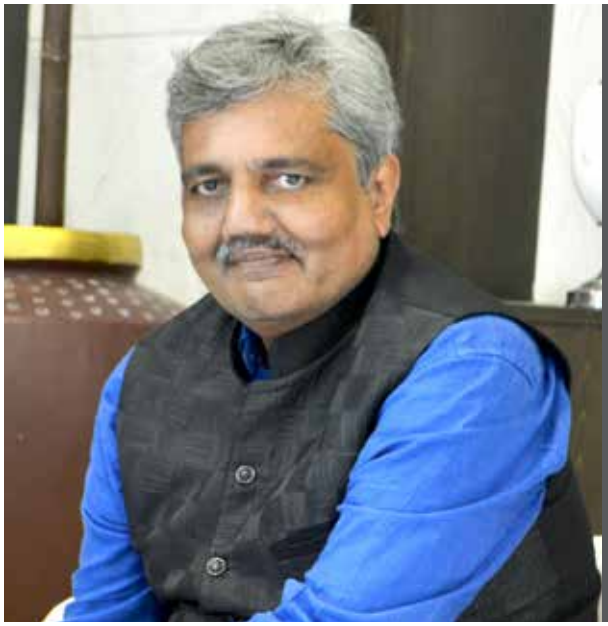
AXIS

We Think
Globally & Act Locally

DIRECTOR

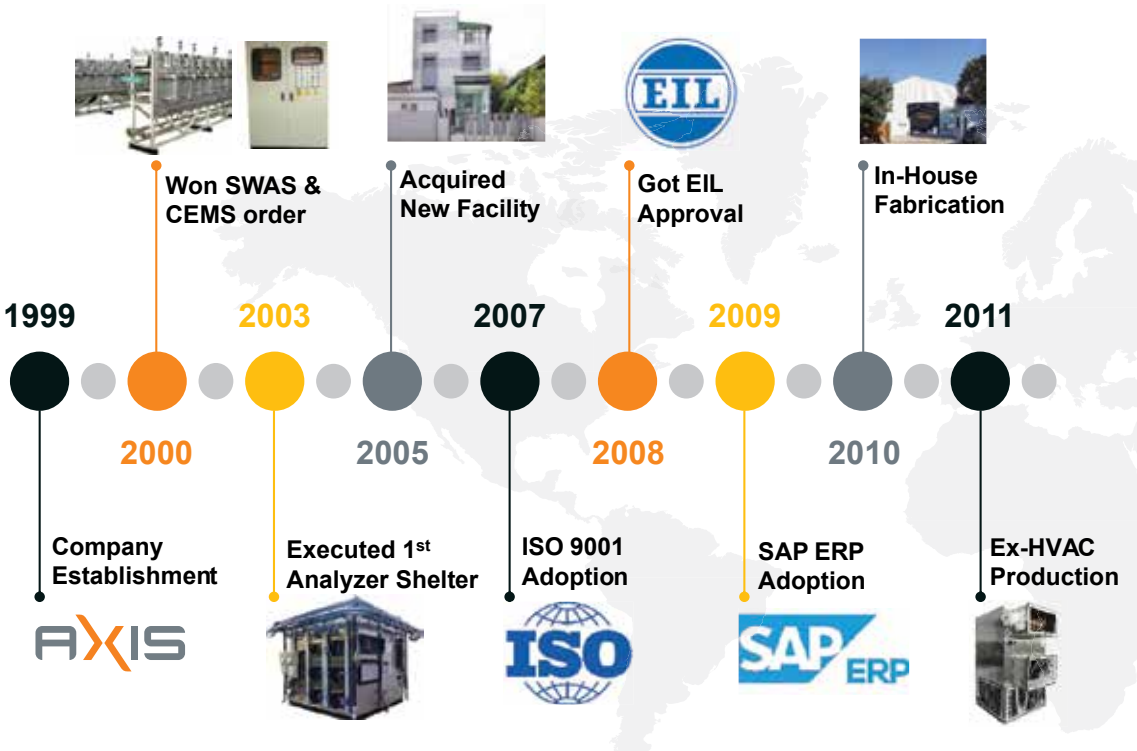
MESSAGE



We began our journey nearly two decades ago with a view to provide efficient, reliable, productive and sustainable industrial automation solutions for increasingly complex industrial environments. Driven with this vision, Axis provides industrial automation, instrumentation and control system products and solutions for oil and gas, petrochemical, refinery, telecom, cement industries, power plants, power generation, equipment manufacturers, plastics and other engineering verticals in India, SAARC countries and Europe, Middle East and Africa (EMEA) regions.

OUR

JOURNEY



Leveraging a vast partner network, including dealers and technology collaborators from Europe, Axis serves a broad range of customers, spread across industry verticals, offering products, solutions and end-to-end turnkey expertise. In addition to mutliple regional offices, Axis also has a Systems division called Axis Solutions Pvt Ltd, which manufactures Analyser Shelter, Steam and Water Analysis System (SWAS) and Gas Analysis System (GAS) Control Panel, Automation System product solutions with handling Automation Integration Projects and programming various logics.

Dr. Bijal Sanghvi

2013 — **Automation & IIOT Office**

2015 — **Singapore Sales Office**

2016 — **ATEX Approval of HVAC**

2018 — **13 X 4.2 Mtr Shelter Project Export**

2019 — **Middle East Expansion**

2020 — **Acquired Passive Cooled Technology**

2021 — **17.2 L x 4.25 W x 4.285 H Mtr Shelter Project**

2022 — **Acquired New Facility**

THE GROUP

The foundation of Axis was laid in 1999, to provide turnkey solutions for packaged analytical and instrumentation systems. Located at Kathawada GIDC Ahmedabad, Axis has its manufacturing unit and administrative office on a plot of 92,000 Sq.Ft. area Plot is equipped with mechanical fabrication, integration and testing facility along with well developed office and stores.

We are a key player providing Engineering and integration support for Analyzer and Instrument manufacturers, Engineering contractors and plant users in the Oil and Gas Industries region. We have executed projects in process analyzers, Steam and Water Analysis System (SWAS) and Gas Analysis System (GAS)

Engineering and Project Management

The project engineering and management efforts for led by the project engineers, who have worked in process and environmental analytical systems project. The client's communication channel to the organization for each project is through the respective project engineers. To get the desired output the team comprises of CAD Draftsman, Quality Assurance, Stores, and Accounts. The complete activity is supported by team of fabricator and integrator contractor guided by Axis. Vendor development is a part of this continuous process.


AXIS


Instrumentation Experts Club
HONOURS & AWARDS


Blood Donation Camp
AXIS SOLUTIONS PVT. LTD.

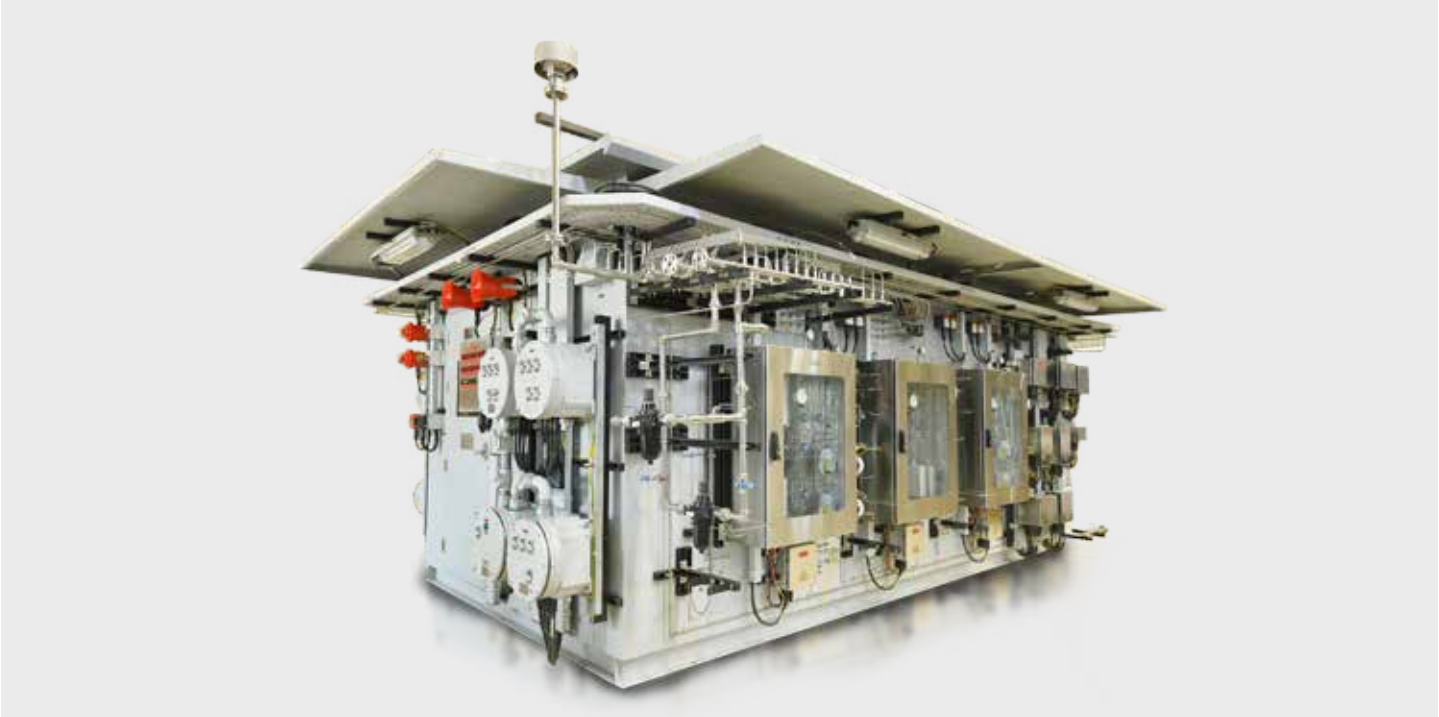

AXIS

OUR KEY

VERTICALS

1 SYSTEM Solutions

Analyzer Shelter



FEATURES

- Suitable for Area classification for IEC ZONE 1, GR. IIC or IEC ZONE 1, IIA, IIB or Safe area
- Complete interlocking ribbed structure giving better technology with extra strength. The sixfold design ensures structural strength is increased by multiple folds
- Built with complete SS 304, and SS 316 (GI optional)
- Gas detectors are placed suitably to meet area classification
- Redundant HVAC to meet temperature and pressure requirement

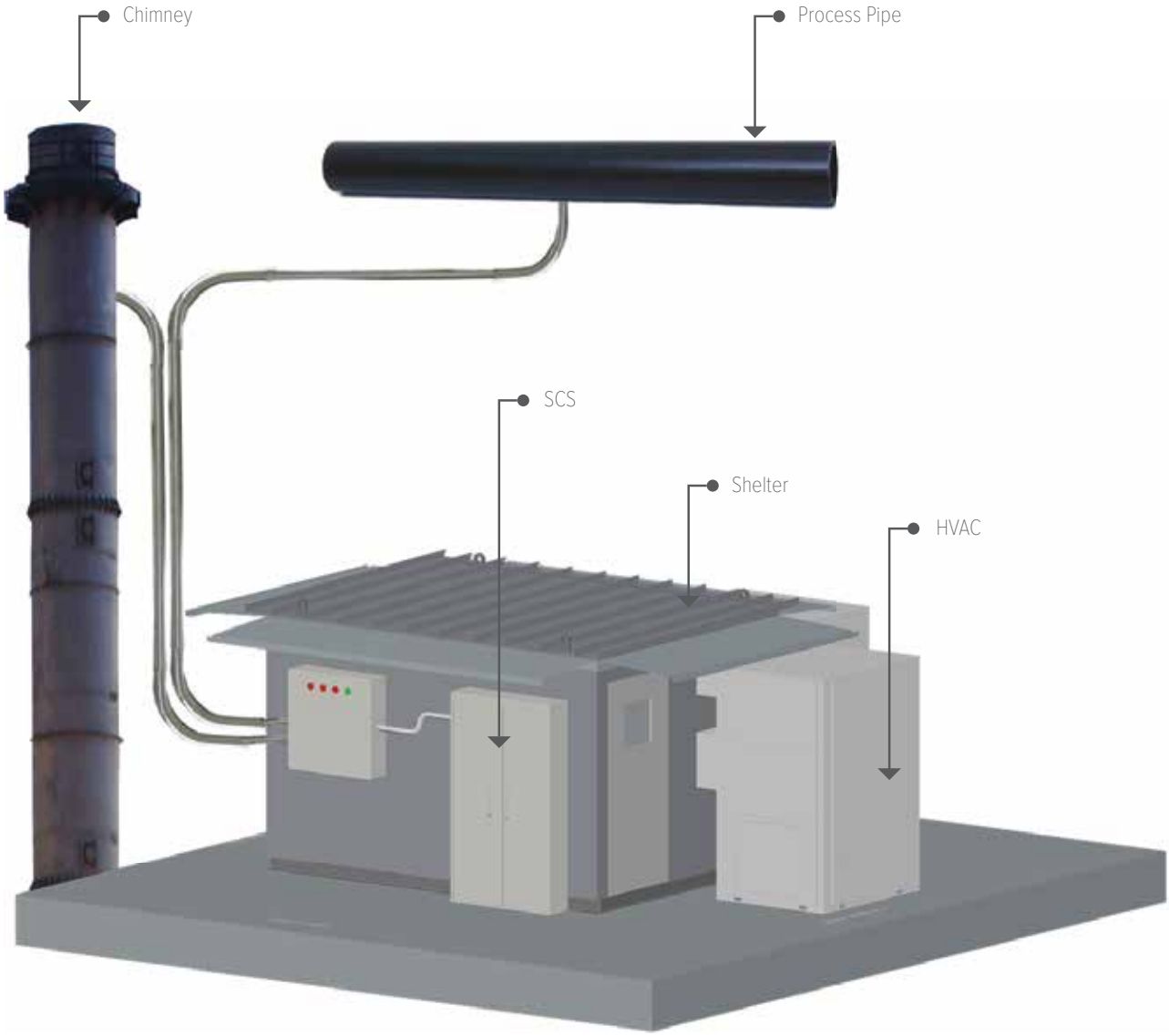
DESCRIPTION

AXIS has developed many capabilities in the field as below:

- Analyzer Shelter
- E-House
- Explosion-proof / Safe area HVAC
- Air Conditioning for high ambient conditions

The shelter is constructed as a fully insulated sandwich construction with stainless steel (316) inner and outer sheeting, making it suitable for corrosive and cold ambient conditions. The shelter is provided with a heating & ventilation system and can optionally be fitted with a full HVAC system. The complete shelter is designed, fabricated, and tested in-house as an integrated system. With this approach, site installation work is reduced to a minimum.

The design of the analyzer shelter must consider many factors. Local ambient conditions, hazardous area classification, sample type, and analyzer type together with client specifications, will all influence the final design and content of the shelter.


Chimney
Process Pipe
SCS
Shelter
HVAC

SHELTER SCHEME IS DESIGNED AS PER FOLLOWING CRITERIA AS PER IEC61285

- Shelter parameter monitoring and control (PLC based safety control system.)
- Monitoring adverse ambient and process conditions
- Safety in all respect
- Alarming and reporting to the relevant authorities
- Sample take-off probes for installation on process lines. (Sample Extraction)
- Sample Transport
- Sample pre-conditioning units (temperature and pressure control)
- Sample conditioning systems, properly designed in order to provide sample to analyzers at suitable flow temperature, pressure and filtration values with suitable disposal and/ or return to process system

ANALYZER SHELTERS FULLY EQUIPPED WITH:

- Heating Ventilating and Air Conditioning System or Air Conditioning System
- Power distribution systems.
- Lighting.
- Safety devices and Gas Monitoring Systems.
- Utilities headers.
- On-line Analyzers such as: Gas chromatographs, Physical property analyzer, Liquide Analyzers

SOME EXAMPLES OF KEY ELEMENTS ARE SHOWN BELOW

Construction – stainless steel or GI optional with Top lift, Single integrated unit, Fire resistant as per BS Standards

Environment control – Fresh air ventilation with heating and air conditioning. Redundant ventilation and/or air conditioning.

Safety – Gas detection systems, safety interlock systems. Independent control systems, Electronic or hard wired control.

SAFETY SYSTEMS INTEGRATED WITH CLIENT SPECIFICATIONS:

AXIS provides complete integrated analyzer shelter systems and all related services from initial engineering through manufacturing, testing and field start-up. Analyzer Systems are normally supplied & installed in the special Analyzer shelter including air-conditioning or HVAC, power distribution, lighting, termination / Junction boxes, gas and flame detection, relevant piping and wiring

One team of specialists manages your project from start to finish. AXIS's staff has extensive experience with virtually every type of process analyzer shelter as well as with various forms of housings such as stainless steel, galvanized steel buildings, cabinets and racks. Years of in-plant experience guarantee the best available technology in your system designs

Gas Analysis System
GAS

GAS was historically used as a system to monitor flue gas for Oxygen (O2), Carbon Monoxide (CO) and Carbon Dioxide (CO2), Sulfur Dioxide (SO2), and Oxides of nitrogen (NOx) provide information for combustion control in 2 industrial norms. They are currently used as a means to comply with local air emission standards. Facilities employ the use of GAS to continuously collect records and report the required emissions data.

The standard GA system consists of a sample probe, filter, sample line, and gas conditioning system including a sample gas pump, sample gas cooler, calibration gas system, and a series of gas analyzers that reflect the parameters being monitored. Typically monitored emissions include: sulfur dioxide, nitrogen oxides, carbon monoxide, carbon dioxide, hydrogen chloride, and oxygen.

AXIS has experience in the Engineering & Manufacturing of Gas Conditioning Systems, mainly for GAS. Our skilled organization is managing the whole project from design to commissioning and after-sales services. Our references are Chemical plants, Power plants, Petrochemicals, the Food industry, and many others. High-quality operation conforms to ISO9001 Quality Management System Standard.

These systems must be professionally designed and the components employed in the systems should be specifically built for demanding applications.

AXIS's success and growth in this highly competitive market have depended on one credo "DO NOT COMPROMISE". The challenge for us is to continually improve the range of our products specifically designed for sample conditioning systems.

FEATURES

- Single or multiple from 2 to 5 Probes
- Automatic or Manual Blowback/Calibration options
- Operation & Maintenance comfort in any design
- Suitable for area classification like Zone 1 & 2
- Panel Ingress protection class up to IP66 can also be made available
- Heat management in the panel to ensure better performance of the system in harsh environments. Keeping track of ambient temperature and/or condensation possibility to ensure high reliability of panel

ADVANTAGES

- Easy to quote, order and execute
- Saving almost 20 - 40% of the cost
- Efficient & Effective engineering
- Saving in packing charges and much faster delivery time
- Negotiated for rate contract annually
- Easy drawing approvals

Standardize CEMS System

THE INFORMATION WE NEED, TO PROVIDE THE OFFER

- List of measured gas components and measurement ranges
- Analyzers being installed
- The fuel of the boiler (oil, gas, coal, biowaste, etc.)
- Stack gas details (temperature, pressure, humidity, dust load, stack construction)
- Distance between take-off point to Analyzer, Available power supply, and Moisture content
- Ambient conditions

ORDERING INFORMATION

GAS1												X	
	Probe Selection												
	0											1 Probe	
	1											2 Probe	
		Power supply											
		0										230 V AC, 50 Hz	
		1										110 V AC, 50 Hz	
			Distance from sample take off point to Analyser cabinet										
			0									<50 mtr	
			1									50 to 100 mtr	
			2									Others	
				Calibration type									
				0								Manual	
				1								Auto	
					Calibration Port at probe								
					0							Not Required	
					1							Required	
						Material of construction for Analyser cabinet							
						0						MS CRCA Painted, RAL7035	
						1						SS 304	
						2						Others	
							Probe Extension 3/4" Dia. (SS 316) Pipe length						
							0					1000 mm	
							1					1500 mm	
							2					Others	
								Probe Flange Size					
								0				2" 150#	
								1				4" 150#	
								2				DN65 PN6	
									Sample gas cooler type				
									0			Refrigerant Type	
									1			Peltier type,Ambient temperature 40 °C	
									2			Peltier type,Ambient temperature 50 °C	
										HMI for the data monitoring			
										0		Not Required	
										1		Required- Keypad type	
										2		Required- Touch screen	
											Current output / Communication		
											0	No	
											1	Dual 4-20 mA output	
											2	RS232 to RS485 converter	
											3	Others	
												Critical Components	
												0	OECD components
												1	Non OECD components

Note :

1. If unless specified a standard system consisting of SOx, CO & O2 is considered. Please provide detail specification if any additional measurement is required.
2. The system is suitable to maximum 15 vol% moisture in sample composition
3. The system can handle up to maximum 2 g/m3 dust in sample composition
4. If Nox measurement is required, than Nox converter shall be added
5. System should be kept in enviroment control area.

(System is designed based on below parameters)
Stack Temperature: up to 600°C
Stack Pressure: -ve mmWg

(Heat Tracer & its accessories, calibration gas cylinder with pressure regualtors, Analyzer, Field tubing and cabling shall be in other scope of supply)

SPARES / ACCESSORIES

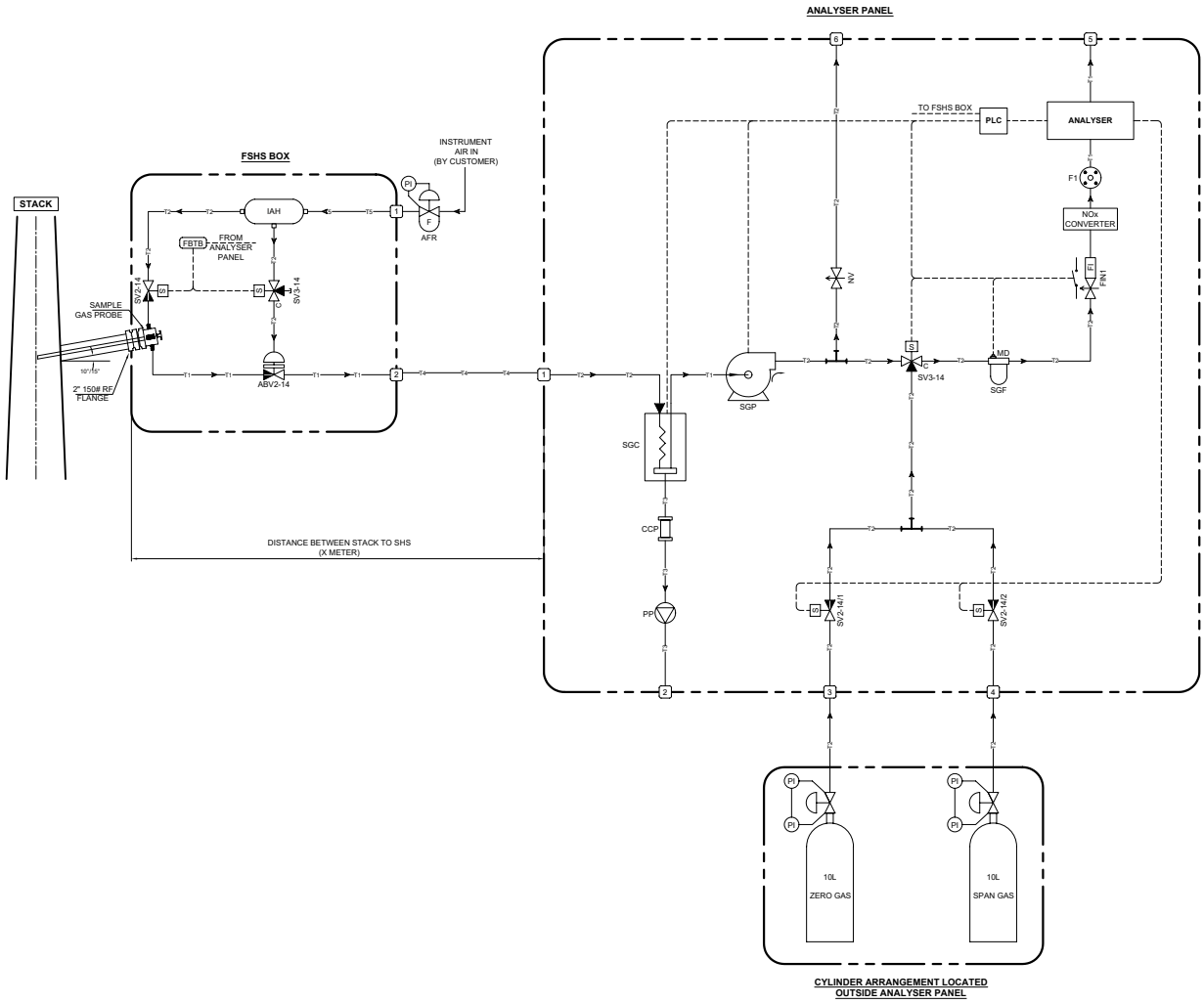
Accessories	Model No.
Sample Gas Probe	SGP1
Sample Gas Cooler	SGC1
Nox Converter 230V	ASPL2601-G2
Nox Converter 115V	ASPL2927-G2
Sample Gas Filter	SGF100010
Fine Filter	FE-1
Condensate Catch Pot	CCP1
Peristaltic Pump 230V/115V*	CPSingle
Peristaltic Pump 230V/115V*	CPdouble
Liquid Drainer	LD1
Sample Gas Pump	-
Moisture Detector	41111000
Moisture Controller	4111020
Air Filter Regulator	AFR01

Note : (*) Available on Request

Please refer One Example of the GAS system with schematic diagram, Bill of material and Technical specification, General Arrangement Drawing for the same.

Part no. : GAS1000100000001

SCHEMATIC DRAWING FOR GAS MEASUREMENT



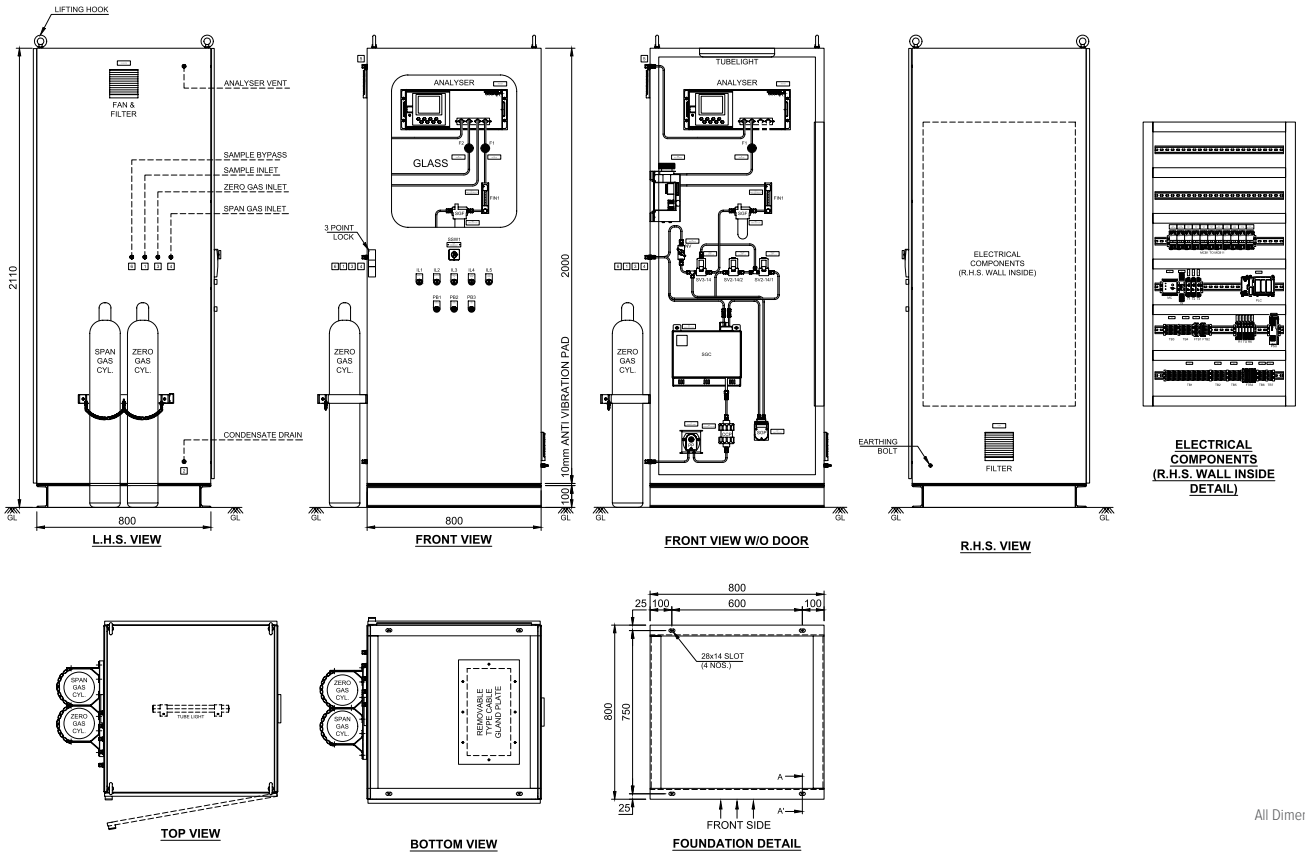
TECHNICAL SPECIFICATIONS

Dust Load	2 gram/ Nm3
Filter for Probe	5 Micron ceramic (other available on request)
Moisture Content	Less than 15%
Sample Temperature	Max 600 °C

BILL OF MATERIAL

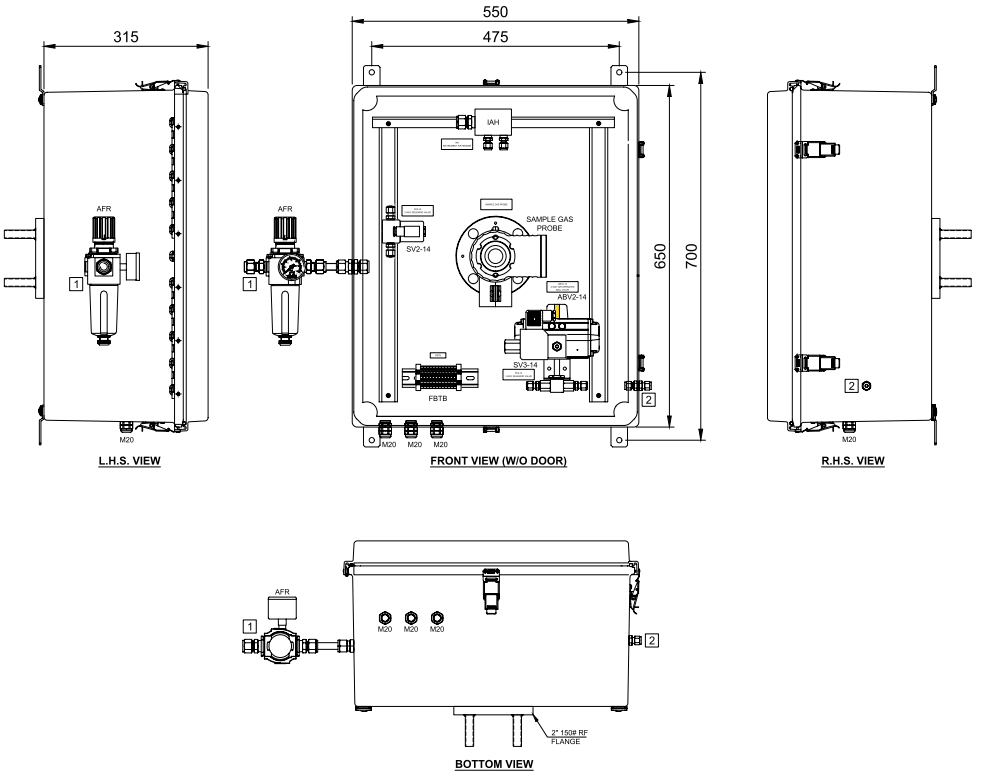
SR.NO.	LEGEND	DESCRIPTION	QTY.	UNIT
A		**Analyzer SHS Panel comprises of following components:**		
1	-	Analyzer panel, size: (2000mm + 100mm + 10mm) (H) x 800 mm (W) x 800 mm (D), MOC: MS CRCA, Color: RAL7035, Finish: Powder coated, (Refer GA drawing for detailed specifications)	1	NO.
2	NOx	NOx converter, Metal cartridge, Suitable to safe area (Required when NOx is being measured)	1	NO.
3	F	Fine filter, Filter size: 2 micron	2	NOs.
4	SGC	Sample gas cooler, Cooler MOC: MS CRCA, Heat exchanger MOC: SS, Suitable to safe area	1	NO.
5	CCP	Catch pot for condensate drain	1	NO.
6	PP	Peristaltic pump, Suitable to safe area	1	NO.
7	SGP	Sample gas pump, Bellows type, Suitable to safe area	1	NO.
8	FIN1	Sample flow meter with needle valve	1	NO.
9	-	Sensor for low flow	1	NO.
10	IS	Isolator for low flow, Power supply: 24V DC	1	NO.
11	NV	Needle valve	1	NO.
12	SV3-14	3 Way Solenoid valve, Suitable for safe area	1	NO.
13	SV2-14	2 Way Solenoid valve, Suitable to safe area	2	NOs.
14	SGF	Sample gas filter, 2 Micron glass micro fiber	1	NO.
15	MD	Moisture detector	1	NO.
16	MC	Moisture controller, Power supply: 230V AC, 50Hz, Suitable to safe area	1	NO.
17	PLC	Programmable Logic Controller with DI/ DO/ AI/ AO Modules	1	SET
18	-	SS Fitting, Double compression type, MOC: SS 316	AR	AR
19	-	SS tube, MOC: SS 316	AR	AR
20	-	PVDF Fittings, Double compression type, MOC: PVDF	AR	AR
21	-	PTFE Tube, MOC: PTFE	AR	AR
B		**FSHS box (field sample handling system) comprises of following components:**		
1	FSHS	FSHS box, Size: 650 mm (H) X 550 Mm (W) X 315 Mm (D), MOC: Compression Molded FRP, Color: RAL7035, (Refer GA Drawing for detailed specifications)	1	NO.
2	SP	Sample gas probe with Blowback, Suitable to safe area, 5 Micron ceramic	1	NO.
3	SV2-14	2 Way Solenoid Valve, Suitable to safe area	1	NO.
4	SV3-14	3 Way Actuator operated, Suitable to safe area	1	NO.
5	ABV2-14	2 Way Air operated ball valve	1	NO.
6	IAH	Instrument air header, MOC: Aluminium/ SS 304/ SS 316, Finish: Buff	1	NO.
7	AFR	Air filter regulator	1	NO.
8	-	SS Fittings, Double compression type, MOC: SS 316	AR	AR
9	-	SS Tube, MOC: SS 316	AR	AR
10	-	PVDF Fittings, Double compression type, MOC: PVDF	AR	AR
11	-	PTFE Tube, MOC: PTFE	AR	AR

GENERAL ARRANGEMENT DRAWING FOR ANALYZER PANEL



All Dimension are in MM

GENERAL ARRANGEMENT DRAWING FOR FSHS BOX



All Dimension are in MM

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Steam and Water Analysis System
SWAS

In any Power plant running on steam, the purity of boiler feed water and steam is crucial; especially to steam turbines, steam boilers, superheaters, condensers, and other steam equipment. To prevent damage to the steam turbine, steam boiler, and other equipment due to scaling and corrosion, online steam and water analysis of critical parameters such as pH, Conductivity, Dissolved Oxygen, Silica, Sodium, Hydrazine, and Phosphate, etc is a must. Steam can be as hot as 560°C. Pressures can be as high as 250 bar. To keep the power plant up and running with minimum erosion and corrosion of the steam turbine, steam boiler, and condenser, we have developed a fully integrated Steam and Water Analysis System (SWAS) that provides exact, precise measurements of all these critical parameters. Samples are at high temperatures & pressure. Sample conditioning is required to bring down the temperature & pressure to the desired level.

FOLLOWING MEASUREMENT ARE DONE WITH THE HELP OF SWAS

- pH
- Conductivity
- Dissolved Oxygen
- Silica
- Sodium
- Hydrazine
- Phosphate

AXIS has designed SWAS –Steam and Water Analysis System to keep you in power.

SWAS PACKAGE HAS TWO TYPES OF PANELS.

1. Wet Panel:

Sample coming from different points are fed to this panel. Contains sample conditioning components like a Thermal shut off valve (TSV), Cooler, Back pressure regulator(BPR), Pressure regulating valve(PRV), SOV, Temperature switch, Pressure & Temperature gauges, Rotameters, etc. The sensor is in the same panel, and the output of the sensor goes to the dry panel.

2. Dry Panel:

It contains Analysers, Transcontrol matters, Annunciator, indicators, etc. All remote signals go from this panel to the control room.

Single LIne SWAS System

SINGLE LINE SWAS WITH COMPOSITE MANIFOLD

SINGLE LINE SWAS WITHOUT COMPOSITE MANIFOLD

FEATURES

- Economical
- Self-Standing (Optional)
- Ease of maintenance
- Ease of Installation
- Compact Design

APPLICATIONS

- Power plant
- Refinery
- Chemical
- Pharmaceutical
- Food & Beverages

ADVANTAGES

- Add an analyzer or other analysis product
- Create a complete sample system with analyzers and conditioning on the same rack
- Use the back side of a freestanding floor rack to mount analysis equipment
- Combine critical conditioning and analysis on a portable skid
- Effective Temperature & Pressure reduction with constant flow regulation to improve analyzer reliability
- Efficient cooler design - suitable to all industry conditions
- Sampling system with ASME PTC-19.11 STANDARD
- Automatic High Temp. Shut-off valves are used for high-temperature protection
- The composite manifold used in SWAS can reduce the size of the rack

DESCRIPTION

Axis single-line SWAS systems are pre-tubed assemblies used to simplify the conditioning of steam, water, or non-hazardous process samples. With the addition of cooling water, safe and representative samples can be obtained from individual sampling sites that are remotely located throughout the plant or from a small number of samples in a central location.

There are two versions of Axis single-line SWAS systems — one for grab samples only and the other for both grab samples and to condition the sample for online analysis. These two versions are available for four types of the stream. 1) HPHT 2) HPLT 3) LPLT 4) LPHT. Axis single-line panels can be mounted on a variety of walls and come with full-width workable sinks and pre-piped cooling water headers to reduce installation time and cost.

Whether an individual single-line sample mounting plates solutions are completely engineered to meet the application requirement

ORDERING INFORMATION

SLSW										9	
	Stream Type										
	0										HPHT*
	1										HPLT*
	2										LPHT*
	3										LPLT*
		Indication Instruments & accessories									
		0									Process Header
		1									Composite manifold
			Auto Shut-off Valve								
			0								With alarm contact
			1								Without alarm contact
			2								Not required (low temp stream)
				Temperature Indicator							
				0							Dial Size: 63mm**
				1							Dial Size: 100mm
					Make of Temperature Indicator						
					0						Baumer
					1						WIKA
						Pressure indicator					
						0					Dial Size: 63mm**
						1					Dial Size: 100mm
							Make of Pressure Indicator				
							0				Baumer
							1				WIKA
								Cation Column* **			
								0			Yes
								1			No
									Mounting		
									0		SS 304, wall mounting plate
									1		SS 304, wall mounting plate with self-standing rack
									2		with IP54 SS enclosure

Note : (*) Please find Technical specifications of different streams in general Technical specifications table on page no. 4

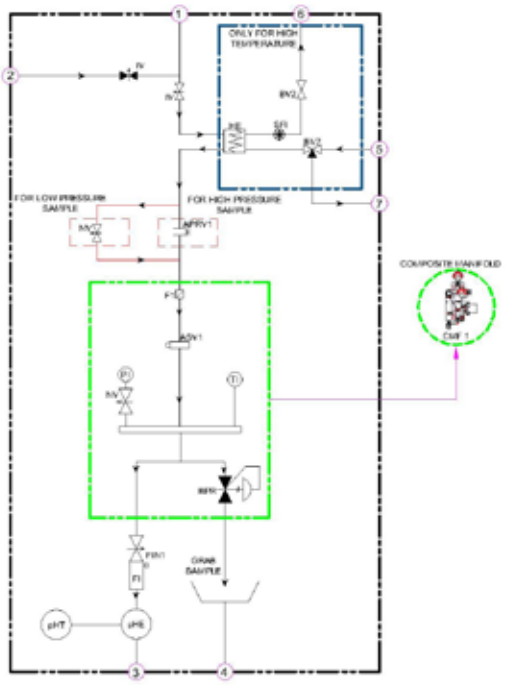
(**) For composite manifold dial size must be 63 mm.

(***) Mounting plate size will be increased in the case of cation column

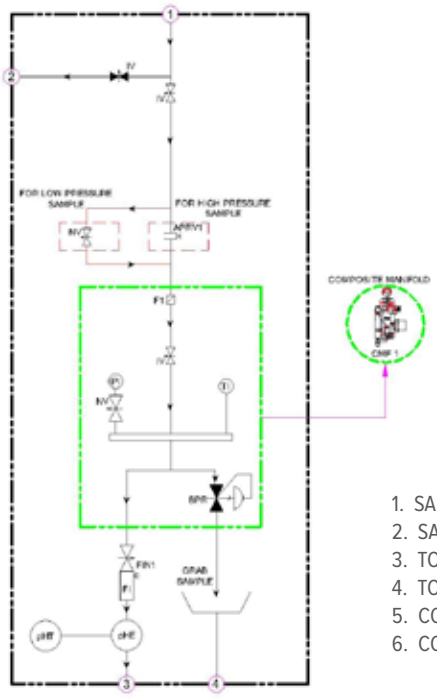
ADITIONAL ACCESSORIES

Accessories	Model No.	Quantity
Sample cooler	HBRIX	1 No.
Strainer – STR14	ASPL2993	1 No.
Strainer filter element : 40 Micron	ASPL3426	1 No.
Direct acting pressure reducing valve	APRV1	1 No.
KNOB	ASPL6955	1 No.
Clamp for APRV1	ASPL5459	1 No.
Back pressure regulator	BPR1	1 No.
Sight flow indicator – SFI12	ASPL2385	1 No.
PTFE Seating	ASPL3425	1 No.
Glass window	ASPL3436	1 No.
Auto shut off valve	ASV1	1 No.
Clamp for ASV	ASPL5458	1 No.
Composite manifold	CMF1	1 No.
Normal Cation Column with Refill	CTN1-N	1 No.
Long Cation Column with Refill	CTN1-L	1 No.
Mounting Bracket	ASPL3408	1 No.
Filter wire mesh ring	ASPL3409	1 No.
Transparent body for CTN1-N	ASPL3412	1 No.
Transparent body for CTN1-L	ASPL3411	1 No.
Resin refill pack for CTN1-N	ASPL3415	1 No.
Resin refill pack for CTN1-L	ASPL3414	1 No.
“O” ring set	ASPL3410	1 Set
Free standing rack		
Flow meter 0-25 LPH		
Flow meter 0-45 LPH		

SCHEMATIC OF SINGLE LINE SWAS SYSTEM



HIGH/LOW PRESSURE HIGH TEMPERATURE SWAS SYSTEM



HIGH/LOW PRESSURE LOW TEMPERATURE SWAS SYSTEM

1. SAMPLE INLET
2. SAMPLE BLOW DOWN
3. TO DRAIN
4. TO DRAIN
5. COOLING WATER INLET
6. COOLING WATER OUTLET

TYPICAL TECHNICAL SPECIFICATIONS

OPTIONS	HPHT	HPLT	LPLT	LPHT
Sample Temperature	537 Dec °C (MAX)	50 Dec °C (MAX)	35 Dec °C (MAX)	200 Dec °C (MAX)
Sample Pressure	393 bar g (MAX)	150 bar g (MAX)	10 bar g (MAX)	30 bar g (MAX)
Sample Flow (Grab Sample)	25 LPH	25 LPH	25 LPH	25 LPH
Sample Flow	50 LPH	50 LPH	50 LPH	50 LPH
Strainer (Filter) Retention Rate	40 Micron	40 Micron	40 Micron	40 Micron
Flow Meter	2.5-25 LPH	2.5-25 LPH	2.5-25 LPH	2.5-25 LPH
Sample Cooler*	HBRIX MM	HBRIX MM	HBRIX MM	HBRIX MM
Sample inlet connections	1/4" OD tube	1/4" OD tube	1/4" OD tube	1/4" OD tube
Sample outlet connections	1/4" OD tube	1/4" OD tube	1/4" OD tube	1/4" OD tube
Cooling water inlet connections**	3/4" NPT (F)	3/4" NPT (F)	3/4" NPT (F)	3/4" NPT (F)
Cooling water outlet connections**	1/2" NPT (F)	1/2" NPT (F)	1/2" NPT (F)	1/2" NPT (F)
Pressure Gauge Size	63 mm, 100 mm Press Range (0-7 Bar)	63 mm, 100 mm Press Range (0-7 Bar)	63 mm, 100 mm Press Range (0-7 Bar)	63 mm, 100 mm Press Range (0-7 Bar)
Temperature Gauge Size	63 mm, 100 mm temp range (0-100 °C)	63 mm, 100 mm temp range (0-100 °C)	63 mm, 100 mm temp range (0-100 °C)	63 mm, 100 mm temp range (0-100 °C)
APRV1	Min. 35 bar & Max. 350 bar	Min. 35 bar & Max. 350 bar	Min. 35 bar & Max. 350 bar	Min. 35 bar & Max. 350 bar
BPR	1.4 Bar g	1.4 Bar g	1.4 Bar g	1.4 Bar g
ASV set point	50°C ± 2°C	50°C ± 2°C	50°C ± 2°C	50°C ± 2°C
Fittings	SS, double compression type	SS, double compression type	SS, double compression type	SS, double compression type
Mounting Plate	SS-304	SS-304	SS-304	SS-304

Note : (*) Please contact AXIS SOLUTIONS for cooler selection

(**) Cooler connections will be changed as per the model, please check the Sample cooler data sheet for the connections details.

GENERAL ARRANGEMENT DRAWINGS FOR SINGLE LINE SWAS WITH AND WITHOUT MANIFOLD

SINGLE LINE SWAS SYSTEM WITH MANIFOLD

SINGLE LINE SWAS SYSTEM WITHOUT MANIFOLD

GA DRAWING

SR.NO.		HPHT/QTY		HPLT/QTY		LPHT/QTY		LPLT/QTY	
	SLSW XXXXXXXXX	**001111110 011000110**		**100111110 110000110**		**201111110 211000010**		**300111110 310000110**	
1	Mounting Plate (MM)	W=550 H= 800	W=450 H=800	W=500 H=700	W=350 H=700	W=550 H=800	W=450 H=800	W=500 H=700	W=350 H=700
2	2 Way Ball Valve (BV2)	1	1	NA	NA	1	1	NA	NA
3	Sight Flow Indicator (SFI12)	1	1	NA	NA	1	1	NA	NA
4	Sample Cooler (HE)	1	1	NA	NA	1	1	NA	NA
5	3 Way Ball Valve (BV3)	1	1	NA	NA	1	1	NA	NA
6	Isolation Valve (IV)	2	2	2	2	2	2	2	2
7	Direct Acting Pressure Reducing Valve (APRV1)	1	1	1	1	NA	NA	NA	NA
8	Needle Valve (NV)	NA	NA	NA	NA	1	1	1	1
9	Composite Manifold (CMF1)	NA	1	NA	1	NA	1	1	1
10	Strainer (STR14)	1		1		1		NA	
11	Temperature Indicator (TI)	1		1		1		1	
12	Pressure Indicator (PI)	1		1		1		1	
13	Auto Shut-Off Valve (ASV1)	1	1	NA	NA	1	1	1	NA
14	Flow Indicator (FIN)	1	1	1	1	1	1	1	1
15	Back Pressure Regulator (BPR1)	1	1	1	1	1	1	1	1
16	Grab Sample	1	1	1	1	1	1	1	1
17	Double Compression Type Fitting	AR	AR	AR	AR	AR	AR	AR	AR
18	SS 304 Tubing	AR	AR	AR	AR	AR	AR	AR	AR

AXIS Environment Monitoring System
AEMS1

INTRODUCTION

Axis Environment Monitoring System is one of the leading cloud-based Centralized Environment Monitoring System. Axis Analytics provides unmatched functionality by gathering data from remote sensors and analyzers and provides real-time data on a single dashboard. Being cloud-based, Axis Analytics is accessible from anywhere, can be used on multiple devices, is extremely easy to use, and provides customizable MIS and visual GUI, along with multiple downloadable formats.

Axis EMS can also help in regulatory compliance by providing tool for uploading the data to Central Pollution Control board (CPCB) database.

By combining Axis EMS, hardware, wireless communications, and sensors, our industry-leading solutions help industries by improving safety, sustainability, and compliance, thereby increasing their productivity. Timely alerts via email, texts, or in-application notifications allow industries to manage their problems in real-time, such as timely water conservation procedures and operations, as well as the installation and repair of sensors and equipment.

BENEFITS OF AXIS ANALYTICS ENVIRONMENT MONITORING SYSTEM

- Cost effective, plug and play model
- Dashboard view with different logins for multiple stakeholders
- Helps you meet regulatory compliances
- Real-time, remote monitoring of all stations
- Timely alerts to avoid critical situations and regulatory non-compliance
- Compatible with most 3rd party devices

MONITORING SOLUTION THROUGH AXIS ANALYTICS SOFTWARE

- Real-time Water Quality Monitoring data transmission to SPCB & CPCB
- CEMS data connectivity to SPCB & CPCB with Remote Calibration
- IoT Cloud Connectivity Solution for the Pumping station, Field Instruments Connectivity with SCADA
- 3 Way Valve Operation with SCADA Connectivity
- Connectivity of PTZ Camera
- Energy Monitoring System

WHY CHOOSE AXIS ENVIRONMENT MONITORING SYSTEM? :

1. Plug and play :
Easy to integrate sensors and analyzers

2. Remote 2-point calibration and diagnostics :
Calibrate sensors remotely and run diagnostics from your device using secure protocols.

3. Cloud-based :
Access data with secure login credentials from anywhere, from any device.

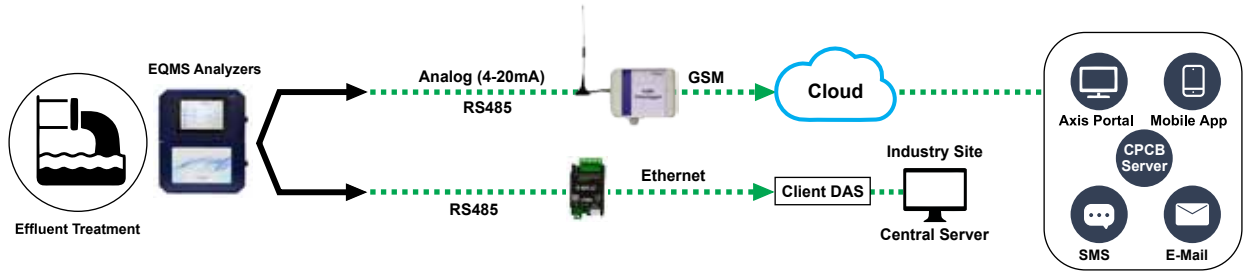
4. Live data and GUI :
Automated data collection tools for quantitative and qualitative data with advanced analysis. View live data in MIS and GUI view along with historic data downloads in multiple formats for regulatory exports.

5. Customizable Alerts with SMS and Email Integration :
Create, edit and delete custom alerts as per required parameters.

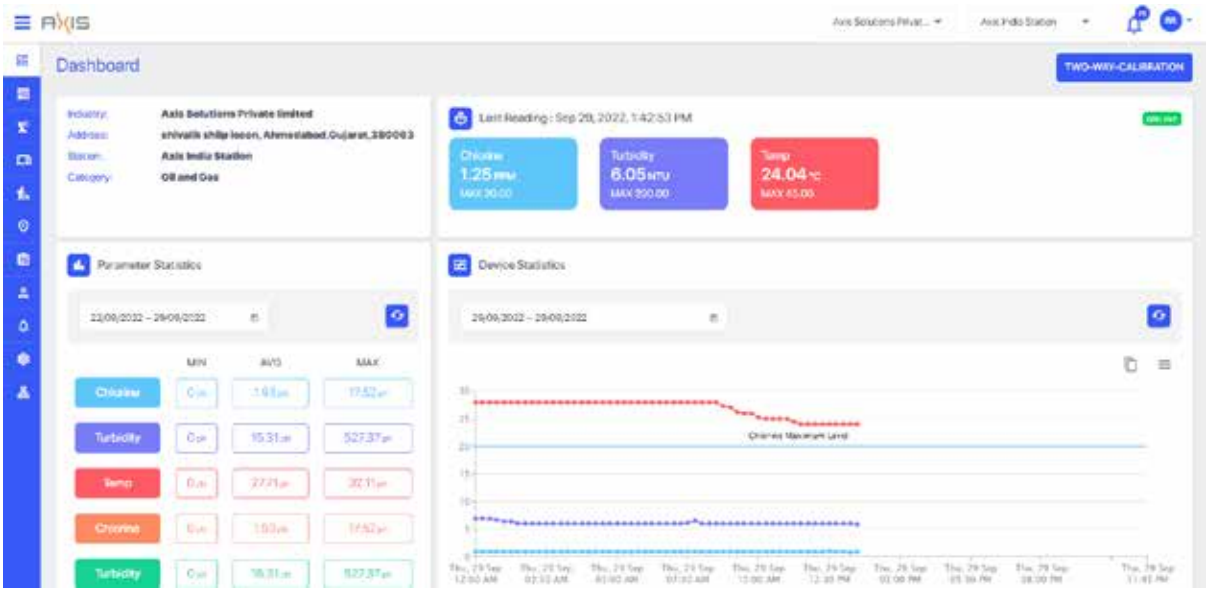
6. Geo-tagging :
Provides geographical identification to assets with built-in GIS mapping.

7. Service Support :
24x7 Service team available

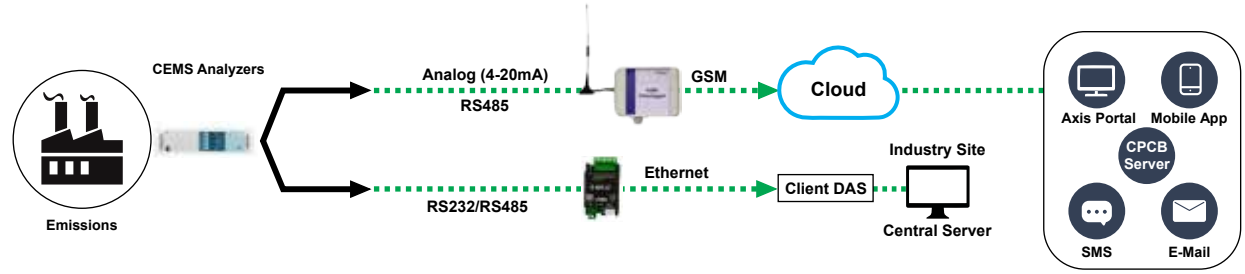
1. REAL-TIME WATER QUALITY MONITORING APPLICATION (EQMS)



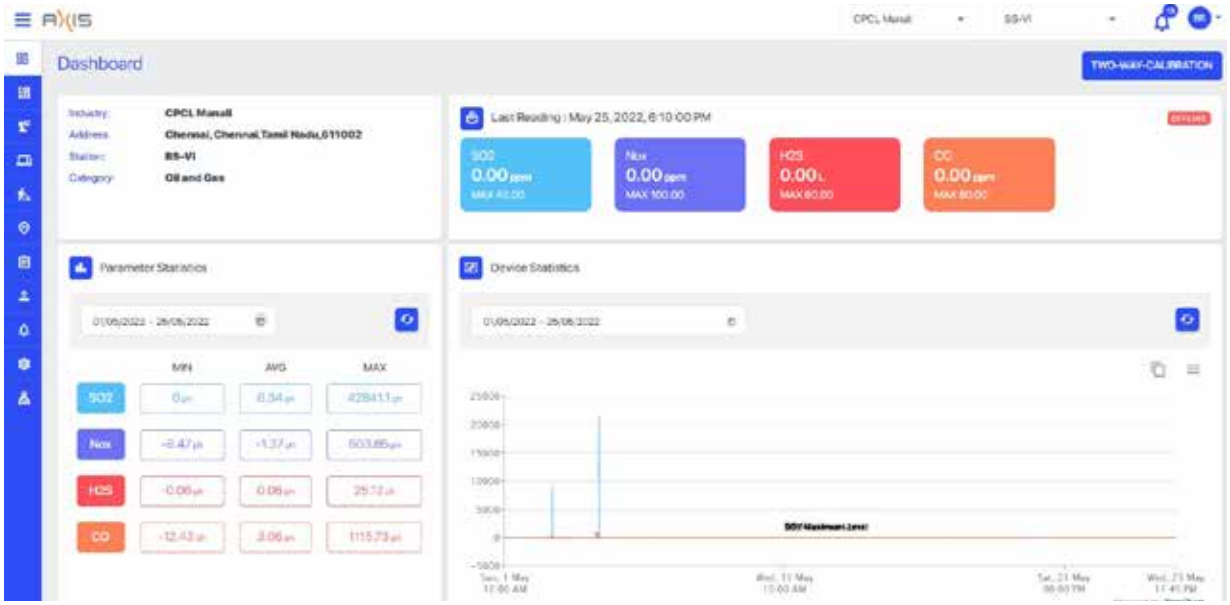
APPLICATION PREVIEW



2. CEMS APPLICATION



APPLICATION PREVIEW



Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Purge Panel
for Hazardous Area

FEATURES

- Purge Panel have pressure withstanding capacity as per design.
- HC accumulation are taken care
- Moisture free purge is desired
- Electrostatic discharge is one of the major features.
- Various sizes for accommodating various equipments.
- Purge Panel with Ex-AC certified for IP65

Purging and pressurizing systems are one of the most versatile explosion protection methods. These Systems are based on the principle that in Zone 1 or 2, Division 1 or 2, the gas mixture in the ambient atmosphere, which may ignite under certain circumstances, is removed from the housing by an initial Purge process. After the purge phase, sufficient compressed air or inert gas is supplied to compensate for leaks from the enclosure. This permanent overpressure, achieved using compressed air or inert gas, prevents any potentially explosive atmosphere in the ambient air from entering the enclosure.

During the rapid exchange purge phase, an internal pressure of approximately 3.5 - 12 mbar (1.3” to 5.0” Water Column) is achieved. During operation, this internal pressure reaches 0.6 - 3 mbar (0.3 to 1.2” Water Column).

The pressurizing system is particularly suitable for installing equipment that is not approved for use in hazardous areas. Once installed in a purge panel, it can then be used directly in the hazardous area.

PURGE/PRESSURIZATION V/S. EXPLOSION-PROOF

- Explosion-proof enclosures are well known for their size, weight, and price as a means of protection. Another disadvantage is they allow for the explosion to happen but contain it within itself, provided all bolts are torqued down properly
- Purge/pressurization can take in standard enclosures and make them safe for installation in hazardous areas as a means of protection, and, unlike explosion-proof, it does not allow for an explosion to occur.
- The disadvantage of purge/pressurized enclosures is their operation requires constant air or other inert gas sources. Also, for very small enclosures such as instrument housings, there is a cost advantage in using explosion-proof, but in any enclosures over 1 cubic foot, purge/pressurization will have the advantage.

There are four primary factors that determine which purge system is appropriate for a particular Application:

- Classification of the area where system is to be installed.
- Ratings of the equipment inside the enclosure. Is there a containment system within the enclosure that operates withhazardous gas or liquid (gas analyzers)?
- Type of enclosure, enclosure size, position of doors, windows, and any accessories
- Power requirement to the equipment inside the enclosure.

1. AREA CLASSIFICATION

The area classification determines the type of purge system needed. For Zone 1/Division 1 areas, the equipment inside the enclosure determines whether an Ex px / Type X system (equipment rated for general -purpose) or an Ex py / Type Y system (equipment rated for Zone 2/Division 2) can be used.

2. EQUIPMENT RATINGS

The rating of the equipment inside the enclosure becomes important in evaluating which purge system to use in Zone 1 / Division 1 area. If the Zone 1 / Division 1 area contains at least one general-purpose component, an Ex px / Type X system is required. If all devices in the enclosure are rated for Zone 2 / Division 2, then an Ex py / Type Y system can be used. Special conditions exist for enclosures such as gas analyzers and chromatographs that contain flammable gas.

Another consideration is for analyzers that are taking in a hazardous gas or liquid, examining it, and then putting it back into the process. Because there is a potential for leakages of this hazardous material inside the enclosure, dilution or the use of inert gas may be required. Some conditions may require the Zone 2 / Division 2 area to use an Ex px / Type X system because of the type of leakage.

Refer to EN60079-2 / IEC61241-4 / NFPA 496 2008 for more information.

3. ENCLOSURE SIZE

The size of the enclosure determines the size of the purge system. How the system is mounted depends on the position of doors, windows, and cable entrances.

The size of the enclosure is determined by the free volume within the enclosure. Normally, the equipment mounted inside the enclosure cannot be subtracted from the free volume. The volume of the enclosure is required in determining the purge time, which is based on 4 volume changes for N.A. (North American) standards and 5 volume changes for IEC and EN standards, and the flow rate of protective gas through the enclosure. If a motor is being purged, then the requirement for N.A., IEC, and EN, standards is 10 volume changes.

However, the stator of the motor can be subtracted from the free volume of the enclosure.

4. POWER REQUIREMENT

For Ex px / Type X systems, the control unit operates the power disconnect to the enclosure. If the power requirement for the enclosure exceeds the contact ratings on the control unit, a control relay must be added. If the control relay is located in a hazardous area, it must be rated for that hazardous location. After the purging pressure to the enclosure drops below the minimum required value, then the enclosure power must be disconnected and cannot be engaged until after a successful purge and the enclosure is pressurized.

For Ex Pz, py / Type Z, and Y systems, power to the enclosure can remain on if an alarm is activated indicating loss of pressure. If an alarm is not used, then the power to the enclosure must be disengaged.

Heating and Ventilating Air - Conditioning Unit HVAC

PESO

FEATURES

- High efficiency filters
- Stainless steel drain pan
- Low noise and vibrations
- Ease of maintenance
- Effective fresh and return air mixing
- HVAC/VAC configurations
- Insulated panels as per Requirement
- Redundant blower and Unit option

ADVANTAGES

- Compressors carry their compliance certificate and are fully complying with IEC standards.
- Refrigerants are CFC-free and fully comply with Montreal protocol requirements.
- The equipment design is very user-friendly with full and easy service access to all components for regular servicing.
- The unit's unique design and component reliability ensures minimum servicing except for routine filter-condenser cleaning or general maintenance.
- This can work within the harsh environment and high ambient of 55°C temps.
- Unit design allows high moisture removal capacity to provide both sensible and latent heat reductions for temperature and humidity control.
- Flameproof & weatherproof Ex d electrical enclosure.
- Flame-proof electrical motors.
- Adjustable dampers for air balancing and control.
- Complete engineered HVAC solutions to suit your specific application including, air conditioning, heating, pressurization, barometric dampers, duct work, stack, grills, and filters with full integration/ adjustment control at the site.
- Large element area ensures effective cleaning with less pressure drop
- Proper alignment & accurate reseating after servicing.
- SS material option ensures high reliability of the component

DESCRIPTION

Is a mandatory requirement by the statutory body to use HVAC along with Shelters to make the Shelters installable for a given area classification.

The basic requirement for any HVAC is to perform according to a given parameter with trouble-free operations.

These are mainly remote locations or very challenging locations or experiencing extreme weather conditions.

AXIS brings you explosion-proof equipment to meet diverse and exacting demands which runs trouble-free 24 X 7 in the Oil & Gas Refinery and Petrochemical industry for conditioning of air.

ORDERING INFORMATION

XVAC										
	Area classification									
	0									Safe Area (Non hazardous)
	1									Hazardous Area (Zone 1 & 2 IIB + H2)
	2									Hazardous Area (Zone 1 & 2 IIC)
		Power Supply								
		0								3-Ø+ N, 415 VAC, 50 Hz, Control : 115 VAC, 50 Hz
		1								3-Ø+ N, 415 VAC, 50 Hz, Control : 230 VAC, 50 Hz
		2								Others (Note 2)
			Housing material							
			0							MS CRCA
			1							SS 304
			2							SS 316
			3							SS 316L
				Capacity						
				0						3 Ton
				1						5 Ton
				2						7.5 Ton
				3						10 Ton
				4						12.25 Ton
				5						Others (Note 2)
					No. of Blowers					
					0					1 working
					1					1 Working + 1 stand by (only for 3 Ton)
					2					2 Working + 1 stand by (only for 5 Ton)
						Alarm option				
						0				Standard Group fault Alarm
						1				Additional Alarm
							Temp./ RH Control			
							0			With Thermostat & without hygrostat
							1			With Thermostat & hygrostat
								Refrigration tube coating		
								0		Without Coating
								1		With Anti corrosive coating
									Certification	
									0	CCOE Certificate (Note 1)
									1	ATEX Unit Certified
									2	IECEx Certificate
									3	ATEX & IECEx Certificate
									4	ATEX (Individual comp. certified) (Note 2)

TECHNICAL SPECIFICATIONS :

Area Class :
Suitable for zone 1, IIB+H2, T3

Casings:
Unit casing fabricated from MSCRCA sheet steel (optional: SS 304 / SS316 / SS 316L grade Stainless Steel) with more than 70-80 micron paint thickness. Compressor and fan motors are epoxy painted.

Condenser / Evaporator Coils :
Fabricated from copper tubing with anti-corrosive blue aluminum fin and end plates, fully compliant for long service life in corrosive environments.

Condenser Air Entry / Exit :
These are formed on the casings with removable intake and side panels in the form of a Square slot punched in the metal giving a neat finish with adequate free airflow for condenser air requirements.

Compressor :
Fully hermetically sealed reciprocating type compressor operating on refrigerant R134a (or specified if others). The compressor with the flameproof terminal box is certified up to zone 1, IIC area.

Service access :
Service access is provided on both side of the unit by means of removable covers to give full access to all major components.

Insulation :
Complete Unit is designed for excellent thermal and acoustic performance using high density insulation with good efficiency and low noise level.

Evaporator (Supply air) fans :
Designed for continuous operation. Galvanized Fan and housing, fully lined with GI, Copper, Aluminum as per requirement. Fans give adequate air flow and static pressure. Capacity to cater for required air changes per hour and to maintain room pressure. (Refer to individual unit specifications) Stainless steel fan casing option.

Condenser Fans :
GI housing & Aluminum impeller fan assembly with alloy hub.

Motors – Fans :
Certified flameproof zone 1 operation.

Control :
Control module for off / Vent / Air Condition and thermostat for remote or unit mounting.

Power Supply :
3 phase+Neutral, 415VAC, 50 Hz.

Options :
Dual evaporator fans, alternate fan, power supply, casing material and color, alarm, lights and contacts, remote shut down relay, outside air intake.

Note 1 : Individual components certified.
Note 2 : Customised Design

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

E-House / Porta Cabin / FRP Shelter

FEATURES

- Suitable for Safe Area
- 2 way passive fire protection is possible for 2hr. according to BS 476 standards
- Interlock rib structure is possible
- Corrugated sheet is optional for aesthetic look
- High roof pitch ,robust structure, foundation arrangements & transportation probability will allow for any tariff for all weather conditions.
- According to transportation conditions in India, width up to 7 mtr. is possible (in two parts)
- Robust structure will provide longer life with different loads e.g. dead load, live load, dynamic load, wind load, erection load & Seismic load
- Choice of shade is optional for painting
- Raised floor (False Floor) is possible
- IP65 is provided
- Higher load distribution (e.g. per Sq. mtr.) in floor is Possible for battery backup or UPS room

APPLICATION

- Electrical Panel
- Electrical Circuit Breakers Panel
- Data Communications Storage Platform
- Inverter Panel
- Mobile Communication tower backup
- Oil and Gas
- Metals and Mining
- Chemicals
- Infrastructure
- Network Operators

DESCRIPTION

The Electrical House (also known as “E-House” or “Integrated Power Assembly”) is a prefabricated walk-in modular enclosure to house a medium and low voltage switchgear as well as auxiliary equipments such as UPS, Communication Panel, Data Storage Devices, Power Quality and Data Communication System .

AXIS offers the industry’s most complete family of electrical distribution, control equipment and components.

E-Houses are the optimal approach to install electrical power, communication and control equipment for a fast and reliable power supply. An E-House is a pre-fabricated electrical building, fully equipped with products from our comprehensive portfolio of medium-voltage switchgear, low voltage switchboards, busbar trunking systems, and auxiliary equipment. It is completely developed, manufactured, assembled and pre-tested at the factory, then connected and put into operation on site. If size allows, the E-House is shipped fully-assembled as a single unit. Larger E-Houses are split into individual sections for shipping and joining on site.

E house is perfectly fitted with low-and medium voltage switchgear, variable frequency drives, dry-type transformers, control and protection panel boards, SCADA and energy automation systems, relay panels, and busbar trunking systems from our comprehensive portfolio. Additionally, E-Houses are often equipped with batteries, instrumentation, uninterupted power supply (UPS), and a wide range of auxiliary equipment, Communication Panel, Data Storage Devices, Power Quality and Data Communication System .

Industry needs a reliable and efficient power supply as well as flexible solutions that can be adapted to individual requirements. E-Houses are fast and easy to install, and can be used as an interim solution. They are easy to upgrade, and use available space optimally. This makes them the most suitable option for a broad range of applications: in restricted spaces, as temporary power supply, or for distribution grid extension.

FRP Shelter

FEATURES

- Modular design
- Long Term durability
- P protected
- UV Protected
- Weather protected
- Withstand extreme weather conditions
- Leak-proof
- High seismic and wind resistance structure*
- Very high load distribution on Wall, roof, and floor

ADVANTAGES

- Light-weight
- Easy to install
- Easy to lift
- Skid-mounted design**
- Maintenance-free design
- Easy machining
- High quality
- 20-25 years of life

Note : (*) Greater than 4-meter length metallic structure will be used otherwise only the metallic base is there.
(**) For greater lengths like 8 – 10 meters, contact Axis solutions Pvt Ltd.

APPLICATIONS

- Panel room
- Mobile communication room
- Oil & Gas refineries
- Passive cooling systems
- Mining
- Arid and semi-arid region

DESCRIPTION

FRP (Fiber Reinforced Polymer) Shelter is a modular type shelter room used in the Desert area. It can be used for critical environments where sample measurements are very sensitive and should be in a protective environment like normal temperature, less moisture, etc. Traditionally metallic shelters can be used but chances of heat leakage are very common. So it can contaminate the operating conditions of the analysis system.

Fiber-reinforced Polymer is the best solution which can have 3 orders less thermal performance than metal which can give better thermal protection. Also, it can have a 25% lesser weight than the normal metal providing a high strength-to-weight ratio compared to metal.

FRP shelter is made from a single piece (6 sides) of FRP material which will be joined with another panel with the help of fasteners. FRP panel is the sandwich type (FRP + PUF + FRP). The PUF insulation provides high thermal resistance. The Panel will be 1 m (Width) x 3m (Height) in size but different in thickness from 40 mm to 100 mm available.

FRP shelter provides long-term durability. The use of a gel coat will protect the FRP sandwich panel from the harsh environment. The shelter provides Ingress protection (IP) with smooth fiber with eroded fibers which will give longer life.

FRP shelter is made from a Metallic structure mainly made from ISMC channels, base is covered with AL or Steel chequered plate & insulated. Also, there are vertical columns*. On base, FRP panels will be arranged with the help of fasteners. The roof will be made from 3m long Single FRP panels with high load distribution and a 1” slope from the longer side. The door is made from the FRP sandwich structure with all the accessories like the panic bar, door closures, and glass windows. The lifting bracket provided on the base or on the vertical column depends on the shelter size and load.

FRP shelter can be provided the best solutions for sensitive applications. Also, it can be used for a passive cooling shelter which can provide cooling with zero energy.

Calibration Unit For Zirconia Oxygen Analyzer - ACUZ1

Auto Calibration Unit

Manual Calibration Unit

FEATURES

- Easy to install
- Compact design
- Maintenance free
- Economical

ADVANTAGES

- Universal design
- Suitable for different make of oxygen analyzers
- High Performance

DESCRIPTION

The Zirconia Oxygen Analyzer is used to monitor and control the oxygen concentration in combustion gases, in boilers and industrial furnaces, for wide application in industries which consume considerable energy–such as steel, electric power, oil and petrochemical, ceramics, paper and pulp, food, or textiles, as well as incinerators and medium/small boilers. It can help conserve energy in these industries.

It also contributes to preservation of the earth's environment in preventing global warming and air pollution by controlling complete combustion to reduce CO2, SOx and NOx.

Axis is providing system solutions for high availability, reliable, accurate with sampling system design where analytical measurement demands it.

The Axis Zirconia Analyzer calibration unit is designed for calibration process which is available with fully automatic & manual option. Choose the detector version which best suits your needs so that an optimal combustion control system can be obtained.

The system configuration can be classified into below basic patterns as follows:

SYSTEM 1 (MANUAL CALIBRATION UNIT)

- This system is for monitoring and controlling oxygen concentration in the combustion gases of a large-size boiler or heating furnace. Clean (dry) air (21%O_2) is used as the reference gas and the span gas for calibration. Zero gas is fed in from a cylinder during calibration. The gas flow is controlled by the flow setting unit with manually setting of ball valve.

SYSTEM 2 (AUTO CALIBRATION UNIT)

- System 2 uses the automatic calibration unit, with auto-switching of the calibration gas. In this System the gas flow is controlled by Solenoid valve, which is powered by an electronic signal from converter according to Sensor output.

ORDERING INFORMATION

ACUZ1										9	
	Type of System										
	0										Auto Calibration System
	1										Manual Calibration System
		Type of Component									
		0									Axis Approved
		1									Customer Specified
			Area Class								
			0								Safe Area
			1								Zone 2 IIA IIB
			2								Zone 1 & 2 IIC
				Hazardous Area Certification							
				0							Not Required
				1							CCOE Certified (Note 1)
				2							ATEX Certified (Note 1)
					Power Supply						
					0						NA (Note 2)
					1						24 VDC
					2						115/230 VAC 50 HZ
						Valve MOC					
						0					Aluminum (Only for solenoid valve)
						1					SS 316
							Enclosure Type				
							0				Self standing Rack
							1				Wall mounting Box
								Enclosure Material			
								0			MS Painted
								1			SS 304
								2			SS 316
									Enclosure /Mounting Plate Dimention (Note 3)		
									0		400 mm (H) X 400 mm (W) X 210 mm (D)
									1		500 mm (H) X 500 mm (W) X 210 mm (D)
										Canopy	
										0	NA
										1	MS painted
										2	SS 304
										3	SS 316

TECHNICAL SPECIFICATIONS

Mounting	Enclosure / Mounting Plate
Enclosure or plate Body Material	MS Painted / SS 304 / SS 316
Area Class	Safe area / Zone 1 & 2
Power Supply	24 VDC / 115/230 VAC 50 HZ
Type	Manual / Automatic
End connection	1/4" OD
Enclosure / Mounting Plate Sheet thickness	2 mm

Note 1: Not for Safe Area class

Note 2: For Manual Calibration System Only

Note 3: For mounting plate Please consider H & W

SCHEMATIC DIAGRAM

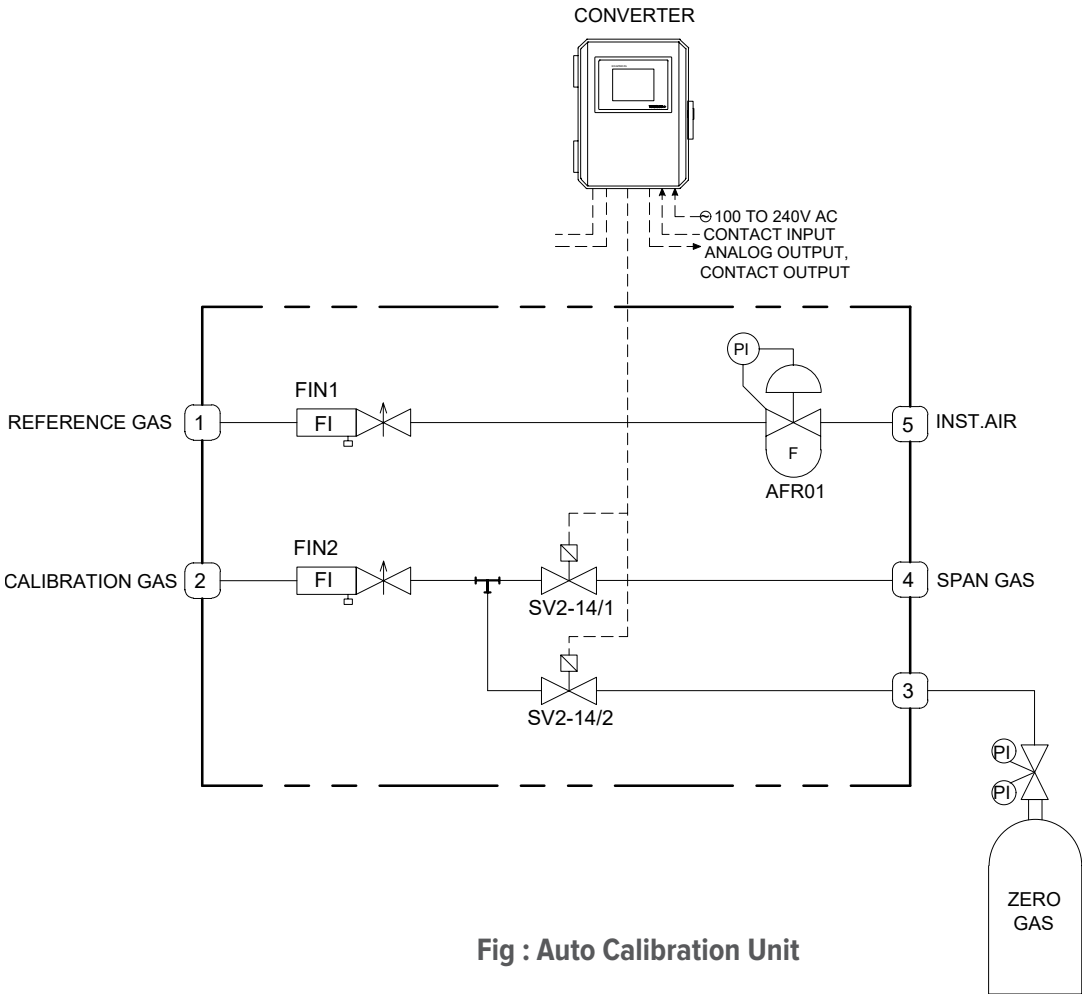
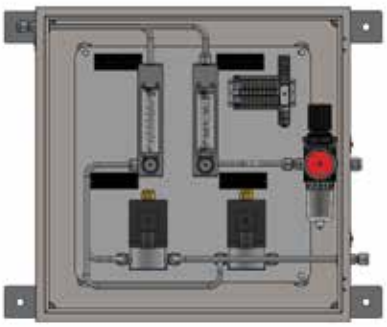
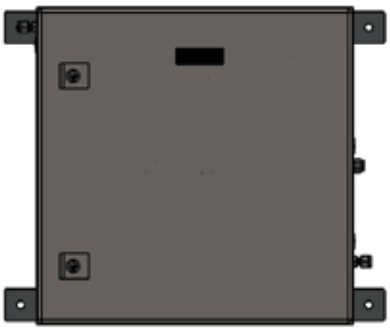


Fig : Auto Calibration Unit

Note : If you required manual system we can use ball valve in place of solenoid valve.

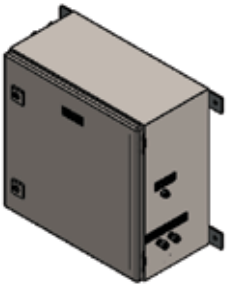
DIMENSIONAL DETAILS OF CALIBRATION SYSTEM





FRONT VIEW

RHSV

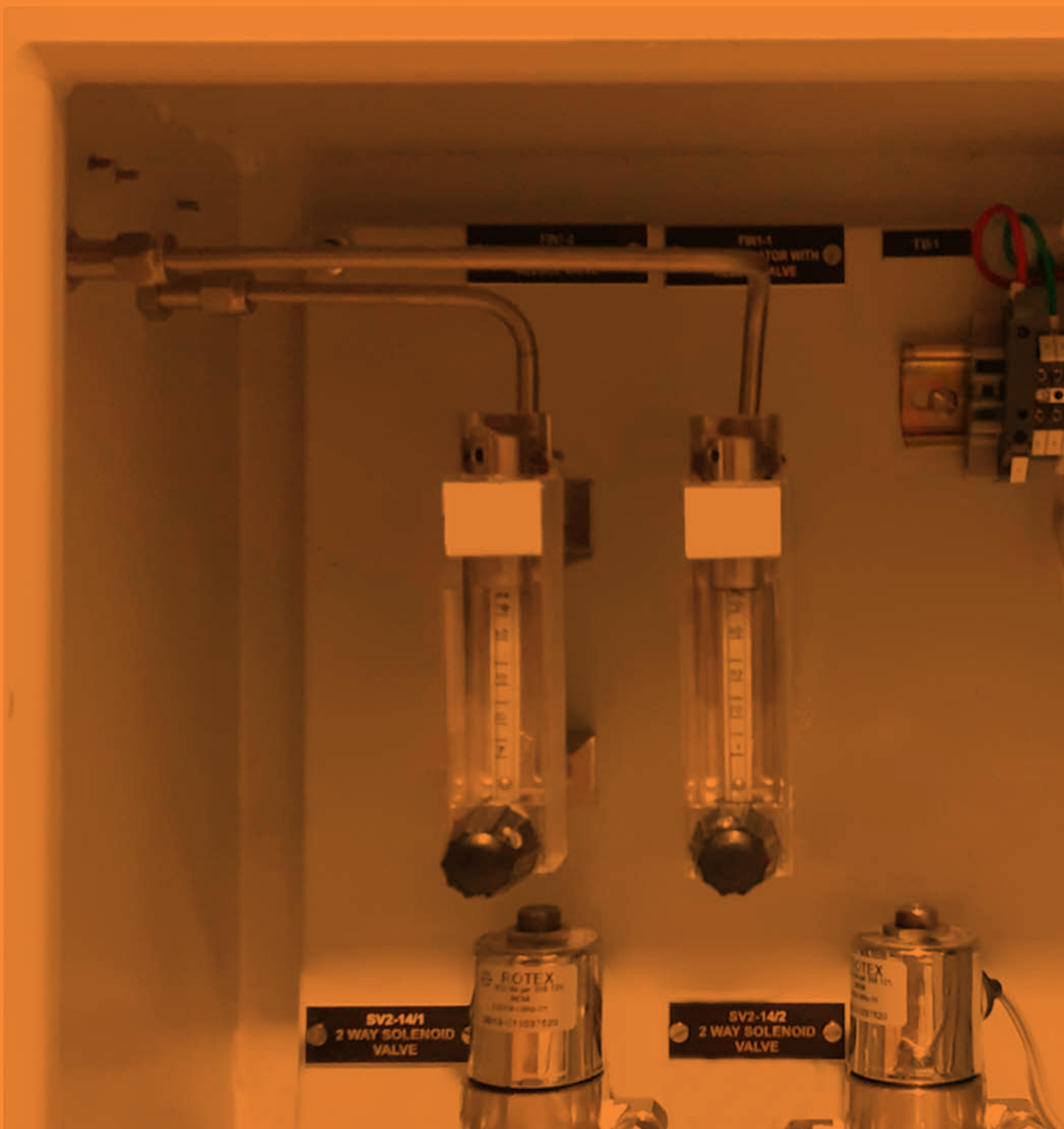


ISOMETRIC VIEW

SPARE / ACCESSORIES

Description	Qty.
Needle Valve 1/4"OD*	2 No.
Rotameter 1/4"NPTF*	2 No.
2 Way Solenoid Valve*	2 No.
Air Filter Regulator, Polycarbonate bolw*	1 No.

Note : * As per Installation


SV2-14/1
2 WAY SOLENOID
VALVE
SV2-14/2
2 WAY SOLENOID
VALVE

Aspiration System
AS1

AS1

FEATURES

- Economical
- Less Maintenance
- Ease of maintenance
- Ease of Installation
- Compact Design
- Suitable to Safe/Hazardous Area
- PESO or ATEX Certified

ADVANTAGES

- Less space Occupied due to horizontal installation
- Highly reliable and accurate for long distance sample analysis
- Design for stable operation of gas detection
- Cost effective mini sampling system

APPLICATIONS

- Refineries
- Petrochemicals
- Oil & Gas
- Chemical Industries

DESCRIPTION

Refer typical diagram of ASPL Aspiration System specially designed for prevention moisture from the sample and measuring proper reading of sample for the analysis.

In the system sample is taken from source to gas detector, sample is transferred from long distance with help of Eductor. Instrument air is also given through the Air filter regulator for analysis purpose.

On another hand sample is also taken for calibration purpose. Axis Aspiration system is providing manual and auto calibration. For manual calibration detector close the non-return valve and ball valve shall be turned into calibration side.

ORDERING INFORMATION

PAS1									9	
	Distance Between stack to Detector									
	0									Up to 40 meter-Use Eductor
	1									Up to 100 meter-Use Pump
		System Mount in Plate								
		0								CRCA Painted
		1								MOC: SS 316,2mm thick
		2								MOC: SS 304 ,2mm thick
			System Mount in Box							
			0							MOC: SS 316
			1							MOC: SS 304
			2							MOC: MS Painted
				Hazardous Area Classification						
				0						None (if Safe area selected)
				1						Zone 1&2, IIA/IIB
				2						Zone 1&2, IIC
					Power Supply					
					0					110VAC, 50 HZ
					1					230VAC, 50 HZ
						Calibration Type				
						0				Manual
						1				Automatic
							Certification			
							0			Standard COC (If safe area is selected)
							1			Local / PESO
							2			ATEX
								Make of Component		
								0		Axis Approved vendor
								1		Important Make

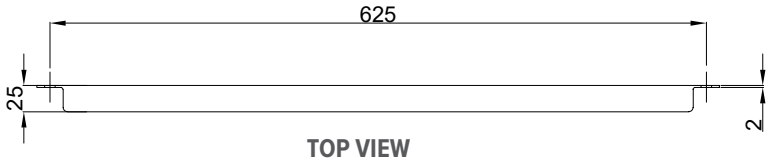
SPECIFICATION

Specification of System Box
2mm SS 316 sheet for door and sides
2mm SS 316 sheet for components mounting plate
Finish: Buff finish
Overall Dimension: 700(H)x750(W)x300(D)mm
Mounting Plate: 790(W)mm, 2mm thickness, MOC: SS 316
All dimensions are subjected to the tolerance of ±5mm.
Over All weight: approximately 50 kg.
Connection Details
Sample 1/2'' NPT(F) SS 316
Calibration 1/4'' NPT(F) SS 316
Instrument Air 1/4'' NPT(F) SS 316

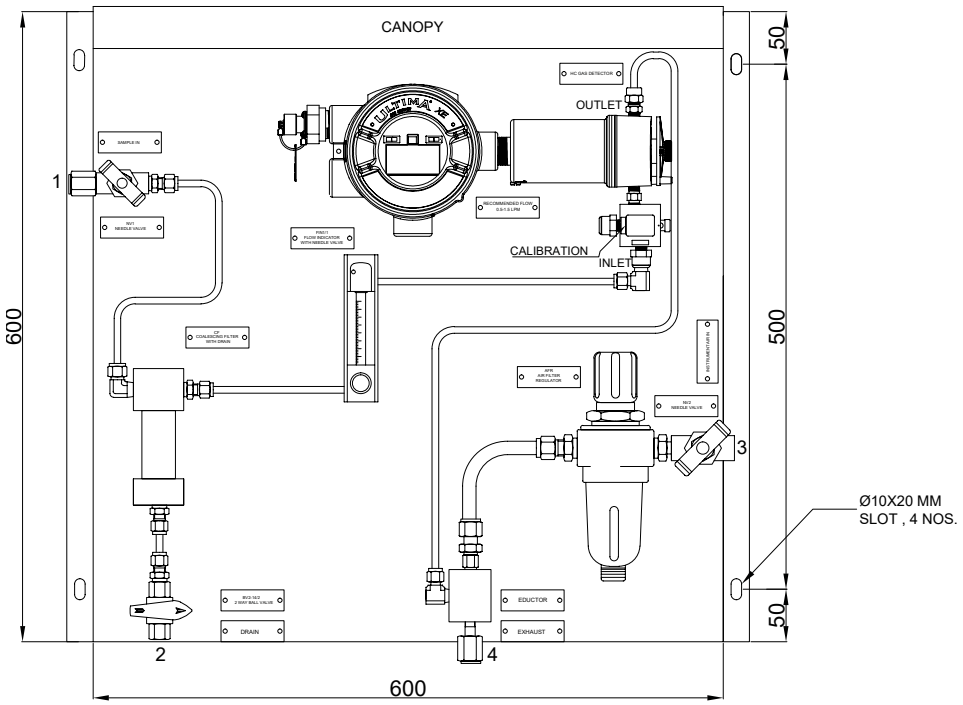
TECHNICAL SPECIFICATIONS

Mounting	Plate / Box
Body Material	SS 304 / SS 316
Suitable for	Safe area Zone 1&2, IIA/IIB Zone 1&2, IIC
Calibration	Manually Automatic
Power Supply	110VAC or 230VAC, 50 HZ

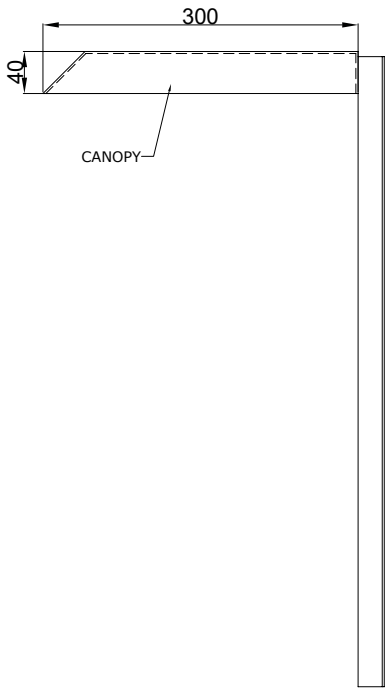
DIMENSIONAL DETAILS OF PNEUMATIC ASPIRATION SYSTEM



TOP VIEW



FRONT VIEW



R.H.S. VIEW

CONNECTION DETAILS

1 - SAMPLE IN 1/2'' NPT(F) SS 316
2 - DRAIN 1/4'' NPT(F) SS 316
3 - INSTRUMENT AIR IN 1/2'' NPT(F) SS 316
4 - EXHAUST AIR 1/2'' NPT(F) SS 316

SPARE / ACCESSORIES

Accessories	Description	Local Make	Part No.
Glass micro Fiber element	Glass micro Fiber element (1 pkt=5nos.)	Axis	1 no.
Filter Element	Filter Element: Quartz based	Axis	1 no.
3 Way Ball Valve	MOC: SS 316, End Connection: 1/4" NPT F, Pressure: 100 kg/cm2, Temperature: 50°C	Prime/Baldota	1 no.
Needle Valve	MOC: SS, End Connection: 1/4" NPTF, Pressure: 100 kg/cm2, Temperature: 200°C	Prime/Baldota	1 no.
Needle Valve	MOC: SS, End Connection: 1/2" NPTF, Pressure: 100 kg/cm2, Temperature: 200°C	Prime/Baldota	1 no.

Eductor	Air inlet port: 1/8" NPTF, Suction port: 1/4" NPTF, MOC - SS	Axis	1 no.
Silencer	Silencer, MOC: Brass	Axis	1 no.
Sample flow meter	Rotameter with needle valve, Range: 0.2 - 2 LPM, Float: SS316, End Connection: 1/4" NPTF, Pressure rating: 10 kg/cm2, Max. Temperature: 100°C	Placka/Eureka	1 no.
Sample gas pump	Sample gas pump	Axis	1 no.
Double compression type Fittings SS		Prime/Baldota	AR
SS Tubing		Axis Appvd. Vendor	AR

Accessories	**Description**	**Imported Make**	**Part No.**
Glass micro Fiber element	Glass micro Fiber element (1 pkt=5nos.)	Buhler	1 no.
Filter Element	Filter Element: Quartz based	Buhler	1 no.
3 Way Ball Valve	MOC: SS, End Connection: 1/4" OD, Pressure: 100 kg/cm2, Temperature: 50°C	Swagelok/Hoke	1 no.
Needle Valve	MOC: SS, End Connection: 1/4" OD, Pressure: 100 kg/cm2, Temperature: 200°C	Swagelok/Hoke	1 no.
Needle Valve	MOC: SS, End Connection: 1/2" OD, Pressure: 100 kg/cm2, Temperature: 200°C	Swagelok/Hoke	1 no.
Eductor	Air inlet port: 1/8" NPTF, Suction port: 1/4" NPTF, MOC-SS	Permapure	1 no.
Silencer	Silencer, MOC: Brass	Permapure	1 no.
Sample flow meter	Rotameter with needle valve, Range: 0.2 - 2 LPM, Float: Hastelloy, End Connection: 1/4" NPTF, Pressure rating: 10 kg/cm2, Max. Temperature: 100°C	Buhler/Brooks	1 no.
Sample gas pump	Sample gas pump	Buhler	1 no.
Double compression type Fittings SS		Swagelok/Hoke	AR
SS Tubing		Sandvik	AR

Close Loop Sample Handling System
CLSHS1

CLSHS1

FEATURES

- Quick Disconnect connections
- Sampling directly from process
- High Sample integrity
- Ease of maintenance
- Ease of Installation
- Self-Standing
- NACE certified
- TPED & DOT Available on request

ADVANTAGES

- Enable operators to collect samples (gas or liquid) from process with the condition of i.e. high process pressure and temperature
- Can also work in with toxic compounds, viscous solutions, with low vapor pressure, etc. Highly reliable for continuous operation
- Samples can be collected in Sample Cylinders/Sample bottles in a fixed volume for lab testing.
- Extending analyzer life
- Facilitating field calibration

APPLICATIONS

- Petrochemical Industries
- High purity gas analysis
- Furnace or heat treating
- Hydrocarbon gases or liquids
- Refineries

DESCRIPTION

Each Sampling System will be equipped with cylinder valves for controlling flow, venting & isolating the system from the process.

End connections could be flanged or as per end user/customer requirement.

Each sampling system will have flexible connection for the sample cylinder outlet and fixed connection for the sample cylinder inlet

Quick Disconnect connections shall be used and shall be capable enough of self-sealing with the ability to withstand at least (internal Pressure Range) internal pressure when disconnected from the cylinder.

The system will include bypass flow for cylinder and depressurizing the system before cylinder removal.

The system shall include provisions for securely holding the sample cylinder during sampling .

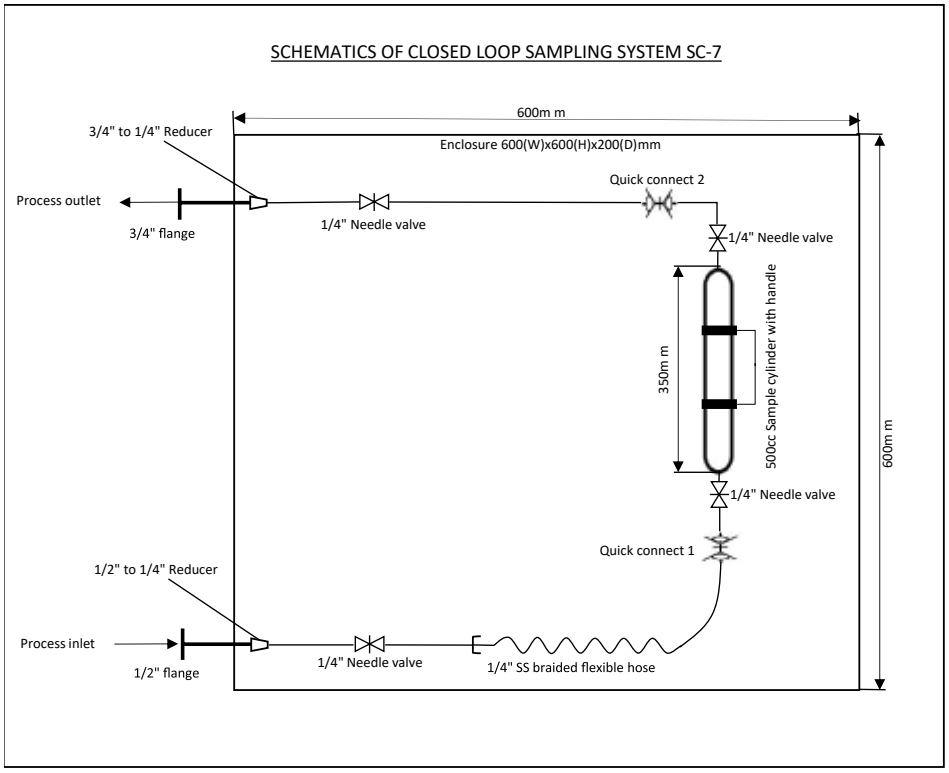
The system shall bear the a label indicating the maximum allowable operating pressure and temperature

High sample integrity –

One or two process connections – easy to install and minimum potential leak points

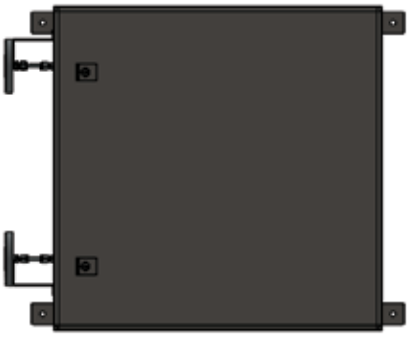
Safe design, requiring minimum operator time and training

SCHEMATIC DIAGRAM



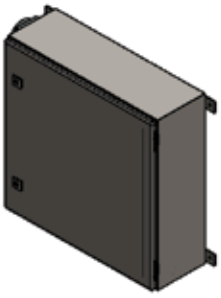
GA DRAWING

LHSV



FRONT VIEW

RHSV



ISOMETRIC VIEW

ORDERING INFORMATION

CLSHS1									9	
	Body Material									
	0									SS 316
		Double Ended Cylinder Material								
		0								SS 316
		1								SS 316L
			Double Ended Cylinder Size							
			0							150 cm^3
			1							300 cm^3
			2							500 cm^3
			3							Customized
				Quick Connector						
				A						Axis Approved
				C						Customized
					Flange Size					
					0					2'' 150#
					1					4'' 150#
					2					Customized
						Needle Valve				
						A				Axis Approved
						C				Customized
							Mounting			
							0			Box
							1			Plate Mount
								Bypass valve		
								0		Availabe
								1		Not available

TECHNICAL SPECIFICATIONS

Mounting	Horizontal
Body Material	SS316
Sleeve Assembly	250 ml sleeve with cylinder retaining clip
Needle Assembly	Process / vent needle ID:0.06" 1.4 mm
Dimension	600 x 600 x 210mm of box, 600 x 600 x 2mm thick plate
Cylinder volume	150cm3, 300 cm3, 500cm3,
Max working Temperature	150 deg C
Internal Tubing size	1/4" OD tube fitting
End connection	2" 150RF, 4" 150RF or ¼" OD tube end

SPARES PARTS

Description	Qty.
Double Ended Cylinder Size*	1 No.
Quick Connector*	2 No.
Needle Valve*	4 No.

Note : (*) As per Installation

Sample Cylinder

FEATURES

- Cylinder body is made of seamless pipe
- Cold-formed female NPT threads provide greater strength.
- Heavy-wall end connections provide strength.
- Seamless tubing provides consistent wall thickness, size, and Capacity.
- Certified & tested as per international standards.
- Design as per EN 1964-3-2000.
- Electro polishing from inside to avoid damage from liquid & gas.
- Made from SS 304, SS 316 & SS 316L to provide better performance.

DESCRIPTION

Axis manufactures Gas Sampling cylinders and is specially designed to collect and store high-pressure samples from the remote process location and provide safe containment for storage and transportation to the laboratory for analysis.

These cylinders are rated up to 2000 psi at room temperature for liquids and gases. Some applications include hydrocarbon sampling in refineries, gas sampling in chromatography, and condensate sampling in fossil fuel and nuclear power plants. In similar applications, petrochemical facilities and gas processing plants utilize sample cylinders. Axis makes sample cylinders that are TPED/DOT certified which provides more safety.

ORDERING INFORMATION

SC					Description
	Material				
	0				SS-304 L
	1				SS-316
	2				SS-316
	3				Others on request
		End Connection			
		0			1/4" F
		1			1/2" F
		2			Others on request
			Capacity		
			0		300 CC
			1		500 CC
			2		1000 CC
			3		Others on request
			Certification		
				0	No certification
				1	TPED
				2	DOT

TECHNICAL SPECIFICATION

Material	SS 316 / SS 316 L
Dimensions	Depends on capacity
Working pressure	Up to 2000 PSIG
Certification	TPED 2010/35/EU ; DOT
Mounting	Wall mounting
End Connections	1/4" (F)*

* Others on customer request

Accessories

Rupture Disc

Outage Tube

RUPTURE DISC

Any pressurized gas cylinders must be equipped with safety relief valves. According to safety standards like DOT and TPED any transportable pressure storage devices must be protected with a relief valve which will be fitted within the cylinder body.

The rupture disc has protected the cylinder from overpressure. When the pressure inside the cylinder will increase, the rupture disc vents the cylinder pressure into the atmosphere.

This rupture disc is fitted in the needle valve at the end of the sample cylinder. The rupture disc has a male thread on it so it can be easily fitted. When the pressure inside the cylinder will be higher than its rating, the rupture disc will open and release the pressure into the atmosphere and save the cylinder from the explosion. In the normal operation to avoid leakage from its end, there is an o-ring fitted on the rupture disc.

TECHNICAL SPECIFICATION

Body material	SS 316 / SS 316 L
O-ring	Viton
Burst Pressure	As per the requirement
End Connections	1/4" (F)*

* Others on customer request

OUTAGE TUBE

When the temperature inside the cylinder increases, Fluid expands this expansion will increase cylinder pressure. There shall be free vapor space in the top portion of the cylinder, but sometimes due to overfilling the fluid vapor space cannot be maintained. At that time sudden change in ambient temperature will increase the cylinder pressure which affects its safety.

The outage tube works as a vapor spacer in the cylinder and is fitted in the cylinder's top end. When the temperature inside the cylinder will be increased, the fluid will automatically come out in the ambient via an outage tube.

The outage tube mainly has an NPT male thread on its surface which will be fitted in the respective cylinder end female NPT connection. The length of this outage tube depends upon the vapor space available in the cylinder. The seamless tube is welded at the end of the required NPT thread connection.

TECHNICAL SPECIFICATION

Body material	SS 316 / SS 316 L
End Connections	1/4" (M) & 1/4" NPT (F)*

* Others on customer request

Flexible Hose

Quick Connector

FLEXIBLE HOSE

Axis manufactures Flexible hose pipe is specially designed to transfer high-pressure samples fluid between two distance points and provides a safe environment for transportation of high-pressure. The flexible metal hose helps absorb vibrations, pipe movements, and noise. They are designed to connect misaligned rigid piping. The metallic hose pipes are durable, corrosion, and temperature resistant.

The flexible hose is made from SS304, SS-316 material as core material, and Teflon, ss-304 & SS-316 as braided material. The flexible hose is suitable for pressure up to 200 bar and for vacuum application, also suitable for 300 °C temperature. The flexible hose can be available in any length as per the customer's requirements.

TECHNICAL SPECIFICATION

Core material	Stainless steel, Teflon
Braid material	Stainless steel
Maximum pressure	200 bar *
Maximum Temperature	300 °C
End fitting type	NPT (M/F), BSP (M/F)**
End fitting size	1/4" , 1/2" & 3/4" **
Tube Length	As per customer requirements

* Available in the low-pressure range
** Others on customer request

QUICK CONNECTOR

Quick-connect fittings are used to connect fluid lines with equipment that requires repeated connections and disconnections. They are designed for easy hand operation for use with fitting attachments primarily on mobile machinery.

The design is simple: a male end-or plug-is inserted into a female end-or socket-to make a secure, leak-tight seal. They are sometimes called push-to-connect because connecting them requires only a quick push. No twisting, turn or wrenching necessary.

TECHNICAL SPECIFICATION

Material	SS-316, Brass
O-ring	Viton*
Spring	SS 316
Pressure	150 bar **
End fitting size	1/4" , 1/2" & 3/4" ***

*Depends on working fluid
**Available in the low-pressure range
*** Others on request

Liquid Sample Recovery System
LSRS1

LSRS1

FEATURES

- Electrical Area Classification: Suitable for Hazardous Area Zone 1/ Zone 2 Gas Gr IIA/B, IIB+H2 installations.
- Efficient recovery and discharge of product back into the process.
- Vent vapour discharge available for vapour emissions to Flare.
- Pump bypass line equipped with relief valve to prevent overpressure discharge
- Magnetic Type level indicator for visual indication
- Level Low Low and Level High High alarm available to trip the entire system

ADVANTAGES

- AXIS make Liquid sample recovery systems provides a stable condition at the process analyzer outlet.
- The system is also ideal for use in applications where it is undesirable to discharge hydrocarbons or chemicals into sewage drains.
- Profitability/ROI - Recovering your product is one of the simplest ways to increase your profit and reduce costs.
- Reduction of Product Waste - When considering product recovery, it is imperative to assess how much product is being wasted.
- Lower Environmental Impact - Minimizing your carbon footprint goes hand-in-hand with reducing product waste. While the primary driver for a product recovery project may be economics, another significant benefit is that it can lower your emissions. Environmentally friendly operating changes like product recovery can help your organization to “go green”

DESCRIPTION

Liquid Sample Recovery Systems are designed specifically to collect process liquid effluent or spent sample from analyzers and return the same to the process line, or any other suitable location in a fully controlled manner. This system is ideal for use in applications where it is undesirable to discharge chemicals or hydrocarbons into sewage drains.

Analyzers have limitation in pressure and temperature, so the spent sample cannot be returned to the process line from which it was taken. A consequence of this is that a sample collection system has to be installed which collects the sample.

The liquid sample recovery system allows natural or pressure draining from the analyzer into the atmospheric recovery tank. This collected sample is returned to the process using pumps. By using these special collection vessels, the user spares the environment, avoids hazardous situations, creates a stable outlet condition for the analyzers and, by recovering spent samples, costly product is not lost but can be reprocessed.

The system is designed per process return requirements. The size, shape and MOC of vessel is customized to customer requirement.

A standard sample recovery system includes a base frame, recovery tank, Level Indicator/Transmitter with option of high and low alarm level indications, positive displacement pumps, relief valves The motor is driven by a locally installed Electrical Control panel with emergency push buttons and selector switch for local / remote control selection for pump start/stop. The remote selection can be customized. When high level detected pump starts to return sample to process. Pump running stop when low level detected. High high and low low level trip contacts provided for system trip.

ORDERING INFORMATION

LSRS1								**9**	
	Area classification								
	0								Zone 1 & 2 IIA IIB
	1								Zone 1 IIC
		Power Supply							
		0							415VAC 50 HZ for the Pump
			Non Heated / Heated						
			0						Non Heated
			1						Heated
				Tank Material					
				0					MS painted
				1					SS 304
				2					SS 316
					Flow				
					0				500 LPH
					1				XX LPM
						Tank capacity			
						0			50 liters
						1			100 liters
							Certification for electrical components		
							0		CCOE certified
							1		ATEX Certified

TECHNICAL SPECIFICATIONS

Operating Temperature	32°–113° F (0–50°C)
Motor & Pump	
Pump	Sealess, positive displacement, diaphragm pump
Flow	500 LPH
Differential Pressure	10 bar
Make	Hydracell
Motor	ATEX / CCOE Certified
Power Supply	415 VAC / 230 VAC
Make	Bharat Bijle /Crompton
Sample Recovery Tank	
Tank capacity	50 L, 100 L
MOC	SS 305, SS316
Thickness	2.5mm thick
Tube fittings	
Inlet /outlet MOC	SS 316 / SS 316L
Size	1/2”
Make	Hylok / Fitok
Local Control Panel	
Area Classification	Zone 1 & 2 IIA IIB IIC
	Manual & Auto
Level Indications	Level Gauge shall be provided for indication. Low and low low switch and High and High High switch shall be used for pump control operation

ADDITIONAL ACCESSORIES

Description	Qty.
Sample Pump*	1 No.
Motor*	1 No.
Level Switch*	1 No.
Level IN*	1 No.

Note : * As per Installation

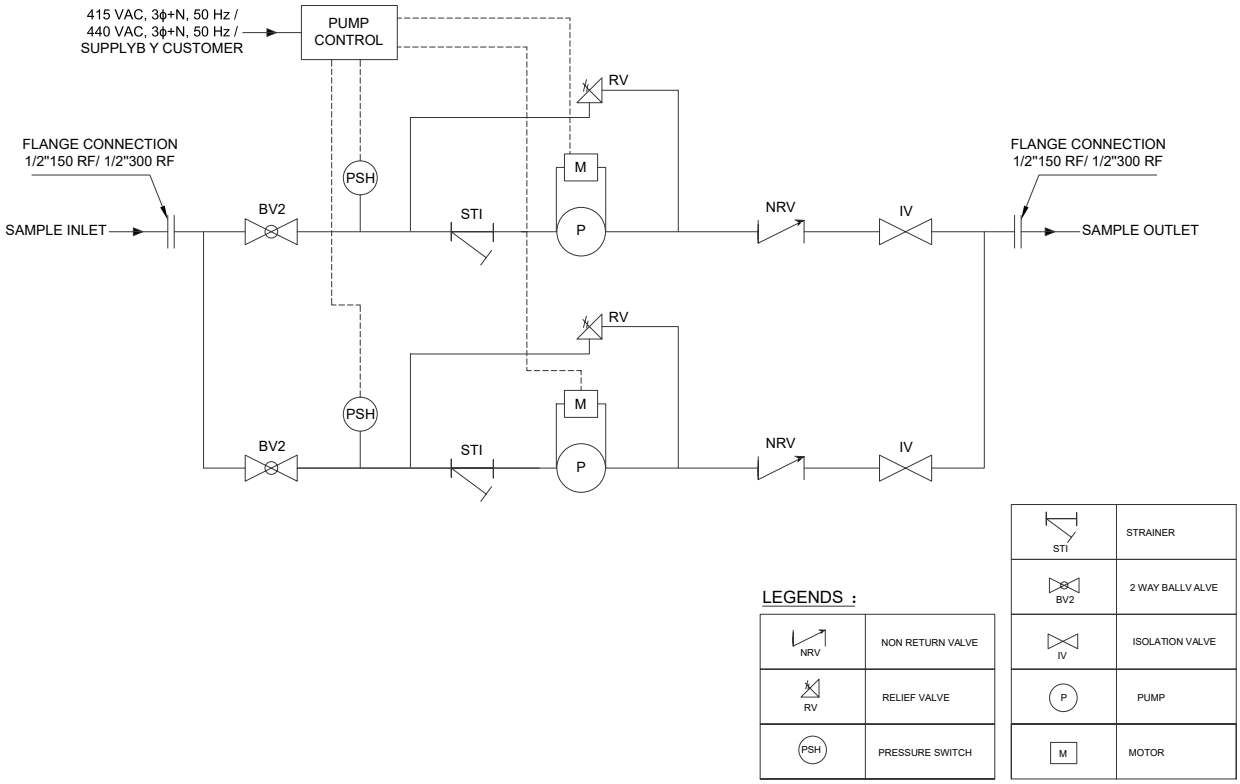
APPLICATIONS

- Refineries
- Petrochemical
- Oil & Gas

Fast Loop System For MS - HSD

FLS1

FAST LOOP SCHEMATIC DIAGRAM



FEATURES

- Electrical components certified for use in Zone 1- IIA IIB and IIB+H2.
- Also available in Zone 2 IIA IIB and IIC Hazardous areas.
- Increased accuracy and reduced uncertainty and maintenance costs.
- Pump Standby / Redundant configuration reduced downtime.
- The loop size is selected as part of design process to maximize sample reepresentivity and ensure sufficient velocity exists to maintain homogeneity of the fluids throughout the sampling system.
- A fast loop sampling system provides highly accurate sampling across a wide range of fluids and has a lower measurement uncertainty and higher accuracy than a probe sampler system.
- The pump yields a flow at a differential pressure of 2 - 5 barg typical.
- Dry run & discharge overpressure protection.

DESIGN BASIS

The system consists of :

1) Sample pump
2) Motor
3) Strainer
4) Local panel for pump control

DESCRIPTION

The Axis Fast loop sampling system (FLS) is designed for increased accuracy and reduced uncertainty and maintenance costs. Because it is important to maintain flow through the fast loop system even when the analyzer is not in service.

Fast loop system is designed to handle high flows in sample transport lines to reduce time delays for online analyzer systems. Fast loop system pass sample through a filter while using the high flow rate of the bypass to keep the filter element clean. Fast loop filter works as a self-cleaning filtration.

Axis is providing system solutions for high availability, reliable, accurate with sampling system design where analytical measurement demands it.

ORDERING INFORMATION

FLS1								**9**	
	Area Classification								
	0								Zone 1 & 2 IIA IIB
	1								Zone 1 IIB+H2
		Pump							
		0							NA
		1							Single
		2							Redundant
			Power supply						
			0						415VAC 50 HZ For the pump
				Certification for electrical components					
				0					ATEX Certified
				1					CCOE certified

DESIGNS INPUT REQUIRES FROM THE CUSTOMER

- Viscosity of fluid.
- Fuel type diesel, gasoline, etc.
- Operating pressure at sample point
- Operating pressure at sample return
- Operating temperature at sample point
- Distance from tapping point to SHS & return
- Tapping & return point connection size
- Ambient condition

TECHNICAL SPECIFICATIONS

Supply pressure	0.5 to 10 barg
Return pressure	0.5 to 10 barg
Flow	5 - 10 LPM
Differential pressure ΔP	2 - 5 barg
Pump	Sealess, positive displacement, diaphragm pump, 500LPH, 2-5 barg differential pressure
Motor	ATEX Certified , CCOE Certified
Power supply	3 Phase + N , 415 VAC, 50 Hz
Power Consumption	Approx. 10 Amp
Dimensions	1200mm x 1200mm x 800mm approximately
Weight	600kg

SPARE / ACCESSORIES

Description	Part No.	Qty
Sample pump, Sealess, Positive displacement, diaphragm pump*		2 No.
Sample pump, Internal Gear type*		2 No.
Motor, Power supply : 415 VAC 50 HZ,* Area class : Zone 1, IIA/IIB/IIB+H2, CCOE/ATEX certified		2 No.
Pressure switch, CCOE /ATEX Certified*		2 No.
Strainer, MOC : SS316, End connection : 1/2" NPT (F) - Axis	ASPL2993	2 No.

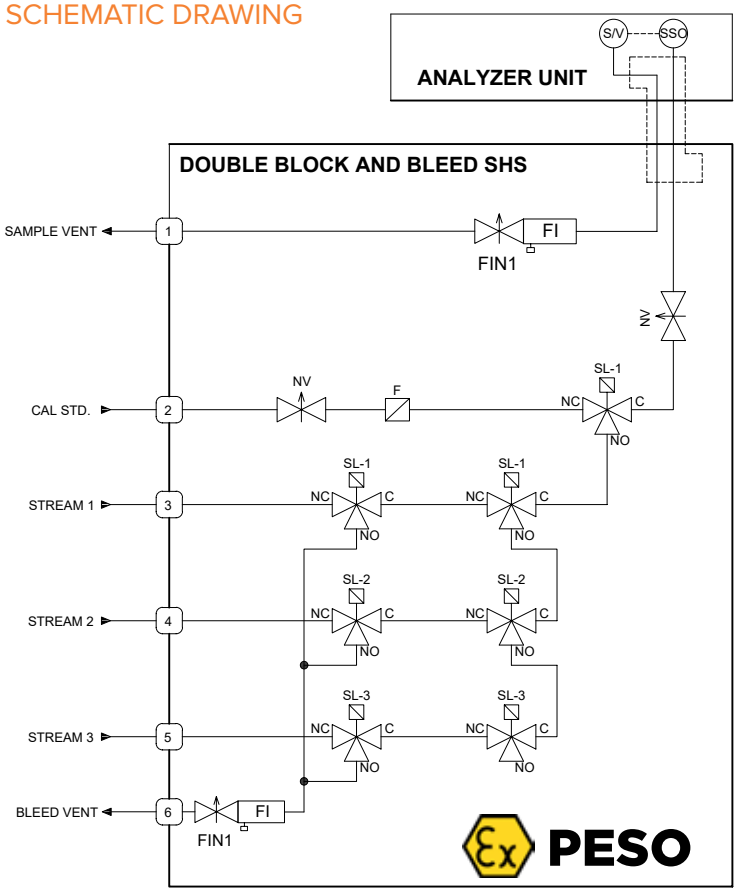
Note : * As per Installation

APPLICATIONS

- Refineries
- Petrochemical
- Oil & Gas

Double Block and Bleed System
DBB1

SCHEMATIC DRAWING



FEATURES

- Avoid cross stream contamination
- Applicable or both gas liquid
- Equipped with both Rota meter and Filter
- Used for critical process service

ADVANTAGES

- High availability
- Reliable
- Precise measurement
- Option available with Valves
- CCOE and ATEX approved certification
- This can work within harsh environment

APPLICATION

- Used for critical process the system where precise measurement is highly required.
- Application where cross stream contamination should not occur

DESCRIPTION

ASPL Double block and bleed is a special design to ensures that cross stream contamination does not occur in multi-stream sample systems which is caused due to is leakages from switching valves and areas of unpurged tubing common to more than one stream.

As it can be seen in below diagram this design allows sample flow from the selected stream to pass through two valves enroot to the sample/ calibration valve. The other streams are double blocked with two valves and leakages from valves at low pressure to escape out the bleed vent.

Hence here the purpose is now served by double block and bleed valve, firstly it will prevent contamination in all the streams and remove the trap gas/ liquid by means of the given bleed vent/drain.

Solution can be provided for gases and liquid application. In case of liquid contamination shall be connected to drain.

Switching valves shall be provided Electric operated solenoid valve or air operated valve.

Multi stream sample selection and calibration switching command shall be given by analyzer unit/control unit.

Sample fine filter and rota meters can be added to make it complete sample system as per customer specific requirements.

This improves the reliability of the system where precise measurement is highly required.

WORKING

Stream-1 selection :
Selected stream energizes both the valves(SL-1-1 and SL-1-2) to allow sample flow from the normally closed port(N/C) to the common port(C) in both valves and then open port (NO) to Common port(C) in sample /calibration switching valve(CAL) then to the analyzer. Leakages from valves in other streams will be vented out.

Stream-2 selection :
Same as above

Stream-3 selection :
Same as above

Note : Electric powered contact or pneumatic command to be given from analyzer unit/control unit for switching valves.

ORDERING INFORMATION

DBB1											9	
	No of streams											
	0											2 Streams
	1											3 Streams
	2											Customized
		MOC of wetted parts										
		0										SS 316
		1										SS 304
			Application									
			0									Gas application
			1									Liquid application
				Switching Valve types								
				0								Air operated
				1								Solenoid valve
					Power supply for solenoid valves*							
					0							In case of AOV
					1							230V
					2							110V
					3							24V DC
						Area classification for solenoid valves*						
						0						In case of AOV
						1						Zone-1 IIA/IIB
						2						Zone-1, IIC
						3						Zone-2 IIA/IIB
						4						Zone-2 IIC
							Certification					
							0					No certification
							1					CCOE
							2					ATEX
								Fine Filter -SS sintered				
								0				No filter
								1				2 micron
								2				Customized
									Sample rota meter **			
									0			No rota meter
									1			2-20 CC/min
									2			Customized
										Mounting		
										0		SS 304 plate (600mm x 600mm)
										1		SS 304 Box (600mm x 600mm x 300mm)
										2		Customized
											Rota meter make	
											A	Axis approved vendor
											C	Customized

Note: *Select 0 in case of AOV valves

**Sample rotameter shall be calibrated with air/water in case of Gas/Liquid service

TECHNICAL SPECIFICATIONS

Mounting	Horizontal
Body Material	SS 316
Area Class	Suitable for Zone-1 IIA/IIB , Zone-1, IIC, Zone-2 IIA/IIB , Zone-2 IIC , Zone-2 IIC
Dimension	Refer Dimension Ordering information
Power Supply in case SOV	230V, 110V , 24V DC
Certification	Available with CCOE and ATEX
Connection	1/4" Tube fitting

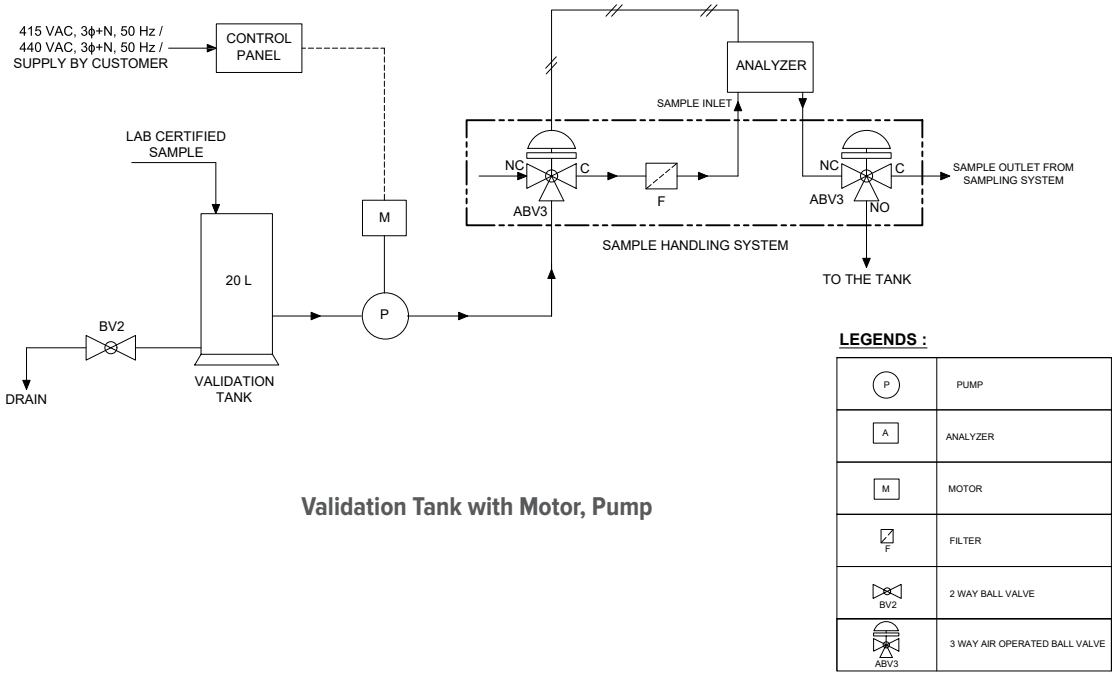
ADDITIONAL ACCESSORIES

Description	Qty.
3/2- Way Air Operated Valve*	7 No.
3 Way Solenoid Valve*	7 No.
Filter*	1 No.
Flow Meter*	1 No.
Needle valve*	2 No.

Note : * As per Installation

Validation system for HC liquid

VS1



Validation Tank with Motor, Pump

FEATURES

- Electrical Equipment certified for use in Zone 1 IIA IIB and IIC
- Also it is certified for Zone 2 IIA IIB and IIC Hazardous areas
- Increased accuracy
- Reduced uncertainty and maintenance cost
- Heated validation tank can be provided as an optional.

DESIGN BASIS

The validation system consists of:

1) Validation tank
2) Pump with Motor or piston

There are two types of designs available of validation system.

1) Validation tank with motor, pump
2) Cylinder piston type design

DESCRIPTION

The Axis validation system is easy to use to validate online analyzers.

Pressurized Process sample can be taken in the validation tank then get it certified with refinery lab or certified sample can be filled in the validation tank.

Then certified sample can be passed through analyzer using pump or piston arrangement for validation of analyzer system.

Axis is providing system solutions for high availability, reliable, accurate with sampling system design where analytical measurement demands it.

OPERATING NOTES FOR PUMP OPERATED VALIDATION TANK

IN SAMPLING MODE

- No Pneumatic command from analyzer to ABV-1 & ABV-2, No validation pump ON,
- Sample will pass from ABV-1(NO-C) to analyser and then AOV-2 (C-No) to sample return.

IN VALIDATION MODE

- Pneumatic command from analyzer to ABV-1 & ABV-2.
- Electric command will come from analyzer to validation pump control panel, and then pump will ON.
- Validation sample from tank will recirculate from ABV-1 (NC-C) to analyzer and then ABV-2 (C-NC) to validation tank.

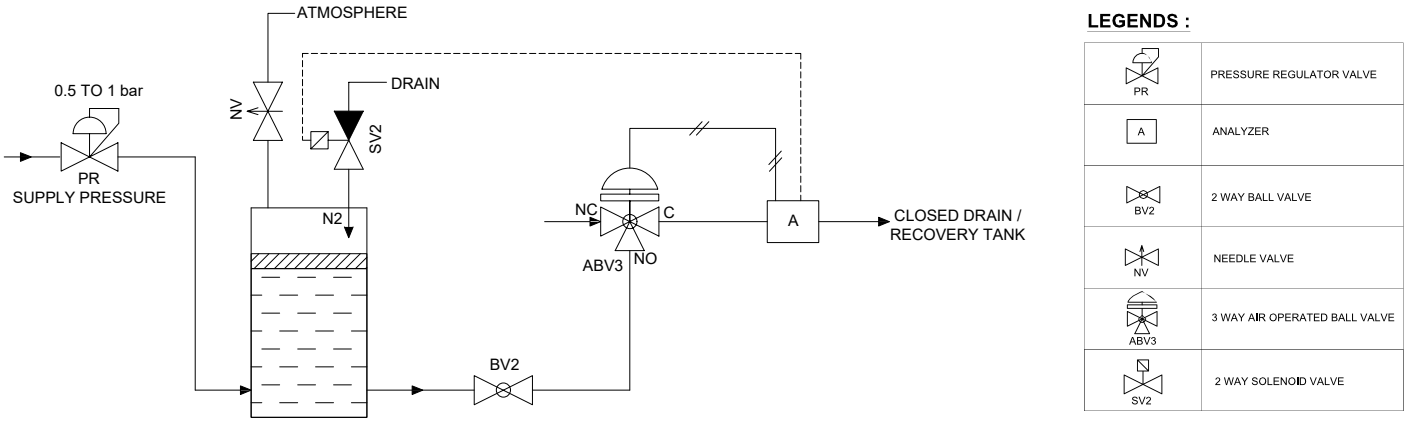
OPERATING NOTES FOR PISTON OPERATED VALIDATION TANK

IN SAMPLING MODE

- No Pneumatic command from analyzer to ABV
- Sample will pass from ABV - (NO-C) to analyzer then sample recovery tank/closed drain

IN VALIDATION MODE

- Pneumatic command from analyzer to ABV-1 & SV-1 for N2.
- Electric command will come from analyzer to SV-1 to initiate supply of N2 gas at 0.5 barg to piston operated validation tank to push piston to supply validation sample to analyzer .
- Validation sample from tank will pass from ABV-1 (NC-C) to analyzer and then sample recovery tank / closed drain.



Validation System with Cylinder Piston Design

ORDERING INFORMATION

Validation System						**9**	
	Validation System						
	0					With Pump	
	1					With Piston	
		Area Classification					
		0				Zone 1 & 2 IIA IIB	
		1				Zone 1 IIC	
			Validation Tank MOC				
			0			MS painted	
			1			SS 304	
			2			SS 316	
				Validation Tank capacity			
				0		20 Liter	
				1		30 Liter	
				2		Custom specific	
					Electric supply in case of pump		
					0	N2 Gas at 1 barg	
					1	230 VAC	
					2	415 VAC	

ADDITIONAL ACCESSORIES

VALIDATION SYSTEM WITH PUMP

Description	Part No.	Qty.
Sample Pump, Sealess, Positive displacement, diaphragm pump*		2 No.
Sample pump , Internal Gear type		2 No.
Motor, Power supply : 415 VAC 50 HZ,* Area class : Zone 1, IIA / IIB/IIB+H2, CCOE/ATEX certified		2 No.
3 way air operated ball valve*		1 No.

Note : (*) As per Installation

TECHNICAL SPECIFICATIONS

Pump Operated Validation system	
Sample pressure in tank	Atmospheric
Discharge Pressure	0.5 to 1 barg as per the system requirement
Flow	30 to 40 LPH as per the system requirement
Pump	Sealess, positive displacement, diaphragm pump, 60LPH. Make : Hydra cell
Motor	ATEX Certified CCOE certified
Power Supply	415 VAC 230 VAC Make : Bharat Bijle / Crompton
Piston operated Validation System	
	Nitrogen gas required at 1 barg to operate piston to push the sample from validation tank to the analyzer.

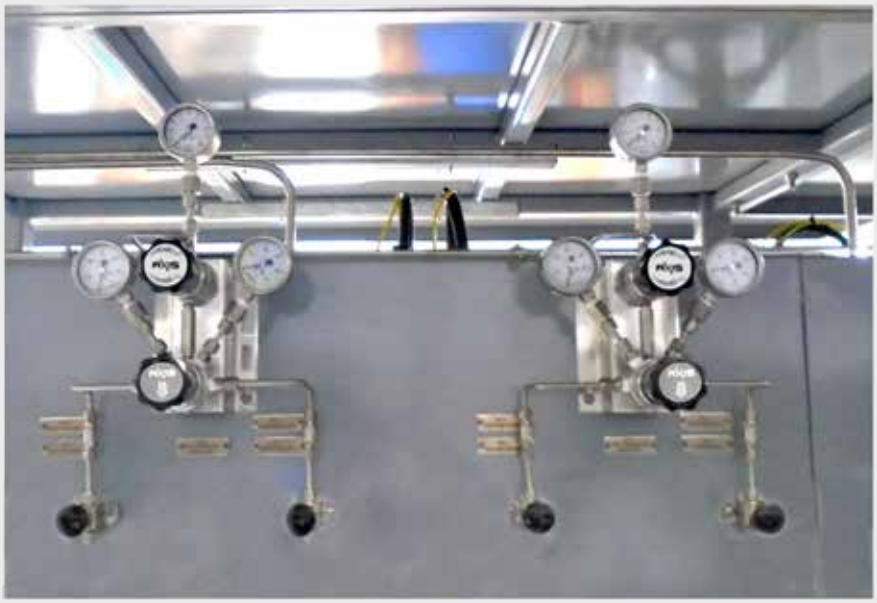
VALIDATION SYSTEM WITH PISTON

Description	Part No.	Qty.
Piston 'O' ring*		1 No.
2 Way solenoid valve		1 No.

Designs Input require from customer:

1) Viscosity of fluid.
2) Fuel type diesel, gasoline, etc.
3) Ambient condition

Auto Change Over Unit
ACOU1



ACOU1

FEATURES

- Economical
- Self-Standing
- Maintenance Free
- Ease of maintenance
- Ease of Installation
- Mounting provision of cylinders with clamping arrangement
- Compact Design

ADVANTAGES

- Less space occupied due to horizontal installation
- Used up to 300bar and 170°C temperature media
- Highly reliable for continuous operation
- Design for uninterrupted gas flow for stored gas cylinder
- Eliminate costly system downtime and maintenance
- Optional low-pressure alarm can be provided from each bank
- Ensure constant pressure and flow to system

APPLICATIONS

- Gas Chromatograph Measurement
- Laser Gas System
- High Volume Gas Manufacturing Facilities
- Back-up system for Compressor
- Generators or other plant air sources
- Applicable where replacing and refiling frequently
- Refineries
- Hydro Carbon fluid detection

DESCRIPTION

Refer typical diagram of ASPL Auto change over unit where filled cylinders in Bank- A and Bank- B connected to inlet of Auto change over regulator.

In first stage regulator of auto changeover unit fixed amount of gas pressure will be controlled and in second stage means line regulator will be adjusted with knob to achieve desire system pressure of gas. This two-stage pressure regulation shrinks the supply pressure effect caused by depleting gas cylinders.

During operation when Gas supply Bank-A pressure reduced to Predefined level then it will auto changeover to Bank-B to continue supply of gas. Empty cylinders of Bank-A can be taken for refilling.

ORDERING INFORMATION

ACOU1										9	
	Auto Change over Regulator Model										
	0										Axis Standard Model ACR 1
											Custom Models (Note-1)
	1G										GO-(COM-1/COM-2B/COM-2P)
	1S										Swagelok- (KCA/KCM Series)
	1T										TESCOM-(ACS 012/CS-2200/ NA-4)
		Body Material									
		0									SS 316
			Cylinder Change over Pressure (Note2)								
			0								6.8 Bar
			1								17 Bar
			2								34 Bar
				Regulator Pressure Gauge							
				0							Without Gauge
				1							With Gauge
					Accessories-1 flexible Hose Connection						
					0						Without Hose Connection
					1						With Hose Connection
						Accessories-2 Bullnose Connector					
						0					Without Connector
						1					With Connector
							Bank Arrangement System				
							0				Without Bank Arrangement
							1				With Bank Arrangement (Note :3)
								Low Pressure Alarm of Bank			
								0			Without Alarm
								1			With Alarm of Each Bank
									Nos. Cylinder Arrangement		
									0		2 Nos.of Cylinder
									1		4 Nos. of Cylinder
									2		6 Nos. of Cylinder

Note 1 : As per the selection of types of model further details may vary.

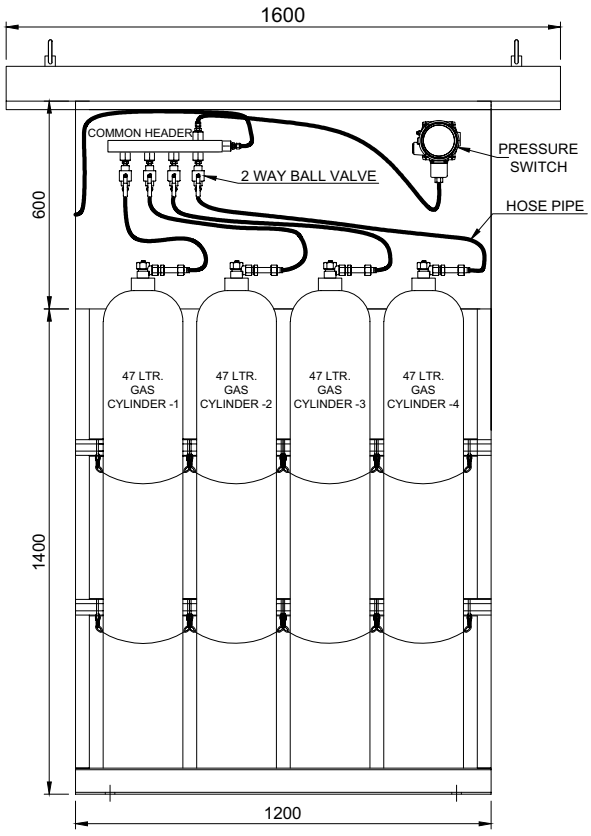
Note 2 : Always Cylinder Pressure Should be more than change over pressure for auto function

Note 3 : For Bank Arrangement system we recommended use of Headers with Isolation Valve

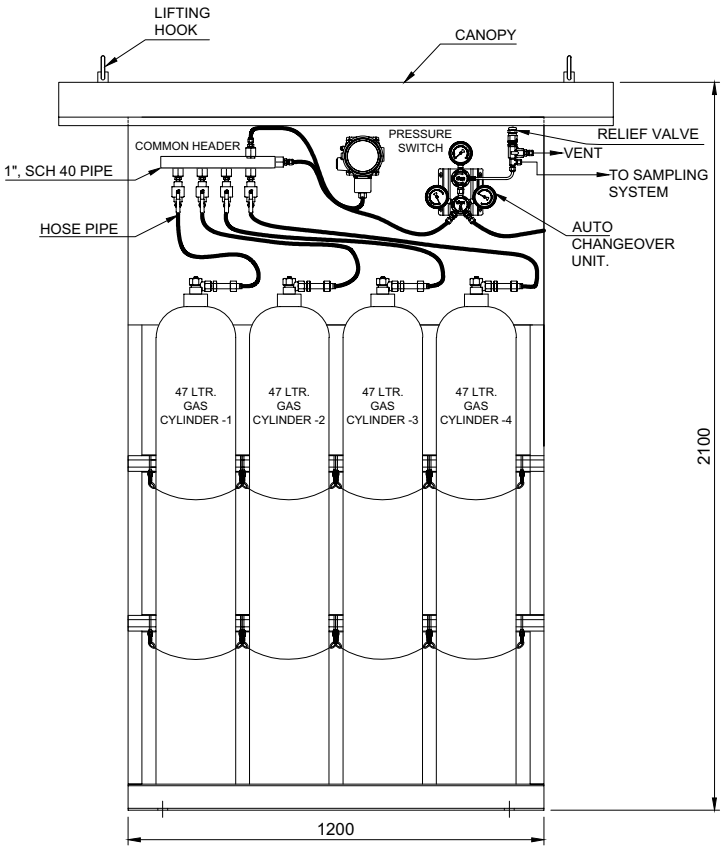
TECHNICAL SPECIFICATIONS

Mounting	Horizontal
Body Material	SS 316
Seat Material	PTFE
Diaphragm	Nitrile / Viton/ SS 316
Dimension	Refer Dimension Details
Flow Capacity	C=0.06
Bullnose Connection for Cylinder	Out 1/4''NPT(F) /In 1/4''BSP(M)
Inlet Pressure	Maximum 300 Bar
Outlet Pressure	Maximum Up to 34 Bar
Change Over Pressure	Approx. 6,8,17 & 34 Bar (Inlet Pressure must exceed Change over pressure for auto change over function)
Manifold Material	SS 316 / SS 304 / (other as per Requirement)

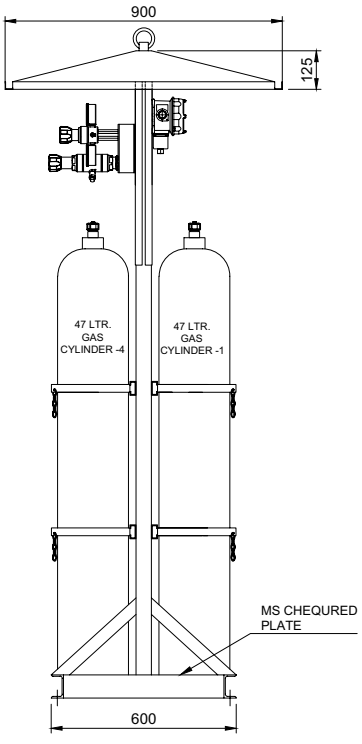
DIMENSIONAL DETAILS OF AUTO CHANGEOVER SYSTEM



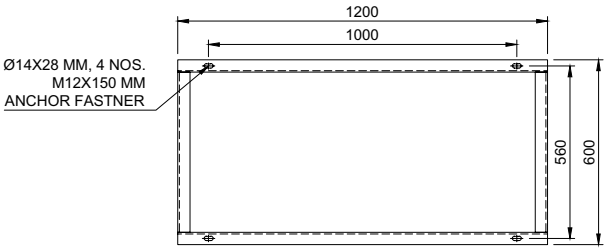
REAR VIEW



FRONT VIEW

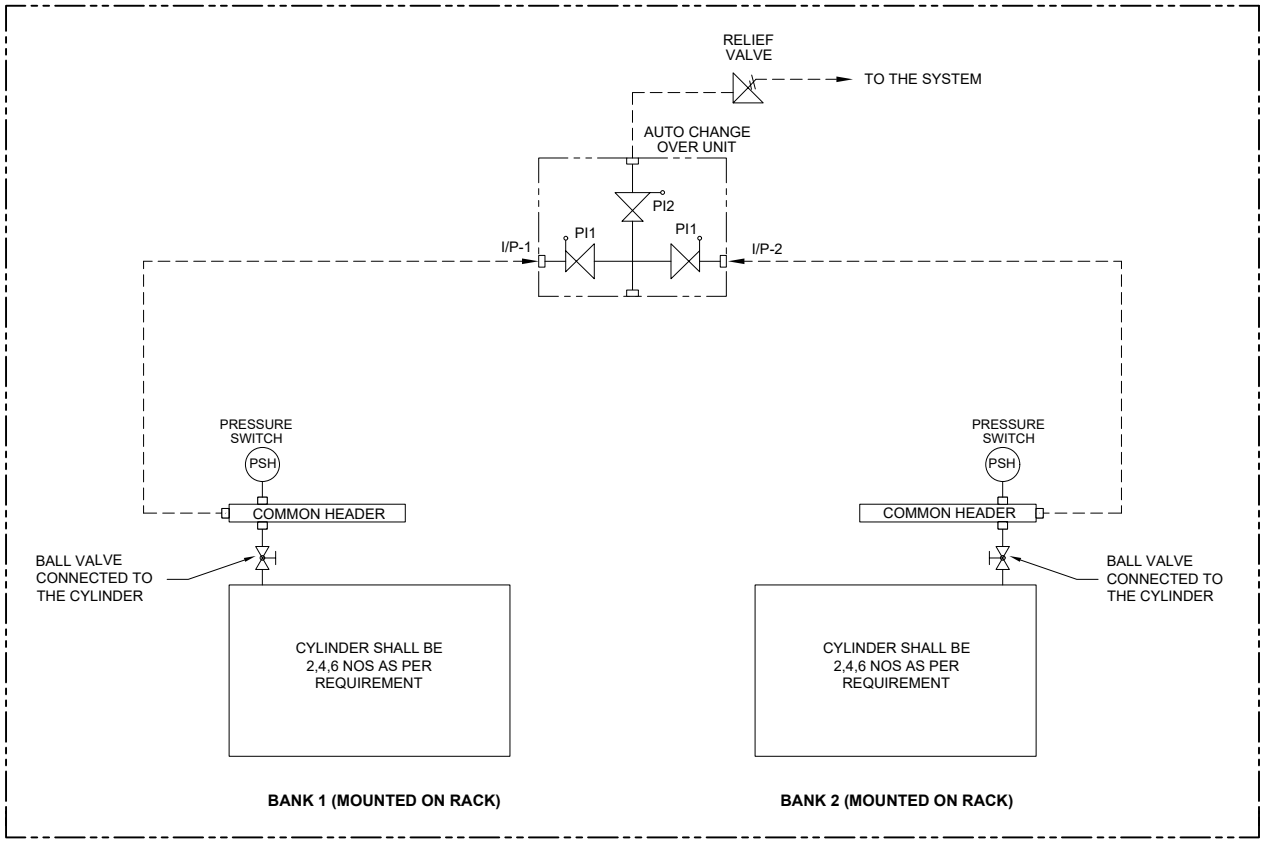


R.H.S.VIEW



FOUNDATION DETAILS

SCHEMATIC DRAWING



SPECIFICATION OF CYLINDER RACK

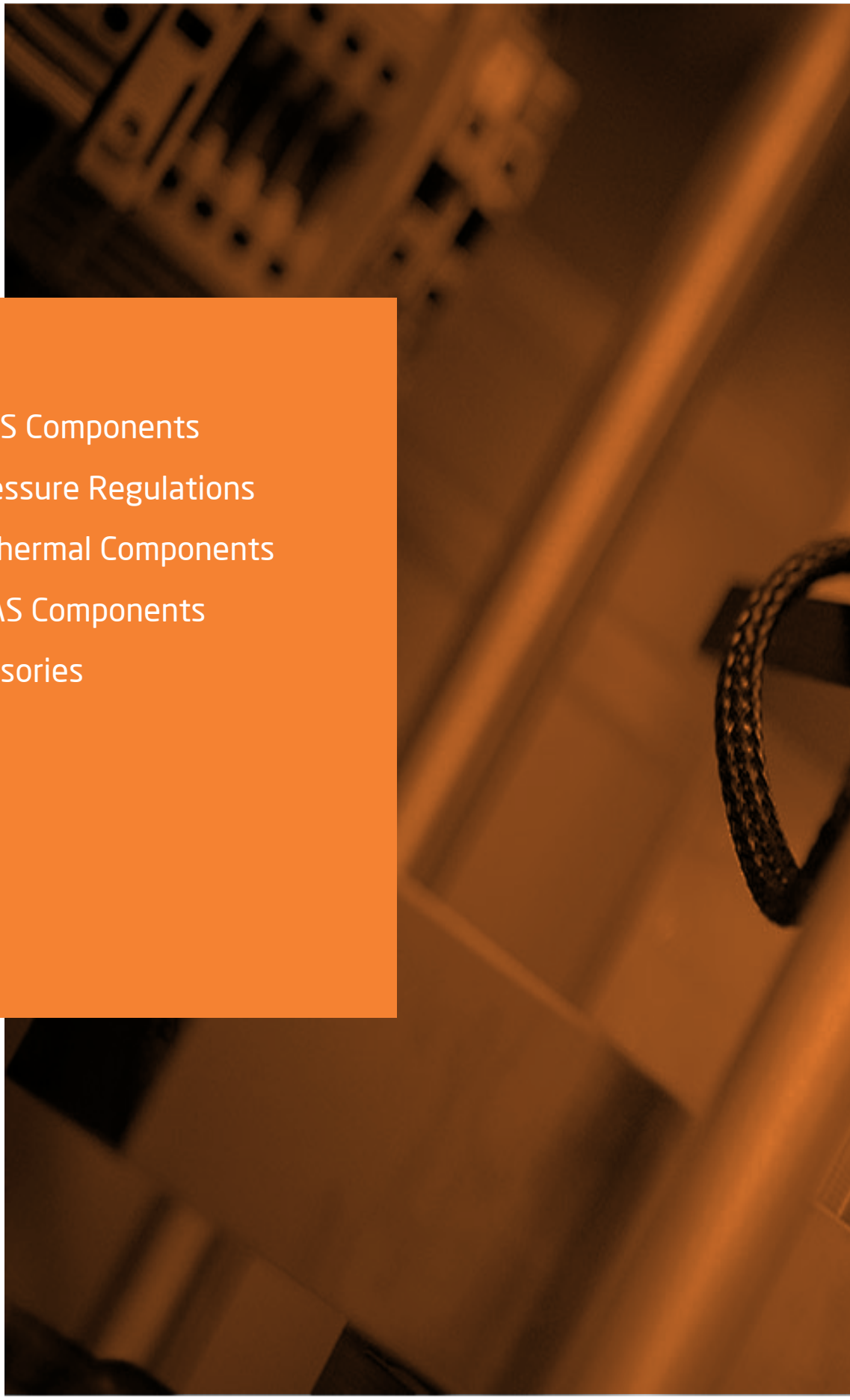
75x40 mm MS, ISMC C-Channel for Base
Duly powdered coated finished
Color: RAL 7035
Canopy : 1600(W) x 900(D) mm, 1.5mm thickness, MS Sheet steel
Mounting Plate: 1.5mm thickness, MS sheet Steel
Overall Dimension: 2100(H) x 1200(W) x 600(D) mm
All dimensions are subjected to the tolerance of ±5mm.
Over All weight: approximately 200 kg.

ADDITIONAL ACCESSORIES

Accessories	Model No.	Description	Qty
Auto changeover regulator	ACR1	Axis Standard Model	1 No.
	COM-1 COM-2B COM-2P	GO (Custom make)	
	KCA KCM	Swagelok (Custom make)	
	ACS 012 CS-2200 NA-4	Tescom (Custom make)	
Safety Relief Valve	RL3A	Swagelok, I/p pressure:20.6 bar, O/p pressure; 15.5 bar, Set pressure; 0.7 to 15.5 bar	1 No.
Ball Valve	SS-42GS4	Swagelok, 2-way Ball valve with 1/4''O.D. Connection	8 Nos.
Pressure Switch	J 120 Series	UE Makes J 120 Series, suitable to Hazardous and Safe area	1 No.
Bullnose connector		Axis Standard	8 Nos.
Cylinder chain		Axis Standard	8 Nos.
Common headers		Axis Standard, 3/4'' Headers connection	1 No.
Bank Arrangement		In each bank 2,4,6 Nos. Cylinders shall be available as per requirements	1 No.

2

PRODUCT
Solutions



- Amison | GAS Components
- Tyfoon | Pressure Regulations
- Snowind | Thermal Components
- Baspa | SWAS Components
- Panel Accessories

AMISON
GAS Components

Sample Gas Probe
SGP1

Heated Probe

Unheated Probe

FEATURES

- Used in Gas Analyser Conditioning
- Stainless steel Construction
- Optional Calibration / Pulsating Purge Port
- Flange Mount
- Probe Temperature more than 130°C / 180°C
- Low Temperature Alarm
- Dust & Water Protected

ADVANTAGES

- Economical
- Ease of Maintenance & Operation
- Outdoor and Indoor application
- Replacement of filter element without any tool
- Less Volume & Fast Response time

DESCRIPTION

In any sample gas conditioning, the sample take off point is very challenging part between process and sample conditioning system. Hence the AXIS sample gas probe SGP1 is specifically designed for this harsh and robust environment with competitive cost.

Reliable and long term operation of any process analyser depends upon the efficiency of the sample conditioning system for which dust, solid particulate and moisture free sample gas is essential.

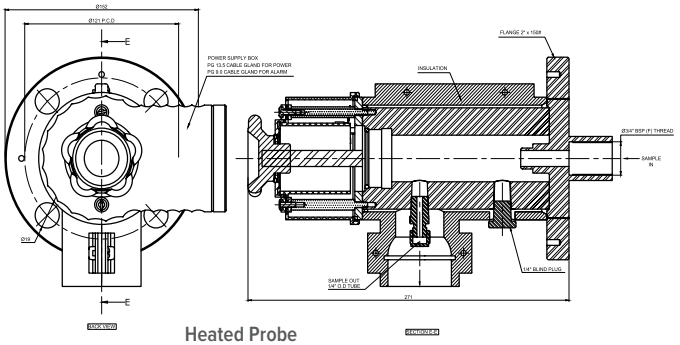
SGP1 is equipped & designed with efficient variable filters by removing aerosols, dust content and humidity by ensuring the security of analyser as well as further sample conditioning system.

The main application of SGP1 is to extract the gas for analysis in Continuous Monitoring and Emissioning System. SGP1 ensures easy mounting and installation, safe operation and trouble free maintenance

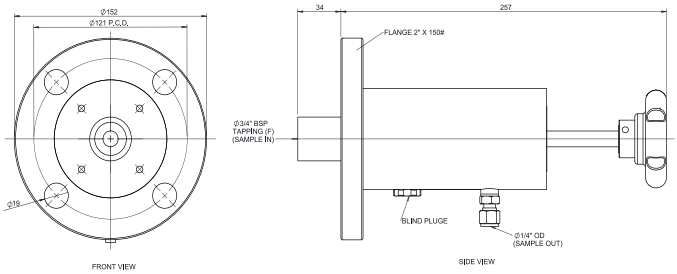
Internal filter element can be changed without any tool and disassembling of the sample lines. The complete filter assembly is removed from the probe head side. This makes simpler to check the filter element & gasket condition.

The SGP1 heated probe power supply can be in either 110 VAC or 230 VAC as per customer requirement. There is no temperature control requires as self regulating heater is present. The separate thermostat provided for low temperature monitoring. For Electrical connection to SGP1, separate Junction box is provided

DIMENSION DETAILS



Heated Probe



Unheated Probe

All Dimension are in MM

ORDERING INFORMATION

SGP1								9	Description
	Type of Probe								
	0								Unheated
	1								Heated
		Power Supply							
		0							None for unheated probe
		1							110 VAC, 50 Hz
		2							230 VAC, 50 Hz
		3							110 VAC, 60 Hz
		4							230 VAC, 60 Hz
			SS 316 Flange Size						
			0						2'' 150#
			1						Others
				Type of filter Element					
				0					SS 316 Pleated
				1					SS 316 Sintered
				2					Ceramic
				Probe Extension 3/4" Dia. (SS 316) Pipe length					
					0				1000 mm
					1				1500 mm
					2				Others
						Retention Rate			
						0			0.5 Micron (Note 1)
						1			5 Micron (Note 2)
						2			10 Micron (Note 3)
						3			0.3 Micron (Note 4)
							Probe Heating / Self Regulation		
							0		130°C
							1		180°C

Note 1 : 0.5 Micron with SS 316 Sintered Filter.
Note 2 : 5 Micron with All Types.
Note 3 : 10 Micron with SS 316 Pleated
Note 4 : 0.3 Micron with Ceramic Filter

TECHNICAL SPECIFICATION

General	Mounting Angle	5° - 15° recommended
	Mounting	Flange
	Sample	Flue Gas or process gas
	Weight	Approx. 8 Kg
Material	Probe Flange	SS 316
	Probe Body	SS 316
	Probe Filter	SS 316 Pleated, SS 316 Sintered, Ceramic (Optional)
Connections	Sample Gas Inlet	3/4'' BSP (F)
	Sample Gas Outlet	1/4'' OD
	Purge port	1/4'' NPT (F) (Optional)
Electrical*	Power Supply	110 VAC or 230 VAC, 50 or 60Hz
	Probe heating	More than 130°C / 180°C
	Ready for Operation	after 45-60 min
Functionality	Sample pressure	Max. 6 bar
	Dust Load	2 gram / Nm^3
	Ambient Temperature	0°C to + 80°C
	Low Temperature Alarm	< 120°C (Optional)
	Filter Chamber Volume	Approx. 28.27 cm^3
	Filter Porosity	0.3, 0.5, 5, 10 Micron

Note : (*) This will not be applicable in Unheated Probe.

SPARE / ACCESSORIES

Description	Part No.	Quantiy
10µ, SS 316 Pleated Filter	ASPL4406	1 No.
0.5µ, SS 316 Sintered Filter	ASPL8664	1 No.
5µ, SS 316 Sintered Filter	ASPL6157	1 No.
Left-Right insulation Cover	ASPL4734	1 Set.
Top-Cover	ASPL4807	1 No.
Filter Knob	ASPL5047	1 No.
0.3µ, Ceramic Filter	ASPL9393	1 No.
5µ, Ceramic Filter	ASPL1343	1 No.
5µ, SS 316 Pleated Filter	ASPL4405	1 No.
SS fittings: 1/4''OD x 1/4''NPT (M)	ASPL0111	1 No.
PG13.5 Cable Gland	ASPL2003	1 No.
PG 11.0 Cable Gland	ASPL0189	1 No.
5µ, SS 316 Pleated Filter	ASPL4405	1 No.

Ex-Proof Sample Gas Probe
PROBEX

PROBEX

FEATURES

- Used in Analyser Gas Conditioning
- Stainless Steel construction
- Optional Pulsating Purge Port
- Flange Mount
- Various flange size and probe Ext. Tubes sizes are optional
- Optimum operational reliability
- Self-limiting up to 120°C
- Used in Zone 2 , IIC hazardous area

ADVANTAGES

- Economical
- Ease of Maintenance & Operation
- Outdoor and indoor application
- Replacement of filter element without any Tools.
- Less Volume & Fast Response time

DESCRIPTION

In any sample gas conditioning, the sample take off point is very challenging part between processes and sample conditioning system. Hence the Axis PROBEX sample gas probe is specifically designed for this harsh and robust hazardous environment with competitive cost.

Reliable and long term operation of any process analyser depends upon the efficiency of the sample conditioning system for which dust , solid particulate and moisture free sample gas is essential.

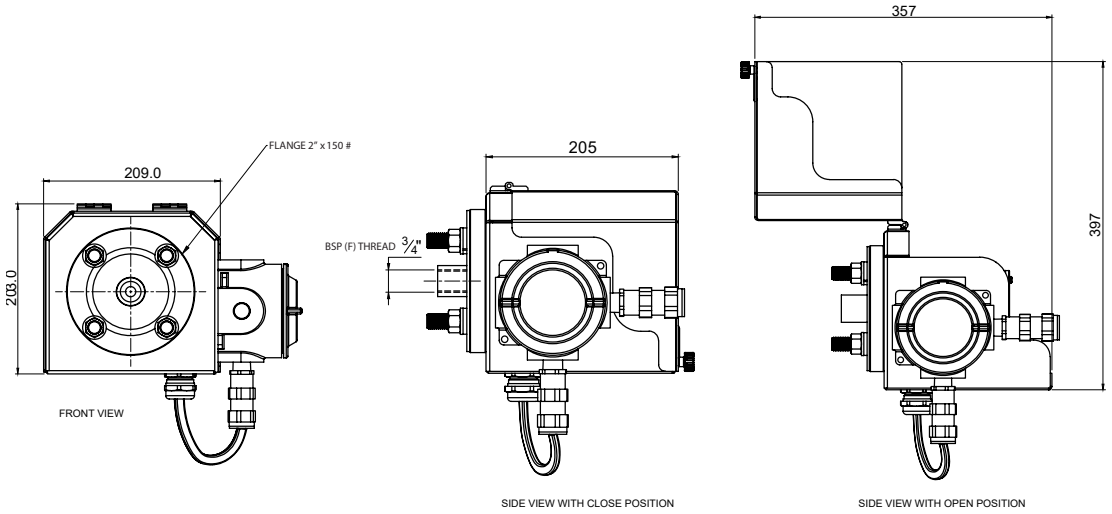
PROBEX is equipped & designed with efficient variable filters by removing aerosols, dust content and humidity by ensuring the security of analyser as well as further sample conditioning system.

The main application of sample gas probe is to extract the gas for analysis in Continuous Monitoring and Emissioning System. Axis PROBEX ensures easy mounting and installation, optimum operation and trouble free maintenance.

To change the external filter element needs no tools and no disassembling of the sample lines. The complete filter assembly is removed out at the probe head side. This make simpler to check the filter element & gasket condition.

The PROBEX heated probe power supply can be in any of 110 VAC and 230 VAC. No thermostat or temperature limiters are necessary. For electrical connection provides separate Flame proof Junction box suitable for operation in Zone 2, IIC hazardous area provided.

DIMENSION DETAILS



All Dimension are in MM

ORDERING INFORMATION

PROBEX1						9	9	Description
	Power Supply							
	1							110 VAC, 50 Hz
	2							230 VAC, 50 Hz
		SS 316 Flange Size						
		0						2'' 150#
		1						Others
			Type of filter Element					
			0					SS 316 Pleated
			1					SS 316 Sintered
			2					Ceramic
				Probe Extension 3/4" Dia. (SS 316) Pipe length				
				0				1000 mm
				1				1500 mm
				2				Others
					Retention Rate			
					0			0.5 Micron (Note 1)
					1			5 Micron (Note 2)
					2			10 Micron (Note 3)
					3			0.3 Micron (Note 4)

Note 1 : 0.5 Micron with SS 316 Sintered Filter.
Note 2 : 5 Micron with All Types.
Note 3 : 10 Micron with SS 316 Pleated
Note 4 : 0.3 Micron with Ceramic Filter

TECHNICAL SPECIFICATION

General	Mounting	Flange
	Mounting Angle	5° - 15° recommended
	Dimensions	397 X 209 X 205 (HxWxD)
	Sample	Flue Gas or process gas
	Weight	Approx. 11 kg
Material	Probe Flange	SS 316
	Probe Body	SS 316
	Probe Filter	SS 316 Pleated, SS 316 Sintered Ceramic (Optional)
Connections	Probe	2" 150 As per ANSI B16.5 flange (Other on request)
	Sample Gas Inlet	3/4" BSP (F)
	Sample Gas Outlet	1/4" NPT (F)
	Filter Purge Port	1/4" NPT (F) (Optional)
Electrical	Power Supply	110 VAC or 230 VAC, 50 Hz
	Power Heating	Self-regulating up to +120°C
	Ready for Operation	after 45 - 60 minute
Functionality	Sample Pressure	Max. 6 bar
	Dust Load	2 gram/ Nm^3
	Ambient Temperature	0°C to 80°C
	Media Temperature	Max. 140°C
	Filter Chamber Volume	Approx. 28.27 cm3
	Filter Porosity	0.3, 0.5, 5, 10 Micron

SPARE / ACCESSORIES

Description	Part No.	Quantity
SS fittings: 1/4'' OD x 1/4'' NPT (M)	ASPL0111	1 No
Ex d, IIC, FLP JB	ASPL5227	1 No.
BNP DC, Ex d, IIC Cable Gland	ASPL0696	1 No.
5µ, SS 316 Pleated filter	ASPL4405	1 No.
10µ SS 316 Pleated filter	ASPL4406	1 No.

SPARE / ACCESSORIES

Description	Part No.	Quantity
5µ SS 316 Sintered Filter	ASPL6157	1 No.
10µ SS 316 Sintered Filter	ASPL6158	1 No.
0.3µ, Ceramic Filter	ASPL9393	1 No.
5µ, Ceramic Filter	ASPL1343	1 No.
5µ, SS 316 Pleated Filter	ASPL4405	1 No.

Blow Back Sample Gas Probe
SGP1-BB

SGP1-BB

FEATURES

- Used in Gas Analyser Conditioning
- Stainless steel Construction
- Optional Calibration / Optional Auto Blowback
- Flange Mount
- Probe Temperature more than 130°C
- Low Temperature Alarm
- Smart Programmable Blowback Controller
- Dust And Water Protection

ADVANTAGES

- Economical
- Ease of Maintenance & Operation
- Outdoor and Indoor application
- Replacement of filter element without any tool
- Less Volume & Fast Response time

DESCRIPTION

In any sample gas conditioning, the sample take off point is very challenging part between process and sample conditioning system. Hence the AXIS sample gas probe SGP1-BB is specifically designed for this harsh and robust environment with competitive cost.

Reliable and long term operation of any process analyzer depends upon the efficiency of the sample conditioning system for which dust , solid particulate and moisture free sample gas is essential.

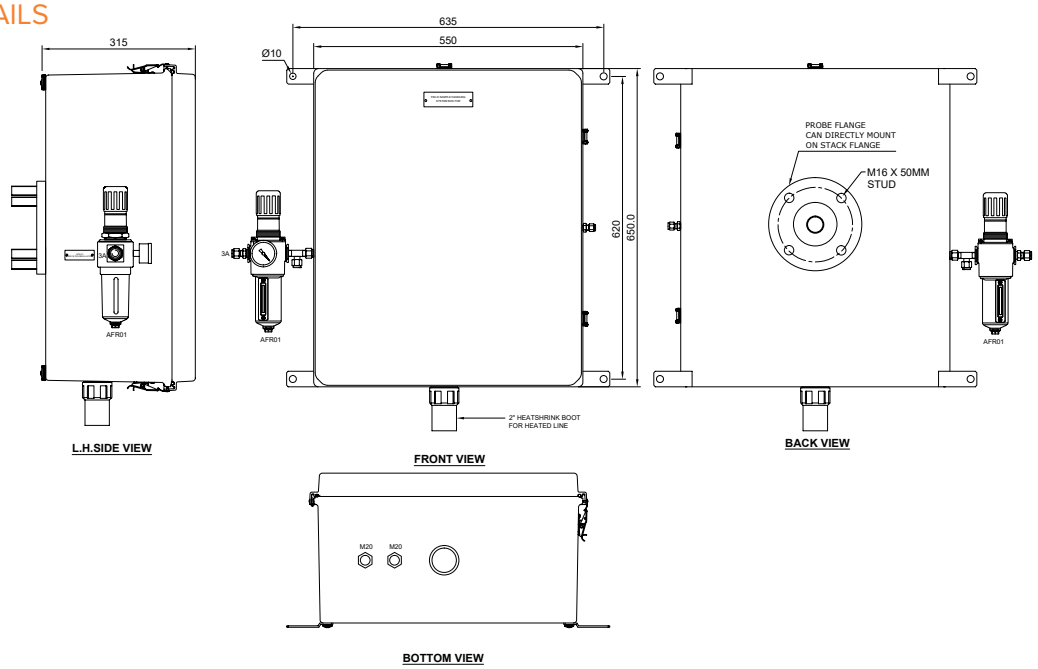
SGP1-BB is equipped & designed with efficient variable filters by removing aerosols, dust content and humidity by ensuring the security of analyzer as well as further sample conditioning system.

The main application of SGP1-BB is to extract the gas for analysis in Continuous Monitoring and Emissioning System. SGP1 ensures easy mounting and installation, safe operation and trouble free maintenance

Internal filter element can be changed without any tool and disassembling of the sample lines. The complete filter assembly is removed from the probe head side. This makes simpler to check the filter element & gasket condition.

The SGP1-BB heated probe power supply can be in either 110 VAC or 230 VAC as per customer requirement. There is no temperature control requires as self-regulating heater is present. The separate thermostat provide for low temperature monitoring. For electrical connection to SGP1, separate Junction box is provided

DIMENSION DETAILS



All Dimension are in MM

ORDERING INFORMATION

SGP1									Description
	Type of Probe								
	1								Heated
		Power Supply							
		0							None for unheated probe
		1							110 VAC, 50 Hz
		2							230 VAC, 50 Hz
			SS 316 Flange Size						
			0						2'' 150# RF
			1						Others
				Type of filter Element					
				0					SS 316 Pleated
				1					SS 316 Sintered
				2					Ceramic
				Probe Extension 3/4" Dia. (SS 316) Pipe length					
					0				1000 mm
					1				1500 mm
					2				Others
					Retention Rate				
					0				0.5 Micron (Note 1)
					1				5 Micron (Note 2)
					2				10 Micron (Note 3)
					3				0.3 Micron (Note 4)
						Type Of Air Accumulator			
						0			5.5 Ltr
						1			3.3 Ltr
							PLC		
							0		Without PLC
							1		With PLC

TECHNICAL SPECIFICATION

General	Mounting Angle	5° - 15° recommended
	Mounting	Flange
	Sample	Flue Gas or process gas
	Weight	Approx. 8 Kg
	Dimension (protective case)	(H) 650 X (W) 550 X (D) 315
Material	Probe Flange	SS 316 (45°,135°,225°,315°)
	Probe Body	SS 316
	Probe Filter	SS 316 Pleated, SS 316 Sintered, Ceramic (Optional)
	Protective case	Fiberglass
Connections	Sample Gas Inlet	3/4'' BSP (F)
	Sample Gas Outlet	1/4'' NPT (F)
	Purge port	1/4'' NPT (F) (Optional)
Electrical	Power Supply	110 VAC or 230 VAC, 50 Hz
	Probe heating	more than 130°C
	Ready for Operation	after 45-60 min
Functionality	Sample pressure	Max. 6 bar
	Dust Load	2 gram / Nm^3
	Ambient Temperature	0°C to + 80°C
	Media Temperature	Max. 140°C
	Low Temperature Alarm	< 120°C (Optional)
	Filter Chamber Volume	Approx. 28.27 cm^3
	Filter Porosity	0.5, 5, 10 Micron
	Operating Ambient temperature (protecting case)	-20 to +55°C (IP66)

Note 1 : 0.5 Micron with SS 316 Sintered Filter.
Note 2 : 5 Micron with All Types.
Note 3 : 10 Micron with SS 316 Pleated
Note 4 : 0.3 Micron with Ceramic Filter

SPARE / ACCESSORIES

Description	Part No.	Quantiy
SS fittings: 1/4''OD x 1/4''NPT (M)	ASPL0111	1 No.
PG13.5 Cable Gland	ASPL2003	1 No.
PG 11.0 Cable Gland	ASPL0189	1 No.
5µ, SS 316 Pleated Filter	ASPL4405	1 No.
0.5µ, SS 316 Sintered Filter	ASPL8664	1 No.
5µ, SS 316 Sintered Filter	ASPL6157	1 No.
Left-Right insulation Cover	ASPL4734	1 No.
Electric Top-Cover	ASPL4807	1 No.
2/2 Way Solenoid Valve, AC230V/50Hz	ASPL0687	1 No.
Blow back smart controller, AC110-240V	VH-24MR	1 No.
Acid Stopper, SS 316	ASPL8570	1 No.
Filter Knob	ASPL5047	1 No.
0.3µ, Ceramic Filter	ASPL9393	1 No.
5µ, Ceramic Filter	ASPL1343	1 No.
5µ, SS 316 Pleated Filter	ASPL4405	1 No.

Dilution Probe
DP-1

DP-1

FEATURES

- Low cost- Installation , operation and Maintenance
- No moving parts
- Excellent corrosion resistance

ADVANTAGES

- Low flow rate give longer filter life
- Used in high temperature sample line
- Used in Hazardous Environment
- No requirement for heated
- sample line Sample pump is not required if distance less than 90 meter.

TECHNICAL SPECIFICATION

General	Mounting	Flange mounting
	Dimension	Ø30 mm - 350 mm L
	Dilution and sample outline	1/4" OD
	Vacuum and calibration lines	1/8" OD
	Body	SS-316
	Dilution sample line	1/4" OD
	Vacuum line	1/4" OD
	Calibration line	1/4" OD
	Sample line	1/4" OD
	Mounting Arrangements	Flange connection
Material	Body	SS-316
	Orifice	Glass (Up to 200°C) Metal (Up to 600°C)

DESCRIPTION

The AXIS Dilution Probe unit is used in analytical technology for processes in which the meas¬uring method or the handling of the process gas or stack gas requires dilution of the measuring gas.

The Dilution probe is helpful to measure the sample from the process or stack. It has four different functions to prepare the sample coming from the stack, so it can be measured precisely by the analyzer.

The dilution probe uses an air-driven aspirator that extracts samples from the stack or process. After extraction, the sample passes through the coarse filter, fine filter, and orifice which is made from glass or metal, and finally diluted with the air from the aspirator. This aspiratory process now reduced the dew point of the sample to near the ambient temperature. It prepares the sample for measurement. It can be transported sample up to 90 feet away without heating.

Dilution Probe Controller
DPC001

DPC001

FEATURES

- Calibration gas solenoid valves with manual/remote control
- Highly accurate, low maintenance and easy to operate
- Quick and Easy Integration with all type of Dilution Probe
- 19” Rack mount
- Pressure and vacuum gauges for monitoring
- Precision pressure regulator for dilution air control
- Flow meters for sample and calibration gas
- Uncontaminated Material of all the components
- Customizable with other features to meet specific requirements

DESCRIPTION

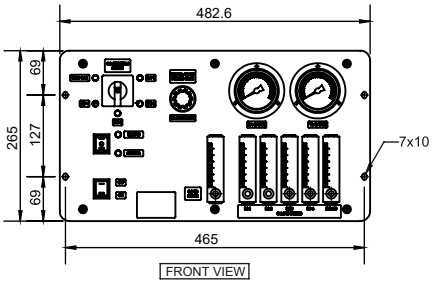
In any power plant measurement of emission gases is very critical and important. In many cases measurement of emission gases stack sample should be diluted by using zero air before supplying to analyzer.

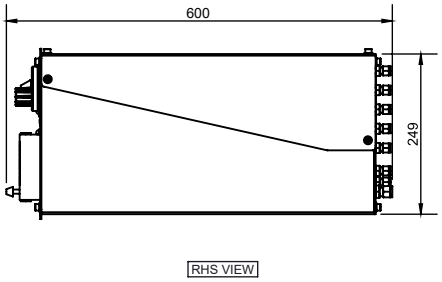
Axis make Dilution Probe controller DPC001 is used with a Dilution probe to measure stack emissions release in coal-fired power plants.

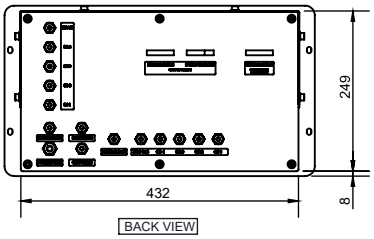
Regulating zero air by pressure regulator controller supplies dilution air to probe. Dilution probe mix the zero air with sample as per dilution ration and supply diluted sample back to the Controller. By help of the flow meter(s) with needle valve controller will supply diluted sample to Analyzer(s) as per its requirement. Vacuum gauge is fitted in controller to monitor the condition of Dilution probe.

Axis make Dilution probe controller offers up to five calibration gas selection by manual rotary switch or remote contacts.

DIMENSION DETAILS







All Dimension are in MM

TECHNICAL SPECIFICATION

Power requirements	115/230VAC 50/60 HZ (specify when ordering)
Power Consumption	200 W max.
Operating Temperature	10 - 40 °C
Maximum Humidity	90 % RH
Mounting	19" Rack mount
Dimensions	482 x 265 x 600 mm
Weight	15 kg Approx.
Dilution Air Pressure Range	1 to 5 barg
Dilution Air Flow rate	up to 10 l/m (Depends on probe flow rate)
Enclosure Material	MS CRCA with Powder coating
Pressure Gauge	SS304
Flow Meter	Acrylic body with SS float
Internal Tubing	PTFE Teflon
Pressure Regulator	Aluminum Alloy
Operating Connection	Instrument Air inlet
	Cal. Gas inlet (up to 5)
	Dilution air outlet to Probe
	Cal. Gas outlet to Probe
	Diluted sample inlet from probe
	Vacuum line inlet from probe
	Diluted sample outlet to Analyzer bank
Remote Controls	Control of Cal. Gas Selection for up to 5 Gas (including Zero)

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Sample Gas Filter
SGF1

FEATURES

- Used in analyser gas conditioning
- Used as a volume chamber also
- Optional condensate drain port
- Optional moisture detector port
- Wall mount

ADVANTAGES

- Ease of maintenance
- Housing options available
- Compatible with Hot & Acidic Gases
- Folded Construction
- Filter element can be replaced without help of any tool
- More surface area for fast response

DESCRIPTION

Reliable and long term operation of any process analyzer depends upon the efficiency of the sample conditioning system for which dust, Solid particulate and moisture free sample gas is essential.

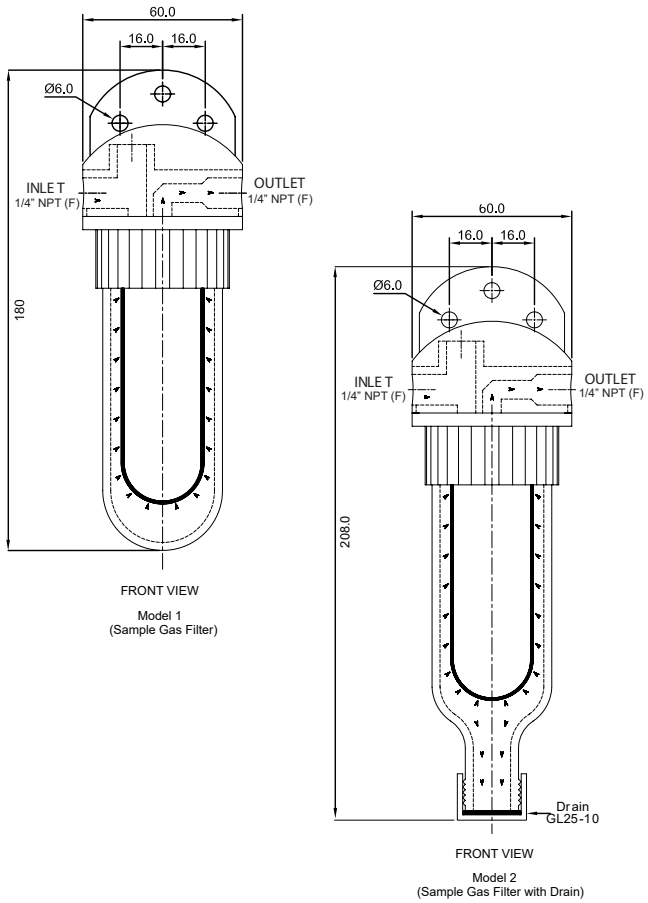
SGF1 are equipped with efficient filter to provide dust, solid particulate and moisture free sample gas by ensuring security of the analyser.

The folded construction of the filter and compatibility of the design filter components like filter top, filter element and filter glass body designed such way to ensure easy mounting and trouble free / tools less maintenance.

Where application is critical like analysis of hot & acidic gases quartz based filter element can be used.

This filter can be used as separators (Without a filter element), liquid filters and absorption cartridge. Can be used as absorption filter.

DIMENSION DETAILS



All Dimension are in MM

TECHNICAL SPECIFICATION

General	Mounting	Wall
	Dimension	60 mm (Ø) x 180 mm (L) (Model 1), 60 mm (Ø) x 208 mm (L) (Model 2)
	Sample	Gas
Connection	Sample Gas Inlet	1/4" NPT(F)
	Sample Gas outlet	1/4" NPT(F)
	Moisture detector	1/4" NPT(F)
	Drain	GL25-10 (For model 2)
Material	Filter Top	PVDF (SS 316 on request)
	Filter body	Glass (Teflon, SS 316 on request)
	Filter Element	Glass micro fiber / Quartz based
Functionality	Pore Size	Less than 2 micron
	Surface Area	79cm2
	Ambient or media Temp	80°C (Max.)
	Pressure	Upto 4 bar (Max.)

ORDERING INFORMATION

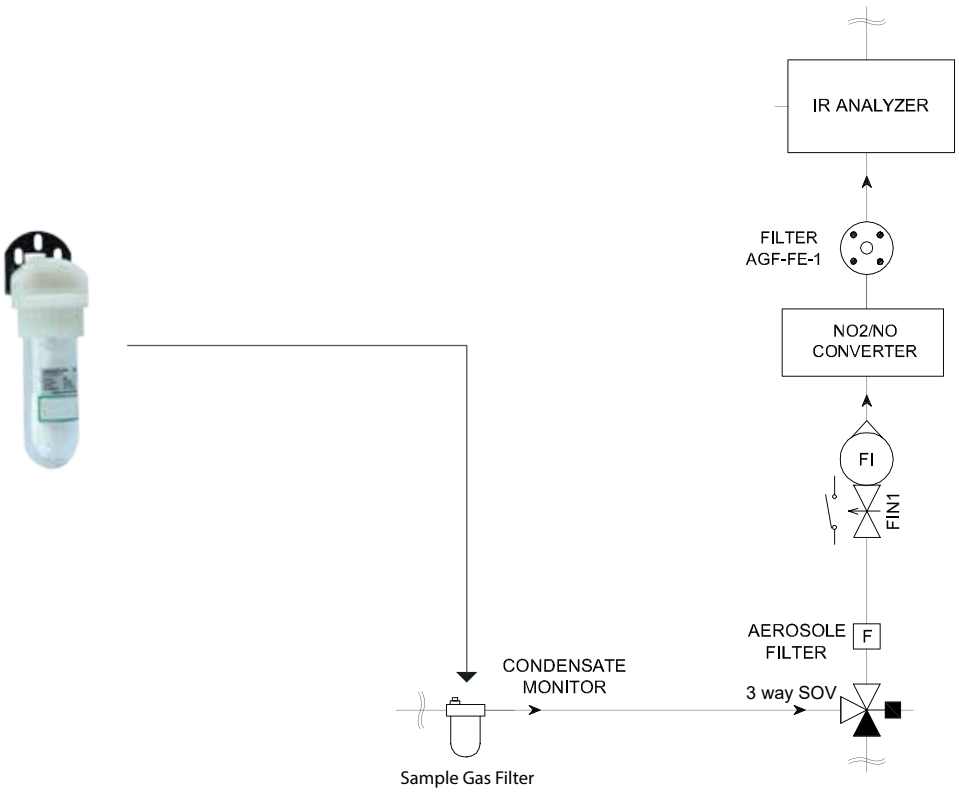
SGF1							
	Filter Top Material						
	0						PVDF
	1						SS 316 (Note)
		Filter Body Material					
		0					Glass
		1					Teflon
		2					SS 316 (Note)
			Type of Filter				
			0				With Filter Element
			1				Without Element (As a Volume Chamber)
				Filter Element			
				0			Without Element
				1			Glass micro fibre
				2			Quartz based
					Condensate Port		
					0		Without
					1		with

Note: SS 316 Filter top design only with SS 316 Filter body

SPARE / ACCESSORIES

Description	Part No.	Qty.
Glass micro Fiber element (1 pkt=5nos.)	ASPL3393	1 pkt
Glass micro fiber element (1 pkt=25 nos.)	ASPL3487	1 pkt
Filter Element: Quartz based	ASPL 3394	1 No.
Flat-Ring Filter Head	ASPL3395	1 No.
Flat Ring-Element holder	ASPL3533	1 No.
Moisture Detector	41111000	1 No.
Glass Bowl	ASPL 3390	1 No.
Teflon Bowl with drain	ASPL 3395	1 No.
S.S Bowl	ASPL3392	1 No.
Mounting Clamp	ASPL3396	1 No.
Teflon Bowl	ASPL3391	1 No.

APPLICATION DIAGRAM



Sample Gas Filter
SGF2

SGF2

FEATURES

» Panel installation
» Used in analyser gas conditioning
» Large surface area

ADVANTAGES

» Ease of maintenance
» Easy element replacement
» Can be open without tools

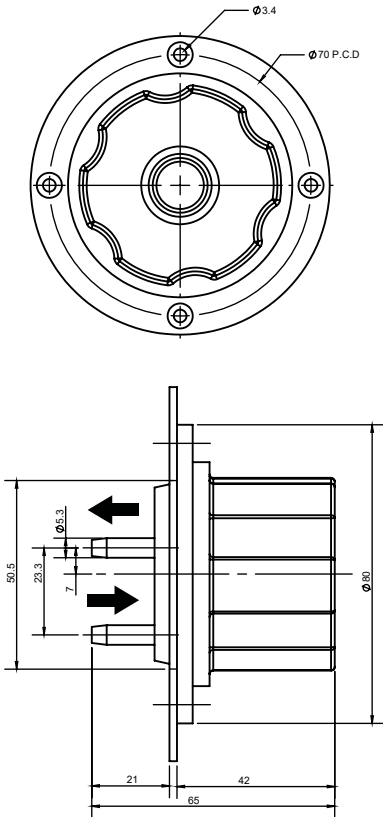
DESCRIPTION

In the portal analysis system sample must be free from dust and contamination. Consistent and long term operation of any process analyzer depends upon sample conditioning system which must be free from dust and solid particulate.

The conditioning system must be light weight and compact that is why require small components. Axis brings special filter housing (SGF-2) for these kind of applications, also installed in 19" rack system.

This SGF-2 is screw into the front panel and sample connections at the back side. Easy to remove or replace filter element when required.

DIMENSION DETAILS



All Dimension are in MM

TECHNICAL SPECIFICATION

General	Mounting	Panel
	Dimension	80 mm (Φ) X 65 MM (L)
	Sample	Gas
Connection	Sample in	DN 4/6
	Sample out	DN 4/6
Material	Top cover	Poly carbonate
	Bottom cover	Poly carbonate
	Filter	Microfiber
Functionality	Pore size	Less than 2 micron
	Surface area	39.6 cm2
	Ambient or media temp	80°C
	Max operating pressure	2 bar

SPARE / ACCESSORIES

Description	Part No.	Qty.
Micro fiber filter (2µ) (1 pkt = 5 nos)	41150010	1 No.

Sample Gas Coalescing Filter
SGCF1

SGCF1

FEATURES

- Used in analyser gas conditioning
- Wall mount
- Condensate drain port

ADVANTAGES

- Ease of maintenance
- Folded Construction
- Filter element can be replaced without help of any tool
- High-quality filtration
- Compatible with Hot & Acidic Gases

DESCRIPTION

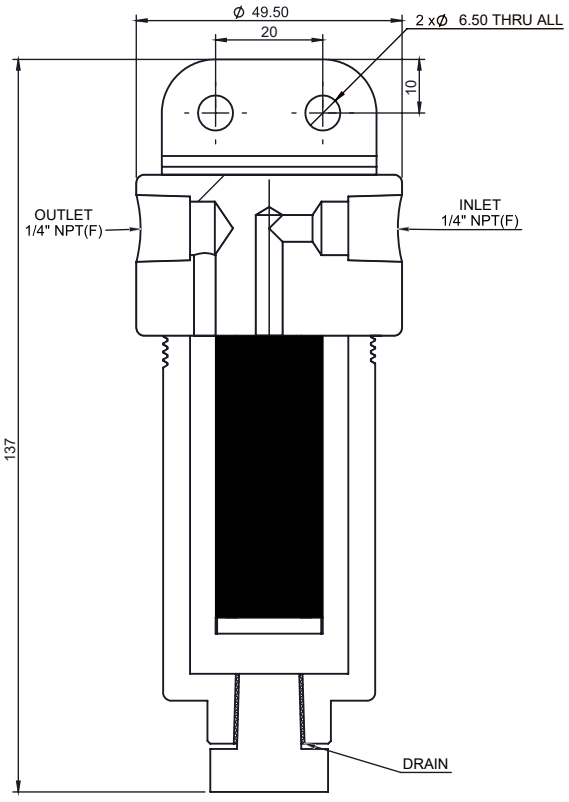
Reliable and long term operation of any process analyzer depends upon the efficiency of the sample conditioning system for which dust, Solid particulate and moisture free sample gas is essential.

Sample gas Coalescing Filter (SGF1) are equipped with efficient filter to filter out liquid aerosols and to drain out the water droplets.

Any Liquid aerosols or droplets are caught within the fine inner layer eventually accumulating to the extent that they are forced to the outer layer of the filter element and drain out through the drain port

The folded construction of the filter and compatibility of the design filter components like filter top, filter element and filter body designed such a way to ensure easy mounting and trouble free maintenance.

DIMENSION DETAILS



All Dimension are in MM

TECHNICAL SPECIFICATION

General	Mounting	Wall
	Dimension	49.50 mm (Ø) x 137 mm (L)
	Sample	Gas
Connection	Sample Gas Inlet	1/4" NPT(F)
	Sample Gas outlet	1/4" NPT(F)
	Drain	1/4" NPT(F)
Material	Filter Top	SS 316
	Filter body	SS 316
	Filter Element	PVDF Binder
Functionality	Filtration	0.01 micron
	Pressure	300 Kg/cm^2

Aerosol Filter
AF1

AF1

FEATURES

» Economical
» Light in weight
» No maintenance
» Easy for installation

ADVANTAGES

» Secure protection against condensate & dust
» Less process drop
» Highly reliable in continuous operation
» Corrosive resistive material

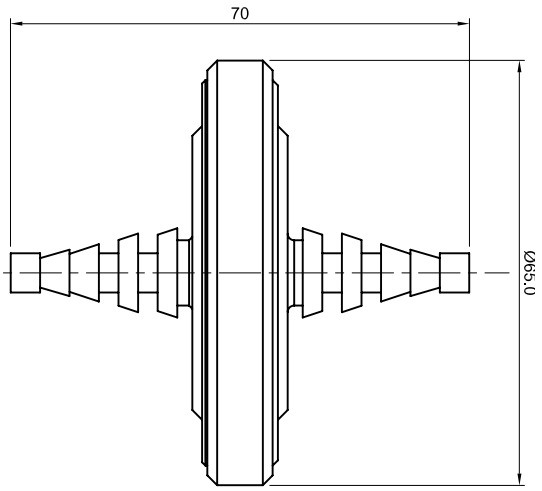
DESCRIPTION

Reliable and long term operation of any process analyser depends upon the efficiency of the sample conditioningSystem for which dust, Solid particulate and moisture free sample gas is must essential.

Axis AF1 is equipped with efficient filter to provide dust, solid particulate and moisture free sample gas by ensuring security of the analyser. It is not reusable filter. When it is exhausted with severe contamination outlet of filter will be very less or negligible means no flow at outlet. If this condition occurs means it is time to replace the new filter.

It is widely used in Gas Analysis System (GAS), waste water incineration plants, biogases plants, ambient monitoring systems, Cement, Glass, Steel as well as paper industries. It is not recommended to use in aromatic hydrocarbons means oils and fuels in refinery process gases.

DIMENSION DETAILS



FRONT VIEW

All Dimension are in MM

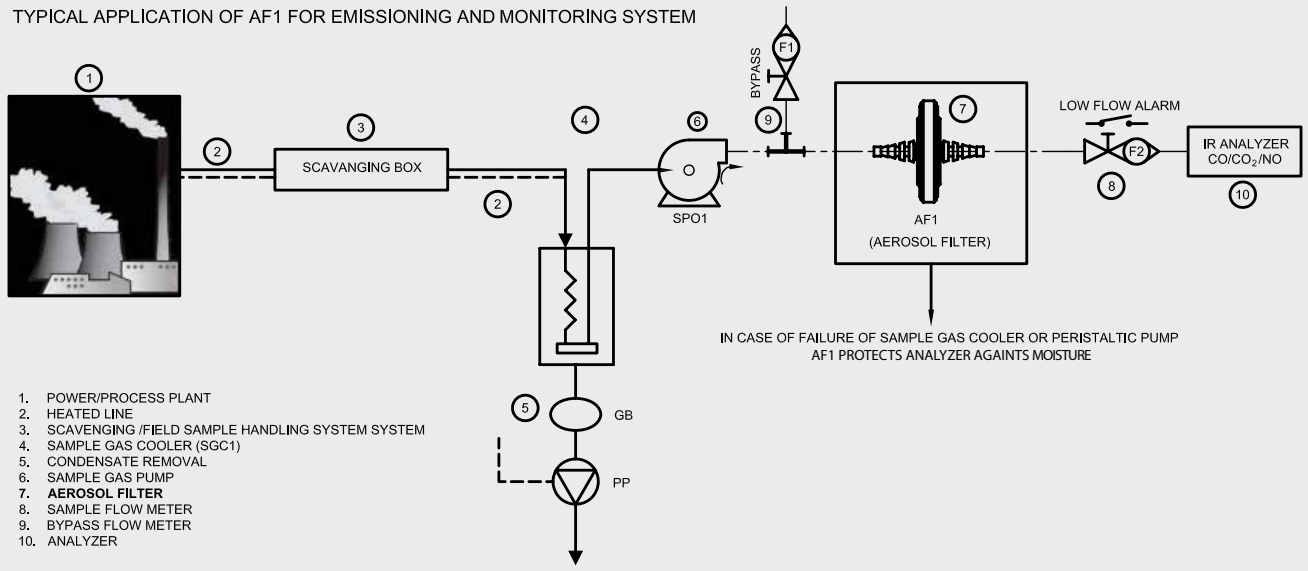
TECHNICAL SPECIFICATION

General	Mounting	Horizontal or Vertical
	Dimensions	65 mm x 70 mm (L)
	Sample	Flue Gas / Stack Gas
	Material	PVDF
	Weight	Approx. 30 gm
Connections	Sample Gas Inlet & Outlet	6 mm stepped house
Functionality	Media temperature	Up to 80°C
	Ambient Temperature	0°C - 50°C
	Pressure	Max. 2 Bar
	Flow Rate	Max. 400 LPH
	Filtration ratio	< 0.2 µm

SPARE / ACCESSORIES

Description	Part No.	Quantiy
Aerosol Filter	AF1	1 No.

APPLICATION EXAMPLE



Glass Wool Filter
GWF1

GWF1

FEATURES

- Ease of maintenance
- Transparent cover for better process visibility
- Light in weight
- Used in analyser gas conditioning

ADVANTAGES

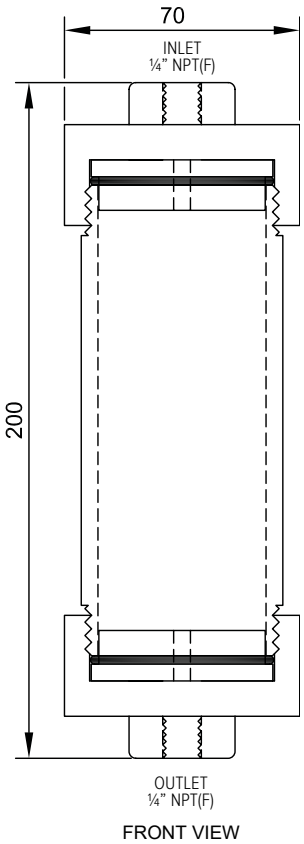
- Cost effective
- User friendly with full & easy service access
- Leak free O-ring seal
- Compact design

DESCRIPTION

Reliable & long term operation of any process analyser depends upon the efficiency of the sample conditioning system for which dust, solid particulate & moisture free sample gas is must essential. Where dust concentration is major problem for analyses of gas, the glass wool filter is the best solutions.

GWF1 is equipped with efficient filter to provide dust and solid particulate free sample gas by ensuring security of the analyser. The folded construction of the filter & compatibility of the designed filter components like end cap (top & bottom), transparent acrylic body and glass wool filter materials ensures ease of mounting & trouble free maintenance.

DIMENSION DETAILS



FRONT VIEW

All Dimension are in MM

TECHNICAL SPECIFICATION

General	Mounting	Wall (Any)
	Dimensions	70 mm Ø x 200mm (L)
	Sample	Flue Gas
Material	Body	Transparent Acrylic
	End cap cover	PPCP
	Seating	Neoprene
	Filter	Glass wool
Connections	Sample Inlet	1/4" NPT (F)
	Sample Outlet	1/4" NPT (F)
Functionality	Temperature	Ambient 50°C (Max)
	Pressure	4 kg/cm2 (Max)
	Volume	270 ml

SPARE / ACCESSORIES

Description	Part No.	Qty.
Glass wool filter	GWF1	1 No.
Glass wool media for GWF1	ASPL3433	1Pkt.
Transparent body covers for GWF1	ASPL3434	1 No.
Neoprene seating for GWF1	ASPL3435	1 Set.
End cover assembly at one side	ASPL3436	1 Set.

Universal Safety Scrubber
USS1

FEATURES

- Compact Design
- Efficient media to remove SO_3 / HF / HCL
- Low maintenance

ADVANTAGES

- Easy media replacement
- No influence on measuring sample compositions
- No moving parts
- Excellent corrosion resistance
- High Disposition rate of 99.99%

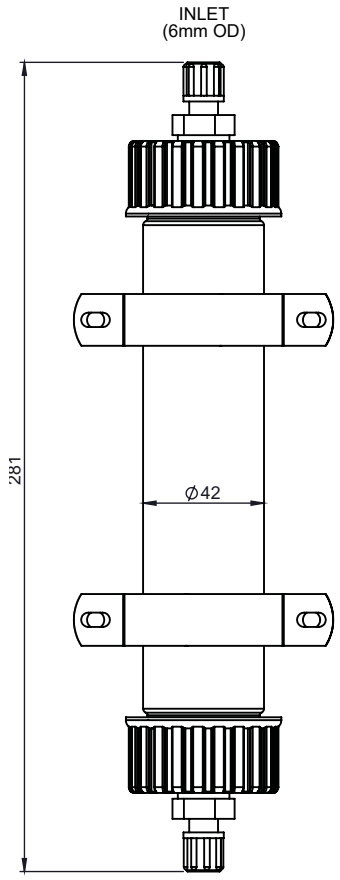
DESCRIPTION

The Axis Universal Safety Scrubber helps to protect analysers from corrosion due to acidic gas stream components, especially Sulphur Trioxide, Hydrochloric Acid, Sulphuric Acid & Hydrofluoric Acid.

The Universal safety scrubber (USS1) can be used in lime fired boiler, coal fired boiler, waste incinerator and many other applications, where SO_3, HF, HCL in certain limits are presents. This can also be installed after cooler which ensures no carryover of acid and increase the life of the downstream components especially sample cell.

USS1 material condition should be checked to ensure the right result of acid removal. Life depends on factors like the presence of aggressive components, flow rate and period till sample pass through the USS1.

DIMENSION DETAILS



FRONT VIEW

All Dimension are in MM

TECHNICAL SPECIFICATION

General	Mounting	Wall & exclusively vertical
	Dimension	Approx. 42mm Ø x 281 mm (L)
	End Connection	6/4 mm OD (inlet & outlet)
Material	Body	Glass , Silicon Compound
	Seal	Neoprene / EPDM
	End Cover	PP
	End Connection	PVDF
Functionality	Sample Pressure	Up to 0.5 Kg/cm^2
	Sample Temperature	Up to 110°C
	Ambient temperature	-20°C to +70°C (Max.)

SPARE / ACCESSORIES

Description	Part No.	Qty.
Scrubber Media	USS1 - R	1 Set
Neoprene Sealing	ASPL3398	1 No.
EPDM Sealing	ASPL3399	1 No.
Glass bowl	ASPL3400	1 No.
Milky white Washer	ASPL6906	1 Set

Inline Filter

IF1

IF1

FEATURES

- Optimum design prevents clogging
- Efficient Filtration
- Stainless steel construction
- Replaceable Sintered elements
- Used where space is a constrain
- Used as a guard filter

ADVANTAGES

- Ease of maintenance
- Improved Sample Quality
- Reduced downtime & cost

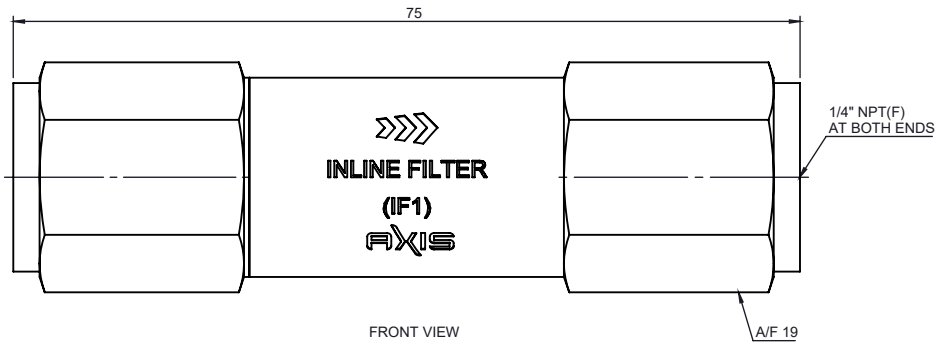
DESCRIPTION

In a Sample Handling System the gas stream must be conditioned to provide particulate and moisture free gas to enter the Analyser.

AXIS Inline Filter provides fine filteration & specifically designed for ease of use, low dead volume and flexibility.

There is a choice of filter elements available to meet the different application parameters can be used as last moment filtration to avoid any unremovable substances, solid sharp particles or final protection device entering into Analyser. Application as a Guard filter is also possible as mentioned.

DIMENSION DETAILS



All Dimension are in MM

TECHNICAL SPECIFICATION

General	Mounting	Any
	Dimensions	74mm (L) x 25.4 (A/C) mm
	Sample	Gas
Material	Body	SS 316
	Element	SS 316 Wire mesh or SS sintered
Connections	Sample Gas Inlet	1/4" NPT (F)
	Sample Gas Outlet	1/4" NPT (F)
Functionality	Working Pressure	5 kg/cm^2 (Max.)
	Temperature	upto 80°C
	Retension Rate	0.2 to 7 micron

SPARE / ACCESSORIES

Description	Part No.	Qty.
2 micron wire mesh element	ASPL3416	1 NO.
0.2 micron SS sintered element	ASPL9070	1 NO.
0.5 micron SS sintered element	ASPL9083	1 NO.
2 micron SS sintered element	ASPL3418	1 NO.
5 micron SS sintered element	ASPL8024	1 NO.
7 micron SS sintered element	ASPL3420	1 NO.

ORDERING INFORMATION

IF1			9	9	9	9	9
	Type of Element						
	0		Wiremesh*				
	1		Sintered				
		Retention rate					
		0	2 Micron				
		1	5 Micron				
		2	7 Micron				
		3	0.5 Micron				
		4	0.2 Micron				

Note : (*) Wiremesh filter element available with 2 micron retention rate only

Demister

FEATURES

- High quality robust design
- Easy Installation
- No Maintenance
- Zero Sample Waste
- Suitable for all type of ambient conditions

DESCRIPTION

Reliable & Long term operation of an Analyzer depends upon efficiency of the Sample conditioning system for which moisture free sample gas is must essential.

Axis Demister cools down the hot sample gas to ambient temperature and condense out the liquid to the source there by ensuring safety with precise performance of the Analyzer.

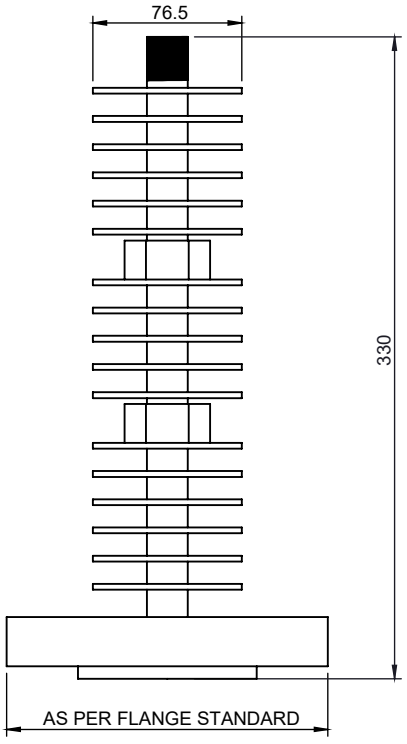
Demister must be mounted vertically at the tapping point.

There is no filter assembly and drain port so no requirement of Maintenance of filter replacement.

TECHNICAL SPECIFICATIONS

Material	SS 316
Dimension	Refer Dimension Details
End Connection	
Inlet	2” 600# RF Flange
	1.5” 600# RF Flange
Outlet	1/2 NPT (M)

DIMENSION DETAILS



All Dimension are in MM

Air Scrubber
ASCR1

ASCR-1019 ASCR-1119 ASCR-1319 ASCR-1419 ASCR-1519

FEATURES

- Compact Design
- Efficient media to remove toxic gases from the air
- Low maintenance
- Non-Toxic
- Non-Hazardous

ADVANTAGES

- Easy media replacement
- No influence on measuring sample compositions
- No moving parts
- Excellent corrosion resistance
- Identification scrubber life by color change

DESCRIPTION

The Axis Air Scrubber helps to protect analyzers from corrosion due to acidic gas stream components, especially NO, NO2, SO2, H2S, HF, O3, VOCs, CO2, CO, etc.

The gas scrubbers can be used to generate zero air where NO, NO2, SO2, H2S, HF, O3, CO2, CO, and VOCs in certain limits are present. This can also be installed after the sample gas cooler which ensures no carryover of acid and increases the life of the downstream components, especially the sample cell.

The Air scrubber media follow the chemisorption process to remove contaminant gasses from the airline. The contaminant's gasses remove through adsorption, absorption & neutralization from the main gas. The targeted hazardous gasses are trapped by chemical beads and converted into harmless by-products which remain in the beads.

Life depends on factors like the presence of aggressive components, flow rate, and period till the sample passes through the Gas Scrubbers.

TECHNICAL SPECIFICATION

General	Mounting	Wall & exclusively vertical
	Dimension	Approx. 40mm Ø x 220 mm(L)
	End Connection	1/4" OD / 1/8" OD/ 3/8" OD
	Line Pressure	< 8=6 kg/cm2
Material	Body	Polycarbonate
	Seal	Neoprene / EPDM
	End Cover	Aluminum** / Polycarbonate*
	End Connection	SS 316** / PVDF*
Functionality	Bulk Density	0.64 -0.68 g/cc
	Moisture content	20-25%
	Ambient temperature	-20°C to +50°C (Max.)
	RH%	10 % - 95 %

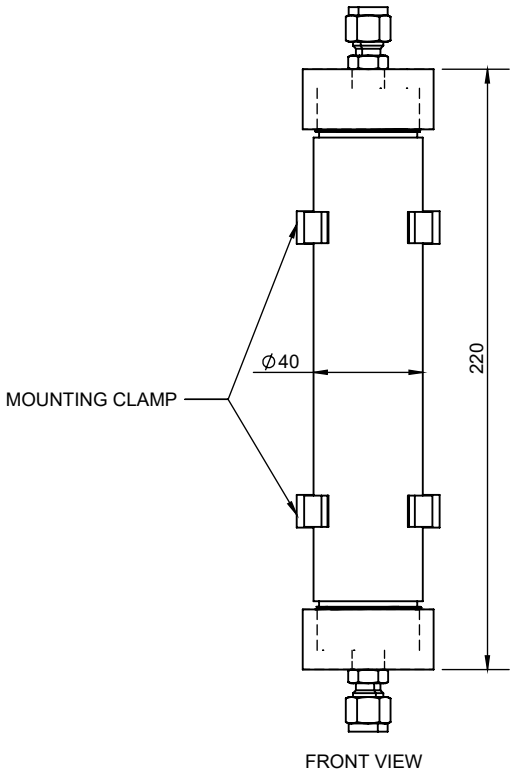
Note : (*) Pressure < 2 kg/cm2

(**) 2kg/cm2 <= Pressure <= 6kg/cm2

ORDERING INFORMATION

ASCR1						
	Gas Remove					
	0					Moisture
	1					SOx, NOx, H2S, HF, O3, VOCs
	2					SOx, H2S, Cl2
	3					NH3
	4					CO
	5					CO2
		End Connection				
		0				1/8" OD
		1				1/4" OD
		2				3/8" OD
		3				Others on request
			End Connection MOC			
			0			PVDF
			1			SS 316
				End Cover		
				0		Polycarbonate
				1		Aluminum

DIMENSION DETAILS



All Dimension are in MM

SPARE / ACCESSORIES

Description	Part No.	Qty.
Bottle	ASPL13659	1 No.
Scrubber media (Moisture)	ASPL12718	AR
Scrubber media (SOx,NOx,H2S, HF, O3, VOCs)	ASPL12719	AR
Scrubber media (SOx,H2S,Cl2)	ASPL12720	AR
Scrubber media (NH3)	ASPL12721	AR
Scrubber media (CO)	ASPL12722	AR
Scrubber media (CO2)	ASPL13660	AR
End Connections	AR	AR

NOx Gas Converter
NGC1

NGC1 (Wall Mount)

NGC1 (19" Rack Mount)

CE RoHS

FEATURES

- High conversion rate > 97%
- External Temperature Controller for easy operation
- Housing option available

ADVANTAGES

- Long life time
- Cost Effective
- Easy replacement of converter cartridge without tools
- Ease of maintenance
- High NO conversion-capability
- 19" Rack Mount available

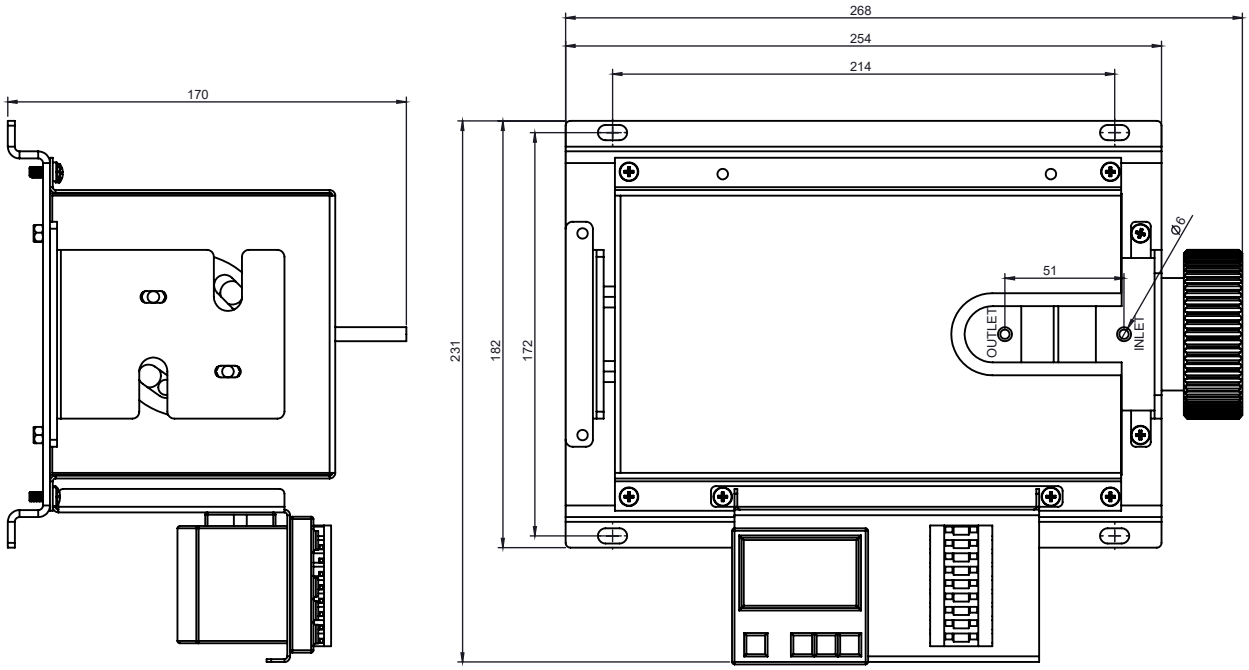
DESCRIPTION

Due to the rising global industrialization the monitoring of exhaust gas is increasingly important. The monitoring of Nitrogen Oxide (NOx) is particular important due to its role in the formation of ground level Ozone and acid rain.

The gas converter module allows an easy and cost effective detection of the NOx components (NO & NO_2). The module converts almost 100% of the NO_2 content of a sample gas to NO by means of the replaceable reactor cartridge. The resulting NO gas is measurable by any commercially available IR-analyzer. The reactor cartridge, designed in cooperation with a research institute, enables the conversion of high NO concentrations at a comparatively low temperature. Interferences from other gases such as CO, CO_2, NO are generally not observed.

Moreover, a lifetime of over 12 months is possible under normal conditions. This leads to an obvious reduction of maintenance costs. The maintenance effort is further minimized through the special reactor fastener on the front panel allowing the replacement of the cartridge without tools. The temperature of the converter is adjustable through an easy-to-handle microcontroller.

DIMENSION DETAILS OF NGC1 WALL MOUNT

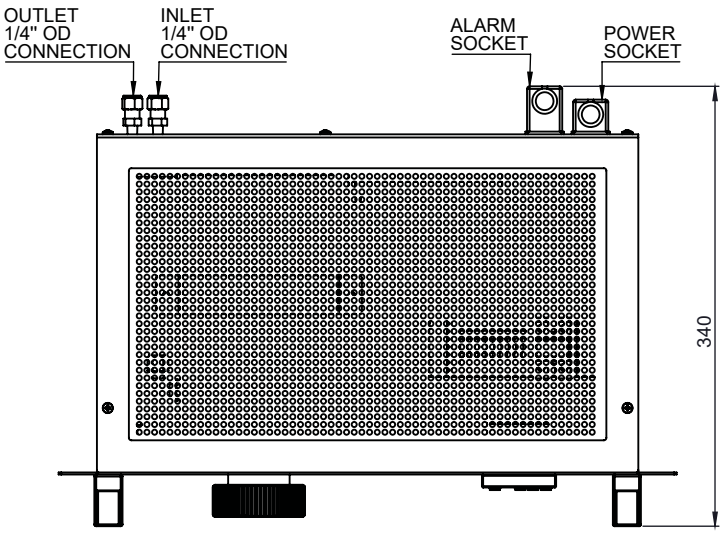


SIDE VIEW

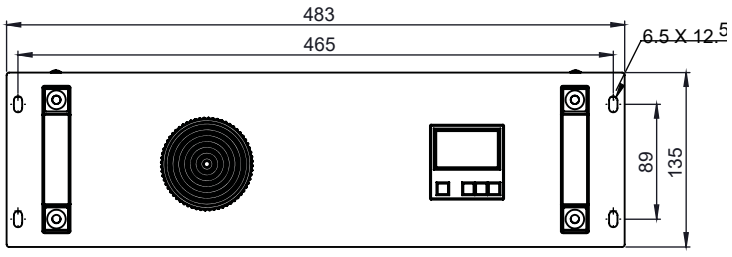
FRONT VIEW

All Dimension are in MM

DIMENSION DETAILS NGC1 19" RACK MOUNT



TOP VIEW



FRONT VIEW

All Dimension are in MM

TECHNICAL SPECIFICATION

General	
Working temperature	200°C/ 400°C*
Warming-up time	30 min
Mounting	Wall / 19" Rack mount
Dimensions (Wall)	268(H) x 230(W) x 139(D) mm
Dimensions (19" Rack Mount)	2131(H) x 483(W) x 263(D) mm
* Varies by converter material	
Gas Input Condition	
Sample gas pressure	upto 1.5 bar absolute
Sample gas flow	upto 120 l/h (2 LPM)
Sample gas temperature	5 to 80°C
Dew point after cooler	< 10°C
Inlet & outlet connection	6 MM OD tube (Not for 19" Rack Mount)
Ambient Conditions Permissible Ambient Temperature	
Operation	+5°C to +50°C
Storage and transport	-20°C to +70 °C
Permissible ambient	< 80% relative Humidity for storage and transport

Electrical Specification		
Power supply	115VAC or 230VAC 50/60Hz	
Power Input	approx. < 500W	
Thermal Load	85W at an oven temperature of 400°C	
Alarm output	Relay output, 250 VAC, 1A (Resistive Load)	
Reactor Cartridge	**Models**	
	MC (Metal Cartridge)	CC (Carbon Cartridge)
Conversion factor (NO2 ➔NO)	≥ 97% (New Cartridge)	≥ 95% (New Cartridge)
Filling Material	Metal Based	Carbon Based
Life	Refer Diagram	Refer Diagram
Max. NO2 Capacity of 70 LPH	300 PPM	120 PPM
Max. Conversion Temperature*	425°C	225°C

* The Converter temperature should only be increased if the conversion level drops below 95% with the cartridge almost depleted.

INTERNAL ASSEMBLY

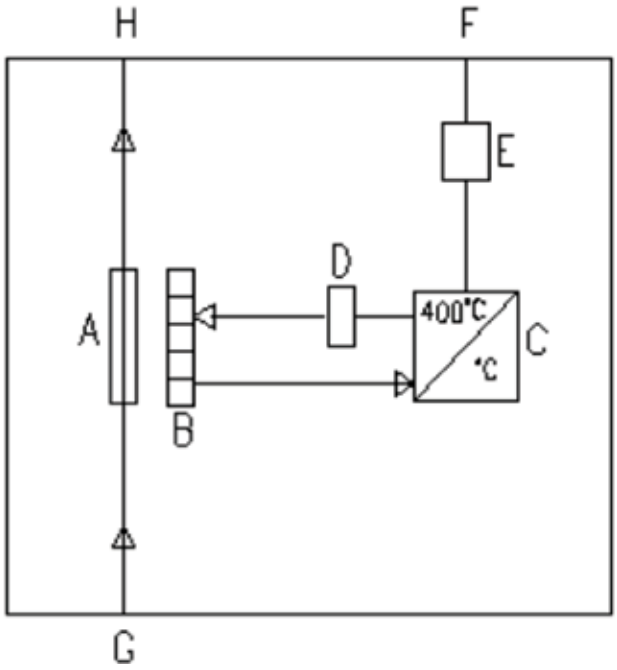


FIG. 1

A Reactor cartridge
B Tubular furnace
C Temperature Controller
D Solid State Relay
E Signal output (Temperature alarm status)
F Connector
G Gas-input (6 mm OD tube) (Not for 19" Rack Mount)
H Gas-output (6 mm OD tube) (Not for 19" Rack Mount)

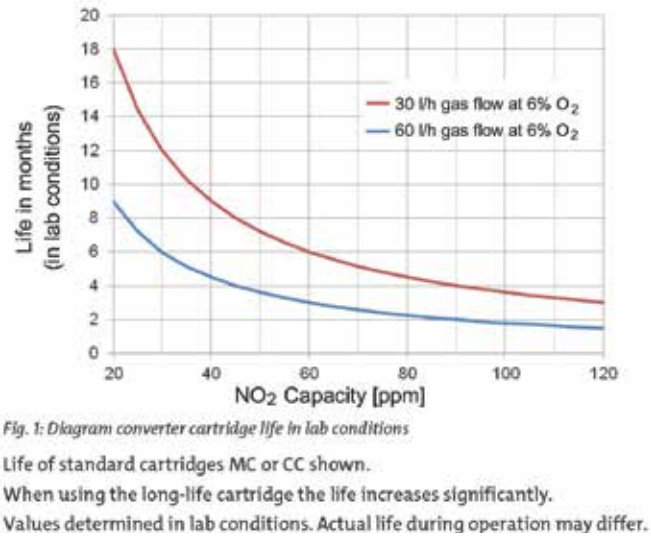


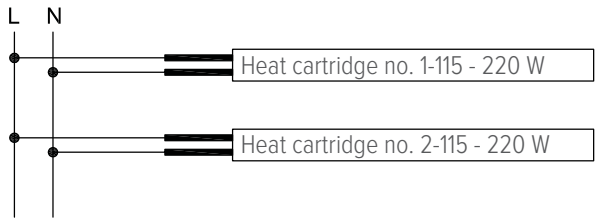
Fig. 1: Diagram converter cartridge life in lab conditions

Life of standard cartridges MC or CC shown.
When using the long-life cartridge the life increases significantly.
Values determined in lab conditions. Actual life during operation may differ.

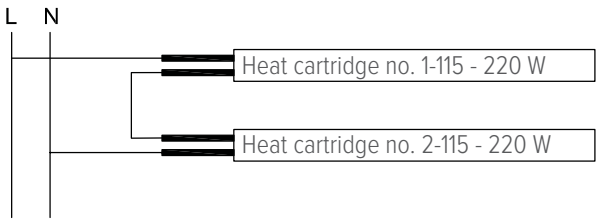
FIG. 2

WIRING DIAGRAM

Connect to 115V



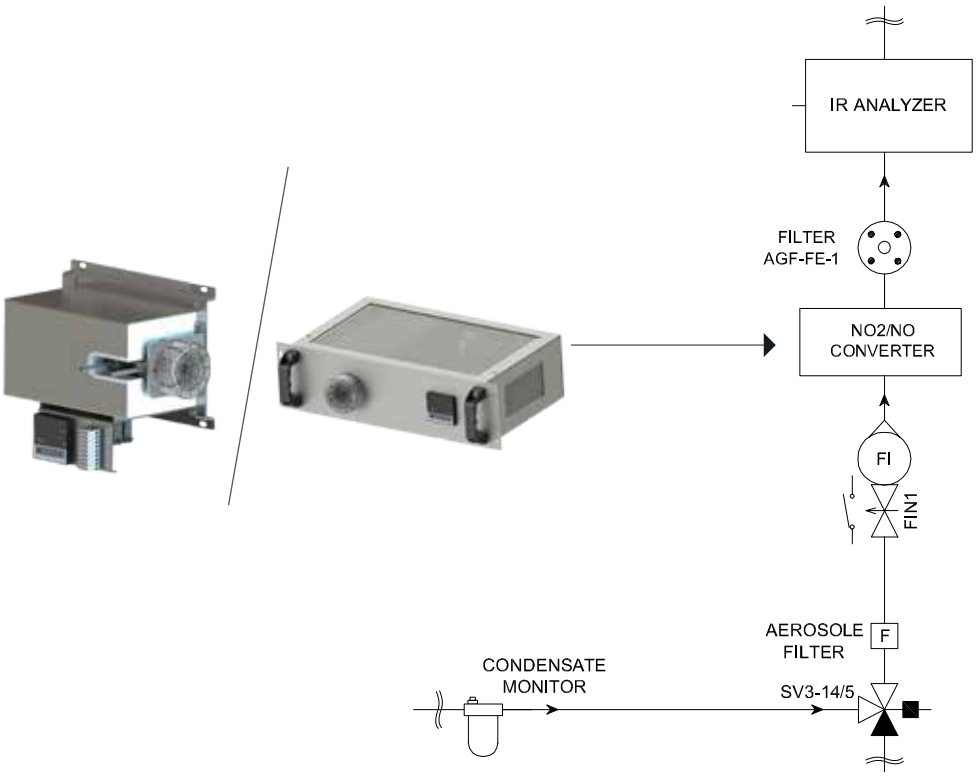
Connect to 230V



SPARE / ACCESSORIES

Description	Part No.	Qty.
Tubular Furnace	ASPL5474	1 No.
Cartridge MC	ASPL5475	1 No.
Long Life Cartridge MC	ASPL5476	1 No.
Solid state Relay	ASPL0684	1 No.
Temp. Controller 400°C	ASPL2208	1 No.
Cartridge CC	ASPL5477	1 No.
Long Life Cartridge CC	ASPL5479	1 No.
Set of Gaskets	ASPL5478	1 Set
19” Rack Mount Housing with Module	NGC1_19	1 Set.
1/4” OD Bulkhead	ASPL0171	2 No.
1/4” OD Equal Elbow	ASPL1359	2 No.
Power Socket	ASPL7550	1 No.
Power Plug	ASPL2802	1 No.
Alarm Socket	ASPL0348	1 No.
Alarm Plug	ASPL2803	1 No.

APPLICATION DIAGRAM



Sample Gas Cooler
SGC1 & SGC2

SGC1 (Wall / Base Mount)

SGC2

CE RoHS

FEATURES

- High quality robust design
- Easy Installation
- Suitable for Ambient up to 50°C
- Operating Pressure 1.5 bar
- Cooling Capacity 320 KJ
- Flow Rate 550 LPH
- 19" Rack mount available

ADVANTAGES

- Ease of Maintenance
- Optional Alarm Contacts
- Single & Dual Coil Heat Exchanger
- High Dew Point Stability
- Housing options available
- Mounting options available in same housing

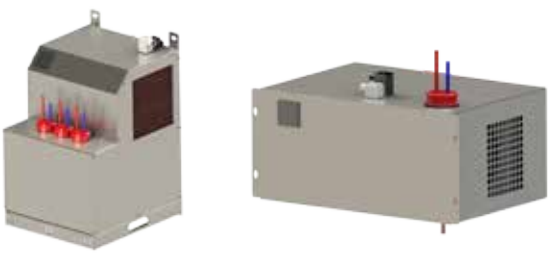
DESCRIPTION

Reliable & Long term operation of an Analyser depends upon efficiency of the Sample conditioning system for which stable dew point of the sample is essential.

Axis Sample Gas Cooler is compressor cooler equipped with efficient heat exchangers to provide stable dew point to the sample there by ensuring security with precise performance of the Analyser.

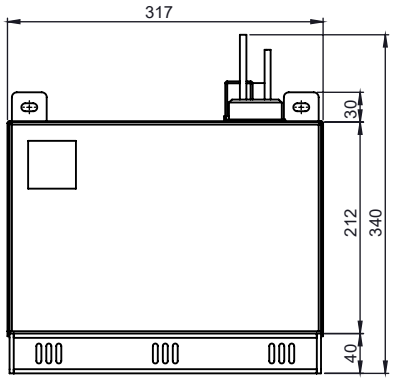
Cooling performance is ensured by having very tight control of temperature directly (not mechanical control for temp.)

The heat exchangers is either Single Coil or Dual Coil so that two different streams can be catered. Very compact housing design ensures best placement of other components with saving of the cost. Insulation at top of heat exchanger effectively isolates ambient effect.

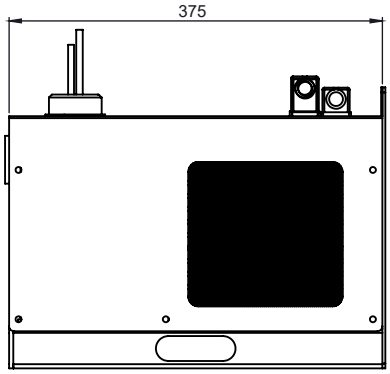


SGC1 (19" Rack Mount)

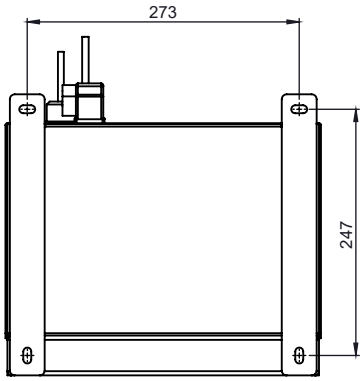
SGC1 WALL / BASE MOUNT DIMENSION DETAILS



FRONT VIEW



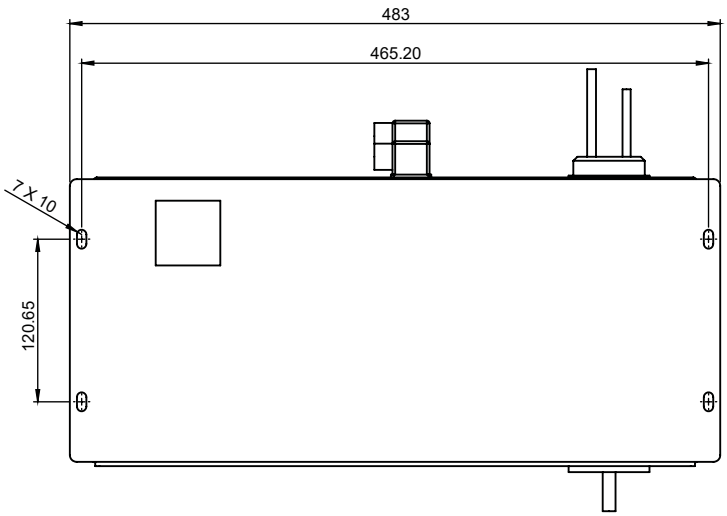
SIDE VIEW



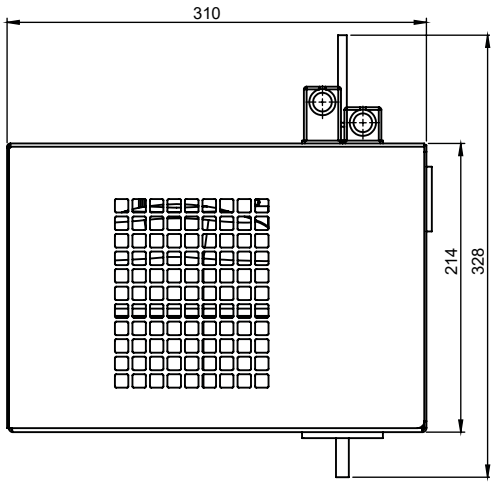
BACK VIEW

All Dimension are in MM

19” RACK MOUNT DIMENSION DETAILS



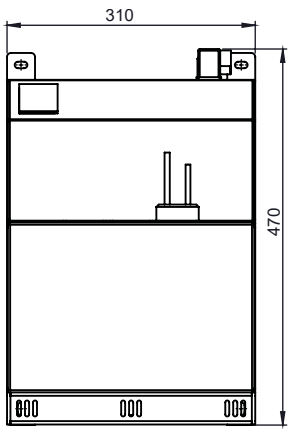
FRONT VIEW



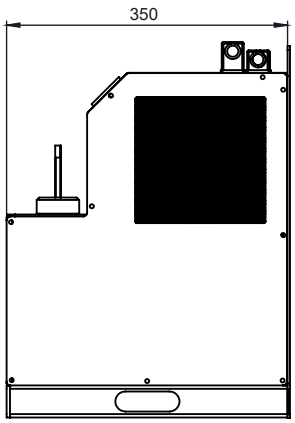
SIDE VIEW

All Dimension are in MM

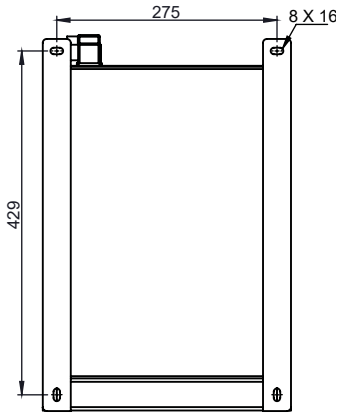
SGC1 WALL / BASE MOUNT (230 VAC, 60Hz) DIMENSION DETAILS



FRONTV IEW



SIDE VIEW



BACK VIEW

All Dimension are in MM

TECHNICAL SPECIFICATION

General	Type	Refrigeration	
	Mounting	Wall / Base Mounting / 19" Rack mount	
	Dimensions (Wall / Base)	340(H) x 317(W) x 375(D) mm	
	Dimensions (19" Rack Mount)	328(H) x 310(W) x 483(D) mm	
	Dimensions (Wall / Base 230 VAC, 60Hz)	470(H) x 315(W) x 375(D) mm	
	No. of Sample Coils	One / Two	
	Sample	Gas	
	Weight	Approx. 19Kg	
Material	Housing	MS CRCA or SS 304 (on request)	
	Cooling Coil	Copper	
	Heat Exchange	SS 316 / Glass	
	Finish	Powder coated RAL 7035 for MS / Buff finish for SS 304	
Connections	Sample Gas Inlet	1/4" Tube	
	Sample Gas Outlet	1/4" Tube	
	Condensate Outlet	3/8" Tube	
Electrical	Power Supply	230 or 115 VAC, 50 Hz or 60 Hz	
	Alarm Contact (Optional)	Max. 250 V, 1A (Resistive Load)	
	Power Consumption	Approx. 460VA	
Functionality	Sample Gas Flow	550 LPH (Max.)	
	Sample Outlet Temp.	Approx. 5°C (+/- 1°C)	
	Operating Pressure	1.5 bar for heat exchanger	
	Cooling Capacity	320 kJ	
	Warm Up Time	10-12min. (Max.)	
	Ambient Temperature	+5°C to +50°C	
Heat Exchanger		**SCE**	**DCE**
	Flow Rate (Max.)	550LPH	2 x 225 LPH
	Max. Cooling Capacity	475 kJ/h	475 kJ/h
	Dead Volume	67 ml	30 ml x 2
	Pressure drop	< 0.1 bar	< 0.1 bar

ORDERING INFORMATION

SGC1									
	Power Supply								
	0								115 VAC, 50 Hz
	1								230 VAC, 50 Hz
	2								115 VAC, 60 Hz
	3								230 VAC, 60 Hz
		Housing Material							
		0							MS CRCA Powder Coated
		1							SS 304
			Heat Exchanger						
			0						Without
			1						SC, Single Coil, SS
			2						DC, Dual Coil, SS
			3						TG, Single Coil
			4						DTG, Dual Coil
				Alarm Option					
				0					Without
				1					With
					Condensate Discharge (1st Stream)				
					0				Without
					1				Peristaltic Pump
					2				Liquid Drainer
						Condensate Discharge (2nd Stream)			
						0			Without
						1			Peristaltic Pump
						2			Liquid Drainer
							Type of Model		
							0		Standard Cooler
							1		CE Certified Cooler
								Type of Mounting	
								0	Wall / Base Mount
								1	19" Rack Mount*

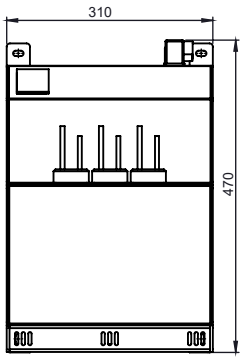
Note : (*) This option is not available with 230 VAC, 60Hz

SPARE / ACCESSORIES

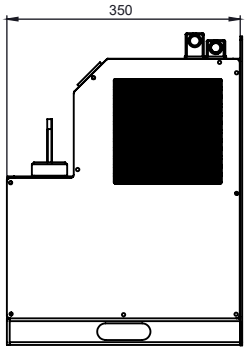
Description	Part No.	Quantity	Description	Part No.	Quantity
Peristaltic Pump 230 VAC	9124030121	1 No.	Solid State Relay	ASPL0684	1 No.
Peristaltic Pump 110 VAC	9124030122	1 No.	Cooling Fan - 230 VAC, 50Hz	ASPL2790	1 No.
Auto CondensateDrain AK 5.	24510008	1 No.	Cooling Fan 115 VAC, 50 or 60Hz	ASPL3183	1 No.
Auto CondensateDrain AK 5.	14510006	1 No.	Compressor 230 VAC, 50Hz	ASPL2787	1 No.
Auto Condensate Drain AK 20	4510004	1 No.	Compressor 115 VAC, 50 or 60Hz	ASPL2876	1 No.
Condensate Vessel	ASPL1096	1 No.	Tube for peristaltic pump	ASPL3185	1 No.
SCE – Single Coil HE	ASPL3101	1 No.	Power plug & Socket - 230 VAC, 50Hz	ASPL0372 & ASPL2802	1 Set
DCE – Dual Coil HE	ASPL3403	1 No.	Power plug & socket - 115 VAC, 50 or 60Hz	ASPL3387 & ASPL2802	1 Set
Temp.Controller with Alarm	ASPL2520	1 No.	Alarm plug & socket	ASPL0348 & ASPL2803	1 Set

Sample Gas Cooler SGC2

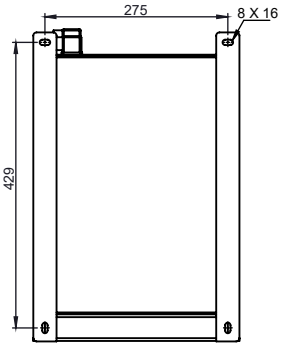
DIMENSION DETAILS



FRONT VIEW



SIDE VIEW



BACK VIEW

All Dimension are in MM

TECHNICAL SPECIFICATION

General	Type	Refrigeration	
	Mounting	Wall / Base Mounting	
	Dimensions	470 x 315 x375 (HxWxD)mm	
	No. of Sample Coils	Three / Four	
	Sample	Gas	
	Weight	Approx. 19Kg	
Material	Housing	MSCRCA or SS 304 (on request)	
	Cooling Coil	Copper	
	Heat Exchange	SS 316 / Glass	
	Finish	Powder coated RAL 7035 for MS / Buff finish for SS 304	
Connections	Sample Gas Inlet	1/4" Tube	
	Sample Gas Outlet	1/4" Tube	
	Condensate Outlet	3/8" Tube	
Electrical	Power Supply	230 or 115 VAC, 50 Hz	
	Alarm Contact (Optional)	Max. 250 V, 1A (Resistive Load)	
	Power Consumption	Approx. 460VA	
Functionality	Sample Gas Flow	550 LPH	
	Sample Outlet Temp.	Approx. 5°C (+/- 1°C)	
	Operating Pressure	1.5 bar for heat exchanger	
	Cooling Capacity	320 kJ	
	Warm Up Time	10-12min. (Max.)	
	Ambient Temperature	+5°C to +50°C	
Heat Exchanger		**SCE**	**DCE**
	Flow Rate (Max.)	550LPH	2 x 225 LPH
	Max. Cooling Capacity	475 kJ/h	475 kJ/h
	Dead Volume	67ml	30 ml x 2
	Pressure drop.	< 0.1 bar	< 0.1 bar

SPARE / ACCESSORIES

Description	Part No.	Quantity
Peristaltic Pump 230VAC	9124030121	1 No.
Peristaltic Pump 110VAC	9124030122	1 No.
Auto CondensateDrain AK 5.	24510008	1 No.
Auto CondensateDrain AK 5.	14510006	1 No.
Auto Condensate Drain AK 20	4510004	1 No.
Condensate Vessel	ASPL1096	1 No.
SCE – Single Coil HE	ASPL3101	1 No.
DCE – Dual Coil HE	ASPL3403	1 No.
Temp.Controller with Alarm	ASPL2520	1 No.
Solid State Relay	ASPL0684	1 No.
Cooling Fan – 230VAC, 50Hz	ASPL2790	1 No.
Compressor 230VAC, 50Hz	ASPL2787	1 No.
Compressor 115VAC, 50Hz	ASPL2876	1 No.
Tube for peristaltic pump	ASPL3185	1 No.
Power plug & Socket – 230VAC, 50Hz	ASPL0372 & ASPL2802	1 Set
Power plug & socket – 115VAC, 50Hz	ASPL3387 & ASPL2802	1 Set
Alarm plug & socket	ASPL0348 & ASPL2803	1 Set

ORDERING INFORMATION

SGC2												
	Power Supply											
	0											115 VAC, 50 Hz
	1											230 VAC, 50 Hz
		Housing Material										
		0										MSCRCA Painted RAL7035
		1										SS304 , Matt finish
		2										SS316 , Matt finish
			Cooler with No. of Heat Exchanger									
			0									Without Heat Exchanger
			1									Cooler with Three Heat Exchanger
			2									Cooler with Four Heat Exchanger
				Material & End connection of Heat Exchanger								
				0								Without Heat Exchanger
				1								SS316 , 1/4" OD Tube IN / OUT and 3/8" OD Tube Drain
				2								SS316 , 6mm OD Tube IN / OUT and 3/8" OD Tube Drain
				3								Glass , Model : TG , GL14 (1/4") IN / OUT and GL25 (1/2") Drain
				4								Glass , Model : TG , GL14 (6mm) IN / OUT and GL25 (12mm) Drain
				5								Glass , Model : DTG , GL14 (1/4") IN / OUT and GL18 (3/8") Drain
				6								Glass , Model : DTG , GL14 (6mm) IN / OUT and GL18 (10mm) Drain
					No. of Single Path of Heat Exchanger (Note 1)							
					0							Without Heat Exchanger
					1							One Heat Exchanger
					2							Two Heat Exchanger
					3							Three Heat Exchanger
					4							Four Heat Exchanger
						No. of Dual Path Of Heat Exchanger (Note 2)						
						0						Without Heat Exchanger
						1						One Heat Exchanger
						2						Two Heat Exchanger
						3						Three Heat Exchanger
						4						Four Heat Exchanger
							Alarm Option					
							0					Without
							1					With
								Condensate Discharge (1st Path)				
								0				Without Condensate Discharge
								1				Preistaltic Pump
								2				Liquid Drainer
									Condensate Discharge (2nd Path)			
									0			Without Condensate Discharge
									1			Preistaltic Pump
									2			Liquid Drainer
										Type of Model		
										0		Manufacturer Standard (COC) certificate Cooler
											Type of Mounting	
											0	Wall / Base Mount

(Note 1) : Not applicable for code 5 , 6 No of "Material & End connection of Heat Exchanger"

(Note 2) : Not applicable for code 3 , 4 No of " Material & End connection of Heat Exchanger"

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

G2 Sample Gas Cooler
SGCG2E

SGCG2E

FEATURES

- Easy Installation
- Suitable for Ambient up to 50°C
- Operating Pressure 1.5 bar
- Cooling Capacity 320 KJ
- Flow Rate 550 LPH

ADVANTAGES

- Ease of Maintenance
- Optional Alarm Contacts
- Single & Dual Path
- Average Dew Point Stability
- Housing options available
- Mounting options available in same housing

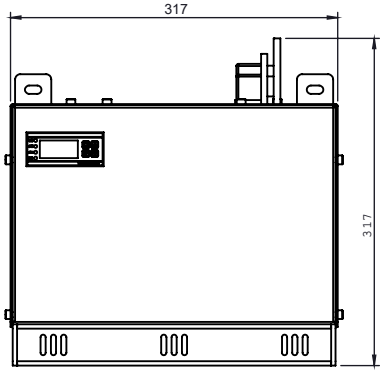
DESCRIPTION

Reliable & Long term operation of an Analyser depends upon efficiency of the Sample conditioning system for which stable dew point of the sample is essential.

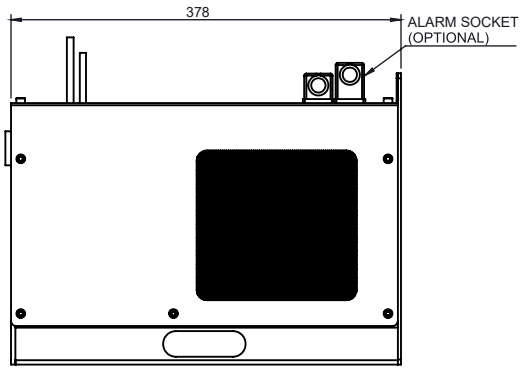
Axis Sample Gas Cooler is compressor cooler equipped with efficient heat exchangers to provide stable dew point to the sample there by ensuring security with precise performance of the Analyser.

The Single and Dual path so that two different streams can be catered. Very compact housing design ensures best placement of other components with saving of the cost. Insulation at top of heat exchanger effectively isolates ambient effect.

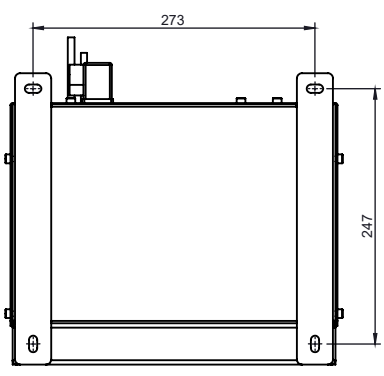
G2ESGC DIMENSION DETAILS



FRONT VIEW



SIDE VIEW



BACK VIEW

All Dimension are in MM

TECHNICAL SPECIFICATION

General	Type	Refrigeration	
	Mounting	Wall / Base Mounting	
	Dimensions (Wall / Base)	317(H) x 317(W) x 378(D) mm	
	No. of Sample Coils	One / Two	
	Sample	Gas	
	Weight	Approx. 19Kg	
Material	Housing	MS CRCA or SS 304 (on request)	
	Cooling Coil	Copper	
	Heat Exchange	SS 316	
	Finish	Powder coated RAL 7035 for MS / Buff finish for SS 304	
Connections	Sample Gas Inlet	1/4" Tube	
	Sample Gas Outlet	1/4" Tube	
	Condensate Outlet	3/8" Tube	
Electrical	Power Supply	230 or 115 VAC, 50 Hz	
	Alarm Contact (Optional)	Max. 230 V, 5A (Resistive Load)	
	Power Consumption	Approx. 460VA	
Functionality	Sample Gas Flow	550 LPH (Max.)	
	Sample Outlet Temp.	Approx. 5°C (+/- 1°C)	
	Operating Pressure	1.5 bar for heat exchanger	
	Cooling Capacity	320 kJ	
	Warm Up Time	40-45 min. (Max.)	
	Ambient Temperature	+5°C to +50°C	
Heat Exchanger (Inbuilt)		**SCE**	**DCE**
	Flow Rate (Max.)	550LPH	2 x 225 LPH
	Max. Cooling Capacity	475 kJ/h	475 kJ/h
	Dead Volume	67 ml	30 ml x 2
	Pressure drop	< 0.1 bar	< 0.1 bar

ORDERING INFORMATION

SGCG2E							
	Power Supply						
	0						115 VAC, 50 Hz
	1						230 VAC, 50 Hz
		Housing Material					
		0					MS CRCA Powder Coated
		1					SS 304
			Heat Exchanger (Inbuilt)				
			1				SC, Single Coil
			2				DC, Dual Coil
				Alarm Option			
				0			Without
				1			With
					Condensate Discharge (1st Stream)		
					0		Without
					1		Peristaltic Pump
					2		Liquid Drainer
						Condensate Discharge (2nd Stream)	
						0	Without
						1	Peristaltic Pump
						2	Liquid Drainer

SPARE / ACCESSORIES

Description	Part No.	Quantity	Description	Part No.	Quantity
Peristaltic Pump 230VAC	9124030121	1 No.	Cooling Fan – 230VAC, 50Hz	ASPL2790	1 No.
Peristaltic Pump 110VAC	9124030122	1 No.	Compressor 230VAC, 50Hz	ASPL2787	1 No.
Auto CondensateDrain AK 5.	24510008	1 No.	Compressor 115VAC, 50Hz	ASPL2876	1 No.
Auto CondensateDrain AK 5.	14510006	1 No.	Tube for peristaltic pump	ASPL3185	1 No.
Auto Condensate Drain AK 20	4510004	1 No.	Power plug & socket – 230VAC, 50Hz	ASPL0372 & ASPL2802	1 Set
Condensate Vessel	ASPL1096	1 No.	Power plug & socket – 115VAC, 50Hz	ASPL3387 & ASPL2802	1 Set
Temp.Controller with Alarm	ASPL5231	1 No.	Alarm plug & socket	ASPL0348 & ASPL2803	1 Set
Temp.Controller	ASPL 3181	1 No.			

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Ex Proof Sample Gas Cooler
COOLEREX

COOLEREX

FEATURES

- Used in Analyser Gas Conditioning
- High quality robust design
- Suitable up to 50°C Ambient Temperature
- Cooling Capacity up to 320 KJ
- Optimum operational reliability
- Sample flow rate 550 LPH Max
- Used in Zone 1 & 2 , IIC hazardous area

ADVANTAGES

- Economical
- Ease of Maintenance & Operation
- Indoor application
- Optional Alarm contact
- Single and dual path heat exchanger options
- High Dewpoint Stability

DESCRIPTION

Reliable & long term operation of an Analyzer depends upon efficiency of the Sample conditioning system for which stable dew point of the sample is essential.

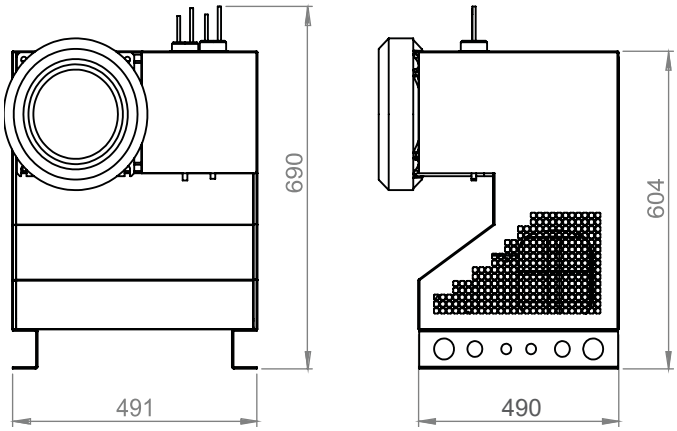
Axis COOLEREX Sample Gas Coolers are compressor cooled, equipped with efficient heat exchangers to provide stable dew point of the sample at outlet, there by ensuring security with precise performance of the Analyzer.

Cooling performance is ensured by having very tight control within tolerance range of dew point indirectly with mechanical control.

The heat exchangers are either Single Coil or Dual Coil so that two different streams can be catered. Very compact housing design ensures best placement of other components with saving of the cost Insulation at top of heat exchanger effectively isolates ambient effect.

In COOLEREX power supply can be either any of 115 VAC or 230 VAC. For electrical connection provides separate Flame proof Junction box suitable in Zone 1 & 2 , IIC hazardous area.

DIMENSION DETAILS



All Dimension are in MM

TECHNICAL SPECIFICATION

General	Type	Refrigeration	
	Mounting	Wall / Base Mounting	
	Dimensions	690 X 491 X 490(HxWxD)mm	
	No. of Sample Stream	One / Two	
	Sample	Gas	
	Weight	40Kg Approx.	
	Housing	MSCRCA / SS 304 (on request)	
Material	Cooling Coil	Copper	
	Heat Exchanger	SS 316 (Other on Request)	
	Housing	Powder coated RAL 7035 MS/Buff Finish for SS 304	
Connections	Sample Gas Inlet	1/4" Tube	
	Sample Gas Outlet	1/4" Tube	
	Condensate Outlet	3/8" Tube	
Electrical	Power Supply	230 or 115 VAC, 50 Hz	
	Alarm Contact	Max. 250 V, 1A (Resistive Load) (Optional)	
	Power Consumption	Approx. 460VA	
Functionality	Sample Gas Flow	550 LPH	
	Sample Outlet Temp.	Approx. 5°C (+/- 1°C)	
	Operating Pressure	1.5 bar for heat exchanger	
	Cooling Capacity	320 kJ	
	Warm Up Time	20-30min. (Max.)	
	Ambient Temperature	+5°C to +50°C	
Heat Exchanger		**SCE**	**DCE**
	Flow Rate	550LPH	2 x 225 LPH
	Max. Cooling Capacity	475 kJ/h	475 kJ/h
	Pressure drop.	< 0.1 bar	< 0.1 bar
	Dead Volume	67 ml	30 ml x 2

ORDERING INFORMATION

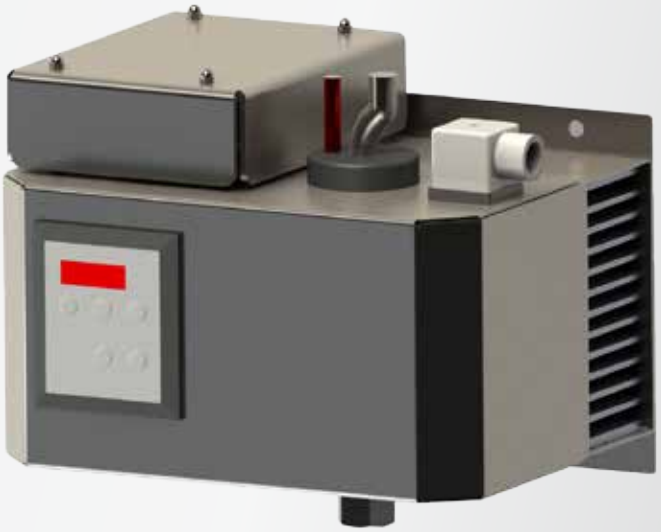
COOLEREX							
							Power Supply
	0						115V AC, 50 Hz
	1						230V AC, 50 Hz
		Housing Material					
		0					MS CRCA Powder Coated
		1					SS 304
		2					SS 316
			Gas Path (Heat Exchanger)				
			0				Without Heat Exchanger
			1				Single Gas Path (One Single Coil HE), SS
			2				Dual Gas Path (Two Single Coil HE), SS
			3				Dual Gas Path (One Dual Coil HE), SS
			4				Three Gas Path (One Single Coil HE + One Dual Coil HE), SS
			5				Four Gas Path (Two Dual Coil HE), SS
				Alarm Option			
				0			Without
				1			With
					Condensate Discharge (1st Stream)		
					0		Without
					1		Auto Condensate Drain AK 5.1
					2		Auto Condensate Drain AK 5.2
					3		Auto Condensate Drain AK 20
						Condensate Discharge (2nd Stream)	
						0	Without
						1	Auto Condensate Drain AK 5.1
						2	Auto Condensate Drain AK 5.2
						3	Auto Condensate Drain AK 20

SPARE / ACCESSORIES

Description	Part No.	Quantity
Auto CondensateDrain AK 5.2	4510008	1 No.
Auto CondensateDrain AK 5.1	4510006	1 No.
Auto Condensate Drain AK 20	4510004	1 No.
Condensate Vessel	ASPL1096	1 No.
SCE – Single Coil HE	ASPL3101	1 No.
DCE – Dual Coil HE	ASPL3403	1 No.
Temp.Controller with Alarm	ASPL2520	1 No.
Compressor 230VAC, 50Hz	ASPL2787	1 No.
Compressor 115VAC, 50Hz	ASPL2876	1 No.

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Peltier Cooler
PC2



PC2

FEATURES

- Compact design for installation into a gas cooling system
- Cost effective
- Easy for installation
- Low operating noise
- No Compressor
- Model for high ambient temperature

ADVANTAGES

- Adjustable outlet dew point
- Nominal capacity 90 kJ/h
- Dew point stability 0.1 °C
- MCD400 display module for separate installation
- High dew point stability
- Environmentally friendly and safe
- Ensure high condensate removal

DESCRIPTION

PC2

In the chemical industry, petrochemistry or biochemistry, reliable process control relies on prompt and exact determination of the operating parameters.

Here, gas analysis is key for safe and efficient control of process flows, environmental protection and quality assurance. This benefits controlling flue gas emission in power stations or exhaust gas analysis in automotive engineering, as well as the efficient control of air separators or sterile production and packaging in the food industry.

Many of the analysis processes used in these fields require extracting the sample gas. This inevitably also extracts process related contamination such as particles or moisture. These in turn can impact the measurement results or damage the measuring cells. The sample gas must therefore be conditioned before entering the analyser.

Peltier Cooler - PC2 offers a variety of options for installation in gas analysis systems.

PC1

Reliable and long term operation of an analyser system depends upon efficiency of the sample conditioning system for which stable dew point of sample is essential.

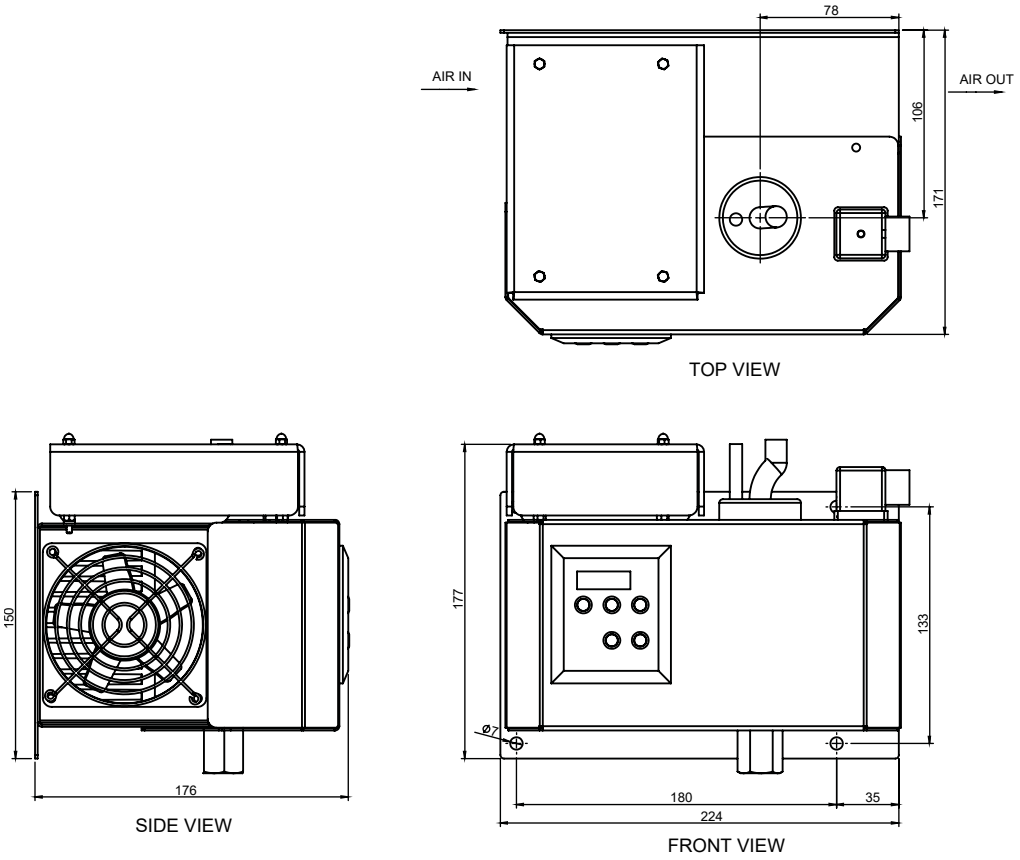
Axis Peltier Cooler - PC1 is one of the option to maintain stable dew point by removing condensation from sample.

It is mainly used where refrigeration based (compressor based) resources is a challenge. It is fully mechanical device hence very less maintenance is required. it is used in Gas Analysis System.

Basically it works on Peltier Effect; Peltier blocks are used with electronic circuit. PC1 can work in the most adverse environment conditions. They are suited for working in high ambient temperatures. There are not refrigerant and thus no danger of leakage. Cooling performance is ensured by having very precise control of temperature directly (due to Peltier element).

The heat exchanger is either single path or dual path so that two different streams can be catered. Very compact design ensures best placement of other components with indirect saving of cost.

DIMENSION DETAILS



All Dimension are in MM

TECHNICAL SPECIFCATIONS FOR PC2

Ready for operation	after max. 10 minutes		
Dimensions	Refer above dimensional detail		
Ambient temperature	5°C to 50°C		
Gas output dew temperature preset: adjustable:	5°C 2°C...20°C		
Rack material	Stainless steel		
Electrical power input	24 V DC	230 V AC	115 V AC
	5 A	0.6 A	1.2 A
	120 W	110 W / 140 VA	
Status output switching capacity	max. 230 V AC, 150 V DC 2 A, 50 VA, potential-free		
Electrical connections	Cable clamp (with transformer, 24 V DC) or blade receptacle (with switching power supply)		
Gas connections	Heat exchanger see table “Heat exchanger overview”		
Parts in contact with media Heat exchanger	see table “Heat Exchanger Overview”		

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

OUTPUT

PC2 - One Heat Exchanger		PC2 - Two Heat Exchangers	
Rated cooling capacity (at 25°C)	90 kJ/h	Rated cooling capacity (at 25°C)	90 kJ/h
Max. Ambient temperature	50 °C	Max. Ambient temperature	50 °C
Dew point fluctuations static	± 0.1 K	Dew point fluctuations static	± 0.1 K
in the entire specification range	± 1.5 K	in the entire specification range	± 1.5 K
		Temperature difference between heat exchangers	< 0.5 K

HEAT EXCHANGER OVERVIEW

Heat Exchanger	**PTS** **PTS-I** [2]	**PTG** **PTG**	**PTV** **PTV-I** [2]	**MTS** [3] **MTS-I** [2] [3]	**MTG** [3] **MTG** [3]	**MTV** [3] **MTV-I** [2] [3]
Version / Material	Stainless steel	Glass	PVDF	Stainless steel	Glass	PVDF
Flow rate v_{max} [1]	450 Nl/h	250 Nl/h	250 Nl/h	300 Nl/h	210 Nl/h	190 Nl/h
Inlet dew point $\tau_{e,max}$ [1]	65 °C	65 °C	65 °C	65 °C	65 °C	65 °C
Gas inlet temperature $_{G,max}$ [1]	180 °C	140 °C	140 °C	140 °C	140 °C	140 °C
Max. Cooling capacity Q_{max}	150 kJ/h	90 kJ/h	90 kJ/h	95 kJ/h	80 kJ/h	65 kJ/h
Gas pressure p_{max}	160 bar	3 bar	2 bar	25 bar	3 bar	2 bar
Pressure drop Δp (v=150 L/h)	10 mbar	10 mbar	10 mbar	20 mbar	19 mbar	18 mbar
Dead volume V_{tot}	29 ml	29 ml	57 ml	19 ml	18 ml	17 ml
Gas connections (metric)	Swagelock 6 mm	GL 14 (6 mm) [4]	DN 4/6	6 mm tube	GL14 (6 mm)	DN 4/6
Gas connections (US)	1/4”	GL 14 (1/4”) [4]	1/4”-1/6”	1/4” tube	GL14 (1/4”)	1/4”-1/6”
Condensate out connections (metric)	G3/8	GL 25 (12 mm) [4]	G3/8	G1/4	GL18 (8 mm)	G1/4
Condensate out connections (US)	NPT 3/8”	GL 25 (1/2”) [4]	NPT 3/8”	NPT 1/4”	GL18 (8 mm)	NPT 1/4”

1) Max. cooling capacity of the cooler must be considered

2) Models marked I have NPT threads or US tubes, respectively.

3) Passive discharge via automatic condensate drains or traps not applicable for MTG heat exchangers. For passive discharge on he MTS and MTV heat exchangers, use a screw connection with a clearance of at least 7 mm (see accessories).

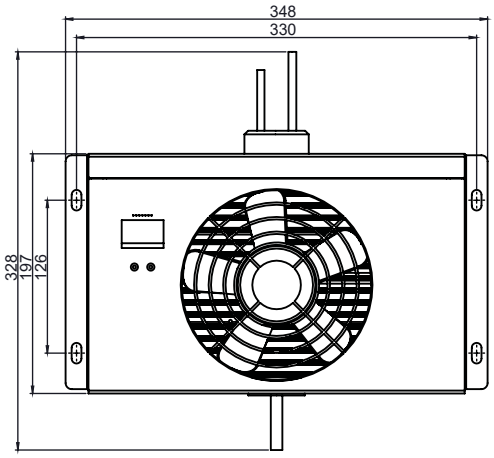
4) Gasket inside diameter

ORDERING INFORMATION FOR PC2

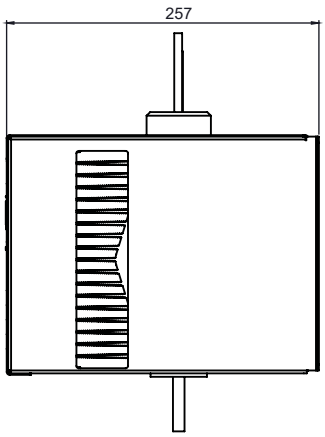
PC2	2	9	X	2	0	X	X	0	**Product Characteristic**
			1						Peltier Cooler with 1 heat exchanger
			2						Peltier Cooler with 2 heat exchanger
									Peltier cooler type
				2	0				PC2 : Ambient temperature 50 °C
									Supply voltage
						1			115 V AC, 50/60 Hz (transformer)
						2			230 V AC, 50/60 Hz (transformer)
						4			24 V DC
						5			115 V AC, 50/60 Hz (switching power supply)
						6			230 V AC, 50/60 Hz (switching power supply)

PC1

DIMENSION DETAILS



FRONT VIEW



SIDE VIEW

All Dimension are in MM

TECHNICAL SPECIFCATIONS FOR PC1

General	Type	Peltier	
	Mounting	Wall / Base Mounting	
	Dimensions	Refer dimensional detail	
	No. of Sample Coils	One / Two	
	Sample	Gas	
	Weight	Approx. 12 Kg	
Material	Housing	Mild Steel (Painted) / others on request	
	Heat Exchanger	SS 316	
Connections	Sample Gas Inlet	1/4" Tube	
	Sample Gas Outlet	1/4" Tube	
	Condensate Outlet	3/8" Tube	
Electrical	Power Supply	230 VAC, 50 Hz	
	Alarm Contact	Optional	
	Current	Approx. 5.4 A	
Functionality	Sample Gas Flow	300 LPH	
	Sample Out Temp.	Approx. 5°C (+/- 0.1°C)	
	Operating Pressure	1.5 bar (Heat Exchanger)	
	Cooling Capacity	270 kJ	
	Warm Up Time	20 min. Max.	
	Ambient Temperature	+5°C to +50°C	
Heat Exchanger		**SCE**	**DCE**
	Flow Rate	300 LPH	2 x 150 LPH
	Max. Cooling Capacity	420 kJ/h	420 kJ/h
	Deal Volume	67ml	30ml
	Pressure drop	< 0.1 bar	< 0.1 bar

ORDERING INFORMATION FOR PC1

PC1	2	9	X	2	0	X	X	0	**Product Characteristic**
			1						Peltier Cooler with 1 heat exchanger
			2						Peltier Cooler with 2 heat exchanger
									Peltier cooler type
				2	0				PC1 : Ambient temperature 50 °C
									Supply voltage
						1			115 V AC, 50/60 Hz (transformer)
						2			230 V AC, 50/60 Hz (transformer)

Liquid Drainer
LD1

FEATURES

- Economical
- Compact construction
- Floating – buoyance principle
- Very Less maintenance
- Easy for installation via clamp
- Used in upstream Analyser Gas conditioning

ADVANTAGES

- Safe condensate removal
- High Draining ratio
- Highly reliable in continuous operation
- Corrosion resistive material
- Available in 2 different materials
- Long life performance

DESCRIPTION

Reliable & long term operation of any process analyser depends upon the efficiency of the sample conditioning system for which dust, solid particulate & moisture free sample gas is essential. Where condensate separation and removal from the sample is major problem for analyses of gas, Axis LD1 is the best solutions.

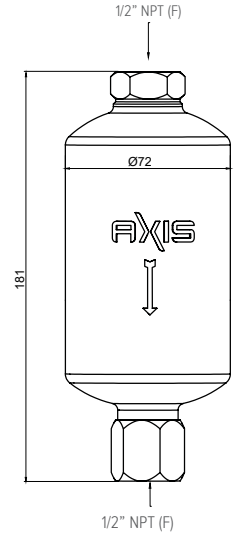
Main application of this product is separation of condensation from the upstream sample gas conditioning for emission and process monitoring system. It can be used only for applications with pressure above atmospheric pressure. Basically its major application is to collect the condensation from upstream flow path of sample gas cooler and automatically drain the condensation.

Other application is for condensate pre-separation of saturated gas with immediate drainage. Model LD1 provided with separators and automatic condensate drains for lateral gas connection for additional separator functions. For above mentioned function required overpressure means above atmospheric pressure.

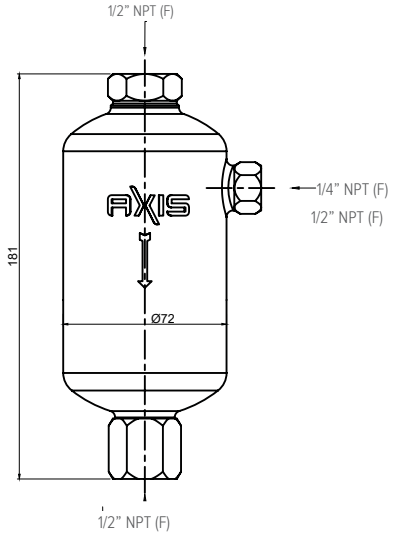
ASPL have 2 different versions of model, one with Stainless Steel and second with PVDF. Where high pressure occurs in system then Stainless Steel version is suitable or where low pressure occurs and some acidic contents are in system then PVDF version is suitable .

Auto condensate removal is working on Float – Buoyance principle. Normally float closes the condensate drain outlet through needle. Due to the raising condensate level the outlet is released by the buoyancy of the float.

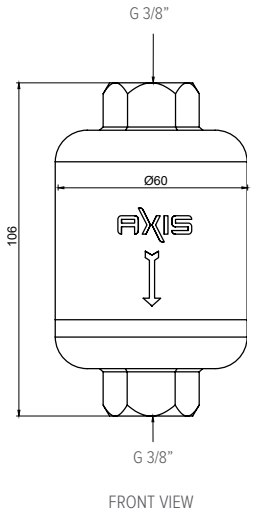
DIMENSION DETAILS



Model-01 FRONT VIEWF
LD1-SS(SS 316 Liquid Drainer)



Model-02 RONT VIEW
SLD1-SS (SS 316 Separator & Liquid Drainer)



FRONT VIEW
Model-03
LD1-P (PVDF Liquid Drainer)

All Dimension are in MM

TECHNICAL SPECIFICATION

		Model 1	Model 2	Model 3
		(LD1-SS)	(SLD1-SS)	(LD1-P)
General	Mounting	Vertical		
	Dimension	Refer above dimensional detail		
	Sample	Flue Gas or Stack Gas		
	Material	SS 316	SS 316	PVDF
	Weight	1.0 Kg	1.2 Kg	0.1 Kg
Connection	Sample Gas Inlet		1/4" NPT (F)	
	Sample Outlet		1/2" NPT (F)	
	Condensate Inlet	1/2" NPT (F)		G 3/8"
	Condensate Outlet	1/2" NPT (F)	1/2" NPT (F)	G 3/8"
Functionality	Media Temperature	Max. 190°C	Max. 190°C	Max. 90°C
	Ambient Temperature	0°C – 70°C		
	Pressure	Max. 10 kg/cm^2	Max. 10 kg/cm^2	< 2kg/cm^2
	Draining Capacity	16.5 LPH @ Atmosphere Pressure	-	-

SPARE / ACCESSORIES

Description	Part No.	Qty.
SS 316 Liquid Drainer	LD1-SS	1 No.
SS 316 Separator & Liquid Drainer	SLD1SS	1 No.
PVDF Liquid Drainer	LD1-P	1 No.
SS Male connector, 1/4" OD	ASPL 0111	1 No.
SS Male connector, 1/4" OD	ASPL 2235	1 No.
PVDF Male connector , 10mm OD	ASPL 5360	1 No.

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Condensate Separator
CS1

FEATURES

- Economical
- Compact construction
- Low maintenance
- Easy for installation via clamp
- Used in Analyser Gas conditioning

ADVANTAGES

- Safe condensate removal
- High reliability
- Used for high condensate content
- Available in 2 different materials

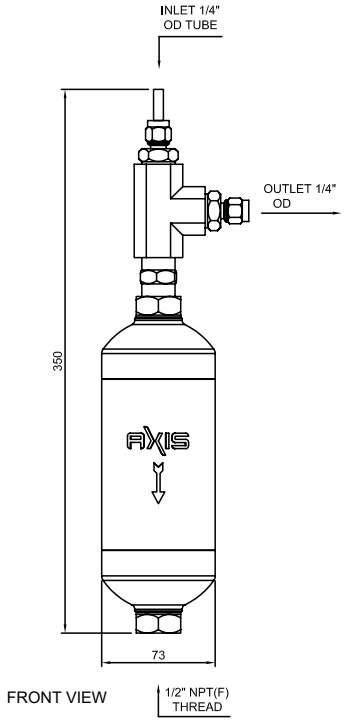
DESCRIPTION

Reliable & long term operation of any process analyser depends upon the efficiency of the sample conditioning system for which dust, solid particulate & moisture free sample gas is must essential. Where condensate separation and removal from the sample is major problem for analyses of gas, Axis CS1 with manual and auto condensate drain option is the best solutions.

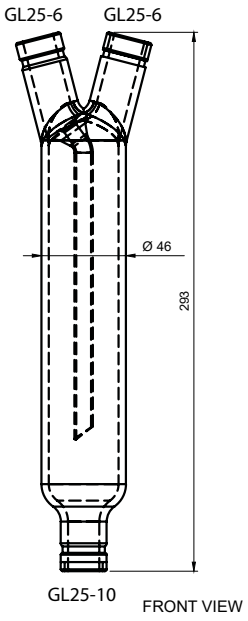
Main application of this product is separation of condensation from the downstream sample gas system. Sometimes sample gas having very high condensate contents so it is must to remove at the beginning of the sample gas conditioning system for safe operation.

AXIS have 2 different versions of model, one with Stainless Steel and second with Glass. Where high pressure occurs in system then Stainless Steel version is suitable or where low pressure occurs in system then Glass version is suitable.

DIMENSION DETAILS



MODEL-01
CS1-SS-CP
(SS316 Condensates eparator with catch port)



MODEL-2
CS1-GL
(Glass condensates eparator)

All Dimension are in MM

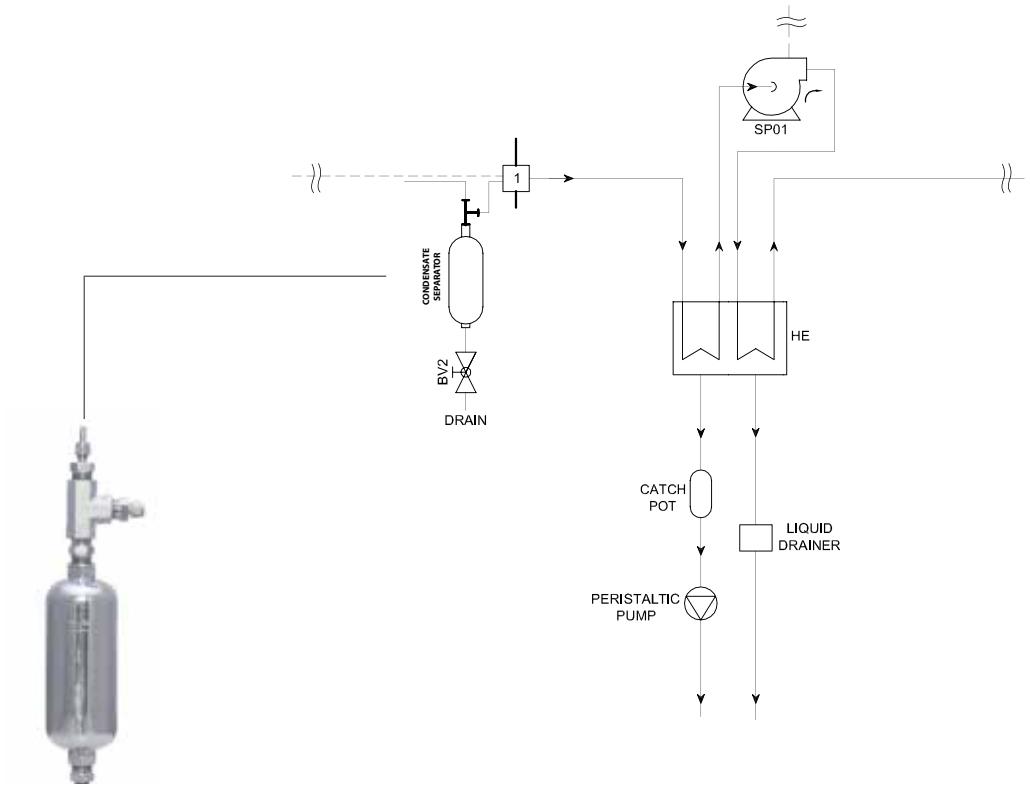
TECHNICAL SPECIFICATION

		Model 1	Model 2
		(CS1-SS-CP)	(CS1-GL)
General	Mounting	Wall Mounting type with exclusively vertical position	
	Dimension	Refer dimension detail	
	Sample	Flue Gas or Stack Gas	
	Material	SS316	Glass
	Weight	Approximate 2.5 Kg	Approximate 1.0 Kg
Connection	Sample Inlet & Outlet	1/4" OD Tube & 1/4" OD	GL25– 6
	Condensate Drain	1/2" NPT (F)	GL 25 – 10
Functionality	Media Temperature	Max. 180°C	Max. 120°C
	Ambient Temperature	0°C – 60°C	0°C – 47°C
	Pressure	4 – 6 kg/cm^2	< 2 kg/cm^2
	Condensate Drain	Recommendation :- Manual with SS Ball Valve & Auto with Peristaltic Pump	

SPARE / ACCESSORIES

Description	Part No.	Qty.
SS316 Condensate Separator with Catch port	CS1-SS-CP	1 No.
Glass condensate separator	CS1-GL	1 No.
Male connector, 1/4" OD	ASPL 0111	1 No.
SS Ball Valve, 1/2" NPT (F)	ASPL 2046	1 No.
1/2" NPT (M) Nipple	ASPL 0718	1 No.
Sealing for GL25 – 6	ASPL 5356	1 set
Sealing for GL25 – 10	ASPL 5357	1 No.
End cover – GL25 – 6	ASPL 5358	1 set
End cover – GL25 – 10	ASPL 5359	1 No.

APPLICATION DIAGRAM

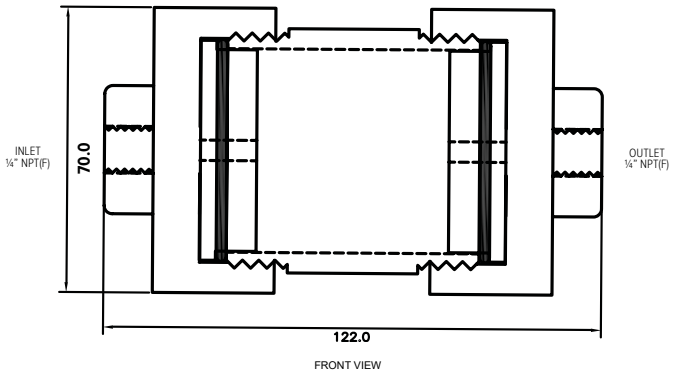


Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Condensate Catch Pot
CCP1

CCP1

DIMENSION DETAILS



All Dimension are in MM

FEATURES

- Ease of maintenance
- Transparent cover for better process visibility
- Light in weight
- Used in Analyser gas conditioning

ADVANTAGES

- Cost effective
- User friendly with full & easy service access
- Leak free O-ring seal
- Compact design

DESCRIPTION

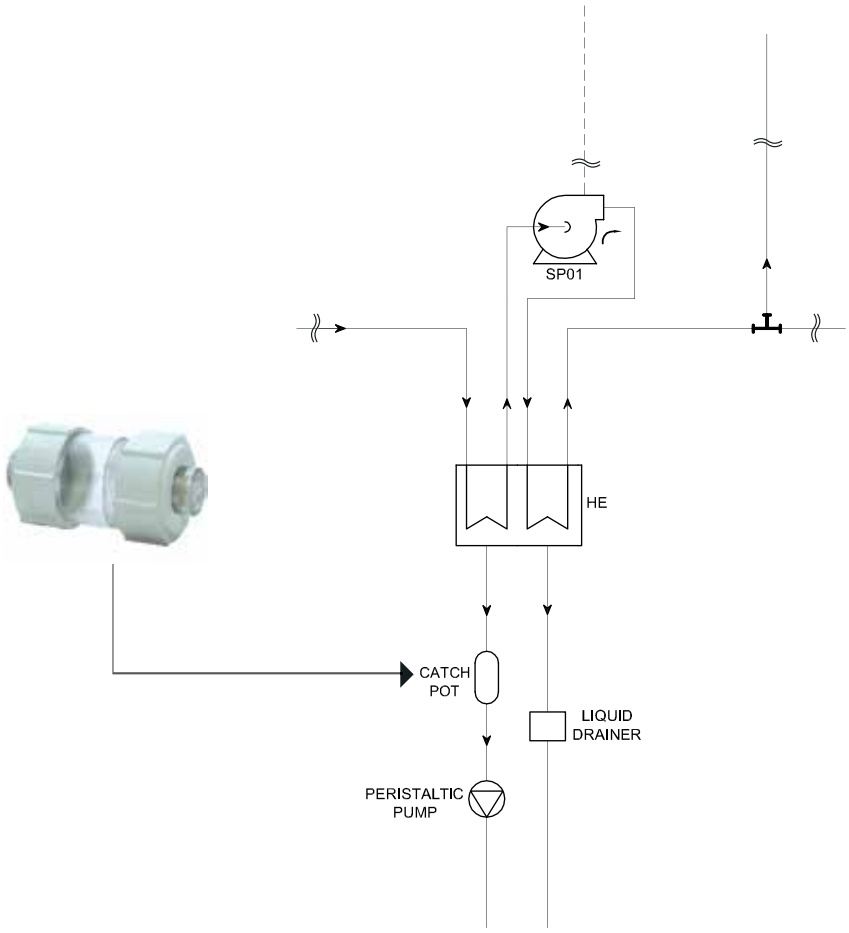
Reliable & long term operation of any Process Analyser depends upon the efficiency of the sample conditioning system for which dust, solid particulate & moisture free sample gas is essential. Where condensate removal from the sample is major problem for analyses of gas, the Condensate Catch Port is the best solution.

CCP1 is equipped efficiently, to catch the condensation from the kinetic or Condensate separator or filter drain or wherever it is necessary to collect the condensate. Condensation free sample gas is must for ensuring security of the Analyser. The folded construction of the CCP1 & compatibility of the designed components like end cap (top & bottom), transparent acrylic body materials ensures ease of mounting & trouble free maintenance. This also act as a volume chamber.

TECHNICAL SPECIFICATION

General	
Mounting	Wall
Dimensions	70 mm Ø x 122mm (L)
Sample	Condensate Gas
Material	
Body	Transparent Acrylic
End cop.	PPCP
Seating	Neoprene
Connections	
Sample Inlet	1/4" NPT (F)
Sample Outlet	1/4" NPT (F)
Functionality	
Temperature	Ambient 50°C (Max)
Pressure	4 kg / cm^2 (Max)
Volume	Approx. 92 ml

APPLICATION DIAGRAM



SPARE / ACCESSORIES

Description	Part No.	Qty.
Condensate Catch Pot	CCP1	1 No.
Transparent body covers for CCP1	ASPL3784	1 Pkt.
Neoprene seating for CCP1	ASPL3435	1 No.
End cover assembly at one side	ASPL3436	1 Set.

Peristaltic Pump
PP1

PP1

FEATURES

- Attractive appearance, Compact structure.
- Ease of Maintenance.
- Low Noise and Vibration.
- Easy to operate and Economical Cost.
- Accept many kinds of motors to Drive.
- Supply Several Colors of appearance, ideal for supporting analytical instruments.
- Best for Vacuum systems
- Highly compatible Santoprene tube covering challenging acidic applications

ADVANTAGES

- Non Siphoning & hence no back flow of Condensate
- Fluid comes in contact of only tube, so no cleaning required.
- Easily replaceable tube
- With Mounting Clamp
- Economical

TECHNICAL SPECIFICATION

General	Mounting	Wall
	Dimension	88 (H) x 74 (W) x 66 (D) mm
Connection	Sample inlet	4/6 mm tube
	Sample outlet	4/6 mm tube
Electrical	Power Supply	220-240 VAC, 50/60 Hz
	Power Consumption	4.5W
	Wire Size	2 x 0.75 mm 2 wire with 200 mm length
	End Lugs	Pin Type
Functionality	Flow rate	(Min.) 0.2 LPH
	Pressure	0.1 bar (Max.)
	Tube	Santoprene

COMPONENT DETAILS

Description	Part No.	Qty.
Peristaltic Pump, 230 VAC, 50 Hz	PP1-2	1 No.
Spare tube for Peristaltic Pump	ASPL 3401	1 No.
End Connection	ASPL 3407	1 Set

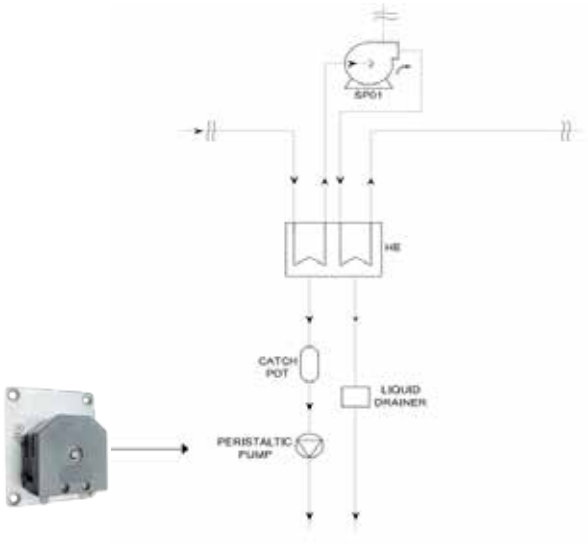
DESCRIPTION

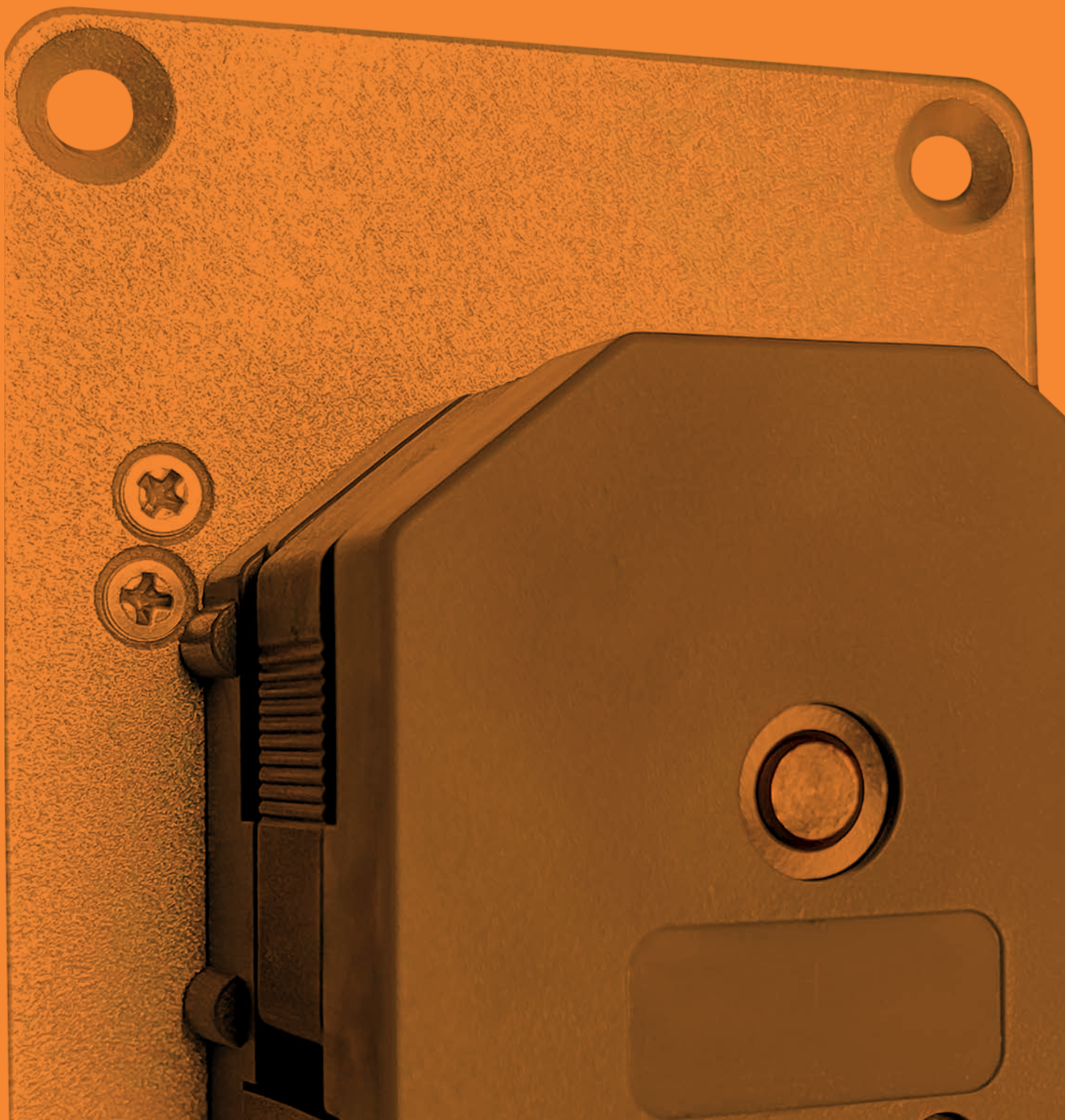
AXIS make Peristaltic Pumps are used for draining the condensate from the Sample gas cooler. Condensate discharge from the sample gas cooler needs to be drained.

Peristaltic Pumps are ideal solution for systems operating in negative pressure.

PP1 needs low maintenance as there are no valves, glands & seals therein. It becomes comparatively inexpensive to maintain.

APPLICATION DIAGRAM





Eductor / Ventury Pump
EDU1

FEATURES

- Venturi pump
- Ease of Maintenance
- Effective Vacuum / Suction up to 400 mm Hg
- Anti corrosive Teflon Housing

ADVANTAGES

- Complete engineered package.
- User Friendly with full & easy service access
- Mechanical Components for regular service
- Unique design & component reliability ensures minimum servicing excepting routine cleaning or general maintenance
- Unit can work within harsh environment & high ambient of 8°C to 80°C areas
- Vacuum tight and leak free O ring seal
- Dense/Tiny design
- Only Mechanical Design

DESCRIPTION

The basic requirement for Eductors are to perform according to given parameter with trouble free operations.

These are used at mainly at remote locations or at very challenging locations or experiencing extreme weather conditions.

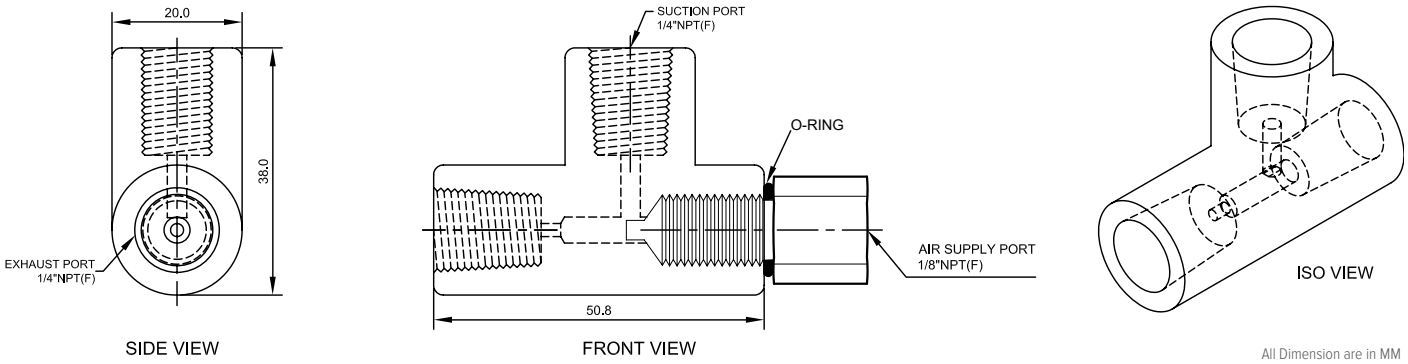
AXIS brings you the equipment to meet diverse and exacting demand which runs trouble free for 24 X 7 in Power generation sector, Chemical plants, Process Plants, Instruments Panels, Food Processing machinery.

AXIS Eductors offer a non electrical means, no mechanical moving parts for transporting a sample stream.

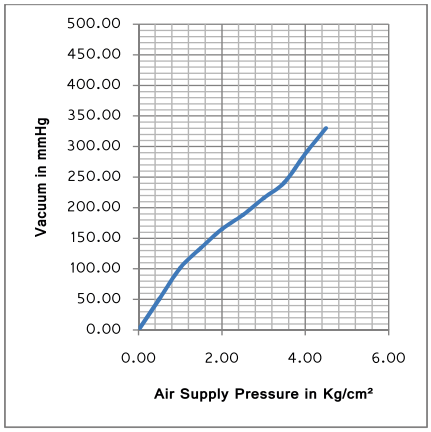
Eductor work on the basic flow dynamics principles. The principle of venturi nozzle applies here. This involves taking a power of one stream and accelerating through tapered nozzle by increasing velocity of the stream and create a vacuum due to increased flow & decreased pressure. This will move power of one stream to create a vacume for other. In turn both are mixed together & discharge from the exhaust port.

Eductors are also known as Mechanical Vacuum Pump or Venturi Pump. Application like hazardous area where electrical apparatus are the challenge to use, can have Eductor as best alternatives.

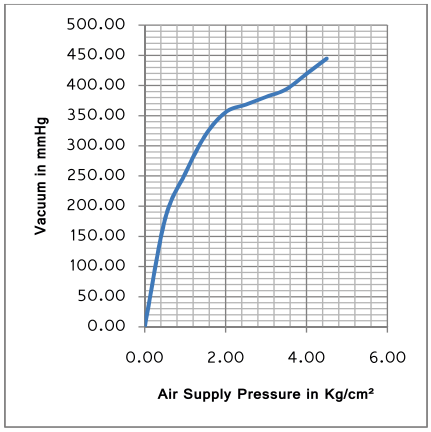
DIMENSION DETAILS



All Dimension are in MM



Eductor with 1.2 mm orifice



Eductor with 1.8 mm orifice

TECHNICAL SPECIFICATION

General	Mounting	Wall (Any)
	Dimension	38 x 51 x 20 (HxWxD) mm
	Sample	Air or Gas
Connection	Air Inlet port	1/8" NPT (F)
	Suction port	1/2" NPT (F)
	Discharge port	1/4" NPT (M) (1/4" threaded tube) with L= 85mm for EDU12S & L= 110mm for EDU18S
Material	Body Material	Teflon
	Nozzle	SS 304 or Teflon (On request)
Functionality	Ambient Temperature	8°C to 80°C
	Vacuum	Upto 450 mm Hg

PRODUCT / ACCESSORIES

Description	Part No.	Quantity
Eductor with 1.2 mm SS 304 Nozzle	EDU12S	1 No.
Eductor with 1.8 mm SS 304 Nozzle	EDU18S	1 No.
Eductor with 1.2 mm Teflon Nozzle	EDU12T	1 No.
Eductor with 1.8 mm Teflon Nozzle	EDU18T	1 No.

Note : If process containing HCL or high level of corrosive acid / gas concentration then use TF nozzle.

Zero Air Generator
ZAG

ZAG

FEATURES

- Stand-Alone unit
- Ease of Maintenance
- Zero Noise & vibration
- Eliminate inconvenient and dangerous zero air cylinders
- Zero air at high flow rate
- Compact & rugged

ADVANTAGES

- 100 % tested
- Produce high purity air
- Easy to use & quick install
- Long lasting scrubber
- Identification scrubber life by color change

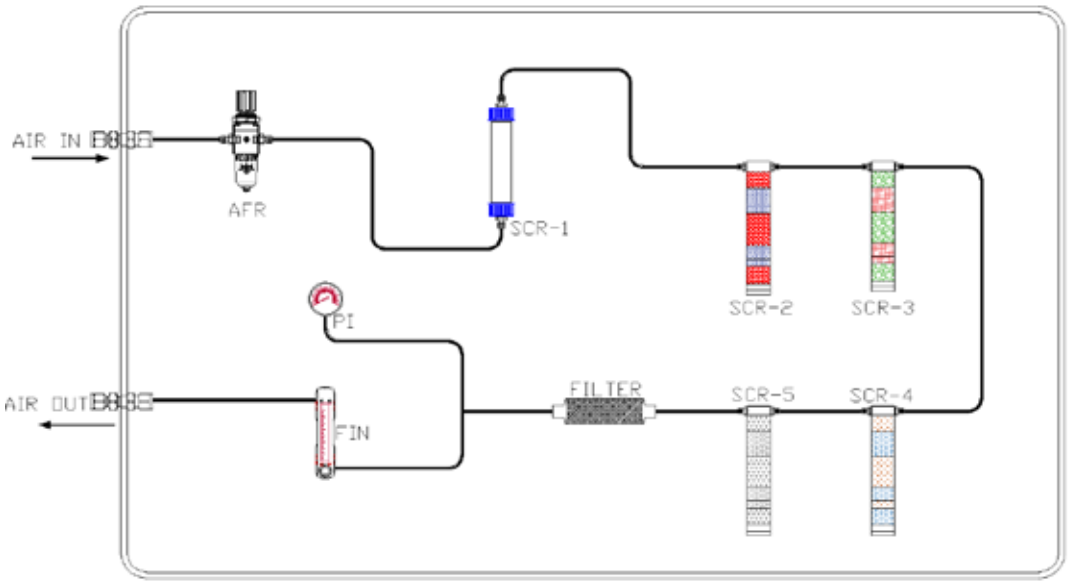
DESCRIPTION

Axis Zero Air Generator (A-ZAG) produce purified air at different rate. A-ZAG remove CO, CO_2, NOx, SOx, water vapor, VOCs, acid vapors, O_3, NH_3, chlorine and dust. This unit totally self-contained in a convenient, lightweight. A-ZAG convert Atmospheric air into clean air, suitable for instrument calibration.

Axis Zero Air Generator (A-ZAG) reduce all the inconveniences and costs of cylinder gas supplies and dependence on outside vendors. Axis Zero Air Generator (A-ZAG) offer long term product stability.

Axis brings you the Zero Air Generator Unit to meet diverse and exacting demand which runs trouble free for 24 x 7 days in laboratory, Refinery and Petrochemical Industries where it can provide reference gas in the various application like, Gas Chromatography, FID, Ambient air monitoring system, etc.

SCHEMATIC OF ZAG



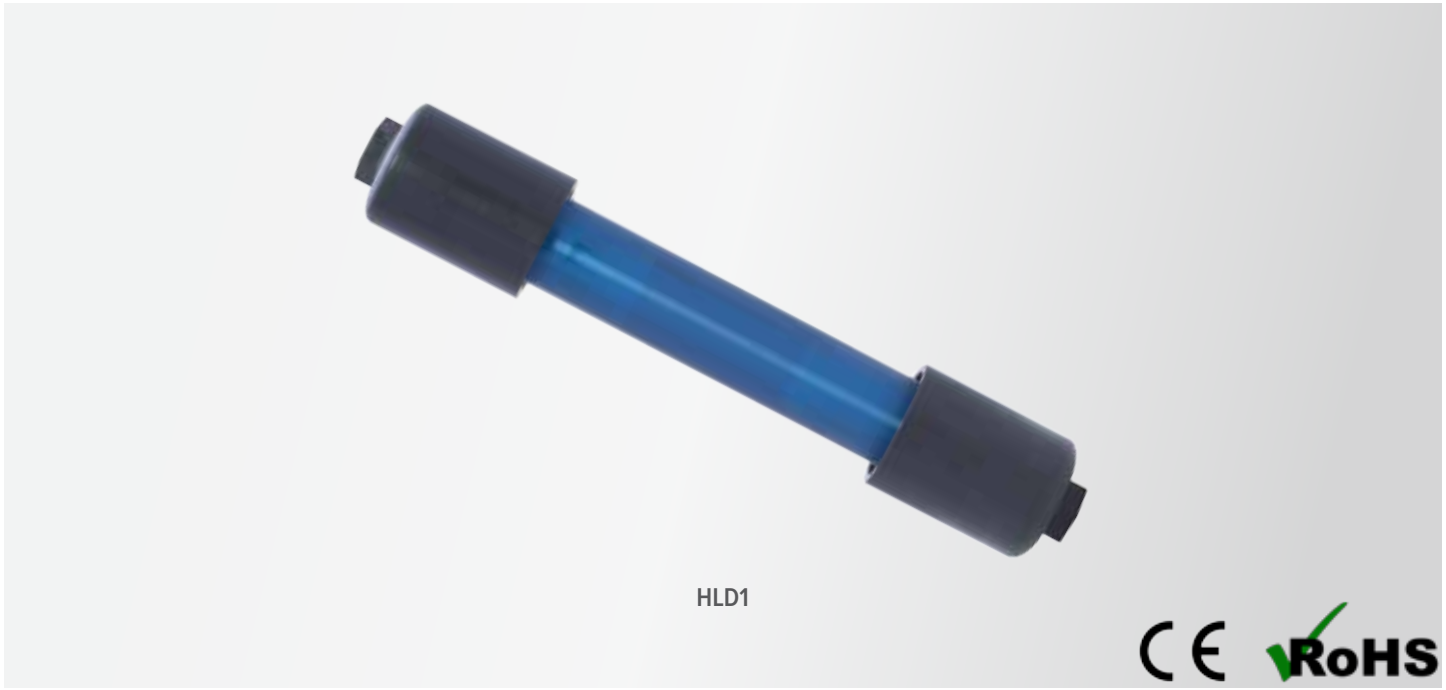
TECHNICAL SPECIFICATION

General	Mounting	Self standing / wall mount
	Dimension	530 (W) x 350 (H) x 270 (D) mm
	Sample	Air
Material	Housing	MS CRCA powder coated
	Connections	PVDF
Connections	Sample inlet	1/4" OD
	Sample outlet	1/4" OD
Functionality	Working RH	10-90 %
	Working temperature	0° C - 80° C
	Pressure	Up to 8 Kg/cm^2
	Weight	12 kg approx.

SPARE

Description	Part No.	Qty.
Acrylic bottle	ASPL 13659	1 No.
GSCR-1019	ASPL 12718	1 No.
GSCR-1119	ASPL 12719	1 No.
GSCR-1219	ASPL 12720	1 No.
GSCR-1319	ASPL 12721	1 No.
GSCR-1419	ASPL12722	1 No.

Heatless Dryer
HLD1



HLD1

FEATURES

- Fully automatic operation
- Fully mechanical design
- No electricity
- Ease of installation

ADVANTAGES

- Maintenance free
- Good stability of dew point upto -40°C
- Ideal for low flow air drying operations

DESCRIPTION

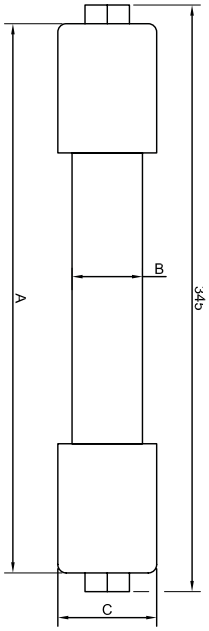
The Heatless dryers are ideal for low flow air Drying operations. Dryer operation is fully automatic and outlet dew points as low as (-40°C) can be achieved.

Heatless regeneration desiccant dryer is designed to protect Pneumatic equipment, controls and processes, from the harmful and costly effects of moisture in compressed air and natural gas lines.

Regenerative desiccant dryers operate on the principle of pressure swing adsorption, where a fraction of dry air or gas is used to regenerate the off-stream tower. No heat or exhaust power is required for desiccant bed regeneration. In natural gas applications, purge exhaust can be diverted to compressor suction or used as fuel.

This means wet air is vented without requirement of separate drain or electrical power.

DIMENSION DETAILS



FRONT VIEW

All Dimension are in MM

TECHNICAL SPECIFICATION

General	
Mounting	Wall (Any)
Dimensions	(A) 325mm x (B) 43.2mm x (C) 58.4mm
Sample	Air
Material	
Body	Anodized Aluminum with blue color
End cap.	Nylon with black color
Connections	
Air Inlet	1/4" BSP (F)
Air Outlet	1/4" BSP (F)
Functionality	
Temperature	+60°C (Max) & +2°C (Min.)
Pressure	10 barg (Max.)
Weight	Approx. 0.66 kg
Performance	As per below table

Performance Data	**7 Barg Pressure dew point Supression from 35 ˚ C to**							
	15˚ C		03˚ C		-20˚ C		-40˚ C	
Compressed air flow (LPM)	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Units	100	90.5	71.1	61.6	47.3	37.8	34.3	24.8
Purge Air (LPM)	9.5							

Purge tolerance ± 2% of maximum inlet flow range.

SPARE / ACCESSORIES

Description	**Part No.**	**Qty.**
Heatless dryer	ASPL1922	1 No.
End Fittings (SS)	ASPL3431	1 Set.
End fittings (PU)	ASPL3432	1 Set.

TYFOON
Pressure Regulations

Auto Change Over Regulator
ACR1

ACR1

FEATURES

- Economical
- Wall Mount
- Less maintenance
- Easy to install
- Compact design

ADVANTAGES

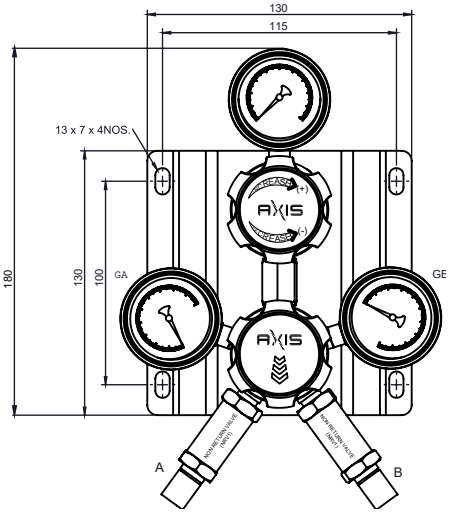
- Less space occupied due to horizontal installation
- Used up to 300 bar and 170 ^{0}C temperature media
- Highly reliable for continuous operation
- Designed for uninterrupted gas flow for stored gas cylinder
- Eliminate costly system downtime and maintenance
- High Performance

DESCRIPTION

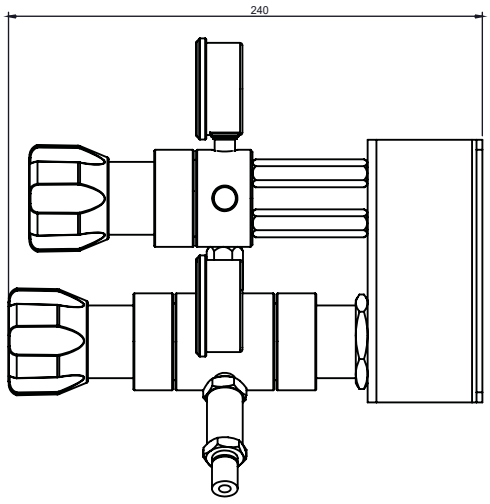
Axis Gas Cylinder Auto change over regulator is designed to deliver continuous flow from gas cylinder to further system or it is used when a stable outlet pressure is required. It is equipped with two stage pressure control regulator.

In first stage regulator fixed amount of gas pressure will be controlled and in second stage means line regulator can be adjusted with knob to achieve the desired system pressure. This two stage regulator technique shrinks the supply – pressure effect caused by depleting Gas cylinders. Refer typical application diagram like Gas Supply A & Gas Supply B are connected at inlet of change over unit. During operation when Gas supply A cylinder pressure reduced to predefined level it will change over to Gas Supply B It is mainly used in analyser or Gas chromatograph systems as a carrier gas cylinder constant flow. Apart from this it can be used where critical welding machine processes & laser cutting processes are carried out.

DIMENSION DETAILS OF ACR1



FRONT VIEW



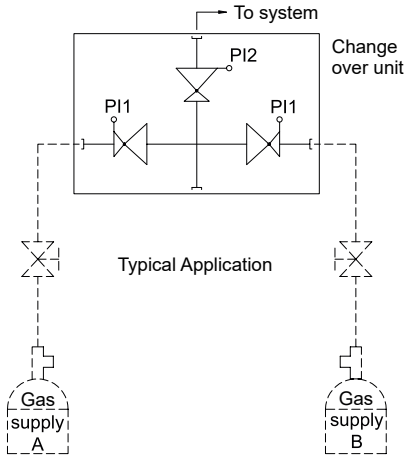
SIDE VIEW

All Dimension are in MM

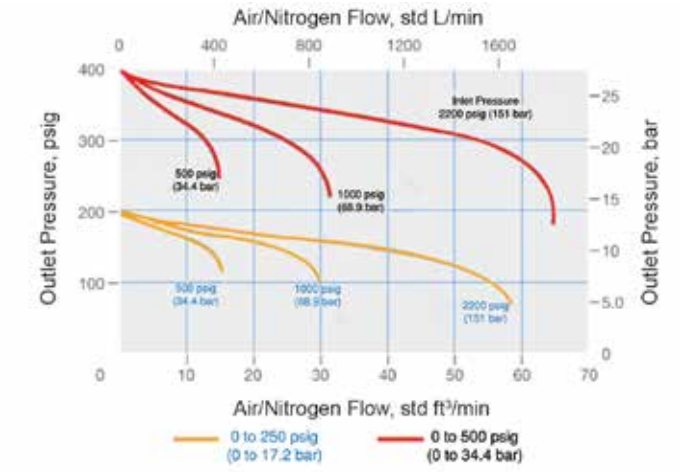
TECHNICAL SPECIFICATIONS

Mounting	Horizontal
Body Material	SS 316
Seat Material	PTFE
Diaphragm	Nitrile / Viton / SS 316
Dimension	Refer Dimensional detail
Flow Capacity	C = 0.06
Connection	Out 1/4" NPT (F) / In 1/4" BSP (M)
Inlet Pressure	Max. 300 bar
Outlet Pressure	Max. up to 34 bar
Change over	Approx. 6.8, 17 & 34 bar (inlet pressure must exceed changeover pressure for auto change over function)

SCHEMATIC & APPLICATION DETAIL



PRESSURE RANGE WITH PERFORMANCE



Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

ORDERING INFORMATIONS ACR1

ACR1									9	9	
	Body Material										
	0										SS 316
		Flow Coefficient (Cv)									
		0									0.06
			Seat Material								
			0								PTFE
				Output Regulator Range							
				0							0 - 4 bar (Note 1)
				1							0 - 10 bar (Note 2)
				2							0 - 34 bar (Note 3)
					Cylinder Change over pressure (Note 4)						
					0						6.8 bar
					1						17 bar
					2						34 bar
						Regulator Pressure Gauge					
						0					without Gauge
						1					With all Gauge (2 Inlet + 1 Outlet)
							Accessories 1 - Flexible Hose				
							0				Without Hose
							1				With Hose
								Accessories 2 - Bullnose Connector			
								0			Without connector
								1			With connector

Note :

1. Available only with 6.8 bar Cylinder Change over pressure
2. Available only with 17.2 bar Cylinder Change over pressure
3. Available only with 34 bar Cylinder Change over pressure
4. Always Cylinder Pressure should be more than Change over pressure for Auto function

Pressure Regulator
PRG1 & PRG3

PRG1 PRG3

FEATURES

- Economical
- Wall / Line Mount
- Less maintenance
- Easy to install

ADVANTAGES

- Less space occupied due to horizontal installation
- Used up to 413.6 bar and 260°C media temperature
- Highly reliable for continuous operation
- Designed for precised Control

DESCRIPTION

Axis Pressure regulator is designed to deliver continuous & precise control to further system. It is single stage pressure control regulator. It is mainly used in instrumentation sample handling system for all type of Gas media application.

Used in Oil and refinery, power, chemical and any type of process industries.

Many features of the PRG1 / PRG3 make it ideal for wide range of applications controlling pressures at low to adequate flows in gas media. It has wide operating range up to 413.6 bar and up to 260°C media temperature can be sustained. PRG3 can also be used for water application.

PRG1

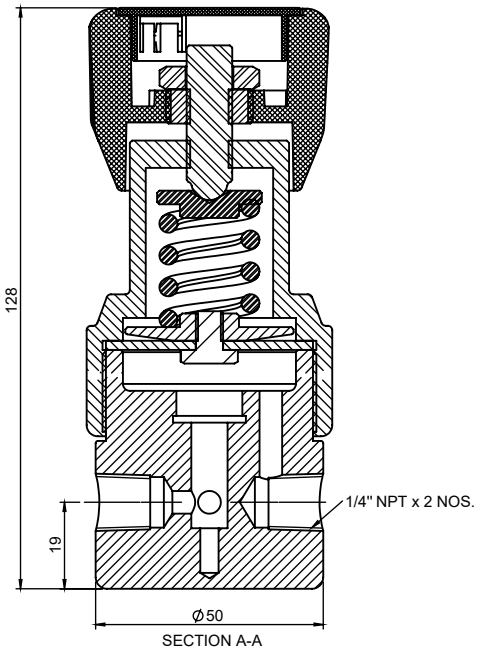
TECHNICAL SPECIFICATIONS

Mounting	Wall / Line
Body Material	SS 316 / Brass / Others on request
Seat Material	PTFE / PEEK
Diaphragm	Nitrile / Viton / Metallic
Dimension	Refer Dimension Detail
Flow Capacity	Cv = 0.06
Connections	1/4" NPT (F)
Inlet Filter	1/4" OD 5µ
Inlet Pressure	Max. 413.6 bar (6000 psig)
Outlet Pressure	Max. up to 34.4 bar (500 psig)

Note : Clear Filter for avoid choke up

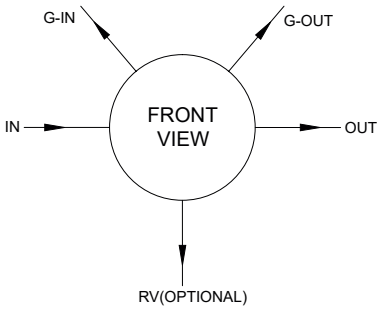
PRG1

DIMENSION DETAILS



All Dimension are in MM

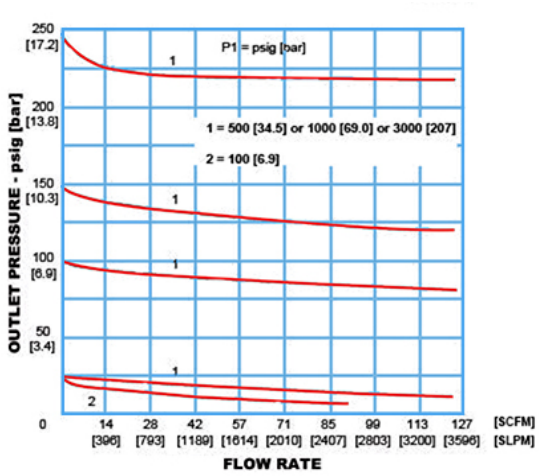
PORT LOCATION



SPARE / ACCESSORIES

Description	Part No.	Qty
Diaphragm-1		1 No.
Diaphragm-2		1 No.
Diaphragm-3		1 No.
Seat Retainer-1		1 No.
Seat Retainer-2		1 No.

PRESSURE RANGE WITH PERFORMANCE



ORDERING INFORMATIONS

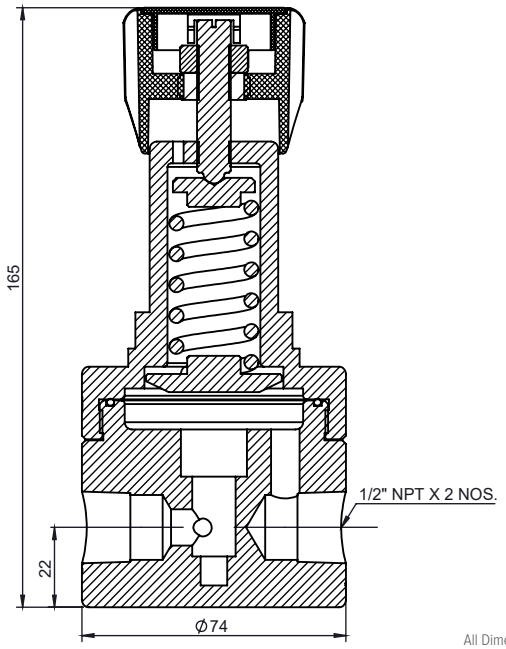
PRG1								9	
	Body Material								
	0								SS 316
	1								Brass
	2								Others on request
		Flow Coefficient (Cv)							
		0							0.06
			Seat Material						
			0						PTFE (Up to 170°C and 10 bar)
			1						PEEK (Up to 260°C and 35 bar)
				Diaphragm Material					
				0					Nitrile (Up to 70°C and 10 bar)
				1					Viton (Up to 170°C and 10 bar)
				2					Metallic (Above 170°C and 34.4 bar)
					Output Range				
					0				up to 0.68 bar (10 psig)
					1				Up to 1.72 bar (25 psig)
					2				Up to 3.45 bar (50 psig)
					3				Up to 6.8 bar (100 psig)
					4				Up to 17.2 bar (250 psig)
					5				Up to 34.4 bar (500 psig)
						Pressure Gauge Selection			
						0			Without Gauge
						1			With Gauge
							Knob Option		
							0		Standard (Plastic)
							1		Metal Nut (Note 1)

Note 1

Where media itself can increased temperature during regulation.
For Example SF6 Gas

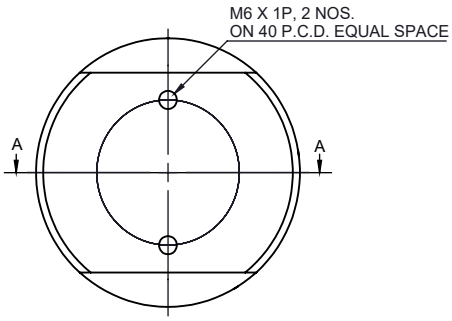
PRG3

DIMENSION DETAILS



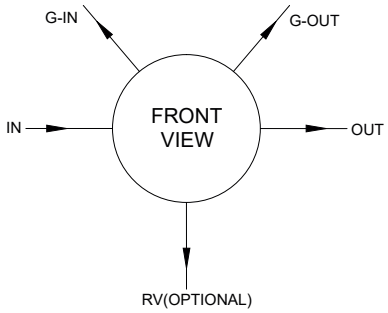
SECTION A-A

All Dimension are in MM



BOTTOM VIEW
MOUNTING DETAILS

PORT LOCATION



TECHNICAL SPECIFICATIONS

Mounting	Wall / Line
Body Material	SS 316 / Brass / Others on request
Seat Material	PTFE / PEEK
Diaphragm	Nitrile / Viton / Metallic
Dimension	Refer Dimension Detail
Flow Capacity	Cv = 1.0
In/Out Connection	1/2" NPT (F)
Other Connections	1/4" NPT (F)
Inlet Filter	1/4" OD 5µ , 3/8" OD 5µ , 1/2" OD 5µ
Inlet Pressure	Max. 413.6 bar (6000 psig)
Outlet Pressure	Max. up to 34.4 bar (500 psig)

ORDERING INFORMATIONS

PRG3								9	
	Body Material								
	0								SS 316
	1								Brass
	2								Others on request
		Flow Coefficient (Cv)							
		0							1.0
		1							1.5 (only for water application)
		2							2.0 (only for water application)
			Seat Material						
			0						PTFE (Up to 170°C and 10 bar)
			1						PEEK (Up to 260°C and 35 bar)
				Diaphragm Material					
				0					Nitrile (Up to 70°C and 10 bar)
				1					Viton (Up to 170°C and 10 bar)
				2					Metallic (Above 170°C and 34.4 bar)
					Output Range				
					0				up to 0.68 bar (10 psig)
					1				Up to 1.72 bar (25 psig)
					2				Up to 3.45 bar (50 psig)
					3				Up to 6.8 bar (100 psig)
					4				Up to 17.2 bar (250 psig)
					5				Up to 34.4 bar (500 psig)
						Pressure Gauge Selection			
						0			Without Gauge
						1			With Gauge
							Knob Option		
							0		Standard (Plastic)
							1		Metal Nut (Note 1)

Note 1

Where media itself can increased temperature during regulation.
For Example SF6 Gas

Dual Stage Cylinder Pressure Regulator
PRG2

PRG2

FEATURES

- Economical
- Cylinder Mount
- Less maintenance
- Easy to install

ADVANTAGES

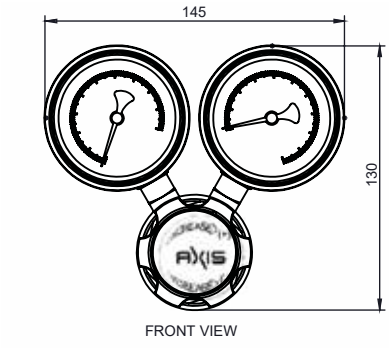
- Direct install on cylinder
- Used up to 413.6 bar and 260°C media temperature
- Highly reliable for continuous operation
- Designed for precised control

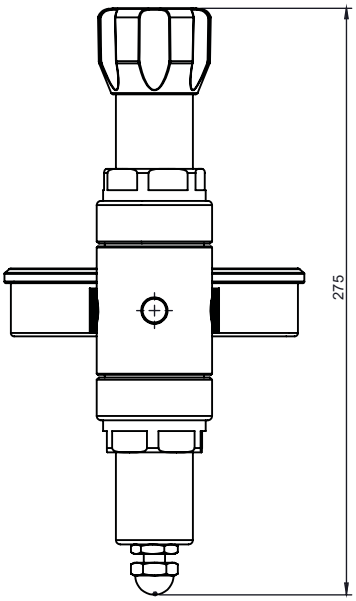
DESCRIPTION

Axis Pressure regulator is designed to deliver stable outlet pressure from gas cylinder to further system. It is a dual stage pressure regulator. In first stage of regulation it regulates fixed amount of gas pressure and in second stage pressure can be adjusted with knob to achieve the desired system pressure. It is mainly used in Oil and refinery, power, chemical, any type of process industries and instrumentation sample handling system for all type of Gas media application. Apart from this it is used in critical welding machine process, laser cutting process etc.

Many features of the PRG2 make it ideal for wide range of applications controlling pressures at low to adequate flows in gas media. It has wide operating range up to 413.6 bar and up to 260°C media temperature can be sustained.

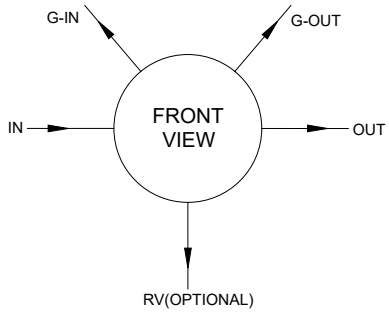
DIMENSION DETAILS





All Dimension are in MM

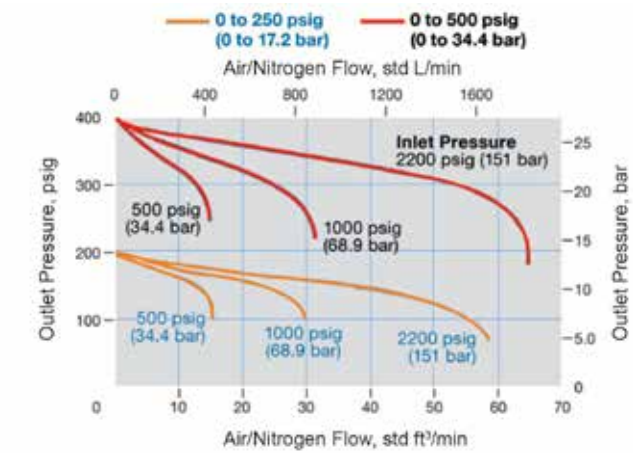
PORT LOCATION



TECHNICAL SPECIFICATIONS

Mounting	Cylinder
Body Material	SS 316 / Brass
Seat Material	PTFE / PEEK
Diaphragm	Nitrile / Viton / Metallic
Dimension	Refer Dimension Detail
Flow Capacity	Cv = 0.06
Connection	1/4" NPT (F)
Inlet Filter	1/4" OD 5µ
Inlet Pressure	Max. 413.6 bar (6000 psig)
Outlet Pressure	Max. up to 34.4 bar (500 psig)
Accessories	Bullnose connector with fitting (Supplied loose)
	Pressure Gauge and Relief Valve (Optional)

PRESSURE RANGE WITH PERFORMANCE



ORDERING INFORMATIONS

PRG2									9	
	Body Material									
	0									SS 316
	1									Brass
	2									Others on request
		Flow Coefficient (Cv)								
		0								0.06
			Seat Material							
			0							PTFE (Up to 170°C and 10 bar)
			1							PEEK (Up to 260°C and 35 bar)
				Diaphragm Material						
				0						Nitrile / Metallic (Up to 70°C and 10 bar)
				1						Metallic / Metallic ((Above 170°C and 34.4 bar)
					Output Range					
					0					up to 0.68 bar (10 psig)
					1					Up to 3.45 bar (50 psig)
					2					Up to 6.8 bar (100 psig)
					3					Up to 17.2 bar (250 psig)
					4					Up to 34.4 bar (500 psig)
						Accessories Selection				
						0				Without Gauge & Without Relief Valve
						1				With Gauge & Without Relief Valve
						2				Without Gauge & With Relief Valve
						3				With Gauge & With Relief Valve
							Knob Option			
							0			Standard (Plastic)
							1			Metal Nut (Note 1)
								Bullnose Connector		
								0		RH Thread 5/8" BSP (M) x 1/4 " NPT (M)
								1		LH Thread 5/8" BSP (M) x 1/4 " NPT (M)

Note 1

Where media itself can increased temperature during regulation.
For Example SF6 Gas

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Pressure Regulator
PRG4

PRG4

FEATURES

- Economical
- Wall / Line Mount
- Less maintenance
- Easy to install

ADVANTAGES

- Less space occupied due to horizontal installation
- Used up to 689 bar and 170°C media temperature
- Highly reliable for continuous operation
- Designed for precised Control

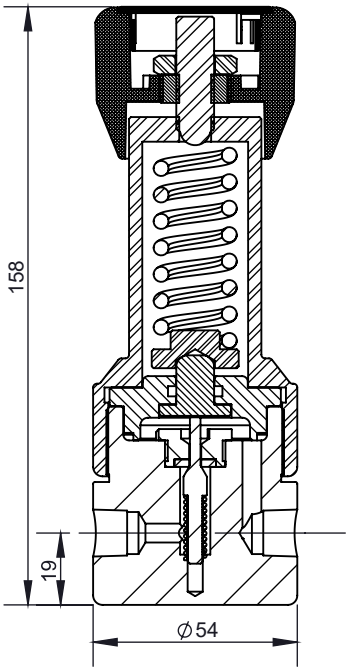
DESCRIPTION

Axis Pressure regulator is designed to deliver continuous & precise control to further system. It is single stage pressure control regulator. It is mainly used in instrumentation sample handling system for all type of Gas media application.

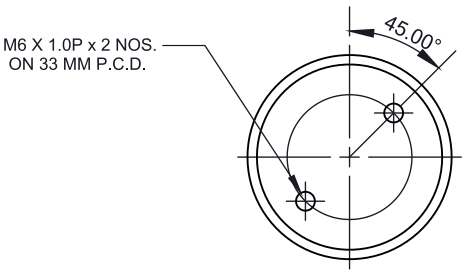
Used in Oil and refinery, power, chemical and any type of process industries.

Many features of the PRG4 make it ideal for wide range of applications controlling pressures at low to adequate flows in gas media. It has wide operating range up to 689 bar and up to 170°C media temperature can be sustained. PRG4 can also be used for water application.

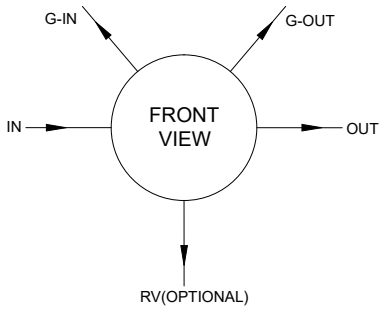
DIMENSION DETAILS



All Dimension are in MM



PORT LOCATION



ORDERING INFORMATIONS

PRG4									9	
	Body Material									
	0									SS 316
	1									Brass
	2									Others on request
		Flow Coefficient (Cv)								
		0								0.06
		1								0.10
			Seat Material							
			0							PTFE
			1							PEEK
				Piston Material						
				0						SS 316 (with viton o-ring) (up to 170°C & 120 bar)
					Output Range					
					0					up to 34.4 bar (500 psig)
					1					Up to 120 bar (1740 psig)
						Pressure Gauge Selection				
						0				Without Gauge
						1				With Gauge
							Knob Option			
							0			Standard (Plastic)
							1			Metal Nut (Note 1)

Note 1

Where media itself can increased temperature during regulation.
For Example SF6 Gas

TECHNICAL SPECIFICATIONS

Mounting	Wall / Line
Body Material	SS 316 / Brass / Others on request
Seat Material	PTFE / PEEK
Piston	Piston Sence
Dimension	Refer Dimension Detail
Flow Capacity	Cv = 0.06 , Other =0.10
Connections	1/4" NPT (F)
Inlet Filter	1/4" OD 5µ
Inlet Pressure	Max. 689 bar (10,000 psig)
Outlet Pressure	Max. up to 120 bar (1740 psig)

Note : Clear Filter for avoid choke up

Pressure Regulator
PRG5

PRG5

FEATURES

- Economical
- Wall / Line Mount
- Less maintenance
- Easy to install

ADVANTAGES

- Less space occupied due to horizontal installation
- Used up to 248 bar and up to 260°C media temperature
- Highly reliable for continuous operation
- Designed for precised Control

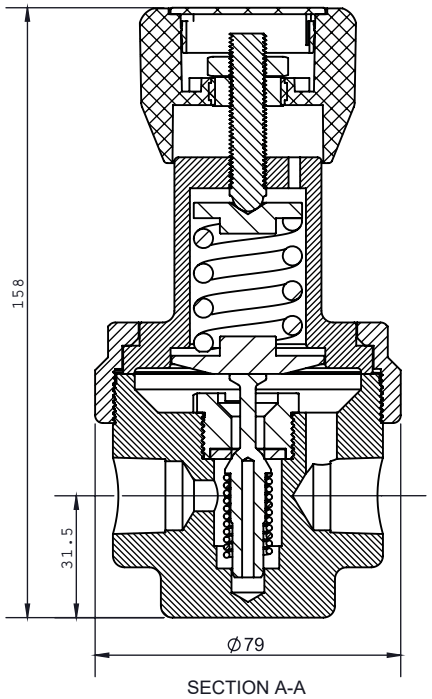
DESCRIPTION

Axis Pressure regulator is designed to deliver continuous & precise control to further system. It is single stage pressure control regulator. It is mainly used in instrumentation sample handling system for all type of Gas media application.

Used in Oil and refinery, power, chemical and any type of process industries.

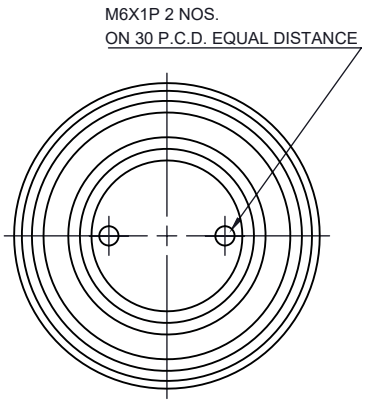
Many features of the PRG5 make it ideal for wide range of applications controlling pressures at low to adequate flows in gas media. It has wide operating range up to 248 bar and up to 260°C media temperature can be sustained. PRG5 can also be used for water application.

DIMENSION DETAILS



SECTION A-A

All Dimension are in MM



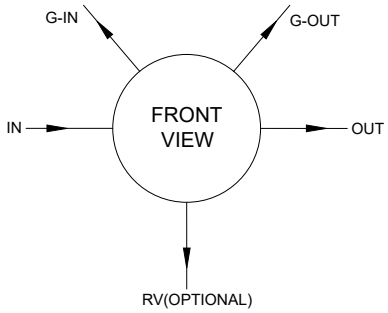
BOTTOM VIEW
MOUNTING DETAILS

TECHNICAL SPECIFICATIONS

Mounting	Wall / Line
Body Material	SS 316 / Brass / Others on request
Seat Material	PTFE / PEEK
Diaphragm	Nitrile / Viton / Metallic
Dimension	Refer Dimension Detail
Flow Capacity	Cv = 1.0
In/Out Connections	1/4" NPT (F) / 3/8" NPT (F) / 1/2" NPT (F)
Other Connections	1/4" NPT (F)
Inlet Filter	1/4" OD 5µ , 3/8" OD 5µ , 1/2" OD 5µ
Inlet Pressure	Max. 248 bar (3600 psig)
Outlet Pressure	Max. up to 6.8 bar (100 psig)

Note : Clear Filter for avoid choke up

PORT LOCATION



ORDERING INFORMATIONS

PRG5										
Body Material										
0										SS 316
1										Brass
2										Others on request
	Flow Coefficient (Cv)									
	0									1.0
		Seat Material								
		0								PTFE
		1								PEEK
			Diaphragm Material							
			0							Nitrile (Up to 70°C and 10 bar)
			1							Viton (Up to 170°C and 10 bar)
			2							Metallic (Above 170°C and 6.8 bar)
				Output Range						
				0						up to 3.45 bar (50 psig)
				1						Up to 6.8 bar (100 psig)
					Connections (Inlet & Outlet)					
					0					1/4" NPT (F)
					1					3/8" NPT (F)
					2					1/2" NPT (F)
						Pressure Gauge Selection				
						0				Without Gauge
						1				With Gauge
							Knob Option			
							0			Standard (Plastic)
							1			Metal Nut (Note 1)
								Type		
								0		Unbalanced
								1		Balanced

Note 1

Where media itself can increased temperature during regulation. for Example SF6 Gas

Inline Relief Valve
IRV1

IRV1

FEATURES

- Economical
- Inline installation
- Less maintenance
- Uni-directional safety relief

ADVANTAGES

- Used up to 10.3 bar and 170° C media temperature
- Highly reliable for continuous operation
- Designed for precised Control

DESCRIPTION

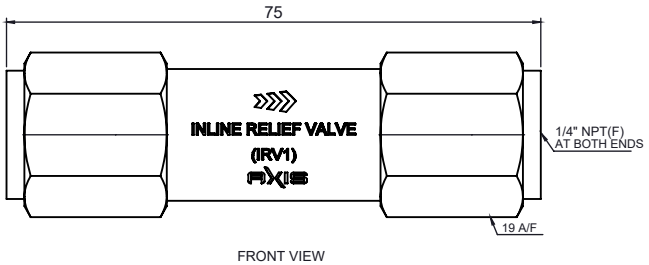
Axis Inline Relief Valve IRV1 is designed to deliver continuous Uni-directional flow control to further system and provide Uni-direction safety at predefined level. It is mainly used in instrumentation sample handling system for all type of Gas media application. Used in Oil and Gas refinery, power, chemical pharmaceutical, Pulp and any type of process industries.

Many features of the IRV1 make it ideal for wide range of applications controlling Uni-direction flow control and safety for gas media. It has wide operating range up to 10.3 bar and up to 170°C media temperature can be sustained

TECHNICAL SPECIFICATIONS

Mounting	Line Mount
Body Material	SS 316
Relief Pressure	Adjustable 3 to 15 psig (Predefine)
Seat Material	Soft Seated Viton
Dimension	Refer Dimension Detail
Connection	1/4" NPT (F)
Inlet Pressure	Max. 10.3 bar (150 psig)
Media Temperature	Max. 170°C

DIMENSION DETAILS



FRONT VIEW

All Dimension are in MM

Non Return Valve
NRV1

NRV1

CE RoHS

FEATURES

- Economical
- Inline installation
- Less maintenance
- Uni-directional safety relief

ADVANTAGES

- Used up to 413.6 bar and 170 °C media temperature
- Highly reliable for continuous operation
- Designed for precised Control

DESCRIPTION

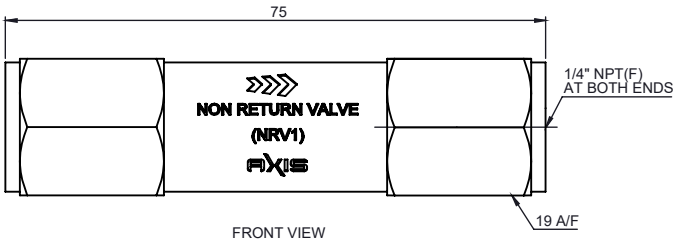
Axis Non Return Valve is designed to deliver continuous Uni-directional flow control to further system. It is mainly used in instrumentation sample handling system for all type of Gas media application. Used in Oil and Gas refinery, power, chemical pharmaceutical, Pulp and any type of process industries.

Many features of the NRV1 make it ideal for wide range of applications controlling Uni-direction flow control for gas media. It has wide operating range up to 413.6 bar and up to 170°C media temperature can be sustained

TECHNICAL SPECIFCATIONS

Mounting	Line Mount
Body Material	SS 316
Cracking Pressure	Adjustable up to 15 psig
Seat Material	Soft Seated Viton
Dimension	Refer Dimension Detail
Connection	1/4" NPT (F)
Inlet Pressure	Max. 413.6 bar (6000 psig)
Media Temperature	Max. 170°C

DIMENSION DETAILS



All Dimension are in MM

Relief Valve - Adjustable
RV1

RV1

FEATURES

- Economical
- Inline installation
- Less maintenance
- Uni-directional safety Relief

ADVANTAGES

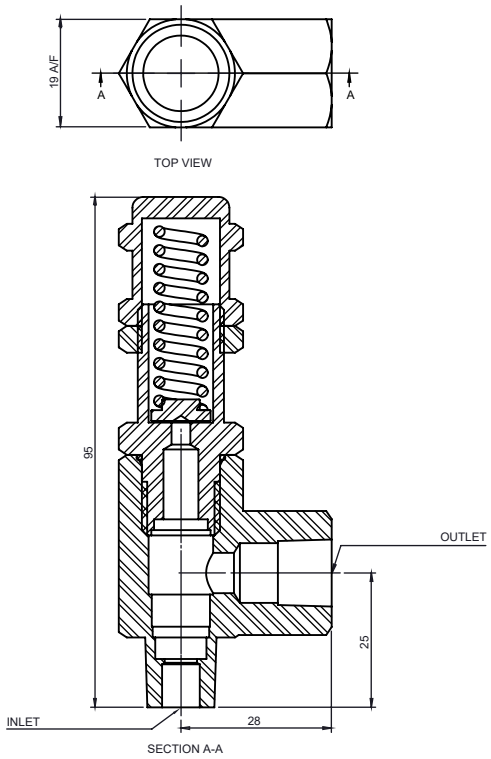
- Used up to 20 bar and 220°C media temperature
- Highly reliable for continuous operation
- Designed for precised control

DESCRIPTION

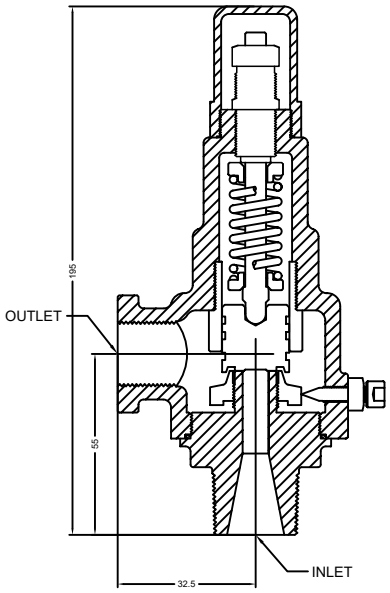
Axis Relief Valve RV1 is designed to deliver continuous Uni-directional flow control to further system and provide Uni-direction safety at predefined level. It is mainly used in instrumentation sample handling system for all type of Gas media application (Specially for Hydrogen). Used in Oil and Gas, Refinery, power, chemical pharmaceutical, Pulp and any type of process industries.

Many features of the RV1 make it ideal for wide range of applications controlling Uni-direction flow control and safety for gas media. It has wide operating range up to 20 bar and up to 220°C media temperature can be sustained.

DIMENSION DETAILS



1 - Other Gases



2 - Hydrogen Gas

All Dimension are in MM

TECHNICAL SPECIFICATIONS

Mounting	Line mount
Type	T Type
Body Material	SS 316 / CF8M (Cast)
Safety Relief Pressure	Adjustable 3 to 15 psig
Seat Material	Soft seated Viton / Kalrez
Dimension	Refer Dimensional detail
Connection*	1/4" NPT (M) x 1/4" NPT (F)
Inlet Pressure	Max. 20 bar (290 psig)
Media Temperature	Max. 220 °C
Seat Tightness standard	API 527; Leakage Class-VI

Note : (*) Others on customer request

SPARE / ACCESSORIES

Description	Part No.	Quantiy
Seat Holder	ASPL9022	1 No.

Dome Loaded Pressure Regulator
DLPG

DLPG

FEATURES

- Diaphragm sensing
- Large dome for improved stability
- Less Maintenance
- Dome-to-outlet pressure ratio approximately 1:1
- Balanced poppet design
- Pilot regulator for improved performance

ADVANTAGES

- Used up to 400 bar and 170°C media temperature
- Highly reliable for continuous operation
- Designed for precise control output

DESCRIPTION

Axis Dome loaded Pressure regulator is designed to deliver continuous & precise control to further system. It is single stage pressure control regulator. It is mainly used in instrumentation & processing system for all type of Gas media application.

Used in Oil and gas refinery, power, chemical and any type of process industries.

Many features of the dome loaded pressure regulator which makes it suitable for variety of application. It can be used for gasses like, O_2, N_2, Ar, H_2, C_2H_2, CO_2, N_2O and many more. It has wide operating range up to 400 bar and up to 170°C media temperature can be sustained.

ORDERING INFORMATION

DLPG									
	Body Material								
	0								SS 316
	1								Brass
	2								Other on request
		Flow Coefficient							
		0							14
		1							20
			Line Size						
			0						3/4”
			1						1”
			2						1 1/2”
			3						2”
			4						Other on request
				Inlet /Outlet Connection					
				0					ASME B16.5 Flange
				1					EN 1092 (DIN) Flange
				2					Female ISO/BSP parallel Thread
				3					Female NPT
				Diaphragm Material					
					0				Nitrile
					1				Viton
					2				Metallic
						Seat Material			
						0			Nitrile
						1			Viton
						2			PTFE / CFT
							Seat Seal Material		
							0		Nitrile
							1		Viton

TECHNICAL SPECIFICATION

Dome	SS 316, BRASS
Fasters	SS
Washer	AR
Dome plate	SS 316, BRASS

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Pilot Operated Pressure Regulator
PPRV

PPRV

FEATURES

- Self-operated using the inlet gas pressure energy
- Fully balanced control valve
- Extremely high rangeability
- Suitable for high-pressure reduction applications
- Available with an internal silencer

ADVANTAGES

- Designed for non-corrosive and filtered natural gas
- Body specifically designed for high capacity
- Low noise generation
- Long Life

DESCRIPTION

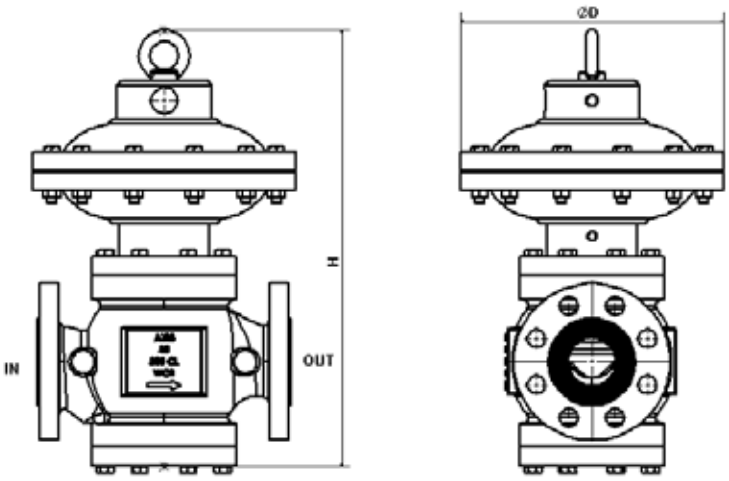
The PPRV pilot-operated is a downstream pressure regulator, pilot-controlled, for medium and high-pressure applications. Specially designed for natural gas transmission/ distribution systems and industrial/commercial applications. The Type PPRV provides smooth, quiet operation, tight shutoff, and long life, even in typical conditions.

The accuracy of the regulated pressure, the high rangeability ratio, together with the fast adaptation changes in the operating conditions, even in the presence of abrupt changes in the flow rate, make the regulator PPRV particularly suitable for use in gas supply installations of electric power generation stations.

The Design of the PPRV allows any installed units, to be updated or upgraded during the entire lifetime of the regulator as the operating requirements or any changes in the customer's specifications are modified. PPRV is a top-entry design, this allows for ease and cost-effective maintenance without dismantling the regulator body from the line.

The modular design allows a wide variety of configurations to suit the most demanding applications in gas transmission, gas supply to the industrial power plant, city gates, distribution utility systems, industrial installations, etc. The operation of the regulator PPRV is assured by a piloting system consisting, as a basic option, of two separate devices: the Pre-regulator and the Pilot.

DIMENSION DETAILS



FRONT VIEW SIDE VIEW

TECHNICAL SPECIFICATION

Functional Specifications	
Max. Inlet pressure	UPTO 102 bar
Outlet (downstream) pressure range	0.3 bar to 74 bar
Pressure difference between inlet and outlet	ΔP min= 0.5 bar; ΔP max= 100 bar
Maximum/ Minimum ambient temperature	-40 °C to 60 °C
Inlet gas temperature	-20 °C to 60 °C
Design features	
Dimensions	Φ280 mm; H= 470 (H)*
Nominal diameter and CG value	1" (DN 25) CG up to 578
	2" (DN 50) CG up to 2250
	3" (DN 80) CG up to 5200
	4" (DN 100) CG up to 8400
	6" (DN 150) CG up to 17500
	8" (DN 200) CG up to 27300
	10" (DN 250) CG up to 38500
	12" (DN 300) CG up to 58000
Type of connection	Class 150-300-600 RF or RTJ, according to ANSI B16.5 and PN 16/40 according to EN 1092, ISO 7005
Pilots accessories	Pneumatic remote set point
Materials	
Body	Cast steel ASTM A 352 LCC for classes ANSI 600 and 300; Cast steel ASTM A 216 WCB for classes Ansi 150 and PN 16/40
Head covers	ASTM A 350 LF2 forged steel
Stem	AISI 416 stainless steel
Plug	ASTM A 350 LF2 Nikel coated on sealing surface
Seat	Nitril Rubber Vulcanized on a metal support
Diaphragms	Rubberized canvas (performed by hot-pressing process)
Seals	Nitrile rubber
Pilot	Carbon steel
Connection fittings	In zinc-plated carbon steel according to DIN 2353; Stainless steel on request

* Only for DN 50 flange connections, for others it may change

SNOWIND
Thermal Components

Vortex Cooler & Vortex Tube
VC2& VT1

VC2

VT1

CE RoHS

FEATURES

- Cost effective
- Easy for installation
- Less maintenance
- No electricity required
- Ingress Protection IP65 approved

ADVANTAGES

- Less space for installation
- Provide cold air to stop industrial Panel overheating
- No moving parts
- Suitable for harsh condition

DESCRIPTION

Axis Vortex Cooler VC2 are designed to deliver continuous cold air to industrial panel to avoid overheating the system.

Axis Vortex Tube VT1 are designed to deliver cooling of cutting tools (lathes and mills, both manually-operated and CNC machines) during machining. for challenging environment recommended to use VC2.

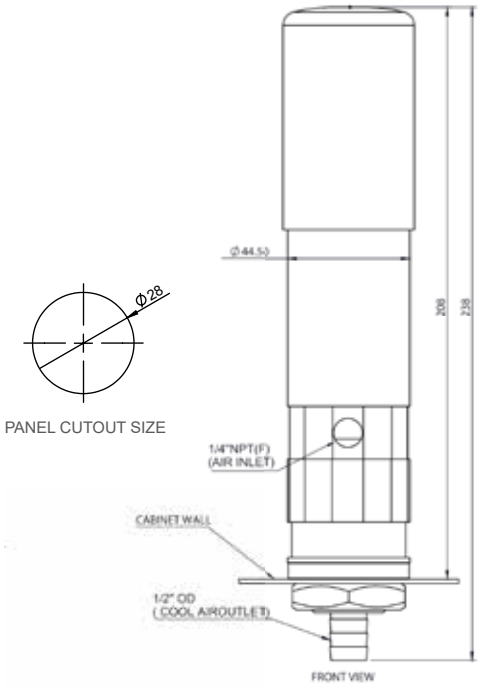
It is mainly used where electricity resources is a challenge. It is fully mechanical device hence very less maintenance is required. Used in Oil and Gas refinery, power, chemical, pharmaceutical industries, product chilling machine, industrial PC cooling as well as machine control panel.

Many features of the VC2 & VT1 make it ideal for wide range of applications for air cooling. It has main advantage is that it prevents dust and ingress protection of cabinet / panel / Machine hence eliminates down time of the system or machine.

Basically it works on vortex tube principle , the hot air produced by the hot end the vortex tube and cold air released at opposite end and enters where cooling is required. hot air released to the atmosphere via vent entry of VC2 & VT1.

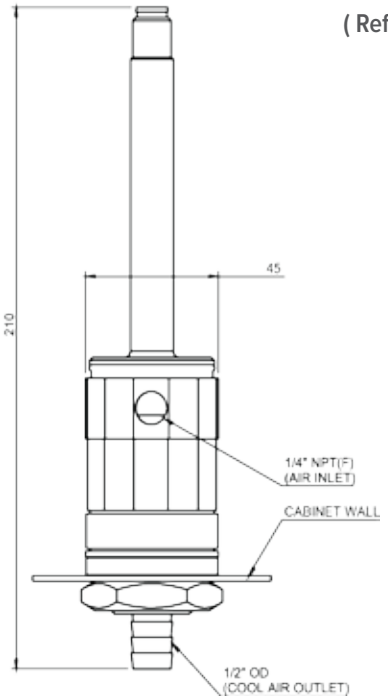
VC1 (IP65 Approved)

DIMENSION DETAILS



VC2

(Refer Note 1)



VT1

All Dimension are in MM

TECHNICAL SPECIFICATIONS

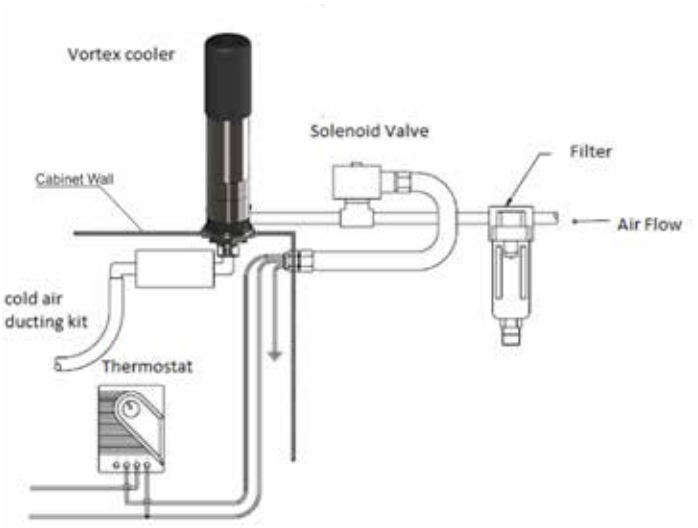
Mounting	Panel
Cooling Media	Air
Body Material	SS 316
Dimension	Refer Dimension Detail
Connection	1/4" NPT (F) for air inlet and 1/2" OD for cooling air outlet
Cooling Capacity	Max. 695 W (2370 Btu/Hr.)
Air consumption	Max. 34 CFM and 985 LPM

Air Pressure (Bar)	Hot Outlet Air Temperature	Cold Outlet Air temperature
1	+10	-1
2	+10	-5
3	+10	-8
4	+13	-11
5	+15	-15
6	+20	-15
7	+20	-17
8	+20	-18

For Example if the cabinet cooler inlet temperature is 30°C and Air Pressure is 8 Bar then hot side outlet temperature is 50°C, which means +20°C temperature difference and cold side outlet temperature 12°C, which means -18°C temperature difference. this is to guide on max. temperature achievable however calculation for heatload. cooling load requirement is essential.

Note 1 : Its Hot surface so do not Touch it while in working condition.

INSTALLATION TYPICAL



SPARE / ACCESSORIES

Description	Part No.	Quantity
Vortex Cap	ASPL7070	1 No.
Drainded Hose pipe with clamp	ASPL9049	1 No.
Solenoid Valve**		1 No.
Air Filter Regulation**		1 No.
Thermostat**		1 No.
O-Ring Set (VC-01)	ASPL10874	1 SET.
O-Ring Set (VC-02)	ASPL10875	1 SET.

(** As per Installation.)

Peltier Air Conditioning Unit
PAC1 & PAC2

PAC1

PAC2

FEATURES

- Cost effective
- Easy for installation
- Virtually maintenance free
- No compressor

ADVANTAGES

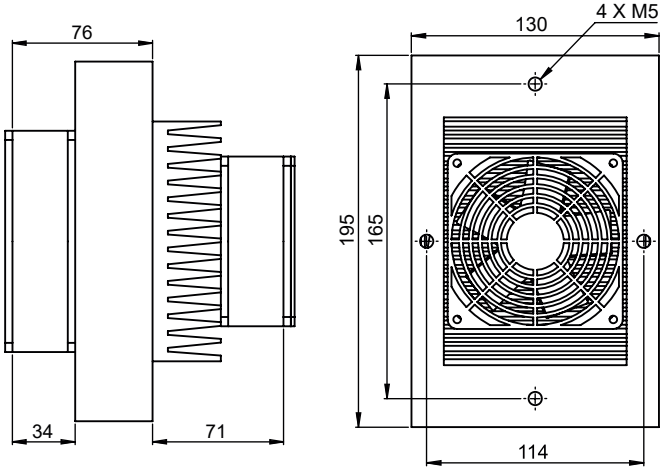
- Less space for installation
- Environmental friendly and safe
- Precise control as final element is electronic (Peltier)
- Can handle many typical application where other cooling device fails to perform

DESCRIPTION

Axis Peltier Air conditioning unit - PAC1 and PAC2 is designed to deliver continuous cooling to industrial panel to avoid overheating the system. It is mainly used where refrigeration based (compressor based) resources is a challenge. It is fully mechanical device hence very less maintenance is required. Used in all type of process industries where small panel / enclosure or switching cabinet want to cool.

Many features of the PAC1 and PAC2 make it ideal for wide range of cooling application. Basically it works on Peltier Effect; Peltier blocks are used with electronic circuit. PAC1 and PAC2 can work in the most adverse environment conditions. They are suited for working in high ambient temperatures or heavily polluted ambient air. The warm air inside the switching cabinet is blown into the cold exchanger by a fan and thereby cooled. There are not refrigerant and thus no danger of leakage. In addition, our switching cabinet coolers can therefore be used in moving or accelerating systems

PAC1 DIMENSION DETAILS

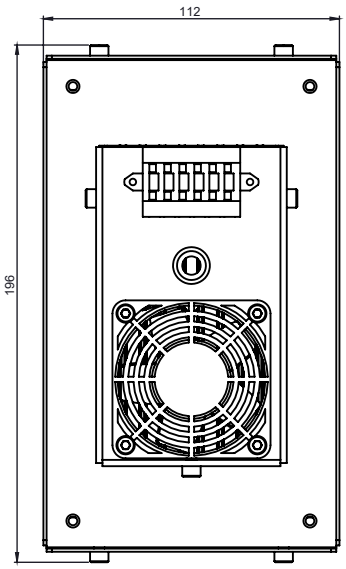


All Dimension are in MM

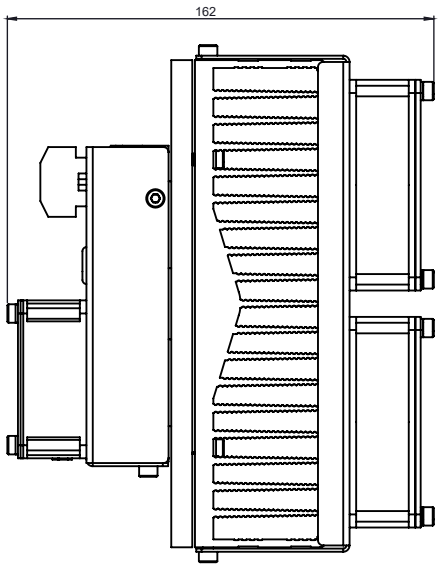
PAC1 TECHNICAL SPECIFCATIONS

Mounting	Vertical mount
Power Supply	24 V DC
Dimension	Refer Dimension Detail
Operating Temperature	-40°C to + 70°C
Nominal Power	Max. 100 W
Weight	2.5 Kg

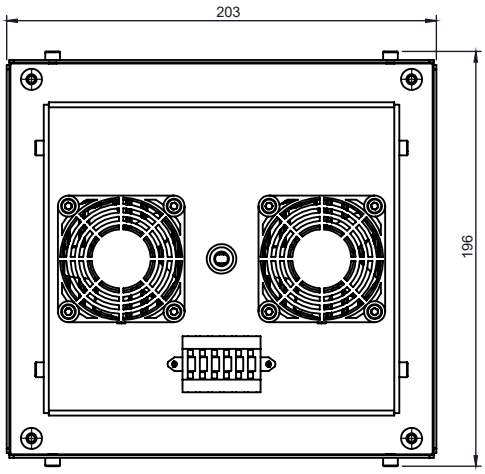
PAC2 DIMENSION DETAILS



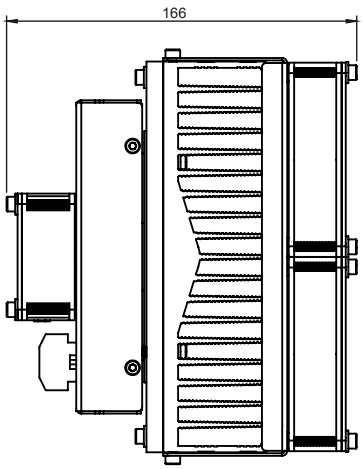
FRONT VIEW



SIDE VIEW



FRONT VIEW



SIDE VIEW

All Dimension are in MM

PAC2 TECHNICAL SPECIFCATIONS

Mounting	Vertical mount
Power Supply	24 V DC
Dimension	Refer Dimension Detail
Operating Temperature	+4°C to + 50°C
Nominal Power	Max. 90 W, 160 W
Weight	2.5 Kg, 4.6 Kg

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Air Conditioning Unit
ACU1 & ACU2

ACU1 - INDOOR

ACU2 - OUTDOOR

FEATURES

- Low noise and vibrations
- Easy Maintenance design
- Effective fresh cooling
- Efficient filter for dust protection
- High quality MS CRCA or SS 304, SS 316 MOC as per requirement
- Excellent thermal insulation for better performance

ADVANTAGES

- 100% tested for performance on specially created testing facility for onsite load conditions.
- Equipment design is very user friendly with full and easy service access to all components for regular service.
- Unit's unique design and component reliability ensures minimum servicing except routine filter condenser cleaning or general maintenance.
- This can work within harsh environment and of 8°C to 50°C areas.

DESCRIPTION

The basic requirements for any Air Conditioning Unit is to perform according to given parameter with trouble free operations. These are at mainly remote locations or at very challenging locations or experiencing extreme weather conditions.

AXIS brings you the equipment to meet diverse and exacting demand which runs trouble free for 24x7 in Power generation sector, Chemical Plants, Steel Plants, Process Automations, Porta Cabins, Drive Panels, PLC Panels, Instruments Panels, Textile Machine Panels, Food Processing machinery etc.

ACU1100

ACU2150

ACU1 - INDOOR

TECHNICAL SPECIFICATIONS

Details	ACU1035	ACU1085	ACU1100	ACU1150	ACU1300	ACU1300P
Power Supply	1-Phase / 230 VAC, 50 Hz					
Current Consumption	≈ 3.63A	≈ 3.80A	≈ 3.85A	≈ 4.10A	≈ 8.85A	≈ 10.25A
Type of connection	Screw type terminals with cable glands					
Dimensions in mm (H X W X D)	710 x 300 x 254	735 x 350 x 264	850 X 350 X 193	900 x 475 x 263	1144 x 500 x 335	962 x 640 x 657
Cooling Capacity @35° C	390 W	890 W	1000 W	1820 W	4200 W	3500 W @
Air Flow in CFM (Free Flow)	150 / 260	160 / 450	150 / 300	180 / 500	480 / 790	400 / 900
Type of Refrigerant	R134a					
Compressor Type	Reciprocating					
Temperature Controller	30° C (Factory Set Point)					
Duty Cycle	100%					
Operating Ambient Temperature	8° C to 50° C					
Weight (Without packing)	28 kg	33 kg	31 kg	44 kg	75 kg	81 kg
Color	RAL7035 (Other on request)					
Housing Design	MS CRCA Powder Coated (Other on request)					
IP Class	IP 34 (For External) / IP 54 (For Internal) *					

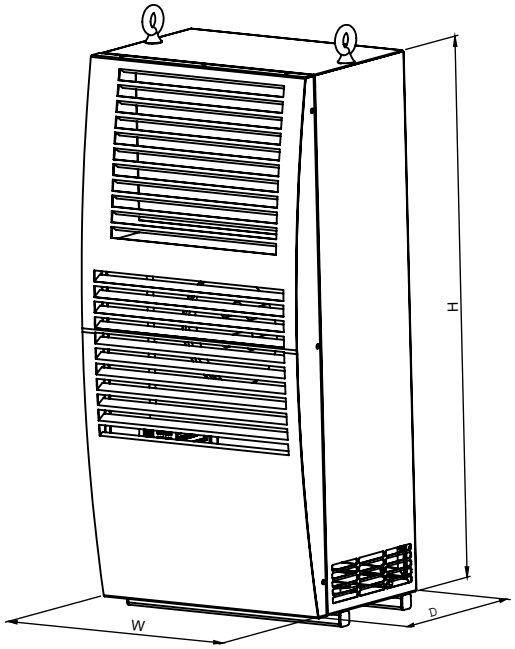
Note : (*) ACU1100 IP certificate not available

ACU2 - OUTDOOR

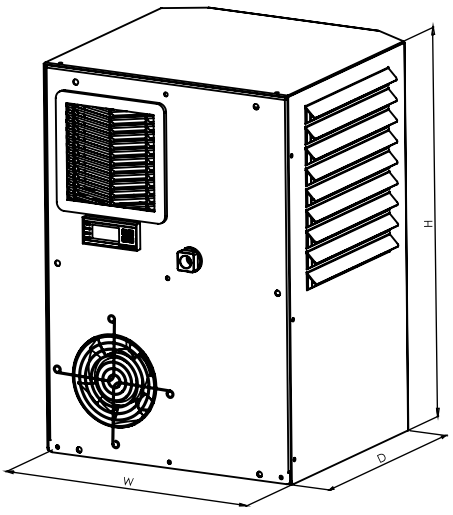
TECHNICAL SPECIFICATIONS

Details	ACU2035	ACU2085	ACU2150	ACU2300
Power Supply	1-Phase / 230 VAC, 50 Hz			
Current Consumption	≈ 1.6A	≈ 3.80A	≈ 2.9A	≈ 8.0A
Type of connection	Screw type terminals with cable glands			
Dimensions in mm (H X W X D)	487 x 339 x 318	700 x 320 x 350	803 x 330 x 405	965 x 620 x 560
Cooling Capacity @35° C	390 W	890 W	1750 W	4200 W
Air Flow in CFM (Free Flow)	150 / 260	160 / 450	180 / 500	480 / 790
Type of Refrigerant	R134a			
Compressor Type	Reciprocating			
Temperature Controller	30° C (Factory Set Point)			
Duty Cycle	100%			
Operating Ambient Temperature	8° C to 50° C			
Weight (Without packing)	25 kg	31 kg	40 kg	87 kg
Color	RAL7035 (Other on request)			
Condenser Coil	Blue fins (Anti corrosive)			
Housing Design	MS CRCA Powder Coated (Other on request)			

DIMENSION DETAILS



ACU1



ACU2

ORDERING INFORMATION

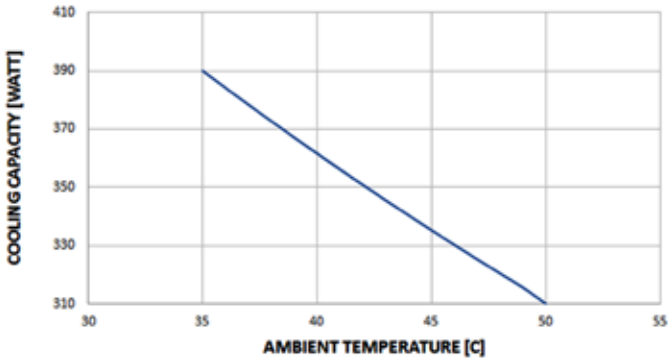
ACU1						
	Capacity					
	035					350W
	085					850W
	100					1000W
	150					1500W
	300					3000W
		Power Supply				
		0				115 VAC, 50Hz (For Future)
		1				230 VAC, 50 Hz
			Housing Material			
			0			MS CRCA Sheet Steel Painted
			1			SS 304
			2			Others
				Alarm Option		
				0		Without
				1		With
					CE Certified	
					0	Without
					1	With

ACU2					
	Capacity				
	035				350W
	085				850W*
	150				1500W
	300				3000W
		Power Supply			
		0			115 VAC, 50Hz (For Future)
		1			230 VAC, 50 Hz
			Housing Material		
			0		MS CRCA Sheet Steel Painted
			1		SS 304
				Alarm Option	
				0	Without
				1	With

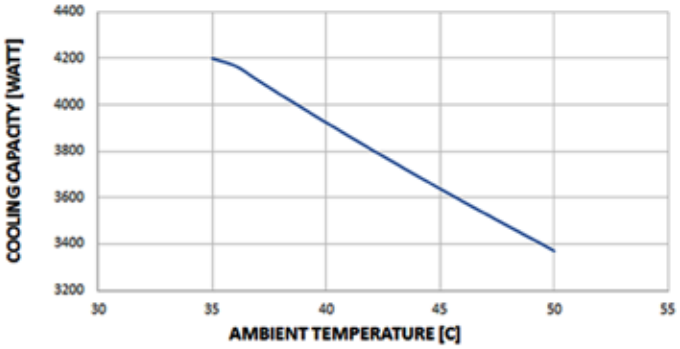
Note : (*)ACU2085 Under beta testing

PERFORMANCE CHART FOR ALL UNITS

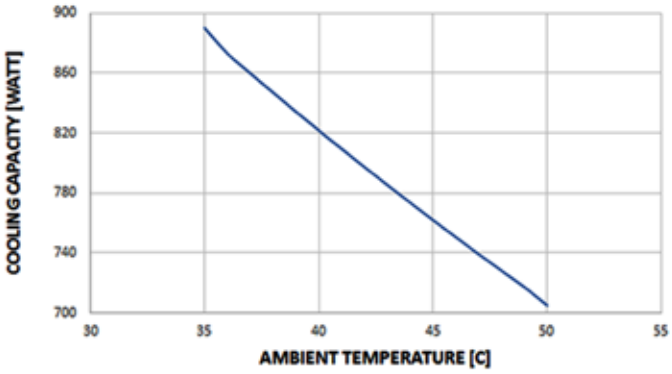
ACU1035 & ACU2035



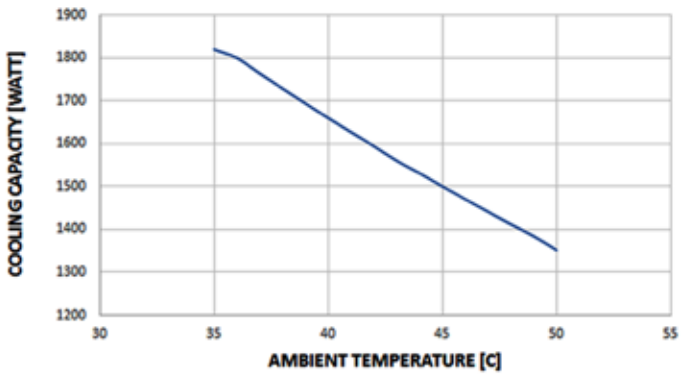
ACU1300 & ACU2300



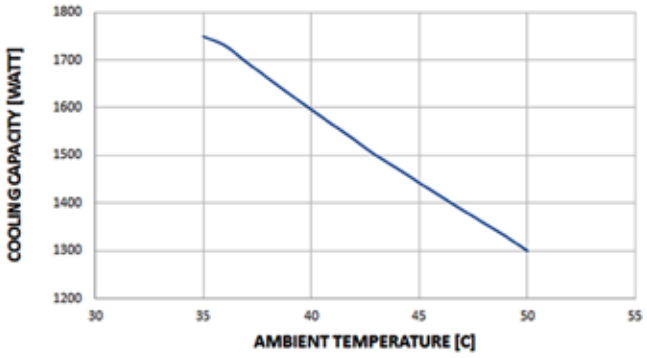
ACU1085



ACU1150



ACU2150



Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Air Conditioning Unit
ACUX

FEATURES

- Suitable to Zone 1 & 2, IIC + H_2 Hazardous area or Safe area
- Low Noise and Vibrations
- Ease of Maintenance
- Efficient filter against Dust
- High Quality MS CRCA or SS 304 , SS 316
- Excellent Thermal Insulation
- Stainless Steel drain pan

ADVANTAGES

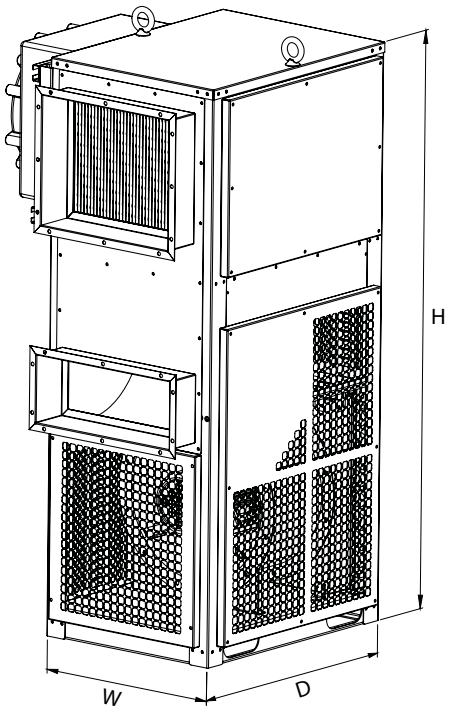
- 100% tested for performance on specially designed and tested for onsite load conditions
- Compressor carries its own compliance certificate and fully complying to IEC standard.
- Refrigerant is CFC free and fully comply with Montreal Protocol Requirement
- The flameproof Ex d or Suitable to Safe area weather proof electrical enclosure
- Flameproof or Safe area electrical motors
- This can work in harsh environment within -15°C to 50°C (Upto 60°C as option) temperature
- Unit's unique design and component reliability ensures minimum servicing except routine filter / condenser cleaning or general maintenance.
- SS Material option ensures high reliability of the unit's life

DESCRIPTION

The basic requirement for any Air Conditioning units is to perform according to given parameter with trouble free operations. Specifically design for control Panel application. These are mainly used at remote locations or at very challenging locations or experiencing extreme weather conditions.

AXIS brings you the Explosion proof or Safe area Air Conditioner to meet diverse and exacting demand which runs trouble free for 24x7 in Oil, Gas, Refinery and Petrochemical industries for conditioning of air.

DIMENSION DETAILS



All Dimension are in MM

COMPONENT DETAILS

Casing

Unit casing fabricated from painted MS CRCA sheet steel (Optional: SS 304 / SS 316 Grade Stainless Steel)

Compressor

Hermetically sealed reciprocating type compressor with flameproof terminal box is certified for Zone 1 & 2, IIC area class or Suitable to Safe area

Condenser / Cooling Coils

Fabricated from copper tubing with anti-corrosive coating aluminum fins and end plates fully compliancefor long service life in corrosive environment.

Cooling (Supply air) Fan

Designed for continuous operation. Casing is Galvanised and impeller is, fully lined with GI / Copper / Aluminum as per requirement. Fan gives adequate air circulation flow and static pressure.

Condenser Fan

Designed for continuous operation. Galvanised casing and aluminum impeller assembly with alloy hub.

Fan Motors

Zone 1 & 2, IIC Certified Flameproof Motor or Suitable to Safe area.

TECHNICAL SPECIFICATION

General	
Area Class	Suitable to Zone 1 & 2, IIC or Safe area
Mounting	Standalone
Dimensions (W x D x H)	1 Ton (500+350 X 650+100 X 1430 mm)
	0.62 Ton (400+250 X 500+100 X 1050 mm)
	1.5 Ton (610+350 X 730+100 X 1650 mm)
Refrigerant Type	R134a
Operating Temperature	-15°C to 55°C (Upto 60°C as option)
Power Supply	3 Phase + N, 415 VAC, 50 Hz
	1 Phase, 230 VAC, 50 Hz

ORDERING INFORMATION

ACUX						9	
	Area classification*						
	0						Hazardous area Zone 1 & 2, IIA / IIB
	1						Hazardous area Zone 1 & 2, IIB+H2
	2						Safe area
	3						Hazardous area Zone 1 & 2, IIC
		Power Supply					
		1					3P + N, 415 VAC, 50 Hz
		2					1P, 230 VAC, 50 Hz
		3					Others
			Housing Material				
			0				MS CRCA
			1				SS 304
			2				SS 316
				Capacity			
				1			1 Ton
				2			0.62 Ton
				3			1.5 Ton
					Alarm Option		
					0		Without
					1		With

Note : (*) All Components are individual certified

Ex-Proof Split Air Conditioning Unit
ACUX-S

Indoor Unit - IDU

Outdoor Unit - ODU

FEATURES

- Suitable to Zone 1 & 2, IIB + H_2 Hazardous area or Safe area
- Low Noise and Vibrations
- Ease of Maintenance
- Efficient filter against Dust
- High Quality MS CRCA or SS 304 , SS 316
- Excellent Thermal Insulation
- Stainless Steel drain pan

ADVANTAGES

- 100% tested for performance on specially designed and tested
- Compressor carries its own compliance certificate and fully complying to IEC standard.
- Refrigerant is CFC free and fully comply with Montreal Protocol Requirement
- The flameproof Ex d or Suitable to Safe area weather proof electrical enclosure
- Flameproof or Safe area electrical motors
- 8°C to 55°C (For other lower and higher Ambient temperature consult factory)
- Unit's unique design and component reliability ensures minimum servicing except routine filter / condenser cleaning or general maintenance.
- SS Material option ensures high reliability of the unit's life

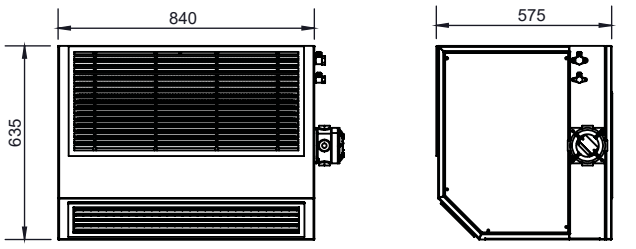
DESCRIPTION

The basic requirement for any Air Conditioning units is to perform according to given parameter with trouble free operations. Specifically design for control Panel application. These are mainly used at remote locations or at very challenging locations or experiencing extreme weather conditions.

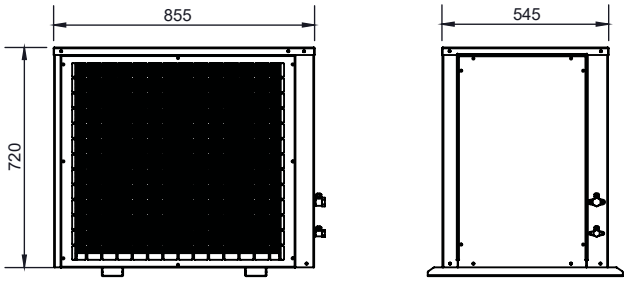
AXIS brings you the Explosion proof or Safe area Split Air Conditioner to meet diverse and exacting demand which runs trouble free for 24x7 in Oil, Gas, Refinery and Petrochemical industries for conditioning of air.

DIMENSION DETAILS

Indoor Unit - IDU



Outdoor Unit - ODU



All Dimension are in MM

COMPONENT DETAILS

Casing
Unit casing fabricated from painted MS CRCA sheet steel (Optional: SS 304 / SS 316 Grade Stainless Steel)

Compressor
Hermetically sealed reciprocating type compressor with flameproof terminal box is certified for Zone 1 & 2, IIC area class or Suitable to Safe area

Condenser / Cooling Coils
Fabricated from copper tubing with anti-corrosive coating aluminum fins and end plates fully compliancefor long service life in corrosive environment.

Cooling (Supply air) Fan
Designed for continuous operation. Casing is Galvanised and impeller is, fully lined with GI / Aluminum as per requirement. Fan gives adequate air circulation flow and static pressure.

Condenser Fan
Designed for continuous operation. Galvanised casing and aluminum impeller assembly with alloy hub.

Fan Motors
Zone 1 & 2, IIC Certified Flameproof Motor or Suitable to Safe area.

Power Distribution box
Flame proof Enclosure for hazarduos area Zone 1 & 2, IIA / IIB, IIB+H2, IIC (on request) supplied loose.

TECHNICAL SPECIFICATION

General	
Area Class	Suitable to Zone 1 & 2, IIA / IIB + H2, T3 or Safe area
Mounting	Standalone
Dimensions	Indoor Unit:- 635 (H) x 840 (W) x 575 (D) Outdoor Unit:- 720 (H) x 855 (W) x 545 (D)
Cooling Capacity	2 TR @ 35°C
Refrigerant Type	R407c
Weight (IDU+ODU)	Approx. 200 Kg (80 + 120)
Operating Temperature	8°C to 55°C (For other lower and higher Ambient temperature consult factory)
Electrical	
Power Supply	3 Phase + N, 415 VAC, 50 Hz
Power Consumption	Approx. 6.5 KW
Thermostat	24°C (Factory set and supplied loose)

ORDERING INFORMATION

ACUX-S							9	
	Area classification							
	0							Hazardous area Zone 1 & 2 , IIA / IIB
	1							Hazardous area Zone 1 & 2 , IIB+H2
	2							Safe area
	3							Hazardous area Zone 1 & 2 , IIC
		Power Supply						
		1						3P + N , 415 VAC , 50 Hz
			Housing Material					
			0					GI, Painted
			1					SS 304
				Capacity				
				2				2 Ton
					Alarm Option			
					0			Without
						Certification		
						0		Complete unit CCoE Certified
						1		Individual component CCoE Certified

Chiller Unit
CUSA & CUEX

CUSA

CUEX

FEATURES

- Safe Area or Suitable to Zone 1 & 2, IIB + H2 hazardous area
- Ease of Maintenance
- Low Noise and Vibration
- Efficient cooling capacity
- High Quality CRCA or SS 304 or SS 316
- Individual electrical components are ATEX / PESO certified

ADVANTAGES

- 100 % tested for performance on specially designed and tested for onsite ambient condition.
- Compressor carries their own compliance certificate and fully complying with IEC standards (Ex proof chiller).
- Refrigerant is CFC free and fully complies with Montreal Protocol requirement.
- Unit's unique design and component reliability ensures minimum servicing excepting routine
- Condenser and water tank cleaning or general maintenance within 8°C to 50°C *
- SS Material options ensure high reliability of the unit's life.

Note : (*) For higher ambient temperature contact Axis solution

DESCRIPTION

Axis make chiller unit is capable to lower the sample temperature for the sample analysis for analyzer and trouble-free operation. Chilled water to be flow through external heat exchanger (shell & tube type) and the same will maintain the sample temperature to be analysis.

This chiller fulfils the requirement where requirement of special cooling or cooling water utility is not available at site. Chiller can be supplied in various ranges of cooling capacity as per the requirement. It can be supplied for single to multi analyzers in a single house.

The basic requirements for any Chiller units are to perform according to given parameter with trouble free operations. Specifically design for sample cooling application. Depending on flow rate, different circulating pump capacities are optionally available.

Axis brings you the safe area / Hazardous Area Chiller Unit to meet diverse and exacting demand which runs trouble free for 24 x 7 days in Power Plant, Refinery and Petrochemical Industries for cooling the sample to be analyzed

ORDERING INFORMATION

CUSA					9	
		Power Supply				
		0			3 Phase + N , 415 VAC, 50 Hz	
			Cooling Capacity			
			0		1.5 TR**	
			1		3TR**	
			2		5 TR**	
			3		7 TR**	
			4		10 TR**	

Note : (*) Contact Axis solutions for chilled water flow rate
(**) Cooling capacity based upon 35 °C ambient,
Min set point will be 20 °C (CUSA) & be 10 °C (CUEX)
(***) Individual component certified

ORDERING INFORMATION

CUEX						9	
	Area Classification						
	0						Hazardous Area Zone - 1, IIA, IIB, T4
	1						Hazardous Area Zone - 1, IIB +H2, T4
		Power Supply					
		0					3 Phase + N , 415 VAC, 50 Hz
			Cooling Capacity				
			0				0.84 TR**
			1				1.5 TR**
			2				2 TR**
				Certification			
				0			CCOE certificate***
				1			ATEX***

TECHNICAL SPECIFICATIONS

Area Class	Safe Area or Suitable to Zone 1 & 2, IIA IIB + H2. Entry: M25
Certification available	PESO / ATEX Certified
Refrigerant	R134a /R407c
Working ambient Temperature	8°C to 50°C
Coolant	Water
Chilled Water connection	Depend on Model
Return water connection	Depend on Model
Water Drain connection	Depend on Model
Water Tank fill up connection	Depend on Model
Water Tank Over flow connection	Depend on Model

COMPONENT DETAILS

Casings:
CRCA Sheet Duly Powder Coated (Color RAL7035 standard) or SS 304 / SS 316 on request

Compressor :
Hermetically sealed reciprocating type compressor with flameproof terminal box is certified for zone 1 & 2, IIC area class.

Condenser Coil :
Coil type or water-cooled type.

Fan Motors :
Safe area or Zone 1 & 2, IIA, IIB+H2 certified flame-proof motor. (For coil type only)

Chiller :
Coil Type or Shell & Tube Type

Chilled Water Pumps :
Safe area or zone 1 & 2, IIC certified flame-proof.

Temperature Controller :
Digital (For Safe Area) and Thermostat (For Hazardous Area)

Water Level Controller :
Safe area or zone 1 & 2, IIC certified flame-proof.

Alarms :
Low water level, No flow of Chilled water


BASPA
SWAS Components

Sample Cooler
HBRIX


HBRIX - LE / XL


HBRIX - MM / MM-E


HBRIX - SL / SL-E

FEATURES

- Corrosion Resistance Material
- Safe And Accurate Sampling
- Maintenance free design
- Removable Shell
- Dual Helical Coil
- Flange with gasket type design to reduce assembly time

ADVANTAGES

- Compact Design
- Minimum cooling water consumption
- No leakage up to define range
- Wide range for different operation of temperature and pressure
- Long life cycle
- Cooler calculation provided for specific stream for future

DESCRIPTION

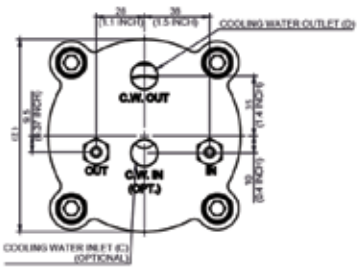
The Sample Cooler is a compact unit specially designed as per American Society of Mechanical Engineers (ASME) Standard and recommendations to handle high pressure and high temperature applications.

This is the most efficient and cost effective sample cooler. The SS 316 (Optional Inconel) sample coil is single continuous length without any Joint. The shell is SS 304 (Optional SS 316 and Inconel) complete including the mounting bolts and bracket. The shell is removable type for inspection and cleaning Purpose without disconnecting sample line.

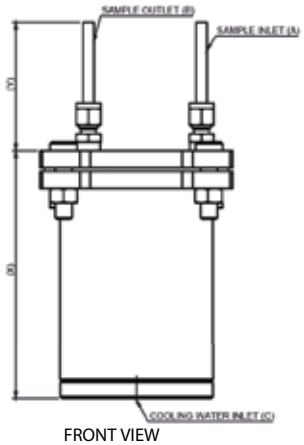
Sample Cooler is used to take samples of gas, water or steam from boilers at high temperature and pressure. The cooling water injected from the bottom of the shell will counter the flow of sample directing from the top, condenses the sample, and cool hot fluids efficiently to enable safe sampling.

DIMENSION DETAILS

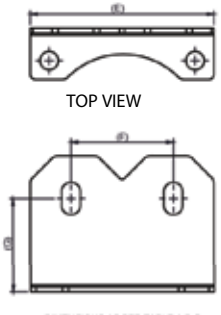
HBRIX-SL / SL-E



TOP VIEW



FRONT VIEW

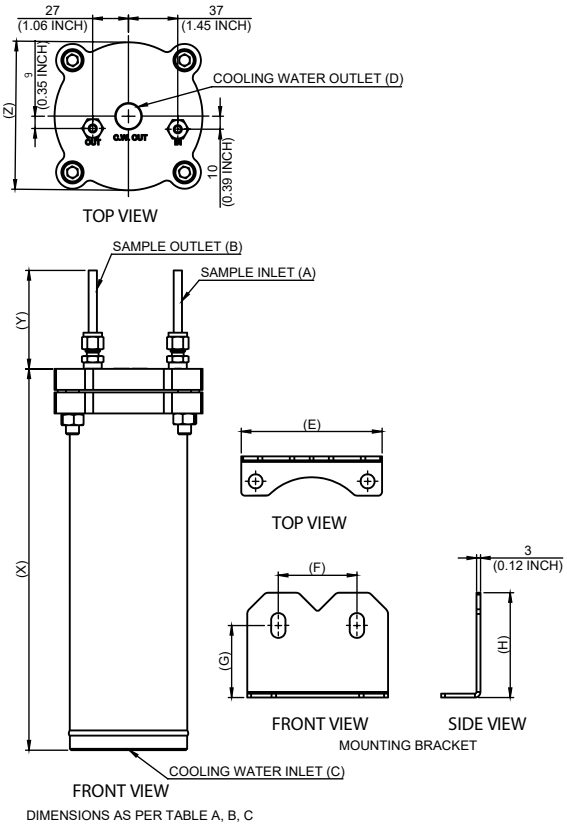

TOP VIEW

FRONT VIEW

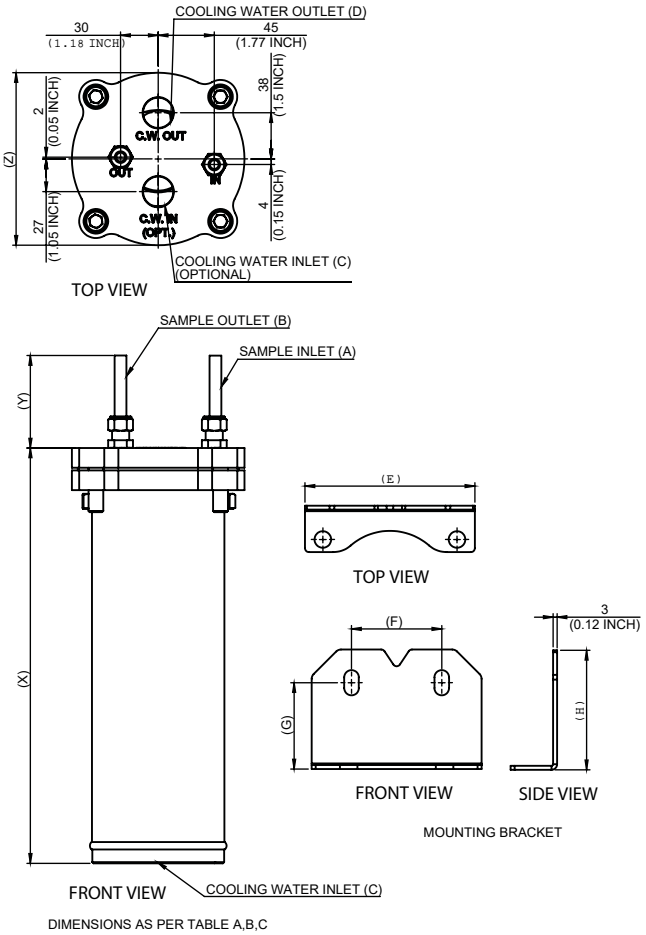

SIDE VIEW

DIMENSIONS AS PER TABLE A, B, C

HBRIX-MM / MM-E



HBRIX-LE / XL



SPECIFICATIONS

TABLE-A

PART NO		OVER ALL DIMENSSION DETAILS					
		X		Y		Z	
		inch	mm	inch	mm	inch	mm
HBRIX	SL	5.7	151	2.9	75	4.44	113
HBRIX	SL-E	4	100	2.9	75	4.44	113
HBRIX	MM	11.45	298	2.9	75	4.44	113
HBRIX	MM-E	9.1	231	2.9	75	4.44	113
HBRIX	LE	13.26	341	2.9	75	5.5	140
HBRIX	XL	16	410	3.5	75	5.63	143

TABLE-B

PART NO		MOUNTING BRACKET WITH MOUNTING DETAILS							
		E		F		G		H	
		inch	mm	inch	mm	inch	mm	inch	mm
HBRIX	SL/SL-E, MM/MM-E	4.23	107.5	2.36	60	2.16	55	3.14	80
HBRIX	LE / XL	5.03	128	2.67	68	2.55	65	3.54	90

TABLE-C					
PART NO		END CONNECTION DETAILS			
		A	B	C	D
HBRIX	SL / SL-E	1/4" OD tube	1/4" OD tube	3/8" NPT (F)	3/8" NPT (F)
HBRIX	MM / MM-E	1/4" OD tube	1/4" OD tube	3/4" NPT (F)	1/2" NPT (F)
HBRIX	LE	3/8" OD Tube	3/8" OD Tube	3/4" NPT (F)	3/4" NPT (F)
HBRIX	XL	3/8" OD Tube	3/8" OD Tube	3/4" NPT (F)	3/4" NPT (F)

PERFORMANCE SPECIFICATIONS

Sr. No.	MODEL	SHELL RATING	TUBE RATING	SHELL MOC	TUBE MOC
1	HBRIX-SL / SL-E	31 barg at 343°C	5700 psig at 1000°F (393 barg at 537°C)	SS 304 / 316	SS 316 1/4" OD x 1.2 mm (0.049")
		31 barg at 343°C	7811 PSIG at 1000°F (538 barg at 537°C)	Inconel 625	Alloy 625 1/4" OD x 1.2 mm (0.049")
2	HBRIX-MM / MM-E	31 barg at 343°C	5700 psig at 1000°F (393 barg at 537°C)	SS 304 / 316	SS 316 1/4" OD x 1.2 mm (0.049")
		31 barg at 343°C	7811 psig at 1000°F (538 barg at 537°C)	Inconel 625	Alloy 625 1/4" OD x 1.2 mm (0.049")
3	HBRIX-LE	31 barg at 260°C	3648 psig at 1000°F (252 barg at 537°C)	SS 304 / 316	SS 316 3/8" OD x 1.6 mm (0.049")
		31 barg at 343°C	4964 psig at 1000°F (342 barg at 537°C)	Inconel 625	Alloy 625 3/8" OD x 1.6 mm (0.049")
4	HBRIX-XL	31 barg at 260°C	3648 psig at 1000°F (252 barg at 537°C)	SS 304 / 316	SS 316 3/8" OD x 1.6 mm (0.049")
		31 barg at 343°C	4964 psig at 1000°F (342 barg at 537°C)	Inconel 625	Alloy 625 3/8" OD x 1.6 mm (0.049")

TECHNICAL SPECIFICATION

General	
Mounting	Clamp provide with each cooler for mounting
Dimensions	Refer Table A
Sample	Gas, Steam and Water
Tube Material	SS 316/ Alloy 625 (Inconel)
Shell material	SS 304/ SS 316/ Alloy 625 (Inconel)
Connections	
Sample Inlet	Refer Table C column A
Sample Outlet	Refer Table C column B
Cooling Water Inlet	Refer Table C column C
Cooling Water Outlet	Refer Table C column D

Part No.	Cooling Area	Weight
HBRIX SL-E	1 ft^2	4 kg
HBRIX SL	2 ft^2	5.1 kg
HBRIX MM-E	3.1 ft^2	6.3 kg
HBRIX MM	4.4 ft^2	7.7 kg
HBRIX LE	5.8 ft^2	11.4 kg
HBRIX XL	7.2 ft^2	13 kg

ORDERING INFORMATION

HBRIX					
	Cooler Model				
	SL-E				Small Eco
	SL				Small
	MM -E				Medium Eco
	MM				Medium
	LE				Large
	XL				Extra Large
		Shell Material			
		S4			SS 304
		S6			SS 316
		SI			Inconel
			Tube Material		
			T6		SS 316
			TI		Inconel
				CERTIFICATION	
				N	Standard Certificate

Note: HBRIX-SL Series cooler are available with Shell MOC: SS 304 and Tube MOC: SS 316 Only.

PRODUCT / ACCESSORIES

HBRIX-SL / SL-E

Description	Part No.	Quantity
Sample Cooler	HBRIX-SL / SL-E	1 No.
SS 316 Union 1/4" OD x 1/4" OD	SS-400-6	2 No.
SS 316 Male Connector, 3/8" NPT (M) x 3/8" OD	SS-600-1-6	2 No.

HBRIX-MM / MM-E

Description	Part No.	Quantity
Sample Cooler	HBRIX-MM / MM-E	1 No.
SS 316 Union 1/4" OD x 1/4" OD	SS-400-6	2 No.
SS 316 Male Connector 1/2" NPT (M) x 1/2" OD	SS-810-1-8	1 No.
SS 316 Male Connector 3/4" NPT (M) x 3/4" OD	SS-1210-1-12	1 No.

HBRIX-LE

Description	Part No.	Quantity
Sample Cooler	HBRIX-LE	1 No.
SS 316 Union 3/8" OD x 1/4" OD	SS-600-6-4	2 No.
SS 316 Male Connector 3/4" NPT (M) x 3/4" OD	SS-1210-1-12	2 No.

HBRIX-XL

Description	Part No.	Quantity
Sample Cooler	HBRIX-XL	1 No.
SS 316 Union 3/8" OD x 1/4" OD	SS-600-6-4	2 No.
SS 316 Male Connector 3/4" NPT (M) x 3/4" OD	SS-1210-1-12	2 No.

SPARE / ACCESSORIES

Description	Part No.	Quantity
Relief Valve 3/8"	RV1	1 No.
Relief Valve 1/2"	RV1-12	1 No.
Drain Plug 3/8" (for SL / SL-E)	ASPL9510	1 No.
Drain Plug 3/4" (for LE & XL)	ASPL5134	1 No.
Unioun 1/4" OD	SS-400-9	2 No.
Unioun 3/8" OD	SS-600-6	2 No.
Male Connector 1/4" OD x 1/2" NPT(M)	316L-810-1-8	1 No.
Male Connector 3/4" OD x 3/4" NPT(M)	SS-1210-1-12	1 No.

Direct Acting Pressure Reducing Valve
APRV1

APRV1

FEATURES

- Economical
- Compact construction
- Completely mechanical design
- Very Less maintenance
- Easy for installation via clamp
- Used in Steam & Water Analysis System

ADVANTAGES

- Well-founded pressure reduction
- Robust Design
- Highly reliable in continuous operation
- Corrosion resistive material
- Ergonomic design eliminates possibility of bent tubes
- Long life performance

DESCRIPTION

Authentic and long-term operation of SWAS depends upon the efficiency of sample conditioning components for which accurate pressure and flow control is most essential.

Main application of this product is chemical analysis of water and steam samples in modern Power Generation Plants.

Axis offers very reliable product for system designer where high pressure reduction with flow control is a major challenge.

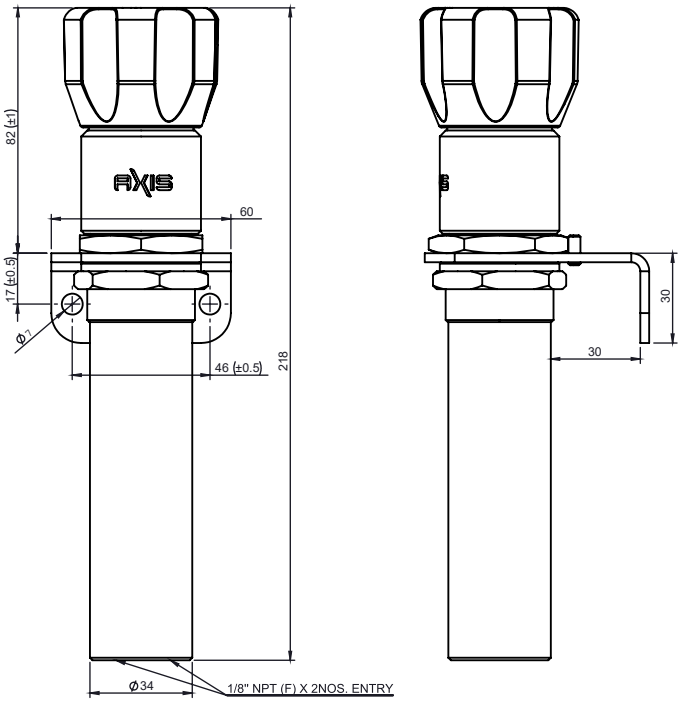
The flexible needle-in-chamber type design permits for adjustable pressure drop and flow control including ease of cleanliness. Both of these features provide long life of sample conditioning parts.

This reducer is specially designed for high pressure sample persisting above 35 bar and up to 350 bar. It develops fixed pressure drop and its adjustable using a knob on top.

The APRV1 consists of two needles joined to a large chamber. This assembly provides precise insertion. The high pressure steam enters into APRV1, flow passes through one needle then turns towards the other needle and then out.

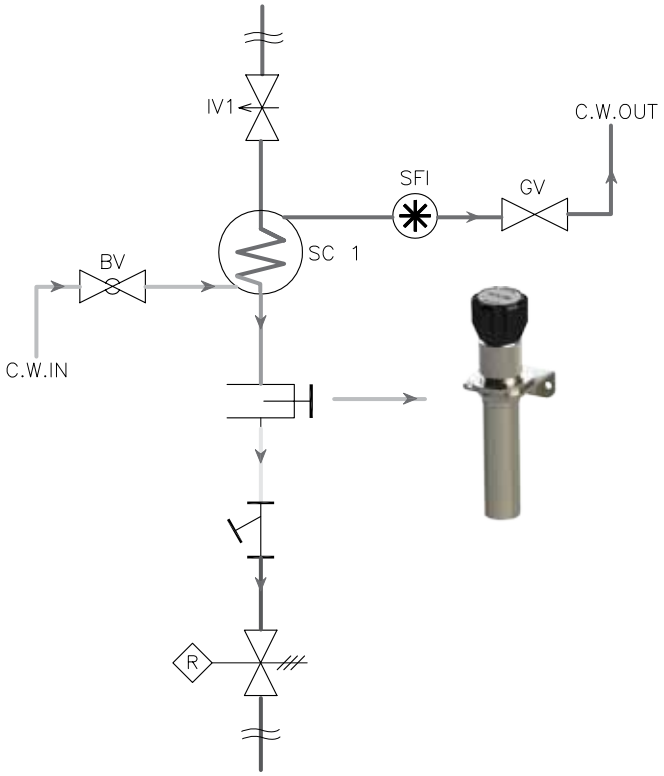
Pressure drop is proportionate to set pressure and till what extent a needle is inserted inside a chamber.

DIMENSION DETAILS



All Dimension are in MM

APPLICATION DIAGRAM



TECHNICAL SPECIFICATION

General	
Mounting	Vertical or Horizontal
Dimensions	Refer above dimension details
Sample	Steam or water
Material	SS 316
Weight	Approx. 1.5 Kg
Connections	
Sample Inlet	1/8" NPT (F)
Sample Outlet	1/8" NPT (F)
Functionality	
Media temperature	Max. 149°C
Ambient Temperature	0°C - 50°C
Pressure	Min. 35 bar & Max. 350 bar

PRODUCT / ACCESSORIES

Description	Part No.	Quantity
Direct Acting Pressure Reducing Valve	APRV1	1 No.
Clamp for APRV1	ASPL5459	1 No.
Knob	ASPL6955	1 No.

Auto Shut-off Valve
ASV1

FEATURES

- Desirable for balanced service in high temperature
- Ease for installation
- Fully mechanical device
- Alarm contact (Optional)
- Fix temperature shut off
- Manual Reset facility

ADVANTAGES

- Rugged, compact design
- No power source require
- Reliable tight shut off
- No – leakage up to define range
- Corrosion resistive material
- Fast response to shut off

DESCRIPTION

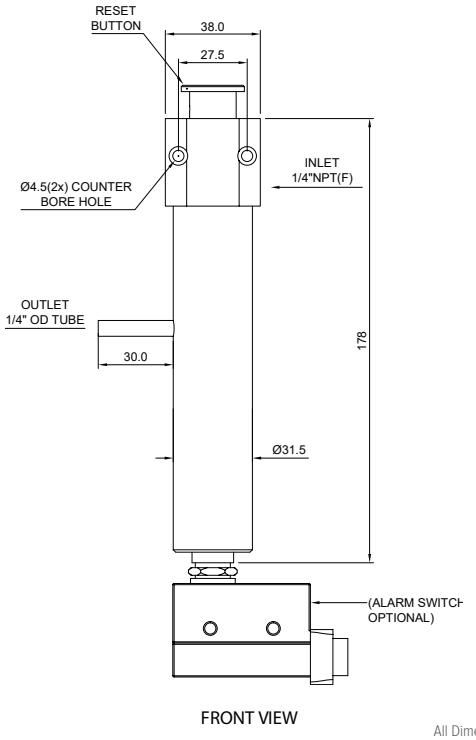
Definitive for extended operation of SWAS depends upon the principle of sample conditioning components for which accurate pressure flow and temperature control is most essential.

Excessively hot samples can cause damage to expensive and sensitive sample conditioning components of the process analyzer. The auto shut-off valve is widely used in Steam Water Analysis Systems (SWAS) in power plants.

The AXIS provides a very reliable Auto shut-off valve also called ASV1. This is functioning directly exposed to the sample media via the thermal expansion principle using wetted media. ASV1 is a self-reliant, fully mechanical device that required no external source of electricity or pneumatic or hydraulic. It is developed to sustend the sample temperature up to 50°C ± 2°C. After shutting off ASV1, it must be reopened by pressing the manual reset button which ensures the no flow resumes and the safety of the upset component has been amended.

The AXIS ASV1 is constructed with SS 316 and other wetted parts are compatible with boiler water and steam. ASV1 is mainly used downstream of the pressure-reducing component and upstream of analyzers, flow meters, and other low-pressure devices. After shutting off the upstream side of the ASV1 will be opened to the full source pressure.

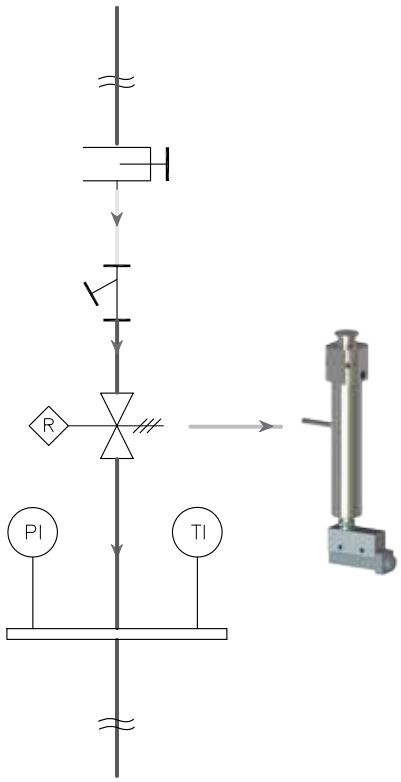
DIMENSION DETAILS



FRONT VIEW

All Dimension are in MM

APPLICATION DIAGRAM



TECHNICAL SPECIFICATION

General	
Mounting	Horizontal
Dimensions	Refer above dimension details
Sample	Steam or water
Material	SS 316 , Viton , PEEK
Weight	Approx. 1.1 Kg
Connections	
Sample Inlet	1/8” NPT (F)
Sample Outlet	1/4” OD Tube
Functionality	
Media temperature	< 120°C
Ambient Temperature	0°C - 50°C
Shut off Temperature	50°C ± 2°C (Note 1)

Note 1: if ambient temperature is more than shut off temperature ,it is necessary to hold the valve open for some time until the sample flow cools down.

Note 2: ASV1 will not function if the downstream pressure exceed 17 bar

PRODUCT / ACCESSORIES

Description	Part No.	Quantity
Auto Shut-off Valve	ASV1	1 No.
Clamp for ASV	ASPL5458	1 No.
SS 316 Bulk head, 1/4” OD	SS-400-61	1 No.
Auto Shut-off Valve with Alarm	ASV1-A	1 No.

Cation Column
CTN1

FEATURES

- Specially designed dual mode
- Easy to operate
- Regenerative type
- Easy of maintenance

ADVANTAGES

- Online Easy replacement of cation resin without dismantling the column
- The transparent design column permit easy identification for resin replacement
- Very Accurate & Reliable
- High grade resins used
- Long life
- Slim design ensures proper exchange of resins effective channeling through resin. Reduces dead volume with pipe and end fitting design

DESCRIPTION

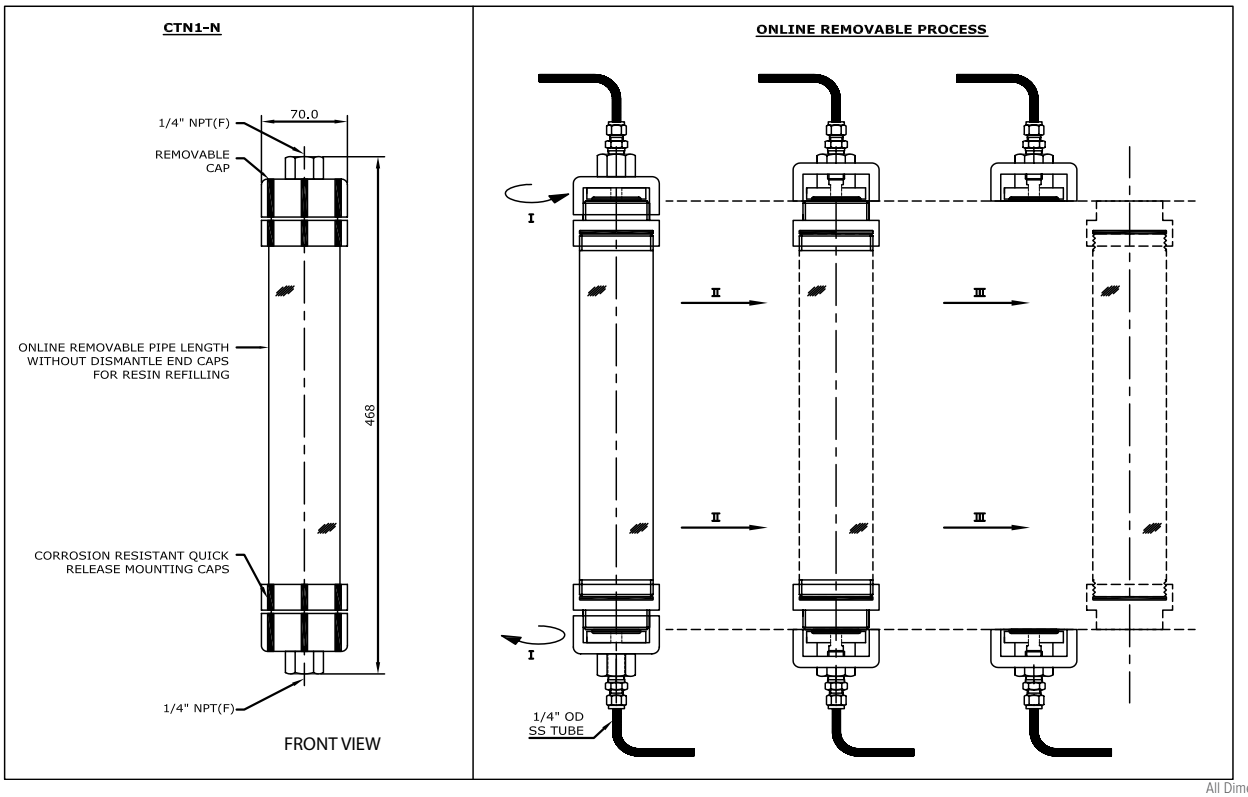
In Power industry, it is very critical to measure the conductivity accurately. The real conductivity measurements are affected by the treatment chemicals.

So it is very important to remove the masking effects of these chemicals.

AXIS Cation Columns are the best solution for it. The conductivity measured after cation column will be real, accurate and reliable.

Slim design ensures removal of dead volume due to high velocity. End fittings make sure that there is no liquid dead volume present in the column so no plug flow and reduces channeling effect.

DIMENSION DETAILS



All Dimension are in MM

TECHNICAL SPECIFICATION

General	
Mounting	Wall
Dimensions	For CTN1-N : 468 mm (L) x 70 mm Ø For CTN1-L : 632 mm (L) x 70 mm Ø
Sample	Water
Material	
Body	Transparent Acrylic
Element	Suitable to exchange the cation conductivity
Mounting Brackets	Corrosion resistant adjustable mounting
Connections	
Sample Inlet	1/4" NPT (F)
Sample Outlet	1/4" NPT (F)
Functionality	
Pressure	5 kg/cm^2 (Max.)
Temperature	50°C for housing
Construction	Online column removal with internal isolation arrangement.
Resin Volume	650ml for CTN1-N, 950ml for CTN1-L
Self life of Resin	Depending upon the site condition like flow rate, electrolyte concentration, Typically 6-8 months for CTN1-N & 10-12 months for CTN1-L

SPARE / ACCESSORIES

Normal Cation Column with Refill	CTN1-N	1 No.
Long Cation Column with Refill	CTN1-L	1 No.
Mounting Bracket	ASPL3408	1 No.
Filter wire mesh ring	ASPL3409	1 No.
Transparent body for CTN1-N	ASPL3412	1 No.
Transparent body for CTN1-L	ASPL3411	1 No.
Resin refill pack for CTN1-N	ASPL3415	1 No.
Resin refill pack for CTN1-L	ASPL3414	1 No.
"O" ring set	ASPL3410	1 Set.
Assembly cover set (Comprises of end & intermediate fitting at 1 side)	ASPL3413	1 Set.

Back Pressure Regulator
BPR1 & BPR2

BPR1

BPR2

CE RoHS

FEATURES

» Efficiently ensures constant flow passes through the Analyzer

» Flow can be adjusted by adjusting the pressure element

ADVANTAGES

» Precise pressure reduction and control when used in conjunction with the pressure element

» BPR1 is specifically designed for steam/water sampling systems, while BPR2 is designed for Air/Gas/Water application

» Easy and compact mounting option

» Wetted parts suitable for challenging liquid sample

» Fail-safe relief valve

TECHNICAL SPECIFICATIONS

Material	
Wetted part (Housing)	SS 316
Body material (Non wetted)	Aluminum
Diaphragm	Viton
Connection	
Mounting	Wall mounting
Inlet	1/4" NPT (F)
Outlet	1/4" NPT (F)
Parameter	
Fluid	Water / Steam
Regulating Pressure	1.4 barg (20 psig), under normal operating conditions.

DESCRIPTION

The Back Pressure Regulator maintains constant pressure and constant flow for the analyzer simultaneously protecting critical sampling components as a relief valve.

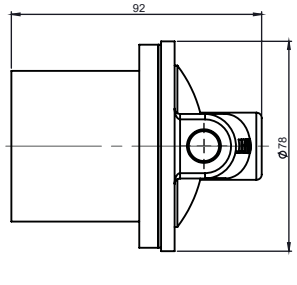
A Back Pressure Regulator is a control valve that maintains a set pressure on the upstream side of the valve. If the pressure increases, the regulator opens to allow additional flow through the BPR1 / BPR2.

As the pressure decreases the regulator passes closes to restrict flow. Continuous open outlet port for grab sample assures that fluctuation during opening and closing is avoided. This additional flow through the BPR1 / BPR2 will ensure the avoidance of the requirement of adjustment during the requirement of taking a grab sample as continuous flow is available for the same.

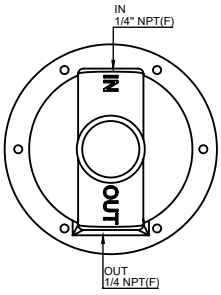
A back pressure regulator can be also used for the grab sample purpose. This result in cost benefits avoiding separate tubing and grabbing sample prices.

This ensures that velocity is well maintained upstream. Any upstream fluctuation will not allow individual analyzer flows unstable and assures the stability of reading and assured performance of the system.

DIMENSION DETAILS BPR1



SIDE VIEW



FRONT VIEW

All Dimension are in MM

Sight Flow Indicator
SFI12

FEATURES

- High-quality robust design
- Threaded or flanged connections
- Withstands Pressures up to 10 bar
- Temperature up to 80°C
- Short lead Time

ADVANTAGES

- Ease of maintenance
- Replaceable and Removable Glass, easy to analyze through it
- Durable construction
- Single SS material option ensures high reliability of the component
- Economical

DESCRIPTION

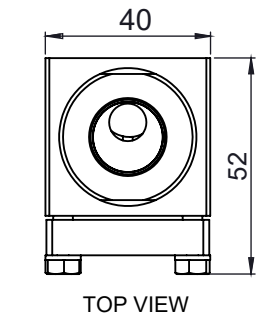
AXIS sight flow indicators provide a quick, reliable and economical way to verify fluid flows through industrial process lines.

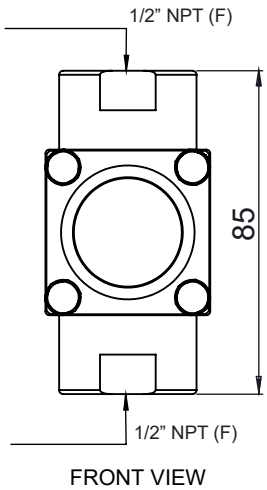
They are mainly used to check for the presence of flowing liquid where there is intermittent flow, partially filled lines, or entrained air.

It is designed such that there is minimal pressure drop at the component.

SS standard material ensures high reliability of the system & also ensures that equipment is designed to avoid any clogging at the component.

DIMENSION DETAILS





All Dimension are in MM

TECHNICAL SPECIFICATION

General	Mounting Dimension Sample	Vertical mounting 85 mm (H) x 40 mm (W) x 52 mm (D) Water
Material	Body Window Seating Finish	SS 304 (SS 316 on request) Toughened Glass PTFE Buff finish
Connection	Sample Inlet	1/2" NPT (F) for SFI12 & SFI 12M 3/4" NPT (F) for SFI34
	Sample Outlet	1/2" NPT (F) for SFI12 3/4" NPT (F) for SFI34 1/2" NPT (M) for SFI12M
Functionality	Pressure	10 bar (Max.)
	Temperature	80°C

PRODUCT/ ACCESSORIES

Description	Part No.	Quantity
Sight flow indicator - SFI12	ASPL2385	1 No.
Sight flow indicator - SFI12M	ASPL2982	1 No.
Sight flow indicator - SFI34	ASPL2791	1 No.
PTEF Seating	ASPL3425	1 No.
Glass Window	ASPL3436	1 No.

Composite Manifold
CMF1

CMF1 WITH ASV (OPTION 1)

CMF1 WITH ASV (OPTION 2)

Patent Applied No. 201721047454

FEATURES

- Designed for SWAS System application
- Suitable for long service in high temperature and pressure
- Easy to install with NPT thread
- Heavy duty, rugged bodies with extra heavy bore
- No-leak joints

ADVANTAGES

- An integrated single unit consists of the strainer, process header, needle valve with drain, TI, PI, and temp control (ASV/SOV-Switch)
- Reduces the size of the mounting plate
- Reduces the cost of tubing, fitting, mounting space, no. of components, timing, hardware, and labor.
- Maintenance free
- Easy replacement of all components
- Cleaning port available
- Single SS material option ensures high reliability of the component
- No. of joints is reduced so no more leakages in the system

DESCRIPTION

AXIS represents numerous types of components covered in a single manifold. manifold is designed for Steam and Water Analysis System (SWAS) applications. The manifold features a horizontal body design. Manifold connections include NPT female thread. The flow of sample through an AXIS manifold is controlled by filtering the sample, over temperature protection, process chamber, measuring the temperature and pressure, and maintaining the back pressure by this Composite Manifold. Each component has a specific function to maintain the back pressure and protection over high sample temperatures.

TECHNICAL FEATURES

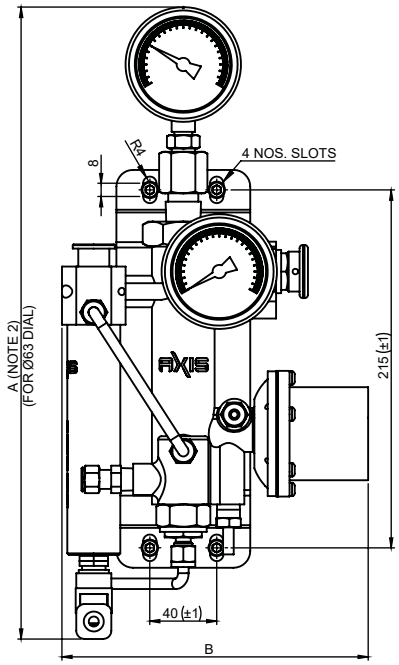
Body Design of Manifold
Single piece construction design ensures more strength and minimum leakage

MOC of Manifold
All components and parts are of SS 316 Construction

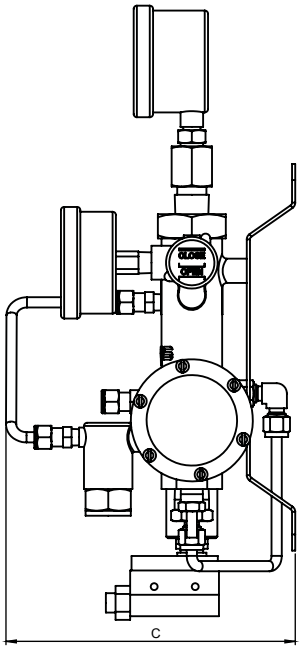
Internal Finish
Burr-free threads and internal surfaces reduce leaks, promoting accurate transmitter readings.

Fitting
Avoiding fitting will ensure that we have a trouble-free operation in the future and any maintenance hassles.

DIMENSION DETAILS

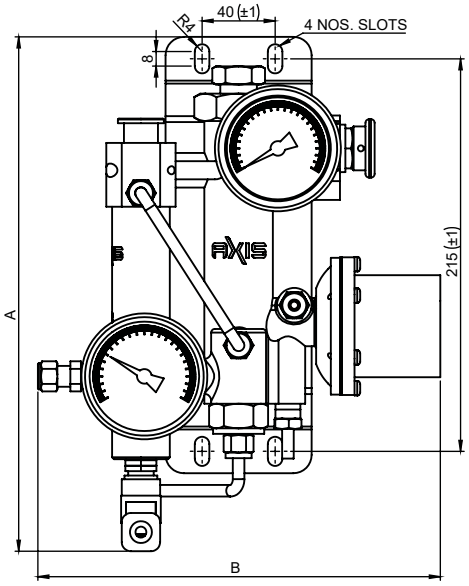


FRONT VIEW

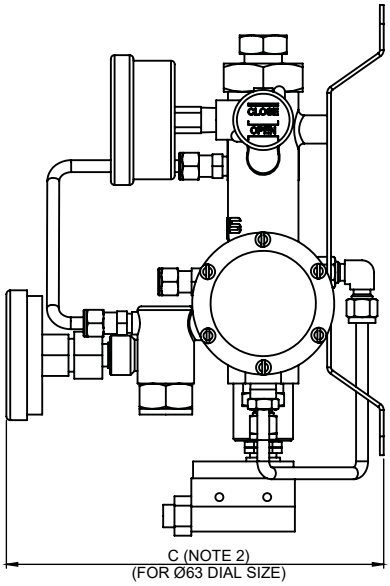


SIDE VIEW

CMF1 WITH ASV (OPTION 1)



FRONT VIEW



SIDE VIEW

CMF1 WITH ASV (OPTION 2)

All Dimension are in MM

DIMENSION TABLE

	A (mm)	B (mm)	C (mm)
CMF1 WITH ASV (OPTION 1)	380	183	179
CMF1 WITH ASV (OPTION 2)	282	220	200
CMF1 WITH SOV (OPTION 1)	359	187	181

Note: 1) All dimensions are subjected to tolerance of ±5 mm.
2) Dimension depends on make of gauge

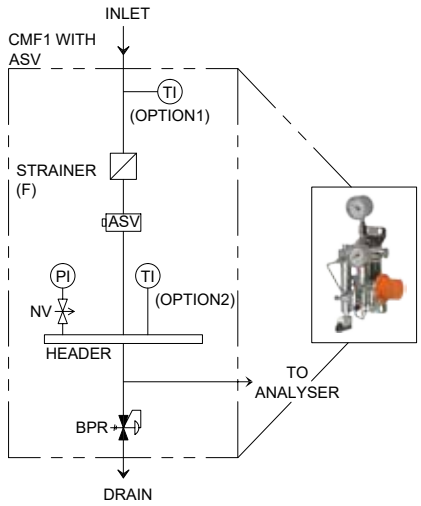
COMPONENTS COVERED

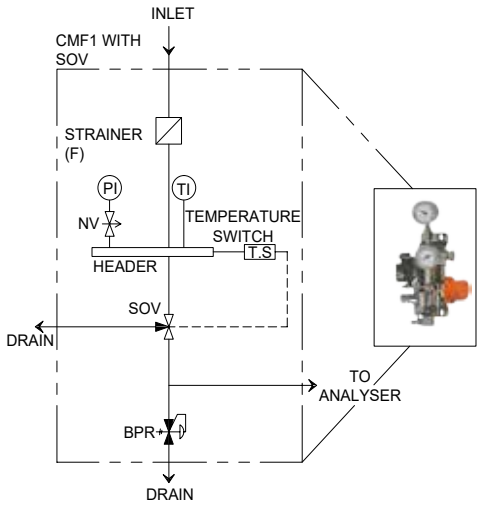
- Needle valve with drain (NVD1)
- Pressure Indicator (PI)
- Temperature Indicator with thermowell (TI)
- Back Pressure Regulator (BPR)
- Strainer (F)
- Header
- Auto shut off valve (ASV) or SOV with Temperature Switch

Optional

1. Temperature Indicator with 100 mm dial size
2. Pressure Indicator with 100 mm dial Size
3. Temperature switch with solenoid Valve
4. Alarm contact for Auto shut off valve

SCHEMATIC





TECHNICAL SPECIFICATION

General	Type	Composite Manifold
	Mounting	Horizontal Line Mounting
	Dimension	Refer Dimension Table
	Sample	Water
Material	Body	SS 316
	Seating	PTFE for sealing joint metal to metal
	Other Parts	Suitable to HCL & other acids like H_2SO_4
Functionality	Pressure	30 Kg/cm^2 Max.*
	Media Temperature	80°C Max.
Connection	Sample Inlet	1/4" OD
	Sample Outlet	1/4" OD

* Pressure rating is only for Manifold body. Pressure rating of overall assembly depends on pressure rating of devices / components used in assembly.

ORDERING INFORMATION

CMF1							9	9	9	
	Temperature indicator									
	0									63mm dial size
	1									100mm dial size
		Pressure indicator								
		0								63mm dial size
		1								100mm dial size
			Component selection							
			0							with 3-way SOV
			1							with ASV1
				Power supply for SOV						
				0						None
				1						115VAC, 50Hz
				2						230VAC, 50Hz
					Temperature Indicator location					
					0					After ASV
					1					Before ASV
					Note : This option is applicable only for ASV					
						If ASV select				
						0				None
						1				with alarm contact
						2				without alarm contact

TECHNICAL SPECIFICATIONSPARE / ACCESSORIES

Spare / Accessories list for Composite Manifold with Auto Shut off Valve Option

Sr. No.	Description	Part No.	Qty.
1	Strainer Element , 40 Micron	ASPL6388	1 No.
2*	Temperature Indicator ; Dial : 63 mm ; Bottom entry ; SS 304	ASPL7359	1 No.
3*	Temperature Indicator ; Dial : 100mm ; Bottom entry ; SS 304	ASPL7596	1 No.
4*	Temperature Indicator ; Dial : 63 mm ; Back entry ; SS 304	ASPL7597	1 No.
5*	Temperature Indicator ; Dial : 100mm ; Back entry ; SS 304	ASPL7598	1 No.
6*	Pressure Indicator, Dial : 63 mm ; Back entry ; SS 304	ASPL7358	1 No.
7*	Pressure Indicator, Dial : 100 mm ; Back entry ; SS 304	ASPL7578	1 No.
8	Auto Shut off Valve	ASV1	1 No.
9	Alarm Switch	ASPL4012	1 No.
10	O-Ring Set (1 Pkt. Includes all 4 O-Rings)	ASPL7577	1 Pkt.
11	PTFE Washer (1 Pkt. Includes all 2 Washers)	ASPL7586	1 Pkt.

* Check Manufacturer before ordering

Spare / Accessories list for Composite Manifold with Solenoid Valve Option

Sr. No.	Description	Part No.	Qty.
1	Strainer Element, 40 Micron	ASPL6388	1 No.
2*	Temperature Indicator ; Dial : 63 mm ; Bottom entry ; SS 304	ASPL7599	1 No.
3*	Temperature Indicator ; Dial : 100 mm ; Bottom entry ; SS 304	ASPL7600	1 No.
4*	Pressure Indicator, Dial : 63 mm ; Back entry ; SS304	ASPL7358	1 No.
5*	Pressure Indicator, Dial : 100 mm ; Back entry ; SS304	ASPL7578	1 No.
6	Temperature Switch	ASPL7587	1 No.
7*	3 Way Solenoid Valve, SS 316 , 1/4" NPTF, 110 VAC, 50 Hz	ASPL0029	1 No.
8*	3 Way Solenoid Valve, SS 316 , 1/4" NPTF, 230 VAC, 50 Hz	ASPL0027	1 No.
9	O-Ring Set (1 Pkt. Includes all 4 O-Rings)	ASPL7577	1 Pkt.
10	PTFE Washer (1 Pkt. Includes all 2 Washers)	ASPL7586	1 Pkt.
11	3 Way 4 Pin Connector	ASPL7579	1 No.
12	Socket	ASPL7550	1 No.

* Check Manufacturer before ordering

Strainer
STR14

FEATURES

- Suited for indelible service in high pressure & temperature application
- Easy assembly with NPT threaded, gasketed cap
- Heavy duty, rugged bodies with extra heavy bore
- No-leak, no-crush screen chambers

ADVANTAGES

- Cleaning port available
- Large element area ensures effective cleaning with less pressure drop
- Proper alignment & aaccurate re-assemble after servicing
- Single SS material option ensures high reliability of the component
- Specifically designed for water conditioning

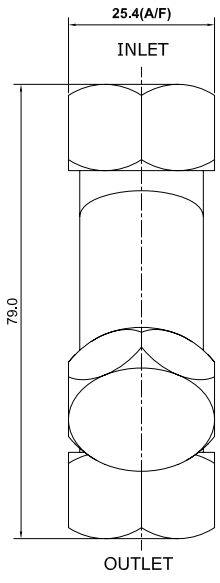
DESCRIPTION

AXIS Strainers are a means of protecting downstream mechanical components such as Gauges, Analysers, Flowmeters, and Back pressure regulators from possible damage due to debris such as rust, pipe scale, sediment, and/or other solid particulates.

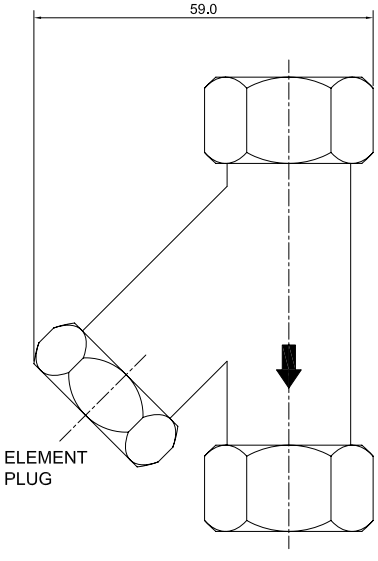
Machined seats in both body caps align and lock the screen in place to stop sediment bypass.

Mesh construction ensures the best performance and its right area as well as additional strength of the body of the removable plug to increase life and reliability while opening and closing the plug.

DIMENSION DETAILS



FRONT VIEW



SIDE VIEW

All Dimension are in MM

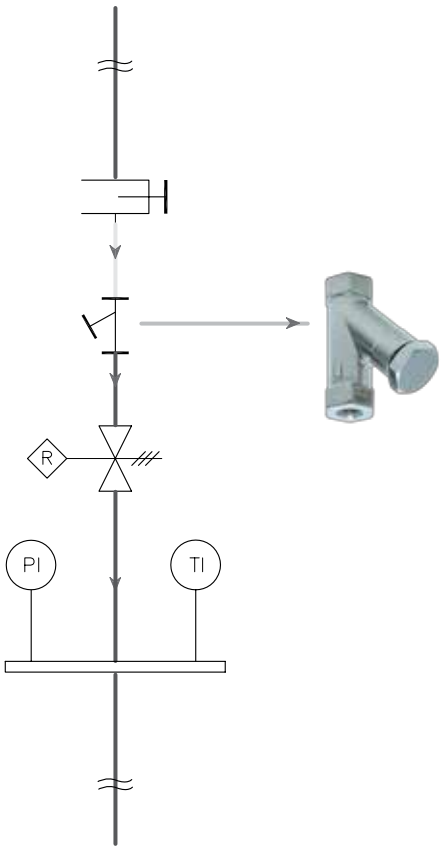
TECHNICAL SPECIFICATION

General	Type	"Y"
	Mounting	Vertical line mounting
	Dimension	79(H) x 59(W) x 25.4 A/F(D) mm
	Sample	Water
Material	Body	SS 316
	Seating	'PTFE' for element & 'Neoprene' for element plug
	Element	SS 316 wire mesh
Connection	Sample inlet	1/4" NPT (F) for STR14 & 1/2" NPT (F) for STR12
	Sample outlet	1/4" NPT (F) for STR14 & 1/2" NPT (F) for STR12
	Element plug	for maintenance
Functionality	Pressure	30 kg/cm2 (Max.)
	Temperature	80°C (Max.)
	Retention rate	40 micron

SPARE / ACCESSORIES

Description	Part No.	Qty.
Strainer – STR14	ASPL2993	1 No.
Strainer – STR12	ASPL2782	1 No.
PTEF Seating	ASPL3423	1 No.
Neoprene seating	ASPL3424	1 No.
40 micron element	ASPL3426	1 No.

APPLICATION DIAGRAM



Stream Sequencer Unit
SSU1

SSU1

FEATURES

- Designed for sample sequencing selection
- Suitable for longer service in a safe area.
- Easy to install
- Easy to configure as required with help of a keypad and display
- Light weighted
- Easy to operate & user friendly

ADVANTAGES

- 6 Nos. sample Stream selection for analysis with this unit
- Multiple outputs per stream
- Analogue and digital input provision
- 6 Nos. analog output provision
- Front Keypad easy for configuration
- Common alarm contact available
- Maintenance free
- Easy to replace all card
- Male Female Terminal at the bottom side for easy disconnecting of the unit
- Low power consumption
- 32 discrete LEDs for process status indication

DESCRIPTION

The system is based on an 8-bit microcontroller. It is to be used for selecting one of the EIGHT streams by SYNC. The pulse from Analyzer if the trigger mode is Pulse. Stream selection will be according to preprogrammed timings if the trigger mode selected is TIME. With the help of a keypad and display on the front, the system allows to set and modify the following parameters of each stream.

- Full scale value for Scaling analog input
- Skip/Unskip a stream
- Stream On Time
- Power On status
- Alarm set-points

In pulse mode, the system allows to skip/Inskip specified stream and in time mode if the value of Stream On time is programmed as zero, it is skipped.

When the system is put in RUN mode, through the front keypad, the sequence is executed. The relay contacts are switched ON and OFF as per the predefined sequence.

The Powered contacts will be used to switch the ON and OFF Solenoid Valves fitted in the system. Potential free contacts for each relay are provided for remote status indication.

Alarm relays are also switched On and Off as per the input from the analyzer.

Analog input is continuously sampled. The value of analog input is continuously displayed in RUN mode. When the PAGE key is pressed, Latched value for each stream is displayed for streams 1 to 6 respectively. Analog output for each stream is updated after its sampling & analysis are completed.

TECHNICAL SPECIFICATION

General	
Type	SSU1
Mounting	Panel Mounting
Dimension	245 mm X 160 mm X 95 mm(WxHxD)
Panel Cut-Out	209 mm X 126 mm(WxH)
Weight	<2 Kgs.
MOC of Enclosure	SS (Metallic Optional)
Functionality	
No of Streams	Up to 6 stream (Up to 12 stream optional)
Key Board	12 Keys Keypad
Display	20*4 LCD Display 32 Discrete LEDs for Relay/Process status Indication
Input/ Output	
Digital Input	Sync. (From Analyzer) (Up to 4 potential free)
Analog Input	Up to 6 channels (4 - 20 mA)
Analog Output	Up to 6 channels (up to 12 channel optional): 4 to 20 mA Latched Output
Relays	
For stream Selection	6 Potential free contacts (Up to 8 channel optional)
Alarm	(Optional) Details like contact rating (Potential free)
Communications	
Serial Communications	RS 232 or RS 485 (Optional)
Interface	Modbus
Power Supply	
Mains Supply	24 V DC (110-230VAC, 50Hz Optional)
Power Consumption	20 VA

* The CE Approval Available

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

PANEL
Accessories

Smart I/O Module
ABSI Series

ABSI

FEATURES

- Microcontroller-based I/O Module
- Analog and Digital I/O as per user requirement
- RS 485 MODBUS communication
- 3G/4G GSM, Wi-Fi/BT Connectivity
- No of I/O as per application requirement
- Cloud connectivity

ADVANTAGES

- Multipurpose I/O Module
- Inputs/Outputs as per customer requirement
- Cost-effective
- Easy Installation
- High Reliability

DESCRIPTION

ABSI Series Smart I/O Modules are highly versatile devices designed for monitoring and controlling applications in industrial and other commercial environments. These modules are ideal for data acquisition from various analytical sensors like pH, Chlorine, Turbidity, and Conductivity and provide control action through relay output.

TECHNICAL SPECIFICATIONS

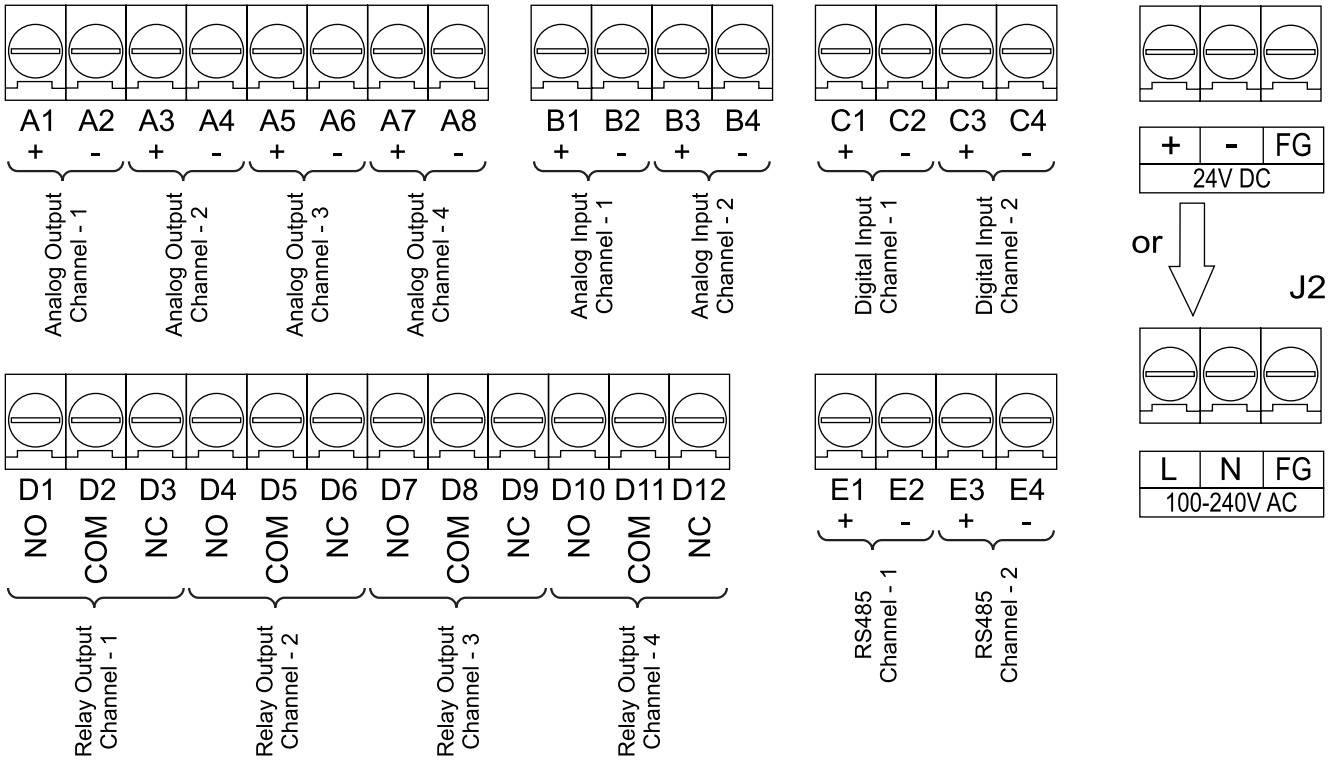
	ABIOX	ABIOY
ABIOX		
Analog Inputs	Upto 2 channels 4 to 20 mA or 0-10 V DC standard	Additional 4 channels upon requirement
Digital Inputs	2 Channels 0-24 V DC, (24 mA, Opto-Isolated) standard	Additional 2 channels upon requirement
Connection	2 Pin terminal with 5.08 mm pitch green TB	
Analog Output	Upto 2 channels 4 to 20 mA standard	Additional 4 channels upon the requirement
Output range	4 to 20 mA (programmable to any value between 0 to 20 mA)	
Accuracy	+/- 0.25% FSD	
Resolution	0.1% at 10 mA, 0.05 % at 20 mA	
Maximum load resistance	250 W per channel	
Digital Communication		
Supported Protocols	RS 485 MODBUS TCP / Profibus / HART*	
RS 485 Communication	Upto 2 channels	
Connection	2 Pin terminal with 5.08 mm pitch green TB	
Relay		
No. of Relays	2 Nos Standard	Additional 6 relays upon requirement
No. of Set Point	4 Nos	
Set Point adjustment	Configurable as normal or failsafe high/low or diagnostic alert	
Hysterisis	0 - 10 % with increment of 0.1%	
Delay	0 - 60 seconds in increment of 1 second	
Relay contact & Rating	SPDT, 7A, 115-230 V AC	
Insulation	2KV RMS contacts to earth / ground	
Display		
Types and size	2.8" inch RGB multi colour	4.3" inch TFT RGB multi colour
Energy-saving function	backlit LCD configurable as ON or Auto-off after 60 s	
Logbook	Electronics record of major process events and calibration data	
Real-time clock	Records time for logbook and auto-manual functions	
IOT		
Cloud	GSM/FPI Data transfer to cloud	
Communication Protocol	Secured transmission of telemetry via MQTT	
Data Transmission	Remotely configurable data transmission	
Data Security	Data encryption for secured transmission	
Mechanical data		
Ingress Protection	IP 66	
Mounting	Wall mounting / (Panel mounting/Pipe mounting upon requirement)	
Dimensions	160 x 130 x 60 mm	280 x 170 x 60 mm
Material/Colour	ASA+PC / Similar to RAL 7035	
Weight	Less than 1 kg	Less than 1.5 kg
Fire Protection Class	UL 94 V-0	
Enclosure Seal	Silicone moulded seal	
Cable Entry Type	12 Nos PG-7/7 Nos PG-9	
Lead Screw	Stainless steel 1.4567	

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

Power Supply		
Voltage Requirements	110/230 V AC, 50 Hz or 24 V DC (18 to 36 VDC @ 2W minimum)	
Power Consumption	5W or 7.5W	7W or 10W
Insulation	2KV RMS contacts to earth / ground	
Environmental data		
Operating Temperature Limits	(-10 to 60 °C)	
Storage Temperature Limits	(-10 to 65 °C)	
Operating Humidity Limits	(Up to 95% non-condensing)	
EMS		
Emission and Immunity	Meet requirements of EN 61326	
Approvals	CE	

Note : (*) Under Testing

CONNECTION DIAGRAM



ORDERING INFORMATIONS

ABIO											
	Capacity										
	0										Up to 2 Channels Analog Input/Output, Up to 2 Relay Output
	1										Up to 6 Channels Analog Input/Output, Up to 8 Relay Output
		Analog Inputs (4-20 mA)									
		0									2 Nos
		1									4 Nos
		2									6 Nos
			Digital Inputs (0-24 V DC)								
			0								NA
			1								2 Nos
			2								4 Nos
				Power Supply							
				0							NA
				1							110/230 V AC, 50 Hz
				2							24 V DC
					RS485						
					0						NA
					1						RS485 Modbus
						Analog Output Channels					
						0					NA
						1					2 Channels
						2					4 Channels
						3					8 Channels
							RS485 MODBUS Communication				
							0				NA
							1				1 Channel
							2				2 Channel
								Cloud Connectivity			
								0			NA
								1			GSM/GPRS/4G
								2			Wifi/BT
									Communication Module		
									0		NA
									1		HART*
									2		I/O Link
										Relay Output	
										0	NA
										1	2 Nos
										2	4 Nos
										3	6 Nos
										4	8 Nos

Note : (*) Under Testing

AXIS Asset Monitoring System
AAMS1

AAMS SYSTEM

» Unique cloud based furnace and boiler solution with rich functionalities and features that fits to most of the industries.

» Provides performance information like productivity, specific utility consumption, O&M and efficiency calculation.

» Shift from breakdown to preventive maintenance resulting better planning & reducing spares.

INTRODUCTION

For industrial processes like Boilers & Furnaces, a remote-monitoring capability allows maintenance departments to see fault information and observe patterns of issues over time. Without the need to perform local monitoring, technicians can proactively troubleshoot the problems that lead to process disruptions, unplanned downtime and lost profits. This includes the ability to diagnose issues from anywhere and arrive at the machine ready to make a fast repair, so production systems stay operational and optimized.

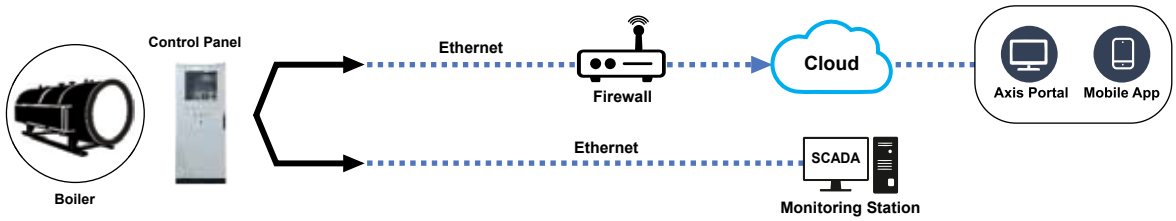
Lastly, the implementation of remote monitoring for thermal-processing systems makes combustion another crucial point in an overall connected-plant strategy. This helps to achieve a smarter and safer facility. The connected-plant approach allows organizations to see, analyze and improve the competency and productivity of their people, the efficiency of their processes, and the performance of their assets.

In conclusion, developments in remote monitoring free personnel from the burden of local equipment monitoring. Moreover, remote monitoring can help expand a facility's thermal-processing potential to drive performance and productivity.

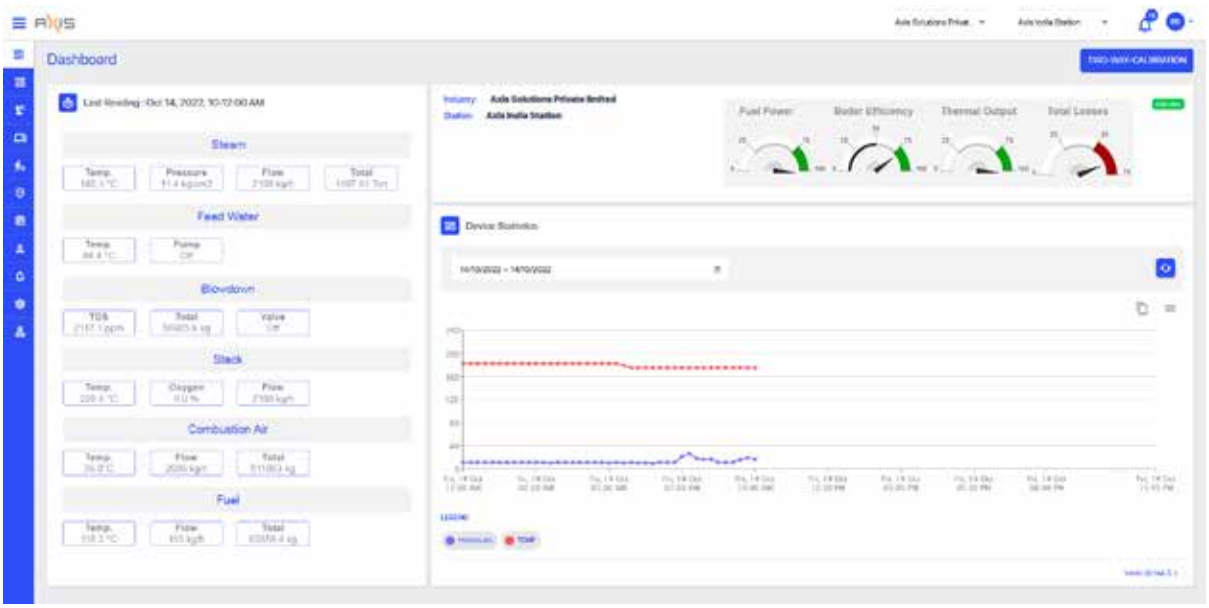
From the simplest application — viewing asset data on smart phone or laptop - to more sophisticated uses such as sending a text message when an alarm occurs, new cloud-based remote-monitoring solutions are revolutionizing the way process industry operations run and maintain their vital thermal-processing systems.

Such remote monitoring solutions help Process OEMs with Performance Guarantee tests and expert recommendations for O&M strategies.

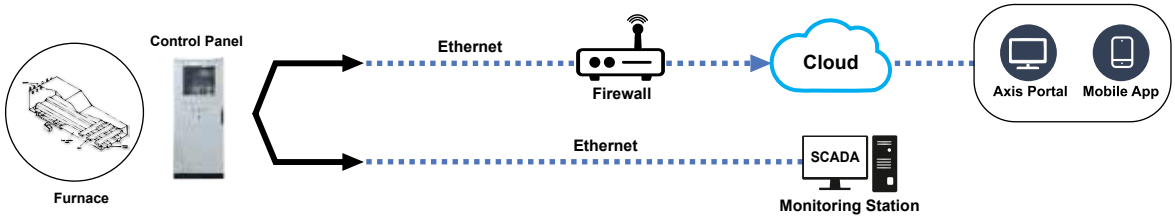
1. ASSET MONITORING - BOILER APPLICATION



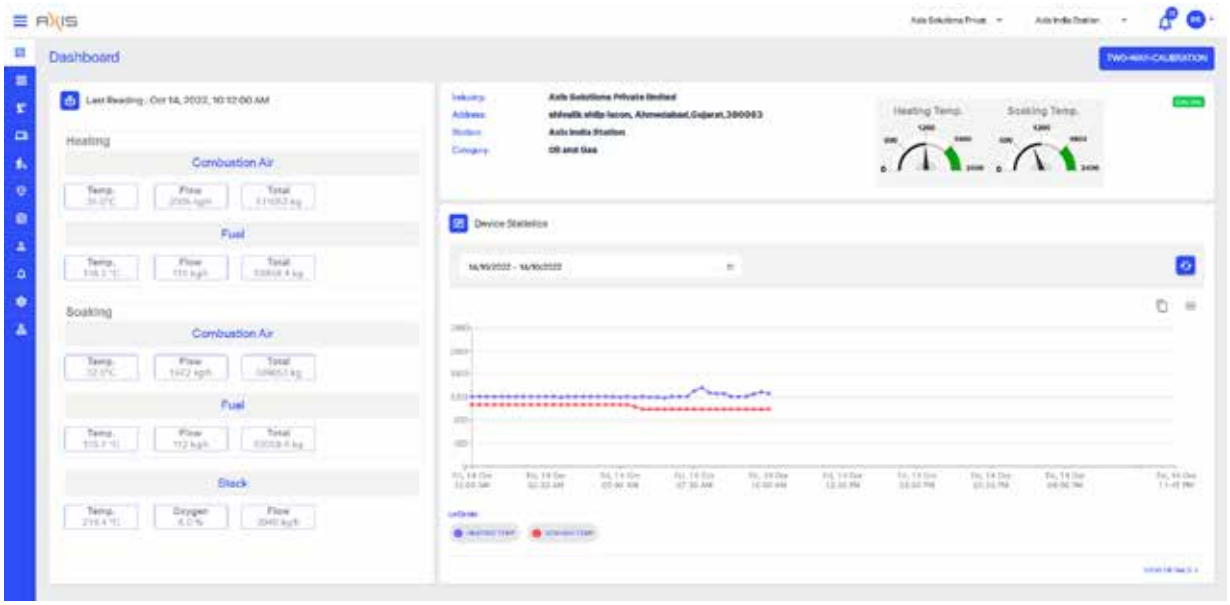
APPLICATION PREVIEW



2. ASSET MONITORING - FURNACE APPLICATION



APPLICATION PREVIEW



Multipurpose Junction Box
(Power & Control Panel) - HJB01

HJB01

FEATURES

» ATEX, IECEX and PESO certified
» Cost-effective
» Horizontal installation / mounting
» PDB with multiple entries

DESCRIPTION

The ASPL - ATEX certified flameproof enclosure are constructed according to protection type Ex-d, flameproof standard, standard components such as switches, contactors, motor protection circuit breakers and relays are mounted in an explosion proof enclosure constructed in such a way as to keep internal explosions from igniting the surrounding atmosphere.

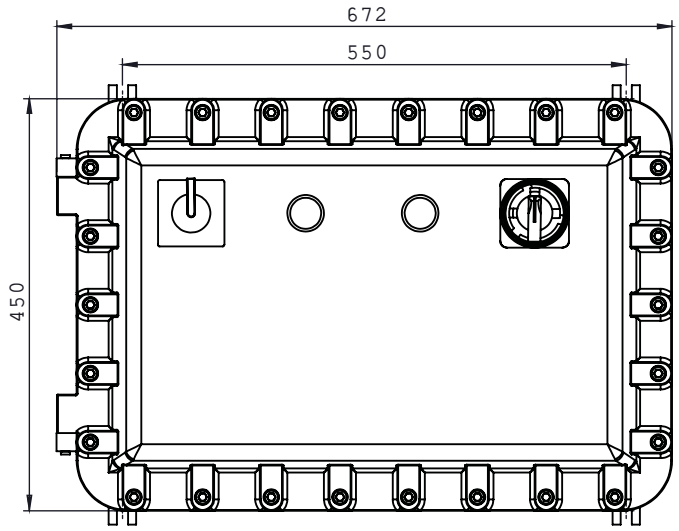
Ex-d enclosure are usually custom - built in close cooperation with the customer himself for his special application. Flame proof enclosure is available either with direct cable - entries through Ex-d certified cable glands or Ex-d certified blind plugs.

APPLICATIONS

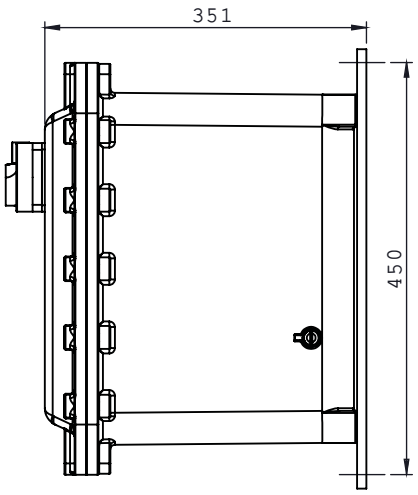
HJB flameproof enclosure are used in threaded rigid conduit systems in hazardous areas

» As a Junction or PDB box
» For housing all types of electrical and electronics components like terminal blocks, relays, contactors, MPCB, PLC (Excluding Batteries and Ventilating fans)
» Indoors and outdoors in damp, wet, dusty, corrosive and hazardous locations
» In areas which are hazardous due to the presence of hydrogen or gases and vapours of equivalent hazard such as found in process industries, Refineries and gas manufacturing plants.
» Zone 1 and 2, Zone 21 and 22
» Gas group II A, II B and IIB + H2
» Temperature class T6

DIMENSION DETAILS



FRONT VIEW



SIDE VIEW

All Dimension are in MM

TECHNICAL SPECIFICATIONS

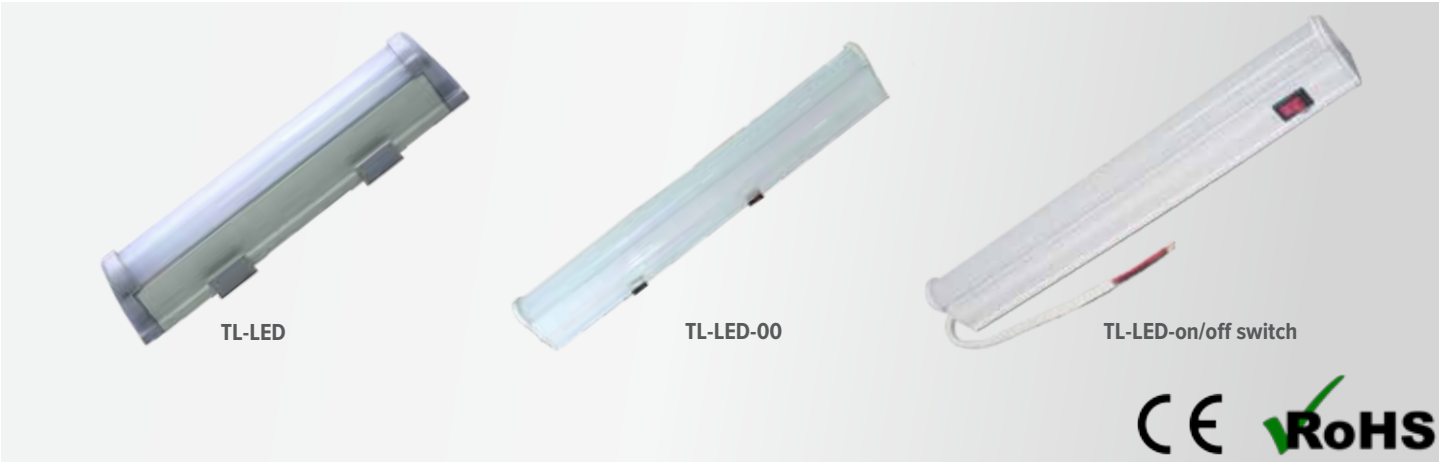
Material	Aluminium alloy LM6 / SS 304 / SS 316 / SS 316L
Finish	RAL 7035 Powder coated for LM6 / Natural for SS
Normal Voltage	Up to 600 V AC / DC
Rated current	100 A
Protection Class	IP 65
Internal Dimension	340 (H) x 535 (W) x 265 (D)

EXPLOSION PROTECTION

Marking ATEX Certification	II 2 G D Ex db IIB + H2 T6 Gb -20°C ≤ Ta ≤ +60°C Ex tb IIIB T85°C Db -20°C ≤ Ta ≤ +60°C ITS15 ATEX 18313X
Marking IECEx Certification	Ex db IIB + H2 Gb -20°C ≤ Ta ≤ +60°C Ex tb IIIB T85°C Db -20°C ≤ Ta ≤ +60°C IECEx ITS 15.0025X
Marking CCOE Certification	Ex db IIB + H2 Gb -20°C ≤ Ta ≤ +60°C Ex tb IIIB T85°C Db -20°C ≤ Ta ≤ +60°C P410313/1

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

LED Tube Light
TL-LED



FEATURES

- Long life
- Highly reliable performance
- Wide beam angle
- Wide operating voltage range
- For Indoor use

ADVANTAGES

- Indirect saving energy
- Easy for installation
- Built in clamp
- High brightness

TECHNICAL SPECIFICATION

General	5E-TL-LED	6E-TL-LED	10P-TL-LED	3E-TL-LED-00	6E-TL-LED-00	10P-TL-LED-00	3E-TL-LED-2S	6E-TL-LED-2S	10P-TL-LED-2S	5E-TL-LED-24
Mounting	Wall mount with clamp									
Colour	Milky / Clear			Cool White						
Body	Aluminium									
Operating Temp.	-20 ° C to + 60 ° C									
Dimensions (mm) (L) x (W) x (H)	4 Inch x 3 cm	6 Inch x 3 cm	1 feet x 3 cm	125 x 22 x 36	235 x 22 x 36	350 x 22 x 36	125 x 22 x 36	235 x 22 x 36	350 x 22 x 36	235 x 22 x 36
Weight	≈ 71 gms	≈ 84 gms	≈ 130 gms	≈ 50 gms	≈ 70 gms	≈ 90 gms	≈ 50 gms	≈ 70 gms	≈ 90 gms	≈ 70 gms
Electrical										
Power Supply	100 - 240V AC, 50/60*Hz			230 V AC, 50/60Hz						24 V DC
Power Factor	0.96									-
Power	5 Watt	6 Watt	10 Watt	3 Watt	6 Watt	10 Watt	3 Watt	6 Watt	10 Watt	5 Watt
Expectancy Life	50000 Hours (approximately)									
Type	Without on-off switch						With on-off switch			Without on-off switch
Beam Angle	120°									

Note : (*) On Request

PRODUCT / ACCESSORIES

Description	Part No.	Quantity
5 W LED Tube Light	3E-TL-LED	1 No.
6 W LED Tube Light	6E-TL-LED	1 No.
10 W LED Tube Light	10P-TL-LED	1 No.
3 W LED Tube Light	3E-TL-LED-00	1 No.
6 W LED Tube Light	6E-TL-LED-00	1 No.
10 W LED Tube Light	10P-TL-LED-00	1 No.

Description	Part No.	Quantity
3 W LED with on-off switch	3E-TL-LED-2S	1 No.
6 W LED with on-off switch	6E-TL-LED-2S	1 No.
10 W LED with on-off switch	10P-TL-LED-2S	1 No.
5 W LED Tube Light	5E-TL-LED-24	1 No.

Air Flow Switch
AFS01

AFS01

CE RoHS

FEATURES

- Very Economical
- Reliable size
- Reliable Mechanical Switch contact
- Easy for maintenance
- Easy for installation via clip or clamp
- Multipurpose fields of application

DESCRIPTION

Axis air flow monitor provides reliable source to monitor positive or negative air flow of compact fans or filter fans. Proper installation and connection with an optical LED or low audible signal device, a bi-direction air flow monitor will activate – deactivate an electrical contact if the air flow of the fan falls below 0.8 m/s , thus either turning the signalling device on or off

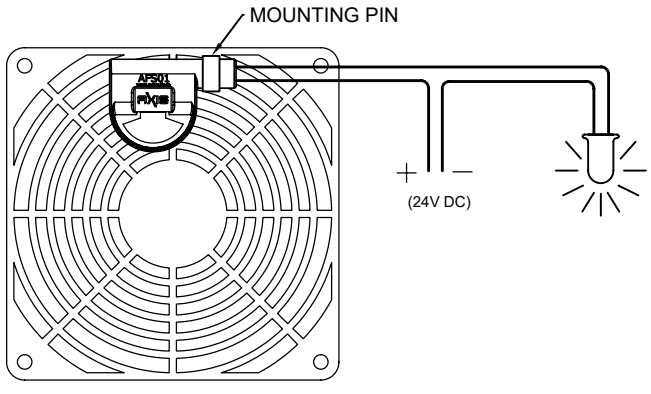
Recommended Use:

Normally used to turn an alarm or signalling device On to indicate loss of air flow.

TECHNICAL SPECIFICATION

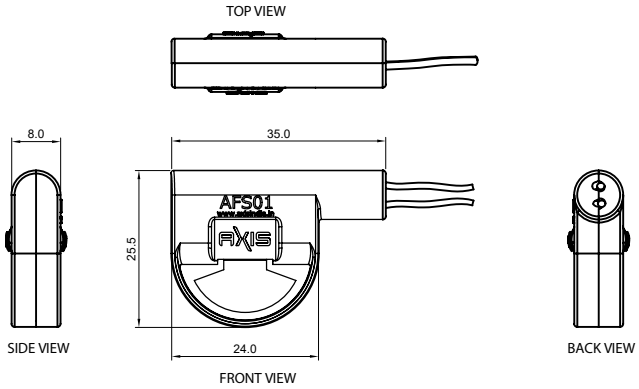
Contact rating (Max.)	10W or 10 VA (resistive load)
Switching Voltage (Max.)	180 VDC / 130 VAC
Switching current (Max.)	< 0.5A for VDC / < 75mA for VAC
Initial Contact Resistance (Max.)	150 mΩ
Operating / Storage Temperature	-40°C to +70°C
Contact type	NC (Normally closed) ; Contact open with air flow

SAMPLE WIRING DETAIL



ELECTRICAL WIRING

DIMENSION DETAILS



All Dimension are in MM

INSTALLATION NOTE

Refer below DO's and Don'ts while installing the device

Do's :

» When switching with inductive or capacitive loads, use contact protection circuits.

Dont's :

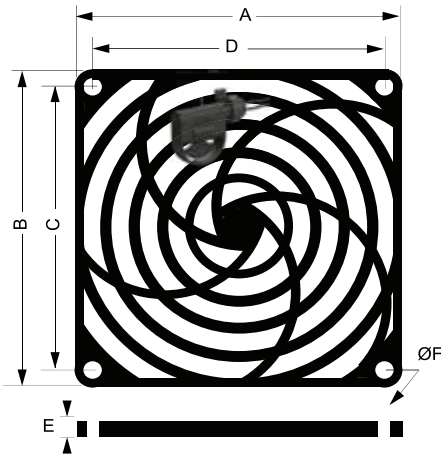
» Do not use Ferro-magnetic mounting parts, screws or other permanent magnetic devices nearby. This will affect the sensitivity of switching cycle.

» When manual soldering, do not subject to more than a 5 second dwell. This may cause damage to the seals, change sensitivity and reduce solder ability of the read sensor.

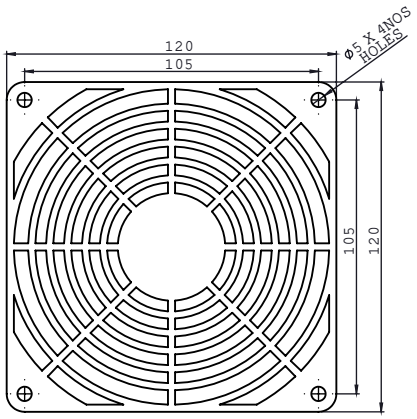
» Do not drop, dropping or subjection to shock will permanently damage the contact or alter the sensitivity of switching cycle.

» Switching voltage, switching current and contact rating should not exceed maximum limits stated in specifications.

PERFORMANCE GRILL DIMENSION DETAILS



FINGER GUARD DIMENSION DETAILS



PERFORMANCE GRILL DIMENSIONS WITH AFS01

Sr. No.	Model No.	A	B	C	D	E	F
1	AFS01_80	80	80	71.5	71.5	4.2	Ø4.2
2	AFS01_92	92	92	83	83	4.4	Ø4
3	AFS01_120	119.7	119.7	104.8	104.8	4.7	Ø4.2

PRODUCT / ACCESSORIES

No.	Description	Part No.	Quantity
1	Air Flow Switch	AFS01	1 No.
2	Air Flow Switch with Performance Plastic Grill (80 mm)	AFS01_80	1 No.
3	Air Flow Switch with Performance Plastic Grill (92 mm)	AFS01_92	1 No.
4	Air Flow Switch with Performance Plastic Grill (120 mm)	AFS01_120	1 No.


AFS01
www.axisindia.in

Filter/Exit Fan Grill Kit

FFG-1/ EFG-1

FFG-1

EFG-1

FEATURES

- Mounting Without Screw
- Permanent Sealing Gasket
- Shielded and Self-Lubricating ball Bearing Fans
- EMC Version Available

ADVANTAGES

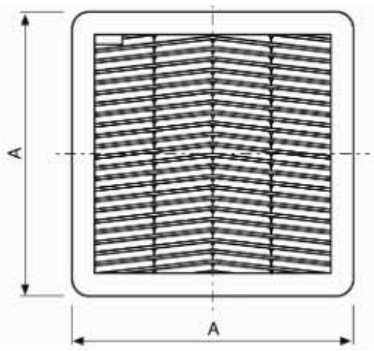
- Economical
- Easy Slide Opening
- Operational Safety
- Hidden Seal
- Rapid Installation
- Innovative Mounting Clips
- Improved Water Resistance
- Long Motor Life
- Attractive appearance make final product very appealing

DESCRIPTION

The FFG1 fan filter units are the outcome of our accumulated experience gained in the field of control cabinet ventilation.

The FFG1 series is features by a low external profile, a snap-mounting with elastic hooks and by an integrated sealing gasket, which allows dust and water protection.

The product is available either with or without fan in standard or reverse air flow version on request.



FRONT VIEW

Model	A (mm).	Plate Thickness (mm)
FFG1-0	95	Min. 1.5 - Max. 2.2
FFG1-1	150	
FFG1-2	204	
FFG1-3	250	
FFG1-4	325	

TECHNICAL SPECIFICATION

General:

Type of Material	:	ABS/PC Alloy
Standard Color	:	RAL 7035 (RAL 7032 and RAL 9005 colors on request
Protection Degree	:	Ip54 according to EN 60529 std. Type 12, according to UL 508 std.
Plate thickness	:	From 1.5 mm to 2.2 mm
Storage Temp.	:	-40°C to +70°C (-30°C to +75°C in FFG1-4 series)
Type of Filter media	:	Thermos-linked progressive structure synthetic fiber
Filtering Class	:	Class G3, according to EN 779
Dust retention capacity	:	600 g/m2
Degree of separation	:	85%-DIN 24185

Connection

Fixing System	:	By elastic hook, otherwise by four 2.2 or 4.8 mm self-threading screws

Electrical

Motor Protection	:	Therma;/ Impedance/ Over current, reverse polarity
Electrical Connection	:	By terminal block 2 poles L-N/ 3 Poles L-N-PE/ 2 wire +,
Motor Lifetime	:	45,000 h to 70,000 h

SPARE / ACCESSORIES

Filter Mat Media		
Model	**Suitable For**	**Qty.**
MFFG1-0	FFG1-0	1
MFFG1-1	FFG1-1	1
MFFG1-2	FFG1-2	1
MFFG1-3	FFG1-3	1
MFFG1-4	FFG1-4	1

ORDERING INFORMATION FILTER FAN GRILL KIT

FFG1							
	Cut Out						
	0						91.5 x 91.5 mm
	1						125 x 125 mm
	2						177 x 177 mm
	3						223 x 223 mm
	4						291 x 291 mm
		Power Supply					
		0					115 VAC
		1					230 VAC
		2					24 VDC
		3					48 VDC
			Fan Size				
			0				Standard
			1				Small*
			2				Medium
			3				Large
				Color			
				0			RAL 7035 (Grey)
				1			RAL 7032 (Light Yellow)*
				2			RAL 9005 (Black)*
					Option		
					0		Type 12 and IP54
					1		A flow type 12*
					2		EMC Shielded*
					3		IP55

Notes :

Mark with * is available on request, (Not in Stock)
24 VAC, 400 VAC, 12, 24, 48 VDC Available on request
RAL 7032 & RAL 9005 Available on request

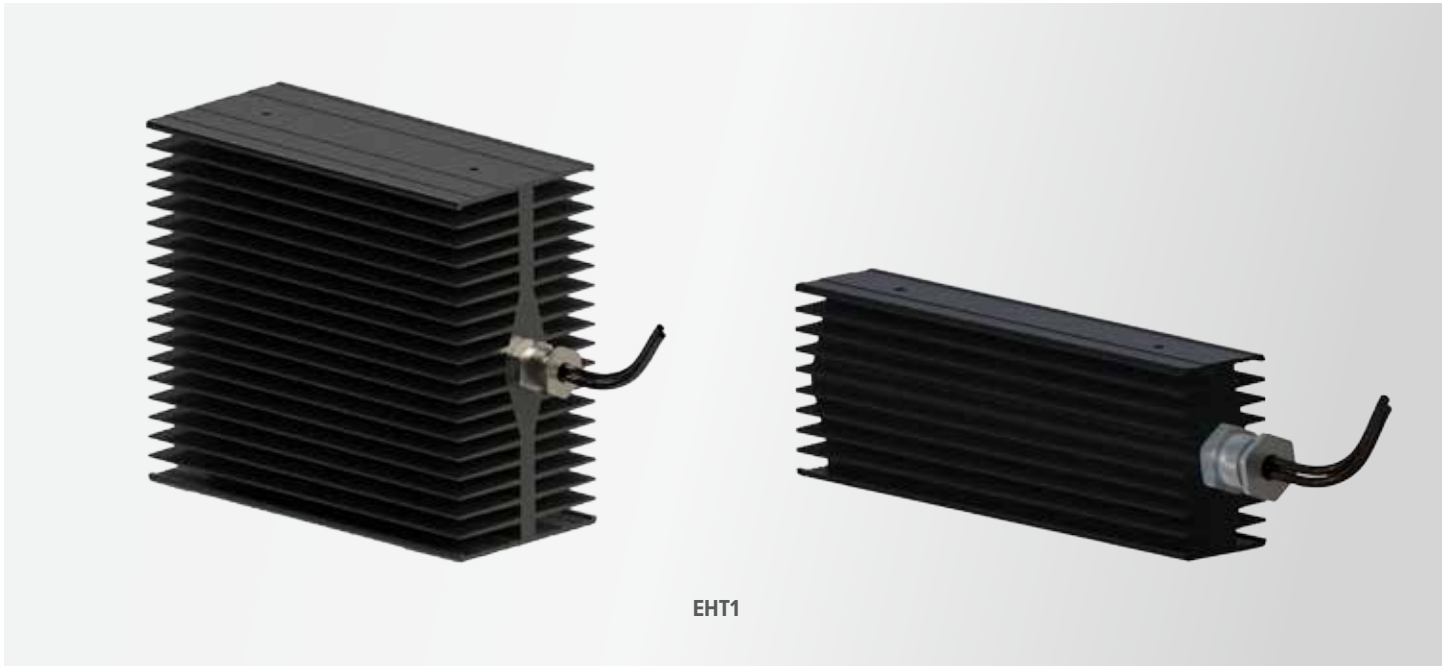
HOW TO SELECT PARTCODE

FFG1	0	1	0	0	0
	177 x 177 (mm)	230 VAC	Standard	Grey RAL 7035	Type 12 and IP 54

EXIT FILTER FAN GRILL KIT

FFG1			
	Cutout		
	0		91.5 x 91.5 mm
	1		125 x 125 mm
	2		177 x 177 mm
	3		223 x 223 mm
	4		291 x 291 mm

Enclosure Heater
EHT1



EHT1

FEATURES

- Reliable components
- Cost – effective
- Special designed profile for more heat dissipation
- Indoor installation

ADVANTAGES

- Maintenance free
- Huge convection area
- Easy for installation

TECHNICAL SPECIFICATIONS

General	Heating Type	Natural convection
	Heating element	High Density cartridge type
	Control Type	Separate controlling device to be required like thermostat , Temperature controller etc.
	Mounting	Horizontal or vertical
	Dimensions	Refer above dimensional details
	Ambient Temperature	0°C to 50°C
Material	Body	Aluminium
	Finish	Matt
	Colour	Black Anodize
Electrical	Power Supply	115 VAC and 230 VAC , 50 / 60 Hz
	Current	Up to 6 A (depends on model)
	Capacity	75 , 100 , 150 , 200 , 250 , 300 , 400 , 500 , 600 Watt

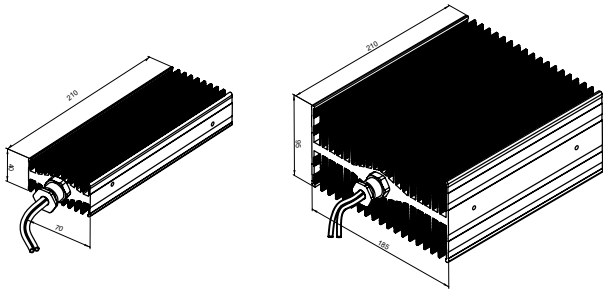
DESCRIPTION

Reliable and long term operation of any process analyser / Gas chromatograph for oil and refinery plants depend upon the efficiency of the sample conditioning system for which sample should be conditioned as per pressure, temperature , flow and dew point.

The Axis offers very reliable Enclosure Heaters to be used to maintain the certain temperature or dew point inside the enclosure or panel by natural convection in the analytical instrumentation and control application for oil and refinery plants.

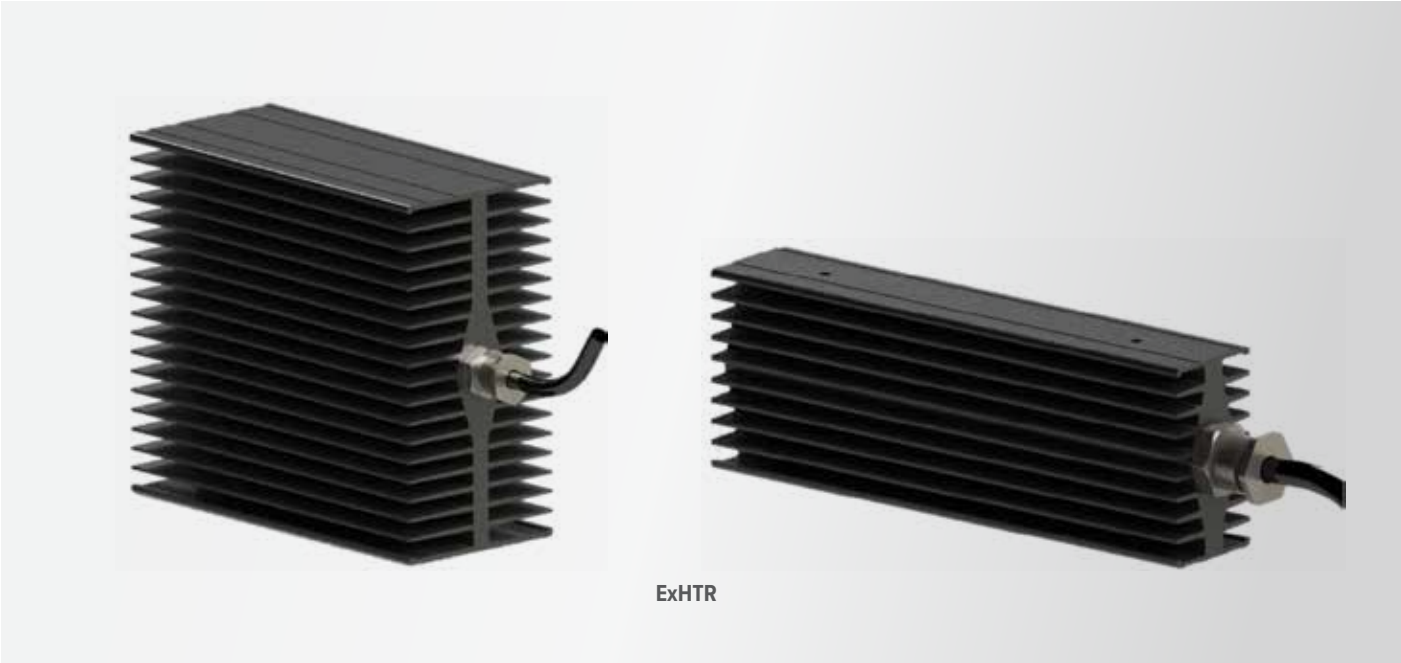
The Axis Enclosure Heaters are constructed according to Special designed Heat Sink profile with Cartridge Heaters & Metallic cable glands with assembled. Enclosure Heaters must have powered by separate Safety devices like MCBs , Contactors , terminal box (scope of others). Temperature controlled devices should be in others scope to control the desired temperature set value.

DIMENSION DETAILS



All Dimension are in MM

Flameproof Enclosure Heater
ExHTR



ExHTR

FEATURES

» Reliable components
» Cost – effective
» Special designed profile for more heat dissipation
» Indoor installation

ADVANTAGES

» Maintenance free
» Huge convection area
» Easy for installation

TECHNICAL SPECIFICATIONS

General	Area Class	Zone 1 & 2, Gas group IIC
	Heating Type	Natural convection
	Heating Element	High Density cartridge type
	Control Type	Seprate controlling / safety device to be required like Thermostate, Temperature controller etc...
	Mounting	Horizontal or vertical
	Dimensions	Refer above dimensional details
	Ambient Temperature	0°C to 50°C
Material	Body	Aluminium
	Finish	Matt
	Colour	Black Anodize
Electrical	Power Supply	115 VAC and 230 VAC, 50 / 60 Hz
	Current	Up to 6 A (depends on model)
	Capacity	75 , 150 , 300 , 500 , 600 Watt

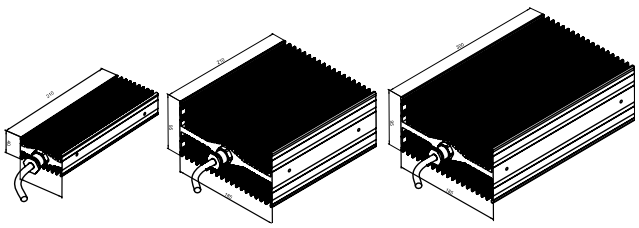
DESCRIPTION

Reliable and long term operation of any process analyser / Gas chromatograph for oil and refinery plants depend upon the efficiency of the sample conditioning system for which sample should be conditioned as per pressure, temperature , flow and dew point.

The Axis offers very reliable Flameproof Heaters to be used in potentially explosive atmospheres (Directive 94 / 9 / EC) to maintain the certain temperature or dew point inside the enclosure or panel by natural convection in the analytical instrumentation and control application for oil and refinery plants.

The Axis flameproof Heaters are constructed according to protection type Ex d, flameproof encapsulation with Cartridge Heaters & Flameproof certified cable glands with assembled heat sink unit. Flameproof Heaters must have powered by separate flameproof Ex d, IIC certified Junction box (scope of others). Temperature controlled devices should be in others scope to control the desired temperature set value.

DIMENSION DETAILS



All Dimension are in MM

Enclosure Fan Heater
EHT1S

Front Side

Rear Side

FEATURES

- Reliable components
- Cost – effective
- Special designed profile for more heat dissipation
- Indoor installation

ADVANTAGES

- Maintenance free
- Huge convection area
- Easy for installation

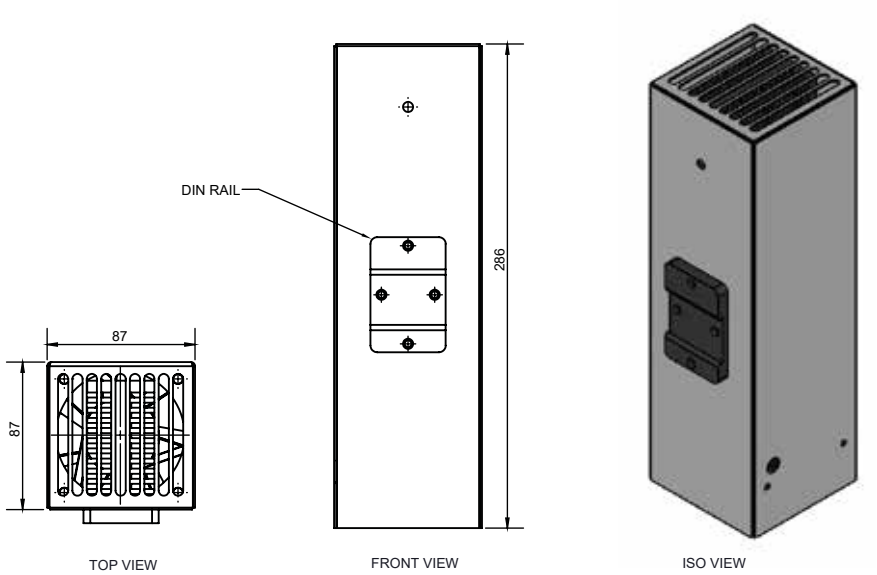
DESCRIPTION

Reliable and long term operation of any process analyzer / Gas chromatograph for oil and refinery plants depend upon the efficiency of the sample conditioning system for which sample should be conditioned as per pressure, temperature, flow and dew point.

The Brix offers very reliable Enclosure Fan Heaters to be used to maintain the certain temperature or dew point inside the enclosure or panel by force convection in the analytical instrumentation and control application for oil and refinery plants.

The Brix Enclosure Fan Heaters are constructed according to Special designed Heat Sink profile with Cartridge Heaters & Metallic cable glands with assembled. Enclosure Heaters must have powered by separate Safety devices like MCBs , Contactors , terminal box (scope of others). Temperature controlled devices should be in others scope to control the desired temperature set value.

DIMENSION DETAILS



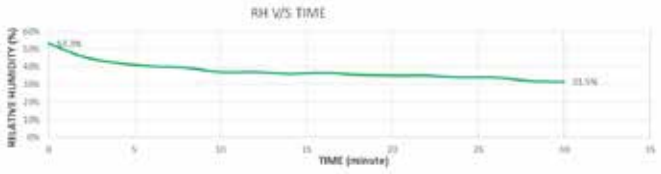
All Dimension are in MM

Note :
35 X 25mm DIN Rail in the Drawing others as per customer request

TECHNICAL SPECIFICATIONS

General	Heating Type	Force convection
	Heating element	High Density cartridge type
	Control Type	Separate controlling device to be required like thermostat , Temperature controller etc.
	Mounting	Horizontal or vertical
	Dimensions	Refer above dimensional details
	Ambient Temperature	0°C to 50°C
Material	Body	MS CRCA,SS-304 & SS-316
	Heater Profile	Aluminium
	Colour	RAL 7035
Electrical	Power Supply	115 VAC and 230 VAC , 50 / 60 Hz
	Current	Up to 6 A (depends on model)
	Capacity	75 , 100 , 150 , 200 , 250 , 300 Watt

PERFORMANCE CURVE



A 250 watt heater and axial fan with 35 CFM rating are run for 1/2 hour in an enclosure of dimension 600 x 450 x 450 mm (W x H x D)

Smart Temperature and Humidity Transmitter - THT

With Display

Without Display

FEATURES

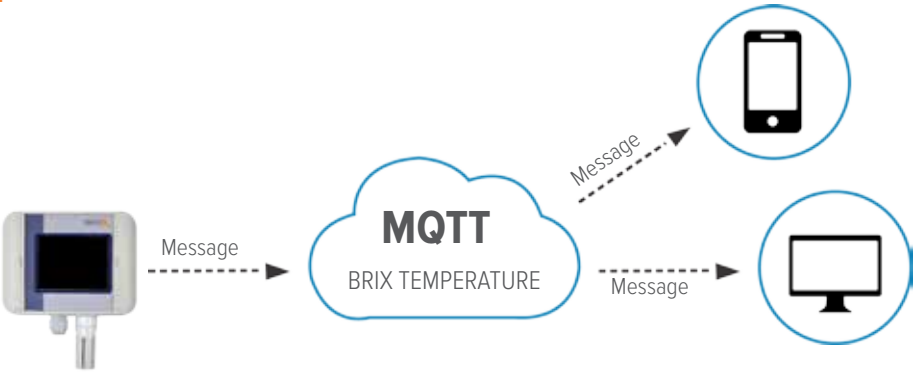
- 4-20mA for temperature
- 4-20mA for humidity
- RS485 Modbus RTU / Wifi / GSM output on request
- Excellent linearity
- The good long-term stability
- High reliability
- Wide sensing range
- Easy installation
- Smart Controller can control any Thermo-regulated process (Heating or Cooling) with any applications locally or remotely
- Can be programmed and adapted to any custom application
- Smart Controller is IoT ready and can be connected via Wi-Fi to cloud services and remote controlled via MQTT standard protocol
- Smart controller HW supports several temperature probe types and provides multiple control outputs and can be easily integrated with any system

DESCRIPTION

THT series humidity and temperature transmitters are designed for environmental monitoring and control applications in industrial, commercial, and general buildings. These transmitters can be used for discharge, or return air control.

THT transmitter converts Temperature and humidity data into standard analog output 4-20mA (RS485 Modbus or Wifi / GSM over MQTT on request)

APPLICATION NOTE



TECHNICAL SPECIFICATIONS

Relative Humidity	
Measurement Range	0 to 100 % RH
Output	4-20 mA / RS485 Modbus RTU / WiFi / GSM
Accuracy	As per below Graph
Long Term Stability	1 % RH Per year
Temperature	
Measurement Range	-10 to 100°C
Output	4-20 mA / RS485 Modbus RTU / WiFi / GSM
Accuracy	As per below graph
Resolution	0.1 °C
Relay	
Rating	5 A, 230 VAC
IoT	
Output	Wifi / GSM over MQTT
Mechanical	
Housing size	120 x 90 x 50 mm (L X W X H)
Housing Material	ASA + PC
Housing Colour	RAL 7035
Mounting	Wall Mounting and Din Rail Mounting
Termination	Through PG9 Gland
Temperature Range	-40°C to 100°C
Fire Protection class	UL94 V-0
Electrical	
Operating Voltage	24 VDC ± 10%

ORDERING INFORMATIONS

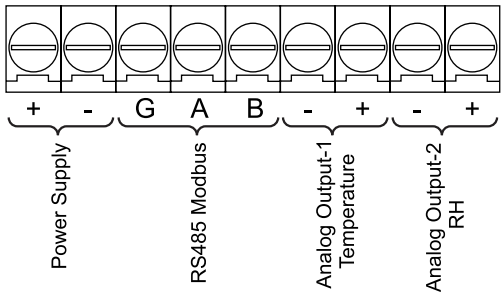
THT										
	Humidity Output									
	0									NA
	1									4-20 mA
		Temperature Output								
		0								NA
		1								4-20 mA
			Temperature Range							
			0							NA
			1							-10 to 100°C
			2							-10 to 50°C
			3							0 to 60°C
				Relay						
				0						NA
				1						1 Nos
				2						2 Nos
					RS485					
					0					NA
					1					RS485 Modbus
						Wireless Communication				
						0				NA
						1				Wifi over MQTT
						2				GSM over MQTT*
							Cloud Service			
							0			NA
							1			Cloud service with dashboard, Reports & Alerts
								Housing		
								0		Din Rail Mounting
								1		Wall Mounting
									Display	
									0	NA
									1	2.8" TFT Graphical

Note : (*) In Future

Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

CONNECTION DETAIL

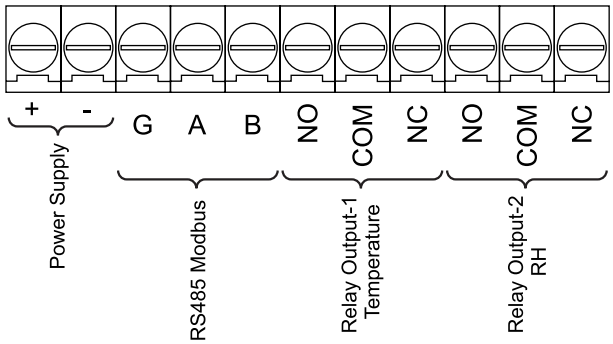
Transducer with analog outputs :



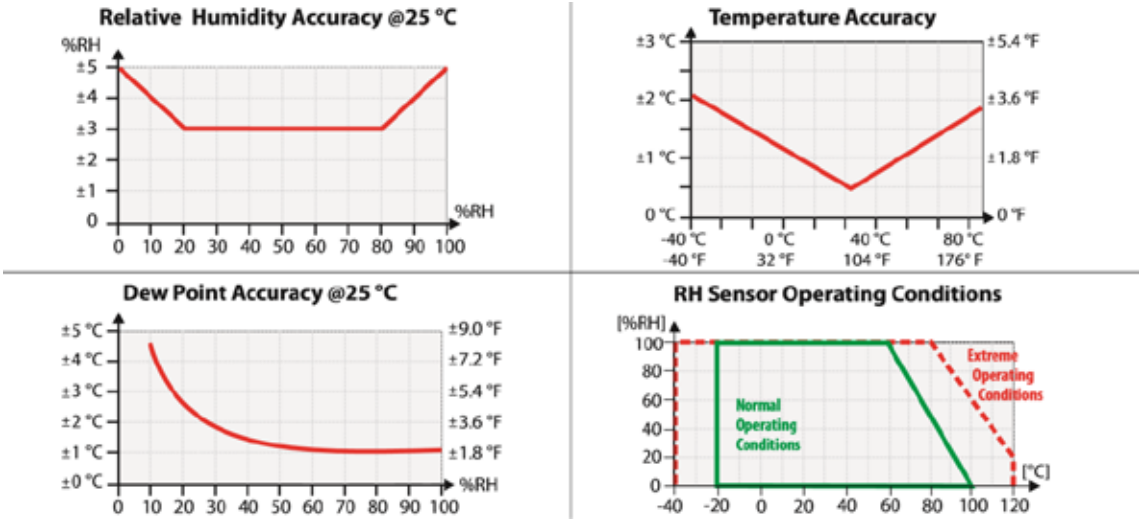
Note :

1. Output is current mode (4-20mA) when load resistance is less than 500Ω. (500Ω is recommended)
2. Power on again after load resistor switch.
3. Field wiring AWG 18 to 24 connects to a terminal block on the PCB.
4. Maximum length 200m (current output recommended).
5. Use shielded cable for supply and output signals in environments with high levels of interference. The shield must be connected to the nearest PE point from the feeder side.

RS485 with Relay outputs :

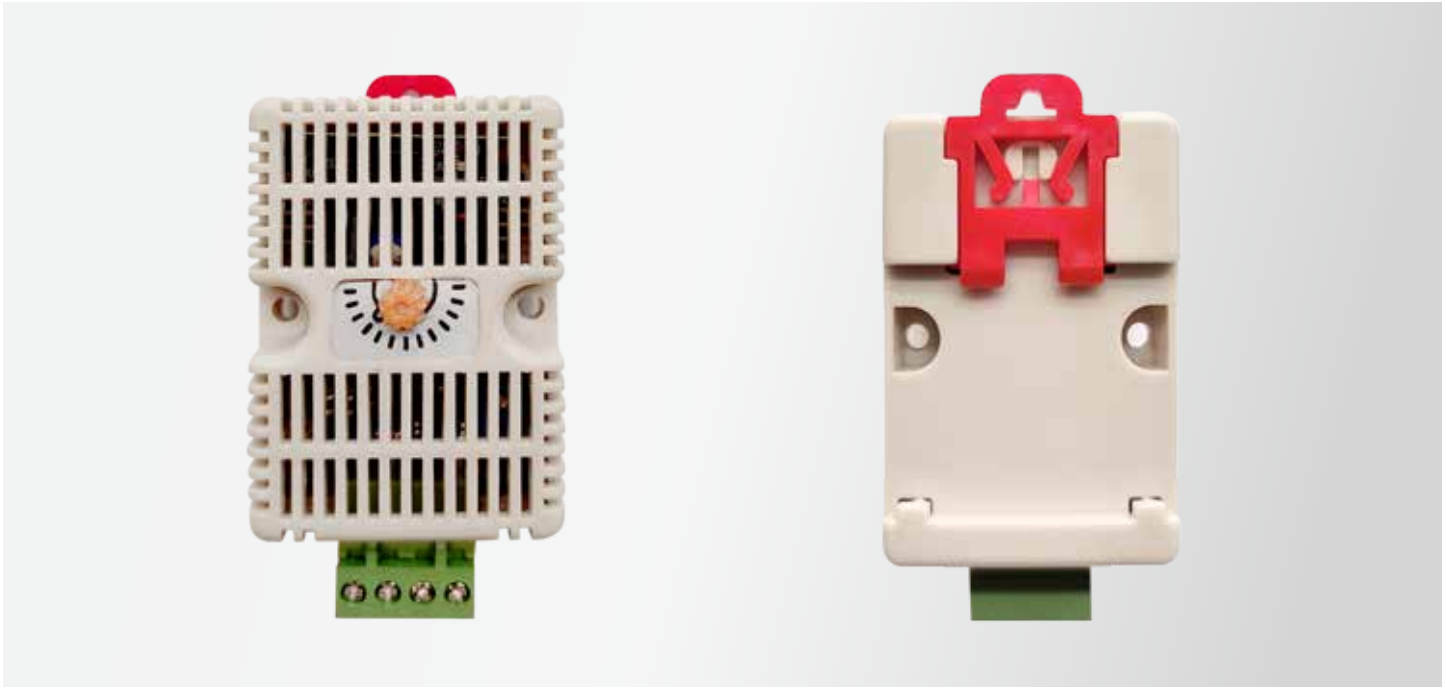


MEASURING ACCURACY AND SENSOR OPERATIONAL LIMITS



Humidity Transmitter/Controller

HTC



DESCRIPTION

HTC series humidity and temperature sensors are designed for environmental monitoring and control applications in industrial, commercial and general building. These sensors can be used for discharge, or return air control.

HTC sensor convert humidity data in to standard analog output 4-20mA / 0 -10Vdc /(RS485 Modbus RTU Optional) Relay Output & WiFi.

FEATURES

- RS485 and Relay output for humidity
- Excellent linearity
- Good long term stability
- High reliability
- Wide sensing range
- Easy installation

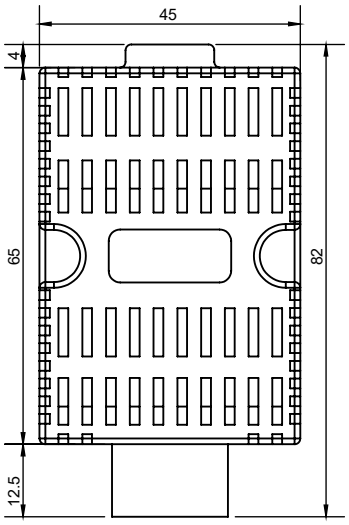
TECHNICAL SPECIFICATIONS

Relative Humidity	
Measurement Range	0 to 100 % RH
Output	4-20 mA / 0 -10Vdc/ Relay /RS485 /WiFi
Accuracy	As per below Graph
Long Term Stability	1 & 2 % RH Per year
General Specification	
Degree of Protection	Under Approval of IP20
Mechanical Specification	
Housing size	As per Dimension details
Housing Material	Plastic according to UL94 V-0, light grey
Mounting	Wall mount / Din drill mount
Termination	PCB Green Connector M/F
Temperature Range	-40°C to 100°C
Electrical Specification	
Operating Voltage	24 VDC ± 10%

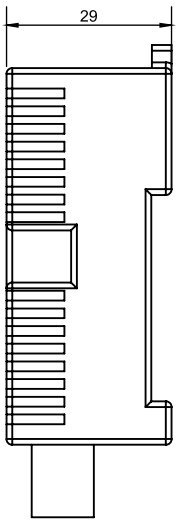
ORDERING INFORMATIONS

HTC			
	Humidity Out put		
	0		Relay (as per set RH%)
	1		4 to 20 mA
	2		0 to 10 V DC
	3		RS485
	4		WiFi
	9		Specific requirement
		Housing	
		0	Din Rail Mounting

DIMENSION DETAILS



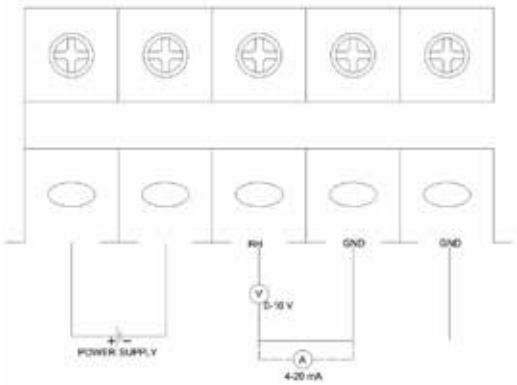
FRONT VIEW



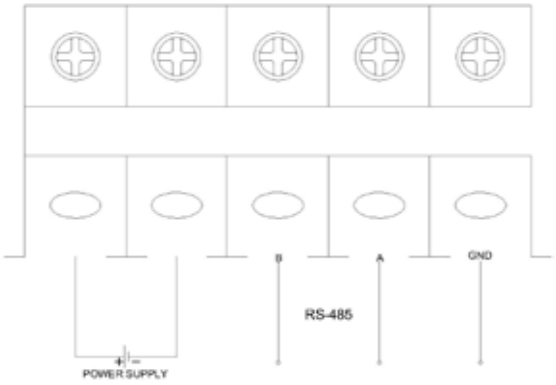
SIDE VIEW

CONNECTION DETAIL

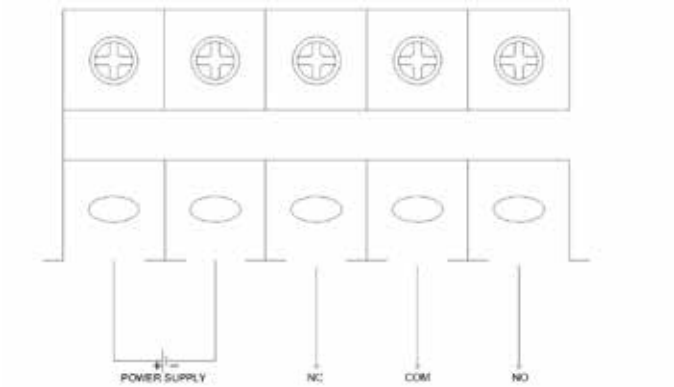
Humidity with analog outputs :



Humidity with RS485 Communication :



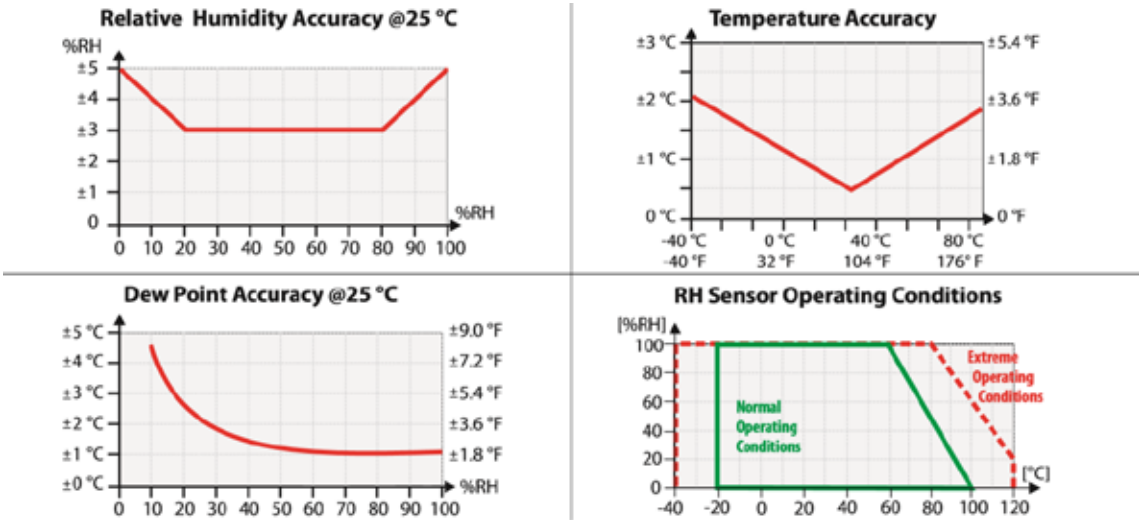
Humidity with Relay Output Communication* :



Note :

1. Output is voltage mode (0-10V) when load resistance is over 10kΩ.
2. Output is current mode (4-20mA) when load resistance is less than 500Ω. (500Ω is recommended)
3. Power on again after load resistor switch.
4. Field wiring AWG 18 to 24 connects to a terminal block on the PCB.
5. Maximum length 200m (current output recommended).
6. Use shielded cable for supply and output signals in environments with high levels of interference. The shield must be connected to the nearest PE point from the feeder side.
7. (*) As per Set

MEASURING ACCURACY AND SENSOR OPERATIONAL LIMITS



Important Note: Due to continuous product improvement; specifications may be subject to change without notice.

RE Vibration Sensor

DESCRIPTION

The vibration velocity transducers RE Vibration Sensor are intended for continuous monitoring of rotating machinery for trending or shutdown

The rugged, shielded, and electrically case isolated allows applications under harsh environmental conditions. The sensors provide a filtered and rectified output signal which is compatible with a 4-20 mA current loop. Hence it can be directly connected to standard equipment such as PLCs, panel meters or current relays, etc. Additional components/ equipment for sensor supply and signal conditioning are not necessary. The sensor can sense frequencies ranging from 10 Hz to 1000 Hz.

A Sensor having stainless steel (304 grade) housing and hermetically sealed ETFE Cable. With protection IP65 It protects against dust and is ingress resistant. It also provides a parallel analog through M12 (BNC) connector for analysis purposes. Its compact size allows for installation in tight places.

FEATURES

- Working Voltage:12V-32V DC Loop Powered Sensor.
- High immunity against Interference.
- Cost-Effective.
- Wide dynamic range 10Hz to 1 Khz.
- Stainless steel Case.
- ETFE cables have higher tensile strength elongation.

TECHNICAL SPECIFICATIONS

Operating Temperature	0° to 70° C
Protection Grade	IP65
Power (Loop Powered)	12 V to 32 V
Sensitivity	100m V/g or better
Frequency Response	10 Hz - 1 Khz
Output(Typically)	4 to 20 mA
Connector Output (Monitoring)	M 12 (BNC)
Case Material	Stainless steel(304 Grade)
Mounting	M6 Tapped hole in base of sensor
Cable Length	10 meter

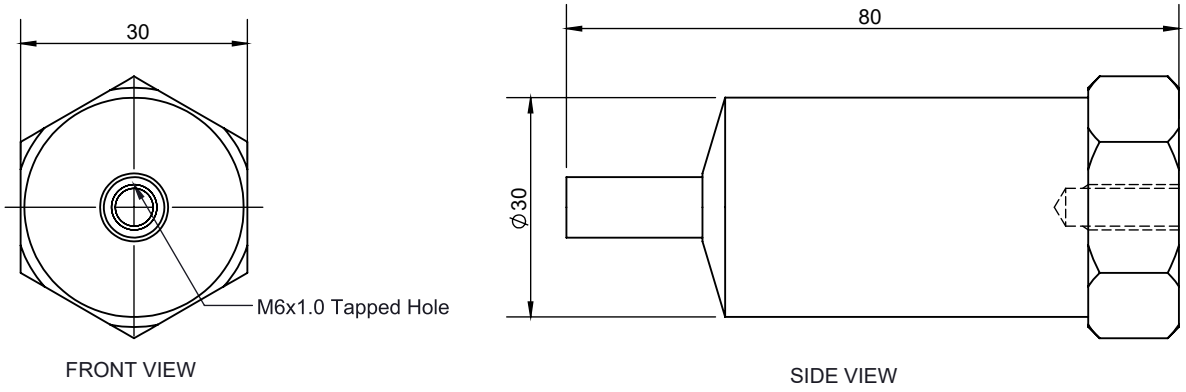
PRODUCT HIGHLIGHT

- Loop Powered Vibration Sensor
- Robust & compact s.s. (304) Body
- Simple to install & operate
- Easy to integrate with standard controllers & existing control panels.
- High sensitivity
- Good frequency response Excellent linearity
- Shielded construction
- Analog output at(BNC) M12 for Monitoring & Analysis
- Output:4 to 20 mA.
- Withstand high shock

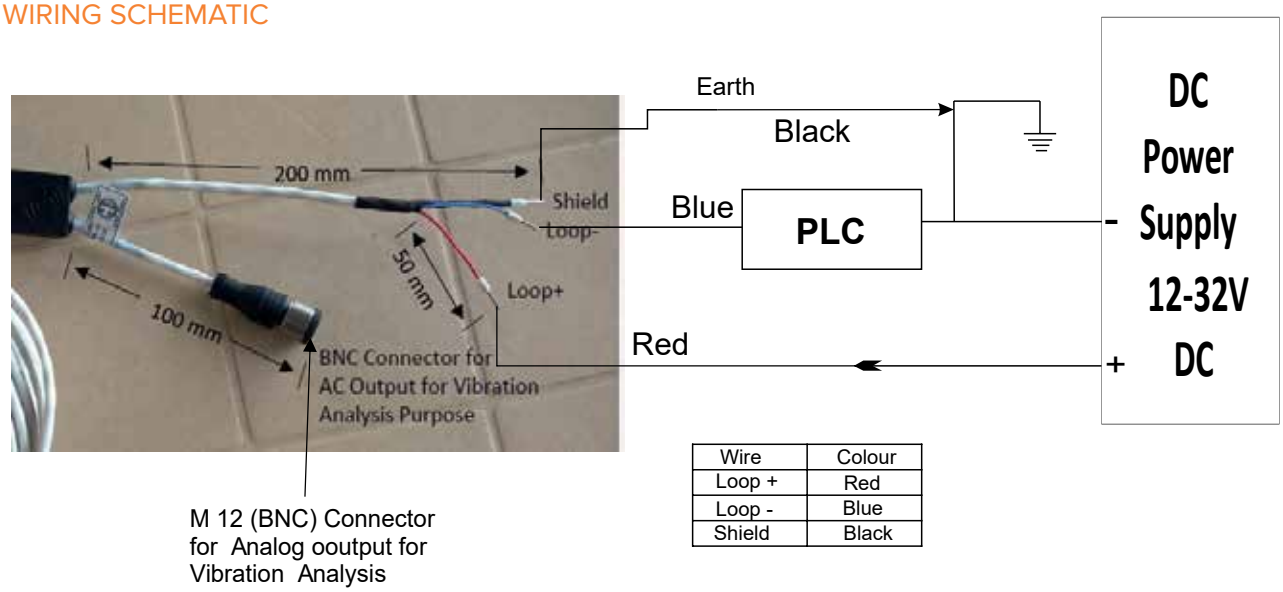
TYPICAL APPLICATIONS

- Vibration measurement in the rugged environments of industrial machinery monitoring. It allows continuous - trending of overall machine vibration.
- Vibrating monitoring of Tables and surfaces.
- Vibration monitoring of Racks and Panels.
- Vehicle vibration monitoring.

DIMENSION AND DRAWING



WIRING SCHEMATIC



Wire	Colour
Loop +	Red
Loop -	Blue
Shield	Black

The machine/ surface on which the sensor is mounted, must be 'earthed' properly. It is recommended to connect the -ve terminal of voltage to earth potential to minimize interference.

We Think Globally
& Act Locally

AXIS

AXIS SOLUTIONS PVT. LTD.

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