ashirvad

PIPES

WORLD'S LARGEST SELLING uPVC COLUMN PIPES for Submersible Pumps

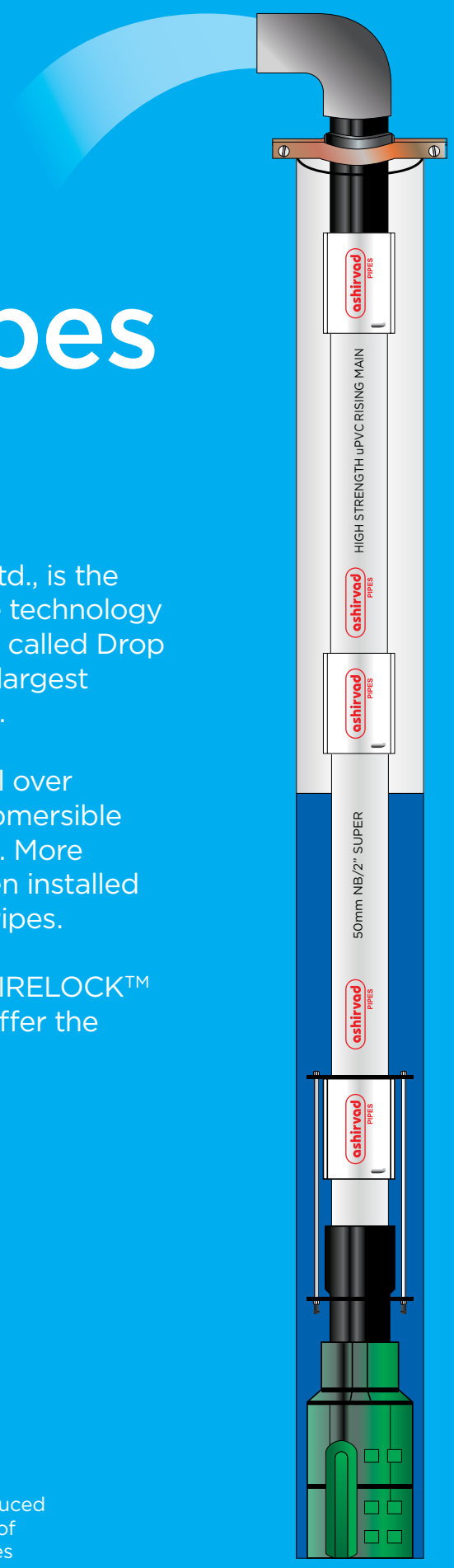
TECHNICAL MANUAL

Design Registered
Only with Ashirvad

RECOMMENDED TO USE ashirvad BRAND TOP & BOTTOM ADAPTOR FOR SAFETY OF PUMP & PIPES

COLUMN PIPES
FOR SUBMERSIBLE PUMP

Pioneer in uPVC Column Pipes worldwide



Based at Bengaluru, Ashirvad Pipes Pvt. Ltd., is the first Company in the world to develop the technology in 1995 to manufacture column pipes (also called Drop / Riser pipes) using uPVC. Ashirvad is the largest manufacturer in the world for this product.

These pipes are being used successfully all over the world in over 40 countries to erect submersible borewell pumps up-to depths of 1200 feet. More than 30,00,000 borewell pumps have been installed across the globe using Ashirvad Column Pipes.

With its unique patented technology of WIRELOCK™ system, uPVC Column Pipes of Ashirvad offer the best replacement for GI and HDPE Pipes.

Patented WIRELOCK™ Technology

Export to over 40 Countries

Ashirvad has produced over 1,30,000 km of uPVC Column Pipes

ashirvad HEAVY CLASS
ashirvad SUPER HEAVY CLASS
ashirvad STANDARD CLASS

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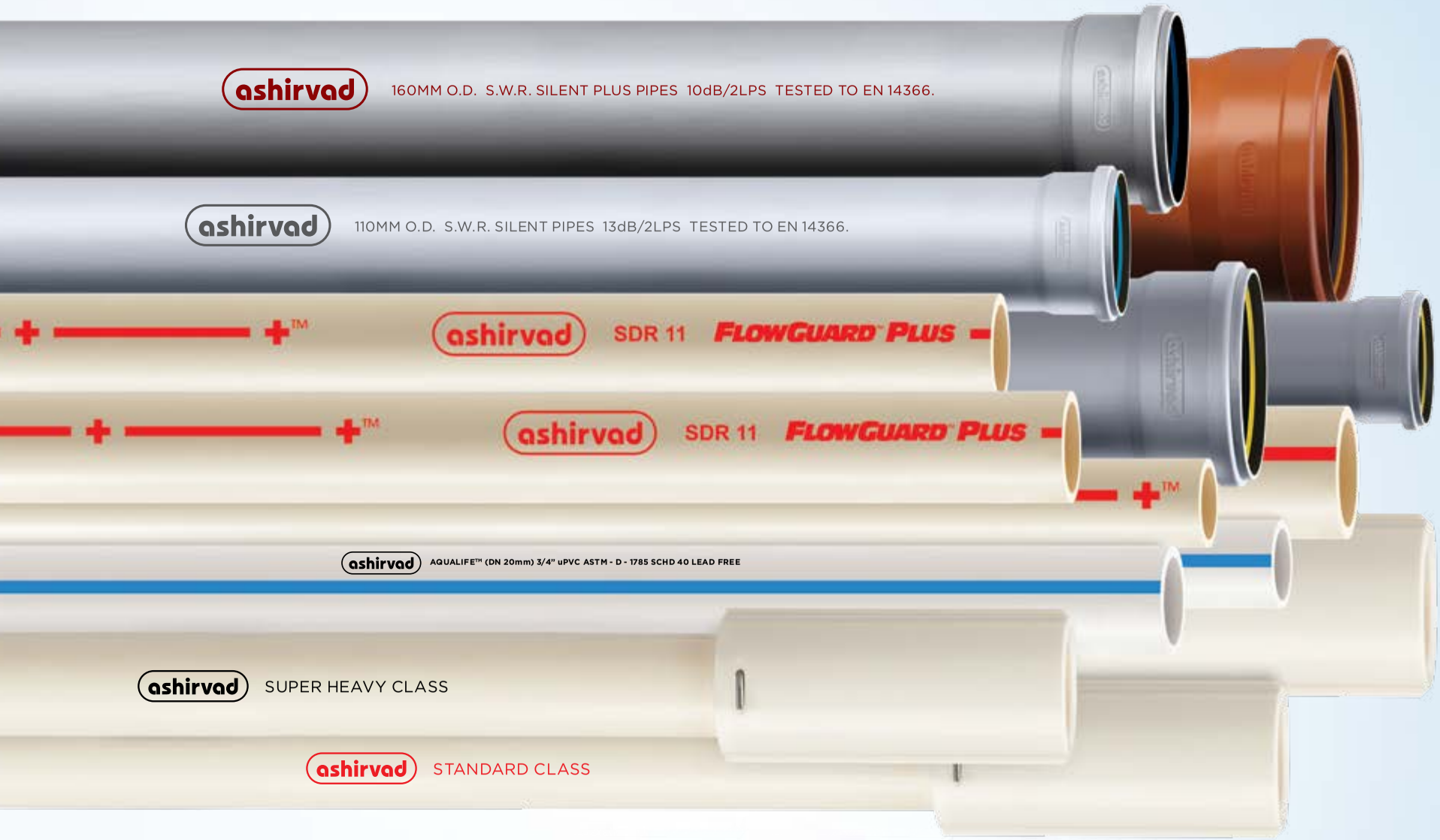
Water - In all its forms,
a precious gift to life around,
ever flowing, never stopping,
always forward bound.

From the sky, from the rivers,
from the lakes around
Bringing joy, bringing cheer
abundant & profound
Water, water everywhere,
happiness abound

“Khushiyon ke rang - paani ke sang”

be **water happy**™


ashirvad
160MM O.D. S.W.R. SILENT PLUS PIPES 10dB/2LPS TESTED TO EN 14366.
ashirvad
110MM O.D. S.W.R. SILENT PIPES 13dB/2LPS TESTED TO EN 14366.
ashirvad SDR 11 FLOWGUARD PLUS
ashirvad SDR 11 FLOWGUARD PLUS
ashirvad AQUALIFE™ (DN 20mm) 3/4" uPVC ASTM - D - 1785 SCHD 40 LEAD FREE
ashirvad SUPER HEAVY CLASS
ashirvad STANDARD CLASS

About Ashirvad

Ashirvad Pipes has been relentless in its commitment to quality and service since 1975. The products have been enhanced through the years so as to suit the customer's requirements better. With its base in Bengaluru, Ashirvad Pipes is an OHSAS 18001:2007, ISO 9001:2015 and ISO 14001:2015 certified company with a constant endeavour towards achieving the highest level of customer satisfaction.

Ashirvad has partnered with Aliaxis S.A. /N.V., a € 3 billion + (INR 21,600 + crores) Belgium conglomerate and a global leader in plastic fluid handling systems.

Ashirvad Pipes today:

- Manufacturing capacity in excess of 2,00,000 MT per annum
- Total factory area of 50 acres
- 504 sales & marketing staff across India
- Strong team of 205 at corporate office
- Over 4,500 manufacturing workforce
- 20 warehouses across India
- 1,280 distributors
- 50,452 dealers
- Exporting Column Pipes to more than 40 countries
- 2 factories in Bengaluru and a new factory in Bhiwadi (Rajasthan) near Delhi

Ashirvad Pipes is the pioneer, largest manufacturer and exporter of uPVC Column pipes in India. Ashirvad is also a licensee of The Lubrizol Corporation, a Berkshire Hathaway Company, to manufacture and market CPVC plumbing systems in India. Ashirvad foresees to become a "one stop shop" for all plumbing and sanitary products needed by the Indian markets.

In 2007, Ashirvad won the National Award

for **"OUTSTANDING ENTREPRENEURSHIP IN MEDIUM ENTERPRISES"**

The award was presented by the Prime Minister of India.

WCRC LEADERS SUMMIT - 2014

"Ashirvad Pipes" **One of the 100**

"FASTEST GROWING MARKETING BRANDS IN ASIA"

(Evaluated and selected by KPMG)

The Global Audit Firm

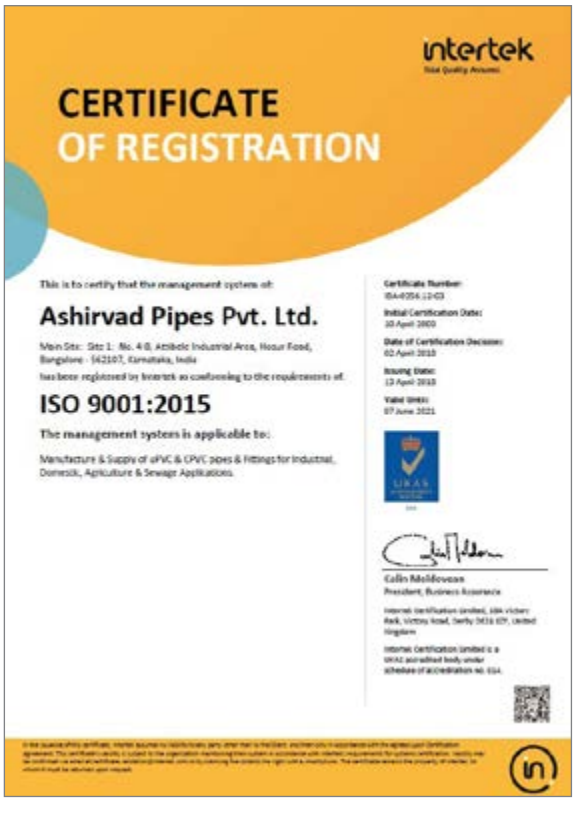
EXPORT EXCELLENCE - 2015

"Ashirvad Pipes"

"BEST MANUFACTURER EXPORTER AWARD"

Large Category - Silver

Certifications


intertek
Total Quality Assured

CERTIFICATE
OF REGISTRATION

This is to certify that the management system of:

Ashirvad Pipes Pvt. Ltd.

Main Site: Site 1: No. 4-B, Attibele Industrial Area, Hosur Road, Bangalore - 562107, Karnataka, India

has been registered by Intertek as conforming to the requirements of:

ISO 9001:2015

The management system is applicable to:

Manufacture & Supply of uPVC & CPVC pipes & Fittings for Industrial, Domestic, Agriculture & Sewage Applications.

Certificate Number: IDA-0256.12-03

Initial Certification Date: 10 April 2003

Date of Certification Decision: 02 April 2018

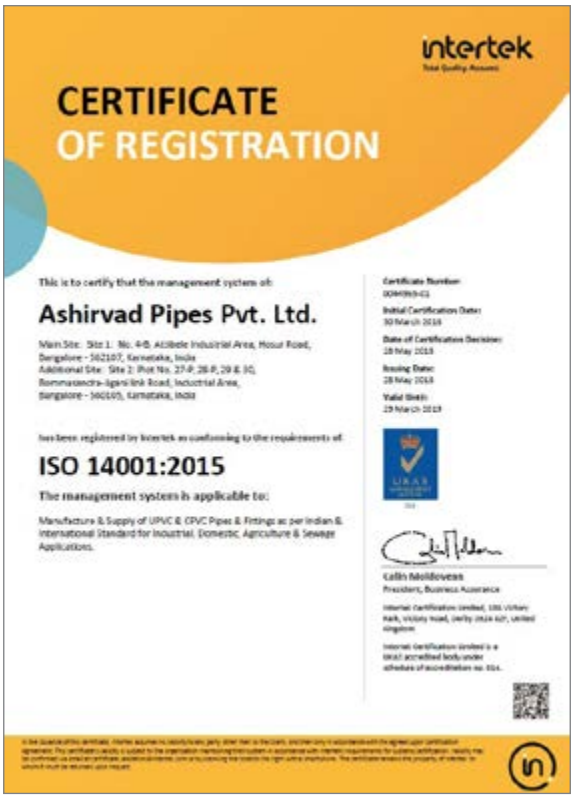
Issuing Date: 13 April 2018

Valid Until: 07 June 2021

Calin Moldovean
President, Business Assurance

Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom

Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.


intertek
Total Quality Assured

CERTIFICATE
OF REGISTRATION

This is to certify that the management system of:

Ashirvad Pipes Pvt. Ltd.

Main Site: Site 1: No. 4-B, Attibele Industrial Area, Hosur Road, Bangalore - 562107, Karnataka, India
Additional Site: Site 2: Plot No. 27-P, 28-P, 29 & 30, Bommasandra-Jigani link Road, Industrial Area, Bangalore - 560105, Karnataka, India

has been registered by Intertek as conforming to the requirements of:

ISO 14001:2015

The management system is applicable to:

Manufacture & Supply of UPVC & CPVC Pipes & Fittings as per Indian & International Standard for Industrial, Domestic, Agriculture & Sewage Applications.

Certificate Number: 0044969-01

Initial Certification Date: 30 March 2018

Date of Certification Decision: 18 May 2018

Issuing Date: 28 May 2018

Valid Until: 29 March 2019

Calin Moldovean
President, Business Assurance

Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom

Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.

intertek
Total Quality Assured

CERTIFICATE
OF REGISTRATION

This is to certify that the management system of

Ashirvad Pipes Pvt. Ltd.

Site 1: No. 4 A,B,C, 5 A,B,C, 3-P
Attibele Industrial Area, Hosur Road
Bangalore - 562107, Karnataka, India

Site 2: Plot No. 27-P, 28-P, 29 & 30
Bommasandra-Jigani link Road, Industrial Area
Bangalore - 560105, Karnataka, India

Site 3: Plot No. 26-B
Attibele Industrial Area, Hosur Main Road
Bangalore, 562107, Karnataka, India

has been registered by Intertek as conforming to the requirements of

OHSAS 18001:2007

The management system is applicable to:

Manufacture & Supply of uPVC & CPVC Pipes & Fittings, Solvent Cements as per Indian & International Standard for Industrial, Domestic, Agriculture & Sewage Applications.

Certificate Number: 094115

Issue Date: 20 July 2017

Expiry Date: 19 July 2020

Calin Moldovean
President, Business Assurance

Intertek Certification Limited
10A Victory Park, Victory Road
Derby DE24 8ZF, United Kingdom

Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.

भारत सरकार
GOVERNMENT OF INDIA
वाणिज्य एवं उद्योग मंत्रालय
MINISTRY OF COMMERCE & INDUSTRY
विदेश व्यापार महानिदेशालय
DIRECTORATE GENERAL OF FOREIGN TRADE
मान्यता प्रमाण पत्र
Certificate of Recognition
एक सितारा निर्यात सदन
ONE STAR EXPORT HOUSE

पैसर्स _____

(आई ई सी _____ और आयकर पैन _____)

को विदेश व्यापार नीति, 2015–2020 के प्रावधानों के अनुसार एक सितारा निर्यात सदन का स्तर प्रदान किया जाता है। यह प्रमाण पत्र, प्रक्रिया पुस्तक (2015 –2020) के पैरा 3.20 (बी) में दी गयी शर्तों के निहित _____ वर्षों की अवधि के लिए दिनांक _____ से _____ तक वैध होगा।

M/s ASHIRVAD PIPES PVT. LTD.
PLOT NO.4-B, HINDU INDUSTRIAL AREA, ATTIBELE, ANEKAL TALUK, BANGALORE-562107

(IEC 0796054911 and Income Tax PAN AABCA7061K)

are hereby accorded the status of One Star Export House in accordance with the provisions of the Foreign Trade Policy, 2015-2020. This Certificate is valid for a period of FIVE years effective from 20.11.2015 to 20.11.2020 subject to the conditions prescribed in Para 3.20(b) of the Hand Book of Procedures (2015-2020).

सं./No. A/ 5953

तारीख/Date : 21.07.2016

स्थान/Place : Bangalore

07/75/056/00189/AM16

SEAL

20.11.2015

(फाइल सं./File No.) _____ तारीख/Date : _____

VIJAY KUMAR, ITS
अपर/संयुक्त/उप महानिदेशक,
विदेश व्यापार/विकास आयुक्त (एम.ई.डी.)
Additional/Joint/Deputy
Director General of Foreign Trade
Development Commissioner (DCI)

ashirvad
PIPES

Global Partners - Aliaxis S.A./N.V.

The Aliaxis group is a leading global manufacturer and distributor primarily of plastic fluid handling systems used in residential, commercial and industrial buildings.

Head quartered in Brussels, Belgium, Aliaxis is present in over 46 countries, has more than 100 manufacturing and commercial entities and employs over 16,200 people.

Aliaxis leverages local and global knowledge of the industry as well as regulations and building habits to provide consistently excellent customer service through distribution partners to builders, installers, infrastructure contractors and others. The group is in the Indian plumbing and sanitary market through a partnership with Ashirvad Pipes since 2013.

SPECIALITY PRODUCTS

Non Return Valves

Technology from REDI Italy

Balcony drains

Product from Snow, Singapore

Single stack SWR system

Technology from akatherm Netherlands

CPVC and uPVC Solvent Cement

Technology from Durman Costa Rica

Inspection Chambers and Manholes

Technology from REDI Italy

Couplings, Traps and Waste Pipe

Technology from Jimten Spain

Pan Connectors

Technology from Multikwik UK

Ball and Butterfly Valves

Product from FIP Italy

Fire Collars

Product from Promat Malaysia

Air Admittance and Release Valves

Product from Germany

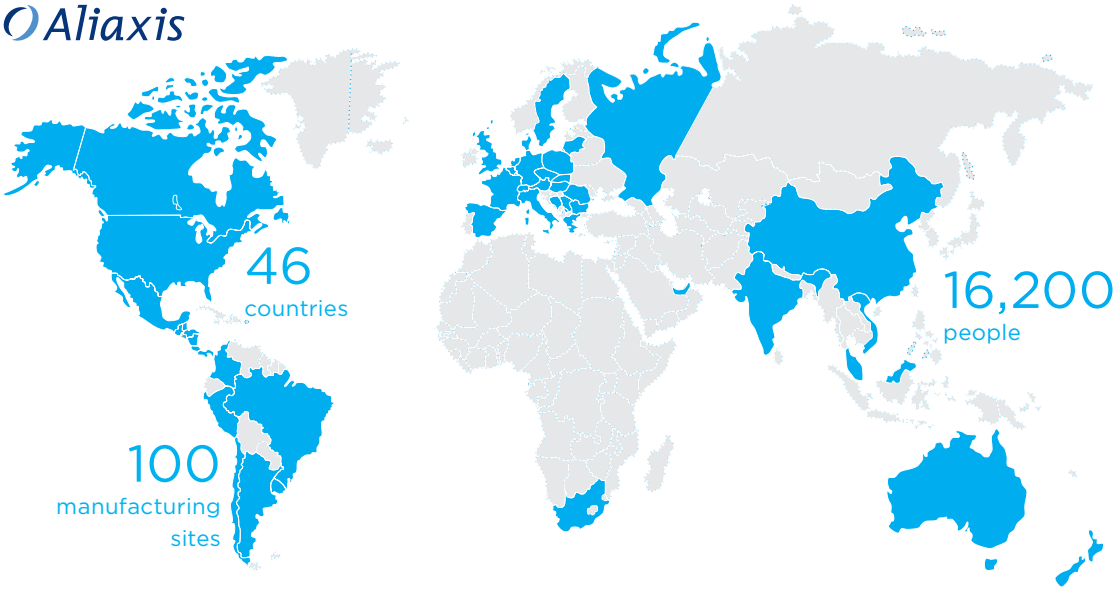
Grease and Solid Interceptors

Product from canplas Canada

CPVC and uPVC Concealed Valves

Technology from Durman Costa Rica

Aliaxis



Ashirvad production plant

Injection Moulding Facility

Raw material handling

Ashirvad workforce

SS Adaptors for column pipes

Extrusion Facility

10 ASSURANCES

#01

STATE OF THE ART
MANUFACTURING FACILITY

#02

ADVANCED MACHINERY
FOR SUPERIOR QUALITY

#03

ADVANCED MATERIAL
HANDLING SYSTEMS

#04

100% INCOMING RAW
MATERIAL INSPECTION

#05

HIGH DIMENSIONAL ACCURACY
TO MAINTAIN QUALITY OF
EACH PIPE, TO ENSURE 100%
CUSTOMER SATISFACTION

Ashirvad's stringent quality checks ensure premium products and maximum customer satisfaction

#06

STRINGENT QUALITY CHECKS AT EVERY LEVEL OF PRODUCTION

#07

100% FINISHED GOODS INSPECTION

#08

EVERY BATCH OF PRODUCTS LAB TESTED

#09

QUALITY PARAMETERS ARE SAME FOR DOMESTIC AND EXPORT SUPPLIES

#10

REGULAR EXTERNAL LAB TESTING OF PRODUCTS IN INDIA

WATER FROM THE SOURCE

Ashirvad Pipes is perhaps the only company in India to provide end to end solutions for Smart Water Management. From manufacturing uPVC Column Pipes for installation of borewell pumps, to providing the best quality SWR pipes (for disposing rain and waste water), today Ashirvad is considered to be the industry leader and a one stop shop for plumbing, drainage and sanitary products across the spectrum.

Why Ashirvad Column Pipes are the best choice?

Available in various sizes starting from 25 mm to 150 mm diameter, Ashirvad Column pipes are made of uPVC and are non-corrosive, Hi-tech, Hi-tensile pipes, having a successful installation track record of over 20 years across the globe. The thick and thin technology to ensure uniform thickness across the length of the pipe and the square threads for extra strength, are some of the unique features of Ashirvad Column Pipes.

The pipes come in various types like Medium, Heavy and Super Heavy and a quick look at the "Pipe Selection Chart" will clearly indicate the best type to be used for any particular application, depending upon the depth of the bore-well and the type of pump head.

Pioneer of uPVC Column Pipes

Ashirvad has produced over 1,30,000 km of uPVC Column Pipes

30 lakhs + successful installations globally since 1995

Patented WIRELOCK™ for Pump Safety

Biax™ Technology for Extra Pipe Strength

Successful maintenance free - track record of over 20 years

Exporting to more than **40** Countries

Recommended for installations upto **1200***ft depth

The Firsts From Ashirvad

PVC PIPE JOINT SYSTEM WITH COUPLER AND WIRELOCK™ FOR EXTRA PUMP SAFETY

Design registered and patented in India.
Patent also registered in USA, Europe, South Africa, Australia and Nigeria.

In this unique WIRELOCK™ system developed by Ashirvad Pipes, the coupler (1" and above) is fitted to the pipe and locked with special stainless steel wire, thus eliminating the chances of coupler loosening and column slipping during dismantling process and also excessive tightening of coupler with pipe. Only Ashirvad has this unique gripping system.

uPVC RISER / DROP PIPE

Leading innovation in PVC pipe industry since 1975, Ashirvad Pipes was the first to develop Column Pipes for submersible pumps in uPVC.

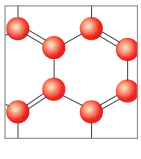
COUPLING

Installation of pipes becomes very easy due to threaded coupling. Ashirvad has the easiest installation system.

'O' RING

The 'O' ring, sealant and gripping system provides leak proof fitting and also absorbs the vibrations of the pump. This results in extended life of motor and pump bearings. Ashirvad also has a unique gripping system.

BIAX™ TECHNOLOGY for super strength



BIAX™ TECHNOLOGY FOR SUPER STRENGTH

This technique has been developed for the first time in India by Ashirvad Pipes where in the uPVC molecular chain gets linearly and diametrically oriented during the process of extrusion. This results in higher impact strength.

HIGHLIGHTS

Exports to over 35 countries and more than 27,00,000 (2.7 million) successful installations across the world.

ashirvad PIPES

Why uPVC Column Pipes?

Sr. No.	Property Requirement For Drop/Riser Pipes	Ashirvad Pipes	Mild Steel Or Galvanized Steel Pipes	HDPE Pipes
1	Rigidity requirement so that Drop / Riser pipes and pump is vertical for proper NRV function.	Pipes are rigid	Pipes are rigid	Pipes are flexible hence not suitable for Drop/Riser application. Pipes are also soft and over long term use with heavy pump set they elongate and lose their shape permanently. In the process of elongation they become thin and break.
2	Strong threaded joints required for holding the column and submersible pump load.	Specially designed square threads have very high load holding capacity and these threads do not corrode or rust or deteriorate.	The threads are prone to corrosion and rusting. Since the threads do not have a layer of Galvanization, after 2-3 years of use the old thread have to be cut out and new threads have to be made on the pipes on lathe machine due to rusting problem. Money and effort is spent in making new threads and the user ends up with a shorter length of pipe.	The threads cannot be formed as these pipes are soft and therefore the jointing of the pipe with the pump or at the top with any fixture is simple push type joint.
3	Leak proof joints required for saving every drop of water.	Special rubber seals are provided with the thread to ensure 100% leak proof at high pump pressure.	These threads are not pressure tight and do not have any rubber sealing system. Therefore not leak proof.	Threads are weak and open up during use.
4	Smooth Internal Surface.	Since the internal surface is very smooth therefore head loss due to friction is low and water discharge is more by 10%-30%	Internal surface Is rough and head loss is high.	Internal surface not as smooth as Ashirvad Pipes.
5	Light weight of pipe and ease in installation.	Pipes come in 3 metres standard length and are light weight for easy handling both during pump fitment and also removal.	Pipes are heavy and great effort is required for installation and removal of pumps. In deeper bore wells the column of pipe becomes very heavy and are prone to accidents during handling.	Becomes hard and cannot be rolled back during removal. Pulling with tractor disturbs the crop.
6	Long life	Ashirvad Drop/Riser pipes do not react with acidic or alkaline water and also have a very long life inside the bore well.	Steel pipes are prone to rust, corrosion and ultimately get damaged and have to be replaced very quickly.	Strength of material being very less, very thick pipes are required for high pressure application. This reduces the internal area for water flow considerably. Hence thin pipes are used for high pressure application and the pipes burst in 2-3 yrs.

The above demonstrates the advantages of Ashirvad high tensile, high impact uPVC Riser / Drop Pipe over the conventional galvanized steel pipes and HDPE pipes.

Features of Ashirvad Column/Riser/Drop Pipes

PVC PIPE JOINT SYSTEM WITH COUPLER AND WIRELOCK™ FOR EXTRA PUMP SAFETY

Design Registered - Patent registered in India. Also patent registered in USA, Europe, South Africa, Australia and Nigeria

Wirelock coupler design: (WIRELOCK™ : For your Pump Safety) The couplers are fitted on the pipe sizes from 33 mm OD (1") up to 165 mm OD (6"). The couplers are locked with a special stainless steel wire to ensure that during installation and removal of pumps, the coupler does not come out, resulting in pipes slippage. The wirelock system with the unique design made only by Ashirvad Pipes is a new development adding value to the product.

MANUFACTURING PROCESS

Ashirvad uses the latest extrusion technology and quality control procedures and has a fully equipped laboratory, ensuring the best quality of pipes and perfect inner/outer dimensions. The WIRELOCK™ mechanism is an in-house development by Ashirvad R and D team, which is a constant endeavour to always be first and best.

SPECIAL FORMULATION

Ashirvad pipes are made with specially designed formulation so that pipes are capable of handling both internal hydro static pressure as well as vertical tensile load due to the column water and pump weight. The special formulation ensures that the threads do not get brittle and break or chip even after loosening and tightening several times during its life span. Special raw materials are processed and used in combination with the latest extrusion technology to make these pipes.

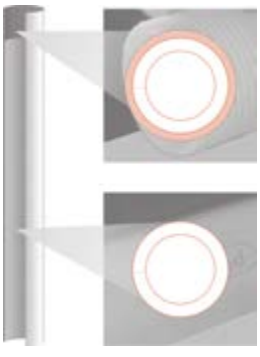
DUAL FUNCTION OF ASHIRVAD DROP / RISER PIPE

Ashirvad Drop / Riser pipes have a dual function to perform. On one hand it has to withstand the pump delivery hydro static pressure, which is maximum in the first pipe connected to the pump and may be as high as 45 Kg/cm^2 and on the other hand, the top most pipe bears the load of the entire column filled with water and pump which may range up to 2 tons. This dual type of loading application makes this product unique and requires special manufacturing techniques which is available only with Ashirvad.

ADVANTAGES OF ASHIRVAD uPVC RISER / DROP PIPE

- Long life
- Power saver
- Light in weight
- 10 to 30% extra water*
- Easy installation
- No electrolytic deposition
- Cost saver
- No rusting or corrosion

ashirvad PIPES

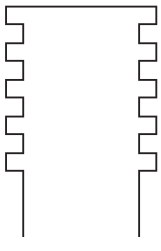


THICK AND THIN

Unique thick and thin construction of pipes: This innovative technique for making pipes thicker in the threading end to compensate for material removal due to threads is an innovation made only at Ashirvad.

The residual thickness (t) in the end part after removal of thread is the same as barrel thickness (t), Therefore the pipe strength remains the same.

This technique saves on the raw material consumption and at the same time provides much higher strength to the pipes.



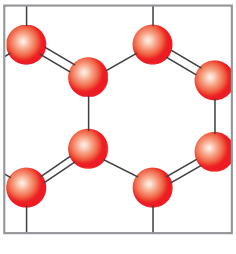
SQUARE TYPE THREADS

The joint of pipes have been specially designed with square threads to ensure proper gripping and no chance of slipping. These threads are high friction threads on load, which do not open even on constant forward and reverse torque generated by starting and stopping the pump. They are made on special CNC machines with high accuracy tools to ensure perfect dimensions and good and easy fitment. All threads are checked thoroughly with fitment gauges to ensure 100% accuracy.

SPECIAL RUBBER SEAL (Design Registered)

An outer rubber ring is provided in the T (Temporary) side of the pipe and an inner rubber ring is provided in the P (Permanent) side of the pipe which ensures a 100% leak proof joint.

This rubber ring is suite appealling in size & shape. It is design registered by Ashirvad and incidentally it can withhold higher press uses too.



BI-AXIAL ORIENTATION

Bi-axial orientation during Riser / Drop pipe extrusion : Ashirvad has developed a unique Bi-axial orientation technique used during pipe extrusion, which gives higher drop impact and notch impact strength to the pipes. This orientation technique is a result of constant Research and Development at Ashirvad only.

Measurement of column pipes

Load and Pressure Technical Chart

TYPE AND SIZE OD - Outside Dia DN - Nominal Dia	Ultimate breaking load (kgf)	Safe pulling load with chain pulley (kgf)	Safe allowable hydrostatic pressure (kg/cm²)	Safe Total Pump Delivery Head (m)
OD: 33 mm (1”) DN: 25 mm				
V4-12.5	850	500	12.5	125
V4-15	1000	600	15	150
Crystal	1250	750	21	210
Standard	1900	1100	30	300
OD:42 mm (1¼”) DN: 32 mm				
V4-12.5	1300	800	12.5	125
V4-15	1550	900	15	150
Crystal	1800	1050	21	210
Standard	2550	1500	25	250
Heavy	3100	1800	35	350
Super Heavy - 40	3150	1850	40	400
Super Heavy - 45	3500	2070	45	450
OD:48 mm (1½”) DN: 40 mm				
V4-12.5	1700	1000	12.5	125
V4-15	2000	1200	15	150
Crystal	2500	1500	21	210
Standard	2950	1700	26	260
Heavy	4050	2350	35	350
Super Heavy - 40	4100	2400	40	400
OD: 60 mm (2”) DN: 50 mm				
Eco Medium	1700	1000	8	80
Medium	2450	1450	13	130
Crystal	3150	1850	17	170
Standard	3600	2100	20	200
Heavy	4700	2800	27	270
Super Heavy	5650	3350	35	350
OD: 63 mm (2¼”) DN: 50 mm				
Heavy Plus - 30	5740	3380	30	300
OD: 75 mm (2½”) DN: 65 mm				
Medium	3100	1800	10	100
Standard	4650	2700	16	160
Standard Plus	5900	3500	21	210
Heavy	7000	4200	26	260
Super Heavy - 35	9000	5300	35	350
Super Heavy - 40	10300	6100	40	400
OD: 88 mm (3”) DN: 80 mm				
Medium	4450	2600	11	110
Standard	6800	4000	17	170

Cont...

ashirvad PIPES

Standard Plus	8200	4850	21	210
Heavy	9600	5650	26	260
Super Heavy	12400	7300	35	350
OD: 100 mm (3½") DN: 90 mm				
Heavy Plus - 30	14680	8640	30	300
OD: 113 mm (4") DN: 100 mm				
Medium	6800	4000	10	100
Standard	10000	5900	15	150
Standard Plus	13000	7650	21	210
Heavy	15900	9350	26	260
Super Heavy	20600	12150	35	350
OD: 140 mm (5") DN: 125 mm				
Standard	16400	9650	16	160
Standard Plus	20800	12250	21	210
Heavy	24000	14600	26	260
Super Heavy	30500	18600	35	350
OD: 165 mm (6") DN: 150 mm				
Heavy	40000	23500	26	260

Chart: 1

Pump total delivery head is available in the pump performance chart supplied by the pump manufacturer. It is the maximum head of pump at which discharge becomes zero(nil). We can manufacture other pressure rating pipes upon request.

Typical Load Technical Chart

Technical comparison for total load on the top pipe and ultimate breakage load of Ashirvad STANDARD Pipes. This is just an indication of the loads to explain that in the design of the pipes adequate factor of safety has been considered.

Size	Weight of 500 ft. of Pipe (kg) (a)	Weight of Water Column in 500 ft Pipe (kg) (b)	Maximum Weight of Pump (kg) (c)	Total Weight (kg) (a+b+c)	Ultimate Breaking Load of Ashirvad Riser / Drop Pipes (kgf)
33 mm OD (1")	78	85	100	263	1900
42 mm OD (1¼")	110	147	100	357	2550
48 mm OD (1½")	146	189	125	460	2950
60 mm OD (2")	193	321	150	664	3600
63 mm OD (2¼")*	306	302	112	720	5740
75 mm OD (2½")	249	529	200	978	4650
88 mm OD (3")	351	717	250	1318	6800
100 mm OD (3½")*	752	754	290	1796	14680
113 mm OD (4")	528	1216	300	2044	10000
140 mm OD (5")	858	1835	500	3193	16400
165 mm OD (6")	1773	2224	1000	4997	40000

* Heavy Plus

Chart: 2

NOTE: The total weight of assembly is considerably reduced due to buoyancy when immersed in bore well water. This is not considered above.

SERVICE CONDITION

These pipes give the best service in bore wells which have full casing or bore wells which are free from loose boulders and stones. In such areas where loose boulders and stones are prevalent then full casing or slightly larger bore should be made so that the pump does not get stuck.

Bore collapse problem occurs in some areas and it can also be tackled by giving full casing pipes. This happens in areas with loose soil and silt. Care should also be taken during drilling of the bore wells that it is vertical straight down without any bend.

NOTE: Any Design and Specifications are subject to change without any prior notice.

Specifications of Ashirvad Column/Riser/Drop Pipes

Size and Type	Wall Thickness in mm		Outer Thickness	Nominal Effective Length	Thick Portion of Both Side
OD - Outside Dia DN - Nominal Dia	End Min/Max	Barrel Min/Max	OD in mm Min/Max	in mm	in mm
OD: 33 mm (1") DN: 25 mm					
V4-12.5 (Bell Type)	3.65/4.55	1.60/2.50	32.6/33.2	3050±10 mm	120-120
V4-12.5 (Socket Type)	3.95/4.80	1.60/2.50	32.6/33.2	2998±3 mm	120-120
V4-15 (Bell Type)	3.65/4.55	1.90/2.80	32.6/33.2	3050±10 mm	200-200
V4-15 (Socket Type)	4.0/5.00	1.90/2.80	32.6/33.2	2998±3 mm	200-200
Crystal (Bell Type)	4.0/5.20	2.25/3.10	32.6/33.2	3050±10 mm	200-200
Standard (Bell Type)	4.85/6.05	3.10/3.95	32.6/33.2	3050±10 mm	200-200
Standard (Socket Type)	5.20/6.10	3.10/3.95	32.6/33.2	2998±3 mm	200-200
OD: 42 mm (1¼") DN: 32 mm					
V4-12.5 (Bell Type)	4.10/5.00	2.00/3.00	41.5/42.2	3050±10 mm	120-120
V4-12.5 (Socket Type)	4.30/5.40	2.00/3.00	41.5/42.2	2998±3 mm	120-120
V4-15 (Bell Type)	4.10/5.0	2.40/3.15	41.5/42.2	3050±10 mm	200-200
V4-15 (Socket Type)	4.50/5.40	2.40/3.15	41.5/42.2	2998±3 mm	200-200
Crystal (Bell Type)	4.55/5.50	2.85/3.95	41.5/42.2	3050±10 mm	200-200
Crystal (Socket Type)	4.95/5.95	2.85/3.95	41.5/42.2	2998±3 mm	200-200
Standard (Bell Type)	5.05/6.00	3.35/4.15	41.5/42.2	3050±10 mm	200-200
Standard (Socket Type)	5.45/6.45	3.35/4.15	41.5/42.2	2998±3 mm	200-200
Heavy (Bell Type)	6.25/7.35	4.55/5.45	41.5/42.2	3050±10 mm	200-200
Heavy (Socket Type)	6.65/7.45	4.55/5.45	41.5/42.2	2998±3 mm	200-200
Super Heavy - 40 (Socket Type)	7.80/8.50	5.30/5.55	41.5/42.2	2998±3 mm	250-250
Super Heavy - 45 (Socket Type)	8.50/9.00	6.00/6.50	41.5/42.2	2998±3 mm	250-250
OD: 48 mm (1½") DN: 40 mm					
V4-12.5 (Bell Type)	4.55/5.45	2.30/3.10	47.5/48.2	3050±10 mm	120-120
V4-12.5 (Socket Type)	4.60/5.50	2.30/3.10	47.5/48.2	2998±3 mm	120-120
V4-15 (Bell Type)	4.55/5.45	2.75/3.65	47.5/48.2	3050±10 mm	200-200
V4-15 (Socket Type)	4.85/5.75	2.75/3.65	47.5/48.2	2998±3 mm	200-200
Crystal (Bell Type)	5.05/5.95	3.25/3.95	47.5/48.2	3050±10 mm	200-200
Crystal (Socket Type)	5.35/6.15	3.25/3.95	47.5/48.2	2998±3 mm	200-200
Standard (Bell Type)	5.75/6.65	3.95/4.85	47.5/48.2	3050±10 mm	200-200
Standard (Socket Type)	6.05/7.25	3.95/4.85	47.5/48.2	2998±3 mm	200-200

Cont...

Heavy (Bell Type)	7.00/7.90	5.20/6.10	47.5/48.2	3050±10 mm	200-200
Heavy (Socket Type)	7.30/8.60	5.20/6.10	47.5/48.2	2998±3 mm	200-200
Super heavy (Socket Type)	8.50/8.85	6.00/6.25	47.50/48.2	2998±3 mm	250-250
OD: 60 mm (2”) DN: 50 mm					
Eco Medium (Socket Type)	4.00/5.00	1.80/2.60	59.5/60.2	2998±3 mm	200-200
Medium (Socket Type)	5.10/6.30	2.60/3.40	59.5/60.2	2998±3 mm	200-200
Crystal (Socket Type)	5.60/6.70	3.40/4.20	59.5/60.2	2998±3 mm	200-200
Standard (Socket Type)	6.40/7.90	3.90/5.00	59.5/60.2	2998±3 mm	200-200
Heavy (Socket Type)	7.80/9.70	5.30/6.60	59.5/60.2	2998±3 mm	200-200
Super Heavy (Socket Type)	9.00/10.60	6.50/7.80	59.5/60.2	2998±3 mm	200-200
OD: 63 mm (2¼”) DN: 50 mm					
Heavy Plus (Socket Type)	8.70/9.10	6.20/6.50	62.7/63.0	2998±3 mm	250-250
OD: 75 mm (2½”) DN: 65 mm					
Medium (Socket Type)	5.10/6.30	2.60/3.40	74.5/75.2	2998±3 mm	200-200
Standard (Socket Type)	6.50/8.00	4.00/5.10	74.5/75.2	2998±3 mm	200-200
Standard Plus (Socket Type)	7.90/9.20	5.20/6.20	74.5/75.2	2998±3 mm	200-200
Heavy (Socket Type)	9.00/10.70	6.30/7.60	74.5/75.2	2998±3 mm	200-200
Super Heavy - 35 (Socket Type)	10.80/12.70	8.30/9.80	74.5/75.2	2998±3 mm	200-200
Super Heavy - 40 (Socket Type)	12.30/14.40	9.70/11.40	74.5/75.2	2998±3 mm	200-200
OD: 88 mm (3”) DN: 80 mm					
Medium (Socket Type)	5.70/7.10	3.20/4.10	87.5/88.2	2998±3 mm	200-200
Standard (Socket Type)	7.50/9.00	5.00/6.40	87.5/88.2	2998±3 mm	200-200
Standard Plus (Socket Type)	8.70/10.30	6.20/7.30	87.5/88.2	2998±3 mm	200-200
Heavy (Socket Type)	9.80/11.90	7.30/9.00	87.5/88.2	2998±3 mm	200-200
Super Heavy (Socket Type)	12.40/14.80	9.70/11.70	87.5/88.2	2998±3 mm	200-200
OD: 100 mm (3½”) DN: 90 mm					
Heavy Plus (Socket Type)	13.00/15.10	10.00/11.70	99.5/100.2	2998±3 mm	250-250
OD: 113 mm (4”) DN: 100 mm					
Medium (Socket Type)	6.30/7.60	3.80/5.00	112.5/113.2	2998±3 mm	200-200
Standard (Socket Type)	8.20/9.80	5.70/7.20	112.5/113.2	2998±3 mm	200-200
Standard plus (Socket Type)	10.40/12.20	7.60/9.10	112.5/113.2	2998±3 mm	200-200
Heavy (Socket Type)	12.20/14.30	9.40/11.50	112.5/113.2	2998±3 mm	200-200
Super Heavy (Socket Type)	15.10/17.80	12.60/15.00	112.5/113.2	2998±3 mm	200-200
OD: 140 mm (5”) DN: 125 mm					
Standard (Socket Type)	10.30/12.60	7.60/9.10	139.5/140.2	2998±3 mm	250-250
Standard plus (Socket Type)	13.30/15.70	9.80/11.70	139.5/140.2	2998±3 mm	250-250
Heavy (Socket Type)	15.32/18.10	11.90/14.20	139.5/140.2	2998±3 mm	250-250
Super Heavy (Socket Type)	19.00/22.60	15.60/18.80	139.5/140.2	2998±3 mm	250-250
OD: 165 mm (6”) DN: 150 mm					
Heavy (Socket Type)	16.50/17.00	13.80/14.50	164.7/165.5	2998 ±3 mm	250-250

Chart: 3

Frictional Head Loss and Quality Control

The height to which the water is to be pumped has to be precisely estimated. This is most important specially on long upward inclined terrains. The length of the pipeline and the height to which the water is to be pumped together with the depth to low water level and frictional head loss in pipes decide the total head of the pumpset.

Approximate frictional head loss in Ashirvad Column/Riser/Drop Pipes in metre/100 m

Size (inch)	Type	Discharge of pump in lpm											
		40	60	80	100	120	150	180	240	300	360	400	500
1	V4-12.5	3.0882	6.5438	11.1485	16.8536	23.6231	35.7121	50.0563	85.2796	128.9207	180.7033	219.6388	332.0369
	V4-15	3.3272	7.0502	12.0113	18.1579	25.4513	38.4758	53.9301	91.8793	138.8977	194.6878	236.6365	357.7330
	Crystal	3.6197	7.6699	13.0670	19.7538	27.6882	41.8574	58.6700	99.9546	151.1055	211.7990	257.4345	389.1743
	Standard	5.1657	10.9458	18.6481	28.1911	39.5145	59.7356	83.7292	142.6473	215.6458	302.2627	367.3901	555.3987
1¼	V4-12.5	0.8905	1.8869	3.2146	4.8597	6.8116	10.2974	14.4335	24.5900	37.1737	52.1050	63.3319	95.7414
	V4-15	0.9758	2.0676	3.5226	5.3252	7.4642	11.2839	15.8162	26.9457	40.7349	57.0967	69.3991	104.9134
	Crystal	1.1038	2.3388	3.9846	6.0237	8.4432	12.7639	17.8906	30.4798	46.0776	64.5852	78.5052	118.6734
	Standard	1.2706	2.6924	4.5869	6.9342	9.7194	14.6932	20.5949	35.0871	53.0426	74.3478	90.3672	136.6118
	Heavy	1.8136	3.8430	6.5472	9.8976	13.8732	20.9726	29.3966	50.0822	75.7113	106.1217	128.9873	194.9954
	Super Heavy - 40	2.4011	5.0877	8.6678	13.1035	18.3667	27.7657	38.9182	66.3039	100.2343	140.4948	170.7667	258.1549
	Super Heavy - 45	3.0397	6.4409	10.9732	16.5886	23.2516	35.1504	49.2690	83.9383	126.8929	177.8612	216.1842	326.8145
1½	V4-12.5	0.4564	0.9671	1.6477	2.4908	3.4913	5.2779	7.3979	12.6036	19.0534	26.7064	32.4607	49.0722
	V4-15	0.5005	1.0605	1.8067	2.7312	3.8283	5.7873	8.1119	13.8200	20.8923	29.2839	35.5936	53.8083
	Crystal	0.5637	1.1946	2.0351	3.0766	4.3123	6.5192	9.1377	15.5676	23.5342	32.9870	40.0946	60.6126
	Standard	0.6694	1.4185	2.4167	3.6534	5.1208	7.7413	10.8507	18.4861	27.9461	39.1711	47.6111	71.9757
	Heavy	0.9247	1.9594	3.3382	5.0465	7.0734	10.6932	14.9883	25.5351	38.6025	54.1077	65.7660	99.4212
	Super Heavy - 40	1.1916	2.5248	4.3015	6.5028	9.1147	13.7790	19.3135	32.9040	49.7423	69.7220	84.7447	128.1120
2	Eco Medium	0.1230	0.2606	0.4440	0.6713	0.9409	1.4224	1.9938	3.3967	5.1350	7.1975	8.7483	13.2252
	Medium	0.1439	0.3048	0.5193	0.7851	1.1004	1.6635	2.3317	3.9724	6.0053	8.4173	10.2310	15.4666
	Crystal	0.1644	0.3483	0.5934	0.8971	1.2574	1.9008	2.6643	4.5392	6.8621	9.6183	11.6907	17.6733
	Standard	0.1833	0.3884	0.6618	1.0005	1.4023	2.1199	2.9714	5.0623	7.6529	10.7268	13.0380	19.7101
	Heavy	0.2415	0.5117	0.8717	1.3178	1.8472	2.7924	3.9140	6.6682	10.0807	14.1297	17.1742	25.9629
	Super Heavy	0.3099	0.6566	1.1187	1.6912	2.3705	3.5836	5.0230	8.5575	12.9367	18.1329	22.0399	33.3186
2¼	Heavy Plus	0.2142	0.4538	0.7731	1.1688	1.6382	2.4766	3.4714	5.9140	8.9405	12.5316	15.2317	23.0264
2½	Medium	0.0433	0.0917	0.1562	0.2361	0.3310	0.5004	0.7014	1.1949	1.8064	2.5320	3.0775	4.6524
	Standard	0.0530	0.1123	0.1913	0.2892	0.4054	0.6128	0.8590	1.4635	2.2124	3.1010	3.7691	5.6980
	Standard Plus	0.0640	0.1356	0.2310	0.3492	0.4894	0.7399	1.0371	1.7668	2.6710	3.7438	4.5505	6.8791
	Heavy	0.0760	0.1611	0.2744	0.4148	0.5814	0.8790	1.2320	2.0990	3.1731	4.4477	5.4060	8.1724
	Super Heavy - 35	0.1048	0.2221	0.3783	0.5719	0.8017	1.2119	1.6987	2.8940	4.3749	6.1322	7.4535	11.2677
	Super Heavy - 40	0.1345	0.2849	0.4854	0.7338	1.0285	1.5549	2.1794	3.7130	5.6130	7.8676	9.5628	14.4564
3	Medium	0.0200	0.0424	0.0722	0.1091	0.1530	0.2313	0.3242	0.5523	0.8349	1.1703	1.4224	2.1503
	Standard	0.0250	0.0529	0.0902	0.1364	0.1911	0.2890	0.4050	0.6900	1.0432	1.4622	1.7772	2.6867
	Standard Plus	0.0292	0.0618	0.1053	0.1591	0.2231	0.3372	0.4726	0.8052	1.2173	1.7062	2.0739	3.1351
	Heavy	0.0337	0.0715	0.1218	0.1841	0.2581	0.3902	0.5469	0.9318	1.4086	1.9743	2.3998	3.6278
	Super Heavy	0.0475	0.1006	0.1714	0.2591	0.3632	0.5491	0.7696	1.3111	1.9821	2.7782	3.3768	5.1049
3½	Heavy Plus	0.0224	0.0474	0.0808	0.1221	0.1711	0.2587	0.3626	0.6178	0.9340	1.3091	1.5912	2.4054

ashirvad PIPES

Size Type (inch)		Discharge of pump in lpm 40	60	80	100	120	150	180	240	300	360	400	500
4	Medium	0.0057	0.0120	0.0205	0.0310	0.0434	0.0656	0.0919	0.1567	0.2368	0.3319	0.4035	0.6099
	Standard	0.0068	0.0144	0.0245	0.0371	0.0520	0.0786	0.1101	0.1876	0.2837	0.3976	0.4833	0.7306
	Standard Plus	0.0082	0.0175	0.0298	0.0450	0.0631	0.0954	0.1337	0.2278	0.3444	0.4827	0.5867	0.8870
	Heavy	0.0099	0.0210	0.0358	0.0542	0.0759	0.1148	0.1609	0.2741	0.4143	0.5808	0.7059	1.0671
	Super Heavy	0.0139	0.0295	0.0503	0.0761	0.1066	0.1612	0.2259	0.3849	0.5819	0.8156	0.9913	1.4987
5	Standard	0.0025	0.0053	0.0090	0.0135	0.0190	0.0287	0.0402	0.0686	0.1036	0.1453	0.1766	0.2669
	Standard Plus	0.0030	0.0064	0.0108	0.0164	0.0230	0.0347	0.0487	0.0829	0.1254	0.1757	0.2136	0.3229
	Heavy	0.0036	0.0076	0.0129	0.0195	0.0273	0.0413	0.0579	0.0986	0.1491	0.2090	0.2541	0.3841
	Super Heavy	0.0049	0.0105	0.0178	0.0270	0.0378	0.0571	0.0801	0.1364	0.2062	0.2891	0.3513	0.5311
6	Heavy	0.0015	0.0033	0.0056	0.0085	0.0118	0.0179	0.0251	0.0428	0.0647	0.0906	0.1101	0.1665

Chart 4

Approximate frictional head loss in steel pipe head lost in metre per 100 metre discharge in lpm

Pipe Nominal Bore

Q lmp (nominal dia mm)	40	50	65	80	100
40	1.15	0.38	0.10	0.03	0.01
60	2.57	0.84	0.22	0.08	0.03
80	4.58	1.50	0.40	0.14	0.05
100	7.16	2.36	0.63	0.22	0.07
120	10.30	3.38	0.91	0.32	0.11
150	16.10	5.30	1.42	0.50	0.17
180	23.20	7.60	2.05	0.72	0.24
240	41.25	13.52	3.64	1.29	0.42
300	64.45	21.12	5.69	2.01	0.66
360		30.41	8.19	2.90	0.95
400		37.55	10.11	3.58	1.17
500			15.80	5.59	1.83

Chart: 5

Friction in long pipeline is to be calculated. Technical chart - 4 gives friction losses per 100 metre of pipeline for Ashirvad Riser / Drop Pipes and Technical chart - 5 give frictional head loss for steel pipes. From table it can be seen that higher diameter pipes have lower frictional head loss. This helps to reduce load on pump and thus increase its life. Following examples will help you to calculate friction head for different length.

Calculation

1. Head Loss and discharge comparison for 2" (60 mm OD) Ashirvad Standard column pipes and GI pipe for installation at 450 ft (137 metres) depth.

   Considering that water will not be lifted higher than the ground level.

   (i) Head Loss due to depth of pump = 137 meters (450 ft) both in case of Ashirvad column pipes and steel pipes.

   (ii) Head Loss due to friction in Ashirvad column pipes as per Chart: 4

   taking working range of discharge as 18 m^3/hr = 300 lpm.

   As per Chart: 4 frictional head loss is 7.65 meters /100 meters of depth for 2"(60 mm Ashirvad Standard Pipes)

   For 137 meters frictional Head loss 137/100 x 7.65 = 10.48 meters

   Total head load on pump with Ashirvad column pipe = 137+10.48 = 147.48 meters

(ii) Head loss due to friction in steel pipes

As per Chart: 5, friction loss = 21.12 mtrs /100 mtrs. For 137 meters, frictional head loss = 137/100 x 21.12 = 28.93 mtrs. Total head loss on pump with steel pipes = 137 + 28.93 = 165.93 mtrs.

In the same working condition the head load on pump is different than in the case of Ashirvad column pipes and steel pipes. As per pump chart 10% to 30% extra water discharge is available with Ashirvad Column Pipe in comparison to steel pipes depending upon depth and discharge of pump. This means great power saving and less pumping time.

2. It has been debated that Ashirvad heavy pipes have lesser Internal diameter because of more thickness and therefore water discharge will be less in comparison with steel pipe.

   Comparison of Chart: 4 and 5 shows that Ashirvad Super Heavy Pipes also have lesser frictional loss compared to steel pipes. Even 2" super heavy pipe has almost 33% lesser frictional loss than 2" steel pipe.

Quality Control Procedures At Ashirvad

The pipes and couplers manufactured at Ashirvad, follow a stringent quality control process before being rolled out to the market, in order to supply a defect free system to its users.

Test	Standard
Short Term Hydrostatic Pressure Test	As per IS 4985-1988
Impact Strength	As per IS 4985-2000 Testing done at 6 to 20 times higher than specifications
Tensile Strength	As per IS 12818-1992
Joint Pressure Test	As per IS 12235-2004 Should be one or two times of working pressure (depending on size)
Specific Gravity	As per IS 12818-1992 Between 1.40 - 1.43

Chart: 6

Colour coding of pipes

The colour with which the specification of the pipe is printed (on the pipe) varies with different pipe classes. The colour coding for different classes is given below.

Class of Pipe	Printing Colour	
V4-12.5	Orange	
V4-15	Purple	
Eco Medium	Purple	
Medium	Orange	
Crystal	Green	
Standard	Red	
Standard Plus	Purple	
Heavy	Blue	
Heavy Plus	Blue	
Super Heavy	Black	

Chart: 7

Handling, Storage and Bundling of Pipes

No. of pipes packed in each Ashirvad bundle (Belling type*)

Size (inch)	Type	Number of pipes in each bundle
1	V4-12.5	20 / 25*
	V4-15	20 / 25*
	Crystal	20 / 25*
	Standard	20 / 25*
1¼	V4-12.5	20 / 25*
	V4-15	20 / 25*
	Crystal	20 / 25*
	Standard	20 / 25*
	Heavy	15 / 15*
	Super Heavy	15
1½	V4-12.5	20 / 25*
	V4-15	20 / 25*
	Crystal	20 / 25*
	Standard	20 / 25*
	Heavy	15 / 15*
	Super Heavy	15
2	Eco Medium	15
	Medium	15
	Crystal	15
	Standard	15
	Heavy	10
	Super Heavy	10

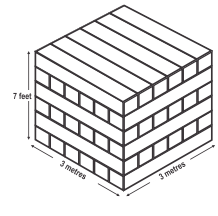
Size (inch)	Type	Number of pipes in each bundle
2¼	Heavy Plus	07
2½	Medium	10
	Standard	10
	Standard Plus	07
	Heavy	07
	Super Heavy	05
3	Medium	05
	Standard	05
	Standard Plus	05
	Heavy	05
	Super Heavy	05
3½	Heavy Plus	03
4	Medium	05
	Standard	05
	Standard Plus	03
	Heavy	03
	Super Heavy	03
5	Standard	03
	Standard Plus	01
	Heavy	01
	Super Heavy	01
6	Heavy	01

Chart: 8

Proper handling of pipes

On receiving the pipes please check and inspect for any forms of transport damage due to shift in loads or improper handling/treatment. Visually examine the ends of pipes for any cracks or damage. Do not throw or drop the pipes to the floor. Do not drag or push the pipes from the truck bed. Contact of the pipes from any sharp object should be totally avoided.

Storage of pipes



- The pipes should preferably be stored indoors. When this is not possible please ensure that the bundles are covered to prevent exposure to sunlight, and to reduce the effect of UV rays.
- Maximum stacking height of pipes should be 7 feet.
- Place alternate layers of pipes at an angle of 90 degrees/ perpendicular to each other, with the first layer in a square shape.
- The pipes are stored on level ground-free of any sharp objects
- If pipes of same diameter but different classes are being stacked together, place the thicker pipes below, i.e. Stack heavy pipes below standard pipes.
- The surface should be dry.

Container details

Each length of bundle is 3.3 m. Therefore a maximum of three stacks of bundles can be laid out in a 40 feet container as depicted in the image. The remaining spaces is used to keep the various accessories (top/bottom adaptor, pump guard, jigs etc).

40 Feet high cube container

Container details	In metre	In feet
Length	11.765	38.6
Width	2.35	7.7
Height	2.4	7.9

Important Tips

PIPE AND PUMP SAFEGUARD AGAINST DRY RUNNING

- In places where the yield of water from the bore well is less, the pump starts running dry after sometime which may heat up the connected Ashirvad Riser / Drop pipe. A correct assessment of bore yield should be done and timer switch should be used so that pump shuts off automatically after a certain amount of preset time and again starts automatically as per the setting of the timer. This will ensure that water is always in the bore well and pump does not run in dry condition.
- During pump dry running the submersible pump gets heated up and may damage the first connected Ashirvad Riser / Drop Pipe. Another way of handling pump dry running is to use 3 metres of steel pipe in the bottom connected to the pump so that the heated pump is in contact with steel pipe which will dissipate the heat till the time it reaches the connected column pipe.
- The dry running condition may also be tackled by installing a hand-operated valve at the top of the bore well and keeping it partially open so as to limit the water flow so that the pump does not get dry.
- Whenever there is dry running and pump over heating problem, there is a chance of deformation of the first pipe which is connected to the pump.

Incase any other pipe other than the first pipe bulges or deforms then it is clearly a case of high pressure of pumps and wrong selection of pipes.

ACTION TO BE TAKEN IN PUMP DRY RUNNING CONDITION AND ELEVATED WATER TEMPERATURE

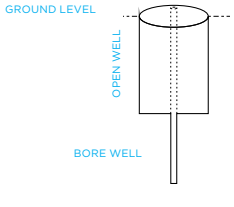
In extreme cases where pump is in dry running condition resulting in excess heat in the bottom pipe and also in cases where water to be pumped is at higher elevated temperature, specific solutions may be obtained from the company.

PREVENTION OF WATER HAMMER

- It is suggested out of experience to make a 3 mm hole in the pump NRV for deep bore wells of 500 feet and above. Due to this, water hammering will not take place in the bottom pipe at the time of pump stoppage and all the pipes will remain safe.
- A non return valve can also be installed at the Top pipe to prevent water hammer. But when the non return valve is installed, the hole in the pump NRV should not be made.

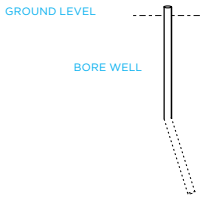
IN-WELL BORE WELLS

In some cases inwell borewells may be required . Care is to be taken to minimise vibrations. It is suggested to use flexible pipes from the bottom of the open well.



INCLINED BORE WELLS

Special precautions are to be taken in case of inclined bore wells.
uPVC column pipes are generally not recommended for such applications.



Pipe Selection

V4-12.5 kg/cm²	1", 1 - ¼", 1 - ½"	upto	100 mm Sub Pump
V4-15 kg/cm²	1", 1 - ¼", 1 - ½"	upto	100 mm Sub Pump
Crystal	1", 1 - ¼", 1 - ½"	upto	100 mm Sub Pump
	2"	upto	150 mm Sub Pump
Medium	2", 2½" & 3"	upto	150 mm Sub Pump
	3", 4" & 5"	upto	200 mm Sub Pump
	4" & 5"	upto	250 mm Sub Pump
Standard	1", 1 - ¼", 1 - ½"	upto	100 mm Sub Pump
	2", 2 - ½" & 3"	upto	150 mm Sub Pump
	3", 4" & 5"	upto	200 mm Sub Pump
	4", 5"	upto	250 mm Sub Pump
Standard Plus	2½"	upto	150 mm Sub Pump
	3", 4" & 5"	upto	200 mm Sub Pump
	4" & 5"	upto	250 mm Sub Pump
Heavy	1 - ¼", 1 - ½", 2", 2 - ½"	upto	100 mm Sub Pump
Heavy Plus	2¼"	upto	150 mm Sub Pump
	3½"	upto	200 mm Sub Pump
Super Heavy	3", 4" & 5"	upto	200 mm Sub Pump
	4" & 5"	upto	250 mm Sub Pump

Chart: 9

Selection of Pipes

The pipe to be selected from Standard, Standard Plus, Heavy and Super Heavy class so that the pump delivery pressure does not exceed the hydrostatic allowable pressure of the pipe. For every 33 ft or 10 meters in the column above the pump, there is pressure drop of 1 kg/cm².

Calculation Example

Pump delivery pressure 25 kg/cm²
Pipe size (Nominal Bore 50 mm) (2")
Standard pipe allowable pressure = 20 kg/cm²
Heavy pipe allowable pressure = 27 kg/cm²
(more than 25 kg/cm² pump pressure)

As per Technical Chart: 1

Therefore pipe to be selected is heavy pipe and not standard.
Note: The pump delivery pressure will always remain 25 kg/cm² at the pump discharge point irrespective of the depth of installation. Therefore irrespective of the depth of installation, this pump requires heavy pipes only.

Pump Delivery Pressure: This is the max. delivery head of the pump. In the pump performance chart the value of head at which delivery becomes nil (zero) is the max. head in metres. 10 metres of head is equivalent to 1 Kg/cm². Sometimes the delivery head per stage of pump is not mentioned. In this case the factor is to be multiplied with total stage to arrive at the max. pump delivery head.

Installation Guide

Step 1:
Join the metal connector with submersible pump with the help of a chain wrench.

Step 2:
Before joining the pipes, ensure to clean the threads with clean water.

Step 3:
Before joining the pipes, ensure that the pump guard is installed properly.

Step 4:
Before opening or joining the pipe/adaptor ensure to hold the coupling by hand.

Step 5a/5b:
Tighten pipe with hand till half rubber ring is seen. Finally if required, give a last jerk with rope or felt wrench.

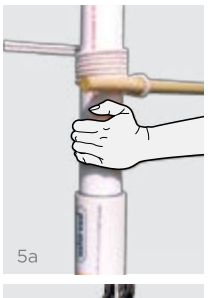
Step 6:
At the time of lowering Ashirvad pipes, place the clamp below the coupler. Clamp the top adaptor with the last pipe.

Step 7:
Lower the pipes with the help of chain pully.

SAFETY PRECAUTION:-
We strongly recommend our customers not to apply grease on the square thread pipe joints, while fastening two column pipes together. Grease / vegetable oil is not compatible with Ashirvad uPVC column pipe. Grease is a semisolid lubricant. In general grease consists of a soap emulsified with mineral or vegetable oil.

The degree of chemical attack on any material is influenced by a number of variable factors including concentration of the chemical, temperature, aeration, duration of exposure, stability of the fluid and possible chemical reactions with other compounds in the area.

Use pure water or soap water (soaps are called toilet soaps, used for hand washing) for column pipe fastening.



Patented
WIRELOCK™
Technology

Ashirvad Pipe that even tractor concede defeat

Accessories - Top and Bottom Adaptors/Connectors

Ashirvad Pipes also supplies Ashirvad marked bottom and top adaptors for fitment with Drop / Riser Pipes. Bottom adaptors are available in cast iron and stainless steel for connecting the bottom pipe with the submersible pump. Top adaptors are available in MS, CI and SS, our threads are in 11 TPI. Bottom thread of the bottom adaptor and Top thread of the Top adaptor are 11 TPI.

However, for customization of these threads, please refer the drawings.

Note: Different length accessories is required for 2" to 6" Standard Plus, Heavy and Super Heavy as compared to standard pipes due to longer thread lengths.

TOP ADAPTORS / CONNECTORS

Top adaptors are available in MS Seamless / Cast iron / Stainless Steel and are used to connect the Riser / Drop top pipe with bend fitting.

CI top ordinary without flange
Sizes: 1", 1¼", 1½", 2", 2½", 3" & 3" long
Length: 140 mm - 251 mm

CI top with flange single clamp
Sizes: 1", 1¼", 1½", 2", 2½", 3", 4"
Length: 140 mm - 143 mm

CI V4-12.5 With flange and single coupling length
Sizes: 1", 1¼", 1½"
Length: 140 mm - 143 mm

With flange and double coupling length
Sizes: **CI** 1", 1¼", 1½", 2", 2½", 3", 4", 5"
MS 2¼"x2½", 3"x3½", 4"x3½"
Length: 236 mm - 312 mm

MS top double clamp 1.5 times
Sizes: 1¼", 1½"
Length: 255 mm

Reducing bottom type
Sizes: 1¼" x 1", 1½" x 1¼", 1½" x 1", 2" x 1½", 2½"x 2¼", 2½" x 2", 3" x 2½", 4" x 3", 5" x 4"
Length: 107 mm - 178 mm

Expander
Sizes: 1" x 1¼", 1¼" x 1 12", 1½" x 2", 2" x 21/2", 2½" x 3", 3"x4", 4"x5
Length: 158 mm - 213 mm

BOTTOM ADAPTORS / CONNECTORS

V4-12.5 bottom type
Sizes: 1", 1¼", 1½"
Length: 100 mm - 109 mm

V4-12.5 Reducing Bottom
Sizes: 1¼" x 1", 1½" x 1¼"
Length: 184 mm

Without flange
Sizes: **CI** 1", 1¼", 1½", 2", 2½", 3", 4", 5"
SS 2½"x2¼", 3"x3½", 4"x3½",
Length: 156 mm - 256 mm

SS Bottom 1.5 times
Sizes: 1¼", 1½"
Length: 183 mm

Note: During every removal of pump for maintenance, both top and bottom adaptors should be carefully checked for corrosion, rusting etc. and if found unsuitable, should be replaced immediately.

Bottom adaptors are available in Cast Iron / Stainless Steel and are used to connect the bottom pipe with the pump.

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Accessories - Jigs and Fixtures

JIGS

Inner and outer jig is used for extraction of pump from bore well incase of bore well collapse, pump jamming due to boulders, small pieces of stones etc. These jigs have been designed by Ashirvad Pipes to help retrieve the pump out of the bore well in difficult conditions.

INNER JIG

Sizes : 1", 1¼", 1½", 2", 2½", 3", 4"

OUTER JIG

Sizes: 1¼", 1½", 2", 2½", 3", 4"

FIXTURES

A lowering fixture has been developed by Ashirvad Pipes Pvt. Ltd., for lowering or extracting the Riser / Drop pipes from Borewell. The fixtures are from 1" to 6" size to be tightened on the coupler side.

LOWERING FIXTURE

Sizes: 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6"

Pump Guard

A pump guard which can be used between the bottom pipe and bottom adaptors is recommended for areas with excessive pump vibration due to sand pumping, sub standard pumps and other local conditions. Photographs of pump guard is shown here below.

ASSEMBLY PHOTO OF BOTTOM ADAPTOR PUMP GUARD AND PIPE.

Frequently Asked Questions

1. **Why only Ashirvad uPVC Drop / Riser pipes?**

   Ashirvad Pipes is an ISO 9001-2008 company accredited by a leading quality registrar. It has innovated and developed several new products to suit the customer's requirements and these products are well accepted across the country. Ashirvad has a well developed distributor, dealer and service network in India and in several countries worldwide.

2. **What are the benefits of uPVC pipes over steel pipes?**

   Savings on (a) Cost of pipes (b) Handling time (c) Power (d) Water discharge upto 30% higher (e) Working life of pipes is much more (f) Zero maintenance.

3. **How does it affect on the quantity and quality of water?**

   Due to smooth internal surface, friction is low and therefore we get more water. Over a period of use, the steel pipes get corroded, rusted and the water quality deteriorates. In Ashirvad uPVC pipes, since there is no corrosion or rust throughout the depth of column pipe, the water quality remains good.

4. **Can we compare the strengh of uPVC pipes with a steel pipe?**

   The specific gravity of uPVC is 1.4-1.45 gm/cm^3 where as that as steel has 8 gm/cm^3. Taking the strength of the material into consideration, the pipes are optimally designed to make them light without any compromise in their strength requirements.

5. **Can uPVC pipes take load of the pump?**

   Ashirvad Drop / Riser pipes are designed to hold several times the weight of entire column filled with water and pump assembly. All type of pumps of different sizes have been considered and the Ashirvad Drop / Riser pipes are made accordingly in the class of V4-12.5, V4-15, Eco Medium, Medium, Crystal, Standard, Standard Plus, Heavy, Heavy Plus and Super Heavy.

6. **Up to what depth can the pipes be lowered?**

   The pipes may be used after careful selection based on pump delivery head and maximum allowable pressure in the pipes. The depth of the bore well may differ from place to place depending upon the water level in the bore well. Ashirvad offers a range of pipes to suit the customer's requirement of various depths and they have been successfully used up to 1200 ft. Proper selection of Ashirvad pipes can be made for various depth application after a careful study of the pump pressure and the technical booklet.

7. **Does Drop / Riser pipes need full casing in the bore?**

   These pipes give the best service in borewells which have full casing or borewells which are free from loose boulders and stones. In such areas where loose boulders and stones are prevalent then full casing or slightly larger bore should be made so that the pump does not get stuck. Bore collapse problem occurs in some areas and it can be tackled by giving full casing pipes. This happens in areas with loose soil and silt. Care should be taken during drilling of the borewell so that it is vertically down without any bend.

8. **What should be the bore size with respect to the outside diameter of the pump?**

   For bore wells without casing pipe, specially in areas with loose boulders present in the bore, it is suggested that the borewell size should be minimum 2" more than the pump outer diameter. This is to prevent pump getting stuck up due to small boulders. For borewells with casing, a minimum gap of 1½" between the Casing internal diameter and pump outer diameter is required.

9. **How to choose from a range of pipes offered?**

   Right selection of pipes can be made after consulting technical leaflets on the basis of pump and pipe discharge pressure.

10. **Why is there a variation in thickness of the pipes?**

    The pipe thickness of the barrel has been designed by taking the pump weight, water column weight and pump delivery pressure into consideration. The end of the pipes are made thicker so that even after making the threads and removal of material the same barrel thickness remains under the threads so that the strength of pipe can be maintained equal in end and barrel.

11. **Are the pipes breakable?**

    The pipes do not break under normal handling conditions.

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12. What happens if a bore collapses?

The pump and the pipes can be pulled out only in cases where the pump can be pulled out by applying a force within the ultimate breaking strength of the pipe as mentioned in the chart. Normally the strength is adequate. In case of severe bore collapse and boulder problems even steel pipes cannot be retrieved from the bore.

13. What about after sales service?

Specially trained and fully equipped dealers are capable of providing all types of service support at both national and international level.

14. Is tripod required for lowering?

Yes, tripod is required specifically with Riser / Drop pipes in the installation of V6 and V8 pump sets, considering the heavy load requirements. However it is important to note that handling of uPVC pipes is much simpler in comparison to steel pipes.

15. How to tighten the pipes?

The pipe is tightened on the principle of screw system. Tighten the pipe with hand and rope (holding the coupler) so that the rubber seal fully enters in to the coupling pipe. Pictures of installation appear in page no. 37.

16. Any adhesives required during joining of pipes?

No solvent or adhesive required.

17. Do we need extra rope to hold the pipes?

No rope is required. Pipe has adequate strength.

18. Can we cut the pipes?

No, pipes cannot be cut for short length requirement. Special request has to be made to the company. The company does however stock shorter length of 1.5 M of few standard running sizes, which can be made available on demand.

19. Can we re-thread the pipes?

Under normal use, re-threading of pipe will not be required. Special threads cannot be made at site.

20. Can metal pipe join with uPVC pipe?

Metal pipe can be connected with the uPVC only with use of Ashirvad marked adaptors due to different threads.

21. Can we use any other metal adaptors?

The quality of Ashirvad adaptors are carefully checked in the lab for (a) Value of hardness (b) Quality of casting (c) Blow holes and other casting defects (d) Thickness (e) Properly designed threads.

Hence, it is suggested that only accessories supplied by Ashirvad should be used.

22. Why to use a pump guard?

Areas with a excessive sand pumping or defective unbalanced pump results in excessive vibration in the bottom which may lead to pipe breakage near the adaptor. Pump guard has been designed to be used in these type of areas and problems so that even after breakage of Riser / Drop pipes the pumps can be easily retrievable.

23. How to select a top adaptor?

Top adaptors with flange are generally used in deep bore wells so that the flange on top may be used as a support to hold the column. With even higher depths and bigger pump assembly, top adaptor flange type with double coupling length may be used so that two pipe clamps may be used on top to support the column load. For low depth bore well top adaptor without flange may also be used.

24. What makes Ashirvad column pipes the first choice?

Ashirvad has more than 40 years of expertise in the field of PVC pipe processing. The team of Ashirvad comprises of a fully dedicated engineering department to cater to the technical needs of the product. This product has been conceived, designed, developed and marketed for the first time by Ashirvad in the world. Ashirvad understands the customer requirements and converts them into products, which have proven track record and mass acceptance all over the country.

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