



Toase-che Park Sanati Gohar Ofogh Petrochemical Co.

**CONCEPTUAL, BASIC and DETAIL DESIGN  
ENGINEERING OF STYRENE PARK OFFSITE**



Document Title: P&ID for Active Carbon Filter

Document No. : EI027-ENR-VD-PR-PID-003

Rev.: R2

Page 1 of 8

# STYRENE PARK OFFSITE

**Document Title:**

**P&ID for Active Carbon Filter**

PR CM: For every new revision of documents, reply sheet shall be sent  
Noted

|             |                    |                    |                 |                |                 |
|-------------|--------------------|--------------------|-----------------|----------------|-----------------|
| R2          | 13/04/2024         | Issued for Comment | M.Tavakoli      | E.Malek        | H.Keshmiri      |
| R1          | 07/04/2024         | Issued for Comment | M.Tavakoli      | E.Malek        | H.Keshmiri      |
| R0          | 20/02/2024         | Issued for Comment | M.Tavakoli      | E.Malek        | H.Keshmiri      |
| <b>Rev.</b> | <b>Issued Date</b> | <b>DESCRIPTION</b> | <b>PREPARED</b> | <b>CHECKED</b> | <b>APPROVED</b> |



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**CONCEPTUAL, BASIC and DETAIL DESIGN ENGINEERING OF  
STYRENE PARK OFFSITE**



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| Page | Revisions |    |    |    |    |    |    | Page | Revisions |    |    |    |    |    |    |
|------|-----------|----|----|----|----|----|----|------|-----------|----|----|----|----|----|----|
|      | R0        | R1 | R2 | R3 | R4 | R5 | R6 |      | R0        | R1 | R2 | R3 | R4 | R5 | R6 |
| 1    | X         | X  | X  |    |    |    |    | 41   |           |    |    |    |    |    |    |
| 2    | X         | X  | X  |    |    |    |    | 42   |           |    |    |    |    |    |    |
| 3    | X         | X  | X  |    |    |    |    | 43   |           |    |    |    |    |    |    |
| 4    | X         | X  | X  |    |    |    |    | 44   |           |    |    |    |    |    |    |
| 5    | X         | X  | X  |    |    |    |    | 45   |           |    |    |    |    |    |    |
| 6    | X         | X  | X  |    |    |    |    | 46   |           |    |    |    |    |    |    |
| 7    |           |    | X  |    |    |    |    | 47   |           |    |    |    |    |    |    |
| 8    |           |    | X  |    |    |    |    | 48   |           |    |    |    |    |    |    |
| 9    |           |    |    |    |    |    |    | 49   |           |    |    |    |    |    |    |
| 10   |           |    |    |    |    |    |    | 50   |           |    |    |    |    |    |    |
| 11   |           |    |    |    |    |    |    | 51   |           |    |    |    |    |    |    |
| 12   |           |    |    |    |    |    |    | 52   |           |    |    |    |    |    |    |
| 13   |           |    |    |    |    |    |    | 53   |           |    |    |    |    |    |    |
| 14   |           |    |    |    |    |    |    | 54   |           |    |    |    |    |    |    |
| 15   |           |    |    |    |    |    |    | 55   |           |    |    |    |    |    |    |
| 16   |           |    |    |    |    |    |    | 56   |           |    |    |    |    |    |    |
| 17   |           |    |    |    |    |    |    | 57   |           |    |    |    |    |    |    |
| 18   |           |    |    |    |    |    |    | 58   |           |    |    |    |    |    |    |
| 19   |           |    |    |    |    |    |    | 59   |           |    |    |    |    |    |    |
| 20   |           |    |    |    |    |    |    | 60   |           |    |    |    |    |    |    |
| 21   |           |    |    |    |    |    |    | 61   |           |    |    |    |    |    |    |
| 22   |           |    |    |    |    |    |    | 62   |           |    |    |    |    |    |    |
| 23   |           |    |    |    |    |    |    | 63   |           |    |    |    |    |    |    |
| 24   |           |    |    |    |    |    |    | 64   |           |    |    |    |    |    |    |
| 25   |           |    |    |    |    |    |    | 65   |           |    |    |    |    |    |    |
| 26   |           |    |    |    |    |    |    | 66   |           |    |    |    |    |    |    |
| 27   |           |    |    |    |    |    |    | 67   |           |    |    |    |    |    |    |
| 28   |           |    |    |    |    |    |    | 68   |           |    |    |    |    |    |    |
| 29   |           |    |    |    |    |    |    | 69   |           |    |    |    |    |    |    |
| 30   |           |    |    |    |    |    |    | 70   |           |    |    |    |    |    |    |
| 31   |           |    |    |    |    |    |    | 71   |           |    |    |    |    |    |    |
| 32   |           |    |    |    |    |    |    | 72   |           |    |    |    |    |    |    |
| 33   |           |    |    |    |    |    |    | 73   |           |    |    |    |    |    |    |
| 34   |           |    |    |    |    |    |    | 74   |           |    |    |    |    |    |    |
| 35   |           |    |    |    |    |    |    | 75   |           |    |    |    |    |    |    |
| 36   |           |    |    |    |    |    |    | 76   |           |    |    |    |    |    |    |
| 37   |           |    |    |    |    |    |    | 77   |           |    |    |    |    |    |    |
| 38   |           |    |    |    |    |    |    | 78   |           |    |    |    |    |    |    |
| 39   |           |    |    |    |    |    |    | 79   |           |    |    |    |    |    |    |
| 40   |           |    |    |    |    |    |    | 80   |           |    |    |    |    |    |    |

## PIPING SYMBOLS

|  |   |
|--|---|
|  | MAIN PROCESS LINES  |
|  | SECONDARY PROCESS AND UTILITY LINES                                 |
|  | FLOW DIRECTION  |
|  | TRACED PIPELINE   |
|  | FUTURE PIPELINE   |
|  | VENDOR PACKAGE  |
|  | JACKETED OR DOUBLE CONTAINMENT PIPELINE                             |
|  | LINE CROSSING (CONNECTED)   |
|  | LINE CROSSING (UNCONNECTED)   |
|  | TWO PHASE FLOW (REQUIRE VIBRATION OR SUPPORT ANALYSIS)              |
|  | VIBRATION OR PULSATION LINE (REQUIRE VIBRATION OR SUPPORT ANALYSIS) |
|  | BATTERY LIMIT   |
|  | SLOP  |
|  | CONTINUATION OF PIPE LINE BEYOND THE PIPE OR EQUIPMENT              |
|  | BOUNDARY OF SCOPE   |
|  | QUICK COUPLING (HOSE CONNECTION)                                    |
|  | HOLED PIPE SPRAY HEADER REDUCER                                     |
|  | HOSE  |
|  | REMOVABLE SPOOLPIECE  |
|  | FLANGE  |
|  | CHEMICAL SEWER TO DRAIN RECOVERY                                    |
|  | OILY SEWER  |
|  | STORM WATER SEWER   |
|  | GROUND OR PAVING SURFACE  |
|  | VENDOR OTHERS LIMITS OF SUPPLY                                      |

|  |  |
|--|--|
|  | GROUNDING FOR STATIC ELECTRICITY PROTECTION      |
|  | CHANGE OF PIPING CLASS DESIGNATION (CLASS BREAK) |
|  | CHANGE OF INSULATION & PAINTING (DESIGN BREAK)   |
|  | CHANGE OF LINE NUMBER                            |
|  | TEMPORARY STRAINER                               |
|  | SP: SPECIAL PIECE                                |
|  | SCH: CORROSION METER ELEMENT                     |
|  | T TYPE STRAINER                                  |
|  | Y TYPE STRAINER                                  |
|  | BARRED TEE                                       |

## PIPING CONNECTORS

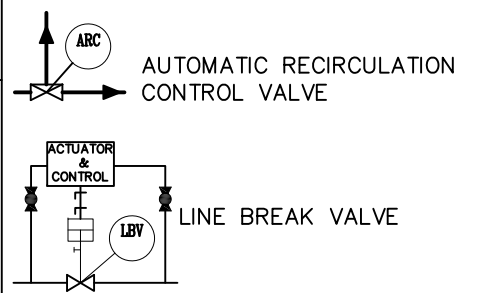
|  |   |
|--|---|
|  | REFERENCE ARROWS FOR TWO DIRECTION LINE   |
|  | REFERENCE ARROWS AT THE SIDE OF THE DRAWING. (ONLY TO USED FOR PROCESS AND INSTRUMENT LINES.) |
|  | REFERENCE ARROW FOR UTILITIES   |
|  | UTILITY TO CONTINUATION   |
|  | UTILITY FROM CONTINUATION   |
|  | PSV/TSV SIZE INLET<br>PSV/TSV ORIFICE<br>PSV/TSV SIZE OUTLET<br>PSV/TSV SET PRESSURE (Barg)   |

## VALVES SYMBOLS

|  |  |
|--|--|
|  | GATE VALVE   |
|  | GLOBE VALVE  |
|  | CHECK VALVE  |
|  | GATE VALVE BEHIND OFF                                  |
|  | ANGLE VALVE  |
|  | BALL VALVE (F.B.)                                      |
|  | BALL VALVE (R.B.)                                      |
|  | GATE VALVE WITH BODY BLEED                             |
|  | BUTTERFLY VALVE  |
|  | HYDRAULIC CONTROL VALVE                                |
|  | PLUG VALVE   |
|  | PILOT OPERATED RELIEF VALVE                            |
|  | SELF ACTUATED REGULATOR VALVE                          |
|  | SPRING LOADING VALVE                                   |
|  | THREWAY VALVE  |
|  | PRESSURE SAFETY VALVE/<br>PRESSURE VACUUM SAFETY VALVE |
|  | PILOT OPERATED SAFETY VALVE/<br>VACUUM RELIEF VALVE    |
|  | TEMPERATURE SAFETY VALVE                               |
|  | PRESSURE/ VACUUM RELIEF VALVE                          |
|  | MOTOR OPERATED VALVE                                   |
|  | DIAPHRAGM VALVE  |
|  | JACKETED GATE VALVE                                    |
|  | JACKETED GLOBE VALVE                                   |
|  | JACKETED CHECK VALVE                                   |
|  | JACKETED BALL VALVE                                    |
|  | JACKETED ANGLE VALVE                                   |

## FITTINGS

|  |   |
|--|---|
|  | REDUCER   |
|  | FLANGE CONNECTION   |
|  | SPADE (BLIND)   |
|  | RING SPACER   |
|  | CAP   |
|  | FLANGED END   |
|  | QUICK COUPLING  |
|  | SPECTACLE BLIND (NORMALLY CLOSE)                                    |
|  | SPECTACLE BLIND (NORMALLY OPEN)                                     |
|  | STEAM TRAP WITH BUILT-IN STRAINER (THERMOSTATIC/THERMODYNAMIC TYPE) |



| REFERENCE DRAWING | DWG NO. | REV. |
|-------------------|---------|------|
|                   |         |      |

### LEGENDS :

### NOTES :

### KEY PLAN :

| REV. | ISSUE DATE | DESCRIPTION        | PREPARED | CHECKED | APPROVED | COMPANY |
|------|------------|--------------------|----------|---------|----------|---------|
| R2   | 13-Apr-24  | Issued for Comment | M.T.     | E.M.    | H.K.     | HRCO    |
| R1   | 07-Apr-24  | Issued for Comment | M.T.     | E.M.    | H.K.     | HRCO    |
| R0   | 20-Feb-24  | Issued for Comment | M.T.     | E.M.    | H.K.     | HRCO    |

CLIENT:

CONSULTING ENGINEER:

VENDOR:

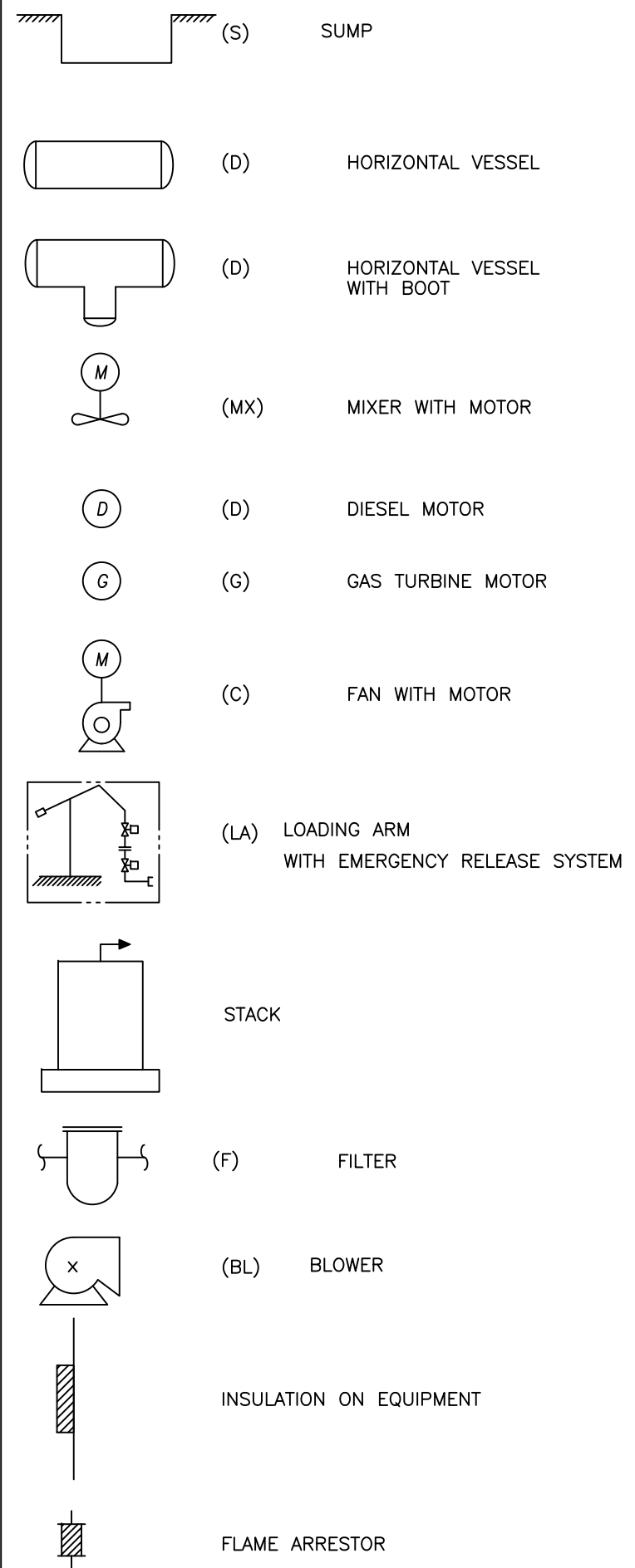
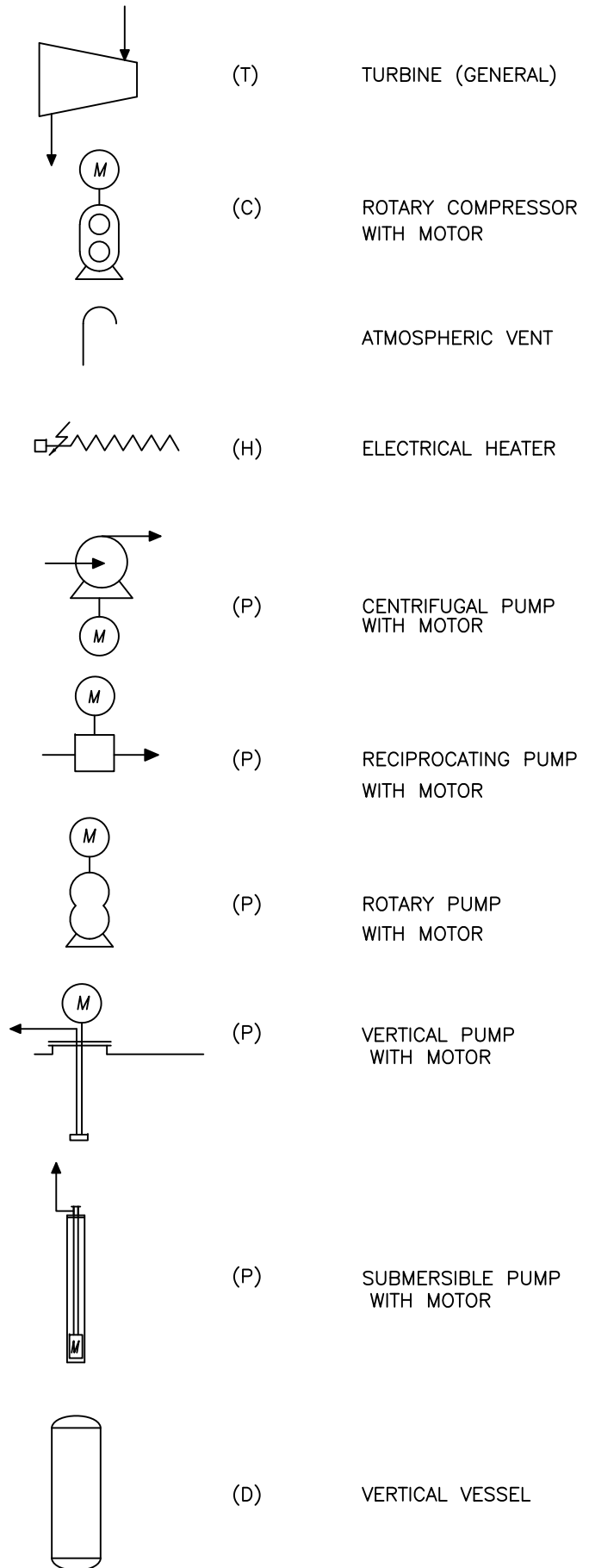
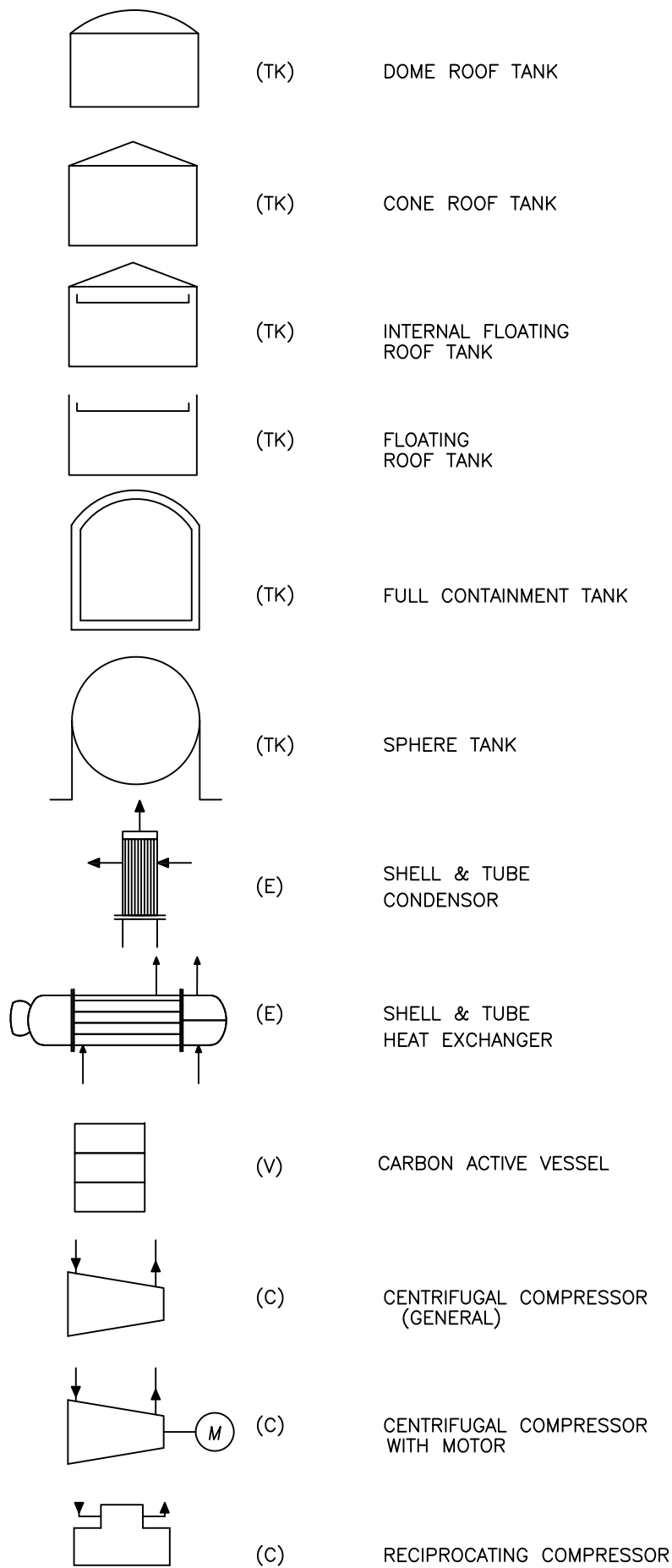
PROJECT: **STYRENE PARK OFFSITE**

DRAWING TITLE: **P&ID for Active Carbon Filter**

| DRAWING NO.             | REV. | SIZE | SCALE | SHEET  |
|-------------------------|------|------|-------|--------|
| EI027-ENR-VD-PR-PID-003 | R2   | A3   | NTS   | 3 of 8 |



# EQUIPMENT SYMBOLS



| REFERENCE DRAWING | DWG NO. | REV. |
|-------------------|---------|------|
|                   |         |      |

LEGENDS :

NOTES :

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| R0   | 20-Feb-24  | Issued for Comment | M.T.     | E.M.    | H.K.     | HRCO    |

CLIENT:  **پتروشیمی توسعه پارک**

CONSULTING ENGINEER:  **مهندسی گستر افق**

VENDOR:  **ENBR TEKNOLOJI**  **HAMOON RAH**

PROJECT: **STYRENE PARK OFFSITE**

DRAWING TITLE: **P&ID for Active Carbon Filter**

| DRAWING NO.             | REV. | SIZE | SCALE | SHEET  |
|-------------------------|------|------|-------|--------|
| EI027-ENR-VD-PR-PID-003 | R2   | A3   | NTS   | 5 of 8 |

CONTROL VALVES OR REGULATORS

- CONTROL VALVE (GENERAL)
- CONTROL GLOBE VALVE
- CONTROL BALL VALVE
- CONTROL BUTTERFLY VALVE
- S = SOLENOID VALVE  
R = MANUAL RESET WHEN INDICATED
- SELF CONTAINED REGULATOR
- THREEWAY CONTROL VALVE
- CONTROL VALVE WITH HANDWHEEL
- THREEWAY CONTROL VALVE (WITH HANDWHEEL)
- DIRECT ACTING CONTROL VALVE
- JACKETED GLOBE CONTROL VALVE
- JACKETED BUTTERFLY CONTROL VALVE
- DIAPHRAGM CONTROL VALVE
- DAMPER CONTROL VALVE
- SELF ACTUATED REGULAR VALVE
- (CONTROL VALVE) WITH LIMIT SWITCH  
"ZSC" FOR CLOSE, "ZSO" FOR OPEN.
- (CONTROL VALVE) WITH SOLENOID VALVE
- CLOSE ON AIR FAILURE
- OPEN ON AIR FAILURE
- LOCK ON AIR FAILURE (AIR-TO-CLOSE POSITION)
- LOCK ON AIR FAILURE (AIR-TO-OPEN POSITION)
- CONTROL VALVE IDENTIFICATION

PRIMARY ELEMENT SYMBOLS

- CORIOLIS FLOW METER
- TURBIN FLOW ELEMENT
- AUTOMATIC REGULATOR WITH INTEGRAL FLOW INDICATION
- POSITIVE DISPLACER
- ROTAMETER
- ORIFICE PRIMARY ELEMENT
- MAGNETIC FLOW METER
- VORTEX FLOW METER
- ULTRASONIC FLOW METER
- RESTRICTION ORIFICE
- FLOW STRAIGHTENER
- FLOW NOZZLE
- LEVEL GAUGE
- LEVEL TRANSMITTER  
EXTERNAL LEVEL INSTRUMENT  
IE. DISPLACER OR DIFFERENTIAL  
PRESSURE TYPE.  
XX DP: DIFFERENTIAL
- XX LD: DISPLACER TYPE  
INTERNAL FLOAT TYPE
- DENSITY ELEMENT
- PRESSURE TAP DIAPHRAGM TYPE

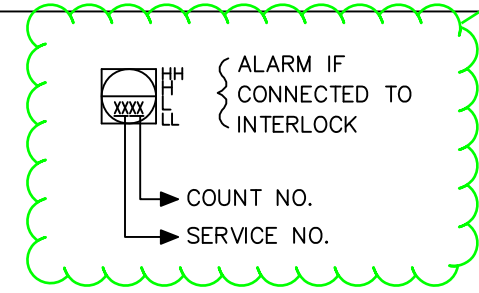
ACTUATORS

- DIAPHRAGM ACTUATOR
- ACTUATOR WITH HANDWHEEL
- PRESSURE BALANCED DIAPHRAGM ACTUATOR
- SINGLE/DOUBLE ACTING CYLINDER ACTUATOR
- MOTOR OPERATED ACTUATOR
- ELECTROHYDRAULIC ACTUATOR
- ELECTRIC PNEUMATIC TRANSDUCER
- SINGLE SOLENOID ACTUATOR
- SINGLE SOLENOID ACTUATOR WITH MANUAL RESET
- HAND ACTUATOR OR HANDWHEEL
- OFF-LINE SINGLE SOLENOID WITH SINGLE ACTUATOR
- OFF-LINE ANGLE SOLENOID WITH SINGLE ACTUATOR
- OFF-LINE 3-WAY SOLENOID WITH SINGLE ACTUATOR

INSTRUMENT SIGNAL LINE

- PROCESS CONNECTION OR MECHANICAL LINK/ INSTRUMENT SUPPLY
- PNEUMATIC SIGNAL
- ELECTRICAL SIGNAL
- CAPILLARY TUBING (FILLED SYSTEM)
- SOFTWARE LINK/DATA
- HYDRAULIC SIGNAL
- ELECTROMAGNETIC OR SONIC SIGNAL

INSTRUMENT CODES



This coding has discrepancy with the instrument tags in P&ID section  
According to symbol and Legend of project.

INSTRUMENT OR FUNCTION SYMBOLS

- ESD LOGIC CONTROL (LOCATED IN FIELD)
- ESD LOGIC CONTROL (MOUNTED ON CONSOLE OR PANEL)
- ESD LOGIC CONTROL (MOUNTED ON LOCAL PANEL)
- INSTRUMENT MOUNTED ON PIPING / EQUIPMENT (LOCATED IN FIELD)
- INSTRUMENT MOUNTED ON CONSOLE
- INSTRUMENT MOUNTED ON LOCAL PANEL OR LOCAL GAUGE BOARD
- DCS FUNCTION NOT NORMALLY ACCESSIBLE TO OPERATOR
- DCS SHARED DISPLAY INDICATOR/CONTROLLER/ALARM
- PLC INSTRUMENT MOUNTED ON VENDOR PANEL
- DCS AUXILIARY OPERATORS INTERFACE DEVICE
- COMPUTER FUNCTION (LOCATED IN FIELD)
- COMPUTER FUNCTION (MOUNTED ON CONSOLE OR PANEL)
- DIAPHRAGM SEAL

KEY PLAN :

| REV. | ISSUE DATE | DESCRIPTION        | PREPARED | CHECKED | APPROVED | COMPANY |
|------|------------|--------------------|----------|---------|----------|---------|
| R2   | 13-Apr-24  | Issued for Comment | M.T.     | E.M.    | H.K.     | HRCO    |
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CLIENT:

CONSULTING ENGINEER:

VENDOR:

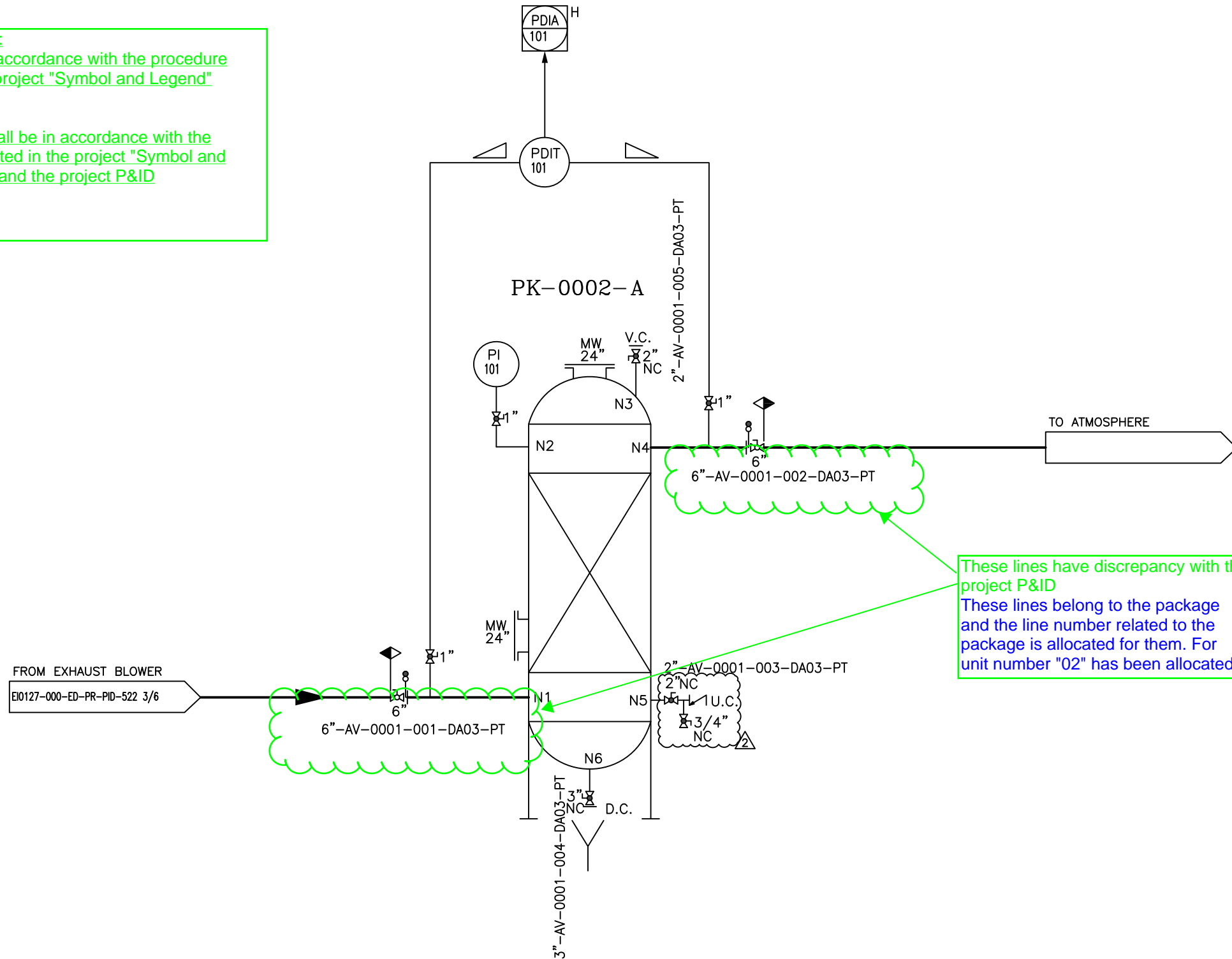
PROJECT: **STYRENE PARK OFFSITE**

DRAWING TITLE: **P&ID for Active Carbon Filter**

| DRAWING NO.             | REV. | SIZE | SCALE | SHEET  |
|-------------------------|------|------|-------|--------|
| E1027-ENR-VD-PR-PID-003 | R2   | A3   | NTS   | 6 of 8 |

| PK-0002-A         |                            |
|-------------------|----------------------------|
| AIR CARBON FILTER |                            |
| TYPE              | : ACTIVATED CARBON         |
| RATED CAPACITY    | : 1188 Nm <sup>3</sup> /hr |
| VOLUME            | : 20.8 m <sup>3</sup>      |
| ID x TT           | : 2100 x 5300 mm           |
| DP INT/EXT        | : 0.2 barg / -0.1 barg     |
| DT                | : 85.0 °C                  |
| INSULATION        | : No                       |
| MATERIAL          | : CS                       |

**General Comments:**  
 1- Tags shall be in accordance with the procedure represented in the project "Symbol and Legend" document  
 Noted  
 2- Line numbers shall be in accordance with the procedure represented in the project "Symbol and Legend" document and the project P&ID  
 Noted



| REFERENCE DRAWING             | DWG NO.                  | REV. |
|-------------------------------|--------------------------|------|
| PFD                           | E10127-ENR-VD-PR-PFD-002 | R1   |
| P&ID FOR STYRENE STORAGE TANK | E10127-000-ED-PR-PID-522 | R4   |

LEGENDS :

NOTES :

KEY PLAN :

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CLIENT:  **پتروشیمی توسعه پارک**

CONSULTING ENGINEER:  **مهندسی گویهر افق**

VENDOR:  

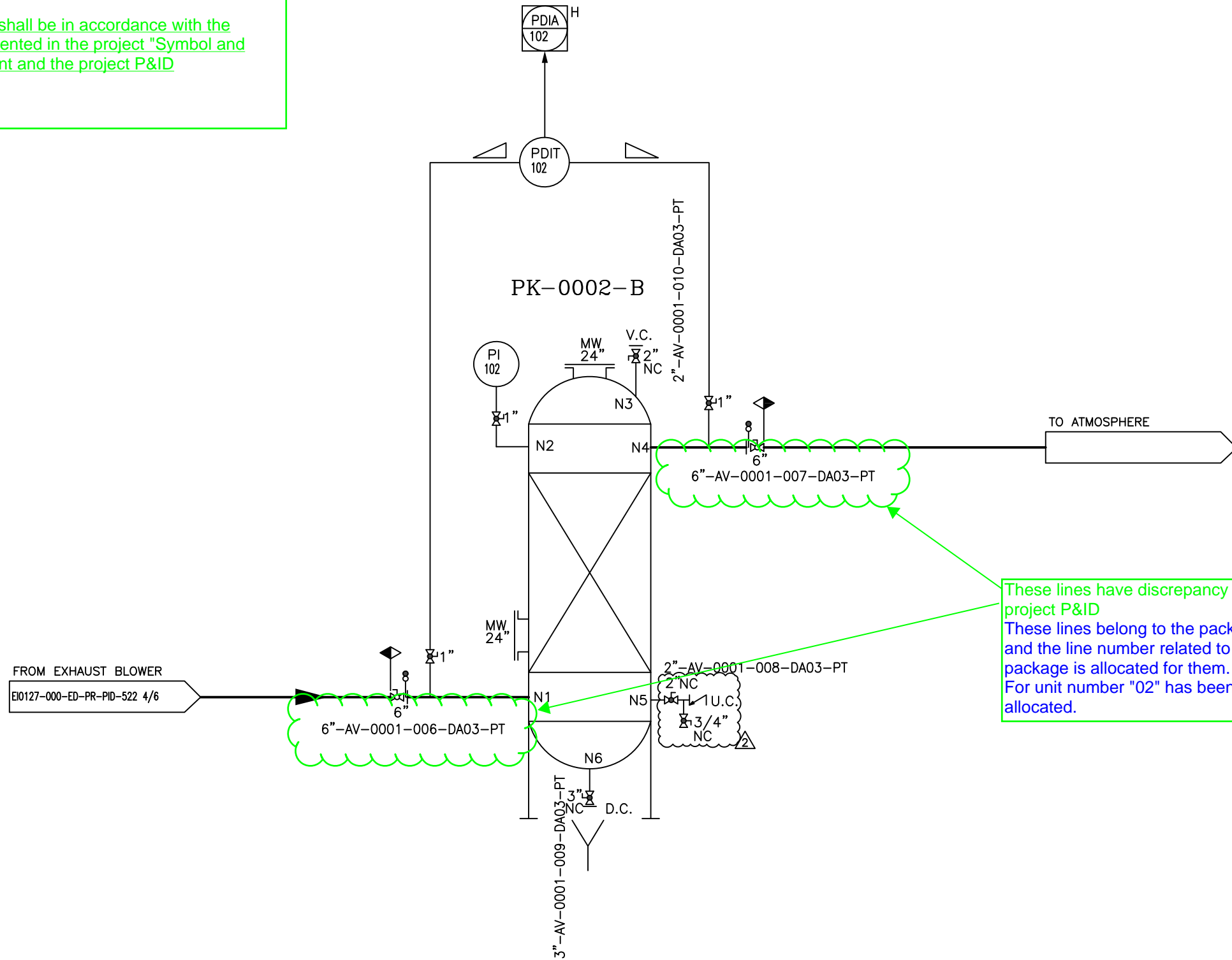
PROJECT: **STYRENE PARK OFFSITE**

DRAWING TITLE: **P&ID for Active Carbon Filter**

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|-------------------------|------|------|-------|--------|
| E1027-ENR-VD-PR-PID-003 | R2   | A3   | NTS   | 7 of 8 |

| PK-0002-B         |                            |
|-------------------|----------------------------|
| AIR CARBON FILTER |                            |
| TYPE              | : ACTIVATED CARBON         |
| RATED CAPACITY    | : 1188 Nm <sup>3</sup> /hr |
| VOLUME            | : 20.8 m <sup>3</sup>      |
| ID x TT           | : 2100 x 5300 mm           |
| DP INT/EXT        | : 0.2 barg / -0.1 barg     |
| DT                | : 85.0 °C                  |
| INSULATION        | : No                       |
| MATERIAL          | : CS                       |

**General Comments:**  
 1- Tags shall be in accordance with the procedure represented in the project "Symbol and Legend" document  
 Noted  
 2- Line numbers shall be in accordance with the procedure represented in the project "Symbol and Legend" document and the project P&ID  
 Noted



These lines have discrepancy with the project P&ID  
 These lines belong to the package and the line number related to the package is allocated for them.  
 For unit number "02" has been allocated.


| REFERENCE DRAWING             | DWG NO.                  | REV. |
|-------------------------------|--------------------------|------|
| PFD                           | E10127-ENR-VD-PR-PFD-002 | R1   |
| P&ID FOR STYRENE STORAGE TANK | E10127-000-ED-PR-PID-522 | R4   |


LEGENDS :

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CLIENT:  **پتروشیمی توسعه پارک**

CONSULTING ENGINEER:  **مهندسی گستر افق**

VENDOR:  **ENBR TEKNOLOJI**  **HAMOON RAH**

PROJECT: **STYRENE PARK OFFSITE**

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| E1027-ENR-VD-PR-PID-003 | R2   | A3   | NTS   | 8 of 8 |