



APPLICATIONS IN OIL & GAS AND PETROCHEMICAL INDUSTRY

APPLICATIONS

- 1. CATALYTIC DEWAXING UNIT**
- 2. CRACKER UNIT (POLYPROPYLENE & PE UNIT)**
- 3. PARAXYLENE**
- 4. NHT & ISOMERISATION**
- 5. POLYPROPYLENE**
- 6. REFINERY OFF GAS CRACKER**
- 7. PROPYLENE RECOVERY UNIT**
- 8. MEG**

❖ **MEASURING COMPONENTS**

❖ **ANALYSER TYPES**

❖ **ADAGE EXECUTED SCHEMATIC, GAD & PHOTOS**

1. CATALYTIC DEWAXING UNIT

❖ MEASURING COMPONENTS

➤ VISCOSITY

➤ POUR POINT

1. CATALYTIC DEWAXING UNIT

❖ LIST OF ANALYSERS/ OFFERING BY ADAGE



- **VISCOSITY** : The unit works by measuring the differential pressure across a capillary tube at a constant flow rate.

The results obtained may be directly correlated to standard test methods such as ASTM D445 and D2270

Typical Range: 0 – 200 cP

Make: ICON SCIENTIFIC

- **POUR POINT**: Pour Point analyser provides an indicator of the lowest ambient temperature at which typically a fuel oil may be used. The analyser uses advanced thermoelectric cooling and a low-mass measuring cell to provide exceptional results between -40°C to $+30^{\circ}\text{C}$, in most cases without the need for chilled water.

The obtained results are compatible with those of standard no-flow and pour point test methods such as ASTM D97, D5853, D5949, D5985 and ASTM D7346.

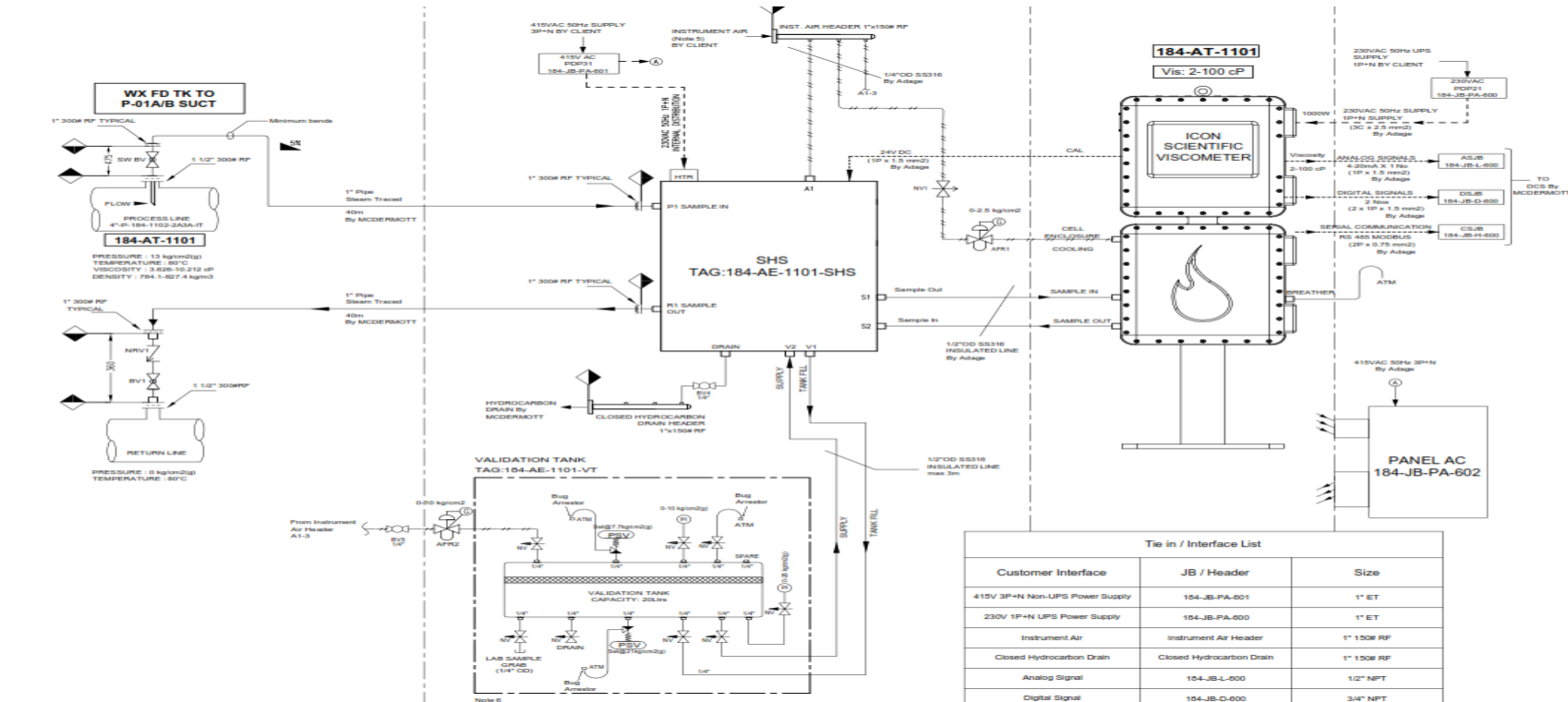
Typical Range: - 40 to 30 deg C.

Make: ICON SCIENTIFIC



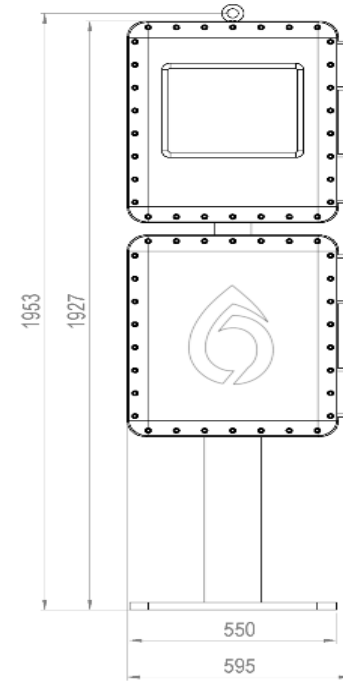
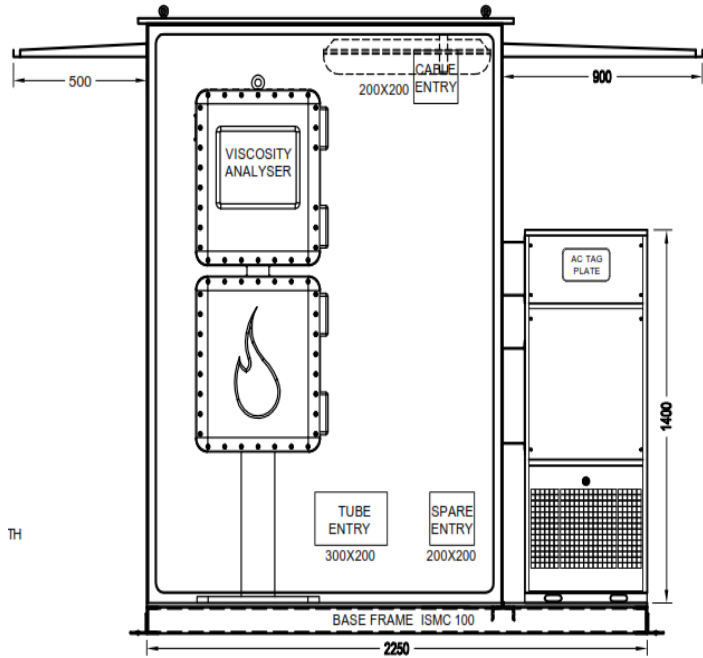
1. CATALYTIC DEWAXING UNIT

❖ ADAGE EXECUTED SCHEMATIC, GAD & PHOTOS



1. CATALYTIC DEWAXING UNIT

❖ ADAGE EXECUTED SCHEMATIC, GAD & PHOTOS



CATALYTIC DE WAXING UNIT - 1



END USER: IOCL HALDIA

LSTK: MCDERMOTT (CB & I)

PMC: WORLEY

SCOPE:

7 X VISCOSITY ANALYSER SYSTEM, 1 X POURPOINT ANALYSER SYSTEM, H₂, TOC & H₂S ANALYSER SYSTEM, CEMS SYSTEM

ALL INTEGRATED IN FREE STANDING CABINETS AND SHELTERS WITH HVAC

CATALYTIC DE WAXING UNIT -2



END USER: IOCL Gujarat

LSTK: ThyssenKrupp India Solutions

PMC: Technip Energies Limited

SCOPE:

7 X VISCOSITY ANALYSER SYSTEM, 1 X POURPOINT ANALYSER SYSTEM, H₂, TOC & H₂S ANALYSER SYSTEM, CEMS SYSTEM

ALL INTEGRATED IN FREE STANDING CABINETS AND SHELTERS WITH HVAC

CATALYTIC DE WAXING UNIT -3



END USER: IOCL Panipat

LSTK: ThyssenKrupp India Solutions

PMC: ThyssenKrupp India Solutions

SCOPE:

7 X VISCOSITY ANALYSER SYSTEM, 1 X POURPOINT ANALYSER SYSTEM, H₂, TOC & H₂S ANALYSER SYSTEM, CEMS SYSTEM

ALL INTEGRATED IN FREE STANDING CABINETS AND SHELTERS WITH HVAC



2. CRACKER UNIT

❖ MEASURING COMPONENTS

- METHANE

- ETHANE, ETHYLENE

- PROPANE, PROPYLENE

- METHANOL, NH3

- CO2, CO

- H2, N2

- O2 & MOISTURE

- SULPHUR MEASUREMENT

Ethylene Production

Typical terms...

- | | |
|--------------------|---------------|
| • Ethylene Cracker | Final product |
| • Naphtha Cracker | Feed material |
| • Gas Cracker – GC | Feed phase |
| • Ethane Cracker | Feed material |
| • Mixed Cracker | Feed options |
| • Cracking Furnace | Reactor Unit |

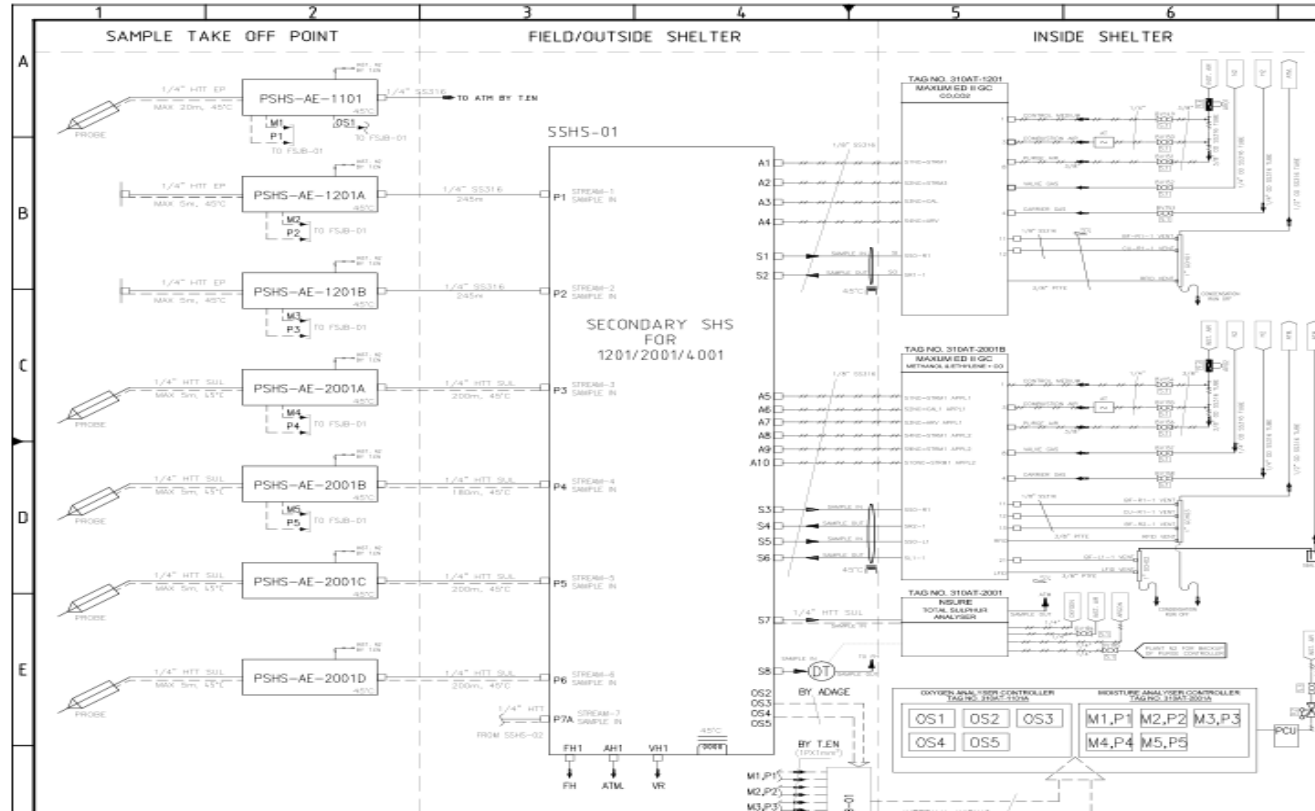
2. CRACKER UNIT

❖ LIST OF ANALYSERS

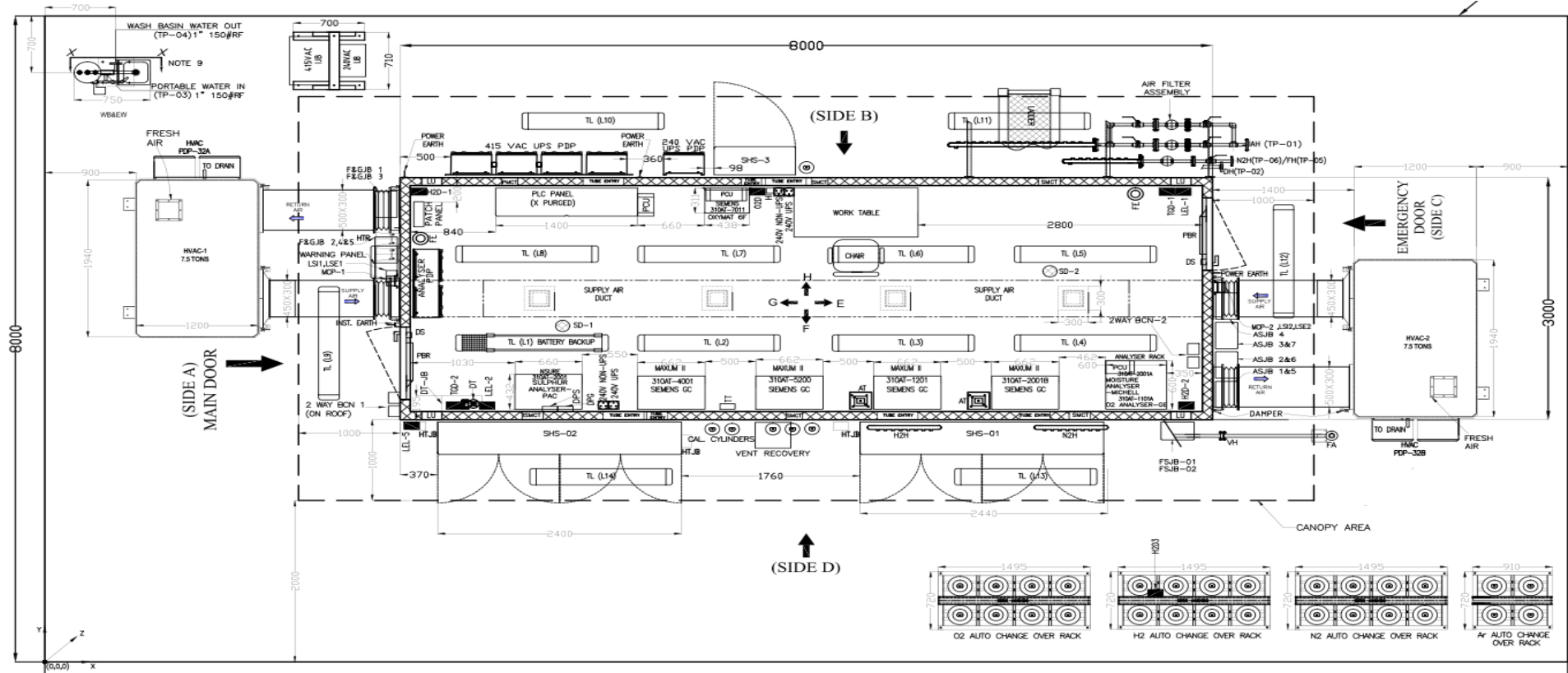
TYPE OF ANALYZER	MODEL NO	MAKE
GAS CHROMATOGRAPH	MAXUM II	VALMET
OXYGEN ANALYZER	OXYMAT	SIEMENS
HYDROGEN ANALYZER	CALOMAT	SIEMENS
TOTAL SULFUR ANALYZER		PAC
MOISTURE ANALYZER		MICHELL/GE/COSA
pH/CONDUCTIVITY ANALYZER		FORBES MARSHALL
ANALYZER HOUSE & HVAC		ADAGE



2. CRACKER UNIT: ADAGE EXECUTED SCHEMATIC, GAD & PHOTOS



2. CRACKER UNIT: ADAGE EXECUTED SCHEMATIC, GAD & PHOTOS



3. PARAXYLENE UNIT

❖ MEASURING COMPONENTS

➤ BENZENE

➤ TOLUENE

➤ XYLENE

➤ AROMATICS AND NON AROMATICS(C6 TO C9, PARAFFINS AND NAPHTHENES)

➤ MOISTURE

➤ OIL IN WATER

3. PARAXYLENE UNIT

❖ LIST OF ANALYSERS

TYPE OF ANALYZERS	MODEL	MAKE
ANALYZER HOUSE & HVAC		ADAGE
GAS CHROMATOGRAPH	MAXUM II	VALMET
HYDROGEN ANALYZER	CALOMAT /Hyoptima 2700	SIEMENS / H2Scan
OXYGEN ANALYZER	OXYMAT	SIEMENS
MOISTURE ANALYZER		MICHELL/GE/COSA
OIL IN WATER		FORBESMARSHALL/ PAC
CEMS	HOT EXTRACTION/DILUTION	SIEMENS/ENVEA

4. NHT ISOMERISATION

❖ MEASURING COMPONENTS

- CO/CO₂
- MOISTURE
- OXYGEN
- ETHYLPENTANE, DIMETHYL BUTANE AND BENZENE
- H₂
- SULPHUR
- HC, pH & Conductivity

4. NHT ISOMERISATION

❖ LIST OF ANALYSERS

TYPE OF ANALYZERS	MODEL	MAKE
ANALYZER HOUSE & HVAC		ADAGE
GAS CHROMATOGRAPH	MAXUM II	VALMET
HYDROGEN ANALYZER	CALOMAT	SIEMENS
OXYGEN ANALYZER	OXYMAT	SIEMENS
MOISTURE ANALYZER		MICHELL/GE/COSA
SULPHUR		PAC
CEMS	HOT EXTRACTION/DILUTION	SIEMENS/ENVEA

NHT + ISOM

END USER: IOCL Baruni

LSTK: Mc Dermott CB&I

PMC: Toyo Engineering India

SCOPE:

2 X GC, 2 X Sulfur SYSTEM, CO+CO₂, TOC & H₂S ANALYSER SYSTEM, CEMS SYSTEM

ALL INTEGRATED IN FREE STANDING CABINETS AND SHELTERS WITH HVAC



5. POLYPROPYLENE UNIT

❖ MEASURING COMPONENTS

➤ POLYPROPYLENE

➤ SULFUR

➤ MOISTURE

➤ OXYGEN

5. POLYPROPYLENE UNIT

❖ LIST OF ANALYSERS

TYPE OF ANALYZERS	MODEL	MAKE
ANALYZER HOUSE & HVAC		ADAGE
GAS CHROMATOGRAPH	MAXUM II	VALMET
OXYGEN ANALYZER ec	ORR	GE
OXYGEN ANALYZER	OXYMAT	SIEMENS
MOISTURE ANALYZER		MICHELL/GE/COSA
SULFUR		PAC
CEMS	HOT EXTRACTION/DILUTION	SIEMENS/ENVEA



- New Polypropylene Unit
- End User: Nayara Energy
- LSTK: Technip Energies India
- PMC: Thyssenkrupp
- Process Licensor : W R Grace & Company

Scope:

4 X Gas Chromatograph, 1 X Sulphur Analyser, 5 X Moisture Analyser, 5 X EC Oxygen & 1 X Paramagnetic Oxygen, All Integrated in a 8-meter Shelter

6. REFINERY OFF GAS CRACKER UNIT

❖ LIST OF ANALYSERS

TYPE OF ANALYZER	MODEL NO	MAKE
GAS CHROMATOGRAPH	MAXUM II	VALMET
OXYGEN ANALYZER	OXYMAT	SIEMENS
HYDROGEN ANALYZER	CALOMAT	SIEMENS
TOTAL SULFUR ANALYZER		PAC
MOISTURE ANALYZER - QCM		AMETEK
pH/CONDUCTIVITY ANALYZER		FORBES MARSHALL
ANALYZER HOUSE & HVAC		ADAGE





- **REFINERY OFF GAS CRACKER**
- **End User: Reliance Industries Limited**
- **LSTK: Jamnagar**
- **PMC: Technip Energies**
- **Process Licensor : UOP**

7. POLYPROPYLENE RECOVERY UNIT



End User: Numaligarh Refinery

LSTK: Thyssenkrupp

PMC: Thyssenkrupp

**Scope:
7 X Gas Chromatograph Systems
completely Integrated in Shelters
with HVAC**



8. MEG EXPANSION

END USER: IOCL PANIPAT

EPMC: THYSSENKRUPP

PROCESS LICENSOR : DOW CHEMICALS

SCOPE:

**COMPLETE GAS CHROMATOGRAPHY SYSTEM
INTEGRATED IN A EXISTING SHELTER WITH HVAC**



Imagine. Ideate. Innovate.

Head Office: Adage Automation Pvt Ltd
L-26B, Phase II, Verna Industrial Area
Verna, Goa – 403722, INDIA
0832-6620500
www.adage-automation.com