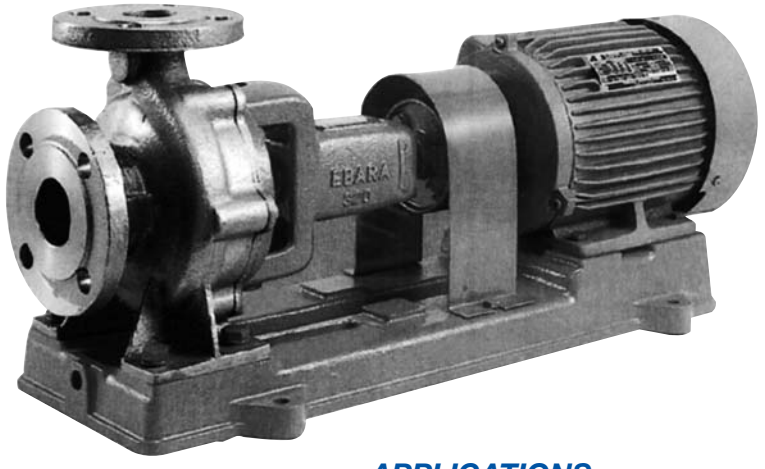
STAINLESS STEEL VOLUTE PUMPS



FEATURES

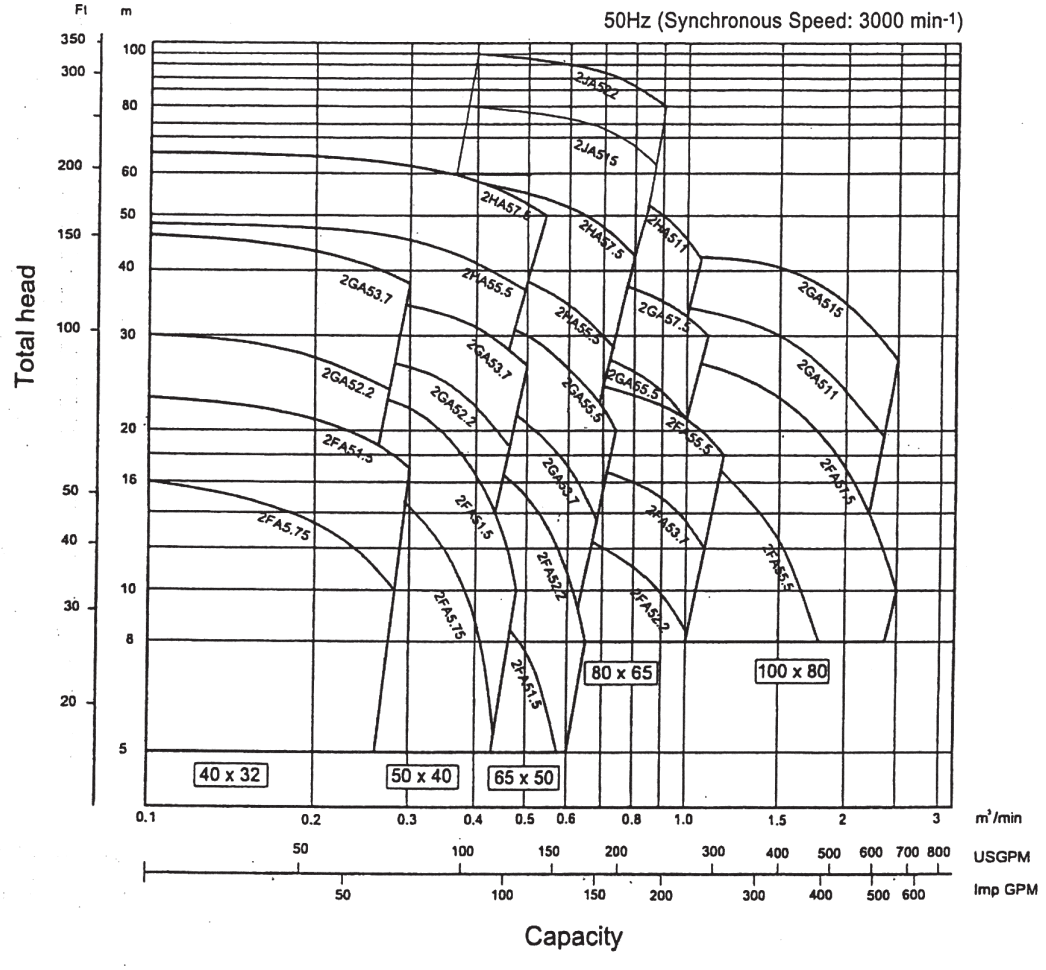
- Pump portion contacting liquid is made of high grade 316 stainless steel
- BPO (back pull out) system allows all rotating elements to be removed without disconnecting suction and discharge pipe work
- Top centreline discharge, foot support under casing for maximum resistance to misalignment and distortion from pipe loads
- Non-overload design to ensure stable performance for all applications
- Compact construction, applicable for two-poles high speed motor provides a compact unit and minimizes installation area
- Wide range application due to 316 stainless steel material

APPLICATIONS

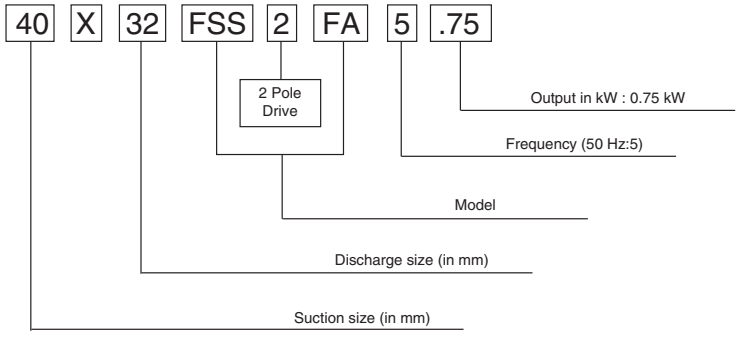
- Industrial use
- Chemical solutions
- Industrial drainage
- Hot and cold water supply
- Sea water
- Water supply
- For swimming pool
- Sprinkling
- Air-conditioning
- Drinking water

		STANDARD		OPTIONAL	
		2 Poles model	4 Poles model	2 Poles model	4 Poles model
Liquid	Name	Water, oil, liquid chemicals, Refer to table 1		For specifications other than at left, see the liquids list please contact Ebara	
	Temperature	0 to 100°C (32 to 212°F)			
	Viscosity	below 10cst			
	Special gravity	0.7 to 1.0			
Re. NPSH		4m...Except for Model 100 x 80 (2 pole) 7m...Model 100 x 80 (2 pole)			
Installation		Indoors		Outdoors	
Construction	Impeller	Enclosed		-	
	Shaft seal	Packing		Mechanical Seal (0~90°C)	
	Sealing	Internal-self		-	
	Bearing	Sealed ball bearing		-	
	Shaft sleeve	No		-	
	Casing Ring	No		-	
Flange		JIS 10 kg/cm² R.F.		-	
Materials	Casing	SCS-14 Stainless steel		-	
	Impeller	SCS-14 Stainless steel		-	
	Shaft	316 Stainless steel		-	
	Casing Ring	-		-	
	Casing O-Ring	Fluororubber (viton)		Teflon (PTFE)	
	Seal	Carbonized Fiber		Mech. Seal : SiC/SiC	
Accessories	Bare shaft	-		-	
	With motor	Common base, Coupling, Coupling guard		-	

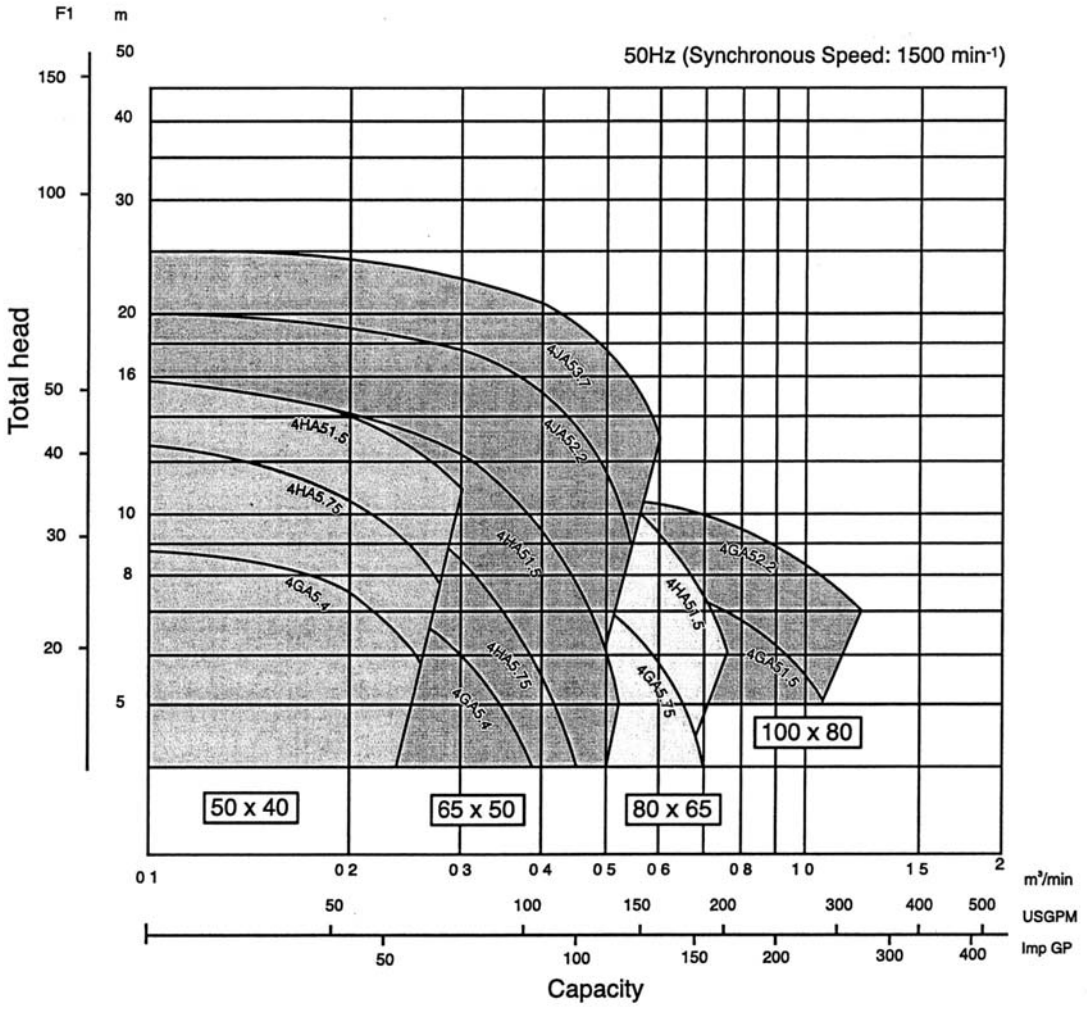
PERFORMANCE CHART 2 Poles



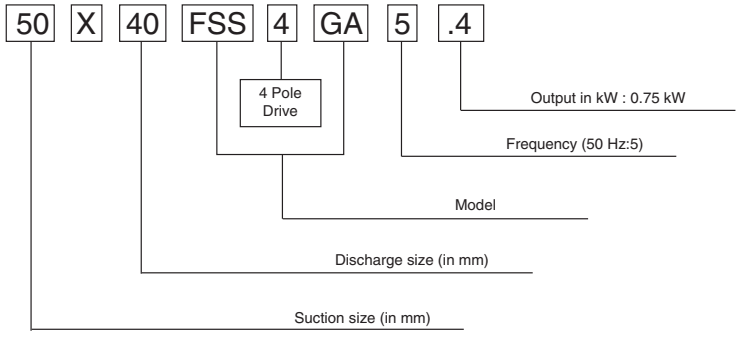
SYMBOLS



PERFORMANCE CHART 4 Poles



SYMBOLS



LIQUID HANDLED

Liquid	Gasket	Gland packing	Mechanical seal			Specific gravity	Density	Temperature
			Material	Water Activation Method				
*A								
Acetaldehyde	T	C	1	S			○	
Acetic acid	T	C	1	S		○	○	○
Acetic anhydride	T	C	1	S		○		○
Acetone	T	C	1	S				
Acetonitrile	F	D	1	S				○
Acrylic acid	F	D	1	S		○		○
Acrylo nitrile	T	C	1	S				
Alcoholic drinks	F	C	1	S				
Allylacetate	T	D	1	S				
Allyl acetone	T	C	1	S				
Allyl alcohol	F	C	1	S				
Allyl Chloride	F	C	1	S				
Ammonium carbonate	F	D	2	S + Q			○	○
Ammonium bicarbonate	F	C	2	S + Q		○	○	○
Amyl acetate	T	C	1	S			○	
Amyl alcohol	F	C	1	S			○	
Amyl chloride	T	D	1	S				○
Amyl ether	F	C	1	S				
Aqueous ammonia	F	C	2	S			○	○
*B								
Barium chloride	F	C	2	S + Q		○	○	○
Benzaldehyde	T	C	1	S		○		
Benzene	T	C	1	S				
Benzene	F	C	2	S				
Benzyl acetate	T	D	1	S		○		
Bonc acid	F	C	2	S + Q		○	○	○
Brake oil	F	C	1	S				
Butyl acetate	T	D	1	S				○
Butyl acetate diamyl	F	D	1	S		○		
Butyl acetate dibtyl	T	D	1	S		○		
Butyl acetate diethyl	F	D	1	S		○		
Butyl alcohol	F	C	1	S				
Butyl ether	C	C	S					
Butyric acid	T	C	1	S			○	
Butyric ethyl	T	D	1	S			○	
Butyric methyl	T	D	1	S				
*C								
Calcium Carbonate	F	C	2	S + Q		○	○	
Calcium hydroxide	F	C	2	S + Q		○	○	
Carbolic acid	T	D	2	S + Q		○		○
Carbonate water	F	C	1	S				
Caustic soda	F	D	2	S + Q			○	○
Cellosolve	T	D	1	S				
Cellulose acetate	T	D	1	S		○		○
Chrolobenzene	T	C	1	S		○		
Chrome alum	F	D	2	S + Q		○	○	○
Citric acid	F	C	2	S + Q		○	○	○
Coconut oil	F	C	1	S + Q				
Coffee extract	F	C	1	S				
Copper nitrate	F	D	2	S + Q		○	○	○
Corn oil	F	C	1	S				
Creosote	F	D	1	S		○		
Cresol	F	D	1	S + Q		○		
Cyclohexane	F	C	1	S				○
*D								
Diacetone alcohol	T	C	1	S				
Dichlorobenzene	F	C	1	S		○		○
Dichloropentane	F	D	1	S		○		
Diethyl benzene	F	C	1	S				○
Diethylene glycol	F	C	1	S		○	○	
Dioxane	T	D	1	S		○		○
Drain	F	C	2	S				
Dyeing solution	F	D	2	S				○

Liquid	Gasket	Gland packing	Mechanical seal			Specific gravity	Density	Temperature
			Material	Water Activation Method				
*E								
Emulsified oil	F	C	2	S				
Ethyl acetate	T	C	1	S			○	○
Ethyl acrylate	T	D	1	S				
Ethyl alcohol	F	C	1	S				
Ethyl benzene	F	C	1	S				
Ethylene chloride	F	D	2	S		○		
Ethylene glycol	F	C	1	S		○		
Ethyl pirydine	T	D	1	S				
*F								
Ferric nitrate	F	D	2	S + Q		○	○	○
Formaline	F	C	1	S		○		
Fruit juice	F	C	1	S				
Fruit oil	F	C	1	S				
Fuel oil	F	C	1	S				
Furtural	T	C	1	S		○		
*G								
Gas oil	F	C	1	S				
Gasoline	F	C	1	S				
Glycerine	F	C	1	S		○	○	○
*H								
Heavy oil	F	C	1	S				
Heptane	F	C	1	S				
Hexane	F	C	2	S				
Hexyl alcohol	F	C	1	S				
Hydraulic fluids	F	C	1	S				
*I								
Ink	T	D	1	S				○
Isoamil alcohol	F	C	1	S				
Iso butil alcohol	F	C	1	S				○
Iso butil-methyl ketone	F	D	1	S				
Iso octane	F	D	1	S				○
Isopropyl alcohol	F	C	1	S				○
Isopropyl benzene	T	D	1	S				
*J								
Juice	F	C	1	S				
*K								
Kerosene	F	C	1	S				
*L								
Lactic acid	F	C	2	S		○		○
Linseed oil	F	C	1	S				
Lubricating oil	F	C	1	S				
*M								
Magnesium hydroxide	F	C	2	S + Q			○	○
Methyl acrylate	T	D	1	S				
Methyl alcohol	F	C	2	S				
Methyl chloride	F	D	2	S + Q				
Methyl chloroform	F	C	1	S		○		○
Methyl ethyl ketone	T	D	1	S				○
Methyl isobutyl ketone	T	D	1	S				
Milk	F	C	1	S				
Mineral oil	F	C	1	S				
Mineral spirits	F	C	1	S				
Monoethylene glycol	F	C	1	S				
Mustard oil	F	C	1	S				
*N								
Naphtha	F	C	1	S				
Naphtha solvent	F	C	1	S				
Natrium carbonate	F	C	2	S + Q		○	○	○
Natrium discarbonate	F	C	2	S + Q		○	○	○
Nonyl phenol	F	D	1	S				

Liquid	Gasket	Gland packing	Mechanical seal			Specific gravity	Density	Temperature
			Material	Water Activation Method				
*O								
Octane	F	D	1	S				
Octanol	F	C	1	S				
Oleic acid	F	C	1	S			○	○
*P								
Paraffine wax	F	C	2	S				
Parilla oil	F	C	1	S				
Petroluem	F	C	1	S				
Petroluem benzine	F	C	1	S				
Pinene	F	D	1	S				
Potassium bomide	F	D	2	S + Q		○	○	○
Potassium carbonate	F	D	2	S + Q		○	○	
Potassium chloride	F	C	2	S + Q		○	○	
Potassium dischromate	F	C	2	S + Q		○	○	
Potassium iodine	F	D	2	S + Q		○	○	
Potassium nitrate	F	C	2	S + Q		○	○	
Propyl acetate	T	D	1	S				
Propylene	F	C	1	S		○		
*R								
Rapeseed oil	F	C	1	S				
Refrigeration oil	F	C	1	S				
*S								
Salad oil	F	C	1	S				
Sea water	F	C	1	S				
Soapsuds	F	C	2	S + Q				○
Soda bromide	F	D	2	S + Q		○	○	○
Soda nitrate	F	C	2	S + Q		○	○	○
Soda sulfate	F	D	2	S + Q		○	○	○
Sodium silicate	F	C	2	S + Q				
Solar oil	F	C	1	S				
Sour oil	F	C	1	S				
Soya bean oil	F	C	1	S				
Soy saurce	F	C	1	S				
Stylene	F	D	1	S				
Sugar liquids	F	C	2	S				
Sunflower oil	F	C	1	S				
*T								
Tannic asid	F	D	2	S + Q			○	○
Thiophenol	F	D	1	S		○		
Trichloroethylene	F	C	1	S		○		○
Triole	T	C	1	S				○
Turpentine oil	F	C	1	S				
*U								
Urea	F	D	2	S + Q		○	○	
*V								
Vegetable oil	F	C	1	S				
*W								
Whale oil	F	C	1	S				
Whisky	F	C	1	S				
Wine	F	C	1	S				
*X								
Xylene	F	C	1	S				

Gasket material : F : Flourorubber (viton)
T : Teflon (PTFE)
Gland packing material : C : Carbonized fiber
D : Teflon
Mechanical seal material :
1 : Ceramic/carbon
2 : Superhard alloy/carbon
Water Activation (mechanical seal):
S : Self-injection
S + Q : Self-injection + Quenching or external injection
Specific gravity : ○ : Check the value
Density : ○ : Check the value
Temperature : ○ : Check the value

Note: The above chart is a general guide. Liquids have been listed according to the most commonly used classification, but corrosion resistance will vary considerably depending on the characteristics of the liquid (temperature, density and purity) and the circumstances in which it is used.

IMPELLER & COUPLING 2 Poles

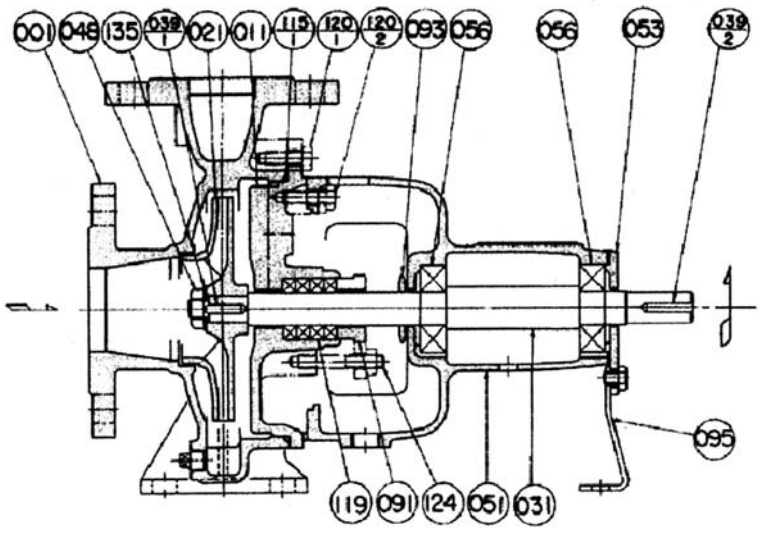
MODEL	MOTOR		IMPELLER	COUPLING	SHAFT DIAMETER	
	POWER Kw	FRAME No.	DIAMETER mm	CLA	PUMP dp (mm)	MOTOR dM (mm)
40x32 FSS2FA	0.75 1.5	80 90S	122 135	112 112	19	19 24
40x32 FSS2GA	2.2 3.7	90L 112M	162 180	12 125	19	24 28
50x40 FSS2FA	0.75 1.5 2.2	80 90S 90L	112 133 140	112 112 112	19	19 24 24
50x40 FSS2GA	2.2 3.7	90L 112M	149 165	112 125	19	24 28
50x40 FSS2HA	5.5 7.5 11	132S 132S 160M	168 189 210	160 160 160	24	38 38 42
65x50 FSS2FA	2.2 3.7	90L 112M	123 137	112 125	24	24 28
65x50 FSS2GA	2.2 3.7	90L 112M	134 151	112 125	24	24 28
65x50 FSS2HA	5.5 7.5 11	132S 132S 160M	167 188 209	160 160 160	24	38 38 42
65x50 FSS2JA	11 15 18.5 22	160M 160M 160L 180MA	207 220 233 259	160 160 160 180	24	42 42 42 48
80x65 FSS2FA	2.2 3.7 5.5	90L 112M 132S	118 132 147	112 125 160	24	24 28 38
80x65 FSS2GA	3.7 5.5 7.5	112M 132S 132S	142 160 178	125 160 160	24	28 38 38
80x65 FSS2HA	7.5 11 15	132S 160M 160M	172 194 215	160 160 160	24	38 42 42
100x80 FSS2FA	3.7 5.5 7.5	112M 132S 132S	122 137 152	125 160 160	24	28 38 38
100x80 FSS2GA	7.5 11 15	132S 160M 160M	146 165 183	160 160 160	24	32 42 42

IMPELLER & COUPLING 4 Poles

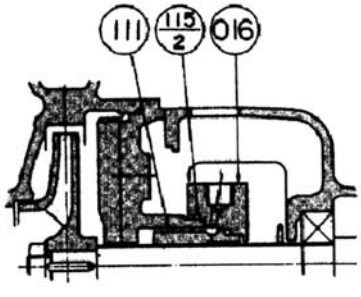
MODEL	MOTOR		IMPELLER	COUPLING	SHAFT DIAMETER	
	POWER Kw	FRAME No.	DIAMETER mm	CLA	PUMP dp (mm)	MOTOR dM (mm)
50x40 FSS4GA	0.4	71	165	112	19	14
50x40 FSS4GA	0.75	80	189	112	24	19
	1.5	90L	210	112	24	24
65x50 FSS4GA	0.4	71	165	112	24	14
65x50 FSS4HA	0.75	80	179	112	24	19
	1.5	90L	209	112	24	24
65x50 FSS4JA	2.2	100L	233	125	24	28
	3.7	112M	259	125	24	28
80x65 FSS4GA	0.75	80	169	112	24	19
80x65 FSS4HA	1.5	90L	215	112	24	24
100x80 FSS4GA	1.5	90L	165	112	24	24
	2.2	100L	183	125	24	28

SECTIONAL VIEW

Packing type (standard)



Mechanical seal type (standard)



PART NO.	PART	MATERIAL	QTY/ UNIT
001	CASING	SCS14, STAINLESS STEEL CASTING	1
011	CASING COVER	SCS14, STAINLESS STEEL CASTING	1
031	SHAFT	316 STAINLESS STEEL	1
039-1	KEY	316 STAINLESS STEEL	1
039-2	KEY	CARBON STEEL	1
048	IMPELLER NUT	316 STAINLESS STEEL	1
051	BEARING HOUSING	CAST IRON	1

PACKING TYPE (STANDARD)

PART NO.	PART	MATERIAL	QTY/ UNIT
091	GLAND	316 STAINLESS STEEL	1
119	GLAND PACKING	CARBONIZED FIBER	4
124	GLAND BOLT	316 STAINLESS STEEL	2

MECHANICAL SEAL TYPE (OPTIONAL)

PART NO.	PART	MATERIAL	QTY/ UNIT
016	MECH.SEAL COVER	316 STAINLESS STEEL	1
111	MECH. SEAL	SiC/SiC	1
115-2	“O” RING	FLUORORUBBER (viton)	1

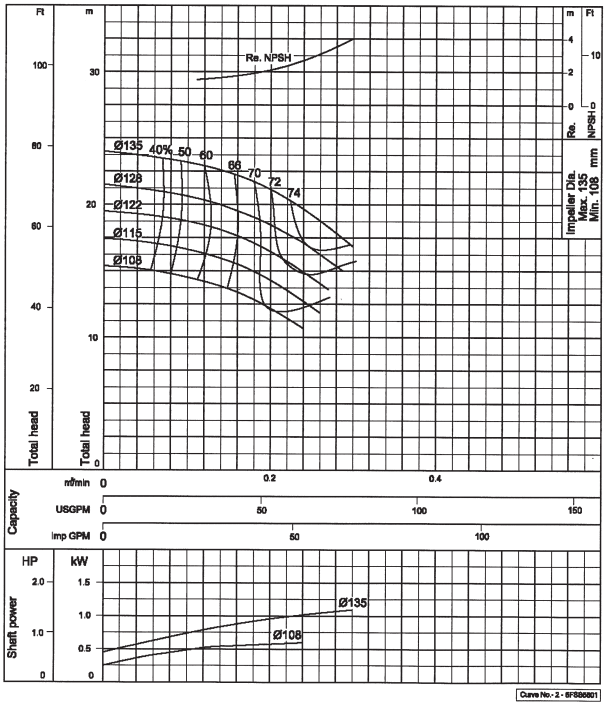
PART NO.	PART	MATERIAL	QTY/ UNIT
053	BEARING COVER	CAST IRON	1
056	BALL BEARING	-	2
093	DEFLECTOR	RUBBER (EPDM)	1
095	BEARING SUPPORT	STEEL	1
115-1	O-RING	FLUORORUBBER (viton)	1
120-1	BOLT, CASING	304 STAINLESS STEEL	1 SET
120-2	BOLT, B.HOUSING	STEEL	4
135	IMP, WASHER	304 STAINLESS STEEL	1

PERFORMANCE CURVE 2900 min^{-1}

40 x 32 FSS2FA

According to ISO testing code 2548 Class C

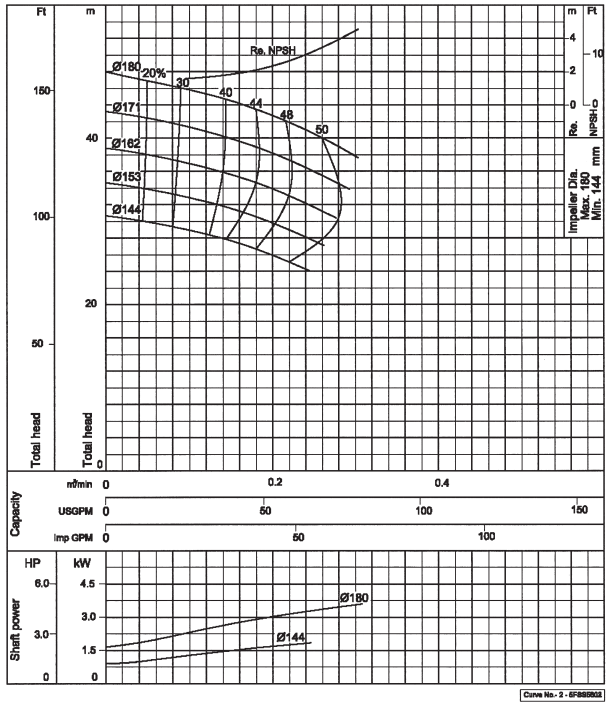
50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



40 x 32 FSS2GA

According to ISO testing code 2548 Class C

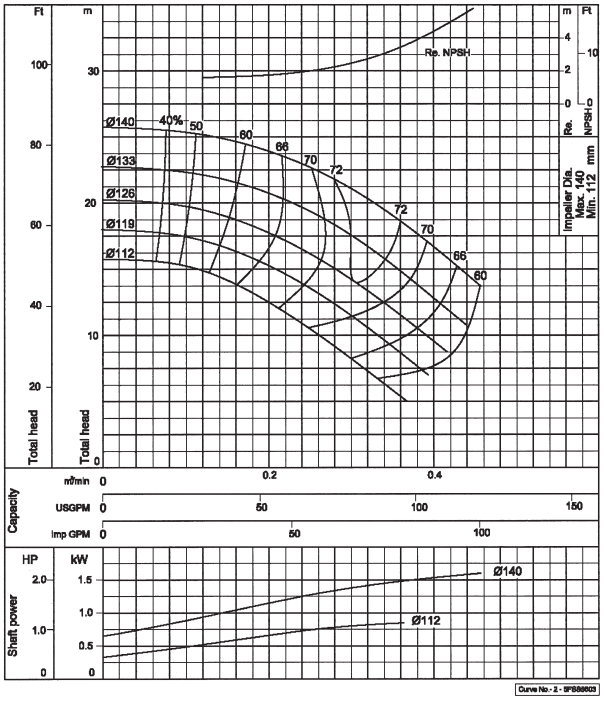
50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



50 x 40 FSS2FA

According to ISO testing code 2548 Class C

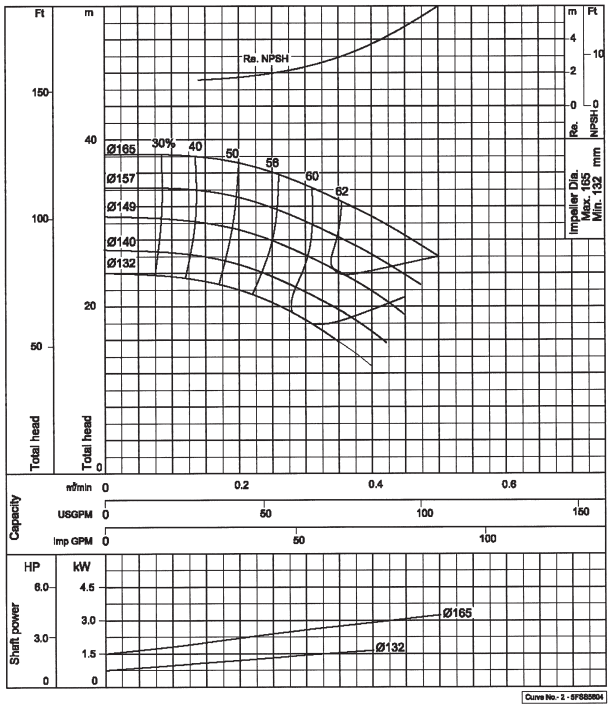
50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



50 x 40 FSS2GA

According to ISO testing code 2548 Class C

50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt

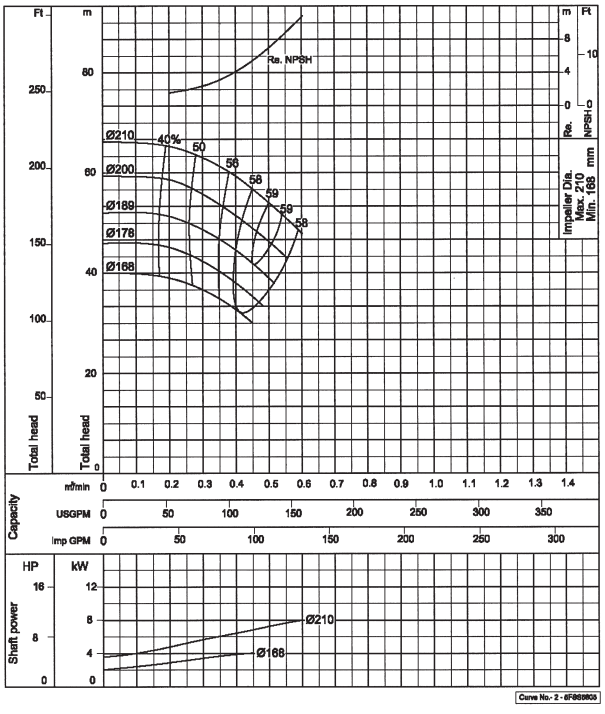


PERFORMANCE CURVE 2900 min^{-1}

50 x 40 FSS2HA

According to ISO testing code 2548 Class C

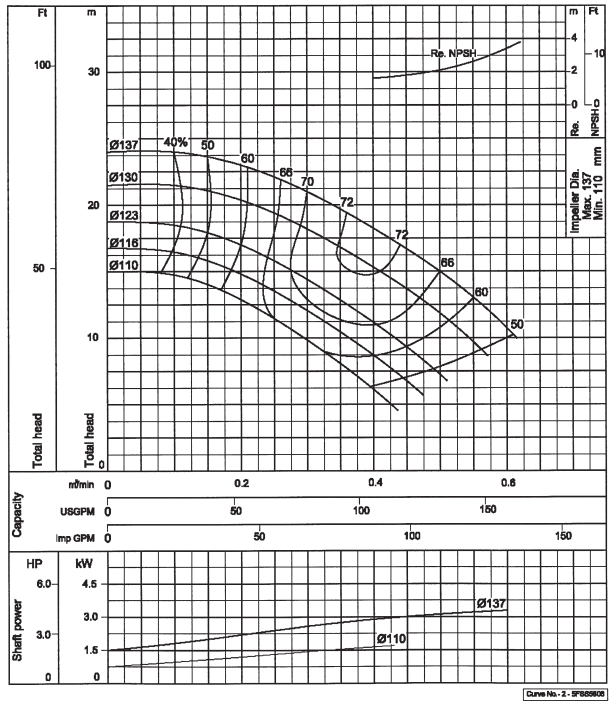
50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



65 x 50 FSS2FA

According to ISO testing code 2548 Class C

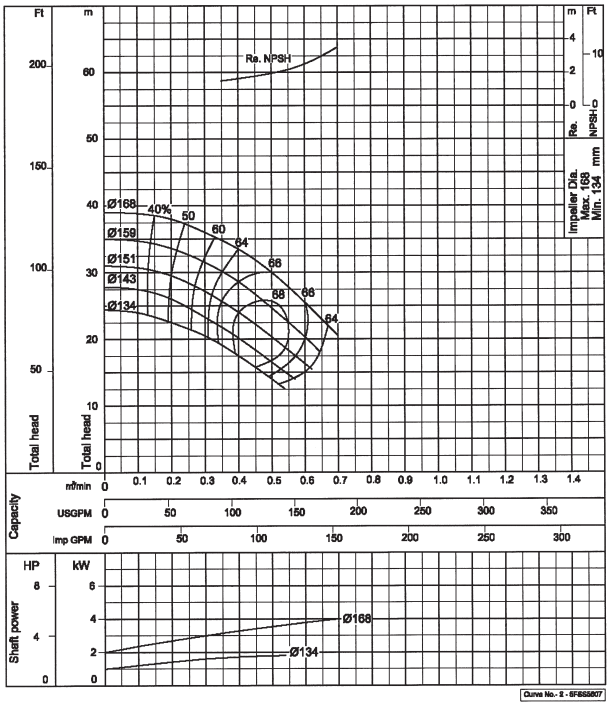
50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



65 x 50 FSS2GA

According to ISO testing code 2548 Class C

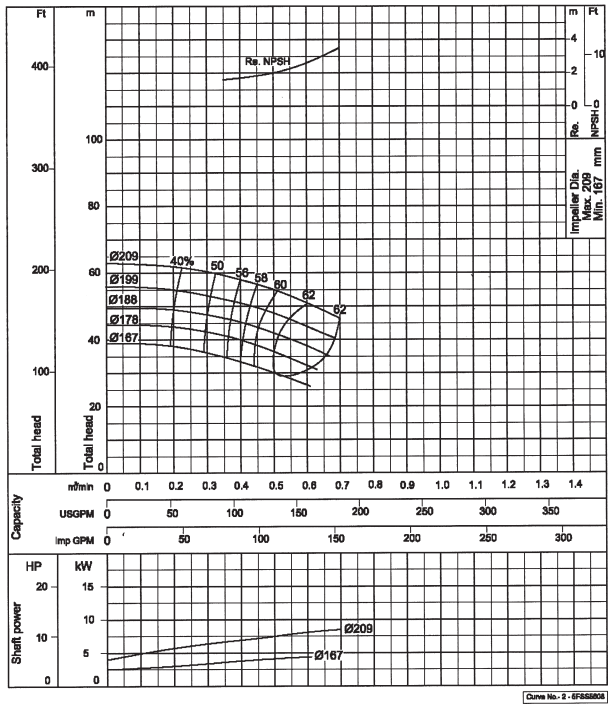
50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



65 x 50 FSS2HA

According to ISO testing code 2548 Class C

50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt

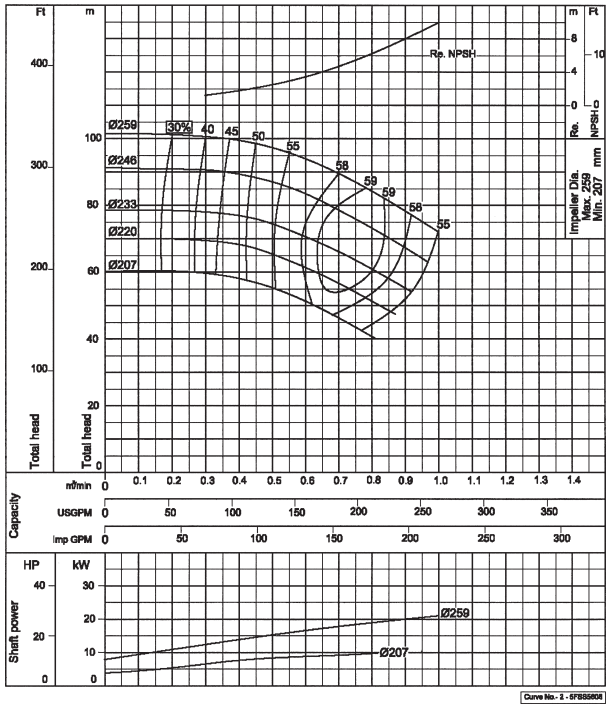


PERFORMANCE CURVE 2900 min^{-1}

65 x 50 FSS2JA

According to ISO testing code 2548 Class C

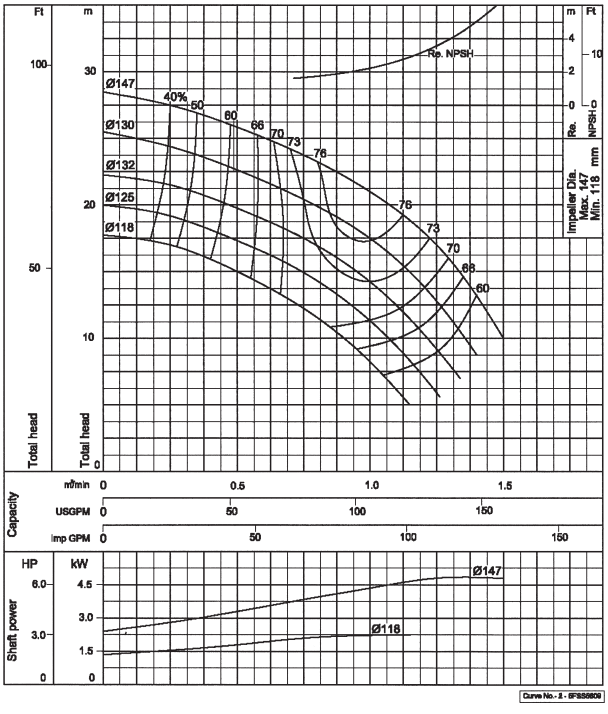
50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



80 x 65 FSS2FA

According to ISO testing code 2548 Class C

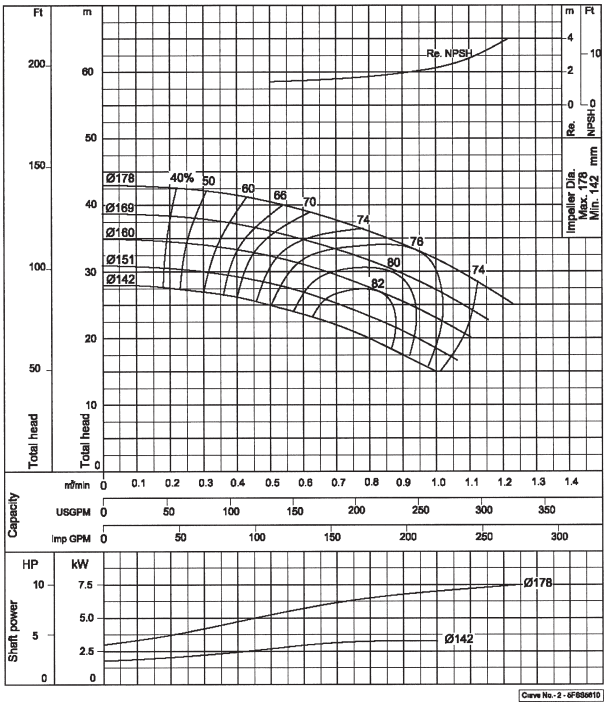
50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



80 x 65 FSS2GA

According to ISO testing code 2548 Class C

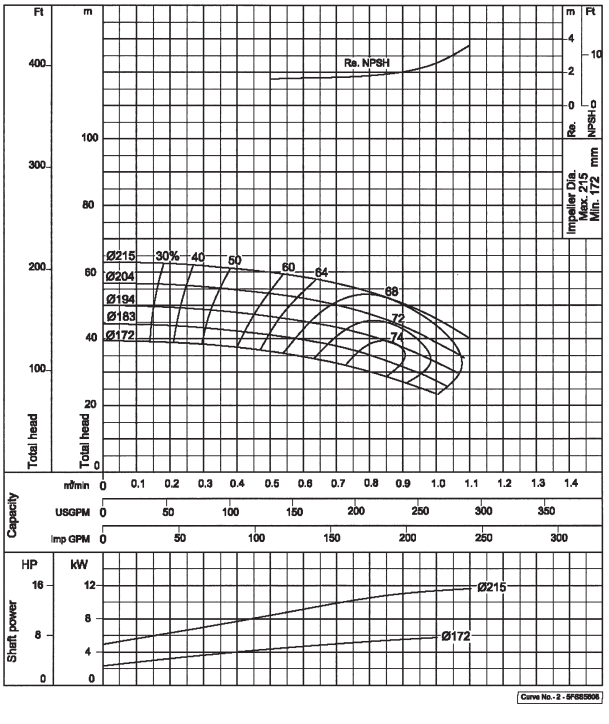
50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



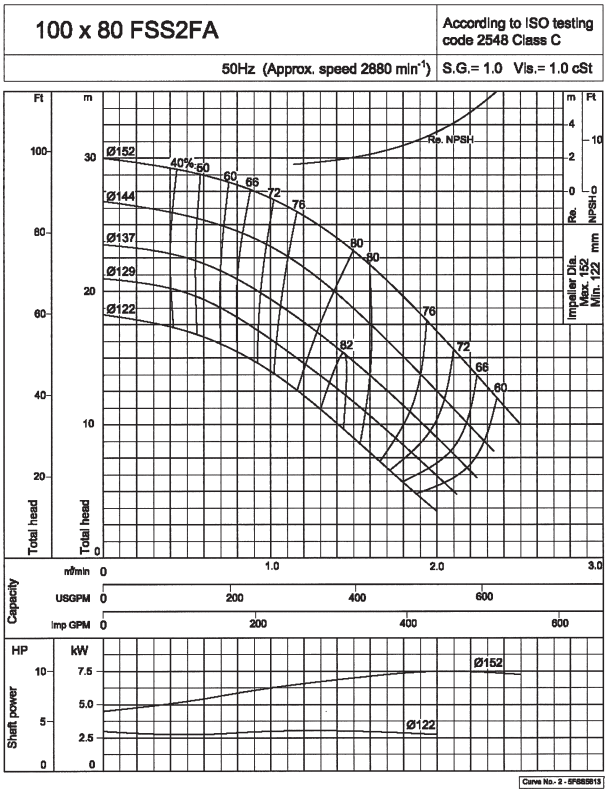
80 x 65 FSS2HA

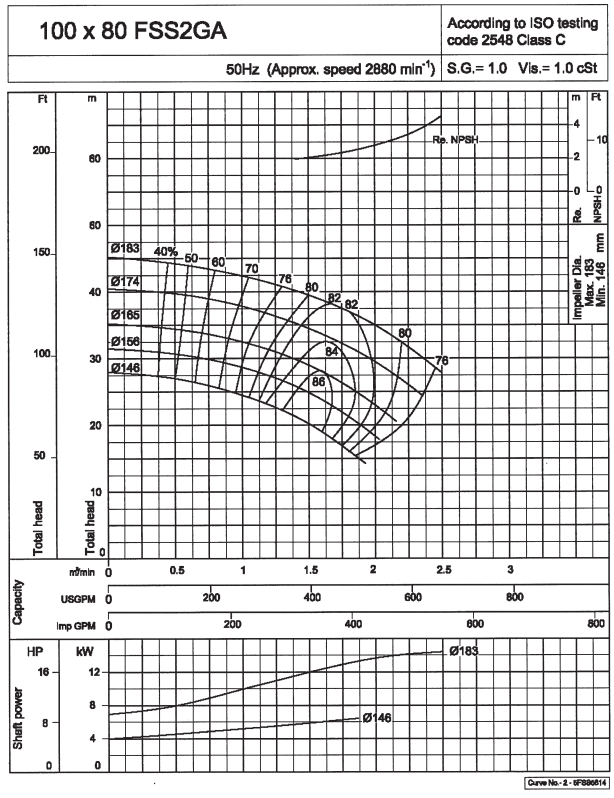
According to ISO testing code 2548 Class C

50Hz (Approx. speed 2880 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



PERFORMANCE CURVE 2900 min^{-1}



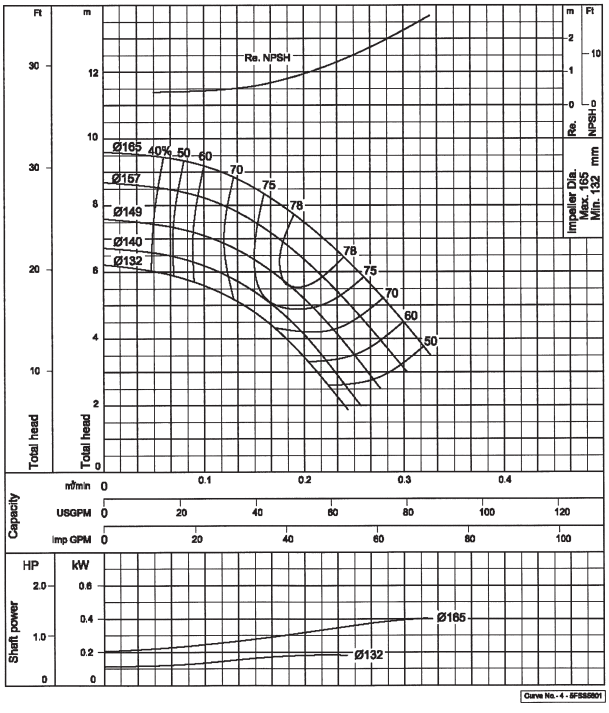


PERFORMANCE CURVE 1450 min^{-1}

50 x 40FSS4GA

According to ISO testing code 2548 Class C

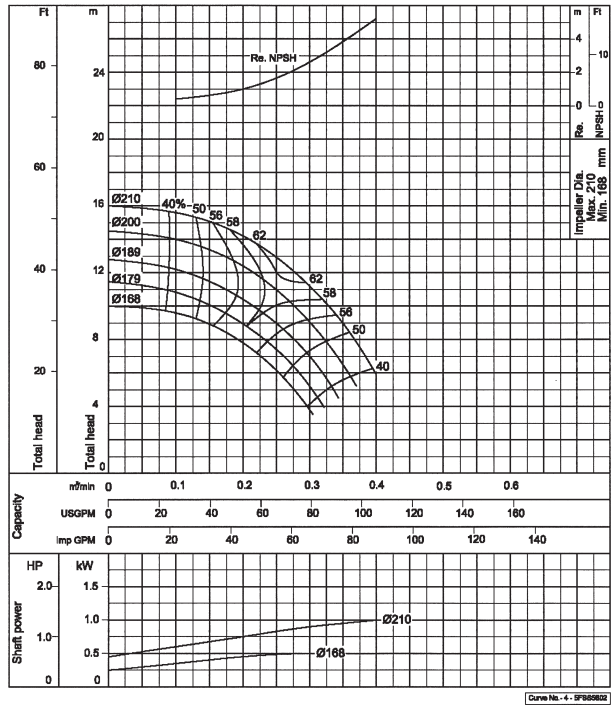
50Hz (Approx. speed 1480 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



50 x 40FSS4HA

According to ISO testing code 2548 Class C

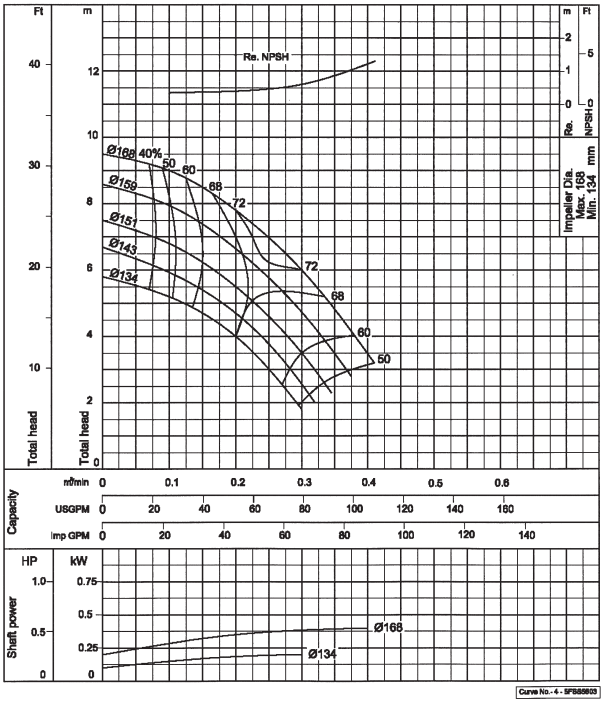
50Hz (Approx. speed 1450 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



65 x 50FSS4GA

According to ISO testing code 2548 Class C

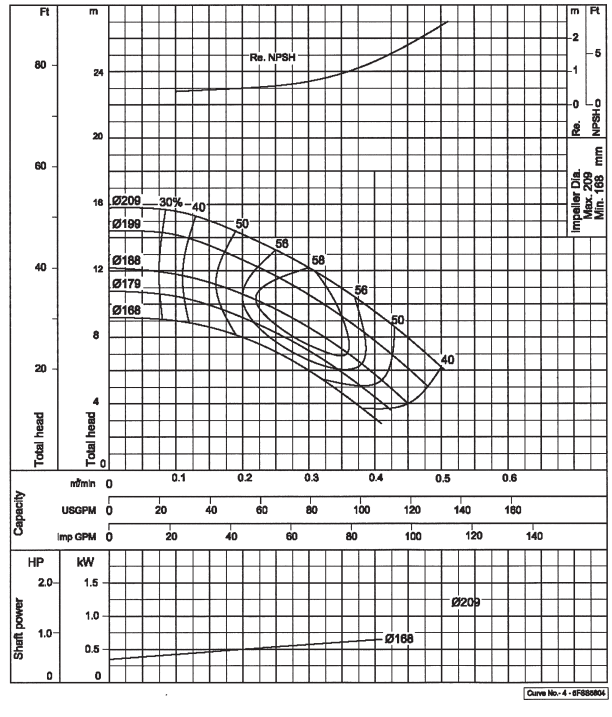
50Hz (Approx. speed 1450 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



65 x 50FSS4HA

According to ISO testing code 2548 Class C

50Hz (Approx. speed 1450 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt

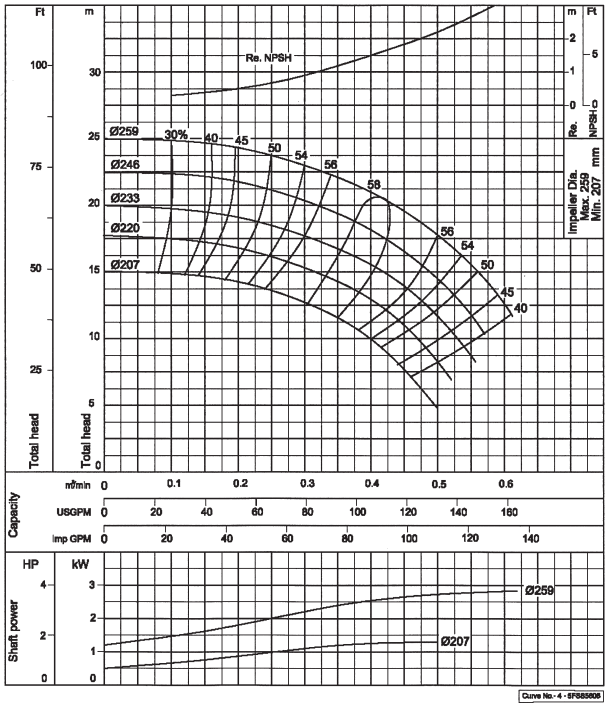


PERFORMANCE CURVE 1450 min^{-1}

65 x 50FSS4JA

According to ISO testing code 2548 Class C

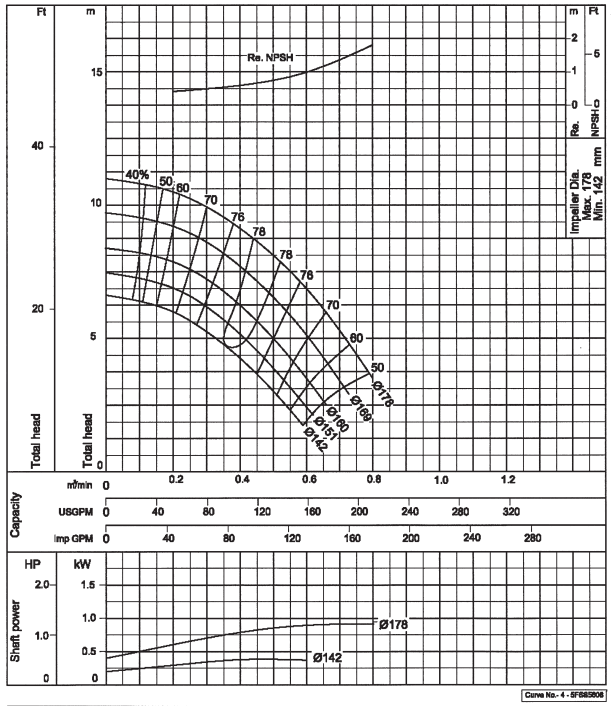
50Hz (Approx. speed 1450 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



80 x 65 FSS4GA

According to ISO testing code 2548 Class C

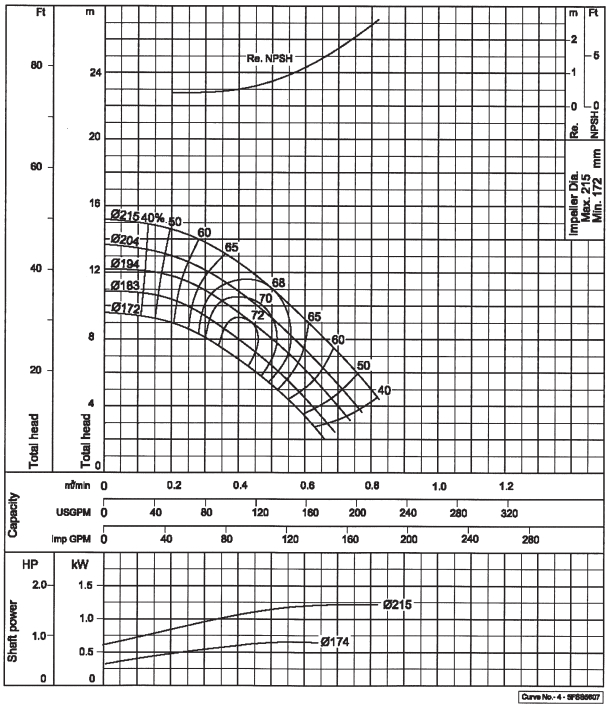
50Hz (Approx. speed 1450 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



80 x 65 FSS4HA

According to ISO testing code 2548 Class C

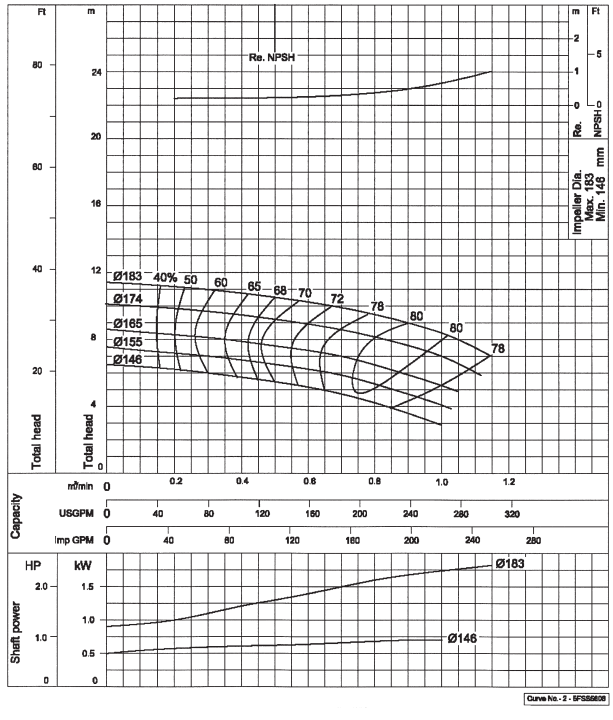
50Hz (Approx. speed 1450 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



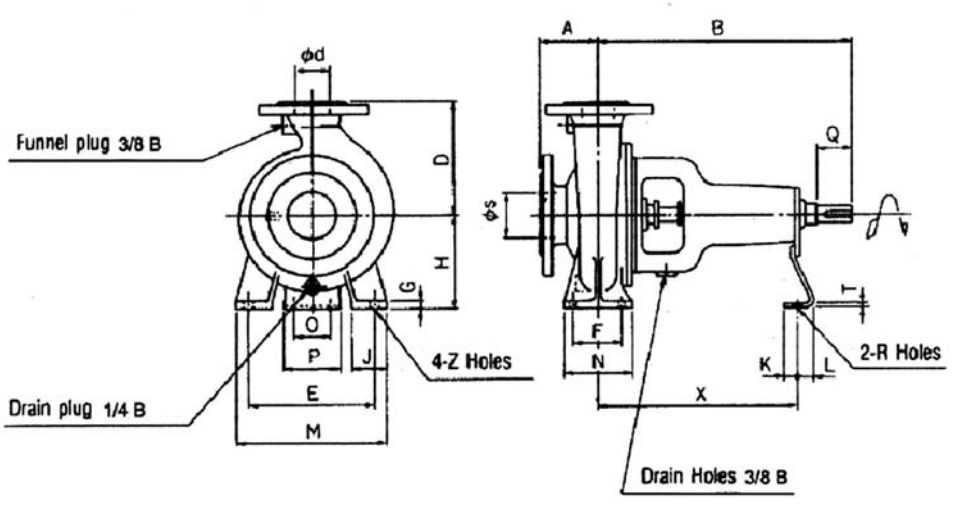
100 x 80 FSS4GA

According to ISO testing code 2548 Class C

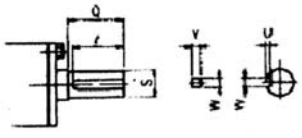
50Hz (Approx. speed 1450 min^{-1}) S.G.= 1.0 Vis.= 1.0 cSt



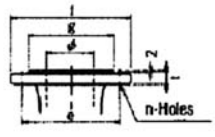
DIMENSION - BARE SHAFT PUMP



Shaft



Flange (JIS 10K R.F.)

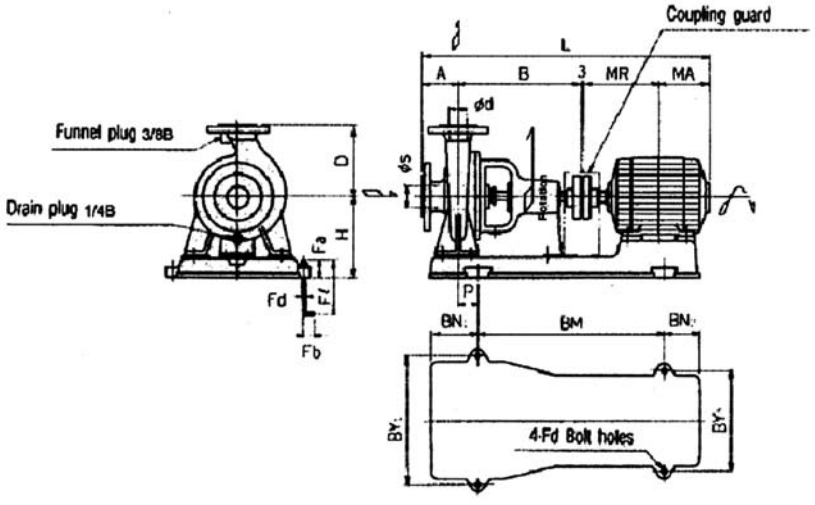


Size Ø	g	e	f	t	n	h
32	80	100	135	16	4	19
40	85	105	140	16	4	19
50	100	120	155	16	4	19
65	120	140	175	18	4	19
80	130	150	185	18	8	19
100	155	175	210	18	8	19

SIZE		MODEL	Pump																SHAFT						Bearing	Packing	Weight
øs	ød		A	B	D	E	F	G	H	J	M	N	O	P	R	T	X	Z	S	Q	T	U	V	W		X 4	kg
40	32	40x32 FSSFA	65	280	140	140	70	8	112	50	190	100	-	-	-	-	-	15	19	40	31	3.5	6	6	6304ZZ	20x36x8	19
		40x32 FSSGA	80	280	160	190	70	8	132	50	240	100	80	120	17	4.5	205	15	19	40	31	3.5	6	6	6304ZZ	20x36x8	23
50	40	50x40 FSSFA	80	280	140	140	70	8	112	50	190	100	80	120	17	4.5	205	15	19	40	31	3.5	6	6	6304ZZ	20x36x8	20
		50x40 FSSGA	80	280	160	190	70	8	132	50	240	100	80	120	17	4.5	205	15	19	40	31	3.5	6	6	6304ZZ	20x36x8	24
		50x40 FSSHA	80	360	180	190	70	10	160	50	240	100	110	150	17	4.5	285	15	24	50	44	4	7	8	6305ZZ	25x41x8	30
65	50	65x50 FSSFA	80	360	140	160	70	8	112	50	210	100	110	150	17	4.55	285	15	24	50	44	4	7	8	6304ZZ	20x36x8	24
		65x50 FSSGA	80	360	160	190	70	10	132	50	240	100	110	150	17	4.5	285	15	24	50	44	4	7	8	6034ZZ	20x36x8	27
		65x50 FSSHA	100	360	180	212	70	10	160	50	265	100	110	150	17	4.5	285	15	24	50	44	4	7	8	6305ZZ	25x41x8	33
		65x50 FSSJA	100	360	225	250	90	12	180	65	320	125	110	150	17	4.5	285	15	24	50	44	4	7	8	6305ZZ	25x41x8	40
80	65	80x65 FSSFA	100	360	160	190	70	10	132	50	240	100	110	150	17	4.5	285	15	24	50	44	4	7	8	6305ZZ	25x41x8	28
		80x65 FSSGA	100	360	180	212	70	10	160	50	265	100	110	150	17	4.5	285	15	24	50	44	4	7	8	6305ZZ	25x41x8	32
		80x65 FSSHA	100	360	200	212	70	10	160	50	265	100	110	150	17	4.5	285	15	24	50	44	4	7	8	6305ZZ	25x41x8	37
100	80	100x80 FSSFA	100	360	180	212	95	10	160	65	280	125	110	150	17	4.5	285	15	24	50	44	4	7	8	6305ZZ	25x41x8	33
		100x80 FSSGA	100	360	200	212	95	10	160	65	280	125	110	150	17	4.5	285	15	24	50	44	4	7	8	6305ZZ	25x41x8	36

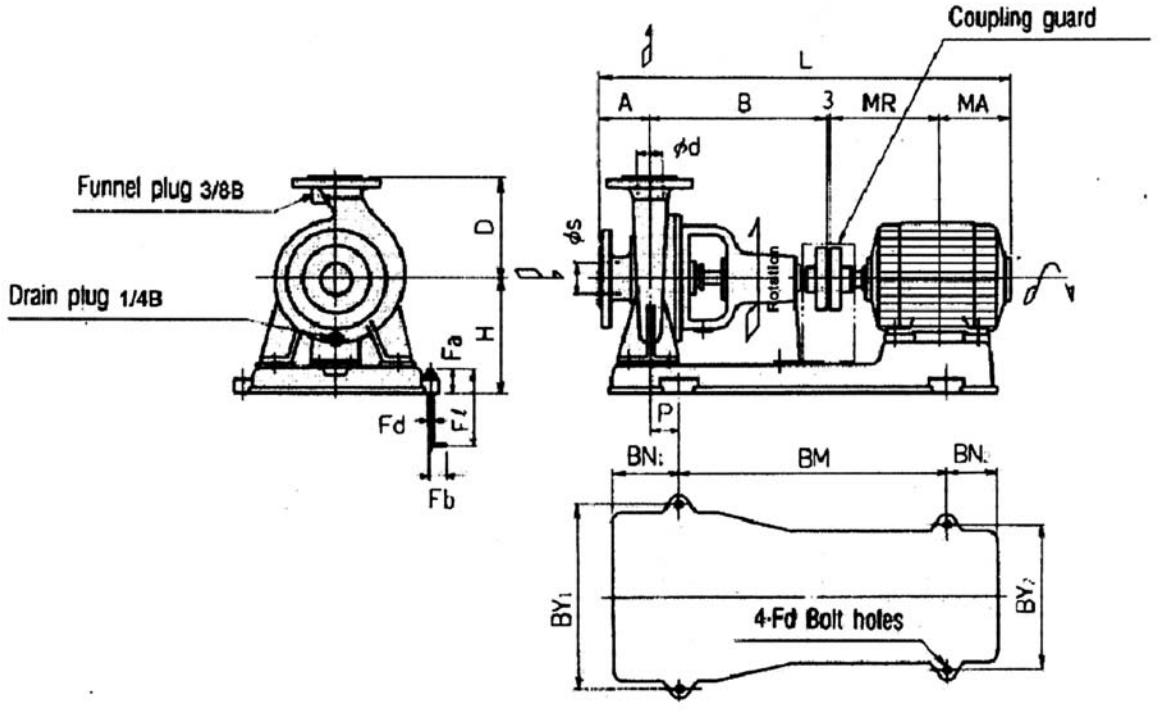
Unit : mm, unless otherwise stated

DIMENSION - PUMP WITH MOTOR 2 Poles



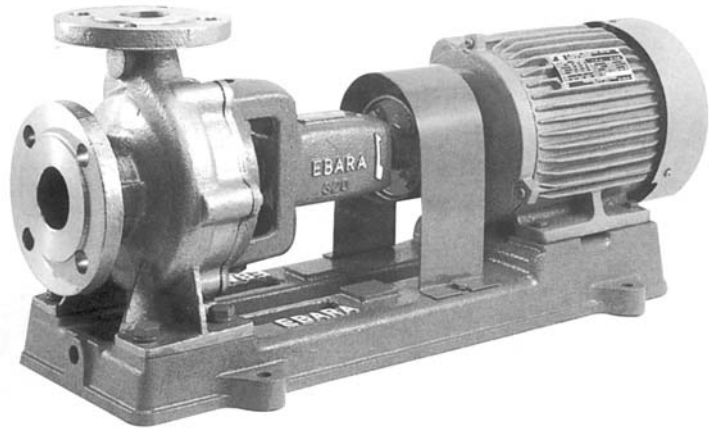
Size		Model	Output	Pump						Motor			Common base					Anchor bolt				Weight
øs	ød		kW	A	B	H	D	L	P	Frame No.	MR	MA	BM	BN1	BN2	BY1	BY2	Fd	F1	Fa	Fb	kg
40	32	40 x 32 FSSFA5.75	0.75	65	280	162	140	621	35	80	140	133	370	95	95	230	230	M10	200	40	40	45
		40 x 32 FSSFA51.5	1.5	65	280	162	140	621	35	90S	156	151.5	370	95	95	230	230	M10	200	40	40	52
		40 x 32 FSSGA52.5	2.2	80	280	182	160	690	45	90L	168.5	158.5	420	105	80	290	230	M10	200	40	40	60
		40 x 32 FSSGA53.7	3.7	80	280	182	160	690	45	112M	200	175	420	105	80	290	230	M10	200	40	40	79
50	40	50 x 40 FSSFA5.75	0.75	80	280	162	140	636	35	80	140	133	370	95	95	230	230	M10	200	40	40	45
		50 x 40 FSSFA51.5	1.5	80	280	162	140	636	35	90S	156	151.5	370	95	95	230	230	M10	200	40	40	52
		50 x 40 FSSGA52.5	2.2	80	280	182	160	690	45	90L	168.5	158.5	420	105	80	290	230	M10	200	40	40	61
		50 x 40 FSSGA53.7	3.7	80	280	182	160	690	45	112M	200	175	420	105	80	290	230	M10	200	40	40	80
		50 x 40 FSSHA55.5	5.5	80	280	230	180	887	55	132S	239	205	540	130	150	350	350	M12	250	50	50	121
		50 x 40 FSSHA57.5	7.5	80	280	230	180	887	55	132S	239	205	540	130	150	350	350	M12	250	50	50	131
65	50	65 x 50 FSSFA51.5	1.5	80	280	162	140	636	35	90S	156	151.5	370	95	95	230	230	M10	200	40	40	52
		65 x 50 FSSFA52.2	2.2	80	280	182	160	690	45	90L	168.5	158.5	420	105	80	290	230	M10	200	40	40	62
		65 x 50 FSSGA53.7	3.7	80	360	202	160	818	70	112M	200	175	540	130	60	290	290	M12	250	50	50	88
		65 x 50 FSSGA55.5	5.5	80	360	202	160	818	70	132S	239	205	540	130	60	290	290	M12	250	50	50	121
		65 x 50 FSSHA55.5	5.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	124
		65 x 50 FSSHA57.5	7.7	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	134
		65 x 50 FSSJA515	15	100	360	225	225	1041	95	160M	323	255	660	170	120	400	400	M16	315	65	63	211
		65 x 50 FSSJA518.5	18.5	100	360	225	225	1041	95	160L	345	275	660	170	120	400	400	M16	315	65	63	221
80	65	80 x 65 FSSFA52.2	2.2	100	360	182	160	790	55	90L	168.5	158.5	480	115	90	290	230	M10	200	40	40	70
		80 x 65 FSSFA53.7	3.7	100	360	182	160	790	55	112M	200	175	540	130	60	290	290	M12	250	40	50	89
		80 x 65 FSSFA55.5	5.5	100	360	182	160	907	70	132S	239	205	540	130	150	350	350	M12	250	50	50	117
		80 x 65 FSSFGA55.5	5.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	123
		80 x 65 FSSGA57.5	7.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	133
		80 x 65 FSSHA511	11	100	360	245	200	1041	95	160M	323	255	660	170	120	400	400	M16	315	65	63	191
100	80	100 x 80 FSSFA55.5	5.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	124
		100 x 80 FSSFA57.5	7.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	134
		100 x 80 FSSGA511	11	100	360	245	200	1041	95	160M	323	255	660	170	120	400	400	M16	315	65	63	190
		100 x 80 FSSGA515	15	100	360	245	200	1041	95	160M	323	255	660	170	120	400	400	M16	315	65	63	190

DIMENSION - PUMP WITH MOTOR 4 Poles



Size	Model	Out put	Pump						Motor			Common base					Anchor bolt				Weight
		kW	A	B	H	D	L	P	No.	MR	Frame MA	BM	BN1	BN2	BY1	BY2	Fd	Fℓ	Fa	Fb	kg
50 X 40	50 x 40 FSSGA5.37	0.37	80	280	182	160	613.5	45	71	120	130.5	420	105	90	290	190	M10	200	40	40	43
	50 x 40 FSSHA5.75	0.75	80	360	215	180	725.5	45	80	140	142.5	420	105	115	320	320	M10	200	40	40	56
	50 x 40 FSSHA51.5	1.5	80	360	220	180	775.5	100	90L	168.5	164	550	115	75	360	290	M10	200	40	40	71
65 X 50	65 x 50 FSSGA5.75	0.75	80	280	202	160	645.5	45	80	140	142.5	420	105	115	350	210	M10	200	40	40	55
	65 x 50 FSSHA5.75	0.75	100	360	215	180	745.5	45	80	140	142.5	420	105	115	320	230	M10	200	40	40	61
	65 x 50 FSSHA51.5	1.5	100	360	220	180	795.5	40	90L	168.5	164	550	115	75	360	290	M10	200	40	40	71
	65 x 50 FSSJA52.2	2.2	100	360	230	225	837.5	40	100L	193	181.5	480	115	145	400	260	M10	200	40	40	95
	65 x 50 FSSJA53.7	3.7	100	360	230	225	854.5	40	112M	200	191.5	480	115	145	400	290	M12	250	50	50	106
80 X 65	80 x 65 FSSGA5.75	0.75	100	360	215	180	745.5	45	80	140	142.5	420	105	115	320	230	M12	250	50	50	61
	80 x 65 FSSHA51.5	1.5	100	360	220	200	795.5	40	90L	168.5	164	550	115	75	360	290	M12	250	50	50	71
100 X 80	100 x 80 FSSGA51.5	1.5	100	360	220	200	795.5	40	90L	168.5	164	550	115	75	360	290	M12	250	50	50	73
	100 x 80 FSSGA52.5	2.2	100	360	220	200	837.5	40	100L	193	181.5	550	115	75	360	290	M12	250	50	50	81

END SUCTION STAINLESS STEEL VOLUTE PUMPS



APPLICATIONS

- Chemicals
- Industrial use
- Industrial water
- Hot water supply

FEATURES

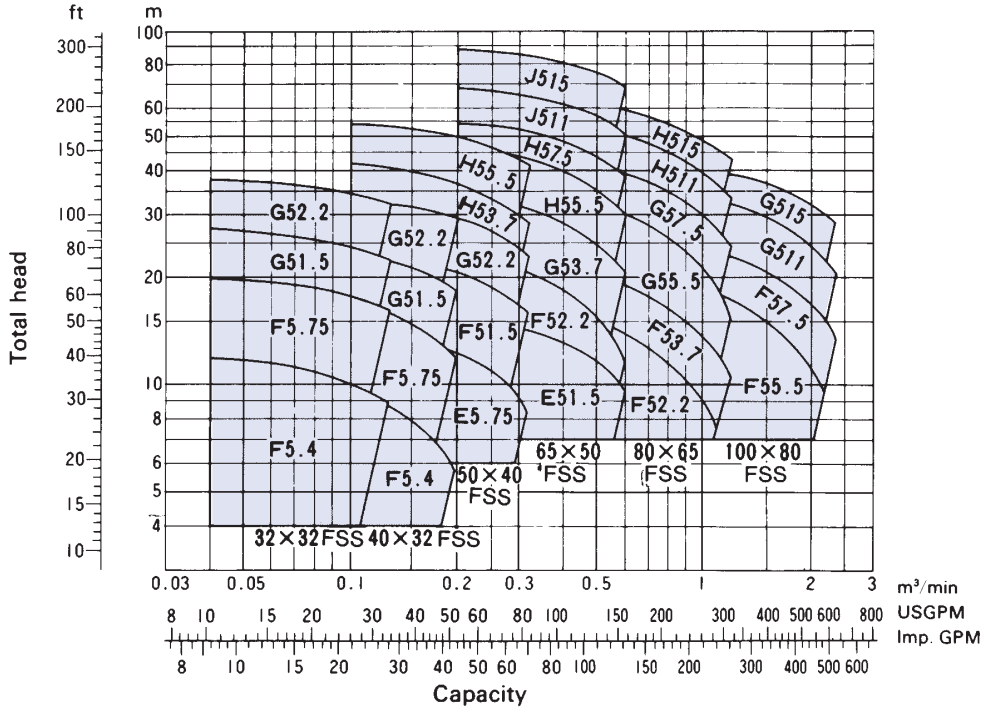
- **Various models**
  Either 2-pole or 4-pole models can be selected in wide range.
- **Easy maintenance**
  The pump is B.P.O. (Back-Pull-Out) type that can be disassembled or inspected without removing the piping or heat insulation.
- **Strong structure**
  The discharge port is located at the centre of the casing which is supported by the legs. Therefore, large piping load can be applied to the pump.
- **Limit load characteristics**
  Limit load characteristics effectively prevent overloading even with large discharge rates.

SPECIFICATIONS

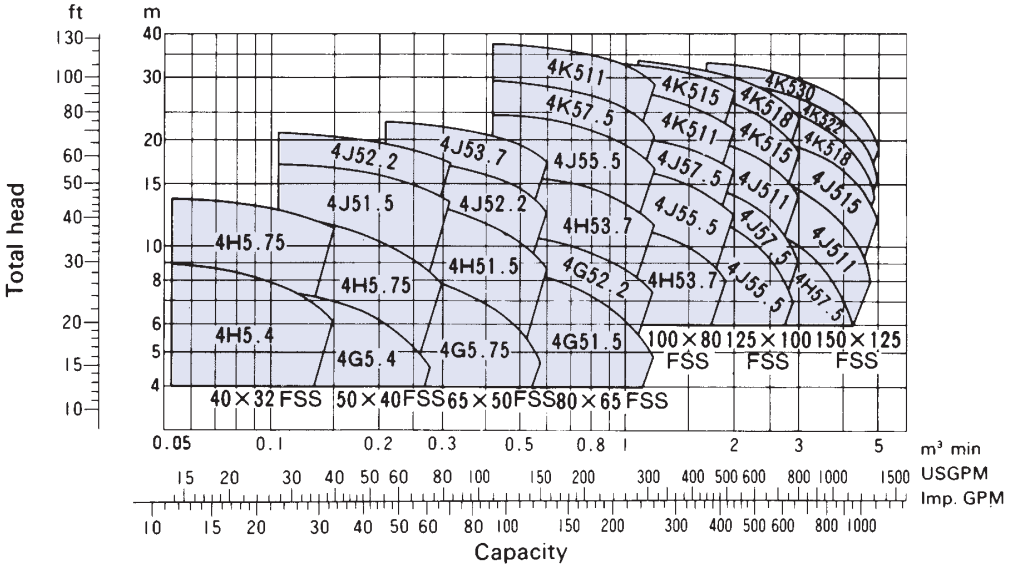
		STANDARD		OPTIONAL	
		2 Poles model	4 Poles model	2 Poles model	4 Poles model
Liquid	Name	Water, oil, liquid chemicals		For specifications other than at left, see the liquids list or please contact Ebara	
	Temperature	0 to 100°C (32 to 212°F)			
	Viscosity	10MPa.s or less			
	Special gravity	0.7 to 1.0 kg/ℓ			
Re. NPSH		4m...Except for Model 100 x 80 (2 pole) 7m...Model 100 x 80 (2 pole)			
Installation		Indoors		Outdoors	
	Impeller	Enclosed			
	Shaft seal	Gland Packing		Mechanical Seal (0~90°C)	
	Sealing	Internal		External Mech. seal quenching	
Construction	Bearing	Seal ball bearing		Oil bath type ball bearing	
	Shaft Sleeve	No	No (up to 100 x 80) Yes (125 x 100 and over)	Yes	Yes (up to 100 x 80)
	Casing Ring	No	No (up to 100 x 80) Yes (125 x 100 and over)		
Flange		JIS 10K			
Materials	Casing	SCS 13 Stainless steel			
	Impeller	SCS 13 Stainless steel			
	Shaft	SUS 304 Stainless steel			
	Sleeve	-	SUS 304 (Size 125 x 100 and over)	SUS 304	
	Casing ring	-	SUS 304 (Size 125 x 100 and over)	SUS 304	
	Casing gasket	Fluororubber			PTFE
	Seal	(Gland Packing) Carbonized fiber		(Gland Packing) PTFE fiber (Mech seal) SiC/Carbon or SiC/SiC	
Accessories	Bare shaft			Companion flange with bolts	
	With motor	Common base, Coupling, Coupling guard		Anchor bolts	

SELECTION CHART

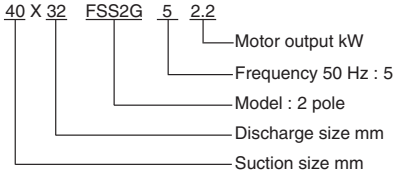
2 POLE (3000min^{-1})

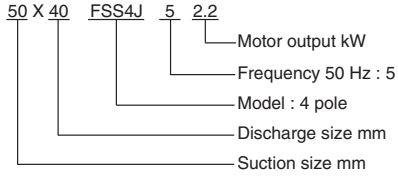


4 POLE (1500min^{-1})



SYMBOLS





Note: These selection charts indicate liquid with 1.0 specific gravity.

LIQUID HANDLED

Liquid	Gasket	Gland packing	Mechanical seal		Specific gravity	Density	Temperature
			Material	Water Activation Method			
*A							
Acetaldehyde	T	C	1	S		○	
Acetic acid	T	C	1	S	○	○	○
Acetic anhydride	T	C	1	S	○		○
Acetone	T	C	1	S			
Acetonitrile	F	D	1	S			○
Acrylic acid	F	D	1	S	○		○
Acrylo nitrile	T	C	1	S			
Alcoholic drinks	F	C	1	S			
Allylacetate	T	D	1	S			
Allyl acetone	T	C	1	S			
Allyl alcohol	F	C	1	S			
Allyl Chloride	F	C	1	S			
Ammonium carbonate	F	D	2	S + Q		○	○
Ammonium bicarbonate	F	C	2	S + Q	○	○	○
Amyl acetate	T	C	1	S		○	
Amyl alcohol	F	C	1	S		○	
Amyl chloride	T	D	1	S			○
Amyl ether	F	C	1	S			
Aqueous ammonia	F	C	2	S		○	○
*B							
Barium chloride	F	C	2	S + Q	○	○	○
Benzaldehyde	T	C	1	S	○		
Benzene	T	C	1	S			
Benzene	F	C	2	S			
Benzyl acetate	T	D	1	S	○		
Bonc acid	F	C	2	S + Q	○	○	○
Brake oil	F	C	1	S			
Butyl acetate	T	D	1	S			○
Butyl acetate diamyl	F	D	1	S	○		
Butyl acetate dibtyl	T	D	1	S	○		
Butyl acetate diethyl	F	D	1	S	○		
Butyl alcohol	F	C	1	S			
Butyl ether	C	C	S				
Butyric acid	T	C	1	S		○	
Butyric ethyl	T	D	1	S		○	
Butyric methyl	T	D	1	S			
*C							
Calcium Carbonate	F	C	2	S + Q	○	○	
Calcium hydroxide	F	C	2	S + Q	○	○	
Carbolic acid	T	D	2	S + Q	○		○
Carbonate water	F	C	1	S			
Caustic soda	F	D	2	S + Q		○	○
Cellosolve	T	D	1	S			
Cellulose acetate	T	D	1	S	○		○
Chrolobenzene	T	C	1	S	○		
Chrome alum	F	D	2	S + Q	○	○	○
Citric acid	F	C	2	S + Q	○	○	○
Coconut oil	F	C	1	S + Q			
Coffee extract	F	C	1	S			
Copper nitrate	F	D	2	S + Q	○	○	○
Corn oil	F	C	1	S			
Creosote	F	D	1	S	○		
Cresol	F	D	1	S + Q	○		
Cyclohexane	F	C	1	S			○
*D							
Diacetone alcohol	T	C	1	S			
Dichlorobenzene	F	C	1	S	○		○
Dichloropentane	F	D	1	S	○		
Diethyl benzene	F	C	1	S			○
Diethylene glycol	F	C	1	S	○	○	
Dioxane	T	D	1	S	○		○
Drain	F	C	2	S			
Dyeing solution	F	D	2	S			○

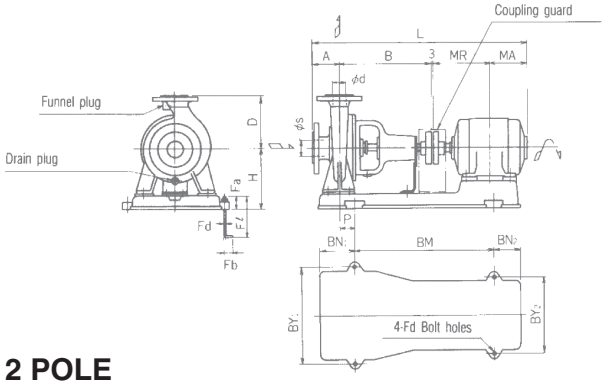
Liquid	Gasket	Gland packing	Mechanical seal		Specific gravity	Density	Temperature
			Material	Water Activation Method			
*E							
Emulsified oil	F	C	2	S			
Ethyl acetate	T	C	1	S		○	○
Ethyl acrylate	T	D	1	S			
Ethyl alcohol	F	C	1	S			
Ethyl benzene	F	C	1	S			
Ethylene chloride	F	D	2	S	○		
Ethylene glycol	F	C	1	S	○		
Ethyl pirydine	T	D	1	S			
*F							
Ferric nitrate	F	D	2	S + Q	○	○	○
Formaline	F	C	1	S	○		
Fruit juice	F	C	1	S			
Fruit oil	F	C	1	S			
Fuel oil	F	C	1	S			
Furtural	T	C	1	S	○		
*G							
Gas oil	F	C	1	S			
Gasoline	F	C	1	S			
Glycerine	F	C	1	S	○	○	○
*H							
Heavy oil	F	C	1	S			
Heptane	F	C	1	S			
Hexane	F	C	2	S			
Hexyl alcohol	F	C	1	S			
Hydraulic fluids	F	C	1	S			
*I							
Ink	T	D	1	S			○
Isoamil alcohol	F	C	1	S			
Iso butil alcohol	F	C	1	S			○
Iso butil-methyl ketone	F	D	1	S			
Iso octane	F	D	1	S			○
Isopropyl alcohol	F	C	1	S			○
Isopropyl benzene	T	D	1	S			
*J							
Juice	F	C	1	S			
*K							
Kerosene	F	C	1	S			
*L							
Lactic acid	F	C	2	S	○		○
Linseed oil	F	C	1	S			
Lubricating oil	F	C	1	S			
*M							
Magnesium hydroxide	F	C	2	S + Q		○	○
Methyl acrylate	T	D	1	S			
Methyl alcohol	F	C	2	S			
Methyl chloride	F	D	2	S + Q			
Methyl chloroform	F	C	1	S	○		○
Methyl ethyl ketone	T	D	1	S			○
Methyl isobutyl ketone	T	D	1	S			
Milk	F	C	1	S			
Mineral oil	F	C	1	S			
Mineral spirits	F	C	1	S			
Monoethylene glycol	F	C	1	S			
Mustard oil	F	C	1	S			
*N							
Naphtha	F	C	1	S			
Naphtha solvent	F	C	1	S			
Natrium carbonate	F	C	2	S + Q	○	○	○
Natrium discarbonate	F	C	2	S + Q	○	○	○
Nonyl phenol	F	D	1	S			

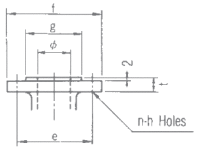
Liquid	Gasket	Gland packing	Mechanical seal		Specific gravity	Density	Temperature
			Material	Water Activation Method			
*O							
Octane	F	D	1	S			
Octanol	F	C	1	S			
Oleic acid	F	C	1	S		○	○
*P							
Paraffine wax	F	C	2	S			
Parilla oil	F	C	1	S			
Petroluem	F	C	1	S			
Petroluem benzine	F	C	1	S			
Pinene	F	D	1	S			
Potassium bomide	F	D	2	S + Q	○	○	○
Potassium carbonate	F	D	2	S + Q	○	○	
Potassium chloride	F	C	2	S + Q	○	○	
Potassium dischromate	F	C	2	S + Q	○	○	
Potassium iodine	F	D	2	S + Q	○	○	
Potassium nitrate	F	C	2	S + Q	○	○	
Propyl acetate	T	D	1	S			
Propylene	F	C	1	S	○		
*R							
Rapeseed oil	F	C	1	S			
Refrigeration oil	F	C	1	S			
*S							
Salad oil	F	C	1	S			
Sea water	F	C	1	S			
Soapsuds	F	C	2	S + Q			○
Soda bromide	F	D	2	S + Q	○	○	○
Soda nitrate	F	C	2	S + Q	○	○	○
Soda sulfate	F	D	2	S + Q	○	○	○
Sodium silicate	F	C	2	S + Q			
Solar oil	F	C	1	S			
Sour oil	F	C	1	S			
Soya bean oil	F	C	1	S			
Soy saurce	F	C	1	S			
Stylene	F	D	1	S			
Sugar liquids	F	C	2	S			
Sunflower oil	F	C	1	S			
*T							
Tannic asid	F	D	2	S + Q		○	○
Thiophenol	F	D	1	S	○		
Trichloroethylene	F	C	1	S	○		○
Triole	T	C	1	S			○
Turpentine oil	F	C	1	S			
*U							
Urea	F	D	2	S + Q	○	○	
*V							
Vegetable oil	F	C	1	S			
*W							
Whale oil	F	C	1	S			
Whisky	F	C	1	S			
Wine	F	C	1	S			
*X							
Xylene	F	C	1	S			

Gasket material : F : Flourorubber
T : PTFE
Gland packing material : C : Carbonized fiber
D : Teflon
Mechanical seal material :
1 : Ceramic/carbon
2 : Superhard alloy/carbon
Water Activation (mechanical seal):
S : Self-injection
S + Q : Self-injection + quenching or external injection
Specific gravity : ○ : Check the value
Density : ○ : Check the value
Temperature : ○ : Check the value

Note: The above chart is a general guide. Liquids have been listed according to the most commonly used classification, but corrosion resistance will vary considerably depending on the characteristics of the liquid (temperature, density and purity) and the circumstances in which it is used.

DIMENSION





Flange

Unit : mm

Size ØSØd	g	e	f	t	n	h
32	80	100	135	20	4	19
40	85	105	140	20	4	19
50	100	120	155	20	4	19
65	120	140	175	22	4	19
80	130	150	185	22	8	19
100	155	175	210	24	8	19
125	185	210	250	24	8	23
150	215	240	280	26	8	23

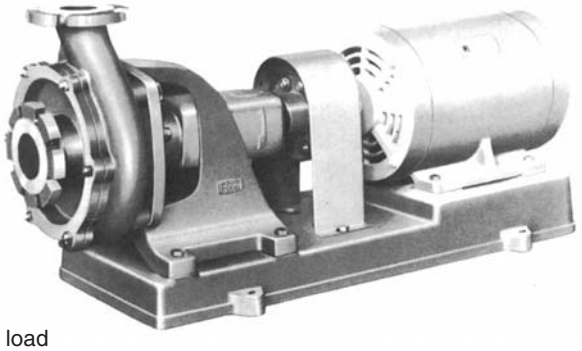
2 POLE

Size		Model	Out put	Pump						Motor			Common base					Anchor bolt				Weight [Mass]	Max suction Pressure
øs	ød		kW	A	B	H	D	L	P	Frame No	MR	MA	BM	BN_1	BN_2	BY_1	BY_2	Fd	Fℓ	Fa	Fb	kg	kg/cm²
32	32	32 x 32FSSF5.4	0.4	60	280	162	140	584	35	71	120	121	350	95	95	230	190	M10	200	40	40	38	6.9(4.0)
		32 x 32FSSF5.75	0.75	60	280	162	140	616	35	80	140	133	370	95	95	230	230	M10	200	40	40	45	6.0(4.0)
		32 x 32FSSG51.5	1.5	80	280	182	160	690	45	90L	168.5	158.5	420	105	80	290	230	M10	200	40	40	59	7.6(4.0)
		32 x 32FSSG52.2	2.2	80	280	182	160	690	45	90L	168.5	158.5	420	105	80	290	230	M10	200	40	40	60	6.5(4.0)
40	32	40 x 32FSSF5.4	0.4	65	280	162	140	589	35	71	120	121	350	95	95	230	190	M10	200	40	40	38	6.9(4.0)
		40 x 32FSSF5.75	0.75	65	280	162	140	621	35	80	140	13	370	95	95	230	230	M10	200	40	40	45	6.0(4.0)
		40 x 32FSSG51.5	1.5	80	280	182	160	690	45	90L	168.5	158.5	420	105	80	290	230	M10	200	40	40	59	7.6(4.0)
		40 x 32FSSG52.5	2.2	80	280	182	160	690	45	90L	168.5	158.5	420	105	80	290	230	M10	200	40	40	60	6.5(4.0)
50	40	50 x 40FSSE5.75	0.75	80	280	162	140	636	35	80	140	133	370	95	95	230	230	M10	200	40	40	45	6.6(4.0)
		50 x 40FSSF51.5	1.5	80	280	162	140	690	45	90L	168.5	158.5	420	105	80	230	230	M10	200	40	40	55	5.6(4.0)
		50 x 40FSSG52.2	2.2	80	280	182	160	690	45	90L	168.5	158.5	420	105	80	290	230	M10	200	40	40	61	6.4(4.0)
		50 x 40FSSH53.7	3.7	80	280	230	180	818	70	112M	200	175	540	130	60	290	290	M12	250	50	50	94	5.4(4.0)
		50 x 40FSSH55.5	5.5	80	280	230	180	887	55	132S	239	205	540	130	150	350	350	M12	250	50	50	121	4.1(4.0)
65	50	65 X 50FSSE51.5	1.5	80	280	162	140	690	45	90L	168.5	158.5	420	105	80	230	230	M10	200	40	40	57	6.4(4.0)
		65 X 50FSSF52.2	2.2	80	360	162	140	770	55	90L	168.5	158.5	480	115	90	230	230	M10	200	40	40	62	5.7(4.0)
		65 X 50FSSG53.7	3.7	80	360	202	160	818	70	112M	200	175	540	130	60	290	290	M12	250	50	50	88	6.4(4.0)
		65 X 50FSSH55.5	5.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	124	5.0(4.0)
		65 X 50FSSH57.5	7.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	134	4.1(4.0)
		65 X 50FSSJ511	11	100	360	225	225	1041	95	160M	323	255	660	170	120	400	400	M16	315	65	63	196	2.8(2.8)
		65 X 50FSSJ515	15	100	360	225	225	1041	95	160M	323	255	660	170	120	400	400	M16	315	65	63	211	0.7(0.7)
80	65	80 X 65FSSF52.2	2.2	100	360	182	160	790	55	90L	168.5	158.5	480	115	90	290	230	M10	200	40	40	70	6.3(4.0)
		80 X 65FSSF53.7	3.7	100	360	202	160	838	70	112M	200	175	540	130	60	290	290	M12	250	40	50	89	5.8(4.0)
		80 X 65FSSG55.5	5.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	123	6.6(4.0)
		80 X 65FSSG57.5	7.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	133	5.6(4.0)
		80 X 65FSSH511	11	100	360	245	200	1041	95	160M	323	255	660	170	120	400	400	M16	315	65	63	191	4.3(4.0)
		80 X 65FSSG515	15	100	360	245	200	1041	95	160M	323	255	660	170	120	400	400	M16	315	65	63	206	3.3(3.3)
100	80	100 X 80FSSF55.5	5.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	124	5.8(4.0)
		100 X 80FSSF57.5	7.5	100	360	230	180	907	55	132S	239	205	540	130	150	350	350	M12	250	50	50	134	5.3(4.0)
		100 X 80FSSG511	11	10	360	245	200	1041	95	160M	323	255	660	170	120	400	400	M16	315	65	63	190	6.1(4.0)
		100 X 80FSSG515	15	100	360	245	200	1041	95	160M	323	255	660	170	120	400	400	M16	315	65	63	205	5.5(4.0)

4 POLE

Size		Model	Out put	Pump						Motor			Common base					Anchor bolt				Weight [Mass]	Max suction Pressure
øs	ød		kW	A	B	H	D	L	P	Frame No	MR	MA	BM	BN_1	BN_2	BY_1	BY_2	Fd	Fℓ	Fa	Fb	kg	kg/cm²
40	32	40 x 32FSS4H5.4	0.4	80	360	205	180	684	45	71	120	121	420	105	90	290	190	M12	250	45	50	45	7.1(4.0)
		40 x 32FSS4H5.75	0.75	80	360	205	180	716	45	80	140	133	420	105	115	290	210	M12	250	45	50	54	6.6(4.0)
50	40	50 x 40FSS4G5.4	0.4	80	360	172	160	684	45	71	120	121	420	105	90	290	190	M10	125	35	40	43	7.3(4.0)
		50 x 40FSS4H5.75	0.75	100	360	205	180	736	45	80	140	133	420	105	115	350	210	M12	250	45	50	56	6.6(4.0)
		50 x 40FSS4J51.5	1.5	100	360	230	225	790	40	90L	168.5	158.5	480	115	105	400	230	M12	250	45	50	77	6.3(4.0)
		50 x 40FSS4J52.2	2.2	100	360	230	225	829	40	100L	193	173	480	115	145	400	260	M12	250	45	50	87	5.8(4.0)
65	50	65 x 50FSS4G5.75	0.75	100	360	205	180	736	45	80	140	133	420	105	115	350	210	M12	250	45	50	55	4.2(4.0)
		65 x 50FSS4H51.5	1.5	100	360	210	200	790	55	90L	168.5	158.5	480	115	105	350	230	M12	250	45	50	72	6.7(4.0)
		65 x 50FSS4J52.2	2.2	100	360	230	225	829	40	100L	193	173	480	115	145	400	260	M12	250	45	50	99	6.2(4.0)
		65 x 50FSS4J53.7	3.7	100	360	230	225	846	40	112M	200	183	480	115	145	400	290	M12	250	45	50	106	5.7(4.0)
80	65	80 x 65FSS4G51.5	1.5	100	360	210	200	790	40	90L	168.5	158.5	480	115	105	350	230	M12	250	45	50	73	7.2(4.0)
		80 x 65FSS4G52.2	2.2	100	360	210	200	829	40	100L	193	173	480	115	145	350	260	M12	250	45	50	83	6.9(4.0)
		80 x 65FSS4H53.7	3.7	100	360	230	225	846	40	112M	200	183	480	115	145	400	290	M12	250	45	50	10	6.4(4.0)
		80 x 65FSS4J55.5	5.5	100	470	275	250	1022	80	132S	239	210	660	170	120	440	320	M16	315	60	63	163	5.6(4.0)
		80 x 65FSS4K57.5	7.5	125	470	300	280	1085	80	132M	258	229	660	170	120	490	320	M16	315	60	63	198	5.0(4.0)
		80 x 65FSS4K511	11	125	470	330	280	1201	100	160M	323	280	740	190	145	490	400	M16	315	60	63	249	4.2(4.0)
100	80	100 x 80FSS4H53.7	3.7	125	470	265	250	981	75	112M	200	183	600	150	115	440	290	M16	315	60	63	134	6.8(4.0)
		100 x 80FSS4J55.5	5.5	125	470	300	280	1047	80	132S	239	210	660	170	120	490	320	M16	315	60	63	175	6.3(4.0)
		100 x 80FSS4J57.5	7.5	125	470	300	280	1085	80	132M	258	229	660	170	120	490	320	M16	315	60	63	184	5.9(4.0)
		100 x 80FSS4K511	11	125	470	330	315	1201	100	160M	323	280	740	190	145	490	400	M16	315	60	63	256	5.1(4.0)
		100 x 80FSS4K515	15	125	470	330	315	1245	100	160L	345	302	740	190	145	490	400	M16	315	60	63	271	4.5(4.0)
125	100	125 x 100FSS4J55.5	5.5	140	470	300	280	1062	80	132S	239	210	660	170	120	490	320	M16	315	60	63	184	6.6(4.0)
		125 x 100FSS4J57.5	7.5	140	470	300	280	1100	80	132M	258	229	660	170	120	490	320	M16	315	60	63	196	6.3(4.0)
		125 x 100FSS4J511	11	140	470	330	280	1216	100	160M	323	280	740	190	145	490	400	M16	315	60	63	247	5.8(4.0)
		125 x 100FSS4K515	15	140	470	330	315	1260	100	160L	345	302	740	190	145	490	400	M16	315	60	63	289	4.8(4.0)
		125 x 100FSS4K518	18.5	140	470	340	315	1290	115	180M	351.5	325	840	205	155	490	490	M20	400	75	80	325	4.5(4.0)
150	125	150 x 125FSS4H57.5	7.5	140	470	325	315	1100	80	132M	258	229	660	170	120	490	320	M16	315	60	63	210	6.8(4.0)
		150 x 125FSS4J511	11	140	470	330	355	1216	100	160M	323	280	740	190	145	490	400	M16	315	60	63	259	6.3(4.0)
		150 x 125FSS4J515	15	140	470	330	355	1260	100	160L	345	302	740	190	145	490	400	M16	315	60	63	276	5.9(4.0)
		150 x 125FSS4K518	18.5	140	530	375	355	1350	95	180M	351.5	325	840	205	230	600	490	M20	400	75	80	373	5.2(4.0)
		150 x 125FSS4K522	22	140	530	375	355	1350	95	180M	351.5	325	840	205	230	600	490	M20	400	75	80	387	5.0(4.0)
		150 x 125FSS4K530	30	140	530	375	355	1388	95	180L	370.5	344	840	205	230	600	490	M20	400	75	80	420	4.7(4.0)

SLURRY PUMPS



FEATURES

- **No power overload**
  Specially designed impeller with a limit load feature is used so that there is never a power overload no matter what the head.
- **Low energy consumption and yet highly efficient**
  Unique hydraulic design makes this pump more efficient than any other type.
  The initial rate of efficiency is sustained for reducing electrical power consumption.
- **Highly durable**
  A special, wear-resistant iron casting is used for both body and impeller.
- **Ample motor output allowance**
  The motor has ample power output allowance. It will operate without change of output with mixed solution of 1.1 specific gravity.
- **Minimal gland packing leakage**
  Rear impeller vane ensures minimal leakage from durable gland packing.
- **Corrosion and wear-resistant materials**
  Both chrome iron casting and two-phase stainless steel are available. Interchangeability makes a wide range of applications possible.

SPECIFICATIONS

	STANDARD		OPTIONAL
	Model SAL-M	Model SAL-R	
Liquid	Slurry (Liquid containing particle matter)		
Max. spherical solids (mm)	40 x 32 SALE, F.....Ø6		
	50 x 40 SALE, F.....Ø7	125 x 100 SALH.....Ø25	
	50 x 40 SALG, H.....Ø6	125 x 100 SALH.....Ø19	
	65 x 50 SALF, G, H...Ø8	150 x 125 SALH, J...Ø32	
	80 x 65 SALF, G, H...Ø12	200 x 150 SALJ.....Ø40	
Weight concentration	to 30%		
Specific gravity of mixed	to 1-3 (Note: Will be greater than horsepower specifield in catalogue if over 1.1)		
Temperature	0-80°C (32 ~176°F)		
Max. suction press	1 kgf/cm^2		
Suction head	up to Size 125 x 100 - 5m above Size 150 x 125-3m		
Installation	Indoor (SALE, F G)	Indoor & Outdoor (SALH,J)	
Materials			
Casing	Low chrome cast iron		Two-phase stainless
Impeller	High chrome cast iron		Two-phase stainless
Shaft	403 Stainless steel.....SAL-E, F, G Carbon steel. . . . . SAL-H,J	304 Stainless steel	
Shaft sleeve	420 Stainless steel		316 Stainless steel
Flange	JIS 10 kgf/cm^2		
Construction			
Nozzle position	End suction, top discharge		
Impeller type	Semi open, with rear vane		
Stuffing box	Gland packing		
Bearing	Sealed ball bearing (SAL-EFG), Ball & angular contact ball (SAL-H, J)		
Lubrication	Grease (SAL-EFG), oil bath (SAL-H, J)		Oil bath
Drive method	Motor direct drive	V belt drive.....SAL-H, J only	

APPLICATIONS

● Chemical Industry

- Neutralizing agents (milk of lime)
- Filter press supply liquid (water with high mud concentration)
- Residual filter sediment (water with high mud concentration)
- Wet type dust collection (dust-impregnated water)
- Sediment disposal (drains)

● Metal/Mining

- Waste liquid (ore/mud-mixed water)
- Filter press supply liquid (water with high ore/mud concentration)
- Pit drains (earth/sand-mixed water)

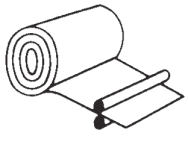
● Oil Refining

- Waste disposal (noncorroded waste)
- Pit drains (water with soft mud)

● Cement/Concrete

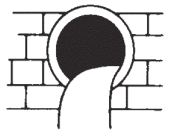
- Milk of lime (lime-water mix)
- Used ready-mix concrete wash water (concrete/gravel-mixed water)
- Equipment drainage

● Paper & Pulp



- Pulp treatment (max 4% concentration)
- Additives (clay-mixed water)
- Neutralizing liquid (milk of lime)
- Waste disposal (sediment-mixed water)

● Water Works & Drainage



- Sludge transport (water with high sludge concentration)
- Filter press supply sludge (water with high sludge concentration)
- Settling tank drainage (water with high sludge concentration
- Concentrating tank drainage (sludge-mixed water)

● Foods

- Kitchen drains (filtrate)
- Waste liquid disposal

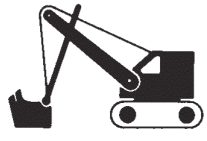
● Pottery Manufacturing

- Kaoline (Kaolin-mixed water)
- Grinding plants (residual water drainage)

● Sugar/Salt Manufacturing

- Used wash water (earth and sand-mixed water)
- Steamed and boiled liquid (molasses)

● Constructing/Quarrying



- Dredging (water mixed with sand and gravel)
- Mud water drainage (earth and sand mixed water)

● Steel Manufacturing & Refineries

- Used coke cooling water (mixed with coke dust)
- Casting sand recovery (water mixed with sand)
- Conveyor pit drainage (water mixed with iron oxide)
- Residual settling tank liquid (water mixed with sludge)
- Dust collecting circulating liquid (dust mixed water)

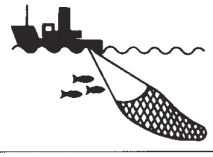
● Motor car/Machinery Industries

- Paint disposal (paint mixed water)
- Used grinding liquid disposal (oil-liquid mixture with grinding sand dust)
- Used cutting oil disposal (oil mixed with chips)
- Wash water circulation (liquid mixed with chips, grindstone dust)

● Thermal Power Stations

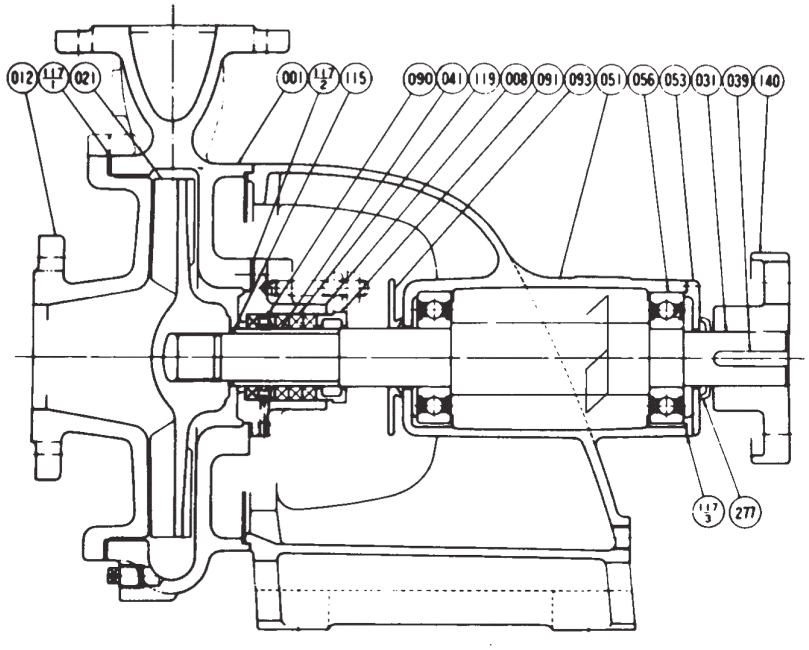
- Incinerator ash disposal (water mixed with ash, carbon)
- Dust disposal (dust-mixed water)

● Fisheries

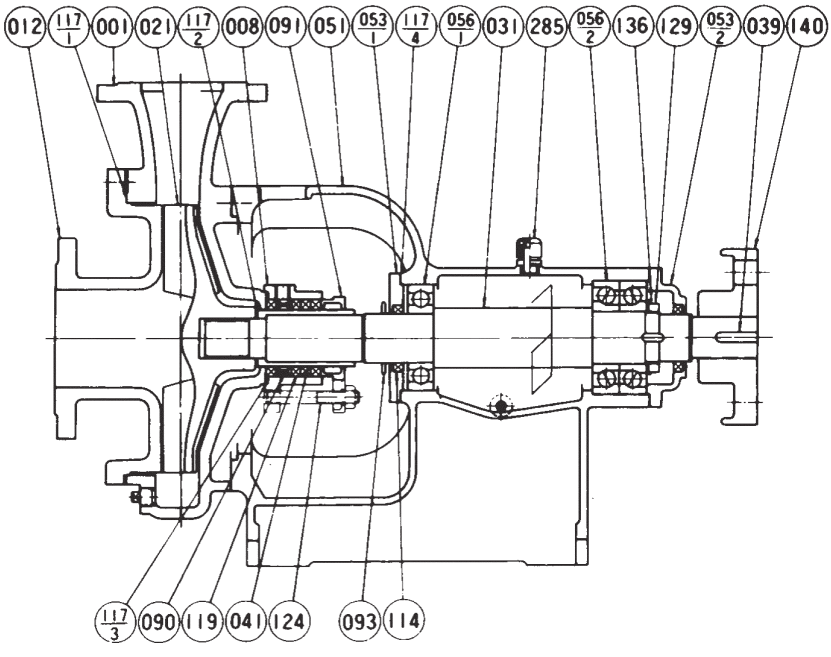


- Fish and shellfish disposal (boiled down liquid)
- Farming (sea water mixed sand)

SECTION VIEW



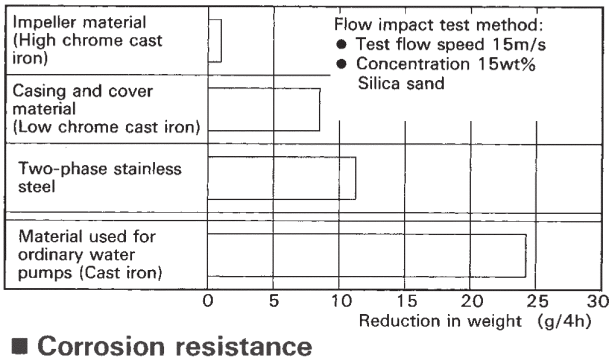
PART No.	PART NAME	No.for 1 Unit
001	CASING	1
008	STUFFING BOX	1
012	SUCTION COVER	1
021	IMPELLER	1
031	SHAFT	1
039	KEY	1
041	SHAFT SLEEVE	1
051	BEARING HOUSING	1
053	BEARING COVER	1
056	BALL BEARING	2
090	LANTERN RING	1
091	GLAND	1
093	DEFLECTOR	1
115	"O" RING	1
117-1	GASKET	1
117-2	GASKET	1
117-3	GASKET	1
119	PACKING	4
140	COUPLING	1 SET
277	V RING	1



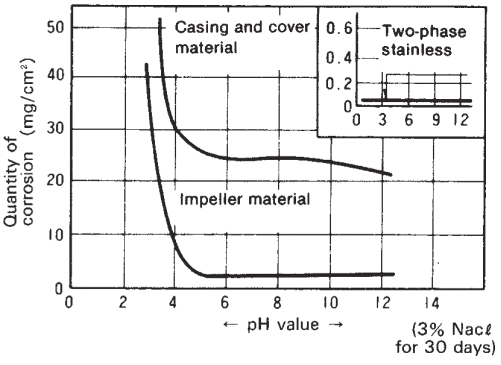
PART No.	PART NAME	No.for 1 Unit
001	CASING	1
008	STUFFING BOX	1
012	SUCTION COVER	1
021	IMPELLER	1
031	SHAFT	1
039	KEY	1
041	SHAFT SLEEVE	1
051	BEARING HOUSING	1
053-1	BEARING COVER	1
053-2	BEARING COVER	1
056-1	BALL BEARING	1
056-2	BALL BEARING	1 SET
090	LANTERN RING	1
091	GLAND	1
093	DEFLECTOR	1
114	OIL SEAL	2
117-1	GASKET	1
117-2	GASKET	1
117-3	GASKET	1
117-4	GASKET	2
119	PACKING	4
124	GLAND BOLT	2
129	NUT	1
136	WASHER	1
140	COUPLING	1 SET
285	AIR VENT	1

ABOUT WEAR AND CORROSION RESISTANCE

■ Wear resistance



■ Corrosion resistance

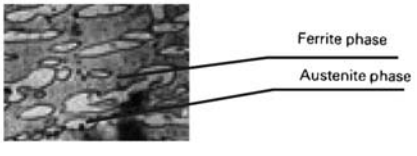


- The impellers, which are subject to the greatest possibility of wear, are of tough high chrome cast iron about 20 times as wear resistant as ordinary cast iron.
- The casing, which is subject to less possibility of wear, is of less expensive low chrome cast iron with three to five times the wear resistance of ordinary cast iron.

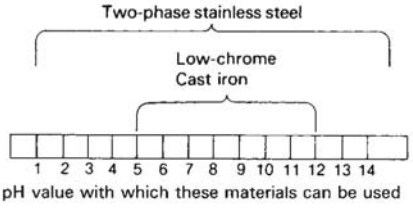
TWO-PHASE STAINLESS STEEL

18-8 system stainless steel now widely favored as an anticorrosive material is vulnerable to an atmosphere with chlorine ions. To cope with this, EBARA has developed two-phase stainless steel which is resistant to stress corrosion cracks, for use especially in chemical plants, ocean development equipment and food industrial plants.

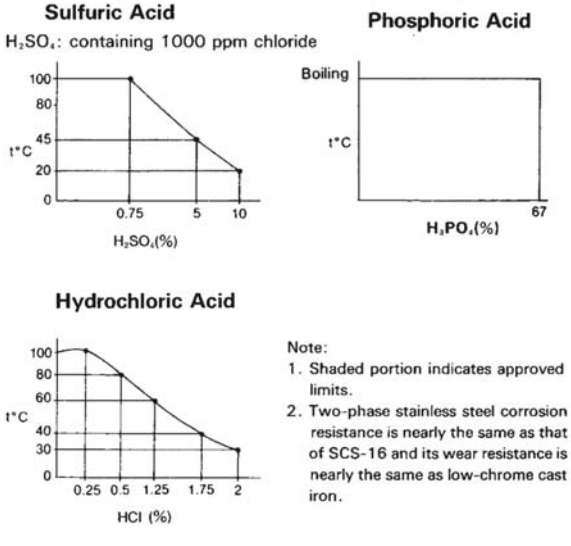
Two-phase stainless steel is composed of austenite with a 40 to 60% ferrite content. The principle features of the superior corrosion resistance of austenite and the hardness and strength of ferrite-have been skillfully combined. This two-phase stainless steel can be used without the problems of conventional steel such as wear, corrosion, and cracking and is especially suited for use with sea water.



● Corrosion Resistance Comparison

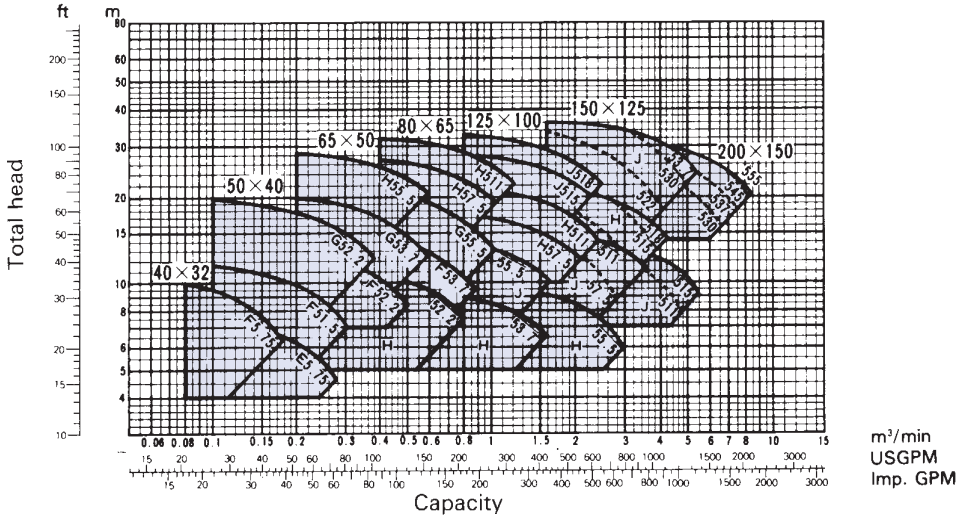


(Example of Corrosion Resistance)



Note:
1. Shaded portion indicates approved limits.
2. Two-phase stainless steel corrosion resistance is nearly the same as that of SCS-16 and its wear resistance is nearly the same as low-chrome cast iron.

SELECTION CHART FOR SAL-M (Motor direct drive)

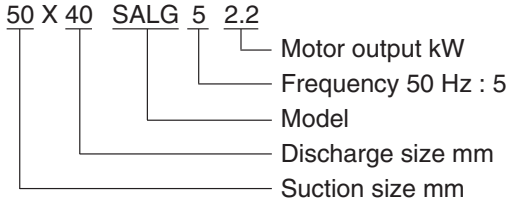


Size	Model	Pole	Motor kW	Capacity m³/min	T.H. m	Capacity m³/min	T.H. m	Capacity m³/min	T.H. m
40 x 32	SALF5.75	4	0.75	0.08	11.5	0.13	10	0.18	7.7
50 x 40	SALE5.75	4	0.75	0.17	7.5	-	-	0.26	5.5
	SALF51.5		1.5	0.1	13.5	0.21	11.7	0.32	9
	SALG52.2		2.2	0.1	20	0.21	17.3	0.33	13
65 x 50	SALF52.2	4	2.2	0.32	12.5	-	-	0.5	9.5
	SALG53.7		3.7	0.2	20.5	0.4	17.5	0.57	13
	SALH55.5		5.5	0.2	29	0.4	25.5	0.6	21
80 x 65	SALH52.2	6	2.2	0.52	10	-	-	0.8	7.5
	SALF53.7	4	3.7	0.55	13.5	0.7	11.5	0.85	10
	SALG55.5		5.5	0.4	21.5	0.7	18	1.0	13.5
	SALH57.5		7.5	0.4	27	0.7	24	1.05	19.5
	SALH511		11	0.4	32	0.8	29	1.25	23
125 x 100	SALH53.7	6	3.7	0.85	8.8	-	-	1.6	6.5
	SALJ55.5	6	5.5	1.0	13	-	-	1.65	9.8
	SALH57.5	4	7.5	0.8	17.2	1.5	15	2.1	12
	SALH551		11	1.05	20.5	1.8	18	2.5	14
	SALH515	4	15	0.9	28	1.7	24.5	2.3	20
	SALJ518		18.5	0.9	33	1.6	29.5	2.55	22

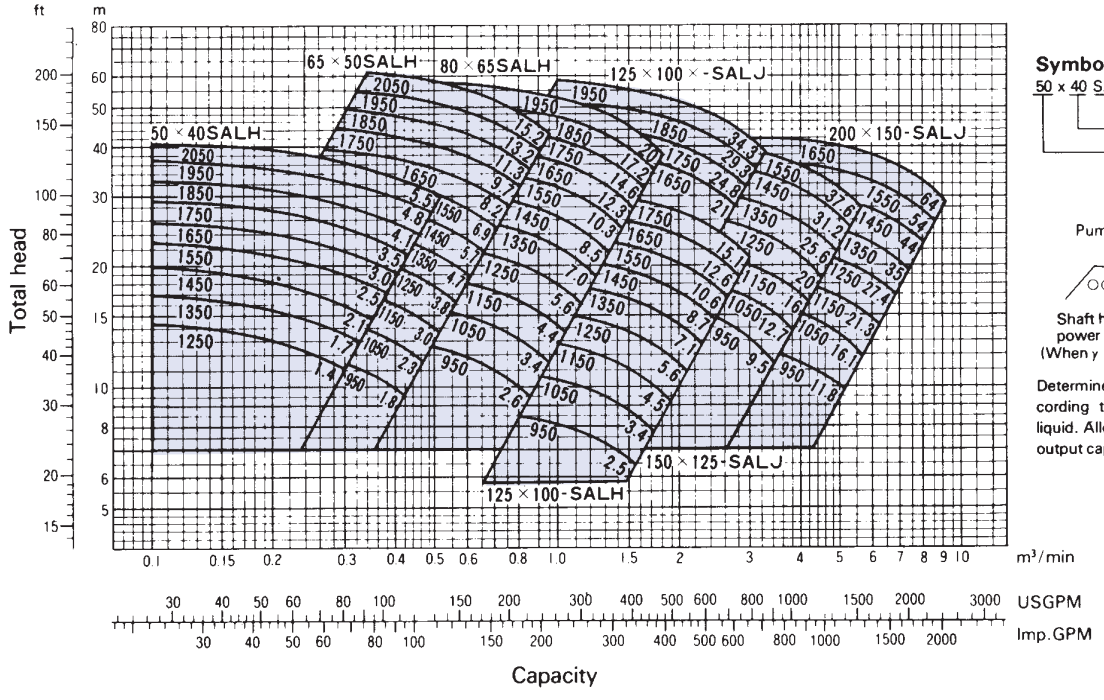
Pump with 150 x 125 and 200 x 150 diameters must be matched to capacities and heads used. Indicate what principal items will be used.

Note :
1. Impeller measurements will vary for 150 x 125 and 200 x 150 according to capacities and heads used. Indicate capacities and heads.
2. Output indicated in the chart is in relation to a 1.1 specific gravity. If specific gravity exceeds 1.1 output must be raised one level.

SYMBOLS



SELECTION CHART FOR SAL-R (V belt drive)



Symbols

50 x 40 SALH
- Model
- Discharge size (mm)
- Suction size (mm)

Pump rotation number (min⁻¹)

Shaft horse power (When γ = 1.0)

Determine motor output according to specific gravity of liquid. Allow for additional 10% output capacity.

Reference

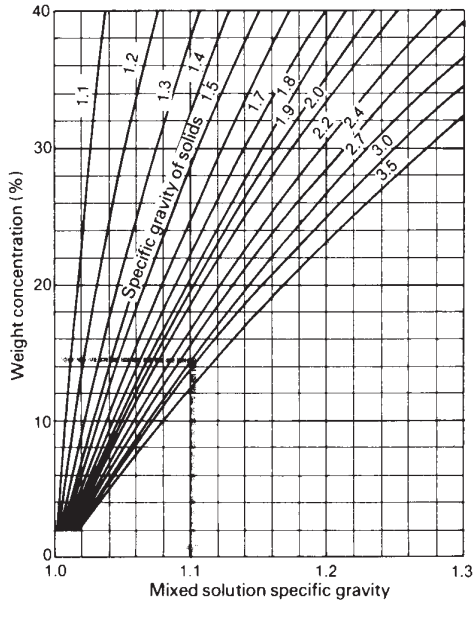
Finding specific gravity of mixed solution specific gravity of solids

Material	True specific gravity σ	Material	True specific gravity σ
Anthracite	1.5	Gypsum	2.3
Bauxite	2.5	Hematite	5.2
Brick	2.0-5.9	Iron sand ore	2.7-(3.0)
Calcium oxide	3.4	Lead	11.3
Cement	2.7-3.2**	Limestone	2.7-3.0
Charcoal	1.4-1.9	Limonite	3.7
Chrome iron ore	4.3	Magnetite	5.2
Clay	2.5-2.9	Marble	2.68
Coal	1.3-(2.0)	Paper fiber	1.54
Concrete	2.3	Quartz and rock crystal	2.65-2.7
Copper pyrite	4.2	Sandstone	2.05
Cuprite	6.0	Sand (grain size 0.05-2mm)	2.61-2.8
Cupreous ore	3.5	Silt	2.7
Cupreous slag	2.5-2.65	Soda lime glass	2.5
Diatomaceous earth	1.92	Saliceous terra alba	2.17
Dolomite	2.6-2.9	Sulphide	3.3
Fly ash	2.04	Sulphur	2.1
Galena	7.5	Tin stone	6.8
Glass	2.2-6.0	Tuff	1.5-2.0
Granite	2.65	Turf	1.26-1.46
Gravel	2.61-2.68*		

*Average 2.65 mm
**Average 3.0 mm

Simple Calculation Chart

(for calculating compound specific gravity on basis of specific gravity of solids and weight concentration.)



(Example)
The liquid is silt and has a weight concentration of 14.5%. You want to find specific gravity of the mixed solution.

① Determine specific gravity of silt by referring to chart listing specific gravity of solids.

② Using the Simple Calculation Chart at left, draw a horizontal line at the point where weight concentration is 14.5%. Draw a vertical line down from the point where the horizontal line intersects with the 2.7 specific gravity curve.

③ This gives a mixed solution specific gravity of 1.1.