	172	352	170	230	280	-	125	210	250	18	8	150	240	285	22	8	18	18	55	230 250	265 300	65	43	155
MIE 125-2	46,5	1479,5	67	50	1206	437	1643	180	172	352	170	230	280	799,5	125	210	250	18	8	150	240	285	22	8	18	18	55	230 250	265 300	65	43	195
MIE 130-L	46,5	1393,5	67	50	1120	437	1557	180	172	352	170	230	280	713,5	125	210	250	18	8	150	240	285	22	8	18	18	55	230 250	265 300	65	43	-
MIE 150-1S	66	1881	70	50	1680	387	2067	200	210	410	200	200	250	519	150	240	285	22	8	150	240	285	22	8	22	16 20	55	230 250	265 300	90	75	-
MIE 150-2	66	2381	70	50	2180	387	2567	200	210	410	200	200	250	1019	150	240	285	22	8	150	240	285	22	8	22	16 20	55	230 250	265 300	90	75	-
MIE 160-L	66	2375	70	50	2174	387	2561	200	210	410	200	200	250	1012	150	240	285	22	8	150	240	285	22	8	22	16 20	55	230 250	265 300	90	75	-

EDP code: ZMIN

# MIN

## OVERALL DIMENSIONS



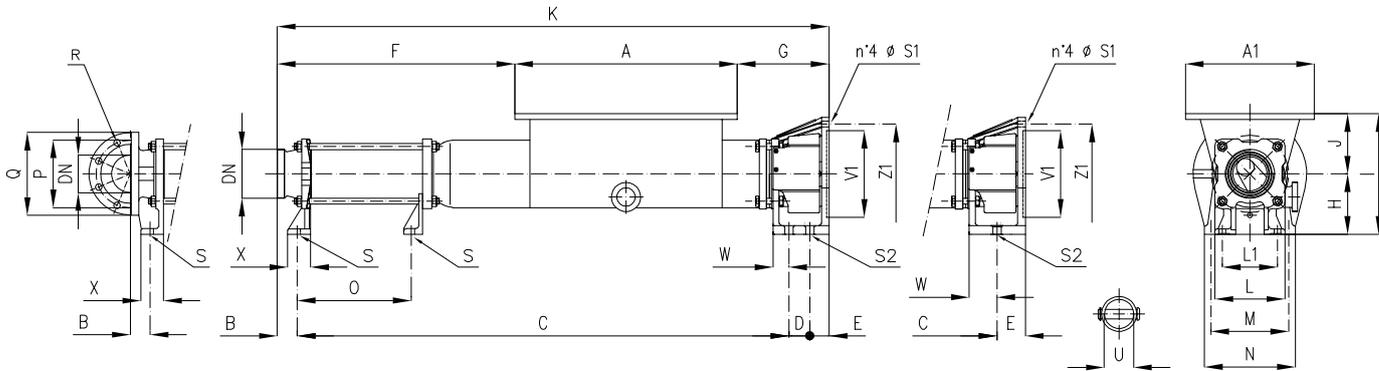
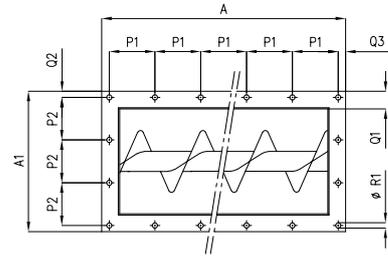
Dimensions not binding

TYPE	B	C	D	E	F	G	K	H	J	I	L	M	N	O	DN	P	Q	R	no. holes	DN1	P1	Q1	R1	no. holes	S	T	U	V	Z	X	W	Weight kg
MIN 50-1	54	543	152	81	462	367	829	100	93	193	85	85	110	-	50	125	165	18	4	50	125	165	18	4	12	50	25	28	8	40	27	29
MIN 50-2	54	693	152	81	612	367	979	100	93	193	85	85	110	-	50	125	165	18	4	50	125	165	18	4	12	50	25	28	8	40	27	33
MIN 55-4	54	1000	152	81	920	367	1287	100	93	193	85	85	110	-	50	125	165	18	4	50	125	165	18	4	12	50	25	28	8	40	27	-
MIN 60-L	54	709	152	81	628	367	995	100	93	193	85	85	110	-	50	125	165	18	4	50	125	165	18	4	12	50	25	28	8	40	27	-
MIN 65-1	44	579	204	102	438	491	929	125	120	245	108	108	138	-	65	145	185	18	4	80	160	200	18	8	14	62	28	31	8	45	25	42
MIN 63-1	44	579	204	102	438	491	929	125	120	245	108	108	138	-	65	145	185	18	4	80	160	200	18	8	14	62	28	31	8	45	25	42
MIN 65-2	44	779	204	102	638	491	1129	125	120	245	108	108	138	395	65	145	185	18	4	80	160	200	18	8	14	62	28	31	8	45	25	49
MIN 70-L	44	779	204	102	638	491	1129	125	120	245	108	108	138	395	65	145	185	18	4	80	160	200	18	8	14	62	28	31	8	45	25	49
MIN 80-1	41	640,5	222	123,5	481	546	1027	140	130	270	115	115	155	-	80	160	200	18	8	100	180	220	18	8	14	75	35	38	10	50	34	59
MIN 83-1	41	640,5	222	123,5	481	546	1027	140	130	270	115	115	155	-	80	160	200	18	8	100	180	220	18	8	14	75	35	38	10	50	34	59
MIN 80-2	41	890,5	222	123,5	731	546	1277	140	130	270	115	115	155	500	80	160	200	18	8	100	180	220	18	8	14	75	35	38	10	50	34	70
MIN 80-4	41	1412,5	222	123,5	1253	546	1799	140	130	270	115	115	155	1022	80	160	200	18	8	100	180	220	18	8	14	75	35	38	10	50	34	-
MIN 90-L	41	960,5	222	123,5	801	546	1347	140	130	270	115	115	155	570	80	160	200	18	8	100	180	220	18	8	14	75	35	38	10	50	34	-
MIN 100-1	52,5	848,5	274	141	648	668	1316	160	145	305	145	145	185	-	100	180	220	18	8	125	210	250	18	8	18	90	42	45	12	60	35	110
MIN 103-1	52,5	848,5	274	141	648	668	1316	160	145	305	145	145	185	-	100	180	220	18	8	125	210	250	18	8	18	90	42	45	12	60	35	110
MIN 100-2	52,5	1154,5	274	141	954	668	1622	160	145	305	145	145	185	606	100	180	220	18	8	125	210	250	18	8	18	90	42	45	12	60	35	136
MIN 100-4	52,5	1783,5	274	141	1583	668	2251	160	145	305	145	145	185	1235	100	180	220	18	8	125	210	250	18	8	18	90	42	45	12	60	35	-
MIN 110-L	52,5	1198,5	274	141	998	668	1666	160	145	305	145	145	185	650	100	180	220	18	8	125	210	250	18	8	18	90	42	45	12	60	35	-
MIN 115-1	52,5	888,5	274	141	688	668	1356	160	145	305	145	145	185	-	100	180	220	18	8	125	210	250	18	8	18	90	42	45	12	60	35	-
MIN 115-2	52,5	1238,5	274	141	1038	668	1706	160	145	305	145	145	185	690	100	180	220	18	8	125	210	250	18	8	18	90	42	45	12	60	35	-
MIN 125-1	46,5	1079,5	318	167	806	805	1611	180	172	352	170	170	215	-	125	210	250	18	8	150	240	285	22	8	18	110	55	59	16	65	40	180
MIN 125-2	46,5	1479,5	318	167	1206	805	2011	180	172	352	170	170	215	799,5	125	210	250	18	8	150	240	285	22	8	18	110	55	59	16	65	40	220
MIN 125-4	46,5	2290,5	318	167	2017	805	2822	180	172	352	170	170	215	1610,5	125	210	250	18	8	150	240	285	22	8	18	110	55	59	16	65	40	-
MIN 130-L	46,5	1393,5	318	167	1120	805	1925	180	172	352	170	170	215	713,5	125	210	250	18	8	150	240	285	22	8	18	110	55	59	16	65	40	-
MIN 150-1S	66	1894	298	177	1680	755	2435	200	210	410	200	200	250	519	150	240	285	22	8	150	240	285	22	8	22	110	55	59	16	90	50	265
MIN 150-2	66	2394	298	177	2180	755	2935	200	210	410	200	200	250	1019	150	240	285	22	8	150	240	285	22	8	22	110	55	59	16	90	50	-
MIN 160-L	66	2388	298	177	2174	755	2929	200	210	410	200	200	250	1013	150	240	285	22	8	150	240	285	22	8	22	110	55	59	16	90	50	-

EDP code: ZMCE

TYPE	A	A1	P1	P2	Q1	Q2	Q3	R1	no. holes
MCE 40-1	300	210	70	63,3	27,5	10	10	9	14
MCE 40-2	300	210	70	63,3	27,5	10	10	9	14
MCE 50-1	365	250	69	57,5	32,5	10	10	11	18
MCE 50-2	365	250	69	57,5	32,5	10	10	11	18
MCE 55-4	365	250	69	57,5	32,5	10	10	11	18
MCE 60-L	365	250	69	57,5	32,5	10	10	11	18
MCE 65-1	426	260	130	116	43	14	18	13	10
MCE 63-1	426	260	130	116	43	14	18	13	10
MCE 65-2	426	260	130	116	43	14	18	13	10
MCE 70-L	426	260	130	116	43	14	18	13	10
MCE 80-1	486	326	113	146	43	17	17	13	12
MCE 83-1	486	326	113	146	43	17	17	13	12
MCE 80-2	486	326	113	146	43	17	17	13	12
MCE 90-L	486	326	113	146	43	17	17	13	12

TYPE	A	A1	P1	P2	Q1	Q2	Q3	R1	no. holes
MCE 100-1	586	340	110	103	43	15	18	13	16
MCE 103-1	586	340	110	103	43	15	18	13	16
MCE 100-2	586	340	110	103	43	15	18	13	16
MCE 110-L	586	340	110	103	43	15	18	13	16
MCE 115-1	586	340	110	103	43	15	18	13	16
MCE 115-2	586	340	110	103	43	15	18	13	16
MCE 125-1	756	420	102	96	53	18	21	18	22
MCE 125-2	756	420	102	96	53	18	21	18	22
MCE 130-L	756	420	102	96	53	18	21	18	22
MCE 150-1S	760	510	102	92	53	24	23	18	24
MCE 150-2	760	510	102	92	53	24	23	18	24
MCE 160-L	760	510	102	92	53	24	23	18	24



(\*) The first parameter refers to a pump with outlet with UNI 2223 PN16 flange; the second parameter refers to a pump with outlet with DIN 11851 male threaded connection.  
 (\*\*) To be determined according to the motorization used.

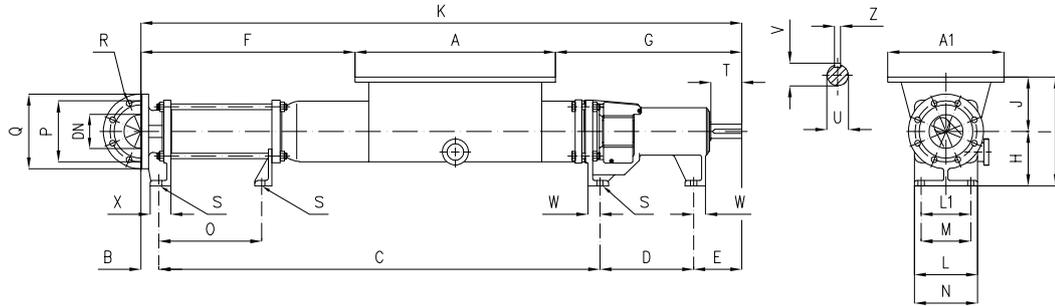
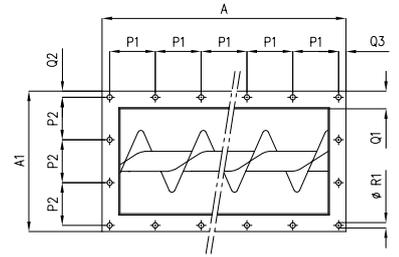
Dimensions not binding

TYPE	(*) B	(*) C	D	E	(*) F	G	(*) K	H	J	I	(*) L	L1	M	N	(*) O	(*) DN	P	Q	R	n° holes	S	U	(**) V1	(**) Z1	(**) S1	(*) X	W	Weight kg
MCE 40-1	53	**	-	-	261,5	95,5	657	**	100	**	-42	-	**	**	-	40	-	-	-	-	10	19	110	130	9	27	-	-
MCE 40-2	53	**	-	-	361,5	95,5	757	**	100	**	-42	-	**	**	-	40	-	-	-	-	10	19	110	130	9	27	-	-
MCE 50-1	71	733	-	49	353,5	134,5	853	100	125	225	68/68	85	110	150	112	50	125	165	18	4	12	24	130	165	13	35	43	28
MCE 50-2	71	883	-	49	503,5	134,5	1003	100	125	225	68/68	85	110	150	262	50	125	165	18	4	12	24	130	165	13	35	43	33
MCE 55-4	71	1189	-	49	809,5	134,5	1309	100	125	225	68/68	85	110	150	568	50	125	165	18	4	12	24	130	165	13	35	43	-
MCE 60-L	71	899	-	49	519,5	134,5	1019	100	125	225	68/68	85	110	150	278	50	125	165	18	4	12	24	130	165	13	35	43	-
MCE 65-1	44	916	-	59	439,5	153,5	1019	125	125	250	138/88	108	140	180	192/162	65	145	185	18	4	14	32	180	215	14	45/35	52	44
MCE 63-1	71	886	-	59	436,5	153,5	1016	125	125	250	138/88	108	140	180	392/362	65	145	185	18	4	14	32	180	215	14	45/35	52	50
MCE 65-2	44	1116	-	59	639,5	153,5	1219	125	125	250	138/88	108	140	180	392/362	65	145	185	18	4	14	32	180	215	14	45/35	52	50
MCE 70-L	44	1116	-	59	636,5	153,5	1216	125	125	250	138/88	108	140	180	392/362	65	145	185	18	4	14	32	180	215	14	45/35	52	50
MCE 80-1	41	1027	-	63	489	156	1131	140	140	280	155/100	115	150	190	248/208	80	160	200	18	8	14	35	180	215	14	50/39	55	57
MCE 83-1	82	988	-	63	491	156	1133	140	140	280	155/100	115	150	190	498/458	80	160	200	18	8	14	35	180	215	14	50/39	55	68
MCE 80-2	41	1277	-	63	739	156	1381	140	140	280	155/100	115	150	190	568/528	80	160	200	18	8	14	35	180	215	14	50/39	55	68
MCE 90-L	41	1347	-	63	809	156	1451	140	140	280	155/100	115	150	190	568/528	80	160	200	18	8	14	35	180	215	14	50/39	55	-
MCE 100-1	52,5	1295,5	55	51	626	242	1454	160	160	320	185/185	145	190	240	300	100	180	220	18	8	18	42	230	265	16	60	42	98
MCE 103-1	52,5	1601,5	55	51	932	242	1760	160	160	320	185/185	145	190	240	606	100	180	220	18	8	18	42	230	265	16	60	42	124
MCE 100-2	52,5	1645,5	55	51	976	242	1804	160	160	320	185/185	145	190	240	650	100	180	220	18	8	18	42	230	265	16	60	42	-
MCE 110-L	52,5	1335,5	55	51	666	242	1494	160	160	320	185/185	145	190	240	340	100	180	220	18	8	18	42	230	265	16	60	42	-
MCE 115-1	52,5	1685,5	55	51	1016	242	1844	160	160	320	185/185	145	190	240	690	100	180	220	18	8	18	42	230	265	16	60	42	-
MCE 115-2	52,5	1685,5	55	51	1016	242	1844	160	160	320	185/185	145	190	240	690	100	180	220	18	8	18	42	230	265	16	60	42	-
MCE 125-1	46,5	1659,5	67	50	807	260	1823	180	180	360	215/215	170	230	280	397,5	125/100	210	250	18	8	18	55	230/250	300/250	18	65	43	156
MCE 125-2	46,5	2059,5	67	50	1207	260	2223	180	180	360	215/215	170	230	280	797,5	125/100	210	250	18	8	18	55	230/250	265/300	18	65	43	196
MCE 130-L	46,5	1973,5	67	50	1121	260	2137	180	180	360	215/215	170	230	280	711,5	125/100	210	250	18	8	18	55	230/250	265/300	18	65	43	-
MCE 150-1S	66	1881	70	50	1025	282	2067	200	200	400	250	200	200	250	519	150	240	285	22	8	22	55	230/250	265/300	16/20	90	75	-
MCE 150-2	66	2381	70	50	1525	282	2567	200	200	400	250	200	200	250	1019	150	240	285	22	8	22	55	230/250	265/300	16/20	90	75	-
MCE 160-L	66	2374	70	50	1518	282	2560	200	200	400	250	200	200	250	1012	150	240	285	22	8	22	55	230/250	265/300	16/20	90	75	-

EDP code: ZMCN

TYPE	A	A1	P1	P2	Q1	Q2	Q3	R1	no. holes
MCN 40-1	300	210	70	63,3	27,5	10	10	9	14
MCN 40-2	300	210	70	63,3	27,5	10	10	9	14
MCN 50-1	365	250	69	57,5	32,5	10	10	11	18
MCN 50-2	365	250	69	57,5	32,5	10	10	11	18
MCN 55-4	365	250	69	57,5	32,5	10	10	11	18
MCN 60-L	365	250	69	57,5	32,5	10	10	11	18
MCN 65-1	426	260	130	116	43	14	18	13	10
MCN 63-1	426	260	130	116	43	14	18	13	10
MCN 65-2	426	260	130	116	43	14	18	13	10
MCN 70-L	426	260	130	116	43	14	18	13	10
MCN 80-1	486	326	113	146	43	17	17	13	12
MCN 83-1	486	326	113	146	43	17	17	13	12
MCN 80-2	486	326	113	146	43	17	17	13	12
MCN 80-4	486	326	113	146	43	17	17	13	12
MCN 90-L	486	326	113	146	43	17	17	13	12

TYPE	A	A1	P1	P2	Q1	Q2	Q3	R1	no. holes
MCN 100-1	586	340	110	103	43	15	18	13	16
MCN 103-1	586	340	110	103	43	15	18	13	16
MCN 100-2	586	340	110	103	43	15	18	13	16
MCN 100-4	586	340	110	103	43	15	18	13	16
MCN 110-L	586	340	110	103	43	15	18	13	16
MCN 115-1	586	340	110	103	43	15	18	13	16
MCN 115-2	586	340	110	103	43	15	18	13	16
MCN 125-1	756	420	102	96	53	18	21	18	22
MCN 125-2	756	420	102	96	53	18	21	18	22
MCN 125-4	756	420	102	96	53	18	21	18	22
MCN 130-L	756	420	102	96	53	18	21	18	22
MCN 150-1S	760	510	102	92	53	25	23	18	24
MCN 150-2	760	510	102	92	53	25	23	18	24
MCN 160-L	760	510	102	92	53	25	23	18	24



(\*) The first parameter refers to a pump with outlet with UNI 2223 PN16 flange; the second parameter refers to a pump with outlet with DIN 11851 male threaded connection.

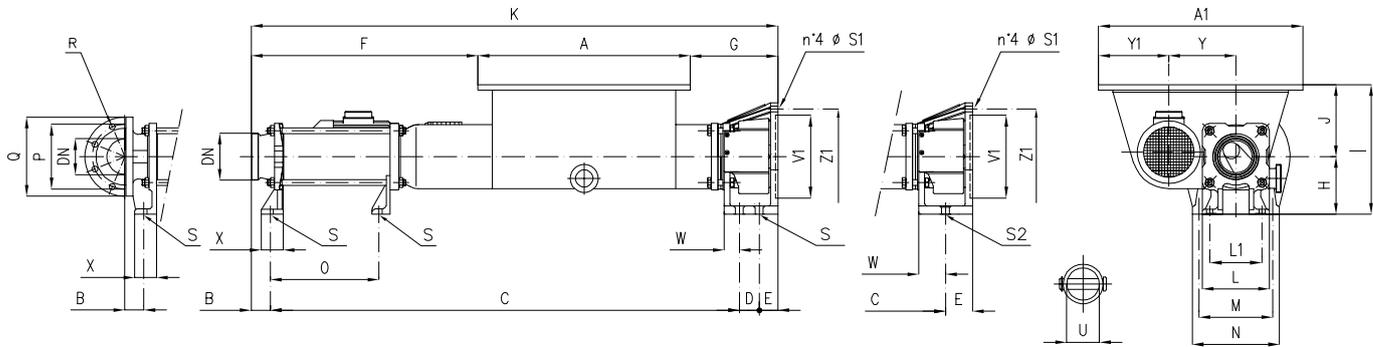
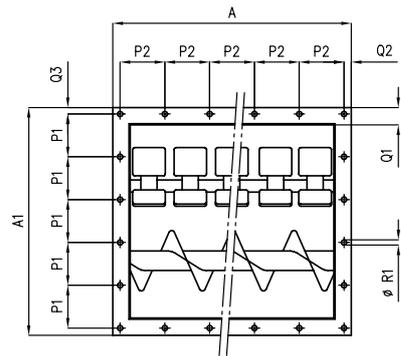
Dimensions not binding

TYPE	(*) B	(*) C	D	E	(*) F	G	(*) K	H	J	I	(*) L	L1	M	N	(*) O	(*) DN	P	Q	R	n° holes	S	T	U	V	Z	(*) X	W	Weight kg
MCN 40-1	53	586	-	166	261,5	243,5	805	90	100	190	42	-	60	82	-	40	-	-	-	-	10	35	14	16	5	27	30	-
MCN 40-2	53	686	-	166	361,5	243,5	905	90	100	190	42	-	60	82	-	40	-	-	-	-	10	35	14	16	5	27	30	-
MCN 50-1	71	718	152	81	353,5	303,5	1022	100	125	225	68/68	85	85	110	112	50	125	165	18	4	12	50	25	28	8	35	27	31
MCN 50-2	71	868	152	81	503,5	303,5	1172	100	125	225	68/68	85	85	110	262	50	125	165	18	4	12	50	25	28	8	35	27	36
MCN 55-4	71	1174	152	81	809,5	303,5	1478	100	125	225	68/68	85	85	110	568	50	125	165	18	4	12	50	25	28	8	35	27	-
MCN 60-L	71	884	152	81	519,5	303,5	1188	100	125	225	68/68	85	85	110	278	50	125	165	18	4	12	50	25	28	8	35	27	-
MCN 65-1	44	893	204	102	439,5	377,5	1243	125	125	250	138/88	108	108	138	192/162	65	145	185	18	4	14	62	28	31	8	45/35	25	48
MCN 63-1	71	863	204	102	436,5	377,5	1240	125	125	250	138/88	108	108	138	192/162	65	145	185	18	4	14	62	28	31	8	45/35	25	48
MCN 65-2	44	1093	204	102	639,5	377,5	1443	125	125	250	138/88	108	108	138	392/362	65	145	185	18	4	14	62	28	31	8	45/35	25	55
MCN 63-1	71	1063	204	102	636,5	377,5	1440	125	125	250	138/88	108	108	138	392/362	65	145	185	18	4	14	62	28	31	8	45/35	25	55
MCN 70-L	44	1093	204	102	639,5	377,5	1443	125	125	250	138/88	108	108	138	392/362	65	145	185	18	4	14	62	28	31	8	45/35	25	55
MCN 63-1	71	1063	204	102	636,5	377,5	1440	125	125	250	138/88	108	108	138	392/362	65	145	185	18	4	14	62	28	31	8	45/35	25	55
MCN 80-1	41	1004	222	124	489	416	1391	140	140	280	155/100	115	115	155	248/208	80	160	200	18	8	14	75	35	38	10	50/39	34	65
MCN 83-1	82	965	222	124	491	416	1393	140	140	280	155/100	115	115	155	248/208	80	160	200	18	8	14	75	35	38	10	50/39	34	65
MCN 80-2	41	1254	222	124	739	416	1641	140	140	280	155/100	115	115	155	498/458	80	160	200	18	8	14	75	35	38	10	50/39	34	76
MCN 83-1	82	1215	222	124	741	416	1643	140	140	280	155/100	115	115	155	498/458	80	160	200	18	8	14	75	35	38	10	50/39	34	76
MCN 80-4	41	1776	222	124	1261	416	2163	140	140	280	155/100	115	115	155	1020/980	80	160	200	18	8	14	75	35	38	10	50/39	34	-
MCN 83-1	82	1737	222	124	1263	416	2165	140	140	280	155/100	115	115	155	1020/980	80	160	200	18	8	14	75	35	38	10	50/39	34	-
MCN 90-L	41	1324	222	124	809	416	1711	140	140	280	155/100	115	115	155	568/528	80	160	200	18	8	14	75	35	38	10	50/39	34	-
MCN 103-1	82	1285	222	124	811	416	1713	140	140	280	155/100	115	115	155	568/528	80	160	200	18	8	14	75	35	38	10	50/39	34	-
MCN 100-1	52,5	1289,5	274	141	626	545	1757	160	160	320	185/185	145	145	185	300	100	180	220	18	8	18	90	42	45	12	60	35	118
MCN 103-1	82	1285	222	124	811	416	1713	140	140	280	155/100	115	115	155	568/528	80	160	200	18	8	14	75	35	38	10	50/39	34	-
MCN 100-2	52,5	1595,5	274	141	932	545	2063	160	160	320	185/185	145	145	185	606	100	180	220	18	8	18	90	42	45	12	60	35	144
MCN 100-4	52,5	2224,5	274	141	1561	545	2692	160	160	320	185/185	145	145	185	1235	100	180	220	18	8	18	90	42	45	12	60	35	-
MCN 110-L	52,5	1639,5	274	141	976	545	2107	160	160	320	185/185	145	145	185	650	100	180	220	18	8	18	90	42	45	12	60	35	-
MCN 115-1	52,5	1329,5	274	141	666	545	1797	160	160	320	185/185	145	145	185	340	100	180	220	18	8	18	90	42	45	12	60	35	-
MCN 115-2	52,5	1679,5	274	141	1016	545	2147	160	160	320	185/185	145	145	185	690	100	180	220	18	8	18	90	42	45	12	60	35	-
MCN 125-1	46,5	1659,5	318	167	807	627,5	2190,5	180	180	360	215/215	170	170	215	397,5	125/100	210	250	18	8	18	110	55	59	16	65	40	181
MCN 103-1	82	1285	222	124	811	416	1713	140	140	280	155/100	115	115	155	568/528	80	160	200	18	8	14	75	35	38	10	50/39	34	-
MCN 125-2	46,5	2059,5	318	167	1207	627,5	2590,5	180	180	360	215/215	170	170	215	797,5	125/100	210	250	18	8	18	110	55	59	16	65	40	221
MCN 103-1	82	1285	222	124	811	416	1713	140	140	280	155/100	115	115	155	568/528	80	160	200	18	8	14	75	35	38	10	50/39	34	-
MCN 125-4	46,5	2870,5	318	167	2018	627,5	3401,5	180	180	360	215/215	170	170	215	1608,5	125/100	210	250	18	8	18	110	55	59	16	65	40	-
MCN 83-1	82	1285	222	124	811	416	1713	140	140	280	155/100	115	115	155	568/528	80	160	200	18	8	14	75	35	38	10	50/39	34	-
MCN 130-L	46,5	1973,5	318	167	1121	627,5	2504,5	180	180	360	215/215	170	170	215	711,5	125/100	210	250	18	8	18	110	55	59	16	65	40	-
MCN 103-1	82	1285	222	124	811	416	1713	140	140	280	155/100	115	115	155	568/528	80	160	200	18	8	14	75	35	38	10	50/39	34	-
MCN 150-1S	66	1894	298	177	1025	650	2435	200	200	400	250	200	200	250	519	150	240	285	22	8	22	110	55	59	16	90	50	288
MCN 150-2	66	2394	298	177	1525	650	2935	200	200	400	250	200	200	250	1019	150	240	285	22	8	22	110	55	59	16	90	50	-
MCN 160-L	66	2387	298	177	1518	650	2928	200	200	400	250	200	200															

EDP code: ZMRE

TYPE	A	A1	P1	P2	Q1	Q2	Q3	R1	no. holes
MCRE 50-1	365	443	102,5	85	32,5	12,5	16,5	13	16
MCRE 50-2	365	443	102,5	85	32,5	12,5	16,5	13	16
MCRE 55-4	365	443	102,5	85	32,5	12,5	16,5	13	16
MCRE 60-L	365	443	102,5	85	32,5	12,5	16,5	13	16
MCRE 65-1	426	565	105	130	42,5	18	20	13	16
MCRE 63-1	426	565	105	130	42,5	18	20	13	16
MCRE 65-2	426	565	105	130	42,5	18	20	13	16
MCRE 70-L	426	565	105	130	42,5	18	20	13	16
MCRE 80-1	486	580	110	113	43	17	15	13	18
MCRE 83-1	486	580	110	113	43	17	15	13	18
MCRE 80-2	486	580	110	113	43	17	15	13	18
MCRE 90-L	486	580	110	113	43	17	15	13	18

TYPE	A	A1	P1	P2	Q1	Q2	Q3	R1	no. holes
MCRE 100-1	586	564	106	110	43	18	16	13	20
MCRE 103-1	586	564	106	110	43	18	16	13	20
MCRE 100-2	586	564	106	110	43	18	16	13	20
MCRE 110-L	586	564	106	110	43	18	16	13	20
MCRE 115-1	586	564	106	110	43	18	16	13	20
MCRE 115-2	586	564	106	110	43	18	16	13	20
MCRE 125-1	756	642	120	102	53	21	21	16	24
MCRE 125-2	756	642	120	102	53	21	21	16	24
MCRE 130-L	756	642	120	102	53	21	21	16	24
MCRE 150-1S	760	782	92	102	55	23	23	18	30
MCRE 150-2	760	782	92	102	55	23	23	18	30



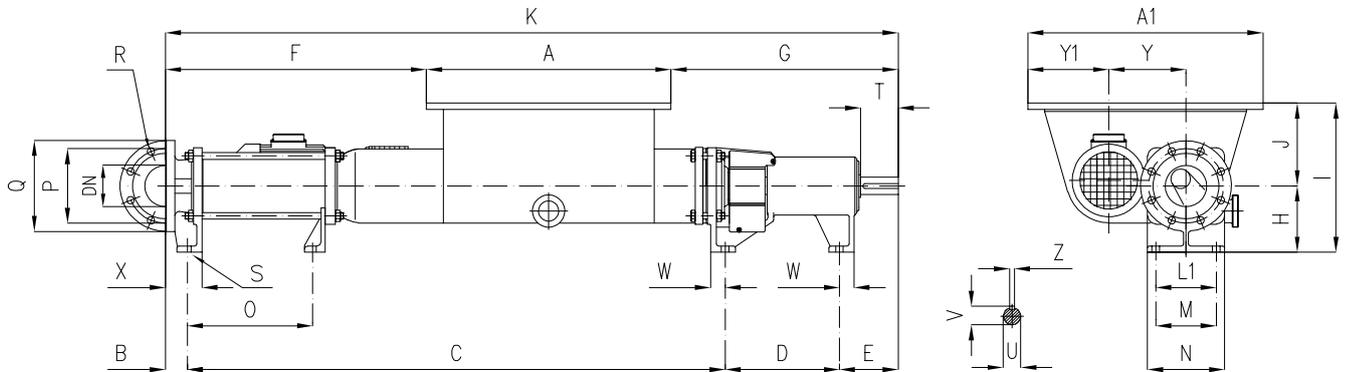
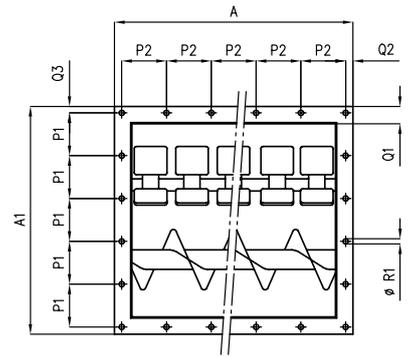
(\*) The first parameter refers to a pump with outlet with UNI 2223 PN16 flange; the second parameter refers to a pump with outlet with DIN 11851 male threaded connection.  
 (\*\*) To be determined according to the motorization used.

Dimensions not binding

TYPE	(*) B	(*) C	D	E	(*) F	G	(*) K	H	J	I	(*) L	(*) L1	M	N	(*) O	(*) DN	P	Q	R	no. holes	S	U	(**) V1	(**) Z1	(**) S1	(*) X	Y	Y1	W	Weight kg
MCRE 50-1	71	733	-	49	353,5	134,5	853	100	160	260	68	85	110	150	112	50	-	-	-	-	12	24	130	165	13	35	139	166	43	-
MCRE 50-2	71	883	-	49	503,5	134,5	1003	100	160	260	68	85	110	150	262	50	125	165	18	4	12	24	130	165	13	35	139	166	43	-
MCRE 55-4	71	1189	-	49	809,5	134,5	1309	100	160	260	68	85	110	150	568	50	125	165	18	4	12	24	130	165	13	35	139	166	43	-
MCRE 60-L	71	899	-	49	519,5	134,5	1019	100	160	260	68	85	110	150	278	50	125	165	18	4	12	24	130	165	13	35	139	166	43	-
MCRE 65-1	71	886	-	59	436	154	1016	125	165	290	88	108	140	180	162	65	-	-	-	-	14	32	180	215	14	35	160	212,5	52	89
MCRE 63-1	44	1116	-	59	639	154	1219	125	165	290	88	108	140	180	392	65	145	185	18	4	14	32	180	215	14	45	160	212,5	52	96
MCRE 65-2	44	1086	-	59	636	154	1216	125	165	290	88	108	140	180	362	65	145	185	18	4	14	32	180	215	14	35	160	212,5	52	96
MCRE 70-L	44	1116	-	59	639	154	1219	125	165	290	88	108	140	180	362	65	145	185	18	4	14	32	180	215	14	45	160	212,5	52	96
MCRE 80-1	41	1027	-	63	489	156	1131	140	180	320	100	115	150	190	248	80	160	200	18	8	14	35	180	215	14	50	160	228	55	108
MCRE 83-1	82	988	-	63	491	156	1133	140	180	320	100	115	150	190	208	80	160	200	18	8	14	35	180	215	14	39	160	228	55	108
MCRE 80-2	41	1277	-	63	739	156	1381	140	180	320	100	115	150	190	498	80	160	200	18	8	14	35	180	215	14	50	160	228	55	119
MCRE 82	82	1238	-	63	741	156	1383	140	180	320	100	115	150	190	458	80	160	200	18	8	14	35	180	215	14	39	160	228	55	119
MCRE 90-L	41	1347	-	63	809	156	1451	140	180	320	100	115	150	190	568	80	160	200	18	8	14	35	180	215	14	50	160	228	55	-
MCRE 82	82	1308	-	63	811	156	1453	140	180	320	100	115	150	190	528	80	160	200	18	8	14	35	180	215	14	39	160	228	55	-
MCRE 100-1	52,5	1295,5	55	51	626	242	1454	160	200	360	185	145	190	240	300	100	180	220	18	8	18	42	230	265	16	60	185	195	42	155
MCRE 103-1	52,5	1601,5	55	51	932	242	1760	160	200	360	185	145	190	240	606	100	180	220	18	8	18	42	230	265	16	60	185	195	42	181
MCRE 100-2	52,5	1601,5	55	51	932	242	1760	160	200	360	185	145	190	240	606	100	180	220	18	8	18	42	230	265	16	60	185	195	42	181
MCRE 110-L	52,5	1645,5	55	51	976	242	1804	160	200	360	185	145	190	240	650	100	180	220	18	8	18	42	230	265	16	60	185	195	42	-
MCRE 115-1	52,5	1335,5	55	51	666	242	1494	160	200	360	185	145	190	240	340	100	180	220	18	8	18	42	230	265	16	60	185	195	42	-
MCRE 115-2	52,5	1685,5	55	51	1016	242	1844	160	200	360	185	145	190	240	690	100	180	220	18	8	18	42	230	265	16	60	185	195	42	-
MCRE 125-1	46,5	1659,5	67	50	807	260	1823	180	200	380	215	170	230	280	397,5	125	210	250	18	8	18	55	230	265	18	65	210	222	43	219
MCRE 115-2	55	1659,5	67	50	815,5	260	1831,5	180	200	380	215	170	230	280	397,5	100	210	250	18	8	18	55	230	265	18	65	210	222	43	219
MCRE 125-2	46,5	2059,5	67	50	1207	260	2223	180	200	380	215	170	230	280	797,5	125	210	250	18	8	18	55	230	265	18	65	210	222	43	259
MCRE 125-2	55	2059,5	67	50	1215,5	260	2231,5	180	200	380	215	170	230	280	797,5	100	210	250	18	8	18	55	230	265	18	65	210	222	43	259
MCRE 130-L	46,5	1973,5	67	50	1121	260	2137	180	200	380	215	170	230	280	711,5	125	210	250	18	8	18	55	230	265	18	65	210	222	43	-
MCRE 130-L	55	1973,5	67	50	1129,5	260	2145,5	180	200	380	215	170	230	280	711,5	100	210	250	18	8	18	55	230	265	18	65	210	222	43	-
MCRE 150-1S	66	1881	70	50	1025	282	2067	200	250	450	-	200	200	250	519	150	240	285	22	8	22	55	230	265	16	90	262	266	75	-
MCRE 150-2	66	2381	70	50	1525	282	2567	200	250	450	-	200	200	250	1019	150	240	285	22	8	22	55	230	265	16	90	262	266	75	-
MCRE 150-2	66	2381	70	50	1525	282	2567	200	250	450	-	200	200	250	1019	150	240	285	22	8	22	55	230	265	16	90	262	266	75	-

TYPE	A	A1	P1	P2	Q1	Q2	Q3	R1	no. holes
MCRN 50-1	365	443	102,5	85	32,5	12,5	16,5	13	16
MCRN 50-2	365	443	102,5	85	32,5	12,5	16,5	13	16
MCRN 55-4	365	443	102,5	85	32,5	12,5	16,5	13	16
MCRN 60-L	365	443	102,5	85	32,5	12,5	16,5	13	16
MCRN 65-1	426	565	105	130	42,5	18	20	13	16
MCRN 63-1	426	565	105	130	42,5	18	20	13	16
MCRN 65-2	426	565	105	130	42,5	18	20	13	16
MCRN 70-L	426	565	105	130	42,5	18	20	13	16
MCRN 80-1	486	580	110	113	43	17	15	13	18
MCRN 83-1	486	580	110	113	43	17	15	13	18
MCRN 80-2	486	580	110	113	43	17	15	13	18
MCRN 80-4	486	580	110	113	43	17	15	13	18
MCRN 90-L	486	580	110	113	43	17	15	13	18
MCRN 100-1	586	564	106	110	43	18	16	13	20
MCRN 103-1	586	564	106	110	43	18	16	13	20

TYPE	A	A1	P1	P2	Q1	Q2	Q3	R1	no. holes
MCRN 100-2	586	564	106	110	43	18	16	13	20
MCRN 100-4	586	564	106	110	43	18	16	13	20
MCRN 110-L	586	564	106	110	43	18	16	13	20
MCRN 115-1	586	564	106	110	43	18	16	13	20
MCRN 115-2	586	564	106	110	43	18	16	13	20
MCRN 125-1	756	642	120	102	53	21	21	16	24
MCRN 125-2	756	642	120	102	53	21	21	16	24
MCRN 125-4	756	642	120	102	53	21	21	16	24
MCRN 130-L	756	642	120	102	53	21	21	16	24
MCRN 150-1S	760	782	92	102	55	23	23	18	30
MCRN 150-2	760	782	92	102	55	23	23	18	30
MCRN 160-L	760	782	92	102	55	23	23	18	30



(\*) The first parameter refers to a pump with outlet with UNI 2223 PN16 flange; the second parameter refers to a pump with outlet with DIN 11851 male threaded connection.

Dimensions not binding

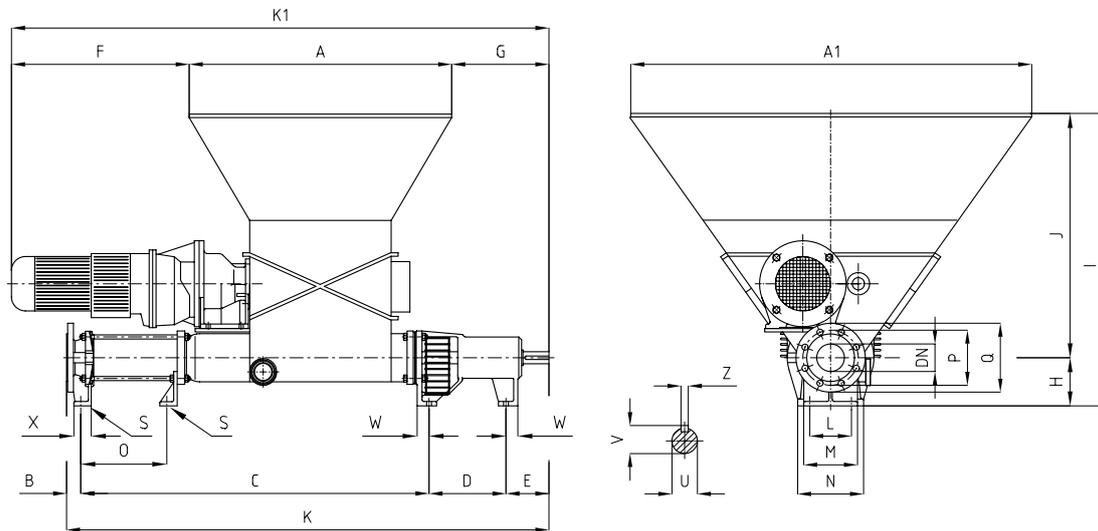
TYPE	(*) B	(*) C	D	E	(*) F	G	(*) K	H	J	I	L	L1	M	N	(*) O	(*) DN	P	Q	R	no. holes	S	T	U	V	Z	(*) X	Y	Y1	W	Weight kg
MCRN 50-1	71	718	152	81	353,5	303,5	1022	100	160	260	68	85	85	110	112	50	-	-	-	-	12	50	25	28	8	35	139	166	27	-
MCRN 50-2	71	868	152	81	503,5	303,5	1172	100	160	260	68	85	85	110	262	50	125	165	18	4	12	50	25	28	8	35	139	166	27	-
MCRN 55-4	71	1174	152	81	809,5	303,5	1478	100	160	260	68	85	85	110	568	50	125	165	18	4	12	50	25	28	8	35	139	166	27	-
MCRN 60-L	71	884	152	81	519,5	303,5	1188	100	160	260	68	85	85	110	278	50	125	165	18	4	12	50	25	28	8	35	139	166	27	-
MCRN 65-1	-	-	204	102	436	378	1240	125	165	290	88	108	108	138	162	65	-	-	-	-	14	62	28	31	8	35	160	212,5	25	93
MCRN 63-1	71	863	204	102	436	378	1240	125	165	290	88	108	108	138	162	65	-	-	-	-	14	62	28	31	8	35	160	212,5	25	93
MCRN 65-2	44	1093	204	102	639	378	1443	125	165	290	88	108	108	138	392	65	145	185	18	4	14	62	28	31	8	45	160	212,5	25	100
MCRN 63-1	71	1063	204	102	639	378	1440	125	165	290	88	108	108	138	362	65	145	185	18	4	14	62	28	31	8	45	160	212,5	25	100
MCRN 70-L	44	1093	204	102	639	378	1440	125	165	290	88	108	108	138	392	65	145	185	18	4	14	62	28	31	8	45	160	212,5	25	100
MCRN 63-1	71	1063	204	102	639	378	1440	125	165	290	88	108	108	138	362	65	145	185	18	4	14	62	28	31	8	45	160	212,5	25	100
MCRN 80-1	41	1004	222	124	489	416	1391	140	180	320	100	115	115	155	248	80	160	200	18	8	14	75	35	38	10	50	160	228	34	116
MCRN 83-1	41	965	222	124	491	416	1393	140	180	320	100	115	115	155	208	80	160	200	18	8	14	75	35	38	10	39	160	228	34	116
MCRN 80-2	41	1254	222	124	739	416	1641	140	180	320	100	115	115	155	498	80	160	200	18	8	14	75	35	38	10	50	160	228	34	127
MCRN 83-1	41	1215	222	124	741	416	1643	140	180	320	100	115	115	155	458	80	160	200	18	8	14	75	35	38	10	39	160	228	34	127
MCRN 80-4	41	1776	222	124	1261	416	2163	140	180	320	100	115	115	155	1020	80	160	200	18	8	14	75	35	38	10	50	160	228	34	-
MCRN 83-1	41	1737	222	124	1263	416	2165	140	180	320	100	115	115	155	980	80	160	200	18	8	14	75	35	38	10	39	160	228	34	-
MCRN 90-L	41	1324	222	124	809	416	1711	140	180	320	100	115	115	155	568	80	160	200	18	8	14	75	35	38	10	50	160	228	34	-
MCRN 83-1	41	1285	222	124	811	416	1713	140	180	320	100	115	115	155	528	80	160	200	18	8	14	75	35	38	10	39	160	228	34	-
MCRN 100-1	52,5	1289,5	274	141	626	545	1757	160	200	360	185	145	145	185	300	100	180	220	18	8	18	90	42	45	12	60	185	195	35	175
MCRN 103-1	52,5	1595,5	274	141	932	545	2063	160	200	360	185	145	145	185	606	100	180	220	18	8	18	90	42	45	12	60	185	195	35	201
MCRN 100-2	52,5	1595,5	274	141	932	545	2063	160	200	360	185	145	145	185	606	100	180	220	18	8	18	90	42	45	12	60	185	195	35	201
MCRN 100-4	52,5	2224,5	274	141	1561	545	2692	160	200	360	185	145	145	185	1235	100	180	220	18	8	18	90	42	45	12	60	185	195	35	-
MCRN 110-L	52,5	1639,5	274	141	976	545	2107	160	200	360	185	145	145	185	650	100	180	220	18	8	18	90	42	45	12	60	185	195	35	-
MCRN 115-1	52,5	1329,5	274	141	666	545	1797	160	200	360	185	145	145	185	340	100	180	220	18	8	18	90	42	45	12	60	185	195	35	-
MCRN 115-2	52,5	1679,5	274	141	1016	545	2147	160	200	360	185	145	145	185	690	100	180	220	18	8	18	90	42	45	12	60	185	195	35	-
MCRN 115-2	52,5	1679,5	274	141	1016	545	2147	160	200	360	185	145	145	185	690	100	180	220	18	8	18	90	42	45	12	60	185	195	35	-
MCRN 125-1	46,5	1659,5	318	167	807	627,5	2190,5	180	200	380	215	170	170	215	397,5	125	210	250	18	8	18	110	55	59	16	65	210	222	40	244
MCRN 125-2	46,5	1659,5	318	167	815,5	627,5	2199	180	200	380	215	170	170	215	397,5	125	210	250	18	8	18	110	55	59	16	65	210	222	40	244
MCRN 125-2	46,5	2059,5	318	167	1207	627,5	2590,5	180	200	380	215	170	170	215	797,5	125	210	250	18	8	18	110	55	59	16	65	210	222	40	284
MCRN 125-2	46,5	2059,5	318	167	1215,5	627,5	2599	180	200	380	215	170	170	215	797,5	125	210	250	18	8	18	110	55	59	16	65	210	222	40	284
MCRN 125-4	46,5	2870,5	318	167	2018	627,5	3401,5	180	200	380	215	170	170	215	1608,5	125	210	250	18	8	18	110	55	59	16	65	210	222	40	-
MCRN 125-4	46,5	2870,5	318	167	2026,5	627,5	3410	180	200	380	215	170	170	215	1608,5	125	210	250	18	8	18	110	55	59	16	65	210	222	40	-
MCRN 130-L	46,5	1973,5	318	167	1121	627,5	2504,5	180	200	380	215	170	170	215	711,5	125	210	250	18	8	18	110	55	59	16	65	210	222	40	-
MCRN 130-L	46,5	1973,5	318	167	1129,5	627,5	2513	180	200	380	215	170	170	215	711,5	125	210	250	18	8	18	110	55	59	16	65	210	222	40	-
MCRN 150-1S	66	1894	298	177	1025	650	2435	200	250	450	-	200	200	250	519	150	240	285	22	8	22	110	55	59	16	90	262	266	50	366
MCRN 150-2	66	2394	298	177	1525	650	2935	200	250	450	-	200	200	250	1019	150	240	285	22	8	22	110	55	59	16	90	262	266	50	-
MCRN 160-L	66	2387	298	177	1518	650	2928	200	250	450	-																			

EDP code: ZMR2

OVERALL DIMENSIONS

TYPE	A	A1
MC2RN 50-1	422	708
MC2RN 50-2	422	708
MC2RN 55-4	422	708
MC2RN 60-L	422	708
MC2RN 65-1	686	996
MC2RN 65-2	686	996
MC2RN 70-L	686	996

TYPE	A	A1
MC2RN 80-1	750	1160
MC2RN 80-2	750	1160
MC2RN 80-4	750	1160
MC2RN 90-L	750	1160
MC2RN 100-1	876	1340
MC2RN 100-2	876	1340
MC2RN 100-4	876	1340



(1) The first parameter refers to feeders driven by gear motor, the second to feeders driven by variable speed motors.

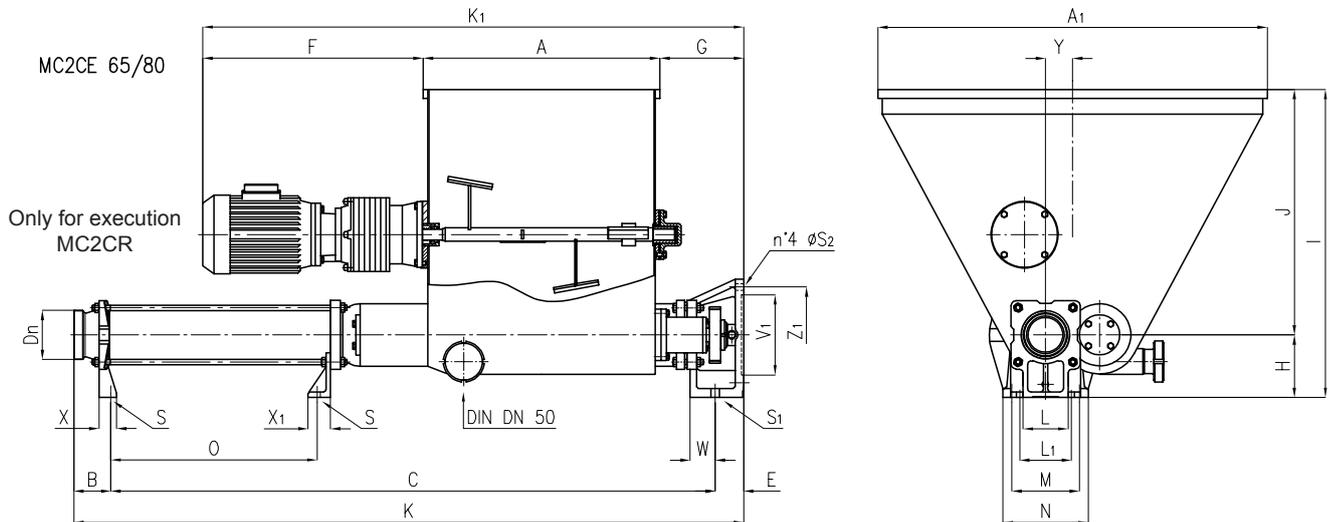
(\*) The first parameter refers to a pump with outlet with UNI 2223 PN16 flange; the second parameter refers to a pump with outlet with DIN 11851 male threaded connection.

Dimensions not binding

TYPE	(*) B	(*) C	D	E	(*) K	(1) F	G	(1) K1	H	J	I	L	L1	M	N	(*) O	DN	P	Q	R	n° holes	S	T	U	V	Z	(*) X	W	Weight kg
MC2RN 50-1	53 70	741 713	153	81	1028 1017	386	269	1302	100	350	450	70	85	85	110	143 113	50	125	165	18	4	12	50	25	28	8	40 38	27	120
MC2RN 50-2	53 70	891 863	153	81	1178 1167	386	269	1302	100	350	450	70	85	85	110	143 113	50	125	165	18	4	12	50	25	28	8	40 38	27	125
MC2RN 55-4	53 70	1197 1169	153	81	1484 1473	386	269	1302	100	350	450	70	85	85	110	143 113	50	125	165	18	4	12	50	25	28	8	40 38	27	-
MC2RN 60-L	53 70	911 883	153	81	1198 1187	386	269	1302	100	350	450	70	85	85	110	143 113	50	125	165	18	4	12	50	25	28	8	40 38	27	-
MC2RN 65-1	44 63	886 863	204	103	1237 1233	273 590	248	1207 1524	125	600	725	90	108	108	138	192 167	65	145	185	18	4	14	65	28	31	8	45 38	25	196
MC2RN 65-2	44 63	1086 1063	204	103	1437 1433	273 590	248	1207 1524	125	600	725	90	108	108	138	392 363	65	145	185	18	4	14	65	28	31	8	45 38	25	203
MC2RN 70-L	44 63	1086 1063	204	103	1437 1433	273 590	248	1207 1524	125	600	725	90	108	108	138	392 363	65	145	185	18	4	14	65	28	31	8	45 38	25	203
MC2RN 80-1	41 72	1003 970	222	124	1392 1390	271 588	284	1305 1622	140	700	840	100	115	115	155	248 221	80	160	200	18	8	14	75	35	38,5	10	56 38	34	230
MC2RN 80-2	41 72	1253 1220	222	124	1642 1640	271 588	284	1305 1622	140	700	840	100	115	115	155	498 471	80	160	200	18	8	14	75	35	38,5	10	56 38	34	241
MC2RN 80-4	41 72	1775 1742	222	124	2164 2162	271 588	284	1305 1622	140	700	840	100	115	115	155	1020 993	80	160	200	18	8	14	75	35	38,5	10	56 38	34	-
MC2RN 90-L	41 72	1323 1290	222	124	1712 1710	271 588	284	1305 1622	140	700	840	100	115	115	155	568 541	80	160	200	18	8	14	75	35	38,5	10	56 38	34	-
MC2RN 100-1	53	1283	274	142	1752	258 575	401	1535 1852	160	800	960	-	145	145	185	300	100	180	220	18	8	18	90	42	46	12	60	35	273
MC2RN 100-2	53	1589	274	142	2058	258 575	401	1535 1852	160	800	960	-	145	145	185	604	100	180	220	18	8	18	90	42	46	12	60	35	299
MC2RN 100-4	53	2218	274	142	2687	258 575	401	1535 1852	160	800	960	-	145	145	185	1233	100	180	220	18	8	18	90	42	46	12	60	35	-

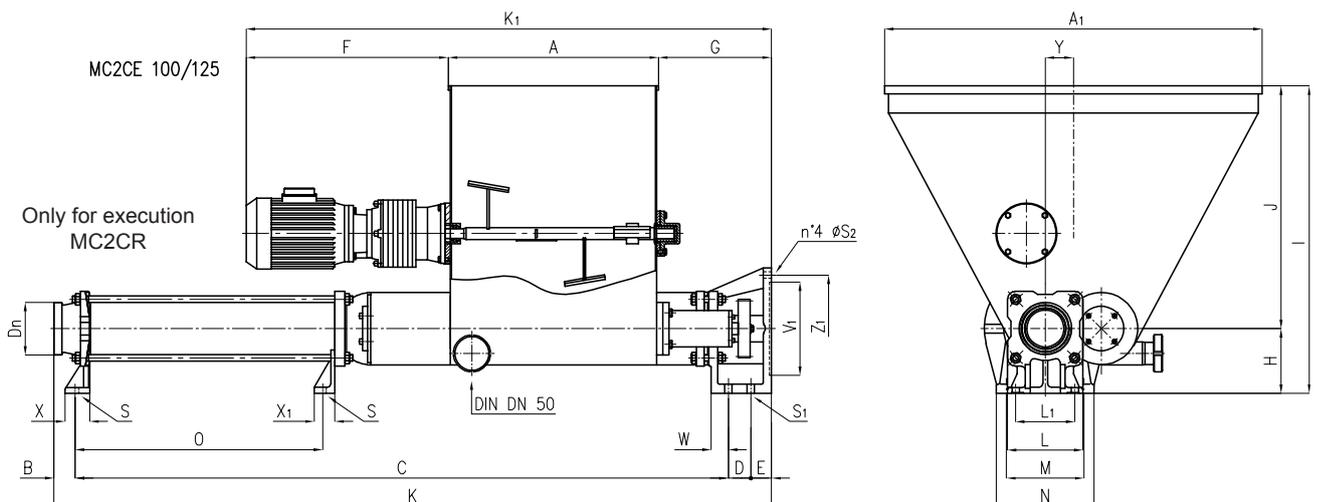
EDP code: ZM2CE

**OVERALL DIMENSIONS**



Dimensions not binding

TYPE	A	A1	B	C	D	E	K	K1	F	G	H	J	I	L	L1	M	N	O	DN	S	S1	S2	V1	Z1	X	X1	Y	W
MC2CE 65-1	466	765	71	986	-	59	1116	1140	490	184	125	490	615	88	108	140	180	162	65	14	19	14	180	215	35	45	50	52
MC2CE 65-2	466	765	71	1186	-	59	1316	1140	490	184	125	490	615	88	108	140	180	362	65	14	19	14	180	215	35	45	50	52
MC2CE 80-1	526	866	82	1094	-	63	1239	1202	490	186	140	550	690	100	115	150	190	208	80	14	19	14	180	215	39	50	60	56
MC2CE 80-2	526	866	82	1344	-	63	1489	1202	490	186	140	550	690	100	115	150	190	458	80	14	19	14	180	215	39	50	60	56



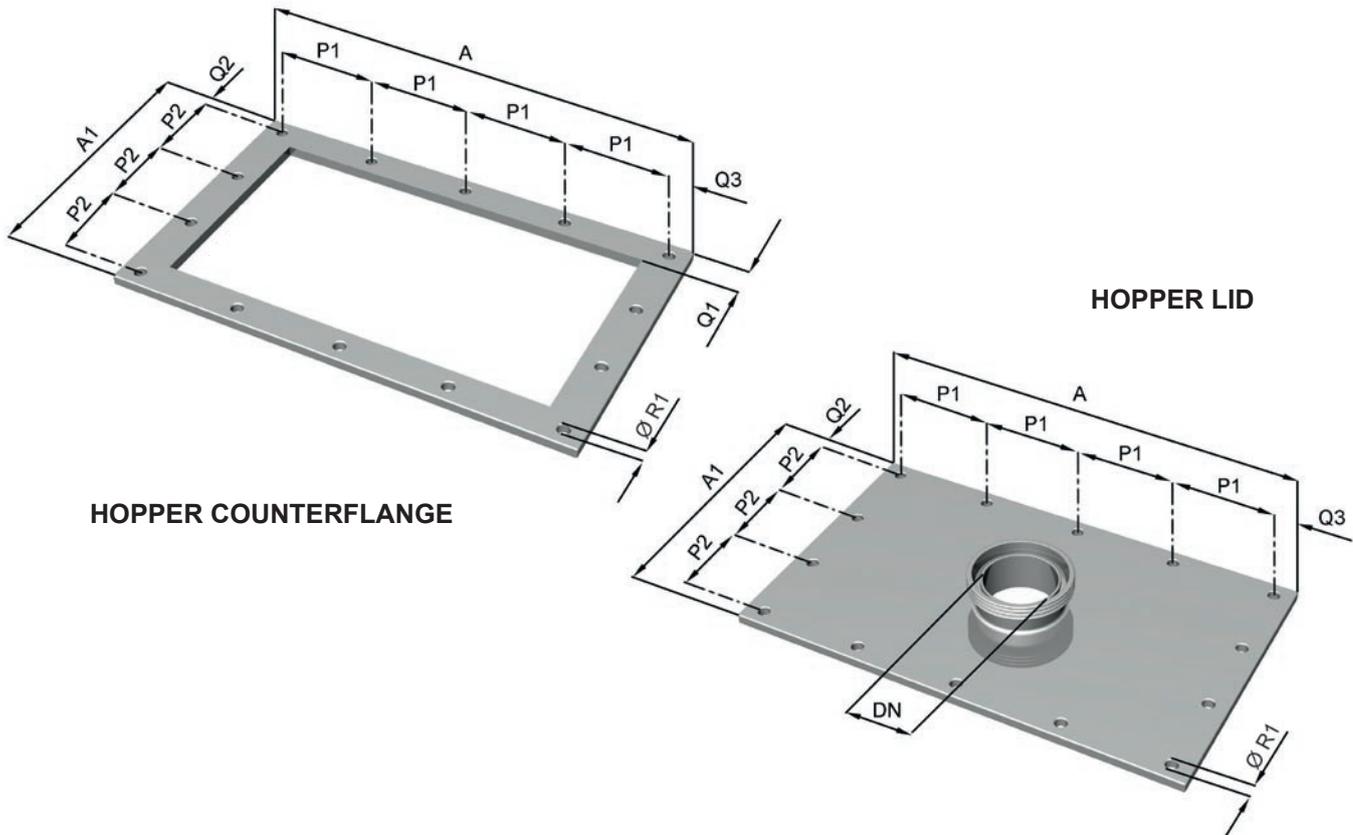
Dimensions not binding

TYPE	A	A1	B	C	D	E	K	K1	F	G	H	J	I	L	L1	M	N	O	DN	S	S1	S2	V1	Z1	X	X1	Y	W
MC2CE 100-1	526	926	52	1290	55	51	1448	1288	490	272	160	600	760	185	145	190	240	301	100	18	19	16	230	265	60	50	69	42
MC2CE 100-2	526	926	52	1596	55	51	1754	1288	490	272	160	600	760	185	145	190	240	607	100	18	19	16	230	265	60	50	69	42
MC2CE 125-1	676	0898	55	1665	67	50	1782	1466	490	300	183	500	683	215	170	230	280	472	100	18	16	18	230	265	65	65	86	43
MC2CE 125-2	676	898	55	2065	67	50	2182	1466	490	300	183	500	683	215	170	230	280	873	100	18	16	18	230	265	65	65	86	43

# OVERALL DIMENSIONS FOR HOPPER LIDS

TYPE	DN	A	A1	P1	P2	Q1	Q2	Q3	R1	no. holes
MCE MCN 40-1 40-2	40	300	210	70	63,3	27,5	10	10	9	14
MCE MCN 50-1 50-2 55-4 60-L	50	365	250	69	57,5	32,5	10	10	11	18
MCE MCN 65-1 63-1 65-2 70-L	65	426	260	130	116	43	14	18	13	10
MCE MCN 80-1 83-1 80-2 80-4 90-L	80	486	326	113	146	43	17	17	13	12
MCE MCN 100-1 103-1 100-2 100-4 110-L 115-1 115-2	100	586	340	110	103	43	15	18	13	16
MCE MCN 125-1 125-2 125-4 130-L	100 125	756	420	102	96	53	18	21	18	22
MCE MCN 150-1S 150-2 160-L	150	760	510	102	92	53	24	23	18	24

TYPE	DN	A	A1	P1	P2	Q1	Q2	Q3	R1	no. holes
MCRE MCRN 50-1 50-2 55-4 60-L	50	365	443	102,5	85	32,5	12,5	16,5	13	16
MCRE MCRN 65-1 63-1 65-2 70-L	65	426	565	105	130	42,5	18	20	13	16
MCRE MCRN 80-1 83-1 80-2 90-L	80	486	580	110	113	43	17	15	13	18
MCRE MCRN 100-1 103-1 100-2 110-L 115-1 115-2	100	586	564	106	110	43	18	16	13	20
MCRE MCRN 125-1 125-2 130-L	100 125	756	642	120	102	53	21	21	16	24
MCRE MCRN 150-1S 150-2 160-L	150	760	782	92	102	55	23	23	18	30



# PERFORMANCES



1 stage - max. 6 bar

2 stages - max.12 bar

1 stage "S" - max. 10 bar

2 stages "S" - max. 22 bar

h = Head, bar    Q = Flow rate, m<sup>3</sup>/h    Na = Power, HP    n = rpm

Values referred to water at 20°C a.s.l.

Size	Stages	Version <b>N</b>	Version <b>E</b>	h	n=200		n=300		n=400		n=500		n=600		n=700		n=800		n=900		n=1000		n=1400			
					Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na
					25	1	--	MAE	1					0,3	0,23	0,38	0,24	0,45	0,25	0,52	0,26	0,6	0,27	0,68	0,28	0,75
2									0,3	0,26	0,38	0,27	0,45	0,28	0,52	0,3	0,6	0,31	0,68	0,33	0,75	0,34	1,05	0,39		
2	--	MAE	4						0,25	0,28	0,33	0,3	0,4	0,32	0,46	0,33	0,54	0,35	0,52	0,37	0,68	0,39	0,96	0,45		
			6									0,38	0,35	0,45	0,38	0,52	0,40	0,6	0,43	0,66	0,46	0,75	0,49	1,05	0,58	
40	1	MAN MCN	MAE MCE	10							0,35	0,45	0,42	0,5	0,5	0,53	0,56	0,56	0,64	0,60	0,71	0,64	1	0,78		
				1					0,6	0,35	0,8	0,35	1	0,35	1,2	0,4	1,4	0,45	1,6	0,5	1,8	0,55	2,6	0,8		
				3					0,3	0,35	0,5	0,35	0,7	0,4	0,9	0,45	1,1	0,5	1,3	0,55	1,5	0,6	2,3	0,85		
	2	MAN MCN	MAE MCE	6								0,2	0,45	0,4	0,5	0,6	0,55	0,8	0,6	1	0,65	1,8	0,9			
				9							0,3	0,6	0,5	0,7	0,7	0,8	0,9	0,9	1,1	1	1,3	1,1				
				12									0,3	0,9	0,5	1	0,7	1,1	0,9	1,3	1,1	1,4				
50	1	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	0,9	0,6	1,5	0,6	2	0,6	2,6	0,7	3,2	1	3,8	1,2	4,3	1,2	4,8	1,4	5,4	1,6	7,8	2,1		
				3	0,8	0,8	1,3	0,9	1,8	1	2,4	0,9	3	1,2	3,5	1,3	4,1	1,4	4,6	1,6	5,2	1,8				
				6	0,6	0,9	1,1	1,1	1,6	1,1	2,2	1,2	2,8	1,5	3,3	1,6	3,9	1,7	4,4	2	4,9	2,3				
	2	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	9	0,2	1,1	0,9	1,2	1,6	1,6	2,1	2	2,8	2,4	3,5	2,7	4,2	2,8	4,9	3,1						
				12	-	-	0,4	1,3	1,2	1,8	1,4	2,2	2	2,6	2,8	2,8	3,3	3,1	4	3,7						
				4	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	8	1	1,5	1,6	1,7	2,2	2	2,8	2,5	3,4	3									
16	0,7	1,8	1,3				2,3	1,8	2,8	2,4	3,4	3	4,2													
24	0,4	2,2	0,8				3	1,3	3,6	1,9	4,4	2,4	5,2													
60	L	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	2	2,5	1,2	3,7	1,3	5	1,4	6,2	1,6	7,5	1,8	8,7	2	10	2,2	11,2	2,5	12,5	2,7				
				4	2,3	1,5	3,5	1,7	4,7	1,8	5,8	2	7	2,3	8,2	2,6	9,4	2,8	10,6	3,2	11,7	3,5				
				6	2	1,7	3,1	1,9	4,2	2,1	5,2	2,4	6,4	2,6	7,4	3	8,5	3,4	9,6	3,8	10,7	4,1				
65	1	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	2,5	1,1	3,8	1,1	5	1,4	6,4	1,5	7,6	1,7	8,7	2	9,7	2,3	11,3	2,6						
				3	2,3	1,2	3,6	1,2	4,5	1,6	5,9	1,9	7,3	2,2	8,4	2,4	9,4	2,5	10,8	3,2						
				6	1,7	1,5	2,8	1,7	4	2,1	5	2,6	6,5	2,8	7,5	3,2	8,5	3,4								
	2	MAN - MIN - MCN MCRN - MC2RN	MAE - MIE MCE - MCRE	9	1	2,8	2,6	3,3	4,1	3,7	5,7	4,2	7,3	4,9	8,8	6										
				12	0,3	3	1,6	3,4	3,6	3,9	5,5	4,6	7	5,7												
				14	2	3	3,3	3,7	4,8	5	6,2	6,4														
2S	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	17	1,7	3,3	3	4,1	4,5	5,5																	
			20	1,3	3,6	2,6	4,6	4,1	6,1																	
			70	L	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	2	5,4	2	8	2,3	10,6	2,8	13,1	3,3	15,9	3,9	18	4,5							
4	5	2,3					7,6	3	10,3	3,7	12,8	4,4	15,5	5,4												
6	4,6	2,8					7,2	3,7	9,8	4,6	12,1	5,8														
80	1	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	4,7	2,2	7,5	2,5	10,1	2,9	12,7	3,2	15,5	3,5	18	3,7										
				3	4,4	2,5	7	3	9,6	3,3	12,1	3,8	14,8	4,5	17,4	5,2										
				6	3,8	2,9	6,4	3,5	8,9	4,3	10,9	5	13,4	6,2												
	2	MAN - MIN - MCN MCRN - MC2RN	MAE - MIE MCE - MCRE	9	3,2	2,9	5,5	3,5	8	4,5	11	6	14	7,2												
				12	2,4	3,2	4,4	3,9	7,3	5,3	10	7,5														
				14	3,8	7,8	6,8	9,2	9,8	11	12,8	13,2														
	2S	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	17	2,9	8,2	5,8	9,8	9	11,9																
				20	0,7	9	3,5	11	6,5	14																
				8	5,5	2,5	8,1	3,3	11,5	4,5	14	5,5														
				16	4	4,1	7,2	6,1	10,5	8,3	13,2	11														
4	MAN - MIN MCN - MCRN MC2RN	--	24	2,5	5,3	6	8,7	9,5	11,9	12,5	14,9															
			90	L	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	2	13,4	3,5	20,5	4,1	26,6	5	34	6,1	41	7,4	48	8,8							
							4	12,2	4,1	19	5,3	25,5	6,7	32,5	8,4	39,5	11									
6	10,8	5,2					17,2	6,5	24	8	30,8	10,8	37,8	14,3												
100	1	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	9,5	3,2	14,5	3,4	19,5	3,8	25	4,4	30	5												
				3	7,8	3,7	12,8	4,1	17,7	5	22,5	6,2	28	7,2												
				6	6	4,2	10,5	5,8	15	7,5	19,5	9,2														
	2	MAN - MIN - MCN MCRN - MC2RN	MAE - MIE MCE - MCRE	9	5,5	6	10,8	8,1	15,5	12	20	14,8														
				12	4	7,3	7	10	12	14,5	16,2	17														
				14	6	14	11,2	16	16,4	18																
	2S	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	17	5	15,2	10,2	17,3																		
				20	2,5	16	7,5	19,5																		
				8	10	6	15	7	20	12																
				16	8,5	10	13,5	14	19	19																
4	MAN - MIN MCN - MCRN MC2RN	--	24	6	13	11	18,5																			

# PERFORMANCES



4 stages - max. 24 bar

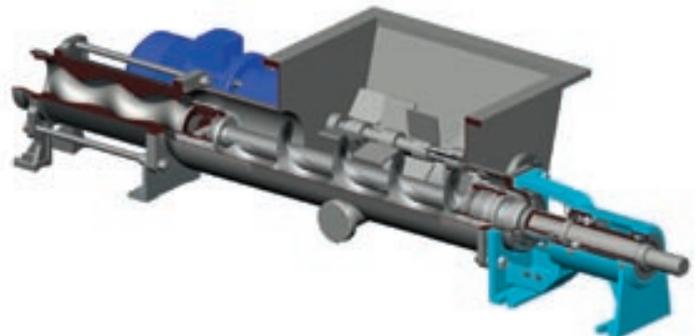


long pitch - max. 6 bar

h = Head, bar Q = Flow rate, m<sup>3</sup>/h Na = Power, HP n = rpm

Values referred to water at 20°C a.s.l.

Size	Stages	Version <b>N</b>	Version <b>E</b>	h	n=200		n=300		n=400		n=500		n=600		n=700		n=800		n=900		n=1000		n=1400			
					Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na
					<b>110</b>	<b>L</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	2	22	4	35	5	45	6	57	8,5									
				4	20,5	5,5	31	8	42	11	53,5	13														
				6	19	7,5	29,5	11	40,5	14	51,5	18														
<b>115</b>	<b>1</b>	MAN - MIN MCN - MCRN	MAE - MIE MCE - MCRE	1	12	5	21	5,5	29	6	36	7														
				3	11	5,5	20	6,5	27	7,5	34	9														
				6	9	6	16	8	23	10	30	12														
	<b>2</b>	MAN - MIN MCN - MCRN	MAE - MIE MCE - MCRE	4	14	7	22	8	29	9,5																
				8	13	8	20,5	10	27,5	13																
				12	12	10	19	13	26	16																
<b>125</b>	<b>1</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	18,5	4,5	30	5,5	42	7,5	53	9,5														
				3	14	5,5	25,5	8,0	38	10,5																
				6	9	6,5	20	11,3																		
	<b>2</b>	MAN - MIN - MCN MCRN - MC2RN	MAE - MIE MCE - MCRE	9	11	14,5	23	18,3	34,4	24																
				12	8	16,5	19	22	30	30																
				14	9,6	24	21	36	31	47																
	<b>2S</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	17	7,4	32	18	44																		
				20	3,5	36	12	52																		
				8	22	14	33	20	44	23																
	<b>4</b>	MAN - MIN MCN - MCRN	--	16	20	20	31	29,5	41,5	39																
				24	18	28	27,5	42																		
				2	29	6,1	44	8	59	10	74	12														
<b>130</b>	<b>L</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	4	26,8	8	42	11,9	57	15	72,5	19														
				6	23	10	38,4	15	54	20	69	25														
				2	44	8	67	12	90	16	113	20														
	<b>150</b>	<b>1</b>	MIN - MCN MCRN	MIE - MCE MCRE	4	32	12	56	17	78	23	101	29													
					6	16	14,5	40	22	62	30	85	37													
					1	44	10	70	12	93	16	115	21													
		<b>1S</b>	MIN - MCN MCRN	MIE - MCE MCRE	4	40	12	62	18	85	26	105	38													
					8	31	20	52	30	72	42															
					10	20	24	40	38																	
<b>2</b>	MIN - MCN MCRN	MIE - MCE MCRE	4	44	8,8	67	14	92	19																	
			6	40,5	14,5	64	23	87	30,5																	
			12	32	23	55	35	79,5	48																	
<b>160</b>	<b>L</b>	MIN - MCN MCRN	MIE - MCE	2	86	10	132	16																		
				4	80	17	123	28																		
				6	75	24	115	42																		



# PERFORMANCES DOUBLE-THREAD VERSIONS

The new series of screw pumps offered together with the existent series is a logical evolution that derives from research made to optimise performance.

New shapes, additionally even structures, reduction of friction and greater volumes all enable improved performance.

They fit in with the existent series without dimensional modifications and are perfectly interchangeable.

This version of CSF screw pumps can be offered with a wide performance range to better meet all requirements.

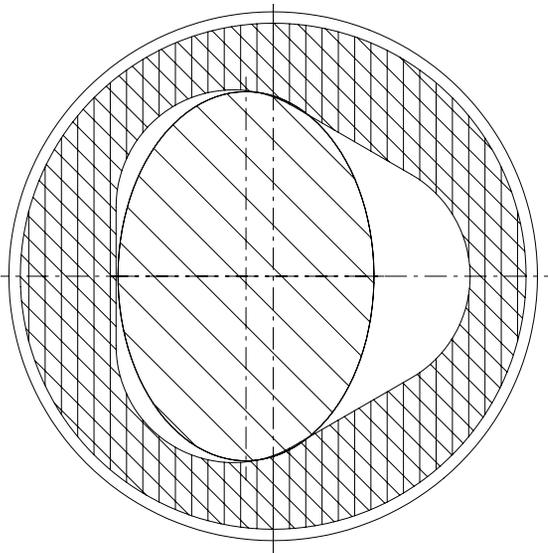
In the new series the pump dimensions, assembly, drive, versions, constructional materials remain unaltered.

The following benefits are obtained:

- Greater mass = volume pumped
- Less eccentricity
- Less rotor mass
- Improved overall performance
- Lower internal speed, therefore improved flow rate
- Greater transversal pumping
- Even thickness of the elastomer wall, therefore less driving torque and therefore less absorbed power



New shape of the rotor/stator  
 Greater volumetric mass = volume pumped  
 Improved performance  
 Improved NPSH values



h = Head, bar    Q = Flow rate, m<sup>3</sup>/h    Na = Power, HP    n = rpm

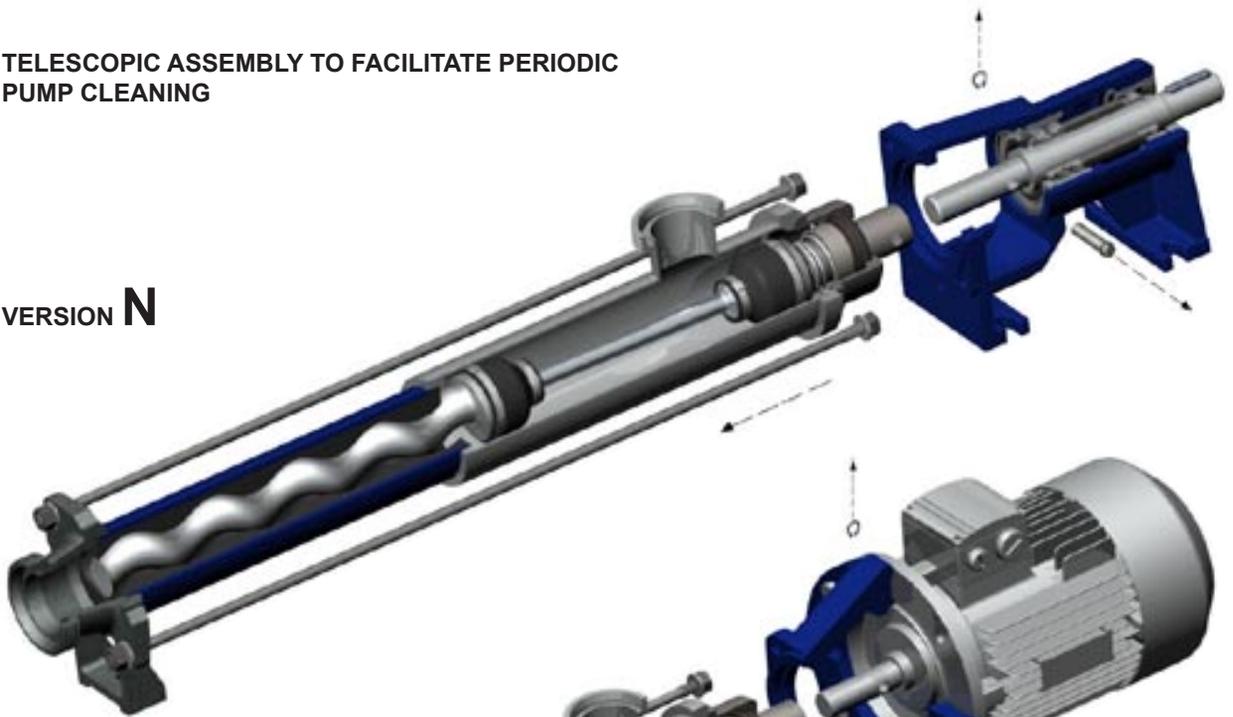
Values referred to water at 20°C a.s.l.

Size	Stages	Version <b>N</b>	Version <b>E</b>	h	n=200		n=300		n=400		n=500		n=600		n=700		n=800		n=900		n=1000		n=1400			
					Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na	Q	Na
					<b>63</b>	<b>1</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	3,7	1,1	5,6	1,2	7,4	1,3	9,2	1,4	11,1	1,5	12,9	1,8	14,7	2,1			
				2	3,6	1,2	5,4	1,4	7,2	1,5	8,9	1,8	10,7	2,1	12,5	2,6	14,2	3								
				4	3,3	1,7	5	1,8	6,6	2,2	8,3	2,7	10	3,5	11,7	4,4	13,4	5,4								
<b>83</b>	<b>1</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	6,5	1,8	10,1	2,1	11,8	2,3	17,5	3,4														
				2	6,4	2	9,8	2,6	11,7	3	16,8	4,2														
				4	6	2,3	9,4	3,2	13	4,4	16,4	6,5														
				6	5,6	2,6	9	4	12,6	5,6	15,9	7,6														
<b>103</b>	<b>1</b>	MAN - MIN MCN - MCRN MC2RN	MAE - MIE MCE - MCRE	1	14	2,8	21,1	3,5	28,5	4,6	35,4	6														
				2	12,6	3,6	19,9	4,2	26,9	5,6	33,9	7,3														
				4	11	4,5	18,2	5,5	25,4	7,2	32,5	9,5														

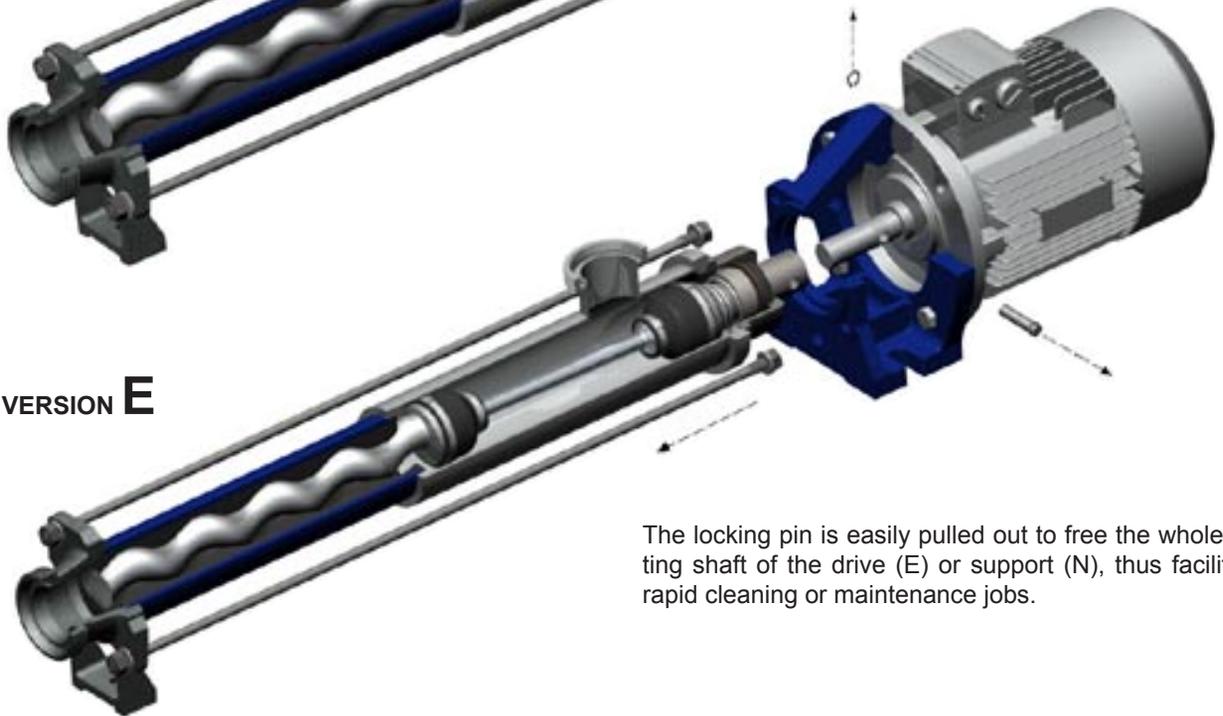
# JOINT VERSIONS

TELESCOPIC ASSEMBLY TO FACILITATE PERIODIC PUMP CLEANING

VERSION **N**



VERSION **E**



The locking pin is easily pulled out to free the whole rotating shaft of the drive (E) or support (N), thus facilitating rapid cleaning or maintenance jobs.

## JOINTED JOINTS

In wear-resisting version with hardened bushes for heavy duty conditions and loads and safety sleeves.

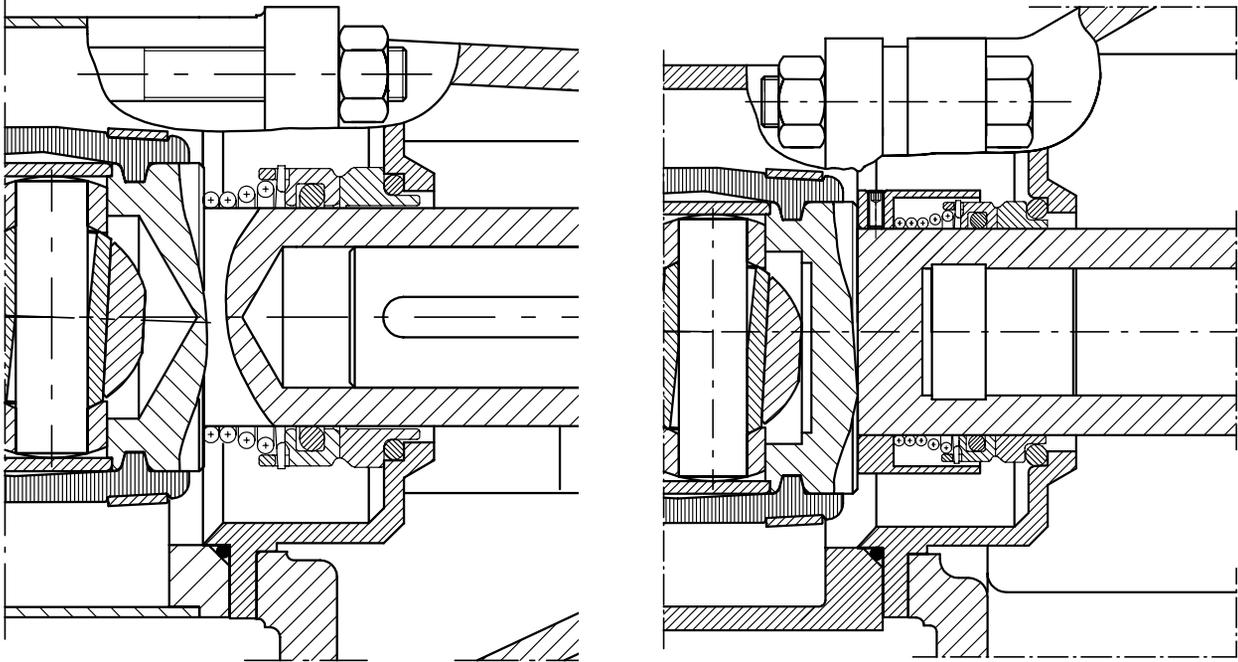


Execution from pump's size M 65 to M 160

In sturdy stainless steel with OR seals or safety sleeves.



# MECHANICAL SEALS



## EXECUTION T



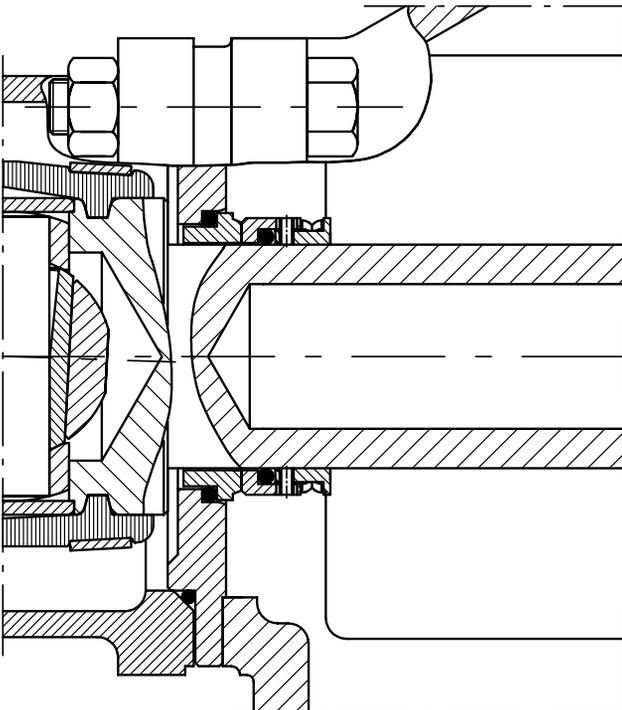
One direction



Reversible

### Internal mechanical seal

The rotary mechanical seal is internal in order to ensure improved cooling and consequently to reduce its wear. The type of mechanical seal and the materials of the rotating surfaces and of the elastomers are chosen each time, among the several types available, according to the nature of the handled product.



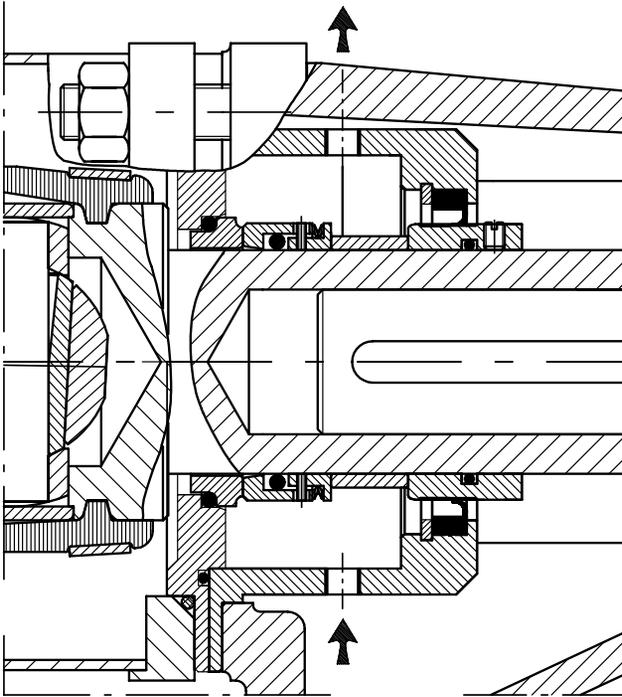
## EXECUTION Y

### External mechanical seal

For all cases for which the flushing is impossible and where the mechanical seal must not touch the pumped product, in order to avoid sanitary problems, corrosion and conditioning of its running.



# FLUSHED MECHANICAL SEALS



## EXECUTION U - Y1

### Double mechanical seal (U) Flushed mechanical seal (Y1)

Double mechanical seal with circulation of the cleaning and cooling liquid.

It is used with products that tend to crystallise, to glue, to harden, to be abrasive, to reach high temperatures and whenever the seal life is limited.

The function of the fluxing is to clean, lubricate and cool the seal; the circulating liquid must be clean and compatible with the pumped liquid.

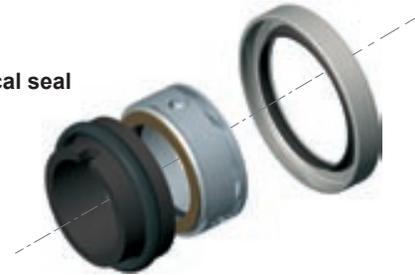
If the seal is leaking the fluxing liquid will point out this fault.

The U execution is composed by an axial mechanical seal and a radial one working on ceramic coated shaft.

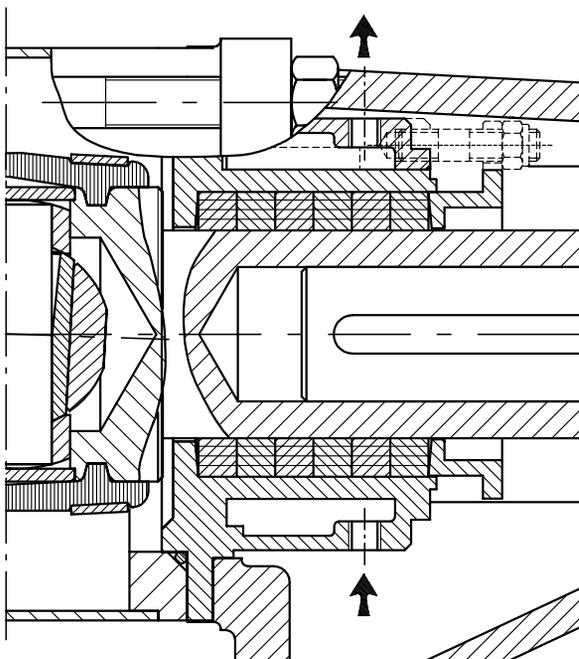
The Y1 execution is composed by an axial mechanical seal and a lip seal for the less heavy duty conditions.

Radial mech. seal

Mechanical seal



# PACKED GLAND SEAL



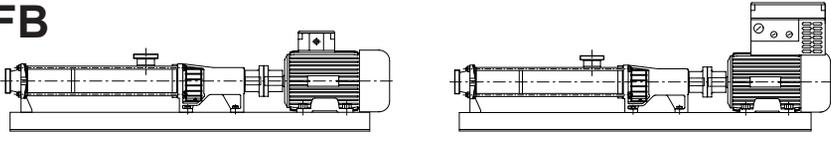
## EXECUTION XT00

### Cooled packed gland seal

Traditional solution in which a slight dripping does not disturb.



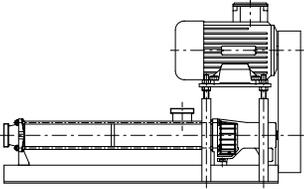
**FB**



DIRECT MOTOR + FIXED BASE

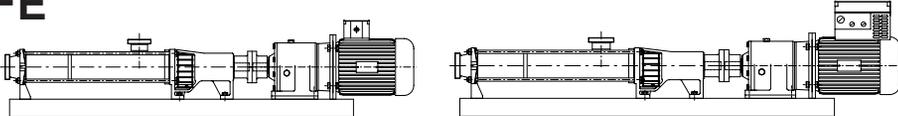
DIRECT MOTOR + INVERTER AND FIXED BASE

**FD**



MOTOR, PULLEY AND FIXED BASE

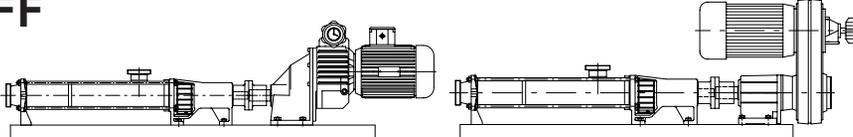
**FE**



GEAR MOTOR AND FIXED BASE

GEAR MOTOR + INVERTER AND FIXED BASE

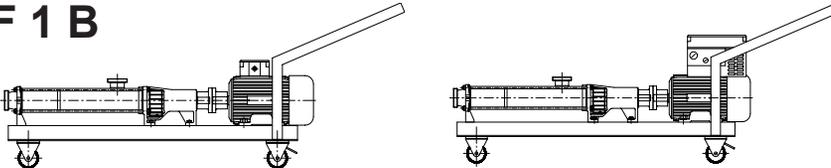
**FF**



MECHANICAL VARIABLE SPEED MOTOR AND FIXED BASE

BELT VARIABLE SPEED MOTOR AND FIXED BASE

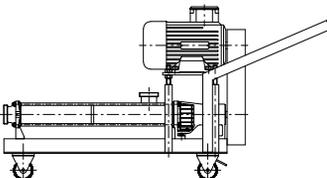
**F 1 B**



DIRECT MOTOR AND TROLLEY

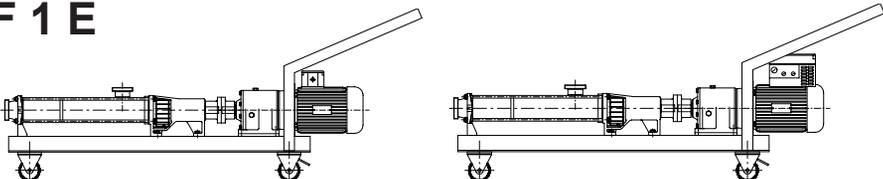
DIRECT MOTOR + INVERTER AND TROLLEY

**F 1 D**



MOTOR, PULLEY AND TROLLEY

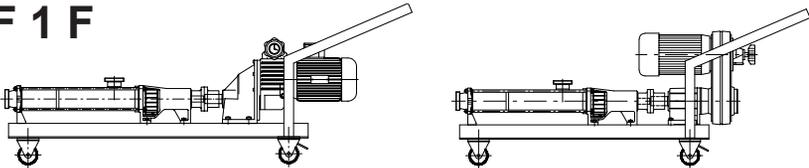
**F 1 E**



GEAR MOTOR AND TROLLEY

GEAR MOTOR + INVERTER AND TROLLEY

**F 1 F**



MECHANICAL VARIABLE SPEED MOTOR AND TROLLEY

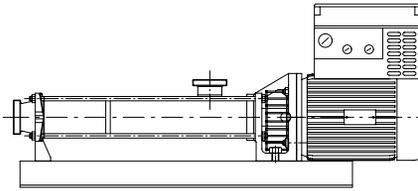
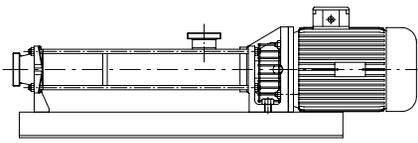
BELT VARIABLE SPEED MOTOR AND TROLLEY



**VERSION N**

Independent bench support with double grease lubricated bearings for coupling with flexible joint.

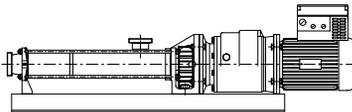
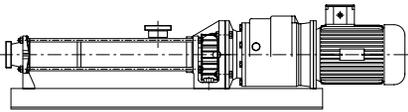
## F B



DIRECT MOTOR +  
FIXED BASE

DIRECT MOTOR + INVERTER  
AND FIXED BASE

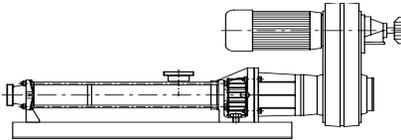
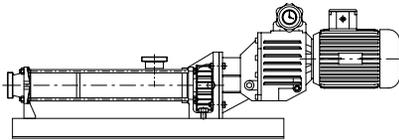
## F E



GEAR MOTOR AND FIXED BASE

GEAR MOTOR + INVERTER AND  
FIXED BASE

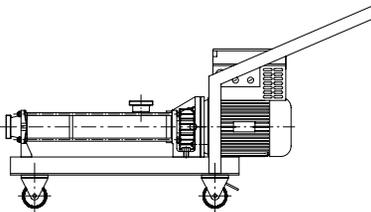
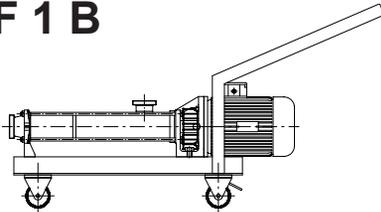
## F F



MECHANICAL VARIABLE SPEED  
MOTOR AND FIXED BASE

BELT VARIABLE SPEED MOTOR  
AND FIXED BASE

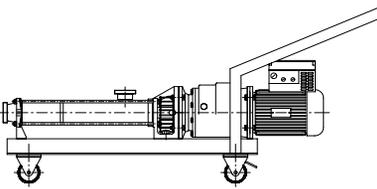
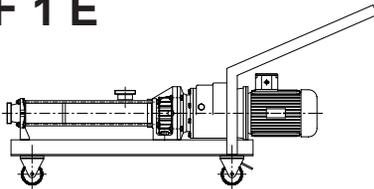
## F 1 B



DIRECT MOTOR AND TROLLEY

DIRECT MOTOR + INVERTER  
AND TROLLEY

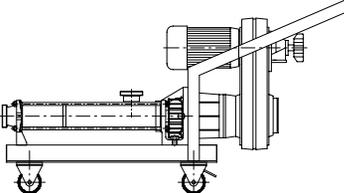
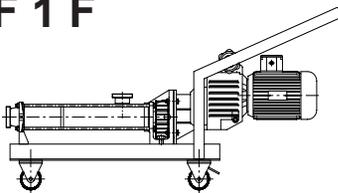
## F 1 E



GEAR MOTOR AND TROLLEY

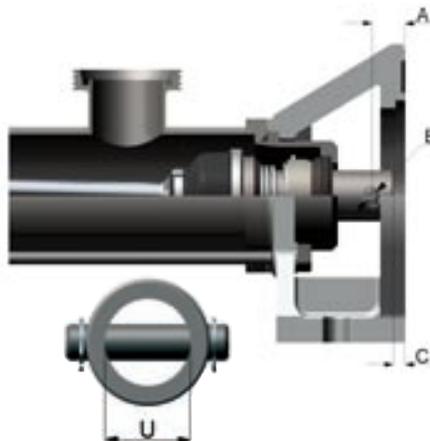
GEAR MOTOR + INVERTER AND  
TROLLEY

## F 1 F



MECHANICAL VARIABLE SPEED  
MOTOR AND TROLLEY

BELT VARIABLE SPEED MOTOR  
AND TROLLEY



## VERSION E

### PUMP SHAFT - COUPLING DIMENSIONS

	TYPE								
	M 25	M 40	M 50 M 55 M 60L	M 63 M 65 M 70L	M 83 M 80 M 90L	M 100 M 103 M 110 M 115	M 125	M 130	M 150
<b>A</b>	15	20	25	25	26	30	32	32	32
<b>B H7</b>	6	8	10	14	16	16	18	18	18
<b>C</b>	=	=	10	10	10	10	10	10	10
<b>U H7</b>	14	19	24	32	35	42	55	55	55