C.R.I. PUMPS

Pumping trust. Worldwide.

HYDRO PNEUMATIC PRESSURE BOOSTING SYSTEM MVHS SERIES

CE*

*For pump models only.

www.crigroups.com

An ISO 9001, ISO 14001 & OHSAS 18001 Company

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THE BEGINNING

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 1500 varieties of perfectly engineered pumps and motors and sells its products in numerous countries spread across 6 continents.

C.R.I. IS ONE AMONG

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.

THE INFRASTRUCTURE

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 & 14001 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.

NEEDLESS TO SAY,

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".

HYDRO PNEUMATIC PRESSURE BOOSTING SYSTEM

G E N E R A L

C.R.I's Pressure Booster Systems are built with care using advanced technology and controlling devices/equipments that ensure efficient operation and energy saving. Nowadays pressure booster system becomes an essential part of all buildings including individual houses. C.R.I's pressure booster systems are designed to meet wide range of applications and are customized to meet customer's requirements.

These pressure booster systems are built with all stainless steel C.R.I. vertical/ horizontal multistage pumps powered by C.R.I.'s IE - CLASS MOTORS. The control system is made with PLC / Micro controller / VFD for constant pressure, energy saving and fail-safe automatic operation. These systems are supplied as complete package including, manifold,pressure vessel, control panel with VFD/PLC/Micro controller, check/gate valves, pressure gauge, transmitters etc.

Much importance is given to reduce the noise level to ensure trouble free and quiet operation and intense care is taken to ensure lesser space occupation and make the system affordable across the world. It also serves as a best alternative for traditional over head tank system and thereby reduces water pollution and constructional cost etc.,

Simply saying C.R.I's pressure booster systems are highly reliable, more efficient, silent in operation, affordable, smart and are customized to suit any requirements.

MODEL IDENTIFICATION CODE (MVHS Series)

XX HS - X/XXXX - X - X - X - X - X - X - X - X - X

- **XX** — Series Name: MV/MH
- **HS** — Hydro System
- **X/XXXX** — Pump Model
- **X** — No of Pumps

1	4
2	5
3	6

- **X** — M. Seal Combinations

SSV	Sic/Sic/FKM
TCV	TC/Car/FKM
SCE	Sic/Car/EPDM

- **X** — Pump MOC

C	CI Version
S	SS 304 Version
N	SS 316 Version

- **X** — Manifold MOC

1	MS - GI Hot Dipped Galvanized
2	SS 304
3	SS 316

- **X** — Control Panel Type / Design

P	Smart Controller (One VFD + PT +RS 485)
P+	Smart Controller (One VFD + PT +RS 485) + DV-DT Choke/Sine Wave
P-Smart	Smart Controller (One VFD + PT +RS 485) + E Solutions
E	Smart Controller Constant Speed + PS + BMS Alert
E+	Smart Controller Constant Speed + PS + RS 485
M	Multi Master (Individual VFD + HMI + PLC +PT + RS 485) (Without Bypass)
M+	Multi Master (Individual VFD + HMI + PLC +PT + RS 485) (With Bypass)

- **X** — Customized Design

CX	Customized Design in Control Panel
MX	Customized Design in Manifold
OX	Customized Design in Other than Above

- **X** — Pressure Tank: This digit is applicable for with supply only. (T - Pressure Tank, 453 - Tank Capacity)
- **X** — Motor IE Class

MVHS SERIES

APPLICATIONS

Constant Pressure of Water Supply for Hotels
Apartments
Commercial Buildings
Industries
Agriculture
Other large Multi-Storey Buildings

PUMPED LIQUIDS

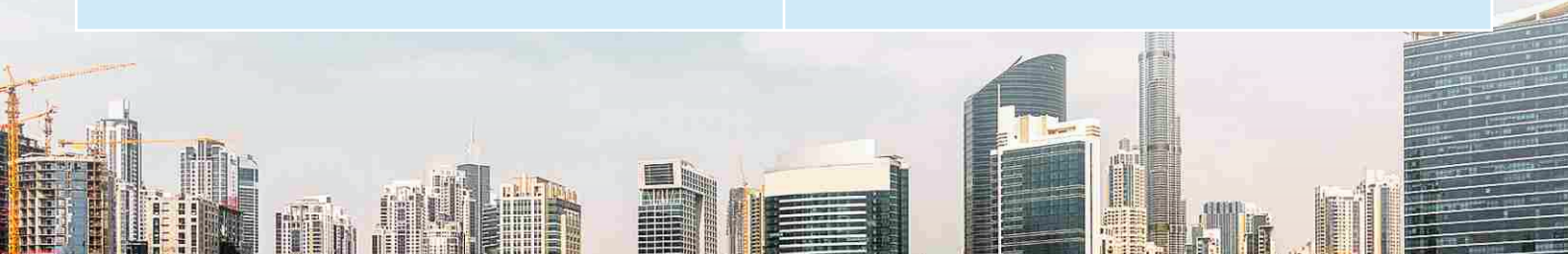
Clean
Non-aggressive
Non-explosive
Thin
Clear Water Without Abrasives
Solid Particles are Fibre

OPERATION RANGES

Max. Flow	:	1200 m^3/h
Max. Head	:	300 m
Max. Power	:	110 Kw
Max. Liquid Temperature	:	70°C

MATERIAL OF CONSTRUCTION

Pump	:	SS
Valves	:	Nickel Plate / CI / SS
NRV	:	Brass / CI
Base frame	:	GI / SS
Manifold	:	GI / SS



ADVANTAGES

- Sophisticated water pressure throughout the building round the clock and ensures Efficient & Constant Water Pressure Management.
- No manual interference to operate the pumping system.
- Low noise & Vibration level, tough & reliable, low operating & maintenance cost
- Pressure comfort for modern bathroom gadgets.
- Due to multiple pumps operating in parallel, failure of single pump does not lead to complete system breakdown.
- Reliable automation.
- If helps to Improve building elevation and overall aesthetics.

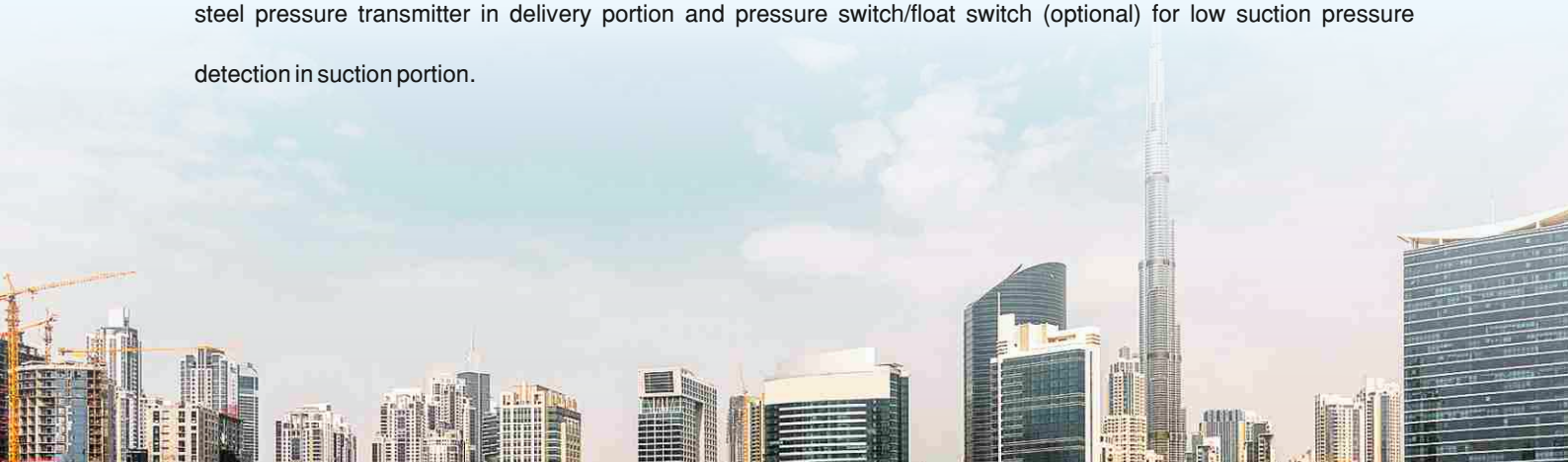
KEY FEATURES AND CONTROLS

- Pump Operational Features: Floating Inventor – Cascading – Faulty Pump Isolation – Elapsed Running Hours – Maintenance call / Life Timer – Graphical Status indication – Manual Operation – Warm up - Soft Start
- Pressure Feedback Features: Actual pressure setting – Set Point setting – Calibration – Low & High pressure Cut Off
- Protection Functions: Pump dry Run (By Float & By CT) – Single phase prevention – Pump Overload – Emergency Off – Limit ON/OFF Frequency - Phase Sequence – Three level Passwords – Phase reversal preventer – Current Transformer based Protection (Individual Motor) – Warm Up
- Alarms – Visual / Audible: Pump Dry Run (By Float & By CT) – Faulty Pump – Limit ON/OFF Frequency – Single phase prevention – Pump Overload – Emergency Off – Phase Sequence – VFD Fault - Phase Reversal Preventer.
- Communications: Modbus RS 485

  (Optional: Ethernet)

SYSTEM PIPING

The Suction & Delivery manifold can be fabricated on MS/GI/SS. Both manifolds designed to attach themselves to the system piping at either end of the manifold. This manifold consists of a glycerine filled pressure guage and stainless steel pressure transmitter in delivery portion and pressure switch/float switch (optional) for low suction pressure detection in suction portion.



SELECTION CRITERIA

Selection / Sizing of Booster system is the key factor for the efficient operation of the system. It involves the consideration and calculation of several parameters like type of application, discharge, head, required outlet pressure, piping system etc.,

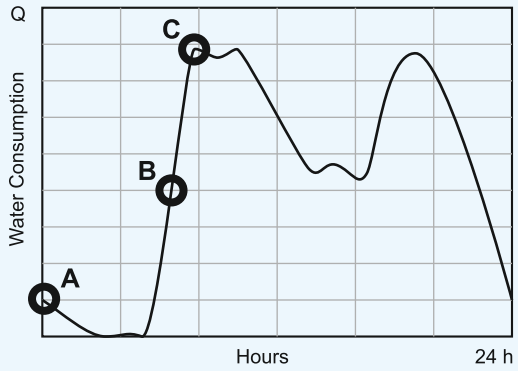
Calculation of water discharge/requirement depends on the type of applications like Hotels, School, hospital, office etc. Here the value of peak consumption and part load conditions to be derived and accordingly the capacity and number of pumps to be selected.

The pressure required for a given system also greatly depends on the application and a number of factors must be taken into account, including the top point of the building, Friction losses in the pipes & Fittings, suction conditions and desired output pressure etc.

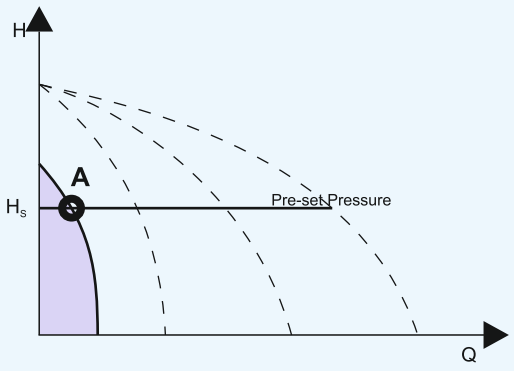
LOAD PATTERNS

Load or consumption of water during the day significantly varies according to the type of application. The system manages this variation intelligently by operating the pumps at its corresponding frequency, also by bringing the other pumps into operation. Once the pressure reaches the pre-set level it disengages the number of pumps and thus keeps the system within cut-in pressure

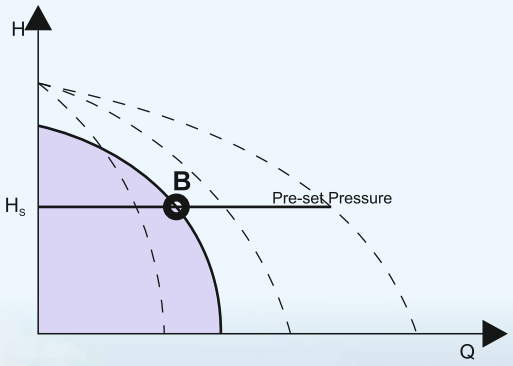
LOAD / CONSUMPTION PROFILE



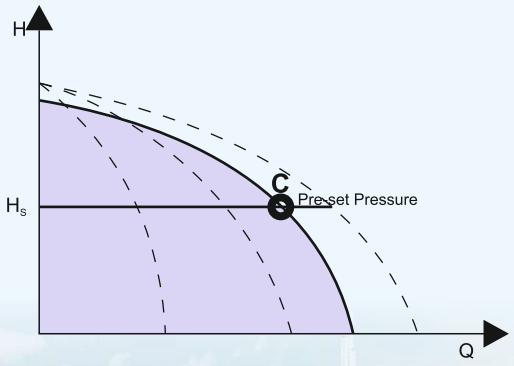
MINIMUM CONSUMPTION - 1 PUMP OPERATION



MODERATE CONSUMPTION - 2 PUMP OPERATION



PEAK CONSUMPTION - 3 PUMP OPERATION



MHHS SERIES

KEY FEATURES

- Automatic cascade control of pumps by means of one / two pressure switch(es).
- Automatic change-over at any start / stop cycle
- Start & Stop delays to prevent simultaneous starting / stopping of the 2 pumps.
- Dry running protection by means of current sensing program.
- Automatic circuit breaker protecting the motor against short circuit and overload.
- Simple & Robust construction.

APPLICATIONS

Residential
Apartments
Small Farms
Washing System
Gardening
Hospitals, Hotels, Schools
Small Industries
Sprinkler System

PUMPED LIQUIDS

Clean
Non-aggressive
Non-explosive
Thin
Clear Water Without Abrasives
Solid Particles are Fibre

OPERATION RANGES

Max. Flow	:	56 m^3/h
Max. Head	:	50 m
Max. Power	:	2.2 Kw
Max. Liquid Temperature	:	70°C

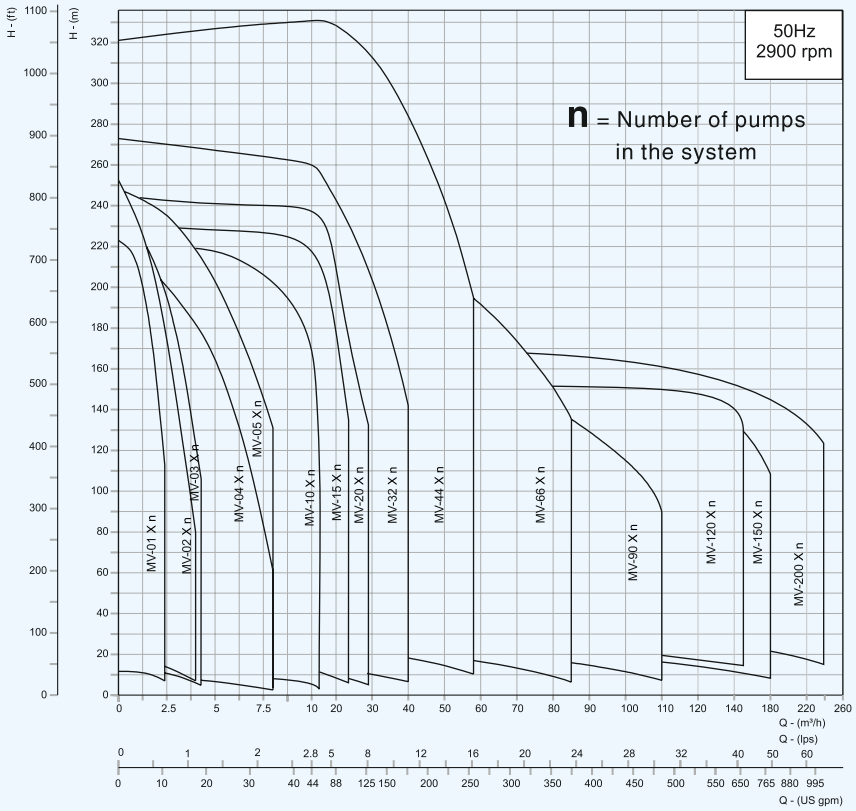
MATERIAL OF CONSTRUCTION

Pump	:	SS
Ball Valves	:	Nickel Plate / SS
NRV	:	Brass
Base frame	:	GI / SS
Manifold	:	GI / SS

TECHNICAL INFORMATION FEATURES - MVHS

FEATURES	E Series	P Series	P-Smart Series	M Series
Controller Interface				
Ammeter & Voltmeter	✓	✓	✓	✓
BMS Alert & Test Run	✓	✓	✓	✗
Cascade	✓	✓	✓	✓
Dry Run	CT	CT/Float	CT/Float	Float
Emergency Off	✓	✓	✓	✓
Error Log	✗	✓	✓	✓
E Solutions	✗	✗	✓	✗
Fault Pump Isolation	✓	✓	✓	✓
Float Switch Provision	✓	✓	✓	✓
Floating Inverter	✗	✓	✓	✗
Graphical Interface	✗	✓	✓	✓
HMI	✗	✓	✓	✓
Limit ON/OFF Frequency	✓	✓	✓	✗
Maintanence Call	✗	✓	✓	✓
Overload Protection	✓	✓	✓	✓
Password Protection	✓	✓	✓	✓
Pressure Lock	✗	✓	✓	✗
Pressure Switch	✓	✗	✗	✗
Pressure Transmitter	✗	✓	✓	✓
RS 485 Modbus	✗	✓	✓	✓
Single Phase Design	✓	✗	✗	✗
Single Phase Preventer	✓	✓	✓	✓
Phase Reversal	✓	✓	✓	✓
Standby Pump Selection	✗	✓	✓	✗
Warm Up	✗	✓	✓	✗

PERFORMANCE CURVES - MVHS SERIES



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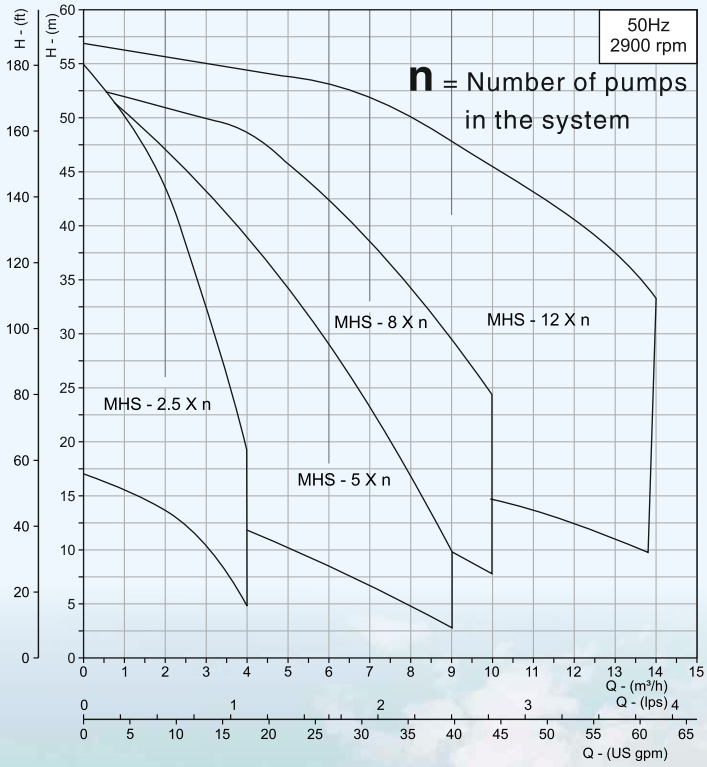

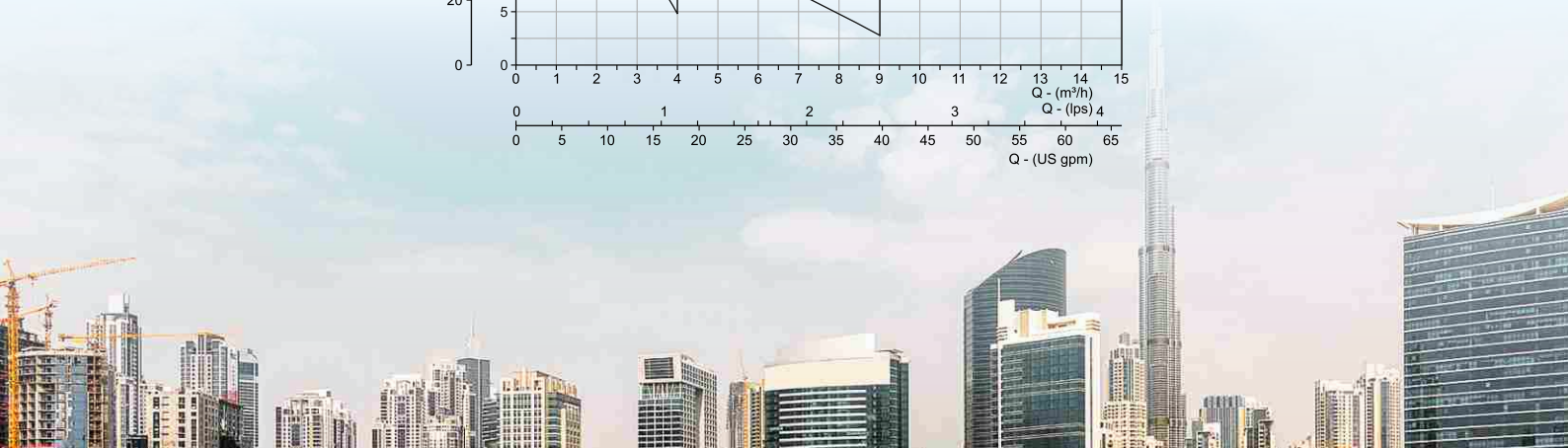

W I N N I N G W A Y S

When you have a good thing going it is quite in the fitting of things that recognitions come our way. Several prestigious awards, which decorate our shelf, say it all. These rewards not only acknowledge our position as a leader in the water pump industry but also serve as reminders about what the customer expects from a winner. And we, as ever, have our ears perfectly tuned to customer expectations.

C.R.I. PUMPS PRIVATE LIMITED

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