



Horizontal Multi-Stage Pump

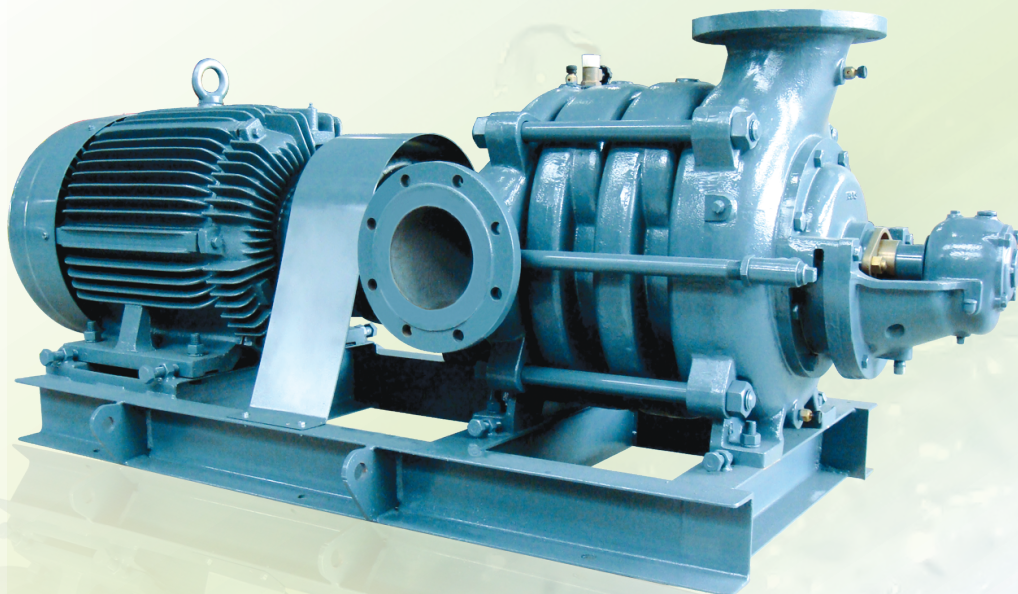
Type MS SERIES

APPLICATIONS

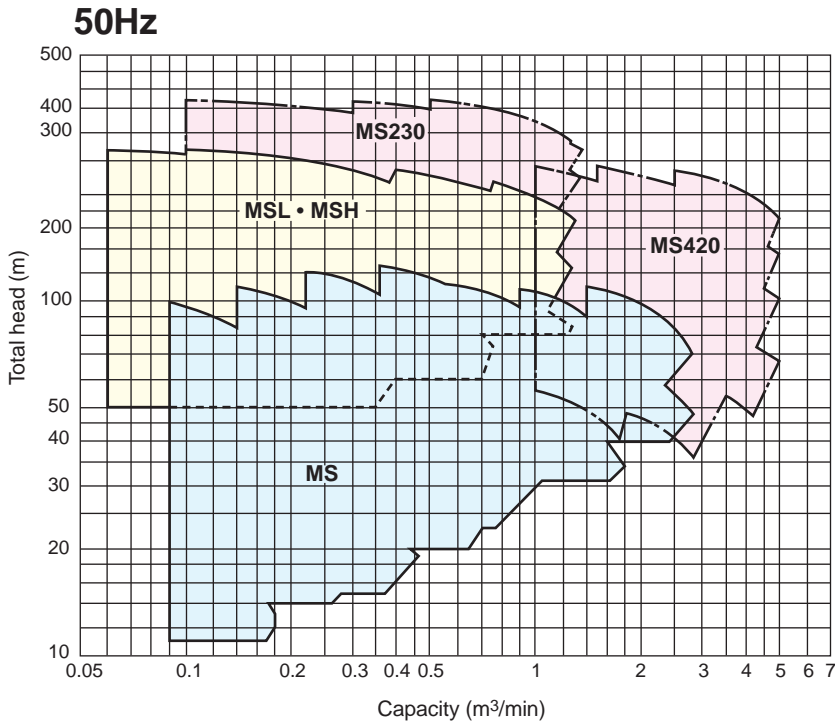
- Water supply
- Hot/cold water circulation
- Sprinklers
- Agriculture
- Construction
- Factories
- Boiler feed
- Mines
- Other general high pressure services
- Please select the model, referring to specifications for each model.

FEATURES

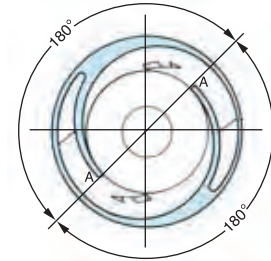
- EBARA's unique double volute construction provides higher operating efficiency over a wider range of capacities than conventional pumps equipped with guide vanes.
- Simple construction of the pumps contributes to longer service life. The pumps are compact, lightweight and they operate with minimum noise.
- Double volute casing is designed to balance radial force at all ranges of operation. Axial force is absorbed by a balance-disk which has a wear indicator at the shaft end.
- Parts are fully standardized to ensure easy servicing and maintenance.
- The pumps are designed so as not to exceed rated horse power at any pumping quality. (Model MS)



GENERAL PERFORMANCE CHART



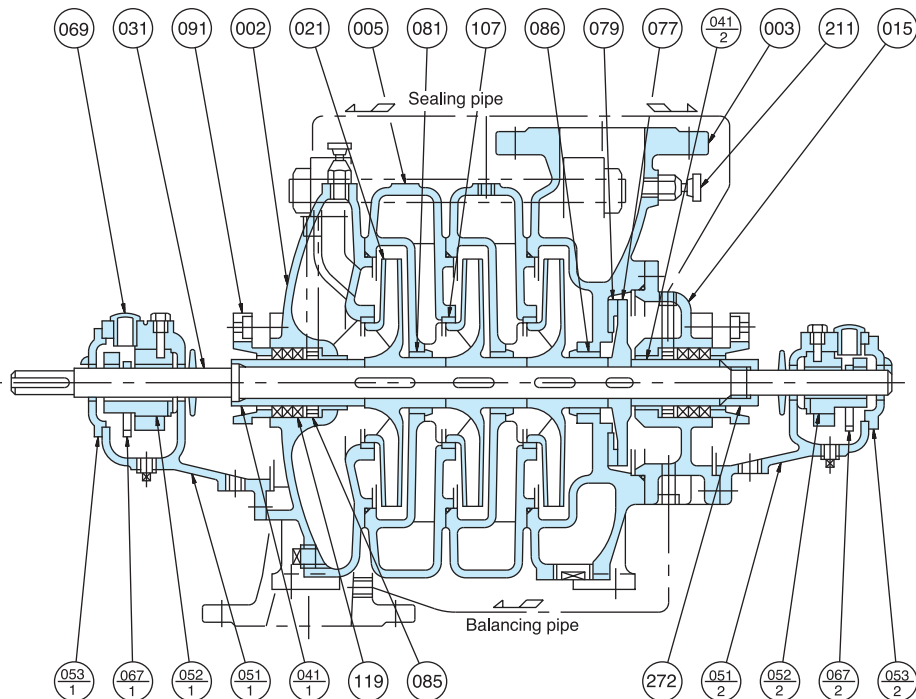
Features of double volute construction



1. As shown in the drawing, water flow is divided into two equal parts by "tongues" A and A' located 180° apart. This produces a symmetrical flow to the section which is at right angles to the shaft and rationally balances radial thrust on the rotor.
2. Basic studies and experiments determined that shape and contour of vortex must introduce vertical flow directly to the impeller of next stage. This feature, plus the meticulously designed three dimensional impellers, enables Model MS pumps to achieve incomparable efficiency.
3. Casing configuration, which is narrower than that of conventional multistage pumps, contributes to the design of a light-weight, compact double volute pump.

SECTIONAL VIEW

Model MS (balancing disk type)



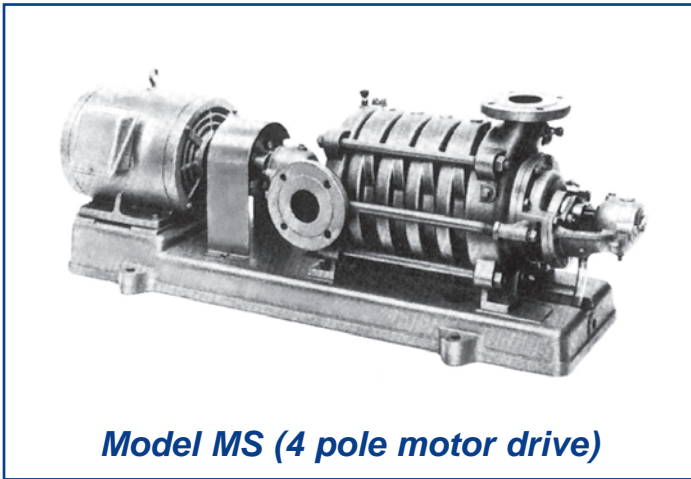
Construction may vary somewhat according to the model

Part No.	Part Name	No. for 1 Unit
002	Suction Casing	1
003	Discharge Casing	1
005	Interstage Casing	N-1
015	Cover of Balancing Chamber	1
021	Impeller	N
031	Shaft	1
041-1	Shaft Sleeve	1
041-2	Shaft Sleeve	1
051-1	Bearing Housing	1
051-2	Bearing Housing	1

Part No.	Part Name	No. for 1 Unit
052-1	Bearing Metal	1
052-2	Bearing Metal	1
053-1	Bearing Cover	1
053-2	Bearing Cover	1
067-1	Oil Ring	1
067-2	Oil Ring	1
069	Oil Sight	2
077	Balancing Disk	1
079	Balancing Disk Seat	1
081	Interstage Bushing	N-1

Part No.	Part Name	No. for 1 Unit
085	Lantern Ring Bushing	2
086	Balancing Bushing	1
091	Gland	2
107	Casing Ring	N
119	Packing	6
211	Air Vent Valve	2
272	Sleeve Nut	1

Note: "N" indicates the number of stages in the pump.



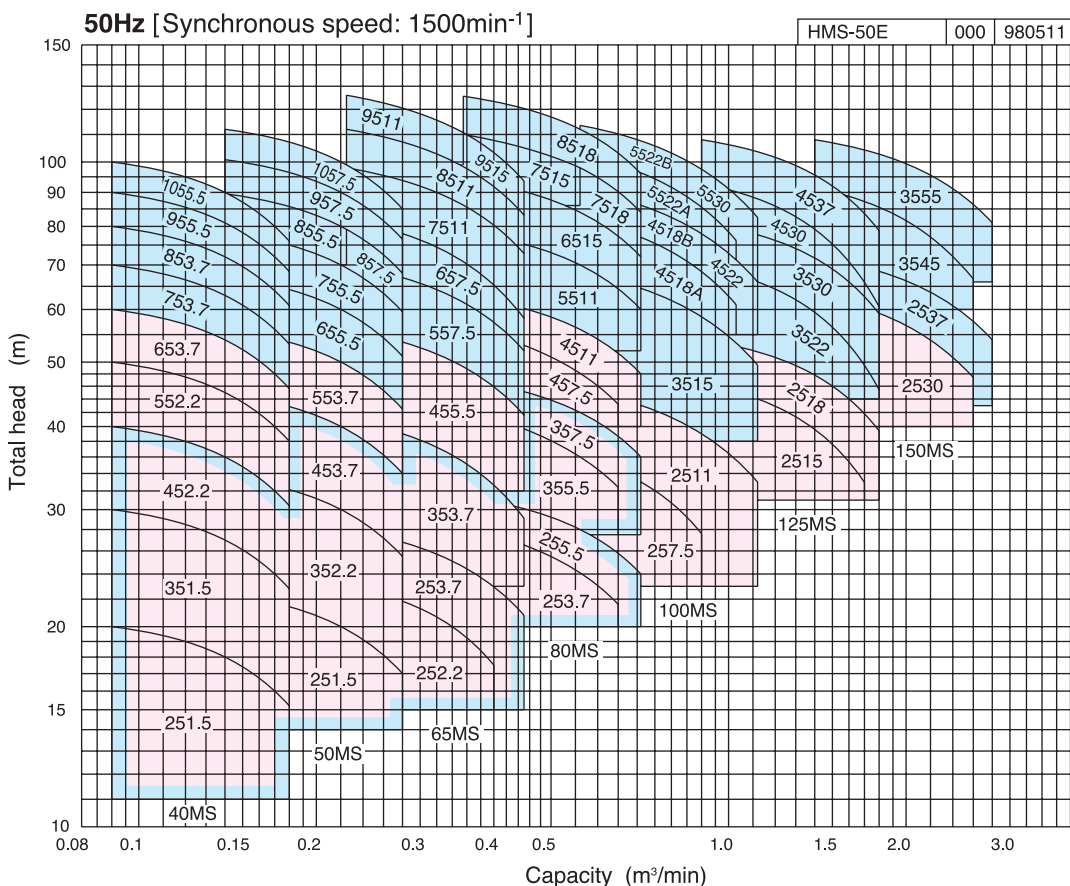
Construction Impeller Shaft seal Bearing	Enclosed Gland packing [Balancing disk type] Sleeve bearing (Lubricant oil) [Ball bearing type] Sealed ball bearing	Shaft seal: [Balancing disk type] External flushing Bearing: [Balancing disk type] Ball bearing Outdoor used
Flange Suction side Discharge side	JIS10K thin type [Balancing disk type] JIS10K thin type or JIS10K normal type [Ball bearing type] JIS 10k thin type	
Materials Casing Impeller	Cast iron 304 Stainless steel: 40MS, 50MS Bronze: 65MS to 150MS	Shaft 403 Stainless steel 304 Stainless steel
Shaft Shaft sleeve	Carbon steel Bronze	Shaft sleeve: 304 Stainless steel
Motor	Three phase, 4 pole, 1.5 to 55kw	
Location	Indoors	
Accessories	[Bare shaft pump] Priming plug or priming funnel.....1 Companion flange with bolts.....1 set [Pump with motor] Common base..... 1 Priming plug or priming funnel..... 1 Coupling..... 1 set Coupling guard..... 1 Companion flange with bolts..... 1 set	Foot valve Vibration absorber Flexible pipe Anchor bolts

SPECIFICATIONS

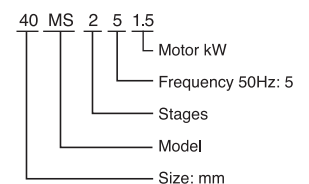
	Standard	Option
Liquid	Fresh water 0 ~ 80°C	81 ~ 100°C
Total suction head	-6m at 20°C, max. capacity of selection chart	
Max. suction pressure	0.4MPa {4kgf/cm ² }	

PERFORMANCE CHART

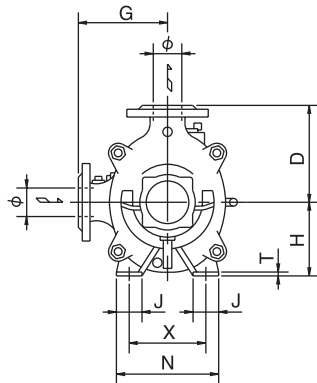
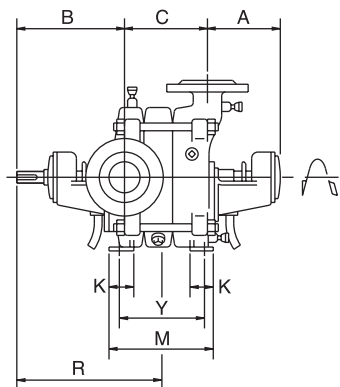
- Ball bearing type
- Discharge flange: JIS 10K normal type



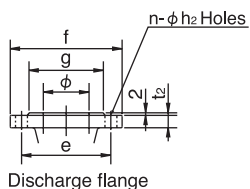
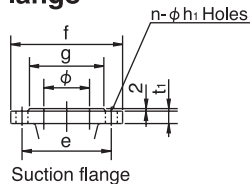
Symbols:



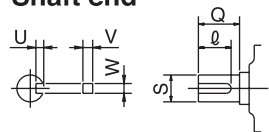
DIMENSION



Flange



Shaft end



Unit: mm

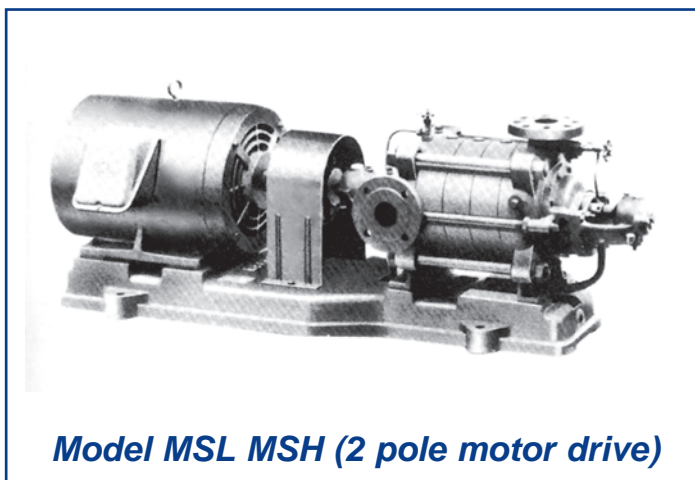
Size ϕ	Flange							
	g	e	f	t ₁	t ₂	n	h ₁	h ₂
40	85	105	140	18	20	4	15	15(19)
50	100	120	155	18	20	4	15	15(19)
65	120	140	175	18	22	4	15	15(19)
80	130	150	185	18	22	8	15	15(19)
100	155	175	210	20	24	8	15	15(19)
125	185	210	250	22	24	8	19	19(23)
150	215	240	280	22	26	8	19	19(23)

"h₂" dimensions of discharge: JIS10K normal type indicated as the shaded areas in Selection Chart are shown in brackets.

 Ball bearing type (II) Balancing disk type (I)

Unit: mm

Size ϕ	Stage	Pump															Shaft						
		A	B	C	D	G	H	J	K	M	N	R	T	X	Y	Z	S	Q	ϕ	U	V	W	
40	2	141	213	150	175	160	140	50	50	207	200	279.5	13	160	167	12	25	40	40	4	7	7	
	3	141	213	205	175	160	140	50	50	262	200	307	13	160	222	12	25	40	40	4	7	7	
	4	141	213	260	175	160	140	50	50	317	200	334.5	13	160	277	12	25	40	40	4	7	7	
	5	230	243	315	175	160	140	50	50	372	200	392	13	160	332	12	26	45	40	4	7	7	
	6	230	243	370	175	160	140	50	50	427	200	419.5	13	160	387	12	26	50	40	4	7	7	
	7	230	243	425	175	160	140	50	50	482	200	447	13	160	442	12	26	50	40	4	7	7	
	8	230	243	480	175	160	140	50	50	537	200	474.5	13	160	497	12	26	50	40	4	7	7	
	9	230	243	535	175	160	140	50	50	592	200	502	13	160	552	12	26	50	40	4	7	7	
	10	230	243	590	175	160	140	50	50	647	200	529.5	13	160	607	12	26	50	40	4	7	7	
	50	2	141	220	158	195	180	150	50	50	215	200	290.5	13	160	175	12	25	45	40	4	7	7
3		141	220	218	195	180	150	50	50	275	200	320.5	13	160	235	12	25	45	40	4	7	7	
4		141	220	278	195	180	150	50	50	335	200	350.5	13	160	295	12	25	45	40	4	7	7	
5		230	250	338	195	180	150	50	50	395	200	410.5	13	160	355	12	26	50	40	4	7	7	
6		230	250	398	195	180	150	50	50	455	200	440.5	13	160	415	12	26	50	40	4	7	7	
7		230	250	458	195	180	150	50	50	515	200	470.5	13	160	475	12	26	56	50	4	7	7	
8		230	250	518	195	180	150	50	50	575	200	500.5	13	160	535	12	26	56	50	4	7	7	
9		230	250	578	195	180	150	50	50	635	200	530.5	13	160	595	12	26	56	50	4	7	7	
10		230	250	638	195	180	150	50	50	695	200	560.5	13	160	655	12	26	56	50	4	7	7	
65		2	163	234	180	210	195	170	55	55	235	240	316.5	15	190	195	15	30	50	50	4	7	7
	3	163	234	245	210	195	170	55	55	300	240	349	15	190	260	15	30	50	50	4	7	7	
	4	240	260	310	210	195	170	55	55	365	240	407.5	15	190	325	15	32	56	50	4.5	8	10	
	5	240	260	375	210	195	170	55	55	430	240	440	15	190	390	15	32	56	50	4.5	8	10	
	6	240	260	440	210	195	170	55	55	495	240	472.5	15	190	455	15	32	56	50	4.5	8	10	
	7	240	260	505	210	195	170	55	55	560	240	505	15	190	520	15	32	56	50	4.5	8	10	
	8	240	260	570	210	195	170	55	55	625	240	537.5	15	190	585	15	32	56	50	4.5	8	10	
	9	240	260	635	210	195	170	55	55	690	240	570	15	190	650	15	32	56	50	4.5	8	10	
	80	2	158	247	197	230	210	180	55	60	252	240	338	15	190	212	15	30	50	50	4.5	7	7
		3	158	247	267	230	210	180	55	60	322	240	373	15	190	282	15	30	50	50	4	7	7
4		235	263	337	230	210	180	55	60	392	240	424	15	190	352	15	32	56	50	4	8	10	
5		235	268	407	230	210	180	55	60	462	240	464	15	190	422	15	32	63	50	4.5	8	10	
6		235	268	477	230	210	180	55	60	532	240	499	15	190	492	15	32	63	50	4.5	8	10	
7		235	268	547	230	210	180	55	60	602	240	534	15	190	562	15	32	63	50	4.5	8	10	
8		235	268	617	230	210	180	55	60	672	240	569	15	190	632	15	32	63	50	4.5	8	10	
100		2	275	291	225	270	250	215	70	70	295	280	398.5	18	220	235	19	36	63	50	4.5	8	10
	3	275	291	310	270	250	215	70	70	380	280	441	18	220	320	19	36	71	50	4.5	8	10	
	4	275	291	395	270	250	215	70	70	465	280	483.5	18	220	405	19	36	71	50	4.5	8	10	
	5	275	291	480	270	250	215	70	70	550	280	526	18	220	490	19	36	71	64	4.5	8	10	
	125	2	293	300	260	300	280	240	70	70	323	320	428.5	18	270	273	19	44	71	64	4.5	8	12
3		293	310	360	300	280	240	70	70	423	320	488.5	18	270	373	19	44	85	64	4.5	8	12	
4		293	310	460	300	280	240	70	70	523	320	538.5	18	270	473	19	44	85	64	4.5	8	12	
150		2	335	317	310	350	315	280	80	80	372	360	481	20	300	312	19	50	89	64	4.5	8	12
	3	335	317	425	350	315	280	80	80	487	360	538.5	20	300	427	19	50	89	64	4.5	8	12	



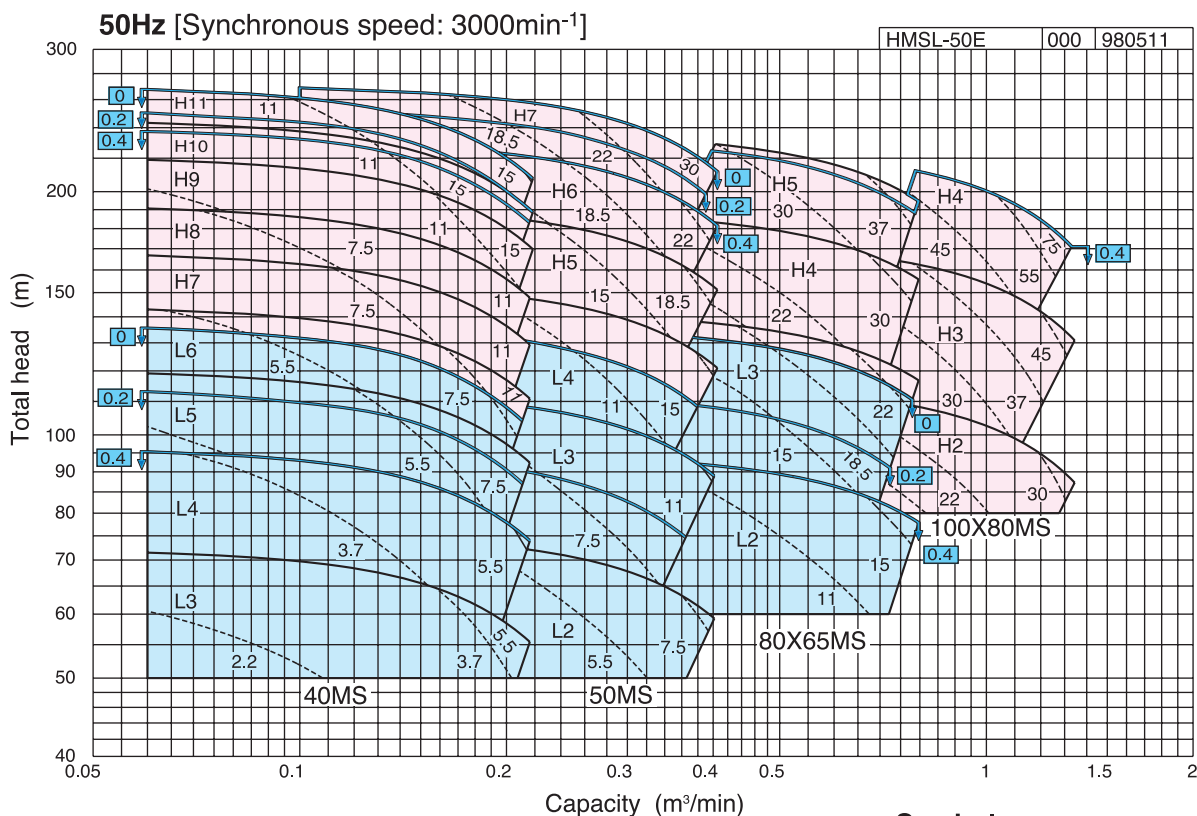
Model MSL MSH (2 pole motor drive)

Construction Impeller Shaft seal Bearing	Enclosed Gland packing Sleeve bearing (Lubricant oil)	Water cooling jacket Bearing, Stuffing box (81 - 120°C) Shaft seal: External flushing Outdoor used
Flange Suction side Discharge side	JIS10K normal type JIS10K Normal type: MSL JIS20K: MSH	
Materials Casing Impeller Shaft Shaft sleeve	Cast iron Ductile cast iron (MSH discharge casing only) Bronze Carbon steel Bronze	Shaft 420 Stainless steel Shaft sleeve: 420 Stainless steel All iron
Motor	Three phase, 2 pole, 3.7 to 75kw	
Location	Indoors	
Accessories	[Bare shaft pump] Nil [Pump with motor] Common base..... 1 Coupling..... 1 set Coupling guard..... 1 Air vent valve..... 1 set	Welding type companion flange (SS) Foot valve Priming funnel Suction strainer with short pipe Heat preventive orifice with T pipe Vibration absorber Flexible pipe Anchor bolts

SPECIFICATIONS

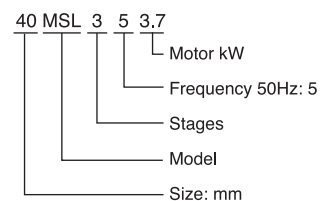
	Standard	Option
Liquid	Fresh water 0 ~ 80°C	81 ~ 120°C
Total suction head	-6m at 20°C, max. capacity of selection chart	
Max. suction pressure	(Refer to selection chart)	

PERFORMANCE CHART

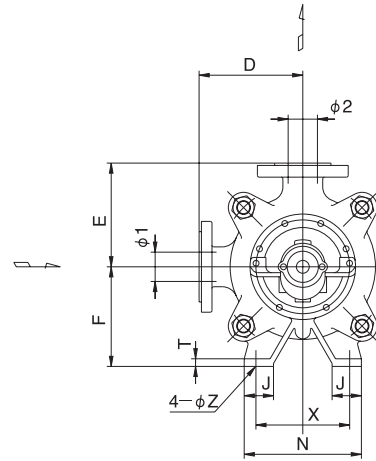
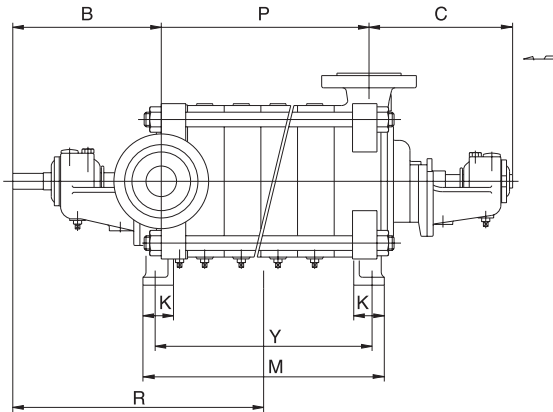


- Model MSH
- Model MSL
- 0.5 Shows allowable suct. Press. (unit MPa)

Symbols:

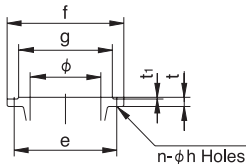


DIMENSION

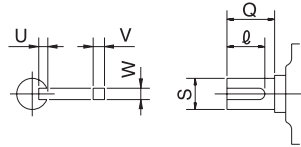


Unit: mm

Flange



Shaft end



Model		Flange						
		g	e	f	t	t ₁	n	h
40MSL	Suction	85	105	140	20	2	4	19
	Discharge	85	105	140	20	2	4	19
40MSH	Suction	85	105	140	20	2	4	19
	Discharge	85	105	140	22	2	4	19
50MSL	Suction	100	120	155	20	2	4	19
	Discharge	100	120	155	20	2	4	19
50MSH	Suction	100	120	155	20	2	4	19
	Discharge	100	120	155	22	2	8	19
80×65MSL	Suction	130	150	185	22	2	8	19
	Discharge	120	140	175	22	2	4	19
80×65MSH	Suction	130	150	185	22	2	8	19
	Discharge	120	140	175	24	2	8	19
100×80MSH	Suction	155	175	210	24	2	8	19
	Discharge	135	160	200	26	2	8	23

Unit: mm

Suction size $\phi 1$	Discharge size $\phi 2$	Model	Stage	Pump														Shaft						
				B	C	D	E	F	J	K	M	N	P	R	T	X	Y	Z	S	Q	Q	U	V	W
40	40	MSL	3	248	230	160	160	150	50	50	262	200	200	337	13	160	222	12	20	45	40	3.0	5	5
		MSL	4	248	230	160	160	150	50	50	317	200	255	364.5	13	160	277	12	20	50	40	3.0	5	5
		MSL	5	248	230	160	160	150	50	50	372	200	310	392	13	160	332	12	20	50	40	3.0	5	5
		MSL	6	248	230	160	160	150	50	50	427	200	365	419.5	13	160	387	12	20	50	40	3.0	5	5
		MSH	6	248	230	160	160	150	50	50	427	200	365	419.5	13	160	387	12	20	50	40	3.0	5	5
		MSH	7	248	230	160	160	150	50	50	482	200	420	447	13	160	442	12	20	56	50	3.0	5	5
		MSH	8	248	230	160	160	150	50	50	537	200	475	474.5	13	160	497	12	20	56	50	3.0	5	5
		MSH	9	248	230	160	160	150	50	50	592	200	530	502	13	160	552	12	20	56	50	3.0	5	5
		MSH	10	248	230	160	160	150	50	50	647	200	585	529.5	13	160	607	12	20	56	50	3.0	5	5
		MSH	11	248	230	160	160	150	50	50	702	200	640	557	13	160	662	12	20	56	50	3.0	5	5
		50	50	MSL	2	243	235	175	175	170	50	50	215	200	160	320.5	13	160	175	12	26	45	40	4.0
MSL	3			243	235	175	175	170	50	50	275	200	220	350.5	13	160	235	12	26	45	40	4.0	7	7
MSL	4			243	235	175	175	170	50	50	335	200	280	380.5	13	160	295	12	26	50	40	4.0	7	7
MSH	4			243	235	175	175	170	50	50	335	200	280	380.5	13	160	295	13	26	50	40	4.0	7	7
MSH	5			243	235	175	175	170	50	50	395	200	340	410.5	13	160	355	12	26	50	40	4.0	7	7
MSH	6			243	235	175	175	170	50	50	455	200	400	440.5	13	160	415	12	26	50	40	4.0	7	7
MSH	7			243	235	175	175	170	50	50	515	200	460	470.5	13	160	475	12	26	56	50	4.0	7	7
80	65	MSL	2	260	245	210	210	180	55	60	252	240	190	354	15	190	212	15	32	56	50	4.5	8	10
		MSL	3	260	245	210	210	180	55	60	322	240	260	389	15	190	282	15	32	56	50	4.5	8	10
		MSH	3	260	245	210	210	180	55	60	322	240	260	389	15	190	282	15	32	56	50	4.5	8	10
		MSH	4	260	245	210	210	180	55	60	392	240	330	424	15	190	352	15	32	56	50	4.5	8	10
		MSH	5	265	245	210	210	180	55	60	462	240	400	464	15	190	422	15	32	63	50	4.5	8	10
100	80	MSH	2	291	275	230	230	200	70	70	295	250	225	398.5	18	190	235	19	36	63	50	4.5	8	10
		MSH	3	291	275	230	230	200	70	70	380	250	310	441	18	190	320	19	36	71	50	4.5	8	10
		MSH	4	291	275	230	230	200	70	70	465	250	395	483.5	18	190	405	19	36	71	50	4.5	8	10

* Dimensional details are provided for reference only.

* All specifications are subject to change without prior notice.



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