



C.R.I. FLUID SYSTEMS

Pumping trust. Worldwide.

HVAC PUMPING SYSTEMS





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T H E B E G I N N I N G

of C.R.I., way back in 1961, was a resolute attempt to produce a few irrigation equipments using the limited facilities of an in-house foundry. Eventually the founder's dream was coming true as the small production unit he started kept growing rapidly. Now, after more than five eventful decades, it is an enormous, widely reputed organization, which produces more than 2300 varieties of perfectly engineered pumps and motors and sells its products in numerous countries spread across 6 continents.

C . R . I . I S O N E A M O N G

the few pioneers in the world to produce 100% stainless steel submersible pumps. Having achieved a record production capacity of over 2 million pumps per annum, today C.R.I. is rubbing its shoulders with the best brands in the world, with advanced technology and safety standards as its hallmarks.

T H E I N F R A S T R U C T U R E

of C.R.I. is pretty comprehensive with state-of-the-art machineries and high potential in-house R&D recognised by the ministry of science and technology, Govt. of India - all within its own covered area of 300,000 square metres. The production environment is accredited with ISO 9001, ISO 14001 & OHSAS 18001 certifications and the products are CE, UR/UL, IEC, TSE & ISI certified. The R&D team always stays in tune with the changing scenario and seldom fails in coming up with outstanding solutions every time.

N E E D L E S S T O S A Y ,

behind this legendary growth lies the untiring, innovative, enthusiastic and dedicated team work. and, of course, a flawlessly maintained value system too. The name C.R.I. itself encapsulates the company's ethos: " Commitment, Reliability, Innovation".





C.R.I. FLUID SYSTEMS

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Vision, Mission and Values

To be the industry leader providing best - in - class fluid management solutions to individual and institutional customers and societies in our chosen markets.

We will achieve this through our dedicated efforts to enhance the welfare of all our stakeholders and by living by our values of **commitment, reliability and innovation.**





HVAC PUMPING SYSTEMS

Helping to your desired indoor environment

Air conditioning, Heating & Energy Management

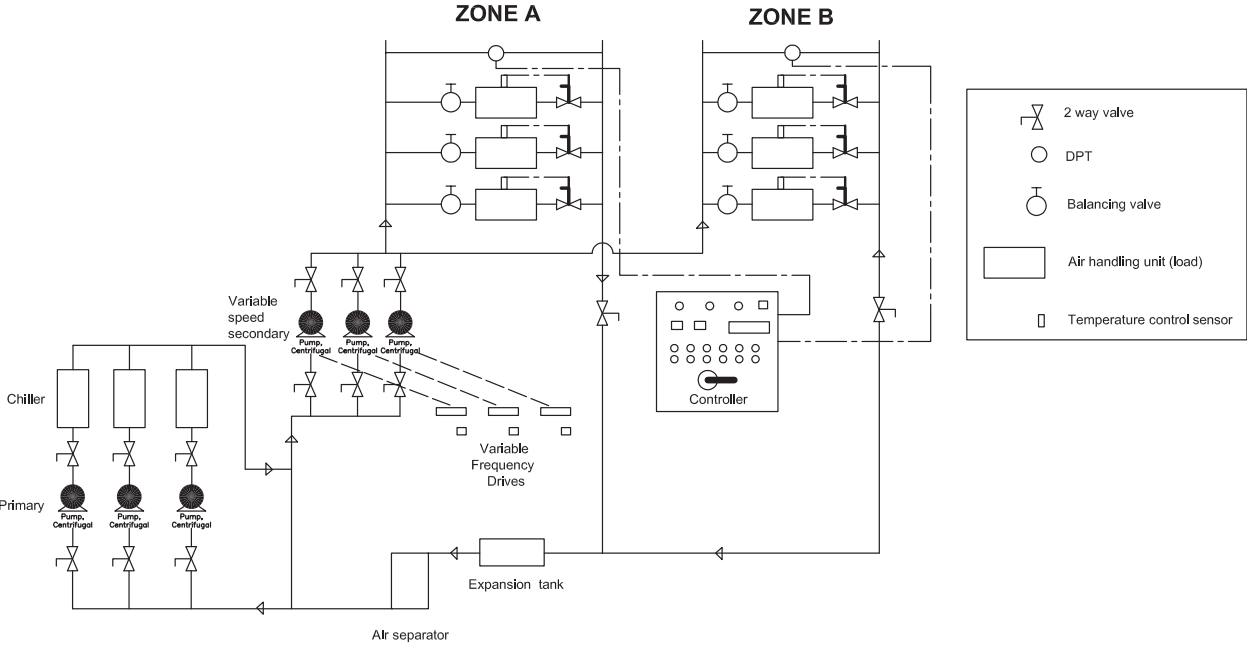
With the improvement in technology, C.R.I.'s enhanced services, experiences and expectations from our customers and clients, future requirement of HVAC systems, C.R.I. strongly lands its position in this segment.

To be comfortable in a building, both at home and at work, an optimal climate control is important. This can only be achieved with modern Building Management Systems in combination with the right pumps, in order to get an efficient distribution of water

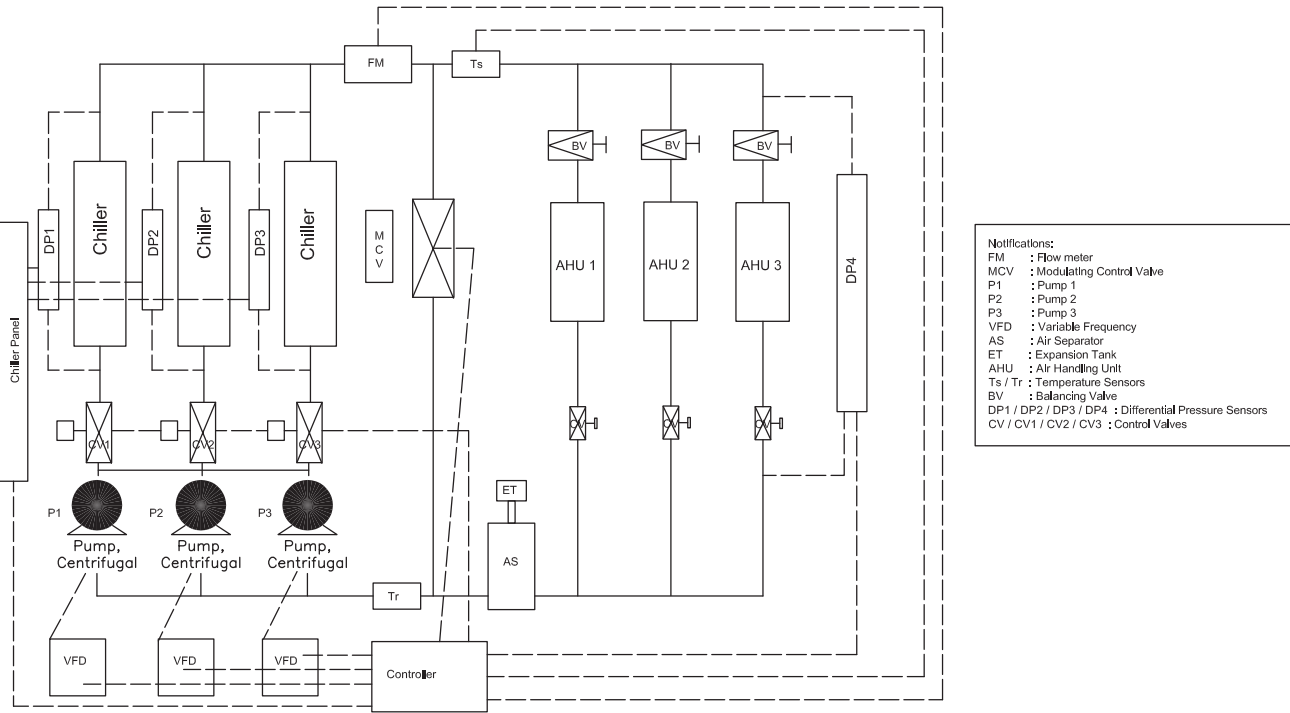
CRI pumps are designed, engineered and manufactured to the highest quality standards of pumps to fulfil the needs of HVAC industry. CRI offers energy efficient and reliable pumps for applications like chilled water, condenser, boiler or heaters etc.

For a complete HVAC solution C.R.I. Pumps provides an extensive range of HVAC centrifugal pumps such as long coupled and close coupled end suction pumps, monoblock pumps, Split case double suction pumps, vertical In-line pumps, valves and customized controllers etc. Also a wide range of small circulatory pumps for heating and hot water.

Comprehensive Solution to HVAC Industry



Primary Variable Flow Pumping System



Offerings

- Primary and Condenser Pump Sets
- Secondary Variable Speed Pumping System
- Tertiary Variable Speed Pumping System
- Primary Variable Flow System
- District Cooling System



ECW SERIES

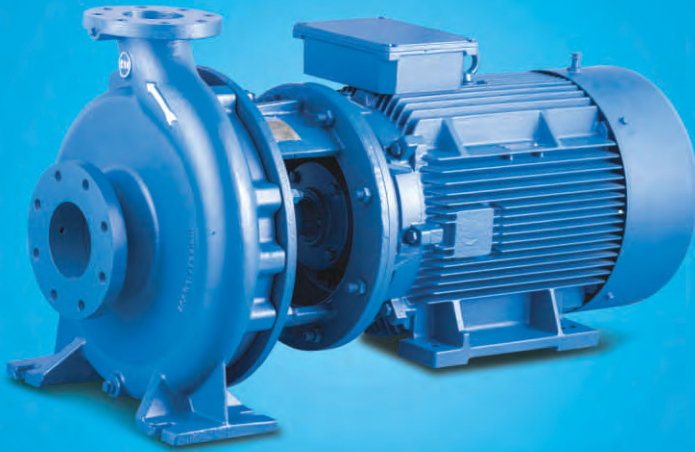
EN733 - END SUCTION PUMP

ECW Series - Reliable and high quality, Horizontal single stage, End suction, Centrifugal, Foot mounted pump designed as per EN 733 Standard, to pump water.

Specifications	50Hz	60Hz
Flow	upto 600 m ³ /hr	upto 2641 GPM
Head	upto 90 m	upto 295 Feet
Outlet Size	upto 150 mm	upto 6" inch
Power	upto 200 kW	upto 268 hp
Speed	960/1450/2900 RPM	1800/3600 RPM
Max. Working Pressure	upto 16 bar	upto 16 bar
Liquid Temperature	upto 90°C	upto 194°F
Flange Standard	DIN	ANSI / DIN
Material of Construction (MOC)	Cast Iron & Bronze	Cast Iron & Bronze
Optional	Stainless steel, Duplex, Super Duplex & Alloy steels	Stainless steel, Duplex, Super Duplex & Alloy steels

Design Features

- Back pull out design
- Optimized Hydraulics design
- Common housing for gland packing & Mechanical seal versions
- Engineered Bearing frame
- Replaceable Wear rings
- Counter lock nut with double flat and helical groove option



CCW SERIES

CLOSE COUPLED PUMP

CCW Series - Reliable and high quality, Single stage, End suction, Centrifugal, Flange / Foot mounted, Close coupled pump designed as per manufacturer standard to pump clear water.

Specifications	50Hz	60Hz
Flow	upto 550 m ³ /hr	upto 2641 GPM
Head	upto 95 m	upto 524 Feet
Outlet Size	upto 150 mm	upto 6" inch
Power	upto 45 kW	upto 60 hp
Speed	1450/2900 RPM	1800/3600 RPM
Max. Working Pressure	upto 16 bar	upto 16 bar
Liquid Temperature	upto 90°C	upto 194°F
Flange Standard	DIN	ANSI / DIN
Material of Construction (MOC)	Cast Iron & Bronze	Cast Iron & Bronze
Optional	Stainless steel, Duplex, Super Duplex & Alloy steels	Stainless steel, Duplex, Super Duplex & Alloy steels

Design Features

- Back pull out, compact and rigid design
- Dynamically balanced rotating parts ensuring minimum vibrations
- Wide hydraulic ranges
- Various material options (cast iron, bronze and stainless steel) and different seal constructions
- No need for coupling alignment
- Compact, Easy and quick installation



VERTICAL INLINE PUMP - SINGLE STAGE VS/VC SERIES

Specifications	50Hz
Flow	upto 503 m ³ /hr
Head	upto 96 m
Outlet Size	upto 200 mm
Power	upto 90 kW
Speed	1450/2900 RPM
Max. Working Pressure	upto 16 bar
Liquid Temperature	upto 90°C
Flange Standard	DIN
Material of Construction (MOC)	Cast Iron & Bronze

* Contact manufacturer for 60Hz requirement

Design Features

- Compact and rigid design
- Top pull out compact vertical pump where limited space is available
- Dynamically balanced rotating parts ensuring minimum vibrations
- Wide hydraulic ranges
- No need for coupling alignment



SCW SERIES

HORIZONTAL SPLIT CASE PUMP

Specifications	50Hz	60Hz
Flow	upto 4200 m ³ /hr	upto 17611 GPM
Head	upto 170 m	upto 490 Feet
Outlet Size	upto 450 mm	upto 18" inch
Power	upto 1460 kW	upto 1206 hp
Speed	960/1450/2900 RPM	900/1100/1750 RPM
Max. Working Pressure	upto 16 bar	upto 16 bar
Liquid Temperature	upto 90°C	upto 194°F
Flange Standard	DIN / ANSI	DIN / ANSI
Material of Construction (MOC)	Cast Iron & Bronze	Cast Iron & Bronze
Optional	Stainless Steel, Duplex, Super Duplex & Alloy steels	Stainless Steel, Duplex, Super Duplex & Alloy steels

Design Features

- Double suction impeller with lower NPSHr
- Dynamically balanced rotating parts ensuring minimum vibrations
- Wide hydraulic ranges
- Various material options (cast iron, bronze and stainless steel) and different seal constructions
- Pump flanges complies to DIN
- Pump bearing can be replaced without removing top casing



CP SERIES

CIRCULATORY PUMP

Specifications	50Hz
Flow	upto 23.1 m ³ /hr
Head	upto 20 m
Outlet Size	upto 50 mm
Power	upto 1.1 kW
Speed	2900 RPM
Max. Working Pressure	upto 2.5 bar
Liquid Temperature	upto 110°C
Flange Standard	Threaded Port
Material of Construction (MOC)	Cast Iron & engineering polymer
Optional	Stainless steel, Duplex

Design Features

- Ceramic shaft for long life
- Wide hydraulics
- Compact and rigid design
- Multi speed option

ENERGY EFFICIENT MOTORS



Specifications	50Hz	60Hz
Power Range (in KW)	0.37 to 2.2, Single Phase	0.5HP to 3HP, Single Phase
Power Range (Standard)	0.37 to 315 kW, Three Phase	0.5HP to 422HP, Three Phase
Power Range (IE2)	0.75 to 315 kW, Three Phase	1HP to 422HP, Three Phase
Power Range (IE3)	0.75 to 315 kW, Three Phase	1HP to 422HP, Three Phase
Rated Voltage	380/400/415V, Three Phase	230V / 380V /460V, Three Phase (Triple Voltage design upto 30HP)
	220/230V, Single Phase	220/230V, Single Phase
Pole	2/4/6 Pole	2/4/6 Pole
Frame Size	upto 355	upto 355
Class of Insulation	Class - F	Class - F
Degree of Protection	IP 55	IP 55
Mounting Type	Foot / Flange / Foot cum flange / Face Mounted motors (B3, B5, B35, B14)	Foot / Flange / Foot cum flange / Face Mounted motors (B3, B5, B35, B14)

* HT and flame proof motors on request

Design Features

- Low starting current and high torque
- Heavy duty bearing for long life
- Dynamically balanced rotating parts ensuring minimum vibrations
- Optional terminal box position
- Foot / Flange & Face Mountings

WAFER TYPE BUTTERFLY VALVE



Product Range	
Size Range	1 1/2" to 24"
Pressure Rating	PN10 / PN16
Type of Valve	Centric Disc Butterfly valve with Rubber Lined Body
Body Type	Single Piece, Short wafer or wafer lugged Extended Neck Body available
Seal Type	Integrally Bonded & Replaceable (EPDM, Nitrile, Viton, Hypalon)
Operation	Hand Lever, Gear Operation (Pneumatic & Electrical - Optional)

Standards	
Valve Design Standard	BS EN 593 / API 609 / IS 13095
Valve face to face	ISO 5752
Top flange drilling	ISO 5211
Valve inspection and testing	API 598 / IS 13095
Flange standard	ANSI 125 / ANSI 150 / BS 10 TAB D & E / IS 6392 NP 1.0 & 1.6 DIN 2501 – PN10 & PN16

CONTROLLERS & CONDITION MONITORING SYSTEMS

Interfacing

- BMS - RS 485 (lanworks, BACNET, TCP / IP) optional
- VFD - Digital and analog input / output, RS 485 Modbus

Status Monitoring

- Pump ON / OFF, Trip Status, Elapsed running hours
- VFD - ON / OFF, Trip Status, Frequency, Speed, kW
- Process variables -Zone DPT, (Flow Suction pressure) Optional
- Auto / Manual

Enclosure

- IP 41 equivalent protection • NEMA 1 Rated

Alarms / Data Log

- Real Time • Historical Alarms

Power supply

- Mains input - 415VAC, 50Hz • Signal - 24VDC



Design Features

- Tough screen operator interface
- On-screen menu driven operator interface
- Manual or Automatic system control (H-O-A)
- Field and factory password security
- Data trending with display screen
- PID control loop, adjustable
- Internal circuit breaker protection
- Automatic or manual pump alternation
- Auto takeover of lag pump in case of failure of working pump
- Alarm history of events
- Standard Alarms : (1) Drive, motor overload, or pump failure (2) System fault, (3) Zone signal fault
- Output for horn signal
- Input for silencer of alarm/horn
- Remote or local start/stop mode of operation
- Separate input screen for differential pressure set point and operating range (bar)
- Manual control screen for fixed speed, By-pass or selected variable speed settings
- Separate operating status display secondary pump status, pump speed and drive status
- Serial communications port to receive full information from VFD's (Modbus)
- Fixed & individual zone set point
- User selectable working / standby quantity / selection
- Cascade operation ensures equal running hours
- CRI can load - Specified adjustable data at the factory, including Zone DP set points, Sensor range, number of pumps, and duty/standard configuration.

Optional Features and Accessories

- Differential pressure transmitters
- GPRS modem for Remote monitoring
- NEMA 4 or NEMA 12 enclosure
- Digital inputs for pump differential pressure switch
- Output for remote alarm/horn signal
- Input for Silencer of remote alarm/horn
- Inbuilt logic to avoid flow surge, hunting, end of curve, low suction pressure, no flow shut down
- Best efficiency point (BEP) staging
- VFD automatic / manual by-pass control
- Separate input menu for remote Zone set points, input of DP sensor operating range, Status of pumps, pump speed, status of remote zone signals, Zone faults, zone set point and active control Zone.

NOTES

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