



**Vertical Multistage Pumps - MV Series 50Hz**



**C.R.I. PUMPS**

Pumping trust. Worldwide.

## 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 1500 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

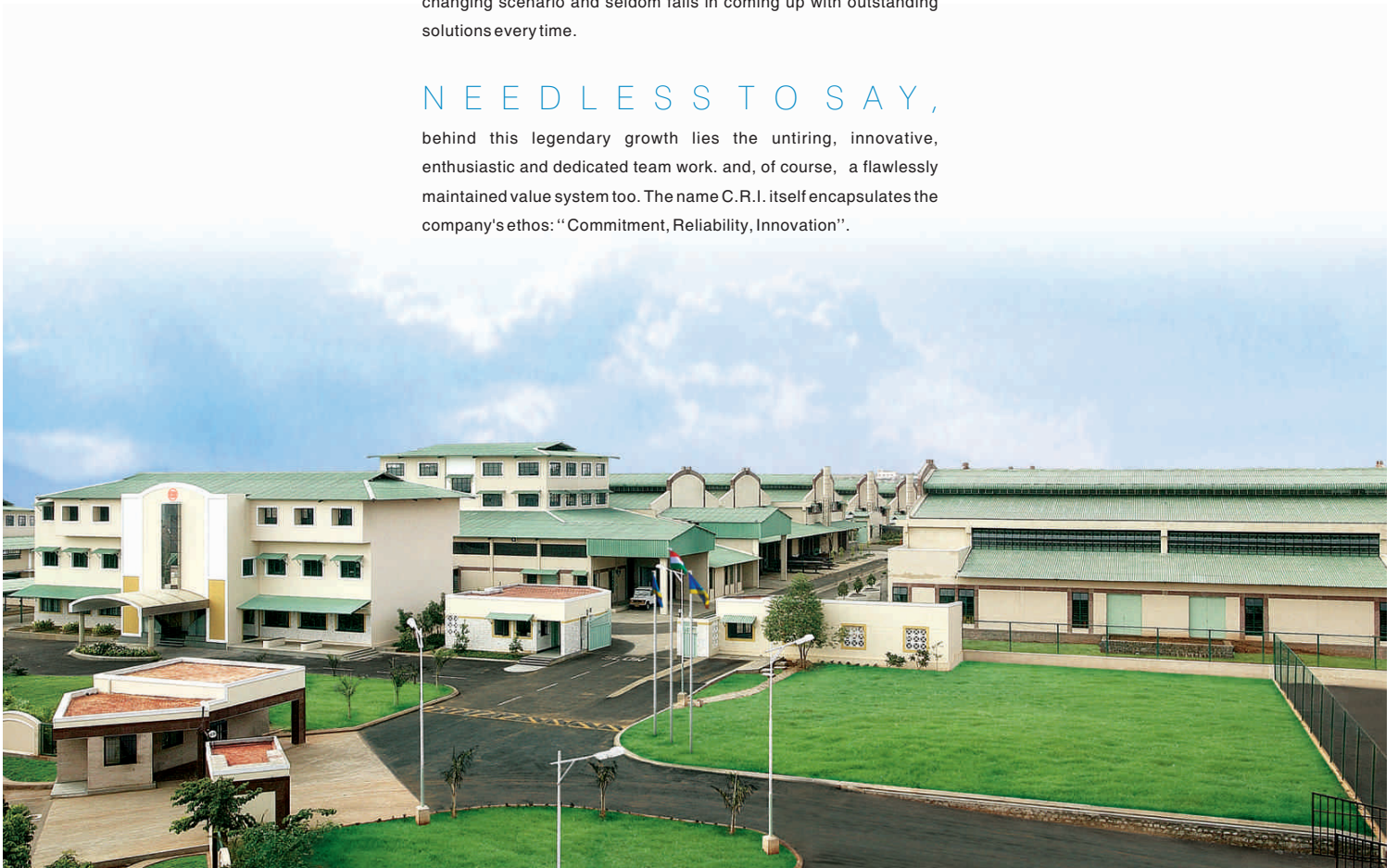
the few pioneers in the world to produce 100% stainless steel submersible pumps. Having achieved a record production capacity of over 1.5 million pumps per annum, today C.R.I. is rubbing its shoulders with the best brands in the world, with advanced technology and safety standards as its hallmarks.

## 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 200,000 square metres. The production environment is accredited with ISO 9001 & 14001 certifications and the products are CE, UR/UL, 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".





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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**.



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## G E N E R A L

C.R.I. Vertical Multistage centrifugal pumps (MV series) are non-self priming, axial suction and delivery type available with DIN standard port connections. All components like impellers, diffusers & shaft of these pumps are made of corrosion resistant stainless steel and designed to deliver the best possible hydraulic efficiency. As the diffuser chambers, impellers, shaft & pump base (casing) are made of high grade stainless steel S.S. 304/316, these pumps can be used to pump clear water and are quite hygienic to use in drinking water systems too. 'O' rings / gaskets prevent leakage at the intermediate casing during high pressure. The replacement of the seal can even be done in the installed position without removing the pump from the system. These pumps are reliable, easily serviceable and used in water boosting units to get trouble free service for years together.

C.R.I. Multistage Vertical pumps are powered by a Totally Enclosed Fan Cooled, A.C. induction motor, suitable for continuous duty. Motor stator is made of low watt loss steel laminations assembled under pressure and rigidly locked in the frame. Dynamically balanced rotor ensures vibration and noise free operations. The varnished impregnated windings made of enamelled copper wire offer excellent resistance.

Shaft of ample size made of quality steel and precisely ground is used for transmitting the rated Horsepower. Construction of motor frames and usage of quality materials result in high performance and low temperature rise thereby increasing the life cycle of the motor. Thermal over load protector is incorporated in all single phase motors. These pumps require an adequate control system and the mounting dimensions are as per IEC standard.

**Applications :** | Pressure boosting units | Industrial water supply | Fire fighting systems | Irrigation | Reverse osmosis systems | High pressure water supply | Water treatment plants | Boiler feeding | Washing systems | HVAC | Mining | Food processing industry | Golf Course.

**Features :** | High operating efficiency | Precise parts for hygiene | Good suction lift and operating pressure | Dynamically balanced rotating parts | Balanced and rigid construction | Available M.O.C. Type S, N & C.

**IMPORTANT NOTES**

| Read our operator's manual carefully before installation | Pump should not be operated dry | Install dry run prevention to protect the pumpset from dry running | Use appropriate size, good quality cable and starter / protection devices | Use low friction good quality pipes | The pipe diameters must never be smaller than the pump connections | Install pump according to our recommended Head range | Reduce number of bends, elbows, T-bends as much as possible in the pipe line | All pumpsets employ a prime mover motor of suitable size | Avoid fatal electrical shock or injury by disconnecting power before working on or around the pumping system | Only technically qualified personnel must perform the works complying with local electricity rules and regulations | To reduce the risk of electrical shock during operation, an appropriate earthing is mandatory | Maximum permissible supply voltage should lie between  $\pm 10\%$  of the rated voltage | The performance data and curves are at rated voltage and only indicative | Product pictures shown are only for illustration purpose and the actual product may vary than they appear in picture | Standard pump supply is made for the maximum flange pressure rating mentioned in the dimensional drawing | Pipe sizes mentioned in inches are nominal pipe sizes and are nearest conversion of mm.

**MODEL IDENTIFICATION CODE**

**M X X - XX / XX (X) (X) X (X) (X)**

**Product category**  
**M** = Multi Stage Centrifugal Pumps  
**V** = Vertical

**M.O.C**  
Pump Outershell / Impeller / Pump Base / Suc. & Del. Ports  
**C** = SS 304 / SS 304 / Cast Iron / Cast Iron  
**S** = SS 304 / SS 304 / Cast Iron / SS 304  
**N** = SS 316 / SS 316 / Cast Iron / SS 316

**Flow Rate in m³/h**  
**05** = 5 m³/h, **66** = 66 m³/h

**High Eff. Motor** (applicable only when supplied with IE2 & IE3 motors)  
2 for IE2 & 3 for IE3.

**Voltage** (This digit is applicable except 230V 1 Ph & 380-415V 3 Ph)

**Phase / Connection / Control box / Frequency**  
**M** = 1P / PSC / 50Hz  
**S** = 1P / CSCR / 50Hz  
**T** = 3P / D.O.L / 50Hz  
**D** = 3P / S.D / 50Hz

**Types of Port connection**  
(This digit is applicable only for PJE coupling)  
**P** = PJE coupling

**No of Trimmed Impellers**  
(This digit is applicable only for pumps with trimmed impellers)  
**A** = 1 Trimmed Impeller  
**B** = 2 Trimmed Impellers

**No. of Impellers**

**DESCRIPTION**

“MVS-44/07BT2” denotes 44m³/h, round flange, 7 stage, with 2 trimmed impellers Vertical Multistage pump with 50Hz, 3Ph, 415V IE2 motor.  
“MVS-44/07B” denotes only pump end without motor.  
Note : Pump is supplied with round flange by default.  
Last 3 digits are applicable for pumps supplied with motor (Pumpset)

**TECHNICAL DATA**

Power Range	0.37 to 45 kW
Speed	2900 rpm
Degree of protection	IP 55 (Optional IP44 / IP54)
Insulation class	'F' (Optional 'B')
Versions	Single Phase 230V, 50Hz, A.C. Supply (0.37 - 2.2kW) (Permanent Split Capacitor-PSC & CSCR) Incorporated with thermal over load protector. Three Phase 380-415V, 50Hz, A.C. Supply (0.37 - 45kW)
Sealing	Mechanical seal - Cartridge type
Direction of rotation	Anti-clockwise viewed from driving end
Type of Duty	S1 (continuous)
Flange type	Round / PJE
Flange Standard	DIN
Pipe Connection	DN 25, DN 32, DN 40, DN 50, DN 65, DN 80 & DN 100

**OPERATION LIMITS**

Maximum Suction Lift	7 m
Maximum Liquid Temperature	- 15°C to + 120°C
Maximum Ambient Temperature	40°C
Maximum Operating Pressure Range	32 Bar

**PERFORMANCE RANGE**

Maximum Nominal Flow	90 m³/h
Maximum Head	320 m





**MATERIALS OF CONSTRUCTION**

Part Name	Part No.	Type - C	Type - S	Type - N
Pump Outer Shell	29.06	SS 304	SS 304	SS 316
Pump Head	30.00	C.I.	Upto 16m <sup>3</sup> /h - C.I.	Upto 16m <sup>3</sup> /h - C.I.
			Above 32m <sup>3</sup> /h - SS 304	Above 32m <sup>3</sup> /h - SS 316
Pump Head Cover	30.07	NA	SS 304*	SS 316*
Pump Head Stool (Only for 32m <sup>3</sup> /h & above)	30.01	C.I.	C.I.	C.I.
Pump Base	29.01	C.I.	SS 304	SS 316
Base Plate	24.03	NA	C.I.	C.I.
Impeller	19.00	SS 304	SS 304	SS 316
** Mechanical Seal	16.00	SiC / SiC / FKM	SiC / SiC / FKM	SiC / SiC / FKM
*** Bush	12.03	SiC / SiC	SiC / SiC	SiC / SiC
Diffuser (Chamber)	18.07	SS 304	SS 304	SS 316
Pump Shaft	22.00	SS 304 / 431	SS 304 / 431	SS 316/329
Wearing Ring	17.01	Teflon	Teflon	Teflon
Flange	29.04	C.I.	SS 304	SS 316
Neck Ring	19.01	SS 304	SS 304	SS 316
"O" Ring	32.09	EPDM / FKM	EPDM / FKM	EPDM / FKM
Coupling	22.01	M.S / C.I.	M.S / C.I.	M.S / C.I.
Split Cone	19.02	SS 304	SS 304	SS 316
Split Cone Nut	19.03	SS 304	SS 304	SS 316

\* Provided only upto 16m<sup>3</sup>/h

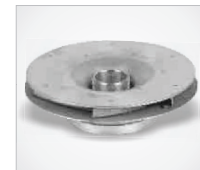
\*\* Optional Mechanical Seal MOCs

- TC / TC / FKM
- SiC / SiC / EPDM
- TC / CARBON / EPDM
- TC / TC / EPDM

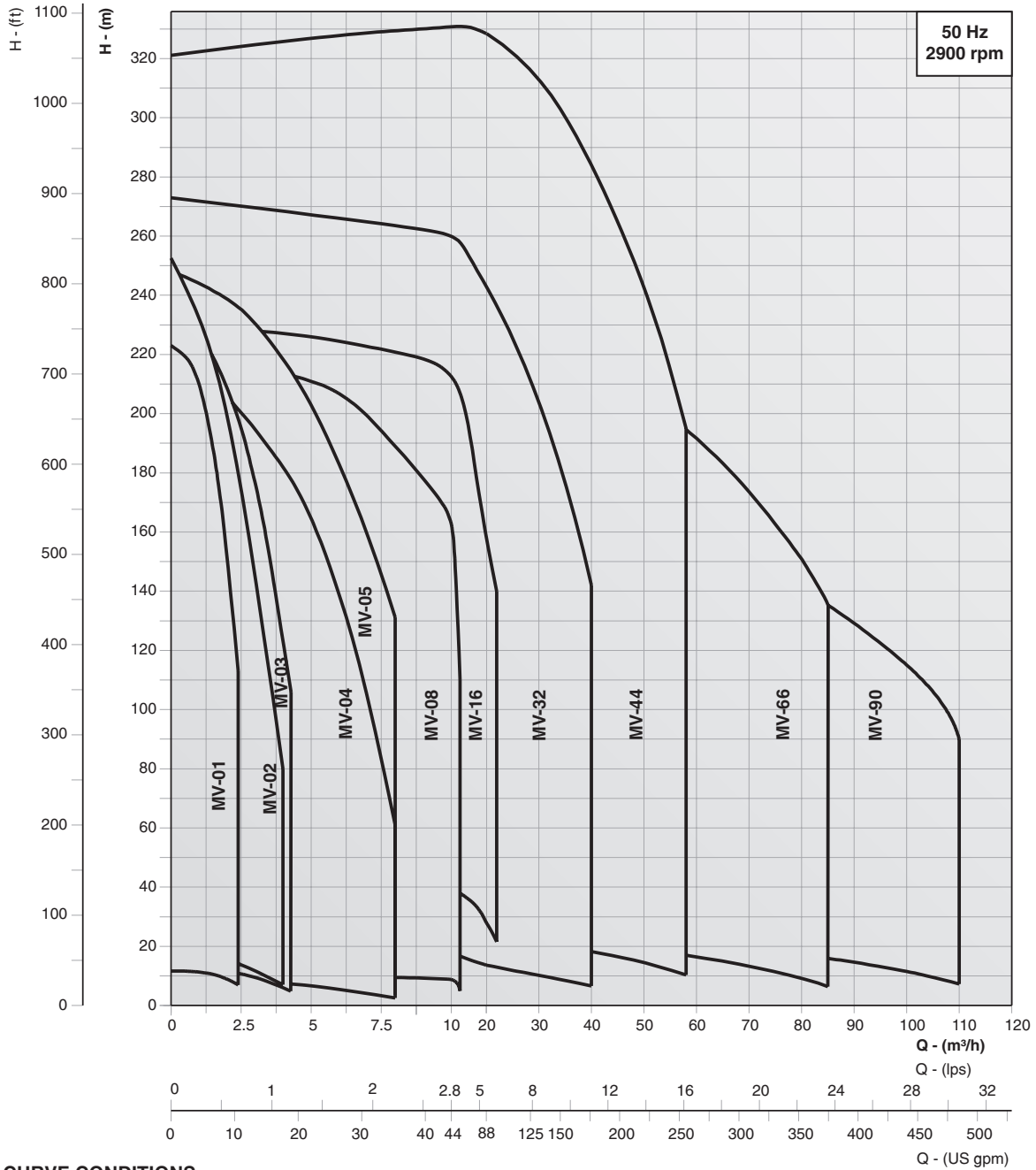
\*\*\* Optional Bush MOC

- TC / TC

SiC - Silicon Carbide, TC - Tungsten Carbide, FKM - Fluoroelaromer (VITON), EPDM - Ethylene Propylene Diene Monomer



# GROUP PERFORMANCE CURVE

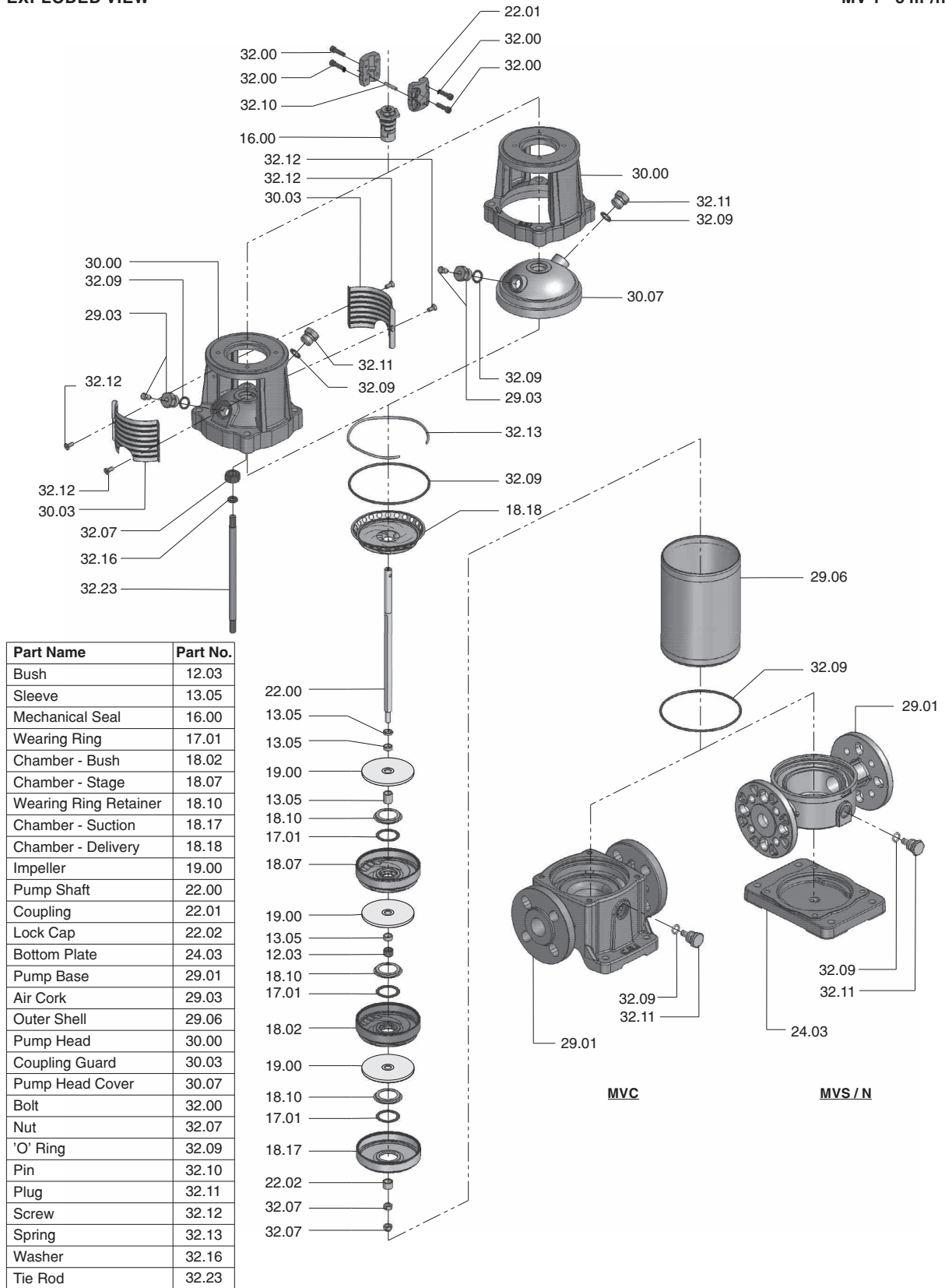


## CURVE CONDITIONS

| Curve tolerance are according to ISO 9906, Grade 3B | The performance are taken at rated voltage & speed that are only indicative | Actual discharge depends on availability of water in well / tank, height of water column from the suction pipe end | The measurements were made with airless water at 20°C when pumping liquids with a density higher than of water, motors with correspondingly higher outputs must be used | The bold curves indicate the recommended performance range | Pipe friction losses have not been included in the performance curves & performance tables | The pipe connection threads are given as per BSP standard | The main scales of the performance curve are "meter" and "m³/h", which have been given for head and flow respectively | The performance curves are applicable for all type of materials of construction.

**EXPLODED VIEW**

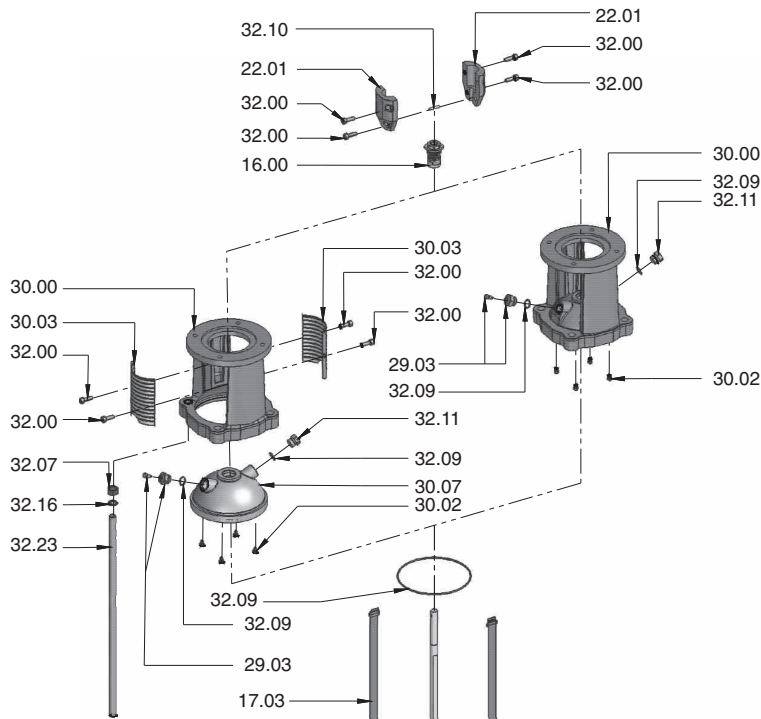
**MV 1 - 5 m<sup>3</sup>/h**



Part Name	Part No.
Bush	12.03
Sleeve	13.05
Mechanical Seal	16.00
Wearing Ring	17.01
Chamber - Bush	18.02
Chamber - Stage	18.07
Wearing Ring Retainer	18.10
Chamber - Suction	18.17
Chamber - Delivery	18.18
Impeller	19.00
Pump Shaft	22.00
Coupling	22.01
Lock Cap	22.02
Bottom Plate	24.03
Pump Base	29.01
Air Cork	29.03
Outer Shell	29.06
Pump Head	30.00
Coupling Guard	30.03
Pump Head Cover	30.07
Bolt	32.00
Nut	32.07
O' Ring	32.09
Pin	32.10
Plug	32.11
Screw	32.12
Spring	32.13
Washer	32.16
Tie Rod	32.23

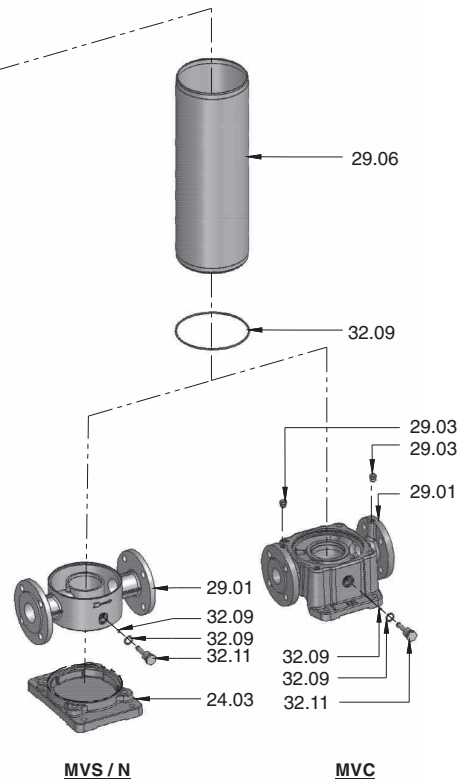
**EXPLODED VIEW**

**MV 8 - 16 m³/h**



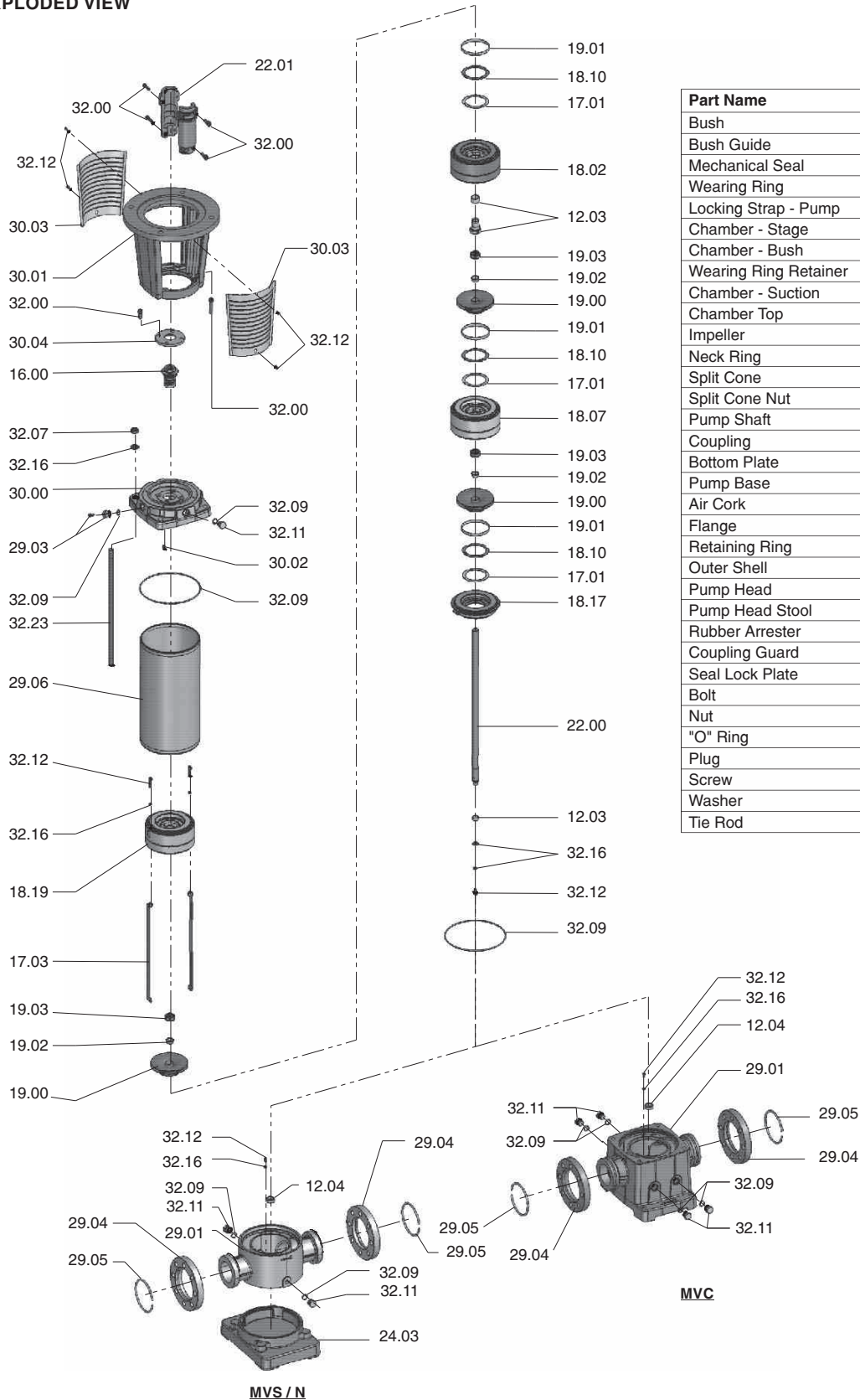
Part Name	Part No.
Bush	12.03
Sleeve	13.05
Mechanical Seal	16.00
Wearing Ring	17.01
Locking Strap - Pump	17.03
Chamber - Bush	18.02
Chamber - Stage	18.07
Wearing Ring Retainer	18.10
Chamber - Delivery	18.18
Suction Chamber Top Plate	18.23
Suction Chamber Bottom Plate	18.24
Impeller	19.00
*Neck Ring	19.01
Pump Shaft	22.00
Coupling	22.01
Lock Cap	22.02
Bottom Plate	24.03
Pump Base	29.01
Air Cork	29.03
Outer Shell	29.06
Pump Head	30.00
Rubber Arrester	30.02
Coupling Guard	30.03
Pump Head Cover	30.07
Bolt	32.00
Nut	32.07
"O" Ring	32.09
Pin	32.10
Plug	32.11
Screw	32.12
Washer	32.16
Tie Rod	32.23

\* Only for 16m³/h.



**MV 32 - 90 m³/h**

**EXPLODED VIEW**



Part Name	Part No.
Bush	12.03
Bush Guide	12.04
Mechanical Seal	16.00
Wearing Ring	17.01
Locking Strap - Pump	17.03
Chamber - Stage	18.07
Chamber - Bush	18.02
Wearing Ring Retainer	18.10
Chamber - Suction	18.17
Chamber Top	18.19
Impeller	19.00
Neck Ring	19.01
Split Cone	19.02
Split Cone Nut	19.03
Pump Shaft	22.00
Coupling	22.01
Bottom Plate	24.03
Pump Base	29.01
Air Cork	29.03
Flange	29.04
Retaining Ring	29.05
Outer Shell	29.06
Pump Head	30.00
Pump Head Stool	30.01
Rubber Arrester	30.02
Coupling Guard	30.03
Seal Lock Plate	30.04
Bolt	32.00
Nut	32.07
"O" Ring	32.09
Plug	32.11
Screw	32.12
Washer	32.16
Tie Rod	32.23