

Daftar Isi Brosur

ARTHUR – Catalogue

ARTHUR – Fire Pump

ARTHUR – Diesel Cummins

ARTHUR – Diesel Isuzu

ARTHUR – Electromotor

ARTHUR – VTC (Vertical Turbine).

ARTHUR – CDF (Vertical Multistage).

ARTHUR – AMS (Horizontal Multistage).

ARTHUR – IS (End Suction).

ARTHUR – Submersible

ARTHUR – Deep Well

ARTHUR – Panel Component



The Name Quality

MECHANICAL ELECTRICAL EXPERTISE

In Pump System

PT BERJAYA MAKMUR INDONESIA
THE REAL PARTNER

OUR PROJECT

**BUILDING
SOLUTIONS,**
DELIVERING TRUST



HIGH QUALITY

Produk berkualitas tinggi
dan tahan lama



RELIABLE PERFORMANCE

Performa andal untuk
kebutuhan semua



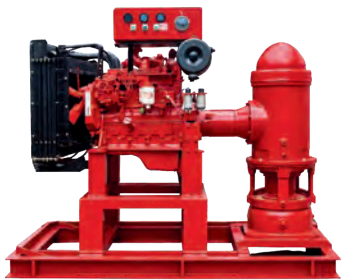
AFTER SALES SUPPORT

Layanan purna jual
terpercaya

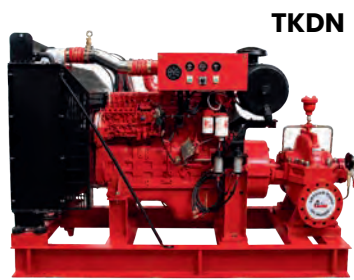


SERVICE, CONTRACT

SERVICE, UP GRADE



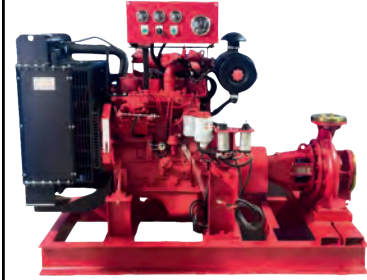
**Vertical Turbine Pump
(Hydrant)**



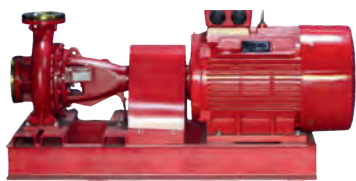
**Split Case Pump
(Hydrant)**



**End Suction Pump
(Hydrant)**



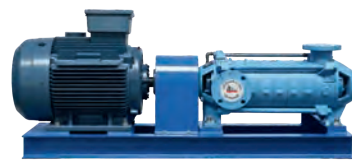
Diesel Fire Pump



Electric Fire Pump



Panel Hydrant Set



**Horizontal Multistage
Pump**



End Suction Pump



Booster Pump System



Transfer Pump System



**Vertical Multistage
Pump**



Submersible Pump

Contact us



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HEAD OFFICE



Komplek DDN No.Kav 23,
Kel. Harjamukti, Kec. Cimanggis,
Kota Depok, Jawa Barat 16454



SERVICE CENTER

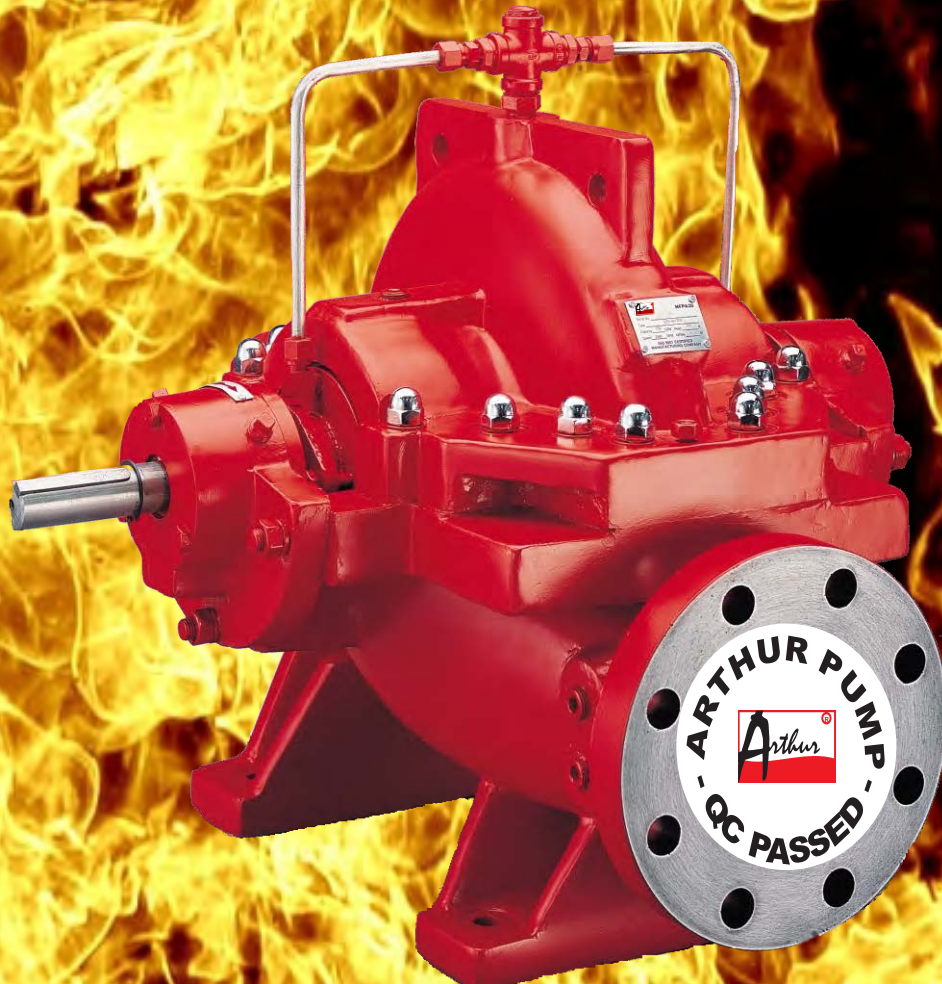
Jatisari, Jatiasih, Kota Bekasi,
Jawa Barat, 17426



Name Quality
TKDN -16-2000488

Fire Pumps

**Effective and powerfull
fire protection**

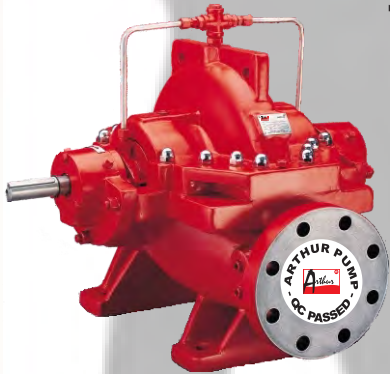


2010



Built To Perform.

SPLIT CASE PUMPS

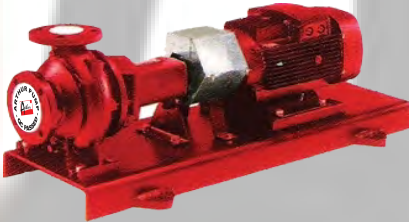


The Pro-Max Series

Capacity up to 2500 GPM
(9.463 L/Min)
Pressures up to 25 Bar
(250 Meter)

- Arthur Horizontal Split Case type pro max series of fire pumps offers higher efficiencies, more economical, a wider use of hydraulics and longer life in virtually every fire application.
- Available in clockwise or counter-clockwise rotating to simplify pump room layout.
- Available in electric motor or diesel engine driver configuration.

END SUCTION PUMPS



Arthur IS Series

Capacity up to 900 GPM
(3.407 L/Min)
Pressures up to 15 Bar
(150 Meter)

- Are Horizontal End Suction Centrifugal Pumps designed for clean water or similar liquids in fire fighting and sprinkler applications.
- Pull out design supplied as standard with flexible coupling, ease of maintenance, eliminates disturbing piping system when removing rotation element.
- Hydraulically balanced impeller extends bearing life and assures smoother operation.
- Available in electric motor or diesel engine driven configuration.

VERTICAL MULTI STAGE



Arthur CD, CDF Series

Capacity up to 500 GPM
(1.893 L/Min)
Pressures to 22 Bar
(220 Meter)

- Space saving design.
- Suction and discharge flanges are on a common centerline, 180° apart for inline mounting in piping.
- Dynamic balanced.

IN~LINE PUMPS

**Capacity up to 1500 GPM
(5,678 L/Min)
Pressures up to 16,6 Bar
(166 M)**

- Space saving design.
- No foundation or pads required.
- Suction and discharge flanges are on a common centerline, 180° apart for inline mounting in piping.
- Top pullout design allows for fast and easy servicing. the rotating element is easily removed without disturbing suction and discharge piping.
- Self-venting design eliminate the need for an automatic air release valve.
- Bronze impeller is dynamically balanced and keyed direct to the motor shaft.



VERTICAL TURBINE PUMPS

**Capacity up to 4000 GPM
(15.140 L/Min)
Pressures up to 20 Bar
(200 M)**

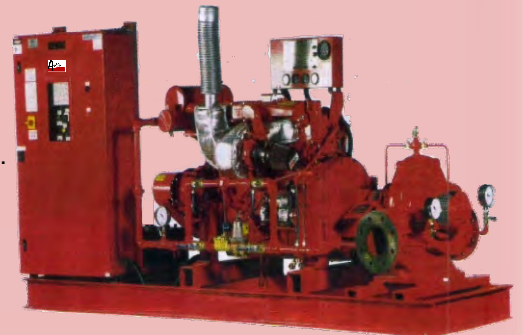
- Required by NFPA when operating under astatic suction lift condition.
- dynamically by balanced impeller secured to the shaft with steel locking collets to assure proper problem free operation.
- Open line shaft design provides for product lubrication of the bearing.
- Available in electric motor or diesel engine driven configuration.
- Provided with a bronze suction as standard.
- provided with an oversized air release valve as standard.
- Available in special material of construction for self water applications.

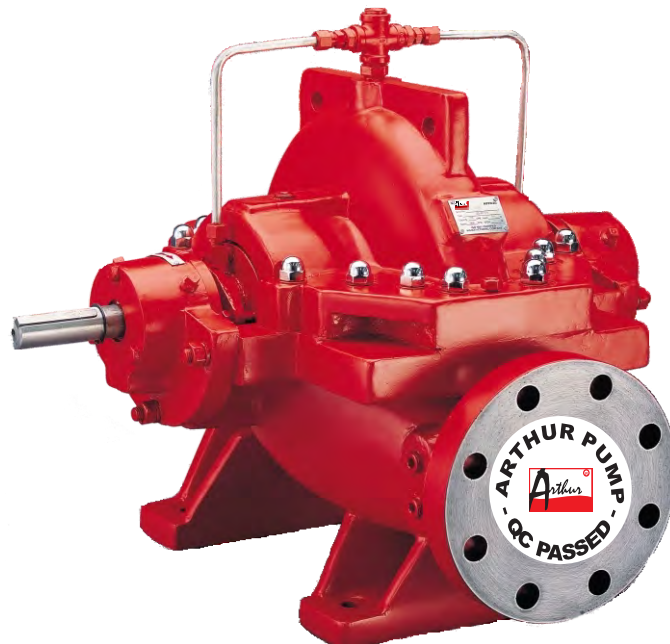


ENGINEERING SYSTEM

ENGINE FIRE PUMPS PACKAGE

- Designed for the customer's needs, Arthur fire pumps are the most versatile pump systems available. the highest quality material and workmanship along with excellence in engineering. design are employed in the creation of every pump system. Our experience and expertise allow us to customize the system to suit each owner's requirement while maintaining compliance to rules.
- Our expertise is further enhanced by a team of service engineers that provide commissioning for each installation to ensure optimal performance of the system.
- Rear pullout design supplied as standard with flexible coupling. ease of maintenance, eliminates disturbing driven or piping when removing rotating element.





Features

- **Standardized** design with generalized products series
- **Double volute** casing construction perfectly balances the radial forces, ensuring minimal shaft deflection lowered bearing loads.
- **Double suction** impeller design appropriately balances the axial forces with each impeller balanced statically and dynamically in accordance with ISO1940.
- **Flanges** are drilled to meet GB, ISO, DIN, BS or ANSI standards.
- **Deep groove** ball bearings are grease lubricated and sealed for life with optional oil lubrication available upon request.
- **Shaft sealing** with uncoiled soft packing or single-action unbalanced mechanical seal in accordance with DIN 24960, independent of rotation direction. Balanced mechanical seal shall be applied for operating pressures higher than 16 Bar.

Material of Construction

Volute Casing & Cover

Cast iron	HT250	GG-25
Ductile Cast Iron	QT400-18	GGG-40
Cast Steel	ZG230-450	GS-C25

Impeller

Cast iron	HT250	GG-25
Stainless Steel	ZG1Cr18Ni12Mo2Ti	1.4581

Shaft

Carbon Steel	45#	C45N
Cr Steel	2Cr13	1.4021
Stainless Steel	ZG1Cr18Ni12Mo2Ti	1.4581

Casing Wear Ring

Cast iron	HT250	GG-25
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Model Nomenclature

E.G. CPS300-125-290

TSY — Split Case Centrifugal Pump

300 — Suction Dia. (mm)

125 — Discharge Dia. (mm)

290 — Impeller DN (mm)

Performance Data

Pump Size : DN 80 ~ 800

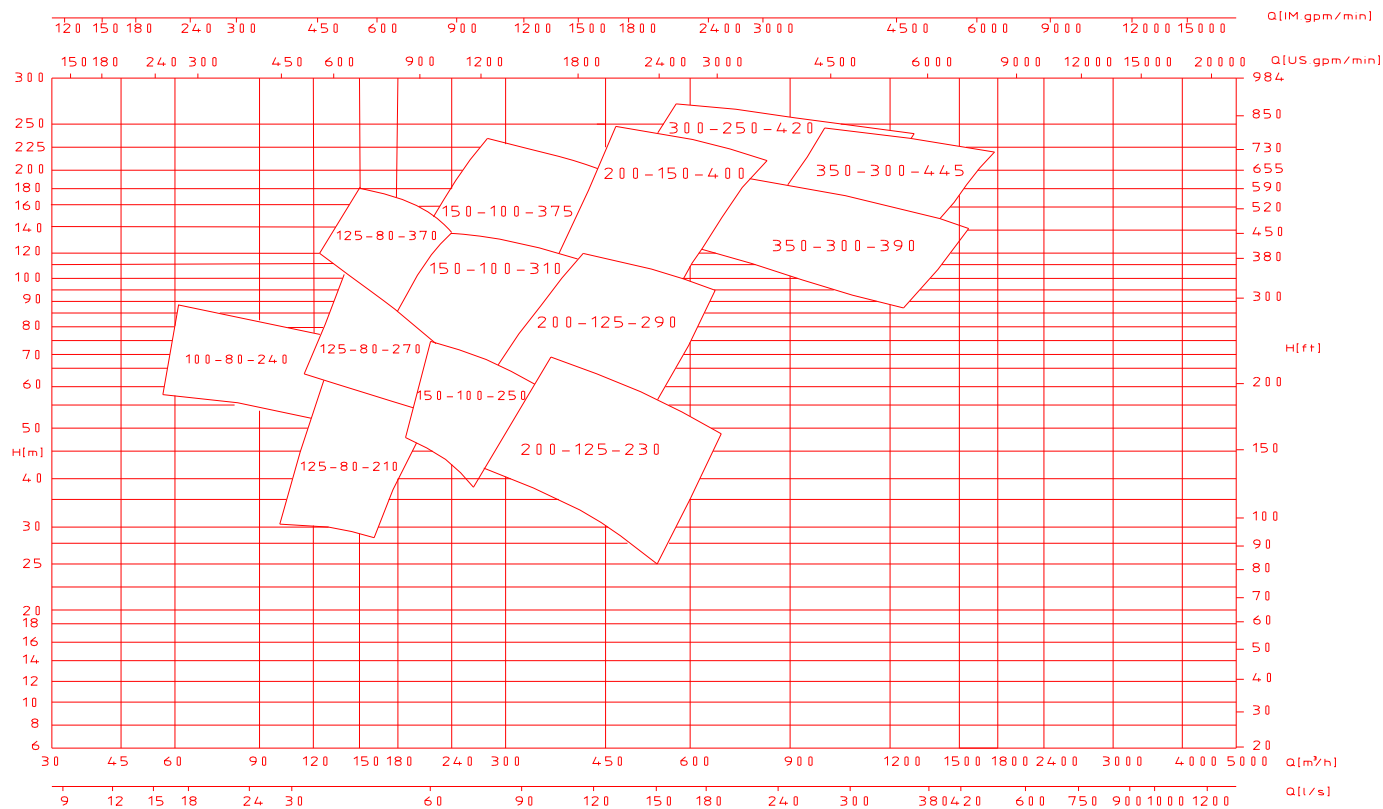
Flow Range : Q up to 2800l/s

Head Range : H up to 220m

Operating Pressure : P up to 25 Bar

Liquid Temperature : T up to 105°C

n=2900 rpm



Your technical advantages
Innovative casing

- In-line design
- Short distance between bearing and correspondingly short shaft
- Leak-tight due to compact joint flange with long, prestressed bolts
- Counter - rotation possible with similar parts
- Double volute version for appropriate total heads
- Easy mounting-self-aligning upper casing

High - performance impeller

- Minimal axial thrust due to double-entry impeller
- Optional impeller wear rings
- New vane passage with excellent hydraulic characteristics

Your service advantage
Service - friendly shaft

- Completely sealed and dry for zero corrosion
- Short and rigid with negligible vibrations
- Replaceable shaft protecting sleeves
- No threads exposed to pumped medium, long operation life and no corrosion
- Adjustment - free assembly
- Quick and easy assembly / dismantling of the rotor components due to elastically prestressed mountings

Excellent efficiencies
Outstanding NPSH

- Computer - optimized double entry impellers
- Smooth surface inside the casing and on the impeller
- Smooth, quiet running also guaranteed by a large impeller eye area
- No drop in efficiency due to cost effective replaceable casing wear rings and impeller wear rings
- Smooth, low loss running due to a swirl - free inlet

Long - life bearings

- Covered, sealed for life grease lubricated antifriction bearings for a long service life
- Open gland, I.E enough space for service activities
- Optional: oil lubrication with constant level oiler

Application - oriented seals

- Asbestos - free, potable water quality soft - packed stuffing boxes
- Optional - mechanical seals





Features

- **Designed** in accordance with ISO2858 International Standard.
- **Back slide** cover construction facilitated service and repairing work. Rotor may be easily pull out without having to disturb suction and discharge pipes.
- **Soft packing** for shaft sealing.
- **Flexible** spacer coupling.

Performance Data

Performance Data : 6.3 ~ 400m
Head Range : 5 ~ 125m
Suction Dia : 50 ~ 200
Pump Speed : 1450/2900 rpm
Fluid Temp : up to 80

Model Nomenclature

Pe.g. IS80-65-160A
IS — Single Stage End Suction
Centrifugal Pump
80 — Suction Dia. (mm)
65 — Discharge Dia. (mm)
160 — Impeller Dia. DN (mm)

Variations:

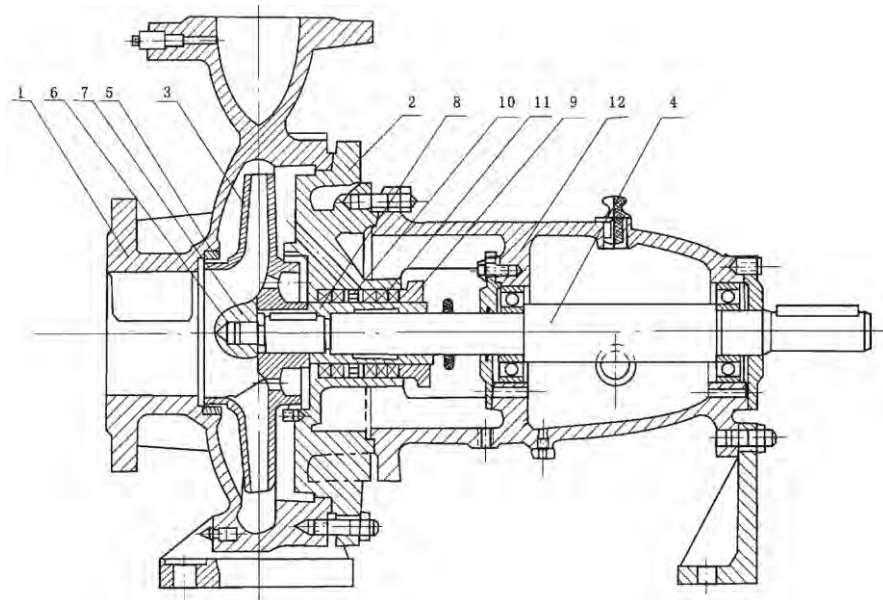
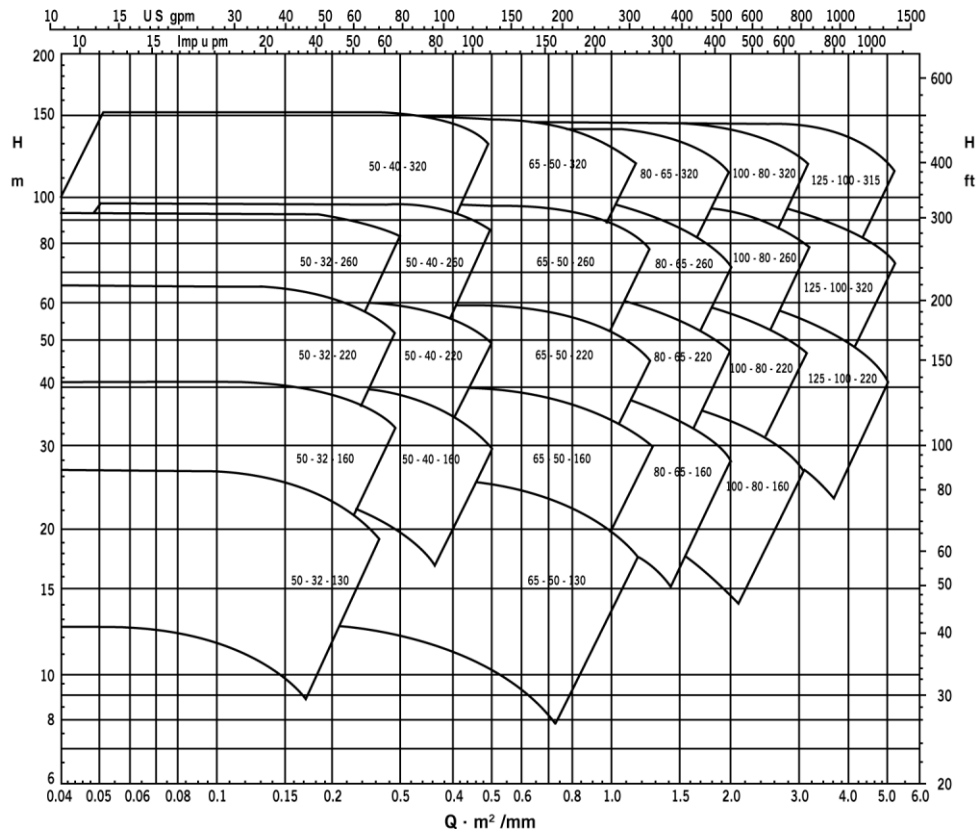
A — Impeller

Materials of Construction

Casing & Cover	: Cast/ductile iron
Shaft	: Carbon steel, Stainless steel
Impeller	: Ductile cast iron, Cast steel and St. steel
Sealing	: Packing or mechanical seal
Packing or mechanical seal	: Cast iron
Seal Ring	: Cast iron

$n=2900$ rpm

Family curve 50 Hz



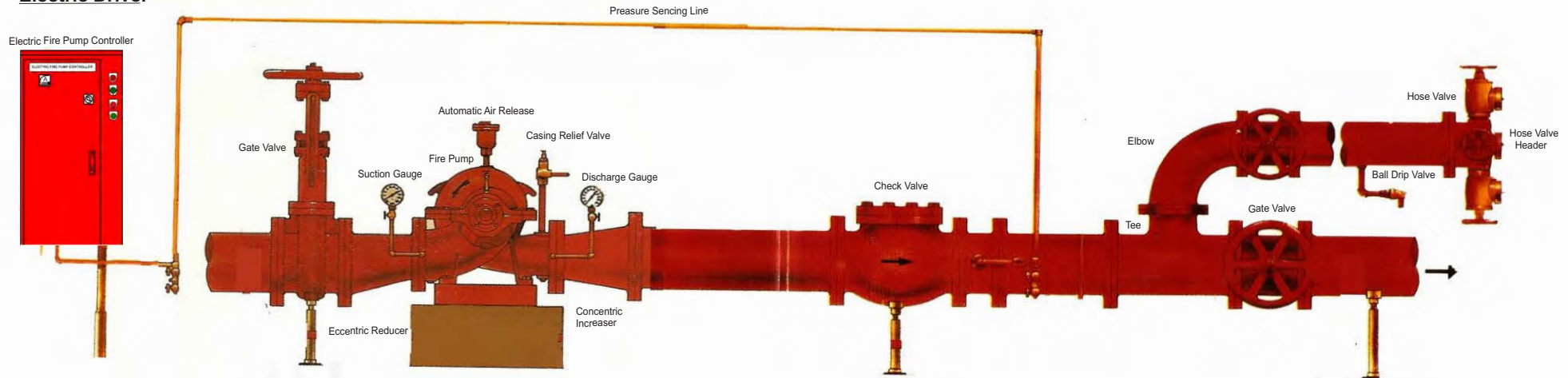
1. Pump casing
2. Pump Cover
3. Impeller
4. Shaft
5. Wear ring

6. Impeller Cap
7. Braking Pad
8. Shaft Sleeve
9. Gland Packing /
Mechanical Seal

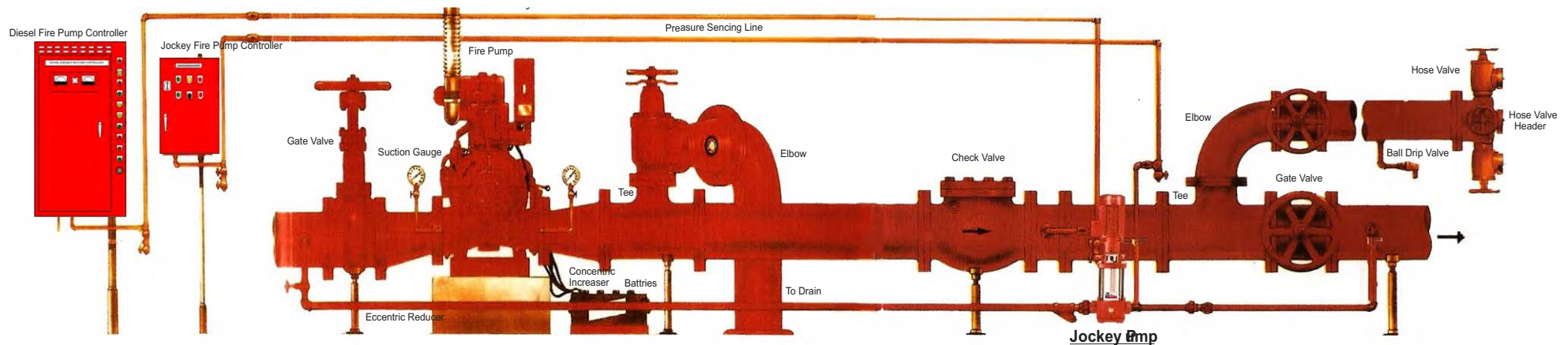
10. Seal Cage
11. Packing
12. Cantilever Bearing
Assembly

Typical Installation Diagram Horizontal Split Case

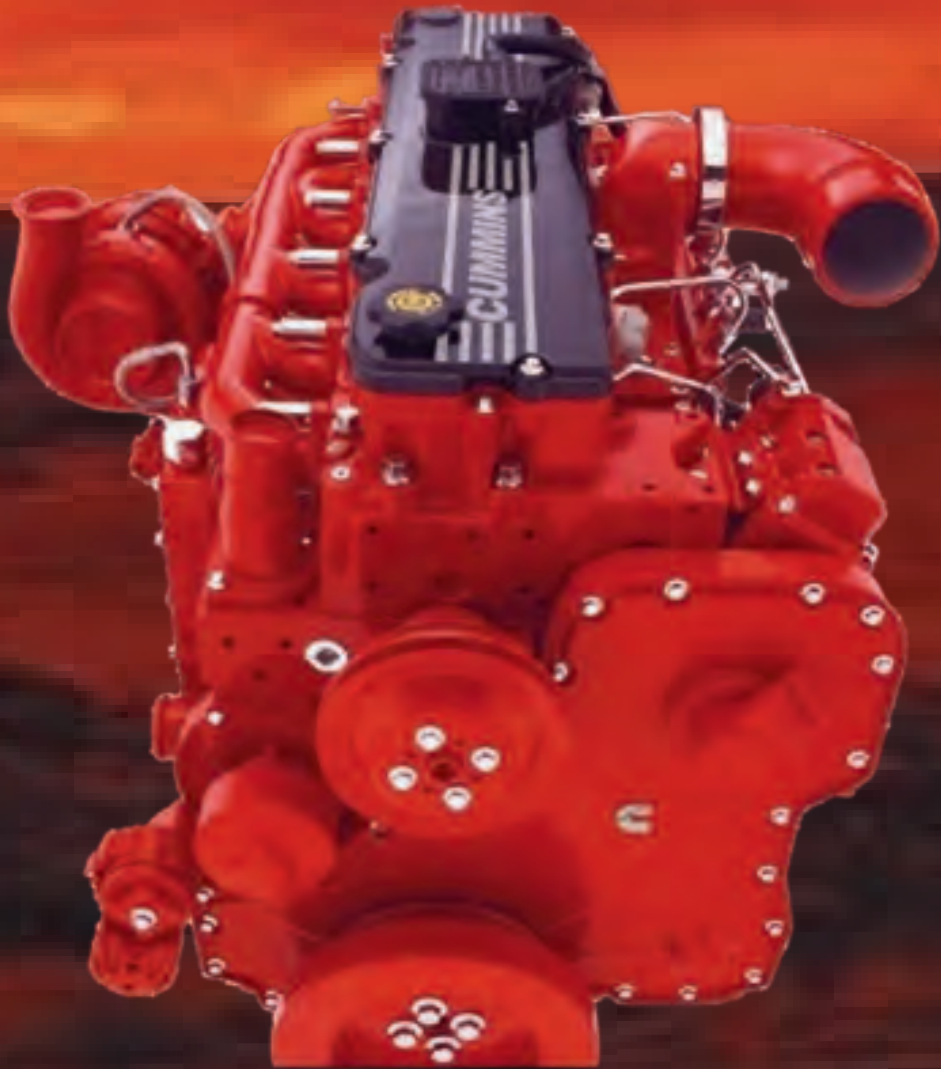
Electric Driver



Engine Driver



EVERY TIME.



Cummins Industrial Engine



4B Series

- **High fuel efficiency** 20% fewer oil consumption than Other competitive products.
- **The turbo charger with wastegated design** optimizes operation across the torque curve resulting in excellent low-end torque.
- **Compacted yet durable and dependable engine** B series engine contains up to 40% fewer parts than competitive engines in its class, this result in a better power to weight ration, a less chance of failure and lower repair cost.
- **Advanced design and manufacturing** make the engine delivers superior performance and lower cost than competitive engines.
- **Excellent cold start performance** optional assistant cold starter with improved 6kw starter and intake air heater
- **Excellent performance and advantage** adopt advanced design to achieve higher horse power and lower weight horsepower per liter reached 24,9 Kw/l



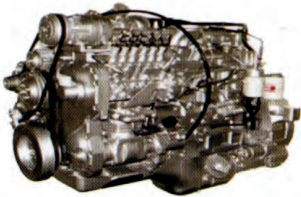
6B Series

- **High fuel efficiency** 20% fewer oil consumption than Other competitive products.
- **The turbo charger with wastegated design** optimizes operation across the torque curve resulting in excellent low-end torque.
- **Compacted yet durable and dependable engine** B series engine contains up to 40% fewer parts than competitive engines in its class, this result in a better power to weight ration, a less chance of failure and lower repair cost.
- **Advanced design and manufacturing** make the engine delivers superior performance and lower cost than competitive engines.
- **Excellent cold start performance** optional assistant cold starter with improved 6,6kw starter and intake air heater
- **Excellent performance and advantage** adopt advanced design to achieve higher horse power and lower weight horsepower per liter reached 22,4 Kw/l



C Series

- **High fuel efficiency** 20% fewer oil consumption than Other competitive products.
- **The turbo charger with wastegated design** optimizes operation across the torque curve resulting in excellent low-end torque.
- **Compacted yet durable and dependable engine** B series engine contains up to 40% fewer parts than competitive engines in its class, this result in a better power to weight ration, a less chance of failure and lower repair cost.
- **Advanced design and manufacturing** make the engine delivers superior performance and lower cost than competitive engines.
- **Excellent cold start performance** optional assistant cold starter with improved 7,8kw starter and intake air heater
- **Excellent performance and advantage** adopt advanced design to achieve higher horse power and lower weight horsepower per liter reached 23,0 Kw/l



L Series

- **24 Valve cylinder head** for increased air flow improved low end torque and response, higher power density improved fuel consumption and improved emissions.
- **heavy duty features** replaceable wet liners, roller followers, 2 piece steel articulated pistons, by pass oil filtration and targeted piston cooling.
- **Durable and dependable** articulated pistons with a forged steel crown and aluminum skirt for high durability.
- **Excellent performance and advantage** adopt advanced design to achieve higher horsepower and lower height horsepower per liter reached 23,0Kw/l

PRODUCTS.

Ratings

	Mode	Power kW/r/min	Torque N.m/r/min
B3.9	4BT3.9-C80	60/2900	330/1500
	4BT3.9-C100	75/2900	330/1500
	4BT3.9-C105	77/2900	330/1500
	4BTA3.9-C110	82/2900	460/1400
	4BTA3.9-C125	93/2900	475/1500
	4BTA3.9-C130	97/2900	475/1500
B5.9 (6BT)	6BT5.9-C115	85/2900	430/1500
	6BT5.9-C120	87/2900	436/1500
	6BT5.9-C125	92/2900	425/1500
	6BT5.9-C130	97/2900	560/1500
	6BT5.9-C135	100/2900	570/1500
	6BT5.9-C135	100/2900	590/1500
	6BT5.9-C135	100/2900	560/1500
	6BT5.9-C145	106/2900	580/1500
	6BT5.9-C150	110/2900	560/1500
	6BT5.9-C150	112/2900	565/1500
	6BT5.9-C150	110/2900	580/1500
	6BT5.9-C150	112/2900	580/1500

	Mode	Power kW/r/min	Torque N.m/r/min
B5.9 (6BTA)	6BTA5.9-C150	112/2900	630/1400
	6BTA5.9-C155	114/2900	637/1500
	6BTA5.9-C170	125/2900	630/1400
	6BTA5.9-C175	128/2900	680/1500
	6BTA5.9-C180	132/2900	750/1500
C8.3	6CTA8.3-C145	105/2900	674/1400
	6CTA8.3-C175	128/2900	820/1100
	6CTA8.3-C180	134/2900	837/1400
	6CTA8.3-C195	145/2900	820/1500
	6CTA8.3-C215	160/2900	908/1500
	6CTA8.3-C215	160/2900	908/1500
	6CTA8.3-C230	172/2900	1000/1500
	6CTA8.3-C245	179/2900	1028/1500
L8.9	6LTAA8.9-C325	250/2900	1350/1400



PT. BERJAYA MAKMUR INDONESIA

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ARTHUR Diesel Engine

TECNOLOGY BY ISUZU



PT. BERJAYA MAKMUR INDONESIA

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4JB1 General Specification

4JB1 Engine Data & Parameter	
Model	4JB1T
Air Induction System	Turbo / Euro II
Application	Pickup, Light Truck, SUV, Commercial Vehicle, etc.
Specification	
Maker & Model	4JB1T
Opeation Layout	4-Cycle Water Cooled, Direct Injecton System
Number of Cylinder- Bore Stroke	4-93mm x 102mm
Displacement	2771cc
Compression Ratio	17.5
Fuel Supply	Direct Injection
Net Weight	230 KG
Size (L*W*H)	742 x 634 x 718
Firing Order	1-3-4-2
Rotation (on the view of Flywheel)	Counter-Clockwise
Fuel System	
Injection Pump	VE Type
Covernor Type	RSV (All Speed Control)
Fuel Filter Type	Paper element, "P" Type
Supplier	Bosch Company
Lubrication System	
Lubrication Type	Forced-Feed Lubricating System
Oil Pump	Gear Type, Korea Pump
C/Oil Filter Type:	Full flow, Paper Element
Oil Capacity	4.5 Liter
Cooling System	
Cooling Type	Liquid Cooling
Water Pump	Impeller Type
Coolant Capacity	10 Liter
Output Power	2.8 kW (12V)
Type	Engaged Magnet Type
Maker & Model	Htachi JV
Water-Resisting Qualities	International Standard
Dust-Resisting Qualities	International Standard
Engine Stop	Fuel Cut-off By Stop Motor
Starter	12V, 80A, IC adjuster inside, with vaccum pump, run signal interface
Turbo Setting	Deflation Valve
Supplier	Honey Well Shanghai
Crankcase Ventilte System	PVC Valve system inside cover of cylinder head, exhaust gas into the intake system through ventilate hipeline.
Performance	
Rated Output Power	66 kW(90 HP)/3000 RPM
Max Torque	>= 200 N.m(20.4 kgm)/2100 RPM
Idle Speed	750 RPM
Max Racing	4200 RPM
Fuel Consumption	230 g/kwh
Cold-Start	-25°C
Temperature of Exhaust Gas	< 600°C
Noise	Max 106dB With JIS a Characteristics



ARTHUR ELECTRIC MOTOR

World Class Quality

Three Phase Induction Motor



2010



PT. BERJAYA MAKMUR INDONESIA
The Real Partner

Komplek DDN, Jl Danau Cibubur Asri II, Kav.23, Harjamukti,
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Email : berjayamakmur99@gmail.com

Website : www.berjaya-makmur-indonesia.co.id

AR series three-phase induction motors suitable as prime mover for hydraulic systems or general machinery. The AR series three-phase induction are produced to ISO 9001 standards. The AR series three-phase induction are designed for 380V, 50Hz operation and are rated to IP54/IP55, IC411, with an Insulation Class F evaluated at class B temperature rise under full load. AR series three-phase induction motors comply with IEC standards and also meet and exceed the efficiency minimum energy ratings of AS/NZS 1359.5:2004

AR series three-phase induction motors offer high efficiency, low noise, low vibration and high locked torque ratings. Combined with M&C' bell housings, couplings, and hydraulic pumps, Complete AR Series ranges from 30 Kw to 315 Kw. Sizes other than listed are available motors are designed and produced to ISO 9001 standards

The AR series is designed for 400 VAC, 50 Hz operation and are rated to IP54/IP55.

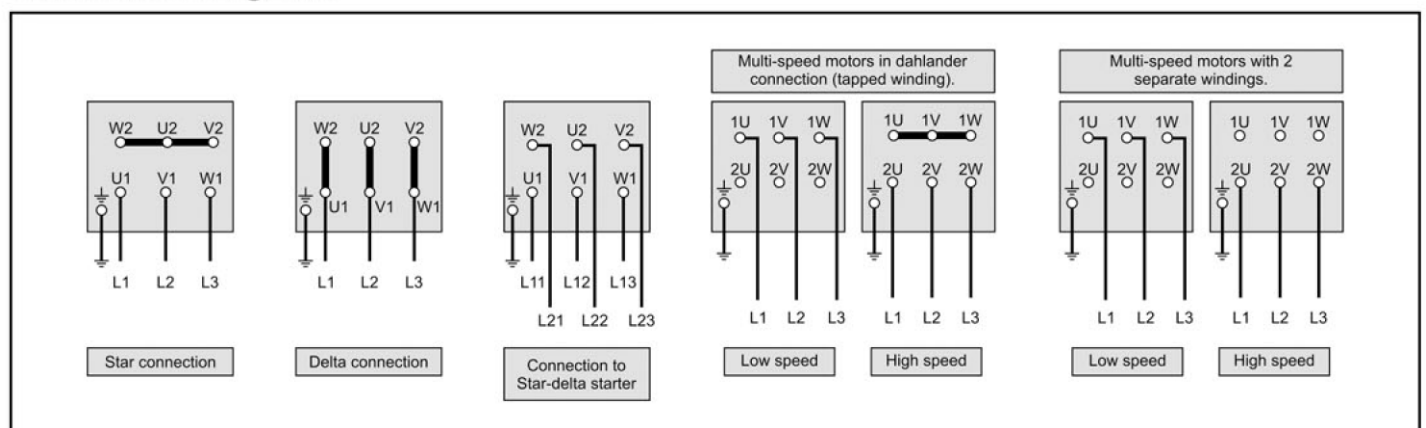
AR series motors meet and exceed the AS/NZS 1359.5:2000 minimum energy ratings.



* Benefits Include :

- Full output range to meet your requirements
- Where applicable, Efficiencies are within the eff2 band and meet MEPS standard efficiency levels.
- Robust construction for long life
- Mountings : foot, Flange, face or combination
- Bolt on feet/pads - aluminium range
- Frequency 50Hz or 60Hz
- Single or multispeed options
- IP55
- Metric entries
- Metal fan cover
- Thermistors fitted as standard on 160 frame and above

Connection Diagrams



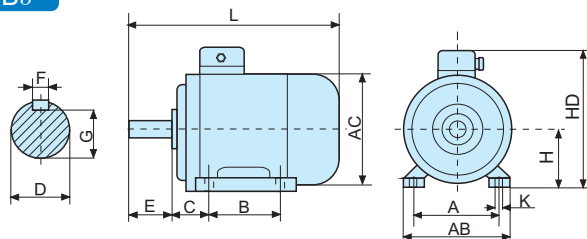
2 POLE - 3000 RPM SYNCHRONOUS SPEED AT 380V, 50HZ

MODEL	POWER		CURRENT at	SPEED	EFF	POWER	NOMINAL	Tstart	Ist	MOMENT	WEIGHT
	KW	HP	380 V (A)	(R.P.M)	(%)	FACTOR	TORQUE(Nm)	Tn	In	OF INERTIA (KG M2)	(KG)
AR160M1-2	11	15	21.3	2900	88	0.88	36.10	2.0	2.2	0.0377	85
AR160M2-2	15	20	28.7	2900	89	0.89	49.23	2.0	2.2	0.0449	95
AR160L-2	18.5	25	34.6	2900	90	0.90	60.71	2.0	2.2	0.055	105
AR180M-2	22	30	40.9	2900	90.5	0.90	72.20	2.0	2.2	0.075	130
AR200L1-2	30	40	55.4	2900	91.2	0.90	98.45	2.0	2.2	0.124	217
AR200L2-2	37	50	67.7	2900	92	0.90	121.43	2.0	2.2	0.139	245
AR225M-2	45	60	82.3	2900	92.3	0.90	147.68	1.8	2.2	0.233	310
AR250M-2	55	75	101	2900	92.5	0.90	180.50	1.8	2.2	0.312	369
AR280S-2	75	100	134	2900	93	0.90	246.13	1.8	2.2	0.597	500
AR280M-2	90	125	160	2900	93.8	0.91	295.36	1.8	2.2	0.675	557
AR315S-2	110	150	195	2900	94	0.91	361.00	1.8	2.2	1.18	960
AR315M-2	132	175	233	2900	94.5	0.91	433.20	1.8	2.2	1.82	1060
AR315L1-2	160	220	279	2900	94.6	0.92	525.09	1.8	2.2	2.08	1140
AR315L2-2	200	270	348	2900	94.8	0.92	656.36	1.8	2.2	2.82	1190
AR355M-2	250	335	433	2900	95.3	0.92	820.45	1.6	2.2	3.28	1740
AR355L-2	315	420	544	2900	95.6	0.92	1033.76	1.6	2.2	4.1	1880

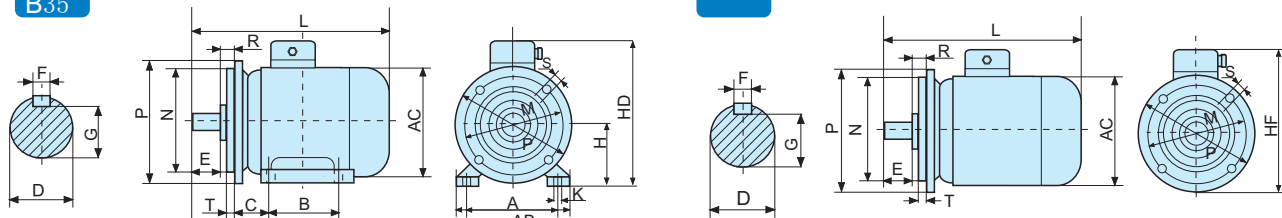
4 POLE - 1500 RPM SYNCHRONOUS SPEED AT 380V, 50HZ

MODEL	POWER		CURRENT at	SPEED	EFF	POWER	NOMINAL	Tstart	Ist	MOMENT	WEIGHT
	KW	HP	380 V (A)	(R.P.M)	(%)	FACTOR	TORQUE(Nm)	Tn	In	OF INERTIA (KG M2)	(KG)
AR160M-4	11	15	22.3	1500	88	0.85	72.45	2.0	7.0	0.0747	90
AR160L4	15	20	30	1500	89	0.85	98.79	2.0	7.0	0.0918	100
AR180M-4	18.5	25	36.4	1500	90	0.85	121.84	2.2	7.5	0.139	130
AR180L-4	22	30	43.1	1500	90.5	0.85	144.90	2.2	7.5	0.158	140
AR200L-4	30	40	57.4	1500	91.2	0.86	197.59	2.2	7.5	0.262	231
AR225S-4	37	50	69.9	1500	92	0.87	296.38	2.2	7.5	0.406	290
AR225M-4	45	60	84.7	1500	92.3	0.87	362.24	2.2	7.0	0.469	320
AR250M-4	55	75	103	1500	92.5	0.89	362.24	2.2	7.0	0.66	380
AR280S-4	75	100	140	1500	93	0.87	493.97	2.2	7.0	1.12	526
AR280M-2	90	125	167	1500	93.8	0.87	592.76	2.2	7.0	1.46	600
AR315S-4	110	150	201	1500	94	0.88	724.48	2.1	6.9	3.11	980
AR315M-4	132	175	240	1500	94.5	0.88	869.38	2.1	6.9	3.62	1080
AR315L1-4	160	220	287	1500	94.6	0.88	1053.79	2.1	6.9	4.13	1120
AR315L2-4	200	270	359	1500	94.8	0.88	13117.24	2.3	6.9	4.82	1170
AR355M-4	250	335	443	1500	95.3	0.88	1646.55	2.3	6.8	5.21	1780
AR355L-4	315	420	556	1500	95.6	0.89	2074.66	2.2	6.9	5.4	1920

B3



B35



AR SERIES MOTOR OVERALL INSTALLATION DIMENSIONS

Frame Size	Mounting Dimensions (mm)															Overall Dimensions (mm)					
	A	B	C	D	E	F	G	H	K	M	N	P	R	S	T	AB	AC	AD	HD	HF	L
160M	254	210	108	42	110	12	37	160	15	300	250	350	0	19	5	320	330	255	420	385	615
160L	254	254	108	42	110	12	37	160	15	300	250	350	0	19	5	320	330	255	420	385	670
180M	279	241	121	48	110	14	42.5	180	15	300	250	350	0	19	5	355	380	280	455	430	700
180L	279	279	121	48	110	14	42.5	180	15	300	250	350	0	19	5	355	380	280	455	430	740
200L	318	305	133	55	110	16	49	200	19	350	300	400	0	19	5	395	420	305	505	480	770
225S	356	286	149	60	140	18	53	225	19	400	350	450	0	19	5	435	470	335	560	535	815
225M-2	356	311	149	55	110	16	49	225	19	400	350	450	0	19	5	435	470	335	560	535	820
225M-4、6	356	311	149	60	140	18	53	225	19	400	350	450	0	19	5	435	470	335	560	535	845
250M-2	406	349	168	60	140	18	53	250	24	500	450	550	0	19	5	490	510	370	615	595	910
250M-4、6	406	349	168	65	140	18	58	250	24	500	450	550	0	19	5	490	510	370	615	595	910
280S-2	457	368	190	65	140	18	58	280	24	500	450	550	0	19	5	550	580	410	680	650	985
280S-4、6	457	368	190	75	140	20	67.5	280	24	500	450	550	0	19	5	550	580	410	680	650	985
280M-2	457	419	190	65	140	18	58	280	24	500	450	550	0	19	5	550	580	410	680	650	1035
280M-4、6	457	419	190	75	140	20	67.5	280	24	500	450	550	0	19	5	550	580	410	680	650	1035
315S-2	508	406	216	65	140	18	58	315	28	600	550	660	0	24	6	635	645	530	845	900	1160
315S-4、6	508	406	216	80	170	22	71	315	28	600	550	660	0	24	6	635	645	530	845	900	1270
315M-2	508	457	216	65	140	18	58	315	28	600	550	660	0	24	6	635	645	530	845	900	1190
315M-4、6	508	457	216	80	170	22	71	315	28	600	550	660	0	24	6	635	645	530	845	900	1300
315L-2	508	508	216	65	140	18	58	315	28	600	550	660	0	24	6	635	645	530	845	900	1190
315L-4、6	508	508	216	80	170	22	71	315	28	600	550	660	0	24	6	635	645	530	845	900	1300
355M-2	610	560	254	75	140	20	67.5	355	28	740	680	800	0	24	6	730	710	655	1010	1010	1500
355M-4、6	610	560	254	95	170	25	86	355	28	740	680	800	0	24	6	730	710	655	1010	1010	1530
355L-2	610	630	254	75	140	20	67.5	355	28	740	680	800	0	24	6	730	710	655	1010	1010	1500
355L-4、6	610	630	254	95	170	25	86	355	28	740	680	800	0	24	6	730	710	655	1010	1010	1530



Fire Pumps

Effective and Powerfull
fire protection



PT. BERJAYA MAKMUR INDONESIA

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Water Pump



VTC, VTG Industrial Turbine Pumps

Specification range

- Capacities to 4000m³/h (18,000GPM)
- Heads to 380m (1250ft)
- Temperatures to 200°C(388°F)

Design Advantages

1. Fabricated discharge head for 10" or larger sizes. Suitable for temperature liquid pumping.
2. Seamless flanged ends column pipe and flanges bowl construction incorporating registered fits for ease of assembly during assembly.
3. Alloy construction with external tube flush of critical wear areas available for abrasive services.
4. Build-in alignment and simple piping for less costly installation and ease of maintenance reduced downtime.
5. 416SS shafting. Keyed lineshaft coupling available in all size for ease of maintenance.

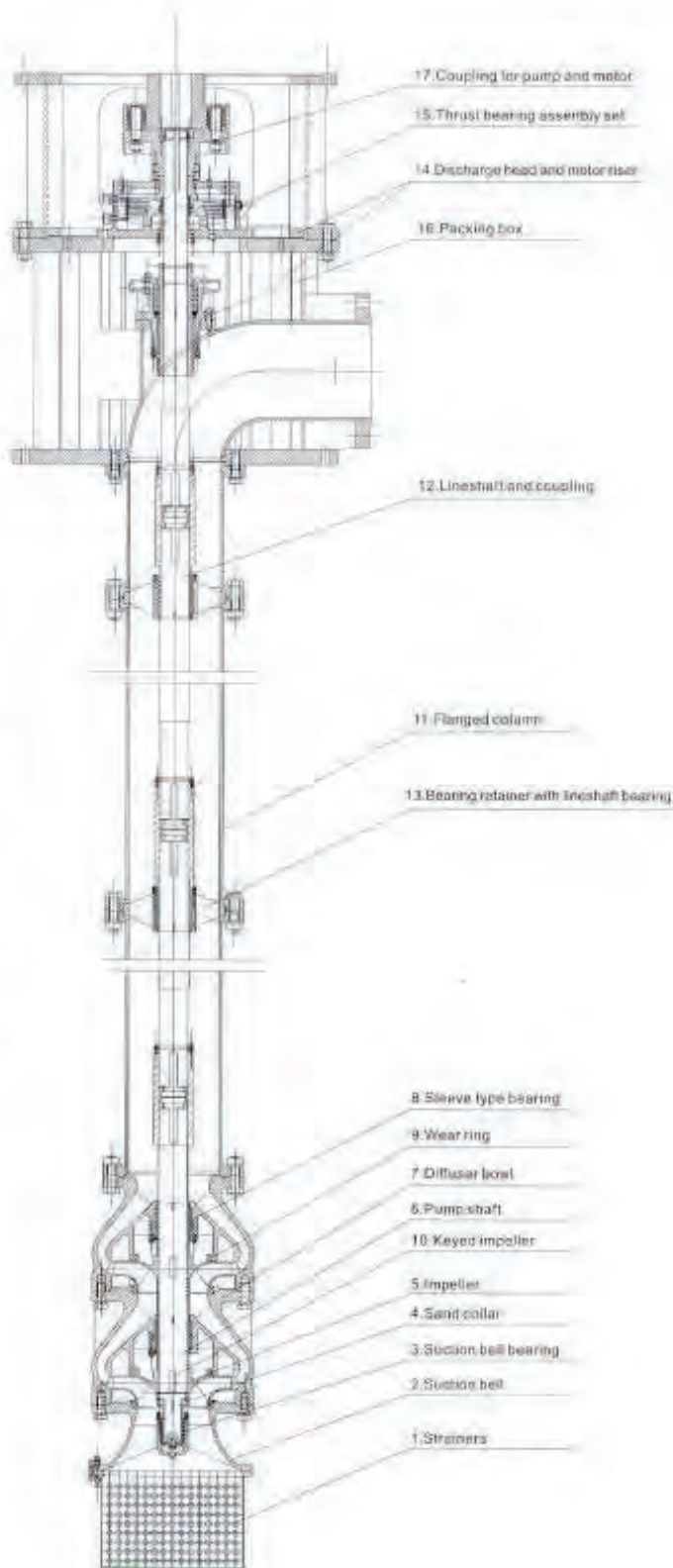
The lineshaft can be protected by water flushing the enclosing tube bearing on corrosive/abrasive services.

6. Various bearing material available.
7. Renewable shaft sleeve or hard facing of shaft available for long life.
8. Dual wear rings for impellers and bowls.

Hard facing wear surfaces available for longer life. Wear rings can be flushed when solids are present in pumpage.

Services

Cooling Water
Seawater and Raw Water Intake
Industrial Process Pumps
Utility Circulating Water
Condenser Circulating Water Pumps
Ash Sluice
Fire-fighting





Water Pump



ARTHUR Vertical Turbine Pumps

The 4 different model vertical turbine pumps have one thing in common the hydraulic design of the pump bowl assembly. Using a new techniques in turbine pump design. It covers a wide range of hydraulic conditions to meet virtually every pumping service with optimum efficiency.

ARTHUR flexibility of design allows the use of a wide range of material and design features to meet the custom requirements of user. No matter what the requirements, whether low first cost, ease of maintenance, optimum efficiency. Tough service conditions, **ARTHUR** can make the pump to best satisfy the requirements.

- VTC Centrifugal or mixed-flow pump for high pressure
- VTM Mixed-flow pump for high flow and middle pressure
- VTA Axial-flow pump for high flow low pressure
- VTG Pump for fire and marine gear box engine driven

Model VTC

Vertical Industrial Turbine Pumps

VTC series is a single or multistage pump with centrifugal or mixed-flow enclosed type impeller, designed for high pressure services.



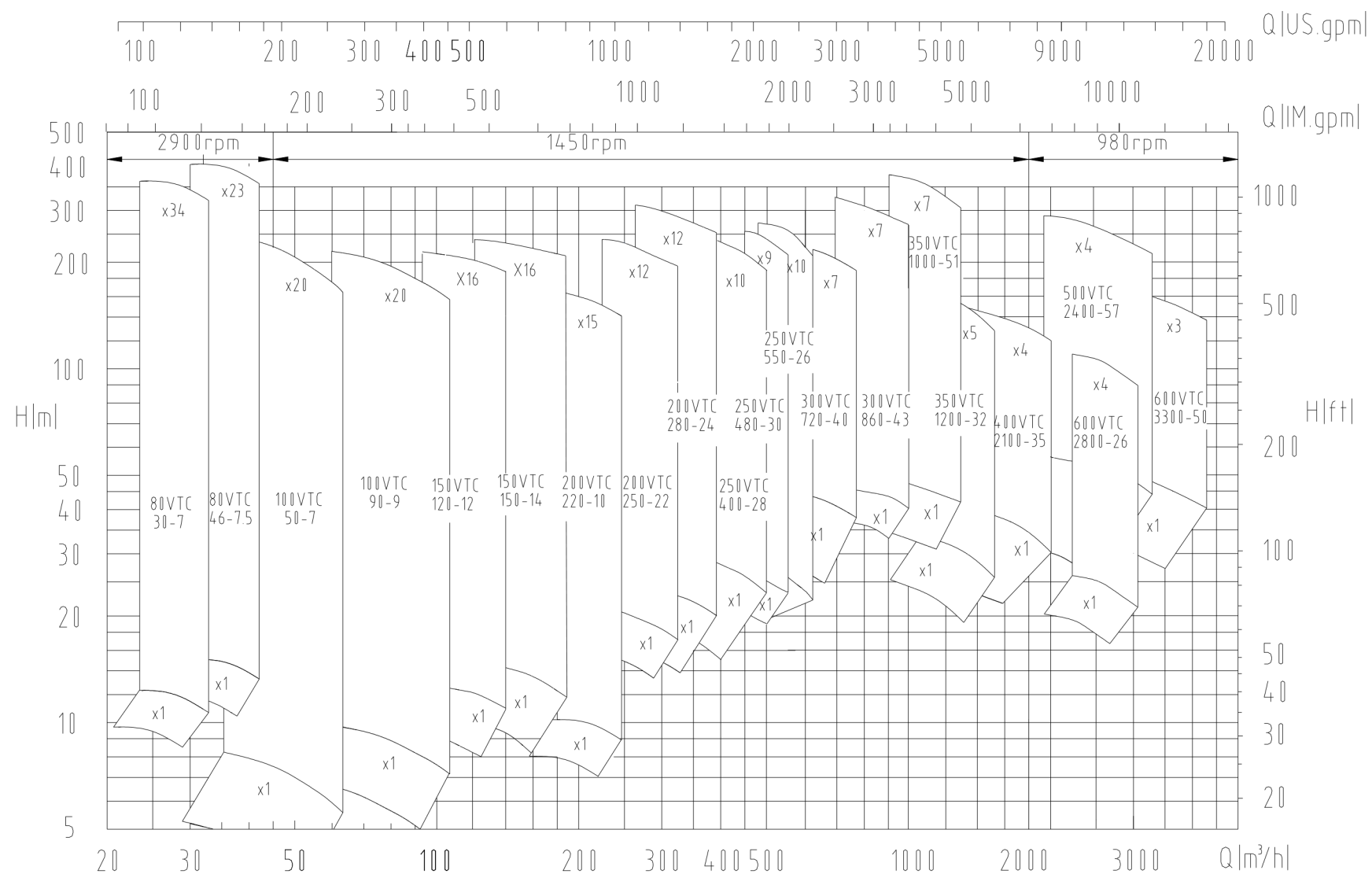
Model VTM

High Capacity Vertical Turbine Pumps

VTM series is a single stage pump with mixed-flow semi-open or enclosed type impeller, designed for high capacity, medium to high head services.



Selection Charts of VTC pumps



50 / 60HZ



CD/CDF Vertical Multistage Pump Operating Instructions



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NPSH	9
CDF2	10
CDF4	11
CDF8	12
CDF16	13
CDF32	14
CDF42	15
CDF65	16
CDF85	17

General Data

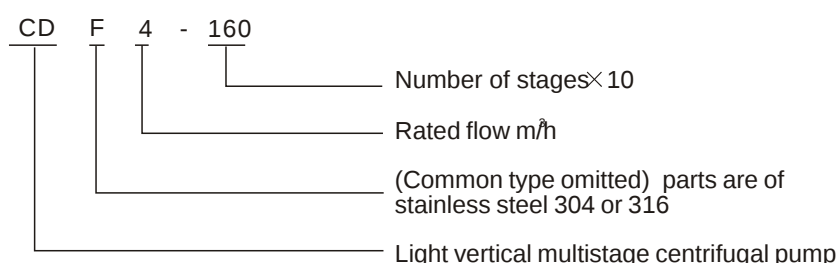


APPLICATION

CD/CDF pump are multi-functional products. It can be used to convey various medium from tap water to industrial liquid at different temperature and with different flow rate and pressure. CD type is applicable to conveying non-corrosive liquid, while CDF is suitable for slightly corrosive liquid.

- Water supply: water filter and transport in waterworks, boosting of main pipeline, boosting in high rise building.
- Industrial boosting: process flow water system, cleaning system, high pressure washing system, fire fighting system.
- Industrial liquid conveying: Cooling and air-conditioning system, boiler water supply and condensing system, machine-associated purpose, acids and alkali.
- Water treatment: ultrafiltration system, RO system, distillation system, separator, swimming pool.
- Irrigation: Farmland irrigation and dripping irrigation.

IDENTIFICATION OF PUMP MODELS



OPERATION CONDITIONS

- Thin, clean, non-flammable and non-explosive liquid containing no solid granules and fibers.
- Liquid temperature:
Normal temperature type: -15°C ~ +70°C,
Hot water type: +70°C ~ +120°C
- Ambient temperature: up to +40°C
- Altitude: up to 1000m

PUMP

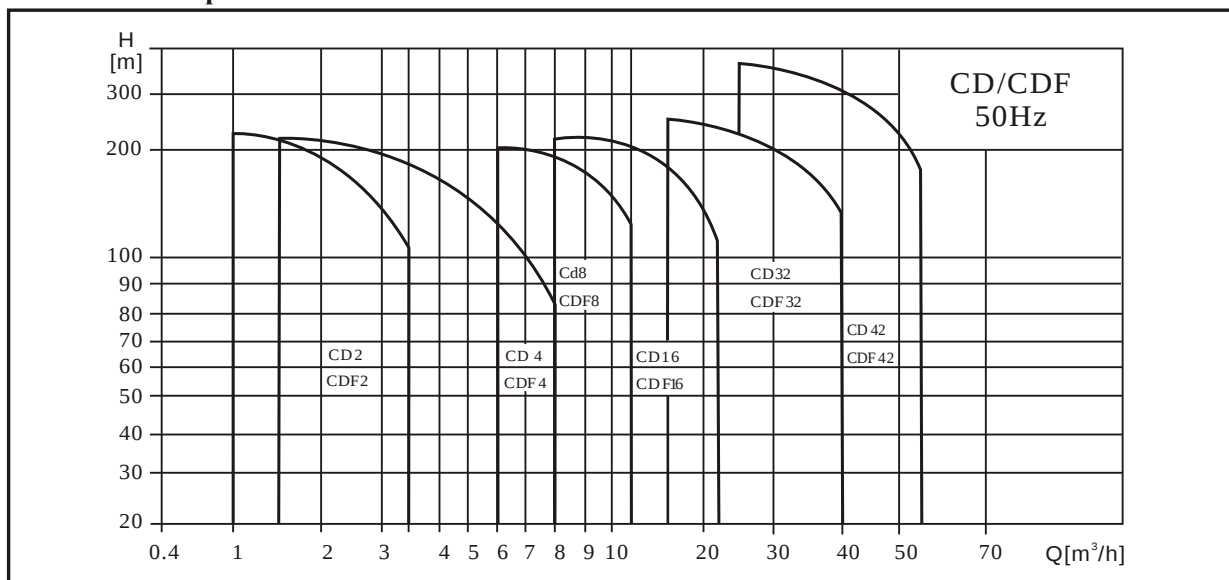
CD/CDF pump are vertical non-self priming multistage centrifugal pump, which is driven by a standard electric motor. The motor output shaft directly connects with the pump shaft through a coupling. The pressure resistant cylinder and flow passage components are fixed between pump head and in-and outlet section with tie-bar bolts. The inlet and outlet are located at the pump bottom at the same plane. This kind of pump can be equipped with an intelligent protector to effectively prevent it from dry-running, out-of-phase and overload.

PUMP MOTOR

- Totally enclosed fan-cooled two-pole standard motor
- Protection class: IP55
- Insulation class: F
- Standard voltage: 50Hz: 1×220-230/240V × 3200-200/346-380V 3×220-240/380-415V 3×380-415V



Performancescope



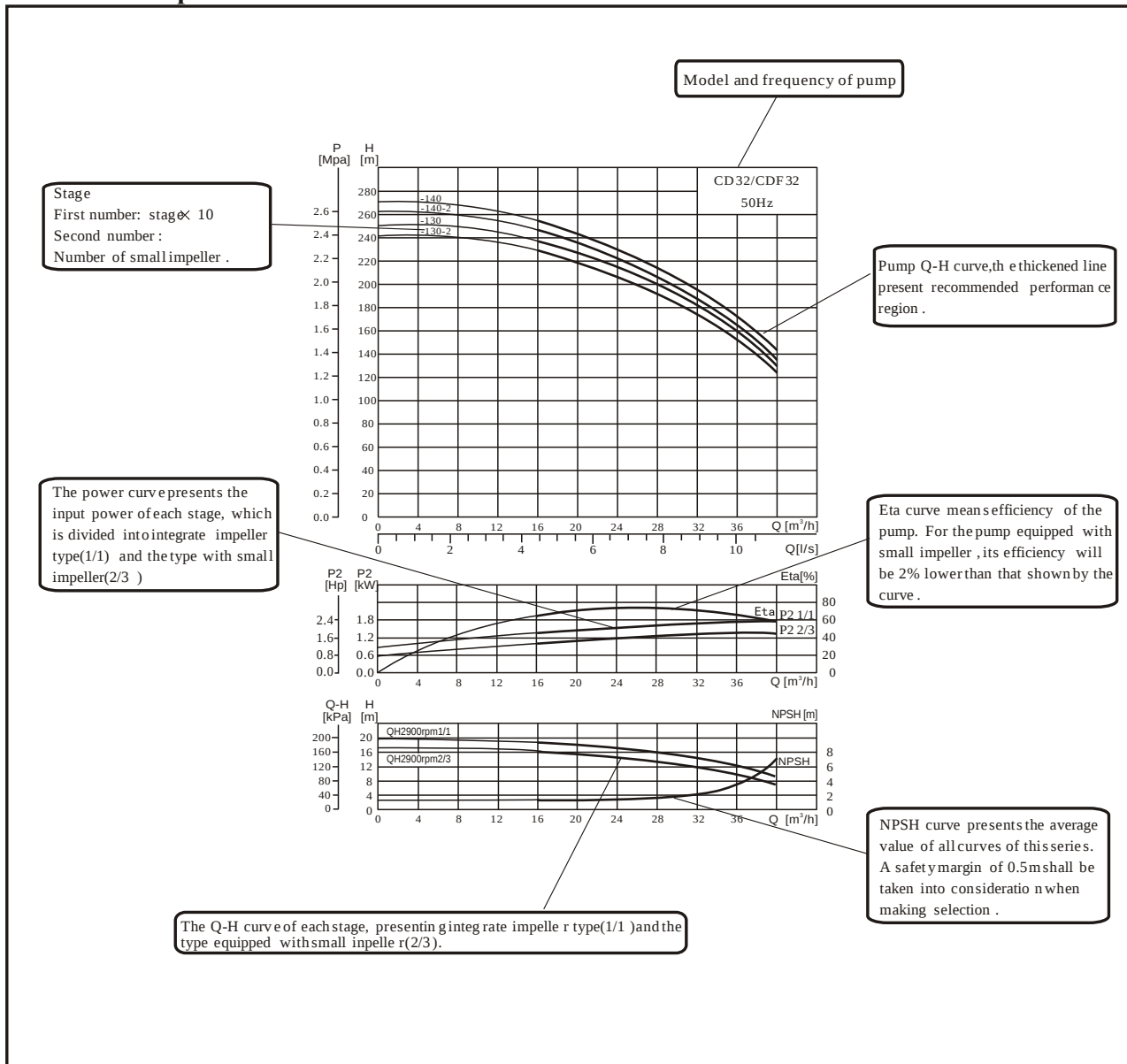
Product range

Description	CD2	CD4	CD 8	CD16	CD 32	CD 42
Rated flow [m³/h]	2	4	8	16	32	42
Rated flow [l/s]	0.56	1.1	2.2	4.4	8.9	11.7
Flow range [m³/h]	1-3.5	1.5-8	5-12	8-22	16-40	25-55
Flow range [l/s]	0.28-0.97	0.33-2.2	1.4-3.3	2.2-6.1	4.4-11.1	6.9-15.3
Max.pressure [bar]	23	22	21	22	26	30
Motor power [kw]	0.37-3	0.37-4	0.75-7.5	2.2-15	1.5-30	3.0-45
Temperature range [°C]	-15°C ~ +120°C					
Max.efficiency [%]	46	59	64	71	76	78
Type						
CDL	●	●	●	●	●	●
CDLF	●	●	●	●	●	●
CDL pipe connection						
DIN Flange			DN40	DN50	DN65	DN80
CDLF pipe connection						
DIN Flange	DN25	DN32	DN40	DN50	DN65	DN80
Cutting ferrule joint	●	●	●	●		
Pipe thread	●	●	●	●		

General Data



Curve description

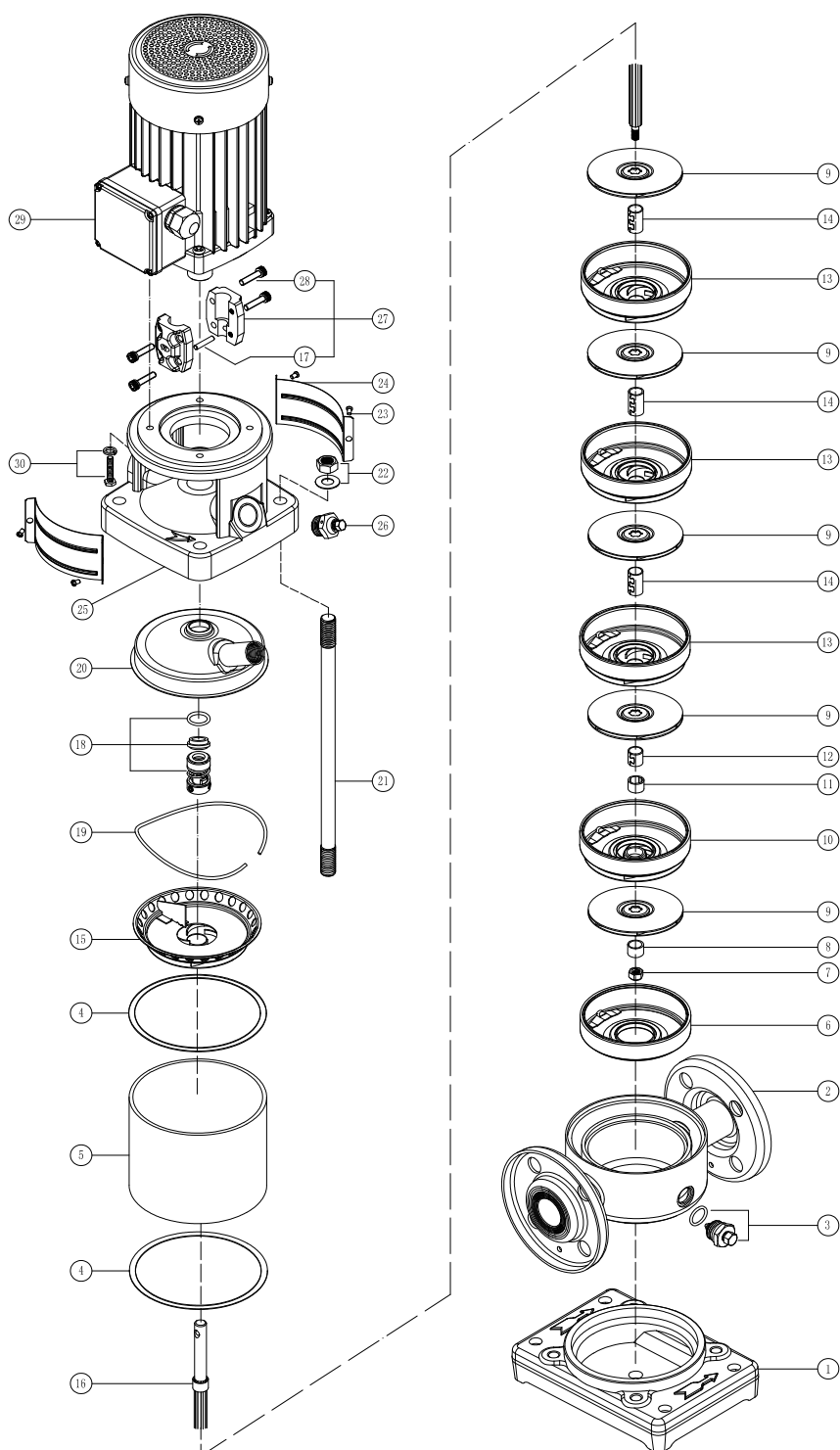


Performance curve

Following conditions are suitable for the performance curves shown below:

- All the performance curves are based on the measured values of a motor 3 $\times$ 380V at a constant speed of 2900rpm.
- Curve tolerance in conformity with ISO9906 .
- Measure is done with 20°C air-free water, kinematic viscosity of 1mm²/sec.
- The operation of pump shall refer to the performance region indicated by the thickened curve to prevent overheating due to too small flow rate or overload of motor due to too large flow rate.

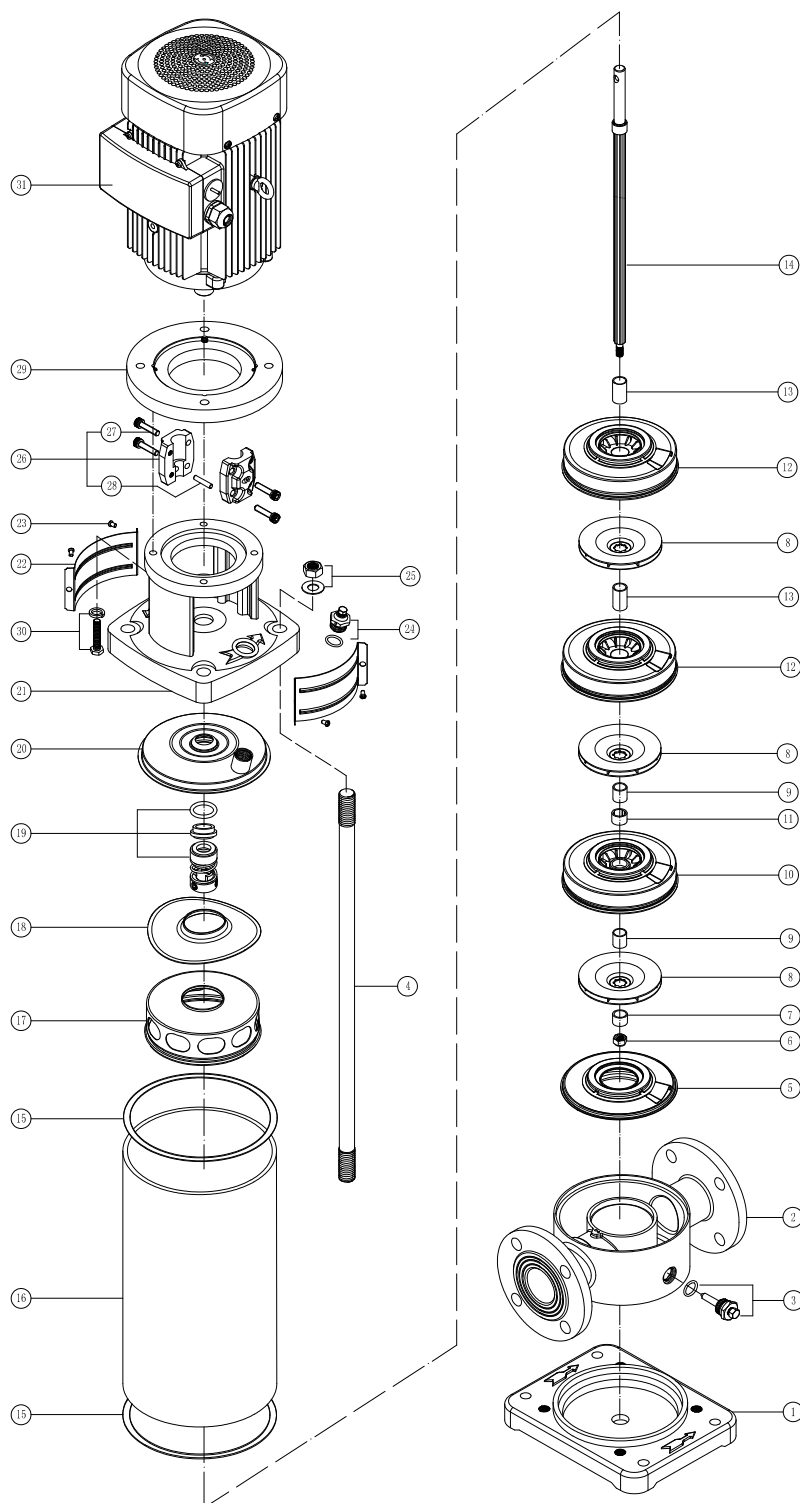
CD/CDF2,4 Exploded view



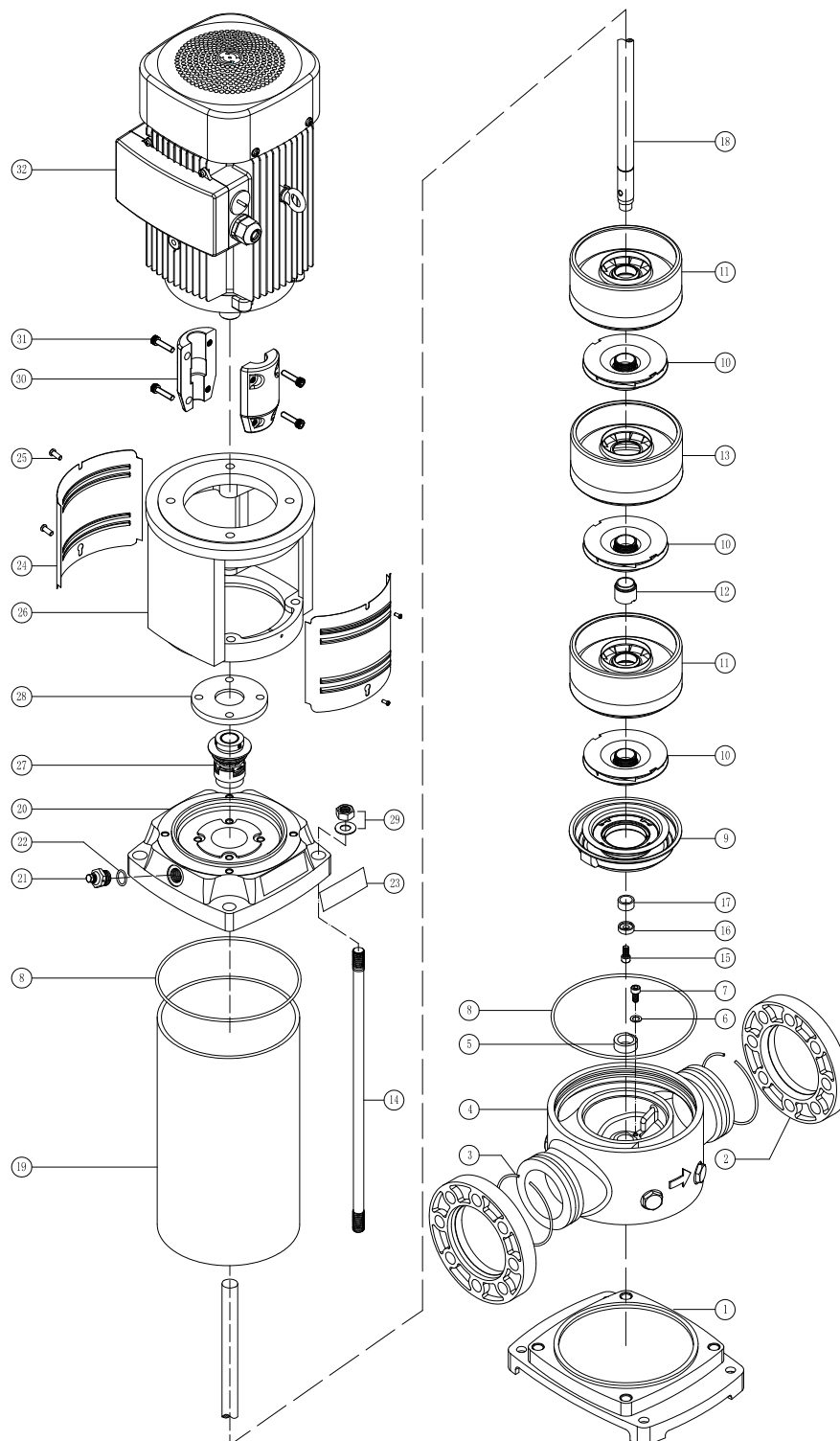
General Data



CD/CDF 8,16 Exploded view



CD/CDF 32,42 Exploded view



General Data



Parts name

NO	CD/CDF 2,4	CD /CDF 8,16	CD /CDF32,42
1	Base frame	Base frame	Base frame
2	Inlet and outlet section	Inlet and outlet section	Flange
3	By-pass valve	By-pass valve	Snap Ring
4	O-ring	Stay bolt	Inlet and outlet section
5	Out cylinder	Inducer	Lower bearing housing
6	Inducer	Lock nut	Gasket
7	Lock nut	Gland	M8 Hexagon head screw
8	Gland	Impeller	O-ring
9	Impeller	Bearing spacing pipe	Inducer
10	Bearing chamber	Bearing chamber	Impeller
11	Bearing	Bearing	Bearing chamber
12	Bearing spacing pipe	Chamber	Intermediate bearing
13	Chamber	Impeller spacing pipe	Chamber
14	Impeller spacing pipe	Shaft	Stay bolt
15	Top chamber	O-ring	M6 hexagon head screw
16	Shaft	Out cylinder	Gasket
17	Pin	Top Chamber	Bearing
18	Mechanical seal	Spring plate	Shaft
19	Waveshape spring	Mechanical seal	Out cylinder
20	Liner	Liner	Pump head
21	Stay bolt	Pump head	Air vent valve
22	Stay bolt nut	Coupling guard	Gasket
23	Screw	Screw	Nameplate
24	Coupling guard	Air vent valve	Coupling guard
25	Pump head	Stay bolt nut	Screw
26	Air vent valve	Coupling	Bracket
27	Coupling	Hexagon head screw	Mechanical seal
28	Hexagon head screw	Pin	Seal mat
29	Electric motor	Adapter flange	Stay bolt nut
30	Hexagon head screw	Hexagon head screw	Coupling
31		Electric motor	Hexagon head screw
32			Electric motor

Max inlet pressure

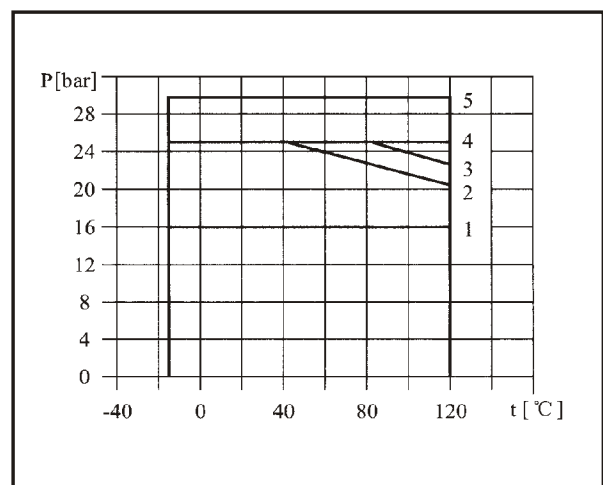
The max. inlet pressure is shown in the table below. But the actual inlet pressure plus the valve close pressure of the pump shall be lower than the max. allowable working pressure.

Model	Max inlet pressure
CD,CDF2	
CD,CDF2-20	6[bar]
CD,CDF2-30-2-110	10[bar]
CD,CDF2-130-2-260	15[bar]
CD,CDF4	
CD,CDF4-20	6[bar]
CD,CDF4-30-4-100	10[bar]
CD,CDF4-120-4-220	15[bar]
CD,CDF8	
CD,CDF8-20/1-8-60	6[bar]
CD,CDF8-80-8-200	10[bar]
CD,CDF16	
CD,CDF16-20-16-30	6[bar]
CD,CDF16-40-16-160	10[bar]
CD,CDF32	
CD,CDF32-10-1-32-20-2	3[bar]
CD,CDF32-20-32-40	4[bar]
CD,CDF32-50-2-32-100	10[bar]
CD,CDF32-100-2-32-140	15[bar]
CD,CDF42	
CD,CDF42-10-1	3[bar]
CD,CDF42-10-42-20	4[bar]
CD,CDF42-30-42-50	10[bar]
CD,CDF42-60-42-130-2	15[bar]

Max working pressure

Model	Curve number
CD,CDF2	
CD,CDF2-20-2-150	1
CD,CDF2-180-2-260	2
CD,CDF4	
CD,CDF4-20-4-140	1
CD,CDF4-160-4-220	2
CD,CDF8	
CD,CDF8-20/1-8-120	1
CD,CDF8-140-8-200	3
CD,CDF16	
CD,CDF16-20-16-80	1
CD,CDF16-100-16-160	3
CD,CDF32-	
CD,CDF32-10-1-32-70	1
CD,CDF32-80-2-32-120	4
CD,CDF32-13-2-32-140	5
CD,CDF42	
CD,CDF42-10-1-42-60	1
CD,CDF42-70-2-42-90	4
CD,CDF42-100-2-42-130-2	5

The following figure shows the limitation of pressure and temperature which shall be kept within the region as shown in the figure.



Minimum inlet pressure NPSH

In case that the pressure in pump is lower than the steam pressure used to convey liquid, the cavitations will occur. To avoid cavitations, a minimum pressure at the inlet side of the pump shall be guaranteed. The max. Suction lift H in metres head can be calculated as following formula:

$$H = P_b \times 10.2 - \text{NPSH} - H_f - H_v - H_s$$

P_b = Barometric pressure in bar.

(Barometric pressure can be set to 1 bar.)

In closed system, P_b indicates the system pressure in bar

NPSH = Net positive suction head in metres head.

(It can be read out from the point of possible max flow rate shown on NPSH curve)

H_f = Friction loss in suction pipe in metres head at the highest flow the pump will be delivering.

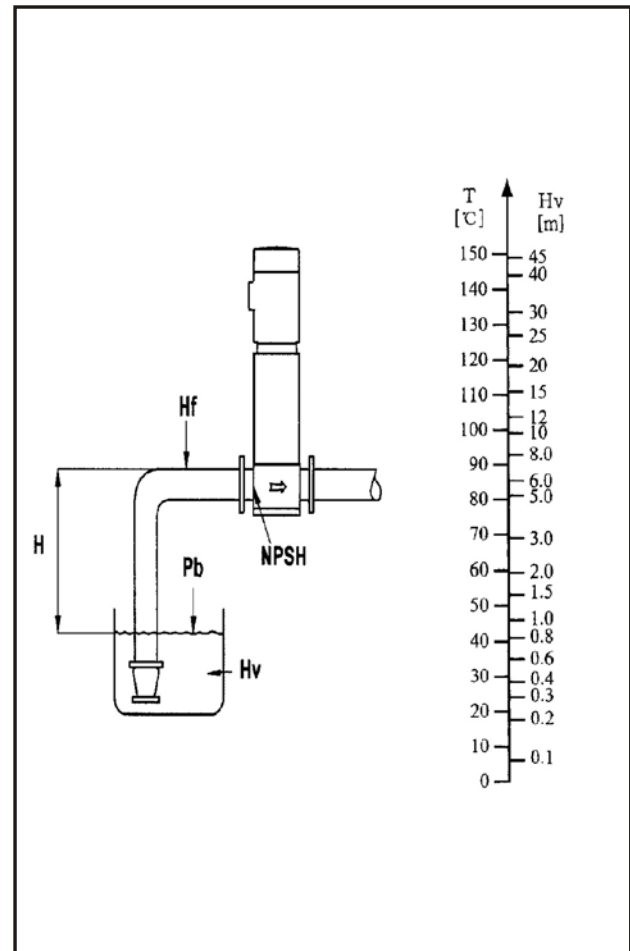
H_v = Vapour pressure in metres head, see fig

H_s = Safety margin = Minimum 0.5 metres head

If the calculated result H is positive, the pump can operate at a suction lift of max. H metres head.

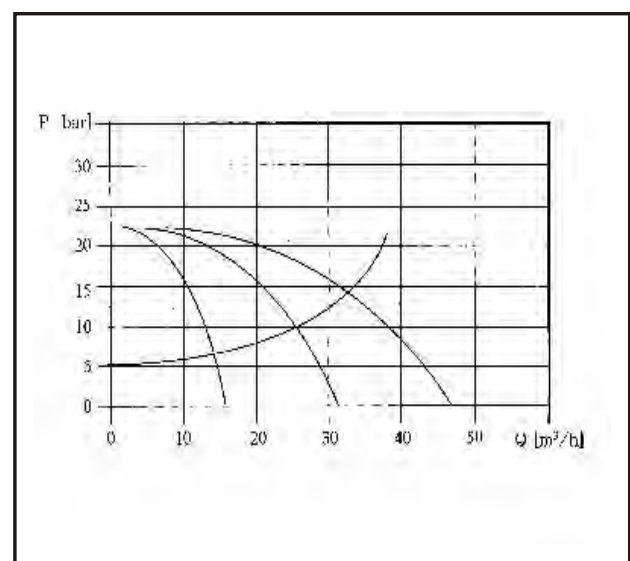
If the calculated result H is negative, an inlet pressure of minimum H metres head is required. There must be a pressure equal to the calculated H during operation.

Check and ensure that the pump is not in cavitations state



Operation in parallel

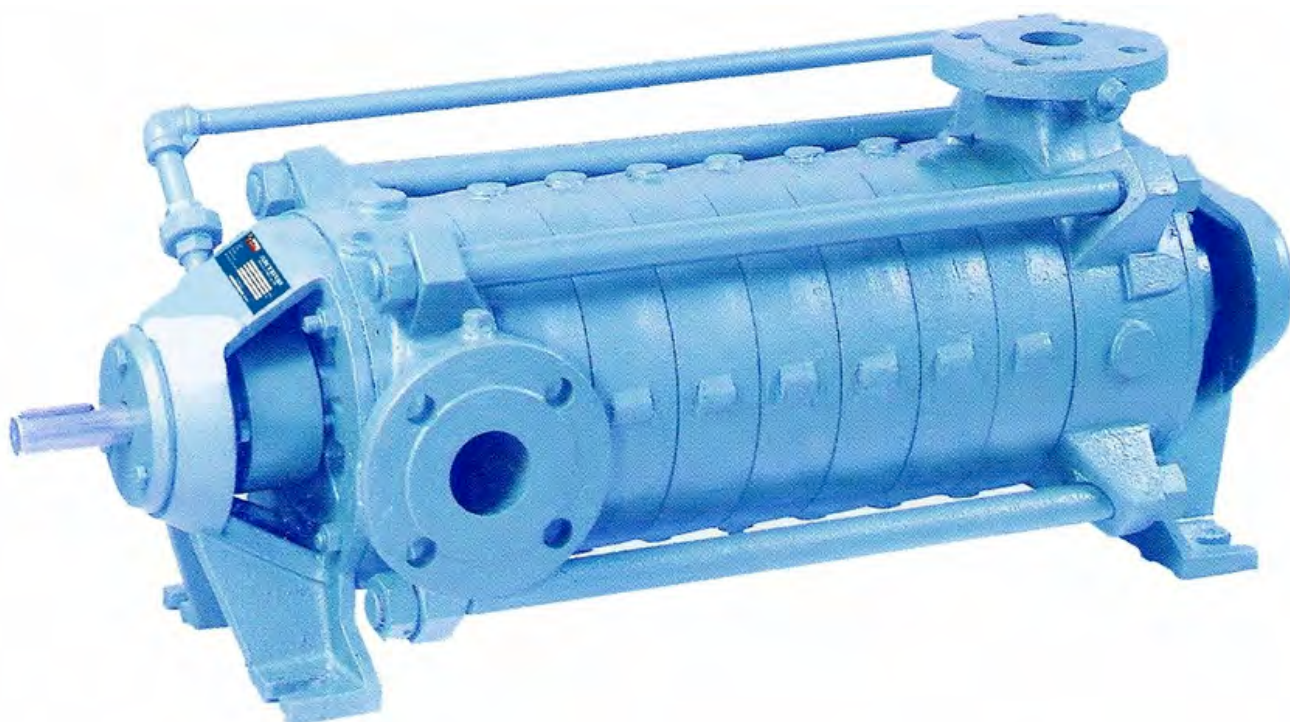
- Connection several pumps in parallel running will be much more benefit than running a single pump.
- Increasing the possibility of water supply when one pump is in failure, only part of the system flow is effected.
- Two pumps or more can be connected in parallel running if necessary.





Horizontal Multi-stage AMS Centrifugal Pump

50 Hz



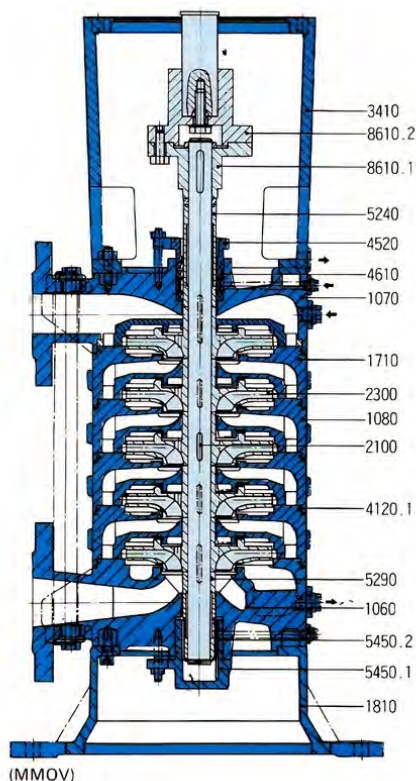
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AMS Multi-stage Pump



Horizontal or vertical ring section pumps with radial flow impellers, single flow, single or multi-stage, with radially split casings.

Pump sizes: DN32, 40, 50 and 65

Both horizontal and vertical pump sizes DN32 to 65 to a large extent use the same parts.

This means a small, and therefore economical, stock of spares.

Pump Casing

The suction, discharge and stage casings plus integral diffusers (DN 32 to 65) are made of high grade FC 25 cast iron (or FCD 40 ductile cast iron and bronze). O-rings between the individual casing components ensure the casing assembly is tightly sealed.

The orientations of the suction and discharge nozzles can easily be adapted to suit existing-piping arrangements. Pumps with three or more stages can have both nozzles pointing the same way, if desired.

Impellers

Established impeller combinations ensure there is a carefully graduated performance grid.

Shaft

The pump shaft runs in two bearings which are virtually maintenance-free. It is protected against abrasion along its full length within the pump by the shaft sleeves, spacer sleeves and impeller nuts (DN 32 to 65).

On the vertical **AMS** the pump and motor are direct coupled, which means the shaft is supported by the motor bearing and the bearing bush on the pump support stand.

Axial Thrust

The thrust is accommodated by sealing clearance gaps and balance bores.

Shaft Seal

Pump sizes 32 to 65 have packed glands for operation at pressures up to 30 bar and temperatures up to +110°C.

With suction lift or vacuum operation the packed glands incorporate lantern rings which are supplied with sealing liquid either from the discharge side of the pump or from an external source. For operating pressures up to 40 bar and temperatures up to +140°C the

AMS sizes 32 to 65 are supplied with maintenance-free mechanical seals.

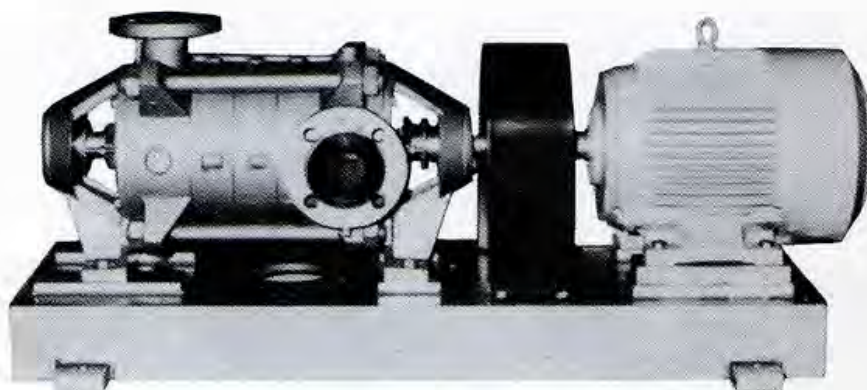
Cooling

No cooling is required throughout the temperature range covered by these pumps. This eliminates the need for cooling water, feed and return piping or monitoring instruments.

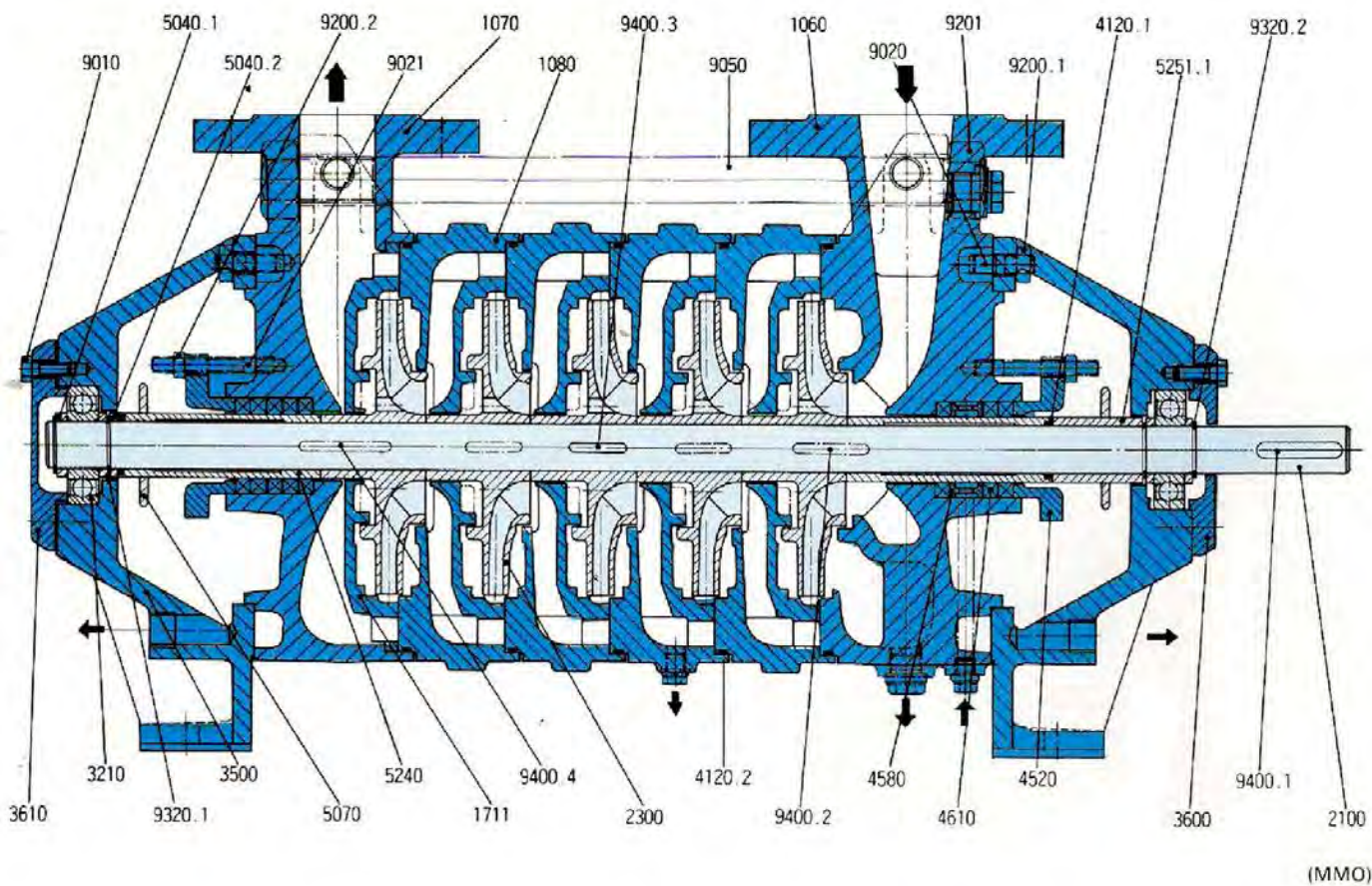
Installation

On the horizontal **AMS**, the pump feet are integrally cast on the bearing housing. The pump and flexibly coupled drive motor are mounted on a common baseplate.

The vertical **AMS** rests on a support stand which is bolted to the suction casing; the motor sits on a drive stand.



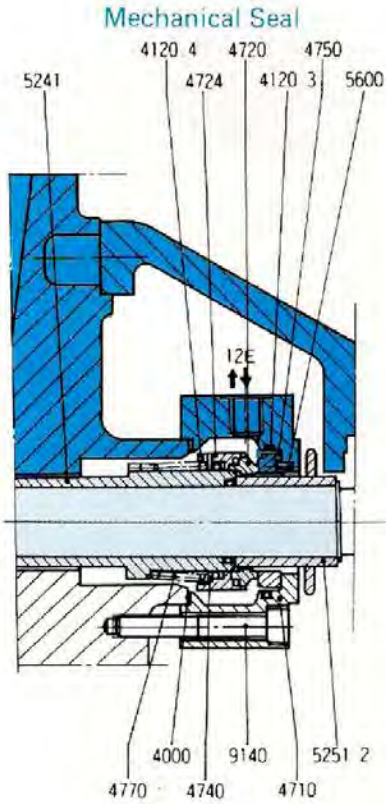
AMS Multi-stage Pump



Part No.	Part Designation
1060	Suction casing
1070	Discharge casing
1080	Stage casing
1711	Final stage diffuser
1810	Support stand
2100	Shaft
2300	Impeller
3210	Deep groove ball bearing
3410	Drive stand
3500	Bearing housing
3600	Bearing cover
3610	Bearing end cover
4120.1	O-ring
4120.2	O-ring
4520	Stuffing box gland
4580	Lantern ring
4610	Stuffing box packing
5040.1	Spacer ring
5040.2	Spacer ring
5070	Thrower
5240	Shaft protecting sleeve
5251.1	Spacer sleeve
5290	Bearing sleeve
5450.1/2	Bearing bush
8610.1/2	Half coupling
9010	Hex. head bolt
9020	Stud
9021	Gland bolt
9050	Tie bolt

Part No.	Part Designation
9200.1	Hex. nut
9200.2	Hex. nut
9201	Threaded plug
9320.1	Circlip
9320.2	Circlip
9400.1	Key
9400.2	Key
9400.3	Key
9400.4	Key

Part No.	Part Designation
4000	Flat gasket
4120.3	O-ring
4120.4	O-ring
4710	Seal cover
4720	Washer
4724	Back up ring
4740	Stopper
4750	Seat
4770	Spring
5241	Seal sleeve
5251.2	Spacer sleeve
5600	Pin
9140	Hex. bolt



AMS Multi-stage Pump



Material combination

Part Designation	Materials
Suction casing, Stage casing	Cast iron, Bronze
Discharge casing	Cast iron, Bronze, Carbon steel, Ductile cast iron
Impeller	Cast iron, Bronze
Shaft	Carbon steel, Chromium steel
Shaft protecting sleeve	Cast iron, Bronze, Chromium steel

Simple and high performance design contributes to reduction of equipment cost and energy-saving.
Hydrodynamically simplified pump design resulted in attractive cost reduction. Besides not only the number of stages is lower but also pump size is smaller maintaining the same performance as our former models.

Shaft seal requires no cooling for temperature range up to 140°C.
Elimination of cooling water feed and return piping and monitoring instruments.

Nozzle orientation can be freely chosen.
The pump feet, integrally cast onto the bearing housings, allow free orientation of both suction and discharge nozzles, as illustrated on the right.

Variable nozzle orientations are available, as illustrated on the right.

Variety of material combination.
Various materials are available, so as to provide wide application range.

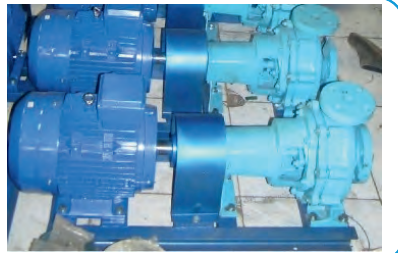
ARTHUR. AMS, high pressure centrifugal pumps are pumps of ring section type. They are suitable for clean media free from abrasive and solid particles and not liable to attack the pump mechanically (abrasion) or chemically (corrosion).

Applications
They are used in waterworks, pressure boosting stations, sprinkling and irrigation installations, fountains, fire-fighting systems and in mechanical engineering. They handle boiler feedwater and condensate, circulate cooling water and hotwater and are used for power water generation and in carwashes.

Performance range
Capacity up to 36 l/s (130 m³/h)
Total head up to 400 m
Operating pressures up to 40 bar
Operating temperatures up to +110/140 °C

ARTHUR. AMS pumps can also be used as circulating pumps in high pressure systems because even the suction casing is designed for 40 bar.
The only restriction is that the sum of the maximum suction pressure plus total head must not exceed 40 bar at zero capacity.
Horizontal version
Vertical version

IS END SUCTION CENTRIFUGAL PUMP



IS Series, are single-stage single suction horizontal end suction centrifugal pumps designed for clean water or similar liquids in water supply, fire fighting, sprinkler and drainage applications in municipal, industrial and agricultural irrigation projects.



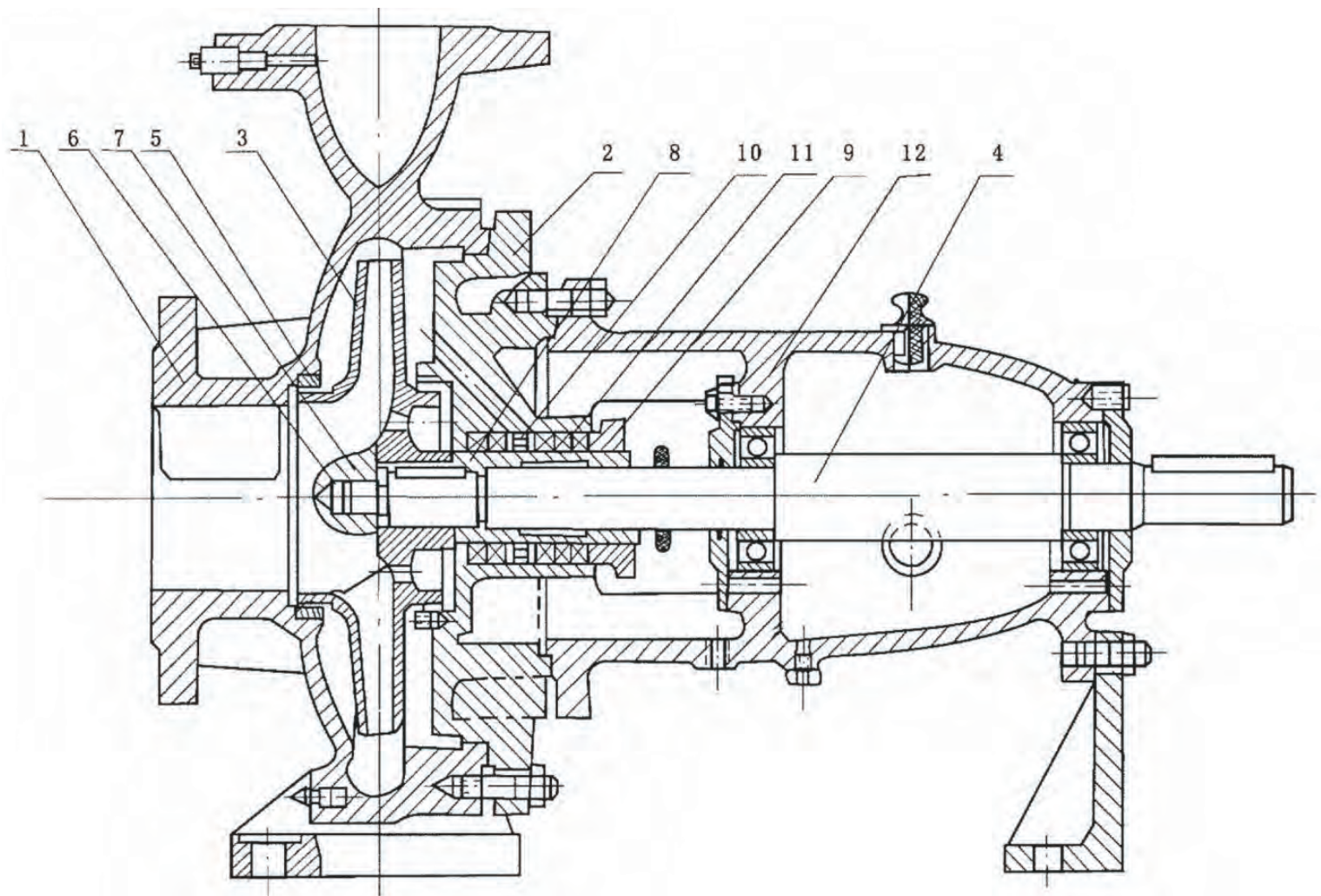
PT. BERJAYA MAKMUR INDONESIA

Komplek DDN, Jl Danau Cibubur Asri II, Kav.23, Harjamukti,
Cimanggis, Kota Depok, Jawa Barat 16454

Phone: (021)38852384, Email: berjayamakmur99@gmail.com

Website : www.berjaya-makmur-indonesia.co.id

CONFIGURATION DRAWING



1. Pump casing
2. Pump Cover
3. Impeller
4. Shaft
5. Wear ring

6. Impeller Cap
7. Braking Pad
8. Shaft Sleeve
9. Gland Packing /
Mechanical Seal

10. Seal Cage
11. Packing
12. Cantilever Bearing
Assembly





Features

- **Designed** in accordance with ISO2858 International Standard.
- **Back slide** cover construction facilitated service and repairing work. Rotor may be easily pull out without having to disturb suction and discharge pipes.
- **Soft packing** for shaft sealing.
- **Flexible** spacer coupling.

Performance Data

Performance Data : 6.3 ~ 400m
Head Range : 5 ~ 125m
Suction Dia : 50 ~ 200
Pump Speed : 1450/2900 rpm
Fluid Temp : up to 80

Model Nomenclature

e.g. IS80-65-160A
IS — Single Stage End Suction
Centrifugal Pump
80 — Suction Dia. (mm)
65 — Discharge Dia. (mm)
160 — Impeller Dia. DN (mm)

Variations:

A — Impeller

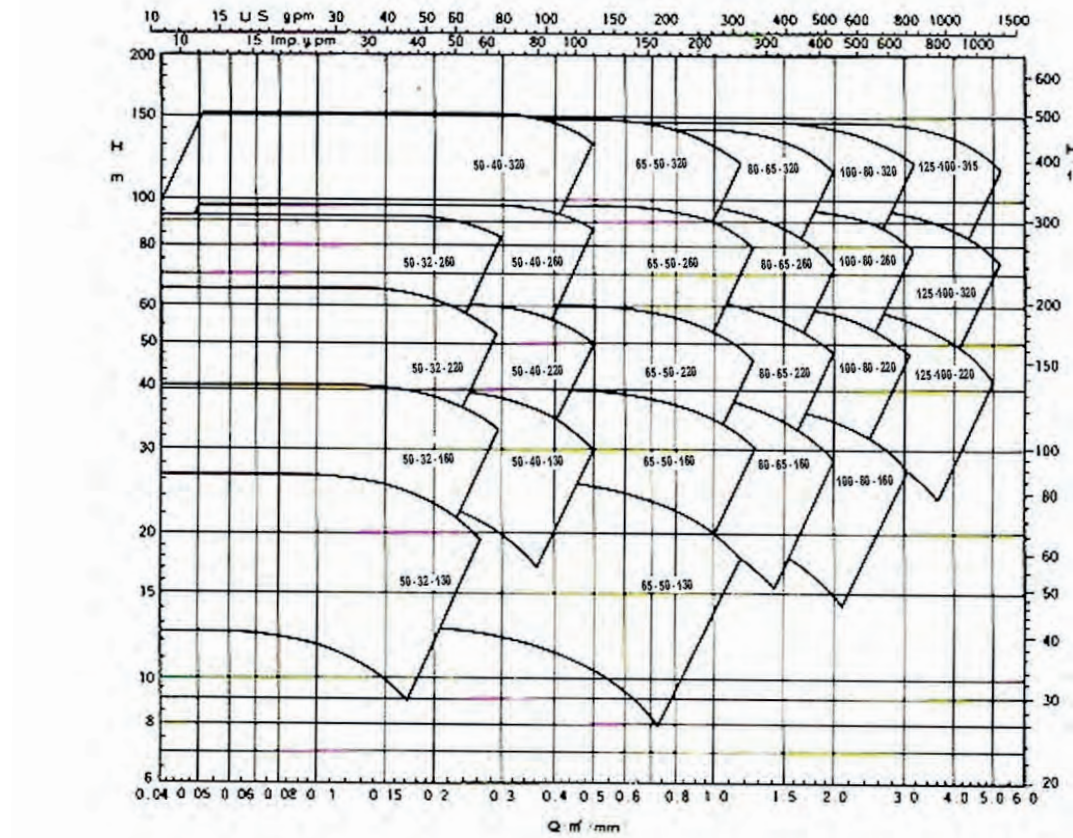
Materials of Construction

Casing & Cover : Cast/ductile iron
Shaft : Carbon steel, Stainless steel
Impeller : Ductile cast iron,
Cast steel and St. steel
Sealing : Packing or mechanical seal
Packing or
mechanical seal : Cast iron
Seal Ring : Cast iron

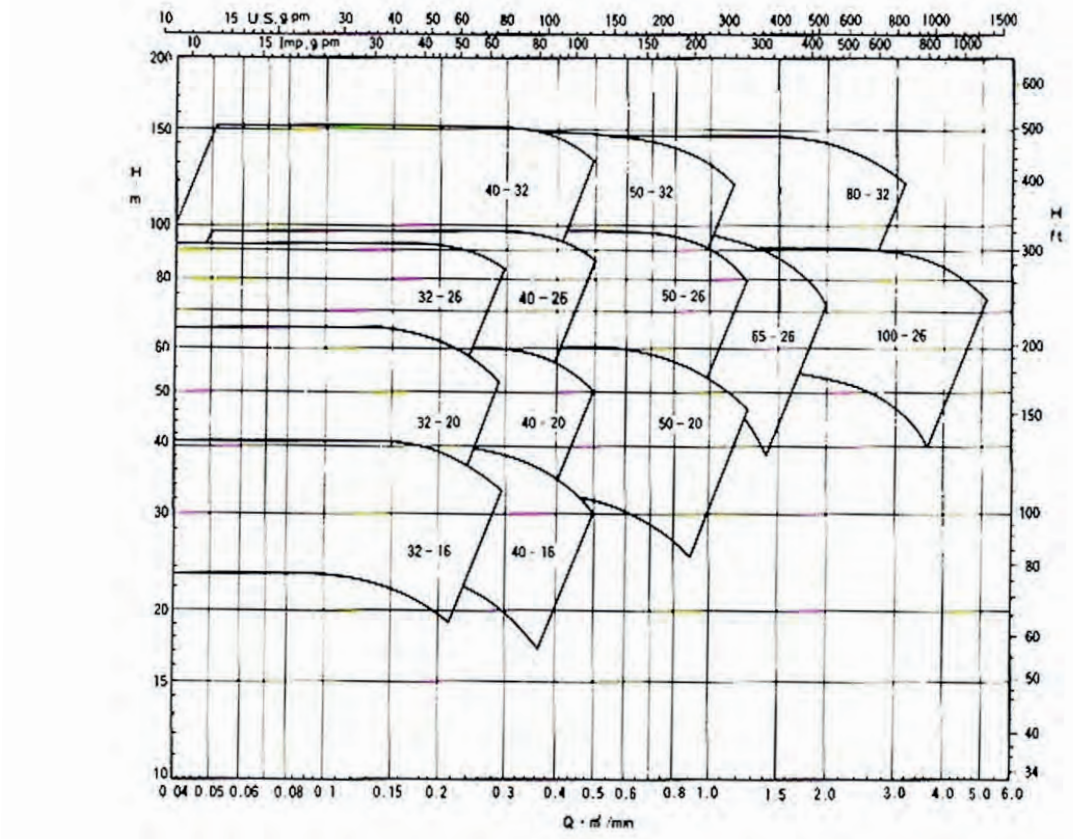


n=2900 rpm

Family curve 50 Hz



n=1450 rpm





Submersible Pumps

50 Hz



New Generation For Pumps



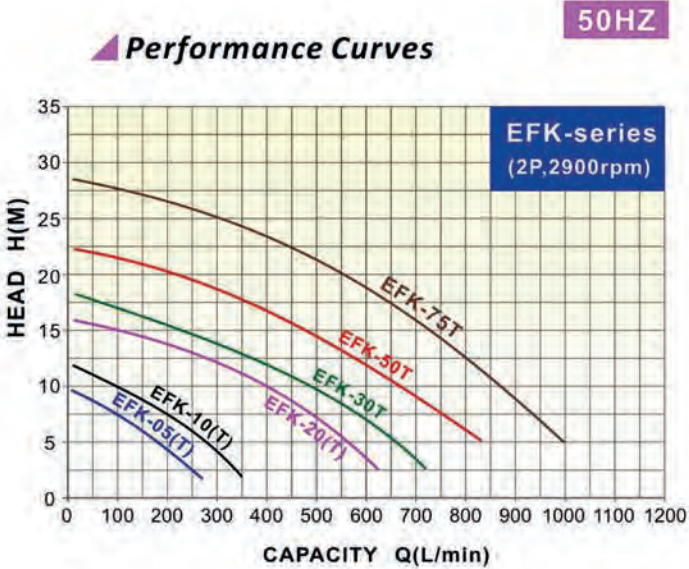
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EFK - SERIES SUBMERSIBLE SEWAGE PUMPS



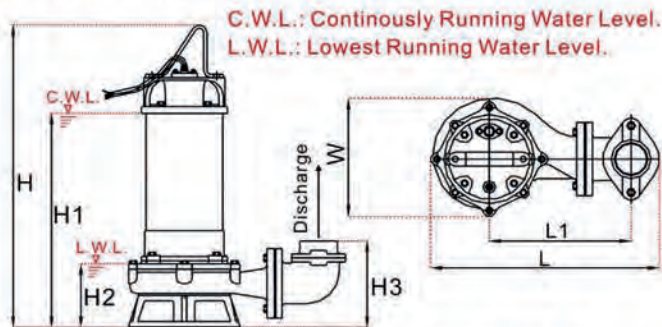
Features

- Impeller is tipped with tungsten cutter to cut off hard objects and prevents impeller from being damaged by hard articles.
- Epoxy resin cable base, 2p dry motor, C3 deep groove bearing, dual mechanical seals, auto-cut protector.

Applications

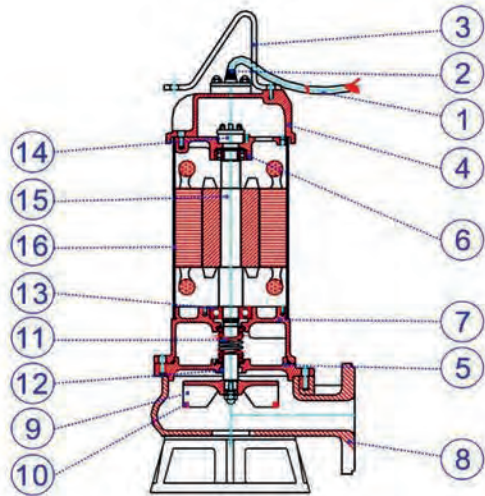
- Sewage drainage from hospitals, schools, husbandry, buildings, stock farm, plants, subway tunnel...etc.
- Dewatering waste water containing hard objects, like sticks, excrement, tiny gravel...etc.

Specification & Dimensions



NOTE: Forbid running submersible pumps continuously under L.W.L.

Parts and Materials List



NO	Part	Std. Material	NO	Part	Std. Material
1	Cable	VCT	9	Impeller	FCD450
2	Cable Hood	PVC	10	Cutter edge	Tungsten
3	Handle	Nylon6/SS400	11	Mech. Seal	CA/CE
4	Motor Cover	Nylon66/ FC200	12	Oil Seal	VITON
5	Seal Housing	FC200	13	Bearing	(NTN brand)
6	Bracket	FC200	14	Protector	(T.I. brand)
7	Oil Chamber	FC200	15	Shaft	SUS410
8	Pump Casing	FC200	16	Motor Housing	SUS304

● Mech.seal (sic/sic) material is optional upon request.

Model	Power		Disch.	Phase	Rated		Max.		Dimensions (mm)							Cable	Net Weight	Solid Passage
	KW	HP			Head	Capacity	Head	Cap.	L	L1	W	H	H1	H2	H3			
EFK-05(A)(T)	0.37	0.5	2"	1,3	5~6	180~150	9.5	300	222	115	145	361	248	64	84	5	13	22
EFK-10(A)(T)	0.75	1	2"	1,3	6~7.5	250~200	12	400	222	115	149	416	292	64	84	5	18	22
EFK-20(A)(T)	1.5	2	2"(3")	1,3	10~11	400~350	16	650	403	250	212	541	393	115	169	5	33	22
EFK-30T	2.2	3	2"(3")	3	11~12	450~400	18	750	403	250	212	561	413	115	169	5	35	22
EFK-50T	3.7	5	3"(4")	3	12~13	600~550	22.5	1000	463	260	227	610	445	138	220	5	55	28
EFK-75T	5.5	7.5	3"(4")	3	12.5~15	800~730	28	1100	463	260	227	650	485	138	220	5	61	28

Remarks: ● (A): Equipped with automatic float switch. ● (T): Three phase motor. ● 10M cable are available for 0.5~7.5HP models per special request.

EA - SERIES

SUBMERSIBLE SUMPIT PUMPS



Applications

- Wastewater, sump drainage from basement of buildings, hotels, schools, restaurants, malls, subway, construction site, public places..etc.
- Rainwater effluent, accumulated water drainage ,flood control, water circulation of aquaculture and landscape ponds..etc.

Features

- Dry motor with overload protector; Cable with an epoxy resin sealed water-proof cable hood; Use deep groove C3 bearing to extend life time.
- Superior abrasion resistant double mechanical seal to ensure best seal effect.
- Oil seal mounted outside of seal chamber stops solids gathering around seal faces.
- Equipped with SUS304 strainer to prevent impeller from being blocked or damaged by sewage or solids.

Motor Spec.

- 2P dry type motor.
- Insulation: F class.
- Protection: IP68.
- Frequency: 50HZ.
- Voltage: 1ø220~240V(0.5~2HP).
- 3ø220~440V(all models)

Optional

Sub. pump with guide rail device is available.

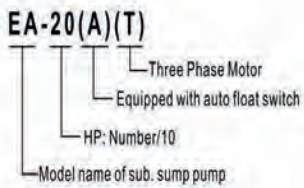
Optional

Single phase sub. pump equipped with auto float switch. (0.5HP~2HP)

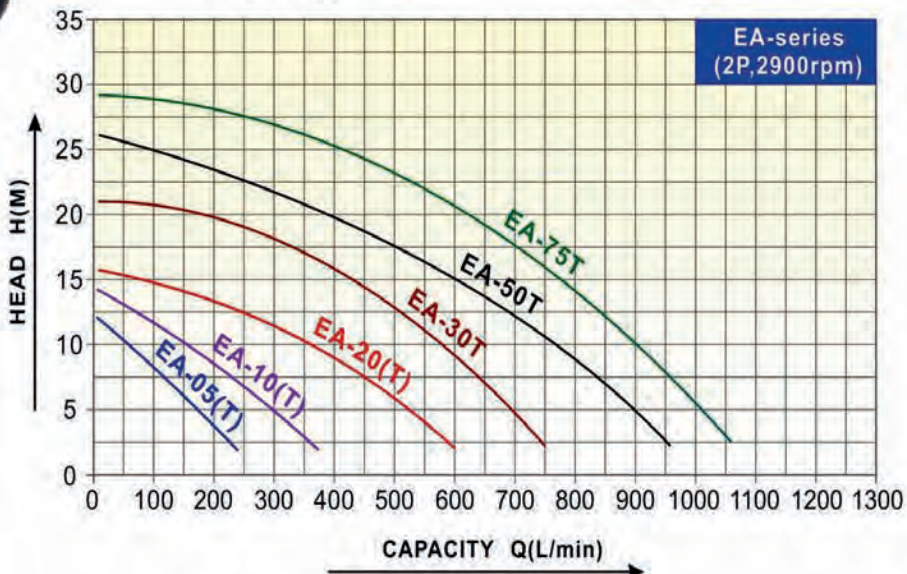
Operating Conditions

- Water temperature: 0~40°C.
- Ambient temperature: 0~40°C.
- Solid passage: 6MM.
- Operating water depth: 8~10M.
- No use in sea water and high-corrosive liquids.
- No 24hrs continuously running..

Model Code



Performance Curves

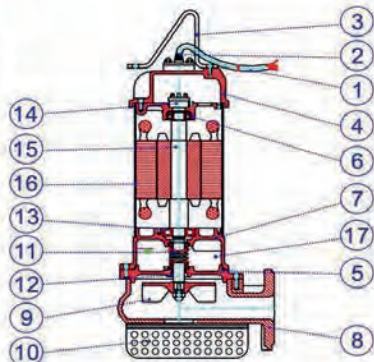


Model	Power		Disch	Phase	Rated		Max.		Dimensions (mm)								Cable	Net Weight	Solid Passage
					Head	Capacity	Head	Cap.											
	kW	HP	Inch	φ	M	LPM	M	LPM	L	L1	W	H	H1	H2	H3	M	KG	MM	
EA-05(A)(T)	0.37	0.5	2"	1,3	5~6	175~150	12	260	221	115	141	373	260	76	97	5	13	6	
EA-10(A)(T)	0.75	1	2"	1,3	8~10	220~155	14	400	330	193	173	451	327	100	155	5	23	6	
EA-20(A)(T)	1.5	2	2"(3")	1,3	9~10	400~360	15.5	650	403	250	212	536	388	110	164	5	33	6	
EA-30T	2.2	3	2"(3")	3	11~15	550~430	21	800	403	250	212	556	408	110	164	5	35	6	
EA-50T	3.7	5	3"(4")	3	12~15	720~600	26	1000	463	260	227	605	440	132	215	5	55	6	
EA-75T	5.5	7.5	3"(4")	3	16~18	750~680	29	1100	463	260	227	645	480	132	215	5	61	6	

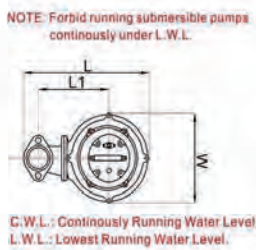
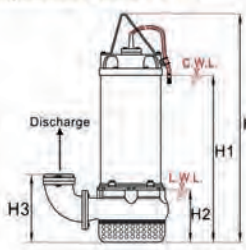
Remarks: (A): Equipped with automatic float switch. (T): Three phase motor. 10M cable are available for 0.5~7.5HP models per special request.

Parts and Materials List

No.	Parts	Std. Material
		EA Model
1	Cable	VCT
2	Cable hood	PVC
3	Handle	Nylon6 or SS400
4	Motor cover	Nylon66 or FC200
5	Seal housing	FC200
6	Bracket	FC200
7	Oil chamber	FC200
8	Pump casing	FC200
9	Impeller	FC200
10	Strainer	SUS304
11	Mech. seal	CA/CE
12	Oil seal	NBR
13	Bearing	(NTN or NSK brand)
14	Overload protector	(T.I.brand)
15	Shaft	SUS410
16	Motor housing	SUS304
17	Lubricant oil	(Turbine Oil ISO VG46)



Specification & Dimensions



EF - SERIES

SUBMERSIBLE SEWAGE PUMPS



Applications

- Waste water drainage from all industries.
- Sewage drainage from hotels, restaurants, schools, malls, and public facilities.
- Fishery, animal husbandry, stock farm, piggery, fecal sewage tank in waste water treatment plant.
- Drainage of waste water containing fibrous additives from leather factory, dyeing factory and food processing factory.

Features

- Non-clogging impeller minimizes abrasives wear and allows large solid passage.
- Dry motor with overload protector; Cable with an epoxy resin sealed water-proof cable hood; Use deep groove C3 bearing to extend life time.
- Superior abrasion resistant double mechanical seal to ensure best seal effect.
- Oil seal mounted outside of seal chamber stops solids gathering around seal faces.

Motor Spec.

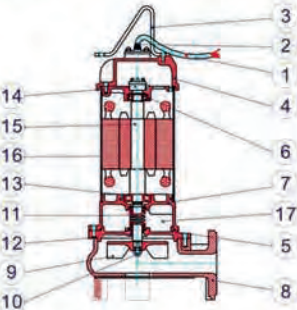
- 2P dry or oil type motor.
- Insulation: F class.
- Protection: IP68.
- Frequency: 50HZ
- Voltage: 1ø220~240V(0.5~2HP)
3ø220~660V(all models)



Parts and Materials List

No.	Parts	Std. Material
		EF Model
1	Cable	STOW or VCT
2	Cable hood	PVC
3	Handle	Nylon6 or SS400
4	Motor cover	Nylon66 or FC200
5	Seal housing	FC200
6	Bracket	FC200
7	Oil chamber	FC200
8	Pump casing	FC200
9	Impeller	FC200
10	Nut	SUS304
11	Mech. seal	CA/CE
12	Oil seal	NBR
13	Bearing	(NTN brand)
14	Overload protector	(T.I. brand)
15	Shaft	SUS410
16	Motor housing	SUS304
17	Lubricant oil	(Turbine Oil ISO VG46)

* Mech. seal (sic/sic) material is optional upon request.

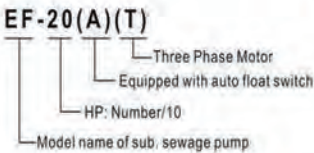


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Operating Conditions

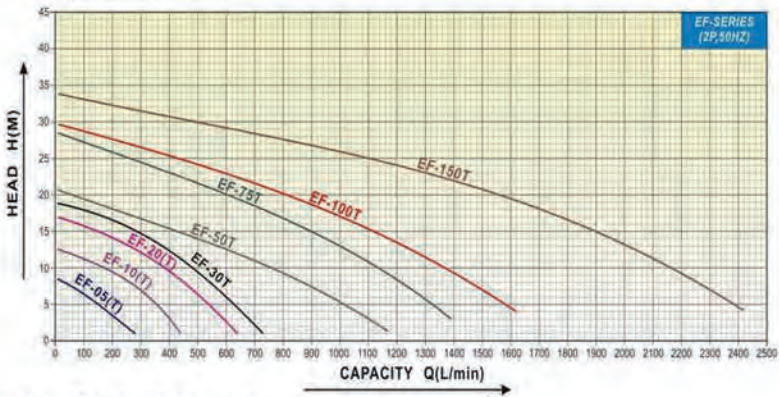
- Water temperature: 0~40°C.
- Ambient temperature: 0~40°C.
- Solid passage: 35~50MM.
- Operating water depth: 8~10M.
- No use in sea water.
- No 24hrs continuously running.

Model Code

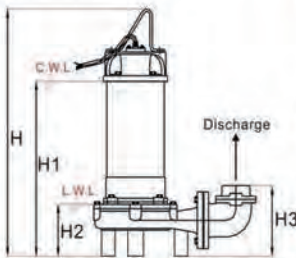


50HZ

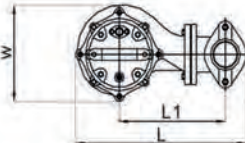
Performance Curves



Specification & Dimensions



NOTE: Forbid running submersible pumps continuously under L.W.L.

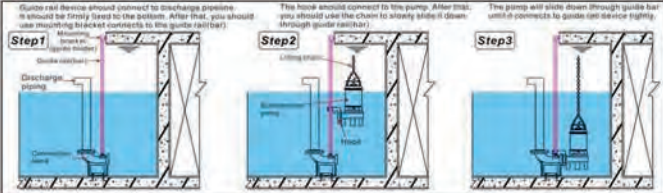


C.W.L.: Continuously Running Water Level.
L.W.L.: Lowest Running Water Level.

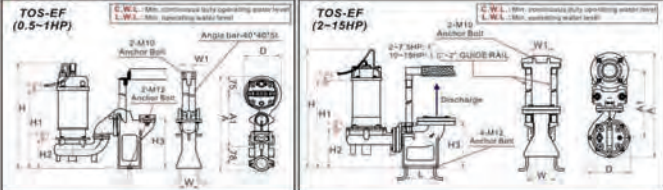
Model	Type	Power				Rated				Max.		Dimensions (mm)								Cable	Net Weight	Solid Passage
		kW	HP	Inch	φ	Head	Capacity	Head	Cap.	L	L1	W	H	H1	H2	H3	M	KG	MM			
EF-05(A)(T)	Direct	0.37	0.5	2"	1.3	4-5	180-150	8.5	300	222	115	145	410	297	113	133	5	13	35			
EF-10(A)(T)	Direct	0.75	1	2"	1.3	8-9	260-220	12.5	460	222	115	149	464	340	113	133	5	18	35			
EF-20(A)(T)	Direct	1.5	2	2"(3")	1.3	9-10	420-380	17	650	387	234	208	548	400	122	153	5	33	35			
	Elbow									316	163	208	548	400	122	153	5	30	35			
EF-30T	Direct	2.2	3	2"(3")	3	10-11	480-450	19	750	387	234	208	568	420	122	153	5	35	35			
	Elbow									316	163	208	568	420	122	153	5	32	35			
EF-50T	Elbow	3.7	5	3"(4")	3	11-14	700-500	21	1200	459	256	227	638	471	160	220	5	55	50			
EF-75T	Elbow	5.5	7.5	3"(4")	3	13-15	1000-900	28.5	1450	459	256	227	678	511	160	220	5	61	50			
EF-100T	Elbow	7.5	10	4"	3	15-17	1120-1000	30	1700	550	280	310	680	511	210	250	5	87	50			
EF-150T	Elbow	11	15	4"	3	15-18	1900-1700	34	2500	560	310	310	730	580	250	310	10	110	50			

Remarks: (A): Equipped with automatic float switch. (T): Three phase motor. *10M cable are available for 0.5~10HP models per special request.

Installation Diagram:



Dimensions:



Model	Power	Disch.	Dimensions(mm)													Weight(KG)	
	HP	Inch	A	A1	D	H	H1	H2	H3	L	W	W1	TOS Device	TOS Pump			
TOS-EF-05(T)	0.5	2"	425	240	150	422	307	150	225	---	---	80	35	6	10		
TOS-EF-10(T)	1	2"	425	240	150	502	377	150	225	---	---	80	35	6	24		
TOS-EF-20(T)	2	3"	545	350	210	650	480	210	243	110	140	70	16	16	49		
TOS-EF-30T	3	3"	545	350	210	670	500	210	243	110	140	70	16	16	51		
TOS-EF-50T	5	4"	725	515	230	745	580	270	310	160	150	70	24	24	79		
TOS-EF-75T	7.5	4"	725	515	230	785	620	270	310	160	150	70	24	25	85		
TOS-EF-100T	10	4"	820	550	290	750	550	280	330	210	125	245	38	125	125		
TOS-EF-150T	15	4"	770	510	310	785	635	305	360	180	125	245	40	150	150		

Remarks: * TOS means cast iron guide rail device. (Q.D.C-Quick Discharge Device) * T means 3 phase motor.



Submersible Pumps

STAINLESS STEEL MULTISTAGE DEEP - WELL SUBMERSIBLE PUMP
50Hz



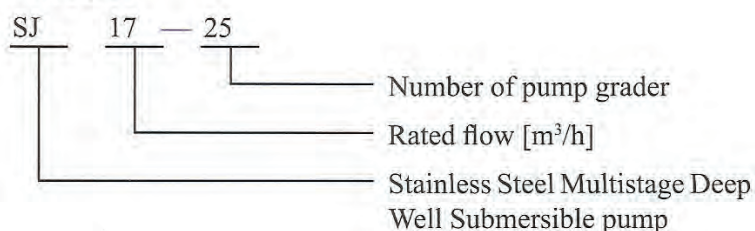
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Website : www.berjaya-makmur-indonesia.co.id

General Data



Definition of Model



Typical applications

- Water supply and irrigation system
- Lowering underground water level
- Booster
- Various industrial application

Working Conditions

- Solid grain or fiber free dilute clean non-corrosive liquids;
- Maximum liquid temperature: 20°C
- Maximum working pressure: 30 bar
- PH: 6.5~8.5

Scope of application

- This series is applicable to circulation and pressurizing of the clean water and softened water ;
- This series is made from stainless steel 304 and has good corrosive resistance for conveying cold water containing small amount of oxides. It is also used for conveying slightly alkaline water and de-mineralized water. Pump made from stainless 316 and FPM is applicable to conveying highly corrosive liquid.

Curve conditions

- The curve tolerance complies with ISO9906 shown in attachment A.
- All curves are based on the measured values of 3 × 380V, 50Hz, 2850r/min.

- All measurements are carried out with gas-free water of temperature 20°C. The curve is applicable to kinematical viscosity 1 mm²/s. In case density of the liquid conveyed by the pump is higher than that of water, it is necessary to use corresponding motor of higher output power.
- The coarse part of the curve means the recommended performance scope.
- The performance curve includes loss caused by check valve etc.

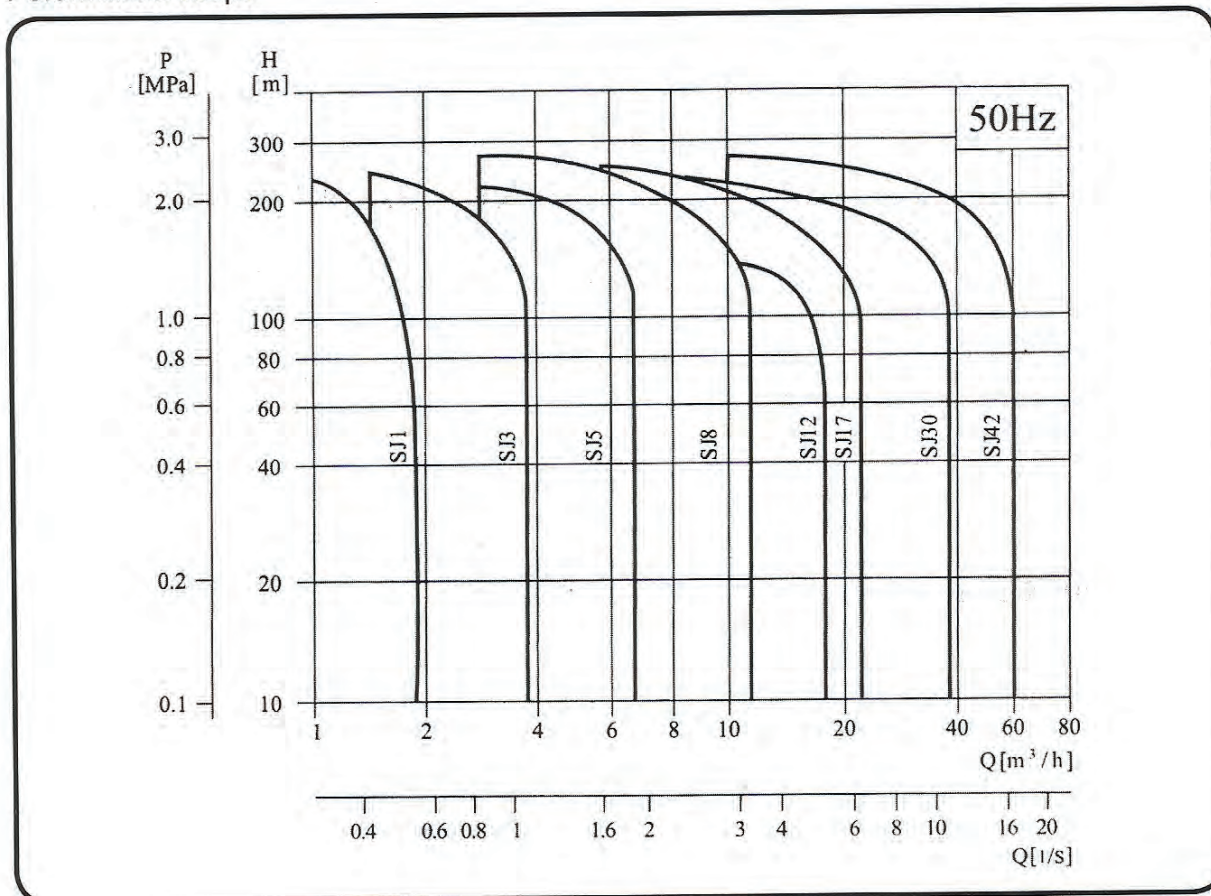
Performance curve

- Q/H curve means flow and the curve of lifting height under the rated speed.
- Power curve: P2 means input power of each grade
- Efficiency curve: Eta means the grade efficiency of the pump

Motor of oil-filling type

- 4" motor, single phase, maximum power up to 1.5kW
- 4" motor, three phase, maximum power up to 7.5kW
- 6" motor, three phase, power from 9.2kW to 30kW

Performance scope



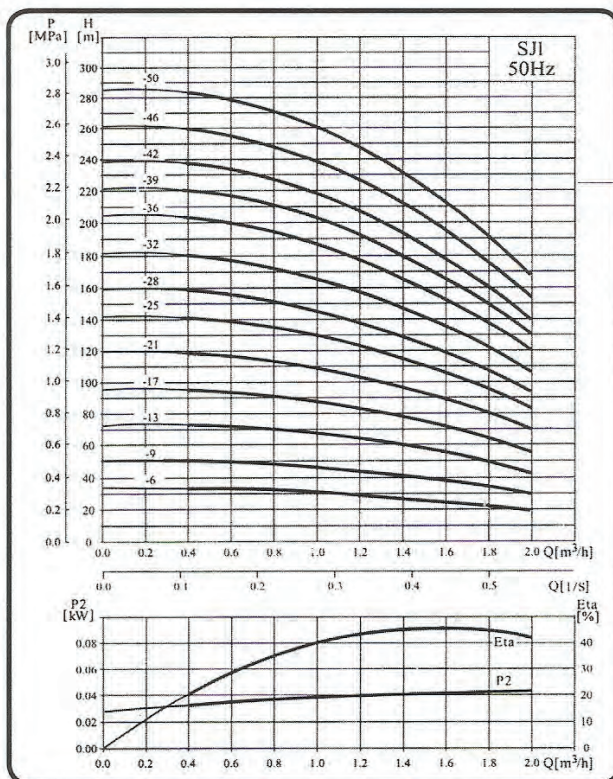
Product range

Description	SJ1	SJ3	SJ5	SJ8	SJ12	SJ17	SJ30	SJ42
Rated flow rate [m³/h]	1	3	5	8	12	17	30	42
Rated flow rate [l/s]	0.28	0.83	1.39	2.22	3.33	4.72	8.33	11.7
Flow range [m³/h]	0.8~1.8	1.2~4	2.5~6.5	3~11	6~18	6~22	8~38	10~60
Flow range [l/s]	0.1~0.5	0.3~1.1	0.7~1.8	0.8~3.1	1.6~5	1.6~6.1	2.2~10.5	2.8~16.5
Max. Pressure [bar]	28	25	22	26	16	28	28	27
Motor power [kW]	0.37~2.2	0.37~3	0.37~4	0.75~7.5	1.5~7.5	0.55~15	1.1~22	1.1~30
Max. efficiency [%]	44	53	59	60	60	70	72	74
Pipe screw joint	G1¼	G1¼	G1½	G2	G2	G2½	G3	G3

Technical Data

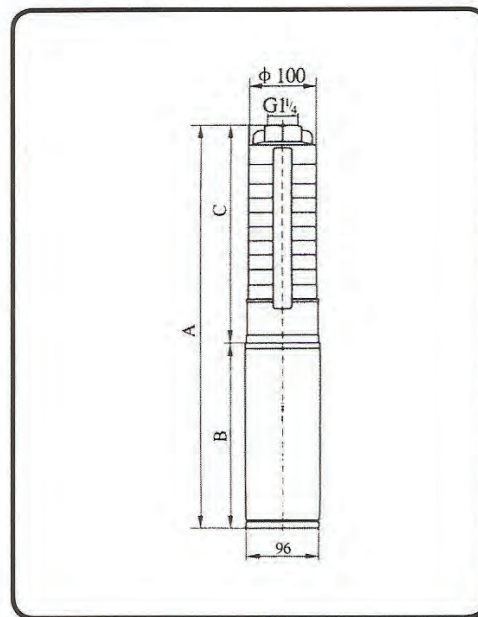


Performance Curve



SJ1

Installation sketch



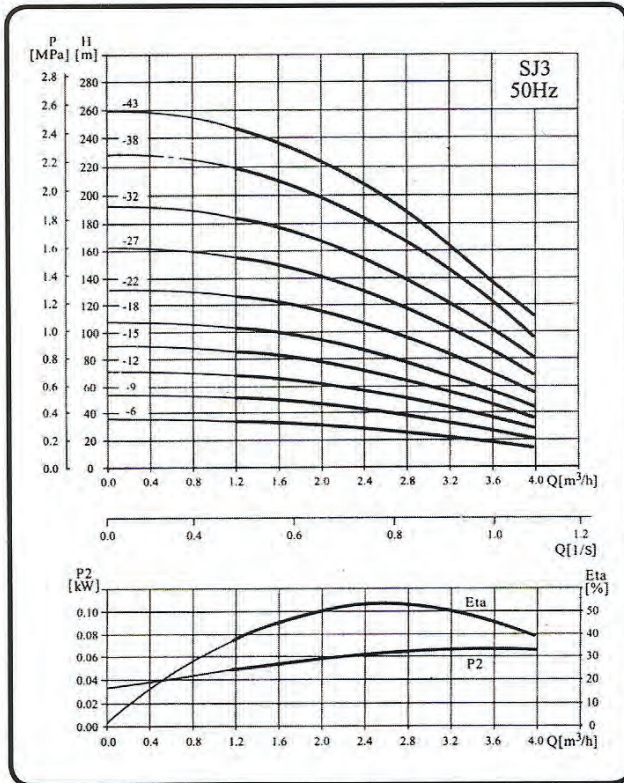
Performance table

Model	(kW)	Q (m³/h)	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0
SJ1-6	0.37	H (m)	33	32	31	30	29	27	25	22	19
SJ1-9	0.37		50	49	48	46	44	41	38	34	29
SJ1-13	0.55		72	71	69	67	64	60	55	49	42
SJ1-17	0.75		95	92	90	87	84	78	71	64	55
SJ1-21	1.1		118	115	112	108	103	97	89	80	69
SJ1-25	1.1		140	137	134	129	123	116	106	95	82
SJ1-28	1.5		157	153	150	145	138	130	119	107	92
SJ1-32	1.5		179	175	171	165	158	148	136	122	105
SJ1-36	1.5		202	197	192	186	178	167	153	137	118
SJ1-39	2.2		219	214	209	202	193	181	166	149	128
SJ1-42	2.2		136	230	225	217	208	195	179	160	137
SJ1-46	2.2		258	252	246	238	227	213	196	176	151
SJ1-50	2.2		282	276	269	260	248	233	214	192	165

Size and weight

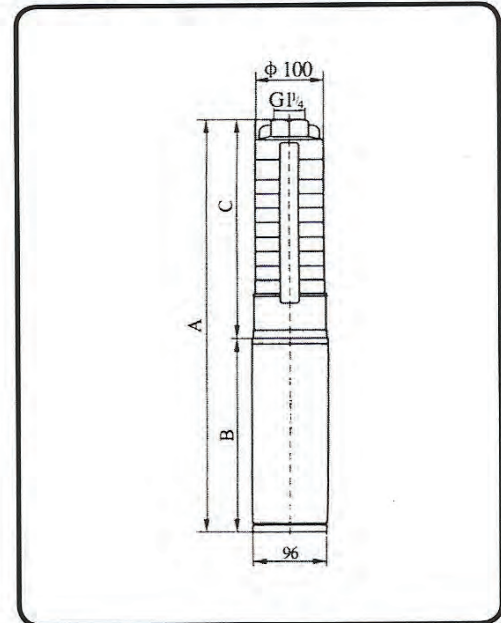
Model	(mm)/Size			(kg)
	A	B	C	Weight
SJ1-6	657	360	297	13
SJ1-9	720	360	360	14
SJ1-13	824	380	444	16
SJ1-17	938	410	528	18
SJ1-21	1062	450	612	20
SJ1-25	1146	450	696	21
SJ1-28	1259	500	759	23
SJ1-32	1343	500	843	24
SJ1-36	1427	500	927	25
SJ1-39	1560	570	990	30
SJ1-42	1623	570	1053	31
SJ1-46	1707	570	1137	32
SJ1-50	1791	570	1221	33

Performance Curve



SJ3

Installation sketch



Performance Table

Model	(kW)	Q (m³/h)	1.2	1.6	2.0	2.4	2.8	3.0	3.2	3.6	4.0
SJ3-6	0.37	H (m)	34	32	30	28	26	24	23	18	13
SJ3-9	0.55		51	48	45	42	38	36	33	27	20
SJ3-12	0.75		68	64	61	57	52	49	44	37	27
SJ3-15	1.1		85	81	77	72	65	61	56	47	34
SJ3-18	1.1		103	97	92	87	78	74	68	57	42
SJ3-22	1.5		126	120	113	106	96	91	84	70	53
SJ3-27	2.2		154	146	138	130	118	111	104	87	66
SJ3-32	2.2		183	173	163	154	140	131	122	102	79
SJ3-38	3		217	205	194	183	168	157	146	122	94
SJ3-43	3		246	233	220	207	190	178	166	139	107

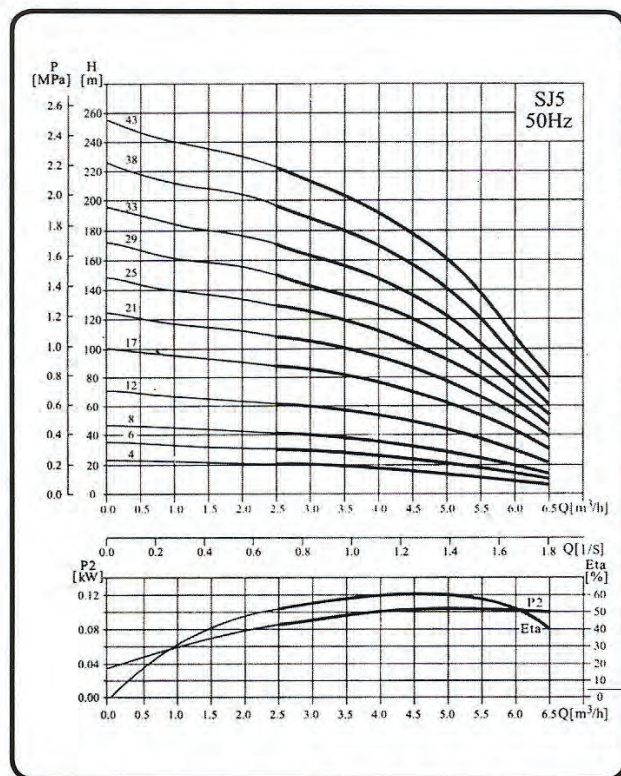
Size and weight

Model	(mm)/Size			(kg)
	A	B	C	Weight
SJ3-6	657	360	297	13
SJ3-9	740	380	360	15
SJ3-12	833	410	423	17
SJ3-15	936	450	486	19
SJ3-18	999	450	549	20
SJ3-22	1133	500	633	22
SJ3-27	1308	570	738	26
SJ3-32	1413	570	843	27
SJ3-38	1583	620	969	33
SJ3-43	1694	620	1074	34

Technical Data

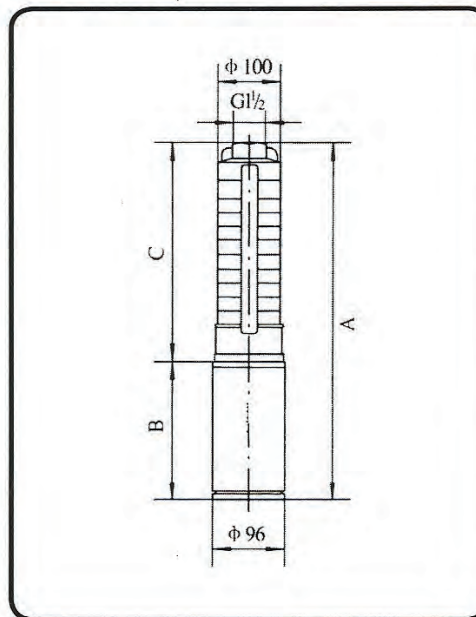


Performance Curve



SJ5

Installation sketch



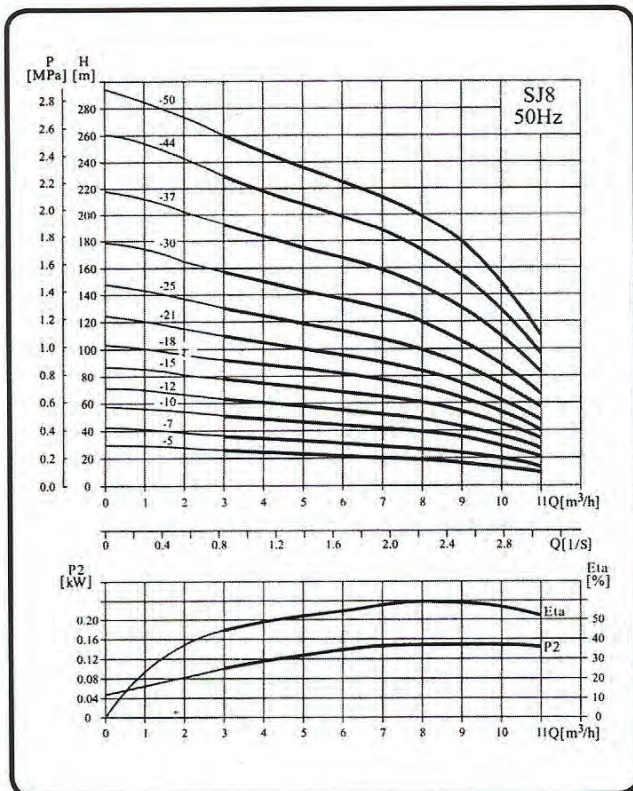
Performance Table

Model	(kW)	Q (m³/h)	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5
SJ5-4	0.37	H (m)	21	20	19	18	17	15	13	10	8
SJ5-6	0.55		31	30	28	27	25	22	19	15	11
SJ5-8	0.75		41	40	38	36	33	30	25	20	15
SJ5-12	1.1		62	59	57	54	50	45	38	30	23
SJ5-17	1.5		88	84	80	76	71	64	54	43	32
SJ5-21	2.2		109	104	99	94	87	79	67	53	39
SJ5-25	2.2		129	124	118	112	104	94	80	64	47
SJ5-29	3.0		150	144	137	130	120	108	92	74	55
SJ5-33	3.0		171	163	156	148	137	123	105	84	62
SJ5-38	4.0		197	188	178	170	158	142	121	97	71
SJ5-43	4.0		223	213	203	193	179	161	137	109	81

Size and weight

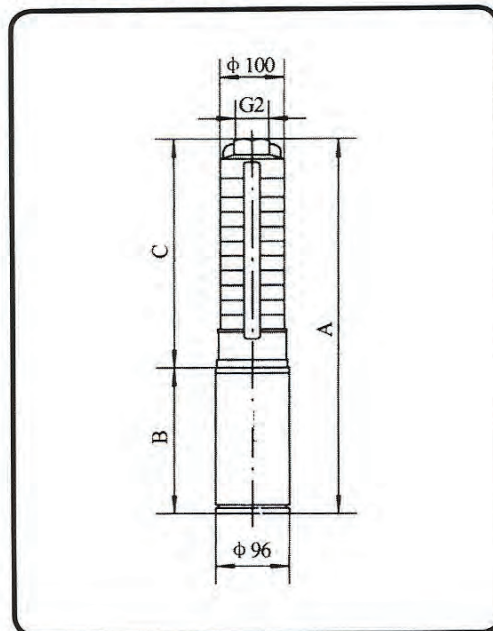
Model	(mm)/Size			(kg)
	A	B	C	Weight
SJ5-4	615	360	255	10
SJ5-6	677	380	297	12
SJ5-8	749	410	339	13
SJ5-12	873	450	423	15
SJ5-17	1028	500	528	19
SJ5-21	1182	570	612	22
SJ5-25	1266	570	696	23
SJ5-29	1400	620	780	27
SJ5-33	1484	620	864	28
SJ5-38	1699	730	969	37
SJ5-43	1804	730	1074	38

Performance Curve



SJ8

Installation sketch



Performance Table

Model	(kW)	Q (m³/h)	3	4	5	6	7	8	9	10	11
SJ8-5	0.75	H (m)	26	24	23	22	21	19	17	14	10
SJ8-7	1.1		36	34	33	31	29	27	24	20	14
SJ8-10	1.5		52	50	47	45	42	39	35	29	21
SJ8-12	2.2		62	60	57	54	51	47	42	35	26
SJ8-15	2.2		77	74	71	68	64	59	53	44	33
SJ8-18	3.0		93	89	86	81	77	71	63	53	40
SJ8-21	4.0		108	104	100	95	90	83	74	62	47
SJ8-25	4.0		129	124	119	113	108	99	89	74	56
SJ8-30	5.5		155	149	143	136	130	119	106	88	67
SJ8-37	5.5		191	184	176	167	159	147	131	109	82
SJ8-44	7.5		227	218	209	199	190	175	156	129	98
SJ8-50	7.5		258	248	238	226	216	198	177	147	111

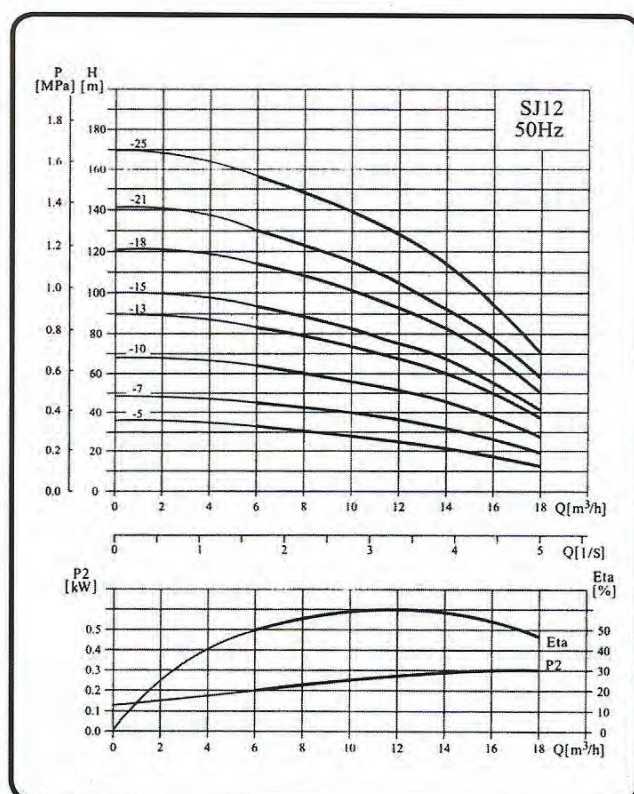
Size and weight

Model	(mm)/Size			(kg)
	A	B	C	Weight
SJ8-5	835	420	415	20
SJ8-7	949	450	499	22
SJ8-10	1115	490	625	25
SJ8-12	1269	560	709	29
SJ8-15	1395	560	835	31
SJ8-18	1521	560	961	37
SJ8-21	1747	660	1087	42
SJ8-25	1915	660	1255	44
SJ8-30	2210	745	1467	51
SJ8-37	2504	745	1759	55
SJ8-44	2903	850	2053	64
SJ8-50	3155	850	2305	66

Technical Data

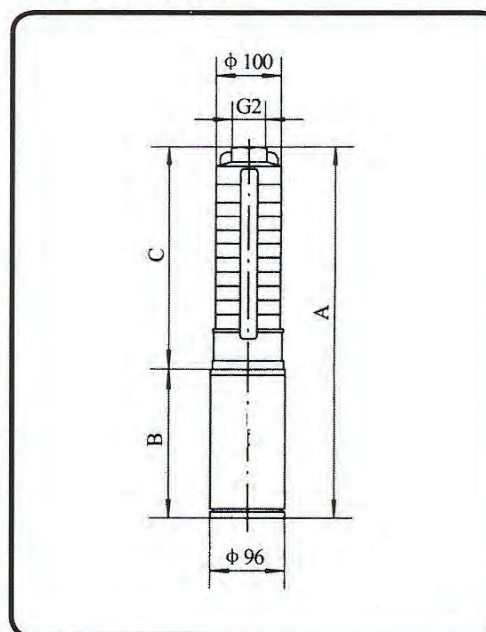


Performance Curve



SJ12

Installation sketch



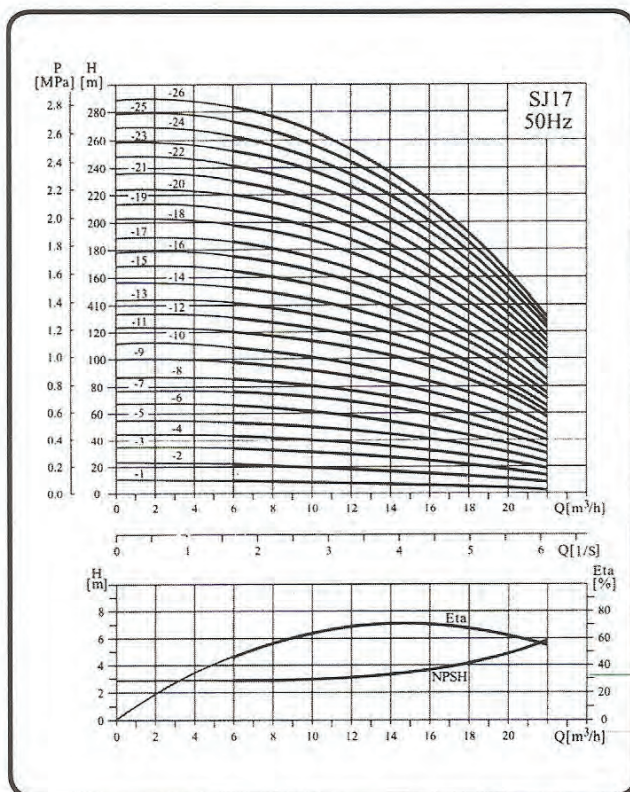
Performance Table

Model	(kW)	Q (m³/h)	6	8	10	12	14	16	18
SJ12-5	1.5	H (m)	31	29	27	25	22	18	13
SJ12-7	2.2		43	40	38	35	31	25	19
SJ12-10	3.0		62	58	55	50	45	36	27
SJ12-13	4.0		81	76	71	66	59	48	36
SJ12-15	5.5		93	88	82	76	68	55	41
SJ12-18	5.5		112	105	99	91	81	66	50
SJ12-21	7.5		130	123	115	106	95	77	58
SJ12-25	7.5		155	146	137	126	113	92	69

Size and weight

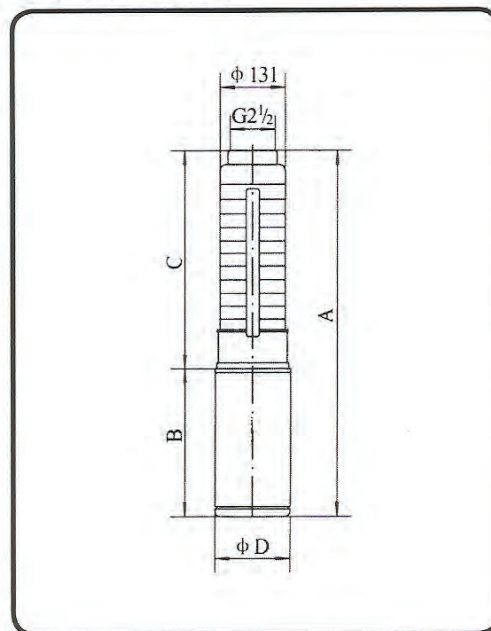
Model	(mm)/Size			(kg)
	A	B	C	Weight
SJ12-5	1005	490	515	20
SJ12-7	1205	560	645	22
SJ12-10	1400	560	840	29
SJ12-13	1695	660	1035	36
SJ12-15	1910	745	1165	42
SJ12-18	2105	745	1360	44
SJ12-21	2405	850	1555	66
SJ12-25	2665	850	1815	69

Performance Curve



SJ17

Installation sketch



Performance Table

Model	(kW)	Q (m³/h)	6	8	10	12	14	16	18	20	22
SJ17-1	0.55	H (m)	11	10.5	10	9.5	9	8	7	6	4.5
SJ17-2	1.1		22	21	20.5	19.5	18	16.5	14	12	9.5
SJ17-3	2.2		33	32	31	29	27	25	22	18	15
SJ17-4	2.2		43	42	41	39	37	33	29	24	20
SJ17-5	3.0		54	53	51	48	46	41	36	31	25
SJ17-6	4.0		65	64	62	58	55	50	44	37	30
SJ17-7	4.0		76	74	72	68	64	58	51	43	35
SJ17-8	5.5		87	85	82	78	73	66	59	49	40
SJ17-9	5.5		98	96	92	87	82	74	66	56	45
SJ17-10	5.5		108	106	103	97	92	83	73	62	50
SJ17-11	7.5		119	117	113	107	101	91	81	69	55
SJ17-12	7.5		130	127	123	116	110	99	88	75	60
SJ17-13	7.5		141	138	134	126	119	108	96	81	65
SJ17-14	9.2		152	149	144	136	128	116	103	87	70
SJ17-15	9.2		163	159	154	145	137	124	110	93	75
SJ17-16	9.2		173	170	164	155	146	132	118	100	80
SJ17-17	9.2		184	180	175	165	156	141	125	106	85
SJ17-18	11		195	191	185	174	165	149	132	112	90
SJ17-19	11		206	202	195	184	174	157	140	118	95
SJ17-20	11		217	212	205	194	183	165	147	125	100
SJ17-21	13		228	223	216	204	192	174	154	131	105
SJ17-22	13		239	234	226	213	201	182	162	137	110
SJ17-23	13		249	244	236	223	211	190	169	143	115
SJ17-24	13		260	255	246	233	220	198	176	150	120
SJ17-25	15		271	265	257	242	229	207	184	156	125
SJ17-26	15		282	276	267	252	238	215	191	162	130

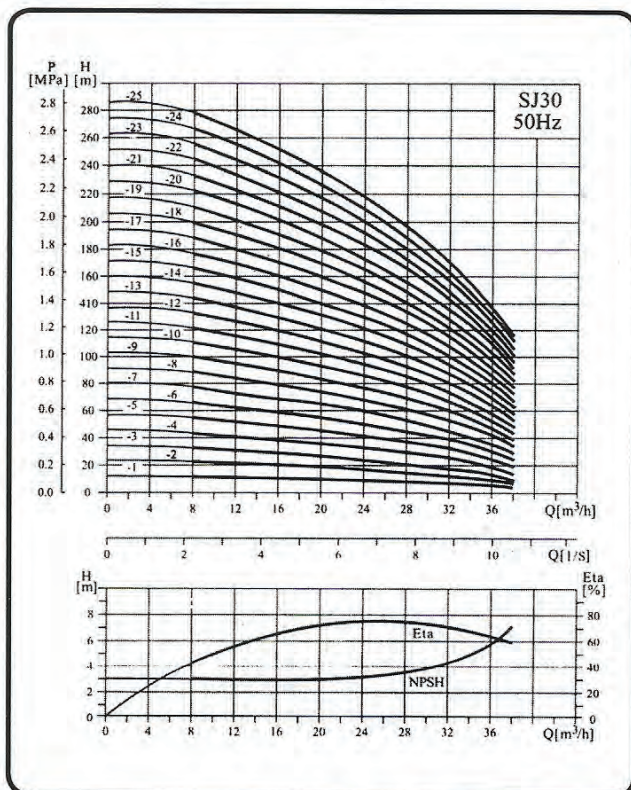
Size and weight

Model	(mm)/Size				(kg)
	A	B	C	D	Weight
SJ17-1	732	390	342	96	19
SJ17-2	852	450	402	96	21
SJ17-3	1022	560	462	96	24
SJ17-4	1082	560	522	96	25
SJ17-5	1142	560	582	96	28
SJ17-6	1302	660	642	96	32
SJ17-7	1362	660	702	96	33
SJ17-8	1507	745	762	96	29
SJ17-9	1567	745	822	96	40
SJ17-10	1627	745	882	96	42
SJ17-11	1792	850	942	96	51
SJ17-12	1852	850	1002	96	52
SJ17-13	1912	850	1062	96	53
SJ17-14	1822	700	1122	138	65
SJ17-15	1882	700	1182	138	64
SJ17-16	1942	700	1242	138	65
SJ17-17	2002	700	1302	138	66
SJ17-18	2102	740	1362	138	73
SJ17-19	2162	740	1422	138	74
SJ17-20	2222	740	1482	138	75
SJ17-21	2312	770	1542	138	85
SJ17-22	2372	770	1602	138	86
SJ17-23	2432	770	1662	138	87
SJ17-24	2492	770	1722	138	88
SJ17-25	2602	820	1782	138	91
SJ17-26	2662	820	1842	138	92

Technical Data

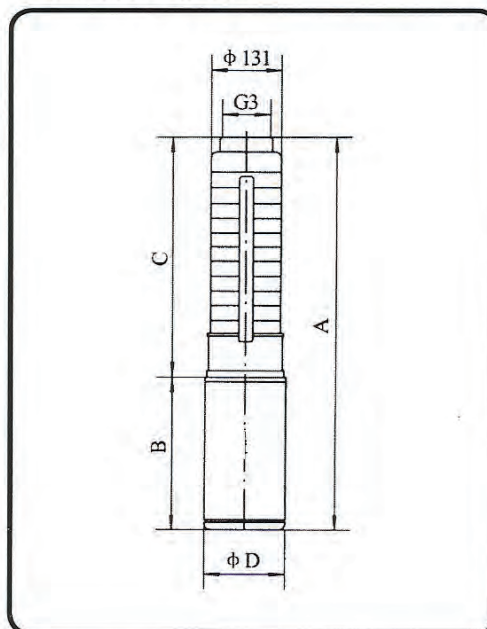


Performance Curve



SJ30

Installation sketch



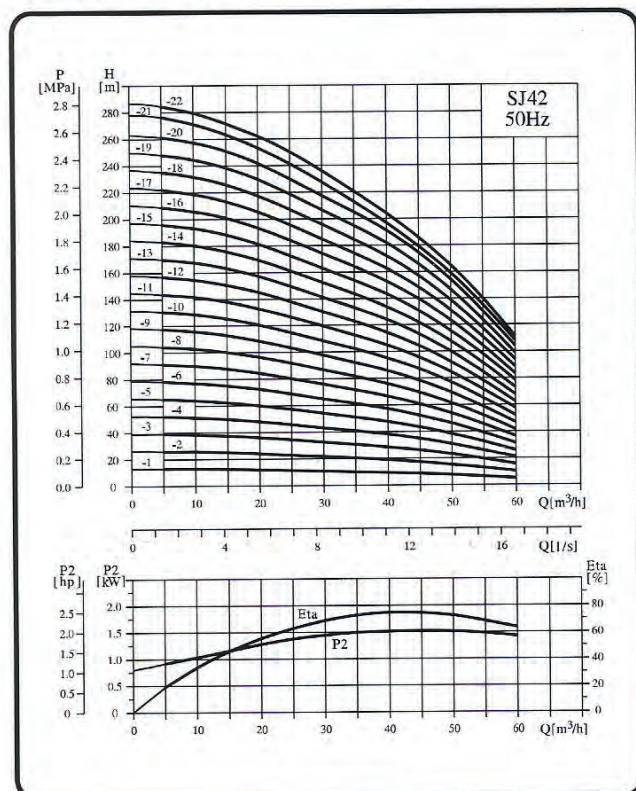
Performance Table

Model	(kW)	Q (m³/h)	8	12	16	20	24	28	30	32	36	38
SJ30-1	1.1	H (m)	11	10.5	10	9.5	9	8	7.5	7	5.5	4.5
SJ30-2	2.2		22	21	20	19	17.5	16	15	14	10.5	9
SJ30-3	3.0		33	32	30	28	26	24	22	20	16	14
SJ30-4	4.0		44	42	40	37	35	32	29	27	21	18
SJ30-5	5.5		55	53	50	47	44	40	37	34	27	23
SJ30-6	5.5		66	63	60	56	52	48	44	41	32	27
SJ30-7	7.5		76	74	70	65	61	55	52	48	37	32
SJ30-8	7.5		87	84	80	75	70	63	59	54	43	36
SJ30-9	9.2		98	95	90	84	78	71	66	61	48	41
SJ30-10	9.2		109	105	100	93	87	79	74	68	53	45
SJ30-11	9.2		120	116	110	103	96	87	81	75	59	50
SJ30-12	11		131	126	120	112	105	95	88	82	64	54
SJ30-13	11		142	137	129	121	113	103	96	88	69	59
SJ30-14	13		153	147	139	130	122	111	103	95	74	63
SJ30-15	13		164	158	149	140	131	119	110	102	80	68
SJ30-16	15		175	168	159	149	140	127	118	109	85	72
SJ30-17	15		186	179	169	158	148	135	125	116	90	77
SJ30-18	18.5		197	189	179	168	157	143	132	122	96	81
SJ30-19	18.5		207	200	189	177	166	150	140	129	101	96
SJ30-20	18.5		218	210	199	186	174	158	147	136	106	90
SJ30-21	18.5		229	221	209	196	183	166	155	143	112	95
SJ30-22	22		240	231	219	205	192	174	162	150	117	99
SJ30-23	22		251	242	229	214	201	182	169	156	122	104
SJ30-24	22		262	252	239	224	209	190	177	163	128	108
SJ30-25	22		273	263	249	233	218	198	184	170	133	113

Size and weight

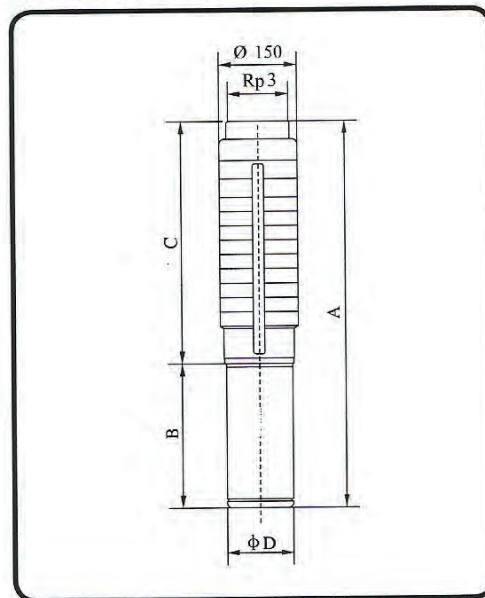
Model	(mm)/Size				(kg)
	A	B	C	D	Weight
SJ30-1	818	450	368	96	22
SJ30-2	1024	560	464	96	25
SJ30-3	1120	560	560	96	28
SJ30-4	1316	660	656	96	31
SJ30-5	1497	745	752	96	38
SJ30-6	1593	745	848	96	40
SJ30-7	1794	850	944	96	49
SJ30-8	1890	850	1040	96	50
SJ30-9	1836	700	1136	138	60
SJ30-10	1932	700	1232	138	61
SJ30-11	2028	700	1328	138	62
SJ30-12	2164	740	1424	138	71
SJ30-13	2260	740	1520	138	72
SJ30-14	2386	770	1616	138	79
SJ30-15	2482	770	1712	138	80
SJ30-16	2628	820	808	138	87
SJ30-17	2724	820	1904	138	86
SJ30-18	2880	880	2000	138	91
SJ30-19	2976	880	2096	138	92
SJ30-20	3072	880	2192	138	93
SJ30-21	3168	880	2288	138	94
SJ30-22	3304	920	2384	138	110
SJ30-23	3400	920	2480	138	111
SJ30-24	3496	920	2576	138	112
SJ30-25	3592	920	2672	138	113

Performance Curve



SJ42

Installation sketch



Performance Table

Model	(kW)	Q (m³/h)	5	10	20	30	40	42	50	60
SJ42-1	2.2	H (m)	13.5	13	12	11	10	9	8	5
SJ42-2	3.0		27	26	24	22	19	18	16	11
SJ42-3	5.5		40	39	36	33	29	27	24	16
SJ42-4	7.5		53	52	48	44	39	37	32	21
SJ42-5	7.5		66	65	61	55	49	46	40	26
SJ42-6	9.2		79	78	73	67	58	56	48	32
SJ42-7	11		92	91	85	78	68	65	56	37
SJ42-8	13		105	104	97	89	78	75	64	42
SJ42-9	15		119	117	109	100	88	84	72	47
SJ42-10	15		132	130	121	111	97	94	79	53
SJ42-11	18.5		145	143	133	122	107	104	87	58
SJ42-12	18.5		158	156	145	133	117	113	95	63
SJ42-13	22		171	169	157	144	126	123	103	68
SJ42-14	22		184	182	170	155	136	132	111	74
SJ42-15	22		197	195	182	166	146	142	119	79
SJ42-16	26		207	206	194	177	156	151	127	84
SJ42-17	26		222	221	206	188	165	161	135	89
SJ42-18	30		237	234	218	200	175	170	143	95
SJ42-19	30		247	246	230	211	183	180	148	100
SJ42-20	30		260	259	242	217	192	189	155	105
SJ42-21	37		276	271	254	227	196	191	158	108
SJ42-22	37		285	279	262	236	204	197	164	111

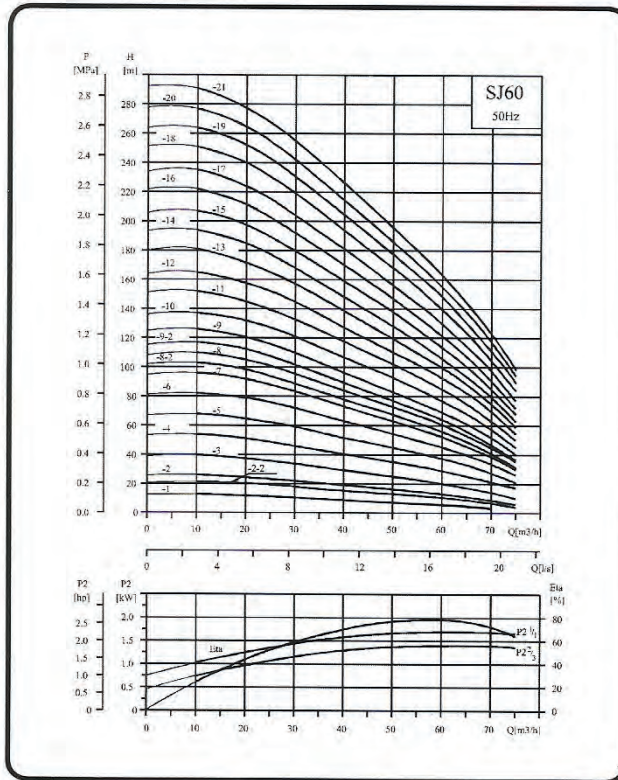
Size and weight

Model	(mm)/Size				(kg)
	A	B	C	D	Weight
SJ42-1	888	510	378	96	29
SJ42-2	1111	620	491	96	33
SJ42-3	1444	840	604	96/143	40/48
SJ42-4	1673	920	717	96/143	47/58
SJ42-5	1750	920	830	96/143	49/60
SJ42-6	1829	870	959	143	73
SJ42-7	1992	920	1072	143	80
SJ42-8	2165	980	1185	143	89
SJ42-9	2328	1030	1298	143	97
SJ42-10	2441	1030	1411	143	100
SJ42-11	2614	1090	1524	143	109
SJ42-12	2727	1090	1637	143	111
SJ42-13	2910	1160	1750	143	127
SJ42-14	3023	1160	1863	143	129
SJ42-15	3136	1160	1976	143	131
SJ42-16	3319	1230	2089	143	145
SJ42-17	3432	1230	2202	143	147
SJ42-18	3645	1330	2315	143	162
SJ42-19	3758	1330	2428	143	164
SJ42-20	3871	1330	2541	143	167
SJ42-21	4224	1570	2654	143	192
SJ42-22	4337	1570	2767	143	194

Technical Data

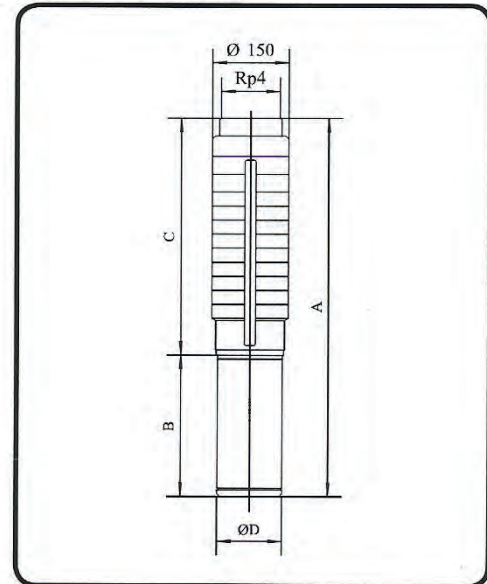


Performance Curve



SJ60

Installation sketch



Performance Table

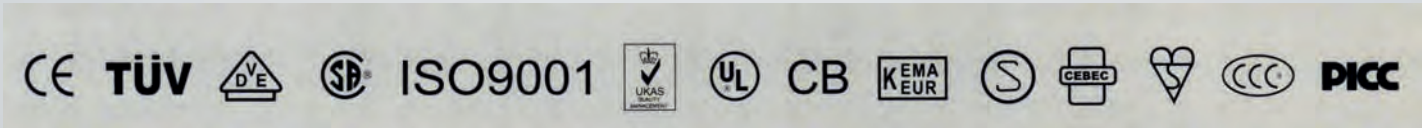
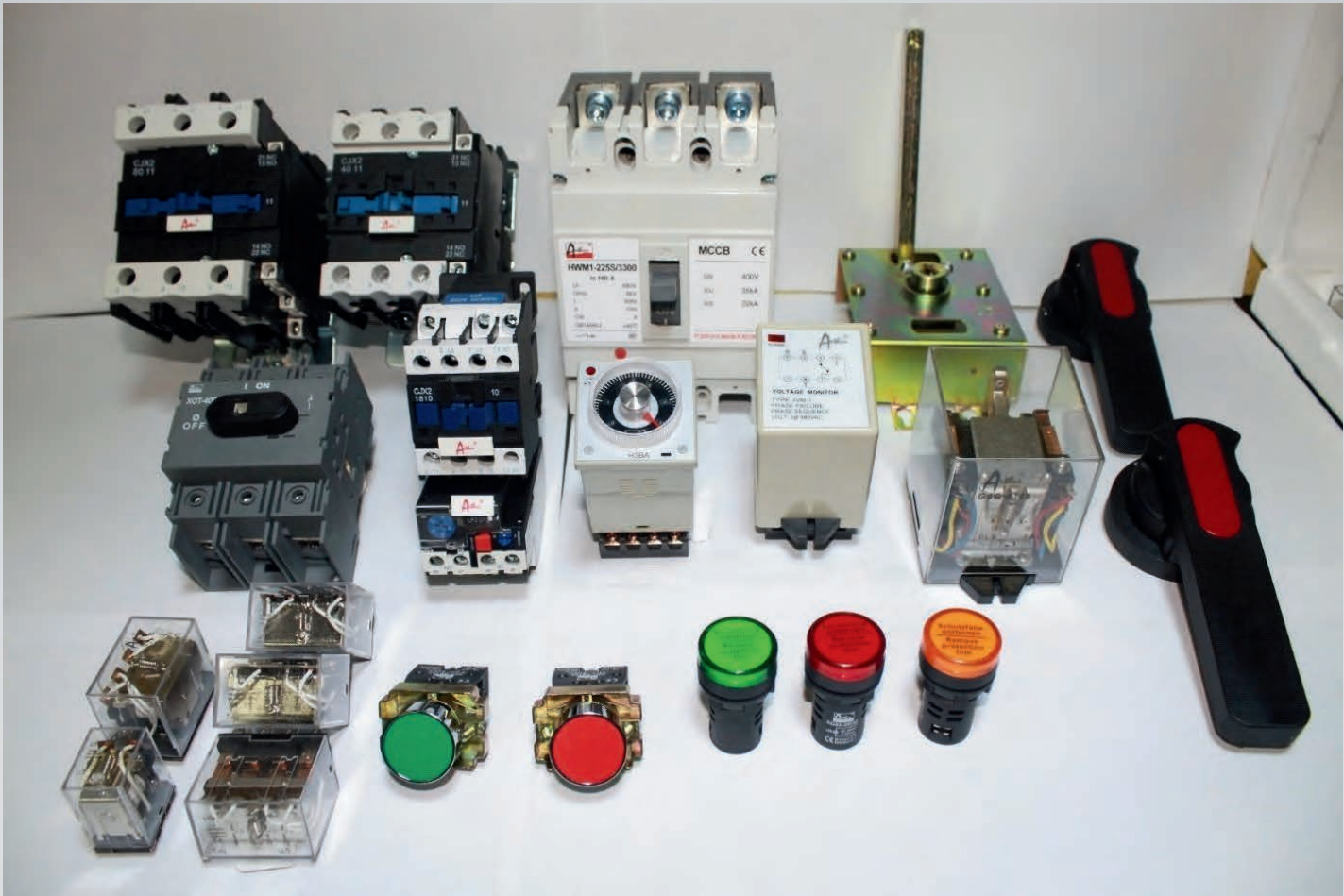
Model	(kW)	Q (m³/h)	10	20	30	40	50	60	70	75
SJ60-1	2.2	H (m)	12.5	12	10.5	8.5	7	6	4	-
SJ60-2-2	3.0		21	20	18	15.5	13	10.5	6.5	4
SJ60-2	4.0		26	24.5	22	19	16.5	12.5	9	6
SJ60-3	5.5		40	37	34	29	25	20	14	10
SJ60-4	7.5		54	51	46	40	35	29	21	17
SJ60-5	9.2		68	65	59	51	45	37	28	21
SJ60-6	11		82	79	72	62	54	45	34	26
SJ60-7	13		96	92	84	73	63	53	39	30
SJ60-8-2	13		103	99	89	78	67	56	41	31
SJ60-8	15		110	105	96	84	73	61	45	35
SJ60-9-2	15		117	112	102	89	77	64	47	36
SJ60-9	18.5		124	121	110	96	85	69	52	40
SJ60-10	18.5		137	132	121	106	93	77	58	45
SJ60-11	22		152	145	133	117	102	85	64	50
SJ60-12	22		165	158	145	127	110	93	70	54
SJ60-13	22		181	172	157	139	120	100	75	59
SJ60-14	25		194	185	168	148	128	106	80	63
SJ60-15	25		207	198	180	159	138	114	85	69
SJ60-16	30		222	212	192	170	147	122	91	72
SJ60-17	30		235	224	204	181	157	130	98	77
SJ60-18	30		251	240	219	194	168	140	105	84
SJ60-19	37		264	253	231	204	178	148	112	89
SJ60-20	37		277	265	242	214	186	155	118	94
SJ60-21	37		291	278	255	226	196	163	123	98

Size and weight

Model	(mm)/Size				(kg)
	A	B	C	D	Weight
SJ60-1	878	510	368	96	30
SJ60-2-2	1101	620	481	96	33
SJ60-2	1231	750	481	96/143	35/41
SJ60-3	1434	840	594	96/143	41/49
SJ60-4	1672	920	707	96/143	48/59
SJ60-5	1690	870	820	143	72
SJ60-6	1869	920	949	143	78
SJ60-7	2042	980	1062	143	87
SJ60-8-2	2155	980	1175	143	88
SJ60-8	2205	1030	1175	143	96
SJ60-9-2	2318	1030	1288	143	97
SJ60-9	2378	1090	1288	143	105
SJ60-10	2491	1090	1401	143	107
SJ60-11	2674	1160	1514	143	123
SJ60-12	2787	1160	1627	143	125
SJ60-13	2900	1160	1740	143	127
SJ60-14	3083	1230	1853	143	141
SJ60-15	3196	1230	1966	143	158
SJ60-16	3409	1330	2079	143	143
SJ60-17	3522	1330	2192	143	158
SJ60-18	3635	1330	2305	143	160
SJ60-19	3988	1570	2418	143	188
SJ60-20	4101	1570	2531	143	190
SJ60-21	4214	1570	2644	143	191



Component Panel Control



MINIATURE CIRCUIT BREAKER

DZ 47 SERIES

- Rated Current : 1, 2, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63 A
- Breaking Capacity : DZ -63 - 6 kA, DZ -63H - 10 kA
- Available Poles : 1, 2, 3, 4 P
- Acc. available : Shunt Release, UVT, Aux Contact, Aux Alarm Contact



MOULDED CASE CIRCUIT BREAKER

DZ 47 SERIES

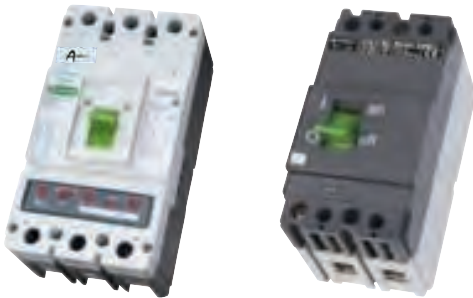
- Rated Current : 80, 100, 125 A
- Breaking Capacity : 10 kA
- Available Poles : 1, 3, 4 P
- Acc. available : Shunt Release, UVT, Aux Contact, Aux Alarm Contact



MOULDED CASE CIRCUIT BREAKER

DZ 47 SERIES

- Rated Current : 10 - 1250 A
- Breaking Capacity : Up to 100 kA
- Available Poles : 2, 3, 4 P
- Acc. available : Motor, Rotary Handle, Shunt Release, UVT, Aux Contact, Aux Alarm Contact



AC CONTACTOR
LC 1. LC 1D. CJXZF

- Rated Current : 6 - 800 A (800A only for NC2)
- Available Poles : 3 and 4 P (4P only for NC1 & NC2)
- Build-in Aux Contact for NXC
- LC <=100A TOOL FREE installation
- Available Accessories : Front Mounting Aux, Side Mounting Aux, Time Delay Contact Block.



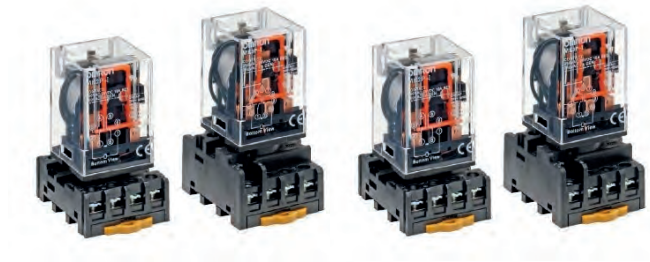
THERMAL OVERLOAD RELAY
LR2D

- Rated Current : 0.1 - 630 A
- Features :
 - 3-Phase R-S-T Protection
 - Phase Failure Protection
 - Stop and Test Button
 - Release indicator
 - Temperature compensation
 - Continuous adjustment of setting current
 - Manual and Automatic Reset button
 - LR2D 200 and 630, only Manual Reset),
 - Electrically separated 1NO + 1NC contact



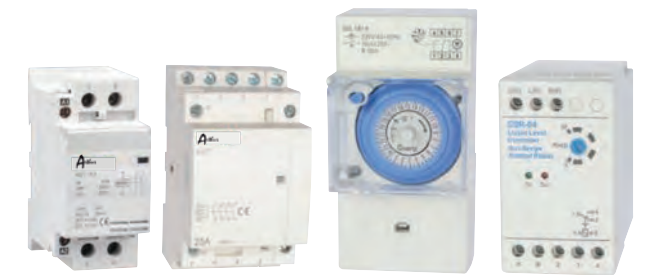
PLUG - IN POWER RELAY MY, LY, MK SERIES

- Available contact :
- 2Z (2NO+2NC) - 8 PIN
 - 3Z (3NO+3NC) - 11 PIN
 - 4Z (4NO+4NC) - 14 PIN
- Available Coil Voltage :
- 12, 24, 48, 110, 220 VAC/VDC



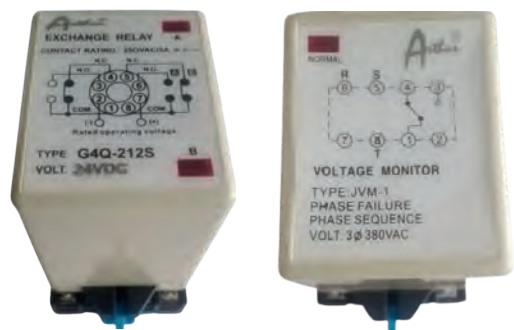
PROTECTION RELAY JWM - 1 SERIES

- 3-phase voltage relay with LED indicator
- Protection:
 - Phase failure (all-type)
 - Wrong phase sequence (all-type)
 - 3-phase voltage unbalance (all-type)
 - Over-voltage 380 - 460 V,
Under-voltage 300 - 380 V
JWM - 1
 - Built-in microprocessor (NJYB3 Only)
 - 3-phase 4-wire 220 V circuits
with a frequency unbalance (NJYB3 Only)



EXCHANGE RELAY G4Q 220V & G4Q 24 VDC

- Available contact :
- 2Z (2NO+2NC) - 8 PIN
 - 3Z (3NO+3NC) - 11 PIN
 - 4Z (4NO+4NC) - 14 PIN
- Available Coil Voltage :
- 12, 24, 48, 110, 220 VAC/VDC



PUSH BUTTON SERIES

- | | |
|----------|------------|
| ● Green | XB2-EV1853 |
| ● Red | XB2-EV1854 |
| ● Yellow | XB2-EV1855 |
| ● Blue | XB2-EV1856 |
| | |
| ● Green | XB2-EV1873 |
| ● Red | XB2-EV1874 |
| ● Yellow | XB2-EV1875 |
| ● Blue | XB2-EV1876 |



SELECTOR SWITCH SERIES

- ↙ 60°

↗ 45°

↘ 90°
- A22-RWK1R

● A22-RWK1

● A22-RWK1V
- 60° ↘↙ 60°

45° ↘↙ 45°
- A22-RWK3R

● A22-RWK3



WITH PILOT LIGHT BUTTON, LOCKING ONESELF
220V AC, 24V DC, 12V DC

- AD22-RLTR-GN
- AD22-RLTR-RT
- A22-RLTR-GE



ISOLATING SWITCH SERIES
XOT 40F3

- ON - ON
- ON - OFF - ON



INVERTER Series Transducer

- Multifunctional Mini Transducer
- Mini: S800 series, S900 series;
- General purpose: S1100 series;
- Vectorial: S2800 series, S3000 series;
- Industry-specific type: S100 series, S1100 special use for central air conditioner, S1100 special use for stones, S200 series, S2900 series;
- Softer starter: CSX series, CSXi series, IMS2 series, MVS series;
- Servo system: SDA series, SDB series;
- Power controller: SPC3 series;
- Intelligent control instrument: counter CU, counter CA, length signal transmitter, speed wire-speed table;
- Products peripherals: tri-color light, signal amplifier;
- All-in-one PC controller: SGP1 series, SGP2 series.

