

# EBARA PRODUCT GENERAL CATALOGUE

Looking ahead, going beyond expectations Ahead > Beyond

50Hz

# **NON-SUBMERSIBLE PUMPS**

# **Stainless Steel pumps**

Madal	Model Shape		Linuid	Max.	Co	onstruction	I		Material		Dama
woder	Snape	Method	Liquia	Pressure	Impeller	Sealing	Bearing	Casing	Impeller	Shaft	Page
CDX		Direct	Pure Water	0.8 MPa	Enclosed	M.Seal	Ball	AISI 304	AISI 304	AISI 303	4
2CDX		Direct	Pure Water	0.8 MPa	Enclosed	M.Seal	Ball	AISI 304	AISI 304	AISI 303	4
ЗМ		Direct	Pure Water	1 MPa	Enclosed	M.Seal	Ball	AISI 304	AISI 304	AISI 304	5
EVMS		Direct	Pure Water	2.5 MPa	Enclosed	M.Seal	Ball	AISI 304	AISI 304	AISI 304	5
JESX		Direct	Pure Water	0.6 MPa	Enclosed	M.Seal	Ball	AISI 304	PPO. mod	AISI 303	6
DWO		Direct	Pure Water	0.8 MPa	Semi-open	M.Seal	Ball	AISI 304	AISI 304	AISI 304	6
LPS		Direct	Pure Water	0.4 MPa	Enclosed	M.Seal	Ball	AISI 304	AISI 304	AISI 303	7
MATRIX		Direct	Pure Water	1 MPa	Enclosed	M.Seal	Ball	AISI 304	AISI 304	AISI 304	7
FSS		Motor Direct	Pure Water	1 MPa	Enclosed	Packing	Ball	SCS 14	SCS 14	AISI 316	9
GSO	ф.	Motor Direct	Industrial Water	1.6 MPa	Reversed Semi-open	M.Seal	Ball	SCS 13	SCS 13	SUS 304	10

# **Cast Iron pumps**

Madal	Chana	Driving	Linuid	Max.	Co	nstruction			Material		
woder	Snape	Method	Liquid	Pressure	Impeller	Sealing	Bearing	Casing	Impeller	Shaft	Page
FS	i i i i i i i i i i i i i i i i i i i	Motor Direct	Pure Water	1 MPa	Enclosed	M.Seal	Ball	Cast Iron	Bronze	AISI 403	8
CS/CN		Motor Direct	Pure Water	1.6 MPa	Enclosed	M.Seal	Ball	Cast Iron	Bronze	AISI 316	8
GS	, i i i i i i i i i i i i i i i i i i i	Motor Direct	Pure Water	1.6 MPa	Enclosed	M.Seal	Ball	Cast Iron	Bronze	Duplex SUS	9
SQPB	<b>*</b> -	Motor Direct	Pure Water	0.25 MPa	Semi-open	Packing	Ball	Cast Iron	Cast Iron	Carbon Steel	10
3E	<b>∛</b> ∎∎	Direct	Pure Water	1 ~ 1.6 MPa	Enclosed	M.Seal	Ball	Cast Iron	AISI 304, AISI 316L	AISI 304, AISI 316L	11
3D		Direct	Pure Water	1 MPa	Enclosed	M.Seal	Ball	Cast Iron	AISI 304	AISI 304	12
CDA		Direct	Pure Water	1 MPa	Twin closed	M.Seal	Ball	Cast Iron	PPO. mod	AISI 303, AISI 304	12
СМ		Direct	Pure Water	0.8 MPa	Enclosed	M.Seal	Ball	Cast Iron	PPO. mod	AISI 416, AISI 420	13

# **Borehole Pumps**

Medel	Shape Driving		Liauria	Max.	Co	onstruction		Material			
Model	Snape	Method	Liquia	Immersion	Impeller	Sealing	Bearing	Casing	Impeller	Shaft	Page
SB3		Motor Direct	Clear Water	60 m	Close	-	Sleeve	AISI 304	PPO Fiberglass	AISI 430F	14
WINNER4N		Motor Direct	Clear Water	350 m	-	-	Sleeve	AISI 304	Lxef	AISI 304	14
IDROGO		Motor Direct	Clear Water	20 m	-	M.Seal	Ball	AISI 304	PPE + PS	AISI 431	14
SF6		Motor Direct	Clear Water	350 m	Close	-	Sleeve	Cast Iron AISI 304	PPO Fiberglass	AISI 420	14

# **SUBMERSIBLE PUMPS**

Medel	Shape Drivin		التعيينية	Maximum	Co	nstruction			Material		Demo
woder	Shape	Method	Liquia	Submergence	Impeller	Sealing	Bearing	Casing	Impeller	Shaft	Page
OPTIMA		Direct	Waste Water	5 m	Semi- open(strainer)	M.Seal	Ball	AISI 304	PPE+PS reinforced with fiberglass	AISI 303	15
BEST		Direct	Dirty Water	10 m	Semi- open(strainer)	D.M.Seal	Ball	AISI 304	AISI 304	AISI 303	15
RIGHT		Direct	Dirty Water	10 m	Semi- open(vortex)	D.M.Seal	Ball	AISI 304	AISI 304	AISI 303	16
DW		Direct	Sewage Water	10 m	Single channel, Vortex	D.M.Seal	Ball	AISI 304	AISI 304	AISI 303	16
DS		Direct	Dirty Water	8 m	Semi- open(strainer)	Double M.Seal	Ball	Cast Iron	Cast Iron	AISI 403	17
DVS		Direct	Dirty Water	8 m	Semi-vortex	Double M.Seal	Ball	Cast Iron	Cast Iron	AISI 403	17
DL		Direct	Sewage Water	8 m	Non - clog	Double M.Seal	Ball	Cast Iron	Cast Iron	AISI 403	18
DF		Direct	Sewage Water	8 m	Non-clog semi-open	Double M.Seal	Ball	Cast Iron	Cast Iron	AISI 403	18
DML		Direct	Sewage Water	8 m	Non-clog, single chanel	Double M.Seal	Ball	Cast Iron	Cast Iron	AISI 403	19

Sorioo	Series Shane		Liquid	Max.	Co	onstruction			Material		Bogo
Series	Shape	Method	Liquid	Pressure	Impeller	Sealing	Bearing	Casing	Impeller	Shaft	Fage
UD3		Direct	Pure Water		Enclosed	M.Seal	Ball	AISI 304	AISI 304	AISI 304	20
UN3		Direct	Pure Water	1 MPa	Enclosed	M.Seal	Ball	AISI 304	AISI 304	AISI 304	22
DBU	<u>00</u>	Direct	Pure Water		Enclosed	M.Seal	Ball	AISI 304	AISI 304	AISI 304	25

# **Fire Fighting Pumps**

Sorios	Shapa	Driving	Liquid	Max.	Co	onstruction			Material			
Series	Snape	Method	Liquid	Pressure	Impeller	Sealing	Bearing	Casing	Impeller	Shaft	rage	
FFS-FFB	ļļ	Motor Engine	Pure Water	12 bar.	-	-	-	-	-	-	27	
FSPA		Motor Engine	Pure Water	250	Enclosed	Packing	Ball	FCD450	CAC406	SUS316	28	
CNPA	<u>000</u>	Motor Engine	Pure Water	psi	Enclosed	Packing	Ball	FC250	CAC406	SUS316	28	

# **Applications**



Water Supply





Draining Water



Meats and Fish



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Treatment

and Irrigation





Hot and Cold

water Circulation



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Air Conditioning

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Agricultural

Application

Sprinkling

**Texttile Machines** 

Pressure Boosting





Swimming Pool







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Industrial Drainage

**Civil Engineering** 







Industrial

Application

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Drainage

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General Water

Pumping

Pool and Tank Emptying

Sewage	
	1



General Purpose (Clean water)

Food Process

1

Sump Pump





# **NON-SUBMERSIBLE PUMPS**

# MODEL CDX CENTRIFUGAL PUMPS







#### Features

- 1. Hydraulic robust construction.
- 2. High performances and efficiency.
- 3. Integrated volute obtained from hydro-forming process.
- 4. Low noise.
- 5. Compact dimensions.

# MODEL 2CDX TWIN IMPELLER CENTRIFUGAL PUMPS





- 1. Hydraulic robust construction.
- 2. High performances and efficiency.
- 3. Integrated volute obtained from hydro-forming process.
- 4. Silent.
- 5. Compact dimensions.



## **STAINLESS STEEL PUMPS**

## MODEL 3M Series CENTRIFUGAL PUMPS



#### Features

- 1. Robust hydraulic construction.
- 2. Versatile, it is possible to handle a wide range of fluid (304 or 316 version).
- 3. Volute casing for high efficiency.
- 4. With AISI 304 pump pump foot at standard.
- 5. All pump casing fixed screw in AISI 304.
- 6. Compact design.
- 7. Wide range of performances with 2-4 poles motor .
- 8. Standard dimension as ISO EN 733.
- 9. Back pull out design easy to dismantle, pump casing remain to the pipe.
- 10. Standard mechanical seal DIN 24960.
- 11. Other customize solutions to meet all your needs.





- 1. Maximum operating range at 16 bar ~ 35 bar /-30 to +140°c depend on model
- 2. Available for various operating range, EVMS 1 90 m<sup>3</sup>/ h flow sizes
- 3. Material version in Cast iron, AISI 304 and AISI 316L
- Pipe connections : Round flange/Loose flange/Oval flange/Victaulic connection/Clamp connection for EVMS 1 20 and Loose flange for EVMS 32 - 90
- 5. Motor IE3 can be provided above 0.75 kw

# MODEL JEX / JESX CENTRIFUGAL PUMPS





#### Materials

- 1. Pump body and seal housing disc in AISI 304.
- 2. AISI 303 shaft (part in contact with the liquid).
- 3. Impeller in AISI 304 for JEX, in PRO reinforced with fiberglass for JESX.
- 4. Mechanical seal in Carbon/Ceramic/NBR.
- 5. Support and motor casing in aluminium.



# MODEL DWO CENTRIFUGAL PUMPS



- 1. Hydraulic robust construction.
- 2. High performances and efficiency.
- 3. The Hydro-forming process to obtain the integrated volute is patented.
- 4. Low noise.
- 5. Compact dimensions.
- 6. Passage of solids: maximum diameter of 19 mm.



# MODEL LPS IN-LINE CENTRIFUGAL PUMPS



#### Features

- Hydraulic robust contruction. 1.
- 2. Low noise.
- 3. Compact dimentions.
- 4. Totally in AISI 304.



#### HORIZONTAL MULTISTAGE MODEL MATRIX CENTRIFUGAL PUMPS





- 1. All metal components in contact with the liquid in the pump are made of stainless steel.
- 2. Tungsten carbide and ceramic are used for sleeve type bearing in contact with the liquid.
- 3. Floating liner ring in AISI 304 and PTFE.



# **NON-SUBMERSIBLE PUMPS**



# CAST IRON END SUCTION VOLUTE PUMPS





#### Features

- 1. Easy maintenance BPO (Back Pull Out) feature allows all rotating element to be removed without disconnecting the suction and discharge pipework.
- Top centerline discharge, foot support under casing for maximum resistance to misalignment and distortion from pipe loads.
- 3. Higher operating efficiency over a wider range of capacities, lowers operational cost.
- 4. Flange connection with JIS standard.



## MODEL CS/CN



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#### Features

1. Very Compact design for ease of installation and permits minimum maintenance.

HORIZONTAL SPLIT

- 2. Axially split casing allows the easy removal of the top casing for inspection and service.
- 3. A wider range of performance with head up to 150m.
- 4. High speed drives and vertical mount available.
- 5. Anti-corrosion materials used on the rotating parts.
- 6. High quality sealed and cartridge type bearing units provide high durability.
- 7. High allowable working pressure can ensure stable running.
- 8. Mechanical seal for easy maintenance.
- 9. Flange connection with JIS standard.

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# MODEL FSS STAINLESS STEE L END SUCTION VOLUTE PUMPS





#### Features

- 1. Pump portion contacting liquid is made of high grade stainless steel.
- Easy maintenance BPO (Back Pull Out) feature allows all rotating element to be removed without disconnecting the suction and discharge pipework.
- Top centerline discharge, foot support under casing for maximum resistance to misalignment and distortion from pipe loads.
- 4. Higher operating efficiency over a wider range of capacities, lowers operational cost.
- 5. Flange connection with JIS standard.





Pump model

2000



eDYNAMiQ Eco, Dynamic and Integrated Quality



# (u) perfective (u) = 0

#### Features

- 1. Easy maintenance BPO (Back Pull Out) feature allows all rotating element to be removed without disconnecting the suction and discharge pipework.
- Top centerline discharge, foot support under casing for maximum resistance to misalignment and distortion from pipe loads.
- 3. Higher operating efficiency over a wider range of capacities, lowers operational cost.
- 4. Flange connection with DIN standard.

#### Model GS 4P/50Hz



# MODEL GSO HORIZONTAL END SUCTION VOLUTE PROCESS PUMPS (ISO 2858/5199)





#### Features

- 1. Comply with international standards Outline dimension : ISO 2858 / Pump design : ISO 5199.
- 2. Easy maintenance BPO (Back Pull Out) feature allows all rotating element to be removed without disconnecting the suction and discharge pipework.
- 3. Impeller design with reversed semi-open and suitable for both clean liquid and light slurry liquid.
- 4. Minimized maintenance cost and stock parts by high interchangeability of parts.
- 5. Less axial thrust load and low seal box pressure by unique shape impeller. Heavy duty design to reduce vibration and shaft deflection.
- 6. Flange connection available with DIN and JIS standard.







# MODEL SQPB SELF PRIMING PUMPS

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- 1. Priming requirements are automatically, provided resulting in simplified operations.
- 2. Maintenance is simplified by use of gland packing.



MODEL 3E Series IN-LINE CENTRIFUGAL ELECTRIC PUMPS



- 1. Pump casing in cast iron and impeller in AISI304 for 32, 40, 50, 65 series, in AISI316L for 80, 100 series
- 2. Flow rate up to 216 m3/hr for model 3E and up to 192 m3/hr for model 3E-K
- 3. Total head up to 70 m and liquid handled temperature -10 ~ +120 oC
- 4. Complete with integrated E-SPD+ frequency converter for model 3E-K and available up to 11 kW
- 5. Robust design and Easy maintenance



## MODEL 3D CENTRIFUGAL PUMPS



300

400 500

400

2000

150

300

1000

300

<sup>· 250</sup> H

- 200 [ft]

- 150

- 100

- 80

60

40

- 20

-16.4

3000 Q [I/min]

Q [m<sup>3</sup>/h]

500 600 700 800

200

200

1000

60 70 80 90 100



#### Materials

- 1. Cast iron pump body EN-GJL-250-EN 1561
- 2. Stamped AISI 304 stainless steel impeller for sizes 32, 10-40 and 50 Maximum pressure. : 10 bar

Microcast steel impeller for size 65

- 3. AISI 304 seal holding disc
- 4. AISI 304 shaft
- 5. Standard mechanical seal Ceramic/Carbon/NBR

MODEL CDA TWIN IMPELLER CENTRIFUGAL ELECTRIC PUMPS



#### Materials

- 1. Cast iron pump body.
- 2. Mechanical seal in Carbon/Ceramic/NBR.
- 3. Impeller : PPE+PS glass fibre reinforced (CDA 0.75-1.00) Brass (CDA 1.50 5.50)
- 4. Shaft in AISI 303 for CDA 1.50 2.00 3.00, in AISI 304 for CDA 4.00 5.50, in AISI 420 for CDA 0.75 1.00.
- Support in aluminium for CDA 0.75 1.00, in cast iron for the rest of the range. 5.
- 6. Seal housing disc in AISI 304 for CDA 0.75 - 1.00, in cast iron for the rest of the range.

26.4

100

80

60

Н [m] U.S.g.p.m

Imp.g.p.m

2-200/7.5

2-200/4

32-200/3 40 -

2-160/2.

32-160/1

32-125/1 20

5

100

100

500

30

40 50

20

80 80

60

60

40

200

10

## MODEL CMA-B-C-D CENTRIFUGAL PUMPS





#### Materials

- 1. Cast iron pump body.
- 2. Mechanical seal in Carbon/Ceramic/NBR.
- 3. Impeller:
- In PRO reinforced with fiberglass for CMA 0.50 0.75 1.00.
- In brass for CMA 1.50 2.00 3.00, CMB 2.00 3.00 4.00 5.50, CMR 0.75 1.00.
- In cast iron for CMB 0.75 1.00 1.50, CMC, CMD.
- 4. Shaft:
- In AISI 303 for CMA 1.50 2.00 3.00, CMB 1.50 2.00 3.00, CMD 1.50 2.00 3.00.
- In AISI 304 for CMB 4.00 5.50, CMD 4.00.
- In AISI 416 for CMA 0.50, CMR 0.75 1.00.
- In AISI 420 for CMA 0.75 1.00, CMB 0.75 1.00, CMC 0.75 1.00.



# **BOREHOLE PUMPS**

### MODEL

#### Features

U.S.g.

0 Imp.g.

[m] 120

100

- 1. Moving clear water in wells
- 2. Pressure boosting of clean water for agricultural, domestic or industrial use.
- 3. Irrigation and moving water in general.

SB3 (3" Borehole Pump)

4. Vertical or horizontal installation

#### Note:

1. For more information, please contact sale of EBARA (Thailand).



90 ٤

80

т

TOTAL HEAD

30

20

400 [ft]

350

[ft]





# SUBMERSIBLE PUMPS

## **STAINLESS STEEL PUMPS**

## MODEL OPTIMA

SUBMERSIBLE ELECTRIC PUMPS





# PERFORMANCE CURVES

Pump body, suction grill, seal housing disc and motor

Impeller in PPE+PS reinforced with fibreglass.

4. Standard mechanical seal (Carbon/Ceramic/NBR)

Materials

pump body in AISI 304.

Shaft in AISI 303

1

2.

З.

E

#### Features

- 1. Draining wells, garages, cellars or places subject to flooding.
- 2. Irrigation of gardens and vegetable patches.
- 3. Movement of seepage water of draining of unfoul waste water

#### Special Versions

- 1. MS version with small MS (Magnetic Switch) vertical magnetic float for clean waters.
- 2. MA version with float.

# MODEL BEST SUBMERSIBLE SUMP PUMPS



BEST ON E

BEST 2 ~ 5

#### Features

- 1. Major parts are stainless steel.
- 2. Mechanical seal in oil chamber.
- 3. Light weight and compact design.
- 4. In build motor protection for single phase.
- All single phase models are available as automatic operation with float switch.

#### Materials

- Pump casing, impeller, strainer, cover, casing cover and motor casing in AISI 304
- 2. Shaft in AISI 303.
- BEST ONE: Mechanical seal (pump side)+Lip seal (motor side)
   —Mechanical seal : Carbon/Ceramic/NBR and Lip seal : NBR
   BEST 2-5: Double mechanical seal with oil chamber:
  - -Motor side in Carbon/Ceramic/NBR and Pump side in SiC/SiC/NBR.



20

30 Q [m<sup>3</sup>/h]

ò

10

# MODEL RIGHT SUBMERSIBLE WASTE WATER PUMPS

U.S.g.p.m

lmp.g.p.m

0

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王 <sup>12</sup>

10

a

3

0

0

0

50

3

100

6

工 工 11 10

10

20

20

30

50

40

40

100

150

9

30

60

50

70

60



80

70

90

ΞH

35

30

25

20

15

10

5

0

Q [l/min]

Q [m<sup>3</sup>/min]

350



#### Features

- 1. Stainless steel construction.
- All wetted pats are stainless steel.
- Double mechanical seal in oil chamber.
   An oil lubricated double mechanical seal with lower faces provides strong and reliable shaft sealing.
- 3. In built motor protection.
- Quick action response overload or lock of single phase.
- 4. Vortex impeller.
- Vortex impeller offer non-clog operation.
- 5. Automatic operation.
- All single phase models are available as automatic operation with float switch.

# MODEL DW-DW VOX SUBMERSIBLE SEWAGE PUMPS



300

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#### Features

- 1. Double mechanical seal with interposed oil chamber.
- 2. Reliability.
- 3. Vortex or single channel impeller.
- 4. Easy installation.
- 5. Completely AISI 304.
- 6. 10m power cable leight.
- 7. With or without float switch.
- 8. Versatile with treated or flanged connection.
- 9. Customizable for various applications.



200

12

250

15

# SUBMERSIBLE PUMPS

## **CAST IRON PUMPS**

## MODEL DS SUBMERSIBLE SUMP PUMPS







#### Features

- 1. Compact size and light weight for easy portability and minimal installation space.
- 2. Special dry type motor allows waste water to be handled at temperatures up to  $40^{\circ}$ C (up to  $32^{\circ}$ C with automatic alternating type).
- 3. Built-in motor protector precludes chance of burning due to overload, blockage or open phase.
- 4. Double mechanical seals for shaft sealing.
- 5. Both automtic and automatic alternating types available.

# MODEL DVS SUBMERSIBLE SEMI-VORTEX PUMPS





- 1. The semi-vortex impeller offers non-clog operation and high pumping efficiency
- 2. Due to semi-vortex design with no strainer or close tolerance suction cover, only 3 or 4 bolts need to be removed for quick and easy maintenance.

## MODEL DL SUBMERSIBLE SEWAGE PUMPS







#### Features

- Unique impeller design prevents overload under severe operation conditions. Semi-open Nonclog impeller prevents pump clog by foreign matter.
- 2. Minimal change in flow with variations in lift.
- 3. Built-in motor protector.
- 4. 4-pole motor with more than sufficient torque.
- 5. Special design with motor IE3 (pump model DL3), please contact sale for more information.

## MODEL **DF** SUBMERSIBLE SEWAGE PUMPS





#### Features

1. Non-clog operation with "cutting" action.

Non-clog semi-open impeller and "cutting" action prevents clogging by fibrous matter. Models up to 3.7 kW
have a chrysalis shaped suction port, while larger models have a radially grooved suction cover.

- 2. Robust construction.
- Rugged cast iron construction, all fasteners of stainless steel and a 4 pole motor.
- 3. Double mechanical seal in oil chamber.
- An oil lubricated double mechanical seal with lower faces of hard silicon carbide provides strong and reliable shaft sealing.
- 4. In built motor protection.
- Quick acting dual response overloads provides protection against overload, lock or open phase.
- 5. Automatic operation.
- All models up to 3.7 kW are available as automatic (A' type) pumps with inbuilt controls and float switches. No need for separate control panels, simply connect to power source.

# MODEL DML SUBMERSIBLE SEWAGE PUMPS





#### **PERFORMANCE CHART**



- 1. Non-clog single channel impeller.
- Non-clog single channel impeller 3" spherical passage and prevents clogging.
- 2. Robust construction.
- Large diameter and short overhang shaft, ruggled castiron construction, all fasteners of stainless steel and 4 pole motor drive.
- 3. Double mechanical seal in oil chamber.
- An oil lubricated double mechanical seal with lower faces of hard silicon carbide provides strong and reliable shaft sealing.
- 4. High effeciency, Energy saving.
- Hydraulic well designed single channel impeller gives high efficiency and saves energy.
- 5. Long life.
- Short overhanged shaft, big bearings and high grade mechanical seal give longer life.
- 6. In built motor protection.
- Quick acting dual response overloads provides protection against overload, lock or open phase for model 2.2 kW. Models 3.7 kW and above have miniature thermal protectors.
- 7. Special design with motor IE3 (pump model DML3), please contact sale for more information.

# PRESSURE BOOSTER PUMPS

#### CONSTANT SPEED PRESSURE BOOSTER UNIT

#### **MODEL: UD3**

#### **APPLICATIONS**

Domestic

2

3.

- : High-rise buildings, Condominiums, Apartments etc.
- Commercial : Office buildings, Hotels, Shopping centers etc. Industrial
  - : Factory utility, Manufacturing & processing industries applications etc.
- Social service 4
- : Schools, Hospitals etc.

#### **FEATURES**

- All components are integrated on a rugged steel base. It is ready for use by only connecting with supply piping and to the power source. 1 Layout is very compact and much lighter than conventional units. It occupies lesser space and requires easier installation than 2.
- conventional units. The flow control system which prevents frequent start and stop of pumps, requires only small hydro-pneumatic pressure tank and 3.
- ensures constant fresh water supply. Pumps are in parallel operation for high demand and alternating in low demand, suitable for energy-saving. 4.
- 5. Various options are available on request.



#### Pressure sensor (or pressure switch) Detects the supply pressure and feeds back to the control panel. Weather proof, trouble free from moisture and condensation.

#### **Discharge header**

Integrated manifold type. Compact, robust & high reliability. High grade surface finish treatment for long life. Available to change water discharge

#### Pressure gauge

Indicator of water pressure. (Only for UD3-S & UD3-T)

#### **Check valve**

Spring loaded type. Reduces water surge at pump stop. Prolongs the unit life and performs. Quiet operation.

#### Flow switch

Detects very low flow to cut off operating pump thus reducing frequency of on / off pump at

**CONTROL SYSTEM** 

Pump



- Both pumps are stopped when water tank is fully charged. In this Step 1) condition water is supplied from the pressure tank, and water pressure in tank gradually decreases.
- When water pressure decreases, first pump starts at pressure Step 2) point ① and water is supplied from pump.
- When more water is required and water pressure decreases to Step 3) lower point ① again, second pump also starts, operation point shifts to point 2 and system shifts to parallel operation.
- When second pump starts, the timer starts to count. After that when Step 4) water consumption decreases, the water pressure increases to point ③, and 60 seconds pass after second pump starts. First pump is stopped and operation point shifts to point ④.
- When water consumption further decreases, and the flow switch Step 5) detects small flow rate. Second pump stops (point (5)). Flow switch detecting point is at small capacity point, therefore pump continuous operation range is much wider, accordingly pump start frequency is greatly decreased.

# MODEL UD3 CONSTANT SPEED PRESSURE BOOSTER UNIT

#### SPECIFICATIONS

SIANDARD
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Mode	l	UD3 - S	UD3 - T						
Pump operation No.		1	2	3					
Pump model		CDX, 2CDX & 3M CMA, CDX, 2CDX & 3M CMA, CDX, 2CDX & 3M							
Handled liquid property		Fresh water, 0-60 degree C (Except CMA1.00 : 0-40 degree C)							
Installation		Outdoor (under roof)							
Operation system	Pump speed	Constant							
Operation system	Control	Pressure switch & flow switch* Pressure sensor & flow switch* Pressure switch & flow							
Power source		AC, Three phase, 50Hz, 380V							
Max. working pressure		6 to 10 bar G (6.1 to 10.2 kg/cm <sup>2</sup> G) ;	Refer to model						
Allowable suction pressure	I	Min. : -0.3 bar G (-0.3 kg/cm <sup>2</sup> G), Max	. : Refer to model						
	Starting method	DOL (Up to 5.5kW) or Star-Delta (7.5 to 11kW)							
Control panel	Construction	Weather & dust proof type / IP55							
	Operation key	Push button & selector switch type	Push button & slide switch type	Push button & selector switch type					
	Construction	Air pre-charged diaphragm type							
Pressure tank	Capacity	24 liters (Standard)							
	Quantity	Refer to model							
Accessories		Control panel & support, Flow switch*, Pressure gauge*1 Common base, Pressure tank, Piping & valves, Electrical wiring							
OPTION									
Pump model		Other models upon request							
Pressure tank		Large capacity upon request							
Others		On request							
			-						

Note) \* In case of pump model CDX90/10 & CMA1.00, flow switch is not provided. \*1 In UD3-S, UD3-T, pressure gauge is provided.

#### SELECTION CHART AND MODEL CODE



#### **Pressure Booster Unit Model Code**



Note : Models for pump CMA1.00 & CDX90/10 are UD3-D and UD3-T (2 pumps and 3 pumps operation system) only.

# PRESSURE BOOSTER PUMPS

## **INVERTER TYPE**

### VARIABLE SPEED PRESSURE BOOSTER UNIT MODEL UN3

#### FEATURES



#### (Start ~ Water demand increase)

- ① When water is used, No.1 pump starts and increases the speed to maintain supply water pressure as water demand.
- ② No.1 pump speed becomes 100% speed (full speed).
- ③ No.2 pump starts and then increases the speed to maintain the water supply pressure.
- ④ No.2 pump speed reaches to 100% as water demand increase.
- 5 Next pump starts and continues the same process as like as above  $\Im \sim 5$ .

#### (Water demand decrease ~ Stop)

- 6 When water demand decreases, later started pump decreases the speed to maintain the supply water pressure and stops. And only No.1 & No.2 pump remain in operation.
- ⑦ Water demand decreases more, No.2 pump decreases speed.
- (8) Then No.2 pump stops and shifts to No.1 pump operation.
- (9) Water demand decreases furthermore, No.1 pump decreases speed and stops finally.

# MODEL UN3A - D, -T & -F 2 TO 4 PUMPS OPERATION SYSTEM

UN3A -D ~ F : From two to four pumps with one inverter operation system, supply pressure constant with pipe loss compensation control one pump (lead pump) is variable speed controlled by inverter, the other pump is constant speed drive.

#### SPECIFICATIONS STANDARD

Mode	1	UN3A - D	UN3A - T	UN3A - F					
Pump operation No. /	Inverter No.	2/1	3/1	4/1					
Pump model		CDX, 2CDX, 3M & EVMS (Ve	rtical Multistage)						
Handled liquid property	,	Fresh water, 0-60 degree C							
Installation		Outdoor (under roof)							
Operation system	Pump speed	Variable frequency control for lead pump							
operation system	Control	Supply pressure constant with	n pipe loss compensation by VF	D drive					
Power source		AC, Three phase, 50Hz, 380\	/						
Max. working pressure		8 to 10 bar G (8.2 to 10.2 kgf/	cm <sup>2</sup> G) ; Refer to model						
Allowable suction press	sure	Min. : -0.3 bar G (-0.3 kgf/cm	<sup>2</sup> G), Max. : +0.3 bar G (+0.3 kg	gf/cm <sup>2</sup> G)					
	Starting method	Lead pump : Soft start	Lead pump : Soft start	Lead pump : Soft start					
	otarting motiou	Lag pump : DOL or Star-Delta	Lag pumps : DOL or Star-Delta	Lag pumps : DOL or Star-Delta					
Control panel	Construction	Weather & dust proof type / IP55							
	Operation key	Touch screen							
	Display	LCD							
	Construction	Air pre-charged diaphragm ty	pe						
Pressure tank	Capacity	24 liters (Standard)							
	Quantity	Refer to model							
Accessories		Control panel & support, Pressure sensor, Pressure tank							
Accessories		Common base, Piping & valves, Electrical wiring							
OPTION									
Pump model / Operatio	n No.	Other models / 5 & 6							
Pressure tank		Large capacity upon request							
Others		On request							

#### SELECTION CHART AND MODEL CODE



OPERATING DUTY SELECTION RANGE

Linit model	Motor	Operating	Ma	ximum Cap	acity	Linit model	Motor	Operating	Max	ximum Cape	acity		Linit model	Motor	Operating	Maxi	mum Capi ( L /min )	acity
Onit model	(kW)	(kgf/cm <sup>2</sup> G)	UN3A - D	UN3A - T	UN3A - F	Onichiodei	(kW)	(kgf/om <sup>2</sup> G)	UN3A - D	UN3A - T	UN3A - F		Onichiodei	(KW)	(kgt/cm <sup>2</sup> G)	UN3A - D	UN3A - T	UN3A - F
UN3A CDX120/12	0.9	1.2 - 2.8	320	480	640	UN3A 3M32-160/2.2	2.2	1.7 - 3.3/3.1	720	1080	1440	UN3A	EVMS5 11N5/2.2*	2.2	5.5 - 9.8	260	390	520
UN3A CDX120/20	1.5	2.0 - 3.6	320	480	640	UN3A 3M32-200/3.0	3.0	2.3 - 4.0	720	1080	1440	<b>UN3A</b>	EVMS5 15N5/3.0*	3.0	7.0 - 10.0	260	390	520
UN3A 2CDX120/15	1.1	3.0 - 4.1	300	450	600	UN3A 3M32-200/4.0	4.0	2.8 - 5.0/4.4	780	1170	1560	UN3A	EVMS10 8N5/3.0	3.0	4.5 - 8.1	460	690	920
UN3A 2CDX120/20	1.5	3.0 - 5.0	300	450	600	UN3A 3M32-200/5.5	5.5	3.3 - 5.9	900	1350	1800	UN3A	EVMS10 11N5/4.0*	4.0	6.0 - 10.0	480	720	960
UN3A 2CDX120/30	2.2	3.6 - 5.7	300	450	600	UN3A 3M32-200/7.5	7.5	3.6 - 6.3	900	1350	1800	UN3A	EVMS10 14N5/5.5*	5.5	7.5 - 10.0	480	720	960
UN3A 2CDX120/40	3.0	4.4 - 6.5	300	450	600	UN3A 3M40-160/3.0	3.0	1.5 - 2.7	1340	2010	2680	UN3A	EVMS15 6F5/5.5	5.5	5.0 - 8.3	800	1200	1600
UN3A CDX200/20	1.5	1.7 - 3.0	500	750	1000	UN3A 3M40-160/4.0	4.0	1.7 - 3.6	1400	2100	2800	UN3A	EVMS15 8F5/7.5*	7.5	6.5 - 10.0	800	1200	1600
UN3A CDX200/25	1.8	2.3 - 3.7	500	750	1000	UN3A 3M40-200/5.5	5.5	2.3 - 4.2	1400	2100	2800	UN3A	EVMS20 6F5/7.5*	7.5	5.5 - 9.5	930	1395	1860
UN3A 2CDX200/30	2.2	2.8 - 5.0/4.5	500	750	1000	UN3A 3M40-200/7.5	7.5	2.8 - 5.2	1400	2100	2800	UN3A	EVMS20 8F5/11*	11	6.5 - 10.0	960	1440	1920
UN3A 2CDX200/40	3.0	3.3 - 5.9/5.5	500	750	1000	UN3A 3M40-200/11	11.0	3.8 - 6.5	1500	2250	3000	<b>UN3A</b>	EVMS20 9F5/11*	11	7.5 - 10.0	960	1440	1920
UN3A 2CDX200/50	3.7	3.8 - 6.4/6.2	500	750	1000	UN3A 3M50-160/5.5	5.5	1.5 - 2.9	2200	3300	4400	UN3A	EVM32 4-1F5/7.5	7.5	4.9 - 8.3	1060	1590	2120
						UN3A 3M50-160/7.5	7.5	1.7 - 3.6	2400	3600	4800	UN3A	EVM32 5-0F5/11*	11.0	6.0 - 10.0	1200	1800	2400
						UN3A 3M50-200/9.2	9.2	2.3 - 4.8	2400	3600	4800	UN3A	EVM32 6-2F5/11*	11.0	6.5 - 10.0	1230	1845	2460
						UN3A 3M50-200/11	11.0	3.1 - 5.3	2400	3600	4800	UN3A	EVM45 3-0F5/11	11.0	4.3 - 7.3	2000	3000	4000
												<b>UN3A</b>	EVM45 4-0F5/15*	15.0	5.5 - 10.0	2000	3000	4000
												UN3A	EVM45 5-0F5/18.5*	18.5	6.5 - 10.0	2000	3000	4000
												UN3A	EVM64 3-2F5/15	15.0	3.8 - 7.4	2650	3975	5300
												<b>UN3A</b>	EVM64 4-2F5/18.5*	18.5	5.5 - 9.5	2700	4050	5400
												UN3A	EVM64 4-0F5/22*	22.0	5.9 - 10.0	2800	4200	5600
												<b>UN3A</b>	EVM64 5-0F5/30*	30.0	7.1 - 10.0	2800	4200	5600

\* Note : In case lead pump operation by inverter is failed and system is changed to magnetic start back up, the system supply pressure is exceeds 10 kgf/cm <sup>2</sup> G

#### MODEL UN3C - D, -T & -F 2 TO 4 PUMPS OPERATION SYSTEM

UN3C -D ~ F : From two to four pumps with multi-inverters operation system, supply pressure constant with pipe loss compensation control each pump is variable speed controlled by inverter, a lot of requesting functions are provided.

#### **SPECIFICATIONS STANDARD**

Mode	el 🛛	UN3C - D UN3C - T UN3C -						
Pump operation No. /	Inverter No.	2/2 3/3 4/4						
Pump model		CDX, 2CDX, 3M & EVMS	6 (Vertical Multistage)					
Handled liquid property	/	Fresh water, 0-60 degree	C					
Installation		Outdoor (under roof)						
Operation system	Pump speed	ed Variable frequency control						
Operation system	Control	Supply pressure constant with pipe loss compensation by VFD driv						
Power source		AC, Three phase, 50Hz, 380V						
Max. working pressure		8 to 10 bar G (8.2 to 10.2	kgf/cm <sup>2</sup> G); Refer to mo	del				
Allowable suction press	sure	Min. : -0.3 bar G (-0.3 kg	/cm <sup>2</sup> G), Max. : +0.3 bar (	G (+0.3 kgf/cm <sup>2</sup> G)				
	Starting method	Soft start						
Control nonol	Construction	Weather & dust proof type / IP55						
	Operation key	Touch screen						
	Display	LCD						
	Construction	Air pre-charged diaphrag	m type					
Pressure tank	Capacity	24 liters (Standard)						
	Quantity	Refer to model						
Assessmentes		Control panel & support,	Pressure sensor, Pressure	e tank				
Accessories Common base, Piping & valves, Electrical wiring								
OPTION								
Pump model / Operation	on No.	Other models / 5 & 6						
Pressure tank Large capacity upon request								
Others	thers On request							

#### SELECTION CHART AND MODEL CODE



#### **OPERATING DUTY SELECTION RANGE**

Link men	dal	Motor output (kW)	or Operating ut pressure range (kgf/cm <sup>2</sup> G)	Meximum Capacity		acity	Link medal	Motor	Operating	Maximum Capacity ( L/min )		olty	Linit model	Motor	Motor Operating	Maximum Capacity		
Unit mot	aei			UN3C - D	UN3C - T	UN3C - F	Unit model	(kW)	(kgf/cm <sup>2</sup> G)	UN3C - D	UN3C - T	UN3C - F	Unit model	(kW)	(kgf/cm <sup>2</sup> G)	UN3C - D	UN3C - T	UN3C - F
UN3C CDX12	20/12	0.9	1.2 - 2.8	320	480	640	UN3C 3M32-160/2.2	2.2	1.7 - 3.3/3.1	720	1080	1440	UN3C EVMS5 11N5/2.2	2.2	5.5 - 9.8	260	390	520
UN3C CDX12	20/20	1.5	2.0 - 3.6	320	480	640	UN3C 3M32-200/3.0	3.0	2.3 - 4.0	720	1080	1440	UN3C EVMS5 15N5/3.0	3.0	7.0 - 10.0	260	390	520
UN3C 2CDX	120/15	1.1	3.0 - 4.1	300	450	600	UN3C 3M32-200/4.0	4.0	2.8 - 5.0/4.4	780	1170	1560	UN3C EVMS10 8N5/3.0	3.0	4.5 - 8.1	460	690	920
UN3C 2CDX	120/20	1.5	3.0 - 5.0	300	450	600	UN3C 3M32-200/5.5	5.5	3.3 - 5.9	900	1350	1800	UN3C EVMS10 11N5/4.0	4.0	6.0 - 10.0	480	720	960
UN3C 2CDX	120/30	2.2	3.6 - 5.7	300	450	600	UN3C 3M32-200/7.5	7.5	3.6 - 6.3	900	1350	1800	UN3C EVMS10 14N5/5.5	5.5	7.5 - 10.0	480	720	960
UN3C 2CDX	120/40	3.0	4.4 - 6.5	300	450	600	UN3C 3M40-160/3.0	3.0	1.5 - 2.7	1340	2010	2680	UN3C EVMS15 6F5/5.5	5.5	5.0 - 8.3	800	1200	1600
UN3C CDX20	00/20	1.5	1.7 - 3.0	500	750	1000	UN3C 3M40-160/4.0	4.0	1.7 - 3.6	1400	2100	2800	UN3C EVMS158F5/7.5	7.5	6.5 - 10.0	800	1200	1600
UN3C CDX20	00/25	1.8	2.3 - 3.7	500	750	1000	UN3C 3M40-200/5.5	5.5	2.3 - 4.2	1400	2100	2800	UN3C EVMS20 6F5/7.5	7.5	5.5 - 9.5	930	1395	1860
UN3C 2CDX	200/30	2.2	2.8 - 5.0/4.5	500	750	1000	UN3C 3M40-200/7.5	7.5	2.8 - 5.2	1400	2100	2800	UN3C EVMS20 8F5/11	11	6.5 - 10.0	960	1440	1920
UN3C 2CDX	200/40	3.0	3.3 - 5.9/5.5	500	750	1000	UN3C 3M40-200/11	11.0	3.8 - 6.5	1500	2250	3000	UN3C EVMS20 9F5/11	11	7.5 - 10.0	960	1440	1920
UN3C 2CDX	200/50	3.7	3.8 - 6.4/6.2	500	750	1000	UN3C 3M50-160/5.5	5.5	1.5 - 2.9	2200	3300	4400	UN3C EVM32 4-1F5/7.5	7.5	4.9 - 8.3	1060	1590	2120
					UN3C 3M50-160/7.5	7.5	1.7 - 3.6	2400	3600	4800	UN3C EVM32 5-0F5/11	11.0	6.0 - 10.0	1200	1800	2400		
					UN3C 3M50-200/9.2	9.2	2.3 - 4.8	2400	3600	4800	UN3C EVM32 6-2F5/11	11.0	6.5 - 10.0	1230	1845	2460		
							UN3C 3M50-200/11	11.0	3.1 - 5.3	2400	3600	4800	UN3C EVM45 3-0F5/11	11.0	4.3 - 7.3	2000	3000	4000
													UN3C EVM45 4-0F5/15	15.0	5.5 - 10.0	2000	3000	4000
													UN3C EVM45 5-0F5/18.5	18.5	6.5 - 10.0	2000	3000	4000
									UN3C EVM64 3-2F5/15	15.0	3.8 - 7.4	2650	3975	5300				
									UN3C EVM64 4-2F5/18.5	18.5	5.5 - 9.5	2700	4050	5400				
										UN3C EVM64 4-0F5/22	22.0	5.9 - 10.0	2800	4200	5600			
24									UN3C EVM64 5-0F5/30	30.0	7.1 - 10.0	2800	4200	5600				



# MODEL DBU1 NORMAL PRESSURE BOOSTER UNIT



#### Features

- Operated by integrated mechanical & electrical controller
- Compact size
- No fluctuated supply pressure at the same flow rate
- Clean water supply with no rust material (Pump in stainless steel)
- Quiet operation
- Auto display of pump operation condition

#### Dimensions







DBU1 Matrix 3-3T/0.65M DBU1 Matrix 5-3T/0.65M

#### Performance

Pump Performace Chart DBU 1



#### Applications

Water supply Domestic house etc.. Factory utility use, Wash-down etc. Small office

#### Specifications

- Handling liquid
- Installation
- Operation system
- Supply water pressure
- Power supply
- Allowable suction pressure •

**0-40** ℃ Indoor Integrated controller control Refer to pump performance Single phase 220V 50Hz -0.3-+0.3 bar G





DBU1 Matrix 3-4T/0.65M DBU1 Matrix 5-4T/0.9M

Suction connection : G1" for Matrix 3-3 and 3-4 G1-1/4" for Matrix 5-3 and 5-4

Performance table

		Pump Supply Capacity								
Model	kW	20	30	45	60	80	100	130		
			Pump Supply Pressure (kg/cm <sup>2</sup> G)							
DBU1										
MATRIX 3-3/0.65M	0.65	3.1	2.9	2.5	2.0	1.2	-	-		
DBU1 MATRIX 3-4/0.65M	0.65	4.2	3.9	3.4	2.7	1.6	-	-		
DBU1 MATRIX 5-3/0.65M	0.65	-	3.2	3.0	2.9	2.6	2.2	1.3		
DBU1 MATRIX 5-4/0.9M	0.9	-	4.3	4.1	3.8	3.4	2.9	1.7		



# MODEL DBU2 NORMAL PRESSURE BOOSTER UNIT

#### Pressure Switch Control





Pump Model : CMA

Pump Model : CDXM

#### Applications

Domestic house, Condominiums, Apartments etc.. Factory utility use, Wash-down etc. School, Hospital etc.

#### Specifications

- Handling liquidInstallation
- •Operation system
- Supply water pressure
- •Power supply
- •Allowable suction pressure

#### Features

- •
- Robust construction with cast iron casing for CMA model Clean water supply with all stainless steel material for CDXM model •

0-40 °C Indoor

Pressure switch

-0.3 -+0.3 bar G

Refer to table 1 and 2 Single phase 220V 50Hz

- .
- Most conventional and lowest initial investment type No shock integrated stainless steel check valve is provided Enough water is stored in pressure tank •
- •





DBU2 : CMA 1.00 M CMA 0.75 M

#### Performance

Dimensions



Performance Table 1

	Pres Switch	kW	Pump Supply Capacity (L/min)						
Model	(kg/cr		40	60	110				
	On	Off	]	Pump Supply Pressure (kg/cm <sup>2</sup> G)					
DBU2 CMA 0.75M	1.8	2.8	0.55	2.8	2.3	1.6	-	-	
DBU2 CMA 1.00M	1.8	3.0	0.75	3.2	2.95	2.7	2.2	2	





DBU2 : CDXM 70/07 CDXM 90/10 CDXM 120/12



Performance Table 2

	Pressure Switch s	kW	Pump Supply Capacity (L/min)										
Model	(kg/c		40	60	80	100	110	120	140	160			
	On	Off	Off		Pump Supply Pressure (kg/cm2G)								
DBU2													
CDXM 70/07	1.6	2.6	0.55	2.6	2.3	2.1	-	-	-	-	-		
DBU2 CDXM 90/10	1.8	2.8	0.75	2.8	2.6	2.3	2.0	1.85					
DBU CDXM 120/12	1.8	2.8	0.9	3	2.8	2.65	2.5	2.4	2.3	2.1	1.9		

# MODEL FFS-FFB FIRE - FIGHTING UNITS





#### Standard and regulation

The FFS-FFB firefighting pressure boosting units are designed and built in compliance

- UNI EN 12845 standard ,extinguisher appliances ,water supplies for automatic system
- UNI EN 12845/10779 standard ,extinguisher systems Hydrant networks
- 2006/42 EEC Machinery Directive
- 2006/95 CE Low Voltage Directive
- 2004/108 Electromagnetic Compatibility Directive
- European Standards :
- EN60204-1 ; IEC EN60439-1 ; EN61000-6-4 ; EN61000-6-2

#### Condition for use

The FFS-FFB firefighting pressure boosting units can be used exclusively as envisioned in the UNI EN 12845 LH, OH, HH Standard, in the automatic activation water supplies for the automatic fire fighting units in civil and industrial activities. The water conveyed must not contain solid bodies and fibres in suspension or vegetation and without aggressive and corrosive chemical substances (UNI EN 12845 8.6).

- Minimum temperature of the water conveyed is 0°C, max temperature 40°C (25°C for submersed multistage pumps)
- Environment functioning temperature is 4°÷40°C at a height not exceeding 1000 m a.s.l.
- Max. relative humidity 50% at +40°C
- NB: possibly the pumping unit must be installed underhead (UNI EN 12845)

NB: each pump must have its own independent suction pipe (UNI EN 12845).

# FIRE FIGHTING PUMPS

# **UL LISTED**

# MODEL FSPA END SUCTION PUMPS

211



1000 USGPM

m³/h



#### Features

1. Easy removal and maintenance, BPO (Back Pull Out) system allows all rotating elements to be

removed without disconnecting suction and discharge pipe work.

2. Top centreline discharge, foot support under casing for maximum resistance to misalignment and distortion from pipe loads.

- 3. Flow rate capacity 250 up to 750 USGPM.
- 4. Working pressure up to 250 psi with 250 lb. ANSI Flanges.

UL File Number "EX15585"

## MODEL CNPA HORIZONTAL SPLIT CASE PUMPS



#### Features

- 1. Very compact design for easy of installation and permits minimum maintenance.
- 2. Axially split casing allows the easy removal of the top casing for inspection and service.
- 3. Available in horizontal or vertical configuration.
- 4. Available in clockwise or counter clockwise rotation to simplify pump room layout.
- 5. Flow rate capacity 500 up to 1250 USGPM.
- 6. Working pressure up to 250 psi with 250 lb. ANSI Flanges.

UL File Number "EX15584"

# **AFTER SALE SERVICE**

In order to provide complete on sale business, After Sale Service Department is established to support for maintenance and service job.

EBARA (Thailand) has set up service team to serve customers who need urgent solution due to machine out of order. The skill team will reach to customer immediately up on requested following Ebara's policy.





Spare part overhaul

Booster pump service









Pump and motor final alignment

Pump installation at site





# **AFTER SALE SERVICE**





Pump start up and commissioning at site

Customer training





# **SPARE PARTS**

The original spare parts will be proposed to customer for repair or replace of the existing damaged pump. This is considered under to keep the performance as original as much as possible.

Mostly of basic spare parts such as Mechanical seal will be kept as stock in Thailand. This is considered to ensure that will be supplied to customer in short time and reasonable price.

For the other parts, please contact to EBARA (Thailand) to confirm the information.









EBARA Standard Pump Worldwide Locations For more information on EBARA Standard Pumps and pump products, please select your country/region below.

Latin America

Brazil Mexico Colombia

Oceania Australia

Middle East U.A.E. Saudi Arabia

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Italy / EBARA Pumps Europe, S.p.A.



Japan / EBARA Corporation



Ebara Densan (Kunshan)Mfg. Co.,Ltd., CHINA



Ebara-Densan Taiwan WORKS Manufacturing Co.,Ltd. TAIWAN Limited



WORKSHOP / EBARA Thailand Limited

Asia

Japan / EBARA Corporation

China Taiwan Turkey Cambodia Indonesia Malaysia Philippines Singapore Thailand Vietnam

# EBARA Main Products Machinery & Equipment Group

#### AERO AND HYDRAULIC MACHINERY

Various centrifugal pumps Axial-flow pumps Mixed-flow pumps High-pressure plunger pumps various fans Turbo blowers Centrifugal and axial-flow compressors Gas expanders Gas turbines Steam turbines Water turbines Fluid couplings Screen cleaners Various valves Automatic screen cleaners Automatic boosting units Aerators Power recovery equipment

#### CHILLERS

Turbocharged chillers Screw chillers Absorption-type chillers Cold/warm water equipment Various air conditioners Individual airconditioning equipment Ice storage systems



FUJISAWA PLANT

\*All specification subject to change without notice. Please send your inquiries to the authorized distributor.

#### AUTHORIZED DISTRIBUTOR :



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