



the complete line

PUMPS and ACCESSORIES





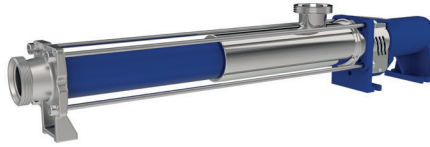
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## 편심 스크류 펌프

ECCENTRIC SCREW PUMPS



ECCENTRIC SCREW PUMP는 저점도 유체 뿐만 아니라 부유물을 포함하고 있는 고점도 유체의 이송에도 매우 적합합니다. 낮은 맥동과 균일한 흐름으로 인해, 특히 민감한 유체를 다루는데 적합한 제품입니다. 펌프 속도에 비례하는 유량으로 인해 최대 유량 270m<sup>3</sup>/h, 24 bar까지의 압력을 전달할 수 있으며 흡입 성능 또한 탁월합니다.



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MA

Sanitary분야에 사용하는 MA Series는 저-중점도를 가진 유체를 이송하는데 적합합니다. MA Series는 단순화된 유지보수 및 드라이브 방해 없는 쉬운 분해를 위해 특수한 신축형 구조를 가지고 있습니다.

MC

MC Series는 Inlet Hopper 및 Pre Feed Screw로 구성되어 있어 점성이 높은 유체에 이상적입니다. 옵션으로 제공되는 분쇄기는 과일 및 야채 재료를 이용하여, 퓨레 등의 갈아 만든 제품을 생산할 수 있습니다.

MI

산업용 펌프는 Flange타입의 End Connection을 사용합니다. MI Series는 다양한 산업분야에서 중-저점도의 유체를 이송하는 용도에 적합하도록 설계되었습니다. 회전체를 이루는 부품은 Stainless Steel로 구성됩니다.

WINEMAKING

와인 생산과정에서 오크통 · 여과 냉각 및 보틀링의 펌핑 · 랙킹 충전 등을 위한 다양한 범위의 장비입니다.

MAV

MAV Series는 유체에 잠겨 있는 흡입부를 수직으로 설치하도록 설계된 제품입니다. 드럼 또는 컨테이너 용기를 비우거나 침전물을 제거하는데 사용되며, 섬유질 혹은 부유물 등을 포함한 부식성 유체 뿐만 아니라, 저-중점도의 유체에도 적합합니다. 또한, 최대 유량 20m<sup>3</sup>/h의 성능을 발휘합니다.



## 트윈 스크류 펌프

Twin Screw Pump



TS TWIN SCREW PUMP는 가장 엄격한 수준의 Hygienic Design 을 준수하며, 높은 성능을 발휘합니다. 유체가 닿는 모든 부품은 AISI 316 으로 제작되며 3A 및 EHEDG Standard를 준수하기 위해 표면처리를 0.8µm이하로 수행합니다.



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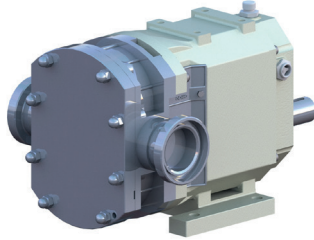
TS

TS Series는 식음료 · 화장품 · 제약 및 바이오의 모든 어플리케이션에 적합하며, CIP Cleaning 뿐만 아니라 점성을 가지고 있는 취급이 까다로운 유체와 부드러운 고형체를 다루기에도 적합한 제품입니다.



## 로터리 펌프

O.M.A.C  
ROTARY LOBE PUMPS O.M.A.C



OMAC의 B Series Lobe Pump는 다수의 고점도 유체를 이송하는데 이상적이며, 가장 까다로운 조건을 요구하는 Hygienic Design에 적합 및 호환이 가능합니다. 17개 모델의 유량 범위는 0.05~200m<sup>3</sup>/h에 달합니다. 유체의 급격한 온도변화에 따라 발생하는 수축과 팽창으로부터 제품손상을 방지하기 위해 ST타입은 표준공차를 통하여, SM 타입의 경우 좀 더 큰 공차를 기반으로 설계되었습니다. ST, SM 두 타입 모두 AISI 316L Stainless Steel 또는 Duplex재질의 Shaft와 함께 사용 가능합니다. 최대 20bar까지의 배압(Back Pressure)이 적용되는 경우, HP 타입은 Duplex재질의 Antifriction Stainless Steel Alloy Rotor로 구성됩니다.



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## 동모양 로터 펌프

SINUSOIDAL ROTOR PUMPS



SINUSOIDAL ROTOR PUMP는 압착이 없어야 하는 까다로운 유체의 이송에 적합하며 점성이 있는 민감한 고형분에도 탁월한 제품입니다.



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### SN

SN Series는 Rotor의 특수한 형태로 인해, 저유량의 맥동을 보장합니다. Foaming을 최소화하면서 선형적이고 일관된 유체 이송을 가능하게 합니다. 최대유량 100m<sup>3</sup>/h과 최대압력 15bar의 성능을 발휘합니다.



## 피스톤 펌프

AIR OPERATED PISTON PUMPS



유량 조절이 용이한 Single 및 Double Acting Pneumatic Pump는 고점도 제품을 Rack에 장착·공급 및 이송하는데 적합합니다. 압축 공기로 구동되는 모터로 인해, 이 Pump는 특히 폭발 가능성이 있는 환경이나 ATEX 인증이 필요한 용도에 적합합니다. 최대 유량 80 l/min에 0~150bar의 압력을 전달할 수 있습니다.



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## 단단 펌프

SINGLE STAGE PUMPS WITH  
VOLUTE CASING



CS Series의 Modular Centrifugal Pump는 다양한 모델로 제조됩니다. CS Series는 제약 및 바이오 뿐만 아니라 식음료 및 화장품 산업에도 제조공정에 대한 기준을 제시합니다.



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### CS

고성능의 원심 펌프는 식품 · 제약 및 화학 산업 등의 분야에서 사용됩니다. 최대유량 500m<sup>3</sup>/h, 최대 양정 100m의 성능과 함께 최대 700cP의 점도를 가진 유체에 적합 하도록 특별히 제작된 Open 6 Blade Impeller를 사용합니다. 유체가 닿는 모든 부품은 전해연마 처리된 AISI 316L Stainless Steel로 제작됩니다. 고객의 요청에 따라, Hastelloy · Sanicro 28 · Duplex 등의 특수 합금을 원재료로 한 Pump를 공급 가능합니다. CS Series의 특수한 설계는 제품을 표준 IEC 전기 모터와의 후속 결합을 위해 Bare shaft를 구입할 수 있도록 합니다. 또한 박테리아와 미생물에 의한 오염으로부터 유체를 보호하기 위해 모든 Sealing Point(Flange 및 Casing 연결부)에 이중으로 증기를 차단할 수 있는 Shaft(CSK Series)가 장착됩니다. 또한 무균 타입(CSD Series)에는 Independent Support 와 Flexible Coupling의 사용이 가능합니다.

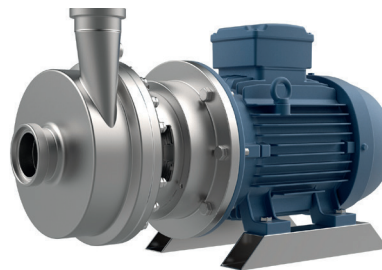
### CR

나선형의 Impeller와 특수한 형태의 Volute Casing는, CR Series가 매우 섬세한 유체를 저유량으로 이송할 수 있도록 합니다. 또한, 유체의 농도가 균일하고, 부유물질을 포함하는 경우 이상적입니다. CR Series 는 포도주 · 수산물 · 과일 · 야채 · 고기 · 가금류 · 양조 등의 이송에 널리 사용 됩니다.



## 다단 펌프

MULTISTAGE PUMPS



Single-block Multistage Centrifugal Pump는 각 축에 여러 개의 Impeller 장착이 가능하며 중-저유량 및 고압용으로 설계 제조됩니다. 또한, 수직 설치 타입도 사용 가능합니다.



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### CSM

CSM 다단 펌프로 최대 4단을 가진 CS Series의 개선된 모델입니다. 최대유량 150m<sup>3</sup>/h, 최대 압력 40bar까지의 성능을 발휘 합니다.

### CV

MULTISTAGE CENTRIFUGAL PUMP는 중-고양정 사양을 위한 Closed Type Impeller 설계를 적용하였습니다. 전기 모터의 Shaft로 직접 지지되는 Closed Type Impeller가 있는 싱글 블록 설계입니다. 또한 수직 타입(CV-V)으로도 사용 가능합니다. 산업용 버전으로서, CV Series는 AISI 316 Stainless Steel로 제작되었으며, 최대 유량 40m<sup>3</sup>/h 및 최대 양정 140m의 성능을 발휘합니다. CIP 순환 · 여과 · 이송 · 급수 및 수처리 등 다양한 범위에 사용 가능한 펌프입니다.





## 원심 펌프

CENTRIFUGAL PUMPS WITH CASING FROM ROLLED STAINLESS STEEL



CSF의 다양한 SINGLE STAGE CLOSE COUPLED CENTRIFUGAL PUMP는 냉연 AISI 316L로 제작된 Casing을 사용합니다.



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### CN

SINGLE STAGE SANITARY CENTRIFUGAL PUMP는 3A 인증 제품으로 선택 가능합니다. CN Series는, 각각 5 Blade Open Impeller · Independent Shaft 및 표준 IEC 모터를 장착한 3가지 모델이 있습니다. 최대 유량 70m<sup>3</sup>/h, 최대 양정 60m의 성능을 발휘하며 표준 용도에 적합합니다. CN Series는 AISI 316 Stainless Steel 단조 및 연마 처리된 Casing과 주조 제작된 구성품으로 이루어집니다.

### CL/CLC

저가용 제품인 CL/CLC Series는, 유제품 및 음료 생산 뿐만 아니라 제약 및 화장품 산업에도 적합합니다. 단조 제작된 Casing과 전용 전기 모터, 주조로 제작된 Open Type Impeller(CL), 혹은 Closed Type Impeller(CL) 등으로 구성됩니다.



## 장치 펌프

PERIPHERAL PUMPS



Stainless Steel AISI 316L로 만들어진 PERIPHERAL IMPELLER PUMP는 불순물 혹은 입자가 없는 깨끗한 액체와 저유량 및 고양정에 맥동이 없는 깨끗한 유체에 대하여 다양한 식품 및 산업 분야에 사용하기 적합합니다.



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### CP

최대 250cP의 점성이 있는 깨끗한 유체를 취급하는 Pump로서, 액체 투여를 위한 Micro Lab System, Spraying System 및 in-line 측정에 널리 사용됩니다. CP Series는 볼투과성 구조인 AISI 316L Stainless Steel로 만들어져 있으며 까다로운 수준의 표면 처리를 위해 전해연마 처리를 합니다.



## 수봉식 펌프

LIQUID RING PUMPS



SELF PRIMING PUMP는 액체 제품의 이송을 위해 여러 용도로 설계되어, Sanitary용 AS Series와 산업용 A Series로 제작됩니다.



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### A

A Series는 최대 유량 50m<sup>3</sup>/h 및 최대 양정 35m의 성능을 발휘하며 AISI 316 Stainless Steel로 제작 되어집니다. A Series의 Mounting Configuration 설계를 통해 유유 등의 유체의 수집을 위한 트럭에 장착된 유압 모터 등에도 결합될 수 있습니다.

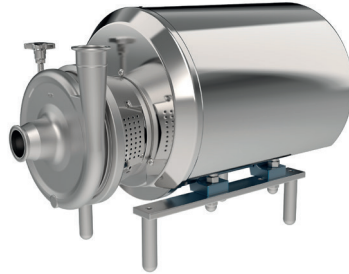
### AS

SINGLE BLOCK SANITARY SELF PRIMING PUMP는 AISI 316 Stainless Steel로 제작되며 IEC 모터의 장착을 위한 Independent Shaft Support를 갖추고 있습니다. 거품이 생기거나, 부분적으로 채워진 흡입관이 있는 가스 및 공기 방울이 함유된 액체에 적합합니다. 특히 CIP recovery/return circuit(CIP Scavenge)에 광범위하게 사용됩니다.



## 위생 펌프

EHEDG/3A CERTIFIED PUMPS



EHEDG/ 3A CERTIFIED PUMPS는 최고 수준의 내부 표면 조도를 충족하기 위해 AISI 316 Stainless Steel로 제작 합니다. 본 제품은 식품과 제약 산업에서 가장 까다로운 기준을 충족시키도록 설계되었습니다. CSA 원심 펌프와 ASH SELF-PRIMING 펌프는 높은 효율성과 엄격한 수준의 EHEDG/3A Standard의 준수를 보장합니다.



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### CSA

특히, 높은 성능과 신뢰성을 함께 요구하는 최고 수준의 제품 품질에 대한 필요성이 있는 분야에 적합합니다. CSA Series는 엄격한 기준을 갖춘 EHEDG(European Hygienic Engineering & Design Group) 규격과 미국 3A Sanitary Standard의 인증을 받은 제품으로서 높은 신뢰성 · 위생 수준 · 규정 준수가 요구되는 식품 및 제약 산업 분야에서 광범위하게 사용 됩니다.

### ASH

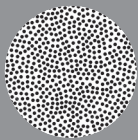
SELF-PRIMING PUMP는 엄격한 기준을 갖춘 미국 3A Sanitary Standard에 따라 설계 및 승인 되었습니다. 사용된 디자인의 특징 · 재료 · 기술 덕분에 ASH Series는 시장을 선도하는 제품군입니다. 특히, 높은 성능과 신뢰성을 함께 요구하는 최고 수준의 제품 품질을 필요로 하는 분야에 적합합니다. 전 부품이 AISI 316L Stainless Steel으로 제작되었으며, 내부 표면 조도는 최대 0.8µm입니다.

### CN

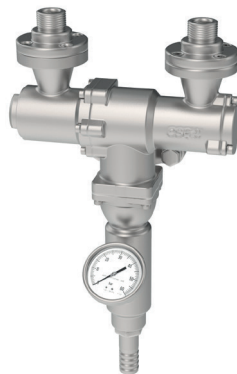
가장 엄격한 수준의 Hygienic Standard에 최적화하여 설계된 CN Series는, 유체의 정체가 없어 CIP 혹은 SIP를 통한 세척이 용이합니다. CN Series는 Balanced Mechanical Seal을 사용하여 펌프 내부는 더욱 강화 되었으며 미 3A Standard를 준수하기 위해 Adjustable Feet으로 지지되어집니다.

### LOBE PUMPS

O.M.A.C.C의 CF · F Series는 가장 엄격한 수준의 Hygienic Sanitary Design 요건을 충족시키기 위하여 EHEDG Standard에 의해 인증되었으며, BA · BF · C Series는 미국 3A Sanitary Standard를 준수하는 제품입니다. 유체가 닿는 모든 부품은 AISI 316L Stainless Steel으로 제작되며, 표면 처리는 최대 0.5µm입니다. Casing은 Integral Seamless 형태의 연결부위를 위하여, 주조 또는 단조로 제작됩니다.



## ACCESSORIES



### STEAM / WATER MIXERS

AISI 304 Stainless Steel로 만들어진 물/증기용 Mixer는 증기 및 냉수의 일반적인 현장 네트워크를 이용하여 즉각적이며 경제적인 저압의 온수 생산을 가능하게 합니다. 높은 안전성 · 효율성 · 적은 소음 · 쉬운 설치에 경제적이며, 장비 · 탱크 · 표면 및 기계 세척에도 적합합니다. 토출부 측의 수온은 95°C까지 조절 가능합니다.



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# HYGIENIC SOLUTIONS FOR A CLEANER WORLD



## GET THE PERFECT FLOW



HEAT EXCHANGERS

MBS tubular and scraped surface heat exchangers for dairy, food, beverage, pharmaceutical and chemical industries.

Valves by BARDIANI VALVOLE for hygienic applications, 100% made in Italy always combined with a reliable and efficient service.



VALVES



# Self-priming Pumps



## A Series

### Standard design

Self-priming pumps.

The ability to maintain a vacuum under changing suction conditions makes A Series pumps ideally suited for scavenge duties and applications where the inlet pipework is only partially filled, or where the incoming liquid includes entrained air or gas. The construction materials and quick disassembly design make them particularly suitable for a wide variety of applications.

They must be initially filled with liquid for the first start-up; afterwards, a small liquid reservoir remains to enable rapid self-priming to occur even if the suction pipe is emptied.

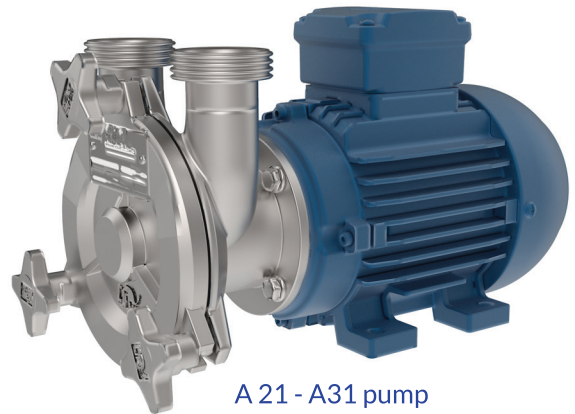
A 21- A 31: Close-coupled pumps with the impeller directly supported by the electric motor shaft. Easy-opening front cover, by unscrewing three hand-nuts, allows quick inspection without disconnecting the inlet and outlet pipes.

A 41- A 51- A 66- A 81: Close-coupled design with separate IEC motor and flexible coupling. Easy-opening front cover, for quick inspection without disturbing the inlet and outlet pipes.

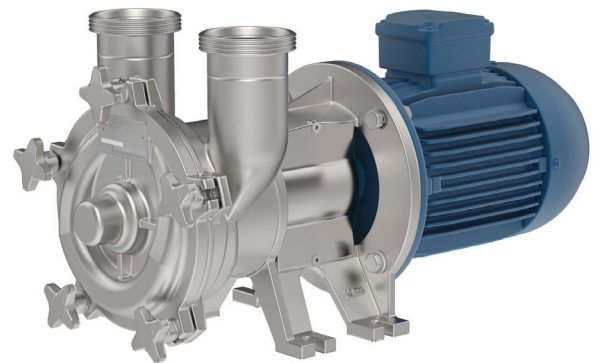
All CF-8M 1.4408 / AISI 316 Stainless steel parts.

Investment cast, with electro-chemical polishing.

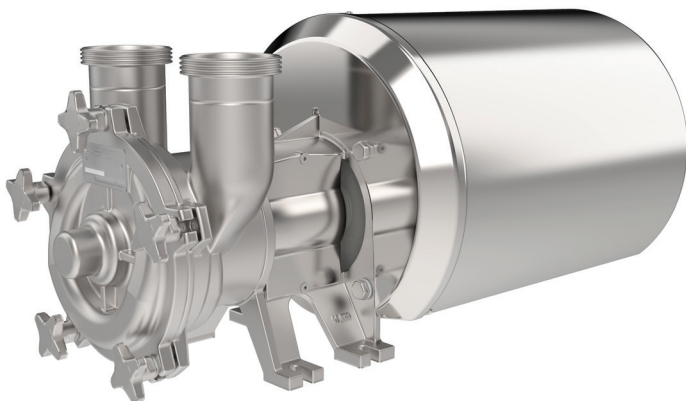
Flow rates up to 50 m<sup>3</sup>/h, heads up to max. 35 m (3,5 bar) (50 Hz).



A 21 - A31 pump



A 41 - A 51 pump



A 41 - A 51 pump with shroud

### Seals:

Mechanical seals with seats to EN 12756. ISO 3069 standards.  
Single internal mechanical seal  
Single external mechanical seal

### Elastomers (FDA):

EPDM  
Fluorocarbon (Viton)  
P.T.F.E. (FEP)

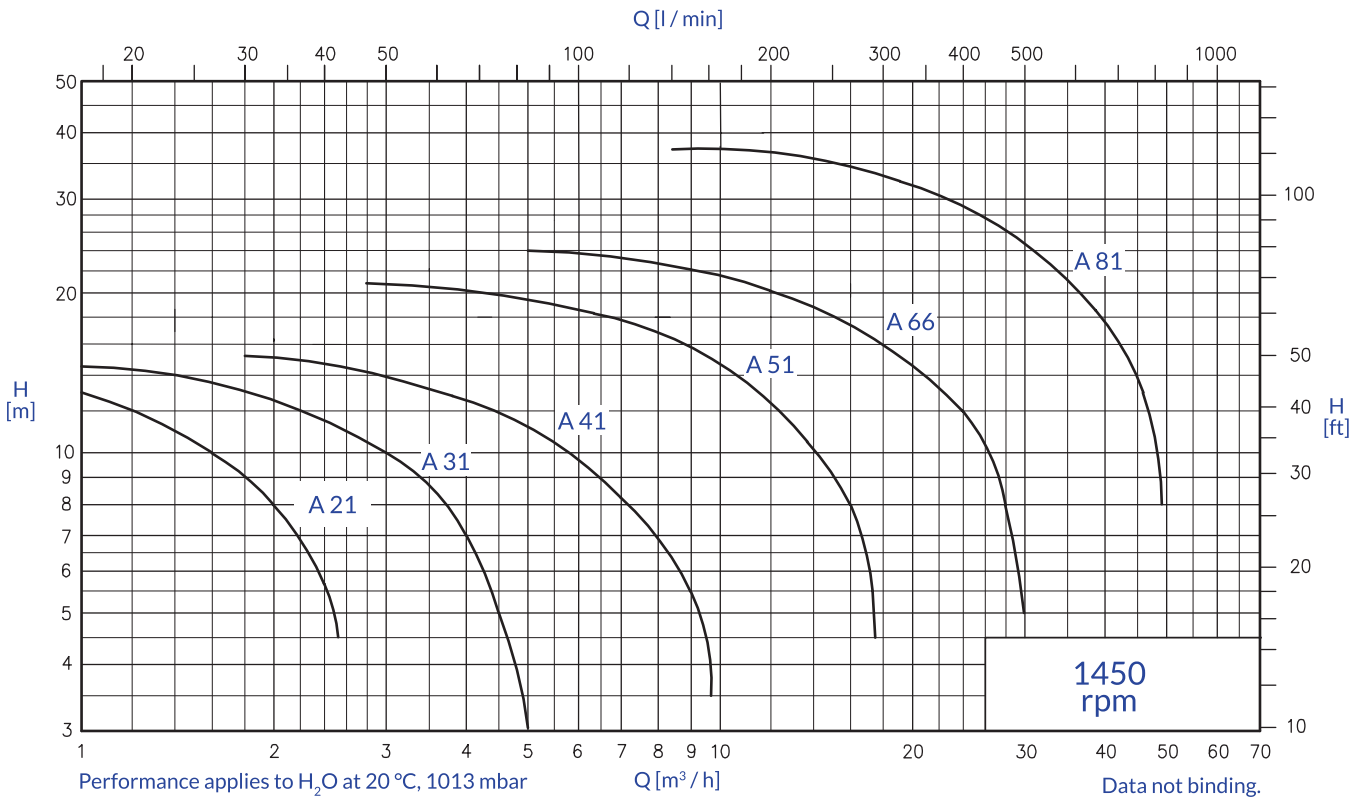
### Connections:

DIN - SMS - IDF - BS / RJT - DS - CLAMP and EN 1092-1 PN16 flanges to suit most international standards.

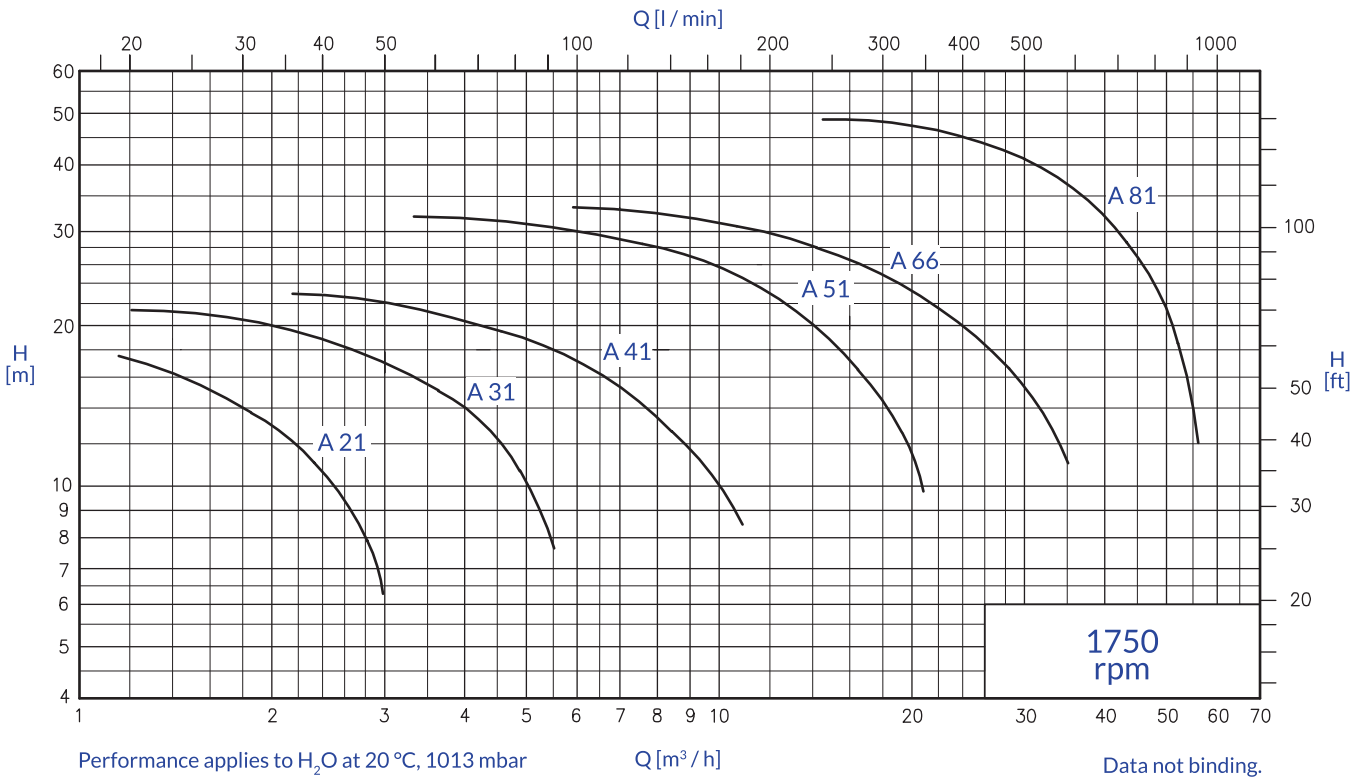
### Applications

A Series pumps are suitable for a wide range of liquids (CIP solutions, juices, milk, whey, syrups, oil, wine, water, spirits, chemical and pharmaceutical media).

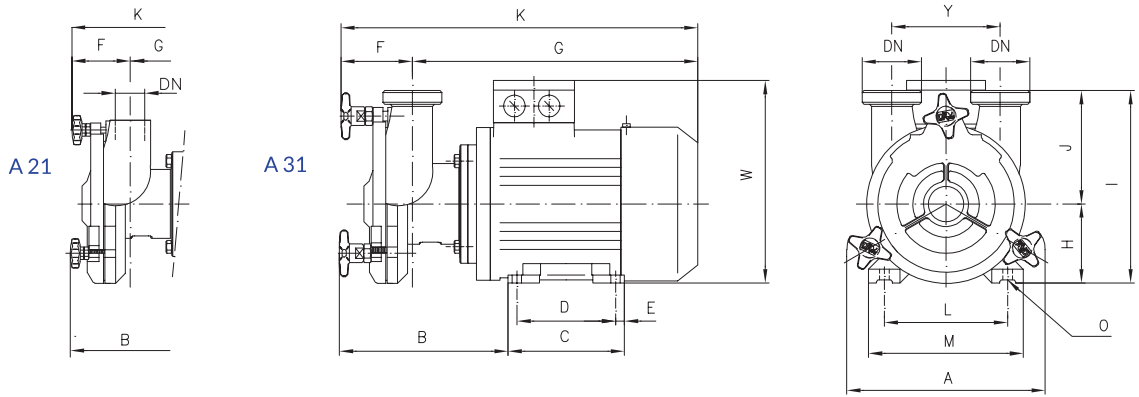
## GENERAL DIAGRAM - 50 Hz



## GENERAL DIAGRAM - 60 Hz

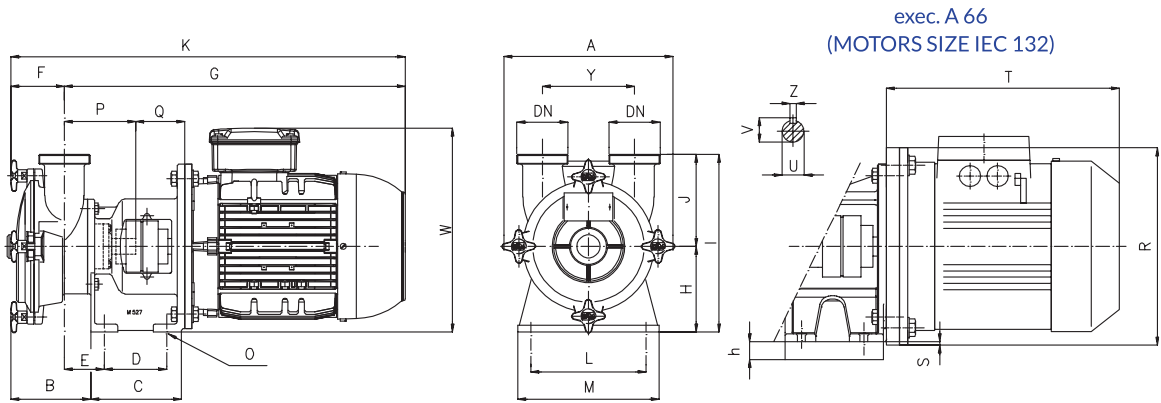


# OVERALL DIMENSIONS



Dimensions not binding - DN = GAS (BSP female) connection on A21  
 DN = DIN 11851 male threaded connection for A31

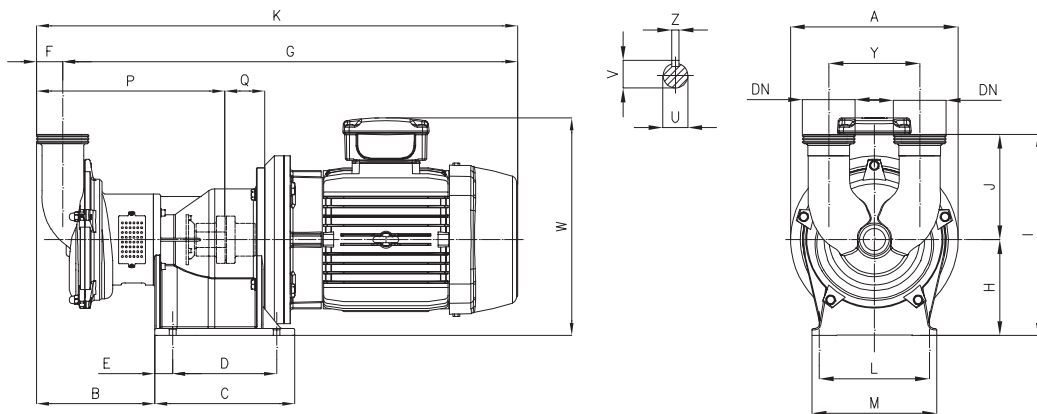
Pumps	1450 rpm.	kW	DN	A	B	C	D	E	F	G	K	H	J	I	Y	L	M	O	P	Q	W
A 21	0,37	3/4"G	170	149	106	90	8	62	268	330	71	84	155	80	112	132	7	-	-	192	
	0,55	3/4"G	170	152	118	100	9	62	286,5	348,5	80	84	164	80	125	150	9	-	-	210	
A 31	0,55	32	203	175	118	100	9	75	295,5	370,5	80	117	197	110	125	150	9	-	-	210	
	0,75	32	203	175	118	100	9	75	295,5	370,5	80	117	197	110	125	150	9	-	-	210	



exec. A 66  
 (MOTORS SIZE IEC 132)

Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors  
 (\*) Bearing frame designed for direct coupling with motor frame ...

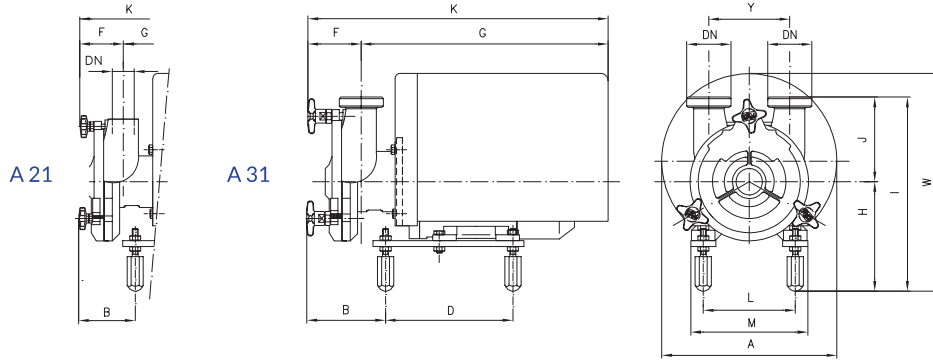
Pumps	1450 rpm	kW	DN	A	B	C	D	E	F	G	K	H	h	J	I	Y	L	M	O	P	Q	R	S	T	U	V	W	Z	PAM(*)
A 41	1,1	40	250	116	132	89	53,5	79	452	531	122	-	120	242	120	135	175	12	117	54	-	-	-	20	22,5	272	6	90	
	1,5	40	250	116	132	89	53,5	79	452	531	122	-	120	242	120	135	175	12	117	54	-	-	-	20	22,5	272	6	90	
A 51	2,2	50	273	127	138	95	59,5	88	499	587	130	-	140	270	140	175	215	12	119	64	-	-	-	20	22,5	290	6	100	
	4	50	273	127	138	95	59,5	88	521	609	130	-	140	270	140	175	215	12	119	64	-	-	-	20	22,5	284	6	112	
A 66	4	65	307	182	150	95	74	133	540	673	145	-	185	330	180	190	230	12	137	65	-	-	-	25	28	299	8	112	
	5,5	65	307	182	150	95	74	133	600	732	145	15	185	330	180	190	230	12	137	65	300	5	393	25	28	299	8	132	



Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors  
 (\*) Bearing frame designed for direct coupling with motor frame ...

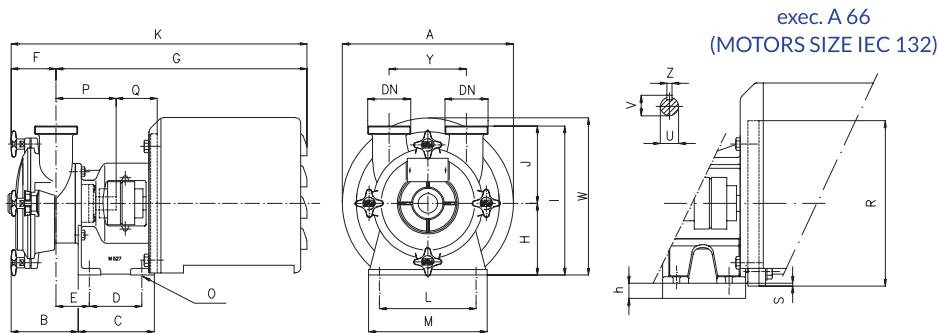
Pumps	1450 rpm	kW	DN	A	B	C	D	E	F	G	K	H	J	I	Y	L	M	O	P	Q	U	V	W	Z	PAM(*)
A 81	9,2	80	326	247	292	214	233	55	833	888	200	220	420	190	230	260	14	339	83	32	35	406,5	10	132	
	11	80	350	247	292	214	233	55	994	1049	200	220	420	190	230	260	14	339	123	32	35	464	10	160	
	15	80	350	247	292	214	233	55	994	1049	200	220	420	190	230	260	14	339	123	32	35	464	10	160	

# OVERALL DIMENSIONS (INCLUDING SHROUD)



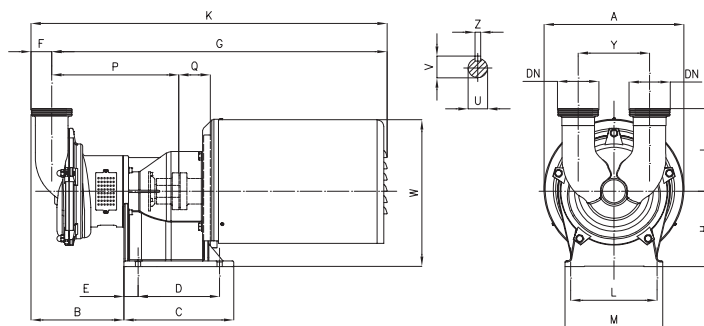
Dimensions not binding - DN = GAS (BSP female) connection on A21  
 DN = DIN 11851 male threaded connection for A31

Pumps	1450 rpm	kW	DN	A	B	C	D	E	F	G	K	H	J	I	Y	L	M	O	P	Q	W
A 21	0,55	3/4"G	238	88	-	173	-	62	336	398	153	85	238	80	125	150	-	-	-	-	301
A 31	0,55	32	238	111	-	173	-	75	334	409	153	117	270	110	125	150	-	-	-	-	301
	0,75	32	238	111	-	173	-	75	334	409	153	117	270	110	125	150	-	-	-	-	301



Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors  
 (\*) Bearing frame designed for direct coupling with motor frame ...

Pumps	1450 rpm	kW	DN	A	B	C	D	E	F	G	K	H	h	J	I	Y	L	M	O	P	Q	R	S	U	V	W	Z	PAM (*)
A 41	1,1	40	297	116	132	89	53,5	79	549	631	122	-	120	242	120	135	175	12	117	51	-	-	20	22,5	313	6	90	
	1,5	40	297	116	132	89	53,5	79	549	631	122	-	120	242	120	135	175	12	117	51	-	-	20	22,5	313	6	90	
A 51	2,2	50	333	127	138	95	59,5	88	607	704	130	-	140	270	140	175	215	12	119	61	-	-	20	22,5	337	6	100	
	4	50	333	127	138	95	59,5	88	607	704	130	-	140	270	140	175	215	12	119	61	-	-	20	22,5	337	6	112	
A 66	4	65	369	182	150	95	74	133	667	800	145	-	185	330	180	190	230	12	137	62	-	-	25	28	360	8	112	
	5,5	65	369	182	150	95	74	133	667	800	145	15	185	330	180	190	230	12	137	62	300	5	25	28	360	8	132	



Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors  
 (\*) Bearing frame designed for direct coupling with motor frame ...

Pumps	1450 rpm	kW	DN	A	B	C	D	E	F	G	K	H	J	I	Y	L	M	O	P	Q	U	V	W	Z	PAM (*)
A 81	9,2	80	432	247	292	214	233	55	1036	1090	200	220	420	190	230	260	14	339	83	32	35	434	10	132	
	11	80	432	247	292	214	233	55	1036	1090	200	220	420	190	230	260	14	339	123	32	35	475	10	160	
	15	80	432	247	292	214	233	55	1036	1090	200	220	420	190	230	260	14	339	123	32	35	475	10	160	



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# Self-priming Sanitary Pumps



## AS Series

### Standard design

AS series sanitary self-priming pumps.

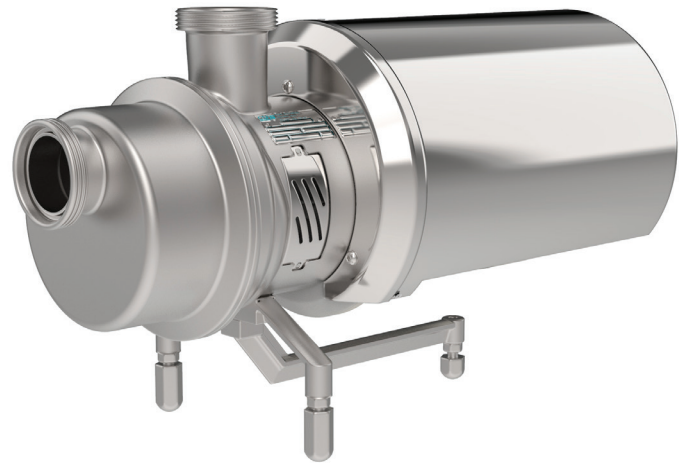
A close coupled design with independent shaft support and standard IEC motors. The ability of these pump to maintain a vacuum under varying suction conditions, makes them ideal for applications where the incoming liquid contains gas or air, such as vessel scavenging, the handling of foaming liquids or where the suction pipe is only partially flooded. Prior to the first start-up, they must be initially filled with liquid; subsequently, liquid remains in the pump, allowing rapid self-priming to occur, even if the suction pipe is emptied.

The construction materials and the quick disassembly design make the AS series particularly suitable for a wide range of applications.

All CF-3M 1.4404 / AISI 316L stainless steel parts.

Investment cast components with electro-chemical polishing.

Stainless steel adjustable feet.



AS single-stage pump

### Seals:

Mechanical seals with seats to EN 12756, ISO 3069 standards.

- Single internal mechanical seal
- Flushed mechanical seal
- Double flushed mechanical seal

### Elastomers (FDA):

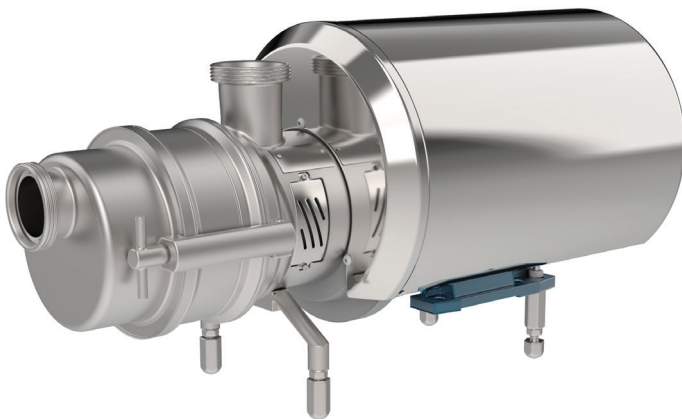
- EPDM
- Fluorocarbon (Viton)
- Silicone
- P.T.F.E. (FEP)
- FFPM

### Connections:

DIN - SMS - IDF - BS / RJT - DS - CLAMP and EN 1092-1 PN16 flanges to suit most international standards.

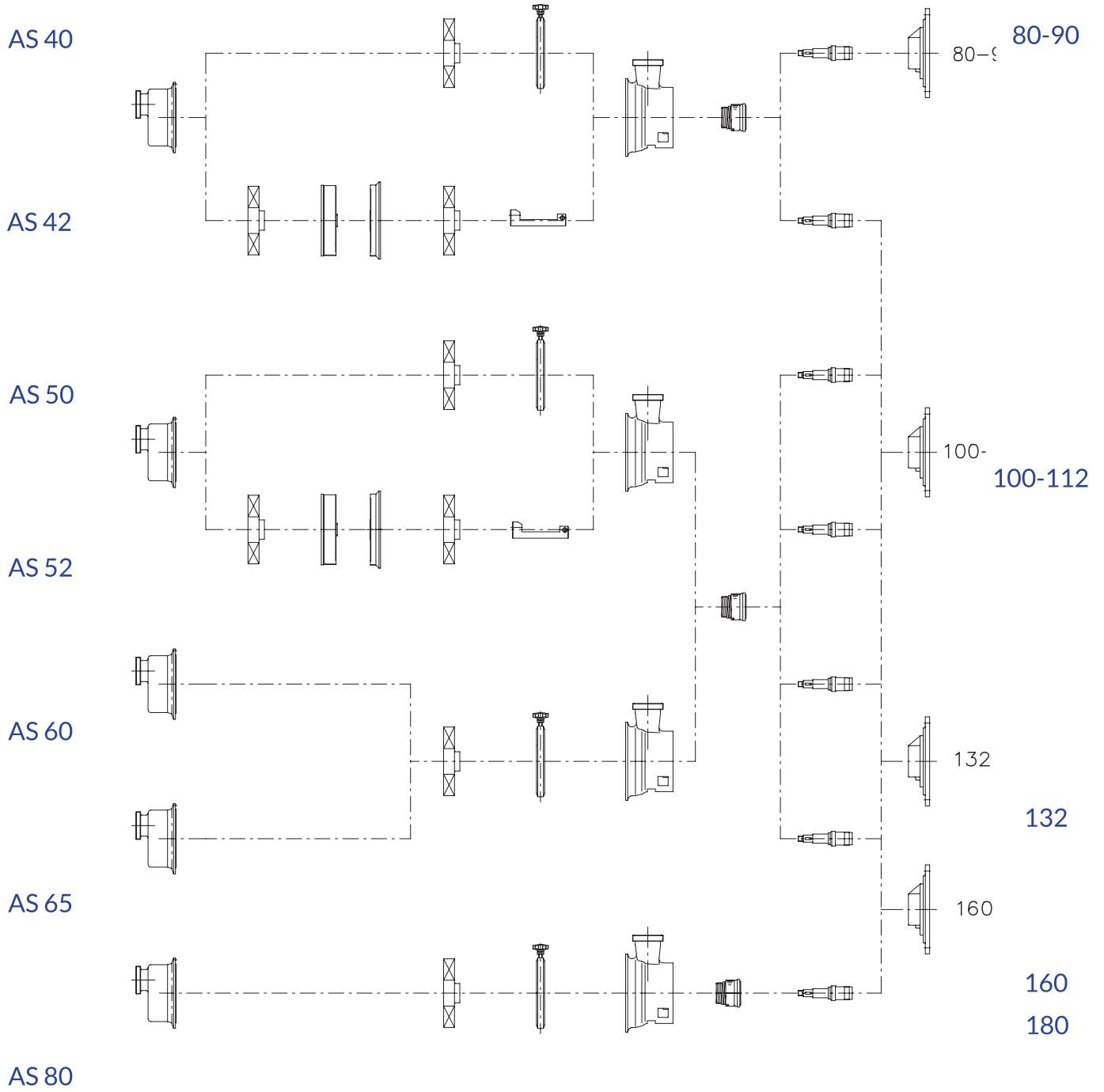
### Applications

AS series pumps incorporate design features and material technologies that enable them to fulfil a wide range of operational requirements within the food, beverage, dairy, pharmaceutical and chemical industries. They are especially suited for clear low viscosity fluids: CIP solutions, water, juices, wine, spirits, chemicals and pharmaceutical media, in CIP scavenge/return and tank emptying duties.



AS 2-stage pump

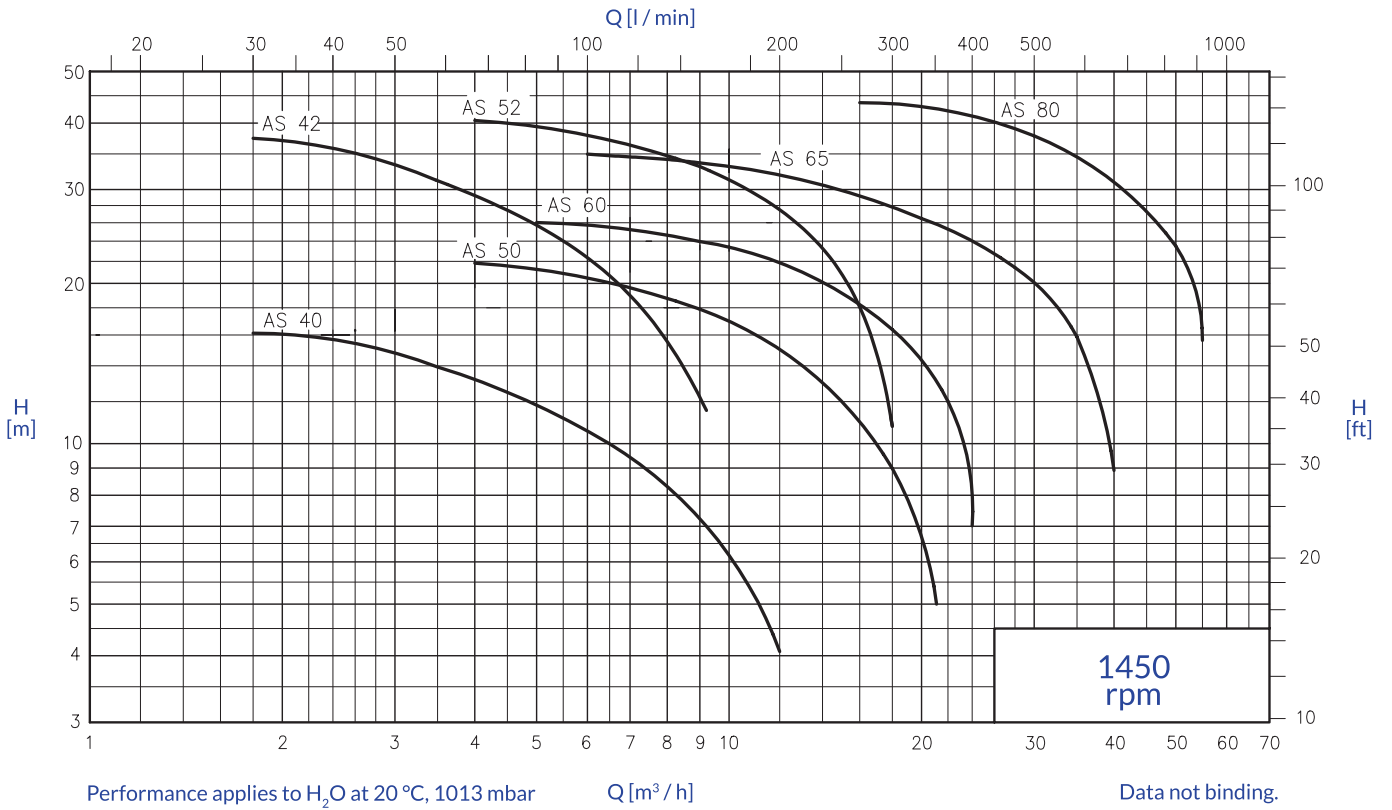
A range of 4 single-stage and 2 two-stage versions.



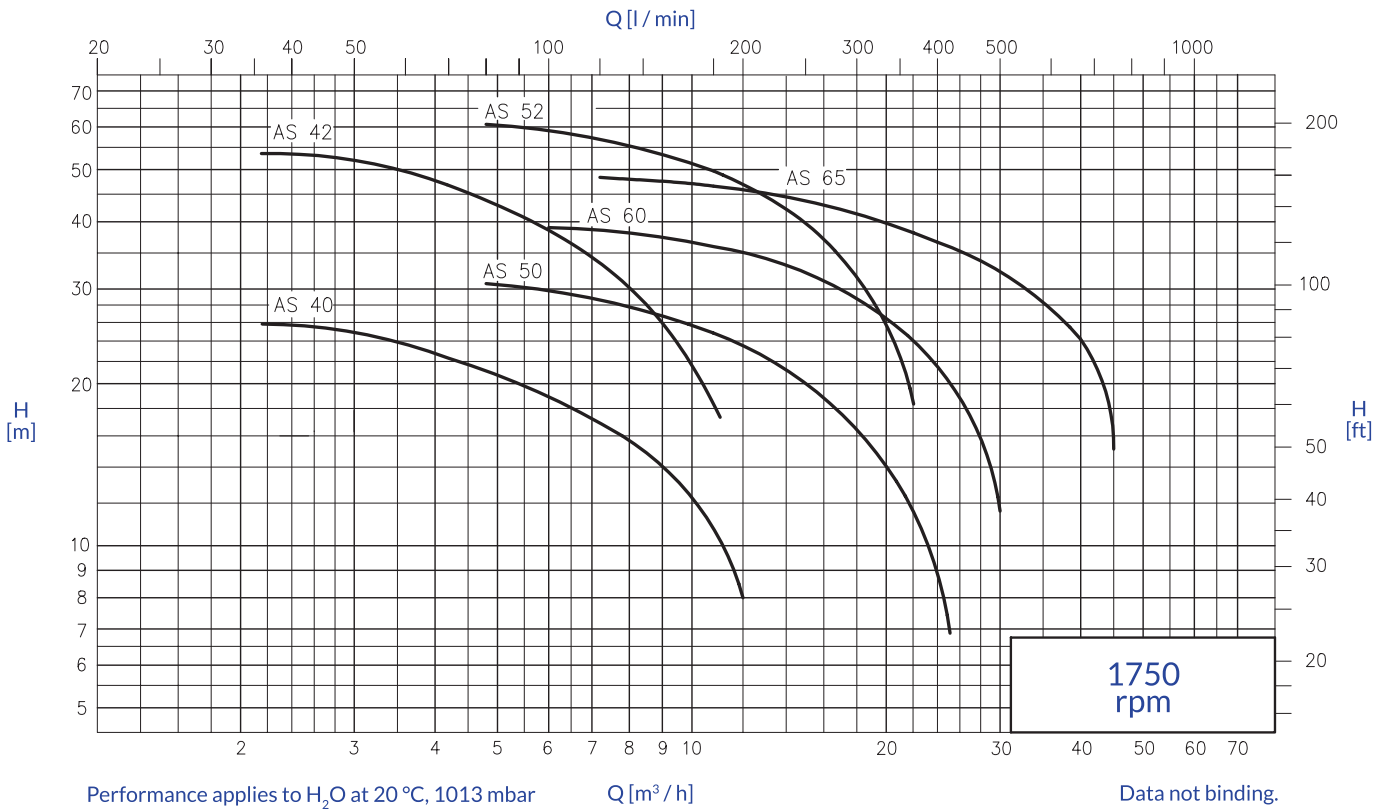
Star-shaped impellers in CF-3M 1.4404 / AISI 316L stainless steel achieved with micro-casting procedure.



## GENERAL DIAGRAM - 50 Hz

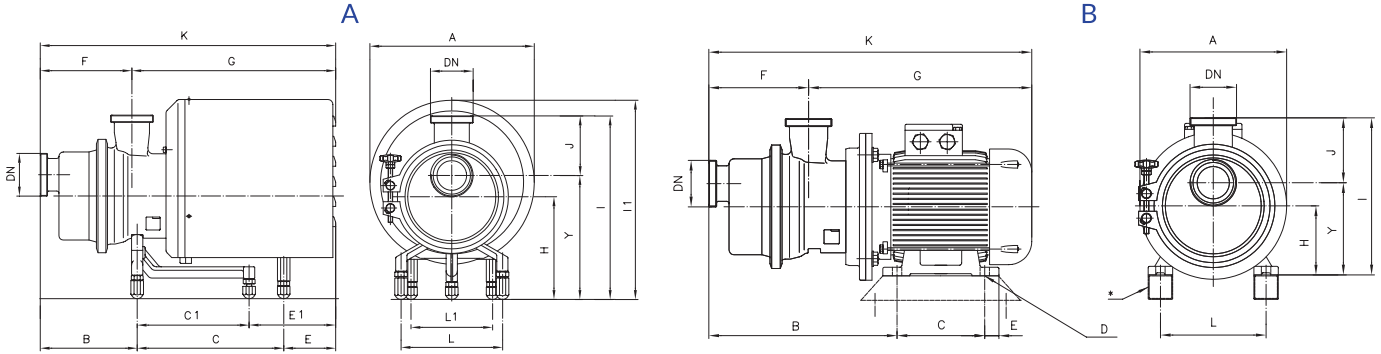


## GENERAL DIAGRAM - 60 Hz





# OVERALL DIMENSIONS



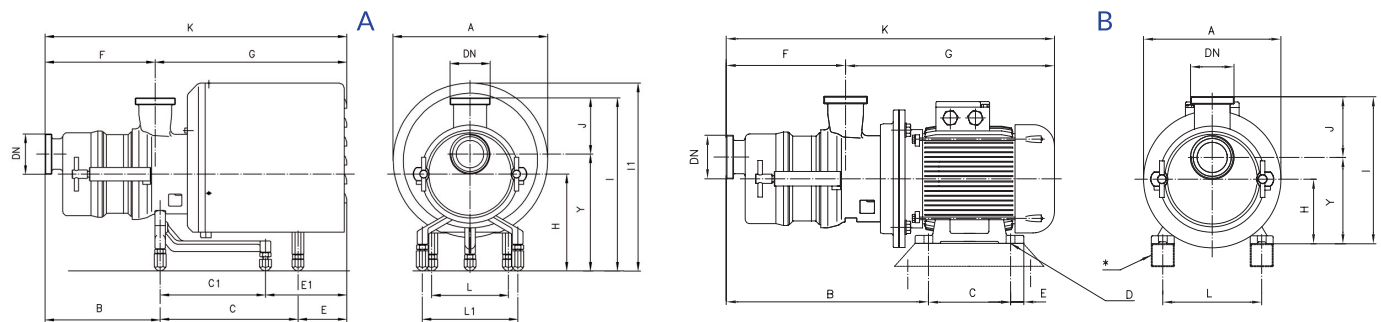
\* Motor shims on request

A = with shroud Dimensions not binding - DN = DIN 11851 male threaded connections, with standard IEC/EN motors

Pumps	1450 rpm	kW	DN	A	B	C	C1	E	E1	F	G	K	H	J	I	I1	Y	L	L1
AS 40		1,1	40	238	167	-	190	-	219	141	435	576	162	110	307	299	197	178	-
	1,5	40	238	167	-	190	-	219	141	435	576	162	110	307	299	197	178	-	
	2,2	40	330	167	-	301	-	183	141	510	651	190	110	335	395	225	225	-	
AS 50	2,2	50	330	196	-	301	-	202	175	523	697	228	114	378	433	264	225	-	
	4	50	330	196	-	301	-	202	175	523	697	228	114	378	433	264	225	-	
AS 60	4	65	330	216	-	301	-	202	211	514	719	228	135	408	433	273	225	-	
	5,5	65	370	216	267	-	224	-	211	557	762	228	135	408	450	273	225	180	
AS 65	5,5	65	370	216	267	-	224	-	211	557	762	228	135	408	450	273	225	180	
	7,5	65	370	216	267	-	224	-	211	557	762	228	135	408	450	273	225	180	
AS 80	11	80	430	267	375	-	347	-	248	848	1096	228	160	446	491	286	225	230	
	15	80	430	267	375	-	347	-	248	848	1096	228	160	446	491	286	225	230	

B = without shroud Dimensions not binding - DN = DIN 11851 male threaded connections, with standard IEC/EN motors

Pumps	1450 rpm	kW	DN	A	B	C	øD	E	F	G	K	H	J	I	Y	L	M	N	O
AS 40		1,1	40	200	296	100	10	34	141	380	521	90	110	235	125	140	-	-	-
	1,5	40	200	296	125	10	9	141	380	521	90	110	235	125	140	-	-	-	
	2,2	40	250	308	140	12	18	141	416	557	100	110	245	135	160	-	-	-	
AS 50	2,2	50	250	343	140	12	18	175	419	594	100	114	250	136	160	-	-	-	
	4	50	250	351	140	12	18	175	441	616	112	114	262	148	190	-	-	-	
AS 60	4	65	250	372	140	12	18	211	431	636	112	135	292	157	190	-	-	-	
	5,5	65	300	412	140	12	20	211	492	697	132	135	312	177	216	-	-	-	
AS 65	5,5	65	300	412	140	12	20	211	492	697	132	135	312	177	216	-	-	-	
	7,5	65	300	412	178	12	20	211	492	697	132	135	312	177	216	-	-	-	
AS 80	11	80	350	555	210	15	23	248	677	925	160	160	378	218	254	-	-	-	
	15	80	350	555	254	15	23	248	677	925	160	160	378	218	254	-	-	-	



\* Motor shims on request

A = with shroud Dimensions not binding - DN = DIN 11851 male threaded connections, with standard IEC/EN motors

Pumps	1450 rpm	kW	DN	A	B	C	C1	E	E1	F	G	K	H	J	I	I1	Y	L	L1
AS 42		2,2	40	330	226	-	301	-	183	200	510	710	190	110	335	395	225	225	-
	3	40	330	226	-	301	-	183	200	510	710	190	110	335	395	225	225	-	
AS 52	5,5	50	370	258	266	-	280	-	237	567	804	228	114	378	450	264	225	180	

B = without shroud Dimensions not binding - DN = DIN 11851 male threaded connections, with standard IEC/EN motors

Pumps	1450 rpm	kW	DN	A	B	C	øD	E	F	G	K	H	J	I	Y	L	M	N	O
AS 42		2,2	40	250	365	140	12	18	200	416	616	100	110	245	135	160	-	-	-
	3	40	250	365	140	12	18	200	416	616	100	110	245	135	160	-	-	-	
AS 52	5,5	50	300	454	140	12	20	237	502	739	132	115	282	168	216	-	-	-	



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# Hygienic Centrifugal Pumps

## CSA Series

CSA series pumps are designed, tested and approved to EHEDG (European Hygienic Engineering & Design Group) hygiene protocols and to US 3A standards. Used mainly in the foodstuffs and pharmaceutical industries, they fulfil the highest sanitary requirements.

The modular construction enables C.S.F. to provide the most suitable pump. Optimised performance and low NPSH requirements are integral to the design of CSA Series pumps.

Standard design

Open impeller.

Wetted parts in CF-3M 1.4404 / AISI 316L stainless steel, investment cast and electro-chemically polished. Special internal finish to 0,5 micron Ra (for Superduplex 0,8 micron).

Adjustable stainless steel feet.

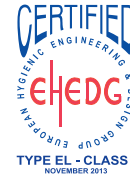
Flow rates up to 300 m<sup>3</sup>/h, heads up to 100 m (10 bar); low NPSH requirements.



HYGIENE



BIOTECHNOLOGY



# Sanitary Self-priming Pumps

## ASH Series

ASH Series pumps are approved to the latest US 3A sanitary standards; ideal for systems where compliance to the most strict hygiene regulations is essential.

The ability of ASH pumps to repeatedly create a vacuum makes them ideal for applications where air or gas is entrained in the pumped liquid. Perfect for CIP scavenge and duties where the inlet pipework is only partially filled with fluid, including foaming products.

Manufactured for a wide range of requirements in the food, beverage and pharmaceutical process sector. This market leading design includes the latest technologies and construction materials.

Standard design

Wetted parts in CF-3M 1.4404 / AISI 316L stainless steel.

Investment cast and electro-chemically polished.

Special internal finish 0,8 micron Ra.

Adjustable stainless steel feet.

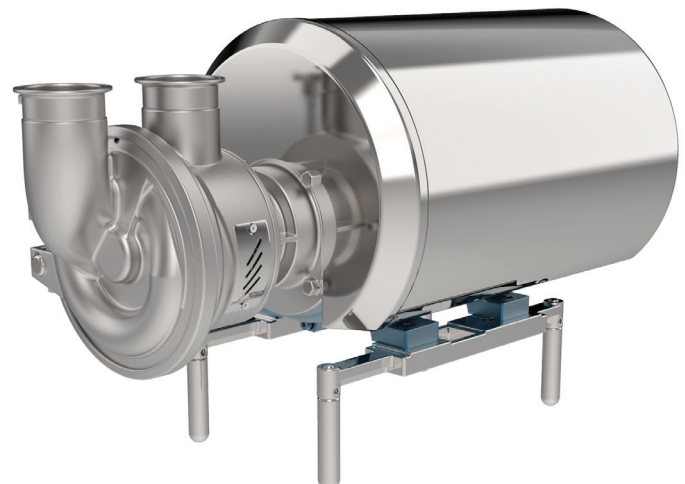
Flow rates up to 40 m<sup>3</sup>/h, heads up max. 35 m (3,5 bar) (50 Hz).



HYGIENE



BIOTECHNOLOGY



## CSA series

Closed coupled sanitary centrifugal pumps with open impeller and independent shaft support.

Suitable for motors in compliance with the following standards: IEC 34-1, VDE 0530T1, NF C51-111, BS5000 PART 99, NEMA NG1 PART. 1

Greased lubricated bearings.

Clamp design casing and seal. Easy disassembly, quick inspection, cleaning and maintenance. Rotation of the delivery port for optimised installation

### CSA SERIES CERTIFIED TO EHEDG / 3A

#### Seals:

Protected and balanced internal mechanical seal with seats according to EN 12756, ISO 3069 standards.

Single external mechanical seal

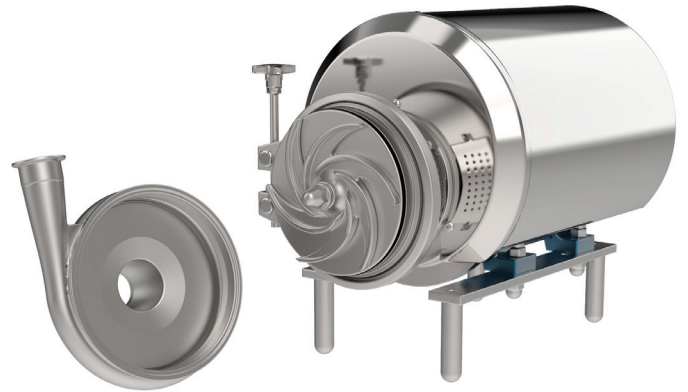
Double flushed (axial + radial) mechanical seal

#### Elastomers (FDA - 3A - USP VI):

EPDM

FLUOROCARBON - (FPM DIN/ISO), (FKM ASTM)

PFFPM



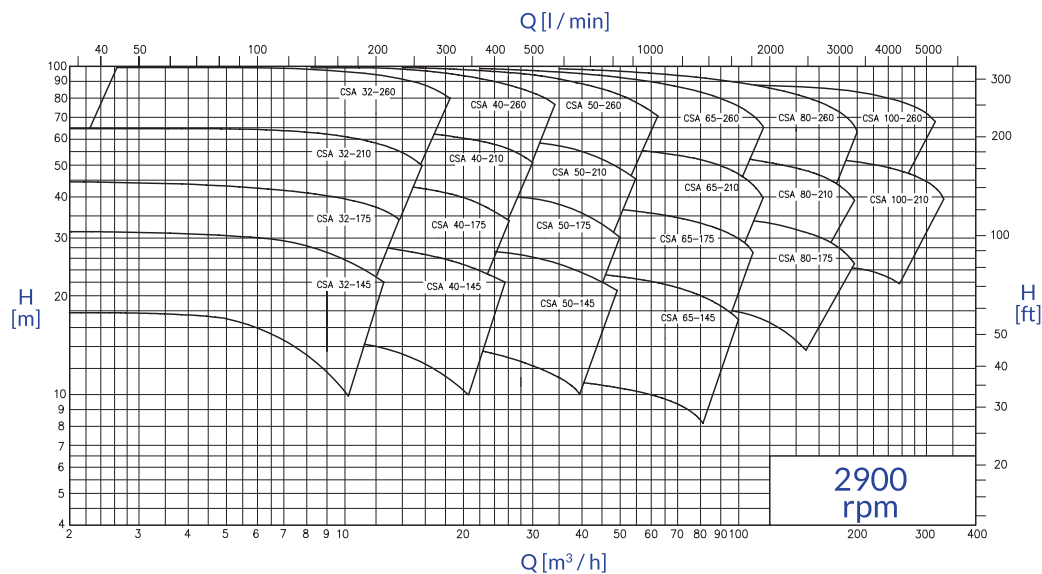
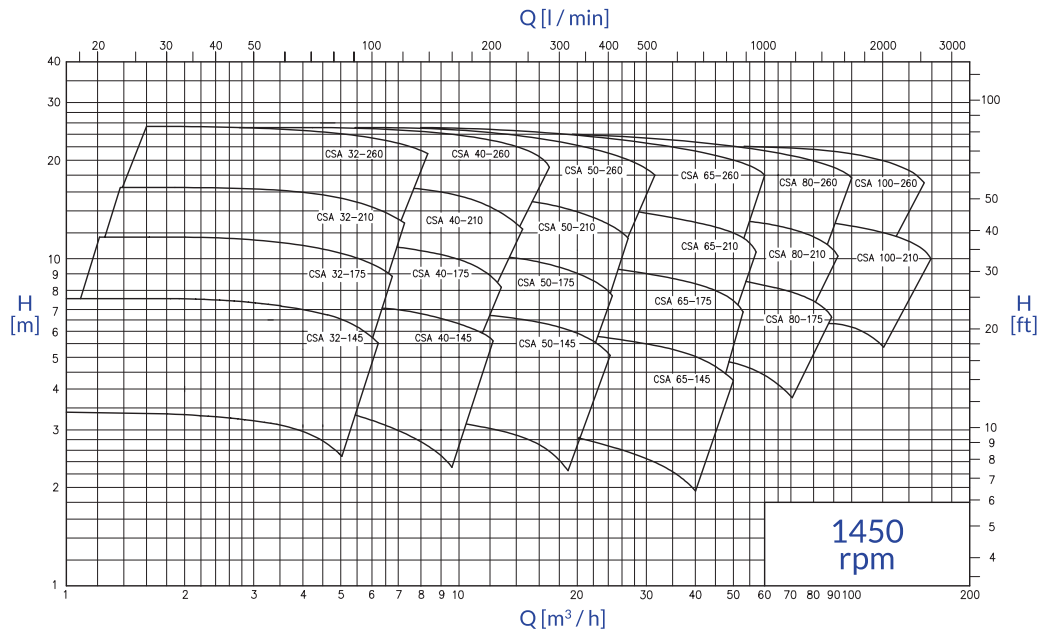
#### Connections:

CLAMP DIN 32676-C

DIN 11864

## GENERAL DIAGRAMS

Performance applies to H<sub>2</sub>O at 20 °C, 1013 mbar, Data not binding.



## ASH Series

Close coupled sanitary self-priming pumps with independent shaft support.

Suitable for motors in compliance with the following standards: IEC 34-1, VDE 0530T1, NF C51-111, BS5000 PART 99, NEMA NG1 PART. 1

Greased lubricated bearings.

Clamp design casing and seal. Easy disassembly, quick inspection, cleaning and maintenance.

### Seals:

Single internal mechanical seal, protected and balanced, with seats according to EN 12756, ISO 3069.

### Elastomers (FDA - 3A - USP VI):

EPDM

FLUOROCARBON - (FPM DIN/ISO), (FKM ASTM)

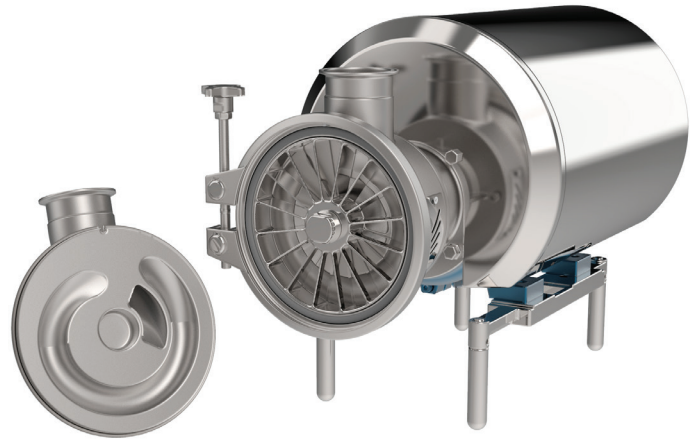
P.T.F.E. (FEP)

FFPM

### Connections:

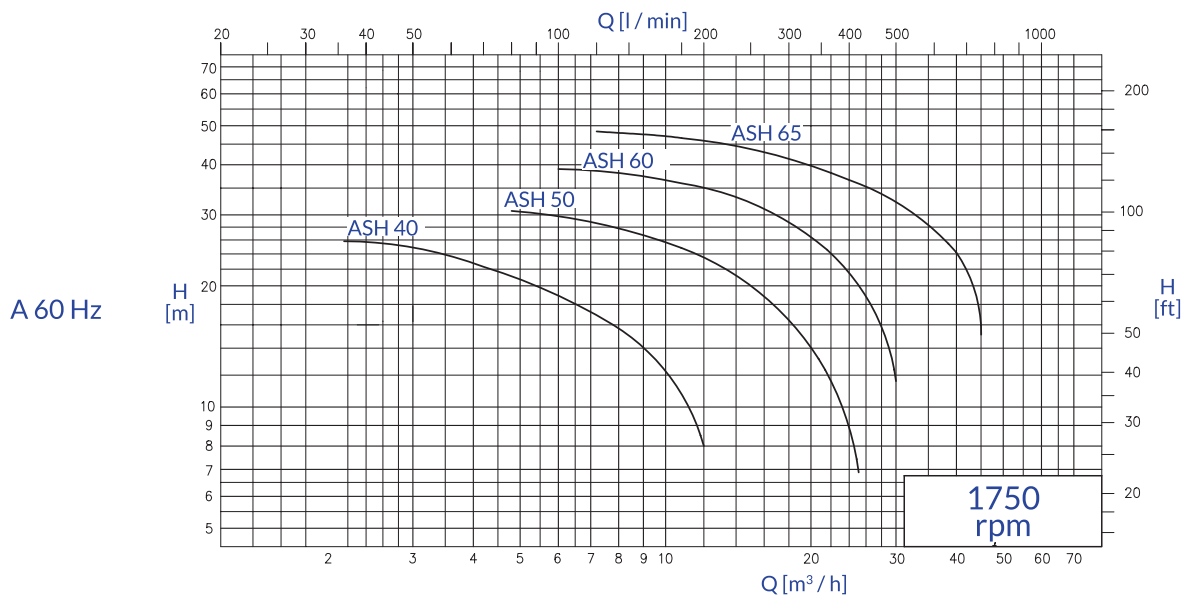
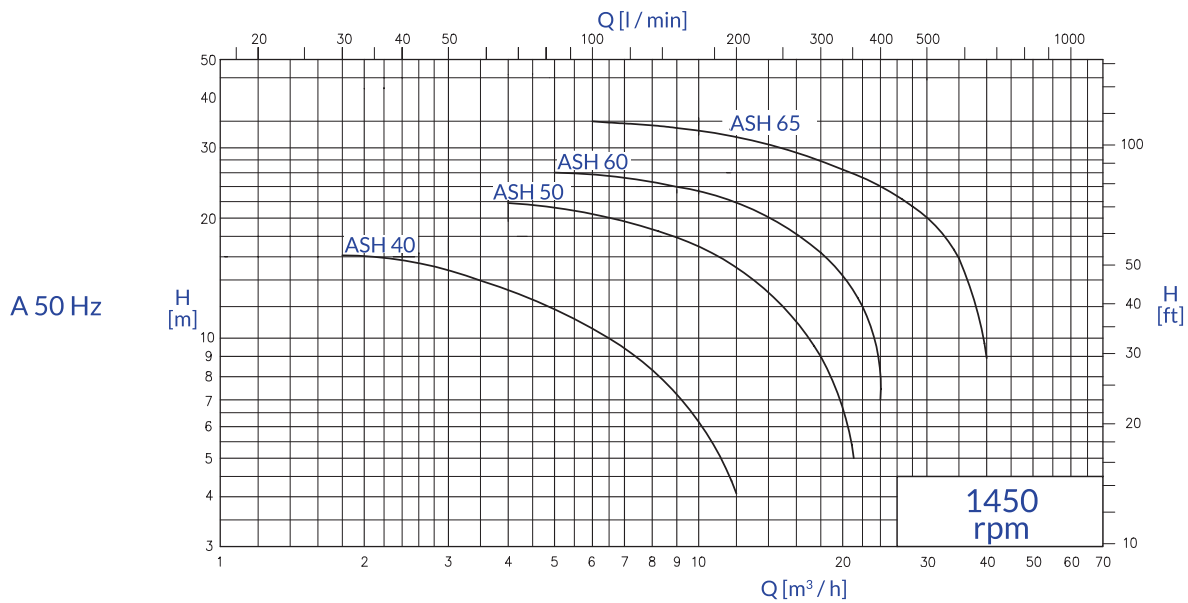
CLAMP DIN 32676-C

DIN 11864



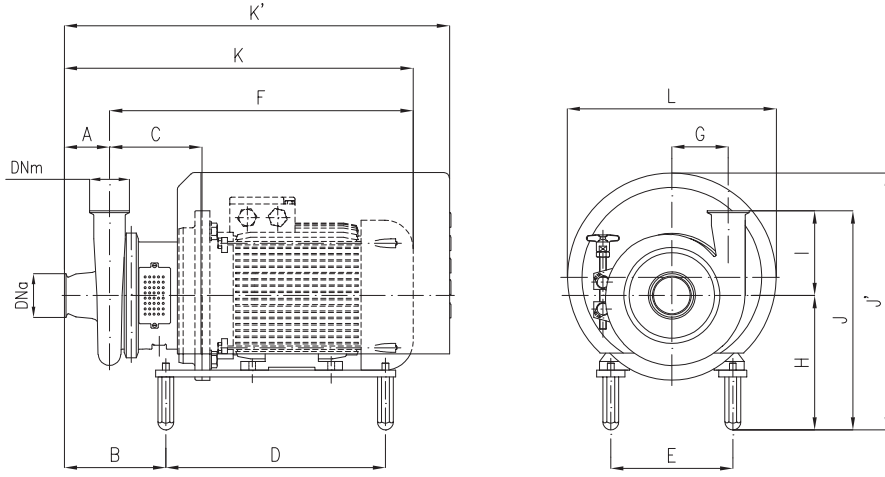
## GENERAL DIAGRAMS

Performance applies to H<sub>2</sub>O at 20 °C, 1013 mbar, Data not binding.





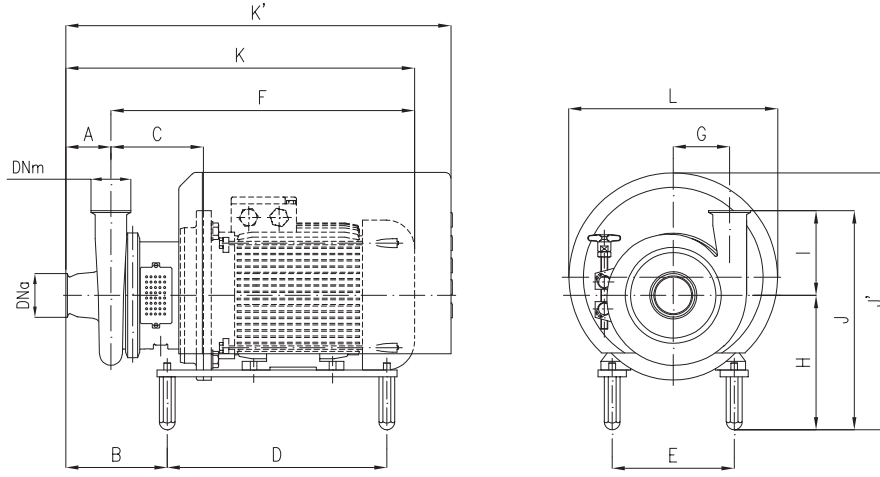
# CSA OVERALL DIMENSIONS



Dimensions not binding - DN = "Clamp" DIN 32676-C connections, with standard IEC/EN motors

Pumps	IEC motors size:	DNa	DNm	A	B	C	D	E	F	G	H	K	K'	I	J	J'	L				
CSA 32-145	80	1"1/2	1"1/2	80	166	138	254	125	372	85	220	452	566	148	368	384	298				
	90				172			140	419		230	499			378	394					
	100				158			160	451		240	531			388	445					
	112				165			190	473		230	553			378	435					
CSA 32-175	80	1"1/2	1"1/2	80	167	139	254	125	373	95	220	453	567	148	368	384	298				
	90				173			140	420		230	500			378	394					
	100				159			160	452		240	532			388	445					
	112				166			190	473		230	553			378	435					
CSA 32-210	80	1"1/2	1"1/2	80	167	139	254	125	373	110	230	453	567	168	398	402	298				
	90				173			140	420		240	532			408	445					
	100				159			160	452		230	553			398	435					
	112				166			190	473		255	614			423	477					
	132 S							534	680		735	448			543						
	132 M							578	735		424	298									
CSA 32-260	80	2"	1"1/2	90	167	139	254	125	373	140	260	534	601	168	428	465	330				
	90				173			140	420									566	671	448	543
	100				193			160	476									587	714	424	298
	112				200			190	497									648	714	482	370
	132 S							558	602									693	769	448	543
	132 M							602	703									967	448	543	
CSA 40-145	80	2"	2"	80	167	139	254	125	373	90	220	453	567	133	353	384	298				
	90				173			140	420		230	501			363	394					
	100				159			160	452		240	532			373	445					
	112				166			190	473		230	553			363	435					
CSA 40-175	80	2"	2"	80	168	141	254	125	375	95	220	455	569	150	370	384	298				
	90				175			140	422		230	502			380	394					
	100				161			160	454		240	534			390	445					
	112				168			190	475		230	555			380	435					
	132 S							537	682		737	405			477						
	132 M							581	737		430	543									
CSA 40-210	80	2"	2"	80	168	141	254	125	375	115	235	455	569	160	395	399	298				
	90				175			140	422		240	534			400	445					
	100				161			160	454		235	555			395	440					
	112				168			190	475		250	617			410	472					
	132 S							537	682		737	440			543						
	132 M							581	737		440	298									
CSA 40-260	80	2"	2"	100	168	141	254	125	375	145	260	544	611	172	432	465	330				
	90				175			140	422									576	681	440	298
	100				203			160	476									597	724	465	330
	112				210			190	497									658	724	482	370
	132 S							558	602									702	779	452	502
	132 M							602	703									1094	477	637	
CSA 50-145	80	2"1/2	2"	80	169	141	254	125	374	95	220	454	569	139	359	384	298				
	90				175			140	422		230	502			369	394					
	100				161			160	454		240	534			379	445					
	112				168			190	475		230	555			369	435					
	132 S							537	682		737	394			477						
	132 M							581	737		394	477									
CSA 50-175	80	2"1/2	2"	80	169	141	254	125	374	100	230	454	569	154	384	394	298				
	90				175			140	422		240	534			394	445					
	100				161			160	454		230	555			384	435					
	112				168			190	475		255	617			409	477					
	132 S							537	682		737	434			543						
	132 M							581	737		434	543									
160		686	254	686	280	766	937	430													

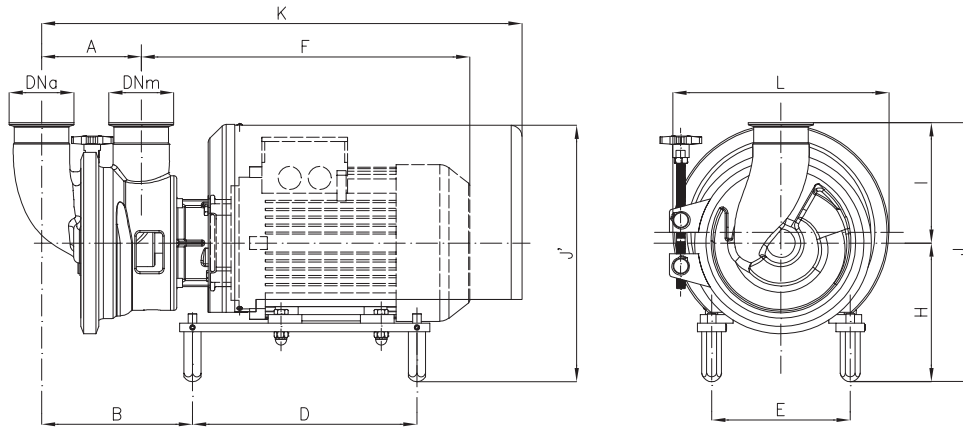
# CSA OVERALL DIMENSIONS



Dimensions not binding - DN = "Clamp" DIN 32676-C connections, with standard IEC/EN motors

Pumps	IEC motors size:	DNa	DNm	A	B	C	D	E	F	G	H	K	K'	I	J	J'	L		
CSA 50-210	90	2 1/2"	2"	80	175	141	254	140	422	120	240	502	569	168	408	412	298		
	100				161	142	314	160	454			534	639			445	330		
	112				168			190	475			555							
	132 S				180	164	389	216	537			617	682			418	472	370	
	132 M								581			661	737						
	160				243	208	460	254	686			280	766			937	448	543	430
180	173	223	600	279	783	305	863	1072	473	637	420								
CSA 50-260	100	2 1/2"	2"	90	194	165	314	160	477	145	270	567	672	179	449	475	330		
	112				201			190	498			588							
	160				273	228	460	254	706			280	796			970	459	543	430
	180				188			279	788			305	878			1087	484	637	420
CSA 65-145	80	3"	3"	79	172	145	254	125	379	112	245	458	572	138	383	409	298		
	90				178			140	426			505							
	100				164	146	314	160	458			537	642			450	330		
	112				171			190	479			558							
	132 S				183	168	389	216	541			255	620			685	393	477	370
	132 M								585			664	740						
160	246	212	460	254	690	280	769	940	418	543	430								
CSA 65-175	90	3"	3"	80	178	144	254	140	425	120	255	505	572	138	393	409	298		
	100				164	145	314	160	457			537	642			460	330		
	112				171			190	478			558							
	132 S				183	167	389	216	540			255	620			685	477	370	
	132 M								584			664	740						
	160				246	211	460	254	689			280	769			940	418	543	430
CSA 65-210	90	3"	3"	90	212	168	254	140	449	135	265	539	605	158	423	429	298		
	100				198	169	314	160	481			571	676			470	330		
	112				205			190	502			592							
	160				276	231	460	254	709			280	799			974	438	543	430
	180				191			279	791			305	881			1090	463	637	420
					207	168	314	160	480										
CSA 65-260	100	3"	3"	100	207	168	314	160	480	155	285	580	685	193	478	490	330		
	112				214			190	501			601							
	132 S				226	190	389	216	563			285	663			728	507	370	
	132 M								607			707	783			548	430		
	160				285	230	460	254	708			305	808			983	498	637	420
	180				200			279	790				890			1099			
CSA 80-175	100	4"	3"	100	231	174	315	160	486	139	275	586	691	164	439	480	330		
	112				220			190	507			607							
	132 S				231	195	389	216	568			275	668			734	497	370	
	160				291	236	460	254	714			280	814			989	444	543	430
	180				206			279	796			305	896			1105	469	637	420
					210	171	314	160	483										
CSA 80-210	100	4"	3"	100	217	171	314	160	483	145	285	583	688	164	449	490	330		
	112				217			190	504			604							
	132 S				229	193	389	216	566			285	666			731	507	370	
	160				288	233	460	254	711			305	811			986	548	430	
	180				203			279	793				893			1102	469	637	420
					210	171	314	160	483										
CSA 80-260	100	4"	3"	100	217	171	314	160	483	165	300	583	688	209	509	505	330		
	112				217			190	504			604							
	132 S				229	193	389	216	566			300	666			731	522	370	
	132 M								610			710	786			563	430		
	160				288	233	460	254	711			305	811			986	469	637	420
					210	171	314	160	483										
CSA 100-210	132 S	5"	4"	111	246	200	389	216	573	161	305	683	750	214	519	527	370		
	180				221	240	600	279	800			911	1120			634	420		
CSA 100-260	132 M	5"	4"	115	246	195	389	216	612	186	325	727	803	216	541	547	370		
	160				305	235	460	254	713			828	1004			588	430		
	180				220			279	795			910	1118			657	420		

# ASH OVERALL DIMENSIONS



Dimensions not binding - DN = "Clamp" DIN 32676-C connections, with standard IEC/EN motors

Pumps	1450 rpm	kW	DNα	DNm	A	B	D	E	F	H	K	I	J	J'	L				
ASH 40		1,1	1" 1/2	1" 1/2	90,5	183	245	140	410	228	551	139	376	376	239				
	1,5	148,5				314	160	433	238	617	386,5		403	330					
	2,2																		
ASH 50	2,2	2"	2"	118	176,5	314	160	432	238	645	149	386,5	403	330					
	4				183,5							190	453		250	398,5	415		
ASH 60	4	3"	3"	139	211	314	190	460	250	672	169	418,5	415	330					
	5,5				215							390	216		512	270	749	438,5	489
ASH 65	5,5	3"	3"	139	215	390	216	512	270	749	169	438,5	489	372					
	7,5				266							460	254	650	280	914	448,5	536	432
	15																		



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# Centrifugal Sanitary Pumps

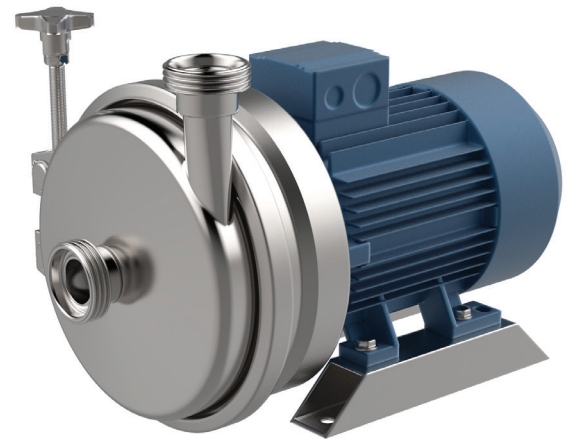
## CL-CLC Series

### Standard design

Available in a wide range of models with closed or open impellers and 2 or 4 pole motors, this well-established series of hygienic pumps can perform an amazing number of applications. The special construction with hand-nuts & clamps allows easy disassembly for inspection and cleaning of the internal components

Wetted parts are in forged polished plate and investment cast electropolished AISI 316 stainless steel.

Flow rates up to 90 m<sup>3</sup>/h, heads up to max. 50 m. (5 bar).



CL-CLC pump



CL-CLC pump with shroud

### Seals:

Mechanical seals with seats to EN 12756, ISO 3069 standards.

- Single internal mechanical seal
- Single external mechanical seal
- Double flushed mechanical seal

### Elastomers (FDA):

- EPDM
- Fluorocarbon (Viton)
- Silicone
- P.T.F.E. (FEP)

### Connections:

DIN - SMS - IDF - BS / RJT - DS - CLAMP and EN 1092-1 PN16 flanges suitable for most international standards.

### Applications

Food processing, dairy, beverage, chemical, cosmetics and pharmaceutical industries. With an open impeller, juices, creams, ice-cream mix, milk, wine, spirits and whey, can be safely transferred at low pressure. While with a higher efficiency closed impeller, clean liquids without solids can be pumped at medium-high heads (max. 40-50 m) to feed pasteurizers and coolers, concentrators, filters, CIP systems, etc.



Open

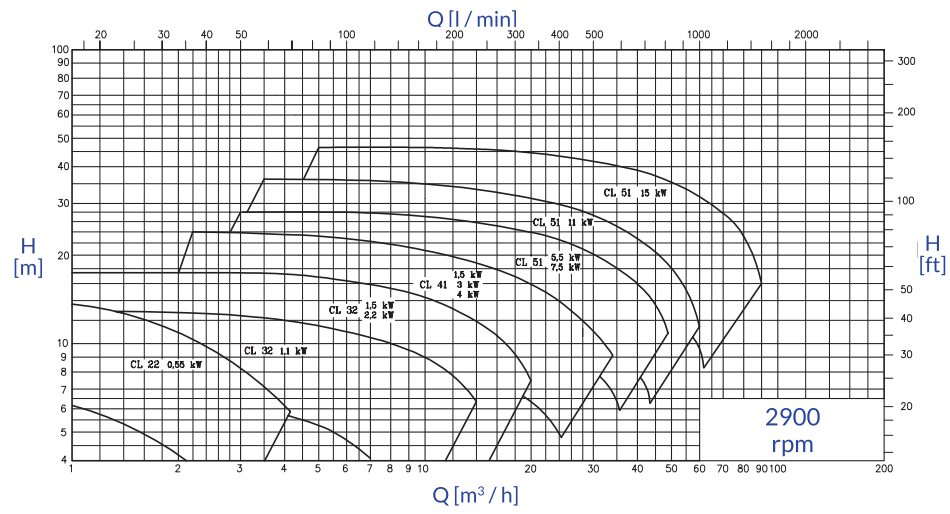
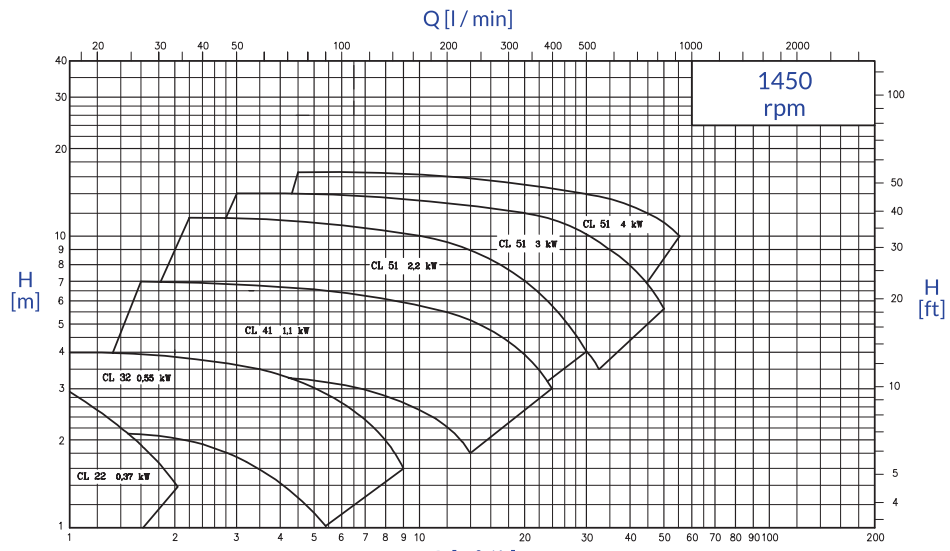
Closed in 2 pieces

Closed

All impellers, both closed and open, have reversed blades, designed to optimize the hydraulic efficiency.

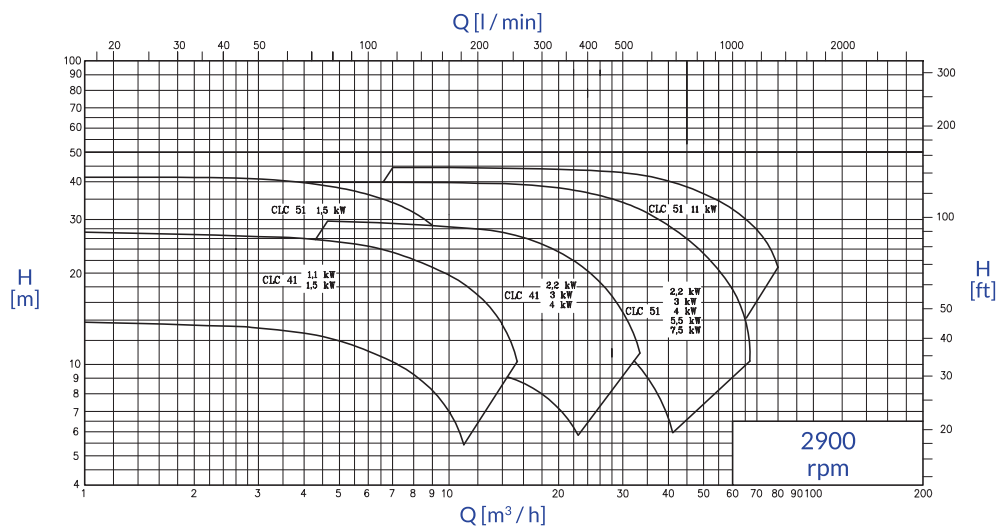
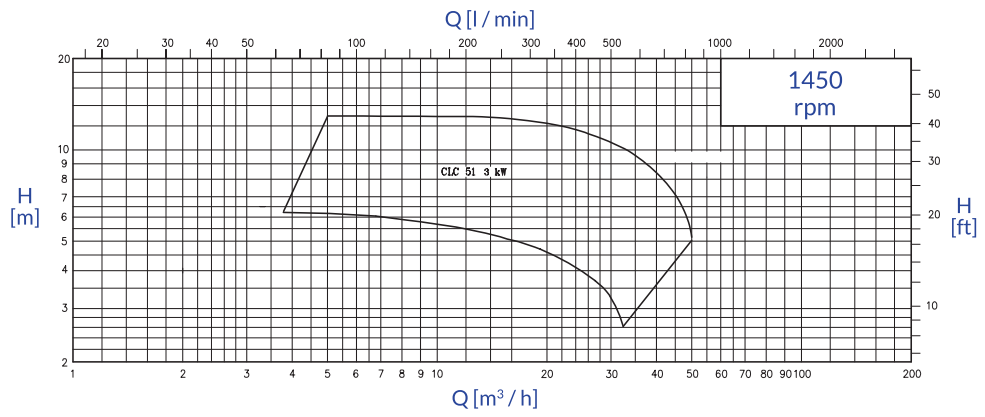
# CL GENERAL DIAGRAM OPEN IMPELLER

Performance applies to H<sub>2</sub>O at 20 °C, 1013 mbar, Data not binding.

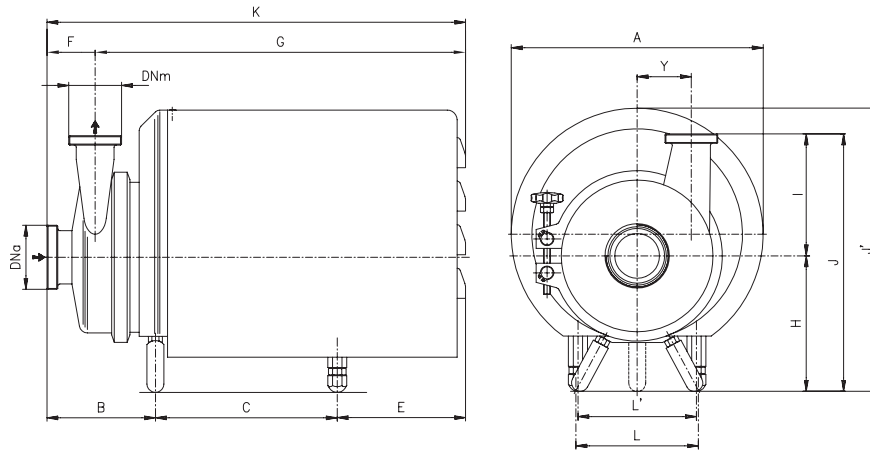


# CLC GENERAL DIAGRAM CLOSED IMPELLER

Performance applies to H<sub>2</sub>O at 20 °C, 1013 mbar, Data not binding.



## OVERALL DIMENSIONS (INCLUDING SHROUD)



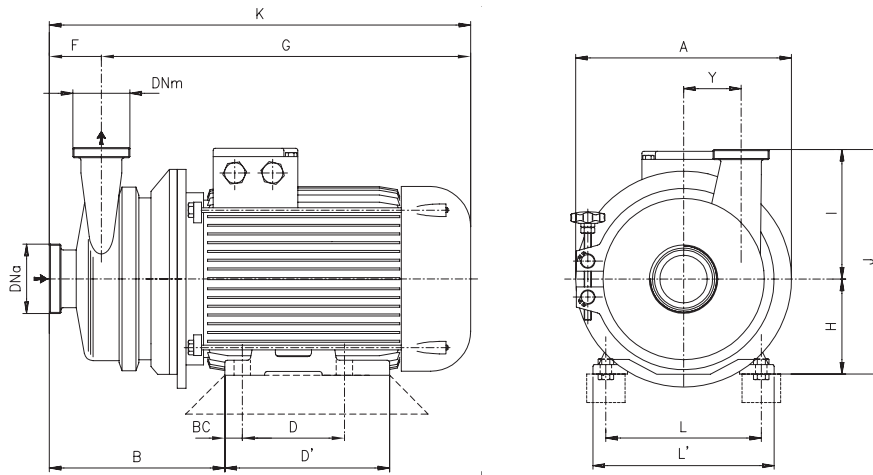
Dimensions not binding - DN = DIN 11851 male threaded connections

Pumps	rpm	kW	DNa	DNm	A	B	C	E	F	G	K	H	I	J	J'	L	L'	Y
CL 22../P	1450	0,37	25	25	212	165	90	138	52	340	392	71	95	166	205	112	136	0
CL 22../P	2900	0,55	25	25	212	165	90	138	52	340	392	71	95	166	205	112	136	0
CL 22../P	2900	0,75	25	25	212	172,5	100	122,5	45	340	392	80	95	175	214	125	155	0

Pumps	rpm	kW	DNa	DNm	A	B	C	E	F	G	K	H	I	J	J'	L	L'	Y
CL 32../P		0,55	40	40	239	120	195	177	51	437,5	479,5	155	125	280	305,8	200	-	40
CL 41../P	1,1	50	40	298	159	168	180	62	445	507	160	150	310	324	190	-	60	
CL 51../P	2,2	65	50	298	154	188	219	66	495	561	165	180	375	359	180	-	80	
	3	65	50	298	173	188	219	72	508	580	195	180	375	359	180	-	80	
	4	80	65	298	177	195	212	76	508	584	195	200	395	359	180	-	70	
CLC 51../P	3	80	65	298	177	188	219	76	508	584	195	200	395	359	180	-	70	
	4	80	65	298	177	188	219	76	508	584	195	200	395	359	180	-	70	

CL 32../P	1,1	32	32	239		205	177	51			155	125	280		200	-	40
	1,5	32	32	239	120	205	177	51	437,5	479,6	155	125	280	305,8	200	-	40
	2,2	40	40	239		235	133	51			155	125	280		200	-	40
CL 41../P	1,5	40	32	298	143	192	152	56	431	487	160	150	310	330	190	-	60
	3	50	40	298	143	217	192	56	496	552	160	150	310	324	168	-	60
	4	50	40	298	143	224	185	56	496	552	160	150	310	324	168	-	60
CL 51../P	5,5	65	50	368	147	228	232	66	541	607	200	180	380	416	178	115	80
	7,5	65	50	368	147	228	232	66	541	607	200	180	380	416	178	115	80
	11	65	50	368	147	211	249	66	541	607	200	180	380	416	178	185	80
	15	80	65	368	170	211	249	74	541	615	200	200	400	416	178	185	70
CLC 41../P	1,1	40	32	298	142	162	186	56	434	490	160	150	310	324	190	-	60
	1,5	40	32	298	142	168	180	56	434	490	160	150	310	324	190	-	60
	2,2	50	40	298	142	193	155	62	434	490	160	150	310	324	190	-	60
	3	50	40	298	151	217	192	62	498	560	160	150	310	324	168	-	60
	4	50	40	298	151	224	185	62	498	560	160	150	310	324	168	-	60
CLC 51../P	1,5	25	25	298	127	165	180	52	420	472	165	160	325	329	152	-	80
	2,2	32	32	298	137	165	180	61	420	481	165	160	325	329	152	-	80
	3	50	40	298	150	188	220	63	495	558	195	160	355	359	180	-	80
	4	50	50	298	161	195	212	66	501	567	195	180	375	359	180	-	80
	5,5	65	50	368	157	228	231	69	547	616	200	180	380	416	178	115	80
	7,5	65	50	368	157	228	231	69	547	616	200	180	380	416	178	115	80
	11	65	65	368	162	211	253	74	552	626	200	200	400	416	178	185	70

# OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 male threaded connections

Pumps	rpm	kW	DNa	DNm	Ø A	B	BC	D	D'	F	G	K	H	I	J	L	L'	Y
CL 22	1450	0,37	25	25	141	155	10	90	110	52	278	330	71	95	166	112	136	0
CL 22	2900	0,55	25	25	141	155	10	90	110	52	278	330	71	95	166	112	136	0
CL 22	2900	0,75	25	25	141	160	12,5	110	125	52	298	350	80	95	175	125	155	0

Pumps	rpm	kW	DNa	DNm	Ø A	B	BC	D	D'	F	G	K	H	I	J	L	L'	Y
CL 32		0,55	40	40	155	168	12,5	100	118	51	314	365	80	125	205	125	150	40
CL 41	1,1	50	40	200	212	15	100	143	62	391	453	90	150	240	140	165	60	
CL 51	2,2	65	50	254	211	20	140	176	66	415	481	100	180	280	160	196	80	
	3	65	50	254	230	20	140	176	72	428	500	100	180	280	160	196	80	
CLC 51	4	80	65	254	241	20	140	176	76	449	525	112	200	312	190	226	70	
	3	80	65	254	241	18	140	176	76	428	504	100	200	300	160	196	70	
	4	80	65	254	243	18	140	176	76	449	525	112	200	312	190	226	70	

CL 32	1450 rpm	1,1	32	32	155	168	12,5	100	118	51	314	365	80	125	205	125	150	40
		1,5	32	32	155	172	15	100	143	51	362	413	90	125	215	140	165	40
		2,2	40	40	155	172	15	125	143	51	362	413	90	125	215	140	165	40
CL 41	1450 rpm	1,5	40	32	200	195	15	100	143	56	380	436	90	150	240	140	165	60
		3	50	40	250	199	20	140	176	56	413	469	100	150	250	160	196	60
		4	50	40	250	206	20	140	176	56	434	490	112	150	262	190	226	60
CL 51	1450 rpm	5,5	65	50	300	230	24	140	176	68	472	540	132	180	312	216	256	80
		7,5	65	50	300	230	24	140	176	68	472	540	132	180	312	216	256	80
		11	65	50	300	241	20	178	220	66	536	602	132	180	312	216	260	80
		15	80	65	300	249	20	178	220	74	536	610	132	200	432	216	260	70
CLC 41	2900 rpm	1,1	40	32	200	191	12,5	100	118	56	332	388	80	150	230	125	150	60
		1,5	40	32	200	195	15	100	143	56	380	436	90	150	240	140	165	60
		2,2	50	40	200	195	15	125	143	62	380	436	90	150	240	140	165	60
		3	50	40	250	207	20	140	176	62	415	477	100	150	250	160	196	60
CLC 51	2900 rpm	4	50	40	250	214	20	140	176	62	436	498	112	150	262	190	226	60
		1,5	25	25	254	181	15	100	143	52	370	422	90	160	250	140	165	80
		2,2	32	32	254	191	15	125	143	61	370	431	90	160	250	140	165	80
		3	50	40	254	207	20	140	176	63	415	478	100	160	260	160	196	80
CLC 51	2900 rpm	4	50	50	254	224	20	140	176	66	442	508	112	180	272	190	226	80
		5,5	65	50	300	241	24	140	180	72	478	550	132	180	312	216	256	80
		7,5	65	50	300	241	24	140	180	72	478	550	132	180	312	216	256	80
		11	65	65	300	249	20	178	220	74	536	610	132	200	332	216	260	70



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# Centrifugal Pumps



## CN Series

### Standard design

Closed coupled single-stage centrifugal pumps. A range of 3 models with open impellers, independent shafts and IEC standard motors.

Optimised design to ensure high levels of hygiene - The absence of product hold-up and no dead-legs ensures efficient cleaning by standard CIP methods and effective sterilisation by SIP.

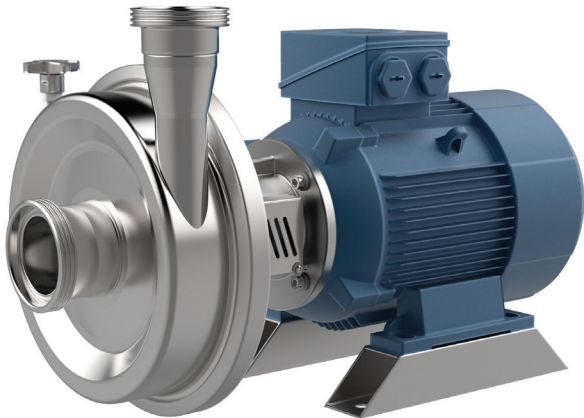
Wetted parts are in pressed polished plate and investment cast electropolished CF3M 1.4409 / AISI 316L (1.4404) stainless steel.

Investment cast and electro-chemical polishing. Internal finishes of 0,5 micron Ra are available on request..

Flow rates up to 75 m<sup>3</sup>/h, heads of more than 60 m.  
Maximum inlet pressure : 4 bar.  
Temperature range: -10°C to 120°C.



Pump with shroud and stainless steel adjustable feet.



Pump without shroud and stainless steel motor shims.



Open impeller with reversed blades with vast expansion designed to optimize the hydraulic efficiency.

### Seals:

Hygienic mechanical seals with seats to EN 12756, ISO 3069 standards.

### Elastomers (US FDA):

EPDM  
Fluorocarbon (Viton)  
Silicone  
P.T.F.E. (FEP)

### Connections:

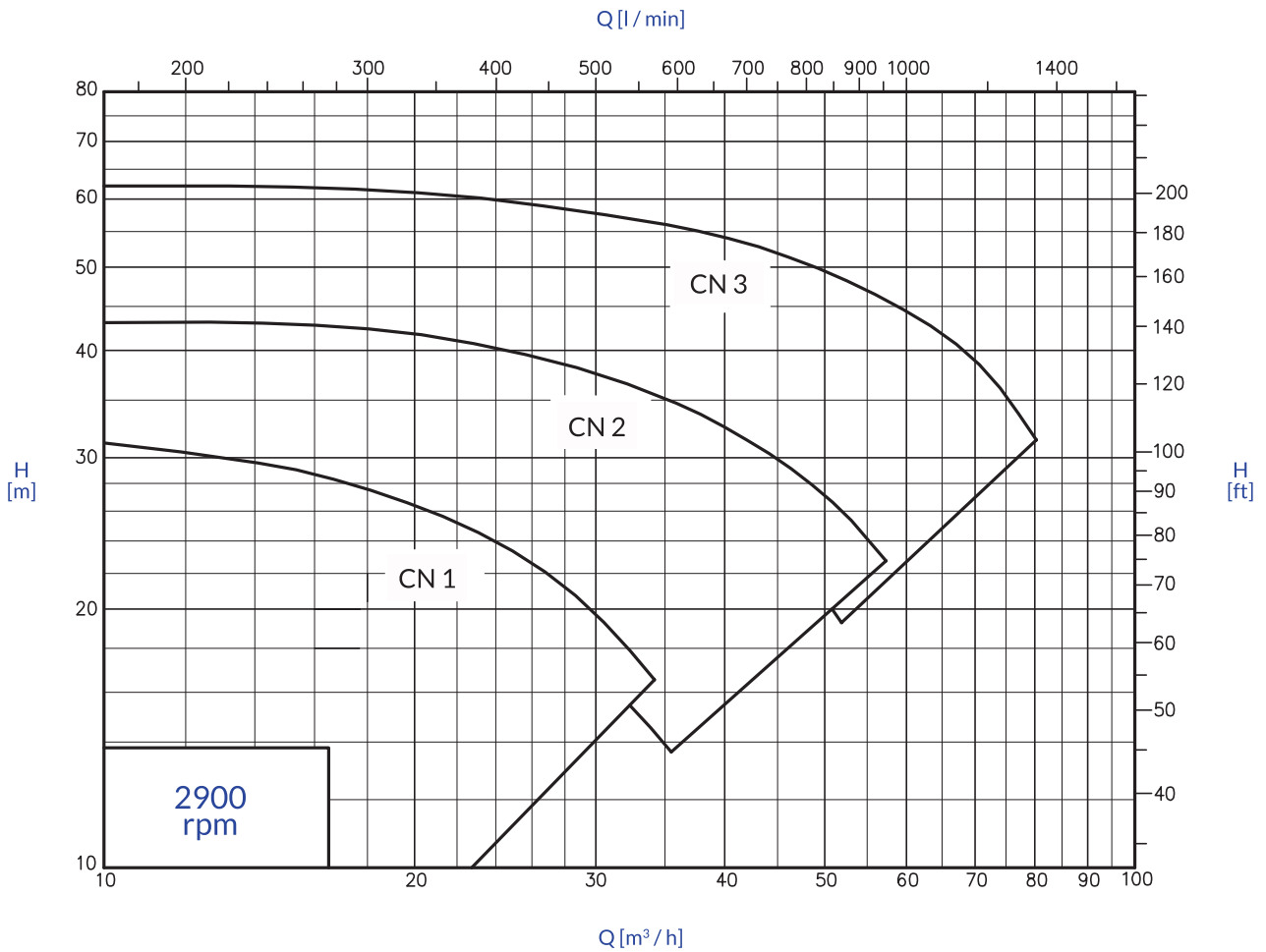
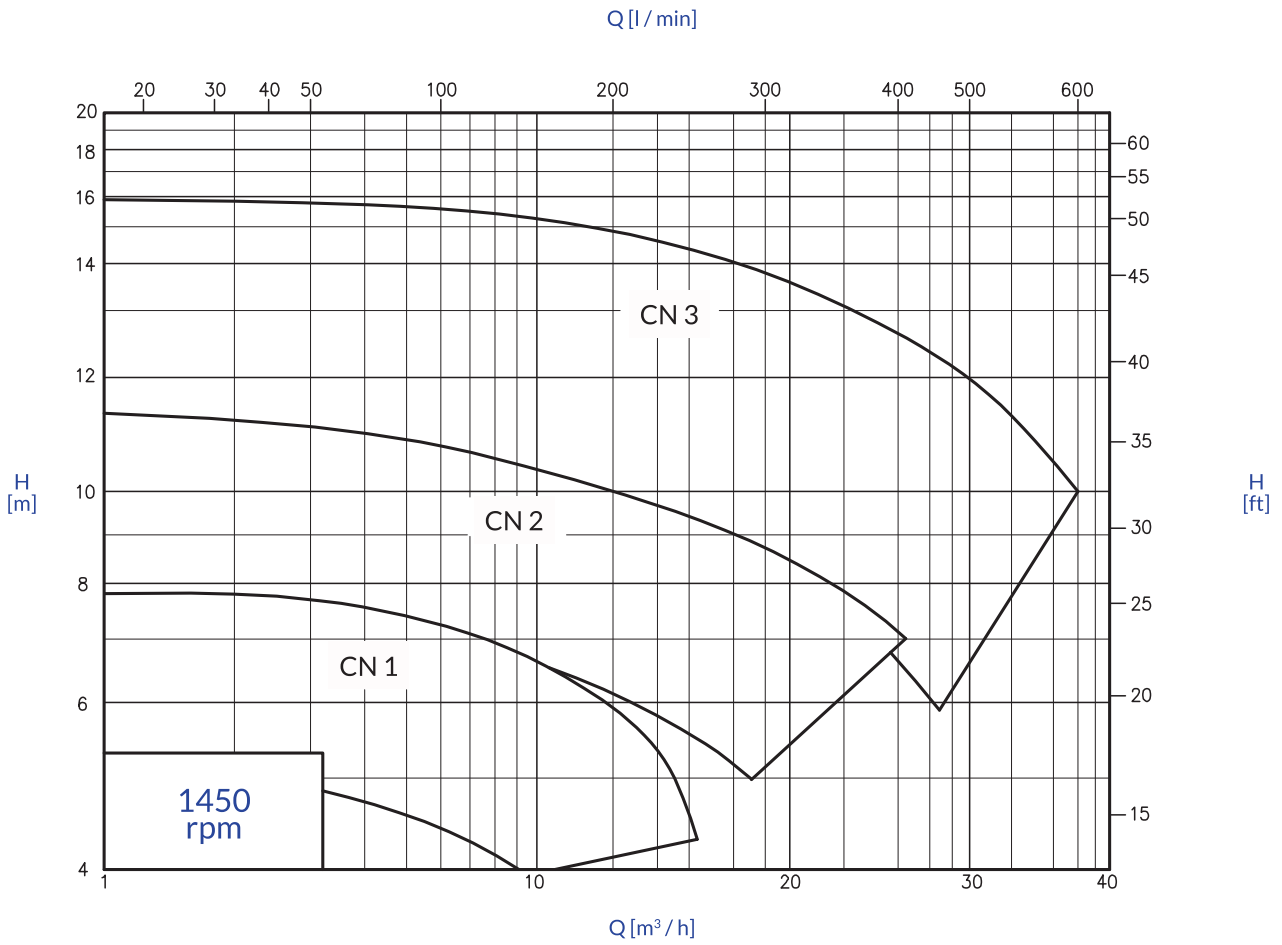
DIN - SMS - IDF - BS / RJT - DS - CLAMP and EN 1092-1 PN16 flanges and on request available for other international standards.

### Applications

Food processing, dairy, beverage, chemical, cosmetics and pharmaceutical industries. The open impeller allows a large range of products such as purified water, juices, creams, ice-cream mix, milk, wine, spirits, whey and WFI to be safely transferred.

# GENERAL DIAGRAMS

Performance applies to H<sub>2</sub>O at 20 °C, 1013 mbar Data not binding

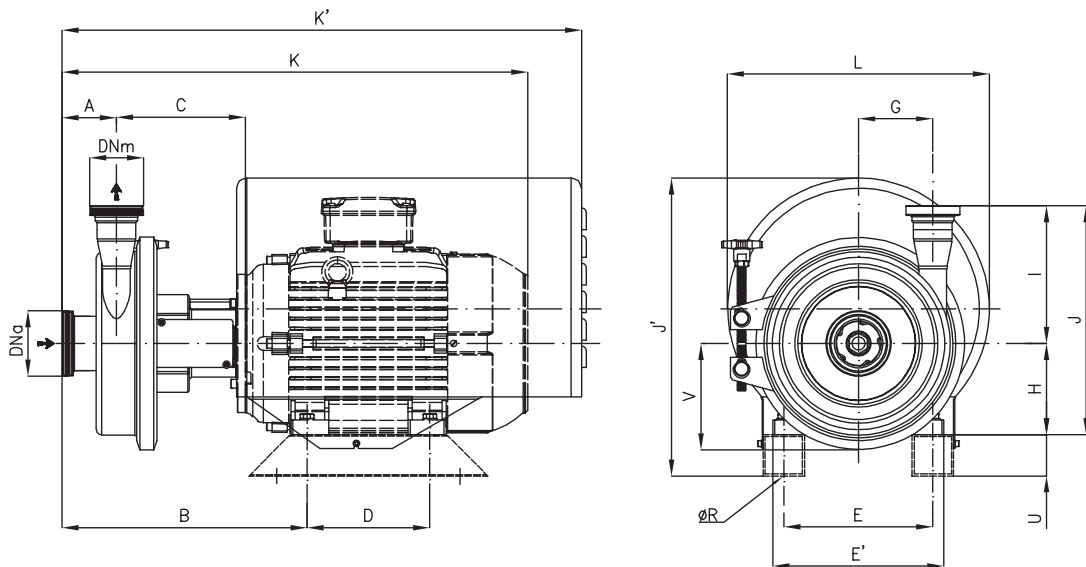


All stainless construction, with standard motor, separate pump shaft with clamp coupling, internal product seal and an open impeller.



The clamp casing and seal design allow quick disassembly for inspection, cleaning and maintenance. It also enables the delivery port to be rotated to any position for easy installation and drainage.  
Motor shroud.

## OVERALL DIMENSIONS

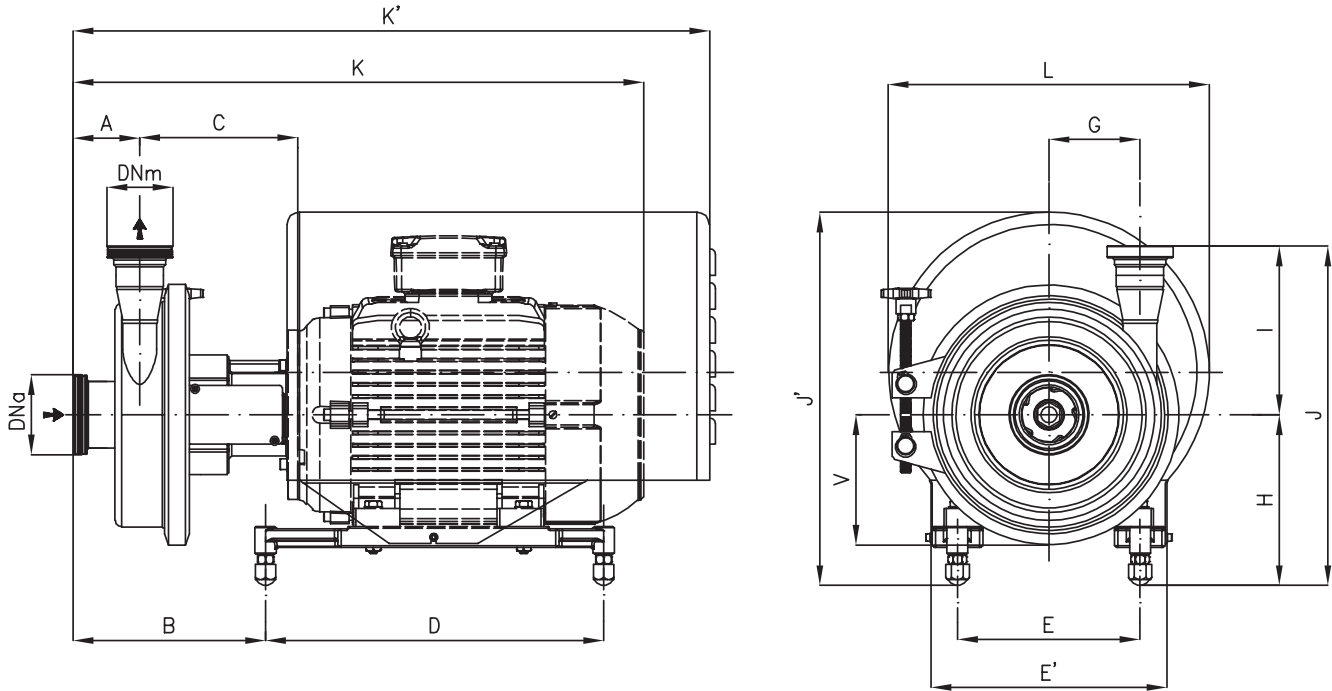


Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors

Pumps	IEC motors size:	DNa	DNm	A	B	C	D	E	E'	G	H	K	K'	ØR	I	J	J'	L	U	V					
CN 1	80	50	40	73	277	153,5	100	125	155	86	80	463	584	10	183	263	286	303	40	127					
	90				282,5			140	165		90	501	597			273	318								
	100				319,5			140	190		226	100	572			673	283				389	369	50		
	112				183,5			178	216		256	112	591			744	295				402	315	412	380	60
	132 S							357,5	190		226	132	627			744	315				412	380	60		
CN 2	80	65	50	79	286	157	100	125	155	108	80	472	593	10	200	280	286	303	40	154					
	90 S				292		140	165	90		508	606	290			317									
	90 L				187		125	190	226		100	580	683			300	388				369	50			
	100						140	190	226		112	598	753			312	400								
	112				404		178	216	256		132	635	753			332	432				380	60			
	132 S						355	216	256		160	673	753			360	528				473	50			
	132 M						404	217	254		300	160	778			911	360				528	473	50		
160	217	254	300	160	778	911	15	360	528	473	50														
CN 3	90 S	80	65	81	296	159	100	140	164	129	90	519	609	10	255	345	318	303	40	179					
	90 L				125		160		100		585	687									369	50			
	100				189		140	190			112	604	687												
	112						140	190			132	640	757			12	387				432	380	60		
	132 S				358,5		188,5	140	216		256	132	678			757	12				387	432	380	60	
	132 M				407,5		218,5	254	254		300	160	784			915	15				415	588	473	50	



# OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors

Pumps	IEC motors size:	DNa	DNm	A	B	C	D	E	E'	G	H	K	K'	I	J	J'	L	V	
CN 1	80	50	40	73	210	153,5	270	138	213	86	160	463	584	183	350	333	303	127	
	90											501	597		343	348	303		
	100											170	572		673	353	409		369
	112											182	591		744	365	422		380
	132 S											202	627		744	385	425		380
CN 2	80	65	50	79	219	157	270	140	213	108	185	472	593	200	367	333	303	154	
	90											508	606		385	372	303		
	100											194	580		683	394	433		369
	112											206	598		753	406	445		380
	132 S											202	635		753	402	442		380
	132 M											202	673		753	402	442		380
CN 3	90	80	65	81	223	159	270	140	213	129	185	519	609	255	438	372	303	179	
	100											194	585		687	449	433		369
	112											205	604		757	460	467		380
	132 S											227	640		757	482	467		380
	132 M											227	678		757	482	467		380
	160											211	784		915	466	528		473

# Self-priming Centrifugal Pumps

## CNH Series



HYGIENE BIOTECHNOLOGY INDUSTRIAL

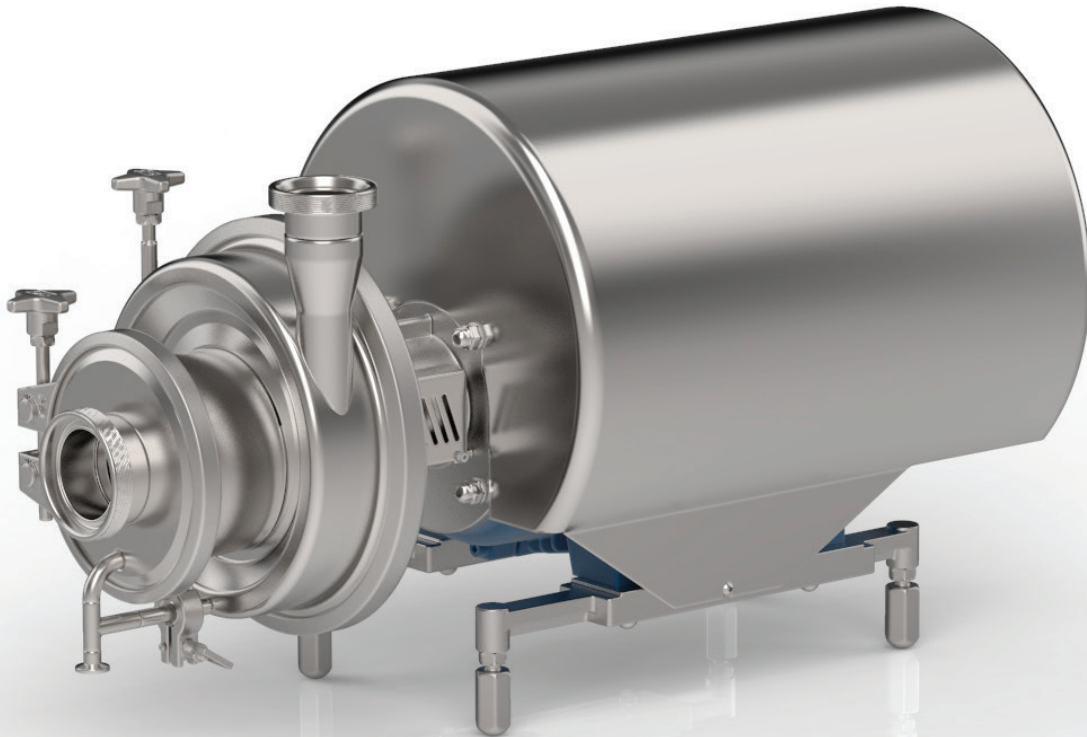
*The CNH series is made up of single-stage centrifugal pumps with self-priming device, axial suction port, open centrifugal impeller and independent shaft.*

*The self-priming device is made up of a helical rotor installed in front of the impeller and a rotor chamber which is off-centre in relation to the axis of the centrifugal stage.*

*The series is made up of range of 2 models with open impeller, independent shaft and standard IEC motor.*

*Mixed construction: pressed/cast stainless steel - AISI 316L (1.4404) - CF3M (1.4409).*

*Investment casting and electrochemical polishing treatment guarantee excellent levels of surface finish.*



*The pump incorporates a self-priming device which gives the centrifugal pump its suction capacity; this component guarantees continuous pump operation in applications handling biphasic fluids.*

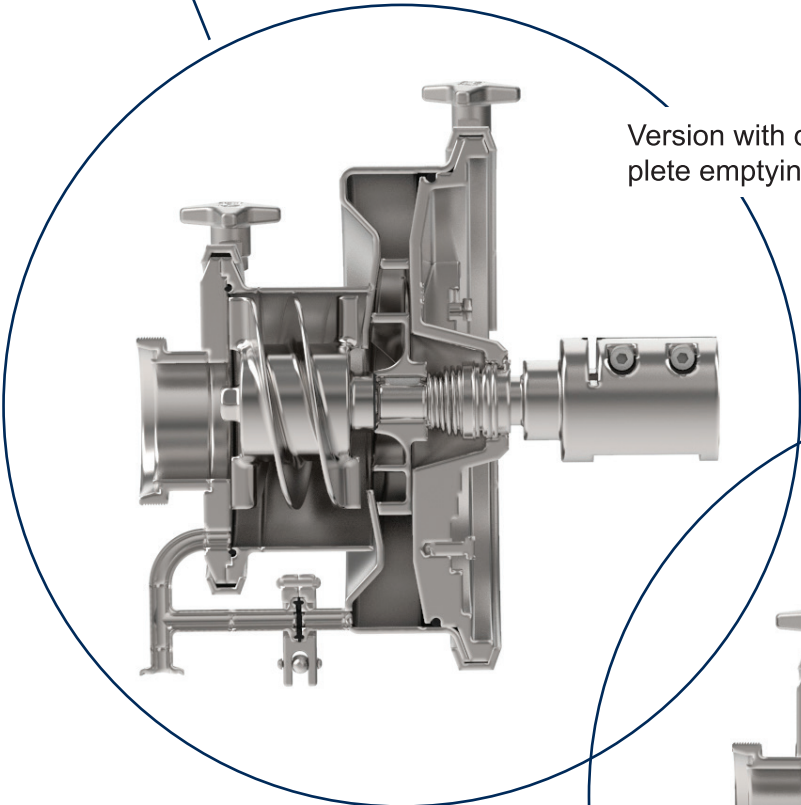
*CNH self-priming centrifugal pumps can be used in industrial applications, for example in the food, dairy and beverage sectors, for tank emptying operations, CIP solution recirculation and for handling liquids with a high air content.*

Close-coupled construction made entirely from stainless steel with standard motor, shaft with compression locking, internal seal and open impeller based on CN series pumps.

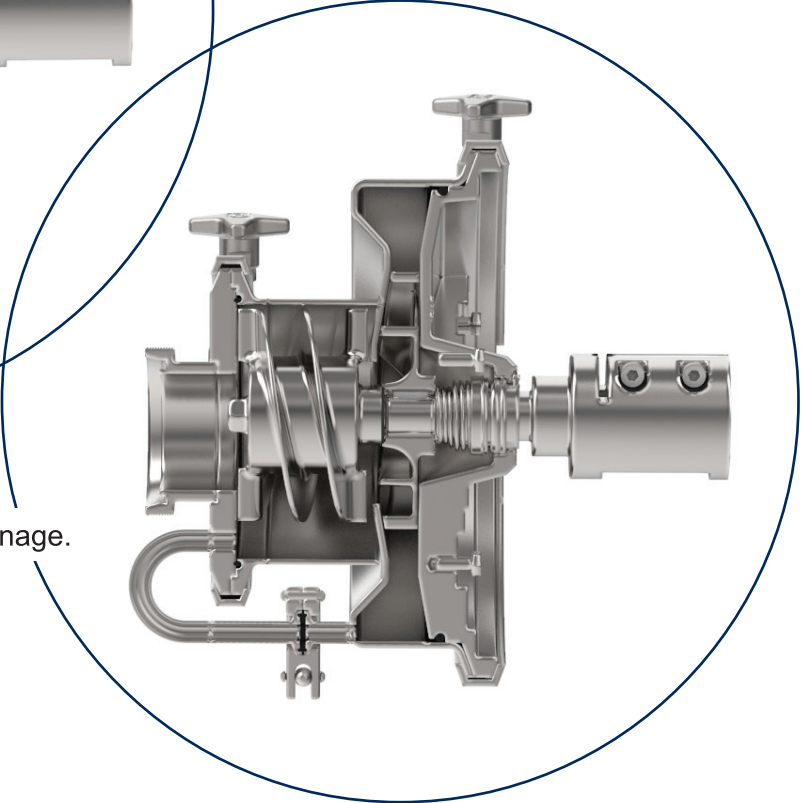


The clamp casing and seal design allows quick disassembly for inspection, cleaning and maintenance. It also enables the delivery port to be rotated to any position for easy installation. Protective motor shroud

Series of pumps available in two different versions of liquid recirculation:



Version with drainage feature guarantees complete emptying of the pump;



Version without drainage.



Investment cast double vane rotor for creating the liquid ring inside the front section of the pump body.



Open reverse vane impeller with increased dimensions, designed in accordance with performance optimization criteria.

## TECHNICAL DATA

Flow rate up to 60 m<sup>3</sup>/h  
 Head values up to 70 mH<sub>2</sub>O  
 Maximum suction pressure 4 bar (PN 10)  
 Temperature range: -10°C to +120°C

Seals:

Hygienic mechanical seals with seat standardized to EN 12756, ISO 3069 standards

Seal materials (FDA Regulation (EC) No. 1935/2004 ):

EPDM

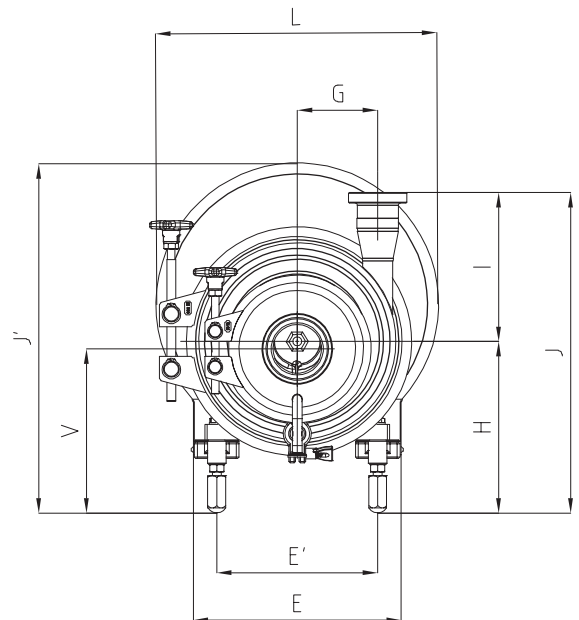
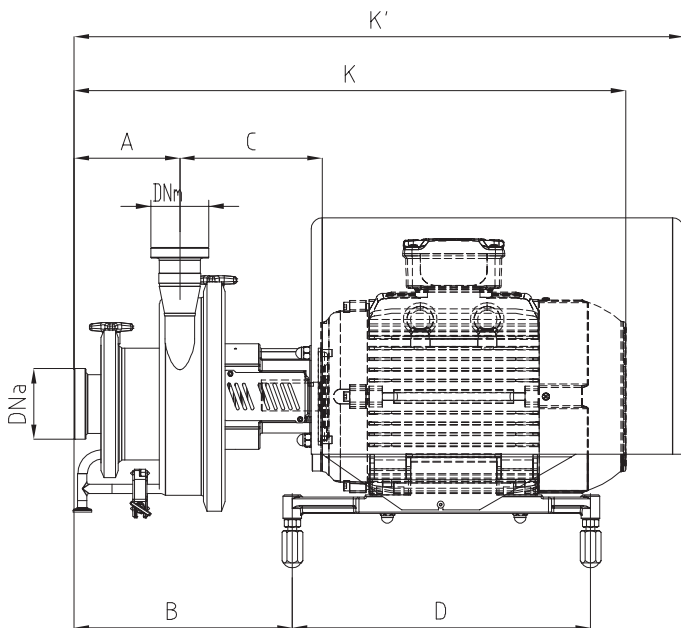
Fluorocarbon

P.T.F.E. (Fep)

Connections:

DIN - SMS - IDF - BS / RJT - DS - CLAMP and EN 1092-1 PN 16 flanges and, on request, available in compliance with international standards.

## OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 female connection with standard IEC/EN motors

Pump type	IEC motor dimensions:	DNa	DNm	A	B	C	D	E	E'	G	H	K	K'	I	J	J'	L	V
CNH 2	112	65	50	144.5	314.5	187	315	180	243	108	196	663.5	748.5	210	406	445	369	144
	132 S				293.5							700.5	818.5					
	132 M				738.5													
CNH 3	132 S	80	65	164.5	314.5	188.5	400	216	279	129	214	723.5	840.5	268	482	467	380	166
	132 M				301							761.5						
	160				218.5							475	270					





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cod. DCATLCNHGB 09/19

# Centrifugal Sanitary Pumps



## CR Series

### Standard design

Centrifugal pumps incorporating a special auger type screw shaped impeller, which is ideal for the gentle handling of very delicate fluids and large soft solids in suspension.

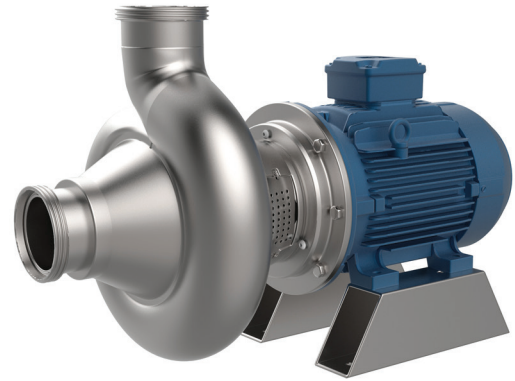
Wetted parts in investment cast CF-3M 1.4404 / AISI 316L stainless steel, electro-chemically polished to ensure the perfect surface finish.

Separate IEC standard motor.

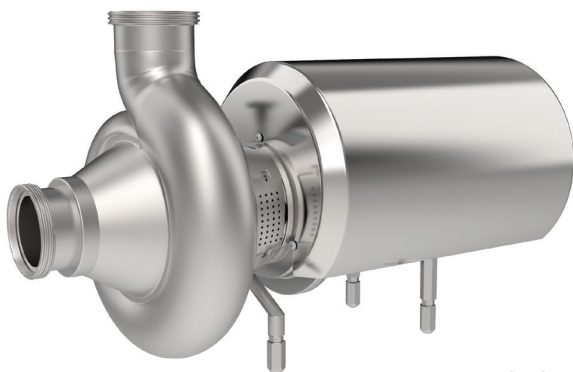
Stainless steel shroud and adjustable feet on request.

Flow rates range from 0 to 150 m<sup>3</sup> /h, heads up to 20 m (2 bar).

The clamp casing and seal design allows quick disassembly for inspection, cleaning and maintenance. It also enables the delivery port to be rotated to any position for easy installation.



CR pump



CR pump with shroud

### Applications

Delicate handling without clogging.

The CR Series has been designed for very gentle handling of sensitive media at extremely low flow velocities.

The screw shape impeller combines the properties of a centrifugal pump with the delicate characteristics of a positive displacement pump. The ability to handle high solids products in an extremely gentle way makes CR Series pumps ideal for food processing:

Fruit and vegetable handling, soups and sauces, cereals, fish transportation, food pastes, oil, wine recirculation.

### Seals:

Mechanical seals seats to EN 12756, ISO 3069 standards.  
Single internal mechanical seal  
Single external mechanical seal  
Double flushed mechanical seal

### Elastomers (FDA):

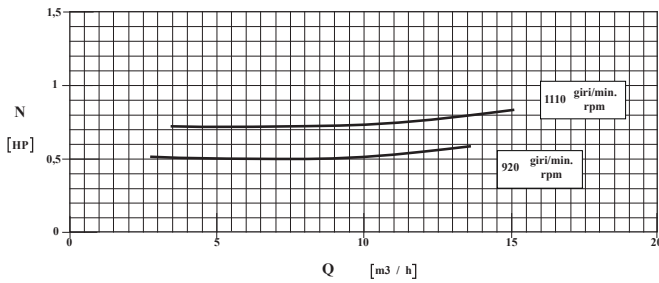
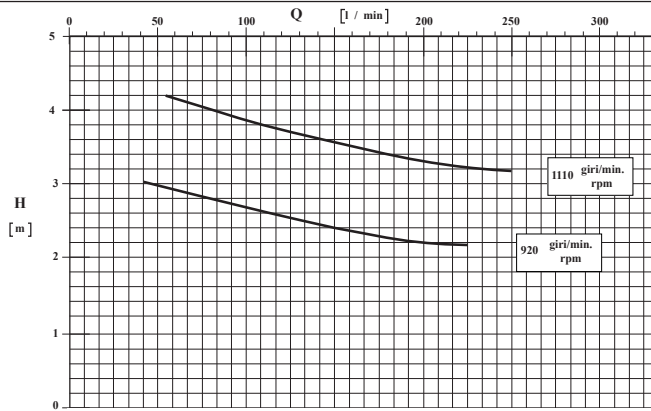
EPDM  
Fluorocarbon (Viton)  
Silicone  
P.T.F.E. (FEP)

### Connections:

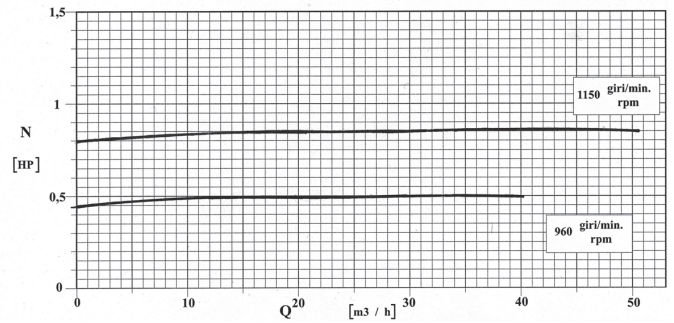
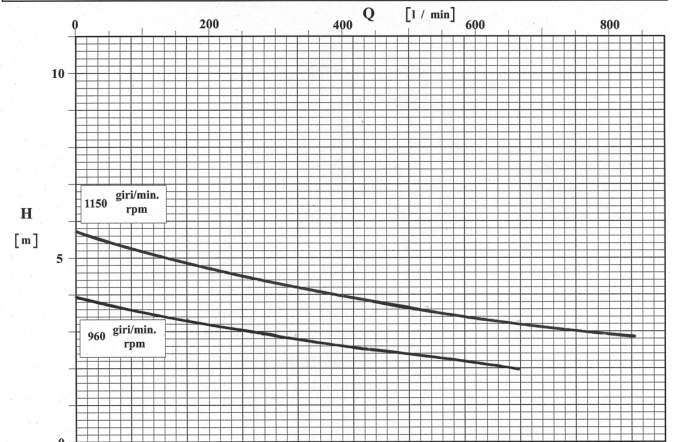
DIN - SMS - IDF - BS / RJT - DS - CLAMP and EN 1092-1 PN16 flanges to suit most international standards.

# GENERAL DIAGRAMS

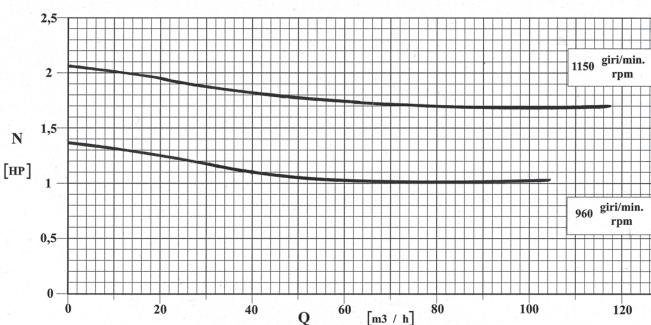
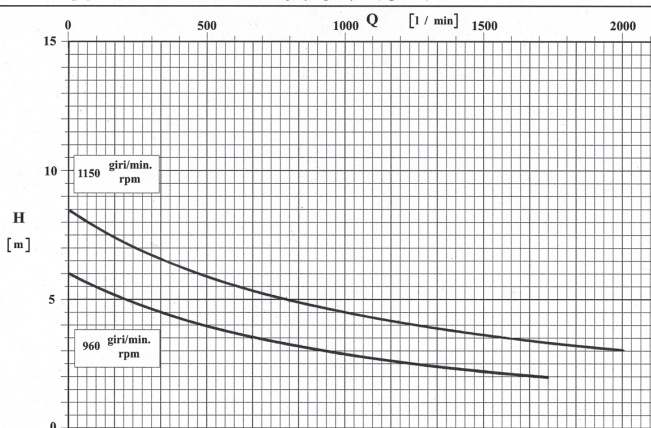
POMPA TIPO Pump type		<b>CR 65</b>			n <b>920/1110</b> giri / min r. p. m.	
GIRANTE — Impeller						
TIPO Type	N° di pale n° of vanes	Pass. sferico max. sphere	Ø max max. diameter	Ø min min. diameter	Bocche tipo Ports type	Bocca aspir. Suction port DN <b>65</b>
APERTA	1 Elica	33 mm	156 mm	— mm	DIN 11851	Bocca mand. Discharge port DN <b>65</b>
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm <sup>3</sup> ) Curves show performance with clear water at 70°F - Specific gravity 1 (kg/dm <sup>3</sup> )						



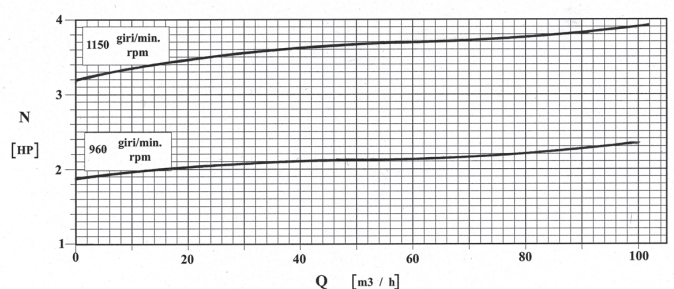
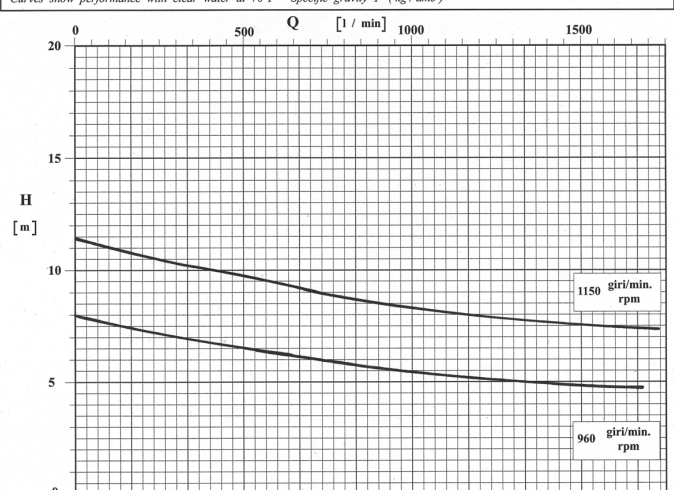
POMPA TIPO Pump type		<b>CR 80</b>			n <b>960/1150</b> giri / min r. p. m.	
GIRANTE — Impeller						
TIPO Type	N° di pale n° of vanes	Pass. sferico max. sphere	Ø max max. diameter	Ø min min. diameter	Bocche tipo Ports type	Bocca aspir. Suction port DN <b>80</b>
APERTA	1 Elica	45 mm	178 mm	— mm	DIN 11851	Bocca mand. Discharge port DN <b>80</b>
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm <sup>3</sup> ) Curves show performance with clear water at 70°F - Specific gravity 1 (kg/dm <sup>3</sup> )						



POMPA TIPO Pump type		<b>CR 100</b>			n <b>960/1150</b> giri / min r. p. m.	
GIRANTE — Impeller						
TIPO Type	N° di pale n° of vanes	Pass. sferico max. sphere	Ø max max. diameter	Ø min min. diameter	Bocche tipo Ports type	Bocca aspir. Suction port DN <b>100</b>
APERTA	1 Elica	58 mm	210 mm	— mm	DIN 11851	Bocca mand. Discharge port DN <b>100</b>
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm <sup>3</sup> ) Curves show performance with clear water at 70°F - Specific gravity 1 (kg/dm <sup>3</sup> )						



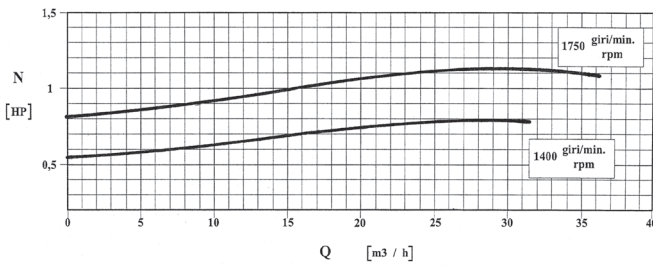
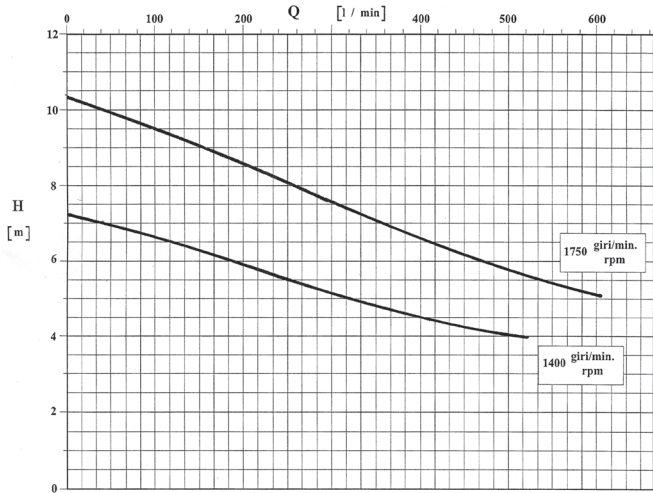
POMPA TIPO Pump type		<b>CR 125</b>			n <b>960/1150</b> giri / min r. p. m.	
GIRANTE — Impeller						
TIPO Type	N° di pale n° of vanes	Pass. sferico max. sphere	Ø max max. diameter	Ø min min. diameter	Bocche tipo Ports type	Bocca aspir. Suction port DN <b>125</b>
APERTA	1 Elica	63 mm	260 mm	— mm	DIN 11851	Bocca mand. Discharge port DN <b>125</b>
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm <sup>3</sup> ) Curves show performance with clear water at 70°F - Specific gravity 1 (kg/dm <sup>3</sup> )						



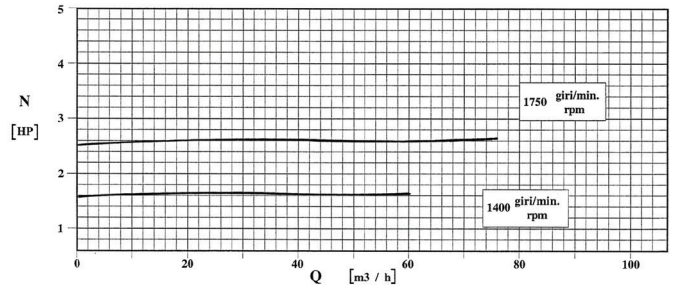
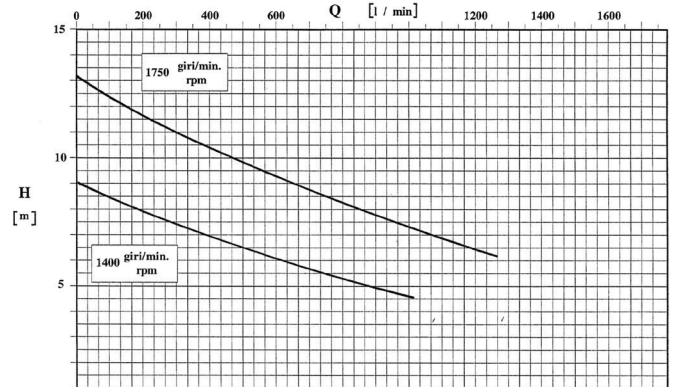


# GENERAL DIAGRAMS

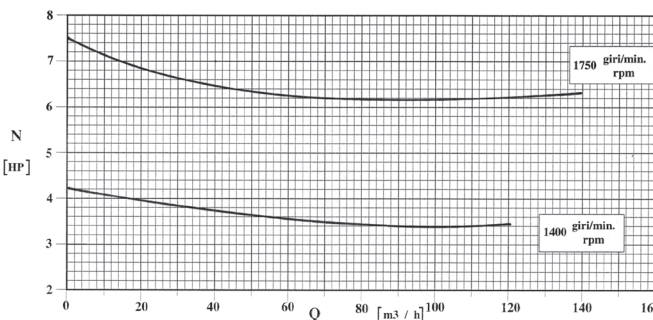
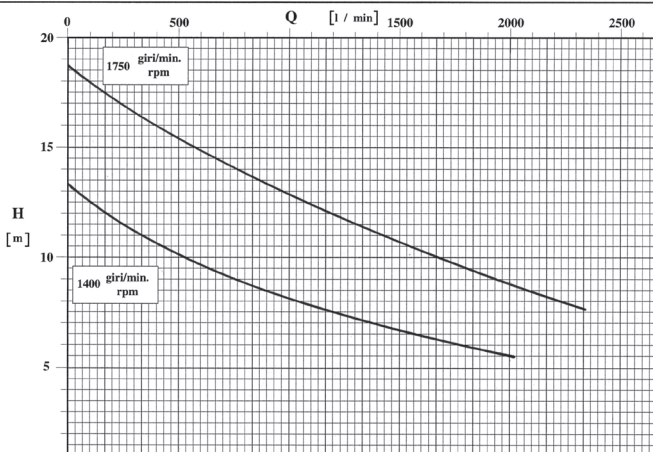
<b>POMPA TIPO</b> Pump type		<b>CR 65</b>			<b>n</b> 1400/1750	giri / min r. p. m.
GIRANTE — Impeller						
TIPO Type	N° di pale n° of vanes	Pass. sferico max. sphere	Ø max max. diameter	Ø min min. diameter	Bocche tipo Ports type	Bocca aspir. Suction port
APERTA	1 Elica	33 mm	156 mm	---	DIN 11851	DN 65
Bocca mand. Discharge port						
DN 65						
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm <sup>3</sup> ) Curves show performance with clear water at 70°F - Specific gravity 1 (kg/dm <sup>3</sup> )						



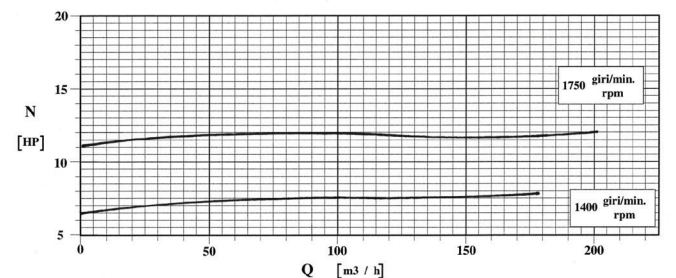
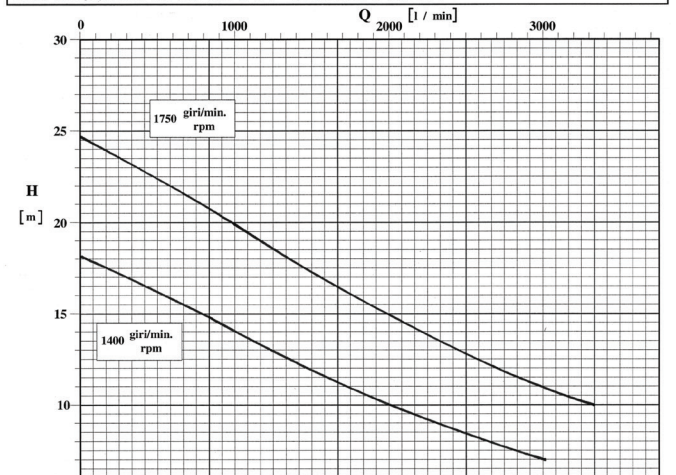
<b>POMPA TIPO</b> Pump type		<b>CR 80</b>			<b>n</b> 1450/1750	giri / min r. p. m.
GIRANTE — Impeller						
TIPO Type	N° di pale n° of vanes	Pass. sferico max. sphere	Ø max max. diameter	Ø min min. diameter	Bocche tipo Ports type	Bocca aspir. Suction port
APERTA	1 Elica	45 mm	178 mm	---	DIN 11851	DN 80
Bocca mand. Discharge port						
DN 80						
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm <sup>3</sup> ) Curves show performance with clear water at 70°F - Specific gravity 1 (kg/dm <sup>3</sup> )						



<b>POMPA TIPO</b> Pump type		<b>CR 100</b>			<b>n</b> 1450/1750	giri / min r. p. m.
GIRANTE — Impeller						
TIPO Type	N° di pale n° of vanes	Pass. sferico max. sphere	Ø max max. diameter	Ø min min. diameter	Bocche tipo Ports type	Bocca aspir. Suction port
APERTA	1 Elica	58 mm	210 mm	---	DIN 11851	DN 100
Bocca mand. Discharge port						
DN 100						
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm <sup>3</sup> ) Curves show performance with clear water at 70°F - Specific gravity 1 (kg/dm <sup>3</sup> )						

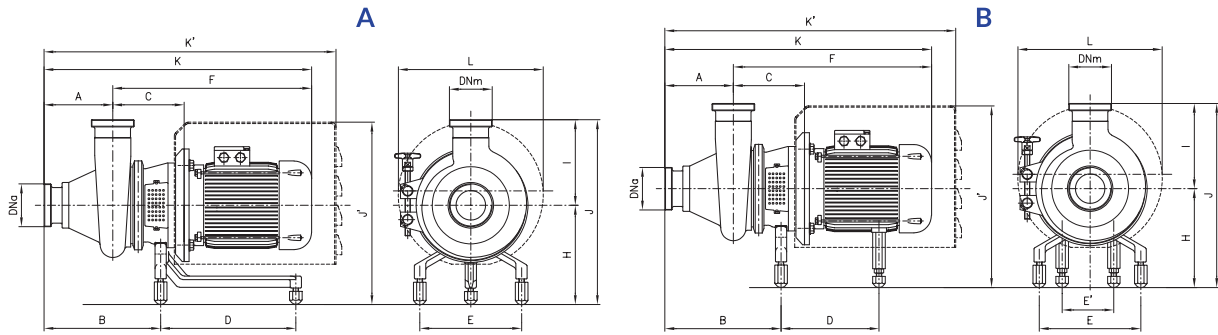


<b>POMPA TIPO</b> Pump type		<b>CR 125</b>			<b>n</b> 1450/1750	giri / min r. p. m.
GIRANTE — Impeller						
TIPO Type	N° di pale n° of vanes	Pass. sferico max. sphere	Ø max max. diameter	Ø min min. diameter	Bocche tipo Ports type	Bocca aspir. Suction port
APERTA	1 Elica	63 mm	260 mm	---	DIN 11851	DN 125
Bocca mand. Discharge port						
DN 125						
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm <sup>3</sup> ) Curves show performance with clear water at 70°F - Specific gravity 1 (kg/dm <sup>3</sup> )						





# OVERALL DIMENSIONS



A = motors from 0,55 kW to 4 kW

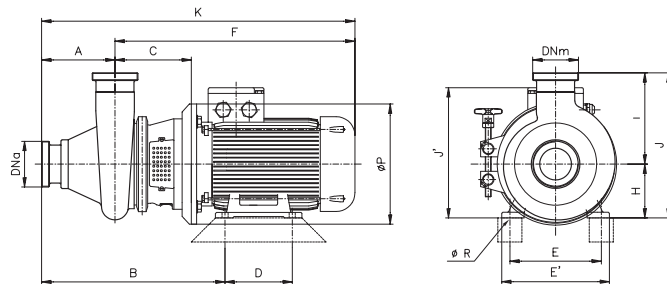
Dimensions not binding - DN = DIN 11851 male threaded connections, with standard IEC/EN motors

Pumps	1450 rpm	kW	DNa	DNm	A	B	C	D	E	E'	F	H	K	K'	I	J	J'	L
CR 65		0,55	65	65	151	257	158	230	225	-	-	392	208	543	657	190	398	374
	0,75	437										588						
	1,1																	
	1,5																	
CR 80	1,1	80	80	181	297	168	300	225	-	-	452	213	632	699	245	458	379	302
	1,5																	
	2,2																	
	3																	
CR 100	2,2	100	100	205	337	202	300	225	-	-	536	238	741	824	296	534	443	330
	3																	
	4																	

B = motors from 5,5 kW to 15 kW

Dimensions not binding - DN = DIN 11851 male threaded connections, with standard IEC/EN motors

Pumps	1450 rpm	kW	DNa	DNm	A	B	C	D	E	E'	F	H	K	K'	I	J	J'	L			
CR 100		5,5	100	100	205	205	325	204	283	225	225	180	576	238	784	848	294	526	460	370	
	7,5	326					249	408													
	11																				
	15																				
CR 125	5,5	125	125	232	370	230	292	225	225	180	604	238	836	900	346	584	501	430			
	7,5																		270	412	
	11																				
	15																				



Dimensions not binding - DN = DIN 11851 male threaded connections, with standard IEC/EN motors

Pumps	1450 rpm	kW	DNa	DNm	A	B	C	D	E	E'	F	H	K	I	J	J'	ØP	ØR		
CR 65		0,55	65	65	151	151	360	158	100	125	150	392	80	543	190	270	200	200	10	
	0,75	362					140			165	437	90	588	280		218				
	1,1																			
	1,5																			
CR 80	1,1	80	80	181	181	406	168	140	125	140	165	452	90	632	245	335	218	200	10	
	1,5								160	196	481	100	663	345		235				
	2,2																			
	3																			
CR 100	2,2	100	100	205	205	477	202	140	190	240	515	112	720	294	406	331	250	12		
	3								216	256	576	132	781		426	299			300	12
	4																			
	5,5								178	216	256	576	132		781	426			299	300
CR 125	5,5	125	125	232	232	550	230	140	216	256	604	132	836	346	478	404	300	12		
	7,5							178	216	256	604	132	836		478	404				
	11																			
	15							610	270	210	254	300	748		160	980			506	432



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# Centrifugal Sanitary Pumps



HYGIENE BIOTECHNOLOGY INDUSTRIAL

## CS-CSX Series

*Closed coupled hygienic centrifugal pumps with open impellers. CS Series pumps meet the highest requirements of the food, pharmaceutical, chemical and water treatment industries.*

*The pumps are designed to a modular concept, resulting in a large number of models and a massive performance range.*

*When combined with the extremely robust construction, these highly efficient pumps become ideal for any hygienic process system.*

*Wetted parts in CF-3M 1.4404 / AISI 316L stainless steel, investment cast and electro-chemically polished.*

*Special internal finishes to 0,5 micron Ra are available on request (not on sizes 125 to 150). The clamp casing and seal design allows quick disassembly for inspection, cleaning and maintenance. It also enables the delivery port to be rotated to any position for easy installation (not on sizes 125 to 150).*

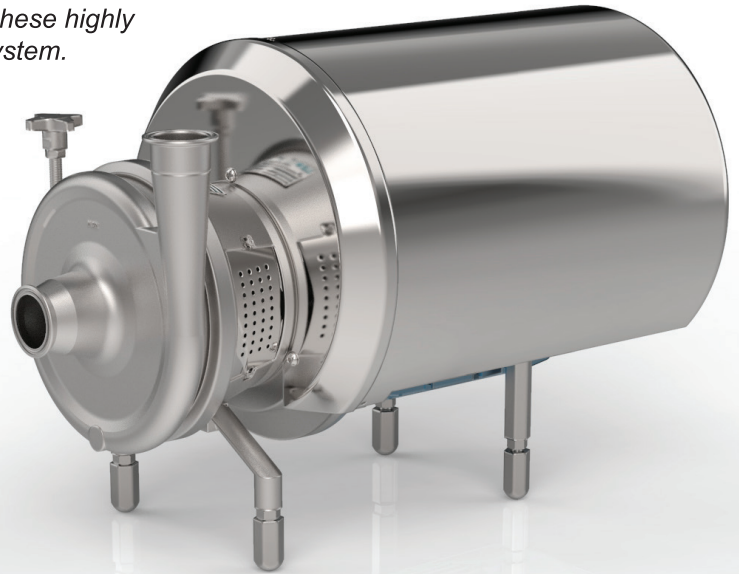
*Separate IEC standard motor.*

*For aggressive products and environments, CS pumps can on special request, be manufactured in the following materials:*

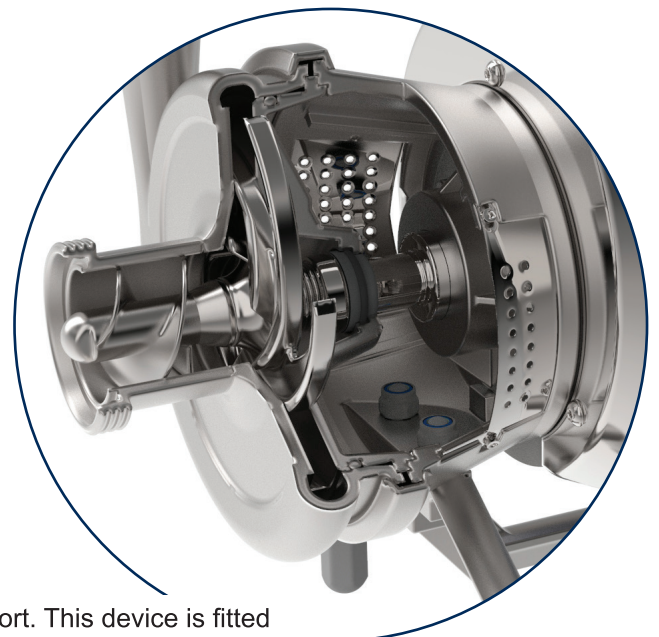
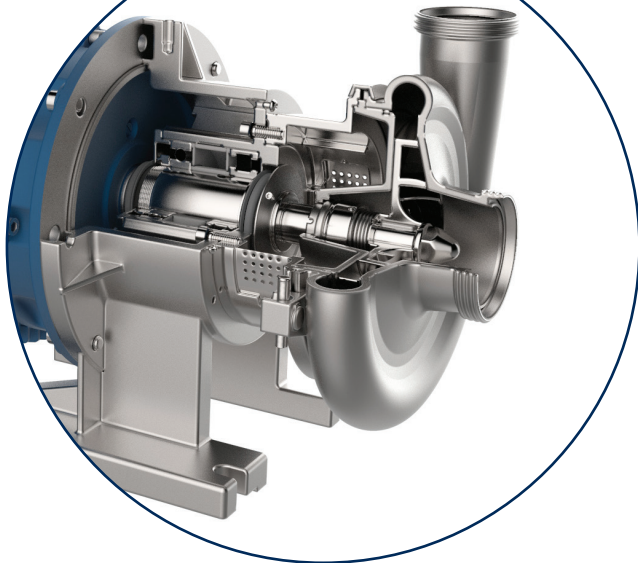
- Superduplex
- Nickel steel

*Note: upon availability with CSF.*

**ATEX-compliant versions also available on request.**

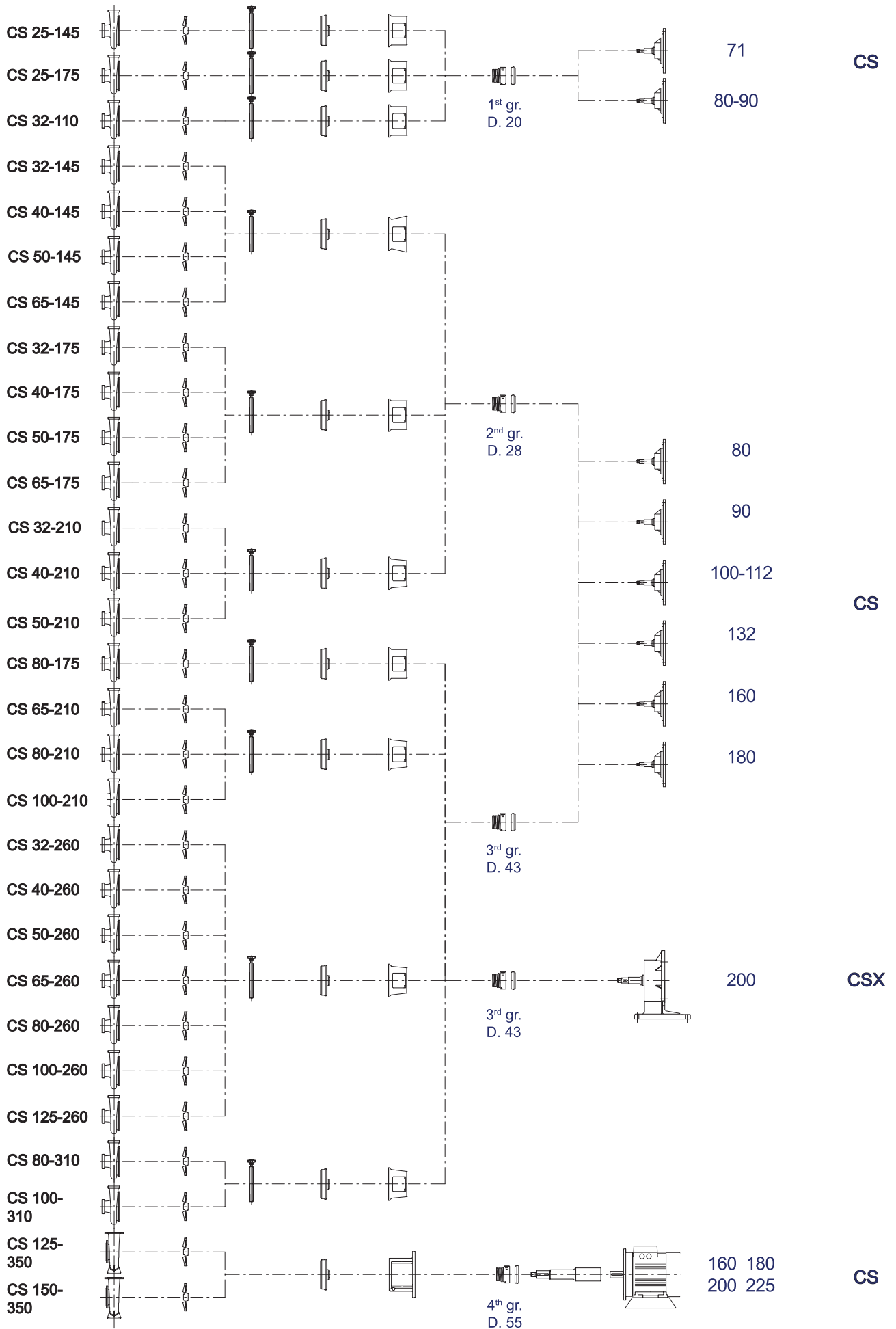


CS pump X execution, close coupled centrifugal pumps with separate support frame and grease lubricated bearings, for extremely arduous applications.

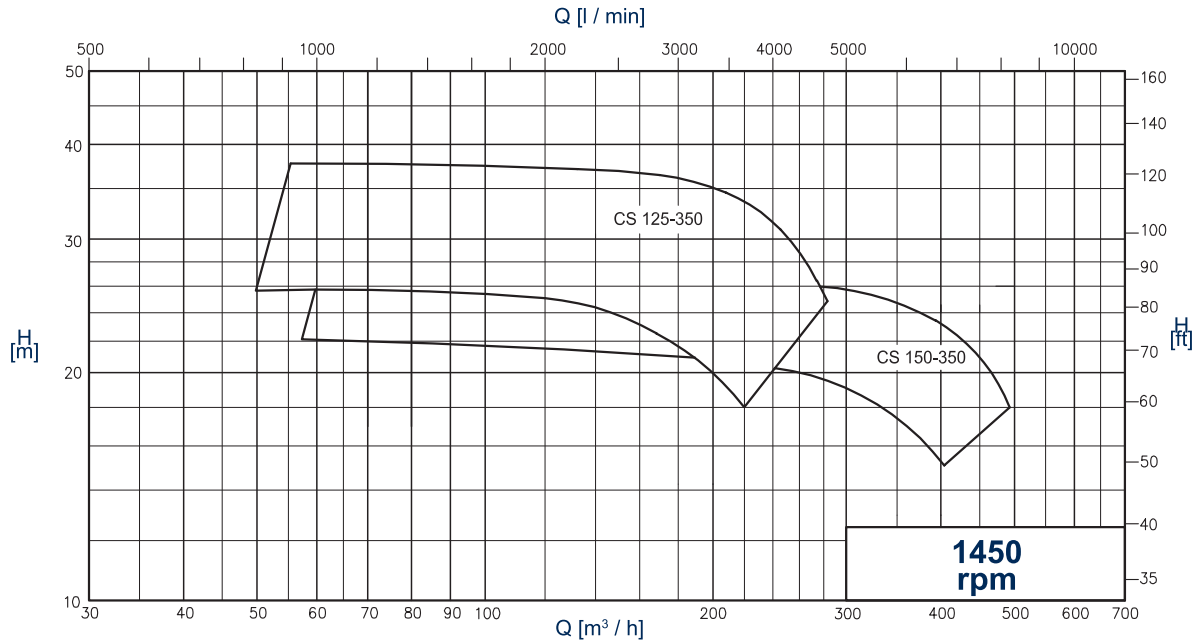
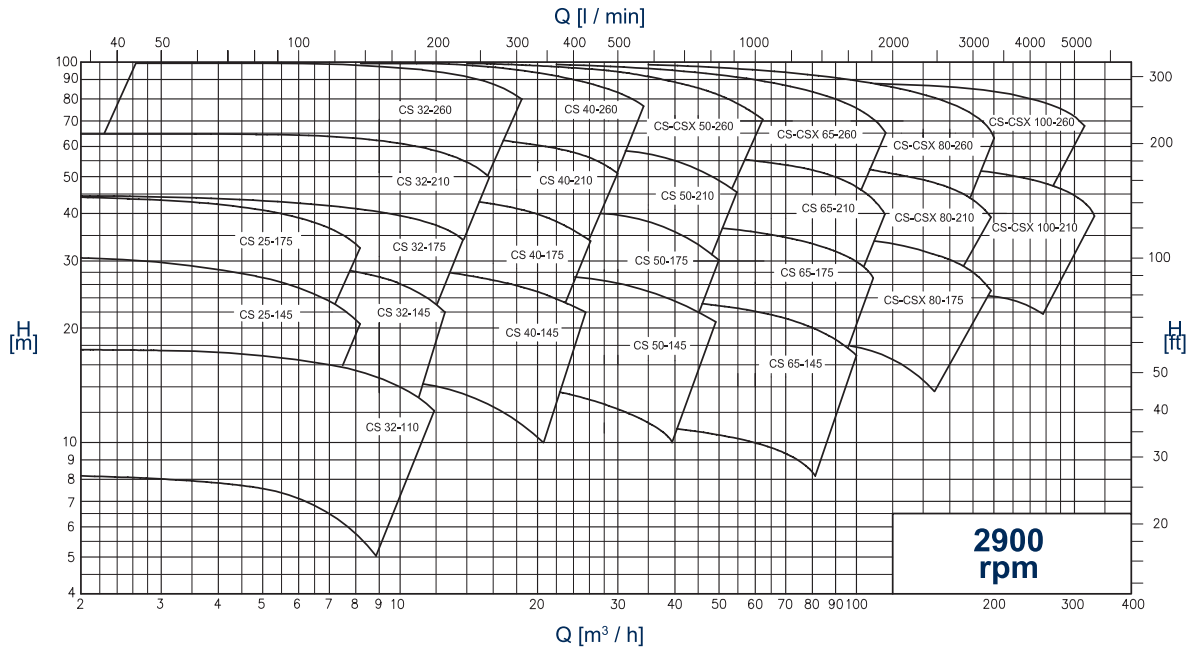
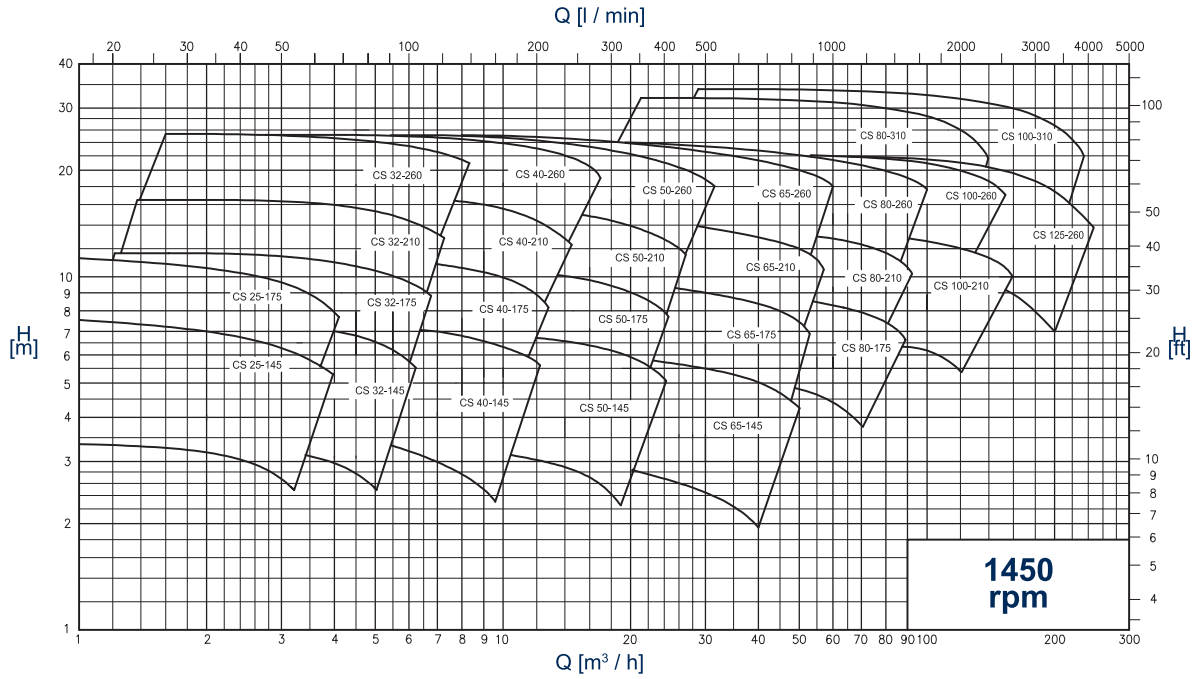


Special version equipped with an inducer in the suction port. This device is fitted immediately upstream of the impeller to reduce the NPSH required by the pump.

## A wide range of 29 models divided into 4 groups.



**GENERAL DIAGRAMS**  
 (Performance applies to H<sub>2</sub>O at 20 °C, 1013 mbar, Data not binding)





## TECHNICAL DATA

Flow rates up to 500 m<sup>3</sup>/h  
 Heads up to 100 mH<sub>2</sub>O  
 Maximum operating pressure 10 bar up to 100°C  
 Temperature range -20°± +100°  
 (on request up to 140 °C for water and up to 190°C for food oil, to be specified on purchase order).  
 High performance, with low NPSH values.

### Mechanical seals:

With seats to EN 12756, ISO 3069 standards.  
 Single internal mechanical seal  
 Single external flushed mechanical seal  
 Double external flushed mechanical seal

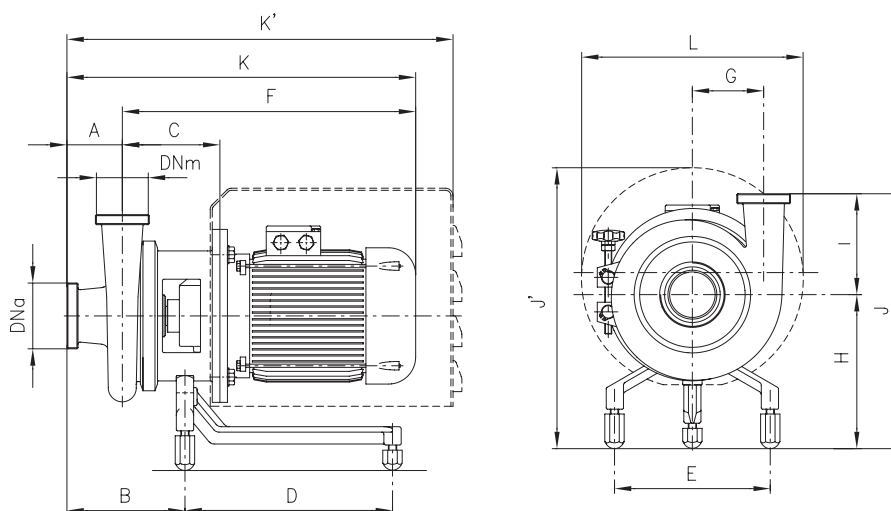
### Elastomers (FDA Regulation (EC) No. 1935/2004):

Nitrile (NBR)  
 Ethylene propylene (EPDM)  
 Special fluorocarbon seal  
 Fluorocarbon seal (FPM - FKM)  
 FEP  
 FFPM - FFKM  
 Silicone

### Connections:

DIN - SMS - IDF - BS / RJT - DS - CLAMP and  
 EN1092-1 PN16 flanges suitable for all international standards.

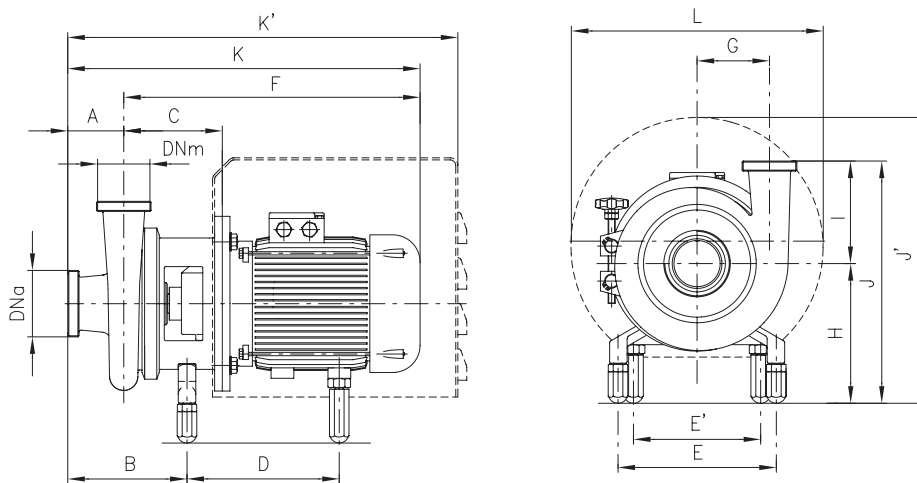
## OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors

Pump type	IEC motor dimensions:	DNa	DNm	A	B	C	D	E	F	G	H	K	K'	I	J	J'	L			
CS 25-145	71	32	25	75	144	117	190	178	335	81	158	410	532	145	303	300	239			
	80					434						541	340			298				
	90					478														
CS 25-175	71	32	25	65	134	117	190	178	335	96	164	400	522	149	313	306	239			
	80					424						531	346			298				
	90					468														
	100					519						619	359			353	330			
CS 32-110	71	40	32	70	137	117	190	178	335	65	149	405	527	110	259	291	239			
	80					429						536	331			298				
	90					473														
CS 32-145	80	40	32	80	167	138	231	225	374	85	208	454	566	145	353	372	298			
	90					418														
	100					455						535						370	430	330
	112					467						547								
CS 32-175	80	40	32	80	167	139	231	225	375	95	213	455	567	150	363	385	298			
	90					419														
	100					456						536						380	435	330
	112					468						548								
CS 32-210	80	40	32	80	158	139	231	225	375	110	221	455	567	165	386	385	298			
	90					419														
	100					456						536						403	443	330
	112					456						636								
CS 32-260	90	50	32	90	184	163	231	225	443	140	221	533	601	172	393	385	298			
	100					480						570	410					443	330	
	112					492						582								
CS 40-145	80	50	40	80	168	139	231	225	375	90	208	455	567	133	341	372	298			
	90					418														
	100					455						535						358	430	330
	112					467						547								
CS 40-175	80	50	40	80	169	141	231	225	377	95	213	457	569	150	363	377	298			
	90					421														
	100					458						538						380	435	330
	112					470						550								
CS 40-210	80	50	40	80	161	141	231	225	377	115	221	457	569	165	386	385	298			
	90					421														
	100					458						538						403	443	330
	112					470						550								

Pump type	IEC motor dimensions:	DNa	DNm	A	B	C	D	E	F	G	H	K	K'	I	J	J'	L
CS 40-260	90	50	40	100	194	163	231	225	443	145	221	543	611	172	393	385	298
	100					164	301		480		238	580	680		410	443	330
	112					164	301		492		238	592	680		410	443	330
CS 50-145	80	65	50	80	170	141	231	225	377	95	208	457	569	145	353	372	298
	90					142	301		421		225	501	638		370	430	330
	100					142	301		458		225	538	638		370	430	330
CS 50-175	112	65	50	80	169	141	231	225	377	100	213	457	569	150	363	377	298
	90					142	301		421		230	538	638		380	435	330
	100					142	301		470		230	550	638		380	435	330
CS 50-210	112	65	50	80	161	141	231	225	421	120	221	501	569	165	386	385	298
	90					142	301		458		238	538	638		402	443	330
	100					142	301		470		238	550	638		402	443	330
CS 50-260	112	65	50	90	185	165	301	225	481	145	238	571	671	175	413	443	330
	100					165	301		493		238	583	671		413	443	330
	112					165	301		493		238	583	671		413	443	330
CS 65-145	80	80	65	79	173	145	231	225	381	112	208	460	572	145	353	372	298
	90					145	231		425		225	504	642		370	430	330
	100					146	301		462		225	541	642		370	430	330
CS 65-175	112	80	65	80	172	144	231	225	424	120	213	504	572	150	363	377	298
	90					145	301		461		230	541	641		380	435	330
	100					145	301		473		230	553	641		380	435	330
CS 65-210	112	80	65	90	189	168	231	225	448	135	221	538	605	165	386	385	298
	90					169	301		485		238	575	675		403	443	330
	100					169	301		497		238	587	675		403	443	330
CS 65-260	112	80	65	100	198	168	301	225	484	155	238	584	684	205	443	443	330
	100					168	301		496		238	596	684		443	443	330
	112					168	301		496		238	596	684		443	443	330
CS 80-175	112	100	80	100	204	174	301	225	490	139	230	590	690	164	394	435	330
	100					174	301		502		230	602	690		394	435	330
	112					174	301		502		230	602	690		394	435	330
CS 80-210	112	100	80	100	201	171	301	225	487	145	238	587	687	165	403	443	330
	100					171	301		499		238	599	687		403	443	330
	112					171	301		499		238	599	687		403	443	330
CS 80-260	112	100	80	100	201	171	301	225	487	165	238	587	687	209	447	443	330
	100					171	301		499		238	599	687		447	443	330
	112					171	301		499		238	599	687		447	443	330

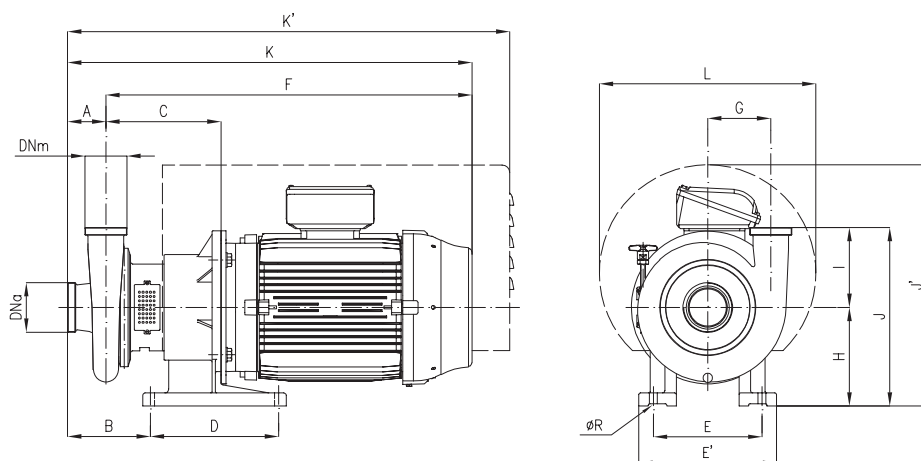


Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors

Pump type	IEC motor dimensions:	DNa	DNm	A	B	C	D	E	F	G	H	K	K'	I	J	J'	L	L		
CS 32-210	132 S	40	32	80	158	161	309	225	198	571	110	238	651	735	165	403	460	370		
	132 M					206	446		254	733		813	907	546		478				
	160					206	446		254	733		813	907	546		478				
CS 32-260	132 S	50	32	90	184	185	318	225	198	595	140	238	685	769	172	410	460	370		
	132 M					225	450		247	842		940	419	555		478				
	160					225	450		247	842		940	419	555		478				
CS 40-175	132 S	50	40	80	169	164	301	225	198	574	95	230	654	738	150	380	460	370		
	132 M				161	208	438		254	735		115	238	815		909	165	403	546	478
	160				161	208	438		254	735		115	238	815		909	165	403	546	478
CS 40-210	132 S	50	40	80	161	164	309	225	198	574	115	238	654	738	165	403	460	370		
	132 M					208	446		254	735		815	909	546		478				
	160					208	446		254	735		815	909	546		478				
CS 40-260	132 S	50	40	100	194	185	318	225	198	595	145	238	695	779	172	410	460	370		
	132 M					225	494		254	752		247	852	950		419	555	478		
	160					225	494		254	752		247	852	950		419	555	478		
CS 50-145	132 S	65	50	80	170	164	300	225	198	574	95	225	654	738	145	370	447	370		
	132 M					164	301		198	574		100	230	654		738	150	380	452	370
	160					164	301		254	735		100	230	815		909	150	380	538	478
CS 50-175	132 S	65	50	80	169	164	301	225	198	574	100	230	654	738	150	380	460	370		
	132 M					208	438		254	735		815	909	538		478				
	160					208	438		254	735		815	909	538		478				
CS 50-210	132 S	65	50	80	161	164	309	225	198	574	120	238	654	738	165	403	460	370		
	132 M					208	446		254	735		815	909	546		478				
	160					171	223		494	248		857	928	413		556	478			
CS 50-260	160	65	50	90	186	228	450	225	254	755	145	247	845	943	175	422	555	478		
	180					228	494		254	782		247	872	943		555	478			
	180					228	494		254	782		247	872	943		555	478			

Pump type	IEC motor dimensions:	DNa	DNm	A	B	C	D	E	E'	F	G	H	K	K'	I	J	J'	L				
CS 65-145	132 S	80	65	79	173	168	300	225	198	578	112	225	657	741	145	370	447	370				
	132 M					212	437		254	739			818	912			533	478				
	160																					
CS 65-175	132 S	80	65	80	172	167	301	225	198	577	120	230	657	741	150	380	452	370				
	132 M					211	482		254	738			818	912			538	478				
	160					173	224		279	778			858	929			391					
	180					450	758		848	946			165	412			555	478				
CS 65-210	160	80	65	90	189	231	450	225	254	758	135	247	848	946	165	412	555	478				
	180					494	279		785	875												
CS 65-260	132 S	80	65	100	198	190	318	225	198	600	155	238	700	784	205	443	460	370				
	132 M					230	450		254	757			857	955					205	452	555	478
	160					494	279		784	884												
	180					198	603		230	703			787	394					452	370		
CS 80-175	132 S	100	80	100	204	195	316	225	198	603	139	230	703	787	164	394	452	370				
	160				205	236	449		254	763			863	961					405	549	478	
	180				493	279	790		890													
CS 80-210	132 S	100	80	100	193	318	225	198	603	145	238	247	703	787	165	403	460	370				
	160				201	450		254	760				860	958					164	411	555	478
	180				233	494		279	787				887									
CS 80-260	132 S	100	80	100	193	318	225	198	603	165	238	247	703	787	209	447	460	370				
	132 M				233	494		254	760				860	958					456	555	478	
	160				495	254		767	867				994	250					500	560	480	
CS 80-310	160	100	80	100	202	235	225	254	767	200	250	867	994	250	500	560	480					
	180				533	279		827	927													
CS 100-210	132	125	100	111	219	200	318	225	198	610	161	238	721	805	214	452	460	370				
	180				240	494	279		794	905			976	461					555	478		
CS 100-260	132 M	125	100	115	218	195	318	225	198	605	186	238	720	804	216	454	460	370				
	160				235	454	254		762	877			975	463					555	478		
	180				235	494	279		789	904												
CS 100-310	160	125	100	115	221	239	495	225	254	771	214	250	886	1013	259	509	560	480				
	180				533	279	831		946													
CS 125-260	132 M	150	125	110	223	203	318	225	198	613	206	238	723	621	216	454	460	370				
	160				244	450	254		771	881			979	463					555	478		
	180				494	279	798		908													

**PUMPS CSX SERIES  
FOR POWER OF 30/37 KW  
(MOTOR SIZE IEC 200)**



Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors

Pump type	IEC motor dimensions:	DNa	DNm	A	B	C	D	E	E'	F	G	H	K	K'	ØR	I	J	J'	L
CSX 50-260		65	50	90	201	296	335	284	360	915	145	258	1005	1141	21	175	433	613	530
CSX 65-260		80	65	100	213	298				917	155		1017	1153		205	463		
CSX 80-175		100	80	100	219	304				923	139		1023	1159		164	422		
CSX 80-210		100	80	100	216	301				920	145		1020	1156		164	422		
CSX 80-260		100	80	100	216	301				920	165		1020	1156		209	467		
CSX 80-310		100	80	100	218	303				964	200		1064	1154		250	508		
CSX 100-210		125	100	111	234	308				927	161		1038	1174		214	472		
CSX 100-260		125	100	115	233	303				922	186		1037	1173		216	474		
CSX 100-310		125	100	115	237	307				968	215		1083	1172		259	517		
CSX 125-260		150	125	110	237	312				931	206		1041	1177		216	474		



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# Aseptic Centrifugal Sanitary Pumps

## CSD Series

Closed coupled hygienic and aseptic centrifugal pumps with open impellers. For optimal product security, the CSD aseptic series incorporates a steam protection barrier between the pumped product and the external environment. It is composed of two different flushing systems: one with very high temperature water for the mechanical seal and the second is steam on the product pump connections.

Wetted parts in CF-3M 1.4404 / AISI 316L stainless steel, investment cast and electro-chemically polished. Special internal finishes to 0,5 micron Ra are available on request.

The clamp casing and seal design allows quick disassembly for inspection, cleaning and maintenance.

Separate IEC standard motor.

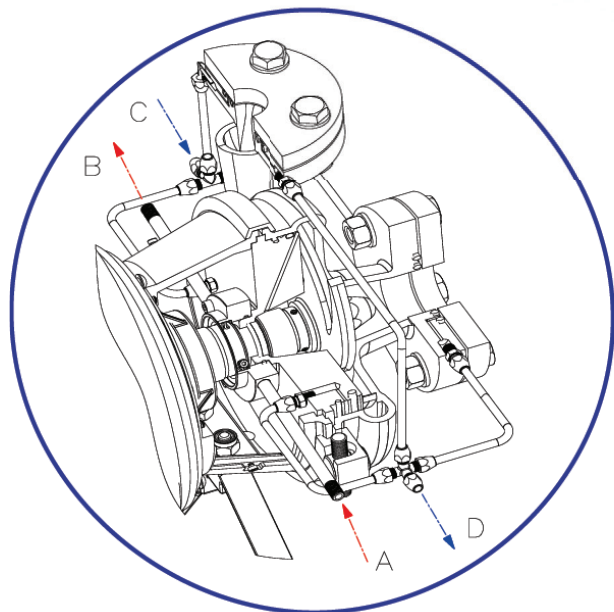
For aggressive products and environments, CSD pumps can on special request, be manufactured in the following materials:

- Superduplex
- Nickel steel

Note: upon availability with CSF



HYGIENE BIOTECHNOLOGY INDUSTRIAL



### Flushing pipes connections: 1/8" GAS

- A - Mechanical seal flushing inlet
- B - Mechanical seal flushing outlet
- C - Flushing inlet of the casing / cover barrier and inlet - outlet port flanges
- D - Flushing outlet of the casing / cover barrier and inlet - outlet port flanges

### Steam protective barrier

The steam piping must be connected to the "C" inlet fitting. The steam creates a sterile protection barrier for the pumped product by circulating inside the circuit positioned between the casing / cover and the inlet and outlet flanges.

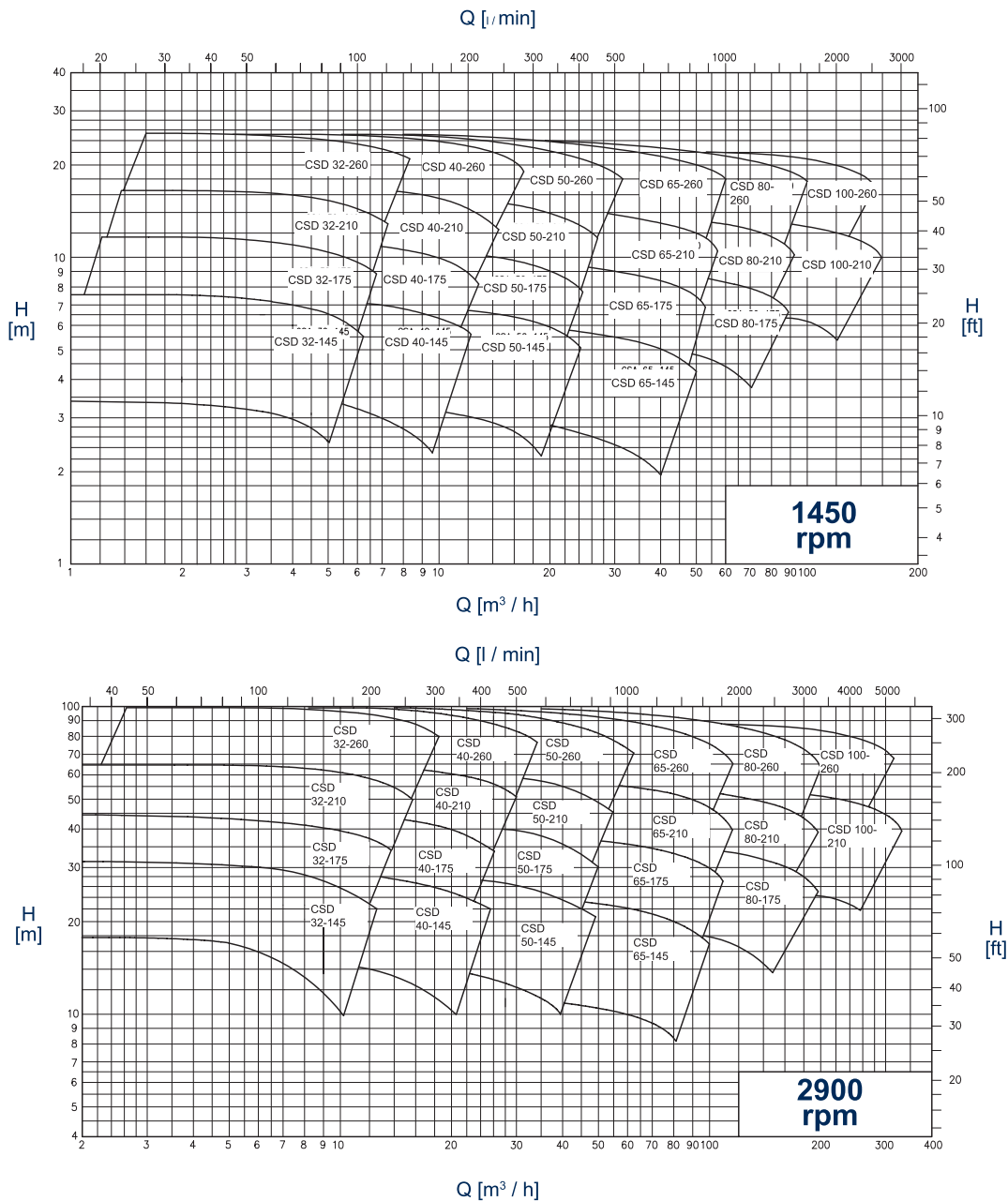
The steam collecting piping will be connected to the "D" steam outlet fitting.

The piping conveying the overheated water for cooling of radial seal must be connected at the inlet to the "A" pipe and at the outlet to the "B" pipe

**Note: For the good running of the pump it is important that the flushing liquid circulate inside the mechanical seal box before the pump start-up and it must be suspended after the pump stop only. Make closed-loop connection of the D steam outlet fitting to avoid contact with the atmosphere.**



**GENERAL DIAGRAMS**  
(Performance applies to H<sub>2</sub>O at 20 °C, 1013 mbar, Data not binding)



**TECHNICAL DATA**

Flow rates up to 300 m<sup>3</sup>/h  
Heads up to 90 mH<sub>2</sub>O  
Maximum operating pressure 10 bar up to 100°C  
Temperature range -20°÷ +100°  
High performance, with low NPSH values.

**Connections:**

UNI EN1092-1 PN16 flanges.

**Mechanical seals:**

Protected, balanced and bi-directional mechanical seals with seats to EN12756, ISO3069 standards.  
Single internal mechanical seal with external protective barrier "V".

The "V execution" seal system is composed of an internal, protected, balanced and bi-directional mechanical seal with seats according to EN 12756 - ISO 3069 standards in direct contact with the product and of an external radial seal for the high temperature flushing liquid.

Use sterile condensate with flow rate 0.5 ÷ 1 l/min and pressure ≤ 1 Bar.

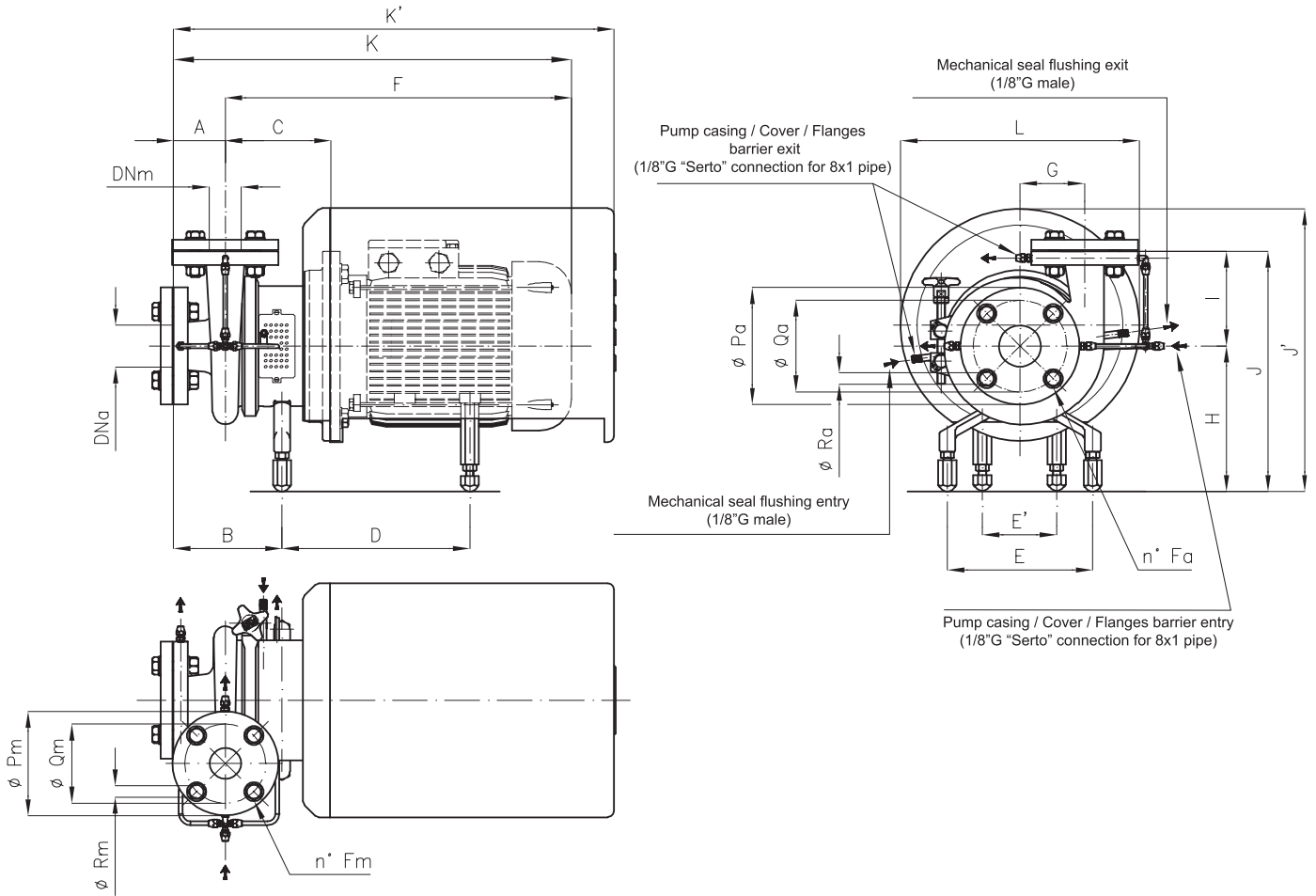
**Technical Data for Sterilisation:**

Maximum steam pressure: 3 Bar  
Maximum steam temperature : 130°C

**Elastomers (FDA Regulation (EC) No. 1935/2004):**

Nitrile (NBR)  
Ethylene propylene (EPDM)  
Special fluorocarbon seal  
Fluorocarbon seal (FPM - FKM)  
FEP  
FFPM - FFKM  
Silicone

## OVERALL DIMENSIONS



Pump type	IEC motor dimensions:	DNa	DNm	A	B	C	D	E	E'	F	G	H	K	K'	I	J	J'	L	Ø Pa	Ø Qa	Ø Ra	Ø fa	Ø Rm	Ø Qm	Ø Rm	Ø fm								
CSD 32-145	80	40	32	80	167	138	231	225	-	372	85	208	452	566	135	343	372	298	150	110	18	4	140	100	18	4								
	90									419			499														635							
	100									475			555														635							
	112									468			548														635							
CSD 32-175	80	40	32	80	167	139	231	225	-	373	95	213	453	567	135	348	377	298	150	110	18	4	140	100	18	4								
	90									420			500														636							
	100									476			556														636							
	112									469			549														636							
CSD 32-210	80	40	32	88	166	139	231	225	-	373	110	221	461	575	155	376	385	298	150	110	18	4	140	100	18	4								
	90									420			508														644							
	100									476			564														644							
	112									469			549														644							
	132 M-S									161			283														180	546	238	634	688	393	460	370
	132 MB									281			281														185	584	238	672	743	393	460	370
CSD 32-260	80	50	32	90	184	164	301	225	-	500	140	221	534	601	177	398	385	298	165	125	18	4	140	100	18	4								
	90									444			590														649							
	100									500			590														649							
	112									493			583														649							
	132 M-S									185			292														180	570	238	660	714	415	460	370
	132 MB									290			290														185	608	238	698	769	415	460	370
CSD 40-145	80	50	40	80	168	139	231	225	-	373	90	208	453	567	133	341	372	298	165	125	18	4	150	110	18	4								
	90									420			501														636							
	100									476			556														636							
	112									469			549														636							
CSD 40-175	80	50	40	80	169	141	231	225	-	375	95	213	455	569	140	353	377	298	165	125	18	4	150	110	18	4								
	90									422			502														638							
	100									478			558														638							
	112									471			551														638							
	132 M-S									164			275														180	549	230	629	683	370	452	370
	132 MB									273			273														185	587	230	667	738	370	452	370
CSD 40-210	80	50	40	80	161	141	231	225	-	375	115	221	455	569	165	386	385	298	165	125	18	4	150	110	18	4								
	90									422			502														638							
	100									478			558														638							
	112									471			551														638							
	132 M-S									164			283														180	549	238	629	683	403	460	370
	132 MB									281			281														185	587	238	667	738	403	460	370



# Sanitary Centrifugal Pumps

## CSK Series

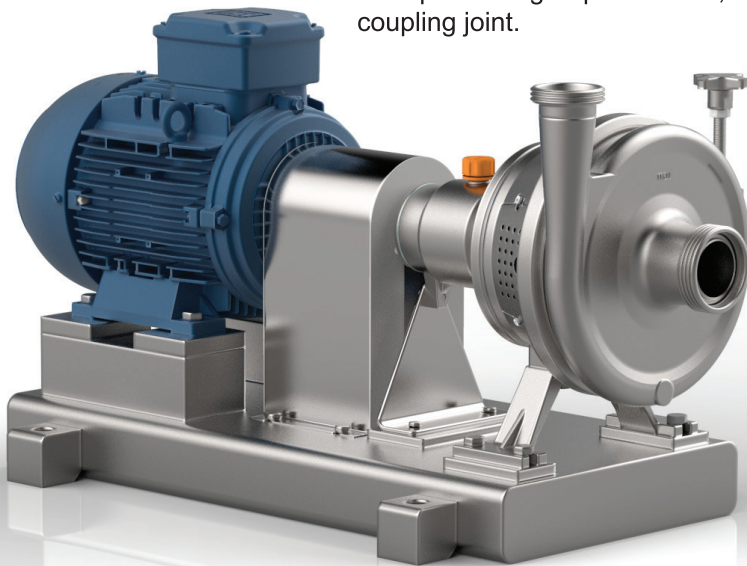
Open impeller centrifugal pumps with a separate shaft a support frame containing oil-grease lubricated bearings.

CSK Series meet the highest requirements of the food, pharmaceutical, chemical and water treatment industries. The pumps are designed to a modular concept, resulting in a large number of models and a massive performance range. When combined with the extremely robust construction, these highly efficient pumps are ideal for any clean process application.

The design promotes full product drainage, making CSK pumps ideal for CIP and SIP systems.

Wetted parts in CF-3M 1.4404 / AISI 316L stainless steel, investment cast and electro-chemically polished. Special internal finishes to 0,5 micron Ra are available on request (not on sizes 125 to 150).

CSK pumo 3<sup>rd</sup> group with base, motor and coupling joint.



Bare shaft CSK pump

The clamp casing and seal design allows quick disassembly for inspection, cleaning and maintenance. It also enables the delivery port to be rotated to any position for easy installation (not on sizes 125 to 150). For aggressive products and environments, CSK pumps can on special request, be manufactured in the following materials:

- Superduplex
- Nickel steel

Note: upon availability with CSF.

ATEX-compliant versions also available on request.

## TECHNICAL DATA

Flow rates up to 570 m<sup>3</sup>/h  
Heads up to 100 mH<sub>2</sub>O  
Maximum operating pressure 10 bar up to 100°C  
Temperature range -20°÷ +100°  
(on request up to 140 °C for water and up to 190°C for food oil, to be specified on purchase order).  
High performance, with low NPSH values.

### Seals:

Mechanical seals with seats to EN 12756, ISO 3069 standards.

Single internal mechanical seal

Single external flushed mechanical seal

Double flushed mechanical seal

### Elastomers (FDA Regulation (EC) No. 1935/2004):

Nitrile (NBR)

Ethylene propylene (EPDM)

Special fluorocarbon seal

Fluorocarbon seal (FPM - FKM)

FEP

FFPM - FFKM

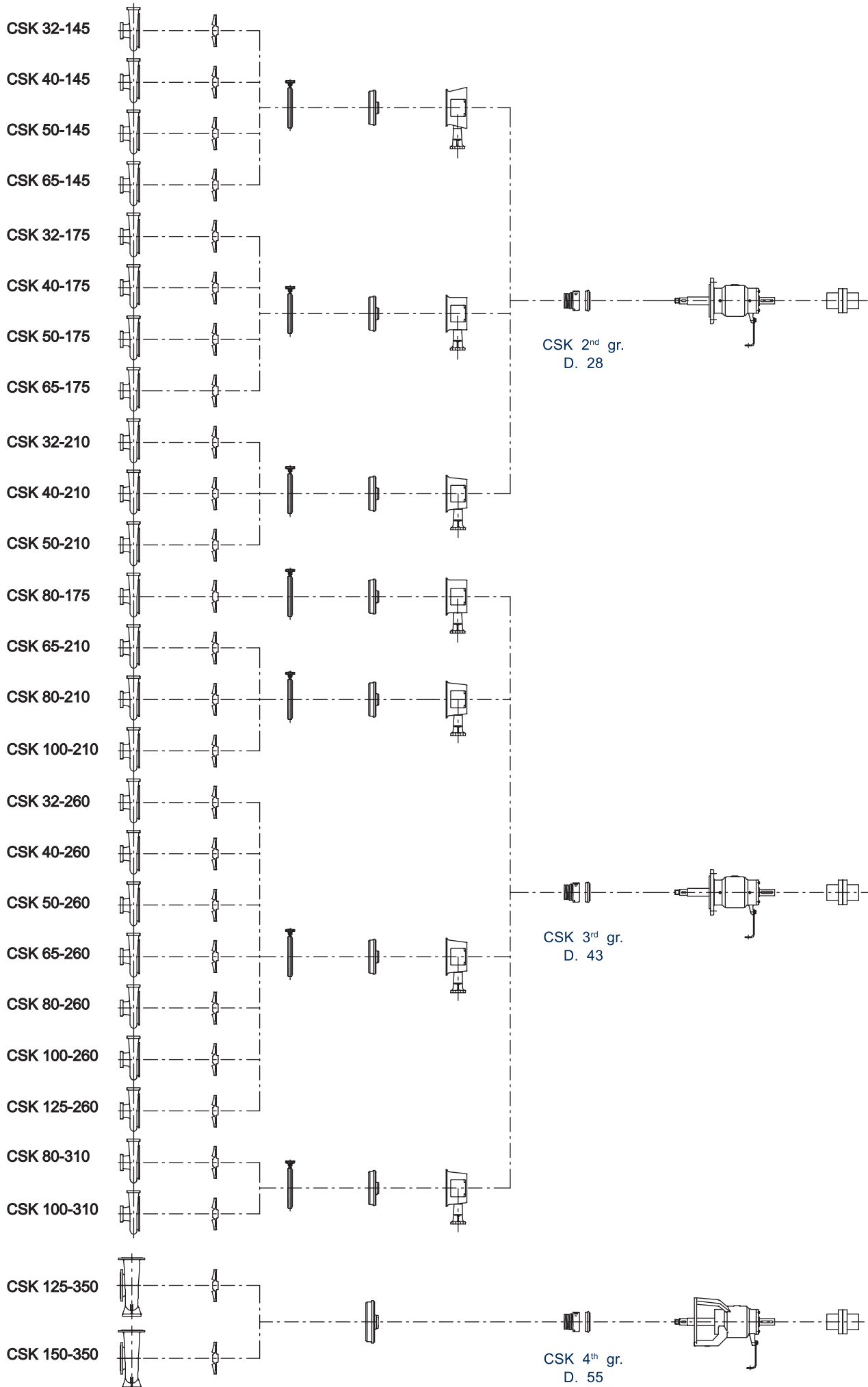
Silicone

### Connections:

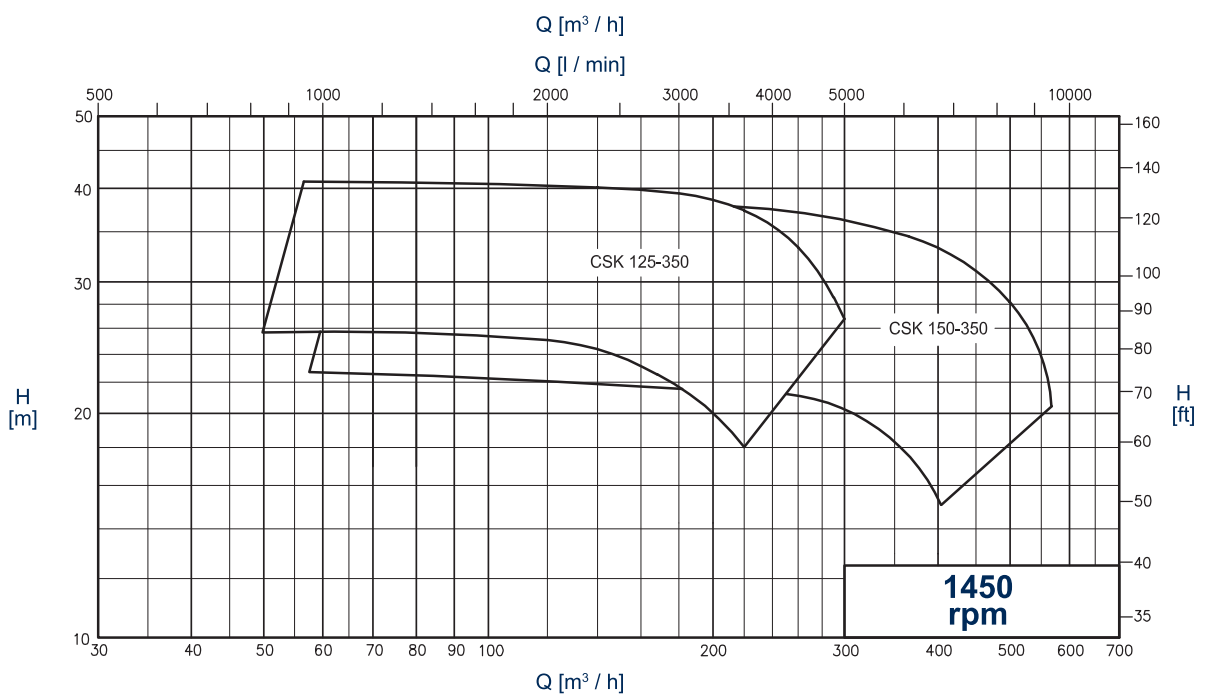
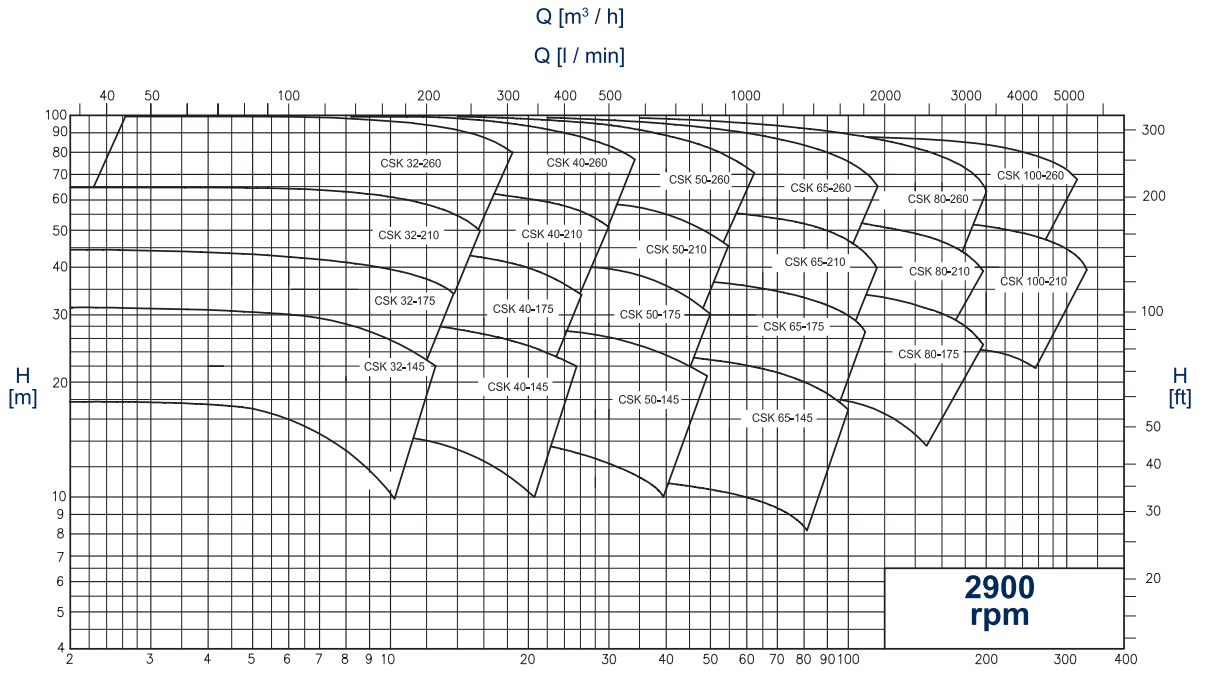
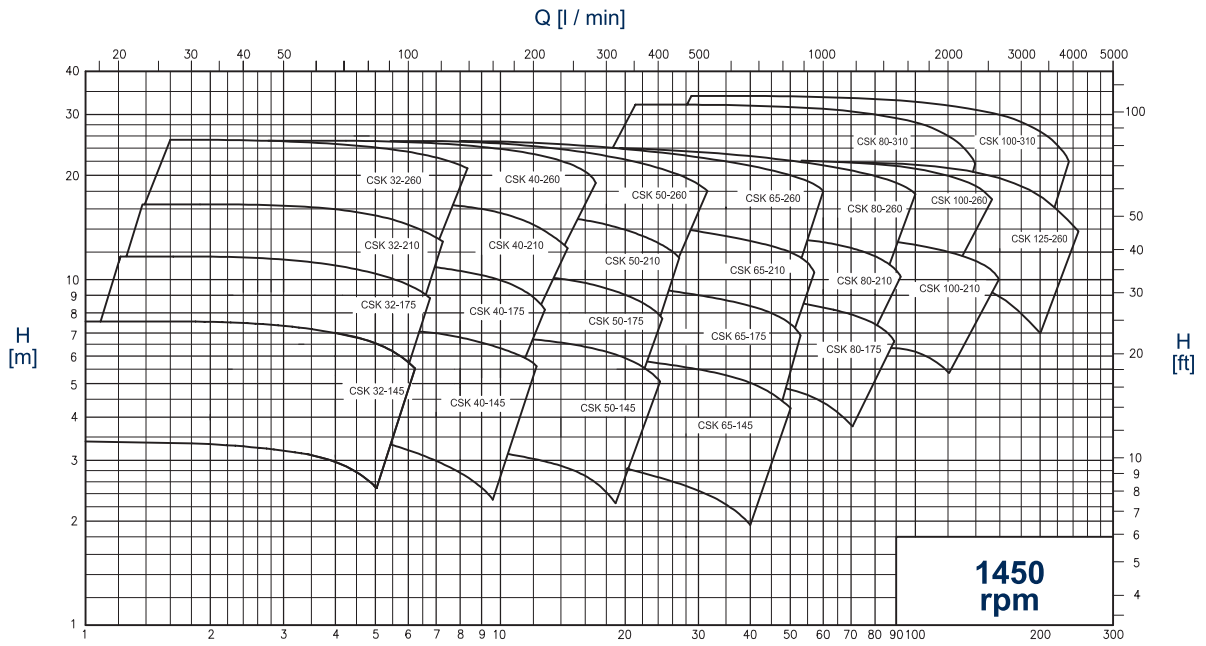
DIN - SMS - IDF - BS / RJT - DS - CLAMP and EN1092-1 PN16 flanges to suit most international standards



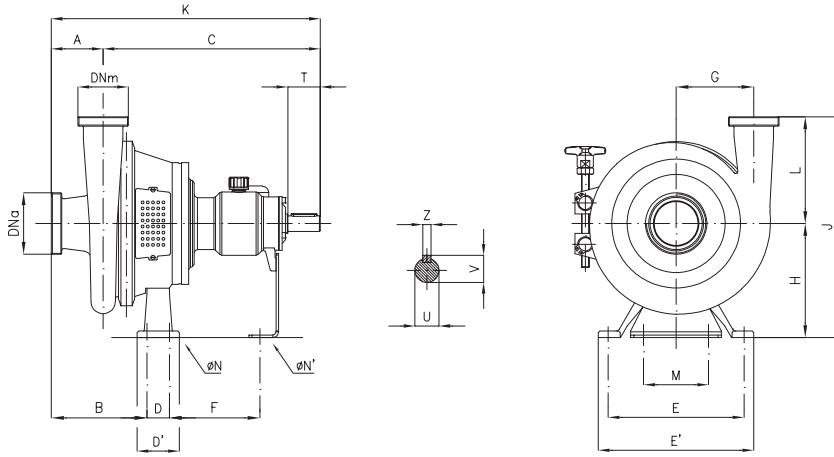
## Wide dimensional range with 26 models divided into 3 groups.



**GENERAL DIAGRAMS**  
 (Performance applies to H<sub>2</sub>O at 20 °C, 1013 mbar, Data not binding)

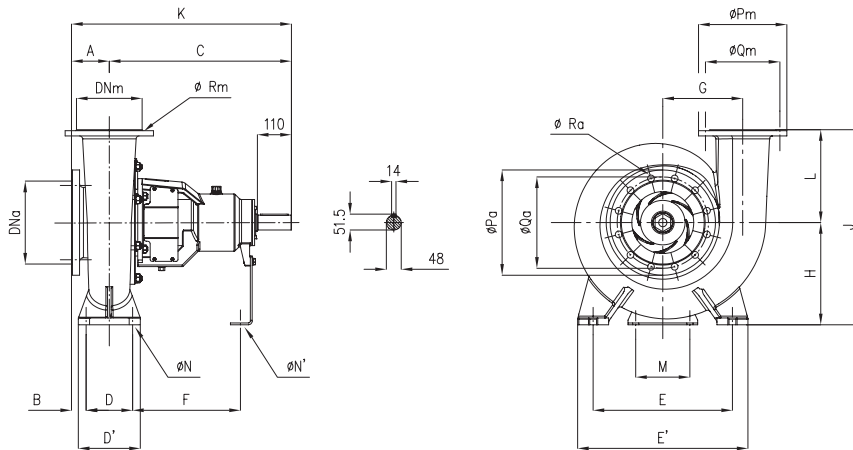


## OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 male threaded connections, with standard IEC/EN motors

Pump type	DNa	DNm	A	B	C	D	D'	E	E'	F	G	H	K	J	L	M	N	N'	T	U	V	Z
CSK 32-145	40	32	80	135	335	60	85	208	240	128	85	176	415	321	145	100	11	10	50	24	27	8
CSK 32-175	40	32	80	136	334	60	85	208	240	127	95	176	414	326	150	100	11	10	50	24	27	8
CSK 32-210	40	32	80	136	335	60	85	208	240	127	110	176	415	341	165	100	11	10	50	24	27	8
CSK 32-260	50	32	90	144	468	80	106	300	340	202	140	225	558	397	172	110	14	12	80	32	35	10
CSK 40-145	50	40	80	136	335	60	85	208	240	128	90	176	415	309	133	100	11	10	50	24	27	8
CSK 40-175	50	40	80	138	337	60	85	208	240	126	95	176	417	326	150	100	11	10	50	24	27	8
CSK 40-210	50	40	80	138	337	60	85	208	240	126	115	176	417	341	165	100	11	10	50	24	27	8
CSK 40-260	50	65	100	154	468	80	106	300	340	202	145	225	568	397	172	110	14	12	80	32	35	10
CSK 50-145	65	50	80	138	337	60	85	208	240	127	95	176	417	321	145	100	11	10	50	24	27	8
CSK 50-175	65	50	80	139	337	60	85	208	240	126	100	176	417	326	150	100	11	10	50	24	27	8
CSK 50-210	65	50	80	138	337	60	85	208	240	126	120	176	417	341	165	100	11	10	50	24	27	8
CSK 50-260	65	50	90	146	471	80	106	300	340	202	145	225	561	400	175	110	14	12	80	32	35	10
CSK 65-145	80	65	79	141	341	60	85	208	240	128	112	176	420	321	145	100	11	10	50	24	27	8
CSK 65-175	80	65	80	142	340	60	85	208	240	127	120	176	420	326	150	100	11	10	50	24	27	8
CSK 65-210	80	65	90	149	474	80	106	300	340	202	135	225	564	390	165	110	14	12	80	32	35	10
CSK 65-260	80	65	100	158	473	80	106	300	340	202	155	225	573	430	205	110	14	12	80	32	35	10
CSK 80-175	100	80	100	166	479	80	106	300	340	200	139	217	579	381	164	110	14	12	80	32	35	10
CSK 80-210	100	80	100	161	476	80	106	300	340	202	145	225	576	389	164	110	14	12	80	32	35	10
CSK 80-260	100	80	100	161	476	80	106	300	340	202	165	225	576	424	209	110	14	12	80	32	35	10
CSK 100-210	125	100	111	178	483	80	106	300	340	202	161	225	593	439	214	110	14	12	80	32	35	10
CSK 100-260	125	100	115	178	478	80	106	300	340	202	186	225	593	441	216	110	14	12	80	32	35	10
CSK 100-310	125	100	115	181	482	80	106	300	340	202	215	238	597	497	259	110	14	12	80	32	35	10
CSK 125-260	150	125	110	182	487	80	106	300	340	202	206	225	597	441	216	110	14	12	80	32	35	10



Dimensions not binding - DN = Flanges UNI EN 1092-1 PN16

Pump type	DNa	DNm	A	B	C	D	D'	E	E'	F	G	H	K	J	L	M	N	N'	Ø Pm	Ø Pa	Ø Qm	Ø Qa	Ø Ra	Ø Rm	n° fori a	n° fori m
CSK 125-350	150	125	122	47	586	150	200	400	500	346	232	280	708	580	300	110	22	14	250	285	210	240	22	18	8	8
CSK 150-350	200	150	122	47	580	150	200	450	550	348	258	330	702	630	300	175	22	20	285	340	240	295	22	22	12	8



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# Centrifugal Single-stage and Multistage Pumps

## CSM Series

### Standard design

CSM Series, extremely robust stainless steel pumps designed for high pressure duties with medium to low flow rates; especially suitable for applications with high suction or system pressures.

Made from solid CF-3M 1.4404 / AISI 316L stainless steel, the wetted parts have a high surface finish and electro-chemical polish.

Single-stage and multistage models with up to 4 impellers.

Flow rates up to 50 m<sup>3</sup>/h, heads up to 150 m (15 bar) for the multistage versions.

Flow rates up to 150 m<sup>3</sup>/h, heads up to 60 m (6 bar) for the single-stage versions.

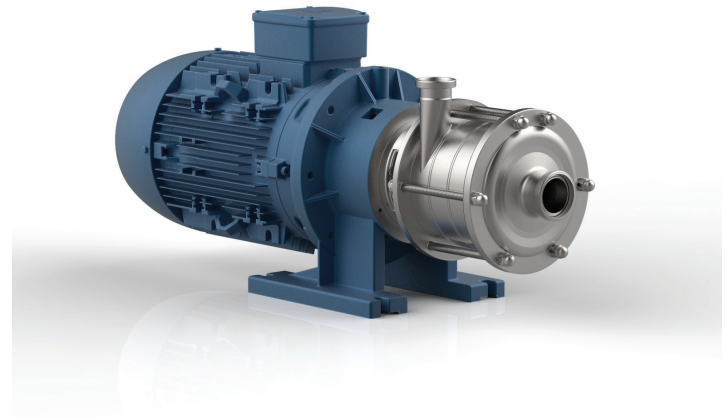
Design pressure 40 bar.

Temperature range: 0 to 100°C.

Available in three different versions.

Standard CSM: Close coupled design using a standard motor, with a separate pump shaft supported by bearings.

“CSMX” version: Close coupled to a standard motor, with a foot mounted housing containing single or double shaft support bearings.



Multistage CSM pump version X

### Seals:

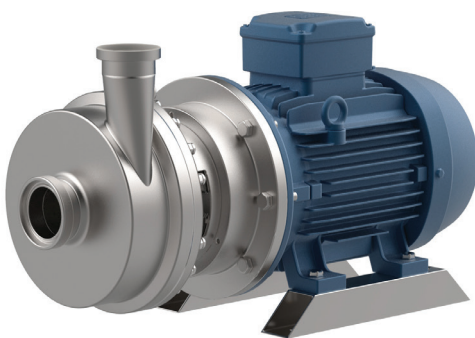
- Protected, balanced and bi-directional mechanical seals with seats to EN12756, ISO3069 standards.
- Single internal mechanical seal
- Single internal flushed mechanical seal

### Elastomers (FDA):

- EPDM
- Fluorocarbon (Viton)

### Connections:

- Flanges EN1092-1 PN40
- Clamp for high pressures
- DIN 11851 / 11864-1 up to 25 bar

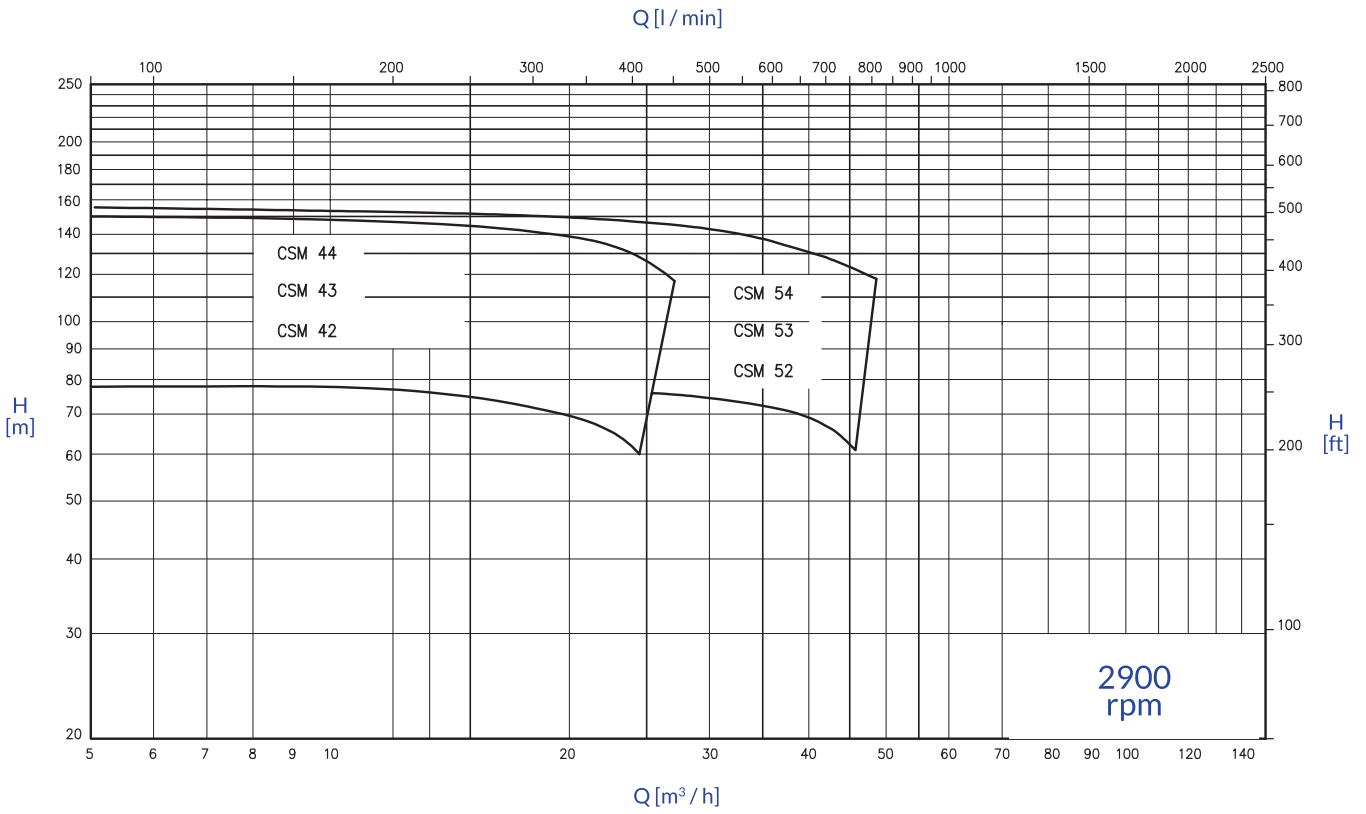


Single-stage CSM pump

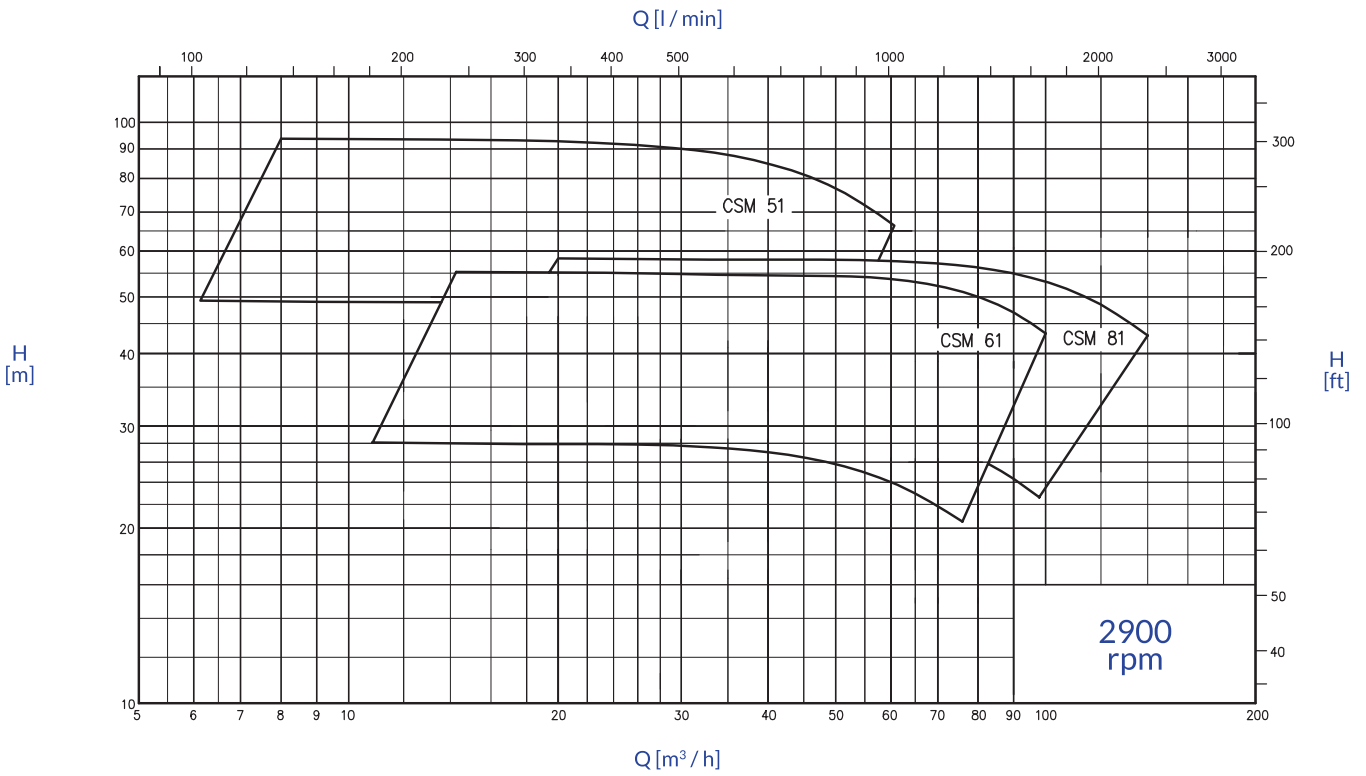


# CSM MULTISTAGE GENERAL DIAGRAM

Performance applies to H<sub>2</sub>O at 20 °C, 1013 millibar, Data not binding

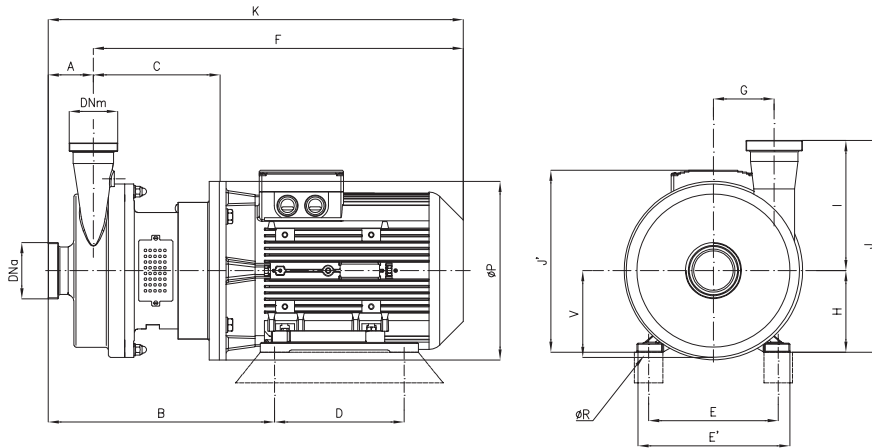


# CSM SINGLE-STAGE GENERAL DIAGRAM





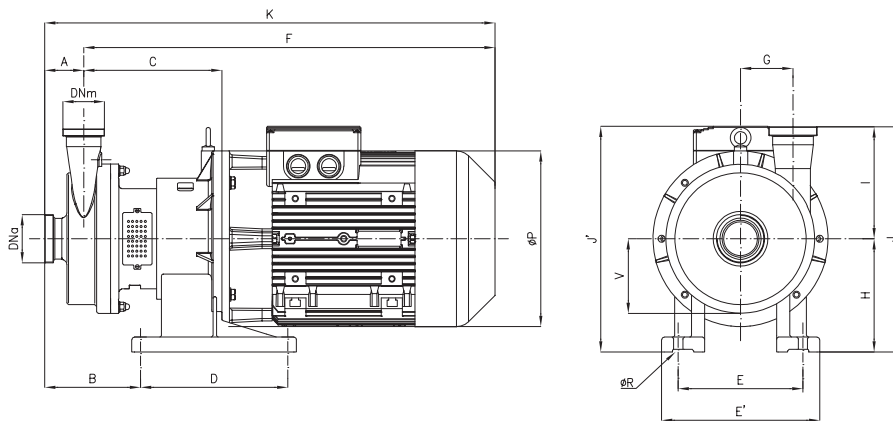
# CSM SINGLE-STAGE OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 male threaded connections, with standard IEC/EN motors

Pump typo	kW	DNa	DNm	A	B	C	D	E	E'	F	G	H	K	ØP	ØR	I	J	J'	V
CSM 51	15	65	50	73	431	250	210	254	300	728	140	160	801	350	15	240	400	357	195
CSM 51	18,5	65	50	73	431	250	254	254	300	728	140	160	801	350	15	240	400	357	195
CSM 51	22	65	50	73	444	250	241	279	340	810	140	180	883	350	15	240	420	442	195
CSM 61	11	80	65	84	445	253	210	254	300	731	100	160	815	350	15	250	410	357	170
CSM 61	15	80	65	84	445	253	210	254	300	731	100	160	815	350	15	250	410	357	170
CSM 61	18,5	80	65	84	445	253	254	254	300	731	100	160	815	350	15	250	410	357	170
CSM 61	22	80	65	84	458	253	241	279	340	813	100	180	897	350	15	250	430	442	170
CSM 81	11	100	80	100	461	253	210	254	300	731	120	160	831	350	15	255	415	357	170
CSM 81	15	100	80	100	461	253	210	254	300	731	120	160	831	350	15	255	415	357	170
CSM 81	18,5	100	80	100	461	253	254	254	300	731	120	160	831	350	15	255	415	357	170
CSM 81	22	100	80	100	474	253	241	279	340	813	120	180	913	350	15	255	430	442	170

"X" version



Dimensions not binding - DN = DIN 11851 male threaded connections, with standard IEC/EN motors

Pump type	kW	DNa	DNm	A	B	C	D	E	E'	F	G	H	K	ØP	ØR	I	J	J'	V
CSMX 51	30	65	50	73	216	325	335	284	360	935	140	258	1008	400	21	240	498	558	195
CSMX 61	30	80	65	84	227	328	335	284	360	938	100	258	1022	400	21	250	508	558	170
CSMX 81	30	100	80	100	243	328	335	284	360	938	120	258	1038	400	21	255	513	558	170
CSMX 81	37	100	80	100	243	328	335	284	360	938	120	258	1038	400	21	255	513	558	170



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# Multistage Centrifugal Pumps



## CV Series

### Standard design

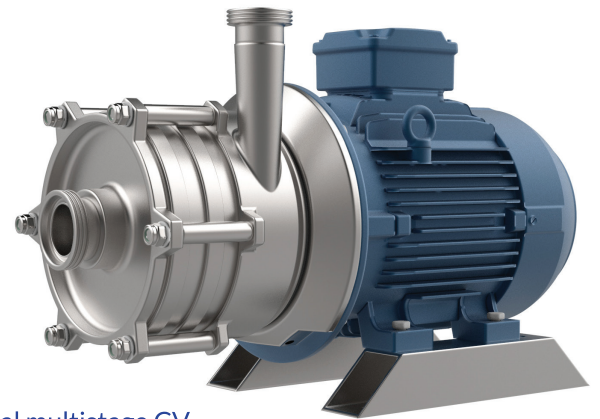
Multistage centrifugal pumps with closed impeller for medium and high heads.  
Closed coupled design with closed impellers, directly mounted on to the motor shaft.

Setting up in horizontal and vertical way for every requirement of installation.

Industrial construction with motor shroud and adjustable feet on request.

Wetted parts in CF-8M 1.4408 / AISI 316 stainless steel, investment cast and electro-chemically polished.

Flow rates up to max. 40 m<sup>3</sup> /h, heads up to 140 m



Horizontal multistage CV  
51÷83 pumps

### Seals:

Mechanical seals with seats to EN 12756, ISO 3069 standards.  
Single internal mechanical seal

### Elastomers (FDA):

EPDM  
Fluorocarbon (Viton)  
Silicone  
FEP

### Connections:

DIN - SMS - IDF - BS / RJT - DS - CLAMP and EN 1092-1 PN16 flanges to suit most international standards

### Applications

Suitable for industrial or foodstuffs applications where 316 stainless is necessary, but without any particular cleaning or sterility requirements.

These remarkably sturdy and cost effective pumps are perfect for applications where hygiene is of low importance.

The closed impellers are not able to handle products which contain solids or highly viscous liquids.

Widely used in:

- Cleaning & washing systems
- Fluid Filtration
- General Transfer
- Feeding
- Water treatment

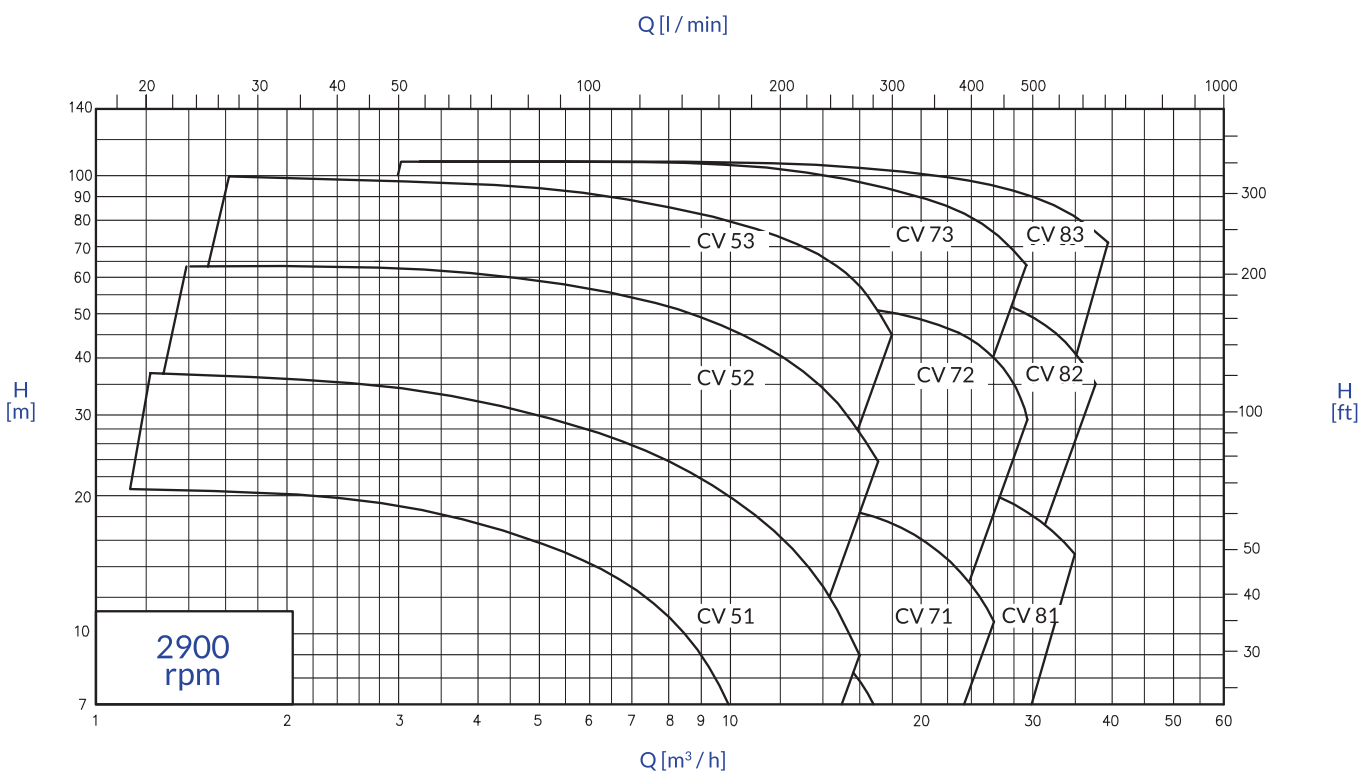
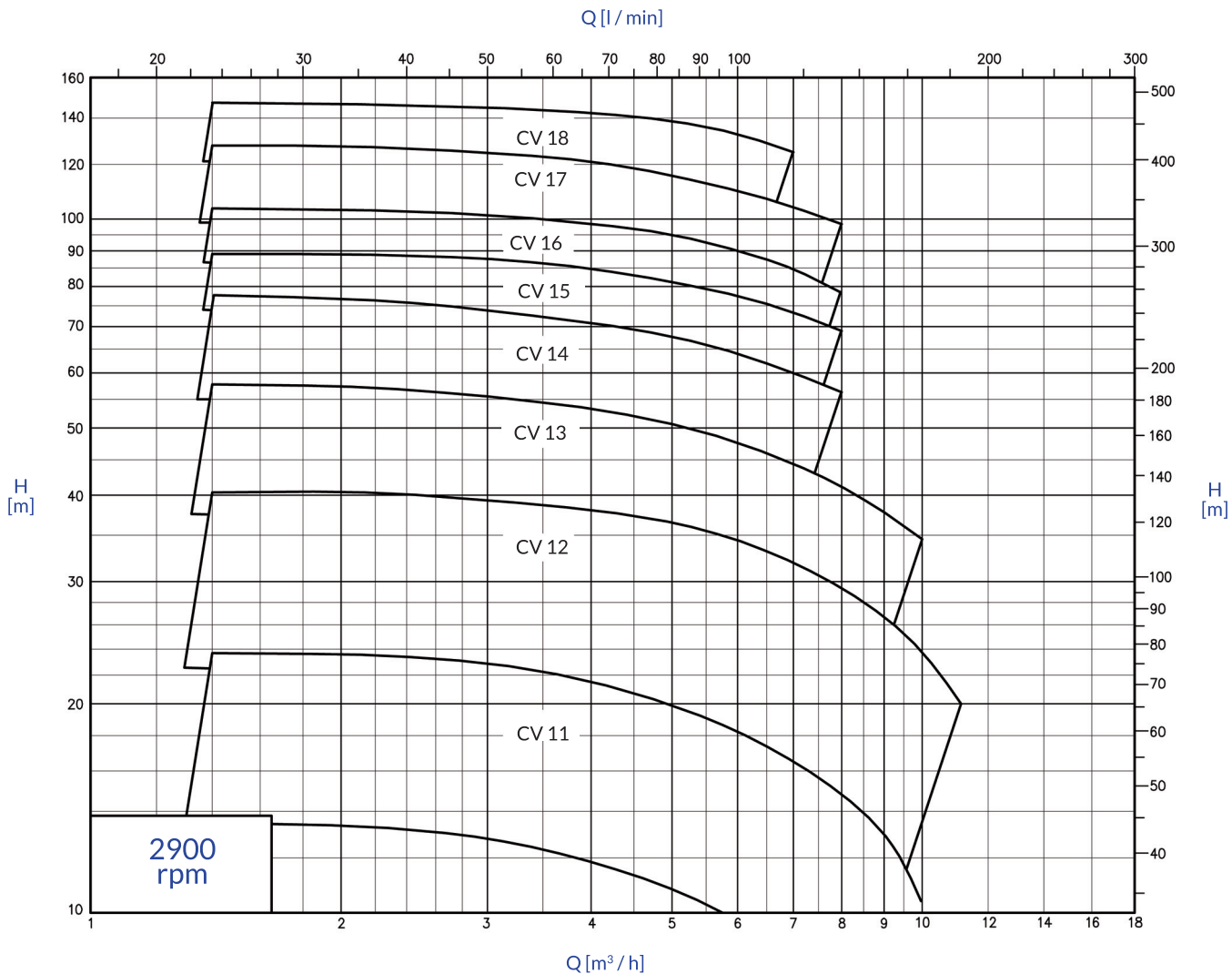
Multistage CV 11....18  
pumps vertical exec.



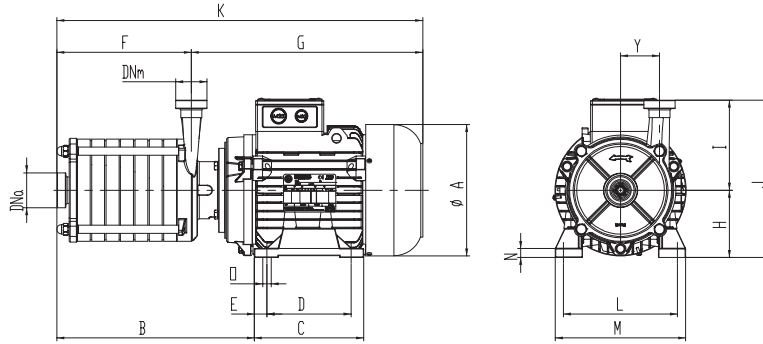


# GENERAL DIAGRAMS

Performance applies to H<sub>2</sub>O at 20 °C, 1013 mbar, Data not binding

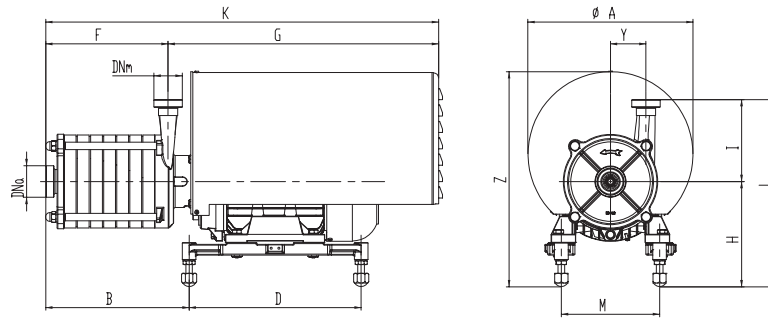


# OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 male threaded connections

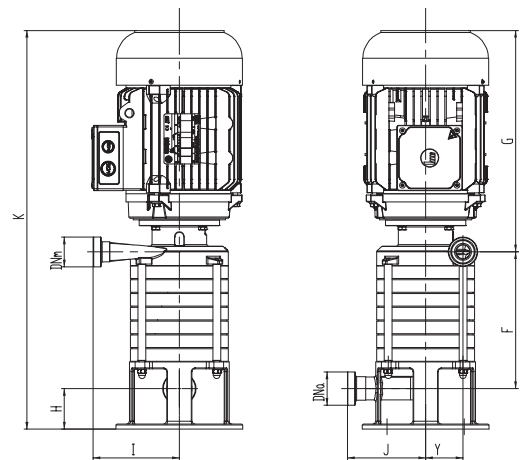
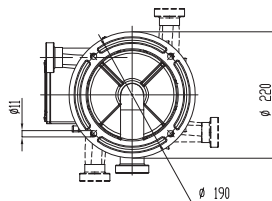
Pumps	2900 rpm	kW	DNa	DNm	A	B	C	D	E	F	G	K	H	J	I	L	M	N	O	P	Y
CV 11	1,1	32	25	162	155	118	100	9	56	314	370	90	240	150	125	150	8	9,5	-	65	
CV 12	1,5	32	25	181	182	143	100	12,5	80	314	394	90	240	150	140	165	10	10	-	65	
CV 13	2,2	32	25	181	206	143	100	12,5	104	337	441	90	240	150	140	165	10	10	-	65	
CV 14	3	32	25	202	236	176	140	13	128	337	465	100	240	150	160	196	12	12	-	65	



Dimensions not binding - DN = DIN 11851 male threaded connections

Pumps	2900 rpm	kW	DNa	DNm	ØA	B	D	F	G	H	I	K	J	M	Y
CV 11	1,1	32	25	238,5	92	230	56	395	178	150	451	315	136,5	65	
CV 12	1,5	32	25	238,5	118	230	80	395	178	150	477	315	136,5	65	
CV 13	2,2	32	25	238,5	140	230	104	395	178	150	499	315	136,5	65	
CV 14	3	32	25	238,5	164	230	128	395	178	150	523	315	136,5	65	

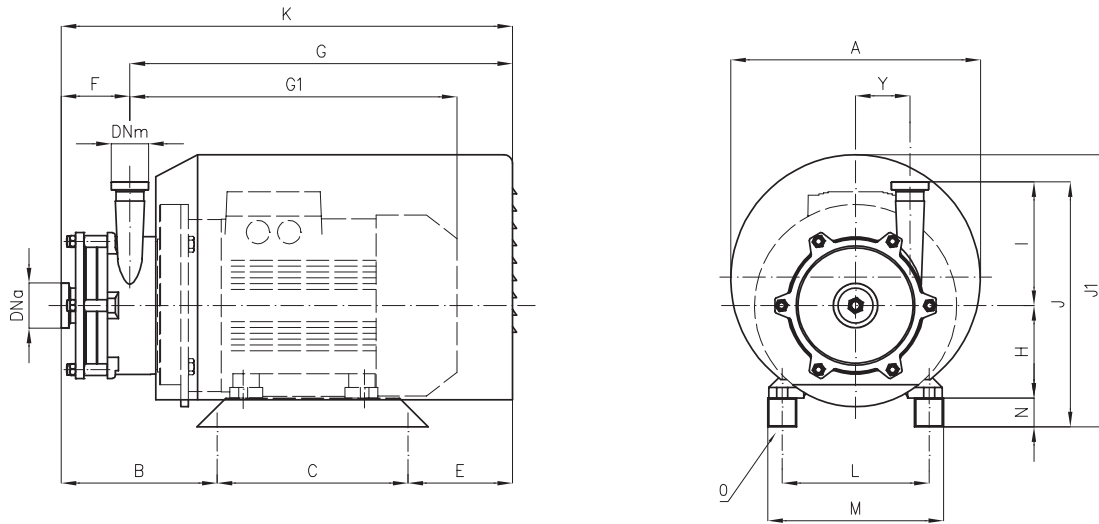
Outlet port position  
ref. a = standard exec.  
ref. b-c-d = exec. on request



Dimensions not binding -  
DN = DIN 11851 male threaded connections

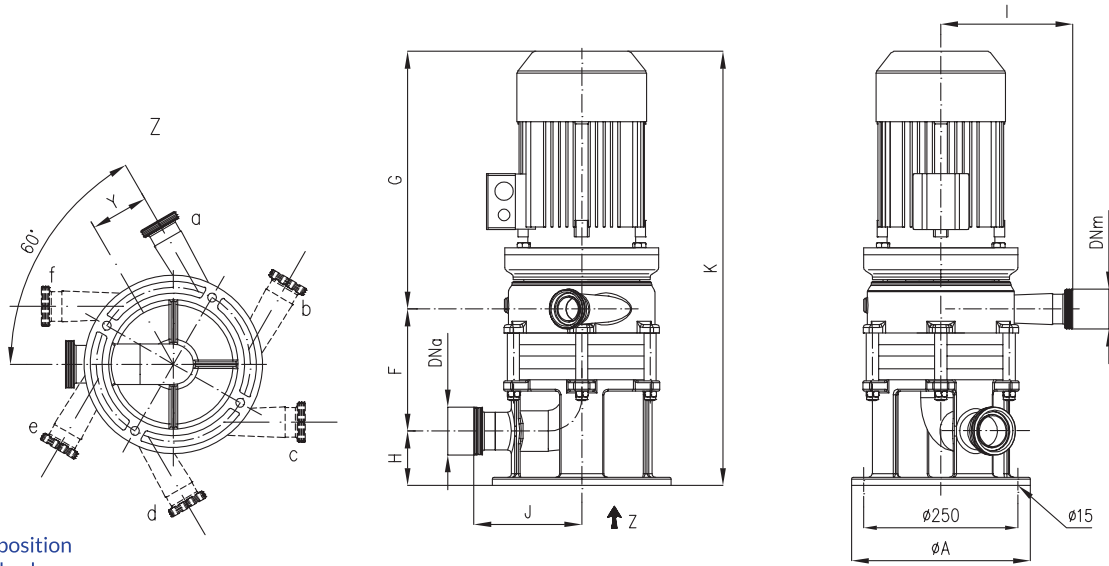
Pumps	2900 rpm	kW	DNa	DNm	A	F	G	H	I	J	K	Y
CV 11V	1,1	32	25	220	69	316	71	150	136	456	65	
CV 12V	1,5	32	25	220	93	316	71	150	136	480	65	
CV 13V	2,2	32	25	220	117	346	71	150	136	534	65	
CV 14V	3	32	25	220	141	346	71	150	136	558	65	
CV 15V	4	32	25	220	165	371	71	150	136	607	65	
CV 16V	4	32	25	220	189	371	71	150	136	631	65	
CV 17V	5,5	32	25	220	213	386	71	150	136	670	65	
CV 18V	5,5	32	25	220	237	386	71	150	136	694	65	

# OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 male threaded connections

Pumps	kW	DNa	DNm	ØA	B	C	E	F	G	G1	H	I	J	J1	K	L	M	N	O	Y
CV 51	2,2	50	40	298	186,5	200	107,5	80	414	378	90	214	344	294	494	140	180	40	10	94
CV 52	4	50	40	330	232	230	141	119	484	403	100	214	364	355	603	160	210	50	12	94
CV 53	7,5	50	40	372	271	230	141	158	484	418	112	214	376	367	642	190	240	50	12	94
CV 71	4	50	40	330	193	230	141	80	484	403	100	214	364	355	564	160	210	50	12	94
CV 72	7,5	50	40	372	232	230	141	119	484	418	112	214	376	367	603	190	240	50	12	94
CV 73	11	50	40	372	287	266	132	158	527	469	132	214	406	415	685	216	276	60	12	94
CV 81	5,5	65	40	330	198	230	141	85	484	418	112	214	376	367	569	190	240	50	12	94
CV 82	11	65	40	372	253	266	132	124	527	469	132	214	406	415	651	216	276	60	12	94
CV 83	18,5	65	40	372	292	266	187	163	582	524	132	214	406	415	745	216	276	60	12	94



Outlet port position  
ref. a = standard exec.  
ref. b-c-d-e-f = exec. on request

Dimensions not binding - DN = DIN 11851 male threaded connections

Pumps	kW	DNa	DNm	ØA	F	G	H	I	J	K	Y
CV 51V	2,2	50	40	290	120	378	88	214	175	586	94
CV 52V	4	50	40	290	159	403	88	214	175	650	94
CV 53V	7,5	50	40	290	198	418	88	214	175	704	94
CV 71V	4	50	40	290	120	403	88	214	175	611	94
CV 72V	7,5	50	40	290	159	418	88	214	175	665	94
CV 73V	11	50	40	290	198	511	88	214	175	797	94
CV 81V	-	-	-	-	-	-	-	-	-	-	-
CV 82V	-	-	-	-	-	-	-	-	-	-	-
CV 83V	-	-	-	-	-	-	-	-	-	-	-



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# Air-operated Piston Pumps



## Standard design

### PA Hygienic series

Wetted parts in AISI 304 (only for PA 140) or 316 stainless steel in both, short or long versions. Pump components are assembled with quick-release clamps for quick and easy strip cleaning.

Connections: DIN - SMS - IDF - BS / RJT - DS - CLAMP.

### PA Industrial series *(While stocks last)*

Wetted parts in AISI 316 stainless steel. Short or long versions. Pump components are screwed together.

Connections: GAS thread/BSP.

### PAR Light duty industrial series

Wetted parts stainless steel in AISI 316. Pump components are screwed together. Very cost effective. Connections: GAS thread/BSP.



PA-AM  
long pump

PA-AM  
short pump



PAR  
short pump

## Elastomers (FDA):

- Nitrile NBR
- Fluorocarbon (Viton)
- P.T.F.E.
- Algoflon

## Applications

Air-operated piston pumps are available in various versions, depending on the constructional features, materials and the applications for which they are to be used. They have been designed to meet the widest variety of requirements, from pumping simple products to extremely high viscosities. Including drum emptying, transfer, feed, conveying and spraying applications, especially where an easily adjustable flow rate is required. Pressures from 0 to 150 bar and flow rates from 1 to 80 l/min.

Thanks to the compressed driven air motor they are also suited for environments with potentially explosive atmospheres and in compliance with ATEX directives.



# PERFORMANCE

## PA HYGIENIC SERIES

PUMPS	Pressure ratio	Recomm. max. cycles per minute	Max. flow rate l/min for viscosity of 1000 cP
PA 20A-45	25 : 1	150	1
* PA 30A-45	5 : 1	150	2
* PA 50AM-63	3,4 : 1	120	7,6
* PA 50AM-80	5,3 : 1	90	10
* PA 50AM-200	8,4 : 1	60	7,5
PA 50AM-230	14,6 : 1	50	10,6
PA 50AM-250	20 : 1	50	6,2
* PA 65AM-80	1,6 : 1	80	20
* PA 65AM-200	2,5 : 1	60	17
* PA 65AM-230	4 : 1	50	24
PA 65AM-250	6 : 1	50	14
* PA 80AM-200	2 : 1	60	24
* PA 80AM-230	3,3 : 1	50	33
* PA 80AM-250	4,5 : 1	50	20
PA 80AM-310	9 : 1	50	32
* PA 100AM-200	1 : 1	60	37
* PA 100AM-230	1,8 : 1	50	52
* PA 100AM-255	2,5 : 1	50	52
* PA 100AM-310	5 : 1	50	50
* PA 140A-230	1,6 : 1	50	100
* PA 140A-255	2,2 : 1	50	100
* PA 140A-310	4 : 1	50	95

\* Available with ATEX 2G and 3G certification

## PA INDUSTRIAL SERIES

(While stocks last)

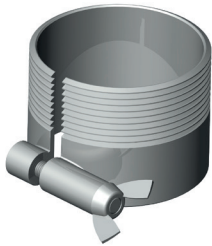
PUMPS	Pressure ratio	Recomm. max. cycles per minute	Max. flow rate l/min for viscosity of 1000 cP
* PA 40I-63	5,5 : 1	120	4,8
* PA 40I-80	8,8 : 1	90	6,4
* PA 40I-200	14 : 1	60	4,7
PA 40I-230	24,4 : 1	50	6,7
PA 40I-250	33,2 : 1	50	4
* PA 65I-80	1,6 : 1	80	20
* PA 65I-200	2,5 : 1	60	17
* PA 65I-230	4 : 1	50	24
PA 65I-250	6 : 1	50	14

\* Available with ATEX 2G and 3G certification

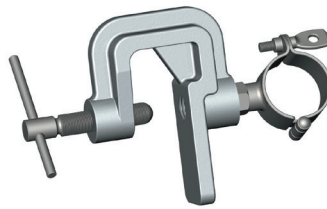
## PAR SERIES

PUMPS	Pressure ratio	Recomm. max. cycles per minute	Max. flow rate l/min for viscosity of 1000 cP
PAR 30-50	4 : 1	180	7,5
PAR 40-50	2 : 1	180	12
PAR 50-50	1 : 1	180	25
PAR 50-65	2 : 1	160	25
PAR 65-50	0,7 : 1	160	55
PAR 65-65	0,7 : 1	160	55

## ACCESSORIES



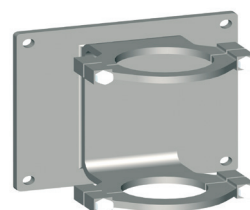
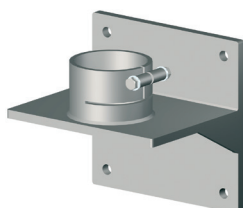
2" threaded clamp for drums



Double clamp



Outlet Pulsation Damper



Wall brackets for holding and fixing pumps

## VARIOUS OPTIONS

Air-operated piston pump with mobile lift.



Manual sliding lift model with counterweight assistance.



With pneumatic cylinder and control panel.

Short air-operated piston pump on tripod with wheels.



Short air-operated piston pump with scraper plate to empty barrels or cylindrical tanks. Excellent for high viscosity products.





Pneumatic lift to empty barrels.

Unit with double pneumatic pistons for vessels with a diameter exceeding 700 mm, including an air operated piston pump and scraper plate. For mixtures, jams, creams etc... to be transferred after processing.



Pneumatic lift with scraper plate for vessels with diameter up to 700 mm.



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# Vertical Progressive Cavity Pumps

MAV Series







The MAV series progressive cavity pumps are designed for vertical operation with the inlet immersed in the product. The range consists of the following models, MAV 40, 50, 60L, 65, 70L, 80, 90L manufactured in stainless steel AISI 316.

MAV Series pumps are intended for product transfer and drum or container emptying applications, in which the suction port is plunged directly into the product.

As standard, MAV pumps have a suction to discharge port dimension of 1100 - 1400 mm. On request, this distance can be personalised to suit a customer's requirements.

It can be mounted on a drum-holding trolley, with a choice of either a manual sliding or an alternative pneumatic lift and lower system.

The operating characteristics and construction materials of these pumps enable the MAV series to be used with many different fluids, from low to high viscosity, including many abrasive and corrosive media. An added benefit is the ability to handle fluids containing fibres or solid materials in suspension.

The main components of the MAV series pumps, such as the stator, rotor, joints and mechanical seal are the same as used on the corresponding horizontal version.

### CHARACTERISTICS OF MAV PUMPS

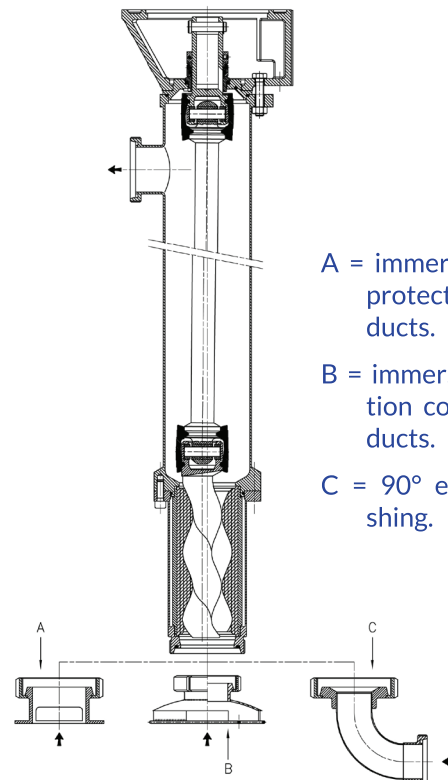
- constant, delicate flow without pulses
- absence of suction valves
- self-priming
- low noise level
- wide range of motor drives with fixed or variable speed

## VERSIONS

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

Size	Stages	h	n=200		n=300		n=400		n=500		n=600	
			Q	Na	Q	Na	Q	Na	Q	Na	Q	Na
40	1	1					0,6	0,35	0,8	0,35	1	0,35
		3					0,3	0,35	0,5	0,35	0,7	0,4
		6									0,2	0,45
	2	9							0,3	0,6	0,5	0,7
		12									0,3	0,9
50	1	1	0,9	0,6	1,5	0,6	2	0,6				
		3	0,8	0,8	1,3	0,9	1,8	1				
		6	0,6	0,9	1,1	1,1	1,6	1,1				
	2	9	0,2	1,1	0,9	1,2	1,6	1,6				
		12	-	-	0,4	1,3	1,2	1,8				
60	L	2	2,5	1,2	3,7	1,3	5	1,4				
		4	2,3	1,5	3,5	1,7	4,7	1,8				
		6	2	1,7	3,1	1,9	4,2	2,1				
65	1	1	2,5	1,1	3,8	1,1	5	1,4				
		3	2,3	1,2	3,6	1,2	4,5	1,6				
		6	1,7	1,5	2,8	1,7	4	2,1				
	2	9	1	2,8	2,6	3,3	4,1	3,7				
		12	0,3	3	1,6	3,4	3,6	3,9				
70	L	2	5,4	2	8	2,3	10,6	2,8				
		4	5	2,30	7,6	3	10,3	3,7				
		6	4,6	2,8	7,2	3,7	9,8	4,6				
80	1	1	4,7	2,2	7,5	2,5						
		3	4,4	2,5	7	3						
		6	3,8	2,9	6,4	3,5						
90	L	2	13,4	3,5	20,5	4,1						
		4	12,2	4,1	19	5,3						
		6	10,8	5,2	17,2	6,5						

There is a version with suction port in two pieces. This is in order to achieve alternative solutions relating to various uses and the need to perform CIP washing at the end of the cycle.



A = immersed port with bag protection for fluid products.

B = immersed port with suction cone for dense products.

C = 90° elbow for CIP washing.

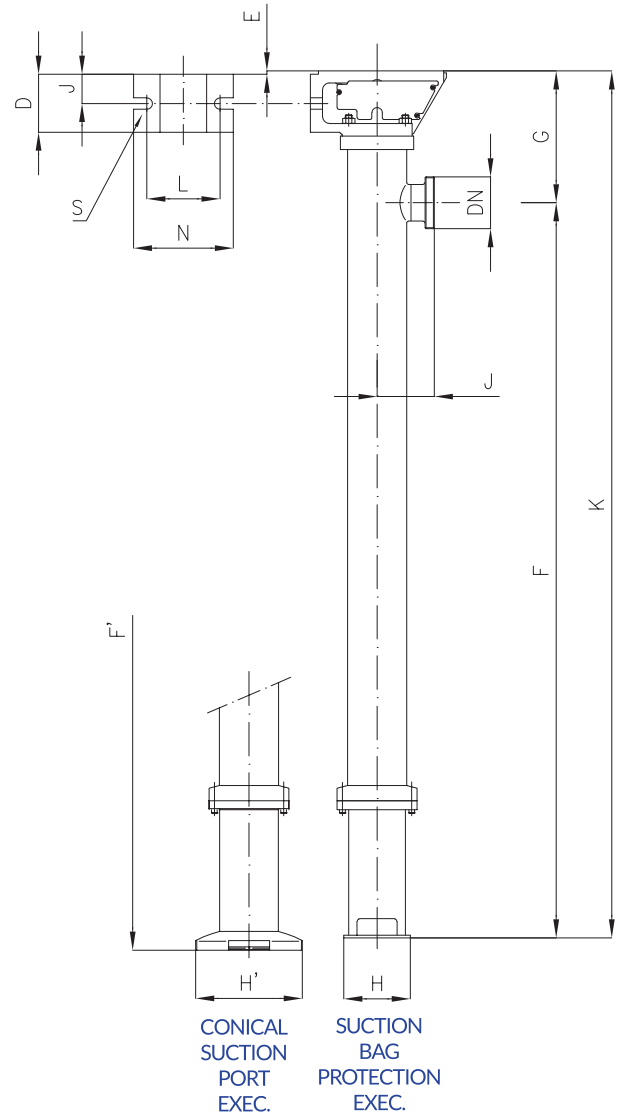
Values referred to water at 20°C a.s.l.



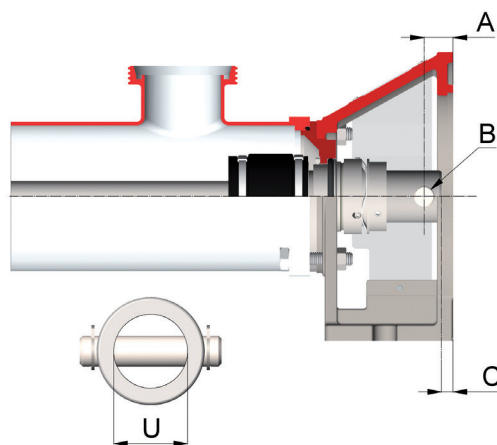
# Overall dimensions

Dimensions not binding

Pump type	DN	D	E	F	F'	G	H	H'	J	K	L	N	S
MAV 40-1	40	-	-	1103	-	126	70	-	79	1229	-	-	-
MAV 50-1	50	92	-	1086	-	198	100	-	86	1284	110	150	17
MAV 50-2	50	92	-	1236	-	198	100	-	86	1434	110	150	17
MAV 60-L	50	92	-	1255	1273	198	100	220	86	1453	110	150	17
MAV 65-1	65	111	-	1103	1142	226	130	220	113	1329	140	180	19
MAV 65-2	65	111	-	1303	1342	226	130	220	113	1529	140	180	19
MAV 70-L	65	111	-	1303	1342	226	130	220	113	1529	140	180	19
MAV 80-1	80	115	5	1104	1124	221	150	275	119,5	1325	150	190	19
MAV 80-2	80	115	5	1354	1374	221	150	255	119,5	1575	150	190	19
MAV 90-L	80	115	5	1243	1251	221	155	275	119,5	1644	150	190	19



Pump type	A	BH7	C	UH7
MAV 40-1	20	8	=	19
MAV 50-1	25	10	10	24
MAV 50-2	25	10	10	24
MAV 60-L	25	10	10	24
MAV 65-1	25	14	10	32
MAV 65-2	25	14	10	32
MAV 70-L	25	14	10	32
MAV 80-1	26	16	10	35
MAV 80-2	26	16	10	35
MAV 90-L	26	16	10	35



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# Progressive Cavity Pumps

## MH Hygienic Series



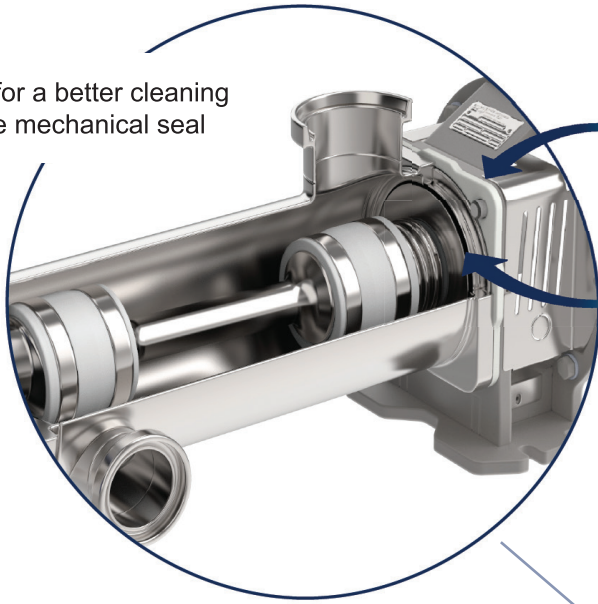
*The new MH series self-priming progressive cavity pumps is composed of 5 sizes MH 55-65-80-100-125. All the wetted parts are made out of stainless steel AISI 316 polished with surface finishing of 0.8 micron; stator and all other gaskets can be of different materials. The renewed design makes these pumps without any dead spots and complying with all the applications with the highest hygienic requirements like food, pharmaceutical and cosmetics. The MH pumps are suitable to pump high viscosity media thanks to the delicate and constant flow and, on the biggest sizes, they are able to pump media with solid contents.*

*Numerous pumpable food products: creams, sauces, tomato concentrate, fruit purées, chocolate, pastry creams and batters, jams, ragout, yoghurt, melted cheese, beverages, concentrates, juices.*





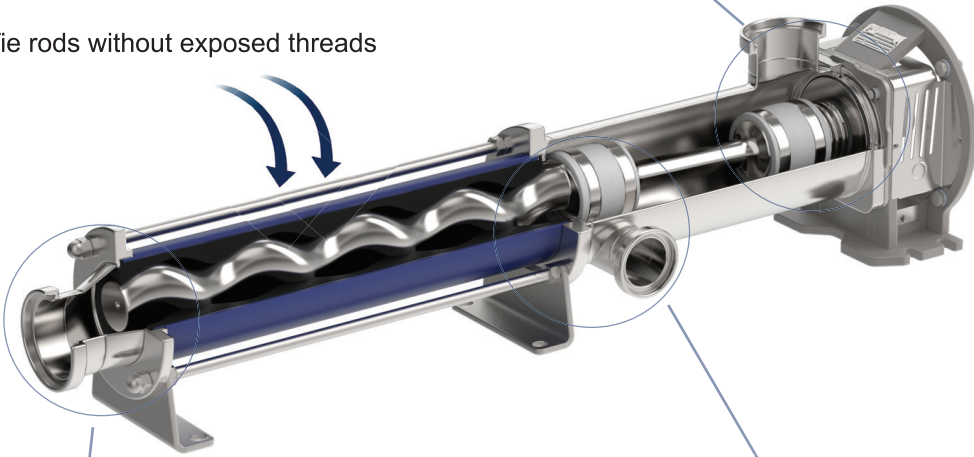
Backward inlet port for a better cleaning and lubrication of the mechanical seal



Shaped gasket perfectly fitting the gap between chamber and lantern.

Suction chamber with O-ring housing rounded shape in order to avoid any dead spot and optimized cleaning.

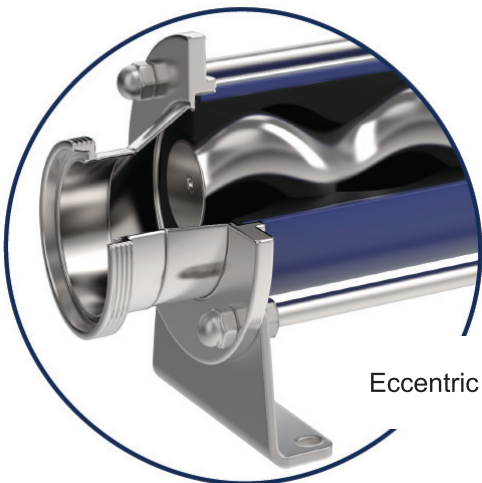
Tie rods without exposed threads



CIP port self-drainable on the suction chamber



Eccentric outlet port without any dead spots



## TECHNICAL DATA

### Available in sigle stage, double stage and long pitch design

Flow rate up to 60 m<sup>3</sup>/h  
 Head values up to 12 bar  
 Maximum suction pressure 12 bar  
 Temperature range: -20°C to +100°C

#### Seals:

Bi-directional mechanical seal with design created to facilitate cleaning.

**Stator materials** (elastomers compliant with reg. (EC) No. 1935/2004 and FDA regulation):

NBR black and white, EPDM, FKM rubber Fluoroelastomer.

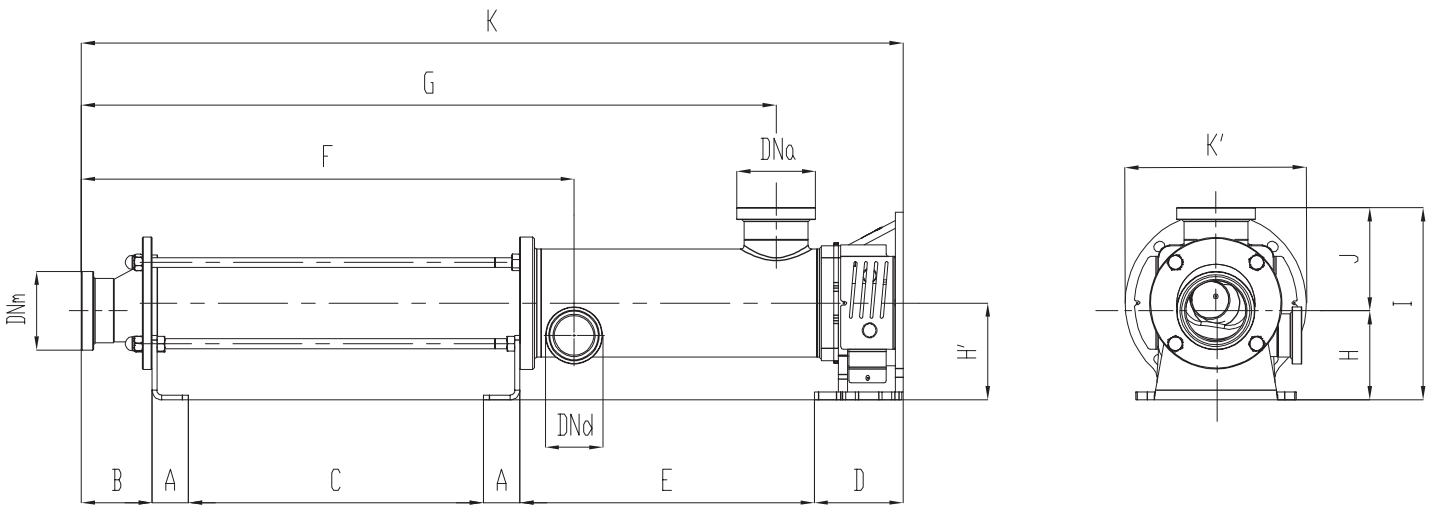
**Seal materials** (elastomers compliant with reg. (EC) No. 1935/2004 and FDA regulation):

NBR (black and white)  
 EPDM (black and white)  
 Fluorocarbon

#### Connections:

DIN - SMS - IDF - BS / RJT - DS - CLAMP and EN 1092-1 PN 16 flanges and, on request, available in compliance with international standards.

## OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 female connection

Pump type	DNa	DNm	DNd	A	B	C	D	E	F	G	H	H'	K	K'	J	I
MHE 55-2	50	50	40	45	85	209	82	357	444	694	92	100	823	Ø200	94	186
MHE 65-2	65	65	50	50	96	295	102	344	561	786	116	125	937	Ø250	122	238
MHE 80-2	80	80	50	60	90	380	112	336	660	867	131,5	140	1038	Ø250	140,5	272
MHE 100-2	100	100	65	60	117	488	147	487	815	1149	147,5	160	1359	Ø300	170,5	318
MHE 125-2	100	100	65	70	172	662	172	585	1064	1508	152	180	1731	Ø350	202	354



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# Progressive Cavity Pumps



## Standard design

The progressive cavity pump is a positive displacement pump with one single rotating shaft. A stainless steel rotor and a rubber stator are the main pumping components. The rotor is a circular section single screw. The rubber stator is vulcanized inside a steel pipe. Renowned for their versatility, different models are available in a choice of AISI 304, 316 stainless steel. Flow rates up to 200 m<sup>3</sup>/h, pressures up to 24 bar and temperatures up to 100 °C. Motorisation: direct motor, geared motor, variable speed motor, motor and pulley, gear motor with inverter.

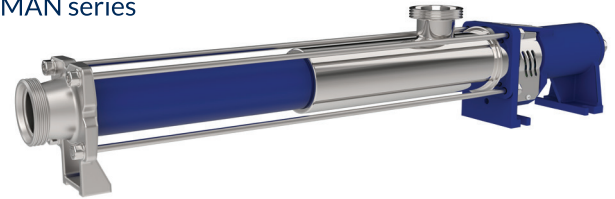
## MA series - Foodstuffs execution

Pumps for foodstuffs with a large suction chamber. Wetted parts are polished stainless steel with DIN threaded hygienic connections.

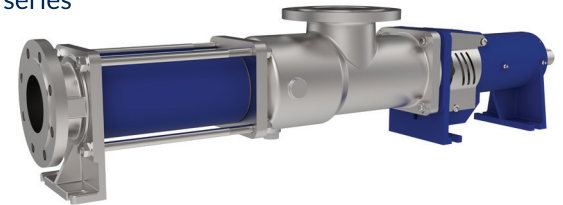
## MI series - Industrial execution

Sturdy industrial pumps suitable for heavy duty requirements. Cast suction chamber and flanged connections.

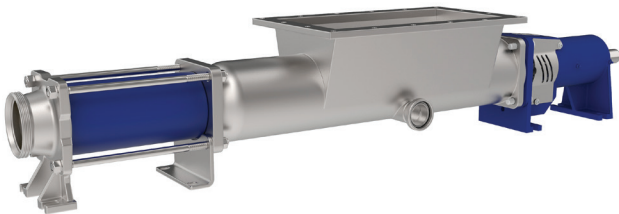
MAN series



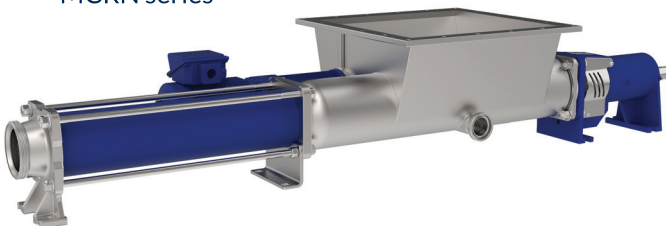
MIN series



MCN series



MCRN series



The progressive cavity pumps can handle almost any kind of fluid up to 800.000 cps., including abrasive liquids and suspensions with solids. The pumping action is delicate, without sudden pulsation and the flow rate is proportional to the rotational speed.

## MC series - Features a hopper and a pre-feeding screw

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

## MCR series - Features a hopper, a pre-feeding screw and a vane crusher

Version with hopper, pre-feeding screw and vane crusher, suitable for dense products in lumps, pieces or that tend to form a bridge around a normal screw feeder. The vane crusher is driven by an independent geared motor, to crush the product to be pumped, breaking down any large lumps and pushing them into the pre-feeding screw.



**MC2C series** - Features an hopper and 2 pre-feeding screws

**MC2CR series** - Features an hopper, 2 pre-feeding screws and 1 blade feeder

Version with hopper and double synchronised pre-feeding screws, mounted below a vane crusher (vers. for MC2CR). The vane crusher blades chop the product and push it towards the bottom of the hopper. The two pre-feeding screws then push the product into to the pump stator.

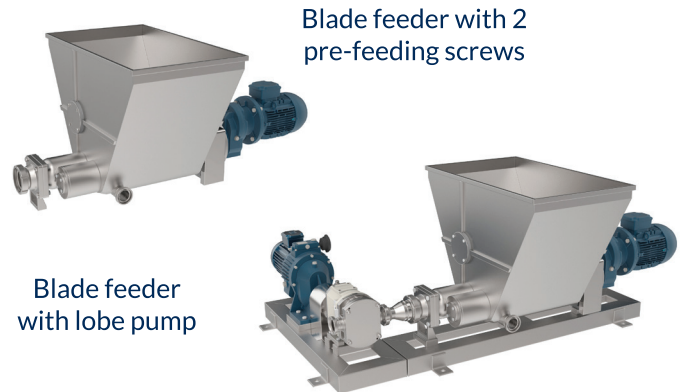


MC2C series

MC2CR series

### Blade feeders with 2 pre-feeding screws

Version with hopper and double synchronised pre-feeding screw operated by a reduction unit. It can be manufactured as a simple feeder or in combination with a lobe pump.



Blade feeder with 2 pre-feeding screws

Blade feeder with lobe pump

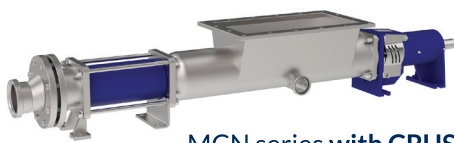
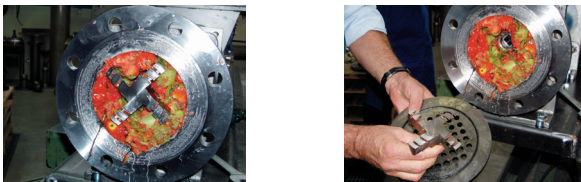
### MAV series - Vertical execution

MAV Series pumps are intended for product transfer and drum or container emptying applications, in which the suction port is plunged directly into the product. As standard, MAV pumps have a suction to discharge port dimension of 1100 - 1400 mm. It can be mounted on a vertical trolley, with a choice of either a manual sliding or an alternative pneumatic lift and lower system.



MAV series

### Progressive cavity pump with crushing blades



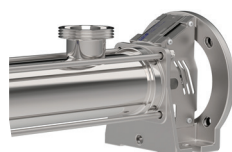
MCN series with CRUSHING BLADES

The right solution designed for crushing products containing soft or fibrous components (fruit and vegetables). The great advantage of this device is to avoid the need for macerating equipment after the pump.

## MOUNTING ARRANGEMENT

### E VERSION

Close coupled with shaft directly coupled to the drive.



### N VERSION



Double grease lubricated bearings for drive via a flexible coupling.

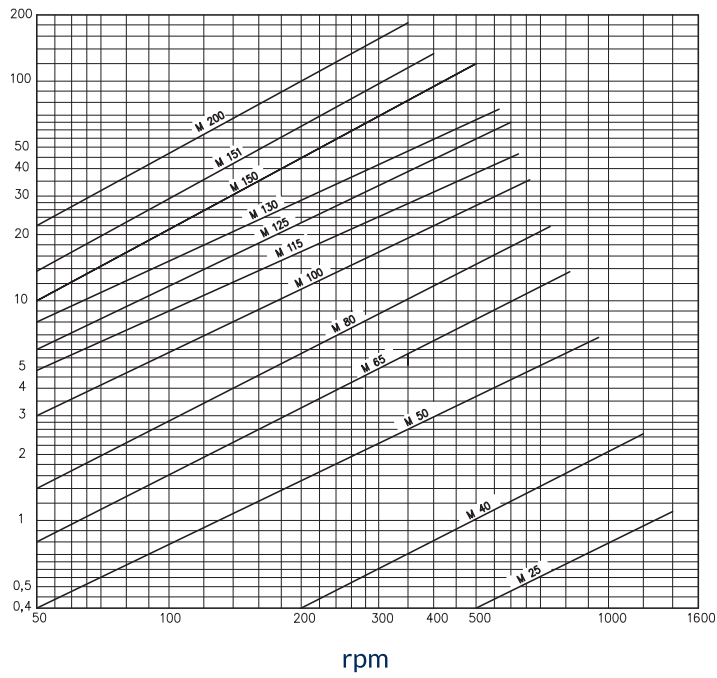
## STATOR MATERIALS

- GA - NBR black
- GB - EPDM
- GD - FKM rubber  
Fluoroelastomer
- GE - HYPALON rubber
- GF - NBR white
- GG - NATURAL rubber
- GJ - HYDRO-TREATED NITR. rubber
- GL - SBR SCA972
- GM - EPDM (white rubber)

## SEALS AVAILABLE

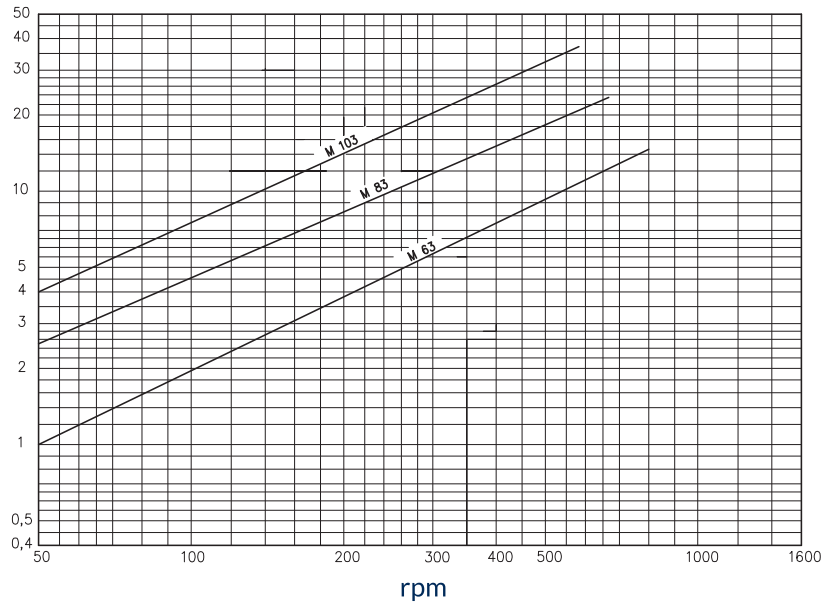
- Single internal mechanical seal
- Single external mechanical seal
- Double flushed mechanical seal
- Cooled packed gland seal

$Q = m^3/h$

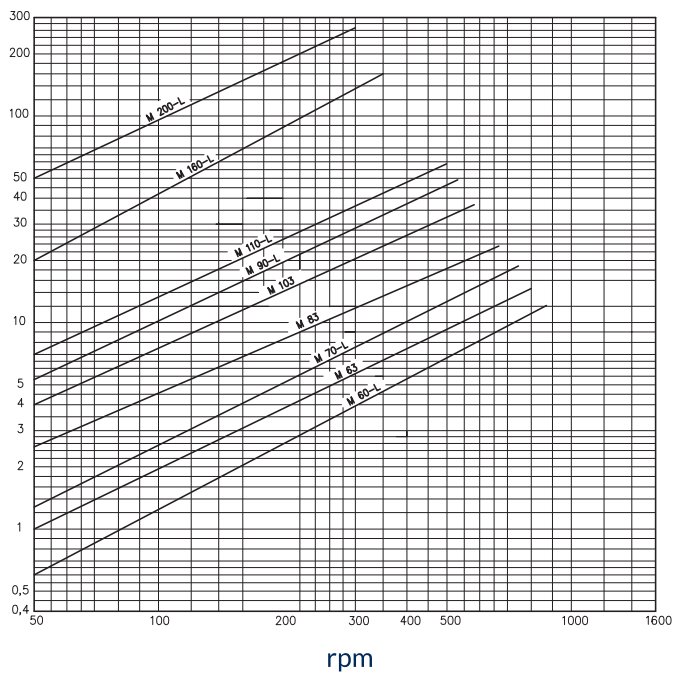


DIAGRAMS  
2/3 lobe series

$Q = m^3/h$

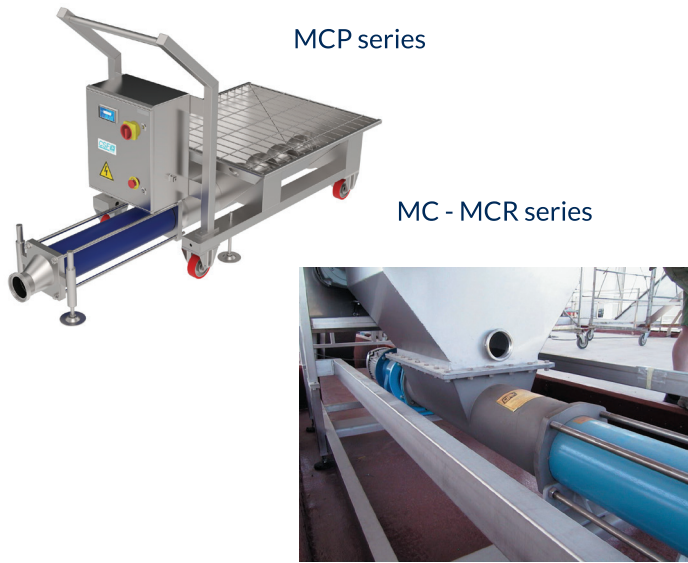


$Q = m^3/h$

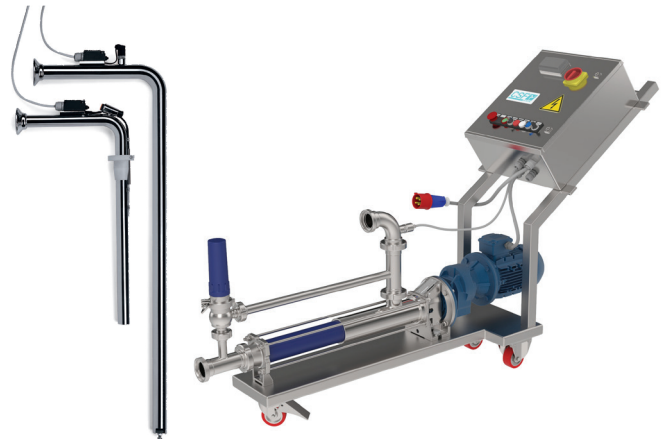


# PROGRESSIVE CAVITY PUMPS FOR THE WINE INDUSTRY

PRESSING - TRANSFER OF PRESSED GRAPES, MASH, MUSTS AND WINE

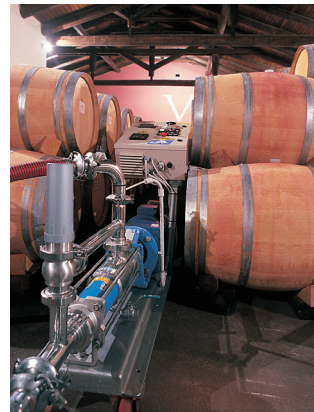


FILLING AND EMPTYING OF BARRELS



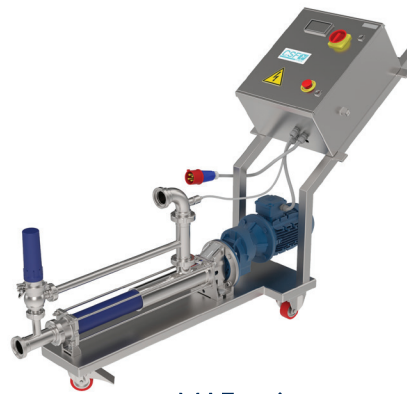
MAE series with electrical control panel for remote On/Off control from the stainless steel suction probes

RECIRCULATION - DECANTING



BOTTLING - FILTRATION - REFRIGERATION

MAE series



MAE series with electrical control panel enclosure



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# Progressive Cavity Pumps with Crushing Blades

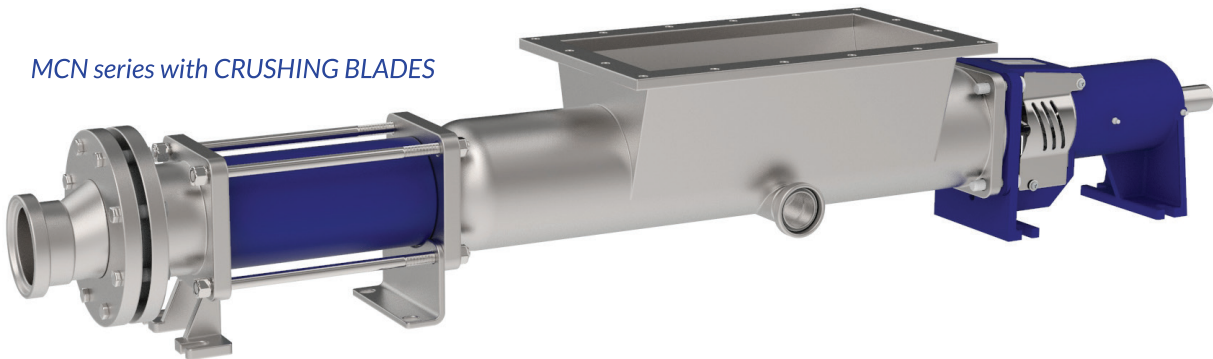


For crushing your products containing soft or fibrous components (fruit and/or vegetables), C.S.F. Inox has designed the right solution for you.

By using crushing blades mounted on the rotor with a disc having holes of different sizes, the consistency of the mashed product can vary. The great advantage of this device is to avoid the need for macerating equipment after the pump.



*MCN series with CRUSHING BLADES*

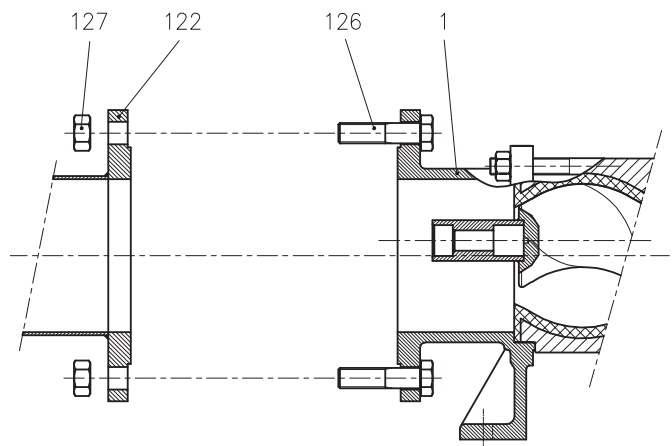
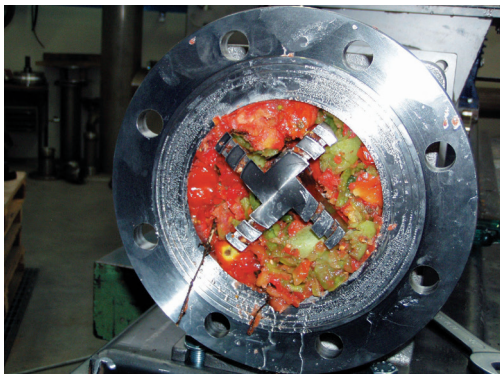
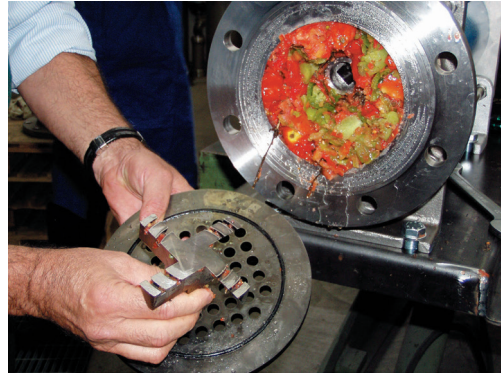
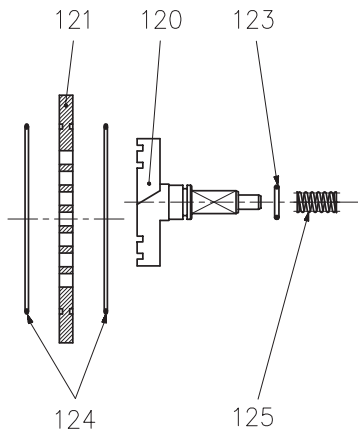


Available sizes:  
MC-MCR 80;  
MC-MCR 100;  
MC-MCR 125;  
MC-MCR 150.



## Crushing blades kit

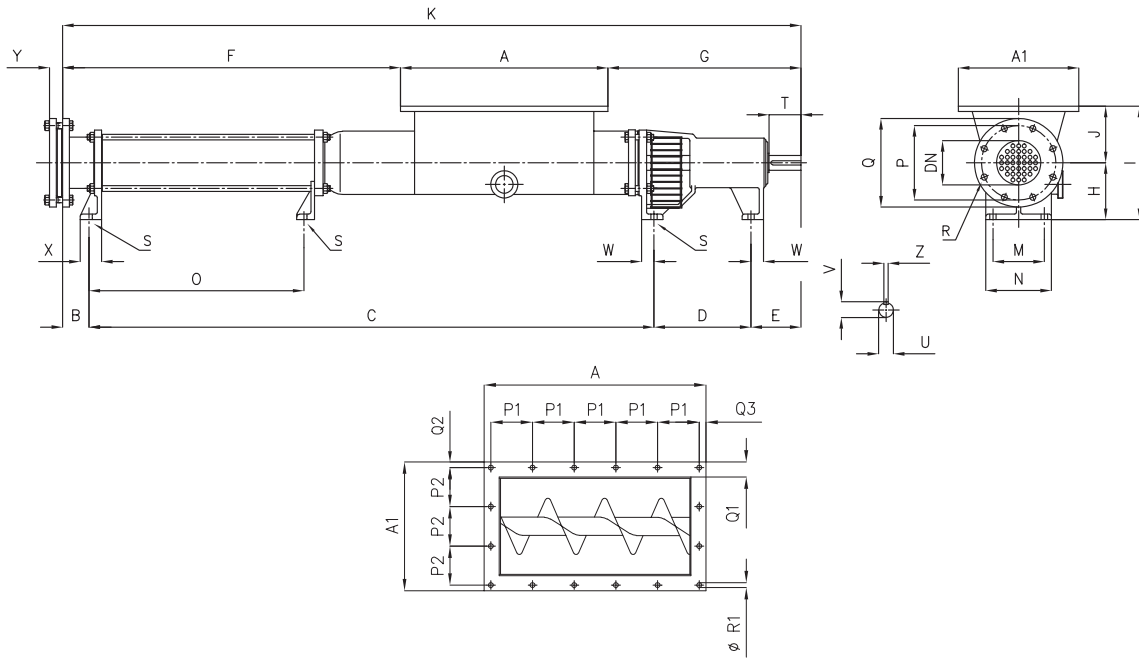
When necessary, you can easily equip the pump with the crushing blade kit, after having fixed a bush into the rotor head.



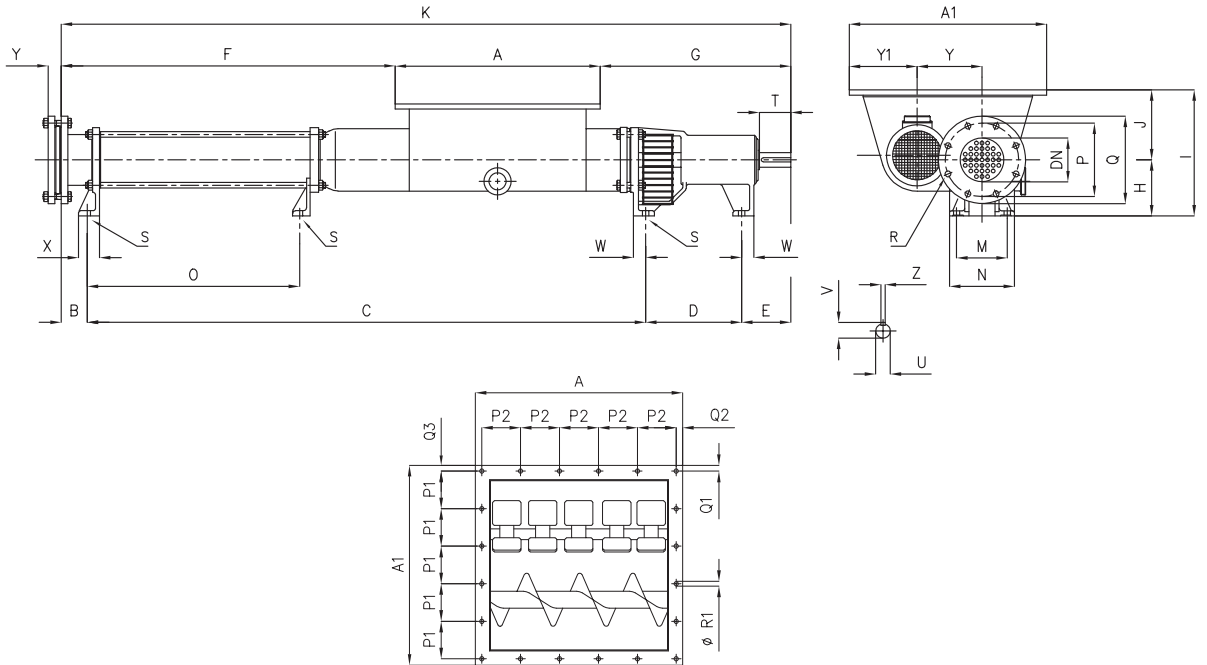
127	Nut	8	AISI 304
126	Bolt	8	AISI 304
125	Spring	1	AISI 316
124	O-ring	2	NBR
123	O-ring	1	NBR
122	Flange for crusher	1	AISI 304
121	Perforated disc	1	M 340
120	Crushing blades	1	M 340
1	Discharge port	1	CF8
<b>Pos.</b>	<b>Denomination</b>	<b>Q.ty</b>	<b>Material</b>

# Overall dimensions

MCN



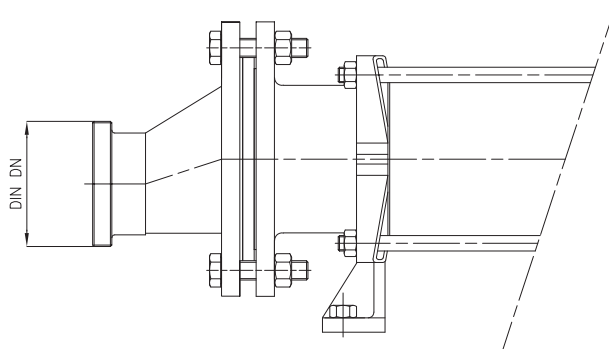
MCRN



## Dimensions not binding

PUMP MODEL	DIN DN	B	C	D	E	F	G	K	H	J	I	M	N	O	DN	P	Q	R	n° holes	S	T	U	V	Z	X	Y	Y1	W
MCN80-2	80	51,5	1215	222	124	750	416	1652	140	140	280	115	155	458	100	180	220	18	8	14	75	35	38	10	39	35	-	34
MCRN80-2	80	51,5	1215	222	124	750	416	1652	140	180	320	115	155	458	100	180	220	18	8	14	75	35	38	10	39	160	228	34
MCN80-4	80	51,5	1737	222	124	1272	416	2174	140	140	280	115	155	980	100	180	220	18	8	14	75	35	38	10	39	35	-	34
MCRN80-4	80	51,5	1737	222	124	1272	416	2174	140	180	320	115	155	980	100	180	220	18	8	14	75	35	38	10	39	160	228	34
MCN100-2	100	75	1595,5	274	141	954,5	545	2085,5	160	160	320	145	185	606	125	210	250	18	8	18	90	42	45	12	60	37	-	35
MCRN100-2	100	75	1595,5	274	141	954,5	545	2085,5	160	200	360	145	185	606	125	210	250	18	8	18	90	42	45	12	60	185	195	35
MCN100-4	100	75	2224,5	274	141	1583,5	545	2714,5	160	160	320	145	185	1235	125	210	250	18	8	18	90	42	45	12	60	37	-	35
MCRN100-4	100	75	2224,5	274	141	1583,5	545	2714,5	160	200	360	145	185	1235	125	210	250	18	8	18	90	42	45	12	60	185	195	35
MCN125-2	100	81	2059,5	318	167	1243,5	627,5	2627	180	180	360	170	215	797,5	150	240	285	22	8	18	110	55	59	16	65	37	-	40
MCRN125-2	100	81	2059,5	318	167	1243,5	627,5	2627	180	200	380	170	215	797,5	150	240	285	22	8	18	110	55	59	16	65	210	222	40
MCN125-4	100	81	2870,5	318	167	2056	627,5	3439,5	180	180	360	170	215	1608,5	150	240	285	22	8	18	110	55	59	16	65	37	-	40
MCRN125-4	100	81	2870,5	318	167	2056	627,5	3439,5	180	200	380	170	215	1608,5	150	240	285	22	8	18	110	55	59	16	65	210	222	40
MCN150-1S	150	114	1894	298	177	1073	650	2480,5	200	200	400	200	250	519	200	295	340	22	8	22	110	55	59	16	90	42	-	50
MCRN150-1S	150	114	1894	298	177	1073	650	2480,5	200	250	450	200	250	519	200	295	340	22	8	22	110	55	59	16	90	262	266	50
MCN150-2	150	114	2394	298	177	1573	650	2980,5	200	200	400	200	250	1019	200	295	340	22	8	22	110	55	59	16	90	42	-	50
MCRN150-2	150	114	2394	298	177	1573	650	2980,5	200	250	450	200	250	1019	200	295	340	22	8	22	110	55	59	16	90	262	266	50

DIN 11851 DISCHARGE PORT EXEC.



PUMP MODEL	A	A1	P1	P2	Q1	Q2	Q3	R1	n° holes
MCN 80-2	486	326	113	146	43	17	17	13	12
MCRN 80-2	486	580	110	113	43	17	15	13	18
MCN 80-4	486	326	113	146	43	17	17	13	12
MCRN 80-4	486	580	110	113	43	17	15	13	18
MCN 100-2	586	340	110	103	43	15	18	13	16
MCRN 100-2	586	564	106	110	43	18	16	13	20
MCN 100-4	586	340	110	103	43	15	18	13	16
MCRN 100-4	586	564	106	110	43	18	16	13	20
MCN 125-2	756	420	102	96	53	18	21	18	22
MCRN 125-2	756	642	120	102	53	21	21	16	24
MCN 125-4	756	420	102	96	53	18	21	18	22
MCRN 125-4	756	642	120	102	53	21	21	16	24
MCN 150-1S	760	510	102	92	53	25	23	18	24
MCRN 150-1S	760	782	92	102	55	23	23	18	30
MCN 150-2	760	510	102	92	53	25	23	18	24
MCRN 150-2	760	782	92	102	55	23	23	18	30



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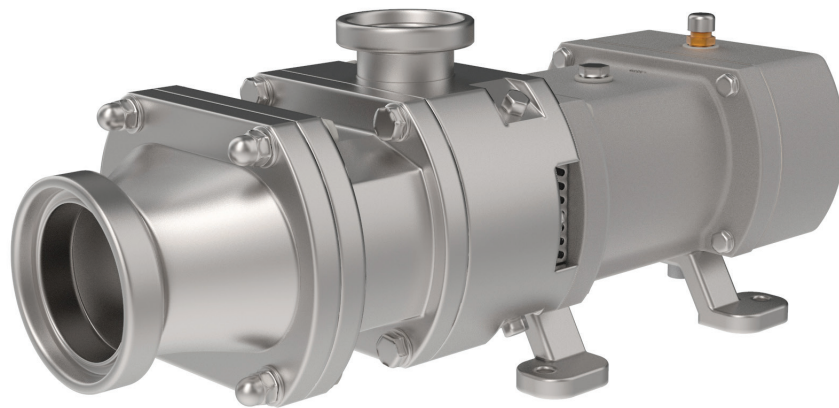
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# Twin Screw Pumps

## TS Series

### Type of pump

- Twin screw pump entirely made of stainless steel.
- Contact surfaces designed according to the latest design requirements regarding hygiene.
- Single or double flushed, balanced hygienic mechanical seals.
- Suitable for CIP cleaning and SIP sterilisation.



### Advantages

- Suitable for non-viscous liquids and highly viscous fluids.
- Ideal pumping operation for delicate products, with suspending solids.
- Superb suction performance and suitable for high differential pressures.
- Reduced level of pulsations without generating foam, also with a high gas content.
- Compact size in relation to the supplied performance and high volumetric efficiency.
- No contamination of the pumped products and no shedding of material from wear parts.

### Pumping applications

- Liquid food and beverages, dairy fluids, confectionery products, pharmaceutical and biotechnological fluids, cosmetics and fine chemicals.
- Fluids with suspended solids that must not be damaged.
- Fluids with suspended gas.

### Typical products

- Food sector: fruit and vegetable juices - purees and concentrates - beverages, also with suspended particles - syrups - spirits - chopped tomatoes - chopped vegetables - fruit salads - thick soups and gastronomic preparations - chocolate and custards - ice creams.
- Dairy sector: milk - cream - soft cheeses - yogurt - curds - ricotta.
- Cosmetic and pharmaceutical sector: general pharmaceutical fluids - cosmetics - creams - gel and shampoos - detergents.

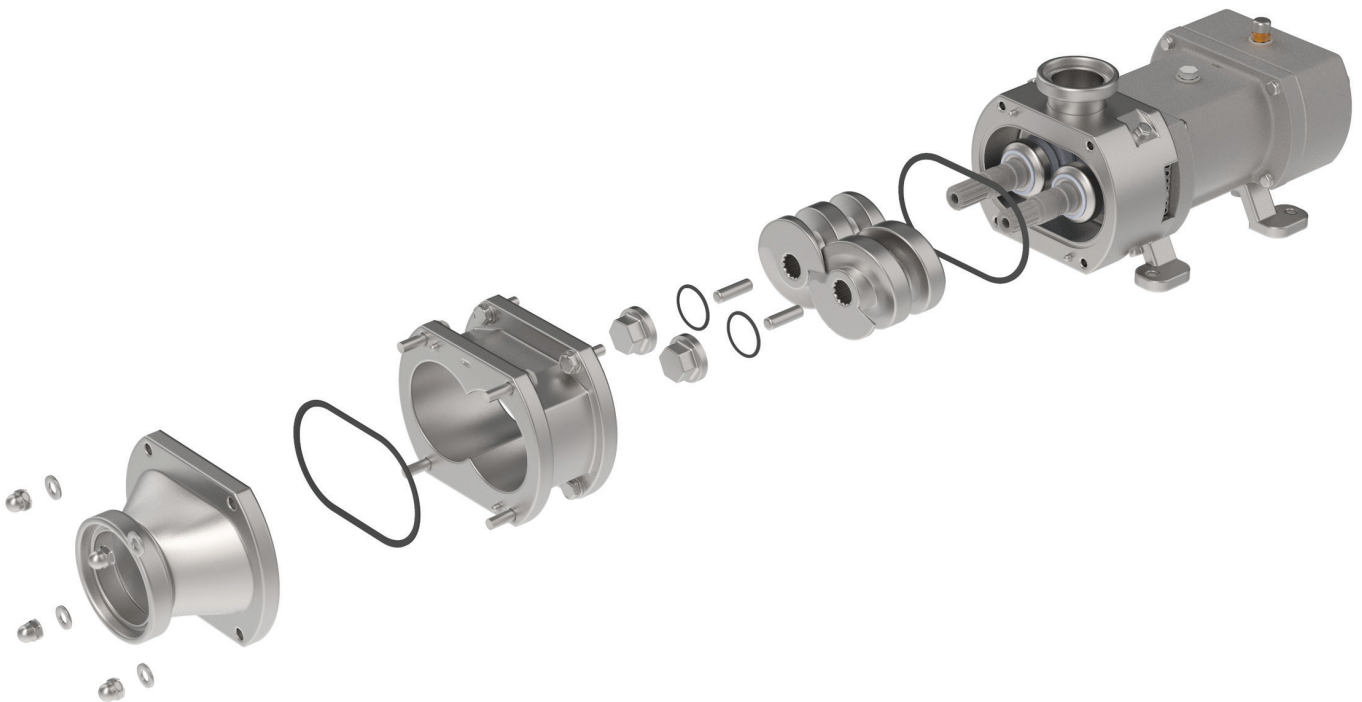


HYGIENE BIOTECHNOLOGY INDUSTRIAL



## FEATURES

- All parts in product contact are made of AISI 316L with a surface finish less than 0.8 micron, designed according to the latest EHEDG hygiene requirements and approved to the US 3A sanitary standards.
- Support entirely made of AISI 304 stainless steel.
- Shaft synchronisation by means of optimised spiral profile toothed wheels.
- High resistance stainless steel shafts supported by oil bath bearings.
- Single or double flushed, balanced hygienic mechanical seals.
- Standard connections series DIN 11851/11864 and Clamp, SMS, RJT, flanges and special accessories on request.
- EPDM, FPM and HNBR gaskets compliant with EU Reg. 1935/2004 and FDA; other materials on request.
- Motor shaft with key for coupling with flexible coupling to the motor drive.
- Wide range of optional accessories available to meet all market requirements, such as surface hardening treatments, stainless steel base or carriage installation, version with hollow space, by-pass, flow or pressure sensors.



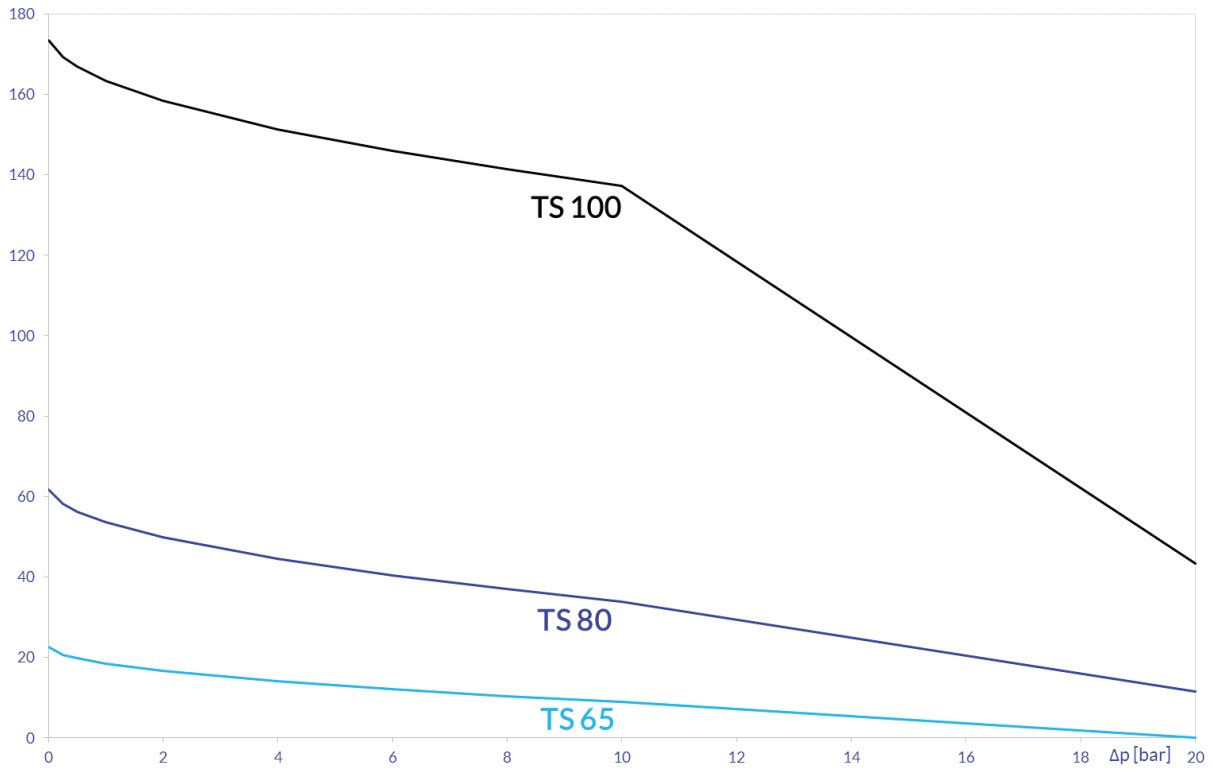
Available with different screw profiles to provide the best performance according to the type of installation.

- For high capacity
- For high pressure
- For delicate fluids with suspended solids



## PERFORMANCE

Flow rate [m<sup>3</sup>/h]



Operating features with clean water at 20°C

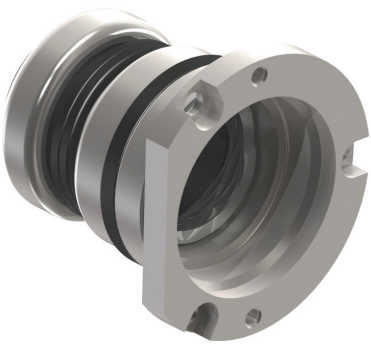
### Performance

- Capacity 0 - 20 m<sup>3</sup>/h TS65; 0 - 50 m<sup>3</sup>/h TS80; 0 - 150 m<sup>3</sup>/h TS100
- Differential pressure up to 20 bar
- Process temperature up to 140°C High temperatures are available on request
- Product viscosity up to 1.000.000 cP

## MECHANICAL SEALS

The TS range twin screw pumps can be supplied with different shaft seals according to the application:

### A - Single mechanical seal



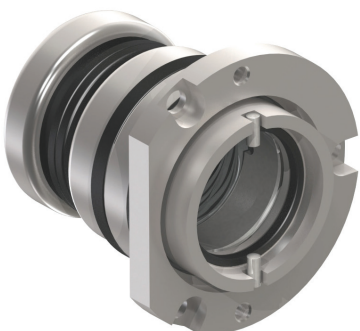
The single mechanical seal is a balanced hygienic cartridge type and is standard for low rotation speed applications and/or with non-viscous products.

#### MATERIALS:

- Silicon carbide / Silicon carbide
- Moulded gaskets in: EPDM, HNBR, FPM and, on request, FFKM

This execution can also be set up with an external cooling quench, using an optional radial seal ring.

### B - Double flushed mechanical seal

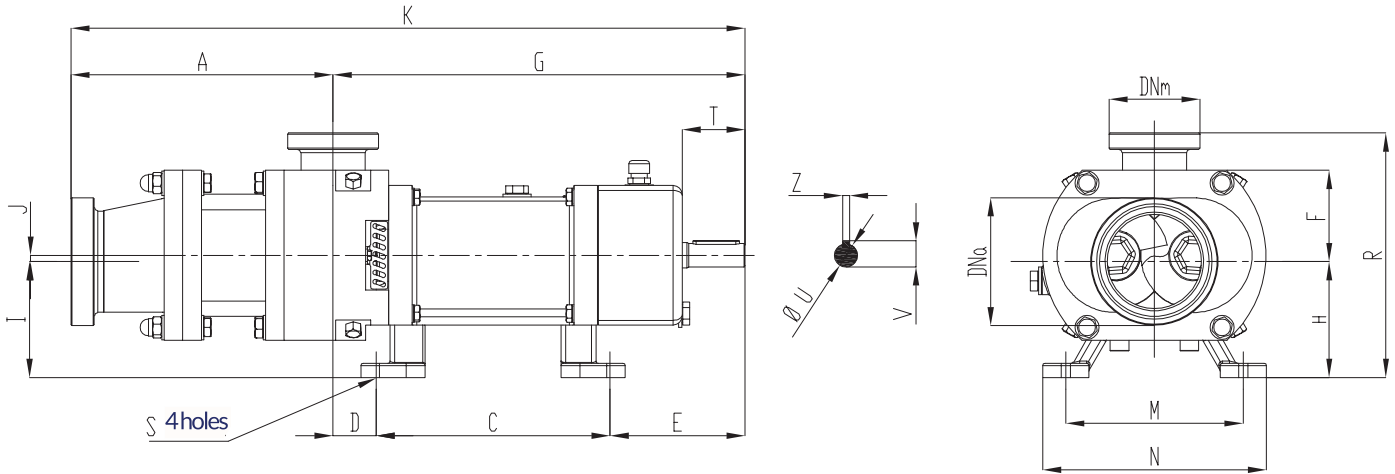


The double mechanical seal is a balanced hygienic cartridge type. The ideal solution for all low speed applications with viscous process fluids and high rotational speed CIP processes.

#### MATERIALS:

- Silicon carbide / Silicon carbide
- Moulded gaskets in: EPDM, HNBR, FPM and, on request, FFKM

# OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors

Pumps	DNa	DNm	A	C	D	E	F	G	H	I	J	K	M	N	R	S	T	U	V	Z
TS 65	80	65	225	201	37	116	115.5	354	109	103.5	5.5	579	152	192	219	11	54	20	22.5	6
TS 80	100	80	280	283	18	134	147	435	178	164	14	715	300	340	311	14	72	32	35	10
TS 100	125	100	395	308	43	221	199.5	572	192	164	27.5	967	300	340	364	14	129	45	48.5	14



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# Peripheral Impeller Pumps



## CP Series

### Standard design

Closed coupled single stage peripheral impeller pumps suitable for clean, non abrasive liquids without solids and viscosities up to max. 250 cP.

The special design of casing and impeller is suitable for duties with medium-high heads and low flow rates.

The pulsation-free flow is suitable for liquid dosing, laboratory micro installations, spraying and in-line measurement systems.

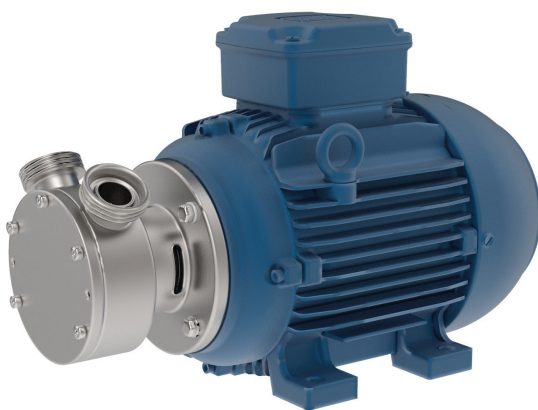
Wetted parts from AISI 316L (1.4404) stainless steel rolled bar, electro-chemically polished for a perfect surface finish.

A range of 2 models with flow rates up to 6 m<sup>3</sup>/h and heads of more than 100 m.

Maximum outlet pressure: 16 bar  
Temperature range: -10°C to 100°C  
Maximum rotation speed: 3500 rpm



CP pump with shroud and stainless steel adjustable feet



Pump with B34 motor



Peripheral impeller made from AISI 316L (1.4404) stainless steel rolled bar.

On request special anti-friction stainless alloy is available.

### Seals:

Single mechanical seals with seats to EN 12756, ISO 3069 standards.

### Elastomers:

EPDM  
Fluorocarbon  
Perfluoroelastomer  
P.T.F.E. (FEP)  
FFPM

### Connections:

DIN - SMS - IDF - BS / RJT - DS - CLAMP.  
Other connections are available on request.

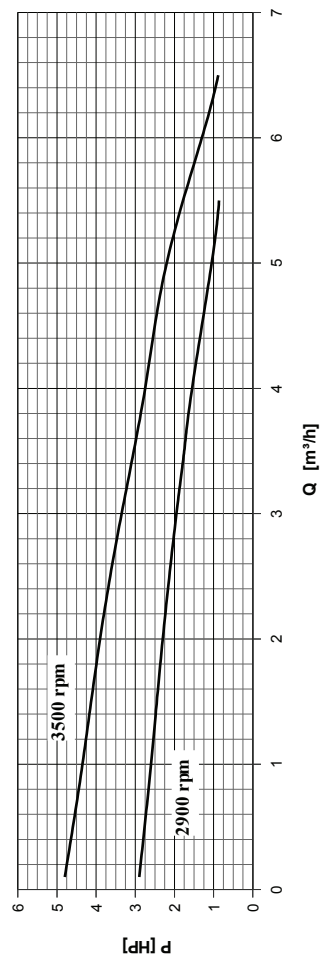
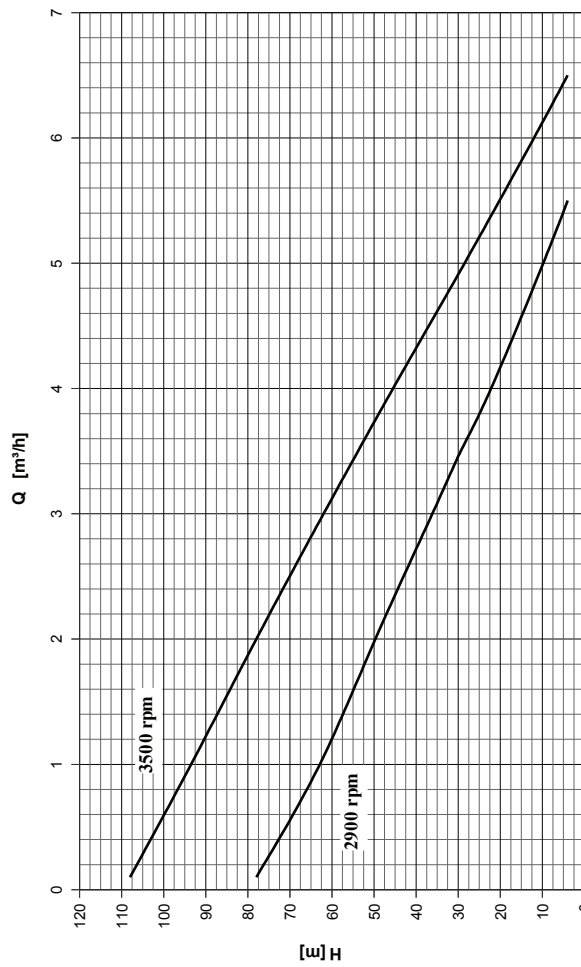
### Applications:

Food processing, dairy, beverage and syrups, oils, liqueurs and CIP duties.  
Chemical industry, acid and basic solutions.  
Cosmetic and pharmaceutical industry.

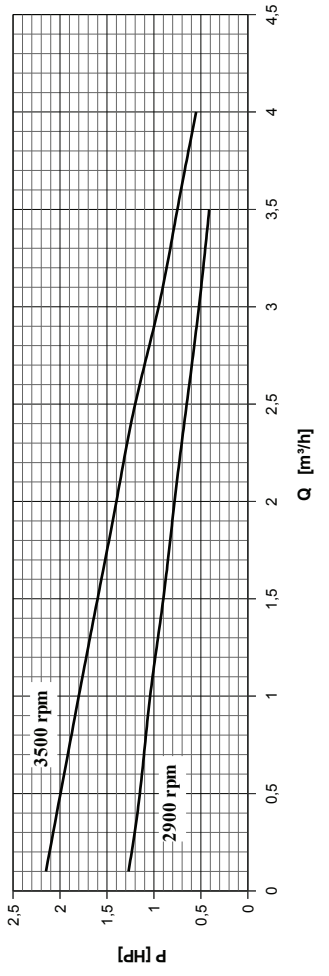
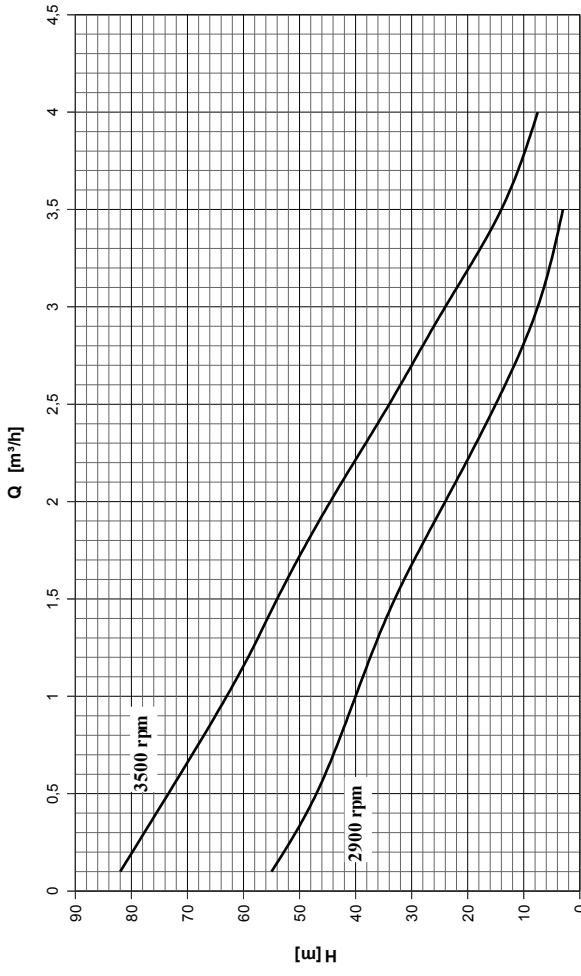


# PERFORMANCE CURVES

<b>POMPA TIPO</b> Pump type		<b>CP 25</b>		<b>n</b> 2900/3500		giri/min r.p.m.	
GIRANTE ----- Impeller							
<b>TIPO</b> Type	<b>N° di pale</b> n° of blades	<b>Pass. sferico</b> max. sphere	<b>Ø max</b> max. diameter	<b>Ø min</b> min. diameter	<b>Bocche tipo</b> Ports type	<b>Bocca aspir.</b> Suction port	<b>DN 25</b>
<b>APERTA</b>	<b>32</b>	<b>80 mm</b>	<b>80 mm</b>	<b>---</b>	<b>DIN 11851</b>	<b>Bocca mand.</b> Discharge port	<b>DN 25</b>
<b>CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20 °C - PESO SPECIFICO 1 Kg/dm³</b> Curves show performance with clear water at 20 °F - Specific gravity 1 Kg/dm³							



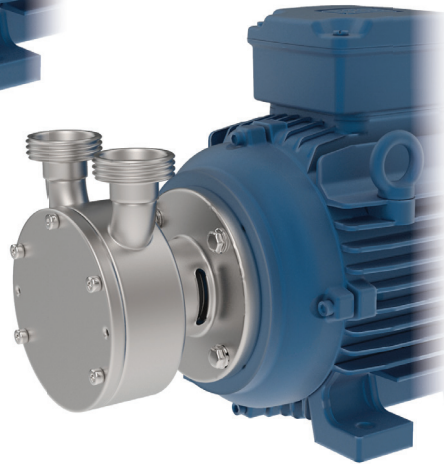
<b>POMPA TIPO</b> Pump type		<b>CP 15</b>		<b>n</b> 2900/3500		giri/min r.p.m.	
GIRANTE ----- Impeller							
<b>TIPO</b> Type	<b>N° di pale</b> n° of blades	<b>Pass. sferico</b> max. sphere	<b>Ø max</b> max. diameter	<b>Ø min</b> min. diameter	<b>Bocche tipo</b> Ports type	<b>Bocca aspir.</b> Suction port	<b>DN 15</b>
<b>APERTA</b>	<b>36</b>	<b>74 mm</b>	<b>74 mm</b>	<b>---</b>	<b>DIN 11851</b>	<b>Bocca mand.</b> Discharge port	<b>DN 15</b>
<b>CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20 °C - PESO SPECIFICO 1 Kg/dm³</b> Curves show performance with clear water at 70 °F - Specific gravity 1 Kg/dm³							



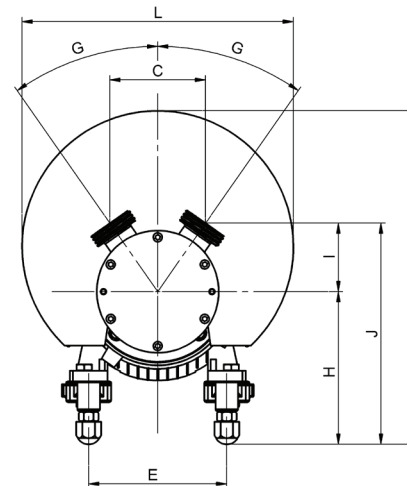
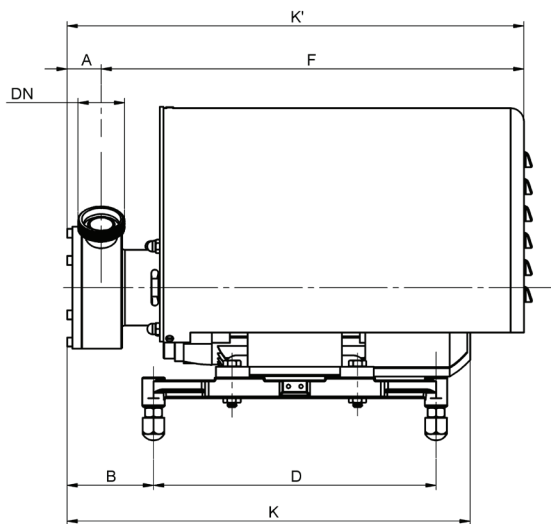
## EXECUTION



**"W"  
WITH HORIZONTAL PORTS**

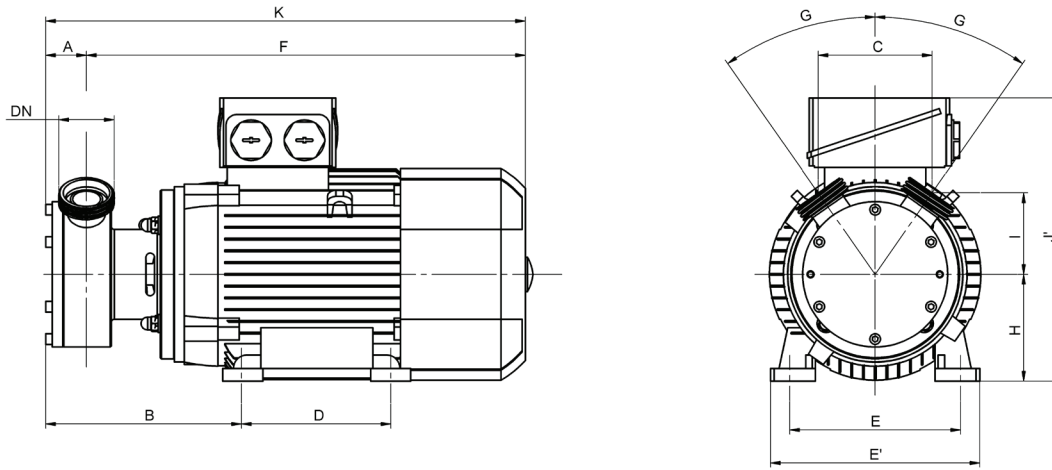


## OVERALL DIMENSIONS



Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors

Pumps	Motors Kw	DNa	DNm	A	B	C	D	E	F	G	H	K	K'	I	J	J'	L			
CP 15	1,1	15	15	32	107	90,5	270	140	400	35°	158	400	433	63,5	221,5	361	302,5			
	1,5																			
	2,2																			
CP 25	2,2	25	25	39	104,5	107	270	140	402		158	400	440	76	234	361				
	3				96													315	154	472
	4				170															

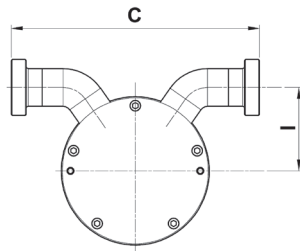


Dimensions not binding - DN = DIN 11851 male threaded connections with standard IEC/EN motors

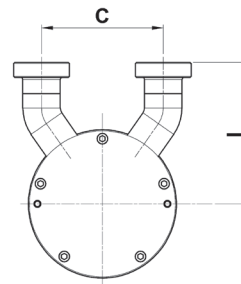
Pumps	Motors Kw	DNa	DNm	A	B	C	D	E	E'	F	G	H	K	ØR	I	J
CP 15	1,1 1,5 2,2	15	15	32	179	90,5	125	140	170	362	35°	90	395	10	63,5	218
CP 25	2,2	25	25	39	176	107	125	140	170	365			400	10	76	246
CP 25	3 4				183,5		140	160	193	411		100	450	12		

### PORTS VERSIONS

Horizontal ports		
	I	C
CP 15	60,5	157,5
CP 25	72	202,2



HORIZONTAL



VERTICAL

Vertical ports		
	I	C
CP 15	85,5	77,5
CP 25	107	90,5



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# Positive Sinusoidal Displacement Pumps



## SN Series

Positive displacement pumps with a sinusoidal rotor.

- Gentle handling of the product thanks to the shape of the rotor and the working without any product slip and death zone.
- Very high efficiency.
- Excellent suction capability.
- Constant performance even with products having range of viscosities.

Flow rates from 0 to 100 m<sup>3</sup>/h

Max. pressure 15 bar

Suction capability up to 0,8 bar



## ADVANTAGES

- Excellent suction capability - continuously open inlet.
- Extremely gentle product transfer.
- No foaming of the pumped product.
- Compact design.
- Dry running is possible for a short period.
- Nearly all main wearing parts can be exchanged inline, without disconnecting the inlet and outlet pipes.

## PRODUCTS

Low and high viscosity liquids; Cremes, Lotions, Products for the fine chemical and pharmaceutical industry, nearly all thin and thick liquid food products with or without particles. Products with a low abrasive content.

## TYPICAL PUMPABLE PRODUCTS

- Food industry: Juices, Fruit concentrates, Beverages, Syrups, Alcoholic beverages, Waters etc., Diced tomatoes, Cooked vegetables in pieces, Fruit salads, Soups and other food products, Delicatessen salads, Chocolate and Creams.
- Dairy industry: Processed cheese, Yoghurt, Whey, Ricotta Cheese, Cheese Curd of all kinds, Butter.
- Fine Chemicals and Cosmetics: Cosmetic products, Cremes, Gel, Shampoo, Toothpaste, Body lotions, Cleaning liquids, Paints and coatings.



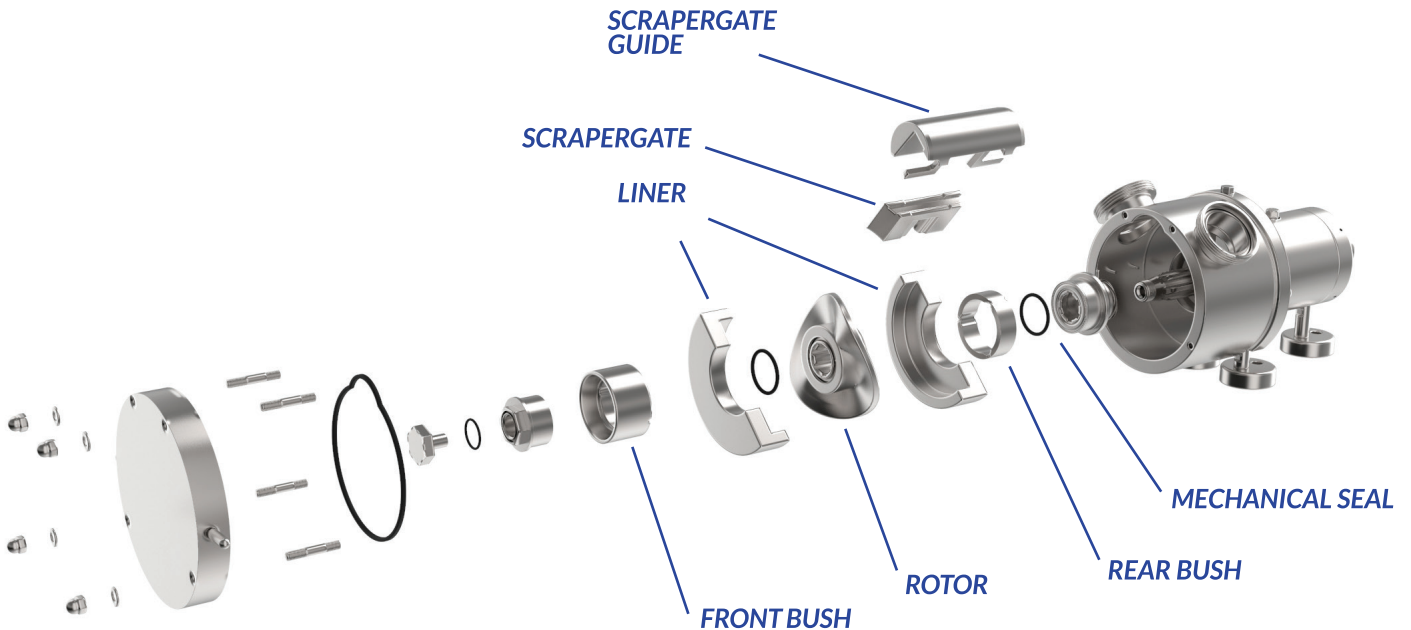
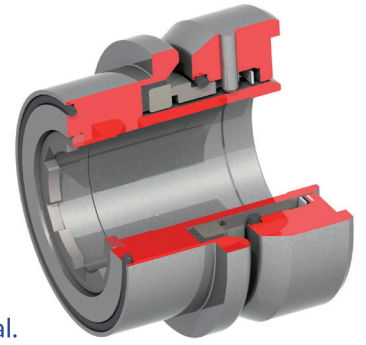
## CHARACTERISTIC

- Single mechanical seal with flush
- Pump in 316 stainless steel with internal front bush, liners and scrapergate made from polymers.
- O-rings in EPDM or FKM.

A wide choice of materials and motorization options to suit customers' application and product requirements.

All the materials are FDA certified.

Single mechanical seal protected and bidirectional.



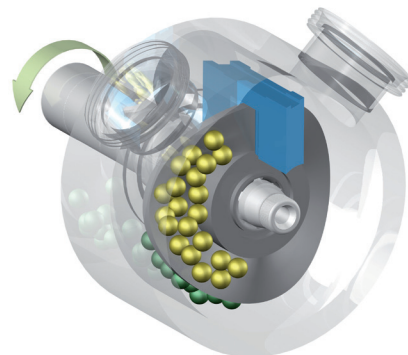
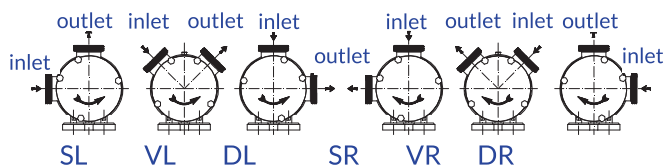
### Max particle size:

SN 65 : 18 mm  
 SN 80 : 25 mm  
 SN100 : 35 mm  
 SN150 : 36/38 mm

### Connections:

DIN - SMS - IDF - BS / RJT - DS - CLAMP and EN 1092-1 PN 16 flanges suitable for all international standards.

### Position of connections and rotation



## PERFORMANCES

### SN 65-80-100 Series

Flow rates from 0 to 36 m<sup>3</sup>/h.  
 Max. pressure 15 bar.  
 Suction capability up to 8 meters with wetted pump.  
 Temperatures between -10° and +90°C.  
 Max. product viscosity up to 1.000.000 CP.

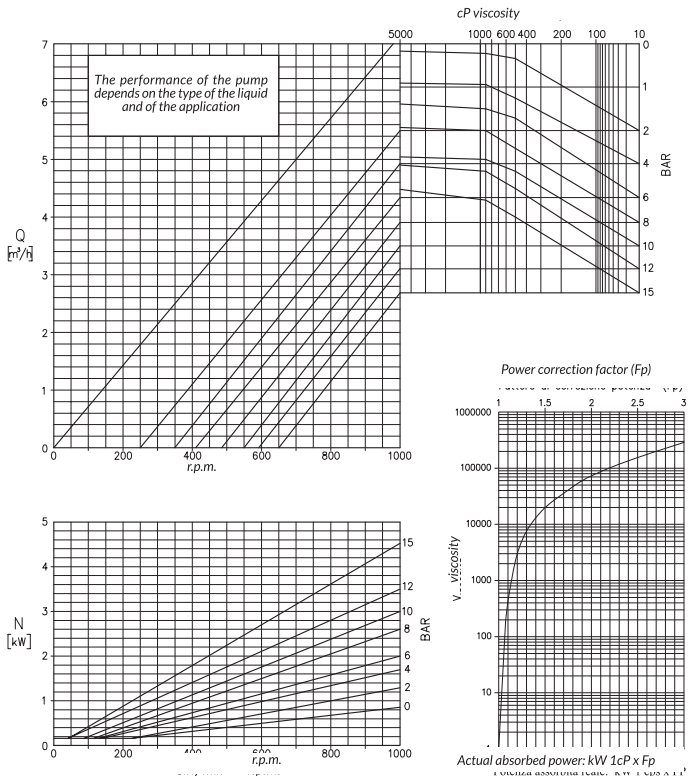
### SN 150 Series

Flow rates from 0 to 100 m<sup>3</sup>/h.  
 Max pressure 5 Bar.  
 Suction capability up to 7 meters with wetted pump.  
 Temperatures between -10° and +90°C.  
 Max. product viscosity up to 500.000 CP.

**SN 65 (2")1/2 PERFORMANCE CHART**  
**THEORETICAL VOLUMETRICAL PERFORMANCE Q= 0,11 L/REV**

POMPA TIPO Pump type		SN 65				Raccordi femmina DIN 11851 Connection male DIN 11851	
Rotore fino a 70°C up to 158°F	Rotore ridotto 70°C - 100°C 158°F - 212°F	Potenza minima installata Minimum installed power	Potenza massima ammisibile Maximum allowable power	Dimensione massima prodotto solido Maximum dimension of the solid product	Portata teorica a giro Theoretical revolutional delivery	Bocca aspir. Suction port	Bocca mand. Discharge port
97,9 mm	--- mm	0,5 kW	--- kW	18 mm	0,11 l	DN 65	DN 65
Eccentricità "h" Eccentricity	Eccentricità "h" Eccentricity						
--- mm	--- mm						

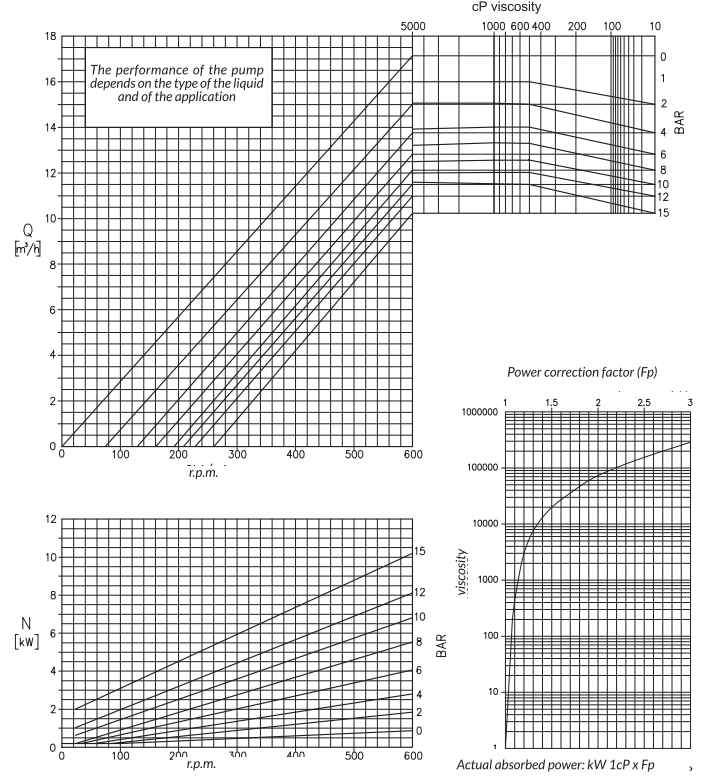
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm<sup>3</sup>) - VISCOSITÀ 1 (cps)  
 Curves show performance with clear water at 68°F - Specific gravity 1 (kg/dm<sup>3</sup>) - Viscosity 1 (cps)



**SN 80 (3") PERFORMANCE CHART**  
**THEORETICAL VOLUMETRICAL PERFORMANCE Q= 0,45 L/REV**

POMPA TIPO Pump type		SN 80				Raccordi femmina DIN 11851 Connection male DIN 11851	
Rotore fino a 70°C up to 158°F	Rotore ridotto 70°C - 100°C 158°F - 212°F	Potenza minima installata Minimum installed power	Potenza massima ammisibile Maximum allowable power	Dimensione massima prodotto solido Maximum dimension of the solid product	Portata teorica a giro Theoretical revolutional delivery	Bocca aspir. Suction port	Bocca mand. Discharge port
165 mm	--- mm	1 kW	--- kW	25 mm	0,45 l	DN 80	DN 80
Eccentricità "h" Eccentricity	Eccentricità "h" Eccentricity						
--- mm	--- mm						

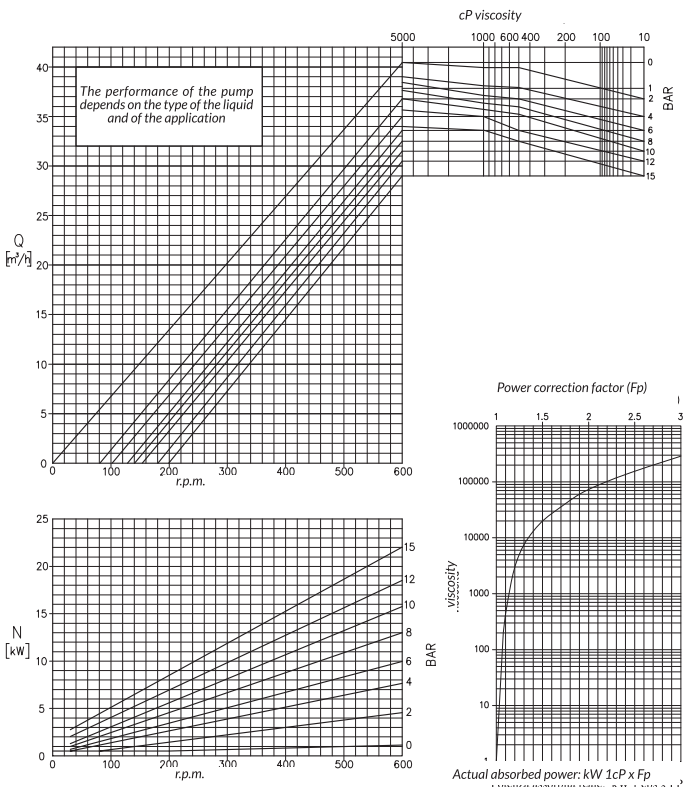
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm<sup>3</sup>) - VISCOSITÀ 1 (cps)  
 Curves show performance with clear water at 68°F - Specific gravity 1 (kg/dm<sup>3</sup>) - Viscosity 1 (cps)



**SN 100 (4") PERFORMANCE CHART**  
**THEORETICAL VOLUMETRICAL PERFORMANCE Q= 1,05 L/REV**

POMPA TIPO Pump type		SN 100				Raccordi femmina DIN 11851 Connection male DIN 11851	
Rotore fino a 70°C up to 158°F	Rotore ridotto 70°C - 100°C 158°F - 212°F	Potenza minima installata Minimum installed power	Potenza massima ammisibile Maximum allowable power	Dimensione massima prodotto solido Maximum dimension of the solid product	Portata teorica a giro Theoretical revolutional delivery	Bocca aspir. Suction port	Bocca mand. Discharge port
218 mm	--- mm	1 kW	--- kW	35 mm	1,05 l	DN 100	DN 100
Eccentricità "h" Eccentricity	Eccentricità "h" Eccentricity						
--- mm	--- mm						

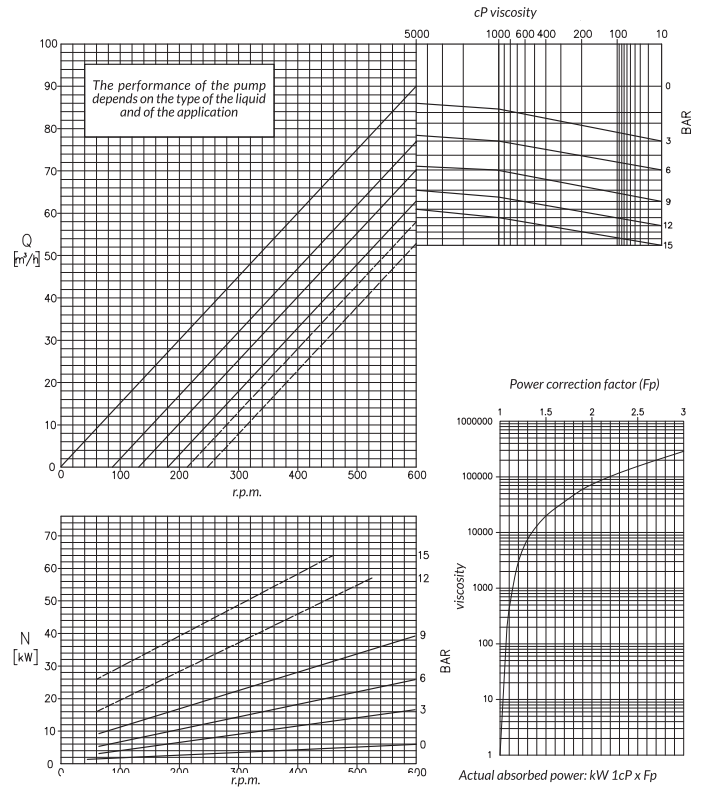
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm<sup>3</sup>) - VISCOSITÀ 1 (cps)  
 Curves show performance with clear water at 68°F - Specific gravity 1 (kg/dm<sup>3</sup>) - Viscosity 1 (cps)



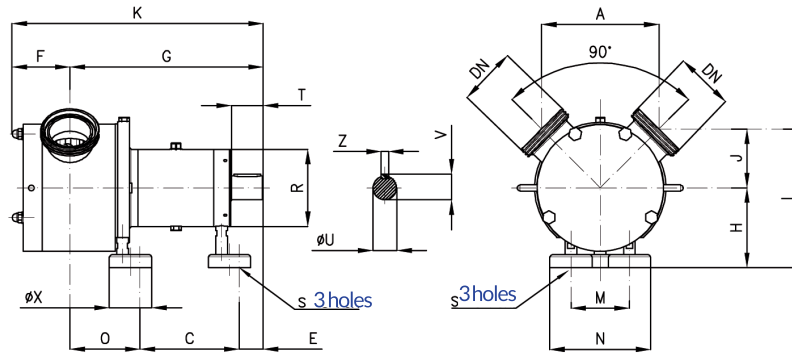
**SN 150 PERFORMANCE CHART FL. DN 150**  
**THEORETICAL VOLUMETRICAL PERFORMANCE Q= 2,5 L/REV**

POMPA TIPO Pump type		SN 150				Provvisorio		Raccordi femmina DIN 11851 Connection male DIN 11851	
Rotore fino a 70°C up to 158°F	Rotore ridotto 70°C - 100°C 158°F - 212°F	Potenza minima installata Minimum installed power	Potenza massima ammisibile Maximum allowable power	Dimensione massima prodotto solido Maximum dimension of the solid product	Portata teorica a giro Theoretical revolutional delivery	Bocca aspir. Suction port	Bocca mand. Discharge port	DN 150	DN 150
270 mm	--- mm	11 kW	--- kW	40 mm	2,5 l				
Eccentricità "h" Eccentricity	Eccentricità "h" Eccentricity								
--- mm	--- mm								

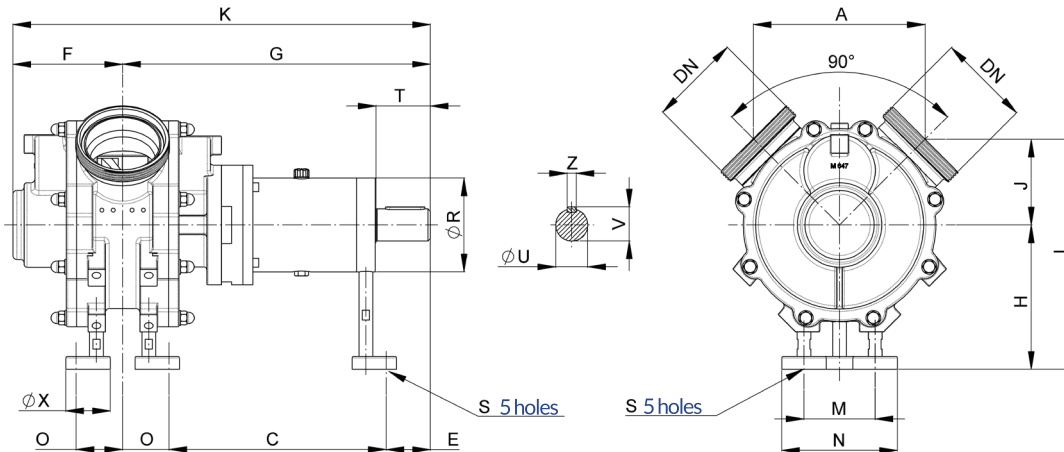
CARATTERISTICHE DI FUNZIONAMENTO CON ACQUA PULITA A 20°C - PESO SPECIFICO 1 (kg/dm<sup>3</sup>) - VISCOSITÀ 1 (cps)  
 Curves show performance with clear water at 68°F - Specific gravity 1 (kg/dm<sup>3</sup>) - Viscosity 1 (cps)



# OVERALL DIMENSIONS - SN Series



SN 150



	Pump model			
	SN 65	SN 80	SN 100	SN 150
A	150	221	263	348
C	117	186	247	439
E	37	45.5	69	90
F	81	109	132.5	222
G	251	363.5	463	623
H	95	150	195	292
K	332	472.5	596.5	845
J	68	110.5	139	173
I	163	260.5	334	465
M	56	110	160	144
N	106	190	240	234
O	97	132	147	94
R	100	145	190	190
S	12	16	16	21
T	50	60	80	110
U	28	45	50	65
V	31	48.5	53.5	69
X	50	80	80	90
Z	8	14	14	18
DN DIN 11851	65	80	100	150
DN SMS	2"1/2	3"	4"	-
DN RJT	2"1/2	3"	4"	-
DN Clamp	2"1/2	3"	4"	-
DN Flange PN16	65	80	100	150
Weight	21,5	75,5	138	245



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## Drum Unloading Station

C.S.F. Inox S.p.a. offers a wide range of drum unloading stations for any production need. Versatile and flexible, this range features piston-type drum unloading machines available in various sizes and with varying equipment, made with top-quality electro-pneumatic components. The whole series is made with a fully AISI 304 stainless steel structure.

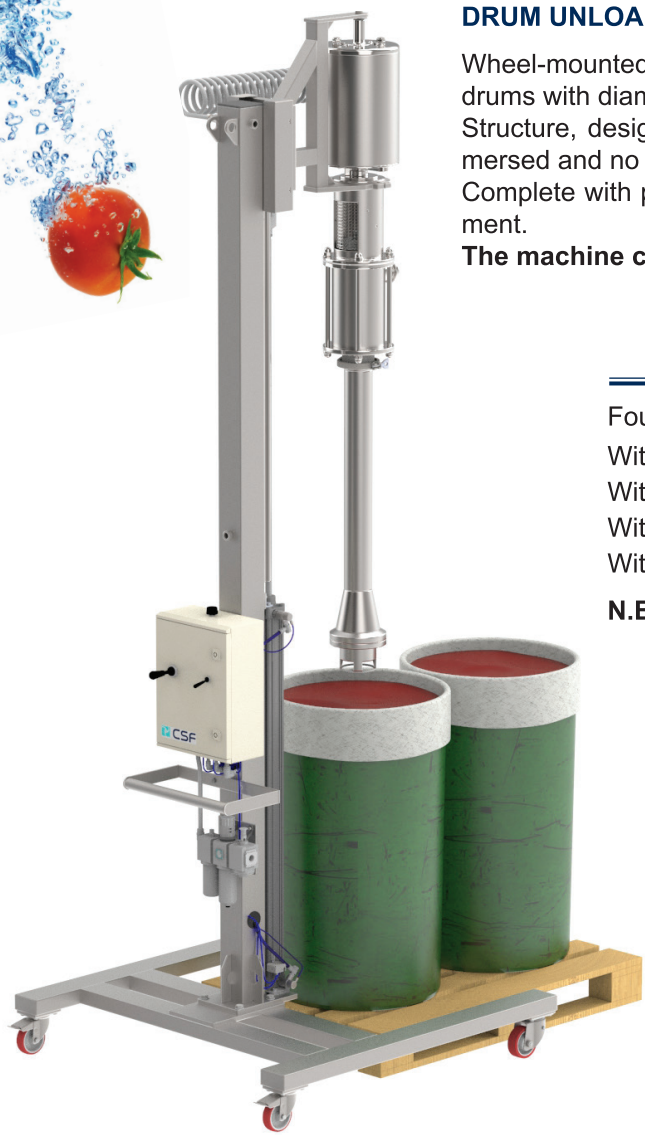
Thanks to the use of pneumatic piston pumps, CSF drum unloading machines can handle a multitude of products, from low viscosities to values over 100.000 cP.



Numerous pumpable food products: creams, sauces, tomato concentrate, fruit purées, chocolate, pastry creams and batters, jams, ragout, yoghurt, melted cheese and beverages, such as syrups, glucose, concentrates, juices.

Can also be used in the cosmetic sector to pump products such as solutions, beauty creams and shaving creams.





### DRUM UNLOADING STATION FOR IMMERSSED PUMP

Wheel-mounted pneumatic station suitable for emptying conical and cylindrical drums with diameter up to Ø 700 mm and height up to 1.000 mm. Structure, designed for use with the long version piston pump, with the inlet immersed and no scraper plate. It is suitable for handling low viscosity liquids. Complete with pneumatic control panel for quick and easy control of pump movement.

**The machine can be run by a single operator**

#### SIZES

Four available sizes:

With PA65AM pump for flow rates up to 24 l/min.

With PA80AM pump for flow rates up to 33 l/min.

With PA100AM pump for flow rates up to 52 l/min.

With PA140AM pump for flow rates up to 100 l/min.

**N.B.: Flow rates refer to products with a viscosity of 1.000 cP**

#### OPTIONAL

- HCR (High corrosion resistance) pneumatic cylinder.

### DRUM UNLOADING STATION WITH TURNTABLE

Pneumatic station with turntable, suitable for emptying four drums a with diameter up to Ø 700 mm and height up to 1.000 mm.

Structure designed for use with the long version piston pump, with immersed inlet.

The turntable installed at the base of the structure, can rotate 4 drums so that they can be positioned under the pump in quick succession.

Complete with pneumatic control panel for quick and easy control of pump movement.

**The machine can be run by a single operator**

#### SIZES

Two available sizes:

With PA100AM pump for flow rates up to 52 l/min.

With PA140AM pump for flow rates up to 95 l/min.

**N.B.: Flow rates refer to products with a viscosity of 1.000 cP**

#### OPTIONAL

- HCR (High corrosion resistance) pneumatic cylinder.



## DRUM UNLOADING STATION WITH SCRAPER PLATE

Drum unloading station suitable for emptying conical and cylindrical drums with diameter up to Ø 700 mm and height up to 1.000 mm.

The machine cycles are managed by an electro-pneumatic panel with PLC.

The presence of electro-magnetic sensors guarantees the stop of the pump once the drum has been emptied and its return on top position.

The pump is equipped with a scraper plate to guarantee complete emptying of the drum.

The structure includes an adjustable drum-pump centring system.

Suitable for high viscosity products such as double-triple tomato concentrate and fruit purées.

**The machine can be run by a single operator.**

**N.B.: Drums don't need any fixing system.**

### SIZES

Four available sizes:

With PA65AM pump for flow rates up to 24 l/min.

With PA80AM pump for flow rates up to 33 l/min.

With PA100AM pump for flow rates up to 52 l/min.

With PA140AM pump for flow rates up to 100 l/min.

**N.B.: Flow rates refer to products with a viscosity of 1.000 cP**

### OPTIONAL

- HCR (High corrosion resistance) pneumatic cylinder.
- FDA Blu trace-free seal.
- Possibility to manage the emptying cycle in remote mode.



## SMALL BUCKET UNLOADING STATION

Wheel-mounted pneumatic station suitable for handling small buckets.

The machine's work cycles are managed by an electro-pneumatic panel with PLC.

The pump is equipped with a scraper plate to guarantee complete emptying of the bucket. The presence of electro-magnetic sensors guarantees the stop of the pump's stroke once the bucket has been emptied and its return on top position.

Ideal for high viscosity products such as chocolate, confectioner's creams, dairy products and jam.

Correct positioning of the bucket is guaranteed by a locking system incorporated in the structure.

### SIZES

Three available sizes:

With PA50AM pump for flow rates up to 10.6 l/min.

With PA65AM pump for flow rates up to 24 l/min.

With PA80AM pump for flow rates up to 33 l/min.

**N.B.: Flow rates refer to products with a viscosity of 1.000 cP**

### OPTIONAL

- HCR (High corrosion resistance) pneumatic cylinder.
- FDA Blu seal.
- Possibility to manage the emptying cycle in remote mode.





## DRUM UNLOADING STATION WITH DUAL-ARTICULATION ARM

Pneumatic station with dual-articulation arm suitable for conical and cylindrical drums up to Ø 700 mm and height up to 1.000 mm. The machine's work cycles are managed by an electro-pneumatic panel with PLC.

The pump is equipped with a scraper plate to guarantee optimal emptying of the drum. The presence of electro-pneumatic sensors guarantees the stop of the pump's stroke once the drum has been emptied and its return on top position.

**It can empty groups of 4 - 8 drums positioned on pallets.**

**The machine can be run by a single operator**

Ideal for high viscosity products such as double-triple tomato concentrate and fruit purées.

**N.B.: Drums don't need any fixing system.**



### 8 DRUM EMPTYING SET-UP



### SIZES

Three available sizes:

With PA80AM pump for flow rates up to 33 l/min.

With PA100AM pump for flow rates up to 52 l/min.

With PA140AM pump for flow rates up to 100 l/min.

**N.B.: Flow rates refer to products with a viscosity of 1.000 cP**

### OPTIONAL

- HCR (High corrosion resistance) pneumatic cylinder.
- FDA Blu scraper plate gasket.
- Support base.



## MIXING BOWL UNLOADING STATION

Vertical trolley designed for emptying mixing bowls with diameter up to Ø 700 mm.

The machine's work cycles are managed by an electro-pneumatic panel with PLC.

The structure includes an adjustable bowl-pump centring system.

Piston pump fitted with a scraper plate shaped to the same geometry as the bottom of the bowl to ensure complete emptying.

### The machine can be run by a single operator

The presence of electro-magnetic sensors guarantees the stop of the pump's stroke once the bowl has been emptied and its return on top position.

### SIZES

Three available sizes:

With PA65AM pump for flow rates up to 24 l/min.

With PA80AM pump for flow rates up to 33 l/min.

With PA100AM pump for flow rates up to 52 l/min.

**N.B.: Flow rates refer to products with a viscosity of 1.000 cP**

### OPTIONAL

- HCR (High corrosion resistance) pneumatic cylinder.
  - FDA Blu scraper plate gasket.
- Possibility to manage the emptying cycle in remote mode.



## LARGE MIXING BOWL UNLOADING STATION

Structure designed for emptying mixing bowls with diameter exceeding Ø 700 mm.

The machine's work cycles are managed by an electro-pneumatic panel with PLC.

Movement of the pump is controlled by two pneumatic cylinders to guarantee equal distribution of the thrust over the extended surface of the plate.

The structure includes an adjustable bowl-pump centring system.

Piston pump fitted with a scraper plate shaped to the same geometry as the bottom of the bowl to ensure complete emptying.

### The machine can be run by a single operator

The presence of electro-magnetic sensors guarantees the stop of the pump's stroke once the bowl has been emptied and its return on top position.

### SIZES

Two available sizes:

With PA100AM pump for flow rates up to 52 l/min.

With PA140AM pump for flow rates up to 95 l/min.

**N.B.: Flow rates refer to products with a viscosity of 1.000 cP**

### OPTIONAL

- HCR (High corrosion resistance) pneumatic cylinders.
- FDA Blu scraper plate gasket.
- Possibility to manage the emptying cycle in remote mode.







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**CSFinoxGroup**  
FLOW TECHNOLOGY COMPONENTS



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