

Pump introduction

MS, MC is a high-efficiency and energy-saving vertical multistage centrifugal pump. It drives the fluid to rotate by the centrifugal force generated by the impeller of the rotary pump to complete the liquid transportation. It is mainly composed of the pump body and motor connected by the main shaft, impeller, guide vane, pump shell and mechanical seal. As booster pumps, MS and MC series can be used alone or as supporting booster equipment for building and industrial booster systems. The pipeline structure can ensure that the pump is directly installed in the horizontal pipeline system with the same pipe diameter entering and leaving the same horizontal line. This design makes the structure and pipeline of the pump more compact. MS and MC series vertical multistage centrifugal pumps can be installed vertically or horizontally on the pipeline according to the different installation space on site. In the case of horizontal installation, the water pump needs to add a fixed module to ensure the stability of the pump during operation.

Pump connection mode

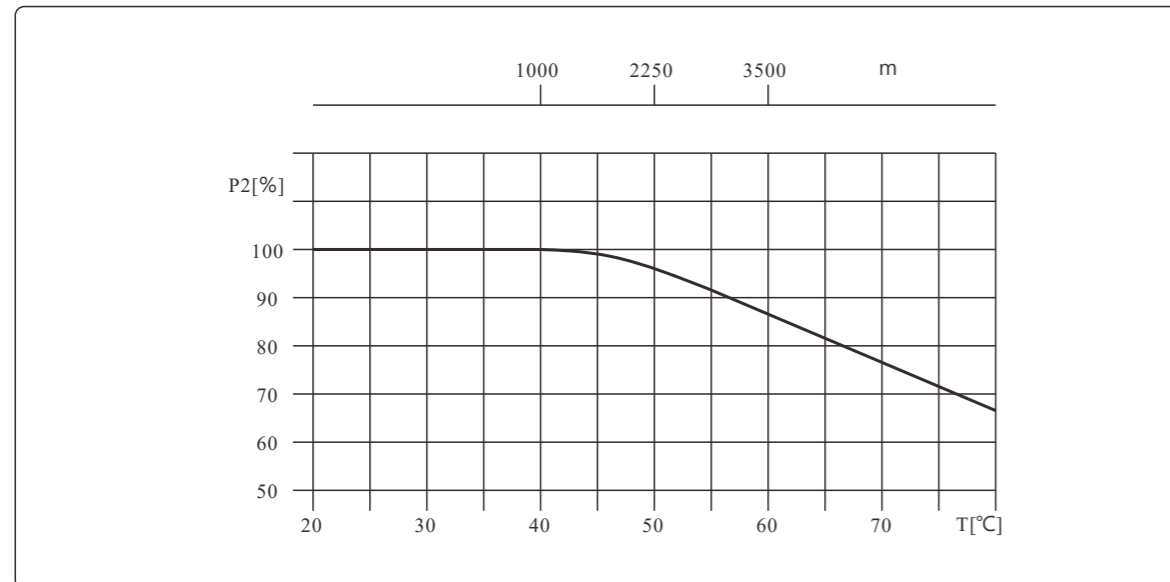
- Flange connection
- Threaded connection
- Clamp connection
- Elliptical flange connection

Pump material

- Cast iron
- Cast iron(AISI304,AISI316)
- Duplex stainless steel (2205)

Altitude and ambient temperature

- When the pump operates at an ambient temperature of more than 40 °C or an altitude of more than 1000m, the motor output power P2 will decrease. Under the above circumstances, the motor power of the pump needs to be increased.



Electric machinery

- Squirrel cage totally enclosed air-cooled IEC motor, suitable for continuous working system
- Protection grade: IP55
- Insulation grade: F
- Standard voltage: 3x220-240/380-415V
1x220-240V
- Single phase motors are available from 0.37kw to 2.2kW

Pump liquid temperature

- Normal temperature pump: liquid temperature-15°C to+70°C
- Hot water pump: liquid temperature-15°C to+105°C

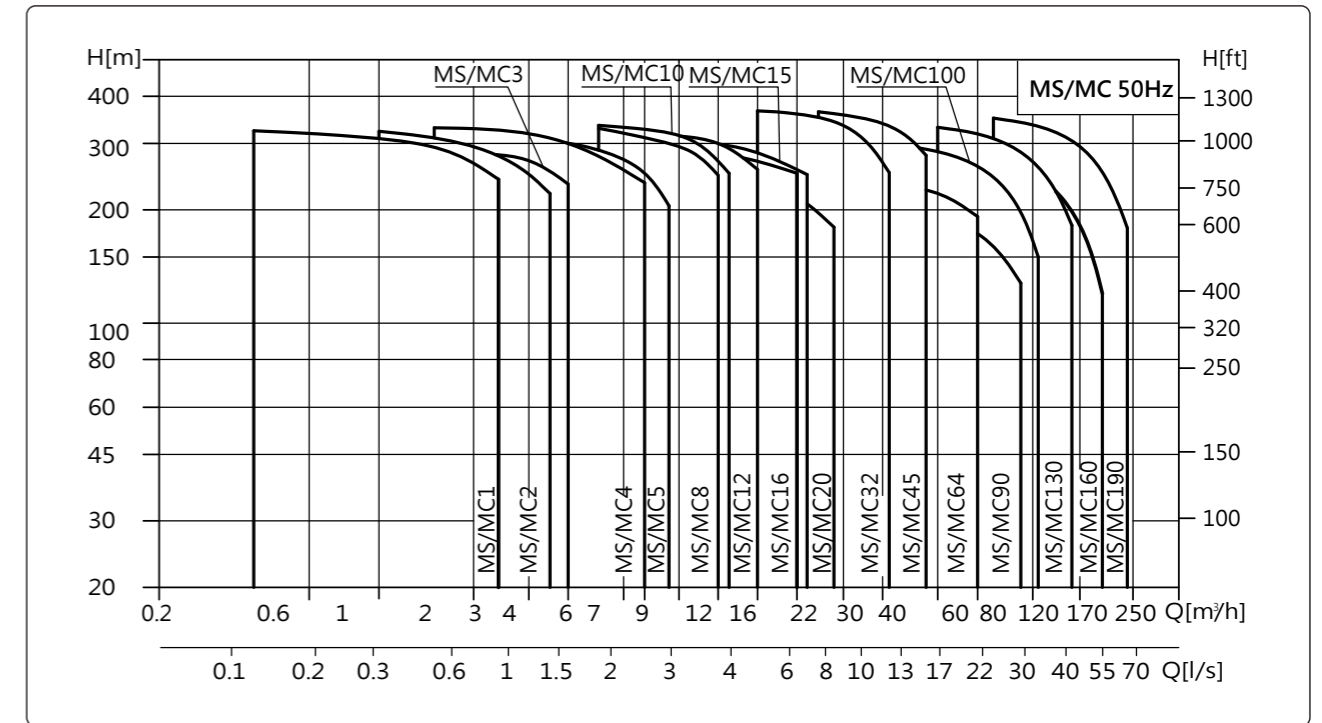
Performance curve

- All curves are based on the measured values of the motor at a constant speed of 2900rpm or 2950rpm.
- The curve tolerance complies with iso9906.
- Water without air at 20°C was used for the test, with kinematic viscosity of 1mm²/s.
- The use of the pump refers to the performance range of the thick line to prevent overheating due to too small flow or overload of the motor due to too large flow.

Pump operating conditions

- Thin, clean, non flammable and explosive liquid without particles or fibers (see the description of liquid transportation at the end of the sample for details)
- Ambient temperature: no more than +40°C
- Altitude: no more than 1000m

Performance range



Minimum inlet pressure (NPSH)

Cavitation may occur if one of the following conditions exists during the operation of the water pump:

- The water tank or pool is lower than the water pump inlet
- Liquid temperature is too high
- The actual flow is obviously larger than the rated flow
- The pressure in the pump is lower than the vaporization pressure of the delivered liquid

To avoid cavitation, ensure that there is a minimum pressure at the inlet side of the pump. The maximum suction lift h [M] can be calculated as follows:

$$H = P_b \times 10.2 - NPSH - H_f - H_v - H_s$$

P_b=Atmospheric pressure(bar)

(Atmospheric pressure can be set to 1bar)

In closed system, P_b is the system pressure(bar)

NPSH=Net positive suction head

(It can be read from the maximum possible flow of the pump on the NPSH curve)

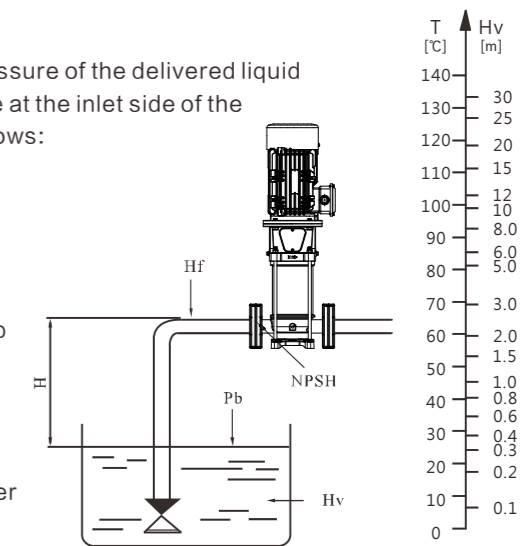
H_f=Pipeline loss at inlet(m)

H_v=Vaporization pressure(m)

H_s=Safety margin=Minimum 0.5m head

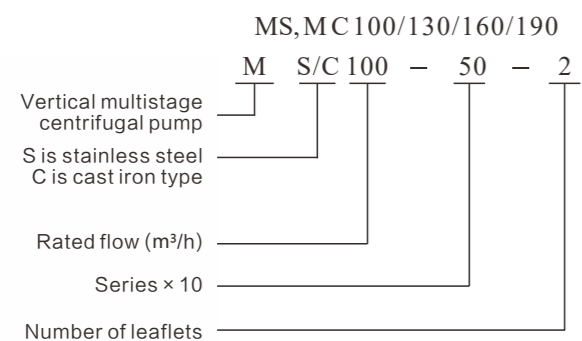
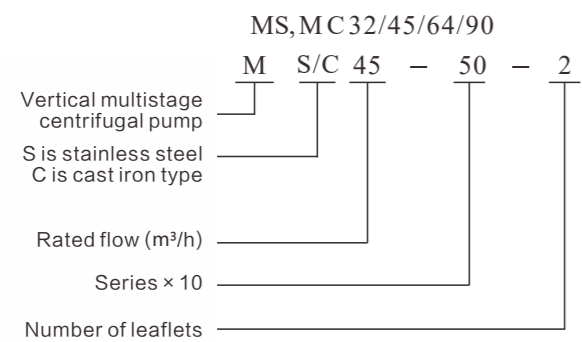
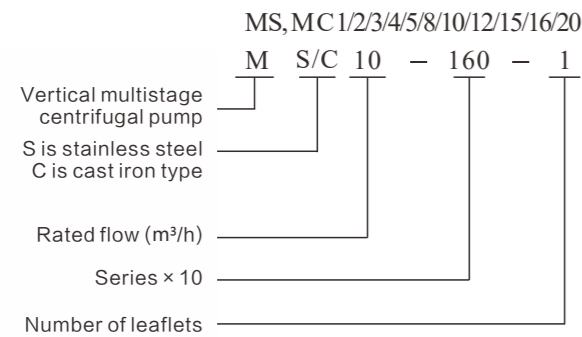
If the calculated value H is positive, the pump can operate under the condition of maximum suction H.

If the calculated value H is negative, there must be a head with a minimum inlet pressure H.



Check to ensure that the pump is not / is not cavitating

Model Description



Typical Application

Water supply

- Water plant filtration and transportation
- Divisional water supply of water plant
- Main pipe network pressurization
- High rise building
- Pressurization of hotels, etc
- Industrial water supply pressurization

Industrial pressurization

- Process water system
 - Cleaning system
 - High pressure flushing system
 - Fire fighting system
 - Car cleaning equipment
- Industrial liquid transportation**
- Cooling air conditioning system
 - Boiler feed water
 - Condensing system and cooling tower
 - Machine tool cooling and lubrication matching

Transportation

- Oil and alcohol
- Acids and bases
- Glycol and coolant

Water treatment

- Ultrafiltration system
- Counter-infiltration system
- Distillation system
- Separator
- Swimming Pool

Irrigation

- Regional irrigation
- Sprinkling irrigation
- Drip irrigation
- Greenhouse

Maximum operating pressure

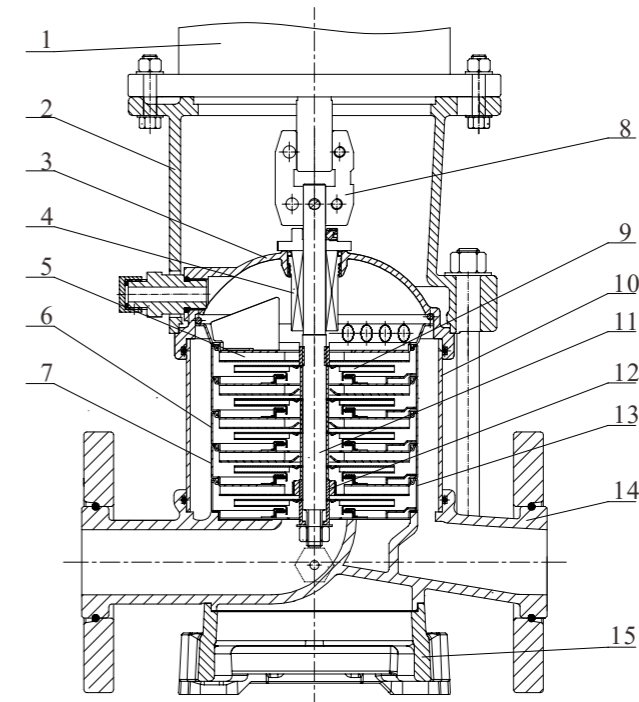
Model	Connection mode	Flange connection, screw connection and clamp connection	Elliptical flange connection
		Maximum allowable operating pressure(bar)	Maximum allowable operating pressure(bar)
MS,MC1		33	16
MS,MC2		33	16
MS,MC3		30	16
MS,MC4		33	16
MS,MC5		32	16
MS,MC8		33	16
MS,MC10		34	16
MS,MC12		32	16
MS,MC15		31	16
MS,MC16		29	16
MS,MC20		25	16
MS,MC32-10-1 ~ 32-70		16	/
MS,MC32-80-2 ~ 32-120		26	/
MS,MC32-160-2 ~ 32-170		37	/
MS,MC45-10-1 ~ 45-60		16	/
MS,MC45-70-2 ~ 45-90		24	/
MS,MC45-100-2 ~ 45-140-2		37	/
MS,MC64-10-1 ~ 64-50		15	/
MS,MC64-60-2 ~ 64-80		25	/
MS,MC90-10-1 ~ 90-50-2		15	/
MS,MC90-50 ~ 90-70-2		22	/
MS,MC100		31	/
MS,MC130		34	/
MS,MC160		28	/
MS,MC190		36	/

Product overview

Main parameter	MS/MC1	MS/MC2	MS/MC3	MS/MC4	MS/MC5	MS/MC8	MS/MC10	MS/MC12	MS/MC15	MS/MC16	MS/MC20
Rated flow [m³/h]	1	2	3	4	5	8	10	12	15	16	20
Rated flow [l/s]	0.28	0.56	0.83	1.1	1.39	2.2	2.78	3.3	4.17	4.4	5.6
Flow range [m³/h]	0.4~2.4	1~3.5	1.2~4	1.5~6	2.5~8.5	5~12	5~13	7~16	8~23	8~22	10~28
Flow range [l/s]	0.11~0.66	0.28~0.97	0.33~1.1	0.42~1.63	0.69~2.36	1.39~3.3	1.39~3.61	1.9~4.4	2.22~6.39	2.2~6.1	2.8~7.8
Maximum pressure [bar]	33	33	30	33	32	33	34	32	31	29	25
Motor power [kW]	0.37~3	0.37~5.5	0.37~5.5	0.55~7.5	0.37~7.5	0.75~15	0.75~15	1.5~18.5	1.1~22	2.2~22	1.1~22
Temperature range [°C]	-15~105										
Maximum efficiency [%]	48	52	57	57	66	62	68	63	68	66	68
MsPipeline connection											
DIN flange	DN25	DN25	DN25	DN32	DN32	DN40	DN40	DN50	DN50	DN50	DN50
Pipe thread	R ₁ 1 1/4"	R ₁ 1 1/4"	R ₁ 1 1/4"	R ₁ 1 1/4"	R ₁ 1 1/4"	R ₁ 2"	R ₁ 2"	R ₁ 2"	R ₁ 2"	R ₁ 2"	R ₁ 2"
Ferrule joint	DN32	DN32	DN32	DN32	DN32	DN50	DN50	DN50	DN50	DN50	DN50
McPipeline connection											
DIN flange	DN25	DN25	DN25	DN32	DN32	DN40	DN40	DN50	DN50	DN50	DN50
Waist flange	R _p 1	R _p 1	R _p 1	R _p 1 1/4"	R _p 1 1/4"	R _p 1 1/2"	R _p 1 1/2"	R _p 1 1/2"	R _p 1 1/2"	R _p 1 1/2"	R _p 1 1/2"

Main parameter	MS/MC32	MS/MC45	MS/MC64	MS/MC90	MS/MC100	MS/MC130	MS/MC160	MS/MC190
Rated flow [m³/h]	32	45	64	90	100	130	160	190
Rated flow [l/s]	8.9	12.5	17.8	25	27.78	36.11	44.44	52.78
Flow range [m³/h]	16~42	25~55	30~80	50~110	50~125	60~160	80~200	90~240
Flow range [l/s]	4.4~11	6.9~15.3	8~22	14~30	14~34.7	16.7~44.4	22.2~55.6	25~66.7
Maximum pressure [bar]	37	37	25	22	31	34	28	36
Motor power [kW]	2.2~45	4~55	4~55	7.5~55	5.5~75	11~110	11~110	18.5~200
Temperature range [°C]	-15~105							
Maximum efficiency [%]	75	75	75	76	79	80	80	80
Pipeline connection								
DIN flange	DN65	DN80	DN100	DN100	DN100	DN150	DN150	DN200

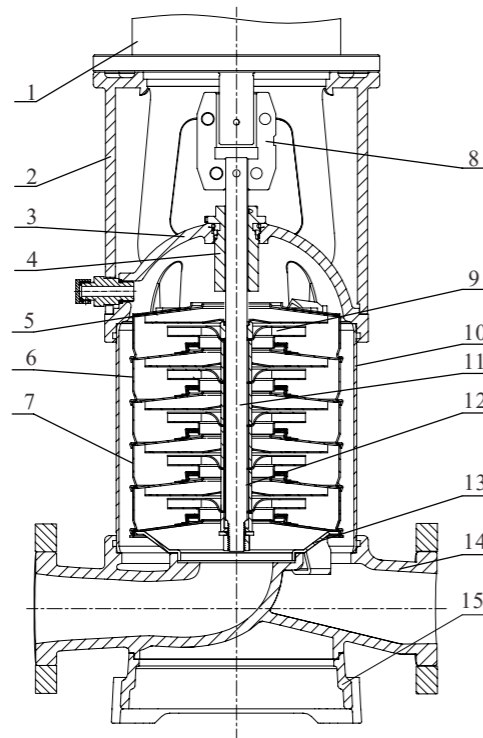
Structure diagram MS/MC1,2,3,4,5



Material Science MS/MC1,2,3,4,5

NO.	Spare parts	Material		GB		EN DIN		AISI/ASTM	
		MC	MS	MC	MS	MC	MS	MC	MS
1	Electric machinery	/	/	/	/	/	/	/	/
2	Bracket	Cast iron/ Ductile iron		GB 9439-HT200/GB 1348-QT500-7		EN 1561 EN-GJL-200/ EN 1563 EN-GJS-500-7		ASTM25B/ ASTMA53665-45-12	
3	Seal seat	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
4	Mechanical seal	/	/	/	/	/	/	/	/
5	Outlet guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
6	Guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
7	Support guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
8	Coupling	Ductile iron		GB 1348-QT500-7		EN 1563 EN-GJS-500-7		ASTMA53665-45-12	
9	Impeller	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
10	Outer cylinder	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
11	Pump shaft	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
12	Bearing	Tungsten carbide		/		/		/	
13	Inlet guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
14	Water inlet and outlet	Cast iron/ Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
15	Base	Cast iron		GB 9439-HT200		EN 1561 EN-GJL-200		ASTM25B	

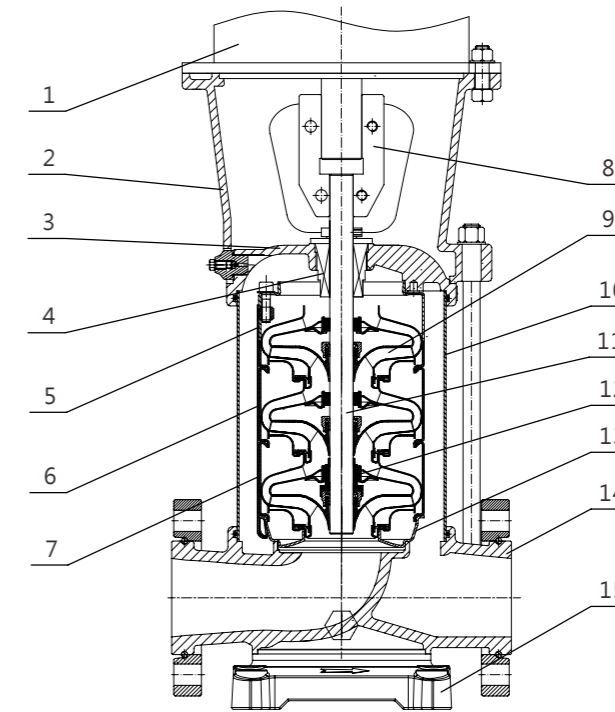
Structure DiagramMS/MC8,10,12,15,16,20



Material ScienceMS/MC8,10,12,15,16,20

NO.	Spare parts	Material		GB		EN DIN		AISI/ASTM	
		MC	MS	MC	MS	MC	MS	MC	MS
1	Electric machinery	/	/	/	/	/	/	/	/
2	Bracket	Cast iron / ductile iron		GB9439-HT200/GB1348-QT500-7		EN 1561 EN-GJL-200/ EN 1563 EN-GJS-500-7		ASTM25B/ ASTMA53665-45-12	
3	Seal seat	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
4	Mechanical seal	/	/	/	/	/	/	/	/
5	Outlet guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
6	Guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
7	Support guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
8	Coupling	Ductile iron		GB 1348-QT500-7		EN 1563 EN-GJS-500-7		ASTMA53665-45-12	
9	Impeller	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
10	Outer cylinder	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
11	Pump shaft	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
12	Bearing	Tungsten carbide		/		/		/	
13	Inlet guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
14	Water inlet and outlet	Cast iron / Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
15	Base	Cast iron		GB 9439-HT200		EN 1561 EN-GJL-200		ASTM25B	

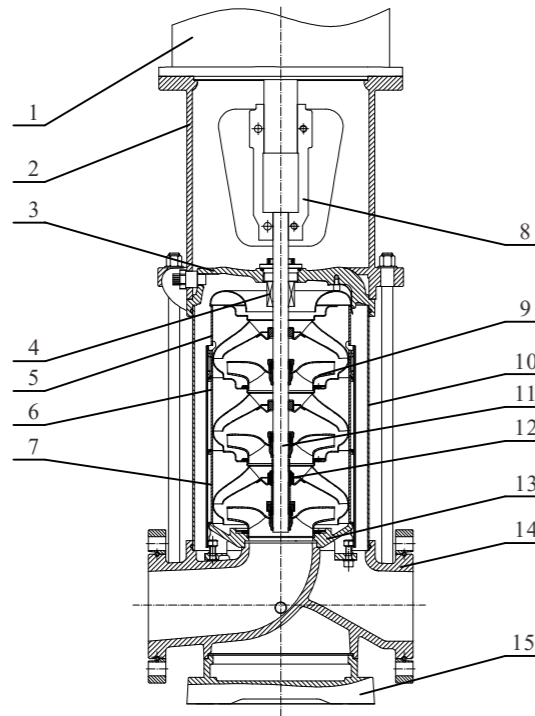
Structure diagramMS/MC32,45,64,90



Material ScienceMS/MC32,45,64,90

NO.	Spare parts	Material		GB		EN DIN		AISI/ASTM	
		MC	MS	MC	MS	MC	MS	MC	MS
1	Electric machinery	/	/	/	/	/	/	/	/
2	Bracket	Cast iron / Ductile iron		GB9439-HT200/GB1348-QT500-7		EN 1561 EN-GJL-200/ EN 1563 EN-GJS-500-7		ASTM25B/ ASTMA53665-45-12	
3	Seal seat	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
4	Mechanical seal	/	/	/	/	/	/	/	/
5	Outlet guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
6	Guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
7	Support guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
8	Coupling	Ductile iron		GB 1348-QT500-7		EN 1563 EN-GJS-500-7		ASTMA53665-45-12	
9	Impeller	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
10	Outer cylinder	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
11	Pump shaft	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
12	Bearing	Tungsten carbide		/		/		/	
13	Inlet guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
14	Water inlet and outlet	Water inlet and outlet		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI304	
15	Base	Cast iron		GB 9439-HT200		EN 1561 EN-GJL-200		ASTM25B	

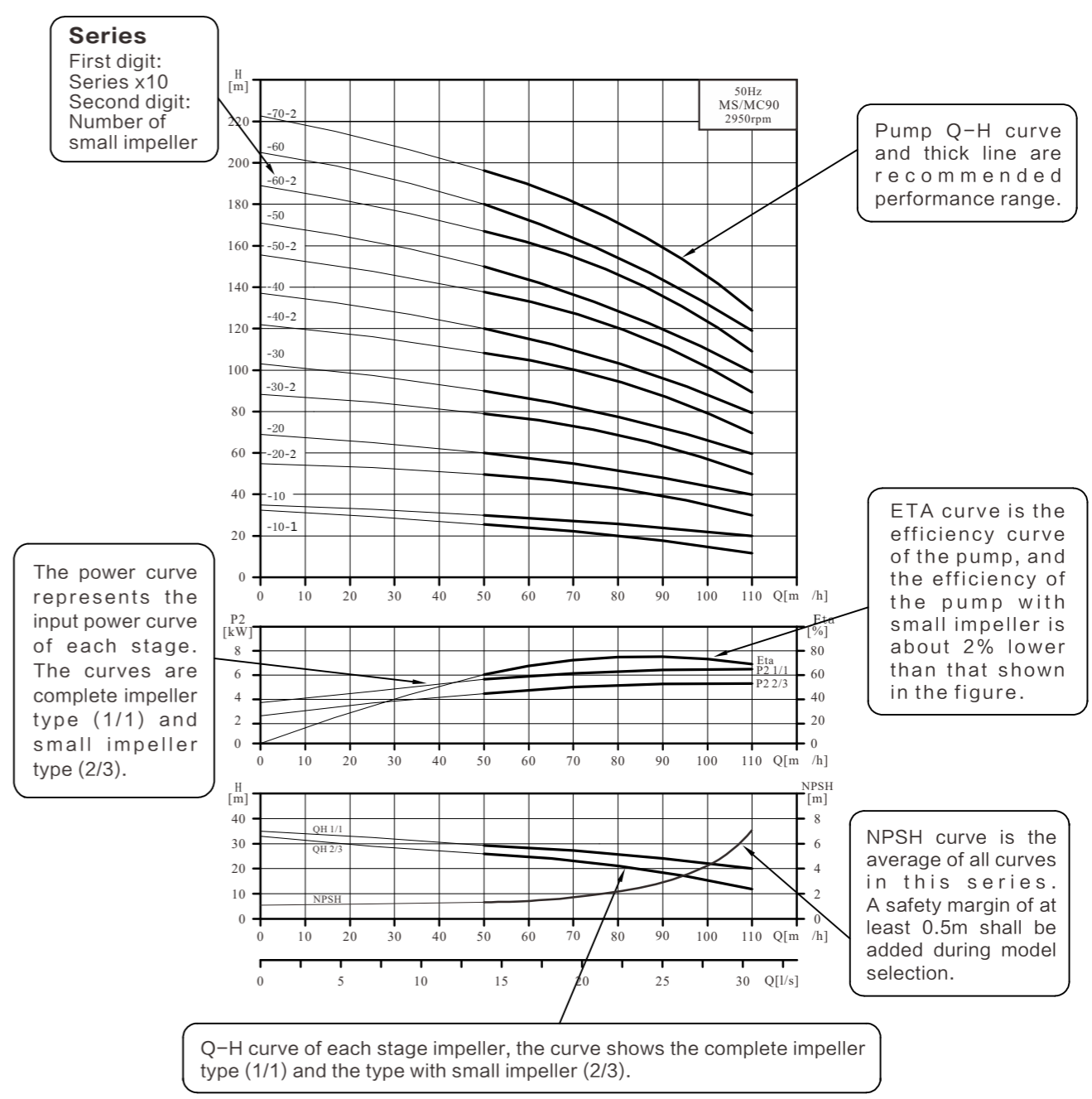
Structure diagram MS/MC100,130,160,190



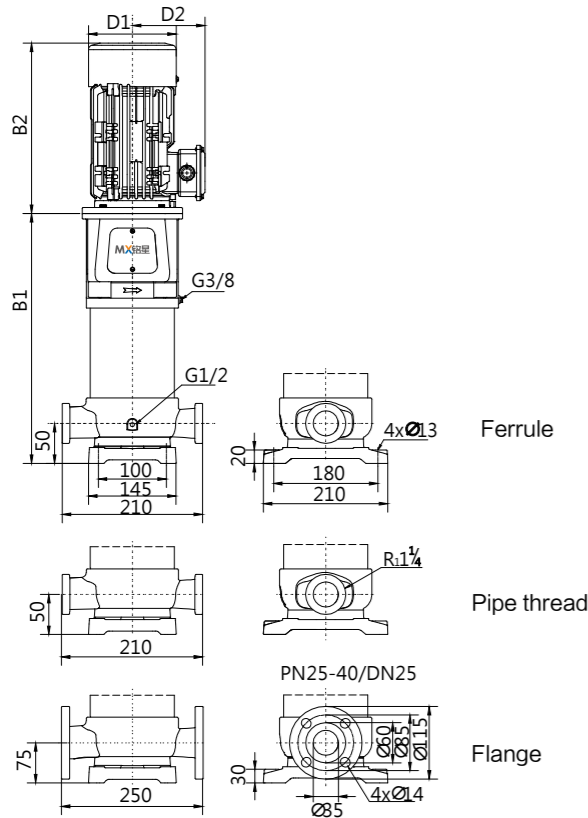
Material Science MS/MC100,130,160,190

NM.	Spare parts	Material		GB		EN DIN		AISI/ASTM	
		MC	MS	MC	MS	MC	MS	MC	MS
1	Electric machinery	/	/	/	/	/	/	/	/
2	Bracket	Cast iron/ Ductile iron		GB 9439-HT200/GB 1348-QT500-7		EN 1561 EN-GJL-200/ EN 1563 EN-GJS-500-7		ASTM A252B/ ASTM A536 65-45-12	
3	Sealing seat	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI 304	
4	Mechanical seal	/		/		/		/	
5	Outlet guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI 304	
6	Guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI 304	
7	Support guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI 304	
8	Coupling	Ductile iron		GB 1348-QT500-7		EN 1563 EN-GJS-500-7		ASTM A536 65-45-12	
9	Impeller	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI 304	
10	Outer barrel	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI 304	
11	Pump shaft	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI 304	
12	Bearing	Tungsten carbide		/		/		/	
13	Inlet guide vane	Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI 304	
14	Water inlet and outlet	Cast iron/ Stainless steel		GB/T20878-06Cr19Ni10		EN 10088-1.4301		AISI 304	
15	Base	Ductile iron		GB 1348-QT500-7		EN 1563 EN-GJS-500-7		ASTM A536 65-45-12	

Performance curve reading instructions



Installation dimension and product weight



Model	Size (mm)					Weight (kg)
	B1	B2	B1+B2	D1	D2	
MS1-20	262	240	502	148	117	23
MS1-30	280	240	520	148	117	23
MS1-40	298	240	538	148	117	24
MS1-50-1	316	240	556	148	117	25
MS1-50	316	240	556	148	117	25
MS1-60	334	240	574	148	117	26
MS1-70	352	240	592	148	117	27
MS1-80	370	280	650	170	142	36
MS1-90	398	280	678	170	142	37
MS1-100	416	280	696	170	142	38
MS1-110	434	280	714	170	142	40
MS1-120	452	280	732	170	142	41
MS1-130	470	280	750	170	142	42
MS1-150	506	280	786	170	142	43
MS1-170	542	350	892	190	155	51
MS1-200-2	606	350	956	190	155	53
MS1-210	624	350	974	190	155	58
MS1-230	660	350	1010	190	155	59
MS1-250	696	350	1046	190	155	61
MS1-270	732	350	1082	190	155	62
MS1-300	786	350	1136	190	155	64
MS1-330	840	410	1250	196	165	73
MS1-350	876	410	1286	196	165	74
MS1-360	904	410	1314	196	165	75

Operational performance data

Model	Equipped with motor (kW)	Q (m³/h)	H (m)											
			0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2	2.2	2.4	
MS1-20	0.37		18	17.7	17.4	17	16.8	16.5	16	15.5	15	14	13	
MS1-30	0.37		27	26.7	26.4	26	25	24.5	24	23	22	21	20	
MS1-40	0.37		36	35.5	35	34	33.5	33	32	31	30	28	27	
MS1-50-1	0.37		43	42	41	39.5	39	38	37	36	34	33	31	
MS1-50	0.55		45	44.5	44	43	42	41	40	38.5	37	35	33.5	
MS1-60	0.55		54	53.5	53	51	50	49	48	46	44	42	40	
MS1-70	0.55		63	62.5	61.5	60	59	58	56	54	52	50	47	
MS1-80	0.75		72	71.5	70	69	67	66	64	62	59	57	54	
MS1-90	0.75		81	80	79	77	76	74	72	69	67	64	60	
MS1-100	0.75		90	89	88	86	84	82	80	77	74	71	67	
MS1-110	1.1		99	98	97	94	93	90	88	85	81	78	74	
MS1-120	1.1		108	107	105	103	101	99	96	93	89	85	80	
MS1-130	1.1		117	116	114	111	110	107	104	100	96	92	87	
MS1-150	1.1		135	134	132	129	126	123	120	116	111	106	100	
MS1-170	1.5		153	151.5	150	146	143	140	135	131	126	120	114	
MS1-200-2	1.5		175	173	170	167	163	158	153	148	142	136	128	
MS1-210	2.2		189	187.5	185	180	177	173	167	162	155	149	141	
MS1-230	2.2		207	205	202	197	194	189	183	177	170	163	154	
MS1-250	2.2		225	223	220	214	211	206	199	193	185	177	167	
MS1-270	2.2		243	241	238	231	227	222	215	208	200	191	181	
MS1-300	2.2		270	268	264	257	253	247	239	231	222	212	201	
MS1-330	3		297	295	290	283	278	271	263	255	244	234	221	
MS1-350	3		315	312	308	300	295	288	279	270	259	248	234	
MS1-360	3		324	321	317	309	303	296	287	278	266	255	241	

Performance curve

