



aliaxis



**WHATEVER
THE NEXT WAVE
OF TECHNOLOGY
HOLDS, WE'LL
HELP UNTAP IT.**

ashirvad

by aliaxis

INDUSTRIAL PIPES &
FITTINGS

Korrosafe

Industrial CPVC Piping System

EXCELLENT CHEMICAL
RESISTANCE

About Aliaxis



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

Head quartered in Brussels, Belgium. Aliaxis is present in over 45 countries, has more than 100 manufacturing and commercial entities and employs over 16,000 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.

Aliaxis at a glance



€ 3.1 billion
Revenue



120+
Distribution centres



1.400+
Injection machines



16.000+
Colleagues



45+
Countries



600+
Extruders



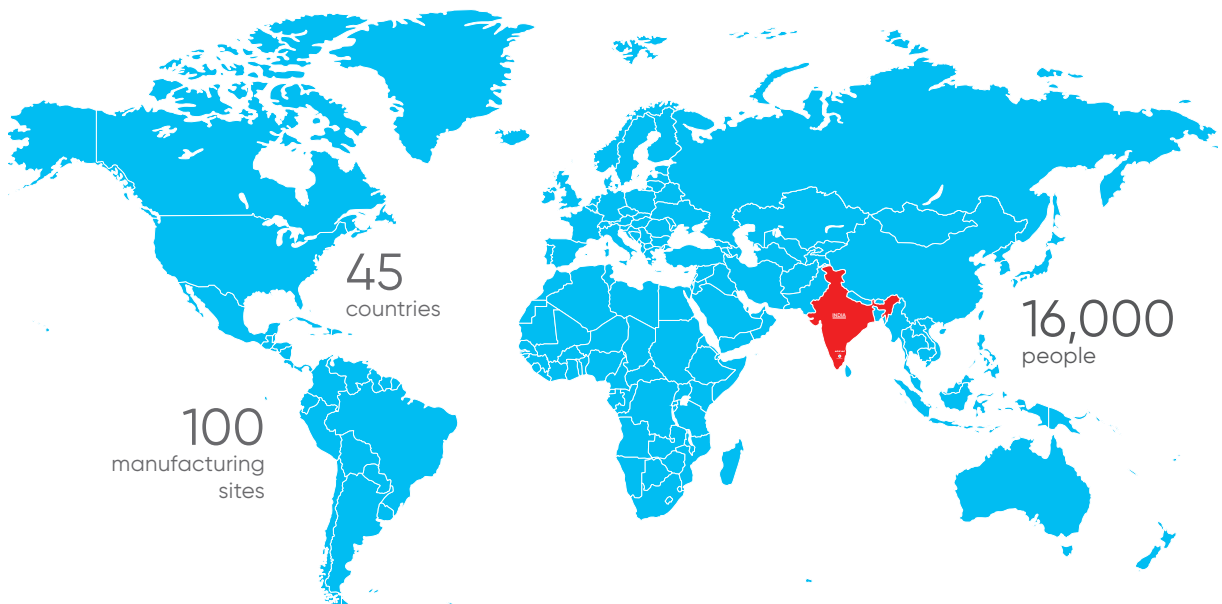
€ 87 million
Capex



80+
Manufacturing sites



10
Commercial brands



About Ashirvad

Ashirvad, an Aliaxis group company, setup its Bengaluru units in 1998 and is a wholly owned company of Aliaxis group. Aliaxis group is a global leading manufacturer and distributor of plastic fluid handling systems used in residential, commercial and industrial buildings. Headquartered in Brussels, Belgium, Aliaxis is present over 40 countries with more than 75 manufacturing and commercial entities, employees over 16,100 people and generates more than 3 billion Euro (₹. 21, 600 crores approx.) in annual sales.

Ashirvad has always been relentless in its commitment to quality and service. Ashirvad pipes is a leading manufacturer and supplier of uPVC, CPVC, SWR plumbing systems and is also the pioneer in designing and manufacturing uPVC column pipes, which are used in the erection of submersible borehole pumps. Today Ashirvad is the world's largest manufacturer of uPVC column pipes and is also successfully exporting to over 50 countries. The CPVC Hot and Cold plumbing system is manufactured in collaboration with Lubrizol, USA (a Berkshire Hathaway company) and is best suited for the clean and hygienic supply of potable water. Ashirvad is the world's largest selling CPVC and uPVC pipes and fittings company.

Ashirvad has expanded its product range with an innovative triple layer low noise (silent and silent plus) SWR and a foam core underground drainage system along with the widest range of locally manufactured speciality items and accessories such as – manholes, inspection chambers and non-return valves. Furthermore, the company has successfully entered into the sanitary and fire safety space with its leading range of traps and couplings, pan connectors and concealed valves.

Ashirvad has consistently grown year on year and aims to become a one stop shop for all Plumbing, Industrial, Sanitary, Agriculture, Fire Safety and Drainage products in the country.

Capabilities:

- Manufacturing capacity of more than 2,00,000 MT per annum
- State of the art facility spread across 50 acres
- 500+ Strong Sales & Marketing Team
- 200+ Strong Central Support Office Team
- Over 4,500 Manufacturing Workforce
- 10 Warehouses, 1,500 Distributors, 60,000 + Dealers across India
- Exporting to more than 50 Countries
- 4 manufacturing facility in Bengaluru, Bhiwadi, Durgapur and Cuttack



CIDC - 2017

Construction Industry Database (CIDC) - 2017 Has been enlisted as an **Approved Vendor** for providing the following Service /Products Manufacturing of CPVC & uPVC Pipes & Fittings.



WCRC Leaders Summit - 2014

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.



The National Award - 2007

The National Award - 2007 Ashirvad won the National Award for "Outstanding Entrepreneurship in Medium Enterprises". The award was presented by the Prime Minister of India.

Certifications

intertek
Total Quality Assurance

CERTIFICATE OF REGISTRATION

This is to certify that the management system of **Ashirvad Pipes Pvt. Ltd.**

Certificate Number: 022772
Initial Certification Date: 20 July 2017
Date of Certification Decision: 21 February 2022
Issuing Date: 22 February 2022
Valid Until: 20 February 2025

See appendix for additional sites and additional site scope

has been registered by Intertek as conforming to the requirements of **ISO 45001:2018**

OHSA 18001:2007 certified from 20 July 2017 to 27 February 2020

The management system is applicable to:
Manufacture and Supply of uPVC and PVC Pipes, Fittings, Solvent Cement and LLDPE Water Storage Tank, HDPE Pipes for Industrial, Domestic, Agriculture, Sewage Applications.

intertek **UKAS**
014

Calin Moldovan
President, Business Assurance

Intertek Certification Limited
USA Victory Park, Victory Road
Derby DE24 8EJ, United Kingdom

Intertek Certification Limited is a UKAS accredited body under schedule 4 of accreditation no. 014.

intertek
Total Quality Assurance

CERTIFICATE OF REGISTRATION

This is to certify that the management system of **Ashirvad Pipes Pvt. Ltd.**

Certificate Number: 022772
Initial Certification Date: 20 July 2017
Date of Certification Decision: 21 February 2022
Issuing Date: 22 February 2022
Valid Until: 20 February 2025

See appendix for additional sites and additional site scope

has been registered by Intertek as conforming to the requirements of **ISO 14001:2015**

The management system is applicable to:
Manufacture and Supply of uPVC and PVC Pipes, Fittings, Solvent Cement and LLDPE Water Storage Tank, HDPE Pipes for Industrial, Domestic, Agriculture, Sewage Applications.

intertek **UKAS**
014

Calin Moldovan
President, Business Assurance

Intertek Certification Limited
USA Victory Park, Victory Road
Derby DE24 8EJ, United Kingdom

Intertek Certification Limited is a UKAS accredited body under schedule 4 of accreditation no. 014.

intertek
Total Quality Assurance

CERTIFICATE OF REGISTRATION

This is to certify that the management system of **Ashirvad Pipes Pvt. Ltd.**

Certificate Number: 022772
Initial Certification Date: 20 July 2017
Date of Certification Decision: 21 February 2022
Issuing Date: 22 February 2022
Valid Until: 20 February 2025

See appendix for additional sites and additional site scope

has been registered by Intertek as conforming to the requirements of **ISO 9001:2015**

The management system is applicable to:
Manufacture and Supply of uPVC and PVC Pipes, Fittings, Solvent Cement and LLDPE Water Storage Tank, HDPE Pipes for Industrial, Domestic, Agriculture, Sewage Applications.

intertek **UKAS**
014

Calin Moldovan
President, Business Assurance

Intertek Certification Limited
USA Victory Park, Victory Road
Derby DE24 8EJ, United Kingdom

Intertek Certification Limited is a UKAS accredited body under schedule 4 of accreditation no. 014.

BUREAU VERITAS
Certification

Certificate

for **Straub Werke AG**
Strasbourg 68, 7320 Wismer / Switzerland

The management system complies with:
SN EN ISO 9001 : 2015
SN EN ISO 14001 : 2015

Development, production, trade and sales of products and services in the pipe joining technique

Date of valid certification: 21.08.1995 (ISO 9001, DNV) / 22.12.2008 (ISO 14001)
The implementation of the standards/regulations must be completed with throughout the period of validity of this certificate. This will be renewed through regular auditing by Bureau Veritas Certification.

Date of certification: 30.10.2017 Valid until: 21.12.2020
Bureau Veritas Certification will provide information on the validity of this certificate, however, any fees, additional information or management system and the area of applicability shall be obtained from the registration unit.

Certificate number: CH1804947/A Version: 1
Issue date: 31.10.2017

Prasad Singh
Bureau Veritas Certification SA
Commission 26, 11-1910 Wismer 23

IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

CISQMP S.R.L. has issued an IQNet recognized certificate that the organization **F.I.P. FORMATURA INIEZIONE POLIMERI SPA** (part of FIP PERFORMA - 1 - 16015 CASELLA (GE)) has implemented and maintains a **Quality Management System** for the following scope:
Design, production and trading of thermoplastics valves, filters, fittings and flow instrumentation for pressure pipe systems. Commercialisation and technical assistance for PE electrofusion and butt-welding fittings for water and gas supply, iron and steel joints for industry, shipbuilding industry and special applications.

which fulfills the requirements of the standard:
ISO 9001:2015

Issued on: 2019/03/28
First issued on: 1998/08/01
Expires on: 2022/04/19

This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone certificate.

Registration Number: IT-3439 IIP 1

Alan Strachan
President of IQNET

Prasad Singh
President of CISQ

bsi.
Certificate of Registration

By Royal Charter

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

This is to certify that: **IPEX Inc.** 3 Place de Commerce Suite 101 Bis-Bic-Sévières Québec H5E 1P7 Canada

Holds Certificate No: **FM 553037** and operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following scope:
The design and manufacture of plastic and metal products.

For and on behalf of BSI: *Carlo Pizzarello*
Chief Operating Officer - Americas

Original Registration Date: 2009-07-28
Latest Revision Date: 2019-01-29

Page 1 of 4
"making excellence a habit"

भारत सरकार
GOVERNMENT OF INDIA
सामान्य एवं उद्योग मंत्रालय
MINISTRY OF COMMERCE & INDUSTRY
विदेश व्यापार महानिदेशालय
DIRECTORATE GENERAL OF FOREIGN TRADE

मान्यता प्राप्त पत्र
Certificate of Recognition
एक सितारा निर्यात सदन
ONE STAR EXPORT HOUSE

मैसर्स (आई ई सी) अश्ववद पाइप लि (आई ई सी) को विदेश व्यापार नीति, 2016-2020 के प्रावधानों के अनुसार एक सितारा निर्यात सदन का प्रदान किया जा रहा है। यह प्रमाण पत्र, प्रयोगावधि (2016-2020) के लिए 3.20 (ई) में दी गयी शर्तों के अधिन में, एच ई अवेबी के नियमों के तहत एक ही होता है।

M/S. **ASHIRVAD PIPES PVT. LTD.**
PLOT NO. 4-B, PLOT NO. 26 & 26 B ATTBELLE INDUSTRIAL AREA, HOOR ROAD, BANGALORE - 562107, KARNATAKA, INDIA

(IEC) and Income Tax PAN **AAATB0431G**

are hereby accorded the status of One Star Export House in accordance with the provisions of the Foreign Trade Policy, 2016-2020. This Certificate is valid for a period of 04 years effective from 01.12.2020. Subject to the conditions prescribed in Para 3.20(a) of the Hand Book of Procedures (2015-2020).

सं. No. **AY 5353**
दिनांक/Date: 21.07.2016
स्थान/Place: **Bangalore**

आय/Income Tax PAN: **AAATB0431G**
दिनांक/Date: 20.11.2015

आय/Income Tax PAN: **AAATB0431G**
दिनांक/Date: 20.11.2015

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS

पंजीकृत ए.डी.
Our Ref: BND/ A- 3321039 Date: 18 Feb 2014

Subject: RENEWAL OF CERTIFICATION MARKS LICENSE NO. CML-3323039
AS PER IS 17778:2007

M/s **ASHIRVAD PIPES PVT LTD**
4-B, ATTBELLE INDUSTRIAL AREA, HOOR ROAD, BANGALORE-562107, India

Dear Sir,
With reference to your application for renewal of the above mentioned Certification Marks License, we are pleased to inform you that it has been renewed from 22/02/2014 to 21/02/2015.

It may please be noted that your license shall expire at the end of the above mentioned period. You are, therefore, requested to send your application for its renewal at least two months before the expiry of the license.

The endorsement sheet No. 9 regarding renewal of license is enclosed. This may be attached to the original license document available with you.

You are also requested to subscribe to our monthly Technical Journal 'Standards India' and also make use to publicise your product through advertisement. The details of the advertisement charges and subscription rates are available in our website www.bis.org.in

Thanking you,

Yours faithfully,
OLANRINI
SCIENTIST-B

End: As above.

पुनरांकन: पत्रक सं. 9 सहजगतरा सं. 9, नई दिल्ली 110 002
Head Office: Manak Bhavan, B-6 Bahadur Zafar Marg, New Delhi 110 002
Mail: info@bis.org.in

सेंट्रल इंस्टीट्यूट ऑफ पेट्रोसायन इंजीनियरिंग एंड टेक्नोलॉजी
CENTRAL INSTITUTE OF PETROCHEMICALS ENGINEERING & TECHNOLOGY
Chattopadhyay, Hyderabad - 500 015

Test Certificate

No. **0134743**

REPORT No. 2206697/15 Page 2 of 2
PART - C

TEST RESULTS (AS PER ASTM D7944)
CofR Classification: 54480

SAMPLE DETAILS: (5) 2 1/2" IN diam Ashirvad by Alisha's Kaverave CPVC Industrial SCJ 80 Pipe

S. No	Change No.	TEST	TEST METHOD	SPECIFIED REQUIREMENT	RESULT OBTAINED	UNIT
1	11.3	Tensile Strength at Break	ASTM D688	Min. 48 MPa	58	MPa
2	11.3	Modulus of Elasticity	ASTM D688	Min. 182 MPa	2470	MPa
3	11.4	Load Impact Strength	ASTM D256	Min. 168 J/m	335	J/m
4	11.3	Deflection Temperature Under Load (DTUL) @ 1.8 MPa	ASTM D688	Min. 119°C	112.6	°C
5	11.4	Flammability	ASTM D635			
		a) Average extent of Burning		<25 mm	3	mm
		b) Average time of Burning		<10 sec.	6	sec

NOTE: 1. This Test Certificate is issued only for the samples submitted to CIPT. 2. The results stated above relate only to the items tested. 3. The report shall not be reproduced in full or part without written approval of the laboratory. 4. The quality of the subsequent production lot has to be ensured by the purchaser. 5. Any discrepancy in this report should be brought to the attention of CIPT within 30 days from the date of issue.

AUTHORIZED SIGNATORY

Index

01

Industrial Products	06
Industrial Applications	07
10 Assurances	08

02

About Ashirvad Industrial	09
Introduction - Product	11
Key Physical Properties	12
Ashirvad Korrosafe Industrial CPVC	13
Standards and Codes	14
Why Ashirvad Korrosafe Industrial System?	15

03

Dimension & Water Pressure Rating	16
Industrial Pipes (SCH. 40 & SCH. 80)	17
Industrial Fittings (SCH. 80)	18

04

Pressure De-Rating Factor	22
Handling and Storage	23
Quality Control Procedures at Ashirvad	25

05

Important Notes for Installers and Users	26
Installation Procedure	27
Selection of Solvent Cement	28
Support Spacing for CPVC Pipe	29
Recommended Support Spacing	30
Chemical Resistance Chart – CPVC	31

Industrial Products

Korrosafe
Industrial uPVC Piping System

Korrosafe
Industrial CPVC Piping System

ashirvad
by aliaxis



ASTM PIPES & FITTINGS
SCH - 40 & 80

straub
the right connection



PIPE COUPLINGS

jimten



FILTRATION SYSTEMS

dp Durapipe UK



SUPER FLOW ABS, PLX, AIR-LINE XTRA

FRIATEC



ELECTRO - FUSION FITTINGS

IPEX
Committed to Excellence



DOUBLE CONTAINMENT SYSTEMS

FIP



FLS INSTRUMENTATION

FIP



MANUAL / AUTOMATION VALVES
(UPVC, CPVC, PPH & PVDF)

Industrial Applications



- Power Generation – WT/ WWT
- Chemical Processing – Process Piping
- Metals & Mining – WWT/WT and Slurry Transport
- Shipbuilding & Marine – Ballast Water, WT
- Turf & Agricultural Irrigation – Pre Filtration

ASTM PIPES & FITTINGS
SCH – 40 & 80



- Aerospace & Defence – Water Distribution
- Automotive – Water Treatment
- Engineering & Construction – Process Piping
- Oil & Gas – Process Piping
- Utilities – Water Treatment, ETP

PIPE COUPLINGS



- Cooling Towers – Prefiltration
- Effluent Treatment Plants- WWT
- Process Water Filtration – Water Recycling

FILTRATION SYSTEMS



- Chemical Processing – Process Piping
- Oil & Gas Processing – Product Transfer
- Fuel Transfer – White Oil Transfer
- Pressure Air – Process Air Piping
- Hazardous Chemical Transfer – Product Transfer

SUPER FLOW ABS, PLX, AIR-LINE XTRA



- Gas Distribution – City Gas Distribution
- Water Distribution – City Water Distribution
- Waste Water – Sewage and ETP

ELECTRO – FUSION FITTINGS



- Chemical Processing – Process Piping
- Metals & Mining – WT/WWT & Process Piping
- Oil & Gas Processing – WT/WWT & Process Piping
- Oil Extraction – Process Piping
- Shipbuilding & Marine – WT/WWT

DOUBLE CONTAINMENT SYSTEMS



- Power Generation & Manufacturing – WT/ WWT
- Chemical Industry – Process Piping
- Irrigation & Agriculture – Pre Treatment
- Swimming pool & SPA – Pre Treatment
- Aquarium – Pre Treatment & Recycle

FLS INSTRUMENTATION



- Power Generation & Manufacturing – WT/ WWT
- Chemical Industry – Process Piping
- Mining – Slurry Transport, WT/WWT
- Marine – WT/WWT, Ballast Water
- Irrigation & Agriculture – Pre Treatment

MANUAL / AUTOMATION VALVES
(UPVC, CPVC, PPH & PVDF)

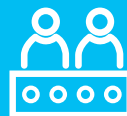
10 Assurances

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



#01

STATE OF THE ART
MANUFACTURING
FACILITIES



#06

STRINGENT QUALITY
CHECKS AT EVERY LEVEL OF
PRODUCTION



#02

ADVANCED MACHINERY
FOR SUPERIOR QUALITY



#07

100% FINISHED GOODS
INSPECTION



#03

ADVANCED MATERIAL
HANDLING SYSTEMS



#08

MULTIPLE QUALITY CHECKS IN
PLACE FOR EVERY INDUSTRIAL
PVC FITTINGS THAT LEAVES THE
ASHIRVAD FACTORY



#04

100% INCOMING RAW
MATERIAL INSPECTION



#09

EVERY BATCH OF PRODUCTS
LAB TESTED



#05

HIGH DIMENSIONAL
ACCURACY TO MAINTAIN
QUALITY OF EACH PIECE,
TO ENSURE A DEFECT
FREE SYSTEM



#10

REGULAR EXTERNAL LAB
TESTING OF PRODUCTS IN
INDIA

About Ashirvad Industrial

Ashirvad's Industrial Division (erstwhile Aliaxis Utilities and Industry Pvt Ltd.) deals with all types of Thermo Plastics Piping systems viz CPVC, uPVC, PPH, PVDF & ABS Pipes, Fittings, Valves with both Pneumatic and Electric Actuators & Accessories as per ISO-DIN Metric, ASTM standards, High Performance Metal Pipe Coupling, Pipe Clamps, Double Containment Piping System, Instrumentation products, Acid Waste system, Compressed air conveying Piping System, Pre Filtration System, Chemical Drainage system Etc. to cater the service in Industries of different segments in India and across the Globe.

We at Ashirvad by Aliaxis give packaged solutions for industrial, process plants & water treatment projects with following products:


- FIP - Italy make uPVC, CPVC, PPH & PVDF manual & auto valves, pipes & fittings.
- ASHIRVAD- Indian make uPVC & CPVC Pipes and fittings
- FIP make instrumentation like flowmeters, PH, ORP conductivity meters etc.
- IPEX - Canada make uPVC, CPVC, ABS, natural & unpigmented PP piping system for process piping, double containment piping, acid waste systems, high purity applications etc.
- DURAPIPE - UK make ABS (Acrylonitrile Butadiene Styrene) piping system & valves for chilled, cold water & flexible ABS for compressed air applications
- STRAUB - Switzerland make mechanical couplings
- JIMTEN - Spain make non-metallic filtration systems, pipe couplings & Air release valves.
- FRIATEC - Germany made Electrofusion fittings.

"Industrial" in Ashirvad today

In order to address customer needs and growth, we have a segment approach to reach to customers

Market segmentation leads to profitable growth based on:

- Better tailored product service offering/develop new offers
- Better resource management (e.g., salesforce, marketing) with specific segments
- Customized value proposition
- Better price allocation for specific segments
- Distinguished and better use of different channels
- Efficient tracking of global projects



Today thermoplastic pipes play an important role in virtually every industrial process. The reason for this is the vast variety of solutions plastic pipes offer because plastic pipes can be adapted for each application. High chemical resistance, advanced jointing techniques and a comprehensive standardisation framework ensure efficient, economical and safe solutions.

Introduction - Product

Ashirvad is very proud to introduce ASTM CPVC solvent weld Ashirvad Korrosafe Industrial CPVC Piping System under the brand name Ashirvad.

PRODUCT	SIZE RANGE	STANDARDS	PROPERTIES
Ashirvad Korrosafe Industrial CPVC Pipes SCH 40 & 80	1/2" - 6"	ASTM F 441	<ul style="list-style-type: none"> • Strong and light weight • Easy to install • Fire Resistant • Durable • UV Stabilised • Simple and leak proof • Suitable for Potable Water • Chemical Resistance • Maximum Flow rate • Good Insulator
Threaded Fittings	1/2" - 6"	ASTM F437	
Socket Type Fittings	1/2" - 6"	ASTM F439	
Solvent Cement	Heavy	ASTM F 493	



Key Physical Properties

CPVC (Chlorinated Poly Vinyl Chloride)

PROPERTIES	CPVC	STANDARDS
Cell classification	24448	ASTM D1784
Specific gravity	1.50 - 1.53	ASTM D792
Tensile strength, psi at 73°F	8,000	ASTM D638
Modulus of elasticity tensile, psi at 73°F	3,90,000	ASTM D638
Flexural strength, psi	15,100	ASTM D790
Izod impact, ft.lbs./in. at 73°F, notched	6	ASTM D256
Compressive strength, psi	10,100	ASTM D695
Poisson's ratio	0.33	-
Working stress, psi at 73°F	2,000	-
Coefficient of thermal expansion in./in./°F (x 10 ⁻⁵)	3.4x10 ⁻⁵	ASTM D696
Linear expansion, in./10°F per 100' of pipe	0.41	-
Maximum operating temperature under pressure °F	199.4	-
Deflection temperature under load, °F at 264 psi	235	ASTM D648
Thermal conductivity, BTU.in./hr. ft ² .°F	0.95	ASTM C177
Burning rate	Self Extinguish	ASTM D 635
Burning class	V-0	UL-94
Flash ignition, °F	900	-
Limited oxygen index (%)	60%	ASTM D2863
Water absorption, %, (24 hrs. at 73°F)	0.03%	ASTM D570

* The properties listed in this table represent general material properties and should be used as a guideline only.

Ashirvad Korrosafe Industrial CPVC

CPVC Sch 40 - 1/2" - 6" (15mm - 150mm)

CPVC Sch 80 - 1/2" - 6" (15mm - 150mm)

OUR SYSTEM ADVANTAGE

The Ashirvad system provide a complete line of pipe, fittings, flanges, strainers and valves to meet all your process system requirements.

Ashirvad developed the Ashirvad Korrosafe Industrial (CPVC) systems to meet industry demands for a complete Pipe, Valves and Fittings (CPVC) package that is designed, produced and backed by a single manufacturer.

These systems are engineered and manufactured to strict quality, performance and dimensional standards, and therefore eliminate the problems inherent in purchasing and installing piping system components manufactured by several different companies

Our high-performance vinyl systems are designed to meet the temperature, pressure and size requirements of piping systems used in chemical processes and other industrial applications. They feature outstanding resistance to photodegradation, creep stress and immunity to oxidation, and are exceptionally suited for use with a wide range of acids, alcohols, salts and halogens. The perfect extended service, low maintenance alternative to common and exotic metal systems.

Ashirvad Korrosafe Industrial CPVC Pipes are available in SCH 40 & 80 and Fittings are available in SCH 80.

FIELDS OF APPLICATIONS

- Plant chemical distribution lines
- Water and wastewater
- Acid systems for refineries, pickling lines and plating shops
- Chlorine injection, chlorine dioxide and chloralkali plant piping
- Steel wire plants
- Battery manufacturing
- Bleach lines in textile and paper mills
- Alum and caustic handling systems
- Circuit board manufacturing
- Semiconductor
- Pharmaceutical
- Cooling water and cooling tower systems
- Tailing and slurry lines
- Washwater recovery systems
- Plant water supply
- Brine and seawater systems
- Fish farming
- Waterworks
- Aquariums and swimming pools
- Irrigation systems in golf courses, greenhouses, etc.

Caution: Do not use or test CPVC with compressed air or other gases including air-over-water boosters.

Standards and Specifications

ASTM D 1784	-	Specification for Rigid Polyvinyl chloride (PVC) compounds and Chlorinated Polyvinyl chloride (CPVC) compounds
ASTM F 441	-	Standard specification for chlorinated Polyvinyl Chloride (CPVC) Plastic Pipe, Schedule 40 and 80
ASTM F 437	-	Specification for Threaded Chlorinated Poly Vinyl Chloride (CPVC) Plastic Pipe Fittings, Schedule 80
ASTM F 439	-	Specification for Socket Type Chlorinated Poly Vinyl Chloride (CPVC) Plastic Pipe Fittings, Schedule 80
ASTM F 493	-	Specification for Solvent Cements for Chlorinated Poly Vinyl Chloride (CPVC) Plastic Pipe and Fittings
ASTM F 1498	-	Taper Pipe threads 60° for Thermoplastics Pipe & Fittings
ASTM D 2774	-	Underground Installation of Thermoplastic Pipes

Codes – Description

ASTM	-	American Society for Testing and Materials.
ANSI	-	American National Standards Institute
BSP	-	British Standard Pipe
IPS	-	Iron Pipe Size (ASTM)
NPT	-	National Pipe Threads (ANSI)
FIPT	-	Female Iron Pipe Threads
MIPT	-	Male Iron Pipe Threads.
SOCKET	-	Solvent Weld Socket
SPIGOT	-	Spigot End (IPS)
PVC	-	Poly Vinyl Chloride
CPVC	-	Chlorinated Poly Vinyl Chloride

Why Ashirvad Korrosafe Industrial System?

Lower Installation Costs, Easy Handling

In addition to a lower material cost, Industrial CPVC pipe can significantly reduce labour and transportation costs on a typical installation. The reason? They are lightweight, easily handled, stored, cut and joined.

Extended Life

Industrial CPVC provide years of maintenance free service. Our materials will not rust, pit, scale or corrode on either interior or exterior surfaces. Thermoplastic piping systems in a variety of demanding industrial applications have operated successfully for over 45 years.

Superior Underground Performance

Industrial CPVC is immune to damage from naturally corrosive soil conditions as well as electrochemical and galvanic corrosion. This is particularly advantageous in underground installations where galvanic reaction often causes damage to metal piping products.

Exceptional Chemical Resistance

The vinyl systems, including pipe, valves and fittings provide outstanding resistance to a wide range of chemicals such as most acids, alcohols, alkalis, salt solutions, halogens and more.

Improved Flow

Industrial CPVC have a substantially lower Roughness Factor than metal and other materials, and since they do not rust, pit, scale or corrode, the interior walls remain smooth in virtually any service.

Exceptional Temperature Range

The vinyl systems are designed to meet a broad range of service temperatures. Industrial CPVC has a recommended maximum service temperature of 199.4°F (93°C) in pressure.

Lower Thermal Conductivity

With a low thermal conductivity factor, the vinyl systems have less heat loss or gain, thus sustaining service temperature more efficiently than metal piping. As a result, pipe insulation needs may be reduced.

Environmentally Responsible

With energy conservation a prime concern, you can rely on the fact that our manufacturing process for Industrial CPVC piping materials requires less than half the energy needed to produce the equivalent size of carbon steel or steel alloy materials.

DID YOU KNOW?

One of the outstanding characteristics of CPVC is its resistance to ignition. This is demonstrated by its flash point of 730°F (388°C), compared to 400°F (204°C) for wood chips.

Dimension and Water Pressure Rating of Ashirvad Korrosafe Industrial CPVC Pipes & Fittings

Dimensions of CPVC Pipes SCH 40 and SCH 80 (As per ASTM F441)

Diameter (in)	Sizes		Schedule 40				Schedule 80			
	Diameter (mm)	Avg OD (mm)	Avg OD Min/Max (mm)	Min Wall Thickness (mm)	*Max. work Pressure at 23°C (kg/cm ²)	Burst Pressure at 23°C (kg/cm ²)	Min Wall Thickness (mm)	*Max. work Pressure at 23°C (kg/cm ²)	Burst Pressure at 23°C (kg/cm ²)	
½	15	21.30	21.20/21.40	2.77	42.18	134.28	3.73	59.76	191.23	
¾	20	26.70	26.60/26.80	2.87	33.74	108.27	3.91	48.51	154.67	
1	25	33.40	33.27/33.53	3.38	31.63	101.24	4.55	44.29	142.02	
1¼	32	42.20	42.07/42.33	3.56	26.01	82.96	4.85	36.55	116.70	
1½	40	48.30	48.15/48.45	3.68	23.20	74.52	5.08	33.04	106.16	
2	50	60.30	60.15/60.45	3.91	19.68	62.57	5.54	28.12	90.69	
2½	65	73.00	72.82/73.18	5.16	21.09	68.19	7.01	29.52	95.61	
3	80	88.90	88.72/89.08	5.49	18.27	59.05	7.62	26.01	84.36	
4	100	114.30	114.10/114.50	6.02	15.46	49.91	8.56	22.49	73.11	
6	150	168.30	168.02/168.58	7.11	12.65	39.37	10.97	19.68	62.57	

Tapered Socketed Dimension for CPVC Pipe Fittings, Schedule 80 (as per ASTM F439)

Nominal Size (in)	Socket Entrance Diameter (A)		Socket Bottom Diameter (B)		Socket Length - Minimum (mm) C	Inside Diameter - Minimum (mm) D	Wall Thickness - Minimum (mm)	
	Diameter (mm)	Tolerance on Diameter (mm)	Diameter (mm)	Tolerance on Diameter (mm)			Middle if the Socket "E"	Beyond the Socket "F"
½	21.54	±0.10	21.23	±0.10	22.22	12.75	3.73	4.67
¾	26.87	±0.10	26.57	±0.10	25.40	17.73	3.91	4.90
1	33.66	±0.13	33.27	±0.13	28.58	23.11	4.55	5.69
1¼	42.42	±0.13	42.04	±0.13	31.75	31.17	4.85	6.07
1½	48.56	±0.15	48.11	±0.15	34.93	36.73	5.08	6.35
2	60.63	±0.15	60.17	±0.15	38.10	47.78	5.54	6.93
2½	73.38	±0.18	72.85	±0.18	44.45	57.15	7.01	8.76
3	89.28	±0.18	88.67	±0.18	47.63	71.63	7.62	9.53
4	114.73	±0.20	114.04	±0.20	57.15	94.92	8.56	10.67
6	168.83	±0.28	168.00	±0.28	76.20	143.41	10.97	13.72

Burst pressure requirements for CPVC fittings SCH 80 are same as burst pressure of CPVC SCH 80 pipes.

Industrial CPVC Pipes (SCH 40)

(as per ASTM F 441)

IN	MM	LENGTH	SAP CODE
1/2	15	5 meter	70003488
3/4	20	5 meter	70003489
1	25	5 meter	70003490
1 1/4	32	5 meter	70003491
1 1/2	40	5 meter	70003492
2	50	5 meter	70003493
2 1/2	65	5 meter	70003500
3	80	5 meter	70003501
4	100	5 meter	70003502
6	150	5 meter	70003503



Industrial CPVC Pipes (SCH 80)

(as per ASTM F 441)

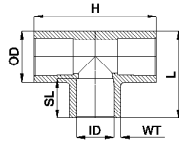
IN	MM	LENGTH	SAP CODE
1/2	15	5 meter	70003494
3/4	20	5 meter	70003495
1	25	5 meter	70003496
1 1/4	32	5 meter	70003497
1 1/2	40	5 meter	70003498
2	50	5 meter	70003499
2 1/2	65	5 meter	70003504
3	80	5 meter	70003505
4	100	5 meter	70003506
6	150	5 meter	70003507



Industrial Fittings (SCH. 80)

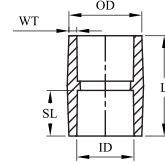
(as per ASTM F 439)

TEE (SOC X SOC X SOC)



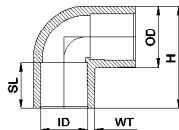
SIZE	ID	OD	WT	SL	L	H
1/2	21.64	29.1	3.73	22.23	50	72
3/4	26.97	34.79	3.91	25.4	57	79
1	33.78	42.88	4.55	28.58	67	93
1 1/4	42.55	52.25	4.85	31.75	80	108
1 1/2	48.72	58.88	5.08	34.93	90	121
2	60.78	71.86	5.54	38.1	107	138
2 1/2	73.56	87.58	7.01	44.45	130	174
3	89.5	106.5	8.50	47.63	152	200
4	114.99	134.0	9.56	57.15	188	245
6	168.83	191.03	11.10	77.25	250	330

COUPLING (SOC X SOC)



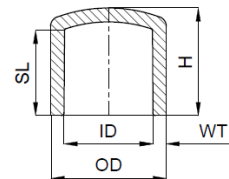
SIZE	ID	OD	WT	SL	L
1/2	21.64	29.1	3.73	22.23	47
3/4	26.97	34.79	3.91	25.4	54
1	33.78	42.88	4.55	28.58	60
1 1/4	42.55	52.25	4.85	31.75	67
1 1/2	48.72	58.88	5.08	34.93	73
2	60.78	71.86	5.54	38.1	80
2 1/2	73.56	87.58	7.01	44.45	96
3	89.5	106.5	8.50	47.63	102
4	114.99	132.11	8.56	57.15	121
6	168.83	191.03	11.10	77.25	160

ELBOW 90 DEGREE (SOC X SOC)



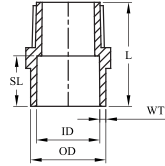
SIZE	ID	OD	WT	SL	H
1/2	21.64	29.1	3.73	22.23	49
3/4	26.97	34.79	3.91	25.4	58
1	33.78	42.88	4.55	28.58	68
1 1/4	42.55	52.25	4.85	31.75	81
1 1/2	48.72	58.88	5.08	34.93	90
2	60.78	71.86	5.54	38.1	107
2 1/2	73.56	87.58	7.01	44.45	128
3	89.5	106.5	8.4	47.63	150
4	114.99	134.2	9.5	57.15	188
6	168.83	191.03	11.10	77.25	261

END CAP (SOC)



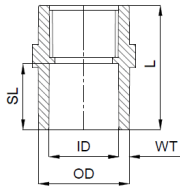
SIZE	ID	OD	WT	SL	L
1/2	21.64	29.1	3.73	22.23	28
3/4	26.97	34.79	3.91	25.4	32
1	33.78	42.88	4.55	28.58	36
1 1/4	42.55	52.25	4.85	31.75	42
1 1/2	48.72	58.88	5.08	34.93	45
2	60.78	71.86	5.54	38.1	54
2 1/2	73.56	87.58	7.01	44.45	60
3	89.5	104.74	7.62	47.63	66
4	114.99	132.11	8.56	57.15	80
6	168.83	191.03	11.10	77.25	100

MAPT



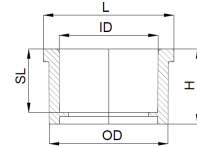
SIZE	ID	OD	WT	SL	L
1/2	21.64	29.1	3.73	22.23	41
3/4	26.97	34.79	3.91	25.40	48
1	33.78	42.88	4.55	28.58	56
1 1/4	42.55	52.24	4.85	31.75	58
1 1/2	48.72	58.88	5.08	34.93	66
2	60.78	71.86	5.54	38.10	69
2 1/2	73.56	87.58	7.01	44.45	81
3	89.50	104.74	7.62	47.63	87
4	114.99	132.11	8.56	57.15	108

FAPT



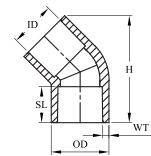
SIZE	ID	OD	WT	SL	L
1/2	21.64	29.1	3.73	22.23	42
3/4	26.97	34.79	3.91	25.4	48
1	33.78	42.88	4.55	28.58	56
1 1/4	42.55	52.25	4.85	31.75	58
1 1/2	48.72	58.88	5.08	34.93	66
2	60.78	71.86	5.54	38.1	69
2 1/2	73.56	87.58	7.01	44.45	77
3	89.5	104.74	7.62	47.63	87
4	114.99	132.11	8.56	57.15	105

REDUCER BUSH



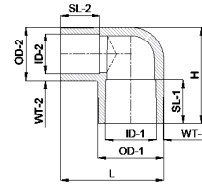
SIZE	OD	ID	SL	L	H
3/4 x 1/2	26.97	21.64	22.23	34	28
1 x 1/2	33.78	21.64	22.23	43	32
1 x 3/4	33.78	26.97	25.4	43	32
1 1/4 x 1/2	42.55	21.64	22.23	53	36
1 1/4 x 3/4	42.55	26.97	25.4	53	36
1 1/4 x 1	42.55	33.78	28.58	53	36
1 1/2 x 1/2	48.30	21.64	22.23	58	39
1 1/2 x 3/4	48.30	26.97	25.4	58	39
1 1/2 x 1	48.30	33.78	28.58	58	39
1 1/2 x 1 1/4	48.30	42.55	31.75	58	40
2 x 1/2	60.32	21.64	22.23	72	43
2 x 3/4	60.32	26.97	25.4	72	43
2 x 1	60.32	33.78	28.58	72	43
2 x 1 1/4	60.32	42.55	31.75	72	43
2 x 1 1/2	60.32	48.72	34.93	72	43
2 1/2 x 2 (CTS)	73.56	54	43.33	87	52
2 1/2 x 2	73.56	60.78	38.1	87	52
3 x 2 (CTS)	89.3	54	43.33	105	56
3 x 2	89.3	60.78	38.1	105	56
3 x 2 1/2	89.3	73.56	44.45	98	56
4 x 2 (CTS)	114.60	54	43.33	134	66
4 x 2	114.60	60.78	38.1	134	66
4 x 2 1/2	114.60	73.56	44.45	134	66
4 x 3	114.60	89.5	47.63	134	66
6 x 3	167.92	89.31	48	170.8	85
6 x 4	168.27	114.99	51	170.8	85

ELBOW SOC X SOC 45°



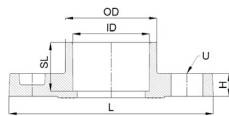
SIZE	ID	OD	WT	SL	H
1/2	21.64	29.1	3.73	22.23	59
3/4	26.97	34.79	3.91	25.4	68
1	33.78	42.88	4.55	28.58	78
1 1/4	42.55	52.25	4.85	31.75	88
1 1/2	48.72	58.88	5.08	34.93	100
2	60.78	71.86	5.54	38.1	106
2 1/2	73.56	87.58	7.01	44.45	158
3	89.5	104.74	7.62	47.63	178
4	114.99	132.11	8.56	57.15	228

REDUCER ELBOW



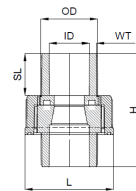
SIZE	ID-1	OD-1	WT-1	SL-1	ID-2	OD-2	WT-2	SL-2	L	H
3/4 x 1/2	26.97	34.79	3.91	25.40	21.64	29.1	3.73	22.23	57	54
1 x 1/2	33.78	42.88	4.55	28.58	21.64	29.1	3.73	22.23	65	64
1 x 3/4	33.78	42.88	4.55	28.58	26.97	34.79	3.91	25.40	68	66

FLANGE END CAP OPEN (SOC X SOC)



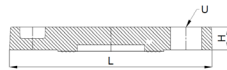
SIZE	ID	OD	SL	L	H	U
1	33.78	42.88	28.58	115	15	4
1 1/2	48.72	58.88	34.93	136	18	4
2	60.78	71.86	38.1	160	18	4
2 1/2	73.56	87.58	44.45	176	23	4
3	89.5	104.74	47.63	188	23	4
4	114.99	134.2	57.15	225	28	8
6	168.83	191.03	77.25	278	28	8

UNION



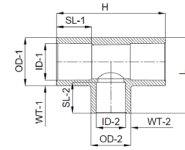
SIZE	ID	OD	WT	SL	L	H
1/2	21.64	29.1	3.73	22.23	47	62
3/4	26.97	34.79	3.91	25.4	55	65
1	33.78	42.88	4.55	28.58	67	69
1 1/4	42.55	52.25	4.85	31.75	73	85
1 1/2	48.72	58.88	5.08	34.93	81	87
2	60.78	71.86	5.54	38.1	95.5	100
2 1/2	73.38	88.54	7.58	45.45	125.8	101
3	89.31	106.5	8.5	48.63	146.7	107
4	114.76	134.2	9.43	58.15	176.2	126

FLANGE END CAP – CLOSED



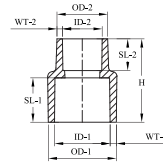
SIZE	L	H	U
1	115	15	4
1 1/2	136	18	4
2	160	18	4
2 1/2	176	23	4
3	188	23	4
4	225	28	8
6	278	28	8

REDUCER TEE



SIZE	ID-1	OD-1	WT-1	SL-1	ID-2	OD-2	WT-2	SL-2	L	H
3/4 x 3/4 x 1/2	26.97	34.79	3.91	25.4	21.64	29.1	3.73	22.23	56	80
1 x 1 x 1/2	33.78	42.88	4.55	28.58	21.64	29.1	3.73	22.23	62	86
1 x 1 x 3/4	33.78	42.88	4.55	28.58	26.97	34.79	3.91	25.4	70	92
1 1/4 x 1 1/4 x 1/2	42.55	52.25	4.85	31.75	21.64	29.1	3.73	22.23	70	108
1 1/4 x 1 1/4 x 3/4	42.55	52.25	4.85	31.75	26.97	34.79	3.91	25.4	73	108
1 1/4 x 1 1/4 x 1	42.55	52.25	4.85	31.75	33.78	42.88	4.55	28.58	77	108
1 1/2 x 1 1/2 x 1/2	48.72	58.88	5.08	34.93	21.64	29.1	3.73	22.23	77	117
1 1/2 x 1 1/2 x 3/4	48.72	58.88	5.08	34.93	26.97	34.79	3.91	25.4	82	117
1 1/2 x 1 1/2 x 1	48.72	58.88	5.08	34.93	33.78	42.88	4.55	28.58	82	117
1 1/2 x 1 1/2 x 1 1/4	48.72	58.88	5.08	34.93	42.55	52.25	4.85	31.75	87	117
2 x 2 x 1/2	60.78	71.86	5.54	38.1	21.64	29.1	3.73	22.23	89	130
2 x 2 x 3/4	60.78	71.86	5.54	38.1	26.97	34.43	3.73	25.4	93	135
2 x 2 x 1	60.78	71.86	5.54	38.1	33.78	42.88	4.55	28.58	95	135
2 x 2 x 1 1/4	60.78	71.86	5.54	38.1	42.55	52.25	4.85	31.75	100	135
2 x 2 x 1 1/2	60.78	71.86	5.54	38.1	48.72	58.88	5.08	34.93	102	135
2 1/2 x 2 1/2 x 2	73.56	87.58	7.01	44.45	60.78	71.86	5.54	44.45	126	161
3 x 2	89.31	105.55	7.62	48.63	60.78	88.54	5.54	44.45	147.5	181
3 x 3 x 2 1/2	89.51	105.55	7.62	48.63	73.38	83.7	7.01	44.45	147.5	181

REDUCER COUPLER



SIZE	ID-1	OD-1	WT-1	SL-1	ID-2	OD-2	WT-2	SL-2	H
3/4 x 1/2	26.97	34.79	3.91	25.4	21.64	29.1	3.73	22.23	56
1 x 1/2	33.78	42.88	4.55	28.58	21.64	29.1	3.73	22.23	62
1 x 3/4	33.78	42.88	4.55	28.58	26.97	34.79	3.91	25.4	63
1 1/4 x 1/2	42.55	52.25	4.85	31.75	21.64	29.1	3.73	22.23	68
1 1/4 x 3/4	42.55	52.25	4.85	31.75	26.97	34.79	3.91	25.4	68
1 1/4 x 1	42.55	52.25	4.85	31.75	33.78	42.88	4.55	28.58	67
1 1/2 x 1/2	48.72	58.88	5.08	34.93	21.64	29.1	3.73	22.23	74
1 1/2 x 3/4	48.72	58.88	5.08	34.93	26.97	34.79	3.91	25.4	75
1 1/2 x 1	48.72	58.88	5.08	34.93	33.78	42.88	4.55	28.58	75
1 1/2 x 1 1/4	48.72	58.88	5.08	34.93	42.55	52.25	4.85	31.75	74
2 x 1/2	60.78	71.86	5.54	38.1	21.64	29.1	3.73	22.23	84
2 x 3/4	60.78	71.86	5.54	38.1	26.97	34.43	3.73	25.4	85
2 x 1	60.78	71.86	5.54	38.1	33.78	42.88	4.55	28.58	85
2 x 1 1/4	60.78	71.86	5.54	38.1	42.55	52.25	4.85	31.75	83
2 x 1 1/2	60.78	71.86	5.54	38.1	48.72	58.88	5.08	34.93	83
2 1/2 x 2	73.56	87.58	7.01	44.45	60.78	71.86	5.54	38.1	104
3 x 2	89.31	105.55	7.62	48.63	60.78	88.54	5.54	44.45	106
3 x 2 1/2	89.51	105.55	7.62	48.63	73.38	88.54	7.01	44.45	107

Pressure De-Rating Factor

Temperature Derating Factors at Working Pressure for CPVC pipe

Working Temperature		Pipe De-rating Factors
Fahrenheit (°F)	Centigrade °C	Korrosafe CPVC
73	23	1.00
80	27	0.96
90	32	0.91
100	38	0.82
110	43	0.74
120	49	0.65
130	54	0.58
140	60	0.50
150	66	0.45
160	71	0.40
170	77	0.33
180	82	0.25
200	93	0.20

Ashirvad Korrosafe Industrial CPVC Piping System pressure ratings are dependent on the pipe diameter and the operating temperature of the system. As temperatures increase, the pressure rating of the system decreases. Refer to the table for de-rating factors. CPVC piping to carry a maximum service temperature of 200°F when appropriate temperature/ pressure de-rating factors are applied.

Handling and Storage

Proper Handling of Pipes



Please check and inspect the pipes on receipt. The pipes should be checked 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.



The pipes should be handled with care. The tendency to throw or drop the pipes to the floor should be avoided. Do not drag or push the pipes from a truck bed. Contact of the pipes with any sharp object should be totally avoided.

Storage of Pipes

The pipes should preferably be stored indoors. When this is not possible, please ensure to



Protect the pipes from sun light, to reduce the effect of UV rays.

The pipes should be stored on level ground and on dry surface.



If pipes of same diameter but different classes are being stacked together, place the thicker pipes below. i.e., stack Sch 80 below Sch 40.

If placing pipes on racks, ensure the spacing between the supports does not exceed 3 feet.

Safe Handling of Solvent Cement

When using solvent cement, primers and cleaners, there are some basic safety measures all users should keep in mind.



After every application of solvent on the pipe / fitting ensure to put the lid back on the solvent cement containers and tighten the lid slightly to avoid evaporation and escape of solvent.



Avoid prolonged breathing of solvent vapours. When pipe and fittings are being joined in enclosed areas, please ensure sufficient ventilation.



Keep the primers, cleaners and solvent cement away from all sources of ignition, heat, sparks and open flame.



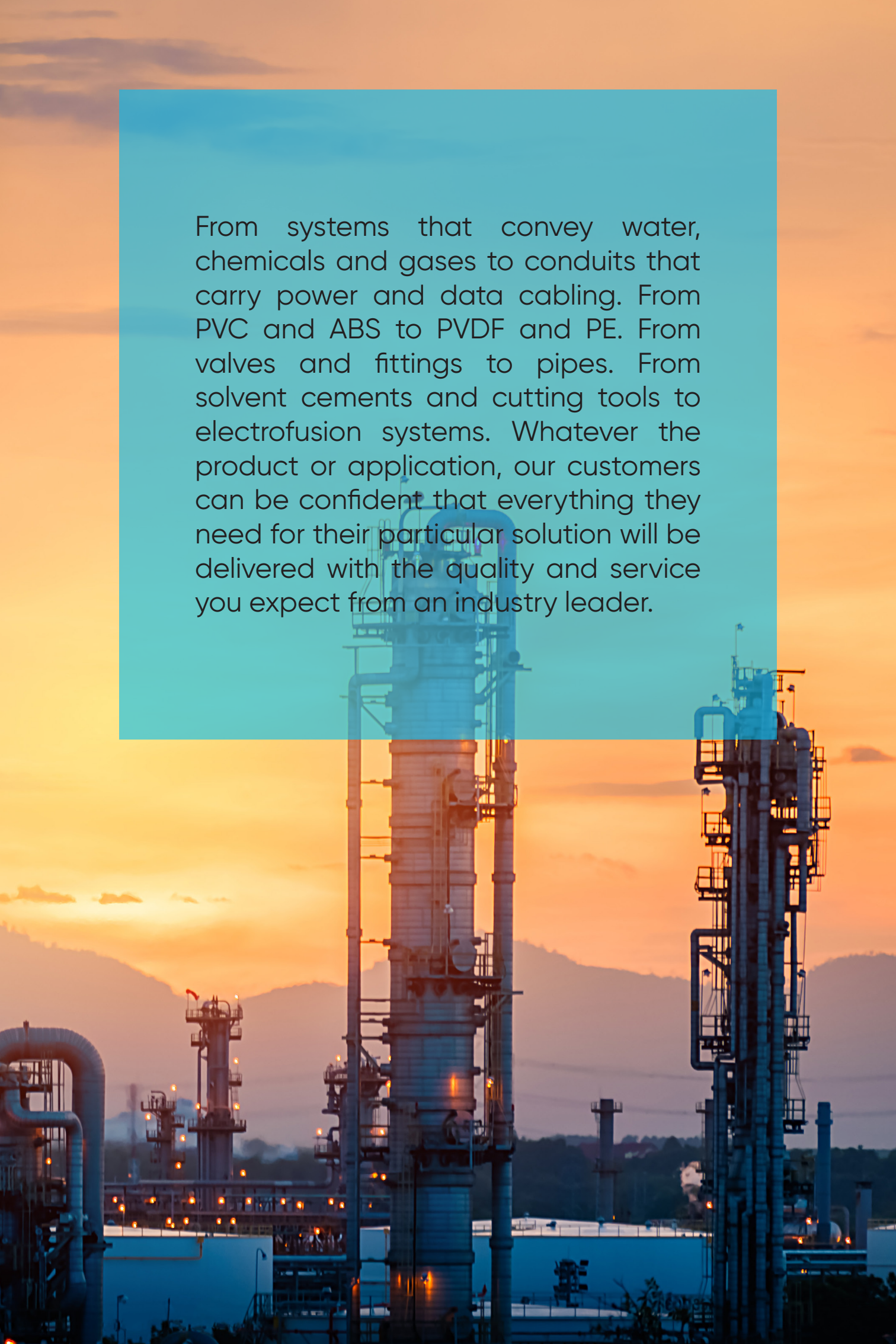
Keep containers of solvent cement, primers and cleaners tightly closed except when the product is being used.

Dispose of all rags used with solvents in a proper outdoor waste bin.



Avoid eye and skin contact. In case of eye contact, flush with plenty of water for 15 minutes and call a doctor.

Refer to ASTM F402, Standard Practice for Safe Handling of Solvent cement, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings.

A photograph of an industrial refinery or chemical plant at sunset. The sky is a mix of orange, yellow, and blue. In the foreground, there are several tall, vertical distillation columns and complex piping systems. The lighting is dramatic, with the sun low on the horizon, creating long shadows and highlighting the metallic surfaces of the equipment. The overall scene conveys a sense of industrial scale and activity.

From systems that convey water, chemicals and gases to conduits that carry power and data cabling. From PVC and ABS to PVDF and PE. From valves and fittings to pipes. From solvent cements and cutting tools to electrofusion systems. Whatever the product or application, our customers can be confident that everything they need for their particular solution will be delivered with the quality and service you expect from an industry leader.

Quality Control Procedures at Ashirvad

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

The various quality control checks regularly being done at Ashirvad follow the highest specifications of BIS (India) and ASTM (USA) as given below.

PIPES



Effect on Water

To ensure the quality of water passing through the pipes.



Heat Reversion Test

How much the pipe changes in length when heated in an oven and left to cool. This is a measure of residual stresses left in the pipe during production process.



Drop Impact Test

Weights are dropped on the pipe to observe for any cracks or failures.



Flattening Test

Samples are compressed so that opposite walls are brought together without the pipe cracking, which is a good measure of correct extrusion techniques during production.



Tensile Strength

The maximum stress that a pipe can withstand while being stretched or pulled.

FITTINGS



Stress Relief Test

To determine the level of internal stress by heating the fitting in an air-circulated oven @ 150°C. There should not be any blisters, weld line splitting or any cracking.

PIPES AND FITTINGS



Burst Pressure Check

Maximum pressure before the fittings burst. This must be over three times the normal pressure rating.



Visual Appearance

To ensure that all pipes and fittings are uniform in colour and free visual effects such as black dots, scratches, burn marks, etc.



Dimensions

To ensure that all pipes and fittings conform to the appropriate standards.



Opacity

To measure the percentage of light flux passing through the wall and to ensure it is below 0.2%.



Vicat Softening Temperature

The temperature at which 1 mm² needle penetrates 1 mm through the wall of the pipe.



Density

Density of pipes and fittings is to be determined.

Important Notes for Installers and Users

1. Water Hammer

Plastic piping systems be designed and constructed to avoid excessive WATER HAMMER. Water hammer can cause damage and failure to pipe, valves and fittings within the piping system.

2. THREADED CONNECTIONS

Use a quality grade thread sealant. Do not use substances that could cause stress cracking to plastic. Major attention must be given while making plastic thread joints. 1 to 2 turns beyond FINGER TIGHT is generally all that is required to make a sound plastic connection. Unnecessary OVER TIGHTENING will cause DAMAGE TO BOTH PIPES & FITTINGS

3. SEAL & GASKET LUBRICANTS

Some Lubricants, including vegetable oils are known to cause stress cracking in thermoplastics materials. A mild soap or commercially available pipe gasket lubricants suitable for CPVC is recommended where lubrication is required for installation or maintenance service (especially with Flange joints). Choice of lubricant is at the discretion of the installer.

4. FLOW VELOCITIES

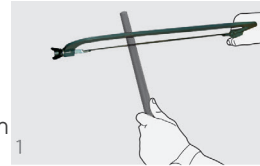
System should not be operated or flushed out at flow velocities greater than 5 feet per second.

Installation Procedure

Easy and 100% leakproof installation.

Step 1: Cutting

Measure the pipe length accurately and make a visible marking using a felt tip pen. Ensure that the pipe and fittings are size compatible. You can easily cut with a plywood cutting saw/ ratchet cutter or a wheel cutter. Cutting the pipe as squarely as possible (at 90°) provides optimal bonding area within a joint. Inspect pipe ends thoroughly prior to making a joint. If a crack or splintering is noticed cut-off a minimum of 25 mm beyond the visible crack before proceeding.



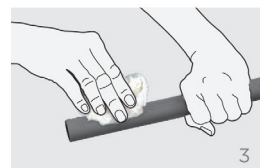
Step 2: Deburring/Beveling

Burrs in and on pipe end can obstruct flow/proper contact between the pipe and socket of the fitting during assembly and should be removed from both in and outside of the pipe. A 15 mm dia half round file/a pen knife or a deburring tool are suitable for this purpose. A slight bevel on the end of the pipe will ease entry of the pipe into the socket of the fitting socket.



Step 3: Fitting Preparation

Using a clean dry rag, wipe the dirt and moisture from the fitting sockets and pipe end. Dry fit the pipe to ensure total entry into the bottom of the fittings socket and make a visible marking using a felt tip pen.



Step 4: One Step Solvent adhesive Procedure

Use only Ashirvad CPVC Solvent adhesive conforming to ASTM D2564 to ensure a perfect solvent weld joint. When making a joint, apply an even coat of solvent adhesive at the end of the pipe and also inside the fitting socket. Do not use thickened or lumpy solvent adhesive. It should have a flow consistency like that of syrup or paint.

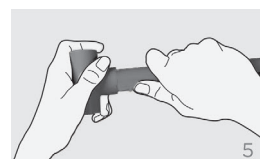


Two Step Solvent adhesive Procedure

- 4a: Apply primer to socket keeping surfaces wet and applicator wet and in motion until the entire joining surface is properly softened. Avoid puddling.
- 4b: Apply to pipe surface in the same manner equal to depth of socket.
- 4c: Apply again to the fitting socket. Avoid puddling.
- 4d: While the primer is still wet and the surfaces are soft, apply a full, even layer of solvent adhesive to the pipe end, equal to the depth of the fitting socket. Like the primer, be aggressive. Remember to apply enough solvent adhesive to fill the gap between the pipe and fitting.
- 4e: Apply a thin layer of solvent adhesive to the inside of the fitting socket. This will prevent puddling of the solvent adhesive inside of the pipe or fitting. Excessive solvent adhesive applied to the fitting socket can cause the joint to clog and the wall of the pipe or fitting to weaken due to softening by the trapped solvents.
- 4f: Apply a second full, even layer of solvent adhesive to the pipe end. Excessive solvent adhesive on the pipe outer diameter (O.D.) can be wiped away after assembly.

Step 5: Assembly

Immediately insert the pipe into the fitting socket, rotate the pipe 1/4 to 1/2 turn while inserting. This motion ensures an even distribution of solvent adhesive within the joint. Properly align the fittings as per patented alignment system shown with picture diagram on the right side. Hold the assembly for 3 seconds to allow the joint to setup and avoid push-out.



A bead of One-Step solvent adhesive must be formed around the entire socket fitting entrance. With a clean, dry cloth remove the excess solvent adhesive from the surface of the pipe and fitting.

Selection of Solvent Cement

JOINT SETTING & CURING TIME

RECOMMENDED INITIAL SET TIME

Temperature Range	Pipe Size 1/2"-1 1/4" (15 mm – 32 mm)	Pipe Size 1 1/2"-3" (40 mm – 80 mm)	Pipe Size 4"-6" (100 mm – 150 mm)
15.5°C – 37.7°C	15 minutes	30 minutes	1 hours
4.4°C – 15.5°C	1 hours	2 hours	4 hours

RECOMMENDED INITIAL CURE TIME

Temperature Range	Pipe Size 1/2"-1 1/4" (15 mm – 32 mm)	Pipe Size 1 1/2"-3" (40 mm – 80 mm)	Pipe Size 4"-6" (100 mm – 150 mm)
15.5°C – 37.7°C	6 hours	12 hours	24 hours
4.4°C – 15.5°C	12 hours	24 hours	48 hours

TESTING PRESSURE SYSTEM

1. Conduct pressure testing with water. DO NOT USE AIR OR OTHER GASES for pressure testing.
2. The piping system should be adequately anchored to limit movement. Water under pressure exerts thrust forces in piping systems. Thrust blocking should be provided at changes of direction, change in size and at dead ends.
3. Please refer tables given for initial set & cure times before pressure testing.
4. The piping systems should be slowly filled with water, taking care to prevent surge and air entrapment. The flow velocity should not exceed 1 feet per second.
5. All trapped air must be slowly released. Vents must be provided at all high points of the piping system. All valves and air relief mechanisms should be opened so that the air can be vented while the system is extremely dangerous and it must be slowly and completely vented prior to testing.
6. For sizes 4" & above, we recommend to use automatic air relief valves at every 300 – 400 mtr. distance & at furthest & highest points of pipeline to avoid any damage to the piping system.
7. The piping system can be pressurized to 125% of its designed working pressure. However care must be taken to ensure the pressure does not exceed the working pressure of the lowest rated component in the system (valves, unions, flanges, threaded parts etc.)
8. The pressure test should not exceed one hour. Any leaking joints or pipe must be cut out and replaced and the line recharged and retested using the same procedure.

Support Spacing for CPVC Pipe

Adequate supports for any piping system is a matter of great importance. In practice, support spacings are a function of pipe size operating temperatures, the location of heavy valves or fittings and the mechanical properties of the pipe material. To ensure the satisfactory operation the location and type of hangers should be carefully considered. Hangers should not compress, distort, cut or abrade the piping. All piping should be supported with an approved hanger at intervals sufficiently close to maintain correct pipe alignment and to prevent sagging or grade reversal. Pipe should also be supported at all branch ends and at all changes of direction. Support trap arms as close as possible to the trap.

1. Concentrated loads should be supported directly so as to eliminate high stress concentrations. Should this be impractical then the pipe must be supported immediately adjacent to the load.
2. In systems where large fluctuations in temperature occur, allowances must be made for expansion and contraction of the piping system. Since changes in direction in the system are usually sufficient to allow for expansion and contraction hangers must be placed so as not to restrict this movement.
3. Since plastic pipe expands or contracts approximately five times greater than those of steel, hangers should not restrict this movement.
4. Hangers should provide as much bearing surface as possible. To prevent damage to the pipe, file smooth any sharp edges or burrs on the hangers or supports.
5. Support spacing for horizontal piping systems is determined by the maximum operating temperature the system will encounter. The piping should be supported on uniform centers with supports that do not restrict the axial movement.
6. For vertical lines, it is recommended that an engineer should design the vertical supports according to the vertical load involved.

Schedule 40 – Recommended Support Spacing (In Feet)

NOM. PIPE SIZE		TEMPERATURE °C						
Diameter (in)	Diameter (mm)	15.5	26.6	37.7	48.8	60	82	92
½	15	4½	4½	4	2½	2½	2.6	2.4
¾	20	5	4½	4	2½	2½	2.9	2.7
1	25	5½	5	4½	3	2½	3.3	3.1
1¼	32	5½	5½	5	3	3	3.8	3.5
1½	40	6	5½	5	3½	3	4.0	3.8
2	50	6	5½	5	3½	3	4.5	4.2
2½	65	6½	6	5½	4	3	5.2	4.9
3	80	7	7	6	4	3½	5.8	5.4
4	100	7½	7	6½	4½	4	6.6	6.2
6	150	8½	8	7½	5	4½	8.1	7.5

Schedule 80 – Recommended Support Spacing (In Feet)

NOM. PIPE SIZE		TEMPERATURE °C						
Diameter (in)	Diameter (mm)	15.5	26.6	37.7	48.8	60	82	92
½	15	4½	4½	4	2½	2½	2.7	2.5
¾	20	5	4½	4	2½	2½	3.0	2.8
1	25	5½	5	4½	3	2½	3.5	3.3
1¼	32	5½	5½	5	3	3	4.0	3.7
1½	40	6	5½	5	3½	3	4.3	4.0
2	50	6	5½	5	3½	3	4.9	4.5
2½	65	6½	6	5½	4	3	5.6	5.2
3	80	7	7	6	4	3½	6.2	5.8
4	100	7½	7	6½	4½	4	7.1	6.7
6	150	8½	8	7½	5	4½	9.0	8.4

Chemical Resistance Chart – CPVC

The chemical resistance information for CPVC pipe provided in the following tables is based on short term immersion of unstressed strips of CPVC in various chemicals (usually undiluted), and may be useful in assessing the suitability of CPVC under unusual or specific operating environments.

Results of this type of test can be used only as a guide to estimate the response of CPVC. These tables provide guidance to industrial users of pipe for conveying the chemicals listed, rather than design criteria for sewers that may experience occasional exposures or when diluted by other wastewater discharges.

An additional source of information on the chemical resistance of CPVC pipe is the National Association of Corrosion Engineers publication entitled, "Corrosion Data Survey, Nonmetals Section." For critical applications it is recommended that testing be performed under conditions that approximate the anticipated field conditions. In applications where exposure to harmful chemicals is frequent, of long duration or in high concentrations, further testing is recommended.

The following chemical resistance legend is used in the following CPVC tables:

R – Recommended

N – Not Recommended

S – Satisfactory Resistance

E – Possible ESC

- (blank) – Insufficient Data

Chemical	23°C (73°F)	Max. Temp. °F(°C)
A		
Acetaldehyde	N	N
Acetic Acid, up to 10%	R	180°F (82°C)
Acetic Acid, Greater than 10%	E	E-180°F (82°C)
Acetic Acid, Glacial (pure)	N	N
Acetic Anhydride	N	N
Acetone, up to 5%	R	180°F (82°C)
Acetone, greater than 5%	E	E-180°F (82°C)
Acetone, Pure	N	N
Acetonitrile	N	N
Acetophenone	N	N
Acetyl Chloride	N	N
Acrylic Acid	N	N
Acrylonitrile	N	N
Adipic Acid, sat'd in water	R	200°F (93°C)
Allyl Alcohol	R	200°F (93°C)
Allyl Chloride	N	N
Alum, all varieties	R	200°F (93°C)
Aluminum Acetate	R	200°F (93°C)
Aluminum Chloride	R	200°F (93°C)
Aluminum Fluoride	R	200°F (93°C)
Aluminum Hydroxide	R	200°F (93°C)
Aluminum Nitrate	R	200°F (93°C)
Aluminum Sulfate	R	200°F (93°C)
Ammonia	N	N
Ammonium Acetate	R	200°F (93°C)
Ammonium Benzoate	R	200°F (93°C)
Ammonium Bifluoride	R	200°F (93°C)
Ammonium Carbonate R	N	N
Ammonium Chloride	R	200°F (93°C)
Ammonium Citrate	R	200°F (93°C)
Ammonium Dichromate	R	200°F (93°C)
Ammonium Fluoride	R	200°F (93°C)
Ammonium Hydroxide, 28%	N	N
Ammonium Hydroxide, 10%	N	N
Ammonium Hydroxide, 3%	R	N
Ammonium Nitrate	R	200°F (93°C)
Ammonium Persulfate	R	-

Chemical	23°C (73°F)	Max. Temp. °F(°C)
Ammonium Phosphate	R	S-180°F (82°C)
Ammonium Sulfamate	R	200°F (93°C)
Ammonium Sulfate	R	200°F (93°C)
Ammonium Sulfide	R	200°F (93°C)
Ammonium Thiocyanate	R	200°F (93°C)
Ammonium Tartrate	R	200°F (93°C)
Amyl Acetate	N	N
Amyl Alcohol	E	E-180°F (82°C)
Amyl Chloride	N	N
Aniline	N	N
Aniline Hydrochloride	-	-
Anthraquinone	R	R
Antimony Trichloride	R	200°F (93°C)
Aqua Regia	R	N
Arsenic Acid	R	-
Aryl Sulfonic Acid	R	180°F (82°C)
B		
Barium Carbonate	R	200°F (93°C)
Barium Chloride	R	200°F (93°C)
Barium Hydroxide	R	200°F (93°C)
Barium Nitrate	R	200°F (93°C)
Barium Sulfate R	R	200°F (93°C)
Barium Sulfide	R	200°F (93°C)
Beer	R	200°F (93°C)
Beet Sugar Liquors	R	200°F (93°C)
Benzaldehyde	N	N
Benzene	N	N
Benzene Sulfonic Acid	R	180°F (82°C)
Benzoic Acid	R	180°F (82°C)
Benzyl Alcohol	E	E-180°F (82°C)
Benzyl Chloride	N	N
Bismuth Carbonate	R	200°F (93°C)
Black Liquor	R	200°F (93°C)
Bleach, Household (5% Cl)	R	200°F (93°C)
Bleach, Industrial (15% Cl)	R3,4	200°F (93°C)
Blood	R	200°F (93°C)
Borax	R	200°F (93°C)
Boric Acid	R	200°F (93°C)

R – Recommended N – Not Recommended S – Satisfactory Resistance E – Possible ESC - (blank) – Insufficient Data

Chemical	23°C (73°F)	Max. Temp. °F (°C)
Brine Acid	R	200°F (93°C)
Bromic Acid	R	-
Bromine	N	N
Bromine, aqueous, sat'd	R	200°F (93°C)
Bromobenzene	N	N
Bromotoluene	N	N
Butanol	E	E-180°F (82°C)
Butyl Acetate N N	N	N
Butyl Carbitol™	N	N
Butyl Cellosolve™	N	N
Butyl Phenol	R	-
Butyric Acid, up to 1%	R	180°F (82°C)
Butyric Acid, greater than 1%	E	E-180°F (82°C)
Butyric Acid, pure	N	N
C		
Cadmium Acetate	R	200°F (93°C)
Cadmium Chloride	R	200°F (93°C)
Cadmium Cyanide	R	200°F (93°C)
Cadmium Sulfate	R	200°F (93°C)
Calcium Acetate	R	200°F (93°C)
Calcium Bisulfide	R	200°F (93°C)
Calcium Bisulfite	R	200°F (93°C)
Calcium Carbonate	R	200°F (93°C)
Calcium Chlorate	R	200°F (93°C)
Calcium Chloride	R	200°F (93°C)
Calcium Hydroxide	R	200°F (93°C)
Calcium Hypochlorite	R3,4	200°F (93°C)
Calcium Nitrate	R	200°F (93°C)
Calcium Oxide	R	200°F (93°C)
Calcium Sulfate	R	200°F (93°C)
Cane Sugar Liquors	R	200°F (93°C)
Caprolactam	N	N
Caprolactone	N	N
Carbitol™	N	N
Carbolic Acid R -	R	-
Carbon Dioxide	R2	200°F (93°C)
Carbon Disulfide	N	N
Carbon Monoxide	R2	200°F (93°C)

Chemical	23°C (73°F)	Max. Temp. °F (°C)
Carbon Tetrachloride	N	N
Carbonic Acid	R	200°F (93°C)
Castor Oil	E	E-180°F (82°C)
*Caustic Potash	R	180°F (82°C)
*Caustic Soda	R	180°F (82°C)
Cellosolve™, all types	N	N
Chloramine, aqueous	R	180°F (82°C)
Chloric Acid	R	180°F (82°C)
Chlorinated Water, (Hypochlorite)	R	200°F (93°C)
Chlorine, aqueous	S	S-180°F (82°C)
Chlorine, dry gas	S2	S
Chlorine, liquid	N	N
Chlorine, trace in air	R2	200°F (93°C)
Chlorine, wet gas	S2	S
Chlorine Dioxide, aqueous, sat'd	S	S-180°F (82°C)
Chloroacetic Acid	N	N
Chlorobenzene	N	N
Chloroform	N	N
Chromic Acid, 40% (Conc.)	R	180°F (82°C)
Chromium Nitrate	R	200°F (93°C)
Citric Acid	R	200°F (93°C)
Citrus Oils	N	N
Coconut Oil	E	E-180°F (82°C)
Coffee	-	-
Copper Acetate	R	200°F (93°C)
Copper Carbonate	R	200°F (93°C)
Copper Chloride	R	200°F (93°C)
Copper Cyanide	R	200°F (93°C)
Copper Fluoride	R	200°F (93°C)
Copper Nitrate	R	200°F (93°C)
Copper Sulfate	R	200°F (93°C)
Corn Oil	E	E-180°F (82°C)
Corn Syrup	R	200°F (93°C)
Cottonseed Oil	E	E-180°F (82°C)
Creosote	N	N
Cresol	N	N
Crotonaldehyde	N	N
Cumene	N	N

R – Recommended N – Not Recommended S – Satisfactory Resistance E – Possible ESC - (blank) – Insufficient Data

Chemical	23°C (73°F)	Max. Temp. °F (°C)
Cyclohexane	R	-
Cyclohexanol	E	-
Cyclohexanone	N	N
D		
Decahydronaphthalene	R	-
Detergents	E	E-180°F (82°C)
Dextrin	R	200°F (93°C)
Dextrose	R	200°F (93°C)
Diacetone Alcohol	N	N
Dibutoxyethyl Phthalate	N	N
Dibutyl Phthalate	N	N
Dibutyl Ether	N	N
Dibutyl Sebacate	N	N
Dichlorobenzene	N	N
Dichloroethylene	N	N
Diesel Fuel	E	E-180°F (82°C)
Diethylamine	N	N
Diethyl Ether	N	N
Diglycolic Acid	R	R
Dill Oil	N	N
Dimethyl Hydrazine	N	N
Dimethyl Phthalate	N	N
Dimethylamine	N	N
Dimethylformamide	N	N
Dioctyl phthalate	N	N
Dioxane	N	N
Disodium Phosphate	R	200°F (93°C)
Distilled Water	R	200°F (93°C)
E		
EDTA, Tetrasodium	R	200°F (93°C)
Ethanol, up to 5%	R	180°F (82°C)
Ethanol, greater than 5%	E	E-180°F (82°C)
Ethanol, pure	E	E-180°F (82°C)
Ethyl Acetate	N	N
Ethyl Acetoacetate	N	N
Ethyl Acrylate	N	N
Ethyl Benzene	N	N
Ethyl Chloride	N	N

Chemical	23°C (73°F)	Max. Temp. °F (°C)
Ethyl Chloroacetate	N	N
Ethyl Ether	N	N
Ethyl Formate	N	N
Ethyl Mercaptan	N	N
Ethyl Oxalate	N	N
Ethylene Bromide	N	N
Ethylene Chloride	N	N
Ethylene Chlorohydrin	N	N
Ethylene Diamine	N	N
Ethylene Glycol, up to 50%	R	180°F (82°C)
Ethylene Glycol, greater than 50%	E	E-180°F (82°C)
Ethylene Oxide	N	N
2-Ethylhexanol	E	E-180°F (82°C)
F		
Fatty Acids	E	E-180°F (82°C)
Ferric Chloride	R	200°F (93°C)
Ferric Hydroxide	R	200°F (93°C)
Ferric Nitrate	R	200°F (93°C)
Ferric Sulfate	R	200°F (93°C)
Ferrous Chloride	R	200°F (93°C)
Ferrous Hydroxide	R	200°F (93°C)
Ferrous Nitrate	R	200°F (93°C)
Ferrous Sulfate	R	200°F (93°C)
Fish Oil	E	E-180°F (82°C)
Fluoboric Acid	R	-
Fluorine Gas	N	N
Fluorosilicic Acid, 30%	R	180°F (82°C)
Fluosilicic Acid	R	180°F (82°C)
Formaldehyde	N	N
Formic Acid, up to 25%	R	180°F (82°C)
Formic Acid, greater than 25%	E	N
Formic Acid, pure	N	N
Freons	N	N
Fructose	R	200°F (93°C)
Furfural	N	N
G		
Gallic Acid, aqueous	R	180°F (82°C)
Gasoline	N	N

R – Recommended N – Not Recommended S – Satisfactory Resistance E – Possible ESC - (blank) – Insufficient Data

Chemical	23°C (73°F)	Max. Temp. °F (°C)
Gelatine	R	200°F (93°C)
Glucose	R	200°F (93°C)
Glycerine	R	200°F (93°C)
Glycolic Acid	N	N
Glyoxal, aqueous	R	-
Green Liquor	R	200°F (93°C)
H		
Halocarbon Oils	N	N
Heptane	R	-
Hexane	R	-
Hexanol	E	E-180°F (82°C)
Hydrazine	N	N
Hydrobromic Acid	R	-
Hydrochloric Acid	R	180°F (82°C)
Hydrocyanic Acid	R	-
*Hydrofluoric Acid, 3%	R ³	180°F (82°C)
*Hydrofluoric Acid, 48%	S ³	S-180°F (82°C)
Hydrofluosilicic Acid, 30%	R	180°F (82°C)
*Hydrogen Peroxide, 30%	R ¹	180°F (82°C)
*Hydrogen Peroxide, 50%	R ¹	120
Hydrogen Sulfide, Aqueous	R	180°F (82°C)
Hydroquinone, aqueous	R	-
Hydroxylamine Sulfate	-	-
Hypochlorous Acid	S	S-180°F (82°C)
I		
Iodine, aqueous	R	-
Isobutyl Alcohol	E	E-180°F (82°C)
Isophorone	N	N
Isopropanol	E	E-180°F (82°C)
Isopropyl Acetate	N	N
Isopropyl Chloride	N	N
Isopropyl Ether	N	N
K		
Kerosene	N	N
Ketchup	R	200°F (93°C)
Kraft Liquors	R	200°F (93°C)
L		

Chemical	23°C (73°F)	Max. Temp. °F (°C)
Lactic Acid, 25%	R	200°F (93°C)
Lard Oil	E	E-180°F (82°C)
Lauryl Chloride	N	N
Lead Acetate	R	200°F (93°C)
Lead Chloride	R	200°F (93°C)
Lead Nitrate	R	200°F (93°C)
Lead Sulfate	R	200°F (93°C)
Lemon Oil	N	N
Ligroin	R	-
Limonene	N	N
Linoleic Acid	E	E-180°F (82°C)
Linseed Oil	E	E-180°F (82°C)
Lithium Bromide	R	200°F (93°C)
Lithium Chloride	R	200°F (93°C)
Lithium Hydroxide	R	-
Lithium Sulfate	R	200°F (93°C)
M		
Magnesium Carbonate	R	200°F (93°C)
Magnesium Chloride	R	200°F (93°C)
Magnesium Citrate	R	200°F (93°C)
Magnesium Fluoride	R	200°F (93°C)
Magnesium Hydroxide	R	200°F (93°C)
Magnesium Nitrate	R	200°F (93°C)
Magnesium Oxide	R	200°F (93°C)
Magnesium Sulfate	R	200°F (93°C)
Maleic Acid, 50%	R	200°F (93°C)
Malic Acid	R	200°F (93°C)
Manganese Sulfate	R	200°F (93°C)
Mercuric Chloride	R	200°F (93°C)
Mercuric Cyanide	R	200°F (93°C)
Mercuric Sulfate	R	200°F (93°C)
Mercurous Nitrate	R	200°F (93°C)
Mercury	R	180°F (82°C)
Methane Sulfonic Acid	R	180°F (82°C)
Methanol, up to 10%	R	180°F (82°C)
Methanol, greater than 10%	E	E-180°F (82°C)
Methanol, Pure	N	N
Methyl Acetate	N	N

R – Recommended N – Not Recommended S – Satisfactory Resistance E – Possible ESC - (blank) – Insufficient Data

Chemical	23°C (73°F)	Max. Temp. °F (°C)
Methyl Chloride	N	N
Methyl Ethyl Ketone	N	N
Methyl Formate	N	N
Methyl Isobutyl Ketone	N	N
Methyl Isopropyl Ketone	N	N
Methyl Methacrylate	N	N
Methylamine	N	N
Methylene Bromide	N	N
Methylene Chloride	N	N
Methylene Chlorobromide	N	N
Methylene Iodide	N	N
Mineral Oil	R	-
Molasses	R	R
Monoethanolamine	N	N
Morpholine	N	N
Motor Oil	R	-
Muriatic Acid	R	180°F (82°C)
N		
Naphtha	R	-
Naphthalene	R	-
Nickel Acetate	R	200°F (93°C)
Nickel Chloride	R	200°F (93°C)
Nickel Nitrate	R	200°F (93°C)
Nickel Sulfate	R	200°F (93°C)
*Nitric Acid, up to 25%	R ¹	150°F (65°C)
*Nitric Acid, 25-35%	R ¹	130°F (54°C)
*Nitric Acid, 70%	R ¹	105°F (40°C)
Nitrobenzene	N	N
Nitroethane	N	N
Nitroglycerine	N	N
Nitromethane	N	N
Nitrous Acid	R	-
O		
Octane	R	-
1-Octanol	E	E-180°F (82°C)
Oils, Sour Crude	N	N

Chemical	23°C (73°F)	Max. Temp. °F (°C)
Oleum N N	N	N
Olive Oil N N	N	N
Oxalic Acid, Sat'd	R	170°F (76°C)
Oxygen	R ²	180°F (82°C)
Ozonized Water	R	200°F (93°C)
P		
Palm Oil	E	E-180°F (82°C)
Paraffin	R	180°F (82°C)
Peanut Oil	E	E-180°F (82°C)
Peracetic Acid	N	N
Perchloric Acid, 10%	R	-
Phenol	R	-
Phenylhydrazine	N	N
Phosphoric Acid	R	180°F (82°C)
Phosphorus Pentoxide	R	-
Phosphorus Trichloride	N	N
Photographic Solutions	R	180°F (82°C)
Phthalic Acid	N	N
Picric Acid	N	N
Pine Oil	N	N
Plating Solutions	R	180°F (82°C)
Polyethylene Glycol	E	E-180°F (82°C)
Polyvinyl Alcohol	R	180°F (82°C)
Potash	R	200°F (93°C)
Potassium Acetate	R	200°F (93°C)
Potassium Bicarbonate	R	200°F (93°C)
Potassium Bichromate	R	200°F (93°C)
Potassium Bisulfate	R	200°F (93°C)
Potassium Bisulfite	R	200°F (93°C)
Potassium Borate	R	200°F (93°C)
Potassium Bromate	R	200°F (93°C)
Potassium Bromide	R	200°F (93°C)
Potassium Carbonate	R	200°F (93°C)
Potassium Chlorate	R	200°F (93°C)
Potassium Chloride	R	200°F (93°C)
Potassium Chromate	R	200°F (93°C)
Potassium Cyanate	R	200°F (93°C)

R – Recommended N – Not Recommended S – Satisfactory Resistance E – Possible ESC - (blank) – Insufficient Data

Chemical	23°C (73°F)	Max. Temp. °F(°C)	Chemical	23°C (73°F)	Max. Temp. °F(°C)
Potassium Cyanide	R	200°F (93°C)	Silicic Acid	R	-
Potassium Dichromate	R	200°F (93°C)	Silicone Oil	R	-
Potassium Ferricyanide	R	200°F (93°C)	Silver Chloride	R	200°F (93°C)
Potassium Ferrocyanide	R	200°F (93°C)	Silver Cyanide	R	200°F (93°C)
Potassium Fluoride	R	200°F (93°C)	Silver Nitrate	R	200°F (93°C)
*Potassium Hydroxide	R	180°F (82°C)	Silver Sulfate	R	200°F (93°C)
Potassium Hypochlorite	R ^{3,4}	200°F (93°C)	Soaps	R	200°F (93°C)
Potassium Iodide	R	200°F (93°C)	Sodium Acetate	R	200°F (93°C)
Potassium Nitrate	R	200°F (93°C)	Sodium Aluminate	R	200°F (93°C)
Potassium Perborate	R	180°F (82°C)	Sodium Arsenate	R	200°F (93°C)
Potassium Perchlorate, sat'd	R	180°F (82°C)	Sodium Benzoate	R	200°F (93°C)
Potassium Permanganate, sat'd	R	180°F (82°C)	Sodium Bicarbonate	R	200°F (93°C)
Potassium Persulfate, sat'd	R	-	Sodium Bichromate	R	200°F (93°C)
Potassium Phosphate	R	180°F (82°C)	Sodium Bisulfate	R	200°F (93°C)
Potassium Sulfate	R	200°F (93°C)	Sodium Bisulfite	R	200°F (93°C)
Potassium Sulfide	R	200°F (93°C)	Sodium Borate	R	200°F (93°C)
Potassium Sulfite	R	200°F (93°C)	Sodium Bromide	R	200°F (93°C)
Potassium Tripolyphosphate	R	200°F (93°C)	Sodium Carbonate	R	200°F (93°C)
Propanol, up to 0.5%	R	180°F (82°C)	Sodium Chlorate	R	200°F (93°C)
Propanol, greater than 0.5%	E	E-180°F (82°C)	Sodium Chloride	R	200°F (93°C)
Propanol, pure	E	E-180°F (82°C)	Sodium Chlorite	R	200°F (93°C)
Propargyl Alcohol	E	E-180°F (82°C)	Sodium Chromate	R	200°F (93°C)
Propionic Acid, up to 2%	R	180°F (82°C)	Sodium Cyanide	R	200°F (93°C)
Propionic Acid, greater than 2%	E	E-180°F (82°C)	Sodium Dichromate	R	200°F (93°C)
Propionic Acid, pure	N	N	Sodium Ferricyanide	R	200°F (93°C)
Propyl Acetate	N	N	Sodium Ferrocyanide	R	200°F (93°C)
Propyl Bromide	N	N	Sodium Fluoride	R	200°F (93°C)
Propylene Dichloride	N	N	Sodium Fluorosilicate	R	180°F (82°C)
Propylene Glycol, up to 35%	R	180°F (82°C)	Sodium Formate	R	200°F (93°C)
Propylene Glycol, greater than 35%	E	E-180°F (82°C)	Sodium Hexametaphosphate – Saturated	R	180°F (82°C)
Propylene Oxide	N	N	*Sodium Hydroxide	R	180°F (82°C)
Pyridine	N	N	Sodium Hypobromite	R	200°F (93°C)
Pyrogallol	R	-	Sodium Hypochlorite	R ^{3,4}	200°F (93°C)
Pyrrole	N	N	Sodium Iodide	R	200°F (93°C)
S			Sodium Metabisulfite – Saturated	R	180°F (82°C)
Salicylaldehyde	N	N	Sodium Metaphosphate	R	200°F (93°C)
Sea Water	R	200°F (93°C)	Sodium Nitrate	R	200°F (93°C)

R – Recommended N – Not Recommended S – Satisfactory Resistance E – Possible ESC - (blank) – Insufficient Data

Chemical	23°C (73°F)	Max. Temp. °F (°C)	Chemical	23°C (73°F)	Max. Temp. °F (°C)
Sodium Nitrite	R	200°F (93°C)	Tetrahydronaphthalene	R	-
Sodium Palmitate	R	200°F (93°C)	Tetrasodiumpyrophosphate	R	200°F (93°C)
Sodium Perborate	R	180°F (82°C)	Thionyl Chloride	N	N
Sodium Percarbonate, 15%	R	180°F (82°C)	Toluene	N	N
Sodium Perchlorate	R	180°F (82°C)	Tomato Juice	R	180°F (82°C)
Sodium Permanganate, 25%	R	180°F (82°C)	Tributyl Citrate	N	N
Sodium Phosphate	R	200°F (93°C)	Tributyl Phosphate	N	N
Sodium Silicate	R	200°F (93°C)	Trichloroacetic Acid	N	N
Sodium Sulfate	R	200°F (93°C)	Trichloroethylene	N	N
Sodium Sulfide	R	200°F (93°C)	Triethanolamine	N	N
Sodium Sulfite	R	200°F (93°C)	Triethylamine	N	N
Sodium Thiosulfate	R	200°F (93°C)	Trimethylpropane	R	-
Sodium Tripolyphosphate	R	200°F (93°C)	Trisodium Phosphate	R	200°F (93°C)
Soybean Oil	E	E-180°F (82°C)	Tung Oil	E	E-180°F (82°C)
Stannic Chloride	R	200°F (93°C)	Turpentine	N	N
Stannous Chloride	R	200°F (93°C)	U		
Stannous Sulfate	R	200°F (93°C)	Urea	N	N
Starch	R	200°F (93°C)	Urine	R	200°F (93°C)
Stearic Acid	R	-	V		
Strontium Chloride	R	200°F (93°C)	Vegetable Oil	E	E-180°F (82°C)
Styrene	N	N	Vinegar	R	200°F (93°C)
Succinic Acid	-	-	Vinyl Acetate	N	N
Sugar	R	200°F (93°C)	W		
Sulfamic Acid	R	180°F (82°C)	Water, Deionized	R	200°F (93°C)
Sulfur	R	-	Water, Demineralized	R	200°F (93°C)
Sulfur Dioxide – Aqueous	R	-	Water, Distilled	R	200°F (93°C)
*Sulfuric Acid, Fuming	N	N	Water, Salt	R	200°F (93°C)
*Sulfuric Acid, 98%	R ¹	125°F (51°C)	Water	R	200°F (93°C)
*Sulfuric Acid, 85%	R ¹	170°F (76°C)	Whiskey	R	200°F (93°C)
*Sulfuric Acid, 80%	R	180°F (82°C)	White Liquor	R	200°F (93°C)
*Sulfuric Acid, 50%	R	180°F (82°C)	Wine	R	200°F (93°C)
*Sulfurous Acid	R	-	X		
T			Xylene	N	N
Tall Oil	E	E-180°F (82°C)	Z		
Tannic Acid, 30%	R	-	Zinc Acetate	R	200°F (93°C)
Tartaric Acid	R	-	Zinc Carbonate	R	200°F (93°C)
Tetraacetyl Ethylene Diamine, sat'd	R	180°F (82°C)	Zinc Chloride	R	200°F (93°C)
Tetrahydrofuran	N	N	Zinc Nitrate	R	200°F (93°C)
			Zinc Sulfate	R	200°F (93°C)

R – Recommended N – Not Recommended S – Satisfactory Resistance E – Possible ESC - (blank) – Insufficient Data

These tables are meant to aid the designer in decisions as to transporting/conveyance of undiluted chemicals. Chemical resistance data is provided as a guide only. Information is based primarily on immersion of unstressed strips in chemicals and to lesser degree on field experience.



TM & PATENT: Any unauthorized use, copying, manufacturing etc. of the similar product or technology of the invention protected will attract legal actions including, imprisonment or fine under relevant IP laws • Printed in 2024 • All rights reserved. No part of this publication may be copied, modified, reproduced in any material from (including photocopying or storing it in any medium by electronic means and whether or not transiently or incidentally to some other use of this publication) without the written permission of the copyright owner. Applications for the copyright owner's written permission to reproduce any part of this publication should be addressed to the copyright owner. Warning: The doing of an unauthorized act in relation to a copyright work may result in both a civil claim for damages and criminal prosecution. Disclaimer: Due care and diligence has been taken while editing and printing the book. Neither the author nor the publishers of the book hold any responsibility for any mistake that may have inadvertently crept in. Publishers shall not be liable for any direct, consequential, or incidental damages arising out of the use of the book. In case of binding mistake, misprints, or for missing pages etc. • Printed and bound in India. Moral Rights of the Author are asserted • The copyright owner reserves all rights and liberty to modify, change or alter the design drawings of the products as and when it deems appropriate and necessary without any prior notice to the users.

All rights reserved copyright © 2024 Ashirvad Pipes Private Limited

Ashirvad Pipes Pvt. Ltd. Regd. office: Plot No. 27-P, 28-P, 29 & 30, Bommasandra - Jigani Link Road, Industrial Area, Bandenallasandra, Jigani, Bangalore - 560 105, India.

CIN : U85110KA1997PTC021831

For any Service / Customer complaint / Queries:

Toll Free: 1800 572 8900 M: +91 9902 333 333 E: customercare@alixis.com / info.industrial@alixis.com

ashirvad
by **alixis**



www.ashirvad.com