

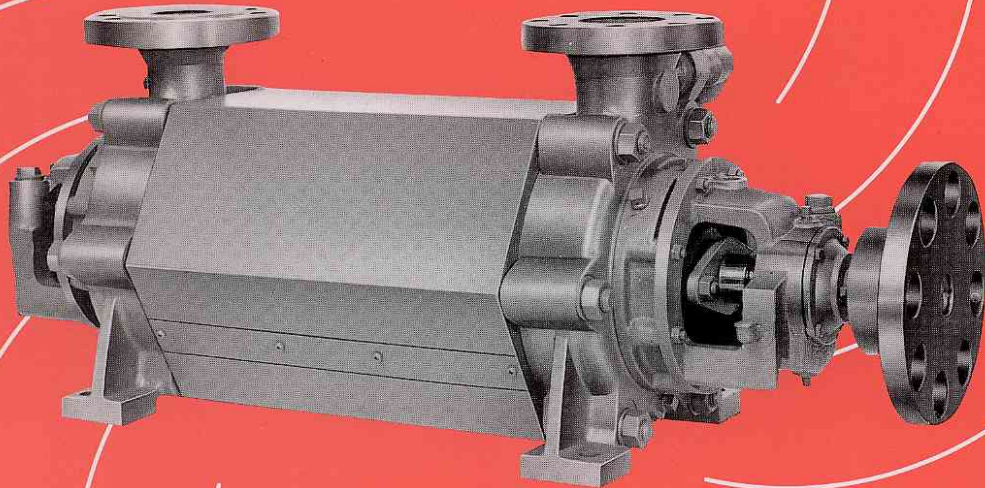
EBARA

CS1824EE

HORIZONTAL MULTI STAGE PUMP

Ring Section Casing, Diffuser Type For General High Pressure Service
Model

MSS



HORIZONTAL MULTI STAGE PUMP

RING SECTION CASING DIFFUSER TYPE FOR GENERAL HIGH PRESSURE SERVICE

Development of this new Model MSS pump was based on the field-proven performance and technology of Ebara multistage pumps, which have been manufactured for more than long years.

Although this pump is classified as a

light duty high head pump, thorough quality control at all stages during its standardized manufacture, has resulted in the production of a highly reliable and durable product.

The Model MSS pump is of medium water head type, which is not only

highly efficient but also easy to handle. The new model which is highly reliable and durable has been manufactured under a complete standardization and thorough quality control scheme.

Applications

- Boiler feed water
- Processing water
- City water and high pressure water in general

Features

1. High efficiency over a wide range:

Design of the unique impeller used in Model MSS pumps ensures high efficiency over a wide range. Moreover, Model MSS multistage pumps are constructed so as to obtain a perfect downward head curve, making possible their use with a sense of security for a very wide range of applications.

2. Highly reliable components:

All components of Model MSS pump are made of precisely manufactured first-class materials, thus ensuring durability and maintenance-free operation. Reduction of the number of components has contributed to the highly reliable operation.

3. Simple construction permits easy maintenance:

Model MSS multistage pumps, with simplified construction and reduced number of components can be easily disassembled and/or inspected.

4. Suitable for low NPSH operation:

Special design of the first stage impeller prevents cavitation and reduces NPSH requirements.

5. Compact and inexpensive:

Simplified design of casting has resulted in the production of a light weight pump that is compact and inexpensive.

6. Short term delivery:

Standardized production of Model MSS multistage pumps permits delivery a short time after receipt of order.

Standard Specifications

Inlet suction diameters:	50 ~ 150mm
Capacity:	0.18 ~ 5.4m ³ /min {48 ~ 1430 USGPM } ^{**}
Maximum allowable operating pressure:	5.74 Mpa { 830 PSIG } ^{**}
Maximum allowable suction pressure:	2.45 Mpa { 360 PSIG } ^{**}
Test pressure:	8.62 Mpa { 1250 PSIG } ^{**}
Maximum operating temperature:	165°C { 329°F } ^{**}
Specific gravity, liquids applicable:	0.8 and above { 50 lb / ft ³ } ^{**} and above in density

^{**} The values in parenthesis {} are reference only.

Construction

Casting

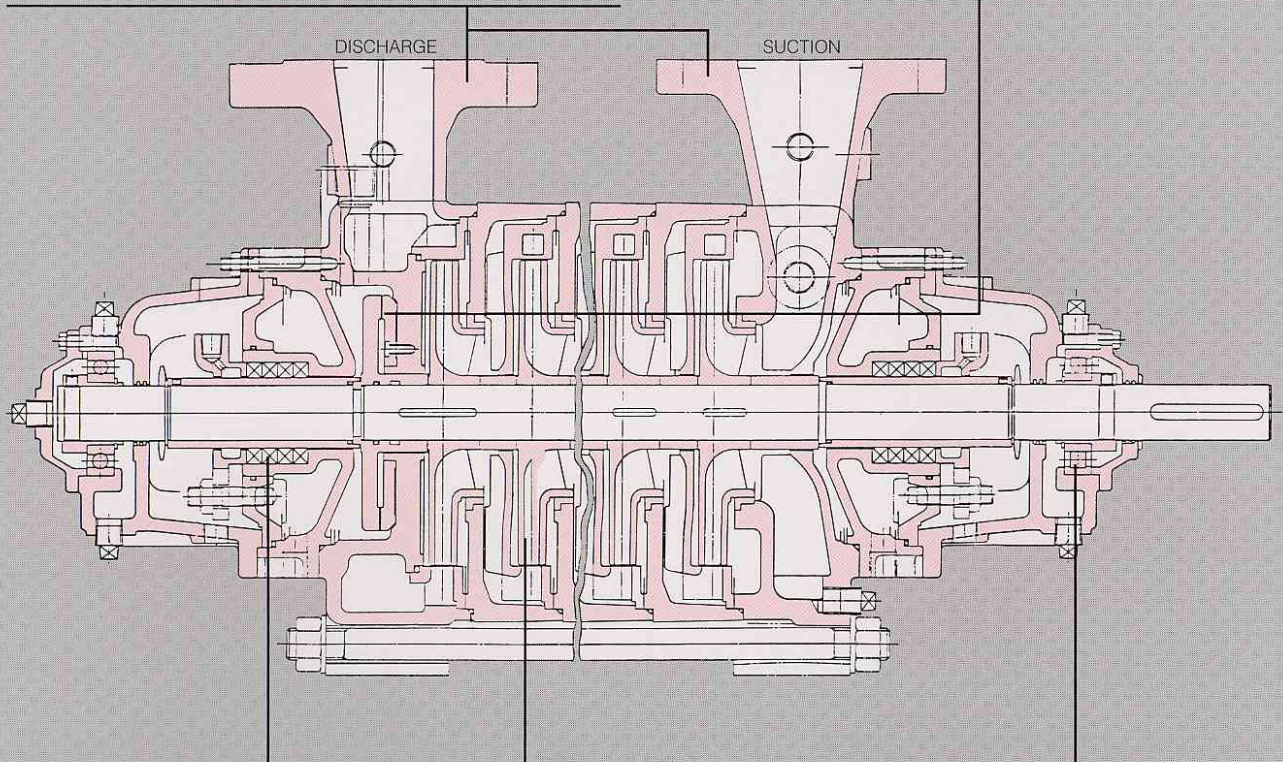
The suction and discharge casings plus the intermediate casings, are bolted together with six strong bolts. Airtight fit is ensured by O-rings installed between all mating casing surfaces.

Standard Model MSS Multistage Pumps have suction and discharge directions indicated in outside dimension drawing. These directions may be optionally reversed on a special order basis.

Shaft thrust balancing mechanism

Total axial thrust generated by impeller is perfectly balanced by the balance disc.

A balance piston system is also available according to pump operating requirements.



Shaft sealing

Standard sealing for Model MSS multistage pumps is gland packing or mechanical seal.

Bearings

Shaft support is provided by roller bearings on the coupling end and single-row deep-groove type radial ball bearings on the opposite end.

Lubrication is provided by an oil bath system.

Impeller

Multistage impellers are provided in enclosed type. Diffuser structure promotes high efficiency.

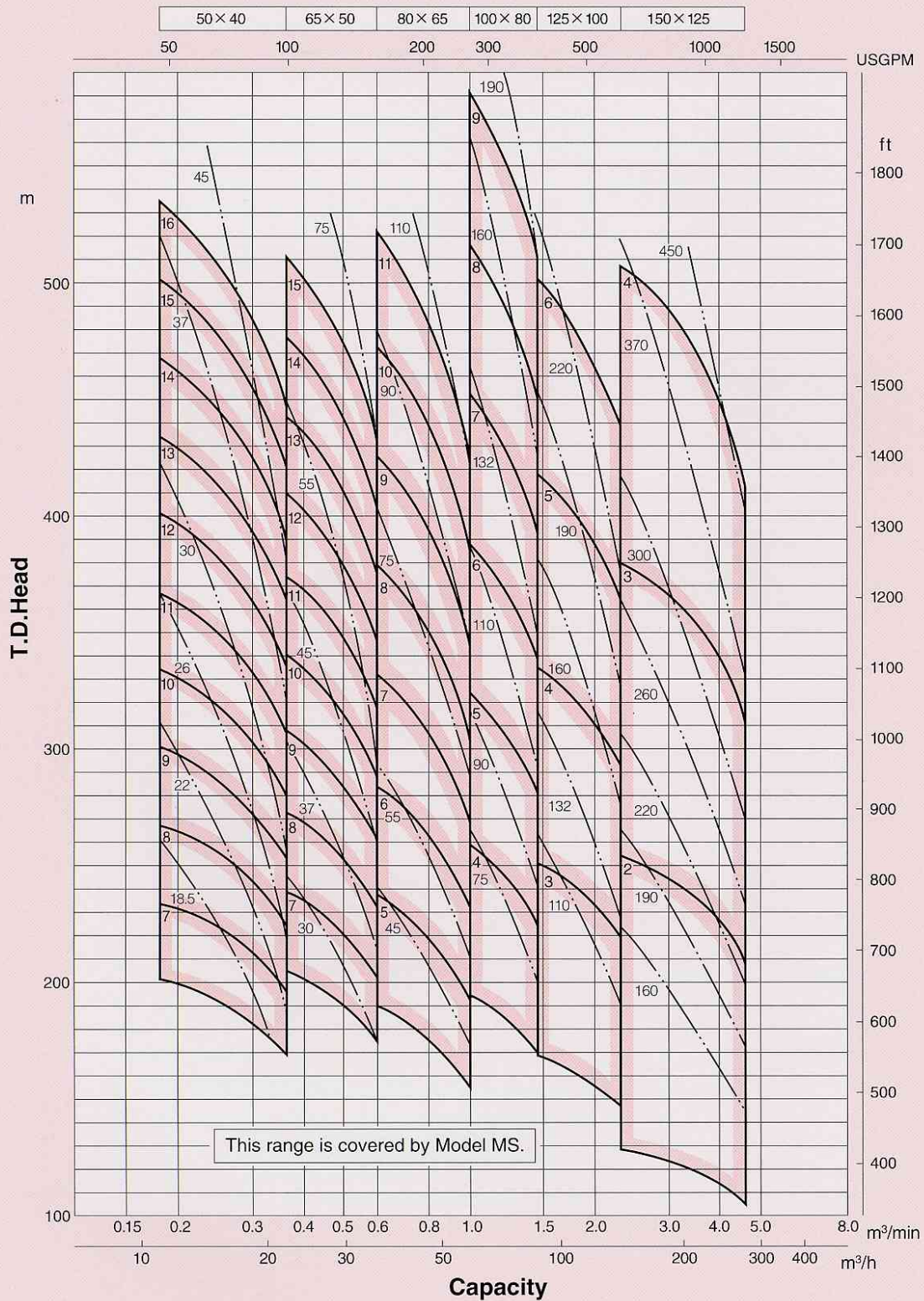
Standard Materials

PARTS	MATERIALS
Suction casing	Cast iron or ductile cast iron
Discharge casing	Cast steel
Intermediate casing	Cast iron or ductile cast iron
Impeller	Ductile cast iron
Diffuser	Ductile cast iron
Shaft	Chrome molybdenum steel
Shaft sleeve	13% chrome steel
Casing bolts	Chrome molybdenum steel

- Materials are subject to change, depending upon liquid quality, temperature, etc.
- Model MSS pumps of 13% chrome steel and of 18 : 8 stainless steel are optionally available on a special order basis.

Performance Ranges

50Hz (2,950 min⁻¹)



Numbers in heavy type represent number of stages while others indicate motor capacity in kW. Performance ranges shown on these charts are for preliminary selection only.

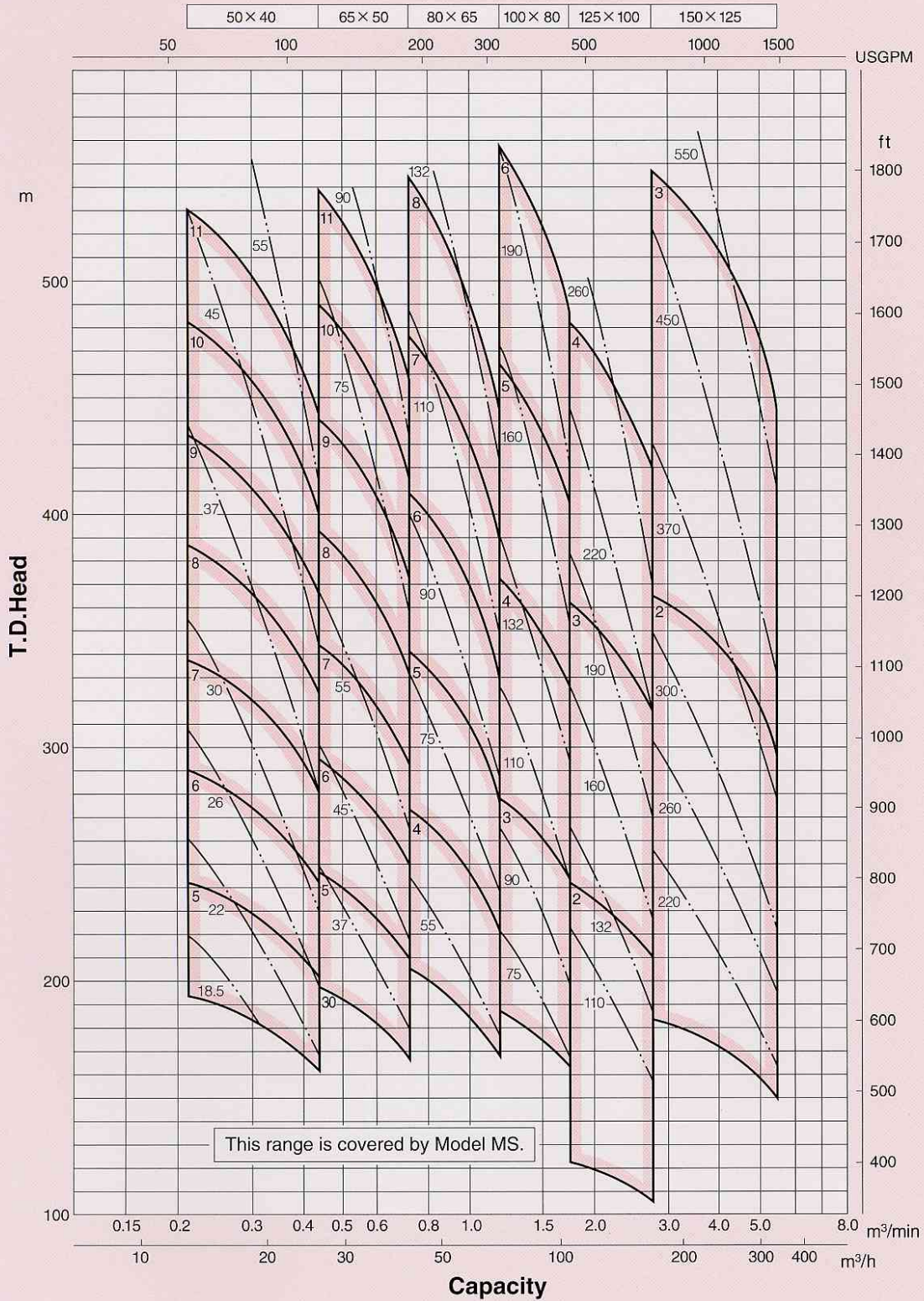
Model Symbols

50 x 40 MSS 6 M

- Motor drive
- Number of stages
- Model
- Discharge bore (mm)
- Suction bore (mm)

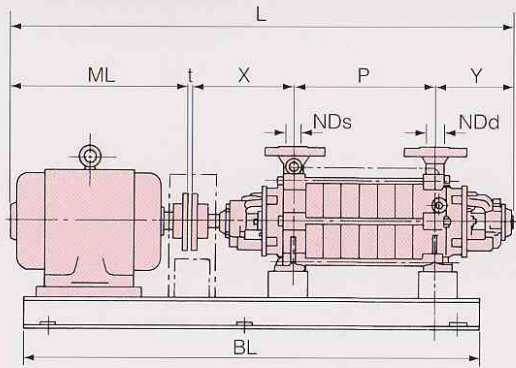
Performance Ranges

60Hz (3,550 min⁻¹)

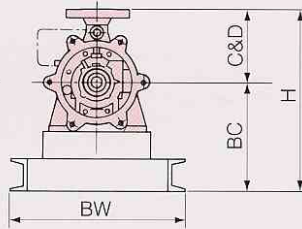


Numbers in heavy type represent number of stages while others indicate motor capacity in kW. Performance ranges shown on these charts are for preliminary selection only.

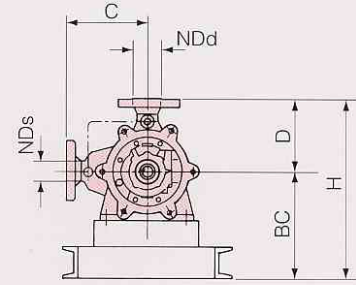
Dimensions



(Model 50×40 ~ 100×80)



(Model 125×100 ~ 150×125)

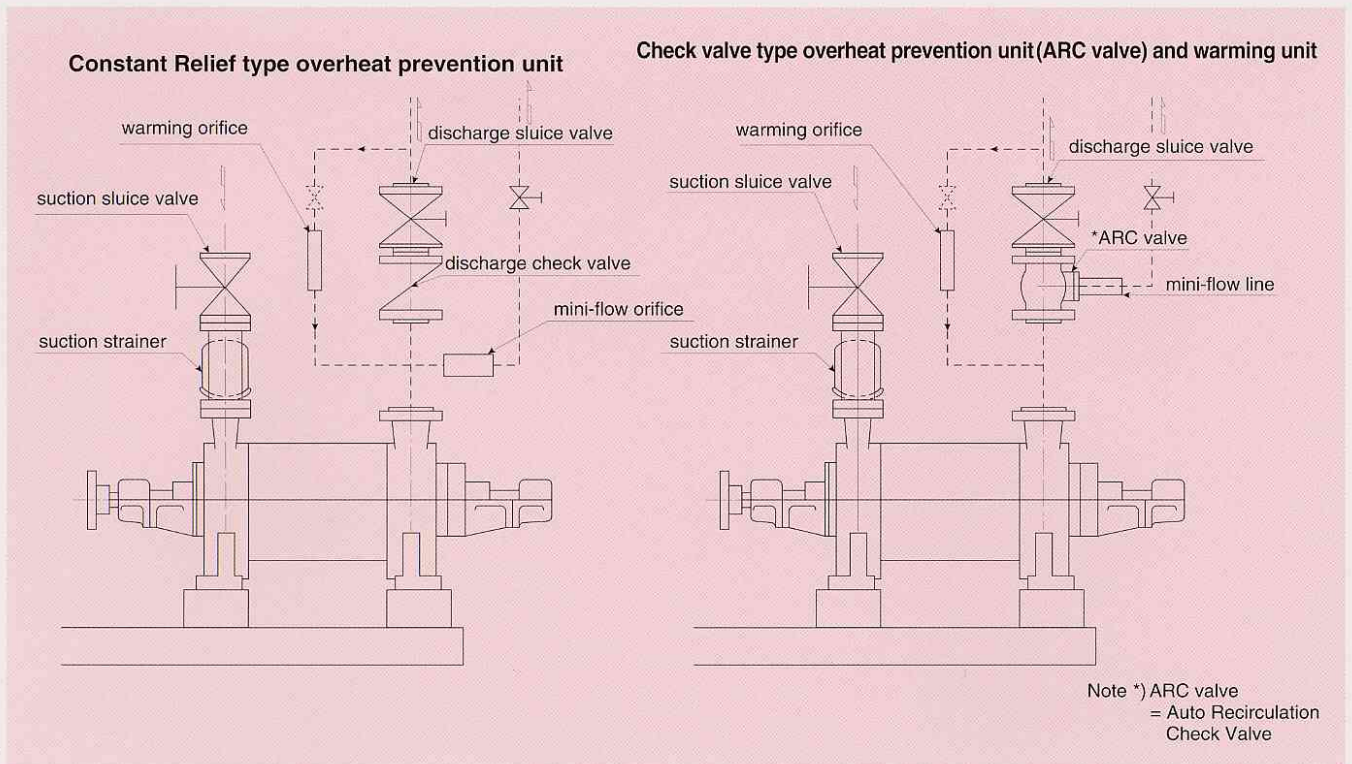


Unit (mm)

Pump Bore	Number Stages	Flange		X	P	Y	BC	C	D	H	t	ML	L	BL	BW	Weight (kg/ pump + base)																								
		suction NDs	discharge NDd																																					
50×40	5	50	40	270	202	202	190	190	190	190	3	1104	2114	1650	620	290																								
	6																265	325	515	664	1404	1160	370	200																
	7																310	345	535	770	1555	1300	430	220																
	8																355	395	585	985	1815	1420	560	240																
	9																400	425	615	1104	1860	1480	560	250																
	10																445	395	585	985	1905	1520	560	260																
	11																490	425	615	1104	2069	1600	620	280																
	12																535	395	585	985	2114	1650	620	290																
	13																580	425	615	1104	2040	1700	560	290																
	14																625	395	585	985	2085	1750	560	300																
	15																670	425	615	1104	2130	1800	560	320																
	16																715	425	615	1104	2175	1800	630	330																
	17																760	425	615	1104	2339	1860	630	340																
	65×50																5	65	50	305	222	222	200	200	200	200	3	1104	1979	1480	640	230								
																	6																293	400	600	985	1808	1400	210	
																	7																345	430	630	1104	2083	1600	250	
8		397	465	665	1155	2135	1650	260																																
9		449	430	630	1155	2187	1700	280																																
10		501	465	665	1194	2278	1770	700	290																															
11		553	430	630	1194	2330	1820	700	300																															
12		605	430	630	1155	2343	1850	640	300																															
13		657	430	630	1155	2395	1900	640	320																															
14		709	430	630	1155	2447	1950	640	340																															
15		761	430	630	1155	2499	2000	640	360																															
16		813	430	630	1155	2499	2000	640	360																															
80×65		4	80	65	305	222	222	225	225	225	225	4	1400	2374	1950	790	320																							
		5																															269	435	660	1154	1954	1470	640	230
		6																															327	495	780	1194	2052	1550	710	250
	7	385																535	820	1255	2171	1650	710	280																
	8	443																495	780	1400	2374	1950	790	320																
	9	501																535	820	1400	2432	2000	710	340																
	10	559																495	780	1255	2345	1830	710	370																
	11	617																535	820	1400	2403	1880	760	390																
	12	675																535	820	1400	2606	2170	760	420																
	100×80	3																100	80	350	245	245	250	250	250	250	4	1389	2413	1980	800	450								
		4																															230	495	745	1255	2084	1550	720	380
5		295	535	780	1400	2294	1850	800	400																															
6		360	495	745	1389	2359	1930	800	430																															
7		425	535	820	1400	2413	1980	800	450																															
8		490	495	780	1400	2489	2050	800	560																															
9		555	535	820	1400	2554	2120	800	590																															
10		620	535	820	1389	2608	2180	800	620																															
125×100		2	125	100	350	258	258	300	280	280	280	4	1389	2310	1870	810	550																							
	3	230																495	745	1255	2084	1550	720	380																
	4	235																500	780	1400	2294	1850	800	400																
	5	305																540	820	1389	2310	1870	810	550																
	6	375																540	820	1389	2380	1940	810	570																
	7	445																540	820	1389	2450	2010	810	700																
150×125	2	150	125	390	289	289	350	315	315	315	8	1380	2444	2250	930	860																								
	3																205	595	910	1420	2312	2020	820	800																
	4																290	640	955	1550	2529	2320	930	860																
5	375	640	955	1380	2444	2250	930	920																																

- For pumps with bores of 125 x 100 and of 150 x 125, the suction flange is located on the right when viewed from the drive end.
- C represents the dimension from shaft center to suction flange surface.
- NOTE : The base plate dimension will be changed as per size of motor and will be informed after contract.

Block Diagrams, Overheat Prevention Units



● Constant Relief Type Overheat Prevention Unit

This unit permits release of a limited minimum flow through a pressure reducing orifice to the suction tank and deaerator during pump operation in order to prevent pump from being operated at less than minimum. This system is widely applied because it is simple and highly reliable. While the pump is operating at the required point, capacity will equal required capacity plus some volume in the bypass.



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