



EBARA

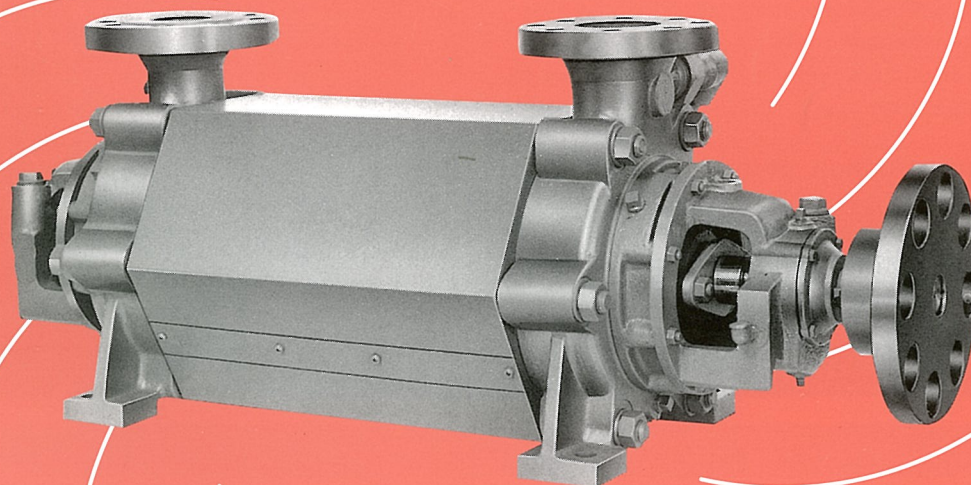
CS1824EE

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

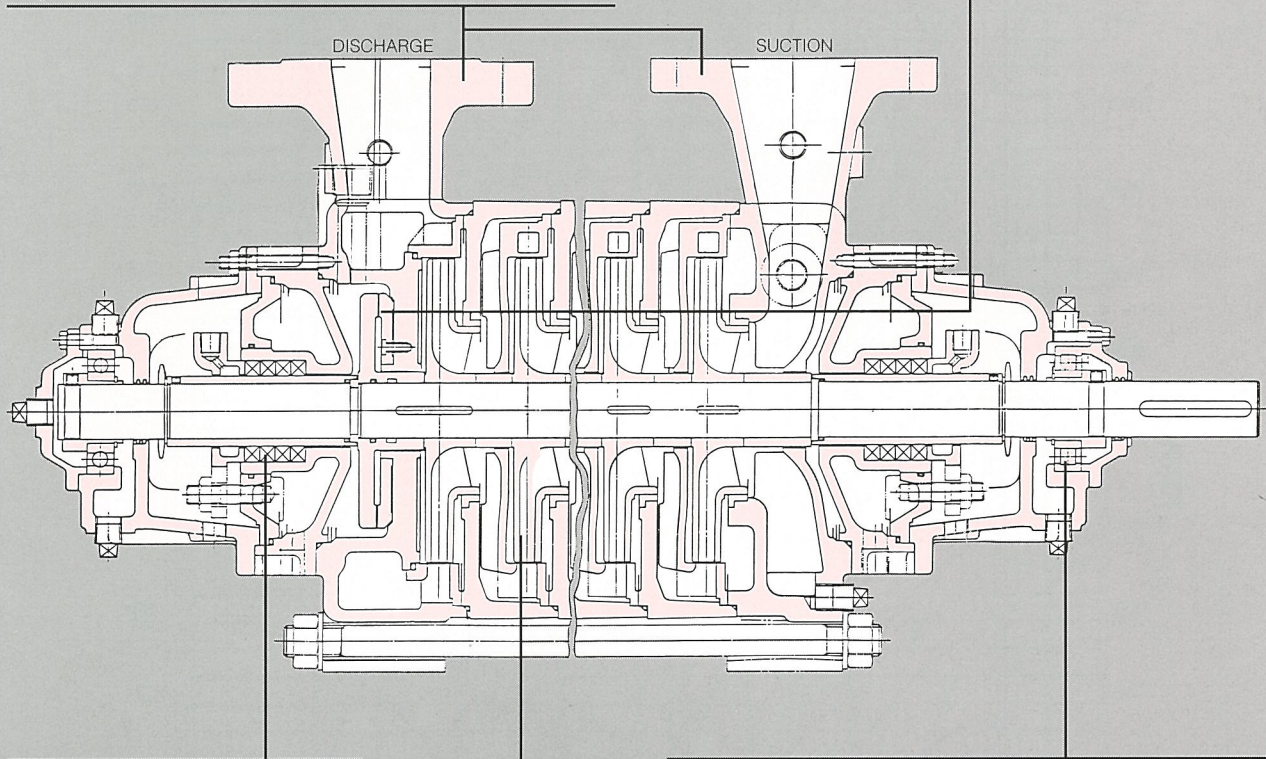
The suction and discharge casings plus the intermediate casings, are bolted together with six strong bolts. Airtight fit is ensured by O-rings installed between all mating casing surfaces.

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.

Impeller

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

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.

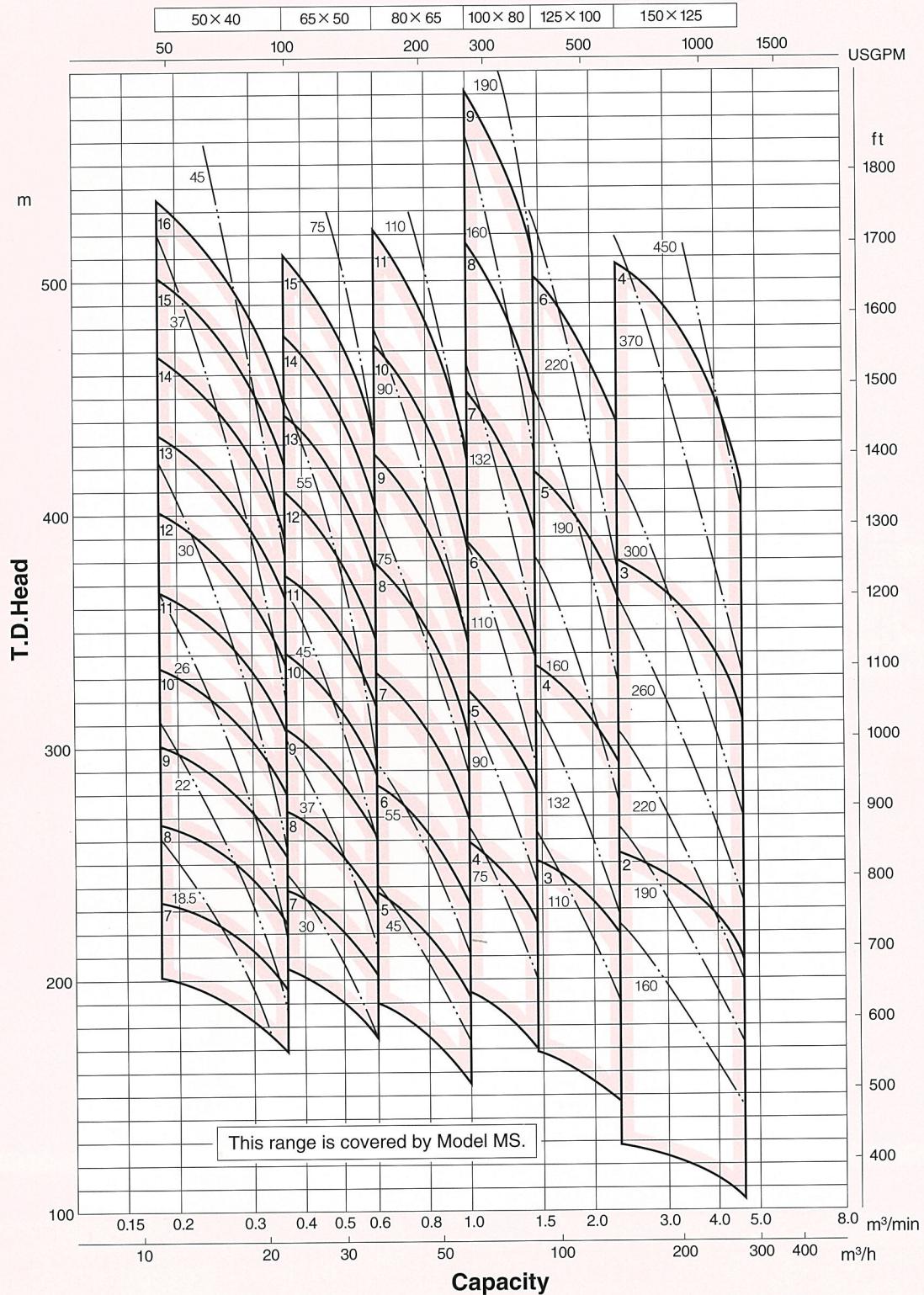
Standard Materials

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 (2,950min⁻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.

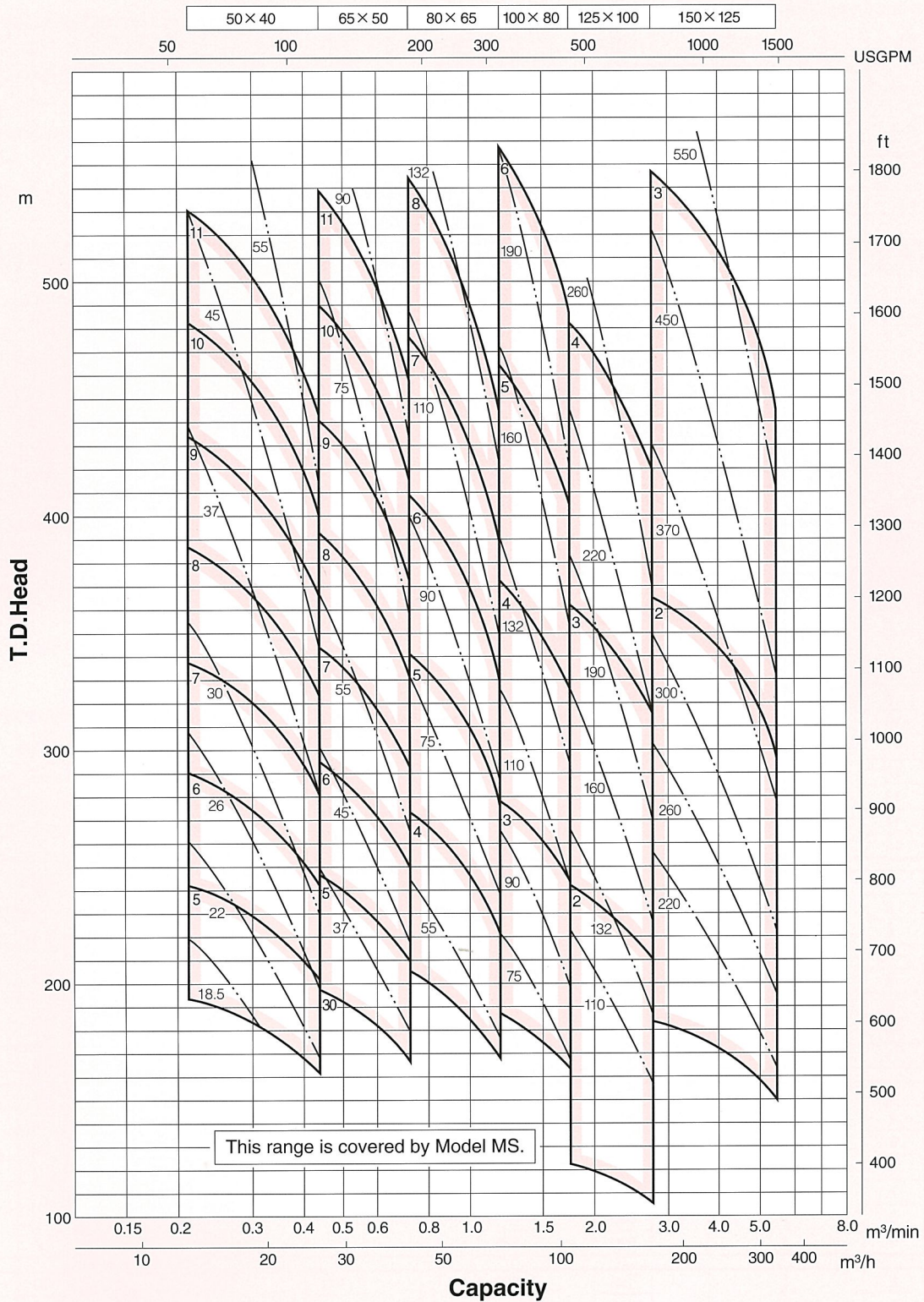
Model Symbols

50 x 40 MSS 6 M

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

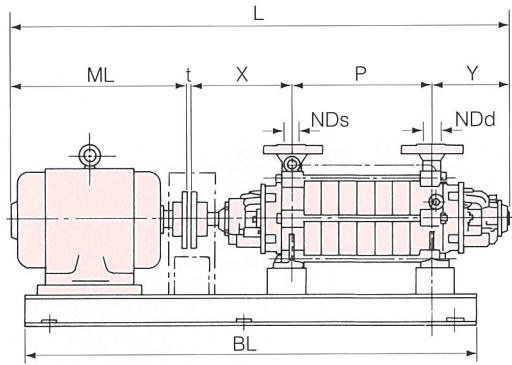
Performance Ranges

60Hz (3,550 min⁻¹)

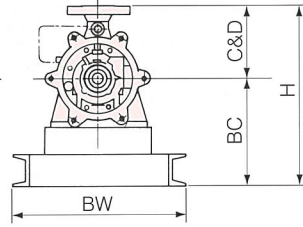


Numbers in heavy type represent number of stages while others indicate motor capacity in kW. Performance ranges shown on these charts are for preliminary selection only.

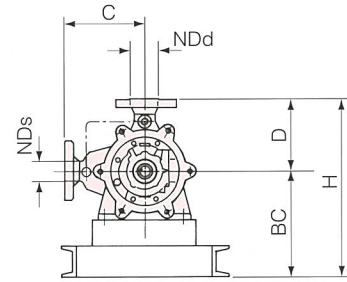
Dimensions



(Model 50×40 ~ 100×80)



(Model 125×100 ~ 150×125)

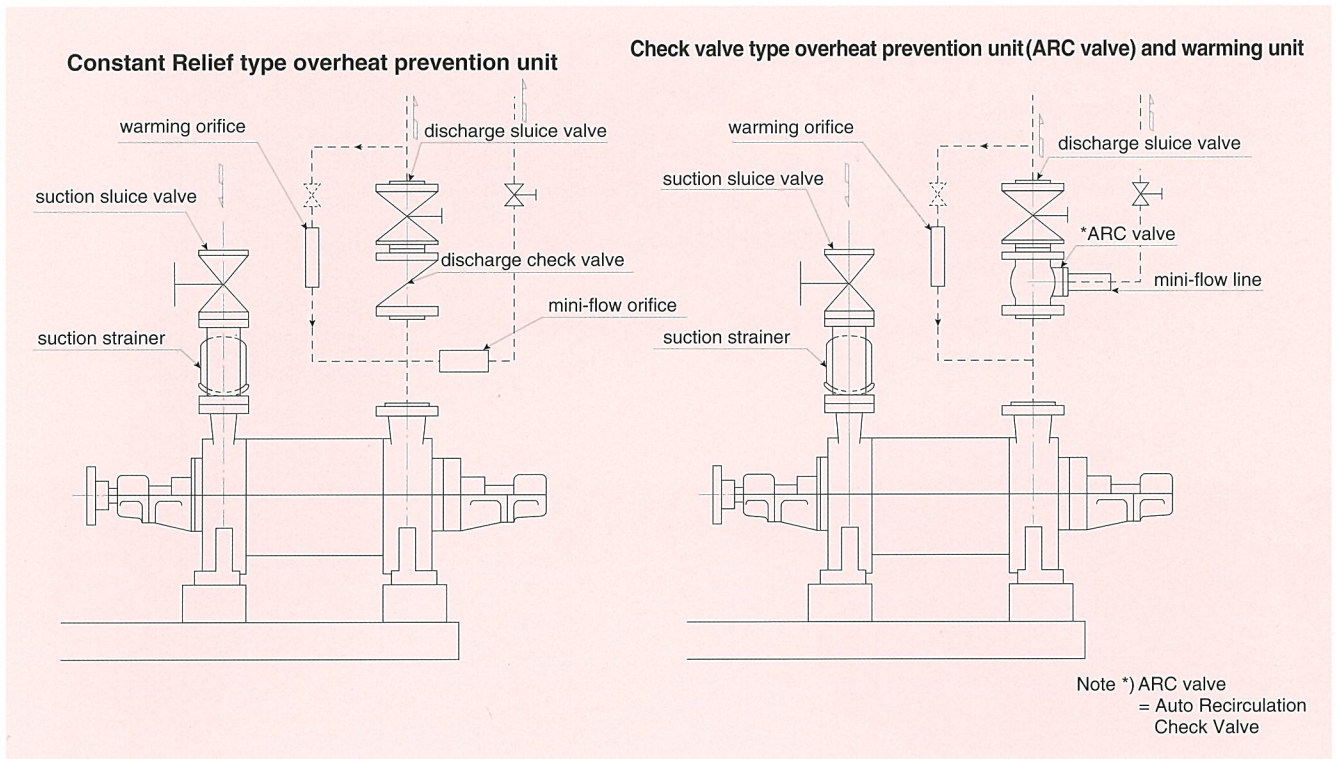


Unit (mm)

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	265	202	325	190	190	515	3	664	1404	1160	370	200									
	6				310		345			535		770	1555	1300	430	220									
	7				355		395			585		985	1815	1420	560	240									
	8				400								1860	1480		250									
	9				445		425			190		190	615	3	1104	2069	1600	620	280						
	10				490											2114	1650	290							
	11				535		395			585		985	2040	1700	560	290									
	12				580								2085	1750		300									
	13				625								2130	1800		320									
	14				670								2175	1860		330									
	15				715		425			615		1104	2339	1860	630	340									
	16				760																				
	65×50				5		65			50		305	293	222	400	200	200	600	3	985	1808	1400	640	210	
					6								345		430			630		1104	1979	1480		230	
					7								397							2083	1600	250			
					8								449		465			200		200	665	4		1194	2135
9		501	2187	1700	280																				
10		553	430	630	1155	2278		1770	700		290														
11		605				2330		1820	300																
12		657	430	630	1155	2343		1850	640		300														
13		709				2395		1900			320														
14		761				2447		1950			340														
15		813				2499		2000			360														
80×65		4	80	65	305	269		222	435		225		225		660			4		1154	1954	1470		640	230
		5				327			710						1194					2052	1550	250			
		6				385									1255					2171	1650	280			
		7				443			470						225					225	695	4		1400	2374
	8	501				2432	2000			340															
	9	559				430	630		1255	2345		1830		710	370										
	10	617								2403		1880		390											
	11	675								2400		1950		420											
	100×80	3				100	80		350	230		245		495	250	250	745		4	1255	2084	1550	720	380	
		4								295				800			1400			2294	1850	400			
		5								360							2359			1930	430				
6		425	535	250	250			745		4	1389		2413	1980			450								
7		490											2489	2050			560								
8		555	495	250	250			745		4	1400		2554	2120			590								
9		620											535	1389			2608	2180		620					
125×100		2	125	100	350			165		258	500		300	280			780	4		1400	2177	1730	800	480	
		3						235			820						8			1389	2326	1800	810	510	
	4	305				2310	1870	550																	
	5	375				540	300	280	820		8	1389			2380	1940	570								
	6	445													2450	2010	700								
	150×125	2				150	125	390	205		289	595			350	315	910		8	1420	2312	2020	820	800	
3		290	955	10	1380				2529	2320		930	860												
4		375							955	10			1380	2444			2250	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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