



**EBARA**

CS1060EF

# PROCESS PUMPS

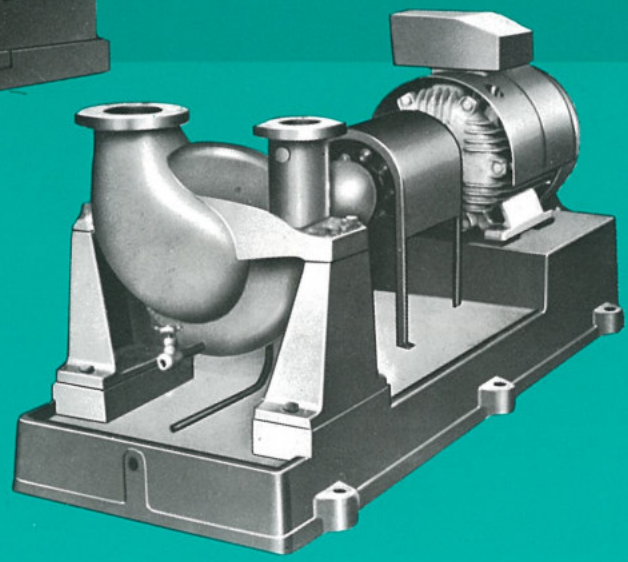
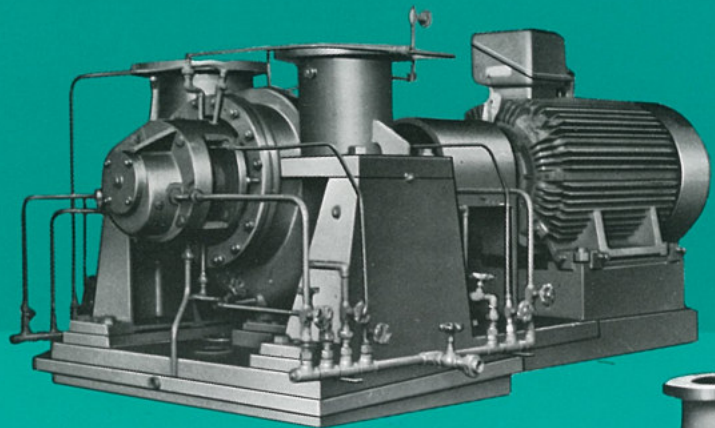
Single Stage, Double Suction, Centerline Support

Models

## KS/UCWD

API 610

Be<sup>®</sup>





# PROCESS PUMPS

Single Stage, Double Suction, Centerline Support

Models

## KS/UCWD

API 610 

EBARA offers both back pull-out and between bearing designs of single-stage, double suction pumps that have been developed after many years of research. These improved single-stage, double suction, centerline support process pumps have been used extensively by oil refineries and the chemical and petrochemical

industries. Featuring lower NPSH and higher performance values, these pumps are being widely used. Our modern tape controlled machines in conjunction with advanced quality control procedures insure that these pumps meet our high manufacturing standards. Unique design of the high perform-

ance pump provides for superior and extended low-cost operation.  
**Model KS**  
 Between bearing, horizontal, single stage, double suction centerline supported type.  
**Model UCWD**  
 Back pull-out, horizontal, single stage, double suction centerline supported type.

### Applications

- Petroleum Refineries
- The Petrochemical Industry
- Other Chemical Industries

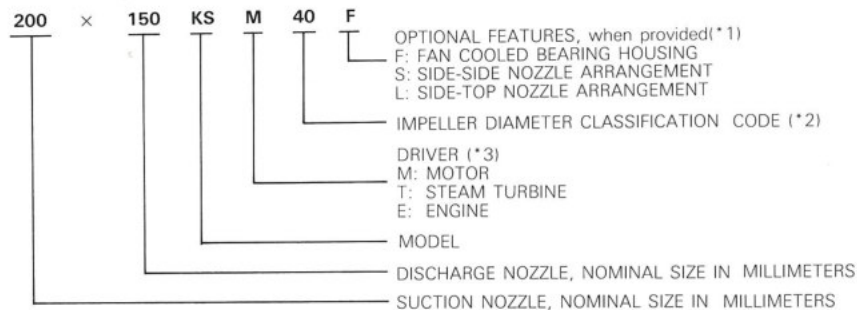
### Ratings

Capacities	To 5500 m <sup>3</sup> /h (24200 USGPM)
Heads	To 550 m (1800 Ft)
Max. working pressures	To 52 kgf/cm <sup>2</sup> (750 PSI) {5.17MPa} Garve Pressure
Rotation	Clockwise (viewed from inboard side)
Temperature ranges	-100°C ~ 450°C (-150°F ~ 850°F)
Impeller type	Enclosed
Nozzles	Top-Top
Flanges	ANSI, other standards also available
Shaft sealing	Mechanical seal, conventional packing & throttle bushing.

### Features

- Centerline supported and heavy duty design.
- Single stage and double suction.
- Full compliance with API 610 specifications.
- Flexibility of design handles wide range of liquids.
- All components have been designed for maximum parts interchangeability.
- Low NPSH performance and high efficiency.

### Designation



Notes: (\*1) When two features are involved, the codes are in alphabetical order.  
 (\*2) The letters "A" and "B" following the impeller diameter classification code indicate different impeller designs. To give an example, 350×250 KSM 50A and 350×250 KSM 50B have different impeller designs.  
 (\*3) When a step up or step down gear is provided, the code letter "G" is added between model and driver. For example, 200×150 KSGM 40 means that the pump is driven by an electric motor through a separate gear.

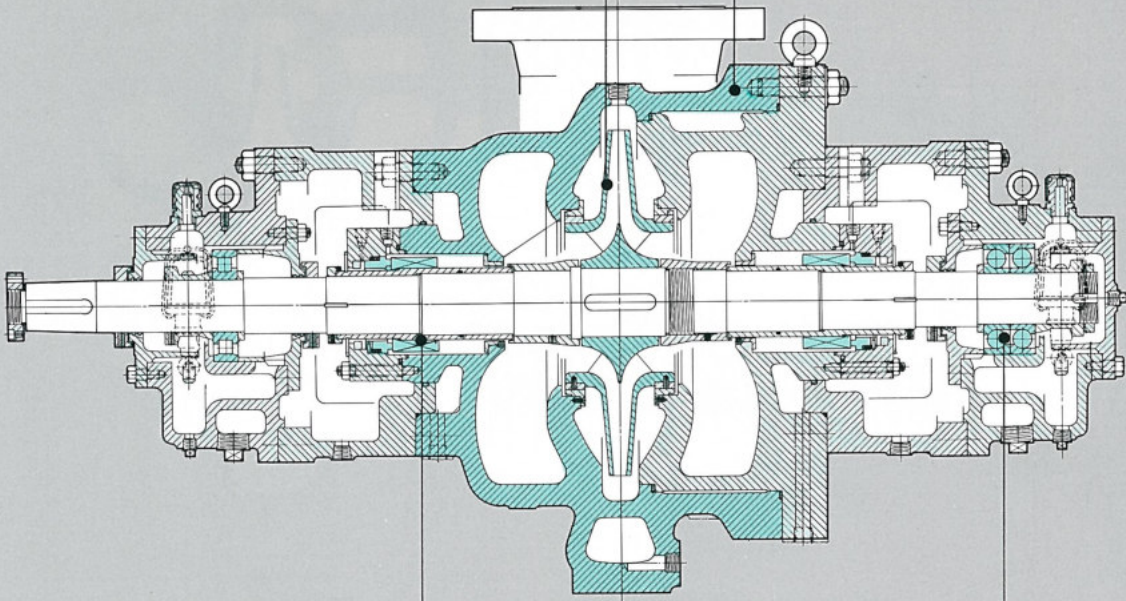


## Construction

### Model KS

**Impeller:** Impeller is an enclosed, double suction type. Both the impeller and casing have easily replaceable impeller wear rings and case wear rings.

**Casing:** Radially split casing and centerline support construction reduces the effects of extreme temperatures.



**Shaft Sealing:** Mechanical seals are available from any mechanical seal-maker. Alternately, a deep ring stuffing box with six rings of packing plus one lantern ring can be applied.

**Bearings:** The thrust bearings consist of back-to-back angular contact bearings on the outboard side. A cylindrical roller radial bearing on the inboard side assures normal operation during differential expansion. These bearings are lubricated by an oil ring. Sleeve or tilting pad type bearings are also available.

## Metallurgy

Name of Parts	Materials JIS/ASTM-AISI			
	C. Steel	12% Cr. Steel	316 S. Steel	C. Steel
Casing	SCPH2/A216WCB	SCS1/A743CA6NM	SCS14A/A743CF8M	SCPL1/A352LCB
Gland Cover	SCPH2/A216WCB	SCS1/A743CA6NM	SCS14A/A743CF8M	SCPL1/A352LCB
Impeller	SCS1/A743CA6NM	SCS1/A743CA6NM	SCS14A/A743CF8M	SCPL1/A352LCB
Impeller Wear Ring	SUS420J2/AISI 420	SUS420J2/AISI 420	SUS316/AISI 316	SNC815/A322
Shaft	SCM440/AISI 4140	SUS420J1/AISI 420	SUS316/AISI 316	SNC815/A322
Case Wear Ring	SUS420J1/AISI 420	SUS420J1/AISI 420	SUS316/AISI 316	SNC815/A322
Shaft Sleeve	SUS420J2/AISI 420	SUS420J2/AISI 420	SUS316/AISI 316	SNC815/A322

Notes: Following materials supplied on request: 304S. Steel, 304LS. Steel, Hastelloy, 20 Alloy, Monel.

Standard Material  
 Optional Materials

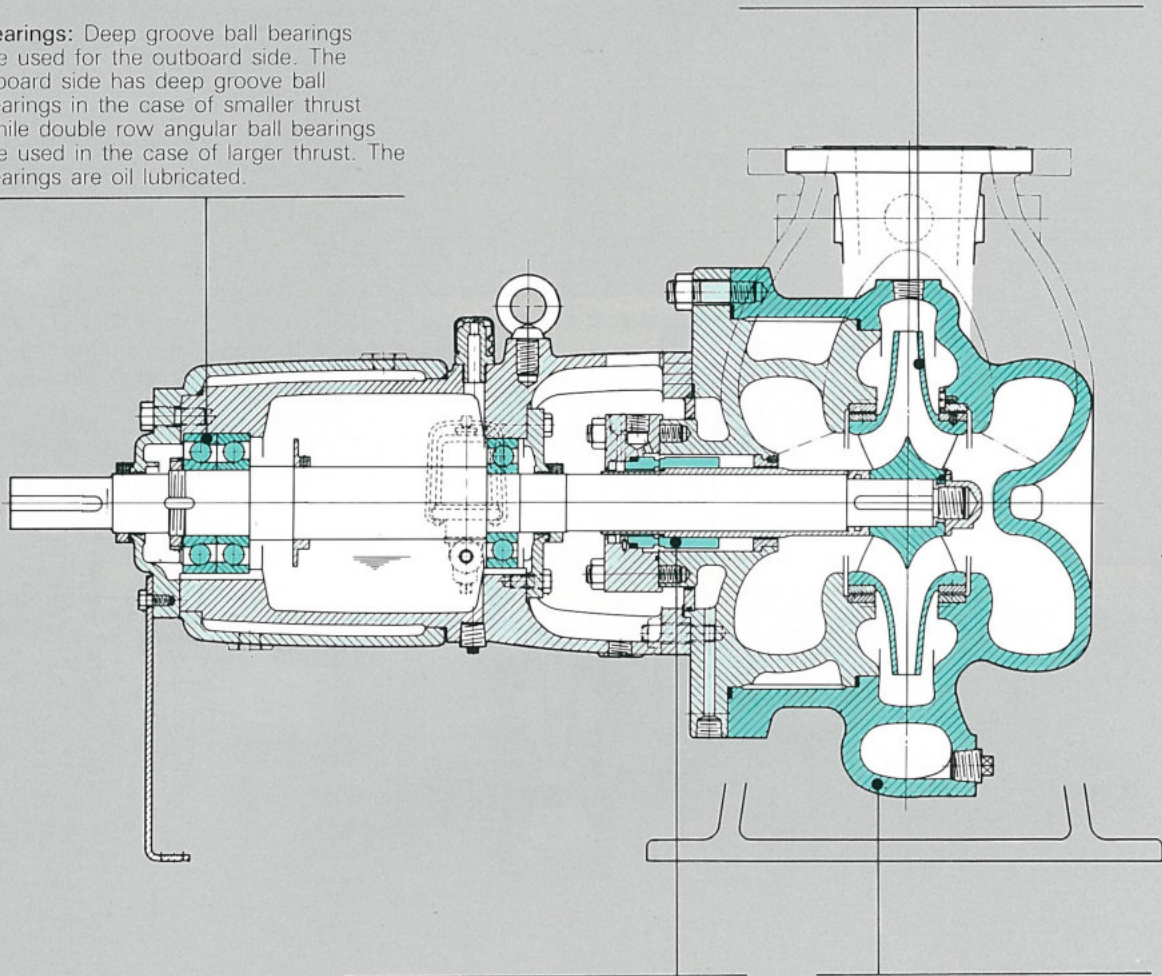


## Construction

### Model UCWD

**Bearings:** Deep groove ball bearings are used for the outboard side. The inboard side has deep groove ball bearings in the case of smaller thrust while double row angular ball bearings are used in the case of larger thrust. The bearings are oil lubricated.

**Impeller:** Impeller is an enclosed, double suction type. Both the impeller and casing have easily replaceable impeller wear rings and case wear rings.



**Shaft Sealing:** Mechanical seals are available from any mechanical seal maker. Alternately, a deep ring stuffing box with six rings of packing plus one lantern ring can be applied.

**Casing:** Radially split casing and centerline supported construction reduces the effects of extreme temperatures.

## Metallurgy

Name of Parts	Materials JIS/ASTM-AISI			
	C. Steel	12% Cr. Steel	316 S. Steel	C. Steel
Casing	SCPH2/A216WCB	SCS1/A743CA6NM	SCS14A/A743CF8M	SCPL1/A352LCB
Gland Cover	SCPH2/A216WCB	SCS1/A743CA6NM	SCS14A/A743CF8M	SCPL1/A352LCB
Impeller	SCS1/A743CA6NM	SCS1/A743CA6NM	SCS14A/A743CF8M	SCPL1/A352LCB
Impeller Wear Ring	SUS420J2/AISI 420	SUS420J2/AISI 420	SUS316/AISI 316	SNC815/A322
Shaft	SCM440/AISI 4140	SUS420J1/AISI 420	SUS316/AISI 316	SNC815/A322
Case Wear Ring	SUS420J1/AISI 420	SUS420J1/AISI 420	SUS316/AISI 316	SNC815/A322
Shaft Sleeve	SUS420J2/AISI 420	SUS420J2/AISI 420	SUS316/AISI 316	SNC815/A322

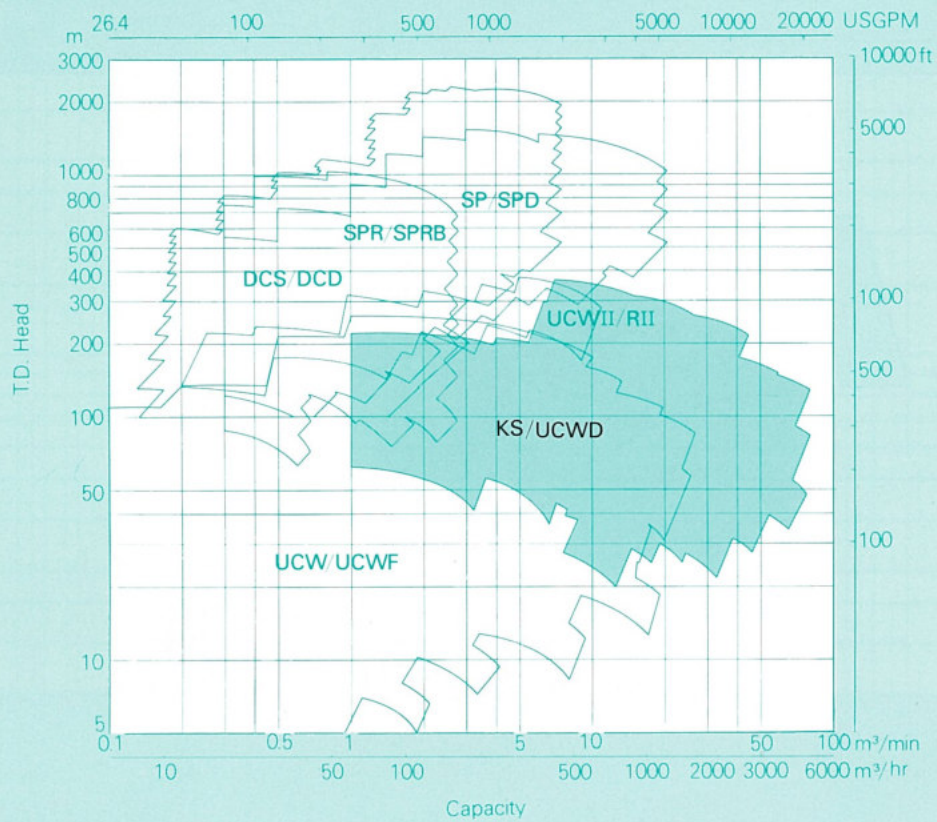
Notes: Following materials supplied on request: 304S. Steel, 304LS. Steel, Hastelloy, 20 Alloy, Monel.

■ Standard Materials  
■ Optional Materials



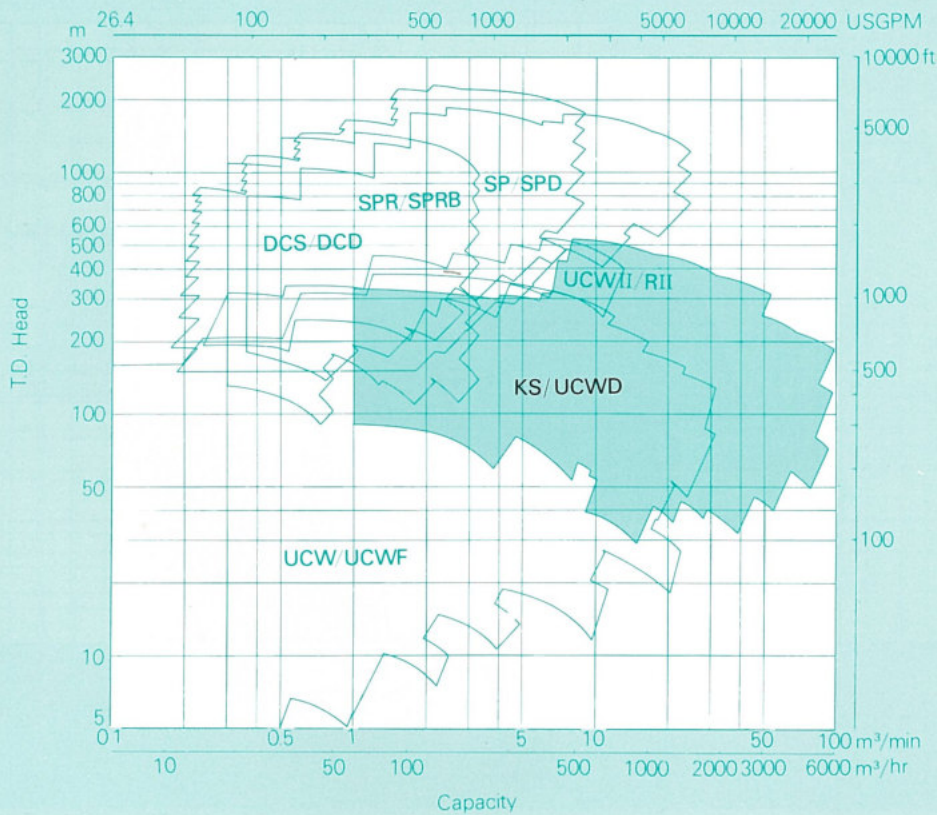
Model KS/UCWD  
General Process Pumps

50Hz



General Process Pumps

60Hz

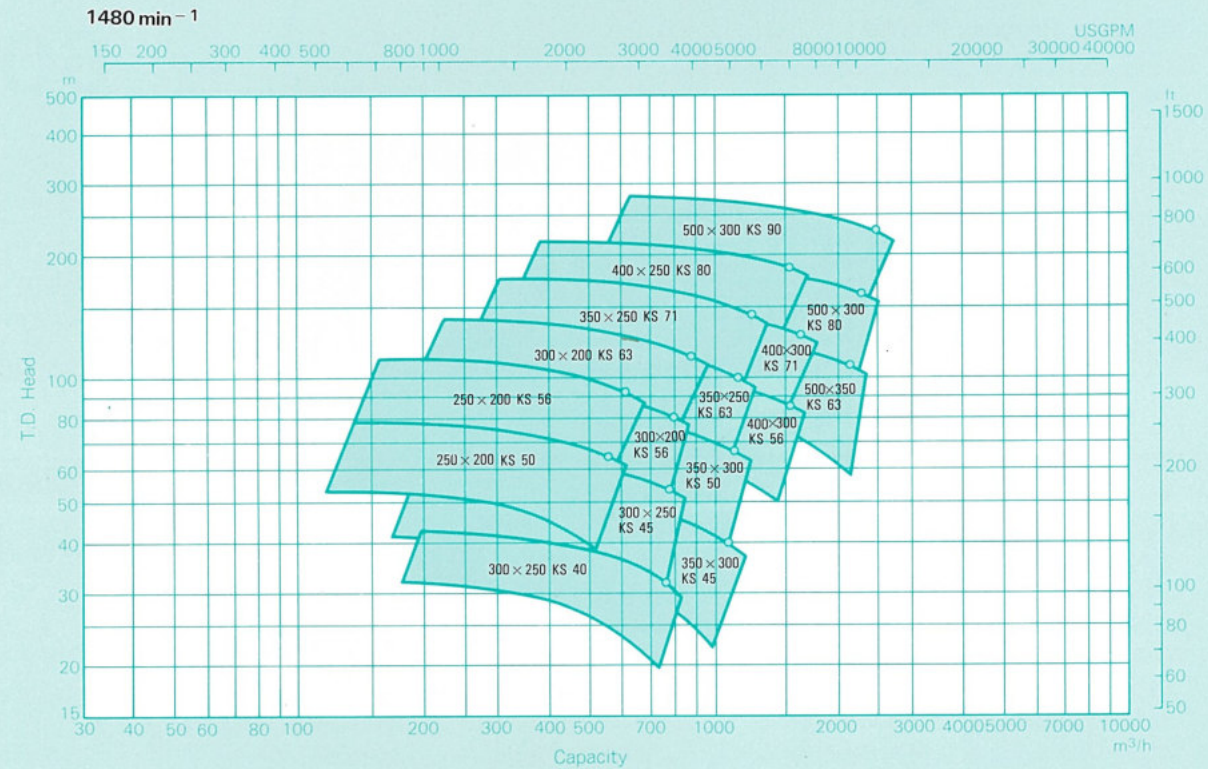
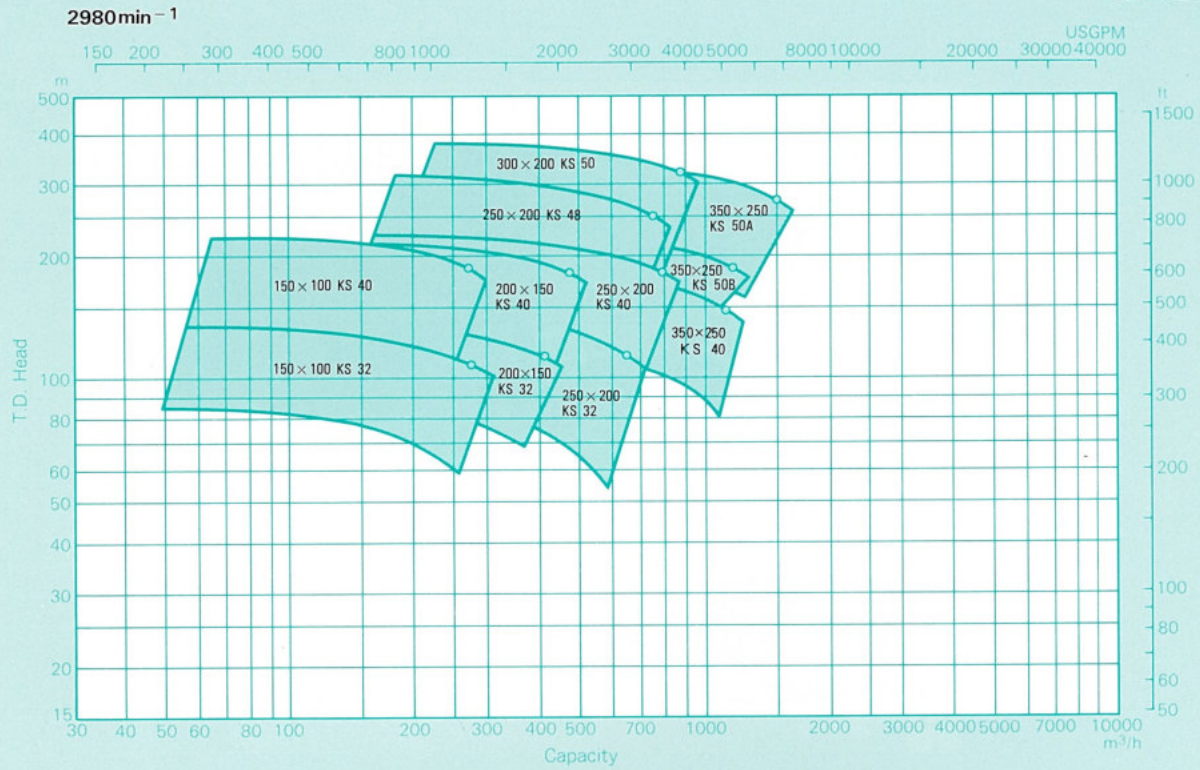


Performance ranges shown on these charts are for preliminary selection only.



# Model KS

# 50Hz

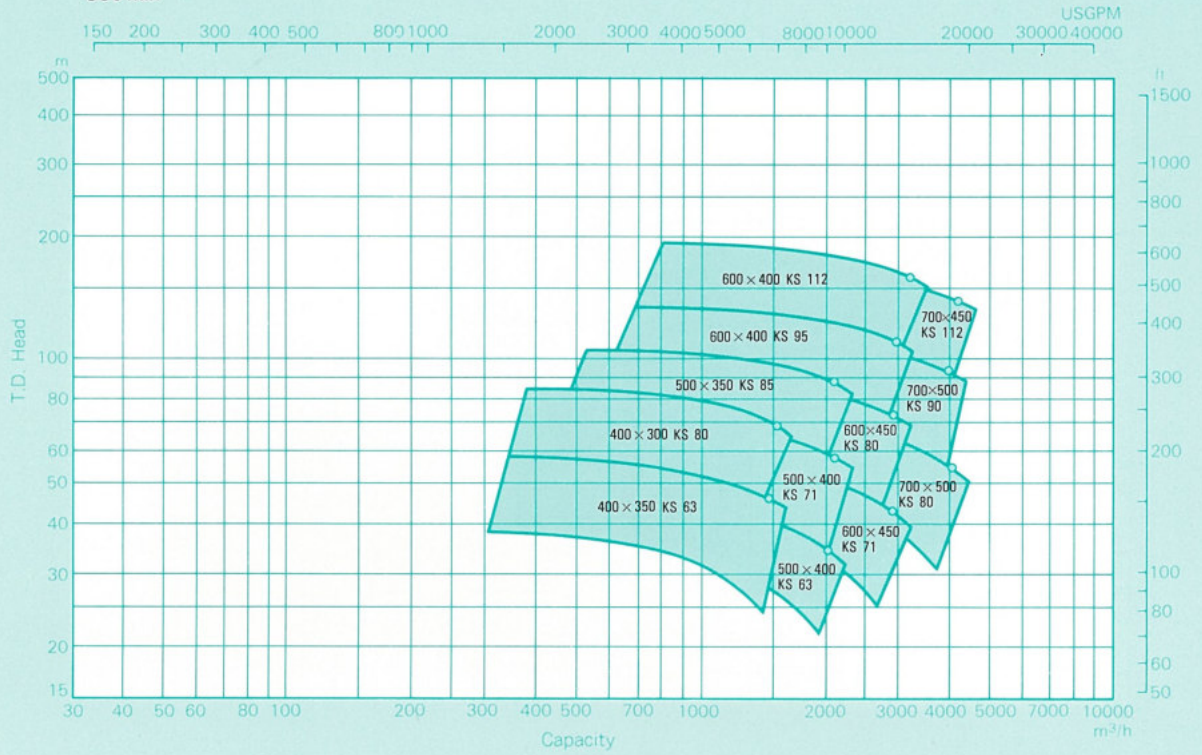


These selection charts are prepared for preliminary selection. Refer to individual performance curves for final selection.  
 ○ denotes B.E.P. of the performance with an impeller of maximum diameter.  
 The number of stages is indicated in the circle.

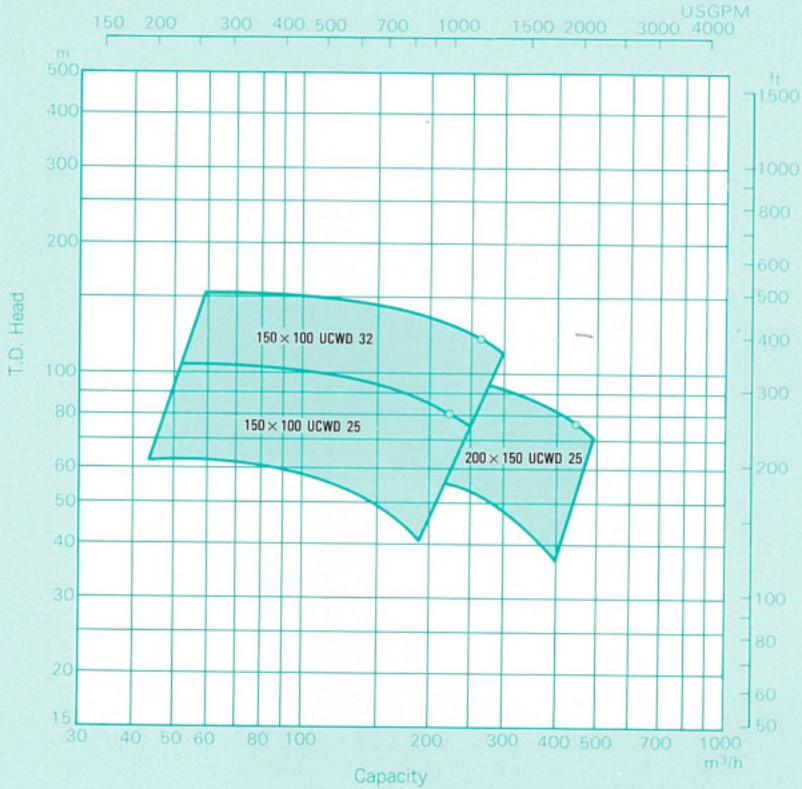
# Model KS

980 min<sup>-1</sup>

# 50Hz



# Model UCWD

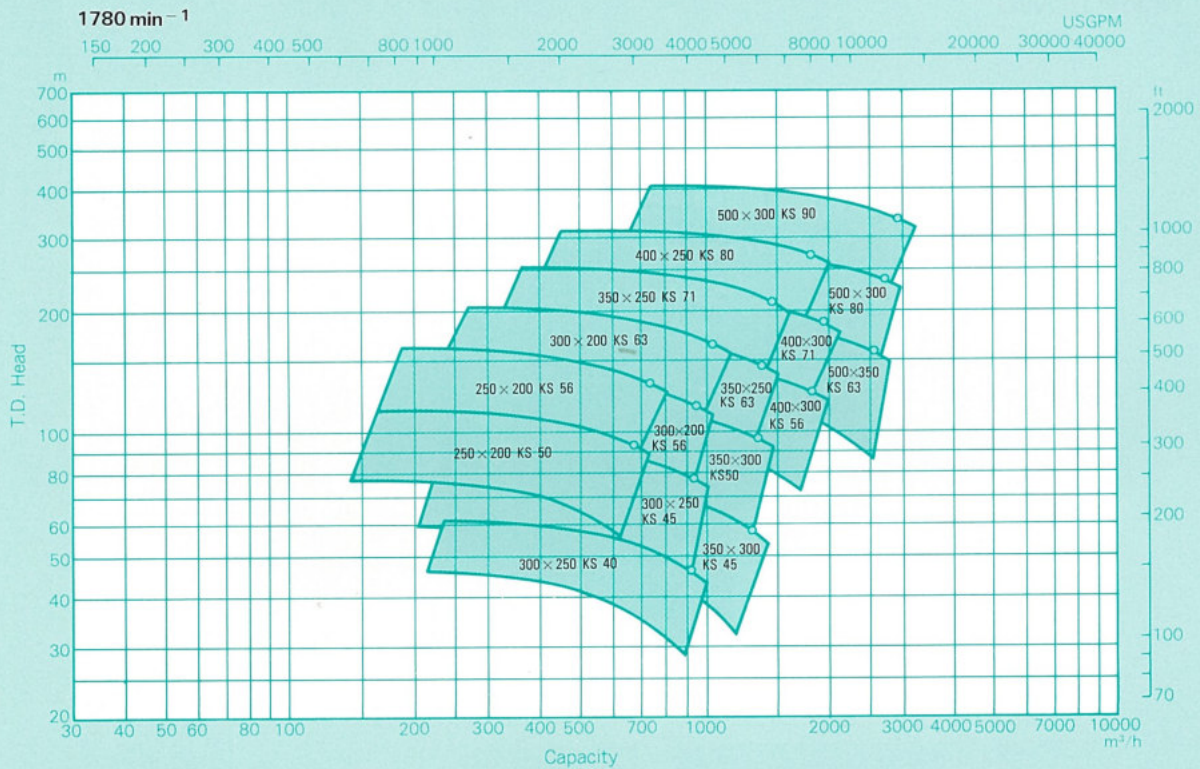
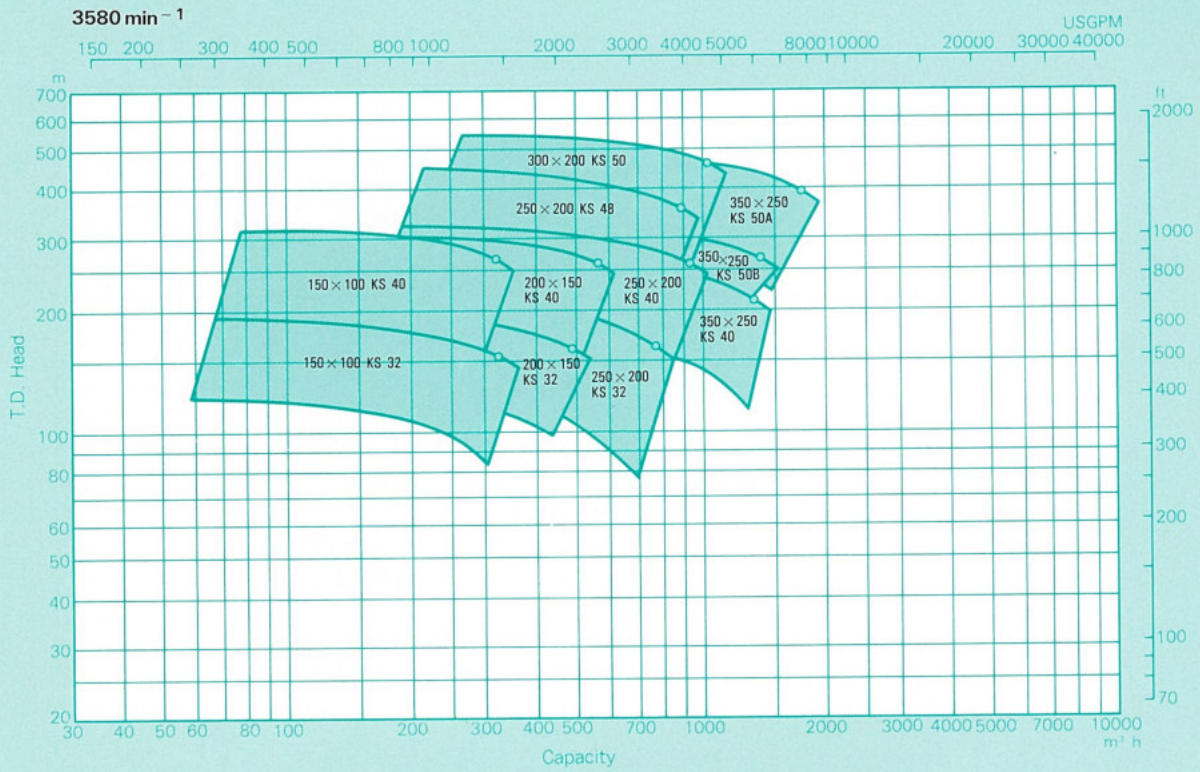


These selection charts are prepared for preliminary selection. Refer to individual performance curves for final selection.  
 o denotes B.E.P. of the performance with an impeller of maximum diameter.  
 The number of stages is indicated in the circle.



Model KS

60Hz



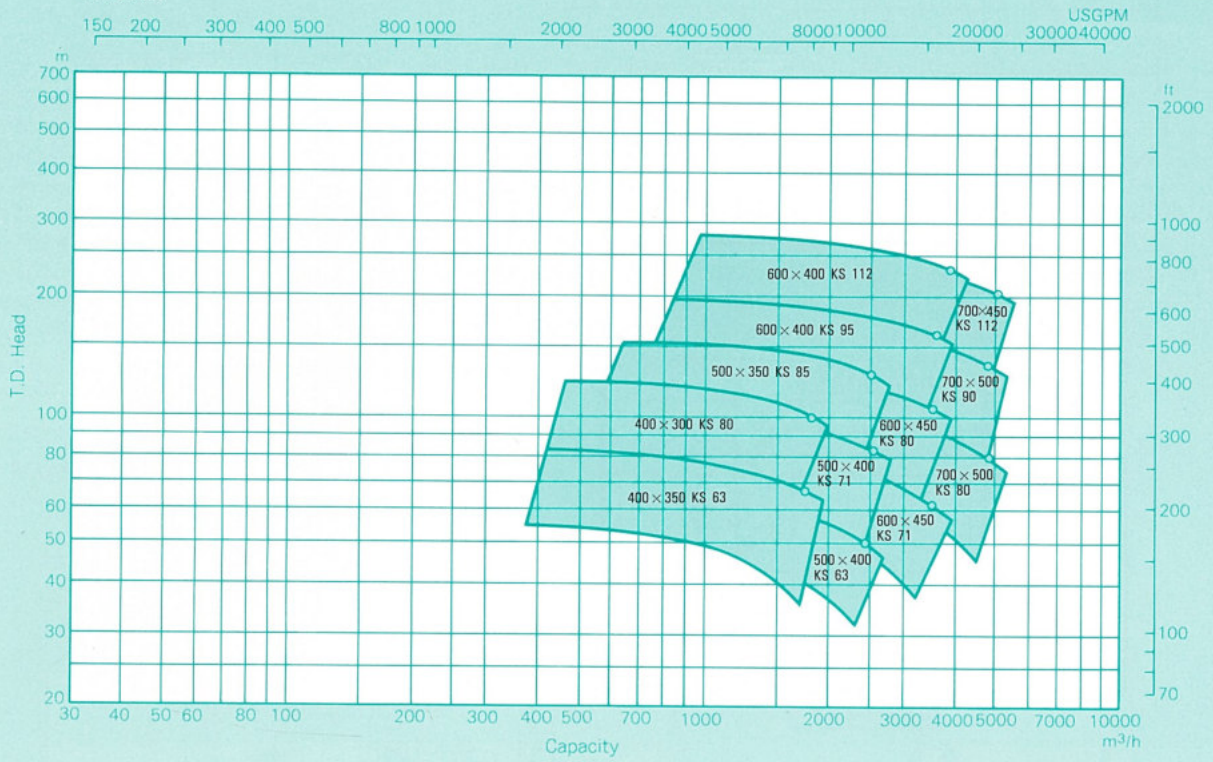
These selection charts are prepared for preliminary selection. Refer to individual performance curves for final selection.  
 O denotes B.E.P. of the performance with an impeller of maximum diameter.  
 The number of stages is indicated in the circle.



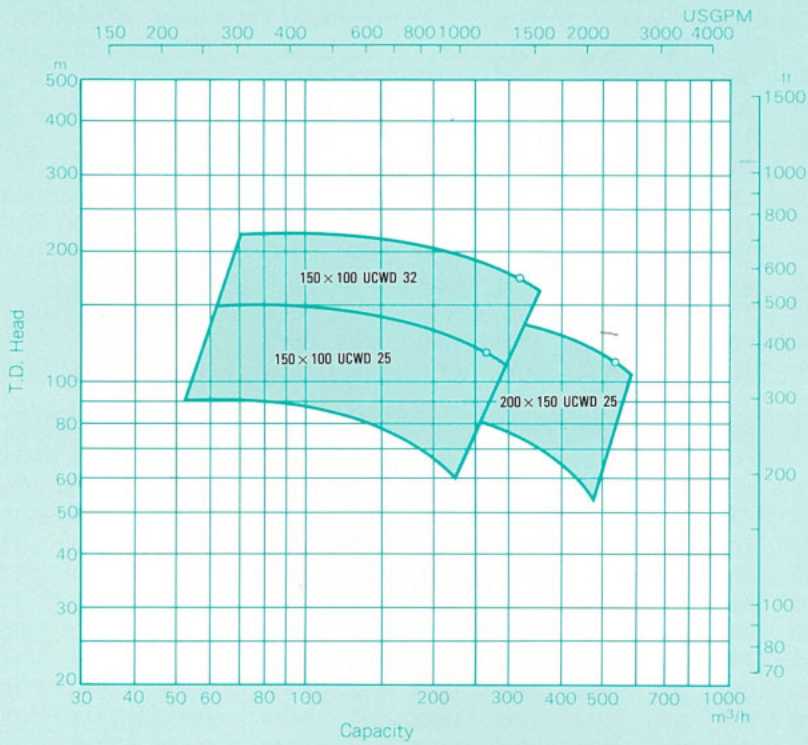
# Model KS

# 60Hz

1170 min<sup>-1</sup>



# Model UCWD

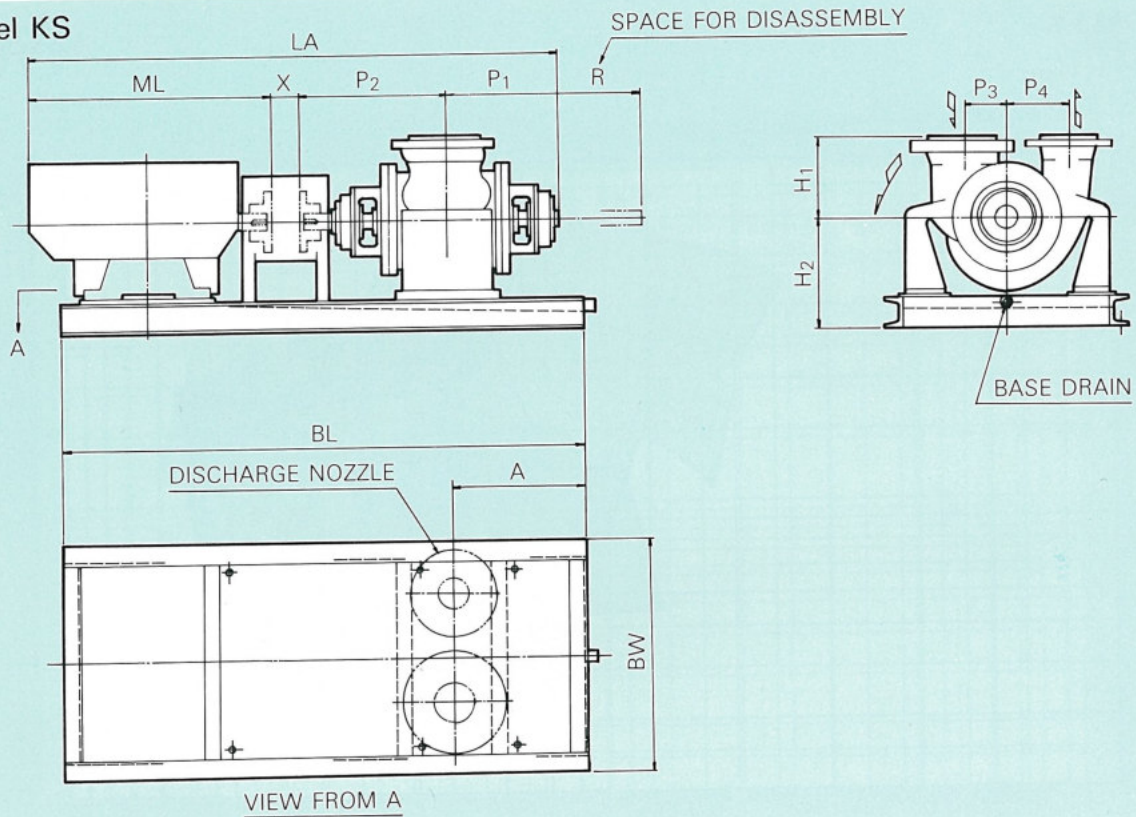


These selection charts are prepared for preliminary selection. Refer to individual performance curves for final selection.  $\circ$  denotes B.E.P. of the performance with an impeller of maximum diameter. The number of stages is indicated in the circle.



# Dimensions

## Model KS



## 2P

PUMP SIZE	PUMP AND MOTOR (mm)											BASE PLATE (mm)		APPROX. WEIGHT (kg)	
	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>	H <sub>1</sub>	H <sub>2</sub>	X	ML	LA	R	A	BL	BW	PUMP	BASE
150 × 100KS 32	572	687	185	215	300	590	300	1315	2874	1000	330	2240	950	700	600
150 × 100KS 40	600	728	150	260	370	615	300	1509	3137	1000	330	2550	1140	720	660
200 × 150KS 32	606	734	200	240	390	595	300	1619	3259	1000	330	2550	1140	720	660
200 × 150KS 40	646	783	190	280	410	690	300	1774	3503	1250	360	2900	1300	1030	910
250 × 200KS 32	653	790	245	270	420	690	300	1774	3517	1250	360	2900	1320	1200	910
250 × 200KS 40	690	837	230	300	460	715	300	1970	3797	1250	380	3240	1400	1510	1090
250 × 200KS 48	690	837	220	310	460	730	300	2240	4067	1250	560	3540	1380	1620	1140
300 × 200KS 50	828	843	220	350	550	855	300	2395	4366	1250	610	3830	1490	2140	1380
350 × 250KS 40	700	847	320	290	470	715	300	1970	3817	1250	400	3270	1410	1730	1170
350 × 250KS50B	876	915	290	360	570	825	350	2265	4406	1250	440	3650	1560	2570	1440
350 × 250KS50A	876	915	290	360	570	825	350	2675	4816	1250	440	4000	1560	2570	1510

## 4P

PUMP SIZE	PUMP AND MOTOR (mm)											BASE PLATE (mm)		APPROX. WEIGHT (kg)	
	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>	H <sub>1</sub>	H <sub>2</sub>	X	ML	LA	R	A	BL	BW	PUMP	BASE
250 × 200KS 50	734	871	250	315	520	730	300	1624	3529	1250	440	2850	1410	1060	1080
250 × 200KS 56	760	907	275	350	530	770	300	1624	3591	1250	450	2900	1460	1380	1130
300 × 200KS 56	782	929	270	350	570	770	300	1624	3635	1350	470	2940	1520	1420	1170
300 × 200KS 63	802	974	300	405	600	850	300	1764	3840	1350	480	3240	1660	1880	1340
300 × 250KS 40	740	868	295	300	540	730	300	1281	3189	1300	480	2630	1440	900	1070
300 × 250KS 45	764	901	270	325	550	750	300	1624	3589	1350	480	2920	1480	1100	1170
350 × 250KS 63	828	1000	240	395	620	850	300	1764	3892	1400	510	3300	1660	1950	1520
350 × 250KS 71	899	1089	360	450	660	960	350	2014	4352	1550	520	3690	1800	2770	1800
350 × 300KS 45	797	934	315	335	580	780	300	1624	3655	1400	520	2990	1560	1240	1270
350 × 300KS 50	826	973	280	365	550	800	300	1764	3863	1450	510	3270	1590	1510	1310
400 × 250KS 80	978	1202	340	515	750	1030	350	2215	4745	1650	570	4020	1930	3750	2060
400 × 300KS 56	924	1111	280	410	600	930	350	1876	4261	1600	580	3650	1740	2080	1870
400 × 300KS 71	930	1120	330	455	650	970	350	2014	4414	1600	570	3770	1820	2860	1950
500 × 300KS 80	1020	1244	380	510	740	1030	350	2385	4999	1750	610	4280	1970	4000	2280
500 × 300KS 90	1071	1342	380	580	770	1160	400	2765	5578	1850	620	4610	2120	5460	2580
500 × 350KS 63	970	1160	370	460	690	990	350	2134	4614	1700	630	3990	1880	2900	2200

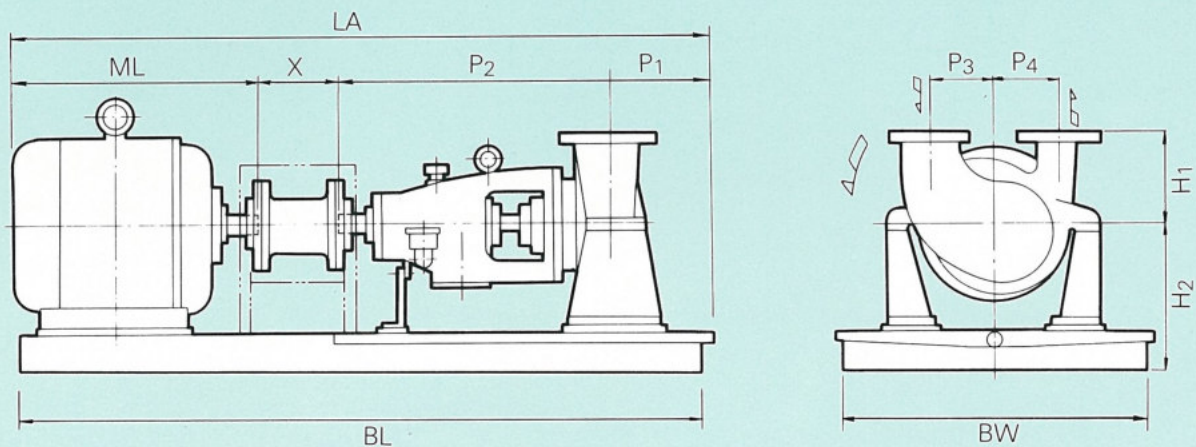


## 6P

PUMP SIZE	PUMP AND MOTOR (mm)											BASE PLATE (mm)		APPROX. WEIGHT (kg)	
	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>	H <sub>1</sub>	H <sub>2</sub>	X	ML	LA	R	A	BL	BW	PUMP	BASE
400×300KS 80	952	1139	380	495	820	1020	350	1876	4317	1650	610	3710	1930	3370	2200
400×350KS 63	930	1102	380	460	800	990	300	1776	4108	1600	630	3550	1880	2570	2130
500×350KS 85	1079	1303	450	560	880	1100	350	1776	4508	1850	680	4180	2120	4870	2680
500×400KS 63	990	1162	385	475	750	1020	300	2134	4586	1750	680	3650	2000	2850	2320
500×400KS 71	1034	1224	435	515	850	1060	350	1776	4384	1800	690	3990	2040	3720	2450
600×400KS 95	1170	1441	420	645	930	1270	400	2014	5025	2050	760	4670	2400	6570	2990
600×400KS112	1196	1503	470	730	1000	1360	400	2385	5484	2100	760	5160	2530	9500	3550
600×450KS 71	1091	1281	395	535	800	1110	350	2014	4736	1900	740	4100	2200	4040	2850
600×450KS 80	1142	1366	380	575	910	1140	350	2134	4992	2000	750	4320	2240	5220	2950
700×450KS112	1268	1575	450	720	1000	1370	400	3015	6258	2250	830	5300	2580	9800	3760
700×500KS 80	1224	1448	410	595	940	1260	350	2134	5156	2150	830	4480	2420	5720	3500
700×500KS 90	1254	1525	400	645	930	1300	400	2720	5899	2200	850	5030	2480	7310	3600

The listed dimensions apply to roller/ball (ball/ball) bearing designs with the exception that the dimensions of 300×20KS50, 350×250KS50B and 350×250KS50A are for sleeve/ball bearing designs.

### Model UCWD



PUMP SIZE	PUMP AND MOTOR (mm)										BASE PLATE (mm)		APPROX. WEIGHT (kg)	
	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>	H <sub>1</sub>	H <sub>2</sub>	X	ML	LA	BL	BW	PUMP	BASE	
150×100 UCWD 25	350	820	170	190	300	460	275	1160	2605	2350	760	400	250	
150×100 UCWD 32	350	820	150	225	350	460	275	1290	2735	2740	880	450	350	
200×150 UCWD 25	350	830	240	205	330	460	275	1290	2745	2740	880	530	350	

Note; Dimensions are in mm and for guidance only.

Certified drawings will be provided in all cases of actual construction. Motor dimensions are approximate dimensions only.





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